



**T-Mobile**  
Cullen Morgan  
Site Acquisition Consultant  
750 W Center Street  
Suite 301  
West Bridgewater, MA 02379  
(941)549-7263  
[cmorgan@clinellc.com](mailto:cmorgan@clinellc.com)

January 18, 2024

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

**RE: NOTICE OF EXEMPT MODIFICATION**  
**15 Orchard Park Road, Madison, CT 06443**  
**Latitude: 41.283103**  
**Longitude: -72.623044**  
**T-Mobile Site #: CTNH808A**

Dear Members of the Siting Council:

T-Mobile currently maintains nine (9) antennas at the 97-foot level of the existing 99.2-foot monopole tower at 15 Orchard Park Road, Madison, CT 06442. The 99.2-foot tower is owned by American Tower Corporation and the property is owned by Florida Tower Partners. T-Mobile now intends to modify its equipment on the tower, as well as perform modifications to its existing antenna mounts. All equipment will remain at the 97-foot level.

**Planned Modifications:**

Existing to be Removed:

- (6) AIR21 Antennas
- (3) Generic TMAs
- (3) 6x12 Hybrid Cables
- (1) 9x18 Hybrid Cable

Install New:

- (3) AIR6419 Antennas
- (3) APXVLL19P\_43-C-A20 Antennas
- (3) Radio 4460 RRUs
- (3) 6/24 Hybrid Cables

Existing to Remain:

- (3) APXVAARR24\_43-U-NA20 Antennas
- (3) Radio 4449 RRUs
- (3) 1 1/4" Fiber Hybrid Line

750 W Center Street, Suite 301  
West Bridgewater, MA 02379  
781-713-4725

This facility was approved by the CT Siting Council in Docket No. 390 dated March 26, 2010 with conditions. We used the information from the previous filing. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-72(b)(2), or 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 the Honorable Peggy Lyons, chief elected official of the Town of Madison, Vincent Garofalo, Building Official for the Town of Madison, as well as the property owner and the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

Respectfully,



**Cullen Morgan**  
**Site Acquisition Consultant**  
**Centerline Communications, LLC (Agent to T-Mobile)**  
**Mobile: (941) 549-7263**  
[cmorgan@clinellc.com](mailto:cmorgan@clinellc.com)

Attachments

cc: The Honorable Peggy Wilson, First Selectwoman – Town of Madison  
Vincent Garofalo, Building Official – Town of Madison  
American Tower Corporation – Tower Owner  
Florida Tower Partners LLC – Property Owner



# **EXHIBIT A**

**Letter of Authorization**





**AMERICAN TOWER®**  
CORPORATION

**LETTER OF AUTHORIZATION FOR PERMITTING**

**ATC SITE#/NAME/PROJECT: 283421 / MADISON CT / 14561673**  
**SITE ADDRESS: 15 Orchard Park Road, Madison, CT 06443-2268**  
**APN: MADI M:36 B:3 L:CELL**  
**LICENSEE: T-MOBILE d/b/a T-MOBILE NORTHEAST LLC**  
**SITE ACQUISITION VENDOR: CENTERLINE COMMUNICATIONS LLC**

I, Margaret Robinson, Vice President, UST Legal for American Tower\*, owner of the tower facility located at the address identified above (the “Tower Facility”), do hereby authorize T-MOBILE d/b/a T-MOBILE NORTHEAST LLC, CENTERLINE COMMUNICATIONS LLC, their successors and assigns, and/or their agent, (collectively, the “Licensee”) to act as American Tower’s non-exclusive agent for the sole purpose of filing and consummating any land-use, building, or electrical permit application(s) as may be required by the applicable permitting authorities for Licensee’s telecommunications’ installation on the Tower Facility.

I understand that these applications may be approved with conditions. The above authorization is limited to the acceptance by Licensee only of conditions related to Licensee’s installation and any such conditions of approval or modifications will be Licensee’s sole responsibility.

Signature: \_\_\_\_\_

Margaret Robinson, Vice President, UST Legal  
US Tower Division

**NOTARY BLOCK**

COMMONWEALTH OF MASSACHUSETTS  
County of Middlesex

This instrument was acknowledged before me by Margaret Robinson, Vice President, UST Legal for American Tower\* (Tower Facility owner and/or operator), personally known to me (or proved to me based on satisfactory evidence) to be the person whose name is subscribed to the within instrument and acknowledged to me that he/she executed the same.

WITNESS my hand and official seal, this 10<sup>th</sup> day of January 2024.

NOTARY SEAL



**GERARD T. HEFFRON**  
Notary Public  
Commonwealth of Massachusetts  
My Commission Expires  
August 9, 2024

Notary Public

My Commission Expires: August 9<sup>th</sup>, 2024

\* American Tower is defined as American Tower Corporation and any of its affiliates or subsidiaries.



# **EXHIBIT B**

**Original Facility Approval**



**DOCKET NO. 390** – T-Mobile Northeast LLC application for a } Connecticut  
Certificate of Environmental Compatibility and Public Need for }  
the construction, management, and maintenance of a } Siting  
telecommunications facility at 15 Orchard Park Road, Madison, }  
Connecticut. } Council

March 26, 2010

### 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, management, 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 T-Mobile Northeast LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility at 15 Orchard Park Road, located in Madison, Connecticut.

Unless otherwise approved by the Council, the facility shall be constructed, managed, 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 T-Mobile Northeast LLC and other entities, both public and private, but such tower shall not exceed a height of 100 feet above ground level. The tower shall be designed so that its height may be extendable to 120 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 served on the Town of Madison for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
  - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping;
  - b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, including extra controls to protect nearby wetlands;
  - c) a tower with a yield point at approximately 83 feet above ground level;
  - d) privacy slats installed in the chain link fence enclosing the compound; and
  - e) a grading plan that drains the facility to the south.

3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the 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 ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council 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. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Madison public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), 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. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.
8. At least one wireless telecommunications carrier shall install their equipment and shall become operational not later than 120 days after the tower is erected. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.
9. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Madison. Any proposed modifications to this Decision and Order shall likewise be so served.
10. If the facility ceases to provide wireless services for a period of one year, 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.
11. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

12. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of site construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction, and the commencement of site operation.

Pursuant to General Statutes § 16-50p, the Council hereby directs 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 New Haven Register.

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.

The parties and intervenors to this proceeding are:

**Applicant**

T-Mobile Northeast, LLC

**Its Representative**

Julie D. Kohler, Esq.  
Jesse A. Langer, Esq.  
Cohen and Wolf, P.C.  
1115 Broad Street  
Bridgeport, CT 06604

**Party**

Town of Madison

**Its Representative**

Marilyn Ozols  
Planning and Zoning Administrator  
Town of Madison  
8 Campus Drive  
Madison, CT 06443



# **EXHIBIT C**

**Property Card**



# 15 ORCHARD PARK RD

**Location** 15 ORCHARD PARK RD

**MBLU** 36 / / 3 / CELL /

**Unique ID#** 3630001

**Owner** FLORIDA TOWER PARTNERS

**Assessment** \$397,100

**Appraisal** \$567,200

**PID** 104169

**Building Count** 1

**Dev. Map**

## Current Value

Appraisal					
Valuation Year	Building	Extra Features	Outbuildings	Land	Total
2023	\$0	\$0	\$567,200	\$0	\$567,200

Assessment					
Valuation Year	Building	Extra Features	Outbuildings	Land	Total
2023	\$0	\$0	\$397,100	\$0	\$397,100

## Owner of Record

**Owner** FLORIDA TOWER PARTNERS

**Sale Price** \$0

**Co-Owner**

**Book & Page** 0000/0000

**Care Of**

**Sale Date** 01/01/1900

## Ownership History

Ownership History			
Owner	Sale Price	Book & Page	Sale Date
FLORIDA TOWER PARTNERS	\$0	0000/0000	01/01/1900

## Building Information

### Building 1 : Section 1

**Year Built:**

**Living Area:** 0

Building Attributes	
Field	Description
Style:	Outbuildings

Model	
Grade:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Bath Style:	
Kitchen Style:	
Fireplace(s)	
Xtra FPL Open	

### Building Photo



[https://images.vgsi.com/photos/MadisonCTPhotos///0033/P8031418\\_33](https://images.vgsi.com/photos/MadisonCTPhotos///0033/P8031418_33)

### Building Layout

[Building Layout \(ParcelSketch.ashx?pid=104169&bid=103749\)](#)

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

### Extra Features

Extra Features
No Data for Extra Features

### Land

#### Land Use

**Use Code** 4320  
**Description** Cell Tower  
**Zone**

#### Land Line Valuation

**Size (Acres)** 0

### Outbuildings

Outbuildings						
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
FN4	Fence 8'			150.00 L.F.	\$1,700	1
SHD7	Cell Shed			150.00 S.F.	\$22,500	1

LNT	Lean To			288.00 S.F.	\$2,600	1
GEN	Generator			1.00 UNITS	\$400	1
CEL	Cell Tower Tenants		Cell Tower	3.00 UNITS	\$540,000	1

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# **EXHIBIT D**

**Construction Drawings**





VICINITY MAP



**AMERICAN TOWER®**

ATC SITE NAME: MADISON CT  
 ATC SITE NUMBER: 283421  
 T-MOBILE SITE NAME: AMTRAK\_MADISON  
 T-MOBILE SITE NUMBER: CTNH808A  
 SITE ADDRESS: 15 ORCHARD PARK ROAD  
 MADISON, CT 06443  
 SITE CLASS: MONOPOLE



LOCATION MAP

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

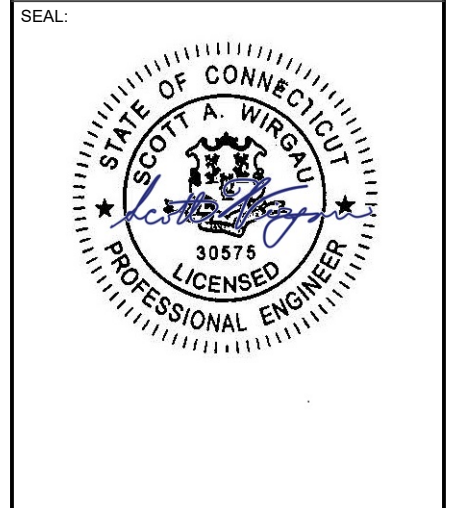
COMPLIANCE CODE	PROJECT SUMMARY	PROJECT DESCRIPTION	SHEET INDEX				
<p>ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.</p> <p>1. 2020 NFPA 70, NATIONAL ELECTRIC CODE (NEC)            2. 2022 CONNECTICUT STATE BUILDING CODE            3. 2021 INTERNATIONAL BUILDING CODE (IBC)</p> <p>DESIGN CRITERIA FROM TOWER STRUCTURAL ANALYSIS:            BASIC WIND SPEED: 123 MPH            BASIC WIND SPEED W/ ICE: 50 MPH            CODE(S): ANSI/TIA-222-H / 2021 IBC / 2022 CONNECTICUT STATE BUILDING CODE</p> <p>EXPOSURE CATEGORY: D            RISK CATEGORY: II            TOPO FACTOR PROCEDURE: METHOD 1            TOPOGRAPHIC CATEGORY: 1            SPECTRAL RESPONSE: S<sub>s</sub>=0.20, S<sub>1</sub>=0.05            SITE CLASS: D - STIFF SOIL</p> <p>INFORMATION TAKEN FROM STRUCTURAL ANALYSIS COMPLETED BY AMERICAN TOWER, DATED 12/06/23.</p>	<p><u>SITE ADDRESS:</u>            15 ORCHARD PARK ROAD            MADISON, CT 06443            COUNTY: NEW HAVEN</p> <p><u>GEOGRAPHIC COORDINATES:</u>            LATITUDE: 41.28306443            LONGITUDE: -72.62307449            GROUND ELEVATION: 20' AMSL</p>	<p>THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:</p> <p><u>TOWER WORK:</u>            REMOVE (6) ANTENNA(S), (3) TTA(S), AND (3) ERICSSON 6X12 HCS &amp; (1) ERICSSON 9X18 HCS CABLE(S)            INSTALL MOUNT MODIFICATIONS, (6) ANTENNA(S), (3) RRU(S), AND (3) HYBRID TRUNK 6/24 4AWG CABLE(S)            EXISTING (3) ANTENNA(S), AND (3) RRU(S) TO REMAIN</p> <p><u>GROUND WORK:</u>            REMOVE (2) CABINETS, (1) DUG20, (2) DUW30            INSTALL (1) 6160 CABINET, (1) B160 CABINET, (1) RP 6651, (1) IXR-E ROUTER            EXISTING (2) BB 6630, (1) PPC TO REMAIN</p>	SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
	<p><u>PROJECT TEAM</u></p> <p><u>TOWER OWNER:</u> AMERICAN TOWER            10 PRESIDENTIAL WAY            WOBURN, MA 01801</p> <p><u>ENGINEER:</u> ATC TOWER SERVICES, LLC            1 FENTON MAIN, STE 300            CARY, NC 27511</p> <p><u>PROPERTY OWNER:</u> 15 ORCHARD PARK ROAD LLC            7 ORCHARD PARK ROAD            MADISON, CT 06443</p> <p><u>APPLICANT:</u> T-MOBILE NORTHEAST LLC</p>	<p>PROJECT NOTES</p> <ol style="list-style-type: none"> <li>THE FACILITY IS UNMANNED.</li> <li>A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.</li> <li>THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.</li> <li>NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.</li> <li>HANDICAP ACCESS IS NOT REQUIRED.</li> <li>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 § 1.61000 (B)(7).</li> </ol>	G-001	TITLE SHEET	0	1/8/2024	AM
	<p><u>UTILITY COMPANIES</u></p> <p>POWER COMPANY: EVERSOURCE            PHONE: (877) 659-6326</p> <p>TELEPHONE COMPANY: FRONTIER COMMUNICATIONS            PHONE: (877) 641-3250</p>	<p><u>PROJECT LOCATION DIRECTIONS</u></p> <p>FROM DOWNTOWN NEW HAVEN CT START OUT GOING NORTHEAST ON CHURCH ST TOWARD WALL ST. CHURCH ST BECOMES WHITNEY AVE. TURN RIGHT ONTO TRUMBULL ST. TURN SLIGHT LEFT TO TAKE THE I-91 S/I-91 N RAMP. MERGE ONTO I-91 S TOWARD I-95/NEW LONDON/N.Y.CITY. MERGE ONTO I-95 N/GOVERNOR JOHN DAVIS LODGE TPKE N VIA THE EXIT ON THE LEFT TOWARD NEW LONDON. TAKE THE GOOSE LANE EXIT, EXIT 59. TURN RIGHT ONTO GOOSE LN. TAKE THE 1ST LEFT ONTO BOSTON POST RD/US-1 N. TURN LEFT ONTO MUNGERTOWN RD. TAKE THE 2ND RIGHT ONTO ORCHARD PARK RD.</p>	G-002	GENERAL NOTES	0	1/8/2024	AM
			C-101	DETAILED SITE PLAN	0	1/8/2024	AM
			C-102	DETAILED EQUIPMENT PLAN	0	1/8/2024	AM
			C-201	TOWER ELEVATION	0	1/8/2024	AM
			C-401	ANTENNA INFORMATION & SCHEDULE	0	1/8/2024	AM
			C-501	CONSTRUCTION DETAILS	0	1/8/2024	AM
			E-501	GROUNDING DETAILS	0	1/8/2024	AM
			R-601	SUPPLEMENTAL			
			R-602	SUPPLEMENTAL			
			R-603	SUPPLEMENTAL			
			R-604	SUPPLEMENTAL			
			R-605	SUPPLEMENTAL			
			R-606	SUPPLEMENTAL			
			R-607	SUPPLEMENTAL			
			R-608	SUPPLEMENTAL			
			R-609	SUPPLEMENTAL			
			R-610	SUPPLEMENTAL			
			R-611	SUPPLEMENTAL			

**AMERICAN TOWER®**  
 A.T. ENGINEERING SERVICES LLC  
 1 FENTON MAIN  
 SUITE 300  
 CARY, NC 27511  
 PHONE: (919) 468-0112  
 PEC.0001553

THE USE AND PUBLICATION OF THESE DRAWINGS 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. 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 OR THE SPECIFIED CARRIER OF ANY DISCREPANCIES. ANY PRIOR ISSUANCE OF THIS DRAWING IS SUPERSEDED BY THE LATEST VERSION.

REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AM	1/8/2024

ATC SITE NUMBER:  
**283421**  
 ATC SITE NAME:  
**MADISON CT**  
 T-MOBILE SITE NAME:  
**AMTRAK\_MADISON**  
 SITE ADDRESS:  
 15 ORCHARD PARK ROAD  
 MADISON, CT 06443



ATC PROJ. #: 14561673\_G0  
 CUST. ID: AMTRAK\_MADISON  
 CUST. #: CTNH808A

TITLE SHEET

SHEET NUMBER: **G-001** REVISION: **0**

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**GENERAL CONSTRUCTION NOTES:**

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL
  - A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
  - B. AC/TELCO INTERFACE BOX (PPC)
  - C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
  - D. TOWERS, MONOPOLES
  - E. TOWER LIGHTING
  - F. GENERATORS & LIQUID PROPANE TANK
  - G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
  - H. ANTENNAS (INSTALLED BY OTHERS)
  - I. TRANSMISSION LINE
  - J. TRANSMISSION LINE JUMPERS
  - K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
  - L. TRANSMISSION LINE GROUND KITS
  - M. HANGERS
  - N. HOISTING GRIPS
  - O. BTS EQUIPMENT
2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.
3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.
4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.
12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.
13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.
17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.
21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.

22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
27. CONTRACTOR SHALL NOTIFY T-MOBILE REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.
28. WHEN THE PROJECT SCOPE REQUIRES THE USE OF THE SAFETY CLIMB, THE GENERAL CONTRACTOR SHALL ENSURE THE SAFETY CLIMB IS FREE OF OBSTRUCTIONS, NOT RUBBING ON OR TRAPPED BY ANY INSTALLED CUSTOMER EQUIPMENT, IS VISUALLY TAUT, MEETS MANUFACTURER INSTALLATION SPECIFICATIONS, AND IS FIRMLY SECURED AT ALL CABLE GUIDE LOCATIONS UPON PROJECT COMPLETION.
29. COMPLETION OF PROJECT SHALL NOT OBSTRUCT, TRAP, LOOSEN, OR OTHERWISE CAUSE FAILURE TO MEET MANUFACTURER INSTALLATION REQUIREMENTS FOR THE SAFETY CLIMB.
30. 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.
31. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.
32. 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.
33. 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.
34. 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.
35. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

**SPECIAL CONSTRUCTION**

**ANTENNA INSTALLATION NOTES:**

1. WORK INCLUDED:
  - A. ANTENNA AND COAXIAL/HYBRID 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. INSTALL COAXIAL/HYBRID 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/HYBRID CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.
2. ANTENNA AND COAXIAL/HYBRID CABLE GROUNDING:
  - A. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.

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

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



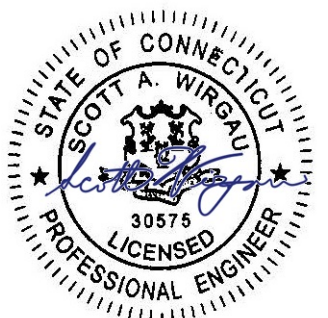
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**A.T. ENGINEERING SERVICES LLC**  
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 SUITE 300  
 CARY, NC 27511  
 PHONE: (919) 468-0112  
 PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AM	1/8/2024

ATC SITE NUMBER:  
**283421**  
 ATC SITE NAME:  
**MADISON CT**  
 T-MOBILE SITE NAME:  
**AMTRAK\_MADISON**  
 SITE ADDRESS:  
 15 ORCHARD PARK ROAD  
 MADISON, CT 06443

SEAL:



Digitally Signed: 2024-01-08



ATC PROJ. #:	14561673_G0
CUST. ID:	AMTRAK_MADISON
CUST. #:	CTNH808A

**GENERAL NOTES**

SHEET NUMBER: <b>G-002</b>	REVISION: <b>0</b>
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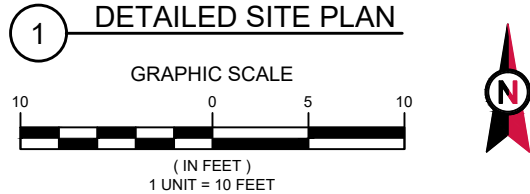
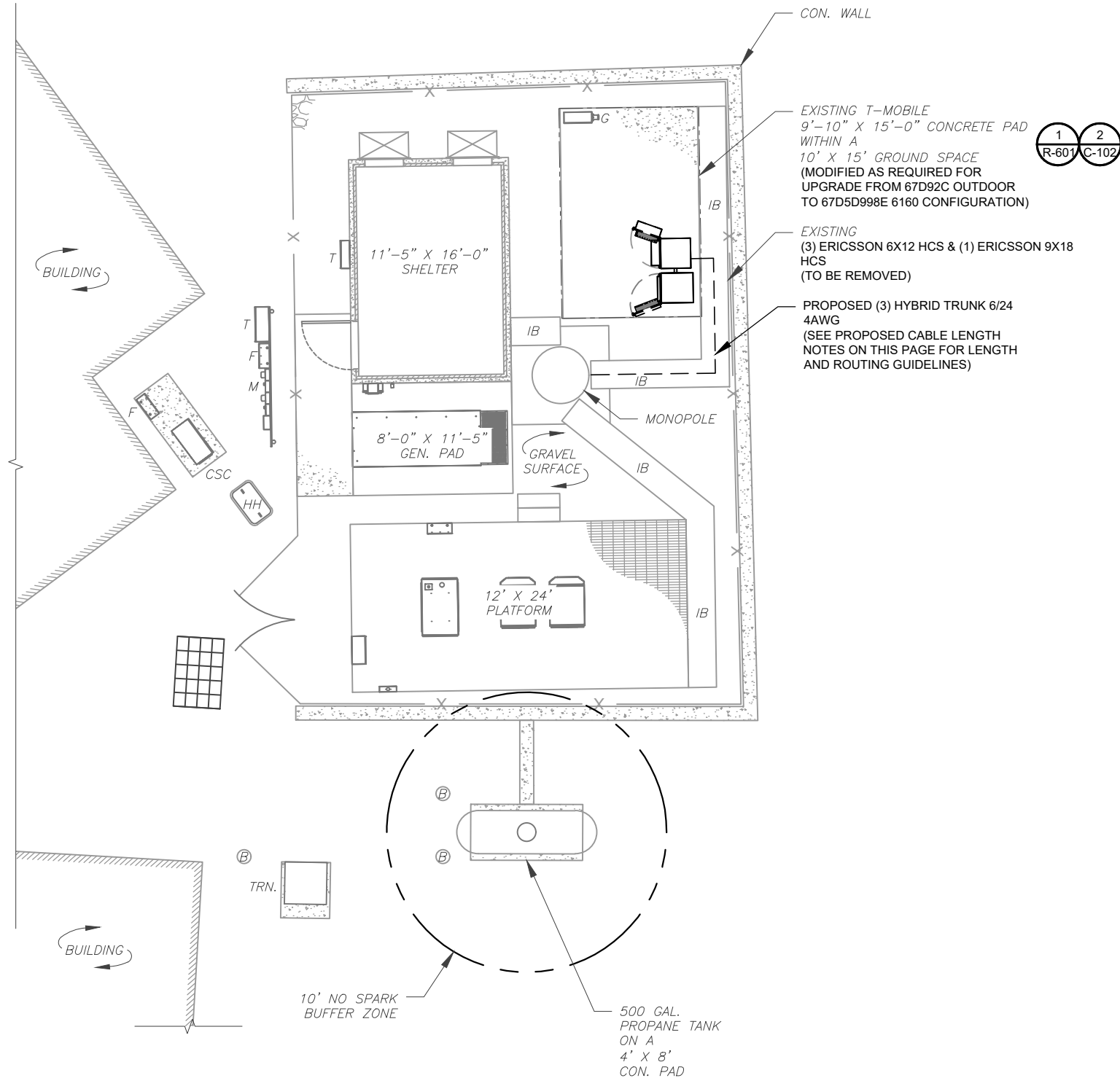
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**SITE PLAN NOTES:**

- 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.
- 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.
- 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 RECEPTACLE
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
—	CHAINLINK FENCE

- PROPOSED CABLE NOTES:**
- ESTIMATED LENGTH OF PROPOSED CABLE IS **144'**. 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.
  - 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.



