10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

Transcend Wireless

June 7, 2021

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

RE: Notice of Exempt Modification
484 Meriden Road, Middlefield, CT 06455
Latitude: 41.53551400
Longitude: -72.7309400
T-Mobile Site#: CTHA244A – L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 140-foot level of the existing 150-foot Monopole at 484 Meriden Road, Middlefield, Connecticut. The 150-foot Monopole is owned and operated by American Tower. The property is owned by Land Management Inc. T-Mobile now intends to swap three (3) existing antennas and with three (3) new 2100 LTE antennas. The new antennas support 5G services and will be installed at the same 140-foot level of the tower. Mount modifications are also required as detailed in the enclosed mount analysis.

Planned Modifications:
Tower:
Remove and Replace:
(3) Ericsson AIR 32 B66AA/B2A antennas for (3) Ericsson AIR 21 KRC118023-1_B2P_B4A

Install New:
(3) Ericsson Radio 4449 B71 B85A RRU

Existing to Remain:
(6) 1 ⅝" Coax
(3) 1 ⅝" Hybrid
(3) APXVAARR24 Antennas
(3) AIR21 1.3M, B4A B2P Antennas

Ground:
Install New:
(1) BB630
(1) B160 Cabinet and (1) 6160 Enclosure Cabinet

This tower was originally approved by the Connecticut Siting Council on July 11th, 2002 in Decision No. 223. T-Mobile has been approved for subsequent modifications at their facility. This proposed modification complies with the original approval.

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

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

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

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

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

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

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

6. The existing structure and its foundation can support the proposed loading.

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

Sincerely,

Eric Breun
Transcend Wireless
Cell: 201-658-7728
Email: ebreun@transcendwireless.com

Attachments
cc: Edward P. Bailey – as First Selectman of the Town of Middlefield
Robin Newton – Town Planner
American Tower - Tower Owner and Land Management
Land Management - Property Owner

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN MA 01801

MA 018 9-04

UPS GROUND
TRACKING #: 1Z V25 742 43 9886 3580

BILLING: P/P

XOL 21.05.03 NV45 45.0A 04/2021*

TM

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
EDWARD BAILEY & ROBIN NEWTON
393 JACKSON HILL ROAD
MIDDLEFIELD CT 06455

CT 061 9-01

UPS GROUND
TRACKING #: 1Z V25 742 43 9669 3571

BILLING: P/P

XOL 21.05.03 NV45 45.0A 04/2021*

TM

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
LAND MANAGEMENT INC.
482 CONNECTICUT 66
MIDDLEFIELD CT 06455

CT 061 9-01

UPS GROUND
TRACKING #: 1Z V25 742 43 9826 3602

BILLING: P/P

XOL 21.05.03 NV45 45.0A 04/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
ROBIN NEWTON
393 JACKSON HILL ROAD
MIDDLEFIELD CT 06455

CT 061 9-01

UPS GROUND
TRACKING #: 1Z V25 742 43 9605 3593

BILLING: P/P

XOL 21.05.03 NV45 45.0A 04/2021*

DOCKET NO. 223 - Cellco Partnership d/b/a Verizon Wireless application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a cellular telecommunications facility at 484 Meriden Road, Middlefield, Connecticut.	}	Connecticut
	}	Siting
	}	Council
	}	July 11, 2002

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to Crown Atlantic Company LLC and Cellco Partnership d/b/a Verizon Wireless (Cellco) for the construction, maintenance and operation of a wireless telecommunications facility at the proposed site located at 484 Meriden Road in Middlefield, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of Cellco, AT&T Wireless LLC, and other entities, both public and private, but such tower shall not exceed a height of 150 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: a final site plan(s) for site development to include the location and specifications for the tower, tower foundation, antennas, equipment building, security fence, access road, utility line, and landscaping plan. The D&M Plan shall also include construction plans to be submitted prior to construction for site clearing, water drainage, and erosion and sedimentation control consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

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

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

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

6. If the facility does not initially provide, or permanently ceases to provide wireless services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antennas become obsolete and ceases to function.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if the facility authorized herein is not operational within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant, and the Middletown Press.

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

Location	484 MERIDEN RD & RT 66	**Mblu**	4/ / 5/ /
Acct#	00146700	**Owner**	LAND MANAGMENT INC
Assessment	$386,500	**PID**	1566
Building Count	3		

Current Value

Assessment			
Valuation Year	Improvements	Land	Total
2016	$152,900	$233,600	$386,500

Owner of Record

Owner	LAND MANAGMENT INC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	482 RT 66 & MERIDEN RD MIDDLEFIELD, CT 06455	**Book & Page**	0066/0682
		Sale Date	09/30/1988
		Instrument	UNKQ

Ownership History

Ownership History					
Owner	Sale Price	Certificate	Book & Page	Instrument	Sale Date
LAND MANAGMENT INC	$0		0066/0682	UNKQ	09/30/1988

Building Information

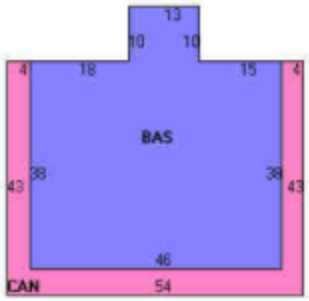
Building 1 : Section 1

Year Built:	1958
Living Area:	1,878
Replacement Cost:	$166,389
Building Percent Good:	45
Replacement Cost Less Depreciation:	$74,900

Building Photo

Building Photo

Building Layout



Building Attributes	
Field	Description
Style:	Restaurant
Model	Comm/Ind
Grade	Average
Stories:	1
Occupancy	1.00
Exterior Wall 1	Single Siding
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Plywood Panel
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	Terrazzo Monol
Heating Fuel	Gas/Oil

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,878	1,878
CAN	Canopy	574	0
		2,452	1,878

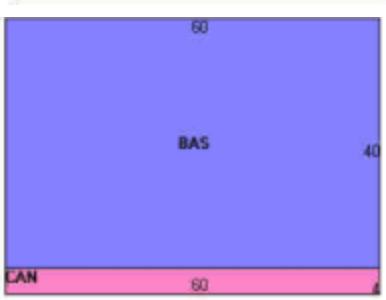
Heating Type	Forced Air-Duc
AC Type	Heat Pump
Struct Class	
Bldg Use	REST/CLUBS
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3260
Heat/AC	HEAT/AC PKGS
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	AVERAGE
Wall Height	9.00
% Comn Wall	

Building 2 : Section 1

Year Built: 1969
Living Area: 2,400
Replacement Cost: $195,644
Building Percent Good: 52
Replacement Cost Less Depreciation: $101,700

Building Photo

Building Layout



Building Attributes : Bldg 2 of 3	
Field	**Description**
Style:	Store
Model	Ind/Comm
Grade	Average
Stories:	1
Occupancy	2.00
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	Brick
Roof Structure	Flat
Roof Cover	Rolled Compos
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	Carpet
Heating Fuel	Gas/Oil
Heating Type	Forced Air-Duc
AC Type	None
Struct Class	
Bldg Use	STORE/SHOP
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3220
Heat/AC	NONE

Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	2,400	2,400
CAN	Canopy	240	0
		2,640	2,400

Struct Class	
Bldg Use	STORE/SHOP
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	3220
Heat/AC	NONE
Frame Type	MASONRY
Baths/Plumbing	AVERAGE
Ceiling/Wall	SUS-CEIL & WL
Rooms/Prtns	AVERAGE
Wall Height	9.00
% Comn Wall	

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	2,400	2,400
CAN	Canopy	240	0
		2,640	2,400

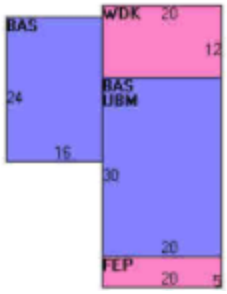
Building 3 : Section 1

Year Built: 1953
Living Area: 984
Replacement Cost: $80,868
Building Percent Good: 30
Replacement Cost Less Depreciation: $24,300

Building Attributes : Bldg 3 of 3	
Field	Description
Style:	Ranch
Model	Residential
Grade:	Below Average
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	Pre-Fab Wood
Roof Structure:	Gable
Roof Cover	Asphalt Shingl
Interior Wall 1	Drywall
Interior Wall 2	
Interior Flr 1	Linoleum
Interior Flr 2	Carpet
Heat Fuel	Electric
Heat Type:	Electr Basebrd

Building Photo

Building Layout



AC Type:	None
Total Bedrooms:	2 Bedrooms
Total Bthrms:	1
Total Half Baths:	0
Total Xtra Fixtrs:	
Total Rooms:	5 Rooms
Bath Style:	Average
Kitchen Style:	Average
Num Kitchens	01
Whirlpool	
Num Park	
Fireplaces	
Interior	
Fndtn Cndtn	
Basement	

Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	984	984
FEP	Porch, Enclosed	100	0
UBM	Basement, Unfinished	600	0
WDK	Deck, Wood	240	0
		1,924	984

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

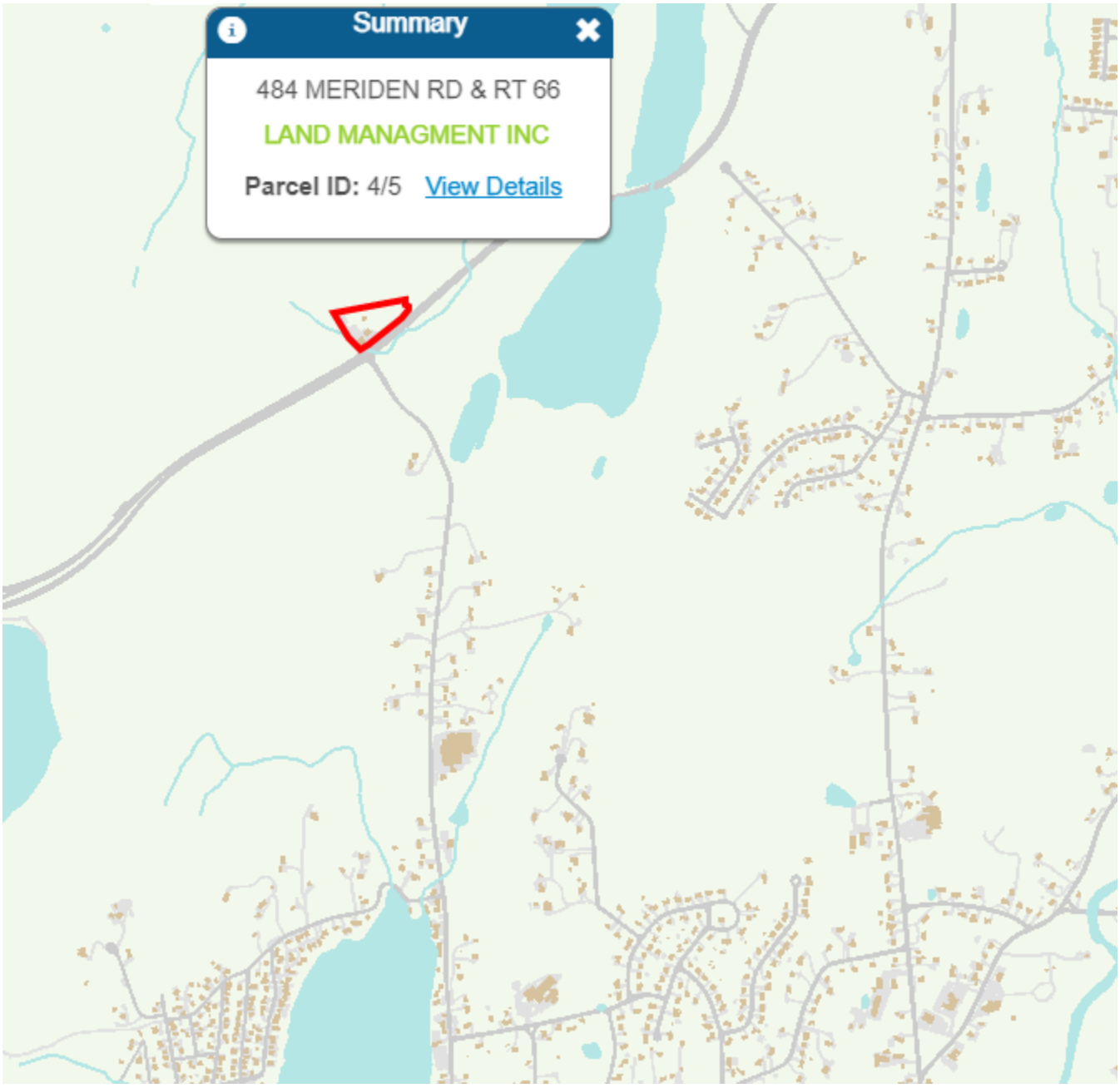
Use Code	3260
Description	REST/CLUBS
Zone	PC
Neighborhood	A
Alt Land Appr	No
Category	

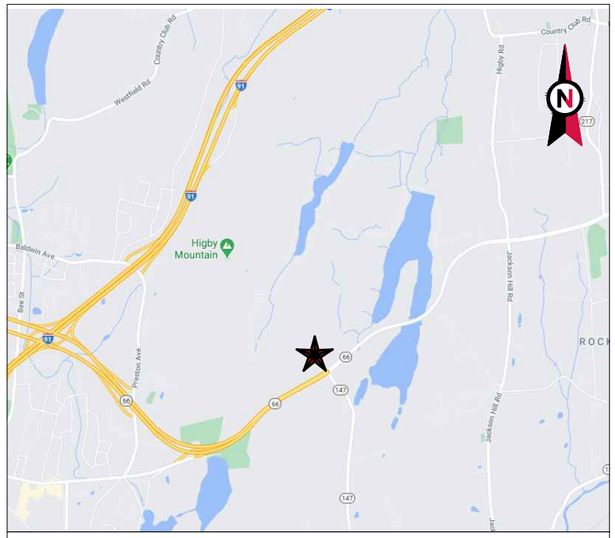
Land Line Valuation

Size (Acres)	3.49
Frontage	605
Depth	
Assessed Value	$233,600

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
PAV1	PAVING-ASPHALT			20000.00 S.F.	$17,500	1


Summary
484 MERIDEN RD & RT 66
LAND MANAGMENT INC
Parcel ID: 4/5 View Details

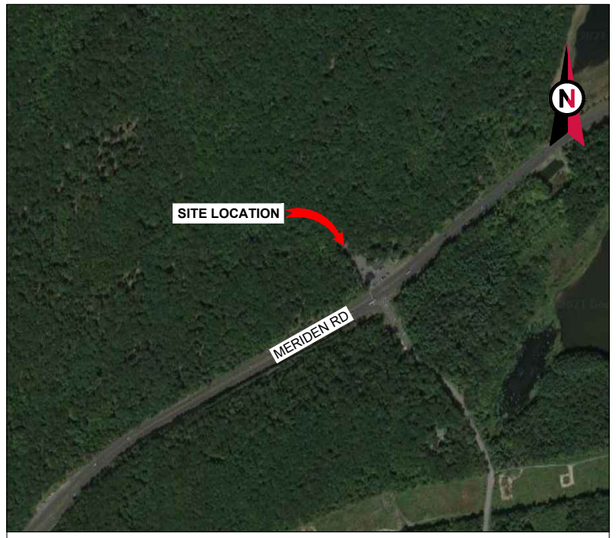


VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: MIDDLEFIELD CT
ATC SITE NUMBER: 411260
T-MOBILE SITE NAME: CTHA244/VERIZONMIDDLEFIEL
T-MOBILE SITE NUMBER: CTHA244A
SITE ADDRESS: 484 MERIDEN RD. MIDDLEFIELD, CT 06455

T-MOBILE L600 ANTENNA AMENDMENT PLAN
67D95A CONFIGURATION



LOCATION MAP

COMPLIANCE CODE

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

1. 2015 INTERNATIONAL BUILDING CODE (IBC)
2. 2017 NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: NORTHEAST UTLITIES
PHONE: (800) 286-2000

TELEPHONE COMPANY: AT&T
PHONE: (800) 288-2020

CBYD.COM 811 Call Before You Dig, Inc.

PROJECT SUMMARY

SITE ADDRESS:

484 MERIDEN RD.

MIDDLEFIELD, CT 06455

COUNTY: MIDDLESEX

GEOGRAPHIC COORDINATES:

LATITUDE: N41.53551400

LONGITUDE: W72.73209400

GROUND ELEVATION: 427' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

KIMLEY-HORN
& ASSOCIATES, INC.
421 FAYETTEVILLE ST, STE 600
RALEIGH, NC 27601
COA: PEC.0000738

PROPERTY OWNER:

LAND MANAGEMENT INC.
482 ROUTE 66
MIDDLEFIELD CT 06455

APPLICANT:

T-MOBILE

PETER FALES
PFALES@CLINELLC.COM

PROJECT DESCRIPTION

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

TOWER WORK:

REMOVE (3) AIR 32 B66AA/B2A ANTENNA(s)

INSTALL (3) AIR 21, 1.3M, B4A B2P ANTENNA(s), (3) AIR21 KRC118023-1_B2P_B4A, AND (3) 3CX-PCS/AWS3+600/700BP, AND (3) 4449 B71 B85A RRH(s)

EXISTING (3) APXVAARR24_43-U-NA 20 ANTENNA(S), (3) AIR 21, 1.3M, B4A B2P ANTENNA(s), (6) 1 5/8" COAX CABLE(S), AND (3) 1 5/8" HYBRID CABLE(s) TO REMAIN

GROUND WORK:

INSTALL (1) BB630

EXISTING (1) DUW30, (1) DUW20 (1) BB630 TO REMAIN

THE PROPOSED PROJECT DOES NOT INCLUDE ELECTRICAL SCOPE

PROJECT NOTES

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

PROJECT LOCATION DIRECTIONS

FROM MIDDLEFIELD:

HEAD WEST ON TOWN HALL ROAD TOWARD JACKSON HILL ROAD. TURN RIGHT ONTO JACKSON HILL ROAD. TURN LEFT ONTO CT-66 W. TURN RIGHT ONTO CT-147. TURN RIGHT, DESTINATION WILL BE ON THE LEFT.

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	0	05/13/21	DC
G-002	GENERAL NOTES	0	05/13/21	DC
C-101	DETAILED SITE PLAN	0	05/13/21	DC
C-102	DETAILED GROUND PLAN	0	05/13/21	DC
C-201	TOWER ELEVATION	0	05/13/21	DC
C-401	ANTENNA INFORMATION & SCHEDULE	0	05/13/21	DC
C-501	CONSTRUCTION DETAILS	0	05/13/21	DC
E-501	GROUNDING DETAILS	0	05/13/21	DC
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			

AMERICAN TOWER®

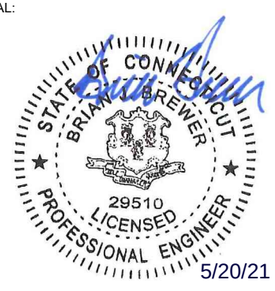
Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DC	04/15/21
0	ISSUED FOR CONSTRUCTION	DC	05/13/21

ATC SITE NUMBER:
411260
ATC SITE NAME:
MIDDLEFIELD CT
T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL
SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455

SEAL:



T-Mobile

DATE DRAWN:	05/13/21
ATC JOB NO:	13632989
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	0

GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
   - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
   - B. AC/TELCO INTERFACE BOX (PPC)
   - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
   - D. TOWERS, MONOPOLES
   - E. TOWER LIGHTING
   - F. GENERATORS & LIQUID PROPANE TANK
   - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
   - H. ANTENNAS (INSTALLED BY OTHERS)
   - I. TRANSMISSION LINE
   - J. TRANSMISSION LINE JUMPERS
   - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
   - L. TRANSMISSION LINE GROUND KITS
   - M. HANGERS
   - N. HOISTING GRIPS
   - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. 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.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE 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.
22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. 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.
27. CONTRACTOR SHALL NOTIFY T-MOBILE 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.
28. 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.
29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
30. 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 REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.
31. 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.
32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.
33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

SPECIAL CONSTRUCTION ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:
   - A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.
   - B. INSTALL ANTENNA AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.
   - C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.
   - D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.
   - E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.
   - F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
   - G. ANTENNA AND COAXIAL CABLE GROUNDING:

i. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.

ii. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF COAXIAL CABLE (NOT WITHIN BENDS).

ALL DISCREPANCIES FROM WHAT IS SHOWN ON THESE CONSTRUCTION DRAWINGS SHALL BE COMMUNICATED TO ATC ENGINEERING IMMEDIATELY FOR CORRECTION OR RE-DESIGN. FAILURE TO COMMUNICATE DIRECTLY WITH ATC ENGINEERING OR ANY CHANGES FROM THE DESIGN CONDUCTED WITHOUT PRIOR APPROVAL FROM ATC ENGINEERING SHALL BE THE SOLE RESPONSIBILITY OF THE GENERAL CONTRACTOR.

AMERICAN TOWER®

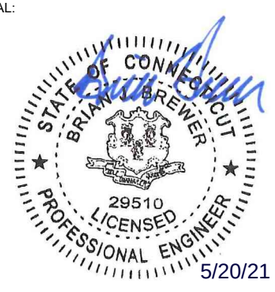
Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DC	04/15/21
0	ISSUED FOR CONSTRUCTION	DC	05/13/21

ATC SITE NUMBER:
411260
ATC SITE NAME:
MIDDLEFIELD CT
T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL
SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455

SEAL:



T-Mobile

DATE DRAWN:	05/13/21
ATC JOB NO:	13632989
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

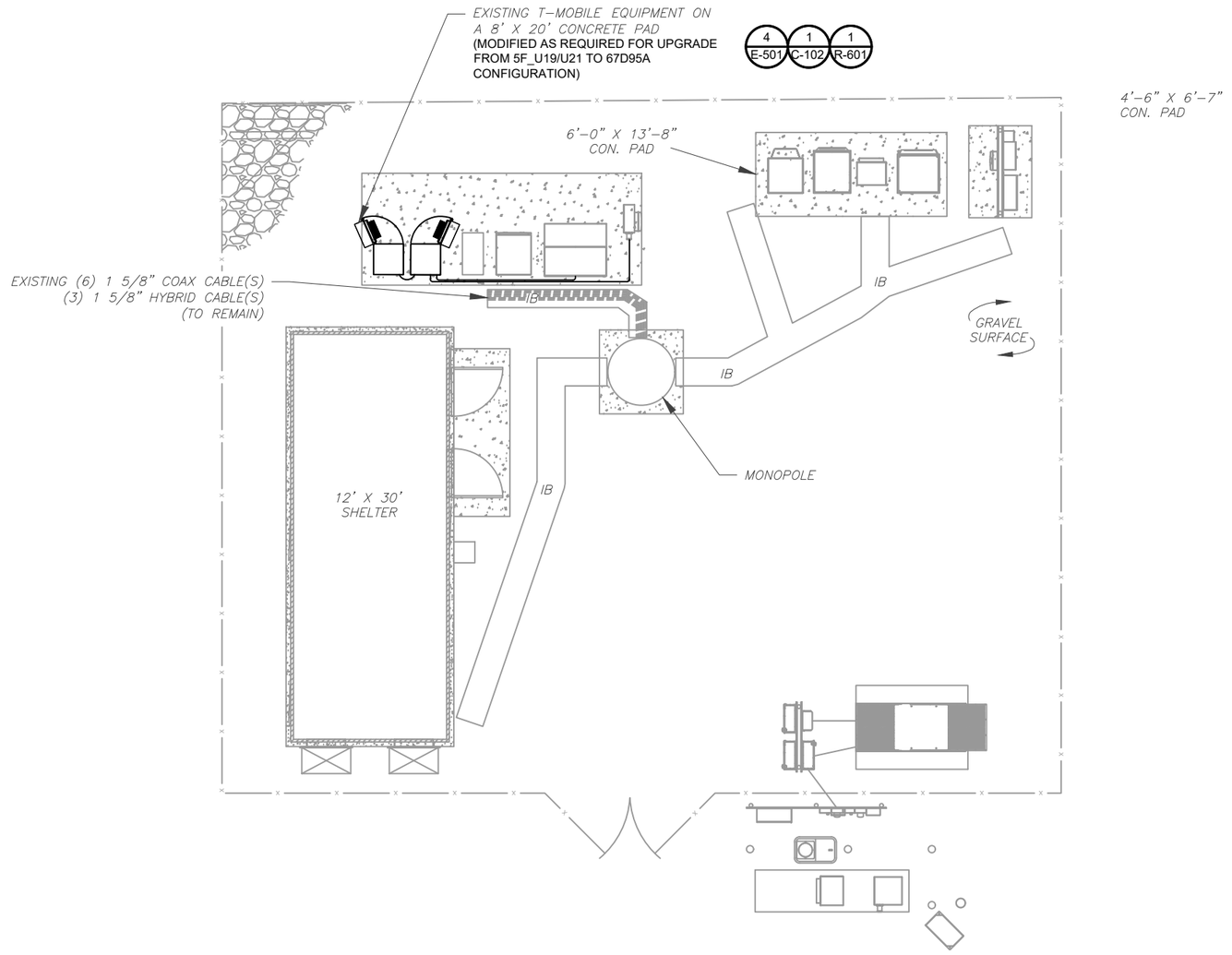
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

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

3. NO ELECTRICAL SCOPE IS INCLUDED IN THIS PROJECT.

LEGEND

⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
——x——	CHAINLINK FENCE



1 DETAILED SITE PLAN

0 10' 20'

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

PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **177**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR 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), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. WHERE POSSIBLE UTILIZE EXISTING CABLE SUPPORT STRUCTURES AS PROVIDED FOR CARRIER TO ADEQUATELY SECURE CABLES, USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER. OTHERWISE, ATTACH CABLES TO HORIZONTAL OR DIAGONAL TOWER MEMBERS USING PROPOSED STAINLESS STEEL ADAPTERS (DO NOT ATTACH TO TOWER LEG).

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A	PRELIM	DC	04/15/21
0	ISSUED FOR CONSTRUCTION	DC	05/13/21

ATC SITE NUMBER:
411260
ATC SITE NAME:
MIDDLEFIELD CT
T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL
SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455

SEAL:

T-Mobile

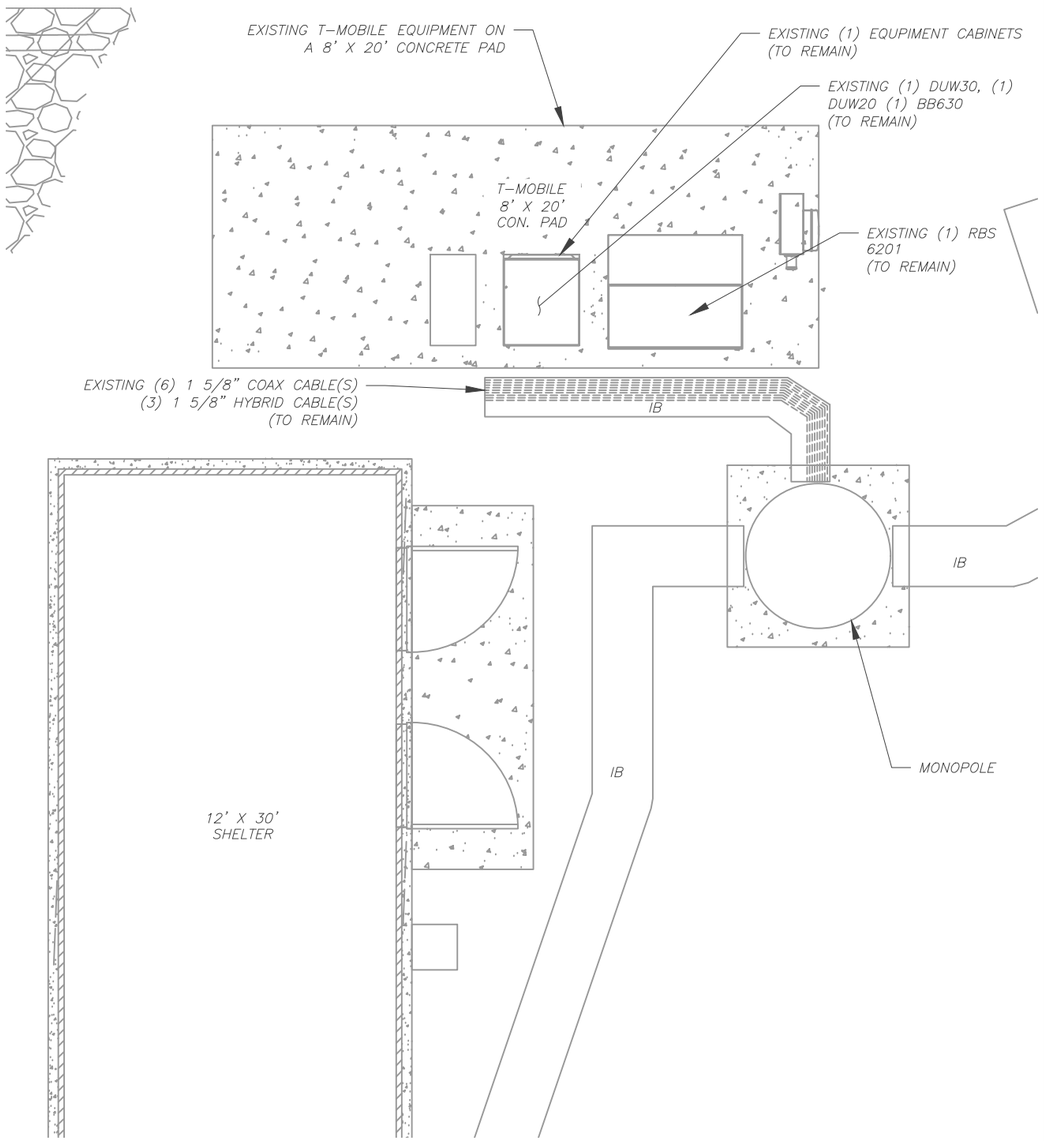
DATE DRAWN:	05/13/21
ATC JOB NO:	13632989
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

SITE PLAN NOTES:

1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. REMOVE EXISTING 2G CABINETS, AND POWER / TELCO WHIPS ASSOCIATED WITH THE DEAD EQUIPMENT IF APPLICABLE.
3. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
4. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.

