Transcend Wireless

10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

June 23, 2020

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

RE: Notice of Exempt Modification
77 Pease Road, Woodbridge, CT 06525
Latitude: 41.341444444
Longitude: -72.9936
T-Mobile Site#: CTNH521A – L600

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 130-foot level of the existing 150-foot monopole at 77 Pease Road, Woodbridge, CT. The 150-foot monopole tower is owned by American Tower Corporation. The property is owned by Kenneth W. Johnson. T-Mobile now intends to add three (3) new 600/700 MHz antennas. The new antennas will be installed at the same 130-foot level of the tower. Mount replacements are also required as detailed in the enclosed mount analysis.

Planned Modifications:
Tower:

Remove
(6) 1-5/8" coax
(1) 1-5/8" Hybrid

Remove and Replace:
(3) RRUS11B12 for (3) Radio 4449 B12B71

Install New:
(3) APXVAARR24_43-U-NA20 600/700 MHz
(3) 1-1/4" hybrid

Existing to Remain:
(6) AIR 21 1900/2100 MHZ
(1) Radio 1300
(2) CAT5
(1) 1-5/8" Hybrid

Ground:
Install New: Equipment inside existing 6131 cabinet

This tower was originally approved by the Connecticut Siting Council in Docket No. 44 dated July 24, 1984. The proposed 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 Selectmen -Beth Heller, Elected Official, and Kristine Sullivan, Land Use Analyst for the Town of Woodbridge, as well as the tower owner and property 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: Beth Heller – Town of Woodbridge First Selectmen
Kristine Sullivan– Town of Woodbridge Land Use Analyst
American Tower – Tower Owner
Kenneth W. Johnson – Property 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.

UPS Access Point™
MICHAELS STORE # 7773
75 INTERSTATE SHOP CTR
RAMSEY ,NJ 07446

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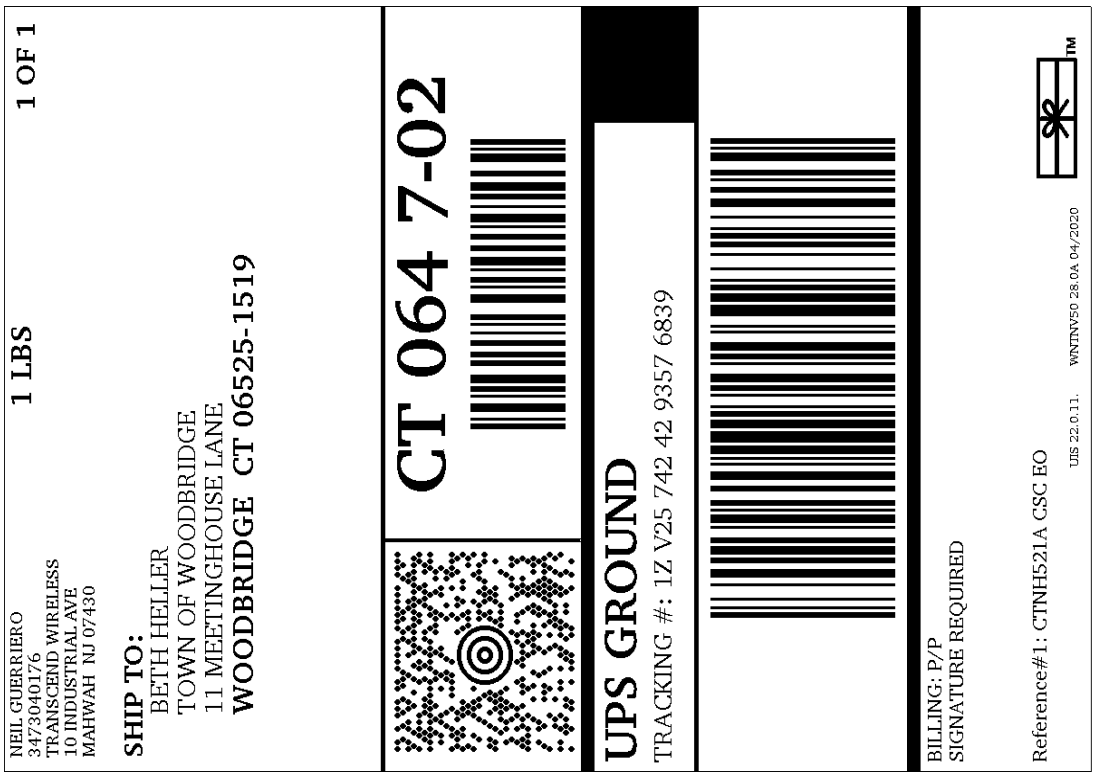
THE UPS STORE
115 FRANKLIN TPKE
MAHWAH ,NJ 07430

UPS Access Point™
THE UPS STORE
120 E MAIN ST
RAMSEY ,NJ 07446

FOLD HERE



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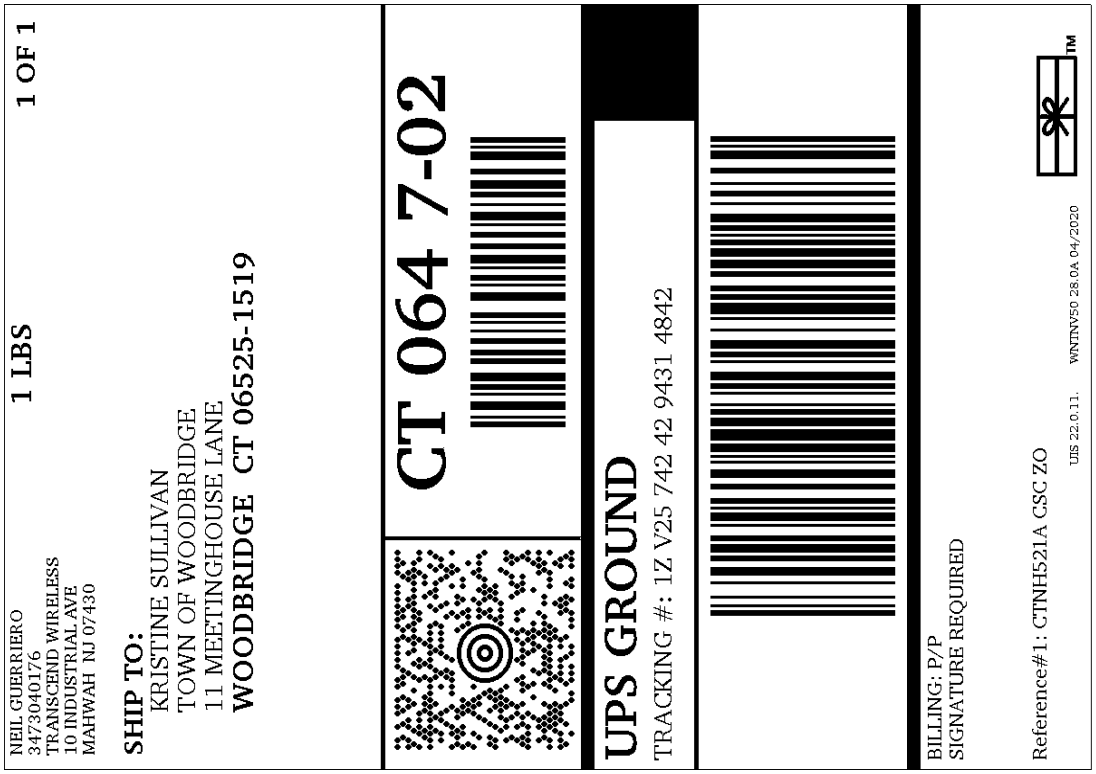

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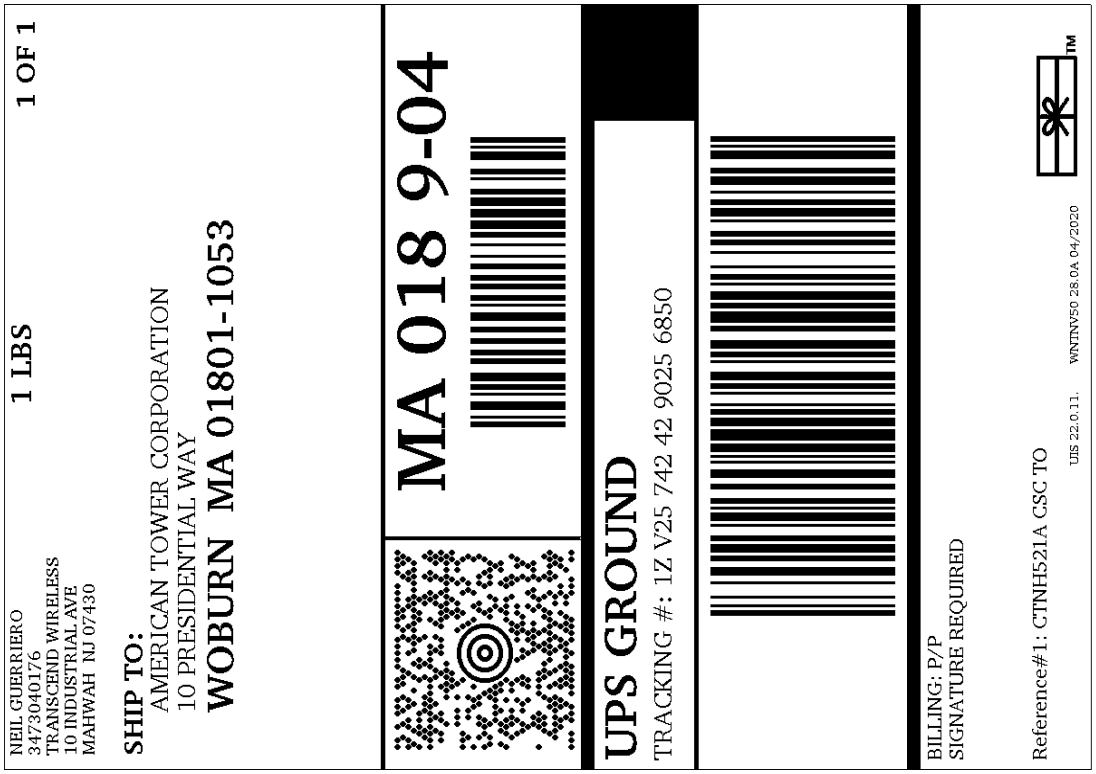

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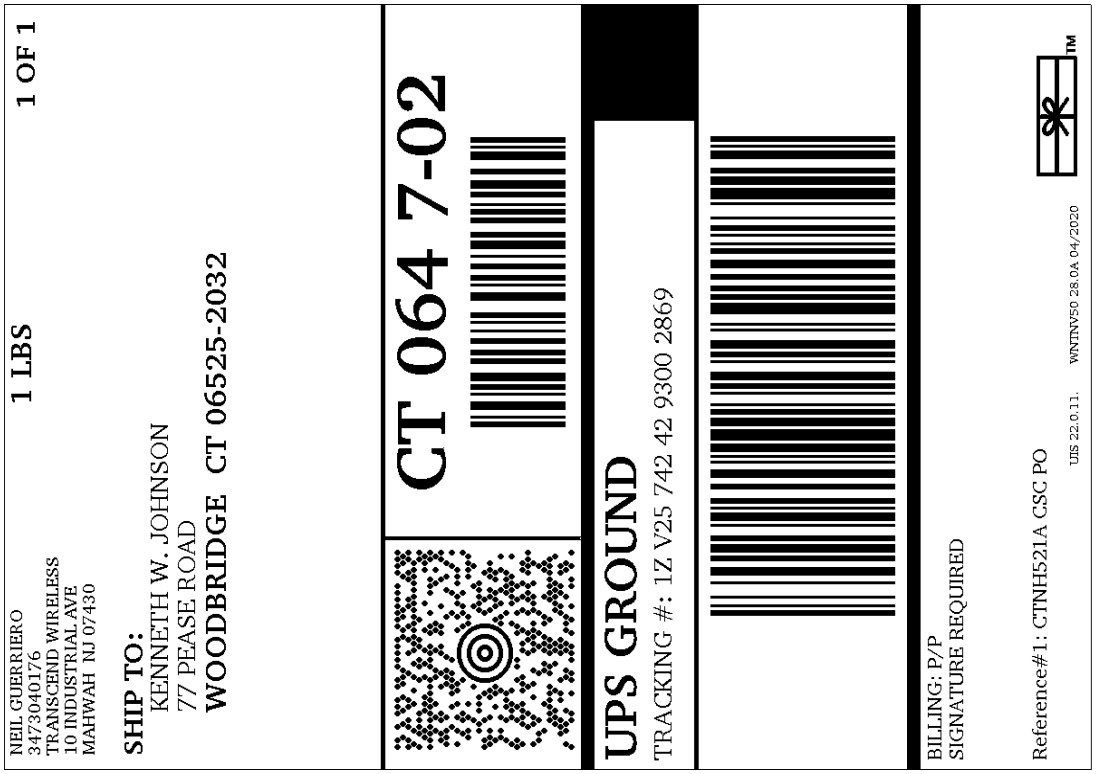


77 PEASE RD

Location 77 PEASE RD

Mblu 2204/ 1410/ 77/ /

Owner JOHNSON KENNETH W

Assessment $202,580

Appraisal $289,400

PID 896

Building Count 1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$197,700	$91,700	$289,400
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$138,390	$64,190	$202,580

Owner of Record

Owner JOHNSON KENNETH W
Co-Owner
Address 77 PEASE RD
WOODBRIDGE, CT 06525

Sale Price $0
Certificate
Book & Page 608/ 161
Sale Date 10/20/2008

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
JOHNSON KENNETH W	$0		608/ 161	10/20/2008
JOHNSON JOAN A & KENNETH W	$0		98/ 082	04/03/1972

Building Information

Building 1 : Section 1

Year Built: 1930
Living Area: 2,379

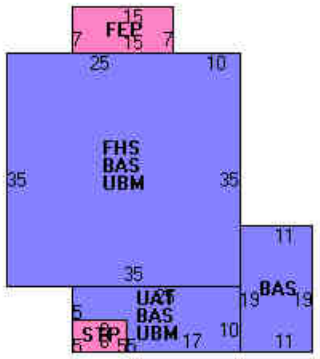
Building Attributes	
Field	**Description**
Style	Conventional
Model	Residential
Stories:	1 1/2 Stories

Occupancy	1
Exterior Wall 1	Brick/Masonry
Exterior Wall 2	
Roof Structure:	Gambrel
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	Plastered
Interior Flr 1	Carpet
Interior Flr 2	Hardwood
Heat Fuel	Propane
Heat Type:	Forced Air-Duc
AC Type:	Central
Total Bedrooms:	4 Bedrooms
Total Bthrms:	2
Total Half Baths:	0
Total Xtra Fixtrs:	1
Total Rooms:	7
Bath Style:	Average
Kitchen Style:	Average
Dormer	

Building Photo

(http://images.vgsi.com/photos/WoodbridgeCTPhotos//\00\00\59

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,644	1,644
FHS	Half Story, Finished	1,225	735
FEP	Enclosed Porch	105	0
STP	Stoop	40	0
UAT	Attic, Unfinished	210	0
UBM	Basement, Unfinished	1,435	0
		4,659	2,379

Extra Features

Extra Features				Legend
Code	**Description**	**Size**	**Value**	**Bldg #**
FPL1	Fireplace	1 UNITS	$1,800	1

Land

Land Use

Use Code	1010
Description	Single Family
Zone	A
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	2.61
Frontage	0
Depth	0
Assessed Value	$64,190
Appraised Value	$91,700

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FGR4	Garage w Lft			864 S.F	$18,100	1
BRN3	Barn w Loft			864 S.F.	$19,000	1

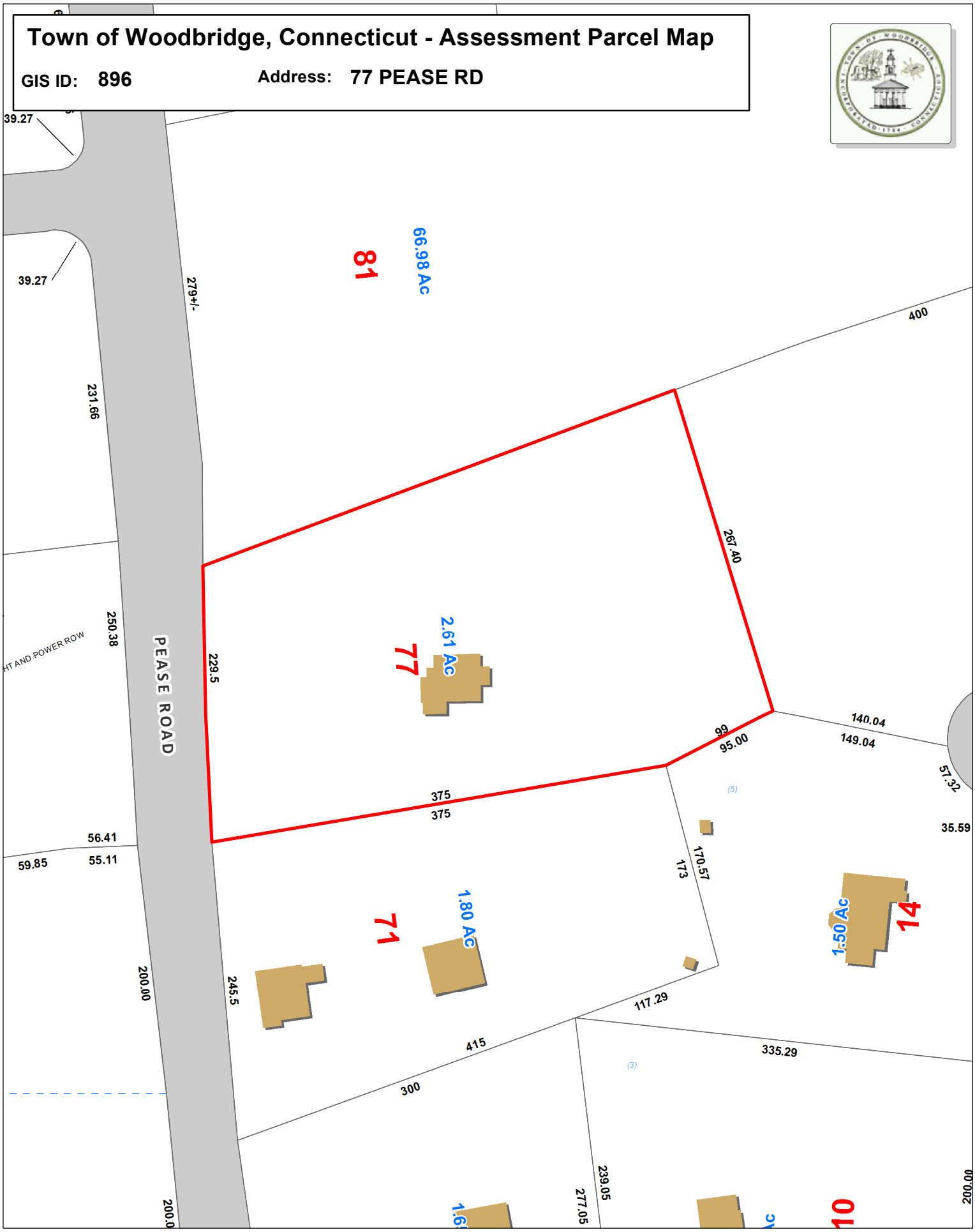
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$197,700	$91,700	$289,400
2017	$197,700	$91,700	$289,400
2016	$197,700	$91,700	$289,400

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$138,390	$64,190	$202,580
2017	$138,390	$64,190	$202,580
2016	$138,390	$64,190	$202,580

Town of Woodbridge, Connecticut - Assessment Parcel Map

GIS ID: 896 **Address:** 77 PEASE RD



Map Produced May 2015

Approximate Scale: 1 inch = 100 feet

DOCKET NO. 44

AN APPLICATION SUBMITTED BY 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 NEW HAVEN COUNTY	:	CONNECTICUT SITING COUNCIL
	:	July 24, 1984

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 as required by section 16-50k of the General Statutes of Connecticut, revisions of 1958, revised to 1983, as amended, be issued to the Southern New England Telephone Company for the construction, operation, and maintenance of a telecommunications tower and associated equipment to provide cellular service at each of the following sites:

Jasudowich tract, Brushy Plain Road, Branford, Connecticut;
Town of Guilford tract, Tanner Marsh Road, Guilford, Connecticut;
Bridgeport Avenue, Milford, Connecticut;
Quagliaro tract, Farmdale Drive, Waterbury, Connecticut;
Pease Road, Woodbridge, Connecticut; and
Dwight Street, North Haven, Connecticut.

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' at the Branford site,
   b) 167' at the Guilford site,
   c) 117' at the Milford site,
   d) 167' at the Waterbury site,
   e) 167' at the Woodbridge site,
   f) 167' at the North Haven site;

2. A fence not lower than eight feet shall surround each tower and its associated equipment;

3. The applicant or its successor shall notify the Council if and when directional antennas or any other equipment is added to any of these facilities;
4. 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 facilities, for due consideration received, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing;
5. Unless necessary to comply with condition number six, below, no lights shall be installed on any of these towers;
6. The facilities shall be constructed in accordance with all applicable federal, state, and municipal laws and regulations;
7. The applicant shall submit a development and management plan (D&M) for the Branford, Milford, Woodbridge, and North Haven sites pursuant to sections 16-50j-85 through 16-50j-87 of the regulations of state agencies, except that irrelevant items in section 16-50j-86 need only be identified as such. The D&M plans shall include appropriate evergreen screening of the sites, erosion control measures, reseeding plans, and tree removal plans. The applicant shall comply with the reporting requirements of section 16-50j-87 for all sites;
8. Construction activities shall take place during daylight working hours;
9. This decision and order shall be void and the towers and associated equipment approved herein shall be dismantled and removed, or reapplication for any new use shall be made to the Connecticut

Siting Council before any such new use is made, if the towers do not provide or permanently cease to provide cellular service following completion of construction;

10. This decision and order shall be void if all construction authorized is not completed within three years of the issuance of this decision.

Pursuant to section 16-50p of the General Statutes, we hereby direct that a copy of the opinion and decision and order be served on each person listed below. A notice of the issuance shall be published in the Hartford Courant, New Haven Register, and the Waterbury Republican.

The parties to this proceeding are

The Southern New England Telephone Company
Room 314
227 Church Street
New Haven, Connecticut 06506

(Applicant)

ATTENTION: Mr. Peter J. Tyrrell
Senior Attorney

(its attorney)

Town of Hamden
Peter F. Villano, Mayor
Shirley Gonzales, Town Planner

represented by:

Mr. Hugh Manke, Esquire
Office of the Town Attorney
Memorial Town Hall
2372 Whitney Avenue
Hamden, Connecticut 06518

Inland Wetlands Agency
Town of Woodbridge

represented by:

Robert J. Klancko
Chairman
Town Hall
11 Meeting House Lane
Woodbridge, Connecticut 06525

Town Plan and Zoning Commission Town of Woodbridge	represented by: Norman Fineberg Chairman Town Hall 11 Meeting House Lane Woodbridge, Connecticut 06525
The Honorable Peter M. Lerner State Representative State of Connecticut House of Representatives State Capitol Hartford, Connecticut 06115	
John Menta Felicia Tencza	represented by: Ms. Felicia Tencza 580 Gaylord Mountain Road Hamden, Connecticut 06518
Ms. Renee Robinson 265 Blue Trail Hamden, Connecticut 06518	(service waived)
Irene L. Wong Edson H. Mount Dr. & Mrs. H.M. Fiskio Dr. & Mrs. Alexander Gottschalk	represented by: Dr. & Mrs. Alexander Gottschalk 230 Six Rod Highway Hamden, Connecticut 06518
The Sleeping Giant Park Association	represented by: Mr. Dag Pfeiffer President Box 14 Quinnipiac College Hamden, Connecticut 06518
West Rock Ridge Park Association	represented by: Mr. William L. Dohney, Jr., D.D.S. President 220 Mountain Road Hamden, Connecticut 06514
Sierra Club	represented by: Ms. M. Kim Yanoshick Executive Director Hartford Chapter 118 Oak Street Hartford, Connecticut 06106

Quinnipiac College	represented by: Mr. Richard A. Terry President Hamden, Connecticut 06518
Guilford Conservation Commission	represented by: Ms. Carolyn K. Evans Chairman Town Hall Park Street Guilford, Connecticut 06437
Mrs. Barbara R. Peterson Mary & Phil Faust Anita L. & Richard M. Sullivan	represented by: Anita L. & Richard M. Sullivan 315 Chestnut Lane Hamden, Connecticut 06518
Mrs. Pauline H. Hoff	represented by: Herbert L. Emanuelson, Jr. Emanuelson and Wynne 205 Church Street New Haven, Connecticut 06510
Hamden League of Women Voters	represented by: Mrs. Sherrill Zoller 605 West Woods Road Hamden, Connecticut 06518 (service waived)
Joan Rosenberg 230 Ridewood Avenue Hamden, Connecticut 06517	
Mr. & Mrs. Richard Sykes 110 Blue Trail Hamden, Connecticut 06518	
Thomas & Claudia Sullivan, Jr. 100 Blue Trail Hamden, Connecticut 06518	
Mr. William N. Pantalone 27 Pease Road Woodbridge, Connecticut 06525	(service waived)

INTERVENORS

Metromedia TeleCommunications
Nutmeg Telecommunications, Inc.
CSI of New Haven
CSI of Stamford
Cellular Communications, Inc.
LIN Cellular Corp.
Cellular Mobile Services
Maxcell TeleCommunications, Inc.
Mobile Cellular Telephone, Inc.
Cellular Dynamics
Connecticut Corridor Cellular
Chase/Post Cellular

represented by:

Dwight A. Johnson
Murtha, Cullina, Richter
and Pinney
101 Pearl Street
P.O. Box 3197
Hartford, Connecticut 06103-0197

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 24th day of July, 1984.

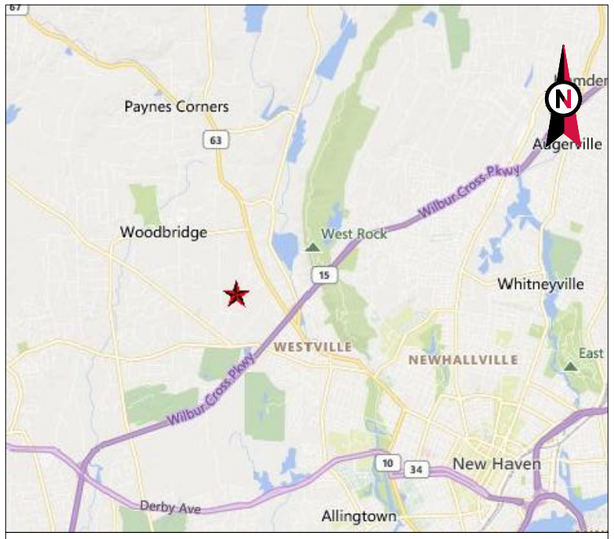
Council Members	Vote Cast
_____) Gloria Dibble Pond Chairperson	Absent
_____) Commissioner John Downey Designee: Commissioner Peter G. Boucher	Absent
Brian Emerick _____) Commissioner Stanley Pac Designee: Brian Emerick	~~Yes~~ ~~Absent~~ Abstain
Owen L. Clark _____) Owen L. Clark	Yes
Fred J. Doocy _____) Fred J. Doocy	Yes
Mortimer A. Gelston _____) Mortimer A. Gelston	Yes
James G. Horsfall _____) James G. Horsfall	Yes
_____) Janet Sitty	Absent
Colin C. Tait _____) Colin C. Tait Acting Chairperson	Yes

STATE OF CONNECTICUT)
: ss. New Britain, July 24, 1984
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:

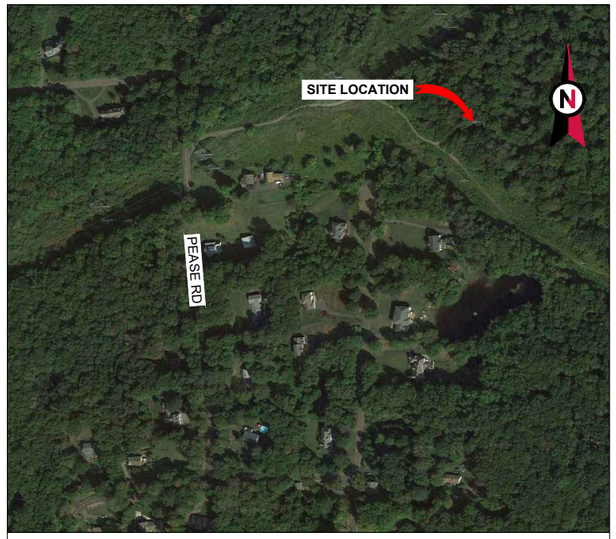
Christopher S. Wood, Executive Director
Connecticut Siting Council



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: WOODBRIDGE CT 1
ATC SITE NUMBER: 302480
T-MOBILE SITE ID: CTNH521A
SITE ADDRESS: 77 PEASE ROAD
WOODBRIDGE, CT 06525



LOCATION MAP

T-MOBILE L600 ANTENNA AMENDMENT
67D02C OUTDOOR CONFIGURATION

COMPLIANCE CODE

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

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

UTILITY COMPANIES

POWER COMPANY: UNITED ILLUMINATING
PHONE: (800) 722-5584

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

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

PROJECT SUMMARY

SITE ADDRESS:

77 PEASE ROAD
WOODBRIDGE, CT 06525
COUNTY: NEW HAVEN

GEOGRAPHIC COORDINATES:

LATITUDE: 41.34144444

LONGITUDE: -72.9936

GROUND ELEVATION: 322' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

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

PROPERTY OWNER:

KENNETH W JOHNSON
77 PEASE RD
WOODBRIDGE, CT 06525

PROJECT DESCRIPTION

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

REMOVE (3) RRUs AND (6) 1-5/8" COAX CABLES

INSTALL (3) NEW PANELS, (3) RRUs, (1) PLATFORM MOUNT, AND (3)1-1/4" HYBRID CABLES

EXISTING (6) PANELS, (1) ODU, (2) CAT5 CABLES, (1) 1.58" HYBRID CABLE, (1) 7/8" COAX CABLE, (2) 0.27 CAT5, AND (1) 1-5/8" HYBRID CABLE

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 TAKE I-91 SOUTH TO MERRIT PKWY SOUTH TO EXIT 59. TAKE RT 63 NORTH, TURN LEFT ON RT 114. FOLLOW TO PEASE RD (FIRST LEFT). ACCESS ROAD IS DOWN ON LEFT.

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	0	06/22/20	MG
G-002	GENERAL NOTES	0	06/22/20	MG
C-101	DETAILED SITE PLAN & TOWER ELEVATION	0	06/22/20	MG
C-501	ANTENNA INFORMATION & SCHEDULE	0	06/22/20	MG
C-502	MOUNT DETAILS	0	06/22/20	MG
E-501	GROUNDING DETAILS	0	06/22/20	MG
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			

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

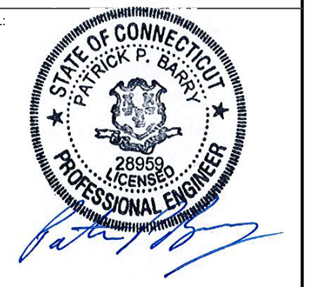
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	06/22/20

ATC SITE NUMBER:
302480

ATC SITE NAME:
WOODBRIDGE CT 1

SITE ADDRESS:
77 PEASE ROAD
WOODBRIDGE, CT 06525

SEAL:



Authorized by "EOR"
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APPROVED BY:	PPB
DATE DRAWN:	06/22/20
ATC JOB NO:	12978828

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	0

GENERAL CONSTRUCTION NOTES:

1. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
2. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
3. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
4. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
5. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
6. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
7. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
8. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
9. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
10. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE 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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PHONE: (919) 468-0112
COA: PEC.0001553

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	06/22/20

ATC SITE NUMBER:
302480

ATC SITE NAME:
WOODBRIDGE CT 1

SITE ADDRESS:
77 PEASE ROAD
WOODBRIDGE, CT 06525

SEAL:

Authorized by "EOR"
Jun 22 2020 11:44 AM

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DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	06/22/20
ATC JOB NO:	12978828

GENERAL NOTES

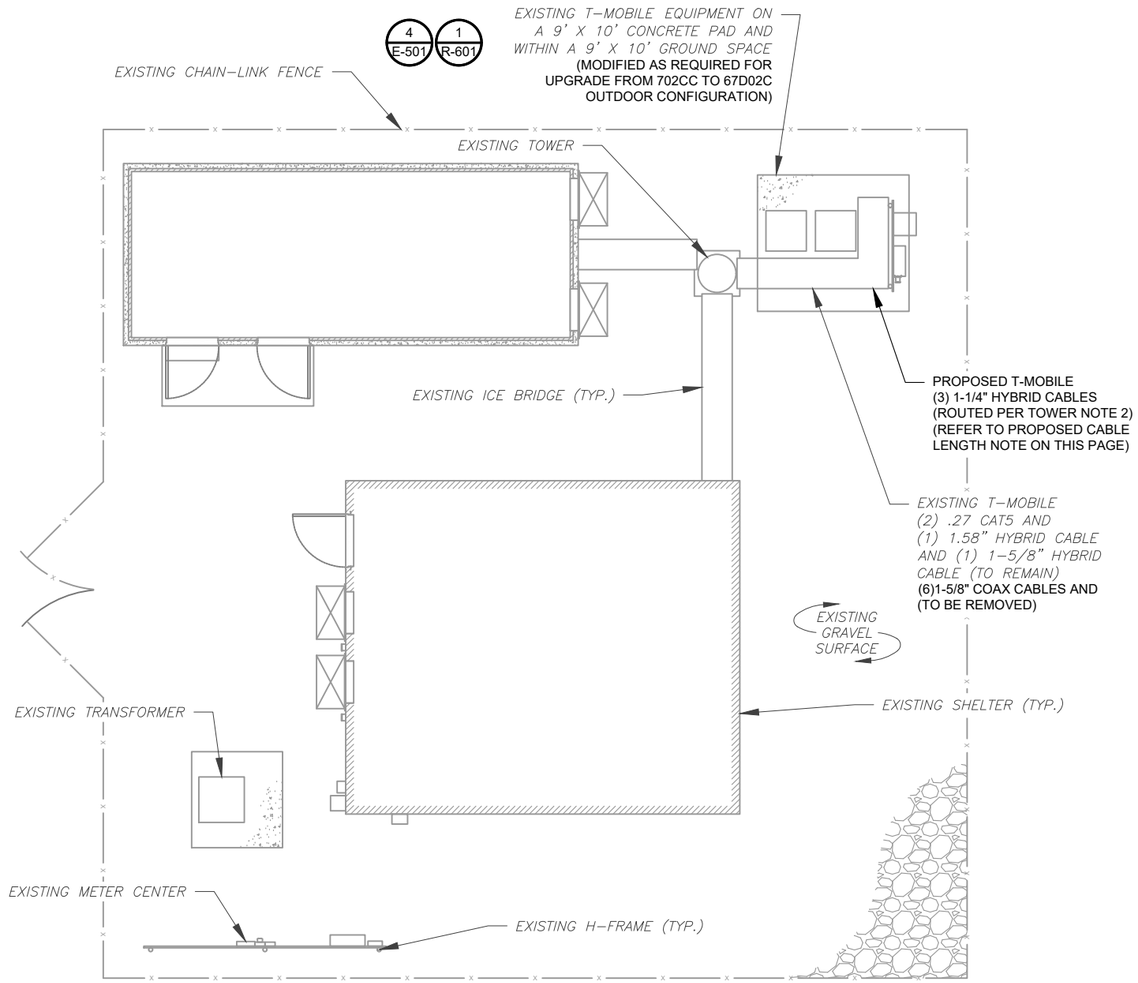
SHEET NUMBER:	REVISION:
G-002	0

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.



PROPOSED CABLE LENGTH:

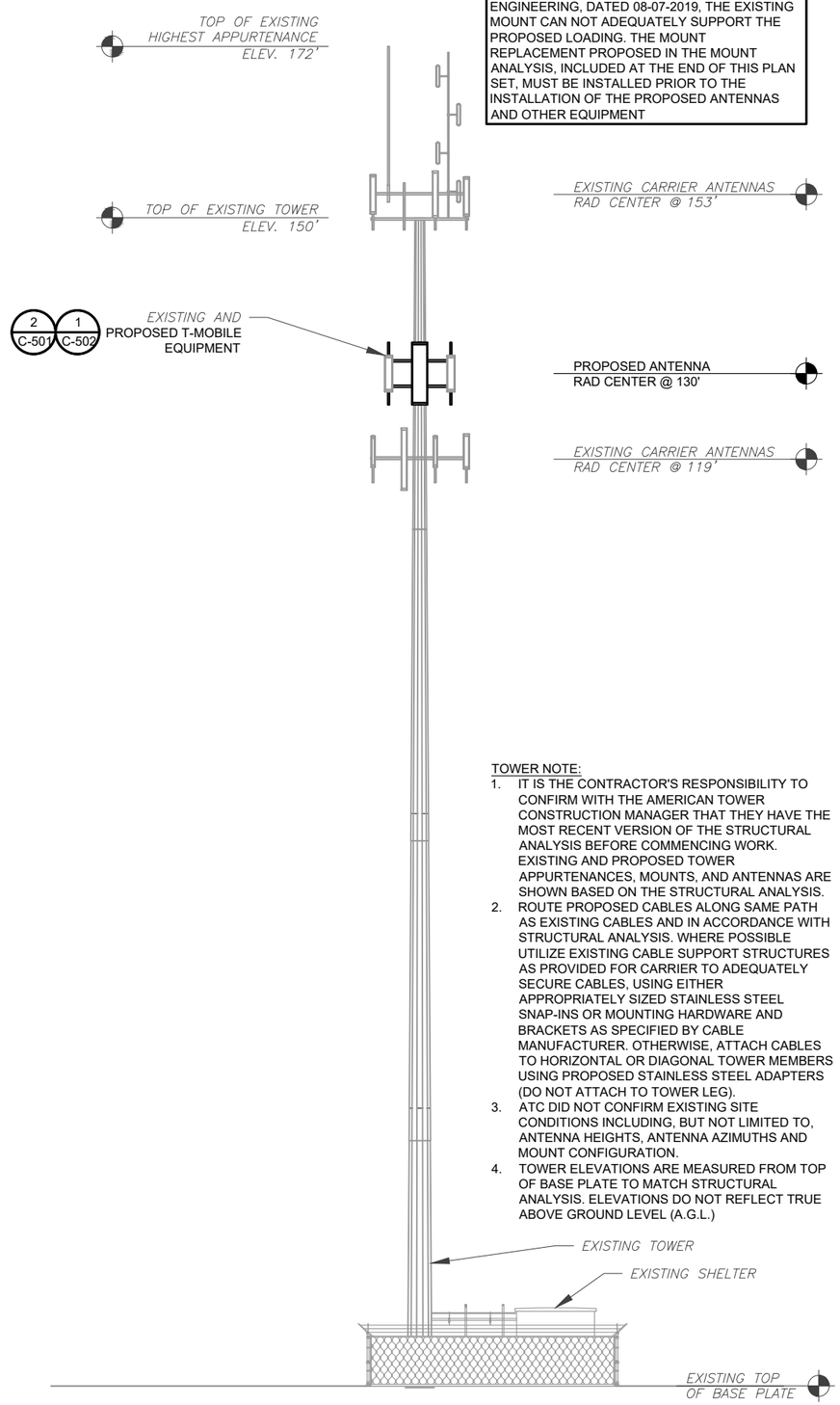
ESTIMATED LENGTH OF PROPOSED CABLE IS **157'**. ESTIMATED LENGTH OF CABLE IS CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES).

