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

February 6, 2020

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

RE: Notice of Exempt Modification // Site: Tolland CT (ATC: 302495)
56 Ruops (fka 5 Barbara; aka 1 Eagle Hill) Road, Tolland, CT
N 41.8733 // W -72.3383

Dear Ms. Bachman:

Cellco Partnership d/b/a Verizon Wireless currently maintains 12 antennas at the 140-foot level on the existing 165-foot monopole tower, located at 56 Ruops (fka 5 Barbara) Road, Tolland, CT. The Council approved Verizon Wireless use of the tower in 1996. The tower is owned by American Tower. The property is owned by the Town of Tolland. Verizon Wireless now intends to install 3 new clip-on antennas for its LTE (3500 MHz) CBRS upgrade. Additionally, Verizon Wireless will replace all 12 of its remote radio heads (RRHs) and install 9 new RRHs and 6 new combiners on the tower with its new antennas; while updating certain 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 Tammy Nuccio, Chair of the Town Council for the Town of Tolland, which is also the underlying property owner, Town's Director of Planning & Development Heidi Samokar, AICP, including for the Planning & Zoning Commission and American Tower, 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 February 4, 2020, structural analysis dated November 15, 2019 and antenna mount analysis dated December 20, 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 analysis by A.T. Engineering Service, PLLC, dated November 15, 2019 and mount analysis dated December 20, 2019.

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
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

Attachments

cc: Tammy Nuccio, Chair, Tolland Town Council - as elected official & property owner
Heidi Samokar, Director of Planning & Development, Town of Tolland - as P&Z official
American Tower Corporation - as tower owner

UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

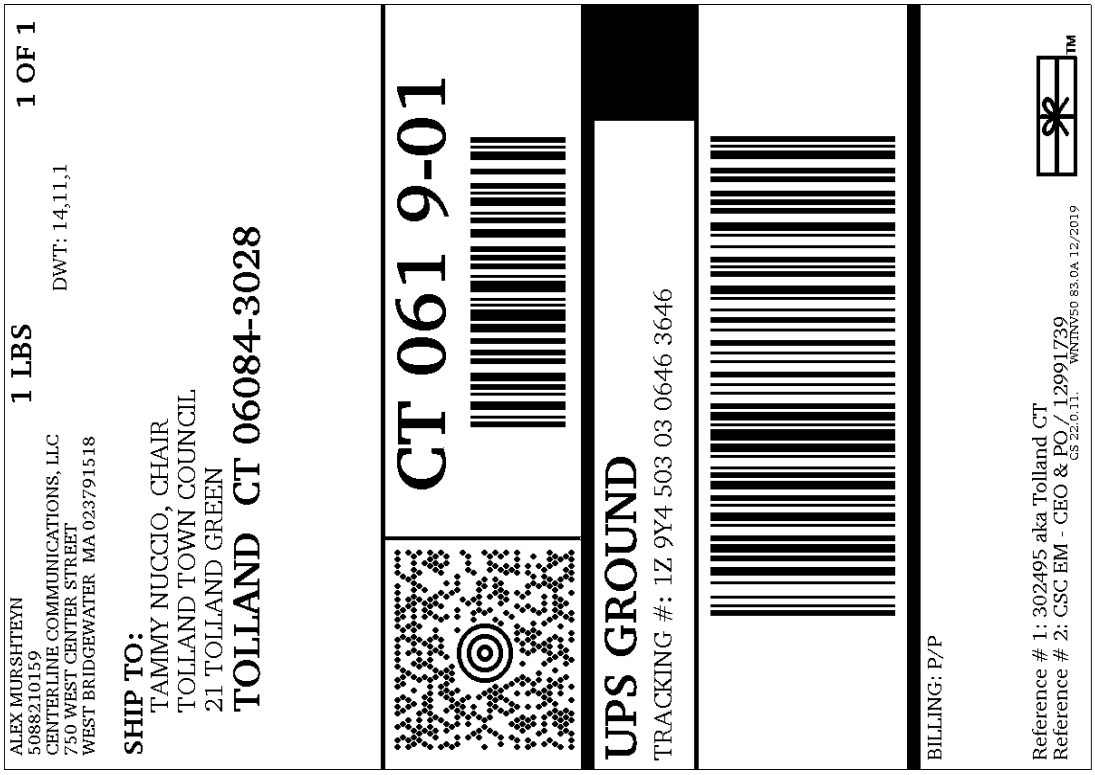
   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

UPS Access Point™
TOWN LINE GENERAL STORE
450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

FOLD HERE



UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

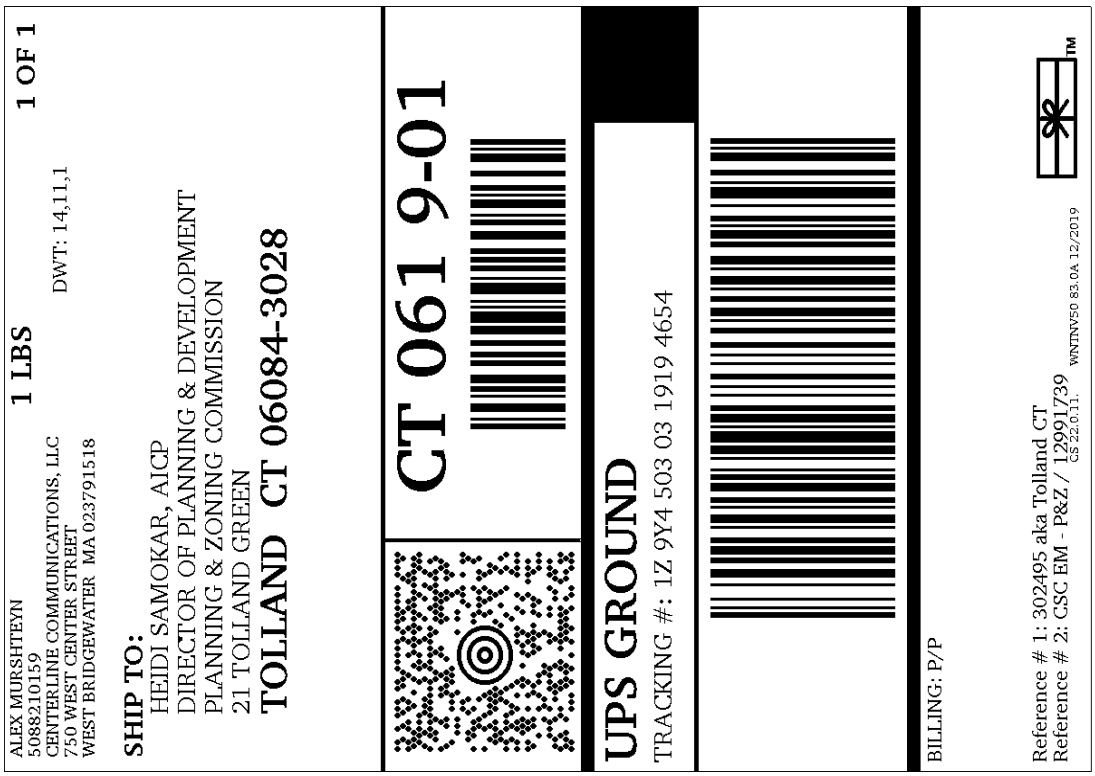
   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

UPS Access Point™
TOWN LINE GENERAL STORE
450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

FOLD HERE



UPS CampusShip: View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialog box that appears. Note: If your browser does not support this function select Print from the File menu to print the label.

2. **Fold the printed label at the solid line below.** Place the label in a UPS Shipping Pouch. If you do not have a pouch, affix the folded label using clear plastic shipping tape over the entire label.

3. **GETTING YOUR SHIPMENT TO UPS**
   Customers with a Daily Pickup
   Your driver will pickup your shipment(s) as usual.

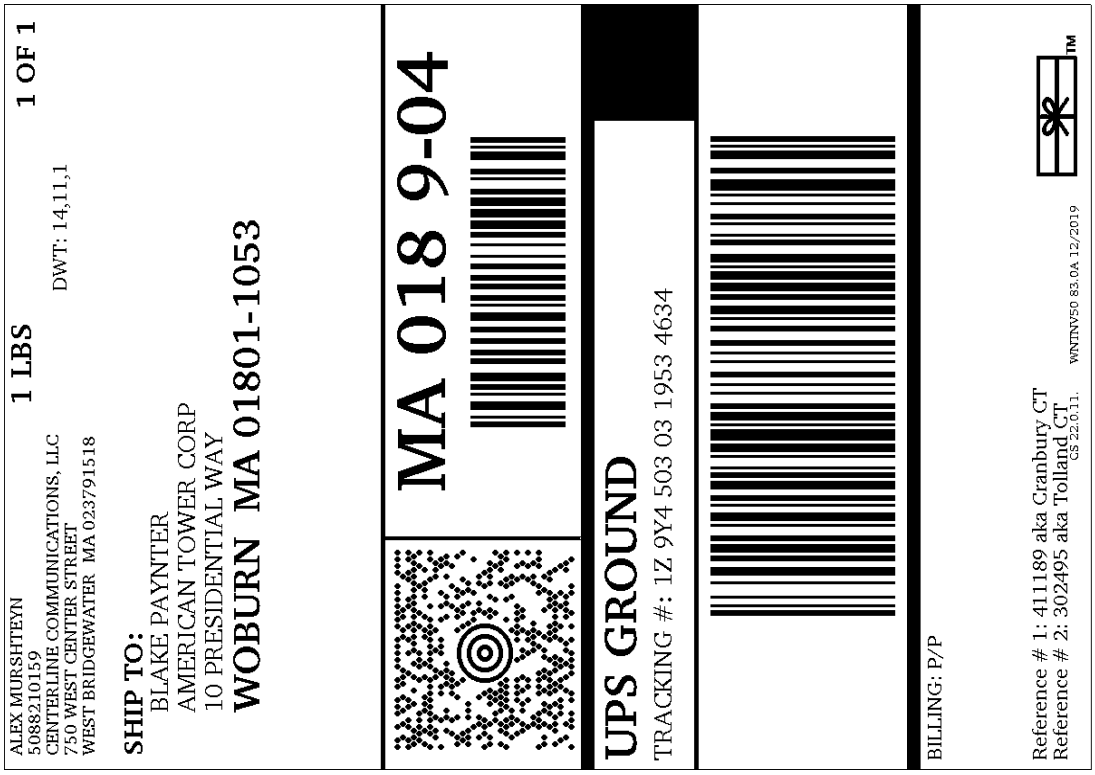
   Customers without a Daily Pickup
   Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. Items sent via UPS Return Services(SM) (including via Ground) are also accepted at Drop Boxes. To find the location nearest you, please visit the Resources area of CampusShip and select UPS Locations.
   Schedule a same day or future day Pickup to have a UPS driver pickup all your CampusShip packages.
   Hand the package to any UPS driver in your area.

UPS Access Point™
CVS STORE # 972
555 WASHINGTON ST
SOUTH EASTON ,MA 02375

UPS Access Point™
CVS STORE # 7232
689 DEPOT ST
NORTH EASTON ,MA 02356

UPS Access Point™
TOWN LINE GENERAL STORE
450 E CENTER ST
WEST BRIDGEWATER ,MA 02379

FOLD HERE



DOCKET NO. 100 - An application of SNET Cellular, Inc., for a Certificate of Environmental Compatibility and Public Need for cellular telephone antennas and associated equipment in the Town of Tolland, Connecticut.	:	CONNECTICUT SITING COUNCIL
	:	January 5, 1989

DECISION AND ORDER

Pursuant to the foregoing Opinion, the Connecticut Siting Council finds that the effects associated with the construction and operation of a cellular telephone monopole structure at the proposed Tolland site, 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 significant either alone or cumulatively with other effects, 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 Section 16-50k of the General Statutes of Connecticut (CGS), be issued to SNET Cellular, Inc., for the construction, operation, and maintenance of a cellular telephone tower site and associated equipment at the proposed Tolland site in Tolland, Connecticut.

The alternative Tolland site is hereby denied.

The facility shall be constructed, operated, and maintained 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 tower no taller than necessary to provide the proposed service, and in no event shall the tower structure exceed a total height of 167 feet, including antennas.

2. The facility shall be constructed in accordance with the State of Connecticut Basic Building Code.

3. Unless necessary to comply with future requirements of the Federal Aviation Administration, no lights shall be installed on this tower.

4. 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 State Agencies. The D&M plan shall include detailed plans for erosion and sediment control along the access road and at the tower site, plans for permanent evergreen screening along the outside perimeter of the eight-foot fence surrounding the site, and plans for loaming and seeding the site and sides of the access road following completion of construction. The access road shall be constructed in a manner to minimize erosion and tree clearing as much as possible.

5. The Certificate Holder or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in this application are added to this facility.

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

7. If this facility does not provide, or permanently ceases to provide, cellular service following the completion of construction, this Decision and Order shall be void, and the tower and all associated equipment in this application shall be dismantled and removed or reapplication for any new use shall be made to the Council and a Certificate granted before such new use is made.

8. The Certificate Holder shall comply with any future radio frequency (RF) standard, promulgated by State or federal regulatory agencies. Upon the establishment of any new governmental RF standards, the facility granted in this Decision and Order shall be brought into compliance with such standards.

9. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed within three years of the issuance of this Decision and Order, or within three years of the completion of any appeal taken in this Decision and Order.

Pursuant to Section 16-50p, we hereby direct that a copy of the Decision and Order be served on each person listed below. A notice of issuance shall be published in the Manchester Journal Enquirer.

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 State Agencies.

The parties or intervenors to this proceeding are:

	STATUS HOLDER	REPRESENTATIVE
Party | X |	SNET Cellular, Inc. 555 Long Wharf Drive New Haven, CT 06506	SNET Cellular, Inc. c/o Peter J. Tyrrell Senior Attorney 227 Church Street Room 1021 New Haven, CT 06506 (203) 771-7381
Party | |	Metro Mobile CTS of Hartford, Inc.	Jennifer Young Gaudet Byrne, Slater, Sandler Shulman & Rouse, P.C. 330 Main Street P.O. Box 3216 Hartford, CT 06103 (203) 525-4700
Intervenor | X |		

CERTIFICATION

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case in Docket No. 100 or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut the 5th day of January, 1989.

Council Members	Vote Cast
Gloria Dibble Pond Gloria Dibble Pond Chairperson	Yes
Patricia J. Austin Commissioner Peter Boucher Designee: Patricia Austin	Abstain
Brian J. Emerick Commissioner Leslie Carothers Designee: Brian Emerick	Yes
Mortimer A. Gelston Mortimer A. Gelston	Yes
Harry E. Covey Harry E. Covey	Abstain
Daniel P. Lynch Jr. Daniel P. Lynch, Jr.	Yes
Paulann H. Sheets	Absent
William H. Smith William H. Smith	Yes
Colin C. Tait Colin C. Tait	Abstain

AMERICAN TOWER®
CORPORATION

Structural Analysis Report

Structure	:	**165 ft Monopole**
ATC Site Name	:	**Tolland CT, CT**
ATC Asset Number	:	**302495**
Engineering Number	:	**12991739_C3_02**
Proposed Carrier	:	**VERIZON WIRELESS**
Carrier Site Name	:	**TOLLAND CT**
Carrier Site Number	:	**468468**
Site Location	:	**56 Ruops Road** **Tolland, CT 06084-3116** **41.873300,-72.338300**
County	:	**Tolland**
Date	:	**November 15, 2019**
Max Usage	:	**99%**
Result	:	**Pass**

Prepared By:
Rohith Koduru
Structural Engineer

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32599
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Nov 18 2019 9:33 AM cosign

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

AMERICAN TOWER®
CORPORATION

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 165 ft monopole to reflect the change in loading by VERIZON WIRELESS.

Supporting Documents

Tower Drawings	EEI Drawing #GS50842 Rev 1, dated June 24, 1998 Mapping by Delta Oaks Group Project #AGI19-04721-03, dated August 1, 2019
Foundation Drawing	EEI Drawing #F3503-150.N, dated March 2, 1998
Geotechnical Report	ASR Project #12-06077, dated December 1, 2006
Modifications	Spectrasite Drawing #CT-0031-M1, dated November 15, 2004

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/ 1" 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 = 0.17, 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
162.0	3	EMS RR90-17-02DP	Flush	(6) 1 5/8" Coax	T-MOBILE
155.0	6	Ericsson KRY 112 71/x (12.8"x5.9")	Flush	-	
154.0	1	Generic 7' Omni	Flush	(1) 1 1/4" Coax	SPOK HOLDINGS, INC.
149.0	6	CCI DTMABP7819VG12A	Platform with Handrails	(1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (24) 1 1/4" Coax (1) 3" conduit (1) 3/8" (0.38"-9.5mm) RET Control Cable	AT&T MOBILITY
	1	Raycap DC6-48-60-18-8F ("Squid")			
	3	Ericsson RRUS 11 (Band 12)			
	3	Ericsson RRUS-12 800 MHz			
	3	Powerwave Allgon 7770.00			
	6	KMW AM-X-CD-16-65-00T-RET			
	3	Powerwave Allgon 7020.00 Dual Band RET			
	1	Andrew ABT-DMDF-ADBH			
	6	Kathrein Scala 782-10250			
140.0	-	Empty Platform with Handrails	-	(14) 1 5/8" Coax (2) 1 5/8" Hybriflex	VERIZON WIRELESS
133.0	6	Alcatel-Lucent 800 MHz 2X50W RRH w/ Filter	Modified Platform with Handrails	(4) 1 1/4" Hybriflex Cable (6) 1 5/8" Coax	SPRINT NEXTEL
	3	Commscope NNVV-65B-R4			
	3	RFS APXVTM14-ALU-I20			
	3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
	3	Alcatel-Lucent 1900 MHz 4X45 RRH			
123.0	12	Decibel DB844H90E-A	Platform with Handrails	(12) 1 1/4" Coax	
105.0	3	Kathrein Scala Smart Bias Tee	Flush	(6) 1 1/4" Coax	METRO PCS INC
	3	Commscope LNX-6515DS-VTM			
81.0	1	Generic GPS	Stand-Off	(1) 1/2" Coax	T-MOBILE
63.0	2	Generic GPS	Stand-Off	(2) 1/2" Coax	SPRINT NEXTEL
50.0	1	Generic 2" x 4" GPS	Stand-Off	(1) 1/2" Coax	
17.0	1	Channel Master Type 120	Flush	(1) 0.27" (6.8mm) RG-6/U	SPOK HOLDINGS, INC.

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
142.0	3	Nokia B5 RRH4x40-850	-	-	VERIZON WIRELESS
	3	Alcatel-Lucent RRH2x60 700			
	3	Alcatel-Lucent RRH AWS			
	6	Commscope JAHH-65B-R3B			
	6	Swedcom ALP 9212-N			
	2	RFS DB-T1-6Z-8AB-0Z			
	3	Alcatel-Lucent RRH2x60			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
140.0	6	RFS FDJ85020D7-S	Platform with Handrails	-	VERIZON WIRELESS
	3	Samsung Outdoor CBRS 20W RRH			
	3	Samsung B5/B13 RRH-BR04C			
	3	Samsung B2/B66A RRH-BR049			
	6	Swedcom SC 9012			
	3	Samsung CBRS 64T64R MMU			
	2	RFS DB-T1-6Z-8AB-0Z			
	6	Commscope JAHH-65B-R3B			

[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	96%	Pass
Shaft	99%	Pass
Base Plate	55%	Pass
Flanges	12%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	4,601.0	99%
Axial (Kips)	96.1	3%
Shear (Kips)	45.3	63%

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
140.0	RFS FDJ85020D7-S	VERIZON WIRELESS	2.377	1.877
	Samsung Outdoor CBRS 20W RRH			
	Samsung B5/B13 RRH-BR04C			
	Samsung B2/B66A RRH-BR049			
	Swedcom SC 9012			
	Samsung CBRS 64T64R MMU			
	RFS DB-T1-6Z-8AB-0Z			
	Commscope JAHH-65B-R3B			
17.0	Channel Master Type 120	SPOK HOLDINGS, INC.	0.032	0.217

***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.

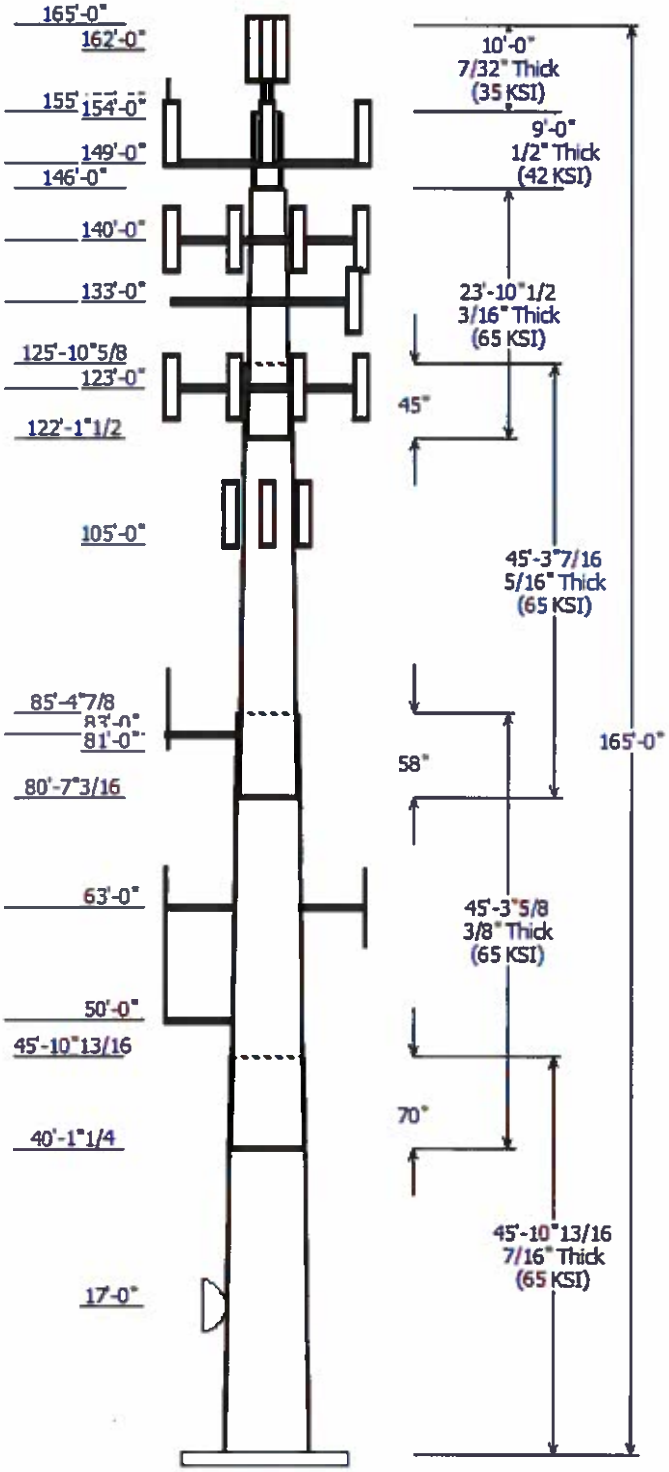
All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with 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 : 302495 Code: ANSI/TIA-222-G
Location : Tolland CT, CT
Description : EEI 155' Monopole - Model Verified 4/25/12 Struct Class : II
Shape : 12 Sides Exposure : B
Height : 165.00 (ft) Topo : 1
Base Elev (ft): 0.00
Taper: 0.210616 (in/ft)

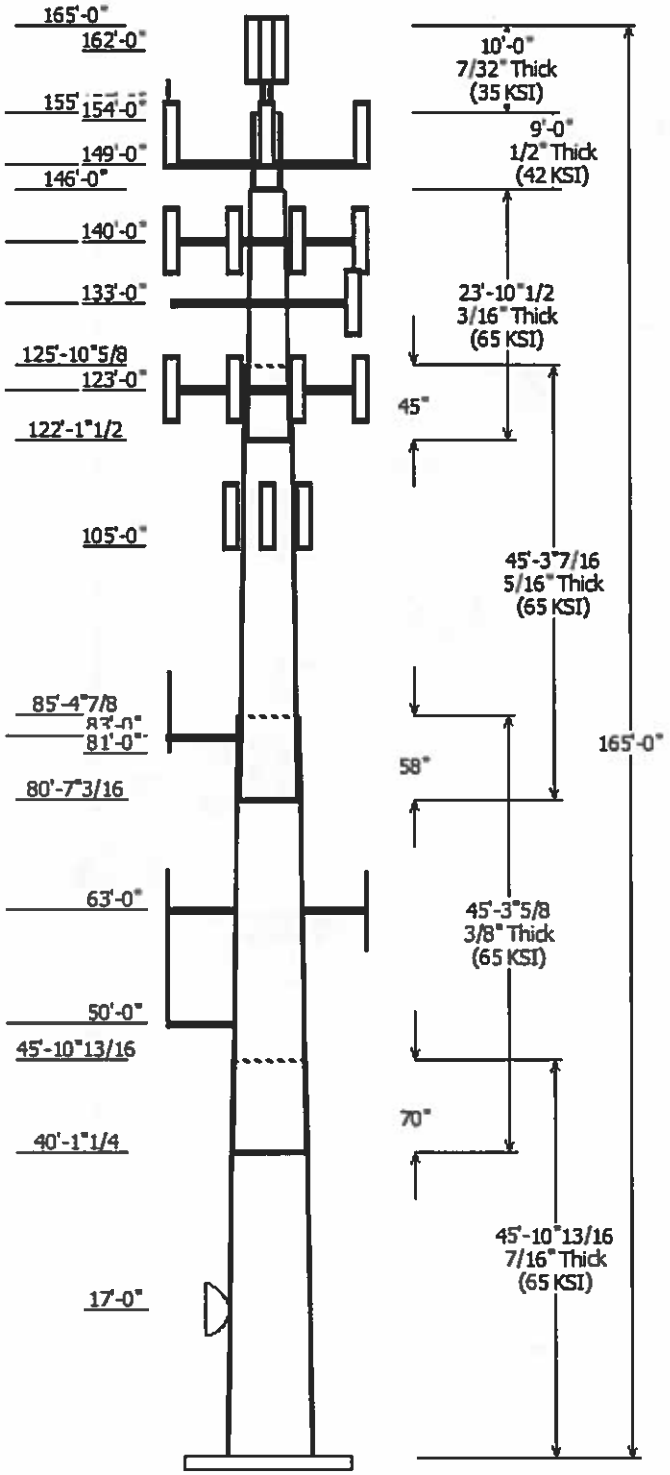


Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	45.898	40.33	50.00	0.438		0.000	12 Sides	65
2	45.302	32.76	42.30	0.375	Slip Joint	69.531	12 Sides	65
3	45.286	24.86	34.40	0.313	Slip Joint	57.688	12 Sides	65
4	23.878	21.00	26.02	0.188	Slip Joint	45.156	12 Sides	65
5	9.000	16.00	16.00	0.500	Butt Joint	0.000	Round	42
6	10.000	3.500	3.500	0.218	Butt Joint	0.000	Round	35

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
162.000	162.000	3	EMS RR90-17-02DP
155.000	155.000	1	Canister
155.000	157.000	6	Ericsson KRY 112 71/x (12.8"x5
154.000	154.000	1	Generic 7' Omni
149.000	149.000	1	Flat Platform w/ Handrails
149.000	151.000	6	KMW AM-X-CD-16-65-00T-RET
149.000	151.000	3	Powerwave Allgon 7770.00
149.000	151.000	3	Ericsson RRUS-12 800 MHz
149.000	151.000	3	Ericsson RRUS 11 (Band 12)
149.000	151.000	1	Raycap DC6-48-60-18-8F
149.000	151.000	6	CCI DTMABP7819VG12A
149.000	151.000	6	Kathrein Scala 782-10250
149.000	151.000	3	Powerwave Allgon 7020.00
149.000	149.000	1	Andrew ABT-DMDF-ADBH
140.000	140.000	1	Flat Platform w/ Handrails
140.000	140.000	6	Commscope JAHH-65B-R3B
140.000	140.000	2	RFS DB-T1-6Z-8AB-0Z
140.000	140.000	3	Samsung CBRS 64T64R MMU
140.000	140.000	6	Swedcom SC 9012
140.000	140.000	3	Samsung B2/B66A RRH-BR049
140.000	140.000	3	Samsung B5/B13 RRH-BR04C
140.000	140.000	3	Samsung Outdoor CBRS 20W
140.000	140.000	6	RFS FDJ85020D7-S
133.000	133.000	1	Modified Platform w/ Handrails
133.000	133.000	3	Commscope NNVV-65B-R4
133.000	133.000	3	RFS APXVTM14-ALU-I20
133.000	133.000	3	Alcatel-Lucent TD-RRH8x20-25
133.000	133.000	3	Alcatel-Lucent 1900 MHz 4X45
133.000	133.000	6	Alcatel-Lucent 800 MHz 2X50W
123.000	123.000	1	Flat Platform w/ Handrails
123.000	123.000	12	Decibel DB844H90E-A
105.000	107.000	3	Commscope LNX-6515DS-VTM
105.000	105.000	3	Kathrein Scala Smart Bias Tee
83.000	83.000	1	Stand-Off
81.000	83.000	1	Generic GPS
63.000	63.000	2	Stand-Off
63.000	63.000	2	Generic GPS
50.000	50.000	1	Stand-Off
50.000	52.000	1	Generic 2" x 4" GPS
17.000	17.000	1	Channel Master Type 120



Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
120.0	149.0	Climbing Ladder	Yes
0.000	154.0	1 1/4" Coax	No
0.000	162.0	1 5/8" Coax	No
0.000	17.000	0.27" (6.8mm) RG-	Yes
0.000	52.000	1/2" Coax	Yes
0.000	63.000	1/2" Coax	Yes
0.000	81.000	1/2" Coax	No
0.000	105.0	1 1/4" Coax	Yes
0.000	123.0	1 1/4" Coax	No
0.000	133.0	1 1/4" Hybriflex	No
0.000	133.0	1 5/8" Coax	No
0.000	140.0	1 5/8" Coax	Yes
0.000	140.0	1 5/8" Hybriflex	Yes
0.000	149.0	0.39" (10mm)	No
0.000	149.0	0.78" (19.7mm) 8	No
0.000	149.0	1 1/4" Coax	No
0.000	149.0	1 1/4" Coax	Yes
0.000	149.0	3" conduit	No
0.000	149.0	3/8" (0.38"-	No

Load Cases

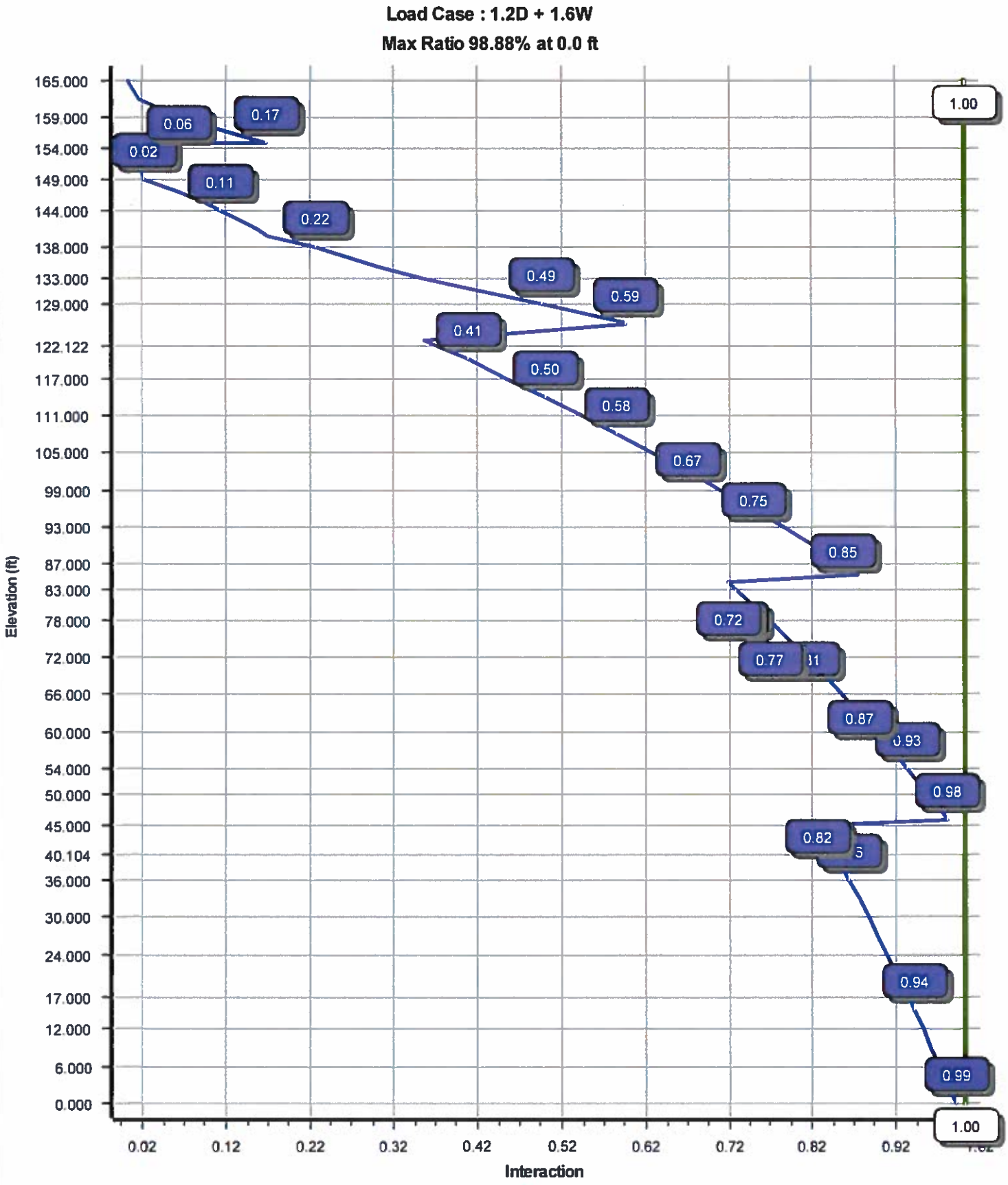
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) 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	4601.05	45.26	53.53
0.9D + 1.6W	4522.48	45.23	40.13
1.2D + 1.0Di + 1.0Wi	2246.03	24.67	96.06
(1.2 + 0.2Sds) * DL + E ELFM	179.30	1.34	54.18
(1.2 + 0.2Sds) * DL + E EMAM	128.16	1.22	54.18
(0.9 - 0.2Sds) * DL + E ELFM	175.23	1.34	37.78
(0.9 - 0.2Sds) * DL + E EMAM	125.05	1.22	37.78
1.0D + 1.0W	976.09	9.68	44.67

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	17.00	0.385	0.217


Load Case : 1.2D + 1.6W
Max Ratio 98.88% at 0.0 ft
Elevation (ft)
165.000
159.000
154.000
149.000
144.000
138.000
133.000
129.000
122.122
117.000
111.000
105.000
99.000
93.000
87.000
83.000
78.000
72.000
66.000
60.000
54.000
50.000
45.000
40.104
36.000
30.000
24.000
17.000
12.000
6.000
0.000
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction
1.00
0.06
0.17
0.02
0.11
0.22
0.49
0.59
0.41
0.50
0.58
0.67
0.75
0.85
0.72
0.77
0.87
0.93
0.98
0.82
0.94
0.99
1.00

Site Number: 302495 | Code: ANSI/TIA-222-G |

Site Name: Tolland CT, CT | Engineering Number:12991739_C3_02 | 11/15/2019 10:02:26 AM

Customer: VERIZON WIRELESS

Analysis Parameters

Location :	Tolland County, CT	Height (ft) :	165
Code :	ANSI/TIA-222-G	Base Diameter (in) :	50.00
Shape :	12 Sides. Sect 5: Round. Sect 6: Round	Top Diameter (in) :	3.50
Pole Type :	Custom	Taper (in/ft) :	0.211
Pole Manfacturer :	EEI	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:	1.00 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:	0.175	S_1:	0.063	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.187	S_{d1}:	0.101		

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 1.00 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: 302495 | Code: ANSI/TIA-222-G |

Site Name: Tolland CT, CT | Engineering Number:12991739_C3_02 | 11/15/2019 10:02:26 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)
1-12	45.898	0.4375	65		0.00	9,841	50.00	0.00	69.82	21891.7	27.94	114.29	40.33	45.90	56.20	11418.1	22.02	92.19	0.210616
2-12	45.302	0.3750	65	Slip	69.53	6,917	42.30	40.10	50.63	11360.5	27.55	112.81	32.76	85.41	39.11	5235.8	20.73	87.37	0.210616
3-12	45.286	0.3125	65	Slip	57.69	4,546	34.40	80.60	34.30	5087.0	26.82	110.08	24.86	125.89	24.70	1900.2	18.64	79.56	0.210616
4-12	23.878	0.1875	65	Slip	45.16	1,144	26.02	122.12	15.60	1329.8	34.52	138.82	21.00	146.00	12.57	694.7	27.33	112.00	0.210616
5-R	9.000	0.5000	42	Butt	0.00	746	16.00	146.00	24.35	731.7	0.00	32.00	16.00	155.00	24.35	731.7	0.00	32.00	0.000000
6-R	10.000	0.2180	35	Butt	0.00	76	3.500	155.00	2.25	3.0	0.00	16.06	3.500	165.00	2.25	3.0	0.00	16.06	0.000000
				Shaft Weight		23,270													

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
162.00	EMS RR90-17-02DP	3	1.00	0.000	13.50	4.360	0.01	159.60	5.727	0.01
155.00	Ericsson KRY 112 71/x	6	1.00	2.000	13.20	0.630	0.01	38.08	1.397	0.01
155.00	Canister	1	1.00	0.000	500.00	9.800	1.00	897.69	13.176	1.00
154.00	Generic 7' Omni	1	0.75	0.000	25.00	2.100	1.00	96.72	4.604	1.00
149.00	Andrew ABT-DMDF-ADBH	1	0.75	0.000	1.10	0.050	1.00	4.07	0.306	1.00
149.00	Powerwave Allgon 7020.00 Dual	3	0.75	2.000	2.20	0.340	0.50	15.83	0.888	0.50
149.00	Kathrein Scala 782-10250	6	0.75	2.000	6.40	0.450	0.50	23.43	1.106	0.50
149.00	CCI DTMABP7819VG12A	6	0.75	2.000	19.20	0.970	0.50	53.18	1.842	0.50
149.00	Raycap DC6-48-60-18-8F	1	0.75	2.000	31.80	1.470	1.00	114.12	2.402	1.00
149.00	Ericsson RRUS 11 (Band 12)	3	0.75	2.000	50.00	2.570	0.67	140.95	3.970	0.67
149.00	Ericsson RRUS-12 800 MHz	3	0.75	2.000	60.00	2.700	0.67	158.94	4.133	0.67
149.00	Powerwave Allgon 7770.00	3	0.75	2.000	35.00	5.510	0.65	228.78	6.949	0.65
149.00	KMW AM-X-CD-16-65-00T-RET	6	0.75	2.000	48.50	8.020	0.67	264.58	11.740	0.67
149.00	Flat Platform w/ Handrails	1	1.00	0.000	2,000.00	42.400	1.00	3,896.25	70.383	1.00
140.00	RFS FDJ85020D7-S	6	0.75	0.000	11.70	0.420	0.50	35.82	1.002	0.50
140.00	Samsung Outdoor CBRS 20W	3	0.75	0.000	18.60	0.860	0.50	50.42	1.694	0.50
140.00	Samsung B5/B13 RRH-BR04C	3	0.75	0.000	70.30	1.880	0.50	146.15	3.080	0.50
140.00	Samsung B2/B66A RRH-BR049	3	0.75	0.000	84.40	1.880	0.50	168.99	3.080	0.50
140.00	Swedcom SC 9012	6	0.75	0.000	10.00	3.170	0.73	154.05	3.767	0.73
140.00	Samsung CBRS 64T64R MMU	3	0.75	0.000	75.00	4.500	0.58	198.46	6.366	0.58
140.00	RFS DB-T1-6Z-8AB-0Z	2	0.75	0.000	44.00	4.800	0.72	210.88	6.684	0.72
140.00	Commscope JAHH-65B-R3B	6	0.75	0.000	60.60	9.110	0.69	328.84	12.787	0.69
140.00	Flat Platform w/ Handrails	1	1.00	0.000	2,000.00	42.400	1.00	3,884.39	70.208	1.00
133.00	Alcatel-Lucent 800 MHz 2X50W	6	0.75	0.000	64.00	2.060	0.67	165.67	3.325	0.67
133.00	Alcatel-Lucent 1900 MHz 4X45	3	0.75	0.000	60.00	2.320	0.67	166.35	3.745	0.67
133.00	Alcatel-Lucent TD-RRH8x20-25	3	0.75	0.000	70.00	4.050	0.61	194.71	5.804	0.61
133.00	RFS APXVTM14-ALU-I20	3	0.75	0.000	56.20	6.340	0.66	237.91	9.213	0.66
133.00	Commscope NNVV-65B-R4	3	0.75	0.000	77.40	12.270	0.64	408.98	15.970	0.64
133.00	Modified Platform w/ Handrails	1	1.00	0.000	2,500.00	47.400	1.00	4,844.23	78.338	1.00
123.00	Decibel DB844H90E-A	12	0.75	0.000	10.00	3.800	0.70	165.62	4.021	0.70
123.00	Flat Platform w/ Handrails	1	1.00	0.000	2,000.00	42.400	1.00	3,860.82	69.860	1.00
105.00	Kathrein Scala Smart Bias Tee	3	1.00	0.000	3.30	0.080	0.50	7.54	0.348	0.50
105.00	Commscope LNX-6515DS-VTM	3	1.00	2.000	50.30	11.440	0.70	345.65	15.606	0.70
83.00	Stand-Off	1	1.00	0.000	75.00	2.500	1.00	140.72	4.691	1.00
81.00	Generic GPS	1	1.00	2.000	10.00	0.900	1.00	46.75	1.703	1.00
63.00	Generic GPS	2	1.00	0.000	10.00	0.900	0.50	45.76	1.682	0.50
63.00	Stand-Off	2	0.90	0.000	75.00	2.500	0.90	138.85	4.628	0.90
50.00	Generic 2" x 4" GPS	1	1.00	2.000	5.00	0.040	1.00	8.07	0.186	1.00
50.00	Stand-Off	1	1.00	0.000	75.00	2.500	1.00	137.42	4.581	1.00
17.00	Channel Master Type 120	1	1.00	0.000	126.00	20.190	1.00	345.68	23.405	1.00
Totals	Num Loadings:40	124			13,307.10			35,324.93		

