

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



June 27, 2022

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: -72.732094
T-Mobile Site#: CTHA244A – Anchor

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 six (6) existing antennas and with six (6) new 1900, 2100, and 2500 LTE antennas. The new antennas support 5G services and will be installed at the same 140-foot level of the tower.

Planned Modifications:

Tower:

Remove and Replace:

(6) Ericsson AIR 21 KRC118023 antennas for (3) Ericsson AIR 6419 antennas and (3) Commscope VV-65A-R1 Antennas

Install New:

(3) Ericsson Radio 4460 B25 B66 RRU
(1) 1.99" Hybrid

Existing to Remain:

(3) 1 5/8" Hybrid
(3) APXVAARR24 Antennas
(3) Ericsson Radio 4449 B71 B85

Ground:

Install New (2) RP 6651, (1) PSU 4813, and (1) CSR IXRe V2 Router. Remove (6) RUS01 B4 and (6) RUS01 B2.

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 § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to First Selectman Robert Yamartino, 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: Robert Yamartino – 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
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

1 OF 1

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

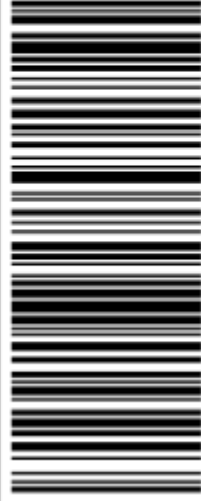


MA 018 9-04



UPS GROUND

TRACKING #: 1Z V25 742 03 9304 1211



BILLING: P/P

Reference #1: CTHA244A

XOL 22.06.15 NV45 26.0A 06/2022*



TM

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

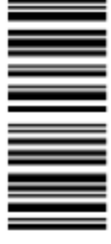
1 LBS

1 OF 1

SHIP TO:
ROBERT YAMARTINO
393 JACKSON HILL ROAD
MIDDLEFIELD CT 06455



CT 061 9-01



UPS GROUND

TRACKING #: 1Z V25 742 03 9095 5203



BILLING: P/P

Reference #1: CTHA244A

XOL 22.06.15 NV45 26.0A 06/2022*



TM

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

1 LBS

1 OF 1

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

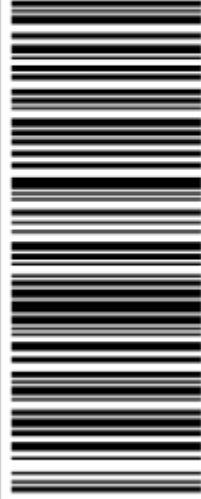


CT 061 9-01



UPS GROUND

TRACKING #: 1Z V25 742 03 9202 5231



BILLING: P/P

Reference #1: CTHA244A

XOL 22.06.15 NV45 26.0A 06/2022*



TM

ERIC BREUN
2016587728
1 INTERNATIONAL BLVD.
MAHWAH NJ 07495

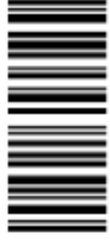
1 LBS

1 OF 1

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

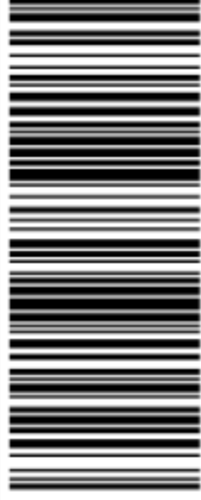


CT 061 9-01



UPS GROUND

TRACKING #: 1Z V25 742 03 9453 1225



BILLING: P/P

Reference #1: CTHA244A

XOL 22.06.15 NV45 26.0A 06/2022*



TM

Hello, your package has been delivered.

Delivery Date: Wednesday, 06/22/2022

Delivery Time: 10:25 AM

Signed by: LONG

TRANSCEND WIRELESS

Tracking Number: [1ZV257420393041211](#)

Ship To: AMERICAN TOWER CORPORATION
10 PRESIDENTIAL WAY
WOBURN, MA 01801
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: CTHA244A

Hello, your package has been delivered.

Delivery Date: Wednesday, 06/22/2022

Delivery Time: 10:46 AM

Signed by: RAND

TRANSCEND WIRELESS

Tracking Number: [1ZV257420394531225](#)

Ship To: ROBIN NEWTON
393 JACKSON HILL ROAD
MIDDLEFIELD, CT 06455
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: CTHA244A

Hello, your package has been delivered.

Delivery Date: Wednesday, 06/22/2022

Delivery Time: 10:46 AM

Signed by: RAND

TRANSCEND WIRELESS

Tracking Number: [1ZV257420390955203](#)

Ship To: ROBERT YAMARTINO
393 JACKSON HILL ROAD
MIDDLEFIELD, CT 06455
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: [CTHA244A](#)

Hello, your package has been delivered.

Delivery Date: Wednesday, 06/22/2022

Delivery Time: 8:05 PM

Signed by: JOHNSON

Experience UPS My Choice® Premium Today

Be in total control of how, when and where your packages are delivered.

[Upgrade to Premium Now](#)



[Set Delivery Instructions](#)

[Manage Preferences](#)

TRANSCEND WIRELESS

Tracking Number: [1ZV257420392025231](#)

Ship To: LAND MANAGEMENT INC.
482 CONNECTICUT 66
MIDDLEFIELD, CT 06455
US

Number of Packages: 1

UPS Service: UPS Ground

Package Weight: 1.0 LBS

Reference Number: [CTHA244A](#)

Location 484 MERIDEN RD & RT 66

Mblu 4 / 1 5 / 1

Acct# 00146700

Owner LAND MANAGMENT INC

Assessment \$406,800

PID 1566

Building Count 3

Current Value

Assessment			
Valuation Year	Improvements	Land	Total
2021	\$145,100	\$261,700	\$406,800

Owner of Record

Owner LAND MANAGMENT INC
 Co-Owner
 Address PO BOX 31
 MIDDLEFIELD, CT 06455

Sale Price \$0
 Certificate
 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

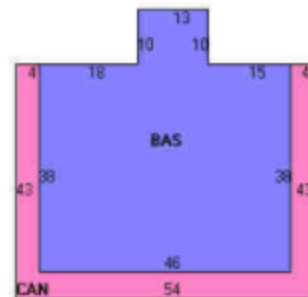
Building 1 : Section 1

Year Built: 1958
 Living Area: 1,878
 Replacement Cost: \$146,898
 Building Percent Good: 45
 Replacement Cost
 Less Depreciation: \$66,100

Building Photo



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
% Conn Wall	

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

Building 2 : Section 1

Year Built: 1969
Living Area: 2,400
Replacement Cost: \$196,112
Building Percent Good: 50
Replacement Cost Less Depreciation: \$98,100

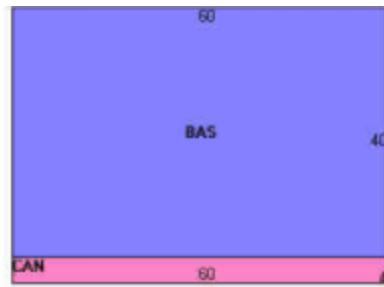
Building Attributes : Bldg 2 of 3	
Field	Description
Style:	Store
Model	Ind/Comm
Grade	Average
Stories:	1
Occupancy	2.00
Exterior Wall 1	Concr/Cinder
Exterior Wall 2	Brick
Roof Structure	Flat

Building Photo



Building Layout

Roof Cover	Rolled Compos
Interior Wall 1	Drywall
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	Carpel
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: \$110,456
Building Percent Good: 23
Replacement Cost
Less Depreciation: \$25,400

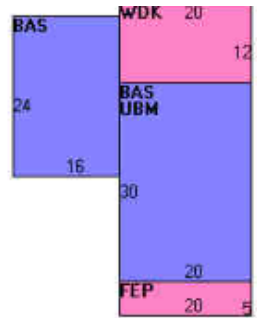
Building Attributes : Bldg 3 of 3	
Field	Description
Style:	Bungalow
Model	Residential
Grade:	Below Average
Stories:	1 Story
Occupancy	1
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	Pre-Fab Wood
Roof Structure:	Gable

Building Photo



Building Layout

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
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	
Solar Panels:	
Fndtn Cndtn	
Basement	
Inserts:	



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

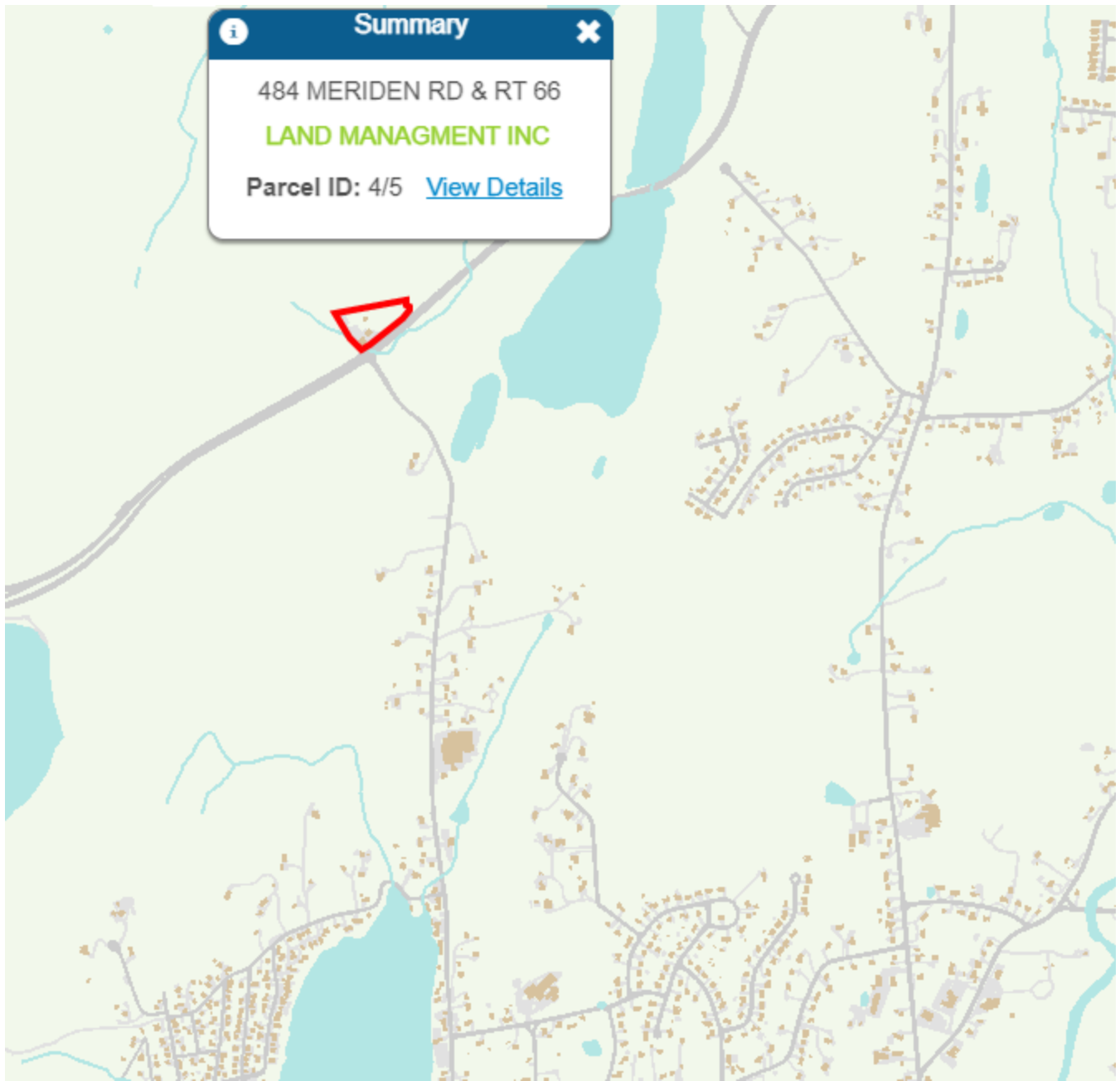
Size (Acres) 3.49
Frontage 605
Depth
Assessed Value \$261,700

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](#)



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

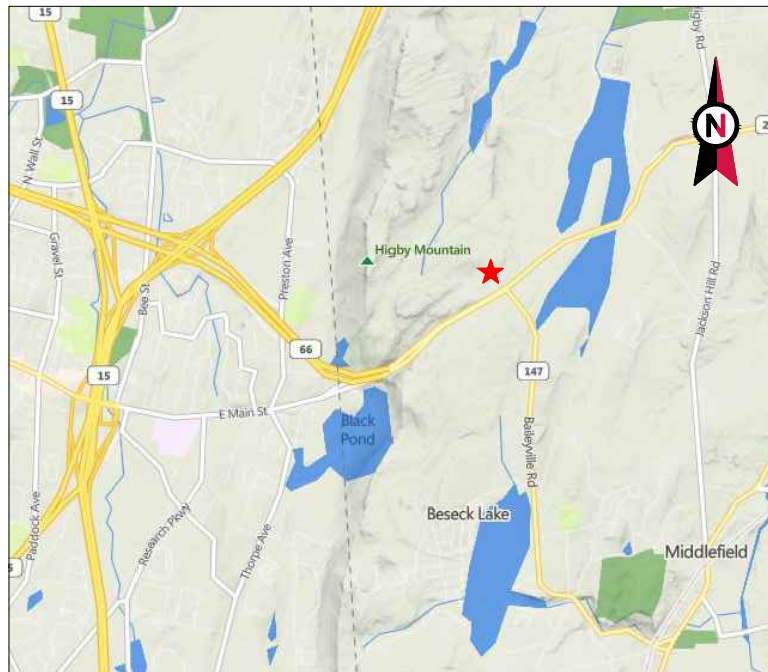
6. If the facility does not initially provide, or permanently ceases to provide wireless services following completion of construction, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use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



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 06455-1013



LOCATION MAP

**T-MOBILE ANCHOR AMENDMENT PLAN
 67D5D998E ODE+6160 CONFIGURATION**

COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX									
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. 2018 CT STATE BUILDING CODES / 2015 INTERNATIONAL BUILDING CODE (IBC) W/ CT AMENDMENTS 2. 2018 CT STATE BUILDING CODE / 2017 NATIONAL ELECTRIC CODE (NEC) W/ CT AMENDMENTS 3. LOCAL BUILDING CODE 4. CITY/COUNTY ORDINANCES	<u>SITE ADDRESS:</u> 484 MERIDEN RD. MIDDLEFIELD, CT 06455-1013 COUNTY: MIDDLESEX <u>GEOGRAPHIC COORDINATES:</u> LATITUDE: 41.535514 LONGITUDE: -72.732094 GROUND ELEVATION: 427' AMSL	THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW: <u>TOWER WORK:</u> REMOVE (6) ANTENNA(S) AND (3) TMA(S) RELOCATE (3) ANTENNA(S) AND (3) RRU(S) INSTALL (6) ANTENNA(S), (3) RRU(S), (1) 1.99" HYBRID CABLE(S) AND MOUNT MODIFICATIONS EXISTING (3) 1-5/8" HYBRID CABLE(S) TO REMAIN <u>GROUND WORK:</u> REMOVE (6) RUS01 B4 AND (6) RUS01 B2 INSTALL (2) RP 6651, (1) PSU 4813 VOLTAGE BOOSTER AND (1) CSR IXRe V2 ROUTER EXISTING (1) DUW30, (1) DUG20, (1) BB 6630 AND (1) BB 6648 TO REMAIN	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:					
	<u>PROJECT TEAM</u> <table border="0"> <tr> <td><u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801</td> <td><u>APPLICANT:</u> T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054</td> </tr> <tr> <td colspan="2"><u>ENGINEER:</u> POWER OF DESIGN GROUP, LLC 11490 BLUEGRASS PKWY LOUISVILLE, KY 40299</td> </tr> <tr> <td colspan="2"><u>PROPERTY OWNER:</u> LAND MANAGEMENT INC 484 MERIDEN RD. MIDDLEFIELD, CT 06455</td> </tr> </table>	<u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801	<u>APPLICANT:</u> T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054	<u>ENGINEER:</u> POWER OF DESIGN GROUP, LLC 11490 BLUEGRASS PKWY LOUISVILLE, KY 40299		<u>PROPERTY OWNER:</u> LAND MANAGEMENT INC 484 MERIDEN RD. MIDDLEFIELD, CT 06455		<u>PROJECT NOTES</u> 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. 6. THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLES TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION REMOVAL AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT SUBSTANTIAL CHANGE UNDER CFR § 1.61000 (B)(7).	G-001	TITLE SHEET	0	06/15/22
<u>TOWER OWNER:</u> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBURN, MA 01801	<u>APPLICANT:</u> T-MOBILE 4 SYLVAN WAY PARSIPPANY, NJ 07054											
<u>ENGINEER:</u> POWER OF DESIGN GROUP, LLC 11490 BLUEGRASS PKWY LOUISVILLE, KY 40299												
<u>PROPERTY OWNER:</u> LAND MANAGEMENT INC 484 MERIDEN RD. MIDDLEFIELD, CT 06455												
<u>UTILITY COMPANIES</u> POWER COMPANY: NORTHEAST UTILITIES PHONE: (800) 286-2000 TELEPHONE COMPANY: AT&T PHONE: (866) 620-6900		<u>PROJECT LOCATION DIRECTIONS</u> FROM WALLINGFORD TAKE RT 91 NORTH TO EXIT 16 (E. MAIN ST) TAKE A RIGHT ONTO EAST MAIN STREET FOLLOW TO RT. 66 AT 1ST TRAFFIC LIGHT ON 66 TAKE A LEFT INTO GUIDA'S DAIRY BAR SITE IS IN LEFT CORNER OF REAR PARKING LOT. GATE COMBO IS 2370	G-002	GENERAL NOTES	0	06/15/22	AJ					
			C-101	DETAILED SITE PLAN	0	06/15/22	AJ					
			C-102	DETAILED GROUND PLAN	0	06/15/22	AJ					
			C-201	TOWER ELEVATION	0	06/15/22	AJ					
			C-401	ANTENNA INFORMATION & SCHEDULE	0	06/15/22	AJ					
			C-501	CONSTRUCTION DETAILS	0	06/15/22	AJ					
			E-501	GROUNDING DETAILS	0	06/15/22	AJ					
			R-601	SUPPLEMENTAL								
			R-602	SUPPLEMENTAL								
			R-603	SUPPLEMENTAL								
				MOUNT MODIFICATION SHEETS								



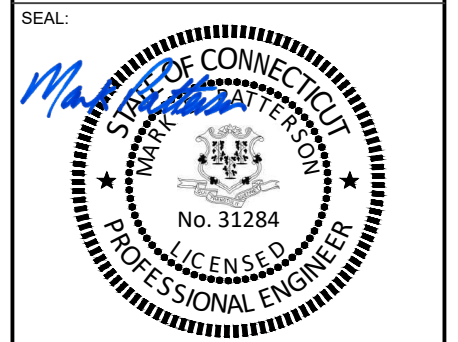
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AJ	06/15/22

ATC SITE NUMBER:
411260

 ATC SITE NAME:
MIDDLEFIELD CT

 T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL

 SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455-1013



06/16/2022



DATE DRAWN:	06/15/22
ATC JOB NO:	14071476
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

TITLE SHEET

SHEET NUMBER:
G-001
 REVISION:
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 ANSII/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 NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLIGENCE ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
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.



COAXIAL CABLE (NOT WITHIN BENDS)

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 ANTENNAS 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:
2. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.
3. ALL COAXIAL CABLE GROUNDING KITS ARE TO BE INSTALLED ON STRAIGHT RUNS OF

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.

11490 BLUEGRASS PKWY
LOUISVILLE, KY 40299
502-437-5252

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AJ	06/15/22


ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455-1013

SEAL:



06/16/2022



DATE DRAWN:	06/15/22
ATC JOB NO:	14071476
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

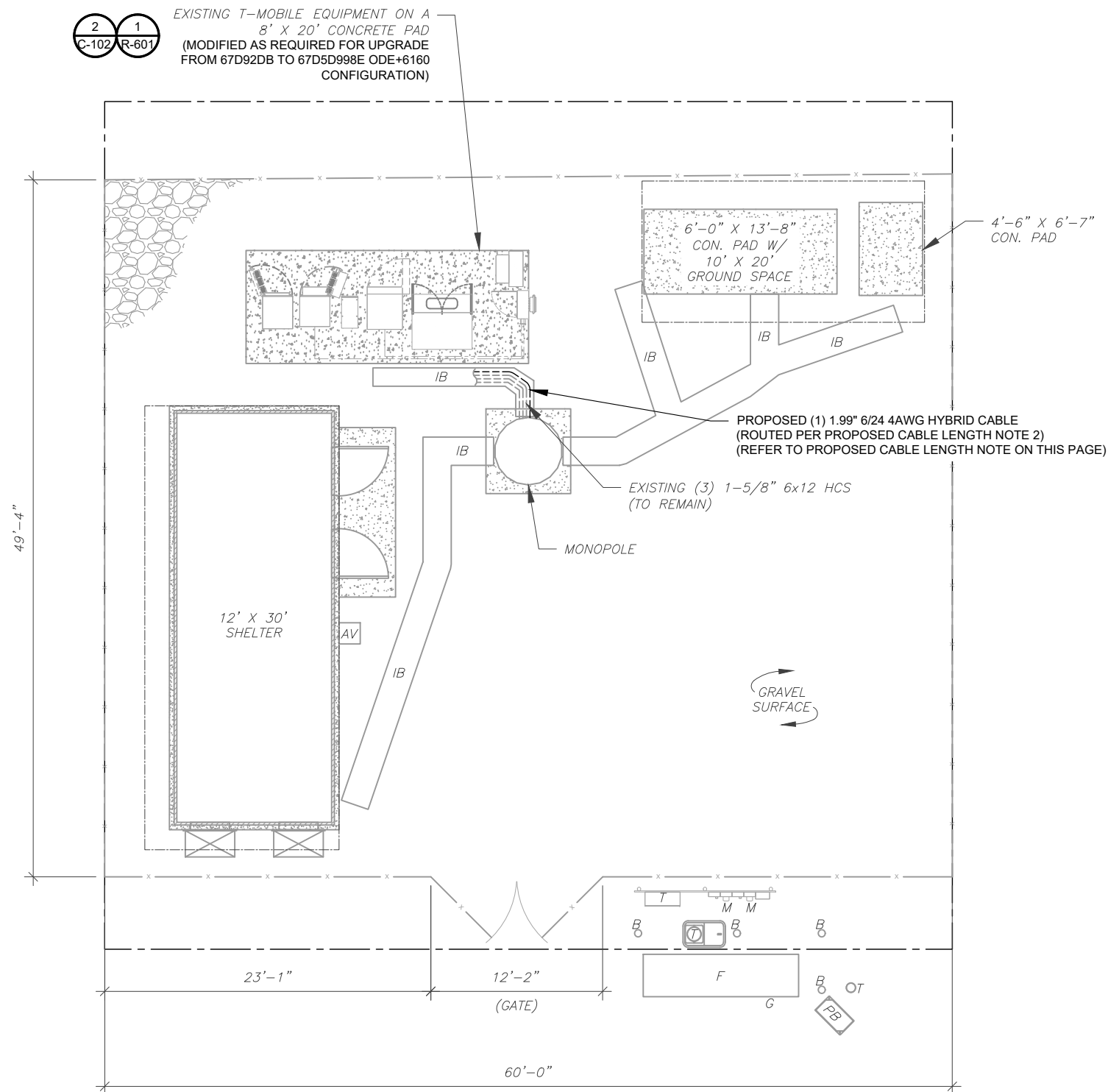
GENERAL NOTES	
SHEET NUMBER: G-002	REVISION: 0

SITE PLAN NOTES:

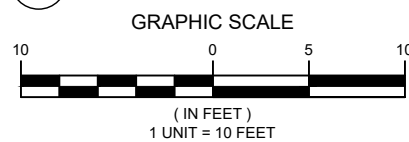
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.
2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE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

- PROPOSED CABLE LENGTH:**
1. ESTIMATED LENGTH OF PROPOSED CABLE IS **200'**. 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. 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.



1 DETAILED SITE PLAN



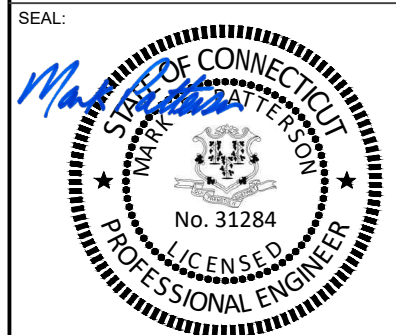
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AJ	06/15/22

ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455-1013



06/16/2022



DATE DRAWN:	06/15/22
ATC JOB NO:	14071476
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

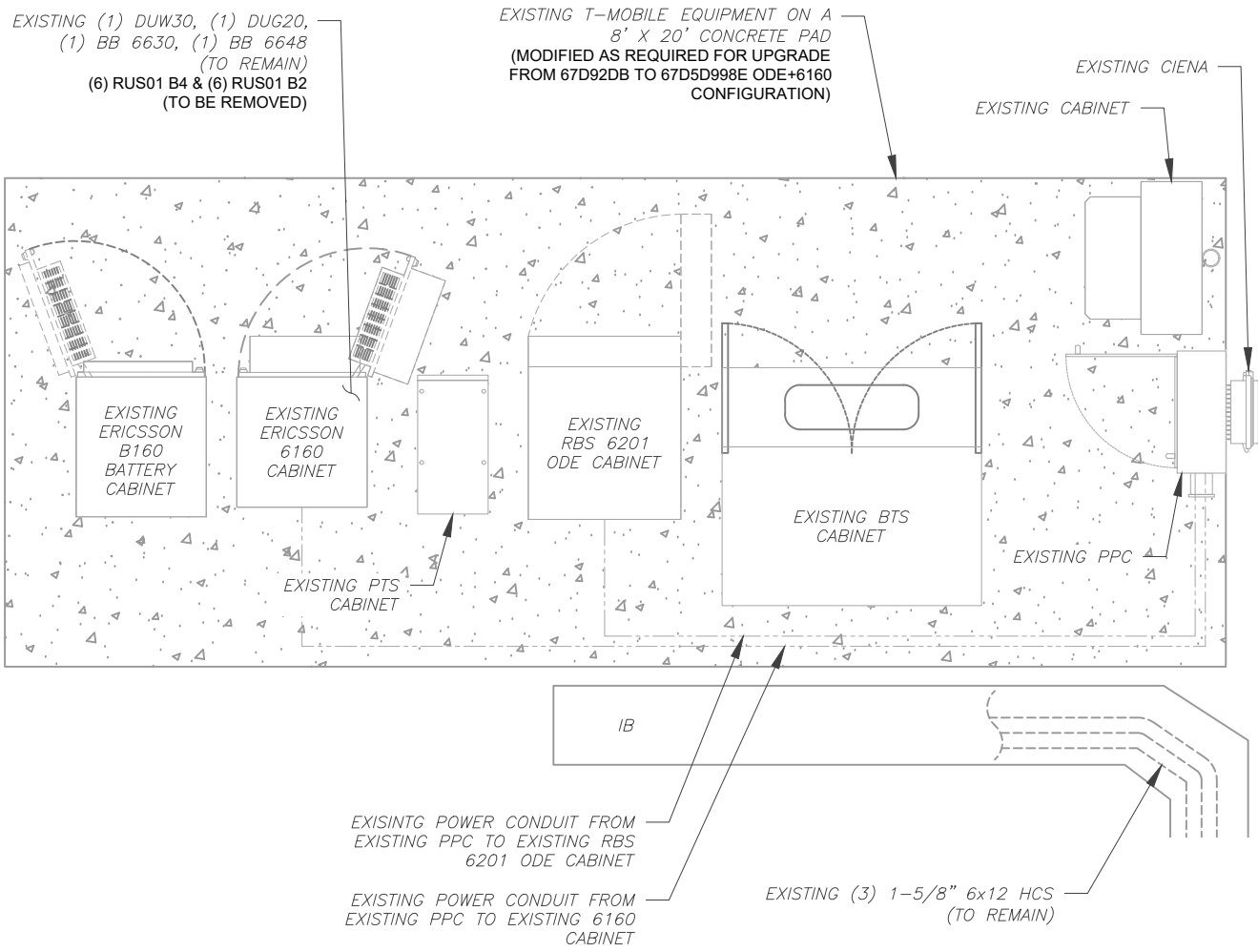
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- SITE PLAN NOTES:**
1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
 2. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
 3. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.

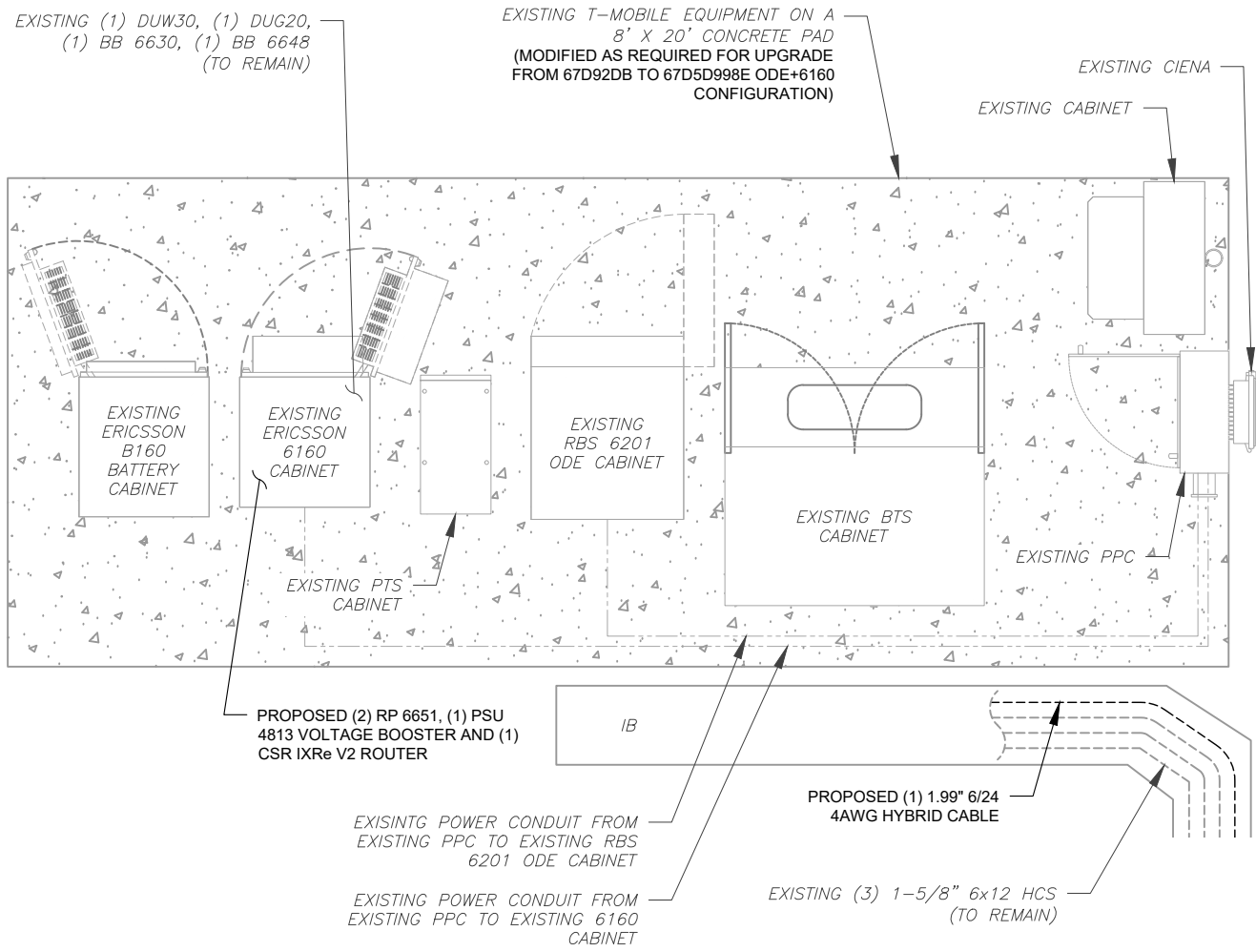
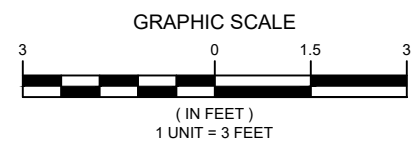


EXISTING CABINETS

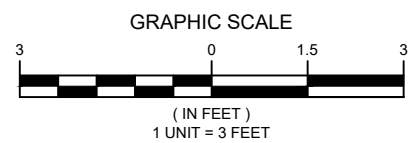
T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS. ALL ABOVE GROUND CONDUIT LESS THAN 6" CAN BE LFMC. ALL ABOVE GROUND CONDUIT OVER 6" MUST BE RGS. ALL PVC CONDUIT MUST BE BURIED.