1 DETAILED SITE PLAN

0 10' 20'

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

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 08-07-2019, 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



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. WHERE POSSIBLE UTILIZE EXISTING CABLE SUPPORT STRUCTURES AS PROVIDED FOR CARRIER TO ADEQUATELY SECURE CABLES, USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER. OTHERWISE, ATTACH CABLES TO HORIZONTAL OR DIAGONAL TOWER MEMBERS USING PROPOSED STAINLESS STEEL ADAPTERS (DO NOT ATTACH TO TOWER LEG).
3. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATION.
4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

2 TOWER ELEVATION

SCALE: NOT TO SCALE

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	06/22/20

ATC SITE NUMBER:
302480

ATC SITE NAME:
WOODBRIDGE CT 1

SITE ADDRESS:
77 PEASE ROAD
WOODBRIDGE, CT 06525

SEAL:

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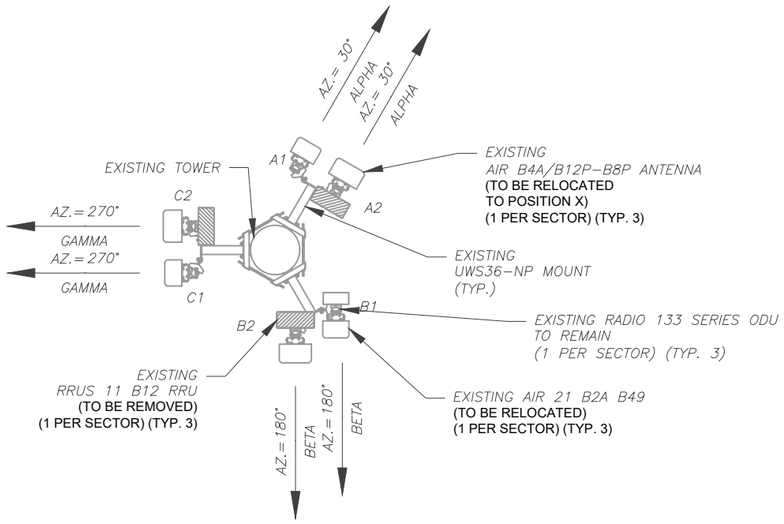
APPROVED BY:	PPB
DATE DRAWN:	06/22/20
ATC JOB NO:	12978828

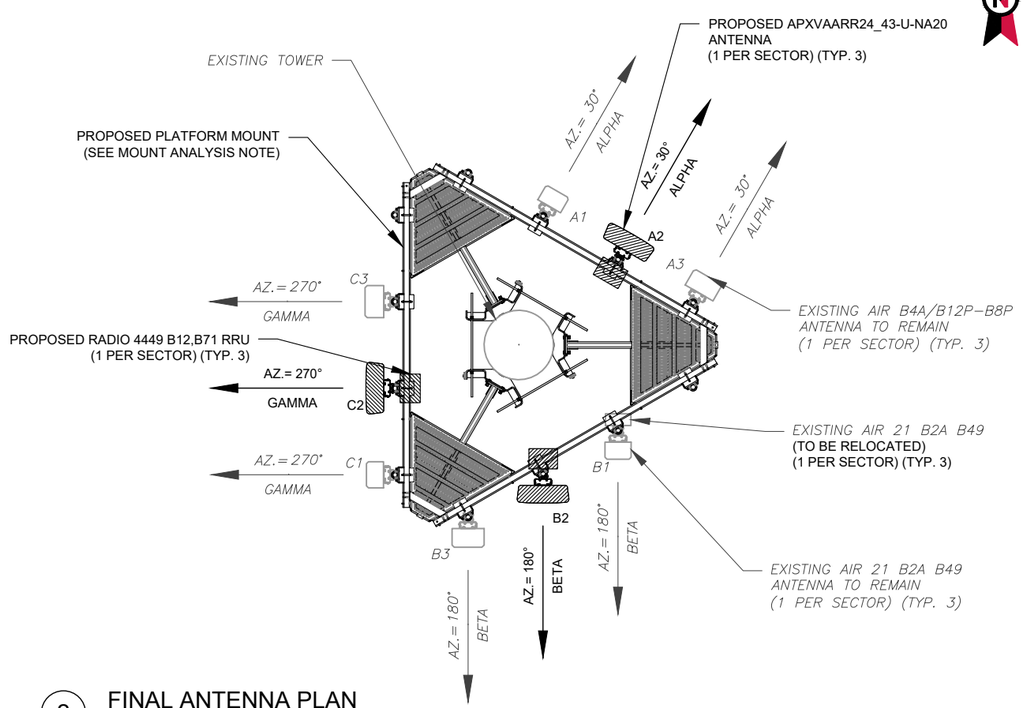
DETAILED SITE PLAN & TOWER ELEVATION

SHEET NUMBER:	REVISION:
C-101	0



1 EXISTING ANTENNA PLAN

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 08-07-2019, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING



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"	30°	0°	2°	–
ALPHA	A2	AIR 21 B4A B12P	130'-0"	30°	0°	2°	RRUS11 B12
BETA	B1	AIR 21 B2A B4P	130'-0"	180°	0°	2°	RADIO 1300 SERIES
BETA	B2	AIR 21 B4A B12P	130'-0"	180°	0°	2°	RRUS11 B12
GAMMA	C1	AIR 21 B2A B4P	130'-0"	270°	0°	2°	–
GAMMA	C2	AIR 21 B4A B12P	130'-0"	270°	0°	2°	RRUS11 B12

NOTES

1. BASED ON APPROVED ATC APPLICATION 12971714, DATED 04/26/2019. 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"	30°	0°	2°	
ALPHA	A2	APXVAARR24_43-U-NA20	130'-0"	30°	0°	2°	RADIO 4449 B12-B71
ALPHA	A3	AIR 21 B4A B12P	130'-0"	30°	0°	2°	-
BETA	B1	AIR 21 B2A B4P	130'-0"	180°	0°	2°	RADIO 1300 SERIES
BETA	B2	APXVAARR24_43-U-NA20	130'-0"	180°	0°	2°	RADIO 4449 B12-B71
BETA	B3	AIR 21 B4A B12P	130'-0"	180°	0°	2°	-
GAMMA	C1	AIR 21 B2A B4P	130'-0"	270°	0°	2°	–
GAMMA	C2	APXVAARR24_43-U-NA20	130'-0"	270°	0°	2°	RADIO 4449 B12-B71
GAMMA	C3	AIR 21 B4A B12P	130'-0"	270°	0°	2°	-

CURRENT FIBER DISTRIBUTION/OVP BOX		CURRENT CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	(6) 1-5/8"	(1) 1-5/8"	RMV
–	–	(2) .27 CAT5	(1) 1.58"	RMN

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
-	-	-	(3) 1-1/4"	ADD
-	-	(2) .27 CAT5	(1) 1.58"	RMN

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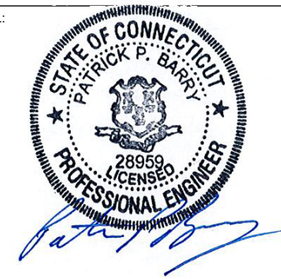
0	FOR CONSTRUCTION	MG	06/22/20

ATC SITE NUMBER:
302480

ATC SITE NAME:
WOODBRIDGE CT 1

SITE ADDRESS:
77 PEASE ROAD
WOODBRIDGE, CT 06525

SEAL:



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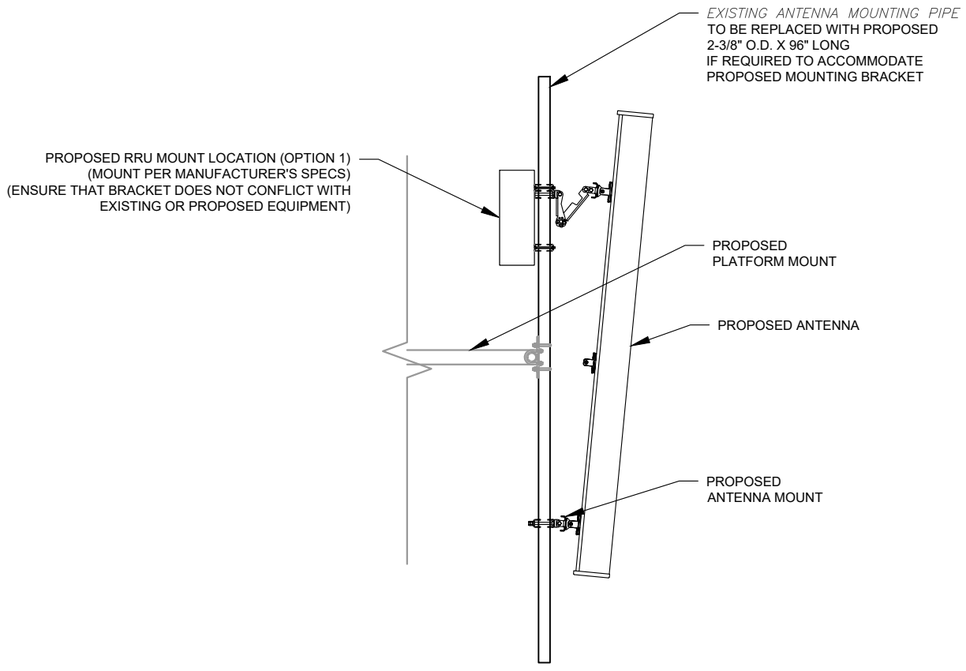
DATE DRAWN:	06/22/20
ATC JOB NO:	12978828

ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-501	0



1 PROPOSED ANTENNA & RRU MOUNTING DETAIL - TYPICAL

SCALE: NOT TO SCALE

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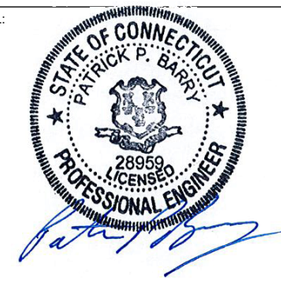

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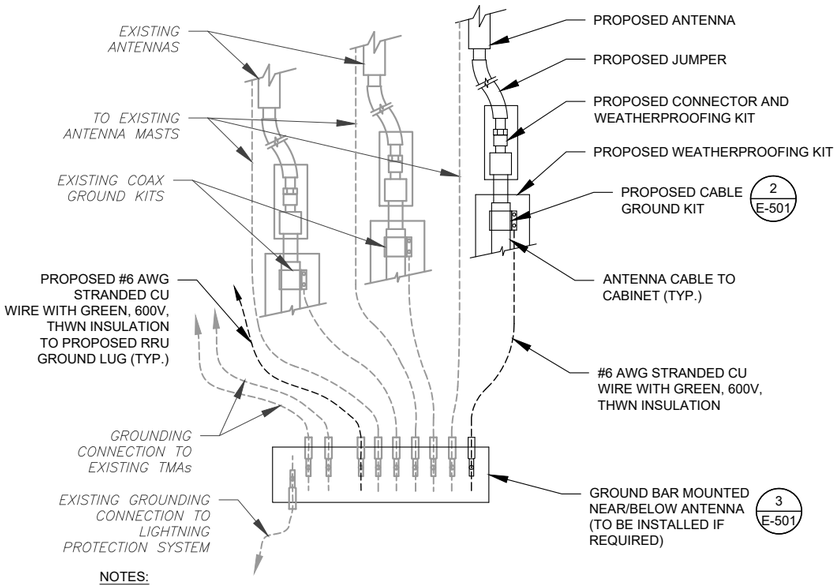
DATE DRAWN:	06/22/20
ATC JOB NO:	12978828

MOUNT DETAILS

SHEET NUMBER:	REVISION:
C-502	0

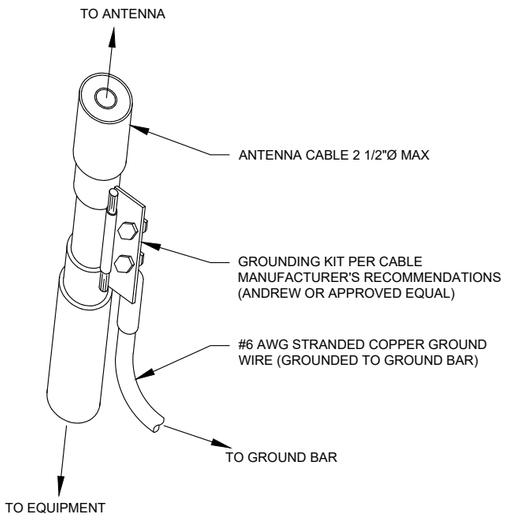


NOTES:

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

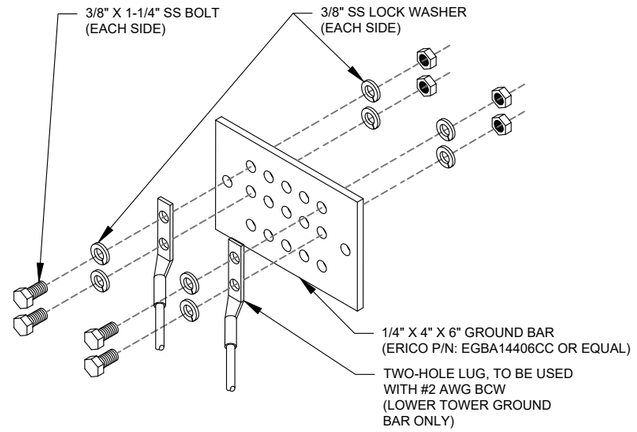


GROUND KIT NOTES:

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:

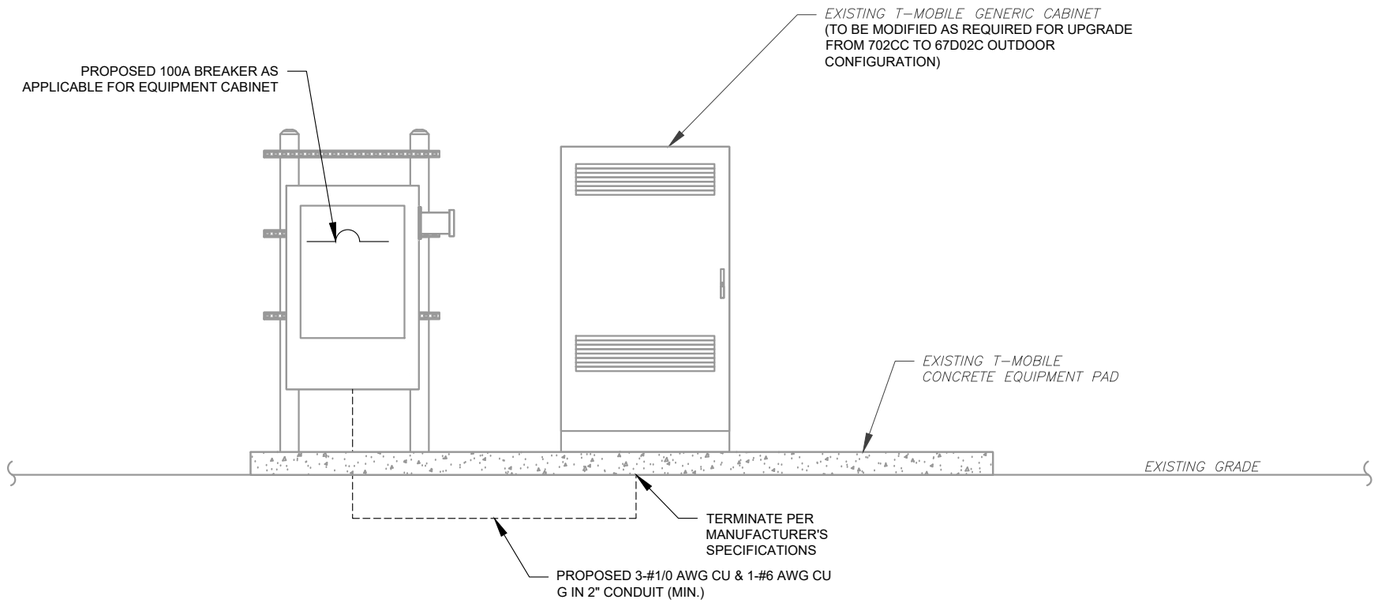
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

3 TOWER GROUND BAR DETAIL

SCALE: NOT TO SCALE

ELECTRICAL NOTES:

1. THIS DIAGRAM 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. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
3. ATC HAS NOT YET VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER.



4 ELECTRICAL UPGRADE DIAGRAM

SCALE: NOT TO SCALE

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

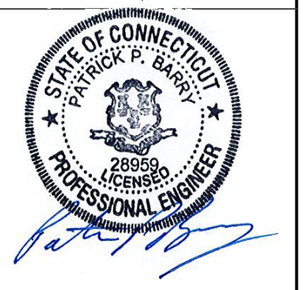
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	MG	06/22/20

ATC SITE NUMBER:
302480

ATC SITE NAME:
WOODBRIDGE CT 1

SITE ADDRESS:
77 PEASE ROAD
WOODBRIDGE, CT 06525

SEAL:



Authorized by "EOR"
Jun 22 2020 11:45 AM

T-Mobile cosign

DRAWN BY:	MG
APPROVED BY:	PPB
DATE DRAWN:	06/22/20
ATC JOB NO:	12978828

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

Section 5 – RAN Equipment

Existing RAN Equipment	
	Template: 702Cc
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 (U1900); DUS41 (L2100, L700)
Hybrid Cable System	Ericsson 9x18 HCS *Select Length*
Multiplexer	XMU

Proposed RAN Equipment	
	Template: 67D02C Outdoor
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 (U1900); BB 6630 (L2100, L700, L600); BB 6630 (N600 (DARK))
Hybrid Cable System	Ericsson 9x18 HCS *Select Length*; Ericsson 6x12 HCS *Select AWG & Length*; Ericsson 6x12 HCS *Select Length & AWG* (x2)

RAN Scope of Work:

Replace (1) DUS41 with (1) BB6630 for L2100, L700, and L600.
Install (1) BB6630 for future 5G N600.
Remove (1) XMU.

Add (3) 6X12 HCS.
Existing: (6) 1-5/8"; (1) 9X18 HCS, All coaxial lines will be removed.

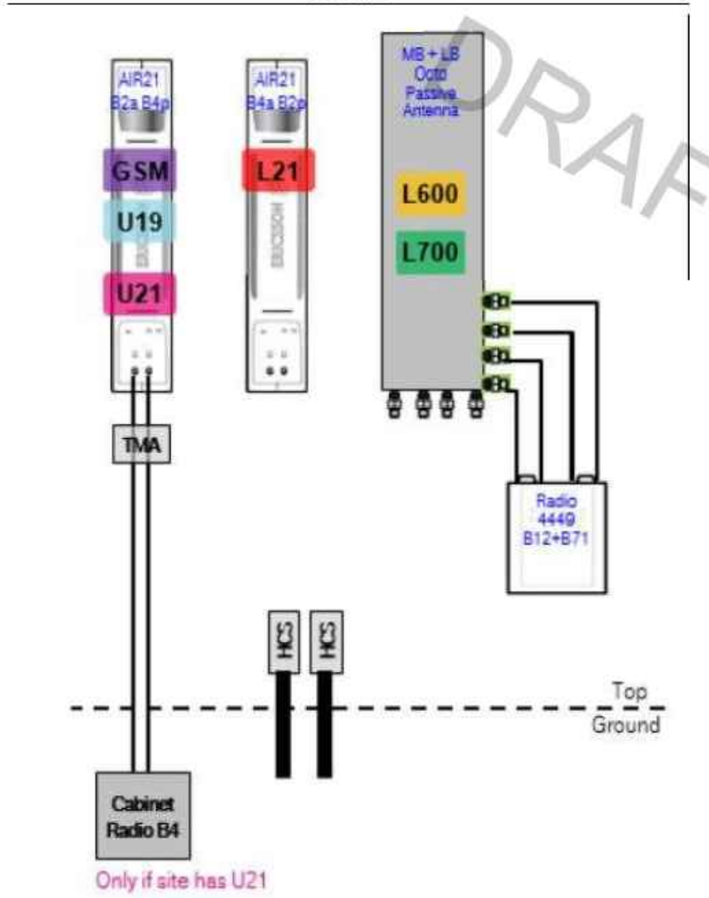
Rad Center: 130 Feet

Cabinet needs power upgrade.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

Section 3 - Proposed Template Images

67D02C.JPG



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 w/ Support Rails and Kickers for American Tower on behalf of T-Mobile
302480 - Woodbridge CT 1
Project #: 12927174

T-Mobile Site ID: CTNH521A
Program: L600

CLS Engineering PLLC Project #41124-12927174-01-MR
August 7, 2019

MOUNT DESCRIPTION	Proposed Perfect Vision PV-LPP12M-HR-12-96 Platform w/Support Rails and Kickers at 130 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 130 ft AGL
SITE DESCRIPTION	150 ft Monopole
SITE ADDRESS	77 Pease Road, Woodbridge, CT 06525-2044, New Haven County
GPS COORDINATES	41.34144444, -72.9936
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75" Ice

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

MEMBER USAGE	53%	Pass

Existing mounts to be replaced; see conclusion for details.

Prepared by:
Sajeeb Thakur, E.I.

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: 2019.08.07 20:29:39 -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 (3) existing Dual Standoff Arm mounts with (1) new Perfect Vison PV-LPP12M-HR-12-96 Platform mount.**
- **Install (1) Perfect Vision PV-PKB-M Monopole Platform Kicker Kit as shown. Field-cut kicker angle as required. Maintain minimum bolt edge distance. Connect kicker kit to (1) proposed Perfect Vision PV-RM1240 Monopole Collar included in kit.**
- **Install (4) Perfect Vision PIPE-238X96 antenna mount pipes per sector (12 total). Connect to platform base horizontal member using (12) Perfect Vision PV-XP-2030-HD crossover brackets such that they are equidistant from each other as shown in the assembly drawings.**
- **Install support rails 3'-6" above the platform base. Connect to all mount pipes using crossover angles included in proposed platform kit.**
- **Install existing and proposed antennas such that they are vertically centered about the platform base horizontal member. Install existing and proposed RRUS behind the antennas.**

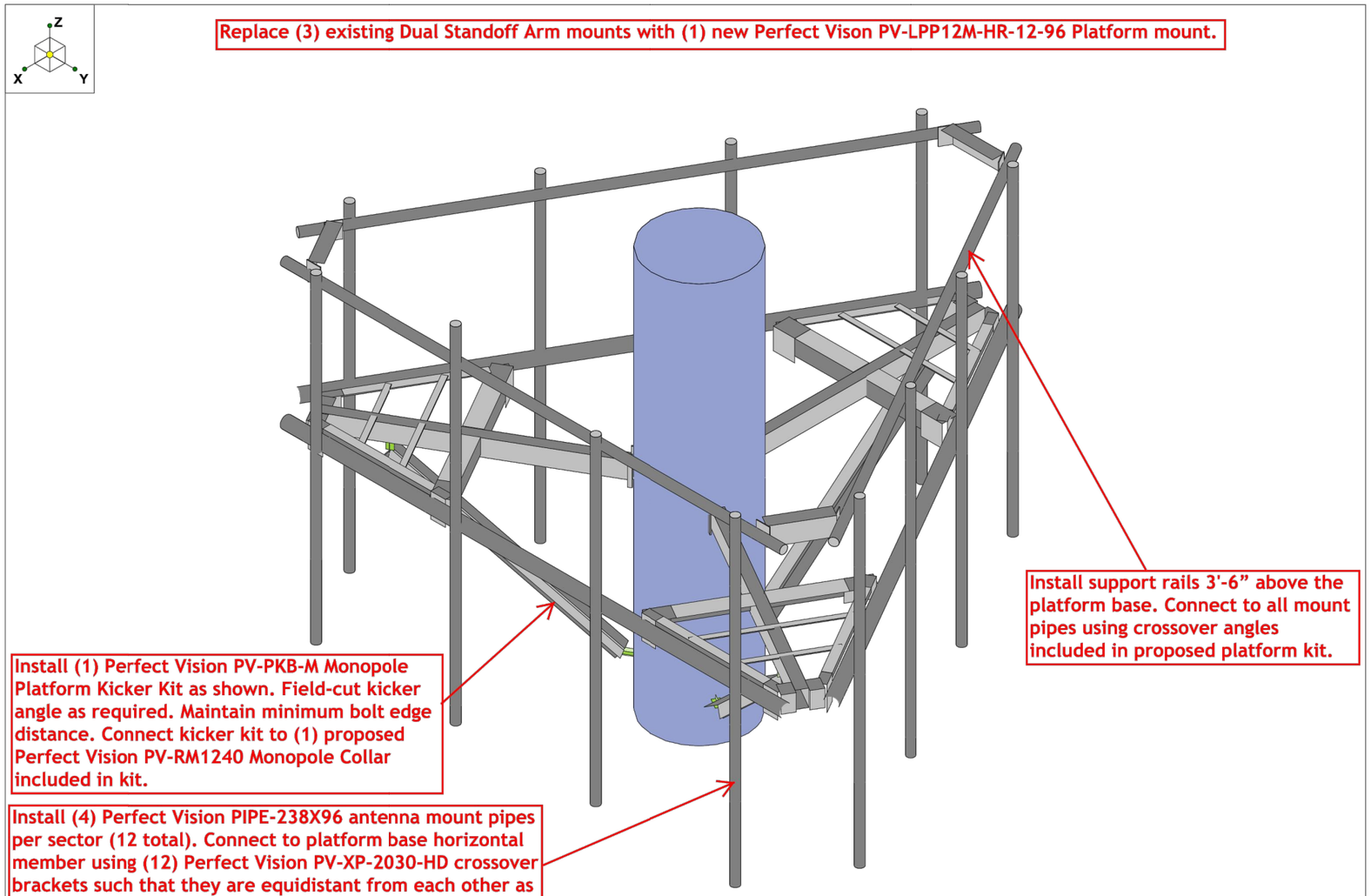
See following sketch and Perfect Vision assembly drawing for additional details.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-602	0

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

Replace (3) existing Dual Standoff Arm mounts with (1) new Perfect Vison PV-LPP12M-HR-12-96 Platform mount.



CLS	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE Installation Sketch - Isometric View	IN - 1
ST		Aug 7, 2019 at 10:23 AM
41124-12927174-01-MR		41124-CTNH521A-01-MR images.r3d

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

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-603	0

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Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**Woodbridge CT 1, CT**
ATC Asset Number	:	**302480**
Engineering Number	:	**12927174_C3_03**
Proposed Carrier	:	**METRO PCS INC**
Carrier Site Name	:	**ATC Woodbridge Monopole**
Carrier Site Number	:	**CTNH521A**
Site Location	:	**77 Pease Road** **Woodbridge, CT 06525-2044** **41.341400,-72.993600**
County	:	**New Haven**
Date	:	**August 30, 2019**
Max Usage	:	**100%**
Result	:	**Pass**

Prepared By:
Mitchell Chen
Structural Engineer

Reviewed By:

STATE OF CONNECTICUT
ESHA KAUSHAL MODI
32595
LICENSED PROFESSIONAL ENGINEER

Authorized by "EOR"
Sep 2 2019 5:04 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 150 ft monopole to reflect the change in loading by METRO PCS INC.

Supporting Documents

Tower Drawings	Smith Cullum Acquisition #CT-0016, dated May 15, 2001 AT&T SPEC #AT-8935, dated April 13, 1984
Foundation Drawing	Mapping By ATC, PIT ID#302480, dated April 1, 2009
Geotechnical Report	Johnson Soil Job#15220, dated May 20, 2002
Modifications	Spectrasite Drawing #CT-0016-E1, dated September 19, 2002 ATC Project #40430532, dated May 29, 2007 ATC Project #42299235, dated November 18, 2008 ATC Project #44303434, dated January 18, 2010 ATC Project #447950F2, dated April 2, 2010
Mount Analysis	CLS Engineering PLLC Project #41124-12927174-01-MR, dated August 7, 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:	97 mph (3-Second Gust, V_{asd}) / 125 mph (3-Second Gust, V_{ult})
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
Code:	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
Structure Class:	II
Exposure Category:	B
Topographic Category:	1
Crest Height:	0 ft
Spectral Response:	Ss = 0.19, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
167.0	1	Generic 22' Omni	Platform with Handrails	(2) 1 5/8" Coax	OTHER
160.0	1	Generic 20' Dipole		(2) 1 5/8" Coax	
153.0	1	Raycap DC6-48-60-18-8F ("Squid")		(1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Coax (1) 3" conduit	AT&T MOBILITY
	6	LGP Allgon TMA-DD 1900			
	6	Powerwave Allgon LGP13519			
	3	Ericsson RRUS 11 (Band 12) (55 lbs.)			
	3	CCI HPA-65R-BUU-H6			
	3	Ericsson RRUS 32 B2			
	6	Powerwave Allgon 7770.00			
130.0	3	Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs.)	-	(2) 0.27 (1) 1.58" (40.1mm) Hybrid	METRO PCS INC
	3	Ericsson AIR B4A/B12P-B8P, 4FT			
128.0	1	Fastback Networks Intelligent Backhaul Radio 1300 Series			
119.0	6	RFS FD9R6004/1C-3L	T-Arm	(12) 1 5/8" Coax (1) 1 5/8" Hybriflex	VERIZON WIRELESS
	6	Andrew PCS1900 Dual Duplex TMA			
	6	ADC ClearGain Dual Band 800/1900 MHz			
	3	Alcatel-Lucent RRH2x40-AWS.			
	3	Amphenol Antel BXA-171085-8CF-EDIN-X			
	3	Amphenol Antel BXA-171063-8BF-EDIN-X			
	3	Antel BXA-70063/6CF_			
	3	Antel BXA-80063/4CF			
	1	RFS DB-T1-6Z-8AB-0Z			
107.0	1	Generic GPS	Stand-Off	(1) 1/2" Coax	
39.0	1	Generic GPS	Stand-Off	(1) 1/2" Coax	AT&T MOBILITY

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
130.0	3	Ericsson RRUS 11 B12	T-Arm	(6) 1 5/8" Coax (1) 1 5/8" Hybriflex	METRO PCS INC

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
130.0	3	Ericsson Radio 4449 B12,B71	PV-LPP 12M-HR-B Platform with Handrails	(3) 1 1/4" Hybriflex Cable (1) 1 5/8" (1.63"-41.3mm) Fiber	METRO PCS INC
	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 lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	67%	Pass
Shaft	100%	Pass
Base Plate	54%	Pass
Reinforcement	96%	Pass
Flanges	99%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,536.3	28%
Axial (Kips)	38.09	5%

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
130.0	Ericsson Radio 4449 B12,B71	METRO PCS INC	1.859	1.909
	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:

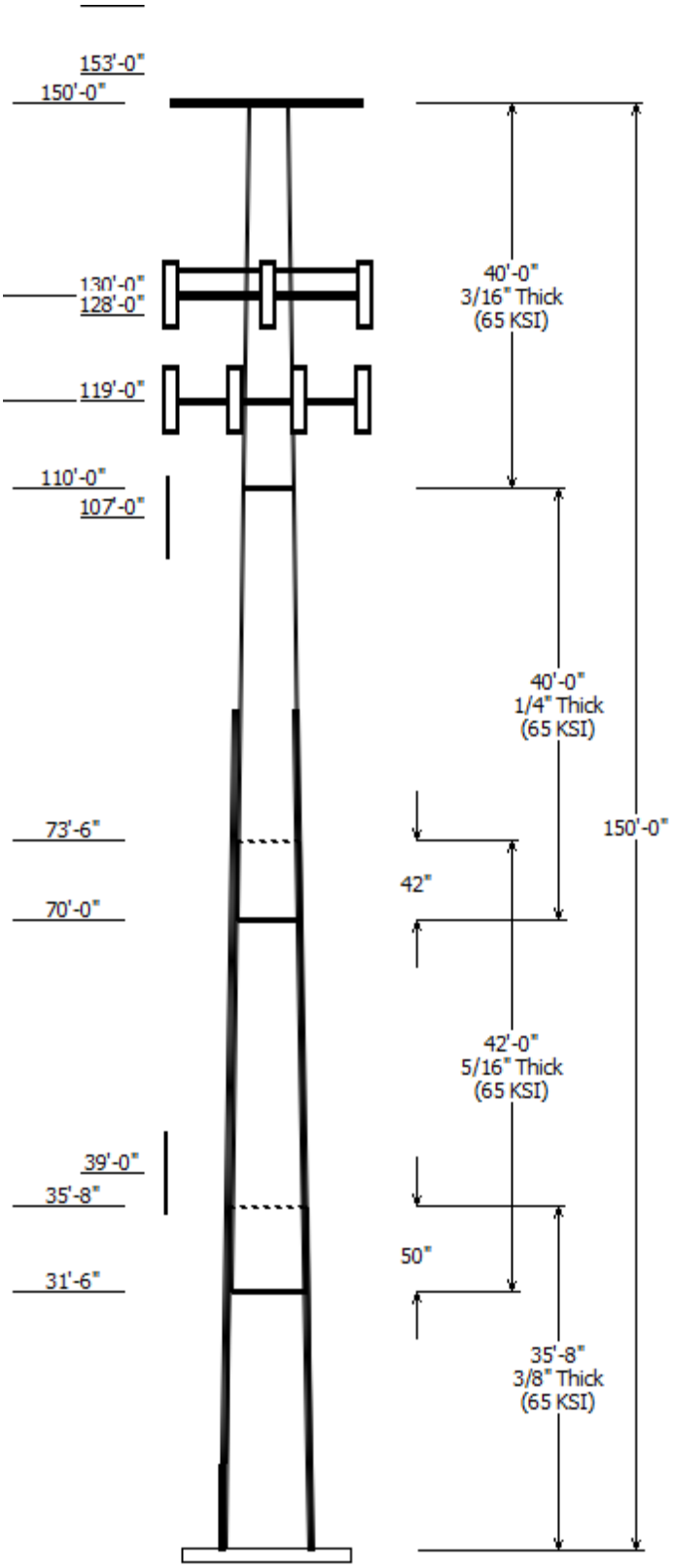
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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 :	METRO PCS INC		
Pole :	302480	Code:	ANSI/TIA-222-G
Location :	Woodbridge CT 1, CT		
Description :	150 ft ITT Meyer Monopole	Struct Class :	II
Shape :	12 Sides	Exposure :	B
Height :	150.00 (ft)	Topo :	1
Base Elev (ft):	0.00		
Taper:	0.156707 (in/ft)		