Linear Appurtenance Properties

Load Case Azimuth (deg) : 0

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	162.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	154.00	1	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	0.00	N	SPOK HOLDINGS,
0.00	149.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	149.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	149.00	9	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	149.00	3	1 1/4" Coax	1.55	0.63	N	3	0.00	0.00	180	0.50	Y	AT&T MOBILITY
0.00	149.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	149.00	1	3/8" (0.38"- 9.5mm)	0.38	0.23	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
120.00	149.00	1	Climbing Ladder	2.00	6.90	Y	1	0.00	0.00	90	0.50	Y	--
0.00	140.00	14	1 5/8" Coax	1.98	0.82	N	3	0.00	0.00	270	0.50	Y	VERIZON WIRELESS
0.00	140.00	2	1 5/8" Hybriflex	1.98	1.30	N	2	0.00	0.00	285	0.50	Y	VERIZON WIRELESS
0.00	133.00	4	1 1/4" Hybriflex Cable	1.54	1.00	N	0	0.00	0.00	0	0.00	N	SPRINT NEXTEL
0.00	133.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	SPRINT NEXTEL
0.00	123.00	12	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	0.00	N	SPRINT NEXTEL
0.00	105.00	6	1 1/4" Coax	1.55	0.63	N	6	0.00	0.00	210	0.00	Y	METRO PCS INC
0.00	81.00	1	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	63.00	2	1/2" Coax	0.63	0.15	N	2	0.00	0.00	100	0.50	Y	SPRINT NEXTEL
0.00	52.00	1	1/2" Coax	0.63	0.15	N	1	0.00	0.00	95	0.50	Y	SPRINT NEXTEL
0.00	17.00	1	0.27" (6.8mm) RG-6/U	0.27	0.04	N	1	0.00	0.00	90	0.50	Y	SPOK HOLDINGS,

Segment Properties (Max Len : 3.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		0.4375	50.000	69.821	21,891.7	27.94	114.29	74.2	845.8	0.0	0.0
3.00		0.4375	49.368	68.931	21,065.1	27.56	112.84	74.7	824.3	0.0	708.2
6.00		0.4375	48.736	68.041	20,259.5	27.17	111.40	75.1	803.1	0.0	699.1
9.00		0.4375	48.104	67.151	19,474.8	26.78	109.95	75.5	782.1	0.0	690.0
12.00		0.4375	47.473	66.261	18,710.5	26.40	108.51	75.9	761.4	0.0	681.0
15.00		0.4375	46.841	65.371	17,966.6	26.01	107.06	76.3	741.0	0.0	671.9
17.00		0.4375	46.420	64.777	17,481.7	25.75	106.10	76.6	727.5	0.0	442.9
18.00		0.4375	46.209	64.480	17,242.6	25.62	105.62	76.8	720.9	0.0	219.9
21.00		0.4375	45.577	63.590	16,538.3	25.23	104.18	77.2	701.0	0.0	653.7
24.00		0.4375	44.945	62.700	15,853.5	24.85	102.73	77.6	681.4	0.0	644.6
27.00		0.4375	44.313	61.810	15,187.9	24.46	101.29	78.0	662.1	0.0	635.5
30.00		0.4375	43.682	60.920	14,541.1	24.07	99.84	78.5	643.1	0.0	626.4
33.00		0.4375	43.050	60.030	13,913.0	23.69	98.40	78.9	624.3	0.0	617.3
36.00		0.4375	42.418	59.140	13,303.2	23.30	96.95	79.3	605.9	0.0	608.3
39.00		0.4375	41.786	58.250	12,711.5	22.91	95.51	79.7	587.7	0.0	599.2
40.10	Bot - Section 2	0.4375	41.553	57.922	12,498.3	22.77	94.98	79.9	581.1	0.0	218.2
42.00		0.4375	41.154	57.360	12,137.7	22.53	94.07	80.1	569.8	0.0	696.9
45.00		0.4375	40.522	56.469	11,581.3	22.14	92.62	80.6	552.1	0.0	1,089.0
45.90	Top - Section 1	0.3750	41.083	49.155	10,397.1	26.68	109.55	75.6	488.9	0.0	322.9
48.00		0.3750	40.640	48.620	10,061.7	26.36	108.37	76.0	478.3	0.0	349.6
50.00		0.3750	40.219	48.112	9,749.2	26.06	107.25	76.3	468.3	0.0	329.2
51.00		0.3750	40.009	47.858	9,595.4	25.91	106.69	76.5	463.3	0.0	163.3
54.00		0.3750	39.377	47.095	9,143.7	25.46	105.00	77.0	448.6	0.0	484.7
57.00		0.3750	38.745	46.332	8,706.5	25.00	103.32	77.4	434.1	0.0	476.9
60.00		0.3750	38.113	45.569	8,283.4	24.55	101.63	77.9	419.9	0.0	469.1
63.00		0.3750	37.481	44.806	7,874.3	24.10	99.95	78.4	405.9	0.0	461.3
66.00		0.3750	36.849	44.043	7,478.8	23.65	98.26	78.9	392.1	0.0	453.5
69.00		0.3750	36.217	43.280	7,096.9	23.20	96.58	79.4	378.5	0.0	445.7
72.00		0.3750	35.586	42.517	6,728.1	22.75	94.89	79.9	365.3	0.0	437.9
75.00		0.3750	34.954	41.754	6,372.4	22.30	93.21	80.4	352.2	0.0	430.1
78.00		0.3750	34.322	40.991	6,029.4	21.84	91.53	80.9	339.4	0.0	422.3
80.60	Bot - Section 3	0.3750	33.775	40.330	5,742.4	21.45	90.07	81.3	328.5	0.0	359.6
81.00		0.3750	33.690	40.228	5,699.0	21.39	89.84	81.4	326.8	0.0	101.7
83.00		0.3750	33.269	39.719	5,485.5	21.09	88.72	81.7	318.5	0.0	503.5
84.00		0.3750	33.058	39.465	5,380.8	20.94	88.16	81.9	314.4	0.0	249.3
85.41	Top - Section 2	0.3125	33.387	33.281	4,647.0	25.95	106.84	76.4	268.9	0.0	348.0
87.00		0.3125	33.051	32.943	4,507.0	25.66	105.76	76.7	263.4	0.0	179.6
90.00		0.3125	32.420	32.308	4,251.0	25.12	103.74	77.3	253.3	0.0	333.1
93.00		0.3125	31.788	31.672	4,004.9	24.58	101.72	77.9	243.4	0.0	326.6
96.00		0.3125	31.156	31.036	3,768.6	24.03	99.70	78.5	233.7	0.0	320.1
99.00		0.3125	30.524	30.400	3,541.7	23.49	97.68	79.1	224.2	0.0	313.6
102.0		0.3125	29.892	29.765	3,324.1	22.95	95.65	79.7	214.8	0.0	307.1
105.0		0.3125	29.260	29.129	3,115.6	22.41	93.63	80.3	205.7	0.0	300.6
108.0		0.3125	28.628	28.493	2,916.0	21.87	91.61	80.9	196.8	0.0	294.1
111.0		0.3125	27.997	27.857	2,725.1	21.33	89.59	81.5	188.0	0.0	287.6
114.0		0.3125	27.365	27.221	2,542.7	20.78	87.57	81.9	179.5	0.0	281.1
117.0		0.3125	26.733	26.586	2,368.7	20.24	85.55	81.9	171.2	0.0	274.6
120.0		0.3125	26.101	25.950	2,202.8	19.70	83.52	81.9	163.0	0.0	268.1
122.1	Bot - Section 4	0.3125	25.654	25.500	2,090.2	19.32	82.09	81.9	157.4	0.0	185.8
123.0		0.3125	25.469	25.314	2,044.8	19.16	81.50	81.9	155.1	0.0	122.3
125.8	Top - Section 3	0.1875	25.236	15.123	1,211.2	33.38	134.59	68.3	92.7	0.0	395.8
126.0		0.1875	25.212	15.109	1,207.7	33.35	134.47	68.3	92.5	0.0	5.9
129.0		0.1875	24.580	14.727	1,118.5	32.45	131.10	69.3	87.9	0.0	152.3
132.0		0.1875	23.949	14.346	1,033.8	31.54	127.73	70.3	83.4	0.0	148.4
133.0		0.1875	23.738	14.219	1,006.6	31.24	126.60	70.6	81.9	0.0	48.6
135.0		0.1875	23.317	13.964	953.5	30.64	124.36	71.3	79.0	0.0	95.9
138.0		0.1875	22.685	13.583	877.5	29.74	120.99	72.3	74.7	0.0	140.6
140.0		0.1875	22.264	13.329	829.1	29.14	118.74	72.9	71.9	0.0	91.6

141.0		0.1875	22.053	13.201	805.6	28.84	117.62	73.3	70.6	0.0	45.1
144.0		0.1875	21.421	12.820	737.8	27.93	114.25	74.2	66.5	0.0	132.8
146.0	Top - Section 4	0.1875	21.000	12.566	694.7	27.33	112.00	74.9	63.9	0.0	86.4
146.0	Bot - Section 5	0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	
147.0		0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	82.8
149.0		0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	165.7
150.0		0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	82.8
153.0		0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	248.5
154.0		0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	82.8
155.0	Top - Section 5	0.5000	16.000	24.347	731.7	0.00	32.00	42.0	91.5	120.2	82.8
155.0	Bot - Section 6	0.2180	3.500	2.248	3.0	0.00	16.06	35.0	1.7	2.4	
156.0		0.2180	3.500	2.248	3.0	0.00	16.06	35.0	1.7	2.4	7.6
159.0		0.2180	3.500	2.248	3.0	0.00	16.06	35.0	1.7	2.4	22.9
162.0		0.2180	3.500	2.248	3.0	0.00	16.06	35.0	1.7	2.4	22.9
165.0		0.2180	3.500	2.248	3.0	0.00	16.06	35.0	1.7	2.4	22.9
											23,270.4

Site Number: 302495 Code: ANSI/TIA-222-G

Site Name: Tolland CT, CT Engineering Number:12991739_C3_02 11/15/2019 10:02:26 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W 97 mph with No Ice 31 Iterations

Gust Response Factor :1.10 Wind Importance Factor 1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces 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		217.5	0.0					0.0	0.0	217.5	0.0	0.0	0.0
3.00		432.3	849.9					160.9	205.7	593.1	1,055.6	0.0	0.0
6.00		426.7	839.0					162.0	205.7	588.7	1,044.7	0.0	0.0
9.00		421.2	828.0					161.9	205.7	583.1	1,033.8	0.0	0.0
12.00		415.7	817.1					161.9	205.7	577.5	1,022.8	0.0	0.0
15.00		342.5	806.2					160.6	205.7	503.2	1,011.9	0.0	0.0
17.00	Appurtenance(s)	203.7	531.4	569.2	0.0	0.0	151.2	107.0	137.1	879.9	819.8	0.0	0.0
18.00		268.5	263.9					53.5	68.5	322.0	332.4	0.0	0.0
21.00		399.1	784.4					160.4	205.6	559.4	990.0	0.0	0.0
24.00		393.5	773.5					160.4	205.6	554.0	979.1	0.0	0.0
27.00		388.0	762.6					160.2	205.6	548.2	968.2	0.0	0.0
30.00		385.3	751.7					160.2	205.6	545.5	957.3	0.0	0.0
33.00		387.5	740.8					162.6	205.6	550.2	946.4	0.0	0.0
36.00		391.5	729.9					166.8	205.6	558.3	935.5	0.0	0.0
39.00		269.3	719.0					170.8	205.6	440.1	924.6	0.0	0.0
40.10	Bot - Section 2	200.2	261.9					63.8	75.7	264.0	337.5	0.0	0.0
42.00		330.1	836.3					110.6	129.9	440.7	966.2	0.0	0.0
45.00		263.5	1,306.8					178.0	205.6	441.5	1,512.4	0.0	0.0
45.90	Top - Section 1	203.4	387.4					54.0	61.6	257.3	449.0	0.0	0.0
48.00		278.4	419.5					127.4	144.0	405.9	563.5	0.0	0.0
50.00	Appurtenance(s)	203.9	395.0	82.9	0.0	2.6	96.0	122.7	137.0	409.5	628.0	0.0	0.0
51.00		272.1	195.9					61.9	68.5	333.9	264.5	0.0	0.0
54.00		408.1	581.6					187.7	205.2	595.8	786.8	0.0	0.0
57.00		407.8	572.2					188.7	205.0	596.5	777.3	0.0	0.0
60.00		407.1	562.9					191.5	205.0	598.6	767.9	0.0	0.0
63.00	Appurtenance(s)	406.0	553.5	172.6	0.0	0.0	204.0	194.2	205.0	772.8	962.6	0.0	0.0
66.00		404.5	544.2					189.0	203.9	593.5	748.1	0.0	0.0
69.00		402.6	534.9					191.4	203.9	594.0	738.8	0.0	0.0
72.00		400.4	525.5					193.7	203.9	594.2	729.4	0.0	0.0
75.00		397.9	516.2					196.0	203.9	593.9	720.1	0.0	0.0
78.00		368.9	506.8					198.2	203.9	567.1	710.8	0.0	0.0
80.60	Bot - Section 3	197.3	431.5					173.4	176.7	370.7	608.2	0.0	0.0
81.00	Appurtenance(s)	159.5	122.1	34.0	0.0	67.9	12.0	26.9	27.3	220.3	161.3	0.0	0.0
83.00	Appurtenance(s)	198.9	604.1	94.3	0.0	0.0	90.0	134.7	135.6	427.9	829.7	0.0	0.0
84.00		158.8	299.2					67.7	67.8	226.4	367.0	0.0	0.0
85.41	Top - Section 2	197.2	417.6					95.5	95.3	292.7	512.9	0.0	0.0
87.00		299.9	215.5					108.7	108.1	408.6	323.5	0.0	0.0
90.00		388.8	399.7					206.3	203.4	595.2	603.1	0.0	0.0
93.00		384.8	391.9					208.2	203.4	593.1	595.3	0.0	0.0
96.00		380.6	384.1					210.1	203.4	590.7	587.5	0.0	0.0
99.00		376.2	376.3					211.8	203.4	588.0	579.7	0.0	0.0
102.00		371.6	368.5					213.6	203.4	585.2	571.9	0.0	0.0
105.00	Appurtenance(s)	366.7	360.7	979.7	0.0	1,949.6	193.0	215.3	203.4	1,561.7	757.1	0.0	0.0
108.00		361.7	352.9					216.9	189.8	578.7	542.7	0.0	0.0
111.00		356.5	345.1					218.5	189.8	575.1	534.9	0.0	0.0
114.00		351.1	337.4					220.1	189.8	571.3	527.1	0.0	0.0
117.00		345.6	329.6					221.6	189.8	567.2	519.4	0.0	0.0
120.00		290.9	321.8					223.1	189.8	514.0	511.6	0.0	0.0

Load Case: 1.2D + 1.6W — 97 mph with No Ice — 31 Iterations

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

Wind Importance Factor 1.00

122.12	Bot - Section 4	169.2	222.9					155.6	151.8	324.8	374.8	0.0	0.0
123.00	Appurtenance(s)	211.3	146.8	2,801.2	0.0	0.0	2,544.0	64.6	62.8	3,077.1	2,753.5	0.0	0.0
125.89	Top - Section 3	168.0	475.0					213.2	180.3	381.2	655.3	0.0	0.0
126.00		171.3	7.1					8.5	7.2	179.8	14.2	0.0	0.0
129.00		326.8	182.7					223.2	187.4	549.9	370.2	0.0	0.0
132.00		215.1	178.1					224.6	187.4	439.6	365.5	0.0	0.0
133.00	Appurtenance(s)	158.6	58.3	3,875.3	0.0	0.0	4,409.8	91.0	62.5	4,124.9	4,530.6	0.0	0.0
135.00		260.8	115.1					182.4	103.5	443.2	218.6	0.0	0.0
138.00		257.1	168.7					275.0	155.3	532.1	324.0	0.0	0.0
140.00	Appurtenance(s)	143.7	109.9	4,307.0	0.0	0.0	3,992.0	184.1	103.5	4,634.8	4,205.5	0.0	0.0
141.00		165.8	54.2					0.0	34.9	165.8	89.0	0.0	0.0
144.00		204.9	159.4					0.0	104.6	204.9	264.0	0.0	0.0
146.00	Top - Section 4	100.1	103.7					0.0	69.7	100.1	173.4	0.0	0.0
147.00		57.4	99.4					0.0	34.9	57.4	134.3	0.0	0.0
149.00	Appurtenance(s)	56.1	198.8	3,901.5	0.0	4,017.3	3,502.9	0.0	69.7	3,957.6	3,771.5	0.0	0.0
150.00		71.6	99.4					0.0	6.7	71.6	106.1	0.0	0.0
153.00		71.8	298.3					0.0	20.0	71.8	318.2	0.0	0.0
154.00	Appurtenance(s)	36.0	99.4	70.9	0.0	0.0	30.0	0.0	6.7	106.9	136.1	0.0	0.0
155.00	Top - Section 5	25.9	99.4	443.8	0.0	3.4	695.0	0.0	5.9	469.7	800.4	0.0	0.0
156.00		31.7	9.2					0.0	5.9	31.7	15.1	0.0	0.0
159.00		47.7	27.5					0.0	17.7	47.7	45.2	0.0	0.0
162.00	Appurtenance(s)	48.0	27.5	6.0	0.0	0.0	48.6	0.0	17.7	53.9	93.8	0.0	0.0
165.00		24.0	27.5					0.0	0.0	24.0	27.5	0.0	0.0
								Totals:		45,397.1	53,604.5	0.00	0.00

Site Number: 302495 | Code: ANSI/TIA-222-G |

Site Name: Tolland CT, CT | Engineering Number:12991739_C3_02 | 11/15/2019 10:02:34 AM

Customer: VERIZON WIRELESS

Load Case: 1.2D + 1.6W | 97 mph with No Ice | 31 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	-53.53	-45.26	0.00	-4,601.05	0.00	4,601.05	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.989
3.00	-52.34	-44.83	0.00	-4,465.26	0.00	4,465.26	4,631.78	2,315.89	9,346.21	4,615.74	0.06	-0.18	0.979
6.00	-51.16	-44.40	0.00	-4,330.77	0.00	4,330.77	4,597.82	2,298.91	9,156.81	4,522.21	0.23	-0.35	0.969
9.00	-49.99	-43.96	0.00	-4,197.58	0.00	4,197.58	4,563.18	2,281.59	8,967.87	4,428.89	0.51	-0.53	0.959
12.00	-48.84	-43.53	0.00	-4,065.69	0.00	4,065.69	4,527.86	2,263.93	8,779.43	4,335.83	0.90	-0.72	0.949
15.00	-47.72	-43.14	0.00	-3,935.10	0.00	3,935.10	4,491.86	2,245.93	8,591.56	4,243.05	1.41	-0.90	0.938
17.00	-46.84	-42.32	0.00	-3,848.82	0.00	3,848.82	4,467.49	2,233.75	8,466.65	4,181.36	1.81	-1.02	0.931
18.00	-46.43	-42.10	0.00	-3,806.49	0.00	3,806.49	4,455.19	2,227.60	8,404.31	4,150.57	2.04	-1.08	0.928
21.00	-45.31	-41.66	0.00	-3,680.21	0.00	3,680.21	4,417.85	2,208.92	8,217.72	4,058.43	2.78	-1.27	0.917
24.00	-44.21	-41.23	0.00	-3,555.22	0.00	3,555.22	4,379.82	2,189.91	8,031.86	3,966.64	3.63	-1.46	0.907
27.00	-43.13	-40.80	0.00	-3,431.53	0.00	3,431.53	4,341.13	2,170.56	7,846.78	3,875.23	4.61	-1.64	0.896
30.00	-42.05	-40.36	0.00	-3,309.14	0.00	3,309.14	4,301.75	2,150.88	7,662.53	3,784.23	5.70	-1.83	0.885
33.00	-40.99	-39.92	0.00	-3,188.05	0.00	3,188.05	4,261.70	2,130.85	7,479.16	3,693.68	6.92	-2.02	0.873
36.00	-39.95	-39.46	0.00	-3,068.29	0.00	3,068.29	4,220.97	2,110.49	7,296.73	3,603.58	8.25	-2.22	0.861
39.00	-38.95	-39.07	0.00	-2,949.91	0.00	2,949.91	4,179.57	2,089.78	7,115.28	3,513.97	9.71	-2.41	0.849
40.10	-38.56	-38.86	0.00	-2,906.76	0.00	2,906.76	4,164.16	2,082.08	7,048.76	3,481.12	10.27	-2.48	0.845
42.00	-37.50	-38.48	0.00	-2,833.09	0.00	2,833.09	4,137.49	2,068.74	6,934.89	3,424.88	11.28	-2.61	0.837
45.00	-35.93	-38.05	0.00	-2,717.64	0.00	2,717.64	4,094.73	2,047.37	6,755.59	3,336.33	12.98	-2.80	0.824
45.90	-35.43	-37.83	0.00	-2,683.45	0.00	2,683.45	3,345.43	1,672.72	5,614.65	2,772.86	13.51	-2.86	0.979
48.00	-34.79	-37.49	0.00	-2,603.94	0.00	2,603.94	3,324.15	1,662.07	5,517.72	2,724.99	14.80	-3.00	0.967
50.00	-34.12	-37.11	0.00	-2,528.97	0.00	2,528.97	3,303.59	1,651.79	5,425.69	2,679.55	16.09	-3.14	0.955
51.00	-33.78	-36.85	0.00	-2,491.86	0.00	2,491.86	3,293.20	1,646.60	5,379.77	2,656.86	16.76	-3.22	0.949
54.00	-32.89	-36.33	0.00	-2,381.33	0.00	2,381.33	3,261.57	1,630.78	5,242.36	2,589.00	18.85	-3.43	0.930
57.00	-32.02	-35.81	0.00	-2,272.34	0.00	2,272.34	3,229.26	1,614.63	5,105.54	2,521.44	21.07	-3.65	0.912
60.00	-31.16	-35.28	0.00	-2,164.91	0.00	2,164.91	3,196.28	1,598.14	4,969.37	2,454.19	23.44	-3.87	0.892
63.00	-30.12	-34.56	0.00	-2,059.08	0.00	2,059.08	3,162.62	1,581.31	4,833.91	2,387.28	25.94	-4.09	0.873
66.00	-29.29	-34.02	0.00	-1,955.41	0.00	1,955.41	3,128.28	1,564.14	4,699.19	2,320.75	28.57	-4.30	0.852
69.00	-28.47	-33.48	0.00	-1,853.35	0.00	1,853.35	3,093.27	1,546.64	4,565.29	2,254.62	31.34	-4.52	0.832
72.00	-27.67	-32.93	0.00	-1,752.91	0.00	1,752.91	3,057.58	1,528.79	4,432.24	2,188.92	34.25	-4.74	0.810
75.00	-26.88	-32.38	0.00	-1,654.11	0.00	1,654.11	3,021.22	1,510.61	4,300.11	2,123.66	37.29	-4.95	0.788
78.00	-26.11	-31.85	0.00	-1,556.96	0.00	1,556.96	2,984.18	1,492.09	4,168.95	2,058.89	40.47	-5.17	0.765
80.60	-25.48	-31.47	0.00	-1,474.19	0.00	1,474.19	2,951.54	1,475.77	4,056.14	2,003.18	43.34	-5.35	0.745
81.00	-25.29	-31.27	0.00	-1,461.51	0.00	1,461.51	2,946.46	1,473.23	4,038.81	1,994.61	43.79	-5.38	0.742
83.00	-24.45	-30.81	0.00	-1,398.96	0.00	1,398.96	2,920.94	1,460.47	3,952.64	1,952.06	46.07	-5.53	0.725
84.00	-24.06	-30.59	0.00	-1,368.15	0.00	1,368.15	2,908.96	1,454.48	3,910.94	1,931.47	47.23	-5.60	0.717
85.41	-23.52	-30.29	0.00	-1,325.13	0.00	1,325.13	2,288.86	1,144.43	3,120.34	1,541.02	48.89	-5.70	0.871
87.00	-23.15	-29.92	0.00	-1,276.86	0.00	1,276.86	2,274.94	1,137.47	3,069.59	1,515.96	50.81	-5.81	0.853
90.00	-22.49	-29.36	0.00	-1,187.09	0.00	1,187.09	2,248.22	1,124.11	2,974.43	1,468.96	54.53	-6.04	0.819
93.00	-21.85	-28.79	0.00	-1,099.02	0.00	1,099.02	2,220.81	1,110.41	2,879.80	1,422.23	58.40	-6.27	0.783
96.00	-21.22	-28.22	0.00	-1,012.64	0.00	1,012.64	2,192.74	1,096.37	2,785.75	1,375.78	62.41	-6.50	0.746
99.00	-20.61	-27.65	0.00	-927.97	0.00	927.97	2,163.98	1,081.99	2,692.34	1,329.64	66.55	-6.72	0.708
102.00	-20.01	-27.07	0.00	-845.02	0.00	845.02	2,134.56	1,067.28	2,599.61	1,283.85	70.83	-6.93	0.668
105.00	-19.36	-25.50	0.00	-761.85	0.00	761.85	2,104.45	1,052.22	2,507.63	1,238.42	75.25	-7.14	0.625

Load Case: 1.2D + 1.6W — 97 mph with No Ice — 31 Iterations

Gust Response Factor :1.10 — Wind Importance Factor :1.00
Dead Load Factor :1.20
Wind Load Factor :1.60

108.00	-18.81	-24.92	0.00	-685.35	0.00	685.35	2,073.67	1,036.83	2,416.44	1,193.39	79.79	-7.34	0.584
111.00	-18.28	-24.34	0.00	-610.59	0.00	610.59	2,042.21	1,021.11	2,326.10	1,148.77	84.45	-7.53	0.541
114.00	-17.76	-23.76	0.00	-537.56	0.00	537.56	2,006.48	1,003.24	2,232.66	1,102.63	89.22	-7.71	0.497
117.00	-17.26	-23.18	0.00	-466.29	0.00	466.29	1,959.62	979.81	2,129.00	1,051.43	94.10	-7.87	0.453
120.00	-16.77	-22.63	0.00	-396.76	0.00	396.76	1,912.75	956.38	2,027.81	1,001.46	99.09	-8.03	0.406
122.12	-16.42	-22.28	0.00	-348.72	0.00	348.72	1,879.60	939.80	1,957.71	966.84	102.67	-8.13	0.370
123.00	-14.10	-18.86	0.00	-329.17	0.00	329.17	1,865.89	932.94	1,929.08	952.70	104.16	-8.17	0.353
125.89	-13.49	-18.41	0.00	-274.74	0.00	274.74	929.68	464.84	961.73	474.96	109.13	-8.29	0.595
126.00	-13.47	-18.25	0.00	-272.63	0.00	272.63	929.29	464.65	960.40	474.31	109.32	-8.30	0.591
129.00	-13.13	-17.69	0.00	-217.89	0.00	217.89	918.88	459.44	925.49	457.06	114.58	-8.47	0.492
132.00	-12.81	-17.22	0.00	-164.83	0.00	164.83	907.79	453.90	890.46	439.76	119.93	-8.62	0.390
133.00	-8.94	-12.47	0.00	-147.61	0.00	147.61	903.95	451.97	878.77	433.99	121.74	-8.66	0.351
135.00	-8.77	-12.01	0.00	-122.67	0.00	122.67	896.03	448.02	855.37	422.43	125.37	-8.74	0.301
138.00	-8.52	-11.45	0.00	-86.64	0.00	86.64	883.59	441.80	820.26	405.10	130.87	-8.83	0.224
140.00	-5.07	-6.22	0.00	-63.75	0.00	63.75	874.92	437.46	796.88	393.55	134.57	-8.88	0.168
141.00	-5.01	-6.05	0.00	-57.52	0.00	57.52	870.48	435.24	785.20	387.78	136.42	-8.90	0.154
144.00	-4.77	-5.81	0.00	-39.38	0.00	39.38	856.69	428.34	750.24	370.52	142.01	-8.95	0.112
146.00	-4.62	-5.68	0.00	-27.77	0.00	27.77	847.12	423.56	727.02	359.05	145.75	-8.98	0.083
146.00	-4.62	-5.68	0.00	-27.77	0.00	27.77	920.33	460.16	575.46	378.52	145.75	-8.98	0.079
147.00	-4.49	-5.61	0.00	-22.08	0.00	22.08	920.33	460.16	575.46	378.52	147.62	-8.99	0.063
149.00	-1.39	-1.11	0.00	-6.85	0.00	6.85	920.33	460.16	575.46	378.52	151.38	-9.00	0.020
150.00	-1.29	-1.02	0.00	-5.75	0.00	5.75	920.33	460.16	575.46	378.52	153.26	-9.00	0.017
153.00	-0.99	-0.90	0.00	-2.68	0.00	2.68	920.33	460.16	575.46	378.52	158.89	-9.01	0.008
154.00	-0.87	-0.77	0.00	-1.78	0.00	1.78	920.33	460.16	575.46	378.52	160.77	-9.01	0.006
155.00	-0.15	-0.18	0.00	-1.01	0.00	1.01	920.33	460.16	575.46	378.52	162.65	-9.01	0.003
155.00	-0.15	-0.18	0.00	-1.01	0.00	1.01	70.80	35.40	9.07	6.17	162.65	-9.01	0.166
156.00	-0.14	-0.15	0.00	-0.82	0.00	0.82	70.80	35.40	9.07	6.17	164.53	-9.01	0.136
159.00	-0.11	-0.10	0.00	-0.37	0.00	0.37	70.80	35.40	9.07	6.17	170.23	-9.18	0.062
162.00	-0.02	-0.03	0.00	-0.08	0.00	0.08	70.80	35.40	9.07	6.17	175.99	-9.24	0.014
165.00	0.00	-0.02	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	181.78	-9.26	0.000

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 31 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces 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		217.5	0.0					0.0	0.0	217.5	0.0	0.0	0.0
3.00		432.3	637.4					160.9	154.3	593.1	791.7	0.0	0.0
6.00		426.7	629.2					162.0	154.3	588.7	783.5	0.0	0.0
9.00		421.2	621.0					161.9	154.3	583.1	775.3	0.0	0.0
12.00		415.7	612.9					161.9	154.3	577.5	767.1	0.0	0.0
15.00		342.5	604.7					160.6	154.3	503.2	759.0	0.0	0.0
17.00	Appurtenance(s)	203.7	398.6	569.2	0.0	0.0	113.4	107.0	102.9	879.9	614.8	0.0	0.0
18.00		268.5	197.9					53.5	51.4	322.0	249.3	0.0	0.0
21.00		399.1	588.3					160.4	154.2	559.4	742.5	0.0	0.0
24.00		393.5	580.1					160.4	154.2	554.0	734.3	0.0	0.0
27.00		388.0	572.0					160.2	154.2	548.2	726.1	0.0	0.0
30.00		385.3	563.8					160.2	154.2	545.5	718.0	0.0	0.0
33.00		387.5	555.6					162.6	154.2	550.2	709.8	0.0	0.0
36.00		391.5	547.4					166.8	154.2	558.3	701.6	0.0	0.0
39.00		269.3	539.3					170.8	154.2	440.1	693.4	0.0	0.0
40.10	Bot - Section 2	200.2	196.4					63.8	56.7	264.0	253.2	0.0	0.0
42.00		330.1	627.2					110.6	97.4	440.7	724.6	0.0	0.0
45.00		263.5	980.1					178.0	154.2	441.5	1,134.3	0.0	0.0
45.90	Top - Section 1	203.4	290.6					54.0	46.2	257.3	336.7	0.0	0.0
48.00		278.4	314.6					127.4	108.0	405.9	422.6	0.0	0.0
50.00	Appurtenance(s)	203.9	296.2	82.9	0.0	2.6	72.0	122.7	102.8	409.5	471.0	0.0	0.0
51.00		272.1	147.0					61.9	51.4	333.9	198.3	0.0	0.0
54.00		408.1	436.2					187.7	153.9	595.8	590.1	0.0	0.0
57.00		407.8	429.2					188.7	153.8	596.5	582.9	0.0	0.0
60.00		407.1	422.2					191.5	153.8	598.6	575.9	0.0	0.0
63.00	Appurtenance(s)	406.0	415.2	172.6	0.0	0.0	153.0	194.2	153.8	772.8	721.9	0.0	0.0
66.00		404.5	408.1					189.0	153.0	593.5	561.1	0.0	0.0
69.00		402.6	401.1					191.4	153.0	594.0	554.1	0.0	0.0
72.00		400.4	394.1					193.7	153.0	594.2	547.1	0.0	0.0
75.00		397.9	387.1					196.0	153.0	593.9	540.1	0.0	0.0
78.00		368.9	380.1					198.2	153.0	567.1	533.1	0.0	0.0
80.60	Bot - Section 3	197.3	323.6					173.4	132.5	370.7	456.1	0.0	0.0
81.00	Appurtenance(s)	159.5	91.5	34.0	0.0	67.9	9.0	26.9	20.4	220.3	121.0	0.0	0.0
83.00	Appurtenance(s)	198.9	453.1	94.3	0.0	0.0	67.5	134.7	101.7	427.9	622.3	0.0	0.0
84.00		158.8	224.4					67.7	50.8	226.4	275.3	0.0	0.0
85.41	Top - Section 2	197.2	313.2					95.5	71.5	292.7	384.7	0.0	0.0
87.00		299.9	161.6					108.7	81.0	408.6	242.7	0.0	0.0
90.00		388.8	299.7					206.3	152.5	595.2	452.3	0.0	0.0
93.00		384.8	293.9					208.2	152.5	593.1	446.5	0.0	0.0
96.00		380.6	288.1					210.1	152.5	590.7	440.6	0.0	0.0
99.00		376.2	282.2					211.8	152.5	588.0	434.8	0.0	0.0
102.00		371.6	276.4					213.6	152.5	585.2	428.9	0.0	0.0
105.00	Appurtenance(s)	366.7	270.5	979.7	0.0	1,949.6	144.7	215.3	152.5	1,561.7	567.8	0.0	0.0
108.00		361.7	264.7					216.9	142.3	578.7	407.0	0.0	0.0
111.00		356.5	258.9					218.5	142.3	575.1	401.2	0.0	0.0
114.00		351.1	253.0					220.1	142.3	571.3	395.4	0.0	0.0
117.00		345.6	247.2					221.6	142.3	567.2	389.5	0.0	0.0
120.00		290.9	241.3					223.1	142.3	514.0	383.7	0.0	0.0

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 31 Iterations

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

122.12	Bot - Section 4	169.2	167.2					155.6	113.9	324.8	281.1	0.0	0.0
123.00	Appurtenance(s)	211.3	110.1	2,801.2	0.0	0.0	1,908.0	64.6	47.1	3,077.1	2,065.2	0.0	0.0
125.89	Top - Section 3	168.0	356.2					213.2	135.2	381.2	491.4	0.0	0.0
126.00		171.3	5.3					8.5	5.4	179.8	10.7	0.0	0.0
129.00		326.8	137.1					223.2	140.6	549.9	277.6	0.0	0.0
132.00		215.1	133.6					224.6	140.6	439.6	274.1	0.0	0.0
133.00	Appurtenance(s)	158.6	43.7	3,875.3	0.0	0.0	3,307.3	91.0	46.9	4,124.9	3,397.9	0.0	0.0
135.00		260.8	86.3					182.4	77.7	443.2	164.0	0.0	0.0
138.00		257.1	126.5					275.0	116.5	532.1	243.0	0.0	0.0
140.00	Appurtenance(s)	143.7	82.4	4,307.0	0.0	0.0	2,994.0	184.1	77.7	4,634.8	3,154.1	0.0	0.0
141.00		165.8	40.6					0.0	26.2	165.8	66.8	0.0	0.0
144.00		204.9	119.5					0.0	78.5	204.9	198.0	0.0	0.0
146.00	Top - Section 4	98.7	77.7					0.0	52.3	98.7	130.1	0.0	0.0
147.00		53.4	74.6					0.0	26.2	53.4	100.7	0.0	0.0
149.00	Appurtenance(s)	53.5	149.1	3,901.5	0.0	4,017.3	2,627.2	0.0	52.3	3,954.9	2,828.6	0.0	0.0
150.00		71.6	74.6					0.0	5.0	71.6	79.6	0.0	0.0
153.00		71.8	223.7					0.0	15.0	71.8	238.7	0.0	0.0
154.00	Appurtenance(s)	36.0	74.6	70.9	0.0	0.0	22.5	0.0	5.0	106.9	102.1	0.0	0.0
155.00	Top - Section 5	25.9	74.6	443.8	0.0	3.4	521.3	0.0	4.4	469.7	600.3	0.0	0.0
156.00		31.7	6.9					0.0	4.4	31.7	11.3	0.0	0.0
159.00		47.7	20.7					0.0	13.3	47.7	33.9	0.0	0.0
162.00	Appurtenance(s)	48.0	20.7	6.0	0.0	0.0	36.5	0.0	13.3	53.9	70.4	0.0	0.0
165.00		24.0	20.7					0.0	0.0	24.0	20.7	0.0	0.0
								Totals:		45,389.0	40,203.4	0.00	0.00