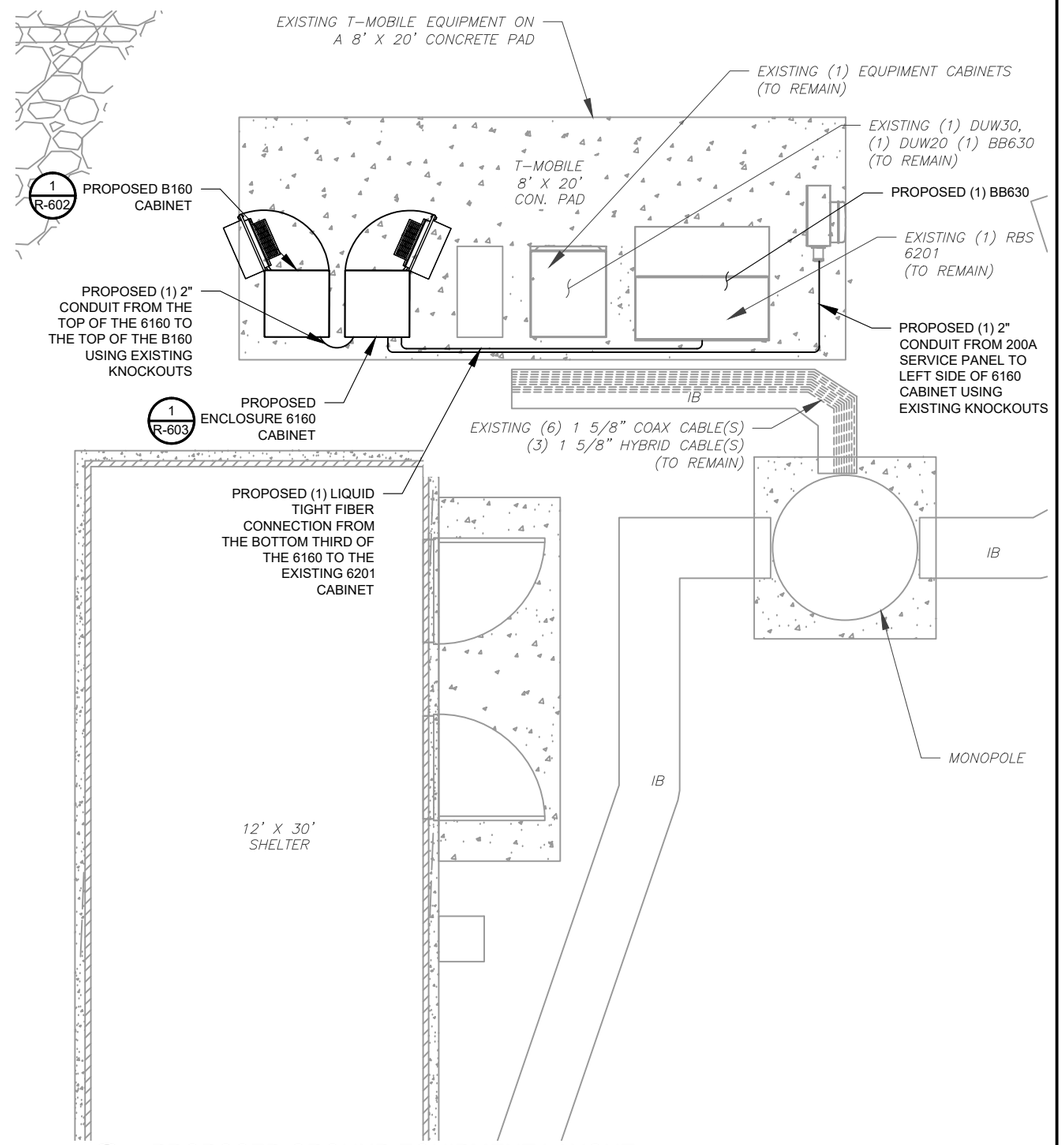


1 EXISTING GROUND EQUIPMENT LAYOUT

0 5' 10'

SCALE: 1"=5' (11X17)
1"=2.5' (22X34)

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS



2 PROPOSED GROUND EQUIPMENT LAYOUT

0 5' 10'

SCALE: 1"=5' (11X17)
1"=2.5' (22X34)

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REV.	DESCRIPTION	BY	DATE
A	PRELIM	DC	04/15/21
0	ISSUED FOR CONSTRUCTION	DC	05/13/21

ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455

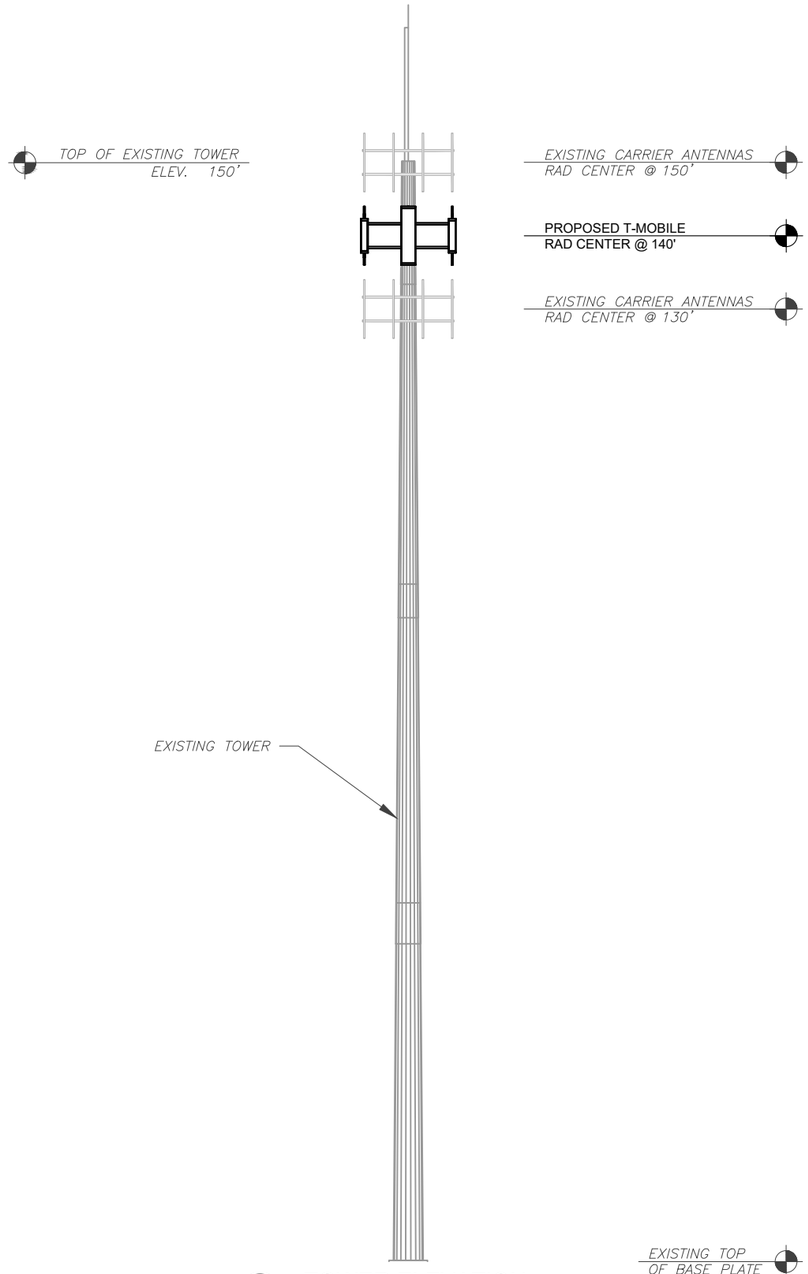
SEAL:

T-Mobile

DATE DRAWN:	05/13/21
ATC JOB NO:	13632989
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

DETAILED GROUND PLAN

SHEET NUMBER:	REVISION:
C-102	0



1 TOWER ELEVATION
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY CLS PLLC, DATED 03/18/21, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
3. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

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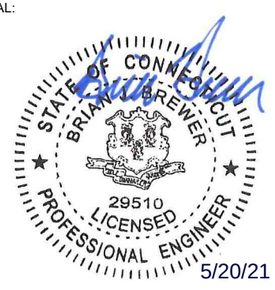
SEAL:

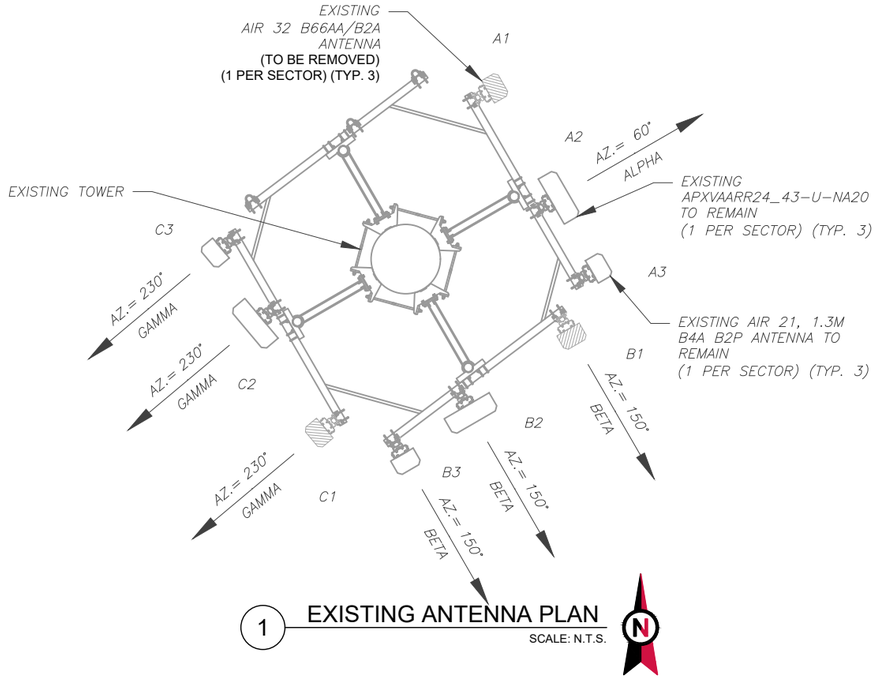


T-Mobile

DATE DRAWN:	05/13/21
ATC JOB NO:	13632989
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

TOWER ELEVATION

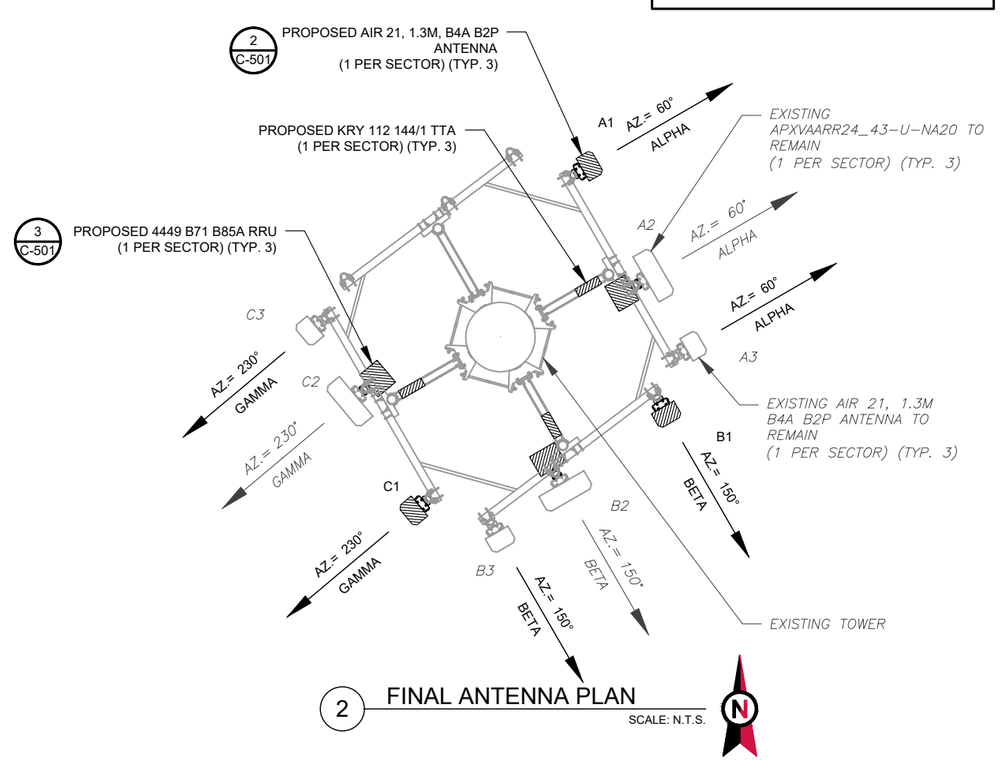
SHEET NUMBER:	REVISION:
C-201	0



1 EXISTING ANTENNA PLAN

SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY CLS PLLC, DATED 03/18/21, THE EXISTING MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.



2 FINAL ANTENNA PLAN

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	60°	A1	AIR 32 B66AA/B2A	–	–	RMV	–	–
			A2	APXVAARR24_43-U-NA 20	1900/2100 LTE	0°/2°	RMN	–	–
			A3	AIR 21, 1.3M, B4A B2P	1900/2100 LTE	0°/0°	RMN	–	–
BETA	140'	150°	B1	AIR 32 B66AA/B2A	–	–	RMV	–	–
			B2	APXVAARR24_43-U-NA 20	1900/2100 LTE	0°/2°	RMN	–	–
			B3	AIR 21, 1.3M, B4A B2P	1900/2100 LTE	0°/0°	RMN	–	–
GAMMA	140'	230°	C1	AIR 32 B66AA/B2A	–	–	RMV	–	–
			C2	APXVAARR24_43-U-NA 20	1900/2100 LTE	0°/2°	RMN	–	–
			C3	AIR 21, 1.3M, B4A B2P	1900/2100 LTE	0°/0°	RMN	–	–

NOTES

1. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

STATUS ABBREVIATIONS

RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS

JUNCTION BOX TO RRU: 15'
RRU TO ANTENNA: 10'

FINAL ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	140'	60°	A1	AIR21 KRC118023-1_B2P_B4A	2100 LTE	0°/2°	ADD	-	-
			A2	APXVAARR24_43-U-NA 20	1900/2100 LTE	0°/2°	RMN	4449 B71 B85A	ADD
			A3	AIR 21, 1.3M, B4A B2P	1900/2100 LTE	0°/0°	RMN	-	-
BETA	140'	150°	B1	AIR21 KRC118023-1_B2P_B4A	2100 LTE	0°/2°	ADD	-	-
			B2	APXVAARR24_43-U-NA 20	1900/2100 LTE	0°/2°	RMN	4449 B71 B85A	ADD
			B3	AIR 21, 1.3M, B4A B2P	1900/2100 LTE	0°/0°	RMN	-	-
GAMMA	140'	230°	C1	AIR21 KRC118023-1_B2P_B4A	2100 LTE	0°/2°	ADD	-	-
			C2	APXVAARR24_43-U-NA 20	1900/2100 LTE	0°/2°	RMN	4449 B71 B85A	ADD
			C3	AIR 21, 1.3M, B4A B2P	1900/2100 LTE	0°/0°	RMN	-	-

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

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

3 EQUIPMENT SCHEDULES

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RALEIGH, NC 27601

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A	PRELIM	DC	04/15/21
0	ISSUED FOR CONSTRUCTION	DC	05/13/21

ATC SITE NUMBER:
411260
ATC SITE NAME:
MIDDLEFIELD CT
T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL
SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455

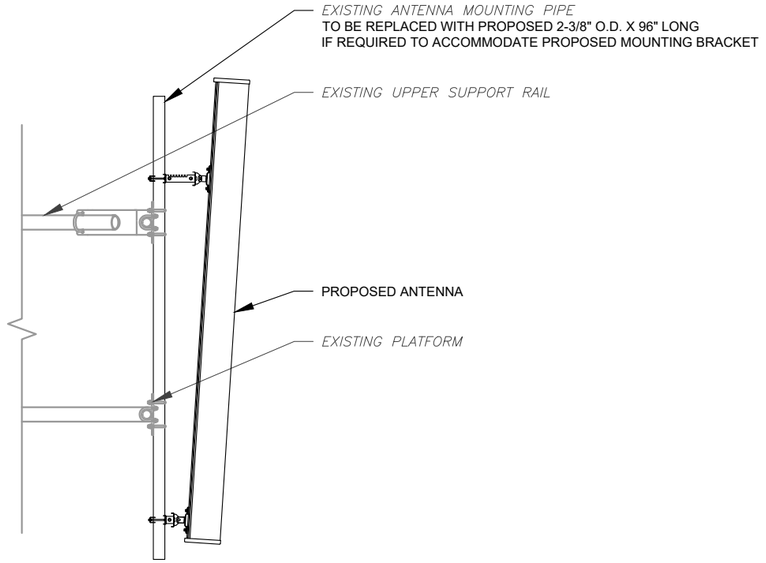
SEAL:

T-Mobile

DATE DRAWN:	05/13/21
ATC JOB NO:	13632989
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

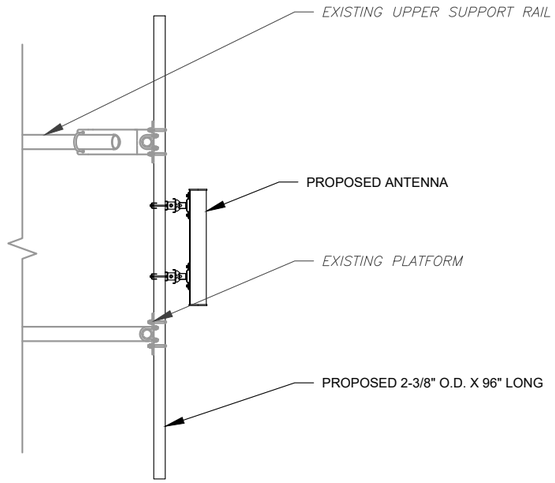
ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-401	0



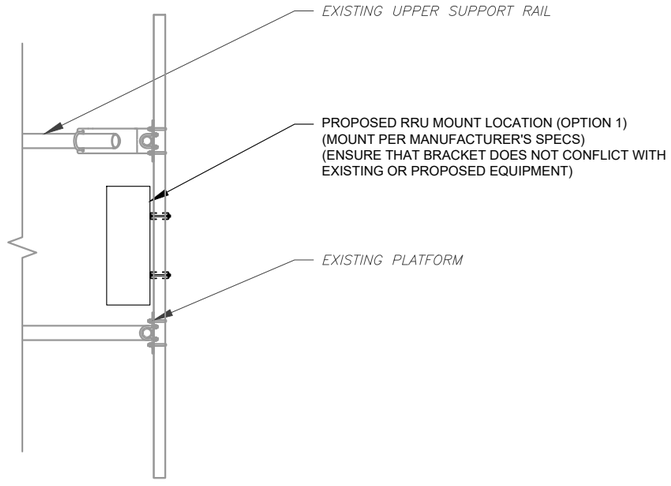
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



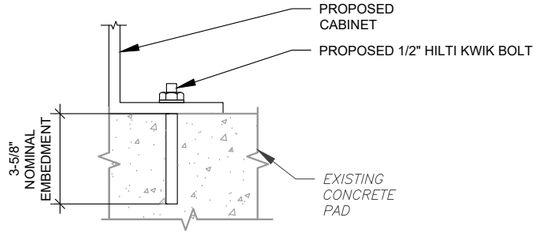
2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



NOTE:

INSTALL HILTI KWIK BOLT ANCHORS STRICTLY PER INSTALLATION INSTRUCTIONS INCLUDED WITH PRODUCT OR FOUND ONLINE AT WWW.US.HILTI.COM. PROPER INSTALLATION IS CRITICAL FOR FULL PERFORMANCE.

4 CABINET ATTACHMENT DETAIL

SCALE: NOT TO SCALE

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COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DC	04/15/21
0	ISSUED FOR CONSTRUCTION	DC	05/13/21

ATC SITE NUMBER:

411260

ATC SITE NAME:

MIDDLEFIELD CT

T-MOBILE SITE NAME:

CTHA244/VERIZONMIDDLEFIEL

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455

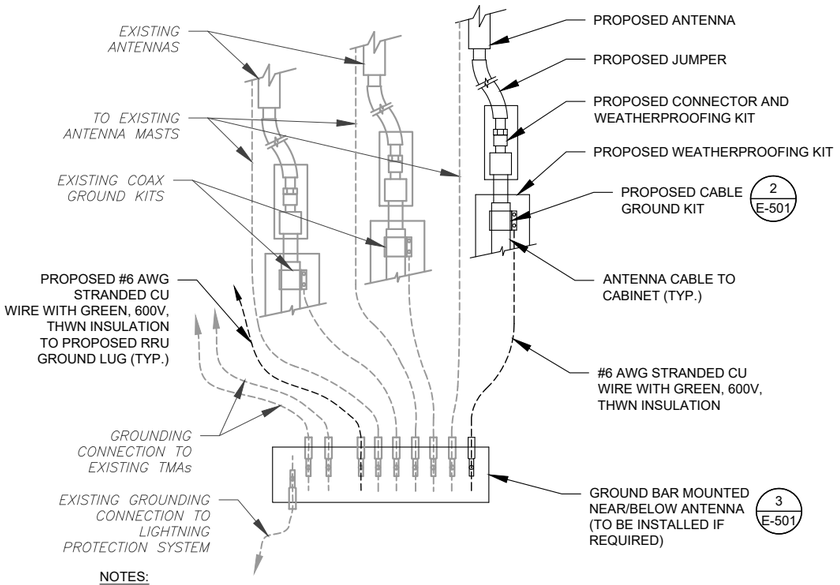
SEAL:

T-Mobile

DATE DRAWN:	05/13/21
ATC JOB NO:	13632989
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-501	0

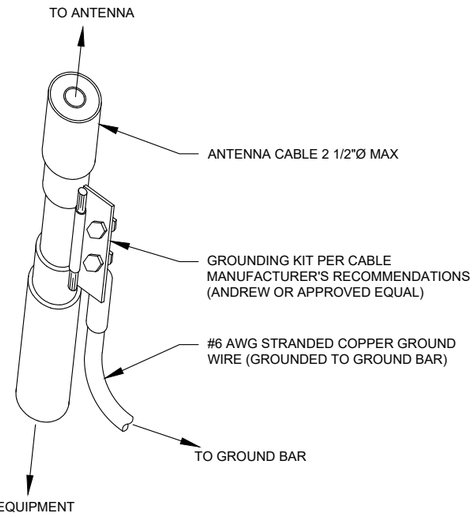


NOTES:

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

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: N.T.S.

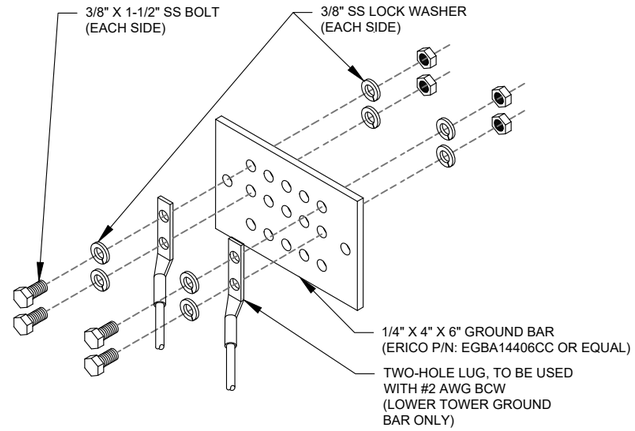


GROUND KIT NOTES:

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: N.T.S.

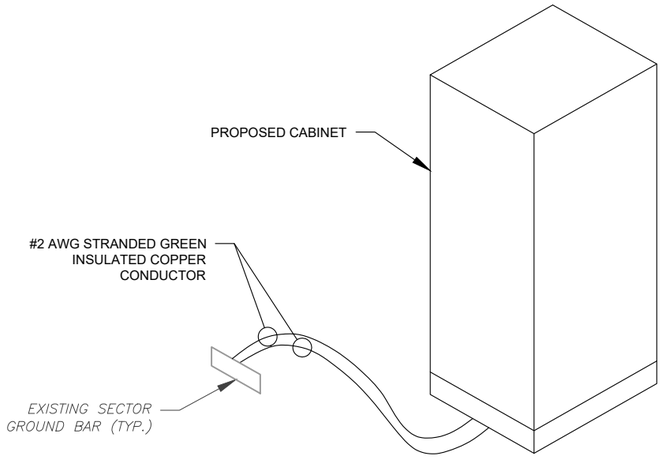


GROUND BAR NOTES:

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: N.T.S.



4 CABINET GROUNDING DETAIL

SCALE: N.T.S.

ELECTRICAL NOTES:

1. 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.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

OCPD SIZE	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
80A/2P	2#3 AWG	#8 AWG	1-1/4"
100/2P	2#2 AWG	#8 AWG	1-1/4"
125A/2P	2#1 AWG	#8 AWG	1-1/2"
150A/2P	2#1/0 AWG	#8 AWG	1-1/2"

AMERICAN TOWER®

Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	DC	04/15/21
0	ISSUED FOR CONSTRUCTION	DC	05/13/21

ATC SITE NUMBER:
411260
ATC SITE NAME:
MIDDLEFIELD CT
T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL
SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455

SEAL:

T-Mobile

DATE DRAWN:	05/13/21
ATC JOB NO:	13632989
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

RAN Template:	A&L Template:
67D95A	67D95A_2xAIR+1OP

CTHA244A_L600_8
Print Name: Standard (1)
PORs: L600_5G POPs

Section 5 - RAN Equipment

Existing RAN Equipment
Template: 5F_U19/U21

	1
Enclosure	
Enclosure Type	RBS 6201
Baseband	DUW30 (U2100) · DUG20 (G1900) · BB 6630 (L1900, L2100)
Radio	RUS01 B2 (x 3) (L1900, G1900) · RUS01 B4 (x 6) (L2100) · RUS01 B4 (x 3) (U2100)

Proposed RAN Equipment
Template: 67D95A

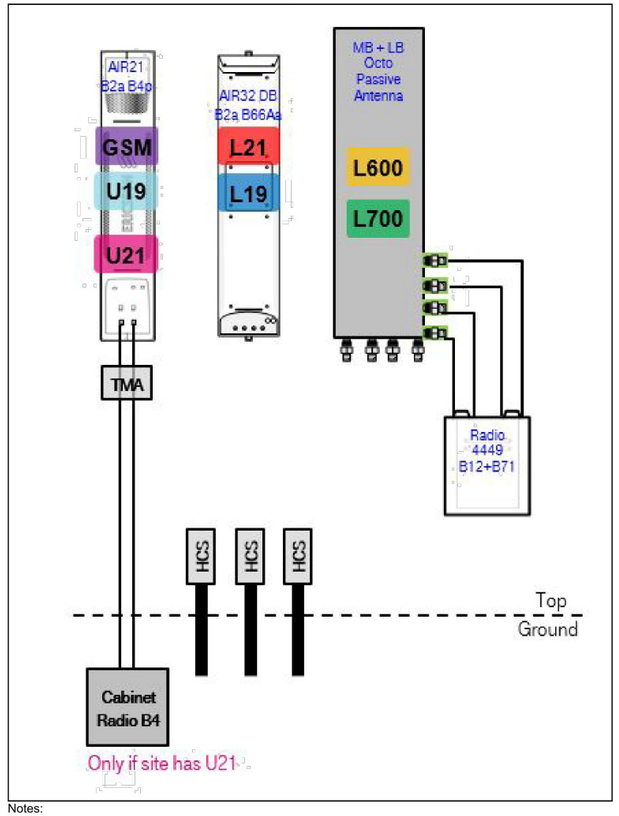
	1	2	3
Enclosure			
Enclosure Type	RBS 6201	Enclosure 6160	B160
Baseband	DUW30 (U2100) · DUG20 (G1900) · BB 6630 (L1900, L2100) · BB 6630 (N600, L700, L600)		
Hybrid Cable System		Ericsson 6x12 HCS "Select AWG & Length" (x 3)	
Radio	RUS01 B4 (x 3) (U2100) · RUS01 B4 (x 3) · RUS01 B2 (x 2) · RRUS01 B2		

RAN Scope of Work:

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

Section 3 - Proposed Template Images

67D92DB_2xAIR+1OP.JPG



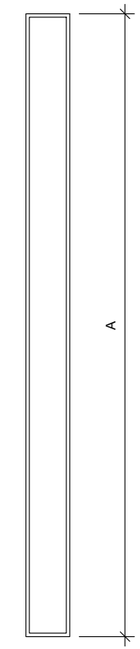
Notes:

2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

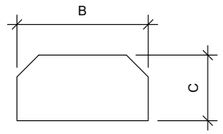
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0



FRONT VIEW

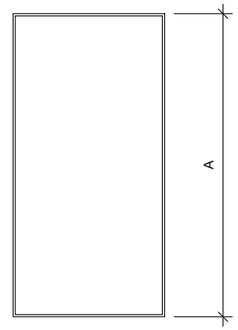


TOP VIEW

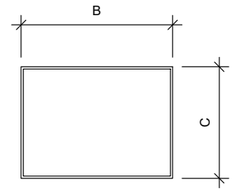
1 ANTENNA SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
AIR21 KRC118023-1_B2P_B4A	56.0"	12.1"	7.9"	81.5
APXVAARR24_43-U-NA20	95.9"	24.0"	8.7"	127.9



FRONT VIEW



TOP VIEW

2 RRU SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

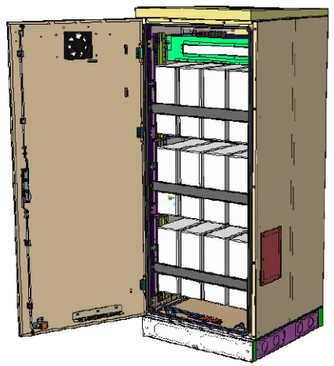
RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
4449 B71 B85A	15.0"	13.2"	10.5"	75

SUPPLEMENTAL

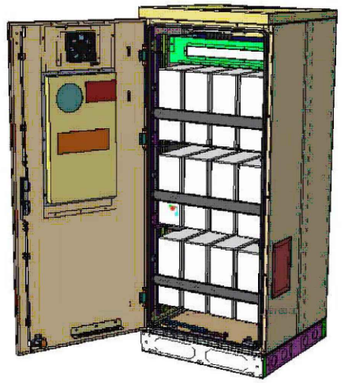
SHEET NUMBER: R-602

REVISION: 0

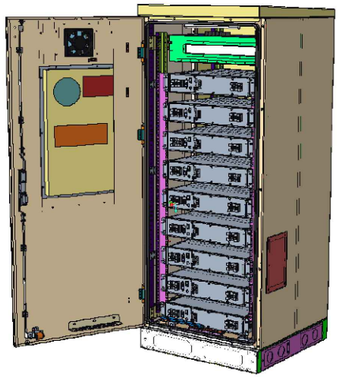
Enclosure B160



Enclosure B160
AirCon + VRLA



Enclosure B160
AirCon + Li-Ion



Enclosure B160
Convection Cooling
+ VRLA

Enclosure B160

Capacity
- VRLA 12V: 100Ah / 150Ah / 170Ah / 190Ah / 210Ah
- Li-Ion: 24U 19" / 23"
- Sodium-Nickel: 3x FIAMM

Electrical specification
- DC Output: -48VDC/200A
- Battery breakers: 2x 125/2p
- Alarms: Door open, Climate failure, MCB Connection

Mechanical specification
- Weight: 134kg
- Dimensions: 63 x 26 x 26 in. (incl. Base frame)
- Base frame height: 6 in.
- Material: Galvanized steel (180g/m^2)
- Color: Powder paint NCS 2002-B
- Door: Front access
- Locking type: Pad lock / cylinder

Environmental specification
- Ingress protection: VRLA/Sodium IP44
  Li-Ion IP55
- Relative humidity: 15-100%

Climate system
- Air Conditioner
  - Fan type: DC
  - Cooling capacity: 500W @L35/L35
- Convection cooling
  - Emergency fan

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

SUPPLEMENTAL

SHEET NUMBER: R-603

REVISION: 0

ERICSSON

Enclosure 6160 AC

The Enclosure 6160 is a multi-purpose site cabinet designed to support a multitude of equipment such as ERS Baseband, Transport, Li-Ion battery and 3PP vendor equipment. It also provides a highly capable power system and battery back-up - all in a streamlined design and minimized footprint to support cost efficient expansion of mobile broadband.

Being an all-in-one enclosure, the Enclosure 6160 is a very fitting choice for all types of sites where the capacity need is large or room for future expansion is needed. It is ideally used for modernizing existing sites or in greenfield scenarios to match both current and future needs.

With a robust design, IP65 compliance and a sealed Heat Exchanger (HEX) climate system the Enclosure 6160 ensures optimal environmental protection of the active equipment - enabling them for a long-lasting service. The complete system is also integrated and verified for the entire Ericsson Radio System and ensures best-in-class service.

The power system offers 31,5kW of power in total and provides 24kW of -48V DC power for both internal and external consumers.

The equipment space allows 19U of rack space ensuring well enough capacity for existing need and future expansion.

One of the main advantages of the Enclosure 6160 is its default integration with ENM - allowing for advanced remote monitoring and control such a fault management (alarms), inventory management and performance measurements. The cabinet also provides an open O&M interface for integration to 3PP O&M systems.

Preliminary technical specification for Enclosure 6160 AC

CAPACITY	
Rack space user equipment	19U (19" rack)
Hardware capabilities	Power and CPRI support for multi-standard remote radios (RRU or AIR) ERS Baseband and Transport units Li-Ion batteries 3PP equipment Additional power feed available as option
MECHANICAL SPECIFICATION	
Weight	145 kg (excluding active equipment) 320 lbs (excluding active equipment)
Dimension (H x W x D)	1600 x 650 x 650 mm (incl. Base frame) 63 x 26 x 26 in. (incl. Base frame)
Base frame height	150 mm 6 in.
Mounting position	Ground
Enclosure material	Aluminum
Color	Power paint NCS 2002-B
Door	Front access
Rack type	19" (IEC 60297-3-100)
Locking type	Pad lock or Cylinder
POWER SYSTEM	
Input voltage	3P+N+PE: 346/200-415/240 VAC 2P+N+PE: 208/120-220/127 VAC 1P+N+PE: 200-250 VAC
Input power	<33kW
Output load (-48VDC)	24kW
Total capacity (-48VDC)	31.5kW
AC SPD	Class 2/Type 2
DC SPD	Class 2/Type 2
PSU Slots	9x
Service outlet	Optional
Priority load	8x Circuit Breaker
LLVD 1	6x Circuit Breaker
LLVD 2	6x Circuit Breaker
CB ratings	3A / 5A / 10A / 15A / 20A / 25A / 30A / 40A / 50A / 60A / 80A / 100A
Battery Interface	2x Circuit Breaker
Battery Circuit Breaker rating	125A 2pol (200A)
PSU capacity	3500W

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SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-604	0

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

CLS ENGINEERING PLLC

Antenna Mount Analysis Report

ATC Site Name	:	**Middlefield CT**
ATC Asset Number	:	**411260**
Engineering Number	:	**13632989_C8_01**
Mount Elevation	:	**138.5 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**CTHA244/VerizonMiddlefiel**
Carrier Site Number	:	**CTHA244A**
Site Location	:	**484 Meriden Rd.** **Middlefield, CT 06455-1013** **41.535514, -72.732094**
County	:	**Middlesex**
Date	:	**March 18, 2021**
Max Usage	:	**69%**
Result	:	**Pass (Pending Mods)**

Prepared By:
Snehitha Narava
CLS Engineering PLLC

Reviewed By:
Tyler M. Barker, P.E.
CLS Engineering PLLC

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

Digitally signed by Tyler M. Barker PE
Date: 2021.03.18 21:37:32 -04'00'

Tyler M. Barker
CLS Engineering PLLC
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022

03/18/2021

Introduction

The proposed equipment is to be mounted to the existing T-Arms. 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.

Supporting Documents

Structural Data	Site Photos dated July 28, 2020 Spec Sheet for Site Pro 1 RMV Series T-Arm Mount
Previous Analyses	Structural Analysis by American Tower Corporation, Eng. #12927178_C3_02, dated July 17, 2019
Loading Data	ATC Application, Project #13632989 T-Mobile RFDS, Site ID #CTHA244A, Version 8.00, dated January 11, 2021
Modifications	Mount Analysis by CLS Engineering for American Tower Corporation, Project #41124-12927178-01-MA-R1, dated July 3, 2019

*The modifications by CLS Engineering Project #41124-12927178-01-MA-R1 are scheduled to be installed at construction of the referenced project.

Analysis

Codes	2018 IBC / TIA-222-H
Basic Wind Speed	119 mph, V_{ult} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1" Radial Ice (Escalating)
Exposure Category	C
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Risk Category	II
Maintenance Live Load	L_M: 500 lb
Spectral Response	S_s: 0.21; S_1: 0.06; Site Class: D

Conclusion

Based on the analysis results, the mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report. If the pending modifications cited in the Supporting Documents are not completed, the results of this analysis are no longer valid, and T-Mobile should contact American Tower's Site Manager for further direction on how to proceed.

