



10 INDUSTRIAL AVENUE,  
SUITE 3  
MAHWAH, NJ 07430  
  
PHONE: 201.684.0055  
FAX: 201.684.0066

---

April 14, 2020

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

**Notice of Exempt Modification**  
**9 Meyers Road (93 Old Amity Road) Bethany CT**  
**Latitude 41.40472222**  
**Longitude -73.00000**  
**T-Mobile site: CTNH217A /L600**

Ms. Bachman:

T-Mobile currently maintains (6) antennas at the 220 foot level of the existing 338 -foot self-support lattice located at 9 Meyers Road (93 Old Amity Road) in Bethany CT. The self-support lattice and underlying property is owned by American Tower Management, Inc. T-Mobile now intends to replace (3) of its existing antennas with (3) 600/700 MHz antennas. The new antennas would be installed at the 222-foot level of the tower and mount modifications are proposed per the attached mount analysis.

**Planned Modifications:**

**Remove:**

**Coax:**

- (6) 1-5/8" coax
- (1) 3/8" coax
- (6) KMW Smart Bias-T

**Remove and Replace:**

**Antennas/RRUs/TMAs:**

- (3) LNX-6515DS-VTM (REMOVE) – (3) RFS APXVAARR24\_43-U-NA20 (REPLACE) 600 MHz / 700 MHz
- (3) S20057A1 (REMOVE) – (3) ETT19V2A12UB (REPLACE)

**Existing to Remain:**

**Antennas/TMAs/RRUs/coax:**

- (3) APX16DWV-16DWVS-E-A20
- (6) 1-5/8" coax

**Install New:**

**Antennas/TMAs/RRUs/coax:**

- (3) Ericsson KRY 4449 B12/71
- (3) 1-1/4" Hybrid

This facility has prior approvals on file for modification by the Siting Council going back as far as September 15, 1993, but no records of the original tower construction can be found. The prior approvals on file with the Council show with no record of conditions that would restrict exempt modifications. Therefore, this modification complies with the aforementioned approval. The town of Bethany's Land Use Administrator has provided verification that the Town has no records on file for the construction of this site in the attached Exhibit A.

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.S.A. § 16-SOj-73, a copy of this letter is being sent to the Honorable Paula Confrancesco, First Selectwoman and Isabelle Kerns, Land Use Administrator.

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,

*Elizabeth Jamieson*

Elizabeth Jamieson  
Transcend Wireless  
10 Industrial Ave., Suite 3  
Mahwah, New Jersey 07430  
860-605-7808  
EJamieson@TranscendWireless.com

cc:

The Honorable Paula Confrancesco, First Selectwoman  
Isabelle Kerns, Land Use Administrator  
American Tower Management, Inc, Tower and Property

CASH ONLY IF ALL CheckLock™ SECURITY FEATURES LISTED ON BACK INDICATE NO TAMPERING OR COPYING



**Transcend Wireless LLC**  
10 Industrial Ave. Suite 3  
Mahwah, NJ 07430

BANK OF AMERICA, NA  
1-32/210

26568

3/20/2020

PAY TO THE ORDER OF Connecticut Siting Council

\$\*\*625.00

Six Hundred Twenty-Five and 00/100\*\*\*\*\* DOLLARS

Connecticut Siting Council  
10 Franklin Square  
New Britain, CT 06051

TRANSCEND WIRELESS LLC

MEMO

88008 CTNH217A - CSC Filing Fee (ATC/ TMO Per

⑈0 26568⑈ ⑆0 210003 2 2⑆ 0094 1949 2 244⑈

Transcend Wireless LLC

26568

Connecticut Siting Council

3/20/2020

88008 CTNH217A - CSC Filing Fee (ATC/ T MO Per

625.00

© 2011 INTUIT INC. # 785 1-800-433-8810

Details on Back



Intuit® CheckLock™ Secure Check

MP

# Exhibit A

## **Original Facility Approval**

**From:** Isabel Kearns <ikearns@bethany-ct.com>  
**Sent:** Monday, March 23, 2020 9:53 AM  
**To:** ejamieson@transcendwireless.com  
**Subject:** 93 Old Amity Road

Elizabeth: I am sorry to say, we have nothing in the file about the construction of the tower. I am sorry.

*Isabel Kearns*

**Inland Wetlands & Zoning**

**Enforcement Officer**

**Town of Bethany**

*40 Peck Road*

*Bethany, CT 06524*

**(203) 393-2100 X1135 (Office)**

**(203) 410-5909 (Cell)**

**(203) 393-0828 (Fax)**

 Please consider the environment before printing this e-mail and/or any attachments.

The information contained in this email message is confidential and may contain privileged information and material. Any review or use of the information contained in this email message by persons other than the intended recipient(s) is prohibited. If you are not the intended recipient please notify us immediately by telephone or e-mail, and destroy all copies of this message and any attachments.

# Exhibit B

## Property card

The Assessor's office is responsible for the maintenance of records on the ownership of properties. Assessments are computed at 70% of the estimated market value of real property at the time of the last revaluation which was 2018.



Information on the Property Records for the Municipality of Bethany was last updated on 3/21/2020.

### Parcel Information

Location:	9 MEYERS RD	Property Use:	Industrial	Primary Use:	Light Industrial
Unique ID:	00002800	Map Block Lot:	118/51C	Acres:	9.20
490 Acres:	0.00	Zone:	R-65	Volume / Page:	0000/0000
Developers Map / Lot:		Census:			

### Value Information

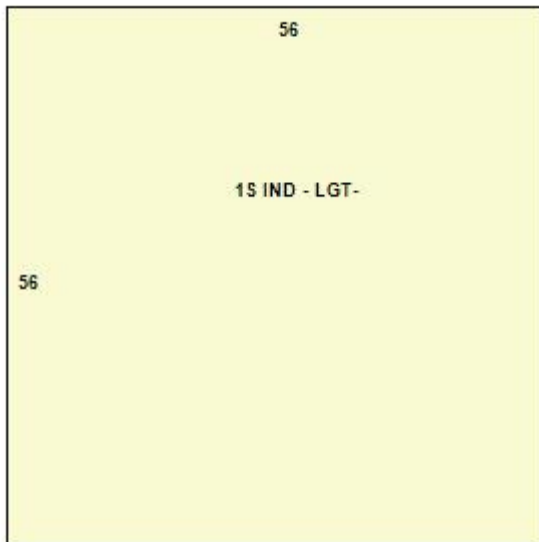
	Appraised Value	Assessed Value
Land	479,000	335,300
Buildings	112,419	78,690
Detached Outbuildings	14,237	9,970
Total	605,656	423,960

# Owner's Information

## Owner's Data

AMERICAN TOWERS  
RE: SITE # 88008 STE 205  
P O BOX 723597  
ATLANTA GA 31139

## Building 1



Category:	Industrial	Use:	Light Industrial	Stories:	1.00
Above Grade:	3,136	Below Grade:	0	Below Grade Finish:	0



Construction:	Average	Year Built:	1967	Heating:	FHA
Fuel:	Oil	Cooling Percent:	0%	Siding:	Pre-Cast Concrete
Roof Material:		Beds/Units:	0		

### Special Features

### Attached Components

### Detached Outbuildings

Type:	Year Built:	Length:	Width:	Area:
Fencing	1967			216
Paving	1967			1,100
Building Utility	1967			360

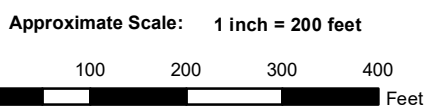
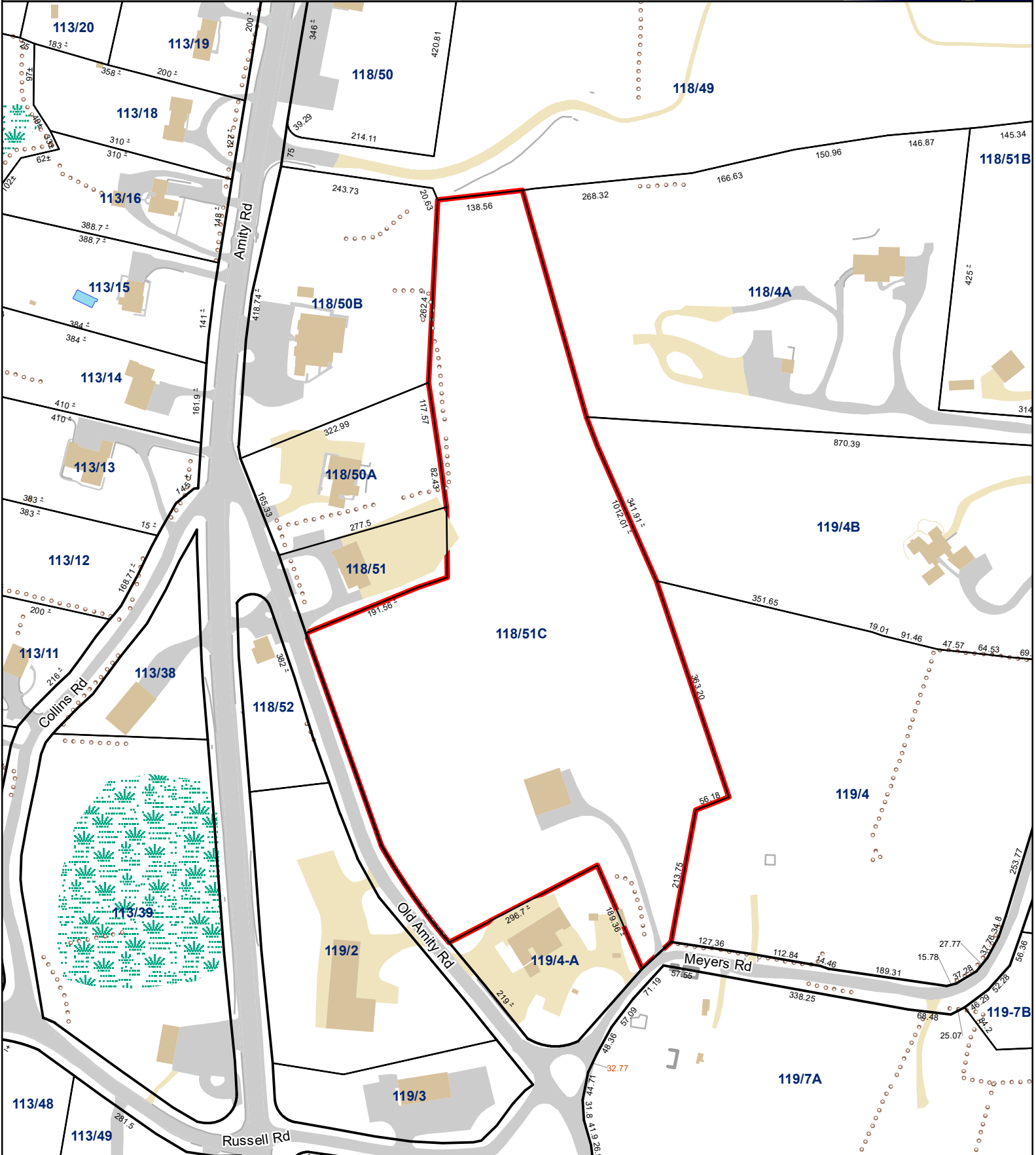
### Owner History - Sales

Owner Name	Volume	Page	Sale Date	Deed Type	Valid Sale	Sale Price
AMERICAN TOWERS INC	0124	0716	02/16/2000		No	\$6,222,480
AMERICAN TEL & TEL CO	0043	0554	08/10/1966		No	\$0

Information Published With Permission From The Assessor

# Town of Bethany, Connecticut Assessment Parcel Map

Parcel: 00002800  
Address: 9 MEYERS RD



Map Produced: Jul 2019

Disclaimer: This map is for informational purposes only. All information is subject to verification by any user. The Town of Bethany and its mapping contractors assume no legal responsibility for the information contained herein.

# Exhibit C

## **Construction Drawings**



VICINITY MAP




**AMERICAN TOWER®**

ATC SITE NAME: BETHANY CT  
 ATC SITE NUMBER: 88008  
 T-MOBILE SITE ID: CTNH217A  
 SITE ADDRESS: 93 OLD AMITY ROAD  
 BETHANY, CT 06524



LOCATION MAP



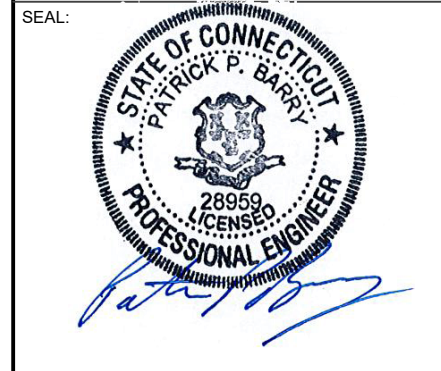
**AMERICAN TOWER®**  
 A.T. ENGINEERING SERVICE, PLLC  
 3500 REGENCY PARKWAY  
 SUITE 100  
 CARY, NC 27518  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	GD	08/14/19
1	ANTENNA UPDATE	GD	10/07/19
2	GROUND WORK	TC	04/03/20
3	MOUNTING PIPE SIZE	TC	04/10/20

**T-MOBILE L600 ANTENNA AMENDMENT  
 67D05F CONFIGURATION**

ATC SITE NUMBER:  
**88008**  
 ATC SITE NAME:  
**BETHANY CT**  
 SITE ADDRESS:  
 93 OLD AMITY ROAD  
 BETHANY, CT 06524



Authorized by "EOR"  
 Apr 10 2020 6:28 PM  


**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.

- INTERNATIONAL BUILDING CODE (IBC)
- NATIONAL ELECTRIC CODE (NEC)
- LOCAL BUILDING CODE
- CITY/COUNTY ORDINANCES

**UTILITY COMPANIES**

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

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



Know what's below.  
 Call before you dig.

**PROJECT SUMMARY**

SITE ADDRESS:  
 93 OLD AMITY ROAD  
 BETHANY, CT 06524  
 COUNTY: NEW HAVEN

GEOGRAPHIC COORDINATES:  
 LATITUDE: 41.40475833  
 LONGITUDE: -72.99998333  
 GROUND ELEVATION: 620' 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:  
 AMERICAN TOWER  
 116 HUNTINGTON AVE  
 BOSTON, MA 02116

**PROJECT DESCRIPTION**

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

TOWER:  
 REMOVE (3) PANELS, (6) TTAs, (6) SMART BIAS-T, (1) 3/8" COAX CABLE, (3) SECTOR FRAMES, AND (6) 1-5/8" COAX CABLES

INSTALL (3) NEW PANELS, (3) TTAs, (3) RRUs, (3) SECTOR FRAMES, AND (3) 1-1/4" HYBRID CABLE

EXISTING (6) 1-5/8" COAX CABLES TO REMAIN

GROUND:  
 REMOVE 6201 CABINET  
 INSTALL 6102 CABINET AND DIPLEXER

**PROJECT NOTES**

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

**PROJECT LOCATION DIRECTIONS**

FROM NEW HAVEN, CT TAKE RT 34 WEST TO RT 63 NORTH. FOLLOW RT 63 NORTH TO OLD AMITY ROAD. FORK RIGHT ONTO OLD AMITY ROAD AND FOLLOW UP THE HILL TO THE FORK. FORK RIGHT AGAIN TO DEAD END STREET. ACCESS ROAD ENTRANCE WILL BE ON THE LEFT.

**SHEET INDEX**

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	3	04/10/20	TC
G-002	GENERAL NOTES	0	08/14/19	GD
C-101	DETAILED SITE PLAN & TOWER ELEVATION	2	04/03/20	TC
C-501	ANTENNA INFORMATION & SCHEDULE	1	10/07/19	GD
C-502	MOUNT DETAILS	3	04/10/20	TC
E-501	GROUNDING DETAILS	2	04/03/20	TC
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			

DRAWN BY:	GD
APPROVED BY:	PPB
DATE DRAWN:	08/14/19
ATC JOB NO:	12978827

**TITLE SHEET**

SHEET NUMBER: **G-001**      REVISION: **3**

**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 NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE 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 1/2" 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.



THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	GD	08/14/19

ATC SITE NUMBER:

**88008**

ATC SITE NAME:

**BETHANY CT**

SITE ADDRESS:

93 OLD AMITY ROAD  
BETHANY, CT 06524

SEAL:



Authorized by "EOR"

Apr 10 2020 6:28 PM T-Mobile cosign

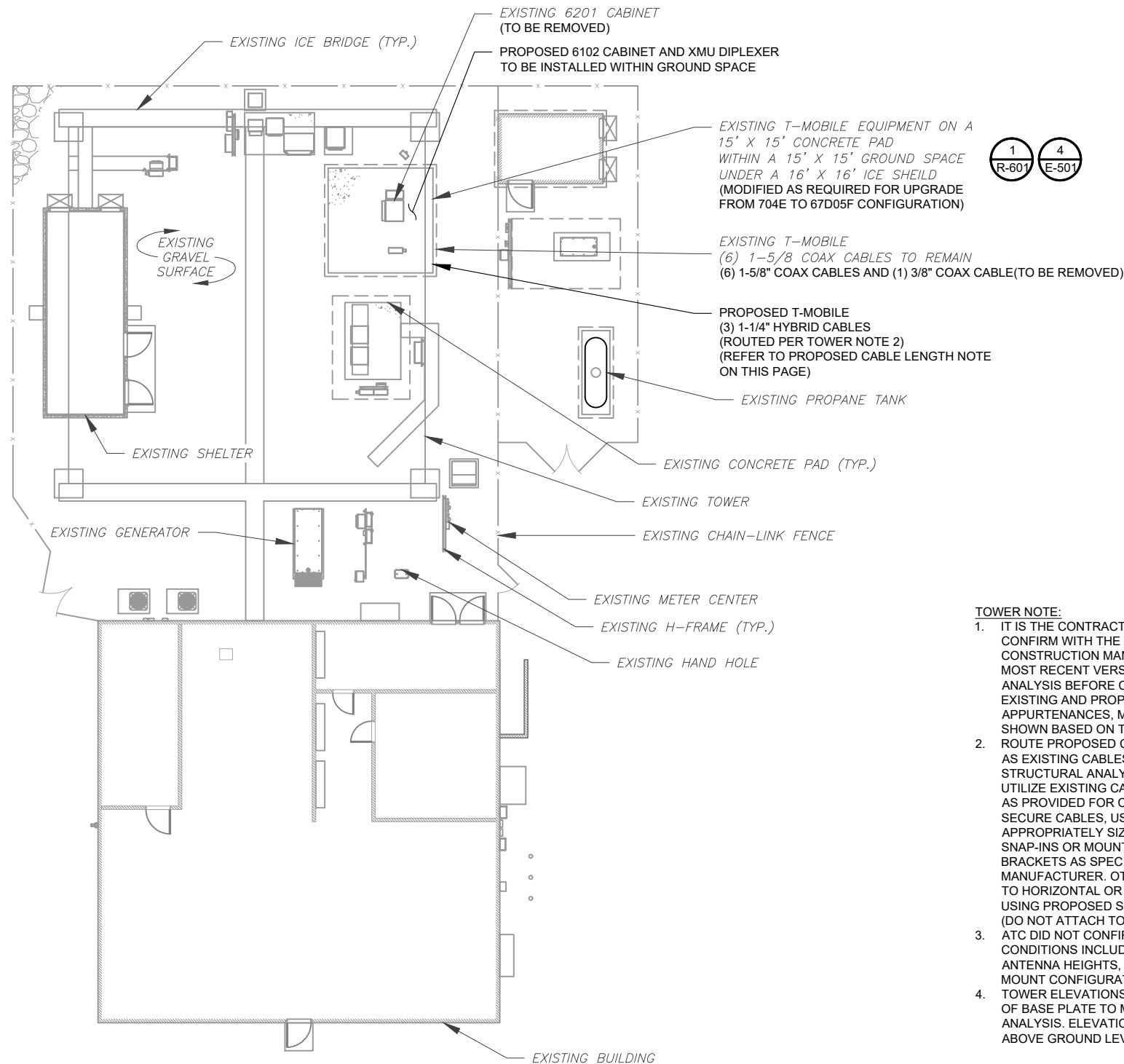
DRAWN BY:	GD
APPROVED BY:	PPB
DATE DRAWN:	08/14/19
ATC JOB NO:	12978827

**GENERAL NOTES**

SHEET NUMBER:	REVISION:
<b>G-002</b>	<b>0</b>

**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. 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.



TOP OF EXISTING HIGHEST APPURTENANCE ELEV. 371'

TOP OF EXISTING TOWER ELEV. 339'

1 4  
R-601 E-501

2 1  
C-501 C-502

EXISTING AND PROPOSED T-MOBILE EQUIPMENT

PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 08-1-2019, 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

EXISTING CARRIER ANTENNAS RAD CENTER @ 320'

EXISTING CARRIER ANTENNAS RAD CENTER @ 300'

EXISTING CARRIER ANTENNAS RAD CENTER @ 291'

EXISTING CARRIER ANTENNAS RAD CENTER @ 285'

EXISTING CARRIER ANTENNAS RAD CENTER @ 266'

EXISTING CARRIER ANTENNAS RAD CENTER @ 240'

PROPOSED ANTENNA RAD CENTER @ 222'

EXISTING CARRIER ANTENNAS RAD CENTER @ 213'

EXISTING CARRIER ANTENNAS RAD CENTER @ 180'

EXISTING CARRIER ANTENNAS RAD CENTER @ 158'

EXISTING CARRIER ANTENNAS RAD CENTER @ 100'

EXISTING TOWER

EXISTING SHELTER

EXISTING TOP OF BASE PLATE

**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. 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).
2. ATC DID NOT CONFIRM EXISTING SITE CONDITIONS INCLUDING, BUT NOT LIMITED TO, ANTENNA HEIGHTS, ANTENNA AZIMUTHS AND MOUNT CONFIGURATION.
3. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

2 TOWER ELEVATION SCALE: NOT TO SCALE

1 DETAILED SITE PLAN



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



**PROPOSED CABLE LENGTH:**  
ESTIMATED LENGTH OF PROPOSED CABLE IS 273'. 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).

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

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OF SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	GD	08/14/19
2	GROUND WORK	TC	04/03/20

ATC SITE NUMBER:  
**88008**

ATC SITE NAME:  
**BETHANY CT**

SITE ADDRESS:  
93 OLD AMITY ROAD  
BETHANY, CT 06524

SEAL:



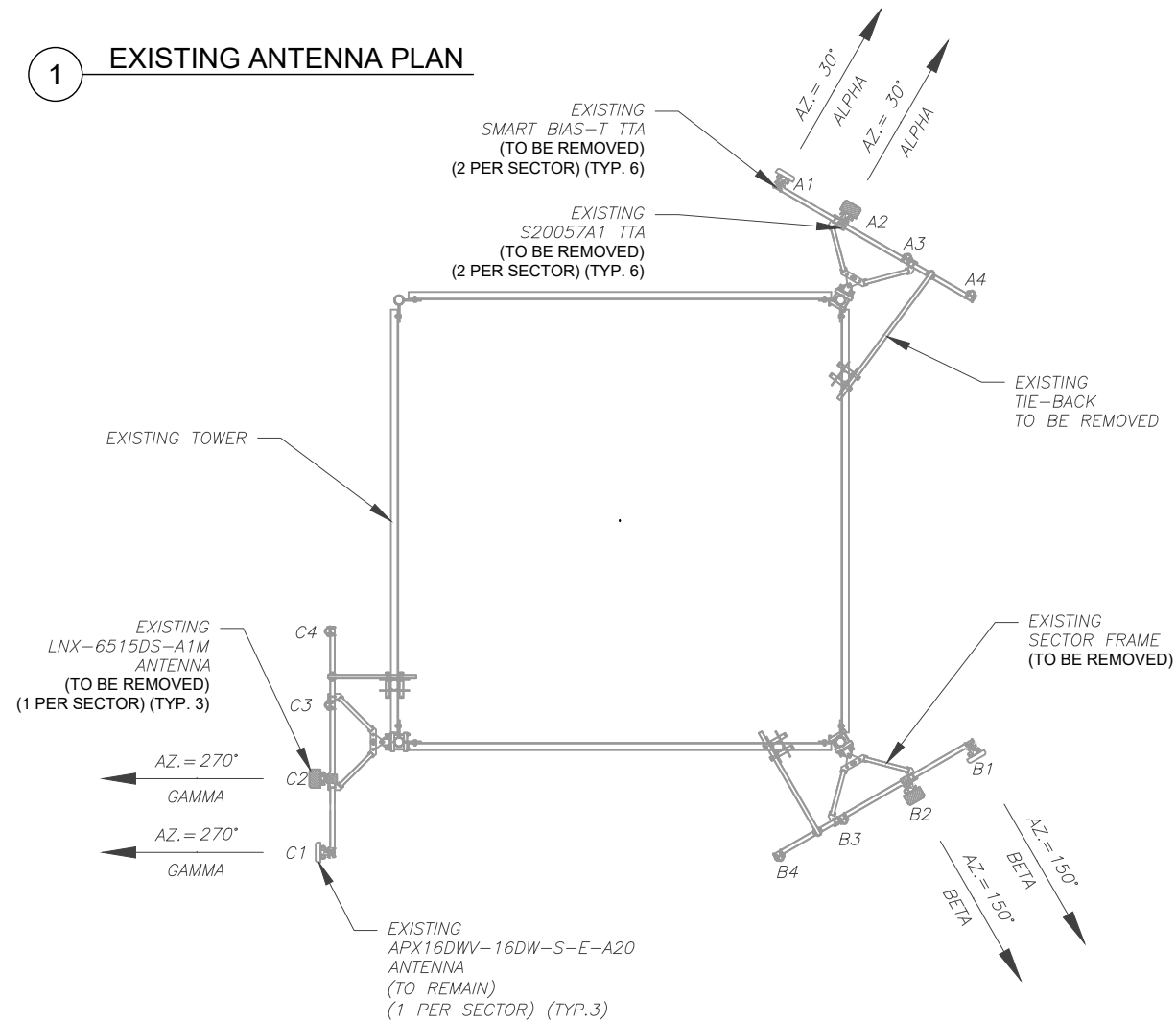
Authorized by "EOR"  
Apr 10 2020 6:28 PM  
**T-Mobile** cosign

DRAWN BY:	GD
APPROVED BY:	PPB
DATE DRAWN:	08/14/19
ATC JOB NO:	12978827

**DETAILED SITE PLAN & TOWER ELEVATION**

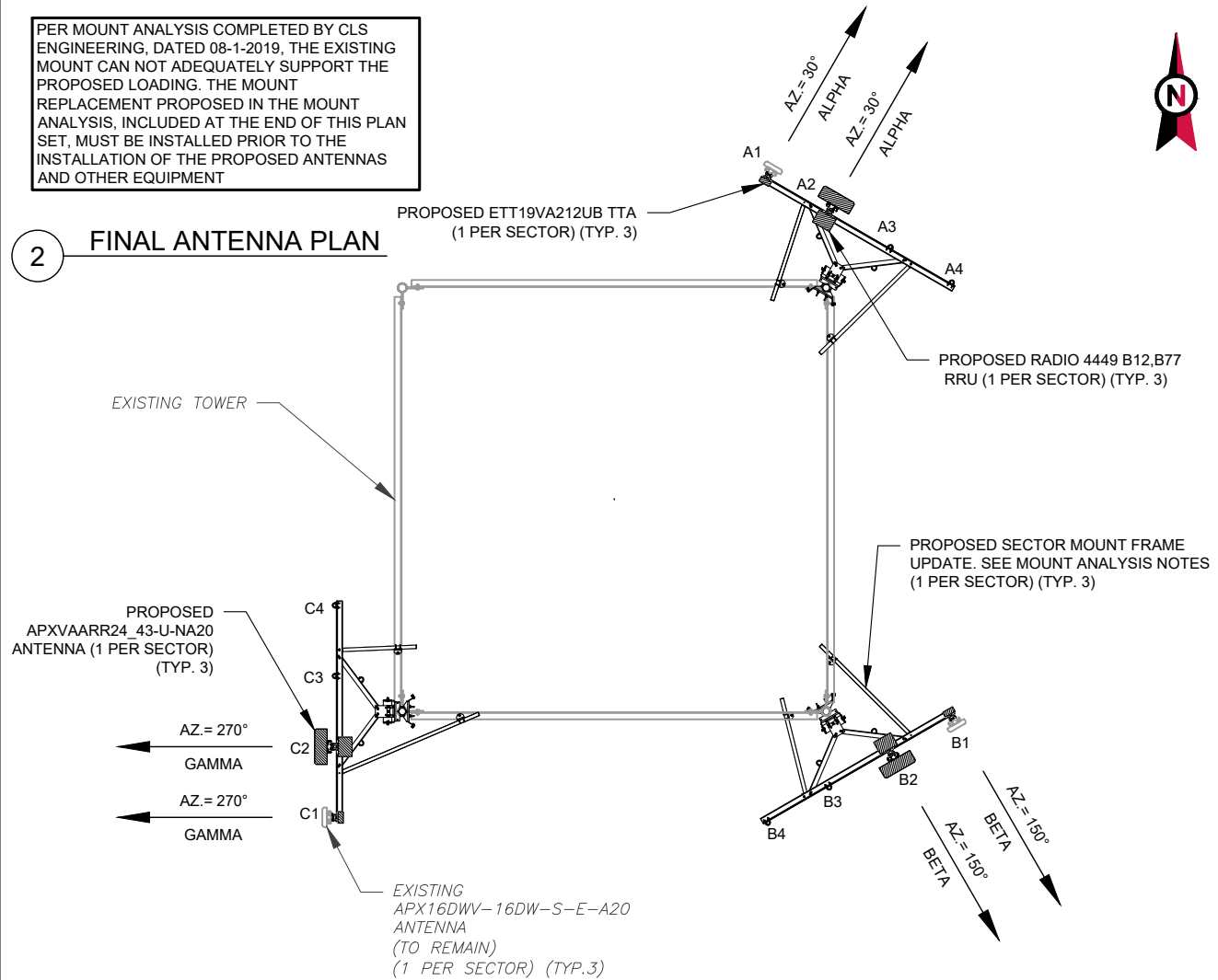
SHEET NUMBER:	REVISION:
<b>C-101</b>	<b>2</b>

1 EXISTING ANTENNA PLAN



PER MOUNT ANALYSIS COMPLETED BY CLS ENGINEERING, DATED 08-1-2019, 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

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	APX16DWV-16DW-S-E-A20	222'-0"	30°	0°	2°	S20057A1
ALPHA	A2	LN-6515DS-A1M	222'-0"	30°	0°	2°	(2) SMART BIAS-T
ALPHA	A3	-	-	-	-	-	-
ALPHA	A4	-	-	-	-	-	-
BETA	B1	APX16DWV-16DW-S-E-A20	222'-0"	150°	0°	2°	S20057A1
BETA	B2	LN-6515DS-A1M	222'-0"	150°	0°	2°	(2) SMART BIAS-T
BETA	B3	-	-	-	-	-	-
BETA	B4	-	-	-	-	-	-
GAMMA	C1	APX16DWV-16DW-S-E-A20	222'-0"	270°	0°	2°	S20057A1
GAMMA	C2	LN-6515DS-A1M	222'-0"	270°	0°	2°	(2) SMART BIAS-T
GAMMA	C3	-	-	-	-	-	-
GAMMA	C4	-	-	-	-	-	-

NOTES

- BASED ON APPROVED ATC APPLICATION 12948439, DATED 06/06/2019. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
- 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.
- ALL PROPOSED EQUIP INCLUDING ANTENNAS, COAX, ETC. SHALL BE MOUNTED IN ACCORDANCE WITH THE TOWER STRUCTURAL ANALYSIS ON FILE WITH ATC'S CM.
- CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.
- 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	APX16DWV-16DW-S-E-A20	222'-0"	30°	0°	2°	ETT19VA12UB
ALPHA	A2	APXVAARR24_43-U-NA20	222'-0"	30°	0°	2°	RADIO 4449 B12-B71
ALPHA	A3	-	-	-	-	-	-
ALPHA	A4	-	-	-	-	-	-
BETA	B1	APX16DWV-16DW-S-E-A20	222'-0"	150°	0°	2°	ETT19VA12UB
BETA	B2	APXVAARR24_43-U-NA20	222'-0"	150°	0°	2°	RADIO 4449 B12-B71
BETA	B3	-	-	-	-	-	-
BETA	B4	-	-	-	-	-	-
GAMMA	C1	APX16DWV-16DW-S-E-A20	222'-0"	270°	0°	2°	ETT19VA12UB
GAMMA	C2	APXVAARR24_43-U-NA20	222'-0"	270°	0°	2°	RADIO 4449 B12-B71
GAMMA	C3	-	-	-	-	-	-
GAMMA	C4	-	-	-	-	-	-

CURRENT FIBER DISTRIBUTION/OVP BOX		CURRENT CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	-	RMN
-	-	(6) 1-5/8" (1) 3/8"	-	RMV

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

3 ANTENNA SCHEDULE

PROPOSED FIBER DISTRIBUTION/OVP BOX		PROPOSED CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	(6) 1-5/8"	-	RMN
-	-	-	(3) 1-1/4"	ADD

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

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	GD	08/14/19
1	ANTENNA UPDATE	GD	10/07/19

ATC SITE NUMBER:  
**88008**

ATC SITE NAME:  
**BETHANY CT**

SITE ADDRESS:  
93 OLD AMITY ROAD  
BETHANY, CT 06524

SEAL:

Authorized by "EOR"  
 Apr 10 2020 6:28 PM

DRAWN BY:	GD
APPROVED BY:	PPB
DATE DRAWN:	08/14/19
ATC JOB NO:	12978827

ANTENNA INFORMATION & SCHEDULE	
SHEET NUMBER:	REVISION:
<b>C-501</b>	<b>1</b>



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

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	GD	08/14/19
3	MOUNTING PIPE SIZE	TC	04/10/20

ATC SITE NUMBER:

**88008**

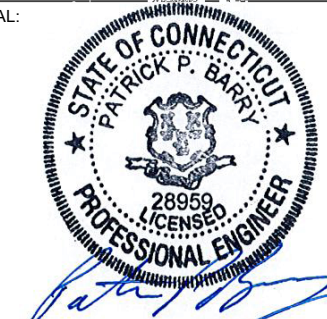
ATC SITE NAME:

**BETHANY CT**

SITE ADDRESS:

93 OLD AMITY ROAD  
 BETHANY, CT 06524

SEAL:



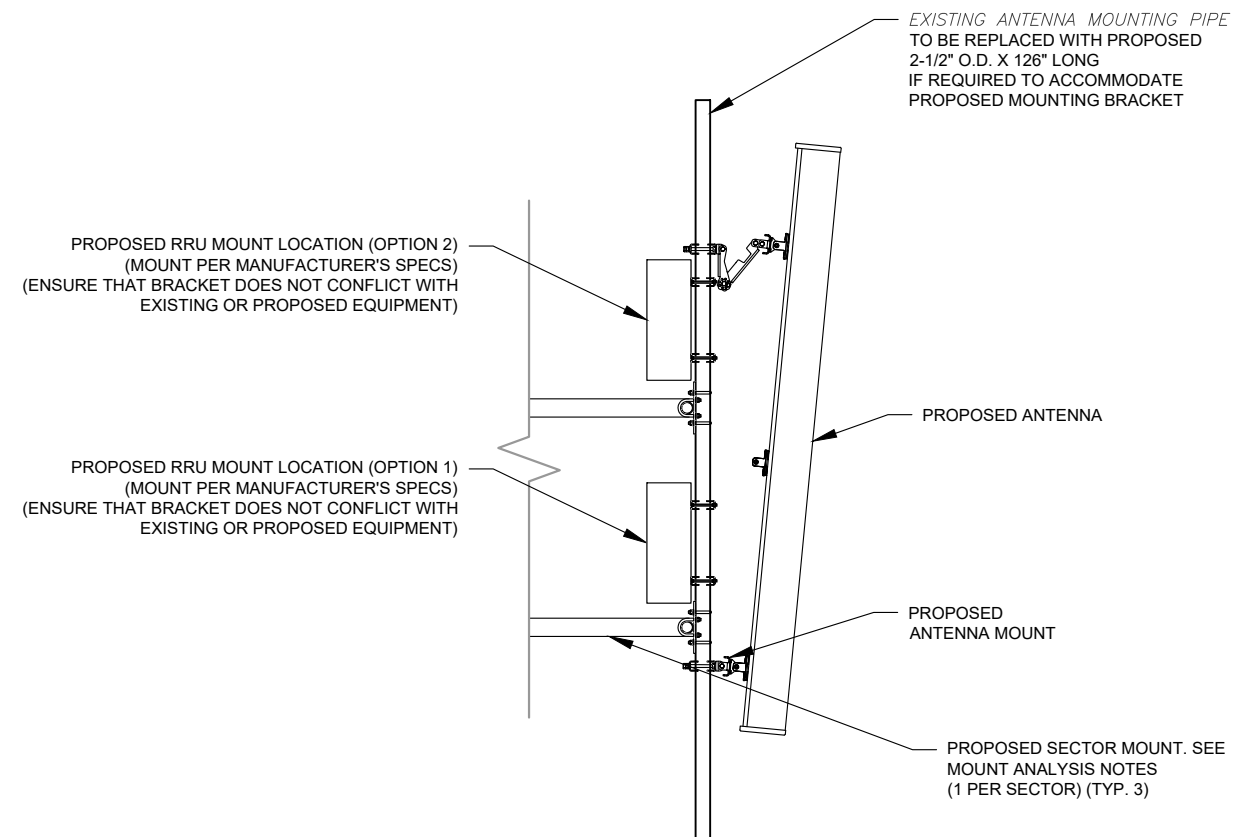
Authorized by "EOR"

Apr 10 2020 6:28 PM

DRAWN BY:	GD
APPROVED BY:	PPB
DATE DRAWN:	08/14/19
ATC JOB NO:	12978827

**MOUNT DETAILS**

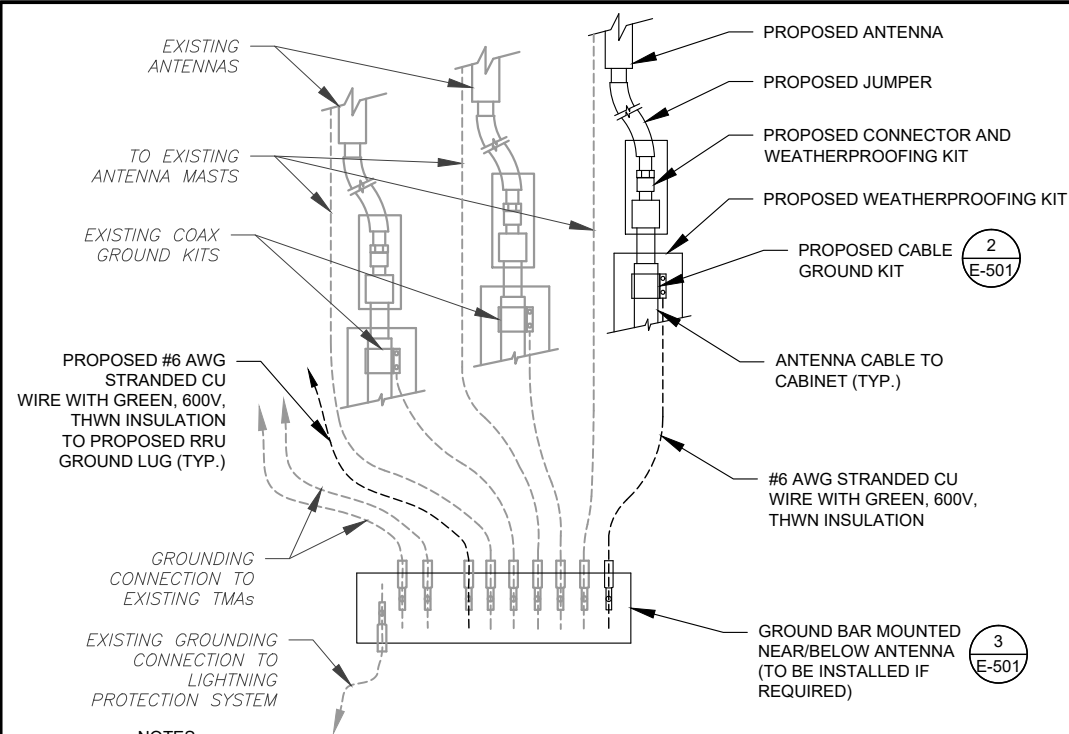
SHEET NUMBER:	REVISION:
<b>C-502</b>	<b>3</b>



**1** PROPOSED ANTENNA & RRU MOUNTING DETAIL - TYPICAL  
 SCALE: NOT TO SCALE

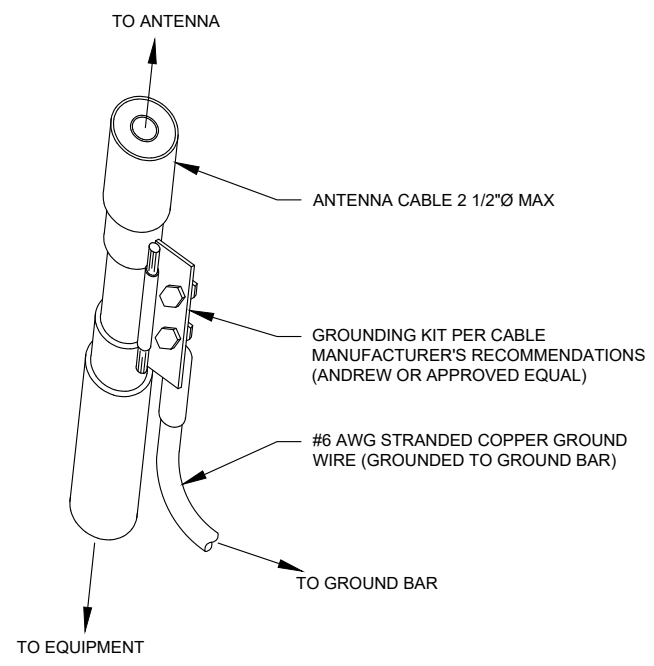
Copyright © 2020 ATC IP, LLC. All Rights Reserved.





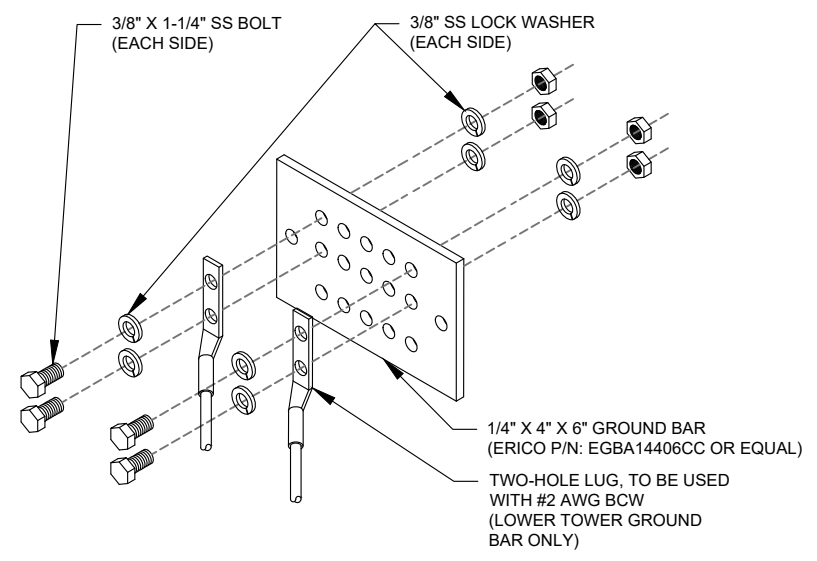
- NOTES:**
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
  2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE 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



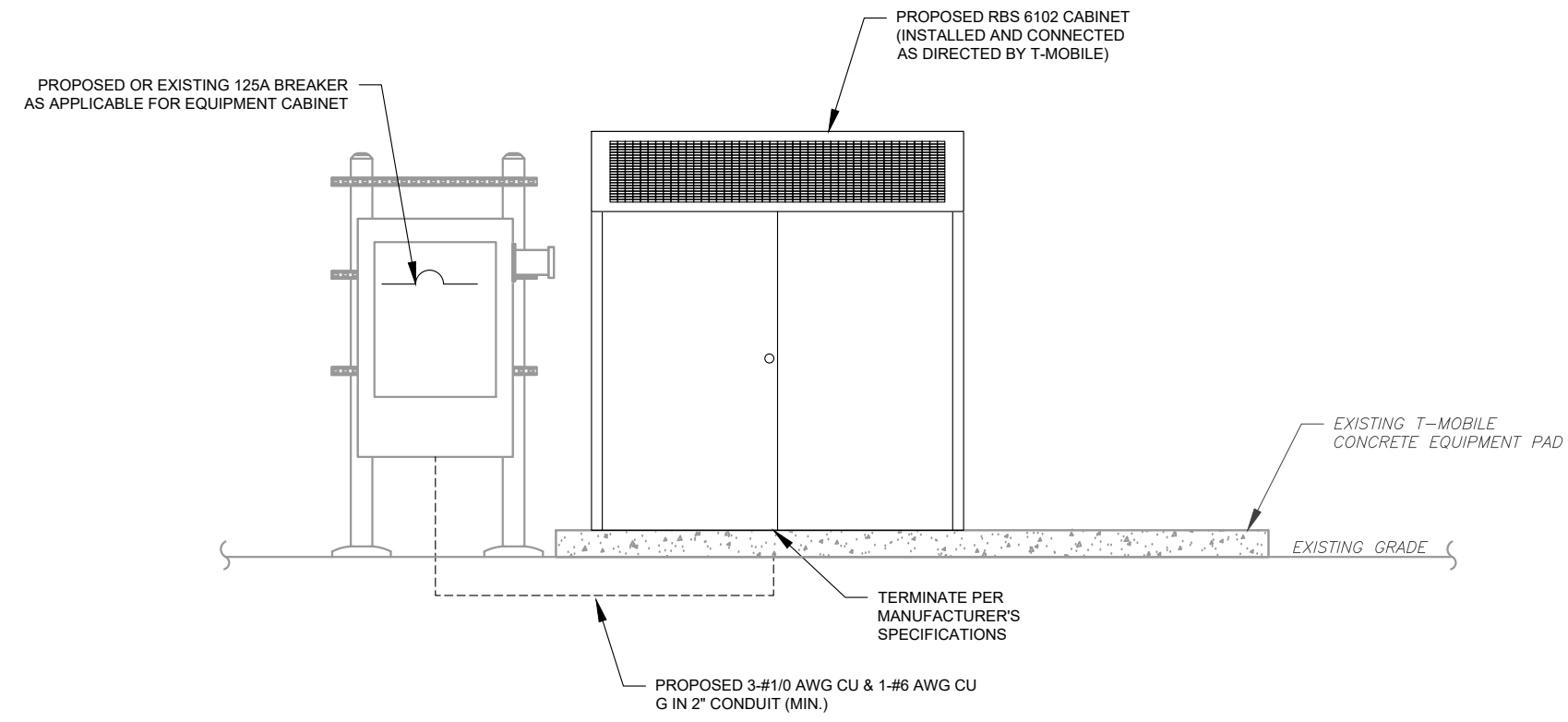
- GROUND KIT NOTES:**
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
  2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

**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



**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

THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OF SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED CARRIER IS STRICTLY PROHIBITED. TITLE TO THESE DOCUMENTS SHALL REMAIN THE PROPERTY OF AMERICAN TOWER WHETHER OR NOT THE PROJECT IS EXECUTED. NEITHER THE ARCHITECT NOR THE ENGINEER WILL BE PROVIDING ON-SITE CONSTRUCTION REVIEW OF THIS PROJECT. CONTRACTOR(S) MUST VERIFY ALL DIMENSIONS AND ADVISE AMERICAN TOWER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION ON FILE WITH AMERICAN TOWER.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	GD	08/14/19
2	GROUND WORK	TC	04/03/20

ATC SITE NUMBER:  
**88008**

ATC SITE NAME:  
**BETHANY CT**

SITE ADDRESS:  
93 OLD AMITY ROAD  
BETHANY, CT 06524

SEAL:

Authorized by "EOR"  
 Apr 10 2020 6:28 PM  
 cosign

DRAWN BY:	GD
APPROVED BY:	PPB
DATE DRAWN:	08/14/19
ATC JOB NO:	12978827

<b>GROUNDING DETAILS</b>	
SHEET NUMBER: <b>E-501</b>	REVISION: <b>2</b>

Copyright © 2020 ATC IP, LLC. All Rights Reserved.

Existing RAN Equipment		
Template: 704E		
Enclosure	1	2
Enclosure Type	RBS 6201 ODE	RBS 6201 ODE
Baseband	DUG20 G1900    DUS41 L2100	DUS41 L700
Radio	RUS01 B2 (x3) G1900    RUS01 B4 (x6) L2100	RUS01 B12 (x6) L700

Proposed RAN Equipment		
Template: 67D05F		
Enclosure	1	2
Enclosure Type	RBS 6201 ODE	RBS 6102 MU AC
Baseband	DUG20    BB 6630    BB 6630 G1900    L2100    N600 (DARI) L700 L600	
Hybrid Cable System	Ericsson 6x12 HCS "Select Length & AWG" (x3)	
Multiplexer		XMU
Radio	RUS01 B2 (x3) G1900    RUS01 B4 (x6) L2100	

**RAN Scope of Work:**

\*\*\* Existing Cabinets are RBS6201 ODE (2 in total) \*\*\*  
 \*\*\* (2) DUS41 : one for L2100 and one for L700 \*\*\*

In first RBS6201 ODE:  
 Replace DUS41 with (1) BB6630 for LTE.  
 Add (1) BB6630 for future 5G N600.

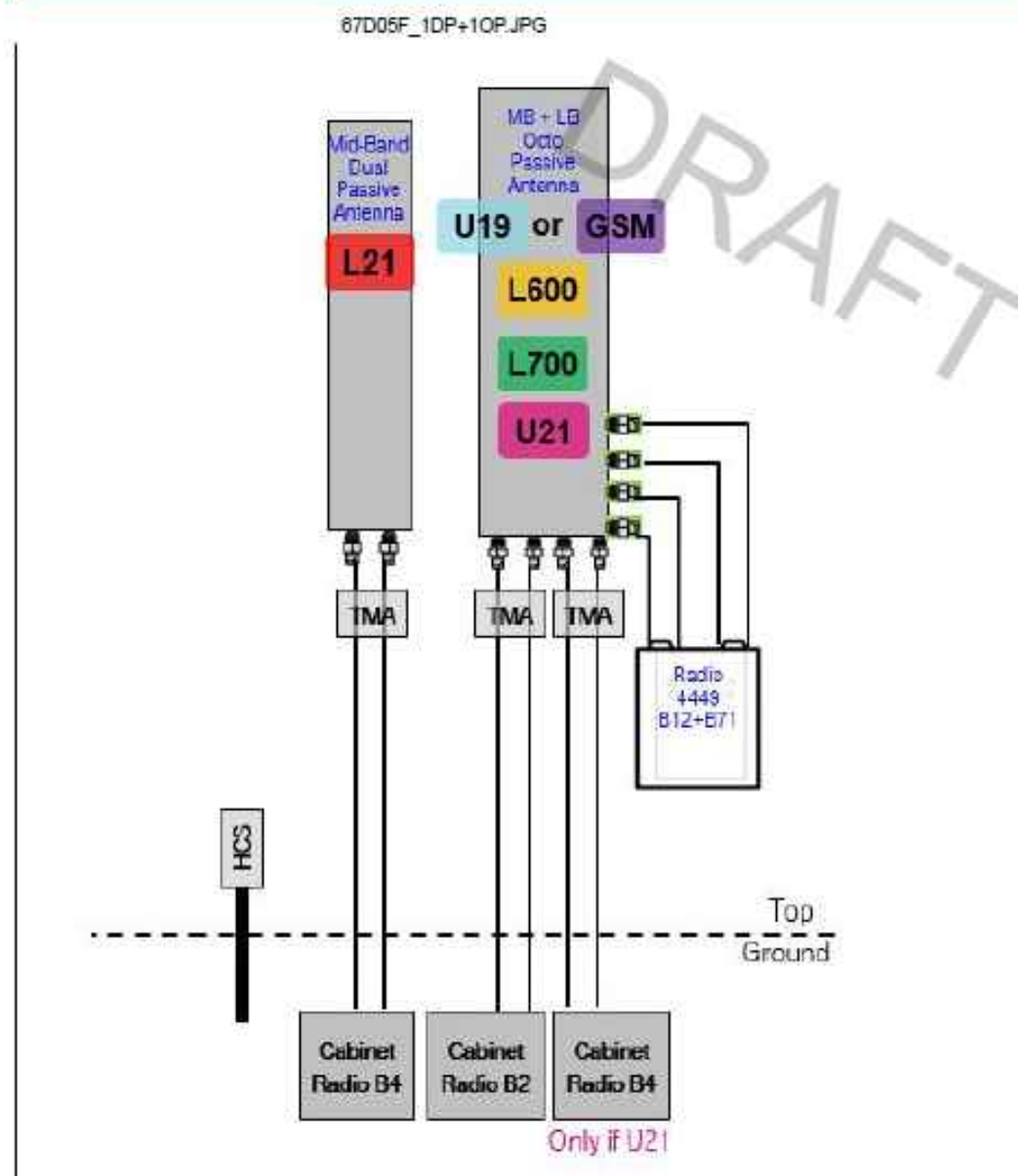
Remove second RBS6201 ODE for L700.

Install (1) RBS6102 MU AC for power support.  
 Add (1) XMU to new RBS6102 MU AC.

Add (3) 6X12 HCS.  
 Existing (12) Coaxial Lines  
 Remove (6) Coaxial Lines for new total of (6).

1 CABINET CONFIGURATION  
 SCALE: NOT TO SCALE

Section 3 - Proposed Template Images



Notes:

2 ANTENNA CONFIGURATION  
 SCALE: NOT TO SCALE

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

SUPPLEMENTAL	
SHEET NUMBER: <b>R-601</b>	REVISION: <b>0</b>

**Mount Analysis of Proposed Perfect Vision PV-SFA-B Sector Frames for American Tower on behalf of T-Mobile**

**88008 - Bethany CT**

**Project #: 12948439**

**T-Mobile Site ID: CTNH217A**

**Program: L600**

CLS Engineering PLLC Project #41124-12948439-01-MR

August 1, 2019

MOUNT DESCRIPTION	Proposed Perfect Vision PV-SFA-B Sector Frames at 222 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 222 ft AGL
SITE DESCRIPTION	337.5 ft Self-Supporting Tower
SITE ADDRESS	93 Old Amity Road, Bethany, CT 06524-3400, New Haven County
GPS COORDINATES	41.40475833, -72.99998333
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, $V_{ult}$ / 97 mph, $V_{asd}$ (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75" Ice

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

MEMBER USAGE	51%	Pass
--------------	-----	------

Existing mounts to be replaced; see conclusion for details.

Prepared by:  
A.J. Ingalls, E.I.

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



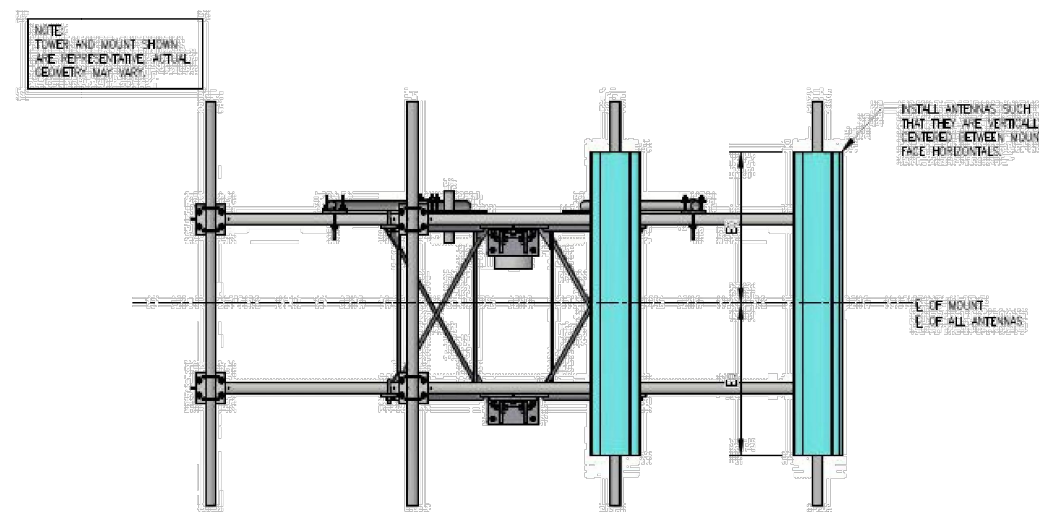
Tyler M. Barker  
CLS Engineering, PLLC  
Director of Engineering  
PE # 32402 Exp. 1/31/2020  
COA # PEC.001833 Exp. 8/14/2019

Digitally signed by Tyler Barker  
DN: c=US,  
o=Telamon Corporation,  
ou=A01427E0000016A4525ADF800001D17,  
cn=Tyler Barker  
Date: 2019.08.01 14:42:39 -04'00'

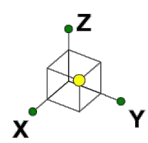
■ CONCLUSION AND RECOMMENDATIONS

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:

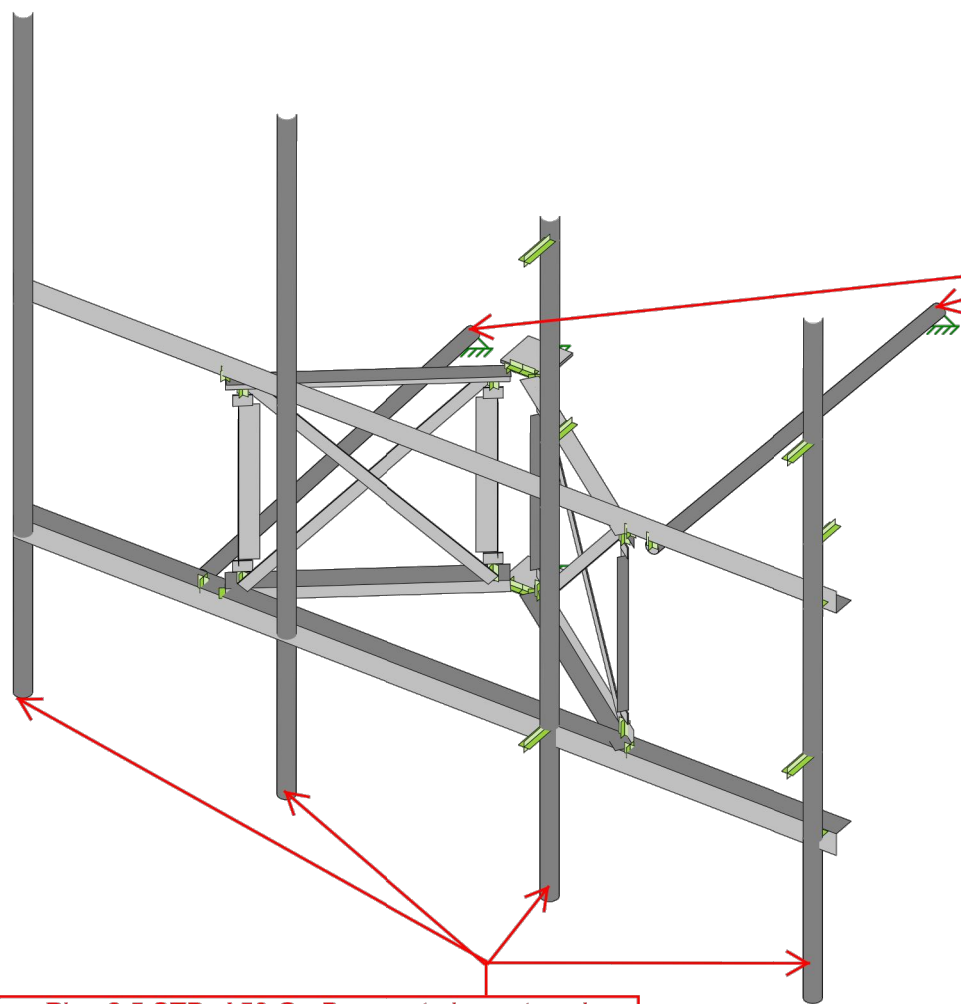
- Replace existing Sector Frame mounts with (3) proposed Perfect Vision PV-SFA-B Sector Frame kits.
- Connect sector frame mounts to tower leg using Perfect Vision PV-SFA-8016 Mount Leg Adapter Kit.
- Install (4) 10'-6" long Pipe 2.5 STD, A53 Gr. B, mount pipes at each sector frame mount (12 total). Connect mount pipes to upper and lower face horizontal angle members with 1/2" Ø U-Bolts such that the mount pipes are vertically centered on the mount.
- Install (2) stiff arms included in the sector frame kit at each sector frame mount (6 total). Connect to tower diagonal bracing angles with Perfect Vision PV-SAM-U or equal (6 total). Connect to upper and lower face horizontal angle members as shown in the following sketches.
- Install proposed antennas such that they are vertically centered on the mounts. Install proposed RRUS and TMAs behind the antennas.



See following sketches and Perfect Vision drawings for additional details.



Replace existing Sector Frame mounts with (3) proposed Perfect Vision PV-SFA-B Sector Frame kits.



Install (2) stiff arms included in the sector frame kit at each sector frame mount (6 total). Connect to tower diagonal bracing angles with Perfect Vision PV-SAM-U or equal (6 total). Connect to upper and lower face horizontal angle members as shown in the following sketches.

Install (4) 10'-6" long Pipe 2.5 STD, A53 Gr. B, mount pipes at each sector frame mount (12 total). Connect mount pipes to upper and lower face horizontal angle members with 1/2" Ø U-Bolts such that the mount pipes are vertically centered on the mount.

Envelope Only Solution

CLS	41124-12948439-Bethany CT Recommended Replacement Mount - Rendered	IN - 1
AJI		July 31, 2019 at 5:15 PM
41124-12948439-01-MR		41124-12948439-01-MR.r3d

# Exhibit D

## **Structural Analysis Report**



**AMERICAN TOWER®**  
CORPORATION

---

## Structural Analysis Report

**Structure** : 337.5 ft Self Supported Tower  
**ATC Site Name** : BETHANY CT, CT  
**ATC Asset Number** : 88008  
**Engineering Number** : 12948439\_C3\_03  
**Proposed Carrier** : T-Mobile  
**Carrier Site Name** : CTNH217/ATC-Bethany  
**Carrier Site Number** : CTNH217A  
**Site Location** : 93 Old Amity Road  
Bethany, CT 06524-3400  
41.404800,-73.000000  
**County** : New Haven  
**Date** : April 6, 2020  
**Max Usage** : 97%  
**Result** : Pass

Prepared By:  
Adam Pittman  
Structural Engineer II

Reviewed By:



Authorized by "EOR"  
06 Apr 2020 11:09:32

**COA: PEC.0001553**



**Table of Contents**

Introduction .....	1
Supporting Documents .....	1
Analysis .....	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment .....	2
Structure Usages .....	3
Foundations .....	3
Standard Conditions .....	4
Calculations .....	Attached



## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 337.5 ft self supported tower to reflect the change in loading by T-Mobile .

## Supporting Documents

<b>Tower Drawings</b>	CSEI Analysis ATC Engineering #73115244, dated November 18, 2002
<b>Foundation Drawing</b>	Mapping by ETS Project #120302.01, dated June 18, 2012
<b>Geotechnical Report</b>	Geotel Report #E12-221, dated June 5, 2012
<b>Modifications</b>	ATC Job #OAA712592_C6_13, dated August 13, 2018

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

<b>Basic Wind Speed:</b>	97 mph (3-Second Gust, Vasd) / 125 mph (3-Second Gust, Vult)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 3/4" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2015 IBC / 2018 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.19, S_1 = 0.06$
<b>Site Class:</b>	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](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.





**Existing and Reserved Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
340.0	340.0	1	Rohde & Schwarz ADD090	Leg	(2) 7/8" Coax	US Dept Of Homeland Security
326.0	326.0	1	Kathrein 750 10074	Platform w/ Handrails	(1) 1 5/8" Coax	Ligado Networks
317.0	317.0	1	Sinclair SC281-L	Leg	(1) 7/8" Coax	US Dept Of Homeland Security
314.0	314.0	1	Sinclair SC381-HL	Leg	(1) 7/8" Coax	
300.0	300.0	1	Abandoned Line	Leg	(1) 1/2" Coax	
291.0	291.0	2	8' Omni	Side Arm	-	--
283.0	283.0	1	Sinclair SC281-L	Sector Frame	(1) 7/8" Coax	US Dept Of Homeland Security
266.0	266.0	1	8' Omni	Side Arm	-	--
253.0	253.0	12	Decibel DB844H90E-XY	Leg	(12) 1 5/8" Coax	Sprint Nextel
243.0	243.0	3	RFS APXVSP18-C-A20	Sector Frame	(3) 1 1/4" Hybriflex	
238.0	238.0	3	Alcatel-Lucent 800MHz 2X50W RRH w/ Filter		-	
		3	Alcatel-Lucent 1900MHz 4X45 RRH		-	
222.0	222.0	3	RFS APX16DWV-16DWVS-E-A20	-	(6) 1 5/8" Coax	T-Mobile
213.0	213.0	1	Andrew DB616E-BC	Side Arm	(1) 1 1/4" Coax	US Dept Of Homeland Security
184.0	184.0	6	RFS FD9R6004/1C-3L	Low Profile Platform	(12) 1 5/8" Coax	Verizon
		3	Rymsa MGD3-800TX			
		6	Andrew DB844H90E-XY			
		3	Powerwave P65-16-XL-2			
158.0	158.0	3	Powerwave LGP21901	Sector Frame	(6) 1 5/8" Coax (2) 0.78" 8 AWG 6 (1) 3" conduit (1) 0.39" Fiber Trunk	AT&T Mobility
		3	Raycap DC2-48-60-0-9E			
		6	Powerwave LGP21401			
		1	Raycap FC12-PC6-10E			
		3	Ericsson RRUS 11 (Band 12)			
		3	Powerwave 7770.00			
		1	KMW AM-X-CD-16-65-00T-RET			
		2	Andrew SBNH-1D6565C			
147.0	147.0	1	Procom CXL 900-3LW	Side Arm	(1) 1/2" Coax	SigfoxS.A.
		1	5" x 3" x 2" Cavity Filter			
		1	Low Noise Amplifier			
103.0	103.0	3	RFS APXV18-206517S-C	Flush	(6) 1 5/8" Coax	Metro PCS
48.0	48.0	1	PCTEL GPS-TMG-HR-26N	Stand-Off	(1) 1/2" Coax	Sprint Nextel



**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
222.0	222.0	3	Andrew LNX-6515DS-VTM	Sector Frame	(6) 1 5/8" Coax (1) 3/8" Coax	T-Mobile
		6	Remec S20057A1			
		6	KMW Smart Bias-T			

**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
222.0	222.0	3	Andrew ETT19V2A12UB	Perfect Vision PV-SFA-B Sector Frames	(3) 1 1/4" Fiber	T-Mobile
		3	Ericsson Radio 4449 B12,B71			
		3	RFS APXVAARR24_43-U-NA20			

<sup>1</sup>Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax alongside existing coax.



### **Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Legs	85%	Pass
Diagonals	94%	Pass
Trussed Diagonals	97%	Pass
Horizontals	86%	Pass
Trussed Horizontals	74%	Pass
Anchor Bolts	44%	Pass

### **Foundations**

Reaction Component	Analysis Reactions	% of Usage
Uplift (Kips)	306.3	54%
Axial (Kips)	446.4	3%

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.



## **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:

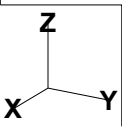
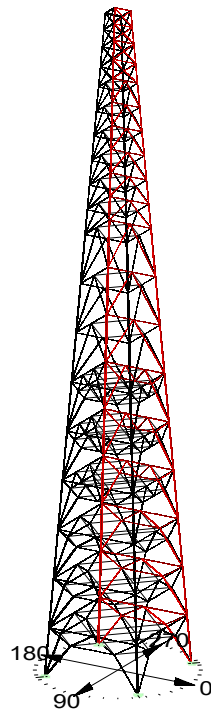
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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.



Project Name : 88008 - Bethany CT, CT  
 Project Notes: 137.5' AT&T Flag Self-Supported Tower  
 Project File : X:\A-B\Bethany CT, CT (88008)\12948439 T-MOBILE\12948439\_03\_CUST\_STR\12948439 - TMO.twd  
 Date run : 3:32:09 PM Monday, April 6, 2020  
 By : Tower Version 16.01  
 Licensed to : American Tower Corp.