1 EXISTING GROUND EQUIPMENT LAYOUT



2 PROPOSED GROUND EQUIPMENT LAYOUT



11490 BLUEGRASS PKWY
LOUISVILLE, KY 40299
502-437-5252

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AJ	06/15/22

ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455-1013

SEAL:

06/16/2022

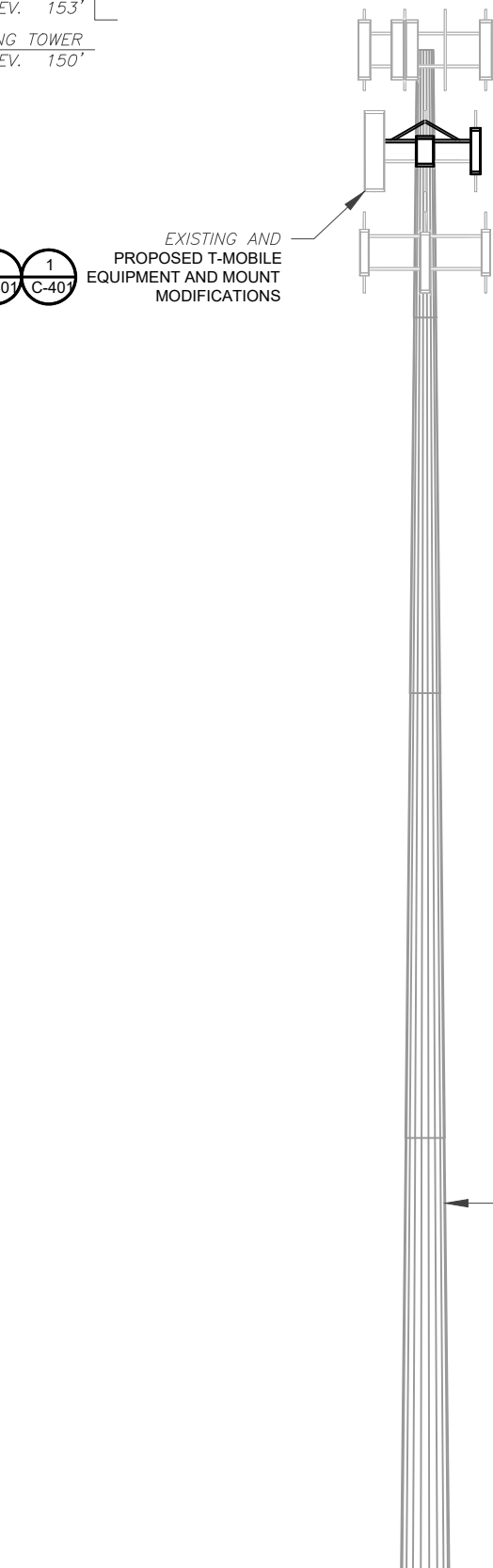
DATE DRAWN:	06/15/22
ATC JOB NO:	14071476
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

DETAILED GROUND PLAN	
SHEET NUMBER:	REVISION:
C-102	0

TOP OF EXISTING
HIGHEST APPURTENANCE
ELEV. 153'

TOP OF EXISTING TOWER
ELEV. 150'

EXISTING AND
PROPOSED T-MOBILE
EQUIPMENT AND MOUNT
MODIFICATIONS



EXISTING CARRIER ANTENNAS
RAD CENTER @ 150'

PROPOSED T-MOBILE
RAD CENTER @ 140'

EXISTING CARRIER ANTENNAS
RAD CENTER @ 130'

EXISTING TOWER

EXISTING TOP
OF BASE PLATE

1 TOWER ELEVATION
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORP., DATED MAY 2, 2022. THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION DETAILED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT.

TOWER NOTE:

- 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. EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
- 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.
- 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.
- TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)
- TOWER ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.



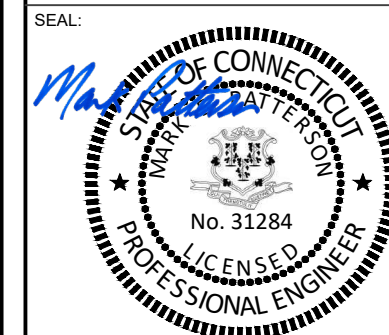
REV.	DESCRIPTION	BY	DATE
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ATC SITE NUMBER:
411260

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MIDDLEFIELD CT

T-MOBILE SITE NAME:
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SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455-1013



06/16/2022



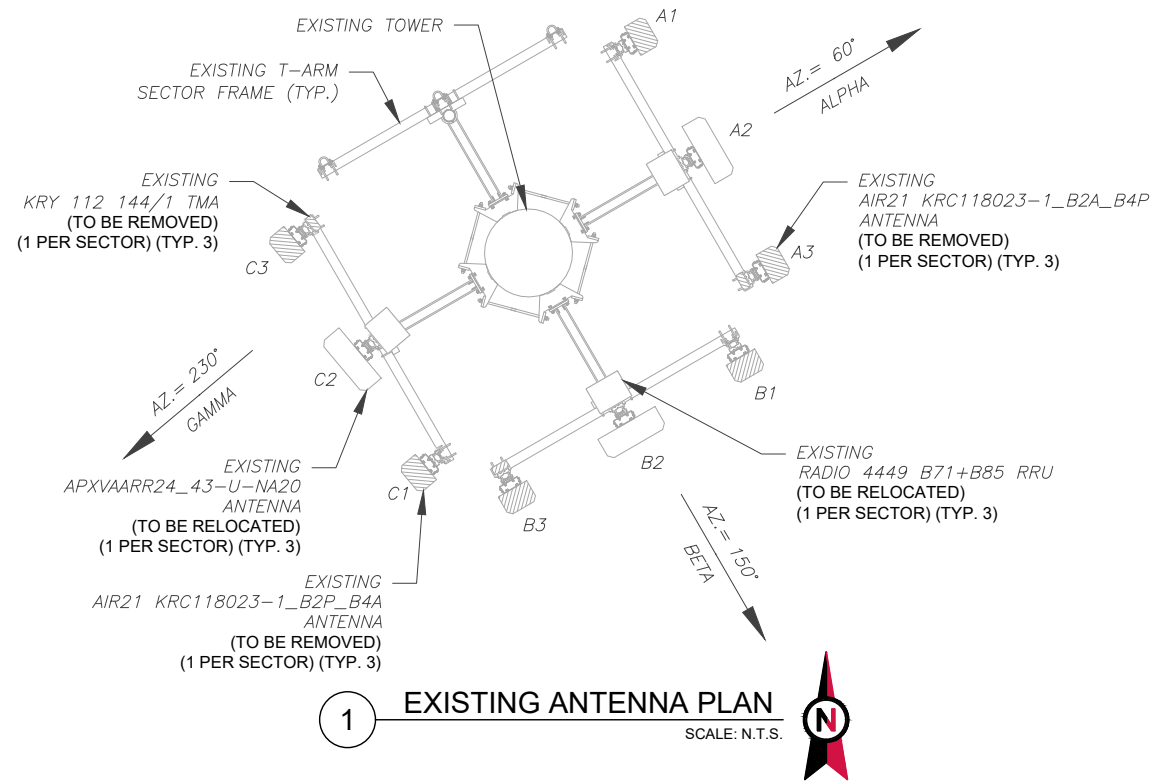
DATE DRAWN:	06/15/22
ATC JOB NO:	14071476
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

TOWER ELEVATION

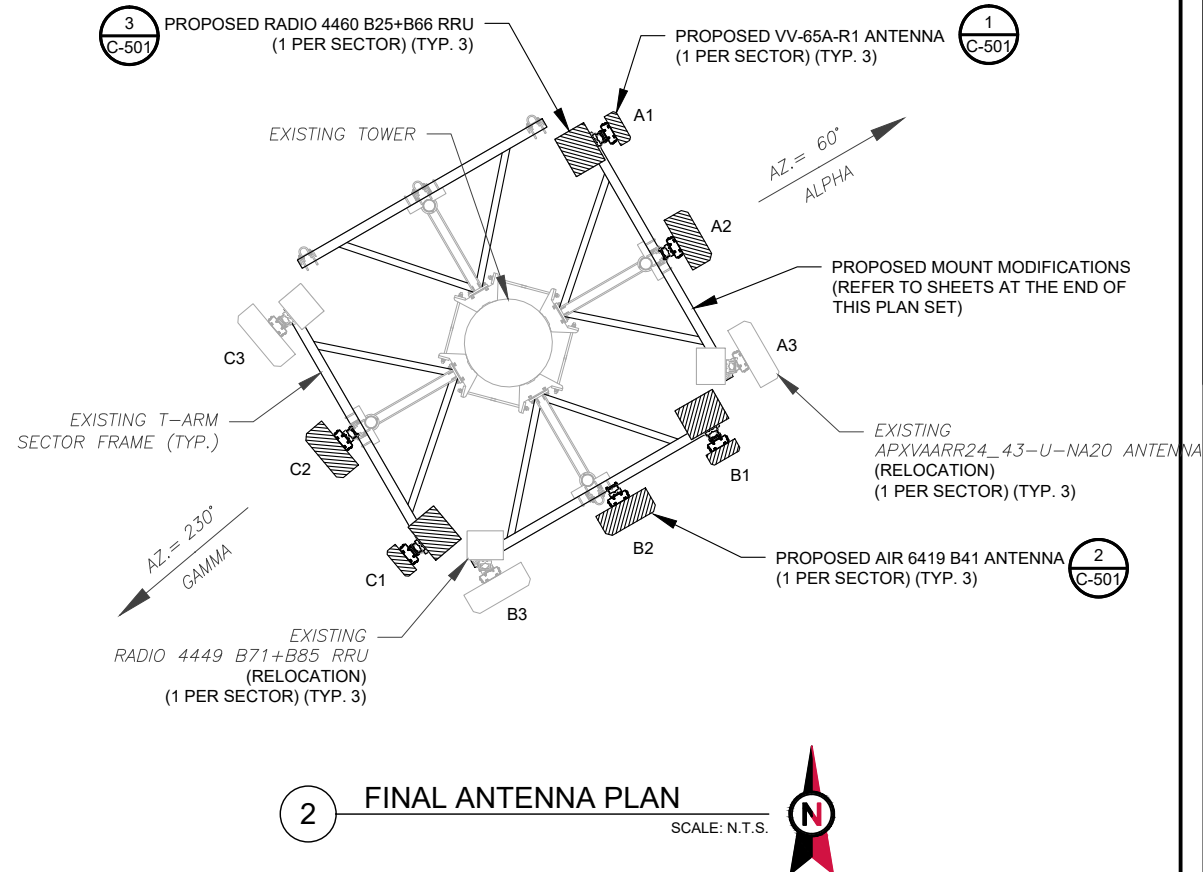
SHEET NUMBER:	REVISION:
C-201	0

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PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER CORP., DATED MAY 2, 2022, THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION DETAILED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT.



1 EXISTING ANTENNA PLAN SCALE: N.T.S.



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	AIR21 KRC118023-1_B2P_B4A	L2100	0°/2°	RMV	-	-
			A2	APXVAARR24_43-U-NA20	N600/L700 /L600	0°/2°	REL	RADIO 4449 B71+B85	REL
			A3	AIR21 KRC118023-1_B21_B4P	L1900/G1900 /U2100	0°	RMV	(1) KRY 112 144/1	RMV
BETA	140'	150°	B1	AIR21 KRC118023-1_B2P_B4A	L2100	0°/2°	RMV	-	-
			B2	APXVAARR24_43-U-NA20	N600/L700 /L600	0°/2°	REL	RADIO 4449 B71+B85	REL
			B3	AIR21 KRC118023-1_B21_B4P	L1900/G1900 /U2100	0°	RMV	(1) KRY 112 144/1	RMV
GAMMA	140'	230°	C1	AIR21 KRC118023-1_B2P_B4A	L2100	0°/2°	RMV	-	-
			C2	APXVAARR24_43-U-NA20	N600/L700 /L600	0°/2°	REL	RADIO 4449 B71+B85	REL
			C3	AIR21 KRC118023-1_B21_B4P	L1900/G1900 /U2100	0°	RMV	(1) KRY 112 144/1	RMV

NOTES

- CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
- 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	VV-65A-R1	L2100/L1900/ G1900/U2100	0°	ADD	RADIO 4460 B25+B66	ADD
			A2	AIR 6419 B41	L2500/N2500	0°	ADD	-	-
			A3	APXVAARR24_43-U-NA20	L700/L600/N600	0°	REL	RADIO 4449 B71+B85	REL
BETA	140'	150°	B1	VV-65A-R1	L2100/L1900/ G1900/U2100	0°	ADD	RADIO 4460 B25+B66	ADD
			B2	AIR 6419 B41	L2500/N2500	0°	ADD	-	-
			B3	APXVAARR24_43-U-NA20	L700/L600/N600	0°	REL	RADIO 4449 B71+B85	REL
GAMMA	140'	230°	C1	VV-65A-R1	L2100/L1900/ G1900/U2100	0°	ADD	RADIO 4460 B25+B66	ADD
			C2	AIR 6419 B41	L2500/N2500	0°	ADD	-	-
			C3	APXVAARR24_43-U-NA20	L700/L600/N600	0°	REL	RADIO 4449 B71+B85	REL

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

3 EQUIPMENT SCHEDULES

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(3) 1-5/8"	RMN
-	-	-	(1) 1.99"	ADD



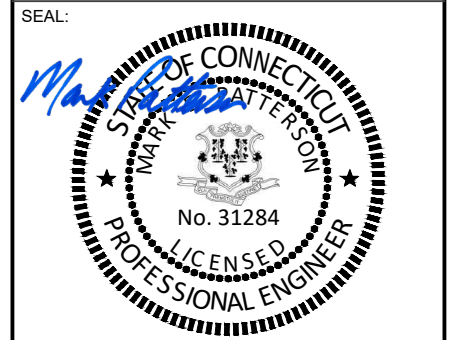
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AJ	06/15/22

ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455-1013

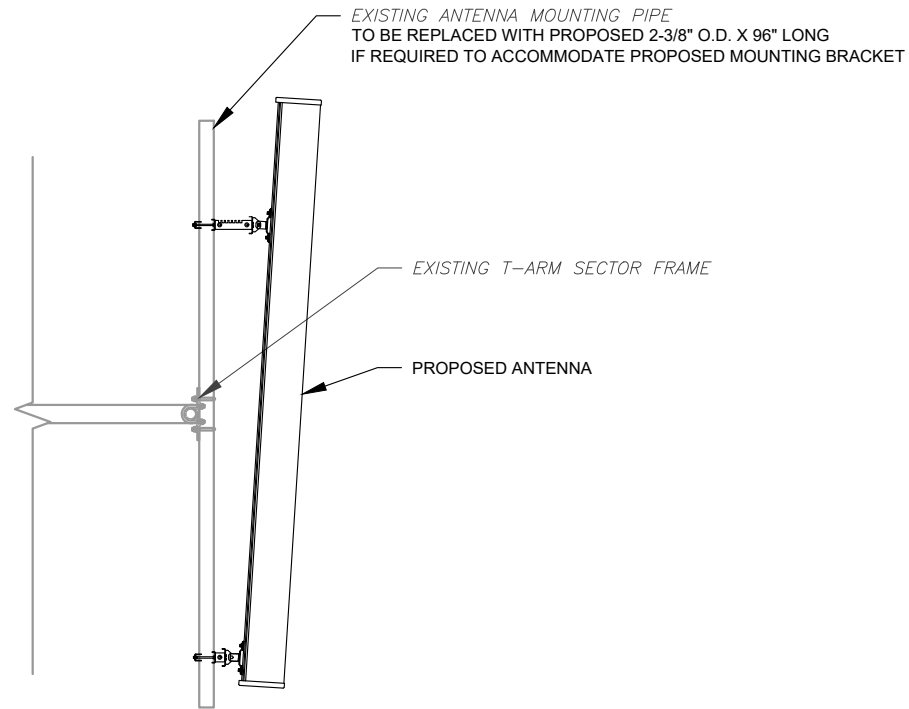


06/16/2022

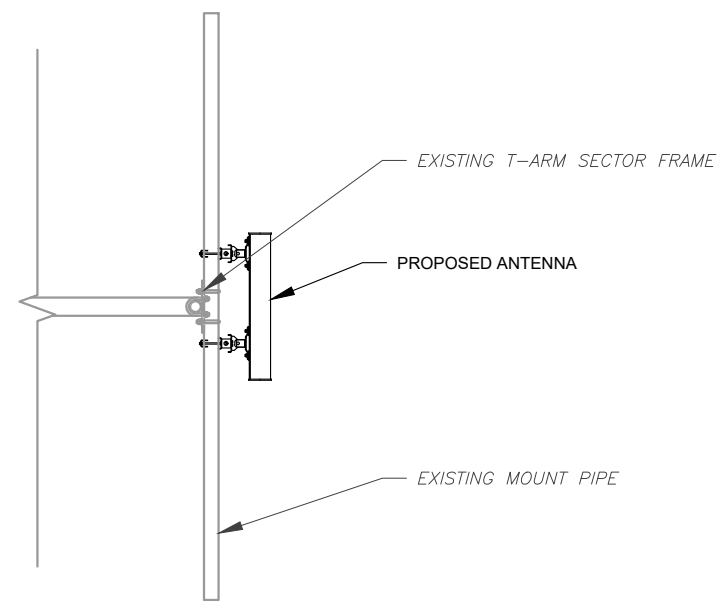


DATE DRAWN:	06/15/22
ATC JOB NO:	14071476
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

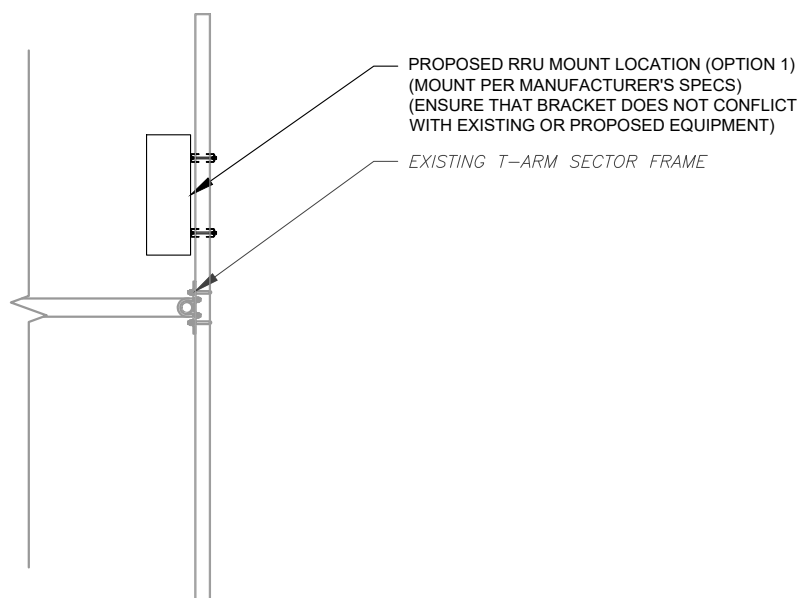
ANTENNA INFORMATION & SCHEDULE	
SHEET NUMBER:	REVISION:
C-401	0



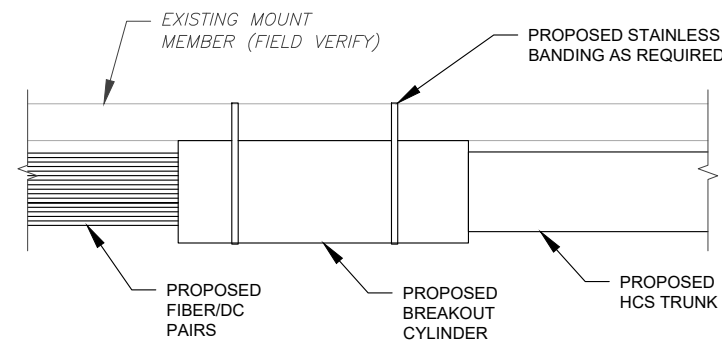
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



3 PROPOSED RRU MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



4 ERICSSON BREAKOUT CYLINDER DETAIL
SCALE: N.T.S.



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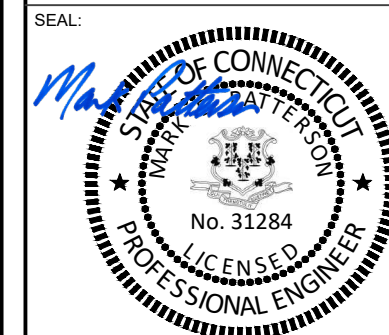
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AJ	06/15/22

ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455-1013



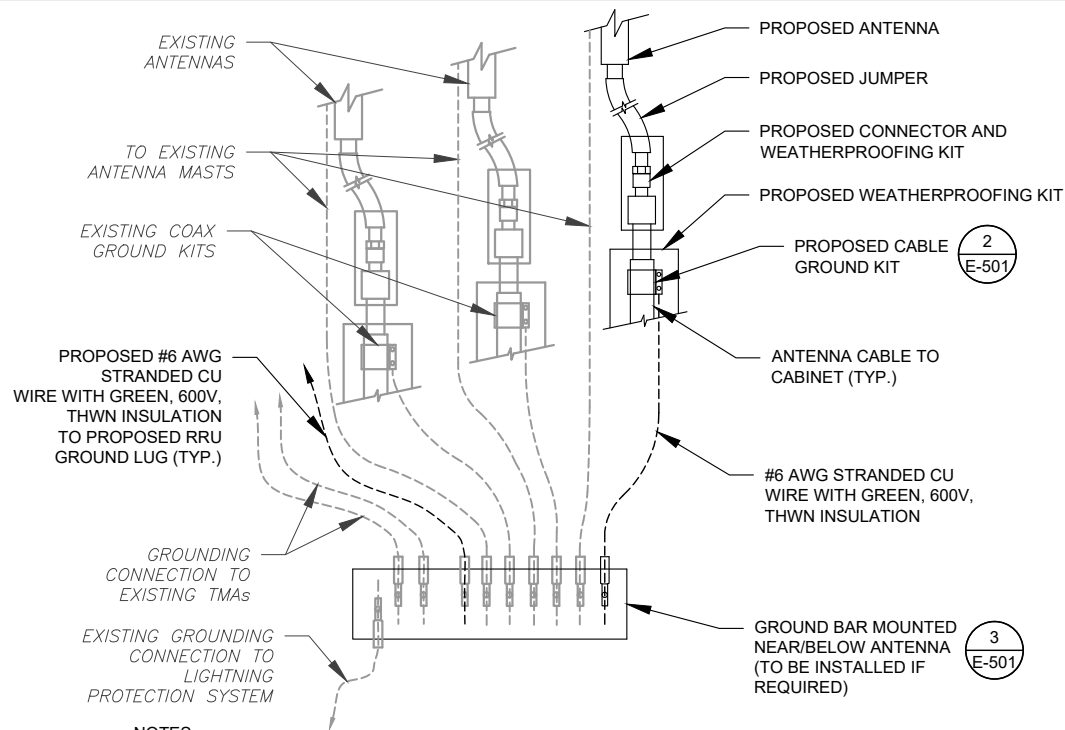
06/16/2022



DATE DRAWN:	06/15/22
ATC JOB NO:	14071476
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

**CONSTRUCTION
DETAILS**

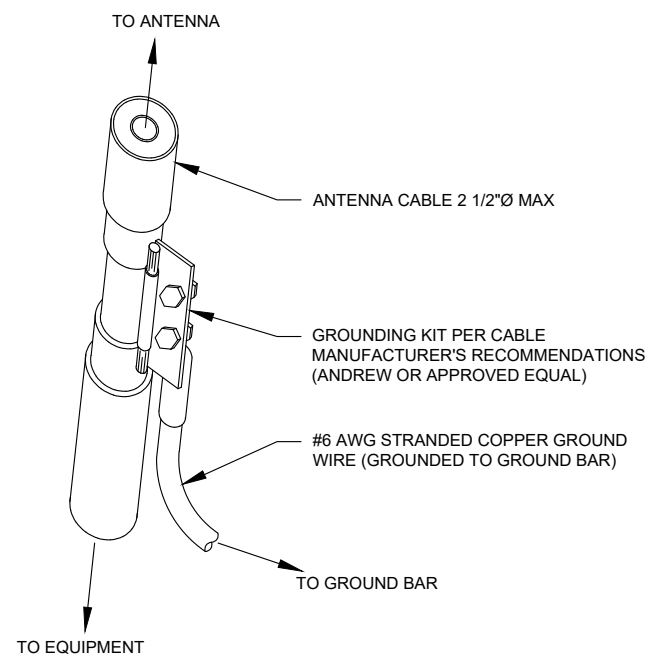
SHEET NUMBER:	REVISION:
C-501	0



NOTES:

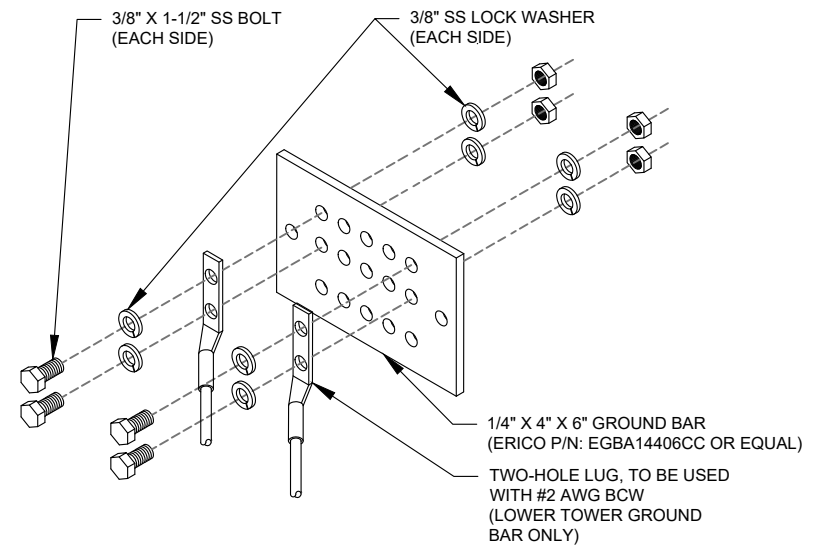
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING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



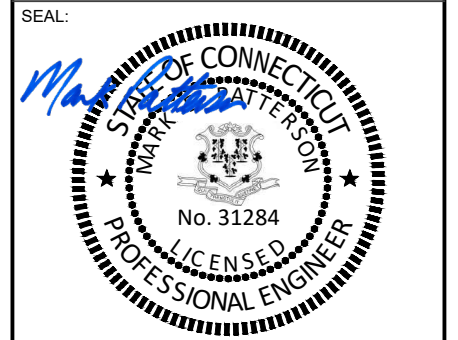
REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AJ	06/15/22

ATC SITE NUMBER:
411260

ATC SITE NAME:
MIDDLEFIELD CT

T-MOBILE SITE NAME:
CTHA244/VERIZONMIDDLEFIEL

SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455-1013



06/16/2022



DATE DRAWN:	06/15/22
ATC JOB NO:	14071476
CUSTOMER ID:	CTHA244/VERIZONMIDDLEFIEL
CUSTOMER #:	CTHA244A

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

3/2/22, 9:27 AM

CTHA244A_Anchor_9_2022-03-02

RAN Template:
67D5D998E ODE+6160

A&L Template:
67D5998E_1xAIR+1OP+1QP

CTHA244A_Anchor_9
Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 67D95A

Enclosure	1	2	3
Enclosure Type	RBS 6201	Enclosure 6160 AC V1	B160
Baseband	DUW30 (U2100) DUG20 (G1900) BB 6630 (L1900, L2100) BB 6648 (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		

Proposed RAN Equipment

Template: 67D5D998E ODE+6160

Enclosure	1	2	3	4
Enclosure Type	RBS 6201 ODE	Ancillary Equipment (Ericsson)	Enclosure 6160 AC V1	B160
Baseband	DUW30 (U2100) DUG20 (G1900) BB 6648 (L700, L600, N600) BB 6630 (L2100, L1900)		RP 6651 (N2500) RP 6651 (L2500)	
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG* (x 3)	PSU 4813 vR4A (kit) Ericsson Hybrid Trunk 6/24 4AWG 60m	
Transport System			CSR IXRe V2 (Gen2)	

RAN Scope of Work:

- Remove and return all cabinet radios from existing base station cabinet.
- Upgrade electrical service to 150A.
- Add (1) IXRe Router to new Enclosure 6160.
- Add (1) RP 6651 for N2500 to new Enclosure 6160.
- Add (1) RP 6651 for L2500 to new Enclosure 6160.
- Add (1) PSU4813 Voltage Booster to new Enclosure 6160.
- Add (1) Battery Cabinet B160.
- Existing: (3) 6x12.
- Remove all Coax.
- Add (1) 6x24 HCS terminating at the Enclosure 6160 Connect DC for the AIR6419 B41 to the PSU4813 Voltage Booster.

<https://rfd-prod-web-core-secure.geo.cf.t-mobile.com/DataSheet/Printout/214c17f1-3486-4394-a4a6-af0804134f94?layoutId=99cdc0ad-b50f-4a1b-b...> 4/11

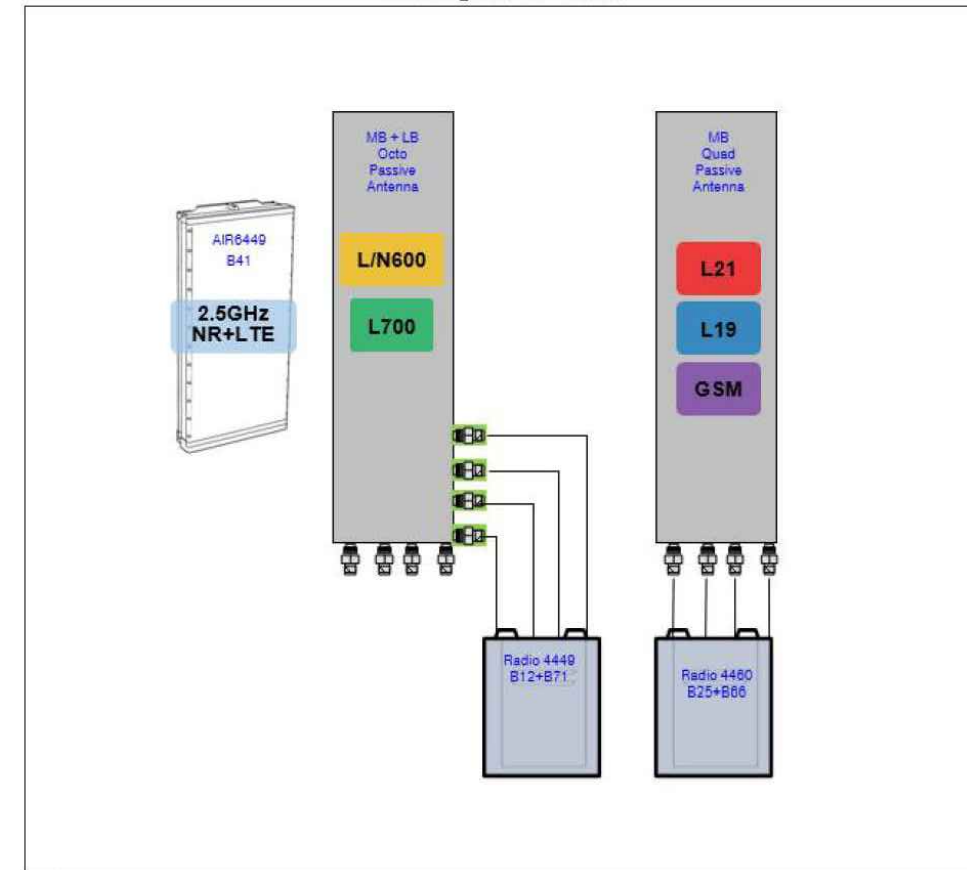
1 **CABINET CONFIGURATION**
SCALE: NOT TO SCALE

3/2/22, 9:27 AM

CTHA244A_Anchor_9_2022-03-02

Section 3 - Proposed Template Images

67D5998E_1xAIR+1OP+1QP.JPG



Notes:

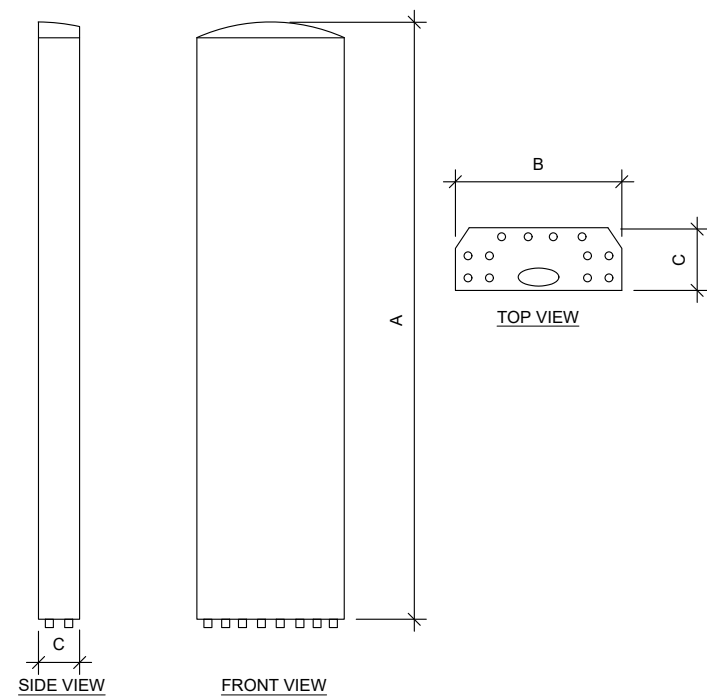
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2 **ANTENNA CONFIGURATION**
SCALE: NOT TO SCALE

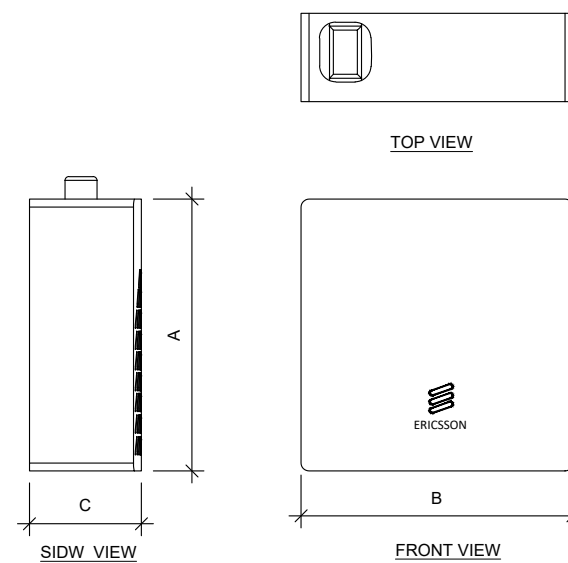
SUPPLEMENTAL

SHEET NUMBER: **R-601**
REVISION: **0**

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



ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
AIR 6419 B41	36.3"	20.9"	9"	83.3
VV-65A-R1	54.7"	12.1"	4.6"	23.8



RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
RADIO 4460	19.6"	15.7"	12.1"	109.0

1 EQUIPMENT DETAILS
SCALE: NOT TO SCALE

SUPPLEMENTAL

SHEET NUMBER: R-602
REVISION: 0



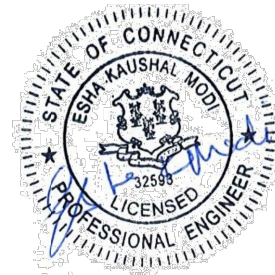
Eng. Number 14071476_C9_04
 May 2, 2022
 Page 1

Post Modification Mount Analysis Report

ATC Site Name : MIDDLEFIELD CT, CT
ATC Site Number : 411260
Engineering Number : 14071476_C9_04
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
 41.535507 , -72.73212055
County : Middlesex
Date : May 2, 2022
Max Usage : 45%
Result : Contingent Pass

Prepared By:
 Max Carter
 Structural Engineer I

Reviewed By:



Diana Gee
 May 20 2022 5:10 PM

COA: PEC.0001553

Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 138.5 ft.