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

1 MOUNT ANALYSIS

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

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-605	0

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

TOWER ENGINEERING PROFESSIONALS

Structural Analysis Report

Structure	:	**150 ft Monopole**
ATC Site Name	:	**Middlefield CT, CT**
ATC Asset Number	:	**411260**
Engineering Number	:	**13632989_C3_04**
Proposed Carrier	:	**T-Mobile**
Carrier Site Name	:	**CTHA244/VerizonMiddlefiel**
Carrier Site Number	:	**CTHA244A**
Site Location	:	**484 Meriden Rd.** **Middlefield, CT 06455-1013** **41.535500,-72.732100**
County	:	**Middlesex**
Date	:	**March 30, 2021**
Max Usage	:	**48%**
Result	:	**Pass**

Prepared By:
Jacob M. Davis, E.I.
TEP

Jacob Davis

Reviewed By:

STATE OF CONNECTICUT
AARON THOMAS RUCKER
32608
LICENSED PROFESSIONAL ENGINEER

3/30/2021

COA: PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 150 ft monopole to reflect the change in loading by T-Mobile.

Supporting Documents

Tower Drawings	EEI Project #11121, dated September 17, 2002
Foundation Drawing	EEI Project #11121, dated September 19, 2002
Geotechnical Report	Clarence Welti Project #Tower at Guidas Drive-In, dated September 12, 2002
Mount Analysis	CLS Engineering PLLC Project #41124-13632989_C8_01-01-MA, dated March 18, 2021

Analysis

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

Basic Wind Speed:	119 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Spectral Response:	Ss = 0.21, S_1 = 0.06
Site Class:	D - Stiff Soil

Conclusion

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

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
150.0	3	Samsung B2/B66A RRH-BR049	Low Profile Platform	(6) 1 5/8" Coax (1) 2.02 (51.2mm) Hybrid	Verizon Wireless
	3	Samsung B5/B13 RRH-BR04C			
	1	RFS DB-C1-12C-24AB-0Z			
	6	Antel LPA-80063/6CF			
	4	Commscope NHH-45B-R2B			
140.0	3	Ericsson AIR 21, 1.3 M, B2A B4P	T-Arms	(3) 1 5/8" (1.63"-41.3mm) Fiber (6) 1 5/8" Coax	T-Mobile
	3	Ericsson KRY 112 144/1			
	3	RFS APXVAARR24_43-U-NA20			
130.0	3	Spinner 756529	Low Profile Platform	(1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Hybriflex (1) 3" conduit	AT&T Mobility
	6	Powerwave Allgon LGP 21902			
	6	Powerwave Allgon LGP21401			
	1	Raycap DC6-48-60-18-8F			
	6	Ericsson RRUS-11 (50 lbs.)			
	6	Powerwave Allgon 7770.00 (27 lbs)			
	3	KMW AM-X-CD-16-65-00T-RET			
90.0	1	GPS	Flush	(1) 1 5/8" Coax	Verizon Wireless

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
140.0	3	Ericsson AIR32 B66Aa/B2a	-	-	T-Mobile
	3	Ericsson Radio 4449 B12,B71			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
140.0	3	Ericsson Radio 4449 B71 B85A	T-Arms	-	T-Mobile
	3	Ericsson AIR 21, 1.3M, B4A B2P			

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

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	44%	Pass
Shaft	48%	Pass
Base Plate	26%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3,405.8	4,597.8	2,174.6	47%
Shear (Kips)	31.3	42.2	20.4	48%
*The design reactions are factored by 1.35 per ANSI/TIA-222-H, Sec. 15.6.2				

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

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
140.0	Ericsson Radio 4449 B71 B85A	T-Mobile	1.047	0.902
	Ericsson AIR 21, 1.3M, B4A B2P			

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

Standard Conditions

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

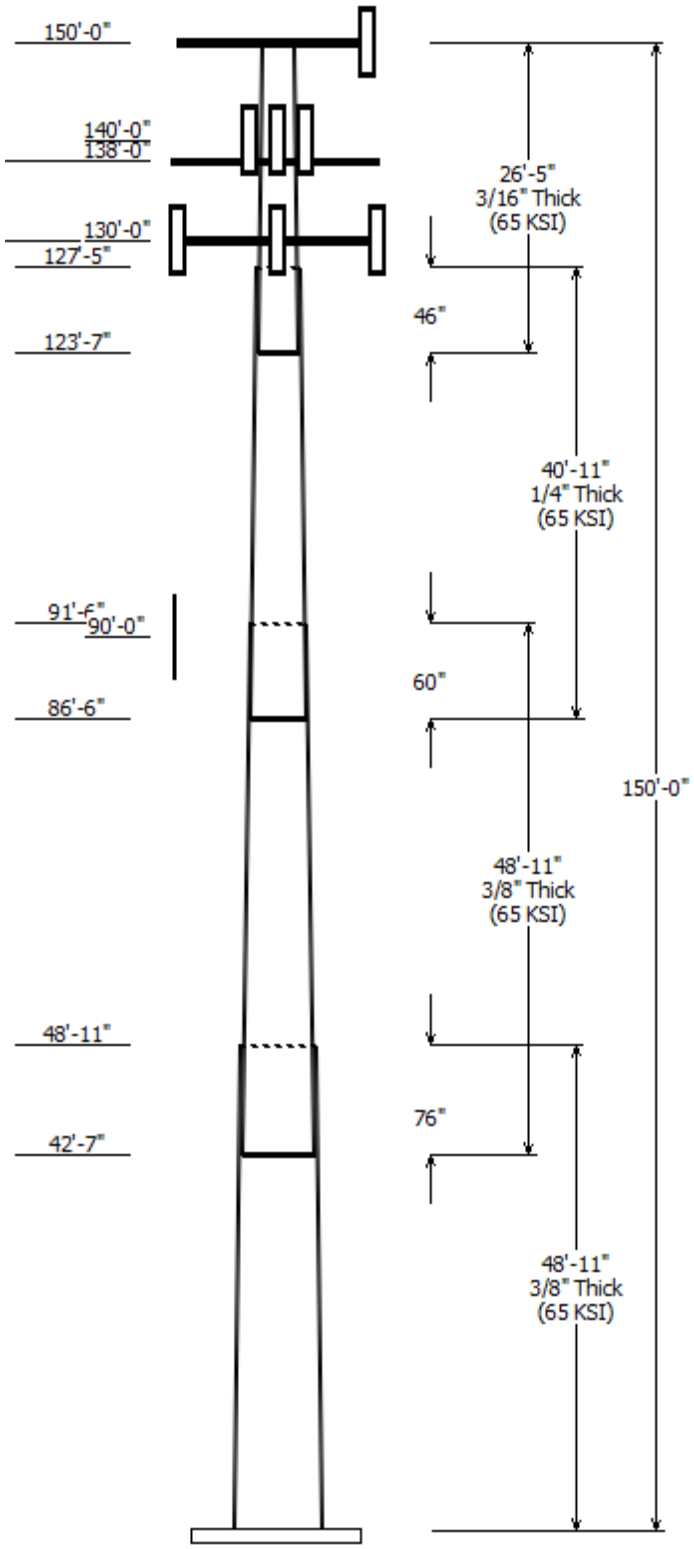
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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

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

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

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



Job Information

Client :	T-MOBILE		
Pole :	411260	Code:	ANSI/TIA-222-H
Location :	MIDDLEFIELD CT, CT		
Description :		Risk Category :	II
Shape :	18 Sides	Exposure :	B
Height :	150.00 (ft)	Topo Method :	Method 1
Base Elev (ft):	0.00	Topographic Category :	1
Taper:	0.25747 (in/ft)		

Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	48.917	43.90	56.49	0.375		0.000	18 Sides	65
2	48.917	33.68	46.28	0.375	Slip Joint	76.000	18 Sides	65
3	40.917	24.94	35.47	0.250	Slip Joint	60.000	18 Sides	65
4	26.417	19.50	26.30	0.188	Slip Joint	46.000	18 Sides	65

Discrete Appurtenance

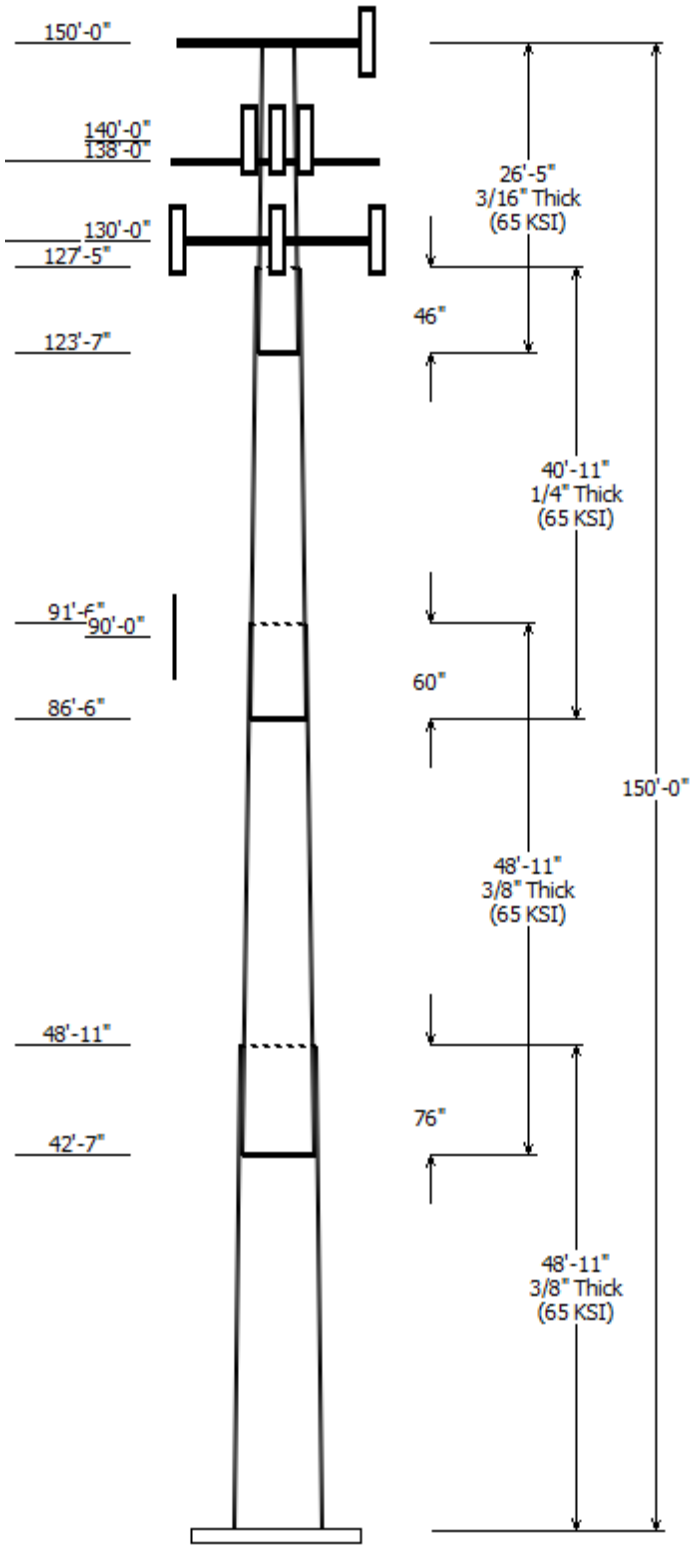
Attach Elev (ft)	Force Elev (ft)	Qty	Description
150.000	150.000	1	Generic Flat Low Profile Platf
150.000	150.000	4	Commscope NHH-45B-R2B
150.000	150.000	6	Antel LPA-80063/6CF
150.000	150.000	1	RFS DB-C1-12C-24AB-0Z
150.000	150.000	3	Samsung B2/B66A RRH-BR049
150.000	150.000	3	Samsung B5/B13 RRH-BR04C
140.000	140.000	3	RFS APXVAARR24_43-U-NA20
140.000	140.000	3	Ericsson AIR 21, 1.3M, B4A B2P
140.000	140.000	3	Ericsson AIR 21, 1.3 M, B2A B4
140.000	140.000	3	Ericsson Radio 4449 B71 B85A
140.000	140.000	3	Ericsson KRY 112 144/1
138.000	138.000	4	Generic Round T-Arm
130.000	130.000	1	Generic Round Low Profile
130.000	130.000	3	KMW AM-X-CD-16-65-00T-RET
130.000	130.000	6	Powerwave Allgon 7770.00 (27
130.000	130.000	6	Ericsson RRUS-11 (50 lbs.)
130.000	130.000	1	Raycap DC6-48-60-18-8F
130.000	130.000	6	Powerwave Allgon LGP21401
130.000	130.000	6	Powerwave Allgon LGP 21902
130.000	130.000	3	Spinner 756529
90.000	90.000	1	Generic GPS

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	90.000	1 5/8" Coax	No
0.000	130.0	0.39" (10mm)	No
0.000	130.0	0.78" (19.7mm) 8	No
0.000	130.0	1 5/8" Hybriflex	No
0.000	130.0	3" conduit	No
0.000	140.0	1 5/8" (1.63"-	No
0.000	140.0	1 5/8" Coax	No
0.000	150.0	1 5/8" Coax	Yes
0.000	150.0	2.02 (51.2mm)	No

Load Cases

1.2D + 1.0W	119 mph with No Ice
0.9D + 1.0W	119 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice



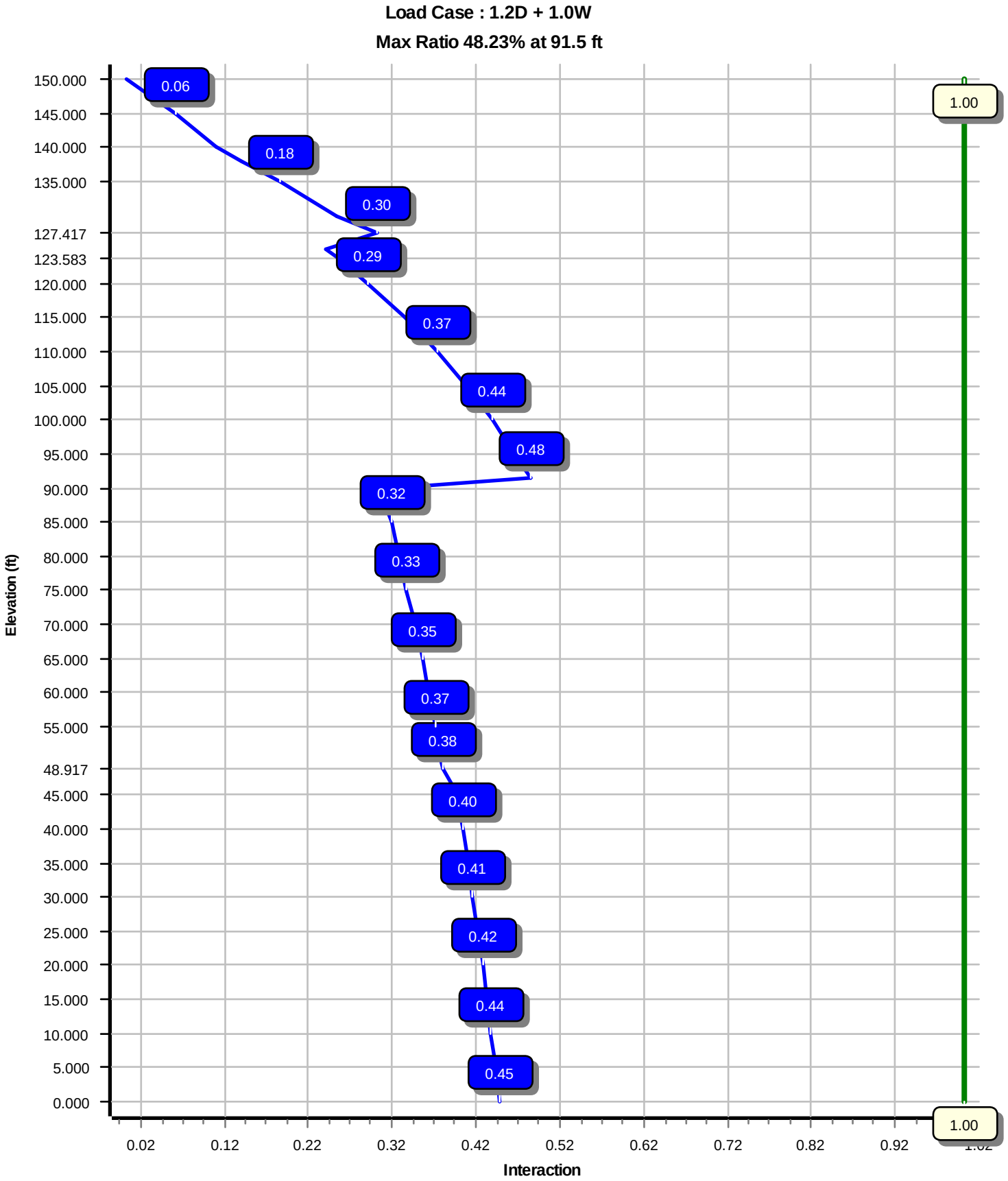
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	2174.56	20.36	43.06
0.9D + 1.0W	2153.04	20.35	32.29
1.2D + 1.0Di + 1.0Wi	572.36	5.52	57.32
1.2D + 1.0Ev + 1.0Eh	171.81	1.40	43.00
0.9D - 1.0Ev + 1.0Eh	169.68	1.40	29.58
1.0D + 1.0W	491.59	4.63	35.90

Dish Deflections

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


Load Case : 1.2D + 1.0W
Max Ratio 48.23% at 91.5 ft
Elevation (ft)
150.000
145.000
140.000
135.000
127.417
123.583
120.000
115.000
110.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
48.917
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.06
0.18
0.30
0.29
0.37
0.44
0.48
0.32
0.33
0.35
0.37
0.38
0.40
0.41
0.42
0.44
0.45
1.00
1.00
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 411260 Code: ANSI/TIA-222-H

Site Name: MIDDLEFIELD CT, CT Engineering Number:13632989_C3_04 3/30/2021 2:10:57 AM

Customer: T-MOBILE

Analysis Parameters

Location :	Middlesex County, CT	Height (ft) :	150
Code :	ANSI/TIA-222-H	Base Diameter (in) :	56.50
Shape :	18 Sides	Top Diameter (in) :	19.50
Pole Type :	Taper	Taper (in/ft) :	0.257
Pole Manfacturer :	EEI	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	0.98

Ice & Wind Parameters

Exposure Category:	B	Design Wind Speed Without Ice:	119 mph
Risk Category:	II	Design Wind Speed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	426.86 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	2.19				
T_L (sec):	6	p:	1.3	C_s:	0.030
S_s:	0.207	S_1:	0.055	C_s Max:	0.030
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.221	S_{d1}:	0.088		

Load Cases

1.2D + 1.0W	119 mph with No Ice
0.9D + 1.0W	119 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	48.917	0.3750	65		0.00	9,871	56.49	0.00	66.80	26580.7	25.15	150.66	43.90	48.92	51.81	12400.6	19.23	117.07	0.257477
2-18	48.917	0.3750	65	Slip	76.00	7,847	46.28	42.58	54.64	14548.7	20.35	123.42	33.68	91.50	39.65	5559.0	14.43	89.83	0.257477
3-18	40.917	0.2500	65	Slip	60.00	3,310	35.47	86.50	27.95	4381.6	23.61	141.90	24.94	127.42	19.59	1508.8	16.18	99.76	0.257477
4-18	26.417	0.1875	65	Slip	46.00	1,215	26.30	123.58	15.54	1339.0	23.32	140.28	19.50	150.00	11.49	541.6	16.93	104.00	0.257477
				Shaft Weight		22,243													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
150.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.875	0.50	108.45	2.477	0.50
150.00	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.875	0.50	126.95	2.477	0.50
150.00	RFS DB-C1-12C-24AB-0Z	1	0.80	0.000	32.00	4.056	0.67	116.76	4.966	0.67
150.00	Antel LPA-80063/6CF	6	0.80	0.000	27.00	9.593	0.76	209.50	10.480	0.76
150.00	Commscope NHH-45B-R2B	4	0.80	0.000	73.60	11.400	0.63	225.97	13.259	0.63
150.00	Generic Flat Low Profile Platform	1	1.00	0.000	1,875.00	26.100	1.00	2,415.11	38.833	1.00
140.00	Ericsson KRY 112 144/1	3	0.80	0.000	11.00	0.351	0.50	18.13	0.620	0.50
140.00	Ericsson Radio 4449 B71 B85A	3	0.80	0.000	75.00	1.650	0.50	114.87	2.213	0.50
140.00	Ericsson AIR 21, 1.3 M, B2A B4P	3	0.80	0.000	83.00	6.049	0.71	179.76	7.482	0.71
140.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.80	0.000	81.50	6.092	0.70	177.90	7.527	0.70
140.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	388.17	22.702	0.63
138.00	Generic Round T-Arm	4	0.75	0.000	312.50	9.700	0.67	485.38	15.156	0.67
130.00	Spinner 756529	3	0.80	0.000	1.50	0.142	0.50	5.07	0.333	0.50
130.00	Powerwave Allgon LGP 21902	6	0.80	0.000	5.50	0.231	0.50	11.02	0.454	0.50
130.00	Powerwave Allgon LGP21401	6	0.80	0.000	14.10	1.104	0.50	30.51	1.574	0.50
130.00	Raycap DC6-48-60-18-8F	1	0.80	0.000	20.00	1.260	1.00	54.64	1.693	1.00
130.00	Ericsson RRUS-11 (50 lbs.)	6	0.80	0.000	50.00	2.566	0.67	94.85	3.255	0.67
130.00	Powerwave Allgon 7770.00 (27	6	0.80	0.000	27.00	5.508	0.65	101.78	6.907	0.65
130.00	KMW AM-X-CD-16-65-00T-RET	3	0.80	0.000	48.50	8.024	0.67	155.04	9.859	0.67
130.00	Generic Round Low Profile	1	1.00	0.000	1,875.00	21.700	1.00	2,407.80	34.331	1.00
90.00	Generic GPS	1	1.00	0.000	10.00	0.900	1.00	28.54	1.305	1.00
Totals	Num Loadings:21	70			7,847.30			14,377.25		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	150.00	6	1 5/8" Coax	1.98	0.82	N	6	0.00	0.00	270	0.00	Y	VERIZON WIRELESS
0.00	150.00	1	2.02 (51.2mm) Hybrid	2.02	3.04	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS
0.00	140.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	140.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	130.00	1	0.39" (10mm) Fiber	0.39	0.06	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	130.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	130.00	12	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	130.00	1	3" conduit	3.50	7.58	N	0	0.00	0.00	0	0.00	N	AT&T MOBILITY
0.00	90.00	1	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	VERIZON WIRELESS

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	56.497	66.796	26,580.7	25.15	150.66	71.8	926.7	0.0	0.0
5.00		0.3750	55.209	65.264	24,793.1	24.55	147.22	72.5	884.5	0.0	1,123.4
10.00		0.3750	53.922	63.732	23,087.5	23.94	143.79	73.2	843.3	0.0	1,097.4
15.00		0.3750	52.634	62.200	21,462.0	23.34	140.36	74.0	803.1	0.0	1,071.3
20.00		0.3750	51.347	60.667	19,914.6	22.73	136.93	74.7	763.9	0.0	1,045.2
25.00		0.3750	50.060	59.135	18,443.5	22.13	133.49	75.4	725.7	0.0	1,019.2
30.00		0.3750	48.772	57.603	17,046.6	21.52	130.06	76.1	688.4	0.0	993.1
35.00		0.3750	47.485	56.071	15,722.2	20.92	126.63	76.8	652.1	0.0	967.0
40.00		0.3750	46.198	54.538	14,468.1	20.31	123.19	77.5	616.8	0.0	940.9
42.58	Bot - Section 2	0.3750	45.532	53.747	13,847.2	20.00	121.42	77.9	599.0	0.0	475.9
45.00		0.3750	44.910	53.006	13,282.6	19.71	119.76	78.2	582.5	0.0	885.2
48.92	Top - Section 1	0.3750	44.652	52.698	13,052.7	19.58	119.07	78.4	575.8	0.0	1,408.8
50.00		0.3750	44.373	52.366	12,807.6	19.45	118.33	78.5	568.5	0.0	193.7
55.00		0.3750	43.085	50.834	11,715.9	18.85	114.89	79.2	535.6	0.0	877.9
60.00		0.3750	41.798	49.302	10,688.1	18.24	111.46	79.9	503.6	0.0	851.9
65.00		0.3750	40.511	47.770	9,722.2	17.64	108.03	80.7	472.7	0.0	825.8
70.00		0.3750	39.223	46.237	8,816.3	17.03	104.60	81.4	442.7	0.0	799.7
75.00		0.3750	37.936	44.705	7,968.6	16.43	101.16	82.1	413.7	0.0	773.6
80.00		0.3750	36.648	43.173	7,177.0	15.82	97.73	82.6	385.7	0.0	747.6
85.00		0.3750	35.361	41.641	6,439.6	15.22	94.30	82.6	358.7	0.0	721.5
86.50	Bot - Section 3	0.3750	34.975	41.181	6,228.7	15.03	93.27	82.6	350.8	0.0	211.4
90.00		0.3750	34.074	40.108	5,754.6	14.61	90.86	82.6	332.6	0.0	812.7
91.50	Top - Section 2	0.2500	34.187	26.928	3,918.5	22.70	136.75	74.7	225.8	0.0	341.8
95.00		0.2500	33.286	26.213	3,614.6	22.07	133.15	75.4	213.9	0.0	316.5
100.0		0.2500	31.999	25.192	3,208.3	21.16	128.00	76.5	197.5	0.0	437.3
105.0		0.2500	30.711	24.170	2,833.6	20.25	122.85	77.6	181.7	0.0	419.9
110.0		0.2500	29.424	23.149	2,489.3	19.34	117.70	78.7	166.6	0.0	402.5
115.0		0.2500	28.137	22.127	2,174.1	18.43	112.55	79.7	152.2	0.0	385.2
120.0		0.2500	26.849	21.106	1,886.7	17.53	107.40	80.8	138.4	0.0	367.8
123.5	Bot - Section 4	0.2500	25.927	20.374	1,697.1	16.88	103.71	81.6	128.9	0.0	252.9
125.0		0.2500	25.562	20.084	1,625.8	16.62	102.25	81.9	125.3	0.0	171.9
127.4	Top - Section 3	0.1875	25.315	14.953	1,192.8	22.40	135.01	75.1	92.8	0.0	287.6
130.0		0.1875	24.650	14.557	1,100.6	21.77	131.46	75.8	87.9	0.0	129.7
135.0		0.1875	23.362	13.791	935.8	20.56	124.60	77.2	78.9	0.0	241.2
138.0		0.1875	22.590	13.332	845.3	19.83	120.48	78.1	73.7	0.0	138.4
140.0		0.1875	22.075	13.025	788.4	19.35	117.73	78.6	70.3	0.0	89.7
145.0		0.1875	20.787	12.259	657.3	18.14	110.87	80.1	62.3	0.0	215.1
150.0		0.1875	19.500	11.493	541.6	16.93	104.00	81.5	54.7	0.0	202.1
											22,242.6

Site Number: 411260 Code: ANSI/TIA-222-H

Site Name: MIDDLEFIELD CT, CT Engineering Number:13632989_C3_04 3/30/2021 2:10:57 AM

Customer: T-MOBILE

Load Case: 1.2D + 1.0W 119 mph with No Ice 23 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		225.2	0.0					0.0	0.0	225.2	0.0	0.0	0.0
5.00		445.3	1,348.1					0.0	257.7	445.3	1,605.8	0.0	0.0
10.00		434.9	1,316.8					0.0	257.7	434.9	1,574.5	0.0	0.0
15.00		424.5	1,285.5					0.0	257.7	424.5	1,543.2	0.0	0.0
20.00		414.1	1,254.3					0.0	257.7	414.1	1,512.0	0.0	0.0
25.00		403.7	1,223.0					0.0	257.7	403.7	1,480.7	0.0	0.0
30.00		398.0	1,191.7					0.0	257.7	398.0	1,449.4	0.0	0.0
35.00		400.2	1,160.4					0.0	257.7	400.2	1,418.1	0.0	0.0
40.00		306.3	1,129.1					0.0	257.7	306.3	1,386.8	0.0	0.0
42.58	Bot - Section 2	204.7	571.1					0.0	133.1	204.7	704.3	0.0	0.0
45.00		262.2	1,062.2					0.0	124.6	262.2	1,186.8	0.0	0.0
48.92	Top - Section 1	207.2	1,690.5					0.0	201.9	207.2	1,892.4	0.0	0.0
50.00		252.0	232.4					0.0	55.8	252.0	288.2	0.0	0.0
55.00		413.4	1,053.5					0.0	257.7	413.4	1,311.2	0.0	0.0
60.00		411.1	1,022.2					0.0	257.7	411.1	1,279.9	0.0	0.0
65.00		407.7	990.9					0.0	257.7	407.7	1,248.6	0.0	0.0
70.00		403.2	959.7					0.0	257.7	403.2	1,217.4	0.0	0.0
75.00		397.7	928.4					0.0	257.7	397.7	1,186.1	0.0	0.0
80.00		391.4	897.1					0.0	257.7	391.4	1,154.8	0.0	0.0
85.00		251.5	865.8					0.0	257.7	251.5	1,123.5	0.0	0.0
86.50	Bot - Section 3	192.2	253.6					0.0	77.3	192.2	331.0	0.0	0.0
90.00	Appurtenance(s)	191.8	975.2	32.2	0.0	0.0	12.0	0.0	180.4	224.0	1,167.6	0.0	0.0
91.50	Top - Section 2	188.9	410.1					0.0	75.8	188.9	486.0	0.0	0.0
95.00		316.3	379.7					0.0	176.9	316.3	556.7	0.0	0.0
100.00		364.3	524.8					0.0	252.8	364.3	777.5	0.0	0.0
105.00		354.5	503.9					0.0	252.8	354.5	756.7	0.0	0.0
110.00		344.2	483.0					0.0	252.8	344.2	735.8	0.0	0.0
115.00		333.3	462.2					0.0	252.8	333.3	715.0	0.0	0.0
120.00		277.8	441.3					0.0	252.8	277.8	694.1	0.0	0.0
123.58	Bot - Section 4	158.7	303.5					0.0	181.2	158.7	484.6	0.0	0.0
125.00		120.2	206.3					0.0	71.6	120.2	277.9	0.0	0.0
127.42	Top - Section 3	154.3	345.1					0.0	122.2	154.3	467.3	0.0	0.0
130.00	Appurtenance(s)	227.1	155.6	2,559.7	0.0	0.0	3,149.5	0.0	130.6	2,786.8	3,435.8	0.0	0.0
135.00		233.9	289.4					0.0	106.3	233.9	395.7	0.0	0.0
138.00	Appurtenance(s)	141.6	166.1	788.0	0.0	0.0	1,500.0	0.0	63.8	929.7	1,729.9	0.0	0.0
140.00	Appurtenance(s)	190.9	107.6	2,173.3	0.0	0.0	1,362.2	0.0	42.5	2,364.1	1,512.4	0.0	0.0
145.00		263.1	258.1					0.0	47.8	263.1	305.9	0.0	0.0
150.00	Appurtenance(s)	128.1	242.5	3,756.3	0.0	0.0	3,393.0	0.0	47.8	3,884.5	3,683.2	0.0	0.0
								Totals:		20,544.8	43,076.7	0.00	0.00