Successfully performed nonlinear analysis

Member check option: ANSII/TIA 222-G-1  
 Connection rupture check: Not Checked  
 Crossing diagonal check: Fixed  
 Included angle check: None  
 Climbing load check: None  
 Redundant members checked with: Actual Force  
 Loads from file: X:\A-B\Bethany CT, CT (88008)\12948439 T-MOBILE\12948439\_01\_CUST\_STRUCTRL\12948439 - TMO.eia

\*\*\* Analysis Results:

Maximum element usage is 97.48% for Angle \*LD 15X\* in load case \*W -90\*

Foundation Design Forces For All Load Cases:

Note: loads are factored.

Load Case	Foundation Description	Foundation Force (kips)	Foundation Force (kips)	Axial Force (kips)	Shear Force (kips)	Bending Moment (ft-k)	Foundation Usage %
W 0	OP	320.62	50.79	5.03		0.00	
W 0	OX	315.27	49.90	4.79		0.00	
W 0	OXY	-181.32	35.53	5.42		0.00	
W 0	OY	-180.33	36.18	5.62		0.00	
W 180	OP	-177.14	36.05	5.67		0.00	
W 180	OX	-177.89	35.48	5.49		0.00	
W 180	OXY	111.84	49.89	4.87		0.00	
W 180	OY	317.43	50.66	5.09		0.00	
W 45	OP	446.40	66.89	4.42		0.00	
W 45	OX	67.16	24.42	5.64		0.00	
W 45	OXY	-306.33	53.19	5.94		0.00	
W 45	OY	67.01	24.37	5.62		0.00	
W -45	OP	71.83	25.54	5.88		0.00	
W -45	OX	441.74	66.50	4.46		0.00	
W -45	OXY	65.35	23.71	5.46		0.00	
W -45	OY	-304.67	53.29	6.00		0.00	
W 90	OP	320.72	50.82	5.04		0.00	
W 90	OX	-180.29	36.20	5.63		0.00	
W 90	OXY	-181.22	35.50	5.41		0.00	
W 90	OY	315.03	49.87	4.79		0.00	
W -90	OP	-177.24	36.08	5.68		0.00	
W -90	OX	317.68	50.69	5.10		0.00	
W -90	OXY	311.74	49.82	4.86		0.00	
W -90	OY	177.93	35.46	5.48		0.00	
W 0 Ice	OP	178.10	23.50	1.74		0.00	
W 0 Ice	OX	173.81	23.09	1.65		0.00	
W 0 Ice	OXY	51.85	4.60	3.23		0.00	
W 0 Ice	OY	55.48	4.70	3.30		0.00	
W 180 Ice	OP	59.42	5.06	3.35		0.00	
W 180 Ice	OX	56.13	4.88	3.32		0.00	
W 180 Ice	OXY	169.53	22.97	1.61		0.00	
W 180 Ice	OY	174.17	23.27	1.73		0.00	
W 45 Ice	OP	210.76	28.53	1.03		0.00	
W 45 Ice	OX	114.61	14.03	2.63		0.00	
W 45 Ice	OXY	19.41	2.16	3.57		0.00	
W 45 Ice	OY	114.47	14.02	2.63		0.00	
W -45 Ice	OP	118.75	14.48	2.71		0.00	
W -45 Ice	OX	286.61	28.21	1.00		0.00	
W -45 Ice	OXY	110.69	13.92	2.57		0.00	
W -45 Ice	OY	23.19	2.04	3.65		0.00	
W 90 Ice	OP	178.12	23.50	1.74		0.00	
W 90 Ice	OX	55.61	4.71	3.30		0.00	
W 90 Ice	OXY	51.87	4.60	3.23		0.00	
W 90 Ice	OY	173.65	23.08	1.64		0.00	
W -90 Ice	OP	59.40	5.06	3.35		0.00	
W -90 Ice	OX	174.33	23.28	1.73		0.00	
W -90 Ice	OXY	169.51	22.96	1.61		0.00	
W -90 Ice	OY	56.01	4.87	3.31		0.00	

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Trans. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Trans. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
W 0	OP	-44.58	22.42	-315.27	49.90	0.74	-4.74	4.79	2.99	0.00
W 0	OX	-33.18	-12.71	181.32	35.53	0.49	-5.39	5.42	2.66	0.00
W 0	OXY	-34.10	12.08	180.33	36.18	-0.38	-5.60	5.62	-2.64	0.00
W 0	OY	34.07	11.79	-177.14	36.05	0.37	5.66	5.67	2.65	0.00
W 180	OP	33.21	-12.48	177.89	35.48	0.50	5.47	5.49	-2.67	0.00
W 180	OXY	44.62	22.24	-311.84	49.85	0.72	4.81	4.87	-3.00	0.00
W 180	OY	45.87	21.55	-317.91	34.66	-0.99	4.99	5.09	3.01	0.00
W 45	OP	-47.27	-47.32	-446.40	66.89	3.13	-3.12	4.42	4.09	0.00
W 45	OX	-21.64	-11.32	-67.16	24.42	4.48	-3.42	5.64	-0.09	0.00
W 45	OXY	-37.63	-37.59	306.33	53.19	4.20	-4.20	5.94	-0.00	0.00
W 45	OY	-11.29	-67.01	24.37	3.41	4.47	5.62	4.09	0.00	0.00
W -45	OP	-22.67	11.76	-71.83	25.54	-4.67	-3.56	5.88	-4.10	0.00
W -45	OX	-46.29	47.75	-441.74	66.50	-3.32	-2.97	4.46	-0.01	0.00
W -45	OXY	-10.68	21.57	-65.35	23.71	-3.35	4.31	5.10	-3.01	0.00
W -45	OY	-38.19	37.16	304.67	53.29	-4.14	-4.35	6.00	0.02	0.00
W 90	OP	-21.77	-45.92	-320.72	50.82	4.95	0.99	5.04	3.00	0.00
W 90	OX	12.06	34.14	180.29	36.20	5.61	6.48	5.63	2.64	0.00
W 90	OXY	-12.72	-33.14	181.22	35.50	5.39	-0.50	5.41	-2.66	0.00
W 90	OY	22.43	-44.54	-315.03	49.87	4.73	-0.73	4.79	-2.99	0.00
W -90	OP	11.78	34.10	177.24	36.08	-5.67	0.37	5.68	-2.65	0.00
W -90	OX	-21.53	45.89	-317.68	50.69	-5.00	1.00	5.10	3.01	0.00
W -90	OXY	22.26	44.57	-311.74	49.82	-4.81	-0.71	4.86	3.00	0.00
W -90	OY	-12.51	33.18	177.93	35.46	-5.46	-0.51	5.48	2.67	0.00
W 0 Ice	OP	18.37	13.87	-173.81	23.50	-1.78	0.42	1.74	-0.65	0.00
W 0 Ice	OX	-18.38	13.98	-173.81	23.09	1.57	0.48	1.65	0.64	0.00
W 0 Ice	OXY	-0.13	4.59	-51.85	4.60	1.63	-2.79	3.23	0.63	0.00
W 0 Ice	OY	-0.09	-4.70	-55.48	4.70	-1.68	-2.84	3.30	-0.62	0.00
W 180 Ice	OP	0.05	-0.06	-59.42	5.06	-1.66	2.91	3.35	0.63	0.00
W 180 Ice	OX	0.17	4.88	-56.13	4.88	1.64	2.88	3.32	-0.65	0.00
W 180 Ice	OXY	18.42	13.72	-169.53	22.97	1.56	-0.38	1.61	-0.65	0.00
W 180 Ice	OY	-19.42	-15.54	-174.17	23.27	-1.74	0.25	1.73	0.66	0.00
W 45 Ice	OP	-20.17	-20.18	-210.76	28.53	-0.73	0.73	1.03	0.00	0.00
W 45 Ice	OX	-12.83	5.69	-114.61	14.03	2.52	0.77	2.63	0.95	0.00
W 45 Ice	OXY	-1.53	-1.53	-19.41	2.16	2.53	-2.53	3.57	-0.00	0.00
W 45 Ice	OY	5.95	-81.44	47.32	34.02	-0.77	-2.81	2.63	0.95	0.00
W -45 Ice	OP	-13.35	-5.62	-118.75	14.48	-2.61	0.72	2.71	-0.96	0.00
W -45 Ice	OX	-19.65	20.24	-206.61	28.21	0.63	0.78	1.00	-0.01	0.00
W -45 Ice	OXY	5.59	12.75	-110.69	13.92	0.71	-2.47	2.57	0.96	0.00
W -45 Ice	OY	-1.43	1.46	-23.19	2.04	-2.59	-2.57	3.65	0.01	0.00
W 90 Ice	OP	-13.86	-18.98	-178.12	23.50	-0.41	1.69	1.74	0.65	0.00
W 90 Ice	OX	-4.71	-0.09	-55.61	4.71	2.85	1.68	3.30	0.62	0.00
W 90 Ice	OXY	4.60	0.13	-51.87	4.60	2.79	-1.63	3.23	-0.63	0.00
W 90 Ice	OY	13.98	-18.36	-173.65	23.08	-0.48	-1.57	1.64	-0.64	0.00
W -90 Ice	OP	-5.06	0.05	-59.40	5.06	-2.91	1.66	3.35	-0.63	0.00
W -90 Ice	OX	13.54	18.94	-174.33	23.28	0.35	1.70	1.73	-0.66	0.00
W -90 Ice	OXY	13.73	18.40	-169.51	22.96	0.38	-1.56	1.61	0.65	0.00
W -90 Ice	OY	4.87	0.17	-56.01	4.87	-2.88	-1.64	3.31	0.65	0.00

Summary of Joint Support Reactions For All Load Cases in Direction of Leg:

Load Case	Support	Joint Member	Leg Force (kips)	In Plane Force (kips)	Residual Shear (kips)	Residual Shear (kips)	Residual Shear (kips)	Residual Shear (kips)	Long. Force (kips)	Total Long. Force (kips)	Total Trans. Force (kips)	Total Vert. Force (kips)
W 0	OP	1P	233.61	50.79	25.513				446.40	25.513	1.425	-45.88
W 0	OX	1X	318.248		24.616			24.675	-2.390	-44.58	22.42	-315.27
W 0	OXY	1XY	-183.497		21.647			21.695	1.190	-33.18	-12.71	181.32
W 0	OY	1Y	-182.524		22.609			22.657	-0.628	34.10	12.08	180.33
W 180	OP	1P	179.327		25.876			25.924	-0.542	34.07	11.79	-177.14
W 180	OX	1X	180.070		21.897			21.945	1.185	33.21	-12.48	177.89
W 180	OXY	1XY	314.822		24.867			24.927	-2.430	44.62	22.24	-311.84
W 180	OY	1Y	314.419		25.865			25.913	1.383	45.87	21.55	-317.91
W 45	OP	1P	450.599		26.681			26.788	18.965	-47.27	-47.32	-446.40
W 45	OX	1X	67.540		23.343			23.343	15.588	-21.64	-11.32	-67.16
W 45	OXY	1XY	-309.862		25.572			25.675	18.137	-37.63	-37.59	306.33
W 45	OY	1Y	397.977		23.285			23.345	-17.016	-11.29	-67.01	24.37
W -45	OP	1P	72.232		24.377			24.378	-16.321	-22.67	11.76	-71.83
W -45	OX	1X	445.916		26.725			26.833	-19.690	-46.29	47.75	-441.74
W -45	OXY	1XY	-66.746		25.722			25.774	14.835	-47.27	-47.32	49.82
W -45	OY	1Y	-308.215		25.818			25.922	-17.807	-38.19	37.16	304.67
W 90	OP	1P	323.716		25.532			25.588	25.550	-21.77	-45.92	-320.72
W 90	OX	1X	-182.485		22.646			22.694	-0.606	22.686	12.06	-181.22
W 90	OXY	1XY	-183.393		21.619			21.667	1.210	-34.10	12.08	180.33
W 90	OY	1Y	182.001		24.591			24.650	-0.420	24.531	22.43	-315.03
W -90	OP	1P	-179.431		22.804			22.852	-0.522	-22.846	11.78	177.24

W	-90	OX	IX	L	IX	320.667	25.691	25.748	1.354	-25.712	-21.53	45.89	-317.68	
W	-90	IOXY	IXY	L	IXY	314.714	25.834	25.891	2.140	-24.772	22.26	44.57	-311.74	
W	-90	OY	LY	L	LY	-180.109	21.860	21.909	1.207	-21.875	-12.51	33.18	177.93	
W	0	ice	OP	LP	L	LP	179.462	8.043	8.069	7.653	2.557	-18.97	-13.87	-178.10
W	0	ice	OX	IX	L	IX	175.158	7.877	7.903	7.338	-2.936	-18.38	13.98	-173.81
W	0	ice	IOXY	IXY	L	IXY	175.291	7.657	7.699	3.421	-1.300	-0.13	4.59	-51.85
W	0	ice	OY	LY	L	LY	55.553	3.800	3.803	3.617	1.176	-0.09	-4.70	-55.48
W	180	ice	OP	LP	L	LP	59.496	4.035	4.038	-3.827	1.290	0.05	-5.06	-59.42
W	180	ice	OX	IX	L	IX	59.284	3.954	3.957	-3.733	-1.312	0.17	4.88	-56.13
W	180	ice	OXY	IXY	L	IXY	170.887	8.172	8.199	-7.649	-2.954	18.42	13.72	-169.53
W	180	ice	OY	LY	L	LY	175.522	8.216	8.242	-7.862	2.474	18.92	-13.54	-174.17
W	45	ice	OP	LP	L	LP	212.466	9.558	9.597	6.779	6.793	-20.17	-20.18	-210.76
W	45	ice	OX	IX	L	IX	208.309	9.617	9.655	6.523	-1.918	-13.35	-5.62	-118.75
W	45	ice	OXY	IXY	L	IXY	19.142	3.889	3.905	2.762	2.760	-1.53	-1.53	-19.41
W	45	ice	OY	LY	L	LY	115.177	5.758	5.764	1.581	5.543	5.69	-12.81	-114.47
W	-45	ice	OP	LP	L	LP	119.478	6.107	6.127	5.803	-7.118	-19.65	20.24	-206.61
W	-45	ice	OX	IX	L	IX	208.309	9.617	9.655	6.523	-1.918	-13.35	-5.62	-118.75
W	-45	ice	OXY	IXY	L	IXY	111.406	5.893	5.899	1.444	-5.720	5.59	12.75	-110.69
W	-45	ice	OY	LY	L	LY	22.913	4.110	4.127	2.898	-2.937	-1.43	1.46	-23.15
W	90	ice	OP	LP	L	LP	179.462	8.051	8.061	7.548	1.592	-12.83	5.69	-114.63
W	90	ice	OY	LY	L	LY	55.577	3.809	3.813	1.177	3.626	-4.71	-0.09	-55.61
W	90	ice	OX	IX	L	IX	51.948	3.657	3.659	-1.301	3.420	4.60	-0.13	-51.87
W	90	ice	OXY	IXY	L	IXY	170.887	8.172	8.199	-7.649	-2.954	18.92	-13.54	-174.17
W	90	ice	OY	LY	L	LY	175.522	8.216	8.242	-7.862	2.474	18.92	-13.54	-174.17
W	90	ice	OY	LY	L	LY	170.887	8.051	8.061	7.548	-2.965	-13.73	18.40	-169.53
W	90	ice	OY	LY	L	LY	56.078	3.945	3.947	-1.311	-3.723	4.87	0.17	-56.01

Overturning Moment Summary For All Load Cases:

Load Case	Transverse Moment (ft-k)	Longitudinal Moment (ft-k)	Torsional Moment (ft-k)	Transverse Force (kips)	Longitudinal Force (kips)	Vertical Force (kips)		
W	164.398	-25873.598	89.932	25874.120	-0.000	157.745	274.243	
W	180	164.512	-25530.297	-89.993	25530.827	-0.000	-157.745	274.243
W	45	19520.387	-19527.805	-4.273	27611.242	117.832	117.832	274.243
W	45	-1919.778	-19527.805	131.555	27380.159	-217.832	-217.832	274.243
W	90	25866.195	-171.823	-95.978	25866.766	157.745	-0.000	274.243
W	90	-25537.720	-171.938	96.039	25538.299	-157.745	-0.000	274.243
W	ice	205.452	5917.733	-19.855	5921.298	-0.000	-37.562	459.246
W	ice	4959.293	-4966.729	-0.797	7018.759	28.832	-28.832	459.246
W	ice	-4548.402	-4966.726	28.894	6734.740	-28.832	28.832	459.246
W	ice	6336.071	5917.733	-19.851	6339.489	-37.562	-37.562	459.246
W	ice	-5925.172	-212.889	20.983	5928.995	-37.562	-0.000	459.246

EIA Sections Information:

Section Label	Top Z (ft)	Bottom Z (ft)	Joint Count	Member Count	Top Width (ft)	Bottom Width (ft)	Gross Area (ft²)	Face A Adjust	Face B Adjust	Face Ar Adjust	Dead Load (kips)	Factor	Factor
328.9-337.5	337.500	328.917	8	20	9.00	10.09	81.93	1.1220	1.1220	1.1220	1.346		
320.3-328.9	328.917	320.334	8	16	10.09	11.18	91.28	1.1610	1.1610	1.1610	1.393		
310.2-320.3	320.334	310.167	8	16	11.18	12.47	120.24	1.1970	1.1970	1.1970	1.436		
300.0-310.2	310.167	300.000	12	24	12.47	13.76	133.37	1.1540	1.1540	1.1540	1.385		
287.5-300.0	300.000	287.500	16	32	13.76	15.35	181.97	1.2010	1.2010	1.2010	1.442		
275.0-287.5	287.500	275.000	16	32	15.35	17.04	201.82	1.2080	1.2080	1.2080	1.449		
262.5-275.0	275.000	262.500	16	32	17.04	18.83	221.67	1.2140	1.2140	1.2140	1.457		
250.0-262.5	262.500	250.000	16	32	18.83	20.12	241.52	1.2200	1.2200	1.2200	1.464		
237.5-250.0	250.000	237.500	16	32	20.12	21.70	261.37	1.2260	1.2260	1.2260	1.471		
225.0-237.5	237.500	225.000	16	32	21.70	23.29	281.22	1.2320	1.2320	1.2320	1.478		
212.5-225.0	225.000	212.500	16	32	23.29	25.47	321.99	1.2640	1.2640	1.2640	1.516		
200.0-212.5	212.500	200.000	16	32	25.47	29.64	381.39	1.2730	1.2730	1.2730	1.528		
150.0-200.0	200.000	175.000	36	72	29.64	33.82	461.19	1.2820	1.2820	1.2820	1.540		
125.0-150.0	175.000	125.000	36	72	33.82	36.00	521.19	1.2900	1.2900	1.2900	1.476		
100.0-125.0	125.000	100.000	36	72	36.00	39.17	591.58	1.2250	1.2250	1.2250	1.472		
75.0-100.0	100.000	75.000	32	64	39.17	42.35	671.98	1.2270	1.2270	1.2270	1.470		
50.0-75.0	75.000	50.000	28	56	42.35	45.54	762.38	1.2300	1.2300	1.2300	1.476		
25.0-50.0	50.000	25.000	24	48	45.54	48.70	862.78	1.2350	1.2350	1.2350	1.590		
0.000-25.00	25.000	0.000	20	40	48.70	51.88	973.18	1.2310	1.2310	1.2310	1.585		

Printed capacities do not include the strength factor entered for each load case.  
The Group Summary reports on the member and load case that resulted in maximum usage which may not necessarily be the same as that which produces maximum force.

Group Summary (Compression Portion):

Group Label	Group Angle	Group Desc.	Group Type	Angle	Steel Strength	Max Usage	Max Control	Comp. In Member	Comp. Control	Capacity Case	L/r	Comp. Connect.	Comp. Bearing	RLX	RLY	RLZ	L/r	KL/r	Length	Curve	No. of Bolts	Off Comp.	
				(ks)	(ks)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)	(kips)										
Leg S1	L	8" x 8" x 1.125"	SAB	8X8X1.13	36.0	65.21	Comp 65.21	L 1P	-351.014	W 45	464.132	0.000	0.000	0.281	0.281	0.281	0.281	0.281	54.29	54.29	25.101	1	0
Leg S2	L	8" x 8" x 1.125"	SAB	8X8X1.13	36.0	66.96	Comp 66.96	L 3P	-310.561	W 45	464.132	0.000	0.000	0.281	0.281	0.281	0.281	0.281	54.29	54.29	25.101	1	0
Leg S3	L	8" x 8" x 1.125"	SAB	8X8X1.13	36.0	66.96	Comp 66.96	L 3P	-310.561	W 45	464.132	0.000	0.000	0.281	0.281	0.281	0.281	0.281	54.29	54.29	25.101	1	0
Leg S4	L	8" x 8" x 1.125"	SAB	8X8X1.13	36.0	55.26	Comp 55.26	L 4P	-256.459	W 45	464.132	0.000	0.000	0.281	0.281	0.281	0.281	0.281	54.29	54.29	25.101	1	0
Leg S5	L	8" x 8" x 1" SAE	SAB	8X8X1	36.0	60.37	Comp 60.37	L 5P	-217.500	W 45	416.138	0.000	0.000	0.281	0.281	0.281	0.281	0.281	54.29	54.29	25.101	1	0
Leg S6	L	8" x 8" x 1" SAE	SAB	8X8X1	36.0	42.72	Comp 42.72	L 6P	-177.778	W 45	416.138	0.000	0.000	0.281	0.281	0.281	0.281	0.281	54.29	54.29	25.101	1	0
Leg S7	L	8" x 8" x 0.875"	SAB	8X8X0.88	36.0	48.63	Comp 48.63	L 7P	-168.074	W 45	345.636	0.000	0.000	0.333	0.333	0.333	0.333	0.333	63.94	63.94	25.101	1	0
Leg S8	L	8" x 8" x 0.75"	SAB	8X8X0.75	36.0	45.10	Comp 45.10	L 8P	-159.279	W 45	299.685	0.000	0.000	0.400	0.400	0.400	0.400	0.400	63.54	63.54	25.101	1	0
Leg S9	L	8" x 8" x 0.75"	SAB	8X8X0.75	36.0	35.24	Comp 35.24	L 9P	-105.599	W 45	299.685	0.000	0.000	0.500	0.500	0.500	0.500	0.500	64.36	64.36	12.550	1	0
Leg S10	L	6" x 6" x 0.875"	SAB	6X6X0.88	36.0	35.81	Comp 35.81	L 10P	-90.778	W 45	253.484	0.000	0.000	0.500	0.500	0.500	0.500	0.500	64.36	64.36	12.550	1	0
Leg S11	L	6" x 6" x 0.75"	SAB	6X6X0.75	36.0	34.56	Comp 34.56	L 11P	-75.994	W 45	219.877	0.000	0.000	0.500	0.500	0.500	0.500	0.500	64.36	64.36	12.550	1	0
Leg S12	L	6" x 6" x 0.75"	SAB	6X6X0.75	36.0	29.06	Comp 29.06	L 12P	-63.907	W 45	219.877	0.000	0.000	0.500	0.500	0.500	0.500	0.500	64.36	64.36	12.550	1	0
Leg S13	L	6" x 6" x 0.5625"	SAB	6X6X0.56	36.0	30.83	Comp 30.83	L 13P	-51.827	W 45	168.131	0.000	0.000	0.500	0.500	0.500	0.500	0.500	63.82	63.82	12.550	1	0
Leg S14	L	6" x 6" x 0.5625"	SAB	6X6X0.56	36.0	23.89	Comp 23.89	L 14P	-40.124	W 45	168.131	0.000	0.000	0.500	0.500	0.500	0.500	0.500	63.82	63.82	12.550	1	0
Leg S15	L	6" x 6" x 0.5"	SAB	6X6X0.5	36.0	21.63	Comp 21.63	L 15P	-28.785	W 45	132.784	0.000	0.000	0.500	0.500	0.500	0.500	0.500	63.28	63.28	12.550	1	0
Leg S16	L	5" x 5" x 0.4375"	SAB	5X5X0.44	36.0	25.54	Comp 25.54	L 16P	-28.229	W 45	110.535	0.000	0.000	0.500	0.500	0.500	0.500	0.500	62.12	62.12	10.208	1	0
Leg S17	L	5" x 5" x 0.4375"	SAB	5X5X0.44	36.0	17.36	Comp 17.36	L 17P	-19.190	W 45	110.535	0.000	0.000	0.500	0.500	0.500	0.500	0.500	62.12	62.12	10.208	1	0
Leg S18	L	5" x 5" x 0.375"	SAB	5X5X0.31	36.0	19.15	Comp 19.15	L 18P	-10.320	W 45	84.914	0.000	0.000	0.500	0.500	0.500	0.500	0.500	52.02	52.02	8.618	1	0
Leg S19	L	5"																					

LH 5	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	36.0	73.74	Comp	73.74	LH 9X	-22.301	W -45	30.244	0.000	0.000	0.940	1.880	0.940	152.78	140.16	9.820	6	0
LH 6	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	36.0	57.92	Comp	57.92	LH 15X	-19.654	W -45	33.934	0.000	0.000	0.940	1.880	0.940	139.91	132.25	8.993	6	0
DUM 1	Dummy Bracing Member	DUM	0.1X0.1X1	36.0	0.00	0.00	BR 13X	-0.958	W 45			0.000	0.000	1.000	1.000	1.000	2.52	2.52	20.961	1	0

Group Summary (Tension Portion):

Group Label	Group Desc.	Angle Type	Angle Size	Steel Strength (ksi)	Max Usage %	Max Tension In Tens.	Tension Force (kips)	Tension Control Case	Net Section Capacity (kips)	Tension Connect. Capacity (kips)	Bearing Connect. Capacity (kips)	Rupture Member Capacity (kips)	Length Tens. (ft)	No. Of Bolt	No. Of Diameter	Hole Diameter (in)
Leg S1	L 8" x 8" x 1.125"	SAR	8X8X1.13	36.0	84.4	Comp	48.04	L 2XY 260.394	W 45	542.051	0.000	0.000	0.000	25.101	0	0.000
Leg S2	L 8" x 8" x 1.125"	SAR	8X8X1.13	36.0	75.63	Comp	43.34	L 2XY 234.951	W 45	542.051	0.000	0.000	0.000	25.101	0	0.000
Leg S3	L 8" x 8" x 1.125"	SAR	8X8X1.13	36.0	66.91	Comp	38.16	L 3XY 206.834	W 45	542.051	0.000	0.000	0.000	25.101	0	0.000
Leg S4	L 8" x 8" x 1.125"	SAR	8X8X1.13	36.0	55.26	Comp	32.06	L 4XY 173.806	W 45	542.051	0.000	0.000	0.000	25.101	0	0.000
Leg S5	L 8" x 8" x 1"	SAR	8X8X1	36.0	52.37	Comp	30.25	L 5XY 147.023	W 45	485.999	0.000	0.000	0.000	25.101	0	0.000
Leg S6	L 8" x 8" x 1"	SAR	8X8X1	36.0	42.72	Comp	25.06	L 6XY 121.800	W 45	485.999	0.000	0.000	0.000	25.101	0	0.000
Leg S7	L 8" x 8" x 0.875"	SAR	8X8X0.88	36.0	48.63	Comp	27.56	L 7XY 138.124	W 45	428.651	0.000	0.000	0.000	25.101	0	0.000
Leg S8	L 8" x 8" x 0.75"	SAR	8X8X0.75	36.0	45.10	Comp	25.50	L 8XY 94.513	W 45	370.655	0.000	0.000	0.000	25.101	0	0.000
Leg S9	L 8" x 8" x 0.75"	SAR	8X8X0.75	36.0	35.24	Comp	19.36	L 9XY 71.755	W 45	370.655	0.000	0.000	0.000	25.101	0	0.000
Leg S10	L 6" x 6" x 0.875"	SAR	6X6X0.88	36.0	35.81	Comp	19.56	L 10XY 61.649	W 45	315.252	0.000	0.000	0.000	12.550	0	0.000
Leg S11	L 6" x 6" x 0.75"	SAR	6X6X0.75	36.0	34.56	Comp	19.21	L 11XY 52.533	W 45	273.456	0.000	0.000	0.000	12.550	0	0.000
Leg S12	L 6" x 6" x 0.75"	SAR	6X6X0.75	36.0	29.06	Comp	15.68	L 12Y 42.882	W 45	273.456	0.000	0.000	0.000	12.550	0	0.000
Leg S13	L 6" x 6" x 0.5625"	SAR	6X6X0.56	36.0	30.83	Comp	15.93	L 13Y 33.196	W 45	208.332	0.000	0.000	0.000	12.550	0	0.000
Leg S14	L 6" x 6" x 0.5625"	SAR	6X6X0.56	36.0	23.89	Comp	11.51	L 14Y 23.971	W 45	208.332	0.000	0.000	0.000	12.550	0	0.000
Leg S15	L 6" x 5" x 0.4375"	SAR	6X5X0.44	36.0	41.43	Comp	9.24	L 15Y 35.159	W 45	163.944	0.000	0.000	0.000	12.550	0	0.000
Leg S16	L 5" x 5" x 0.4375"	SAR	5X5X0.44	36.0	25.54	Comp	6.14	L 16Y 8.310	W 45	135.432	0.000	0.000	0.000	10.208	0	0.000
Leg S17	L 5" x 5" x 0.4375"	SAR	5X5X0.44	36.0	17.36	Comp	1.76	L 17Y 2.382	W 45	135.432	0.000	0.000	0.000	10.208	0	0.000
Leg S18	L 5" x 5" x 0.3125"	SAR	5X5X0.31	36.0	12.15	Comp	0.42	L 18Y 0.414	W 45	98.172	0.000	0.000	0.000	8.618	0	0.000
Leg S19	L 5" x 5" x 0.3125"	SAR	5X5X0.31	36.0	6.53	Comp	0.00	L 19Y 0.000		98.172	0.000	0.000	0.000	8.618	0	0.000
Diag S1	B/B L3"x4"x0.375"	DAS	4X3X0.38	36.0	59.53	Comp	24.06	D 2P 38.747	W -90	161.028	0.000	0.000	0.000	22.664	0	0.000
Diag S2	B/B L3"x4"x0.25"	DAS	4X3X0.25	36.0	83.66	Comp	35.08	D 4P 38.412	W -90	109.512	0.000	0.000	0.000	22.190	0	0.000
Diag S3	B/B L3"x4"x0.25"	DAS	4X3X0.25	36.0	78.52	Comp	34.57	D 6P 37.862	W -90	109.512	0.000	0.000	0.000	21.736	0	0.000
Diag S4	B/B L3"x3.5"x0.25"	DAS	3.5X3X0.25	36.0	70.65	Comp	38.49	D 8P 39.035	W -90	101.412	0.000	0.000	0.000	20.858	0	0.000
Diag S5	B/B L3"x3.5"x0.25"	DAS	3.5X3X0.25	36.0	66.83	Comp	37.40	D 10P 37.928	W -90	101.412	0.000	0.000	0.000	20.484	0	0.000
Diag S6	B/B L2.5"x3.5"x0.25"	DAS	2.5X2.5X0.25	36.0	93.96	Comp	37.40	D 12P 34.900	W -90	93.312	0.000	0.000	0.000	20.592	0	0.000
Diag S7	B/B L3"x3"x0.375"	DAS	3X3X0.38	36.0	54.04	Comp	17.60	D 13P 24.070	W -90	136.728	0.000	0.000	0.000	29.947	0	0.000
Diag S8	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	36.0	71.18	Comp	24.90	D 15P 21.220	W 180	85.212	0.000	0.000	0.000	29.107	0	0.000
Diag S9	B/B L2.5"x3"x0.25"	DAS	3X2.5X0.25	36.0	62.15	Comp	22.96	D 17P 19.567	W 180	85.212	0.000	0.000	0.000	28.331	0	0.000
Diag S10	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	91.91	Comp	13.94	D 20P 10.753	W 180	77.112	0.000	0.000	0.000	17.103	0	0.000
Diag S11	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	42.56	Comp	12.13	D 22P 9.354	W 180	77.112	0.000	0.000	0.000	16.572	0	0.000
Diag S12	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	39.68	Comp	11.93	D 24P 9.200	W 180	77.112	0.000	0.000	0.000	16.064	0	0.000
Diag S13	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	36.19	Comp	13.14	D 26P 9.065	W 180	69.012	0.000	0.000	0.000	15.120	0	0.000
Diag S14	B/B L2.5"x2.5"x0.25"	DAL	2.5X2X0.25	36.0	52.22	Comp	11.84	D 28P 8.172	W 180	69.012	0.000	0.000	0.000	15.120	0	0.000
Diag S15	B/B L2.5"x2.5"x0.25"	DAL	2.5X2X0.25	36.0	44.51	Comp	10.92	D 29P 7.539	W -90	69.012	0.000	0.000	0.000	14.690	0	0.000
Diag S16	L 3.5" x 3.5" x 0.25"	SAR	3.5X3.5X0.25	36.0	16.04	Tens	16.04	D 32P 8.783	W -90	54.756	0.000	0.000	0.000	15.609	0	0.000
Diag S17	L 3.5" x 3.5" x 0.25"	SAR	3.5X3.5X0.25	36.0	12.37	Tens	12.37	D 34P 6.773	W -90	54.756	0.000	0.000	0.000	15.609	0	0.000
Diag S18	L 3" x 3" x 0.25"	SAR	3X3X0.25	36.0	9.1	Tens	9.1	D 36P 4.483	W -90	46.656	0.000	0.000	0.000	13.678	0	0.000
Diag S19	L 3" x 3" x 0.25"	SAR	3X3X0.25	36.0	7.40	Tens	7.40	D 38P 3.454	W -90	46.656	0.000	0.000	0.000	12.848	0	0.000
Horiz 1	B/B L4"x4"x0.25"	DAL	4X4X0.25	36.0	70.31	Comp	38.07	H 1X 41.694	W -90	109.512	0.000	0.000	0.000	24.350	0	0.000
Horiz 2	B/B L3.5"x2.5"x0.25"	DAL	3.5X2.5X0.25	36.0	85.07	Comp	41.72	H 3X 38.929	W -90	93.312	0.000	0.000	0.000	22.762	0	0.000
Horiz 3	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	36.0	86.44	Comp	42.93	H 5X 36.579	W -90	85.212	0.000	0.000	0.000	21.174	0	0.000
Horiz 4	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	36.0	81.22	Comp	39.90	H 7X 37.234	W -90	93.312	0.000	0.000	0.000	13.057	0	0.000
Horiz 5	B/B L3.5"x2.5"x0.25"	DAL	3.5X2.5X0.25	36.0	75.06	Comp	36.21	H 9X 33.784	W -90	93.312	0.000	0.000	0.000	11.998	0	0.000
Horiz 6	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	36.0	73.84	Comp	32.88	H 11P 28.015	W 90	85.212	0.000	0.000	0.000	10.940	0	0.000
Horiz 7	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	36.0	55.64	Comp	15.07	H 14P 12.838	W 90	85.212	0.000	0.000	0.000	14.822	0	0.000
Horiz 8	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	36.0	39.40	Comp	12.47	H 18P 10.625	W 90	85.212	0.000	0.000	0.000	13.234	0	0.000
Horiz 9	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	39.77	Comp	11.59	H 18Y 8.939	W 180	77.112	0.000	0.000	0.000	11.646	0	0.000
Horiz 10	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	30.37	Comp	9.54	H 20Y 7.353	W 180	77.112	0.000	0.000	0.000	10.852	0	0.000
Horiz 11	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	22.34	Comp	8.12	H 22Y 6.259	W 180	77.112	0.000	0.000	0.000	10.058	0	0.000
Horiz 12	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	18.97	Comp	7.55	H 24P 5.826	W 90	77.112	0.000	0.000	0.000	9.264	0	0.000
Horiz 13	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	17.26	Comp	7.53	H 26P 5.804	W 90	77.112	0.000	0.000	0.000	8.470	0	0.000
Horiz 14	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	13.05	Comp	6.27	H 28P 4.833	W 90	77.112	0.000	0.000	0.000	7.676	0	0.000
Horiz 15	B/B L2.5"x2.5"x0.25"	DAE	2.5X2.5X0.25	36.0	17.08	Comp	0.81	H 29X 0.621	W -90	77.112	0.000	0.000	0.000	6.882	0	0.000
Horiz 16	L 3" x 2.5" x 0.25"	SAU	3X2.5X0.25	36.0	42.22	Comp	0.00	H 32X 0.000		42.444	0.000	0.000	0.000	12.472	0	0.000
Horiz 17	B/B L3"x2.5"x0.25"	DAL	3X2.5X0.25	36.0	11.47	Comp	0.00	H 34X 0.000		85.212	0.000	0.000	0.000	11.181	0	0.000
Horiz 18	L 3" x 2.5" x 0.25"	SAR	3X2.5X0.25	36.0	21.80	Comp	0.00	H 36X 0.000		42.444	0.000	0.000	0.000	10.090	0	0.000
Horiz 19	C8x11.5	CHN	C8x11.5	36.0	5.80	Comp	0.00	H 38X 0.000		109.512	0.000	0.000	0.000	9.000	0	0.000
LD 1	B/B L3"x2.5"x0.3125"	DAL	3X2.5X0.31	36.0	56.64	Comp	18.56	LD 2Y 19.485	W -45	104.976	0.000	0.000	0.000	14.066	0	0.000
LD 2	B/B L4"x3"x0.3125"	DAL	4X3X0.31	36.0	79.18	Comp	33.21	LD 3P 44.980	W -90	135.432	0.000	0.000	0.000	14.066	0	0.000
LD 4	B/B L4"x3"x0.25"	DAL	4X3X0.25	36.0	73.38	Comp	33.15	LD 7P 45.326	W -90	77.112	0.000	0.000	0.000	13.384	0	0.000
LD 5	B/B L4"x3"x0.25"	DAL	4X3X0.25	36.0	85.58	Comp	39.42	LD 9P 43.169	W -90	109.512	0.000	0.000	0.000	13.384	0	0.000
LD 7	B/B L2.5"x2.5"x0.375"	DAE	2.5X2.5X0.38	36.0	55.33	Comp	15.06	LD 13P 16.927	W -90	112.428	0.000	0.000	0.000	12.716	0	0.000
LD 8	B/B L3"x3"x0.25"	DAL	3X3X0.25	36.0	97.48	Comp	40.78	LD 15P 41.360	W -90	101.412	0.000	0.000	0.000	12.716	0	0.000
LD 10	B/B L3"x3"x0.25"</															





**Legs**

Site No.:	88008
Engineer:	asp
Date:	04/06/2020
Carrier:	TMO

**When inputting thickness values, include all decimal places.**

Tower Section #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter or Length (in)	Thickness <sup>[2]</sup> (in)	F <sub>y</sub> (ksi)
1	0.000-25.00	L	8	1.125	36
2	25.00-50.00	L	8	1.125	36
3	50.00-75.00	L	8	1.125	36
4	75.00-100.0	L	8	1.125	36
5	100.0-125.0	L	8	1	36
6	125.0-150.0	L	8	1	36
7	150.0-175.0	L	8	0.875	36
8	175.0-200.0	L	8	0.75	36
9	200.0-225.0	L	8	0.75	36
10	225.0-237.5	L	6	0.875	36
11	237.5-250.0	L	6	0.75	36
12	250.0-262.5	L	6	0.75	36
13	262.5-275.0	L	6	0.5625	36
14	275.0-287.5	L	6	0.5625	36
15	287.5-300.0	L	6	0.4375	36
16	300.0-310.2	L	5	0.4375	36
17	310.2-320.3	L	5	0.4375	36
18	320.3-328.9	L	5	0.3125	36
19	328.9-337.5	L	5	0.3125	36

**Notes:**

<sup>[1]</sup> Type of Leg Shape: **R** = Round or **P** = Bent Plate or **S** = Schifferized Angle. **L** = Even Leg

<sup>[2]</sup> For Solid Round Leg Shapes Thickness Equals Zero.