Sections Properties

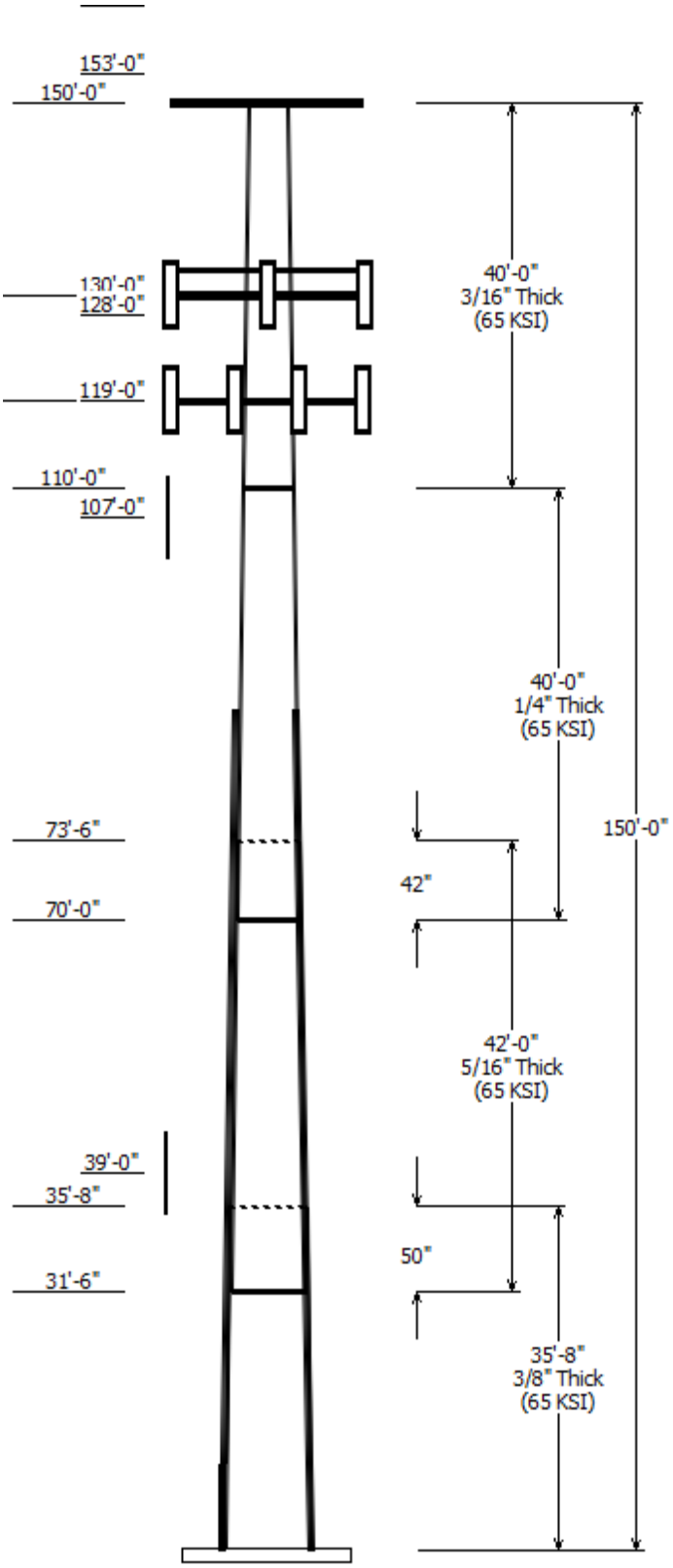
Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	35.667	31.79	37.38	0.375		0.000	12 Sides	65
2	42.000	26.48	33.06	0.313	Slip Joint	50.000	12 Sides	65
3	40.000	21.26	27.53	0.250	Slip Joint	42.000	12 Sides	65
4	40.000	14.99	21.26	0.188	Butt Joint	0.000	12 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
167.000	167.000	1	Generic 22' Omni
160.000	160.000	1	Generic 20' Dipole
153.000	153.000	3	CCI HPA-65R-BUU-H6
153.000	153.000	6	Powerwave Allgon 7770.00
153.000	153.000	3	Ericsson RRUS 32 B2
153.000	153.000	3	Ericsson RRUS 11 (Band 12) (55
153.000	153.000	1	Raycap DC6-48-60-18-8F
153.000	153.000	6	LGP Allgon TMA-DD 1900
153.000	153.000	6	Powerwave Allgon LGP13519
150.000	150.000	1	Flat Platform w/ Handrails
130.000	130.000	3	RFS APXVAARR24_43-U-NA20
130.000	130.000	3	Ericsson AIR B4A/B12P-B8P,
130.000	130.000	3	Ericsson AIR 21, 1.3M, B2A B4P
130.000	130.000	3	Ericsson Radio 4449 B12,B71
130.000	130.000	1	Generic Round Platform with
128.000	128.000	1	Fastback Networks Intelligent
119.000	119.000	3	Round T-Arms
119.000	119.000	3	Antel BXA-70063/6CF_
119.000	123.000	1	RFS DB-T1-6Z-8AB-0Z
119.000	119.000	3	Antel BXA-80063/4CF
119.000	119.000	3	Amphenol Antel BXA-171063-
119.000	119.000	3	Amphenol Antel BXA-171085-
119.000	123.000	3	Alcatel-Lucent RRH2x40-AWS.
119.000	119.000	6	ADC ClearGain Dual Band
119.000	119.000	6	Andrew PCS1900 Dual Duplex
119.000	119.000	6	RFS FD9R6004/1C-3L
107.000	107.000	1	Generic GPS
39.000	39.000	1	Generic GPS

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	39.000	1/2" Coax	No
0.000	81.000	PL 4" x 1"	Yes
0.000	81.000	PL 4" x 1"	Yes
0.000	81.000	PL 4" x 1"	Yes
0.000	81.000	PL 4" x 1"	Yes
0.000	94.000	#20 Threaded Bar	Yes
0.000	94.000	#20 Threaded Bar	Yes
0.000	94.000	#20 Threaded Bar	Yes



0.000	94.000	#20 Threaded Bar	Yes
0.000	107.0	1/2" Coax	No
0.000	119.0	1 5/8" Coax	No
0.000	119.0	1 5/8" Hybriflex	No
0.000	128.0	0.27	No
0.000	128.0	1.58" (40.1mm)	No
0.000	130.0	1 1/4" Hybriflex	No
0.000	130.0	1 5/8" (1.63"-	No
0.000	153.0	0.39" (10mm)	No
0.000	153.0	0.78" (19.7mm) 8	No
0.000	153.0	1 5/8" Coax	No
0.000	153.0	3" conduit	No
0.000	160.0	1 5/8" Coax	No
0.000	167.0	1 5/8" Coax	No

Load Cases

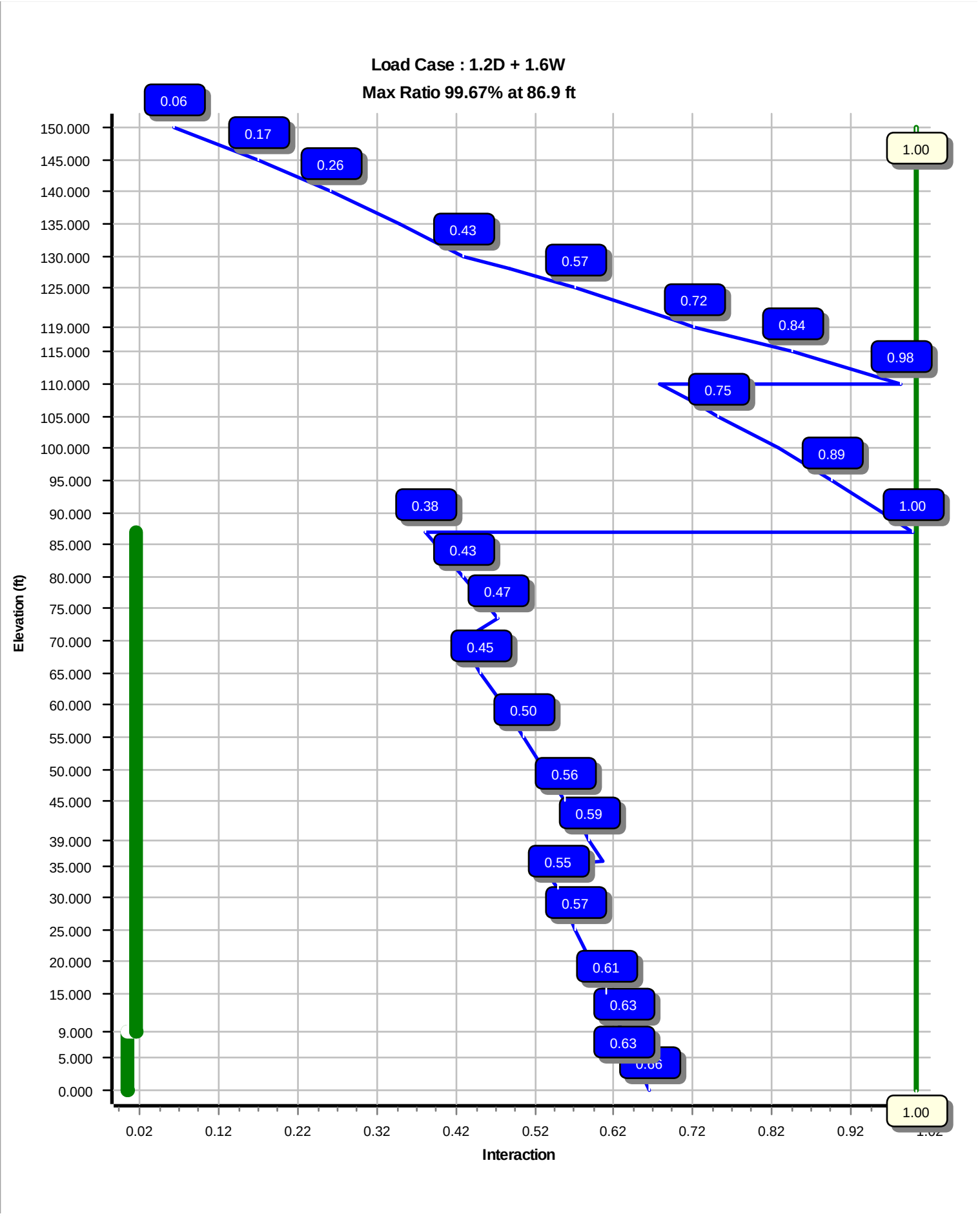
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 0.75 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2536.31	25.58	38.09
0.9D + 1.6W	2495.70	25.56	28.56
1.2D + 1.0Di + 1.0Wi	629.76	5.81	54.77
(1.2 + 0.2Sds) * DL + E ELFM	157.07	1.24	37.86
(1.2 + 0.2Sds) * DL + E EMAM	246.19	2.08	37.86
(0.9 - 0.2Sds) * DL + E ELFM	153.76	1.24	26.22
(0.9 - 0.2Sds) * DL + E EMAM	240.55	2.08	26.22
1.0D + 1.0W	538.23	5.47	31.79

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 99.67% at 86.9 ft
0.06
0.17
0.26
0.43
0.57
0.72
0.84
0.98
0.75
0.89
1.00
0.38
0.43
0.47
0.45
0.50
0.56
0.59
0.55
0.57
0.61
0.63
0.63
0.66
1.00
1.00
150.000
145.000
140.000
135.000
130.000
125.000
119.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
39.000
35.000
30.000
25.000
20.000
15.000
9.000
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: 302480 | Code: ANSI/TIA-222-G |

Site Name: Woodbridge CT 1, CT | Engineering Number:12927174_C3_03 | 8/30/2019 10:20:52 AM

Customer: METRO PCS INC

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-G	Base Diameter (in) :	37.38
Shape :	12 Sides	Top Diameter (in) :	15.00
Pole Type :	Taper	Taper (in/ft) :	0.157
Pole Manfacturer :	ITT Meyer	Rotation (deg) :	0.00

Ice & Wind Parameters

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

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.81				
T_L (sec):	6	p:	1.3	C_s:	0.030
S_s:	0.191	S_1:	0.063	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.204	S_{d1}:	0.101		

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 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: 302480 Code: ANSI/TIA-222-G

Site Name: Woodbridge CT 1, CT Engineering Number:12927174_C3_03 8/30/2019 10:20:52 AM

Customer: METRO PCS INC

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-12	35.667	0.3750	65		0.00	5,014	37.38	0.00	44.68	7810.1	24.03	99.68	31.79	35.67	37.93	4778.8	20.04	84.78	0.156707
2-12	42.000	0.3125	65	Slip	50.00	4,237	33.06	31.50	32.96	4514.1	25.67	105.82	26.48	73.50	26.34	2303.2	20.03	84.76	0.156707
3-12	40.000	0.2500	65	Slip	42.00	2,646	27.53	70.00	21.96	2087.3	26.83	110.14	21.26	110.00	16.92	953.9	20.11	85.07	0.156707
4-12	40.000	0.1875	65	Butt	0.00	1,475	21.26	110.00	12.73	721.8	27.71	113.43	14.99	150.00	8.94	250.4	18.76	79.99	0.156707
				Shaft Weight		13,372													

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
167.00	Generic 22' Omni	1	0.75	0.000	70.00	6.600	1.00	235.33	14.383	1.00
160.00	Generic 20' Dipole	1	0.75	0.000	60.00	7.520	1.00	281.37	19.385	1.00
153.00	Powerwave Allgon LGP13519	6	0.75	0.000	5.30	0.290	0.50	14.78	0.677	0.50
153.00	LGP Allgon TMA-DD 1900	6	0.75	0.000	10.40	0.500	0.50	25.13	0.983	0.50
153.00	Raycap DC6-48-60-18-8F	1	0.75	0.000	31.80	1.470	1.00	93.52	2.169	1.00
153.00	Ericsson RRUS 11 (Band 12) (55	3	0.75	0.000	55.00	2.520	0.50	122.31	3.560	0.50
153.00	Ericsson RRUS 32 B2	3	0.75	0.000	53.00	2.740	0.50	126.58	3.909	0.50
153.00	Powerwave Allgon 7770.00	6	0.75	0.000	35.00	5.510	0.65	169.89	6.563	0.65
153.00	CCI HPA-65R-BUU-H6	3	0.75	0.000	51.00	9.660	0.69	270.48	12.434	0.69
150.00	Flat Platform w/ Handrails	1	1.00	0.000	2,000.00	42.400	0.95	3,421.70	63.380	0.95
130.00	Ericsson Radio 4449 B12,B71	3	0.75	0.000	74.00	1.640	0.50	129.26	2.473	0.50
130.00	Ericsson AIR 21, 1.3M, B2A B4P	3	0.75	0.000	91.50	6.040	0.70	235.21	8.158	0.70
130.00	Ericsson AIR B4A/B12P-B8P, 4FT	3	0.75	0.000	113.00	7.420	0.70	292.88	9.609	0.70
130.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.240	0.63	515.40	23.900	0.63
130.00	Generic Round Platform with	1	1.00	0.000	1,600.00	27.200	1.00	2,623.20	51.328	1.00
128.00	Fastback Networks Intelligent	1	0.75	0.000	8.80	0.670	1.00	27.38	1.215	1.00
119.00	RFS FD9R6004/1C-3L	6	0.80	0.000	3.10	0.310	0.50	10.93	0.682	0.50
119.00	Andrew PCS1900 Dual Duplex	6	0.80	0.000	20.00	0.910	0.50	42.01	1.590	0.50
119.00	ADC ClearGain Dual Band	6	0.80	0.000	28.70	1.330	0.50	66.38	2.080	0.50
119.00	Alcatel-Lucent RRH2x40-AWS.	3	0.80	4.000	44.00	2.160	0.50	103.23	3.182	0.50
119.00	Amphenol Antel BXA-171085-	3	0.80	0.000	10.50	2.940	0.50	74.44	4.558	0.50
119.00	Amphenol Antel BXA-171063-	3	0.80	0.000	10.50	2.940	0.50	74.44	4.558	0.50
119.00	Antel BXA-80063/4CF	3	0.80	0.000	9.90	4.710	0.65	107.93	6.509	0.65
119.00	RFS DB-T1-6Z-8AB-0Z	1	0.80	4.000	44.00	4.800	1.00	167.02	6.189	1.00
119.00	Antel BXA-70063/6CF_	3	0.80	0.000	17.00	7.570	0.65	155.23	10.266	0.65
119.00	Round T-Arms	3	0.75	0.000	250.00	9.700	0.67	454.29	17.758	0.67
107.00	Generic GPS	1	0.80	0.000	10.00	0.900	1.00	38.32	1.519	1.00
39.00	Generic GPS	1	1.00	0.000	10.00	0.900	1.00	35.51	1.458	1.00
Totals	Num Loadings:28	84			7,171.50			16,883.10		

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	167.00	2	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	Other
0.00	160.00	2	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	Other
0.00	153.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	153.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	130.00	3	1 1/4" Hybriflex Cable	1.54	1.00	N	3	0.50	0.50	90	0.50	N	METRO PCS INC

0.00	130.00	1	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	METRO PCS INC
0.00	128.00	2	0.27	0.01	0.01	N	0	0.00	0.00	0	0.00	N	METRO PCS INC
0.00	128.00	1	1.58" (40.1mm) Hybrid	1.58	1.61	N	0	0.00	0.00	0	0.00	N	METRO PCS INC
0.00	119.00	12	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	119.00	1	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	107.00	1	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	94.00	1	#20 Threaded Bar	4.00	0.00	N	1	0.00	0.00	0	0.00	Y	
0.00	94.00	1	#20 Threaded Bar	4.00	0.00	N	1	0.00	0.00	90	0.00	Y	
0.00	94.00	1	#20 Threaded Bar	4.00	0.00	N	1	0.00	0.00	180	0.00	Y	
0.00	94.00	1	#20 Threaded Bar	4.00	0.00	N	1	0.00	0.00	270	0.00	Y	
0.00	81.00	1	PL 4" x 1"	1.00	0.00	Y	1	0.00	0.00	15	0.00	Y	
0.00	81.00	1	PL 4" x 1"	1.00	0.00	Y	1	0.00	0.00	105	0.00	Y	
0.00	81.00	1	PL 4" x 1"	1.00	0.00	Y	1	0.00	0.00	195	0.00	Y	
0.00	81.00	1	PL 4" x 1"	1.00	0.00	Y	1	0.00	0.00	285	0.00	Y	
0.00	39.00	1	1/2" Coax	0.63	0.15	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY

Additional Steel

Elev From (ft)	Elev To (ft)	Qty	Description	Fy (ksi)	Offset (in)	Intermediate Connections: Description	Spacing (in)	Len (in)	Connectors	Continuation?
0.00	9.00	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	39.0	0.00	5/8" A36 U-Bolt	No
9.00	86.94	4	SOL #20 All Thread	80	2.19	6" Angle Bracket	30.0	3.31	5/8" A36 U-Bolt	Yes

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)	Additional Reinforcing Area (in^2)	Additional Reinforcing Ix (in^4)	Additional Reinforcing Weight (lb)
0.00		0.3750	37.380	44.684	7,810.1	24.03	99.68	78.5	403.6	0.0	0.0	19.64	4,958	0.0
5.00		0.3750	36.596	43.737	7,324.4	23.47	97.59	79.1	386.6	0.0	752.2	19.64	4,781	334.0
9.00	Reinf. Top Reinf	0.3750	35.970	42.981	6,950.7	23.02	95.92	79.6	373.3	0.0	590.2	19.64	4,642	267.2
10.00		0.3750	35.813	42.791	6,859.3	22.91	95.50	79.7	370.0	0.0	145.9	19.64	4,607	66.8
15.00		0.3750	35.029	41.845	6,414.3	22.35	93.41	80.3	353.7	0.0	720.0	19.64	4,436	334.0
20.00		0.3750	34.246	40.899	5,989.0	21.79	91.32	80.9	337.8	0.0	703.9	19.64	4,269	334.0
25.00		0.3750	33.462	39.953	5,582.9	21.23	89.23	81.6	322.3	0.0	687.8	19.64	4,105	334.0
30.00		0.3750	32.679	39.007	5,195.6	20.67	87.14	81.9	307.1	0.0	671.7	19.64	3,943	334.0
31.50	Bot - Section 2	0.3750	32.444	38.723	5,083.0	20.50	86.52	81.9	302.7	0.0	198.4	19.64	3,896	100.2
35.00		0.3750	31.895	38.061	4,826.6	20.11	85.05	81.9	292.3	0.0	846.5	19.64	3,911	233.8
35.67	Top - Section 1	0.3125	32.416	32.304	4,249.5	25.12	103.73	77.3	253.3	0.0	159.6	19.64	3,890	44.5
39.00		0.3125	31.893	31.778	4,045.5	24.67	102.06	77.8	245.0	0.0	363.4	19.64	3,785	222.7
40.00		0.3125	31.737	31.621	3,985.5	24.53	101.56	78.0	242.6	0.0	107.9	19.64	3,754	66.8
45.00		0.3125	30.953	30.832	3,694.8	23.86	99.05	78.7	230.6	0.0	531.3	19.64	3,600	334.0
50.00		0.3125	30.170	30.044	3,418.5	23.19	96.54	79.4	218.9	0.0	517.9	19.64	3,449	334.0
55.00		0.3125	29.386	29.255	3,156.4	22.52	94.04	80.2	207.5	0.0	504.5	19.64	3,302	334.0
60.00		0.3125	28.603	28.467	2,908.0	21.85	91.53	80.9	196.4	0.0	491.0	19.64	3,157	334.0
65.00		0.3125	27.819	27.678	2,673.0	21.17	89.02	81.6	185.6	0.0	477.6	19.64	3,016	334.0
70.00	Bot - Section 3	0.3125	27.036	26.890	2,451.0	20.50	86.51	81.9	175.1	0.0	464.2	19.64	2,879	334.0
73.50	Top - Section 2	0.2500	26.987	21.523	1,963.9	26.25	107.95	76.1	140.6	0.0	575.9	19.64	2,870	233.8
75.00		0.2500	26.752	21.334	1,912.6	25.99	107.01	76.4	138.1	0.0	109.4	19.64	2,830	100.2
80.00		0.2500	25.968	20.703	1,747.9	25.15	103.87	77.3	130.0	0.0	357.6	19.64	2,696	334.0
85.00		0.2500	25.185	20.073	1,593.0	24.31	100.74	78.2	122.2	0.0	346.9	19.64	2,566	334.0
86.94	Reinf. Top	0.2500	24.881	19.828	1,535.4	23.99	99.52	78.6	119.2	0.0	131.7	19.64	2,516	129.6
90.00		0.2500	24.401	19.442	1,447.5	23.47	97.61	79.1	114.6	0.0	204.4			
95.00		0.2500	23.618	18.811	1,311.1	22.63	94.47	80.0	107.2	0.0	325.4			
100.0		0.2500	22.834	18.180	1,183.6	21.79	91.34	80.9	100.1	0.0	314.7			
105.0		0.2500	22.051	17.550	1,064.6	20.95	88.20	81.9	93.3	0.0	304.0			
107.0		0.2500	21.737	17.297	1,019.4	20.62	86.95	81.9	90.6	0.0	118.6			
110.0	Top - Section 3	0.2500	21.267	16.919	953.9	20.11	85.07	81.9	86.7	0.0	174.6			
110.0	Bot - Section 4	0.1875	21.267	12.727	721.8	27.71	113.43	74.5	65.6	0.0				
115.0		0.1875	20.484	12.254	644.3	26.59	109.25	75.7	60.8	0.0	212.5			
119.0		0.1875	19.857	11.875	586.4	25.70	105.90	76.7	57.1	0.0	164.2			
120.0		0.1875	19.700	11.781	572.5	25.47	105.07	76.9	56.1	0.0	40.2			
125.0		0.1875	18.917	11.308	506.3	24.35	100.89	78.2	51.7	0.0	196.4			
128.0		0.1875	18.447	11.024	469.1	23.68	98.38	78.9	49.1	0.0	114.0			
130.0		0.1875	18.133	10.835	445.4	23.23	96.71	79.4	47.4	0.0	74.4			
135.0		0.1875	17.350	10.362	389.5	22.11	92.53	80.6	43.4	0.0	180.3			
140.0		0.1875	16.566	9.889	338.6	20.99	88.35	81.8	39.5	0.0	172.3			
145.0		0.1875	15.783	9.416	292.3	19.87	84.17	81.9	35.8	0.0	164.2			
150.0		0.1875	14.999	8.942	250.4	18.76	79.99	81.9	32.3	0.0	156.2			
											13,371.9			5,807.6

Load Case: 1.2D + 1.6W — 97 mph with No Ice — 27 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		269.9	0.0					0.0	0.0	269.9	0.0	0.0	0.0
5.00		481.7	902.6					115.9	638.5	597.5	1,541.1	0.0	0.0
9.00	Reinf. Top Reinf	264.2	708.2					92.8	510.8	357.0	1,219.0	0.0	0.0
10.00		310.8	175.1					23.2	127.7	334.0	302.8	0.0	0.0
15.00		511.2	864.0					116.1	638.5	627.3	1,502.5	0.0	0.0
20.00		499.7	844.7					116.3	638.5	616.0	1,483.2	0.0	0.0
25.00		488.3	825.4					116.4	638.5	604.7	1,463.9	0.0	0.0
30.00		313.1	806.0					116.5	638.5	429.7	1,444.6	0.0	0.0
31.50	Bot - Section 2	244.5	238.0					35.3	191.6	279.7	429.6	0.0	0.0
35.00		205.8	1,015.8					84.2	447.0	289.9	1,462.8	0.0	0.0
35.67	Top - Section 1	199.8	191.5					16.3	85.1	216.1	276.7	0.0	0.0
39.00	Appurtenance(s)	216.9	436.1	27.4	0.0	0.0	12.0	82.9	425.7	327.1	873.8	0.0	0.0
40.00		303.1	129.4					25.3	127.5	328.4	257.0	0.0	0.0
45.00		507.3	637.5					129.1	637.6	636.5	1,275.2	0.0	0.0
50.00		509.7	621.4					133.5	637.6	643.1	1,259.1	0.0	0.0
55.00		510.2	605.3					137.5	637.6	647.6	1,243.0	0.0	0.0
60.00		509.1	589.2					141.3	637.6	650.3	1,226.9	0.0	0.0
65.00		506.6	573.2					144.8	637.6	651.4	1,210.8	0.0	0.0
70.00	Bot - Section 3	431.3	557.1					148.2	637.6	579.5	1,194.7	0.0	0.0
73.50	Top - Section 2	255.0	691.1					105.7	446.3	360.7	1,137.5	0.0	0.0
75.00		328.7	131.3					45.7	191.3	374.4	322.5	0.0	0.0
80.00		501.8	429.1					154.4	637.6	656.2	1,066.8	0.0	0.0
85.00		345.2	416.3					157.4	637.6	502.6	1,053.9	0.0	0.0
86.94	Reinf. Top	245.8	158.0					59.2	247.4	305.0	405.4	0.0	0.0
90.00		391.9	245.3					94.1	144.9	485.9	390.3	0.0	0.0
95.00		439.8	390.5					155.7	236.8	595.5	627.3	0.0	0.0
100.00		392.0	377.6					0.0	236.8	392.0	614.4	0.0	0.0
105.00		270.5	364.7					0.0	236.8	270.5	601.6	0.0	0.0
107.00	Appurtenance(s)	189.8	142.3	29.2	0.0	0.0	12.0	0.0	94.7	219.0	249.0	0.0	0.0
110.00	Top - Section 3	298.7	209.6					0.0	141.6	298.7	351.1	0.0	0.0
115.00		330.2	255.0					0.0	235.9	330.2	490.9	0.0	0.0
119.00	Appurtenance(s)	180.6	197.1	2,235.6	0.0	1,086.4	1,656.6	0.0	188.7	2,416.2	2,042.4	0.0	0.0
120.00		211.4	48.3					0.0	33.8	211.4	82.1	0.0	0.0
125.00		278.5	235.7					0.0	169.1	278.5	404.8	0.0	0.0
128.00	Appurtenance(s)	170.4	136.8	21.5	0.0	0.0	10.6	0.0	101.4	191.9	248.8	0.0	0.0
130.00	Appurtenance(s)	232.6	89.3	3,386.1	0.0	0.0	3,383.0	0.0	63.7	3,618.7	3,536.0	0.0	0.0
135.00		324.5	216.4					0.0	131.6	324.5	348.0	0.0	0.0
140.00		313.1	206.7					0.0	131.6	313.1	338.4	0.0	0.0
145.00		301.3	197.1					0.0	131.6	301.3	328.7	0.0	0.0
150.00	Appurtenance(s)	147.6	187.4	1,800.0	0.0	0.0	2,400.0	0.0	131.6	1,947.7	2,719.0	0.0	0.0
								Totals:		23,479.7	37,025.3	0.00	0.00

Load Case: 1.2D + 1.6W 97 mph with No Ice 27 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	-38.09	-25.58	0.00	-2,536.31	0.00	2,536.31	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.661
5.00	-36.45	-25.14	0.00	-2,408.40	0.00	2,408.40	3,114.35	1,557.18	4,645.51	2,294.24	0.15	-0.28	0.643
9.00	-35.17	-24.86	0.00	-2,307.85	0.00	2,307.85	3,079.35	1,539.68	4,513.00	2,228.80	0.47	-0.50	0.629
9.00	-35.17	-24.86	0.00	-2,307.85	0.00	2,307.85	3,079.35	1,539.68	4,513.00	2,228.80	0.47	-0.50	0.629
10.00	-34.80	-24.62	0.00	-2,282.99	0.00	2,282.99	3,070.50	1,535.25	4,480.00	2,212.51	0.58	-0.55	0.625
15.00	-33.19	-24.14	0.00	-2,159.88	0.00	2,159.88	3,025.61	1,512.80	4,315.88	2,131.45	1.31	-0.83	0.607
20.00	-31.60	-23.65	0.00	-2,039.19	0.00	2,039.19	2,979.67	1,489.84	4,153.23	2,051.12	2.33	-1.10	0.588
25.00	-30.04	-23.16	0.00	-1,920.96	0.00	1,920.96	2,932.70	1,466.35	3,992.16	1,971.58	3.63	-1.38	0.569
30.00	-28.54	-22.78	0.00	-1,805.18	0.00	1,805.18	2,875.19	1,437.60	3,820.15	1,886.63	5.22	-1.65	0.551
31.50	-28.06	-22.55	0.00	-1,771.01	0.00	1,771.01	2,854.27	1,427.14	3,764.44	1,859.12	5.76	-1.74	0.546
35.00	-26.57	-22.27	0.00	-1,692.08	0.00	1,692.08	2,805.46	1,402.73	3,636.05	1,795.71	7.10	-1.93	0.527
35.67	-26.25	-22.09	0.00	-1,677.24	0.00	1,677.24	2,248.06	1,124.03	2,973.87	1,468.68	7.37	-1.96	0.604
39.00	-25.35	-21.79	0.00	-1,603.60	0.00	1,603.60	2,225.45	1,112.72	2,895.60	1,430.03	8.81	-2.14	0.587
40.00	-25.04	-21.52	0.00	-1,581.81	0.00	1,581.81	2,218.58	1,109.29	2,872.20	1,418.47	9.26	-2.20	0.582
45.00	-23.69	-20.95	0.00	-1,474.19	0.00	1,474.19	2,183.59	1,091.80	2,755.72	1,360.95	11.72	-2.48	0.556
50.00	-22.36	-20.36	0.00	-1,369.44	0.00	1,369.44	2,147.57	1,073.78	2,640.25	1,303.92	14.47	-2.76	0.529
55.00	-21.06	-19.75	0.00	-1,267.65	0.00	1,267.65	2,110.50	1,055.25	2,525.89	1,247.44	17.51	-3.03	0.503
60.00	-19.79	-19.12	0.00	-1,168.91	0.00	1,168.91	2,072.40	1,036.20	2,412.73	1,191.56	20.82	-3.30	0.476
65.00	-18.53	-18.48	0.00	-1,073.29	0.00	1,073.29	2,033.25	1,016.63	2,300.88	1,136.32	24.42	-3.56	0.449
70.00	-17.31	-17.89	0.00	-980.87	0.00	980.87	1,982.07	991.03	2,178.35	1,075.80	28.29	-3.82	0.425
73.50	-16.16	-17.49	0.00	-918.24	0.00	918.24	1,473.95	736.97	1,624.53	802.29	31.16	-4.00	0.471
75.00	-15.82	-17.14	0.00	-892.00	0.00	892.00	1,466.27	733.13	1,601.72	791.03	32.42	-4.07	0.461
80.00	-14.73	-16.47	0.00	-806.29	0.00	806.29	1,439.98	719.99	1,526.07	753.67	36.83	-4.33	0.427
85.00	-13.67	-15.93	0.00	-723.91	0.00	723.91	1,412.66	706.33	1,451.06	716.62	41.49	-4.57	0.392
86.94	-13.26	-15.62	0.00	-693.01	0.00	693.01	1,401.78	700.89	1,422.15	702.35	43.36	-4.67	0.379
86.94	-13.26	-15.62	0.00	-693.01	0.00	693.01	1,401.78	700.89	1,422.15	702.35	43.36	-4.67	0.997
90.00	-12.81	-15.19	0.00	-645.20	0.00	645.20	1,384.30	692.15	1,376.80	679.95	46.40	-4.81	0.959
95.00	-12.09	-14.67	0.00	-569.25	0.00	569.25	1,354.89	677.45	1,303.39	643.70	51.75	-5.41	0.894
100.00	-11.38	-14.33	0.00	-495.92	0.00	495.92	1,324.45	662.22	1,230.93	607.91	57.72	-5.98	0.825
105.00	-10.71	-14.06	0.00	-424.28	0.00	424.28	1,292.96	646.48	1,159.52	572.65	64.27	-6.54	0.750
107.00	-10.43	-13.87	0.00	-396.16	0.00	396.16	1,274.99	637.49	1,126.78	556.47	67.05	-6.76	0.721
110.00	-10.02	-13.60	0.00	-354.55	0.00	354.55	1,247.09	623.55	1,077.73	532.25	71.39	-7.07	0.675
110.00	-10.02	-13.60	0.00	-354.55	0.00	354.55	853.22	426.61	741.75	366.32	71.39	-7.07	0.981
115.00	-9.47	-13.29	0.00	-286.56	0.00	286.56	834.98	417.49	698.66	345.04	79.03	-7.55	0.843
119.00	-7.72	-10.65	0.00	-232.32	0.00	232.32	819.63	409.82	664.45	328.15	85.54	-8.01	0.718
120.00	-7.61	-10.47	0.00	-221.67	0.00	221.67	815.69	407.85	655.94	323.94	87.23	-8.12	0.694
125.00	-7.19	-10.19	0.00	-169.30	0.00	169.30	795.37	397.68	613.67	303.07	95.97	-8.60	0.568
128.00	-6.93	-9.98	0.00	-138.74	0.00	138.74	782.67	391.34	588.56	290.67	101.44	-8.86	0.487
130.00	-3.98	-5.88	0.00	-118.78	0.00	118.78	774.00	387.00	571.95	282.46	105.17	-9.02	0.426
135.00	-3.66	-5.52	0.00	-89.40	0.00	89.40	751.59	375.80	530.89	262.19	114.76	-9.35	0.346
140.00	-3.35	-5.17	0.00	-61.80	0.00	61.80	728.15	364.07	490.60	242.29	124.66	-9.63	0.260
145.00	-3.07	-4.83	0.00	-35.95	0.00	35.95	694.02	347.01	444.98	219.76	134.82	-9.83	0.168
150.00	0.00	-4.23	0.00	-11.83	0.00	11.83	659.15	329.57	401.14	198.11	145.14	-9.95	0.060

Load Case: 0.9D + 1.6W — 97 mph with No Ice (Reduced DL) — 27 Iterations

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

Wind Importance Factor 1.00

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		269.9	0.0					0.0	0.0	269.9	0.0	0.0	0.0
5.00		481.7	677.0					115.9	478.9	597.5	1,155.9	0.0	0.0
9.00	Reinf. Top Reinf	264.2	531.1					92.8	383.1	357.0	914.3	0.0	0.0
10.00		310.8	131.3					23.2	95.8	334.0	227.1	0.0	0.0
15.00		511.2	648.0					116.1	478.9	627.3	1,126.9	0.0	0.0
20.00		499.7	633.5					116.3	478.9	616.0	1,112.4	0.0	0.0
25.00		488.3	619.0					116.4	478.9	604.7	1,097.9	0.0	0.0
30.00		313.1	604.5					116.5	478.9	429.7	1,083.4	0.0	0.0
31.50	Bot - Section 2	244.5	178.5					35.3	143.7	279.7	322.2	0.0	0.0
35.00		205.8	761.9					84.2	335.2	289.9	1,097.1	0.0	0.0
35.67	Top - Section 1	199.8	143.6					16.3	63.9	216.1	207.5	0.0	0.0
39.00	Appurtenance(s)	216.9	327.1	27.4	0.0	0.0	9.0	82.9	319.3	327.1	655.3	0.0	0.0
40.00		303.1	97.1					25.3	95.6	328.4	192.7	0.0	0.0
45.00		507.3	478.2					129.1	478.2	636.5	956.4	0.0	0.0
50.00		509.7	466.1					133.5	478.2	643.1	944.3	0.0	0.0
55.00		510.2	454.0					137.5	478.2	647.6	932.2	0.0	0.0
60.00		509.1	441.9					141.3	478.2	650.3	920.1	0.0	0.0
65.00		506.6	429.9					144.8	478.2	651.4	908.1	0.0	0.0
70.00	Bot - Section 3	431.3	417.8					148.2	478.2	579.5	896.0	0.0	0.0
73.50	Top - Section 2	255.0	518.3					105.7	334.7	360.7	853.1	0.0	0.0
75.00		328.7	98.4					45.7	143.5	374.4	241.9	0.0	0.0
80.00		501.8	321.8					154.4	478.2	656.2	800.1	0.0	0.0
85.00		345.2	312.2					157.4	478.2	502.6	790.4	0.0	0.0
86.94	Reinf. Top	245.8	118.5					59.2	185.5	305.0	304.1	0.0	0.0
90.00		391.9	184.0					94.1	108.7	485.9	292.7	0.0	0.0
95.00		439.8	292.9					155.7	177.6	595.5	470.5	0.0	0.0
100.00		392.0	283.2					0.0	177.6	392.0	460.8	0.0	0.0
105.00		270.5	273.6					0.0	177.6	270.5	451.2	0.0	0.0
107.00	Appurtenance(s)	189.8	106.7	29.2	0.0	0.0	9.0	0.0	71.0	219.0	186.8	0.0	0.0
110.00	Top - Section 3	298.7	157.2					0.0	106.2	298.7	263.3	0.0	0.0
115.00		330.2	191.3					0.0	176.9	330.2	368.2	0.0	0.0
119.00	Appurtenance(s)	180.6	147.8	2,235.6	0.0	1,086.4	1,242.4	0.0	141.6	2,416.2	1,531.8	0.0	0.0
120.00		211.4	36.2					0.0	25.4	211.4	61.6	0.0	0.0
125.00		278.5	176.8					0.0	126.8	278.5	303.6	0.0	0.0
128.00	Appurtenance(s)	170.4	102.6	21.5	0.0	0.0	7.9	0.0	76.1	191.9	186.6	0.0	0.0
130.00	Appurtenance(s)	232.6	66.9	3,386.1	0.0	0.0	2,537.3	0.0	47.8	3,618.7	2,652.0	0.0	0.0
135.00		324.5	162.3					0.0	98.7	324.5	261.0	0.0	0.0
140.00		313.1	155.0					0.0	98.7	313.1	253.8	0.0	0.0
145.00		301.3	147.8					0.0	98.7	301.3	246.5	0.0	0.0
150.00	Appurtenance(s)	147.6	140.6	1,800.0	0.0	0.0	1,800.0	0.0	98.7	1,947.7	2,039.3	0.0	0.0
								Totals:		23,479.7	27,769.0	0.00	0.00