Load Case: 1.2D + 1.0W 119 mph with No Ice 23 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.06	-20.36	0.00	-2,174.56	0.00	2,174.56	4,317.26	1,172.28	5,942.11	4,991.14	0.00	0.00	0.446
5.00	-41.41	-20.00	0.00	-2,072.75	0.00	2,072.75	4,260.05	1,145.38	5,672.65	4,811.27	0.06	-0.11	0.441
10.00	-39.80	-19.64	0.00	-1,972.75	0.00	1,972.75	4,200.87	1,118.49	5,409.44	4,632.29	0.24	-0.23	0.436
15.00	-38.22	-19.29	0.00	-1,874.55	0.00	1,874.55	4,139.73	1,091.60	5,152.48	4,454.35	0.55	-0.35	0.430
20.00	-36.67	-18.94	0.00	-1,778.11	0.00	1,778.11	4,076.62	1,064.71	4,901.78	4,277.62	0.98	-0.47	0.425
25.00	-35.15	-18.60	0.00	-1,683.40	0.00	1,683.40	4,011.55	1,037.82	4,657.33	4,102.25	1.54	-0.59	0.419
30.00	-33.66	-18.26	0.00	-1,590.40	0.00	1,590.40	3,944.52	1,010.93	4,419.13	3,928.40	2.22	-0.72	0.414
35.00	-32.21	-17.92	0.00	-1,499.09	0.00	1,499.09	3,875.52	984.04	4,187.18	3,756.23	3.05	-0.85	0.408
40.00	-30.80	-17.64	0.00	-1,409.52	0.00	1,409.52	3,804.56	957.15	3,961.49	3,585.89	4.01	-0.98	0.402
42.58	-30.08	-17.46	0.00	-1,363.95	0.00	1,363.95	3,767.13	943.25	3,847.33	3,498.65	4.56	-1.05	0.398
45.00	-28.87	-17.22	0.00	-1,321.75	0.00	1,321.75	3,731.63	930.26	3,742.04	3,417.54	5.10	-1.12	0.395
48.92	-26.96	-17.01	0.00	-1,254.31	0.00	1,254.31	3,716.76	924.86	3,698.74	3,383.99	6.07	-1.22	0.378
50.00	-26.65	-16.79	0.00	-1,235.89	0.00	1,235.89	3,700.61	919.03	3,652.29	3,347.89	6.35	-1.26	0.377
55.00	-25.31	-16.40	0.00	-1,151.96	0.00	1,151.96	3,624.90	892.14	3,441.71	3,182.63	7.73	-1.39	0.369
60.00	-24.01	-16.02	0.00	-1,069.95	0.00	1,069.95	3,547.23	865.25	3,237.39	3,019.74	9.26	-1.52	0.361
65.00	-22.73	-15.63	0.00	-989.87	0.00	989.87	3,467.60	838.36	3,039.31	2,859.38	10.93	-1.66	0.353
70.00	-21.49	-15.24	0.00	-911.73	0.00	911.73	3,386.00	811.47	2,847.49	2,701.71	12.74	-1.80	0.344
75.00	-20.28	-14.85	0.00	-835.53	0.00	835.53	3,302.44	784.58	2,661.91	2,546.88	14.70	-1.94	0.335
80.00	-19.11	-14.47	0.00	-761.26	0.00	761.26	3,207.53	757.68	2,482.60	2,388.06	16.81	-2.08	0.325
85.00	-17.97	-14.21	0.00	-688.90	0.00	688.90	3,093.69	730.79	2,309.53	2,220.73	19.07	-2.23	0.316
86.50	-17.63	-14.02	0.00	-667.59	0.00	667.59	3,059.54	722.73	2,258.83	2,171.71	19.78	-2.27	0.314
90.00	-16.45	-13.77	0.00	-618.51	0.00	618.51	2,979.85	703.90	2,142.72	2,059.47	21.48	-2.37	0.306
91.50	-15.96	-13.59	0.00	-597.85	0.00	597.85	1,810.37	472.59	1,448.63	1,264.77	22.23	-2.42	0.482
95.00	-15.38	-13.29	0.00	-550.30	0.00	550.30	1,779.94	460.04	1,372.72	1,210.25	24.05	-2.52	0.464
100.00	-14.57	-12.94	0.00	-483.86	0.00	483.86	1,734.79	442.12	1,267.83	1,133.24	26.80	-2.73	0.436
105.00	-13.79	-12.60	0.00	-419.16	0.00	419.16	1,687.67	424.19	1,167.11	1,057.41	29.76	-2.93	0.405
110.00	-13.03	-12.26	0.00	-356.18	0.00	356.18	1,638.60	406.26	1,070.56	982.92	32.93	-3.12	0.371
115.00	-12.30	-11.92	0.00	-294.89	0.00	294.89	1,587.56	388.33	978.17	909.92	36.30	-3.31	0.333
120.00	-11.60	-11.63	0.00	-235.28	0.00	235.28	1,534.56	370.41	889.95	838.58	39.86	-3.48	0.289
123.58	-11.11	-11.46	0.00	-193.60	0.00	193.60	1,495.36	357.56	829.29	788.55	42.51	-3.60	0.254
125.00	-10.83	-11.33	0.00	-177.36	0.00	177.36	1,479.59	352.48	805.90	769.04	43.59	-3.64	0.239
127.42	-10.36	-11.16	0.00	-149.97	0.00	149.97	1,010.15	262.43	595.59	522.46	45.45	-3.71	0.299
130.00	-7.09	-8.17	0.00	-121.14	0.00	121.14	993.05	255.48	564.48	499.92	47.47	-3.78	0.250
135.00	-6.70	-7.92	0.00	-80.29	0.00	80.29	958.46	242.04	506.64	456.92	51.50	-3.91	0.184
138.00	-5.04	-6.88	0.00	-56.53	0.00	56.53	936.76	233.97	473.43	431.57	53.97	-3.97	0.137
140.00	-3.69	-4.42	0.00	-42.77	0.00	42.77	921.91	228.59	451.92	414.89	55.64	-4.00	0.107
145.00	-3.40	-4.14	0.00	-20.68	0.00	20.68	883.39	215.15	400.33	373.97	59.86	-4.06	0.060
150.00	0.00	-3.88	0.00	0.00	0.00	0.00	842.91	201.70	351.86	334.33	64.13	-4.08	0.000

Load Case: 0.9D + 1.0W — 119 mph with No Ice (Reduced DL) — 23 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		225.2	0.0					0.0	0.0	225.2	0.0	0.0	0.0
5.00		445.3	1,011.1					0.0	193.3	445.3	1,204.4	0.0	0.0
10.00		434.9	987.6					0.0	193.3	434.9	1,180.9	0.0	0.0
15.00		424.5	964.2					0.0	193.3	424.5	1,157.4	0.0	0.0
20.00		414.1	940.7					0.0	193.3	414.1	1,134.0	0.0	0.0
25.00		403.7	917.2					0.0	193.3	403.7	1,110.5	0.0	0.0
30.00		398.0	893.8					0.0	193.3	398.0	1,087.0	0.0	0.0
35.00		400.2	870.3					0.0	193.3	400.2	1,063.6	0.0	0.0
40.00		306.3	846.8					0.0	193.3	306.3	1,040.1	0.0	0.0
42.58	Bot - Section 2	204.7	428.3					0.0	99.9	204.7	528.2	0.0	0.0
45.00		262.2	796.7					0.0	93.4	262.2	890.1	0.0	0.0
48.92	Top - Section 1	207.2	1,267.9					0.0	151.4	207.2	1,419.3	0.0	0.0
50.00		252.0	174.3					0.0	41.9	252.0	216.2	0.0	0.0
55.00		413.4	790.1					0.0	193.3	413.4	983.4	0.0	0.0
60.00		411.1	766.7					0.0	193.3	411.1	959.9	0.0	0.0
65.00		407.7	743.2					0.0	193.3	407.7	936.5	0.0	0.0
70.00		403.2	719.7					0.0	193.3	403.2	913.0	0.0	0.0
75.00		397.7	696.3					0.0	193.3	397.7	889.6	0.0	0.0
80.00		391.4	672.8					0.0	193.3	391.4	866.1	0.0	0.0
85.00		251.5	649.4					0.0	193.3	251.5	842.6	0.0	0.0
86.50	Bot - Section 3	192.2	190.2					0.0	58.0	192.2	248.2	0.0	0.0
90.00	Appurtenance(s)	191.8	731.4	32.2	0.0	0.0	9.0	0.0	135.3	224.0	875.7	0.0	0.0
91.50	Top - Section 2	188.9	307.6					0.0	56.9	188.9	364.5	0.0	0.0
95.00		316.3	284.8					0.0	132.7	316.3	417.5	0.0	0.0
100.00		364.3	393.6					0.0	189.6	364.3	583.2	0.0	0.0
105.00		354.5	377.9					0.0	189.6	354.5	567.5	0.0	0.0
110.00		344.2	362.3					0.0	189.6	344.2	551.9	0.0	0.0
115.00		333.3	346.6					0.0	189.6	333.3	536.2	0.0	0.0
120.00		277.8	331.0					0.0	189.6	277.8	520.6	0.0	0.0
123.58	Bot - Section 4	158.7	227.6					0.0	135.9	158.7	363.5	0.0	0.0
125.00		120.2	154.7					0.0	53.7	120.2	208.4	0.0	0.0
127.42	Top - Section 3	154.3	258.9					0.0	91.6	154.3	350.5	0.0	0.0
130.00	Appurtenance(s)	227.1	116.7	2,559.7	0.0	0.0	2,362.1	0.0	98.0	2,786.8	2,576.8	0.0	0.0
135.00		233.9	217.0					0.0	79.7	233.9	296.7	0.0	0.0
138.00	Appurtenance(s)	141.6	124.6	788.0	0.0	0.0	1,125.0	0.0	47.8	929.7	1,297.4	0.0	0.0
140.00	Appurtenance(s)	190.9	80.7	2,173.3	0.0	0.0	1,021.7	0.0	31.9	2,364.1	1,134.3	0.0	0.0
145.00		263.1	193.6					0.0	35.8	263.1	229.4	0.0	0.0
150.00	Appurtenance(s)	128.1	181.9	3,756.3	0.0	0.0	2,544.7	0.0	35.8	3,884.5	2,762.4	0.0	0.0
								Totals:		20,544.8	32,307.5	0.00	0.00

Load Case: 0.9D + 1.0W 119 mph with No Ice (Reduced DL) 23 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-32.29	-20.35	0.00	-2,153.04	0.00	2,153.04	4,317.26	1,172.28	5,942.11	4,991.14	0.00	0.00	0.439
5.00	-31.04	-19.97	0.00	-2,051.28	0.00	2,051.28	4,260.05	1,145.38	5,672.65	4,811.27	0.06	-0.11	0.434
10.00	-29.82	-19.59	0.00	-1,951.45	0.00	1,951.45	4,200.87	1,118.49	5,409.44	4,632.29	0.24	-0.23	0.429
15.00	-28.63	-19.22	0.00	-1,853.51	0.00	1,853.51	4,139.73	1,091.60	5,152.48	4,454.35	0.54	-0.34	0.423
20.00	-27.46	-18.85	0.00	-1,757.42	0.00	1,757.42	4,076.62	1,064.71	4,901.78	4,277.62	0.97	-0.46	0.418
25.00	-26.31	-18.50	0.00	-1,663.15	0.00	1,663.15	4,011.55	1,037.82	4,657.33	4,102.25	1.52	-0.59	0.412
30.00	-25.19	-18.14	0.00	-1,570.67	0.00	1,570.67	3,944.52	1,010.93	4,419.13	3,928.40	2.20	-0.71	0.407
35.00	-24.09	-17.78	0.00	-1,479.97	0.00	1,479.97	3,875.52	984.04	4,187.18	3,756.23	3.01	-0.84	0.401
40.00	-23.03	-17.50	0.00	-1,391.06	0.00	1,391.06	3,804.56	957.15	3,961.49	3,585.89	3.96	-0.97	0.394
42.58	-22.48	-17.31	0.00	-1,345.86	0.00	1,345.86	3,767.13	943.25	3,847.33	3,498.65	4.50	-1.04	0.391
45.00	-21.57	-17.06	0.00	-1,304.03	0.00	1,304.03	3,731.63	930.26	3,742.04	3,417.54	5.05	-1.10	0.388
48.92	-20.14	-16.85	0.00	-1,237.19	0.00	1,237.19	3,716.76	924.86	3,698.74	3,383.99	6.00	-1.21	0.371
50.00	-19.90	-16.62	0.00	-1,218.93	0.00	1,218.93	3,700.61	919.03	3,652.29	3,347.89	6.28	-1.24	0.370
55.00	-18.89	-16.23	0.00	-1,135.81	0.00	1,135.81	3,624.90	892.14	3,441.71	3,182.63	7.65	-1.37	0.362
60.00	-17.90	-15.84	0.00	-1,054.65	0.00	1,054.65	3,547.23	865.25	3,237.39	3,019.74	9.15	-1.50	0.355
65.00	-16.94	-15.45	0.00	-975.45	0.00	975.45	3,467.60	838.36	3,039.31	2,859.38	10.80	-1.64	0.346
70.00	-16.01	-15.05	0.00	-898.22	0.00	898.22	3,386.00	811.47	2,847.49	2,701.71	12.59	-1.78	0.338
75.00	-15.09	-14.67	0.00	-822.95	0.00	822.95	3,302.44	784.58	2,661.91	2,546.88	14.53	-1.92	0.328
80.00	-14.21	-14.28	0.00	-749.62	0.00	749.62	3,207.53	757.68	2,482.60	2,388.06	16.61	-2.06	0.319
85.00	-13.35	-14.02	0.00	-678.23	0.00	678.23	3,093.69	730.79	2,309.53	2,220.73	18.84	-2.20	0.310
86.50	-13.09	-13.83	0.00	-657.20	0.00	657.20	3,059.54	722.73	2,258.83	2,171.71	19.54	-2.24	0.307
90.00	-12.21	-13.59	0.00	-608.78	0.00	608.78	2,979.85	703.90	2,142.72	2,059.47	21.22	-2.34	0.300
91.50	-11.84	-13.40	0.00	-588.40	0.00	588.40	1,810.37	472.59	1,448.63	1,264.77	21.96	-2.39	0.473
95.00	-11.40	-13.10	0.00	-541.50	0.00	541.50	1,779.94	460.04	1,372.72	1,210.25	23.75	-2.49	0.455
100.00	-10.79	-12.75	0.00	-476.01	0.00	476.01	1,734.79	442.12	1,267.83	1,133.24	26.46	-2.69	0.427
105.00	-10.20	-12.40	0.00	-412.28	0.00	412.28	1,687.67	424.19	1,167.11	1,057.41	29.38	-2.89	0.397
110.00	-9.62	-12.06	0.00	-350.29	0.00	350.29	1,638.60	406.26	1,070.56	982.92	32.51	-3.08	0.363
115.00	-9.07	-11.72	0.00	-290.01	0.00	290.01	1,587.56	388.33	978.17	909.92	35.83	-3.26	0.325
120.00	-8.54	-11.44	0.00	-231.40	0.00	231.40	1,534.56	370.41	889.95	838.58	39.34	-3.43	0.282
123.58	-8.17	-11.27	0.00	-190.42	0.00	190.42	1,495.36	357.56	829.29	788.55	41.96	-3.54	0.248
125.00	-7.96	-11.14	0.00	-174.46	0.00	174.46	1,479.59	352.48	805.90	769.04	43.01	-3.59	0.233
127.42	-7.61	-10.97	0.00	-147.53	0.00	147.53	1,010.15	262.43	595.59	522.46	44.85	-3.66	0.292
130.00	-5.20	-8.04	0.00	-119.18	0.00	119.18	993.05	255.48	564.48	499.92	46.84	-3.72	0.245
135.00	-4.91	-7.79	0.00	-79.00	0.00	79.00	958.46	242.04	506.64	456.92	50.81	-3.85	0.179
138.00	-3.67	-6.78	0.00	-55.62	0.00	55.62	936.76	233.97	473.43	431.57	53.25	-3.91	0.134
140.00	-2.70	-4.34	0.00	-42.07	0.00	42.07	921.91	228.59	451.92	414.89	54.89	-3.94	0.105
145.00	-2.48	-4.07	0.00	-20.34	0.00	20.34	883.39	215.15	400.33	373.97	59.05	-4.00	0.058
150.00	0.00	-3.88	0.00	0.00	0.00	0.00	842.91	201.70	351.86	334.33	63.26	-4.02	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 22 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		67.1	0.0					0.0	0.0	67.1	0.0	0.0	0.0
5.00		133.0	1,619.1					0.0	293.6	133.0	1,912.7	0.0	0.0
10.00		130.3	1,612.8					0.0	297.0	130.3	1,909.8	0.0	0.0
15.00		127.4	1,590.0					0.0	298.7	127.4	1,888.6	0.0	0.0
20.00		124.6	1,561.7					0.0	299.8	124.6	1,861.5	0.0	0.0
25.00		121.6	1,530.6					0.0	300.8	121.6	1,831.4	0.0	0.0
30.00		120.1	1,497.8					0.0	301.5	120.1	1,799.3	0.0	0.0
35.00		121.0	1,463.7					0.0	302.1	121.0	1,765.8	0.0	0.0
40.00		92.7	1,428.7					0.0	302.7	92.7	1,731.4	0.0	0.0
42.58	Bot - Section 2	62.0	725.2					0.0	156.6	62.0	881.8	0.0	0.0
45.00		79.5	1,207.7					0.0	146.6	79.5	1,354.3	0.0	0.0
48.92	Top - Section 1	62.8	1,922.8					0.0	237.8	62.8	2,160.6	0.0	0.0
50.00		76.6	296.6					0.0	65.8	76.6	362.4	0.0	0.0
55.00		125.7	1,343.1					0.0	304.0	125.7	1,647.2	0.0	0.0
60.00		125.3	1,306.0					0.0	304.4	125.3	1,610.4	0.0	0.0
65.00		124.5	1,268.6					0.0	304.8	124.5	1,573.3	0.0	0.0
70.00		123.3	1,230.8					0.0	305.1	123.3	1,535.9	0.0	0.0
75.00		121.9	1,192.8					0.0	305.4	121.9	1,498.2	0.0	0.0
80.00		120.3	1,154.5					0.0	305.7	120.3	1,460.2	0.0	0.0
85.00		77.4	1,116.1					0.0	305.9	77.4	1,422.0	0.0	0.0
86.50	Bot - Section 3	59.2	328.2					0.0	91.8	59.2	420.1	0.0	0.0
90.00	Appurtenance(s)	59.1	1,147.8	8.2	0.0	0.0	26.3	0.0	214.4	67.4	1,388.5	0.0	0.0
91.50	Top - Section 2	58.3	483.5					0.0	90.4	58.3	573.9	0.0	0.0
95.00		97.9	547.1					0.0	211.1	97.9	758.1	0.0	0.0
100.00		113.0	755.9					0.0	301.7	113.0	1,057.6	0.0	0.0
105.00		110.3	727.2					0.0	302.0	110.3	1,029.2	0.0	0.0
110.00		107.4	698.4					0.0	302.2	107.4	1,000.6	0.0	0.0
115.00		104.4	669.4					0.0	302.4	104.4	971.8	0.0	0.0
120.00		87.3	640.3					0.0	302.6	87.3	942.9	0.0	0.0
123.58	Bot - Section 4	50.0	441.9					0.0	217.0	50.0	658.9	0.0	0.0
125.00		37.9	261.2					0.0	85.8	37.9	347.0	0.0	0.0
127.42	Top - Section 3	48.8	436.7					0.0	146.4	48.8	583.1	0.0	0.0
130.00	Appurtenance(s)	72.0	251.3	623.0	0.0	0.0	4,515.5	0.0	156.5	695.1	4,923.3	0.0	0.0
135.00		74.4	465.8					0.0	156.6	74.4	622.4	0.0	0.0
138.00	Appurtenance(s)	45.2	268.9	217.4	0.0	0.0	2,041.5	0.0	94.0	262.6	2,404.5	0.0	0.0
140.00	Appurtenance(s)	61.2	174.8	452.2	0.0	0.0	2,538.5	0.0	62.7	513.4	2,776.0	0.0	0.0
145.00		84.8	417.2					0.0	98.4	84.8	515.6	0.0	0.0
150.00	Appurtenance(s)	41.4	392.7	821.3	0.0	0.0	5,646.7	0.0	98.6	862.8	6,138.0	0.0	0.0
								Totals:		5,572.06	57,318.3	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 22 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-57.32	-5.52	0.00	-572.36	0.00	572.36	4,317.26	1,172.28	5,942.11	4,991.14	0.00	0.00	0.128
5.00	-55.40	-5.42	0.00	-544.76	0.00	544.76	4,260.05	1,145.38	5,672.65	4,811.27	0.02	-0.03	0.126
10.00	-53.49	-5.31	0.00	-517.69	0.00	517.69	4,200.87	1,118.49	5,409.44	4,632.29	0.06	-0.06	0.125
15.00	-51.60	-5.21	0.00	-491.13	0.00	491.13	4,139.73	1,091.60	5,152.48	4,454.35	0.14	-0.09	0.123
20.00	-49.73	-5.11	0.00	-465.07	0.00	465.07	4,076.62	1,064.71	4,901.78	4,277.62	0.26	-0.12	0.121
25.00	-47.90	-5.01	0.00	-439.52	0.00	439.52	4,011.55	1,037.82	4,657.33	4,102.25	0.40	-0.16	0.119
30.00	-46.10	-4.91	0.00	-414.47	0.00	414.47	3,944.52	1,010.93	4,419.13	3,928.40	0.58	-0.19	0.117
35.00	-44.33	-4.81	0.00	-389.91	0.00	389.91	3,875.52	984.04	4,187.18	3,756.23	0.80	-0.22	0.115
40.00	-42.60	-4.73	0.00	-365.85	0.00	365.85	3,804.56	957.15	3,961.49	3,585.89	1.05	-0.26	0.113
42.58	-41.71	-4.68	0.00	-353.63	0.00	353.63	3,767.13	943.25	3,847.33	3,498.65	1.19	-0.27	0.112
45.00	-40.36	-4.61	0.00	-342.32	0.00	342.32	3,731.63	930.26	3,742.04	3,417.54	1.34	-0.29	0.111
48.92	-38.20	-4.55	0.00	-324.28	0.00	324.28	3,716.76	924.86	3,698.74	3,383.99	1.59	-0.32	0.106
50.00	-37.83	-4.48	0.00	-319.35	0.00	319.35	3,700.61	919.03	3,652.29	3,347.89	1.66	-0.33	0.106
55.00	-36.18	-4.37	0.00	-296.95	0.00	296.95	3,624.90	892.14	3,441.71	3,182.63	2.02	-0.36	0.103
60.00	-34.57	-4.25	0.00	-275.12	0.00	275.12	3,547.23	865.25	3,237.39	3,019.74	2.42	-0.40	0.101
65.00	-33.00	-4.14	0.00	-253.86	0.00	253.86	3,467.60	838.36	3,039.31	2,859.38	2.86	-0.43	0.098
70.00	-31.46	-4.02	0.00	-233.18	0.00	233.18	3,386.00	811.47	2,847.49	2,701.71	3.33	-0.47	0.096
75.00	-29.96	-3.91	0.00	-213.07	0.00	213.07	3,302.44	784.58	2,661.91	2,546.88	3.84	-0.50	0.093
80.00	-28.50	-3.79	0.00	-193.55	0.00	193.55	3,207.53	757.68	2,482.60	2,388.06	4.38	-0.54	0.090
85.00	-27.08	-3.71	0.00	-174.60	0.00	174.60	3,093.69	730.79	2,309.53	2,220.73	4.97	-0.58	0.087
86.50	-26.65	-3.65	0.00	-169.04	0.00	169.04	3,059.54	722.73	2,258.83	2,171.71	5.15	-0.59	0.087
90.00	-25.27	-3.58	0.00	-156.25	0.00	156.25	2,979.85	703.90	2,142.72	2,059.47	5.59	-0.61	0.084
91.50	-24.69	-3.52	0.00	-150.87	0.00	150.87	1,810.37	472.59	1,448.63	1,264.77	5.79	-0.62	0.133
95.00	-23.93	-3.43	0.00	-138.54	0.00	138.54	1,779.94	460.04	1,372.72	1,210.25	6.25	-0.65	0.128
100.00	-22.87	-3.33	0.00	-121.36	0.00	121.36	1,734.79	442.12	1,267.83	1,133.24	6.96	-0.70	0.120
105.00	-21.84	-3.23	0.00	-104.72	0.00	104.72	1,687.67	424.19	1,167.11	1,057.41	7.73	-0.75	0.112
110.00	-20.84	-3.12	0.00	-88.59	0.00	88.59	1,638.60	406.26	1,070.56	982.92	8.54	-0.80	0.103
115.00	-19.87	-3.02	0.00	-72.99	0.00	72.99	1,587.56	388.33	978.17	909.92	9.40	-0.85	0.093
120.00	-18.92	-2.93	0.00	-57.89	0.00	57.89	1,534.56	370.41	889.95	838.58	10.31	-0.89	0.081
123.58	-18.27	-2.87	0.00	-47.40	0.00	47.40	1,495.36	357.56	829.29	788.55	10.99	-0.92	0.072
125.00	-17.92	-2.84	0.00	-43.33	0.00	43.33	1,479.59	352.48	805.90	769.04	11.27	-0.93	0.069
127.42	-17.34	-2.78	0.00	-36.48	0.00	36.48	1,010.15	262.43	595.59	522.46	11.74	-0.95	0.087
130.00	-12.42	-2.01	0.00	-29.29	0.00	29.29	993.05	255.48	564.48	499.92	12.26	-0.96	0.071
135.00	-11.80	-1.93	0.00	-19.24	0.00	19.24	958.46	242.04	506.64	456.92	13.28	-0.99	0.054
138.00	-9.40	-1.63	0.00	-13.45	0.00	13.45	936.76	233.97	473.43	431.57	13.91	-1.01	0.041
140.00	-6.64	-1.07	0.00	-10.20	0.00	10.20	921.91	228.59	451.92	414.89	14.34	-1.02	0.032
145.00	-6.12	-0.97	0.00	-4.87	0.00	4.87	883.39	215.15	400.33	373.97	15.41	-1.03	0.020
150.00	0.00	-0.86	0.00	0.00	0.00	0.00	842.91	201.70	351.86	334.33	16.49	-1.03	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		51.2	0.0					0.0	0.0	51.2	0.0	0.0	0.0
5.00		101.3	1,123.4					0.0	214.8	101.3	1,338.2	0.0	0.0
10.00		98.9	1,097.4					0.0	214.8	98.9	1,312.1	0.0	0.0
15.00		96.6	1,071.3					0.0	214.8	96.6	1,286.0	0.0	0.0
20.00		94.2	1,045.2					0.0	214.8	94.2	1,260.0	0.0	0.0
25.00		91.8	1,019.2					0.0	214.8	91.8	1,233.9	0.0	0.0
30.00		90.5	993.1					0.0	214.8	90.5	1,207.8	0.0	0.0
35.00		91.0	967.0					0.0	214.8	91.0	1,181.8	0.0	0.0
40.00		69.7	940.9					0.0	214.8	69.7	1,155.7	0.0	0.0
42.58	Bot - Section 2	46.6	475.9					0.0	111.0	46.6	586.9	0.0	0.0
45.00		59.6	885.2					0.0	103.8	59.6	989.0	0.0	0.0
48.92	Top - Section 1	47.1	1,408.8					0.0	168.2	47.1	1,577.0	0.0	0.0
50.00		57.3	193.7					0.0	46.5	57.3	240.2	0.0	0.0
55.00		94.0	877.9					0.0	214.8	94.0	1,092.7	0.0	0.0
60.00		93.5	851.9					0.0	214.8	93.5	1,066.6	0.0	0.0
65.00		92.7	825.8					0.0	214.8	92.7	1,040.5	0.0	0.0
70.00		91.7	799.7					0.0	214.8	91.7	1,014.5	0.0	0.0
75.00		90.5	773.6					0.0	214.8	90.5	988.4	0.0	0.0
80.00		89.0	747.6					0.0	214.8	89.0	962.3	0.0	0.0
85.00		57.2	721.5					0.0	214.8	57.2	936.3	0.0	0.0
86.50	Bot - Section 3	43.7	211.4					0.0	64.4	43.7	275.8	0.0	0.0
90.00	Appurtenance(s)	43.6	812.7	7.3	0.0	0.0	10.0	0.0	150.3	50.9	973.0	0.0	0.0
91.50	Top - Section 2	43.0	341.8					0.0	63.2	43.0	405.0	0.0	0.0
95.00		71.9	316.5					0.0	147.5	71.9	463.9	0.0	0.0
100.00		82.9	437.3					0.0	210.7	82.9	648.0	0.0	0.0
105.00		80.6	419.9					0.0	210.7	80.6	630.6	0.0	0.0
110.00		78.3	402.5					0.0	210.7	78.3	613.2	0.0	0.0
115.00		75.8	385.2					0.0	210.7	75.8	595.8	0.0	0.0
120.00		63.2	367.8					0.0	210.7	63.2	578.4	0.0	0.0
123.58	Bot - Section 4	36.1	252.9					0.0	151.0	36.1	403.9	0.0	0.0
125.00		27.3	171.9					0.0	59.7	27.3	231.6	0.0	0.0
127.42	Top - Section 3	35.1	287.6					0.0	101.8	35.1	389.4	0.0	0.0
130.00	Appurtenance(s)	51.7	129.7	582.2	0.0	0.0	2,624.6	0.0	108.8	633.9	2,863.1	0.0	0.0
135.00		53.2	241.2					0.0	88.6	53.2	329.7	0.0	0.0
138.00	Appurtenance(s)	32.2	138.4	179.2	0.0	0.0	1,250.0	0.0	53.1	211.5	1,441.6	0.0	0.0
140.00	Appurtenance(s)	43.4	89.7	494.3	0.0	0.0	1,135.2	0.0	35.4	537.7	1,260.3	0.0	0.0
145.00		59.9	215.1					0.0	39.8	59.9	254.9	0.0	0.0
150.00	Appurtenance(s)	29.1	202.1	854.4	0.0	0.0	2,827.5	0.0	39.8	883.6	3,069.4	0.0	0.0
								Totals:		4,673.11	35,897.3	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 22 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-35.90	-4.63	0.00	-491.59	0.00	491.59	4,317.26	1,172.28	5,942.11	4,991.14	0.00	0.00	0.107
5.00	-34.56	-4.54	0.00	-468.45	0.00	468.45	4,260.05	1,145.38	5,672.65	4,811.27	0.01	-0.03	0.105
10.00	-33.24	-4.46	0.00	-445.73	0.00	445.73	4,200.87	1,118.49	5,409.44	4,632.29	0.05	-0.05	0.104
15.00	-31.95	-4.38	0.00	-423.43	0.00	423.43	4,139.73	1,091.60	5,152.48	4,454.35	0.12	-0.08	0.103
20.00	-30.69	-4.29	0.00	-401.55	0.00	401.55	4,076.62	1,064.71	4,901.78	4,277.62	0.22	-0.11	0.101
25.00	-29.46	-4.21	0.00	-380.08	0.00	380.08	4,011.55	1,037.82	4,657.33	4,102.25	0.35	-0.13	0.100
30.00	-28.25	-4.14	0.00	-359.00	0.00	359.00	3,944.52	1,010.93	4,419.13	3,928.40	0.50	-0.16	0.099
35.00	-27.06	-4.05	0.00	-338.33	0.00	338.33	3,875.52	984.04	4,187.18	3,756.23	0.69	-0.19	0.097
40.00	-25.91	-3.99	0.00	-318.05	0.00	318.05	3,804.56	957.15	3,961.49	3,585.89	0.90	-0.22	0.096
42.58	-25.32	-3.95	0.00	-307.74	0.00	307.74	3,767.13	943.25	3,847.33	3,498.65	1.03	-0.24	0.095
45.00	-24.33	-3.89	0.00	-298.20	0.00	298.20	3,731.63	930.26	3,742.04	3,417.54	1.15	-0.25	0.094
48.92	-22.75	-3.85	0.00	-282.95	0.00	282.95	3,716.76	924.86	3,698.74	3,383.99	1.37	-0.28	0.090
50.00	-22.51	-3.79	0.00	-278.79	0.00	278.79	3,700.61	919.03	3,652.29	3,347.89	1.43	-0.28	0.089
55.00	-21.42	-3.71	0.00	-259.81	0.00	259.81	3,624.90	892.14	3,441.71	3,182.63	1.75	-0.31	0.088
60.00	-20.35	-3.62	0.00	-241.29	0.00	241.29	3,547.23	865.25	3,237.39	3,019.74	2.09	-0.34	0.086
65.00	-19.31	-3.53	0.00	-223.20	0.00	223.20	3,467.60	838.36	3,039.31	2,859.38	2.47	-0.37	0.084
70.00	-18.29	-3.44	0.00	-205.56	0.00	205.56	3,386.00	811.47	2,847.49	2,701.71	2.88	-0.41	0.082
75.00	-17.30	-3.35	0.00	-188.36	0.00	188.36	3,302.44	784.58	2,661.91	2,546.88	3.32	-0.44	0.079
80.00	-16.34	-3.26	0.00	-171.60	0.00	171.60	3,207.53	757.68	2,482.60	2,388.06	3.80	-0.47	0.077
85.00	-15.40	-3.20	0.00	-155.28	0.00	155.28	3,093.69	730.79	2,309.53	2,220.73	4.31	-0.50	0.075
86.50	-15.12	-3.16	0.00	-150.48	0.00	150.48	3,059.54	722.73	2,258.83	2,171.71	4.47	-0.51	0.074
90.00	-14.15	-3.11	0.00	-139.41	0.00	139.41	2,979.85	703.90	2,142.72	2,059.47	4.85	-0.54	0.072
91.50	-13.74	-3.06	0.00	-134.74	0.00	134.74	1,810.37	472.59	1,448.63	1,264.77	5.02	-0.55	0.114
95.00	-13.28	-3.00	0.00	-124.02	0.00	124.02	1,779.94	460.04	1,372.72	1,210.25	5.43	-0.57	0.110
100.00	-12.63	-2.92	0.00	-109.04	0.00	109.04	1,734.79	442.12	1,267.83	1,133.24	6.05	-0.61	0.104
105.00	-12.00	-2.84	0.00	-94.46	0.00	94.46	1,687.67	424.19	1,167.11	1,057.41	6.72	-0.66	0.096
110.00	-11.38	-2.76	0.00	-80.26	0.00	80.26	1,638.60	406.26	1,070.56	982.92	7.43	-0.70	0.089
115.00	-10.79	-2.69	0.00	-66.46	0.00	66.46	1,587.56	388.33	978.17	909.92	8.19	-0.75	0.080
120.00	-10.21	-2.62	0.00	-53.03	0.00	53.03	1,534.56	370.41	889.95	838.58	9.00	-0.78	0.070
123.58	-9.80	-2.58	0.00	-43.64	0.00	43.64	1,495.36	357.56	829.29	788.55	9.60	-0.81	0.062
125.00	-9.57	-2.55	0.00	-39.98	0.00	39.98	1,479.59	352.48	805.90	769.04	9.84	-0.82	0.059
127.42	-9.18	-2.52	0.00	-33.81	0.00	33.81	1,010.15	262.43	595.59	522.46	10.26	-0.84	0.074
130.00	-6.33	-1.84	0.00	-27.31	0.00	27.31	993.05	255.48	564.48	499.92	10.72	-0.85	0.061
135.00	-6.00	-1.79	0.00	-18.11	0.00	18.11	958.46	242.04	506.64	456.92	11.62	-0.88	0.046
138.00	-4.56	-1.55	0.00	-12.75	0.00	12.75	936.76	233.97	473.43	431.57	12.18	-0.89	0.034
140.00	-3.31	-1.00	0.00	-9.64	0.00	9.64	921.91	228.59	451.92	414.89	12.56	-0.90	0.027
145.00	-3.05	-0.93	0.00	-4.66	0.00	4.66	883.39	215.15	400.33	373.97	13.51	-0.92	0.016
150.00	0.00	-0.88	0.00	0.00	0.00	0.00	842.91	201.70	351.86	334.33	14.47	-0.92	0.000

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.21
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.22
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.09
Seismic Response Coefficient (C_s):	0.03
Upper Limit C_s	0.03
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	2.19
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.85
Total Unfactored Dead Load:	35.90 k
Seismic Base Shear (E):	1.40 k