<sup>[3]</sup> Adjust for Bent Plate Leg Shapes.

**Diagonals**

Site No.:	88008
Engineer:	asp
Date:	04/06/2020
Carrier:	TMO

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter <sup>[2]</sup> (in)	Web Length <sup>[3]</sup> (in)	Flange Length <sup>[3]</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)	Is Diag. Tension Only? (Y/N)
1	0.000-25.00	2L		3	4	0.375	36	
2	25.00-50.00	2L		3	4	0.25	36	
3	50.00-75.00	2L		3	4	0.25	36	
4	75.00-100.0	2L		3	3.5	0.25	36	
5	100.0-125.0	2L		3	3.5	0.25	36	
6	125.0-150.0	2L		2.5	3.5	0.25	36	
7	150.0-175.0	2L		3	3	0.375	36	
8	175.0-200.0	2L		2.5	3	0.25	36	
9	200.0-225.0	2L		2.5	3	0.25	36	
10	225.0-237.5	2L		2.5	2.5	0.25	36	
11	237.5-250.0	2L		2.5	2.5	0.25	36	
12	250.0-262.5	2L		2.5	2.5	0.25	36	
13	262.5-275.0	2L		2.5	2	0.25	36	
14	275.0-287.5	2L		2.5	2	0.25	36	
15	287.5-300.0	2L		2.5	2	0.25	36	
16	300.0-310.2	L		3.5	3.5	0.25	36	Y
17	310.2-320.3	L		3.5	3.5	0.25	36	Y
18	320.3-328.9	L		3	3	0.25	36	Y
19	328.9-337.5	L		3	3	0.25	36	Y

**Notes:**

<sup>[1]</sup> Type of Diagonal Shape: R = Round, L = Single-Angle or 2L = Double-Angle.

<sup>[2]</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

<sup>[3]</sup> Applies to Single-Angle and Double-Angle Shapes only.

<sup>[4]</sup> Applies to Double-Angle Shapes only.

<sup>[5]</sup> Applies to Single-Angle Shapes only.

**Horizontals**

Site No.:	88008
Engineer:	asp
Date:	04/06/2020
Carrier:	TMO

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter <sup>[2]</sup> (in)	Web Length <sup>[3]</sup> (in)	Flange Length <sup>[3]</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)	
1	0.000-25.00	2L		4	3	0.25	36	
2	25.00-50.00	2L		3.5	2.5	0.25	36	
3	50.00-75.00	2L		3	2.5	0.25	36	
4	75.00-100.0	2L		3.5	2.5	0.25	36	
5	100.0-125.0	2L		3.5	2.5	0.25	36	
6	125.0-150.0	2L		3	2.5	0.25	36	
7	150.0-175.0	2L		3	2.5	0.25	36	
8	175.0-200.0	2L		3	2.5	0.25	36	
9	200.0-225.0	2L		2.5	2.5	0.25	36	
10	225.0-237.5	2L		2.5	2.5	0.25	36	
11	237.5-250.0	2L		2.5	2.5	0.25	36	
12	250.0-262.5	2L		2.5	2.5	0.25	36	
13	262.5-275.0	2L		2.5	2.5	0.25	36	
14	275.0-287.5	2L		2.5	2.5	0.25	36	
15	287.5-300.0	2L		2.5	2.5	0.25	36	
16	300.0-310.2	L		3	2.5	0.25	36	
17	310.2-320.3	2L		3	2.5	0.25	36	
18	320.3-328.9	L		3	2.5	0.25	36	
19	328.9-337.5	C		8	11.5		36	

**Notes:**

<sup>[1]</sup> Type of Horizontal Shape: **R** = Round, **L** = Single-Angle, **2L** = Double-Angle, **C** = Channel, **W** = W Shape

<sup>[2]</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

<sup>[3]</sup> Applies to Single-Angle and Double-Angle Shapes only.

<sup>[4]</sup> Applies to Double-Angle Shapes only.

<sup>[5]</sup> Applies to Single-Angle Shapes only.

## Built-up Diagonals

Site No.:	88008
Engineer:	asp
Date:	04/06/2020
Carrier:	TMO

**When inputting thickness values, include all decimal places.**

**Input diags. from left to center & from base section upward.**

Tower Built-up Diag. #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter <sup>[2]</sup> (in)	Web Length <sup>[3]</sup> (in)	Flange Length <sup>[3]</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)
1	0.000-25.00	2L		3	2.5	0.3125	36
2	0.000-25.00	2L		4	3	0.3125	36
3	25.00-50.00	2L		3	2	0.25	36
4	25.00-50.00	2L		4	3	0.25	36
5	50.00-75.00	2L		2.5	2.5	0.375	36
6	50.00-75.00	2L		3.5	3	0.25	36
7	75.00-100.0	2L		3	3	0.25	36
8	75.00-100.0	2L		2.5	2	0.25	36
9	75.00-100.0	2L		3	2	0.25	36
10	100.0-125.0	2L		2.5	2	0.25	36
11	100.0-125.0	2L		2.5	2	0.25	36
12	100.0-125.0	2L		3	3	0.25	36
13	125.0-150.0	2L		2.5	2	0.25	36
14	125.0-150.0	2L		2.5	2	0.25	36
15	125.0-150.0	2L		2.5	2	0.25	36

**Notes:**

<sup>[1]</sup> Type of Diagonal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

<sup>[2]</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

<sup>[3]</sup> Applies to Single-Angle and Double-Angle Shapes only.

<sup>[4]</sup> Applies to Double-Angle Shapes only.

<sup>[5]</sup> Applies to Single-Angle Shapes only.

## Built-up Horizontals

Site No.:	88008
Engineer:	asp
Date:	04/06/2020
Carrier:	TMO

When inputting thickness values, include all decimal places.

Tower Section #	Section Elevations (ft)	Type of Shape <sup>[1]</sup>	Diameter <sup>[2]</sup> (in)	Web Length <sup>[3]</sup> (in)	Flange Length <sup>[3]</sup> (in)	Thickness (in)	F <sub>y</sub> (ksi)	Is Horiz. Tension Only? (Y/N)
1	0.000-25.00	2L		2.5	3	0.25	36	Y
2	25.00-50.00	2L		2.5	3	0.25	36	Y
3	50.00-75.00	2L		2.5	3	0.25	36	Y
4	75.00-100.0	2L		3	3	0.375	36	
5	100.0-125.0	2L		2.5	3	0.25	36	
6	125.0-150.0	2L		2.5	3	0.25	36	

**Notes:**

<sup>[1]</sup> Type of Horizontal Shape: **R** = Round, **L** = Single-Angle or **2L** = Double-Angle.

<sup>[2]</sup> Applies to Pipes and Solid Round Shapes only. For Solid Round Shapes Thickness Equals Zero.

<sup>[3]</sup> Applies to Single-Angle and Double-Angle Shapes only.

<sup>[4]</sup> Applies to Double-Angle Shapes only.

<sup>[5]</sup> Applies to Single-Angle Shapes only.

Site No.:	88008
Engineer:	asp
Date:	04/06/20
Carrier:	TMO

Description	From (ft)	To (ft)	Quantity	Shape	Width or Diameter (in)	Perimeter (in)	Unit Weight (lb/ft)	Part of Face Solidity Ratio (Yes/No)	Include in Wind Load (Yes/No)
1 Climbing Ladder	0	337.5	1	Flat	2	8.0	6	Yes	Yes
2 US Dept	0	337.5	2	Round	1.09	3.4	0.33	Yes	Yes
3 US Dept1	0	337.5	1	Round	0.63	2.0	0.15	Yes	Yes
4 Ligado	0	319	1	Round	1.98	6.2	0.82	Yes	Yes
5 US Dept2	0	310	2	Round	1.09	3.4	0.33	Yes	Yes
6 US Dept3	0	275	1	Round	1.09	3.4	0.33	Yes	Yes
7 Sprint1	0	240	3	Round	1.54	4.8	1	Yes	Yes
8 TMO	0	220	1	Flat	3.99375	21.3	4.92	Yes	Yes
9 TMO1	0	220	3	Round	1.25	3.9	1.05	Yes	Yes
10 US Dept4	0	194	1	Round	1.55	4.9	0.63	Yes	No
11 Verizon	0	180	1	Flat	6.5025	34.7	9.84	Yes	Yes
12 ATT	0	165	6	Round	1.98	6.2	0.82	Yes	Yes
13 ATT1	0	165	1	Round	0.39	1.2	0.17	Yes	No
14 ATT2	0	165	2	Round	0.78	2.5	0.59	Yes	No
15 ATT3	0	165	1	Round	3.5	11.0	7.58	Yes	No
16 Metro	0	100	6	Round	1.98	6.2	0.82	Yes	Yes
17 Sprint2	0	48	1	Round	0.63	2.0	0.15	Yes	No
18 Coax Cage	12.5	32.5	2	Flat	12	48.0	25	Yes	Yes
19 Coax Cage2	12.5	32.5	2	Flat	12	48.0	25	Yes	Yes
20 Waive Guide	0	180	1	Flat	1.5	6.0	2	Yes	Yes
21 Waive Guide1	0	165	1	Flat	1.5	6.0	2	Yes	Yes
22 Waive Guide2	0	100	1	Flat	1.5	6.0	2	Yes	Yes
23 Sigfox	0	147	1	Flat	0.63	2.5	0.15	Yes	Yes
24 Sprint	0	204.8	1	Flat	5.955	25.8	4.92	Yes	Yes





Site #:	88008
Name:	TMO

Engineer:	asp
Date:	04/06/20

Section Label	Section Color	Joint Defining Bottom Section	Dead Load Adj. Factor					Adj. Factor Flat	Adj. Factor Round	Area Multiplier	Weight Multiplier
0.000-25.00		0P	1.585195713					1.320996427	1.320996427	1	1.2
25.00-50.00		1P	1.590007719					1.325006432	1.325006432	1	1.2
50.00-75.00		2P	1.605588167					1.337990139	1.337990139	1	1.2
75.00-100.0		3P	1.472051441					1.226709534	1.226709534	1	1.2
100.0-125.0		4P	1.46985131					1.224876092	1.224876092	1	1.2
125.0-150.0		5P	1.47553471					1.229612258	1.229612258	1	1.2
150.0-175.0		6P	1.529754954					1.274795795	1.274795795	1	1.2
175.0-200.0		7P	1.527887654					1.273239712	1.273239712	1	1.2
200.0-225.0		8P	1.516391419					1.263659516	1.263659516	1	1.2
225.0-237.5		9P	1.478249179					1.231874316	1.231874316	1	1.2
237.5-250.0		10P	1.471209196					1.226007664	1.226007664	1	1.2
250.0-262.5		11P	1.464012143					1.220010119	1.220010119	1	1.2
262.5-275.0		12P	1.456672479					1.213893733	1.213893733	1	1.2
275.0-287.5		13P	1.449208368					1.20767364	1.20767364	1	1.2
287.5-300.0		14P	1.441641869					1.201368224	1.201368224	1	1.2
300.0-310.2		15P	1.384856588					1.154047156	1.154047156	1	1.2
310.2-320.3		16P	1.436421012					1.19701751	1.19701751	1	1.2
320.3-328.9		17P	1.393105127					1.160920939	1.160920939	1	1.2
328.9-337.5		18P	1.346209977					1.121841647	1.121841647	1	1.2



No.	Elevation (ft)	C <sub>x</sub> A <sub>c</sub> (ft <sup>2</sup> )	C <sub>x</sub> A <sub>c</sub> (Ice) (ft <sup>2</sup> )	Force (lb)	Force (Ice) (lb)	Weight (lb)	Weight (Ice) (lb)	60 Azi Mult.	Force mean	F (Ice) mean	Height Flag	Sum of Forces (No	
												60 Azi.	180 Azi.
1	338	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	0.0000010	808.9957366	
	338	20.76	28.03	808.996	181.366	108	140	1.00	444.95	99.75	0.0000020		
2	338	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5029586	3536.823365	
	338	70.00	94.50	2727.828	611.543	7200	9360	1.00	1500.31	336.35	1.5029596		
3	319	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5029596		
	319	1.73	2.34	66.311	14.866	24	31	1.00	36.47	8.18	1.5029596	66.31108359	
4	319	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5029606		
	319	5.20	7.02	199.317	44.684	180	234	1.00	109.62	24.58	1.5031348	265.6276354	
5	310	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5031358		
	310	6.00	8.10	228.108	51.139	60	78	1.00	125.46	28.13	1.5031358	228.1077981	
6	310	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5031368		
	310	10.46	14.12	397.668	89.152	96	125	1.00	218.72	49.03	1.5031368	625.775726	
7	310	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5031378		
	310	14.90	20.12	566.468	126.995	360	468	1.00	311.56	69.85	1.5032258	1192.243424	
8	287	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5032268		
	287	2.40	3.24	89.255	20.010	36	47	1.00	49.09	11.01	1.5034843	89.25539314	
9	275	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5034853		
	275	10.46	14.12	384.287	86.152	96	125	1.00	211.36	47.38	1.5034853	384.2865087	
10	275	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5034863		
	275	14.90	20.12	547.406	122.721	360	468	1.00	301.07	67.50	1.5036364	931.692721	
11	262	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5036374		
	262	2.40	3.24	86.961	19.496	36	47	1.00	47.83	10.72	1.5038168	86.96123981	
12	194	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5038178		
	194	6.73	9.09	223.792	50.171	60	78	1.00	123.09	27.59	1.5038178	223.7916902	
13	194	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5038188		
	194	5.20	7.02	172.915	38.765	180	234	1.00	95.10	21.32	1.5051546	396.7065178	
14	180	0.75	1.36	24.542	7.365	22	37	1.00	13.50	4.05	1.5051556		
	180							1.00	0.00	0.00	1.5055556	24.54178651	
15	180	5.53	6.82	180.047	36.858	55	170	1.00	99.03	20.27	1.5055566		
	180							1.00	0.00	0.00	1.5055566	204.5884044	
16	180	13.26	16.24	431.623	87.777	101	247	1.00	237.39	48.28	1.5055566		
	180							1.00	0.00	0.00	1.5055566	636.2113786	
17	180	12.69	15.05	412.979	81.343	119	374	1.00	227.14	44.74	1.5055566		
	180	20.10	27.14	490.673	110.002	1080	1404	1.00	269.87	60.50	1.5055566	1539.863393	
18	165	0.24	0.48	7.620	2.537	20	31	1.00	4.19	1.40	1.5055566		
	165	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5060606	7.619932909	
19	165	1.06	1.62	33.683	8.565	58	100	1.00	18.53	4.71	1.5060616		
	165	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5060616	41.30310274	
20	165	2.65	3.97	84.124	20.930	102	157	1.00	46.27	11.51	1.5060616		
	165	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5060606	125.4268433	
21	165	0.84	1.18	26.738	6.205	30	101	1.00	14.71	3.41	1.5060616		
	165	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5060606	152.1653199	
22	165	3.08	4.23	97.770	22.319	180	295	1.00	53.77	12.28	1.5060616		
	165	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5060606	249.9350334	
23	165	8.59	10.71	272.832	56.476	126	315	1.00	150.06	31.06	1.5060616		
	165	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5060606	522.7669197	
24	165	4.30	5.09	136.558	26.859	58	302	1.00	75.11	14.77	1.5060616		
	165	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5060606	659.3251756	
25	165	12.82	14.39	406.988	75.864	146	499	1.00	223.84	41.73	1.5060616		
	165	20.10	27.14	478.625	107.301	1080	1404	1.00	263.24	59.02	1.5060606	1544.938686	
26	100	10.54	12.63	290.028	57.731	95	250	1.00	159.52	31.75	1.5060616		
	100	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5100000	290.0283678	
27	48	0.16	0.30	3.471	1.100	1	7	1.00	1.91	0.61	1.5100010		
	48	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5208333	3.470677117	
28	320	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5208343		
	320	30.00	40.50	1150.932	258.024	6000	7800	1.00	633.01	141.91	1.5031250	1150.93195	
29	287.5	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5031260		
	287.5	15.00	20.25	558.124	125.124	600	780	1.00	306.97	68.82	1.5034783	558.1237081	
30	237	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5034793		
	237	30.00	40.50	1056.312	236.811	6000	7800	1.00	580.97	130.25	1.5042194	1056.311571	
31	200	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5042204		
	200	10.00	13.50	335.435	75.200	600	780	1.00	184.49	41.36	1.5050000	335.4350161	
32	150	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5050010		
	150	10.00	13.50	308.967	69.266	600	780	1.00	169.93	38.10	1.5066667	308.9666577	
33	125	0.00	0.00	0.000	0.000	0	0	1.00	0.00	0.00	1.5066677		
	125	70.00	94.50	2052.988	460.253	9600	12480	1.00	1129.14	253.14	1.5080000	2052.988145	
34	147	0.14	0.40	4.239	2.062	2	17	1.00	2.33	1.13	1.5080010		
	147	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5068027	4.23923032	
35	147	0.14	0.31	4.342	1.585	2	8	1.00	2.39	0.87	1.5068037		
	147	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5068027	8.580856766	
36	147	0.17	0.35	5.120	1.773	2	9	1.00	2.82	0.98	1.5068037		
	147	6.30	8.51	193.529	43.387	180	234	1.00	106.44	23.86	1.5068027	207.2293405	
37	240	13.10	15.51	462.772	91.019	205	496	1.00	254.52	50.06	1.5068037		
	240	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5041667	462.7716781	
38	240	3.13	3.91	110.723	22.946	216	356	1.00	60.90	12.62	1.5041677		
	240	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5041667	573.4942174	
39	240	2.70	3.47	95.563	20.351	230	360	1.00	52.56	11.19	1.5041677		
	240	16.08	21.71	568.221	127.388	720	936	1.00	312.52	70.06	1.5041667	1237.279159	
40	204.8	15.66	19.14	528.905	107.360	61	189	1.00	290.90	59.05	1.5041677		
	204.8	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5048828	528.9050228	
41	48	0.16	0.30	3.471	1.100	1	7	1.00	1.91	0.61	1.5048838		
	48	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5208333	3.470677117	
42	222	0.69	1.12	23.714	6.422	40	68	1.00	13.04	3.53	1.5208343		
	222	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5045045	23.71423754	
43	222	1.97	2.81	67.970	16.141	266	379	1.00	37.38	8.88	1.5045055		
	222	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5045045	91.6843893	
44	222	9.48	11.89	327.768	68.255	147	368	1.00	180.27	37.54	1.5045055		
	222	0.00	0.00	0.000	0.000	1	2	1.00	0.00	0.00	1.5045045	419.4521247	
45	222	30.61	36.51	1057.732	209.532	460	1134	1.00	581.75	115.24	1.5045055		
	222	20.10	27.14	520.973	116.795	1080	1404	1.00	286.54	64.24	1.5045045	1998.157442	
46					#VALUE!			1.00	#VALUE!	#VALUE!	1.5045055		
								1.00	#VALUE!	#VALUE!	1.5045055	#VALUE!	
47					#VALUE!			1.00	#VALUE!	#VALUE!	1.5045065	#VALUE!	
								1.00	#VALUE!	#VALUE!	1.5045065	#VALUE!	
48					#VALUE!			1.00	#VALUE!	#VALUE!	1.5045075	#VALUE!	
								1.00	#VALUE!	#VALUE!	1.5045075	#VALUE!	
49					#VALUE!			1.00	#VALUE!	#VALUE!	1.5045085</		

## Foundation

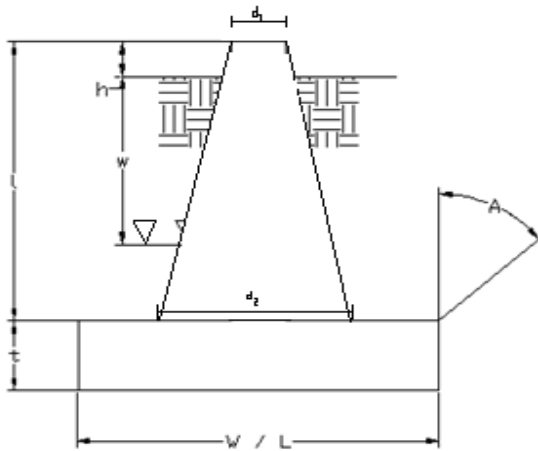
### Design Loads (Factored)

Compression/Leg:	446.40	k
Uplift/Leg:	306.33	k
Shear/Leg:	66.89	k

Face Width @ Top of Pier ( $d_1$ ):	4.00	ft
Face Width @ Bottom of Pier ( $d_2$ ):	7.50	ft
Total Length of Pier ( $l$ ):	7.25	ft
Height of Pedestal Above Ground ( $h$ ):	0.50	ft
Width of Pad ( $W$ ):	21.50	ft
Length of Pad ( $L$ ):	21.50	ft
Thickness of Pad ( $t$ ):	2.50	ft
Water Table Depth ( $w$ ):	99.00	ft
Unit Weight of Concrete:	150.0	pcf
Unit Weight of Soil (Above Water Table):	131.0	pcf
Unit Weight of Soil (Below Water Table):	68.6	pcf
Friction Angle of Uplift ( $A$ ):	30	°
Ultimate Compressive Bearing Pressure:	48200	psf
Ultimate Skin Friction:	0	psf

Volume Pier (Total):	247.10	ft <sup>3</sup>
Volume Pad (Total):	1155.63	ft <sup>3</sup>
Volume Soil (Total):	4120.07	ft <sup>3</sup>
Volume Pier (Buoyant):	0.00	ft <sup>3</sup>
Volume Pad (Buoyant):	0.00	ft <sup>3</sup>
Volume Soil (Buoyant):	0.00	ft <sup>3</sup>
Weight Pier:	37.07	k
Weight Pad:	173.34	k
Weight Soil:	539.73	k
Uplift Skin Friction:	0.00	k

Site No.:	88008
Engineer:	asp
Date:	04/06/20
Carrier:	TMO



### Uplift Check

$\phi_s$ Uplift Resistance (k)	Ratio	Result
562.60	0.54	<b>OK</b>

### Axial Check

$\phi_s$ Axial Resistance (k)	Ratio	Result
16710.34	0.03	<b>OK</b>

### Anchor Bolt Check

Bolt Diameter (in)	2.25
# of Bolts	6
Steel Grade	A36
Steel Fy	36
Steel Fu	58
Detail Type	B

Usage Ratio	Result
0.44	<b>OK</b>

# Exhibit E

## **Mount Analysis**

**Mount Analysis of Proposed Perfect Vision PV-SFA-B Sector Frames for American Tower on behalf of T-Mobile**  
**88008 - Bethany CT**  
**Project #: 12948439**  
 T-Mobile Site ID: CTNH217A  
 Program: L600

CLS Engineering PLLC Project #41124-12948439-01-MR  
 August 1, 2019

MOUNT DESCRIPTION	Proposed Perfect Vision PV-SFA-B Sector Frames at 222 ft AGL
ANTENNA ELEVATION	Nominal Rad. Elevation of 222 ft AGL
SITE DESCRIPTION	337.5 ft Self-Supporting Tower
SITE ADDRESS	93 Old Amity Road, Bethany, CT 06524-3400, New Haven County
GPS COORDINATES	41.40475833, -72.99998333
ANALYSIS STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
LOADING CRITERIA	125 mph, $V_{ult}$ / 97 mph, $V_{asd}$ (3-Second Gust) w/o ice & 50 mph (3-Second Gust) w/ 0.75" Ice

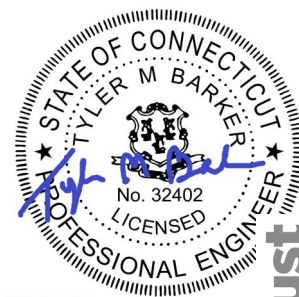
■ ANALYSIS RESULT: Pass (Replacement)

MEMBER USAGE	51%	Pass
--------------	-----	------

Existing mounts to be replaced; see conclusion for details.

Prepared by:  
 A.J. Ingalls, E.I.

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



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



Digitally signed  
 by Tyler Barker  
 DN: c=US,  
 o=Telamon  
 Corporation,  
 ou=A01427E000  
 0016A4525ADF8  
 00001D17,  
 cn=Tyler Barker  
 Date: 2019.08.01  
 14:42:39 -04'00'

■ INTRODUCTION

The proposed equipment is to be mounted to the proposed Perfect Vision PV-SFA-B Sector Frames. This proposed mounting configuration was analyzed using RISA-3D, a commercially available finite element analysis software package. A selection of input and output from our analysis is attached to the end of this report.

■ STRUCTURAL DOCUMENTS PROVIDED

STRUCTURAL DATA	Site Photos, dated July 20, 2018 Perfect Vision Drawing #SFA-ENG-01-R7, Rev. 7, dated March 20, 2018 Perfect Vision Drawing #PV-SAM-U, dated November 13, 2015
PREVIOUS ANALYSES	Tower SA by American Tower Corp., Engineering #12948439_C3_01, dated June 21, 2019
LOADING DATA	American Tower Application, Project #12948439, dated June 6, 2019

■ ANALYSIS CRITERIA

STANDARD	2015 IBC / 2018 Connecticut State Building Code / TIA-222-G
BASIC WIND SPEED	125 mph, $V_{ult}$ / 97 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
222.0	222.0	3	RFS Celwave APX16DWV-16DWVS-E-A20
		3	Ericsson RADIO 4449 B12/B71
		3	Andrew ETT19V2A12UB
		3	RFS Celwave APXVAARR24_43-U-NA20

■ RESULTS SUMMARY

Existing Mount Usages:

COMPONENT	PEAK USAGE	RESULT
Face Horizontals	>200%	Fail
Stand-Off Tower Connection	95%	Pass
Mount Pipes	83%	Pass
Stand-Off Horizontals	60%	Pass

Replacement Mount Usages:

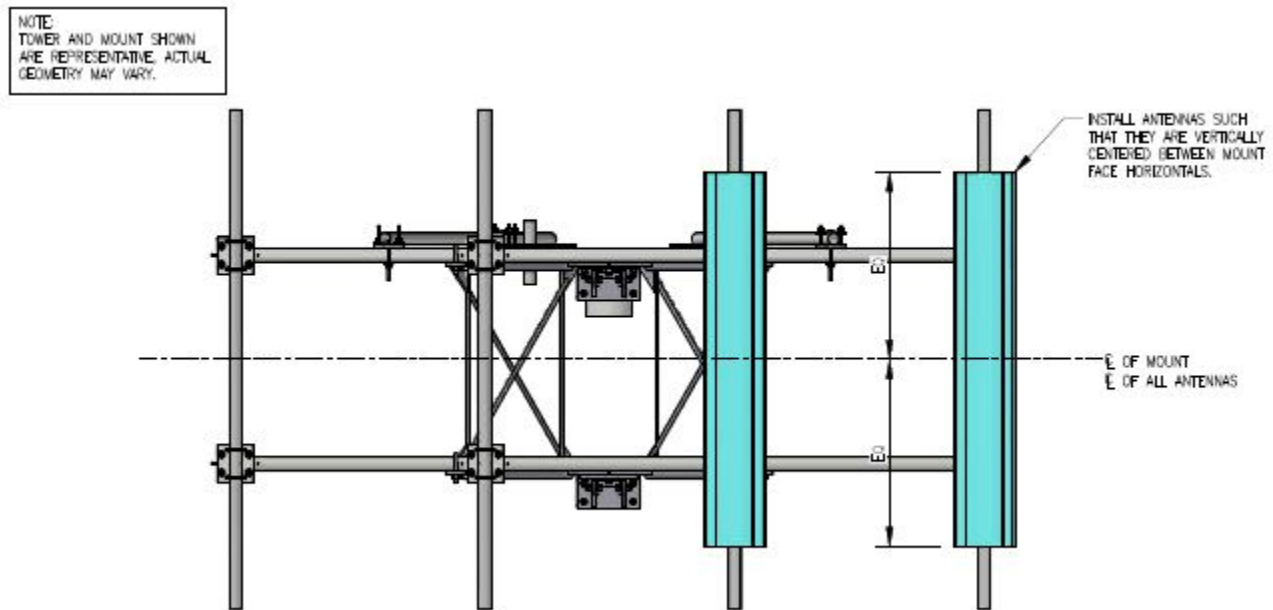
COMPONENT	PEAK USAGE	RESULT
Face Horizontals	51%	Pass
Stand-Off Tower Connection	42%	Pass
Mount Pipes	40%	Pass
Stand-Off Horizontals	37%	Pass



## ■ CONCLUSION AND RECOMMENDATIONS

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

- Replace existing Sector Frame mounts with (3) proposed Perfect Vision PV-SFA-B Sector Frame kits.
- Connect sector frame mounts to tower leg using Perfect Vision PV-SFA-8016 Mount Leg Adapter Kit.
- Install (4) 10'-6" long Pipe 2.5 STD, A53 Gr. B, mount pipes at each sector frame mount (12 total). Connect mount pipes to upper and lower face horizontal angle members with 1/2" Ø U-Bolts such that the mount pipes are vertically centered on the mount.
- Install (2) stiff arms included in the sector frame kit at each sector frame mount (6 total). Connect to tower diagonal bracing angles with Perfect Vision PV-SAM-U or equal (6 total). Connect to upper and lower face horizontal angle members as shown in the following sketches.
- Install proposed antennas such that they are vertically centered on the mounts. Install proposed RRUS and TMAs behind the antennas.



See following sketches and Perfect Vision drawings for additional details.