Site Number: 302480 Code: ANSI/TIA-222-G

Site Name: Woodbridge CT 1, CT Engineering Number:12927174_C3_03 8/30/2019 10:21:03 AM

Customer: METRO PCS INC

Load Case: 0.9D + 1.6W 97 mph with No Ice (Reduced DL) 27 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	-28.56	-25.56	0.00	-2,495.70	0.00	2,495.70	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.649
5.00	-27.29	-25.07	0.00	-2,367.92	0.00	2,367.92	3,114.35	1,557.18	4,645.51	2,294.24	0.15	-0.27	0.631
9.00	-26.32	-24.77	0.00	-2,267.63	0.00	2,267.63	3,079.35	1,539.68	4,513.00	2,228.80	0.47	-0.49	0.616
9.00	-26.32	-24.77	0.00	-2,267.63	0.00	2,267.63	3,079.35	1,539.68	4,513.00	2,228.80	0.47	-0.49	0.616
10.00	-26.03	-24.51	0.00	-2,242.85	0.00	2,242.85	3,070.50	1,535.25	4,480.00	2,212.51	0.57	-0.54	0.612
15.00	-24.80	-23.99	0.00	-2,120.30	0.00	2,120.30	3,025.61	1,512.80	4,315.88	2,131.45	1.29	-0.81	0.594
20.00	-23.59	-23.46	0.00	-2,000.36	0.00	2,000.36	2,979.67	1,489.84	4,153.23	2,051.12	2.29	-1.08	0.575
25.00	-22.39	-22.94	0.00	-1,883.04	0.00	1,883.04	2,932.70	1,466.35	3,992.16	1,971.58	3.57	-1.35	0.556
30.00	-21.25	-22.55	0.00	-1,768.33	0.00	1,768.33	2,875.19	1,437.60	3,820.15	1,886.63	5.13	-1.62	0.538
31.50	-20.89	-22.31	0.00	-1,734.51	0.00	1,734.51	2,854.27	1,427.14	3,764.44	1,859.12	5.65	-1.70	0.533
35.00	-19.76	-22.02	0.00	-1,656.42	0.00	1,656.42	2,805.46	1,402.73	3,636.05	1,795.71	6.97	-1.89	0.514
35.67	-19.52	-21.84	0.00	-1,641.74	0.00	1,641.74	2,248.06	1,124.03	2,973.87	1,468.68	7.24	-1.93	0.589
39.00	-18.83	-21.53	0.00	-1,568.95	0.00	1,568.95	2,225.45	1,112.72	2,895.60	1,430.03	8.65	-2.10	0.572
40.00	-18.59	-21.24	0.00	-1,547.43	0.00	1,547.43	2,218.58	1,109.29	2,872.20	1,418.47	9.10	-2.16	0.567
45.00	-17.56	-20.65	0.00	-1,441.21	0.00	1,441.21	2,183.59	1,091.80	2,755.72	1,360.95	11.51	-2.43	0.542
50.00	-16.55	-20.05	0.00	-1,337.94	0.00	1,337.94	2,147.57	1,073.78	2,640.25	1,303.92	14.20	-2.71	0.516
55.00	-15.56	-19.43	0.00	-1,237.71	0.00	1,237.71	2,110.50	1,055.25	2,525.89	1,247.44	17.18	-2.97	0.490
60.00	-14.59	-18.79	0.00	-1,140.59	0.00	1,140.59	2,072.40	1,036.20	2,412.73	1,191.56	20.43	-3.23	0.463
65.00	-13.65	-18.15	0.00	-1,046.62	0.00	1,046.62	2,033.25	1,016.63	2,300.88	1,136.32	23.95	-3.49	0.437
70.00	-12.72	-17.56	0.00	-955.88	0.00	955.88	1,982.07	991.03	2,178.35	1,075.80	27.74	-3.74	0.413
73.50	-11.86	-17.17	0.00	-894.42	0.00	894.42	1,473.95	736.97	1,624.53	802.29	30.55	-3.91	0.458
75.00	-11.60	-16.81	0.00	-868.66	0.00	868.66	1,466.27	733.13	1,601.72	791.03	31.79	-3.99	0.448
80.00	-10.78	-16.15	0.00	-784.60	0.00	784.60	1,439.98	719.99	1,526.07	753.67	36.10	-4.23	0.414
85.00	-9.98	-15.61	0.00	-703.87	0.00	703.87	1,412.66	706.33	1,451.06	716.62	40.66	-4.47	0.380
86.94	-9.67	-15.31	0.00	-673.58	0.00	673.58	1,401.78	700.89	1,422.15	702.35	42.49	-4.56	0.367
86.94	-9.67	-15.31	0.00	-673.58	0.00	673.58	1,401.78	700.89	1,422.15	702.35	42.49	-4.56	0.966
90.00	-9.33	-14.86	0.00	-626.74	0.00	626.74	1,384.30	692.15	1,376.80	679.95	45.46	-4.70	0.929
95.00	-8.77	-14.31	0.00	-552.46	0.00	552.46	1,354.89	677.45	1,303.39	643.70	50.69	-5.28	0.865
100.00	-8.21	-13.96	0.00	-480.91	0.00	480.91	1,324.45	662.22	1,230.93	607.91	56.52	-5.84	0.798
105.00	-7.71	-13.69	0.00	-411.13	0.00	411.13	1,292.96	646.48	1,159.52	572.65	62.92	-6.38	0.724
107.00	-7.48	-13.48	0.00	-383.76	0.00	383.76	1,274.99	637.49	1,126.78	556.47	65.63	-6.59	0.696
110.00	-7.17	-13.20	0.00	-343.31	0.00	343.31	1,247.09	623.55	1,077.73	532.25	69.86	-6.90	0.651
110.00	-7.17	-13.20	0.00	-343.31	0.00	343.31	853.22	426.61	741.75	366.32	69.86	-6.90	0.947
115.00	-6.74	-12.89	0.00	-277.29	0.00	277.29	834.98	417.49	698.66	345.04	77.32	-7.36	0.813
119.00	-5.49	-10.31	0.00	-224.66	0.00	224.66	819.63	409.82	664.45	328.15	83.66	-7.80	0.692
120.00	-5.41	-10.12	0.00	-214.35	0.00	214.35	815.69	407.85	655.94	323.94	85.30	-7.91	0.669
125.00	-5.09	-9.84	0.00	-163.73	0.00	163.73	795.37	397.68	613.67	303.07	93.82	-8.38	0.547
128.00	-4.90	-9.64	0.00	-134.22	0.00	134.22	782.67	391.34	588.56	290.67	99.15	-8.63	0.469
130.00	-2.80	-5.67	0.00	-114.94	0.00	114.94	774.00	387.00	571.95	282.46	102.78	-8.78	0.411
135.00	-2.57	-5.32	0.00	-86.59	0.00	86.59	751.59	375.80	530.89	262.19	112.12	-9.10	0.334
140.00	-2.35	-4.98	0.00	-59.99	0.00	59.99	728.15	364.07	490.60	242.29	121.76	-9.37	0.251
145.00	-2.14	-4.65	0.00	-35.08	0.00	35.08	694.02	347.01	444.98	219.76	131.65	-9.57	0.163
150.00	0.00	-4.23	0.00	-11.83	0.00	11.83	659.15	329.57	401.14	198.11	141.69	-9.69	0.060

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

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		47.5	0.0					0.0	0.0	47.5	0.0	0.0	0.0
5.00		85.1	1,185.9					31.1	725.7	116.2	1,911.7	0.0	0.0
9.00	Reinf. Top Reinf	46.9	956.1					25.9	589.7	72.8	1,545.8	0.0	0.0
10.00		55.4	238.8					6.6	148.2	62.0	387.0	0.0	0.0
15.00		91.4	1,184.7					33.1	744.3	124.5	1,929.0	0.0	0.0
20.00		89.7	1,169.6					33.6	748.7	123.3	1,918.3	0.0	0.0
25.00		87.9	1,151.5					34.0	752.2	122.0	1,903.7	0.0	0.0
30.00		56.5	1,131.6					34.4	755.0	90.9	1,886.6	0.0	0.0
31.50	Bot - Section 2	44.2	336.2					10.5	227.0	54.6	563.2	0.0	0.0
35.00		37.2	1,247.2					25.1	530.4	62.3	1,777.6	0.0	0.0
35.67	Top - Section 1	36.2	235.7					4.9	101.2	41.1	336.9	0.0	0.0
39.00	Appurtenance(s)	39.3	655.0	7.4	0.0	0.0	29.0	24.8	506.3	71.5	1,190.4	0.0	0.0
40.00		55.1	195.2					7.6	151.9	62.7	347.1	0.0	0.0
45.00		92.4	961.0					38.9	760.5	131.2	1,721.5	0.0	0.0
50.00		93.1	940.8					40.4	762.2	133.5	1,703.0	0.0	0.0
55.00		93.5	920.1					41.8	763.8	135.3	1,683.9	0.0	0.0
60.00		93.6	899.0					43.1	765.2	136.8	1,664.2	0.0	0.0
65.00		93.5	877.5					44.4	766.5	137.9	1,644.0	0.0	0.0
70.00	Bot - Section 3	79.8	855.7					45.6	767.8	125.4	1,623.4	0.0	0.0
73.50	Top - Section 2	47.2	901.1					32.6	538.1	79.9	1,439.3	0.0	0.0
75.00		61.1	220.8					14.1	230.8	75.2	451.6	0.0	0.0
80.00		93.5	720.8					47.8	770.0	141.3	1,490.9	0.0	0.0
85.00		64.5	701.5					38.0	741.8	102.5	1,443.3	0.0	0.0
86.94	Reinf. Top	46.1	268.0					13.9	285.2	60.0	553.1	0.0	0.0
90.00		73.7	416.1					22.1	204.7	95.8	620.8	0.0	0.0
95.00		90.5	662.4					29.3	315.3	119.8	977.7	0.0	0.0
100.00		89.2	642.5					0.0	236.8	89.2	879.4	0.0	0.0
105.00		61.8	622.5					0.0	236.8	61.8	859.4	0.0	0.0
107.00	Appurtenance(s)	43.5	244.4	8.2	0.0	0.0	31.8	0.0	94.7	51.7	371.0	0.0	0.0
110.00	Top - Section 3	68.7	360.0					0.0	141.6	68.7	501.6	0.0	0.0
115.00		76.3	498.2					0.0	235.9	76.3	734.1	0.0	0.0
119.00	Appurtenance(s)	41.9	386.9	577.8	0.0	246.0	3,389.3	0.0	188.7	619.6	3,964.9	0.0	0.0
120.00		49.3	95.5					0.0	33.8	49.3	129.3	0.0	0.0
125.00		65.1	463.7					0.0	169.1	65.1	632.8	0.0	0.0
128.00	Appurtenance(s)	40.0	270.9	6.5	0.0	0.0	23.7	0.0	101.4	46.5	396.1	0.0	0.0
130.00	Appurtenance(s)	55.0	177.5	826.2	0.0	0.0	4,638.1	0.0	63.7	881.1	4,879.3	0.0	0.0
135.00		77.1	428.8					0.0	131.6	77.1	560.5	0.0	0.0
140.00		75.0	411.2					0.0	131.6	75.0	542.9	0.0	0.0
145.00		72.8	393.6					0.0	131.6	72.8	525.2	0.0	0.0
150.00	Appurtenance(s)	35.9	375.8	446.8	0.0	0.0	3,421.7	0.0	131.6	482.7	3,929.1	0.0	0.0
								Totals:		5,242.84	51,619.4	0.00	0.00

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

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-54.77	-5.81	0.00	-629.76	0.00	629.76	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.174
5.00	-52.85	-5.75	0.00	-600.71	0.00	600.71	3,114.35	1,557.18	4,645.51	2,294.24	0.04	-0.07	0.170
9.00	-51.30	-5.71	0.00	-577.71	0.00	577.71	3,079.35	1,539.68	4,513.00	2,228.80	0.12	-0.12	0.167
9.00	-51.30	-5.71	0.00	-577.71	0.00	577.71	3,079.35	1,539.68	4,513.00	2,228.80	0.12	-0.12	0.167
10.00	-50.91	-5.68	0.00	-572.00	0.00	572.00	3,070.50	1,535.25	4,480.00	2,212.51	0.15	-0.14	0.166
15.00	-48.97	-5.61	0.00	-543.60	0.00	543.60	3,025.61	1,512.80	4,315.88	2,131.45	0.33	-0.21	0.162
20.00	-47.05	-5.53	0.00	-515.55	0.00	515.55	2,979.67	1,489.84	4,153.23	2,051.12	0.58	-0.28	0.157
25.00	-45.14	-5.46	0.00	-487.88	0.00	487.88	2,932.70	1,466.35	3,992.16	1,971.58	0.91	-0.35	0.153
30.00	-43.25	-5.39	0.00	-460.59	0.00	460.59	2,875.19	1,437.60	3,820.15	1,886.63	1.31	-0.42	0.149
31.50	-42.68	-5.36	0.00	-452.51	0.00	452.51	2,854.27	1,427.14	3,764.44	1,859.12	1.44	-0.44	0.148
35.00	-40.90	-5.30	0.00	-433.77	0.00	433.77	2,805.46	1,402.73	3,636.05	1,795.71	1.78	-0.49	0.143
35.67	-40.56	-5.28	0.00	-430.23	0.00	430.23	2,248.06	1,124.03	2,973.87	1,468.68	1.85	-0.50	0.164
39.00	-39.37	-5.21	0.00	-412.65	0.00	412.65	2,225.45	1,112.72	2,895.60	1,430.03	2.21	-0.54	0.160
40.00	-39.02	-5.18	0.00	-407.44	0.00	407.44	2,218.58	1,109.29	2,872.20	1,418.47	2.33	-0.56	0.159
45.00	-37.30	-5.08	0.00	-381.54	0.00	381.54	2,183.59	1,091.80	2,755.72	1,360.95	2.95	-0.63	0.152
50.00	-35.59	-4.97	0.00	-356.16	0.00	356.16	2,147.57	1,073.78	2,640.25	1,303.92	3.65	-0.70	0.146
55.00	-33.90	-4.85	0.00	-331.33	0.00	331.33	2,110.50	1,055.25	2,525.89	1,247.44	4.42	-0.77	0.139
60.00	-32.23	-4.73	0.00	-307.07	0.00	307.07	2,072.40	1,036.20	2,412.73	1,191.56	5.27	-0.84	0.133
65.00	-30.58	-4.60	0.00	-283.41	0.00	283.41	2,033.25	1,016.63	2,300.88	1,136.32	6.19	-0.91	0.126
70.00	-28.96	-4.48	0.00	-260.39	0.00	260.39	1,982.07	991.03	2,178.35	1,075.80	7.18	-0.98	0.120
73.50	-27.52	-4.39	0.00	-244.70	0.00	244.70	1,473.95	736.97	1,624.53	802.29	7.91	-1.03	0.134
75.00	-27.07	-4.33	0.00	-238.11	0.00	238.11	1,466.27	733.13	1,601.72	791.03	8.24	-1.05	0.131
80.00	-25.57	-4.19	0.00	-216.46	0.00	216.46	1,439.98	719.99	1,526.07	753.67	9.37	-1.12	0.122
85.00	-24.13	-4.08	0.00	-195.51	0.00	195.51	1,412.66	706.33	1,451.06	716.62	10.58	-1.18	0.113
86.94	-23.57	-4.02	0.00	-187.59	0.00	187.59	1,401.78	700.89	1,422.15	702.35	11.06	-1.21	0.110
86.94	-23.57	-4.02	0.00	-187.59	0.00	187.59	1,401.78	700.89	1,422.15	702.35	11.06	-1.21	0.284
90.00	-22.95	-3.95	0.00	-175.29	0.00	175.29	1,384.30	692.15	1,376.80	679.95	11.85	-1.25	0.274
95.00	-21.96	-3.87	0.00	-155.53	0.00	155.53	1,354.89	677.45	1,303.39	643.70	13.24	-1.41	0.258
100.00	-21.08	-3.82	0.00	-136.18	0.00	136.18	1,324.45	662.22	1,230.93	607.91	14.80	-1.57	0.240
105.00	-20.21	-3.77	0.00	-117.09	0.00	117.09	1,292.96	646.48	1,159.52	572.65	16.52	-1.72	0.220
107.00	-19.84	-3.73	0.00	-109.56	0.00	109.56	1,274.99	637.49	1,126.78	556.47	17.26	-1.78	0.212
110.00	-19.33	-3.68	0.00	-98.37	0.00	98.37	1,247.09	623.55	1,077.73	532.25	18.40	-1.87	0.200
110.00	-19.33	-3.68	0.00	-98.37	0.00	98.37	853.22	426.61	741.75	366.32	18.40	-1.87	0.291
115.00	-18.59	-3.62	0.00	-79.96	0.00	79.96	834.98	417.49	698.66	345.04	20.43	-2.00	0.254
119.00	-14.65	-2.88	0.00	-65.22	0.00	65.22	819.63	409.82	664.45	328.15	22.16	-2.13	0.217
120.00	-14.52	-2.85	0.00	-62.33	0.00	62.33	815.69	407.85	655.94	323.94	22.61	-2.16	0.210
125.00	-13.88	-2.79	0.00	-48.09	0.00	48.09	795.37	397.68	613.67	303.07	24.94	-2.30	0.176
128.00	-13.49	-2.74	0.00	-39.73	0.00	39.73	782.67	391.34	588.56	290.67	26.41	-2.37	0.154
130.00	-8.65	-1.66	0.00	-34.26	0.00	34.26	774.00	387.00	571.95	282.46	27.41	-2.41	0.132
135.00	-8.09	-1.57	0.00	-25.94	0.00	25.94	751.59	375.80	530.89	262.19	29.99	-2.51	0.110
140.00	-7.55	-1.48	0.00	-18.07	0.00	18.07	728.15	364.07	490.60	242.29	32.67	-2.59	0.085
145.00	-7.02	-1.39	0.00	-10.64	0.00	10.64	694.02	347.01	444.98	219.76	35.41	-2.65	0.059
150.00	0.00	-1.07	0.00	-3.67	0.00	3.67	659.15	329.57	401.14	198.11	38.21	-2.69	0.019

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

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		57.7	0.0					0.0	0.0	57.7	0.0	0.0	0.0
5.00		103.1	752.2					24.8	532.1	127.9	1,284.3	0.0	0.0
9.00	Reinf. Top Reinf	56.5	590.2					19.9	425.7	76.4	1,015.8	0.0	0.0
10.00		66.5	145.9					5.0	106.4	71.5	252.4	0.0	0.0
15.00		109.4	720.0					24.8	532.1	134.2	1,252.1	0.0	0.0
20.00		106.9	703.9					24.9	532.1	131.8	1,236.0	0.0	0.0
25.00		104.5	687.8					24.9	532.1	129.4	1,219.9	0.0	0.0
30.00		67.0	671.7					24.9	532.1	91.9	1,203.8	0.0	0.0
31.50	Bot - Section 2	52.3	198.4					7.5	159.6	59.9	358.0	0.0	0.0
35.00		44.0	846.5					18.0	372.5	62.0	1,219.0	0.0	0.0
35.67	Top - Section 1	42.7	159.6					3.5	70.9	46.2	230.5	0.0	0.0
39.00	Appurtenance(s)	46.4	363.4	5.9	0.0	0.0	10.0	17.7	354.7	70.0	728.2	0.0	0.0
40.00		64.9	107.9					5.4	106.3	70.3	214.1	0.0	0.0
45.00		108.6	531.3					27.6	531.3	136.2	1,062.6	0.0	0.0
50.00		109.0	517.9					28.6	531.3	137.6	1,049.2	0.0	0.0
55.00		109.2	504.5					29.4	531.3	138.6	1,035.8	0.0	0.0
60.00		108.9	491.0					30.2	531.3	139.1	1,022.4	0.0	0.0
65.00		108.4	477.6					31.0	531.3	139.4	1,009.0	0.0	0.0
70.00	Bot - Section 3	92.3	464.2					31.7	531.3	124.0	995.6	0.0	0.0
73.50	Top - Section 2	54.6	575.9					22.6	371.9	77.2	947.9	0.0	0.0
75.00		70.3	109.4					9.8	159.4	80.1	268.8	0.0	0.0
80.00		107.4	357.6					33.0	531.3	140.4	889.0	0.0	0.0
85.00		73.9	346.9					33.7	531.3	107.5	878.2	0.0	0.0
86.94	Reinf. Top	52.6	131.7					12.7	206.2	65.3	337.9	0.0	0.0
90.00		83.8	204.4					20.1	120.8	104.0	325.2	0.0	0.0
95.00		94.1	325.4					33.3	197.4	127.4	522.8	0.0	0.0
100.00		83.9	314.7					0.0	197.4	83.9	512.0	0.0	0.0
105.00		57.9	304.0					0.0	197.4	57.9	501.3	0.0	0.0
107.00	Appurtenance(s)	40.6	118.6	6.3	0.0	0.0	10.0	0.0	78.9	46.9	207.5	0.0	0.0
110.00	Top - Section 3	63.9	174.6					0.0	118.0	63.9	292.6	0.0	0.0
115.00		70.6	212.5					0.0	196.6	70.6	409.1	0.0	0.0
119.00	Appurtenance(s)	38.6	164.2	478.3	0.0	232.4	1,380.5	0.0	157.3	517.0	1,702.0	0.0	0.0
120.00		45.2	40.2					0.0	28.2	45.2	68.4	0.0	0.0
125.00		59.6	196.4					0.0	140.9	59.6	337.3	0.0	0.0
128.00	Appurtenance(s)	36.5	114.0	4.6	0.0	0.0	8.8	0.0	84.5	41.1	207.3	0.0	0.0
130.00	Appurtenance(s)	49.8	74.4	724.5	0.0	0.0	2,819.2	0.0	53.1	774.3	2,946.7	0.0	0.0
135.00		69.4	180.3					0.0	109.7	69.4	290.0	0.0	0.0
140.00		67.0	172.3					0.0	109.7	67.0	282.0	0.0	0.0
145.00		64.5	164.2					0.0	109.7	64.5	273.9	0.0	0.0
150.00	Appurtenance(s)	31.6	156.2	385.1	0.0	0.0	2,000.0	0.0	109.7	416.7	2,265.9	0.0	0.0
								Totals:		5,023.75	30,854.4	0.00	0.00

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

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-31.79	-5.47	0.00	-538.23	0.00	538.23	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.146
5.00	-30.51	-5.37	0.00	-510.89	0.00	510.89	3,114.35	1,557.18	4,645.51	2,294.24	0.03	-0.06	0.141
9.00	-29.49	-5.31	0.00	-489.41	0.00	489.41	3,079.35	1,539.68	4,513.00	2,228.80	0.10	-0.11	0.138
9.00	-29.49	-5.31	0.00	-489.41	0.00	489.41	3,079.35	1,539.68	4,513.00	2,228.80	0.10	-0.11	0.138
10.00	-29.23	-5.25	0.00	-484.11	0.00	484.11	3,070.50	1,535.25	4,480.00	2,212.51	0.12	-0.12	0.137
15.00	-27.97	-5.14	0.00	-457.85	0.00	457.85	3,025.61	1,512.80	4,315.88	2,131.45	0.28	-0.18	0.133
20.00	-26.73	-5.03	0.00	-432.13	0.00	432.13	2,979.67	1,489.84	4,153.23	2,051.12	0.49	-0.23	0.129
25.00	-25.51	-4.92	0.00	-406.96	0.00	406.96	2,932.70	1,466.35	3,992.16	1,971.58	0.77	-0.29	0.125
30.00	-24.30	-4.84	0.00	-382.34	0.00	382.34	2,875.19	1,437.60	3,820.15	1,886.63	1.11	-0.35	0.121
31.50	-23.94	-4.79	0.00	-375.07	0.00	375.07	2,854.27	1,427.14	3,764.44	1,859.12	1.22	-0.37	0.120
35.00	-22.72	-4.73	0.00	-358.30	0.00	358.30	2,805.46	1,402.73	3,636.05	1,795.71	1.51	-0.41	0.116
35.67	-22.49	-4.69	0.00	-355.15	0.00	355.15	2,248.06	1,124.03	2,973.87	1,468.68	1.56	-0.42	0.132
39.00	-21.76	-4.63	0.00	-339.50	0.00	339.50	2,225.45	1,112.72	2,895.60	1,430.03	1.87	-0.45	0.129
40.00	-21.54	-4.57	0.00	-334.88	0.00	334.88	2,218.58	1,109.29	2,872.20	1,418.47	1.96	-0.47	0.128
45.00	-20.48	-4.44	0.00	-312.04	0.00	312.04	2,183.59	1,091.80	2,755.72	1,360.95	2.49	-0.53	0.122
50.00	-19.43	-4.32	0.00	-289.82	0.00	289.82	2,147.57	1,073.78	2,640.25	1,303.92	3.07	-0.58	0.116
55.00	-18.39	-4.18	0.00	-268.24	0.00	268.24	2,110.50	1,055.25	2,525.89	1,247.44	3.71	-0.64	0.110
60.00	-17.36	-4.05	0.00	-247.31	0.00	247.31	2,072.40	1,036.20	2,412.73	1,191.56	4.41	-0.70	0.104
65.00	-16.35	-3.91	0.00	-227.06	0.00	227.06	2,033.25	1,016.63	2,300.88	1,136.32	5.18	-0.75	0.099
70.00	-15.36	-3.79	0.00	-207.49	0.00	207.49	1,982.07	991.03	2,178.35	1,075.80	6.00	-0.81	0.093
73.50	-14.41	-3.70	0.00	-194.23	0.00	194.23	1,473.95	736.97	1,624.53	802.29	6.60	-0.85	0.103
75.00	-14.14	-3.63	0.00	-188.67	0.00	188.67	1,466.27	733.13	1,601.72	791.03	6.87	-0.86	0.101
80.00	-13.25	-3.49	0.00	-170.52	0.00	170.52	1,439.98	719.99	1,526.07	753.67	7.81	-0.92	0.094
85.00	-12.37	-3.37	0.00	-153.09	0.00	153.09	1,412.66	706.33	1,451.06	716.62	8.79	-0.97	0.086
86.94	-12.03	-3.31	0.00	-146.54	0.00	146.54	1,401.78	700.89	1,422.15	702.35	9.19	-0.99	0.083
86.94	-12.03	-3.31	0.00	-146.54	0.00	146.54	1,401.78	700.89	1,422.15	702.35	9.19	-0.99	0.217
90.00	-11.70	-3.21	0.00	-136.42	0.00	136.42	1,384.30	692.15	1,376.80	679.95	9.84	-1.02	0.209
95.00	-11.18	-3.10	0.00	-120.36	0.00	120.36	1,354.89	677.45	1,303.39	643.70	10.97	-1.14	0.195
100.00	-10.66	-3.03	0.00	-104.85	0.00	104.85	1,324.45	662.22	1,230.93	607.91	12.23	-1.27	0.181
105.00	-10.16	-2.97	0.00	-89.71	0.00	89.71	1,292.96	646.48	1,159.52	572.65	13.62	-1.38	0.165
107.00	-9.95	-2.93	0.00	-83.76	0.00	83.76	1,274.99	637.49	1,126.78	556.47	14.21	-1.43	0.158
110.00	-9.65	-2.87	0.00	-74.97	0.00	74.97	1,247.09	623.55	1,077.73	532.25	15.13	-1.50	0.149
110.00	-9.65	-2.87	0.00	-74.97	0.00	74.97	853.22	426.61	741.75	366.32	15.13	-1.50	0.216
115.00	-9.24	-2.81	0.00	-60.60	0.00	60.60	834.98	417.49	698.66	345.04	16.76	-1.60	0.187
119.00	-7.55	-2.25	0.00	-49.13	0.00	49.13	819.63	409.82	664.45	328.15	18.14	-1.69	0.159
120.00	-7.48	-2.21	0.00	-46.88	0.00	46.88	815.69	407.85	655.94	323.94	18.50	-1.72	0.154
125.00	-7.14	-2.15	0.00	-35.82	0.00	35.82	795.37	397.68	613.67	303.07	20.35	-1.82	0.127
128.00	-6.94	-2.11	0.00	-29.36	0.00	29.36	782.67	391.34	588.56	290.67	21.51	-1.88	0.110
130.00	-4.01	-1.24	0.00	-25.14	0.00	25.14	774.00	387.00	571.95	282.46	22.31	-1.91	0.094
135.00	-3.73	-1.17	0.00	-18.94	0.00	18.94	751.59	375.80	530.89	262.19	24.34	-1.98	0.077
140.00	-3.45	-1.09	0.00	-13.10	0.00	13.10	728.15	364.07	490.60	242.29	26.45	-2.04	0.059
145.00	-3.17	-1.02	0.00	-7.63	0.00	7.63	694.02	347.01	444.98	219.76	28.61	-2.08	0.039
150.00	0.00	-0.90	0.00	-2.53	0.00	2.53	659.15	329.57	401.14	198.11	30.80	-2.11	0.013

Equivalent Lateral Forces Method Analysis

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

Spectral Response Acceleration for Short Period (S_s):	0.19	
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06	
Long-Period Transition Period (T_L):	6	
Importance Factor (I_E):	1.00	
Site Coefficient F_a:	1.60	
Site Coeffiecient F_v:	2.40	
Response Modification Coefficient (R):	1.50	
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20	
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10	
Seismic Response Coefficient (C_s):	0.03	
Upper Limit C_s	0.03	
Lower Limit C_s	0.03	
Period based on Rayleigh Method (sec):	2.81	
Redundancy Factor (p):	1.30	
Seismic Force Distribution Exponent (k):	2.00	
Total Unfactored Dead Load:	31.80	k
Seismic Base Shear (E):	1.24	k

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	147.50	266	5,784	0.024	29	330
38	142.50	274	5,562	0.023	28	340
37	137.50	282	5,331	0.022	27	350
36	132.50	290	5,092	0.021	26	360
35	129.00	127	2,121	0.009	11	158
34	126.50	199	3,177	0.013	16	246
33	122.50	337	5,062	0.021	26	419
32	119.50	68	977	0.004	5	85
31	117.00	321	4,401	0.018	22	399
30	112.50	409	5,178	0.021	26	508
29	108.50	293	3,445	0.014	18	363
28	106.00	198	2,219	0.009	11	245
27	102.50	501	5,267	0.022	27	622
26	97.50	512	4,868	0.020	25	635
25	92.50	523	4,473	0.018	23	649
24	88.47	325	2,546	0.010	13	404
23	85.97	338	2,497	0.010	13	419
22	82.50	878	5,977	0.025	30	1,090
21	77.50	889	5,339	0.022	27	1,103
20	74.25	269	1,482	0.006	8	333
19	71.75	948	4,880	0.020	25	1,176
18	67.50	996	4,536	0.019	23	1,235
17	62.50	1,009	3,941	0.016	20	1,252

16	57.50	1,022	3,380	0.014	17	1,269
15	52.50	1,036	2,855	0.012	15	1,285
14	47.50	1,049	2,367	0.010	12	1,302
13	42.50	1,063	1,919	0.008	10	1,318
12	39.50	214	334	0.001	2	266
11	37.33	718	1,001	0.004	5	891
10	35.33	231	288	0.001	1	286
9	33.25	1,219	1,348	0.006	7	1,512
8	30.75	358	339	0.001	2	444
7	27.50	1,204	910	0.004	5	1,494
6	22.50	1,220	618	0.003	3	1,514
5	17.50	1,236	379	0.002	2	1,534
4	12.50	1,252	196	0.001	1	1,554
3	9.50	252	23	0.000	0	313
2	7.00	1,016	50	0.000	0	1,260
1	2.50	1,284	8	0.000	0	1,593
Generic 22' Omni	150.00	70	1,575	0.006	8	87
Generic 20' Dipole	150.00	60	1,350	0.006	7	74
Powerwave Allgon LGP	150.00	32	716	0.003	4	39
LGP Allgon TMA-DD 19	150.00	62	1,404	0.006	7	77
Raycap DC6-48-60-18-	150.00	32	715	0.003	4	39
Ericsson RRUS 11 (Ba	150.00	165	3,713	0.015	19	205
Ericsson RRUS 32 B2	150.00	159	3,577	0.015	18	197
Powerwave Allgon 777	150.00	210	4,725	0.019	24	261
CCI HPA-65R-BUU-H6	150.00	153	3,443	0.014	18	190
Flat Platform w/ Han	150.00	2,000	45,000	0.185	229	2,481
Ericsson Radio 4449	130.00	222	3,752	0.015	19	275
Ericsson AIR 21, 1.3	130.00	275	4,639	0.019	24	341
Ericsson AIR B4A/B12	130.00	339	5,729	0.023	29	421
RFS APXVAARR24_43-U-	130.00	384	6,485	0.027	33	476
Generic Round Platfo	130.00	1,600	27,040	0.111	138	1,985
Fastback Networks In	128.00	9	144	0.001	1	11
RFS FD9R6004/1C-3L	119.00	19	263	0.001	1	23
Andrew PCS1900 Dual	119.00	120	1,699	0.007	9	149
ADC ClearGain Dual B	119.00	172	2,439	0.010	12	214
Alcatel-Lucent RRH2x	119.00	132	1,869	0.008	10	164
Amphenol Antel BXA-1	119.00	32	446	0.002	2	39
Amphenol Antel BXA-1	119.00	32	446	0.002	2	39
Antel BXA-80063/4CF	119.00	30	421	0.002	2	37
RFS DB-T1-6Z-8AB-0Z	119.00	44	623	0.003	3	55
Antel BXA-70063/6CF_	119.00	51	722	0.003	4	63
Round T-Arms	119.00	750	10,621	0.044	54	931
Generic GPS	107.00	10	114	0.000	1	12
Generic GPS	39.00	10	15	0.000	0	12
		31,797	243,853	1.000	1,240	39,453

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
39	147.50	266	5,784	0.024	29	228
38	142.50	274	5,562	0.023	28	235
37	137.50	282	5,331	0.022	27	242
36	132.50	290	5,092	0.021	26	249
35	129.00	127	2,121	0.009	11	110
34	126.50	199	3,177	0.013	16	171
33	122.50	337	5,062	0.021	26	290
32	119.50	68	977	0.004	5	59
31	117.00	321	4,401	0.018	22	276
30	112.50	409	5,178	0.021	26	352

29	108.50	293	3,445	0.014	18	251
28	106.00	198	2,219	0.009	11	170
27	102.50	501	5,267	0.022	27	431
26	97.50	512	4,868	0.020	25	440
25	92.50	523	4,473	0.018	23	449
24	88.47	325	2,546	0.010	13	279
23	85.97	338	2,497	0.010	13	290
22	82.50	878	5,977	0.025	30	755
21	77.50	889	5,339	0.022	27	764
20	74.25	269	1,482	0.006	8	231
19	71.75	948	4,880	0.020	25	814
18	67.50	996	4,536	0.019	23	855
17	62.50	1,009	3,941	0.016	20	867
16	57.50	1,022	3,380	0.014	17	878
15	52.50	1,036	2,855	0.012	15	890
14	47.50	1,049	2,367	0.010	12	902
13	42.50	1,063	1,919	0.008	10	913
12	39.50	214	334	0.001	2	184
11	37.33	718	1,001	0.004	5	617
10	35.33	231	288	0.001	1	198
9	33.25	1,219	1,348	0.006	7	1,047
8	30.75	358	339	0.001	2	308
7	27.50	1,204	910	0.004	5	1,034
6	22.50	1,220	618	0.003	3	1,048
5	17.50	1,236	379	0.002	2	1,062
4	12.50	1,252	196	0.001	1	1,076
3	9.50	252	23	0.000	0	217
2	7.00	1,016	50	0.000	0	873
1	2.50	1,284	8	0.000	0	1,104
Generic 22' Omni	150.00	70	1,575	0.006	8	60
Generic 20' Dipole	150.00	60	1,350	0.006	7	52
Powerwave Allgon LGP	150.00	32	716	0.003	4	27
LGP Allgon TMA-DD 19	150.00	62	1,404	0.006	7	54
Raycap DC6-48-60-18-	150.00	32	715	0.003	4	27
Ericsson RRUS 11 (Ba	150.00	165	3,713	0.015	19	142
Ericsson RRUS 32 B2	150.00	159	3,577	0.015	18	137
Powerwave Allgon 777	150.00	210	4,725	0.019	24	180
CCI HPA-65R-BUU-H6	150.00	153	3,443	0.014	18	131
Flat Platform w/ Han	150.00	2,000	45,000	0.185	229	1,719
Ericsson Radio 4449	130.00	222	3,752	0.015	19	191
Ericsson AIR 21, 1.3	130.00	275	4,639	0.019	24	236
Ericsson AIR B4A/B12	130.00	339	5,729	0.023	29	291
RFS APXVAARR24_43-U-	130.00	384	6,485	0.027	33	330
Generic Round Platfo	130.00	1,600	27,040	0.111	138	1,375
Fastback Networks In	128.00	9	144	0.001	1	8
RFS FD9R6004/1C-3L	119.00	19	263	0.001	1	16
Andrew PCS1900 Dual	119.00	120	1,699	0.007	9	103
ADC ClearGain Dual B	119.00	172	2,439	0.010	12	148
Alcatel-Lucent RRH2x	119.00	132	1,869	0.008	10	113
Amphenol Antel BXA-1	119.00	32	446	0.002	2	27
Amphenol Antel BXA-1	119.00	32	446	0.002	2	27
Antel BXA-80063/4CF	119.00	30	421	0.002	2	26
RFS DB-T1-6Z-8AB-0Z	119.00	44	623	0.003	3	38
Antel BXA-70063/6CF_	119.00	51	722	0.003	4	44
Round T-Arms	119.00	750	10,621	0.044	54	644
Generic GPS	107.00	10	114	0.000	1	9
Generic GPS	39.00	10	15	0.000	0	9
		31,797	243,853	1.000	1,240	27,322

