Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

August 2, 2019

Members of the Siting Council
Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

RE: Notice of Exempt Modification
15 Miner Lane, Waterford, CT 06385 (AKA 85 Miner Lane)
Latitude: 41.3290951900
Longitude: -72.1246356000
T-Mobile Site#: CT11641A – L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 130-foot level of the existing 180-foot monopole at 15 Miner Lane, Waterford, CT (AKA 85 Miner Lane). The 180-foot monopole is owned and operated by American Tower Corporation. The property is owned by the Town of Waterford. T-Mobile now intends to replace three (3) of its existing antennas with three (3) new 600/700 MHz antennas. The new antennas will be installed at the same 130-foot level of the tower. Mount modifications are also required as detailed in the enclosed mount analysis.

Planned Modifications:
Tower:

Remove
(3) TMA
(6) 1-5/8" Coax

Remove and Replace:
(3) Andrew – LNX-6515DS-A1M (remove) – Add (3) RFS APXVAARR24_43-UNA20 600/700 MHz
(3) RRUS11B12 (remove) – Add (3) Radio 4449 B12+B71

Install New:
(2) 1-5/8" hybrid

Existing to Remain:
(6) AIR 21 1900/2100 MHz
(6) 1-5/8" coax
(1) 1-1/4" Hybrid

Ground:
Install: New equipment inside existing 6131 cabinet

This tower facility was originally approved by the Siting Council in Docket No. 67 on December 22, 1986. This modification complies with the original approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to First Selectman -Daniel Steward, Elected Official, and Abby Piersall, Planning Director for the Town of Waterford, as well as the tower owner.

The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S;A. § 16-50j-72(b)(2).

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

For the foregoing reasons, T-Mobile 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,

Kyle Richers
Transcend Wireless
Cell: 908-447-4716
Email: krichers@transcendwireless.com

Attachments
cc: Daniel Steward– Town of Waterford First Selectman
Abby Piersall– Town of Waterford Planning Director
American Tower – Tower Owner

UPS Internet Shipping: 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 'Find Locations' Quick link at ups.com.
   Schedule a same day or future day Pickup to have a UPS driver pickup all of your Internet Shipping packages.
   Hand the package to any UPS driver in your area.

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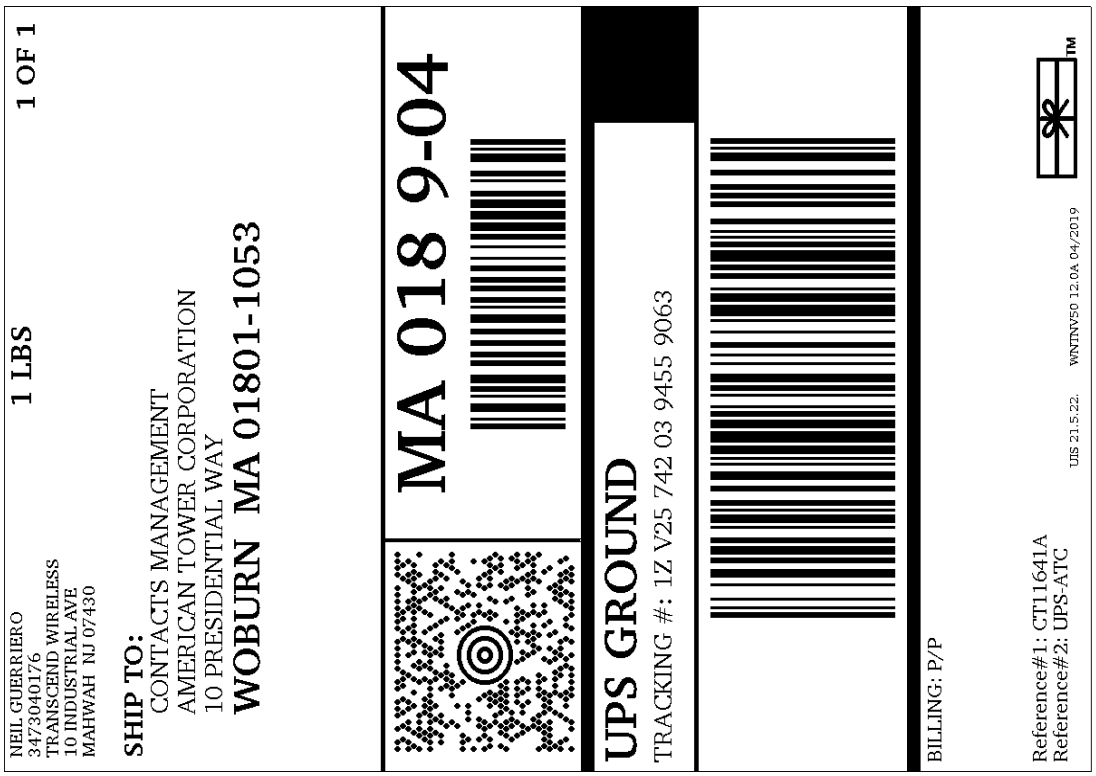
THE UPS STORE
120 E MAIN ST
RAMSEY ,NJ 07446

UPS Access Point™
POSTNET NY137
74 LAFAYETTE AVE
SUFFERN ,NY 10901

FOLD HERE



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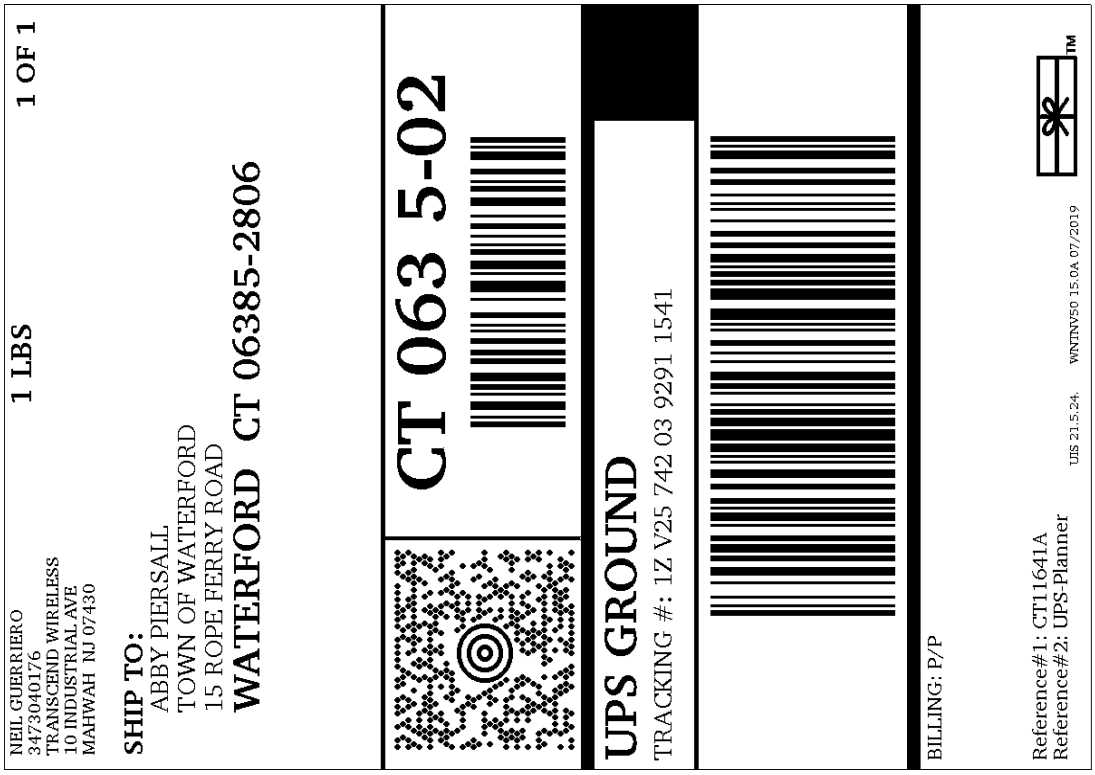

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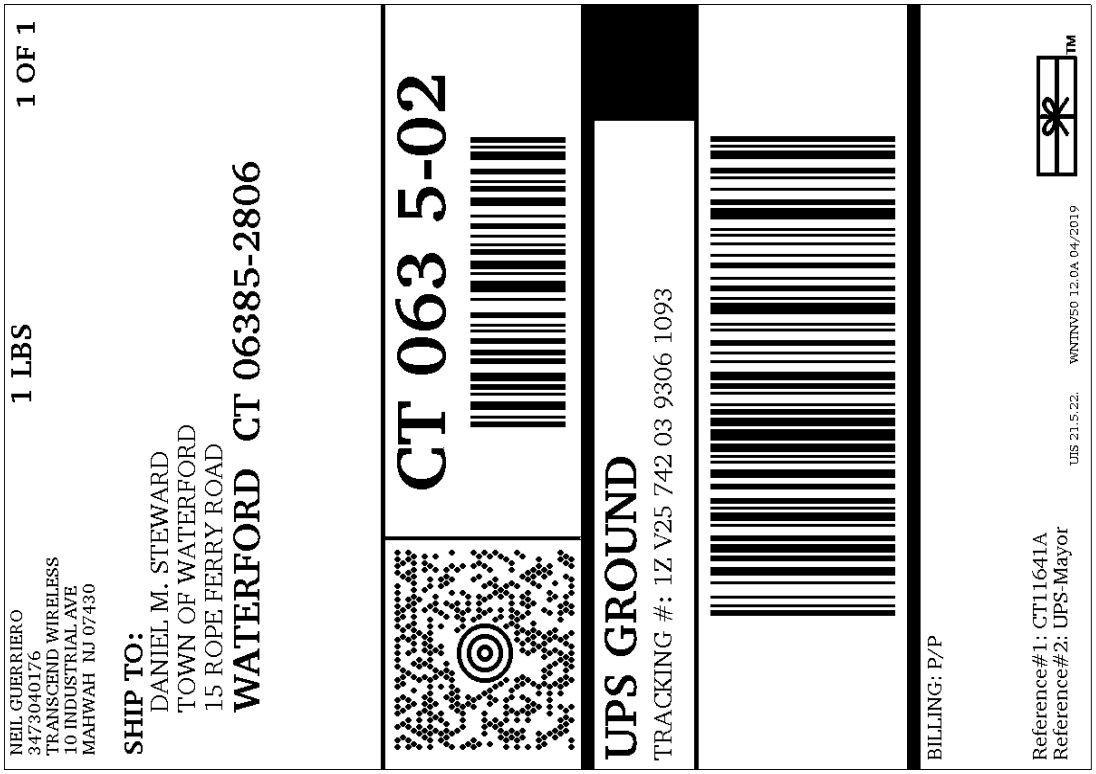


85 MINER LANE

Location	85 MINER LANE	**Mblu**	153/ / 4766/ /
Acct#	00433700	**Owner**	WATERFORD TOWN OF
Assessment	$395,920	**Appraisal**	$565,580
PID	4766	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$224,800	$340,780	$565,580
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2017	$157,370	$238,550	$395,920

Parcel Addreses

Additional Addresses		
Address	**City, State Zip**	**Type**
85 MINER LANE		Primary

Owner of Record

Owner	WATERFORD TOWN OF	**Sale Price**	$0
Co-Owner		**Certificate**	
		Book & Page	259/ 774
		Sale Date	05/14/1981
		Instrument	00

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
WATERFORD TOWN OF	$0		259/ 774	00	05/14/1981

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Grade:	
Stories	
Occupancy	

Exterior Wall 1	
Exterior Wall 2	
Roof Structure	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Percent	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Fireplace(s)	
Extra Opening(s)	
Gas Fireplace(s)	
% Attic Fin	
LF Dormer	
Foundation	

Building Photo

(http://images.vgsi.com/photos/WaterfordCTPhotos//\00\01\65/

Building Layout


Building Layout
(http://images.vgsi.com/photos/WaterfordCTPhotos//Sketches/4

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Bsmt Gar(s)	
Bsmt %	
SF FBM	
SF Rec Rm	
Fin Bsmt Qual	
Bsmt Access	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	900
Description	Exempt Vac
Zone	R-40
Neighborhood	1100
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	25.67
Frontage	0
Depth	0
Assessed Value	$238,550
Appraised Value	$340,780

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**

SHD1	Shed	MS	Masonry	400 S.F.	$5,760	1
SHD1	Shed	FR	Frame	480 S.F.	$10,580	1
	RADIO TOWER			200	$200,000	1
FN3	FENCE-6' CHAIN			96 L.F.	$580	1
SHP	Work Shop	MS	Masonry	240 S.F.	$7,880	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$224,800	$340,780	$565,580
2018	$224,800	$340,780	$565,580

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$157,370	$238,550	$395,920
2018	$157,370	$238,550	$395,920

85 miner lane

Search Results

Parcel Details

85 MINER LANE

WATERFORD TOWN OF

15 ROPE FERRY RD
WATERFORD, CT 06385

Parcel ID: 4766
Lot Size (ac): 25.66999541
Total Value: $565580

Links | Abutters

Parcel Details | Bing Bird's Eye
Photo | Add Parcel
Google Map | Remove Parcel
Abutter Distance: | Print Labels
Adjacent | Export List

Adjacent
50 ft
100 ft

Scroll ap 153
ot 4766

Email Map Link

About
Layers
Identify

85 MINER LANE
WATERFORD TOWN OF
AV PID: 4766 View Details

lat:41.3314, long:-72.1198

Tighe&Bond

Copy ar aste the following string into an email to link to the current map view:

Close

Print Map

Size:

Scale: 1" = ft. Title:

Close Print

lat:41.3314, long:-72.1198

DOCKET NO. 67

AN APPLICATION OF THE SOUTHERN NEW ENGLAND TELEPHONE COMPANY FOR A CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED FOR THE CONSTRUCTION, MAINTENANCE, AND OPERATION OF FACILITIES TO PROVIDE CELLULAR SERVICE IN THE TOWNS OF EAST LYME AND WATERFORD, CONNECTICUT.	:	CONNECTICUT SITING COUNCIL December 22, 1986

D E C I S I O N A N D O R D E R

Pursuant to the foregoing Opinion, the Council hereby directs that a Certificate of Environmental Compatibility and Public Need (Certificate) as provided by section 16-50k of the General Statutes of Connecticut (CGS) be issued to the Southern New England Telephone Company for the construction, operation, and maintenance of telecommunications towers and associated equipment buildings to provide cellular mobile telephone service at Scott Road, East Lyme, and the Town of Waterford landfill, Waterford.

The facilities shall be constructed, operated, and maintained as specified in the Council's record on this matter, and subject to the following conditions.

1. The towers, including antennas, shall be no taller than necessary to provide the proposed service, and in no event shall exceed
   a) 167 feet at the East Lyme site, and
   b) 167 feet at the Waterford site.
2. A fence not lower than eight feet shall surround each tower and its associated equipment building.
3. Unless necessary to comply with condition number four, below, no lights shall be installed on these towers.
4. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations.

5. The certificate holder shall submit a Development and Management Plan (D&M plan) for the tower sites pursuant to sections 16-50j-75 through section 16-50j-77 of the Regulations of State Agencies, except that irrelevant items in section 16-50j-76 need only be identified as such. The D&M plan shall provide plans for evergreen screening around the fenced perimeter of the Waterford tower site. As stated in section 16-50j-75(d), the D&M plan must be approved by the Council prior to facility construction. Any changes in the D&M plan must be approved by the Council prior to facility operation.

6. No construction activities shall take place outside the hours of 7:00 A.M. to 7:00 P.M., Monday through Saturday.

7. The applicant or its successor shall notify the Council if and when directional antennas or any equipment other than that listed in the D&M plan is added to these facilities.

8. The applicant or its successor shall permit, in accordance with representations made by it during the proceeding, public or private entities to share space on the tower, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

9. If the towers do not provide or permanently cease to provide cellular service following completion of construction, this Decision and Order shall be void and the towers and all associated equipment shall be dismantled and removed or reapplication for any new use shall be made to the Council before any such new use is made.

10. 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 of this Decision.

11. The certificate holder shall measure and report to the Council the radio frequency power density levels at these sites in accordance with Federal Communications Commission-specified guidelines as set forth in the Office of Science and Technology Bulletin No. 65, October, 1985, within six months of completion of construction.

Pursuant to CGS section 16-50p, we hereby direct that a copy of the Decision and Order be served on each person listed below. A notice of the issuance shall be published in the New London Day and the Niantic News.

The parties to the proceeding are:

Southern New England Telephone Company (Applicant)
227 Church Street - Room 1021
New Haven, Connecticut 06506

ATTN: Peter J. Tyrrell (its representative)
Senior Attorney
(203) 771-7381

Metro Mobile CTS of Hartford, Inc. represented by:

Mr. Howard L. Slater
Byrne, Slater, Sandler,
Shulman & Rouse, P.C.
330 Main Street
Post Office Box 3216
Hartford, Connecticut 06103

Waterford Planning & Zoning Commission

represented by:

Mr. Thomas V. Wagner
Town Planner
Town of Waterford
Waterford Planning &
Zoning Commission
15 Rope Ferry Road
Waterford, Connecticut 06385-2886

GEM Cellular

represented by:

Mr. George E. Murray
GEM Cellular
1809 Parkside Drive, N.W.
Washington, D.C. 20012

C E R T I F I C A T I O N

The undersigned members of the Connecticut Siting Council hereby certify that they have heard this case or read the record thereof, and that we voted as follows:

Dated at New Britain, Connecticut, this 22th day of December, 1986.

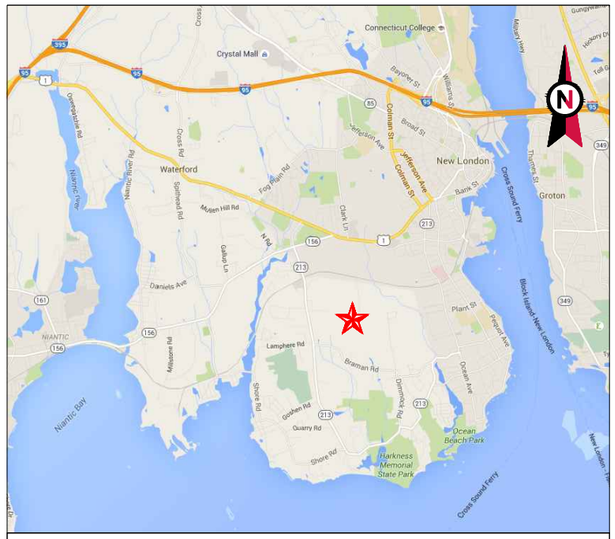
Council Members	Vote Cast
Gloria Dibble Pond Chairperson	Yes
Commissioner John Downey Designee: Commissioner Peter Boucher	Yes
Commissioner Stanley Pac Designee: Christopher Cooper	Absent
Owen L. Clark	Yes
Mortimer A. Gelston	Yes
James G. Horsfall	Yes
Pamela B. Katz	Yes
William H. Smith	Yes
Colin C. Tait	Absent

STATE OF CONNECTICUT)
: ss. New Britain, December 22, 1986
COUNTY OF HARTFORD)

I hereby certify that the foregoing is a true and correct copy of the decision and order issued by the Connecticut Siting Council, State of Connecticut.

ATTEST:

John C. Kelly
Executive Director
Connecticut Siting Council



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: WATERFORD REBUILD CT
ATC SITE NUMBER: 310972
T-MOBILE SITE ID: CT11641A
SITE ADDRESS: 15 MINER LANE
WATERFORD, CT 06385

T-MOBILE L600 ANTENNA AMENDMENT
67D02C CONFIGURATION

LOCATION MAP

BIRD WATCH SITE:
PLEASE CONTACT BIRD.WATCH@AMERICANTOWER.COM OR AMERICAN TOWER NOC AT 877-518-6937 FOR ASSISTANCE

COMPLIANCE CODE

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

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

UTILITY COMPANIES

POWER COMPANY: EVERSOURCE
PHONE: (877) 659-6326

TELEPHONE COMPANY: FRONTIER COMMUNICATIONS
PHONE: (877) 641-3250

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

PROJECT SUMMARY

SITE ADDRESS:

15 MINER LANE
WATERFORD, CT 06385
COUNTY: NEW LONDON

1A CERTIFICATE SUMMARY:

LATITUDE: 41° 19' 44.65" N

LONGITUDE: 72° 07' 28.53" W

GROUND ELEVATION: 94' AMSL

TOWER HEIGHT: 180' AGL

HIGHEST APPURTENANCE: 195' AGL

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:

WATERFORD CT
15 ROPE FERRY RD
WATERFORD, CT 06385

PROJECT DESCRIPTION

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

REMOVE (3) PANELS, (3) TTAs, (3) RRUs, (3) T-ARM MOUNTS AND (6) 1-5/8" COAX CABLES

INSTALL (3) NEW PANELS, (3) RRUs, (1) PLATFORM MOUNT, AND (2) 1-5/8" HYBRID CABLES

EXISTING (6) PANELS, (6) 1-5/8" COAX CABLES, AND (1) 1-1/4" HYBRID CABLE TO REMAIN

PROJECT NOTES

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

PROJECT LOCATION DIRECTIONS

FROM HARTFORD, CT:

TAKE I-91 SOUTH TO RT 9 SOUTH TO I-95 NORTH. TAKE EXIT 75 FOR RT 1 NORTH. TAKE RT 1 TO MINER LANE IN WATERFORD, TURN RIGHT. SITE IS TOWARDS END OF ROAD IN TOWN LANDFILL ON THE RIGHT.

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	1	07/25/19	LR
G-002	GENERAL NOTES	0	05/29/19	LR
C-101	DETAILED SITE PLAN & TOWER ELEVATION	1	07/25/19	LR
C-501	ANTENNA INFORMATION & SCHEDULE	1	07/25/19	LR
C-502	MOUNTING DETAILS	0	05/29/19	LR
E-501	GROUNDING DETAILS	0	05/29/19	LR
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			
R-605	SUPPLEMENTAL			

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

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	05/29/19
1	MA UPDATE	LR	07/25/19

ATC SITE NUMBER:
310972

ATC SITE NAME:
WATERFORD REBUILD CT

SITE ADDRESS:
15 MINER LANE
WATERFORD, CT 06385

SEAL:

Authorized by "EOR"
Jul 25 2019 12:57 PM

T-Mobile design

DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951818

TITLE 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 MASTER 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 T-MOBILE WIRELESS REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE WIRELESS REP PRIOR TO PROCEEDING.
11. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE 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 T-MOBILE 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 T-MOBILE 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 T-MOBILE 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 T-MOBILE 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 T-MOBILE WIRELESS REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE WIRELESS MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
21. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE WIRELESS SPECIFICATIONS AND REQUIREMENTS.
22. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE WIRELESS FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
23. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE 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 T-MOBILE 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 T-MOBILE WIRELESS REP. ANY WORK FOUND BY THE T-MOBILE WIRELESS REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
29. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

STRUCTURAL STEEL NOTES:

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

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	05/29/19

ATC SITE NUMBER:
310972

ATC SITE NAME:
WATERFORD REBUILD CT

SITE ADDRESS:
15 MINER LANE
WATERFORD, CT 06385

SEAL:

Authorized by "EOR"
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T-Mobile design

DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951818

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

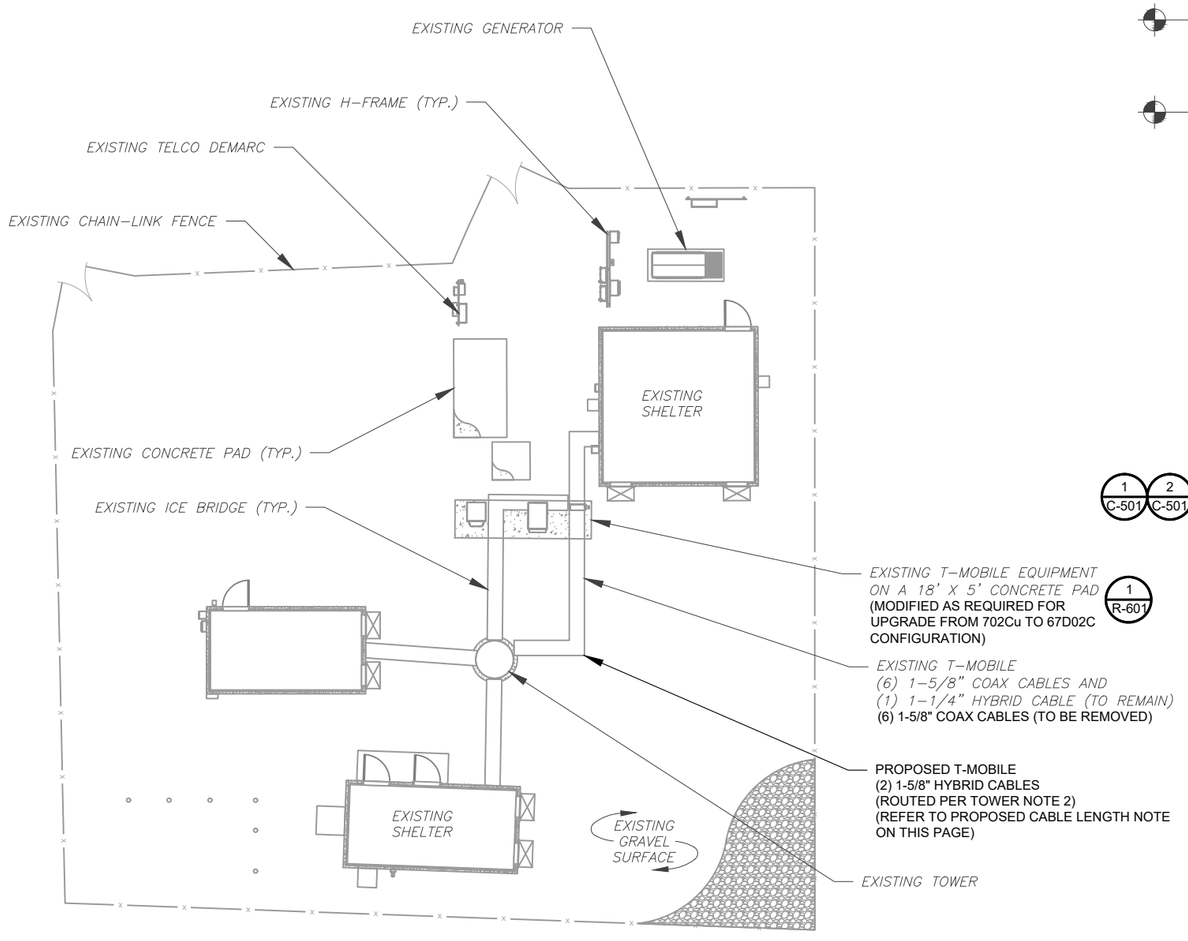
SITE PLAN NOTES:

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.

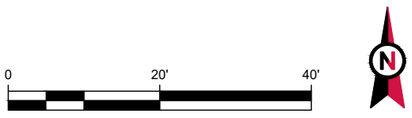
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT,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

3. THIS PROJECT INCLUDES NO INSTALL OR MODIFICATION AT GRADE.

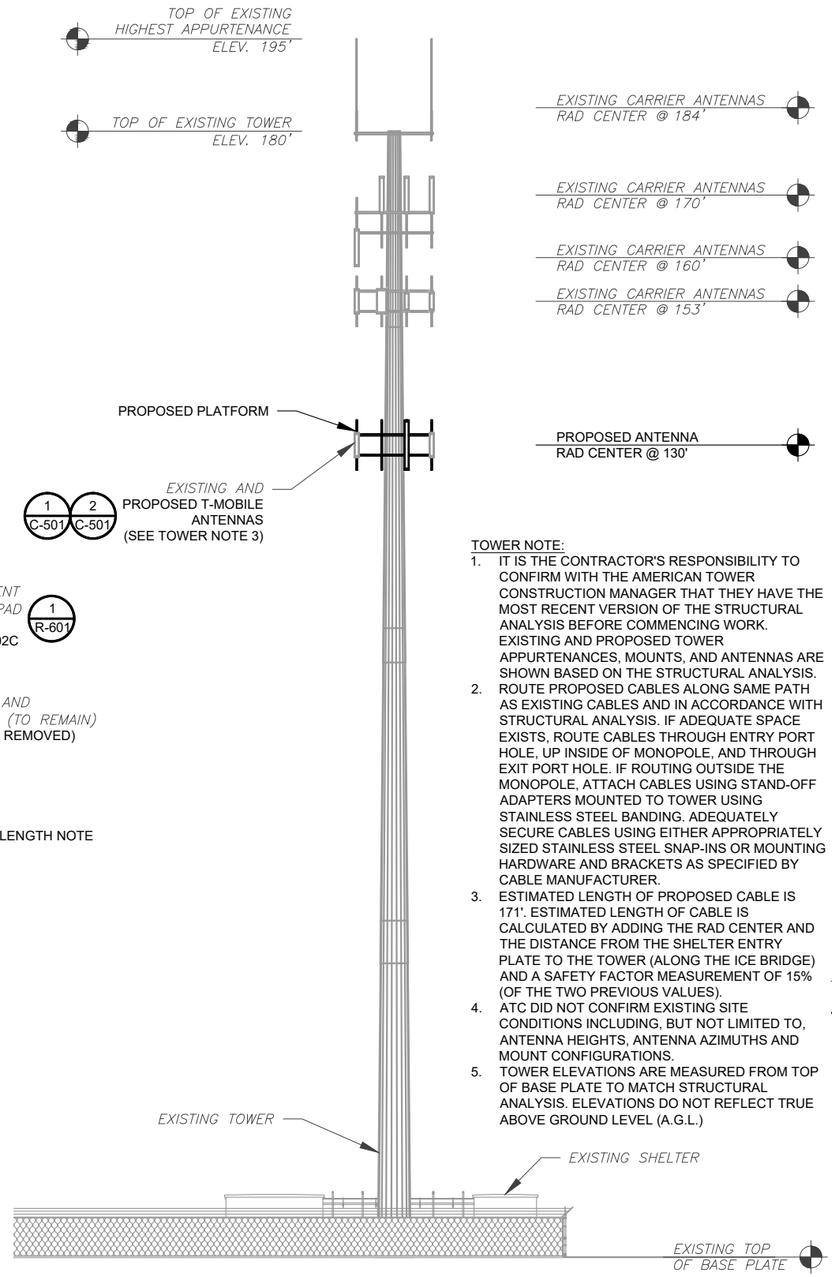
PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 07-03-19, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT REPLACEMENT PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



1 DETAILED SITE PLAN



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



2 TOWER ELEVATION
SCALE: NOT TO SCALE

TOWER NOTE:
1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE AMERICAN TOWER CONSTRUCTION MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. 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. ESTIMATED LENGTH OF PROPOSED CABLE IS 171'. ESTIMATED LENGTH OF CABLE IS CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES).
4. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATIONS.
5. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

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0	FOR CONSTRUCTION	LR	05/29/19
1	MA UPDATE	LR	07/25/19

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310972

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WATERFORD REBUILD CT

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15 MINER LANE
WATERFORD, CT 06385

SEAL:

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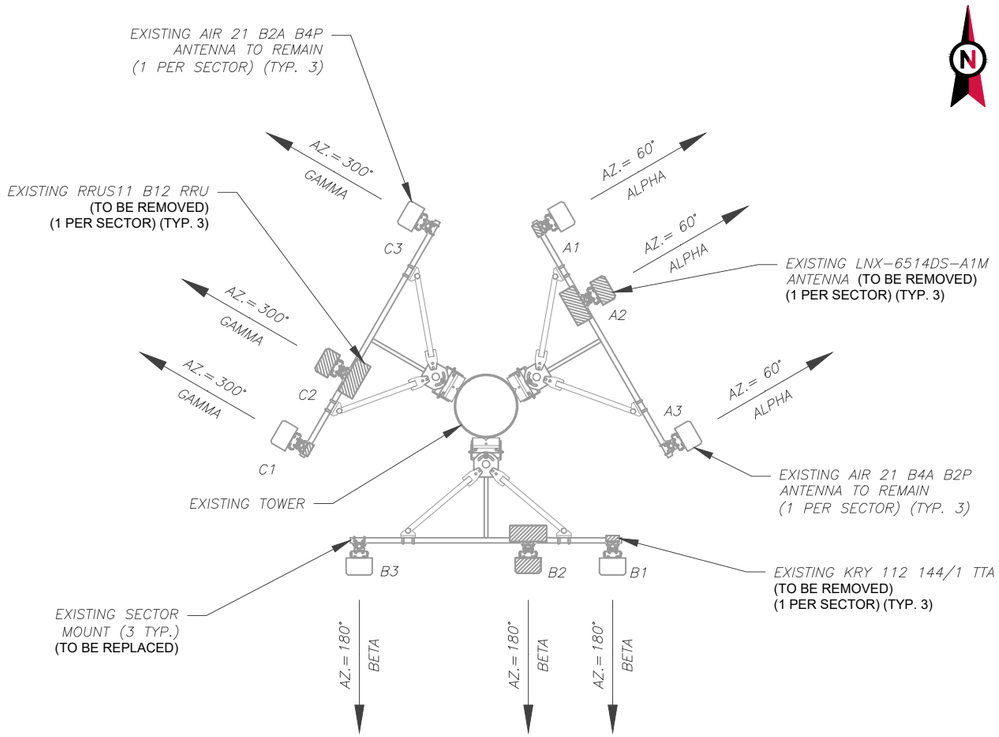
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951818

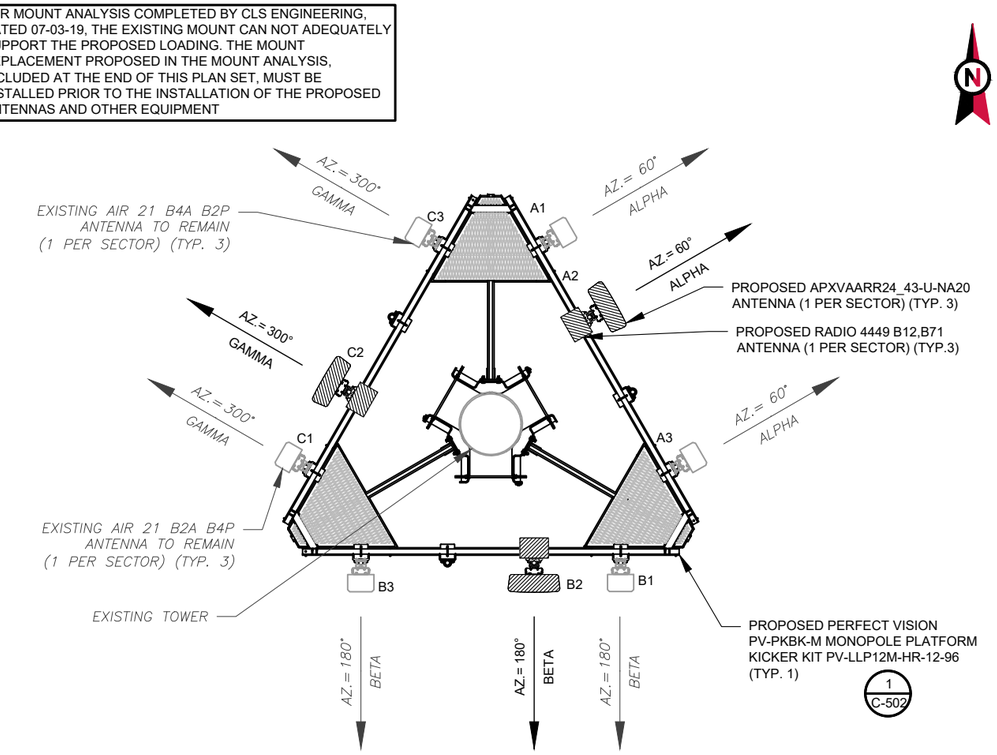
DETAILED SITE PLAN & TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-101	1



1 EXISTING ANTENNA PLAN

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 07-03-19, THE EXISTING MOUNT CAN NOT ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT REPLACEMENT PROPOSED IN THE MOUNT ANALYSIS, INCLUDED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT



2 FINAL ANTENNA PLAN

EXISTING ANTENNA / EQUIPMENT SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA	A1	AIR 21 B2A B4P	130'-0"	60°	0°	2°	KRY 112 144/1
ALPHA	A2	LNX-6514DS-A1M	130'-0"	60°	0°	2°	RRUS11 B12
ALPHA	A3	AIR 21 B4A B2P	130'-0"	60°	0°	2°	–
BETA	B1	AIR 21 B2A B4P	130'-0"	180°	0°	2°	KRY 112 144/1
BETA	B2	LNX-6514DS-A1M	130'-0"	180°	0°	2°	RRUS11 B12
BETA	B3	AIR 21 B4A B2P	130'-0"	180°	0°	2°	–
GAMMA	C1	AIR 21 B2A B4P	130'-0"	300°	0°	2°	KRY 112 144/1
GAMMA	C2	LNX-6514DS-A1M	130'-0"	300°	0°	2°	RRUS11 B12
GAMMA	C3	AIR 21 B4A B2P	130'-0"	300°	0°	2°	–

NOTES

1. BASED ON APPROVED ATC APPLICATION 12927128, DATED 03/11/19. CONFIRM WITH T-MOBILE 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 / EQUIPMENT SCHEDULE

SECTOR	ANT.	MANUFACTURER (MODEL #)	RAD CENTER	AZIMUTH (TN)	MECH. D-TILT	ELEC. D-TILT	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA	A1	AIR 21 B2A B4P	130'-0"	60°	0°	2°	–
ALPHA	A2	APXVAARR24_43-U-NA20	130'-0"	60°	0°	2°	RADIO 4449 B12,B71
ALPHA	A3	AIR 21 B4A B2P	130'-0"	60°	0°	2°	–
BETA	B1	AIR 21 B2A B4P	130'-0"	180°	0°	2°	–
BETA	B2	APXVAARR24_43-U-NA20	130'-0"	180°	0°	2°	RADIO 4449 B12,B71
BETA	B3	AIR 21 B4A B2P	130'-0"	180°	0°	2°	–
GAMMA	C1	AIR 21 B2A B4P	130'-0"	300°	0°	2°	–
GAMMA	C2	APXVAARR24_43-U-NA20	130'-0"	300°	0°	2°	RADIO 4449 B12,B71
GAMMA	C3	AIR 21 B4A B2P	130'-0"	300°	0°	2°	–

CURRENT FIBER DISTRIBUTION/OVP BOX		CURRENT CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	(6) 1-5/8"	(1) 1-1/4"	RMN
–	–	(6) 1-5/8"	–	RMV

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

3 ANTENNA SCHEDULE

PROPOSED FIBER DISTRIBUTION/OVP BOX		PROPOSED CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(2) 1-5/8"	ADD
-	-	(6) 1-5/8"	(1) 1-1/4"	RMN

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	LR	05/29/19
1	MA UPDATE	LR	07/25/19

ATC SITE NUMBER:
310972

ATC SITE NAME:
WATERFORD REBUILD CT

SITE ADDRESS:
15 MINER LANE
WATERFORD, CT 06385

SEAL:

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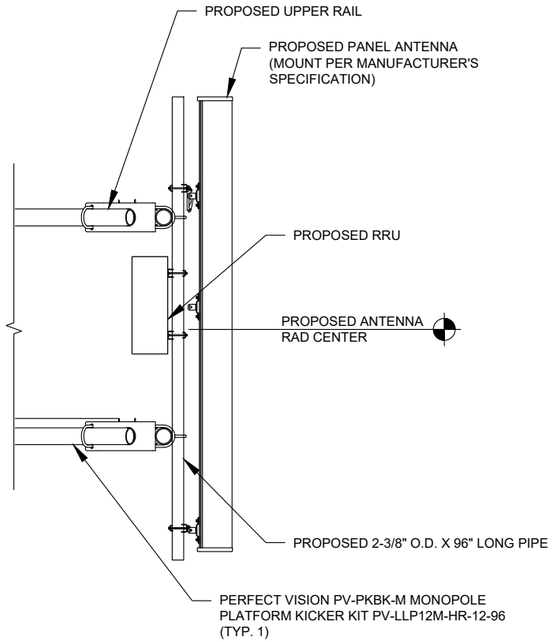
DRAWN BY:	LR
APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951818