## ■ ASSUMPTIONS AND CONDITIONS

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

This analysis assumes the following:

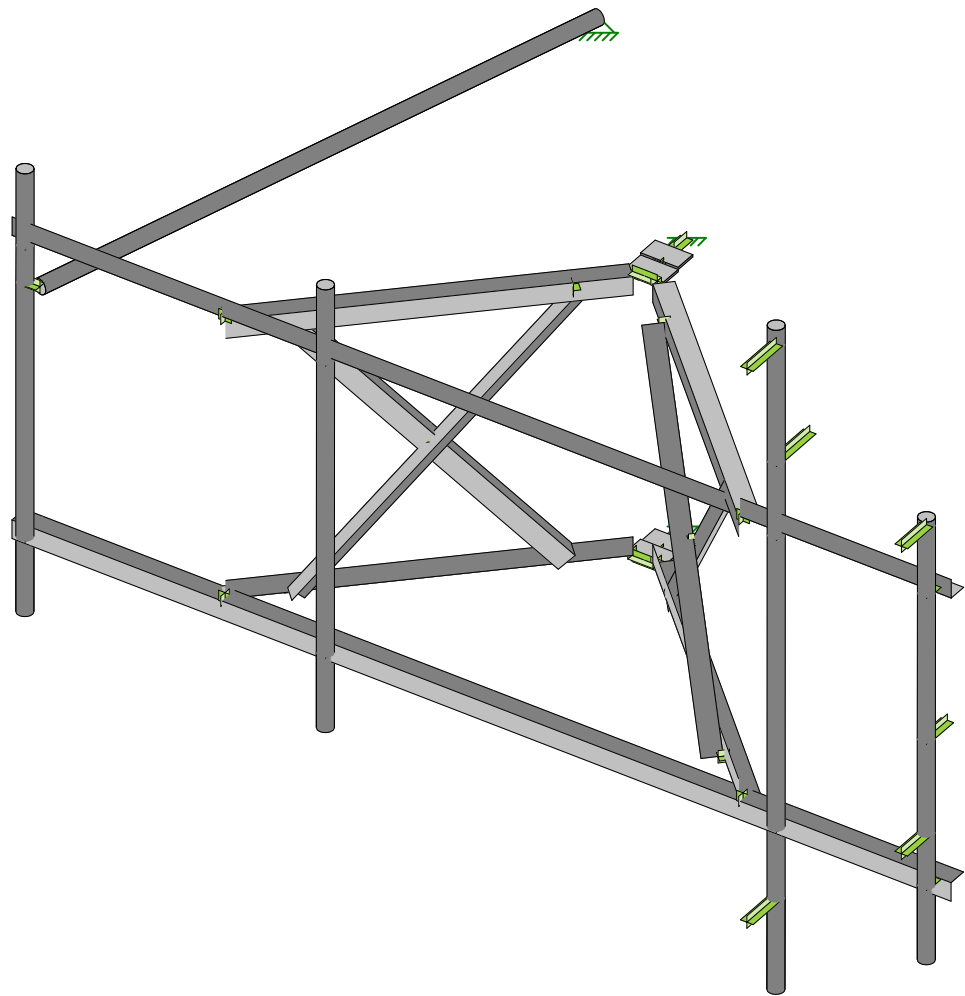
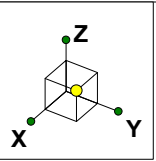
1. The tower or other superstructure and mounts (if existing) were properly constructed as per the original design and have been properly maintained in accordance with applicable code standards.
2. Member sizes and strengths are accurate as supplied or are assumed as stated in the calculations.
3. In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

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

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

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

Existing Mount - To Be Replaced



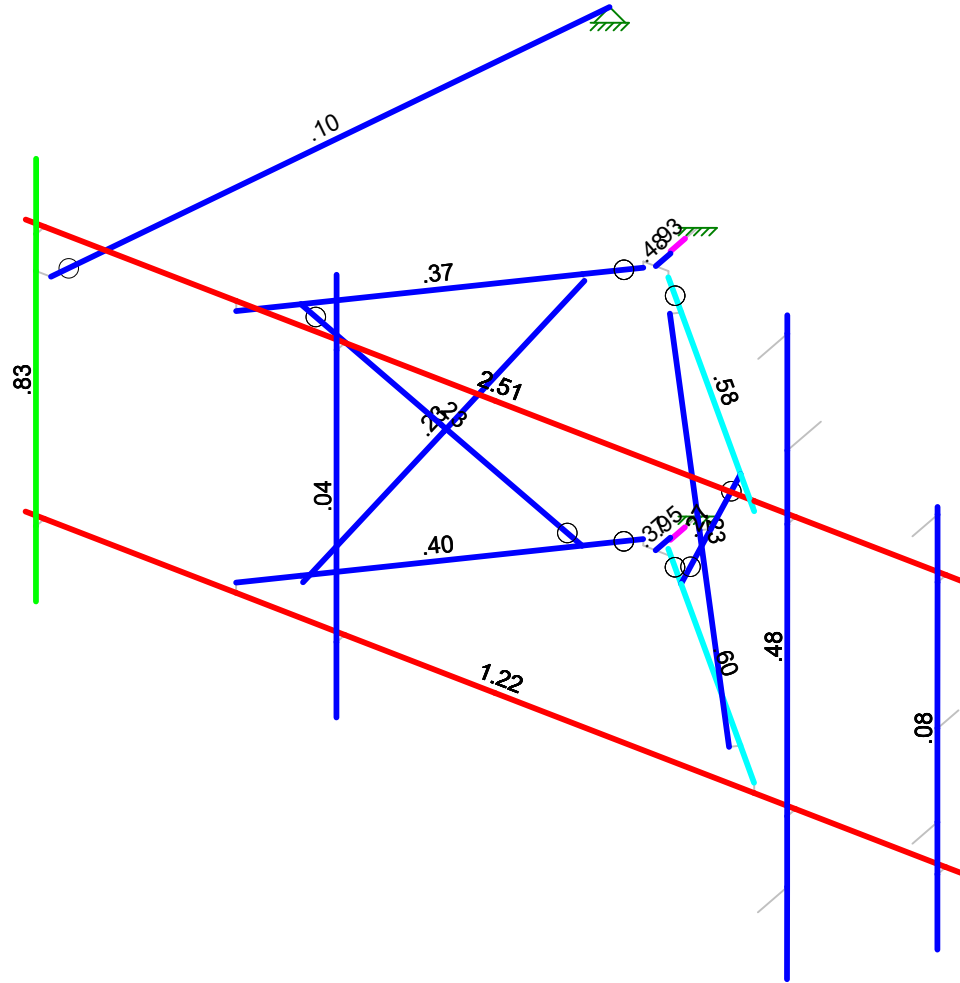
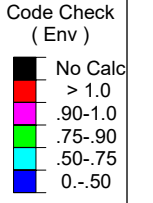
Envelope Only Solution

CLS
AJI
41124-12948439-01-MA

41124-12948439-Bethany CT
Existing Mount - Rendered

EX - 1
July 31, 2019 at 5:15 PM
41124-12948439-01-MA.r3d

Existing Mount - To Be Replaced

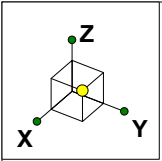


Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

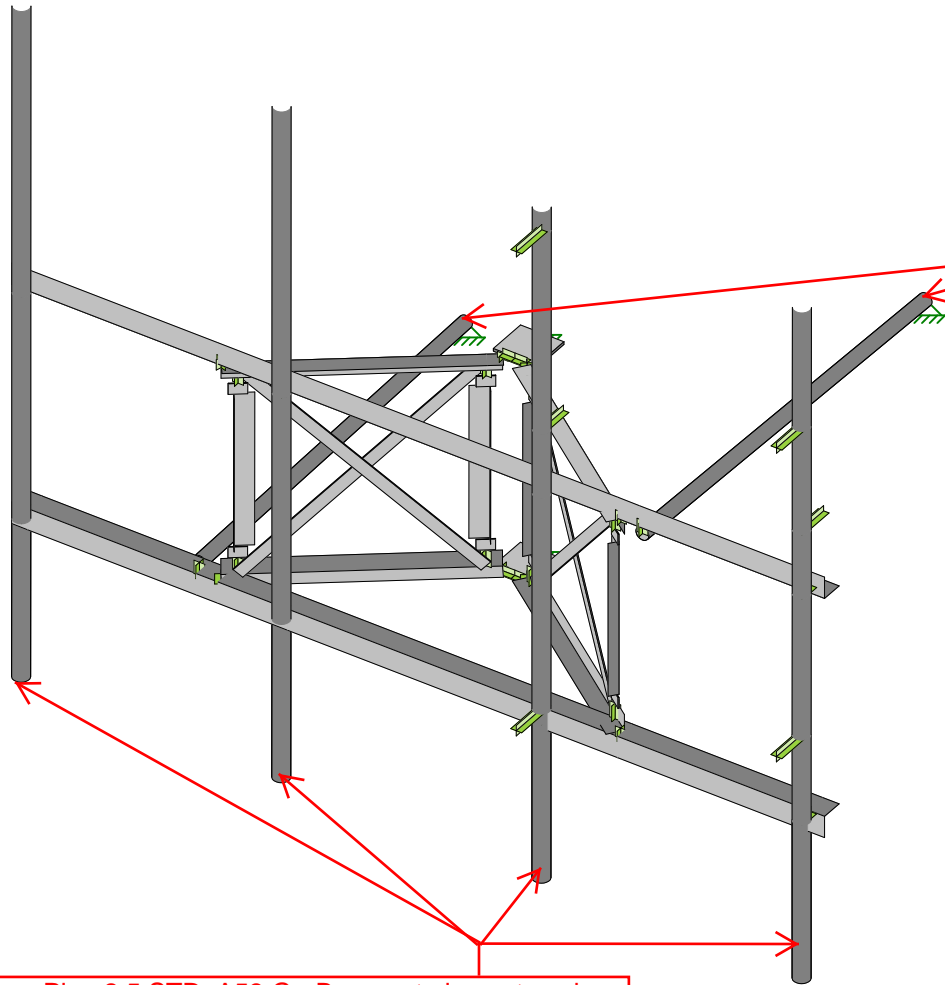
CLS
AJI
41124-12948439-01-MA

41124-12948439-Bethany CT
Existing Mount - Envelope Member Unity Check Results - Bending

EX - 2
July 31, 2019 at 5:16 PM
41124-12948439-01-MA.r3d



Replace existing Sector Frame mounts with (3) proposed Perfect Vision PV-SFA-B Sector Frame kits.



Install (2) stiff arms included in the sector frame kit at each sector frame mount (6 total). Connect to tower diagonal bracing angles with Perfect Vision PV-SAM-U or equal (6 total). Connect to upper and lower face horizontal angle members as shown in the following sketches.

Install (4) 10'-6" long Pipe 2.5 STD, A53 Gr. B, mount pipes at each sector frame mount (12 total). Connect mount pipes to upper and lower face horizontal angle members with 1/2" Ø U-Bolts such that the mount pipes are vertically centered on the mount.

Envelope Only Solution

CLS
AJI
41124-12948439-01-MR

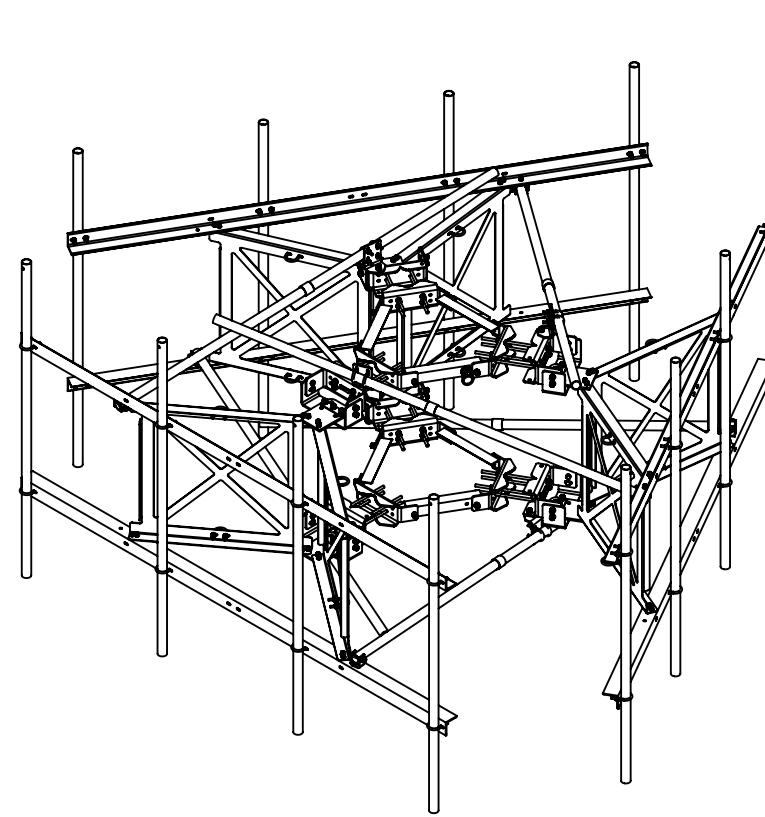
41124-12948439-Bethany CT
Recommended Replacement Mount - Rendered

IN - 1
July 31, 2019 at 5:15 PM
41124-12948439-01-MR.r3d

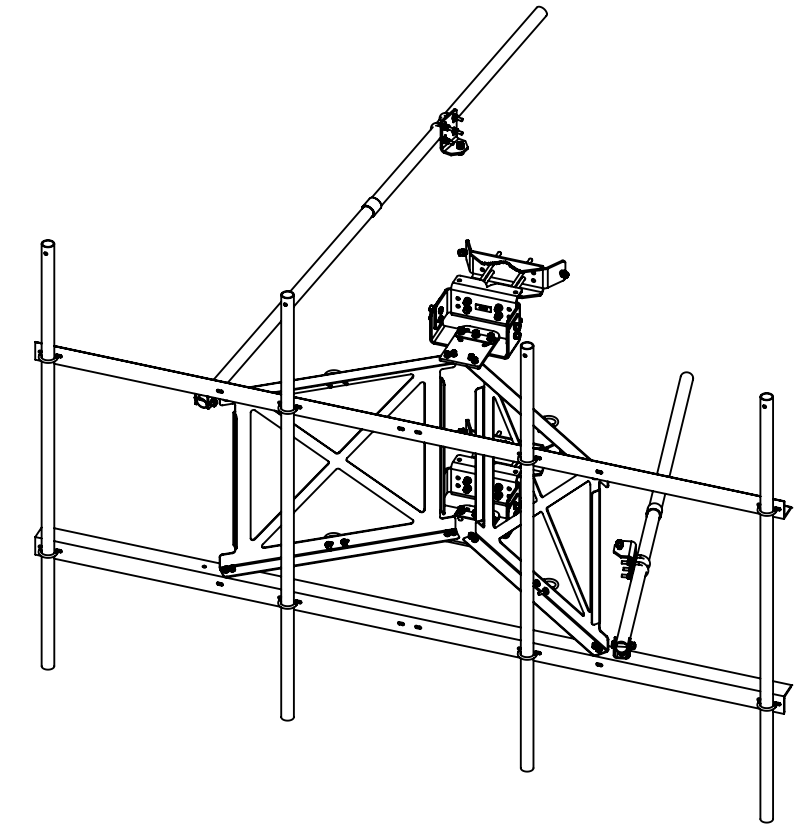
**PV-SFA-B**  
**L.I.F.E. MOUNT ASSEMBLED SECTOR FRAME**

Table 1: PV-SFA Configurations

Part Number	Included Frame	Frame qty	Total Antenna Pipes	Pipe Length	HSK Included
PV-SFA7-3-96	PV-SFA7-B	1	3	96"	No
PV-SFA7-4-96	PV-SFA7-B	1	4	96"	No
PV-SFA7-3-126	PV-SFA7-B	1	3	126"	No
PV-SFA7-4-126	PV-SFA7-B	1	4	126"	No
PV-SFA10-3-96	PV-SFA10-B	1	3	96"	No
PV-SFA10-4-96	PV-SFA10-B	1	4	96"	No
PV-SFA10-3-126	PV-SFA10-B	1	3	126"	No
PV-SFA10-4-126	PV-SFA10-B	1	4	126"	No
PV-SFA12-3-96	PV-SFA12-B	1	3	96"	No
PV-SFA12-4-96	PV-SFA12-B	1	4	96"	No
PV-SFA12-3-126	PV-SFA12-B	1	3	126"	No
PV-SFA12-4-126	PV-SFA12-B	1	4	126"	No
PV-SFA14-4-96	PV-SFA14-B	1	4	96"	No
PV-SFA14-5-96	PV-SFA14-B	1	5	96"	No
PV-SFA14-4-126	PV-SFA14-B	1	4	126"	No
PV-SFA14-5-126	PV-SFA14-B	1	5	126"	No
PV-SFA7-3-9-96	PV-SFA7-B	3	9	96"	Yes
PV-SFA7-3-12-96	PV-SFA7-B	3	12	96"	Yes
PV-SFA7-3-9-126	PV-SFA7-B	3	9	126"	Yes
PV-SFA7-3-12-126	PV-SFA7-B	3	12	126"	Yes
PV-SFA10-3-9-96	PV-SFA10-B	3	9	96"	Yes
PV-SFA10-3-12-96	PV-SFA10-B	3	12	96"	Yes
PV-SFA10-3-9-126	PV-SFA10-B	3	9	126"	Yes
PV-SFA10-3-12-126	PV-SFA10-B	3	12	126"	Yes
PV-SFA12-3-9-96	PV-SFA12-B	3	9	96"	Yes
PV-SFA12-3-12-96	PV-SFA12-B	3	12	96"	Yes
PV-SFA12-3-9-126	PV-SFA12-B	3	9	126"	Yes
PV-SFA12-3-12-126	PV-SFA12-B	3	12	126"	Yes
PV-SFA14-3-12-96	PV-SFA14-B	3	12	96"	Yes
PV-SFA14-3-15-96	PV-SFA14-B	3	15	96"	Yes
PV-SFA14-3-12-126	PV-SFA14-B	3	12	126"	Yes
PV-SFA14-3-15-126	PV-SFA14-B	3	15	126"	Yes

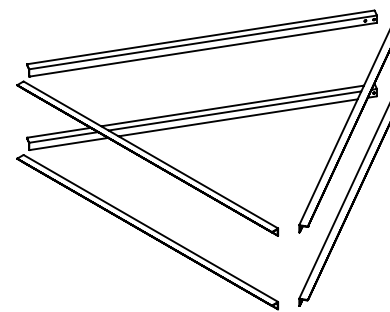


3 SECTOR WITH HSK AND PIPE

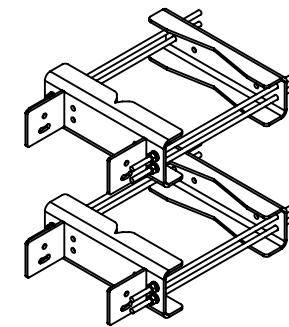


SINGLE SECTOR WITH PIPE

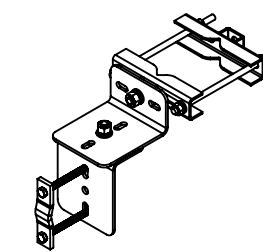
OPTIONAL ACCESSORIES



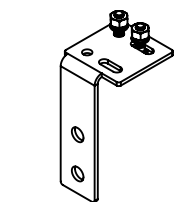
PV-HSK



PV-SFA-8016



PV-SAM-U



PV-SCRB-SFA

Table 2: PV-SFA-B Configurations

Part Number	Mount Width	Face Angle	Total Weight
PV-SFA7-B	7' 6"	PV-SFA-ANGLE7-HD	510 lbs
PV-SFA10-B	10' 6"	PV-SFA-ANGLE10-HD	560 lbs
PV-SFA12-B	12' 6"	PV-SFA-ANGLE12-HD	592 lbs
PV-SFA14-B	14' 6"	PV-SFA-ANGLE14-HD	624 lbs

Table 3: Optional Accessories

Part Number	Description	Sheet
PV-HSK	Horizontal Support Kit	5
PV-SFA-8016	Large Leg Adapter Kit	6
PV-SAM-U	Stiff Arm Leg Bracket	6
PV-SCRB-SFA	Safety Climb Cable Guide Attachment	4

SHEET 1 OF 8	THIRD ANGLE PROJECTION 	CATEGORY 01_Self Support	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
5/1/2018	SCALE NTS	SERIES 02_V-Frames - Assembled	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		TYPE PV-SFA	5	MOUNT CLASSIFICATIONS	1/19/17
		BY DJN	4	ADDED TIE BACK PIPE RANGE	6/9/16
		CHECKED SJS	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		STATUS APPROVED	REV	DESCRIPTION	DATE



L.I.F.E. MOUNT™ SECTOR FRAME	
DOCUMENT NUMBER	REV
SFA-ENG-01-R7	7

**FRAME DETAILS:**

Part Number	Front (ft <sup>2</sup> ) (EPA) <sub>MN</sub>		Side (ft <sup>2</sup> ) (EPA) <sub>MT</sub>	
	No Ice	0.5' Radial Ice	No Ice	0.5' Radial Ice
PV-SFA7-B	9.9	11.3	5.2	7.4
PV-SFA10-B	11.7	13.5	5.2	7.4
PV-SFA12-B	13.0	15.1	5.2	7.4
PV-SFA14-B	14.3	16.7	5.2	7.4

**NOTE: FRAME EPA DOES NOT INCLUDE ANTENNA PIPES**

Leg Type	Max Standard Bracket Size	Max Large Leg Bracket Size
Round	Ø8.625	Ø16
Angle 60°	6" x 6"	12" x 12"
Angle 90°	8" x 8"	16" x 16"

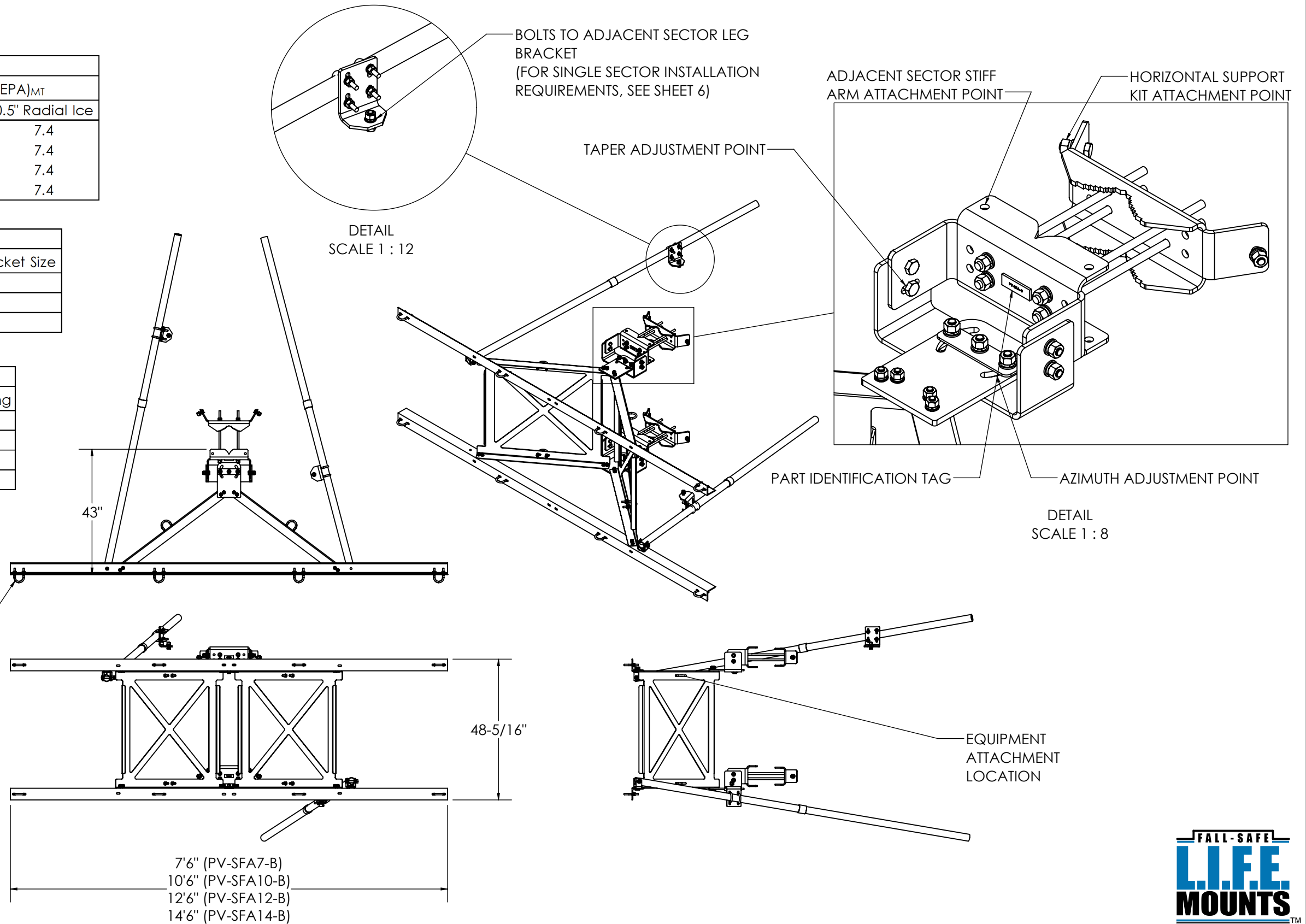
NOTE: SEE SHEET 6 FOR LARGE LEG BRACKET DETAILS

Part Number	3 Pipe Spacing	4 Pipe Spacing	5 Pipe Spacing
PV-SFA7-B	3'6"	2'4"	N/A
PV-SFA10-B	5'	3'4"	N/A
PV-SFA12-B	6'	4'	N/A
PV-SFA14-B	7'	4'8"	3'6"

COMPATIBLE ANTENNA PIPE:

- Ø2-3/8"
- Ø2-7/8"
- Ø3-1/2"

U-BOLTS SUPPLIED FOR Ø2-3/8"



SHEET	THIRD ANGLE PROJECTION	CATEGORY	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
2 OF 8		01_Self Support			
5/1/2018	SCALE 1:36	SERIES	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
		02_V-Frames - Assembled			
		TYPE	5	MOUNT CLASSIFICATIONS	1/19/17
		PV-SFA			
		BY	4	ADDED TIE BACK PIPE RANGE	6/9/16
		DJN			
		CHECKED	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		SJS			
		STATUS	REV	DESCRIPTION	DATE
		APPROVED			



L.I.F.E. MOUNT™ SECTOR FRAME	
DOCUMENT NUMBER	REV
SFA-ENG-01-R7	7

## MOUNT CLASSIFICATIONS:

### REFERENCE STRUCTURAL LETTER (SFA-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\*

- M700R-4[6]
- M800R-4[6]
- M900R-4[6]
- M950R-4[6]
- M1000R-4[6]
- M1400R-4[6]
- M1600R-4[6]
- HEAVY-5
- HEAVY-10
- HEAVY-WLL (PV-SFA14-B ONLY)

#### APPROVED MOUNT CLASSIFICATIONS (ICED)\*

- M1000R(i)-4[6]
- M1150R(i)-4[6]
- HEAVY-5
- HEAVY-10
- HEAVY-WLL (PV-SFA14-B ONLY)

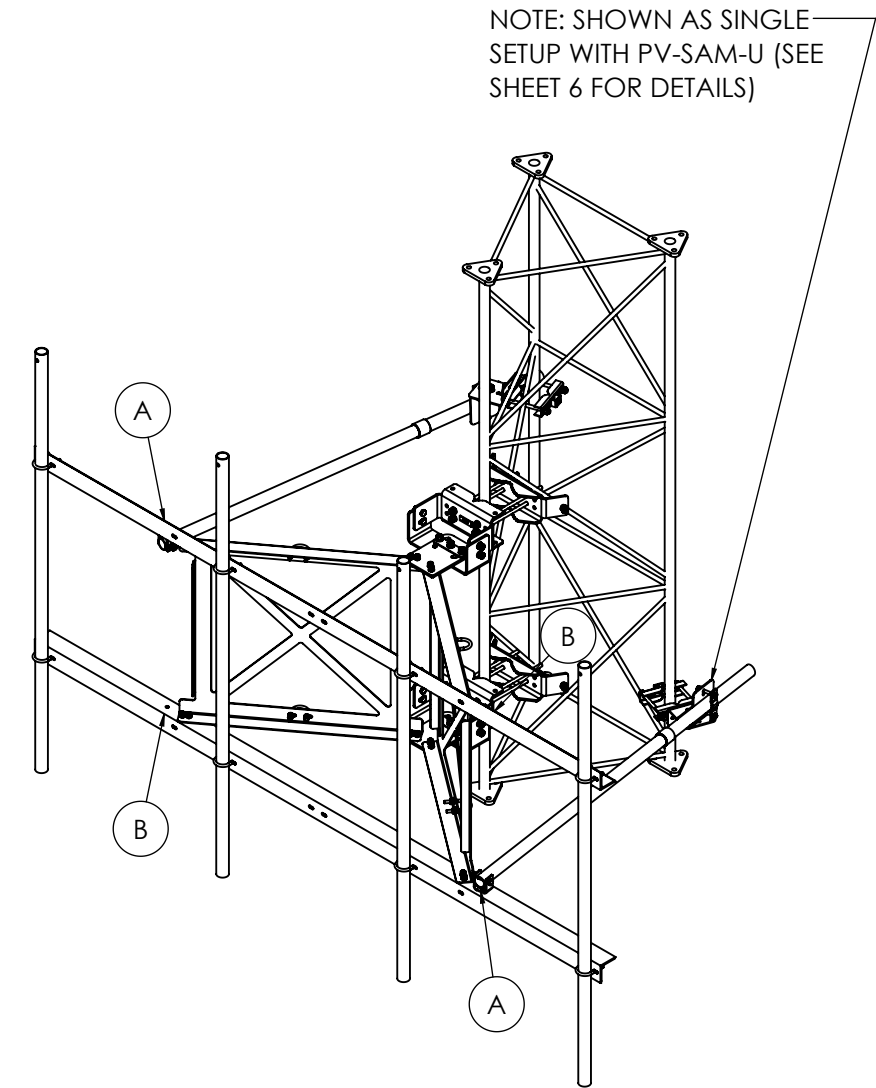
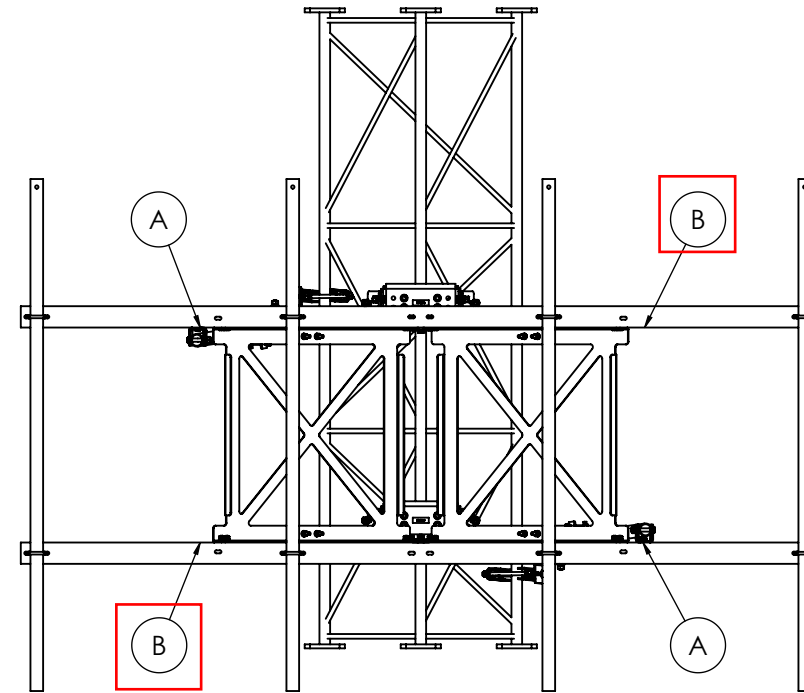
#### NOTES:

\*UNLESS NOTES, APPLIES TO PV-SFA7-B, PV-SFA10-B, PV-SFA12-B, AND PV-SFA14-B MOUNTS

**PERFECTVISION MANUFACTURING HIGHLY RECOMMENDS SPECIFYING THE PV-HSK (SEE SHEET 5) HORIZONTAL SUPPORT KIT TO INTERCONNECT SECTORS ON TOWERS WITH FACE WIDTHS LESS THAN 10FT AND LEG DIAMETERS LESS THAN 4IN OD.**

## STIFF ARM INSTALLATION:

- (2) STIFF ARMS ARE REQUIRED TO MEET APPROVED MOUNT CLASSIFICATIONS
- STIFF ARMS MUST BE INSTALLED ON OPPOSITE CORNERS OF FRAME (LOCATIONS A-A OR B-B)
- DO NOT INSTALL STIFF ARMS IN AN A-B CONFIGURATION



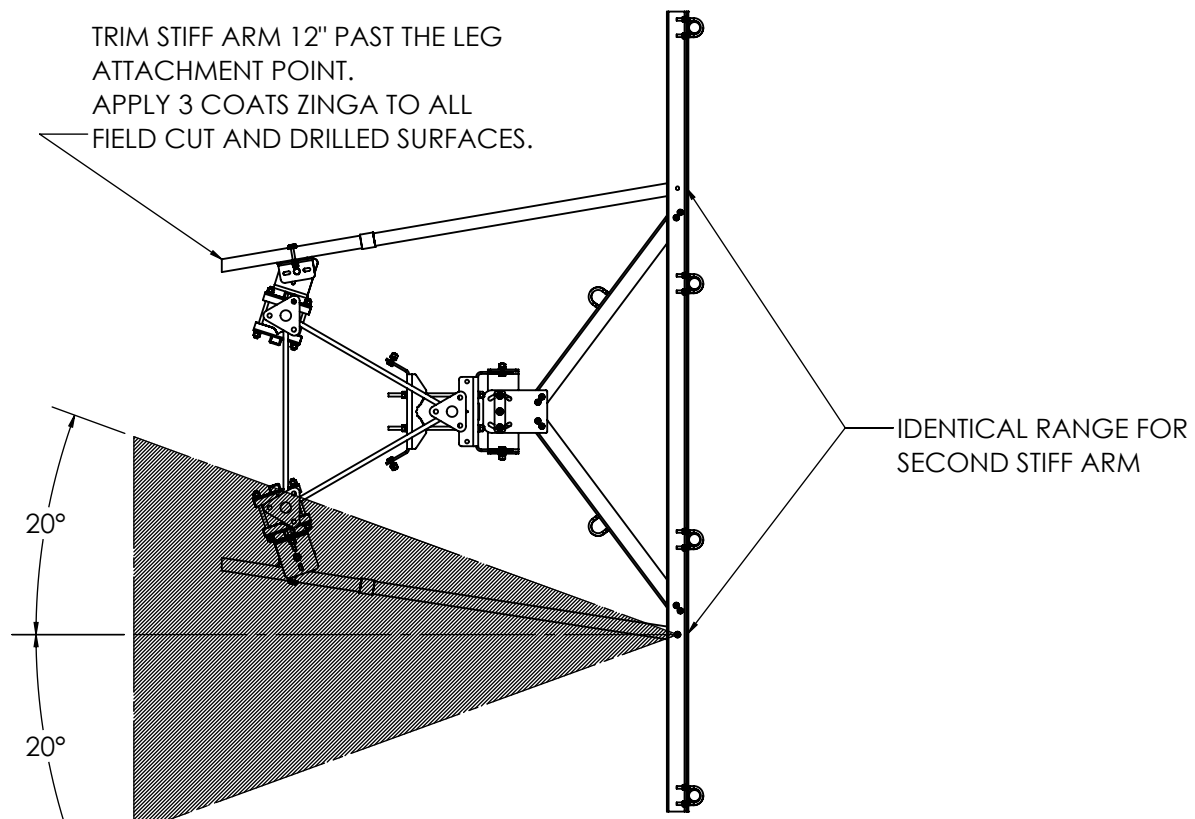
SHEET 3 OF 8	THIRD ANGLE PROJECTION 	CATEGORY 01_Self Support	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
5/1/2018	SCALE 1:36	SERIES 02_V-Frames - Assembled	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		TYPE PV-SFA	5	MOUNT CLASSIFICATIONS	1/19/17
		BY DJN	4	ADDED TIE BACK PIPE RANGE	6/9/16
		CHECKED SJS	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		STATUS APPROVED	REV	DESCRIPTION	DATE
					L.I.F.E. MOUNT™ SECTOR FRAME DOCUMENT NUMBER <b>SFA-ENG-01-R7</b> REV <b>7</b>



**STIFF ARM INSTALLATION RANGE:**

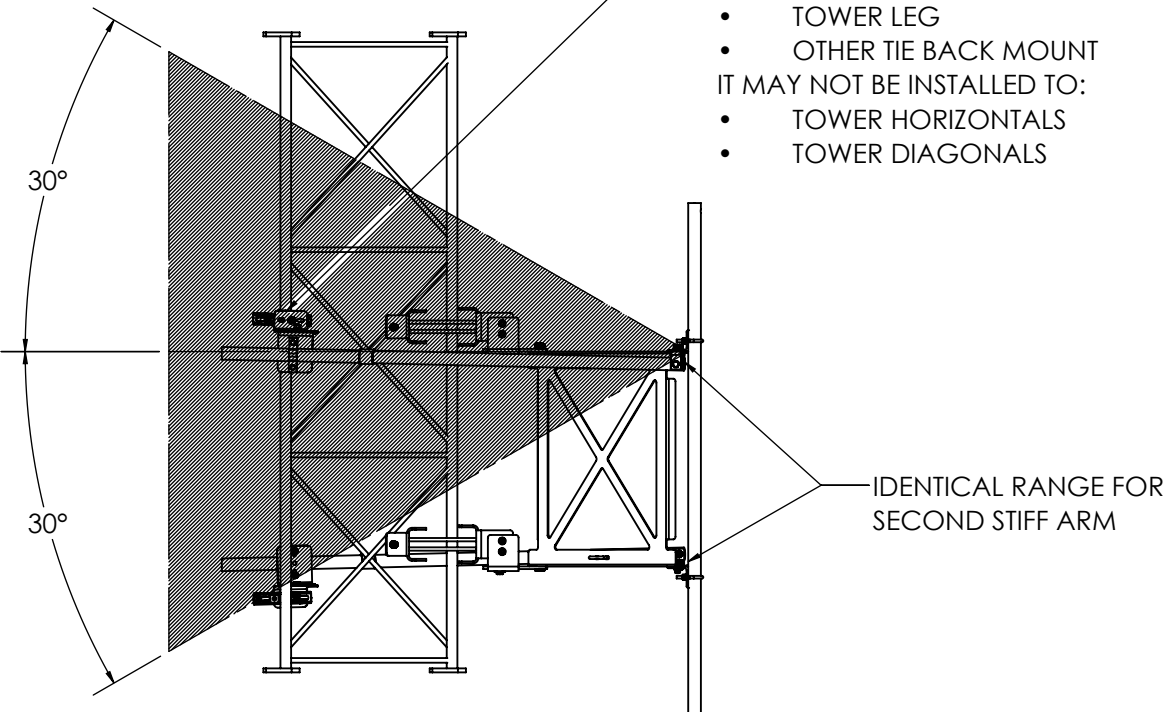
(SHOWN AS SINGLE SECTOR WITH PV-SAM-U)

TRIM STIFF ARM 12" PAST THE LEG ATTACHMENT POINT.  
APPLY 3 COATS ZINGA TO ALL FIELD CUT AND DRILLED SURFACES.