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 31 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-40.13	-45.23	0.00	-4,522.48	0.00	4,522.48	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.969
3.00	-39.21	-44.76	0.00	-4,386.79	0.00	4,386.79	4,631.78	2,315.89	9,346.21	4,615.74	0.06	-0.17	0.959
6.00	-38.29	-44.28	0.00	-4,252.51	0.00	4,252.51	4,597.82	2,298.91	9,156.81	4,522.21	0.22	-0.35	0.949
9.00	-37.38	-43.81	0.00	-4,119.66	0.00	4,119.66	4,563.18	2,281.59	8,967.87	4,428.89	0.50	-0.53	0.939
12.00	-36.49	-43.34	0.00	-3,988.23	0.00	3,988.23	4,527.86	2,263.93	8,779.43	4,335.83	0.89	-0.70	0.928
15.00	-35.62	-42.92	0.00	-3,858.22	0.00	3,858.22	4,491.86	2,245.93	8,591.56	4,243.05	1.39	-0.88	0.918
17.00	-34.96	-42.08	0.00	-3,772.38	0.00	3,772.38	4,467.49	2,233.75	8,466.65	4,181.36	1.78	-1.00	0.910
18.00	-34.62	-41.83	0.00	-3,730.30	0.00	3,730.30	4,455.19	2,227.60	8,404.31	4,150.57	2.00	-1.06	0.907
21.00	-33.76	-41.36	0.00	-3,604.81	0.00	3,604.81	4,417.85	2,208.92	8,217.72	4,058.43	2.73	-1.25	0.896
24.00	-32.91	-40.90	0.00	-3,480.71	0.00	3,480.71	4,379.82	2,189.91	8,031.86	3,966.64	3.57	-1.43	0.885
27.00	-32.07	-40.44	0.00	-3,358.02	0.00	3,358.02	4,341.13	2,170.56	7,846.78	3,875.23	4.52	-1.61	0.874
30.00	-31.24	-39.97	0.00	-3,236.71	0.00	3,236.71	4,301.75	2,150.88	7,662.53	3,784.23	5.60	-1.80	0.863
33.00	-30.42	-39.50	0.00	-3,116.81	0.00	3,116.81	4,261.70	2,130.85	7,479.16	3,693.68	6.79	-1.98	0.851
36.00	-29.61	-39.01	0.00	-2,998.32	0.00	2,998.32	4,220.97	2,110.49	7,296.73	3,603.58	8.09	-2.17	0.839
39.00	-28.85	-38.61	0.00	-2,881.29	0.00	2,881.29	4,179.57	2,089.78	7,115.28	3,513.97	9.52	-2.36	0.827
40.10	-28.54	-38.38	0.00	-2,838.66	0.00	2,838.66	4,164.16	2,082.08	7,048.76	3,481.12	10.07	-2.43	0.823
42.00	-27.73	-37.99	0.00	-2,765.89	0.00	2,765.89	4,137.49	2,068.74	6,934.89	3,424.88	11.06	-2.55	0.815
45.00	-26.54	-37.55	0.00	-2,651.94	0.00	2,651.94	4,094.73	2,047.37	6,755.59	3,336.33	12.73	-2.74	0.802
45.90	-26.15	-37.32	0.00	-2,618.20	0.00	2,618.20	3,345.43	1,672.72	5,614.65	2,772.86	13.25	-2.80	0.953
48.00	-25.66	-36.96	0.00	-2,539.77	0.00	2,539.77	3,324.15	1,662.07	5,517.72	2,724.99	14.51	-2.94	0.940
50.00	-25.14	-36.57	0.00	-2,465.86	0.00	2,465.86	3,303.59	1,651.79	5,425.69	2,679.55	15.77	-3.08	0.928
51.00	-24.87	-36.29	0.00	-2,429.29	0.00	2,429.29	3,293.20	1,646.60	5,379.77	2,656.86	16.43	-3.15	0.922
54.00	-24.19	-35.75	0.00	-2,320.43	0.00	2,320.43	3,261.57	1,630.78	5,242.36	2,589.00	18.47	-3.36	0.904
57.00	-23.51	-35.20	0.00	-2,213.19	0.00	2,213.19	3,229.26	1,614.63	5,105.54	2,521.44	20.65	-3.57	0.886
60.00	-22.85	-34.66	0.00	-2,107.58	0.00	2,107.58	3,196.28	1,598.14	4,969.37	2,454.19	22.96	-3.78	0.866
63.00	-22.05	-33.92	0.00	-2,003.61	0.00	2,003.61	3,162.62	1,581.31	4,833.91	2,387.28	25.40	-3.99	0.847
66.00	-21.41	-33.36	0.00	-1,901.86	0.00	1,901.86	3,128.28	1,564.14	4,699.19	2,320.75	27.98	-4.21	0.827
69.00	-20.79	-32.81	0.00	-1,801.77	0.00	1,801.77	3,093.27	1,546.64	4,565.29	2,254.62	30.69	-4.42	0.806
72.00	-20.17	-32.25	0.00	-1,703.36	0.00	1,703.36	3,057.58	1,528.79	4,432.24	2,188.92	33.53	-4.63	0.785
75.00	-19.56	-31.68	0.00	-1,606.62	0.00	1,606.62	3,021.22	1,510.61	4,300.11	2,123.66	36.50	-4.84	0.763
78.00	-18.98	-31.13	0.00	-1,511.58	0.00	1,511.58	2,984.18	1,492.09	4,168.95	2,058.89	39.61	-5.05	0.741
80.60	-18.50	-30.76	0.00	-1,430.66	0.00	1,430.66	2,951.54	1,475.77	4,056.14	2,003.18	42.40	-5.23	0.721
81.00	-18.35	-30.55	0.00	-1,418.26	0.00	1,418.26	2,946.46	1,473.23	4,038.81	1,994.61	42.84	-5.26	0.718
83.00	-17.72	-30.10	0.00	-1,357.15	0.00	1,357.15	2,920.94	1,460.47	3,952.64	1,952.06	45.07	-5.39	0.702
84.00	-17.42	-29.88	0.00	-1,327.05	0.00	1,327.05	2,908.96	1,454.48	3,910.94	1,931.47	46.21	-5.46	0.693
85.41	-17.02	-29.58	0.00	-1,285.04	0.00	1,285.04	2,288.86	1,144.43	3,120.34	1,541.02	47.83	-5.56	0.842
87.00	-16.73	-29.20	0.00	-1,237.90	0.00	1,237.90	2,274.94	1,137.47	3,069.59	1,515.96	49.70	-5.67	0.825
90.00	-16.23	-28.62	0.00	-1,150.31	0.00	1,150.31	2,248.22	1,124.11	2,974.43	1,468.96	53.33	-5.90	0.791
93.00	-15.74	-28.05	0.00	-1,064.44	0.00	1,064.44	2,220.81	1,110.41	2,879.80	1,422.23	57.10	-6.12	0.756
96.00	-15.26	-27.47	0.00	-980.29	0.00	980.29	2,192.74	1,096.37	2,785.75	1,375.78	61.01	-6.34	0.720
99.00	-14.80	-26.89	0.00	-897.88	0.00	897.88	2,163.98	1,081.99	2,692.34	1,329.64	65.06	-6.55	0.683
102.00	-14.34	-26.31	0.00	-817.21	0.00	817.21	2,134.56	1,067.28	2,599.61	1,283.85	69.23	-6.76	0.644
105.00	-13.88	-24.74	0.00	-736.32	0.00	736.32	2,104.45	1,052.22	2,507.63	1,238.42	73.53	-6.96	0.602

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 31 Iterations

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

108.00	-13.47	-24.16	0.00	-662.10	0.00	662.10	2,073.67	1,036.83	2,416.44	1,193.39	77.95	-7.15	0.562
111.00	-13.07	-23.58	0.00	-589.62	0.00	589.62	2,042.21	1,021.11	2,326.10	1,148.77	82.49	-7.33	0.520
114.00	-12.69	-23.00	0.00	-518.88	0.00	518.88	2,006.48	1,003.24	2,232.66	1,102.63	87.14	-7.50	0.477
117.00	-12.31	-22.42	0.00	-449.88	0.00	449.88	1,959.62	979.81	2,129.00	1,051.43	91.90	-7.67	0.435
120.00	-11.96	-21.89	0.00	-382.62	0.00	382.62	1,912.75	956.38	2,027.81	1,001.46	96.75	-7.82	0.389
122.12	-11.70	-21.54	0.00	-336.17	0.00	336.17	1,879.60	939.80	1,957.71	966.84	100.24	-7.92	0.354
123.00	-10.05	-18.22	0.00	-317.27	0.00	317.27	1,865.89	932.94	1,929.08	952.70	101.69	-7.95	0.339
125.89	-9.60	-17.78	0.00	-264.69	0.00	264.69	929.68	464.84	961.73	474.96	106.52	-8.07	0.569
126.00	-9.59	-17.62	0.00	-262.66	0.00	262.66	929.29	464.65	960.40	474.31	106.72	-8.08	0.566
129.00	-9.34	-17.06	0.00	-209.80	0.00	209.80	918.88	459.44	925.49	457.06	111.83	-8.24	0.471
132.00	-9.11	-16.60	0.00	-158.62	0.00	158.62	907.79	453.90	890.46	439.76	117.04	-8.38	0.372
133.00	-6.34	-12.03	0.00	-142.02	0.00	142.02	903.95	451.97	878.77	433.99	118.79	-8.42	0.335
135.00	-6.23	-11.58	0.00	-117.96	0.00	117.96	896.03	448.02	855.37	422.43	122.33	-8.50	0.287
138.00	-6.05	-11.02	0.00	-83.23	0.00	83.23	883.59	441.80	820.26	405.10	127.68	-8.59	0.213
140.00	-3.63	-5.97	0.00	-61.19	0.00	61.19	874.92	437.46	796.88	393.55	131.27	-8.63	0.160
141.00	-3.58	-5.80	0.00	-55.22	0.00	55.22	870.48	435.24	785.20	387.78	133.08	-8.65	0.147
144.00	-3.41	-5.57	0.00	-37.83	0.00	37.83	856.69	428.34	750.24	370.52	138.51	-8.70	0.106
146.00	-3.30	-5.45	0.00	-26.70	0.00	26.70	847.12	423.56	727.02	359.05	142.15	-8.73	0.078
146.00	-3.30	-5.45	0.00	-26.70	0.00	26.70	920.33	460.16	575.46	378.52	142.15	-8.73	0.074
147.00	-3.20	-5.38	0.00	-21.25	0.00	21.25	920.33	460.16	575.46	378.52	143.97	-8.74	0.060
149.00	-1.01	-1.04	0.00	-6.47	0.00	6.47	920.33	460.16	575.46	378.52	147.62	-8.75	0.018
150.00	-0.94	-0.96	0.00	-5.43	0.00	5.43	920.33	460.16	575.46	378.52	149.45	-8.75	0.015
153.00	-0.72	-0.85	0.00	-2.55	0.00	2.55	920.33	460.16	575.46	378.52	154.93	-8.76	0.008
154.00	-0.63	-0.73	0.00	-1.70	0.00	1.70	920.33	460.16	575.46	378.52	156.76	-8.76	0.005
155.00	-0.11	-0.18	0.00	-0.96	0.00	0.96	920.33	460.16	575.46	378.52	158.58	-8.76	0.003
155.00	-0.11	-0.18	0.00	-0.96	0.00	0.96	70.80	35.40	9.07	6.17	158.58	-8.76	0.157
156.00	-0.10	-0.14	0.00	-0.78	0.00	0.78	70.80	35.40	9.07	6.17	160.41	-8.76	0.129
159.00	-0.08	-0.09	0.00	-0.35	0.00	0.35	70.80	35.40	9.07	6.17	165.95	-8.92	0.059
162.00	-0.02	-0.03	0.00	-0.08	0.00	0.08	70.80	35.40	9.07	6.17	171.56	-8.98	0.013
165.00	0.00	-0.02	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	177.18	-8.99	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.00 in Radial Ice — 31 Iterations

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		38.2	0.0					0.0	0.0	38.2	0.0	0.0	0.0
3.00		76.1	1,139.9					391.6	355.0	467.7	1,494.9	0.0	0.0
6.00		75.6	1,159.6					390.8	373.7	466.4	1,533.3	0.0	0.0
9.00		74.9	1,161.9					388.4	383.4	463.3	1,545.2	0.0	0.0
12.00		74.1	1,158.4					385.5	390.1	459.6	1,548.5	0.0	0.0
15.00		61.2	1,152.0					382.3	395.4	443.5	1,547.4	0.0	0.0
17.00	Appurtenance(s)	36.4	764.0	109.6	0.0	0.0	305.8	253.0	266.0	399.0	1,335.9	0.0	0.0
18.00		48.1	380.8					124.7	132.2	172.8	513.0	0.0	0.0
21.00		71.6	1,134.3					371.7	399.1	443.4	1,533.4	0.0	0.0
24.00		70.8	1,123.9					368.1	402.2	438.9	1,526.1	0.0	0.0
27.00		69.9	1,112.8					364.5	405.0	434.4	1,517.8	0.0	0.0
30.00		69.6	1,101.1					360.8	407.6	430.4	1,508.7	0.0	0.0
33.00		70.1	1,089.0					362.4	409.9	432.6	1,498.9	0.0	0.0
36.00		71.0	1,076.5					368.1	412.0	439.1	1,488.5	0.0	0.0
39.00		48.9	1,063.6					373.0	414.0	421.9	1,477.6	0.0	0.0
40.10	Bot - Section 2	36.4	388.8					138.3	152.8	174.7	541.6	0.0	0.0
42.00		60.0	1,056.7					238.8	263.0	298.8	1,319.7	0.0	0.0
45.00		47.9	1,652.7					380.7	417.6	428.6	2,070.3	0.0	0.0
45.90	Top - Section 1	37.1	491.0					114.6	125.4	151.7	616.4	0.0	0.0
48.00		50.8	660.2					272.9	293.8	323.7	954.0	0.0	0.0
50.00	Appurtenance(s)	37.2	622.8	25.9	0.0	2.0	145.6	260.9	280.3	324.0	1,048.7	0.0	0.0
51.00		49.8	309.6					130.8	140.4	180.6	450.0	0.0	0.0
54.00		74.8	918.9					390.4	417.6	465.2	1,336.5	0.0	0.0
57.00		74.9	906.4					390.3	416.6	465.1	1,322.9	0.0	0.0
60.00		74.9	893.7					391.5	417.8	466.4	1,311.5	0.0	0.0
63.00	Appurtenance(s)	74.8	880.8	53.2	0.0	0.0	356.2	392.3	419.1	520.3	1,656.1	0.0	0.0
66.00		74.7	867.9					382.8	402.0	457.5	1,269.9	0.0	0.0
69.00		74.5	854.8					382.8	403.0	457.3	1,257.8	0.0	0.0
72.00		74.3	841.6					382.5	404.0	456.8	1,245.6	0.0	0.0
75.00		74.0	828.3					382.0	404.9	456.0	1,233.2	0.0	0.0
78.00		68.8	815.0					381.2	405.8	450.0	1,220.8	0.0	0.0
80.60	Bot - Section 3	36.8	695.5					329.4	352.3	366.3	1,047.7	0.0	0.0
81.00	Appurtenance(s)	29.8	163.5	10.7	0.0	21.3	40.3	50.8	54.4	91.2	258.2	0.0	0.0
83.00	Appurtenance(s)	37.1	808.7	29.4	0.0	0.0	140.7	252.8	271.2	319.3	1,220.6	0.0	0.0
84.00		29.7	401.1					126.2	135.7	155.9	536.8	0.0	0.0
85.41	Top - Section 2	36.9	559.8					177.1	191.0	214.1	750.9	0.0	0.0
87.00		56.3	375.5					203.2	216.7	259.5	592.2	0.0	0.0
90.00		73.1	696.3					381.3	408.6	454.4	1,104.9	0.0	0.0
93.00		72.5	684.1					379.5	409.3	452.0	1,093.4	0.0	0.0
96.00		71.9	671.9					377.5	410.1	449.4	1,081.9	0.0	0.0
99.00		71.3	659.6					375.3	410.8	446.6	1,070.4	0.0	0.0
102.00		70.6	647.2					373.0	411.5	443.6	1,058.7	0.0	0.0
105.00	Appurtenance(s)	69.9	634.8	224.3	0.0	441.7	891.3	370.5	412.2	664.7	1,938.3	0.0	0.0
108.00		69.2	622.3					275.2	351.3	344.4	973.6	0.0	0.0
111.00		68.4	609.8					273.0	351.8	341.4	961.6	0.0	0.0
114.00		67.6	597.2					270.7	352.3	338.3	949.5	0.0	0.0
117.00		66.8	584.6					268.3	352.8	335.1	937.4	0.0	0.0
120.00		56.4	571.9					265.8	353.3	322.2	925.2	0.0	0.0

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.00 in Radial Ice — 31 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

122.12	Bot - Section 4	32.9	397.5					193.6	277.0	226.4	674.5	0.0	0.0
123.00	Appurtenance(s)	41.1	219.5	667.5	0.0	0.0	5,872.2	79.7	114.6	788.3	6,206.4	0.0	0.0
125.89	Top - Section 3	32.7	709.4					260.3	351.0	293.0	1,060.4	0.0	0.0
126.00		33.5	16.4					10.4	13.9	43.9	30.3	0.0	0.0
129.00		64.0	421.3					270.7	365.4	334.7	786.7	0.0	0.0
132.00		42.3	411.6					267.9	365.9	310.2	777.5	0.0	0.0
133.00	Appurtenance(s)	31.3	135.7	994.2	0.0	0.0	8,478.5	88.7	122.1	1,114.1	8,736.2	0.0	0.0
135.00		51.6	267.4					176.4	222.9	228.0	490.3	0.0	0.0
138.00		51.0	392.1					262.1	334.7	313.1	726.7	0.0	0.0
140.00	Appurtenance(s)	30.3	256.5	1,083.5	0.0	0.0	8,718.9	173.0	223.4	1,286.8	9,198.8	0.0	0.0
141.00		39.8	127.0					25.1	51.1	64.9	178.0	0.0	0.0
144.00		49.3	372.4					74.8	153.3	124.1	525.6	0.0	0.0
146.00	Top - Section 4	27.2	243.4					49.4	102.2	76.6	345.6	0.0	0.0
147.00		22.9	151.4					21.1	51.1	44.0	202.5	0.0	0.0
149.00	Appurtenance(s)	22.9	302.8	1,022.7	0.0	999.4	7,379.7	42.4	102.3	1,088.0	7,784.9	0.0	0.0
150.00		30.7	151.5					0.0	6.7	30.7	158.1	0.0	0.0
153.00		30.8	454.7					0.0	20.0	30.8	474.6	0.0	0.0
154.00	Appurtenance(s)	15.5	151.6	25.8	0.0	0.0	86.6	0.0	6.7	41.3	244.9	0.0	0.0
155.00	Top - Section 5	10.8	151.7	99.3	0.0	1.3	1,107.4	0.0	5.9	110.1	1,265.0	0.0	0.0
156.00		12.3	25.8					0.0	5.9	12.3	31.7	0.0	0.0
159.00		18.5	77.5					0.0	17.7	18.5	95.3	0.0	0.0
162.00	Appurtenance(s)	18.6	77.7	1.3	0.0	0.0	486.9	0.0	17.7	19.9	582.3	0.0	0.0
165.00		9.3	77.8					0.0	0.0	9.3	77.8	0.0	0.0
								Totals:		24,635.1	96,079.8	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.00 in Radial Ice — 31 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	-96.06	-24.67	0.00	-2,246.03	0.00	2,246.03	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.498
3.00	-94.53	-24.34	0.00	-2,172.02	0.00	2,172.02	4,631.78	2,315.89	9,346.21	4,615.74	0.03	-0.09	0.491
6.00	-92.96	-24.02	0.00	-2,098.99	0.00	2,098.99	4,597.82	2,298.91	9,156.81	4,522.21	0.11	-0.17	0.484
9.00	-91.38	-23.69	0.00	-2,026.94	0.00	2,026.94	4,563.18	2,281.59	8,967.87	4,428.89	0.25	-0.26	0.478
12.00	-89.80	-23.35	0.00	-1,955.89	0.00	1,955.89	4,527.86	2,263.93	8,779.43	4,335.83	0.44	-0.35	0.471
15.00	-88.23	-23.01	0.00	-1,885.83	0.00	1,885.83	4,491.86	2,245.93	8,591.56	4,243.05	0.69	-0.43	0.464
17.00	-86.88	-22.67	0.00	-1,839.80	0.00	1,839.80	4,467.49	2,233.75	8,466.65	4,181.36	0.88	-0.49	0.460
18.00	-86.34	-22.58	0.00	-1,817.13	0.00	1,817.13	4,455.19	2,227.60	8,404.31	4,150.57	0.99	-0.52	0.457
21.00	-84.78	-22.25	0.00	-1,749.39	0.00	1,749.39	4,417.85	2,208.92	8,217.72	4,058.43	1.34	-0.61	0.450
24.00	-83.22	-21.93	0.00	-1,682.63	0.00	1,682.63	4,379.82	2,189.91	8,031.86	3,966.64	1.76	-0.70	0.443
27.00	-81.68	-21.60	0.00	-1,616.85	0.00	1,616.85	4,341.13	2,170.56	7,846.78	3,875.23	2.23	-0.79	0.436
30.00	-80.14	-21.27	0.00	-1,552.05	0.00	1,552.05	4,301.75	2,150.88	7,662.53	3,784.23	2.75	-0.88	0.429
33.00	-78.62	-20.94	0.00	-1,488.24	0.00	1,488.24	4,261.70	2,130.85	7,479.16	3,693.68	3.33	-0.97	0.421
36.00	-77.11	-20.59	0.00	-1,425.43	0.00	1,425.43	4,220.97	2,110.49	7,296.73	3,603.58	3.97	-1.06	0.414
39.00	-75.62	-20.22	0.00	-1,363.65	0.00	1,363.65	4,179.57	2,089.78	7,115.28	3,513.97	4.66	-1.15	0.406
40.10	-75.06	-20.10	0.00	-1,341.32	0.00	1,341.32	4,164.16	2,082.08	7,048.76	3,481.12	4.93	-1.18	0.403
42.00	-73.72	-19.87	0.00	-1,303.22	0.00	1,303.22	4,137.49	2,068.74	6,934.89	3,424.88	5.41	-1.24	0.398
45.00	-71.64	-19.46	0.00	-1,243.63	0.00	1,243.63	4,094.73	2,047.37	6,755.59	3,336.33	6.22	-1.33	0.390
45.90	-71.02	-19.35	0.00	-1,226.14	0.00	1,226.14	3,345.43	1,672.72	5,614.65	2,772.86	6.47	-1.35	0.464
48.00	-70.05	-19.09	0.00	-1,185.47	0.00	1,185.47	3,324.15	1,662.07	5,517.72	2,724.99	7.08	-1.42	0.456
50.00	-68.99	-18.80	0.00	-1,147.30	0.00	1,147.30	3,303.59	1,651.79	5,425.69	2,679.55	7.69	-1.48	0.449
51.00	-68.52	-18.68	0.00	-1,128.50	0.00	1,128.50	3,293.20	1,646.60	5,379.77	2,656.86	8.00	-1.52	0.446
54.00	-67.17	-18.29	0.00	-1,072.46	0.00	1,072.46	3,261.57	1,630.78	5,242.36	2,589.00	8.99	-1.61	0.435
57.00	-65.83	-17.90	0.00	-1,017.58	0.00	1,017.58	3,229.26	1,614.63	5,105.54	2,521.44	10.03	-1.71	0.424
60.00	-64.51	-17.51	0.00	-963.87	0.00	963.87	3,196.28	1,598.14	4,969.37	2,454.19	11.14	-1.81	0.413
63.00	-62.84	-17.04	0.00	-911.36	0.00	911.36	3,162.62	1,581.31	4,833.91	2,387.28	12.30	-1.90	0.402
66.00	-61.56	-16.64	0.00	-860.25	0.00	860.25	3,128.28	1,564.14	4,699.19	2,320.75	13.53	-2.00	0.390
69.00	-60.29	-16.24	0.00	-810.33	0.00	810.33	3,093.27	1,546.64	4,565.29	2,254.62	14.82	-2.10	0.379
72.00	-59.04	-15.83	0.00	-761.62	0.00	761.62	3,057.58	1,528.79	4,432.24	2,188.92	16.17	-2.19	0.367
75.00	-57.80	-15.42	0.00	-714.13	0.00	714.13	3,021.22	1,510.61	4,300.11	2,123.66	17.57	-2.28	0.356
78.00	-56.57	-15.01	0.00	-667.86	0.00	667.86	2,984.18	1,492.09	4,168.95	2,058.89	19.04	-2.38	0.343
80.60	-55.53	-14.64	0.00	-628.86	0.00	628.86	2,951.54	1,475.77	4,056.14	2,003.18	20.36	-2.46	0.333
81.00	-55.27	-14.57	0.00	-622.97	0.00	622.97	2,946.46	1,473.23	4,038.81	1,994.61	20.56	-2.47	0.331
83.00	-54.05	-14.25	0.00	-593.82	0.00	593.82	2,920.94	1,460.47	3,952.64	1,952.06	21.61	-2.53	0.323
84.00	-53.51	-14.10	0.00	-579.58	0.00	579.58	2,908.96	1,454.48	3,910.94	1,931.47	22.14	-2.56	0.319
85.41	-52.76	-13.89	0.00	-559.75	0.00	559.75	2,288.86	1,144.43	3,120.34	1,541.02	22.90	-2.60	0.386
87.00	-52.16	-13.67	0.00	-537.61	0.00	537.61	2,274.94	1,137.47	3,069.59	1,515.96	23.78	-2.65	0.378
90.00	-51.06	-13.25	0.00	-496.59	0.00	496.59	2,248.22	1,124.11	2,974.43	1,468.96	25.48	-2.75	0.361
93.00	-49.97	-12.83	0.00	-456.83	0.00	456.83	2,220.81	1,110.41	2,879.80	1,422.23	27.23	-2.84	0.344
96.00	-48.89	-12.41	0.00	-418.34	0.00	418.34	2,192.74	1,096.37	2,785.75	1,375.78	29.05	-2.94	0.326
99.00	-47.82	-11.98	0.00	-381.12	0.00	381.12	2,163.98	1,081.99	2,692.34	1,329.64	30.92	-3.03	0.309
102.00	-46.77	-11.55	0.00	-345.18	0.00	345.18	2,134.56	1,067.28	2,599.61	1,283.85	32.85	-3.11	0.291
105.00	-44.86	-10.84	0.00	-310.09	0.00	310.09	2,104.45	1,052.22	2,507.63	1,238.42	34.84	-3.20	0.272

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 1.00 in Radial Ice — 31 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

108.00	-43.89	-10.51	0.00	-277.56	0.00	277.56	2,073.67	1,036.83	2,416.44	1,193.39	36.87	-3.28	0.254
111.00	-42.94	-10.16	0.00	-246.05	0.00	246.05	2,042.21	1,021.11	2,326.10	1,148.77	38.96	-3.36	0.235
114.00	-42.00	-9.82	0.00	-215.56	0.00	215.56	2,006.48	1,003.24	2,232.66	1,102.63	41.09	-3.43	0.217
117.00	-41.07	-9.48	0.00	-186.10	0.00	186.10	1,959.62	979.81	2,129.00	1,051.43	43.26	-3.50	0.198
120.00	-40.16	-9.13	0.00	-157.67	0.00	157.67	1,912.75	956.38	2,027.81	1,001.46	45.48	-3.56	0.179
122.12	-39.50	-8.89	0.00	-138.28	0.00	138.28	1,879.60	939.80	1,957.71	966.84	47.07	-3.60	0.164
123.00	-33.35	-7.73	0.00	-130.48	0.00	130.48	1,865.89	932.94	1,929.08	952.70	47.73	-3.61	0.155
125.89	-32.31	-7.38	0.00	-108.19	0.00	108.19	929.68	464.84	961.73	474.96	49.93	-3.66	0.263
126.00	-32.28	-7.36	0.00	-107.34	0.00	107.34	929.29	464.65	960.40	474.31	50.02	-3.66	0.261
129.00	-31.50	-7.01	0.00	-85.28	0.00	85.28	918.88	459.44	925.49	457.06	52.34	-3.73	0.221
132.00	-30.74	-6.66	0.00	-64.26	0.00	64.26	907.79	453.90	890.46	439.76	54.71	-3.79	0.180
133.00	-22.10	-4.98	0.00	-57.60	0.00	57.60	903.95	451.97	878.77	433.99	55.50	-3.81	0.157
135.00	-21.62	-4.73	0.00	-47.64	0.00	47.64	896.03	448.02	855.37	422.43	57.10	-3.84	0.137
138.00	-20.92	-4.38	0.00	-33.43	0.00	33.43	883.59	441.80	820.26	405.10	59.52	-3.87	0.106
140.00	-11.83	-2.48	0.00	-24.67	0.00	24.67	874.92	437.46	796.88	393.55	61.15	-3.89	0.076
141.00	-11.65	-2.41	0.00	-22.19	0.00	22.19	870.48	435.24	785.20	387.78	61.96	-3.90	0.071
144.00	-11.13	-2.25	0.00	-14.97	0.00	14.97	856.69	428.34	750.24	370.52	64.42	-3.92	0.053
146.00	-10.80	-2.15	0.00	-10.47	0.00	10.47	847.12	423.56	727.02	359.05	66.06	-3.93	0.042
146.00	-10.80	-2.15	0.00	-10.47	0.00	10.47	920.33	460.16	575.46	378.52	66.06	-3.93	0.039
147.00	-10.60	-2.09	0.00	-8.32	0.00	8.32	920.33	460.16	575.46	378.52	66.88	-3.93	0.034
149.00	-2.90	-0.47	0.00	-3.14	0.00	3.14	920.33	460.16	575.46	378.52	68.53	-3.94	0.011
150.00	-2.75	-0.43	0.00	-2.67	0.00	2.67	920.33	460.16	575.46	378.52	69.35	-3.94	0.010
153.00	-2.28	-0.37	0.00	-1.37	0.00	1.37	920.33	460.16	575.46	378.52	71.83	-3.94	0.006
154.00	-2.04	-0.31	0.00	-1.00	0.00	1.00	920.33	460.16	575.46	378.52	72.65	-3.94	0.005
155.00	-0.78	-0.11	0.00	-0.69	0.00	0.69	920.33	460.16	575.46	378.52	73.48	-3.94	0.003
155.00	-0.78	-0.11	0.00	-0.69	0.00	0.69	70.80	35.40	9.07	6.17	73.48	-3.94	0.123
156.00	-0.75	-0.10	0.00	-0.57	0.00	0.57	70.80	35.40	9.07	6.17	74.30	-3.94	0.104
159.00	-0.66	-0.08	0.00	-0.27	0.00	0.27	70.80	35.40	9.07	6.17	76.82	-4.06	0.054
162.00	-0.08	-0.01	0.00	-0.04	0.00	0.04	70.80	35.40	9.07	6.17	79.38	-4.11	0.008
165.00	0.00	-0.01	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	81.96	-4.11	0.000

Site Number: 302495 | Code: ANSI/TIA-222-G |

Site Name: Tolland CT, CT | Engineering Number:12991739_C3_02 | 11/15/2019 10:02:52 AM

Customer: VERIZON WIRELESS

Load Case: 1.0D + 1.0W | Serviceability 60 mph | 29 Iterations

Gust Response Factor :1.10 | Wind Importance Factor 1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		46.5	0.0					0.0	0.0	46.5	0.0	0.0	0.0
3.00		92.5	708.2					34.4	171.4	126.9	879.6	0.0	0.0
6.00		91.3	699.1					34.7	171.4	126.0	870.5	0.0	0.0
9.00		90.1	690.0					34.6	171.4	124.8	861.5	0.0	0.0
12.00		88.9	681.0					34.6	171.4	123.6	852.4	0.0	0.0
15.00		73.3	671.9					34.4	171.4	107.7	843.3	0.0	0.0
17.00	Appurtenance(s)	43.6	442.9	121.8	0.0	0.0	126.0	22.9	114.3	188.3	683.1	0.0	0.0
18.00		57.4	219.9					11.4	57.1	68.9	277.0	0.0	0.0
21.00		85.4	653.7					34.3	171.3	119.7	825.0	0.0	0.0
24.00		84.2	644.6					34.3	171.3	118.5	815.9	0.0	0.0
27.00		83.0	635.5					34.3	171.3	117.3	806.8	0.0	0.0
30.00		82.4	626.4					34.3	171.3	116.7	797.7	0.0	0.0
33.00		82.9	617.3					34.8	171.3	117.7	788.6	0.0	0.0
36.00		83.8	608.3					35.7	171.3	119.5	779.6	0.0	0.0
39.00		57.6	599.2					36.5	171.3	94.2	770.5	0.0	0.0
40.10	Bot - Section 2	42.8	218.2					13.6	63.0	56.5	281.3	0.0	0.0
42.00		70.6	696.9					23.7	108.3	94.3	805.2	0.0	0.0
45.00		56.4	1,089.0					38.1	171.3	94.5	1,260.3	0.0	0.0
45.90	Top - Section 1	43.5	322.9					11.5	51.3	55.1	374.2	0.0	0.0
48.00		59.6	349.6					27.3	120.0	86.8	469.6	0.0	0.0
50.00	Appurtenance(s)	43.6	329.2	17.7	0.0	0.6	80.0	26.3	114.2	87.6	523.4	0.0	0.0
51.00		58.2	163.3					13.2	57.1	71.5	220.4	0.0	0.0
54.00		87.3	484.7					40.2	171.0	127.5	655.7	0.0	0.0
57.00		87.3	476.9					40.4	170.8	127.6	647.7	0.0	0.0
60.00		87.1	469.1					41.0	170.8	128.1	639.9	0.0	0.0
63.00	Appurtenance(s)	86.9	461.3	36.9	0.0	0.0	170.0	41.5	170.8	165.3	802.1	0.0	0.0
66.00		86.5	453.5					40.4	169.9	127.0	623.4	0.0	0.0
69.00		86.1	445.7					41.0	169.9	127.1	615.7	0.0	0.0
72.00		85.7	437.9					41.5	169.9	127.1	607.9	0.0	0.0
75.00		85.1	430.1					41.9	169.9	127.1	600.1	0.0	0.0
78.00		78.9	422.3					42.4	169.9	121.3	592.3	0.0	0.0
80.60	Bot - Section 3	42.2	359.6					37.1	147.2	79.3	506.8	0.0	0.0
81.00	Appurtenance(s)	34.1	101.7	7.3	0.0	14.5	10.0	5.8	22.7	47.1	134.4	0.0	0.0
83.00	Appurtenance(s)	42.6	503.5	20.2	0.0	0.0	75.0	28.8	113.0	91.6	691.5	0.0	0.0
84.00		34.0	249.3					14.5	56.5	48.4	305.8	0.0	0.0
85.41	Top - Section 2	42.2	348.0					20.4	79.5	62.6	427.4	0.0	0.0
87.00		64.2	179.6					23.3	90.0	87.4	269.6	0.0	0.0
90.00		83.2	333.1					44.1	169.5	127.3	502.6	0.0	0.0
93.00		82.3	326.6					44.6	169.5	126.9	496.1	0.0	0.0
96.00		81.4	320.1					44.9	169.5	126.4	489.6	0.0	0.0
99.00		80.5	313.6					45.3	169.5	125.8	483.1	0.0	0.0
102.00		79.5	307.1					45.7	169.5	125.2	476.6	0.0	0.0
105.00	Appurtenance(s)	78.5	300.6	209.6	0.0	417.1	160.8	46.1	169.5	334.1	630.9	0.0	0.0
108.00		77.4	294.1					46.4	158.2	123.8	452.3	0.0	0.0
111.00		76.3	287.6					46.8	158.2	123.0	445.8	0.0	0.0
114.00		75.1	281.1					47.1	158.2	122.2	439.3	0.0	0.0
117.00		73.9	274.6					47.4	158.2	121.4	432.8	0.0	0.0
120.00		62.2	268.1					47.7	158.2	110.0	426.3	0.0	0.0

Load Case: 1.0D + 1.0W — Serviceability 60 mph — 29 Iterations

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

122.12	Bot - Section 4	36.2	185.8					33.3	126.5	69.5	312.3	0.0	0.0
123.00	Appurtenance(s)	45.2	122.3	599.3	0.0	0.0	2,120.0	13.8	52.3	658.4	2,294.6	0.0	0.0
125.89	Top - Section 3	35.9	395.8					45.6	150.2	81.6	546.0	0.0	0.0
126.00		36.7	5.9					1.8	6.0	38.5	11.9	0.0	0.0
129.00		69.9	152.3					47.7	156.2	117.7	308.5	0.0	0.0
132.00		46.0	148.4					48.1	156.2	94.1	304.6	0.0	0.0
133.00	Appurtenance(s)	33.9	48.6	829.2	0.0	0.0	3,674.8	19.5	52.1	882.6	3,775.5	0.0	0.0
135.00		55.8	95.9					39.0	86.3	94.8	182.2	0.0	0.0
138.00		55.0	140.6					58.8	129.4	113.8	270.0	0.0	0.0
140.00	Appurtenance(s)	30.7	91.6	921.5	0.0	0.0	3,326.7	39.4	86.3	991.7	3,504.6	0.0	0.0
141.00		35.5	45.1					0.0	29.1	35.5	74.2	0.0	0.0
144.00		43.8	132.8					0.0	87.2	43.8	220.0	0.0	0.0
146.00	Top - Section 4	21.1	86.4					0.0	58.1	21.1	144.5	0.0	0.0
147.00		11.4	82.8					0.0	29.1	11.4	111.9	0.0	0.0
149.00	Appurtenance(s)	11.4	165.7	834.8	0.0	859.5	2,919.1	0.0	58.1	846.2	3,142.9	0.0	0.0
150.00		15.3	82.8					0.0	5.6	15.3	88.4	0.0	0.0
153.00		15.4	248.5					0.0	16.7	15.4	265.2	0.0	0.0
154.00	Appurtenance(s)	7.7	82.8	15.2	0.0	0.0	25.0	0.0	5.6	22.9	113.4	0.0	0.0
155.00	Top - Section 5	5.5	82.8	95.0	0.0	0.7	579.2	0.0	4.9	100.5	667.0	0.0	0.0
156.00		6.8	7.6					0.0	4.9	6.8	12.6	0.0	0.0
159.00		10.2	22.9					0.0	14.8	10.2	37.7	0.0	0.0
162.00	Appurtenance(s)	10.3	22.9	1.3	0.0	0.0	40.5	0.0	14.8	11.5	78.2	0.0	0.0
165.00		5.1	22.9					0.0	0.0	5.1	22.9	0.0	0.0
								Totals:		9,711.49	44,670.4	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 29 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	-44.67	-9.68	0.00	-976.09	0.00	976.09	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.217
3.00	-43.78	-9.58	0.00	-947.05	0.00	947.05	4,631.78	2,315.89	9,346.21	4,615.74	0.01	-0.04	0.215
6.00	-42.90	-9.48	0.00	-918.31	0.00	918.31	4,597.82	2,298.91	9,156.81	4,522.21	0.05	-0.08	0.212
9.00	-42.04	-9.38	0.00	-889.86	0.00	889.86	4,563.18	2,281.59	8,967.87	4,428.89	0.11	-0.11	0.210
12.00	-41.18	-9.29	0.00	-861.71	0.00	861.71	4,527.86	2,263.93	8,779.43	4,335.83	0.19	-0.15	0.208
15.00	-40.33	-9.20	0.00	-833.85	0.00	833.85	4,491.86	2,245.93	8,591.56	4,243.05	0.30	-0.19	0.206
17.00	-39.65	-9.02	0.00	-815.46	0.00	815.46	4,467.49	2,233.75	8,466.65	4,181.36	0.38	-0.22	0.204
18.00	-39.36	-8.97	0.00	-806.43	0.00	806.43	4,455.19	2,227.60	8,404.31	4,150.57	0.43	-0.23	0.203
21.00	-38.53	-8.87	0.00	-779.53	0.00	779.53	4,417.85	2,208.92	8,217.72	4,058.43	0.59	-0.27	0.201
24.00	-37.71	-8.78	0.00	-752.91	0.00	752.91	4,379.82	2,189.91	8,031.86	3,966.64	0.77	-0.31	0.198
27.00	-36.90	-8.68	0.00	-726.58	0.00	726.58	4,341.13	2,170.56	7,846.78	3,875.23	0.98	-0.35	0.196
30.00	-36.10	-8.58	0.00	-700.54	0.00	700.54	4,301.75	2,150.88	7,662.53	3,784.23	1.21	-0.39	0.194
33.00	-35.30	-8.49	0.00	-674.79	0.00	674.79	4,261.70	2,130.85	7,479.16	3,693.68	1.47	-0.43	0.191
36.00	-34.52	-8.38	0.00	-649.33	0.00	649.33	4,220.97	2,110.49	7,296.73	3,603.58	1.75	-0.47	0.188
39.00	-33.75	-8.30	0.00	-624.18	0.00	624.18	4,179.57	2,089.78	7,115.28	3,513.97	2.06	-0.51	0.186
40.10	-33.46	-8.25	0.00	-615.02	0.00	615.02	4,164.16	2,082.08	7,048.76	3,481.12	2.18	-0.53	0.185
42.00	-32.65	-8.17	0.00	-599.37	0.00	599.37	4,137.49	2,068.74	6,934.89	3,424.88	2.39	-0.55	0.183
45.00	-31.39	-8.08	0.00	-574.86	0.00	574.86	4,094.73	2,047.37	6,755.59	3,336.33	2.75	-0.59	0.180
45.90	-31.01	-8.03	0.00	-567.60	0.00	567.60	3,345.43	1,672.72	5,614.65	2,772.86	2.86	-0.61	0.214
48.00	-30.54	-7.95	0.00	-550.72	0.00	550.72	3,324.15	1,662.07	5,517.72	2,724.99	3.14	-0.63	0.211
50.00	-30.01	-7.87	0.00	-534.81	0.00	534.81	3,303.59	1,651.79	5,425.69	2,679.55	3.41	-0.67	0.209
51.00	-29.79	-7.82	0.00	-526.94	0.00	526.94	3,293.20	1,646.60	5,379.77	2,656.86	3.55	-0.68	0.207
54.00	-29.13	-7.70	0.00	-503.50	0.00	503.50	3,261.57	1,630.78	5,242.36	2,589.00	3.99	-0.73	0.203
57.00	-28.48	-7.59	0.00	-480.39	0.00	480.39	3,229.26	1,614.63	5,105.54	2,521.44	4.47	-0.77	0.199
60.00	-27.83	-7.48	0.00	-457.62	0.00	457.62	3,196.28	1,598.14	4,969.37	2,454.19	4.97	-0.82	0.195
63.00	-27.03	-7.32	0.00	-435.19	0.00	435.19	3,162.62	1,581.31	4,833.91	2,387.28	5.50	-0.86	0.191
66.00	-26.40	-7.20	0.00	-413.23	0.00	413.23	3,128.28	1,564.14	4,699.19	2,320.75	6.05	-0.91	0.187
69.00	-25.78	-7.09	0.00	-391.62	0.00	391.62	3,093.27	1,546.64	4,565.29	2,254.62	6.64	-0.96	0.182
72.00	-25.17	-6.97	0.00	-370.36	0.00	370.36	3,057.58	1,528.79	4,432.24	2,188.92	7.26	-1.00	0.177
75.00	-24.57	-6.85	0.00	-349.45	0.00	349.45	3,021.22	1,510.61	4,300.11	2,123.66	7.90	-1.05	0.173
78.00	-23.97	-6.74	0.00	-328.89	0.00	328.89	2,984.18	1,492.09	4,168.95	2,058.89	8.58	-1.09	0.168
80.60	-23.47	-6.66	0.00	-311.38	0.00	311.38	2,951.54	1,475.77	4,056.14	2,003.18	9.18	-1.13	0.163
81.00	-23.33	-6.62	0.00	-308.70	0.00	308.70	2,946.46	1,473.23	4,038.81	1,994.61	9.28	-1.14	0.163
83.00	-22.64	-6.52	0.00	-295.47	0.00	295.47	2,920.94	1,460.47	3,952.64	1,952.06	9.76	-1.17	0.159
84.00	-22.33	-6.47	0.00	-288.95	0.00	288.95	2,908.96	1,454.48	3,910.94	1,931.47	10.01	-1.18	0.157
85.41	-21.90	-6.41	0.00	-279.85	0.00	279.85	2,288.86	1,144.43	3,120.34	1,541.02	10.36	-1.21	0.191
87.00	-21.63	-6.33	0.00	-269.64	0.00	269.64	2,274.94	1,137.47	3,069.59	1,515.96	10.77	-1.23	0.187
90.00	-21.13	-6.21	0.00	-250.65	0.00	250.65	2,248.22	1,124.11	2,974.43	1,468.96	11.56	-1.28	0.180
93.00	-20.63	-6.09	0.00	-232.03	0.00	232.03	2,220.81	1,110.41	2,879.80	1,422.23	12.37	-1.33	0.172
96.00	-20.14	-5.97	0.00	-213.76	0.00	213.76	2,192.74	1,096.37	2,785.75	1,375.78	13.22	-1.37	0.165
99.00	-19.65	-5.84	0.00	-195.86	0.00	195.86	2,163.98	1,081.99	2,692.34	1,329.64	14.10	-1.42	0.156
102.00	-19.17	-5.72	0.00	-178.33	0.00	178.33	2,134.56	1,067.28	2,599.61	1,283.85	15.01	-1.47	0.148
105.00	-18.55	-5.39	0.00	-160.75	0.00	160.75	2,104.45	1,052.22	2,507.63	1,238.42	15.95	-1.51	0.139