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
37	147.50	242	2,437	0.017	24	301
36	142.50	255	2,410	0.017	24	317
35	139.00	125	1,130	0.008	11	156
34	136.50	192	1,673	0.012	17	238
33	132.50	330	2,725	0.019	27	410
32	128.71	239	1,869	0.013	19	297
31	126.21	389	2,942	0.021	29	485
30	124.29	232	1,701	0.012	17	288
29	121.79	404	2,857	0.020	28	502
28	117.50	578	3,830	0.027	38	720
27	112.50	596	3,641	0.026	36	741
26	107.50	613	3,445	0.024	34	763
25	102.50	631	3,245	0.023	32	785
24	97.50	648	3,040	0.022	30	806
23	93.25	464	2,005	0.014	20	577
22	90.75	405	1,665	0.012	17	504
21	88.25	963	3,759	0.027	37	1,198
20	85.75	276	1,021	0.007	10	343
19	82.50	936	3,227	0.023	32	1,165
18	77.50	962	2,956	0.021	29	1,197
17	72.50	988	2,684	0.019	27	1,230
16	67.50	1,014	2,415	0.017	24	1,262
15	62.50	1,041	2,149	0.015	21	1,295
14	57.50	1,067	1,888	0.013	19	1,327
13	52.50	1,093	1,635	0.012	16	1,359

12	49.46	240	322	0.002	3	299
11	46.96	1,577	1,921	0.014	19	1,962
10	43.79	989	1,059	0.008	11	1,230
9	41.29	587	564	0.004	6	730
8	37.50	1,156	929	0.007	9	1,438
7	32.50	1,182	730	0.005	7	1,470
6	27.50	1,208	548	0.004	5	1,503
5	22.50	1,234	387	0.003	4	1,535
4	17.50	1,260	248	0.002	2	1,568
3	12.50	1,286	136	0.001	1	1,600
2	7.50	1,312	54	0.000	1	1,632
1	2.50	1,338	7	0.000	0	1,665
Samsung B5/B13 RRH-B	150.00	211	2,192	0.016	22	262
Samsung B2/B66A RRH-	150.00	253	2,631	0.019	26	315
RFS DB-C1-12C-24AB-0	150.00	32	333	0.002	3	40
Antel LPA-80063/6CF	150.00	162	1,684	0.012	17	202
Commscope NHH-45B-R2	150.00	294	3,059	0.022	30	366
Generic Flat Low Pro	150.00	1,875	19,485	0.138	193	2,333
Ericsson KRY 112 144	140.00	33	302	0.002	3	41
Ericsson Radio 4449	140.00	225	2,059	0.015	20	280
Ericsson AIR 21, 1.3	140.00	249	2,278	0.016	23	310
Ericsson AIR 21, 1.3	140.00	244	2,237	0.016	22	304
RFS APXVAARR24_43-U-	140.00	384	3,511	0.025	35	477
Generic Round T-Arm	138.00	1,250	11,137	0.079	110	1,555
Spinner 756529	130.00	4	36	0.000	0	6
Powerwave Allgon LGP	130.00	33	263	0.002	3	41
Powerwave Allgon LGP	130.00	85	675	0.005	7	105
Raycap DC6-48-60-18-	130.00	20	160	0.001	2	25
Ericsson RRUS-11 (50	130.00	300	2,394	0.017	24	373
Powerwave Allgon 777	130.00	162	1,293	0.009	13	202
KMW AM-X-CD-16-65-00	130.00	146	1,161	0.008	12	181
Generic Round Low Pr	130.00	1,875	14,962	0.106	148	2,333
Generic GPS	90.00	10	40	0.000	0	12
		35,897	141,146	1.000	1,400	44,662

Load Case 0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
37	147.50	242	2,437	0.017	24	207
36	142.50	255	2,410	0.017	24	218
35	139.00	125	1,130	0.008	11	107
34	136.50	192	1,673	0.012	17	164
33	132.50	330	2,725	0.019	27	282
32	128.71	239	1,869	0.013	19	204
31	126.21	389	2,942	0.021	29	333
30	124.29	232	1,701	0.012	17	198
29	121.79	404	2,857	0.020	28	346
28	117.50	578	3,830	0.027	38	495
27	112.50	596	3,641	0.026	36	510
26	107.50	613	3,445	0.024	34	525
25	102.50	631	3,245	0.023	32	540
24	97.50	648	3,040	0.022	30	555
23	93.25	464	2,005	0.014	20	397
22	90.75	405	1,665	0.012	17	347
21	88.25	963	3,759	0.027	37	824
20	85.75	276	1,021	0.007	10	236
19	82.50	936	3,227	0.023	32	801
18	77.50	962	2,956	0.021	29	824
17	72.50	988	2,684	0.019	27	846
16	67.50	1,014	2,415	0.017	24	868

15	62.50	1,041	2,149	0.015	21	891
14	57.50	1,067	1,888	0.013	19	913
13	52.50	1,093	1,635	0.012	16	935
12	49.46	240	322	0.002	3	206
11	46.96	1,577	1,921	0.014	19	1,350
10	43.79	989	1,059	0.008	11	846
9	41.29	587	564	0.004	6	502
8	37.50	1,156	929	0.007	9	989
7	32.50	1,182	730	0.005	7	1,011
6	27.50	1,208	548	0.004	5	1,034
5	22.50	1,234	387	0.003	4	1,056
4	17.50	1,260	248	0.002	2	1,078
3	12.50	1,286	136	0.001	1	1,101
2	7.50	1,312	54	0.000	1	1,123
1	2.50	1,338	7	0.000	0	1,145
Samsung B5/B13 RRH-B	150.00	211	2,192	0.016	22	180
Samsung B2/B66A RRH-	150.00	253	2,631	0.019	26	217
RFS DB-C1-12C-24AB-0	150.00	32	333	0.002	3	27
Antel LPA-80063/6CF	150.00	162	1,684	0.012	17	139
Commscope NHH-45B-R2	150.00	294	3,059	0.022	30	252
Generic Flat Low Pro	150.00	1,875	19,485	0.138	193	1,605
Ericsson KRY 112 144	140.00	33	302	0.002	3	28
Ericsson Radio 4449	140.00	225	2,059	0.015	20	193
Ericsson AIR 21, 1.3	140.00	249	2,278	0.016	23	213
Ericsson AIR 21, 1.3	140.00	244	2,237	0.016	22	209
RFS APXVAARR24_43-U-	140.00	384	3,511	0.025	35	328
Generic Round T-Arm	138.00	1,250	11,137	0.079	110	1,070
Spinner 756529	130.00	4	36	0.000	0	4
Powerwave Allgon LGP	130.00	33	263	0.002	3	28
Powerwave Allgon LGP	130.00	85	675	0.005	7	72
Raycap DC6-48-60-18-	130.00	20	160	0.001	2	17
Ericsson RRUS-11 (50	130.00	300	2,394	0.017	24	257
Powerwave Allgon 777	130.00	162	1,293	0.009	13	139
KMW AM-X-CD-16-65-00	130.00	146	1,161	0.008	12	125
Generic Round Low Pr	130.00	1,875	14,962	0.106	148	1,605
Generic GPS	90.00	10	40	0.000	0	9
		35,897	141,146	1.000	1,400	30,722

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-43.00	-1.40	0.00	-171.81	0.00	171.81	4,317.26	1,172.28	5,942.11	4,991.14	0.00	0.00	0.044
5.00	-41.36	-1.41	0.00	-164.80	0.00	164.80	4,260.05	1,145.38	5,672.65	4,811.27	0.00	-0.01	0.044
10.00	-39.76	-1.41	0.00	-157.75	0.00	157.75	4,200.87	1,118.49	5,409.44	4,632.29	0.02	-0.02	0.044
15.00	-38.20	-1.42	0.00	-150.69	0.00	150.69	4,139.73	1,091.60	5,152.48	4,454.35	0.04	-0.03	0.043
20.00	-36.66	-1.42	0.00	-143.60	0.00	143.60	4,076.62	1,064.71	4,901.78	4,277.62	0.08	-0.04	0.043
25.00	-35.16	-1.42	0.00	-136.51	0.00	136.51	4,011.55	1,037.82	4,657.33	4,102.25	0.12	-0.05	0.042
30.00	-33.69	-1.42	0.00	-129.42	0.00	129.42	3,944.52	1,010.93	4,419.13	3,928.40	0.18	-0.06	0.041
35.00	-32.25	-1.41	0.00	-122.35	0.00	122.35	3,875.52	984.04	4,187.18	3,756.23	0.24	-0.07	0.041
40.00	-31.52	-1.41	0.00	-115.29	0.00	115.29	3,804.56	957.15	3,961.49	3,585.89	0.32	-0.08	0.040
42.58	-30.29	-1.40	0.00	-111.65	0.00	111.65	3,767.13	943.25	3,847.33	3,498.65	0.37	-0.08	0.040
45.00	-28.33	-1.38	0.00	-108.27	0.00	108.27	3,731.63	930.26	3,742.04	3,417.54	0.41	-0.09	0.039
48.92	-28.03	-1.38	0.00	-102.86	0.00	102.86	3,716.76	924.86	3,698.74	3,383.99	0.49	-0.10	0.038
50.00	-26.67	-1.36	0.00	-101.37	0.00	101.37	3,700.61	919.03	3,652.29	3,347.89	0.51	-0.10	0.037
55.00	-25.34	-1.35	0.00	-94.55	0.00	94.55	3,624.90	892.14	3,441.71	3,182.63	0.62	-0.11	0.037
60.00	-24.05	-1.33	0.00	-87.81	0.00	87.81	3,547.23	865.25	3,237.39	3,019.74	0.75	-0.12	0.036
65.00	-22.78	-1.31	0.00	-81.16	0.00	81.16	3,467.60	838.36	3,039.31	2,859.38	0.88	-0.13	0.035
70.00	-21.55	-1.28	0.00	-74.63	0.00	74.63	3,386.00	811.47	2,847.49	2,701.71	1.03	-0.15	0.034
75.00	-20.36	-1.25	0.00	-68.22	0.00	68.22	3,302.44	784.58	2,661.91	2,546.88	1.19	-0.16	0.033
80.00	-19.19	-1.22	0.00	-61.96	0.00	61.96	3,207.53	757.68	2,482.60	2,388.06	1.36	-0.17	0.032
85.00	-18.85	-1.21	0.00	-55.85	0.00	55.85	3,093.69	730.79	2,309.53	2,220.73	1.54	-0.18	0.031
86.50	-17.65	-1.17	0.00	-54.03	0.00	54.03	3,059.54	722.73	2,258.83	2,171.71	1.60	-0.18	0.031
90.00	-17.13	-1.16	0.00	-49.93	0.00	49.93	2,979.85	703.90	2,142.72	2,059.47	1.74	-0.19	0.030
91.50	-16.56	-1.14	0.00	-48.19	0.00	48.19	1,810.37	472.59	1,448.63	1,264.77	1.80	-0.20	0.047
95.00	-15.75	-1.11	0.00	-44.21	0.00	44.21	1,779.94	460.04	1,372.72	1,210.25	1.95	-0.20	0.045
100.00	-14.96	-1.08	0.00	-38.68	0.00	38.68	1,734.79	442.12	1,267.83	1,133.24	2.17	-0.22	0.043
105.00	-14.20	-1.04	0.00	-33.30	0.00	33.30	1,687.67	424.19	1,167.11	1,057.41	2.41	-0.24	0.040
110.00	-13.46	-1.01	0.00	-28.08	0.00	28.08	1,638.60	406.26	1,070.56	982.92	2.67	-0.25	0.037
115.00	-12.74	-0.97	0.00	-23.05	0.00	23.05	1,587.56	388.33	978.17	909.92	2.94	-0.27	0.033
120.00	-12.24	-0.94	0.00	-18.20	0.00	18.20	1,534.56	370.41	889.95	838.58	3.23	-0.28	0.030
123.58	-11.95	-0.92	0.00	-14.83	0.00	14.83	1,495.36	357.56	829.29	788.55	3.44	-0.29	0.027
125.00	-11.47	-0.89	0.00	-13.52	0.00	13.52	1,479.59	352.48	805.90	769.04	3.53	-0.29	0.025
127.42	-11.17	-0.87	0.00	-11.36	0.00	11.36	1,010.15	262.43	595.59	522.46	3.68	-0.30	0.033
130.00	-7.49	-0.62	0.00	-9.11	0.00	9.11	993.05	255.48	564.48	499.92	3.84	-0.30	0.026
135.00	-7.26	-0.60	0.00	-6.00	0.00	6.00	958.46	242.04	506.64	456.92	4.17	-0.31	0.021
138.00	-5.55	-0.47	0.00	-4.19	0.00	4.19	936.76	233.97	473.43	431.57	4.36	-0.32	0.016
140.00	-3.82	-0.34	0.00	-3.24	0.00	3.24	921.91	228.59	451.92	414.89	4.50	-0.32	0.012
145.00	-3.52	-0.31	0.00	-1.56	0.00	1.56	883.39	215.15	400.33	373.97	4.84	-0.32	0.008
150.00	0.00	-0.29	0.00	0.00	0.00	0.00	842.91	201.70	351.86	334.33	5.18	-0.33	0.000

Load Case 0.9D - 1.0Ev + 1.0Eh Seismic (Reduced DL)

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-29.58	-1.40	0.00	-169.68	0.00	169.68	4,317.26	1,172.28	5,942.11	4,991.14	0.00	0.00	0.041
5.00	-28.45	-1.41	0.00	-162.67	0.00	162.67	4,260.05	1,145.38	5,672.65	4,811.27	0.00	-0.01	0.040
10.00	-27.35	-1.41	0.00	-155.64	0.00	155.64	4,200.87	1,118.49	5,409.44	4,632.29	0.02	-0.02	0.040
15.00	-26.27	-1.41	0.00	-148.60	0.00	148.60	4,139.73	1,091.60	5,152.48	4,454.35	0.04	-0.03	0.040
20.00	-25.22	-1.41	0.00	-141.55	0.00	141.55	4,076.62	1,064.71	4,901.78	4,277.62	0.08	-0.04	0.039
25.00	-24.18	-1.41	0.00	-134.50	0.00	134.50	4,011.55	1,037.82	4,657.33	4,102.25	0.12	-0.05	0.039
30.00	-23.17	-1.40	0.00	-127.47	0.00	127.47	3,944.52	1,010.93	4,419.13	3,928.40	0.18	-0.06	0.038
35.00	-22.18	-1.40	0.00	-120.45	0.00	120.45	3,875.52	984.04	4,187.18	3,756.23	0.24	-0.07	0.038
40.00	-21.68	-1.39	0.00	-113.46	0.00	113.46	3,804.56	957.15	3,961.49	3,585.89	0.32	-0.08	0.037
42.58	-20.83	-1.38	0.00	-109.86	0.00	109.86	3,767.13	943.25	3,847.33	3,498.65	0.36	-0.08	0.037
45.00	-19.48	-1.37	0.00	-106.51	0.00	106.51	3,731.63	930.26	3,742.04	3,417.54	0.40	-0.09	0.036
48.92	-19.28	-1.36	0.00	-101.16	0.00	101.16	3,716.76	924.86	3,698.74	3,383.99	0.48	-0.10	0.035
50.00	-18.34	-1.35	0.00	-99.69	0.00	99.69	3,700.61	919.03	3,652.29	3,347.89	0.50	-0.10	0.035
55.00	-17.43	-1.33	0.00	-92.94	0.00	92.94	3,624.90	892.14	3,441.71	3,182.63	0.61	-0.11	0.034
60.00	-16.54	-1.31	0.00	-86.29	0.00	86.29	3,547.23	865.25	3,237.39	3,019.74	0.74	-0.12	0.033
65.00	-15.67	-1.29	0.00	-79.73	0.00	79.73	3,467.60	838.36	3,039.31	2,859.38	0.87	-0.13	0.032
70.00	-14.83	-1.26	0.00	-73.29	0.00	73.29	3,386.00	811.47	2,847.49	2,701.71	1.01	-0.14	0.032
75.00	-14.00	-1.23	0.00	-66.97	0.00	66.97	3,302.44	784.58	2,661.91	2,546.88	1.17	-0.16	0.031
80.00	-13.20	-1.20	0.00	-60.80	0.00	60.80	3,207.53	757.68	2,482.60	2,388.06	1.34	-0.17	0.030
85.00	-12.96	-1.19	0.00	-54.79	0.00	54.79	3,093.69	730.79	2,309.53	2,220.73	1.52	-0.18	0.029
86.50	-12.14	-1.15	0.00	-53.00	0.00	53.00	3,059.54	722.73	2,258.83	2,171.71	1.58	-0.18	0.028
90.00	-11.78	-1.14	0.00	-48.96	0.00	48.96	2,979.85	703.90	2,142.72	2,059.47	1.71	-0.19	0.028
91.50	-11.39	-1.12	0.00	-47.25	0.00	47.25	1,810.37	472.59	1,448.63	1,264.77	1.77	-0.19	0.044
95.00	-10.83	-1.09	0.00	-43.34	0.00	43.34	1,779.94	460.04	1,372.72	1,210.25	1.92	-0.20	0.042
100.00	-10.29	-1.06	0.00	-37.90	0.00	37.90	1,734.79	442.12	1,267.83	1,133.24	2.14	-0.22	0.039
105.00	-9.77	-1.02	0.00	-32.61	0.00	32.61	1,687.67	424.19	1,167.11	1,057.41	2.38	-0.23	0.037
110.00	-9.26	-0.99	0.00	-27.50	0.00	27.50	1,638.60	406.26	1,070.56	982.92	2.63	-0.25	0.034
115.00	-8.76	-0.95	0.00	-22.56	0.00	22.56	1,587.56	388.33	978.17	909.92	2.90	-0.26	0.030
120.00	-8.42	-0.92	0.00	-17.81	0.00	17.81	1,534.56	370.41	889.95	838.58	3.18	-0.28	0.027
123.58	-8.22	-0.90	0.00	-14.51	0.00	14.51	1,495.36	357.56	829.29	788.55	3.39	-0.28	0.024
125.00	-7.89	-0.87	0.00	-13.23	0.00	13.23	1,479.59	352.48	805.90	769.04	3.47	-0.29	0.023
127.42	-7.68	-0.85	0.00	-11.12	0.00	11.12	1,010.15	262.43	595.59	522.46	3.62	-0.29	0.029
130.00	-5.15	-0.61	0.00	-8.91	0.00	8.91	993.05	255.48	564.48	499.92	3.78	-0.30	0.023
135.00	-4.99	-0.59	0.00	-5.87	0.00	5.87	958.46	242.04	506.64	456.92	4.10	-0.31	0.018
138.00	-3.81	-0.46	0.00	-4.10	0.00	4.10	936.76	233.97	473.43	431.57	4.29	-0.31	0.014
140.00	-2.63	-0.33	0.00	-3.17	0.00	3.17	921.91	228.59	451.92	414.89	4.42	-0.31	0.011
145.00	-2.42	-0.30	0.00	-1.52	0.00	1.52	883.39	215.15	400.33	373.97	4.76	-0.32	0.007
150.00	0.00	-0.29	0.00	0.00	0.00	0.00	842.91	201.70	351.86	334.33	5.09	-0.32	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	20.36	0.00	43.06	0.00	0.00	2174.56	91.50	0.48
0.9D + 1.0W	20.35	0.00	32.29	0.00	0.00	2153.04	91.50	0.47
1.2D + 1.0Di + 1.0Wi	5.52	0.00	57.32	0.00	0.00	572.36	91.50	0.13
1.2D + 1.0Ev + 1.0Eh	1.40	0.00	43.00	0.00	0.00	171.81	91.50	0.05
0.9D - 1.0Ev + 1.0Eh	1.40	0.00	29.58	0.00	0.00	169.68	91.50	0.04
1.0D + 1.0W	4.63	0.00	35.90	0.00	0.00	491.59	91.50	0.11

Base Plate & Anchor Rod Analysis

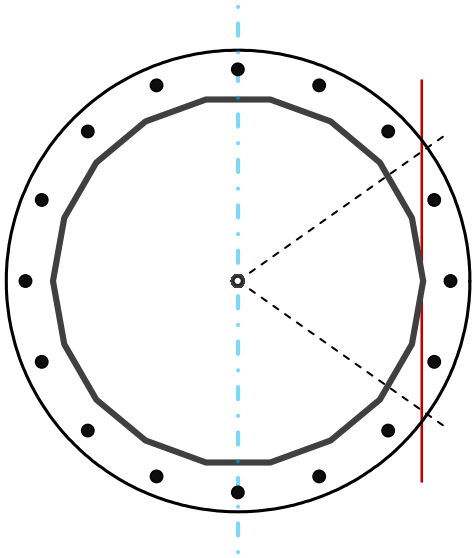
Pole Dimensions		
Number of Sides	18	-
Diameter	56.5	in
Thickness	3/8	in
Orientation Offset		°

Base Reactions		
Moment, Mu	2,174.6	k-ft
Axial, Pu	43.1	k
Shear, Vu	20.4	k
Neutral Axis	270	°

Report Capacities		
Component	Capacity	Result
Base Plate	26%	Pass
Anchor Rods	44%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	72	in
Thickness	2	in
Grade	A572-60	
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	578.1	k
Bending Stress, ϕMn	2264.7	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	16	-
Diameter, ø	2 1/4	in
Bolt Circle	66	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	13.0	in
Orientation Offset		°
Applied Force, Pu	105.2	k
Anchor Rods, ϕPn	243.6	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	20.4	2174.6	1.00
Anchor Rod Forces	20.4	2174.6	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	65.7855	3.6548	0.1719		25906.27
Bolt	3.9761	3.2477	0.8393	4.5	26307.64
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Round	-
Diameter, D	72	in
Thickness, t	2	in
Yield Strength, Fy	60	ksi
Tensile Strength, Fu	75	ksi
Base Plate Chord	44.629	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

Anchor Rods		
Anchor Rod Quantity, N	16	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	66	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	105.2	k
Applied Shear, Vu	0.8	k
Compressive Capacity, ϕPn	243.6	k
Tensile Capacity, ϕRnt	0.432	OK
Interaction Capacity	0.438	OK

External Base Plate		
Chord Length AA	38.547	in
Additional AA	4.000	in
Section Modulus, Z	42.547	in^3
Applied Moment, Mu	578.1	k-ft
Bending Capacity, ϕMn	2297.5	k-ft
Capacity, Mu/ϕMn	0.252	OK
Chord Length AB	37.231	in
Additional AB	4.000	in
Section Modulus, Z	41.231	in^3
Applied Moment, Mu	447.1	k-ft
Bending Capacity, ϕMn	2226.5	k-ft
Capacity, Mu/ϕMn	0.201	OK
Bend Line Length	41.938	in
Additional Bend Line	0.000	in
Section Modulus, Z	41.938	in^3
Applied Moment, Mu	578.1	k-ft
Bending Capacity, ϕMn	2264.7	k-ft
Capacity, Mu/ϕMn	0.255	OK

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

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

CLS ENGINEERING PLLC

Antenna Mount Analysis Report

ATC Site Name	:	**Middlefield CT**
ATC Asset Number	:	**411260**
Engineering Number	:	**13632989_C8_01**
Mount Elevation	:	**138.5 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**CTHA244/VerizonMiddlefiel**
Carrier Site Number	:	**CTHA244A**
Site Location	:	**484 Meriden Rd.** **Middlefield, CT 06455-1013** **41.535514, -72.732094**
County	:	**Middlesex**
Date	:	**March 18, 2021**
Max Usage	:	**69%**
Result	:	**Pass (Pending Mods)**

Prepared By:
Snehitha Narava
CLS Engineering PLLC

Reviewed By:
Tyler M. Barker, P.E.
CLS Engineering PLLC

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

Digitally signed by Tyler M. Barker PE
Date: 2021.03.18 21:37:32-04'00'

Tyler M. Barker
CLS Engineering PLLC
PE # 32402 Exp. 1/31/2021
COA # PEC.001833 Exp. 8/14/2022
03/18/2021

Table of Contents

Introduction

The proposed equipment is to be mounted to the existing T-Arms. 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.

Supporting Documents

Structural Data	Site Photos dated July 28, 2020 Spec Sheet for Site Pro 1 RMV Series T-Arm Mount
Previous Analyses	Structural Analysis by American Tower Corporation, Eng. #12927178_C3_02, dated July 17, 2019
Loading Data	ATC Application, Project #13632989 T-Mobile RFDS, Site ID #CTHA244A, Version 8.00, dated January 11, 2021
Modifications	Mount Analysis by CLS Engineering for American Tower Corporation, Project #41124-12927178-01-MA-R1, dated July 3, 2019

*The modifications by CLS Engineering Project #41124-12927178-01-MA-R1 are scheduled to be installed at construction of the referenced project.

Analysis

Codes	2018 IBC / TIA-222-H
Basic Wind Speed	119 mph, V_{ult} (3-Second Gust)
Basic Wind Speed w/ Ice	50 mph (3-Second Gust) w/ 1" Radial Ice (Escalating)
Exposure Category	C
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Risk Category	II
Maintenance Live Load	L_M: 500 lb
Spectral Response	S_s: 0.21; S_1: 0.06; Site Class: D

Conclusion

Based on the analysis results, the mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report. If the pending modifications cited in the Supporting Documents are not completed, the results of this analysis are no longer valid, and T-Mobile should contact American Tower's Site Manager for further direction on how to proceed.

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

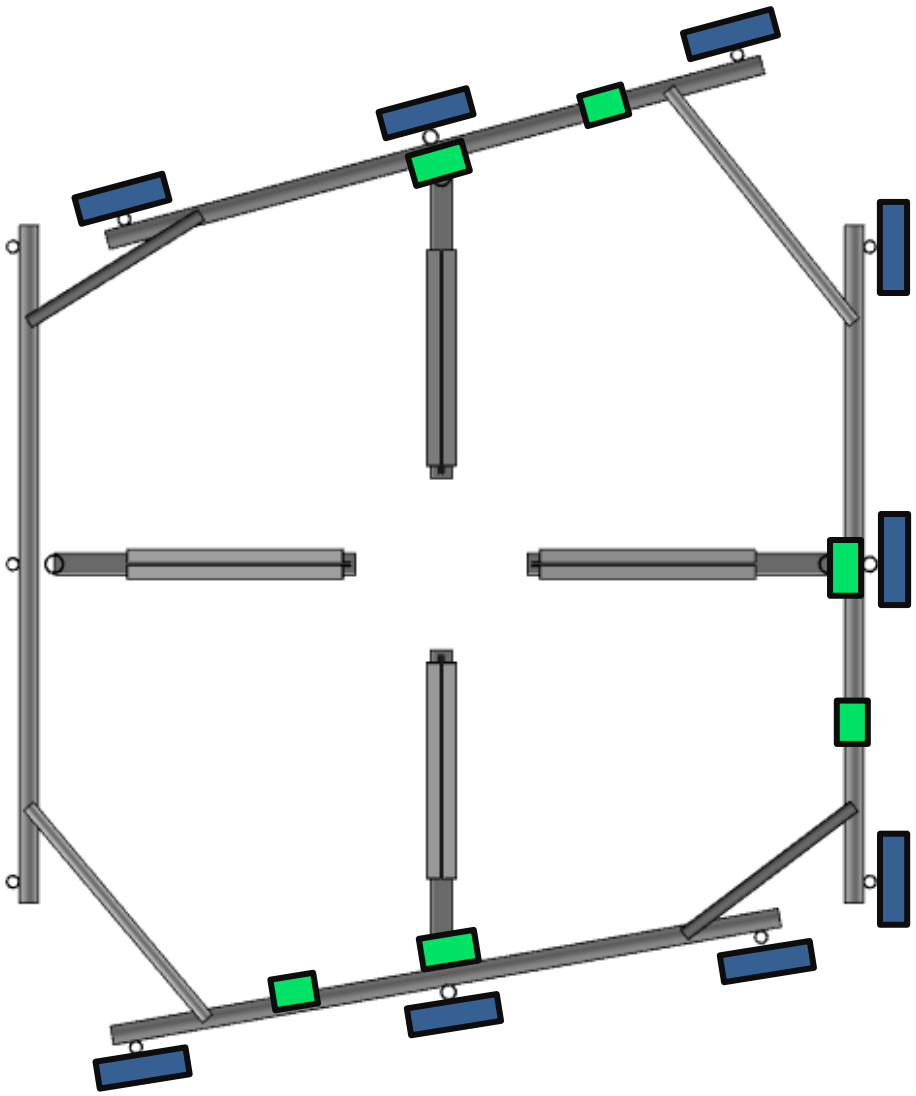
Antenna Loading

Elevation (ft)		Antennas	
Mount	**Rad.**	**#**	**Name**
138.5	140.0	3	RFS Celwave APXVAARR24_43-U-NA20
		3	Ericsson AIR 21, 1.3M, B4A B2P
		3	Ericsson AIR 21, 1.3 M, B2A B4P
		3	Ericsson RADIO 4449 B71/B85A
		3	Ericsson KRY 112 144/1

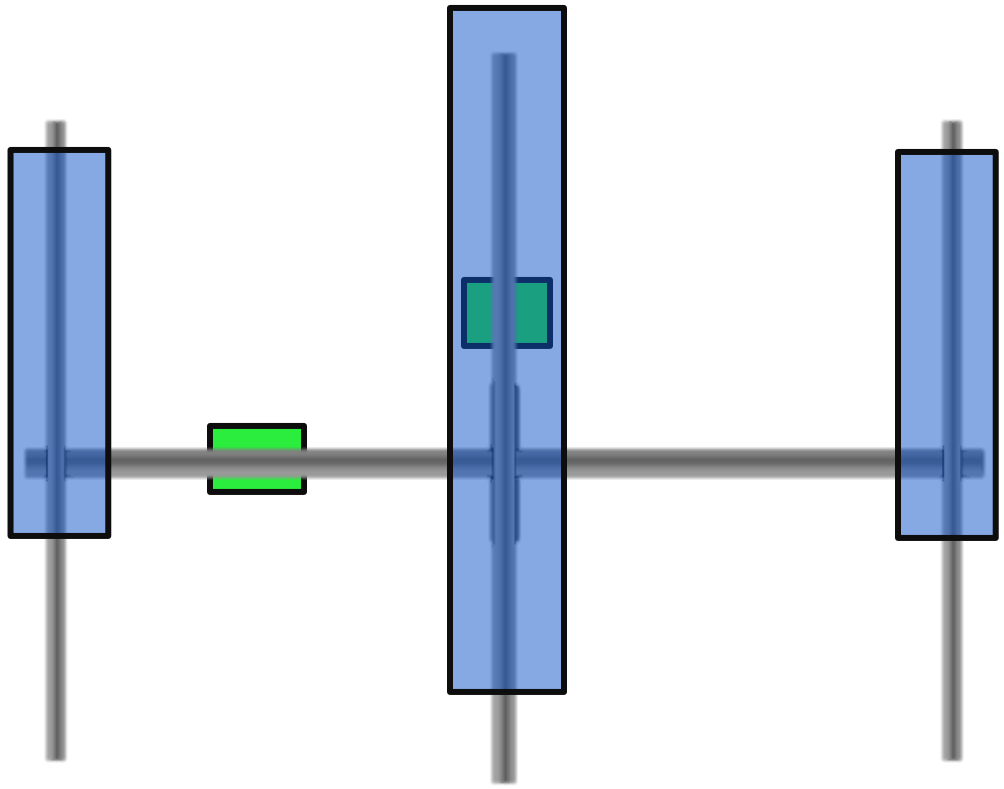
Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Face Horizontals	69%	Pass
Mount Pipes	50%	Pass
Connections	44%	Pass
Face Vertical Pipe	30%	Pass
Stand-Off Horizontals	25%	Pass
Reinforcement Members	15%	Pass
Bracing Members	9%	Pass

Equipment Layout Plan View



Equipment Layout Front Elevation View



MP3 MP2 MP1

Standard 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.