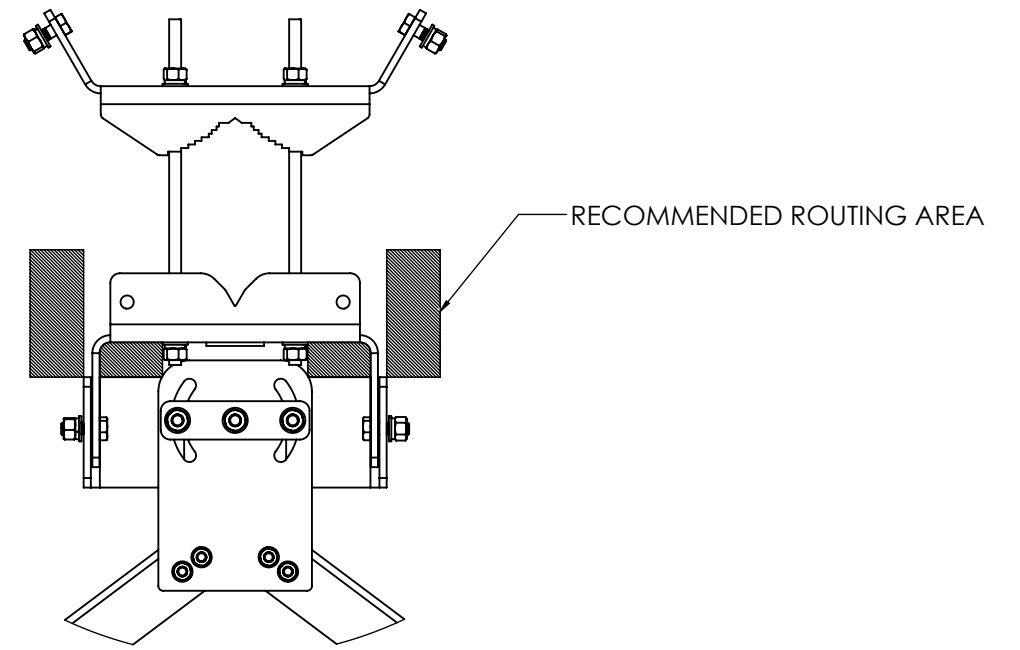
**INSTALL PIPE ±20° FROM FACE NORMAL**

- NOTE: STIFF ARM MUST BE ATTACHED TO:
- ADJACENT SECTOR LEG BRACKET
  - TOWER LEG
  - OTHER TIE BACK MOUNT
- IT MAY NOT BE INSTALLED TO:
- TOWER HORIZONTALS
  - TOWER DIAGONALS

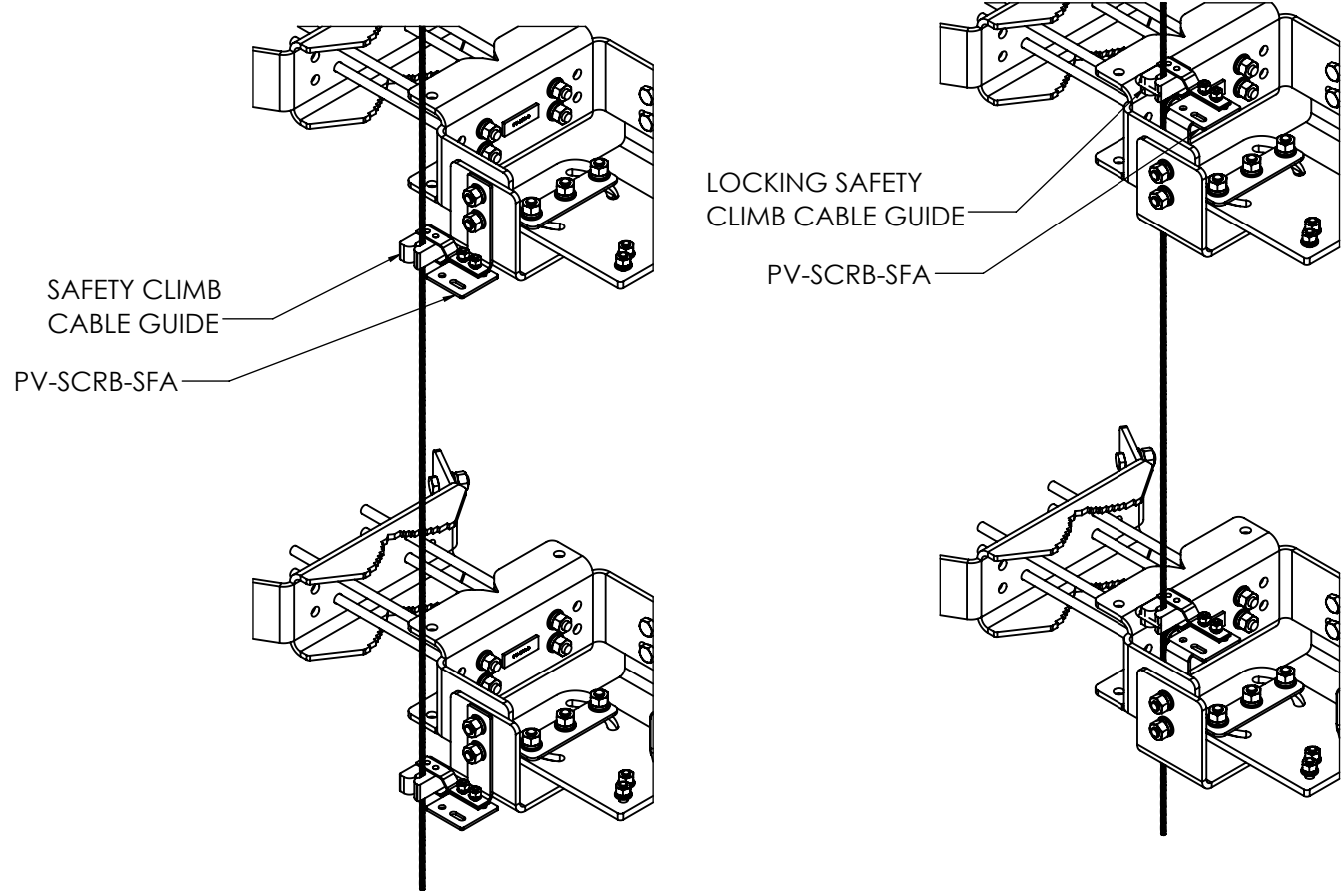


**INSTALL PIPE ±30° FROM HORIZONTAL**

**SAFETY CLIMB ROUTING:**



**SAFETY CLIMB CABLE RECOMMENDED ROUTING**



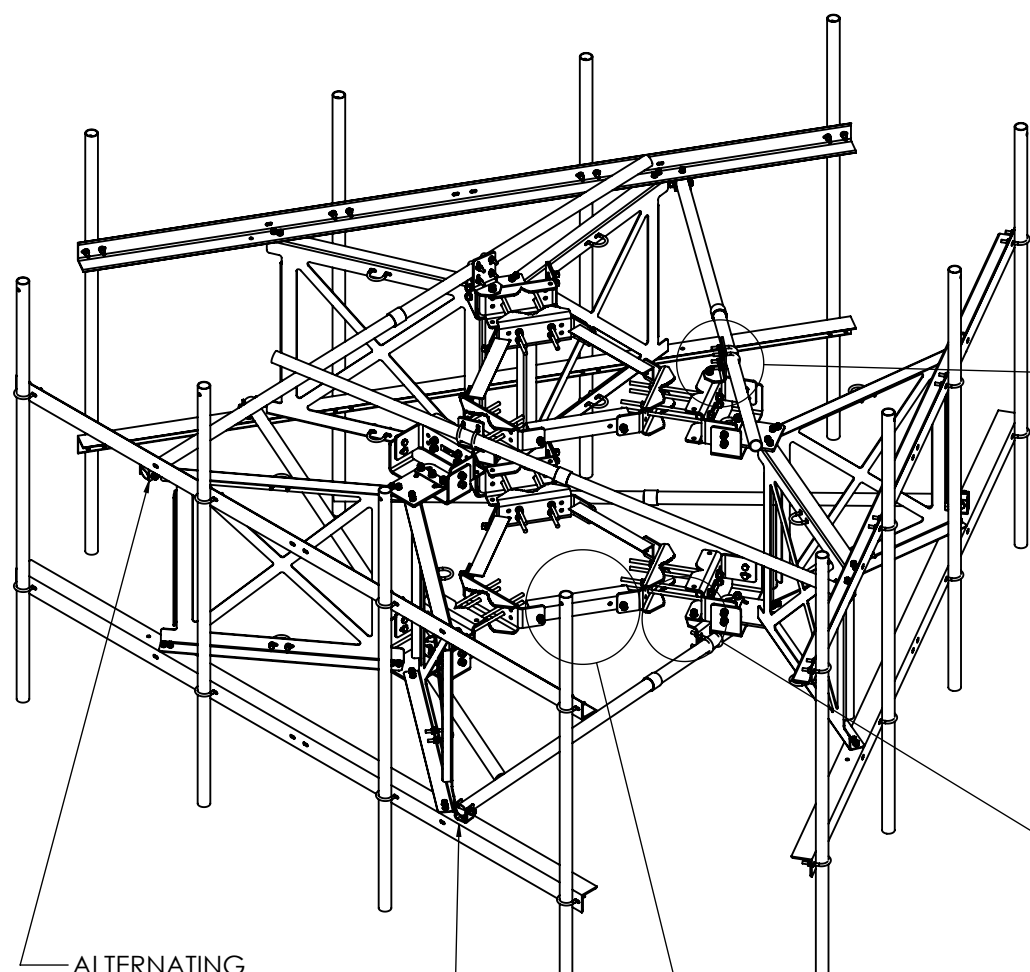
**SAFETY CLIMB EXTERIOR ROUTING**

**SAFETY CLIMB INTERIOR ROUTING**

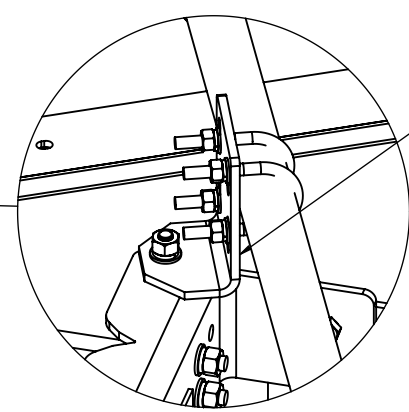


SHEET 4 OF 8	THIRD ANGLE PROJECTION 	CATEGORY 01_Self Support	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
5/1/2018	SCALE NTS	SERIES 02_V-Frames - Assembled	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ±1/4°, BEND ±2° ALL OTHERS: ±1/16"		TYPE PV-SFA	5	MOUNT CLASSIFICATIONS	1/19/17
		BY DJN	4	ADDED TIE BACK PIPE RANGE	6/9/16
		CHECKED SJS	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		STATUS APPROVED	REV	DESCRIPTION	DATE
<p><b>PERFECT VISION MANUFACTURING</b></p> <p>L.I.F.E. MOUNT™ SECTOR FRAME</p> <p>DOCUMENT NUMBER <b>SFA-ENG-01-R7</b></p>					REV <b>7</b>

**3 SECTOR CONNECTION DETAILS:**

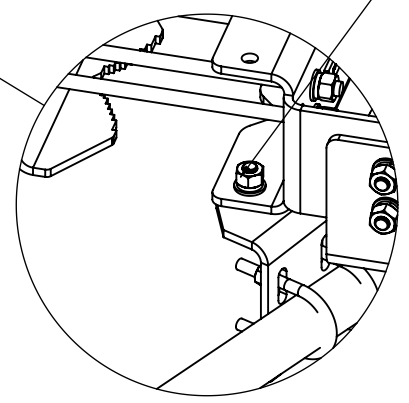


ALTERNATING ATTACHMENT LOCATIONS ENSURES STIFF ARM PIPES WON'T COLLIDE



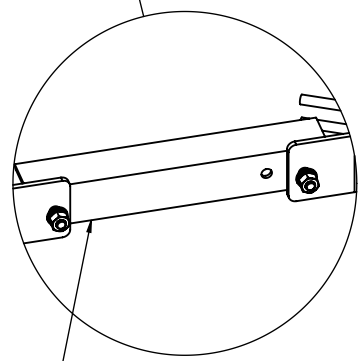
ADJACENT STIFF ARM TO TOP LEG BRACKET

DETAIL SCALE 1 : 8



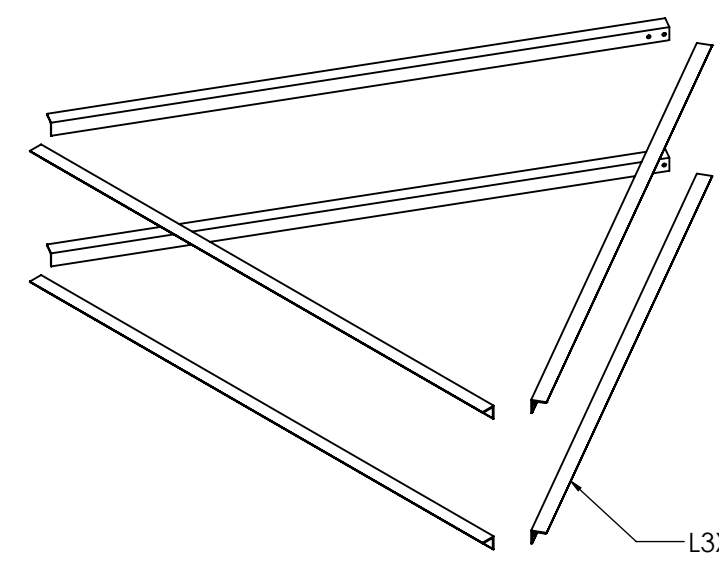
ADJACENT STIFF ARM TO BOTTOM LEG BRACKET

DETAIL SCALE 1 : 8

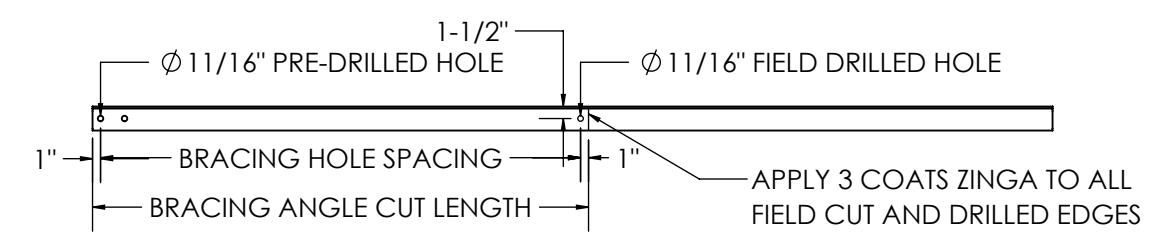


HORIZONTAL SUPPORT ANGLE

DETAIL SCALE 1 : 12



**PV-HSK HORIZONTAL SUPPORT KIT**  
WEIGHT: 300LBS



**BRACE ANGLE FIELD CUT DETAIL**  
SCALE 1:24



SHEET	THIRD ANGLE PROJECTION	CATEGORY	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
5 OF 8		01_Self Support			
5/1/2018	SCALE 1:36	SERIES	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
		02_V-Frames - Assembled			
		TYPE	5	MOUNT CLASSIFICATIONS	1/19/17
		PV-SFA			
		BY	4	ADDED TIE BACK PIPE RANGE	6/9/16
		DJN			
		CHECKED	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		SJS			
		STATUS	REV	DESCRIPTION	DATE
		APPROVED			



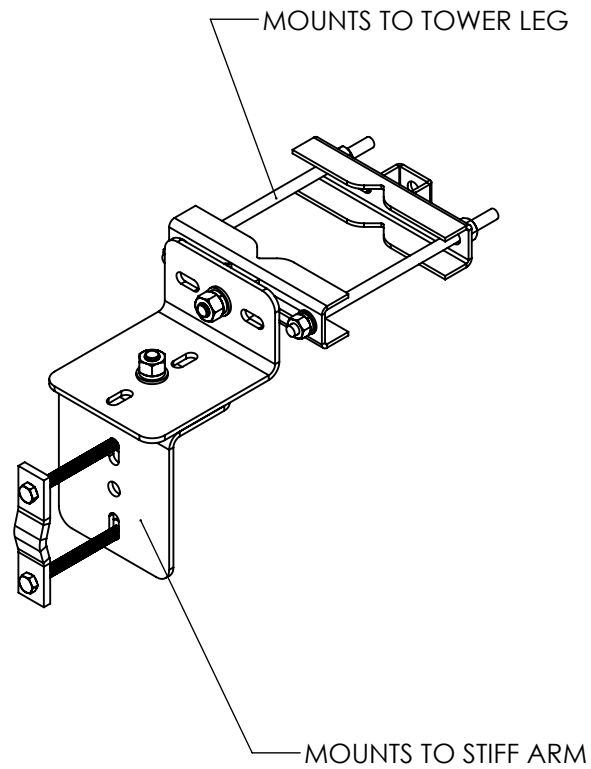
L.I.F.E. MOUNT™ SECTOR FRAME	
DOCUMENT NUMBER	REV
SFA-ENG-01-R7	7

C:\Users\Dominic\Documents\pvm\Steel\pvm\Steel\Sales\_Catalog\SW\_Working\_Files\Engineering\_Details\

### PV-SAM-U:

FOR SINGLE SECTOR INSTALLATIONS, (2) PV-SAM-U WILL BE REQUIRED PER FRAME TO ALLOW STIFF ARM PIPES TO ATTACH TO TOWER LEGS.

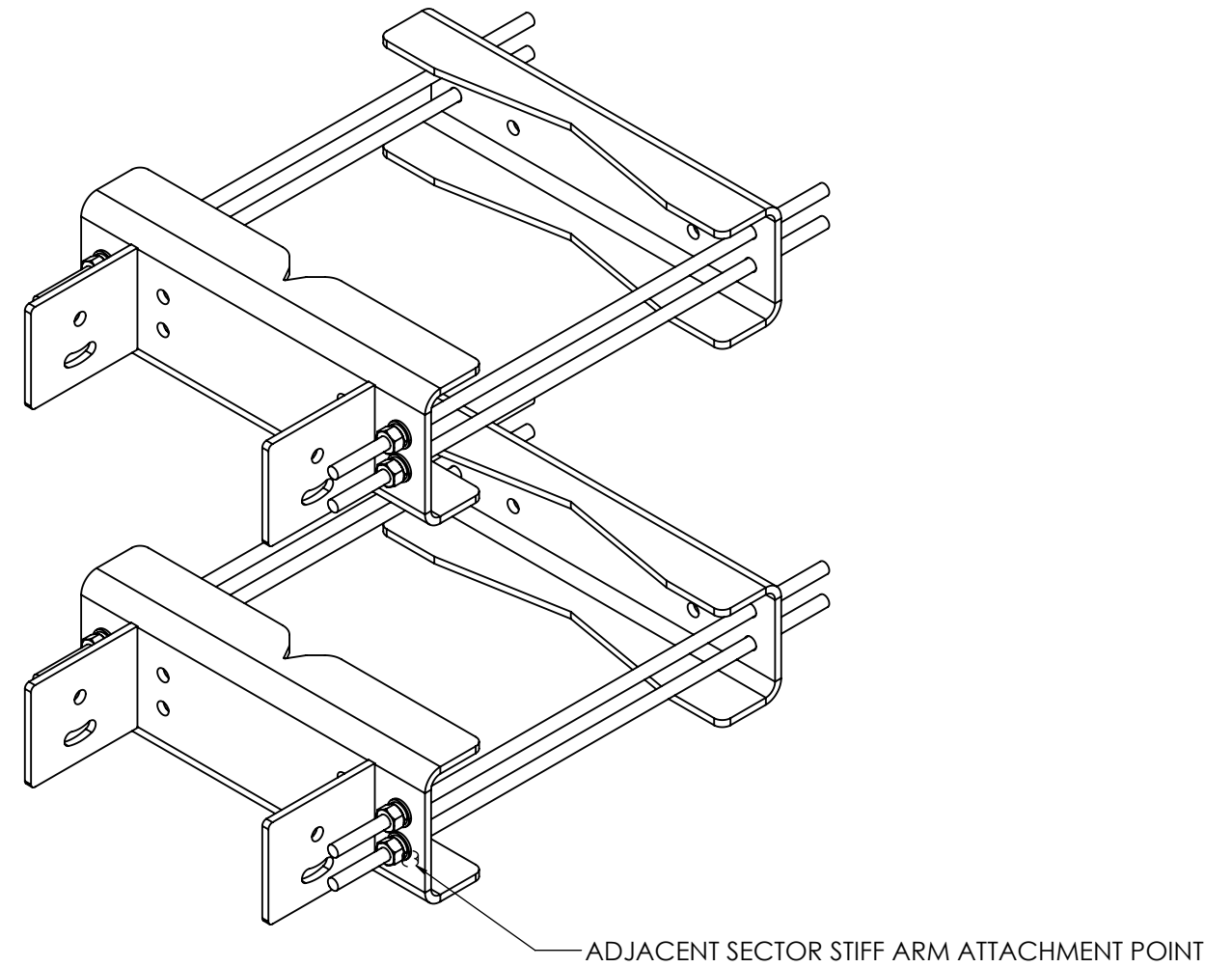
FOR 3 SECTOR INSTALLATIONS, THE PV-SAM-U IS NOT REQUIRED.



### PV-SFA-8016

FOR LARGE LEG TOWERS, INSTALL THE PV-SFA-8016 LARGE LEG BRACKETS IN PLACE OF THE STANDARD SUPPLIED BRACKETS.

FOR LARGE LEG APPLICATIONS, THE PV-HSK IS NOT REQUIRED.



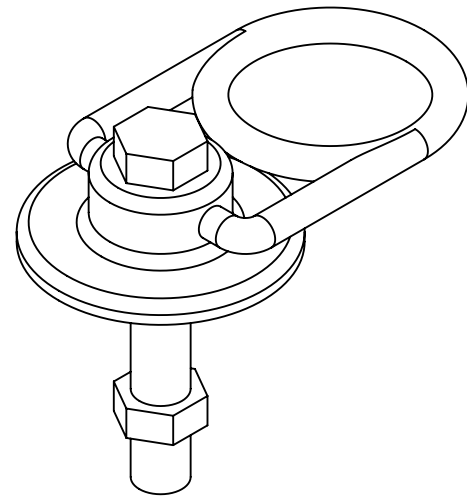
SHEET 6 OF 8	THIRD ANGLE PROJECTION 	CATEGORY 01_Self Support	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
5/1/2018	SCALE 1:8	SERIES 02_V-Frames - Assembled	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ± 1/4°, BEND ± 2° ALL OTHERS: ± 1/16"		TYPE PV-SFA	5	MOUNT CLASSIFICATIONS	1/19/17
		BY DJN	4	ADDED TIE BACK PIPE RANGE	6/9/16
		CHECKED SJS	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		STATUS APPROVED	REV	DESCRIPTION	DATE
DOCUMENT NUMBER SFA-ENG-01-R7					REV 7

C:\Users\Dominic\Documents\PVMS\Steel\PVMS Sales Catalog\SW Working Files\Engineering Details\

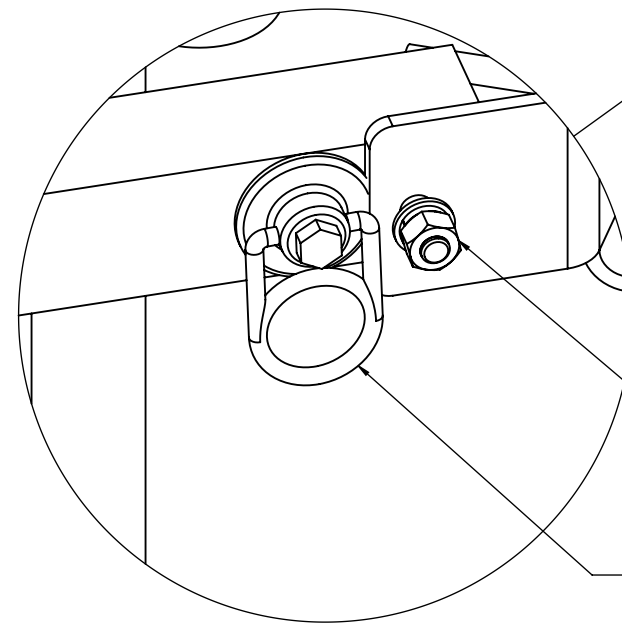
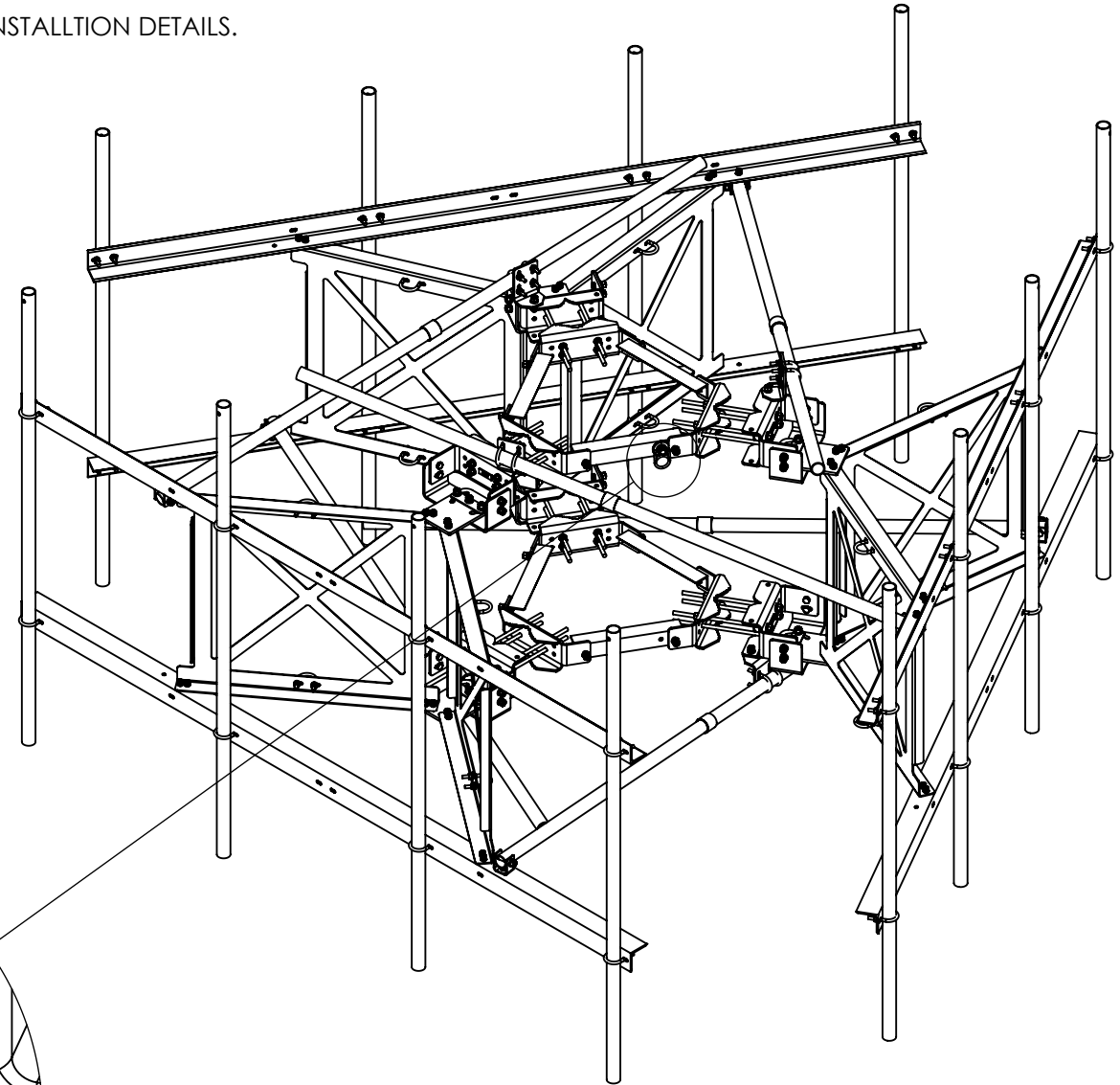
# 10K SWIVEL ANCHOR

## SWIVEL ANCHOR ATTACHMENT NOTES:

- **4" OD AND SMALLER LEGS REQUIRE ADDITIONAL BRACING** BEFORE SWIVLE ANCHORS CAN BE INSTALLED. SEE SHEET 5 FOR PV-HSK INSTALLTION DETAILS.
- LARGE LEG TOWERS DO NOT REQUIRE BRACING DUE TO THE STRUCTURAL CAPACITY OF THE TOWER.
- MAX (1) SWIVEL ANCHORS MAY BE INSTALLED PER LEG ATTACHMENT BRACKET
- SWIVEL ANCHOR SPECS:
  - UTS: 10,000 LBF
  - MAX USER WEIGHT: 310 LBS
  - WORKING LOAD: 2,000 LBS
- FOLLOW MANUFACTURER SPECIFICATIONS FOR SWIVEL ANCHOR INSTALLATION AND MAINTENANCE.



**HD26226**  
**10K SWIVEL ANCHOR**



FOR LARGE LEG TOWERS, ANCHOR CAN BE ATTACHED DIRECTLY TO LEG BRACKETS

FOR FRAMES WITH PV-HSK, ANCHOR ATTACHES TO HOIRZONTAL BRACE ANGLE.