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-501	1



1 PROPOSED ANTENNA MOUNTING DETAIL (ELEVATION)

SCALE: NOT TO SCALE

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T-Mobile design

DRAWN BY:	LR
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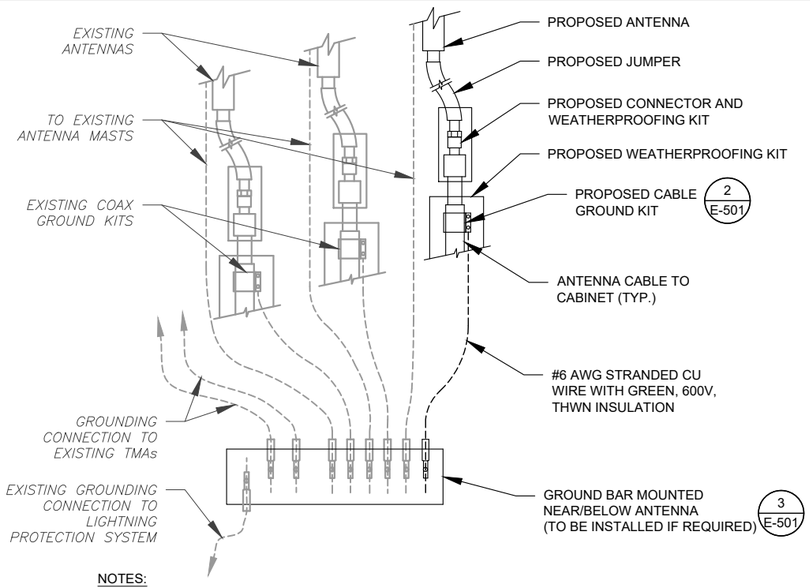
MOUNTING DETAILS

SHEET NUMBER:	REVISION:
C-502	0

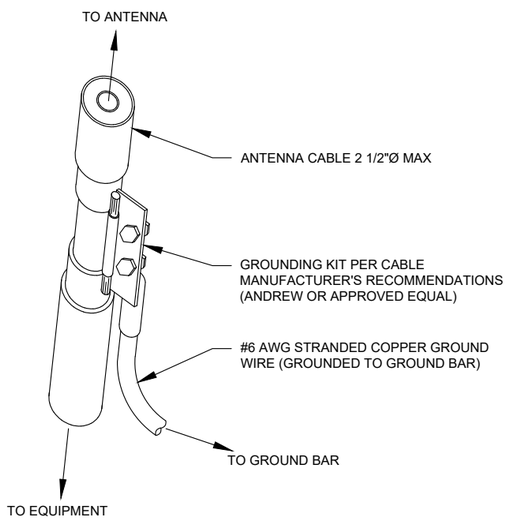


NOTES:

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 T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: NOT TO SCALE

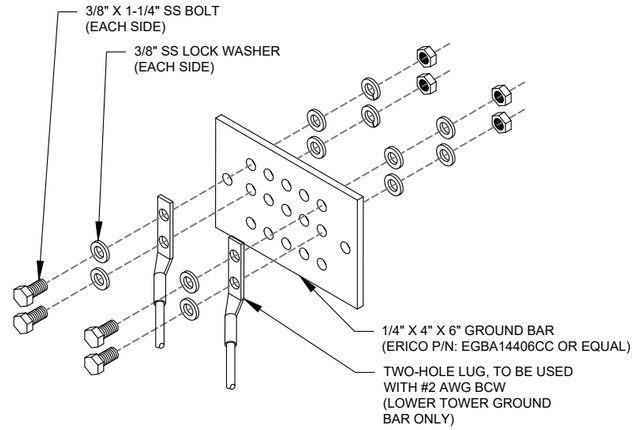


GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL

SCALE: NOT TO SCALE



GROUND BAR NOTES:

1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL

SCALE: NOT TO SCALE

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APPROVED BY:	PPB
DATE DRAWN:	05/29/19
ATC JOB NO:	12951818

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

RAN Template:	A&L Template:	Power System Template:
67D02C Outdoor	67D02C_2xAIR+1OP	Custom

CT11641A_L600_1.2_draft

Section 5 - RAN Equipment

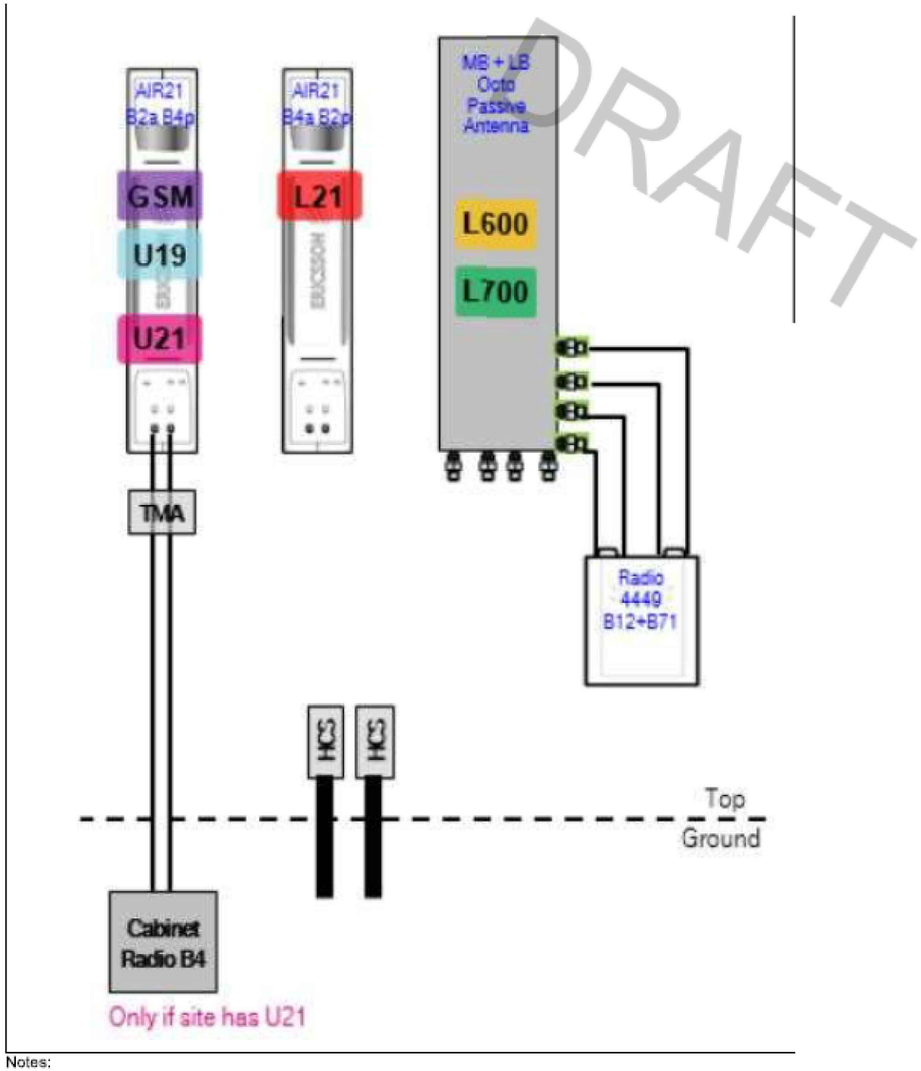
Existing RAN Equipment			
Template: 702Cu			
Enclosure	1	2	3
Enclosure Type	RBS 6131	Ancillary Equipment	S8000 Outdoor
Baseband	DUW30 (U1900) DUG20 (G1900) DUS41 (L2100, L700)		
Hybrid Cable System		Ericsson 9x18 HCS *Select Length*	
Radio	RU22 (x6) U2100 (DECOMMISSIONED)		

Proposed RAN Equipment			
Template: 67D02C Outdoor			
Enclosure	1	2	3
Enclosure Type	RBS 6131	Ancillary Equipment	S8000 Outdoor
Baseband	DUW30 (U1900) DUG20 (G1900) BB 6630 (N600 (DARK)) BB 6630 (L2100, L700, L600)		
Hybrid Cable System		Ericsson 9x18 HCS *Select Length* Ericsson 6x12 HCS *Select Length & AWG* (x2)	
Radio	RU22 (x6) U2100 (DECOMMISSIONED)		
RAN Scope of Work:			

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

Section 3 - Proposed Template Images

67D02C.JPG



Notes:

2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0

Mount Analysis of Proposed Perfect Vision PV-LPP12M-HR-12-96 Platform with PV-PKBK-M Kicker Kit for American Tower on behalf of T-Mobile

310972 - Waterford Rebuild CT

Project #: 12927128

T-Mobile Site ID: CT11641A

Program: L600

CLS Engineering PLLC Project #41124-12927128-01-MR-R1

July 3, 2019

MOUNT DESCRIPTION	Proposed Perfect Vision PV-LPP12M-HR-12-96 Platform with PV-PKBK-M Kicker Kit at 130
ANTENNA ELEVATION	Nominal Rad. Elevation of 130 ft AGL
SITE DESCRIPTION	180 ft Monopole
SITE ADDRESS	15 Miner Lane, Waterford, CT 06385, New London County
GPS COORDINATES	41.32906944, -72.12459167
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	135 mph, V_{ult} / 104.6 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75"

■ **ANALYSIS RESULT:** **Pass (Replacement)**

MEMBER USAGE	79%	Pass

Existing mounts to be replaced; see conclusion for details.

Prepared by:
Jennifer Soza

Reviewed and Approved by:
Tyler M. Barker, P.E.

STATE OF CONNECTICUT
TYLER M BARKER
No. 32402
LICENSED
PROFESSIONAL ENGINEER

Tyler M. Barker
CLS Engineering, PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2020
COA # PEC.001833 Exp. 8/14/2019

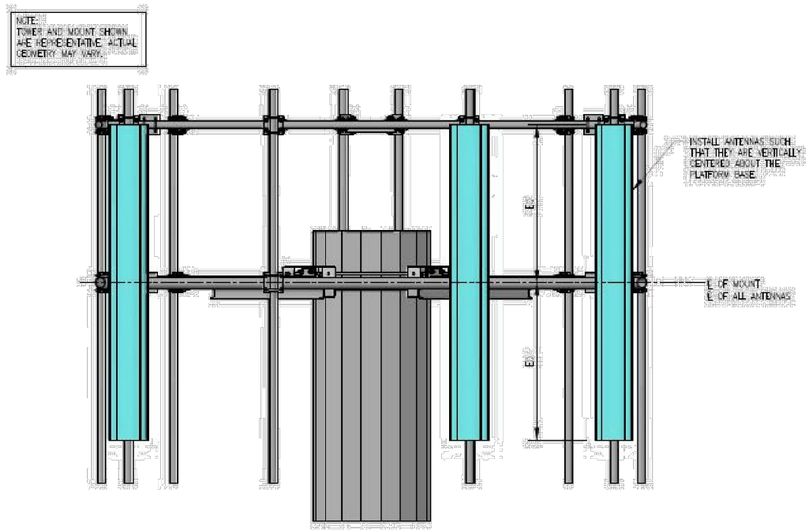
IdenTrust part of HID Global

Digitally signed by Tyler Barker
DN: c=US, o=Telamon Corporation, ou=A01427E00000 16A4525ADF80000 1D17, cn=Tyler Barker
Date: 2019.07.03 22:00:34 -04'00'

■ CONCLUSION AND RECOMMENDATIONS

According to our structural analysis, the mounts have been found to **PASS PENDING REPLACEMENT**. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- **Replace existing T-Arm mount with (1) new Perfect Vison PV-LLP12M-HR-12-96 Platform Mount.**
- **Install (1) Perfect Vision PV-PKBK-M Monopole Platform Kicker Kit as shown. Field-cut proposed angles as required. Maintain minimum bolt edge distance.**
- **Install (4) 2 STD x 8'-0" long mount pipes, included in kit, per sector (12 total). All mount pipes to be install equidistant from each other as shown in the following sketches.**
- **Install support rails included in kit 3'-6" above the platform base. Connect to all mount pipes using crossover angles included with platform kit.**
- **Install proposed antennas such that they are vertically centered on the platform base horizontal member. Install existing and proposed RRUS behind the antennas.**



See following sketches and Mount assembly drawings for additional details.

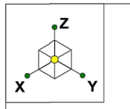
1 MOUNT ANALYSIS
SCALE: NOT TO SCALE

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.

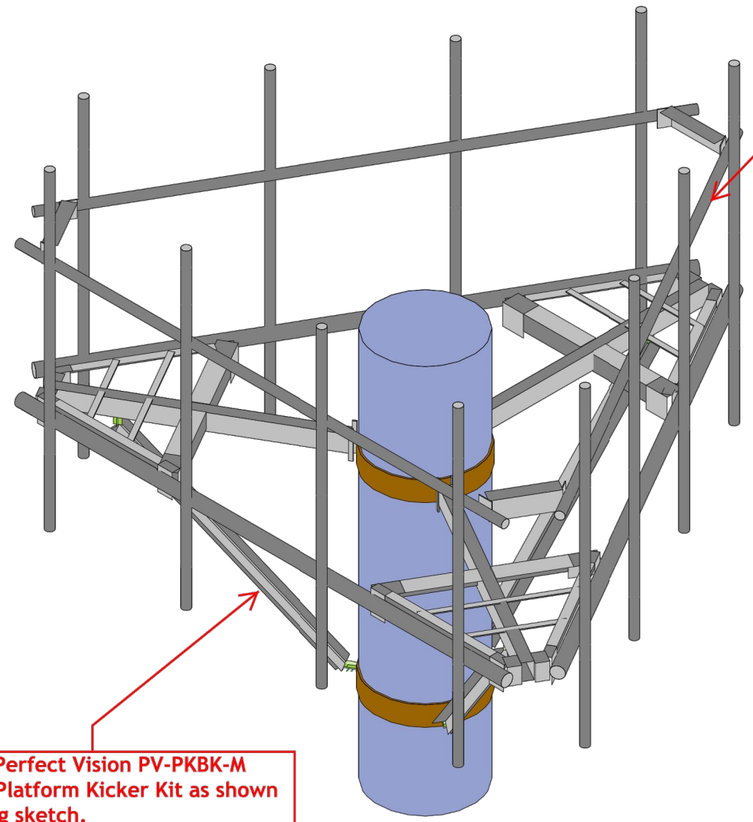
SUPPLEMENTAL

SHEET NUMBER: R-602

REVISION: 0



Replace existing T-Arm mount with (1) new Perfect Vison PV-LLP12M-HR-12-96 Platform Mount.



Install support rails provided in the standard platform mount kit 3'-6" above the platform base. Connect to all mount pipes using crossover angles included in the kit.

Install (1) Perfect Vision PV-PKBK-M Monopole Platform Kicker Kit as shown in following sketch.

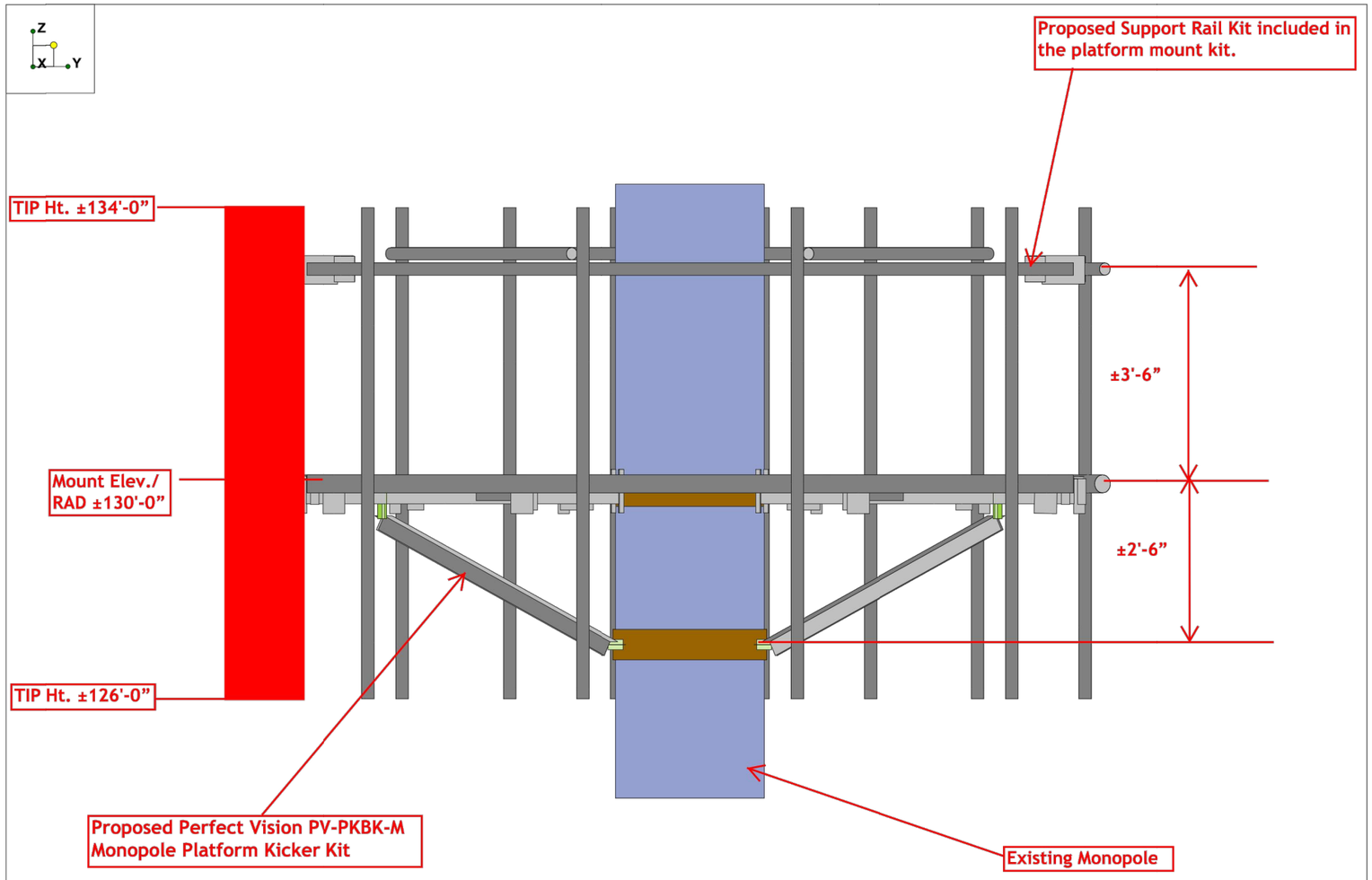
CLS	41124-12927128-Waterford Rebuild CT	IN - 1
ST		Apr 03, 2019 at 11:45 AM
41124-12927128-01-MR	Proposed Mount - Isometric View	41124-12927128-01-MR

1 MOUNT ANALYSIS
SCALE: NOT TO SCALE

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-603	0



CLS	41124-12927128-Waterford Rebuild CT	IN- 2
ST		Apr 3, 2019 at 12:52 PM
41124-12927128-01-MR	Installation Sketch - Front Elevation	41124-12927128-01-MR IMAGES.r3d

1 MOUNT ANALYSIS

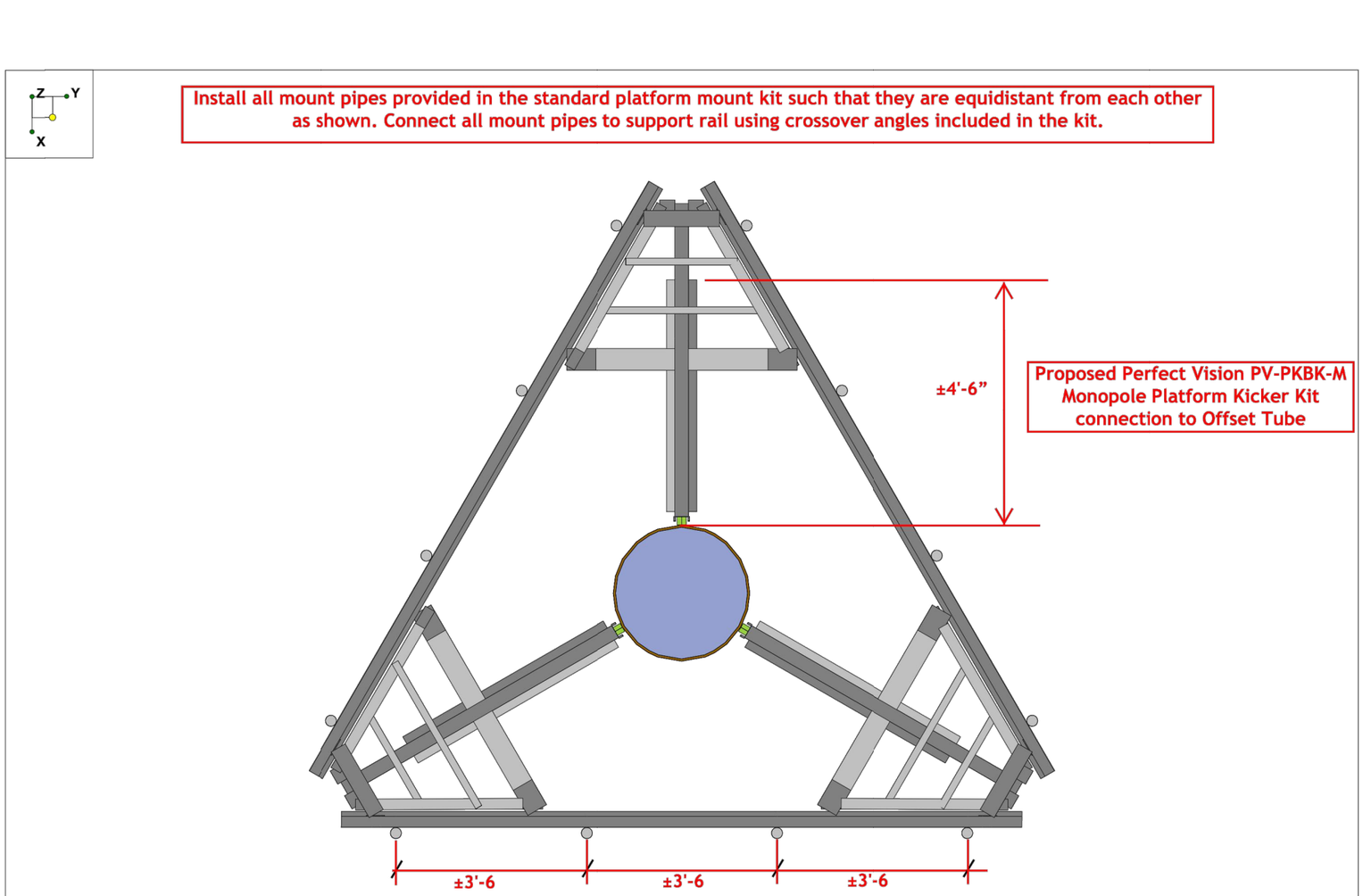
SCALE: NOT TO SCALE

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-604	0

Install all mount pipes provided in the standard platform mount kit such that they are equidistant from each other as shown. Connect all mount pipes to support rail using crossover angles included in the kit.



CLS	41124-12927128-Waterford Rebuild CT	IN - 3
ST		Apr 3, 2019 at 11:46 AM
41124-12927128-01-MR	Installation Sketch - Plan View	41124-12927128-01-MR

1 MOUNT ANALYSIS
SCALE: NOT TO SCALE

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-605	0

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Structural Analysis Report

Structure	:	**180 ft Monopole**
ATC Site Name	:	**WATERFORD REBUILD CT, CT**
ATC Site Number	:	**310972**
Engineering Number	:	**12927128_C3_02**
Proposed Carrier	:	**T-MOBILE**
Carrier Site Name	:	**CT641/SSite Waterford_MP**
Carrier Site Number	:	**CT11641A**
Site Location	:	**15 Miner Lane** **Waterford, CT 06385-3016** **41.329100,-72.124600**
County	:	**New London**
Date	:	**July 24, 2019**
Max Usage	:	**69%**
Result	:	**Pass**

Prepared By:
Hussam Al Tahan, E.I.
Structural Engineer I

Hussam Al Tahan

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32595
LICENSED
PROFESSIONAL ENGINEER

Authorized by "EOR"
Jul 26 2019 4:38 PM cosign

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 180 ft monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	FWT Job #23766000, dated July 18, 2001
Foundation Drawing	ATC Job #42693971, dated December 8, 2008
Geotechnical Report	Tower Engineering Professionals Project #082973.01, dated November 7, 2008
Modifications	ATC Job #442108F2, dated November 9, 2009
Mount Analysis	CLS Engineering PLLS Project #41124-12927128-01-MR, dated April 5, 2019

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:	105 mph (3-Second Gust, V_{asd}) / 135 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.16, 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
184.0	1	Generic TTA	Low Profile Platform	(2) 1 5/8" Coax	OTHER
	2	Generic 11' Omni			
170.0	3	KMW HB-X-WM-17-65-00T	Side Arm	(6) 1 5/8" Coax	CLEARWIRE CORPORATION
	3	KMW HB-X-WM-17-65-00T-TTLNA (w/BKT)			
160.0	3	Antel BXA-70063/6CF_	Platform with Handrails	(2) 1 5/8" (1.63"-41.3mm) Fiber (12) 1 5/8" Coax	VERIZON WIRELESS
	6	Commscope HBXX-6517DS-A2M			
	2	RFS DB-T1-6Z-8AB-0Z			
	3	Alcatel-Lucent B66a RRH4x45 (AWS-3)			
	3	Amphenol Antel QUAD656C0000X			
	3	Alcatel-Lucent RRH 2X60-1900			
	3	Alcatel-Lucent RRH2x60 700			
153.0	6	CCI TPX-070821	Platform with Handrails	(3) 0.39" (10mm) Fiber Trunk (6) 0.78" (19.7mm) 8 AWG 6 (12) 1 1/4" Coax (3) 2" conduit	AT&T MOBILITY
	6	Powerwave Allgon 7020.00 Dual Band RET			
	1	Raycap DC6-48-60-18-8F			
	3	Kathrein Scala 80010965			
	6	Commscope SBNHH-1D65A			
	1	Raycap DC6-48-60-18-8F ("Squid")			
	3	Ericsson RRUS 4478 B14 (15")			
	6	Powerwave Allgon LGP17201			
	1	Raycap DC6-48-60-18-8C			
	3	Ericsson RRUS 11 (Band 12)			
	3	Ericsson RRUS 32 B30 (60 lbs)			
	3	Ericsson RRUS 32 B66A			
	3	Ericsson RRUS 32 B2			
	3	Powerwave Allgon 7770.00			
130.0	-	-	-	(6) 1 5/8" Coax	T-MOBILE

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
130.0	3	Ericsson KRY 112 144/1	T-Arm	(1) 1 1/4" Hybriflex Cable (6) 1 5/8" Coax	T-MOBILE
	3	Ericsson RRUS 11 B12			
	3	Andrew LNX-6515DS-VTM			
	3	Ericsson AIR 21, 1.3M, B4A B2P			
	3	Ericsson AIR 21, 1.3 M, B2A B4P			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
130.0	3	Ericsson Radio 4449 B12,B71	Platform w/Handrails (Perfect Vision PV-LPP12M-HR-12-96 with PV-PKBK-M Kicker Kit)	(1) 1 1/4" (1.25"-31.8mm) Fiber (2) 1 5/8" Hybriflex	T-MOBILE
	6	Ericsson AIR 21			
	3	RFS APXVAARR24_43-U-NA20			

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

Install proposed coax inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	62%	Pass
Shaft	63%	Pass
Base Plate	23%	Pass
Flanges	22%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	5,615.0	7,580.3	4,483.6	59%
Shear (Kips)	38.5	52.0	35.6	69%

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

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
130.0	Ericsson Radio 4449 B12,B71	T-MOBILE	0.860	0.756
	Ericsson AIR 21			
	RFS APXVAARR24_43-U-NA20			

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

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Standard Conditions

All engineering services 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:

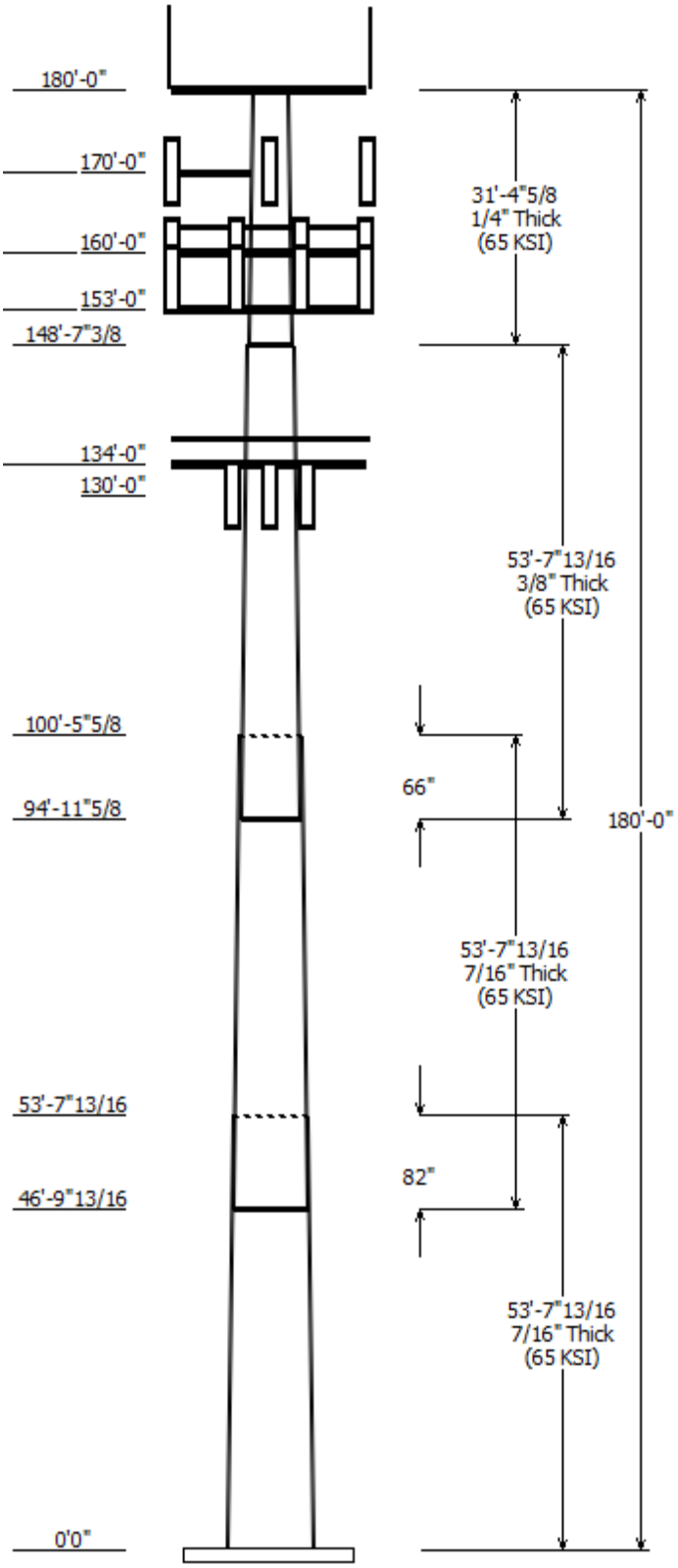
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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 :	T-MOBILE
Pole :	310972
Code:	ANSI/TIA-222-G
Location :	WATERFORD REBUILD CT, CT
Description :	180' FWT monopole
Struct Class :	II
Shape :	18 Sides
Exposure :	B
Height :	180.00 (ft)
Topo :	1
Base Elev (ft):	0.00
Taper:	0.228194 (in/ft)

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	53.650	50.17	62.45	0.438		0.000	18 Sides	65
2	53.650	40.34	52.61	0.438	Slip Joint	82.000	18 Sides	65
3	53.650	30.08	42.35	0.375	Slip Joint	66.000	18 Sides	65
4	31.383	23.40	30.57	0.250	Butt Joint	0.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
180.000	184.000	2	Generic 11' Omni
180.000	184.000	1	Generic TTA
180.000	180.000	1	Round Low Profile Platform
170.000	170.000	1	Side Arms
170.000	170.000	3	KMW HB-X-WM-17-65-00T
170.000	170.000	3	KMW HB-X-WM-17-65-00T-
160.000	160.000	1	Generic Round Platform with
160.000	160.000	3	Amphenol Antel
160.000	160.000	6	Commscope HBXX-6517DS-
160.000	160.000	3	Antel BXA-70063/6CF_
160.000	160.000	2	RFS DB-T1-6Z-8AB-0Z
160.000	160.000	3	Alcatel-Lucent B66a RRH4x45
160.000	160.000	3	Alcatel-Lucent RRH2x60 700
160.000	160.000	3	Alcatel-Lucent RRH 2X60-1900
153.000	153.000	1	Flat Platform w/ Handrails
153.000	156.000	3	Kathrein Scala 80010965
153.000	156.000	6	Commscope SBNHH-1D65A
153.000	156.000	3	Powerwave Allgon 7770.00
153.000	156.000	3	Ericsson RRUS 32 B2
153.000	156.000	3	Ericsson RRUS 32 B66A
153.000	156.000	3	Ericsson RRUS 32 B30 (60 lbs)
153.000	156.000	3	Ericsson RRUS 11 (Band 12)
153.000	156.000	1	Raycap DC6-48-60-18-8C
153.000	156.000	6	Powerwave Allgon LGP17201
153.000	156.000	3	Ericsson RRUS 4478 B14 (15")
153.000	153.000	1	Raycap DC6-48-60-18-8F
153.000	156.000	1	Raycap DC6-48-60-18-8F
153.000	153.000	6	CCI TPX-070821
153.000	153.000	6	Powerwave Allgon 7020.00
134.000	134.000	1	Perfect Vision PV-LPP12M-HR-
130.000	130.000	3	RFS APXVAARR24_43-U-NA20
130.000	130.000	6	Ericsson AIR 21
130.000	130.000	3	Ericsson Radio 4449 B12,B71

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	130.0	1 1/4" (1.25"-	No
0.000	130.0	1 5/8" Coax	No
0.000	130.0	1 5/8" Hybriflex	No
0.000	153.0	0.39" (10mm)	No

0.000	153.0	0.78" (19.7mm) 8	No
0.000	153.0	1 1/4" Coax	No
0.000	153.0	2" conduit	No
0.000	160.0	1 5/8" (1.63"-	No
0.000	160.0	1 5/8" Coax	No
0.000	170.0	1 5/8" Coax	No
0.000	184.0	1 5/8" Coax	No

Load Cases

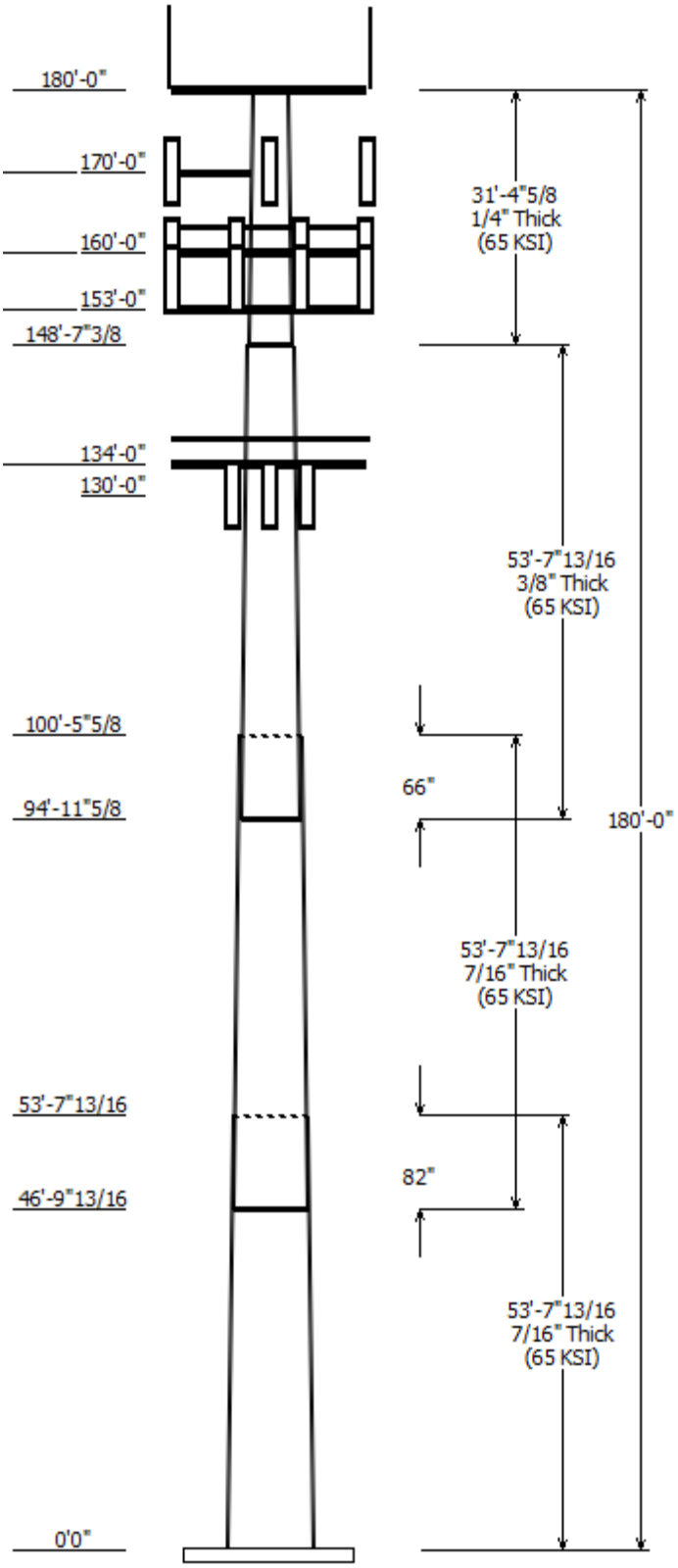
1.2D + 1.6W	105 mph with No Ice
0.9D + 1.6W	105 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

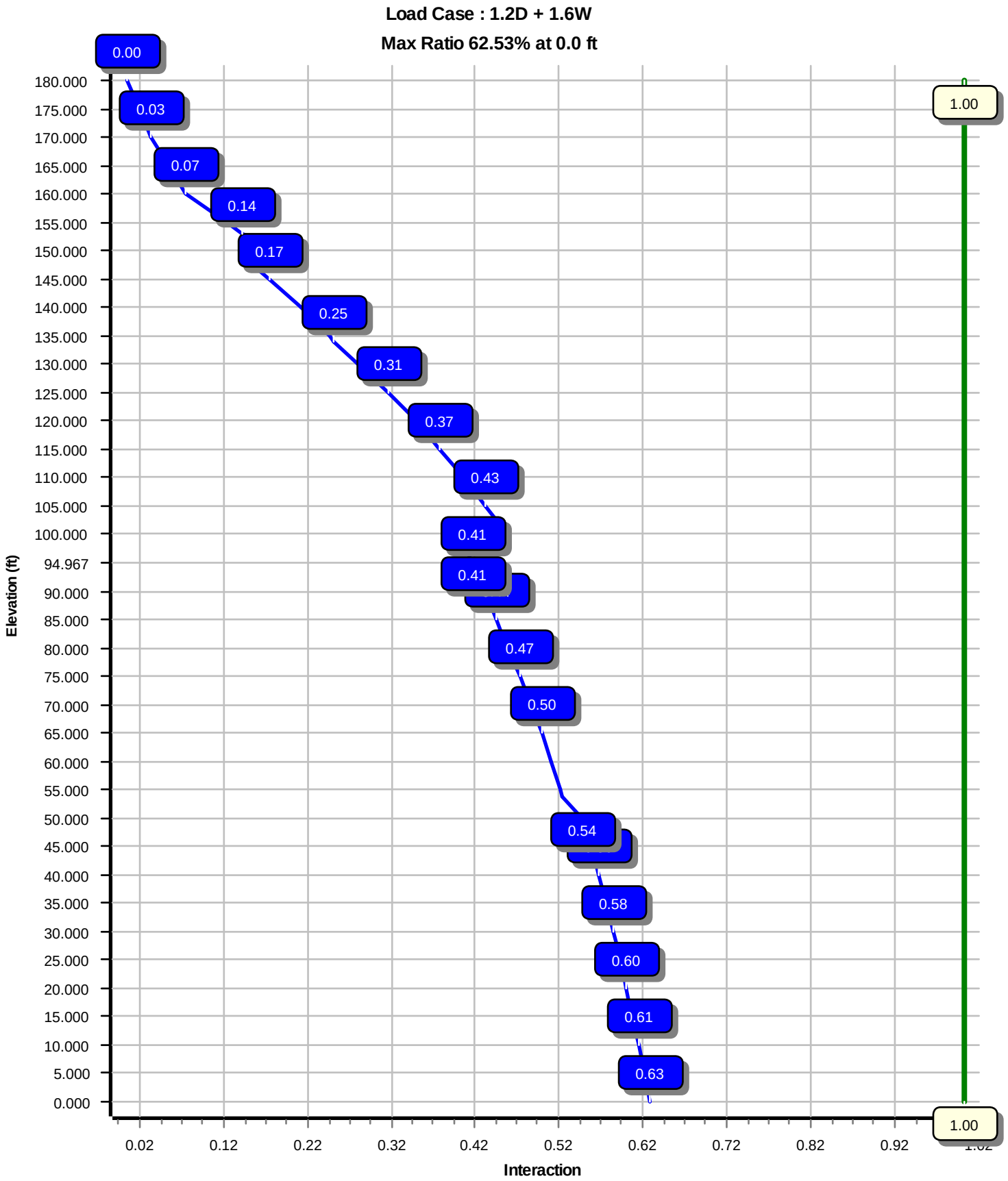
Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	4483.56	35.62	67.69
0.9D + 1.6W	4428.32	35.59	50.76
1.2D + 1.0Di + 1.0Wi	1113.69	8.87	94.18
(1.2 + 0.2Sds) * DL + E ELFM	241.77	1.70	67.56
(1.2 + 0.2Sds) * DL + E EMAM	219.19	1.72	67.56
(0.9 - 0.2Sds) * DL + E ELFM	238.20	1.70	47.40
(0.9 - 0.2Sds) * DL + E EMAM	215.79	1.71	47.40
1.0D + 1.0W	812.73	6.50	56.45