Wind & Ice Loading

Nominal Mount Elevation (AGL), z_{mount}	139 ft	K_a	0.90
Nominal Rad Elevation (AGL), z_{rad}	140 ft	K_d	0.95
Elevation AMSL (ft)	427 ft	K_e	0.98
TIA Standard	H	K_z	1.36
Basic Wind Speed, V_{ult} (bare)	119 mph	K_{zt}	1.00
Basic Wind Speed, V (ice)	50 mph	K_s	1.00
Design Ice Thickness, t_i	1 in	t_{iz}	1.15 in
Exposure Category	C	G_h	1.00
Risk Category	II	q_z (bare)	46.0 psf
Seismic Response Coeff., C_s	0.11	q_z (ice)	8.1 psf

Live Loading

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

Member Distributed Loading

Section Set Label	Shape Label	F_A (lb/ft)		Ice Wt. (lb/ft)
		Bare	Ice	
Main Offset tube	HSS4X4X4	27.58	2.05	8.81
Main Face Pipe	PIPE_3.0	14.48	4.24	6.56
Vertical pipe	PIPE_3.0	14.48	4.24	6.56
MOD Mount Pipe	PIPE_2.5	11.89	3.79	5.68
Support Platform pipe	PIPE_2.0	9.83	3.42	4.98
Mount Pipe	PIPE_2.0	9.83	3.42	4.98
MOD PRK	L2.5x2.5x3	17.24	1.91	6.01
MOD Bracing PIpe	PIPE_2.0	9.83	3.42	4.98

Appurtenances

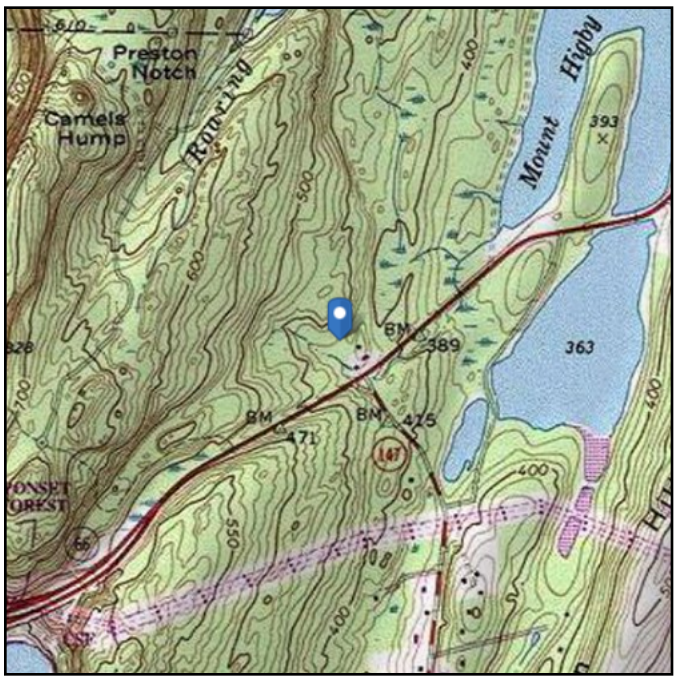
Appurtenance Model	Status	Azimuth Offset (°, ↻)	Rad Elev. Override (ft)	Swap Width & Depth	Area Factor		Qty. per Azimuth				Total Qty. Override	0° Joints		90° Joints		180° Joints		270° Joints		Height (in)	Width (in)	Depth (in)	Weight (Bare) (lb)	Shape	Weight of Ice (lb)	EPA_A (Bare) (ft^2)		EPA_A (Ice) (ft^2)		F_A (Bare) (lb)		F_A (Ice) (lb)	
					Front	Side	0°	90°	180°	270°		1	2	1	2	1	2	1	2							N	T	N	T	N	T	N	T
AIR 21 B4A/B2P				☐			1					A1	A2							55	12	7.9	83	Generic	94.75	3.19	1.98	3.93	2.67	132.27	82.10	28.76	19.57
APXVAARR24_43-U-NA20				☐			1					A3	A4							95.9	24	8.7	153.3	Generic	260.19	14.67	5.32	16.43	6.87	608.26	220.58	120.24	50.28
AIR 21 B2A/B4P				☐			1					A5	A6							55	12	7.9	83	Generic	94.75	3.19	1.98	3.93	2.67	132.27	82.10	28.76	19.57
KRY 112 144/1				☐			1					T1								7	6	3	11	Flat	7.34	0.35	0.18	0.64	0.41	14.51	7.26	4.72	3.02
RADIO 4449 B71/B85A				☐	0.5		1					R1								14.96	13.19	10.51	74.95	Flat	39.91	0.82	1.31	1.12	1.85	34.09	54.33	8.17	13.51
AIR 21 B4A/B2P		-10		☐				1						B1	B2					55	12	7.9	83	Generic	94.75	3.19	1.98	3.93	2.67	132.27	82.10	28.76	19.57
APXVAARR24_43-U-NA20		-10		☐				1						B3	B4					95.9	24	8.7	153.3	Generic	260.19	14.67	5.32	16.43	6.87	608.26	220.58	120.24	50.28
AIR 21 B2A/B4P		-10		☐				1						B5	B6					55	12	7.9	83	Generic	94.75	3.19	1.98	3.93	2.67	132.27	82.10	28.76	19.57
KRY 112 144/1		-10		☐				1						T2						7	6	3	11	Flat	7.34	0.35	0.18	0.64	0.41	14.51	7.26	4.72	3.02
RADIO 4449 B71/B85A		-10		☐	0.5			1						R2						14.96	13.19	10.51	74.95	Flat	39.91	0.82	1.31	1.12	1.85	34.09	54.33	8.17	13.51
AIR 21 B4A/B2P		-15		☐						1								G1	G2	55	12	7.9	83	Generic	94.75	3.19	1.98	3.93	2.67	132.27	82.10	28.76	19.57
APXVAARR24_43-U-NA20		-15		☐						1								G3	G4	95.9	24	8.7	153.3	Generic	260.19	14.67	5.32	16.43	6.87	608.26	220.58	120.24	50.28
AIR 21 B2A/B4P		-15		☐						1								G5	G6	55	12	7.9	83	Generic	94.75	3.19	1.98	3.93	2.67	132.27	82.10	28.76	19.57
KRY 112 144/1		-15		☐						1								T3		7	6	3	11	Flat	7.34	0.35	0.18	0.64	0.41	14.51	7.26	4.72	3.02
RADIO 4449 B71/B85A		-15		☐	0.5					1								R3		14.96	13.19	10.51	74.95	Flat	39.91	0.82	1.31	1.12	1.85	34.09	54.33	8.17	13.51

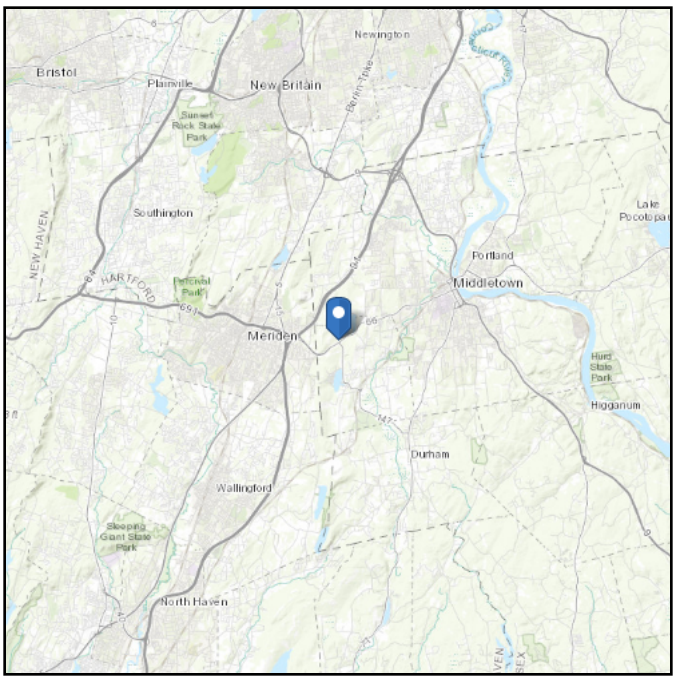
ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-16
Risk Category: II
Soil Class: D - Default (see Section 11.4.3)

Elevation: 426.86 ft (NAVD 88)
Latitude: 41.535514
Longitude: -72.732094





Wind

Results:

Wind Speed:	119 Vmph
10-year MRI	75 Vmph
25-year MRI	84 Vmph
50-year MRI	90 Vmph
100-year MRI	98 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Thu Mar 18 2021

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-16 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-16 Section 26.2. Glazed openings need not be protected against wind-borne debris.

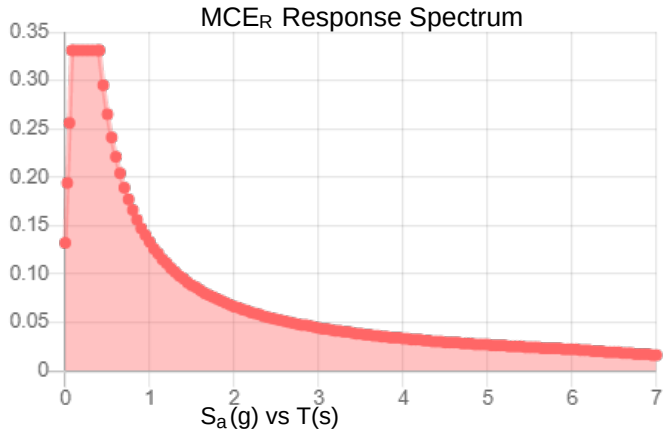
Seismic

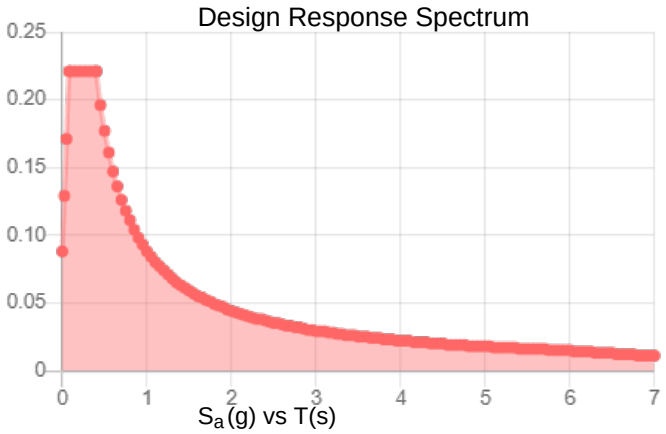
Site Soil Class: D - Default (see Section 11.4.3)

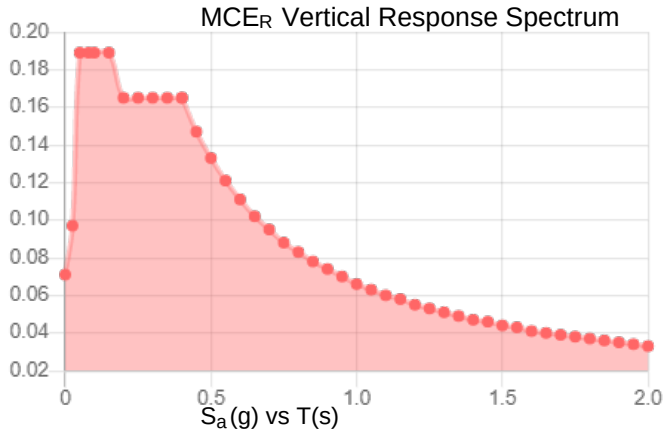
Results:

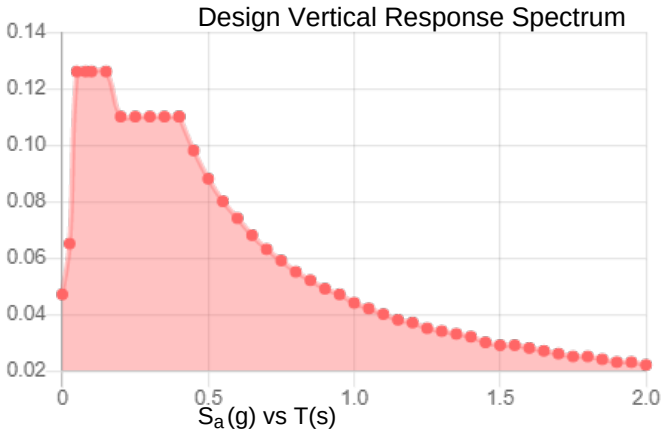
S_S :	0.207	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.115
F_v :	2.4	PGA_M :	0.181
S_{MS} :	0.331	F_{PGA} :	1.57
S_{M1} :	0.133	I_e :	1
S_{DS} :	0.221	C_v :	0.713

Seismic Design Category B









Data Accessed: Thu Mar 18 2021

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-16 and ASCE/SEI 7-16 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-16 Ch. 21 are available from USGS.

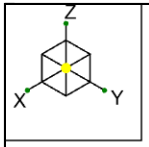
Ice

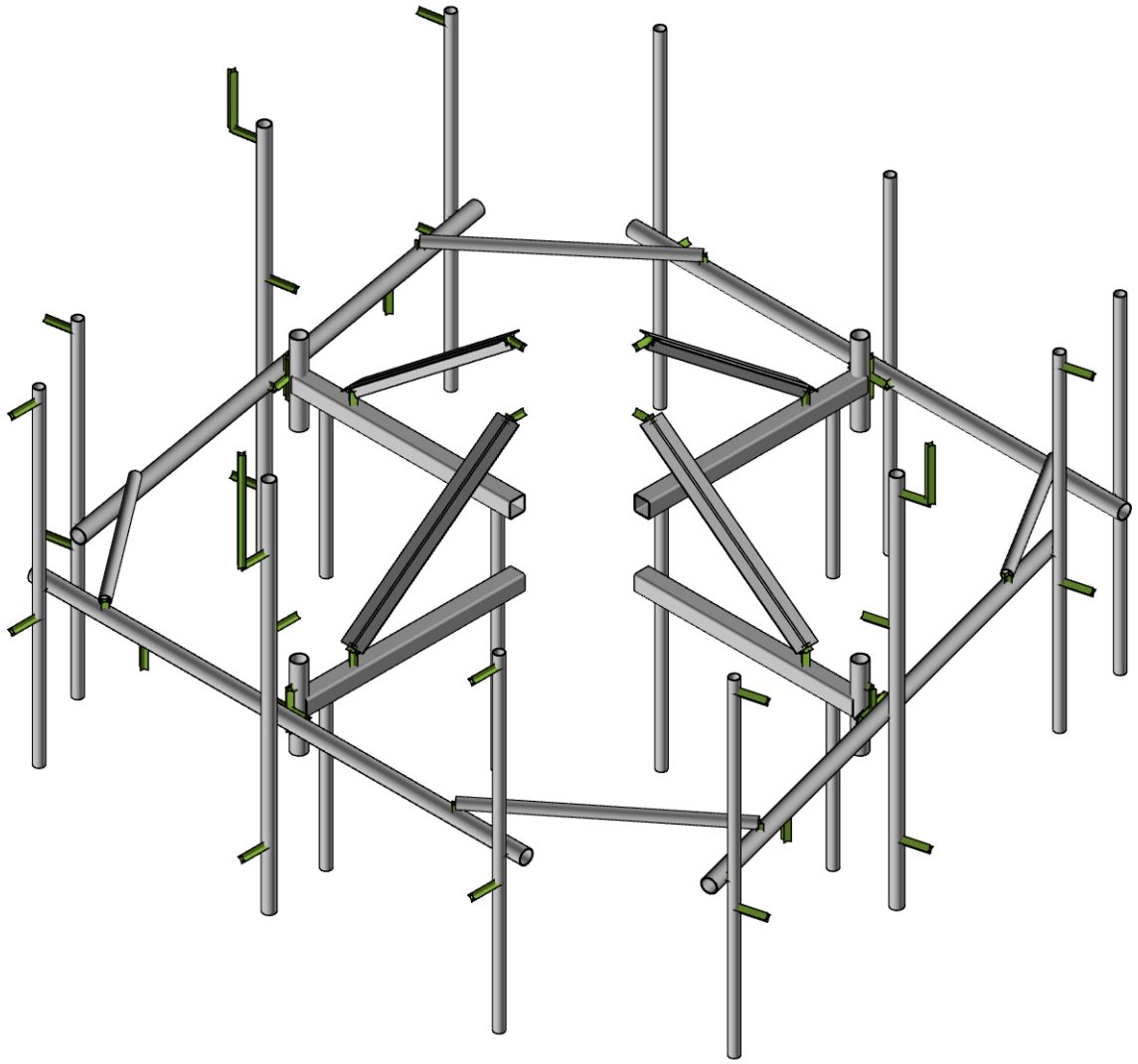
Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu Mar 18 2021

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

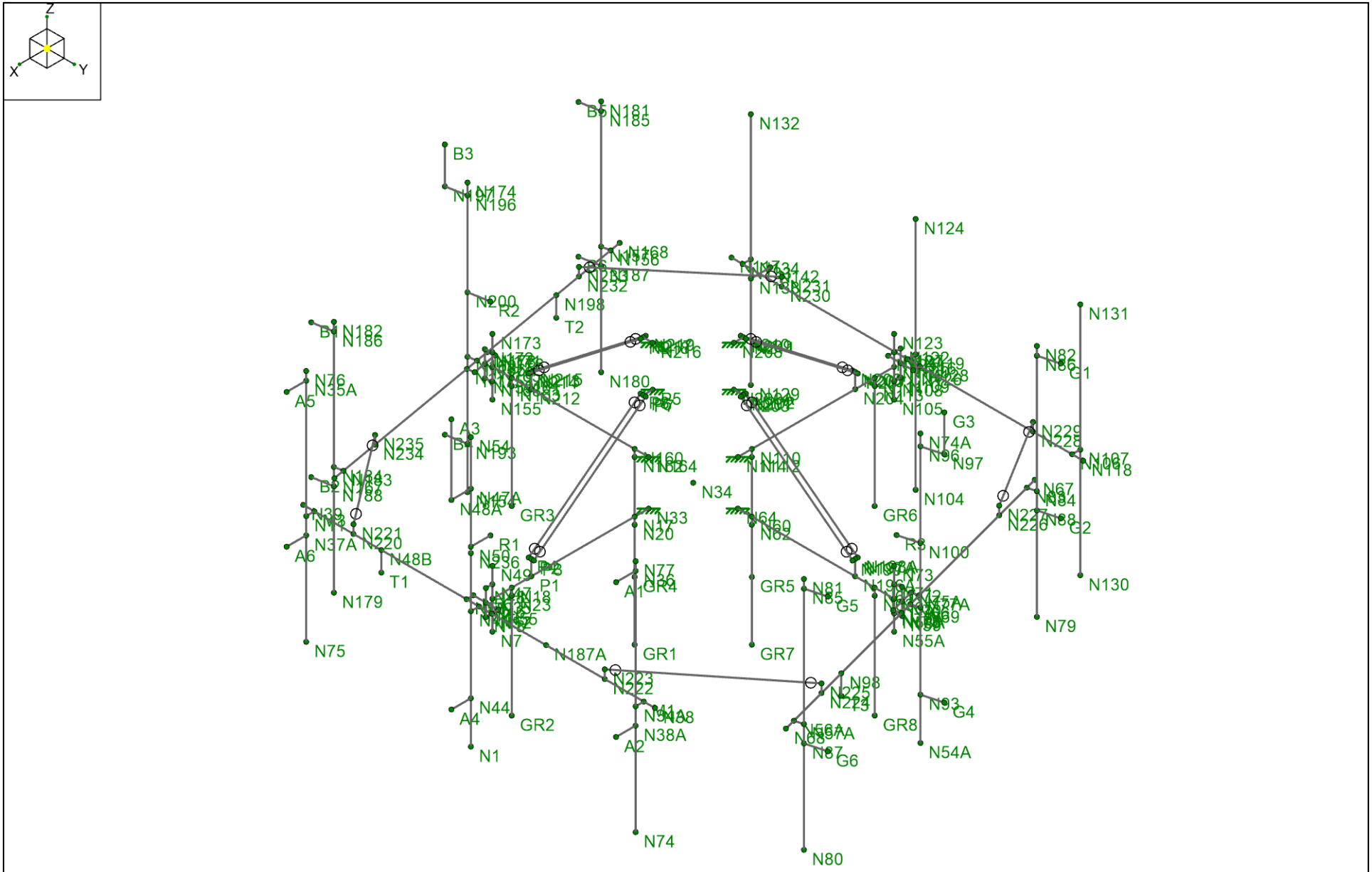
Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 500-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.





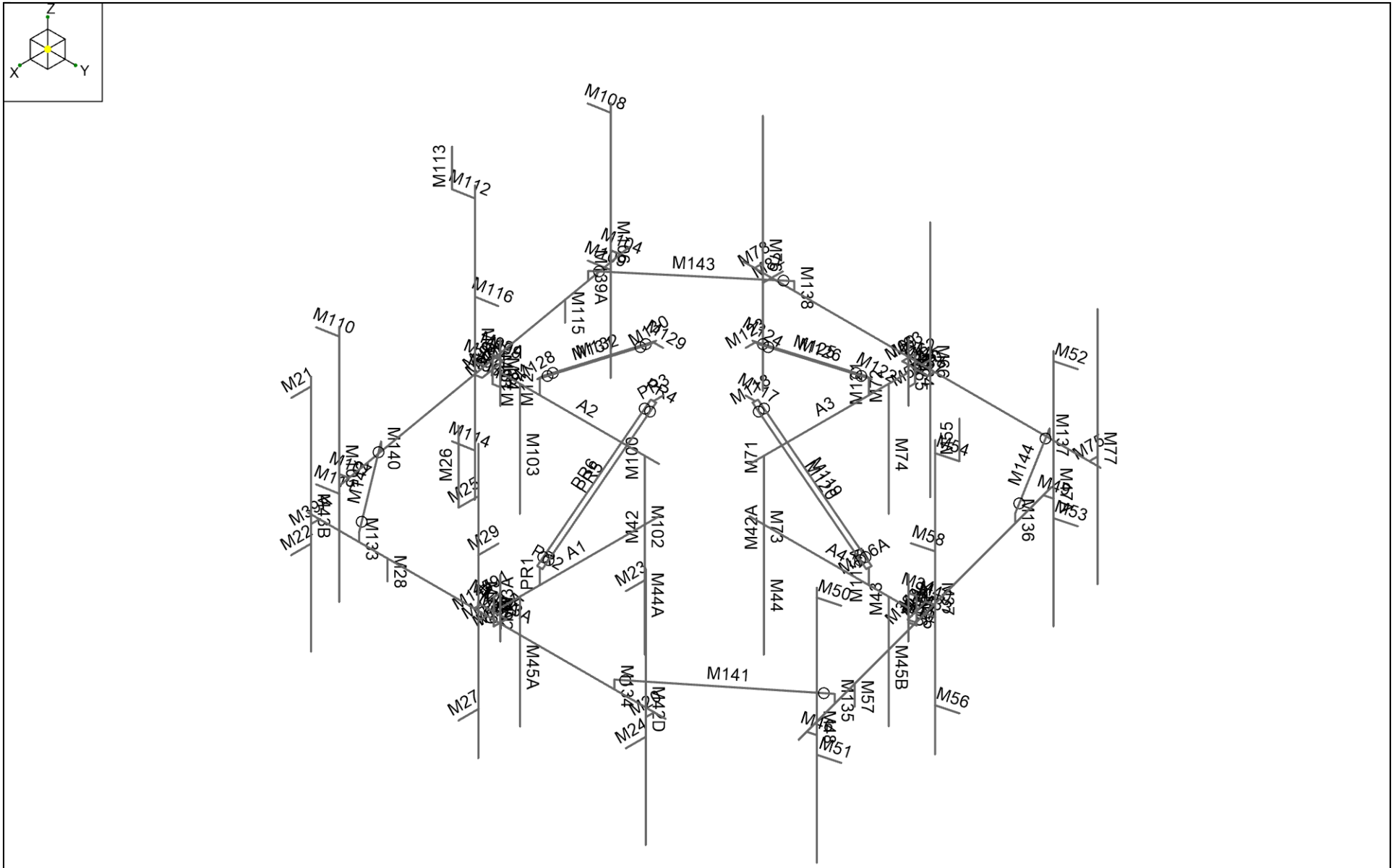
Envelope Only Solution

Telamon CLS	41124-13632989_C8_01-Middlefield CT	SK-1
SN		Mar 18, 2021
41124-13632989_C8_01-01-MA	Rendered	41124-13632989_C8_01-01-MA.r3d



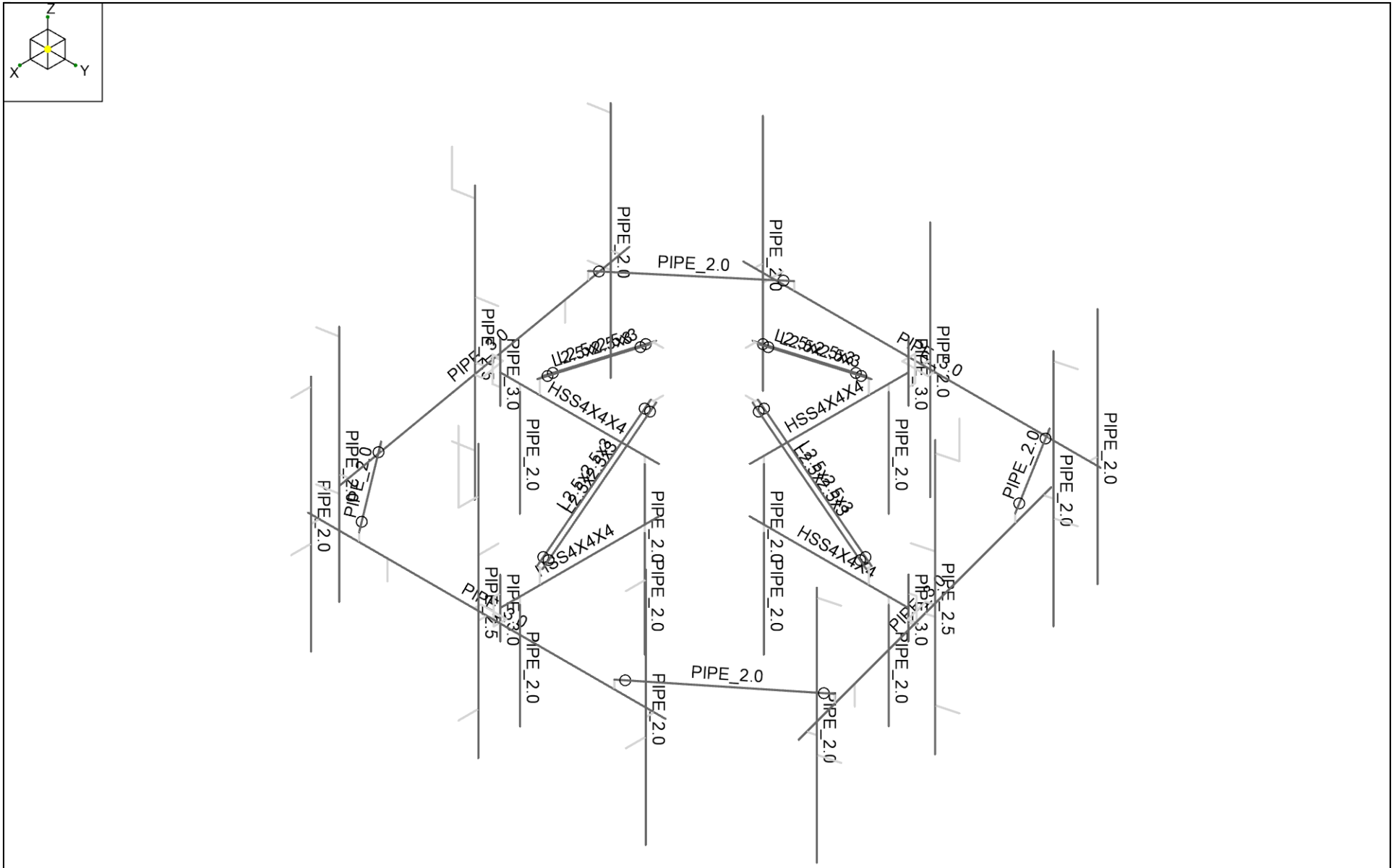
Envelope Only Solution

Telamon CLS	41124-13632989_C8_01-Middlefield CT	SK-2
SN		Mar 18, 2021
41124-13632989_C8_01-01-MA	Joint Labels	41124-13632989_C8_01-01-MA.r3d

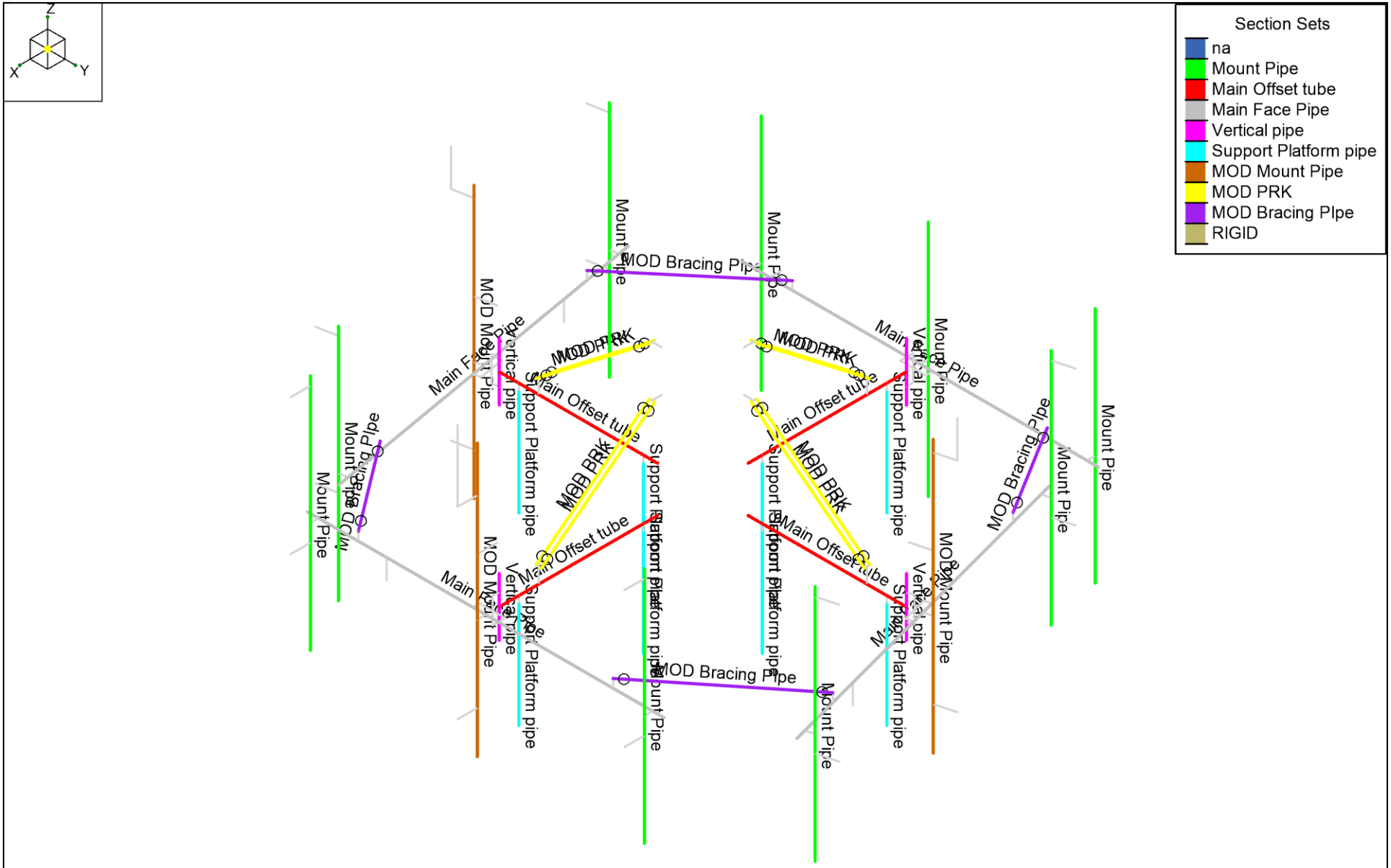


Envelope Only Solution

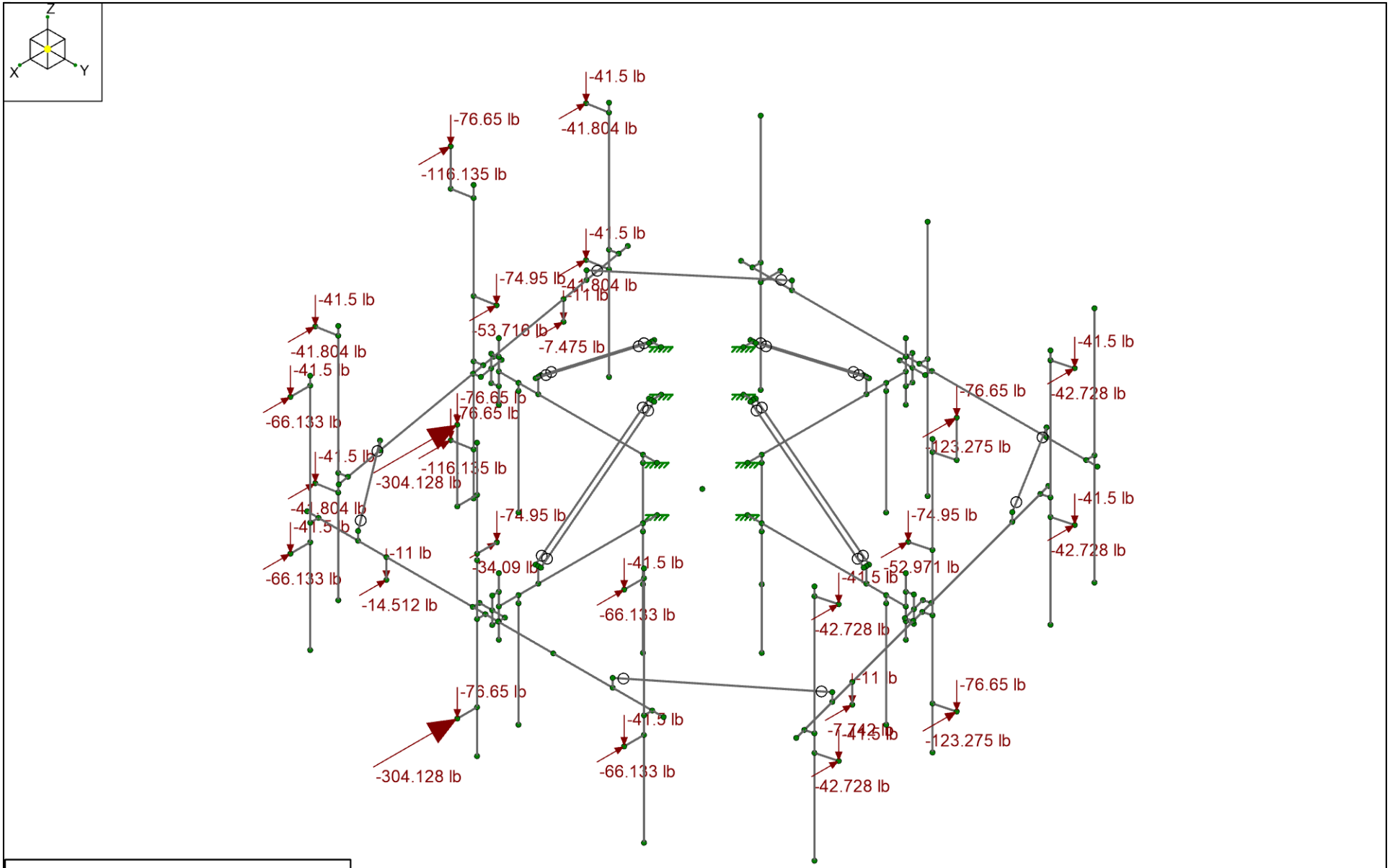
Telamon CLS	41124-13632989_C8_01-Middlefield CT	SK-3
SN		Mar 18, 2021
41124-13632989_C8_01-01-MA	Member Labels	41124-13632989_C8_01-01-MA.r3d