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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AM	1/8/2024

ATC SITE NUMBER:  
**283421**

ATC SITE NAME:  
**MADISON CT**

T-MOBILE SITE NAME:  
**AMTRAK\_MADISON**

SITE ADDRESS:  
15 ORCHARD PARK ROAD  
MADISON, CT 06443



Digitally Signed: 2024-01-08



ATC PROJ. #:	14561673_G0
CUST. ID:	AMTRAK_MADISON
CUST. #:	CTNH808A

**DETAILED SITE PLAN**

SHEET NUMBER:	REVISION:
<b>C-101</b>	<b>0</b>

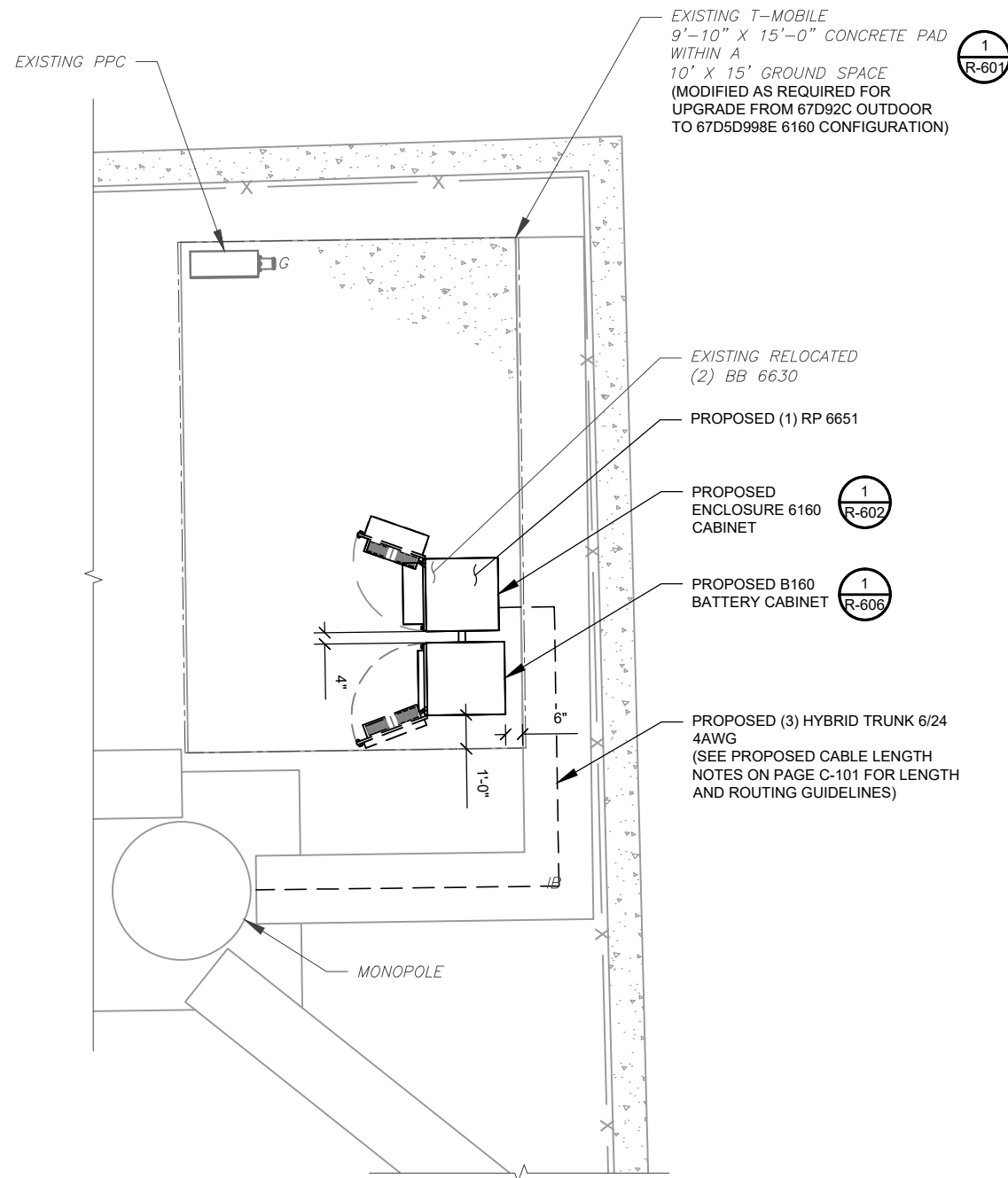
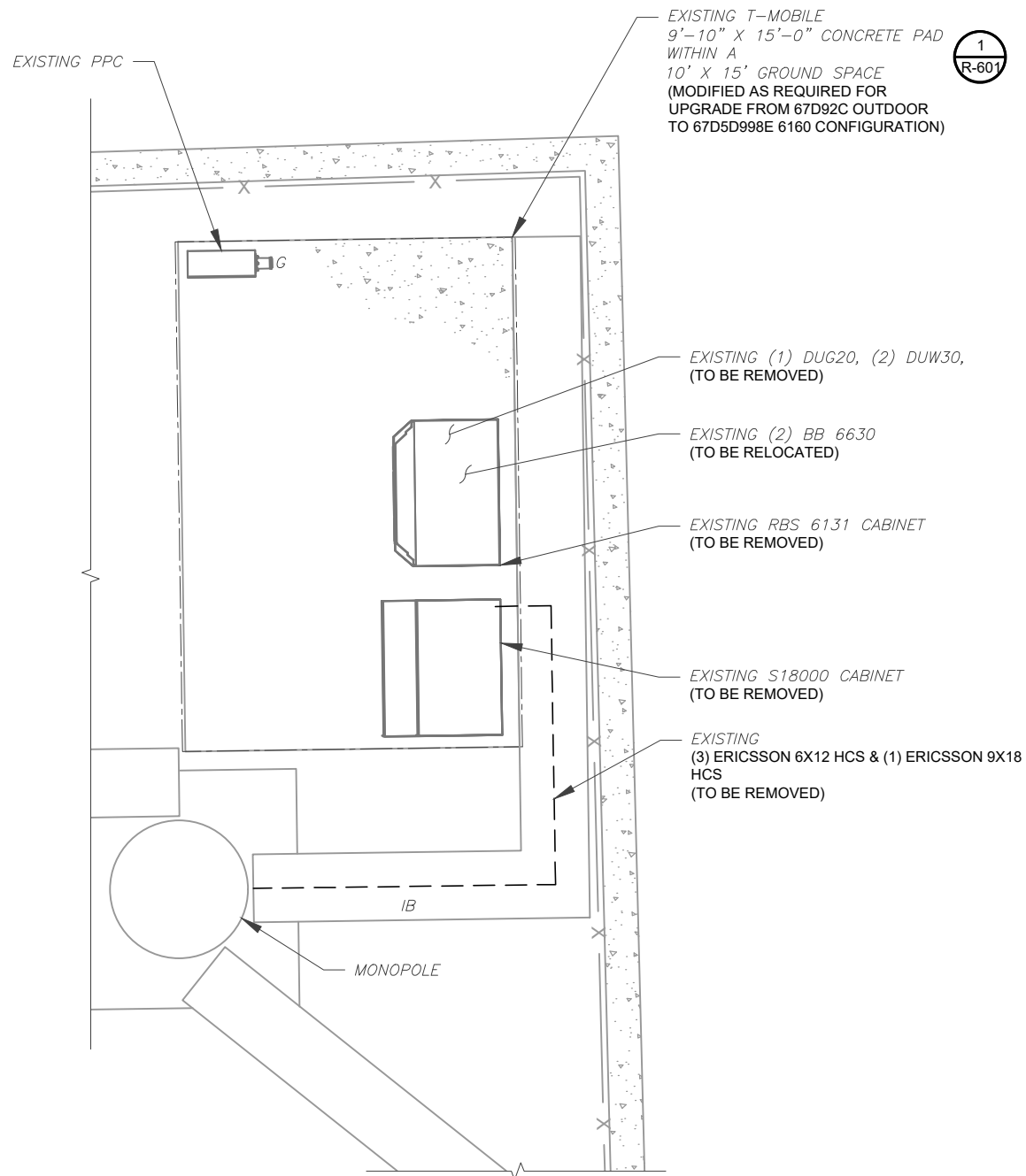
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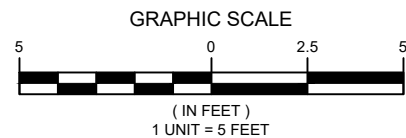
**SITE PLAN NOTES:**

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.

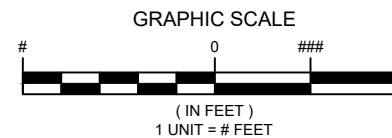
**T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS.**



**1 EXISTING GROUND EQUIPMENT LAYOUT**



**2 PROPOSED GROUND EQUIPMENT LAYOUT**

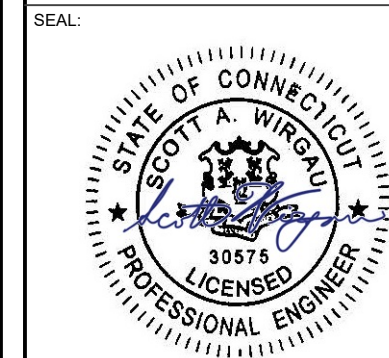


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15 ORCHARD PARK ROAD  
MADISON, CT 06443



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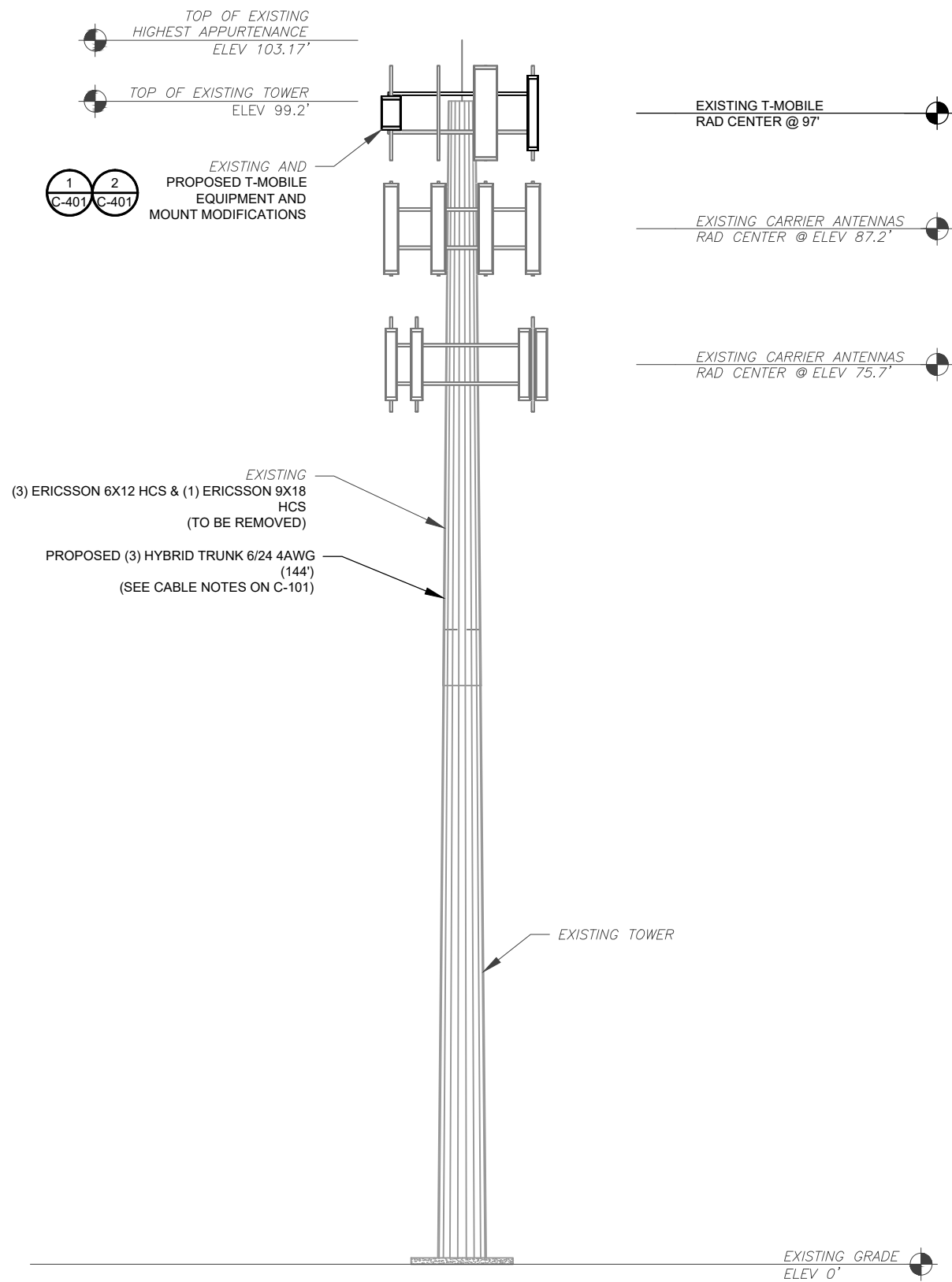


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CUST. ID: AMTRAK\_MADISON  
CUST. #: CTNH808A

**DETAILED EQUIPMENT PLAN**

SHEET NUMBER:  
**C-102**  
REVISION:  
**0**

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PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER, DATED 12/20/23, 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.

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 MADISON, CT 06443



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ATC PROJ. #: 14561673\_G0  
 CUST. ID: AMTRAK\_MADISON  
 CUST. #: CTNH808A

**TOWER ELEVATION**

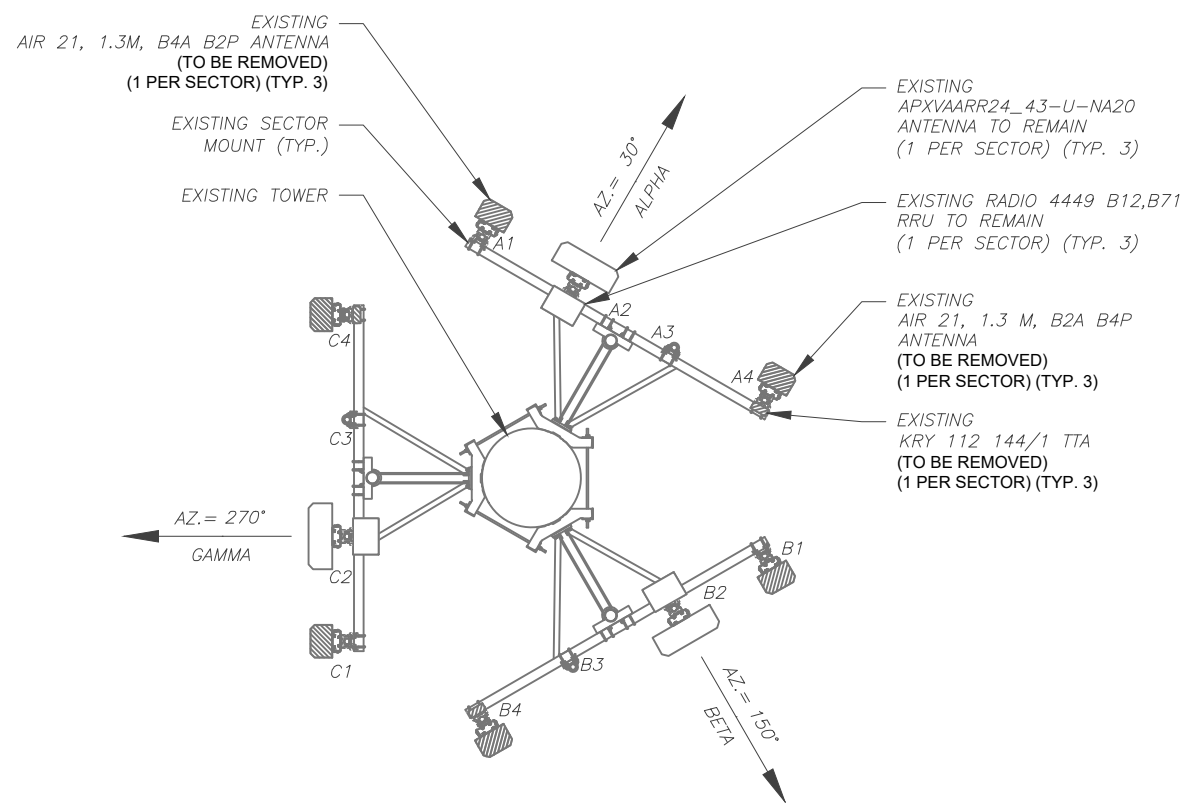
SHEET NUMBER:  
**C-201**  
 REVISION:  
**0**

ALL ELEVATIONS REFLECT ABOVE GROUND LEVEL (A.G.L.)

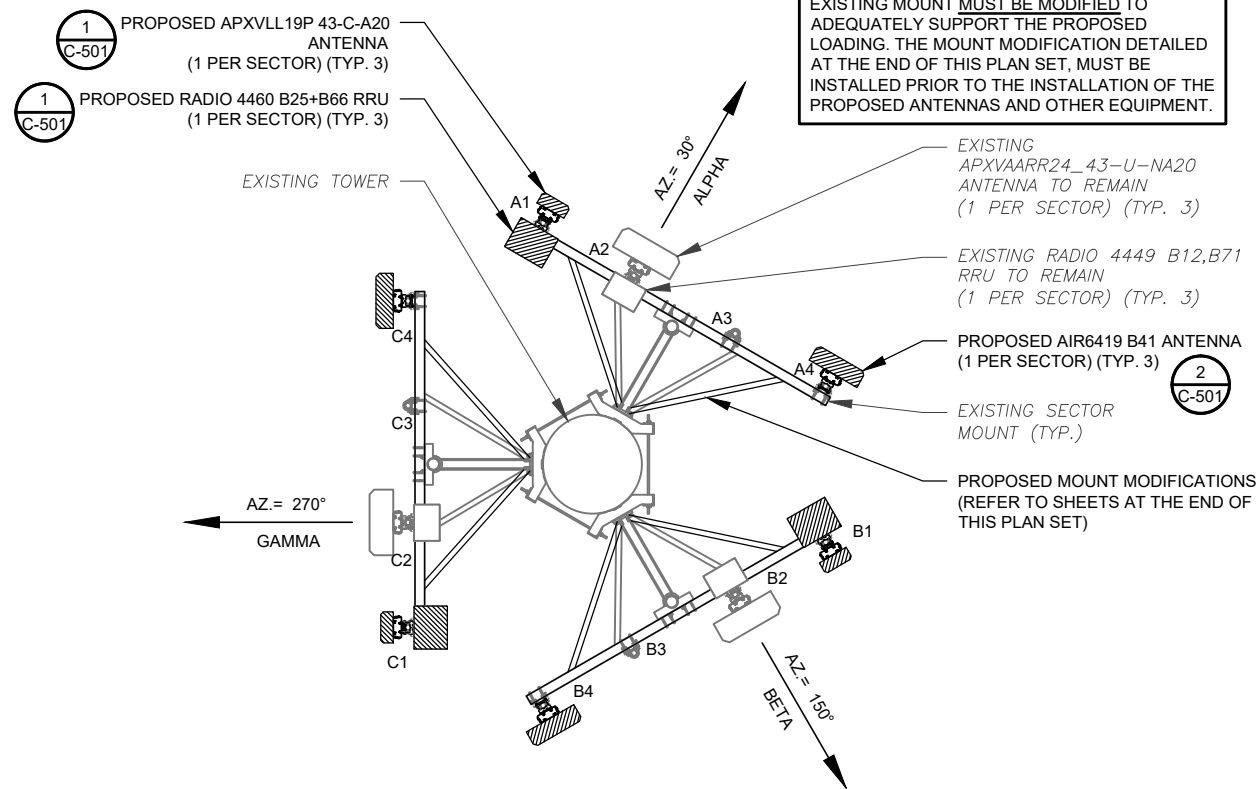
- TOWER NOTE:**
- IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
  - WHERE APPLICABLE, 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 ELEVATION DEPICTION MAY NOT REFLECT ALL EQUIPMENT INCLUDED IN STRUCTURAL ANALYSIS. REFER TO STRUCTURAL ANALYSIS FOR FULL TOWER LOADING.

**1 TOWER ELEVATION**  
 SCALE: N.T.S.

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



**2 FINAL ANTENNA PLAN**  
SCALE: N.T.S.

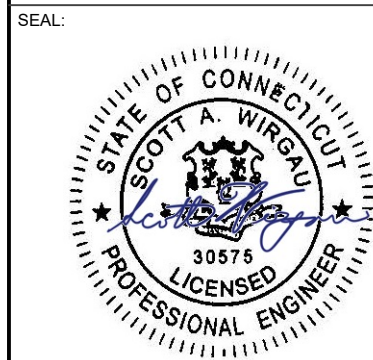
PER MOUNT ANALYSIS COMPLETED BY AMERICAN TOWER, DATED 12/20/23, THE EXISTING MOUNT MUST BE MODIFIED TO ADEQUATELY SUPPORT THE PROPOSED LOADING. THE MOUNT MODIFICATION DETAILED AT THE END OF THIS PLAN SET, MUST BE INSTALLED PRIOR TO THE INSTALLATION OF THE PROPOSED ANTENNAS AND OTHER EQUIPMENT.

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T-MOBILE SITE NAME:  
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MADISON, CT 06443



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ATC PROJ. #: 14561673\_G0  
CUST. ID: AMTRAK\_MADISON  
CUST. #: CTNH808A

**ANTENNA INFORMATION & SCHEDULE**

SHEET NUMBER:  
**C-401**  
REVISION:  
**0**

EXISTING ANTENNA SCHEDULE								
LOCATION		ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT
ALPHA		30°	A1	AIR 21, 1.3M, B4A B2P	L2100	0°	RMV	-
			A2	APXVAARR24_43-U-NA20	L700/L600/N600	0°	RMN	RADIO 4449 B12,B71
			A3	-	-	-	-	-
			A4	AIR 21, 1.3 M, B2A B4P	L1900/G1900	0°	RMV	KRY 112 144/1
BETA	97°	150°	B1	AIR 21, 1.3M, B4A B2P	L2100	0°	RMV	-
			B2	APXVAARR24_43-U-NA20	L700/L600/N600	0°	RMN	RADIO 4449 B12,B71
			B3	-	-	-	-	
			B4	AIR 21, 1.3 M, B2A B4P	L1900/G1900	0°	RMV	KRY 112 144/1
GAMMA		270°	C1	AIR 21, 1.3M, B4A B2P	L2100	0°	RMV	-
			C2	APXVAARR24_43-U-NA20	L700/L600/N600	0°	RMN	RADIO 4449 B12,B71
			C3	-	-	-	-	
			C4	AIR 21, 1.3 M, B2A B4P	L1900/G1900	0°	RMV	KRY 112 144/1

**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
ALPHA		30°	A1	APXVLL19P_43-C-A20	N1900/L2100/L1900	-	ADD	RADIO 4460 B25+B66
			A2	APXVAARR24_43-U-NA20	L700/L600/N600	-	RMN	RADIO 4449 B12,B71
			A3	-	-	-	-	
			A4	AIR 6419 B41	N2500	-	ADD	-
BETA	97°	150°	B1	APXVLL19P_43-C-A20	N1900/L2100/L1900	-	ADD	RADIO 4460 B25+B66
			B2	APXVAARR24_43-U-NA20	L700/L600/N600	-	RMN	RADIO 4449 B12,B71
			B3	-	-	-	-	
			B4	AIR 6419 B41	N2500	-	ADD	-
GAMMA		270°	C1	APXVLL19P_43-C-A20	N1900/L2100/L1900	-	ADD	RADIO 4460 B25+B66
			C2	APXVAARR24_43-U-NA20	L700/L600/N600	-	RMN	RADIO 4449 B12,B71
			C3	-	-	-	-	
			C4	AIR 6419 B41	N2500	-	ADD	-

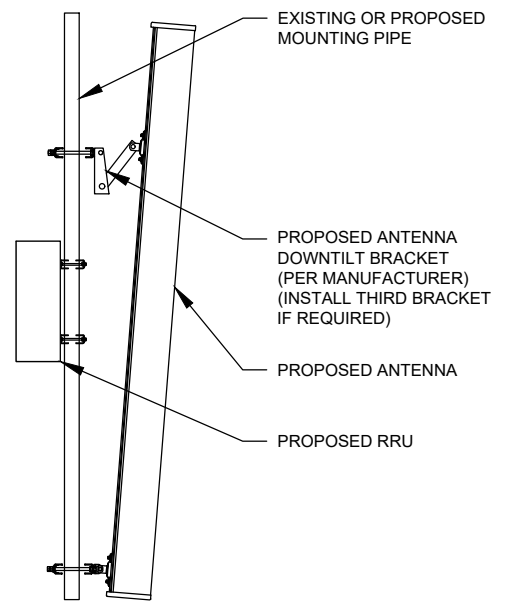
EXISTING FIBER DISTRIBUTION / OVP BOX		EXISTING CABLING SUMMARY	
MODEL NUMBER	STATUS	CABLE QTY, SIZE, TYPE	STATUS
-	RMN	----	RMN
-	RMV	(3) ERICSSON 6X12 HCS & (1) ERICSSON 9X18 HCS	RMV

**3 EQUIPMENT SCHEDULES**

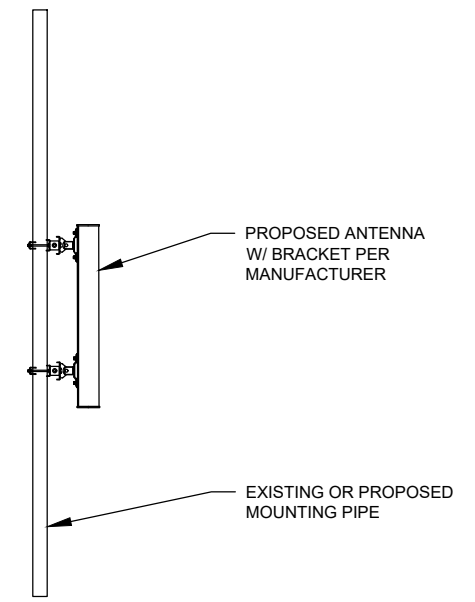
FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY	
MODEL NUMBER	STATUS	CABLE QTY, SIZE, TYPE	STATUS
-	RMN	----	RMN
-	ADD	(3) HYBRID TRUNK 6/24 4AWG	ADD

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EXISTING/PROPOSED MOUNTS AND/OR MOUNT MODIFICATIONS NOT SHOWN FOR CLARITY. REFER TO ANTENNA PLANS, MOUNT ANALYSES AND/OR MOUNT MODIFICATION DOCUMENTS FOR ADDITIONAL DETAIL.



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



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



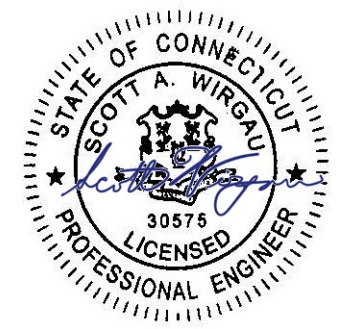
**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICES LLC**  
 1 FENTON MAIN  
 SUITE 300  
 CARY, NC 27511  
 PHONE: (919) 468-0112  
 PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AM	1/8/2024

ATC SITE NUMBER:  
**283421**  
 ATC SITE NAME:  
**MADISON CT**  
 T-MOBILE SITE NAME:  
**AMTRAK\_MADISON**  
 SITE ADDRESS:  
 15 ORCHARD PARK ROAD  
 MADISON, CT 06443

SEAL:



Digitally Signed: 2024-01-08

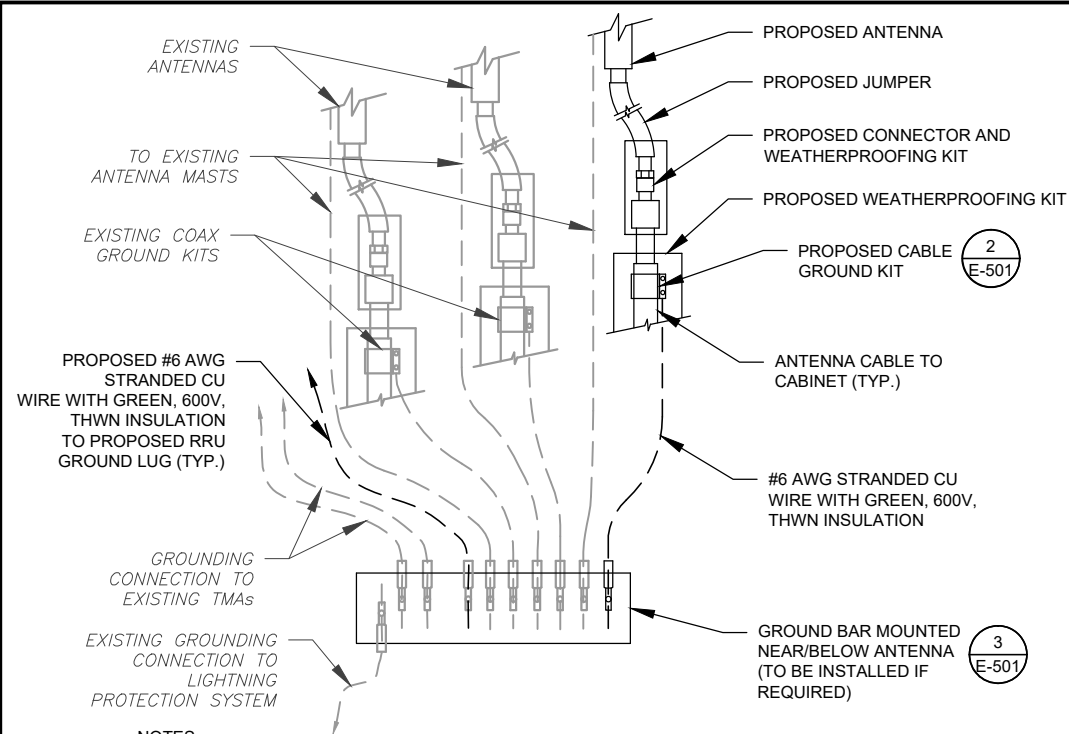


ATC PROJ. #:	14561673_G0
CUST. ID:	AMTRAK_MADISON
CUST. #:	CTNH808A

CONSTRUCTION  
 DETAILS

SHEET NUMBER:	REVISION:
<b>C-501</b>	<b>0</b>

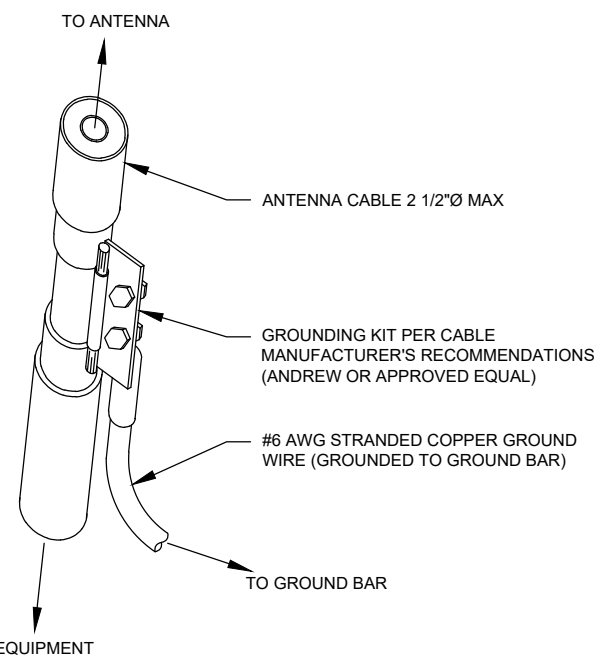
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**NOTES:**

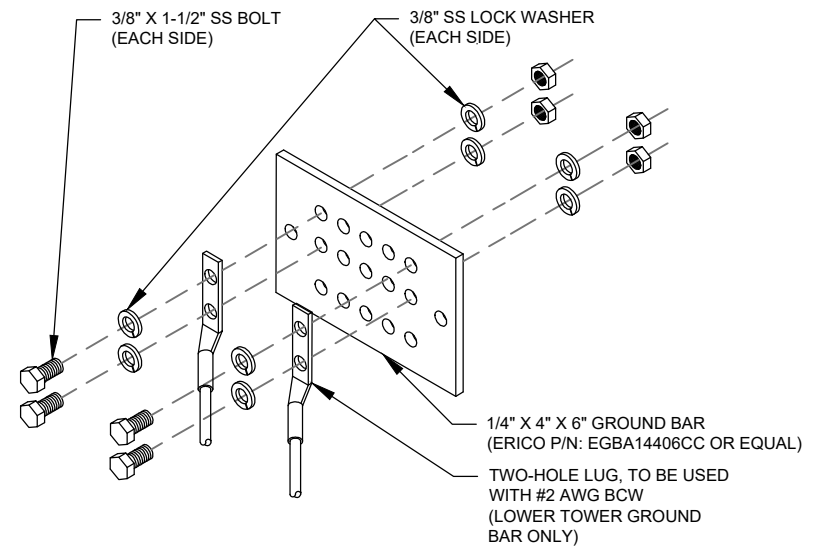
1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING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

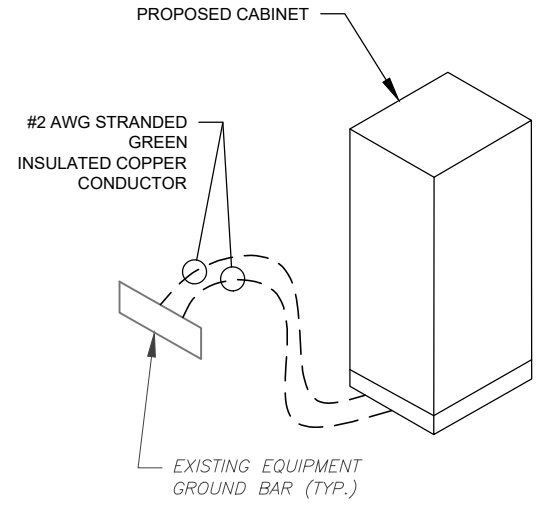
1. GROUND BAR KITS COME WITH ALL HARDWARE, NUTS, BOLTS, WASHERS, ETC. EXCEPT THE STRUCTURAL MOUNTING MEMBER(S).
2. GROUND BAR TO BE BONDED DIRECTLY TO TOWER.