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	-37.86	-1.24	0.00	-157.07	0.00	157.07	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.049
5.00	-36.60	-1.25	0.00	-150.84	0.00	150.84	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.02	0.048
9.00	-36.28	-1.26	0.00	-145.83	0.00	145.83	3,079.35	1,539.68	4,513.00	2,228.80	0.03	-0.03	0.047
9.00	-36.28	-1.26	0.00	-145.83	0.00	145.83	3,079.35	1,539.68	4,513.00	2,228.80	0.03	-0.03	0.047
10.00	-34.73	-1.26	0.00	-144.57	0.00	144.57	3,070.50	1,535.25	4,480.00	2,212.51	0.04	-0.03	0.047
15.00	-33.20	-1.27	0.00	-138.25	0.00	138.25	3,025.61	1,512.80	4,315.88	2,131.45	0.08	-0.05	0.046
20.00	-31.68	-1.28	0.00	-131.89	0.00	131.89	2,979.67	1,489.84	4,153.23	2,051.12	0.15	-0.07	0.045
25.00	-30.19	-1.28	0.00	-125.51	0.00	125.51	2,932.70	1,466.35	3,992.16	1,971.58	0.23	-0.09	0.044
30.00	-29.74	-1.28	0.00	-119.11	0.00	119.11	2,875.19	1,437.60	3,820.15	1,886.63	0.33	-0.11	0.043
31.50	-28.23	-1.28	0.00	-117.19	0.00	117.19	2,854.27	1,427.14	3,764.44	1,859.12	0.36	-0.11	0.042
35.00	-27.95	-1.28	0.00	-112.72	0.00	112.72	2,805.46	1,402.73	3,636.05	1,795.71	0.45	-0.12	0.041
35.67	-27.05	-1.28	0.00	-111.86	0.00	111.86	2,248.06	1,124.03	2,973.87	1,468.68	0.47	-0.13	0.047
39.00	-26.78	-1.28	0.00	-107.61	0.00	107.61	2,225.45	1,112.72	2,895.60	1,430.03	0.56	-0.14	0.046
40.00	-25.46	-1.27	0.00	-106.33	0.00	106.33	2,218.58	1,109.29	2,872.20	1,418.47	0.59	-0.14	0.046
45.00	-24.16	-1.26	0.00	-99.99	0.00	99.99	2,183.59	1,091.80	2,755.72	1,360.95	0.75	-0.16	0.044
50.00	-22.87	-1.25	0.00	-93.68	0.00	93.68	2,147.57	1,073.78	2,640.25	1,303.92	0.93	-0.18	0.042
55.00	-21.60	-1.24	0.00	-87.43	0.00	87.43	2,110.50	1,055.25	2,525.89	1,247.44	1.13	-0.20	0.040
60.00	-20.35	-1.22	0.00	-81.25	0.00	81.25	2,072.40	1,036.20	2,412.73	1,191.56	1.35	-0.22	0.038
65.00	-19.11	-1.20	0.00	-75.16	0.00	75.16	2,033.25	1,016.63	2,300.88	1,136.32	1.58	-0.24	0.037
70.00	-17.94	-1.17	0.00	-69.17	0.00	69.17	1,982.07	991.03	2,178.35	1,075.80	1.84	-0.25	0.035
73.50	-17.60	-1.17	0.00	-65.07	0.00	65.07	1,473.95	736.97	1,624.53	802.29	2.03	-0.27	0.039
75.00	-16.50	-1.14	0.00	-63.33	0.00	63.33	1,466.27	733.13	1,601.72	791.03	2.12	-0.27	0.038
80.00	-15.41	-1.11	0.00	-57.64	0.00	57.64	1,439.98	719.99	1,526.07	753.67	2.41	-0.29	0.036
85.00	-14.99	-1.09	0.00	-52.12	0.00	52.12	1,412.66	706.33	1,451.06	716.62	2.72	-0.31	0.033
86.94	-14.59	-1.08	0.00	-50.00	0.00	50.00	1,401.78	700.89	1,422.15	702.35	2.85	-0.31	0.032
86.94	-14.59	-1.08	0.00	-50.00	0.00	50.00	1,401.78	700.89	1,422.15	702.35	2.85	-0.31	0.082
90.00	-13.94	-1.06	0.00	-46.69	0.00	46.69	1,384.30	692.15	1,376.80	679.95	3.05	-0.32	0.079
95.00	-13.30	-1.04	0.00	-41.39	0.00	41.39	1,354.89	677.45	1,303.39	643.70	3.42	-0.37	0.074
100.00	-12.68	-1.02	0.00	-36.18	0.00	36.18	1,324.45	662.22	1,230.93	607.91	3.83	-0.41	0.069
105.00	-12.43	-1.01	0.00	-31.07	0.00	31.07	1,292.96	646.48	1,159.52	572.65	4.28	-0.45	0.064
107.00	-12.06	-1.00	0.00	-29.05	0.00	29.05	1,274.99	637.49	1,126.78	556.47	4.47	-0.47	0.062
110.00	-11.55	-0.97	0.00	-26.06	0.00	26.06	1,247.09	623.55	1,077.73	532.25	4.77	-0.49	0.058
110.00	-11.55	-0.97	0.00	-26.06	0.00	26.06	853.22	426.61	741.75	366.32	4.77	-0.49	0.085
115.00	-11.15	-0.95	0.00	-21.20	0.00	21.20	834.98	417.49	698.66	345.04	5.30	-0.52	0.075
119.00	-9.36	-0.83	0.00	-17.39	0.00	17.39	819.63	409.82	664.45	328.15	5.76	-0.56	0.064
120.00	-8.94	-0.81	0.00	-16.55	0.00	16.55	815.69	407.85	655.94	323.94	5.87	-0.57	0.062
125.00	-8.69	-0.79	0.00	-12.51	0.00	12.51	795.37	397.68	613.67	303.07	6.49	-0.60	0.052
128.00	-8.52	-0.78	0.00	-10.13	0.00	10.13	782.67	391.34	588.56	290.67	6.87	-0.62	0.046
130.00	-4.67	-0.47	0.00	-8.56	0.00	8.56	774.00	387.00	571.95	282.46	7.14	-0.63	0.036
135.00	-4.32	-0.44	0.00	-6.19	0.00	6.19	751.59	375.80	530.89	262.19	7.81	-0.66	0.029
140.00	-3.98	-0.41	0.00	-3.97	0.00	3.97	728.15	364.07	490.60	242.29	8.51	-0.68	0.022
145.00	-3.65	-0.38	0.00	-1.90	0.00	1.90	694.02	347.01	444.98	219.76	9.23	-0.69	0.014
150.00	0.00	-0.34	0.00	0.00	0.00	0.00	659.15	329.57	401.14	198.11	9.95	-0.69	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	-26.22	-1.24	0.00	-153.76	0.00	153.76	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.045
5.00	-25.35	-1.25	0.00	-147.55	0.00	147.55	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.02	0.045
9.00	-25.13	-1.25	0.00	-142.55	0.00	142.55	3,079.35	1,539.68	4,513.00	2,228.80	0.03	-0.03	0.044
9.00	-25.13	-1.25	0.00	-142.55	0.00	142.55	3,079.35	1,539.68	4,513.00	2,228.80	0.03	-0.03	0.044
10.00	-24.05	-1.26	0.00	-141.29	0.00	141.29	3,070.50	1,535.25	4,480.00	2,212.51	0.04	-0.03	0.044
15.00	-22.99	-1.26	0.00	-135.02	0.00	135.02	3,025.61	1,512.80	4,315.88	2,131.45	0.08	-0.05	0.043
20.00	-21.94	-1.26	0.00	-128.72	0.00	128.72	2,979.67	1,489.84	4,153.23	2,051.12	0.14	-0.07	0.042
25.00	-20.91	-1.26	0.00	-122.40	0.00	122.40	2,932.70	1,466.35	3,992.16	1,971.58	0.22	-0.09	0.041
30.00	-20.60	-1.26	0.00	-116.09	0.00	116.09	2,875.19	1,437.60	3,820.15	1,886.63	0.32	-0.10	0.040
31.50	-19.55	-1.26	0.00	-114.19	0.00	114.19	2,854.27	1,427.14	3,764.44	1,859.12	0.36	-0.11	0.039
35.00	-19.35	-1.26	0.00	-109.79	0.00	109.79	2,805.46	1,402.73	3,636.05	1,795.71	0.44	-0.12	0.038
35.67	-18.74	-1.26	0.00	-108.95	0.00	108.95	2,248.06	1,124.03	2,973.87	1,468.68	0.46	-0.12	0.044
39.00	-18.54	-1.26	0.00	-104.76	0.00	104.76	2,225.45	1,112.72	2,895.60	1,430.03	0.55	-0.14	0.043
40.00	-17.63	-1.25	0.00	-103.51	0.00	103.51	2,218.58	1,109.29	2,872.20	1,418.47	0.58	-0.14	0.042
45.00	-16.73	-1.24	0.00	-97.27	0.00	97.27	2,183.59	1,091.80	2,755.72	1,360.95	0.73	-0.16	0.041
50.00	-15.84	-1.23	0.00	-91.08	0.00	91.08	2,147.57	1,073.78	2,640.25	1,303.92	0.91	-0.18	0.039
55.00	-14.96	-1.21	0.00	-84.95	0.00	84.95	2,110.50	1,055.25	2,525.89	1,247.44	1.10	-0.19	0.038
60.00	-14.09	-1.19	0.00	-78.89	0.00	78.89	2,072.40	1,036.20	2,412.73	1,191.56	1.31	-0.21	0.036
65.00	-13.24	-1.17	0.00	-72.93	0.00	72.93	2,033.25	1,016.63	2,300.88	1,136.32	1.55	-0.23	0.034
70.00	-12.42	-1.14	0.00	-67.08	0.00	67.08	1,982.07	991.03	2,178.35	1,075.80	1.80	-0.25	0.032
73.50	-12.19	-1.14	0.00	-63.07	0.00	63.07	1,473.95	736.97	1,624.53	802.29	1.98	-0.26	0.036
75.00	-11.43	-1.11	0.00	-61.37	0.00	61.37	1,466.27	733.13	1,601.72	791.03	2.06	-0.26	0.035
80.00	-10.67	-1.08	0.00	-55.82	0.00	55.82	1,439.98	719.99	1,526.07	753.67	2.35	-0.28	0.033
85.00	-10.38	-1.07	0.00	-50.42	0.00	50.42	1,412.66	706.33	1,451.06	716.62	2.65	-0.30	0.031
86.94	-10.10	-1.05	0.00	-48.35	0.00	48.35	1,401.78	700.89	1,422.15	702.35	2.78	-0.31	0.030
86.94	-10.10	-1.05	0.00	-48.35	0.00	48.35	1,401.78	700.89	1,422.15	702.35	2.78	-0.31	0.076
90.00	-9.65	-1.03	0.00	-45.13	0.00	45.13	1,384.30	692.15	1,376.80	679.95	2.98	-0.32	0.073
95.00	-9.21	-1.01	0.00	-39.96	0.00	39.96	1,354.89	677.45	1,303.39	643.70	3.33	-0.36	0.069
100.00	-8.78	-0.99	0.00	-34.90	0.00	34.90	1,324.45	662.22	1,230.93	607.91	3.73	-0.40	0.064
105.00	-8.61	-0.98	0.00	-29.95	0.00	29.95	1,292.96	646.48	1,159.52	572.65	4.16	-0.44	0.059
107.00	-8.35	-0.96	0.00	-27.99	0.00	27.99	1,274.99	637.49	1,126.78	556.47	4.35	-0.45	0.057
110.00	-8.00	-0.94	0.00	-25.10	0.00	25.10	1,247.09	623.55	1,077.73	532.25	4.64	-0.47	0.054
110.00	-8.00	-0.94	0.00	-25.10	0.00	25.10	853.22	426.61	741.75	366.32	4.64	-0.47	0.078
115.00	-7.72	-0.92	0.00	-20.41	0.00	20.41	834.98	417.49	698.66	345.04	5.16	-0.51	0.068
119.00	-6.48	-0.80	0.00	-16.73	0.00	16.73	819.63	409.82	664.45	328.15	5.60	-0.54	0.059
120.00	-6.19	-0.78	0.00	-15.93	0.00	15.93	815.69	407.85	655.94	323.94	5.71	-0.55	0.057
125.00	-6.02	-0.76	0.00	-12.04	0.00	12.04	795.37	397.68	613.67	303.07	6.31	-0.58	0.047
128.00	-5.90	-0.75	0.00	-9.75	0.00	9.75	782.67	391.34	588.56	290.67	6.68	-0.60	0.041
130.00	-3.23	-0.46	0.00	-8.24	0.00	8.24	774.00	387.00	571.95	282.46	6.94	-0.61	0.033
135.00	-2.99	-0.43	0.00	-5.96	0.00	5.96	751.59	375.80	530.89	262.19	7.59	-0.64	0.027
140.00	-2.75	-0.40	0.00	-3.82	0.00	3.82	728.15	364.07	490.60	242.29	8.27	-0.65	0.020
145.00	-2.52	-0.37	0.00	-1.83	0.00	1.83	694.02	347.01	444.98	219.76	8.96	-0.67	0.012
150.00	0.00	-0.34	0.00	0.00	0.00	0.00	659.15	329.57	401.14	198.11	9.66	-0.67	0.000

Equivalent Modal Analysis Method

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

Spectral Response Acceleration for Short Period (S_s):	0.19
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coefficient F_v	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.20
Desing Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.10
Period Based on Rayleigh Method (sec):	2.81
Redundancy Factor (p):	1.30

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	147.50	266	1.828	1.667	1.025	0.342	79	330
38	142.50	274	1.706	1.144	0.823	0.264	63	340
37	137.50	282	1.588	0.742	0.654	0.195	48	350
36	132.50	290	1.475	0.441	0.513	0.134	34	360
35	129.00	127	1.398	0.280	0.430	0.097	11	158
34	126.50	199	1.344	0.186	0.377	0.073	13	246
33	122.50	337	1.261	0.069	0.302	0.038	11	419
32	119.50	68	1.200	0.004	0.254	0.016	1	85
31	117.00	321	1.150	-0.037	0.219	-0.001	0	399
30	112.50	409	1.063	-0.088	0.165	-0.025	-9	508
29	108.50	293	0.989	-0.113	0.126	-0.042	-11	363
28	106.00	198	0.944	-0.120	0.105	-0.050	-9	245
27	102.50	501	0.883	-0.121	0.081	-0.057	-25	622
26	97.50	512	0.799	-0.112	0.053	-0.061	-27	635
25	92.50	523	0.719	-0.092	0.034	-0.056	-25	649
24	88.47	325	0.657	-0.073	0.022	-0.047	-13	404
23	85.97	338	0.621	-0.060	0.017	-0.038	-11	419
22	82.50	878	0.572	-0.043	0.012	-0.024	-19	1,090
21	77.50	889	0.505	-0.018	0.007	-0.002	-2	1,103
20	74.25	269	0.463	-0.003	0.006	0.012	3	333
19	71.75	948	0.432	0.008	0.006	0.022	18	1,176
18	67.50	996	0.383	0.023	0.007	0.037	32	1,235
17	62.50	1,009	0.328	0.039	0.010	0.049	43	1,252
16	57.50	1,022	0.278	0.050	0.014	0.056	50	1,269
15	52.50	1,036	0.232	0.058	0.019	0.060	53	1,285
14	47.50	1,049	0.190	0.064	0.025	0.060	55	1,302
13	42.50	1,063	0.152	0.068	0.030	0.060	55	1,318
12	39.50	214	0.131	0.069	0.033	0.059	11	266
11	37.33	718	0.117	0.070	0.035	0.059	36	891
10	35.33	231	0.105	0.071	0.037	0.058	12	286
9	33.25	1,219	0.093	0.071	0.038	0.057	61	1,512
8	30.75	358	0.079	0.072	0.040	0.057	18	444
7	27.50	1,204	0.064	0.072	0.041	0.056	58	1,494
6	22.50	1,220	0.043	0.070	0.042	0.054	57	1,514

5	17.50	1,236	0.026	0.067	0.040	0.052	55	1,534
4	12.50	1,252	0.013	0.059	0.034	0.047	51	1,554
3	9.50	252	0.008	0.051	0.029	0.042	9	313
2	7.00	1,016	0.004	0.042	0.023	0.037	32	1,260
1	2.50	1,284	0.001	0.018	0.010	0.018	20	1,593
Generic 22' Omni	150.00	70	1.890	1.980	1.140	0.384	23	87
Generic 20' Dipole	150.00	60	1.890	1.980	1.140	0.384	20	74
Powerwave Allgon LGP	150.00	32	1.890	1.980	1.140	0.384	11	39
LGP Allgon TMA-DD 19	150.00	62	1.890	1.980	1.140	0.384	21	77
Raycap DC6-48-60-18-	150.00	32	1.890	1.980	1.140	0.384	11	39
Ericsson RRUS 11 (Ba	150.00	165	1.890	1.980	1.140	0.384	55	205
Ericsson RRUS 32 B2	150.00	159	1.890	1.980	1.140	0.384	53	197
Powerwave Allgon 777	150.00	210	1.890	1.980	1.140	0.384	70	261
CCI HPA-65R-BUU-H6	150.00	153	1.890	1.980	1.140	0.384	51	190
Flat Platform w/ Han	150.00	2,000	1.890	1.980	1.140	0.384	665	2,481
Ericsson Radio 4449	130.00	222	1.420	0.322	0.452	0.107	21	275
Ericsson AIR 21, 1.3	130.00	275	1.420	0.322	0.452	0.107	26	341
Ericsson AIR B4A/B12	130.00	339	1.420	0.322	0.452	0.107	32	421
RFS APXVAARR24_43-U-	130.00	384	1.420	0.322	0.452	0.107	36	476
Generic Round Platfo	130.00	1,600	1.420	0.322	0.452	0.107	149	1,985
Fastback Networks In	128.00	9	1.376	0.240	0.408	0.087	1	11
RFS FD9R6004/1C-3L	119.00	19	1.190	-0.005	0.247	0.012	0	23
Andrew PCS1900 Dual	119.00	120	1.190	-0.005	0.247	0.012	1	149
ADC ClearGain Dual B	119.00	172	1.190	-0.005	0.247	0.012	2	214
Alcatel-Lucent RRH2x	119.00	132	1.190	-0.005	0.247	0.012	1	164
Amphenol Antel BXA-1	119.00	32	1.190	-0.005	0.247	0.012	0	39
Amphenol Antel BXA-1	119.00	32	1.190	-0.005	0.247	0.012	0	39
Antel BXA-80063/4CF	119.00	30	1.190	-0.005	0.247	0.012	0	37
RFS DB-T1-6Z-8AB-0Z	119.00	44	1.190	-0.005	0.247	0.012	0	55
Antel BXA-70063/6CF_	119.00	51	1.190	-0.005	0.247	0.012	1	63
Round T-Arms	119.00	750	1.190	-0.005	0.247	0.012	8	931
Generic GPS	107.00	10	0.962	-0.117	0.113	-0.047	0	12
Generic GPS	39.00	10	0.128	0.070	0.033	0.059	1	12
		31,797	64.196	26.248	22.425	6.305	2,095	39,453

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

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
39	147.50	266	1.828	1.667	1.025	0.342	79	228
38	142.50	274	1.706	1.144	0.823	0.264	63	235
37	137.50	282	1.588	0.742	0.654	0.195	48	242
36	132.50	290	1.475	0.441	0.513	0.134	34	249
35	129.00	127	1.398	0.280	0.430	0.097	11	110
34	126.50	199	1.344	0.186	0.377	0.073	13	171
33	122.50	337	1.261	0.069	0.302	0.038	11	290
32	119.50	68	1.200	0.004	0.254	0.016	1	59
31	117.00	321	1.150	-0.037	0.219	-0.001	0	276
30	112.50	409	1.063	-0.088	0.165	-0.025	-9	352
29	108.50	293	0.989	-0.113	0.126	-0.042	-11	251
28	106.00	198	0.944	-0.120	0.105	-0.050	-9	170
27	102.50	501	0.883	-0.121	0.081	-0.057	-25	431
26	97.50	512	0.799	-0.112	0.053	-0.061	-27	440
25	92.50	523	0.719	-0.092	0.034	-0.056	-25	449
24	88.47	325	0.657	-0.073	0.022	-0.047	-13	279
23	85.97	338	0.621	-0.060	0.017	-0.038	-11	290
22	82.50	878	0.572	-0.043	0.012	-0.024	-19	755
21	77.50	889	0.505	-0.018	0.007	-0.002	-2	764
20	74.25	269	0.463	-0.003	0.006	0.012	3	231

19	71.75	948	0.432	0.008	0.006	0.022	18	814
18	67.50	996	0.383	0.023	0.007	0.037	32	855
17	62.50	1,009	0.328	0.039	0.010	0.049	43	867
16	57.50	1,022	0.278	0.050	0.014	0.056	50	878
15	52.50	1,036	0.232	0.058	0.019	0.060	53	890
14	47.50	1,049	0.190	0.064	0.025	0.060	55	902
13	42.50	1,063	0.152	0.068	0.030	0.060	55	913
12	39.50	214	0.131	0.069	0.033	0.059	11	184
11	37.33	718	0.117	0.070	0.035	0.059	36	617
10	35.33	231	0.105	0.071	0.037	0.058	12	198
9	33.25	1,219	0.093	0.071	0.038	0.057	61	1,047
8	30.75	358	0.079	0.072	0.040	0.057	18	308
7	27.50	1,204	0.064	0.072	0.041	0.056	58	1,034
6	22.50	1,220	0.043	0.070	0.042	0.054	57	1,048
5	17.50	1,236	0.026	0.067	0.040	0.052	55	1,062
4	12.50	1,252	0.013	0.059	0.034	0.047	51	1,076
3	9.50	252	0.008	0.051	0.029	0.042	9	217
2	7.00	1,016	0.004	0.042	0.023	0.037	32	873
1	2.50	1,284	0.001	0.018	0.010	0.018	20	1,104
Generic 22' Omni	150.00	70	1.890	1.980	1.140	0.384	23	60
Generic 20' Dipole	150.00	60	1.890	1.980	1.140	0.384	20	52
Powerwave Allgon LGP	150.00	32	1.890	1.980	1.140	0.384	11	27
LGP Allgon TMA-DD 19	150.00	62	1.890	1.980	1.140	0.384	21	54
Raycap DC6-48-60-18-	150.00	32	1.890	1.980	1.140	0.384	11	27
Ericsson RRUS 11 (Ba	150.00	165	1.890	1.980	1.140	0.384	55	142
Ericsson RRUS 32 B2	150.00	159	1.890	1.980	1.140	0.384	53	137
Powerwave Allgon 777	150.00	210	1.890	1.980	1.140	0.384	70	180
CCI HPA-65R-BUU-H6	150.00	153	1.890	1.980	1.140	0.384	51	131
Flat Platform w/ Han	150.00	2,000	1.890	1.980	1.140	0.384	665	1,719
Ericsson Radio 4449	130.00	222	1.420	0.322	0.452	0.107	21	191
Ericsson AIR 21, 1.3	130.00	275	1.420	0.322	0.452	0.107	26	236
Ericsson AIR B4A/B12	130.00	339	1.420	0.322	0.452	0.107	32	291
RFS APXVAARR24_43-U-	130.00	384	1.420	0.322	0.452	0.107	36	330
Generic Round Platfo	130.00	1,600	1.420	0.322	0.452	0.107	149	1,375
Fastback Networks In	128.00	9	1.376	0.240	0.408	0.087	1	8
RFS FD9R6004/1C-3L	119.00	19	1.190	-0.005	0.247	0.012	0	16
Andrew PCS1900 Dual	119.00	120	1.190	-0.005	0.247	0.012	1	103
ADC ClearGain Dual B	119.00	172	1.190	-0.005	0.247	0.012	2	148
Alcatel-Lucent RRH2x	119.00	132	1.190	-0.005	0.247	0.012	1	113
Amphenol Antel BXA-1	119.00	32	1.190	-0.005	0.247	0.012	0	27
Amphenol Antel BXA-1	119.00	32	1.190	-0.005	0.247	0.012	0	27
Antel BXA-80063/4CF	119.00	30	1.190	-0.005	0.247	0.012	0	26
RFS DB-T1-6Z-8AB-0Z	119.00	44	1.190	-0.005	0.247	0.012	0	38
Antel BXA-70063/6CF_	119.00	51	1.190	-0.005	0.247	0.012	1	44
Round T-Arms	119.00	750	1.190	-0.005	0.247	0.012	8	644
Generic GPS	107.00	10	0.962	-0.117	0.113	-0.047	0	9
Generic GPS	39.00	10	0.128	0.070	0.033	0.059	1	9
		31,797	64.196	26.248	22.425	6.305	2,095	27,322

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	-37.86	-2.08	0.00	-246.19	0.00	246.19	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.072
5.00	-36.60	-2.07	0.00	-235.78	0.00	235.78	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.03	0.070
9.00	-36.28	-2.06	0.00	-227.52	0.00	227.52	3,079.35	1,539.68	4,513.00	2,228.80	0.05	-0.05	0.069
9.00	-36.28	-2.06	0.00	-227.52	0.00	227.52	3,079.35	1,539.68	4,513.00	2,228.80	0.05	-0.05	0.069
10.00	-34.73	-2.02	0.00	-225.45	0.00	225.45	3,070.50	1,535.25	4,480.00	2,212.51	0.06	-0.05	0.069
15.00	-33.20	-1.98	0.00	-215.34	0.00	215.34	3,025.61	1,512.80	4,315.88	2,131.45	0.13	-0.08	0.067
20.00	-31.68	-1.94	0.00	-205.44	0.00	205.44	2,979.67	1,489.84	4,153.23	2,051.12	0.23	-0.11	0.066
25.00	-30.19	-1.89	0.00	-195.75	0.00	195.75	2,932.70	1,466.35	3,992.16	1,971.58	0.36	-0.14	0.064
30.00	-29.74	-1.88	0.00	-186.31	0.00	186.31	2,875.19	1,437.60	3,820.15	1,886.63	0.52	-0.16	0.063
31.50	-28.23	-1.82	0.00	-183.49	0.00	183.49	2,854.27	1,427.14	3,764.44	1,859.12	0.57	-0.17	0.062
35.00	-27.94	-1.82	0.00	-177.11	0.00	177.11	2,805.46	1,402.73	3,636.05	1,795.71	0.70	-0.19	0.061
35.67	-27.05	-1.78	0.00	-175.90	0.00	175.90	2,248.06	1,124.03	2,973.87	1,468.68	0.73	-0.20	0.070
39.00	-26.77	-1.77	0.00	-169.96	0.00	169.96	2,225.45	1,112.72	2,895.60	1,430.03	0.88	-0.22	0.069
40.00	-25.45	-1.72	0.00	-168.18	0.00	168.18	2,218.58	1,109.29	2,872.20	1,418.47	0.92	-0.22	0.068
45.00	-24.15	-1.68	0.00	-159.57	0.00	159.57	2,183.59	1,091.80	2,755.72	1,360.95	1.17	-0.25	0.066
50.00	-22.87	-1.63	0.00	-151.19	0.00	151.19	2,147.57	1,073.78	2,640.25	1,303.92	1.45	-0.28	0.064
55.00	-21.60	-1.58	0.00	-143.05	0.00	143.05	2,110.50	1,055.25	2,525.89	1,247.44	1.76	-0.31	0.062
60.00	-20.34	-1.54	0.00	-135.14	0.00	135.14	2,072.40	1,036.20	2,412.73	1,191.56	2.11	-0.34	0.060
65.00	-19.11	-1.51	0.00	-127.42	0.00	127.42	2,033.25	1,016.63	2,300.88	1,136.32	2.49	-0.37	0.058
70.00	-17.93	-1.50	0.00	-119.84	0.00	119.84	1,982.07	991.03	2,178.35	1,075.80	2.89	-0.41	0.056
73.50	-17.60	-1.50	0.00	-114.60	0.00	114.60	1,473.95	736.97	1,624.53	802.29	3.20	-0.43	0.064
75.00	-16.49	-1.50	0.00	-112.36	0.00	112.36	1,466.27	733.13	1,601.72	791.03	3.34	-0.44	0.063
80.00	-15.40	-1.51	0.00	-104.88	0.00	104.88	1,439.98	719.99	1,526.07	753.67	3.81	-0.47	0.060
85.00	-14.98	-1.53	0.00	-97.31	0.00	97.31	1,412.66	706.33	1,451.06	716.62	4.32	-0.50	0.057
86.94	-14.58	-1.54	0.00	-94.34	0.00	94.34	1,401.78	700.89	1,422.15	702.35	4.53	-0.51	0.056
86.94	-14.58	-1.54	0.00	-94.34	0.00	94.34	1,401.78	700.89	1,422.15	702.35	4.53	-0.51	0.145
90.00	-13.93	-1.57	0.00	-89.63	0.00	89.63	1,384.30	692.15	1,376.80	679.95	4.86	-0.53	0.142
95.00	-13.29	-1.61	0.00	-81.76	0.00	81.76	1,354.89	677.45	1,303.39	643.70	5.47	-0.62	0.137
100.00	-12.67	-1.65	0.00	-73.68	0.00	73.68	1,324.45	662.22	1,230.93	607.91	6.16	-0.70	0.131
105.00	-12.42	-1.67	0.00	-65.43	0.00	65.43	1,292.96	646.48	1,159.52	572.65	6.94	-0.79	0.124
107.00	-12.04	-1.68	0.00	-62.10	0.00	62.10	1,274.99	637.49	1,126.78	556.47	7.28	-0.82	0.121
110.00	-11.53	-1.70	0.00	-57.05	0.00	57.05	1,247.09	623.55	1,077.73	532.25	7.81	-0.87	0.116
110.00	-11.53	-1.70	0.00	-57.05	0.00	57.05	853.22	426.61	741.75	366.32	7.81	-0.87	0.169
115.00	-11.13	-1.71	0.00	-48.56	0.00	48.56	834.98	417.49	698.66	345.04	8.77	-0.95	0.154
119.00	-9.33	-1.67	0.00	-41.73	0.00	41.73	819.63	409.82	664.45	328.15	9.59	-1.03	0.139
120.00	-8.91	-1.66	0.00	-40.06	0.00	40.06	815.69	407.85	655.94	323.94	9.81	-1.05	0.135
125.00	-8.67	-1.65	0.00	-31.77	0.00	31.77	795.37	397.68	613.67	303.07	10.96	-1.14	0.116
128.00	-8.50	-1.64	0.00	-26.82	0.00	26.82	782.67	391.34	588.56	290.67	11.69	-1.19	0.103
130.00	-4.64	-1.27	0.00	-23.53	0.00	23.53	774.00	387.00	571.95	282.46	12.20	-1.22	0.089
135.00	-4.29	-1.22	0.00	-17.18	0.00	17.18	751.59	375.80	530.89	262.19	13.51	-1.28	0.071
140.00	-3.96	-1.15	0.00	-11.09	0.00	11.09	728.15	364.07	490.60	242.29	14.88	-1.33	0.051
145.00	-3.63	-1.07	0.00	-5.33	0.00	5.33	694.02	347.01	444.98	219.76	16.30	-1.37	0.029
150.00	0.00	-0.98	0.00	0.00	0.00	0.00	659.15	329.57	401.14	198.11	17.74	-1.38	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	-26.22	-2.08	0.00	-240.55	0.00	240.55	3,157.17	1,578.58	4,812.28	2,376.61	0.00	0.00	0.068
5.00	-25.34	-2.06	0.00	-230.16	0.00	230.16	3,114.35	1,557.18	4,645.51	2,294.24	0.01	-0.03	0.066
9.00	-25.13	-2.05	0.00	-221.92	0.00	221.92	3,079.35	1,539.68	4,513.00	2,228.80	0.05	-0.05	0.065
9.00	-25.13	-2.05	0.00	-221.92	0.00	221.92	3,079.35	1,539.68	4,513.00	2,228.80	0.05	-0.05	0.065
10.00	-24.05	-2.01	0.00	-219.87	0.00	219.87	3,070.50	1,535.25	4,480.00	2,212.51	0.06	-0.05	0.065
15.00	-22.99	-1.96	0.00	-209.82	0.00	209.82	3,025.61	1,512.80	4,315.88	2,131.45	0.13	-0.08	0.063
20.00	-21.94	-1.91	0.00	-200.01	0.00	200.01	2,979.67	1,489.84	4,153.23	2,051.12	0.22	-0.11	0.062
25.00	-20.90	-1.86	0.00	-190.44	0.00	190.44	2,932.70	1,466.35	3,992.16	1,971.58	0.35	-0.13	0.060
30.00	-20.60	-1.85	0.00	-181.12	0.00	181.12	2,875.19	1,437.60	3,820.15	1,886.63	0.50	-0.16	0.059
31.50	-19.55	-1.79	0.00	-178.34	0.00	178.34	2,854.27	1,427.14	3,764.44	1,859.12	0.56	-0.17	0.059
35.00	-19.35	-1.78	0.00	-172.06	0.00	172.06	2,805.46	1,402.73	3,636.05	1,795.71	0.69	-0.19	0.057
35.67	-18.73	-1.75	0.00	-170.87	0.00	170.87	2,248.06	1,124.03	2,973.87	1,468.68	0.71	-0.19	0.066
39.00	-18.54	-1.74	0.00	-165.04	0.00	165.04	2,225.45	1,112.72	2,895.60	1,430.03	0.85	-0.21	0.065
40.00	-17.63	-1.69	0.00	-163.30	0.00	163.30	2,218.58	1,109.29	2,872.20	1,418.47	0.90	-0.22	0.064
45.00	-16.72	-1.64	0.00	-154.86	0.00	154.86	2,183.59	1,091.80	2,755.72	1,360.95	1.14	-0.25	0.062
50.00	-15.83	-1.59	0.00	-146.67	0.00	146.67	2,147.57	1,073.78	2,640.25	1,303.92	1.41	-0.28	0.060
55.00	-14.95	-1.54	0.00	-138.72	0.00	138.72	2,110.50	1,055.25	2,525.89	1,247.44	1.72	-0.30	0.059
60.00	-14.09	-1.50	0.00	-131.01	0.00	131.01	2,072.40	1,036.20	2,412.73	1,191.56	2.05	-0.33	0.057
65.00	-13.23	-1.47	0.00	-123.49	0.00	123.49	2,033.25	1,016.63	2,300.88	1,136.32	2.42	-0.36	0.055
70.00	-12.42	-1.45	0.00	-116.13	0.00	116.13	1,982.07	991.03	2,178.35	1,075.80	2.82	-0.39	0.053
73.50	-12.18	-1.45	0.00	-111.04	0.00	111.04	1,473.95	736.97	1,624.53	802.29	3.11	-0.42	0.061
75.00	-11.42	-1.45	0.00	-108.86	0.00	108.86	1,466.27	733.13	1,601.72	791.03	3.25	-0.42	0.060
80.00	-10.66	-1.47	0.00	-101.60	0.00	101.60	1,439.98	719.99	1,526.07	753.67	3.71	-0.46	0.057
85.00	-10.37	-1.48	0.00	-94.24	0.00	94.24	1,412.66	706.33	1,451.06	716.62	4.20	-0.49	0.054
86.94	-10.09	-1.50	0.00	-91.36	0.00	91.36	1,401.78	700.89	1,422.15	702.35	4.40	-0.50	0.053
86.94	-10.09	-1.50	0.00	-91.36	0.00	91.36	1,401.78	700.89	1,422.15	702.35	4.40	-0.50	0.137
90.00	-9.64	-1.53	0.00	-86.77	0.00	86.77	1,384.30	692.15	1,376.80	679.95	4.73	-0.52	0.135
95.00	-9.20	-1.56	0.00	-79.13	0.00	79.13	1,354.89	677.45	1,303.39	643.70	5.32	-0.60	0.130
100.00	-8.77	-1.60	0.00	-71.32	0.00	71.32	1,324.45	662.22	1,230.93	607.91	5.99	-0.68	0.124
105.00	-8.60	-1.61	0.00	-63.33	0.00	63.33	1,292.96	646.48	1,159.52	572.65	6.75	-0.76	0.117
107.00	-8.33	-1.62	0.00	-60.11	0.00	60.11	1,274.99	637.49	1,126.78	556.47	7.07	-0.80	0.115
110.00	-7.98	-1.64	0.00	-55.24	0.00	55.24	1,247.09	623.55	1,077.73	532.25	7.59	-0.84	0.110
110.00	-7.98	-1.64	0.00	-55.24	0.00	55.24	853.22	426.61	741.75	366.32	7.59	-0.84	0.160
115.00	-7.70	-1.64	0.00	-47.05	0.00	47.05	834.98	417.49	698.66	345.04	8.52	-0.92	0.146
119.00	-6.46	-1.61	0.00	-40.47	0.00	40.47	819.63	409.82	664.45	328.15	9.32	-1.00	0.131
120.00	-6.17	-1.60	0.00	-38.86	0.00	38.86	815.69	407.85	655.94	323.94	9.53	-1.02	0.128
125.00	-5.99	-1.59	0.00	-30.85	0.00	30.85	795.37	397.68	613.67	303.07	10.64	-1.10	0.109
128.00	-5.88	-1.58	0.00	-26.07	0.00	26.07	782.67	391.34	588.56	290.67	11.35	-1.15	0.097
130.00	-3.21	-1.24	0.00	-22.90	0.00	22.90	774.00	387.00	571.95	282.46	11.84	-1.18	0.085
135.00	-2.97	-1.19	0.00	-16.72	0.00	16.72	751.59	375.80	530.89	262.19	13.12	-1.24	0.068
140.00	-2.73	-1.12	0.00	-10.79	0.00	10.79	728.15	364.07	490.60	242.29	14.45	-1.29	0.048
145.00	-2.51	-1.04	0.00	-5.19	0.00	5.19	694.02	347.01	444.98	219.76	15.82	-1.33	0.027
150.00	0.00	-0.98	0.00	0.00	0.00	0.00	659.15	329.57	401.14	198.11	17.22	-1.34	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	25.58	0.00	38.09	0.00	0.00	2536.31	86.94	1.00
0.9D + 1.6W	25.56	0.00	28.56	0.00	0.00	2495.70	86.94	0.97
1.2D + 1.0Di + 1.0Wi	5.81	0.00	54.77	0.00	0.00	629.76	110.00	0.29
(1.2 + 0.2Sds) * DL + E ELFM	1.24	0.00	37.86	0.00	0.00	157.07	110.00	0.08
(1.2 + 0.2Sds) * DL + E EMAM	2.08	0.00	37.86	0.00	0.00	246.19	110.00	0.17
(0.9 - 0.2Sds) * DL + E ELFM	1.24	0.00	26.22	0.00	0.00	153.76	110.00	0.08
(0.9 - 0.2Sds) * DL + E EMAM	2.08	0.00	26.22	0.00	0.00	240.55	110.00	0.16
1.0D + 1.0W	5.47	0.00	31.79	0.00	0.00	538.23	86.94	0.22