Supporting Documents

Previous Analysis	CLS Engineering Project #13632989_C8_01, dated March 18, 2021
Radio Frequency Data Sheet	RFDS ID #CTHA244A, dated March 2, 2022
Reference Photos	Site photos from 2021

Analysis

This mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	119 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1.00" radial ice concurrent
Codes:	ANSI/TIA-222-H
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.207, S1 = 0.055
Site Class:	D - Stiff Soil
Live Loads:	Lm = 500 lbs, Lv = 250 lbs

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above provided the modifications listed below are completed:

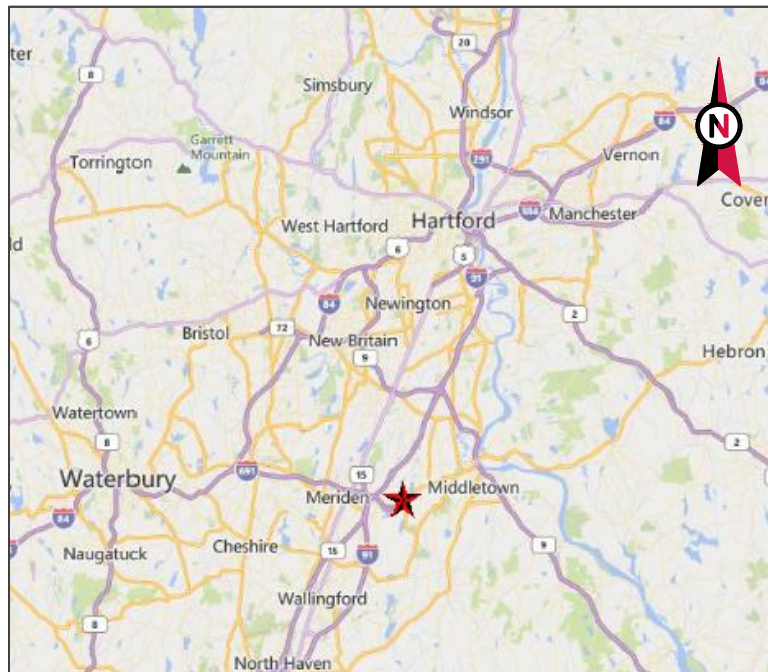
- Install modification per ATC Drawing #14071476_C9_04

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.

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 VERIFY THEY HAVE THE MOST RECENT MOUNT ANALYSIS PRIOR TO CONSTRUCTION.

SUPPLEMENTAL

SHEET NUMBER: R-603	REVISION: 0
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VICINITY MAP



AMERICAN TOWER®

SITE NAME: MIDDLEFIELD CT
 SITE NUMBER: 411260
 ATC PROJECT NUMBER: 14071476_C9_04
 SITE ADDRESS: 484 MERIDEN RD.
 MIDDLEFIELD, CT 06455



LOCATION MAP

**MOUNT REINFORCEMENT DRAWINGS
 PREPARED FOR T-MOBILE**

PROJECT TEAM	PROJECT DESCRIPTION	SHEET	SHEET TITLE	REV.	
<p>TOWER OWNER AMERICAN TOWER 10 PRESIDENTAL WAY WOBURN, MA 01801</p> <p>ENGINEERED BY ATC TOWER SERVICES 3500 REGENCY PARKWAY, SUITE 100 CARY, NC 27518</p> <p>CARRIER INFORMATION CARRIER: T-MOBILE CARRIER SITE NAME: CTHA244A/VERIZONMIDDLEFIEL CARRIER SITE NUMBER: CTHA244A</p>	<p>THE PROJECT DEPICTED IN THESE PLANS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED UNDER ENGINEERING PROJECT NUMBER 14071476_C8_01 DATED 04/04/22. SATISFACTORY COMPLETION OF THE WORK INDICATED IN THESE PLANS WILL RESULT IN THE STRUCTURE MEETING THE REQUIREMENTS OF THE SPECIFICATIONS UNDER WHICH THE STRUCTURAL WAS COMPLETED.</p> <p>PROJECT NOTE</p> <p>THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITIES REQUEST ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1455(A) AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CFR § 1.6100 (B)(7).</p> <p>COMPLIANCE CODE</p> <p>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.</p> <p>1. ANSITIA/EIA: STRUCTURAL STANDARDS (222-H EDITION) 2. INTERNATIONAL BUILDING CODE (2015 IBC) 3. CONNECTICUT STATE BUILDING CODE (2018)</p> <p>PROJECT LOCATION GEOGRAPHIC COORDINATES</p> <p>LATITUDE: 41.535514 LONGITUDE: -72.732094</p>	G-002	IBC GENERAL NOTES & MOUNT MODIFICATION INSPECTION	0	
		S-101	MODIFICATION PROFILE	0	
		S-102	MODIFICATION PROFILE	0	
		S-103	SAFETY CLIMB LAYOUT	0	
		R-901	SUPPLEMENTAL	0	
		R-902	SUPPLEMENTAL	0	
		R-903	SUPPLEMENTAL	0	
		R-904	SUPPLEMENTAL	0	

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

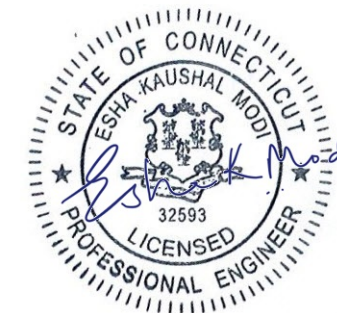
THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OR SERVICE ARE THE EXCLUSIVE PROPERTY OF AMERICAN TOWER. THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. ANY USE OR DISCLOSURE OTHER THAN THAT WHICH RELATES TO AMERICAN TOWER OR THE SPECIFIED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

REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	KJ	05/06/22

ATC SITE NUMBER:
 411260

ATC SITE NAME:
 MIDDLEFIELD CT
 CONNECTICUT

SITE ADDRESS:
 484 MERIDEN RD.
 MIDDLEFIELD, CT 06455



DRAWN BY:	KJ
APPROVED BY:	MJJC
DATE DRAWN:	05/06/22
ATC JOB NO:	14071476_C9_04

COVER

SHEET NUMBER:	REVISION:
G-001	0



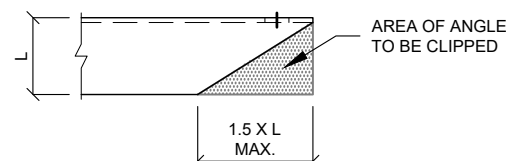
GENERAL

- ALL WORK TO BE COMPLETED PER APPLICABLE LOCAL, STATE, FEDERAL CODES AND ORDINANCES AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS FOR WIRELESS TOWER SITES. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND ABIDING BY ALL REQUIRED PERMITS.
- ALL WORK INDICATED ON THESE DRAWINGS SHALL BE PERFORMED BY QUALIFIED CONTRACTORS EXPERIENCED IN TOWER AND FOUNDATION CONSTRUCTION.
- THE CONTRACTOR SHALL NOTIFY THE ENGINEER OF RECORD IMMEDIATELY OF ANY INSTALLATION INTERFERENCES. ALL NEW WORK SHALL ACCOMMODATE EXISTING CONDITIONS. DETAILS NOT SPECIFICALLY SHOWN ON THE DRAWINGS SHALL FOLLOW SIMILAR DETAILS FOR THIS JOB.
- ANY SUBSTITUTIONS SHALL CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS, AND SHOULD BE SIMILAR TO THOSE SHOWN. ALL SUBSTITUTIONS SHALL BE SUBMITTED TO THE ENGINEER OF RECORD FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
- ANY MANUFACTURED DESIGN ELEMENTS SHALL CONFORM TO THE REQUIREMENTS OF THESE NOTES AND SPECIFICATIONS AND SHOULD BE SIMILAR TO THOSE SHOWN. THESE DESIGN ELEMENTS MUST BE STAMPED BY AN ENGINEER PROFESSIONALLY REGISTERED IN THE STATE OF THE PROJECT, AND SUBMITTED TO THE ENGINEER OF RECORD FOR APPROVAL PRIOR TO FABRICATION.
- ALL WORK SHALL BE DONE IN ACCORDANCE WITH LOCAL CODES AND OSHA SAFETY REGULATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR THE DESIGN AND EXECUTION OF ALL MISCELLANEOUS SHORING, BRACING, TEMPORARY SUPPORTS, ETC. NECESSARY, PER ANSI/TIA-322 AND ANSI/ASSE A10.48, TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.
- CONTRACTOR'S PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO, ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.

STRUCTURAL STEEL

- ALL DETAILING, FABRICATION AND ERECTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AISC SPECIFICATIONS, LATEST EDITION.
- ALL EXPOSED STRUCTURAL STEEL MEMBERS SHALL BE HOT-DIPPED GALVANIZED AFTER FABRICATION PER ASTM A123. EXPOSED STEEL HARDWARE AND ANCHOR BOLTS SHALL BE GALVANIZED PER ASTM A153 OR B695.
- ALL U-BOLTS SHALL BE ASTM A36 OR EQUIVALENT, WITH LOCKING DEVICE, UNLESS NOTED OTHERWISE.
- FIELD CUT EDGES, EXCEPT DRILLED HOLES, SHALL BE GROUND SMOOTH.
- ALL FIELD CUT SURFACES, FIELD DRILLED HOLES & GROUND SURFACES WHERE EXISTING PAINT OR GALVANIZATION REMOVAL WAS REQUIRED SHALL BE REPAIRED WITH (2) BRUSHED COATS OF ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.
- ALL STRUCTURAL STEEL EMBEDDED IN THE CONCRETE SHALL BE APPLIED WITH (2) BRUSHED COATS OF POLYGUARD CA-14 MASTIC OR EQUIVALENT. REFER TO THE MANUFACTURER SPECIFICATIONS FOR SURFACE PREPARATION AND APPLICATION. APPLICATION OF POLYGUARD 400 WRAP IS NOT ESSENTIAL.
- CONTRACTOR SHALL PERFORM WORK ON ONLY ONE (1) TOWER FACE AND REPLACE/REINFORCE ONE (1) BOLT/MEMBER AT A TIME.
- ALL FIELD DRILLED HOLES TO BE USED FOR FIELD BOLTING INSTALLATION SHALL BE STANDARD HOLES, AS DEFINED BY AISC, UNLESS NOTED OTHERWISE.

MAXIMUM ALLOWABLE ANGLE CLIP



PAINT

- AS REQUIRED, CLEAN AND PAINT PROPOSED STEEL ACCORDING TO FAA ADVISORY CIRCULAR AC 70/7460-1L.

WELDING

- ALL WELDING TO BE PERFORMED BY AWS CERTIFIED WELDERS AND CONDUCTED IN ACCORDANCE WITH THE LATEST EDITION OF THE AWS WELDING CODE D1.1.
- ALL WELDS SHALL BE INSPECTED VISUALLY. IF DIRECTED BY ENGINEER OF RECORD, 25% OF WELDS SHALL BE INSPECTED WITH DYE PENETRANT OR MAGNETIC PARTICLE (100% IF REJECTABLE DEFECTS ARE FOUND) TO MEET THE ACCEPTANCE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY.
- INSPECTION SHALL BE PERFORMED BY AN AWS CERTIFIED WELD INSPECTOR.
- ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER AND/OR BASE METAL, PER AWS D1.1, UNLESS NOTED OTHERWISE.
- IN CASES WHERE BASE METAL GRADE IS UNKNOWN, ALL WELDING ON LATTICE TOWERS SHALL BE DONE WITH E70XX ELECTRODES; ALL WELDING ON POLE STRUCTURES SHALL BE DONE WITH E80XX ELECTRODES, UNLESS NOTED OTHERWISE.
- PRIOR TO FIELD WELDING GALVANIZED MATERIAL, CONTRACTOR SHALL GRIND OFF GALVANIZING 1/2" BEYOND ALL FIELD WELD SURFACES. AFTER WELD AND WELD INSPECTION IS COMPLETE, REPAIR ALL GROUND AND WELDED SURFACES WITH ZRC GALVILITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURERS RECOMMENDATIONS.

BOLT TIGHTENING PROCEDURE

- STRUCTURAL CONNECTIONS TO BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC SPECIFICATIONS.
- FLANGE BOLTS SHALL BE INSTALLED AND TIGHTENED USING DIRECT TENSION INDICATING (DTI) SQUIRTER WASHERS. DTI SQUIRTER WASHERS ARE TO BE INSTALLED AND ORIENTED / TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.
- IN LIEU OF USING DTI SQUIRTER WASHERS, FLANGE BOLTS MAY BE TIGHTENED USING AISC / RCSC "TURN-OF-THE-NUT" METHOD, PENDING APPROVAL BY THE ENGINEER OF RECORD (EOR). TIGHTEN FLANGE BOLTS USING THE CHART BELOW:

BOLT LENGTHS UP TO AND INCLUDING FOUR DIAMETERS

1/2"	BOLTS UP TO AND INCLUDING 2.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
5/8"	BOLTS UP TO AND INCLUDING 2.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
3/4"	BOLTS UP TO AND INCLUDING 3.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
7/8"	BOLTS UP TO AND INCLUDING 3.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1"	BOLTS UP TO AND INCLUDING 4.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS UP TO AND INCLUDING 4.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS UP TO AND INCLUDING 5.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS UP TO AND INCLUDING 5.5 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS UP TO AND INCLUDING 6.0 INCH LENGTH	+1/3 TURN BEYOND SNUG TIGHT

BOLT LENGTHS OVER FOUR DIAMETERS BUT NOT EXCEEDING EIGHT DIAMETERS

1/2"	BOLTS 2.25 TO 4.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
5/8"	BOLTS 2.75 TO 5.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
3/4"	BOLTS 3.25 TO 6.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
7/8"	BOLTS 3.75 TO 7.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1"	BOLTS 4.25 TO 8.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/8"	BOLTS 4.75 TO 9.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/4"	BOLTS 5.25 TO 10.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-3/8"	BOLTS 5.75 TO 11.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT
1-1/2"	BOLTS 6.25 TO 12.0 INCH LENGTH	+1/2 TURN BEYOND SNUG TIGHT

MODIFICATION INSPECTION NOTES

THE MOUNT MODIFICATION INSPECTION (MMI) PROCEDURE IS INTENDED TO CONFIRM THAT CONSTRUCTION AND INSTALLATION MEETS ENGINEERING DESIGN, ATC PROCEDURES AND ATC STANDARD SPECIFICATIONS FOR WIRELESS TOWER SITES.

TO ENSURE THAT THE REQUIREMENTS OF THE MMI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR SUBMIT ALL REQUIRED PHOTOGRAPHS AND DRAWINGS TO AMERICAN TOWER CORPORATION (ATC).

MOUNT MODIFICATION INSPECTION CHECKLIST			
INSPECTION DOCUMENT	DESCRIPTION	INSPECTION TESTING REQUIRED	RESPONSIBILITY
ON-SITE COLD GALVANIZING VERIFICATION	PHOTOGRAPHIC EVIDENCE OF COLD GALVANIZATION TYPE AND APPLICATION IN ALL APPLICABLE LOCATIONS TO BE INCLUDED WITHIN THE MMI REPORT	✓	GC
GC AS-BUILT DRAWINGS WITH CONSTRUCTION RED-LINES	"AS-BUILT" DRAWINGS INDICATING ANY APPROVED CHANGES TO ENGINEERED PLANS TO MMI FOR APPROVAL/REVIEW AND INCLUSION IN MMI REPORT	✓	GC
PHOTOGRAPHS	PHOTOGRAPHIC EVIDENCE OF MOUNT MODIFICATION INSPECTION, ON SITE REMEDIATION, AND ITEMS FAILING INSPECTION & REQUIRING FOLLOW UP TO BE INCLUDED WITHIN THE MMI REPORT. COMPLETE PHOTO LOG IS TO BE SUBMITTED WITHIN MMI REPORT.	✓	GC

TABLE KEY:
MMI - MOUNT MODIFICATION INSPECTION
GC - GENERAL CONTRACTOR
ATC - AMERICAN TOWER CORPORATION

BOLT TIGHTENING PROCEDURE (CONTINUED)

- SPLICE BOLTS SUBJECT TO DIRECT TENSION SHALL BE INSTALLED AND TIGHTENED AS PER SECTION 8.2.1 OF THE AISC "SPECIFICATION FOR STRUCTURAL JOINTS USING A325 OR A490 BOLTS", LOCATED IN THE AISC MANUAL OF STEEL CONSTRUCTION. THE INSTALLATION PROCEDURE IS PARAPHRASED AS FOLLOWS:

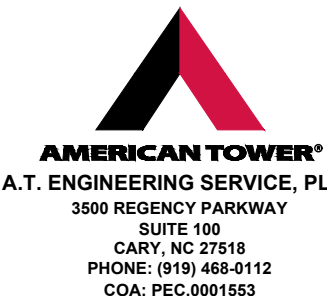
FASTENERS SHALL BE INSTALLED IN PROPERLY ALIGNED HOLES AND TIGHTENED BY ONE OF THE METHODS DESCRIBED IN SUBSECTION 8.2.1 THROUGH 8.2.4.

8.2.1 TURN-OF-NUT PRETENSIONING

BOLTS SHALL BE INSTALLED IN ALL HOLES OF THE CONNECTION AND BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1, UNTIL ALL THE BOLTS ARE SIMULTANEOUSLY SNUG TIGHT AND THE CONNECTION IS FULLY COMPACTED. FOLLOWING THIS INITIAL OPERATION ALL BOLTS IN THE CONNECTION SHALL BE TIGHTENED FURTHER BY THE APPLICABLE AMOUNT OF ROTATION SPECIFIED ABOVE. DURING THE TIGHTENING OPERATION THERE SHALL BE NO ROTATION OF THE PART NOT TURNED BY THE WRENCH. TIGHTENING SHALL PROGRESS SYSTEMATICALLY.

- ALL OTHER BOLTED CONNECTIONS SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN SECTION 8.1 OF THE SPECIFICATION.

ALL BOLT HOLES SHALL BE ALIGNED TO PERMIT INSERTION OF THE BOLTS WITHOUT UNDUE DAMAGE TO THE THREADS. BOLTS SHALL BE PLACED IN ALL HOLES WITH WASHERS POSITIONED AS REQUIRED AND NUTS THREADED TO COMPLETE THE ASSEMBLY. COMPACTING THE JOINT TO THE SNUG-TIGHT CONDITION SHALL PROGRESS SYSTEMATICALLY FROM THE MOST RIGID PART OF THE JOINT. THE SNUG-TIGHTENED CONDITION IS THE TIGHTNESS THAT IS ATTAINED WITH A FEW IMPACTS OF AN IMPACT WRENCH OR THE FULL EFFORT OF AN IRONWORKER USING AN ORDINARY SPUD WRENCH TO BRING THE CONNECTED PLIES INTO FIRM CONTACT.



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△	FIRST ISSUE	KJ	05/06/22
△			
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ATC SITE NUMBER:

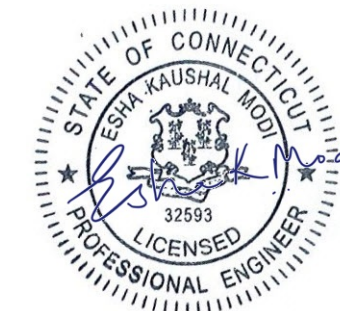
411260

ATC SITE NAME:

MIDDLEFIELD CT
CONNECTICUT

SITE ADDRESS:

484 MERIDEN RD.
MIDDLEFIELD, CT 06455



DRAWN BY:	KJ
APPROVED BY:	MJJC
DATE DRAWN:	05/06/22
ATC JOB NO:	14071476_C9_04

IBC GENERAL NOTES & MOUNT MODIFICATION INSPECTION

SHEET NUMBER:

G-002

REVISION:

0

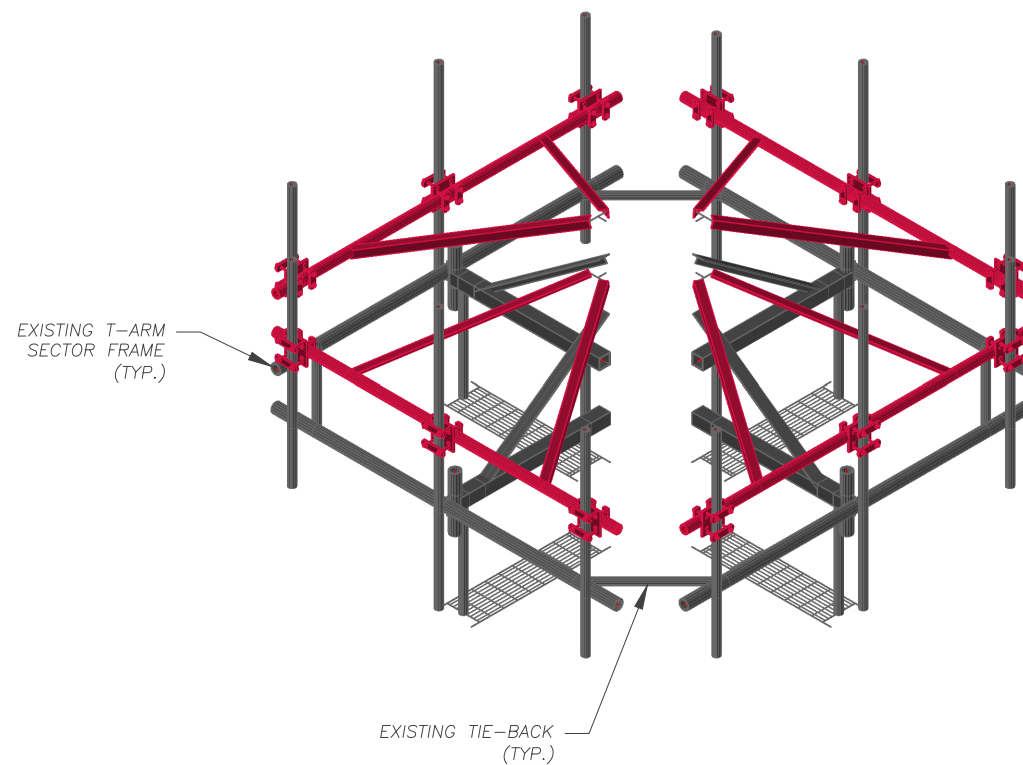


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 CARY, NC 27518
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ATC SITE NUMBER:
411260
 ATC SITE NAME:
MIDDLEFIELD CT
CONNECTICUT
 SITE ADDRESS:
 484 MERIDEN RD.
 MIDDLEFIELD, CT 06455



MOUNT MODIFICATION
ISOMETRIC VIEW

NOTE:
 SEE SHEET S-102 FOR MODIFICATION DETAILS.

DRAWN BY:	KJ
APPROVED BY:	MJJC
DATE DRAWN:	05/06/22
ATC JOB NO:	14071476_C9_04

MODIFICATION PROFILE

SHEET NUMBER:	REVISION:
S-101	0



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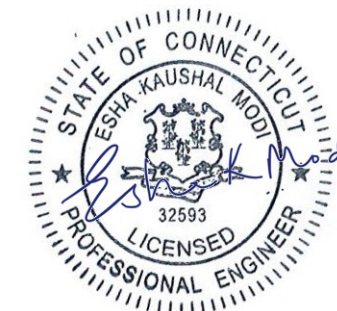
411260

ATC SITE NAME:

MIDDLEFIELD CT
 CONNECTICUT

SITE ADDRESS:

484 MERIDEN RD.
 MIDDLEFIELD, CT 06455



DRAWN BY:	KJ
APPROVED BY:	MJJC
DATE DRAWN:	05/06/22
ATC JOB NO:	14071476_C9_04

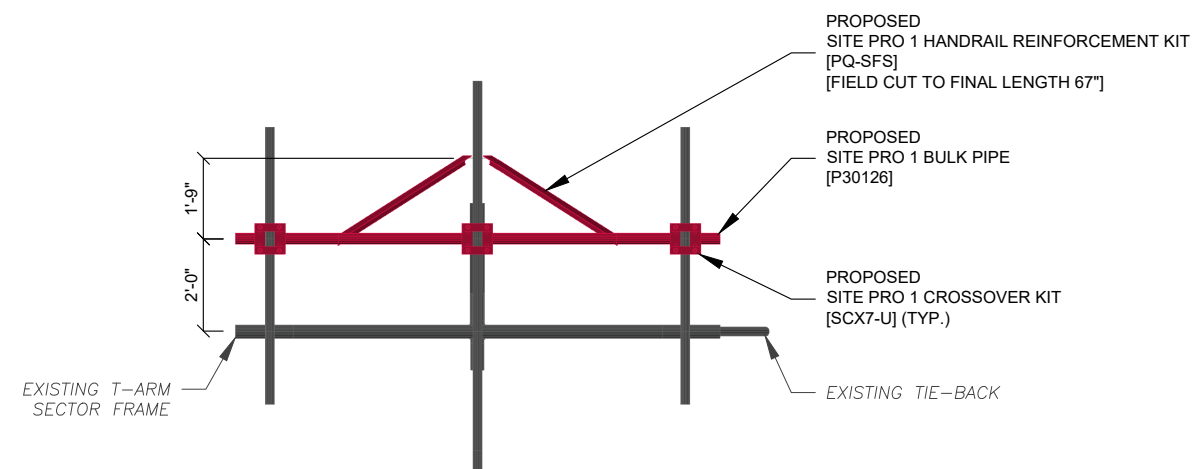
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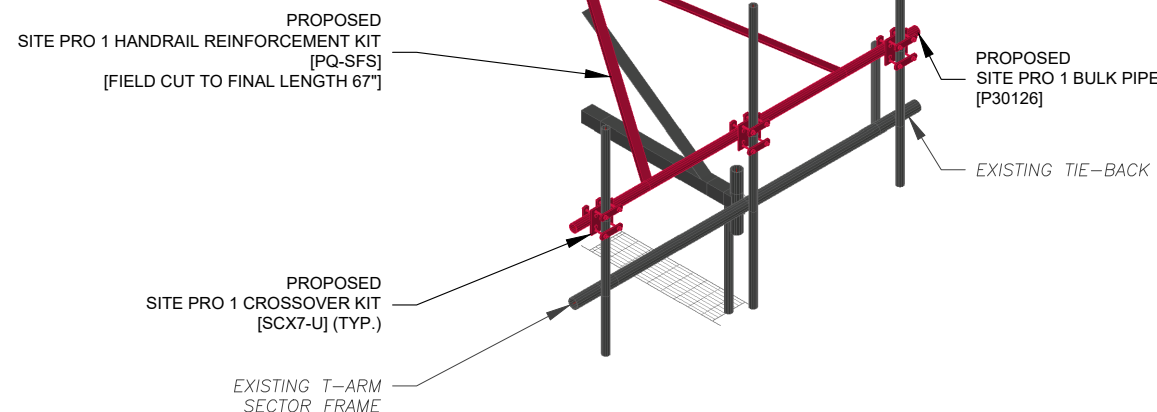
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REVISION:

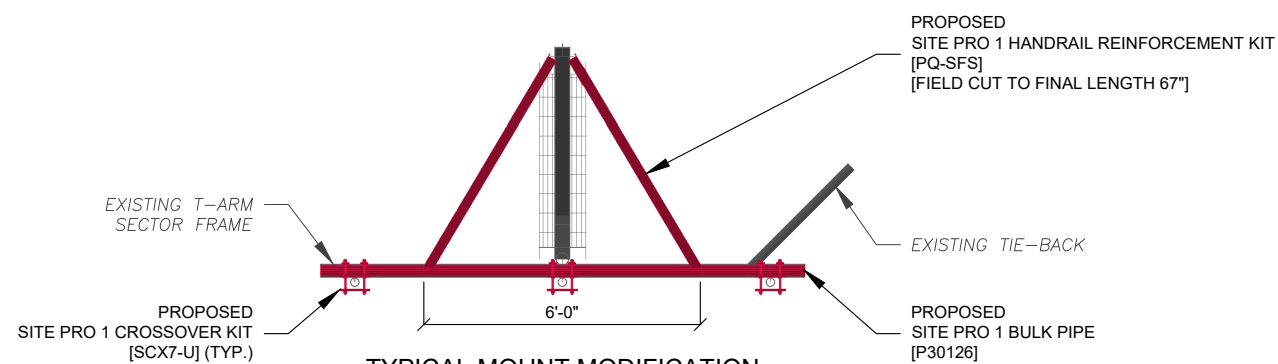
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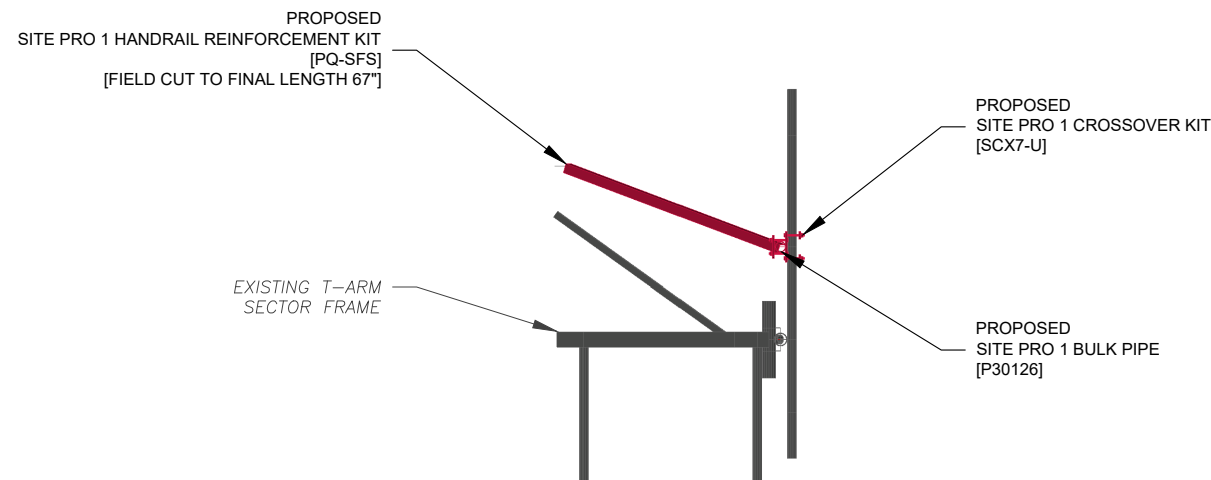
TYPICAL MOUNT MODIFICATION FRONT VIEW



TYPICAL MOUNT MODIFICATION ISOMETRIC VIEW



TYPICAL MOUNT MODIFICATION TOP VIEW



TYPICAL MOUNT MODIFICATION SIDE VIEW

REINFORCEMENT MATERIALS LIST (ALL SECTORS)

QUANTITY REQUIRED	MANUFACTURER	PART NUMBER	DESCRIPTION	LENGTH	PART WEIGHT (lb)	WEIGHT (lb)	NOTES
1	SITE PRO 1	PQ-SFS	HANDRAIL REINFORCEMENT KIT (QUAD)	--	757.27	757	
4	SITE PRO 1	P30126	PIPE 2-7/8"OD X 126", ASTM A53 GRADE B, SCHEDULE 40	10'-6"	61	244	GALVANIZED
12	SITE PRO 1	SCX7-U	CROSSOVER PLATE (V-CLAMP STYLE)	--	16.98	204	
TOTAL WEIGHT (lb)						1,205	

NOTE:
 IN THE EVENT A PROPOSED MODIFICATION PART LISTED IN THE DRAWINGS IS NOT AVAILABLE, AN APPROVED EQUIVALENT CAN BE SUBSTITUTED. FOR APPROVAL OF EQUIVALENT PART OR QUESTIONS PLEASE CONTACT AMERICAN TOWER PMI INBOX AT PMI@AMERICANTOWER.COM.