Dish Deflections

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




Load Case : 1.2D + 1.6W
Max Ratio 62.53% at 0.0 ft
0.00
0.03
0.07
0.14
0.17
0.25
0.31
0.37
0.43
0.41
0.41
0.47
0.50
0.54
0.58
0.60
0.61
0.63
1.00
1.00
180.000
175.000
170.000
165.000
160.000
155.000
150.000
145.000
140.000
135.000
130.000
125.000
120.000
115.000
110.000
105.000
100.000
94.967
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
Elevation (ft)
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: WATERFORD REBUILD CT, CT Engineering Number:12927128_C3_02 7/25/2019 4:29:52 PM

Customer: T-MOBILE

Analysis Parameters

Location :	New London County, CT	Height (ft) :	180
Code :	ANSI/TIA-222-G	Base Diameter (in) :	62.45
Shape :	18 Sides	Top Diameter (in) :	23.40
Pole Type :	Custom	Taper (in/ft) :	0.228
Pole Manfacturer :	FWT Inc	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	105 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	0.75 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.58				
T_L (sec):	6	p:	1	C_s:	0.030
S_s:	0.160	S_1:	0.060	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.171	S_{d1}:	0.096		

Load Cases

1.2D + 1.6W	105 mph with No Ice
0.9D + 1.6W	105 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2Sds) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 310972 Code: ANSI/TIA-222-G

Site Name: WATERFORD REBUILD CT, CT Engineering Number:12927128_C3_02 7/25/2019 4:29:52 PM

Customer: T-MOBILE

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	53.650	0.4375	65		0.00	14,165	62.45	0.00	86.11	41837.0	23.41	142.74	50.17	53.65	69.07	21590.1	18.46	114.69	0.228740
2-18	53.650	0.4375	65	Slip	82.00	11,672	52.61	46.82	72.45	24923.0	19.44	120.27	40.34	100.47	55.41	11149.7	14.50	92.22	0.228740
3-18	53.650	0.3750	65	Slip	66.00	7,788	42.35	94.97	49.96	11123.0	18.15	112.94	30.08	148.62	35.36	3941.7	12.38	80.21	0.228740
4-18	31.383	0.2500	65	Butt	0.00	2,266	30.57	148.62	24.06	2796.2	19.80	122.31	23.40	180.00	18.37	1244.1	14.74	93.61	0.228623
				Shaft Weight		35,890													

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
180.00	Generic TTA	1	0.80	4.000	10.00	1.200	1.00	46.70	1.939	1.00
180.00	Generic 11' Omni	2	1.00	4.000	40.00	3.300	1.00	124.94	7.323	1.00
180.00	Round Low Profile Platform	1	1.00	0.000	1,500.00	21.700	1.00	2,160.24	41.265	1.00
170.00	KMW HB-X-WM-17-65-00T-	3	0.90	0.000	15.90	0.970	0.50	42.30	1.681	0.50
170.00	KMW HB-X-WM-17-65-00T	3	0.90	0.000	30.00	1.950	1.00	103.65	3.052	1.00
170.00	Side Arms	1	1.00	0.000	560.00	8.500	1.00	1,034.32	15.699	1.00
160.00	Alcatel-Lucent RRH 2X60-1900	3	0.75	0.000	39.60	1.880	0.50	94.88	2.826	0.50
160.00	Alcatel-Lucent RRH2x60 700	3	0.75	0.000	56.70	2.150	0.67	125.23	3.159	0.67
160.00	Alcatel-Lucent B66a RRH4x45	3	0.75	0.000	67.00	2.660	0.67	138.39	3.817	0.67
160.00	RFS DB-T1-6Z-8AB-0Z	2	0.75	0.000	44.00	4.800	0.72	170.74	6.231	0.72
160.00	Antel BXA-70063/6CF_	3	0.75	0.000	17.00	7.570	0.65	159.40	10.347	0.65
160.00	Commscope HBXX-6517DS-A2M	6	0.75	0.000	40.80	8.530	0.68	217.91	11.456	0.68
160.00	Amphenol Antel	3	0.75	0.000	54.00	13.240	0.62	316.74	16.156	0.62
160.00	Generic Round Platform with	1	1.00	0.000	2,500.00	27.200	1.00	4,130.99	51.814	1.00
153.00	Powerwave Allgon 7020.00 Dual	6	0.75	0.000	2.20	0.340	0.50	12.45	0.752	0.50
153.00	CCI TPX-070821	6	0.75	0.000	7.50	0.470	0.50	19.66	0.951	0.50
153.00	Raycap DC6-48-60-18-8F	1	0.75	3.000	20.00	1.260	0.50	72.81	1.920	0.50
153.00	Raycap DC6-48-60-18-8F	1	0.75	0.000	31.80	1.470	0.50	93.69	2.171	0.50
153.00	Ericsson RRUS 4478 B14 (15")	3	0.75	3.000	59.40	1.650	0.50	109.25	2.500	0.50
153.00	Powerwave Allgon LGP17201	6	0.75	3.000	31.00	1.670	0.50	69.26	2.524	0.50
153.00	Raycap DC6-48-60-18-8C	1	0.75	3.000	16.00	2.030	0.50	74.40	2.792	0.50
153.00	Ericsson RRUS 11 (Band 12)	3	0.75	3.000	50.00	2.570	0.67	118.38	3.622	0.67
153.00	Ericsson RRUS 32 B30 (60 lbs)	3	0.75	3.000	60.00	2.690	0.67	131.28	3.848	0.67
153.00	Ericsson RRUS 32 B66A	3	0.75	3.000	50.70	2.720	0.67	124.21	3.887	0.67
153.00	Ericsson RRUS 32 B2	3	0.75	3.000	53.00	2.740	0.67	126.77	3.912	0.67
153.00	Powerwave Allgon 7770.00	3	0.75	3.000	35.00	5.510	0.65	170.34	6.566	0.65
153.00	Commscope SBNHH-1D65A	6	0.75	3.000	33.50	5.880	0.69	169.27	8.012	0.69
153.00	Kathrein Scala 80010965	3	0.75	3.000	97.60	13.810	0.62	365.02	16.869	0.62
153.00	Flat Platform w/ Handrails	1	1.00	0.000	2,000.00	42.400	1.00	3,425.51	63.436	1.00
134.00	Perfect Vision PV-LPP12M-HR-	1	1.00	0.000	2,117.00	34.400	1.00	3,473.94	64.985	1.00
130.00	Ericsson Radio 4449 B12,B71	3	0.75	0.000	74.00	1.640	0.50	129.20	2.472	0.50
130.00	Ericsson AIR 21	6	0.75	0.000	91.00	6.050	0.70	234.13	8.182	0.70
130.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.240	0.63	514.95	23.896	0.63
Totals	Num Loadings:33	97			12,822.20			27,749.95		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

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	184.00	2	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	Other
0.00	170.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	CLEARWIRE
0.00	160.00	2	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	160.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS

0.00	153.00	3	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	6	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	153.00	12	1 1/4" Coax	1.55	0.63	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	3	2" conduit	2.38	3.65	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	130.00	1	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	130.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	130.00	2	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	T-MOBILE

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.4375	62.450	86.109	41,837.0	23.41	142.74	73.9	1319.	0.0	0.0
5.00		0.4375	61.306	84.521	39,564.6	22.95	140.13	74.4	1271.	0.0	1,451.5
10.00		0.4375	60.163	82.933	37,376.0	22.48	137.51	75.0	1223.	0.0	1,424.5
15.00		0.4375	59.019	81.345	35,269.7	22.02	134.90	75.5	1177.	0.0	1,397.5
20.00		0.4375	57.875	79.757	33,244.0	21.56	132.29	76.0	1131.	0.0	1,370.5
25.00		0.4375	56.731	78.168	31,297.4	21.10	129.67	76.6	1086.	0.0	1,343.5
30.00		0.4375	55.588	76.580	29,428.4	20.64	127.06	77.1	1042.	0.0	1,316.4
35.00		0.4375	54.444	74.992	27,635.2	20.18	124.44	77.7	999.8	0.0	1,289.4
40.00		0.4375	53.300	73.404	25,916.4	19.72	121.83	78.2	957.7	0.0	1,262.4
45.00		0.4375	52.157	71.816	24,270.4	19.26	119.22	78.8	916.5	0.0	1,235.4
46.82	Bot - Section 2	0.4375	51.741	71.239	23,690.1	19.09	118.27	78.9	901.8	0.0	442.2
50.00		0.4375	51.013	70.228	22,695.7	18.80	116.60	79.3	876.3	0.0	1,545.6
53.65	Top - Section 1	0.4375	51.053	70.284	22,749.7	18.81	116.69	79.3	877.7	0.0	1,745.2
55.00		0.4375	50.744	69.855	22,335.9	18.69	115.99	79.4	867.0	0.0	321.9
60.00		0.4375	49.601	68.267	20,846.8	18.23	113.37	80.0	827.8	0.0	1,175.0
65.00		0.4375	48.457	66.679	19,425.5	17.77	110.76	80.5	789.6	0.0	1,148.0
70.00		0.4375	47.313	65.090	18,070.3	17.31	108.14	81.0	752.3	0.0	1,121.0
75.00		0.4375	46.170	63.502	16,779.7	16.84	105.53	81.6	715.8	0.0	1,093.9
80.00		0.4375	45.026	61.914	15,552.0	16.38	102.92	82.1	680.3	0.0	1,066.9
85.00		0.4375	43.882	60.326	14,385.7	15.92	100.30	82.6	645.7	0.0	1,039.9
90.00		0.4375	42.738	58.738	13,279.2	15.46	97.69	82.6	612.0	0.0	1,012.9
94.97	Bot - Section 3	0.4375	41.602	57.160	12,237.7	15.00	95.09	82.6	579.4	0.0	979.4
95.00		0.4375	41.595	57.150	12,230.9	15.00	95.07	82.6	579.2	0.0	12.1
100.0		0.4375	40.451	55.562	11,239.4	14.54	92.46	82.6	547.3	0.0	1,797.1
100.4	Top - Section 2	0.3750	41.094	48.464	10,152.6	17.56	109.58	80.7	486.6	0.0	165.2
105.0		0.3750	40.057	47.230	9,396.5	17.07	106.82	81.3	462.0	0.0	738.1
110.0		0.3750	38.914	45.869	8,607.2	16.53	103.77	82.0	435.7	0.0	792.0
115.0		0.3750	37.770	44.508	7,863.4	16.00	100.72	82.6	410.1	0.0	768.8
120.0		0.3750	36.626	43.146	7,163.8	15.46	97.67	82.6	385.2	0.0	745.7
125.0		0.3750	35.483	41.785	6,506.9	14.92	94.62	82.6	361.2	0.0	722.5
130.0		0.3750	34.339	40.424	5,891.5	14.38	91.57	82.6	337.9	0.0	699.3
134.0		0.3750	33.424	39.335	5,428.1	13.95	89.13	82.6	319.9	0.0	542.8
135.0		0.3750	33.195	39.063	5,316.1	13.85	88.52	82.6	315.4	0.0	133.4
140.0		0.3750	32.051	37.701	4,779.5	13.31	85.47	82.6	293.7	0.0	653.0
145.0		0.3750	30.908	36.340	4,280.3	12.77	82.42	82.6	272.8	0.0	629.9
148.6	Top - Section 3	0.3750	30.080	35.356	3,941.7	12.38	80.21	82.6	258.1	0.0	441.2
148.6	Bot - Section 4	0.2500	30.577	24.064	2,796.2	19.80	122.31	78.1	180.1	0.0	
150.0		0.2500	30.261	23.813	2,709.6	19.58	121.04	78.4	176.4	0.0	112.7
153.0		0.2500	29.575	23.268	2,528.1	19.10	118.30	78.9	168.4	0.0	240.3
155.0		0.2500	29.118	22.906	2,411.6	18.77	116.47	79.3	163.1	0.0	157.1
160.0		0.2500	27.974	21.999	2,136.3	17.97	111.90	80.3	150.4	0.0	382.0
165.0		0.2500	26.831	21.091	1,882.8	17.16	107.33	81.2	138.2	0.0	366.6
170.0		0.2500	25.688	20.184	1,650.2	16.35	102.75	82.2	126.5	0.0	351.1
175.0		0.2500	24.545	19.277	1,437.6	15.55	98.18	82.6	115.4	0.0	335.7
180.0		0.2500	23.402	18.370	1,244.1	14.74	93.61	82.6	104.7	0.0	320.3
											35,889.7

Load Case: 1.2D + 1.6W — 105 mph with No Ice — 24 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		281.1	0.0					0.0	0.0	281.1	0.0	0.0	0.0
5.00		556.9	1,741.8					0.0	302.5	556.9	2,044.4	0.0	0.0
10.00		546.6	1,709.4					0.0	302.5	546.6	2,011.9	0.0	0.0
15.00		536.2	1,677.0					0.0	302.5	536.2	1,979.5	0.0	0.0
20.00		525.8	1,644.6					0.0	302.5	525.8	1,947.1	0.0	0.0
25.00		515.4	1,612.2					0.0	302.5	515.4	1,914.7	0.0	0.0
30.00		511.0	1,579.7					0.0	302.5	511.0	1,882.2	0.0	0.0
35.00		516.9	1,547.3					0.0	302.5	516.9	1,849.8	0.0	0.0
40.00		525.8	1,514.9					0.0	302.5	525.8	1,817.4	0.0	0.0
45.00		361.7	1,482.5					0.0	302.5	361.7	1,785.0	0.0	0.0
46.82	Bot - Section 2	270.3	530.6					0.0	109.9	270.3	640.5	0.0	0.0
50.00		373.1	1,854.7					0.0	192.6	373.1	2,047.3	0.0	0.0
53.65	Top - Section 1	273.7	2,094.2					0.0	220.8	273.7	2,315.0	0.0	0.0
55.00		348.7	386.3					0.0	81.7	348.7	467.9	0.0	0.0
60.00		549.6	1,410.0					0.0	302.5	549.6	1,712.5	0.0	0.0
65.00		549.3	1,377.6					0.0	302.5	549.3	1,680.1	0.0	0.0
70.00		547.9	1,345.1					0.0	302.5	547.9	1,647.7	0.0	0.0
75.00		545.3	1,312.7					0.0	302.5	545.3	1,615.2	0.0	0.0
80.00		541.7	1,280.3					0.0	302.5	541.7	1,582.8	0.0	0.0
85.00		537.2	1,247.9					0.0	302.5	537.2	1,550.4	0.0	0.0
90.00		530.0	1,215.4					0.0	302.5	530.0	1,518.0	0.0	0.0
94.97	Bot - Section 3	264.5	1,175.2					0.0	300.5	264.5	1,475.7	0.0	0.0
95.00		267.7	14.6					0.0	2.0	267.7	16.6	0.0	0.0
100.00		290.6	2,156.6					0.0	302.5	290.6	2,459.1	0.0	0.0
100.47	Top - Section 2	262.4	198.2					0.0	28.2	262.4	226.4	0.0	0.0
105.00		496.2	885.7					0.0	274.3	496.2	1,160.0	0.0	0.0
110.00		512.8	950.4					0.0	302.5	512.8	1,252.9	0.0	0.0
115.00		504.1	922.6					0.0	302.5	504.1	1,225.1	0.0	0.0
120.00		494.8	894.8					0.0	302.5	494.8	1,197.3	0.0	0.0
125.00		485.0	867.0					0.0	302.5	485.0	1,169.5	0.0	0.0
130.00	Appurtenance(s)	428.1	839.2	2,492.8	0.0	0.0	1,382.0	0.0	302.5	2,920.9	2,523.8	0.0	0.0
134.00	Appurtenance(s)	234.7	651.4	1,744.2	0.0	0.0	2,540.4	0.0	200.9	1,978.8	3,392.6	0.0	0.0
135.00		275.6	160.1					0.0	50.2	275.6	210.3	0.0	0.0
140.00		452.5	783.6					0.0	251.1	452.5	1,034.7	0.0	0.0
145.00		381.2	755.8					0.0	251.1	381.2	1,006.9	0.0	0.0
148.62	Top - Section 3	218.4	529.4					0.0	181.6	218.4	711.0	0.0	0.0
150.00		190.1	135.2					0.0	69.5	190.1	204.7	0.0	0.0
153.00	Appurtenance(s)	214.8	288.4	5,989.8	0.0	10,896.0	4,476.1	0.0	150.7	6,204.6	4,915.2	0.0	0.0
155.00		293.6	188.5					0.0	47.1	293.6	235.6	0.0	0.0
160.00	Appurtenance(s)	410.3	458.4	5,194.7	0.0	0.0	4,242.8	0.0	117.7	5,605.0	4,819.0	0.0	0.0
165.00		397.0	439.9					0.0	39.4	397.0	479.2	0.0	0.0
170.00	Appurtenance(s)	383.3	421.4	818.1	0.0	0.0	837.2	0.0	39.4	1,201.4	1,298.0	0.0	0.0
175.00		369.3	402.8					0.0	9.8	369.3	412.7	0.0	0.0
180.00	Appurtenance(s)	181.1	384.3	1,616.7	0.0	1,678.6	1,908.0	0.0	9.8	1,797.8	2,302.2	0.0	0.0
								Totals:		35,808.2	67,738.0	0.00	0.00

Load Case: 1.2D + 1.6W 105 mph with No Ice 24 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	-67.69	-35.62	0.00	-4,483.56	0.00	4,483.56	5,724.86	2,862.43	14,599.1	7,310.45	0.00	0.00	0.625
5.00	-65.55	-35.23	0.00	-4,305.48	0.00	4,305.48	5,660.51	2,830.26	14,167.0	7,094.04	0.08	-0.15	0.619
10.00	-63.45	-34.84	0.00	-4,129.34	0.00	4,129.34	5,594.62	2,797.31	13,737.1	6,878.77	0.32	-0.30	0.612
15.00	-61.38	-34.46	0.00	-3,955.12	0.00	3,955.12	5,527.18	2,763.59	13,309.7	6,664.77	0.72	-0.45	0.605
20.00	-59.35	-34.08	0.00	-3,782.82	0.00	3,782.82	5,458.18	2,729.09	12,885.1	6,452.13	1.28	-0.61	0.597
25.00	-57.35	-33.70	0.00	-3,612.42	0.00	3,612.42	5,387.64	2,693.82	12,463.4	6,240.97	2.00	-0.77	0.590
30.00	-55.38	-33.32	0.00	-3,443.92	0.00	3,443.92	5,315.55	2,657.77	12,044.8	6,031.39	2.89	-0.93	0.582
35.00	-53.44	-32.92	0.00	-3,277.33	0.00	3,277.33	5,241.91	2,620.95	11,629.7	5,823.52	3.95	-1.09	0.573
40.00	-51.54	-32.51	0.00	-3,112.72	0.00	3,112.72	5,166.71	2,583.36	11,218.2	5,617.45	5.19	-1.26	0.564
45.00	-49.70	-32.20	0.00	-2,950.18	0.00	2,950.18	5,089.97	2,544.99	10,810.5	5,413.30	6.59	-1.42	0.555
46.82	-49.02	-31.99	0.00	-2,891.68	0.00	2,891.68	5,061.71	2,530.85	10,663.4	5,339.62	7.15	-1.49	0.551
50.00	-46.92	-31.66	0.00	-2,789.85	0.00	2,789.85	5,011.68	2,505.84	10,406.8	5,211.18	8.17	-1.59	0.545
53.65	-44.57	-31.38	0.00	-2,674.30	0.00	2,674.30	5,014.45	2,507.23	10,420.9	5,218.23	9.44	-1.72	0.522
55.00	-44.05	-31.10	0.00	-2,631.94	0.00	2,631.94	4,993.06	2,496.53	10,312.6	5,164.00	9.93	-1.77	0.519
60.00	-42.27	-30.62	0.00	-2,476.43	0.00	2,476.43	4,912.86	2,456.43	9,914.34	4,964.54	11.87	-1.93	0.508
65.00	-40.53	-30.13	0.00	-2,323.34	0.00	2,323.34	4,831.10	2,415.55	9,520.55	4,767.35	13.98	-2.09	0.496
70.00	-38.82	-29.63	0.00	-2,172.71	0.00	2,172.71	4,747.80	2,373.90	9,131.53	4,572.55	16.26	-2.26	0.483
75.00	-37.14	-29.13	0.00	-2,024.57	0.00	2,024.57	4,662.94	2,331.47	8,747.49	4,380.25	18.71	-2.42	0.470
80.00	-35.50	-28.62	0.00	-1,878.94	0.00	1,878.94	4,576.54	2,288.27	8,368.65	4,190.55	21.34	-2.59	0.456
85.00	-33.90	-28.11	0.00	-1,735.86	0.00	1,735.86	4,481.93	2,240.96	7,983.39	3,997.63	24.13	-2.75	0.442
90.00	-32.33	-27.59	0.00	-1,595.33	0.00	1,595.33	4,363.94	2,181.97	7,566.55	3,788.90	27.10	-2.92	0.429
94.97	-30.83	-27.30	0.00	-1,458.28	0.00	1,458.28	4,246.74	2,123.37	7,163.55	3,587.10	30.23	-3.08	0.414
95.00	-30.79	-27.07	0.00	-1,457.37	0.00	1,457.37	4,245.95	2,122.97	7,160.88	3,585.76	30.25	-3.08	0.414
100.00	-28.31	-26.69	0.00	-1,322.01	0.00	1,322.01	4,127.96	2,063.98	6,766.40	3,388.23	33.56	-3.24	0.397
100.47	-28.06	-26.45	0.00	-1,309.56	0.00	1,309.56	3,522.04	1,761.02	5,885.06	2,946.90	33.88	-3.26	0.453
105.00	-26.86	-25.97	0.00	-1,189.63	0.00	1,189.63	3,456.72	1,728.36	5,627.49	2,817.93	37.04	-3.40	0.430
110.00	-25.57	-25.45	0.00	-1,059.80	0.00	1,059.80	3,383.20	1,691.60	5,347.58	2,677.76	40.70	-3.57	0.404
115.00	-24.30	-24.94	0.00	-932.54	0.00	932.54	3,306.70	1,653.35	5,070.04	2,538.79	44.52	-3.74	0.375
120.00	-23.08	-24.43	0.00	-807.84	0.00	807.84	3,205.56	1,602.78	4,763.17	2,385.12	48.52	-3.90	0.346
125.00	-21.89	-23.92	0.00	-685.70	0.00	685.70	3,104.43	1,552.22	4,465.87	2,236.25	52.68	-4.04	0.314
130.00	-19.53	-20.86	0.00	-566.11	0.00	566.11	3,003.30	1,501.65	4,178.15	2,092.18	56.99	-4.18	0.277
134.00	-16.28	-18.66	0.00	-482.66	0.00	482.66	2,922.39	1,461.20	3,954.87	1,980.38	60.53	-4.28	0.249
135.00	-16.07	-18.39	0.00	-464.00	0.00	464.00	2,902.16	1,451.08	3,900.01	1,952.91	61.43	-4.31	0.243
140.00	-15.04	-17.88	0.00	-372.07	0.00	372.07	2,801.03	1,400.52	3,631.46	1,818.43	66.00	-4.42	0.210
145.00	-14.04	-17.45	0.00	-282.64	0.00	282.64	2,699.90	1,349.95	3,372.48	1,688.75	70.68	-4.52	0.173
148.62	-13.33	-17.18	0.00	-219.55	0.00	219.55	2,626.75	1,313.37	3,191.12	1,597.93	74.12	-4.58	0.143
148.62	-13.33	-17.18	0.00	-219.55	0.00	219.55	1,691.62	845.81	2,107.19	1,055.16	74.12	-4.58	0.216
150.00	-13.13	-16.98	0.00	-195.79	0.00	195.79	1,679.60	839.80	2,070.22	1,036.65	75.45	-4.60	0.197
153.00	-8.73	-10.41	0.00	-133.94	0.00	133.94	1,653.13	826.56	1,990.64	996.80	78.35	-4.65	0.140
155.00	-8.51	-10.10	0.00	-113.12	0.00	113.12	1,635.17	817.59	1,938.06	970.47	80.30	-4.68	0.122
160.00	-4.16	-4.12	0.00	-62.61	0.00	62.61	1,589.20	794.60	1,808.34	905.51	85.23	-4.73	0.072
165.00	-3.72	-3.69	0.00	-41.99	0.00	41.99	1,541.67	770.84	1,681.28	841.89	90.20	-4.76	0.052
170.00	-2.52	-2.39	0.00	-23.53	0.00	23.53	1,492.60	746.30	1,557.11	779.71	95.19	-4.79	0.032

Load Case: 1.2D + 1.6W 105 mph with No Ice 24 Iterations

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

175.00	-2.14	-1.98	0.00	-11.60	0.00	11.60	1,432.22	716.11	1,426.33	714.22	100.21	-4.80	0.018
180.00	0.00	-1.80	0.00	-1.68	0.00	1.68	1,364.83	682.41	1,294.61	648.27	105.24	-4.81	0.003

Load Case: 0.9D + 1.6W — 105 mph with No Ice (Reduced DL) — 24 Iterations

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

Wind Importance Factor 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev		Wind FX	Dead Load	Wind FX	Torsion MY	Moment MZ	Dead Load	Wind FX	Dead Load	Wind FX	Dead Load	Torsion MY	Moment MZ
(ft)	Description	(lb)	(lb)	(lb)	(lb-ft)	(lb-ft)	(lb)	(lb)	(lb)	(lb)	(lb)	(lb-ft)	(lb)
0.00		281.1	0.0					0.0	0.0	281.1	0.0	0.0	0.0
5.00		556.9	1,306.4					0.0	226.9	556.9	1,533.3	0.0	0.0
10.00		546.6	1,282.1					0.0	226.9	546.6	1,509.0	0.0	0.0
15.00		536.2	1,257.7					0.0	226.9	536.2	1,484.6	0.0	0.0
20.00		525.8	1,233.4					0.0	226.9	525.8	1,460.3	0.0	0.0
25.00		515.4	1,209.1					0.0	226.9	515.4	1,436.0	0.0	0.0
30.00		511.0	1,184.8					0.0	226.9	511.0	1,411.7	0.0	0.0
35.00		516.9	1,160.5					0.0	226.9	516.9	1,387.4	0.0	0.0
40.00		525.8	1,136.2					0.0	226.9	525.8	1,363.0	0.0	0.0
45.00		361.7	1,111.8					0.0	226.9	361.7	1,338.7	0.0	0.0
46.82	Bot - Section 2	270.3	397.9					0.0	82.4	270.3	480.4	0.0	0.0
50.00		373.1	1,391.0					0.0	144.5	373.1	1,535.5	0.0	0.0
53.65	Top - Section 1	273.7	1,570.7					0.0	165.6	273.7	1,736.3	0.0	0.0
55.00		348.7	289.7					0.0	61.3	348.7	351.0	0.0	0.0
60.00		549.6	1,057.5					0.0	226.9	549.6	1,284.4	0.0	0.0
65.00		549.3	1,033.2					0.0	226.9	549.3	1,260.1	0.0	0.0
70.00		547.9	1,008.9					0.0	226.9	547.9	1,235.7	0.0	0.0
75.00		545.3	984.5					0.0	226.9	545.3	1,211.4	0.0	0.0
80.00		541.7	960.2					0.0	226.9	541.7	1,187.1	0.0	0.0
85.00		537.2	935.9					0.0	226.9	537.2	1,162.8	0.0	0.0
90.00		530.0	911.6					0.0	226.9	530.0	1,138.5	0.0	0.0
94.97	Bot - Section 3	264.5	881.4					0.0	225.4	264.5	1,106.8	0.0	0.0
95.00		267.7	10.9					0.0	1.5	267.7	12.4	0.0	0.0
100.00		290.6	1,617.4					0.0	226.9	290.6	1,844.3	0.0	0.0
100.47	Top - Section 2	262.4	148.7					0.0	21.2	262.4	169.8	0.0	0.0
105.00		496.2	664.3					0.0	205.7	496.2	870.0	0.0	0.0
110.00		512.8	712.8					0.0	226.9	512.8	939.7	0.0	0.0
115.00		504.1	691.9					0.0	226.9	504.1	918.8	0.0	0.0
120.00		494.8	671.1					0.0	226.9	494.8	898.0	0.0	0.0
125.00		485.0	650.3					0.0	226.9	485.0	877.1	0.0	0.0
130.00	Appurtenance(s)	428.1	629.4	2,492.8	0.0	0.0	1,036.5	0.0	226.9	2,920.9	1,892.8	0.0	0.0
134.00	Appurtenance(s)	234.7	488.5	1,744.2	0.0	0.0	1,905.3	0.0	150.7	1,978.8	2,544.5	0.0	0.0
135.00		275.6	120.0					0.0	37.7	275.6	157.7	0.0	0.0
140.00		452.5	587.7					0.0	188.3	452.5	776.1	0.0	0.0
145.00		381.2	566.9					0.0	188.3	381.2	755.2	0.0	0.0
148.62	Top - Section 3	218.4	397.1					0.0	136.2	218.4	533.3	0.0	0.0
150.00		190.1	101.4					0.0	52.1	190.1	153.5	0.0	0.0
153.00	Appurtenance(s)	214.8	216.3	5,989.8	0.0	10,896.0	3,357.1	0.0	113.0	6,204.6	3,686.4	0.0	0.0
155.00		293.6	141.4					0.0	35.3	293.6	176.7	0.0	0.0
160.00	Appurtenance(s)	410.3	343.8	5,194.7	0.0	0.0	3,182.1	0.0	88.3	5,605.0	3,614.2	0.0	0.0
165.00		397.0	329.9					0.0	29.5	397.0	359.4	0.0	0.0
170.00	Appurtenance(s)	383.3	316.0	818.1	0.0	0.0	627.9	0.0	29.5	1,201.4	973.5	0.0	0.0
175.00		369.3	302.1					0.0	7.4	369.3	309.5	0.0	0.0
180.00	Appurtenance(s)	181.1	288.2	1,616.7	0.0	1,678.6	1,431.0	0.0	7.4	1,797.8	1,726.6	0.0	0.0
								Totals:		35,808.2	50,803.5	0.00	0.00

Load Case: 0.9D + 1.6W 105 mph with No Ice (Reduced DL) 24 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-50.76	-35.59	0.00	-4,428.32	0.00	4,428.32	5,724.86	2,862.43	14,599.1	7,310.45	0.00	0.00	0.615
5.00	-49.13	-35.16	0.00	-4,250.36	0.00	4,250.36	5,660.51	2,830.26	14,167.0	7,094.04	0.08	-0.15	0.608
10.00	-47.53	-34.73	0.00	-4,074.55	0.00	4,074.55	5,594.62	2,797.31	13,737.1	6,878.77	0.31	-0.30	0.601
15.00	-45.96	-34.31	0.00	-3,900.88	0.00	3,900.88	5,527.18	2,763.59	13,309.7	6,664.77	0.71	-0.45	0.594
20.00	-44.42	-33.89	0.00	-3,729.32	0.00	3,729.32	5,458.18	2,729.09	12,885.1	6,452.13	1.26	-0.60	0.586
25.00	-42.89	-33.48	0.00	-3,559.86	0.00	3,559.86	5,387.64	2,693.82	12,463.4	6,240.97	1.98	-0.76	0.579
30.00	-41.40	-33.06	0.00	-3,392.47	0.00	3,392.47	5,315.55	2,657.77	12,044.8	6,031.39	2.86	-0.92	0.570
35.00	-39.93	-32.63	0.00	-3,227.17	0.00	3,227.17	5,241.91	2,620.95	11,629.7	5,823.52	3.90	-1.08	0.562
40.00	-38.49	-32.19	0.00	-3,064.01	0.00	3,064.01	5,166.71	2,583.36	11,218.2	5,617.45	5.12	-1.24	0.553
45.00	-37.09	-31.87	0.00	-2,903.06	0.00	2,903.06	5,089.97	2,544.99	10,810.5	5,413.30	6.50	-1.40	0.544
46.82	-36.57	-31.64	0.00	-2,845.17	0.00	2,845.17	5,061.71	2,530.85	10,663.4	5,339.62	7.05	-1.46	0.540
50.00	-34.99	-31.30	0.00	-2,744.45	0.00	2,744.45	5,011.68	2,505.84	10,406.8	5,211.18	8.06	-1.57	0.534
53.65	-33.21	-31.02	0.00	-2,630.22	0.00	2,630.22	5,014.45	2,507.23	10,420.9	5,218.23	9.31	-1.69	0.511
55.00	-32.82	-30.72	0.00	-2,588.34	0.00	2,588.34	4,993.06	2,496.53	10,312.6	5,164.00	9.80	-1.74	0.508
60.00	-31.47	-30.22	0.00	-2,434.72	0.00	2,434.72	4,912.86	2,456.43	9,914.34	4,964.54	11.70	-1.90	0.497
65.00	-30.14	-29.71	0.00	-2,283.61	0.00	2,283.61	4,831.10	2,415.55	9,520.55	4,767.35	13.78	-2.06	0.485
70.00	-28.84	-29.20	0.00	-2,135.05	0.00	2,135.05	4,747.80	2,373.90	9,131.53	4,572.55	16.02	-2.22	0.473
75.00	-27.57	-28.69	0.00	-1,989.04	0.00	1,989.04	4,662.94	2,331.47	8,747.49	4,380.25	18.44	-2.38	0.460
80.00	-26.33	-28.17	0.00	-1,845.61	0.00	1,845.61	4,576.54	2,288.27	8,368.65	4,190.55	21.02	-2.55	0.446
85.00	-25.12	-27.65	0.00	-1,704.76	0.00	1,704.76	4,481.93	2,240.96	7,983.39	3,997.63	23.78	-2.71	0.432
90.00	-23.93	-27.13	0.00	-1,566.51	0.00	1,566.51	4,363.94	2,181.97	7,566.55	3,788.90	26.70	-2.87	0.419
94.97	-22.80	-26.84	0.00	-1,431.75	0.00	1,431.75	4,246.74	2,123.37	7,163.55	3,587.10	29.78	-3.03	0.405
95.00	-22.77	-26.61	0.00	-1,430.86	0.00	1,430.86	4,245.95	2,122.97	7,160.88	3,585.76	29.80	-3.03	0.405
100.00	-20.90	-26.25	0.00	-1,297.82	0.00	1,297.82	4,127.96	2,063.98	6,766.40	3,388.23	33.06	-3.19	0.388
100.47	-20.71	-26.01	0.00	-1,285.57	0.00	1,285.57	3,522.04	1,761.02	5,885.06	2,946.90	33.37	-3.21	0.442
105.00	-19.80	-25.51	0.00	-1,167.68	0.00	1,167.68	3,456.72	1,728.36	5,627.49	2,817.93	36.48	-3.35	0.420
110.00	-18.82	-25.00	0.00	-1,040.11	0.00	1,040.11	3,383.20	1,691.60	5,347.58	2,677.76	40.08	-3.52	0.394
115.00	-17.87	-24.49	0.00	-915.11	0.00	915.11	3,306.70	1,653.35	5,070.04	2,538.79	43.84	-3.68	0.366
120.00	-16.94	-23.98	0.00	-792.67	0.00	792.67	3,205.56	1,602.78	4,763.17	2,385.12	47.78	-3.83	0.338
125.00	-16.04	-23.48	0.00	-672.76	0.00	672.76	3,104.43	1,552.22	4,465.87	2,236.25	51.87	-3.98	0.306
130.00	-14.32	-20.46	0.00	-555.38	0.00	555.38	3,003.30	1,501.65	4,178.15	2,092.18	56.10	-4.11	0.270
134.00	-11.91	-18.31	0.00	-473.55	0.00	473.55	2,922.39	1,461.20	3,954.87	1,980.38	59.59	-4.21	0.243
135.00	-11.75	-18.04	0.00	-455.23	0.00	455.23	2,902.16	1,451.08	3,900.01	1,952.91	60.47	-4.23	0.237
140.00	-10.98	-17.55	0.00	-365.03	0.00	365.03	2,801.03	1,400.52	3,631.46	1,818.43	64.96	-4.34	0.205
145.00	-10.23	-17.13	0.00	-277.28	0.00	277.28	2,699.90	1,349.95	3,372.48	1,688.75	69.56	-4.44	0.168
148.62	-9.70	-16.87	0.00	-215.34	0.00	215.34	2,626.75	1,313.37	3,191.12	1,597.93	72.95	-4.50	0.139
148.62	-9.70	-16.87	0.00	-215.34	0.00	215.34	1,691.62	845.81	2,107.19	1,055.16	72.95	-4.50	0.210
150.00	-9.55	-16.68	0.00	-192.00	0.00	192.00	1,679.60	839.80	2,070.22	1,036.65	74.25	-4.52	0.191
153.00	-6.36	-10.21	0.00	-131.06	0.00	131.06	1,653.13	826.56	1,990.64	996.80	77.11	-4.57	0.135
155.00	-6.20	-9.90	0.00	-110.65	0.00	110.65	1,635.17	817.59	1,938.06	970.47	79.03	-4.60	0.118
160.00	-3.05	-4.03	0.00	-61.14	0.00	61.14	1,589.20	794.60	1,808.34	905.51	83.87	-4.65	0.069
165.00	-2.72	-3.60	0.00	-41.00	0.00	41.00	1,541.67	770.84	1,681.28	841.89	88.75	-4.68	0.050
170.00	-1.85	-2.33	0.00	-22.98	0.00	22.98	1,492.60	746.30	1,557.11	779.71	93.67	-4.71	0.031

Load Case: 0.9D + 1.6W — 105 mph with No Ice (Reduced DL) — 24 Iterations

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

Wind Importance Factor 1.00

175.00	-1.57	-1.93	0.00	-11.35	0.00	11.35	1,432.22	716.11	1,426.33	714.22	98.60	-4.72	0.017
180.00	0.00	-1.80	0.00	-1.68	0.00	1.68	1,364.83	682.41	1,294.61	648.27	103.55	-4.73	0.003