Additional Steel Summary

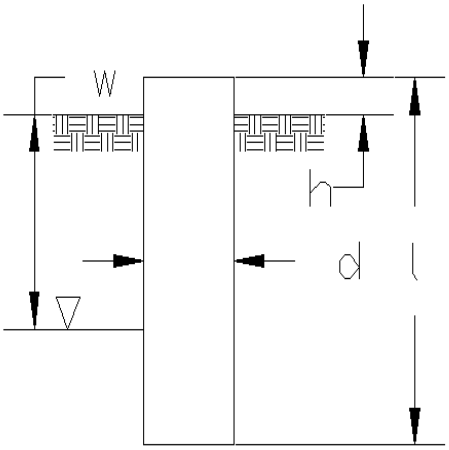
Elev From (ft)	Elev To (ft)	Member	Intermediate Connectors VQ/I (lb/in)	Shear Applied (kips)	Shear phiVn (kips)	Ratio	Max Member Pu (kip)	phiPn (kip)	Ratio
0.00	9.00	(4) SOL-#20 All Thread Bar	228.7	8.9	16.8	0.531	265.7	315.5	0.842
9.00	86.94	(4) SOL-#20 All Thread Bar	303.6	9.1	16.8	0.542	257.6	330.5	0.779

Elev From (ft)	Elev To (ft)	Member	Upper Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio	Lower Termination Connectors MQ/I (kips)	phiVn (kips)	Num Reqd	Num Actual	Ratio
0.00	9.00	(4) SOL-#20 All Thread Bar	0.0	12.0	0	0	0.000	0.0	12.0	0	0	0.000
9.00	86.94	(4) SOL-#20 All Thread Bar	161.1	12.0	14	14	0.959	0.0	12.0	0	0	0.000

Site Name: Woodbridge CT 1, CT
Site Number: 302480
Tower Type: MP
Design Base Loads (Factored) - Analysis per TIA-222-G Standards

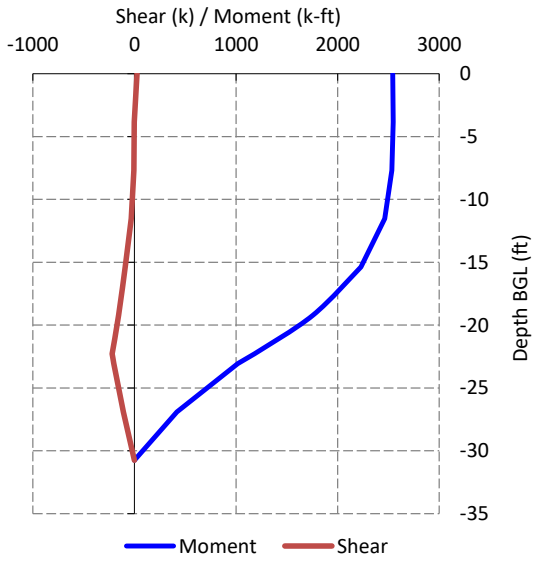
Pier Foundation Analysis

Foundation Analysis Parameters		
Analyze or Design a Foundation?	Analyze	-
Foundation Mapped:	Y	-
Moment (M):	2536.3	k-ft
Shear/Leg (V):	25.6	k
Axial Load (P):	38.1	k
Uplift/Leg (U):	0.0	k
Diameter of Caisson (d):	5	ft
Caisson Embedment (L-h):	30.75	ft
Caisson Height Above Ground (h):	0.25	ft
Depth Below Ground Surface to Water Table (w):	2	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Water:	62.4	pcf
Tension/Compression Skin Friction Factor:	0.75	-
Pullout Angle:	30	°



Depth (ft) Top	Depth (ft) Bottom	γ_{Soil} (pcf)	Cu (psf)	ϕ (degree)	Ultimate Skin Friction (psf)	Ultimate Bearing Pressure (psf)
0.0	4.0	105	0	0	0	0
4.0	7.0	122	0	32	546	0
7.0	10.0	131	0	41	628	0
10.0	15.0	134	0	51	993	0
15.0	31.8	135	0	48	1,189	45,779

Soil Strength Capacities		
Required Embedment:	21.3	ft
Volume of Concrete:	608.7	ft^3
Buoyant Weight of Concrete:	56.1	k
Average Soil Unit Weight:	70.9	pcf
Skin Friction Resistance:	427.5	k
Compressive Bearing Resistance:	898.9	k
Pullout Weight (Minus Concrete Weight):	1024.1	k
Nominal Uplift Capacity per Leg ($\phi_s T_n$):	240.5	k
Nominal Compressive Capacity per Leg ($\phi_s P_n$):	994.8	k
T_u:	0.0	k
$T_u/\phi_s T_n$:	0%	Pass
P_u:	53.1	k
$P_u/\phi_s P_n$:	5%	Pass
Total Lateral Resistance:	2802.2	k
Inflection Point (Below Ground Surface):	22.3	ft
Moment At Inflection Point (M_D):	3112.7	k-ft
Nominal Moment Capacity ($\phi_s M_n$):	11225.0	k-ft
ϕ_s:	0.75	-
$M_D/\phi_s M_n$:	28%	Pass



AMERICAN TOWER CORPORATION

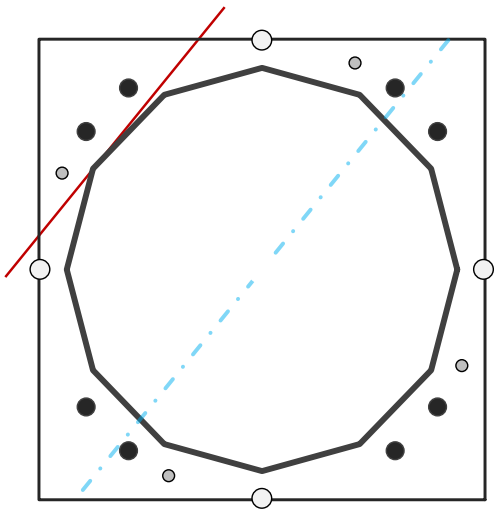
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	12	-
Diameter	37.38	in
Thickness	0.375	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	2536.3	k-ft
Axial, Pu	38.1	k
Shear, Vu	24.4	k
Neutral Axis	50	°

Report Capacities		
Component	Capacity	Result
Base Plate	54%	Pass
Anchor Rods	67%	Pass
Dwyidag	52%	Pass

Base Plate		
Shape	Square	-
Width	44.5	in
Thickness	2 1/2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	0	in
Orientation Offset	0	°
Anchor Rod Detail	c	η=0.55
Clear Distance	N/A	in
Applied Moment, Mu	1169.3	k
Bending Stress, ϕMn	2177.1	k



Dywidag Reinforcement		
Quantity	4	-
Bar Size	#20	in
Diameter, ø	2.5	in
Bracket Type	Angle	-
Circle	44.26	in
Orientation Offset	0	°
Applied Force, Pu	203.9	k
Dywidag Bar, ϕPn	392.7	k

Original Anchor Rods		
Arrangement	Cluster	-
Quantity	8	-
Diameter, ø	2 1/4	in
Bolt Circle	44	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	6.0	in
Orientation Offset	0	°
Applied Force, Pu	173.3	k
Anchor Rods, ϕPn	259.8	k

Additional Anchor Rods		
Quantity	4	-
Diameter, ø	1.5	in
Bolt Circle	44	in
Grade	Other	
Yield Strength, Fy	109	ksi
Tensile Strength, Fu	125	ksi
Bypass Base?	No	
Orientation Offset	65	°
Applied Force, Pu	69.6	k
Additional Rod, ϕPn	140.5	k

Flange Plate Analysis

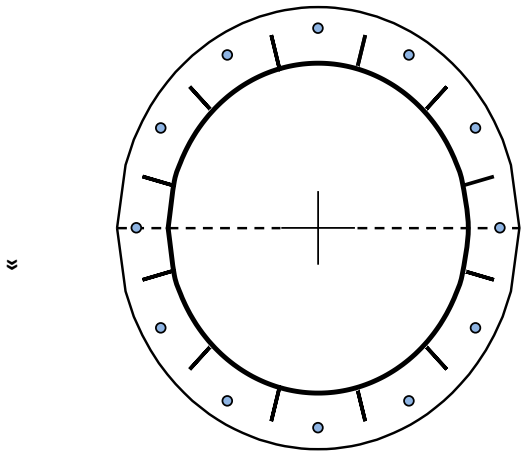
Flange Plate			
	Plate Type	***Flange***	***@ 110 ft***
	Pole Diameter	21.268	in
	Pole Thickness	0.1875	in
	Plate Diameter	28.5	in
	Plate Thickness	1	in
	Plate Fy	36	ksi
	Weld Length	0.1875	in
	f_s Resistance	114.22	k-in
	Applied	80.83	k-in

Code Rev.	***G***		
Moment	354.6 k-ft		
Axial	10.0 k		

Date	8/30/2019
Engineer	M. Chen
Site #	302480
Carrier	Metro PCS

Stiffeners			
	#	***12***	***Show***
	Thickness	0.5	in
	Length	3	in
	Height	4	in
	Chamfer	1	in
	Offset Angle	0	°
	Fy	36	ksi

Bolts			
	#	***12***	
	Bolt Circle	25.75	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	54.21	k



Reinforcement			
	#		

Plate Stress Ratio:

71%	Pass

Bolt Stress Ratio:

99%	Pass

Extra Bolts			
	#		

Mount Analysis of Proposed Perfect Vision PV-LPP12M-HR-12-96 Platform w/ Support Rails and Kickers for American Tower on behalf of T-Mobile
302480 - Woodbridge CT 1
Project #: 12927174
T-Mobile Site ID: CTNH521A
Program: L600

CLS Engineering PLLC Project #41124-12927174-01-MR
August 7, 2019

MOUNT DESCRIPTION	Proposed Perfect Vision PV-LPP12M-HR-12-96 Platform w/Support Rails and Kickers at 130 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 130 ft AGL
SITE DESCRIPTION	150 ft Monopole
SITE ADDRESS	77 Pease Road, Woodbridge, CT 06525-2044, New Haven County
GPS COORDINATES	41.34144444, -72.9936
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, V_{ult} / 96.8 mph, V_{asd} (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75" Ice

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

MEMBER USAGE	**53%**	**Pass**

Existing mounts to be replaced; see conclusion for details.

Prepared by:
Sajeeb Thakur, E.I.

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: 2019.08.07 20:29:39 -04'00'

■ INTRODUCTION

The proposed equipment is to be mounted to the proposed Perfect Vision PV-LPP12M-HR-12-96 Platform w/ Support Rails and Kickers. 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	Perfect Vision Drawing #LPP-ENG-01-R7 Rev. 7, dated March 13, 2018 Perfect Vision Monopole Platform Kicker, #PV-PKBK-M, Rev. 0, dated April 11, 2017
PREVIOUS ANALYSES	Tower SA by ATC, Engineering #OAA727016_C3_01, dated April 12, 2018
LOADING DATA	ATC Application, Project #12927174, dated April 26, 2019

■ ANALYSIS CRITERIA

STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
BASIC WIND SPEED	125 mph, V_{ult} / 96.8 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	Ericsson AIR B4A/B12P-B8P, 4FT
		3	Ericsson AIR 21, 1.3 M, B2A B4P
		3	Ericsson RADIO 4449 B12/B71
		3	RFS Celwave APXVAARR24_43-U-NA20

■ RESULTS SUMMARY

COMPONENT	PEAK USAGE	RESULT
Grating Angle	53%	Pass
Mount Pipes	43%	Pass
Support Rail	38%	Pass
Support Rail Connection Angle	37%	Pass
Platform Base	13%	Pass
Stand-Off Horizontals	13%	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 (3) existing Dual Standoff Arm mounts with (1) new Perfect Vison PV-LPP12M-HR-12-96 Platform mount.**
- **Install (1) Perfect Vision PV-PKB-M Monopole Platform Kicker Kit as shown. Field-cut kicker angle as required. Maintain minimum bolt edge distance. Connect kicker kit to (1) proposed Perfect Vision PV-RM1240 Monopole Collar included in kit.**
- **Install (4) Perfect Vision PIPE-238X96 antenna mount pipes per sector (12 total). Connect to platform base horizontal member using (12) Perfect Vision PV-XP-2030-HD crossover brackets such that they are equidistant from each other as shown in the assembly drawings.**
- **Install support rails 3'-6" above the platform base. Connect to all mount pipes using crossover angles included in proposed platform kit.**
- **Install existing and proposed antennas such that they are vertically centered about the platform base horizontal member. Install existing and proposed RRUS behind the antennas.**

See following sketch and Perfect Vision assembly drawing 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:

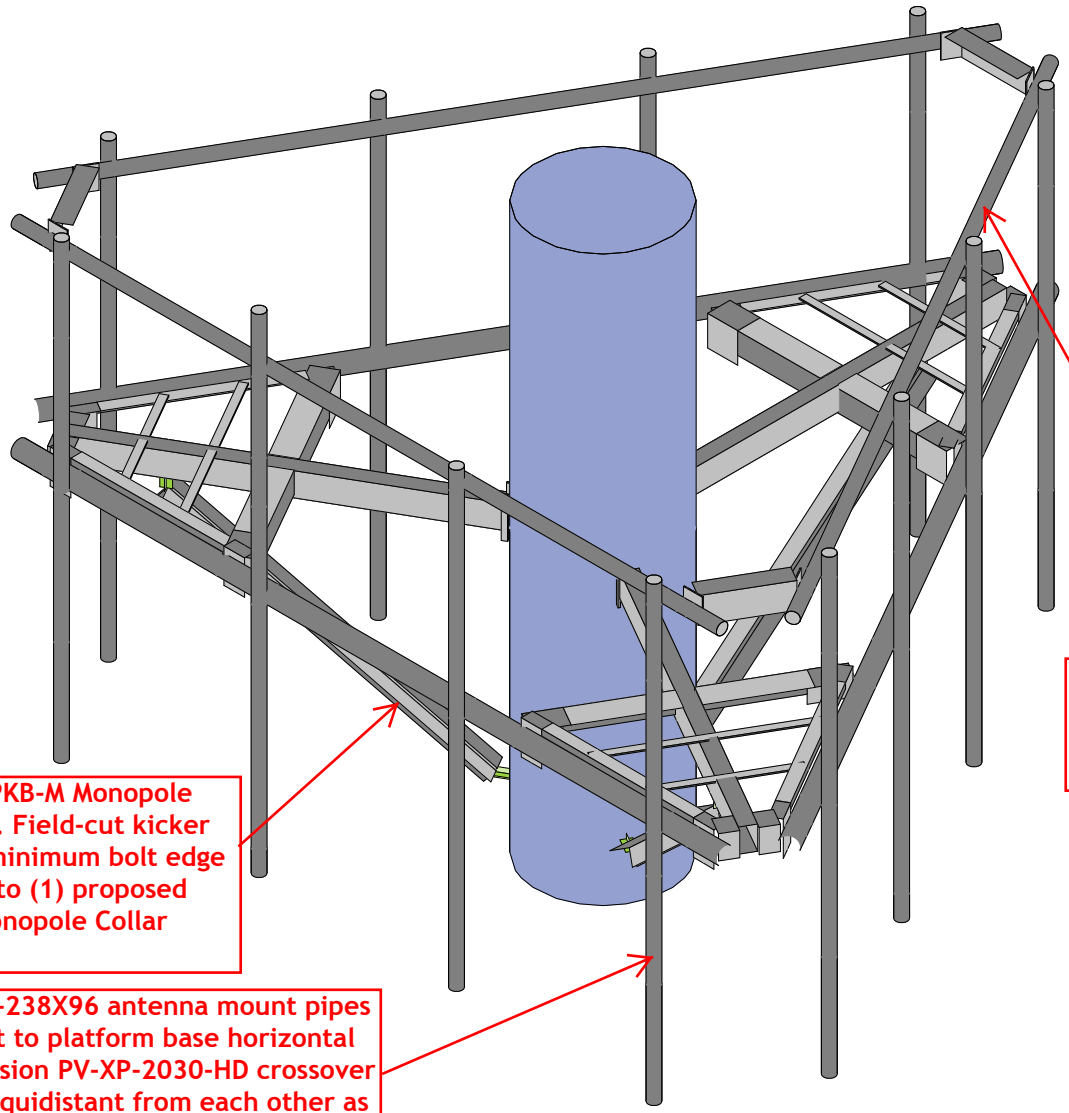
1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In 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.

Replace (3) existing Dual Standoff Arm mounts with (1) new Perfect Vison PV-LPP12M-HR-12-96 Platform mount.



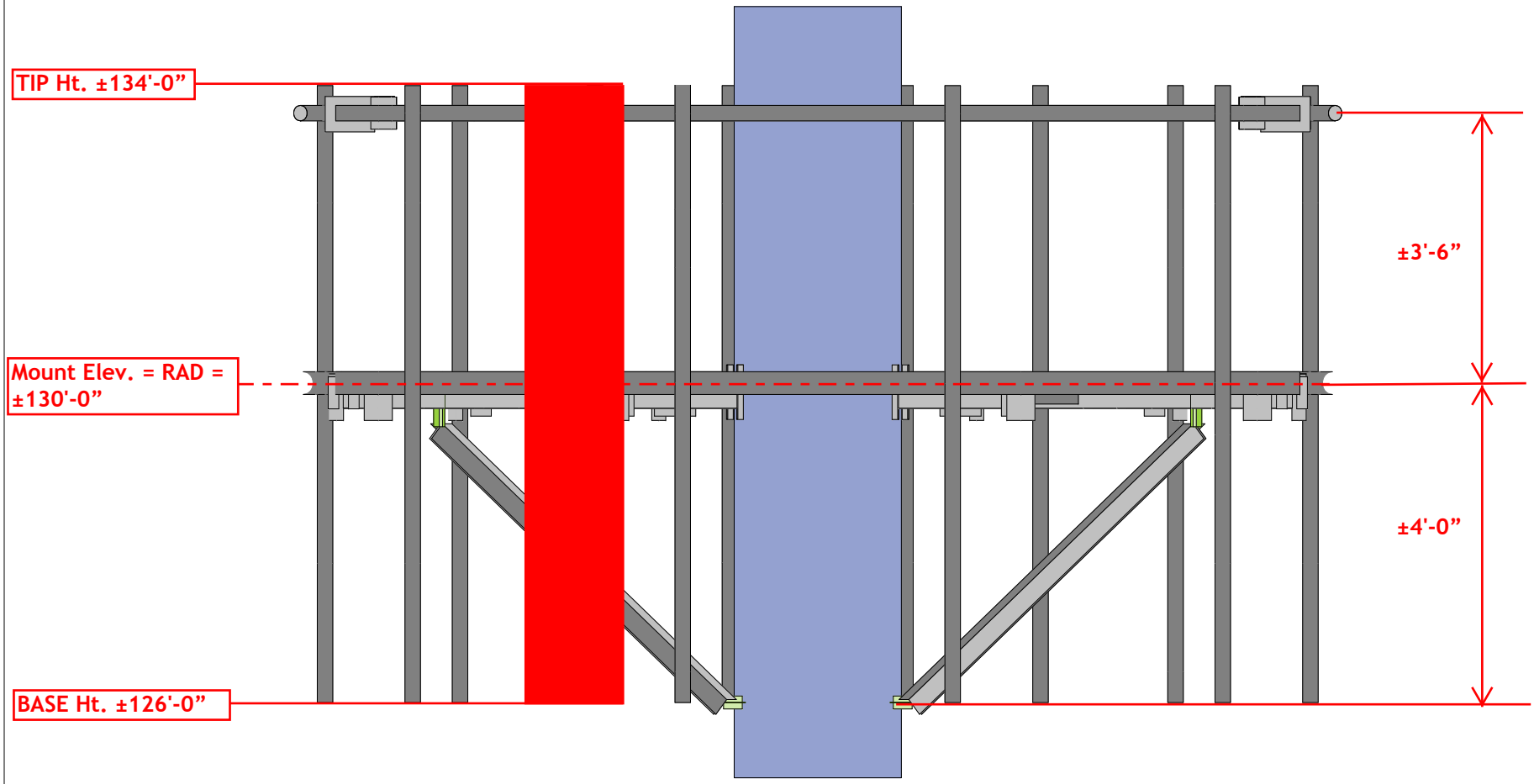
Install support rails 3'-6" above the platform base. Connect to all mount pipes using crossover angles included in proposed platform kit.

Install (1) Perfect Vision PV-PKB-M Monopole Platform Kicker Kit as shown. Field-cut kicker angle as required. Maintain minimum bolt edge distance. Connect kicker kit to (1) proposed Perfect Vision PV-RM1240 Monopole Collar included in kit.

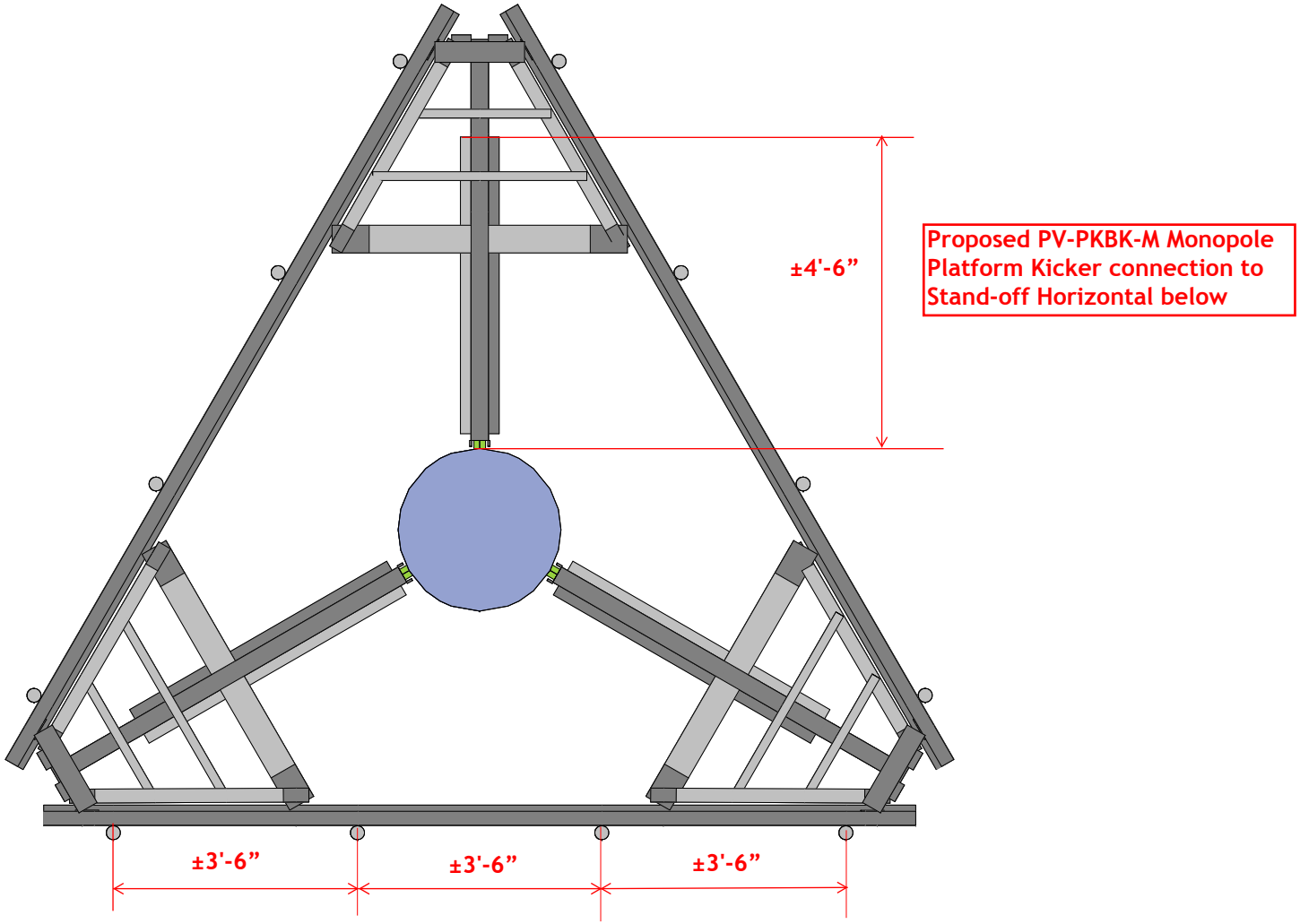
Install (4) Perfect Vision PIPE-238X96 antenna mount pipes per sector (12 total). Connect to platform base horizontal member using (12) Perfect Vision PV-XP-2030-HD crossover brackets such that they are equidistant from each other as shown in the assembly drawings.

CLS		IN - 1
ST	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	Aug 7, 2019 at 10:23 AM
41124-12927174-01-MR	Installation Sketch - Isometric View	41124-CTNH521A-01-MR images.r3d

Install existing and proposed antennas such that they are vertically centered about the platform base horizontal member. Install existing and proposed RRUS behind the antennas.



CLS	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	IN - 2
ST		Aug 7, 2019 at 10:24 AM
41124-12927174-01-MR	Installation Sketch - Front Elevation	41124-CTNH521A-01-MR images.r3d



CLS		IN - 3
ST	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	Aug 7, 2019 at 10:25 AM
41124-12927174-01-MR	Installation Sketch - Plan View	41124-CTNH521A-01-MR images.r3d

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

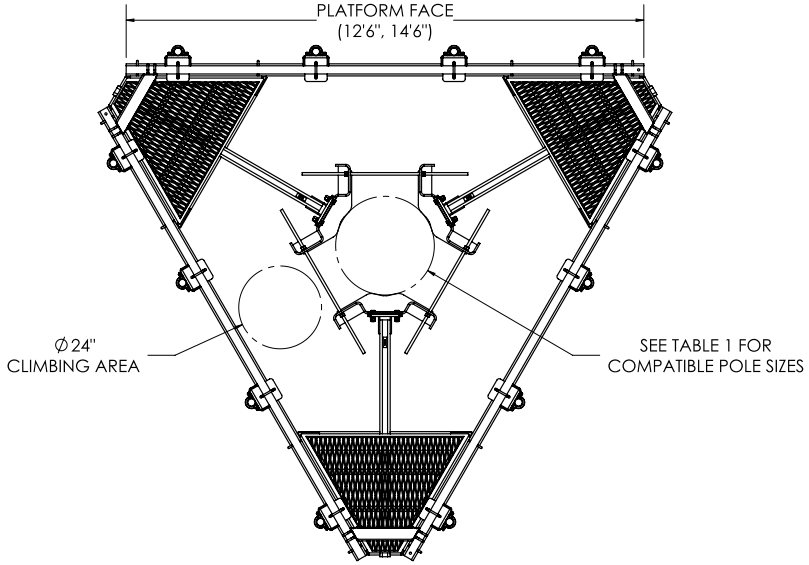


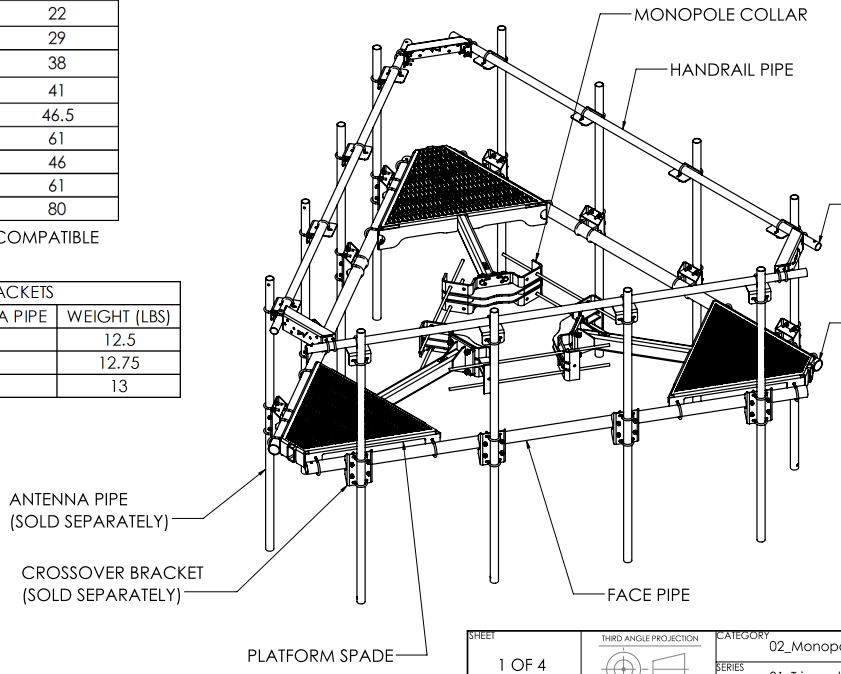
TABLE 2: ANTENNA PIPE OPTIONS***

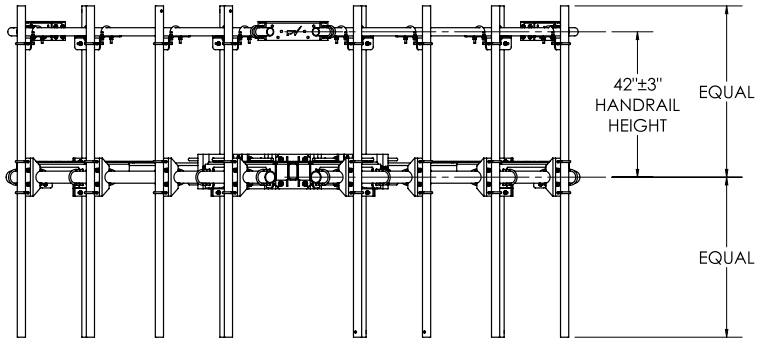
OD	LENGTH	ANTENNA PIPE	WEIGHT (LBS)
2-3/8"	72"	PIPE-238X72	22
	96"	PIPE-238X96	29
	126"	PIPE-238X126	38
2-7/8"	84"	PIPE-278X84	41
	96"	PIPE-278X96	46.5
	126"	PIPE-278X126	61
3-1/2"	72"	PIPE-312X72	46
	96"	PIPE-312X96	61
	126"	PIPE-312X126	80

***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:

REFERENCE 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:

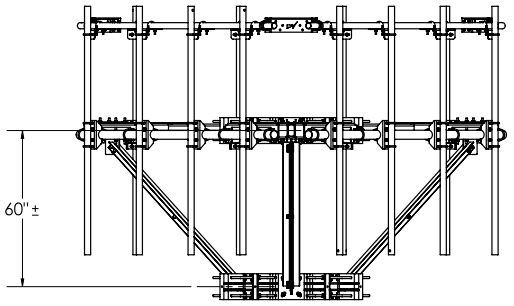
PLATFORM EPA		
PLATFORM TYPE	NO ICE (FT^2)	1/2" RADIAL ICE (FT^2)
12'6" FACE	20.3*	25.8*
12'6" FACE WITH HANDRAIL	34.4**	43.0**
14'6" FACE	22.1*	28.1*
14'6" FACE WITH HANDRAIL	36.8**	46.2**

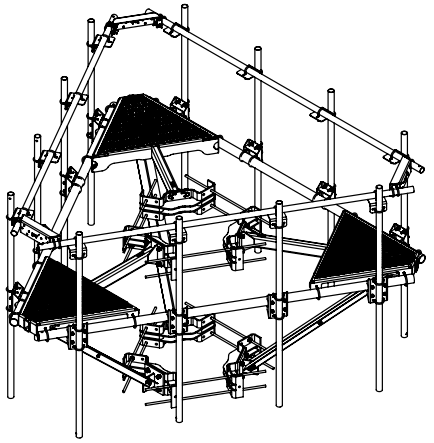
*DOES NOT INCLUDE CROSSOVER PLATES OR ANTENNA PIPES
**DOES NOT INCLUDE ANTENNA PIPES

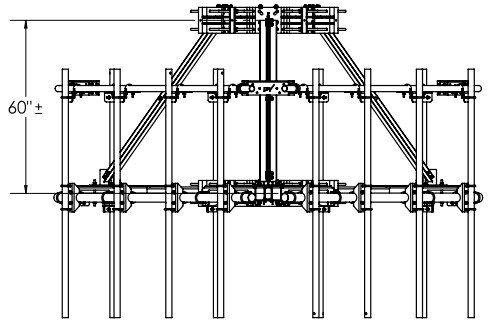
KICKER ATTACHMENT:

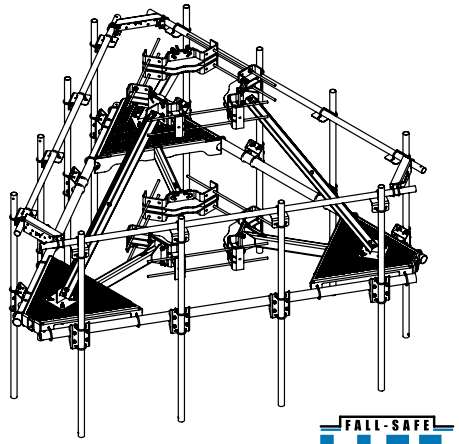
SEE CLASSIFICATIONS SECTION FOR KICKER REQUIREMENT DETAILS.

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

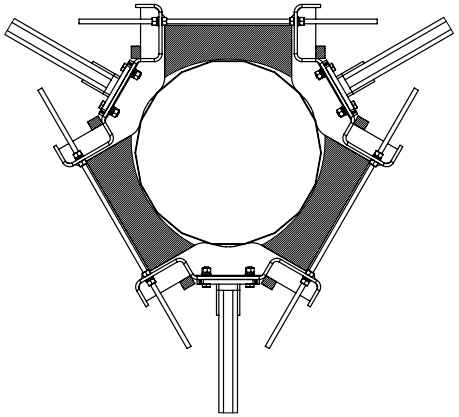
PERFECT VISION MANUFACTURING

L.I.F.E. MOUNT™ LOW PROFILE PLATFORM

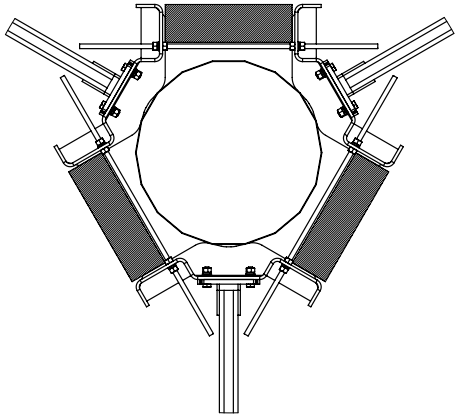
DOCUMENT NUMBER LPP-ENG-01-R7 | REV 7

SAFETY CLIMB ROUTING:

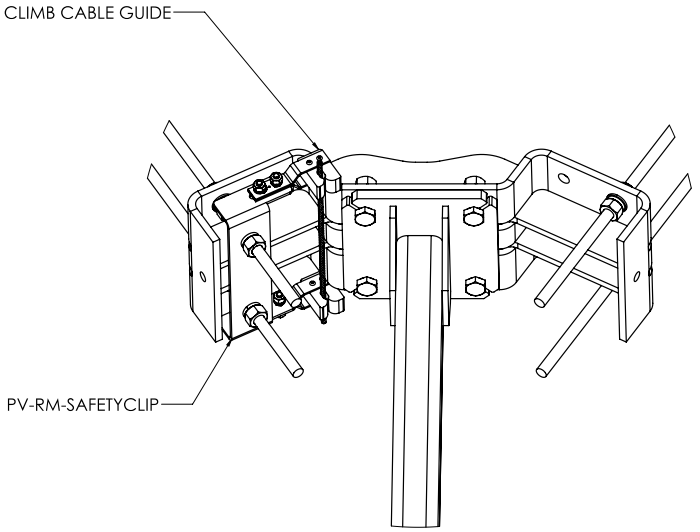
CABLE GUIDES AND PV-RM-SAFETYCLIP SOLD SEPARATELY.