**3 TOWER GROUND BAR DETAIL**  
SCALE: N.T.S.

**ELECTRICAL NOTES:**

1. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO COORDINATE WITH THE T-MOBILE REPRESENTATIVE AND LOCAL UTILITY COMPANY FOR THE INSTALLATION OF CONDUITS, CONDUCTORS, BREAKERS, DISCONNECTS, OR ANY OTHER EQUIPMENT REQUIRED FOR ELECTRICAL SERVICE. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH LATEST EDITION OF THE STATE AND NATIONAL CODES, ORDINANCES AND REGULATIONS APPLICABLE TO THIS PROJECT.
2. ATC HAS NOT VERIFIED ANY EXISTING T-MOBILE GROUND EQUIPMENT OR ELECTRICAL LOADING. PROPOSED WORK BASED ON INSTALLATION CONFIGURATION PROVIDED BY T-MOBILE. CONTRACTOR TO VERIFY EXISTING T-MOBILE PANEL HAS SUFFICIENT SPACE FOR PROPOSED BREAKER. PROPOSED CABLE AND CONDUIT SHALL BE MINIMUM SIZE PER BELOW IN CHART.
3. FOR SPECIFIC CABINET / ANCILLARY EQUIPMENT WIRING REQUIREMENTS, THE T-MOBILE CONTRACTOR SHOULD REFERENCE DESIGN DOCUMENTS PROVIDED BY T-MOBILE FOR THIS CURRENT PROJECT CONFIGURATION, IN ACCORDANCE WITH LOCAL JURISDICTION REQUIREMENTS & NEC STANDARDS & PRACTICES.

VOLTS	OCPD SIZE	WIRE SIZE	GROUND	CONDUIT
120/240V OR 120/208V	80A/2P	3-#3 AWG	#8 AWG	1-1/4"
	100/2P	3-#2 AWG	#8 AWG	1-1/4"
	125A/2P	3-#3/0 AWG	#6 AWG	2"
	150A/2P	3-#3/0 AWG	#6 AWG	2"
240V OR 208V	200A/2P	3-#3/0 AWG	#6 AWG	2"
	80A/2P	2-#3 AWG	#8 AWG	1-1/4"
	100/2P	2-#2 AWG	#8 AWG	1-1/4"
	125A/2P	2-#3/0 AWG	#6 AWG	2"
	150A/2P	2-#3/0 AWG	#6 AWG	2"
	200A/2P	2-#3/0 AWG	#6 AWG	2"



**5 CABINET GROUNDING DETAIL**  
SCALE: N.T.S.

STANDARD CONDUIT USE TABLE			
CONDUIT TYPE	USE CASE	LOCATION	USE CASE EXAMPLE
RMC (METALLIC)	AC, DC COMM	ABOVE GROUND	ABOVE GROUND PPC TO SSC
PVC	AC POWER	UNDERGROUND	UNDERGROUND PPC TO SSC OR BACKHAUL TRANSPORT HUB TO SSC
LFMC	AC, DC, COMM	MAX 6' PER CONDUIT RUN, ABOVE GROUND ONLY	TIGHT LOCATIONS BETWEEN HUB AND CONDUIT BUT NOT TO BE USED WHERE IT CAN BE STEPPED ON
EMT	INDOOR AC, DC COMM	INDOOR NOT EXPOSED TO THE OUTDOOR ENVIRONMENT (MUST BE DRY)	CIRCUIT PANEL TO JUNCTION BOX
LFNC	GROUND WIRE	CONCEALING AND PROTECTING BTCW RISERS ONLY	GROUND RING TO MGB OR SSC

EXCEPTION CONDUIT USE TABLE			
CONDUIT TYPE	USE CASE	LOCATION	USE CASE EXAMPLE
EMT (NOT PREFERRED)	OUTDOOR DC, COMM	OUTDOOR WHEN USED WITH WATERTIGHT HUBS ONLY	BETWEEN EQUIPMENT AND BATTERY CABINET OR EQUIPMENT TO EQUIPMENT CABINETS FOR INTER CABINET CONNECTION
RMC NONMETALLIC (ALUMINUM)	OUTDOOR/INDOOR PER NEC GUIDELINES	ABOVE GROUND	MAY BE USED AS A LOWER COST ALTERNATIVE TO METALLIC RMC, MUST MEET OR EXCEED FEDERAL SPEC: WW-C-540C, UL-6A, ANSI C80.5, NEC 344.10 (A) ALLOWS THE USE OF EITHER ALUMINUM OR GALVANIZED FITTINGS

**4 CONDUIT USE TABLES**

**6 ELECTRICAL NOTES**

**AMERICAN TOWER®**  
A.T. ENGINEERING SERVICES LLC  
1 FENTON MAIN  
SUITE 300  
CARY, NC 27511  
PHONE: (919) 468-0112  
PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FOR CONSTRUCTION	AM	1/8/2024

ATC SITE NUMBER:  
**283421**  
ATC SITE NAME:  
**MADISON CT**  
T-MOBILE SITE NAME:  
**AMTRAK\_MADISON**  
SITE ADDRESS:  
15 ORCHARD PARK ROAD  
MADISON, CT 06443



Digitally Signed: 2024-01-08



ATC PROJ. #: 14561673\_G0  
CUST. ID: AMTRAK\_MADISON  
CUST. #: CTNH808A

**GROUNDING DETAILS**

SHEET NUMBER:  
**E-501**  
REVISION:  
**0**

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11/28/23, 3:26 PM

CTNH808A\_Anchor\_7\_draft\_2023-11-28

CTNH808A\_Anchor\_7\_draft

RAN Template: 67D5D998E 6160  
 A&L Template: 67E5998E\_1xAIR+1OP+1QP

Print Name: Standard  
 POR: Anchor\_Phase 3

Section 5 - RAN Equipment

Existing RAN Equipment		
Template: 67D92C Outdoor		
Enclosure	1	2
Enclosure Type	RBS 6131	S18000 Outdoor
Radio	RU22 (x6) (U2100 (DECOMMISSIONED))	
Baseband	BB 6630 L1900 L2100	BB 6630 N600 L600 L700
Hybrid Cable System	Ericsson 6x12 HCS "Select Length & AWG" (x3) Ericsson 9x18 HCS "Select Length"	

Proposed RAN Equipment		
Template: 67D5D998E 6160		
Enclosure	1	2
Enclosure Type	Enclosure 6160_v2 AC	B160
Baseband	BB 6630 N600 L600 L700	BB 6630 N1900 L1900 L2100
Transport System	RP 6651 N2500	
Transport System	CSR IXRe V2 (Gen2)	
Hybrid Cable System	Hybrid Trunk 6/24 4AWG 40m (x3)	
RAN Scope of Work:		

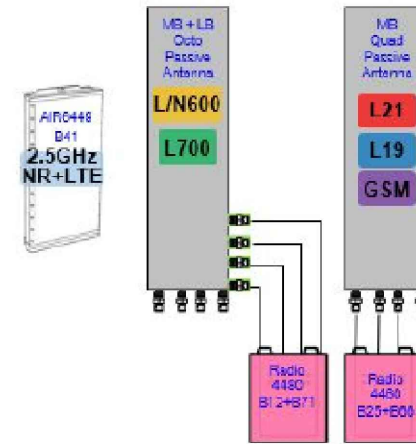
1 CABINET CONFIGURATION

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CTNH808A\_Anchor\_7\_draft\_2023-11-28

Section 3 - Proposed Template Images

07E5A098E.JPG



Notes:

2 ANTENNA CONFIGURATION

SUPPLEMENTAL

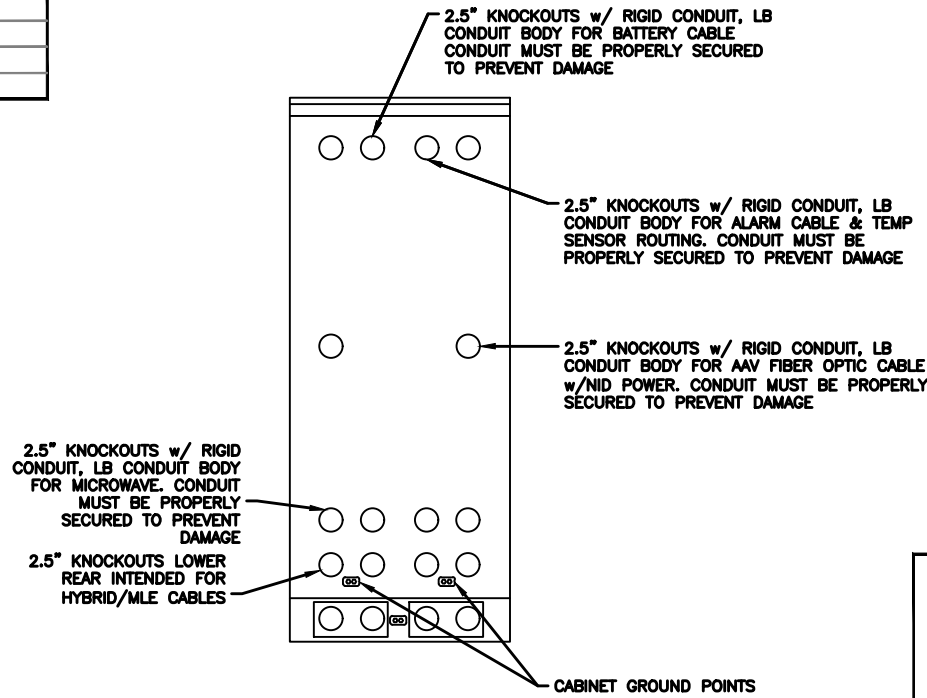
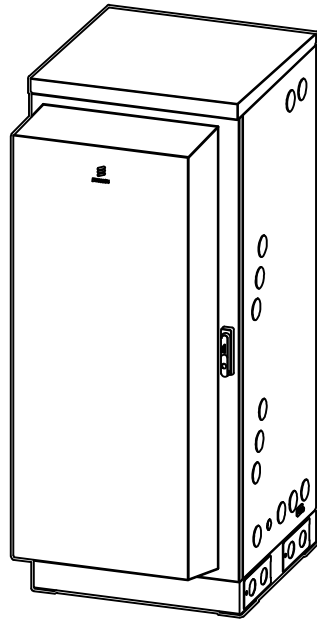
SHEET NUMBER: REVISION:

R-601

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

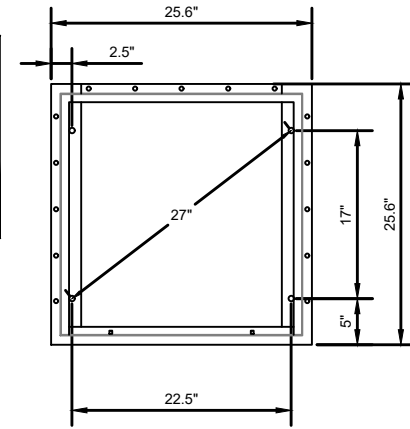
MANUFACTURER:	ERICSSON
MODEL:	6160 SITE SUPPORT CABINET
DIMENSIONS:	63" x 25.6" x 33.6" (H x W x D)
WEIGHT:	373 LBS



REAR VIEW

**NOTE:**

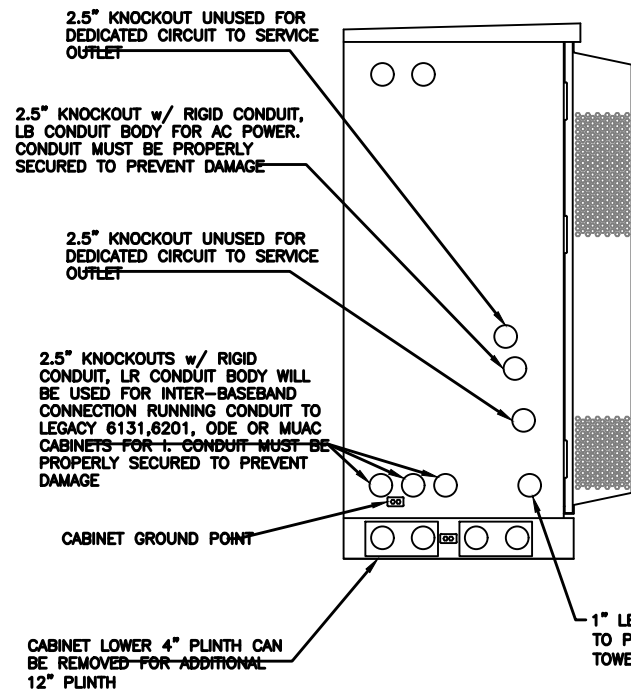
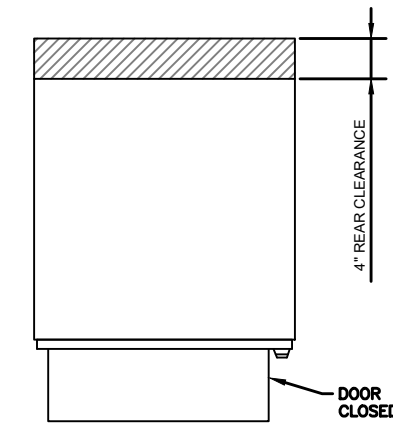
- CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
- CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING



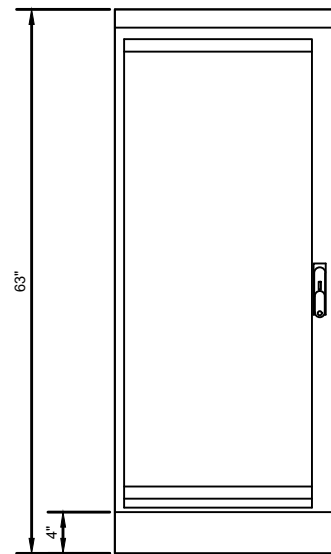
BOLT DOWN PATTERN

**GROUNDING NOTE:**

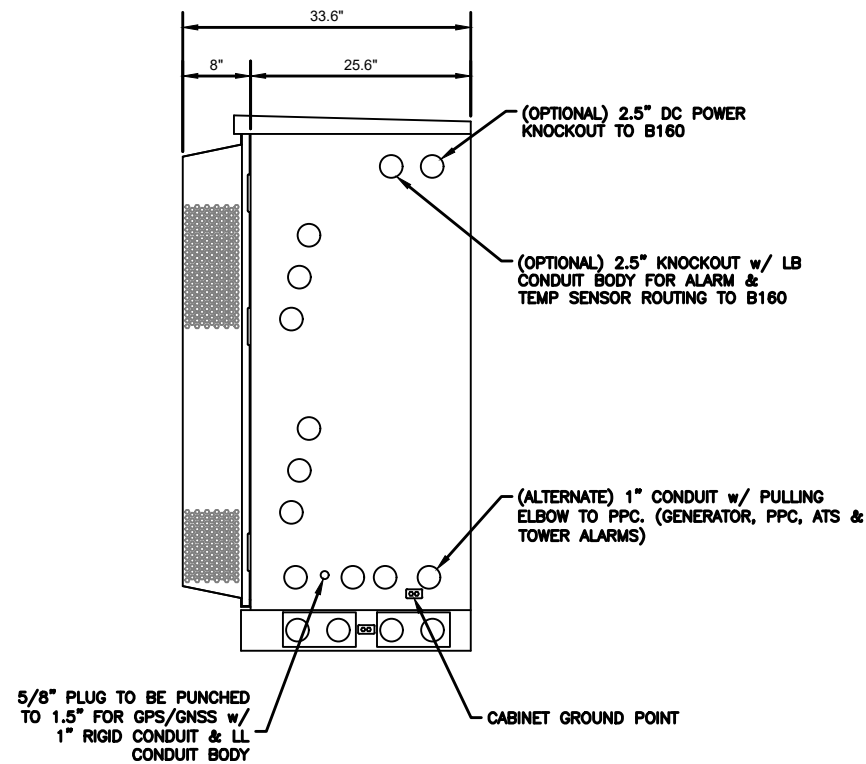
"CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED."



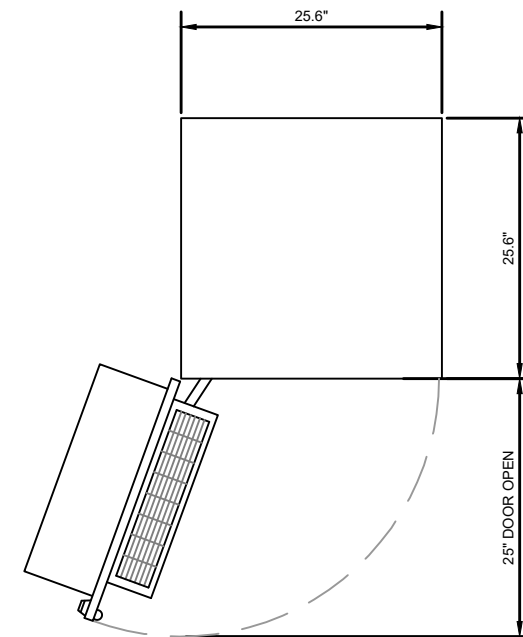
LEFT VIEW



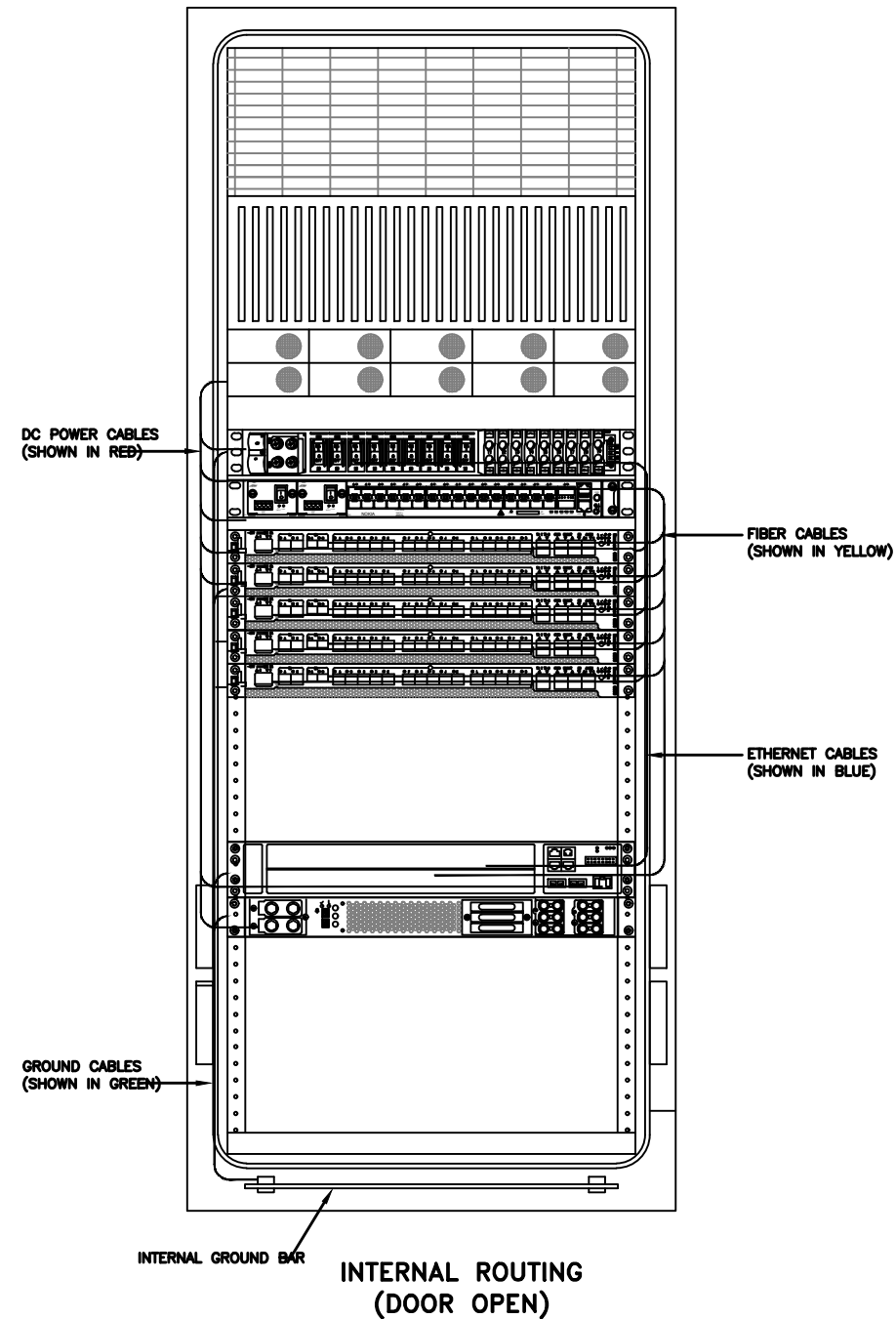
FRONT VIEW



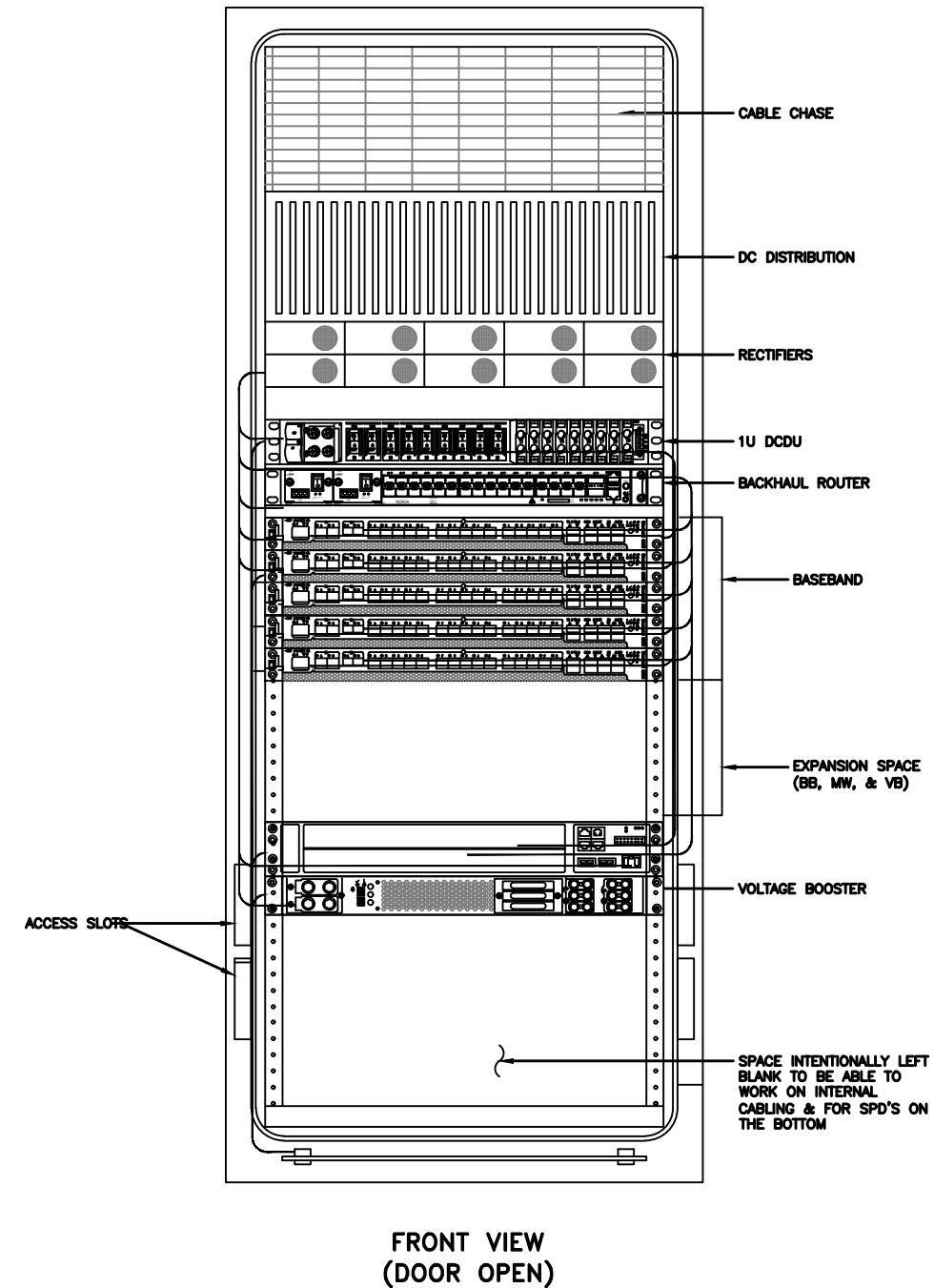
RIGHT VIEW



PLAN VIEW



RACK ASSIGNMENTS	
RU SLOTS	DESCRIPTION
1	DC DISTRIBUTION
2	
3	
4	
5	RECTIFIER SHELF
6	
7	FIBER BOX
8	DCDU
9	BACKHAUL ROUTER
10	
11	1ST BASEBAND
12	2ND BASEBAND
13	3RD BASEBAND
14	4TH BASEBAND
15	5TH BASEBAND
16	EXPANSION
17	
18	
19	EXPANSION / LEGACY BASEBAND / VOLTAGE BOOSTER
20	
21	VOLTAGE BOOSTER
22	
23	OPEN SPACE FOR SPD ACCESS
24	
25	