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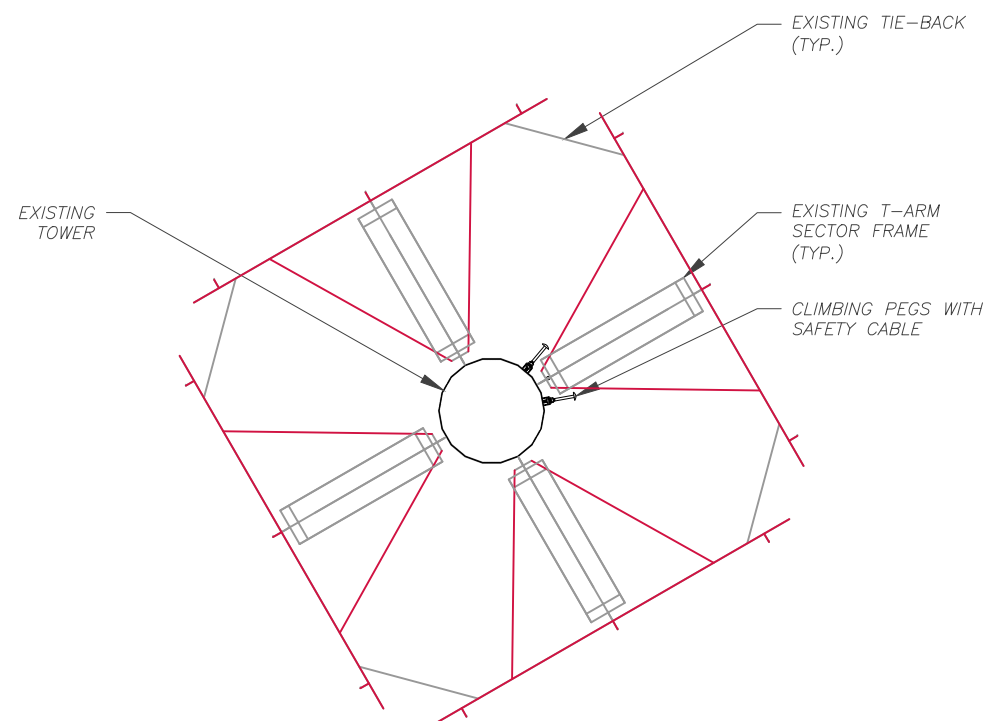
ATC SITE NUMBER:
411260
 ATC SITE NAME:
MIDDLEFIELD CT
CONNECTICUT
 SITE ADDRESS:
 484 MERIDEN RD.
 MIDDLEFIELD, CT 06455



DRAWN BY:	KJ
APPROVED BY:	MJJC
DATE DRAWN:	05/06/22
ATC JOB NO:	14071476_C9_04

SAFETY CLIMB LAYOUT

SHEET NUMBER:	REVISION:
S-103	0



SAFETY CLIMB LOCATION



NOTE:
 CONTRACTOR TO INSTALL MOUNT MODIFICATIONS PER THE MANUFACTURERS SPECIFICATION. MODIFICATIONS SHALL NOT OBSTRUCT, INTERFERE, OR BLOCK EXISTING SAFETY CLIMB SYSTEM. IF ANY OF THESE OCCURS DURING INSTALLATION CONTACT THE AMERICAN TOWER PMI INBOX PMI@AMERICANTOWER.COM

4:31 PM 5/2/2022

Option 1 - Modify: Estimate for T-Mobile @ 411260 (MIDDLEFIELD CT) -- 14071476_C9_04

Site Data and Design Parameters		Dates and Designers	
Asset OTM #	411260	Mount Analysis Date / By	4/4/2022 / BH
Asset Name	MIDDLEFIELD CT	Design Date / By	5/2/2022 / MJJC
State	Connecticut	Checked Date / By	/ /
County	Middlesex	Detailer (Prev/Current/Level)	/ /
City	Middlefield	Software	RISA
Failing Analysis Eng. #	14071476_C8_01	Tower Type	Monopole 18-sided
Mod. Drawing Eng. #	14071476_C9_04	Mount Type	T-Arm
Building Codes		Carriers	
TIA/IBC:	ANSI/TIA-222-H / 2015 IBC	# of RADs	1
Local:	2018 Connecticut State Building Code	Carrier	T-Mobile
Failing Analysis % / Code	79% / TIA-H		
Post Mod % / Controlling Member	45% / Horizontals		
Usage Limit % / Reason	105% / N/A		

Any modification design comments or assumptions? No (including notes to the Estimator)

Modification Summary	
Item #	Scope Item
1	Install Site Pro 1 PQ-SFS V Style Stabilizer on All (4) MP sector(s)
2	Install Site Pro 1 P30126 Pipe w/ Site Pro 1 SCX7-U crossovers on All (4) sector(s)

Estimated Modification Cost \$16,000

Option 2 - Replace: Estimate for T-Mobile @ 411260 (MIDDLEFIELD CT) -- 14071476_C9_04

Tower Info	
Tower Number	411260
Tower Name	MIDDLEFIELD CT
State	Connecticut

Jurisdictional Codes	
Design TIA Code	Unknown
Current TIA Code	ANSI/TIA-222-H
IBC	2015 IBC
Other	2018 Connecticut State Building Code

Project Information	
Carrier	T-Mobile
Structure Type	Monopole

Recommended Mount Replacement Site Pro 1 VFA10-SD-S*
*or approved equivalent

Project Requirements		
New Mount Face Width	150	in
Number of Sectors	3	

Estimated Replacement Cost \$ 36,000.00

SUPPLEMENTAL

SHEET NUMBER:
R-901

REVISION:
0



Post Modification Mount Analysis Report

ATC Site Name : MIDDLEFIELD CT, CT
 ATC Site Number : 411260
 Engineering Number : 14071476_C9_04
 Mount Elevation : 138.5 ft
 Carrier : T-Mobile
 Carrier Site Name : CTHA244/VerizonMiddlefield
 Carrier Site Number : CTHA244A
 Site Location : 484 Meriden Rd.
 Middlefield, CT 06455-1013
 41.535507, -72.73212055
 County : Middlesex
 Date : May 2, 2022
 Max Usage : 45%
 Result : Contingent Pass

Prepared By: Max Carter
 Structural Engineer I
 Reviewed By:

COA: PEC.0001553



Eng. Number 14071476_C9_04
 May 2, 2022

Table of Contents

Introduction 1
 Supporting Documents 1
 Analysis 1
 Conclusion 1
 Application Loading 2
 Structure Usages 2
 Mount Layout 3
 Equipment Layout 4
 Standard Conditions 7
 Calculations Attached



Eng. Number 14071476_C9_04
 May 2, 2022
 Page 1

Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 138.5 ft.

Supporting Documents

Previous Analysis	CLS Engineering Project #13632989_C9_01, dated March 18, 2021
Radio Frequency Data Sheet	RFDS ID #CTHA244A, dated March 2, 2022
Reference Photos	Site photos from 2021

Analysis

This mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	119 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1.00" radial ice concurrent
Codes:	ANSI/TIA-222-H
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.207, S1 = 0.055
Site Class:	D - Stiff Soil
Live Loads:	Lm = 500 lbs, Lv = 250 lbs

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above provided the modifications listed below are completed:

- Install modification per ATC Drawing #14071476_C9_04

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.



Eng. Number 14071476_C9_04
 May 2, 2022
 Page 2

Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
138.5	140.0	3	Ericsson AIR 6419 B41
		3	Commscope VV-65A-R1
		3	RFS APXVAARR24_43-U-NA20
		3	Ericsson Radio 4449 B71 B85A
		3	Ericsson 4460 BAND 2/25

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Horizontals	45%	Pass
Verticals	37%	Pass
Diagonals	12%	Pass
Tie-Backs	6%	Pass
Mount Pipes	37%	Pass
Serviceability	N/A	Pass

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	KJ	05/06/22

ATC SITE NUMBER:
 411260
 ATC SITE NAME:
 MIDDLEFIELD CT
 CONNECTICUT
 SITE ADDRESS:
 484 MERIDEN RD.
 MIDDLEFIELD, CT 06455



DRAWN BY:	KJ
APPROVED BY:	MJJC
DATE DRAWN:	05/06/22
ATC JOB NO:	14071476_C9_04

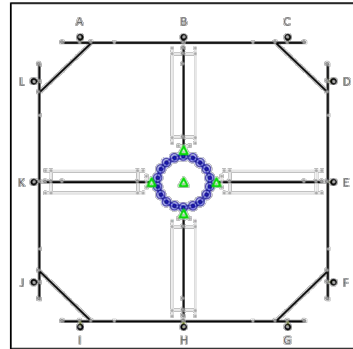
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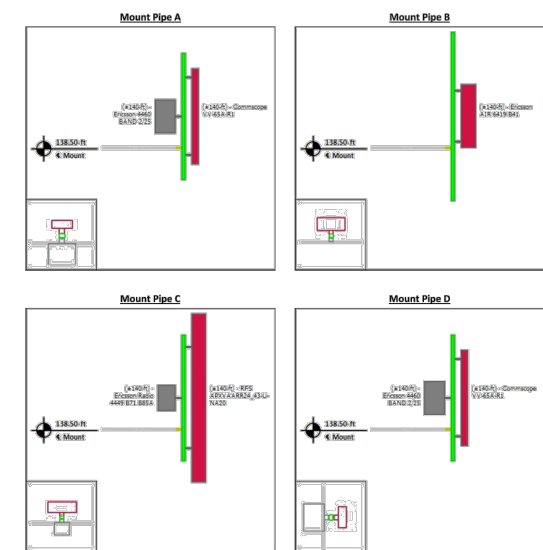
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 May 2, 2022
 Page 3

Mount Layout



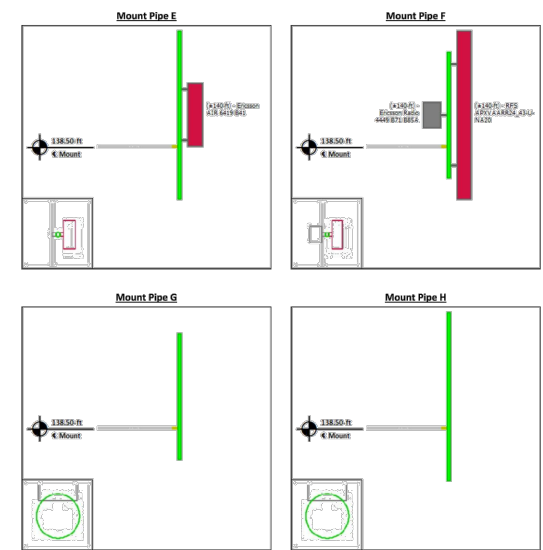
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 Page 4

Equipment Layout



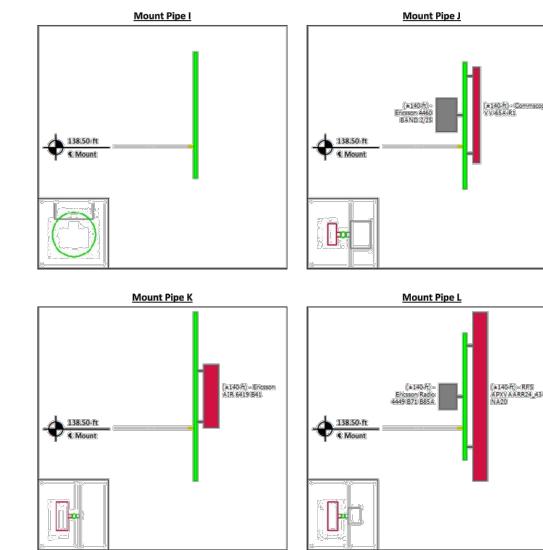
Eng. Number 14071476_C9_04
 May 2, 2022
 Page 5

Equipment Layout Cont'd.



Eng. Number 14071476_C9_04
 May 2, 2022
 Page 6

Equipment Layout Cont'd.





Eng. Number 14071476_C9_04
May 2, 2022
Page 7

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 equipment, 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.

American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appearance mounting system and/or equipment attached to it.

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

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

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.



Site Number: 411260
Project Number: 14071476_C9_04
Carrier: T-Mobile
Mount Elevation: 138.5 ft
Date: 5/2/2022

Mount Analysis Force Calculations

Wind & Ice Load Calculations				Seismic Load Calculations			
Velocity Pressure Coefficient	K_z	1.08	Short Period DSRAP	S_{DS}	0.221		
Topographic Factor	K_{zt}	1.00	1 Second DSRAP	S_{S1}	0.088		
Rooftop Wind Speed-up Factor	K_{zs}	1.00	Importance Factor	I	1.0		
Shielding Factor	K_{sd}	0.90	Response Modification Coefficient	R	2.0		
Ground Elevation Factor	K_e	0.98	Seismic Response Coefficient	C_s	0.110		
Wind Direction Probability Factor	K_d	0.95	Amplification Factor	A	1.0		
Basic Wind Speed	V	119 mph	Total Weight	W	2790.3 lbs		
Velocity Pressure	q_z	36.8 psf	Total Shear Force	V_u	308.1 lbs		
Height Escalation Factor	K_{ez}	1.15	Horizontal Seismic Load	F_h	308.1 lbs		
Thickness of Radial Glaze Ice	T_{ri}	1.15 in	Vertical Seismic Load	F_v	123.2 lbs		

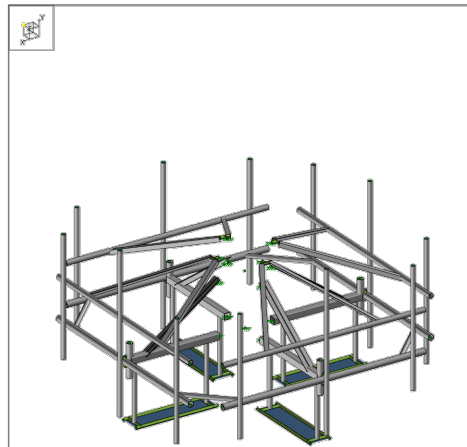
Antenna Calculations (Elevations per Application/RFDs)*									
Equipment Model #	Height in	Width in	Depth in	Weight lbs	EPA_{wt} sqft	EPA_{ht} sqft	EPA_{wt} sqft	EPA_{ht} sqft	
Ericsson AIR 6419 B41	36.3	20.9	9.0	83.3	6.32	1.82	7.47	2.43	
Commscope VV-65A-R1	54.7	12.1	4.6	23.8	5.93	1.41	7.36	2.21	
RFS APXVAARR24_43-U-NA20	95.9	24.0	8.7	127.9	20.24	3.48	22.72	4.50	
Ericsson Radio 4449 871 B85A	15.0	13.2	10.5	75.0	1.65	1.31	2.24	1.85	
Ericsson 4460 BAND 2/25	19.6	15.7	12.1	109.0	2.56	1.98	3.29	2.63	

* Equipment with EPA values N/A were not considered in the mount analysis



Company : American Tower Corp.
Designer : Max Carter
Job Number : 14071476_C9_04
Model Name : 411260, MIDDLEFIELD CT

5/2/2022
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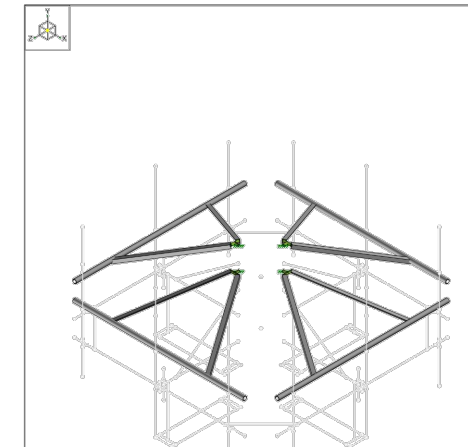


American Tower Corp.	411260, MIDDLEFIELD CT	SK-1
Max Carter		May 02, 2022
14071476_C9_04	3D Rendering (Final Configuration)	R3D, T-MOBILE @ 411260, MIDD...



Company : American Tower Corp.
Designer : Max Carter
Job Number : 14071476_C9_04
Model Name : 411260, MIDDLEFIELD CT

5/2/2022
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American Tower Corp.	411260, MIDDLEFIELD CT	SK-2
Max Carter		May 02, 2022
14071476_C9_04	3D Rendering (Proposed Configuration)	R3D, T-MOBILE @ 411260, MIDD...

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

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	KJ	05/06/22

ATC SITE NUMBER:
411260
ATC SITE NAME:
MIDDLEFIELD CT
CONNECTICUT
SITE ADDRESS:
484 MERIDEN RD.
MIDDLEFIELD, CT 06455



DRAWN BY:	KJ
APPROVED BY:	MJJC
DATE DRAWN:	05/06/22
ATC JOB NO:	14071476_C9_04

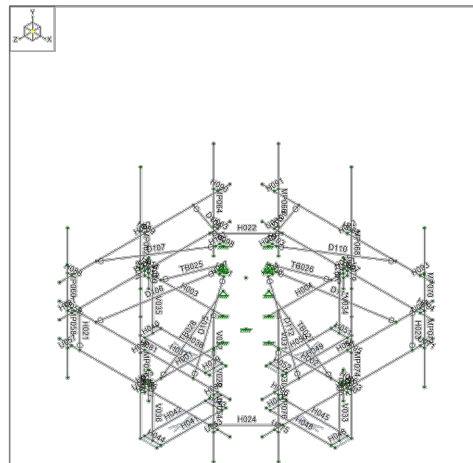
SUPPLEMENTAL

SHEET NUMBER:
R-903
REVISION:
0



Company : American Tower Corp.
Designer : Max Carter
Job Number : 14071476_C9_04
Model Name : 411260, MIDDLEFIELD CT

5/2/2022
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Checked By :-

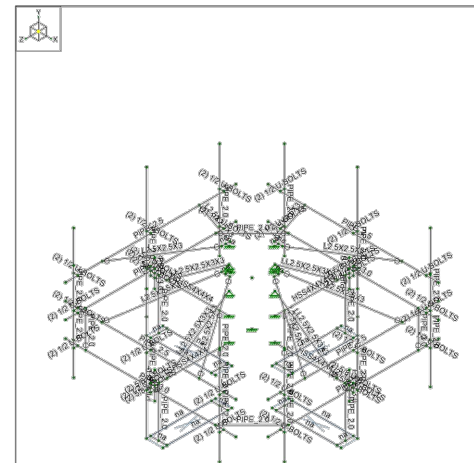


American Tower Corp.	411260, MIDDLEFIELD CT	SK-3
Max Carter		May 02, 2022
14071476_C9_04		R3D, T-MOBILE @ 411260, MIDD...



Company : American Tower Corp.
Designer : Max Carter
Job Number : 14071476_C9_04
Model Name : 411260, MIDDLEFIELD CT

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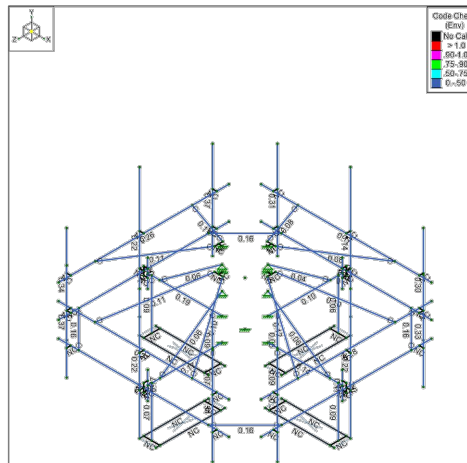


American Tower Corp.	411260, MIDDLEFIELD CT	SK-4
Max Carter		May 02, 2022
14071476_C9_04		R3D, T-MOBILE @ 411260, MIDD...



Company : American Tower Corp.
Designer : Max Carter
Job Number : 14071476_C9_04
Model Name : 411260, MIDDLEFIELD CT

5/2/2022
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Checked By :-

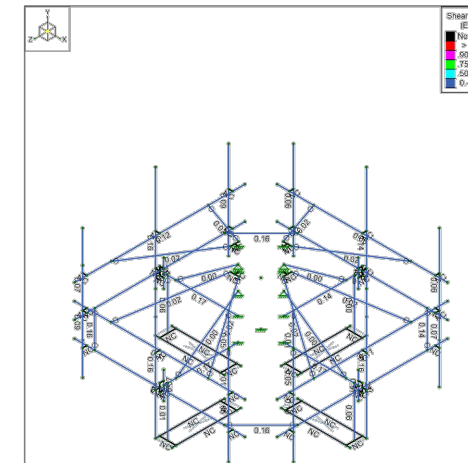


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Max Carter		May 02, 2022
14071476_C9_04		R3D, T-MOBILE @ 411260, MIDD...



Company : American Tower Corp.
Designer : Max Carter
Job Number : 14071476_C9_04
Model Name : 411260, MIDDLEFIELD CT

5/2/2022
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Checked By :-



American Tower Corp.	411260, MIDDLEFIELD CT	SK-6
Max Carter		May 02, 2022
14071476_C9_04		R3D, T-MOBILE @ 411260, MIDD...

Basic Load Cases							
B/C Description	Category	Y Gravity	Nodal	Point	Distributed	Surface(Plate/Wall)	
1	D	DL	-1	24			
2	DI	IL		24	52	4	
3	W 0	WL		24	87		
4	W 30	WL		48	171		
5	W 60	WL		48	171		
6	W 90	WL		24	87		
7	W 120	WL		48	171		
8	W 150	WL		48	171		
9	W 180	WL		24	87		
10	W 210	WL		48	171		
11	W 240	WL		48	171		
12	W 270	WL		24	87		
13	W 300	WL		48	171		
14	W 330	WL		48	171		
15	W 0	WL		24	87		
16	W 30	WL		48	171		
17	W 60	WL		48	171		
18	W 90	WL		24	87		
19	W 120	WL		48	171		
20	W 150	WL		48	171		
21	W 180	WL		24	87		
22	W 210	WL		48	171		
23	W 240	WL		48	171		
24	W 270	WL		24	87		
25	W 300	WL		48	171		
26	W 330	WL		48	171		
27	Ws 0	WL		24	87		
28	Ws 30	WL		48	171		
29	Ws 60	WL		48	171		
30	Ws 90	WL		24	87		
31	Ws 120	WL		48	171		
32	Ws 150	WL		48	171		
33	Ws 180	WL		24	87		
34	Ws 210	WL		48	171		
35	Ws 240	WL		48	171		
36	Ws 270	WL		24	87		
37	Ws 300	WL		48	171		
38	Ws 330	WL		48	171		
39	Ev-Y	ELY			52		
40	Ev-Z	ELZ			52		
41	Lv-3x	LL					
42	Lv (1)	LL		1			
43	Lv (2)	LL		1			
44	Lv (3)	LL		1			
45	Lv (4)	LL		1			
46	Lv (5)	LL		1			
47	Lv (6)	LL		1			
48	Lv (7)	LL		1			
49	Lv (8)	LL		1			
50	Lv (9)	LL		1			
51	Lv (10)	LL		1			
52	Lv (11)	LL		1			
53	Lv (12)	LL		1			
54	Lv (13)	LL		1			
55	Lv (14)	LL		1			

Basic Load Cases (Continued)							
B/C Description	Category	Y Gravity	Nodal	Point	Distributed	Surface(Plate/Wall)	
56	Lv (15)	LL		1			
57	Lv (16)	LL		1			
58	Lm (1)	LL		1			
59	Lm (2)	LL		1			
60	Lm (3)	LL		1			
61	Lm (4)	LL		1			
62	Lm (5)	LL		1			
63	Lm (6)	LL		1			
64	Lm (7)	LL		1			
65	Lm (8)	LL		1			
66	Lm (9)	LL		1			
67	Lm (10)	LL		1			
68	Lm (11)	LL		1			
69	Lm (12)	LL		1			

Node Boundary Conditions						
Node Label	X [lb/in]	Y [lb/in]	Z [lb/in]	X Rot [k-in/rad]	Y Rot [k-in/rad]	Z Rot [k-in/rad]
1	N001	Reaction	Reaction	Reaction	Reaction	Reaction
2	N002	Reaction	Reaction	Reaction	Reaction	Reaction
3	N003	Reaction	Reaction	Reaction	Reaction	Reaction
4	N004	Reaction	Reaction	Reaction	Reaction	Reaction
5	N005	Reaction	Reaction	Reaction	Reaction	Reaction
6	N070	Reaction	Reaction	Reaction		
7	N071	Reaction	Reaction	Reaction		
8	N072	Reaction	Reaction	Reaction		
9	N073	Reaction	Reaction	Reaction		
10	N191	Reaction	Reaction	Reaction	Reaction	Reaction
11	N195	Reaction	Reaction	Reaction	Reaction	Reaction
12	N199	Reaction	Reaction	Reaction	Reaction	Reaction
13	N203	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data									
Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule	
1	H001	N006	N002		HSS4X4X4	Beam	None	A500 Gr. B [SOR]	Typical
2	H002	N009	N005		HSS4X4X4	Beam	None	A500 Gr. B [SOR]	Typical
3	H003	N007	N004		HSS4X4X4	Beam	None	A500 Gr. B [SOR]	Typical
4	H004	N008	N003		HSS4X4X4	Beam	None	A500 Gr. B [SOR]	Typical
5	H005	N011	N010		PIPE_3.0	Beam	None	A53 Gr. B	Typical
6	H006	N013	N012		PIPE_3.0	Beam	None	A53 Gr. B	Typical
7	H007	N015	N014		PIPE_3.0	Beam	None	A53 Gr. B	Typical
8	H008	N017	N016		PIPE_3.0	Beam	None	A53 Gr. B	Typical
9	V009	N028	N022		PIPE_3.0	Column	None	A53 Gr. B	Typical
10	V010	N023	N027		PIPE_3.0	Column	None	A53 Gr. B	Typical
11	V011	N026	N024		PIPE_3.0	Column	None	A53 Gr. B	Typical
12	V012	N025	N029		PIPE_3.0	Column	None	A53 Gr. B	Typical
13	H013	N030	N031		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
14	H014	N032	N033		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
15	H015	N034	N035		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
16	H016	N036	N037		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
17	H017	N038	N039		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
18	H018	N040	N041		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
19	H019	N042	N043		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
20	H020	N044	N045		(2) 5/8 U-BOLTS	Beam	None	A36	Typical



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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	KJ	05/06/22

ATC SITE NUMBER:
411260
 ATC SITE NAME:
MIDDLEFIELD CT
CONNECTICUT
 SITE ADDRESS:
 484 MERIDEN RD.
 MIDDLEFIELD, CT 06455



DRAWN BY:	KJ
APPROVED BY:	MJJC
DATE DRAWN:	05/06/22
ATC JOB NO:	14071476_C9_04

SUPPLEMENTAL

SHEET NUMBER:
R-904
 REVISION:
0



AMERICAN TOWER®
CORPORATION

Post Modification Mount Analysis Report

ATC Site Name : MIDDLEFIELD CT, CT
ATC Site Number : 411260
Engineering Number : 14071476_C9_04
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
41.535507 , -72.73212055
County : Middlesex
Date : May 2, 2022
Max Usage : 45%
Result : Contingent Pass

Prepared By:
Max Carter
Structural Engineer I

Max Carter

Reviewed By:



Diana Gee
May 20 2022 5:10 PM



COA: PEC.0001553



Table of Contents

Introduction 1

Supporting Documents 1

Analysis 1

Conclusion 1

Application Loading 2

Structure Usages 2

Mount Layout 3

Equipment Layout 4

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Calculations Attached



Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 138.5 ft.

Supporting Documents

Previous Analysis	CLS Engineering Project #13632989_C8_01, dated March 18, 2021
Radio Frequency Data Sheet	RFDS ID #CTHA244A, dated March 2, 2022
Reference Photos	Site photos from 2021

Analysis

This mount was analyzed using American Tower Corporation's Mount Analysis Program and RISA-3D

Basic Wind Speed:	119 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1.00" radial ice concurrent
Codes:	ANSI/TIA-222-H
Exposure Category:	B
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	$S_s = 0.207$, $S_1 = 0.055$
Site Class:	D - Stiff Soil
Live Loads:	$L_m = 500$ lbs, $L_v = 250$ lbs

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above provided the modifications listed below are completed:

- Install modification per ATC Drawing #14071476_C9_04

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



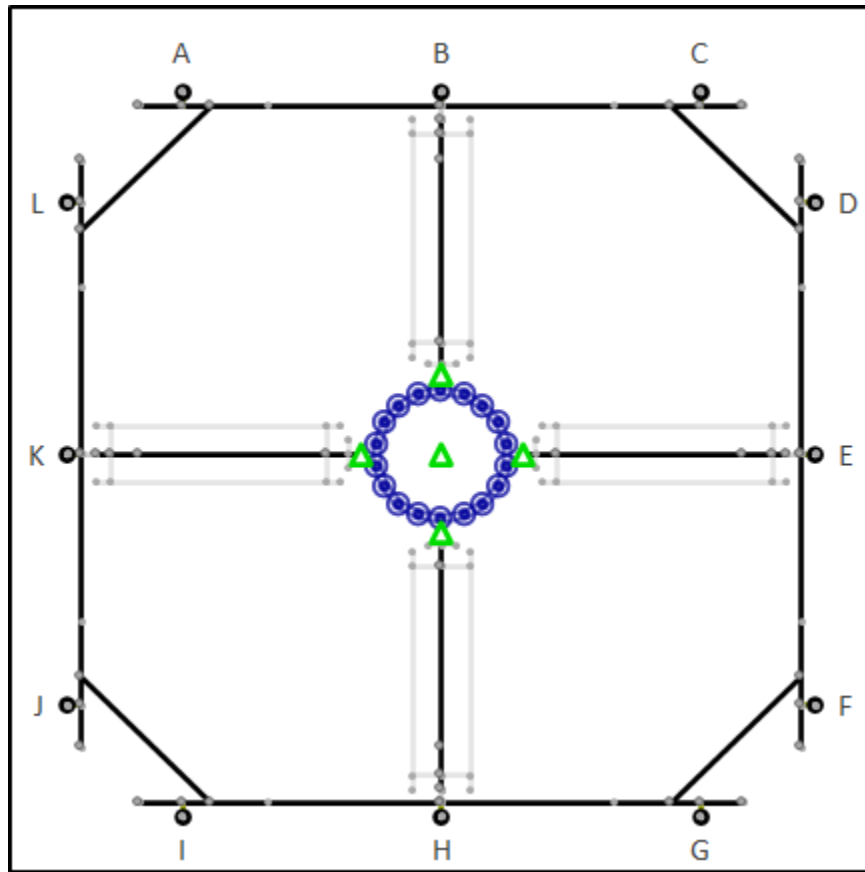
Application Loading

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
138.5	140.0	3	Ericsson AIR 6419 B41
		3	Commscope VV-65A-R1
		3	RFS APXVAARR24_43-U-NA20
		3	Ericsson Radio 4449 B71 B85A
		3	Ericsson 4460 BAND 2/25

Structure Usages

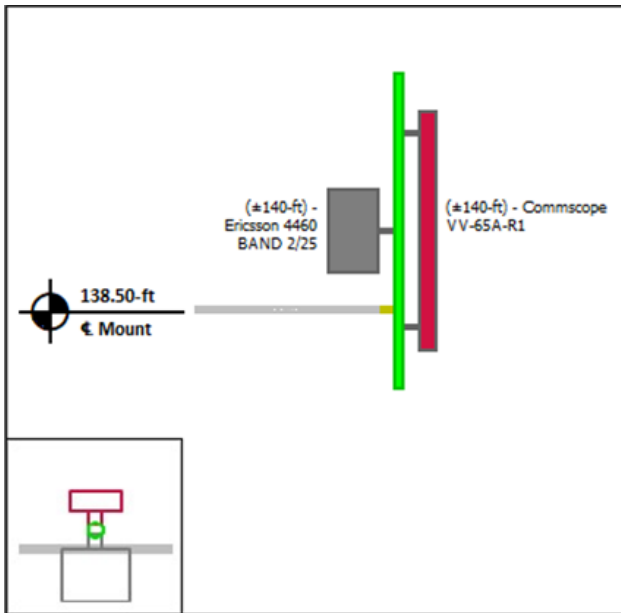
Structural Component	Controlling Usage	Pass/Fail
Horizontals	45%	Pass
Verticals	37%	Pass
Diagonals	12%	Pass
Tie-Backs	6%	Pass
Mount Pipes	37%	Pass
Serviceability	N/A	Pass

Mount Layout

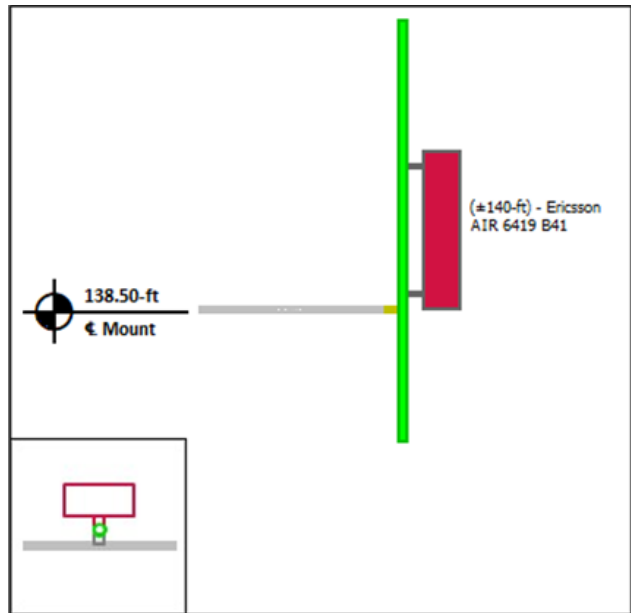


Equipment Layout

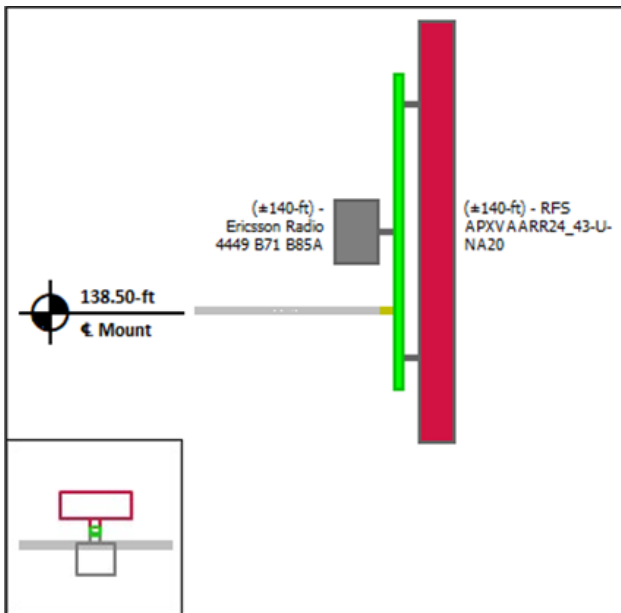
Mount Pipe A



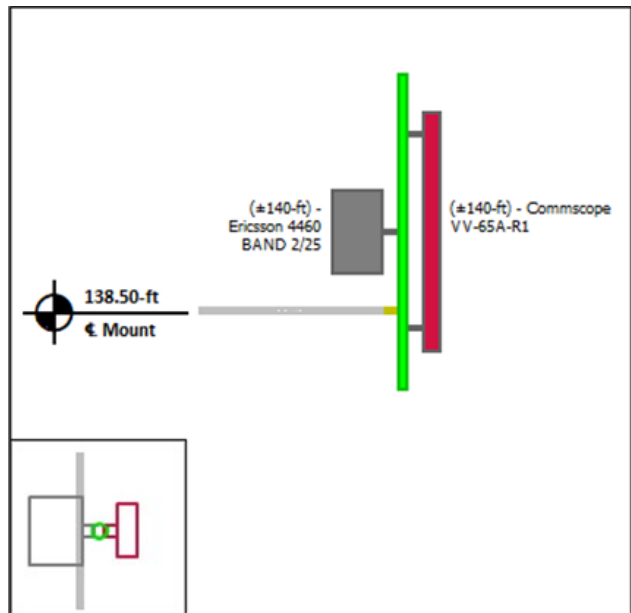
Mount Pipe B



Mount Pipe C

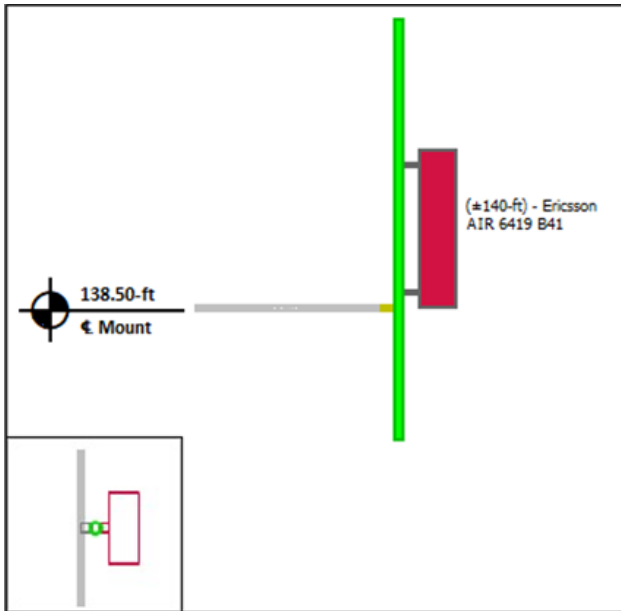


Mount Pipe D

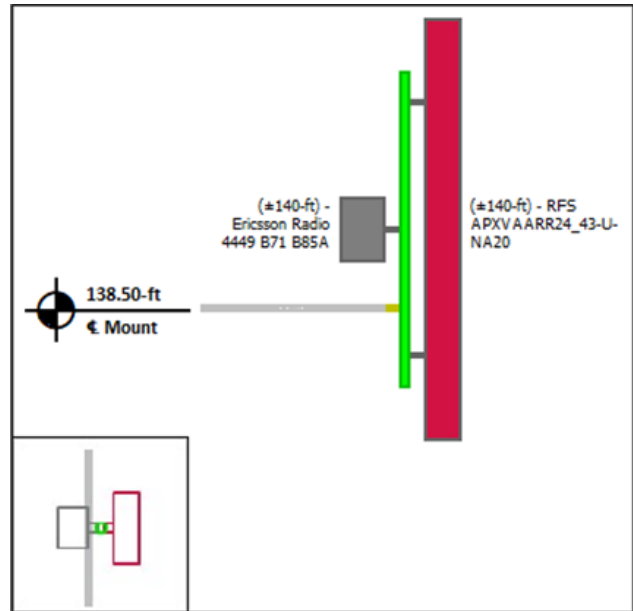


Equipment Layout Cont'd.