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

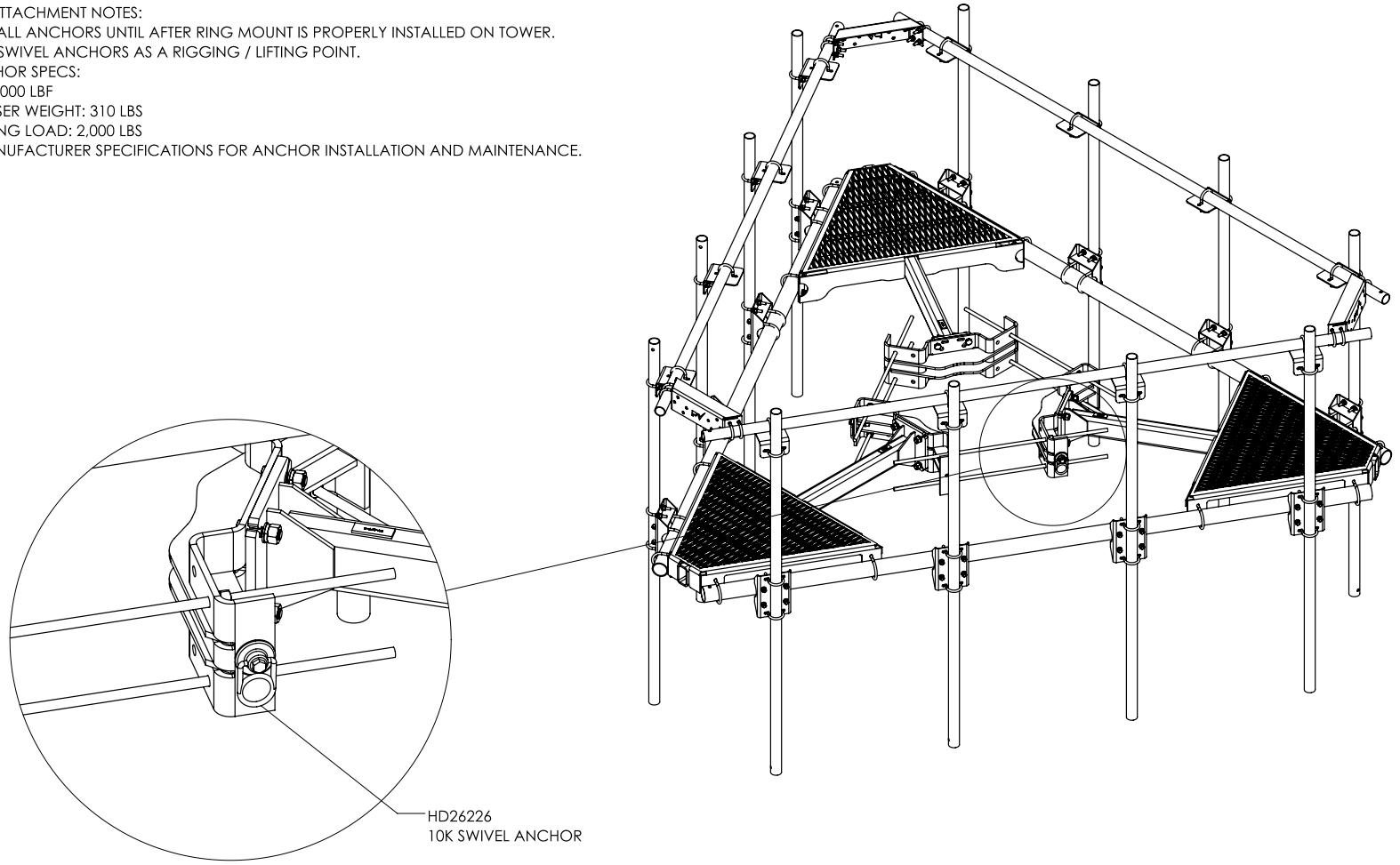
DOCUMENT NUMBER: LPP-ENG-01-R7

REV: 7

10K SWIVEL ANCHOR

SWIVEL ANCHOR ATTACHMENT NOTES:

- DO NOT INSTALL ANCHORS UNTIL AFTER RING MOUNT IS PROPERLY INSTALLED ON TOWER.
- DO NOT USE SWIVEL ANCHORS AS A RIGGING / LIFTING POINT.
- SWIVEL ANCHOR SPECS:
  - UTS: 10,000 LBF
  - MAX USER WEIGHT: 310 LBS
  - WORKING LOAD: 2,000 LBS
- FOLLOW 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™

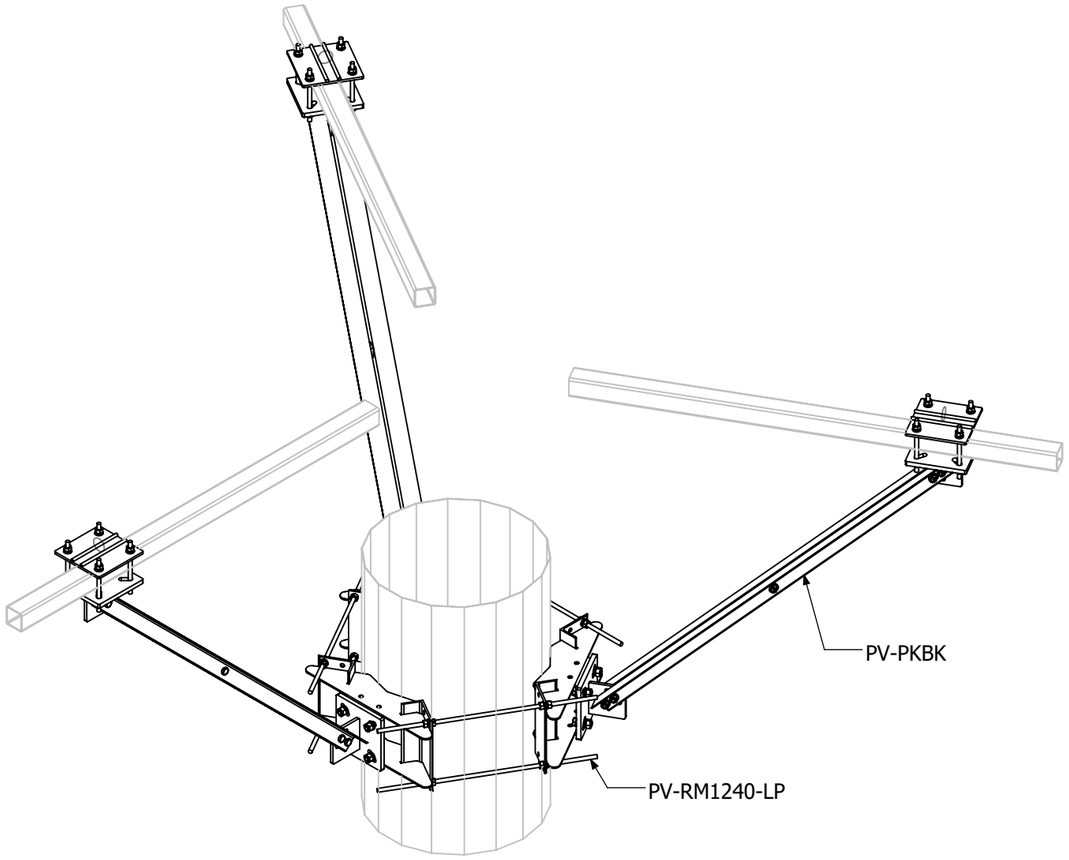
PERFECT VISION MANUFACTURING

L.I.F.E. MOUNT™ LOW PROFILE PLATFORM

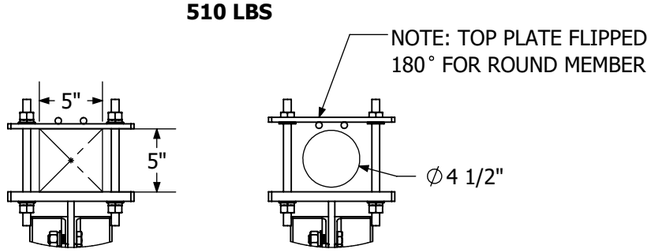
DOCUMENT NUMBER: LPP-ENG-01-R7

REV: 7

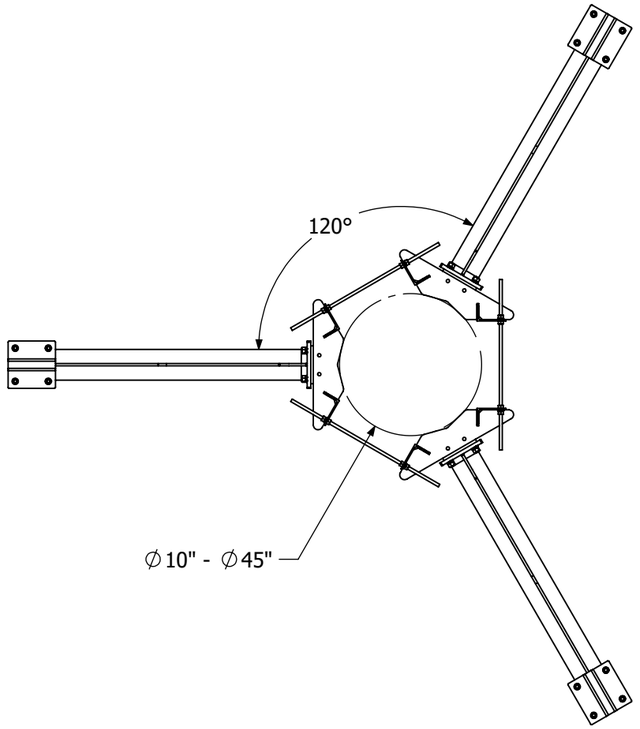
C:\Users\DominicN\Documents\PVMSteel\PVM Sales Catalog\SW Working Files\Engineering Details\

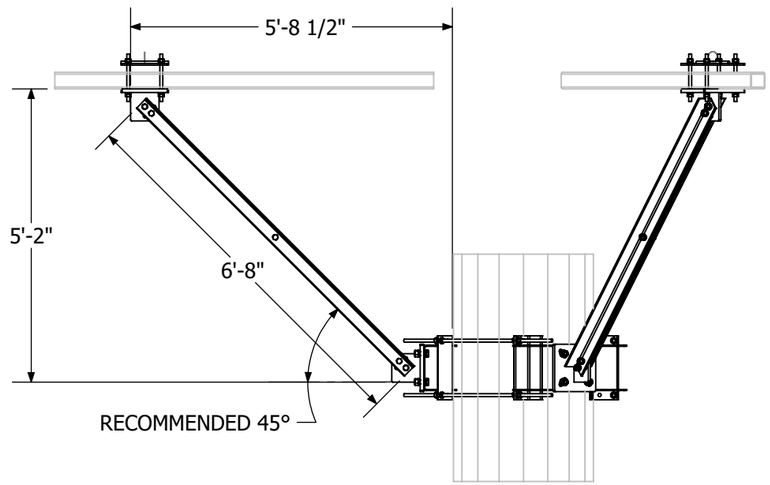


PV-PKBK-M
(INCLUDES (1) PV-RM1240-LP AND (1) PV-PKBK)
KICKER BRACE
510 LBS



ARM ATTACHMENT
CLAMPS TO RECT HSS UP TO 5"X5" AND ROUND PIPE UP TO 4-1/2" OD





PERFECT VISION MANUFACTURING
16101 La Grande Dr.
Little Rock, AR 72223
1-800-205-8620

STAMP:

REVISIONS:

NO.	DATE	DESCRIPTION	BY	CHK	APD
0	4/11/17	INTIAL RELEASE	DJN	LL	SS
1					
2					
3					
4					
5					

SITE INFORMATION:

DESIGN TYPE:
MONOPOLE KICKER BRACE KIT

SHEET TITLE:
ENGINEERING DETAIL

SHEET TITLE: E-1

REVISION: 0

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)	125 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)	40.5 psf
Seismic Response Coeff., C_s	-	q_z (ice)	6.5 psf

Live Loading

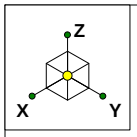
At Mount Pipes, L_M	500 lb
Joint Labels Considered	M1
	M2
	M3
	M4

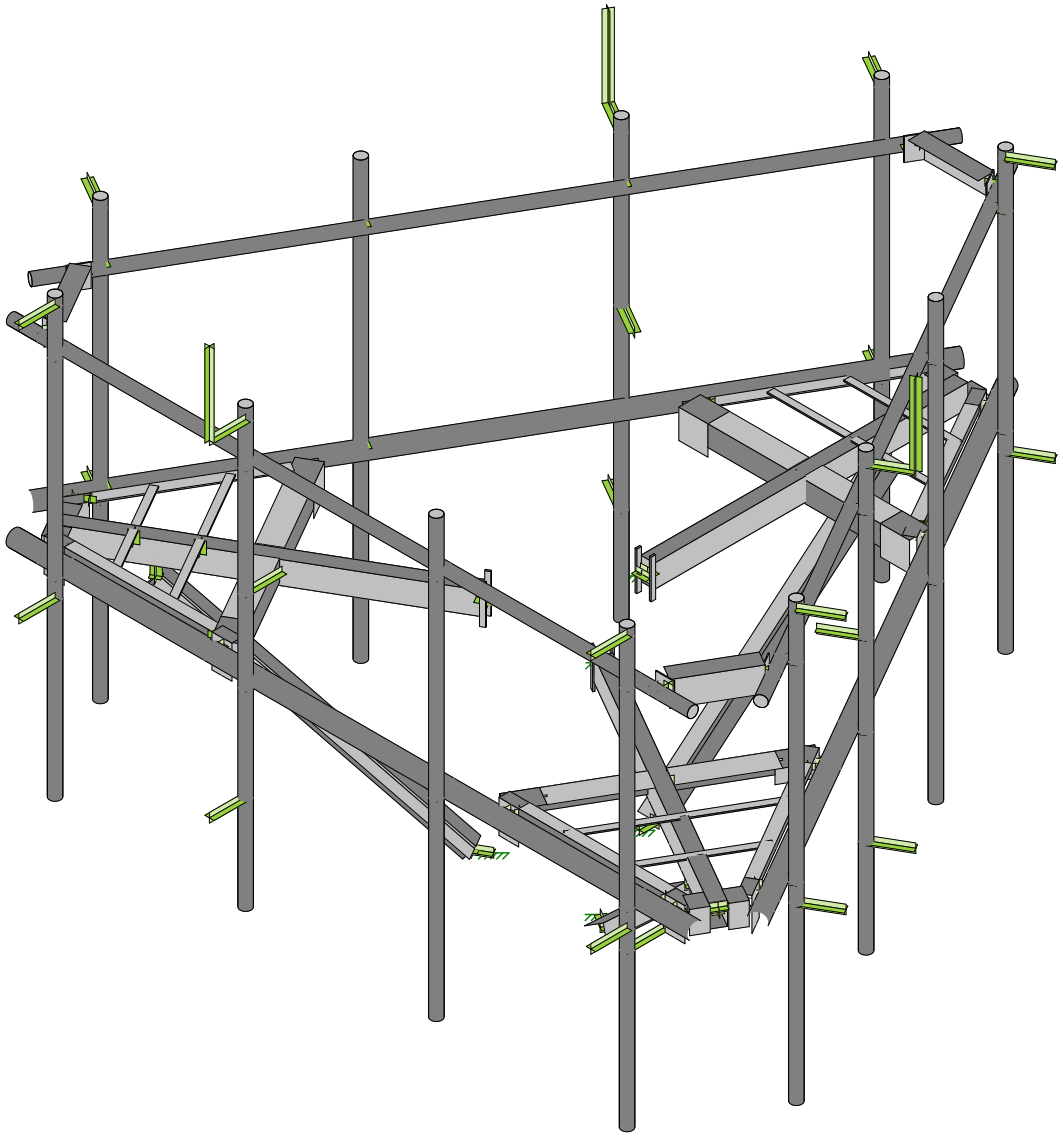
Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Offsett Tube	HSS5x3x3/8"	30.36	2.37	14.32
End Plate Angle	L5x4x0.25	30.36	2.37	15.41
Grating Angle 2	L6.4x4.750x0.25	38.86	2.47	18.29
Grating Angle 4	L7.25x2.375x0.25	44.02	2.53	16.25
Grating Angle 3	L2.375x1.25x0.25	14.42	3.57	9.26
Grating PL 2	PL1.50x0.25	9.11	2.89	5.96
Grating Angle 1	L4.75x4.5x0.25	28.84	2.35	15.75
Platform Horizontal Pipe	PIPE_3.0	12.75	4.05	10.97
Mount Pipe	PIPE_2.0	8.65	3.39	8.61
Support Rail	PIPE_2.0	8.65	3.39	8.61
Kicker	L3X3X3	18.21	2.22	11.40
Conn. PL	PL8.5x3/8	51.61	6.96	15.49
SR Conn Plate	PL5x0.1875	30.36	4.92	10.56
SR Conn Angle	L5.50X3.5625X3	33.39	2.41	15.50

Appurtenances

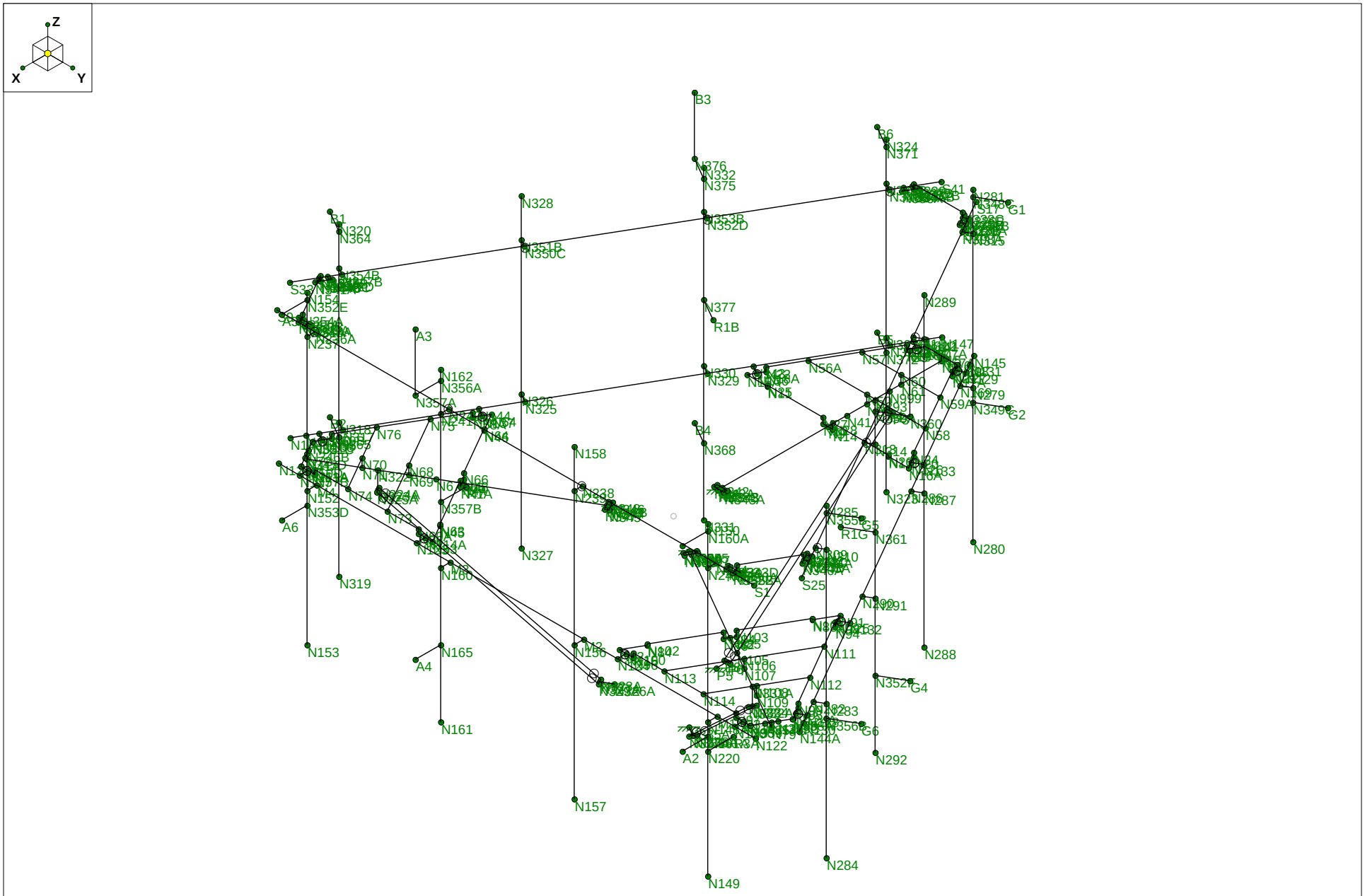
Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth			Total Qty. Override	0° Joints		120° Joints		240° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft^2)		EPA_A (Ice) (ft^2)		F_A (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, 1.3 M, B2A B4P				☐			1		1		A1	A2			G1	G2	56	12	8	83	Flat	166.07	6.05	4.36	8.03	6.23	220.37	158.67	46.81	36.33
AIR 21, 1.3 M, B2A B4P		30		☐				1					B1	B2			56	12	8	83	Flat	166.07	6.05	4.36	8.03	6.23	220.37	158.67	46.81	36.33
AIR B4A/B12P-B8P, 4FT				☐			1		1		A5	A6			G5	G6	57	14.9	9.5	113	Flat	203.42	7.42	5.10	9.51	7.04	270.48	185.69	55.43	41.04
AIR B4A/B12P-B8P, 4FT		30		☐				1					B5	B6			57	14.9	9.5	113	Flat	203.42	7.42	5.10	9.51	7.04	270.48	185.69	55.43	41.04
APXVAARR24_43-U-NA20				☐			1		1		A3	A4			G3	G4	0	0	0	153.3	Generic	387.40	14.67	5.32	17.29	7.63	534.40	193.80	100.75	44.44
APXVAARR24_43-U-NA20		30		☐				1					B3	B4			0	0	0	153.3	Generic	387.40	14.67	5.32	17.29	7.63	534.40	193.80	100.75	44.44
RADIO 4449 B12/B71				☐	0.5		1	1	1		R1A		R1B		R1G		15	13.2	10.4	75	Flat	59.20	0.83	1.30	1.28	2.13	30.05	47.36	7.45	12.40



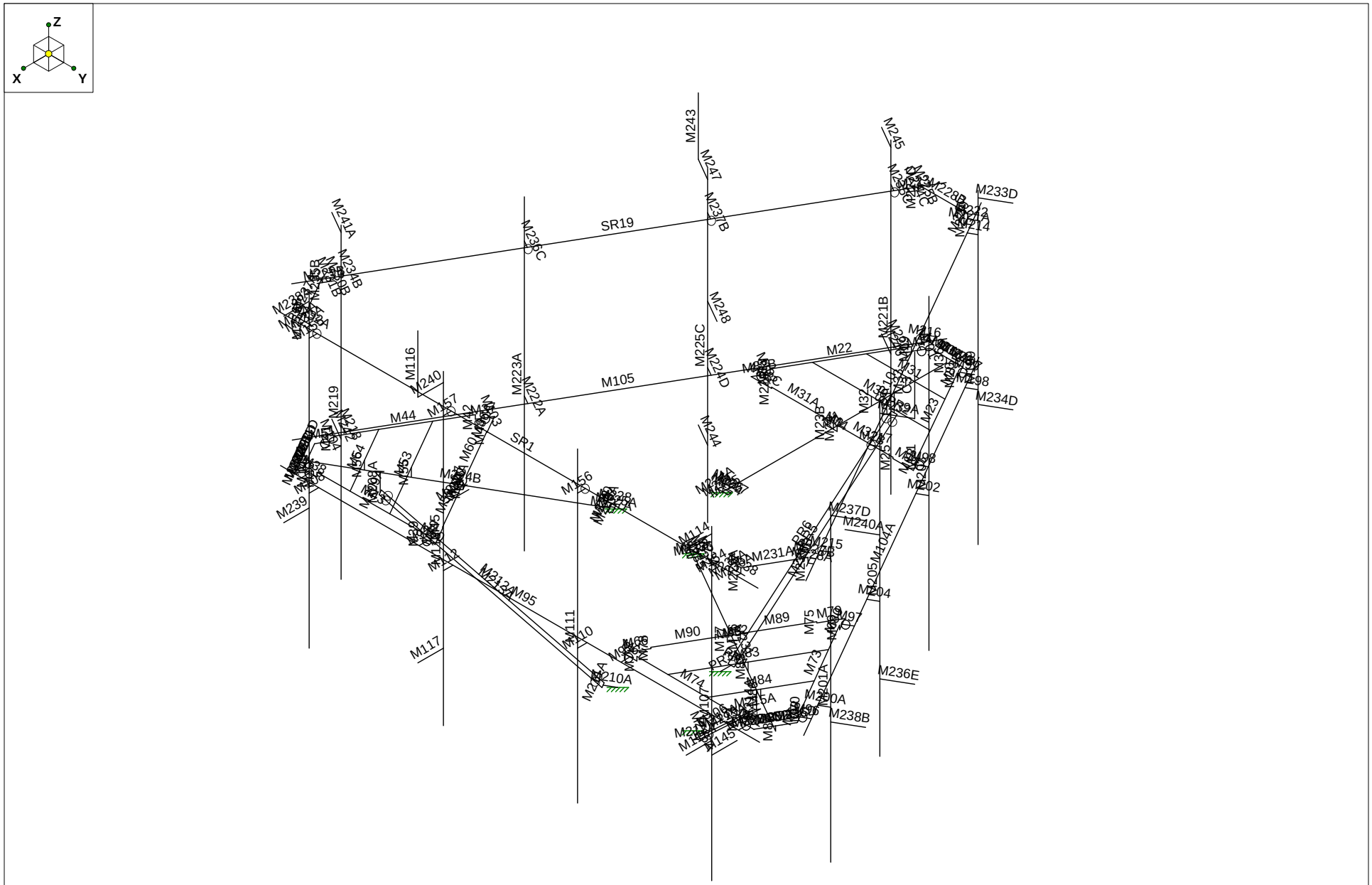


Envelope Only Solution

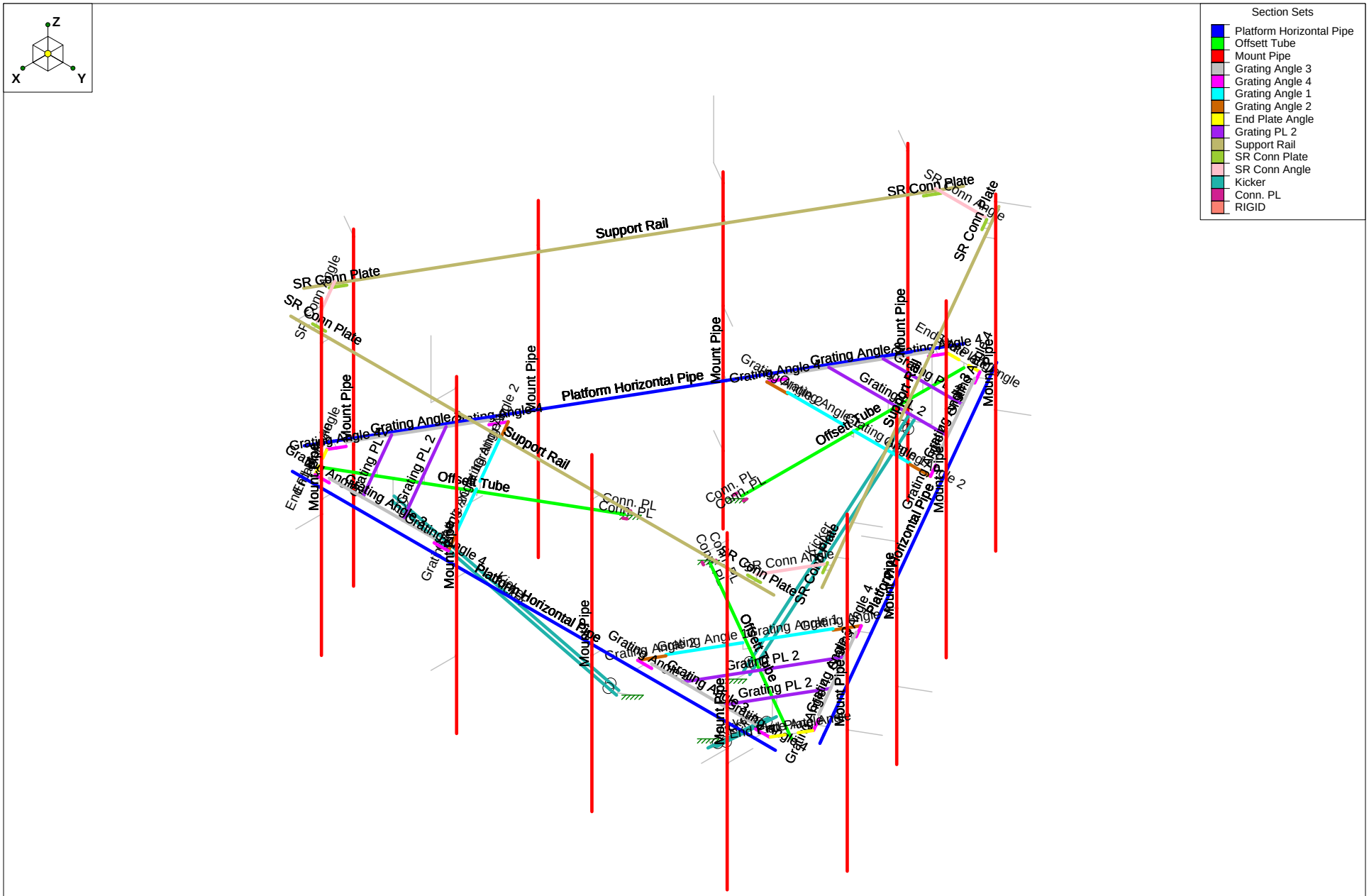
CLS	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	SK - 1
ST		Aug 7, 2019 at 10:14 AM
41124-12927174-01-MR	Rendered	41124-CTNH521A-01-MR.r3d



CLS	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	SK - 2
ST		Aug 7, 2019 at 9:18 AM
41124-12927174-01-MR	Joint Labels	41124-CTNH521A-01-MR.r3d

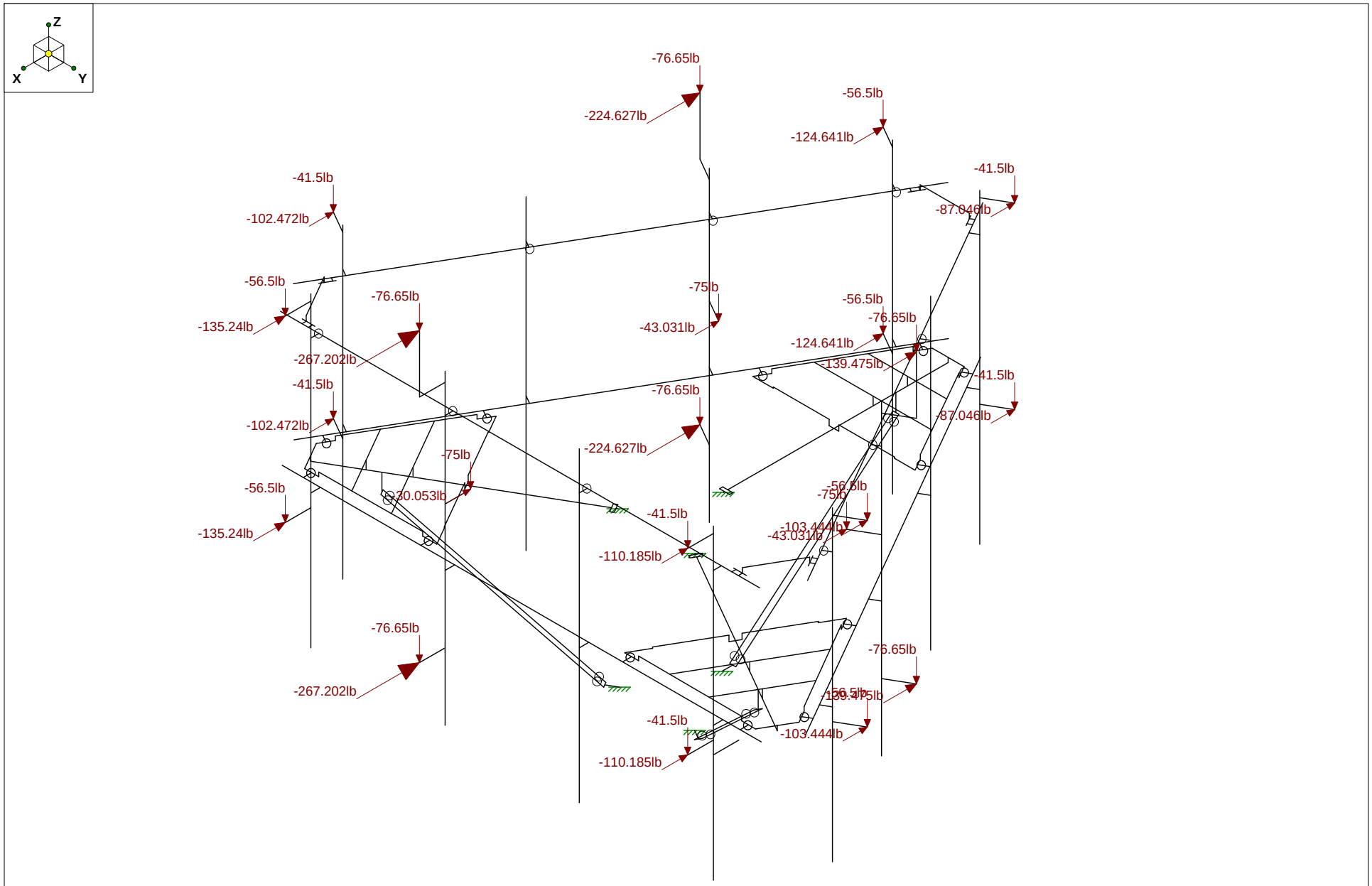


CLS	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	SK - 3
ST		Aug 7, 2019 at 9:18 AM
41124-12927174-01-MR	Member Labels	41124-CTNH521A-01-MR.r3d



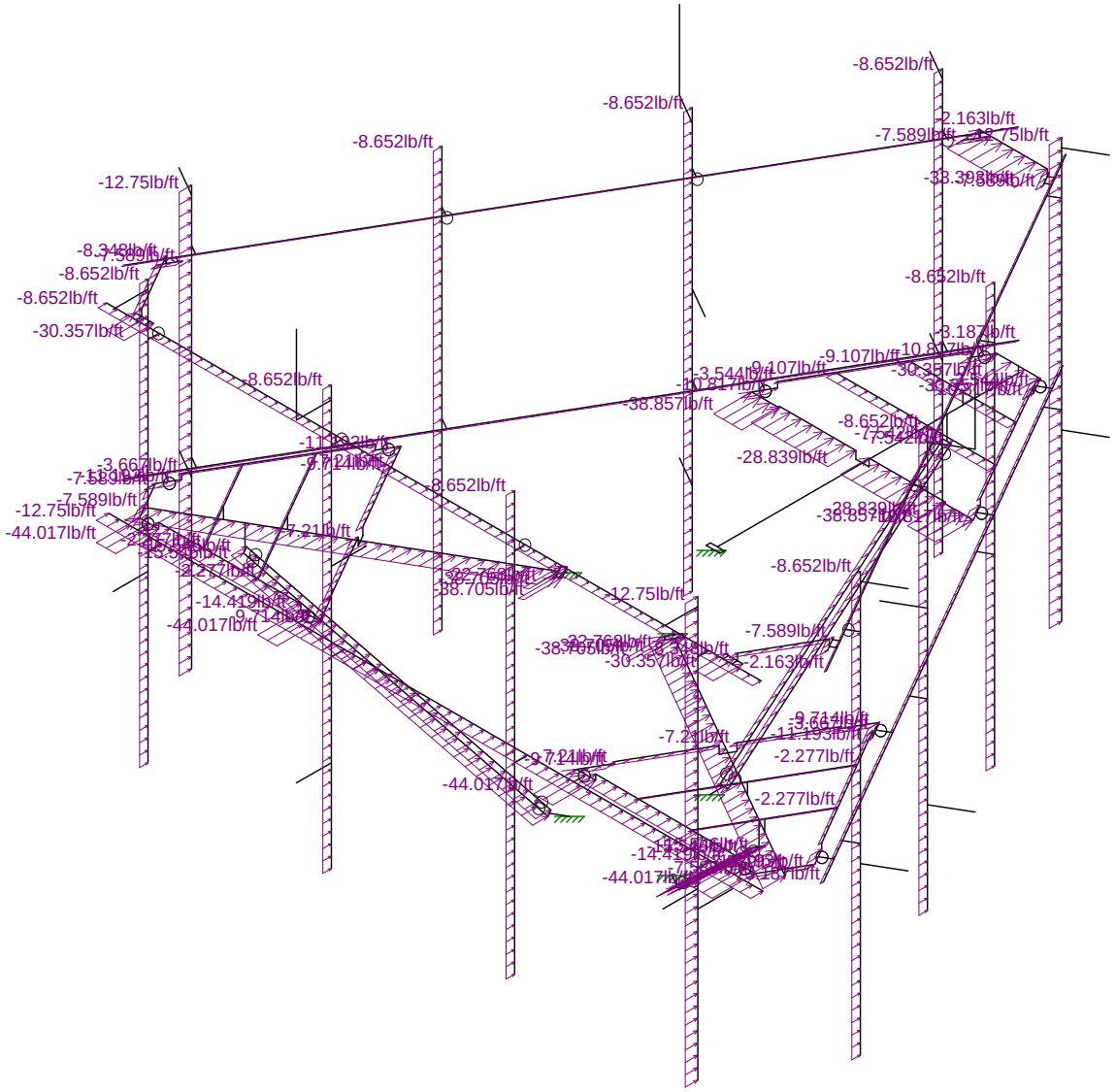
Envelope Only Solution

CLS	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	SK - 4
ST		Aug 7, 2019 at 10:14 AM
41124-12927174-01-MR	Section Sets	41124-CTNH521A-01-MR.r3d