Load Case: 1.0D + 1.0W — Serviceability 60 mph — 29 Iterations

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

108.00	-18.10	-5.26	0.00	-144.59	0.00	144.59	2,073.67	1,036.83	2,416.44	1,193.39	16.91	-1.55	0.130
111.00	-17.65	-5.14	0.00	-128.80	0.00	128.80	2,042.21	1,021.11	2,326.10	1,148.77	17.90	-1.59	0.121
114.00	-17.21	-5.02	0.00	-113.39	0.00	113.39	2,006.48	1,003.24	2,232.66	1,102.63	18.91	-1.63	0.111
117.00	-16.78	-4.89	0.00	-98.34	0.00	98.34	1,959.62	979.81	2,129.00	1,051.43	19.94	-1.66	0.102
120.00	-16.35	-4.78	0.00	-83.66	0.00	83.66	1,912.75	956.38	2,027.81	1,001.46	21.00	-1.70	0.092
122.12	-16.04	-4.70	0.00	-73.52	0.00	73.52	1,879.60	939.80	1,957.71	966.84	21.76	-1.72	0.085
123.00	-13.77	-3.98	0.00	-69.39	0.00	69.39	1,865.89	932.94	1,929.08	952.70	22.08	-1.73	0.080
125.89	-13.22	-3.88	0.00	-57.91	0.00	57.91	929.68	464.84	961.73	474.96	23.13	-1.75	0.136
126.00	-13.21	-3.85	0.00	-57.47	0.00	57.47	929.29	464.65	960.40	474.31	23.17	-1.75	0.135
129.00	-12.90	-3.73	0.00	-45.91	0.00	45.91	918.88	459.44	925.49	457.06	24.29	-1.79	0.115
132.00	-12.60	-3.63	0.00	-34.72	0.00	34.72	907.79	453.90	890.46	439.76	25.42	-1.82	0.093
133.00	-8.86	-2.63	0.00	-31.09	0.00	31.09	903.95	451.97	878.77	433.99	25.81	-1.83	0.081
135.00	-8.68	-2.53	0.00	-25.83	0.00	25.83	896.03	448.02	855.37	422.43	26.58	-1.85	0.071
138.00	-8.41	-2.41	0.00	-18.23	0.00	18.23	883.59	441.80	820.26	405.10	27.74	-1.87	0.055
140.00	-4.94	-1.31	0.00	-13.40	0.00	13.40	874.92	437.46	796.88	393.55	28.53	-1.88	0.040
141.00	-4.87	-1.27	0.00	-12.09	0.00	12.09	870.48	435.24	785.20	387.78	28.92	-1.88	0.037
144.00	-4.65	-1.22	0.00	-8.28	0.00	8.28	856.69	428.34	750.24	370.52	30.11	-1.89	0.028
146.00	-4.50	-1.19	0.00	-5.84	0.00	5.84	847.12	423.56	727.02	359.05	30.90	-1.90	0.022
146.00	-4.50	-1.19	0.00	-5.84	0.00	5.84	920.33	460.16	575.46	378.52	30.90	-1.90	0.020
147.00	-4.39	-1.18	0.00	-4.64	0.00	4.64	920.33	460.16	575.46	378.52	31.30	-1.90	0.017
149.00	-1.28	-0.23	0.00	-1.43	0.00	1.43	920.33	460.16	575.46	378.52	32.09	-1.90	0.005
150.00	-1.19	-0.21	0.00	-1.20	0.00	1.20	920.33	460.16	575.46	378.52	32.49	-1.90	0.004
153.00	-0.93	-0.19	0.00	-0.56	0.00	0.56	920.33	460.16	575.46	378.52	33.69	-1.90	0.002
154.00	-0.81	-0.16	0.00	-0.37	0.00	0.37	920.33	460.16	575.46	378.52	34.09	-1.90	0.002
155.00	-0.15	-0.04	0.00	-0.21	0.00	0.21	920.33	460.16	575.46	378.52	34.49	-1.90	0.001
155.00	-0.15	-0.04	0.00	-0.21	0.00	0.21	70.80	35.40	9.07	6.17	34.49	-1.90	0.036
156.00	-0.14	-0.03	0.00	-0.17	0.00	0.17	70.80	35.40	9.07	6.17	34.88	-1.90	0.030
159.00	-0.10	-0.02	0.00	-0.08	0.00	0.08	70.80	35.40	9.07	6.17	36.09	-1.94	0.014
162.00	-0.02	-0.01	0.00	-0.02	0.00	0.02	70.80	35.40	9.07	6.17	37.32	-1.95	0.003
165.00	0.00	-0.01	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	38.54	-1.96	0.000

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.17
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 Coefficient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
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:	44.67 k
Seismic Base Shear (E):	1.34 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)
70	163.50	23	613	0.001	2	28
69	160.50	38	971	0.002	3	47
68	157.50	38	935	0.002	3	47
67	155.50	13	304	0.001	1	16
66	154.50	88	2,095	0.005	7	109
65	153.50	88	2,083	0.005	7	109
64	151.50	265	6,087	0.014	19	328
63	149.50	88	1,976	0.005	6	109
62	148.00	224	4,902	0.012	16	277
61	146.50	112	2,402	0.006	8	138
60	145.00	145	3,038	0.007	10	179
59	142.50	220	4,467	0.011	14	272
58	140.50	74	1,465	0.003	5	92
57	139.00	178	3,436	0.008	11	220
56	136.50	270	5,031	0.012	16	334
55	134.00	182	3,271	0.008	10	225
54	132.50	101	1,767	0.004	6	125
53	130.50	305	5,187	0.012	16	377
52	127.50	308	5,015	0.012	16	382
51	125.94	12	188	0.000	1	15
50	124.44	546	8,456	0.020	27	676
49	122.56	175	2,623	0.006	8	216
48	121.06	312	4,577	0.011	14	386

47	118.50	426	5,986	0.014	19	527
46	115.50	433	5,774	0.014	18	536
45	112.50	439	5,560	0.013	18	544
44	109.50	446	5,345	0.013	17	552
43	106.50	452	5,130	0.012	16	560
42	103.50	470	5,036	0.012	16	582
41	100.50	477	4,814	0.011	15	590
40	97.50	483	4,592	0.011	15	598
39	94.50	490	4,372	0.010	14	606
38	91.50	496	4,153	0.010	13	614
37	88.50	503	3,936	0.009	12	622
36	86.20	270	2,004	0.005	6	334
35	84.70	427	3,067	0.007	10	529
34	83.50	306	2,132	0.005	7	378
33	82.00	616	4,145	0.010	13	763
32	80.80	124	812	0.002	3	154
31	79.30	507	3,187	0.008	10	627
30	76.50	592	3,466	0.008	11	733
29	73.50	600	3,242	0.008	10	743
28	70.50	608	3,021	0.007	10	752
27	67.50	616	2,805	0.007	9	762
26	64.50	623	2,594	0.006	8	771
25	61.50	632	2,391	0.006	8	782
24	58.50	640	2,190	0.005	7	792
23	55.50	648	1,995	0.005	6	801
22	52.50	656	1,807	0.004	6	811
21	50.50	220	562	0.001	2	273
20	49.00	443	1,065	0.003	3	549
19	46.95	470	1,035	0.002	3	581
18	45.45	374	773	0.002	2	463
17	43.50	1,260	2,385	0.006	8	1,559
16	41.05	805	1,357	0.003	4	996
15	39.55	281	440	0.001	1	348
14	37.50	770	1,083	0.003	3	953
13	34.50	780	928	0.002	3	965
12	31.50	789	783	0.002	2	976
11	28.50	798	648	0.002	2	987
10	25.50	807	525	0.001	2	998
9	22.50	816	413	0.001	1	1,010
8	19.50	825	314	0.001	1	1,021
7	17.50	277	85	0.000	0	343
6	16.00	557	143	0.000	0	689
5	13.50	843	154	0.000	0	1,043
4	10.50	852	94	0.000	0	1,055
3	7.50	861	48	0.000	0	1,066
2	4.50	871	18	0.000	0	1,077
1	1.50	880	2	0.000	0	1,088
EMS RR90-17-02DP	162.00	41	1,063	0.003	3	50
Ericsson KRY 112 71/	155.00	79	1,903	0.004	6	98
Canister	155.00	500	12,013	0.028	38	619
Generic 7' Omni	154.00	25	593	0.001	2	31
Andrew ABT-DMDF-ADBH	149.00	1	24	0.000	0	1
Powerwave Allgon 702	149.00	7	147	0.000	0	8
Kathrein Scala 782-1	149.00	38	853	0.002	3	48
CCI DTMABP7819VG12A	149.00	115	2,558	0.006	8	143
Raycap DC6-48-60-18-	149.00	32	706	0.002	2	39
Ericsson RRUS 11 (Ba	149.00	150	3,330	0.008	11	186
Ericsson RRUS-12 800	149.00	180	3,996	0.009	13	223
Powerwave Allgon 777	149.00	105	2,331	0.006	7	130
KMW AM-X-CD-16-65-00	149.00	291	6,460	0.015	20	360
Flat Platform w/ Han	149.00	2,000	44,402	0.105	141	2,475
RFS FDJ85020D7-S	140.00	70	1,376	0.003	4	87
Samsung Outdoor CBRS	140.00	56	1,094	0.003	3	69
Samsung B5/B13 RRH-B	140.00	211	4,134	0.010	13	261

Samsung B2/B66A RRH-	140.00	253	4,963	0.012	16	313
Swedcom SC 9012	140.00	60	1,176	0.003	4	74
Samsung CBRS 64T64R	140.00	225	4,410	0.010	14	278
RFS DB-T1-6Z-8AB-0Z	140.00	88	1,725	0.004	5	109
Commscope JAHH-65B-R	140.00	364	7,127	0.017	23	450
Flat Platform w/ Han	140.00	2,000	39,200	0.093	124	2,475
Alcatel-Lucent 800 M	133.00	384	6,793	0.016	22	475
Alcatel-Lucent 1900	133.00	180	3,184	0.008	10	223
Alcatel-Lucent TD-RR	133.00	210	3,715	0.009	12	260
RFS APXVTM14-ALU-I20	133.00	169	2,982	0.007	9	209
Commscope NNVV-65B-R	133.00	232	4,107	0.010	13	287
Modified Platform w/	133.00	2,500	44,223	0.104	140	3,093
Decibel DB844H90E-A	123.00	120	1,815	0.004	6	148
Flat Platform w/ Han	123.00	2,000	30,258	0.071	96	2,475
Kathrein Scala Smart	105.00	10	109	0.000	0	12
Commscope LNX-6515DS	105.00	151	1,664	0.004	5	187
Stand-Off	83.00	75	517	0.001	2	93
Generic GPS	81.00	10	66	0.000	0	12
Generic GPS	63.00	20	79	0.000	0	25
Stand-Off	63.00	150	595	0.001	2	186
Generic 2" x 4" GPS	50.00	5	13	0.000	0	6
Stand-Off	50.00	75	188	0.000	1	93
Channel Master Type	17.00	126	36	0.000	0	156
		44,670	423,224	1.000	1,340	55,272

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)
70	163.50	23	613	0.001	2	20
69	160.50	38	971	0.002	3	33
68	157.50	38	935	0.002	3	33
67	155.50	13	304	0.001	1	11
66	154.50	88	2,095	0.005	7	76
65	153.50	88	2,083	0.005	7	76
64	151.50	265	6,087	0.014	19	229
63	149.50	88	1,976	0.005	6	76
62	148.00	224	4,902	0.012	16	193
61	146.50	112	2,402	0.006	8	97
60	145.00	145	3,038	0.007	10	125
59	142.50	220	4,467	0.011	14	190
58	140.50	74	1,465	0.003	5	64
57	139.00	178	3,436	0.008	11	153
56	136.50	270	5,031	0.012	16	233
55	134.00	182	3,271	0.008	10	157
54	132.50	101	1,767	0.004	6	87
53	130.50	305	5,187	0.012	16	263
52	127.50	308	5,015	0.012	16	266
51	125.94	12	188	0.000	1	10
50	124.44	546	8,456	0.020	27	471
49	122.56	175	2,623	0.006	8	151
48	121.06	312	4,577	0.011	14	269
47	118.50	426	5,986	0.014	19	368
46	115.50	433	5,774	0.014	18	373
45	112.50	439	5,560	0.013	18	379
44	109.50	446	5,345	0.013	17	385
43	106.50	452	5,130	0.012	16	390
42	103.50	470	5,036	0.012	16	406
41	100.50	477	4,814	0.011	15	411
40	97.50	483	4,592	0.011	15	417

39	94.50	490	4,372	0.010	14	422
38	91.50	496	4,153	0.010	13	428
37	88.50	503	3,936	0.009	12	434
36	86.20	270	2,004	0.005	6	233
35	84.70	427	3,067	0.007	10	369
34	83.50	306	2,132	0.005	7	264
33	82.00	616	4,145	0.010	13	532
32	80.80	124	812	0.002	3	107
31	79.30	507	3,187	0.008	10	437
30	76.50	592	3,466	0.008	11	511
29	73.50	600	3,242	0.008	10	518
28	70.50	608	3,021	0.007	10	524
27	67.50	616	2,805	0.007	9	531
26	64.50	623	2,594	0.006	8	538
25	61.50	632	2,391	0.006	8	545
24	58.50	640	2,190	0.005	7	552
23	55.50	648	1,995	0.005	6	559
22	52.50	656	1,807	0.004	6	566
21	50.50	220	562	0.001	2	190
20	49.00	443	1,065	0.003	3	382
19	46.95	470	1,035	0.002	3	405
18	45.45	374	773	0.002	2	323
17	43.50	1,260	2,385	0.006	8	1,087
16	41.05	805	1,357	0.003	4	695
15	39.55	281	440	0.001	1	243
14	37.50	770	1,083	0.003	3	665
13	34.50	780	928	0.002	3	673
12	31.50	789	783	0.002	2	680
11	28.50	798	648	0.002	2	688
10	25.50	807	525	0.001	2	696
9	22.50	816	413	0.001	1	704
8	19.50	825	314	0.001	1	712
7	17.50	277	85	0.000	0	239
6	16.00	557	143	0.000	0	481
5	13.50	843	154	0.000	0	727
4	10.50	852	94	0.000	0	735
3	7.50	861	48	0.000	0	743
2	4.50	871	18	0.000	0	751
1	1.50	880	2	0.000	0	759
EMS RR90-17-02DP	162.00	41	1,063	0.003	3	35
Ericsson KRY 112 71/	155.00	79	1,903	0.004	6	68
Canister	155.00	500	12,013	0.028	38	431
Generic 7' Omni	154.00	25	593	0.001	2	22
Andrew ABT-DMDF-ADBH	149.00	1	24	0.000	0	1
Powerwave Allgon 702	149.00	7	147	0.000	0	6
Kathrein Scala 782-1	149.00	38	853	0.002	3	33
CCI DTMABP7819VG12A	149.00	115	2,558	0.006	8	99
Raycap DC6-48-60-18-	149.00	32	706	0.002	2	27
Ericsson RRUS 11 (Ba	149.00	150	3,330	0.008	11	129
Ericsson RRUS-12 800	149.00	180	3,996	0.009	13	155
Powerwave Allgon 777	149.00	105	2,331	0.006	7	91
KMW AM-X-CD-16-65-00	149.00	291	6,460	0.015	20	251
Flat Platform w/ Han	149.00	2,000	44,402	0.105	141	1,725
RFS FDJ85020D7-S	140.00	70	1,376	0.003	4	61
Samsung Outdoor CBRS	140.00	56	1,094	0.003	3	48
Samsung B5/B13 RRH-B	140.00	211	4,134	0.010	13	182
Samsung B2/B66A RRH-	140.00	253	4,963	0.012	16	218
Swedcom SC 9012	140.00	60	1,176	0.003	4	52
Samsung CBRS 64T64R	140.00	225	4,410	0.010	14	194
RFS DB-T1-6Z-8AB-0Z	140.00	88	1,725	0.004	5	76
Commscope JAHH-65B-R	140.00	364	7,127	0.017	23	314
Flat Platform w/ Han	140.00	2,000	39,200	0.093	124	1,725
Alcatel-Lucent 800 M	133.00	384	6,793	0.016	22	331
Alcatel-Lucent 1900	133.00	180	3,184	0.008	10	155

Alcatel-Lucent TD-RR	133.00	210	3,715	0.009	12	181
RFS APXVTM14-ALU-I20	133.00	169	2,982	0.007	9	145
Commscope NNVV-65B-R	133.00	232	4,107	0.010	13	200
Modified Platform w/	133.00	2,500	44,223	0.104	140	2,157
Decibel DB844H90E-A	123.00	120	1,815	0.004	6	104
Flat Platform w/ Han	123.00	2,000	30,258	0.071	96	1,725
Kathrein Scala Smart	105.00	10	109	0.000	0	9
Commscope LNX-6515DS	105.00	151	1,664	0.004	5	130
Stand-Off	83.00	75	517	0.001	2	65
Generic GPS	81.00	10	66	0.000	0	9
Generic GPS	63.00	20	79	0.000	0	17
Stand-Off	63.00	150	595	0.001	2	129
Generic 2" x 4" GPS	50.00	5	13	0.000	0	4
Stand-Off	50.00	75	188	0.000	1	65
Channel Master Type	17.00	126	36	0.000	0	109
		44,670	423,224	1.000	1,340	38,536

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	-54.18	-1.34	0.00	-179.30	0.00	179.30	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.050
3.00	-53.11	-1.35	0.00	-175.28	0.00	175.28	4,631.78	2,315.89	9,346.21	4,615.74	0.00	-0.01	0.049
6.00	-52.04	-1.35	0.00	-171.23	0.00	171.23	4,597.82	2,298.91	9,156.81	4,522.21	0.01	-0.01	0.049
9.00	-50.99	-1.36	0.00	-167.17	0.00	167.17	4,563.18	2,281.59	8,967.87	4,428.89	0.02	-0.02	0.049
12.00	-49.94	-1.37	0.00	-163.09	0.00	163.09	4,527.86	2,263.93	8,779.43	4,335.83	0.04	-0.03	0.049
15.00	-49.25	-1.37	0.00	-158.99	0.00	158.99	4,491.86	2,245.93	8,591.56	4,243.05	0.06	-0.04	0.048
17.00	-48.75	-1.37	0.00	-156.25	0.00	156.25	4,467.49	2,233.75	8,466.65	4,181.36	0.07	-0.04	0.048
18.00	-47.73	-1.38	0.00	-154.88	0.00	154.88	4,455.19	2,227.60	8,404.31	4,150.57	0.08	-0.04	0.048
21.00	-46.72	-1.38	0.00	-150.75	0.00	150.75	4,417.85	2,208.92	8,217.72	4,058.43	0.11	-0.05	0.048
24.00	-45.72	-1.38	0.00	-146.62	0.00	146.62	4,379.82	2,189.91	8,031.86	3,966.64	0.14	-0.06	0.047
27.00	-44.74	-1.39	0.00	-142.47	0.00	142.47	4,341.13	2,170.56	7,846.78	3,875.23	0.18	-0.07	0.047
30.00	-43.76	-1.39	0.00	-138.31	0.00	138.31	4,301.75	2,150.88	7,662.53	3,784.23	0.23	-0.07	0.047
33.00	-42.80	-1.39	0.00	-134.15	0.00	134.15	4,261.70	2,130.85	7,479.16	3,693.68	0.28	-0.08	0.046
36.00	-41.84	-1.39	0.00	-129.98	0.00	129.98	4,220.97	2,110.49	7,296.73	3,603.58	0.33	-0.09	0.046
39.00	-41.49	-1.39	0.00	-125.81	0.00	125.81	4,179.57	2,089.78	7,115.28	3,513.97	0.39	-0.10	0.046
40.10	-40.50	-1.39	0.00	-124.27	0.00	124.27	4,164.16	2,082.08	7,048.76	3,481.12	0.41	-0.10	0.045
42.00	-38.94	-1.38	0.00	-121.63	0.00	121.63	4,137.49	2,068.74	6,934.89	3,424.88	0.45	-0.11	0.045
45.00	-38.48	-1.38	0.00	-117.48	0.00	117.48	4,094.73	2,047.37	6,755.59	3,336.33	0.52	-0.12	0.045
45.90	-37.89	-1.38	0.00	-116.24	0.00	116.24	3,345.43	1,672.72	5,614.65	2,772.86	0.55	-0.12	0.053
48.00	-37.35	-1.38	0.00	-113.33	0.00	113.33	3,324.15	1,662.07	5,517.72	2,724.99	0.60	-0.12	0.053
50.00	-36.97	-1.38	0.00	-110.57	0.00	110.57	3,303.59	1,651.79	5,425.69	2,679.55	0.65	-0.13	0.052
51.00	-36.16	-1.38	0.00	-109.18	0.00	109.18	3,293.20	1,646.60	5,379.77	2,656.86	0.68	-0.13	0.052
54.00	-35.36	-1.38	0.00	-105.05	0.00	105.05	3,261.57	1,630.78	5,242.36	2,589.00	0.77	-0.14	0.051
57.00	-34.57	-1.37	0.00	-100.92	0.00	100.92	3,229.26	1,614.63	5,105.54	2,521.44	0.86	-0.15	0.051
60.00	-33.79	-1.37	0.00	-96.80	0.00	96.80	3,196.28	1,598.14	4,969.37	2,454.19	0.96	-0.16	0.050
63.00	-32.80	-1.36	0.00	-92.69	0.00	92.69	3,162.62	1,581.31	4,833.91	2,387.28	1.06	-0.17	0.049
66.00	-32.04	-1.36	0.00	-88.61	0.00	88.61	3,128.28	1,564.14	4,699.19	2,320.75	1.18	-0.18	0.048
69.00	-31.29	-1.35	0.00	-84.54	0.00	84.54	3,093.27	1,546.64	4,565.29	2,254.62	1.29	-0.19	0.048
72.00	-30.55	-1.34	0.00	-80.49	0.00	80.49	3,057.58	1,528.79	4,432.24	2,188.92	1.42	-0.20	0.047
75.00	-29.81	-1.33	0.00	-76.47	0.00	76.47	3,021.22	1,510.61	4,300.11	2,123.66	1.55	-0.21	0.046
78.00	-29.19	-1.33	0.00	-72.47	0.00	72.47	2,984.18	1,492.09	4,168.95	2,058.89	1.68	-0.22	0.045
80.60	-29.03	-1.33	0.00	-69.02	0.00	69.02	2,951.54	1,475.77	4,056.14	2,003.18	1.81	-0.23	0.044
81.00	-28.26	-1.31	0.00	-68.49	0.00	68.49	2,946.46	1,473.23	4,038.81	1,994.61	1.82	-0.23	0.044
83.00	-27.79	-1.30	0.00	-65.87	0.00	65.87	2,920.94	1,460.47	3,952.64	1,952.06	1.92	-0.24	0.043
84.00	-27.26	-1.29	0.00	-64.56	0.00	64.56	2,908.96	1,454.48	3,910.94	1,931.47	1.97	-0.24	0.043
85.41	-26.92	-1.29	0.00	-62.75	0.00	62.75	2,288.86	1,144.43	3,120.34	1,541.02	2.05	-0.25	0.052
87.00	-26.30	-1.28	0.00	-60.70	0.00	60.70	2,274.94	1,137.47	3,069.59	1,515.96	2.13	-0.25	0.052
90.00	-25.69	-1.27	0.00	-56.87	0.00	56.87	2,248.22	1,124.11	2,974.43	1,468.96	2.29	-0.26	0.050
93.00	-25.08	-1.25	0.00	-53.07	0.00	53.07	2,220.81	1,110.41	2,879.80	1,422.23	2.46	-0.27	0.049
96.00	-24.48	-1.24	0.00	-49.31	0.00	49.31	2,192.74	1,096.37	2,785.75	1,375.78	2.63	-0.28	0.047
99.00	-23.89	-1.23	0.00	-45.59	0.00	45.59	2,163.98	1,081.99	2,692.34	1,329.64	2.82	-0.30	0.045
102.00	-23.31	-1.21	0.00	-41.91	0.00	41.91	2,134.56	1,067.28	2,599.61	1,283.85	3.01	-0.31	0.044
105.00	-22.55	-1.19	0.00	-38.27	0.00	38.27	2,104.45	1,052.22	2,507.63	1,238.42	3.20	-0.32	0.042
108.00	-22.00	-1.17	0.00	-34.70	0.00	34.70	2,073.67	1,036.83	2,416.44	1,193.39	3.40	-0.33	0.040
111.00	-21.46	-1.16	0.00	-31.18	0.00	31.18	2,042.21	1,021.11	2,326.10	1,148.77	3.61	-0.34	0.038
114.00	-20.92	-1.14	0.00	-27.71	0.00	27.71	2,006.48	1,003.24	2,232.66	1,102.63	3.83	-0.35	0.036
117.00	-20.40	-1.12	0.00	-24.30	0.00	24.30	1,959.62	979.81	2,129.00	1,051.43	4.05	-0.35	0.034

120.00	-20.01	-1.10	0.00	-20.94	0.00	20.94	1,912.75	956.38	2,027.81	1,001.46	4.27	-0.36	0.031
122.12	-19.79	-1.10	0.00	-18.60	0.00	18.60	1,879.60	939.80	1,957.71	966.84	4.43	-0.37	0.030
123.00	-16.50	-0.95	0.00	-17.63	0.00	17.63	1,865.89	932.94	1,929.08	952.70	4.50	-0.37	0.027
125.89	-16.48	-0.95	0.00	-14.90	0.00	14.90	929.68	464.84	961.73	474.96	4.73	-0.38	0.049
126.00	-16.10	-0.93	0.00	-14.79	0.00	14.79	929.29	464.65	960.40	474.31	4.74	-0.38	0.049
129.00	-15.72	-0.92	0.00	-11.99	0.00	11.99	918.88	459.44	925.49	457.06	4.98	-0.39	0.043
132.00	-15.60	-0.91	0.00	-9.25	0.00	9.25	907.79	453.90	890.46	439.76	5.22	-0.39	0.038
133.00	-10.83	-0.66	0.00	-8.34	0.00	8.34	903.95	451.97	878.77	433.99	5.30	-0.40	0.031
135.00	-10.49	-0.64	0.00	-7.02	0.00	7.02	896.03	448.02	855.37	422.43	5.47	-0.40	0.028
138.00	-10.27	-0.63	0.00	-5.08	0.00	5.08	883.59	441.80	820.26	405.10	5.72	-0.41	0.024
140.00	-6.07	-0.39	0.00	-3.82	0.00	3.82	874.92	437.46	796.88	393.55	5.90	-0.41	0.017
141.00	-5.79	-0.38	0.00	-3.43	0.00	3.43	870.48	435.24	785.20	387.78	5.98	-0.41	0.015
144.00	-5.62	-0.37	0.00	-2.30	0.00	2.30	856.69	428.34	750.24	370.52	6.24	-0.41	0.013
146.00	-5.48	-0.36	0.00	-1.57	0.00	1.57	847.12	423.56	727.02	359.05	6.41	-0.41	0.011
146.00	-5.48	-0.36	0.00	-1.57	0.00	1.57	920.33	460.16	575.46	378.52	6.41	-0.41	0.010
147.00	-5.20	-0.34	0.00	-1.21	0.00	1.21	920.33	460.16	575.46	378.52	6.50	-0.42	0.009
149.00	-1.48	-0.10	0.00	-0.53	0.00	0.53	920.33	460.16	575.46	378.52	6.67	-0.42	0.003
150.00	-1.15	-0.08	0.00	-0.43	0.00	0.43	920.33	460.16	575.46	378.52	6.76	-0.42	0.002
153.00	-1.04	-0.07	0.00	-0.19	0.00	0.19	920.33	460.16	575.46	378.52	7.02	-0.42	0.002
154.00	-0.90	-0.06	0.00	-0.12	0.00	0.12	920.33	460.16	575.46	378.52	7.11	-0.42	0.001
155.00	-0.17	-0.01	0.00	-0.06	0.00	0.06	920.33	460.16	575.46	378.52	7.20	-0.42	0.000
155.00	-0.17	-0.01	0.00	-0.06	0.00	0.06	70.80	35.40	9.07	6.17	7.20	-0.42	0.012
156.00	-0.13	-0.01	0.00	-0.04	0.00	0.04	70.80	35.40	9.07	6.17	7.29	-0.42	0.009
159.00	-0.08	-0.01	0.00	-0.02	0.00	0.02	70.80	35.40	9.07	6.17	7.55	-0.43	0.004
162.00	0.00	0.00	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	7.82	-0.43	0.000
165.00	0.00	0.00	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	8.09	-0.43	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	-37.78	-1.34	0.00	-175.23	0.00	175.23	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.045
3.00	-37.03	-1.35	0.00	-171.20	0.00	171.20	4,631.78	2,315.89	9,346.21	4,615.74	0.00	-0.01	0.045
6.00	-36.28	-1.35	0.00	-167.17	0.00	167.17	4,597.82	2,298.91	9,156.81	4,522.21	0.01	-0.01	0.045
9.00	-35.55	-1.35	0.00	-163.12	0.00	163.12	4,563.18	2,281.59	8,967.87	4,428.89	0.02	-0.02	0.045
12.00	-34.82	-1.36	0.00	-159.06	0.00	159.06	4,527.86	2,263.93	8,779.43	4,335.83	0.03	-0.03	0.044
15.00	-34.34	-1.36	0.00	-154.99	0.00	154.99	4,491.86	2,245.93	8,591.56	4,243.05	0.05	-0.03	0.044
17.00	-33.99	-1.36	0.00	-152.27	0.00	152.27	4,467.49	2,233.75	8,466.65	4,181.36	0.07	-0.04	0.044
18.00	-33.28	-1.36	0.00	-150.91	0.00	150.91	4,455.19	2,227.60	8,404.31	4,150.57	0.08	-0.04	0.044
21.00	-32.57	-1.37	0.00	-146.82	0.00	146.82	4,417.85	2,208.92	8,217.72	4,058.43	0.11	-0.05	0.044
24.00	-31.88	-1.37	0.00	-142.72	0.00	142.72	4,379.82	2,189.91	8,031.86	3,966.64	0.14	-0.06	0.043
27.00	-31.19	-1.37	0.00	-138.62	0.00	138.62	4,341.13	2,170.56	7,846.78	3,875.23	0.18	-0.06	0.043
30.00	-30.51	-1.37	0.00	-134.52	0.00	134.52	4,301.75	2,150.88	7,662.53	3,784.23	0.22	-0.07	0.043
33.00	-29.84	-1.37	0.00	-130.41	0.00	130.41	4,261.70	2,130.85	7,479.16	3,693.68	0.27	-0.08	0.042
36.00	-29.17	-1.37	0.00	-126.30	0.00	126.30	4,220.97	2,110.49	7,296.73	3,603.58	0.32	-0.09	0.042
39.00	-28.93	-1.37	0.00	-122.20	0.00	122.20	4,179.57	2,089.78	7,115.28	3,513.97	0.38	-0.10	0.042
40.10	-28.23	-1.37	0.00	-120.68	0.00	120.68	4,164.16	2,082.08	7,048.76	3,481.12	0.40	-0.10	0.041
42.00	-27.15	-1.36	0.00	-118.09	0.00	118.09	4,137.49	2,068.74	6,934.89	3,424.88	0.44	-0.10	0.041
45.00	-26.82	-1.36	0.00	-114.01	0.00	114.01	4,094.73	2,047.37	6,755.59	3,336.33	0.51	-0.11	0.041
45.90	-26.42	-1.36	0.00	-112.79	0.00	112.79	3,345.43	1,672.72	5,614.65	2,772.86	0.53	-0.11	0.049
48.00	-26.04	-1.36	0.00	-109.94	0.00	109.94	3,324.15	1,662.07	5,517.72	2,724.99	0.58	-0.12	0.048
50.00	-25.78	-1.36	0.00	-107.23	0.00	107.23	3,303.59	1,651.79	5,425.69	2,679.55	0.64	-0.13	0.048
51.00	-25.21	-1.35	0.00	-105.87	0.00	105.87	3,293.20	1,646.60	5,379.77	2,656.86	0.66	-0.13	0.048
54.00	-24.65	-1.35	0.00	-101.82	0.00	101.82	3,261.57	1,630.78	5,242.36	2,589.00	0.75	-0.14	0.047
57.00	-24.10	-1.34	0.00	-97.78	0.00	97.78	3,229.26	1,614.63	5,105.54	2,521.44	0.84	-0.15	0.046
60.00	-23.56	-1.34	0.00	-93.75	0.00	93.75	3,196.28	1,598.14	4,969.37	2,454.19	0.93	-0.16	0.046
63.00	-22.87	-1.33	0.00	-89.74	0.00	89.74	3,162.62	1,581.31	4,833.91	2,387.28	1.04	-0.17	0.045
66.00	-22.34	-1.32	0.00	-85.75	0.00	85.75	3,128.28	1,564.14	4,699.19	2,320.75	1.14	-0.18	0.044
69.00	-21.81	-1.31	0.00	-81.78	0.00	81.78	3,093.27	1,546.64	4,565.29	2,254.62	1.26	-0.19	0.043
72.00	-21.30	-1.31	0.00	-77.84	0.00	77.84	3,057.58	1,528.79	4,432.24	2,188.92	1.38	-0.20	0.043
75.00	-20.79	-1.30	0.00	-73.92	0.00	73.92	3,021.22	1,510.61	4,300.11	2,123.66	1.50	-0.21	0.042
78.00	-20.35	-1.29	0.00	-70.02	0.00	70.02	2,984.18	1,492.09	4,168.95	2,058.89	1.64	-0.22	0.041
80.60	-20.24	-1.29	0.00	-66.68	0.00	66.68	2,951.54	1,475.77	4,056.14	2,003.18	1.76	-0.22	0.040
81.00	-19.70	-1.27	0.00	-66.16	0.00	66.16	2,946.46	1,473.23	4,038.81	1,994.61	1.78	-0.22	0.040
83.00	-19.37	-1.27	0.00	-63.61	0.00	63.61	2,920.94	1,460.47	3,952.64	1,952.06	1.87	-0.23	0.039
84.00	-19.00	-1.26	0.00	-62.35	0.00	62.35	2,908.96	1,454.48	3,910.94	1,931.47	1.92	-0.23	0.039
85.41	-18.77	-1.25	0.00	-60.58	0.00	60.58	2,288.86	1,144.43	3,120.34	1,541.02	1.99	-0.24	0.048
87.00	-18.34	-1.24	0.00	-58.59	0.00	58.59	2,274.94	1,137.47	3,069.59	1,515.96	2.07	-0.24	0.047
90.00	-17.91	-1.23	0.00	-54.88	0.00	54.88	2,248.22	1,124.11	2,974.43	1,468.96	2.23	-0.25	0.045
93.00	-17.49	-1.21	0.00	-51.20	0.00	51.20	2,220.81	1,110.41	2,879.80	1,422.23	2.39	-0.27	0.044
96.00	-17.07	-1.20	0.00	-47.56	0.00	47.56	2,192.74	1,096.37	2,785.75	1,375.78	2.56	-0.28	0.042
99.00	-16.66	-1.19	0.00	-43.95	0.00	43.95	2,163.98	1,081.99	2,692.34	1,329.64	2.74	-0.29	0.041
102.00	-16.25	-1.17	0.00	-40.40	0.00	40.40	2,134.56	1,067.28	2,599.61	1,283.85	2.92	-0.30	0.039
105.00	-15.72	-1.15	0.00	-36.88	0.00	36.88	2,104.45	1,052.22	2,507.63	1,238.42	3.11	-0.31	0.037
108.00	-15.34	-1.13	0.00	-33.43	0.00	33.43	2,073.67	1,036.83	2,416.44	1,193.39	3.31	-0.32	0.035
111.00	-14.96	-1.12	0.00	-30.04	0.00	30.04	2,042.21	1,021.11	2,326.10	1,148.77	3.51	-0.33	0.033
114.00	-14.59	-1.10	0.00	-26.69	0.00	26.69	2,006.48	1,003.24	2,232.66	1,102.63	3.72	-0.33	0.031
117.00	-14.22	-1.08	0.00	-23.40	0.00	23.40	1,959.62	979.81	2,129.00	1,051.43	3.93	-0.34	0.030