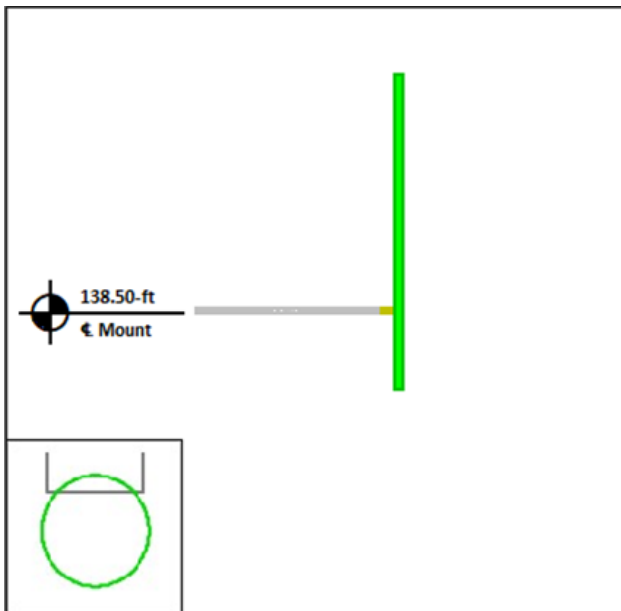
Mount Pipe E



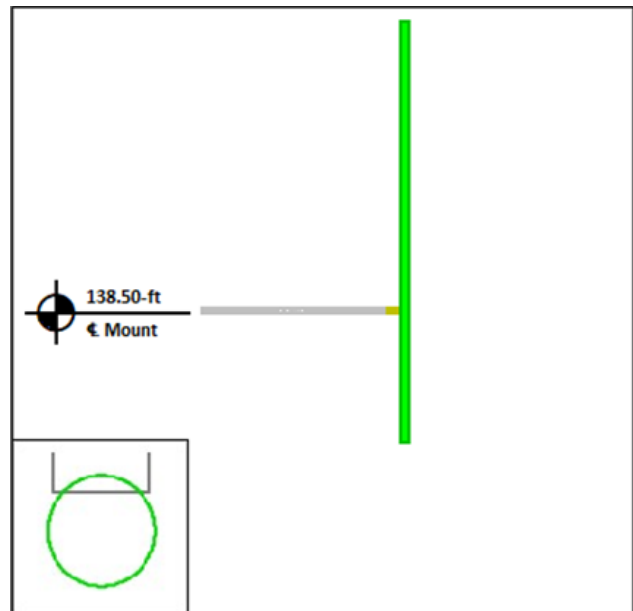
Mount Pipe F



Mount Pipe G

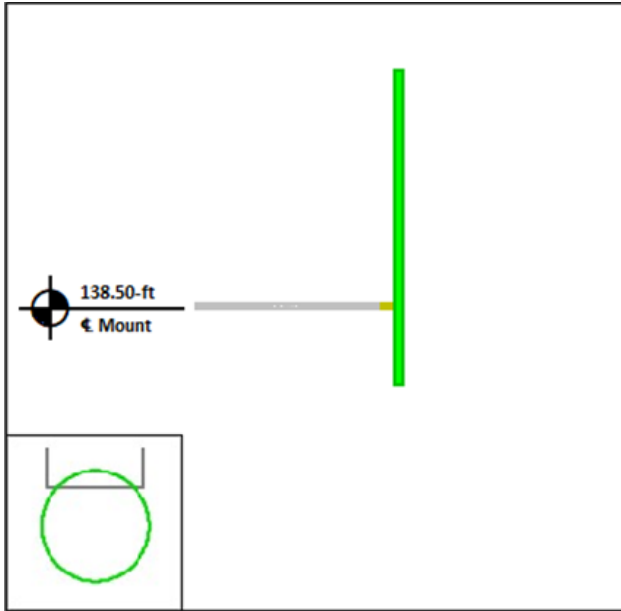


Mount Pipe H

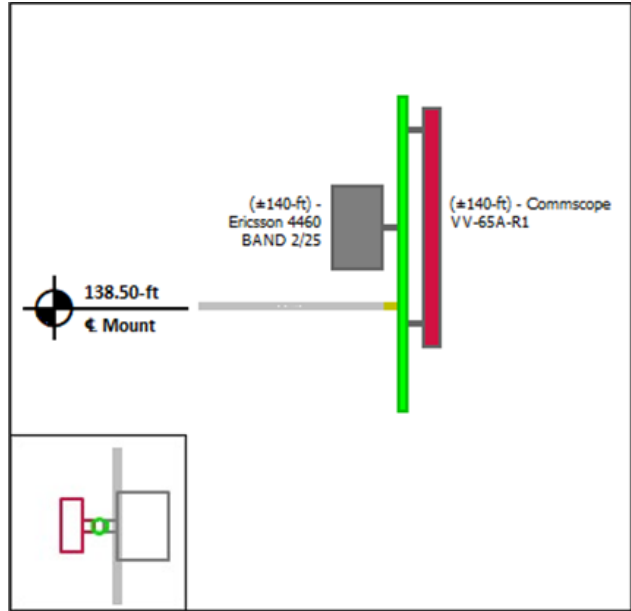


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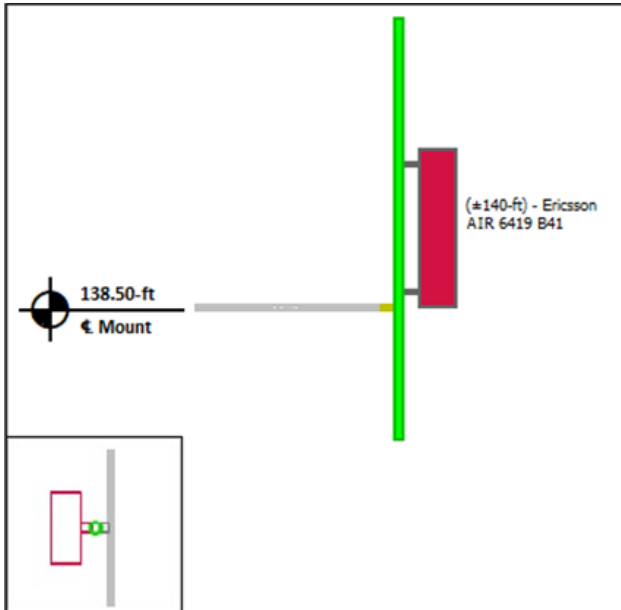
Mount Pipe I



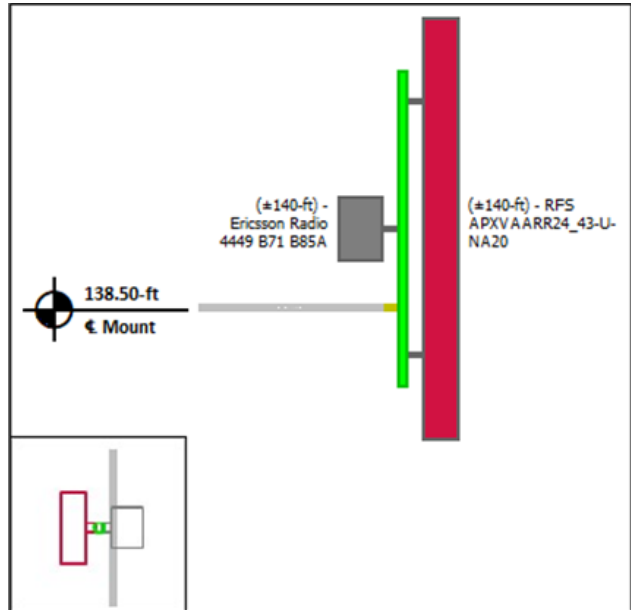
Mount Pipe J



Mount Pipe K



Mount Pipe L



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 equipment, 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.

American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

All connections are to be verified for condition and tightness by the installation contractor preceding any changes to the appurtenance mounting system and/or equipment attached to it.

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

Installation of all equipment and steel should be confirmed not to cause tower conflicts nor impede the tower climbing pegs.

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.



Site Number: 411260
Project Number: 14071476_C9_04
Carrier: T-Mobile
Mount Elevation: 138.5 ft
Date: 5/2/2022

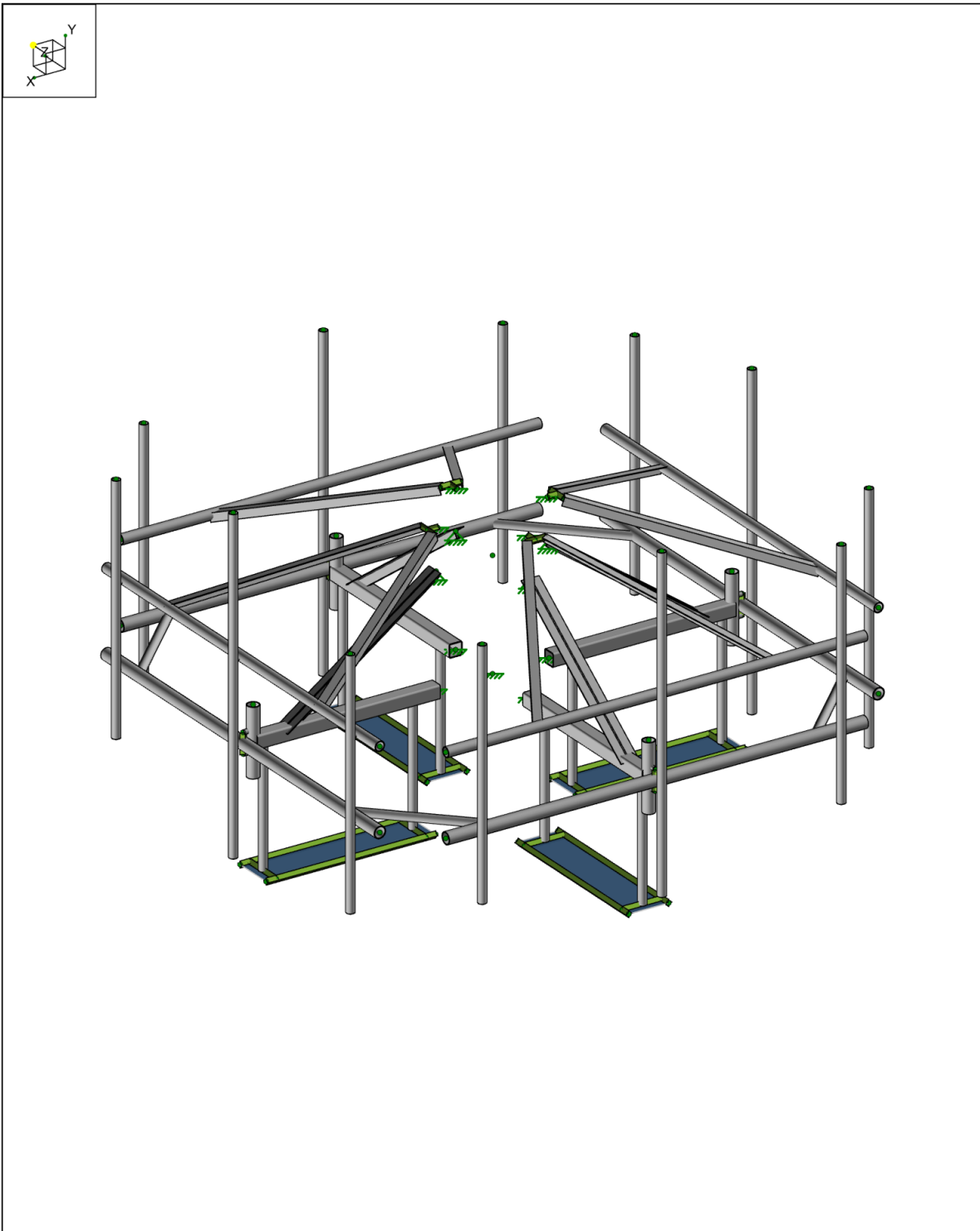
Mount Analysis Force Calculations

Wind & Ice Load Calculations			
Velocity Pressure Coefficient	K_z	1.08	
Topographic Factor	K_{zt}	1.00	
Rooftop Wind Speed-up Factor	K_s	1.00	
Shielding Factor	K_a	0.90	
Ground Elevation Factor	K_e	0.98	
Wind Direction Probability Factor	K_d	0.95	
Basic Wind Speed	V	119	mph
Velocity Pressure	q_z	36.8	psf
Height Escalation Factor	K_{iz}	1.15	
Thickness of Radial Glaze Ice	T_{iz}	1.15	in

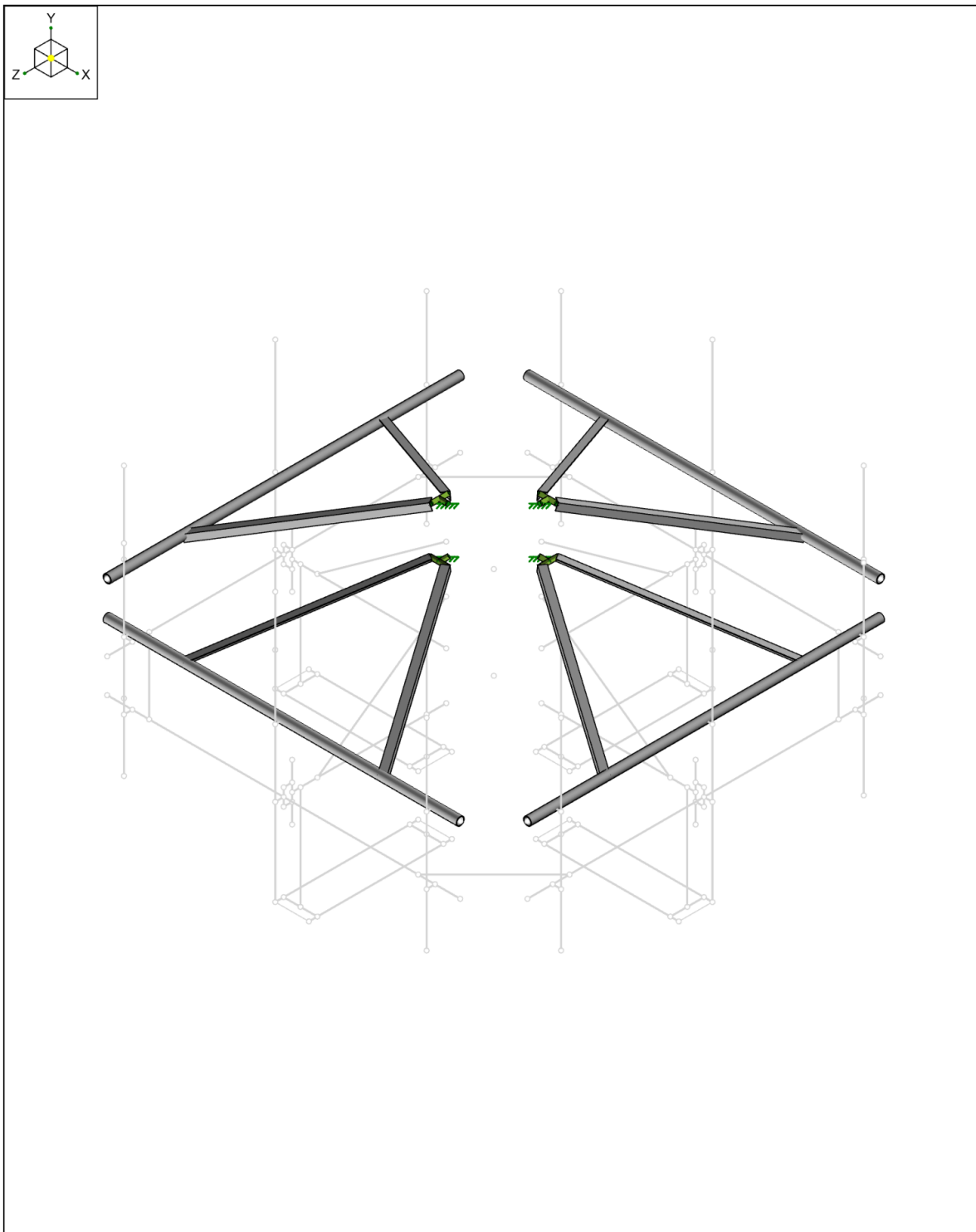
Seismic Load Calculations			
Short Period DSRAP	S_{D5}	0.221	
1 Second DSRAP	S_{D1}	0.088	
Importance Factor	I	1.0	
Response Modification Coefficient	R	2.0	
Seismic Response Coefficient	C_s	0.110	
Amplification Factor	A	1.0	
Total Weight	W	2790.3	lbs
Total Shear Force	V_s	308.1	lbs
Horizontal Seismic Load	E_h	308.1	lbs
Vertical Seismic Load	E_v	123.2	lbs

Antenna Calculations (Elevations per Application/RFDS)*								
Equipment	Height	Width	Depth	Weight	EPA_N	EPA_T	EPA_{Ni}	EPA_{Ti}
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
Ericsson AIR 6419 B41	36.3	20.9	9.0	83.3	6.32	1.82	7.47	2.43
Commscope VV-65A-R1	54.7	12.1	4.6	23.8	5.93	1.41	7.36	2.21
RFS APXVAARR24_43-U-NA20	95.9	24.0	8.7	127.9	20.24	3.48	22.72	4.50
Ericsson Radio 4449 B71 B85A	15.0	13.2	10.5	75.0	1.65	1.31	2.24	1.85
Ericsson 4460 BAND 2/25	19.6	15.7	12.1	109.0	2.56	1.98	3.29	2.63

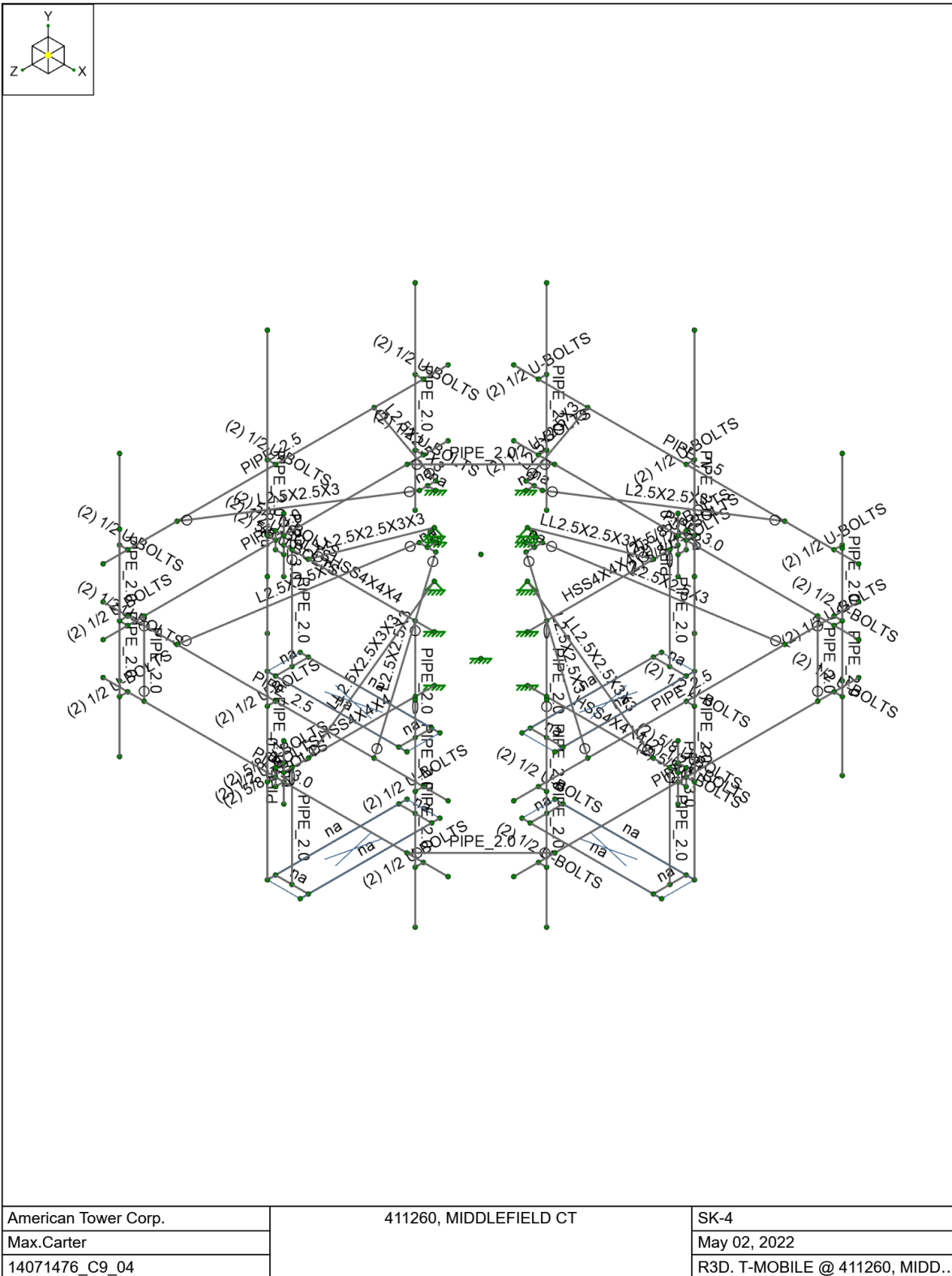
* Equipment with EPA values N/A were not considered in the mount analysis

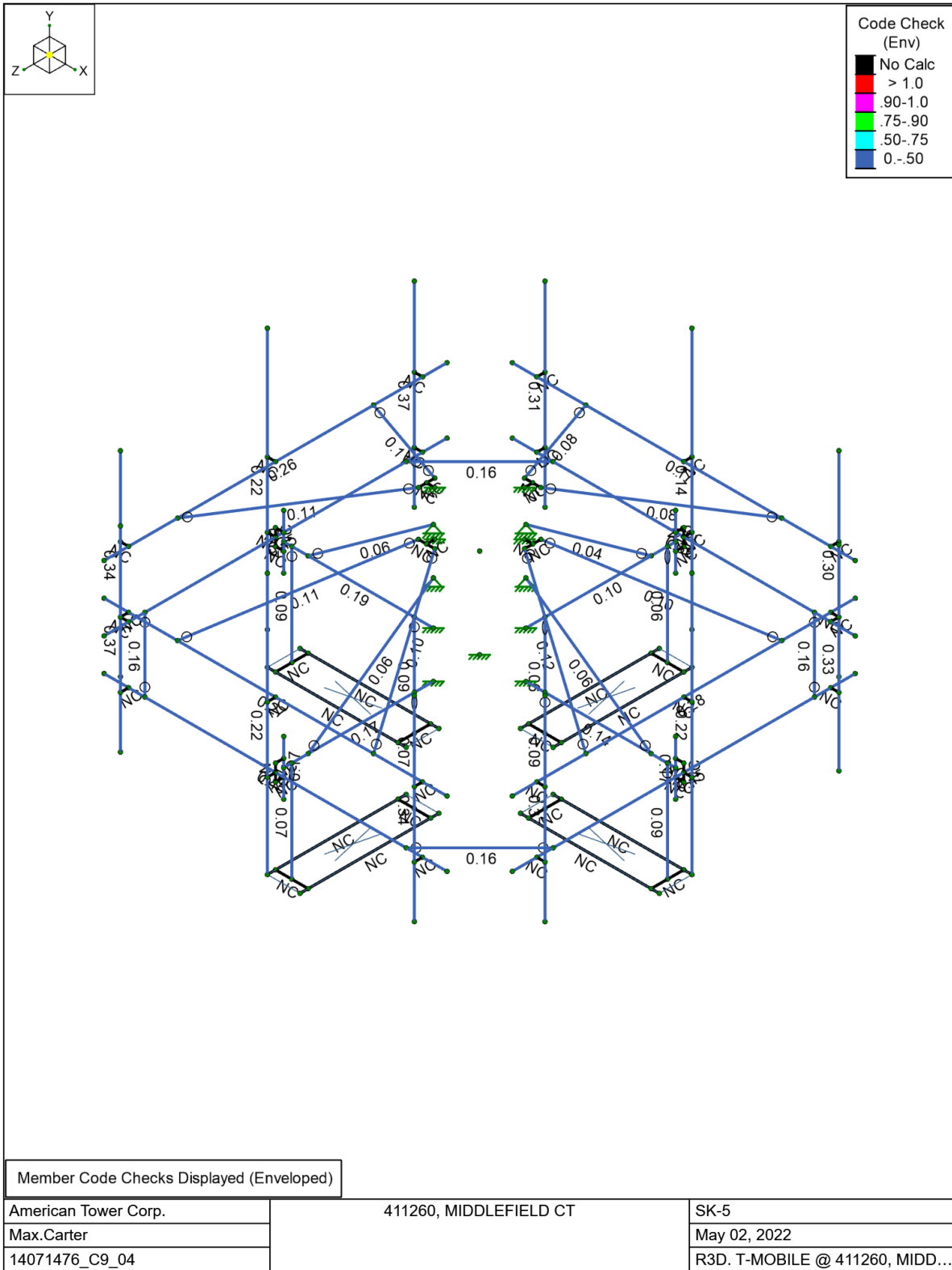


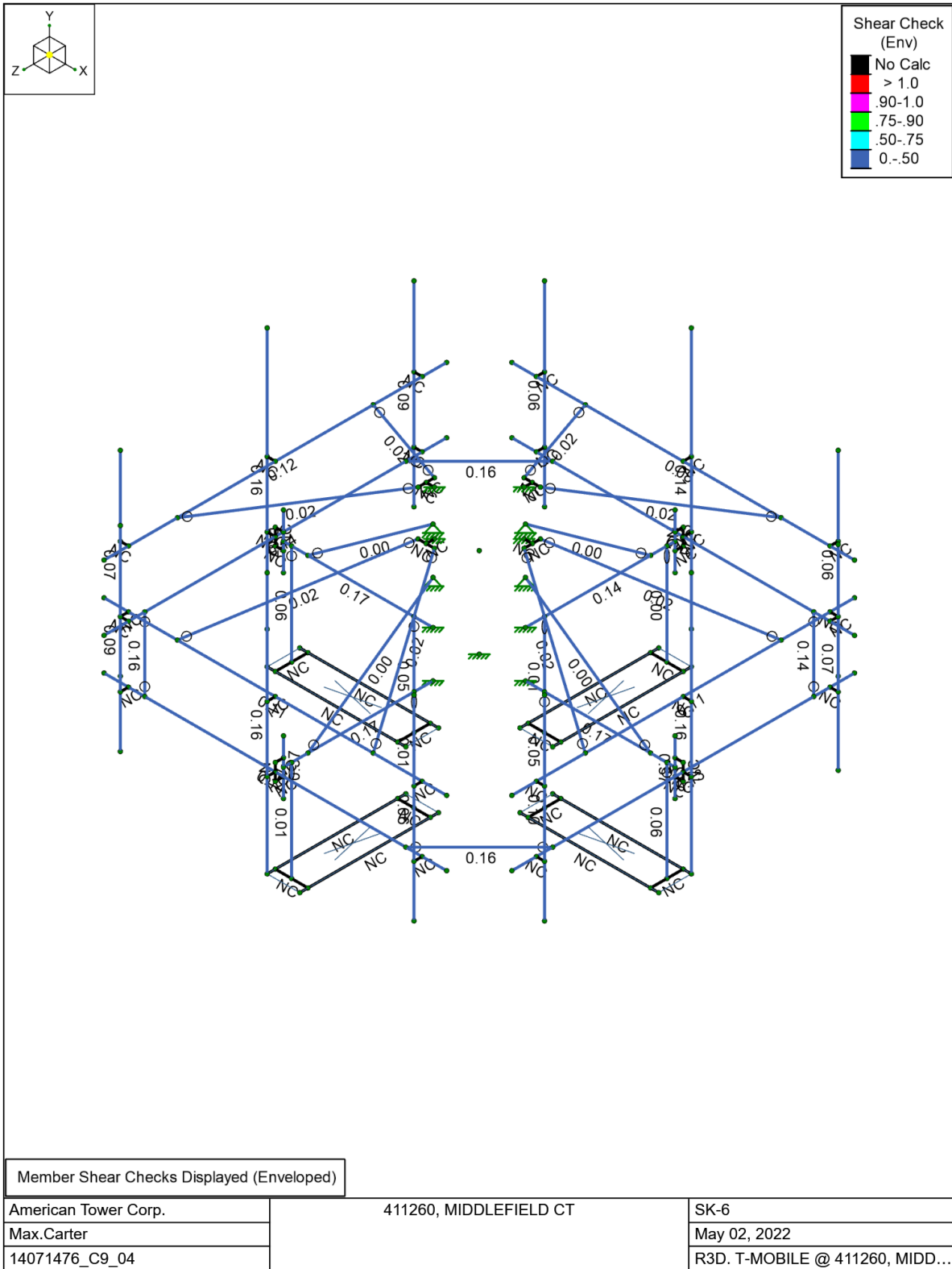
American Tower Corp.	411260, MIDDLEFIELD CT	SK-1
Max.Carter		May 02, 2022
14071476_C9_04	3D Rendering (Final Configuration)	R3D. T-MOBILE @ 411260, MIDD...