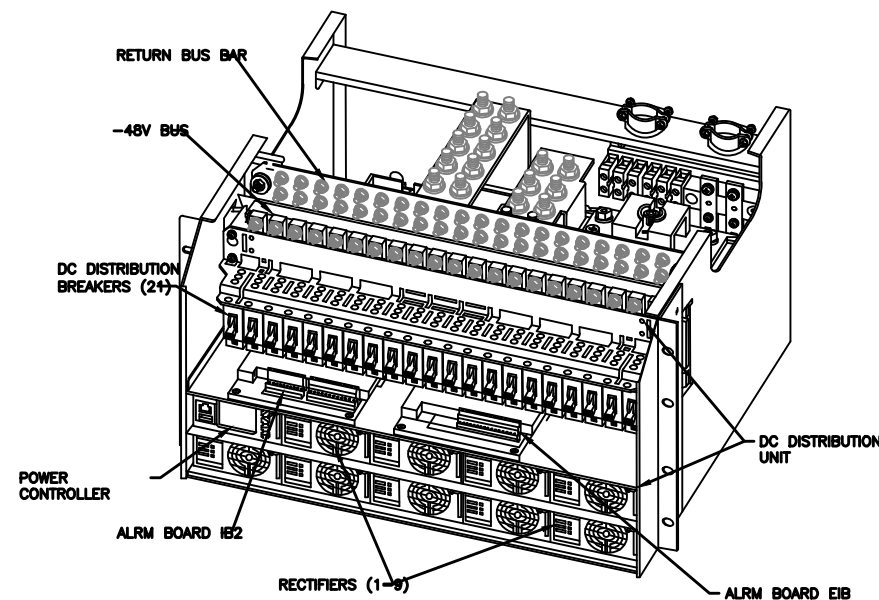




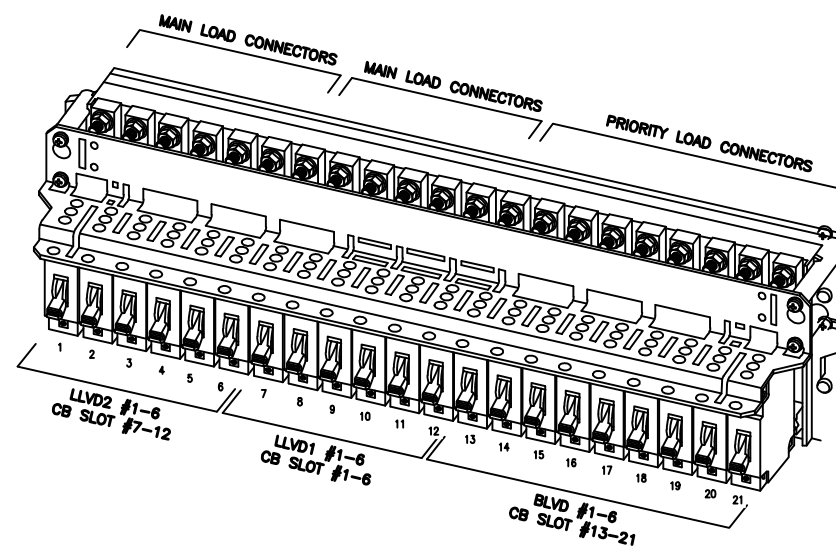
**NOTE:**  
THIS IS FOR REFERENCE ONLY, CHECK  
FOR SPECIFIC DETAIL IN T-MOBILE  
CABINET SPECIFIC INSTALLATION GUIDES

Breaker Allocation for E6160						
CB SLOT	Ckt #	w/ DCDC Prior to availability of the 4460 and 4480	w/ DCDC Later Design Post-4460 and Post-4480	w/ DCDC 4 and 6 Sector designs		
1	1	Router PS-2*/Future		Radio 4460 B25/66 ζ-1		
2	2	Future		Radio 4460 B25/66 ζ-2		
3	LVD1	PSU 4813 feeding B25/66 α, β and γ (AIR 1641s)	PSU 4813 feeding B41-δ & B71/12-δ (Air 6449s and Radio 4480s)	PSU 4813 feeding B41 α, β and γ (Air 6449s)		
4	4					
5	5					
6	6					
7	LVD2	PSU 4813 feeding B71/12 α, β and γ (Radio 4449s)	PSU 4813 feeding B71/12 α, β and γ (Radio 4480s)			
8		2				
9	45.1V	Future	Future	Radio 4460 B25/66 δ-1		
10		3	Future	Radio 4460 B25/66 δ-2		
11		4	Future	Radio 4460 B25/66 ε-1		
12		6	Future	Radio 4460 B25/66 ε-2		
13	BLVD	Router PS-1				
14		1	Radio 4415 B25/66 α	Radio 4460 B25/66 α-1		
15		2	Radio 4415 B25/66 β	Radio 4460 B25/66 α-2		
16		3	Radio 4415 B25/66 γ	Radio 4460 B25/66 β-1		
17		4	PSU 4813 feeding B2/25 α, β and γ (Radio 4424s)	Radio 4460 B25/66 β-2		
18		5	Future	Radio 4460 B25/66 γ-1		
19		6	Future	Radio 4460 B25/66 γ-2		
20		7	DCDU			
21		8	AAV			

Sector Identification  
α = Alpha, β = Beta, γ = Gamma, δ = Delta, ε = Epsilon, ζ = Zeta



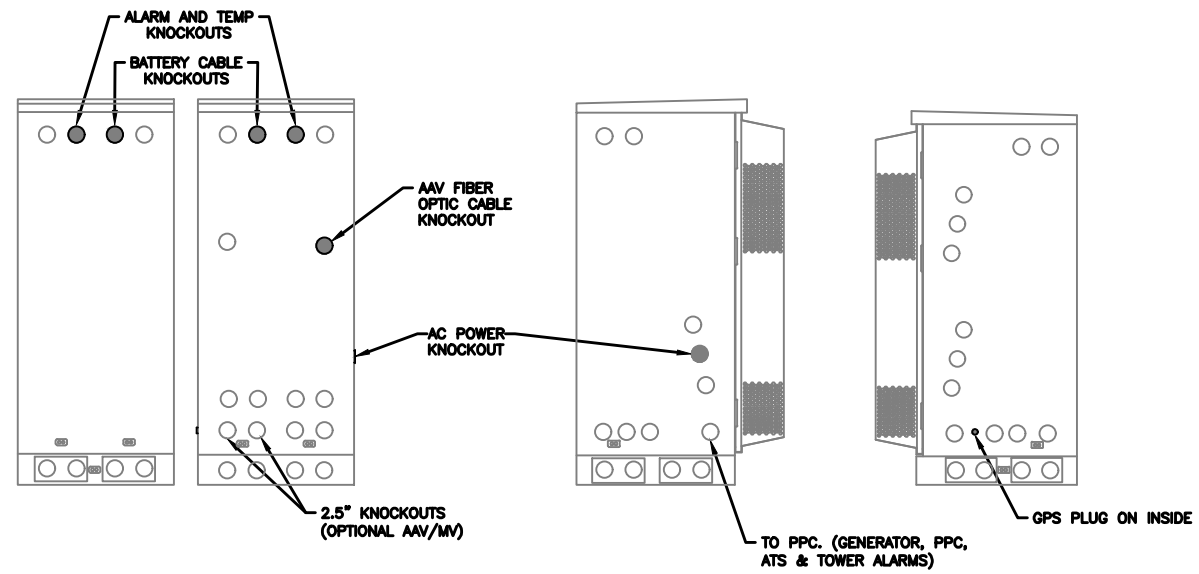
**POWER SUBRACK**



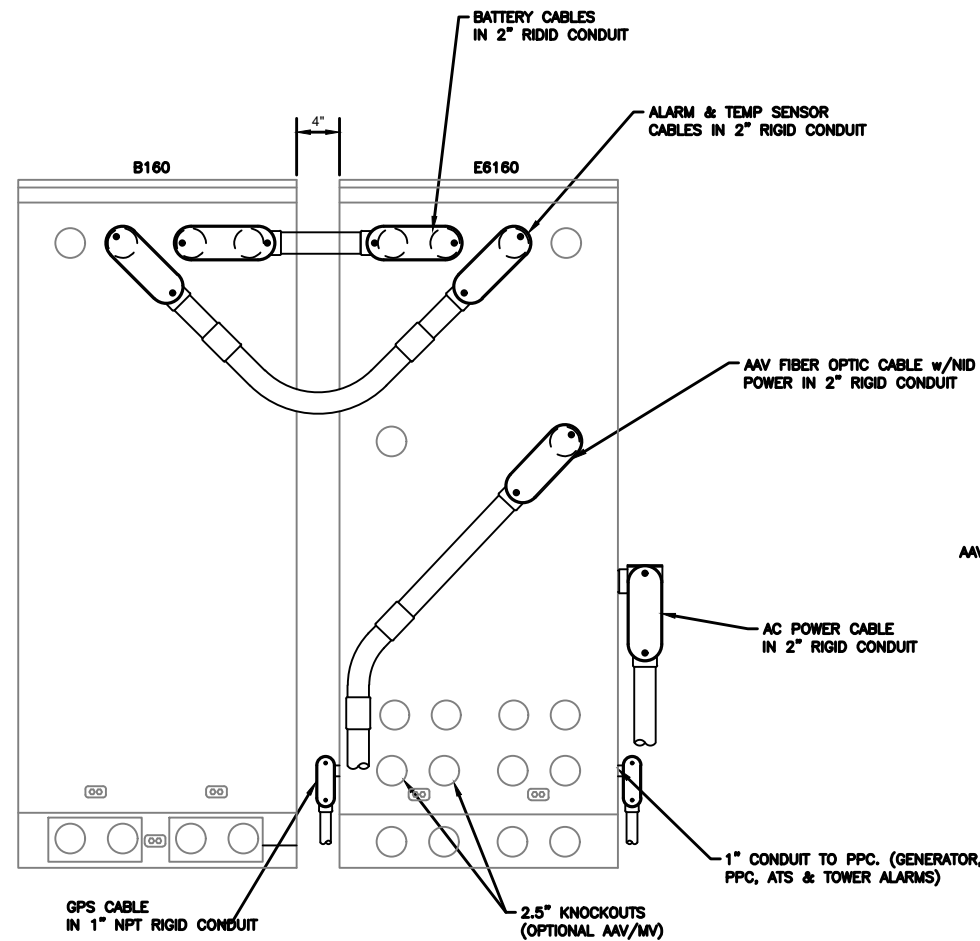
**DC DISTRIBUTION**

**NOTE:**

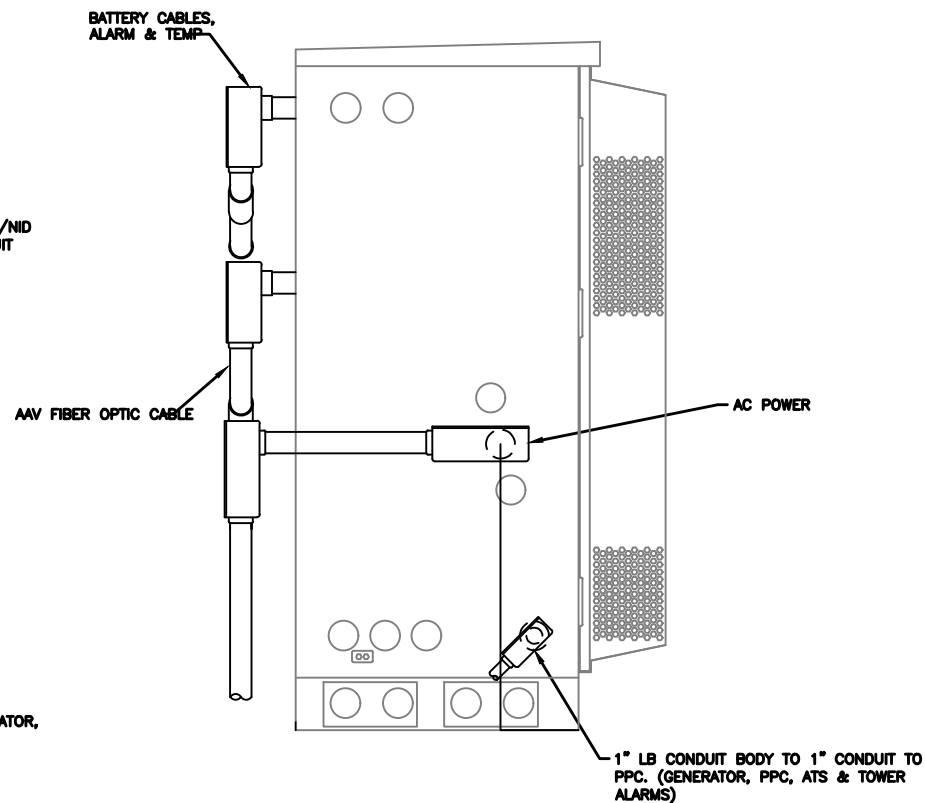
1. ALL CONDUIT AND FITTING ENTRANCES INTO CABINETS AND ENCLOSURES MUST UTILIZE MYERS OR EQUIVALENT HUBS OR SEALING WASHERS TO PREVENT WATER ENTRY/SEEPAGE INTO CABINETS AND ENCLOSURES.
2. (LIQUIDFLEX) FLEXIBLE METALLIC CONDUIT (LFMC) & ASSOCIATED FITTINGS CAN BE USED AS NEEDED BUT ONLY FOR TIGHT CONDUIT BENDS AND RUNS SUBJECT TO UL AND NEC LIMITATIONS. 6' MAX PER CONDUIT RUN.
3. POWER CONDUIT BODY ATTACHED WITH SHORT NIPPLE AND SEALING WASHER INSIDE & OUT. (FOR DOOR HOOD CLEARANCE)
4. PULLING ELBOWS MAY BE USED IN LIEU OF A CONDUIT BODIES WHEN CLEARANCE IS LIMITED.
5. ALL EXTERNAL ALARM CONDUITS ARE TO TERMINATE AT THE PPC WITH A SINGLE 1" ALARM CONDUIT TO THE 6160.
6. (DO NOT USE CHASE NIPPLES) CONDUIT SHOULD HAVE SEALING WASHERS INSIDE AND OUT w/ LOCK NUT AND CAP.



CONDUIT LOCATIONS

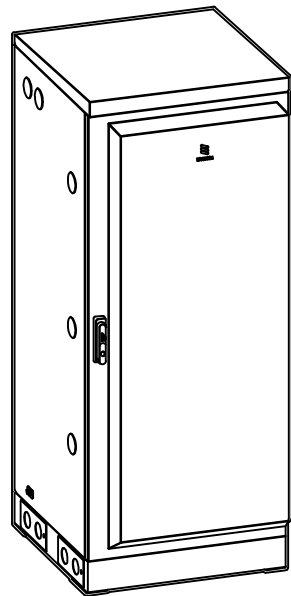


REAR VIEW



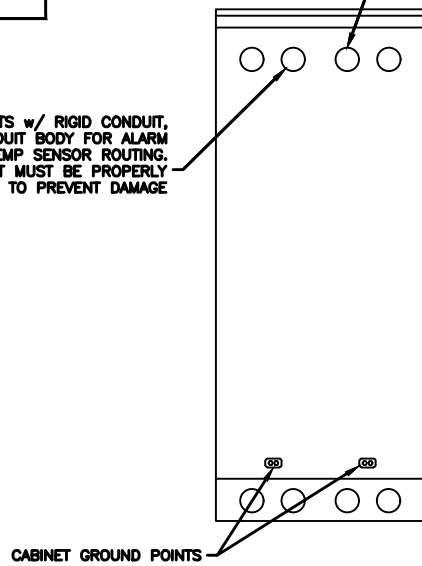
SIDE VIEW

MANUFACTURER:	ERICSSON
MODEL:	B160 BATTERY CABINET
DIMENSIONS:	63" x 25.6" x 29.5" (H x W x D)
WEIGHT:	295 LBS (WITHOUT BATTERIES)

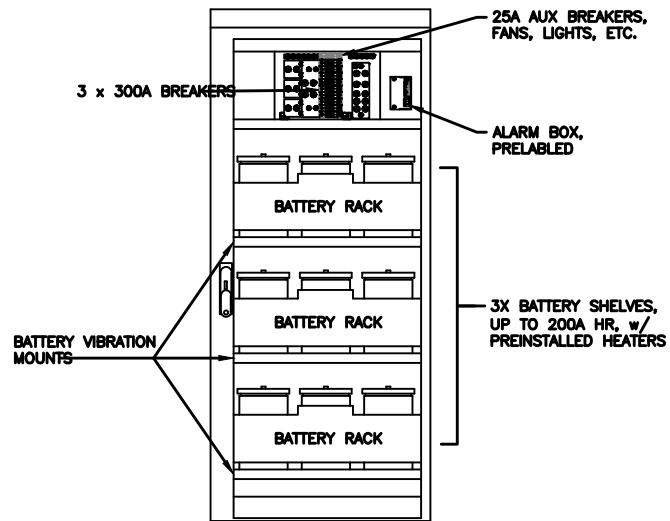


2.5" KNOCKOUTS w/ RIGID CONDUIT, LB CONDUIT BODY FOR ALARM CABLE & TEMP SENSOR ROUTING. CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE

2.5" KNOCKOUTS w/ RIGID CONDUIT, LB CONDUIT BODY FOR BATTERY CABLE CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE

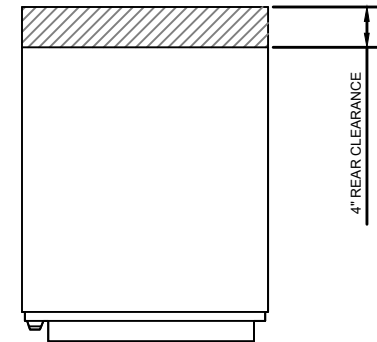


REAR VIEW



FRONT VIEW (DOOR OPEN)

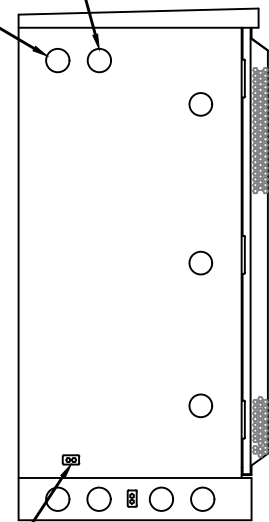
NOTE:  
 • CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS  
 • CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING



GROUNDING NOTE:  
 "CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED."

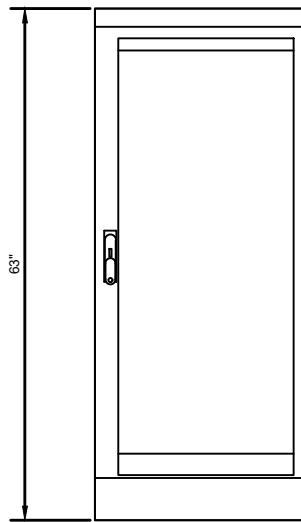
(OPTIONAL) 2.5" KNOCKOUTS FOR ALARM & TEMP SENSOR ROUTING TO 6160

(OPTIONAL) 2.5" DC POWER KNOCKOUTS TO 6160

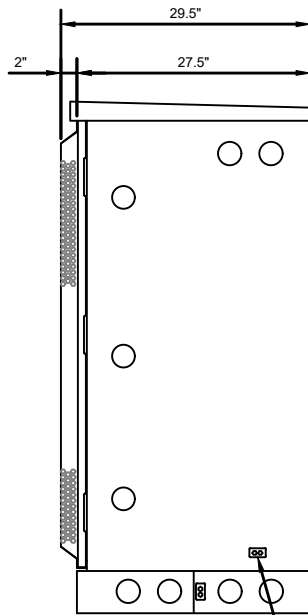


CABINET GROUND POINT

LEFT VIEW

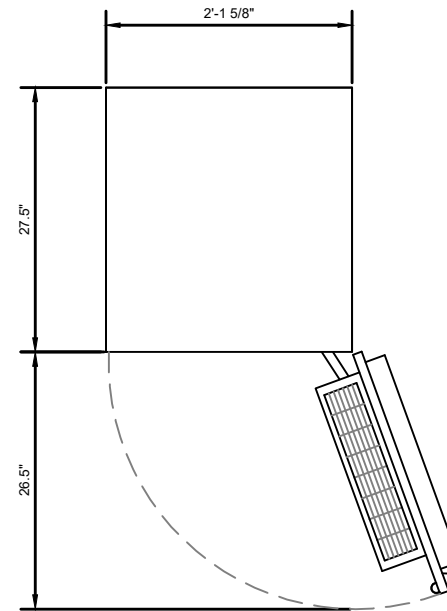


FRONT VIEW



CABINET GROUND POINT

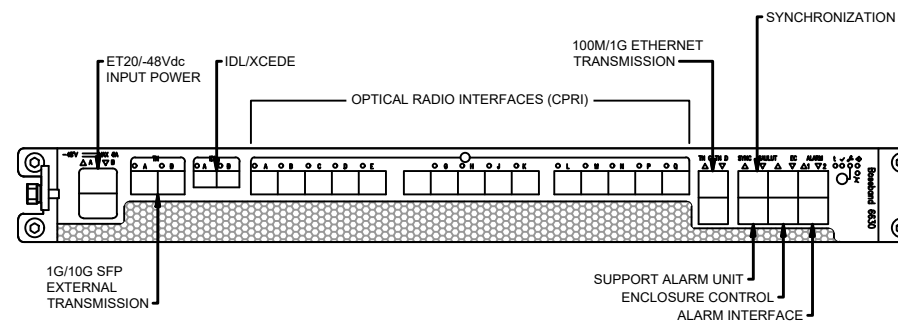
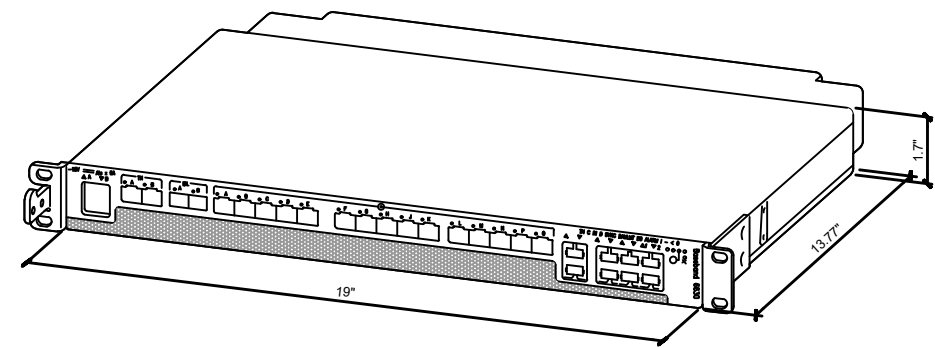
RIGHT VIEW



PLAN VIEW

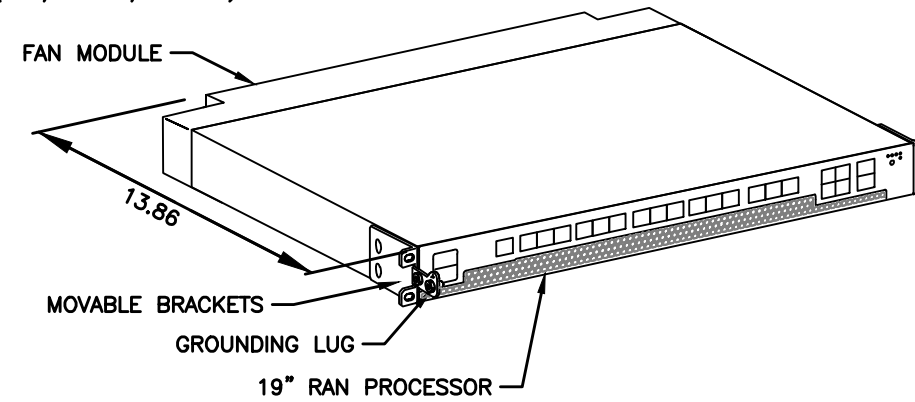
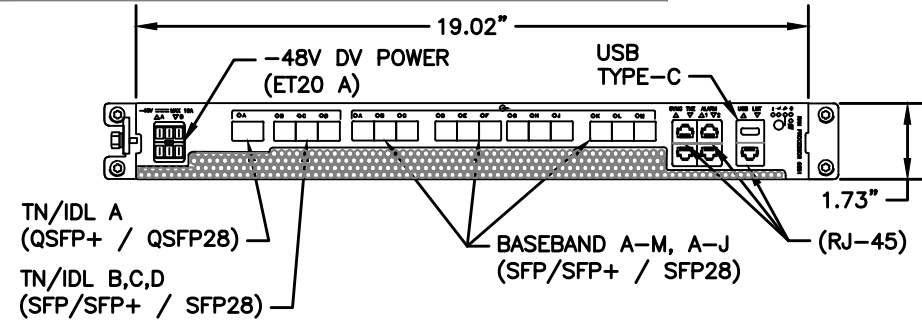
B160 ERICSSON SITE SUPPORT BATTERY CABINET

MANUFACTURER:	ERICSSON
MODEL:	BASEBAND 6630
WEIGHT:	14.3LBS
DIMENSIONS:	19" x 1.7" x 13.77"



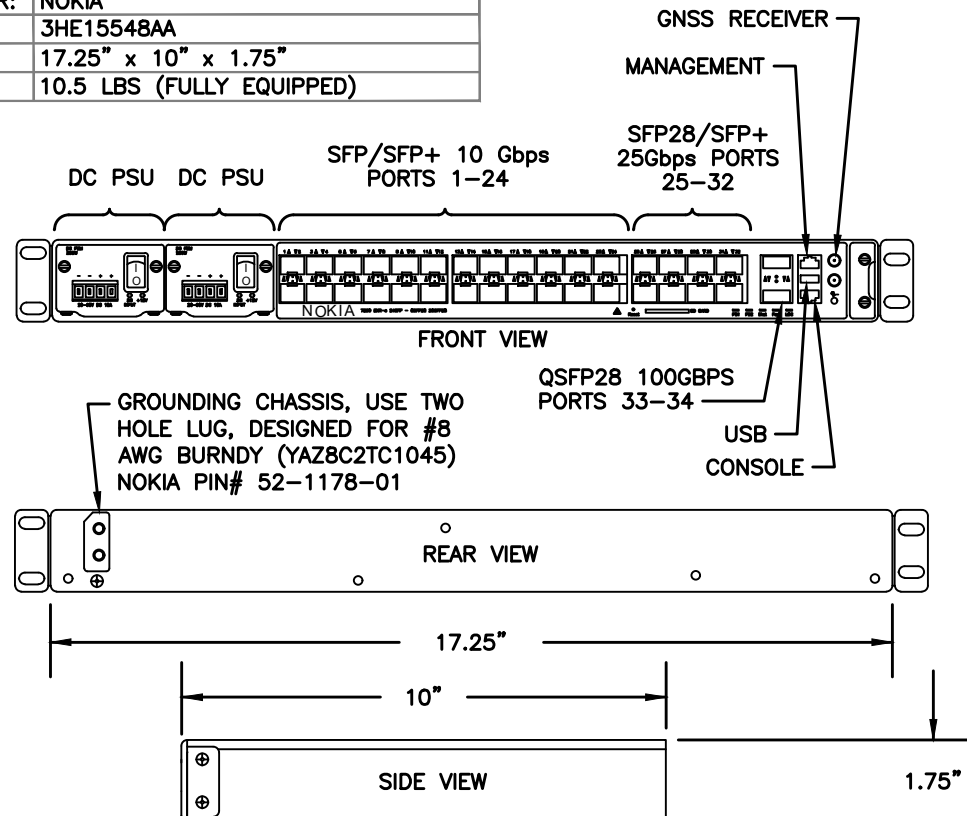
1 33659 - BASEBAND 6630 SCALE: N.T.S.

MANUFACTURER:	ERICSSON
MODEL:	6651 RAN PROCESSOR (KDU1370093/11)
DIMENSIONS:	1.73" X 19.02" X 13.86" (H" X W" X D")
WEIGHT:	16.98 LBS



2 34553 - ERICSSON 6651 RAN PROCESSOR SCALE: N.T.S.

MANUFACTURER:	NOKIA
MODEL:	3HE15548AA
DIMENSIONS:	17.25" x 10" x 1.75"
WEIGHT:	10.5 LBS (FULLY EQUIPPED)



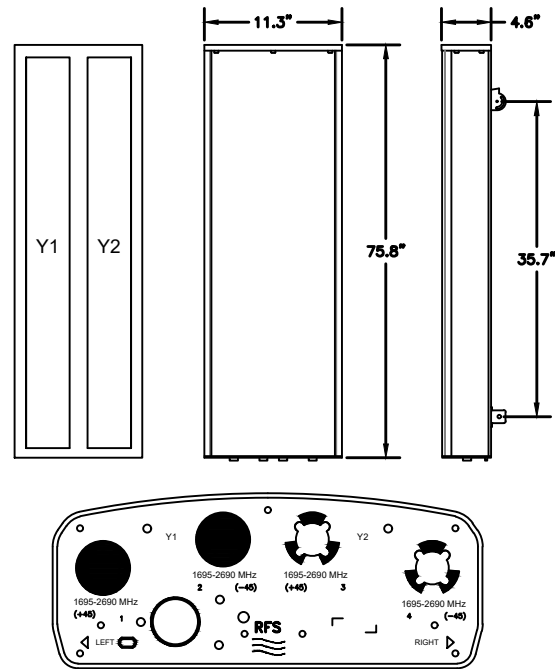
3 34097 - NOKIA 7250 IXR-e ROUTER w/ GNSS SCALE: N.T.S.