120.00	-13.95	-1.06	0.00	-20.17	0.00	20.17	1,912.75	956.38	2,027.81	1,001.46	4.15	-0.35	0.027
122.12	-13.80	-1.06	0.00	-17.91	0.00	17.91	1,879.60	939.80	1,957.71	966.84	4.30	-0.36	0.026
123.00	-11.50	-0.91	0.00	-16.98	0.00	16.98	1,865.89	932.94	1,929.08	952.70	4.37	-0.36	0.024
125.89	-11.49	-0.91	0.00	-14.35	0.00	14.35	929.68	464.84	961.73	474.96	4.59	-0.36	0.043
126.00	-11.22	-0.90	0.00	-14.24	0.00	14.24	929.29	464.65	960.40	474.31	4.60	-0.36	0.042
129.00	-10.96	-0.88	0.00	-11.55	0.00	11.55	918.88	459.44	925.49	457.06	4.83	-0.37	0.037
132.00	-10.87	-0.88	0.00	-8.91	0.00	8.91	907.79	453.90	890.46	439.76	5.07	-0.38	0.032
133.00	-7.55	-0.64	0.00	-8.04	0.00	8.04	903.95	451.97	878.77	433.99	5.15	-0.38	0.027
135.00	-7.31	-0.62	0.00	-6.76	0.00	6.76	896.03	448.02	855.37	422.43	5.31	-0.39	0.024
138.00	-7.16	-0.61	0.00	-4.90	0.00	4.90	883.59	441.80	820.26	405.10	5.55	-0.39	0.020
140.00	-4.23	-0.38	0.00	-3.68	0.00	3.68	874.92	437.46	796.88	393.55	5.72	-0.40	0.014
141.00	-4.04	-0.36	0.00	-3.30	0.00	3.30	870.48	435.24	785.20	387.78	5.80	-0.40	0.013
144.00	-3.91	-0.35	0.00	-2.22	0.00	2.22	856.69	428.34	750.24	370.52	6.05	-0.40	0.011
146.00	-3.82	-0.34	0.00	-1.51	0.00	1.51	847.12	423.56	727.02	359.05	6.22	-0.40	0.009
146.00	-3.82	-0.34	0.00	-1.51	0.00	1.51	920.33	460.16	575.46	378.52	6.22	-0.40	0.008
147.00	-3.62	-0.33	0.00	-1.17	0.00	1.17	920.33	460.16	575.46	378.52	6.30	-0.40	0.007
149.00	-1.03	-0.10	0.00	-0.51	0.00	0.51	920.33	460.16	575.46	378.52	6.47	-0.40	0.002
150.00	-0.80	-0.08	0.00	-0.42	0.00	0.42	920.33	460.16	575.46	378.52	6.56	-0.40	0.002
153.00	-0.73	-0.07	0.00	-0.19	0.00	0.19	920.33	460.16	575.46	378.52	6.81	-0.40	0.001
154.00	-0.63	-0.06	0.00	-0.12	0.00	0.12	920.33	460.16	575.46	378.52	6.90	-0.40	0.001
155.00	-0.12	-0.01	0.00	-0.06	0.00	0.06	920.33	460.16	575.46	378.52	6.98	-0.40	0.000
155.00	-0.12	-0.01	0.00	-0.06	0.00	0.06	70.80	35.40	9.07	6.17	6.98	-0.40	0.011
156.00	-0.09	-0.01	0.00	-0.04	0.00	0.04	70.80	35.40	9.07	6.17	7.06	-0.40	0.008
159.00	-0.05	-0.01	0.00	-0.02	0.00	0.02	70.80	35.40	9.07	6.17	7.32	-0.41	0.003
162.00	0.00	0.00	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	7.58	-0.41	0.000
165.00	0.00	0.00	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	7.84	-0.41	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):	0.17
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}):	0.19
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)
70	163.50	23	1.856	1.804	1.076	0.331	5	28
69	160.50	38	1.788	1.486	0.957	0.290	7	47
68	157.50	38	1.722	1.208	0.849	0.251	6	47
67	155.50	13	1.679	1.043	0.782	0.227	2	16
66	154.50	88	1.657	0.966	0.750	0.215	13	109
65	153.50	88	1.636	0.893	0.720	0.204	12	109
64	151.50	265	1.593	0.758	0.661	0.182	32	328
63	149.50	88	1.552	0.636	0.606	0.161	9	109
62	148.00	224	1.521	0.553	0.568	0.145	22	277
61	146.50	112	1.490	0.477	0.531	0.131	10	138
60	145.00	145	1.460	0.406	0.496	0.117	11	179
59	142.50	220	1.410	0.302	0.442	0.095	14	272
58	140.50	74	1.370	0.230	0.402	0.078	4	92
57	139.00	178	1.341	0.182	0.374	0.066	8	220
56	136.50	270	1.293	0.112	0.330	0.048	9	334
55	134.00	182	1.247	0.053	0.291	0.031	4	225
54	132.50	101	1.219	0.023	0.269	0.022	1	125
53	130.50	305	1.182	-0.011	0.242	0.010	2	377
52	127.50	308	1.129	-0.052	0.205	-0.006	-1	382
51	125.94	12	1.101	-0.069	0.188	-0.013	0	15
50	124.44	546	1.075	-0.083	0.172	-0.019	-7	676
49	122.56	175	1.043	-0.097	0.154	-0.027	-3	216
48	121.06	312	1.017	-0.105	0.140	-0.032	-7	386
47	118.50	426	0.975	-0.115	0.119	-0.040	-11	527
46	115.50	433	0.926	-0.121	0.098	-0.047	-13	536
45	112.50	439	0.879	-0.121	0.079	-0.051	-15	544
44	109.50	446	0.832	-0.117	0.064	-0.054	-16	552
43	106.50	452	0.787	-0.109	0.050	-0.054	-16	560
42	103.50	470	0.744	-0.099	0.039	-0.052	-16	582
41	100.50	477	0.701	-0.087	0.030	-0.047	-15	590
40	97.50	483	0.660	-0.074	0.023	-0.041	-13	598
39	94.50	490	0.620	-0.060	0.017	-0.033	-11	606
38	91.50	496	0.581	-0.046	0.013	-0.023	-8	614
37	88.50	503	0.544	-0.032	0.009	-0.013	-4	622

36	86.20	270	0.516	-0.022	0.008	-0.004	-1	334
35	84.70	427	0.498	-0.015	0.007	0.001	0	529
34	83.50	306	0.484	-0.010	0.007	0.005	1	378
33	82.00	616	0.467	-0.004	0.006	0.011	4	763
32	80.80	124	0.453	0.001	0.006	0.015	1	154
31	79.30	507	0.437	0.006	0.006	0.020	7	627
30	76.50	592	0.406	0.016	0.006	0.028	11	733
29	73.50	600	0.375	0.026	0.007	0.035	14	743
28	70.50	608	0.345	0.034	0.009	0.041	17	752
27	67.50	616	0.316	0.041	0.011	0.046	19	762
26	64.50	623	0.289	0.048	0.013	0.050	21	771
25	61.50	632	0.263	0.053	0.016	0.052	22	782
24	58.50	640	0.238	0.057	0.019	0.054	23	792
23	55.50	648	0.214	0.061	0.021	0.054	23	801
22	52.50	656	0.191	0.064	0.024	0.055	24	811
21	50.50	220	0.177	0.065	0.026	0.055	8	273
20	49.00	443	0.167	0.066	0.028	0.054	16	549
19	46.95	470	0.153	0.068	0.030	0.054	17	581
18	45.45	374	0.143	0.068	0.031	0.054	13	463
17	43.50	1,260	0.131	0.069	0.033	0.053	45	1,559
16	41.05	805	0.117	0.070	0.035	0.053	28	996
15	39.55	281	0.109	0.071	0.036	0.053	10	348
14	37.50	770	0.098	0.071	0.037	0.052	27	953
13	34.50	780	0.083	0.072	0.039	0.051	27	965
12	31.50	789	0.069	0.072	0.041	0.051	27	976
11	28.50	798	0.056	0.071	0.042	0.050	27	987
10	25.50	807	0.045	0.071	0.042	0.049	26	998
9	22.50	816	0.035	0.069	0.041	0.048	26	1,010
8	19.50	825	0.026	0.067	0.040	0.047	26	1,021
7	17.50	277	0.021	0.065	0.038	0.046	8	343
6	16.00	557	0.018	0.063	0.037	0.045	17	689
5	13.50	843	0.013	0.058	0.034	0.042	24	1,043
4	10.50	852	0.008	0.051	0.029	0.038	22	1,055
3	7.50	861	0.004	0.041	0.023	0.032	19	1,066
2	4.50	871	0.001	0.028	0.015	0.024	14	1,077
1	1.50	880	0.000	0.010	0.006	0.010	6	1,088
EMS RR90-17-02DP	162.00	41	1.822	1.640	1.015	0.310	8	50
Ericsson KRY 112 71/	155.00	79	1.668	1.004	0.766	0.221	12	98
Canister	155.00	500	1.668	1.004	0.766	0.221	74	619
Generic 7' Omni	154.00	25	1.646	0.929	0.735	0.210	3	31
Andrew ABT-DMDF-	149.00	1	1.541	0.608	0.593	0.155	0	1
Powerwave Allgon 702	149.00	7	1.541	0.608	0.593	0.155	1	8
Kathrein Scala 782-1	149.00	38	1.541	0.608	0.593	0.155	4	48
CCI DTMABP7819VG12A	149.00	115	1.541	0.608	0.593	0.155	12	143
Raycap DC6-48-60-18-	149.00	32	1.541	0.608	0.593	0.155	3	39
Ericsson RRUS 11 (Ba	149.00	150	1.541	0.608	0.593	0.155	16	186
Ericsson RRUS-12 800	149.00	180	1.541	0.608	0.593	0.155	19	223
Powerwave Allgon 777	149.00	105	1.541	0.608	0.593	0.155	11	130
KMW AM-X-CD-16-65-00	149.00	291	1.541	0.608	0.593	0.155	30	360
Flat Platform w/ Han	149.00	2,000	1.541	0.608	0.593	0.155	207	2,475
RFS FDJ85020D7-S	140.00	70	1.361	0.214	0.392	0.074	3	87
Samsung Outdoor	140.00	56	1.361	0.214	0.392	0.074	3	69
Samsung B5/B13 RRH-B	140.00	211	1.361	0.214	0.392	0.074	10	261
Samsung B2/B66A RRH-	140.00	253	1.361	0.214	0.392	0.074	12	313
Swedcom SC 9012	140.00	60	1.361	0.214	0.392	0.074	3	74
Samsung CBRS 64T64R	140.00	225	1.361	0.214	0.392	0.074	11	278
RFS DB-T1-6Z-8AB-0Z	140.00	88	1.361	0.214	0.392	0.074	4	109
Commscope JAHH-65B-	140.00	364	1.361	0.214	0.392	0.074	18	450
Flat Platform w/ Han	140.00	2,000	1.361	0.214	0.392	0.074	99	2,475
Alcatel-Lucent 800 M	133.00	384	1.228	0.033	0.276	0.025	6	475
Alcatel-Lucent 1900	133.00	180	1.228	0.033	0.276	0.025	3	223
Alcatel-Lucent TD-RR	133.00	210	1.228	0.033	0.276	0.025	3	260
RFS APXVTM14-ALU-I20	133.00	169	1.228	0.033	0.276	0.025	3	209
Commscope NNVV-	133.00	232	1.228	0.033	0.276	0.025	4	287

Modified Platform w/	133.00	2,500	1.228	0.033	0.276	0.025	41	3,093
Decibel DB844H90E-A	123.00	120	1.050	-0.094	0.158	-0.025	-2	148
Flat Platform w/ Han	123.00	2,000	1.050	-0.094	0.158	-0.025	-34	2,475
Kathrein Scala Smart	105.00	10	0.765	-0.105	0.044	-0.053	0	12
Commscope LNX-	105.00	151	0.765	-0.105	0.044	-0.053	-5	187
Stand-Off	83.00	75	0.478	-0.008	0.006	0.007	0	93
Generic GPS	81.00	10	0.455	0.000	0.006	0.014	0	12
Generic GPS	63.00	20	0.276	0.051	0.014	0.051	1	25
Stand-Off	63.00	150	0.276	0.051	0.014	0.051	5	186
Generic 2" x 4" GPS	50.00	5	0.174	0.066	0.027	0.055	0	6
Stand-Off	50.00	75	0.174	0.066	0.027	0.055	3	93
Channel Master Type	17.00	126	0.020	0.064	0.038	0.045	4	156
		44,670	94.908	24.039	27.534	6.927	1,228	55,272

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)
70	163.50	23	1.856	1.804	1.076	0.331	5	20
69	160.50	38	1.788	1.486	0.957	0.290	7	33
68	157.50	38	1.722	1.208	0.849	0.251	6	33
67	155.50	13	1.679	1.043	0.782	0.227	2	11
66	154.50	88	1.657	0.966	0.750	0.215	13	76
65	153.50	88	1.636	0.893	0.720	0.204	12	76
64	151.50	265	1.593	0.758	0.661	0.182	32	229
63	149.50	88	1.552	0.636	0.606	0.161	9	76
62	148.00	224	1.521	0.553	0.568	0.145	22	193
61	146.50	112	1.490	0.477	0.531	0.131	10	97
60	145.00	145	1.460	0.406	0.496	0.117	11	125
59	142.50	220	1.410	0.302	0.442	0.095	14	190
58	140.50	74	1.370	0.230	0.402	0.078	4	64
57	139.00	178	1.341	0.182	0.374	0.066	8	153
56	136.50	270	1.293	0.112	0.330	0.048	9	233
55	134.00	182	1.247	0.053	0.291	0.031	4	157
54	132.50	101	1.219	0.023	0.269	0.022	1	87
53	130.50	305	1.182	-0.011	0.242	0.010	2	263
52	127.50	308	1.129	-0.052	0.205	-0.006	-1	266
51	125.94	12	1.101	-0.069	0.188	-0.013	0	10
50	124.44	546	1.075	-0.083	0.172	-0.019	-7	471
49	122.56	175	1.043	-0.097	0.154	-0.027	-3	151
48	121.06	312	1.017	-0.105	0.140	-0.032	-7	269
47	118.50	426	0.975	-0.115	0.119	-0.040	-11	368
46	115.50	433	0.926	-0.121	0.098	-0.047	-13	373
45	112.50	439	0.879	-0.121	0.079	-0.051	-15	379
44	109.50	446	0.832	-0.117	0.064	-0.054	-16	385
43	106.50	452	0.787	-0.109	0.050	-0.054	-16	390
42	103.50	470	0.744	-0.099	0.039	-0.052	-16	406
41	100.50	477	0.701	-0.087	0.030	-0.047	-15	411
40	97.50	483	0.660	-0.074	0.023	-0.041	-13	417
39	94.50	490	0.620	-0.060	0.017	-0.033	-11	422
38	91.50	496	0.581	-0.046	0.013	-0.023	-8	428
37	88.50	503	0.544	-0.032	0.009	-0.013	-4	434
36	86.20	270	0.516	-0.022	0.008	-0.004	-1	233
35	84.70	427	0.498	-0.015	0.007	0.001	0	369
34	83.50	306	0.484	-0.010	0.007	0.005	1	264
33	82.00	616	0.467	-0.004	0.006	0.011	4	532
32	80.80	124	0.453	0.001	0.006	0.015	1	107
31	79.30	507	0.437	0.006	0.006	0.020	7	437
30	76.50	592	0.406	0.016	0.006	0.028	11	511

29	73.50	600	0.375	0.026	0.007	0.035	14	518
28	70.50	608	0.345	0.034	0.009	0.041	17	524
27	67.50	616	0.316	0.041	0.011	0.046	19	531
26	64.50	623	0.289	0.048	0.013	0.050	21	538
25	61.50	632	0.263	0.053	0.016	0.052	22	545
24	58.50	640	0.238	0.057	0.019	0.054	23	552
23	55.50	648	0.214	0.061	0.021	0.054	23	559
22	52.50	656	0.191	0.064	0.024	0.055	24	566
21	50.50	220	0.177	0.065	0.026	0.055	8	190
20	49.00	443	0.167	0.066	0.028	0.054	16	382
19	46.95	470	0.153	0.068	0.030	0.054	17	405
18	45.45	374	0.143	0.068	0.031	0.054	13	323
17	43.50	1,260	0.131	0.069	0.033	0.053	45	1,087
16	41.05	805	0.117	0.070	0.035	0.053	28	695
15	39.55	281	0.109	0.071	0.036	0.053	10	243
14	37.50	770	0.098	0.071	0.037	0.052	27	665
13	34.50	780	0.083	0.072	0.039	0.051	27	673
12	31.50	789	0.069	0.072	0.041	0.051	27	680
11	28.50	798	0.056	0.071	0.042	0.050	27	688
10	25.50	807	0.045	0.071	0.042	0.049	26	696
9	22.50	816	0.035	0.069	0.041	0.048	26	704
8	19.50	825	0.026	0.067	0.040	0.047	26	712
7	17.50	277	0.021	0.065	0.038	0.046	8	239
6	16.00	557	0.018	0.063	0.037	0.045	17	481
5	13.50	843	0.013	0.058	0.034	0.042	24	727
4	10.50	852	0.008	0.051	0.029	0.038	22	735
3	7.50	861	0.004	0.041	0.023	0.032	19	743
2	4.50	871	0.001	0.028	0.015	0.024	14	751
1	1.50	880	0.000	0.010	0.006	0.010	6	759
EMS RR90-17-02DP	162.00	41	1.822	1.640	1.015	0.310	8	35
Ericsson KRY 112 71/	155.00	79	1.668	1.004	0.766	0.221	12	68
Canister	155.00	500	1.668	1.004	0.766	0.221	74	431
Generic 7' Omni	154.00	25	1.646	0.929	0.735	0.210	3	22
Andrew ABT-DMDF-	149.00	1	1.541	0.608	0.593	0.155	0	1
Powerwave Allgon 702	149.00	7	1.541	0.608	0.593	0.155	1	6
Kathrein Scala 782-1	149.00	38	1.541	0.608	0.593	0.155	4	33
CCI DTMABP7819VG12A	149.00	115	1.541	0.608	0.593	0.155	12	99
Raycap DC6-48-60-18-	149.00	32	1.541	0.608	0.593	0.155	3	27
Ericsson RRUS 11 (Ba	149.00	150	1.541	0.608	0.593	0.155	16	129
Ericsson RRUS-12 800	149.00	180	1.541	0.608	0.593	0.155	19	155
Powerwave Allgon 777	149.00	105	1.541	0.608	0.593	0.155	11	91
KMW AM-X-CD-16-65-00	149.00	291	1.541	0.608	0.593	0.155	30	251
Flat Platform w/ Han	149.00	2,000	1.541	0.608	0.593	0.155	207	1,725
RFS FDJ85020D7-S	140.00	70	1.361	0.214	0.392	0.074	3	61
Samsung Outdoor	140.00	56	1.361	0.214	0.392	0.074	3	48
Samsung B5/B13 RRH-B	140.00	211	1.361	0.214	0.392	0.074	10	182
Samsung B2/B66A RRH-	140.00	253	1.361	0.214	0.392	0.074	12	218
Swedcom SC 9012	140.00	60	1.361	0.214	0.392	0.074	3	52
Samsung CBRS 64T64R	140.00	225	1.361	0.214	0.392	0.074	11	194
RFS DB-T1-6Z-8AB-0Z	140.00	88	1.361	0.214	0.392	0.074	4	76
Commscope JAHH-65B-	140.00	364	1.361	0.214	0.392	0.074	18	314
Flat Platform w/ Han	140.00	2,000	1.361	0.214	0.392	0.074	99	1,725
Alcatel-Lucent 800 M	133.00	384	1.228	0.033	0.276	0.025	6	331
Alcatel-Lucent 1900	133.00	180	1.228	0.033	0.276	0.025	3	155
Alcatel-Lucent TD-RR	133.00	210	1.228	0.033	0.276	0.025	3	181
RFS APXVTM14-ALU-I20	133.00	169	1.228	0.033	0.276	0.025	3	145
Commscope NNVV-	133.00	232	1.228	0.033	0.276	0.025	4	200
Modified Platform w/	133.00	2,500	1.228	0.033	0.276	0.025	41	2,157
Decibel DB844H90E-A	123.00	120	1.050	-0.094	0.158	-0.025	-2	104
Flat Platform w/ Han	123.00	2,000	1.050	-0.094	0.158	-0.025	-34	1,725
Kathrein Scala Smart	105.00	10	0.765	-0.105	0.044	-0.053	0	9
Commscope LNX-	105.00	151	0.765	-0.105	0.044	-0.053	-5	130
Stand-Off	83.00	75	0.478	-0.008	0.006	0.007	0	65
Generic GPS	81.00	10	0.455	0.000	0.006	0.014	0	9

Generic GPS	63.00	20	0.276	0.051	0.014	0.051	1	17
Stand-Off	63.00	150	0.276	0.051	0.014	0.051	5	129
Generic 2" x 4" GPS	50.00	5	0.174	0.066	0.027	0.055	0	4
Stand-Off	50.00	75	0.174	0.066	0.027	0.055	3	65
Channel Master Type	17.00	126	0.020	0.064	0.038	0.045	4	109
		44,670	94.908	24.039	27.534	6.927	1,228	38,536

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	-54.18	-1.22	0.00	-128.16	0.00	128.16	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.039
3.00	-53.11	-1.21	0.00	-124.49	0.00	124.49	4,631.78	2,315.89	9,346.21	4,615.74	0.00	0.00	0.038
6.00	-52.04	-1.20	0.00	-120.85	0.00	120.85	4,597.82	2,298.91	9,156.81	4,522.21	0.01	-0.01	0.038
9.00	-50.99	-1.18	0.00	-117.25	0.00	117.25	4,563.18	2,281.59	8,967.87	4,428.89	0.01	-0.01	0.038
12.00	-49.94	-1.16	0.00	-113.70	0.00	113.70	4,527.86	2,263.93	8,779.43	4,335.83	0.03	-0.02	0.037
15.00	-49.25	-1.15	0.00	-110.21	0.00	110.21	4,491.86	2,245.93	8,591.56	4,243.05	0.04	-0.03	0.037
17.00	-48.75	-1.14	0.00	-107.91	0.00	107.91	4,467.49	2,233.75	8,466.65	4,181.36	0.05	-0.03	0.037
18.00	-47.73	-1.12	0.00	-106.77	0.00	106.77	4,455.19	2,227.60	8,404.31	4,150.57	0.06	-0.03	0.036
21.00	-46.72	-1.09	0.00	-103.43	0.00	103.43	4,417.85	2,208.92	8,217.72	4,058.43	0.08	-0.04	0.036
24.00	-45.73	-1.07	0.00	-100.15	0.00	100.15	4,379.82	2,189.91	8,031.86	3,966.64	0.10	-0.04	0.036
27.00	-44.74	-1.05	0.00	-96.93	0.00	96.93	4,341.13	2,170.56	7,846.78	3,875.23	0.13	-0.05	0.035
30.00	-43.76	-1.02	0.00	-93.79	0.00	93.79	4,301.75	2,150.88	7,662.53	3,784.23	0.16	-0.05	0.035
33.00	-42.80	-1.00	0.00	-90.72	0.00	90.72	4,261.70	2,130.85	7,479.16	3,693.68	0.19	-0.06	0.035
36.00	-41.84	-0.98	0.00	-87.72	0.00	87.72	4,220.97	2,110.49	7,296.73	3,603.58	0.23	-0.06	0.034
39.00	-41.50	-0.97	0.00	-84.79	0.00	84.79	4,179.57	2,089.78	7,115.28	3,513.97	0.27	-0.07	0.034
40.10	-40.50	-0.94	0.00	-83.72	0.00	83.72	4,164.16	2,082.08	7,048.76	3,481.12	0.29	-0.07	0.034
42.00	-38.94	-0.90	0.00	-81.93	0.00	81.93	4,137.49	2,068.74	6,934.89	3,424.88	0.32	-0.07	0.033
45.00	-38.48	-0.89	0.00	-79.24	0.00	79.24	4,094.73	2,047.37	6,755.59	3,336.33	0.36	-0.08	0.033
45.90	-37.90	-0.87	0.00	-78.45	0.00	78.45	3,345.43	1,672.72	5,614.65	2,772.86	0.38	-0.08	0.040
48.00	-37.35	-0.86	0.00	-76.62	0.00	76.62	3,324.15	1,662.07	5,517.72	2,724.99	0.42	-0.08	0.039
50.00	-36.98	-0.85	0.00	-74.90	0.00	74.90	3,303.59	1,651.79	5,425.69	2,679.55	0.45	-0.09	0.039
51.00	-36.16	-0.82	0.00	-74.06	0.00	74.06	3,293.20	1,646.60	5,379.77	2,656.86	0.47	-0.09	0.039
54.00	-35.36	-0.80	0.00	-71.58	0.00	71.58	3,261.57	1,630.78	5,242.36	2,589.00	0.53	-0.10	0.038
57.00	-34.57	-0.78	0.00	-69.17	0.00	69.17	3,229.26	1,614.63	5,105.54	2,521.44	0.59	-0.10	0.038
60.00	-33.79	-0.76	0.00	-66.82	0.00	66.82	3,196.28	1,598.14	4,969.37	2,454.19	0.66	-0.11	0.038
63.00	-32.81	-0.74	0.00	-64.53	0.00	64.53	3,162.62	1,581.31	4,833.91	2,387.28	0.73	-0.12	0.037
66.00	-32.05	-0.72	0.00	-62.31	0.00	62.31	3,128.28	1,564.14	4,699.19	2,320.75	0.81	-0.12	0.037
69.00	-31.29	-0.71	0.00	-60.15	0.00	60.15	3,093.27	1,546.64	4,565.29	2,254.62	0.89	-0.13	0.037
72.00	-30.55	-0.70	0.00	-58.02	0.00	58.02	3,057.58	1,528.79	4,432.24	2,188.92	0.98	-0.14	0.036
75.00	-29.82	-0.69	0.00	-55.93	0.00	55.93	3,021.22	1,510.61	4,300.11	2,123.66	1.07	-0.15	0.036
78.00	-29.19	-0.68	0.00	-53.87	0.00	53.87	2,984.18	1,492.09	4,168.95	2,058.89	1.16	-0.15	0.036
80.60	-29.04	-0.68	0.00	-52.10	0.00	52.10	2,951.54	1,475.77	4,056.14	2,003.18	1.25	-0.16	0.036
81.00	-28.26	-0.68	0.00	-51.83	0.00	51.83	2,946.46	1,473.23	4,038.81	1,994.61	1.26	-0.16	0.036
83.00	-27.79	-0.68	0.00	-50.47	0.00	50.47	2,920.94	1,460.47	3,952.64	1,952.06	1.33	-0.17	0.035
84.00	-27.26	-0.68	0.00	-49.79	0.00	49.79	2,908.96	1,454.48	3,910.94	1,931.47	1.36	-0.17	0.035
85.41	-26.93	-0.68	0.00	-48.84	0.00	48.84	2,288.86	1,144.43	3,120.34	1,541.02	1.41	-0.17	0.043
87.00	-26.31	-0.68	0.00	-47.76	0.00	47.76	2,274.94	1,137.47	3,069.59	1,515.96	1.47	-0.18	0.043
90.00	-25.69	-0.69	0.00	-45.71	0.00	45.71	2,248.22	1,124.11	2,974.43	1,468.96	1.58	-0.19	0.043
93.00	-25.09	-0.71	0.00	-43.63	0.00	43.63	2,220.81	1,110.41	2,879.80	1,422.23	1.70	-0.19	0.042
96.00	-24.49	-0.72	0.00	-41.52	0.00	41.52	2,192.74	1,096.37	2,785.75	1,375.78	1.83	-0.20	0.041
99.00	-23.90	-0.74	0.00	-39.35	0.00	39.35	2,163.98	1,081.99	2,692.34	1,329.64	1.96	-0.21	0.041
102.00	-23.32	-0.76	0.00	-37.14	0.00	37.14	2,134.56	1,067.28	2,599.61	1,283.85	2.10	-0.22	0.040
105.00	-22.56	-0.78	0.00	-34.87	0.00	34.87	2,104.45	1,052.22	2,507.63	1,238.42	2.24	-0.23	0.039
108.00	-22.01	-0.80	0.00	-32.54	0.00	32.54	2,073.67	1,036.83	2,416.44	1,193.39	2.39	-0.24	0.038
111.00	-21.46	-0.81	0.00	-30.16	0.00	30.16	2,042.21	1,021.11	2,326.10	1,148.77	2.54	-0.25	0.037
114.00	-20.93	-0.83	0.00	-27.72	0.00	27.72	2,006.48	1,003.24	2,232.66	1,102.63	2.70	-0.26	0.036
117.00	-20.40	-0.84	0.00	-25.24	0.00	25.24	1,959.62	979.81	2,129.00	1,051.43	2.87	-0.27	0.034

120.00	-20.01	-0.85	0.00	-22.73	0.00	22.73	1,912.75	956.38	2,027.81	1,001.46	3.04	-0.28	0.033
122.12	-19.80	-0.85	0.00	-20.94	0.00	20.94	1,879.60	939.80	1,957.71	966.84	3.16	-0.28	0.032
123.00	-16.50	-0.88	0.00	-20.19	0.00	20.19	1,865.89	932.94	1,929.08	952.70	3.21	-0.28	0.030
125.89	-16.48	-0.88	0.00	-17.66	0.00	17.66	929.68	464.84	961.73	474.96	3.39	-0.29	0.055
126.00	-16.10	-0.88	0.00	-17.56	0.00	17.56	929.29	464.65	960.40	474.31	3.39	-0.29	0.054
129.00	-15.72	-0.88	0.00	-14.93	0.00	14.93	918.88	459.44	925.49	457.06	3.58	-0.30	0.050
132.00	-15.60	-0.88	0.00	-12.30	0.00	12.30	907.79	453.90	890.46	439.76	3.78	-0.31	0.045
133.00	-10.83	-0.79	0.00	-11.42	0.00	11.42	903.95	451.97	878.77	433.99	3.84	-0.32	0.038
135.00	-10.49	-0.78	0.00	-9.84	0.00	9.84	896.03	448.02	855.37	422.43	3.98	-0.32	0.035
138.00	-10.27	-0.77	0.00	-7.51	0.00	7.51	883.59	441.80	820.26	405.10	4.18	-0.33	0.030
140.00	-6.07	-0.58	0.00	-5.97	0.00	5.97	874.92	437.46	796.88	393.55	4.32	-0.34	0.022
141.00	-5.79	-0.56	0.00	-5.39	0.00	5.39	870.48	435.24	785.20	387.78	4.39	-0.34	0.021
144.00	-5.61	-0.55	0.00	-3.70	0.00	3.70	856.69	428.34	750.24	370.52	4.61	-0.34	0.017
146.00	-5.48	-0.54	0.00	-2.60	0.00	2.60	847.12	423.56	727.02	359.05	4.75	-0.34	0.014
146.00	-5.48	-0.54	0.00	-2.60	0.00	2.60	920.33	460.16	575.46	378.52	4.75	-0.34	0.013
147.00	-5.20	-0.52	0.00	-2.06	0.00	2.06	920.33	460.16	575.46	378.52	4.82	-0.35	0.011
149.00	-1.48	-0.18	0.00	-1.02	0.00	1.02	920.33	460.16	575.46	378.52	4.97	-0.35	0.004
150.00	-1.15	-0.15	0.00	-0.84	0.00	0.84	920.33	460.16	575.46	378.52	5.04	-0.35	0.003
153.00	-1.04	-0.14	0.00	-0.39	0.00	0.39	920.33	460.16	575.46	378.52	5.26	-0.35	0.002
154.00	-0.90	-0.12	0.00	-0.25	0.00	0.25	920.33	460.16	575.46	378.52	5.33	-0.35	0.002
155.00	-0.17	-0.03	0.00	-0.13	0.00	0.13	920.33	460.16	575.46	378.52	5.41	-0.35	0.001
155.00	-0.17	-0.03	0.00	-0.13	0.00	0.13	70.80	35.40	9.07	6.17	5.41	-0.35	0.024
156.00	-0.13	-0.02	0.00	-0.11	0.00	0.11	70.80	35.40	9.07	6.17	5.48	-0.35	0.019
159.00	-0.08	-0.01	0.00	-0.04	0.00	0.04	70.80	35.40	9.07	6.17	5.70	-0.37	0.008
162.00	0.00	0.00	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	5.94	-0.37	0.000
165.00	0.00	0.00	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	6.17	-0.37	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	-37.78	-1.22	0.00	-125.05	0.00	125.05	4,665.07	2,332.54	9,536.02	4,709.48	0.00	0.00	0.035
3.00	-37.03	-1.21	0.00	-121.38	0.00	121.38	4,631.78	2,315.89	9,346.21	4,615.74	0.00	0.00	0.034
6.00	-36.28	-1.20	0.00	-117.75	0.00	117.75	4,597.82	2,298.91	9,156.81	4,522.21	0.01	-0.01	0.034
9.00	-35.55	-1.18	0.00	-114.16	0.00	114.16	4,563.18	2,281.59	8,967.87	4,428.89	0.01	-0.01	0.034
12.00	-34.82	-1.16	0.00	-110.63	0.00	110.63	4,527.86	2,263.93	8,779.43	4,335.83	0.02	-0.02	0.033
15.00	-34.34	-1.14	0.00	-107.17	0.00	107.17	4,491.86	2,245.93	8,591.56	4,243.05	0.04	-0.02	0.033
17.00	-33.99	-1.13	0.00	-104.88	0.00	104.88	4,467.49	2,233.75	8,466.65	4,181.36	0.05	-0.03	0.033
18.00	-33.28	-1.11	0.00	-103.75	0.00	103.75	4,455.19	2,227.60	8,404.31	4,150.57	0.06	-0.03	0.032
21.00	-32.58	-1.08	0.00	-100.44	0.00	100.44	4,417.85	2,208.92	8,217.72	4,058.43	0.08	-0.03	0.032
24.00	-31.88	-1.06	0.00	-97.19	0.00	97.19	4,379.82	2,189.91	8,031.86	3,966.64	0.10	-0.04	0.032
27.00	-31.19	-1.03	0.00	-94.01	0.00	94.01	4,341.13	2,170.56	7,846.78	3,875.23	0.13	-0.04	0.031
30.00	-30.51	-1.01	0.00	-90.91	0.00	90.91	4,301.75	2,150.88	7,662.53	3,784.23	0.16	-0.05	0.031
33.00	-29.84	-0.98	0.00	-87.88	0.00	87.88	4,261.70	2,130.85	7,479.16	3,693.68	0.19	-0.06	0.031
36.00	-29.17	-0.96	0.00	-84.93	0.00	84.93	4,220.97	2,110.49	7,296.73	3,603.58	0.22	-0.06	0.030
39.00	-28.93	-0.95	0.00	-82.05	0.00	82.05	4,179.57	2,089.78	7,115.28	3,513.97	0.26	-0.07	0.030
40.10	-28.24	-0.92	0.00	-81.00	0.00	81.00	4,164.16	2,082.08	7,048.76	3,481.12	0.28	-0.07	0.030
42.00	-27.15	-0.88	0.00	-79.24	0.00	79.24	4,137.49	2,068.74	6,934.89	3,424.88	0.31	-0.07	0.030
45.00	-26.83	-0.87	0.00	-76.60	0.00	76.60	4,094.73	2,047.37	6,755.59	3,336.33	0.35	-0.08	0.030
45.90	-26.42	-0.85	0.00	-75.82	0.00	75.82	3,345.43	1,672.72	5,614.65	2,772.86	0.37	-0.08	0.035
48.00	-26.04	-0.84	0.00	-74.04	0.00	74.04	3,324.15	1,662.07	5,517.72	2,724.99	0.40	-0.08	0.035
50.00	-25.78	-0.83	0.00	-72.36	0.00	72.36	3,303.59	1,651.79	5,425.69	2,679.55	0.44	-0.09	0.035
51.00	-25.21	-0.80	0.00	-71.54	0.00	71.54	3,293.20	1,646.60	5,379.77	2,656.86	0.46	-0.09	0.035
54.00	-24.65	-0.78	0.00	-69.12	0.00	69.12	3,261.57	1,630.78	5,242.36	2,589.00	0.52	-0.09	0.034
57.00	-24.10	-0.76	0.00	-66.78	0.00	66.78	3,229.26	1,614.63	5,105.54	2,521.44	0.58	-0.10	0.034
60.00	-23.56	-0.74	0.00	-64.49	0.00	64.49	3,196.28	1,598.14	4,969.37	2,454.19	0.64	-0.11	0.034
63.00	-22.87	-0.72	0.00	-62.27	0.00	62.27	3,162.62	1,581.31	4,833.91	2,387.28	0.71	-0.11	0.033
66.00	-22.34	-0.70	0.00	-60.12	0.00	60.12	3,128.28	1,564.14	4,699.19	2,320.75	0.79	-0.12	0.033
69.00	-21.82	-0.68	0.00	-58.03	0.00	58.03	3,093.27	1,546.64	4,565.29	2,254.62	0.87	-0.13	0.033
72.00	-21.30	-0.67	0.00	-55.98	0.00	55.98	3,057.58	1,528.79	4,432.24	2,188.92	0.95	-0.13	0.033
75.00	-20.79	-0.66	0.00	-53.97	0.00	53.97	3,021.22	1,510.61	4,300.11	2,123.66	1.03	-0.14	0.032
78.00	-20.35	-0.66	0.00	-51.98	0.00	51.98	2,984.18	1,492.09	4,168.95	2,058.89	1.13	-0.15	0.032
80.60	-20.24	-0.66	0.00	-50.28	0.00	50.28	2,951.54	1,475.77	4,056.14	2,003.18	1.21	-0.15	0.032
81.00	-19.70	-0.65	0.00	-50.02	0.00	50.02	2,946.46	1,473.23	4,038.81	1,994.61	1.22	-0.16	0.032
83.00	-19.37	-0.65	0.00	-48.72	0.00	48.72	2,920.94	1,460.47	3,952.64	1,952.06	1.29	-0.16	0.032
84.00	-19.01	-0.65	0.00	-48.07	0.00	48.07	2,908.96	1,454.48	3,910.94	1,931.47	1.32	-0.16	0.031
85.41	-18.77	-0.65	0.00	-47.16	0.00	47.16	2,288.86	1,144.43	3,120.34	1,541.02	1.37	-0.17	0.039
87.00	-18.34	-0.66	0.00	-46.12	0.00	46.12	2,274.94	1,137.47	3,069.59	1,515.96	1.43	-0.17	0.038
90.00	-17.91	-0.66	0.00	-44.15	0.00	44.15	2,248.22	1,124.11	2,974.43	1,468.96	1.54	-0.18	0.038
93.00	-17.49	-0.68	0.00	-42.16	0.00	42.16	2,220.81	1,110.41	2,879.80	1,422.23	1.65	-0.19	0.038
96.00	-17.07	-0.69	0.00	-40.13	0.00	40.13	2,192.74	1,096.37	2,785.75	1,375.78	1.77	-0.20	0.037
99.00	-16.66	-0.71	0.00	-38.06	0.00	38.06	2,163.98	1,081.99	2,692.34	1,329.64	1.90	-0.21	0.036
102.00	-16.26	-0.72	0.00	-35.94	0.00	35.94	2,134.56	1,067.28	2,599.61	1,283.85	2.03	-0.21	0.036
105.00	-15.73	-0.75	0.00	-33.76	0.00	33.76	2,104.45	1,052.22	2,507.63	1,238.42	2.17	-0.22	0.035
108.00	-15.34	-0.76	0.00	-31.52	0.00	31.52	2,073.67	1,036.83	2,416.44	1,193.39	2.31	-0.23	0.034
111.00	-14.96	-0.78	0.00	-29.23	0.00	29.23	2,042.21	1,021.11	2,326.10	1,148.77	2.46	-0.24	0.033
114.00	-14.59	-0.79	0.00	-26.89	0.00	26.89	2,006.48	1,003.24	2,232.66	1,102.63	2.62	-0.25	0.032
117.00	-14.22	-0.81	0.00	-24.51	0.00	24.51	1,959.62	979.81	2,129.00	1,051.43	2.78	-0.26	0.031