American Tower Corp.	411260, MIDDLEFIELD CT	SK-2
Max.Carter		May 02, 2022
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Company : American Tower Corp.
 Designer : Max.Carter
 Job Number : 14071476_C9_04
 Model Name : 411260, MIDDLEFIELD CT

5/2/2022
 4:28:26 PM
 Checked By : -

Basic Load Cases

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Surface(Plate/Wall)
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14	W 330	WL			48	171	
15	Wi 0	WL			24	87	
16	Wi 30	WL			48	171	
17	Wi 60	WL			48	171	
18	Wi 90	WL			24	87	
19	Wi 120	WL			48	171	
20	Wi 150	WL			48	171	
21	Wi 180	WL			24	87	
22	Wi 210	WL			48	171	
23	Wi 240	WL			48	171	
24	Wi 270	WL			24	87	
25	Wi 300	WL			48	171	
26	Wi 330	WL			48	171	
27	Ws 0	WL			24	87	
28	Ws 30	WL			48	171	
29	Ws 60	WL			48	171	
30	Ws 90	WL			24	87	
31	Ws 120	WL			48	171	
32	Ws 150	WL			48	171	
33	Ws 180	WL			24	87	
34	Ws 210	WL			48	171	
35	Ws 240	WL			48	171	
36	Ws 270	WL			24	87	
37	Ws 300	WL			48	171	
38	Ws 330	WL			48	171	
39	Ev -Y	ELY				52	
40	Eh -Z	ELZ				52	
41	Eh -X	ELX				52	
42	Lv (1)	LL			1		
43	Lv (2)	LL			1		
44	Lv (3)	LL			1		
45	Lv (4)	LL			1		
46	Lv (5)	LL			1		
47	Lv (6)	LL			1		
48	Lv (7)	LL			1		
49	Lv (8)	LL			1		
50	Lv (9)	LL			1		
51	Lv (10)	LL			1		
52	Lv (11)	LL			1		
53	Lv (12)	LL			1		
54	Lv (13)	LL			1		
55	Lv (14)	LL			1		



Basic Load Cases (Continued)

	BLC Description	Category	Y Gravity	Nodal	Point	Distributed	Surface(Plate/Wall)
56	Lv (15)	LL			1		
57	Lv (16)	LL			1		
58	Lm (1)	LL		1			
59	Lm (2)	LL		1			
60	Lm (3)	LL		1			
61	Lm (4)	LL		1			
62	Lm (5)	LL		1			
63	Lm (6)	LL		1			
64	Lm (7)	LL		1			
65	Lm (8)	LL		1			
66	Lm (9)	LL		1			
67	Lm (10)	LL		1			
68	Lm (11)	LL		1			
69	Lm (12)	LL		1			

Node Boundary Conditions

	Node Label	X [lb/in]	Y [lb/in]	Z [lb/in]	X Rot [k-in/rad]	Y Rot [k-in/rad]	Z Rot [k-in/rad]
1	N001	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N002	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N003	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
4	N004	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
5	N005	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
6	N070	Reaction	Reaction	Reaction			
7	N071	Reaction	Reaction	Reaction			
8	N072	Reaction	Reaction	Reaction			
9	N073	Reaction	Reaction	Reaction			
10	N191	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
11	N195	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
12	N199	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
13	N203	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

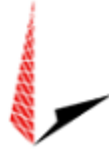
Member Primary Data

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	H001	N006	N002		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
2	H002	N009	N005		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
3	H003	N007	N004		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
4	H004	N008	N003		HSS4X4X4	Beam	None	A500 Gr. B [SQR]	Typical
5	H005	N011	N010		PIPE 3.0	Beam	None	A53 Gr. B	Typical
6	H006	N013	N012		PIPE 3.0	Beam	None	A53 Gr. B	Typical
7	H007	N015	N014		PIPE 3.0	Beam	None	A53 Gr. B	Typical
8	H008	N017	N016		PIPE 3.0	Beam	None	A53 Gr. B	Typical
9	V009	N028	N022		PIPE 3.0	Column	None	A53 Gr. B	Typical
10	V010	N023	N027		PIPE 3.0	Column	None	A53 Gr. B	Typical
11	V011	N026	N024		PIPE 3.0	Column	None	A53 Gr. B	Typical
12	V012	N025	N029		PIPE 3.0	Column	None	A53 Gr. B	Typical
13	H013	N030	N031		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
14	H014	N032	N033		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
15	H015	N034	N035		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
16	H016	N036	N037		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
17	H017	N038	N039		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
18	H018	N040	N041		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
19	H019	N042	N043		(2) 5/8 U-BOLTS	Beam	None	A36	Typical
20	H020	N044	N045		(2) 5/8 U-BOLTS	Beam	None	A36	Typical



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 Site Number : 411260
Engineering Number : 14071476_C3_03
Proposed Carrier : T-MOBILE
Carrier Site Name : CTHA244/VerizonMiddlefiel
Carrier Site Number : CTHA244A
Site Location : 484 Meriden Rd.
Middlefield, CT 06455-1013
41.5355, -72.7321
County : Middlesex
Date : May 9, 2022
Max Usage : 60%
Result : Pass

Prepared By:

Jack Davis
TEP

Reviewed By:



05/09/2022

COA : PEC.0001553



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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 at Guidas Drive-In, dated September 12, 2002
Mount Analysis	ATC Project #14071476_C9_04, dated May 6, 2022

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/ 1.00" 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:	$S_s = 0.21$, $S_i = 0.06$
Site Class:	D - Stiff Soil - Default

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	Equipment	Mount Type	Lines	Carrier
154.9	3	Samsung B2/B66A RRH-BR049	Low Profile Platform	(2) 2.02 (51.2mm) Hybrid (6) 1 5/8" Coax	VERIZON WIRELESS
154.8	1	RFS DB-C1-12C-24AB-0Z			
150.0	4	Commscope NHH-45B-R2B			
	6	Antel LPA-80063/6CF			
	2	Commscope NHH-65B-R2B			
	3	Samsung MT6407-77A			
	3	Samsung B5/B13 RRH-BR04C			
140.0	3	Ericsson Radio 4449 B71 B85A	T-Arms	(3) 1 5/8" (1.63"-41.3mm) Fiber	T-MOBILE
	3	RFS APXVAARR24_43-U-NA20			
138.2	1	Raycap DC6-48-60-18-8F	Low Profile Platform	(1) 3" conduit (1) 0.39" (10mm) Fiber Trunk (2) 0.78" (19.7mm) 8 AWG 6 (12) 1 5/8" Hybriflex	AT&T MOBILITY
137.2	6	Ericsson RRUS-11 (50 lbs.)			
136.4	6	Powerwave Allgon 7770.00 (27 lbs)			
136.3	6	Powerwave Allgon LGP 21902			
	6	Powerwave Allgon LGP21401			
135.2	3	KMW AM-X-CD-16-65-00T-RET			
130.0	3	Spinner 756529			
85.9	1	GPS	Stand-Off	(1) 1 5/8" Coax	VERIZON WIRELESS

Equipment to be Removed

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	Ericsson AIR 21, 1.3 M, B2A B4P	-	(6) 1 5/8" Coax	T-MOBILE
	3	Ericsson KRY 112 144/1			
	3	Ericsson AIR 21, 1.3M, B4A B2P			

Proposed Equipment

Elev. ¹ (ft)	Qty	Equipment	Mount Type	Lines	Carrier
140.0	3	Ericsson AIR 6419 B41	T-Arms	(1) 1.99" (50.7mm) Hybrid	T-MOBILE
	3	Commscope VV-65A-R1			
	3	Ericsson 4460 BAND 2/25			

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

Install proposed lines inside the pole shaft.



Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	42%	Pass
Shaft	60%	Pass
Base Plate	36%	Pass

Foundations

Reaction Component	Original Design Reactions	Factored Design Reactions*	Analysis Reactions	% of Design
Moment (Kips-Ft)	3405.8	4597.8	2554.6	56%
Shear (Kips)	31.3	42.2	22.9	54%
* 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, Twist and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
140.0	Ericsson AIR 6419 B41	T-MOBILE	1.264	1.110
	Ericsson 4460 BAND 2/25			
	Commscope VV-65A-R1			

*Deflection, Twist 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.

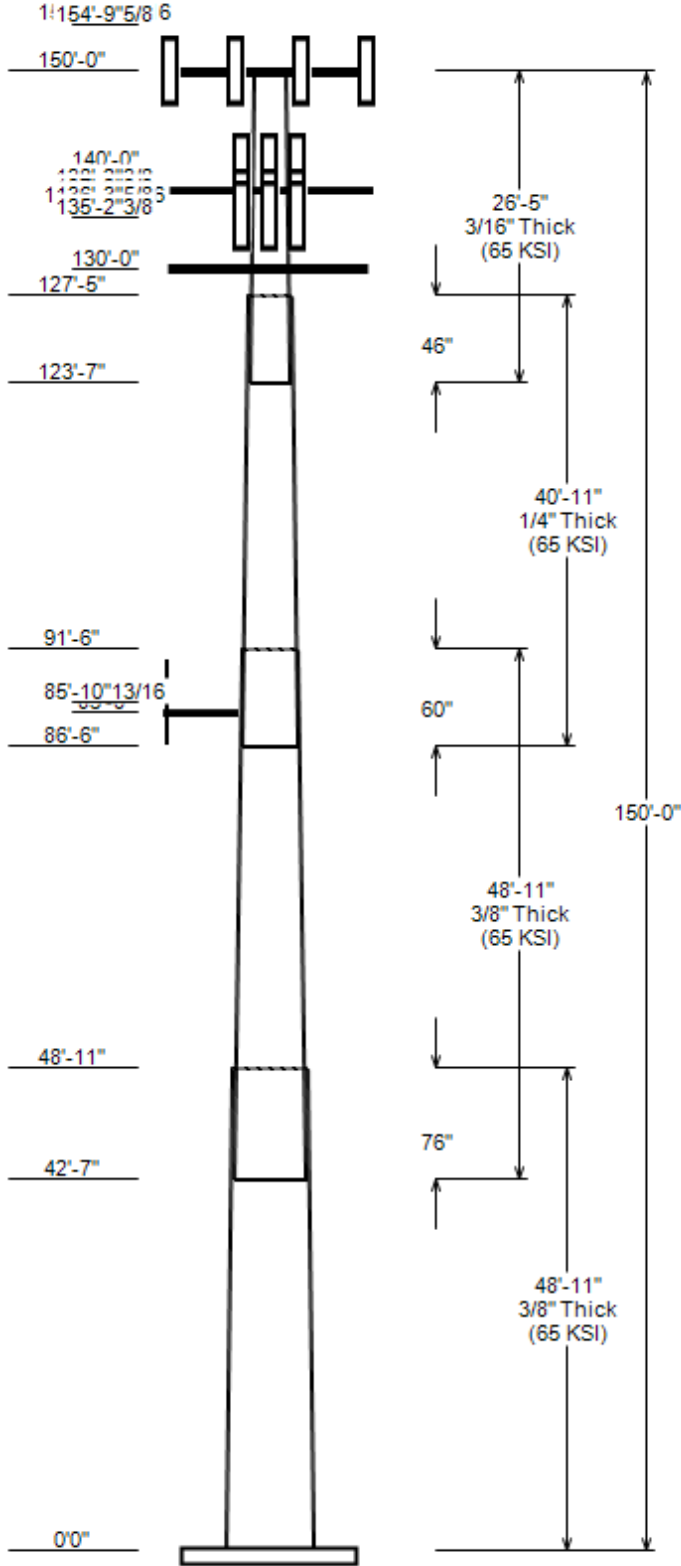
All assets of American Tower Corporation, its affiliates, and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

Asset : 411260, MIDDLEFIELD CT
 Client : T-MOBILE
 Code : ANSI/TIA-222-H

Height : 150 ft
 Base Width : 56.497
 Shape : 18 Sides



SITE PARAMETERS

Nominal Wind: 119 mph wind with no ice **Topo Category:** 1
Ice Wind: 50 mph wind with 1" radial **Topo Method:** Method 1
Base Elev (ft): 0.00 **Taper :** 0.25700 (in/ft) **Topo Feature:**
Structure Class: II **Exposure :** B **S_s :** 0.207 **S₁ :** 0.055

SECTION PROPERTIES

Shaft Section	Length (ft)	Diameter (in)		Thick Joint (in)	Type	Overlap Length (in)	Shape	Steel Grade (ksi)
		Across Flats Top	Across Flats Bottom					
1	48.917	43.90	56.50	0.375		0.000	18 Sides	65
2	48.917	33.69	46.28	0.375	Slip Joint	76.000	18 Sides	65
3	40.917	24.94	35.48	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
154.9	154.9	3	Samsung B2/B66A RRH-BR049
154.8	154.8	1	RFS DB-C1-12C-24AB-0Z
150.0	150.0	3	Samsung B5/B13 RRH-BR04C
150.0	150.0	3	Samsung MT6407-77A
150.0	150.0	2	Commscope NHH-65B-R2B
150.0	150.0	6	Antel LPA-80063/6CF
150.0	150.0	4	Commscope NHH-45B-R2B
150.0	150.0	1	Generic Flat Low Profile Platf
140.0	140.0	3	Ericsson Radio 4449 B71 B85A
140.0	140.0	3	Ericsson 4460 BAND 2/25
140.0	140.0	3	Commscope VV-65A-R1
140.0	140.0	3	Ericsson AIR 6419 B41
140.0	140.0	4	Generic Mount Reinforcement
140.0	140.0	3	RFS APXVAARR24_43-U-NA20
138.2	138.2	1	Raycap DC6-48-60-18-8F
138.0	138.0	4	Generic Round T-Arm
137.2	137.2	6	Ericsson RRUS-11 (50 lbs.)
136.4	136.4	6	Powerwave Allgon 7770.00 (27 I
136.3	136.3	6	Powerwave Allgon LGP 21902
136.3	136.3	6	Powerwave Allgon LGP21401
135.2	135.2	3	KMW AM-X-CD-16-65-00T-RET
130.0	130.0	3	Spinner 756529
130.0	130.0	1	Generic Round Low Profile Plat
85.9	85.9	1	Generic GPS
85.0	85.0	1	Generic Flat Stand-Off

LINEAR APPURTENANCE

Elev From (ft)	Elev To (ft)	Description	Exp To Wind
0.0	155.0	2.02 (51.2mm) Hybrid	No
0.0	150.0	1 5/8" Coax	Yes
0.0	140.0	1.99" (50.7mm) Hybrid	No
0.0	140.0	1 5/8" (1.63"-41.3mm) Fiber	No
0.0	138.0	3" conduit	No
0.0	136.0	1 5/8" Hybriflex	No
0.0	136.0	0.78" (19.7mm) 8 AWG 6	No
0.0	136.0	0.39" (10mm) Fiber Trunk	No
0.0	90.0	1 5/8" Coax	No

LOAD CASES

1.2D + 1.0W Normal 119 mph wind with no ice
 0.9D + 1.0W Normal 119 mph wind with no ice
 1.2D + 1.0Di + 1.0Wi Nor 50 mph wind with 1" radial ice

JOB INFORMATION

Asset : 411260, MIDDLEFIELD CT
 Client : T-MOBILE
 Code : ANSI/TIA-222-H

Height : 150 ft
 Base Width : 56.497
 Shape : 18 Sides

1.2D + 1.0Ev + 1.0Eh Nor Seismic
 0.9D - 1.0Ev + 1.0Eh Nor Seismic (Reduced DL)
 1.0D + 1.0W Service Norm 60 mph Wind with No Ice

REACTIONS

Load Case	Moment (kip-ft)	Shear (Kip)	Axial (Kip)
1.2D + 1.0W Normal	2554.61	22.86	45.01
0.9D + 1.0W Normal	2525.76	22.84	33.75
1.2D + 1.0Di + 1.0Wi Normal	665.03	6.10	61.07
1.2D + 1.0Ev + 1.0Eh Normal	142.45	1.13	45.03
0.9D - 1.0Ev + 1.0Eh Normal	140.44	1.13	30.98
1.0D + 1.0W Service Normal	577.17	5.20	37.53

DISH DEFLECTIONS

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
-----------	------------------	-----------------	----------------

ASSET: 411260, MIDDLEFIELD CT
CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
ENG NO: 14071476_C3_03

ANALYSIS PARAMETERS

Location:	Middlesex County,CT	Height:	150 ft
Type and Shape:	Taper, 18 Sides	Base Diameter:	56.50 in
Manufacturer:	EEI	Top Diameter:	19.50 in
K_d (non-service):	0.95	Taper:	0.2570 in/ft
K_e:	0.98	Rotation:	0.000°

ICE & WIND PARAMETERS

Exposure Category:	B	Design Wind Speed w/o Ice:	119 mph
Risk Category:	II	Design Wind Speed w/Ice:	50 mph
Topo Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	427.00 ft

SEISMIC PARAMETERS

Analysis Method:	Equivalent Lateral Force Method		
Site Class:	D - Stiff Soil	Period Based on Rayleigh Method (sec):	2.34
T_L (sec):	6	P:	1
S_s:	0.207	S₁:	0.055
F_a:	1.600	F_v:	2.400
S_{ds}:	0.221	S_{dt}:	0.088
		C_s:	0.030
		C_s Max:	0.030
		C_s Min:	0.030

LOAD CASES

1.2D + 1.0W Normal	119 mph wind with no ice
0.9D + 1.0W Normal	119 mph wind with no ice
1.2D + 1.0Di + 1.0Wi Normal	50 mph wind with 1" radial ice
1.2D + 1.0Ev + 1.0Eh Normal	Seismic
0.9D - 1.0Ev + 1.0Eh Normal	Seismic (Reduced DL)
1.0D + 1.0W Service Normal	60 mph Wind with No Ice

ASSET: 411260, MIDDLEFIELD CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14071476_C3_03

SHAFT SECTION PROPERTIES

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint len (in)	Bottom							Top							
						Weight (lb)	Dia (in)	Elev (ft)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Dia (in)	Elev (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-18	48.92	0.3750	65		0.00	9,871	56.50	0.003	66.80	26,581.2	25.15	150.66	43.90	48.92	51.81	12,400.9	19.23	117.07	0.2575	
2-18	48.92	0.3750	65	Slip	76.00	7,847	46.28	42.583	54.64	14,549.0	20.35	123.42	33.69	91.50	39.65	5,559.2	14.43	89.83	0.2575	
3-18	40.92	0.2500	65	Slip	60.00	3,310	35.48	86.503	27.95	4,381.7	23.61	141.90	24.94	127.42	19.59	1,508.9	16.18	99.76	0.2575	
								123.58								541.6				
4-18	26.42	0.1875	65	Slip	46.00	1,215	26.30	3	15.54	1,339.0	23.32	140.28	19.50	150.00	11.49		16.93	104.00	0.2575	
Shaft Weight						22,243														

DISCRETE APPURTENANCE PROPERTIES

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice			Ice		
					Weight (lb)	EPAA (sf)	Orientation Factor	Weight (lb)	EPAA (sf)	Orientation Factor
154.90	Samsung B2/B66A RRH-BR049	3	0.80	0.000	84.40	1.875	0.50	126.95	2.477	0.50
154.80	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	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 Platf	1	1.00	0.000	1875.00	26.100	1.00	2415.11	38.833	1.00
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-65B-R2B	2	0.80	0.000	43.70	8.079	0.77	159.98	9.937	0.77
150.00	Samsung MT6407-77A	3	0.80	0.000	81.60	4.709	0.61	149.58	5.722	0.61
150.00	Samsung B5/B13 RRH-BR04C	3	0.80	0.000	70.30	1.875	0.50	108.45	2.477	0.50
140.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	388.19	22.702	0.63
140.00	Generic Mount Reinforcement	4	1.00	0.000	200.00	7.500	1.00	328.31	12.464	1.00
140.00	Ericsson AIR 6419 B41	3	0.80	0.000	83.30	6.322	0.63	183.64	7.443	0.63
140.00	Commscope VV-65A-R1	3	0.80	0.000	23.80	5.928	0.63	101.65	7.333	0.63
140.00	Ericsson 4460 BAND 2/25	3	0.80	0.000	109.00	2.564	0.67	167.60	3.263	0.67
140.00	Ericsson Radio 4449 B71 B85A	3	0.80	0.000	75.00	1.650	0.50	114.87	2.213	0.50
138.20	Raycap DC6-48-60-18-8F	1	0.80	0.000	20.00	1.260	1.00	54.88	1.696	1.00
138.00	Generic Round T-Arm	4	0.75	0.000	312.50	9.700	0.67	485.52	15.160	0.67
137.20	Ericsson RRUS-11 (50 lbs.)	6	0.80	0.000	50.00	2.566	0.67	95.12	3.259	0.67
136.40	Powerwave Allgon 7770.00 (27 I	6	0.80	0.000	27.00	5.508	0.65	102.21	6.915	0.65
136.30	Powerwave Allgon LGP 21902	6	0.80	0.000	5.50	0.231	0.50	11.05	0.456	0.50
136.30	Powerwave Allgon LGP21401	6	0.80	0.000	14.10	1.104	0.50	30.60	1.576	0.50
135.20	KMW AM-X-CD-16-65-00T-RET	3	0.80	0.000	48.50	8.024	0.67	155.56	9.868	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	Generic Round Low Profile Plat	1	1.00	0.000	1875.00	21.700	1.00	2407.80	34.331	1.00
85.90	Generic GPS	1	1.00	0.000	10.00	0.900	1.00	28.48	1.304	1.00
85.00	Generic Flat Stand-Off	1	1.00	0.000	187.50	6.300	1.00	271.34	8.261	1.00
Totals	Num Loadings: 25	80			9,288.80			16,969.09		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg) : 0.00_

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	155.00	2	2.02 (51.2mm) Hybrid	2.02	3.04	N	0	0	0	0	0	N	VERIZON WIREL
0.00	150.00	6	1 5/8" Coax	1.98	0.82	N	6	1	1	270	1	Y	VERIZON WIREL
0.00	140.00	3	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0	0	0	0	N	T-MOBILE
0.00	140.00	1	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	T-MOBILE
0.00	138.00	1	3" conduit	3.5	7.58	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	136.00	12	1 5/8" Hybriflex	1.98	1.3	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	136.00	2	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	136.00	1	0.39" (10mm) Fiber Tr	0.39	0.06	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	90.00	1	1 5/8" Coax	1.98	0.82	N	0	0	0	0	0	N	VERIZON WIREL

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	66.797	26,581.20	25.15	150.66	71.8	926.7	0.0	0.0
5.00		0.3750	55.210	65.265	24,793.60	24.55	147.23	72.5	884.5	0.0	1,123.4
10.00		0.3750	53.922	63.732	23,088.00	23.94	143.79	73.2	843.3	0.0	1,097.4
15.00		0.3750	52.635	62.200	21,462.50	23.34	140.36	74	803.1	0.0	1,071.3
20.00		0.3750	51.347	60.668	19,915.10	22.73	136.93	74.7	763.9	0.0	1,045.2
25.00		0.3750	50.060	59.136	18,443.90	22.13	133.49	75.4	725.7	0.0	1,019.2
30.00		0.3750	48.773	57.603	17,047.10	21.52	130.06	76.1	688.4	0.0	993.1
35.00		0.3750	47.485	56.071	15,722.60	20.92	126.63	76.8	652.1	0.0	967.0
40.00		0.3750	46.198	54.539	14,468.50	20.31	123.19	77.5	616.9	0.0	941.0
42.58	Bot - Section 2	0.3750	45.533	53.747	13,847.50	20.00	121.42	77.9	599.0	0.0	475.9
45.00		0.3750	44.911	53.007	13,283.00	19.71	119.76	78.2	582.5	0.0	885.2
48.92	Top - Section 1	0.3750	44.652	52.699	13,053.10	19.59	119.07	78.4	575.8	0.0	1,408.8
50.00		0.3750	44.373	52.367	12,807.90	19.45	118.33	78.5	568.5	0.0	193.6
55.00		0.3750	43.086	50.835	11,716.20	18.85	114.90	79.2	535.6	0.0	877.9
60.00		0.3750	41.798	49.302	10,688.40	18.24	111.46	79.9	503.7	0.0	851.9
65.00		0.3750	40.511	47.770	9,722.50	17.64	108.03	80.7	472.7	0.0	825.8
70.00		0.3750	39.224	46.238	8,816.60	17.03	104.60	81.4	442.7	0.0	799.7
75.00		0.3750	37.936	44.706	7,968.80	16.43	101.16	82.1	413.7	0.0	773.7
80.00		0.3750	36.649	43.173	7,177.20	15.82	97.73	82.6	385.7	0.0	747.6
85.00		0.3750	35.361	41.641	6,439.80	15.22	94.30	82.6	358.7	0.0	721.5
85.90		0.3750	35.130	41.365	6,312.70	15.11	93.68	82.6	353.9	0.0	127.1
86.50	Bot - Section 3	0.3750	34.975	41.181	6,228.90	15.03	93.27	82.6	350.8	0.0	84.3
90.00		0.3750	34.074	40.109	5,754.80	14.61	90.86	82.6	332.6	0.0	812.7
91.50	Top - Section 2	0.2500	34.188	26.929	3,918.60	22.70	136.75	74.7	225.8	0.0	341.8
95.00		0.2500	33.287	26.214	3,614.70	22.07	133.15	75.4	213.9	0.0	316.4
100.00		0.2500	31.999	25.192	3,208.40	21.16	128.00	76.5	197.5	0.0	437.3
105.00		0.2500	30.712	24.171	2,833.70	20.25	122.85	77.6	181.7	0.0	419.9
110.00		0.2500	29.425	23.149	2,489.40	19.34	117.70	78.7	166.6	0.0	402.5
115.00		0.2500	28.137	22.128	2,174.20	18.43	112.55	79.7	152.2	0.0	385.2
120.00		0.2500	26.850	21.106	1,886.80	17.53	107.40	80.8	138.4	0.0	367.8
123.58	Bot - Section 4	0.2500	25.927	20.374	1,697.20	16.88	103.71	81.6	128.9	0.0	252.9
125.00		0.2500	25.562	20.085	1,625.90	16.62	102.25	81.9	125.3	0.0	171.9
127.42	Top - Section 3	0.1875	25.315	14.954	1,192.90	22.40	135.01	75.1	92.8	0.0	287.6
130.00		0.1875	24.650	14.558	1,100.60	21.77	131.47	75.8	87.9	0.0	129.7
135.00		0.1875	23.363	13.792	935.90	20.56	124.60	77.2	78.9	0.0	241.2
135.20		0.1875	23.311	13.761	929.60	20.51	124.33	77.3	78.5	0.0	9.4
136.30		0.1875	23.028	13.592	895.90	20.25	122.82	77.6	76.6	0.0	51.2
136.40		0.1875	23.002	13.577	892.90	20.22	122.68	77.6	76.5	0.0	4.6
137.20		0.1875	22.796	13.454	868.90	20.03	121.58	77.8	75.1	0.0	36.8
138.00		0.1875	22.590	13.332	845.40	19.83	120.48	78.1	73.7	0.0	36.5
138.20		0.1875	22.539	13.301	839.50	19.78	120.21	78.1	73.4	0.0	9.1
140.00		0.1875	22.075	13.025	788.40	19.35	117.73	78.6	70.3	0.0	80.6
145.00		0.1875	20.788	12.259	657.30	18.14	110.87	80.1	62.3	0.0	215.1
150.00		0.1875	19.500	11.493	541.60	16.93	104.00	81.5	54.7	0.0	202.1

Totals: 22,242.9

Load Case: 1.2D + 1.0W Normal	119 mph wind with no ice	25 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	-45.01	-22.86	0.00	-2,554.6	0.00	2,554.61	4,317.28	1,172.28	5,942.19	4,991.20	0	0	0.523
5.00	-43.35	-22.51	0.00	-2,440.3	0.00	2,440.32	4,260.07	1,145.39	5,672.73	4,811.32	0.07	-0.13	0.518
10.00	-41.73	-22.17	0.00	-2,327.8	0.00	2,327.76	4,200.89	1,118.50	5,409.52	4,632.34	0.29	-0.27	0.513
15.00	-40.13	-21.84	0.00	-2,216.9	0.00	2,216.90	4,139.75	1,091.61	5,152.56	4,454.41	0.64	-0.41	0.508
20.00	-38.57	-21.51	0.00	-2,107.7	0.00	2,107.70	4,076.64	1,064.72	4,901.86	4,277.68	1.15	-0.55	0.503
25.00	-37.04	-21.19	0.00	-2,000.2	0.00	2,000.16	4,011.57	1,037.83	4,657.40	4,102.31	1.81	-0.7	0.497
30.00	-35.54	-20.86	0.00	-1,894.2	0.00	1,894.23	3,944.54	1,010.94	4,419.20	3,928.46	2.62	-0.85	0.492
35.00	-34.07	-20.53	0.00	-1,789.9	0.00	1,789.92	3,875.54	984.05	4,187.25	3,756.28	3.6	-1	0.486
40.00	-32.65	-20.27	0.00	-1,687.3	0.00	1,687.26	3,804.58	957.16	3,961.56	3,585.94	4.73	-1.16	0.480
42.58	-31.92	-20.09	0.00	-1,634.9	0.00	1,634.90	3,767.15	943.26	3,847.39	3,498.70	5.39	-1.25	0.476
45.00	-30.70	-19.86	0.00	-1,586.3	0.00	1,586.34	3,731.66	930.26	3,742.11	3,417.59	6.04	-1.33	0.473
48.92	-28.79	-19.65	0.00	-1,508.6	0.00	1,508.55	3,716.78	924.87	3,698.81	3,384.05	7.18	-1.46	0.454
50.00	-28.47	-19.44	0.00	-1,487.3	0.00	1,487.26	3,700.64	919.04	3,652.36	3,347.94	7.52	-1.49	0.452
55.00	-27.12	-19.07	0.00	-1,390.1	0.00	1,390.06	3,624.93	892.15	3,441.78	3,182.68	9.16	-1.65	0.445
60.00	-25.80	-18.69	0.00	-1,294.7	0.00	1,294.72	3,547.26	865.26	3,237.45	3,019.80	10.98	-1.82	0.436
65.00	-24.51	-18.32	0.00	-1,201.3	0.00	1,201.26	3,467.62	838.37	3,039.37	2,859.43	12.97	-1.98	0.428
70.00	-23.26	-17.94	0.00	-1,109.7	0.00	1,109.68	3,386.02	811.47	2,847.54	2,701.76	15.14	-2.15	0.418
75.00	-22.03	-17.56	0.00	-1,020.0	0.00	1,020.00	3,302.46	784.58	2,661.97	2,546.93	17.48	-2.32	0.408
80.00	-20.84	-17.19	0.00	-932.2	0.00	932.19	3,207.57	757.69	2,482.65	2,388.12	20.01	-2.5	0.397
85.00	-19.49	-16.71	0.00	-846.3	0.00	846.27	3,093.73	730.80	2,309.58	2,220.78	22.72	-2.67	0.388
85.90	-19.27	-16.62	0.00	-831.2	0.00	831.23	3,073.24	725.96	2,279.09	2,191.30	23.23	-2.71	0.386
86.50	-19.13	-16.48	0.00	-821.3	0.00	821.26	3,059.57	722.73	2,258.88	2,171.76	23.57	-2.73	0.385
90.00	-17.96	-16.26	0.00	-763.6	0.00	763.58	2,979.89	703.91	2,142.77	2,059.51	25.62	-2.86	0.377
91.50	-17.45	-16.08	0.00	-739.2	0.00	739.18	1,810.39	472.60	1,448.66	1,264.80	26.52	-2.91	0.595
95.00	-16.86	-15.79	0.00	-682.9	0.00	682.91	1,779.95	460.05	1,372.76	1,210.27	28.7	-3.04	0.575
100.00	-16.04	-15.45	0.00	-604.0	0.00	603.97	1,734.80	442.12	1,267.86	1,133.26	32.02	-3.29	0.543
105.00	-15.24	-15.12	0.00	-526.7	0.00	526.71	1,687.69	424.19	1,167.14	1,057.43	35.6	-3.54	0.508
110.00	-14.46	-14.79	0.00	-451.1	0.00	451.11	1,638.61	406.27	1,070.59	982.94	39.45	-3.79	0.469
115.00	-13.71	-14.46	0.00	-377.2	0.00	377.16	1,587.58	388.34	978.20	909.95	43.54	-4.02	0.425
120.00	-13.00	-14.17	0.00	-304.9	0.00	304.86	1,534.57	370.41	889.98	838.60	47.87	-4.25	0.373
123.58	-12.50	-13.98	0.00	-254.1	0.00	254.10	1,495.38	357.56	829.32	788.57	51.12	-4.4	0.332
125.00	-12.22	-13.85	0.00	-234.3	0.00	234.29	1,479.61	352.49	805.93	769.07	52.43	-4.46	0.314
127.42	-11.74	-13.66	0.00	-200.8	0.00	200.82	1,010.16	262.43	595.61	522.47	54.71	-4.55	0.399
130.00	-9.27	-12.37	0.00	-165.5	0.00	165.52	993.06	255.49	564.50	499.93	57.2	-4.64	0.343
135.00	-8.72	-12.16	0.00	-103.7	0.00	103.69	958.47	242.04	506.65	456.93	62.15	-4.81	0.239
135.20	-8.57	-11.59	0.00	-101.3	0.00	101.26	957.05	241.50	504.41	455.23	62.35	-4.82	0.234
136.30	-8.33	-11.40	0.00	-88.5	0.00	88.51	949.16	238.55	492.13	445.91	63.46	-4.85	0.210
136.40	-8.19	-10.67	0.00	-87.4	0.00	87.37	948.43	238.28	491.02	445.06	63.56	-4.85	0.207
137.20	-7.79	-10.25	0.00	-78.8	0.00	78.83	942.63	236.13	482.19	438.31	64.38	-4.87	0.190
138.00	-6.30	-9.30	0.00	-70.6	0.00	70.63	936.78	233.97	473.45	431.59	65.2	-4.89	0.172
138.20	-6.26	-9.19	0.00	-68.8	0.00	68.77	935.30	233.44	471.27	429.91	65.4	-4.9	0.168
140.00	-3.98	-5.31	0.00	-52.2	0.00	52.22	921.92	228.60	451.93	414.90	67.25	-4.94	0.131
145.00	-3.68	-4.96	0.00	-25.7	0.00	25.69	883.40	215.15	400.34	373.98	72.46	-5.01	0.073
150.00	0.00	-4.62	0.00	-0.9	0.00	0.90	842.93	201.71	351.87	334.35	77.72	-5.03	0.003

ASSET: 411260, MIDDLEFIELD CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14071476_C3_03