Load Case: 1.2D + 1.0Di + 1.0Wi — 50 mph with 0.75 in Radial Ice — 23 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		Wind FX	Dead Load	Wind FX	Torsion MY	Moment MZ	Dead Load	Wind FX	Dead Load	Wind FX	Dead Load	Torsion MY	Moment MZ
(ft)	Description	(lb)	(lb)	(lb)	(lb-ft)	(lb-ft)	(lb)	(lb)	(lb)	(lb)	(lb)	(lb-ft)	(lb)
0.00		76.3	0.0					0.0	0.0	76.3	0.0	0.0	0.0
5.00		151.5	2,195.4					0.0	302.5	151.5	2,497.9	0.0	0.0
10.00		149.2	2,207.4					0.0	302.5	149.2	2,509.9	0.0	0.0
15.00		146.8	2,191.9					0.0	302.5	146.8	2,494.4	0.0	0.0
20.00		144.2	2,167.4					0.0	302.5	144.2	2,469.9	0.0	0.0
25.00		141.7	2,138.2					0.0	302.5	141.7	2,440.8	0.0	0.0
30.00		140.7	2,106.2					0.0	302.5	140.7	2,408.7	0.0	0.0
35.00		142.6	2,072.1					0.0	302.5	142.6	2,374.7	0.0	0.0
40.00		145.4	2,036.6					0.0	302.5	145.4	2,339.1	0.0	0.0
45.00		100.1	1,999.9					0.0	302.5	100.1	2,302.4	0.0	0.0
46.82	Bot - Section 2	74.9	718.6					0.0	109.9	74.9	828.5	0.0	0.0
50.00		103.4	2,186.9					0.0	192.6	103.4	2,379.5	0.0	0.0
53.65	Top - Section 1	75.9	2,471.8					0.0	220.8	75.9	2,692.6	0.0	0.0
55.00		96.9	525.8					0.0	81.7	96.9	607.4	0.0	0.0
60.00		152.9	1,918.4					0.0	302.5	152.9	2,220.9	0.0	0.0
65.00		153.1	1,878.9					0.0	302.5	153.1	2,181.4	0.0	0.0
70.00		153.0	1,838.9					0.0	302.5	153.0	2,141.4	0.0	0.0
75.00		152.6	1,798.5					0.0	302.5	152.6	2,101.0	0.0	0.0
80.00		151.9	1,757.7					0.0	302.5	151.9	2,060.2	0.0	0.0
85.00		150.9	1,716.6					0.0	302.5	150.9	2,019.1	0.0	0.0
90.00		149.3	1,675.2					0.0	302.5	149.3	1,977.7	0.0	0.0
94.97	Bot - Section 3	74.6	1,622.8					0.0	300.5	74.6	1,923.3	0.0	0.0
95.00		75.6	17.6					0.0	2.0	75.6	19.7	0.0	0.0
100.00		82.0	2,605.4					0.0	302.5	82.0	2,907.9	0.0	0.0
100.47	Top - Section 2	74.2	240.1					0.0	28.2	74.2	268.4	0.0	0.0
105.00		140.6	1,284.0					0.0	274.3	140.6	1,558.2	0.0	0.0
110.00		145.7	1,379.6					0.0	302.5	145.7	1,682.1	0.0	0.0
115.00		143.6	1,341.7					0.0	302.5	143.6	1,644.2	0.0	0.0
120.00		141.3	1,303.6					0.0	302.5	141.3	1,606.1	0.0	0.0
125.00		139.0	1,265.3					0.0	302.5	139.0	1,567.9	0.0	0.0
130.00	Appurtenance(s)	123.0	1,226.9	444.7	0.0	0.0	2,931.4	0.0	302.5	567.7	4,460.9	0.0	0.0
134.00	Appurtenance(s)	67.6	954.7	467.0	0.0	0.0	3,614.3	0.0	200.9	534.5	4,770.0	0.0	0.0
135.00		79.6	235.6					0.0	50.2	79.6	285.8	0.0	0.0
140.00		131.0	1,149.6					0.0	251.1	131.0	1,400.7	0.0	0.0
145.00		110.7	1,110.7					0.0	251.1	110.7	1,361.8	0.0	0.0
148.62	Top - Section 3	63.6	780.4					0.0	181.6	63.6	962.0	0.0	0.0
150.00		55.4	231.9					0.0	69.5	55.4	301.4	0.0	0.0
153.00	Appurtenance(s)	62.7	493.9	1,193.2	0.0	2,055.3	8,152.2	0.0	150.7	1,255.9	8,796.7	0.0	0.0
155.00		86.0	323.8					0.0	47.1	86.0	370.9	0.0	0.0
160.00	Appurtenance(s)	120.6	784.8	1,095.8	0.0	0.0	7,602.2	0.0	117.7	1,216.4	8,504.8	0.0	0.0
165.00		117.3	754.8					0.0	39.4	117.3	794.1	0.0	0.0
170.00	Appurtenance(s)	113.9	724.6	201.6	0.0	0.0	1,389.8	0.0	39.4	315.5	2,153.8	0.0	0.0
175.00		110.4	694.4					0.0	9.8	110.4	704.2	0.0	0.0
180.00	Appurtenance(s)	54.3	664.0	450.0	0.0	509.7	2,417.1	0.0	9.8	504.3	3,091.0	0.0	0.0
								Totals:		8,918.32	94,183.7	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 23 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	-94.18	-8.87	0.00	-1,113.69	0.00	1,113.69	5,724.86	2,862.43	14,599.1	7,310.45	0.00	0.00	0.169
5.00	-91.68	-8.78	0.00	-1,069.33	0.00	1,069.33	5,660.51	2,830.26	14,167.0	7,094.04	0.02	-0.04	0.167
10.00	-89.16	-8.69	0.00	-1,025.43	0.00	1,025.43	5,594.62	2,797.31	13,737.1	6,878.77	0.08	-0.07	0.165
15.00	-86.66	-8.59	0.00	-982.00	0.00	982.00	5,527.18	2,763.59	13,309.7	6,664.77	0.18	-0.11	0.163
20.00	-84.19	-8.50	0.00	-939.02	0.00	939.02	5,458.18	2,729.09	12,885.1	6,452.13	0.32	-0.15	0.161
25.00	-81.74	-8.41	0.00	-896.51	0.00	896.51	5,387.64	2,693.82	12,463.4	6,240.97	0.50	-0.19	0.159
30.00	-79.33	-8.32	0.00	-854.47	0.00	854.47	5,315.55	2,657.77	12,044.8	6,031.39	0.72	-0.23	0.157
35.00	-76.95	-8.22	0.00	-812.89	0.00	812.89	5,241.91	2,620.95	11,629.7	5,823.52	0.98	-0.27	0.154
40.00	-74.60	-8.11	0.00	-771.81	0.00	771.81	5,166.71	2,583.36	11,218.2	5,617.45	1.29	-0.31	0.152
45.00	-72.30	-8.04	0.00	-731.25	0.00	731.25	5,089.97	2,544.99	10,810.5	5,413.30	1.64	-0.35	0.149
46.82	-71.47	-7.98	0.00	-716.65	0.00	716.65	5,061.71	2,530.85	10,663.4	5,339.62	1.77	-0.37	0.148
50.00	-69.08	-7.90	0.00	-691.24	0.00	691.24	5,011.68	2,505.84	10,406.8	5,211.18	2.03	-0.40	0.146
53.65	-66.39	-7.83	0.00	-662.42	0.00	662.42	5,014.45	2,507.23	10,420.9	5,218.23	2.34	-0.43	0.140
55.00	-65.78	-7.75	0.00	-651.86	0.00	651.86	4,993.06	2,496.53	10,312.6	5,164.00	2.47	-0.44	0.139
60.00	-63.55	-7.63	0.00	-613.08	0.00	613.08	4,912.86	2,456.43	9,914.34	4,964.54	2.95	-0.48	0.136
65.00	-61.37	-7.50	0.00	-574.94	0.00	574.94	4,831.10	2,415.55	9,520.55	4,767.35	3.47	-0.52	0.133
70.00	-59.22	-7.37	0.00	-537.44	0.00	537.44	4,747.80	2,373.90	9,131.53	4,572.55	4.03	-0.56	0.130
75.00	-57.12	-7.24	0.00	-500.59	0.00	500.59	4,662.94	2,331.47	8,747.49	4,380.25	4.64	-0.60	0.127
80.00	-55.05	-7.10	0.00	-464.41	0.00	464.41	4,576.54	2,288.27	8,368.65	4,190.55	5.29	-0.64	0.123
85.00	-53.03	-6.97	0.00	-428.90	0.00	428.90	4,481.93	2,240.96	7,983.39	3,997.63	5.99	-0.68	0.119
90.00	-51.05	-6.83	0.00	-394.08	0.00	394.08	4,363.94	2,181.97	7,566.55	3,788.90	6.72	-0.72	0.116
94.97	-49.13	-6.75	0.00	-360.17	0.00	360.17	4,246.74	2,123.37	7,163.55	3,587.10	7.50	-0.76	0.112
95.00	-49.11	-6.69	0.00	-359.95	0.00	359.95	4,245.95	2,122.97	7,160.88	3,585.76	7.50	-0.76	0.112
100.00	-46.20	-6.58	0.00	-326.51	0.00	326.51	4,127.96	2,063.98	6,766.40	3,388.23	8.32	-0.80	0.108
100.47	-45.93	-6.52	0.00	-323.44	0.00	323.44	3,522.04	1,761.02	5,885.06	2,946.90	8.40	-0.81	0.123
105.00	-44.37	-6.39	0.00	-293.88	0.00	293.88	3,456.72	1,728.36	5,627.49	2,817.93	9.19	-0.84	0.117
110.00	-42.68	-6.25	0.00	-261.95	0.00	261.95	3,383.20	1,691.60	5,347.58	2,677.76	10.09	-0.88	0.110
115.00	-41.04	-6.11	0.00	-230.71	0.00	230.71	3,306.70	1,653.35	5,070.04	2,538.79	11.04	-0.93	0.103
120.00	-39.43	-5.96	0.00	-200.18	0.00	200.18	3,205.56	1,602.78	4,763.17	2,385.12	12.03	-0.96	0.096
125.00	-37.86	-5.82	0.00	-170.35	0.00	170.35	3,104.43	1,552.22	4,465.87	2,236.25	13.06	-1.00	0.088
130.00	-33.41	-5.19	0.00	-141.24	0.00	141.24	3,003.30	1,501.65	4,178.15	2,092.18	14.13	-1.04	0.079
134.00	-28.65	-4.58	0.00	-120.47	0.00	120.47	2,922.39	1,461.20	3,954.87	1,980.38	15.01	-1.06	0.071
135.00	-28.36	-4.50	0.00	-115.89	0.00	115.89	2,902.16	1,451.08	3,900.01	1,952.91	15.23	-1.07	0.069
140.00	-26.96	-4.36	0.00	-93.38	0.00	93.38	2,801.03	1,400.52	3,631.46	1,818.43	16.36	-1.09	0.061
145.00	-25.60	-4.23	0.00	-71.60	0.00	71.60	2,699.90	1,349.95	3,372.48	1,688.75	17.52	-1.12	0.052
148.62	-24.64	-4.15	0.00	-56.30	0.00	56.30	2,626.75	1,313.37	3,191.12	1,597.93	18.38	-1.13	0.045
148.62	-24.64	-4.15	0.00	-56.30	0.00	56.30	1,691.62	845.81	2,107.19	1,055.16	18.38	-1.13	0.068
150.00	-24.34	-4.09	0.00	-50.56	0.00	50.56	1,679.60	839.80	2,070.22	1,036.65	18.71	-1.14	0.063
153.00	-15.57	-2.66	0.00	-36.22	0.00	36.22	1,653.13	826.56	1,990.64	996.80	19.43	-1.15	0.046
155.00	-15.20	-2.57	0.00	-30.89	0.00	30.89	1,635.17	817.59	1,938.06	970.47	19.92	-1.16	0.041
160.00	-6.72	-1.19	0.00	-18.02	0.00	18.02	1,589.20	794.60	1,808.34	905.51	21.14	-1.18	0.024
165.00	-5.93	-1.05	0.00	-12.09	0.00	12.09	1,541.67	770.84	1,681.28	841.89	22.38	-1.19	0.018
170.00	-3.78	-0.69	0.00	-6.82	0.00	6.82	1,492.60	746.30	1,557.11	779.71	23.62	-1.19	0.011

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 0.75 in Radial Ice 23 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

175.00	-3.08	-0.57	0.00	-3.35	0.00	3.35	1,432.22	716.11	1,426.33	714.22	24.88	-1.20	0.007
180.00	0.00	-0.50	0.00	-0.51	0.00	0.51	1,364.83	682.41	1,294.61	648.27	26.13	-1.20	0.001

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

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

Applied Segment Forces Summary

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		51.3	0.0					0.0	0.0	51.3	0.0	0.0	0.0
5.00		101.7	1,451.5					0.0	252.1	101.7	1,703.6	0.0	0.0
10.00		99.8	1,424.5					0.0	252.1	99.8	1,676.6	0.0	0.0
15.00		97.9	1,397.5					0.0	252.1	97.9	1,649.6	0.0	0.0
20.00		96.0	1,370.5					0.0	252.1	96.0	1,622.6	0.0	0.0
25.00		94.1	1,343.5					0.0	252.1	94.1	1,595.6	0.0	0.0
30.00		93.3	1,316.4					0.0	252.1	93.3	1,568.5	0.0	0.0
35.00		94.4	1,289.4					0.0	252.1	94.4	1,541.5	0.0	0.0
40.00		96.0	1,262.4					0.0	252.1	96.0	1,514.5	0.0	0.0
45.00		66.0	1,235.4					0.0	252.1	66.0	1,487.5	0.0	0.0
46.82	Bot - Section 2	49.4	442.2					0.0	91.6	49.4	533.8	0.0	0.0
50.00		68.1	1,545.6					0.0	160.5	68.1	1,706.1	0.0	0.0
53.65	Top - Section 1	50.0	1,745.2					0.0	184.0	50.0	1,929.2	0.0	0.0
55.00		63.7	321.9					0.0	68.1	63.7	389.9	0.0	0.0
60.00		100.4	1,175.0					0.0	252.1	100.4	1,427.1	0.0	0.0
65.00		100.3	1,148.0					0.0	252.1	100.3	1,400.1	0.0	0.0
70.00		100.0	1,121.0					0.0	252.1	100.0	1,373.1	0.0	0.0
75.00		99.6	1,093.9					0.0	252.1	99.6	1,346.0	0.0	0.0
80.00		98.9	1,066.9					0.0	252.1	98.9	1,319.0	0.0	0.0
85.00		98.1	1,039.9					0.0	252.1	98.1	1,292.0	0.0	0.0
90.00		96.8	1,012.9					0.0	252.1	96.8	1,265.0	0.0	0.0
94.97	Bot - Section 3	48.3	979.4					0.0	250.4	48.3	1,229.8	0.0	0.0
95.00		48.9	12.1					0.0	1.7	48.9	13.8	0.0	0.0
100.00		53.1	1,797.1					0.0	252.1	53.1	2,049.2	0.0	0.0
100.47	Top - Section 2	47.9	165.2					0.0	23.5	47.9	188.7	0.0	0.0
105.00		90.6	738.1					0.0	228.6	90.6	966.7	0.0	0.0
110.00		93.6	792.0					0.0	252.1	93.6	1,044.1	0.0	0.0
115.00		92.0	768.8					0.0	252.1	92.0	1,020.9	0.0	0.0
120.00		90.3	745.7					0.0	252.1	90.3	997.8	0.0	0.0
125.00		88.6	722.5					0.0	252.1	88.6	974.6	0.0	0.0
130.00	Appurtenance(s)	78.2	699.3	455.2	0.0	0.0	1,151.7	0.0	252.1	533.4	2,103.1	0.0	0.0
134.00	Appurtenance(s)	42.8	542.8	318.5	0.0	0.0	2,117.0	0.0	167.4	361.3	2,827.2	0.0	0.0
135.00		50.3	133.4					0.0	41.9	50.3	175.2	0.0	0.0
140.00		82.6	653.0					0.0	209.2	82.6	862.3	0.0	0.0
145.00		69.6	629.9					0.0	209.2	69.6	839.1	0.0	0.0
148.62	Top - Section 3	39.9	441.2					0.0	151.4	39.9	592.5	0.0	0.0
150.00		34.7	112.7					0.0	57.9	34.7	170.6	0.0	0.0
153.00	Appurtenance(s)	39.2	240.3	1,093.7	0.0	1,989.6	3,730.1	0.0	125.6	1,132.9	4,096.0	0.0	0.0
155.00		53.6	157.1					0.0	39.2	53.6	196.4	0.0	0.0
160.00	Appurtenance(s)	74.9	382.0	948.5	0.0	0.0	3,535.7	0.0	98.1	1,023.5	4,015.8	0.0	0.0
165.00		72.5	366.6					0.0	32.8	72.5	399.4	0.0	0.0
170.00	Appurtenance(s)	70.0	351.1	149.4	0.0	0.0	697.7	0.0	32.8	219.4	1,081.6	0.0	0.0
175.00		67.4	335.7					0.0	8.2	67.4	343.9	0.0	0.0
180.00	Appurtenance(s)	33.1	320.3	295.2	0.0	306.5	1,590.0	0.0	8.2	328.3	1,918.5	0.0	0.0
								Totals:		6,538.57	56,448.4	0.00	0.00

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

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-56.45	-6.50	0.00	-812.73	0.00	812.73	5,724.86	2,862.43	14,599.1	7,310.45	0.00	0.00	0.121
5.00	-54.74	-6.42	0.00	-780.23	0.00	780.23	5,660.51	2,830.26	14,167.0	7,094.04	0.01	-0.03	0.120
10.00	-53.06	-6.35	0.00	-748.11	0.00	748.11	5,594.62	2,797.31	13,737.1	6,878.77	0.06	-0.05	0.118
15.00	-51.41	-6.27	0.00	-716.36	0.00	716.36	5,527.18	2,763.59	13,309.7	6,664.77	0.13	-0.08	0.117
20.00	-49.78	-6.20	0.00	-684.99	0.00	684.99	5,458.18	2,729.09	12,885.1	6,452.13	0.23	-0.11	0.115
25.00	-48.18	-6.13	0.00	-653.99	0.00	653.99	5,387.64	2,693.82	12,463.4	6,240.97	0.36	-0.14	0.114
30.00	-46.61	-6.05	0.00	-623.36	0.00	623.36	5,315.55	2,657.77	12,044.8	6,031.39	0.52	-0.17	0.112
35.00	-45.07	-5.98	0.00	-593.09	0.00	593.09	5,241.91	2,620.95	11,629.7	5,823.52	0.72	-0.20	0.110
40.00	-43.55	-5.90	0.00	-563.21	0.00	563.21	5,166.71	2,583.36	11,218.2	5,617.45	0.94	-0.23	0.109
45.00	-42.06	-5.84	0.00	-533.72	0.00	533.72	5,089.97	2,544.99	10,810.5	5,413.30	1.19	-0.26	0.107
46.82	-41.53	-5.80	0.00	-523.11	0.00	523.11	5,061.71	2,530.85	10,663.4	5,339.62	1.29	-0.27	0.106
50.00	-39.82	-5.74	0.00	-504.64	0.00	504.64	5,011.68	2,505.84	10,406.8	5,211.18	1.48	-0.29	0.105
53.65	-37.89	-5.69	0.00	-483.70	0.00	483.70	5,014.45	2,507.23	10,420.9	5,218.23	1.71	-0.31	0.100
55.00	-37.50	-5.64	0.00	-476.02	0.00	476.02	4,993.06	2,496.53	10,312.6	5,164.00	1.80	-0.32	0.100
60.00	-36.07	-5.55	0.00	-447.84	0.00	447.84	4,912.86	2,456.43	9,914.34	4,964.54	2.15	-0.35	0.098
65.00	-34.67	-5.45	0.00	-420.11	0.00	420.11	4,831.10	2,415.55	9,520.55	4,767.35	2.53	-0.38	0.095
70.00	-33.29	-5.36	0.00	-392.84	0.00	392.84	4,747.80	2,373.90	9,131.53	4,572.55	2.94	-0.41	0.093
75.00	-31.94	-5.27	0.00	-366.03	0.00	366.03	4,662.94	2,331.47	8,747.49	4,380.25	3.39	-0.44	0.090
80.00	-30.62	-5.18	0.00	-339.69	0.00	339.69	4,576.54	2,288.27	8,368.65	4,190.55	3.86	-0.47	0.088
85.00	-29.33	-5.08	0.00	-313.81	0.00	313.81	4,481.93	2,240.96	7,983.39	3,997.63	4.37	-0.50	0.085
90.00	-28.06	-4.99	0.00	-288.40	0.00	288.40	4,363.94	2,181.97	7,566.55	3,788.90	4.91	-0.53	0.083
94.97	-26.83	-4.94	0.00	-263.62	0.00	263.62	4,246.74	2,123.37	7,163.55	3,587.10	5.47	-0.56	0.080
95.00	-26.82	-4.89	0.00	-263.46	0.00	263.46	4,245.95	2,122.97	7,160.88	3,585.76	5.48	-0.56	0.080
100.00	-24.77	-4.83	0.00	-238.99	0.00	238.99	4,127.96	2,063.98	6,766.40	3,388.23	6.08	-0.59	0.077
100.47	-24.58	-4.78	0.00	-236.74	0.00	236.74	3,522.04	1,761.02	5,885.06	2,946.90	6.13	-0.59	0.087
105.00	-23.61	-4.69	0.00	-215.05	0.00	215.05	3,456.72	1,728.36	5,627.49	2,817.93	6.71	-0.62	0.083
110.00	-22.56	-4.60	0.00	-191.58	0.00	191.58	3,383.20	1,691.60	5,347.58	2,677.76	7.37	-0.65	0.078
115.00	-21.54	-4.51	0.00	-168.58	0.00	168.58	3,306.70	1,653.35	5,070.04	2,538.79	8.06	-0.68	0.073
120.00	-20.54	-4.42	0.00	-146.04	0.00	146.04	3,205.56	1,602.78	4,763.17	2,385.12	8.78	-0.70	0.068
125.00	-19.57	-4.32	0.00	-123.96	0.00	123.96	3,104.43	1,552.22	4,465.87	2,236.25	9.54	-0.73	0.062
130.00	-17.47	-3.77	0.00	-102.34	0.00	102.34	3,003.30	1,501.65	4,178.15	2,092.18	10.32	-0.76	0.055
134.00	-14.65	-3.37	0.00	-87.26	0.00	87.26	2,922.39	1,461.20	3,954.87	1,980.38	10.96	-0.77	0.049
135.00	-14.47	-3.32	0.00	-83.89	0.00	83.89	2,902.16	1,451.08	3,900.01	1,952.91	11.12	-0.78	0.048
140.00	-13.61	-3.23	0.00	-67.27	0.00	67.27	2,801.03	1,400.52	3,631.46	1,818.43	11.95	-0.80	0.042
145.00	-12.77	-3.16	0.00	-51.10	0.00	51.10	2,699.90	1,349.95	3,372.48	1,688.75	12.80	-0.82	0.035
148.62	-12.18	-3.11	0.00	-39.69	0.00	39.69	2,626.75	1,313.37	3,191.12	1,597.93	13.42	-0.83	0.029
148.62	-12.18	-3.11	0.00	-39.69	0.00	39.69	1,691.62	845.81	2,107.19	1,055.16	13.42	-0.83	0.045
150.00	-12.01	-3.07	0.00	-35.39	0.00	35.39	1,679.60	839.80	2,070.22	1,036.65	13.66	-0.83	0.041
153.00	-7.93	-1.88	0.00	-24.18	0.00	24.18	1,653.13	826.56	1,990.64	996.80	14.19	-0.84	0.029
155.00	-7.73	-1.83	0.00	-20.42	0.00	20.42	1,635.17	817.59	1,938.06	970.47	14.54	-0.85	0.026
160.00	-3.73	-0.74	0.00	-11.29	0.00	11.29	1,589.20	794.60	1,808.34	905.51	15.43	-0.86	0.015
165.00	-3.33	-0.67	0.00	-7.57	0.00	7.57	1,541.67	770.84	1,681.28	841.89	16.33	-0.86	0.011
170.00	-2.26	-0.43	0.00	-4.24	0.00	4.24	1,492.60	746.30	1,557.11	779.71	17.24	-0.87	0.007

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

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

175.00	-1.91	-0.36	0.00	-2.09	0.00	2.09	1,432.22	716.11	1,426.33	714.22	18.14	-0.87	0.004
180.00	0.00	-0.33	0.00	-0.31	0.00	0.31	1,364.83	682.41	1,294.61	648.27	19.05	-0.87	0.000

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.16	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.17	
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):	2.58	
Redundancy Factor (p):	1.00	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	56.45	k
Seismic Base Shear (E):	1.69	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)
43	177.50	328	10,349	0.017	28	405
42	172.50	344	10,233	0.016	28	424
41	167.50	384	10,772	0.017	29	474
40	162.50	399	10,546	0.017	29	493
39	157.50	480	11,909	0.019	32	593
38	154.00	196	4,657	0.007	13	242
37	151.50	366	8,397	0.014	23	452
36	149.31	171	3,803	0.006	10	211
35	146.81	593	12,771	0.021	35	731
34	142.50	839	17,039	0.027	46	1,036
33	137.50	862	16,302	0.026	44	1,064
32	134.50	175	3,170	0.005	9	216
31	132.00	710	12,375	0.020	34	876
30	127.50	951	15,467	0.025	42	1,174
29	122.50	975	14,625	0.024	40	1,203
28	117.50	998	13,775	0.022	38	1,231
27	112.50	1,021	12,921	0.021	35	1,260
26	107.50	1,044	12,066	0.019	33	1,289
25	102.73	967	10,202	0.016	28	1,193
24	100.23	189	1,896	0.003	5	233
23	97.50	2,049	19,481	0.031	53	2,529
22	94.98	14	125	0.000	0	17
21	92.48	1,230	10,519	0.017	29	1,518

20	87.50	1,265	9,685	0.016	26	1,561
19	82.50	1,292	8,794	0.014	24	1,594
18	77.50	1,319	7,922	0.013	22	1,628
17	72.50	1,346	7,075	0.011	19	1,661
16	67.50	1,373	6,256	0.010	17	1,695
15	62.50	1,400	5,469	0.009	15	1,728
14	57.50	1,427	4,718	0.008	13	1,761
13	54.33	390	1,151	0.002	3	481
12	51.83	1,929	5,182	0.008	14	2,381
11	48.41	1,706	3,998	0.006	11	2,106
10	45.91	534	1,125	0.002	3	659
9	42.50	1,487	2,687	0.004	7	1,836
8	37.50	1,514	2,130	0.003	6	1,869
7	32.50	1,542	1,628	0.003	4	1,902
6	27.50	1,569	1,186	0.002	3	1,936
5	22.50	1,596	808	0.001	2	1,969
4	17.50	1,623	497	0.001	1	2,002
3	12.50	1,650	258	0.000	1	2,036
2	7.50	1,677	94	0.000	0	2,069
1	2.50	1,704	11	0.000	0	2,103
Generic TTA	180.00	10	324	0.001	1	12
Generic 11' Omni	180.00	80	2,592	0.004	7	99
Round Low Profile Pl	180.00	1,500	48,600	0.078	133	1,851
KMW HB-X-WM-17-65-00	170.00	48	1,379	0.002	4	59
KMW HB-X-WM-17-65-00	170.00	90	2,601	0.004	7	111
Side Arms	170.00	560	16,184	0.026	44	691
Alcatel-Lucent RRH 2	160.00	119	3,041	0.005	8	147
Alcatel-Lucent RRH2x	160.00	170	4,355	0.007	12	210
Alcatel-Lucent B66a	160.00	201	5,146	0.008	14	248
RFS DB-T1-6Z-8AB-0Z	160.00	88	2,253	0.004	6	109
Antel BXA-70063/6CF_	160.00	51	1,306	0.002	4	63
Commscope HBXX-6517D	160.00	245	6,267	0.010	17	302
Amphenol Antel QUAD6	160.00	162	4,147	0.007	11	200
Generic Round Platfo	160.00	2,500	64,000	0.103	175	3,085
Powerwave Allgon 702	153.00	13	309	0.000	1	16
CCI TPX-070821	153.00	45	1,053	0.002	3	56
Raycap DC6-48-60-18-	153.00	20	468	0.001	1	25
Raycap DC6-48-60-18-	153.00	32	744	0.001	2	39
Ericsson RRUS 4478 B	153.00	178	4,171	0.007	11	220
Powerwave Allgon LGP	153.00	186	4,354	0.007	12	230
Raycap DC6-48-60-18-	153.00	16	375	0.001	1	20
Ericsson RRUS 11 (Ba	153.00	150	3,511	0.006	10	185
Ericsson RRUS 32 B30	153.00	180	4,214	0.007	11	222
Ericsson RRUS 32 B66	153.00	152	3,561	0.006	10	188
Ericsson RRUS 32 B2	153.00	159	3,722	0.006	10	196
Powerwave Allgon 777	153.00	105	2,458	0.004	7	130
Commscope SBNHH-1D65	153.00	201	4,705	0.008	13	248
Kathrein Scala 80010	153.00	293	6,854	0.011	19	361
Flat Platform w/ Han	153.00	2,000	46,818	0.075	128	2,468
Perfect Vision PV-LP	134.00	2,117	38,013	0.061	104	2,613
Ericsson Radio 4449	130.00	222	3,752	0.006	10	274
Ericsson AIR 21	130.00	546	9,227	0.015	25	674
RFS APXVAARR24_43-U-	130.00	384	6,485	0.010	18	474
		56,448	621,060	1.000	1,693	69,665

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)
43	177.50	328	10,349	0.017	28	284

42	172.50	344	10,233	0.016	28	298
41	167.50	384	10,772	0.017	29	332
40	162.50	399	10,546	0.017	29	346
39	157.50	480	11,909	0.019	32	416
38	154.00	196	4,657	0.007	13	170
37	151.50	366	8,397	0.014	23	317
36	149.31	171	3,803	0.006	10	148
35	146.81	593	12,771	0.021	35	513
34	142.50	839	17,039	0.027	46	727
33	137.50	862	16,302	0.026	44	747
32	134.50	175	3,170	0.005	9	152
31	132.00	710	12,375	0.020	34	615
30	127.50	951	15,467	0.025	42	824
29	122.50	975	14,625	0.024	40	844
28	117.50	998	13,775	0.022	38	864
27	112.50	1,021	12,921	0.021	35	884
26	107.50	1,044	12,066	0.019	33	904
25	102.73	967	10,202	0.016	28	837
24	100.23	189	1,896	0.003	5	163
23	97.50	2,049	19,481	0.031	53	1,774
22	94.98	14	125	0.000	0	12
21	92.48	1,230	10,519	0.017	29	1,065
20	87.50	1,265	9,685	0.016	26	1,095
19	82.50	1,292	8,794	0.014	24	1,119
18	77.50	1,319	7,922	0.013	22	1,142
17	72.50	1,346	7,075	0.011	19	1,165
16	67.50	1,373	6,256	0.010	17	1,189
15	62.50	1,400	5,469	0.009	15	1,212
14	57.50	1,427	4,718	0.008	13	1,236
13	54.33	390	1,151	0.002	3	338
12	51.83	1,929	5,182	0.008	14	1,670
11	48.41	1,706	3,998	0.006	11	1,477
10	45.91	534	1,125	0.002	3	462
9	42.50	1,487	2,687	0.004	7	1,288
8	37.50	1,514	2,130	0.003	6	1,311
7	32.50	1,542	1,628	0.003	4	1,335
6	27.50	1,569	1,186	0.002	3	1,358
5	22.50	1,596	808	0.001	2	1,382
4	17.50	1,623	497	0.001	1	1,405
3	12.50	1,650	258	0.000	1	1,428
2	7.50	1,677	94	0.000	0	1,452
1	2.50	1,704	11	0.000	0	1,475
Generic TTA	180.00	10	324	0.001	1	9
Generic 11' Omni	180.00	80	2,592	0.004	7	69
Round Low Profile Pl	180.00	1,500	48,600	0.078	133	1,299
KMW HB-X-WM-17-65-00	170.00	48	1,379	0.002	4	41
KMW HB-X-WM-17-65-00	170.00	90	2,601	0.004	7	78
Side Arms	170.00	560	16,184	0.026	44	485
Alcatel-Lucent RRH 2	160.00	119	3,041	0.005	8	103
Alcatel-Lucent RRH2x	160.00	170	4,355	0.007	12	147
Alcatel-Lucent B66a	160.00	201	5,146	0.008	14	174
RFS DB-T1-6Z-8AB-0Z	160.00	88	2,253	0.004	6	76
Antel BXA-70063/6CF_	160.00	51	1,306	0.002	4	44
Commscope HBXX-6517D	160.00	245	6,267	0.010	17	212
Amphenol Antel QUAD6	160.00	162	4,147	0.007	11	140
Generic Round Platfo	160.00	2,500	64,000	0.103	175	2,165
Powerwave Allgon 702	153.00	13	309	0.000	1	11
CCI TPX-070821	153.00	45	1,053	0.002	3	39
Raycap DC6-48-60-18-	153.00	20	468	0.001	1	17
Raycap DC6-48-60-18-	153.00	32	744	0.001	2	28
Ericsson RRUS 4478 B	153.00	178	4,171	0.007	11	154
Powerwave Allgon LGP	153.00	186	4,354	0.007	12	161
Raycap DC6-48-60-18-	153.00	16	375	0.001	1	14
Ericsson RRUS 11 (Ba	153.00	150	3,511	0.006	10	130

Ericsson RRUS 32 B30	153.00	180	4,214	0.007	11	156
Ericsson RRUS 32 B66	153.00	152	3,561	0.006	10	132
Ericsson RRUS 32 B2	153.00	159	3,722	0.006	10	138
Powerwave Allgon 777	153.00	105	2,458	0.004	7	91
Commscope SBNHH-1D65	153.00	201	4,705	0.008	13	174
Kathrein Scala 80010	153.00	293	6,854	0.011	19	254
Flat Platform w/ Han	153.00	2,000	46,818	0.075	128	1,732
Perfect Vision PV-LP	134.00	2,117	38,013	0.061	104	1,833
Ericsson Radio 4449	130.00	222	3,752	0.006	10	192
Ericsson AIR 21	130.00	546	9,227	0.015	25	473
RFS APXVAARR24_43-U-	130.00	384	6,485	0.010	18	332
		56,448	621,060	1.000	1,693	48,877