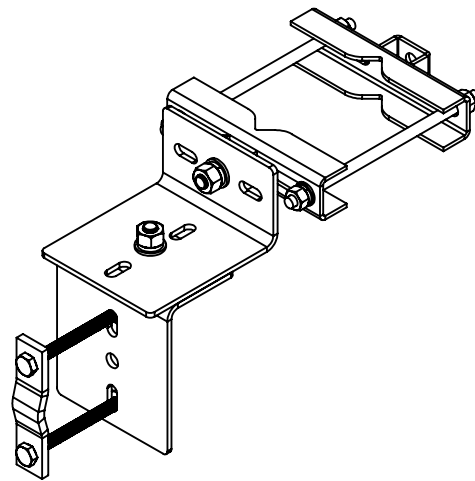


SHEET 8 OF 8	THIRD ANGLE PROJECTION 	CATEGORY 01_Self Support	7	UPDATED CLASSIFICATIONS. ADDED ADDITIONAL NOTES	3/20/18
5/1/2018	SCALE NTS	SERIES 02_V-Frames - Assembled	6	UPDATED CLASSIFICATIONS / TEMPLATE	8/30/17
DIMENSIONS ARE IN INCHES TOLERANCES U.N.O. HOLES: +1/16", -1/32" ANGULAR: PROFILE ± 1/4°, BEND ± 2° ALL OTHERS: ± 1/16"		TYPE PV-SFA	5	MOUNT CLASSIFICATIONS	1/19/17
		BY DJN	4	ADDED TIE BACK PIPE RANGE	6/9/16
		CHECKED SJS	3	L.I.F.E. MOUNT™ UPDATE	2/24/16
		STATUS APPROVED	REV	DESCRIPTION	DATE
		DOCUMENT NUMBER SFA-ENG-01-R7			REV 7

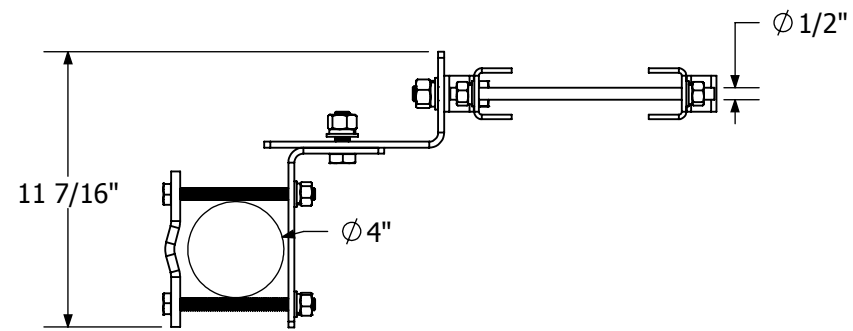


C:\Users\Dominic\Documents\pvm\Steel\pvm\Steel\Sales\_Catalog\SW\_Working\_Files\Engineering\_Details\

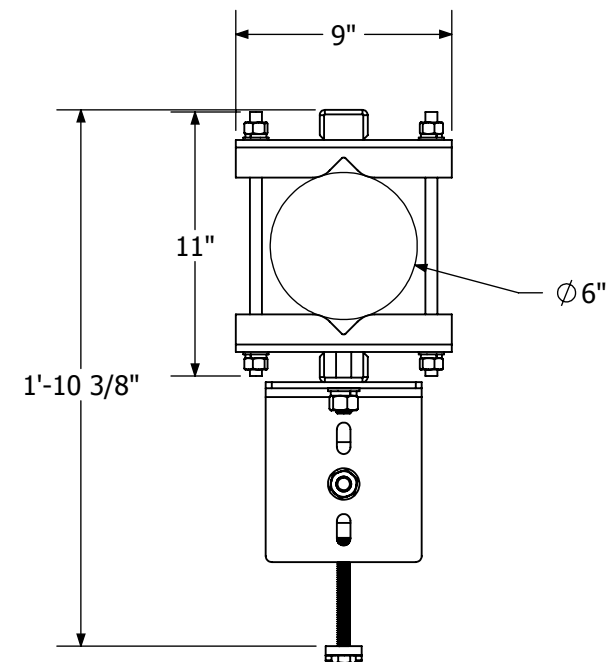
PV-SAM-U



**PV-SAM-U  
STIFF ARM LEG ATTACHMENT  
WEIGHT: 18.7 LBS**



**SIDE VIEW**



**TOP VIEW**



16101 La Grande Dr.  
Little Rock, AR 72223  
(630)-201-4012

STAMP:

The information contained in this set of documents is proprietary by nature, any use or disclosure other than that which relates to the client named is strictly prohibited.

REVISIONS:

NO.	DATE	DESCRIPTION	BY	CHK	APD
5				SS	
4				AM	
3			DJN		
2					
1					
0	10/13/15	INITIAL RELEASE			

SITE INFORMATION:

DESIGN TYPE:

**STIFF ARM LEG  
ATTACHMENT**

SHEET TITLE:

**ENGINEERING DETAIL**

SHEET TITLE:

REVISION:

**E-1**

**0**

### Wind & Ice Loading

Nominal Mount Elevation (AGL), $z_{mount}$	222 ft	$K_a$	0.90
Nominal Rad Elevation (AGL), $z_{rad}$	222 ft	$K_d$	0.95
Elevation AMSL (ft)	-	$K_e$	-
TIA Standard	G	$K_z$	1.24
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	$t_{iz}$	1.81 in
Exposure Category	B	$G_h$	1.00
Risk Category	II	$q_z$ (bare)	47.2 psf
Seismic Response Coeff., $C_s$	-	$q_z$ (ice)	7.5 psf

### Live Loading

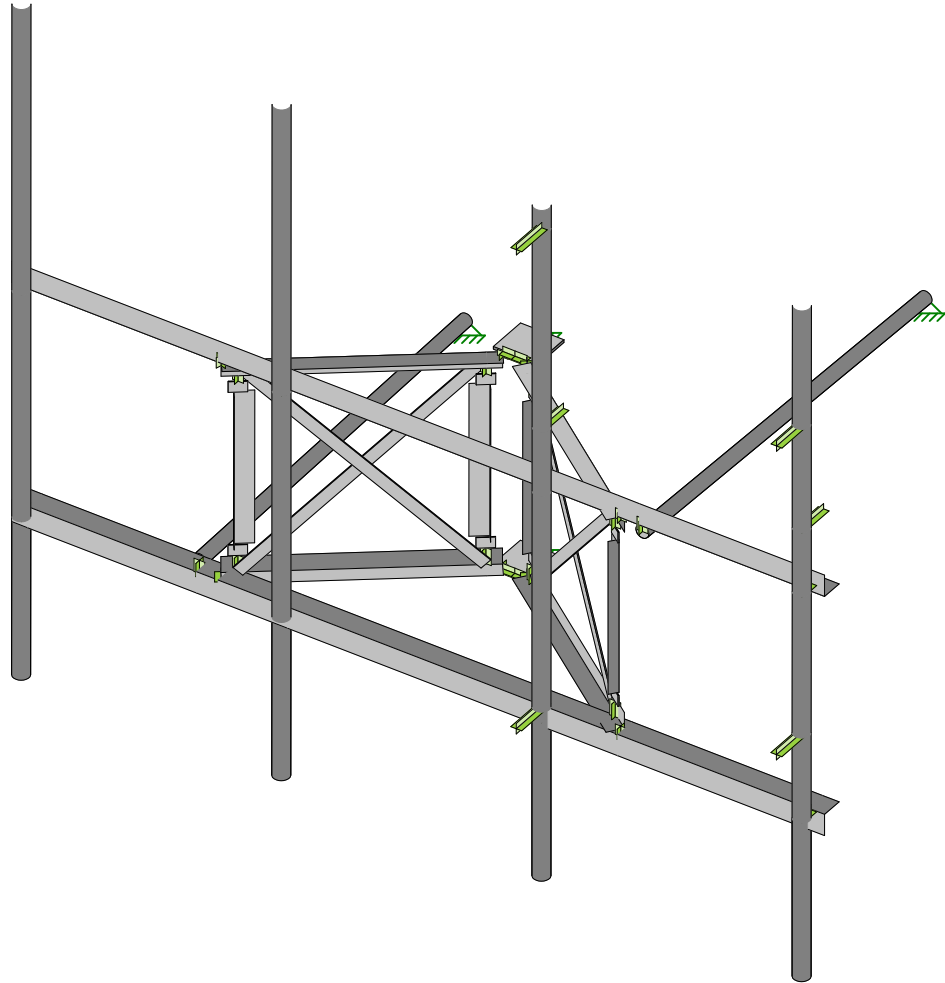
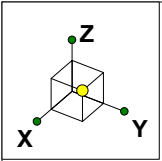
At Mount Pipes, $L_M$	500 lb
Joint Labels Considered	m1
	m2
	m3
	m4

### Member Distributed Loading

Section Set Label	Shape Label	$F_A$ (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Offset Horiz	L3x3x3/16	21.22	2.72	12.22
Face Horiz	L4X4X5	28.30	2.80	15.04
Rear PL	PL 8x.5	56.60	7.91	16.02
Mount Pipe	PIPE_2.5	12.20	4.42	10.40
Stiff Arm	PIPE_2.0	10.08	4.08	9.29
Offset Diag	PL 2 1/8x3/16	15.03	3.91	7.29
Offset Vert	L3.25x1.75x3/16	22.99	4.97	12.21
Offset Vert PL	PL3x.1875	21.22	4.51	8.52

### Appurtenances

Appurtenance Model	Status	Azimuth Offset (°, °)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty.	Total Qty. Override	0° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	$EPA_A$ (Bare) (ft²)		$EPA_A$ (Ice) (ft²)		$F_A$ (Bare) (lb)		$F_A$ (Ice) (lb)		
					Front	Side			0°	1							2	N	T	N	T	N	T	N	T
APX16DWV-16DWVS-E-A20				<input type="checkbox"/>			1	3	a1	a2	59.9	13	3.15	41.8	Flat	127.68	7.00	2.36	9.23	4.42	296.94	100.14	62.72	30.05	
APXVAARR24_43-U-NA20				<input type="checkbox"/>			1	3	a3	a4	0	0	0	153.3	Generic	408.70	14.67	5.32	17.43	7.75	622.69	225.82	118.37	52.65	
ETT19V2A12UB				<input checked="" type="checkbox"/>	0.5		1	3	t		9.4	7.3	3.5	11	Flat	25.12	0.14	0.57	0.39	1.19	5.86	24.27	2.63	8.06	
RADIO 4449 B12/B71				<input type="checkbox"/>	0.5		1	3	r		15	13.2	10.4	75	Flat	62.45	0.83	1.30	1.31	2.18	35.02	55.18	8.87	14.79	

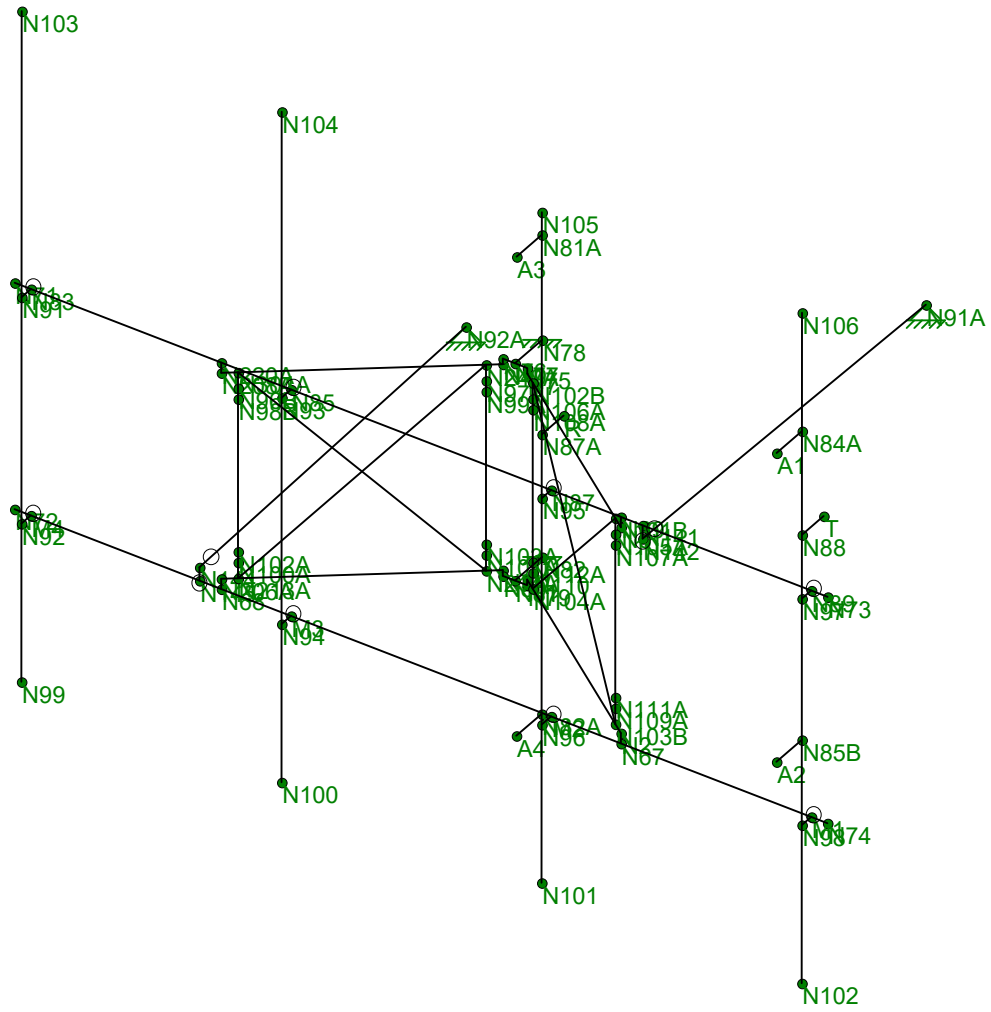
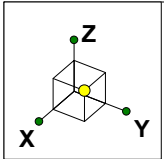


Envelope Only Solution

CLS
AJI
41124-12948439-01-MR

41124-12948439-Bethany CT
Rendered

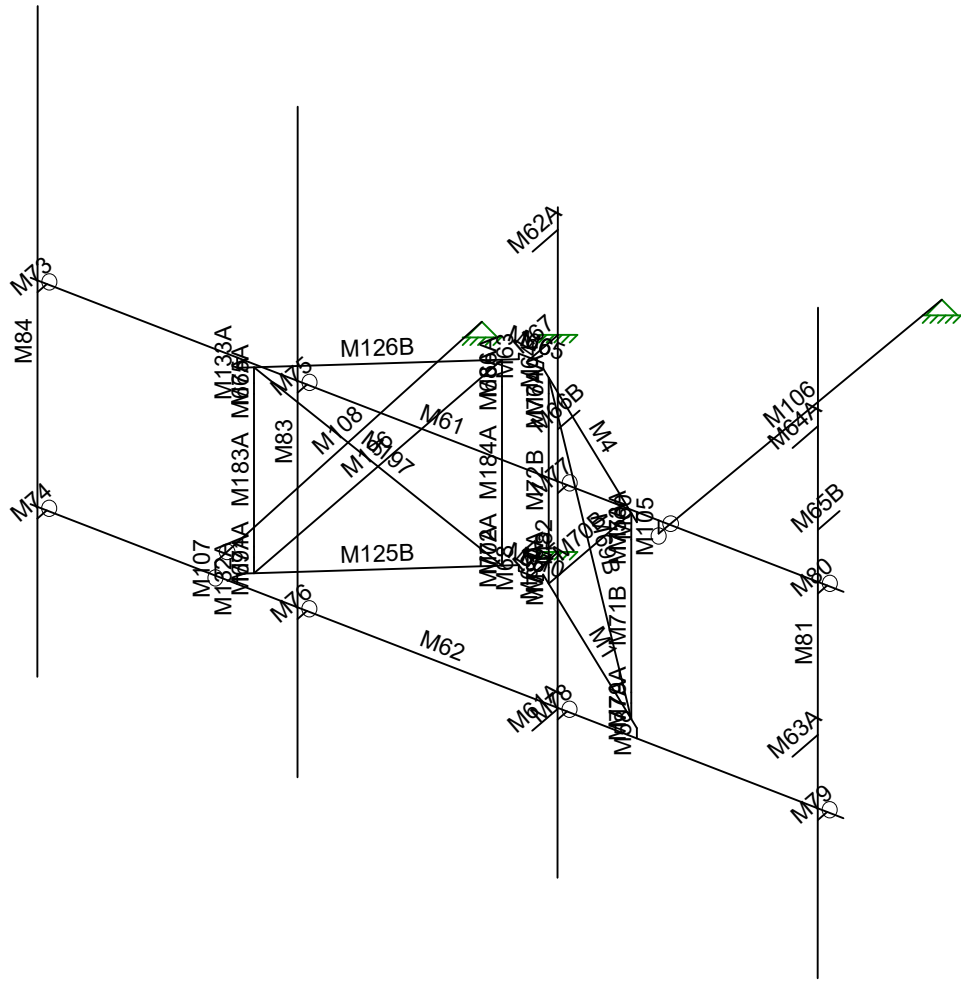
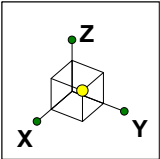
SK - 1
July 31, 2019 at 5:12 PM
41124-12948439-01-MR.r3d



Envelope Only Solution

CLS	41124-12948439-Bethany CT	SK - 2
AJI		July 31, 2019 at 5:12 PM
41124-12948439-01-MR		Joint Labels
		41124-12948439-01-MR.r3d



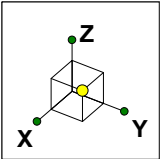


Envelope Only Solution

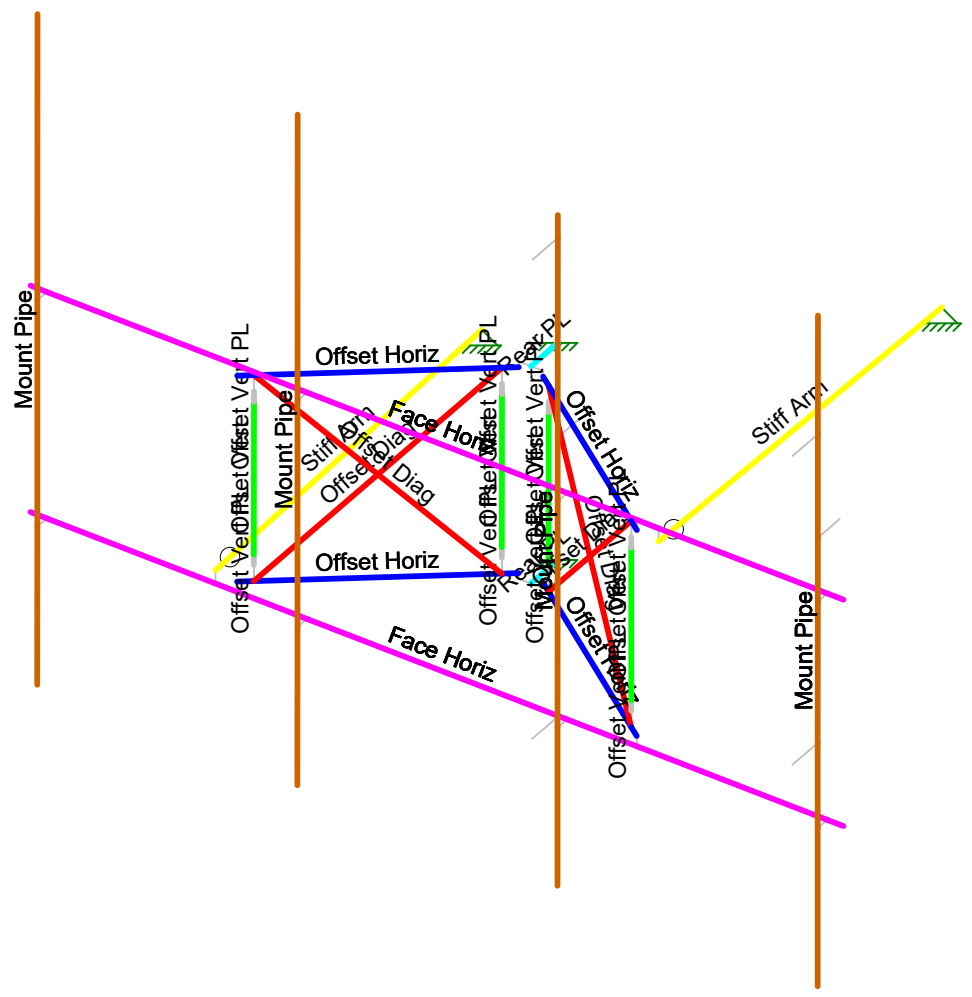
CLS
AJI
41124-12948439-01-MR

41124-12948439-Bethany CT
Member Labels

SK - 3
July 31, 2019 at 5:12 PM
41124-12948439-01-MR.r3d

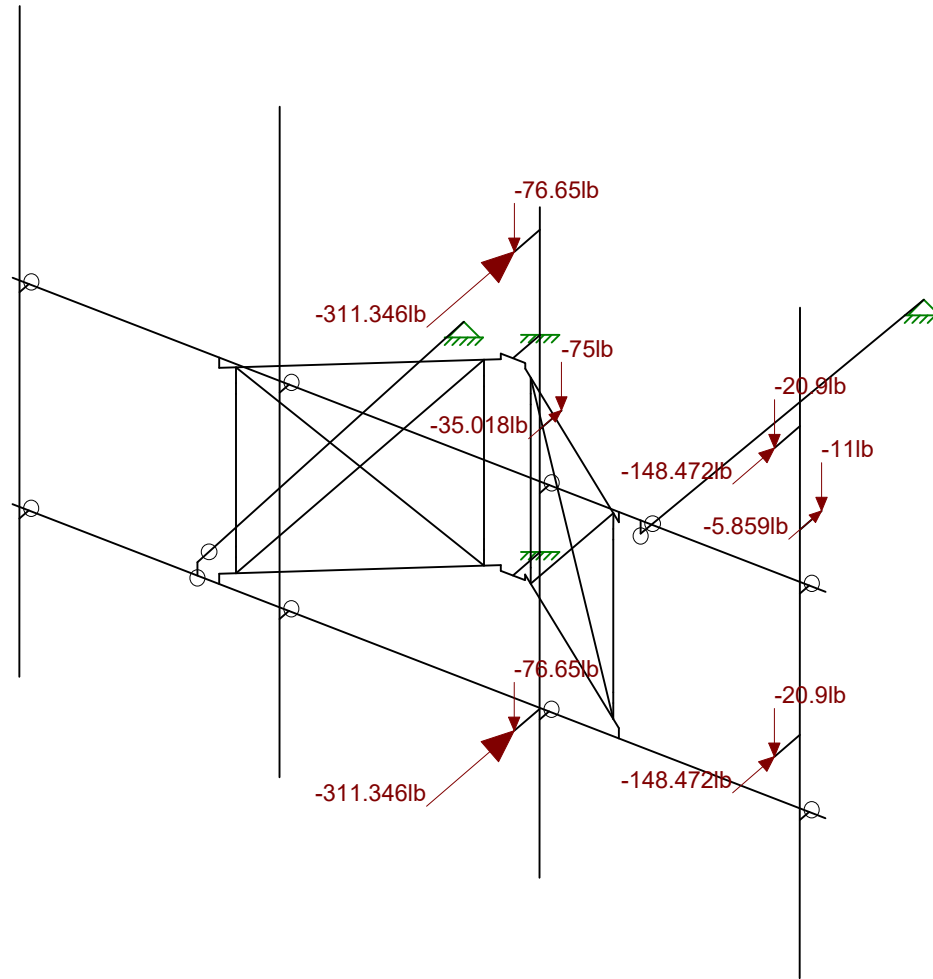
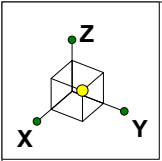


Section Sets	
<span style="color: blue;">█</span>	Offset Horiz
<span style="color: green;">█</span>	Offset Vert
<span style="color: red;">█</span>	Offset Diag
<span style="color: grey;">█</span>	Offset Vert PL
<span style="color: magenta;">█</span>	Face Horiz
<span style="color: cyan;">█</span>	Rear PL
<span style="color: brown;">█</span>	Mount Pipe
<span style="color: yellow;">█</span>	Stiff Arm
<span style="color: purple;">█</span>	RIGID



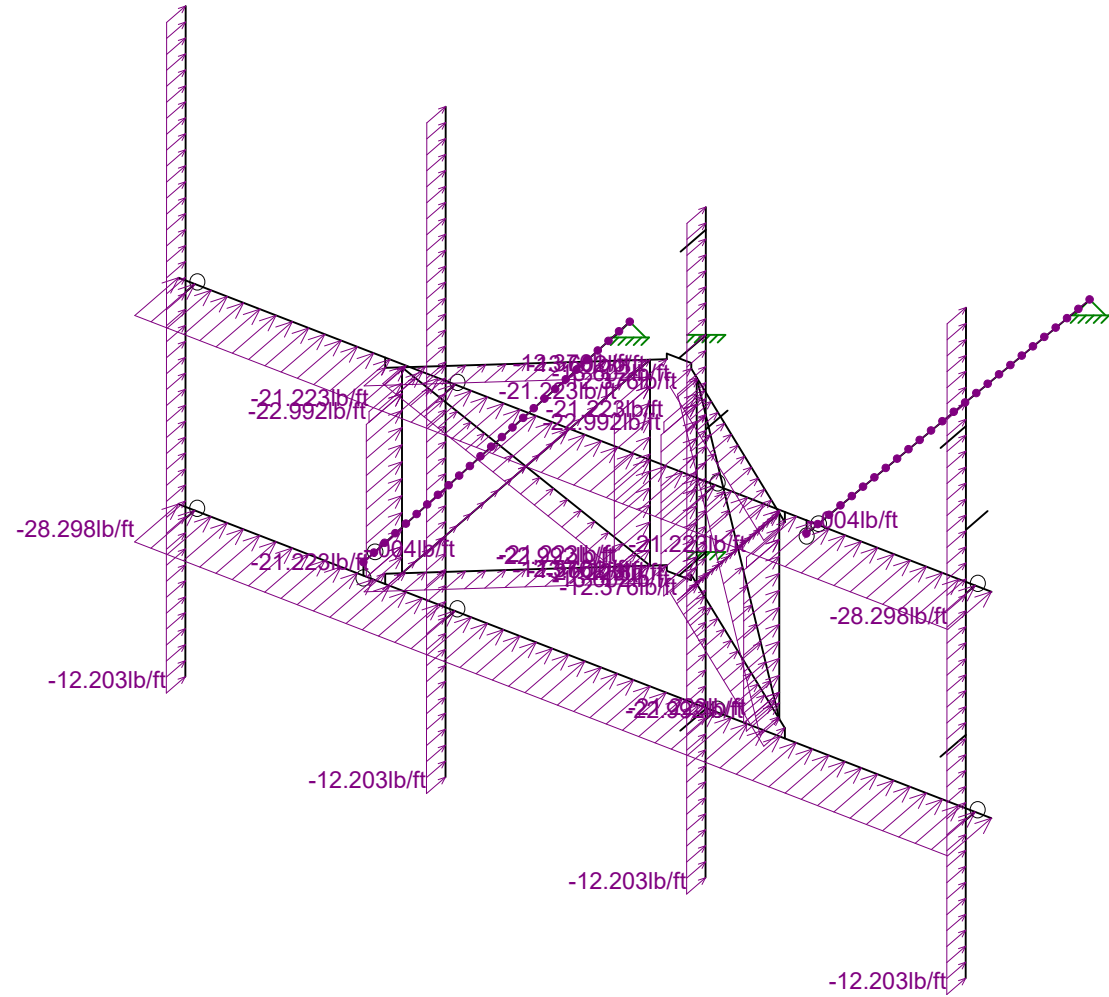
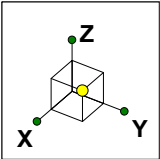
Envelope Only Solution

CLS	41124-12948439-Bethany CT Section Sets	SK - 4
AJI		July 31, 2019 at 5:13 PM
41124-12948439-01-MR		41124-12948439-01-MR.r3d



Loads: LC 1, DISPLAY (1.0D + 1.0W\_0°)  
Envelope Only Solution

CLS	41124-12948439-Bethany CT Joint Loads - Dead and Normal Wind	SK - 5
AJI		July 31, 2019 at 5:13 PM
41124-12948439-01-MR		41124-12948439-01-MR.r3d

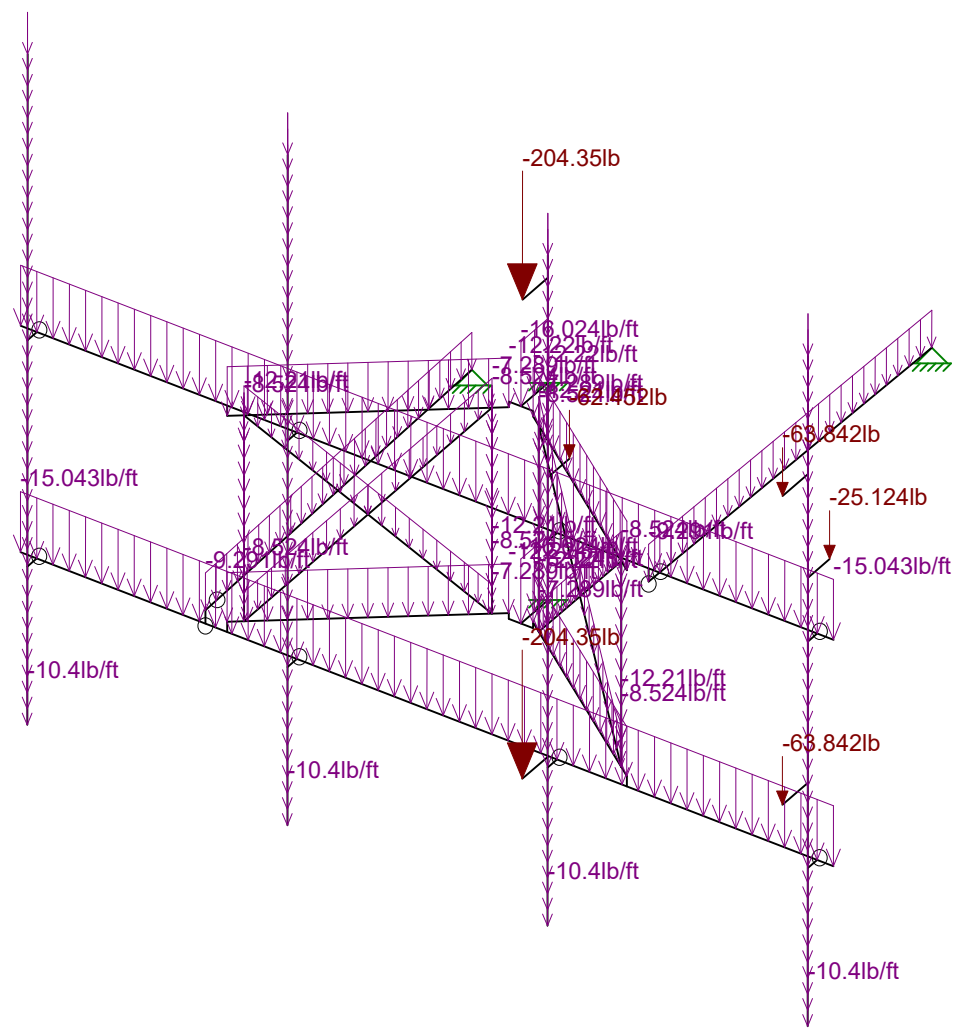
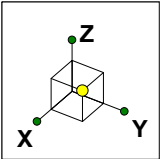


Loads: BLC 4, Structure Wind 0°  
Envelope Only Solution

CLS
AJI
41124-12948439-01-MR

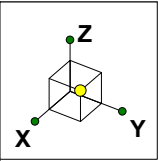
41124-12948439-Bethany CT  
Distributed Load - Normal Wind

SK - 6
July 31, 2019 at 5:13 PM
41124-12948439-01-MR.r3d

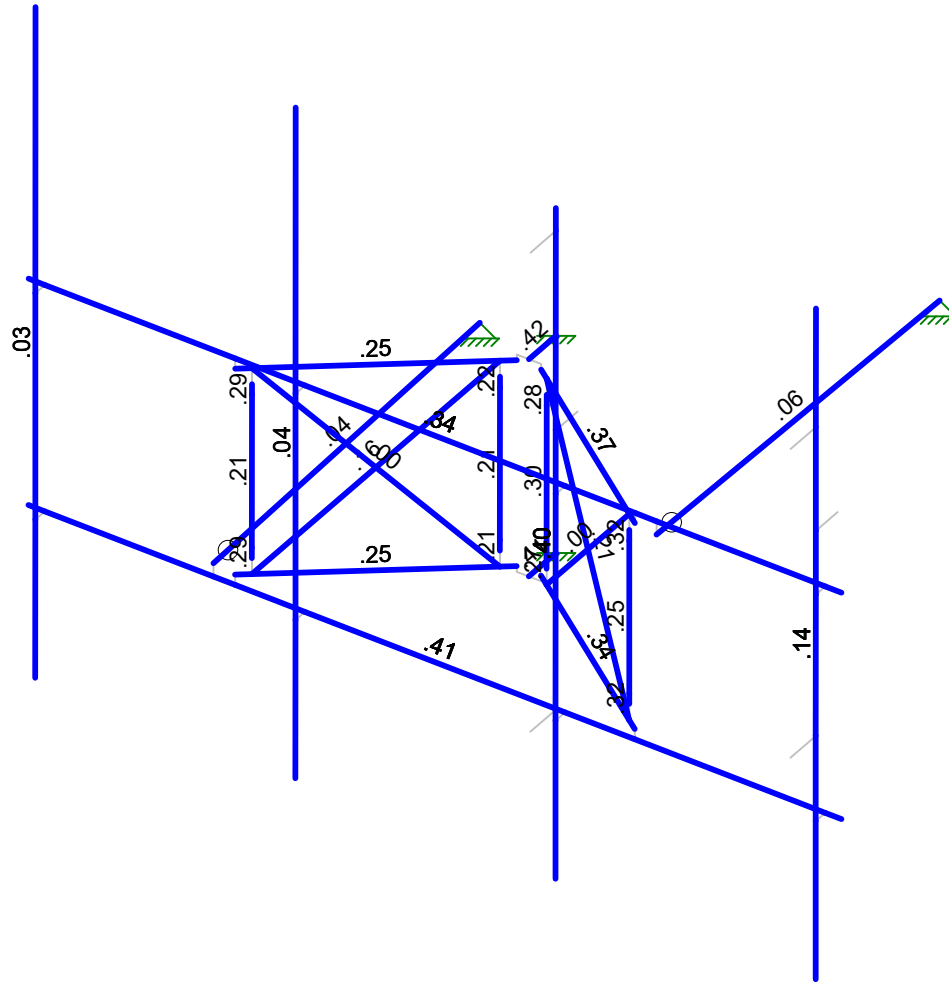


Loads: BLC 2, Ice Dead  
Envelope Only Solution

CLS	41124-12948439-Bethany CT Ice Dead Loads	SK - 7
AJI		July 31, 2019 at 5:13 PM
41124-12948439-01-MR		41124-12948439-01-MR.r3d