120.00	-13.95	-0.81	0.00	-22.09	0.00	22.09	1,912.75	956.38	2,027.81	1,001.46	2.94	-0.27	0.029
122.12	-13.80	-0.82	0.00	-20.37	0.00	20.37	1,879.60	939.80	1,957.71	966.84	3.06	-0.27	0.028
123.00	-11.50	-0.85	0.00	-19.65	0.00	19.65	1,865.89	932.94	1,929.08	952.70	3.11	-0.28	0.027
125.89	-11.49	-0.85	0.00	-17.20	0.00	17.20	929.68	464.84	961.73	474.96	3.28	-0.28	0.049
126.00	-11.22	-0.85	0.00	-17.11	0.00	17.11	929.29	464.65	960.40	474.31	3.29	-0.28	0.048
129.00	-10.96	-0.85	0.00	-14.56	0.00	14.56	918.88	459.44	925.49	457.06	3.47	-0.29	0.044
132.00	-10.87	-0.85	0.00	-12.01	0.00	12.01	907.79	453.90	890.46	439.76	3.66	-0.30	0.039
133.00	-7.55	-0.77	0.00	-11.16	0.00	11.16	903.95	451.97	878.77	433.99	3.72	-0.31	0.034
135.00	-7.31	-0.76	0.00	-9.62	0.00	9.62	896.03	448.02	855.37	422.43	3.85	-0.31	0.031
138.00	-7.16	-0.75	0.00	-7.35	0.00	7.35	883.59	441.80	820.26	405.10	4.05	-0.32	0.026
140.00	-4.23	-0.57	0.00	-5.85	0.00	5.85	874.92	437.46	796.88	393.55	4.19	-0.33	0.020
141.00	-4.04	-0.55	0.00	-5.28	0.00	5.28	870.48	435.24	785.20	387.78	4.26	-0.33	0.018
144.00	-3.91	-0.54	0.00	-3.63	0.00	3.63	856.69	428.34	750.24	370.52	4.46	-0.33	0.014
146.00	-3.82	-0.53	0.00	-2.55	0.00	2.55	847.12	423.56	727.02	359.05	4.60	-0.33	0.012
146.00	-3.82	-0.53	0.00	-2.55	0.00	2.55	920.33	460.16	575.46	378.52	4.60	-0.33	0.011
147.00	-3.62	-0.51	0.00	-2.02	0.00	2.02	920.33	460.16	575.46	378.52	4.67	-0.34	0.009
149.00	-1.03	-0.18	0.00	-1.00	0.00	1.00	920.33	460.16	575.46	378.52	4.81	-0.34	0.004
150.00	-0.80	-0.15	0.00	-0.82	0.00	0.82	920.33	460.16	575.46	378.52	4.88	-0.34	0.003
153.00	-0.73	-0.13	0.00	-0.38	0.00	0.38	920.33	460.16	575.46	378.52	5.10	-0.34	0.002
154.00	-0.63	-0.12	0.00	-0.25	0.00	0.25	920.33	460.16	575.46	378.52	5.17	-0.34	0.001
155.00	-0.12	-0.03	0.00	-0.13	0.00	0.13	920.33	460.16	575.46	378.52	5.24	-0.34	0.000
155.00	-0.12	-0.03	0.00	-0.13	0.00	0.13	70.80	35.40	9.07	6.17	5.24	-0.34	0.023
156.00	-0.09	-0.02	0.00	-0.10	0.00	0.10	70.80	35.40	9.07	6.17	5.31	-0.34	0.018
159.00	-0.05	-0.01	0.00	-0.04	0.00	0.04	70.80	35.40	9.07	6.17	5.53	-0.36	0.007
162.00	0.00	0.00	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	5.75	-0.36	0.000
165.00	0.00	0.00	0.00	0.00	0.00	0.00	70.80	35.40	9.07	6.17	5.98	-0.36	0.000

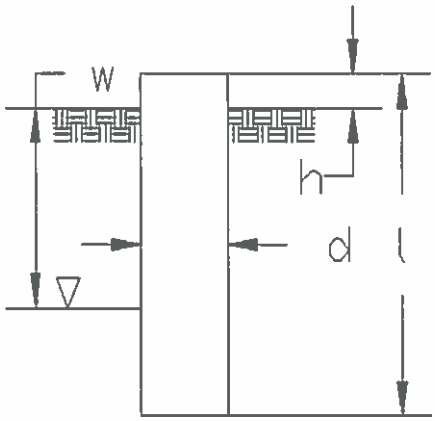
Analysis Summary

	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	45.26	0.00	53.53	0.00	0.00	4601.05	0.00	0.99
0.9D + 1.6W	45.23	0.00	40.13	0.00	0.00	4522.48	0.00	0.97
1.2D + 1.0Di + 1.0Wi	24.67	0.00	96.06	0.00	0.00	2246.03	0.00	0.50
(1.2 + 0.2Sds) * DL + E ELFM	1.34	0.00	54.18	0.00	0.00	179.30	45.90	0.05
(1.2 + 0.2Sds) * DL + E EMAM	1.22	0.00	54.18	0.00	0.00	128.16	125.89	0.05
(0.9 - 0.2Sds) * DL + E ELFM	1.34	0.00	37.78	0.00	0.00	175.23	45.90	0.05
(0.9 - 0.2Sds) * DL + E EMAM	1.22	0.00	37.78	0.00	0.00	125.05	125.89	0.05
1.0D + 1.0W	9.68	0.00	44.67	0.00	0.00	976.09	0.00	0.22

Site Name: Tolland, CT
Site Number: 302495
Tower Type: MP
Design Base Loads (Factored) - Analysis per TIA-222-G Standards

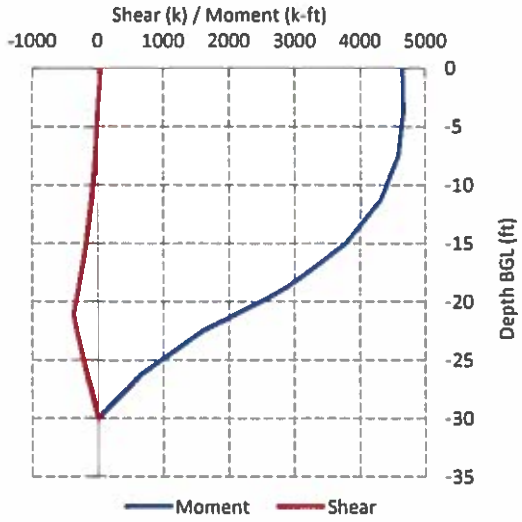
Pier Foundation Analysis

Foundation Analysis Parameters		
Analyze or Design a Foundation?	Analyze	-
Foundation Mapped:	N	-
Moment (M):	4,601.1	k-ft
Shear/Leg (V):	45.3	k
Axial Load (P):	53.5	k
Uplift/Leg (U):	0.0	k
Diameter of Caisson (d):	7	ft
Caisson Embedment (L-h):	30	ft
Caisson Height Above Ground (h):	1	ft
Depth Below Ground Surface to Water Table (w):	3	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Water:	62.4	pcf
Tension/Compression Skin Friction Factor:	0.75	-
Pullout Angle:	30	°



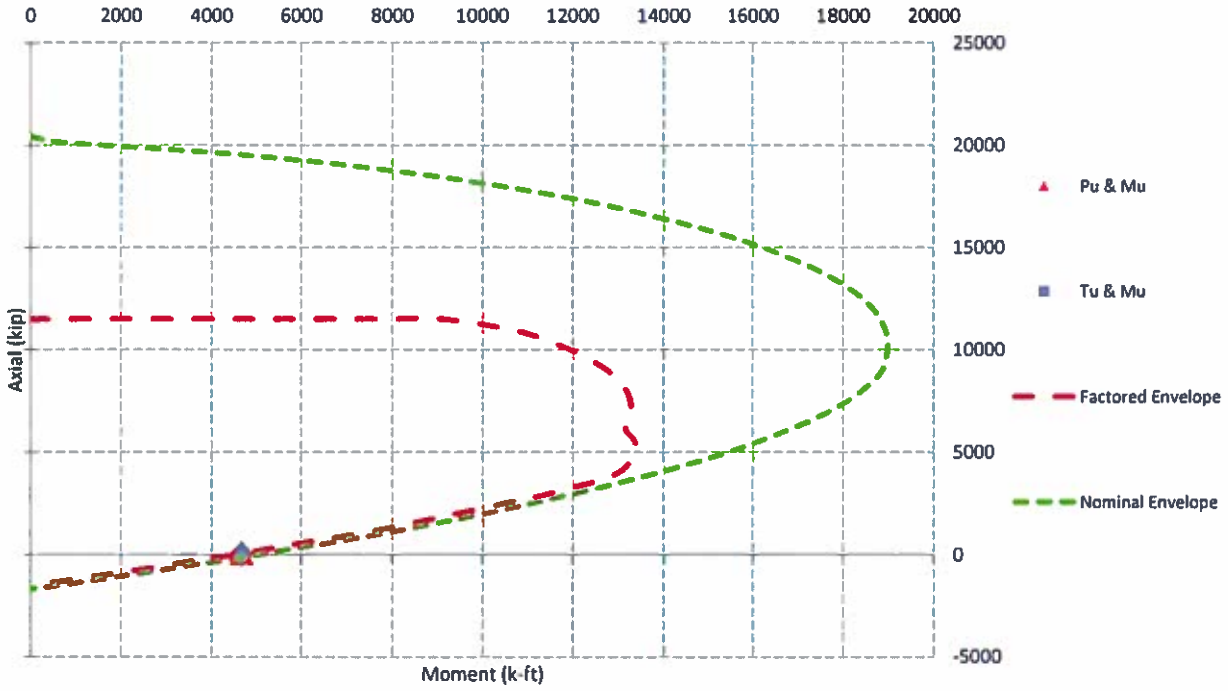
Depth (ft) Top	Depth (ft) Bottom	γ_{soil} (pcf)	Cu (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0	3	105	0	0	0	0
3	5	127	0	37	0	0
5	10	133	0	40	832	0
10	31	137	0	40	1,668	57,156

Soil Strength Capacities		
Required Embedment:	23.0	ft
Volume of Concrete:	1193.0	ft^3
Buoyant Weight of Concrete:	114.1	k
Average Soil Unit Weight:	76.3	pcf
Skin Friction Resistance:	825.1	k
Compressive Bearing Resistance:	2199.6	k
Pullout Weight (Minus Concrete Weight):	1155.1	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	464.1	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	2268.5	k
T_u:	0.0	k
$T_u/\phi_s T_n$:	0%	Pass
P_u:	77.8	k
$P_u/\phi_s P_n$:	3%	Pass
Total Lateral Resistance:	2862.3	k
Inflection Point (Below Ground Surface):	21.1	ft
Moment At Inflection Point (M_D):	5601.9	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	12424.5	k-ft
ϕ_s:	0.75	-
$M_D/\phi_s M_n$:	45%	Pass



Caisson Strength Capacities			
Concrete Compressive Strength (f'_c):	4,000	psi	
Vertical Steel Rebar Size #:	11	-	
Vertical Steel Rebar Area:	1.56	in^2	
# of Vertical Steel Rebars:	18	-	
Vertical Steel Rebar Yield Strength (F_y):	60	ksi	
Horizontal Tie / Stirrup Size #:	5	-	
Horizontal Tie / Stirrup Area:	0.31	in^2	
Design Horizontal Tie / Stirrup Spacing:	12	in	
Horizontal Tie / Stirrup Steel Yield Strength (F_y):	60	ksi	
Rebar Cage Diameter:	76.0	in	
Strength Bending/Tension Reduction Factor (ϕ_B):	0.9	-	*ACI318-05 - 9.3.2.1*
Strength Shear Reduction Factor (ϕ_V):	0.85	-	*ACI318-05 - 9.3.2.3*
Strength Compression Reduction Factor (ϕ_V):	0.65	-	*ACI318-05 - 9.3.2.2*
Wind Design Factor:	1	-	*ACI318-05 - 9.2.1*
Steel Elastic Modulus:	29000	ksi	
Design Moment (M_u):	4662.0	k-ft	
Nominal Moment Capacity ($\phi_B M_n$):	4700.7	k-ft	*ACI318-005 - 10.2*
$M_u/\phi_B M_n$:	99%	Pass	
Design Shear (V_u):	375.0	k	
Nominal Shear Capacity ($\phi_V V_n$):	598.7	k	*ACI318-05 - 11.3.1.1 or 11.5.7.2*
$V_u/\phi_V V_n$:	63%	Pass	
Design Tension (T_u):	0.0	k	
Nominal Tension Capacity ($\phi_T T_n$):	1516.3	k	*ACI318-05 - 10.2*
$T_u/\phi_T T_n$:	0%	Pass	
Design Compression (P_u):	77.8	k	
Nominal Compression Capacity ($\phi_P P_n$):	10624.3	k	*ACI318-05 - 10.3.6.2*
$P_u/\phi_P P_n$:	1%	Pass	
Bending Reinforcement Ratio:	0.005	-	
$M_u/\phi_B M_n + T_u/\phi_T T_n$:	99%	Pass	*ACI318-05 - 10.8.4 & 10.9.1*

Nominal and Factored Moment Capacity and Factored Design Loads



AMERICAN TOWER

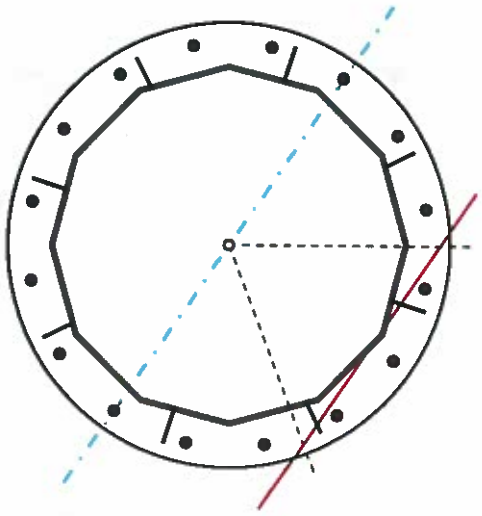
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	50	in
Thickness	0.4375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	4601.1	k-ft
Axial, Pu	53.5	k
Shear, Vu	45.3	k
Neutral Axis	235	°

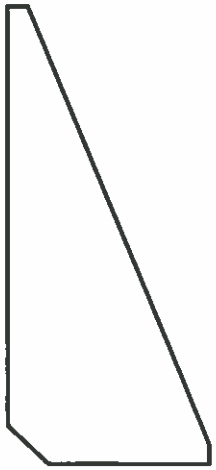
Report Capacities		
Component	Capacity	Result
Base Plate	55%	Pass
Anchor Rods	96%	Pass
Dwy/dag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	65	in
Thickness	2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	1258.8	k
Bending Stress, ϕMn	2287.4	k



Original Anchor Rods		
Arrangement	Radial	-
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	11.6	in
Orientation Offset	10	°
Applied Force, Pu	247.0	k
Anchor Rods, ϕPn	259.8	k

Stiffeners		
Arrangement	Radial	-
Quantity	8	-
Height	12	in
Width	5	in
Effective Width	5.000	in
Thickness	3/4	in
Effective Thickness	0.350	in
Notch	1	in
Flat Edge	0.5	in
Grade	A36	-
Yield Strength, Fy	36	ksi
Tensile Strength, Fu	58	ksi
Horizontal Weld	Fillet	
Horizontal Fillet Size	5/16	in
Bevel Depth	0	in
Vertical Weld	Fillet	
Vertical Fillet Size	1/4	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset	3.75	°
Vertical Weld, ϕRn	133.9	k
Horz. Weld, ϕRn	73.9	k
Ten. Capacity, ϕTn	97.2	k
Comp. Capacity, ϕPn	133.5	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	45.3	4601.1	1.00
Anchor Rod Forces	45.3	4601.1	1.00
Additional Bolt (Grp1) Forces			
Additional Bolt (Grp2) Forces			
Dywidag Forces			
Stiffener Forces	7.1	718.3	0.16

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	67.3455	5.6121	0.3596		20683.11
Bolt	3.9761	3.2477	0.8393	4.5	20840.15
Bolt1					
Bolt2					
Dywidag					
Stiffener	1.4000	1.2600	14.5833		3826.15

Base Plate		
Shape	Round	-
Diameter, D	65	in
Thickness, t	2	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	41.533	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

External Base Plate		
Chord Length AA	35.457	in
Additional AA	6.903	in
Section Modulus, Z	42.360	in^3
Applied Moment, Mu	1258.8	k-ft
Bending Capacity, ϕMn	2287.4	k-ft
Capacity, Mu/ϕMn	0.550	OK
Chord Length AB	32.801	in
Additional AB	5.130	in
Section Modulus, Z	37.931	in^3
Applied Moment, Mu	635.0	k-ft
Bending Capacity, ϕMn	2048.3	k-ft
Capacity, Mu/ϕMn	0.310	OK
Bend Line Length	37.399	in
Additional Bend Line	42.800	in
Section Modulus, Z	80.199	in^3
Applied Moment, Mu	1258.8	k-ft
Bending Capacity, ϕMn	4330.8	k-ft
Capacity, Mu/ϕMn	0.291	OK

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		

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	247.0	k
Applied Shear, Vu	1.7	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.950	OK
Interaction Capacity	0.963	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	76.0	k
Applied Horizontal Force, Vu	0.44	k

Vertical Weld		
Vert.-to-Stiffener $a=e_x/l$	0.139	-
Spacing Ratio, k	0.063	-
Weld Coefficient, C	3.720	-
Compressive Capacity, ϕPn	133.9	k
Vert.-to-Plate $a=e_x/l$	0.333	-
Spacing Ratio, k	0.063	-
Weld Coefficient, C	2.940	-
Shear Capacity, ϕVn	105.8	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.572	OK

Horizontal Weld		
Horz.-to-Stiffener $a=e_x/l$	0.167	-
Spacing Ratio, k	0.150	-
Weld Coefficient, C	3.940	-
Effective Fillet	0.313	in
Compressive Capacity, ϕPn	73.9	k
Horz.-to-Pole $a=e_x/l$	0.400	-
Spacing Ratio, k	0.150	-
Weld Coefficient, C	2.670	-
Shear Capacity, ϕVn	50.1	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	1.037	OK

Plate Tension		
Gross Cross Section	1.400	in^2
Net Cross Section	1.260	in^2
Tensile Capacity, ϕTn	97.2	k
Capacity, Tu/ϕTn	0.391	OK

Plate Compression		
Radius of Gyration	0.101	in^3
kl/r	71.26	-
$4.71\sqrt{(E/Fy)}$	133.68	-
Buckling Stress(Fe)	56.4	-
Crit. Buckling Stress(Fcr)	49.4	ksi
Compressive Capacity, ϕPn	133.5	k
Capacity, Pu/ϕPn	0.285	OK

Flange Plate Analysis

Flange Plate

Plate Type	*Flange*	*@ 146 ft*
Pole Diameter	16	in
Pole Thickness	0.5	in
Plate Diameter	28.5	in
Plate Thickness	1.5	in
Plate Fy	60	ksi
Weld Length	0.3125	in
f_s Resistance	127.23	k-in
Applied	15.71	k-in

Code Rev.	G
Moment	27.8 k-ft
Axial	4.6 k

Required Flange Thickness:
0.53 in OK

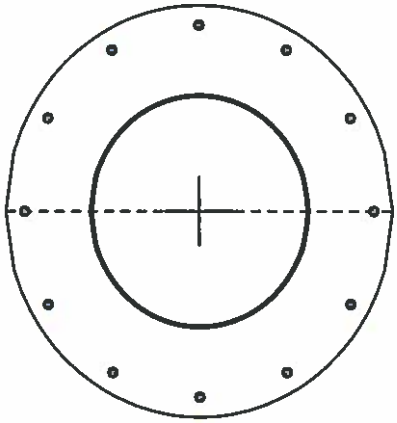
Date	11/15/2019
Engineer	RK
Site #	302495
Carrier	Verizon Wireless

Stiffeners

#	

Bolts

#	*12*	
Bolt Circle	25.75	in
(R)adial / (S)quare	R	
Diameter	1	in
Hole Diameter	1.125	in
Type	A325	
Fy	92	ksi
Fu	120	ksi
f_s Resistance	54.52	k
Applied	3.93	k



Reinforcement

#	

Plate Stress Ratio:
12% Pass

Bolt Stress Ratio:
7% Pass

Extra Bolts 0

#	

Flange Plate Analysis

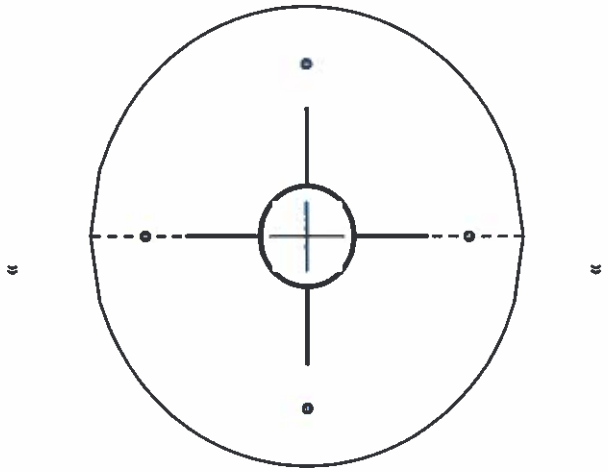
Flange Plate			
Plate Type	*Flange*	*@ 155 ft*	
Pole Diameter	3.5	in	
Pole Thickness	0.218	in	
Plate Diameter	16	in	
Plate Thickness	0.75	in	
Plate Fy	36	ksi	
Weld Length	0.1875	in	
f_s Resistance	174.52	k-in	
Applied	3.55	k-in	

Code Rev.	*G*	
Moment	1.0 k-ft	
Axial	0.2 k	

Date	11/15/2019
Engineer	RK
Site #	302495
Carrier	Verizon Wireless

Stiffeners			
#	*4*	*Show*	
Thickness	0.5	in	
Length	3	in	
Height	6	in	
Chamfer	0.5	in	
Offset Angle	45	°	
Fy	36	ksi	

Bolts			
#	*4*		
Bolt Circle	12	in	
(R)adial / (S)quare	R		
Diameter	0.625	in	
Hole Diameter	0.75	in	
Type	A325		
Fy	92	ksi	
Fu	120	ksi	
f_s Resistance	20.34	k	
Applied	0.96	k	



Reinforcement		
#		

Plate Stress Ratio:

2%	Pass

Bolt Stress Ratio:

5%	Pass

Extra Bolts 0		
#		

AMERICAN TOWER®
CORPORATION

Antenna Mount Analysis Report

ATC Site Name	:	**Tolland CT**
ATC Site Number	:	**302495**
Engineering Number	:	**12991739_C8_05**
Mount Elevation	:	**139 ft**
Carrier	:	**Verizon Wireless**
Carrier Site Name	:	**TOLLAND CT**
Carrier Site Number	:	**468468**
Site Location	:	**56 Ruops Road** **Tolland, CT 06084-3116** **41.87333333 , -72.3383**
County	:	**Tolland**
Date	:	**December 20, 2019**
Max Usage	:	**77%**
Result	:	**Pass**

Prepared By:
Charles Wally
Structural Engineer II

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32598
LICENSED PROFESSIONAL ENGINEER

Authorized by "EOR"
Jan 2 2020 8:30 AM cosign

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 139 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/ 1" radial ice concurrent
Codes:	ANSI/TIA-222-G / 2015 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.175, S_1 = 0.063
Site Class:	D - Stiff Soil
Live Loads:	Lm = 500 lbs, Lv = 250 lbs

Conclusion

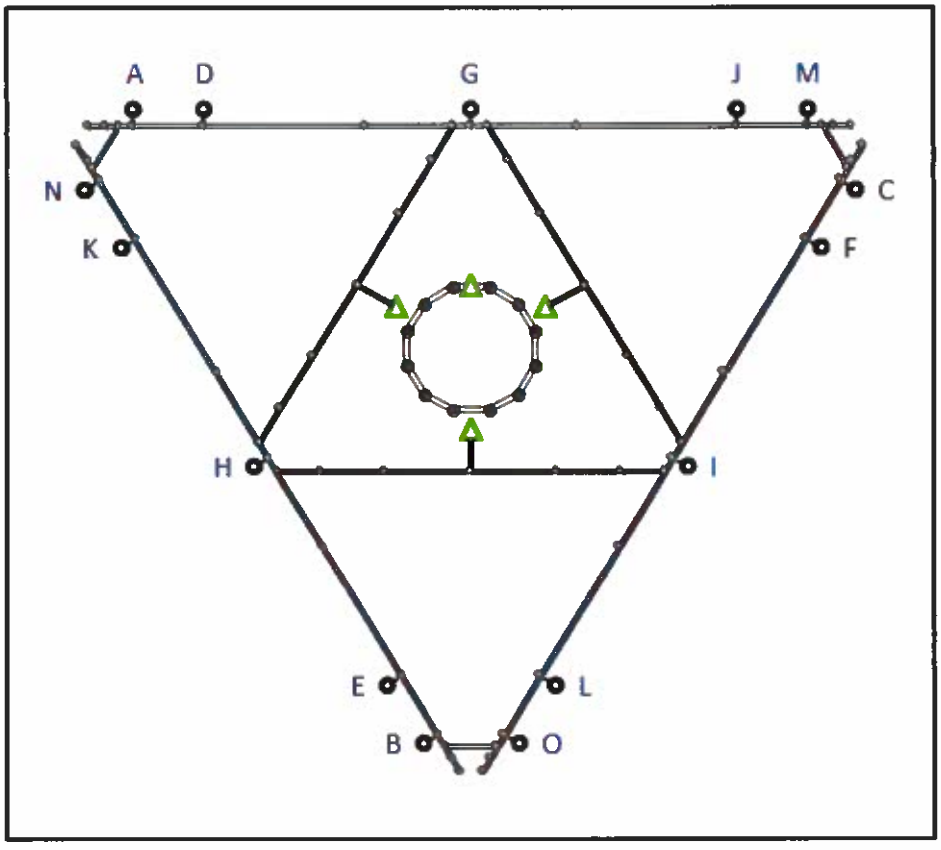
Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report.

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

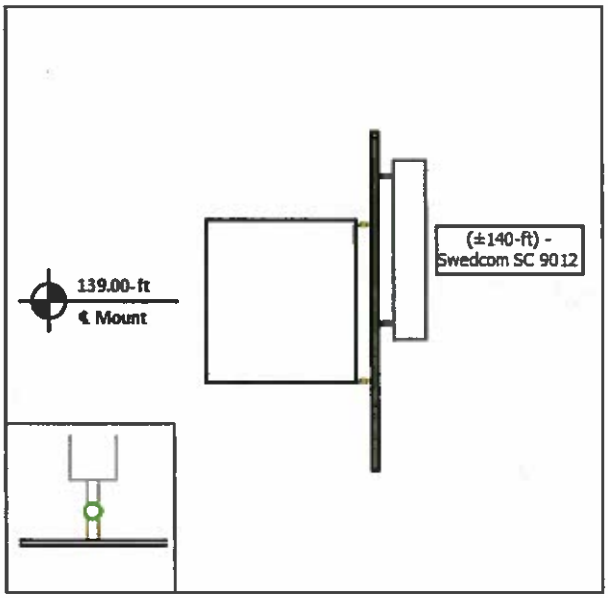
Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
139.0	140.0	3	Samsung CBRS 64T64R MMU
		6	Commscope JAHH-65B-R3B
		6	Swedcom SC 9012
		6	RFS FDJ85020D7-S
		2	RFS DB-T1-6Z-8AB-0Z
		3	Samsung B2/B66A RRH-BR049
		3	Samsung B5/B13 RRH-BR04C
		3	Samsung Outdoor CBRS 20W RRH

Mount Layout

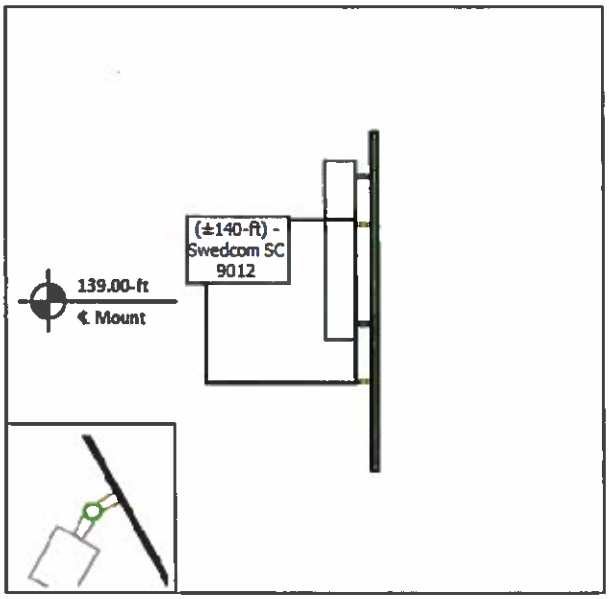


Equipment Layout

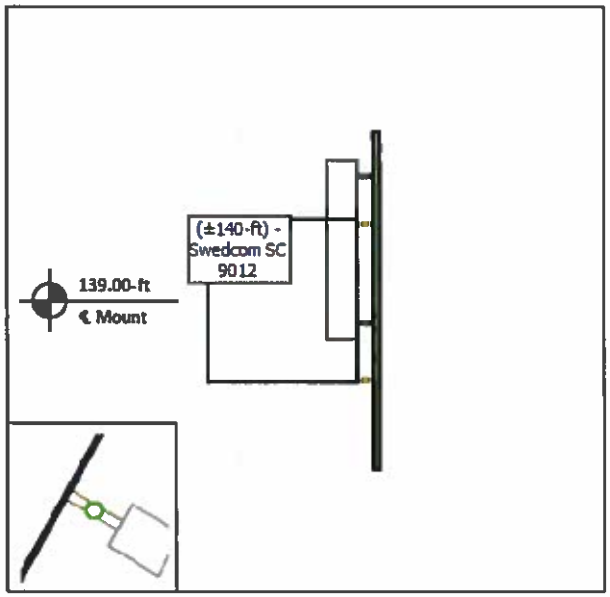
Mount Pipe A



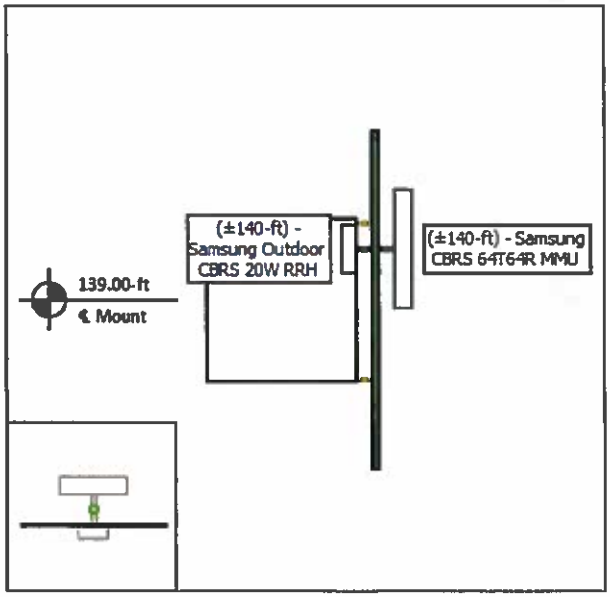
Mount Pipe B



Mount Pipe C

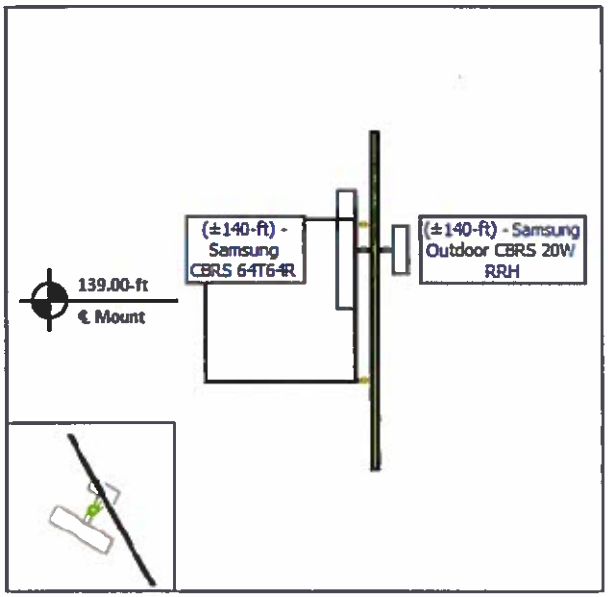


Mount Pipe D

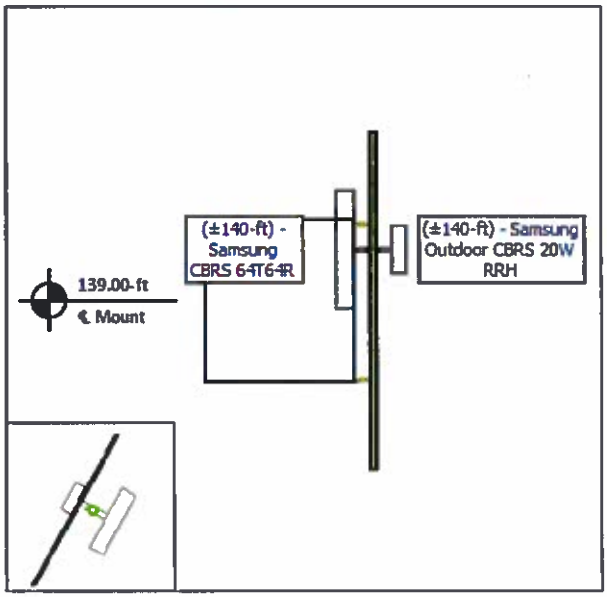


Equipment Layout Cont'd.

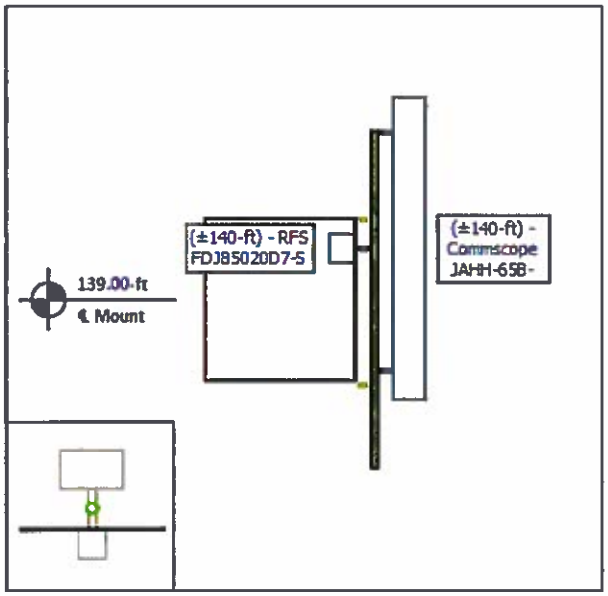
Mount Pipe E



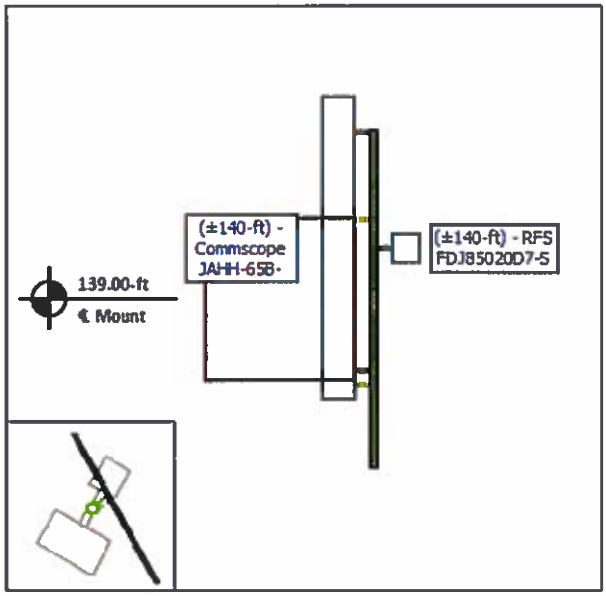
Mount Pipe F



Mount Pipe G

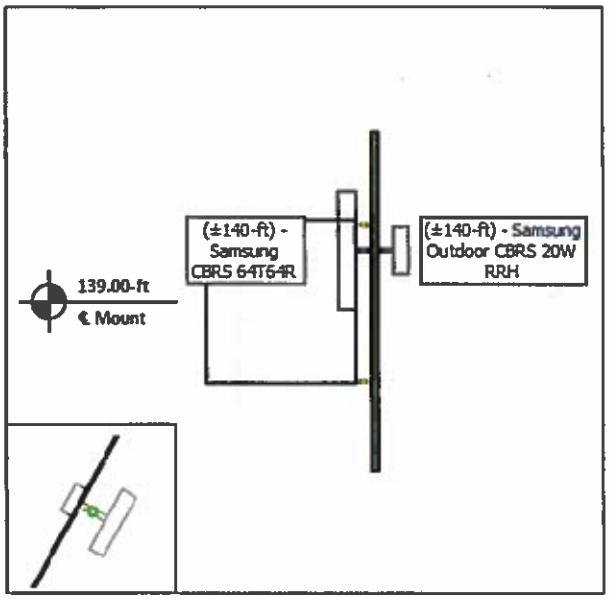


Mount Pipe H

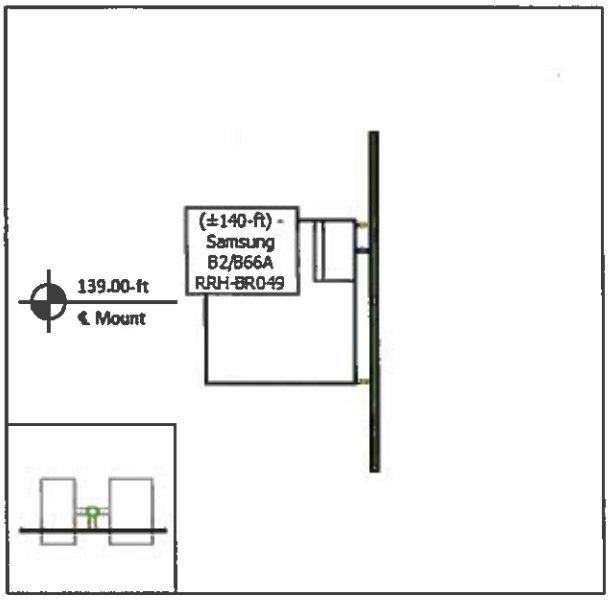


Equipment Layout Cont'd.

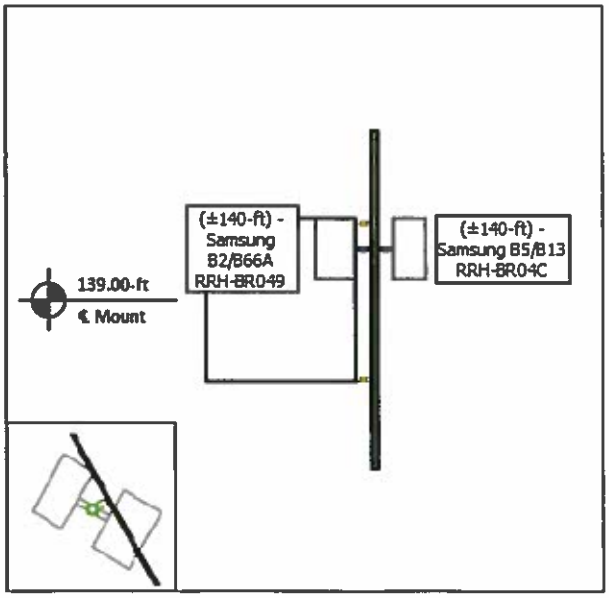
Mount Pipe I



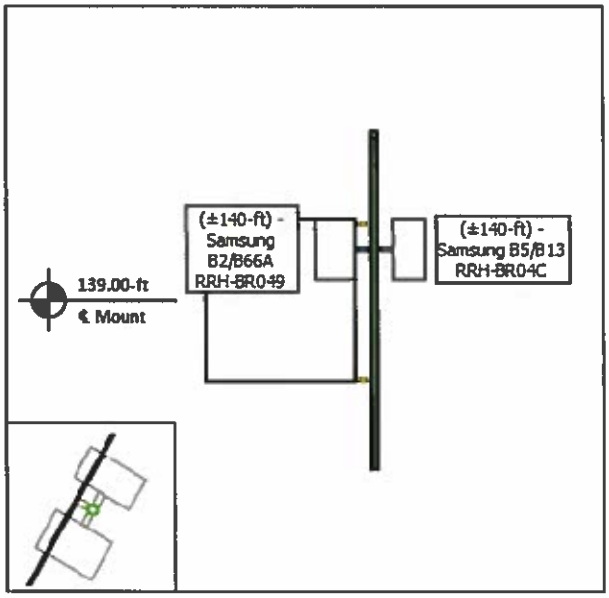
Mount Pipe J



Mount Pipe K

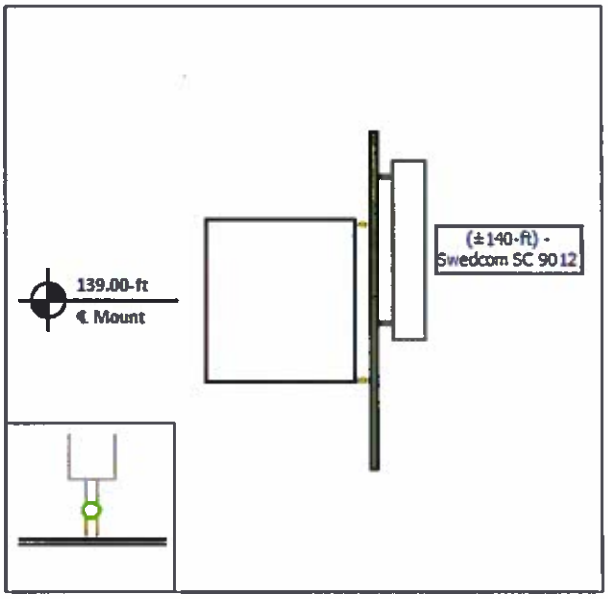


Mount Pipe L

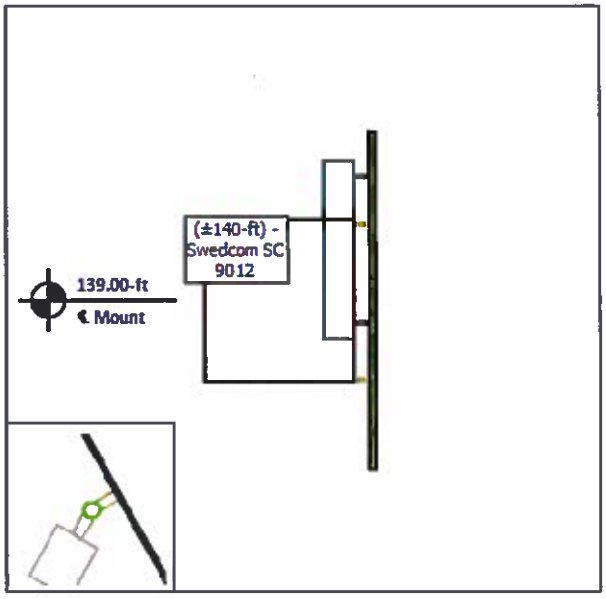


Equipment Layout Cont'd.