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	-67.56	-1.70	0.00	-241.77	0.00	241.77	5,724.86	2,862.43	14,599.1	7,310.45	0.00	0.00	0.045
5.00	-65.49	-1.71	0.00	-233.28	0.00	233.28	5,660.51	2,830.26	14,167.0	7,094.04	0.00	-0.01	0.044
10.00	-63.46	-1.71	0.00	-224.75	0.00	224.75	5,594.62	2,797.31	13,737.1	6,878.77	0.02	-0.02	0.044
15.00	-61.45	-1.72	0.00	-216.18	0.00	216.18	5,527.18	2,763.59	13,309.7	6,664.77	0.04	-0.02	0.044
20.00	-59.48	-1.73	0.00	-207.57	0.00	207.57	5,458.18	2,729.09	12,885.1	6,452.13	0.07	-0.03	0.043
25.00	-57.55	-1.73	0.00	-198.93	0.00	198.93	5,387.64	2,693.82	12,463.4	6,240.97	0.11	-0.04	0.043
30.00	-55.65	-1.73	0.00	-190.27	0.00	190.27	5,315.55	2,657.77	12,044.8	6,031.39	0.16	-0.05	0.042
35.00	-53.78	-1.74	0.00	-181.60	0.00	181.60	5,241.91	2,620.95	11,629.7	5,823.52	0.22	-0.06	0.041
40.00	-51.94	-1.73	0.00	-172.92	0.00	172.92	5,166.71	2,583.36	11,218.2	5,617.45	0.28	-0.07	0.041
45.00	-51.28	-1.74	0.00	-164.25	0.00	164.25	5,089.97	2,544.99	10,810.5	5,413.30	0.36	-0.08	0.040
46.82	-49.18	-1.73	0.00	-161.10	0.00	161.10	5,061.71	2,530.85	10,663.4	5,339.62	0.39	-0.08	0.040
50.00	-46.79	-1.71	0.00	-155.60	0.00	155.60	5,011.68	2,505.84	10,406.8	5,211.18	0.45	-0.09	0.039
53.65	-46.31	-1.71	0.00	-149.35	0.00	149.35	5,014.45	2,507.23	10,420.9	5,218.23	0.52	-0.09	0.038
55.00	-44.55	-1.70	0.00	-147.03	0.00	147.03	4,993.06	2,496.53	10,312.6	5,164.00	0.54	-0.10	0.037
60.00	-42.82	-1.69	0.00	-138.52	0.00	138.52	4,912.86	2,456.43	9,914.34	4,964.54	0.65	-0.11	0.037
65.00	-41.13	-1.68	0.00	-130.06	0.00	130.06	4,831.10	2,415.55	9,520.55	4,767.35	0.77	-0.12	0.036
70.00	-39.47	-1.66	0.00	-121.67	0.00	121.67	4,747.80	2,373.90	9,131.53	4,572.55	0.89	-0.12	0.035
75.00	-37.84	-1.64	0.00	-113.37	0.00	113.37	4,662.94	2,331.47	8,747.49	4,380.25	1.03	-0.13	0.034
80.00	-36.25	-1.62	0.00	-105.16	0.00	105.16	4,576.54	2,288.27	8,368.65	4,190.55	1.17	-0.14	0.033
85.00	-34.68	-1.60	0.00	-97.05	0.00	97.05	4,481.93	2,240.96	7,983.39	3,997.63	1.33	-0.15	0.032
90.00	-33.17	-1.57	0.00	-89.08	0.00	89.08	4,363.94	2,181.97	7,566.55	3,788.90	1.49	-0.16	0.031
94.97	-33.15	-1.57	0.00	-81.29	0.00	81.29	4,246.74	2,123.37	7,163.55	3,587.10	1.67	-0.17	0.030
95.00	-30.62	-1.51	0.00	-81.24	0.00	81.24	4,245.95	2,122.97	7,160.88	3,585.76	1.67	-0.17	0.030
100.00	-30.39	-1.51	0.00	-73.68	0.00	73.68	4,127.96	2,063.98	6,766.40	3,388.23	1.85	-0.18	0.029
100.47	-29.19	-1.48	0.00	-72.98	0.00	72.98	3,522.04	1,761.02	5,885.06	2,946.90	1.87	-0.18	0.033
105.00	-27.90	-1.45	0.00	-66.27	0.00	66.27	3,456.72	1,728.36	5,627.49	2,817.93	2.05	-0.19	0.032
110.00	-26.64	-1.41	0.00	-59.04	0.00	59.04	3,383.20	1,691.60	5,347.58	2,677.76	2.25	-0.20	0.030
115.00	-25.41	-1.37	0.00	-51.98	0.00	51.98	3,306.70	1,653.35	5,070.04	2,538.79	2.46	-0.21	0.028
120.00	-24.21	-1.33	0.00	-45.11	0.00	45.11	3,205.56	1,602.78	4,763.17	2,385.12	2.68	-0.22	0.026
125.00	-23.04	-1.29	0.00	-38.45	0.00	38.45	3,104.43	1,552.22	4,465.87	2,236.25	2.91	-0.22	0.025
130.00	-20.74	-1.20	0.00	-32.00	0.00	32.00	3,003.30	1,501.65	4,178.15	2,092.18	3.15	-0.23	0.022
134.00	-17.91	-1.07	0.00	-27.22	0.00	27.22	2,922.39	1,461.20	3,954.87	1,980.38	3.35	-0.24	0.020
135.00	-16.85	-1.03	0.00	-26.14	0.00	26.14	2,902.16	1,451.08	3,900.01	1,952.91	3.40	-0.24	0.019
140.00	-15.81	-0.98	0.00	-21.02	0.00	21.02	2,801.03	1,400.52	3,631.46	1,818.43	3.65	-0.25	0.017
145.00	-15.08	-0.94	0.00	-16.14	0.00	16.14	2,699.90	1,349.95	3,372.48	1,688.75	3.91	-0.25	0.015
148.62	-14.87	-0.93	0.00	-12.74	0.00	12.74	2,626.75	1,313.37	3,191.12	1,597.93	4.11	-0.25	0.014
148.62	-14.87	-0.93	0.00	-12.74	0.00	12.74	1,691.62	845.81	2,107.19	1,055.16	4.11	-0.25	0.021
150.00	-14.42	-0.90	0.00	-11.45	0.00	11.45	1,679.60	839.80	2,070.22	1,036.65	4.18	-0.26	0.020
153.00	-9.57	-0.63	0.00	-8.74	0.00	8.74	1,653.13	826.56	1,990.64	996.80	4.34	-0.26	0.015
155.00	-8.98	-0.60	0.00	-7.48	0.00	7.48	1,635.17	817.59	1,938.06	970.47	4.45	-0.26	0.013
160.00	-4.13	-0.30	0.00	-4.49	0.00	4.49	1,589.20	794.60	1,808.34	905.51	4.73	-0.26	0.008
165.00	-3.65	-0.27	0.00	-2.99	0.00	2.99	1,541.67	770.84	1,681.28	841.89	5.00	-0.27	0.006
170.00	-2.37	-0.18	0.00	-1.65	0.00	1.65	1,492.60	746.30	1,557.11	779.71	5.29	-0.27	0.004
175.00	-1.96	-0.15	0.00	-0.75	0.00	0.75	1,432.22	716.11	1,426.33	714.22	5.57	-0.27	0.002
180.00	0.00	-0.14	0.00	0.00	0.00	0.00	1,364.83	682.41	1,294.61	648.27	5.85	-0.27	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	-47.40	-1.70	0.00	-238.20	0.00	238.20	5,724.86	2,862.43	14,599.1	7,310.45	0.00	0.00	0.041
5.00	-45.95	-1.70	0.00	-229.72	0.00	229.72	5,660.51	2,830.26	14,167.0	7,094.04	0.00	-0.01	0.040
10.00	-44.52	-1.71	0.00	-221.20	0.00	221.20	5,594.62	2,797.31	13,737.1	6,878.77	0.02	-0.02	0.040
15.00	-43.12	-1.71	0.00	-212.67	0.00	212.67	5,527.18	2,763.59	13,309.7	6,664.77	0.04	-0.02	0.040
20.00	-41.73	-1.72	0.00	-204.11	0.00	204.11	5,458.18	2,729.09	12,885.1	6,452.13	0.07	-0.03	0.039
25.00	-40.38	-1.72	0.00	-195.53	0.00	195.53	5,387.64	2,693.82	12,463.4	6,240.97	0.11	-0.04	0.039
30.00	-39.04	-1.72	0.00	-186.94	0.00	186.94	5,315.55	2,657.77	12,044.8	6,031.39	0.15	-0.05	0.038
35.00	-37.73	-1.72	0.00	-178.35	0.00	178.35	5,241.91	2,620.95	11,629.7	5,823.52	0.21	-0.06	0.038
40.00	-36.44	-1.71	0.00	-169.77	0.00	169.77	5,166.71	2,583.36	11,218.2	5,617.45	0.28	-0.07	0.037
45.00	-35.98	-1.71	0.00	-161.20	0.00	161.20	5,089.97	2,544.99	10,810.5	5,413.30	0.35	-0.08	0.037
46.82	-34.50	-1.70	0.00	-158.09	0.00	158.09	5,061.71	2,530.85	10,663.4	5,339.62	0.38	-0.08	0.036
50.00	-32.83	-1.69	0.00	-152.67	0.00	152.67	5,011.68	2,505.84	10,406.8	5,211.18	0.44	-0.09	0.036
53.65	-32.49	-1.69	0.00	-146.49	0.00	146.49	5,014.45	2,507.23	10,420.9	5,218.23	0.51	-0.09	0.035
55.00	-31.26	-1.68	0.00	-144.21	0.00	144.21	4,993.06	2,496.53	10,312.6	5,164.00	0.54	-0.10	0.034
60.00	-30.04	-1.67	0.00	-135.82	0.00	135.82	4,912.86	2,456.43	9,914.34	4,964.54	0.64	-0.10	0.033
65.00	-28.86	-1.65	0.00	-127.49	0.00	127.49	4,831.10	2,415.55	9,520.55	4,767.35	0.75	-0.11	0.033
70.00	-27.69	-1.63	0.00	-119.24	0.00	119.24	4,747.80	2,373.90	9,131.53	4,572.55	0.88	-0.12	0.032
75.00	-26.55	-1.61	0.00	-111.07	0.00	111.07	4,662.94	2,331.47	8,747.49	4,380.25	1.01	-0.13	0.031
80.00	-25.43	-1.59	0.00	-103.00	0.00	103.00	4,576.54	2,288.27	8,368.65	4,190.55	1.15	-0.14	0.030
85.00	-24.33	-1.57	0.00	-95.05	0.00	95.05	4,481.93	2,240.96	7,983.39	3,997.63	1.31	-0.15	0.029
90.00	-23.27	-1.54	0.00	-87.22	0.00	87.22	4,363.94	2,181.97	7,566.55	3,788.90	1.47	-0.16	0.028
94.97	-23.26	-1.54	0.00	-79.58	0.00	79.58	4,246.74	2,123.37	7,163.55	3,587.10	1.64	-0.17	0.028
95.00	-21.48	-1.48	0.00	-79.53	0.00	79.53	4,245.95	2,122.97	7,160.88	3,585.76	1.64	-0.17	0.027
100.00	-21.32	-1.48	0.00	-72.11	0.00	72.11	4,127.96	2,063.98	6,766.40	3,388.23	1.82	-0.18	0.026
100.47	-20.48	-1.45	0.00	-71.42	0.00	71.42	3,522.04	1,761.02	5,885.06	2,946.90	1.84	-0.18	0.030
105.00	-19.58	-1.42	0.00	-64.85	0.00	64.85	3,456.72	1,728.36	5,627.49	2,817.93	2.01	-0.19	0.029
110.00	-18.69	-1.38	0.00	-57.76	0.00	57.76	3,383.20	1,691.60	5,347.58	2,677.76	2.21	-0.19	0.027
115.00	-17.83	-1.34	0.00	-50.85	0.00	50.85	3,306.70	1,653.35	5,070.04	2,538.79	2.42	-0.20	0.025
120.00	-16.98	-1.30	0.00	-44.13	0.00	44.13	3,205.56	1,602.78	4,763.17	2,385.12	2.63	-0.21	0.024
125.00	-16.16	-1.26	0.00	-37.61	0.00	37.61	3,104.43	1,552.22	4,465.87	2,236.25	2.86	-0.22	0.022
130.00	-14.55	-1.17	0.00	-31.31	0.00	31.31	3,003.30	1,501.65	4,178.15	2,092.18	3.10	-0.23	0.020
134.00	-12.56	-1.05	0.00	-26.63	0.00	26.63	2,922.39	1,461.20	3,954.87	1,980.38	3.29	-0.23	0.018
135.00	-11.82	-1.00	0.00	-25.58	0.00	25.58	2,902.16	1,451.08	3,900.01	1,952.91	3.34	-0.23	0.017
140.00	-11.09	-0.95	0.00	-20.57	0.00	20.57	2,801.03	1,400.52	3,631.46	1,818.43	3.59	-0.24	0.015
145.00	-10.58	-0.92	0.00	-15.79	0.00	15.79	2,699.90	1,349.95	3,372.48	1,688.75	3.84	-0.25	0.013
148.62	-10.43	-0.91	0.00	-12.47	0.00	12.47	2,626.75	1,313.37	3,191.12	1,597.93	4.03	-0.25	0.012
148.62	-10.43	-0.91	0.00	-12.47	0.00	12.47	1,691.62	845.81	2,107.19	1,055.16	4.03	-0.25	0.018
150.00	-10.11	-0.88	0.00	-11.21	0.00	11.21	1,679.60	839.80	2,070.22	1,036.65	4.10	-0.25	0.017
153.00	-6.72	-0.62	0.00	-8.56	0.00	8.56	1,653.13	826.56	1,990.64	996.80	4.26	-0.25	0.013
155.00	-6.30	-0.58	0.00	-7.32	0.00	7.32	1,635.17	817.59	1,938.06	970.47	4.37	-0.26	0.011
160.00	-2.89	-0.29	0.00	-4.40	0.00	4.40	1,589.20	794.60	1,808.34	905.51	4.64	-0.26	0.007
165.00	-2.56	-0.26	0.00	-2.93	0.00	2.93	1,541.67	770.84	1,681.28	841.89	4.91	-0.26	0.005
170.00	-1.66	-0.18	0.00	-1.62	0.00	1.62	1,492.60	746.30	1,557.11	779.71	5.19	-0.26	0.003
175.00	-1.38	-0.15	0.00	-0.73	0.00	0.73	1,432.22	716.11	1,426.33	714.22	5.46	-0.26	0.002
180.00	0.00	-0.14	0.00	0.00	0.00	0.00	1,364.83	682.41	1,294.61	648.27	5.74	-0.26	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):	0.16
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}):	0.17
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.58
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)
43	177.50	328	1.838	1.716	1.044	0.295	65	405
42	172.50	344	1.736	1.263	0.871	0.240	55	424
41	167.50	384	1.637	0.896	0.721	0.190	49	474
40	162.50	399	1.540	0.605	0.592	0.145	39	493
39	157.50	480	1.447	0.379	0.482	0.105	34	593
38	154.00	196	1.383	0.253	0.415	0.080	10	242
37	151.50	366	1.339	0.178	0.372	0.064	16	452
36	149.31	171	1.300	0.121	0.336	0.050	6	211
35	146.81	593	1.257	0.066	0.300	0.036	14	731
34	142.50	839	1.185	-0.009	0.243	0.015	8	1,036
33	137.50	862	1.103	-0.068	0.189	-0.006	-3	1,064
32	134.50	175	1.055	-0.092	0.161	-0.016	-2	216
31	132.00	710	1.016	-0.105	0.140	-0.023	-11	876
30	127.50	951	0.948	-0.119	0.107	-0.032	-20	1,174
29	122.50	975	0.875	-0.121	0.078	-0.038	-25	1,203
28	117.50	998	0.805	-0.113	0.055	-0.040	-26	1,231
27	112.50	1,021	0.738	-0.098	0.038	-0.037	-25	1,260
26	107.50	1,044	0.674	-0.079	0.025	-0.030	-21	1,289
25	102.73	967	0.616	-0.059	0.016	-0.020	-13	1,193
24	100.23	189	0.586	-0.048	0.013	-0.014	-2	233
23	97.50	2,049	0.555	-0.036	0.010	-0.007	-10	2,529
22	94.98	14	0.526	-0.026	0.008	-0.001	0	17
21	92.48	1,230	0.499	-0.016	0.007	0.006	5	1,518
20	87.50	1,265	0.447	0.003	0.006	0.018	15	1,561
19	82.50	1,292	0.397	0.019	0.007	0.028	24	1,594
18	77.50	1,319	0.350	0.033	0.009	0.036	31	1,628
17	72.50	1,346	0.307	0.044	0.012	0.041	37	1,661
16	67.50	1,373	0.266	0.052	0.015	0.044	40	1,695
15	62.50	1,400	0.228	0.059	0.020	0.046	43	1,728
14	57.50	1,427	0.193	0.064	0.024	0.046	44	1,761
13	54.33	390	0.172	0.066	0.027	0.046	12	481
12	51.83	1,929	0.157	0.067	0.029	0.046	59	2,381
11	48.41	1,706	0.137	0.069	0.032	0.046	52	2,106
10	45.91	534	0.123	0.070	0.034	0.045	16	659

9	42.50	1,487	0.105	0.071	0.036	0.045	44	1,836
8	37.50	1,514	0.082	0.072	0.039	0.044	44	1,869
7	32.50	1,542	0.062	0.072	0.041	0.043	44	1,902
6	27.50	1,569	0.044	0.071	0.042	0.042	43	1,936
5	22.50	1,596	0.030	0.068	0.040	0.040	42	1,969
4	17.50	1,623	0.018	0.063	0.037	0.037	40	2,002
3	12.50	1,650	0.009	0.054	0.031	0.033	36	2,036
2	7.50	1,677	0.003	0.039	0.022	0.025	28	2,069
1	2.50	1,704	0.000	0.015	0.008	0.011	13	2,103
Generic TTA	180.00	10	1.890	1.980	1.140	0.324	2	12
Generic 11' Omni	180.00	80	1.890	1.980	1.140	0.324	17	99
Round Low Profile Pl	180.00	1,500	1.890	1.980	1.140	0.324	324	1,851
KMW HB-X-WM-17-65-00	170.00	48	1.686	1.069	0.793	0.214	7	59
KMW HB-X-WM-17-65-00	170.00	90	1.686	1.069	0.793	0.214	13	111
Side Arms	170.00	560	1.686	1.069	0.793	0.214	80	691
Alcatel-Lucent RRH 2	160.00	119	1.493	0.485	0.535	0.124	10	147
Alcatel-Lucent RRH2x	160.00	170	1.493	0.485	0.535	0.124	14	210
Alcatel-Lucent B66a	160.00	201	1.493	0.485	0.535	0.124	17	248
RFS DB-T1-6Z-8AB-0Z	160.00	88	1.493	0.485	0.535	0.124	7	109
Antel BXA-70063/6CF_	160.00	51	1.493	0.485	0.535	0.124	4	63
Commscope HBXX-	160.00	245	1.493	0.485	0.535	0.124	20	302
Amphenol Antel QUAD6	160.00	162	1.493	0.485	0.535	0.124	13	200
Generic Round Platfo	160.00	2,500	1.493	0.485	0.535	0.124	207	3,085
Powerwave Allgon 702	153.00	13	1.366	0.222	0.397	0.073	1	16
CCI TPX-070821	153.00	45	1.366	0.222	0.397	0.073	2	56
Raycap DC6-48-60-18-	153.00	20	1.366	0.222	0.397	0.073	1	25
Raycap DC6-48-60-18-	153.00	32	1.366	0.222	0.397	0.073	2	39
Ericsson RRUS 4478 B	153.00	178	1.366	0.222	0.397	0.073	9	220
Powerwave Allgon LGP	153.00	186	1.366	0.222	0.397	0.073	9	230
Raycap DC6-48-60-18-	153.00	16	1.366	0.222	0.397	0.073	1	20
Ericsson RRUS 11 (Ba	153.00	150	1.366	0.222	0.397	0.073	7	185
Ericsson RRUS 32 B30	153.00	180	1.366	0.222	0.397	0.073	9	222
Ericsson RRUS 32 B66	153.00	152	1.366	0.222	0.397	0.073	7	188
Ericsson RRUS 32 B2	153.00	159	1.366	0.222	0.397	0.073	8	196
Powerwave Allgon 777	153.00	105	1.366	0.222	0.397	0.073	5	130
Commscope SBNHH-	153.00	201	1.366	0.222	0.397	0.073	10	248
Kathrein Scala 80010	153.00	293	1.366	0.222	0.397	0.073	14	361
Flat Platform w/ Han	153.00	2,000	1.366	0.222	0.397	0.073	98	2,468
Perfect Vision PV-LP	134.00	2,117	1.047	-0.095	0.156	-0.017	-24	2,613
Ericsson Radio 4449	130.00	222	0.986	-0.113	0.124	-0.027	-4	274
Ericsson AIR 21	130.00	546	0.986	-0.113	0.124	-0.027	-10	674
RFS APXVAARR24_43-U-	130.00	384	0.986	-0.113	0.124	-0.027	-7	474
		56,448	74.950	21.475	23.298	5.334	1,725	69,665

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)
43	177.50	328	1.838	1.716	1.044	0.295	65	284
42	172.50	344	1.736	1.263	0.871	0.240	55	298
41	167.50	384	1.637	0.896	0.721	0.190	49	332
40	162.50	399	1.540	0.605	0.592	0.145	39	346
39	157.50	480	1.447	0.379	0.482	0.105	34	416
38	154.00	196	1.383	0.253	0.415	0.080	10	170
37	151.50	366	1.339	0.178	0.372	0.064	16	317
36	149.31	171	1.300	0.121	0.336	0.050	6	148
35	146.81	593	1.257	0.066	0.300	0.036	14	513
34	142.50	839	1.185	-0.009	0.243	0.015	8	727
33	137.50	862	1.103	-0.068	0.189	-0.006	-3	747

32	134.50	175	1.055	-0.092	0.161	-0.016	-2	152
31	132.00	710	1.016	-0.105	0.140	-0.023	-11	615
30	127.50	951	0.948	-0.119	0.107	-0.032	-20	824
29	122.50	975	0.875	-0.121	0.078	-0.038	-25	844
28	117.50	998	0.805	-0.113	0.055	-0.040	-26	864
27	112.50	1,021	0.738	-0.098	0.038	-0.037	-25	884
26	107.50	1,044	0.674	-0.079	0.025	-0.030	-21	904
25	102.73	967	0.616	-0.059	0.016	-0.020	-13	837
24	100.23	189	0.586	-0.048	0.013	-0.014	-2	163
23	97.50	2,049	0.555	-0.036	0.010	-0.007	-10	1,774
22	94.98	14	0.526	-0.026	0.008	-0.001	0	12
21	92.48	1,230	0.499	-0.016	0.007	0.006	5	1,065
20	87.50	1,265	0.447	0.003	0.006	0.018	15	1,095
19	82.50	1,292	0.397	0.019	0.007	0.028	24	1,119
18	77.50	1,319	0.350	0.033	0.009	0.036	31	1,142
17	72.50	1,346	0.307	0.044	0.012	0.041	37	1,165
16	67.50	1,373	0.266	0.052	0.015	0.044	40	1,189
15	62.50	1,400	0.228	0.059	0.020	0.046	43	1,212
14	57.50	1,427	0.193	0.064	0.024	0.046	44	1,236
13	54.33	390	0.172	0.066	0.027	0.046	12	338
12	51.83	1,929	0.157	0.067	0.029	0.046	59	1,670
11	48.41	1,706	0.137	0.069	0.032	0.046	52	1,477
10	45.91	534	0.123	0.070	0.034	0.045	16	462
9	42.50	1,487	0.105	0.071	0.036	0.045	44	1,288
8	37.50	1,514	0.082	0.072	0.039	0.044	44	1,311
7	32.50	1,542	0.062	0.072	0.041	0.043	44	1,335
6	27.50	1,569	0.044	0.071	0.042	0.042	43	1,358
5	22.50	1,596	0.030	0.068	0.040	0.040	42	1,382
4	17.50	1,623	0.018	0.063	0.037	0.037	40	1,405
3	12.50	1,650	0.009	0.054	0.031	0.033	36	1,428
2	7.50	1,677	0.003	0.039	0.022	0.025	28	1,452
1	2.50	1,704	0.000	0.015	0.008	0.011	13	1,475
Generic TTA	180.00	10	1.890	1.980	1.140	0.324	2	9
Generic 11' Omni	180.00	80	1.890	1.980	1.140	0.324	17	69
Round Low Profile Pl	180.00	1,500	1.890	1.980	1.140	0.324	324	1,299
KMW HB-X-WM-17-65-00	170.00	48	1.686	1.069	0.793	0.214	7	41
KMW HB-X-WM-17-65-00	170.00	90	1.686	1.069	0.793	0.214	13	78
Side Arms	170.00	560	1.686	1.069	0.793	0.214	80	485
Alcatel-Lucent RRH 2	160.00	119	1.493	0.485	0.535	0.124	10	103
Alcatel-Lucent RRH2x	160.00	170	1.493	0.485	0.535	0.124	14	147
Alcatel-Lucent B66a	160.00	201	1.493	0.485	0.535	0.124	17	174
RFS DB-T1-6Z-8AB-0Z	160.00	88	1.493	0.485	0.535	0.124	7	76
Antel BXA-70063/6CF_	160.00	51	1.493	0.485	0.535	0.124	4	44
Commscope HBXX-	160.00	245	1.493	0.485	0.535	0.124	20	212
Amphenol Antel QUAD6	160.00	162	1.493	0.485	0.535	0.124	13	140
Generic Round Platfo	160.00	2,500	1.493	0.485	0.535	0.124	207	2,165
Powerwave Allgon 702	153.00	13	1.366	0.222	0.397	0.073	1	11
CCI TPX-070821	153.00	45	1.366	0.222	0.397	0.073	2	39
Raycap DC6-48-60-18-	153.00	20	1.366	0.222	0.397	0.073	1	17
Raycap DC6-48-60-18-	153.00	32	1.366	0.222	0.397	0.073	2	28
Ericsson RRUS 4478 B	153.00	178	1.366	0.222	0.397	0.073	9	154
Powerwave Allgon LGP	153.00	186	1.366	0.222	0.397	0.073	9	161
Raycap DC6-48-60-18-	153.00	16	1.366	0.222	0.397	0.073	1	14
Ericsson RRUS 11 (Ba	153.00	150	1.366	0.222	0.397	0.073	7	130
Ericsson RRUS 32 B30	153.00	180	1.366	0.222	0.397	0.073	9	156
Ericsson RRUS 32 B66	153.00	152	1.366	0.222	0.397	0.073	7	132
Ericsson RRUS 32 B2	153.00	159	1.366	0.222	0.397	0.073	8	138
Powerwave Allgon 777	153.00	105	1.366	0.222	0.397	0.073	5	91
Commscope SBNHH-	153.00	201	1.366	0.222	0.397	0.073	10	174
Kathrein Scala 80010	153.00	293	1.366	0.222	0.397	0.073	14	254
Flat Platform w/ Han	153.00	2,000	1.366	0.222	0.397	0.073	98	1,732
Perfect Vision PV-LP	134.00	2,117	1.047	-0.095	0.156	-0.017	-24	1,833
Ericsson Radio 4449	130.00	222	0.986	-0.113	0.124	-0.027	-4	192
Ericsson AIR 21	130.00	546	0.986	-0.113	0.124	-0.027	-10	473

RFS APXVAARR24_43-U-	130.00	384	0.986	-0.113	0.124	-0.027	-7	332
		56,448	74.950	21.475	23.298	5.334	1,725	48,877

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	-67.56	-1.72	0.00	-219.19	0.00	219.19	5,724.86	2,862.43	14,599.19	7,310.45	0.00	0.00	0.042
5.00	-65.49	-1.70	0.00	-210.61	0.00	210.61	5,660.51	2,830.26	14,167.02	7,094.04	0.00	-0.01	0.041
10.00	-63.46	-1.67	0.00	-202.13	0.00	202.13	5,594.62	2,797.31	13,737.13	6,878.77	0.02	-0.01	0.041
15.00	-61.45	-1.64	0.00	-193.79	0.00	193.79	5,527.18	2,763.59	13,309.75	6,664.77	0.04	-0.02	0.040
20.00	-59.48	-1.60	0.00	-185.61	0.00	185.61	5,458.18	2,729.09	12,885.11	6,452.13	0.06	-0.03	0.040
25.00	-57.55	-1.56	0.00	-177.61	0.00	177.61	5,387.64	2,693.82	12,463.41	6,240.97	0.10	-0.04	0.039
30.00	-55.65	-1.53	0.00	-169.80	0.00	169.80	5,315.55	2,657.77	12,044.88	6,031.39	0.14	-0.05	0.039
35.00	-53.78	-1.49	0.00	-162.17	0.00	162.17	5,241.91	2,620.95	11,629.75	5,823.52	0.19	-0.05	0.038
40.00	-51.94	-1.45	0.00	-154.74	0.00	154.74	5,166.71	2,583.36	11,218.22	5,617.45	0.25	-0.06	0.038
45.00	-51.28	-1.44	0.00	-147.49	0.00	147.49	5,089.97	2,544.99	10,810.53	5,413.30	0.32	-0.07	0.037
46.82	-49.18	-1.39	0.00	-144.88	0.00	144.88	5,061.71	2,530.85	10,663.40	5,339.62	0.35	-0.07	0.037
50.00	-46.80	-1.33	0.00	-140.47	0.00	140.47	5,011.68	2,505.84	10,406.89	5,211.18	0.40	-0.08	0.036
53.65	-46.31	-1.32	0.00	-135.62	0.00	135.62	5,014.45	2,507.23	10,420.97	5,218.23	0.46	-0.08	0.035
55.00	-44.55	-1.28	0.00	-133.84	0.00	133.84	4,993.06	2,496.53	10,312.67	5,164.00	0.49	-0.09	0.035
60.00	-42.83	-1.24	0.00	-127.46	0.00	127.46	4,912.86	2,456.43	9,914.34	4,964.54	0.58	-0.10	0.034
65.00	-41.13	-1.20	0.00	-121.27	0.00	121.27	4,831.10	2,415.55	9,520.55	4,767.35	0.69	-0.10	0.034
70.00	-39.47	-1.17	0.00	-115.27	0.00	115.27	4,747.80	2,373.90	9,131.53	4,572.55	0.80	-0.11	0.034
75.00	-37.84	-1.14	0.00	-109.44	0.00	109.44	4,662.94	2,331.47	8,747.49	4,380.25	0.93	-0.12	0.033
80.00	-36.25	-1.12	0.00	-103.75	0.00	103.75	4,576.54	2,288.27	8,368.65	4,190.55	1.06	-0.13	0.033
85.00	-34.69	-1.10	0.00	-98.17	0.00	98.17	4,481.93	2,240.96	7,983.39	3,997.63	1.20	-0.14	0.032
90.00	-33.17	-1.10	0.00	-92.66	0.00	92.66	4,363.94	2,181.97	7,566.55	3,788.90	1.35	-0.15	0.032
94.97	-33.15	-1.10	0.00	-87.20	0.00	87.20	4,246.74	2,123.37	7,163.55	3,587.10	1.51	-0.16	0.032
95.00	-30.62	-1.11	0.00	-87.16	0.00	87.16	4,245.95	2,122.97	7,160.88	3,585.76	1.51	-0.16	0.032
100.00	-30.39	-1.11	0.00	-81.62	0.00	81.62	4,127.96	2,063.98	6,766.40	3,388.23	1.68	-0.17	0.031
100.47	-29.19	-1.12	0.00	-81.10	0.00	81.10	3,522.04	1,761.02	5,885.06	2,946.90	1.70	-0.17	0.036
105.00	-27.91	-1.15	0.00	-76.01	0.00	76.01	3,456.72	1,728.36	5,627.49	2,817.93	1.87	-0.18	0.035
110.00	-26.65	-1.17	0.00	-70.29	0.00	70.29	3,383.20	1,691.60	5,347.58	2,677.76	2.06	-0.19	0.034
115.00	-25.41	-1.20	0.00	-64.43	0.00	64.43	3,306.70	1,653.35	5,070.04	2,538.79	2.26	-0.20	0.033
120.00	-24.21	-1.22	0.00	-58.44	0.00	58.44	3,205.56	1,602.78	4,763.17	2,385.12	2.48	-0.21	0.032
125.00	-23.04	-1.24	0.00	-52.32	0.00	52.32	3,104.43	1,552.22	4,465.87	2,236.25	2.71	-0.22	0.031
130.00	-20.74	-1.27	0.00	-46.10	0.00	46.10	3,003.30	1,501.65	4,178.15	2,092.18	2.95	-0.23	0.029
134.00	-17.91	-1.29	0.00	-41.02	0.00	41.02	2,922.39	1,461.20	3,954.87	1,980.38	3.15	-0.24	0.027
135.00	-16.85	-1.29	0.00	-39.74	0.00	39.74	2,902.16	1,451.08	3,900.01	1,952.91	3.20	-0.24	0.026
140.00	-15.81	-1.28	0.00	-33.31	0.00	33.31	2,801.03	1,400.52	3,631.46	1,818.43	3.46	-0.25	0.024
145.00	-15.08	-1.26	0.00	-26.93	0.00	26.93	2,699.90	1,349.95	3,372.48	1,688.75	3.73	-0.26	0.022
148.62	-14.87	-1.25	0.00	-22.37	0.00	22.37	2,626.75	1,313.37	3,191.12	1,597.93	3.93	-0.27	0.020
148.62	-14.87	-1.25	0.00	-22.37	0.00	22.37	1,691.62	845.81	2,107.19	1,055.16	3.93	-0.27	0.030
150.00	-14.42	-1.24	0.00	-20.63	0.00	20.63	1,679.60	839.80	2,070.22	1,036.65	4.01	-0.27	0.028
153.00	-9.57	-1.02	0.00	-16.92	0.00	16.92	1,653.13	826.56	1,990.64	996.80	4.18	-0.28	0.023
155.00	-8.98	-0.99	0.00	-14.87	0.00	14.87	1,635.17	817.59	1,938.06	970.47	4.30	-0.28	0.021
160.00	-4.12	-0.63	0.00	-9.94	0.00	9.94	1,589.20	794.60	1,808.34	905.51	4.60	-0.29	0.014
165.00	-3.65	-0.58	0.00	-6.78	0.00	6.78	1,541.67	770.84	1,681.28	841.89	4.91	-0.29	0.010
170.00	-2.37	-0.42	0.00	-3.87	0.00	3.87	1,492.60	746.30	1,557.11	779.71	5.21	-0.30	0.007
175.00	-1.96	-0.35	0.00	-1.77	0.00	1.77	1,432.22	716.11	1,426.33	714.22	5.53	-0.30	0.004
180.00	0.00	-0.34	0.00	0.00	0.00	0.00	1,364.83	682.41	1,294.61	648.27	5.84	-0.30	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	-47.40	-1.71	0.00	-215.79	0.00	215.79	5,724.86	2,862.43	14,599.19	7,310.45	0.00	0.00	0.038
5.00	-45.95	-1.69	0.00	-207.22	0.00	207.22	5,660.51	2,830.26	14,167.02	7,094.04	0.00	-0.01	0.037
10.00	-44.52	-1.66	0.00	-198.75	0.00	198.75	5,594.62	2,797.31	13,737.13	6,878.77	0.02	-0.01	0.037
15.00	-43.12	-1.63	0.00	-190.45	0.00	190.45	5,527.18	2,763.59	13,309.75	6,664.77	0.03	-0.02	0.036
20.00	-41.73	-1.59	0.00	-182.31	0.00	182.31	5,458.18	2,729.09	12,885.11	6,452.13	0.06	-0.03	0.036
25.00	-40.38	-1.55	0.00	-174.37	0.00	174.37	5,387.64	2,693.82	12,463.41	6,240.97	0.10	-0.04	0.035
30.00	-39.04	-1.51	0.00	-166.62	0.00	166.62	5,315.55	2,657.77	12,044.88	6,031.39	0.14	-0.04	0.035
35.00	-37.73	-1.47	0.00	-159.07	0.00	159.07	5,241.91	2,620.95	11,629.75	5,823.52	0.19	-0.05	0.035
40.00	-36.44	-1.43	0.00	-151.72	0.00	151.72	5,166.71	2,583.36	11,218.22	5,617.45	0.25	-0.06	0.034
45.00	-35.98	-1.42	0.00	-144.56	0.00	144.56	5,089.97	2,544.99	10,810.53	5,413.30	0.32	-0.07	0.034
46.82	-34.50	-1.37	0.00	-141.99	0.00	141.99	5,061.71	2,530.85	10,663.40	5,339.62	0.34	-0.07	0.033
50.00	-32.83	-1.31	0.00	-137.64	0.00	137.64	5,011.68	2,505.84	10,406.89	5,211.18	0.39	-0.08	0.033
53.65	-32.49	-1.30	0.00	-132.87	0.00	132.87	5,014.45	2,507.23	10,420.97	5,218.23	0.46	-0.08	0.032
55.00	-31.26	-1.25	0.00	-131.12	0.00	131.12	4,993.06	2,496.53	10,312.67	5,164.00	0.48	-0.09	0.032
60.00	-30.05	-1.21	0.00	-124.85	0.00	124.85	4,912.86	2,456.43	9,914.34	4,964.54	0.57	-0.09	0.031
65.00	-28.86	-1.18	0.00	-118.78	0.00	118.78	4,831.10	2,415.55	9,520.55	4,767.35	0.68	-0.10	0.031
70.00	-27.69	-1.14	0.00	-112.90	0.00	112.90	4,747.80	2,373.90	9,131.53	4,572.55	0.79	-0.11	0.031
75.00	-26.55	-1.11	0.00	-107.19	0.00	107.19	4,662.94	2,331.47	8,747.49	4,380.25	0.91	-0.12	0.030
80.00	-25.43	-1.09	0.00	-101.63	0.00	101.63	4,576.54	2,288.27	8,368.65	4,190.55	1.04	-0.13	0.030
85.00	-24.33	-1.08	0.00	-96.19	0.00	96.19	4,481.93	2,240.96	7,983.39	3,997.63	1.18	-0.14	0.029
90.00	-23.27	-1.07	0.00	-90.81	0.00	90.81	4,363.94	2,181.97	7,566.55	3,788.90	1.33	-0.15	0.029
94.97	-23.26	-1.07	0.00	-85.49	0.00	85.49	4,246.74	2,123.37	7,163.55	3,587.10	1.48	-0.16	0.029
95.00	-21.48	-1.08	0.00	-85.45	0.00	85.45	4,245.95	2,122.97	7,160.88	3,585.76	1.48	-0.16	0.029
100.00	-21.32	-1.08	0.00	-80.05	0.00	80.05	4,127.96	2,063.98	6,766.40	3,388.23	1.65	-0.17	0.029
100.47	-20.48	-1.10	0.00	-79.54	0.00	79.54	3,522.04	1,761.02	5,885.06	2,946.90	1.67	-0.17	0.033
105.00	-19.58	-1.12	0.00	-74.58	0.00	74.58	3,456.72	1,728.36	5,627.49	2,817.93	1.83	-0.18	0.032
110.00	-18.69	-1.14	0.00	-68.99	0.00	68.99	3,383.20	1,691.60	5,347.58	2,677.76	2.02	-0.19	0.031
115.00	-17.83	-1.17	0.00	-63.28	0.00	63.28	3,306.70	1,653.35	5,070.04	2,538.79	2.22	-0.20	0.030
120.00	-16.99	-1.19	0.00	-57.43	0.00	57.43	3,205.56	1,602.78	4,763.17	2,385.12	2.43	-0.21	0.029
125.00	-16.16	-1.22	0.00	-51.45	0.00	51.45	3,104.43	1,552.22	4,465.87	2,236.25	2.66	-0.22	0.028
130.00	-14.55	-1.24	0.00	-45.38	0.00	45.38	3,003.30	1,501.65	4,178.15	2,092.18	2.89	-0.23	0.027
134.00	-12.56	-1.26	0.00	-40.40	0.00	40.40	2,922.39	1,461.20	3,954.87	1,980.38	3.09	-0.24	0.025
135.00	-11.82	-1.26	0.00	-39.14	0.00	39.14	2,902.16	1,451.08	3,900.01	1,952.91	3.14	-0.24	0.024
140.00	-11.09	-1.25	0.00	-32.83	0.00	32.83	2,801.03	1,400.52	3,631.46	1,818.43	3.40	-0.25	0.022
145.00	-10.58	-1.24	0.00	-26.56	0.00	26.56	2,699.90	1,349.95	3,372.48	1,688.75	3.66	-0.26	0.020
148.62	-10.43	-1.23	0.00	-22.08	0.00	22.08	2,626.75	1,313.37	3,191.12	1,597.93	3.86	-0.26	0.018
148.62	-10.43	-1.23	0.00	-22.08	0.00	22.08	1,691.62	845.81	2,107.19	1,055.16	3.86	-0.26	0.027
150.00	-10.11	-1.22	0.00	-20.37	0.00	20.37	1,679.60	839.80	2,070.22	1,036.65	3.94	-0.27	0.026
153.00	-6.71	-1.01	0.00	-16.72	0.00	16.72	1,653.13	826.56	1,990.64	996.80	4.11	-0.27	0.021
155.00	-6.30	-0.97	0.00	-14.71	0.00	14.71	1,635.17	817.59	1,938.06	970.47	4.22	-0.28	0.019
160.00	-2.89	-0.63	0.00	-9.84	0.00	9.84	1,589.20	794.60	1,808.34	905.51	4.51	-0.28	0.013
165.00	-2.56	-0.58	0.00	-6.71	0.00	6.71	1,541.67	770.84	1,681.28	841.89	4.81	-0.29	0.010
170.00	-1.66	-0.42	0.00	-3.84	0.00	3.84	1,492.60	746.30	1,557.11	779.71	5.12	-0.29	0.006
175.00	-1.37	-0.35	0.00	-1.75	0.00	1.75	1,432.22	716.11	1,426.33	714.22	5.43	-0.29	0.003
180.00	0.00	-0.34	0.00	0.00	0.00	0.00	1,364.83	682.41	1,294.61	648.27	5.74	-0.30	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	35.62	0.00	67.69	0.00	0.00	4483.56	0.00	0.63
0.9D + 1.6W	35.59	0.00	50.76	0.00	0.00	4428.32	0.00	0.61
1.2D + 1.0Di + 1.0Wi	8.87	0.00	94.18	0.00	0.00	1113.69	0.00	0.17
(1.2 + 0.2Sds) * DL + E ELFM	1.70	0.00	67.56	0.00	0.00	241.77	0.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	1.72	0.00	67.56	0.00	0.00	219.19	0.00	0.04
(0.9 - 0.2Sds) * DL + E ELFM	1.70	0.00	47.40	0.00	0.00	238.20	0.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.71	0.00	47.40	0.00	0.00	215.79	0.00	0.04
1.0D + 1.0W	6.50	0.00	56.45	0.00	0.00	812.73	0.00	0.12

Base Plate & Anchor Rod Analysis

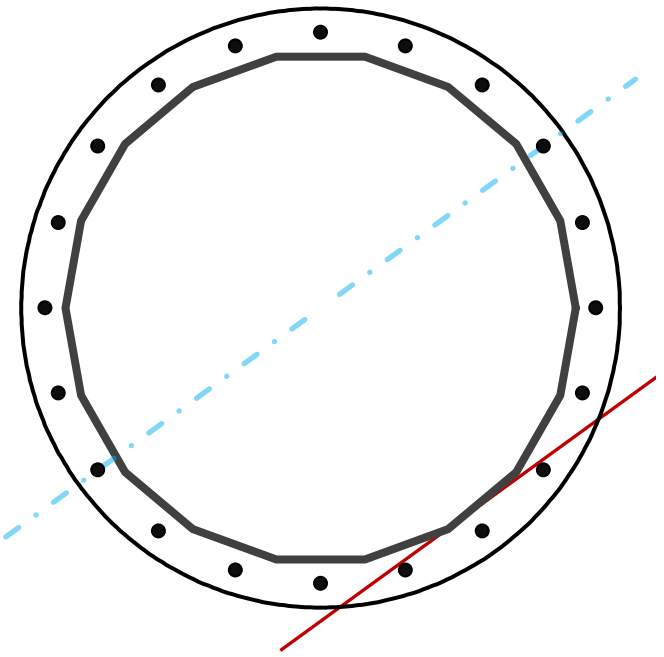
Pole Dimensions		
Number of Sides	18	-
Diameter	62.45	in
Thickness	0.4375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	4483.6	k-ft
Axial, Pu	67.7	k
Shear, Vu	35.6	k
Neutral Axis	216	°

Report Capacities		
Component	Capacity	Result
Base Plate	23%	Pass
Anchor Rods	62%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	75	in
Thickness	2 3/4	in
Grade	Other	-
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	887.1	k
Bending Stress, ϕMn	3869.0	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	20	-
Diameter, ø	2 1/4	in
Bolt Circle	69	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	10.8	in
Orientation Offset	0	°
Applied Force, Pu	159.3	k
Anchor Rods, ϕPn	259.8	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	35.6	4483.6	1.00
Anchor Rod Forces	35.6	4483.6	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	84.8008	4.7112	0.3016		40768.65
Bolt	3.9761	3.2477	0.8393	4.5	38672.41
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Round	-
Diameter, D	75	in
Thickness, t	2.75	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	80	ksi
Base Plate Chord	41.533	in
Detail Type	c	-
Detail Factor	0.55	-
Clear Distance	N/A	-

Anchor Rods		
Anchor Rod Quantity, N	20	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	69	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	159.3	k
Applied Shear, Vu	0.9	k
Compressive Capacity, ϕPn	259.8	k
Tensile Capacity, ϕRnt	0.613	OK
Interaction Capacity	0.619	OK

External Base Plate		
Chord Length AA	33.905	in
Additional AA	5.500	in
Section Modulus, Z	74.500	in^3
Applied Moment, Mu	887.1	k-ft
Bending Capacity, ϕMn	4023.0	k-ft
Capacity, Mu/ϕMn	0.221	OK
Chord Length AB	32.037	in
Additional AB	5.500	in
Section Modulus, Z	70.968	in^3
Applied Moment, Mu	662.5	k-ft
Bending Capacity, ϕMn	3832.2	k-ft
Capacity, Mu/ϕMn	0.173	OK
Bend Line Length	37.897	in
Additional Bend Line	0.000	in
Section Modulus, Z	71.648	in^3
Applied Moment, Mu	887.1	k-ft
Bending Capacity, ϕMn	3869.0	k-ft
Capacity, Mu/ϕMn	0.229	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		

Flange Plate Analysis

Flange Plate

Plate Type	***Flange***	***@ 149 ft***
Pole Diameter	30.08043	in
Pole Thickness	0.375	in
Plate Diameter	37.5	in
Plate Thickness	2	in
Plate Fy	50	ksi
Weld Length	0.3125	in
f_s Resistance	177.19	k-in
Applied	16.24	k-in

Code Rev.	***G***
Moment	219.6 k-ft
Axial	13.3 k

Required Flange Thickness:
0.61 in OK

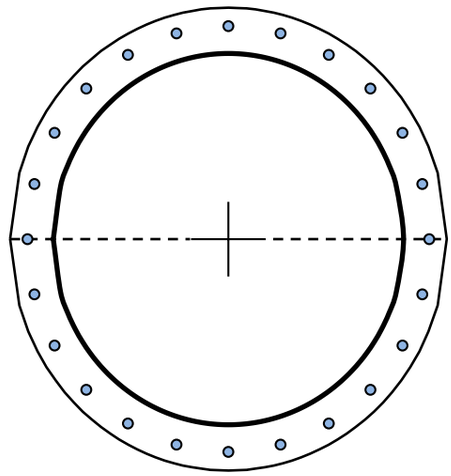
Date	7/25/2019
Engineer	Hussam Al Tahan
Site #	310972
Carrier	T-Mobile

Stiffeners

#	

Bolts

#	***24***	
Bolt Circle	34.5	in
(R)adial / (S)quare	R	
Bolt Gap	6	in
Diameter	1	in
Hole Diameter	1.125	in
Type	A325	
Fy	92	ksi
Fu	120	ksi
f_s Resistance	54.52	k
Applied	12.17	k



Reinforcement

#	

Plate Stress Ratio:
9% Pass

Bolt Stress Ratio:
22% Pass

Extra Bolts O

#	

Mount Analysis of Proposed Perfect Vision PV-LPP12M-HR-12-96 Platform with PV-PKBK-M Kicker Kit for American Tower on behalf of T-Mobile
310972 - Waterford Rebuild CT
Project #: 12927128
T-Mobile Site ID: CT11641A
Program: L600

CLS Engineering PLLC Project #41124-12927128-01-MR-R1
July 3, 2019

MOUNT DESCRIPTION	Proposed Perfect Vision PV-LPP12M-HR-12-96 Platform with PV-PKBK-M Kicker Kit at 130
ANTENNA ELEVATION	Nominal Rad. Elevation of 130 ft AGL
SITE DESCRIPTION	180 ft Monopole
SITE ADDRESS	15 Miner Lane, Waterford, CT 06385, New London County
GPS COORDINATES	41.32906944, -72.12459167
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	135 mph, V_{ult} / 104.6 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75"

■ **ANALYSIS RESULT:** **Pass (Replacement)**

MEMBER USAGE	**79%**	**Pass**

Existing mounts to be replaced; see conclusion for details.