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

SUPPLEMENTAL

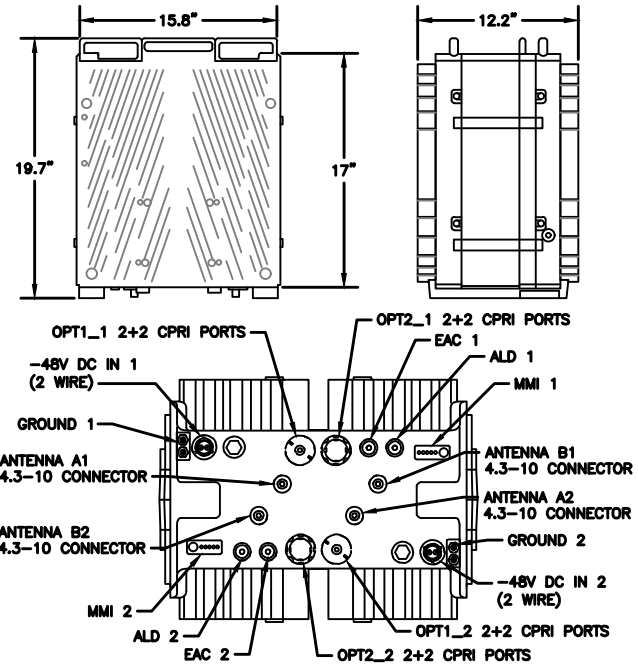
SHEET NUMBER:	REVISION:
R-607	0

MANUFACTURER:	RFS
MODEL:	APXVLL19P_43-C-A20
DIMENSIONS:	75.8" x 11.3" x 4.6" H x W x D
WEIGHT:	40.9 LBS
CONNECTOR TYPE:	4 x 4.3-10 FEMALE/BOTTOM + 2 AISG CONNECTORS (1 MALE, 1 FEMALE)
MOUNTING KIT WEIGHT:	7.49 LBS (APM40-2 BEAM TILT KIT)



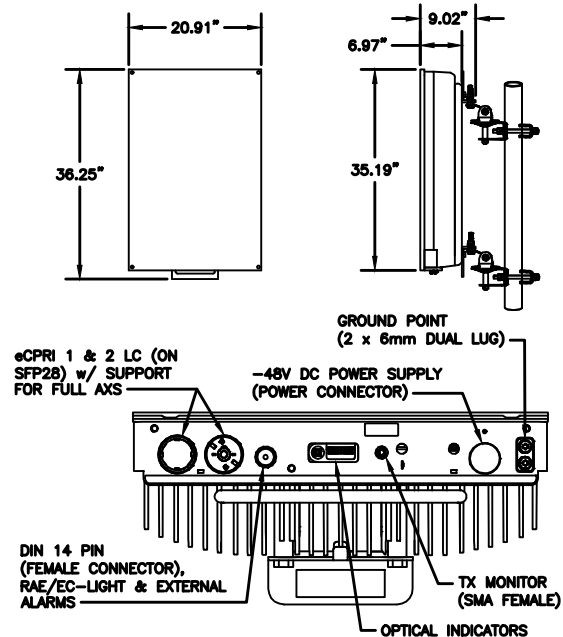
1 34403 - RFS APXVLL19P\_43-C-A20 SCALE: N.T.S.

MANUFACTURER:	ERICSSON
MODEL:	4460 RADIO B2/25 B66 (KRC 161 912/3)
DIMENSIONS:	19.7" x 15.8" x 12.2" (H" x W" x D")
WEIGHT:	109 LBS
BRACKET WEIGHT:	4.8 LBS (ERS HEAVY #SXX1255993/1)

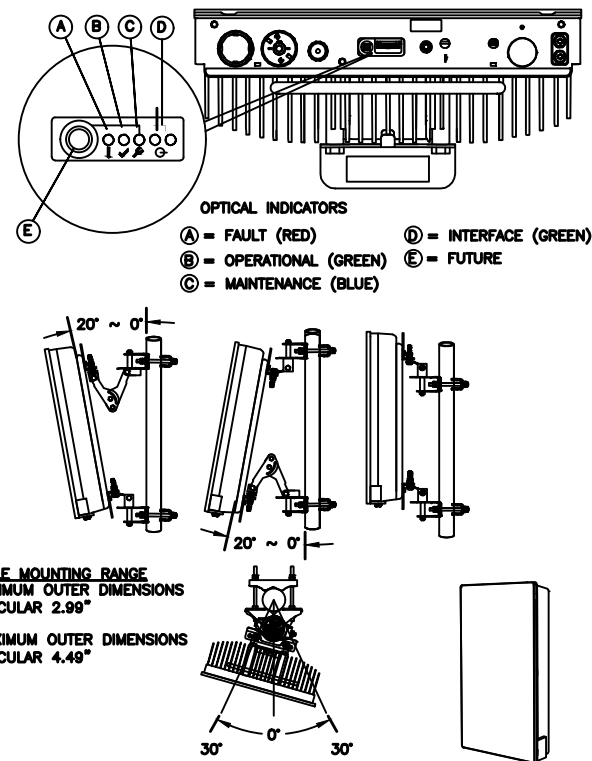


2 34373 - ERICSSON 4460 RADIO B2/25 B66 SCALE: N.T.S.

MANUFACTURER:	ERICSSON
MODEL:	AIR 6419 B41 (2.5GHz M-MIMO)
DIMENSIONS:	36.25" x 20.91" x 9.02" NOT TO EXCEED (H x W x D)
WEIGHT:	83 LBS (EXCLUDING MOUNTING KIT)
MOUNT WEIGHT:	13.5 LBS (SXX109 2016/1)



3 34552 - ERICSSON AIR 6419 BAND 41 SCALE: N.T.S.



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

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-608	0

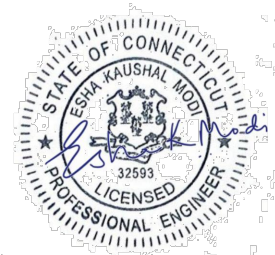


Eng. Number 14561673\_C9\_04  
December 18, 2023  
Page 3

## Post Modification Mount Analysis Report

**ATC Asset Name** : MADISON CT  
**ATC Asset Number** : 283421  
**Engineering Number** : 14561673\_C9\_04  
**Mount Elevation** : 95.5 ft  
**Proposed Carrier** : T-Mobile  
**Carrier Site Name** : Amtrak\_Madison  
**Carrier Site Number** : CTNH808A  
**Site Location** : 15 Orchard Park Road  
 Madison, CT 06443-2268  
 41.2831, -72.6231  
**County** : New Haven  
**Date** : December 18, 2023  
**Max Usage** : 84%  
**Analysis Result** : Contingent Pass

Prepared By:  
Michael Ellis  
Structural Engineer II



Digitally Signed: 2023-12-20

COA: PEC.0001553

A.T. Engineering Service, PLLC - 1 Fenton Main, Suite 300 - Cary, NC 27511 - 919.468.0112 Office - 919.466.5414 Fax - www.americantower.com

A.T. Engineering Service, PLLC - 1 Fenton Main, Suite 300 - Cary, NC 27511 - 919.468.0112 Office - 919.466.5414 Fax - www.americantower.com

### Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 95.5 ft.

### Supporting Documents

Previous Analysis:	CLS Project #41124-12927138-01-MA-R1, dated July 9, 2019
Radio Frequency Data Sheet:	RFDS ID #CTNH808A, dated November 28, 2023
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:	123 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 / 2021 IBC / 2022 Connecticut State Building Code
Exposure Category:	D
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.204, S1 = 0.054
Site Class:	D - Stiff Soil - Default
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 #14561673\_C9\_04

If you have any questions or require additional information, please reach out to your American Tower contact. If you do not have an American Tower contact and have an Engineering question, please contact [MountAnalysis@americantower.com](mailto:MountAnalysis@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

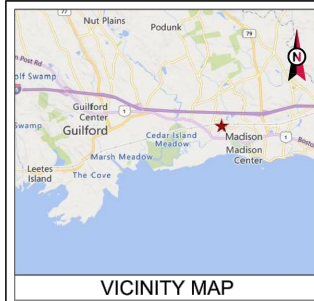
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1 MOUNT ANALYSIS

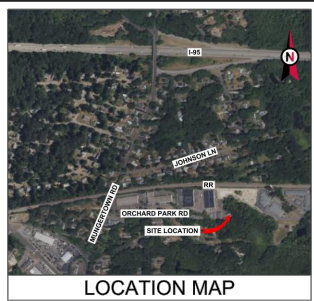
SUPPLEMENTAL

SHEET NUMBER:  
**R-609**

REVISION:  
**0**



**AMERICAN TOWER®**  
 SITE NAME: MADISON CT  
 SITE NUMBER: 283421  
 ATC PROJECT NUMBER: 14561673\_C9\_04  
 SITE ADDRESS: 15 ORCHARD PARK ROAD  
 MADISON, CT 06443



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

PROJECT TEAM	PROJECT INFORMATION	SHEET	SHEET TITLE	REV.
<b>TOWER OWNER</b> AMERICAN TOWER 10 PRESIDENTIAL WAY WOBRURN, MA 01801	THE PROJECT DEPICTED IN THESE PLANS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED UNDER ENGINEERING PROJECT NUMBER 14561673_C9_04 DATED 12/08/23. 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.	G-001	COVER	0
<b>ENGINEERED BY</b> ATC TOWER SERVICES 1 FENTON BARN STREET SUITE 100 CARY, NC 27511		G-002	IBC GENERAL NOTES & MOUNT MODIFICATION INSPECTION	0
<b>CARRIER INFORMATION</b> CARRIER: T-MOBILE CARRIER SITE NAME: AIRTRAIL_MADISON CARRIER SITE NUMBER: CTH888A		S-101	MODIFICATION PROFILE	0
		S-102	SAFETY CLIMB LAYOUT	0
	<b>PROJECT NOTE</b> THE PROJECT DEPICTED IN THESE PLANS QUALIFIES AS AN ELIGIBLE FACILITY REQUIRING ENTITLED TO EXPEDITED REVIEW UNDER 47 U.S.C. § 1603A AS A MODIFICATION OF AN EXISTING WIRELESS TOWER THAT INVOLVES THE COLOCATION, REMOVAL, AND/OR REPLACEMENT OF TRANSMISSION EQUIPMENT THAT IS NOT A SUBSTANTIAL CHANGE UNDER CPRI § 1.4103 (B)(7).	R-501	SUPPLEMENTAL	0
	<b>COMPLIANCE CODE</b> 1. ANSI/TIA/EIA STRUCTURAL STANDARDS (222-H EDITION) 2. INTERNATIONAL BUILDING CODE (2015 IBC) 3. CONNECTICUT STATE BUILDING CODE (2022)	---	POST MODIFICATION MOUNT ANALYSIS REPORT	---
	<b>PROJECT LOCATION</b> GEOGRAPHIC COORDINATES LATITUDE: 41.2839643 LONGITUDE: -72.8207449			

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 1 FENTON BARN STREET  
 SUITE 100  
 CARY, NC 27511  
 PHONE: (919) 468-8112  
 COAL. REG. #061932

REV. DESCRIPTION BY DATE  
 FIRST ISSUE KPJ 12/19/23

ATC SITE NUMBER: 283421  
 ATC SITE NAME: MADISON CT  
 CONNECTICUT  
 SITE ADDRESS: 15 ORCHARD PARK ROAD  
 MADISON, CT 06443

DRAWN BY: KPJ  
 APPROVED BY: MFE  
 DATE DRAWING: 12/19/23  
 ATC JOB NO.: 14561673\_C9\_04

COVER

SHEET NUMBER: G-001 REVISION: 0

**GENERAL**

- ALL WORK SHALL 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/EIA AND ANSI/AISC 310-16 TO PROVIDE A COMPLETE AND STABLE STRUCTURE AS SHOWN ON THESE DRAWINGS.
- CONTRACTORS PROPOSED INSTALLATION SHALL NOT INTERFERE, NOR DENY ACCESS TO, ANY EXISTING OPERATIONAL AND SAFETY EQUIPMENT.

**STRUCTURAL STEEL**

- STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS.
- ALL WELDS SHALL BE MADE IN ACCORDANCE WITH THE AISC WELDING CODE D1.1.
- ALL WELDS SHALL BE INSPECTED VISUALLY IF SPECIFIED BY ENGINEER OF RECORD. 20% OF WELDS SHALL BE INSPECTED WITH EITHER ULTRASONIC OR MAGNETIC PARTICLE METHODS. (WELDS NOT REJECTABLE DEFECTS ARE FOUND TO MEET THE ACCEPTABLE CRITERIA OF AISC D1.1. REPAIRABLE WELDS AS NECESSARY. 100% OF ALL FULL PENETRATION WELDS SHALL BE INSPECTED WITH EITHER ULTRASONIC OR MAGNETIC PARTICLE METHODS.)
- INSPECTION SHALL BE PERFORMED BY AN AISC CERTIFIED WELD INSPECTOR.
- ALL ELECTRODES TO BE LOW HYDROGEN, MATCHING FILLER AND/OR BASE METAL, PER AISC D1.1, UNLESS NOTED OTHERWISE.
- IN CASES WHERE BASE METAL GRADE IS UNKNOWN, ALL WELDING ON LATTICE TOWERS SHALL BE DONE WITH E70X 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 GALVANIZATION 1/2" BEYOND ALL WELD SURFACES. AFTER WELD AND WELD JOINTS ARE COMPLETE, REPAIR ALL GROUND AND WELD SURFACES WITH ZINC GALVANITE COLD GALVANIZING COMPOUND PER ASTM A780 AND MANUFACTURER'S RECOMMENDATIONS.

**PAINT**

- AS REQUIRED, CLEAN AND PAINT PROPOSED STEEL ACCORDING TO FAA ADVISORY CIRCULAR AC 707460-1L.

**BOLT TIGHTENING PROCEDURE**

- CONNECTIONS TO BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RISC SPECIFICATIONS.
- ALL BOLTS WHOSE AXES ARE INSTALLED VERTICALLY, UNLESS OTHERWISE NOTED, SHALL BE INSTALLED AND TIGHTENED PER SECTION 8.2.1 THROUGH 8.2.4 OF THE RISC SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS PER THE FOLLOWING GUIDELINES:

**FOR A508 BOLTS 1" DIAMETER AND LESS:**

- DIRECT TENSION INDICATING (DTI) SQUARE WASHERS SHALL BE INSTALLED AND ORIENTED TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.
- DIRECT TENSION INDICATING (DTI) SQUARE WASHERS SHALL BE INSTALLED AND ORIENTED TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.
- RISC "TURN-OR-TWO-NUT" METHOD: PRIOR TO APPLICATION OF TURN-OF-NUT PRE-TENSIONING, ALL BOLTS IN THE CONNECTION SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN RISC SECTION 8.1, AND MATCH-MARKING OF THE NUTS AND PROTRUDING END OF THE BOLTS MUST BE IMPLEMENTED FOR ALL BOLTS IN THE CONNECTION.

**FOR A509 BOLTS EXCEEDING 1" DIAMETER AND ALL OTHER HIGH STRENGTH BOLTS, ONE OF THE FOLLOWING METHODS SHALL BE USED:**

- DIRECT TENSION INDICATING (DTI) SQUARE WASHERS SHALL BE INSTALLED AND ORIENTED TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.
- RISC "TURN-OR-TWO-NUT" METHOD: PRIOR TO APPLICATION OF TURN-OF-NUT PRE-TENSIONING, ALL BOLTS IN THE CONNECTION SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN RISC SECTION 8.1, AND MATCH-MARKING OF THE NUTS AND PROTRUDING END OF THE BOLTS MUST BE IMPLEMENTED FOR ALL BOLTS IN THE CONNECTION.

**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).

**GENERAL CONTRACTOR**

THE GENERAL CONTRACTOR IS REQUIRED TO:

- REVIEW THE REQUIREMENTS OF THE MMI CHECKLIST.
- UNDERSTAND ALL INSPECTION REQUIREMENTS.

THE GENERAL CONTRACTOR SHALL PERFORM AND RECORD THE INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MMI CHECKLIST.

INSPECTION DOCUMENT	DESCRIPTION	INSPECTION TESTING REQUIRED	RESPONSIBILITY
ON-SITE COLD GALVANIZING VERIFICATION	PHOTOGRAPHIC EVIDENCE OF COLD GALVANIZING 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 ENGINEERING PLANS TO MMI FOR APPROVAL/REVIEW AND INCLUSION IN MMI REPORT.	✓	GC
PHOTOGRAPHS	PHOTOGRAPHIC EVIDENCE OF MOUNT MODIFICATION INSPECTION ON SITE RENOVATION, AND DURING FAILING INSPECTION & REPAIRING 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

**MAXIMUM ALLOWABLE ANGLE CLIP**

**SAFETY CLIMB LOCATION**

**AMERICAN TOWER®**  
 A.T. ENGINEERING SERVICES, PLLC  
 1 FENTON BARN STREET  
 SUITE 100  
 CARY, NC 27511  
 PHONE: (919) 468-8112  
 COAL. REG. #061932

REV. DESCRIPTION BY DATE  
 FIRST ISSUE KPJ 12/19/23

ATC SITE NUMBER: 283421  
 ATC SITE NAME: MADISON CT  
 CONNECTICUT  
 SITE ADDRESS: 15 ORCHARD PARK ROAD  
 MADISON, CT 06443

DRAWN BY: KPJ  
 APPROVED BY: MFE  
 DATE DRAWING: 12/19/23  
 ATC JOB NO.: 14561673\_C9\_04

**MODIFICATION PROFILE**

SHEET NUMBER: S-101 REVISION: 0

**REINFORCEMENT MATERIALS LIST (ALL SECTORS)**

QUANTITY REQUIRED	MANUFACTURER	PART NUMBER	DESCRIPTION	LENGTH (ft)	PART WEIGHT (lb)	WEIGHT (lb)	NOTES
12	AMERICAN TOWER	100000001	REINFORCEMENT KIT (R-501)	100	100	10000	
12	AMERICAN TOWER	100000002	REINFORCEMENT KIT (R-502)	100	100	10000	
12	AMERICAN TOWER	100000003	REINFORCEMENT KIT (R-503)	100	100	10000	

**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 PM INBOX AT [PMINBOX@AMERICANTOWER.COM](mailto:PMINBOX@AMERICANTOWER.COM).

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 APPROVED BY: MFE  
 DATE DRAWING: 12/19/23  
 ATC JOB NO.: 14561673\_C9\_04

**MODIFICATION PROFILE**

SHEET NUMBER: S-102 REVISION: 0

**SAFETY CLIMB LAYOUT**

**NOTE:** CONTRACTOR TO INSTALL MOUNT MODIFICATIONS PER THE MANUFACTURER'S SPECIFICATION. MODIFICATIONS SHALL NOT OBSTRUCT, INTERFERE, OR BLOCK EXISTING SAFETY CLIMB SYSTEM, IF ANY OF THESE OCCURS DURING INSTALLATION CONTACT THE AMERICAN TOWER PM INBOX AT [PMINBOX@AMERICANTOWER.COM](mailto:PMINBOX@AMERICANTOWER.COM).

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**SUPPLEMENTAL**

SHEET NUMBER: **R-610**  
 REVISION: **0**

11:59 AM 12/18/2023

Option 1 - Modify: Estimate for T-Mobile @ 283421 (MADISON CT) - 14561673\_C9\_04

Site Data and Design Parameters		Dates and Delays	
Asset ID#	283421	Mount Analysis Date / By	12/16/2023 / JS
Asset Name	MADISON CT	Design Date / By	12/14/2023 / MFE
State	CT	Checked Date / By	/ /
County	New Haven	Order (Phone/Carrier/Level)	/ / /
City	Madison	Software	RISA
Falling Analysis Eng. #	14561673_C9_04	Carrier Type	Monopole
Mod. Drawing Eng. #	14561673_C9_04	Mount Type	T-Frame
Building Codes		Carriers	
TIA/IBC	ANSI/TIA-222-H / 2021 IBC	# of Carriers	1
Local	2022 Connecticut State Building Code	Carrier	T-Mobile
Falling Analysis % / Code	142% / TIA-H		
Frost Mod % / Controlling Member	84% / Monopole Pipe		
Usage Limit % / Reason	105% / N/A		

Any modification design comments or assumptions? No (Please refer to the Estimate)

Modification Summary	
Item #	Scope Item
1	Install Site Pro 1 PRK SFS L V Style Stabilizer on All (3) MP sector(s)
2	Install 2.0" Pipe x 174' Pipe w/ Site Pro 1 SC7-U crossovers on All (3) sector(s)
<b>Estimated Modification Cost</b>	
	\$12,000

\\amer\kames\com\proj\structural\_report\14561673\mod\14561673\_C9\_04\0417\_000\Mount Modification SOW v1.2.dwg

Option 2 - Replace: Estimate for T-Mobile @ 283421 (MADISON CT) - 14561673\_C9\_04

Tower Info		Physical Requirements	
Tower Number	283421	New Mount Face Width	150 in
Tower Name	MADISON CT	Number of Sectors	3
State	CT		
Jurisdictional Coding			
Design TIA Code	Unknown		
Current TIA Code	ANSI/TIA-222-H		
IBC	2021 IBC		
Other	2022 Connecticut State Building Code		
Project Information			
Carrier	T-Mobile		
Structure Type	Monopole		
Recommended Mount Replacement		Estimated Replacement Cost \$ 36,000.00	
Site Pro 1 VFA10-SD-S*			

\*or approved equivalent

SUPPLEMENTAL

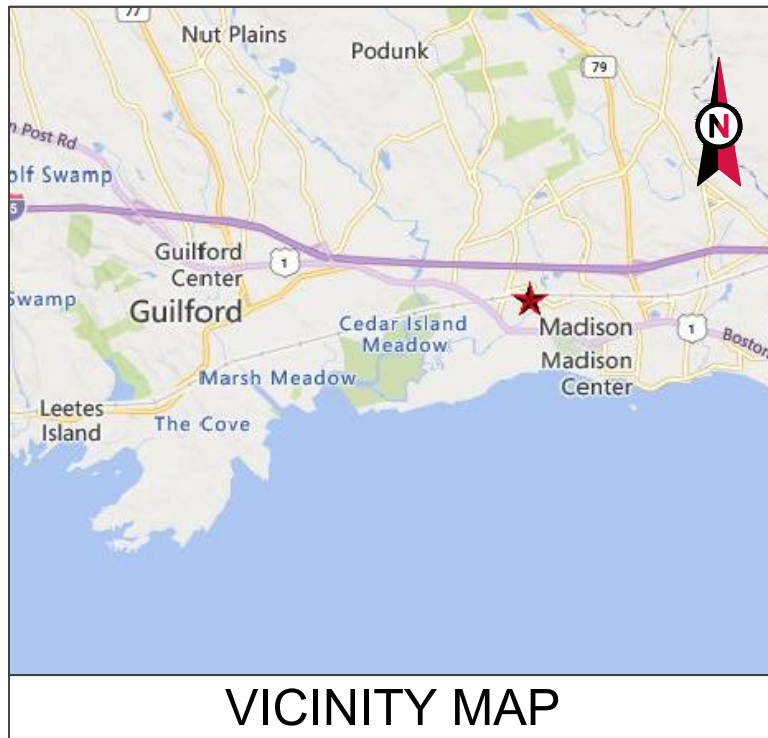
SHEET NUMBER: R-901 REVISION: 0

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SUPPLEMENTAL

SHEET NUMBER: R-611 REVISION: 0





VICINITY MAP



**AMERICAN TOWER®**

SITE NAME: MADISON CT  
 SITE NUMBER: 283421  
 ATC PROJECT NUMBER: 14561673\_C9\_04  
 SITE ADDRESS: 15 ORCHARD PARK ROAD  
 MADISON, CT 06443



LOCATION MAP

**AMERICAN TOWER®**  
**A.T. ENGINEERING SERVICES, PLLC**  
 1 FENTON MAIN STREET  
 SUITE 300  
 CARY, NC 27511  
 PHONE: (919) 468-0112  
 COA: PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	KPJ	12/19/23

ATC SITE NUMBER:  
283421  
 ATC SITE NAME:  
MADISON CT  
 CONNECTICUT  
 SITE ADDRESS:  
15 ORCHARD PARK ROAD  
MADISON, CT 06443

**Esha Modi** Digitally signed by Esha Modi  
 Date: 2023.12.20 17:24:17 -05'00'

DRAWN BY:	KPJ
APPROVED BY:	MFE
DATE DRAWN:	12/19/23
ATC JOB NO:	14561673_C9_04

COVER  
 SHEET NUMBER:  
**G-001**  
 REVISION:  
**0**

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

PROJECT TEAM	PROJECT INFORMATION	SHEET	SHEET TITLE	REV.
<u><b>TOWER OWNER</b></u> AMERICAN TOWER 10 PRESIDENTAL WAY WOBURN, MA 01801  <u><b>ENGINEERED BY</b></u> ATC TOWER SERVICES 1 FENTON MAIN STREET, SUITE 100 CARY, NC 27511  <u><b>CARRIER INFORMATION</b></u> CARRIER: T-MOBILE CARRIER SITE NAME: AMTRAK_MADISON CARRIER SITE NUMBER: CTNH808A	THE PROJECT DEPICTED IN THESE PLANS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL ANALYSIS COMPLETED UNDER ENGINEERING PROJECT NUMBER 14561673_C8_01 DATED 12/08/23. 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.	G-001	COVER	0
	<u><b>PROJECT NOTE</b></u> 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).	G-002	IBC GENERAL NOTES & MOUNT MODIFICATION INSPECTION	0
	<u><b>COMPLIANCE CODE</b></u> 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.	S-101	MODIFICATION PROFILE	0
	1. ANSI/TIA/EIA: STRUCTURAL STANDARDS (222-H EDITION) 2. INTERNATIONAL BUILDING CODE (2021 IBC) 3. CONNECTICUT STATE BUILDING CODE (2022)	S-102	SAFETY CLIMB LAYOUT	0
	<u><b>PROJECT LOCATION</b></u> <u><b>GEOGRAPHIC COORDINATES</b></u> LATITUDE: 41.28306443 LONGITUDE: -72.62307449	R-901	SUPPLEMENTAL	0
	<u><b>PROJECT LOCATION</b></u> <u><b>GEOGRAPHIC COORDINATES</b></u> LATITUDE: 41.28306443 LONGITUDE: -72.62307449	---	POST MODIFICATION MOUNT ANALYSIS REPORT	---
	1. ANSI/TIA/EIA: STRUCTURAL STANDARDS (222-H EDITION) 2. INTERNATIONAL BUILDING CODE (2021 IBC) 3. CONNECTICUT STATE BUILDING CODE (2022)			
	1. ANSI/TIA/EIA: STRUCTURAL STANDARDS (222-H EDITION) 2. INTERNATIONAL BUILDING CODE (2021 IBC) 3. CONNECTICUT STATE BUILDING CODE (2022)			

**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**

- STRUCTURAL STEEL SHALL CONFORM TO THE LATEST EDITION OF THE AISC "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS."
  - ALL W-SHAPES: ASTM A572, GRADE 50, UNLESS NOTED OTHERWISE.
  - ALL OTHER ROLLED SHAPES: ASTM A36, UNLESS NOTED OTHERWISE.
  - HSS SECTION (SQUARE, RECTANGULAR, AND ROUND): ASTM A500, GRADE B, UNLESS NOTED OTHERWISE.
  - ALL BOLTS FOR CONNECTING STRUCTURAL MEMBERS: ASTM A3125 GRADE A325, TYPE SC OR N, UNLESS NOTED OTHERWISE.
  - ALL ANCHOR RODS: ASTM F1554, GRADE 36, UNLESS NOTED OTHERWISE.
- 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-9 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.

**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 EITHER ULTRASONIC OR MAGNETIC PARTICLE METHODS. (100% IF REJECTABLE DEFECTS ARE FOUND) TO MEET THE ACCEPTABLE CRITERIA OF AWS D1.1. REPAIR ALL WELDS AS NECESSARY. 100% OF ALL FULL PENETRATION WELDS SHALL BE INSPECTED WITH EITHER ULTRASONIC OR MAGNETIC PARTICLE METHODS.
- 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.