Load Case: 0.9D + 1.0W Normal	119 mph wind with no ice	25 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	-33.75	-22.84	0.00	-2,525.8	0.00	2,525.76	4,317.28	1,172.28	5,942.19	4,991.20	0	0	0.514
5.00	-32.50	-22.47	0.00	-2,411.6	0.00	2,411.55	4,260.07	1,145.39	5,672.73	4,811.32	0.07	-0.13	0.509
10.00	-31.27	-22.11	0.00	-2,299.2	0.00	2,299.18	4,200.89	1,118.50	5,409.52	4,632.34	0.28	-0.27	0.504
15.00	-30.06	-21.75	0.00	-2,188.6	0.00	2,188.64	4,139.75	1,091.61	5,152.56	4,454.41	0.64	-0.41	0.499
20.00	-28.87	-21.40	0.00	-2,079.9	0.00	2,079.89	4,076.64	1,064.72	4,901.86	4,277.68	1.14	-0.55	0.494
25.00	-27.71	-21.05	0.00	-1,972.9	0.00	1,972.90	4,011.57	1,037.83	4,657.40	4,102.31	1.79	-0.69	0.488
30.00	-26.58	-20.71	0.00	-1,867.6	0.00	1,867.62	3,944.54	1,010.94	4,419.20	3,928.46	2.59	-0.84	0.483
35.00	-25.47	-20.36	0.00	-1,764.1	0.00	1,764.07	3,875.54	984.05	4,187.25	3,756.28	3.55	-0.99	0.477
40.00	-24.39	-20.09	0.00	-1,662.3	0.00	1,662.26	3,804.58	957.16	3,961.56	3,585.94	4.67	-1.15	0.470
42.58	-23.84	-19.91	0.00	-1,610.4	0.00	1,610.36	3,767.15	943.26	3,847.39	3,498.70	5.32	-1.23	0.467
45.00	-22.92	-19.67	0.00	-1,562.3	0.00	1,562.26	3,731.66	930.26	3,742.11	3,417.59	5.96	-1.31	0.464
48.92	-21.48	-19.45	0.00	-1,485.2	0.00	1,485.24	3,716.78	924.87	3,698.81	3,384.05	7.09	-1.44	0.445
50.00	-21.23	-19.23	0.00	-1,464.2	0.00	1,464.16	3,700.64	919.04	3,652.36	3,347.94	7.42	-1.47	0.444
55.00	-20.21	-18.85	0.00	-1,368.0	0.00	1,368.00	3,624.93	892.15	3,441.78	3,182.68	9.05	-1.63	0.436
60.00	-19.21	-18.46	0.00	-1,273.8	0.00	1,273.75	3,547.26	865.26	3,237.45	3,019.80	10.84	-1.79	0.428
65.00	-18.24	-18.08	0.00	-1,181.4	0.00	1,181.43	3,467.62	838.37	3,039.37	2,859.43	12.8	-1.95	0.419
70.00	-17.29	-17.69	0.00	-1,091.0	0.00	1,091.03	3,386.02	811.47	2,847.54	2,701.76	14.94	-2.12	0.409
75.00	-16.36	-17.31	0.00	-1,002.6	0.00	1,002.56	3,302.46	784.58	2,661.97	2,546.93	17.25	-2.29	0.399
80.00	-15.46	-16.93	0.00	-916.0	0.00	916.01	3,207.57	757.69	2,482.65	2,388.12	19.74	-2.46	0.389
85.00	-14.44	-16.46	0.00	-831.4	0.00	831.35	3,093.73	730.80	2,309.58	2,220.78	22.4	-2.63	0.380
85.90	-14.28	-16.37	0.00	-816.5	0.00	816.54	3,073.24	725.96	2,279.09	2,191.30	22.9	-2.67	0.378
86.50	-14.17	-16.23	0.00	-806.7	0.00	806.71	3,059.57	722.73	2,258.88	2,171.76	23.24	-2.69	0.377
90.00	-13.29	-16.02	0.00	-749.9	0.00	749.92	2,979.89	703.91	2,142.77	2,059.51	25.26	-2.81	0.369
91.50	-12.91	-15.83	0.00	-725.9	0.00	725.89	1,810.39	472.60	1,448.66	1,264.80	26.15	-2.87	0.582
95.00	-12.45	-15.53	0.00	-670.5	0.00	670.49	1,779.95	460.05	1,372.76	1,210.27	28.3	-2.99	0.562
100.00	-11.83	-15.19	0.00	-592.8	0.00	592.82	1,734.80	442.12	1,267.86	1,133.26	31.57	-3.24	0.531
105.00	-11.22	-14.85	0.00	-516.9	0.00	516.88	1,687.69	424.19	1,167.14	1,057.43	35.09	-3.49	0.497
110.00	-10.63	-14.52	0.00	-442.6	0.00	442.63	1,638.61	406.27	1,070.59	982.94	38.87	-3.73	0.458
115.00	-10.06	-14.18	0.00	-370.0	0.00	370.05	1,587.58	388.34	978.20	909.95	42.9	-3.96	0.414
120.00	-9.52	-13.89	0.00	-299.1	0.00	299.14	1,534.57	370.41	889.98	838.60	47.16	-4.18	0.364
123.58	-9.14	-13.71	0.00	-249.4	0.00	249.37	1,495.38	357.56	829.32	788.57	50.36	-4.33	0.324
125.00	-8.93	-13.58	0.00	-230.0	0.00	229.95	1,479.61	352.49	805.93	769.07	51.65	-4.38	0.307
127.42	-8.57	-13.40	0.00	-197.1	0.00	197.13	1,010.16	262.43	595.61	522.47	53.89	-4.47	0.388
130.00	-6.73	-12.15	0.00	-162.5	0.00	162.53	993.06	255.49	564.50	499.93	56.33	-4.56	0.334
135.00	-6.32	-11.95	0.00	-101.8	0.00	101.80	958.47	242.04	506.65	456.93	61.21	-4.73	0.232
135.20	-6.22	-11.38	0.00	-99.4	0.00	99.41	957.05	241.50	504.41	455.23	61.4	-4.74	0.227
136.30	-6.04	-11.20	0.00	-86.9	0.00	86.89	949.16	238.55	492.13	445.91	62.5	-4.77	0.203
136.40	-5.94	-10.47	0.00	-85.8	0.00	85.77	948.43	238.28	491.02	445.06	62.6	-4.77	0.201
137.20	-5.65	-10.06	0.00	-77.4	0.00	77.40	942.63	236.13	482.19	438.31	63.4	-4.79	0.184
138.00	-4.55	-9.14	0.00	-69.4	0.00	69.35	936.78	233.97	473.45	431.59	64.2	-4.81	0.167
138.20	-4.52	-9.04	0.00	-67.5	0.00	67.52	935.30	233.44	471.27	429.91	64.41	-4.82	0.163
140.00	-2.88	-5.21	0.00	-51.3	0.00	51.26	921.92	228.60	451.93	414.90	66.23	-4.85	0.127
145.00	-2.67	-4.86	0.00	-25.2	0.00	25.22	883.40	215.15	400.34	373.98	71.35	-4.92	0.071
150.00	0.00	-4.62	0.00	-0.9	0.00	0.90	842.93	201.71	351.87	334.35	76.52	-4.95	0.003

ASSET: 411260, MIDDLEFIELD CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14071476_C3_03

Load Case: 1.2D + 1.0Di + 1.0Wi Normal		50 mph wind with 1" radial ice		24 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	-61.07	-6.10	0.00	-665.0	0.00	665.03	4,317.28	1,172.28	5,942.19	4,991.20	0	0	0.147
5.00	-59.13	-6.00	0.00	-634.5	0.00	634.53	4,260.07	1,145.39	5,672.73	4,811.32	0.02	-0.03	0.146
10.00	-57.19	-5.91	0.00	-604.5	0.00	604.53	4,200.89	1,118.50	5,409.52	4,632.34	0.07	-0.07	0.144
15.00	-55.27	-5.81	0.00	-575.0	0.00	575.00	4,139.75	1,091.61	5,152.56	4,454.41	0.17	-0.11	0.142
20.00	-53.37	-5.72	0.00	-546.0	0.00	545.95	4,076.64	1,064.72	4,901.86	4,277.68	0.3	-0.14	0.141
25.00	-51.51	-5.62	0.00	-517.4	0.00	517.37	4,011.57	1,037.83	4,657.40	4,102.31	0.47	-0.18	0.139
30.00	-49.68	-5.53	0.00	-489.2	0.00	489.25	3,944.54	1,010.94	4,419.20	3,928.46	0.68	-0.22	0.137
35.00	-47.88	-5.44	0.00	-461.6	0.00	461.59	3,875.54	984.05	4,187.25	3,756.28	0.93	-0.26	0.135
40.00	-46.12	-5.36	0.00	-434.4	0.00	434.40	3,804.58	957.16	3,961.56	3,585.94	1.23	-0.3	0.133
42.58	-45.22	-5.31	0.00	-420.6	0.00	420.56	3,767.15	943.26	3,847.39	3,498.70	1.4	-0.32	0.132
45.00	-43.85	-5.24	0.00	-407.7	0.00	407.72	3,731.66	930.26	3,742.11	3,417.59	1.57	-0.34	0.131
48.92	-41.66	-5.18	0.00	-387.2	0.00	387.19	3,716.78	924.87	3,698.81	3,384.05	1.86	-0.38	0.126
50.00	-41.29	-5.12	0.00	-381.6	0.00	381.57	3,700.64	919.04	3,652.36	3,347.94	1.95	-0.39	0.125
55.00	-39.61	-5.01	0.00	-356.0	0.00	355.97	3,624.93	892.15	3,441.78	3,182.68	2.37	-0.43	0.123
60.00	-37.97	-4.90	0.00	-330.9	0.00	330.90	3,547.26	865.26	3,237.45	3,019.80	2.84	-0.47	0.120
65.00	-36.36	-4.79	0.00	-306.4	0.00	306.39	3,467.62	838.37	3,039.37	2,859.43	3.36	-0.51	0.118
70.00	-34.80	-4.68	0.00	-282.4	0.00	282.43	3,386.02	811.47	2,847.54	2,701.76	3.92	-0.55	0.115
75.00	-33.27	-4.57	0.00	-259.0	0.00	259.04	3,302.46	784.58	2,661.97	2,546.93	4.52	-0.6	0.112
80.00	-31.77	-4.46	0.00	-236.2	0.00	236.20	3,207.57	757.69	2,482.65	2,388.12	5.17	-0.64	0.109
85.00	-30.03	-4.33	0.00	-213.9	0.00	213.91	3,093.73	730.80	2,309.58	2,220.78	5.87	-0.69	0.106
85.90	-29.75	-4.30	0.00	-210.0	0.00	210.02	3,073.24	725.96	2,279.09	2,191.30	6	-0.7	0.106
86.50	-29.57	-4.26	0.00	-207.4	0.00	207.44	3,059.57	722.73	2,258.88	2,171.76	6.08	-0.7	0.105
90.00	-28.19	-4.20	0.00	-192.5	0.00	192.52	2,979.89	703.91	2,142.77	2,059.51	6.61	-0.73	0.103
91.50	-27.61	-4.14	0.00	-186.2	0.00	186.23	1,810.39	472.60	1,448.66	1,264.80	6.84	-0.75	0.163
95.00	-26.83	-4.06	0.00	-171.7	0.00	171.73	1,779.95	460.05	1,372.76	1,210.27	7.4	-0.78	0.157
100.00	-25.73	-3.96	0.00	-151.4	0.00	151.45	1,734.80	442.12	1,267.86	1,133.26	8.25	-0.84	0.149
105.00	-24.67	-3.86	0.00	-131.7	0.00	131.67	1,687.69	424.19	1,167.14	1,057.43	9.17	-0.91	0.139
110.00	-23.64	-3.76	0.00	-112.4	0.00	112.38	1,638.61	406.27	1,070.59	982.94	10.15	-0.97	0.129
115.00	-22.64	-3.66	0.00	-93.6	0.00	93.60	1,587.58	388.34	978.20	909.95	11.19	-1.03	0.117
120.00	-21.66	-3.57	0.00	-75.3	0.00	75.31	1,534.57	370.41	889.98	838.60	12.3	-1.08	0.104
123.58	-20.98	-3.52	0.00	-62.5	0.00	62.51	1,495.38	357.56	829.32	788.57	13.12	-1.12	0.093
125.00	-20.62	-3.48	0.00	-57.5	0.00	57.53	1,479.61	352.49	805.93	769.07	13.46	-1.13	0.089
127.42	-20.03	-3.43	0.00	-49.1	0.00	49.13	1,010.16	262.43	595.61	522.47	14.04	-1.15	0.114
130.00	-16.93	-3.06	0.00	-40.3	0.00	40.28	993.06	255.49	564.50	499.93	14.67	-1.18	0.098
135.00	-16.13	-3.00	0.00	-25.0	0.00	25.00	958.47	242.04	506.65	456.93	15.92	-1.22	0.072
135.20	-15.67	-2.86	0.00	-24.4	0.00	24.40	957.05	241.50	504.41	455.23	15.98	-1.22	0.070
136.30	-15.26	-2.81	0.00	-21.2	0.00	21.25	949.16	238.55	492.13	445.91	16.26	-1.23	0.064
136.40	-14.70	-2.64	0.00	-21.0	0.00	20.96	948.43	238.28	491.02	445.06	16.28	-1.23	0.063
137.20	-14.03	-2.54	0.00	-18.8	0.00	18.85	942.63	236.13	482.19	438.31	16.49	-1.23	0.058
138.00	-11.88	-2.26	0.00	-16.8	0.00	16.83	936.78	233.97	473.45	431.59	16.7	-1.24	0.052
138.20	-11.80	-2.23	0.00	-16.4	0.00	16.37	935.30	233.44	471.27	429.91	16.75	-1.24	0.051
140.00	-7.47	-1.26	0.00	-12.4	0.00	12.35	921.92	228.60	451.93	414.90	17.22	-1.25	0.038
145.00	-6.90	-1.17	0.00	-6.0	0.00	6.04	883.40	215.15	400.34	373.98	18.53	-1.26	0.024
150.00	0.00	-1.01	0.00	-0.2	0.00	0.20	842.93	201.71	351.87	334.35	19.86	-1.27	0.001

Load Case: 1.0D + 1.0W Service Normal	60 mph Wind with No Ice	24 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	-37.53	-5.20	0.00	-577.2	0.00	577.17	4,317.28	1,172.28	5,942.19	4,991.20	0	0	0.124
5.00	-36.19	-5.11	0.00	-551.2	0.00	551.18	4,260.07	1,145.39	5,672.73	4,811.32	0.02	-0.03	0.123
10.00	-34.88	-5.03	0.00	-525.6	0.00	525.61	4,200.89	1,118.50	5,409.52	4,632.34	0.06	-0.06	0.122
15.00	-33.59	-4.95	0.00	-500.4	0.00	500.45	4,139.75	1,091.61	5,152.56	4,454.41	0.15	-0.09	0.120
20.00	-32.33	-4.88	0.00	-475.7	0.00	475.68	4,076.64	1,064.72	4,901.86	4,277.68	0.26	-0.13	0.119
25.00	-31.09	-4.80	0.00	-451.3	0.00	451.30	4,011.57	1,037.83	4,657.40	4,102.31	0.41	-0.16	0.118
30.00	-29.88	-4.72	0.00	-427.3	0.00	427.30	3,944.54	1,010.94	4,419.20	3,928.46	0.59	-0.19	0.116
35.00	-28.69	-4.64	0.00	-403.7	0.00	403.69	3,875.54	984.05	4,187.25	3,756.28	0.81	-0.23	0.115
40.00	-27.54	-4.58	0.00	-380.5	0.00	380.47	3,804.58	957.16	3,961.56	3,585.94	1.07	-0.26	0.113
42.58	-26.95	-4.54	0.00	-368.6	0.00	368.63	3,767.15	943.26	3,847.39	3,498.70	1.22	-0.28	0.113
45.00	-25.96	-4.49	0.00	-357.6	0.00	357.65	3,731.66	930.26	3,742.11	3,417.59	1.36	-0.3	0.112
48.92	-24.38	-4.44	0.00	-340.1	0.00	340.07	3,716.78	924.87	3,698.81	3,384.05	1.62	-0.33	0.107
50.00	-24.14	-4.39	0.00	-335.3	0.00	335.26	3,700.64	919.04	3,652.36	3,347.94	1.7	-0.34	0.107
55.00	-23.04	-4.31	0.00	-313.3	0.00	313.30	3,624.93	892.15	3,441.78	3,182.68	2.07	-0.37	0.105
60.00	-21.97	-4.22	0.00	-291.8	0.00	291.77	3,547.26	865.26	3,237.45	3,019.80	2.48	-0.41	0.103
65.00	-20.93	-4.13	0.00	-270.7	0.00	270.68	3,467.62	838.37	3,039.37	2,859.43	2.93	-0.45	0.101
70.00	-19.91	-4.05	0.00	-250.0	0.00	250.02	3,386.02	811.47	2,847.54	2,701.76	3.42	-0.49	0.098
75.00	-18.92	-3.96	0.00	-229.8	0.00	229.79	3,302.46	784.58	2,661.97	2,546.93	3.95	-0.52	0.096
80.00	-17.96	-3.87	0.00	-210.0	0.00	209.99	3,207.57	757.69	2,482.65	2,388.12	4.52	-0.56	0.094
85.00	-16.84	-3.77	0.00	-190.6	0.00	190.62	3,093.73	730.80	2,309.58	2,220.78	5.13	-0.6	0.091
85.90	-16.66	-3.75	0.00	-187.2	0.00	187.23	3,073.24	725.96	2,279.09	2,191.30	5.24	-0.61	0.091
86.50	-16.55	-3.71	0.00	-185.0	0.00	184.98	3,059.57	722.73	2,258.88	2,171.76	5.32	-0.62	0.091
90.00	-15.59	-3.67	0.00	-172.0	0.00	171.99	2,979.89	703.91	2,142.77	2,059.51	5.78	-0.64	0.089
91.50	-15.18	-3.62	0.00	-166.5	0.00	166.49	1,810.39	472.60	1,448.66	1,264.80	5.98	-0.66	0.140
95.00	-14.71	-3.56	0.00	-153.8	0.00	153.81	1,779.95	460.05	1,372.76	1,210.27	6.48	-0.69	0.135
100.00	-14.06	-3.48	0.00	-136.0	0.00	136.02	1,734.80	442.12	1,267.86	1,133.26	7.23	-0.74	0.128
105.00	-13.43	-3.40	0.00	-118.6	0.00	118.62	1,687.69	424.19	1,167.14	1,057.43	8.03	-0.8	0.120
110.00	-12.82	-3.33	0.00	-101.6	0.00	101.60	1,638.61	406.27	1,070.59	982.94	8.9	-0.85	0.111
115.00	-12.22	-3.25	0.00	-85.0	0.00	84.95	1,587.58	388.34	978.20	909.95	9.82	-0.91	0.101
120.00	-11.64	-3.19	0.00	-68.7	0.00	68.68	1,534.57	370.41	889.98	838.60	10.8	-0.96	0.090
123.58	-11.23	-3.15	0.00	-57.2	0.00	57.25	1,495.38	357.56	829.32	788.57	11.53	-0.99	0.080
125.00	-11.00	-3.12	0.00	-52.8	0.00	52.79	1,479.61	352.49	805.93	769.07	11.83	-1	0.076
127.42	-10.61	-3.08	0.00	-45.3	0.00	45.26	1,010.16	262.43	595.61	522.47	12.34	-1.03	0.097
130.00	-8.50	-2.79	0.00	-37.3	0.00	37.31	993.06	255.49	564.50	499.93	12.9	-1.05	0.083
135.00	-8.04	-2.74	0.00	-23.4	0.00	23.38	958.47	242.04	506.65	456.93	14.02	-1.08	0.060
135.20	-7.88	-2.61	0.00	-22.8	0.00	22.83	957.05	241.50	504.41	455.23	14.07	-1.09	0.058
136.30	-7.67	-2.57	0.00	-20.0	0.00	19.95	949.16	238.55	492.13	445.91	14.32	-1.09	0.053
136.40	-7.51	-2.40	0.00	-19.7	0.00	19.70	948.43	238.28	491.02	445.06	14.34	-1.09	0.052
137.20	-7.15	-2.31	0.00	-17.8	0.00	17.77	942.63	236.13	482.19	438.31	14.52	-1.1	0.048
138.00	-5.85	-2.10	0.00	-15.9	0.00	15.92	936.78	233.97	473.45	431.59	14.71	-1.1	0.043
138.20	-5.82	-2.07	0.00	-15.5	0.00	15.51	935.30	233.44	471.27	429.91	14.76	-1.1	0.042
140.00	-3.66	-1.20	0.00	-11.8	0.00	11.77	921.92	228.60	451.93	414.90	15.17	-1.11	0.032
145.00	-3.40	-1.12	0.00	-5.8	0.00	5.79	883.40	215.15	400.34	373.98	16.35	-1.13	0.019
150.00	0.00	-1.05	0.00	-0.2	0.00	0.20	842.93	201.71	351.87	334.35	17.53	-1.13	0.001

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

(Based on ASCE7-16 Chapters 11, 12 and 15)

Spectral Response Acceleration for Short Period (S_S):	0.207
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.055
Long-Period Transition Period (T_L – Seconds):	6
Importance Factor (I_e):	1.000
Site Coefficient F_a :	1.600
Site Coefficient F_v :	2.400
Response Modification Coefficient (R):	1.500
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.221
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.088
Seismic Response Coefficient (C_s):	0.030
Upper Limit C_s :	0.030
Lower Limit C_s :	0.030
Period based on Rayleigh Method (sec):	2.340
Redundancy Factor (ρ):	1.000
Seismic Force Distribution Exponent (k):	1.920
Total Unfactored Dead Load:	37.530 k
Seismic Base Shear (E):	1.130 k

1.2D + 1.0Ev + 1.0Eh Normal Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
43	147.5	257	3,787	0.017	19	320
42	142.5	270	3,724	0.017	19	336
41	139.1	113	1,481	0.007	7	140
40	138.1	13	164	0.001	1	16
39	137.6	57	731	0.003	4	71
38	136.8	57	727	0.003	4	71
37	136.35	7	91	0.000	0	9
36	135.75	93	1,162	0.005	6	115
35	135.1	18	222	0.001	1	22
34	132.5	452	5,417	0.024	27	562
33	128.7084	239	2,705	0.012	14	297
32	126.2084	390	4,252	0.019	21	485
31	124.2917	232	2,455	0.011	12	288
30	121.7917	404	4,118	0.018	21	503
29	117.5	579	5,505	0.025	28	720
28	112.5	596	5,216	0.023	26	741
27	107.5	613	4,919	0.022	25	763
26	102.5	631	4,616	0.021	23	785
25	97.5	648	4,308	0.019	22	806
24	93.25	464	2,831	0.013	14	577
23	90.75	405	2,346	0.010	12	504
22	88.25	963	5,286	0.024	27	1,198
21	86.2	110	577	0.003	3	137
20	85.45	166	855	0.004	4	206
19	82.5	936	4,515	0.020	23	1,165
18	77.5	962	4,116	0.018	21	1,197
17	72.5	989	3,719	0.017	19	1,230
16	67.5	1,015	3,327	0.015	17	1,262
15	62.5	1,041	2,943	0.013	15	1,295
14	57.5	1,067	2,570	0.012	13	1,327
13	52.5	1,093	2,211	0.010	11	1,360
12	49.4584	240	433	0.002	2	299
11	46.9584	1,577	2,575	0.012	13	1,962
10	43.7917	989	1,412	0.006	7	1,231

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
9	41.2917	587	748	0.003	4	730
8	37.5	1,156	1,225	0.006	6	1,438
7	32.5	1,182	951	0.004	5	1,470
6	27.5	1,208	705	0.003	4	1,503
5	22.5	1,234	490	0.002	2	1,535
4	17.5	1,260	309	0.001	2	1,568
3	12.5	1,286	165	0.001	1	1,600
2	7.5	1,312	63	0.000	0	1,633
1	2.5	1,338	8	0.000	0	1,665
Samsung B2/B66A RRH-BR049	150	253	3,852	0.017	19	315
RFS DB-C1-12C-24AB-0Z	150	32	487	0.002	2	40
Samsung B5/B13 RRH-BR04C	150	211	3,209	0.014	16	262
Samsung MT6407-77A	150	245	3,724	0.017	19	305
Commscope NHH-65B-R2B	150	87	1,330	0.006	7	109
Antel LPA-80063/6CF	150	162	2,465	0.011	12	202
Commscope NHH-45B-R2B	150	294	4,479	0.020	23	366
Generic Flat Low Profile Platform	150	1,875	28,527	0.127	143	2,333
Ericsson Radio 4449 B71 B85A	140	225	2,998	0.013	15	280
Ericsson 4460 BAND 2/25	140	327	4,357	0.020	22	407
Commscope VV-65A-R1	140	71	951	0.004	5	89
Ericsson AIR 6419 B41	140	250	3,330	0.015	17	311
Generic Mount Reinforcement	140	800	10,660	0.048	54	995
RFS APXVAARR24_43-U-NA20	140	384	5,113	0.023	26	477
Raycap DC6-48-60-18-8F	138.2	20	260	0.001	1	25
Generic Round T-Arm	138	1,250	16,202	0.072	81	1,555
Ericsson RRUS-11 (50 lbs.)	137.2	300	3,845	0.017	19	373
Powerwave Allgon 7770.00 (27 lbs)	136.4	162	2,053	0.009	10	202
Powerwave Allgon LGP 21902	136.3	33	418	0.002	2	41
Powerwave Allgon LGP21401	136.3	85	1,071	0.005	5	105
KMW AM-X-CD-16-65-00T-RET	135.2	146	1,813	0.008	9	181
Spinner 756529	130	4	52	0.000	0	6
Generic Round Low Profile Platform	130	1,875	21,668	0.097	109	2,333
Generic GPS	85.9	10	52	0.000	0	12
Generic Flat Stand-Off	85	188	958	0.004	5	233
		37,534	223,850	1.000	1,126	46,698

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

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
43	147.5	257	3,787	0.017	19	220
42	142.5	270	3,724	0.017	19	231
41	139.1	113	1,481	0.007	7	96
40	138.1	13	164	0.001	1	11
39	137.6	57	731	0.003	4	49
38	136.8	57	727	0.003	4	49
37	136.35	7	91	0.000	0	6
36	135.75	93	1,162	0.005	6	79
35	135.1	18	222	0.001	1	15
34	132.5	452	5,417	0.024	27	387
33	128.7084	239	2,705	0.012	14	204
32	126.2084	390	4,252	0.019	21	333
31	124.2917	232	2,455	0.011	12	198
30	121.7917	404	4,118	0.018	21	346
29	117.5	579	5,505	0.025	28	495
28	112.5	596	5,216	0.023	26	510
27	107.5	613	4,919	0.022	25	525
26	102.5	631	4,616	0.021	23	540
25	97.5	648	4,308	0.019	22	555
24	93.25	464	2,831	0.013	14	397
23	90.75	405	2,346	0.010	12	347
22	88.25	963	5,286	0.024	27	824
21	86.2	110	577	0.003	3	94

Segment	Height Above Base (ft)	Weight (lb)	W _z (lb-ft)	C _{vx}	Horizontal Force (lb)	Vertical Force (lb)
20	85.45	166	855	0.004	4	142
19	82.5	936	4,515	0.020	23	801
18	77.5	962	4,116	0.018	21	824
17	72.5	989	3,719	0.017	19	846
16	67.5	1,015	3,327	0.015	17	868
15	62.5	1,041	2,943	0.013	15	891
14	57.5	1,067	2,570	0.012	13	913
13	52.5	1,093	2,211	0.010	11	935
12	49.4584	240	433	0.002	2	206
11	46.9584	1,577	2,575	0.012	13	1,350
10	43.7917	989	1,412	0.006	7	846
9	41.2917	587	748	0.003	4	502
8	37.5	1,156	1,225	0.006	6	989
7	32.5	1,182	951	0.004	5	1,011
6	27.5	1,208	705	0.003	4	1,034
5	22.5	1,234	490	0.002	2	1,056
4	17.5	1,260	309	0.001	2	1,078
3	12.5	1,286	165	0.001	1	1,101
2	7.5	1,312	63	0.000	0	1,123
1	2.5	1,338	8	0.000	0	1,145
Samsung B2/B66A RRH-BR049	150	253	3,852	0.017	19	217
RFS DB-C1-12C-24AB-0Z	150	32	487	0.002	2	27
Samsung B5/B13 RRH-BR04C	150	211	3,209	0.014	16	180
Samsung MT6407-77A	150	245	3,724	0.017	19	210
Commscope NHH-65B-R2B	150	87	1,330	0.006	7	75
Antel LPA-80063/6CF	150	162	2,465	0.011	12	139
Commscope NHH-45B-R2B	150	294	4,479	0.020	23	252
Generic Flat Low Profile Platform	150	1,875	28,527	0.127	143	1,605
Ericsson Radio 4449 B71 B85A	140	225	2,998	0.013	15	193
Ericsson 4460 BAND 2/25	140	327	4,357	0.020	22	280
Commscope VV-65A-R1	140	71	951	0.004	5	61
Ericsson AIR 6419 B41	140	250	3,330	0.015	17	214
Generic Mount Reinforcement	140	800	10,660	0.048	54	685
RFS APXVAARR24_43-U-NA20	140	384	5,113	0.023	26	328
Raycap DC6-48-60-18-8F	138.2	20	260	0.001	1	17
Generic Round T-Arm	138	1,250	16,202	0.072	81	1,070
Ericsson RRUS-11 (50 lbs.)	137.2	300	3,845	0.017	19	257
Powerwave Allgon 7770.00 (27 lbs)	136.4	162	2,053	0.009	10	139
Powerwave Allgon LGP 21902	136.3	33	418	0.002	2	28
Powerwave Allgon LGP21401	136.3	85	1,071	0.005	5	72
KMW AM-X-CD-16-65-00T-RET	135.2	146	1,813	0.008	9	125
Spinner 756529	130	4	52	0.000	0	4
Generic Round Low Profile Platform	130	1,875	21,668	0.097	109	1,605
Generic GPS	85.9	10	52	0.000	0	9
Generic Flat Stand-Off	85	188	958	0.004	5	160
		37,534	223,850	1.000	1,126	32,123

1.2D + 1.0Ev + 1.0Eh Normal

Seismic

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-45.03	-1.13	0.00	-142.45	0.00	142.45	4,317.28	1,172.28	5,942	4,991.20	0.00	0.00	0.04
5.00	-43.40	-1.13	0.00	-136.81	0.00	136.81	4,260.07	1,145.39	5,673	4,811.32	0.00	-0.01	0.04
10.00	-41.80	-1.14	0.00	-131.15	0.00	131.15	4,200.89	1,118.50	5,410	4,632.34	0.02	-0.02	0.04
15.00	-40.23	-1.14	0.00	-125.46	0.00	125.46	4,139.75	1,091.61	5,153	4,454.41	0.04	-0.02	0.04
20.00	-38.70	-1.14	0.00	-119.76	0.00	119.76	4,076.64	1,064.72	4,902	4,277.68	0.06	-0.03	0.04
25.00	-37.19	-1.14	0.00	-114.04	0.00	114.04	4,011.57	1,037.83	4,657	4,102.31	0.10	-0.04	0.04
30.00	-35.72	-1.14	0.00	-108.32	0.00	108.32	3,944.54	1,010.94	4,419	3,928.46	0.15	-0.05	0.04
35.00	-34.28	-1.14	0.00	-102.60	0.00	102.60	3,875.54	984.05	4,187	3,756.28	0.20	-0.06	0.04
40.00	-33.55	-1.14	0.00	-96.89	0.00	96.89	3,804.58	957.16	3,962	3,585.94	0.27	-0.07	0.04
42.58	-32.32	-1.14	0.00	-93.94	0.00	93.94	3,767.15	943.26	3,847	3,498.70	0.30	-0.07	0.04
45.00	-30.36	-1.12	0.00	-91.20	0.00	91.20	3,731.66	930.26	3,742	3,417.59	0.34	-0.08	0.04
48.92	-30.06	-1.12	0.00	-86.80	0.00	86.80	3,716.78	924.87	3,699	3,384.05	0.41	-0.08	0.03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
50.00	-28.70	-1.11	0.00	-85.58	0.00	85.58	3,700.64	919.04	3,652	3,347.94	0.43	-0.08	0.03
55.00	-27.38	-1.10	0.00	-80.02	0.00	80.02	3,624.93	892.15	3,442	3,182.68	0.52	-0.09	0.03
60.00	-26.08	-1.09	0.00	-74.50	0.00	74.50	3,547.26	865.26	3,237	3,019.80	0.62	-0.10	0.03
65.00	-24.82	-1.07	0.00	-69.06	0.00	69.06	3,467.62	838.37	3,039	2,859.43	0.74	-0.11	0.03
70.00	-23.59	-1.06	0.00	-63.68	0.00	63.68	3,386.02	811.47	2,848	2,701.76	0.86	-0.12	0.03
75.00	-22.39	-1.04	0.00	-58.40	0.00	58.40	3,302.46	784.58	2,662	2,546.93	0.99	-0.13	0.03
80.00	-21.23	-1.02	0.00	-53.21	0.00	53.21	3,207.57	757.69	2,483	2,388.12	1.14	-0.14	0.03
85.00	-20.79	-1.01	0.00	-48.13	0.00	48.13	3,093.73	730.80	2,310	2,220.78	1.29	-0.15	0.03
85.90	-20.64	-1.01	0.00	-47.22	0.00	47.22	3,073.24	725.96	2,279	2,191.30	1.32	-0.15	0.03
86.50	-19.44	-0.98	0.00	-46.62	0.00	46.62	3,059.57	722.73	2,259	2,171.76	1.34	-0.16	0.03
90.00	-18.93	-0.97	0.00	-43.20	0.00	43.20	2,979.89	703.91	2,143	2,059.51	1.46	-0.16	0.03
91.50	-18.36	-0.95	0.00	-41.75	0.00	41.75	1,810.39	472.60	1,449	1,264.80	1.51	-0.17	0.04
95.00	-17.55	-0.93	0.00	-38.42	0.00	38.42	1,779.95	460.05	1,373	1,210.27	1.64	-0.17	0.04
100.00	-16.77	-0.91	0.00	-33.77	0.00	33.77	1,734.80	442.12	1,268	1,133.26	1.82	-0.19	0.04
105.00	-16.00	-0.89	0.00	-29.22	0.00	29.22	1,687.69	424.19	1,167	1,057.43	2.03	-0.20	0.04
110.00	-15.26	-0.86	0.00	-24.80	0.00	24.80	1,638.61	406.27	1,071	982.94	2.25	-0.22	0.04
115.00	-14.54	-0.83	0.00	-20.50	0.00	20.50	1,587.58	388.34	978	909.95	2.48	-0.23	0.03
120.00	-14.04	-0.81	0.00	-16.33	0.00	16.33	1,534.57	370.41	890	838.60	2.72	-0.24	0.03
123.58	-13.75	-0.80	0.00	-13.42	0.00	13.42	1,495.38	357.56	829	788.57	2.91	-0.25	0.03
125.00	-13.27	-0.78	0.00	-12.29	0.00	12.29	1,479.61	352.49	806	769.07	2.98	-0.25	0.03
127.42	-12.97	-0.76	0.00	-10.41	0.00	10.41	1,010.16	262.43	596	522.47	3.11	-0.26	0.03
130.00	-10.07	-0.62	0.00	-8.44	0.00	8.44	993.06	255.49	564	499.93	3.25	-0.26	0.03
135.00	-10.05	-0.62	0.00	-5.36	0.00	5.36	958.47	242.04	507	456.93	3.53	-0.27	0.02
135.20	-9.75	-0.60	0.00	-5.24	0.00	5.24	957.05	241.50	504	455.23	3.54	-0.27	0.02
136.30	-9.60	-0.59	0.00	-4.58	0.00	4.58	949.16	238.55	492	445.91	3.60	-0.27	0.02
136.40	-9.32	-0.58	0.00	-4.52	0.00	4.52	948.43	238.28	491	445.06	3.61	-0.27	0.02
137.20	-8.88	-0.55	0.00	-4.06	0.00	4.06	942.63	236.13	482	438.31	3.65	-0.27	0.02
138.00	-7.31	-0.46	0.00	-3.62	0.00	3.62	936.78	233.97	473	431.59	3.70	-0.27	0.02
138.20	-7.14	-0.45	0.00	-3.52	0.00	3.52	935.30	233.44	471	429.91	3.71	-0.27	0.02
140.00	-4.25	-0.28	0.00	-2.71	0.00	2.71	921.92	228.60	452	414.90	3.81	-0.28	0.01
145.00	-3.93	-0.26	0.00	-1.30	0.00	1.30	883.40	215.15	400	373.98	4.11	-0.28	0.01
150.00	0.00	-0.24	0.00	0.00	0.00	0.00	842.93	201.71	352	334.35	4.40	-0.28	0.00