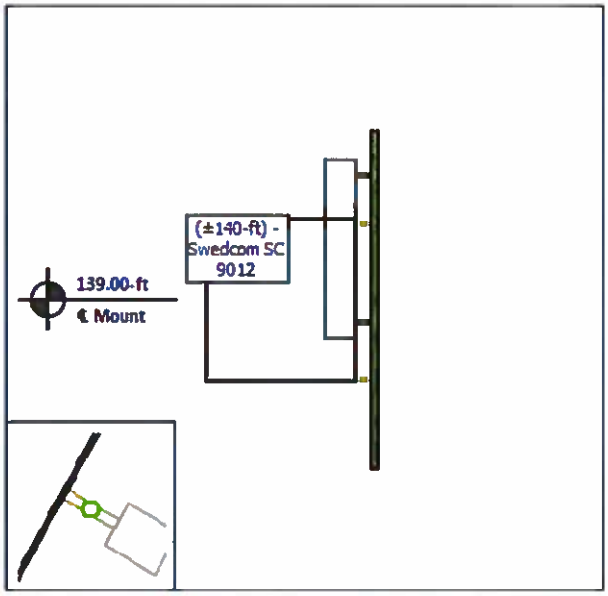
Mount Pipe M



Mount Pipe N



Mount Pipe O



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.

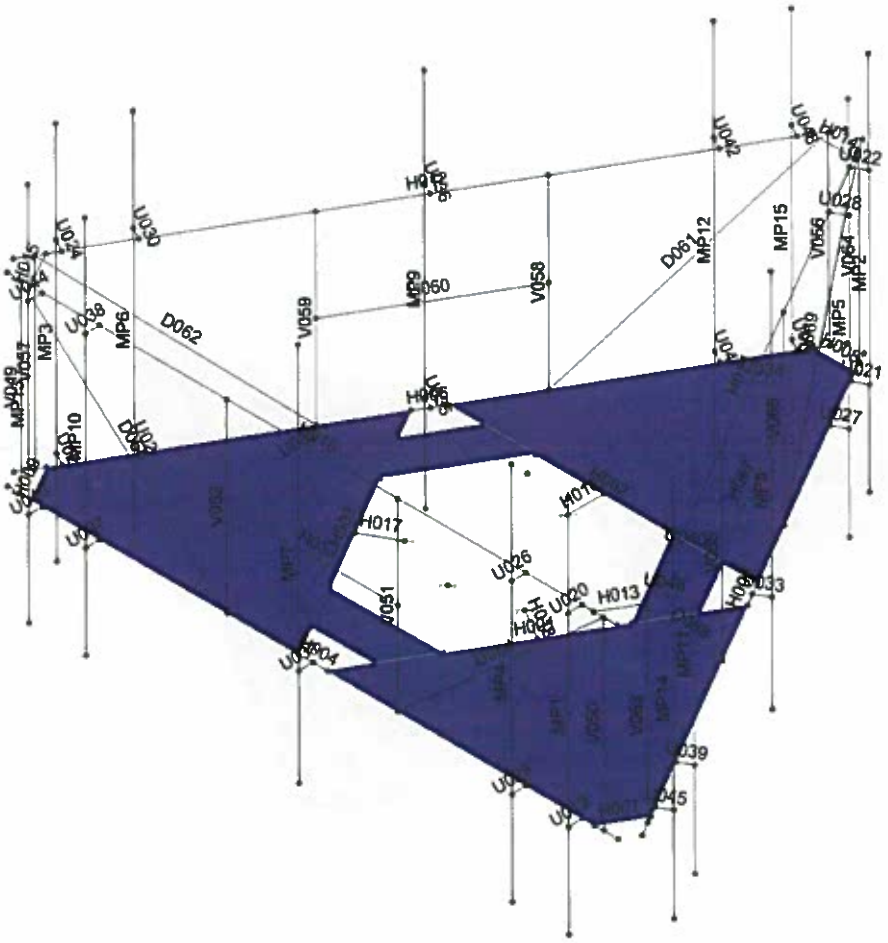
All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

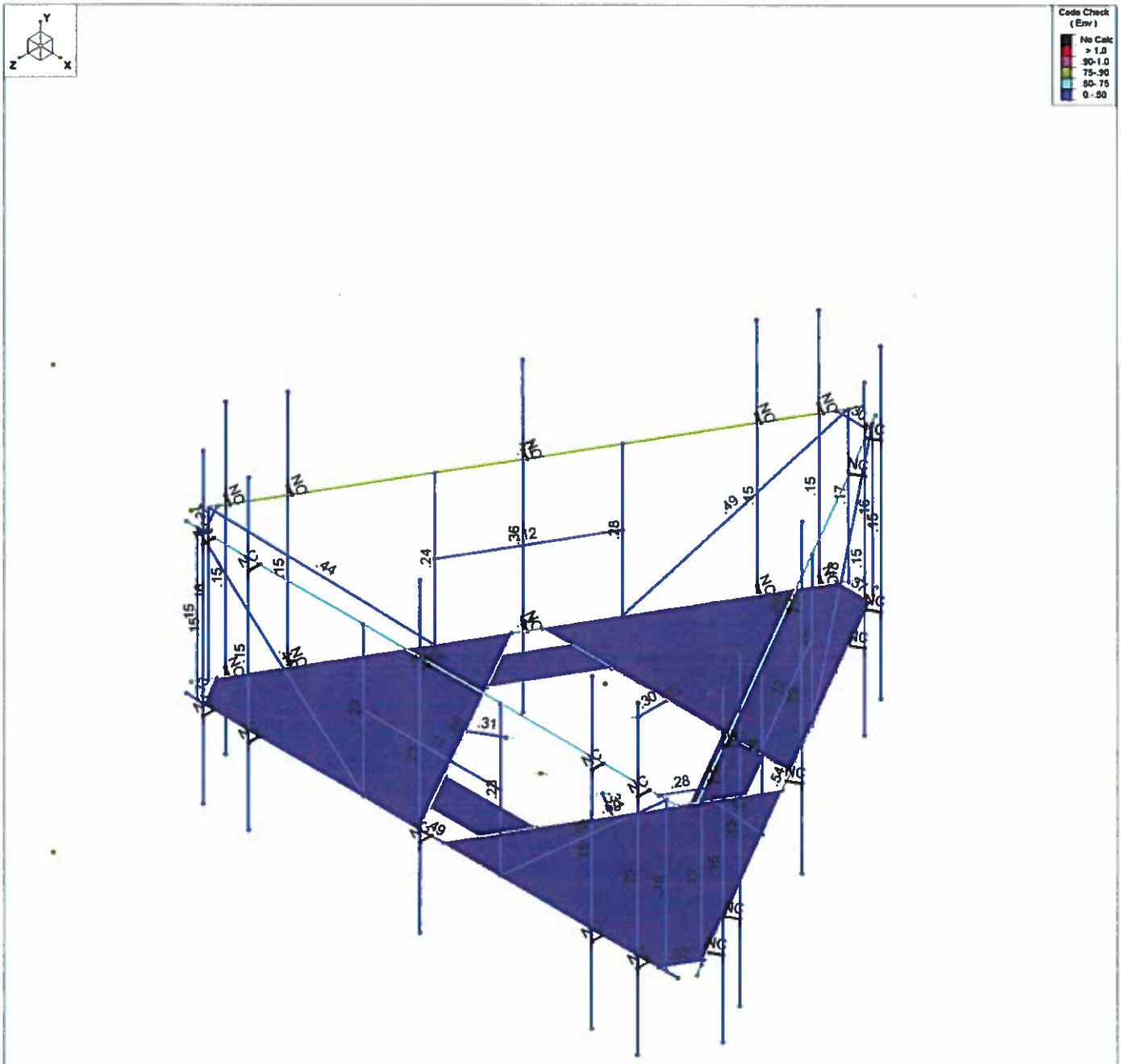
Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

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
Charles.Wally	302495, Tolland CT	Jan 2, 2020 at 8:21 AM
12991739_C8_05	3D Rendering	R3D. VERIZON WIRELESS @ 302...



American Tower Corp.		SK - 2
Charles.Wally	302495, Tolland CT	Jan 2, 2020 at 8:21 AM
12991739_C8_05	Member Labels	R3D. VERIZON WIRELESS @ 302...



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

American Tower Corp.		SK - 3
Charles.Wally	302495, Tolland CT	Jan 2, 2020 at 8:22 AM
12991739_C8_05	Unity Bending Checks	R3D. VERIZON WIRELESS @ 302...

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

American Tower Corp.		SK - 4
Charles.Wally	302495, Tolland CT	Jan 2, 2020 at 8:22 AM
12991739_C8_05	Shear Checks	R3D: VERIZON WIRELESS @ 302...

Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm (/1E..	Density[lb/f...	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(...	Section/Shape	Type	Design List	Material	Design Rules
1	H001	N012	N008		180	C5X9	Beam	None	A36	Typical
2	H002	N013	N009		180	C5X9	Beam	None	A36	Typical
3	H003	N011	N010		180	C5X9	Beam	None	A36	Typical
4	H004	N002	N005			C5X9	Beam	None	A36	Typical
5	H005	N003	N006			C5X9	Beam	None	A36	Typical
6	H006	N004	N007			C5X9	Beam	None	A36	Typical
7	H007	N018	N021		90	PL6X0.375	Beam	None	A572-50	Typical
8	H008	N019	N022		90	PL6X0.375	Beam	None	A572-50	Typical
9	H009	N017	N020		90	PL6X0.375	Beam	None	A572-50	Typical
10	H010	N023	N026		90	L3X3X4	Beam	None	A36	Typical
11	H011	N024	N027		90	L3X3X4	Beam	None	A36	Typical
12	H012	N025	N028		90	L3X3X4	Beam	None	A36	Typical
13	H013	N033	N036		90	PL6X0.375	Beam	None	A572-50	Typical
14	H014	N034	N037		90	PL6X0.375	Beam	None	A572-50	Typical
15	H015	N032	N035		90	PL6X0.375	Beam	None	A572-50	Typical
16	H016	N041	N039		90	PL12x1	Beam	None	A572-50	Typical
17	H017	N042	N040		90	PL12x1	Beam	None	A572-50	Typical
18	H018	N043	N038		90	PL12x1	Beam	None	A572-50	Typical
19	U019	N056	N071			(2) 5/8 U-Bolts	Beam	None	A36	Typical
20	U020	N072	N073			(2) 5/8 U-Bolts	Beam	None	A36	Typical
21	U021	N057	N074			(2) 5/8 U-Bolts	Beam	None	A36	Typical
22	U022	N075	N076			(2) 5/8 U-Bolts	Beam	None	A36	Typical
23	U023	N058	N077			(2) 5/8 U-Bolts	Beam	None	A36	Typical
24	U024	N078	N079			(2) 5/8 U-Bolts	Beam	None	A36	Typical
25	U025	N059	N080			(2) 5/8 U-Bolts	Beam	None	A36	Typical
26	U026	N081	N082			(2) 5/8 U-Bolts	Beam	None	A36	Typical
27	U027	N060	N083			(2) 5/8 U-Bolts	Beam	None	A36	Typical
28	U028	N084	N085			(2) 5/8 U-Bolts	Beam	None	A36	Typical
29	U029	N061	N086			(2) 5/8 U-Bolts	Beam	None	A36	Typical
30	U030	N087	N088			(2) 5/8 U-Bolts	Beam	None	A36	Typical
31	U031	N062	N014			(2) 5/8 U-Bolts	Beam	None	A36	Typical
32	U032	N089	N029			(2) 5/8 U-Bolts	Beam	None	A36	Typical
33	U033	N063	N015			(2) 5/8 U-Bolts	Beam	None	A36	Typical
34	U034	N090	N030			(2) 5/8 U-Bolts	Beam	None	A36	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(...	Section/Shape	Type	Design List	Material	Design Rules
35	U035	N064	N016			(2) 5/8 U-Bolts	Beam	None	A36	Typical
36	U036	N091	N031			(2) 5/8 U-Bolts	Beam	None	A36	Typical
37	U037	N065	N092			(2) 5/8 U-Bolts	Beam	None	A36	Typical
38	U038	N093	N094			(2) 5/8 U-Bolts	Beam	None	A36	Typical
39	U039	N066	N095			(2) 5/8 U-Bolts	Beam	None	A36	Typical
40	U040	N096	N097			(2) 5/8 U-Bolts	Beam	None	A36	Typical
41	U041	N067	N098			(2) 5/8 U-Bolts	Beam	None	A36	Typical
42	U042	N099	N100			(2) 5/8 U-Bolts	Beam	None	A36	Typical
43	U043	N068	N101			(2) 5/8 U-Bolts	Beam	None	A36	Typical
44	U044	N102	N103			(2) 5/8 U-Bolts	Beam	None	A36	Typical
45	U045	N069	N104			(2) 5/8 U-Bolts	Beam	None	A36	Typical
46	U046	N105	N106			(2) 5/8 U-Bolts	Beam	None	A36	Typical
47	U047	N070	N107			(2) 5/8 U-Bolts	Beam	None	A36	Typical
48	U048	N108	N109			(2) 5/8 U-Bolts	Beam	None	A36	Typical
49	V049	N113	N111		180	L 1.75x1.75x4	Column	None	A36	Typical
50	V050	N110	N112			L 1.75x1.75x4	Column	None	A36	Typical
51	V051	N116	N115		90	L 1.75x1.75x4	Column	None	A36	Typical
52	V052	N117	N114			L 1.75x1.75x4	Column	None	A36	Typical
53	H053	N118	N119		90	L 1.75x1.75x4	Beam	None	A36	Typical
54	D054	N110	N115		90	L 1.75x1.75x4	Column	None	A36	Typical
55	D055	N111	N114		180	L 1.75x1.75x4	Column	None	A36	Typical
56	V056	N120	N121		210	L 1.75x1.75x4	Column	None	A36	Typical
57	V057	N122	N123		120	L 1.75x1.75x4	Column	None	A36	Typical
58	V058	N126	N124		120	L 1.75x1.75x4	Column	None	A36	Typical
59	V059	N127	N125		210	L 1.75x1.75x4	Column	None	A36	Typical
60	H060	N128	N129		180	L 1.75x1.75x4	Beam	None	A36	Typical
61	D061	N120	N124		180	L 1.75x1.75x4	Column	None	A36	Typical
62	D062	N122	N125		90	L 1.75x1.75x4	Column	None	A36	Typical
63	V063	N130	N131		330	L 1.75x1.75x4	Column	None	A36	Typical
64	V064	N132	N133		240	L 1.75x1.75x4	Column	None	A36	Typical
65	V065	N136	N134		240	L 1.75x1.75x4	Column	None	A36	Typical
66	V066	N137	N135		330	L 1.75x1.75x4	Column	None	A36	Typical
67	H067	N138	N139		180	L 1.75x1.75x4	Beam	None	A36	Typical
68	D068	N130	N134		180	L 1.75x1.75x4	Column	None	A36	Typical
69	D069	N132	N135		90	L 1.75x1.75x4	Column	None	A36	Typical
70	MP1	MP1t	MP1b			PIPE_2.0	Column	None	A53 Gr. B	Typical
71	MP2	MP2t	MP2b			PIPE_2.0	Column	None	A53 Gr. B	Typical
72	MP3	MP3t	MP3b			PIPE_2.0	Column	None	A53 Gr. B	Typical
73	MP4	MP4t	MP4b			PIPE_2.0	Column	None	A53 Gr. B	Typical
74	MP5	MP5t	MP5b			PIPE_2.0	Column	None	A53 Gr. B	Typical
75	MP6	MP6t	MP6b			PIPE_2.0	Column	None	A53 Gr. B	Typical
76	MP7	MP7t	MP7b			PIPE_2.0	Column	None	A53 Gr. B	Typical
77	MP8	MP8t	MP8b			PIPE_2.0	Column	None	A53 Gr. B	Typical
78	MP9	MP9t	MP9b			PIPE_2.0	Column	None	A53 Gr. B	Typical
79	MP10	MP10t	MP10b			PIPE_2.0	Column	None	A53 Gr. B	Typical
80	MP11	MP11t	MP11b			PIPE_2.0	Column	None	A53 Gr. B	Typical
81	MP12	MP12t	MP12b			PIPE_2.0	Column	None	A53 Gr. B	Typical
82	MP13	MP13t	MP13b			PIPE_2.0	Column	None	A53 Gr. B	Typical
83	MP14	MP14t	MP14b			PIPE_2.0	Column	None	A53 Gr. B	Typical
84	MP15	MP15t	MP15b			PIPE_2.0	Column	None	A53 Gr. B	Typical

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distribu...	Area(M...	Surface...
1	Dead	DL		-1			42			
2	Ice	IL					42	54		6
3	Wind -Z	WLZ					42		1	
4	Wind -X	WLX					42		1	
5	Wind -Z (Ice)	WL-Z					42	54	1	
6	Wind -X (Ice)	WL-X					42	54	1	
7	Wind -Z (Working)	WLZP1					42		1	
8	Wind -X (Working)	WLXP1					42		1	
9	Ev -Y (Seismic)	ELY						54		
10	Eh -Z (Seismic)	ELZ						54		
11	Eh -X (Seismic)	ELX						54		
12	Lm (1)	LL				1				
13	Lm (2)	LL				1				
14	Lm (3)	LL				1				
15	Lm (4)	LL				1				
16	Lm (5)	LL				1				
17	Lm (6)	LL				1				
18	Lm (7)	LL				1				
19	Lm (8)	LL				1				
20	Lm (9)	LL				1				
21	Lm (10)	LL				1				
22	Lm (11)	LL				1				
23	Lm (12)	LL				1				
24	Lm (13)	LL				1				
25	Lm (14)	LL				1				
26	Lm (15)	LL				1				
27	BLC 3 Transient Area Loads	None						73		
28	BLC 4 Transient Area Loads	None						78		
29	BLC 5 Transient Area Loads	None						73		
30	BLC 6 Transient Area Loads	None						78		
31	BLC 7 Transient Area Loads	None						73		
32	BLC 8 Transient Area Loads	None						78		

Load Combinations

	Description	Solve	PDel	SRSS	B...	Fact...	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...	1.3...												
4	1.2D + 1.6Wo [60°]	Yes	Y		DL	1.2	WLX	1.3...	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	1.3...	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...	1.3...												
14	0.9D + 1.6Wo [0°]	Yes	Y		DL	.9	WLX	.001	W...	1.6												

Load Combinations (Continued)

	Description	Solve	PDel	SRSS	B...	Fact	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
15	0.9D + 1.6Wo [30°]	Yes	Y		DL	.9	WLX	.8	W	1.3														
16	0.9D + 1.6Wo [60°]	Yes	Y		DL	.9	WLX	1.3	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	1.3	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	1.3														
26	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	.001	W	1												
27	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	.5	W	.866												
28	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	.866	W	.5												
29	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	1	W	.001												
30	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	.866	W	-.5												
31	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	.5	W	-.8												
32	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	.001	W	-1												
33	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	-.5	W	-.8												
34	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	-.8	W	-.5												
35	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	-1	W	.001												
36	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	-.8	W	.5												
37	1.2D + 1.0Di + 1.0Wi[...	Yes	Y		DL	1.2	IL	1	W	-.5	W	.866												
38	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	1	E	.001												
39	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	.866	E	.5												
40	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	.5	E	.866												
41	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	.001	E	1												
42	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	-.5	E	.866												
43	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	-.8	E	.5												
44	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	-1	E	.001												
45	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	-.8	E	-.5												
46	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	-.5	E	-.8												
47	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	.001	E	-1												
48	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	.5	E	-.8												
49	1.2D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	1.2	ELY	1	ELZ	.866	E	-.5												
50	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	1	E	.001												
51	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	.866	E	.5												
52	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	.5	E	.866												
53	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	.001	E	1												
54	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	-.5	E	.866												
55	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	-.8	E	.5												
56	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	-1	E	.001												
57	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	-.8	E	-.5												
58	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	-.5	E	-.8												
59	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	.001	E	-1												
60	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	.5	E	-.8												
61	0.9D + 1.0Ev + 1.0Eh ...	Yes	Y		DL	.9	ELY	1	ELZ	.866	E	-.5												
62	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	12	1.5	W	.001	W	1												
63	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	12	1.5	W	.5	W	.866												
64	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	12	1.5	W	.866	W	.5												
65	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	12	1.5	W	1	W	.001												
66	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL	1.2	12	1.5	W	.866	W	-.5												

Load Combinations (Continued)

	Description	Solve	PDel	SRSSB	Fact	BLC	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa	B	Fa
67	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL 1.2	12	1.5	W...	.5	W...	-.8...														
68	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL 1.2	12	1.5	W...	.001	W...	-.5														
69	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL 1.2	12	1.5	W...	-.5	W...	-.8...														
70	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL 1.2	12	1.5	W...	-.8...	W...	-.5														
71	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL 1.2	12	1.5	W...	-1	W...	.001														
72	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL 1.2	12	1.5	W...	-.8...	W...	.5														
73	1.2D + 1.5Lm(1) + 1.0...	Yes	Y		DL 1.2	12	1.5	W...	-.5	W...	.866														
74	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	.001	W...	1														
75	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	.5	W...	.866														
76	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	.866	W...	.5														
77	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	1	W...	.001														
78	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	.866	W...	-.5														
79	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	.5	W...	-.8...														
80	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	.001	W...	-.5														
81	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	-.5	W...	-.8...														
82	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	-.8...	W...	-.5														
83	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	-1	W...	.001														
84	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	-.8...	W...	.5														
85	1.2D + 1.5Lm(2) + 1.0...	Yes	Y		DL 1.2	13	1.5	W...	-.5	W...	.866														
86	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	.001	W...	1														
87	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	.5	W...	.866														
88	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	.866	W...	.5														
89	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	1	W...	.001														
90	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	.866	W...	-.5														
91	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	.5	W...	-.8...														
92	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	.001	W...	-.5														
93	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	-.5	W...	-.8...														
94	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	-.8...	W...	-.5														
95	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	-1	W...	.001														
96	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	-.8...	W...	.5														
97	1.2D + 1.5Lm(3) + 1.0...	Yes	Y		DL 1.2	14	1.5	W...	-.5	W...	.866														
98	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	.001	W...	1														
99	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	.5	W...	.866														
100	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	.866	W...	.5														
101	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	1	W...	.001														
102	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	.866	W...	-.5														
103	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	.5	W...	-.8...														
104	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	.001	W...	-.5														
105	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	-.5	W...	-.8...														
106	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	-.8...	W...	-.5														
107	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	-1	W...	.001														
108	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	-.8...	W...	.5														
109	1.2D + 1.5Lm(4) + 1.0...	Yes	Y		DL 1.2	15	1.5	W...	-.5	W...	.866														
110	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL 1.2	16	1.5	W...	.001	W...	1														
111	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL 1.2	16	1.5	W...	.5	W...	.866														
112	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL 1.2	16	1.5	W...	.866	W...	.5														
113	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL 1.2	16	1.5	W...	1	W...	.001														
114	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL 1.2	16	1.5	W...	.866	W...	-.5														
115	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL 1.2	16	1.5	W...	.5	W...	-.8...														
116	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL 1.2	16	1.5	W...	.001	W...	-.5														
117	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL 1.2	16	1.5	W...	-.5	W...	-.8...														
118	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL 1.2	16	1.5	W...	-.8...	W...	-.5														

Load Combinations (Continued)

	Description	Solve	PDel	SRSS	B...	Fact...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa
119	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL	1.2	16	1.5	W...	-1	W...	.001														
120	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL	1.2	16	1.5	W...	-.8	W...	.5														
121	1.2D + 1.5Lm(5) + 1.0...	Yes	Y		DL	1.2	16	1.5	W...	-.5	W...	.866														
122	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	.001	W...	1														
123	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	.5	W...	.866														
124	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	.866	W...	.5														
125	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	1	W...	.001														
126	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	.866	W...	-.5														
127	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	.5	W...	-.8														
128	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	.001	W...	-.5														
129	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	-.5	W...	-.8														
130	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	-.8	W...	-.5														
131	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	-1	W...	.001														
132	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	-.8	W...	.5														
133	1.2D + 1.5Lm(6) + 1.0...	Yes	Y		DL	1.2	17	1.5	W...	-.5	W...	.866														
134	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	.001	W...	1														
135	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	.5	W...	.866														
136	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	.866	W...	.5														
137	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	1	W...	.001														
138	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	.866	W...	-.5														
139	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	.5	W...	-.8														
140	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	.001	W...	-.5														
141	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	-.5	W...	-.8														
142	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	-.8	W...	-.5														
143	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	-1	W...	.001														
144	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	-.8	W...	.5														
145	1.2D + 1.5Lm(7) + 1.0...	Yes	Y		DL	1.2	18	1.5	W...	-.5	W...	.866														
146	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	.001	W...	1														
147	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	.5	W...	.866														
148	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	.866	W...	.5														
149	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	1	W...	.001														
150	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	.866	W...	-.5														
151	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	.5	W...	-.8														
152	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	.001	W...	-.5														
153	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	-.5	W...	-.8														
154	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	-.8	W...	-.5														
155	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	-1	W...	.001														
156	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	-.8	W...	.5														
157	1.2D + 1.5Lm(8) + 1.0...	Yes	Y		DL	1.2	19	1.5	W...	-.5	W...	.866														
158	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	.001	W...	1														
159	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	.5	W...	.866														
160	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	.866	W...	.5														
161	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	1	W...	.001														
162	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	.866	W...	-.5														
163	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	.5	W...	-.8														
164	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	.001	W...	-.5														
165	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	-.5	W...	-.8														
166	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	-.8	W...	-.5														
167	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	-1	W...	.001														
168	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	-.8	W...	.5														
169	1.2D + 1.5Lm(9) + 1.0...	Yes	Y		DL	1.2	20	1.5	W...	-.5	W...	.866														
170	1.2D + 1.5Lm(10) + 1...	Yes	Y		DL	1.2	21	1.5	W...	.001	W...	1														

Load Combinations (Continued)

	Description	Solve	PDel	SRSS	B...	Fact...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
171	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	.5	W...	.866												
172	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	.866	W...	.5												
173	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	1	W...	.001												
174	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	.866	W...	-.5												
175	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	.5	W...	-.8...												
176	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	.001	W...	-.5												
177	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	-.5	W...	-.8...												
178	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	-.8...	W...	-.5												
179	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	-1	W...	.001												
180	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	-.8...	W...	.5												
181	1.2D + 1.5Lm(10) + 1....	Yes	Y		DL	1.2	21	1.5	W...	-.5	W...	.866												
182	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	.001	W...	1												
183	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	.5	W...	.866												
184	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	.866	W...	.5												
185	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	1	W...	.001												
186	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	.866	W...	-.5												
187	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	.5	W...	-.8...												
188	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	.001	W...	-.5												
189	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	-.5	W...	-.8...												
190	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	-.8...	W...	-.5												
191	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	-1	W...	.001												
192	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	-.8...	W...	.5												
193	1.2D + 1.5Lm(11) + 1....	Yes	Y		DL	1.2	22	1.5	W...	-.5	W...	.866												
194	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	.001	W...	1												
195	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	.5	W...	.866												
196	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	.866	W...	.5												
197	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	1	W...	.001												
198	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	.866	W...	-.5												
199	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	.5	W...	-.8...												
200	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	.001	W...	-.5												
201	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	-.5	W...	-.8...												
202	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	-.8...	W...	-.5												
203	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	-1	W...	.001												
204	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	-.8...	W...	.5												
205	1.2D + 1.5Lm(12) + 1....	Yes	Y		DL	1.2	23	1.5	W...	-.5	W...	.866												
206	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	.001	W...	1												
207	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	.5	W...	.866												
208	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	.866	W...	.5												
209	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	1	W...	.001												
210	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	.866	W...	-.5												
211	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	.5	W...	-.8...												
212	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	.001	W...	-.5												
213	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	-.5	W...	-.8...												
214	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	-.8...	W...	-.5												
215	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	-1	W...	.001												
216	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	-.8...	W...	.5												
217	1.2D + 1.5Lm(13) + 1....	Yes	Y		DL	1.2	24	1.5	W...	-.5	W...	.866												
218	1.2D + 1.5Lm(14) + 1....	Yes	Y		DL	1.2	25	1.5	W...	.001	W...	1												
219	1.2D + 1.5Lm(14) + 1....	Yes	Y		DL	1.2	25	1.5	W...	.5	W...	.866												
220	1.2D + 1.5Lm(14) + 1....	Yes	Y		DL	1.2	25	1.5	W...	.866	W...	.5												
221	1.2D + 1.5Lm(14) + 1....	Yes	Y		DL	1.2	25	1.5	W...	1	W...	.001												
222	1.2D + 1.5Lm(14) + 1....	Yes	Y		DL	1.2	25	1.5	W...	.866	W...	-.5												

Load Combinations (Continued)

	Description	Solve	PDel..	SRSS	B...	Fact...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
223	1.2D + 1.5Lm(14) + 1...	Yes	Y		DL	1.2	25	1.5	W...	.5	W...	-.8...												
224	1.2D + 1.5Lm(14) + 1...	Yes	Y		DL	1.2	25	1.5	W...	.001	W...	-.5												
225	1.2D + 1.5Lm(14) + 1...	Yes	Y		DL	1.2	25	1.5	W...	-.5	W...	-.8...												
226	1.2D + 1.5Lm(14) + 1...	Yes	Y		DL	1.2	25	1.5	W...	-.8...	W...	-.5												
227	1.2D + 1.5Lm(14) + 1...	Yes	Y		DL	1.2	25	1.5	W...	-1	W...	.001												
228	1.2D + 1.5Lm(14) + 1...	Yes	Y		DL	1.2	25	1.5	W...	-.8...	W...	.5												
229	1.2D + 1.5Lm(14) + 1...	Yes	Y		DL	1.2	25	1.5	W...	-.5	W...	.866												
230	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	.001	W...	1												
231	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	.5	W...	.866												
232	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	.866	W...	.5												
233	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	1	W...	.001												
234	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	.866	W...	-.5												
235	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	.5	W...	-.8...												
236	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	.001	W...	-.5												
237	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	-.5	W...	-.8...												
238	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	-.8...	W...	-.5												
239	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	-1	W...	.001												
240	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	1.5	W...	-.8...	W...	.5												
241	1.2D + 1.5Lm(15) + 1...	Yes	Y		DL	1.2	26	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	241	0	241	0	241	0	241	0	241	0	241
2		min	0	1	0	1	0	1	0	1	0	1	0	1
3	N041	max	4533.013	17	5367.221	26	425.635	2	3415.083	26	3031.654	23	2232.281	11
4		min	-4532.852	23	-2666.546	20	-431.85	8	-1748.001	20	-3034.618	5	-2232.564	5
5	N042	max	1778.351	15	5512.565	30	3049.101	3	1895.395	14	2331.98	15	1908.062	23
6		min	-1777.381	21	-2806.317	24	-3046.998	21	-2465.8	8	-2333.488	9	-3207.153	29
7	N043	max	1882.854	7	5512.75	34	3256.466	13	1900.218	14	2486.739	19	3208.324	35
8		min	-1883.064	13	-2804.803	16	-3254.952	19	-2466.652	8	-2490.879	13	-1900.621	17
9	Totals:	max	6606.574	17	11275.441	37	6470.532	14						
10		min	-6606.574	11	2378.733	14	-6470.532	8						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt [...	phi*Mn ...	phi*Mn z-z ...	Cb	Eqn
1	H012	L3X3X4	.766	64.5	23	.424	4.031	z	3	6690.131	46656	1688.138	2985.997	1.6...	H2-1
2	H003	C5X9	.687	32.6	30	.102	32.6	y	6	33161....	85536	1909.122	11853	1.3...	H1-1b
3	H001	C5X9	.686	32.6	35	.102	32.6	y	10	33161....	85536	1909.122	11853	1.3...	H1-1b
4	H002	C5X9	.669	32.6	27	.099	32.6	y	2	33161....	85536	1909.122	11853	1.3...	H1-1b
5	H011	L3X3X4	.661	64.5	18	.430	124.9...	z	7	6690.131	46656	1688.138	2939.304	1.5...	H2-1
6	H010	L3X3X4	.658	64.5	14	.402	4.031	z	7	6690.131	46656	1688.138	2973.491	1.5...	H2-1
7	H006	C5X9	.538	68.531	5	.731	67.188	z	11	8471.202	85536	1909.122	11853	1.7...	H1-1a
8	H005	C5X9	.535	60.469	11	.677	61.812	z	5	8471.202	85536	1909.122	11853	1.7...	H1-1a
9	D061	L 1.75x1.7...	.492	21.909	5	.015	58.423	z	12	10455....	26519.4	361.531	1033.918	1.0...	H2-1
10	H004	C5X9	.489	60.469	7	.633	67.188	z	3	8471.202	85536	1909.122	11853	1.8...	H1-1a
11	D069	L 1.75x1.7...	.481	20.691	11	.015	58.423	y	4	10455....	26519.4	361.531	1035.565	1.0...	H2-1
12	D068	L 1.75x1.7...	.448	18.866	13	.014	58.423	z	8	10455....	26519.4	361.531	1041.491	1.0...	H2-1
13	D054	L 1.75x1.7...	.443	18.866	7	.015	58.423	y	12	10455....	26519.4	361.531	1036.803	1.0...	H2-1
14	D062	L 1.75x1.7...	.437	19.474	3	.013	58.423	y	8	10455....	26519.4	361.531	1039.934	1.0...	H2-1

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Ch...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt [...	phi*Mn ...	phi*Mn z-z ...	Cb	Eqn
15	D055	L 1.75x1.7...	.436	19.474	9	.015	58.423	z	4	10455....	26519.4	361.531	1034.759	1.0...	H2-1
16	H008	PL6X0.375	.367	8.7	11	.043	0	y	11	63142....	101250	791.016	12656.25	2.2...	H1-1b
17	MP9	PIPE_2.0	.355	20	11	.101	59.167		12	5018.672	32130	1871.625	1871.625	1.7...	H1-1b
18	H007	PL6X0.375	.331	0	7	.035	8.7	y	7	63142....	101250	791.016	12656.25	2.27	H1-1b
19	H009	PL6X0.375	.325	8.7	3	.034	0	y	3	63142....	101250	791.016	12656.25	2.2...	H1-1b
20	H018	PL12x1	.312	0	34	.268	0	y	13	512899....	540000	11250	135000	1.5...	H1-1b
21	H017	PL12x1	.312	0	30	.267	0	y	9	512899....	540000	11250	135000	1.3...	H1-1b
22	H016	PL12x1	.304	0	26	.283	0	y	5	512899....	540000	11250	135000	1.4...	H1-1b
23	H014	PL6X0.375	.304	8.7	11	.094	0	y	11	63142....	101250	791.016	12656.25	2.2	H1-1b
24	MP8	PIPE_2.0	.288	20	2	.106	59.167		3	5018.672	32130	1871.625	1871.625	2.5...	H1-1b
25	MP7	PIPE_2.0	.286	20	2	.086	59.167		11	5018.672	32130	1871.625	1871.625	4.7...	H1-1b
26	V058	L 1.75x1.7...	.281	39	11	.048	19.5	y	4	17516....	26519.4	361.531	1230.151	1.7...	H2-1
27	H013	PL6X0.375	.277	0	7	.075	8.7	y	7	63142....	101250	791.016	12656.25	2.2...	H1-1b
28	H015	PL6X0.375	.270	8.7	3	.073	0	y	3	63142....	101250	791.016	12656.25	2.2...	H1-1b
29	V066	L 1.75x1.7...	.259	39	5	.043	19.5	z	12	17516....	26519.4	361.531	1230.141	1.7...	H2-1
30	V065	L 1.75x1.7...	.242	39	7	.042	19.094	y	12	17516....	26519.4	361.531	1232.827	1.7...	H2-1
31	V059	L 1.75x1.7...	.237	39	9	.045	19.5	z	5	17516....	26519.4	361.531	1231.936	1.7...	H2-1
32	V052	L 1.75x1.7...	.235	39	3	.042	0	y	8	17516....	26519.4	361.531	1234.002	1.7...	H2-1
33	V051	L 1.75x1.7...	.234	39	13	.041	19.5	z	8	17516....	26519.4	361.531	1234.002	1.7...	H2-1
34	V063	L 1.75x1.7...	.167	39	19	.025	39	y	7	17516....	26519.4	361.531	1234.002	2.35	H2-1
35	V056	L 1.75x1.7...	.166	39	23	.026	39	y	11	17516....	26519.4	361.531	1234.002	2.3...	H2-1
36	V057	L 1.75x1.7...	.165	39	3	.024	39	z	9	17516....	26519.4	361.531	1234.002	2.3...	H2-1
37	V064	L 1.75x1.7...	.162	39	11	.026	39	z	5	17516....	26519.4	361.531	1234.002	2.3...	H2-1
38	V050	L 1.75x1.7...	.158	39	7	.024	39	z	13	17516....	26519.4	361.531	1234.002	2.3...	H2-1
39	V049	L 1.75x1.7...	.154	0	15	.024	0	z	3	17516....	26519.4	361.531	1234.002	2.3...	H2-1
40	MP1	PIPE_2.0	.152	20.833	73	.108	60		25	5018.672	32130	1871.625	1871.625	2.0...	H1-1b*
41	MP2	PIPE_2.0	.152	20.833	85	.121	60		11	5018.672	32130	1871.625	1871.625	2.1...	H1-1b*
42	MP3	PIPE_2.0	.152	20.833	97	.111	60		22	5018.672	32130	1871.625	1871.625	2.2...	H1-1b*
43	MP15	PIPE_2.0	.152	20.833	241	.125	60		5	5018.672	32130	1871.625	1871.625	2.2...	H1-1b*
44	MP13	PIPE_2.0	.152	20.833	217	.106	60		9	5018.672	32130	1871.625	1871.625	2.4...	H1-1b*
45	MP14	PIPE_2.0	.152	20.833	229	.111	60		13	5018.672	32130	1871.625	1871.625	2.1...	H1-1b*
46	MP10	PIPE_2.0	.152	60	173	.125	21.667		8	5018.672	32130	1871.625	1871.625	1.6...	H1-1b
47	MP11	PIPE_2.0	.151	60	189	.142	21.667		12	5018.672	32130	1871.625	1871.625	1.8...	H1-1b
48	MP4	PIPE_2.0	.151	20.833	109	.136	21.667		8	5018.672	32130	1871.625	1871.625	1.8...	H1-1b*
49	MP5	PIPE_2.0	.151	20.833	121	.141	21.667		12	5018.672	32130	1871.625	1871.625	1.9...	H1-1b*
50	MP6	PIPE_2.0	.151	20.833	133	.151	21.667		4	5018.672	32130	1871.625	1871.625	1.9...	H1-1b*
51	MP12	PIPE_2.0	.151	20.833	205	.148	21.667		4	5018.672	32130	1871.625	1871.625	1.95	H1-1b*
52	H067	L 1.75x1.7...	.122	36	4	.012	36	y	3	18624....	26519.4	361.531	1234.002	2.1...	H2-1
53	H060	L 1.75x1.7...	.118	0	6	.012	36	y	7	18624....	26519.4	361.531	1234.002	1.9...	H2-1
54	H053	L 1.75x1.7...	.112	0	11	.012	0	z	11	18624....	26519.4	361.531	1234.002	2.1...	H2-1

Site Name: Tolland, 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 CBRS	3600	1	50	50	140	0.0009	1.0	0.09%
VZW PCS	1970	1	6201	6201	140	0.1138	1.0	11.38%
VZW Cellular LTE	869	1	1455	1455	140	0.0267	0.579333333	4.61%
VZW Cellular	869	3	392	1174.874	140	0.0216	0.579333333	3.72%
VZW AWS	2145	1	5975	5975	140	0.1096	1.0	10.96%
VZW 700	746	1	2535	2535	140	0.0465	0.497333333	9.35%

Total Percentage of Maximum Permissible Exposure 40.11%

*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.