Prepared by:
Jennifer Soza

Reviewed and Approved by:
Tyler M. Barker, P.E.

STATE OF CONNECTICUT
TYLER M BARKER
No. 32402
LICENSED
PROFESSIONAL ENGINEER

Tyler M. Barker
CLS Engineering, PLLC
Director of Engineering
PE # 32402 Exp. 1/31/2020
COA # PEC.001833 Exp. 8/14/2019

IdenTrust part of HID Global

Digitally signed by Tyler Barker
DN: c=US, o=Telamon Corporation, ou=A01427E00000 16A4525ADF80000 1D17, cn=Tyler Barker
Date: 2019.07.03 22:00:34 -04'00'

■ INTRODUCTION

The proposed equipment is to be mounted to the proposed Perfect Vision PV-LPP12M-HR-12-96 Platform with PV-PKBK-M Kicker Kit. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

■ STRUCTURAL DOCUMENTS PROVIDED

STRUCTURAL DATA	Site Photos, dated December 13, 2018 Perfect Vision Drawing #LLP-ENG-01-R7 Rev. 7, dated March 13, 2018
PREVIOUS ANALYSES	Tower SA by ATC, Engineering #12927128_C3_01, dated March 19, 2019
LOADING DATA	ATC Application, Project #12927128, dated March 11, 2019

■ ANALYSIS CRITERIA

STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
BASIC WIND SPEED	135 mph, V_{ult} / 104.6 mph, V_{asd} (3-Second Gust)
BASIC WIND SPEED W/ ICE	50 mph (3-Second Gust) w/ 0.75" Radial Ice (Escalating)
EXPOSURE CATEGORY	B
MAX. TOPOGRAPHIC FACTOR, K_{zt}	1.00
RISK CATEGORY	II
MAINTENANCE LIVE LOAD	L_M: 500 lb

■ FINAL EQUIPMENT

ELEVATION (ft)		ANTENNAS	
MOUNT	**RAD.**	**#**	**NAME**
130.0	130.0	3	RFS Celwave APXVAARR24_43-U-NA20
		6	Ericsson AIR 21
		3	Ericsson RADIO 4449 B12/B71

■ RESULTS SUMMARY

Existing Mount Usages:

COMPONENT	PEAK USAGE	RESULT
Mount Pipes	**139%**	**Fail**
Collar	**132%**	**Fail**
Stand-Off Horizontals	**109%**	**Fail**
Face Horizontals	77%	Pass
Angle Stiff Arm	72%	Pass

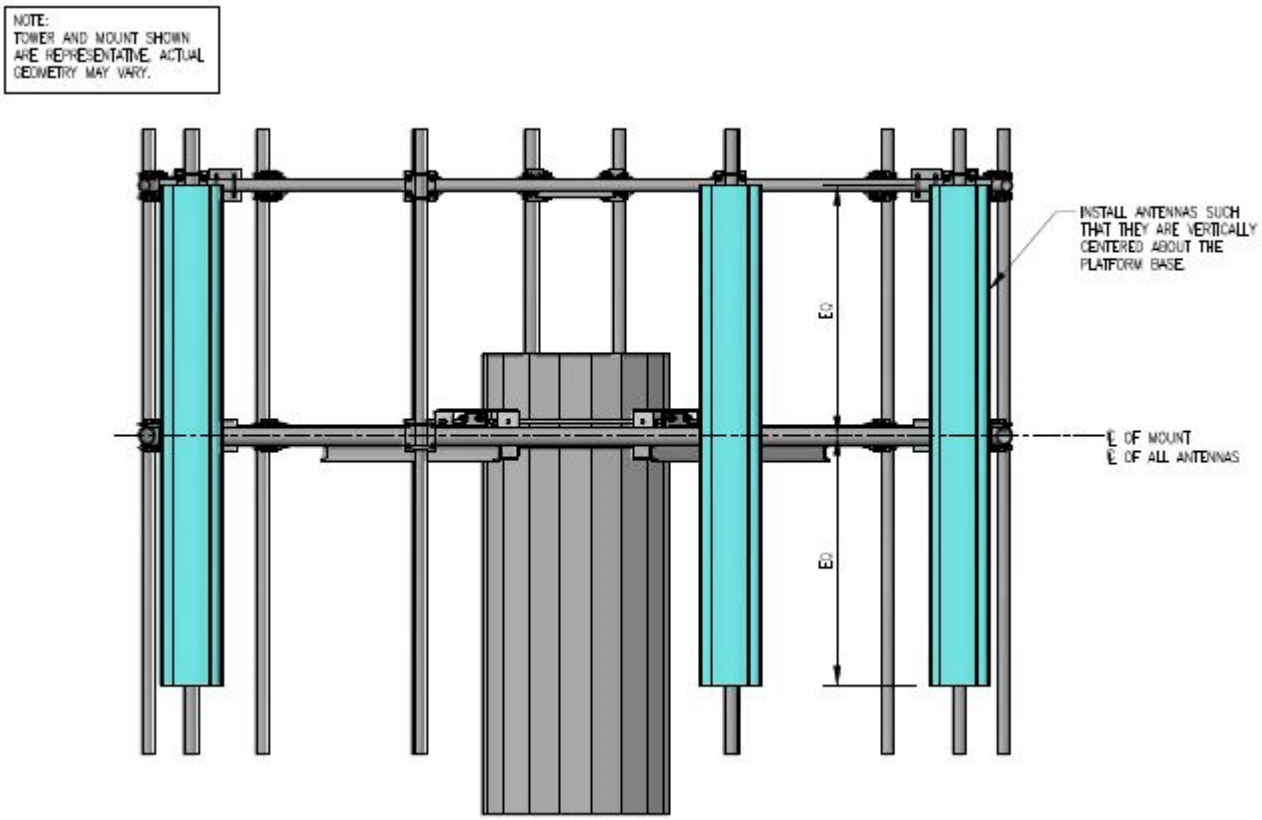
Proposed Mount Usages:

COMPONENT	PEAK USAGE	RESULT
Grating Angle	79%	Pass
Support Rail	64%	Pass
Mount Pipes	62%	Pass
Platform Base	16%	Pass
Stand-Off Horizontals	14%	Pass

■ CONCLUSION AND RECOMMENDATIONS

According to our structural analysis, the mounts have been found to **PASS PENDING REPLACEMENT**. The mounting configuration considered in this analysis will be capable of supporting the referenced loading pursuant to referenced standards once the following scope is executed:

- **Replace existing T-Arm mount with (1) new Perfect Vison PV-LLP12M-HR-12-96 Platform Mount.**
- **Install (1) Perfect Vision PV-PKBK-M Monopole Platform Kicker Kit as shown. Field-cut proposed angles as required. Maintain minimum bolt edge distance.**
- **Install (4) 2 STD x 8'-0" long mount pipes, included in kit, per sector (12 total). All mount pipes to be install equidistant from each other as shown in the following sketches.**
- **Install support rails included in kit 3'-6" above the platform base. Connect to all mount pipes using crossover angles included with platform kit.**
- **Install proposed antennas such that they are vertically centered on the platform base horizontal member. Install existing and proposed RRUS behind the antennas.**



See following sketches and Mount assembly drawings for additional details.

■ ASSUMPTIONS AND CONDITIONS

This analysis is inclusive of the antenna supporting frames/mounts and all recorded connections that will support the equipment listed in this report. It considers only the theoretical capacity of structural components and it is not a condition assessment. The validity of the analysis may be dependent on the accuracy of structural information supplied by others. The client is responsible for verifying this information. If any provided information is revised after completion of this analysis, CLS Engineering PLLC should be notified immediately to revise results.

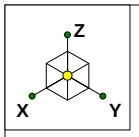
This analysis assumes the following:

1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In the absence of sufficient design information, all welds and connections are assumed to develop at least the capacity of the connected member, unless otherwise stated in this analysis.
4. All prior structural modifications, if any, are assumed to be correctly installed and fully effective.
5. The loading configuration is complete and accurate as supplied and/or as modeled in the previous analysis. All appurtenances are assumed to be properly installed and supported as per manufacturer requirements.
6. Some conservative assumptions may be used regarding appurtenances and their projected areas based on careful interpretation of data supplied, previous experience and standard industry practice.

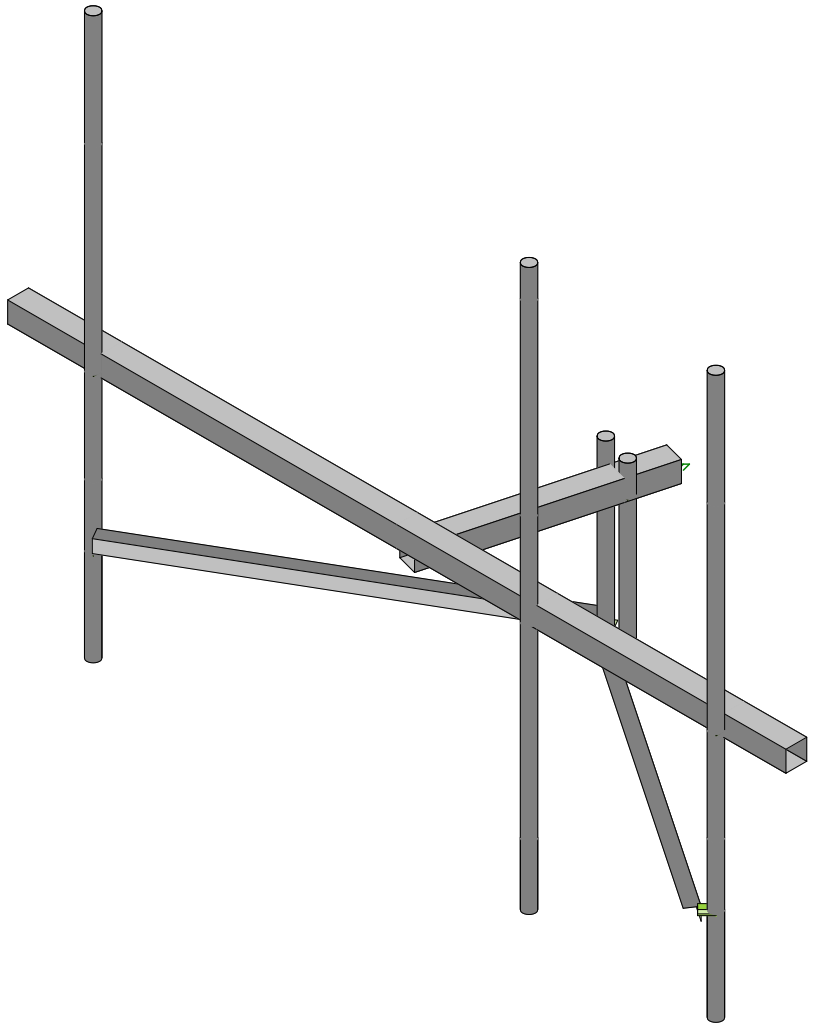
All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of the report. All opinions and conclusions contained herein are subject to revision based upon receipt of new or updated information. All services are provided exercising a level of care and diligence equivalent to the standard of our profession. No warranty or guarantee, either expressed or implied, is offered. All services are confidential in nature and this report will not be released to any other party without the client's consent. The use of this analysis is limited to the expressed purpose for which it was commissioned and it may not be reused, copied or disseminated for any other purpose without consent from CLS Engineering PLLC.

All services were performed, results obtained and recommendations made in accordance with generally accepted engineering principles and practices. CLS Engineering PLLC is not responsible for the conclusions, opinions or recommendations made by others based on the information supplied in this analysis.

It is not possible to have the fully detailed information necessary to perform a complete and thorough analysis of every structural sub-component of an existing structure. The structural analysis by CLS Engineering PLLC verifies the adequacy of the primary members of the structure. CLS Engineering PLLC provides a limited scope of service in that we cannot verify the adequacy of every weld, bolt, gusset, etc.



Existing T-Arm mount to be replaced.



Envelope Only Solution

CLS	41124-12927128-Waterford Rebuild CT	FM - 1
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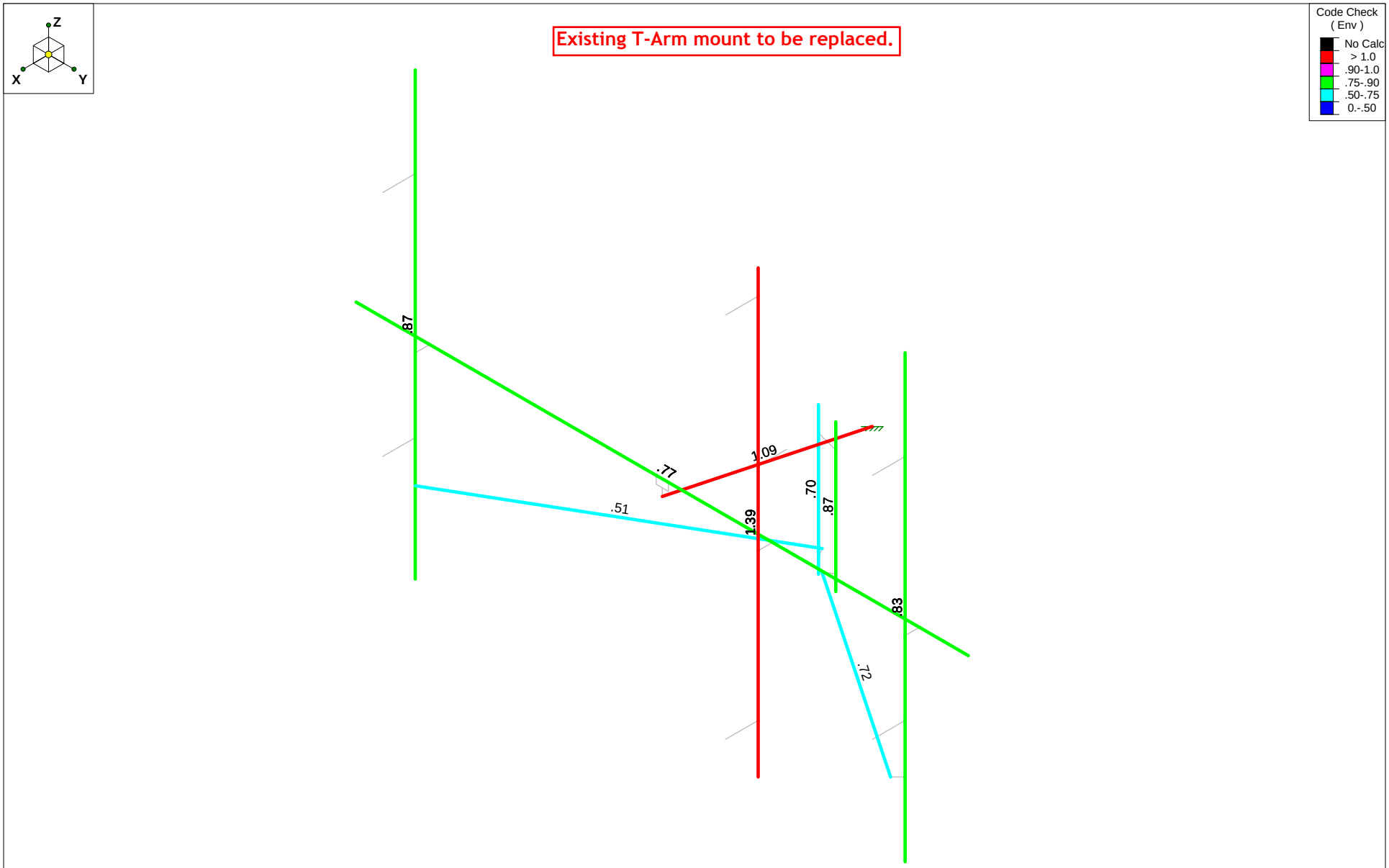
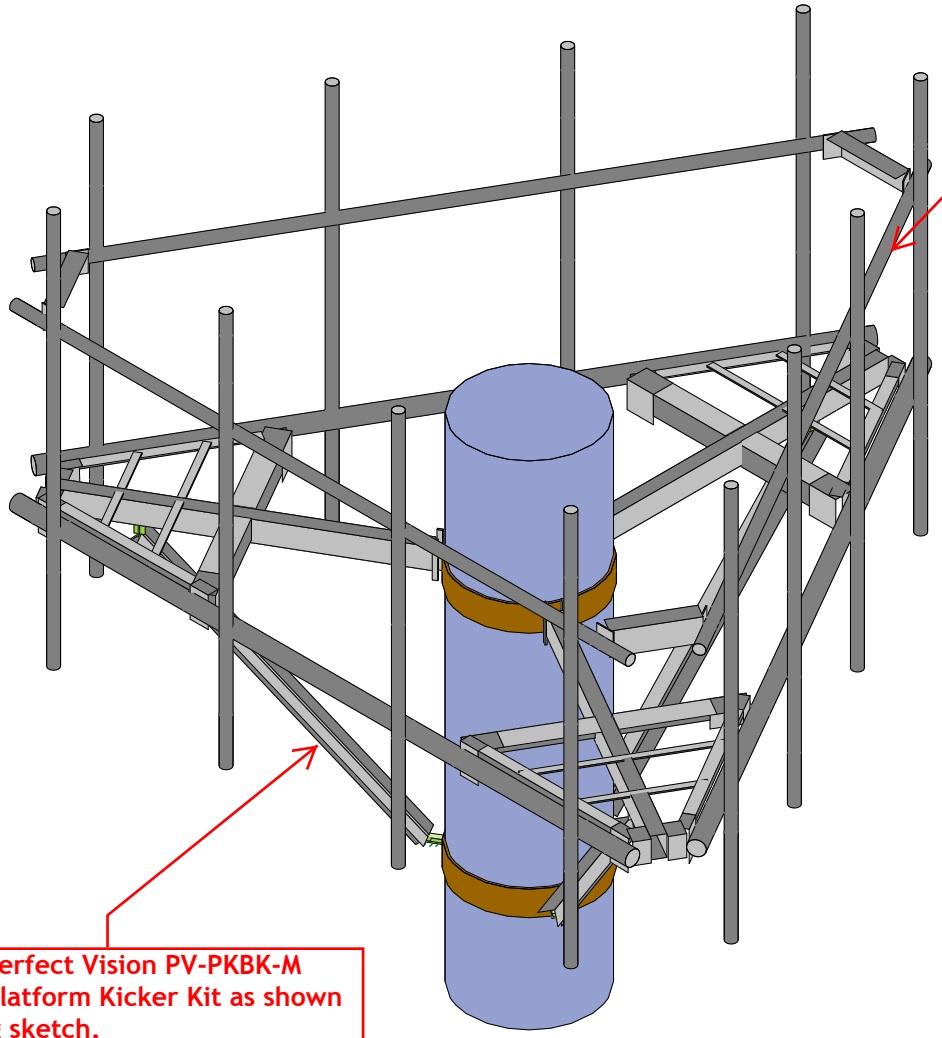
41124-12927128-01-MA	Rendered	41124-12927128-01-MA.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927128-Waterford Rebuild CT	FM - 2
ST		Apr 3, 2019 at 1:21 PM
41124-12927128-01-MA	Envelope Member Unity Check Results - Bending	41124-12927128-01-MA.r3d

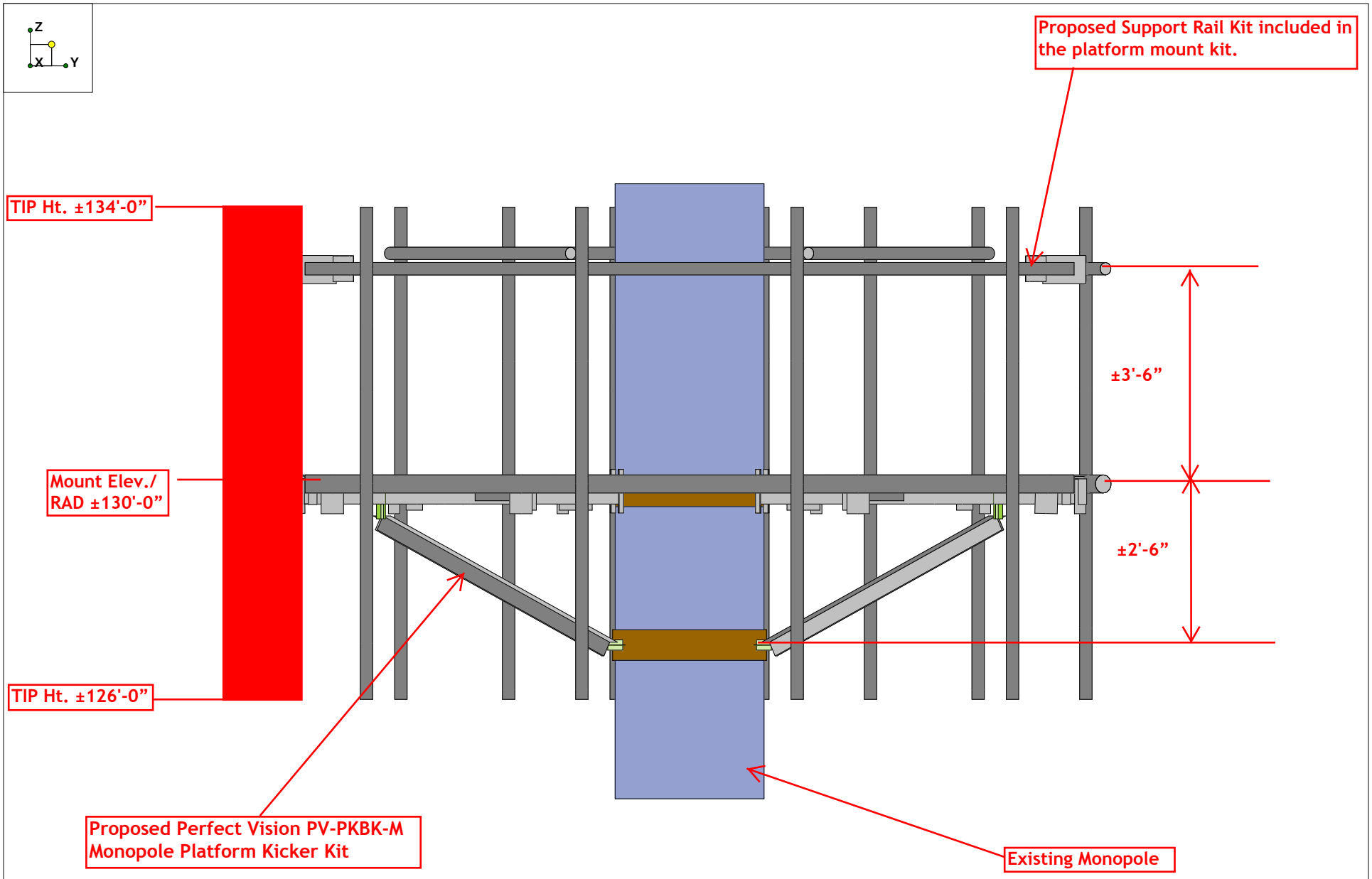
Replace existing T-Arm mount with (1) new Perfect Vison PV-LLP12M-HR-12-96 Platform Mount.



Install support rails provided in the standard platform mount kit 3'-6" above the platform base. Connect to all mount pipes using crossover angles included in the kit.

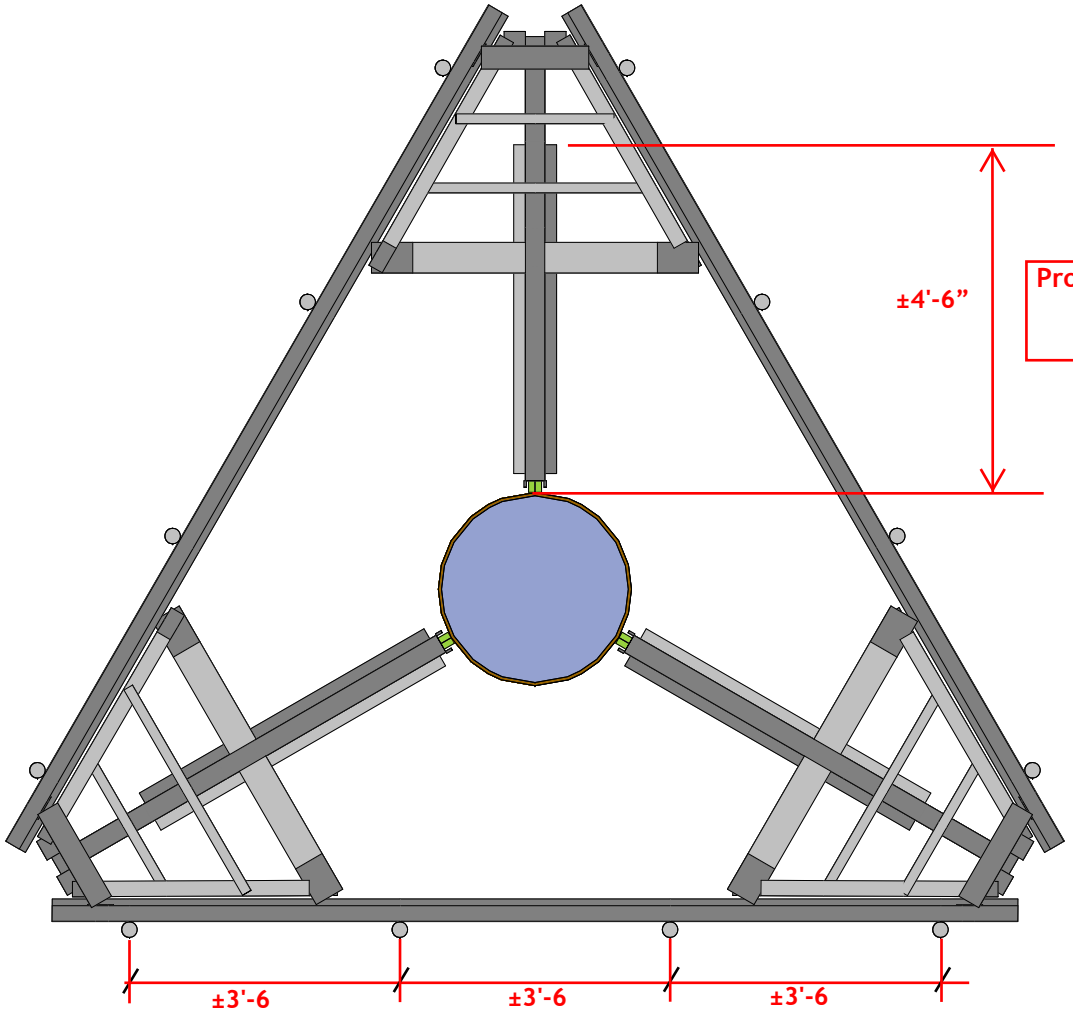
Install (1) Perfect Vision PV-PKBK-M Monopole Platform Kicker Kit as shown in following sketch.

CLS	41124-12927128-Waterford Rebuild CT	IN - 1
ST		Apr 03, 2019 at 11:45 AM
41124-12927128-01-MR	Proposed Mount - Isometric View	41124-12927128-01-MR



CLS	41124-12927128-Waterford Rebuild CT	IN- 2
ST		Apr 3, 2019 at 12:52 PM
41124-12927128-01-MR	Installation Sketch - Front Elevation	41124-12927128-01-MR IMAGES.r3d

Install all mount pipes provided in the standard platform mount kit such that they are equidistant from each other as shown. Connect all mount pipes to support rail using crossover angles included in the kit.



CLS	41124-12927128-Waterford Rebuild CT	IN - 3
ST		Apr 3, 2019 at 11:46 AM
41124-12927128-01-MR	Installation Sketch - Plan View	41124-12927128-01-MR

PV-LPP
L.I.F.E. MOUNT™ LOW PROFILE PLATFORM

TABLE 1: PLATFORM CONFIGURATIONS

PART NUMBER	DESCRIPTION	MIN POLE OD	MAX POLE OD	WEIGHT (LBS)	INCLUDED PARTS									
					PIPE-312X150	PIPE-312X174	PIPE-238X150	PIPE-238X174	PV-RM1045	PV-RM3060	PV-LPP12-01	PV-LPP14-01	PV-LPPH	PV-PHK12-B
PV-LPP12M-B	12'6" FACE PLATFORM	10"	34"	1267	3	-	-	-	1	-	3	-	1	0
PV-LPP14M-B	14'6" FACE PLATFORM	10"	35"	1365	-	3	-	-	1	-	-	3	1	0
PV-LPP14L-B	14'6" FACE PLATFORM, LARGE POLE	33"	60"	1370	-	3	-	-	-	1	3	-	1	0
PV-LPP12M-HR-B	12'6" FACE PLATFORM W/ HANDRAIL	10"	34"	1522	3	-	3	-	1	-	3	-	1	1
PV-LPP14M-HR-B	14'6" FACE PLATFORM W/ HANDRAIL	10"	35"	1641	-	3	-	3	1	-	-	3	1	1
PV-LPP14L-HR-B	14'6" FACE PLATFORM W/ HANDRAIL, LARGE POLE	33"	60"	1647	-	3	-	3	-	1	3	-	1	1

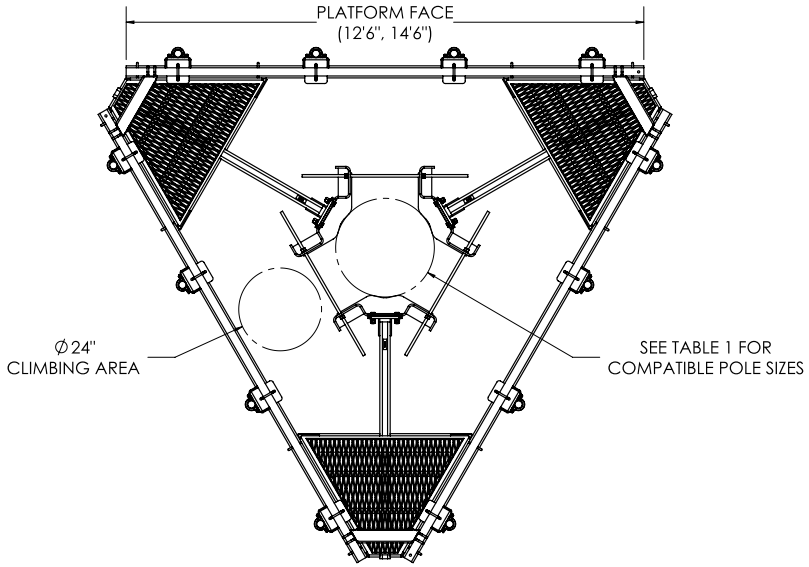


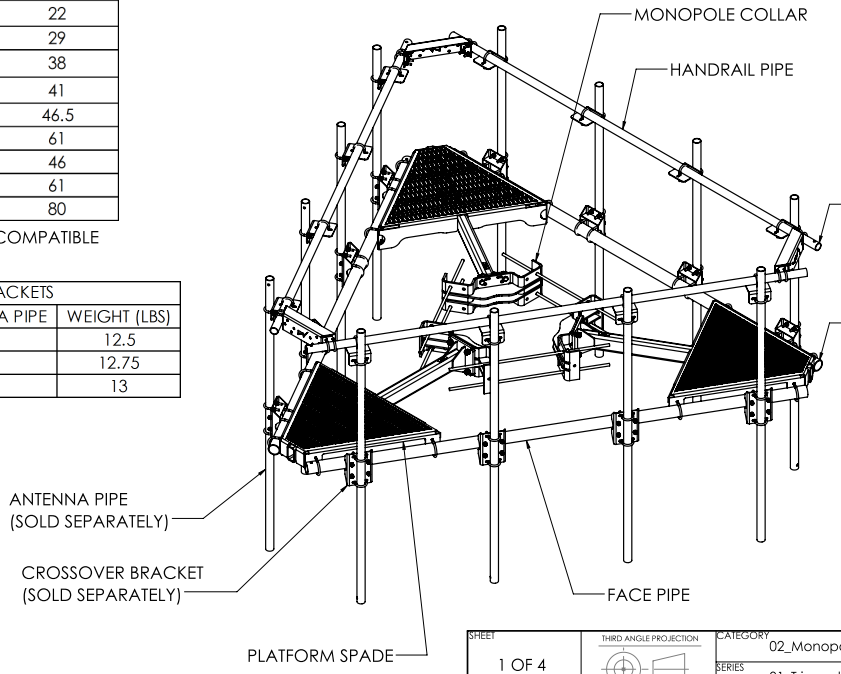
TABLE 2: ANTENNA PIPE OPTIONS***

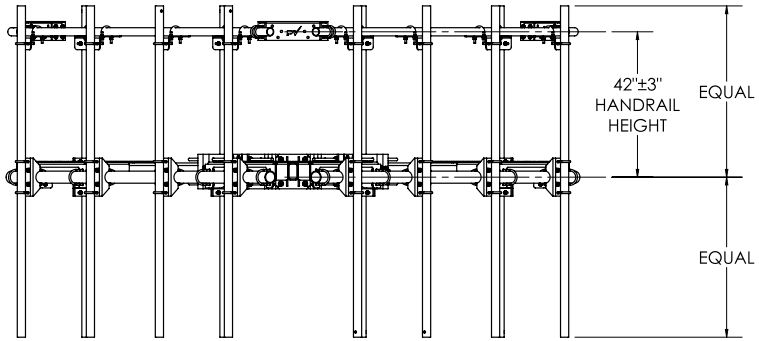
OD	LENGTH	ANTENNA PIPE	WEIGHT (LBS)
2-3/8"	72"	PIPE-238X72	22
	96"	PIPE-238X96	29
	126"	PIPE-238X126	38
2-7/8"	84"	PIPE-278X84	41
	96"	PIPE-278X96	46.5
	126"	PIPE-278X126	61
3-1/2"	72"	PIPE-312X72	46
	96"	PIPE-312X96	61
	126"	PIPE-312X126	80

***PLATFORM WITH HANDRAIL KITS ARE COMPATIBLE WITH 2-3/8" OD HANDRAIL PIPE ONLY

TABLE 3: CROSSOVER BRACKETS

PART NUMBER	COMPATIBLE ANTENNA PIPE	WEIGHT (LBS)
PV-XP-2030-HD	2-3/8" OD	12.5
PV-XP-2530-HD	2-7/8" OD	12.75
PV-XP-3030-HD	3-1/2" OD	13





FALL-SAFE L.I.F.E. MOUNTS™

SHEET: 1 OF 4	THIRD ANGLE PROJECTION	CATEGORY: 02_Monopole	7	UPDATED LOADING, TEMPLATE	1/16/18
		SERIES: 01_Triangular	6	VZW LOADING	1/19/17
3/13/2018	SCALE: 1:36	TYPE: PV-LPP_LIFE Mount	5	HEAVY-5 LOADING	6/13/16
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE±1/4°, BEND±2° ALL OTHERS: ±1/16"		BY: DJN	4	L.I.F.E. MOUNT™ UPDATE	2/22/16
		CHECKED: SJS	3	REDESIGNED COLLAR	12/30/15
		STATUS: APPROVED	REV	DESCRIPTION	DATE

PERFECTVISION MANUFACTURING

L.I.F.E. MOUNT™ LOW PROFILE PLATFORM

DOCUMENT NUMBER: LPP-ENG-01-R7 | REV: 7

MOUNT CLASSIFICATIONS:

REF RENC STRUCTURAL LETTER (LPP-STL-01-R1) FOR ADDITIONAL LOADING REQUIREMENTS

MOUNT CLASSIFICATION INFORMATION:

- MAX STRUCTURE HEIGHT: 400ft
- STRUCTURE CLASS: I OR II
- EXPOSURE CATEGORY: B OR C
- TOPOGRAPHIC CATEGORY: 1
- DESIGN WIND PRESSURE (NO ICE): 135psf
- DESIGN WIND PRESSURE (ICED): 15psf
- DESIGN ICE THICKNESS: 2.75in Radial

APPROVED MOUNT CLASSIFICATIONS*

APPROVED MOUNT CLASSIFICATIONS (4 PIPE)						
		REQUIRED EXTREME WIND LOAD (LBS)				
		700	750	1150	1550	1800
REQUIRED EXTREME ICE LOAD (LBS)	0	M750R(0)-4[6]	M750R(0)-4[6]	M1150R(0)-4[6]	M1550R(0)-4[6]	M1800R(0)-4[6]
	600	M750R(600)-4[6]	M750R(600)-4[6]	M1150R(600)-4[6]	M1550R(600)-4[6]	M1800R(600)-4[6]
	800	M750R(800)-4[6]	M750R(800)-4[6]	M1150R(800)-4[6]	M1550R(800)-4[6]	M1800R(800)-4[6]
	1100	M750R(1100)-4[6]	M750R(1100)-4[6]	M1150R(1100)-4[6]	M1550R(1100)-4[6]	M1800R(1100)-4[6]
	1250	M750R(1250)-4[6]	M750R(1250)-4[6]	M1150R(1250)-4[6]	M1550R(1250)-4[6]	M1800R(1250)-4[6]

- HEAVY-5

APPLIES TO ALL PV-LPP12M, PV-LPP14M, AND PV-LPP14L SERIES PLATFORMS WITH ANTENNAS AND APPURTENANCES SYMMETRICALLY MOUNTED ABOUT THE PLATFORM CENTERLINE.

POLE THICKNESS LIMITATIONS:

ON POLES WITH WALL THICKNESS EQUAL TO OR GREATER THAN THE VALUES LISTED BELOW, THE PERFECT VISION PV-LPP MOUNT SERIES IS STRUCTURALLY CAPABLE OF SUPPORTING THE ABOVE LOADING SCENARIOS WITHOUT THE NEED FOR AN ADDITIONAL KICKER BRACE.

FOR THIN WALL POLES, USE PV-PKBK PLATFORM KICKER BRACE TO AVOID POLE CRIMPING FAILURES. KICKER BRACE CAN BE INSTALLED ABOVE OR BELOW PLATFORM.

POLE THICKNESS LIMITATIONS	
MOUNT CLASSIFICATION	MINIMUM POLE THICKNESS
M750R-4[6]	1/4"
M800R-4[6]	1/4"
M900R-4[6]	1/4"
M950R-4[6]	1/4"
M1000R-4[6]	5/16"
M1400R-4[6]	5/16"
M1000R(i)-4[6]	5/16"
M1150R(i)-4[6]	5/16"

PLATFORM EPA:

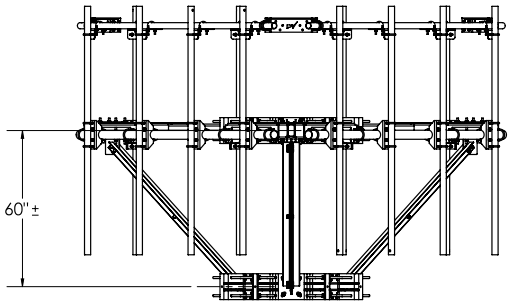
PLATFORM EPA		
PLATFORM TYPE	NO ICE (FT^2)	1/2" RADIAL ICE (FT^2)
12'6" FACE	20.3*	25.8*
12'6" FACE WITH HANDRAIL	34.4**	43.0**
14'6" FACE	22.1*	28.1*
14'6" FACE WITH HANDRAIL	36.8**	46.2**

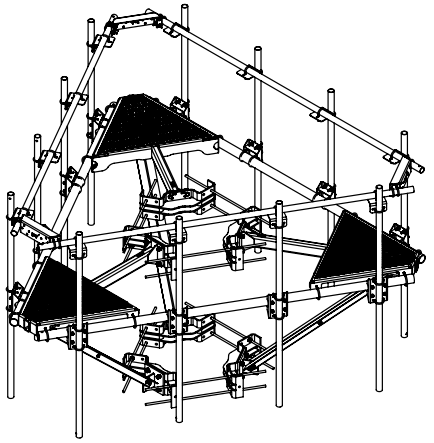
*DOES NOT INCLUDE CROSSOVER PLATES OR ANTENNA PIPES
**DOES NOT INCLUDE ANTENNA PIPES

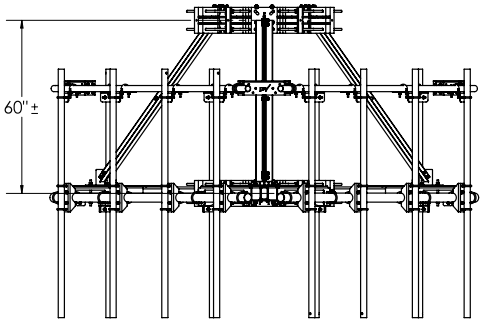
KICKER ATTACHMENT:

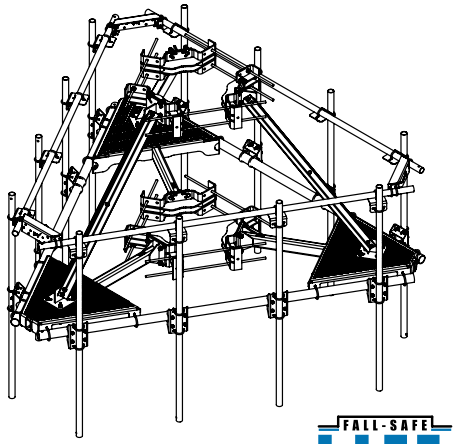
SEE CLASSIFICATIONS SECTION FOR KICKER REQUIREMENT DETAILS.