Telamon CLS	41124-13632989_C8_01-Middlefield CT	SK-3.1
SN		Mar 18, 2021
41124-13632989_C8_01-01-MA	Member Shapes	41124-13632989_C8_01-01-MA.r3d



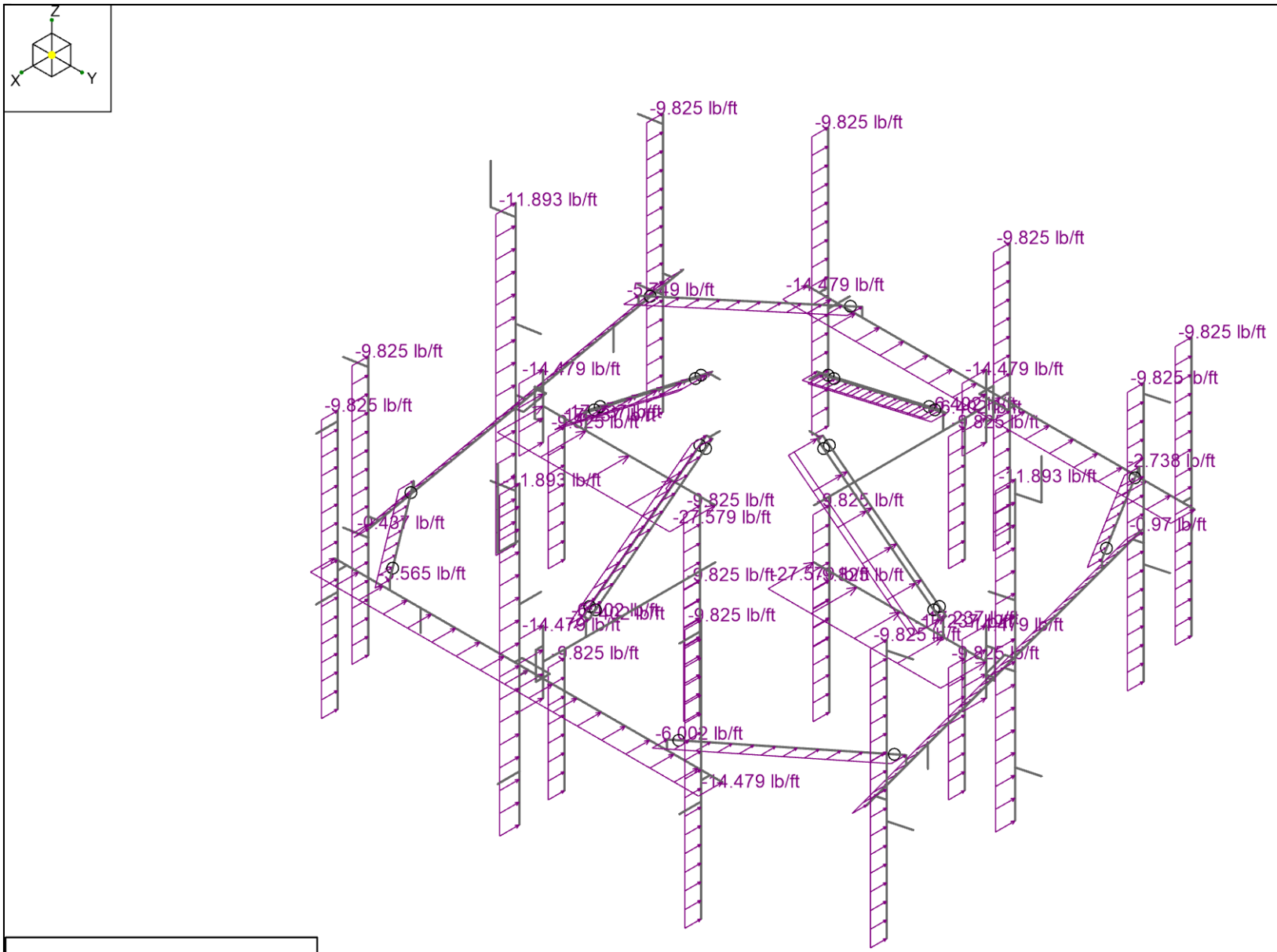
Telamon CLS	41124-13632989_C8_01-Middlefield CT	SK-4
SN		Mar 18, 2021
41124-13632989_C8_01-01-MA	Section Sets	41124-13632989_C8_01-01-MA.r3d



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

Envelope Only Solution

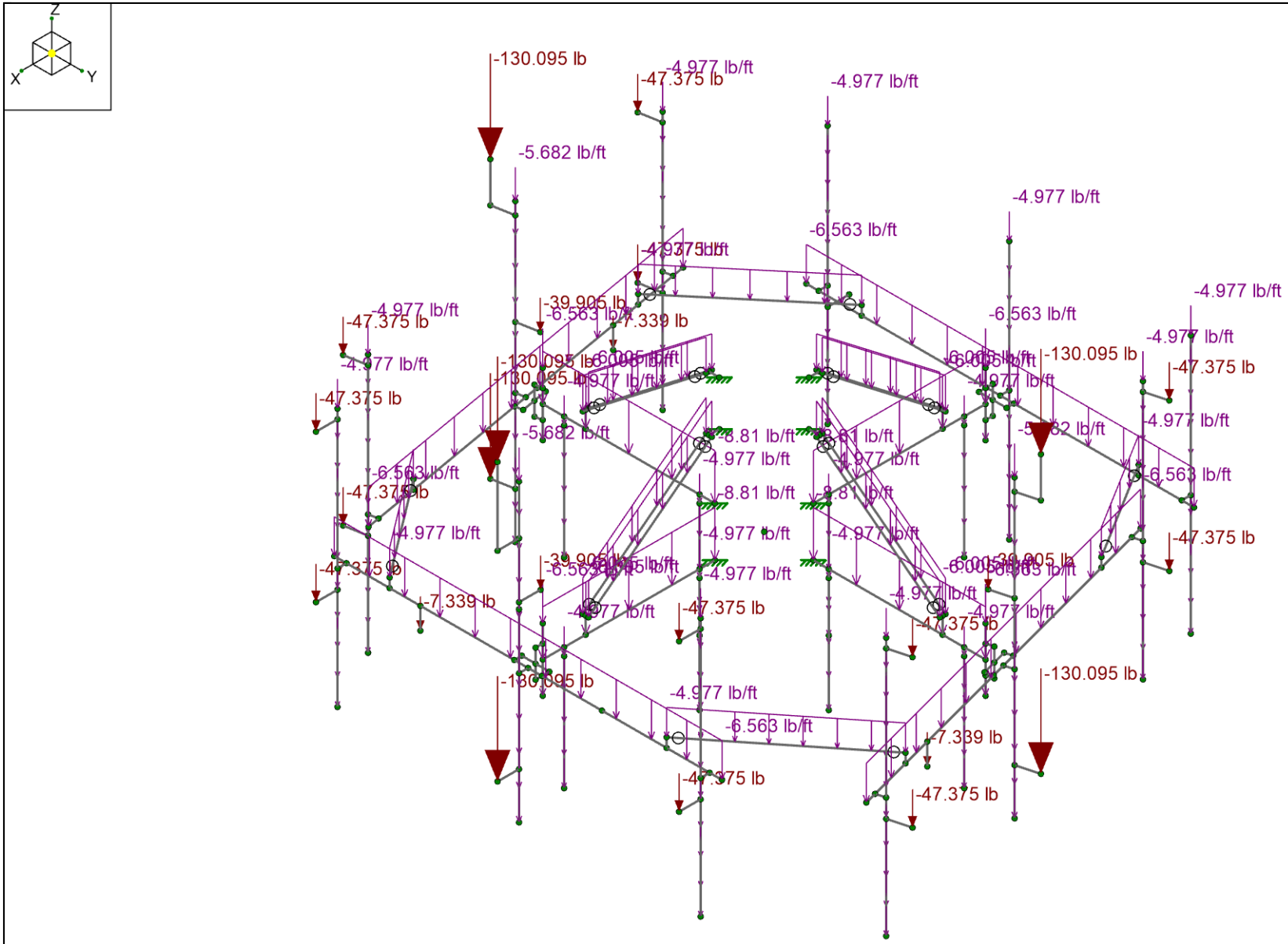
Telamon CLS	41124-13632989_C8_01-Middlefield CT	SK-5
SN		Mar 18, 2021
41124-13632989_C8_01-01-MA	Joint Loads - Dead and Normal Wind	41124-13632989_C8_01-01-MA.r3d



Loads: BLC 5, Structure Wind 0

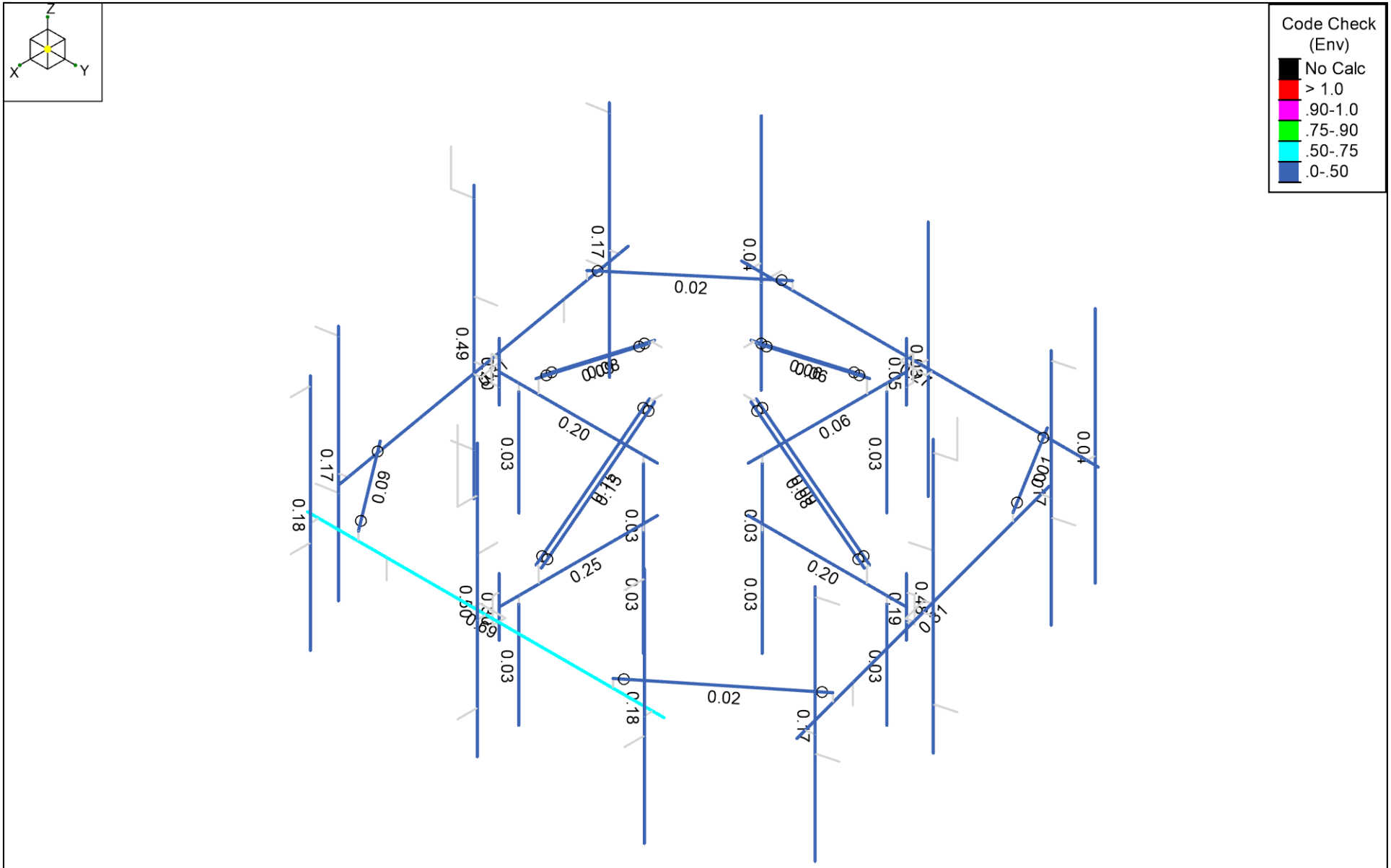
Envelope Only Solution

Telamon CLS	41124-13632989_C8_01-Middlefield CT	SK-6
SN		Mar 18, 2021
41124-13632989_C8_01-01-MA	Distributed Load - Normal Wind	41124-13632989_C8_01-01-MA.r3d



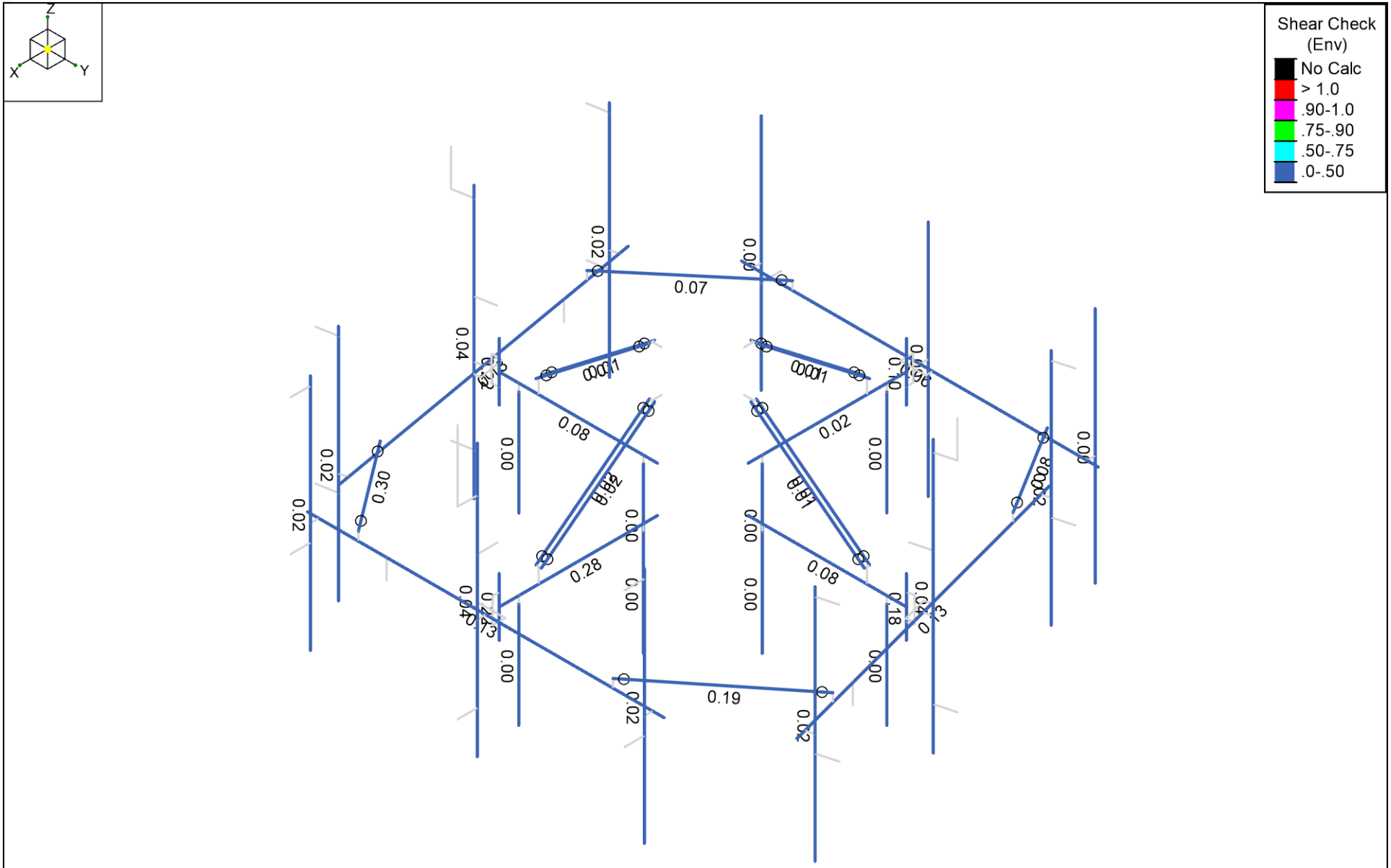
Loads: BLC 2, Ice Dead
Envelope Only Solution

Telamon CLS	41124-13632989_C8_01-Middlefield CT	SK-7
SN		Mar 18, 2021
41124-13632989_C8_01-01-MA	Ice Dead Loads	41124-13632989_C8_01-01-MA.r3d



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Telamon CLS	41124-13632989_C8_01-Middlefield CT	SK-8
SN		Mar 18, 2021
41124-13632989_C8_01-01-MA	Envelope Member Unity Check Results - Bending	41124-13632989_C8_01-01-MA.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Telamon CLS	41124-13632989_C8_01-Middlefield CT	SK-9
SN		Mar 18, 2021
41124-13632989_C8_01-01-MA	Envelope Member Unity Check Results - Shear	41124-13632989_C8_01-01-MA.r3d

Basic Load Cases

	BLC Description	Category	Z Gravity	Nodal	Distributed
1	Dead	DL	-1	24	
2	Ice Dead	RL		24	44
5	Structure Wind 0°	None			42
6	Structure Wind 30°	None			88
7	Structure Wind 45°	None			88
8	Structure Wind 60°	None			88
9	Structure Wind 90°	None			40
10	Structure Wind 120°	None			88
11	Structure Wind 135°	None			88
12	Structure Wind 150°	None			88
13	Structure Wind 180°	None			42
14	Structure Wind 210°	None			88
15	Structure Wind 225°	None			88
16	Structure Wind 240°	None			88
17	Structure Wind 270°	None			40
18	Structure Wind 300°	None			88
19	Structure Wind 315°	None			88
20	Structure Wind 330°	None			88
21	Structure Wind w/ Ice 0°	None			42
22	Structure Wind w/ Ice 30°	None			88
23	Structure Wind w/ Ice 45°	None			88
24	Structure Wind w/ Ice 60°	None			88
25	Structure Wind w/ Ice 90°	None			40
26	Structure Wind w/ Ice 120°	None			88
27	Structure Wind w/ Ice 135°	None			88
28	Structure Wind w/ Ice 150°	None			88
29	Structure Wind w/ Ice 180°	None			42
30	Structure Wind w/ Ice 210°	None			88
31	Structure Wind w/ Ice 225°	None			88
32	Structure Wind w/ Ice 240°	None			88
33	Structure Wind w/ Ice 270°	None			40
34	Structure Wind w/ Ice 300°	None			88
35	Structure Wind w/ Ice 315°	None			88
36	Structure Wind w/ Ice 330°	None			88
37	Antenna Wind 0°	None		24	
38	Antenna Wind 30°	None		48	
39	Antenna Wind 45°	None		48	
40	Antenna Wind 60°	None		48	
41	Antenna Wind 90°	None		24	
42	Antenna Wind 120°	None		48	
43	Antenna Wind 135°	None		48	
44	Antenna Wind 150°	None		48	
45	Antenna Wind 180°	None		24	
46	Antenna Wind 210°	None		48	
47	Antenna Wind 225°	None		48	
48	Antenna Wind 240°	None		48	
49	Antenna Wind 270°	None		24	
50	Antenna Wind 300°	None		48	
51	Antenna Wind 315°	None		48	
52	Antenna Wind 330°	None		48	
53	Antenna Wind w/ Ice 0°	None		24	
54	Antenna Wind w/ Ice 30°	None		48	
55	Antenna Wind w/ Ice 45°	None		48	
56	Antenna Wind w/ Ice 60°	None		48	
57	Antenna Wind w/ Ice 90°	None		24	
58	Antenna Wind w/ Ice 120°	None		48	
59	Antenna Wind w/ Ice 135°	None		48	
60	Antenna Wind w/ Ice 150°	None		48	

Basic Load Cases (Continued)

	BLC Description	Category	Z Gravity	Nodal	Distributed
61	Antenna Wind w/ Ice 180°	None		24	
62	Antenna Wind w/ Ice 210°	None		48	
63	Antenna Wind w/ Ice 225°	None		48	
64	Antenna Wind w/ Ice 240°	None		48	
65	Antenna Wind w/ Ice 270°	None		24	
66	Antenna Wind w/ Ice 300°	None		48	
67	Antenna Wind w/ Ice 315°	None		48	
68	Antenna Wind w/ Ice 330°	None		48	
69	Seismic X	ELX		24	44
70	Seismic Y	ELY		24	44
71	Seismic Z	ELZ		24	44
72	Maintenance Live 500 (1)	OL1		1	
73	Maintenance Live 500 (2)	OL2		1	
74	Maintenance Live 500 (3)	OL3		1	

Load Combinations

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	DISPLAY (1.0D + 1.0W_0°)	Yes	Y	DL	1	37	1				
2	1.4D	Yes	Y	DL	1.4						
3	1.2D + 1.0W_0°	Yes	Y	DL	1.2	5	1	37	1		
4	1.2D + 1.0W_30°	Yes	Y	DL	1.2	6	1	38	1		
5	1.2D + 1.0W_45°	Yes	Y	DL	1.2	7	1	39	1		
6	1.2D + 1.0W_60°	Yes	Y	DL	1.2	8	1	40	1		
7	1.2D + 1.0W_90°	Yes	Y	DL	1.2	9	1	41	1		
8	1.2D + 1.0W_120°	Yes	Y	DL	1.2	10	1	42	1		
9	1.2D + 1.0W_135°	Yes	Y	DL	1.2	11	1	43	1		
10	1.2D + 1.0W_150°	Yes	Y	DL	1.2	12	1	44	1		
11	1.2D + 1.0W_180°	Yes	Y	DL	1.2	13	-1	45	-1		
12	1.2D + 1.0W_210°	Yes	Y	DL	1.2	14	-1	46	-1		
13	1.2D + 1.0W_225°	Yes	Y	DL	1.2	15	-1	47	-1		
14	1.2D + 1.0W_240°	Yes	Y	DL	1.2	16	-1	48	-1		
15	1.2D + 1.0W_270°	Yes	Y	DL	1.2	17	-1	49	-1		
16	1.2D + 1.0W_300°	Yes	Y	DL	1.2	18	-1	50	-1		
17	1.2D + 1.0W_315°	Yes	Y	DL	1.2	19	-1	51	-1		
18	1.2D + 1.0W_330°	Yes	Y	DL	1.2	20	-1	52	-1		
19	1.2D + 1.0Di + 1.0Wi_0°	Yes	Y	DL	1.2	21	1	53	1	RL	1
20	1.2D + 1.0Di + 1.0Wi_30°	Yes	Y	DL	1.2	22	1	54	1	RL	1
21	1.2D + 1.0Di + 1.0Wi_45°	Yes	Y	DL	1.2	23	1	55	1	RL	1
22	1.2D + 1.0Di + 1.0Wi_60°	Yes	Y	DL	1.2	24	1	56	1	RL	1
23	1.2D + 1.0Di + 1.0Wi_90°	Yes	Y	DL	1.2	25	1	57	1	RL	1
24	1.2D + 1.0Di + 1.0Wi_120°	Yes	Y	DL	1.2	26	1	58	1	RL	1
25	1.2D + 1.0Di + 1.0Wi_135°	Yes	Y	DL	1.2	27	1	59	1	RL	1
26	1.2D + 1.0Di + 1.0Wi_150°	Yes	Y	DL	1.2	28	1	60	1	RL	1
27	1.2D + 1.0Di + 1.0Wi_180°	Yes	Y	DL	1.2	29	-1	61	-1	RL	1
28	1.2D + 1.0Di + 1.0Wi_210°	Yes	Y	DL	1.2	30	-1	62	-1	RL	1
29	1.2D + 1.0Di + 1.0Wi_225°	Yes	Y	DL	1.2	31	-1	63	-1	RL	1
30	1.2D + 1.0Di + 1.0Wi_240°	Yes	Y	DL	1.2	32	-1	64	-1	RL	1
31	1.2D + 1.0Di + 1.0Wi_270°	Yes	Y	DL	1.2	33	-1	65	-1	RL	1
32	1.2D + 1.0Di + 1.0Wi_300°	Yes	Y	DL	1.2	34	-1	66	-1	RL	1
33	1.2D + 1.0Di + 1.0Wi_315°	Yes	Y	DL	1.2	35	-1	67	-1	RL	1
34	1.2D + 1.0Di + 1.0Wi_330°	Yes	Y	DL	1.2	36	-1	68	-1	RL	1
35	1.2D + 1.0Ev + 1.0Eh_0°	Yes	Y	DL	1.244	ELX	-1	ELY			
36	1.2D + 1.0Ev + 1.0Eh_30°	Yes	Y	DL	1.244	ELX	-0.866	ELY	0.5		
37	1.2D + 1.0Ev + 1.0Eh_45°	Yes	Y	DL	1.244	ELX	-0.707	ELY	0.707		
38	1.2D + 1.0Ev + 1.0Eh_60°	Yes	Y	DL	1.244	ELX	-0.5	ELY	0.866		
39	1.2D + 1.0Ev + 1.0Eh_90°	Yes	Y	DL	1.244	ELX		ELY	1		
40	1.2D + 1.0Ev + 1.0Eh_120°	Yes	Y	DL	1.244	ELX	0.5	ELY	0.866		
41	1.2D + 1.0Ev + 1.0Eh_135°	Yes	Y	DL	1.244	ELX	0.707	ELY	0.707		

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
42	1.2D + 1.0Ev + 1.0Eh_150°	Yes	Y	DL	1.244	ELX	0.866	ELY	0.5		
43	1.2D + 1.0Ev + 1.0Eh_180°	Yes	Y	DL	1.244	ELX	1	ELY			
44	1.2D + 1.0Ev + 1.0Eh_210°	Yes	Y	DL	1.244	ELX	0.866	ELY	-0.5		
45	1.2D + 1.0Ev + 1.0Eh_225°	Yes	Y	DL	1.244	ELX	0.707	ELY	-0.707		
46	1.2D + 1.0Ev + 1.0Eh_240°	Yes	Y	DL	1.244	ELX	0.5	ELY	-0.866		
47	1.2D + 1.0Ev + 1.0Eh_270°	Yes	Y	DL	1.244	ELX		ELY	-1		
48	1.2D + 1.0Ev + 1.0Eh_300°	Yes	Y	DL	1.244	ELX	-0.5	ELY	-0.866		
49	1.2D + 1.0Ev + 1.0Eh_315°	Yes	Y	DL	1.244	ELX	-0.707	ELY	-0.707		
50	1.2D + 1.0Ev + 1.0Eh_330°	Yes	Y	DL	1.244	ELX	-0.866	ELY	-0.5		
51	0.9D - 1.0Ev + 1.0Eh_0°	Yes	Y	DL	0.856	ELX	-1	ELY			
52	0.9D - 1.0Ev + 1.0Eh_30°	Yes	Y	DL	0.856	ELX	-0.866	ELY	0.5		
53	0.9D - 1.0Ev + 1.0Eh_45°	Yes	Y	DL	0.856	ELX	-0.707	ELY	0.707		
54	0.9D - 1.0Ev + 1.0Eh_60°	Yes	Y	DL	0.856	ELX	-0.5	ELY	0.866		
55	0.9D - 1.0Ev + 1.0Eh_90°	Yes	Y	DL	0.856	ELX		ELY	1		
56	0.9D - 1.0Ev + 1.0Eh_120°	Yes	Y	DL	0.856	ELX	0.5	ELY	0.866		
57	0.9D - 1.0Ev + 1.0Eh_135°	Yes	Y	DL	0.856	ELX	0.707	ELY	0.707		
58	0.9D - 1.0Ev + 1.0Eh_150°	Yes	Y	DL	0.856	ELX	0.866	ELY	0.5		
59	0.9D - 1.0Ev + 1.0Eh_180°	Yes	Y	DL	0.856	ELX	1	ELY			
60	0.9D - 1.0Ev + 1.0Eh_210°	Yes	Y	DL	0.856	ELX	0.866	ELY	-0.5		
61	0.9D - 1.0Ev + 1.0Eh_225°	Yes	Y	DL	0.856	ELX	0.707	ELY	-0.707		
62	0.9D - 1.0Ev + 1.0Eh_240°	Yes	Y	DL	0.856	ELX	0.5	ELY	-0.866		
63	0.9D - 1.0Ev + 1.0Eh_270°	Yes	Y	DL	0.856	ELX		ELY	-1		
64	0.9D - 1.0Ev + 1.0Eh_300°	Yes	Y	DL	0.856	ELX	-0.5	ELY	-0.866		
65	0.9D - 1.0Ev + 1.0Eh_315°	Yes	Y	DL	0.856	ELX	-0.707	ELY	-0.707		
66	0.9D - 1.0Ev + 1.0Eh_330°	Yes	Y	DL	0.856	ELX	-0.866	ELY	-0.5		
67	1.2D + 1.5Lm_1 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.067	37	0.067	OL1	1.5
68	1.2D + 1.5Lm_1 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.067	38	0.067	OL1	1.5
69	1.2D + 1.5Lm_1 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.067	39	0.067	OL1	1.5
70	1.2D + 1.5Lm_1 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.067	40	0.067	OL1	1.5
71	1.2D + 1.5Lm_1 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.067	41	0.067	OL1	1.5
72	1.2D + 1.5Lm_1 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.067	42	0.067	OL1	1.5
73	1.2D + 1.5Lm_1 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.067	43	0.067	OL1	1.5
74	1.2D + 1.5Lm_1 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.067	44	0.067	OL1	1.5
75	1.2D + 1.5Lm_1 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.067	45	-0.067	OL1	1.5
76	1.2D + 1.5Lm_1 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.067	46	-0.067	OL1	1.5
77	1.2D + 1.5Lm_1 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.067	47	-0.067	OL1	1.5
78	1.2D + 1.5Lm_1 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.067	48	-0.067	OL1	1.5
79	1.2D + 1.5Lm_1 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.067	49	-0.067	OL1	1.5
80	1.2D + 1.5Lm_1 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.067	50	-0.067	OL1	1.5
81	1.2D + 1.5Lm_1 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.067	51	-0.067	OL1	1.5
82	1.2D + 1.5Lm_1 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.067	52	-0.067	OL1	1.5
83	1.2D + 1.5Lm_2 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.067	37	0.067	OL2	1.5
84	1.2D + 1.5Lm_2 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.067	38	0.067	OL2	1.5
85	1.2D + 1.5Lm_2 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.067	39	0.067	OL2	1.5
86	1.2D + 1.5Lm_2 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.067	40	0.067	OL2	1.5
87	1.2D + 1.5Lm_2 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.067	41	0.067	OL2	1.5
88	1.2D + 1.5Lm_2 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.067	42	0.067	OL2	1.5
89	1.2D + 1.5Lm_2 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.067	43	0.067	OL2	1.5
90	1.2D + 1.5Lm_2 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.067	44	0.067	OL2	1.5
91	1.2D + 1.5Lm_2 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.067	45	-0.067	OL2	1.5
92	1.2D + 1.5Lm_2 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.067	46	-0.067	OL2	1.5
93	1.2D + 1.5Lm_2 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.067	47	-0.067	OL2	1.5
94	1.2D + 1.5Lm_2 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.067	48	-0.067	OL2	1.5
95	1.2D + 1.5Lm_2 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.067	49	-0.067	OL2	1.5
96	1.2D + 1.5Lm_2 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.067	50	-0.067	OL2	1.5
97	1.2D + 1.5Lm_2 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.067	51	-0.067	OL2	1.5
98	1.2D + 1.5Lm_2 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.067	52	-0.067	OL2	1.5
99	1.2D + 1.5Lm_3 + 1.0Wm_0°	Yes	Y	DL	1.2	5	0.067	37	0.067	OL3	1.5

Load Combinations (Continued)

	Description	Solve	PDelta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
100	1.2D + 1.5Lm_3 + 1.0Wm_30°	Yes	Y	DL	1.2	6	0.067	38	0.067	OL3	1.5
101	1.2D + 1.5Lm_3 + 1.0Wm_45°	Yes	Y	DL	1.2	7	0.067	39	0.067	OL3	1.5
102	1.2D + 1.5Lm_3 + 1.0Wm_60°	Yes	Y	DL	1.2	8	0.067	40	0.067	OL3	1.5
103	1.2D + 1.5Lm_3 + 1.0Wm_90°	Yes	Y	DL	1.2	9	0.067	41	0.067	OL3	1.5
104	1.2D + 1.5Lm_3 + 1.0Wm_120°	Yes	Y	DL	1.2	10	0.067	42	0.067	OL3	1.5
105	1.2D + 1.5Lm_3 + 1.0Wm_135°	Yes	Y	DL	1.2	11	0.067	43	0.067	OL3	1.5
106	1.2D + 1.5Lm_3 + 1.0Wm_150°	Yes	Y	DL	1.2	12	0.067	44	0.067	OL3	1.5
107	1.2D + 1.5Lm_3 + 1.0Wm_180°	Yes	Y	DL	1.2	13	-0.067	45	-0.067	OL3	1.5
108	1.2D + 1.5Lm_3 + 1.0Wm_210°	Yes	Y	DL	1.2	14	-0.067	46	-0.067	OL3	1.5
109	1.2D + 1.5Lm_3 + 1.0Wm_225°	Yes	Y	DL	1.2	15	-0.067	47	-0.067	OL3	1.5
110	1.2D + 1.5Lm_3 + 1.0Wm_240°	Yes	Y	DL	1.2	16	-0.067	48	-0.067	OL3	1.5
111	1.2D + 1.5Lm_3 + 1.0Wm_270°	Yes	Y	DL	1.2	17	-0.067	49	-0.067	OL3	1.5
112	1.2D + 1.5Lm_3 + 1.0Wm_300°	Yes	Y	DL	1.2	18	-0.067	50	-0.067	OL3	1.5
113	1.2D + 1.5Lm_3 + 1.0Wm_315°	Yes	Y	DL	1.2	19	-0.067	51	-0.067	OL3	1.5
114	1.2D + 1.5Lm_3 + 1.0Wm_330°	Yes	Y	DL	1.2	20	-0.067	52	-0.067	OL3	1.5