Property Information

Property ID	23/E/051
Location	1 EAGLE HILL
Owner	TOWN OF TOLLAND

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Tolland, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Properties updated 12/05/2017

56 RUOPS ROAD

Location	56 RUOPS ROAD	**Mblu**	23/ E/ 51/ /
Acct#	5384	**Owner**	TOWN OF TOLLAND
Assessment	$985,200	**Appraisal**	$1,407,400
PID	3892	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$124,100	$1,283,300	$1,407,400

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$86,900	$898,300	$985,200

Owner of Record

Owner	TOWN OF TOLLAND	**Sale Price**	$0
Co-Owner	C/O SPECTRASITE COMMUNICATIONS	**Certificate**	
Address	PO BOX 723597 ATLANTA, GA 31139	**Book & Page**	819/ 81
		Sale Date	04/24/2003
		Instrument	15

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
TOWN OF TOLLAND	$0		819/ 81	15	04/24/2003

Building Information

Building 1 : Section 1

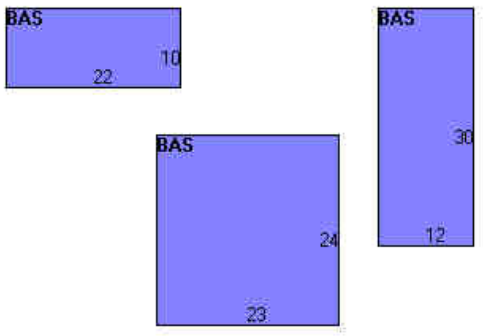
Year Built:	1989
Living Area:	1,132
Replacement Cost:	$139,802
Building Percent Good:	85
Replacement Cost Less Depreciation:	$118,800

Building Attributes	
Field	**Description**
STYLE	Communications Bld
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	1
Ext Wall 1	Poly-Steel/Con
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bldg Use	Industrial
Total Rooms	
Total Bedrms	
Total Baths	
Solar	
1st Floor Use:	300
Heat/AC	Heat/AC Pkg
Frame Type	Masonry
Baths/Plumbing	None
Ceiling/Wall	None
Rooms/Prtns	Light
Wall Height	8
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/TollandCTPhotos//\00\00\63/46.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	Main Floor	1,132	1,132
		1,132	1,132

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	300
Description	Industrial
Zone	RDD
Neighborhood	350C
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.78
Frontage	2973
Depth	
Assessed Value	$898,300
Appraised Value	$1,283,300

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN	FENCE	CL8	8' Chain Link	380 L.F.	$5,300	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$124,100	$1,283,300	$1,407,400
2014	$124,100	$1,283,300	$1,407,400
2013	$107,300	$487,400	$594,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$86,900	$898,300	$985,200
2014	$86,900	$898,300	$985,200
2013	$75,100	$341,200	$416,300

56 RUOPS ROAD

Location	56 RUOPS ROAD	**Mblu**	23/ E/ 51/ /
Acct#	5384	**Owner**	TOWN OF TOLLAND
Assessment	$985,200	**Appraisal**	$1,407,400
PID	3892	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$124,100	$1,283,300	$1,407,400

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$86,900	$898,300	$985,200

Owner of Record

Owner	TOWN OF TOLLAND	**Sale Price**	$0
Co-Owner	C/O SPECTRASITE COMMUNICATIONS	**Certificate**	
Address	PO BOX 723597 ATLANTA, GA 31139	**Book & Page**	819/ 81
		Sale Date	04/24/2003
		Instrument	15

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
TOWN OF TOLLAND	$0		819/ 81	15	04/24/2003

Building Information

Building 1 : Section 1

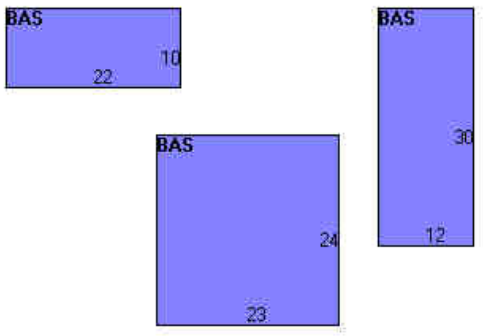
Year Built:	1989
Living Area:	1,132
Replacement Cost:	$139,802
Building Percent Good:	85
Replacement Cost Less Depreciation:	$118,800

Building Attributes	
Field	**Description**
STYLE	Communications Bld
MODEL	Ind/Comm
Grade	Average
Stories:	1
Occupancy	1
Ext Wall 1	Poly-Steel/Con
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Tar & Gravel
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Hot Air-no Duc
AC Type	Heat Pump
Bldg Use	Industrial
Total Rooms	
Total Bedrms	
Total Baths	
Solar	
1st Floor Use:	300
Heat/AC	Heat/AC Pkg
Frame Type	Masonry
Baths/Plumbing	None
Ceiling/Wall	None
Rooms/Prtns	Light
Wall Height	8
% Comn Wall	

Building Photo

(http://images.vgsi.com/photos/TollandCTPhotos//\00\00\63/46.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	Main Floor	1,132	1,132
		1,132	1,132

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	300
Description	Industrial
Zone	RDD
Neighborhood	350C
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.78
Frontage	2973
Depth	
Assessed Value	$898,300
Appraised Value	$1,283,300

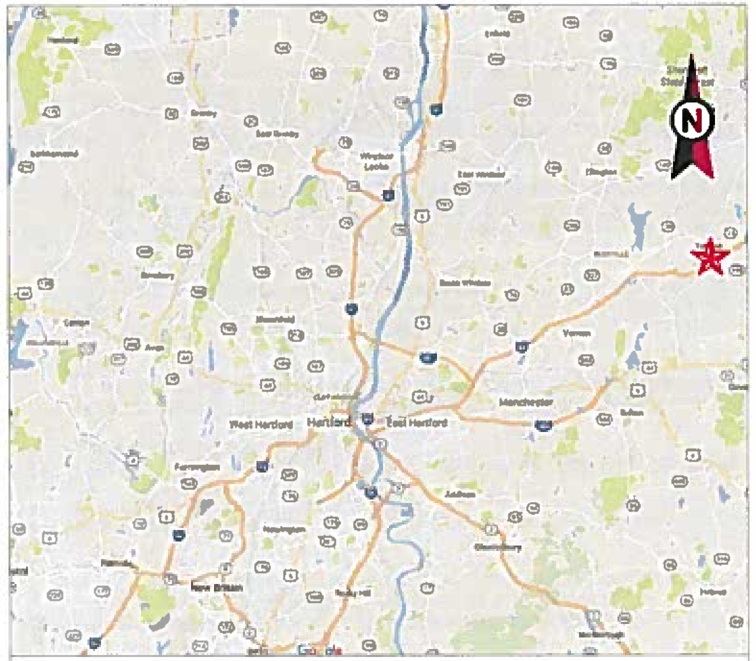
Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN	FENCE	CL8	8' Chain Link	380 L.F.	$5,300	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$124,100	$1,283,300	$1,407,400
2014	$124,100	$1,283,300	$1,407,400
2013	$107,300	$487,400	$594,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$86,900	$898,300	$985,200
2014	$86,900	$898,300	$985,200
2013	$75,100	$341,200	$416,300



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: TOLLAND CT
ATC SITE NUMBER: 302495
VERIZON SITE NAME: TOLLAND CT
VERIZON SITE NUMBER:468468
SITE ADDRESS: 56 RUOPS ROAD
TOLLAND, CT 06084

VERIZON WIRELESS
ANTENNA MODIFICATION 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

PROJECT SUMMARY

SITE ADDRESS:

56 RUOPS ROAD
TOLLAND, CT 06084
COUNTY: TOLLAND

GEOGRAPHIC COORDINATES:

LATITUDE: 41.87333333
LONGITUDE: -72.3383
GROUND ELEVATION: 695' AMSL

PROJECT DESCRIPTION

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

REMOVE (12) RRUs

INSTALL (3) NEW PANELS, (9) RRUs, AND (6) COMBINERS

EXISTING (12) PANELS, (14) 1-5/8" COAX CABLES, (2) 1-5/8" HYBRID CABLES, AND (2) OVPs TO REMAIN

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	COVER SHEET	1	02/04/20	AMM
G-002	GENERAL NOTES	0	12/16/19	AMM
C-101	DETAILED SITE PLAN	0	12/16/19	AMM
C-102	TOWER ELEVATION	1	02/04/20	AMM
C-501	RF SCHEDULE AND ANTENNA INSTALLATION	0	12/16/19	AMM
C-502	CONSTRUCTION DETAILS	0	12/16/19	AMM
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			

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 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:

VINCENT RUOPS
40 VAALCOM ROAD
TOLLAND, CT 06084

APPLICANT:

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

PROJECT LOCATION DIRECTIONS

FROM HARTFORD TAKE I-84 E TO EXIT 68. TURN RIGHT ONTO RT 195. AT LIGHT TURN LEFT ON RHODES RD (ABOUT .3 MILES) FOLLOW FOR 2 MILES THEN TURN LEFT ON KATE RD. FOLLOW FOR ABOUT .8 MILES AND TURN LEFT ON ROUPS RD. ACCESS ROAD IS AT THE END.

UTILITY COMPANIES

POWER COMPANY: CONNECTICUT LIGHT & POWER
PHONE: (800) 322-3223

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (800) 921-8102

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

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	AMM	12/16/19
1	REV TOWER ELEVATIONS	AMM	02/04/20

ATC SITE NUMBER:
302495

ATC SITE NAME:
TOLLAND CT

SITE ADDRESS:
56 RUOPS ROAD
TOLLAND, CT 06084

SEAL:

STATE OF CONNECTICUT
PATRICK P. BARRY
28959
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"

verizon

DRAWN BY:	SM
APPROVED BY:	PB
DATE DRAWN:	12/16/19
ATC JOB NO:	12991739
CUSTOMER ID:	TOLLAND CT
CUSTOMER #:	468468

COVER SHEET

SHEET NUMBER:	REVISION:
G-001	1

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.

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	AMM	12/16/19
△			
△			
△			
△			

ATC SITE NUMBER:
302495

ATC SITE NAME:
TOLLAND CT

SITE ADDRESS:
56 RUOPS ROAD
TOLLAND, CT 06084

SEAL:

Authorized by "EOR"
Feb 8 2021

verizon design

DRAWN BY:	SM
APPROVED BY:	PB
DATE DRAWN:	12/16/19
ATC JOB NO:	12991739
CUSTOMER ID:	TOLLAND CT
CUSTOMER #:	468468

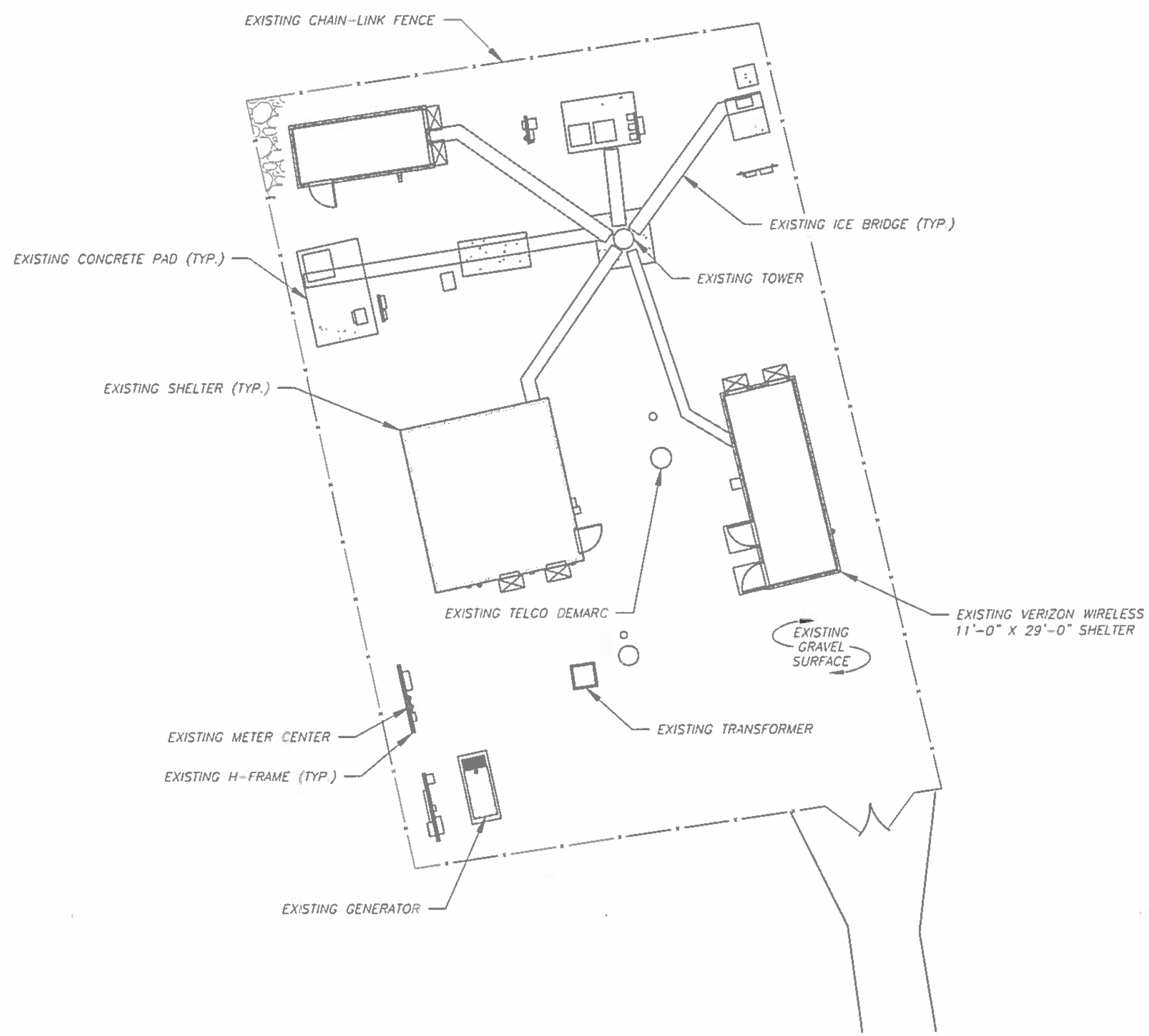
GENERAL NOTES

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 20' 40'

SCALE: 1"=20' (11X17)
1"=10' (22X34)

N

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	AMM	12/16/19

ATC SITE NUMBER:
302495

ATC SITE NAME:
TOLLAND CT

SITE ADDRESS:
56 RUOPS ROAD
TOLLAND, CT 06084

SEAL:

STATE OF CONNECTICUT PATRICK P. BARRY 28959 LICENSED PROFESSIONAL ENGINEER

Authorized by "EOR"

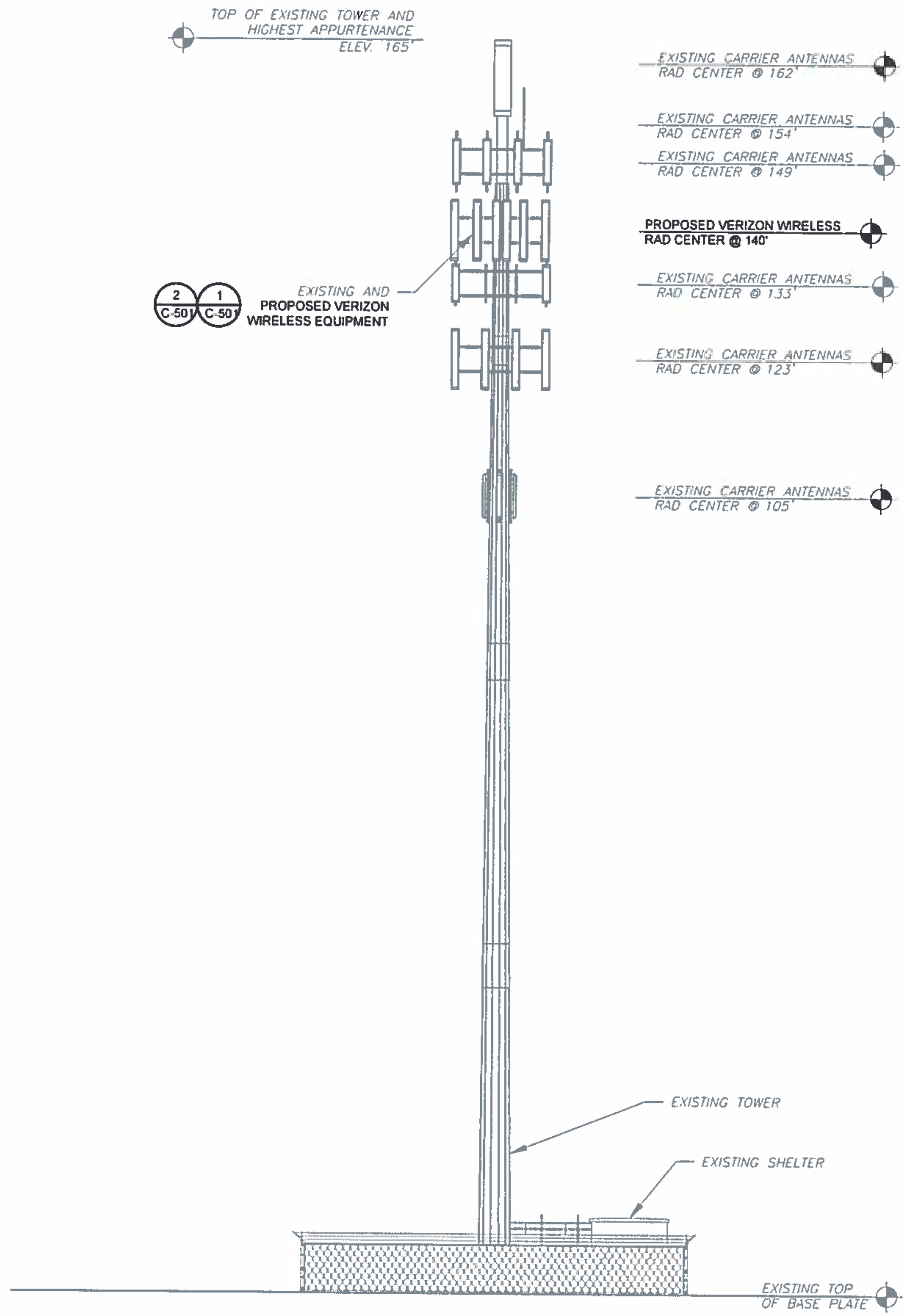
verizon esign

DRAWN BY:	SM
APPROVED BY:	PB
DATE DRAWN:	12/16/19
ATC JOB NO:	12991739
CUSTOMER ID:	TOLLAND CT
CUSTOMER #:	468468

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

PER MOUNT ANALYSIS COMPLETED BY ATC, DATED 12/20/19, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



1 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. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
3. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
4. 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.

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

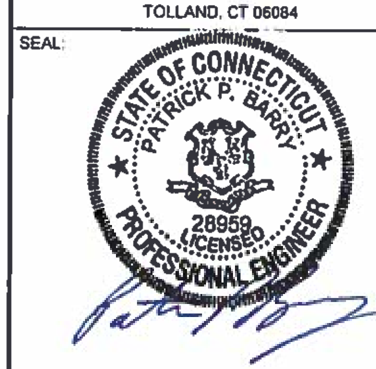
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AMM	12/16/19
1	REV TOWER ELEVATIONS	AMM	02/04/20

ATC SITE NUMBER:
302495

ATC SITE NAME:
TOLLAND CT

SITE ADDRESS:
56 RUOPS ROAD
TOLLAND, CT 06084

SEAL:



Authorized by "EOR"
Feb

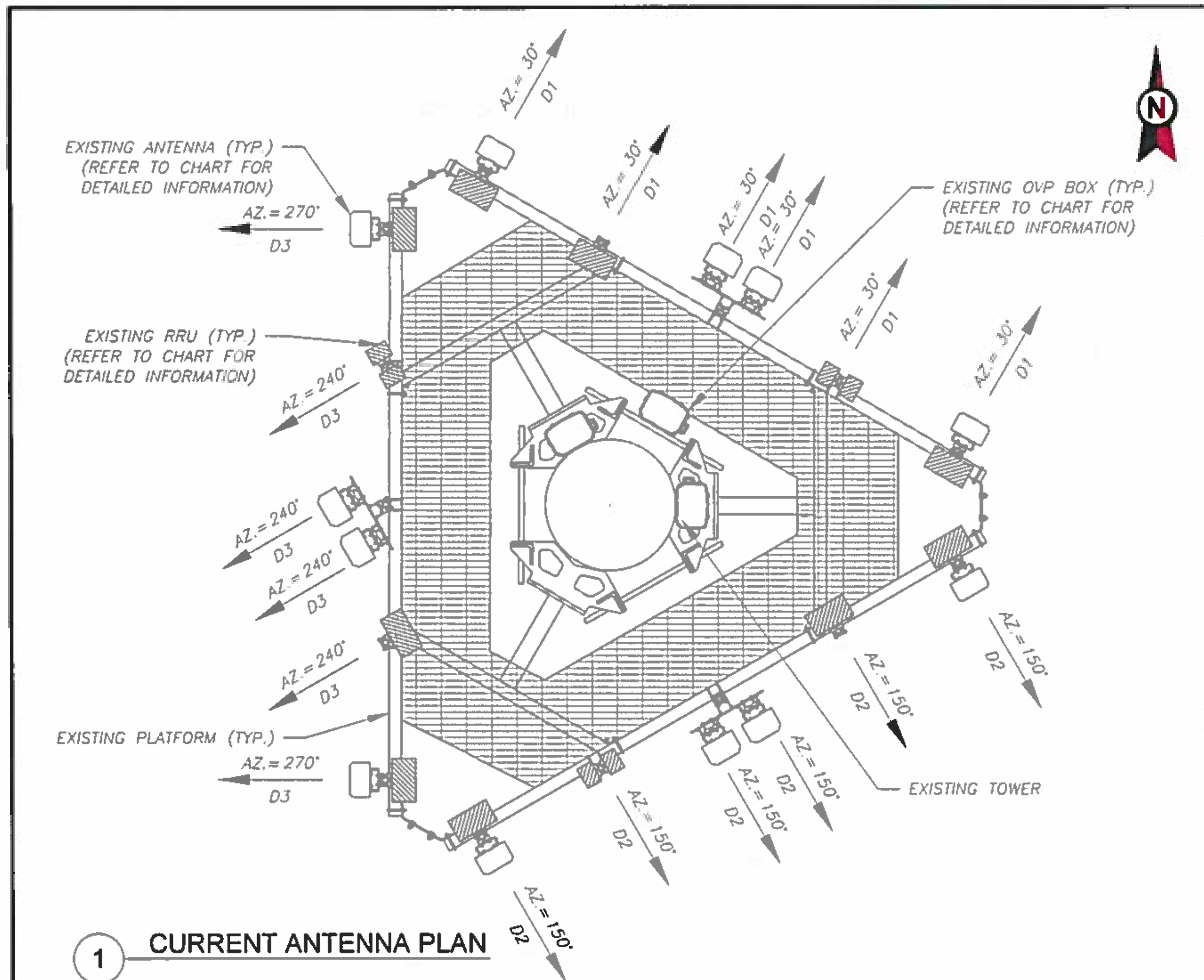
verizon design

DRAWN BY:	SM
APPROVED BY:	PB
DATE DRAWN:	12/16/19
ATC JOB NO:	12991739
CUSTOMER ID:	TOLLAND CT
CUSTOMER #:	468468

TOWER ELEVATION

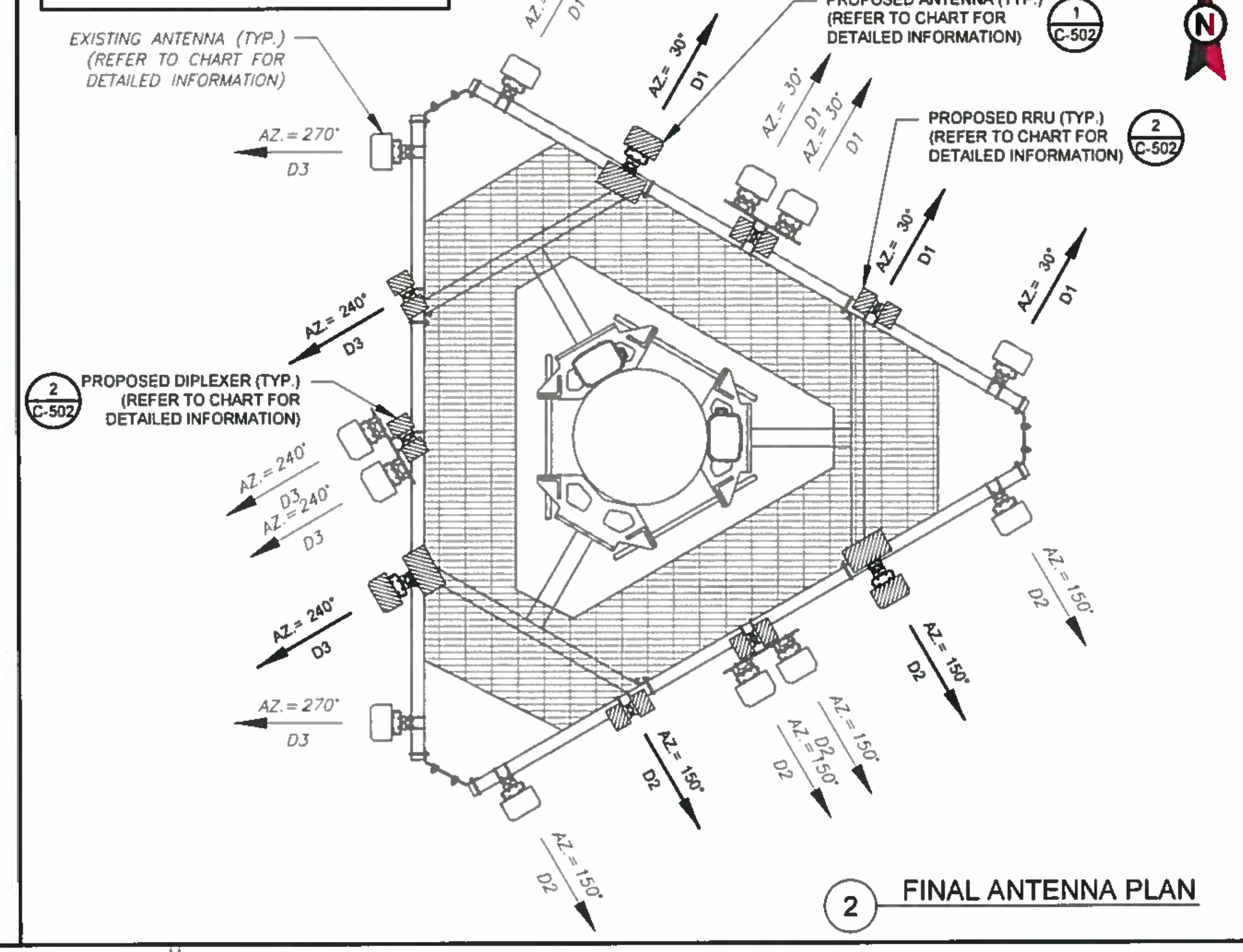
SHEET NUMBER: C-102

REVISION: 1



1 CURRENT ANTENNA PLAN

PER MOUNT ANALYSIS COMPLETED BY ATC, DATED 12/20/19, 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	140'	30°	A1	SC-9012	850 CMDA	RMN	RRH AWS	RMV
			A2	–	–	–	RRH2X60	RMV
			A3	(2) JAHH-65B-R3B	700, 850, 2100 LTE	RMN	–	–
			A4	–	–	–	RRH2X60 700/B5 RRH4X40-850	RMV
			A5	SC-9012	850 CMDA	RMN	–	RMV
D2	140'	150°	B1	SC-9012	850 CMDA	RMN	RRH AWS	RMV
			B2	–	–	–	RRH2X60	RMV
			B3	(2) JAHH-65B-R3B	700, 850, 2100 LTE	RMN	–	–
			B4	–	–	–	RRH2X60 700/B5 RRH4X40-850	RMV
			B5	SC-9012	850 CMDA	RMN	–	RMV
D3	140'	270°	C1	SC-9012	850 CMDA	RMN	RRH AWS	RMV
		240°	C2	–	–	–	RRH2X60	RMV
			C3	(2) JAHH-65B-R3B	700, 850, 2100 LTE	RMN	–	–
			C4	–	–	–	RRH2X60 700/B5 RRH4X40-850	RMV
		270°	C5	SC-9012	850 CMDA	RMN	–	RMV

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
(2) DB-T1-6Z-8AB-0Z	RMN	(14) 1-5/8"	(2) 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

NOTES

1. BASED ON APPROVED ATC APPLICATION 12991739, DATED 11/06/19. 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.) ATC DID NOT ANALYZE ANTENNA MOUNT TO DETERMINE ADEQUATE STRUCTURAL CAPACITY FOR ANY LESSEE LOADING.
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	140'	30°	A1	SC-9012	850 CMDA	RMN	-	-
			A2	CBRS 64T64R MMU	-	ADD	OUTDOOR CBRS 20W	ADD
			A3	(2) JAHH-65B-R3B	700, 850, 2100 LTE	RMN	(2) FDJ85020D7-S	ADD
			A4	-	-	ADD	B2/B66A RRH-BR049 / B5/B13 RRH-BR04C	ADD
			A5	SC-9012	850 CMDA	RMN	-	-
D2	140'	150°	B1	SC-9012	850 CMDA	RMN	-	-
			B2	CBRS 64T64R MMU	-	ADD	OUTDOOR CBRS 20W	ADD
			B3	(2) JAHH-65B-R3B	700, 850, 2100 LTE	RMN	(2) FDJ85020D7-S	ADD
			B4	-	-	ADD	B2/B66A RRH-BR049 / B5/B13 RRH-BR04C	ADD
			B5	SC-9012	850 CMDA	RMN	-	-
D3	140'	270°	C1	SC-9012	850 CMDA	RMN	-	-
		240°	C2	CBRS 64T64R MMU	-	ADD	OUTDOOR CBRS 20W	ADD
			C3	(2) JAHH-65B-R3B	700, 850, 2100 LTE	RMN	(2) FDJ85020D7-S	ADD
			C4	-	-	ADD	B2/B66A RRH-BR049 / B5/B13 RRH-BR04C	ADD
		270°	C5	SC-9012	850 CMDA	RMN	-	-

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
DB-T1-6Z-8AB-0Z	RMN	(14) 1-5/8"	(2) 1-5/8"	RMN
-	-	-	-	-

3 EQUIPMENT SCHEDULES

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	AMM	12/16/19

ATC SITE NUMBER:
302495
ATC SITE NAME:
TOLLAND CT

SITE ADDRESS:
58 RUOPS ROAD
TOLLAND, CT 06084

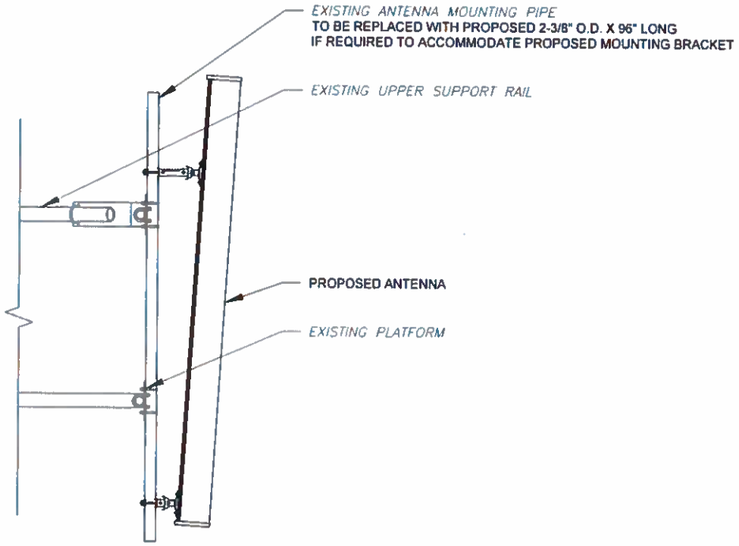
SEAL:
STATE OF CONNECTICUT
PATRICK P. BARRY
28959
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
verizon

DRAWN BY:	SM
APPROVED BY:	PB
DATE DRAWN:	12/16/19
ATC JOB NO:	12991739
CUSTOMER ID:	TOLLAND CT
CUSTOMER #:	468468

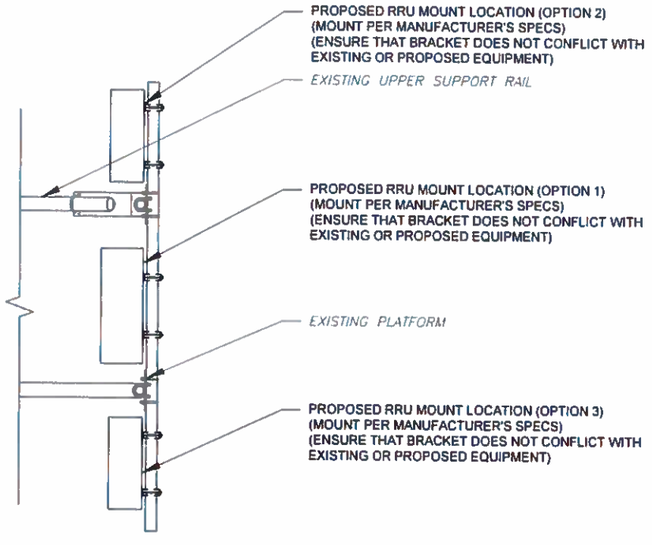
RF SCHEDULE AND ANTENNA INSTALLATION

SHEET NUMBER: C-501
REVISION: 0



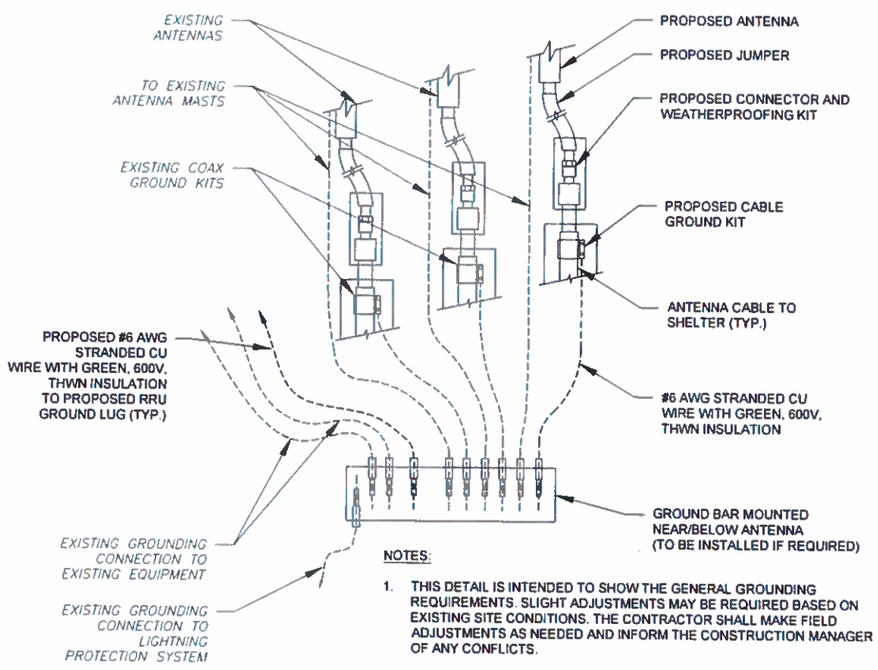
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL

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

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

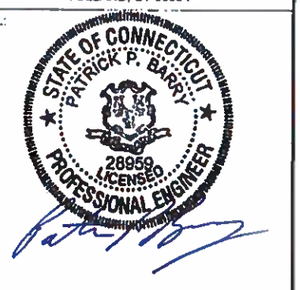
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AMM	12/16/19

ATC SITE NUMBER:
302495

ATC SITE NAME:
TOLLAND CT

SITE ADDRESS:
56 RUOPS ROAD
TOLLAND, CT 06084

SEAL:



Authorized by "EOR"
Feb 18 8:42 AM

verizon design

DRAWN BY:	SM
APPROVED BY:	PB
DATE DRAWN:	12/16/19
ATC JOB NO:	12991739
CUSTOMER ID:	TOLLAND CT
CUSTOMER #:	468468

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-502	0

AMERICAN TOWER®
CORPORATION

Antenna Mount Analysis Report

ATC Site Name	:	Tolland CT
ATC Site Number	:	302495
Engineering Number	:	12991739_C8_05
Mount Elevation	:	139 ft
Carrier	:	Verizon Wireless
Carrier Site Name	:	TOLLAND CT
Carrier Site Number	:	468468
Site Location	:	56 Ruops Road Tolland, CT 06084-3116 41.87333333 , -72.3383
County	:	Tolland
Date	:	December 20, 2019
Max Usage	:	77%
Result	:	Pass

Prepared By:
Charles Wally
Structural Engineer II

Reviewed By:

STATE OF CONNECTICUT · ESHA KAUSHAL MODI · 32593 · LICENSED PROFESSIONAL ENGINEER

Authorized by "EOR"
20 Dec 2019 05:45:33 cosign

COA: PEC.0001553

Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for Verizon Wireless at 139 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/ 1" radial ice concurrent
Codes:	ANSI/TIA-222-G / 2015 IBC / 2016 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.175, S_1 = 0.063
Site Class:	D - Stiff Soil
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.

A.T. Engineering Service, PLLC - 3300 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5414 Fax - www.americantower.com

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.

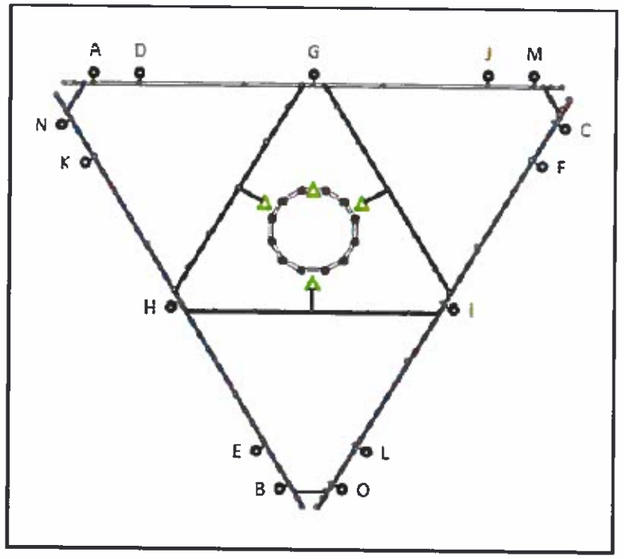
SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0

Application Loading

Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
139.0	140.0	3	Samsung CBRS 64T64R MMU
		6	Commscope JAHH-65B-R3B
		6	Swedcom SC 9012
		6	RFS FD/85020D7-S
		2	RFS DB-T1-6Z-8AB-0Z
		3	Samsung B2/B66A RRH-BR049
		3	Samsung B5/B13 RRH-BR04C
		3	Samsung Outdoor CBRS 20W RRH

Mount Layout



A.T. Engineering Service, PLLC - 3500 Regency Parkway, Suite 100 - Cary, NC 27518 - 919.468.0112 Office - 919.466.5414 Fax - www.americantower.com

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-602	0