Code Check ( Env )	
Black	No Calc
Red	> 1.0
Magenta	.90-1.0
Green	.75-.90
Cyan	.50-.75
Blue	0-.50

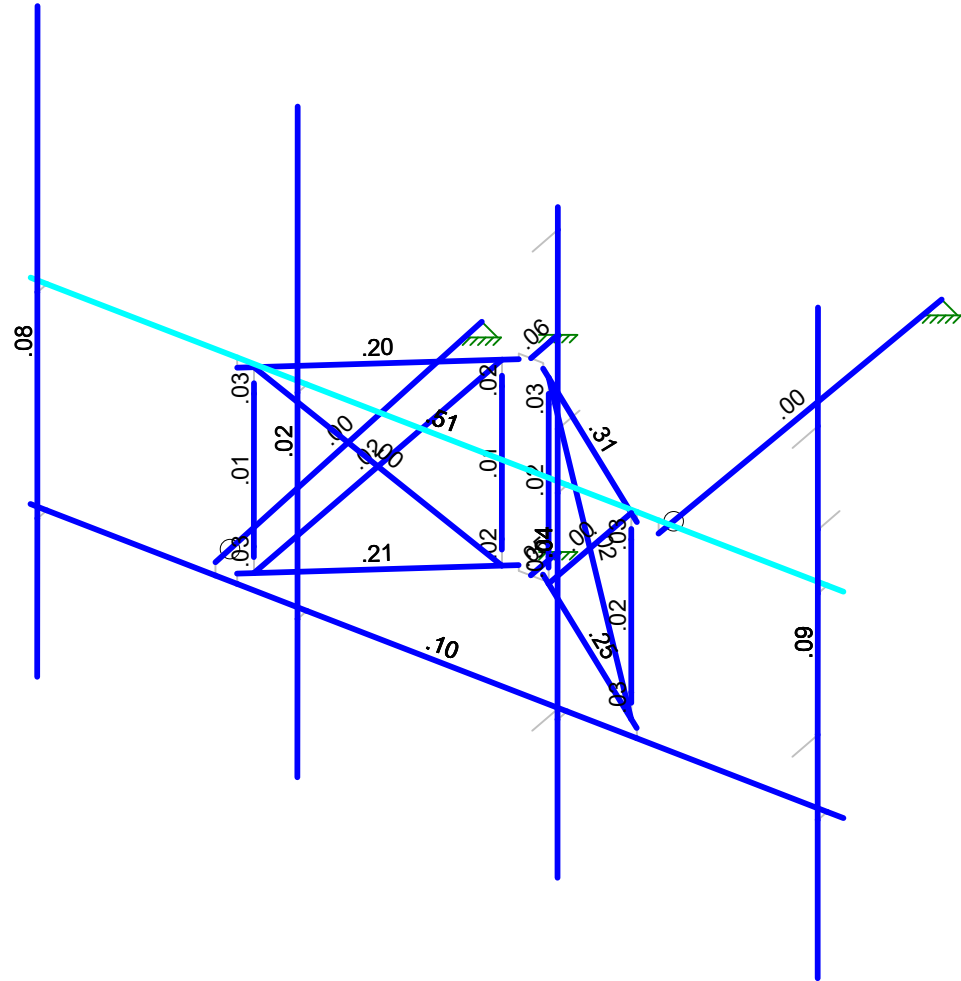
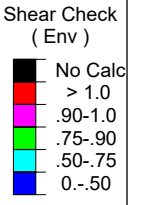
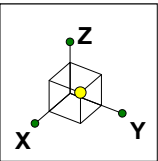


Member Code Checks Displayed (Enveloped)  
Envelope Only Solution

CLS
AJI
41124-12948439-01-MR

41124-12948439-Bethany CT
Envelope Member Unity Check Results - Bending

SK - 8
July 31, 2019 at 5:14 PM
41124-12948439-01-MR.r3d



Member Shear Checks Displayed (Enveloped)  
Envelope Only Solution

CLS
AJI
41124-12948439-01-MR

41124-12948439-Bethany CT  
Envelope Member Check Results - Shear

SK - 9
July 31, 2019 at 5:14 PM
41124-12948439-01-MR.r3d

**Basic Load Cases**

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed Area(Me...	Surface(P...
1	Dead	DL			-1	6			
2	Ice Dead	RL				6		30	
4	Structure Wind 0°	None						28	
5	Structure Wind 30°	None						60	
6	Structure Wind 45°	None						60	
7	Structure Wind 60°	None						60	
8	Structure Wind 90°	None						28	
9	Structure Wind 120°	None						60	
10	Structure Wind 135°	None						60	
11	Structure Wind 150°	None						60	
12	Structure Wind w/ Ice ...	None						28	
13	Structure Wind w/ Ice ...	None						60	
14	Structure Wind w/ Ice ...	None						60	
15	Structure Wind w/ Ice ...	None						60	
16	Structure Wind w/ Ice ...	None						28	
17	Structure Wind w/ Ice ...	None						60	
18	Structure Wind w/ Ice ...	None						60	
19	Structure Wind w/ Ice ...	None						60	
20	Antenna Wind 0°	None				6			
21	Antenna Wind 30°	None				12			
22	Antenna Wind 45°	None				12			
23	Antenna Wind 60°	None				12			
24	Antenna Wind 90°	None				6			
25	Antenna Wind 120°	None				12			
26	Antenna Wind 135°	None				12			
27	Antenna Wind 150°	None				12			
28	Antenna Wind w/ Ice 0°	None				6			
29	Antenna Wind w/ Ice ...	None				12			
30	Antenna Wind w/ Ice ...	None				12			
31	Antenna Wind w/ Ice ...	None				12			
32	Antenna Wind w/ Ice ...	None				6			
33	Antenna Wind w/ Ice ...	None				12			
34	Antenna Wind w/ Ice ...	None				12			
35	Antenna Wind w/ Ice ...	None				12			
39	Maintenance Live 50...	OL1				1			
40	Maintenance Live 50...	OL2				1			
41	Maintenance Live 50...	OL3				1			
42	Maintenance Live 50...	OL4				1			

**Load Combinations**

	Description	Sol...	PD...	SR...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...	BLC Fact...
1	DISPLAY ...	Yes	Y		DL	1	20	1					
2	1.4D	Yes	Y		DL	1.4							
3	1.2D + 1.0...	Yes	Y		DL	1.2	4	1	20	1			
4	1.2D + 1.0...	Yes	Y		DL	1.2	5	1	21	1			
5	1.2D + 1.0...	Yes	Y		DL	1.2	6	1	22	1			
6	1.2D + 1.0...	Yes	Y		DL	1.2	7	1	23	1			
7	1.2D + 1.0...	Yes	Y		DL	1.2	8	1	24	1			
8	1.2D + 1.0...	Yes	Y		DL	1.2	9	1	25	1			
9	1.2D + 1.0...	Yes	Y		DL	1.2	10	1	26	1			
10	1.2D + 1.0...	Yes	Y		DL	1.2	11	1	27	1			
11	1.2D + 1.0...	Yes	Y		DL	1.2	4	-1	20	-1			
12	1.2D + 1.0...	Yes	Y		DL	1.2	5	-1	21	-1			
13	1.2D + 1.0...	Yes	Y		DL	1.2	6	-1	22	-1			



**Load Combinations (Continued)**

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
14	1.2D + 1.0..	Yes	Y		DL 1.2	7	-1	23	-1					
15	1.2D + 1.0..	Yes	Y		DL 1.2	8	-1	24	-1					
16	1.2D + 1.0..	Yes	Y		DL 1.2	9	-1	25	-1					
17	1.2D + 1.0..	Yes	Y		DL 1.2	10	-1	26	-1					
18	1.2D + 1.0..	Yes	Y		DL 1.2	11	-1	27	-1					
19	1.2D + 1.0..	Yes	Y		DL 1.2	12	1	28	1	RL	1			
20	1.2D + 1.0..	Yes	Y		DL 1.2	13	1	29	1	RL	1			
21	1.2D + 1.0..	Yes	Y		DL 1.2	14	1	30	1	RL	1			
22	1.2D + 1.0..	Yes	Y		DL 1.2	15	1	31	1	RL	1			
23	1.2D + 1.0..	Yes	Y		DL 1.2	16	1	32	1	RL	1			
24	1.2D + 1.0..	Yes	Y		DL 1.2	17	1	33	1	RL	1			
25	1.2D + 1.0..	Yes	Y		DL 1.2	18	1	34	1	RL	1			
26	1.2D + 1.0..	Yes	Y		DL 1.2	19	1	35	1	RL	1			
27	1.2D + 1.0..	Yes	Y		DL 1.2	12	-1	28	-1	RL	1			
28	1.2D + 1.0..	Yes	Y		DL 1.2	13	-1	29	-1	RL	1			
29	1.2D + 1.0..	Yes	Y		DL 1.2	14	-1	30	-1	RL	1			
30	1.2D + 1.0..	Yes	Y		DL 1.2	15	-1	31	-1	RL	1			
31	1.2D + 1.0..	Yes	Y		DL 1.2	16	-1	32	-1	RL	1			
32	1.2D + 1.0..	Yes	Y		DL 1.2	17	-1	33	-1	RL	1			
33	1.2D + 1.0..	Yes	Y		DL 1.2	18	-1	34	-1	RL	1			
34	1.2D + 1.0..	Yes	Y		DL 1.2	19	-1	35	-1	RL	1			
35	1.2D + 1.5..	Yes	Y		DL 1.2	4	.061	20	.061	OL1	1.5			
36	1.2D + 1.5..	Yes	Y		DL 1.2	5	.061	21	.061	OL1	1.5			
37	1.2D + 1.5..	Yes	Y		DL 1.2	6	.061	22	.061	OL1	1.5			
38	1.2D + 1.5..	Yes	Y		DL 1.2	7	.061	23	.061	OL1	1.5			
39	1.2D + 1.5..	Yes	Y		DL 1.2	8	.061	24	.061	OL1	1.5			
40	1.2D + 1.5..	Yes	Y		DL 1.2	9	.061	25	.061	OL1	1.5			
41	1.2D + 1.5..	Yes	Y		DL 1.2	10	.061	26	.061	OL1	1.5			
42	1.2D + 1.5..	Yes	Y		DL 1.2	11	.061	27	.061	OL1	1.5			
43	1.2D + 1.5..	Yes	Y		DL 1.2	4	-.061	20	-.061	OL1	1.5			
44	1.2D + 1.5..	Yes	Y		DL 1.2	5	-.061	21	-.061	OL1	1.5			
45	1.2D + 1.5..	Yes	Y		DL 1.2	6	-.061	22	-.061	OL1	1.5			
46	1.2D + 1.5..	Yes	Y		DL 1.2	7	-.061	23	-.061	OL1	1.5			
47	1.2D + 1.5..	Yes	Y		DL 1.2	8	-.061	24	-.061	OL1	1.5			
48	1.2D + 1.5..	Yes	Y		DL 1.2	9	-.061	25	-.061	OL1	1.5			
49	1.2D + 1.5..	Yes	Y		DL 1.2	10	-.061	26	-.061	OL1	1.5			
50	1.2D + 1.5..	Yes	Y		DL 1.2	11	-.061	27	-.061	OL1	1.5			
51	1.2D + 1.5..	Yes	Y		DL 1.2	4	.061	20	.061	OL2	1.5			
52	1.2D + 1.5..	Yes	Y		DL 1.2	5	.061	21	.061	OL2	1.5			
53	1.2D + 1.5..	Yes	Y		DL 1.2	6	.061	22	.061	OL2	1.5			
54	1.2D + 1.5..	Yes	Y		DL 1.2	7	.061	23	.061	OL2	1.5			
55	1.2D + 1.5..	Yes	Y		DL 1.2	8	.061	24	.061	OL2	1.5			
56	1.2D + 1.5..	Yes	Y		DL 1.2	9	.061	25	.061	OL2	1.5			
57	1.2D + 1.5..	Yes	Y		DL 1.2	10	.061	26	.061	OL2	1.5			
58	1.2D + 1.5..	Yes	Y		DL 1.2	11	.061	27	.061	OL2	1.5			
59	1.2D + 1.5..	Yes	Y		DL 1.2	4	-.061	20	-.061	OL2	1.5			
60	1.2D + 1.5..	Yes	Y		DL 1.2	5	-.061	21	-.061	OL2	1.5			
61	1.2D + 1.5..	Yes	Y		DL 1.2	6	-.061	22	-.061	OL2	1.5			
62	1.2D + 1.5..	Yes	Y		DL 1.2	7	-.061	23	-.061	OL2	1.5			
63	1.2D + 1.5..	Yes	Y		DL 1.2	8	-.061	24	-.061	OL2	1.5			
64	1.2D + 1.5..	Yes	Y		DL 1.2	9	-.061	25	-.061	OL2	1.5			
65	1.2D + 1.5..	Yes	Y		DL 1.2	10	-.061	26	-.061	OL2	1.5			
66	1.2D + 1.5..	Yes	Y		DL 1.2	11	-.061	27	-.061	OL2	1.5			
67	1.2D + 1.5..	Yes	Y		DL 1.2	4	.061	20	.061	OL3	1.5			
68	1.2D + 1.5..	Yes	Y		DL 1.2	5	.061	21	.061	OL3	1.5			
69	1.2D + 1.5..	Yes	Y		DL 1.2	6	.061	22	.061	OL3	1.5			
70	1.2D + 1.5..	Yes	Y		DL 1.2	7	.061	23	.061	OL3	1.5			

**Load Combinations (Continued)**

	Description	Sol.	PD	SR	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.	BLC Fact.
71	1.2D + 1.5..	Yes	Y		DL	1.2	8	.061	24	.061	OL3	1.5		
72	1.2D + 1.5..	Yes	Y		DL	1.2	9	.061	25	.061	OL3	1.5		
73	1.2D + 1.5..	Yes	Y		DL	1.2	10	.061	26	.061	OL3	1.5		
74	1.2D + 1.5..	Yes	Y		DL	1.2	11	.061	27	.061	OL3	1.5		
75	1.2D + 1.5..	Yes	Y		DL	1.2	4	-.061	20	-.061	OL3	1.5		
76	1.2D + 1.5..	Yes	Y		DL	1.2	5	-.061	21	-.061	OL3	1.5		
77	1.2D + 1.5..	Yes	Y		DL	1.2	6	-.061	22	-.061	OL3	1.5		
78	1.2D + 1.5..	Yes	Y		DL	1.2	7	-.061	23	-.061	OL3	1.5		
79	1.2D + 1.5..	Yes	Y		DL	1.2	8	-.061	24	-.061	OL3	1.5		
80	1.2D + 1.5..	Yes	Y		DL	1.2	9	-.061	25	-.061	OL3	1.5		
81	1.2D + 1.5..	Yes	Y		DL	1.2	10	-.061	26	-.061	OL3	1.5		
82	1.2D + 1.5..	Yes	Y		DL	1.2	11	-.061	27	-.061	OL3	1.5		
83	1.2D + 1.5..	Yes	Y		DL	1.2	4	.061	20	.061	OL4	1.5		
84	1.2D + 1.5..	Yes	Y		DL	1.2	5	.061	21	.061	OL4	1.5		
85	1.2D + 1.5..	Yes	Y		DL	1.2	6	.061	22	.061	OL4	1.5		
86	1.2D + 1.5..	Yes	Y		DL	1.2	7	.061	23	.061	OL4	1.5		
87	1.2D + 1.5..	Yes	Y		DL	1.2	8	.061	24	.061	OL4	1.5		
88	1.2D + 1.5..	Yes	Y		DL	1.2	9	.061	25	.061	OL4	1.5		
89	1.2D + 1.5..	Yes	Y		DL	1.2	10	.061	26	.061	OL4	1.5		
90	1.2D + 1.5..	Yes	Y		DL	1.2	11	.061	27	.061	OL4	1.5		
91	1.2D + 1.5..	Yes	Y		DL	1.2	4	-.061	20	-.061	OL4	1.5		
92	1.2D + 1.5..	Yes	Y		DL	1.2	5	-.061	21	-.061	OL4	1.5		
93	1.2D + 1.5..	Yes	Y		DL	1.2	6	-.061	22	-.061	OL4	1.5		
94	1.2D + 1.5..	Yes	Y		DL	1.2	7	-.061	23	-.061	OL4	1.5		
95	1.2D + 1.5..	Yes	Y		DL	1.2	8	-.061	24	-.061	OL4	1.5		
96	1.2D + 1.5..	Yes	Y		DL	1.2	9	-.061	25	-.061	OL4	1.5		
97	1.2D + 1.5..	Yes	Y		DL	1.2	10	-.061	26	-.061	OL4	1.5		
98	1.2D + 1.5..	Yes	Y		DL	1.2	11	-.061	27	-.061	OL4	1.5		

**Hot Rolled Steel Properties**

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E...	Density[lb/f...	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	490	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	490	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	490	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	490	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	490	50	1.4	65	1.3

**Hot Rolled Steel Section Sets**

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	Offset Horiz	L3x3x3/16	Beam	None	A36 Gr.36	Typical	1.09	.962	.962	.012
2	Offset Vert	L3.25x1.75x3...	Beam	None	A36 Gr.36	Typical	.902	.213	1.001	.01
3	Offset Diag	PL 2 1/8x3/16	Beam	None	A36 Gr.36	Typical	.398	.001	.15	.004
4	Offset Vert PL	PL3x.1875	Beam	None	A36 Gr.36	Typical	.563	.002	.422	.006
5	Face Horiz	L4X4X5	Beam	None	A36 Gr.36	Typical	2.4	3.67	3.67	.083
6	Rear PL	PL 8x.5	Beam	None	A36 Gr.36	Typical	4	.083	21.333	.32
7	Mount Pipe	PIPE 2.5	Beam	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
8	Stiff Arm	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	.627	.627	1.25

**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	Offset Horiz	43.25			Lbyy						Lateral
2	M4	Offset Horiz	43.25			Lbyy						Lateral
3	M61	Face Horiz	150	74	48	Lbyy						Lateral
4	M62	Face Horiz	150	74	48	Lbyy						Lateral
5	M67	Rear PL	7.5			Lbyy						Lateral
6	M72	Rear PL	7.5			Lbyy						Lateral
7	M81	Mount Pipe	126			Lbyy						Lateral
8	M82	Mount Pipe	126			Lbyy						Lateral
9	M83	Mount Pipe	126			Lbyy						Lateral
10	M84	Mount Pipe	126			Lbyy						Lateral
11	M106	Stiff Arm	75.859			Lbyy						Lateral
12	M108	Stiff Arm	75.859			Lbyy						Lateral
13	M125B	Offset Horiz	43.25			Lbyy						Lateral
14	M126B	Offset Horiz	43.25			Lbyy						Lateral
15	M196	Offset Diag	54.296			Lbyy			.65	.65		Lateral
16	M197	Offset Diag	54.296			Lbyy			.65	.65		Lateral
17	M183A	Offset Vert	28.688			Lbyy			.65	.65		Lateral
18	M184A	Offset Vert	28.688			Lbyy			.65	.65		Lateral
19	M67A	Offset Vert ...	2			Lbyy						Lateral
20	M68A	Offset Vert ...	2			Lbyy						Lateral
21	M71A	Offset Vert ...	2			Lbyy						Lateral
22	M72A	Offset Vert ...	2			Lbyy						Lateral
23	M69B	Offset Diag	54.296			Lbyy			.65	.65		Lateral
24	M70B	Offset Diag	54.296			Lbyy			.65	.65		Lateral
25	M71B	Offset Vert	28.688			Lbyy			.65	.65		Lateral
26	M72B	Offset Vert	28.688			Lbyy			.65	.65		Lateral
27	M75A	Offset Vert ...	2			Lbyy						Lateral
28	M76A	Offset Vert ...	2			Lbyy						Lateral
29	M79A	Offset Vert ...	2			Lbyy						Lateral
30	M80A	Offset Vert ...	2			Lbyy						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	N78	max	875.322	18	1113.835	96	1551.56	27	26.377	35	-149.933	3	815.473	14
2		min	-2429.597	26	-1659.217	40	374.46	3	-18.422	91	-525.119	27	-1062.151	5
3	N82	max	2349.706	20	1606.038	46	1502.157	19	18.34	35	-134.448	11	733.231	45
4		min	141.796	12	-1062.894	86	360.029	11	-16.292	91	-516.645	34	-709.062	85
5	N91A	max	1258.828	4	46.116	15	42.911	29	0	98	0	98	0	98
6		min	-1310.809	12	-44.755	7	10.706	1	0	1	0	1	0	1
7	N92A	max	254.24	17	34.979	15	42.637	24	0	98	0	98	0	98
8		min	-294.469	9	-35.823	7	10.972	1	0	1	0	1	0	1
9	Totals:	max	2848.788	3	1695.222	14	3073.918	28						
10		min	-2848.79	11	-1695.223	6	886.167	1						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear ...	Loc[in]	Dir	LC	phi*Pnc [...]	phi*Pnt [...]	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M61	L4X4X5	.337	37.895	35	.510	34.737	z	12	48416.564	77760	3776.855	8118.155	1...	H2-1
2	M4	L3x3x3/16	.372	43.25	11	.313	40.974	z	4	25007.021	35310.946	1354.173	2854.663	3...	H2-1
3	M1	L3x3x3/16	.343	2.276	34	.252	40.974	y	12	25007.021	35310.946	1354.173	2854.663	2...	H2-1
4	M125B	L3x3x3/16	.247	2.276	20	.208	40.974	z	10	25007.021	35310.946	1354.173	2854.663	2...	H2-1
5	M126B	L3x3x3/16	.248	2.276	96	.202	40.974	y	18	25007.021	35310.946	1354.173	2932.101	2...	H2-1
6	M62	L4X4X5	.406	112....	43	.100	34.737	z	9	48416.564	77760	3776.855	5962.76	1	H2-1
7	M81	PIPE 2.5	.145	72.947	11	.093	71.621		43	20573.263	50715	3596.25	3596.25	1...	H1-1b

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

Member	Shape	Code Check	Loc[in]	LC	Shear	...	Loc[in]	Dir	LC	phi*Pnc I...	phi*Pnt II...	phi*Mn y...	phi*Mn z...	Cb	Eqn
8	M84	PIPE 2.5	.034	71.621	14	.081	30.505		89	20573.263	50715	3596.25	3596.25	1...	H1-1b
9	M67	PL 8x.5	.424	7.5	24	.057	7.5	y	37	112219....	129600	1350	21600	1...	H1-1b
10	M72	PL 8x.5	.410	7.5	34	.048	7.5	y	49	112219....	129600	1350	21600	2...	H1-1b
11	M82	PIPE 2.5	.403	72.947	11	.045	72.947		4	20573.263	50715	3596.25	3596.25	1...	H1-1b
12	M75A	PL3x.1875	.320	0	43	.029	0	y	42	16927.018	18225	71.191	1139.063	1...	H1-1b
13	M79A	PL3x.1875	.317	2	36	.029	0	y	43	16927.018	18225	71.191	1139.063	1...	H1-1b
14	M80A	PL3x.1875	.274	2	30	.028	2	y	34	16927.018	18225	71.191	1139.063	1...	H1-1b
15	M76A	PL3x.1875	.282	0	19	.027	2	y	20	16927.018	18225	71.191	1139.063	1...	H1-1b
16	M71A	PL3x.1875	.285	2	84	.025	2	y	86	16927.018	18225	71.191	1139.063	1...	H1-1b
17	M67A	PL3x.1875	.286	0	89	.025	0	y	90	16927.018	18225	71.191	1139.063	1...	H1-1b
18	M83	PIPE 2.5	.039	71.621	11	.023	71.621		12	20573.263	50715	3596.25	3596.25	1...	H1-1b
19	M68A	PL3x.1875	.223	0	33	.022	0	y	30	16927.018	18225	71.191	1139.063	1...	H1-1b
20	M72A	PL3x.1875	.213	2	26	.021	2	y	34	16927.018	18225	71.191	1139.063	1...	H1-1b
21	M69B	PL 2 1/8x3/16	.206	0	27	.019	54.296	y	4	211.664	12909.391	50.428	394.293	2...	H1-1a*
22	M71B	L3.25x1.75x...	.245	0	43	.017	28.688	y	42	22948.742	29235.946	473.675	1883.239	2...	H2-1
23	M72B	L3.25x1.75x...	.304	0	34	.017	28.688	y	34	22948.742	29235.946	473.675	1883.239	2...	H2-1
24	M196	PL 2 1/8x3/16	.161	0	92	.017	54.296	y	18	211.664	12909.391	50.428	413.974	2...	H1-1b*
25	M183A	L3.25x1.75x...	.215	28.688	84	.015	28.688	y	86	22948.742	29235.946	473.675	1883.239	2...	H2-1
26	M184A	L3.25x1.75x...	.215	28.688	33	.013	28.688	y	30	22948.742	29235.946	473.675	1883.239	2...	H2-1
27	M106	PIPE 2.0	.063	75.859	4	.005	75.859		31	19898.534	32130	1871.625	1871.625	1...	H1-1b*
28	M108	PIPE 2.0	.040	38.329	23	.005	75.859		31	19898.534	32130	1871.625	1871.625	1...	H1-1b
29	M197	PL 2 1/8x3/16	.000	0	98	.000	0	y	98	211.664	12909.391	50.428	177.687	1	H1-1a
30	M70B	PL 2 1/8x3/16	.000	0	98	.000	0	y	98	211.664	12909.391	50.428	177.687	1	H1-1a

# Exhibit F

## **Power Density/RF Emissions Report**

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

T-Mobile Existing Facility

Site ID: CTNH217A

CTNH217/ATC-Bethany  
9 Meyers Road  
Bethany, Connecticut 06524

**June 20, 2019**

**EBI Project Number: 6219002553**

<b>Site Compliance Summary</b>	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>5.62%</b>

June 20, 2019

T-Mobile

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

Emissions Analysis for Site: CTNH217A - CTNH217/ATC-Bethany

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **9 Meyers Road in Bethany, 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 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The number of  $\mu\text{W}/\text{cm}^2$  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 ( $\mu\text{W}/\text{cm}^2$ ). The general population exposure limits for the 600 MHz and 700 MHz frequency bands are approximately  $400 \mu\text{W}/\text{cm}^2$  and  $467 \mu\text{W}/\text{cm}^2$ , respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 11 GHz frequency bands is  $1000 \mu\text{W}/\text{cm}^2$ . 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 9 Meyers Road in Bethany, 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) 4 GSM 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 RFS APX16DWV-16DWV-S-EA20 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24\_43-UNA20 for the 600 MHz / 700 MHz channel(s) in Sector A, the RFS APX16DWV-16DWV-S-EA20 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24\_43-UNA20 for the 600 MHz / 700 MHz channel(s) in Sector B, the RFS APX16DWV-16DWV-S-EA20 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24\_43-UNA20 for the 600 MHz / 700 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 220 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:	RFS APX16DWV-16DWV-S-EA20	Make / Model:	RFS APX16DWV-16DWV-S-EA20	Make / Model:	RFS APX16DWV-16DWV-S-EA20
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd	Gain:	15.9 dBd / 15.9 dBd
Height (AGL):	220 feet	Height (AGL):	220 feet	Height (AGL):	220 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	9,337.08	ERP (W):	9,337.08	ERP (W):	9,337.08
Antenna A1 MPE %:	<b>0.69%</b>	Antenna B1 MPE %:	<b>0.69%</b>	Antenna C1 MPE %:	<b>0.69%</b>
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	RFS APXVAARR24_43-UNA20	Make / Model:	RFS APXVAARR24_43-UNA20	Make / Model:	RFS APXVAARR24_43-UNA20
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):	220 feet	Height (AGL):	220 feet	Height (AGL):	220 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 %:	<b>0.43%</b>	Antenna B2 MPE %:	<b>0.43%</b>	Antenna C2 MPE %:	<b>0.43%</b>

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	1.12%
AT&T	1.29%
Metro PCS	0.77%
Verizon	0.67%
Sprint	1.01%
Indus'l Commcns	0.16%
Nextel	0.16%
Rescue 21	0.22%
Dept Homeland Security	0.2%
Light Squared, Inc.	0.02%
Site Total MPE % :	5.62%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	1.12%
T-Mobile Sector B Total:	1.12%
T-Mobile Sector C Total:	1.12%
Site Total MPE % :	5.62%

### 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 ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1167.14	220.0	3.47	1900 MHz GSM	1000	0.35%
T-Mobile 2100 MHz LTE	2	2334.27	220.0	3.47	2100 MHz LTE	1000	0.35%
T-Mobile 600 MHz LTE	2	591.73	220.0	0.88	600 MHz LTE	400	0.22%
T-Mobile 700 MHz LTE	2	648.82	220.0	0.96	700 MHz LTE	467	0.21%
						<b>Total:</b>	<b>1.12%</b>

• 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:	1.12%
Sector B:	1.12%
Sector C:	1.12%
T-Mobile Maximum MPE % (Sector A):	1.12%
Site Total:	5.62%
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **5.62%** 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.

# Exhibit G

## **Mailing Receipts/Proof of Notice**

# View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialogue 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 scheduled Pickup

- Your driver will pickup your shipment(s) as usual.

#### Customers without a scheduled Pickup

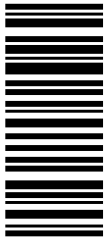
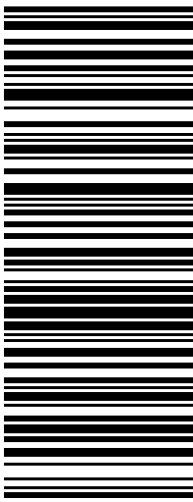

- Schedule a Pickup on [ups.com](http://ups.com) to have a UPS driver pickup all of your packages.
- Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. To find the location nearest you, please visit the 'Locations' Quick link at [ups.com](http://ups.com).

UPS Access Point™  
THE UPS STORE  
115 FRANKLIN TPKE  
MAHWAH NJ

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

UPS Access Point™  
CVS STORE # 5491  
45 FRANKLIN TPKE  
MAHWAH NJ

FOLD HERE

NEIL GUERRIERO 3473040176 TRANSCEND WIRELESS 10 INDUSTRIAL AVE MAHWAH NJ 07430	1.0 LBS LTR 1 OF 1	<b>SHIP TO:</b> CONTACT'S MANAGEMENT AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY <b>WOBURN MA 01801</b>	<b>MA 018 9-04</b> 	<b>UPS 2ND DAY AIR 2</b> TRACKING #: 1Z V25 742 02 9250 6384		<b>BILLING: P/P</b>	 Reference #1: CTNH217A Reference #2: ATC XOL 20.03.09 NV45 83.0A 12/2019
--	--------------------	--	---	---	--	---------------------	---

# View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialogue 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 scheduled Pickup

- Your driver will pickup your shipment(s) as usual.

#### Customers without a scheduled Pickup

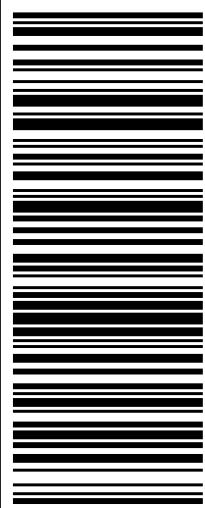
- Schedule a Pickup on [ups.com](http://ups.com) to have a UPS driver pickup all of your packages.
- Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. To find the location nearest you, please visit the 'Locations' Quick link at [ups.com](http://ups.com).

UPS Access Point™  
THE UPS STORE  
115 FRANKLIN TPKE  
MAHWAH NJ

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

UPS Access Point™  
CVS STORE # 5491  
45 FRANKLIN TPKE  
MAHWAH NJ

FOLD HERE

NEIL GUERRIERO 3473040176 TRANSCEND WIRELESS 10 INDUSTRIAL AVE MAHWAH NJ 07430	1.0 LBS LTR 1 OF 1
<b>SHIP TO:</b> ISABEL KEARNS TOWN OF BETHANY 40 PECK RD <b>BETHANY CT 06524</b>	
	<b>CT 067 9-04</b> 
<b>UPS 2ND DAY AIR</b> TRACKING #: 1Z V25 742 02 9725 9384	<b>2</b> 
<b>BILLING: P/P</b>	
Reference #1: CTNH217A Reference #2: ZEO	 XOL 20 03 09 NV45 83.0A 12/2019

# View/Print Label

1. **Ensure there are no other shipping or tracking labels attached to your package.** Select the Print button on the print dialogue 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 scheduled Pickup

- o Your driver will pickup your shipment(s) as usual.

#### Customers without a scheduled Pickup

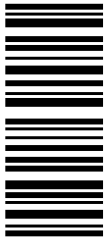
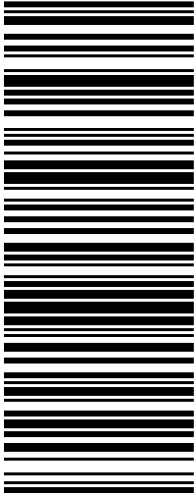

- o Schedule a Pickup on ups.com to have a UPS driver pickup all of your packages.
- o Take your package to any location of The UPS Store®, UPS Access Point(TM) location, UPS Drop Box, UPS Customer Center, Staples® or Authorized Shipping Outlet near you. To find the location nearest you, please visit the 'Locations' Quick link at ups.com.

UPS Access Point™  
THE UPS STORE  
115 FRANKLIN TPKE  
MAHWAH NJ

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

UPS Access Point™  
CVS STORE # 5491  
45 FRANKLIN TPKE  
MAHWAH NJ

FOLD HERE

<p>NEIL GUERRIERO 3473040176 TRANSCEND WIRELESS 10 INDUSTRIAL AVE MAHWAH NJ 07430</p> <p><b>SHIP TO:</b> PAULA CONFANESCO TOWN OF BETHANY 40 PECK RD <b>BETHANY CT 06524</b></p>	<p><b>CT 067 9-04</b></p> 	<p><b>UPS 2ND DAY AIR</b></p> <p><b>2</b></p> <p>TRACKING #: 1Z V25 742 02 9426 6489</p>		<p>BILLING: P/P</p> <p>Reference #1: CTNH217A Reference #2: 1st Selectman</p> <p>XOL 20.03.09      NV45 83.0A 12/2019</p> 
--	---	--	--	---