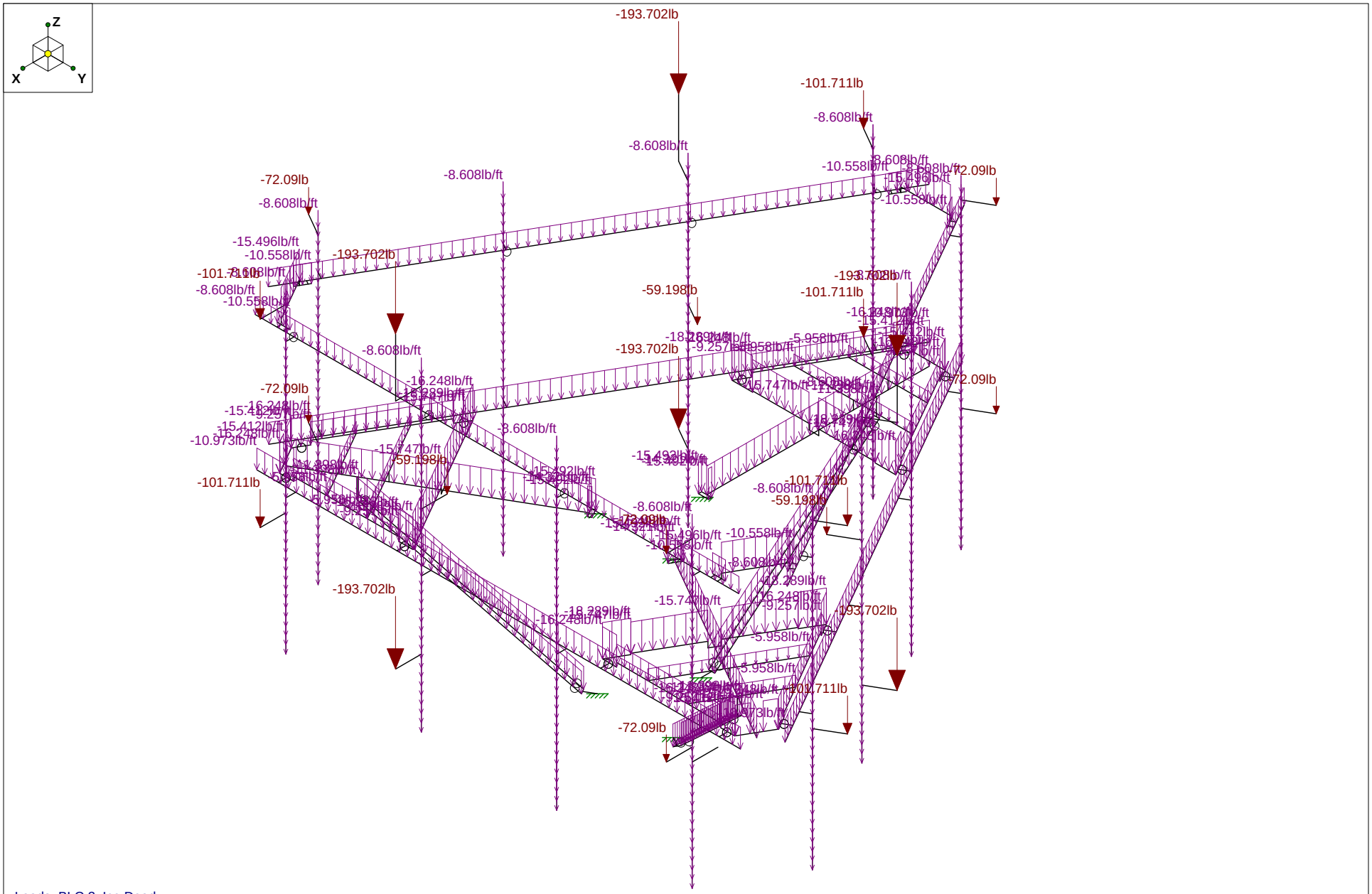
Loads: LC 1, DISPLAY (1.0D + 1.0W_0°)

CLS	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	SK - 5
ST		Aug 7, 2019 at 9:20 AM
41124-12927174-01-MR	Joint Loads - Dead and Normal Wind	41124-CTNH521A-01-MR.r3d



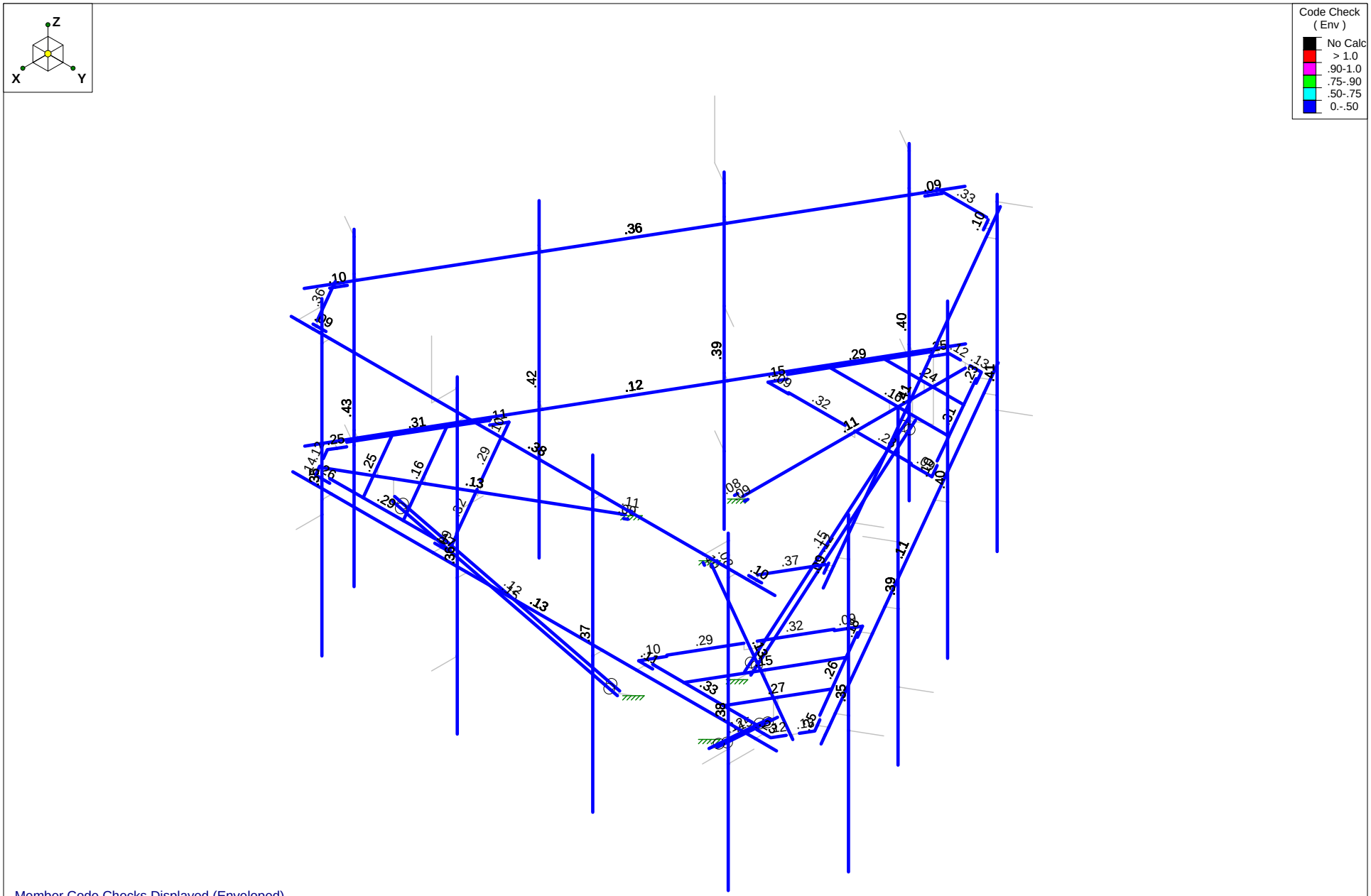
Loads: BLC 4, Structure Wind 0°

CLS		SK - 6
ST	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	Aug 7, 2019 at 9:20 AM
41124-12927174-01-MR	Distributed Load - Normal Wind	41124-CTNH521A-01-MR.r3d



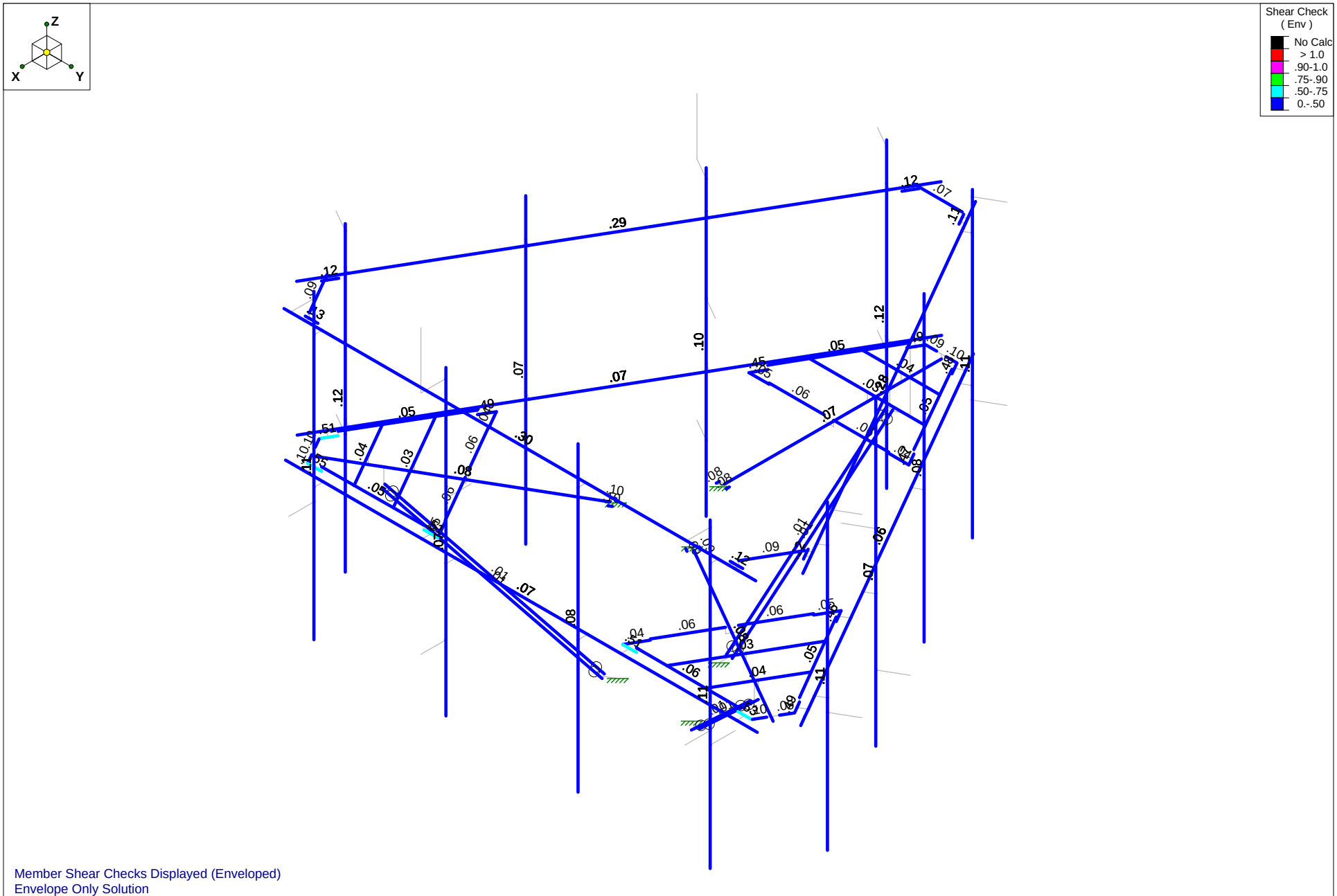
Loads: BLC 2, Ice Dead
Envelope Only Solution

CLS	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	SK - 7
ST		Aug 7, 2019 at 10:56 AM
41124-12927174-01-MR	Ice Dead Loads	41124-CTNH521A-01-MR.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

CLS		SK - 8
ST	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	Aug 7, 2019 at 10:15 AM
41124-12927174-01-MR	Envelope Member Unity Check Results - Bending	41124-CTNH521A-01-MR.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

CLS	41124-12927174-CTNH521A-ATC WOODBRIDGE MONOPOLE	SK - 9
ST		Aug 7, 2019 at 10:15 AM
41124-12927174-01-MR	Envelope Member Check Results - Shear	41124-CTNH521A-01-MR.r3d

Basic Load Cases

	BLC Description	Category	X Gravi...	Y Gravi...	Z Gravity	Joint	Point	Distrib...	Area(Me...	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				21				
21	Antenna Wind 30°	None				42				
22	Antenna Wind 45°	None				42				
23	Antenna Wind 60°	None				42				
24	Antenna Wind 90°	None				21				
25	Antenna Wind 120°	None				42				
26	Antenna Wind 135°	None				42				
27	Antenna Wind 150°	None				42				
28	Antenna Wind w/ Ice 0°	None				21				
29	Antenna Wind w/ Ice 30°	None				42				
30	Antenna Wind w/ Ice 45°	None				42				
31	Antenna Wind w/ Ice 60°	None				42				
32	Antenna Wind w/ Ice 90°	None				21				
33	Antenna Wind w/ Ice 120°	None				42				
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	Solve	PDelta	SRSS	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	DISPLAY (1.0D + 1.0W...	Yes	Y		DL	1	20	1																		
2	1.4D	Yes	Y		DL	1.4																				
3	1.2D + 1.0W_0°	Yes	Y		DL	1.2	4	1	20	1																
4	1.2D + 1.0W_30°	Yes	Y		DL	1.2	5	1	21	1																
5	1.2D + 1.0W_45°	Yes	Y		DL	1.2	6	1	22	1																
6	1.2D + 1.0W_60°	Yes	Y		DL	1.2	7	1	23	1																
7	1.2D + 1.0W_90°	Yes	Y		DL	1.2	8	1	24	1																
8	1.2D + 1.0W_120°	Yes	Y		DL	1.2	9	1	25	1																
9	1.2D + 1.0W_135°	Yes	Y		DL	1.2	10	1	26	1																
10	1.2D + 1.0W_150°	Yes	Y		DL	1.2	11	1	27	1																
11	1.2D + 1.0W_180°	Yes	Y		DL	1.2	4	-1	20	-1																
12	1.2D + 1.0W_210°	Yes	Y		DL	1.2	5	-1	21	-1																
13	1.2D + 1.0W_225°	Yes	Y		DL	1.2	6	-1	22	-1																

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..	B...	Fa..
14	1.2D + 1.0W_240°	Yes	Y		DL	1.2	7	-1	23	-1														
15	1.2D + 1.0W_270°	Yes	Y		DL	1.2	8	-1	24	-1														
16	1.2D + 1.0W_300°	Yes	Y		DL	1.2	9	-1	25	-1														
17	1.2D + 1.0W_315°	Yes	Y		DL	1.2	10	-1	26	-1														
18	1.2D + 1.0W_330°	Yes	Y		DL	1.2	11	-1	27	-1														
19	1.2D + 1.0Di + 1.0Wi_0°	Yes	Y		DL	1.2	12	1	28	1	RL	1												
20	1.2D + 1.0Di + 1.0Wi_30°	Yes	Y		DL	1.2	13	1	29	1	RL	1												
21	1.2D + 1.0Di + 1.0Wi_45°	Yes	Y		DL	1.2	14	1	30	1	RL	1												
22	1.2D + 1.0Di + 1.0Wi_60°	Yes	Y		DL	1.2	15	1	31	1	RL	1												
23	1.2D + 1.0Di + 1.0Wi_90°	Yes	Y		DL	1.2	16	1	32	1	RL	1												
24	1.2D + 1.0Di + 1.0Wi_1...	Yes	Y		DL	1.2	17	1	33	1	RL	1												
25	1.2D + 1.0Di + 1.0Wi_1...	Yes	Y		DL	1.2	18	1	34	1	RL	1												
26	1.2D + 1.0Di + 1.0Wi_1...	Yes	Y		DL	1.2	19	1	35	1	RL	1												
27	1.2D + 1.0Di + 1.0Wi_1...	Yes	Y		DL	1.2	12	-1	28	-1	RL	1												
28	1.2D + 1.0Di + 1.0Wi_2...	Yes	Y		DL	1.2	13	-1	29	-1	RL	1												
29	1.2D + 1.0Di + 1.0Wi_2...	Yes	Y		DL	1.2	14	-1	30	-1	RL	1												
30	1.2D + 1.0Di + 1.0Wi_2...	Yes	Y		DL	1.2	15	-1	31	-1	RL	1												
31	1.2D + 1.0Di + 1.0Wi_2...	Yes	Y		DL	1.2	16	-1	32	-1	RL	1												
32	1.2D + 1.0Di + 1.0Wi_3...	Yes	Y		DL	1.2	17	-1	33	-1	RL	1												
33	1.2D + 1.0Di + 1.0Wi_3...	Yes	Y		DL	1.2	18	-1	34	-1	RL	1												
34	1.2D + 1.0Di + 1.0Wi_3...	Yes	Y		DL	1.2	19	-1	35	-1	RL	1												
35	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	4	.061	20	.061	O..	1.5												
36	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	5	.061	21	.061	O..	1.5												
37	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	6	.061	22	.061	O..	1.5												
38	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	7	.061	23	.061	O..	1.5												
39	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	8	.061	24	.061	O..	1.5												
40	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	9	.061	25	.061	O..	1.5												
41	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	10	.061	26	.061	O..	1.5												
42	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	11	.061	27	.061	O..	1.5												
43	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	4	-.0..	20	-.0..	O..	1.5												
44	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	5	-.0..	21	-.0..	O..	1.5												
45	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	6	-.0..	22	-.0..	O..	1.5												
46	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	7	-.0..	23	-.0..	O..	1.5												
47	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	8	-.0..	24	-.0..	O..	1.5												
48	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	9	-.0..	25	-.0..	O..	1.5												
49	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	10	-.0..	26	-.0..	O..	1.5												
50	1.2D + 1.5Lm_1 + 1.0W...	Yes	Y		DL	1.2	11	-.0..	27	-.0..	O..	1.5												
51	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	4	.061	20	.061	O..	1.5												
52	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	5	.061	21	.061	O..	1.5												
53	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	6	.061	22	.061	O..	1.5												
54	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	7	.061	23	.061	O..	1.5												
55	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	8	.061	24	.061	O..	1.5												
56	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	9	.061	25	.061	O..	1.5												
57	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	10	.061	26	.061	O..	1.5												
58	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	11	.061	27	.061	O..	1.5												
59	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	4	-.0..	20	-.0..	O..	1.5												
60	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	5	-.0..	21	-.0..	O..	1.5												
61	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	6	-.0..	22	-.0..	O..	1.5												
62	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	7	-.0..	23	-.0..	O..	1.5												
63	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	8	-.0..	24	-.0..	O..	1.5												
64	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	9	-.0..	25	-.0..	O..	1.5												
65	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	10	-.0..	26	-.0..	O..	1.5												
66	1.2D + 1.5Lm_2 + 1.0W...	Yes	Y		DL	1.2	11	-.0..	27	-.0..	O..	1.5												
67	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	4	.061	20	.061	O..	1.5												
68	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	5	.061	21	.061	O..	1.5												
69	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	6	.061	22	.061	O..	1.5												
70	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	7	.061	23	.061	O..	1.5												

Load Combinations (Continued)

	Description	Solve	PDelta	SRSS	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
71	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	8	.061	24	.061	O...	1.5												
72	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	9	.061	25	.061	O...	1.5												
73	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	10	.061	26	.061	O...	1.5												
74	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	11	.061	27	.061	O...	1.5												
75	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	4	-.0...	20	-.0...	O...	1.5												
76	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	5	-.0...	21	-.0...	O...	1.5												
77	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	6	-.0...	22	-.0...	O...	1.5												
78	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	7	-.0...	23	-.0...	O...	1.5												
79	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	8	-.0...	24	-.0...	O...	1.5												
80	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	9	-.0...	25	-.0...	O...	1.5												
81	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	10	-.0...	26	-.0...	O...	1.5												
82	1.2D + 1.5Lm_3 + 1.0W...	Yes	Y		DL	1.2	11	-.0...	27	-.0...	O...	1.5												
83	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	4	.061	20	.061	O...	1.5												
84	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	5	.061	21	.061	O...	1.5												
85	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	6	.061	22	.061	O...	1.5												
86	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	7	.061	23	.061	O...	1.5												
87	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	8	.061	24	.061	O...	1.5												
88	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	9	.061	25	.061	O...	1.5												
89	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	10	.061	26	.061	O...	1.5												
90	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	11	.061	27	.061	O...	1.5												
91	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	4	-.0...	20	-.0...	O...	1.5												
92	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	5	-.0...	21	-.0...	O...	1.5												
93	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	6	-.0...	22	-.0...	O...	1.5												
94	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	7	-.0...	23	-.0...	O...	1.5												
95	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	8	-.0...	24	-.0...	O...	1.5												
96	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	9	-.0...	25	-.0...	O...	1.5												
97	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	10	-.0...	26	-.0...	O...	1.5												
98	1.2D + 1.5Lm_4 + 1.0W...	Yes	Y		DL	1.2	11	-.0...	27	-.0...	O...	1.5												

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 ...	Density[k/ft^3]	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 Rul...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Platform Horizontal Pi...	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.B ...	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....	Beam	None	A36 Gr.36	Typical	.844	.093	.479	.016
5	Grating Angle 4	L7.25x2.375x0....	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	Kicker	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 Rul...	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
15	Grating Plate 1	PL4.75x0.25	Beam	None	A36 Gr.36	Typical	1.188	.006	2.233	.024
16	Grapting Plate 2	PL6.4x0.25	Beam	None	A36 Gr.36	Typical	1.6	.008	5.461	.033

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	69			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			Lbyy						Lateral
41	M104A	Platform Ho...	149.999			Lbyy						Lateral
42	M105	Platform Ho...	149.999			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									Lateral
48	SR10	Support Rail	150									Lateral
49	SR19	Support Rail	150									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
50	PR5	Kicker	66.707									Lateral
51	PR6	Kicker	66.707									Lateral
52	M212A	Kicker	66.707									Lateral
53	M213A	Kicker	66.707									Lateral
54	M218A	Kicker	66.707									Lateral
55	M219A	Kicker	66.707									Lateral
56	M224A	Conn. PL	1			Lbyy			.65	.65		Lateral
57	M225	Conn. PL	1			Lbyy			.65	.65		Lateral
58	M224B	Offsett Tube	69			Lbyy						Lateral
59	M227A	Conn. PL	1			Lbyy			.65	.65		Lateral
60	M228	Conn. PL	1			Lbyy			.65	.65		Lateral
61	M231	Offsett Tube	69			Lbyy						Lateral
62	M234	Conn. PL	1			Lbyy			.65	.65		Lateral
63	M235	Conn. PL	1			Lbyy			.65	.65		Lateral
64	M238	SR Conn Pl...	4									Lateral
65	M226B	SR Conn Pl...	4									Lateral
66	M231A	SR Conn A...	15.399									Lateral
67	M220	SR Conn Pl...	4									Lateral
68	M223	SR Conn Pl...	4									Lateral
69	M228B	SR Conn A...	15.399									Lateral
70	M229B	SR Conn Pl...	4									Lateral
71	M232A	SR Conn Pl...	4									Lateral
72	M237A	SR Conn A...	15.399									Lateral
73	M199	Mount Pipe	96			Lbyy						Lateral
74	M201A	Mount Pipe	96			Lbyy						Lateral
75	M203	Mount Pipe	96			Lbyy						Lateral
76	M205	Mount Pipe	96			Lbyy						Lateral
77	M219	Mount Pipe	96			Lbyy						Lateral
78	M221B	Mount Pipe	96			Lbyy						Lateral
79	M223A	Mount Pipe	96			Lbyy						Lateral
80	M225C	Mount Pipe	96			Lbyy						Lateral
81	M227E	End Plate A...	3.313			Lbyy			.65	.65		Lateral
82	M228D	End Plate A...	3.313			Lbyy			.65	.65		Lateral
83	M233C	End Plate A...	3.313			Lbyy			.65	.65		Lateral
84	M234C	End Plate A...	3.313			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	N344	max	1520.01	3	3196.952	13	882.183	19	429.687	11	102.785	1	2121.58	18
2		min	-2209.844	11	-1983.553	5	-4.78	11	-1159.1...	3	-1141.48	75	-2120.149	10
3	N354	max	1122.3	17	2073.659	16	874.45	31	1267.777	34	621.386	6	1915.653	13
4		min	-1825.769	9	-3276.776	8	40.184	7	276.723	10	-926.051	62	-1911.789	5
5	N338B	max	4008.506	3	970.708	15	878.191	26	532.116	8	1329.267	25	1724.172	7
6		min	-2612.923	11	-978.391	7	18.13	18	-761.894	16	64.205	18	-1721.042	15
7	N326A	max	1245.45	30	-48.011	5	2192.021	29	-9.731	5	13.312	3	100.505	18
8		min	41.446	5	-2162.324	29	39.846	5	-522.732	29	-329.664	27	-116.975	10
9	N335A	max	1247.474	24	2160.185	24	2191.267	24	545.402	24	-14.202	16	91.723	12
10		min	38.687	16	67.013	16	54.544	16	9.312	17	-287.924	24	-108.166	4
11	P5	max	2.574	11	100.611	15	2202.69	19	46.715	7	619.507	19	83.298	7
12		min	-2508.105	19	-100.759	7	-12.661	11	-60.934	15	-3.561	11	-99.878	15
13	Totals:	max	5232.119	3	4744.859	15	8446.496	27						
14		min	-5232.125	11	-4744.861	7	2710.918	1						

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

	Member	Shape	Code ...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M38	L7.25x2.375...	.257	0	10	.547	0	y	11	38519.4...	75945.6	631.129	5474.562	1....	H2-1
2	M81	L7.25x2.375...	.231	4.375	13	.533	4.375	y	11	38519.4...	75945.6	631.129	5474.562	2....	H2-1
3	M51	L7.25x2.375...	.249	4.375	3	.514	4.375	y	17	38519.4...	75945.6	631.129	5474.562	2....	H2-1
4	M67	L7.25x2.375...	.111	2.187	11	.512	0	z	11	38519.4...	75945.6	1392.04	12074.8...	1....	H2-1
5	M50	L7.25x2.375...	.168	4.375	18	.507	4.375	z	11	38519.4...	75945.6	631.129	5474.562	1....	H2-1
6	M68	L7.25x2.375...	.255	0	20	.490	0	y	6	38519.4...	75945.6	631.129	5474.562	1....	H2-1
7	M37	L7.25x2.375...	.105	2.188	17	.489	0	z	17	38519.4...	75945.6	1392.04	12074.8...	1....	H2-1
8	M14	L7.25x2.375...	.250	0	31	.488	0	y	17	38519.4...	75945.6	631.129	5474.562	1....	H2-1
9	M83D	L7.25x2.375...	.226	3.339	9	.483	4.375	y	6	38519.4...	75945.6	631.129	5474.562	1....	H2-1
10	M13	L7.25x2.375...	.105	2.188	22	.466	0	z	6	38519.4...	75945.6	1392.04	12074.8...	1....	H2-1
11	M80	L7.25x2.375...	.178	4.375	13	.456	4.375	z	6	38519.4...	75945.6	631.129	5474.562	2....	H2-1
12	M82B	L7.25x2.375...	.153	4.375	8	.448	4.375	z	17	38519.4...	75945.6	631.129	5474.562	2....	H2-1
13	SR1	PIPE_2.0	.378	142.105	6	.303	11.842		11	6295.422	32130	1871.625	1871.625	2....	H1-1a
14	SR19	PIPE_2.0	.357	142.105	12	.291	11.842		17	6295.422	32130	1871.625	1871.625	3....	H1-1a
15	SR10	PIPE_2.0	.409	142.105	18	.285	11.842		6	6295.422	32130	1871.625	1871.625	3....	H1-1a
16	M232A	PL5x0.1875	.092	.842	12	.129	.842	y	11	17775.9...	30375	118.652	3164.063	1....	H1-1b
17	M229B	PL5x0.1875	.097	.842	18	.124	.842	y	18	17775.9...	30375	118.652	3164.063	1....	H1-1b
18	M223	PL5x0.1875	.095	.842	18	.123	.842	y	18	17775.9...	30375	118.652	3164.063	1....	H1-1b
19	M219	PIPE_2.0	.430	53.053	12	.123	53.053		3	14916.0...	32130	1871.625	1871.625	1....	H1-1b
20	M226B	PL5x0.1875	.085	.842	7	.120	.842	y	6	17775.9...	30375	118.652	3164.063	1....	H1-1b
21	M238	PL5x0.1875	.098	.842	13	.119	.842	y	11	17775.9...	30375	118.652	3164.063	1....	H1-1b
22	M221B	PIPE_2.0	.397	53.053	3	.115	53.053		18	14916.0...	32130	1871.625	1871.625	1....	H1-1b
23	M109	PIPE_2.0	.346	53.053	14	.115	53.053		11	14916.0...	32130	1871.625	1871.625	1....	H1-1b
24	M107	PIPE_2.0	.378	53.053	7	.113	53.053		13	14916.0...	32130	1871.625	1871.625	1....	H1-1b
25	M201A	PIPE_2.0	.355	53.053	9	.113	53.053		6	14916.0...	32130	1871.625	1871.625	1....	H1-1b
26	M220	PL5x0.1875	.099	.842	10	.110	.842	y	6	17775.9...	30375	118.652	3164.063	2....	H1-1b*
27	M199	PIPE_2.0	.407	53.053	18	.106	53.053		9	14916.0...	32130	1871.625	1871.625	1....	H1-1b
28	M227E	L5x4x0.25	.135	0	10	.105	0	y	96	57000.7...	70875	2842.671	6820.024	1....	H2-1
29	M225C	PIPE_2.0	.390	53.053	11	.104	55.579		11	14916.0...	32130	1871.625	1871.625	1....	H1-1b
30	M234C	L5x4x0.25	.117	3.313	9	.103	3.313	z	3	57000.7...	70875	3500.891	6820.024	1....	H2-1
31	M29	L5x4x0.25	.127	3.313	3	.097	3.313	z	13	57000.7...	70875	3500.891	6820.024	1....	H2-1
32	M228	PL8.5x3/8	.106	0	18	.097	1	y	11	84967.8...	103275	806.836	18288.2...	1....	H1-1b
33	M227A	PL8.5x3/8	.091	0	10	.097	0	y	11	84967.8...	103275	806.836	18288.2...	1....	H1-1b
34	M228D	L5x4x0.25	.115	3.313	14	.096	3.313	z	8	57000.7...	70875	3500.891	6820.024	1....	H2-1
35	M8	L5x4x0.25	.119	0	31	.092	0	z	10	57000.7...	70875	2842.671	6820.024	1....	H2-1
36	M237A	L5.50X3.56...	.363	0	3	.089	0	y	18	26491.25	53915.6...	966.11	2943.754	2....	H2-1
37	M234	PL8.5x3/8	.084	0	13	.087	0	y	5	84967.8...	103275	806.836	18288.2...	1....	H1-1b
38	M231A	L5.50X3.56...	.375	0	13	.087	0	y	12	26491.25	53915.6...	966.11	2943.754	2....	H2-1
39	M233C	L5x4x0.25	.131	0	4	.086	0	z	15	57000.7...	70875	2842.671	6820.024	1....	H2-1
40	M235	PL8.5x3/8	.103	0	13	.085	1	y	5	84967.8...	103275	806.836	18288.2...	1....	H1-1b
41	M224A	PL8.5x3/8	.078	0	7	.083	0	y	16	84967.8...	103275	806.836	18288.2...	1....	H1-1b
42	M203	PIPE_2.0	.399	53.053	18	.083	53.053		5	14916.0...	32130	1871.625	1871.625	1....	H1-1b
43	M111	PIPE_2.0	.369	53.053	6	.083	53.053		11	14916.0...	32130	1871.625	1871.625	1....	H1-1b
44	M224B	HSS5x3x3/8"	.135	0	18	.082	0	z	11	164890....	205537.5	18493.9...	27058.0...	2....	H1-1b
45	M225	PL8.5x3/8	.089	0	7	.082	1	y	16	84967.8...	103275	806.836	18288.2...	1....	H1-1b
46	M231	HSS5x3x3/8"	.127	0	13	.080	0	z	5	164890....	205537.5	18493.9...	27058.0...	1....	H1-1b
47	M113	PIPE_2.0	.364	53.053	18	.074	55.579		5	14916.0...	32130	1871.625	1871.625	1....	H1-1b
48	M228B	L5.50X3.56...	.327	0	8	.073	0	y	7	26491.25	53915.6...	966.11	2943.754	2....	H2-1
49	M205	PIPE_2.0	.386	53.053	10	.072	55.579		15	14916.0...	32130	1871.625	1871.625	1....	H1-1b
50	M1	HSS5x3x3/8"	.113	0	7	.069	0	z	16	164890....	205537.5	18493.9...	27058.0...	2....	H1-1b
51	M223A	PIPE_2.0	.423	53.053	11	.069	53.053		16	14916.0...	32130	1871.625	1871.625	1....	H1-1b
52	M95	PIPE_3.0	.132	55.263	71	.068	7.895		91	28250.9...	65205	5748.75	5748.75	2....	H1-1b
53	M105	PIPE_3.0	.118	94.736	11	.065	94.736		11	28250.9...	65205	5748.75	5748.75	2....	H1-1b
54	M89	L4.75x4.5x0...	.323	0	26	.065	0	z	27	60192.8...	72900	4381.691	8212.737	1....	H2-1
55	M59	L4.75x4.5x0...	.323	0	30	.064	0	z	33	60192.8...	72900	4381.691	8212.737	1....	H2-1
56	M31A	L4.75x4.5x0...	.323	0	19	.064	0	z	21	60192.8...	72900	4381.691	8212.737	1....	H2-1

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

	Member	Shape	Code ...	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
57	M60	L4.75x4.5x0...	.288	17.5	19	.058	17.5	z	19	60192.8...	72900	4381.691	8212.737	1....	H2-1
58	M90	L4.75x4.5x0...	.285	17.5	29	.058	17.5	z	28	60192.8...	72900	4381.691	8212.737	1....	H2-1
59	M32B	L4.75x4.5x0...	.285	17.5	24	.057	17.5	z	23	60192.8...	72900	4381.691	8212.737	1....	H2-1
60	M104A	PIPE_3.0	.114	55.263	34	.057	106....		14	28250.9...	65205	5748.75	5748.75	2....	H1-1b
61	M74	L2.375x1.25...	.331	0	11	.056	10.236	y	11	19687.8...	27337.5	329.637	1353.805	2....	H2-1
62	M43	L2.375x1.25...	.289	32.414	12	.054	22.178	y	11	19687.8...	27337.5	329.637	1353.782	2....	H2-1
63	M44	L2.375x1.25...	.307	0	16	.053	10.236	y	17	19687.8...	27337.5	329.637	1353.805	2....	H2-1
64	M49	L6.4x4.750x...	.090	6.406	27	.050	6.406	z	3	57754.3...	88290	2962.277	7667.749	1....	H2-1
65	M23	L2.375x1.25...	.313	0	5	.050	10.236	y	6	19687.8...	27337.5	329.637	1353.805	2....	H2-1
66	M79	L6.4x4.750x...	.089	6.406	22	.049	6.406	z	13	57754.3...	88290	2962.277	7667.749	1....	H2-1
67	M73	L2.375x1.25...	.265	32.414	7	.048	22.178	y	6	19687.8...	27337.5	329.637	1353.805	2....	H2-1
68	M22	L2.375x1.25...	.288	32.414	18	.048	22.178	y	17	19687.8...	27337.5	329.637	1353.765	2....	H2-1
69	M83C	L6.4x4.750x...	.090	6.406	33	.046	6.406	z	8	57754.3...	88290	2962.277	7667.749	1....	H2-1
70	M54	PL1.50x0.25	.246	24.556	9	.042	12.278	y	3	1731.99	12150	63.281	379.688	2....	H1-1b
71	M84	PL1.50x0.25	.269	24.556	3	.041	12.278	y	12	1731.99	12150	63.281	379.688	2....	H1-1b
72	M36A	L6.4x4.750x...	.097	0	18	.038	0	z	25	57754.3...	88290	2962.277	7667.749	1....	H2-1
73	M66	L6.4x4.750x...	.096	0	12	.038	0	z	19	57754.3...	88290	2962.277	7667.749	1....	H2-1
74	M11	L6.4x4.750x...	.087	0	7	.038	0	z	30	57754.3...	88290	2962.277	7667.749	1....	H2-1
75	M31	PL1.50x0.25	.240	24.556	13	.037	12.278	y	8	1731.99	12150	63.281	379.688	2....	H1-1b
76	M53	PL1.50x0.25	.157	36.828	4	.034	18.414	y	11	770.002	12150	63.281	379.688	1....	H1-1b*
77	M83	PL1.50x0.25	.145	36.828	15	.031	18.414	y	11	770.002	12150	63.281	379.688	1....	H1-1b*
78	M30	PL1.50x0.25	.162	36.828	10	.030	18.414	y	17	770.002	12150	63.281	379.688	1....	H1-1b*
79	M218A	L3X3X3	.124	33.353	27	.007	66.707	z	4	17294.0...	35316	1320.097	2364.499	1....	H2-1
80	M219A	L3X3X3	.152	33.353	22	.007	66.707	y	4	17294.0...	35316	1320.097	2364.499	1....	H2-1
81	M213A	L3X3X3	.154	33.353	27	.007	0	y	10	17294.0...	35316	1320.097	2364.499	1....	H2-1
82	M212A	L3X3X3	.125	33.353	33	.007	66.707	z	10	17294.0...	35316	1320.097	2364.499	1....	H2-1
83	PR5	L3X3X3	.124	33.353	19	.007	66.707	z	15	17294.0...	35316	1320.097	2364.499	1....	H2-1
84	PR6	L3X3X3	.152	33.353	32	.007	66.707	y	15	17294.0...	35316	1320.097	2364.499	1....	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: CTNH521A

ATC Woodbridge Monopole
77 Pease Road
Woodbridge, Connecticut 06525

June 12, 2019

EBI Project Number: 6219002200

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**6.60%**

June 12, 2019

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

Emissions Analysis for Site: CTNH521A - ATC Woodbridge Monopole

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **77 Pease Road** in **Woodbridge, 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 77 Pease Road in Woodbridge, 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 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 AIR 21 for the 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector A, the Ericsson AIR 21 for the 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector B, the Ericsson AIR 21 for the 1900 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 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 AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
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 AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
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	1.48%
Verizon	2.59%
Site Total MPE % :	6.60%

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 % :	6.60%

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 UMTS	2	1028.30	130.0	4.38	1900 MHz 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	2	2056.61	130.0	8.75	2100 MHz LTE	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:	6.60%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **6.60%** 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.