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

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-30.98	-1.13	0.00	-140.44	0.00	140.44	4,317.28	1,172.28	5,942	4,991.20	0.00	0.00	0.04
5.00	-29.85	-1.13	0.00	-134.81	0.00	134.81	4,260.07	1,145.39	5,673	4,811.32	0.00	-0.01	0.04
10.00	-28.75	-1.13	0.00	-129.16	0.00	129.16	4,200.89	1,118.50	5,410	4,632.34	0.02	-0.01	0.04
15.00	-27.67	-1.14	0.00	-123.49	0.00	123.49	4,139.75	1,091.61	5,153	4,454.41	0.04	-0.02	0.03
20.00	-26.62	-1.14	0.00	-117.82	0.00	117.82	4,076.64	1,064.72	4,902	4,277.68	0.06	-0.03	0.03
25.00	-25.58	-1.14	0.00	-112.14	0.00	112.14	4,011.57	1,037.83	4,657	4,102.31	0.10	-0.04	0.03
30.00	-24.57	-1.13	0.00	-106.46	0.00	106.46	3,944.54	1,010.94	4,419	3,928.46	0.15	-0.05	0.03
35.00	-23.58	-1.13	0.00	-100.79	0.00	100.79	3,875.54	984.05	4,187	3,756.28	0.20	-0.06	0.03
40.00	-23.08	-1.13	0.00	-95.14	0.00	95.14	3,804.58	957.16	3,962	3,585.94	0.26	-0.06	0.03
42.58	-22.23	-1.12	0.00	-92.23	0.00	92.23	3,767.15	943.26	3,847	3,498.70	0.30	-0.07	0.03
45.00	-20.88	-1.11	0.00	-89.51	0.00	89.51	3,731.66	930.26	3,742	3,417.59	0.34	-0.07	0.03
48.92	-20.68	-1.11	0.00	-85.17	0.00	85.17	3,716.78	924.87	3,699	3,384.05	0.40	-0.08	0.03
50.00	-19.74	-1.10	0.00	-83.97	0.00	83.97	3,700.64	919.04	3,652	3,347.94	0.42	-0.08	0.03
55.00	-18.83	-1.09	0.00	-78.47	0.00	78.47	3,624.93	892.15	3,442	3,182.68	0.51	-0.09	0.03
60.00	-17.94	-1.07	0.00	-73.04	0.00	73.04	3,547.26	865.26	3,237	3,019.80	0.61	-0.10	0.03
65.00	-17.07	-1.06	0.00	-67.67	0.00	67.67	3,467.62	838.37	3,039	2,859.43	0.72	-0.11	0.03
70.00	-16.23	-1.04	0.00	-62.38	0.00	62.38	3,386.02	811.47	2,848	2,701.76	0.85	-0.12	0.03
75.00	-15.40	-1.02	0.00	-57.18	0.00	57.18	3,302.46	784.58	2,662	2,546.93	0.98	-0.13	0.03
80.00	-14.60	-1.00	0.00	-52.07	0.00	52.07	3,207.57	757.69	2,483	2,388.12	1.12	-0.14	0.03
85.00	-14.30	-0.99	0.00	-47.08	0.00	47.08	3,093.73	730.80	2,310	2,220.78	1.27	-0.15	0.03
85.90	-14.19	-0.99	0.00	-46.19	0.00	46.19	3,073.24	725.96	2,279	2,191.30	1.30	-0.15	0.03
86.50	-13.37	-0.96	0.00	-45.60	0.00	45.60	3,059.57	722.73	2,259	2,171.76	1.32	-0.15	0.03
90.00	-13.02	-0.95	0.00	-42.24	0.00	42.24	2,979.89	703.91	2,143	2,059.51	1.43	-0.16	0.03
91.50	-12.63	-0.93	0.00	-40.82	0.00	40.82	1,810.39	472.60	1,449	1,264.80	1.48	-0.16	0.04
95.00	-12.07	-0.91	0.00	-37.55	0.00	37.55	1,779.95	460.05	1,373	1,210.27	1.61	-0.17	0.04
100.00	-11.53	-0.89	0.00	-32.99	0.00	32.99	1,734.80	442.12	1,268	1,133.26	1.79	-0.18	0.04
105.00	-11.01	-0.87	0.00	-28.54	0.00	28.54	1,687.69	424.19	1,167	1,057.43	1.99	-0.20	0.03
110.00	-10.50	-0.84	0.00	-24.21	0.00	24.21	1,638.61	406.27	1,071	982.94	2.21	-0.21	0.03
115.00	-10.00	-0.81	0.00	-20.00	0.00	20.00	1,587.58	388.34	978	909.95	2.43	-0.22	0.03
120.00	-9.66	-0.79	0.00	-15.93	0.00	15.93	1,534.57	370.41	890	838.60	2.68	-0.24	0.03

ASSET: 411260, MIDDLEFIELD CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14071476_C3_03

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (fr-kips)	Mu Mx (ft-kips)	Resultant Moment (ft-kips)	Phi Pn (kips)	Phi Vn (kips)	Phi Tn (kips)	Phi Mn (kips)	Total Deflect (in)	Rotation (deg)	Ratio
123.58	-9.46	-0.78	0.00	-13.09	0.00	13.09	1,495.38	357.56	829	788.57	2.86	-0.24	0.02
125.00	-9.12	-0.76	0.00	-11.99	0.00	11.99	1,479.61	352.49	806	769.07	2.93	-0.25	0.02
127.42	-8.92	-0.74	0.00	-10.15	0.00	10.15	1,010.16	262.43	596	522.47	3.05	-0.25	0.03
130.00	-6.93	-0.60	0.00	-8.23	0.00	8.23	993.06	255.49	564	499.93	3.19	-0.26	0.02
135.00	-6.91	-0.60	0.00	-5.23	0.00	5.23	958.47	242.04	507	456.93	3.46	-0.26	0.02
135.20	-6.71	-0.58	0.00	-5.11	0.00	5.11	957.05	241.50	504	455.23	3.47	-0.26	0.02
136.30	-6.60	-0.58	0.00	-4.47	0.00	4.47	949.16	238.55	492	445.91	3.54	-0.27	0.02
136.40	-6.41	-0.56	0.00	-4.41	0.00	4.41	948.43	238.28	491	445.06	3.54	-0.27	0.02
137.20	-6.11	-0.54	0.00	-3.96	0.00	3.96	942.63	236.13	482	438.31	3.59	-0.27	0.02
138.00	-5.03	-0.45	0.00	-3.53	0.00	3.53	936.78	233.97	473	431.59	3.63	-0.27	0.01
138.20	-4.91	-0.44	0.00	-3.44	0.00	3.44	935.30	233.44	471	429.91	3.64	-0.27	0.01
140.00	-2.92	-0.27	0.00	-2.65	0.00	2.65	921.92	228.60	452	414.90	3.74	-0.27	0.01
145.00	-2.70	-0.25	0.00	-1.27	0.00	1.27	883.40	215.15	400	373.98	4.03	-0.27	0.01
150.00	0.00	-0.24	0.00	0.00	0.00	0.00	842.93	201.71	352	334.35	4.32	-0.28	0.00

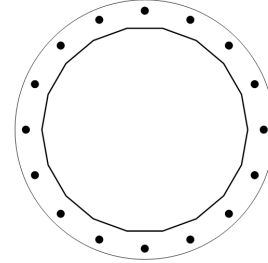
ANALYSIS SUMMARY

Load Case	Reactions						Max Usage	
	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 Normal	22.86	0.00	45.01	0.00	0.00	2554.61	91.50	0.6
0.9D + 1.0W Normal	22.84	0.00	33.75	0.00	0.00	2525.76	91.50	0.58
1.2D + 1.0Di + 1.0Wi Normal	6.10	0.00	61.07	0.00	0.00	665.03	91.50	0.16
1.2D + 1.0Ev + 1.0Eh Normal	1.14	0.00	45.03	0.00	0.00	142.45	91.50	0.04
0.9D - 1.0Ev + 1.0Eh Normal	1.14	0.00	30.98	0.00	0.00	140.44	91.50	0.04
1.0D + 1.0W Service Normal	5.20	0.00	37.53	0.00	0.00	577.17	91.50	0.14

BASE PLATE ANALYSIS @ 0 FT

PLATE PARAMETERS (ID# 16932)

Diameter:	72	in
Shape:	Round	
Thickness:	2	in
Grade:	A572-60	
Yield Strength:	60	ksi
Tensile Strength:	75	ksi
Rod Detail Type:	d	
Clear Distance	5.5	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	0	°



ANCHOR ROD PARAMETERS

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	Fy (ksi)	Fu (ksi)	Spacing (in)	Offset (°)
Original [ID# 17330]	Radial	16	2.25	66	A615-75	75	100	-	-

ANCHOR ROD GEOMETRY AND APPLIED LOADS --- ORIGINAL (16) 2.25"Ø [ID 17330]

Position	Radians	X (in)	Y (in)	Moment Arm (in)	Inertia (in ⁴)	Axial Load (k)	Shear Load (k)
1	0.393	30.49	12.63	12.126	478.401	101.84	2.10
2	0.785	23.34	23.34	22.406	1631.338	101.84	1.61
3	1.178	12.63	30.49	29.275	2784.275	101.84	0.87
4	1.571	0.00	33.00	31.688	3261.837	101.84	0.00
5	1.963	-12.63	30.49	29.275	2784.275	101.84	0.87
6	2.356	-23.34	23.34	22.406	1631.338	101.84	1.61
7	2.749	-30.49	12.63	12.126	478.401	101.84	2.10
8	3.142	-33.00	0.00	0.000	0.839	101.84	2.27
9	3.534	-30.49	-12.63	-12.126	478.401	-90.59	2.10
10	3.927	-23.34	-23.34	-22.406	1631.338	-90.59	1.61
11	4.320	-12.63	-30.49	-29.275	2784.275	-90.59	0.87
12	4.712	0.00	-33.00	-31.688	3261.837	-90.59	0.00
13	5.105	12.63	-30.49	-29.275	2784.275	-90.59	0.87
14	5.498	23.34	-23.34	-22.406	1631.338	-90.59	1.61
15	5.890	30.49	-12.63	-12.126	478.401	-90.59	2.10
16	6.283	33.00	0.00	0.000	0.839	101.84	2.27

REACTION DISTRIBUTION

Component	ID	Moment Mu (k-ft)	Axial Load Pu (k)	Shear Vu (k)	Moment Factor
Pole	56.4966"Ø x 0.375" (18 Sides)	2554.6	45.01	22.86	1.000
Bolt Group	Original (16) 2.25"Ø	2554.6	-	22.86	1.000
TOTALS		2554.61	45.01	22.86	

ASSET: 411260, MIDDLEFIELD CT
 CUSTOMER: T-MOBILE

CODE: ANSI/TIA-222-H
 ENG NO: 14071476

COMPONENT PROPERTIES

Component	ID	Gross Area (in ²)	Net Area (in ²)	Individual Inertia (in ⁴)	Moment of Inertia (in ⁴)	Threads/in
Pole	56.4966"ø x 0.375" (18 Sides)	65.7815	-	-	25901.57	-
Bolt Group	Original (16) 2.25"ø	3.9761	3.2477	0.8393	26101.41	4.5

EXTERNAL BASE PLATE BEND LINE ANALYSIS @ 0 FT

POLE PROPERTIES

Flat-to-Flat Diameter: 56.62 in
 Point-to-Point Diameter: 57.50 in
 Flat Width: 9.984 in
 Flat Radians: 0.349 rad

PLATE PROPERTIES

Neutral Axis: 0 °
 Bend Line Lower Limit: 0.955 rad
 Bend Line Upper Limit: 2.186 rad

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in ³)	Applied Moment Mu (k-in)	Moment Capacity φMn (k-in)	Ratio
Flat	40.112	0.00	40.112	638.5	2166.0	0.295
Corner	38.850	0.00	38.850	484.5	2097.9	0.231
Circumferential	53.448	0.00	53.448	1036.7	2886.2	0.359

PLASTIC ANCHOR ROD ANALYSIS

Class	Group Quantity	Rod Diameter (in)	Applied Axial Load Pu (k)	Applied Shear Load Vu (k)	Compressive Capacity φPn (k)	Ratio
Original	16	2.25	101.8	2.3	243.6	0.418

RAN Template: 67D5D998E ODE+6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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CTHA244A_Anchor_9

Print Name: Preliminary (RFDS_For_Scoping)
PORs: Anchor_Phase 3

Section 1 - Site Information

Site ID: CTHA244A
Status: Final
Version: 9
Project Type: Anchor
Approved: 3/2/2022 9:26:09 AM
Approved By: Pratik.Patil30@T-Mobile.com
Last Modified: 3/2/2022 9:26:09 AM
Last Modified By: Pratik.Patil30@T-Mobile.com

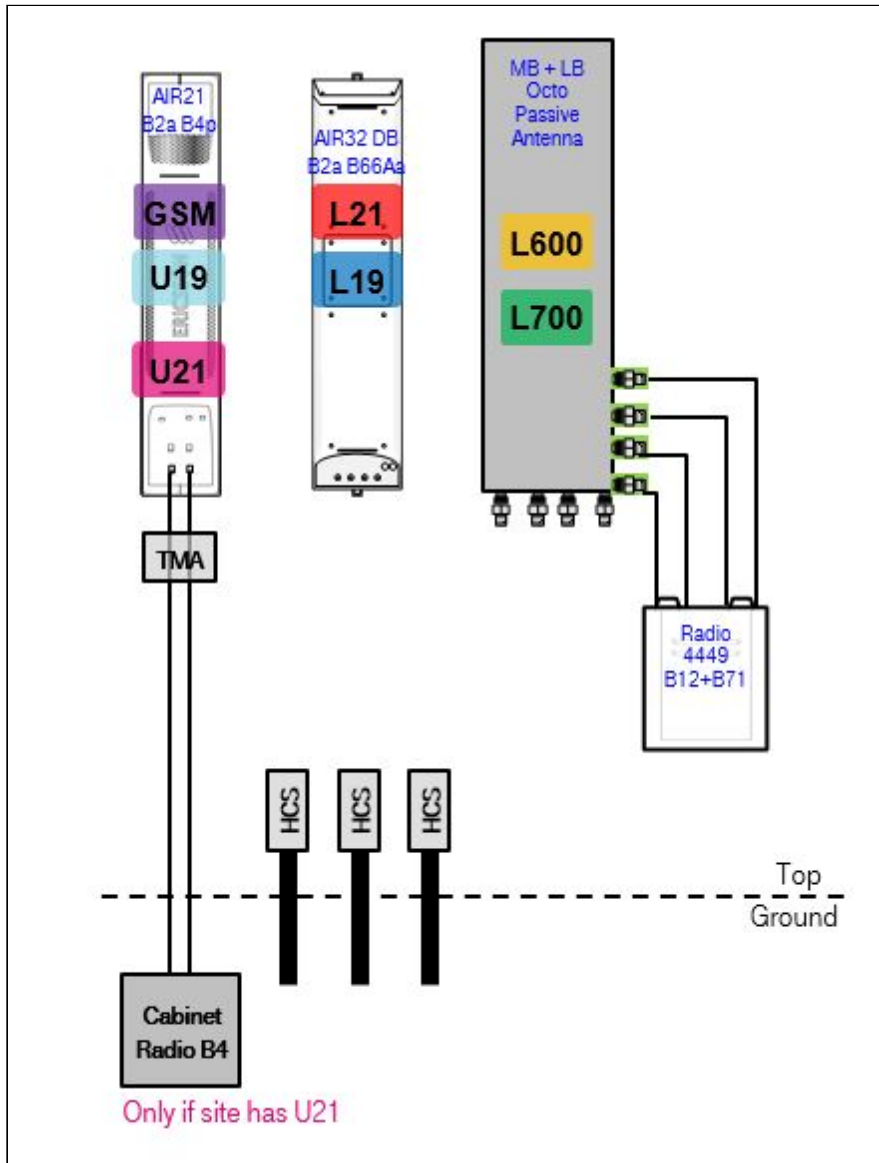
Site Name: CTHA244/VerizonMiddlefield
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2022
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Verizon Wireless

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

RAN Template: 67D5D998E ODE+6160		AL Template: 67D5998E_1xAIR+1OP+1QP		
Sector Count: 3	Antenna Count: 9	Coax Line Count: 0	TMA Count: 0	RRU Count: 6

Section 2 - Existing Template Images

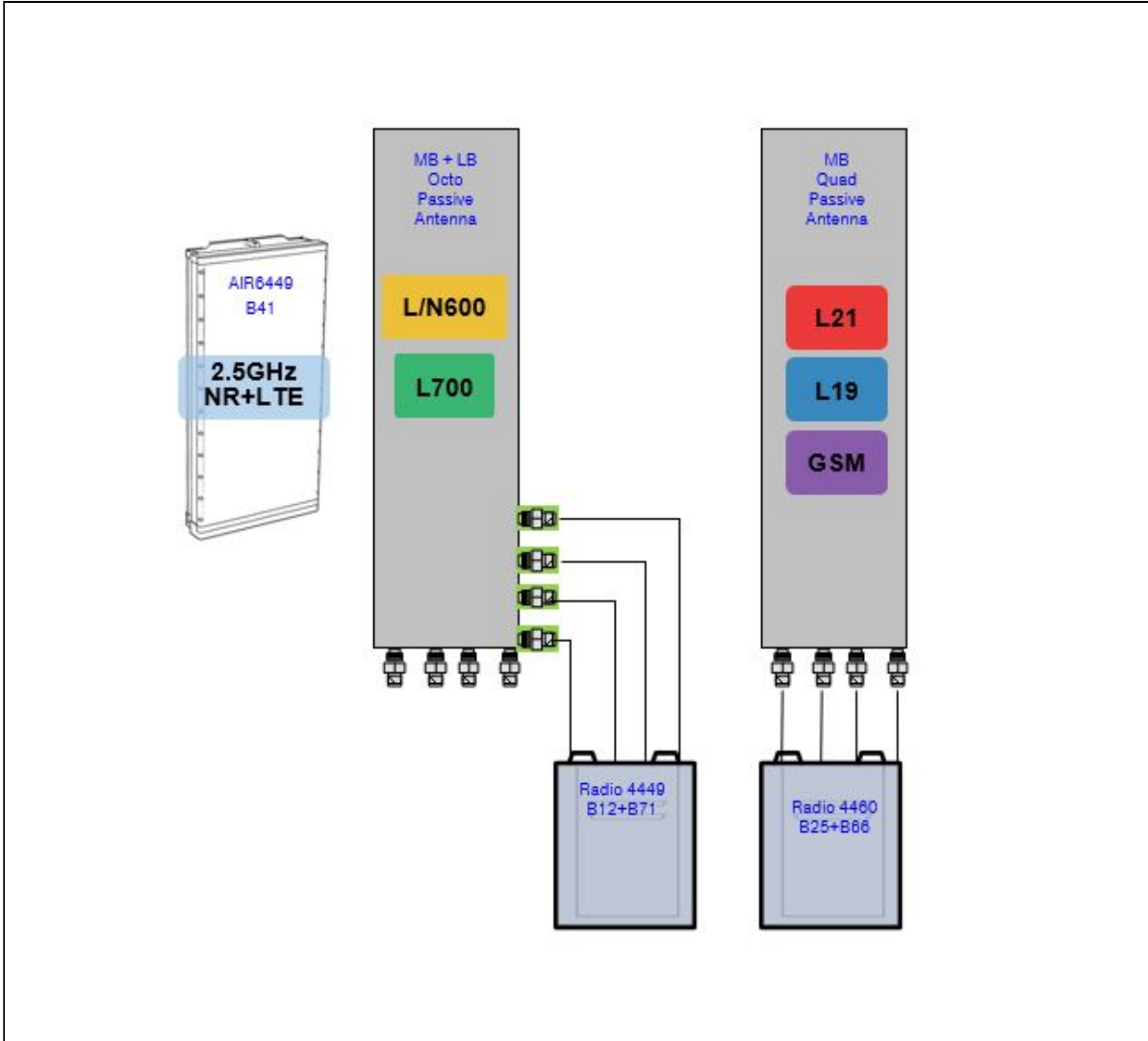
67D92DB_2xAIR+1OP.JPG



Notes:

Section 3 - Proposed Template Images

67D5998E_1xAIR+1OP+1QP.JPG



Notes:

Section 4 - Siteplan Images

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

RAN Template: 67D5D998E ODE+6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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Section 5 - RAN Equipment

Existing RAN Equipment

Template: 67D95A

Enclosure	1	2	3
Enclosure Type	RBS 6201	Enclosure 6160 AC V1	B160
Baseband	DUW30 U2100 DUG20 G1900 BB 6630 L1900 L2100 BB 6648 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)		

Proposed RAN Equipment

Template: 67D5D998E ODE+6160

Enclosure	1	2	3	4
Enclosure Type	RBS 6201 ODE	Ancillary Equipment (Ericsson)	Enclosure 6160 AC V1	B160
Baseband	DUW30 U2100 DUG20 G1900 BB 6648 L700 L600 N600 BB 6630 L2100 L1900		RP 6651 N2500 RP 6651 L2500	
Hybrid Cable System		Ericsson 6x12 HCS *Select Length & AWG* (x 3)	PSU 4813 vR4A (Kit) Ericsson Hybrid Trunk 6/24 4AWG 60m	
Transport System			CSR IXRe V2 (Gen2)	

RAN Scope of Work:

- Remove and return all cabinet radios from existing base station cabinet.
- Upgrade electrical service to 150A.
- Add (1) iXRe Router to new Enclosure 6160.
- Add (1) RP 6651 for N2500 to new Enclosure 6160.
- Add (1) RP 6651 for L2500 to new Enclosure 6160.
- Add (1) PSU4813 Voltage Booster to new Enclosure 6160.
- Add (1) Battery Cabinet B160.
- Existing : (3) 6x12,
- Remove all Coax,
- Add (1) 6X24 HCS terminating at the Enclosure 6160 Connect DC for the AIR6419 B41 to the PSU4813 Voltage Booster.

RAN Template: 67D5D998E ODE+6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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Section 6 - A&L Equipment

Existing Template: 67D95A_2xAIR+1OP
Proposed Template: 67D5998E_1xAIR+1OP+1QP

Sector 1 (Existing) 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)
TMA's								Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners								
Radio			Radio 4449 B71+B8 5 (At Antenna)	SHARED Radio 4449 B71+B8 5 (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: 67D5D998E ODE+6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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Sector 1 (Proposed) view from behind									
Coverage Type	A - Outdoor Macro								
Antenna	1		2		3				
Antenna Model	Commscope_VV-65A-R1 (Quad)		AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)				
Azimuth	60		60		60				
M. Tilt	0		0		0				
Height	140		140		140				
Ports	P1	P2	P3	P4	P5	P6	P7	P8	
Active Tech.	L2100 L1900 G1900 U2100	L2100 L1900 G1900 U2100	L2500 N2500	L2500 N2500	L700 L600 N600	L700 L600 N600			
Dark Tech.									
Restricted Tech.									
Decomm. Tech.									
E. Tilt									
Cables	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper	Fiber Jumper (x2)	Fiber Jumper (x2)	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper			
TMA									
Diplexers / Combiners									
Radio	Radio 4460 B25+B66 (At Antenna)	SHARED Radio 4460 B25+B66 (At Antenna)			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)			
Sector Equipment									

Unconnected Equipment:

Scope of Work:

There will be Three antennae per sector.

Remove all TMAs.

Remove all diplexers.

Remove all Coaxial Lines.

Remove both AIR21.

Relocate Octo and Radio 4449 to position 3.

Install (1) AIR6419 B41 for L2500 and N2500 to Position 2

Install (1) mid-band Quad VV-65A-R1 in Position 1.

Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and GSM to Position 1 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

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

RAN Template: 67D5D998E ODE+6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
--	--

Sector 2 (Existing) 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)
TMA's								Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners								
Radio			Radio 4449 B71+B8 5 (At Antenna)	SHARED Radio 4449 B71+B8 5 (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: 67D5D998E ODE+6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
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Sector 2 (Proposed) view from behind											
Coverage Type	A - Outdoor Macro										
Antenna	1		2		3						
Antenna Model	Commscope_VV-65A-R1 (Quad)		AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)						
Azimuth	150		150		150						
M. Tilt	0		0		0						
Height	140		140		140						
Ports	P1		P2		P3		P4	P5	P6	P7	P8
Active Tech.	L2100 L1900 G1900 U2100		L2100 L1900 G1900 U2100		L2500 N2500		L2500 N2500	L700 L600 N600	L700 L600 N600		
Dark Tech.											
Restricted Tech.											
Decomm. Tech.											
E. Tilt											
Cables	Coax Jumper (x2) Fiber Jumper		Coax Jumper (x2) Fiber Jumper		Fiber Jumper (x2)		Fiber Jumper (x2)	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper		
TMA											
Diplexers / Combiners											
Radio	Radio 4460 B25+B66 (At Antenna)		SHARED Radio 4460 B25+B66 (At Antenna)					Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)		
Sector Equipment											

Unconnected Equipment:

Scope of Work:

There will be Three antennae per sector.

Remove all TMAs.

Remove all diplexers.

Remove all Coaxial Lines.

Remove both AIR21.

Relocate Octo and Radio 4449 to position 3.

Install (1) AIR6419 B41 for L2500 and N2500 to Position 2

Install (1) mid-band Quad VV-65A-R1 in Position 1.

Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and GSM to Position 1 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

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

RAN Template: 67D5D998E ODE+6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
--	--

Sector 3 (Existing) 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)
TMA's								Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners								
Radio			Radio 4449 B71+B8 5 (At Antenna)	SHARED Radio 4449 B71+B8 5 (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: 67D5D998E ODE+6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
--	--

Sector 3 (Proposed) view from behind											
Coverage Type	A - Outdoor Macro										
Antenna	1		2		3						
Antenna Model	Commscope_VV-65A-R1 (Quad)		AIR 6419 B41 (Active Antenna - Massive MIMO)		RFS - APXVAARR24_43-U-NA20 (Octo)						
Azimuth	230		230		230						
M. Tilt	0		0		0						
Height	140		140		140						
Ports	P1		P2		P3		P4	P5	P6	P7	P8
Active Tech.	L2100 L1900 G1900 U2100		L2100 L1900 G1900 U2100		L2500 N2500		L2500 N2500	L700 L600 N600	L700 L600 N600		
Dark Tech.											
Restricted Tech.											
Decomm. Tech.											
E. Tilt											
Cables	Coax Jumper (x2) Fiber Jumper		Coax Jumper (x2) Fiber Jumper		Fiber Jumper (x2)		Fiber Jumper (x2)	Coax Jumper (x2) Fiber Jumper	Coax Jumper (x2) Fiber Jumper		
TMA											
Diplexers / Combiners											
Radio	Radio 4460 B25+B66 (At Antenna)		SHARED Radio 4460 B25+B66 (At Antenna)					Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)		
Sector Equipment											

Unconnected Equipment:

Scope of Work:

There will be Three antennae per sector.

Remove all TMAs.

Remove all diplexers.

Remove all Coaxial Lines.

Remove both AIR21.

Relocate Octo and Radio 4449 to position 3.

Install (1) AIR6419 B41 for L2500 and N2500 to Position 2

Install (1) mid-band Quad VV-65A-R1 in Position 1.

Add (1) Radio 4460 B25+B66 for L2100, L1900 (Both carriers), and GSM to Position 1 at antenna.

Ensure RET control is enabled for all technology layers according to the Design Documents

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

RAN Template: 67D5D998E ODE+6160	A&L Template: 67D5998E_1xAIR+1OP+1QP
--	--

Section 7 - Power Systems Equipment

Existing Power Systems Equipment	
Enclosure	1
Enclosure Type	Enclosure 6160 AC V1
Hybrid Cable System	Ericsson 6x12 HCS *Select AWG & Length* (x 3)

Proposed Power Systems Equipment	
Enclosure	1
Enclosure Type	Enclosure 6160 AC V1

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

May 30, 2022

EBI Project Number: 6222003529

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	24.46%

May 30, 2022

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at 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) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.
- 3) 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.
- 4) 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.
- 5) 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.
- 6) 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.

- 7) 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.
- 8) 1 LTE Traffic channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 60 Watts.
- 9) 1 LTE Broadcast channel (LTE IC and 2C BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 20 Watts.
- 10) 1 NR Traffic channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 120 Watts.
- 11) 1 NR Broadcast channel (BRS Band - 2500 MHz) was considered for each sector of the proposed installation. This Channel has a transmit power of 40 Watts.
- 12) 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.
- 13) 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.
- 14) The antennas used in this modeling are the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector A, the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector B, the Commscope VV-65A-R1 for the 1900 MHz / 1900 MHz / 1900 MHz / 2100 MHz channel(s), the Ericsson AIR 6419 for the 2500 MHz / 2500 MHz / 2500 MHz / 2500 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values

and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

- 15) The antenna mounting height centerline of the proposed antennas is 140 feet above ground level (AGL).
- 16) 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.
- 17) All calculations were done with respect to uncontrolled / general population threshold limits.

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1	Make / Model:	Commscope VV-65A-R1
Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd	Gain:	15.55 dBd / 15.55 dBd / 16.05 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	10	Channel Count:	10	Channel Count:	10
Total TX Power (W):	420.00 Watts	Total TX Power (W):	420.00 Watts	Total TX Power (W):	420.00 Watts
ERP (W):	15,600.26	ERP (W):	15,600.26	ERP (W):	15,600.26
Antenna A1 MPE %:	3.12%	Antenna B1 MPE %:	3.12%	Antenna C1 MPE %:	3.12%
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419	Make / Model:	Ericsson AIR 6419
Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz	Frequency Bands:	2500 MHz / 2500 MHz / 2500 MHz
Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 dBd	Gain:	22.05 dBd / 15.55 dBd / 22.05 dBd / 15.55 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):	240.00 Watts	Total TX Power (W):	240.00 Watts	Total TX Power (W):	240.00 Watts
ERP (W):	31,011.95	ERP (W):	31,011.95	ERP (W):	31,011.95
Antenna A2 MPE %:	6.21%	Antenna B2 MPE %:	6.21%	Antenna C2 MPE %:	6.21%
Antenna #:	3	Antenna #:	3	Antenna #:	3
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 / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd
Height (AGL):	140 feet	Height (AGL):	140 feet	Height (AGL):	140 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200.00 Watts	Total TX Power (W):	200.00 Watts	Total TX Power (W):	200.00 Watts
ERP (W):	4,059.02	ERP (W):	4,059.02	ERP (W):	4,059.02
Antenna A3 MPE %:	1.94%	Antenna B3 MPE %:	1.94%	Antenna C3 MPE %:	1.94%

Site Composite MPE %	
Carrier	MPE %
T-Mobile (Max at Sector A):	11.27%
Verizon	11.23%
AT&T	1.96%
Site Total MPE % :	24.46%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	11.27%
T-Mobile Sector B Total:	11.27%
T-Mobile Sector C Total:	11.27%
Site Total MPE % :	24.46%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
T-Mobile 1900 MHz GSM	4	1076.77	140.0	8.62	1900 MHz GSM	1000	0.86%
T-Mobile 1900 MHz LTE	2	2153.53	140.0	8.62	1900 MHz LTE	1000	0.86%
T-Mobile 1900 MHz UMTS	2	1076.77	140.0	4.31	1900 MHz UMTS	1000	0.43%
T-Mobile 2100 MHz LTE	2	2416.30	140.0	9.68	2100 MHz LTE	1000	0.97%
T-Mobile 2500 MHz LTE IC & 2C Traffic	1	9619.47	140.0	19.26	2500 MHz LTE IC & 2C Traffic	1000	1.93%
T-Mobile 2500 MHz LTE IC & 2C Broadcast	1	717.84	140.0	1.44	2500 MHz LTE IC & 2C Broadcast	1000	0.14%
T-Mobile 2500 MHz NR Traffic	1	19238.94	140.0	38.52	2500 MHz NR Traffic	1000	3.85%
T-Mobile 2500 MHz NR Broadcast	1	1435.69	140.0	2.87	2500 MHz NR Broadcast	1000	0.29%
T-Mobile 600 MHz LTE	2	591.73	140.0	2.37	600 MHz LTE	400	0.59%
T-Mobile 600 MHz NR	1	1577.94	140.0	3.16	600 MHz NR	400	0.79%
T-Mobile 700 MHz LTE	2	648.82	140.0	2.60	700 MHz LTE	467	0.56%
						Total:	11.27%

• 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:	11.27%
Sector B:	11.27%
Sector C:	11.27%
T-Mobile Maximum MPE % (Sector A):	11.27%
Site Total:	24.46%
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **24.46%** 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.