**PAINT**

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

**BOLT TIGHTENING PROCEDURE**

- STRUCTURAL CONNECTIONS TO BE ASSEMBLED AND INSPECTED IN ACCORDANCE WITH RCSC SPECIFICATIONS.
- ALL BOLTS WHOSE AXES ARE INSTALLED VERTICALLY, UNLESS OTHERWISE NOTED, SHALL BE INSTALLED AND TIGHTENED PER SECTION 8.2.1 THROUGH 8.2.4 OF THE RCSC "SPECIFICATION FOR STRUCTURAL JOINTS USING HIGH-STRENGTH BOLTS" PER THE FOLLOWING GUIDELINES:

**FOR A325 BOLTS 1" DIAMETER AND LESS:**

- DIRECT TENSION INDICATING (DTI) SQUIRTER WASHERS: WASHERS SHALL BE INSTALLED AND ORIENTED / TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.

FOR A325 BOLTS EXCEEDING 1" DIAMETER AND ALL OTHER HIGH STRENGTH BOLTS, ONE OF THE FOLLOWING METHODS SHALL BE USED:

- DIRECT TENSION INDICATING (DTI) SQUIRTER WASHERS: WASHERS SHALL BE INSTALLED AND ORIENTED / TIGHTENED PER MANUFACTURER SPECIFICATIONS TO ACHIEVE DESIRED LEVEL OF BOLT PRE-TENSION.
- RCSC "TURN-OF-THE-NUT" METHOD: PRIOR TO APPLICATION OF TURN-OF-NUT PRETENSIONING, ALL BOLTS IN THE CONNECTION SHALL BE BROUGHT TO A SNUG TIGHT CONDITION AS DEFINED IN RCSC SECTION 8.1, AND MATCH-MARKING OF THE NUTS AND PROTRUDING END OF THE BOLTS MUST BE IMPLEMENTED FOR ALL BOLTS IN THE CONNECTION.

**BOLT TIGHTENING PROCEDURE (CONTINUED)**

SUBSEQUENTLY, ALL BOLTS SHALL BE ROTATED BEYOND SNUG TIGHT CONDITION 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

- 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.

**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).

**GENERAL CONTRACTOR**

THE GENERAL CONTRACTOR IS REQUIRED TO:

- REVIEW THE REQUIREMENTS OF THE MMI CHECKLIST.
- UNDERSTAND ALL INSPECTION REQUIREMENTS.

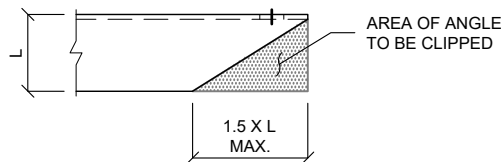
THE GENERAL CONTRACTOR SHALL PERFORM AND RECORD THE INSPECTION RESULTS IN ACCORDANCE WITH THE REQUIREMENTS OF THE MMI CHECKLIST.

**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

**MAXIMUM ALLOWABLE ANGLE CLIP**



**AMERICAN TOWER®**  
A.T. ENGINEERING SERVICES, PLLC  
1 FENTON MAIN STREET  
SUITE 300  
CARY, NC 27511  
PHONE: (919) 468-0112  
COA: PEC.0001553

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REV.	DESCRIPTION	BY	DATE
0	FIRST ISSUE	KPJ	12/19/23

ATC SITE NUMBER:

283421

ATC SITE NAME:

MADISON CT  
CONNECTICUT

SITE ADDRESS:  
15 ORCHARD PARK ROAD  
MADISON, CT 06443



Digitally Signed: 2023-12-20

DRAWN BY:	KPJ
APPROVED BY:	MFE
DATE DRAWN:	12/19/23
ATC JOB NO:	14561673_C9_04

**IBC GENERAL NOTES & MOUNT MODIFICATION INSPECTION**

SHEET NUMBER: REVISION:

G-002 0



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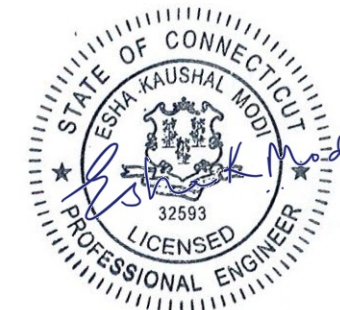
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ATC SITE NUMBER:  
**283421**

ATC SITE NAME:  
**MADISON CT**  
**CONNECTICUT**

SITE ADDRESS:  
 15 ORCHARD PARK ROAD  
 MADISON, CT 06443



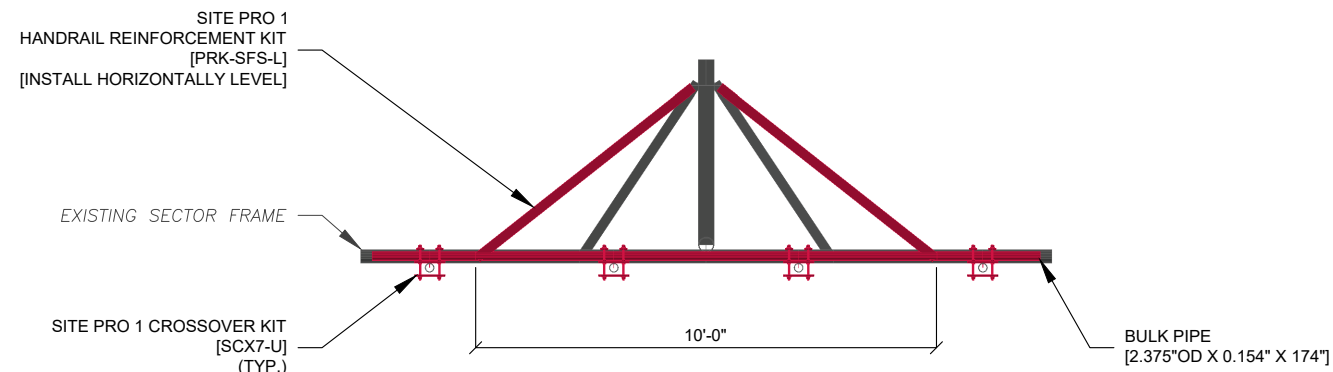
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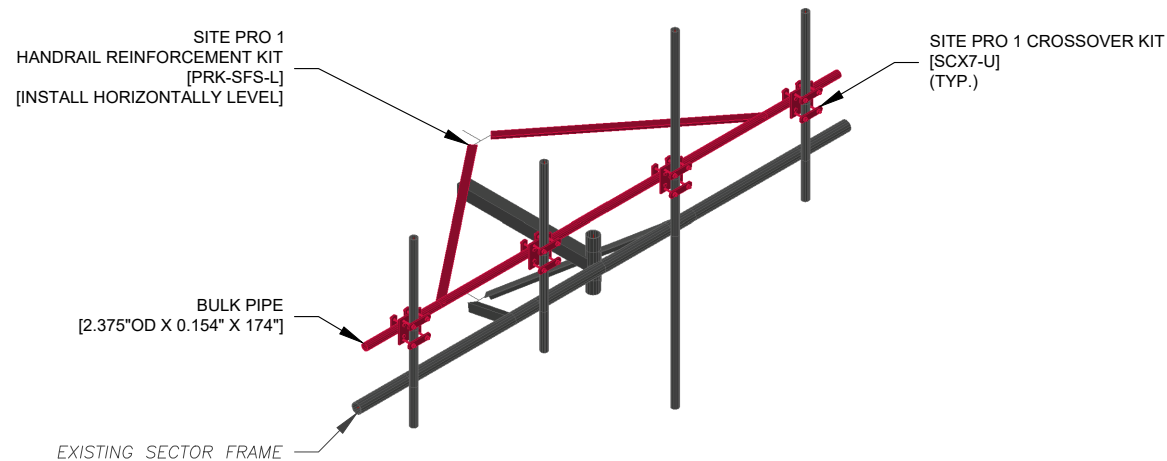
**MODIFICATION PROFILE**

SHEET NUMBER:  
**S-101**

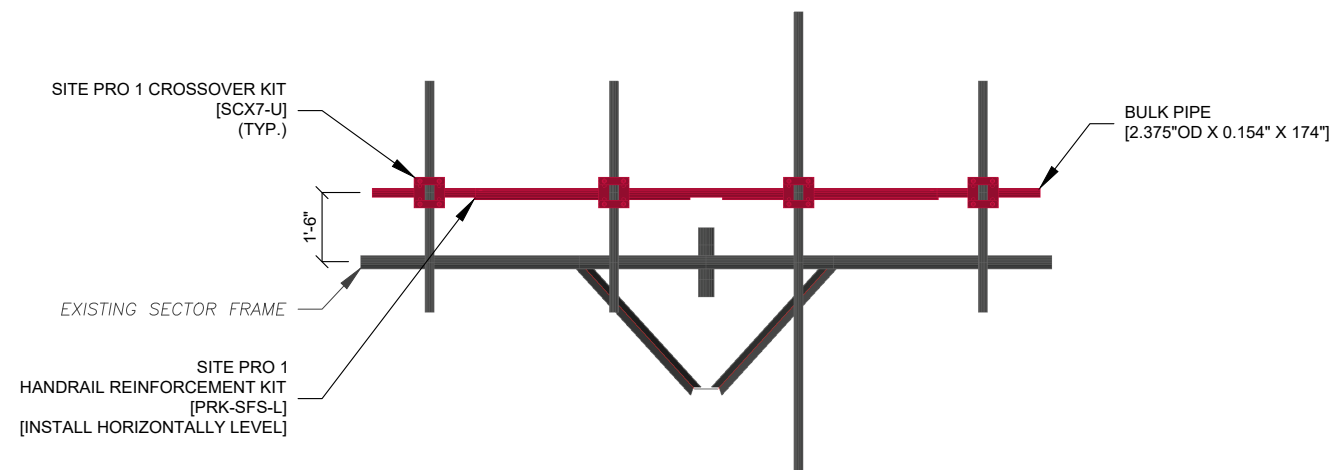
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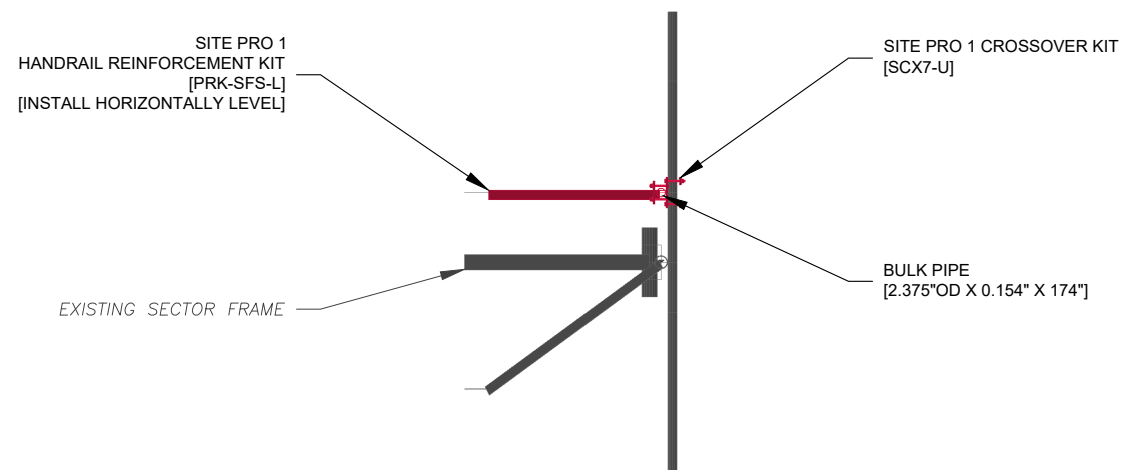
**TYPICAL MOUNT MODIFICATION TOP VIEW**



**TYPICAL MOUNT MODIFICATION ISOMETRIC VIEW**



**TYPICAL MOUNT MODIFICATION FRONT 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	PRK-SFS-L	HANDRAIL REINFORCEMENT KIT (LONG)	---	642.0	642	
12	SITE PRO 1	SCX7-U	CROSSOVER PLATE (V-CLAMP STYLE)	---	17.0	204	
3	---	---	2.375" OD X 0.154" PIPE	14'-6"	55.7	167	
<b>TOTAL WEIGHT (lb)</b>						<b>1,013</b>	

**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](mailto:PMI@AMERICANTOWER.COM).



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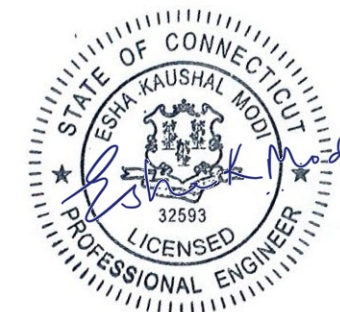
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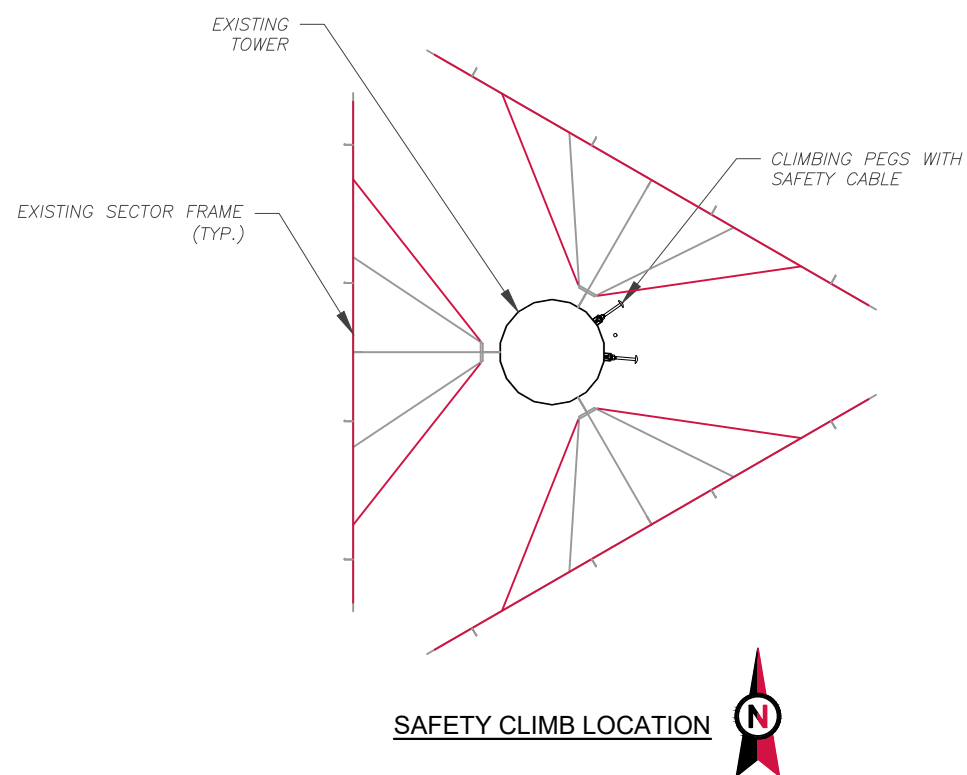


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DATE DRAWN:	12/19/23
ATC JOB NO:	14561673_C9_04

**SAFETY CLIMB LAYOUT**

SHEET NUMBER:	REVISION:
<b>S-102</b>	<b>0</b>



**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](mailto:PMI@AMERICANTOWER.COM)

**Option 1 - Modify: Estimate for T-Mobile @ 283421 (MADISON CT) -- 14561673\_C9\_04**

Site Data and Design Parameters		Dates and Designers	
Asset OTM #	283421	Mount Analysis Date / By	12/8/2023 / JS
Asset Name	MADISON CT	Design Date / By	12/18/2023 / MFE
State	CT	Checked Date / By	/ /
County	New Haven	Detailer (Prev/Current/Level)	/ /
City	Madison	Software	RISA
Failing Analysis Eng. #	14561673_C8_01	Tower Type	Monopole Round
Mod. Drawing Eng. #	14561673_C9_04	Mount Type	T-Frame
Building Codes		Carriers	
TIA/IBC:	ANSI/TIA-222-H / 2021 IBC	# of RADs	1
Local:	2022 Connecticut State Building Code	Carrier	T-Mobile
Failing Analysis % / Code	142% / TIA-H		
Post Mod % / Controlling Member	84% / Mount Pipes		
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 PRK-SFS-L V Style Stabilizer on All (3) MP sector(s)
2	Install 2.0" Pipe x 174" Pipe w/ Site Pro 1 SCX7-U crossovers on All (3) sector(s)

**Estimated Modification Cost** \$12,000

**Option 2 - Replace: Estimate for T-Mobile @ 283421 (MADISON CT) -- 14561673\_C9\_04**

Tower Info	
Tower Number	283421
Tower Name	MADISON CT
State	CT

Jurisdictional Codes	
Design TIA Code	Unknown
Current TIA Code	ANSI/TIA-222-H
IBC	2021 IBC
Other	2022 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**



# **EXHIBIT E**

## **Structural Analysis Report**

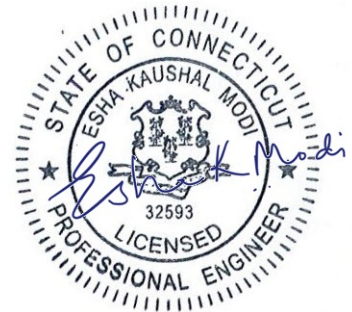




**AMERICAN TOWER®**  
CORPORATION

## Structural Analysis Report

**Structure** : 98 ft Monopole  
**ATC Asset Name** : MADISON CT  
**ATC Asset Number** : 283421  
**Engineering Number** : 14561673\_C3\_02  
**Proposed Carrier** : T-MOBILE  
**Carrier Site Name** : Amtrak\_Madison  
**Carrier Site Number** : CTNH808A  
**Site Location** : 15 Orchard Park Road  
Madison, CT 06443-2268  
41.2831° N, 72.6231° W  
**County** : New Haven  
**Date** : December 5, 2023  
**Max Usage** : 59%  
**Analysis Result** : Pass



**COA: PEC.0001553**



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## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 98 ft Monopole tower to reflect the change in loading by T-MOBILE.

## Supporting Documents

<b>Tower:</b>	Sabre Drawing #30257-MM, dated July 7, 2010
<b>Foundation:</b>	Sabre Job #30257, dated March 21, 2011
<b>Geotechnical:</b>	Terracon Project #J2095225, dated December 21, 2009
<b>Modification:</b>	Colliers Engineering & Design Project #21777875 (Rev. 1), dated September 12, 2023

## Analysis

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

<b>Basic Wind Speed:</b>	123 mph (3-second gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-second gust) w/ 1.00" radial ice concurrent
<b>Code(s):</b>	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
<b>Exposure Category:</b>	D
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 1
<b>Topographic Category:</b>	1
<b>Spectral Response:</b>	$S_s = 0.20$ , $S_i = 0.05$
<b>Site Class:</b>	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 reach out to your American Tower contact. If you do not have an American Tower contact and have an Engineering question, please contact [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower asset name, asset number, and engineering number in the subject line for any questions.

### Structure Usages

Structural Component	Usage	Control	Result
Pole Shaft	44.4%	1.2D + 1.0W	Pass
Serviceability Usage	16.0%	1.0D + 1.0W	Pass
Base Plate @ 0.0 ft	46.2%	Rods	Pass
Mat & Pier	59.2%	Flexure [Steel (Mat)]	Pass

### Maximum Reactions

Foundation	Moment (k-ft)	Axial (k)	Shear (k)
Monopole Base	2,088.2	40.1	28.3

*\*Reactions shown reflect the results from the Load Case with maximum Moment*

Structure base reactions were analyzed using available geotechnical and foundation information.

**T-MOBILE Final Loading**

Elev (ft)	Qty	Equipment	Lines
97.0	3	Ericsson AIR 6419 B41	(3) 1.99" (50.7mm) Hybrid
	3	Ericsson Radio 4449 B12,B71	
	3	Ericsson Radio 4460 B25+B66	
	3	Mount Reinforcement	
	3	T-Arm	
	3	RFS APXVAARR24_43-U-NA20	
	3	RFS APXVLL19P_43-C-A20	
95.0	3	RFS APXVAARR24_43-U-NA20	(4) 1 5/8" (1.63"-41.3mm) Fiber

Install proposed lines inside the pole shaft.

**Other Existing/Reserved Loading**

Elev (ft)	Qty	Equipment	Lines	Carrier
86.4	12	Ericsson RRUS-11	(5) 2" conduit	AT&T MOBILITY
85.0	1	Platform with Handrails	(2) 0.40" (10.3mm) Fiber (8) 0.78" (19.7mm) 8 AWG 6 (3) 2" conduit (3) 3/8" (0.38"- 9.5mm) RET Control Cable	AT&T MOBILITY
	2	Raycap DC6-48-60-0-8F		
	2	Raycap DC6-48-60-18-8F		
	3	CCI DMP65R-BU8D		
	3	CCI TPA65R-BU8D		
	3	Ericsson AIR 6419 B77G		
	3	Ericsson AIR 6449 B77D/ C-Band		
	3	Ericsson RRUS 4449 B5, B12		
	3	Ericsson RRUS 4478 B14		
	3	Ericsson RRUS 8843 B2, B66A		
77.5	3	Mount Reinforcement	-	VERIZON WIRELESS
	3	Samsung MT6413-77A		
76.0	1	Platform with Handrails	(2) 1 1/4" (1.25"- 31.8mm) Fiber	VERIZON WIRELESS
	1	Raycap RVZDC-6627-PF-48		
	3	Mount Reinforcement		
	3	JMA Wireless MX06FRO660-03		
	3	Samsung B2/B66A RRH ORAN (RF 4439d-25A)		
	3	Samsung RF4461d-13A		
74.0	3	Samsung RT4401-48A	-	VERIZON WIRELESS
	3	Samsung Outdoor CBRS 20W RRH –Clip-on Antenna		

*(If table breaks across pages, please see previous page for data in merged cells)*



## **Standard Conditions**

All engineering services performed by A.T. Engineering Services LLC 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 Services LLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Services LLC 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 Services LLC, 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 Services LLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

**ANALYSIS PARAMETERS**

Nominal Wind: 123 mph	Ice Wind: 50 mph w/ 1" ice	Service Wind: 60 mph
Risk Category: II	Exposure: D	S <sub>z</sub> : 0.204 S <sub>d</sub> : 0.054
Topo Category: 1	Topo Factor: Method 1	Topo Feature:
Structure Height: 98 ft	Base Elevation: 0.00 ft	Structure Type: Taper
Base Diameter: 48.67 in	Base Rotation: 0°	Taper: 0.2250 (in/ft)

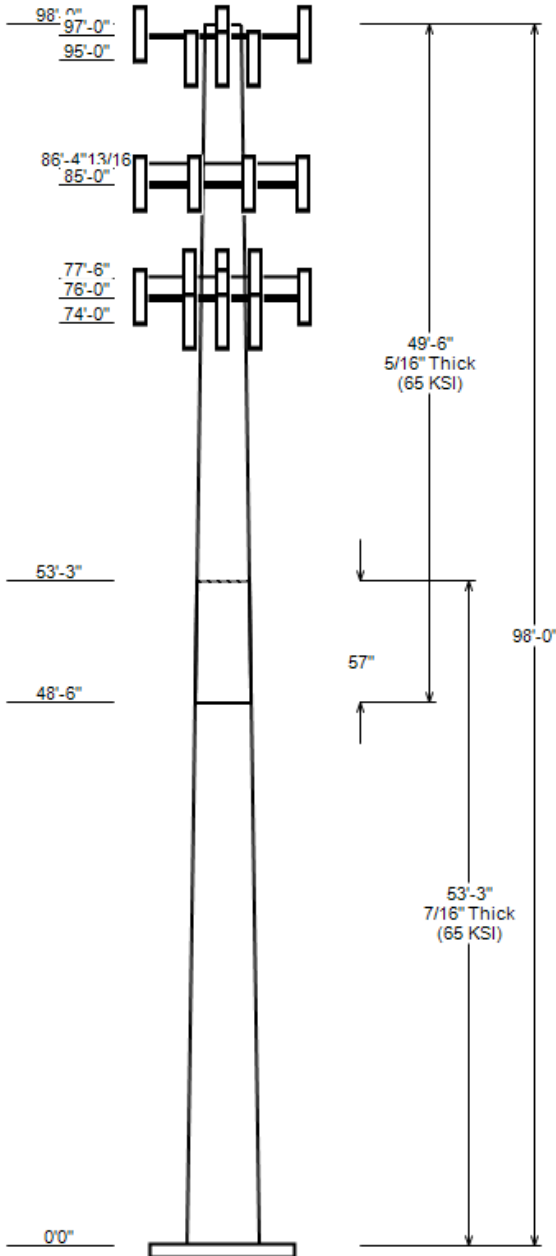
**POLE SECTION PROPERTIES**

Section	Length (ft)	Flat Diameter (in)		Thick (in)	Joint Type	Joint Length (in)	Pole Shape	Yield Strength (ksi)
		Top	Bottom					
1	53.250	36.69	48.67	0.438		0.000	18 Sides	65
2	49.500	27.25	38.38	0.312	Slip Joint	57.000	18 Sides	65

**DISCRETE APPURTENANCE**

**LINEAR APPURTENANCE**

Elev (ft)	Description	Elev To (ft)	Description
97.0	(3) Ericsson Radio 4449 B12,B71	97.0	(3) 1.99" (50.7mm) Hybrid
97.0	(3) Ericsson Radio 4460 B25+B66	95.0	(4) 1 5/8" (1.63"-41.3mm) Fiber
97.0	(3) Generic Mount Reinforcement	86.4	(5) 2" conduit
97.0	(3) Ericsson AIR 6419 B41	85.0	(3) 3/8" (0.38"- 9.5mm) RET Control Cabl
97.0	(3) RFS APXVLL19P_43-C-A20	85.0	(3) 2" conduit
97.0	(3) Generic Round T-Arm	85.0	(8) 0.78" (19.7mm) 8 AWG 6
97.0	(3) RFS APXVAARR24_43-U-NA20	85.0	(2) 0.40" (10.3mm) Fiber
95.0	(3) RFS APXVAARR24_43-U-NA20	76.0	(2) 1 1/4" (1.25"- 31.8mm) Fiber
86.4	(12) Ericsson RRUS-11		
85.0	(2) Raycap DC6-48-60-18-8F		
85.0	(2) Raycap DC6-48-60-0-8F		
85.0	(3) Ericsson RRUS 8843 B2, B66A		
85.0	(3) Ericsson RRUS 4449 B5, B12		
85.0	(3) Ericsson RRUS 4478 B14		
85.0	(3) Ericsson AIR 6419 B77G		
85.0	(3) Ericsson AIR 6449 B77D/ C-Band		
85.0	(3) Generic Mount Reinforcement		
85.0	(3) CCI DMP65R-BU8D		
85.0	(3) CCI TPA65R-BU8D		
85.0	(1) Generic Round Platform with Ha		
77.5	(3) Samsung MT6413-77A		
76.0	(3) Samsung RT4401-48A		
76.0	(3) Samsung B2/B66A RRH ORAN (RF 4		
76.0	(3) Samsung RF4461d-13A		
76.0	(1) Raycap RVZDC-6627-PF-48		
76.0	(3) Generic Mount Reinforcement		
76.0	(3) JMA Wireless MX06FRO660-03		
76.0	(1) Generic Round Platform with Ha		
74.0	(3) Samsung Outdoor CBRS 20W RRH -		



**GLOBAL BASE REACTIONS**

Load Case	Moment (kip-ft)	Axial (kip)	Shear (kip)
1.2D + 1.0W	2088.16	40.07	28.31
0.9D + 1.0W	2077.17	30.05	28.30
1.2D + 1.0Di + 1.0Wi	490.41	52.96	6.86
1.2D + 1.0Ev + 1.0Eh	115.01	39.86	1.47
0.9D - 1.0Ev + 1.0Eh	114.27	27.45	1.47
1.0D + 1.0W	443.11	33.42	6.03

ANALYSIS PARAMETERS

<b>Location:</b>	New Haven County,CT	<b>Height:</b>	98 ft
<b>Type and Shape:</b>	Taper, 18 Sides	<b>Base Diameter:</b>	48.67 in
<b>Manufacturer:</b>	Sabre	<b>Top Diameter:</b>	27.25 in
<b>K<sub>d</sub> (non-service):</b>	0.95	<b>Taper:</b>	0.2250 in/ft
<b>K<sub>e</sub>:</b>	1.00	<b>Rotation:</b>	0.000°