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm. Coeff. [1e^{5}°F^{-1}]	Density [k/ft^{3}]	Yield [ksi]	Ry	Fu [ksi]	Rt
1	A992	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	0.3	0.65	0.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	0.3	0.65	0.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	0.3	0.65	0.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	0.3	0.65	0.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	0.3	0.65	0.49	35	1.6	60	1.2
7	A1085	29000	11154	0.3	0.65	0.49	50	1.4	65	1.3
8	A500 GR.C RND	29000	11154	0.3	0.65	0.49	46	1.5	58	1.3
9	A500 GR.C RECT	29000	11154	0.3	0.65	0.49	50	1.5	58	1.3

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Rule	Area [in^{2}]	Iyy [in^{4}]	Izz [in^{4}]	J [in^{4}]
1	Mount Pipe	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
2	Main Offset tube	HSS4X4X4	Beam	None	A500 Gr.B Rect	Typical	3.37	7.8	7.8	12.8
3	Main Face Pipe	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
4	Vertical pipe	PIPE_3.0	Beam	None	A53 Gr.B	Typical	2.07	2.85	2.85	5.69
5	Support Platform pipe	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25
6	MOD Mount Pipe	PIPE_2.5	Beam	None	A53 Gr.B	Typical	1.61	1.45	1.45	2.89
7	MOD PRK	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical	0.901	0.535	0.535	0.011
8	MOD Bracing PIpe	PIPE_2.0	Beam	None	A53 Gr.B	Typical	1.02	0.627	0.627	1.25

Hot Rolled Steel Design Parameters

	Label	Shape	Length [in]	Function
1	A1	Main Offset tube	55.95	Lateral
2	M45	Main Face Pipe	126	Lateral
3	`	Vertical pipe	20.4	Lateral
4	M139	MOD Mount Pipe	96	Lateral
5	M44A	Support Platform pipe	37.2	Lateral
6	M45A	Support Platform pipe	37.2	Lateral
7	M42D	Mount Pipe	84	Lateral
8	M43B	Mount Pipe	84	Lateral
9	A4	Main Offset tube	55.95	Lateral
10	M32	Main Face Pipe	126	Lateral
11	M36	Vertical pipe	20.4	Lateral
12	M37	MOD Mount Pipe	96	Lateral
13	M44	Support Platform pipe	37.2	Lateral
14	M45B	Support Platform pipe	37.2	Lateral
15	M47A	Mount Pipe	84	Lateral
16	M48	Mount Pipe	84	Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length [in]	Function
17	A3	Main Offset tube	55.95	Lateral
18	M61	Main Face Pipe	126	Lateral
19	M65	Vertical pipe	20.4	Lateral
20	M66	Mount Pipe	84	Lateral
21	M73	Support Platform pipe	37.2	Lateral
22	M74	Support Platform pipe	37.2	Lateral
23	M76	Mount Pipe	84	Lateral
24	M77	Mount Pipe	84	Lateral
25	A2	Main Offset tube	55.95	Lateral
26	M90	Main Face Pipe	126	Lateral
27	M94	Vertical pipe	20.4	Lateral
28	M95	MOD Mount Pipe	96	Lateral
29	M102	Support Platform pipe	37.2	Lateral
30	M103	Support Platform pipe	37.2	Lateral
31	M105	Mount Pipe	84	Lateral
32	M106	Mount Pipe	84	Lateral
33	PR5	MOD PRK	50.531	Lateral
34	PR6	MOD PRK	50.531	Lateral
35	M119	MOD PRK	50.531	Lateral
36	M120	MOD PRK	50.531	Lateral
37	M125	MOD PRK	50.531	Lateral
38	M126	MOD PRK	50.531	Lateral
39	M131	MOD PRK	50.531	Lateral
40	M132	MOD PRK	50.531	Lateral
41	M141	MOD Bracing PIpe	55.251	Lateral
42	M142	MOD Bracing PIpe	39.535	Lateral
43	M143	MOD Bracing PIpe	51.56	Lateral
44	M144	MOD Bracing PIpe	37.682	Lateral

Member Advanced Data

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
1	M16			Yes	** NA **	None
2	A1			Yes	Default	None
3	M45			Yes		None
4	M47			Yes	** NA **	None
5	M91			Yes	** NA **	None
6	M92			Yes	** NA **	None
7	`			Yes		None
8	M139			Yes		None
9	M142A			Yes	** NA **	None
10	M143A			Yes	** NA **	None
11	M144A			Yes	** NA **	None
12	M145			Yes	** NA **	None
13	M42			Yes	** NA **	None
14	M43A			Yes	** NA **	None
15	M44A			Yes		None
16	M45A			Yes		None
17	M39A			Yes	** NA **	None
18	M42D			Yes		None
19	M43B			Yes		None
20	M20			Yes	** NA **	None
21	M21			Yes	** NA **	None
22	M22			Yes	** NA **	None
23	M23			Yes	** NA **	None
24	M24			Yes	** NA **	None
25	M25			Yes	** NA **	None
26	M26			Yes	** NA **	None
27	M27			Yes	** NA **	None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
28	M28			Yes	** NA **	None
29	M29			Yes	** NA **	None
30	M30			Yes	** NA **	None
31	A4			Yes	Default	None
32	M32			Yes		None
33	M33			Yes	** NA **	None
34	M34			Yes	** NA **	None
35	M35			Yes	** NA **	None
36	M36			Yes		None
37	M37			Yes		None
38	M38A			Yes	** NA **	None
39	M39			Yes	** NA **	None
40	M40			Yes	** NA **	None
41	M41			Yes	** NA **	None
42	M42A			Yes	** NA **	None
43	M43			Yes	** NA **	None
44	M44			Yes		None
45	M45B			Yes		None
46	M46			Yes	** NA **	None
47	M47A			Yes		None
48	M48			Yes		None
49	M49			Yes	** NA **	None
50	M50			Yes	** NA **	None
51	M51			Yes	** NA **	None
52	M52			Yes	** NA **	None
53	M53			Yes	** NA **	None
54	M54			Yes	** NA **	None
55	M55			Yes	** NA **	None
56	M56			Yes	** NA **	None
57	M57			Yes	** NA **	None
58	M58			Yes	** NA **	None
59	M59			Yes	** NA **	None
60	A3			Yes	Default	None
61	M61			Yes		None
62	M62			Yes	** NA **	None
63	M63			Yes	** NA **	None
64	M64			Yes	** NA **	None
65	M65			Yes		None
66	M66			Yes		None
67	M67			Yes	** NA **	None
68	M68			Yes	** NA **	None
69	M69			Yes	** NA **	None
70	M70			Yes	** NA **	None
71	M71			Yes	** NA **	None
72	M72			Yes	** NA **	None
73	M73			Yes		None
74	M74			Yes		None
75	M75			Yes	** NA **	None
76	M76			Yes		None
77	M77			Yes		None
78	M78			Yes	** NA **	None
79	M88			Yes	** NA **	None
80	A2			Yes	Default	None
81	M90			Yes		None
82	M91A			Yes	** NA **	None
83	M92A			Yes	** NA **	None
84	M93			Yes	** NA **	None
85	M94			Yes		None

Member Advanced Data (Continued)

	Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR
86	M95			Yes		None
87	M96			Yes	** NA **	None
88	M97			Yes	** NA **	None
89	M98			Yes	** NA **	None
90	M99			Yes	** NA **	None
91	M100			Yes	** NA **	None
92	M101			Yes	** NA **	None
93	M102			Yes		None
94	M103			Yes		None
95	M104			Yes	** NA **	None
96	M105			Yes		None
97	M106			Yes		None
98	M107			Yes	** NA **	None
99	M108			Yes	** NA **	None
100	M109			Yes	** NA **	None
101	M110			Yes	** NA **	None
102	M111			Yes	** NA **	None
103	M112			Yes	** NA **	None
104	M113			Yes	** NA **	None
105	M114			Yes	** NA **	None
106	M115			Yes	** NA **	None
107	M116			Yes	** NA **	None
108	PR1			Yes	** NA **	None
109	PR2			Yes	** NA **	None
110	PR3			Yes	** NA **	None
111	PR4			Yes	** NA **	None
112	PR5	BenPIN	BenPIN	Yes		None
113	PR6	BenPIN	BenPIN	Yes		None
114	M115A			Yes	** NA **	None
115	M116A			Yes	** NA **	None
116	M117			Yes	** NA **	None
117	M118			Yes	** NA **	None
118	M119	BenPIN	BenPIN	Yes		None
119	M120	BenPIN	BenPIN	Yes		None
120	M121			Yes	** NA **	None
121	M122			Yes	** NA **	None
122	M123			Yes	** NA **	None
123	M124			Yes	** NA **	None
124	M125	BenPIN	BenPIN	Yes		None
125	M126	BenPIN	BenPIN	Yes		None
126	M127			Yes	** NA **	None
127	M128			Yes	** NA **	None
128	M129			Yes	** NA **	None
129	M130			Yes	** NA **	None
130	M131	BenPIN	BenPIN	Yes		None
131	M132	BenPIN	BenPIN	Yes		None
132	M133			Yes	** NA **	None
133	M134			Yes	** NA **	None
134	M135			Yes	** NA **	None
135	M136			Yes	** NA **	None
136	M137			Yes	** NA **	None
137	M138			Yes	** NA **	None
138	M139A			Yes	** NA **	None
139	M140			Yes	** NA **	None
140	M141	BenPIN	BenPIN	Yes		None
141	M142	BenPIN	BenPIN	Yes		None
142	M143	BenPIN	BenPIN	Yes		None
143	M144	BenPIN	BenPIN	Yes		None

Member Advanced Data (Continued)

Label	I Release	J Release	Physical	Deflection Ratio Options	Seismic DR

Node Boundary Conditions

	Node Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot [k-ft/rad]	Y Rot [k-ft/rad]	Z Rot [k-ft/rad]
1	N34						
2	N33	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N64	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N114	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N164	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	P5	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
7	N200A	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
8	N208	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
9	N216	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Envelope Node Reactions

	Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N33	max	3174.256	19	736.449	14	255.233	1	3093.811	72	1028.375	11	2464.077	14
2		min	416.203	11	-738.847	6	-801.396	11	-3042.505	110	-360.734	3	-2504.374	6
3	N64	max	663.908	4	3113.984	31	206.553	15	324.871	15	833.076	4	2330.9	12
4		min	-676.988	12	472.013	7	-745.023	7	-957.937	7	-665.976	12	-2307.536	4
5	N164	max	686.886	18	-442.473	15	222.577	7	996.186	15	580.381	4	2267.678	18
6		min	-679.074	10	-3139.157	23	-775.62	15	-345.13	7	-762.825	12	-2265.711	10
7	P5	max	-564.03	1	76.48	15	2395.701	27	247.491	78	-125.594	1	316.34	79
8		min	-3068.876	27	-76.476	7	446.557	1	-247	103	-673.791	27	-316.269	103
9	N208	max	944.375	20	72.932	15	762.808	20	17.515	15	214.54	20	40.881	7
10		min	322.584	59	-72.907	7	260.117	59	-15.329	7	73.158	59	-43.79	15
11	N114	max	426.851	3	391.538	15	25.936	12	37.159	18	63.675	12	846.528	7
12		min	-1312.081	11	-391.933	7	-106.05	20	-44.307	10	-187.497	4	-881.592	15
13	N216	max	75.467	3	3039.624	31	2373.242	31	-173.931	7	39.185	9	82.115	18
14		min	-75.586	11	757.259	7	618.42	7	-667.474	31	-51.846	17	-65.302	10
15	N200A	max	75.724	3	-779.095	15	2354.131	23	662.099	23	41.284	12	72.293	12
16		min	-75.67	11	-3014.737	23	635.223	15	178.657	15	-28.071	4	-55.836	4
17	Totals:	max	4153.453	3	4512	15	5685.991	21						
18		min	-4153.454	11	-4511.993	7	2038.799	62						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
1	M45	PIPE_3.0	0.685	58.358	72	0.134	66.316		11	36138.4	65205	5748.75	5748.75	2.911	H1-1b
2	M139	PIPE_2.5	0.495	53.558	3	0.043	54.568		5	30038.461	50715	3596.25	3596.25	1.576	H1-1b
3	M95	PIPE_2.5	0.487	53.558	7	0.044	54.568		8	30038.461	50715	3596.25	3596.25	1.578	H1-1b
4	M37	PIPE_2.5	0.477	53.558	14	0.043	54.568		12	30038.461	50715	3596.25	3596.25	1.58	H1-1b
5	M90	PIPE_3.0	0.31	58.358	14	0.133	59.684		15	36138.4	65205	5748.75	5748.75	2.125	H1-1b
6	M32	PIPE_3.0	0.309	67.642	8	0.132	59.684		7	36138.4	65205	5748.75	5748.75	2.168	H1-1b
7	`	PIPE_3.0	0.301	10.093	73	0.22	10.093		109	64204.01	65205	5748.75	5748.75	1.923	H1-1b
8	M61	PIPE_3.0	0.272	67.642	4	0.056	67.642		4	36138.4	65205	5748.75	5748.75	2.459	H1-1b
9	A1	HSS4X4X4	0.254	42.404	75	0.284	42.404	y	72	127385.024	139518	16180.5	16180.5	2.4	H3-6
10	A2	HSS4X4X4	0.203	42.404	15	0.082	49.472	y	12	127385.024	139518	16180.5	16180.5	2.127	H1-1b
11	M94	PIPE_3.0	0.2	10.093	15	0.223	10.093		14	64204.01	65205	5748.75	5748.75	1.921	H1-1b
12	A4	HSS4X4X4	0.196	42.404	23	0.083	49.472	y	4	127385.024	139518	16180.5	16180.5	2.329	H1-1b
13	M36	PIPE_3.0	0.192	10.093	7	0.181	10.093		8	64204.01	65205	5748.75	5748.75	1.921	H1-1b
14	M42D	PIPE_2.0	0.175	44.211	11	0.023	44.211		6	17855.085	32130	1871.625	1871.625	1.634	H1-1b
15	M43B	PIPE_2.0	0.175	44.211	11	0.023	44.211		16	17855.085	32130	1871.625	1871.625	1.634	H1-1b
16	M106	PIPE_2.0	0.174	44.211	15	0.023	44.211		17	17855.085	32130	1871.625	1871.625	1.658	H1-1b
17	M105	PIPE_2.0	0.174	44.211	15	0.023	44.211		9	17855.085	32130	1871.625	1871.625	1.659	H1-1b
18	M48	PIPE_2.0	0.172	44.211	7	0.023	44.211		9	17855.085	32130	1871.625	1871.625	1.662	H1-1b
19	M47A	PIPE_2.0	0.172	44.211	6	0.023	44.211		17	17855.085	32130	1871.625	1871.625	1.696	H1-1b
20	PR5	L2.5x2.5x3	0.154	25.532	75	0.016	50.531	z	70	16255.014	29192.4	872.574	1734.106	1.14	H2-1
21	PR6	L2.5x2.5x3	0.153	25.532	101	0.016	50.531	y	70	16255.014	29192.4	872.574	1734.106	1.14	H2-1
22	M131	L2.5x2.5x3	0.094	25.532	31	0.01	50.531	y	11	16255.014	29192.4	872.574	1734.106	1.14	H2-1
23	M119	L2.5x2.5x3	0.091	25.532	28	0.011	50.531	y	4	16255.014	29192.4	872.574	1734.106	1.14	H2-1
24	M142	PIPE_2.0	0.086	18.311	108	0.301	39.535		113	28209.149	32130	1871.625	1871.625	1.14	H3-6

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn
25	M120	L2.5x2.5x3	0.082	25.532	4	0.011	50.531	z	4	16255.014	29192.4	872.574	1734.106	1.14	H2-1
26	M132	L2.5x2.5x3	0.082	25.532	25	0.01	50.531	z	11	16255.014	29192.4	872.574	1734.106	1.14	H2-1
27	A3	HSS4X4X4	0.064	49.472	5	0.015	5.301	z	15	127385.024	139518	16180.5	16180.5	2.278	H1-1b
28	M126	L2.5x2.5x3	0.06	25.532	15	0.005	50.531	z	15	16255.014	29192.4	872.574	1734.106	1.14	H2-1
29	M125	L2.5x2.5x3	0.06	25.532	7	0.005	50.531	y	15	16255.014	29192.4	872.574	1734.106	1.14	H2-1
30	M65	PIPE_3.0	0.046	10.093	3	0.1	10.093		5	64204.01	65205	5748.75	5748.75	1.918	H1-1b
31	M77	PIPE_2.0	0.036	44.211	5	0.004	44.211		5	17855.085	32130	1871.625	1871.625	1.698	H1-1b
32	M76	PIPE_2.0	0.036	44.211	18	0.004	44.211		18	17855.085	32130	1871.625	1871.625	1.698	H1-1b
33	M66	PIPE_2.0	0.032	41.558	3	0.004	41.558		3	17855.085	32130	1871.625	1871.625	1.562	H1-1b
34	M45B	PIPE_2.0	0.025	0	4	0.003	0		4	28633.228	32130	1871.625	1871.625	2.298	H1-1b
35	M103	PIPE_2.0	0.025	0	12	0.003	0		12	28633.228	32130	1871.625	1871.625	2.298	H1-1b
36	M45A	PIPE_2.0	0.025	0	14	0.003	0		14	28633.228	32130	1871.625	1871.625	2.298	H1-1b
37	M74	PIPE_2.0	0.025	0	3	0.003	0		3	28633.228	32130	1871.625	1871.625	2.299	H1-1b
38	M44	PIPE_2.0	0.025	0	3	0.003	0		3	28633.228	32130	1871.625	1871.625	2.3	H1-1b
39	M102	PIPE_2.0	0.025	0	11	0.003	0		11	28633.228	32130	1871.625	1871.625	2.3	H1-1b
40	M44A	PIPE_2.0	0.025	0	15	0.003	0		15	28633.228	32130	1871.625	1871.625	2.3	H1-1b
41	M73	PIPE_2.0	0.025	0	15	0.003	0		15	28633.228	32130	1871.625	1871.625	2.3	H1-1b
42	M141	PIPE_2.0	0.021	27.916	9	0.187	55.251		69	24918.745	32130	1871.625	1871.625	1.14	H1-1b
43	M143	PIPE_2.0	0.02	25.509	17	0.07	51.56		17	25750.095	32130	1871.625	1871.625	1.14	H1-1b
44	M144	PIPE_2.0	0.014	0	4	0.08	37.682		6	28547.349	32130	1871.625	1871.625	1.14	H1-1b*

Bolted Connection Rotational Slipe Resistance of U-bolt connection to Vertical Pipe (M91)

v. 2017.11.20

DESIGN LOADS	
Factored Moment, M_u (lb-ft)	844.416

BOLT PROPERTIES	
Bolt Type	U-Bolt
# of U-Bolts	2
Hole Type	Standard
Bolt Grade	SAE Grade 2
Bolt Diameter, d (in)	0.625
Leg Width, W_{leg} (in)	3.5
Bolt Torque Override, T (lb-ft)	50
Bolt Pretension Stress Override (ksi)	
Bolt Ultimate Strength, F_u (ksi)	74
Specified Torque, T (lb-ft)	50.00
Clamping Force per Bolt, P_u (lb)	4800.00
Bolt Pretension Stress (ksi)	15.65
Tensile Strength per Bolt, ϕP_n (lb)	12770.39
Slip Resistance per Bolt, ϕM_n (lb-ft)	474.60
Total Slip Resistance, ϕM_n (lb-ft)	1898.40
Connection Slip Usage, M_u / ϕM_n	**0.44**

Using Torque Override

FACTORS		
Nut Factor, K	0.20	**Rule-of-thumb estimate**
$\phi_{(BOLT\ TENSION)}$	0.75	**AISC 15th, J3.6**
$\phi_{(SLIP\text{-}CRITICAL)}$	1.00	**AISC 15th, J3.8**
Mean Slip Coefficient, μ	0.30	**AISC 15th, J3.8**
Installed Pretension Ratio, D_u	1.13	**AISC 15th, J3.8**

RAN Template:	A&L Template:
67D95A	67D95A_2xAIR+1OP

CTHA244A_L600_8

Print Name: Standard (1)
PORs: L600_5G POPs

Section 1 - Site Information

Site ID: CTHA244A
Status: Final
Version: 8
Project Type: L600
Approved: 1/11/2021 3:32:11 PM
Approved By: Michael.Lucey@T-Mobile.com
Last Modified: 1/11/2021 3:32:11 PM
Last Modified By: Michael.Lucey@T-Mobile.com

Site Name: CTHA244/VerizonMiddlefiel
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2020
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Verizon Wireless

Latitude: 41.53553559
Longitude: -72.73202850
Address: 484 Meriden Road
City, State: Middlefield, CT
Region: NORTHEAST

RAN Template: 67D95A			**AL Template:** 67D95A_2xAIR+1OP	
Sector Count: 3	**Antenna Count:** 9	**Coax Line Count:** 6	**TMA Count:** 3	**RRU Count:** 3

Section 2 - Existing Template Images

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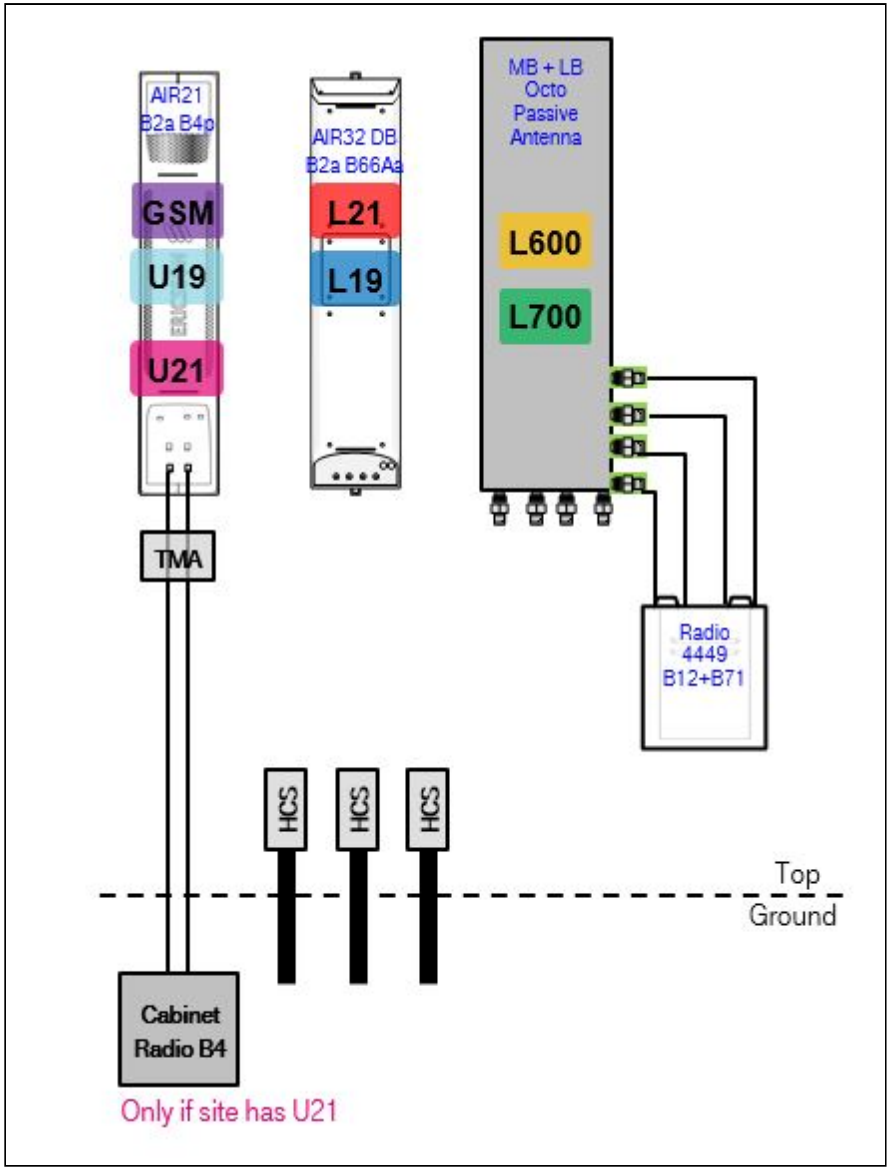
Section 3 - Proposed Template Images

67D92DB_2xAIR+1OP.JPG



Notes:

Section 4 - Siteplan Images

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RAN Template:	A&L Template:
67D95A	67D95A_2xAIR+1OP

CTHA244A_L600_8

Print Name: Standard (1)
PORs: L600_5G POPs

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 5F_U19/U21

Enclosure	**1**
Enclosure Type	RBS 6201
Baseband	DUW30 (U2100); DUG20 (G1900); BB 6630 (L1900, L2100)
Radio	RUS01 B2 **(x 3)** (L1900, G1900); RUS01 B4 **(x 6)** (L2100); RUS01 B4 **(x 3)** (U2100)

Proposed RAN Equipment

Template: 67D95A

Enclosure	**1**	**2**	**3**
Enclosure Type	RBS 6201	Enclosure 6160	B160
Baseband	DUW30 (U2100); DUG20 (G1900); BB 6630 (L1900, L2100); BB 6630 (N600, L700, L600)		
Hybrid Cable System		Ericsson 6x12 HCS *Select AWG & Length* **(x 3)**	
Radio	RUS01 B4 **(x 3)** (U2100); RUS01 B4 **(x 3)**; RRUS01 B2; RUS01 B2 **(x 2)**		

RAN Scope of Work:

RAN Template:	A&L Template:
67D95A	67D95A_2xAIR+1OP

CTHA244A_L600_8

Print Name: Standard (1)
PORs: L600_5G POPs

Section 6 - A&L Equipment

Existing Template: 5F_2DP_U19/U21
Proposed Template: 67D95A_2xAIR+1OP

Sector 1 (Existing) view from behind			
Coverage Type	A - Outdoor Macro		
Antenna	**1**		**2**
Antenna Model	RFS - APX16DWV-16DWV-S-E-A20 (Quad)		EMS - RR90-17-XXDP (Dual)
Azimuth	60		
M. Tilt	0		
Height	140		
Ports	**P1**	**P2**	**P3**
Active Tech.	U2100, L1900, G1900	L2100	
Dark Tech.			
Restricted Tech.			
Decomm. Tech.			
E. Tilt	2	2	
Cables	1-5/8" Coax - 165 ft.	1-5/8" Coax - 165 ft.	
TMAs	Generic Twin Style 3CX - PCS/AWS3+600/700BP (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)	
Diplexers / Combiners	Generic AWS/PCS Diplexer (AtAntenna)		
Radio			
Sector Equipment			

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
67D95A	67D95A_2xAIR+1OP

CTHA244A_L600_8

Print Name: Standard (1)
PORs: L600_5G POPs

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2			3		
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)			Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		
Azimuth	60		60			60		
M. Tilt	0		0					
Height	140		140			140		
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.		L2100	N600 L700 L600	N600 L700 L600			L1900 G1900	U2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2	2	2	2	2		
Cables		Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)**				1-5/8" Coax - 165 ft. **(x2)**
TMAs								Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67D95A	67D95A_2xAIR+1OP

CTHA244A_L600_8

Print Name: Standard (1)
PORs: L600_5G POPs

Sector 2 (Existing) view from behind			
Coverage Type	A - Outdoor Macro		
Antenna	**1**		**2**
Antenna Model	RFS - APX16DWV-16DWV-S-E-A20 (Quad)		EMS - RR90-17-XXDP (Dual)
Azimuth	150		
M. Tilt	0		
Height	140		
Ports	**P1**	**P2**	**P3**
Active Tech.	U2100 L1900 G1900	L2100	
Dark Tech.			
Restricted Tech.			
Decomm. Tech.			
E. Tilt	2	2	
Cables	1-5/8" Coax - 170 ft.	1-5/8" Coax - 170 ft.	
TMAs	Generic Twin Style 3CX - PCS/AWS3+600/700BP (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)	
Diplexers / Combiners	Generic AWS/PCS Diplexer (AtAntenna)		
Radio			
Sector Equipment			

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
67D95A	67D95A_2xAIR+1OP

CTHA244A_L600_8

Print Name: Standard (1)
PORs: L600_5G POPs

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2			3		
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)			Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		
Azimuth	150		150			150		
M. Tilt	0		0					
Height	140		140			140		
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.		L2100	N600 L700 L600	N600 L700 L600			G1900 L1900	U2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2	2	2	2	2		
Cables		Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)**				1-5/8" Coax - 165 ft. **(x2)**
TMAs								Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67D95A	67D95A_2xAIR+1OP

CTHA244A_L600_8

Print Name: Standard (1)
PORs: L600_5G POPs

Sector 3 (Existing) view from behind			
Coverage Type	A - Outdoor Macro		
Antenna	**1**		**2**
Antenna Model	RFS - APX16DWV-16DWV-S-E-A20 (Quad)		EMS - RR90-17-XXDP (Dual)
Azimuth	230		
M. Tilt	0		
Height	140		
Ports	**P1**	**P2**	**P3**
Active Tech.	U2100, L1900, G1900	L2100	
Dark Tech.			
Restricted Tech.			
Decomm. Tech.			
E. Tilt	2	2	
Cables	1-5/8" Coax - 170 ft.	1-5/8" Coax - 170 ft.	
TMAs	Generic Twin Style 3CX - PCS/AWS3+600/700BP (AtAntenna)	Generic Twin Style 1B - AWS (AtAntenna)	
Diplexers / Combiners	Generic AWS/PCS Diplexer (AtAntenna)		
Radio			
Sector Equipment			

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
67D95A	67D95A_2xAIR+1OP

CTHA244A_L600_8

Print Name: Standard (1)
PORs: L600_5G POPs

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2			3		
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)			Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		
Azimuth	230		230			230		
M. Tilt	0		0					
Height	140		140			140		
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.		L2100	N600 L700 L600	N600 L700 L600			L1900 G1900	U2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2	2	2	2	2	2		
Cables		Fiber Jumper **(x2)**	Coax Jumper **(x2)** Fiber Jumper	Coax Jumper **(x2)**				1-5/8" Coax - 165 ft. **(x2)**
TMAs								Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

*A dashed border indicates shared equipment. Any connected equipment is denoted with the SHARED keyword.

RAN Template:	A&L Template:
67D95A	67D95A_2xAIR+1OP

CTHA244A_L600_8

Print Name: Standard (1)
PORs: L600_5G POPs

Section 7 - Power Systems Equipment

Existing Power Systems Equipment

----- This section is intentionally blank. -----

Proposed Power Systems Equipment

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

T-Mobile Existing Facility

Site ID: CTHA244A

CTHA244/VerizonMiddlefiel
484 Meriden Road
Middlefield, Connecticut 06455

June 3, 2021

EBI Project Number: 6221002804

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**8.58%**

June 3, 2021

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

Emissions Analysis for Site: CTHA244A - CTHA244/VerizonMiddlefiel

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **484 Meriden Road** in **Middlefield, Connecticut** for the purpose of determining whether the emissions from the Proposed T-Mobile Antenna Installation located on this property are within specified federal limits.

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 484 Meriden Road in Middlefield, 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 (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

5) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 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.

7) 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.

8) 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.

9) The antennas used in this modeling are the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR 21 for the 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR 32 for the 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

10) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).

11) 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.

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

EBI Consulting

environmental | engineering | due diligence

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	6,169.82	ERP (W):	6,169.82	ERP (W):	6,169.82
Antenna A1 MPE %:	**1.24%**	Antenna B1 MPE %:	**1.24%**	Antenna C1 MPE %:	**1.24%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A2 MPE %:	**1.15%**	Antenna B2 MPE %:	**1.15%**	Antenna C2 MPE %:	**1.15%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32	Make / Model:	Ericsson AIR 32
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd	Gain:	15.35 dBd / 15.85 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts	Total TX Power (W):	240 Watts
ERP (W):	8,728.31	ERP (W):	8,728.31	ERP (W):	8,728.31
Antenna A3 MPE %:	**1.75%**	Antenna B3 MPE %:	**1.75%**	Antenna C3 MPE %:	**1.75%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	4.13%
Verizon	2.49%
AT&T	1.96%
Site Total MPE % :	8.58%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	4.13%
T-Mobile Sector B Total:	4.13%
T-Mobile Sector C Total:	4.13%
Site Total MPE % :	8.58%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1028.30	140.0	8.24	1900 MHz GSM	1000	0.82%
T-Mobile 2100 MHz UMTS	2	1028.30	140.0	4.12	2100 MHz UMTS	1000	0.41%
T-Mobile 600 MHz LTE	2	591.73	140.0	2.37	600 MHz LTE	400	0.59%
T-Mobile 700 MHz LTE	2	648.82	140.0	2.60	700 MHz LTE	467	0.56%
T-Mobile 1900 MHz LTE	2	2056.61	140.0	8.24	1900 MHz LTE	1000	0.82%
T-Mobile 2100 MHz LTE	2	2307.55	140.0	9.24	2100 MHz LTE	1000	0.92%
						Total:	**4.13%**

• 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:	4.13%
Sector B:	4.13%
Sector C:	4.13%
T-Mobile Maximum MPE % (Sector A):	4.13%
Site Total:	8.58%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.58%** 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.