INSTALL KICKER ABOVE OR BELOW PLATFORM









FALL-SAFE L.I.F.E. MOUNTS™

SHEET 2 OF 4	THIRD ANGLE PROJECTION	CATEGORY 02_Monopole	7	UPDATED LOADING, TEMPLATE	1/16/18
		SERIES 01_Triangular	6	VZW LOADING	1/19/17
3/13/2018	SCALE 1:48	TYPE PV-LPP_LIFE Mount	5	HEAVY-5 LOADING	6/13/16
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE±1/4°, BEND±2° ALL OTHERS: ±1/16"		BY DJN	4	L.I.F.E. MOUNT™ UPDATE	2/22/16
		CHECKED SJS	3	REDESIGNED COLLAR	12/30/15
		STATUS APPROVED	REV	DESCRIPTION	DATE

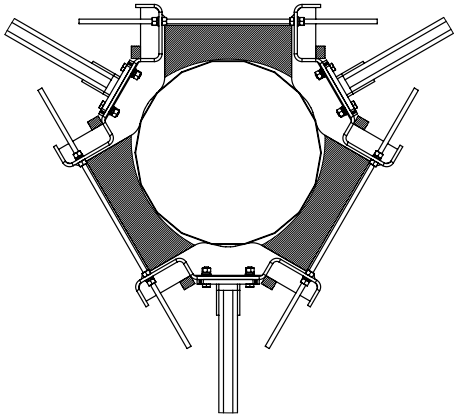
PERFECT VISION MANUFACTURING

L.I.F.E. MOUNT™ LOW PROFILE PLATFORM

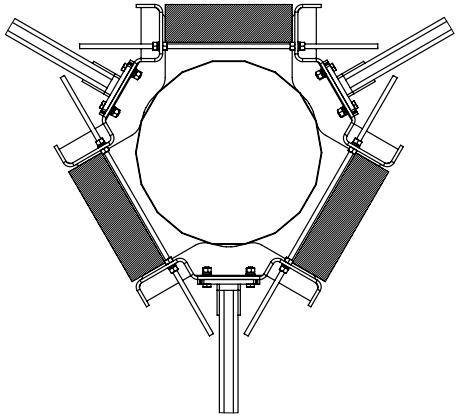
DOCUMENT NUMBER LPP-ENG-01-R7 REV 7

SAFETY CLIMB ROUTING:

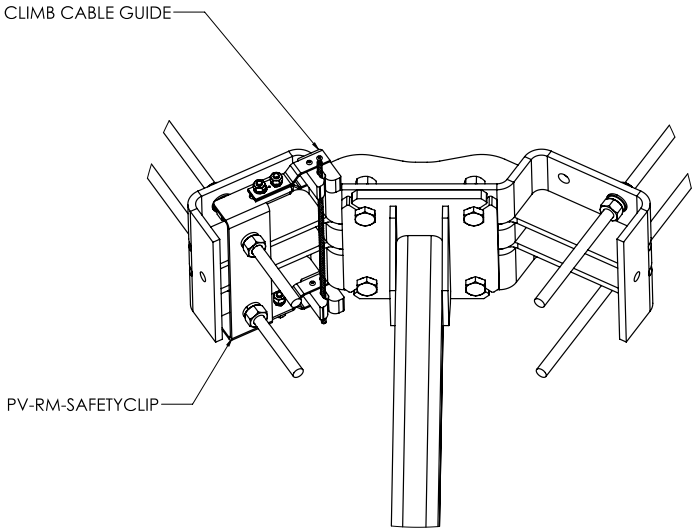
CABLE GUIDES AND PV-RM-SAFETYCLIP SOLD SEPARATELY.



SAFETY CLIMB CABLE
RECOMMENDED ROUTING
(ALL THREAD IN EXTERIOR HOLES)



SAFETY CLIMB CABLE
RECOMMENDED ROUTING
(ALL THREAD IN INTERIOR HOLES)



SAFETY CLIMB CABLE GUIDE ATTACHMENT
IF RING MOUNT IS TO BE INSTALLED ON THE SAFETY CLIMB FACE, USE THE RECOMMENDED ROUTING AS SHOWN

SHEET: 3 OF 4	THIRD ANGLE PROJECTION	CATEGORY: 02_Monopole	7	UPDATED LOADING, TEMPLATE	1/16/18
		SERIES: 01_Triangular	6	VZW LOADING	1/19/17
3/13/2018	SCALE: NTS	TYPE: PV-LPP_LIFE Mount	5	HEAVY-5 LOADING	6/13/16
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE±1/4°, BEND±2° ALL OTHERS: ±1/16"		BY: DJN	4	L.I.F.E. MOUNT™ UPDATE	2/22/16
		CHECKED: SJS	3	REDESIGNED COLLAR	12/30/15
		STATUS: APPROVED	REV	DESCRIPTION	DATE

FALL-SAFE L.I.F.E. MOUNTS™

PERFECT VISION® MANUFACTURING

L.I.F.E. MOUNT™ LOW PROFILE PLATFORM

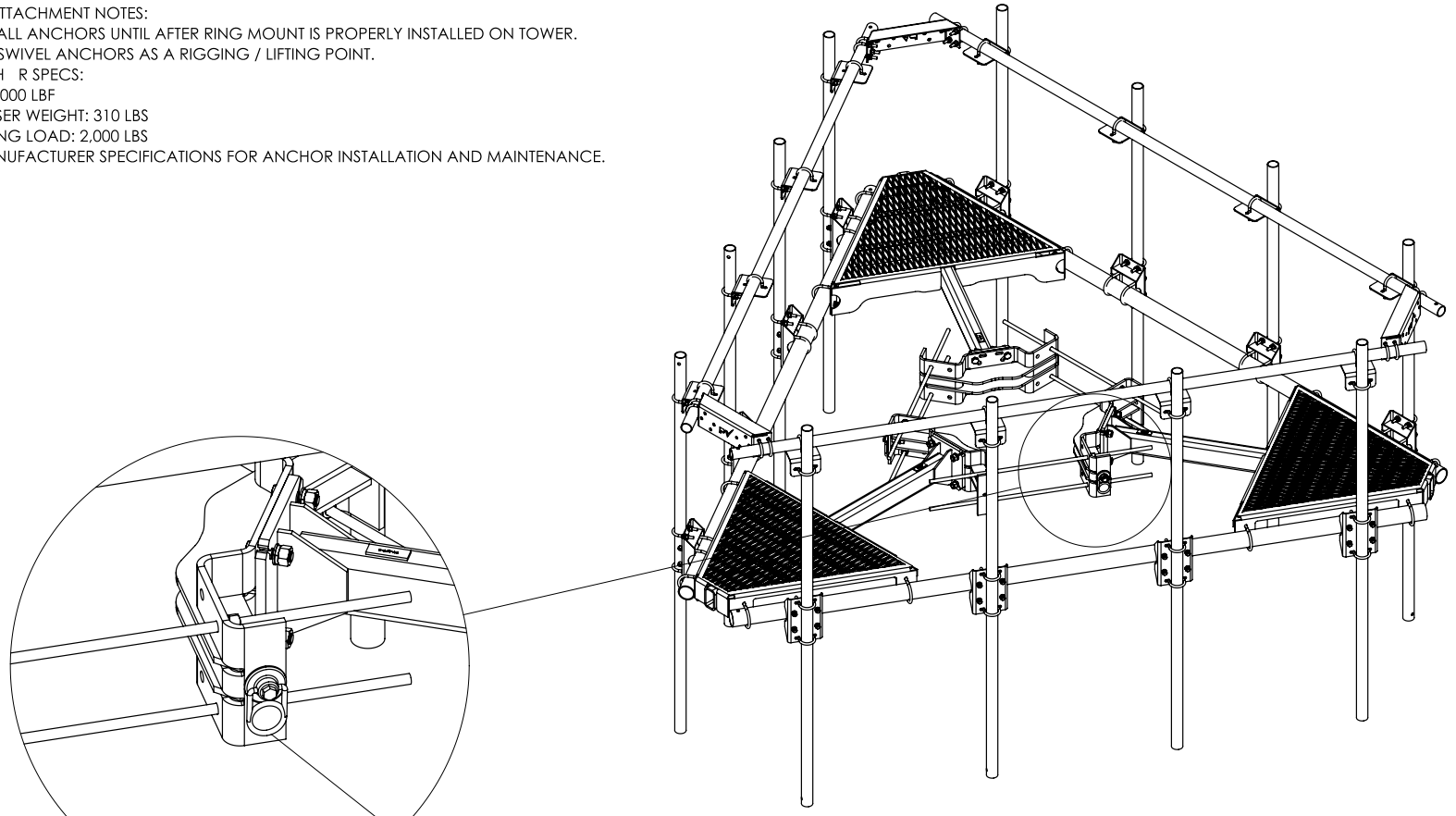
DOCUMENT NUMBER: LPP-ENG-01-R7

REV: 7

10K SWI EL ANCHOR

SWIVEL ANCH R ATTACHMENT NOTES:

- D NOT INSTALL ANCHORS UNTIL AFTER RING MOUNT IS PROPERLY INSTALLED ON TOWER.
- D NOT USE SWIVEL ANCHORS AS A RIGGING / LIFTING POINT.
- SWIVEL ANCH R SPECS:
  - UTS: 10,000 LBF
  - MAX USER WEIGHT: 310 LBS
  - WORKING LOAD: 2,000 LBS
- F LLOW MANUFACTURER SPECIFICATIONS FOR ANCHOR INSTALLATION AND MAINTENANCE.



DETAIL A
SCALE 1 : 8

SHEET: 4 OF 4	THIRD ANGLE PROJECTION	CATEGORY: 02_Monopole	7	UPDATED LOADING, TEMPLATE	1/16/18
		SERIES: 01_Triangular	6	VZW LOADING	1/19/17
3/13/2018	SCALE: 1:24	TYPE: PV-LPP_LIFE Mount	5	HEAVY-5 LOADING	6/13/16
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE±1/4°, BEND±2° ALL OTHERS: ±1/16"		BY: DJN	4	L.I.F.E. MOUNT™ UPDATE	2/22/16
		CHECKED: SJS	3	REDESIGNED COLLAR	12/30/15
		STATUS: APPROVED	REV	DESCRIPTION	DATE

FALL-SAFE L.I.F.E. MOUNTS™

PERFECT VISION MANUFACTURING

L.I.F.E. MOUNT™ LOW PROFILE PLATFORM

DOCUMENT NUMBER: LPP-ENG-01-R7

REV: 7

C:\Users\DominicN\Documents\PVMSteel\PVM Sales Catalog\SW Working Files\Engineering Details\

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	130 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	130 ft	K_d	0.95
Elevation AMSL (ft)	-	K_e	-
TIA Standard	G	K_z	1.07
Basic Wind Speed, V_{ult} (bare)	135 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	-
Design Ice Thickness, t_i	3/4 in	t_{iz}	1.72 in
Exposure Category	B	G_h	1.00
Risk Category	II	q_z (bare)	47.2 psf
Seismic Response Coeff., C_s	-	q_z (ice)	6.5 psf

Live Loading

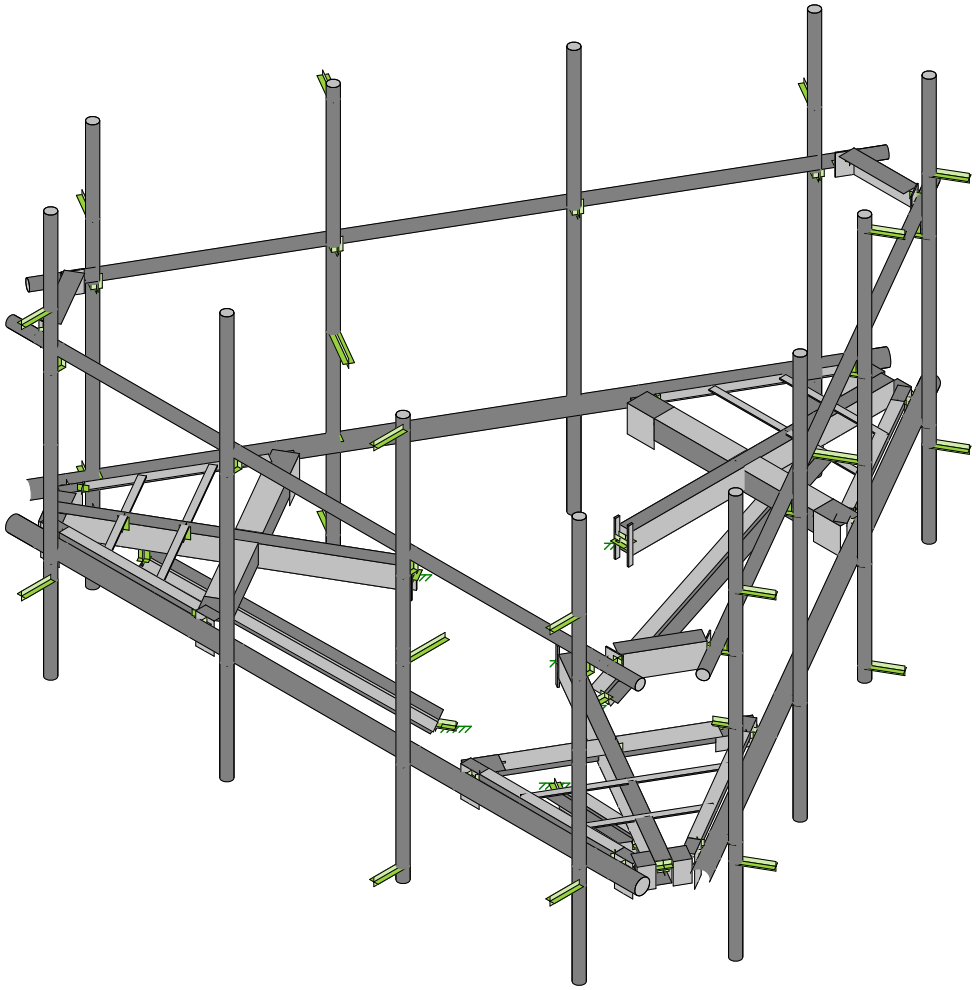
At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2
	M3
	M4

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Offsett Tube	HSS5x3x3/8"	35.41	2.37	14.32
End Plate Angle	L5x4x0.25	35.41	2.37	15.41
Grating Angle 2	L6.4x4.750x0.25	45.32	2.47	18.29
Grating Angle 4	L7.25x2.375x0.25	51.34	2.53	16.25
Grating Angle 3	L2.375x1.25x0.25	16.82	3.57	9.26
Grating PL 2	PL1.50x0.25	10.62	2.89	5.96
Grating Angle 1	L4.75x4.5x0.25	33.64	2.35	15.75
Platform Horizontal Pipe	PIPE_3.0	14.87	4.05	10.97
Mount Pipe	PIPE_2.0	10.09	3.39	8.61
Support Rail	PIPE_2.0	10.09	3.39	8.61
MOD Stabilizer	L3X3X3	21.25	2.22	11.40
Conn. PL	PL8.5x3/8	60.19	6.96	15.49
SR Conn Plate	PL5x0.1875	35.41	4.92	10.56
SR Conn Angle	L5.50X3.5625X3	38.95	2.41	15.50

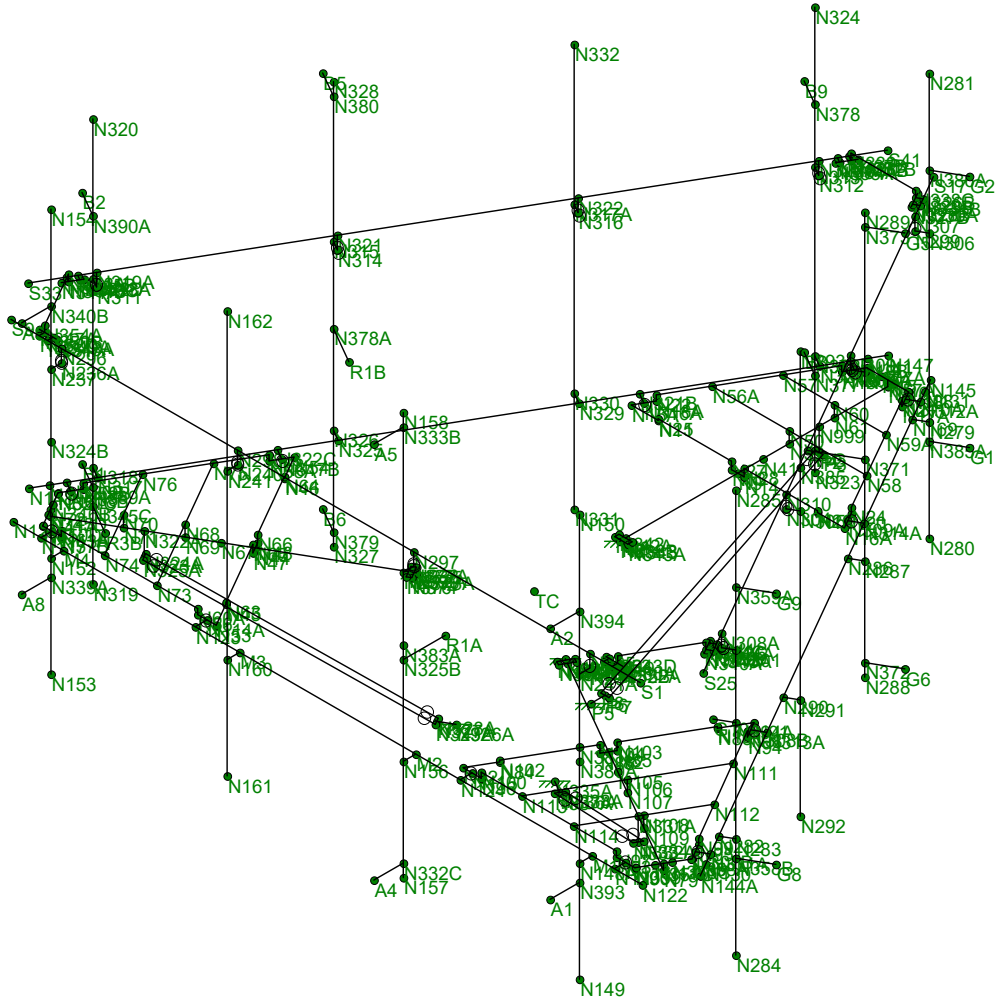
Appurtenances

Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft^2)		EPA_A (Ice) (ft^2)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°	120°	240°		1	2	1	2	1	2							N	T	N	T	N	T	N	T
AIR 21				☐			1	1	1	3	A1	A2	B1	B2	G1	G2	56	12	7.9	91	Flat	165.28	6.05	4.31	8.03	6.19	257.04	183.14	46.81	36.07
APXVAARR24_43-U-NA20				☐			1	1	1	3	A4	A5	B5	B6	G5	G6	95.9	24	8.7	127.9	Flat	423.63	20.24	8.89	23.66	12.06	860.11	377.67	137.90	70.27
AIR 21				☐			1	1	1	3	A9	A8	B9	B8	G9	G8	56	12	7.9	91	Flat	165.28	6.05	4.31	8.03	6.19	257.04	183.14	46.81	36.07
RADIO 4449 B12/B71				☐	0		1	1	1	3	R1A		R1B		R1G		15	13.2	10.4	75	Flat	70.91	0.00	1.30	0.00	2.13	0.00	55.24	0.00	12.40



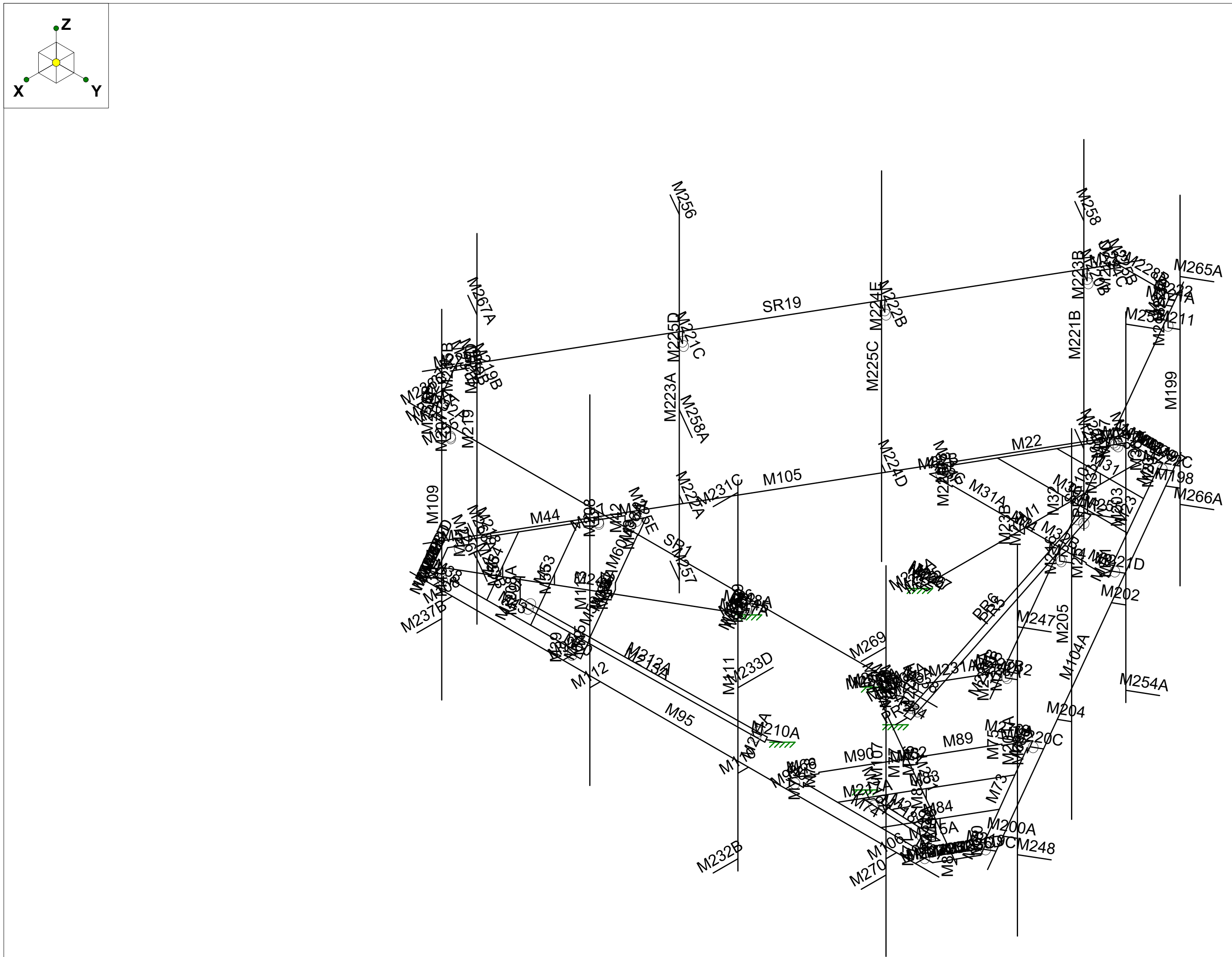
Envelope Only Solution

CLS	41124-12927128-WATERFORD REBUILD CT	SK - 1
ST		July 3, 2019 at 10:53 AM
41124-12927128-01-MR-R1	Rendered	41124-12927128-01-MR-R1.r3d



Envelope Only Solution

CLS	41124-12927128-WATERFORD REBUILD CT	SK - 2
ST		July 3, 2019 at 10:53 AM
41124-12927128-01-MR-R1	Joint Labels	41124-12927128-01-MR-R1.r3d



Envelope Only Solution

CLS	41124-12927128-WATERFORD REBUILD CT Member Labels	SK - 3
ST		July 3, 2019 at 10:53 AM
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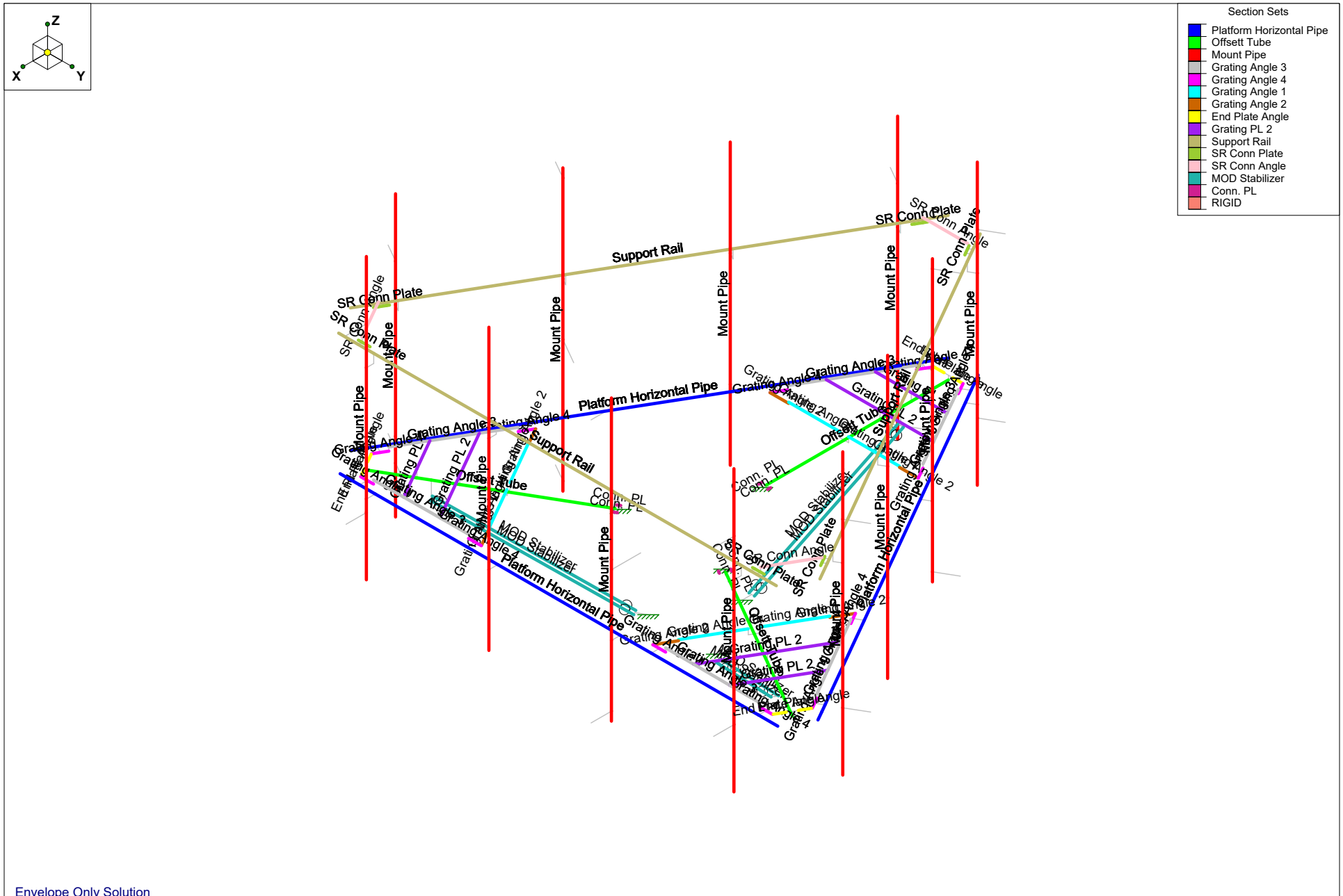
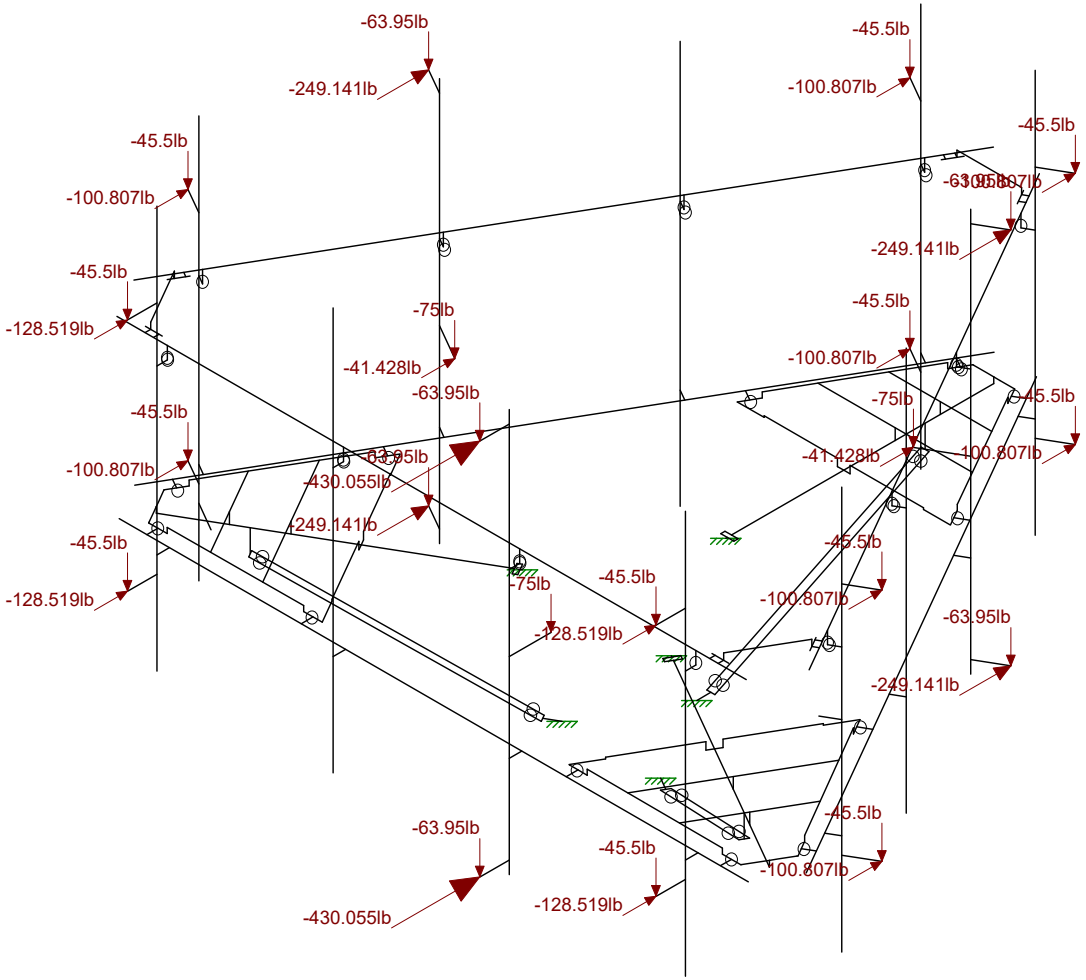


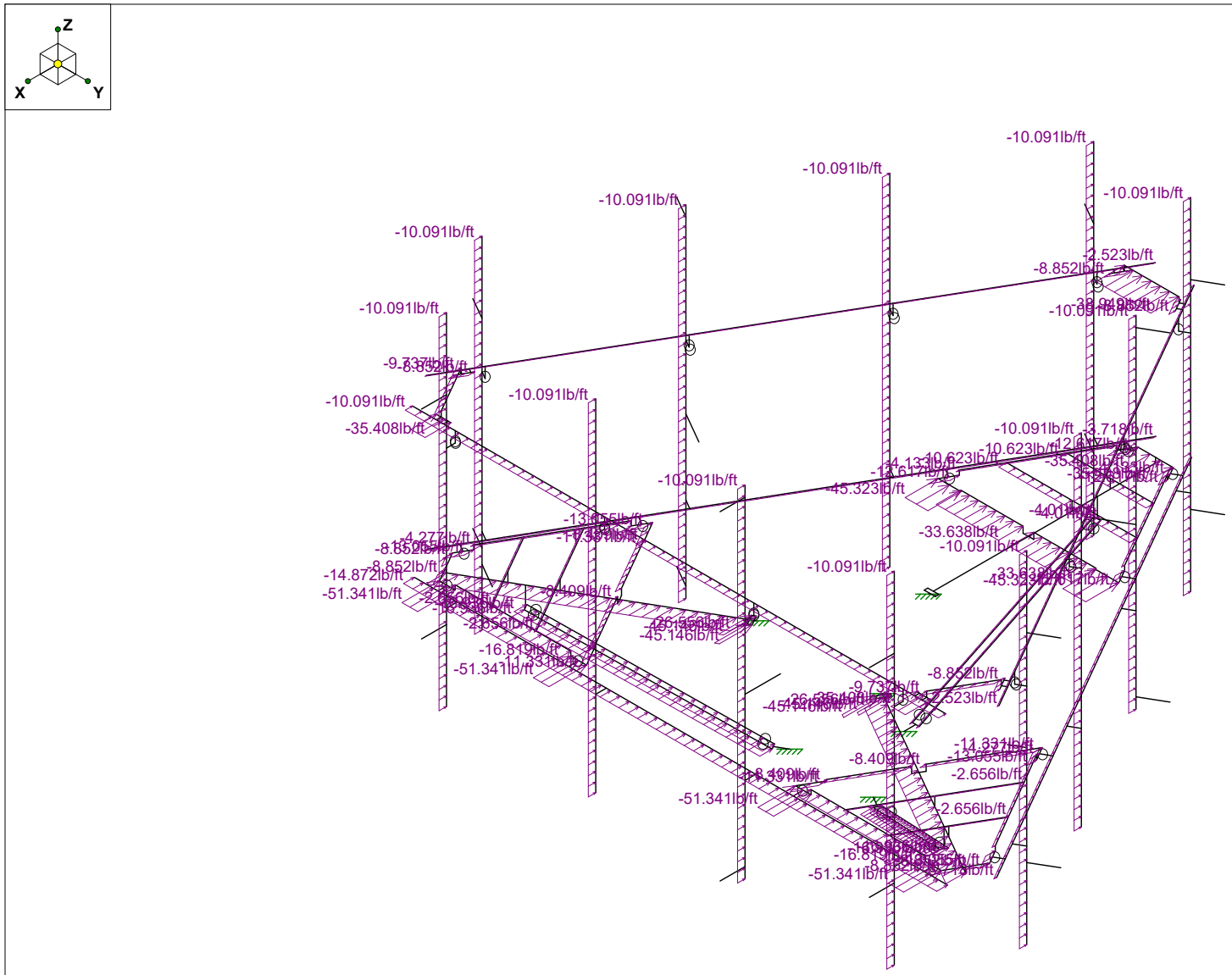
Envelope Only Solution

CLS	41124-12927128-WATERFORD REBUILD CT	SK - 4
ST		July 3, 2019 at 10:54 AM
41124-12927128-01-MR-R1	Section Sets	41124-12927128-01-MR-R1.r3d



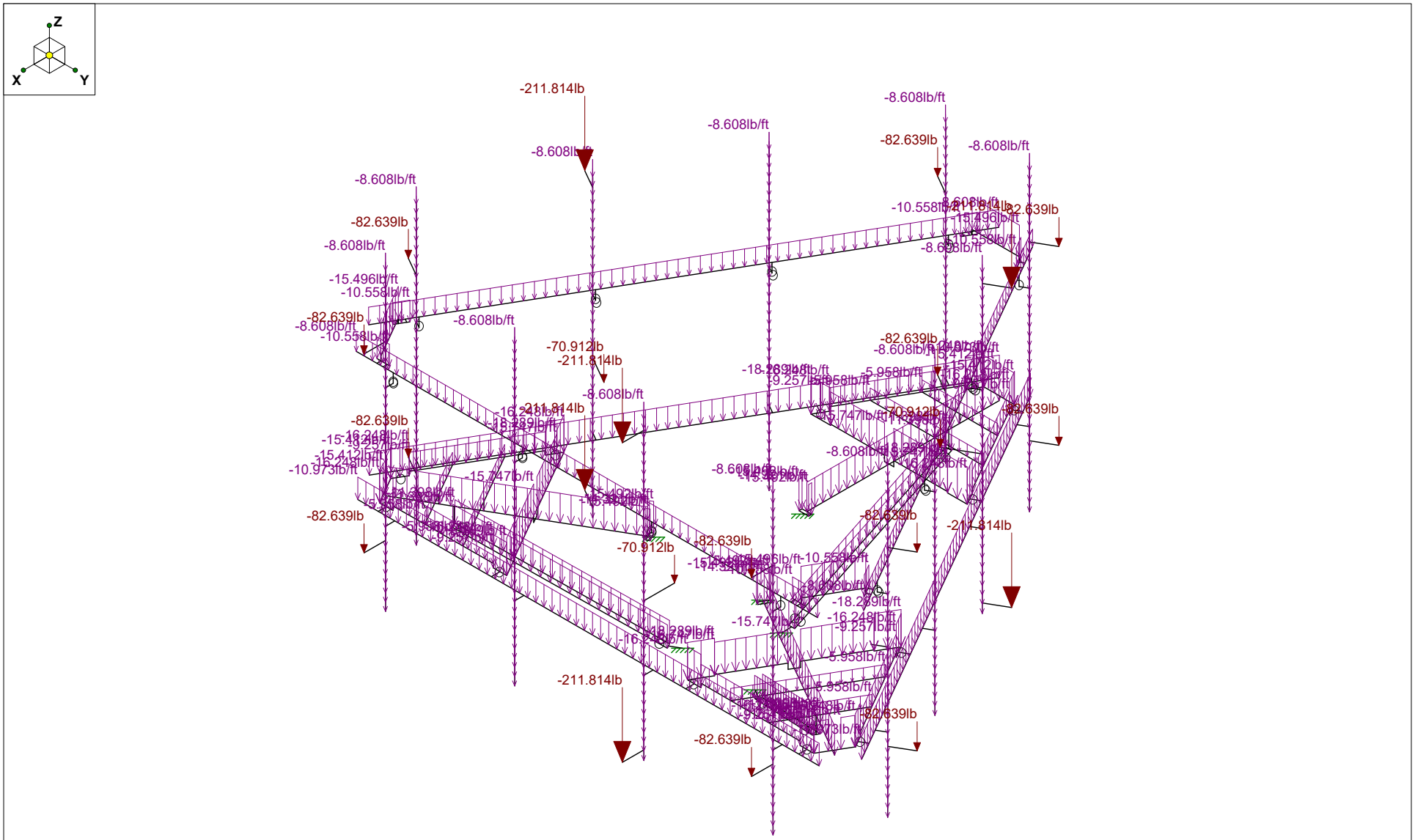
Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)
Envelope Only Solution

CLS		SK - 5
ST	41124-12927128-WATERFORD REBUILD CT	July 3, 2019 at 10:54 AM
41124-12927128-01-MR-R1	Joint Loads - Dead and Normal Wind	41124-12927128-01-MR-R1.r3d