ICE & WIND PARAMETERS

<b>Risk Category:</b>	II	<b>Design Wind Speed:</b>	123 mph
<b>Exposure Category:</b>	D	<b>Design Wind Speed w/ Ice:</b>	50 mph
<b>Topo Factor Procedure:</b>	Method 1	<b>Design Ice Thickness:</b>	1.00 in
<b>Topographic Category:</b>	1	<b>Service Wind Speed:</b>	60 mph
<b>Crest Height:</b>	0 ft	<b>HMSL:</b>	20.00 ft

SEISMIC PARAMETERS

<b>Analysis Method:</b>	Equivalent Lateral Force Method		
<b>Site Class:</b>	D - Stiff Soil	<b>Period Based on Rayleigh Method (sec):</b>	1.31
<b>T<sub>L</sub> (sec):</b>	6	<b>P:</b>	1
<b>S<sub>s</sub>:</b>	0.204	<b>S<sub>1</sub>:</b>	0.054
<b>F<sub>a</sub>:</b>	1.600	<b>F<sub>v</sub>:</b>	2.400
<b>S<sub>ds</sub>:</b>	0.218	<b>S<sub>d1</sub>:</b>	0.086
		<b>C<sub>s</sub>:</b>	0.044
		<b>C<sub>s</sub> Max:</b>	0.044
		<b>C<sub>s</sub> Min:</b>	0.030

LOAD CASES

1.2D + 1.0W	123 mph Wind with No Ice
0.9D + 1.0W	123 mph Wind with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph Wind with 1" Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	60 mph Wind with No Ice

SHAFT SECTION PROPERTIES

Section	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Bottom						Top								
						Weight (lb)	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)	
1-18	53.25	0.4375	65		0.00	10,629	48.67	0.000	66.97	19,685.3	17.85	111.25	36.69	53.25	50.34	8,359.7	13.02	83.87	0.2249	
2-18	49.50	0.3125	65	Slip	57.00	5,430	38.38	48.500	37.76	6,915.6	19.90	122.83	27.25	98.00	26.72	2,449.4	13.61	87.20	0.2249	
<b>Total Shaft Weight</b>						<b>16,059</b>														

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
97.00	Ericsson Radio 4460 B25+B66	3	0.80	0.000	109.00	2.564	0.67	165.47	3.237	0.67
97.00	Generic Mount Reinforcement	3	0.75	0.000	200.00	4.980	0.67	323.64	8.156	0.67
97.00	Ericsson AIR 6419 B41	3	0.80	0.000	68.50	5.600	0.60	145.70	6.612	0.60
97.00	RFS APXVLL19P_43-C-A20	3	0.80	0.000	40.90	8.250	0.65	138.25	10.137	0.65
97.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	378.71	22.613	0.63
97.00	Ericsson Radio 4449 B12,B71	3	0.80	0.000	74.00	1.639	0.50	109.77	2.178	0.50
97.00	Generic Round T-Arm	3	0.75	0.000	450.00	9.700	0.67	850.57	14.967	0.67
95.00	RFS APXVAARR24_43-U-NA20	3	0.80	0.000	127.90	20.243	0.63	377.78	22.604	0.63
86.40	Ericsson RRUS-11	12	0.75	0.000	55.00	3.792	0.61	111.71	4.603	0.61
85.00	Ericsson RRUS 4478 B14	3	0.75	0.000	59.40	2.021	0.67	98.02	2.615	0.67
85.00	Ericsson RRUS 4449 B5, B12	3	0.75	0.000	71.00	1.969	0.50	111.56	2.556	0.50
85.00	Ericsson RRUS 8843 B2, B66A	3	0.75	0.000	72.00	1.639	0.50	110.57	2.171	0.50
85.00	Raycap DC6-48-60-0-8F	2	0.75	0.000	32.80	1.360	1.00	69.38	1.777	1.00
85.00	Raycap DC6-48-60-18-8F	2	0.75	0.000	20.00	1.260	1.00	53.13	1.674	1.00
85.00	Ericsson AIR 6419 B77G	3	0.75	0.000	66.10	3.797	0.65	127.15	4.626	0.65
85.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3519.24	42.582	1.00
85.00	CCI TPA65R-BU8D	3	0.75	0.000	82.50	18.089	0.63	299.46	20.412	0.63
85.00	CCI DMP65R-BU8D	3	0.75	0.000	95.70	17.871	0.63	309.58	20.190	0.63
85.00	Generic Mount Reinforcement	3	0.75	0.000	200.00	4.980	0.67	321.78	8.108	0.67
85.00	Ericsson AIR 6449 B77D/ C-Band	3	0.75	0.000	81.60	4.028	0.70	154.90	4.891	0.70
77.50	Samsung MT6413-77A	3	0.75	0.000	57.30	3.805	0.61	110.34	4.635	0.61
76.00	JMA Wireless MX06FRO660-03	3	0.75	0.000	60.00	9.872	0.71	209.54	11.584	0.71
76.00	Generic Mount Reinforcement	3	0.75	0.000	200.00	4.980	0.67	320.71	8.081	0.67
76.00	Generic Round Platform with Ha	1	1.00	0.000	2500.00	27.200	1.00	3510.24	42.446	1.00
76.00	Samsung RT4401-48A	3	0.75	0.000	18.60	0.996	0.50	35.44	1.423	0.50
76.00	Samsung B2/B66A RRRH ORAN (RF 4	3	0.75	0.000	74.70	1.875	0.50	114.56	2.436	0.50
76.00	Samsung RF4461d-13A	3	0.75	0.000	79.10	1.875	0.50	119.31	2.438	0.50
76.00	Raycap RVZDC-6627-PF-48	1	0.75	0.000	32.00	3.781	1.00	100.40	4.606	1.00
74.00	Samsung Outdoor CBRS 20W RRRH -	3	1.00	0.000	4.40	0.892	0.50	15.58	1.289	0.50
<b>Totals</b>	<b>Row Count: 29</b>	<b>88</b>			<b>13,059.40</b>			<b>23,560.59</b>		

LINEAR APPURTENANCE PROPERTIES

Load Case Azimuth (deg): 0.00

Elev From (ft)	Elev To (ft)	Qty	Description	Diameter (in)	Weight (lb/ft)	Flat	Max/Row	Distance Between Rows (in)	Distance Between Cols (in)	Azimuth (deg)	Distance From Face (in)	Exposed To Wind	Carrier
0.00	97.00	3	1.99" (50.7mm) Hybrid	1.99	1.9	N	0	0	0	0	0	N	T-MOBILE
0.00	95.00	4	1 5/8" (1.63"-41.3mm)	1.63	1.61	N	0	0	0	0	0	N	T-MOBILE
0.00	86.40	5	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	85.00	8	0.78" (19.7mm) 8 AWG	0.78	0.59	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	85.00	3	3/8" (0.38"- 9.5mm) R	0.38	0.23	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	85.00	3	2" conduit	2.38	3.65	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	85.00	2	0.40" (10.3mm) Fiber	0.4	0.09	N	0	0	0	0	0	N	AT&T MOBILITY
0.00	76.00	2	1 1/4" (1.25"- 31.8mm)	1.25	1.05	N	0	0	0	0	0	N	VERIZON WIRELESS

SEGMENT PROPERTIES

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00	(Max Length: 5 ft)	0.4375	48.670	66.974	19,685.30	17.85	111.25	80.4	796.6	0.0	0.0

SEGMENT PROPERTIES

Seg Top Elev (ft)	Description	(Max Length: 5 ft)	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
5.00			0.4375	47.545	65.413	18,340.00	17.40	108.67	80.9	759.8	0.0	1,126.2
10.00			0.4375	46.421	63.851	17,057.50	16.95	106.10	81.5	723.7	0.0	1,099.6
15.00			0.4375	45.296	62.289	15,836.20	16.49	103.53	82	688.6	0.0	1,073.1
20.00			0.4375	44.171	60.727	14,674.60	16.04	100.96	82.5	654.3	0.0	1,046.5
25.00			0.4375	43.046	59.165	13,571.20	15.59	98.39	82.6	621.0	0.0	1,019.9
30.00			0.4375	41.922	57.604	12,524.60	15.13	95.82	82.6	588.5	0.0	993.3
35.00			0.4375	40.797	56.042	11,533.30	14.68	93.25	82.6	556.8	0.0	966.8
40.00			0.4375	39.672	54.480	10,595.70	14.23	90.68	82.6	526.0	0.0	940.2
45.00			0.4375	38.547	52.918	9,710.30	13.77	88.11	82.6	496.2	0.0	913.6
48.50	Bot - Section 2		0.4375	37.760	51.825	9,120.80	13.46	86.31	82.6	475.8	0.0	623.7
50.00			0.4375	37.423	51.357	8,875.70	13.32	85.54	82.6	467.1	0.0	455.2
53.25	Top - Section 1		0.3125	37.316	36.702	6,349.50	19.29	119.41	78.7	335.1	0.0	972.2
55.00			0.3125	36.923	36.312	6,149.00	19.07	118.15	79	328.0	0.0	217.4
60.00			0.3125	35.798	35.196	5,599.50	18.44	114.55	79.7	308.1	0.0	608.3
65.00			0.3125	34.673	34.080	5,083.80	17.80	110.95	80.5	288.8	0.0	589.3
70.00			0.3125	33.549	32.965	4,600.70	17.17	107.36	81.2	270.1	0.0	570.4
74.00			0.3125	32.649	32.072	4,237.10	16.66	104.48	81.8	255.6	0.0	442.6
75.00			0.3125	32.424	31.849	4,149.20	16.53	103.76	82	252.0	0.0	108.8
76.00			0.3125	32.199	31.626	4,062.70	16.40	103.04	82.1	248.5	0.0	108.0
77.50			0.3125	31.861	31.291	3,935.00	16.21	101.96	82.3	243.3	0.0	160.6
80.00			0.3125	31.299	30.734	3,728.30	15.90	100.16	82.6	234.6	0.0	263.8
85.00			0.3125	30.174	29.618	3,336.90	15.26	96.56	82.6	217.8	0.0	513.4
86.40			0.3125	29.859	29.306	3,232.40	15.08	95.55	82.6	213.2	0.0	140.4
90.00			0.3125	29.050	28.503	2,973.90	14.63	92.96	82.6	201.6	0.0	354.1
95.00			0.3125	27.925	27.387	2,638.20	13.99	89.36	82.6	186.1	0.0	475.4
97.00			0.3125	27.475	26.941	2,511.30	13.74	87.92	82.6	180.0	0.0	184.9
98.00			0.3125	27.250	26.718	2,449.40	13.61	87.20	82.6	177.0	0.0	91.3
<b>Total:</b>											<b>16,059.0</b>	

CALCULATED FORCES

Load Case: 1.2D + 1.0W

123 mph Wind with No Ice

18 Iterations

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

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	-40.07	-28.31	0.00	-2,088.2	0.00	2,088.16	4,846.45	1,175.40	5,120.81	4,803.92	0	0	0.444
5.00	-38.36	-27.80	0.00	-1,946.6	0.00	1,946.60	4,764.82	1,147.99	4,884.80	4,611.88	0.08	-0.15	0.431
10.00	-36.68	-27.29	0.00	-1,807.6	0.00	1,807.62	4,681.70	1,120.58	4,654.36	4,422.23	0.31	-0.29	0.417
15.00	-35.03	-26.77	0.00	-1,671.2	0.00	1,671.20	4,597.07	1,093.17	4,429.48	4,235.08	0.69	-0.44	0.403
20.00	-33.42	-26.25	0.00	-1,537.3	0.00	1,537.33	4,510.95	1,065.76	4,210.17	4,050.54	1.23	-0.58	0.388
25.00	-31.85	-25.70	0.00	-1,406.1	0.00	1,406.10	4,395.70	1,038.35	3,996.44	3,844.54	1.92	-0.72	0.374
30.00	-30.31	-25.15	0.00	-1,277.6	0.00	1,277.59	4,279.67	1,010.94	3,788.26	3,643.24	2.75	-0.86	0.358
35.00	-28.81	-24.59	0.00	-1,151.8	0.00	1,151.85	4,163.63	983.54	3,585.66	3,447.36	3.73	-1	0.342
40.00	-27.34	-24.02	0.00	-1,028.9	0.00	1,028.92	4,047.60	956.13	3,388.63	3,256.89	4.85	-1.14	0.323
45.00	-25.92	-23.53	0.00	-908.8	0.00	908.84	3,931.57	928.72	3,197.16	3,071.84	6.11	-1.27	0.303
48.50	-24.94	-23.23	0.00	-826.5	0.00	826.50	3,850.34	909.53	3,066.44	2,945.52	7.08	-1.36	0.288
50.00	-24.29	-22.96	0.00	-791.7	0.00	791.66	3,815.53	901.31	3,011.26	2,892.19	7.51	-1.39	0.281
53.25	-22.92	-22.65	0.00	-717.0	0.00	717.05	2,599.91	644.12	2,152.88	1,978.37	8.48	-1.47	0.372
55.00	-22.53	-22.27	0.00	-677.4	0.00	677.42	2,580.79	637.27	2,107.32	1,942.75	9.03	-1.51	0.359
60.00	-21.47	-21.71	0.00	-566.1	0.00	566.06	2,525.14	617.69	1,979.84	1,841.97	10.7	-1.66	0.317
65.00	-20.44	-21.15	0.00	-457.5	0.00	457.51	2,468.00	598.11	1,856.34	1,742.73	12.5	-1.79	0.272
70.00	-19.44	-20.64	0.00	-351.8	0.00	351.77	2,409.36	578.53	1,736.82	1,645.13	14.44	-1.9	0.223
74.00	-18.66	-20.28	0.00	-269.2	0.00	269.21	2,361.37	562.87	1,644.06	1,568.30	16.07	-1.98	0.181
75.00	-18.47	-20.16	0.00	-248.9	0.00	248.94	2,349.22	558.95	1,621.27	1,549.28	16.48	-1.99	0.170
76.00	-13.80	-16.63	0.00	-228.8	0.00	228.78	2,337.01	555.04	1,598.64	1,530.33	16.9	-2.01	0.156
77.50	-13.33	-16.11	0.00	-203.8	0.00	203.84	2,318.59	549.17	1,564.99	1,502.04	17.54	-2.03	0.142
80.00	-12.87	-15.70	0.00	-163.6	0.00	163.57	2,283.36	539.38	1,509.70	1,452.59	18.61	-2.07	0.119
85.00	-6.46	-9.01	0.00	-85.1	0.00	85.07	2,200.48	519.80	1,402.11	1,348.55	20.81	-2.11	0.066
86.40	-5.50	-7.54	0.00	-72.5	0.00	72.46	2,177.27	514.32	1,372.70	1,320.11	21.43	-2.12	0.058
90.00	-5.04	-7.08	0.00	-45.3	0.00	45.33	2,117.60	500.22	1,298.50	1,248.37	23.04	-2.14	0.039



CALCULATED FORCES

95.00	-4.02	-4.94	0.00	-9.9	0.00	9.92	2,034.72	480.64	1,198.86	1,152.06	25.29	-2.16	0.011
97.00	-0.11	-0.05	0.00	-0.0	0.00	0.05	2,001.57	472.81	1,160.11	1,114.61	26.19	-2.16	0.000
98.00	0.00	-0.04	0.00	0.0	0.00	0.00	1,984.99	468.90	1,140.98	1,096.12	26.65	-2.16	0.000

CALCULATED FORCES

Load Case: 0.9D + 1.0W													123 mph Wind with No Ice (Reduced DL)		18 Iterations
Gust Response Factor: 1.10															
Dead load Factor: 0.90															
Wind Load Factor: 1.00															
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	-30.05	-28.30	0.00	-2,077.2	0.00	2,077.17	4,846.45	1,175.40	5,120.81	4,803.92	0	0	0.439		
5.00	-28.74	-27.76	0.00	-1,935.7	0.00	1,935.68	4,764.82	1,147.99	4,884.80	4,611.88	0.08	-0.14	0.426		
10.00	-27.47	-27.23	0.00	-1,796.9	0.00	1,796.89	4,681.70	1,120.58	4,654.36	4,422.23	0.31	-0.29	0.413		
15.00	-26.22	-26.69	0.00	-1,660.8	0.00	1,660.77	4,597.07	1,093.17	4,429.48	4,235.08	0.69	-0.43	0.398		
20.00	-24.99	-26.15	0.00	-1,527.3	0.00	1,527.30	4,510.95	1,065.76	4,210.17	4,050.54	1.22	-0.58	0.383		
25.00	-23.80	-25.59	0.00	-1,396.6	0.00	1,396.56	4,395.70	1,038.35	3,996.44	3,844.54	1.9	-0.72	0.369		
30.00	-22.63	-25.02	0.00	-1,268.6	0.00	1,268.61	4,279.67	1,010.94	3,788.26	3,643.24	2.73	-0.86	0.354		
35.00	-21.49	-24.45	0.00	-1,143.5	0.00	1,143.51	4,163.63	983.54	3,585.66	3,447.36	3.71	-1	0.337		
40.00	-20.38	-23.87	0.00	-1,021.3	0.00	1,021.28	4,047.60	956.13	3,388.63	3,256.89	4.82	-1.13	0.319		
45.00	-19.31	-23.37	0.00	-902.0	0.00	901.95	3,931.57	928.72	3,197.16	3,071.84	6.08	-1.26	0.299		
48.50	-18.57	-23.08	0.00	-820.2	0.00	820.15	3,850.34	909.53	3,066.44	2,945.52	7.03	-1.35	0.284		
50.00	-18.08	-22.80	0.00	-785.5	0.00	785.54	3,815.53	901.31	3,011.26	2,892.19	7.46	-1.38	0.277		
53.25	-17.05	-22.49	0.00	-711.4	0.00	711.45	2,599.91	644.12	2,152.88	1,978.37	8.43	-1.46	0.367		
55.00	-16.75	-22.11	0.00	-672.1	0.00	672.09	2,580.79	637.27	2,107.32	1,942.75	8.97	-1.5	0.354		
60.00	-15.95	-21.54	0.00	-561.6	0.00	561.55	2,525.14	617.69	1,979.84	1,841.97	10.63	-1.65	0.312		
65.00	-15.17	-20.97	0.00	-453.8	0.00	453.85	2,468.00	598.11	1,856.34	1,742.73	12.42	-1.77	0.268		
70.00	-14.42	-20.47	0.00	-349.0	0.00	348.98	2,409.36	578.53	1,736.82	1,645.13	14.35	-1.89	0.219		
74.00	-13.83	-20.10	0.00	-267.1	0.00	267.11	2,361.37	562.87	1,644.06	1,568.30	15.96	-1.96	0.177		
75.00	-13.68	-19.99	0.00	-247.0	0.00	247.01	2,349.22	558.95	1,621.27	1,549.28	16.38	-1.98	0.167		
76.00	-10.21	-16.50	0.00	-227.0	0.00	227.02	2,337.01	555.04	1,598.64	1,530.33	16.79	-2	0.154		
77.50	-9.86	-15.98	0.00	-202.3	0.00	202.27	2,318.59	549.17	1,564.99	1,502.04	17.42	-2.02	0.140		
80.00	-9.52	-15.57	0.00	-162.3	0.00	162.32	2,283.36	539.38	1,509.70	1,452.59	18.49	-2.05	0.117		
85.00	-4.77	-8.94	0.00	-84.4	0.00	84.44	2,200.48	519.80	1,402.11	1,348.55	20.67	-2.1	0.065		
86.40	-4.06	-7.48	0.00	-71.9	0.00	71.93	2,177.27	514.32	1,372.70	1,320.11	21.29	-2.11	0.057		
90.00	-3.72	-7.03	0.00	-45.0	0.00	44.99	2,117.60	500.22	1,298.50	1,248.37	22.88	-2.13	0.038		
95.00	-2.97	-4.89	0.00	-9.8	0.00	9.83	2,034.72	480.64	1,198.86	1,152.06	25.12	-2.14	0.010		
97.00	-0.08	-0.05	0.00	-0.0	0.00	0.05	2,001.57	472.81	1,160.11	1,114.61	26.02	-2.14	0.000		
98.00	0.00	-0.04	0.00	0.0	0.00	0.00	1,984.99	468.90	1,140.98	1,096.12	26.47	-2.14	0.000		

CALCULATED FORCES

Load Case: 1.2D + 1.0Di + 1.0Wi													50 mph Wind with 1" Radial Ice		17 Iterations
Gust Response Factor:		1.10	Ice Dead Load Factor		1.00		Ice Importance Factor						1.00		
Dead Load Factor:		1.20													
Wind Load Factor:		1.00													
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	-52.96	-6.86	0.00	-490.4	0.00	490.41	4,846.45	1,175.40	5,120.81	4,803.92	0	0	0.113		
5.00	-51.08	-6.72	0.00	-456.1	0.00	456.11	4,764.82	1,147.99	4,884.80	4,611.88	0.02	-0.03	0.110		
10.00	-49.20	-6.58	0.00	-422.5	0.00	422.53	4,681.70	1,120.58	4,654.36	4,422.23	0.07	-0.07	0.106		
15.00	-47.35	-6.43	0.00	-389.6	0.00	389.65	4,597.07	1,093.17	4,429.48	4,235.08	0.16	-0.1	0.102		
20.00	-45.54	-6.29	0.00	-357.5	0.00	357.48	4,510.95	1,065.76	4,210.17	4,050.54	0.29	-0.14	0.098		
25.00	-43.75	-6.14	0.00	-326.0	0.00	326.04	4,395.70	1,038.35	3,996.44	3,844.54	0.45	-0.17	0.095		
30.00	-42.00	-5.98	0.00	-295.4	0.00	295.36	4,279.67	1,010.94	3,788.26	3,643.24	0.64	-0.2	0.091		
35.00	-40.28	-5.82	0.00	-265.4	0.00	265.45	4,163.63	983.54	3,585.66	3,447.36	0.87	-0.23	0.087		
40.00	-38.60	-5.66	0.00	-236.3	0.00	236.33	4,047.60	956.13	3,388.63	3,256.89	1.13	-0.26	0.082		
45.00	-36.95	-5.53	0.00	-208.0	0.00	208.00	3,931.57	928.72	3,197.16	3,071.84	1.43	-0.29	0.077		
48.50	-35.82	-5.44	0.00	-188.7	0.00	188.66	3,850.34	909.53	3,066.44	2,945.52	1.65	-0.31	0.073		
50.00	-35.11	-5.37	0.00	-180.5	0.00	180.50	3,815.53	901.31	3,011.26	2,892.19	1.75	-0.32	0.072		
53.25	-33.58	-5.28	0.00	-163.1	0.00	163.06	2,599.91	644.12	2,152.88	1,978.37	1.98	-0.34	0.095		
55.00	-33.13	-5.17	0.00	-153.8	0.00	153.82	2,580.79	637.27	2,107.32	1,942.75	2.1	-0.35	0.092		
60.00	-31.86	-5.01	0.00	-128.0	0.00	127.95	2,525.14	617.69	1,979.84	1,841.97	2.49	-0.38	0.082		
65.00	-30.62	-4.85	0.00	-102.9	0.00	102.87	2,468.00	598.11	1,856.34	1,742.73	2.9	-0.41	0.072		
70.00	-29.41	-4.71	0.00	-78.6	0.00	78.60	2,409.36	578.53	1,736.82	1,645.13	3.35	-0.44	0.060		
74.00	-28.42	-4.61	0.00	-59.8	0.00	59.76	2,361.37	562.87	1,644.06	1,568.30	3.73	-0.45	0.050		
75.00	-28.18	-4.58	0.00	-55.2	0.00	55.15	2,349.22	558.95	1,621.27	1,549.28	3.82	-0.46	0.048		
76.00	-21.68	-3.72	0.00	-50.6	0.00	50.58	2,337.01	555.04	1,598.64	1,530.33	3.92	-0.46	0.042		
77.50	-21.01	-3.60	0.00	-45.0	0.00	44.99	2,318.59	549.17	1,564.99	1,502.04	4.06	-0.47	0.039		
80.00	-20.44	-3.48	0.00	-36.0	0.00	36.00	2,283.36	539.38	1,509.70	1,452.59	4.31	-0.47	0.034		
85.00	-10.83	-1.99	0.00	-18.6	0.00	18.60	2,200.48	519.80	1,402.11	1,348.55	4.81	-0.48	0.019		
86.40	-9.24	-1.66	0.00	-15.8	0.00	15.82	2,177.27	514.32	1,372.70	1,320.11	4.96	-0.49	0.016		
90.00	-8.61	-1.53	0.00	-9.8	0.00	9.84	2,117.60	500.22	1,298.50	1,248.37	5.33	-0.49	0.012		
95.00	-6.73	-1.09	0.00	-2.2	0.00	2.19	2,034.72	480.64	1,198.86	1,152.06	5.84	-0.49	0.005		
97.00	-0.15	-0.01	0.00	-0.0	0.00	0.01	2,001.57	472.81	1,160.11	1,114.61	6.05	-0.49	0.000		
98.00	0.00	-0.01	0.00	0.0	0.00	0.00	1,984.99	468.90	1,140.98	1,096.12	6.15	-0.49	0.000		

CALCULATED FORCES

Load Case: 1.0D + 1.0W		60 mph Wind with No Ice										17 Iterations	
Gust Response Factor:		1.10											
Dead load Factor:		1.00											
Wind Load Factor:		1.00											
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	-33.42	-6.03	0.00	-443.1	0.00	443.11	4,846.45	1,175.40	5,120.81	4,803.92	0	0	0.099
5.00	-32.05	-5.91	0.00	-413.0	0.00	412.98	4,764.82	1,147.99	4,884.80	4,611.88	0.02	-0.03	0.096
10.00	-30.70	-5.80	0.00	-383.4	0.00	383.42	4,681.70	1,120.58	4,654.36	4,422.23	0.07	-0.06	0.093
15.00	-29.38	-5.69	0.00	-354.4	0.00	354.41	4,597.07	1,093.17	4,429.48	4,235.08	0.15	-0.09	0.090
20.00	-28.09	-5.57	0.00	-326.0	0.00	325.97	4,510.95	1,065.76	4,210.17	4,050.54	0.26	-0.12	0.087
25.00	-26.82	-5.46	0.00	-298.1	0.00	298.10	4,395.70	1,038.35	3,996.44	3,844.54	0.41	-0.15	0.084
30.00	-25.58	-5.34	0.00	-270.8	0.00	270.82	4,279.67	1,010.94	3,788.26	3,643.24	0.58	-0.18	0.080
35.00	-24.36	-5.22	0.00	-244.1	0.00	244.14	4,163.63	983.54	3,585.66	3,447.36	0.79	-0.21	0.077
40.00	-23.18	-5.09	0.00	-218.1	0.00	218.06	4,047.60	956.13	3,388.63	3,256.89	1.03	-0.24	0.073
45.00	-22.02	-4.99	0.00	-192.6	0.00	192.60	3,931.57	928.72	3,197.16	3,071.84	1.3	-0.27	0.068
48.50	-21.22	-4.93	0.00	-175.1	0.00	175.14	3,850.34	909.53	3,066.44	2,945.52	1.5	-0.29	0.065
50.00	-20.69	-4.87	0.00	-167.8	0.00	167.75	3,815.53	901.31	3,011.26	2,892.19	1.59	-0.3	0.063
53.25	-19.56	-4.80	0.00	-151.9	0.00	151.94	2,599.91	644.12	2,152.88	1,978.37	1.8	-0.31	0.084
55.00	-19.25	-4.72	0.00	-143.5	0.00	143.54	2,580.79	637.27	2,107.32	1,942.75	1.92	-0.32	0.081
60.00	-18.40	-4.60	0.00	-119.9	0.00	119.94	2,525.14	617.69	1,979.84	1,841.97	2.27	-0.35	0.072
65.00	-17.56	-4.48	0.00	-96.9	0.00	96.94	2,468.00	598.11	1,856.34	1,742.73	2.65	-0.38	0.063
70.00	-16.75	-4.37	0.00	-74.5	0.00	74.54	2,409.36	578.53	1,736.82	1,645.13	3.06	-0.4	0.052
74.00	-16.09	-4.29	0.00	-57.0	0.00	57.05	2,361.37	562.87	1,644.06	1,568.30	3.41	-0.42	0.043
75.00	-15.94	-4.27	0.00	-52.8	0.00	52.76	2,349.22	558.95	1,621.27	1,549.28	3.5	-0.42	0.041
76.00	-11.96	-3.52	0.00	-48.5	0.00	48.49	2,337.01	555.04	1,598.64	1,530.33	3.58	-0.43	0.037
77.50	-11.55	-3.41	0.00	-43.2	0.00	43.20	2,318.59	549.17	1,564.99	1,502.04	3.72	-0.43	0.034
80.00	-11.17	-3.33	0.00	-34.7	0.00	34.67	2,283.36	539.38	1,509.70	1,452.59	3.95	-0.44	0.029
85.00	-5.64	-1.91	0.00	-18.0	0.00	18.03	2,200.48	519.80	1,402.11	1,348.55	4.41	-0.45	0.016
86.40	-4.80	-1.60	0.00	-15.4	0.00	15.36	2,177.27	514.32	1,372.70	1,320.11	4.54	-0.45	0.014
90.00	-4.41	-1.50	0.00	-9.6	0.00	9.61	2,117.60	500.22	1,298.50	1,248.37	4.89	-0.45	0.010
95.00	-3.49	-1.05	0.00	-2.1	0.00	2.10	2,034.72	480.64	1,198.86	1,152.06	5.36	-0.46	0.004
97.00	-0.09	-0.01	0.00	-0.0	0.00	0.01	2,001.57	472.81	1,160.11	1,114.61	5.55	-0.46	0.000
98.00	0.00	-0.01	0.00	0.0	0.00	0.00	1,984.99	468.90	1,140.98	1,096.12	5.65	-0.46	0.000