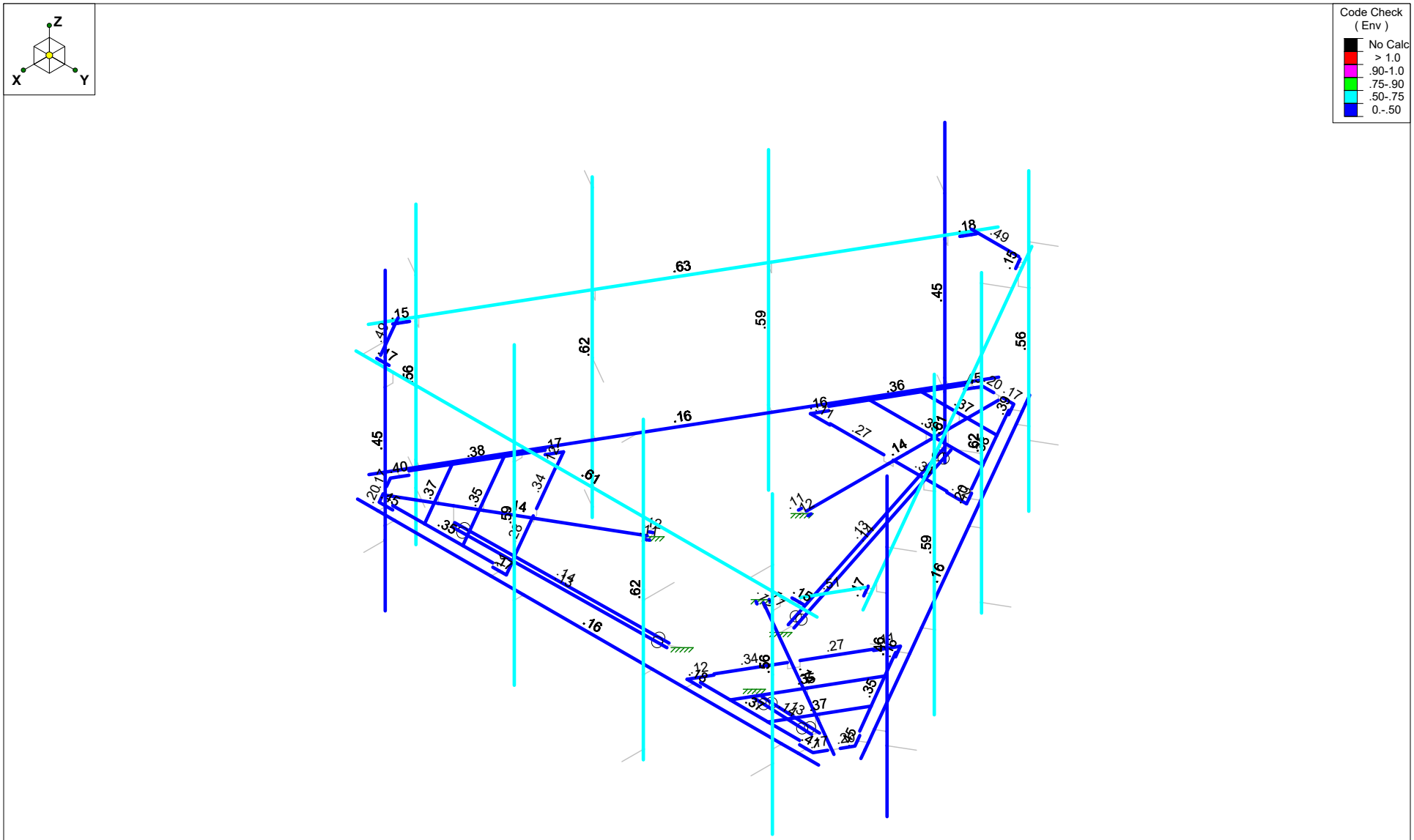
Loads: BLC 4, Structure Wind 0°
Envelope Only Solution

CLS	41124-12927128-WATERFORD REBUILD CT	SK - 6
ST		July 3, 2019 at 10:54 AM
41124-12927128-01-MR-R1	Distributed Load - Normal Wind	41124-12927128-01-MR-R1.r3d



Loads: BLC 2, Ice Dead
Envelope Only Solution

CLS	41124-12927128-WATERFORD REBUILD CT	SK - 7
ST		July 3, 2019 at 10:54 AM
41124-12927128-01-MR-R1	Ice Dead Loads	41124-12927128-01-MR-R1.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS		SK - 8
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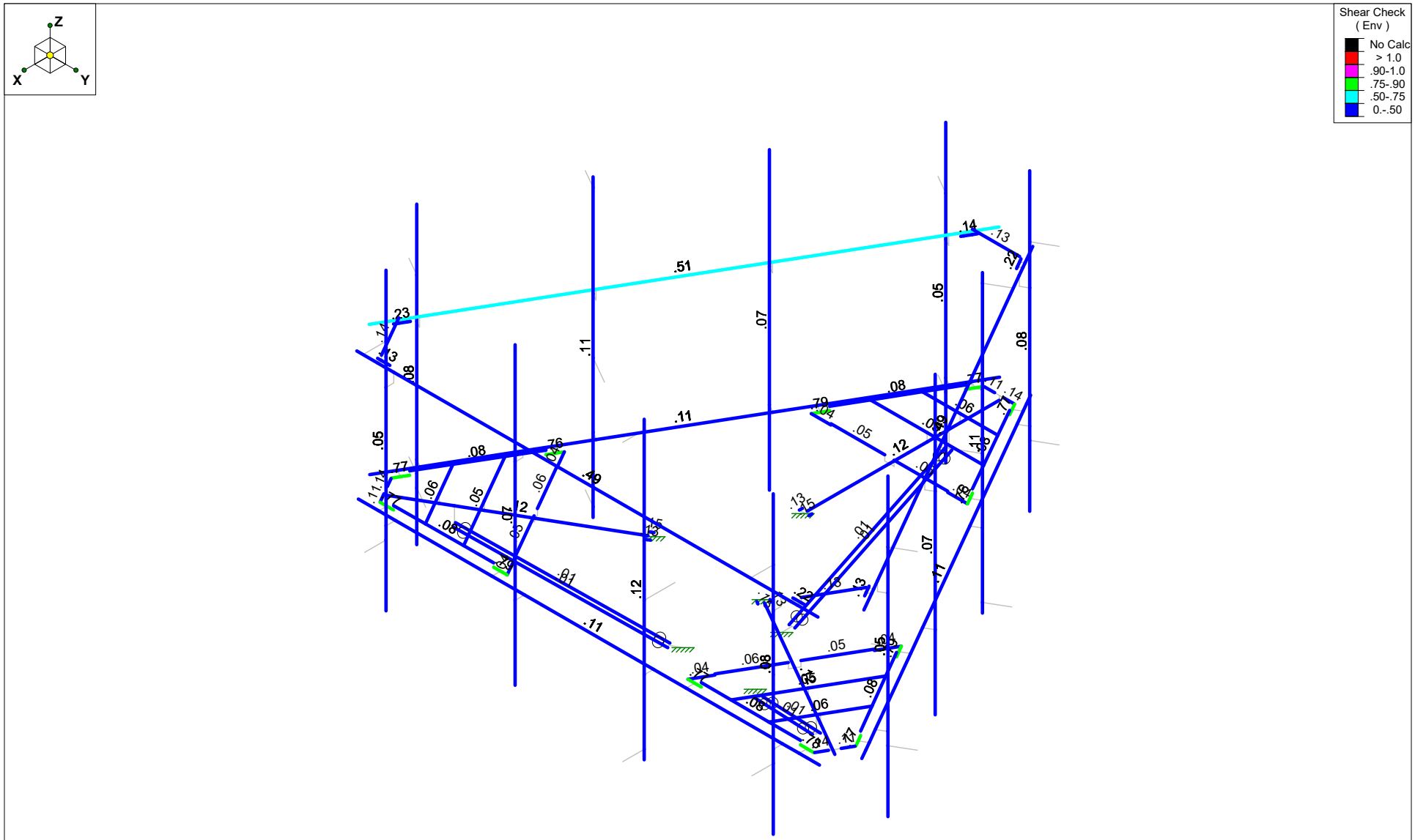
41124-12927128-01-MR-R1	Envelope Member Unity Check Results - Bending	41124-12927128-01-MR-R1.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927128-WATERFORD REBUILD CT	SK - 9
ST		July 3, 2019 at 10:55 AM
41124-12927128-01-MR-R1	Envelope Member Check Results - Shear	41124-12927128-01-MR-R1.r3d

Basic Load Cases

	BLC Description	Category	X Gravi...	Y Gravi...	Z Gravity	Joint	Point	Distributed	Area(Member)	Surfac...
1	Dead	DL			-1	21				
2	Ice Dead	RL				21		84		
4	Structure Wind 0°	None						81		
5	Structure Wind 30°	None						142		
6	Structure Wind 45°	None						168		
7	Structure Wind 60°	None						162		
8	Structure Wind 90°	None						71		
9	Structure Wind 120°	None						162		
10	Structure Wind 135°	None						168		
11	Structure Wind 150°	None						142		
12	Structure Wind w/ Ice 0°	None						81		
13	Structure Wind w/ Ice 30°	None						142		
14	Structure Wind w/ Ice 45°	None						168		
15	Structure Wind w/ Ice 60°	None						162		
16	Structure Wind w/ Ice 90°	None						71		
17	Structure Wind w/ Ice 120°	None						162		
18	Structure Wind w/ Ice 135°	None						168		
19	Structure Wind w/ Ice 150°	None						142		
20	Antenna Wind 0°	None				20				
21	Antenna Wind 30°	None				42				
22	Antenna Wind 45°	None				42				
23	Antenna Wind 60°	None				40				
24	Antenna Wind 90°	None				21				
25	Antenna Wind 120°	None				40				
26	Antenna Wind 135°	None				42				
27	Antenna Wind 150°	None				42				
28	Antenna Wind w/ Ice 0°	None				20				
29	Antenna Wind w/ Ice 30°	None				42				
30	Antenna Wind w/ Ice 45°	None				42				
31	Antenna Wind w/ Ice 60°	None				40				
32	Antenna Wind w/ Ice 90°	None				21				
33	Antenna Wind w/ Ice 120°	None				40				
34	Antenna Wind w/ Ice 135°	None				42				
35	Antenna Wind w/ Ice 150°	None				42				
39	Maintenance Live 500 (1)	OL1				1				
40	Maintenance Live 500 (2)	OL2				1				
41	Maintenance Live 500 (3)	OL3				1				
42	Maintenance Live 500 (4)	OL4				1				

Load Combinations

	Description	S...	P...	S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	DISPLAY (1.0D + ...	Y...	Y		DL	1	20	1																
2	1.4D	Y...	Y		DL	1.4																		
3	1.2D + 1.0W_0°	Y...	Y		DL	1.2	4	1	20	1														
4	1.2D + 1.0W_30°	Y...	Y		DL	1.2	5	1	21	1														
5	1.2D + 1.0W_45°	Y...	Y		DL	1.2	6	1	22	1														
6	1.2D + 1.0W_60°	Y...	Y		DL	1.2	7	1	23	1														
7	1.2D + 1.0W_90°	Y...	Y		DL	1.2	8	1	24	1														
8	1.2D + 1.0W_120°	Y...	Y		DL	1.2	9	1	25	1														
9	1.2D + 1.0W_135°	Y...	Y		DL	1.2	10	1	26	1														
10	1.2D + 1.0W_150°	Y...	Y		DL	1.2	11	1	27	1														
11	1.2D + 1.0W_180°	Y...	Y		DL	1.2	4	-1	20	-1														
12	1.2D + 1.0W_210°	Y...	Y		DL	1.2	5	-1	21	-1														
13	1.2D + 1.0W_225°	Y...	Y		DL	1.2	6	-1	22	-1														

Load Combinations (Continued)

	Description	S...	P...	S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
14	1.2D + 1.0W_240°	Y...	Y		DL	1.2	7	-1	23	-1														
15	1.2D + 1.0W_270°	Y...	Y		DL	1.2	8	-1	24	-1														
16	1.2D + 1.0W_300°	Y...	Y		DL	1.2	9	-1	25	-1														
17	1.2D + 1.0W_315°	Y...	Y		DL	1.2	10	-1	26	-1														
18	1.2D + 1.0W_330°	Y...	Y		DL	1.2	11	-1	27	-1														
19	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	12	1	28	1	RL	1												
20	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	13	1	29	1	RL	1												
21	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	14	1	30	1	RL	1												
22	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	15	1	31	1	RL	1												
23	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	16	1	32	1	RL	1												
24	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	17	1	33	1	RL	1												
25	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	18	1	34	1	RL	1												
26	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	19	1	35	1	RL	1												
27	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	12	-1	28	-1	RL	1												
28	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	13	-1	29	-1	RL	1												
29	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	14	-1	30	-1	RL	1												
30	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	15	-1	31	-1	RL	1												
31	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	16	-1	32	-1	RL	1												
32	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	17	-1	33	-1	RL	1												
33	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	18	-1	34	-1	RL	1												
34	1.2D + 1.0Di + 1.0...	Y...	Y		DL	1.2	19	-1	35	-1	RL	1												
35	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	4	.052	20	.052	O...	1.5												
36	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	5	.052	21	.052	O...	1.5												
37	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	6	.052	22	.052	O...	1.5												
38	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	7	.052	23	.052	O...	1.5												
39	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	8	.052	24	.052	O...	1.5												
40	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	9	.052	25	.052	O...	1.5												
41	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	10	.052	26	.052	O...	1.5												
42	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	11	.052	27	.052	O...	1.5												
43	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	4	-.052	20	-.052	O...	1.5												
44	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	5	-.052	21	-.052	O...	1.5												
45	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	6	-.052	22	-.052	O...	1.5												
46	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	7	-.052	23	-.052	O...	1.5												
47	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	8	-.052	24	-.052	O...	1.5												
48	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	9	-.052	25	-.052	O...	1.5												
49	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	10	-.052	26	-.052	O...	1.5												
50	1.2D + 1.5Lm_1 +...	Y...	Y		DL	1.2	11	-.052	27	-.052	O...	1.5												
51	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	4	.052	20	.052	O...	1.5												
52	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	5	.052	21	.052	O...	1.5												
53	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	6	.052	22	.052	O...	1.5												
54	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	7	.052	23	.052	O...	1.5												
55	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	8	.052	24	.052	O...	1.5												
56	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	9	.052	25	.052	O...	1.5												
57	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	10	.052	26	.052	O...	1.5												
58	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	11	.052	27	.052	O...	1.5												
59	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	4	-.052	20	-.052	O...	1.5												
60	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	5	-.052	21	-.052	O...	1.5												
61	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	6	-.052	22	-.052	O...	1.5												
62	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	7	-.052	23	-.052	O...	1.5												
63	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	8	-.052	24	-.052	O...	1.5												
64	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	9	-.052	25	-.052	O...	1.5												
65	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	10	-.052	26	-.052	O...	1.5												
66	1.2D + 1.5Lm_2 +...	Y...	Y		DL	1.2	11	-.052	27	-.052	O...	1.5												
67	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	4	.052	20	.052	O...	1.5												
68	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	5	.052	21	.052	O...	1.5												
69	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	6	.052	22	.052	O...	1.5												
70	1.2D + 1.5Lm_3 +...	Y...	Y		DL	1.2	7	.052	23	.052	O...	1.5												

Load Combinations (Continued)

	Description	S...	P...	S...	BLC	Factor	BLC	Factor	BLC	Factor	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
71	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	8	.052	24	.052	O...	1.5														
72	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	9	.052	25	.052	O...	1.5														
73	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	10	.052	26	.052	O...	1.5														
74	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	11	.052	27	.052	O...	1.5														
75	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	4	-.052	20	-.052	O...	1.5														
76	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	5	-.052	21	-.052	O...	1.5														
77	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	6	-.052	22	-.052	O...	1.5														
78	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	7	-.052	23	-.052	O...	1.5														
79	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	8	-.052	24	-.052	O...	1.5														
80	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	9	-.052	25	-.052	O...	1.5														
81	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	10	-.052	26	-.052	O...	1.5														
82	1.2D + 1.5Lm_3 +..	Y...	Y		DL	1.2	11	-.052	27	-.052	O...	1.5														
83	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	4	.052	20	.052	O...	1.5														
84	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	5	.052	21	.052	O...	1.5														
85	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	6	.052	22	.052	O...	1.5														
86	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	7	.052	23	.052	O...	1.5														
87	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	8	.052	24	.052	O...	1.5														
88	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	9	.052	25	.052	O...	1.5														
89	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	10	.052	26	.052	O...	1.5														
90	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	11	.052	27	.052	O...	1.5														
91	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	4	-.052	20	-.052	O...	1.5														
92	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	5	-.052	21	-.052	O...	1.5														
93	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	6	-.052	22	-.052	O...	1.5														
94	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	7	-.052	23	-.052	O...	1.5														
95	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	8	-.052	24	-.052	O...	1.5														
96	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	9	-.052	25	-.052	O...	1.5														
97	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	10	-.052	26	-.052	O...	1.5														
98	1.2D + 1.5Lm_4 +..	Y...	Y		DL	1.2	11	-.052	27	-.052	O...	1.5														

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E...	Density[k/ft...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
3	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.4	65	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Platform Horizontal Pipe	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
2	Offsett Tube	HSS5x3x3/8"	Beam	None	A500 Gr....	Typical	5.438	7.216	16.856	15.248
3	Mount Pipe	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
4	Grating Angle 3	L2.375x1.25x0.25	Beam	None	A36 Gr.36	Typical	.844	.093	.479	.016
5	Grating Angle 4	L7.25x2.375x0.25	Beam	None	A36 Gr.36	Typical	2.344	.789	12.975	.047
6	Grating Angle 1	L4.75x4.5x0.25	Beam	None	A36 Gr.36	Typical	2.25	4.444	5.077	.045
7	Grating Angle 2	L6.4x4.750x0.25	Beam	None	A36 Gr.36	Typical	2.725	5.633	11.713	.055
8	End Plate Angle	L5x4x0.25	Beam	None	A36 Gr.36	Typical	2.188	3.248	5.631	.044
9	Grating PL 2	PL1.50x0.25	Beam	None	A36 Gr.36	Typical	.375	.002	.07	.007
10	Support Rail	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25
11	SR Conn Plate	PL5x0.1875	Beam	None	A36 Gr.36	Typical	.938	.003	1.953	.011
12	SR Conn Angle	L5.50X3.5625X3	Beam	None	A36 Gr.36	Typical	1.664	1.848	5.368	.019
13	MOD Stabilizer	L3X3X3	Beam	None	A36 Gr.36	Typical	1.09	.948	.948	.014

Hot Rolled Steel Section Sets (Continued)

	Label	Shape	Type	Design List	Material	Design R...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
14	Conn. PL	PL8.5x3/8	Beam	None	A36 Gr.36	Typical	3.188	.037	19.191	.145

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
1	M1	Offsett Tube	62.5			Lbyy						Lateral
2	M8	End Plate A...	3.313			Lbyy			.65	.65		Lateral
3	M11	Grating Ang...	6.406			Lbyy			.65	.65		Lateral
4	M13	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
5	M14	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
6	M22	Grating Ang...	32.414			Lbyy			.65	.65		Lateral
7	M23	Grating Ang...	32.414			Lbyy			.65	.65		Lateral
8	M83C	Grating Ang...	6.406			Lbyy			.65	.65		Lateral
9	M82B	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
10	M83D	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
11	M29	End Plate A...	3.313			Lbyy			.65	.65		Lateral
12	M30	Grating PL 2	36.828						.65	.65		Lateral
13	M31	Grating PL 2	24.556						.65	.65		Lateral
14	M31A	Grating Ang...	17.5			Lbyy			.65	.65		Lateral
15	M32B	Grating Ang...	17.5			Lbyy			.65	.65		Lateral
16	M36A	Grating Ang...	6.406			Lbyy			.65	.65		Lateral
17	M37	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
18	M38	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
19	M43	Grating Ang...	32.414			Lbyy			.65	.65		Lateral
20	M44	Grating Ang...	32.414			Lbyy			.65	.65		Lateral
21	M49	Grating Ang...	6.406			Lbyy			.65	.65		Lateral
22	M50	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
23	M51	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
24	M53	Grating PL 2	36.828						.65	.65		Lateral
25	M54	Grating PL 2	24.556						.65	.65		Lateral
26	M59	Grating Ang...	17.5			Lbyy			.65	.65		Lateral
27	M60	Grating Ang...	17.5			Lbyy			.65	.65		Lateral
28	M66	Grating Ang...	6.406			Lbyy			.65	.65		Lateral
29	M67	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
30	M68	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
31	M73	Grating Ang...	32.414			Lbyy			.65	.65		Lateral
32	M74	Grating Ang...	32.414			Lbyy			.65	.65		Lateral
33	M79	Grating Ang...	6.406			Lbyy			.65	.65		Lateral
34	M80	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
35	M81	Grating Ang...	4.375			Lbyy			.65	.65		Lateral
36	M83	Grating PL 2	36.828						.65	.65		Lateral
37	M84	Grating PL 2	24.556						.65	.65		Lateral
38	M89	Grating Ang...	17.5			Lbyy			.65	.65		Lateral
39	M90	Grating Ang...	17.5			Lbyy			.65	.65		Lateral
40	M95	Platform Ho...	149.999	63.5		Lbyy						Lateral
41	M104A	Platform Ho...	149.999	63.5		Lbyy						Lateral
42	M105	Platform Ho...	149.999	63.5		Lbyy						Lateral
43	M107	Mount Pipe	96			Lbyy						Lateral
44	M109	Mount Pipe	96			Lbyy						Lateral
45	M111	Mount Pipe	96			Lbyy						Lateral
46	M113	Mount Pipe	96			Lbyy						Lateral
47	SR1	Support Rail	150		42							Lateral
48	SR10	Support Rail	150		42							Lateral
49	SR19	Support Rail	150		42							Lateral
50	PR5	MOD Stabili...	56.693									Lateral
51	PR6	MOD Stabili...	56.693									Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torq...	Kyy	Kzz	Cb	Function
52	M212A	MOD Stabili...	56.693									Lateral
53	M213A	MOD Stabili...	56.693									Lateral
54	M218A	MOD Stabili...	56.693									Lateral
55	M219A	MOD Stabili...	56.693									Lateral
56	M224A	Conn. PL	1			Lbyy			.65	.65		Lateral
57	M225	Conn. PL	1			Lbyy			.65	.65		Lateral
58	M238	SR Conn Pl...	4									Lateral
59	M226B	SR Conn Pl...	4									Lateral
60	M231A	SR Conn A...	15.399									Lateral
61	M220	SR Conn Pl...	4									Lateral
62	M223	SR Conn Pl...	4									Lateral
63	M228B	SR Conn A...	15.399									Lateral
64	M229B	SR Conn Pl...	4									Lateral
65	M232A	SR Conn Pl...	4									Lateral
66	M237A	SR Conn A...	15.399									Lateral
67	M199	Mount Pipe	96			Lbyy						Lateral
68	M201A	Mount Pipe	96			Lbyy						Lateral
69	M203	Mount Pipe	96			Lbyy						Lateral
70	M205	Mount Pipe	96			Lbyy						Lateral
71	M219	Mount Pipe	96			Lbyy						Lateral
72	M221B	Mount Pipe	96			Lbyy						Lateral
73	M223A	Mount Pipe	96			Lbyy						Lateral
74	M225C	Mount Pipe	96			Lbyy						Lateral
75	M227E	End Plate A...	3.313			Lbyy			.65	.65		Lateral
76	M228D	End Plate A...	3.313			Lbyy			.65	.65		Lateral
77	M233C	End Plate A...	3.313			Lbyy			.65	.65		Lateral
78	M234C	End Plate A...	3.313			Lbyy			.65	.65		Lateral
79	M244	Offsett Tube	62.5			Lbyy						Lateral
80	M247A	Conn. PL	1			Lbyy			.65	.65		Lateral
81	M248A	Conn. PL	1			Lbyy			.65	.65		Lateral
82	M251	Offsett Tube	62.5			Lbyy						Lateral
83	M254	Conn. PL	1			Lbyy			.65	.65		Lateral
84	M255A	Conn. PL	1			Lbyy			.65	.65		Lateral

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	N338B	max	5696.973	3	1445.567	15	1199.025	26	1308.752	7	1727.488	25	2176.193	7
2		min	-3736.168	11	-1437.735	7	72.68	18	-1119.766	15	293.505	18	-2176.795	15
3	N373A	max	1767.366	6	5013.708	14	1199.185	20	213.948	11	723.808	18	2175.834	18
4		min	-2749.42	14	-3317.778	6	72.815	12	-1760.272	19	-1171.732	10	-2175.591	10
5	N382A	max	1985.265	17	3175.207	16	1199.972	31	1382.219	20	772.005	5	2174.871	12
6		min	-2960.779	9	-4873.73	8	72.486	7	55.001	12	-1554.023	13	-2175.217	4
7	N326A	max	1839.011	30	686.526	6	1850.257	30	85.186	6	60.876	6	135.309	18
8		min	-396.404	6	-3184.975	30	-370.528	6	-453.858	30	-254.665	30	-125.586	10
9	P5	max	791.964	11	99.778	15	1850.342	19	53.35	7	520.409	19	135.284	7
10		min	-3677.95	19	-100.001	7	-370.148	11	-48.522	15	-104.104	11	-125.598	15
11	N335A	max	1838.227	24	3184.195	24	1849.743	24	447.371	24	43.441	16	134.96	12
12		min	-397.153	16	-687.955	16	-371.305	16	-95.504	16	-265.61	24	-125.279	4
13	Totals:	max	6036.122	3	6035.527	15	8255.886	23						
14		min	-6036.128	11	-6035.527	7	2541.864	1						

Envelope AISC 14th(360-10): LRFD Steel Code Checks

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn...		Eqn
1	M82B	L7.25x2.375x0.25	.165	4.375	10	.787	4.375	z	16	38519....	75945.6	631.129	5474.5...		H2-1
2	M50	L7.25x2.375x0.25	.166	4.375	4	.787	4.375	z	11	38519....	75945.6	631.129	5474.5...		H2-1
3	M80	L7.25x2.375x0.25	.164	4.375	15	.786	4.375	z	6	38519....	75945.6	631.129	5474.5...		H2-1
4	M81	L7.25x2.375x0.25	.413	4.375	12	.775	4.375	y	11	38519....	75945.6	631.129	5474.5...		H2-1
5	M83D	L7.25x2.375x0.25	.394	4.375	7	.775	4.375	y	6	38519....	75945.6	631.129	5474.5...		H2-1
6	M51	L7.25x2.375x0.25	.398	4.375	17	.775	4.375	y	16	38519....	75945.6	631.129	5474.5...		H2-1
7	M68	L7.25x2.375x0.25	.449	0	4	.774	0	y	5	38519....	75945.6	631.129	5474.5...		H2-1
8	M38	L7.25x2.375x0.25	.451	0	10	.771	0	y	11	38519....	75945.6	631.129	5474.5...		H2-1
9	M14	L7.25x2.375x0.25	.451	0	15	.771	0	y	16	38519....	75945.6	631.129	5474.5...		H2-1
10	M67	L7.25x2.375x0.25	.177	0	6	.765	0	z	11	38519....	75945.6	631.129	5474.5...		H2-1
11	M37	L7.25x2.375x0.25	.173	0	11	.765	0	z	16	38519....	75945.6	631.129	5474.5...		H2-1
12	M13	L7.25x2.375x0.25	.199	0	17	.765	0	z	6	38519....	75945.6	631.129	5474.5...		H2-1
13	SR19	PIPE_2.0	.635	7.895	5	.509	138.1...		9	6295.4...	32130	1871.6...	1871.6...		H1-1a
14	SR10	PIPE_2.0	.609	7.895	10	.492	138.1...		14	6295.4...	32130	1871.6...	1871.6...		H1-1a
15	SR1	PIPE_2.0	.608	7.895	15	.491	138.1...		3	6295.4...	32130	1871.6...	1871.6...		H1-1a
16	M229B	PL5x0.1875	.154	.842	8	.226	2.737	y	9	17775....	30375	118.652	3164.0...		H1-1b
17	M220	PL5x0.1875	.154	.842	14	.218	2.737	y	14	17775....	30375	118.652	3164.0...		H1-1b
18	M238	PL5x0.1875	.154	.842	3	.218	2.737	y	3	17775....	30375	118.652	3164.0...		H1-1b
19	M255A	PL8.5x3/8	.120	0	12	.149	0	y	12	84967....	103275	806.836	18288....		H1-1b
20	M225	PL8.5x3/8	.120	0	7	.149	0	y	7	84967....	103275	806.836	18288....		H1-1b
21	M248A	PL8.5x3/8	.120	0	18	.149	0	y	18	84967....	103275	806.836	18288....		H1-1b
22	M223	PL5x0.1875	.176	.842	13	.137	.842	y	17	17775....	30375	118.652	3164.0...		H1-1b*
23	M237A	L5.50X3.5625X3	.493	0	3	.137	15.399	y	9	26491....	53915....	966.11	2943.7...		H2-1
24	M228D	L5x4x0.25	.168	3.313	17	.137	3.313	z	8	57000....	70875	2842.6...	6820.0...		H2-1
25	M234C	L5x4x0.25	.169	3.313	12	.137	3.313	z	3	57000....	70875	2842.6...	6820.0...		H2-1
26	M29	L5x4x0.25	.167	3.313	7	.137	3.313	z	14	57000....	70875	2842.6...	6820.0...		H2-1
27	M226B	PL5x0.1875	.167	.842	18	.135	2.737	y	14	17775....	30375	118.652	3164.0...		H1-1b*
28	M232A	PL5x0.1875	.167	.842	7	.135	2.737	y	3	17775....	30375	118.652	3164.0...		H1-1b*
29	M254	PL8.5x3/8	.107	0	4	.135	1	y	12	84967....	103275	806.836	18288....		H1-1b
30	M224A	PL8.5x3/8	.107	0	15	.134	1	y	7	84967....	103275	806.836	18288....		H1-1b
31	M247A	PL8.5x3/8	.108	0	9	.134	1	y	18	84967....	103275	806.836	18288....		H1-1b
32	M228B	L5.50X3.5625X3	.493	0	8	.133	15.399	y	14	26491....	53915....	966.11	2943.7...		H2-1
33	M231A	L5.50X3.5625X3	.505	0	13	.133	15.399	y	3	26491....	53915....	966.11	2943.7...		H2-1
34	M111	PIPE_2.0	.617	32.842	11	.123	50.526		5	14916....	32130	1871.6...	1871.6...		H1-1b
35	M251	HSS5x3x3/8"	.139	0	12	.121	0	z	12	17154....	20553....	18493....	27058....		H1-1b
36	M1	HSS5x3x3/8"	.139	0	7	.121	0	z	7	17154....	20553....	18493....	27058....		H1-1b
37	M244	HSS5x3x3/8"	.139	0	18	.121	0	z	18	17154....	20553....	18493....	27058....		H1-1b
38	M223A	PIPE_2.0	.617	32.842	16	.115	50.526		11	14916....	32130	1871.6...	1871.6...		H1-1b
39	M203	PIPE_2.0	.617	32.842	6	.115	50.526		16	14916....	32130	1871.6...	1871.6...		H1-1b
40	M8	L5x4x0.25	.204	0	15	.114	0	z	9	57000....	70875	2842.6...	6820.0...		H2-1
41	M227E	L5x4x0.25	.204	0	10	.112	0	z	4	57000....	70875	2842.6...	6820.0...		H2-1
42	M233C	L5x4x0.25	.204	0	4	.111	0	z	15	57000....	70875	2842.6...	6820.0...		H2-1
43	M105	PIPE_3.0	.159	134.2...	3	.108	43.421		8	28250....	65205	5748.75	5748.75	1	H1-1b
44	M95	PIPE_3.0	.159	134.2...	14	.108	43.421		3	28250....	65205	5748.75	5748.75	1	H1-1b
45	M104A	PIPE_3.0	.161	134.2...	9	.108	43.421		14	28250....	65205	5748.75	5748.75	1	H1-1b
46	M199	PIPE_2.0	.560	70.737	18	.080	70.737		17	14916....	32130	1871.6...	1871.6...		H1-1b
47	M44	L2.375x1.25x0.25	.380	0	16	.080	10.236	y	16	19702....	27345.6	330.185	1353.3...		H2-1
48	M23	L2.375x1.25x0.25	.384	0	5	.080	10.236	y	6	19702....	27345.6	330.185	1354.4...		H2-1
49	M74	L2.375x1.25x0.25	.373	0	11	.080	10.236	y	11	19702....	27345.6	330.185	1352.4...		H2-1
50	M219	PIPE_2.0	.564	70.737	13	.080	70.737		11	14916....	32130	1871.6...	1871.6...		H1-1b
51	M107	PIPE_2.0	.560	70.737	7	.080	70.737		6	14916....	32130	1871.6...	1871.6...		H1-1b
52	M43	L2.375x1.25x0.25	.351	32.414	12	.076	22.178	y	11	19702....	27345.6	330.185	1353.5...		H2-1
53	M22	L2.375x1.25x0.25	.359	32.414	17	.076	22.178	y	16	19702....	27345.6	330.185	1347.4...		H2-1
54	M73	L2.375x1.25x0.25	.350	32.414	7	.076	22.178	y	6	19702....	27345.6	330.185	1353.4...		H2-1
55	M225C	PIPE_2.0	.592	70.737	5	.072	70.737		5	14916....	32130	1871.6...	1871.6...		H1-1b
56	M205	PIPE_2.0	.591	70.737	11	.071	70.737		10	14916....	32130	1871.6...	1871.6...		H1-1b

Envelope AISC 14th(360-10): LRFD Steel Code Checks (Continued)

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pn...	phi*Pn...	phi*Mn...	phi*Mn.....	Eqn
57	M113	PIPE_2.0	.590	70.737	16	.071	70.737		15	14916....	32130	1871.6...	1871.6.....	H1-1b
58	M90	L4.75x4.5x0.25	.341	17.5	29	.064	17.5	z	28	60192....	72900	4381.6...	8212.7.....	H2-1
59	M60	L4.75x4.5x0.25	.340	17.5	19	.064	17.5	z	34	60192....	72900	4381.6...	8212.7.....	H2-1
60	M32B	L4.75x4.5x0.25	.340	17.5	24	.064	17.5	z	23	60192....	72900	4381.6...	8212.7.....	H2-1
61	M54	PL1.50x0.25	.373	24.556	8	.058	12.278	y	18	1731.8...	12150	63.283	379.688...	H1-1b
62	M31	PL1.50x0.25	.372	24.556	14	.058	12.278	y	7	1731.8...	12150	63.283	379.688...	H1-1b
63	M84	PL1.50x0.25	.369	24.556	3	.057	12.278	y	12	1731.8...	12150	63.283	379.688...	H1-1b
64	M89	L4.75x4.5x0.25	.274	0	25	.054	0	z	25	60192....	72900	4381.6...	8212.7.....	H2-1
65	M31A	L4.75x4.5x0.25	.274	0	20	.054	0	z	19	60192....	72900	4381.6...	8212.7.....	H2-1
66	M59	L4.75x4.5x0.25	.280	0	79	.054	0	z	30	60192....	72900	4381.6...	8212.7.....	H2-1
67	M83	PL1.50x0.25	.353	18.414	15	.049	18.414	y	5	769.952	12150	63.283	379.688...	H1-1a
68	M221B	PIPE_2.0	.449	70.737	3	.048	70.737		12	14916....	32130	1871.6...	1871.6.....	H1-1b
69	M109	PIPE_2.0	.448	70.737	14	.048	70.737		7	14916....	32130	1871.6...	1871.6.....	H1-1b
70	M201A	PIPE_2.0	.456	70.737	9	.048	70.737		18	14916....	32130	1871.6...	1871.6.....	H1-1b
71	M30	PL1.50x0.25	.354	18.414	10	.048	18.414	y	16	769.952	12150	63.283	379.688...	H1-1a
72	M53	PL1.50x0.25	.354	18.414	4	.048	18.414	y	11	769.952	12150	63.283	379.688...	H1-1a
73	M79	L6.4x4.750x0.25	.110	6.406	5	.045	6.406	z	13	57754....	88290	2962.2...	7667.7.....	H2-1
74	M83C	L6.4x4.750x0.25	.107	6.406	15	.044	6.406	z	8	57754....	88290	2962.2...	7667.7.....	H2-1
75	M49	L6.4x4.750x0.25	.107	6.406	10	.044	6.406	z	3	57754....	88290	2962.2...	7667.7.....	H2-1
76	M66	L6.4x4.750x0.25	.115	0	11	.044	0	z	3	57754....	88290	2962.2...	7667.7.....	H2-1
77	M36A	L6.4x4.750x0.25	.120	0	17	.044	0	z	8	57754....	88290	2962.2...	7667.7.....	H2-1
78	M11	L6.4x4.750x0.25	.116	0	6	.044	0	z	14	57754....	88290	2962.2...	7667.7.....	H2-1
79	M218A	L3X3X3	.138	28.347	24	.010	56.693	z	12	20558....	35316	1320.0...	2470.2.....	H2-1
80	M219A	L3X3X3	.130	28.347	5	.010	0	y	12	20558....	35316	1320.0...	2470.2.....	H2-1
81	PR5	L3X3X3	.138	28.347	19	.010	56.693	z	7	20558....	35316	1320.0...	2470.2.....	H2-1
82	PR6	L3X3X3	.129	28.347	33	.010	56.693	y	7	20558....	35316	1320.0...	2470.2.....	H2-1
83	M213A	L3X3X3	.129	28.347	29	.010	56.693	y	18	20558....	35316	1320.0...	2470.2.....	H2-1
84	M212A	L3X3X3	.138	28.347	30	.010	0	z	18	20558....	35316	1320.0...	2470.2.....	H2-1

EBI Consulting

environmental | engineering | due diligence

RADIO FREQUENCY EMISSIONS ANALYSIS REPORT
EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

T-Mobile Existing Facility

Site ID: CT11641A

CT641/SSite Waterford_MP
85 Miner Lane
Waterford, Connecticut 06385

May 31, 2019

EBI Project Number: 6219001988

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**8.18%**

May 31, 2019

T-Mobile
Attn: Jason Overbey, RF Manager
35 Griffin Road South
Bloomfield, Connecticut 06002

Emissions Analysis for Site: CT11641A - CT641/SSite Waterford_MP

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **85 Miner Lane** in **Waterford, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu W/cm^2$). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits; therefore, it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general population may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general population would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$, respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 85 Miner Lane in Waterford, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 GSM/UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation

are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

6) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

7) The antennas used in this modeling are the Ericsson AIR21 B2A_B4P for the 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s) in Sector A, the Ericsson AIR21 B2A_B4P for the 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s) in Sector B, the Ericsson AIR21 B2A_B4P for the 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antenna mounting height centerline of the proposed antennas is 130 feet above ground level (AGL).

9) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

10) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P
Frequency Bands:	1900 MHz	Frequency Bands:	1900 MHz	Frequency Bands:	1900 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	60 Watts	Total TX Power (W):	60 Watts	Total TX Power (W):	60 Watts
ERP (W):	2,056.61	ERP (W):	2,056.61	ERP (W):	2,056.61
Antenna A1 MPE %:	**0.44%**	Antenna B1 MPE %:	**0.44%**	Antenna C1 MPE %:	**0.44%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A2 MPE %:	**1.22%**	Antenna B2 MPE %:	**1.22%**	Antenna C2 MPE %:	**1.22%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR21 B2P_B4A	Make / Model:	Ericsson AIR21 B2P_B4A	Make / Model:	Ericsson AIR21 B2P_B4A
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	130 feet	Height (AGL):	130 feet	Height (AGL):	130 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A3 MPE %:	**0.88%**	Antenna B3 MPE %:	**0.88%**	Antenna C3 MPE %:	**0.88%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	2.53%
AT&T	2.64%
Clearwire	0.12%
Town	0.04%
USA Mobility	0.03%
Springwich Paging	0.25%
Cingular Yagi	0.3%
Verizon	2.27%
Site Total MPE % :	8.18%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	2.53%
T-Mobile Sector B Total:	2.53%
T-Mobile Sector C Total:	2.53%
Site Total MPE % :	8.18%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz GSM/UMTS	2	1028.30	130.0	4.38	1900 MHz GSM/UMTS	1000	0.44%
T-Mobile 600 MHz LTE	2	591.73	130.0	2.52	600 MHz LTE	400	0.63%
T-Mobile 700 MHz LTE	2	648.82	130.0	2.76	700 MHz LTE	467	0.59%
T-Mobile 2100 MHz LTE AWS	2	2056.61	130.0	8.75	2100 MHz LTE AWS	1000	0.88%
						Total:	**2.53%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-Mobile facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-Mobile Sector	Power Density Value (%)
Sector A:	2.53%
Sector B:	2.53%
Sector C:	2.53%
T-Mobile Maximum MPE % (Sector A):	2.53%
Site Total:	8.18%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.18%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.