EQUIVALENT LATERAL FORCES METHOD ANALYSIS

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

Spectral Response Acceleration for Short Period ( $S_S$ ):	0.204
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.054
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 ( $S_{ds}$ ):	0.218
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.086
Seismic Response Coefficient ( $C_s$ ):	0.044
Upper Limit $C_s$ :	0.044
Lower Limit $C_s$ :	0.030
Period based on Rayleigh Method (sec):	1.310
Redundancy Factor ( $\rho$ ):	1.000
Seismic Force Distribution Exponent (k):	1.400
Total Unfactored Dead Load:	33.430 k
Seismic Base Shear (E):	1.470 k

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh	Seismic	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
Segment							
27		97.5	91	57	0.005	8	114
26		96	196	119	0.011	16	244
25		92.5	536	309	0.028	41	667
24		88.2	398	214	0.019	29	495
23		85.7	183	95	0.009	13	227
22		82.5	748	367	0.033	49	930
21		78.75	381	175	0.016	23	474
20		76.75	231	102	0.009	14	287
19		75.5	157	68	0.006	9	195
18		74.5	158	67	0.006	9	196
17		72	639	259	0.023	34	794
16		67.5	816	302	0.027	40	1,014
15		62.5	834	277	0.025	37	1,038
14		57.5	853	252	0.023	34	1,061
13		54.125	303	82	0.008	11	377
12		51.625	1,132	287	0.026	38	1,407
11		49.25	529	126	0.011	17	658
10		46.75	795	176	0.016	23	989
9		42.5	1,159	224	0.020	30	1,441
8		37.5	1,185	192	0.017	26	1,474
7		32.5	1,212	161	0.015	21	1,507
6		27.5	1,238	130	0.012	17	1,540
5		22.5	1,265	100	0.009	13	1,573
4		17.5	1,292	72	0.006	10	1,606
3		12.5	1,318	46	0.004	6	1,639
2		7.5	1,345	23	0.002	3	1,672
1		2.5	1,371	5	0.000	1	1,705
Ericsson Radio 4449 B12,B71		97	222	137	0.012	18	276
Ericsson Radio 4460 B25+B66		97	327	201	0.018	27	407
Generic Mount Reinforcement		97	600	369	0.033	49	746
Generic Mount Reinforcement		85	600	307	0.028	41	746
Generic Mount Reinforcement		76	600	262	0.024	35	746
Ericsson AIR 6419 B41		97	206	127	0.012	17	256
RFS APXVLL19P_43-C-A20		97	123	76	0.007	10	153
Generic Round T-Arm		97	1,350	831	0.075	111	1,679
RFS APXVAARR24_43-U-NA20		97	384	236	0.021	31	477
RFS APXVAARR24_43-U-NA20		95	384	229	0.021	31	477
Ericsson RRUS-11		86.4	660	345	0.031	46	821

SEISMIC FORCES

1.2D + 1.0Ev + 1.0Eh

Seismic

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
Raycap DC6-48-60-18-8F	85	40	20	0.002	3	50
Raycap DC6-48-60-0-8F	85	66	34	0.003	4	82
Ericsson RRUS 8843 B2, B66A	85	216	110	0.010	15	269
Ericsson RRUS 4449 B5, B12	85	213	109	0.010	15	265
Ericsson RRUS 4478 B14	85	178	91	0.008	12	222
Ericsson AIR 6419 B77G	85	198	101	0.009	14	247
Ericsson AIR 6449 B77D/ C-Band	85	245	125	0.011	17	304
CCI DMP65R-BU8D	85	287	147	0.013	20	357
CCI TPA65R-BU8D	85	248	127	0.012	17	308
Generic Round Platform with Handrails	85	2,500	1,279	0.116	170	3,109
Generic Round Platform with Handrails	76	2,500	1,093	0.099	146	3,109
Samsung MT6413-77A	77.5	172	77	0.007	10	214
Samsung RT4401-48A	76	56	24	0.002	3	69
Samsung B2/B66A RRH ORAN (RF 4439d-25A)	76	224	98	0.009	13	279
Samsung RF4461d-13A	76	237	104	0.009	14	295
Raycap RVZDC-6627-PF-48	76	32	14	0.001	2	40
JMA Wireless MX06FRO660-03	76	180	79	0.007	10	224
Samsung Outdoor CBRS 20W RRH -Clip-on Antenna	74	13	6	0.000	1	16
<b>Totals:</b>		<b>33,425</b>	<b>11,046</b>	<b>1.000</b>	<b>1,472</b>	<b>41,565</b>

SEISMIC FORCES

0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
27	97.5	91	57	0.005	8	78
26	96	196	119	0.011	16	168
25	92.5	536	309	0.028	41	459
24	88.2	398	214	0.019	29	341
23	85.7	183	95	0.009	13	157
22	82.5	748	367	0.033	49	641
21	78.75	381	175	0.016	23	326
20	76.75	231	102	0.009	14	198
19	75.5	157	68	0.006	9	134
18	74.5	158	67	0.006	9	135
17	72	639	259	0.023	34	547
16	67.5	816	302	0.027	40	698
15	62.5	834	277	0.025	37	715
14	57.5	853	252	0.023	34	731
13	54.125	303	82	0.008	11	260
12	51.625	1,132	287	0.026	38	969
11	49.25	529	126	0.011	17	453
10	46.75	795	176	0.016	23	681
9	42.5	1,159	224	0.020	30	992
8	37.5	1,185	192	0.017	26	1,015
7	32.5	1,212	161	0.015	21	1,038
6	27.5	1,238	130	0.012	17	1,061
5	22.5	1,265	100	0.009	13	1,084
4	17.5	1,292	72	0.006	10	1,106
3	12.5	1,318	46	0.004	6	1,129
2	7.5	1,345	23	0.002	3	1,152
1	2.5	1,371	5	0.000	1	1,175
Ericsson Radio 4449 B12,B71	97	222	137	0.012	18	190
Ericsson Radio 4460 B25+B66	97	327	201	0.018	27	280
Generic Mount Reinforcement	97	600	369	0.033	49	514
Generic Mount Reinforcement	85	600	307	0.028	41	514
Generic Mount Reinforcement	76	600	262	0.024	35	514
Ericsson AIR 6419 B41	97	206	127	0.012	17	176
RFS APXVLL19P_43-C-A20	97	123	76	0.007	10	105
Generic Round T-Arm	97	1,350	831	0.075	111	1,156
RFS APXVAARR24_43-U-NA20	97	384	236	0.021	31	329
RFS APXVAARR24_43-U-NA20	95	384	229	0.021	31	329

SEISMIC FORCES

0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
Ericsson RRUS-11	86.4	660	345	0.031	46	565
Raycap DC6-48-60-18-8F	85	40	20	0.002	3	34
Raycap DC6-48-60-0-8F	85	66	34	0.003	4	56
Ericsson RRUS 8843 B2, B66A	85	216	110	0.010	15	185
Ericsson RRUS 4449 B5, B12	85	213	109	0.010	15	182
Ericsson RRUS 4478 B14	85	178	91	0.008	12	153
Ericsson AIR 6419 B77G	85	198	101	0.009	14	170
Ericsson AIR 6449 B77D/ C-Band	85	245	125	0.011	17	210
CCI DMP65R-BU8D	85	287	147	0.013	20	246
CCI TPA65R-BU8D	85	248	127	0.012	17	212
Generic Round Platform with Handrails	85	2,500	1,279	0.116	170	2,141
Generic Round Platform with Handrails	76	2,500	1,093	0.099	146	2,141
Samsung MT6413-77A	77.5	172	77	0.007	10	147
Samsung RT4401-48A	76	56	24	0.002	3	48
Samsung B2/B66A RRH ORAN (RF 4439d-25A)	76	224	98	0.009	13	192
Samsung RF4461d-13A	76	237	104	0.009	14	203
Raycap RVZDC-6627-PF-48	76	32	14	0.001	2	27
JMA Wireless MX06FRO660-03	76	180	79	0.007	10	154
Samsung Outdoor CBRS 20W RRH -Clip-on Antenna	74	13	6	0.000	1	11
<b>Totals:</b>		<b>33,425</b>	<b>11,046</b>	<b>1.000</b>	<b>1,472</b>	<b>28,628</b>

1.2D + 1.0Ev + 1.0Eh

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	-39.86	-1.47	0.00	-115.01	0.00	115.01	4,846.45	1,175.40	5,121	4,803.92	0.00	0.00	0.03
5.00	-38.19	-1.48	0.00	-107.64	0.00	107.64	4,764.82	1,147.99	4,885	4,611.88	0.00	-0.01	0.03
10.00	-36.55	-1.47	0.00	-100.26	0.00	100.26	4,681.70	1,120.58	4,654	4,422.23	0.02	-0.02	0.03
15.00	-34.94	-1.47	0.00	-92.89	0.00	92.89	4,597.07	1,093.17	4,429	4,235.08	0.04	-0.02	0.03
20.00	-33.37	-1.46	0.00	-85.54	0.00	85.54	4,510.95	1,065.76	4,210	4,050.54	0.07	-0.03	0.03
25.00	-31.83	-1.45	0.00	-78.24	0.00	78.24	4,395.70	1,038.35	3,996	3,844.54	0.11	-0.04	0.03
30.00	-30.32	-1.43	0.00	-71.01	0.00	71.01	4,279.67	1,010.94	3,788	3,643.24	0.15	-0.05	0.03
35.00	-28.85	-1.40	0.00	-63.88	0.00	63.88	4,163.63	983.54	3,586	3,447.36	0.21	-0.06	0.03
40.00	-27.41	-1.38	0.00	-56.85	0.00	56.85	4,047.60	956.13	3,389	3,256.89	0.27	-0.06	0.02
45.00	-26.42	-1.35	0.00	-49.97	0.00	49.97	3,931.57	928.72	3,197	3,071.84	0.34	-0.07	0.02
48.50	-25.76	-1.34	0.00	-45.23	0.00	45.23	3,850.34	909.53	3,066	2,945.52	0.39	-0.08	0.02
50.00	-24.35	-1.30	0.00	-43.22	0.00	43.22	3,815.53	901.31	3,011	2,892.19	0.42	-0.08	0.02
53.25	-23.97	-1.29	0.00	-39.00	0.00	39.00	2,599.91	644.12	2,153	1,978.37	0.47	-0.08	0.03
55.00	-22.91	-1.26	0.00	-36.74	0.00	36.74	2,580.79	637.27	2,107	1,942.75	0.50	-0.08	0.03
60.00	-21.88	-1.22	0.00	-30.46	0.00	30.46	2,525.14	617.69	1,980	1,841.97	0.59	-0.09	0.03
65.00	-20.86	-1.18	0.00	-24.35	0.00	24.35	2,468.00	598.11	1,856	1,742.73	0.69	-0.10	0.02
70.00	-20.07	-1.15	0.00	-18.44	0.00	18.44	2,409.36	578.53	1,737	1,645.13	0.80	-0.10	0.02
74.00	-19.85	-1.14	0.00	-13.85	0.00	13.85	2,361.37	562.87	1,644	1,568.30	0.89	-0.11	0.02
75.00	-19.66	-1.13	0.00	-12.72	0.00	12.72	2,349.22	558.95	1,621	1,549.28	0.91	-0.11	0.02
76.00	-14.61	-0.88	0.00	-11.59	0.00	11.59	2,337.01	555.04	1,599	1,530.33	0.93	-0.11	0.01
77.50	-13.92	-0.85	0.00	-10.26	0.00	10.26	2,318.59	549.17	1,565	1,502.04	0.97	-0.11	0.01
80.00	-12.99	-0.80	0.00	-8.14	0.00	8.14	2,283.36	539.38	1,510	1,452.59	1.03	-0.11	0.01
85.00	-6.81	-0.45	0.00	-4.15	0.00	4.15	2,200.48	519.80	1,402	1,348.55	1.15	-0.12	0.01
86.40	-5.49	-0.37	0.00	-3.53	0.00	3.53	2,177.27	514.32	1,373	1,320.11	1.18	-0.12	0.01
90.00	-4.83	-0.33	0.00	-2.19	0.00	2.19	2,117.60	500.22	1,298	1,248.37	1.27	-0.12	0.00
95.00	-4.11	-0.28	0.00	-0.56	0.00	0.56	2,034.72	480.64	1,199	1,152.06	1.39	-0.12	0.00
97.00	0.00	0.00	0.00	0.00	0.00	0.00	2,001.57	472.81	1,160	1,114.61	1.44	-0.12	0.00
98.00	0.00	0.00	0.00	0.00	0.00	0.00	1,984.99	468.90	1,141	1,096.12	1.47	-0.12	0.00

0.9D - 1.0Ev + 1.0Eh

Seismic (Reduced DL)

CALCULATED FORCES

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (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
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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	-27.45	-1.47	0.00	-114.27	0.00	114.27	4,846.45	1,175.40	5,121	4,803.92	0.00	0.00	0.03
5.00	-26.30	-1.47	0.00	-106.90	0.00	106.90	4,764.82	1,147.99	4,885	4,611.88	0.00	-0.01	0.03
10.00	-25.17	-1.47	0.00	-99.54	0.00	99.54	4,681.70	1,120.58	4,654	4,422.23	0.02	-0.02	0.03
15.00	-24.07	-1.46	0.00	-92.18	0.00	92.18	4,597.07	1,093.17	4,429	4,235.08	0.04	-0.02	0.03
20.00	-22.98	-1.45	0.00	-84.86	0.00	84.86	4,510.95	1,065.76	4,210	4,050.54	0.07	-0.03	0.03
25.00	-21.92	-1.44	0.00	-77.60	0.00	77.60	4,395.70	1,038.35	3,996	3,844.54	0.11	-0.04	0.03
30.00	-20.88	-1.42	0.00	-70.41	0.00	70.41	4,279.67	1,010.94	3,788	3,643.24	0.15	-0.05	0.02
35.00	-19.87	-1.39	0.00	-63.31	0.00	63.31	4,163.63	983.54	3,586	3,447.36	0.21	-0.06	0.02
40.00	-18.88	-1.37	0.00	-56.34	0.00	56.34	4,047.60	956.13	3,389	3,256.89	0.27	-0.06	0.02
45.00	-18.19	-1.34	0.00	-49.51	0.00	49.51	3,931.57	928.72	3,197	3,071.84	0.34	-0.07	0.02
48.50	-17.74	-1.33	0.00	-44.80	0.00	44.80	3,850.34	909.53	3,066	2,945.52	0.39	-0.07	0.02
50.00	-16.77	-1.29	0.00	-42.81	0.00	42.81	3,815.53	901.31	3,011	2,892.19	0.41	-0.08	0.02
53.25	-16.51	-1.28	0.00	-38.62	0.00	38.62	2,599.91	644.12	2,153	1,978.37	0.47	-0.08	0.03
55.00	-15.78	-1.25	0.00	-36.38	0.00	36.38	2,580.79	637.27	2,107	1,942.75	0.50	-0.08	0.03
60.00	-15.07	-1.21	0.00	-30.15	0.00	30.15	2,525.14	617.69	1,980	1,841.97	0.59	-0.09	0.02
65.00	-14.37	-1.17	0.00	-24.10	0.00	24.10	2,468.00	598.11	1,856	1,742.73	0.69	-0.10	0.02
70.00	-13.82	-1.14	0.00	-18.26	0.00	18.26	2,409.36	578.53	1,737	1,645.13	0.79	-0.10	0.02
74.00	-13.67	-1.13	0.00	-13.71	0.00	13.71	2,361.37	562.87	1,644	1,568.30	0.88	-0.11	0.02
75.00	-13.54	-1.12	0.00	-12.59	0.00	12.59	2,349.22	558.95	1,621	1,549.28	0.90	-0.11	0.01
76.00	-10.06	-0.87	0.00	-11.47	0.00	11.47	2,337.01	555.04	1,599	1,530.33	0.93	-0.11	0.01
77.50	-9.59	-0.84	0.00	-10.16	0.00	10.16	2,318.59	549.17	1,565	1,502.04	0.96	-0.11	0.01
80.00	-8.95	-0.79	0.00	-8.06	0.00	8.06	2,283.36	539.38	1,510	1,452.59	1.02	-0.11	0.01
85.00	-4.69	-0.44	0.00	-4.11	0.00	4.11	2,200.48	519.80	1,402	1,348.55	1.14	-0.11	0.01
86.40	-3.78	-0.37	0.00	-3.49	0.00	3.49	2,177.27	514.32	1,373	1,320.11	1.17	-0.11	0.00
90.00	-3.32	-0.32	0.00	-2.17	0.00	2.17	2,117.60	500.22	1,298	1,248.37	1.26	-0.12	0.00
95.00	-2.83	-0.28	0.00	-0.55	0.00	0.55	2,034.72	480.64	1,199	1,152.06	1.38	-0.12	0.00
97.00	0.00	0.00	0.00	0.00	0.00	0.00	2,001.57	472.81	1,160	1,114.61	1.43	-0.12	0.00
98.00	0.00	0.00	0.00	0.00	0.00	0.00	1,984.99	468.90	1,141	1,096.12	1.45	-0.12	0.00



ANALYSIS SUMMARY

Load Case	Base 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	28.31	0.00	40.07	0.00	0.00	2088.16	0.00	0.44
0.9D + 1.0W	28.30	0.00	30.05	0.00	0.00	2077.17	0.00	0.44
1.2D + 1.0Di + 1.0Wi	6.86	0.00	52.96	0.00	0.00	490.41	0.00	0.11
1.2D + 1.0Ev + 1.0Eh	1.48	0.00	39.86	0.00	0.00	115.01	0.00	0.03
0.9D - 1.0Ev + 1.0Eh	1.47	0.00	27.45	0.00	0.00	114.27	0.00	0.03
1.0D + 1.0W	6.03	0.00	33.42	0.00	0.00	443.11	0.00	0.1

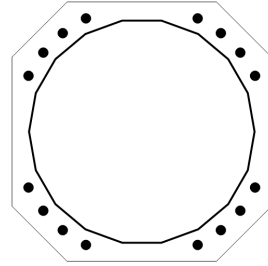
**BASE PLATE ANALYSIS @ 0 FT**

**APPLIED REACTIONS**

Moment (k-ft)	Axial (k)	Shear (k)
2088.16	40.07	28.31

**PLATE PARAMETERS (ID# 24249)**

Width:	56.5	in
Shape:	Square	
Thickness:	3	in
Grade:	A572-50	
Yield Strength:	50	ksi
Tensile Strength:	65	ksi
Clip Length:	12	in
Rod Detail Type:	d	
Clear Distance:	4	in
Base Weld Size:	0.125	in
Orientation Offset:	-	°
Analysis Type:	Plastic	
Neutral Axis:	321	°



**ANCHOR ROD PARAMETERS**

Class	Arrangement	Quantity	Diameter (in)	Circle (in)	Grade	F <sub>y</sub> (ksi)	F <sub>u</sub> (ksi)	Spacing (in)	Offset (°)
Original [ID#24881]	Cluster	16	2.25	55	A615-75	75	100	6	-

**COMPONENT PROPERTIES**

Component	ID	Gross Area (in <sup>2</sup> )	Net Area (in <sup>2</sup> )	Individual Inertia (in <sup>4</sup> )	Moment of Inertia (in <sup>4</sup> )	Threads/in
Pole	48.67"ø x 0.4375" (18 Sides)	65.9570	-	-	19184.29	-
Bolt Group	Original (16) 2.25"ø	3.9761	3.2477	0.8393	17831.17	4.5

**REACTION DISTRIBUTION**

Component	ID	Moment M <sub>u</sub> (k-ft)	Axial Load P <sub>u</sub> (k)	Shear V <sub>u</sub> (k)	Moment Factor
Pole	48.67"ø x 0.4375" (18 Sides)	2088.2	40.07	28.31	1.000
Bolt Group	Original (16) 2.25"ø	2088.2	-	28.31	1.000

**BASE PLATE BEND LINE ANALYSIS @ 0 FT**

**POLE PROPERTIES**

Flat-to-Flat Diameter:	48.80	in	Flat Width:	8.604	in
Point-to-Point Diameter:	49.55	in	Flat Radians:	0.349	rad
Orientation Offset:	-	°			

**PLATE PROPERTIES**

Neutral Axis: 321 °

Bend Line	Chord Length (in)	Additional Length (in)	Section Modulus (in <sup>3</sup> )	Applied Moment M <sub>u</sub> (k-in)	Moment Capacity ΦM <sub>n</sub> (k-in)	Flexure Result M <sub>u</sub> /ΦM <sub>n</sub>
Flats	31.108	0.00	69.993	497.0	3149.7	15.8%
Corners	30.355	0.00	68.299	361.4	3073.5	11.8%

**PLASTIC ANCHOR ROD ANALYSIS**

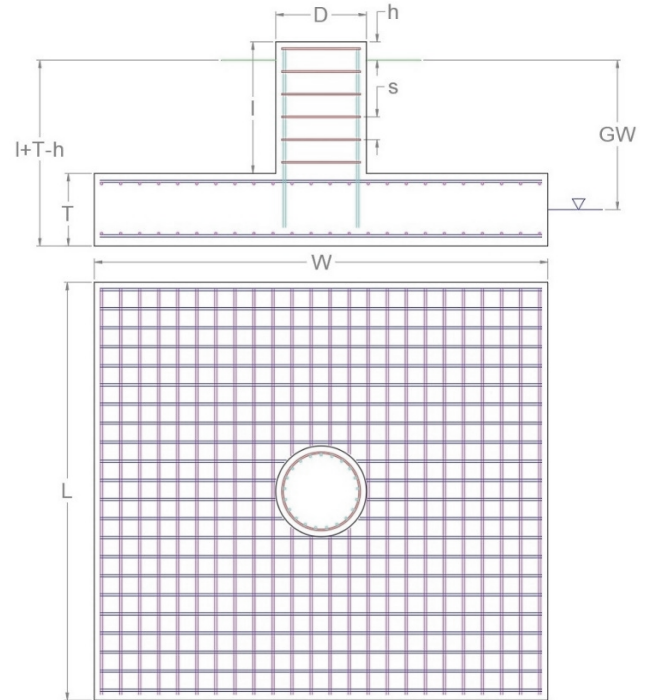
Class	Group Quantity	Rod Diameter (in)	Applied Axial Load P <sub>u</sub> (k)	Applied Shear Load V <sub>u</sub> (k)	Compressive Capacity ΦP <sub>n</sub> (k)	Interaction Result
Original	16	2.25	106.5	3.0	243.6	46.2%

**APPLIED GLOBAL REACTIONS**

Moment (k-ft)	Axial (k)	Shear (k)
2,088.16	40.07	28.31

**FOUNDATION PARAMETERS**

Mat Length:	L	22	ft
Mat Width:	W	22	ft
Mat Thickness:	T	2	ft
Base Depth:	L+T-h	7	ft
Pier Shape:		Square	
Pier Width:	D	7	ft
Pier Height above Grade:	h	1	ft
Concrete Compressive Strength:		4,000	psi
Mat Top Rebar:		(34) #9 bars [60 ksi]	
Mat Bottom Rebar:		(34) #9 bars [60 ksi]	
Pier Vertical Rebar:		(36) #8 bars [60 ksi]	
Pier Rebar Ties:	s	#4 bars @ 12.0" c/c [60 ksi]	
Rebar Clear Cover:		3.0	in
Tower Eccentricity:	ecc	3	ft
Tower Leg Count		1	



**SOIL PARAMETERS**

Water Table Depth [BGL]:	GW	8	ft
Soil Unit Weight:		130	pcf
Ultimate Skin Friction:		850	psf
Ultimate Bearing Pressure:		15,900	psf
Bearing Pressure Type:		Gross	
Coefficient of Shear Friction:		0.3	

**SOIL STRENGTH ANALYSIS**

Soil Strength Reduction Factor, $\Phi_s$	Uplift Strength Reduction Factor, $\Phi_s$	Asset Dead Load Factor	Dead Load Factor
0.75	0.75	0.9	1.2

**SOIL OVERTURNING ANALYSIS**

Design Moment, $M_{u,Design}$ (k-ft)	Nominal Overturning Capacity, $\Phi_m M_n$ (k-ft)	Soil Overturning Usage, $M_{u,Design} / \Phi_m M_n$
2,314.64	5,258.05	44.0% <span style="color: green;">✔</span>

**SOIL BEARING ANALYSIS**

Net Bearing Pressure, $P_{u,Net}$ (psf)	Nominal Bearing Capacity, $\Phi_b P_n$ (k-ft)	Bearing Pressure Controlling Load Direction	Soil Bearing Usage, $P_{u,net} / \Phi_b P_n$
1,794.00	11,925.00	Diagonal to Pad Edge	15.0% <span style="color: green;">✔</span>

**SOIL SLIDING SHEAR ANALYSIS**

Applied Shear Force, $V_u$ (k)	Friction Resistance (k)	Passive Pressure (psf)	Passive Pressure Resistance (k)	Nominal Shear Capacity, $\Phi_s V_n$ (k)	Soil Sliding Shear Usage, $V_u / \Phi_s V_n$
28.31	149.60	780.0	34.32	139.46	20.0% <span style="color: green;">✔</span>

**MAT REINFORCING STEEL STRENGTH ANALYSIS**

Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, $\Phi_b$	Strength Shear Reduction Factor, $\Phi_v$	Strength Compression Reduction Factor, $\Phi_c$
29,000	0.9	0.75	0.65

**MAT REINFORCING ONE WAY SHEAR ANALYSIS**

One Way Design Shear, $V_u$ (k)	Nominal One Way Shear Capacity, $\Phi_c V_n$ (k)	One Way Shear Controlling Load Direction	Mat One Way Shear Usage, $V_u / \Phi_c V_n$
142.24	497.77	Parallel to Pad Edge	28.6%

**MAT REINFORCING PUNCHING SHEAR ANALYSIS**

Punching Shear Design Stress, $v_u$ (psi)	Nominal Punching Shear Capacity, $\Phi_c v_n$ (psi)	Mat Punching Shear Usage, $v_u / \Phi_c v_n$
47.7	189.7	25.1%

**MAT REINFORCING MOMENT TRANSFER ANALYSIS**

Moment Transfer Effective Flexural Width, $w_f$ (in)	Neutral Axis Depth (in)	Pier Moment at Joint, $M_{ut}$ (k-in)	Nominal Moment Transfer Capacity, $\Phi M_{sc,f}$ (k-in)	Mat Moment Transfer Usage, $0.6 M_{ut} / \Phi M_{sc,f}$
13.00	2.38	0.00	21,390.5	0.0%

**MAT REINFORCING FLEXURE ANALYSIS – UPPER STEEL**

Factored Moment, $M_u$ (k-ft)	Nominal Flexural Capacity, $\Phi M_n$ (k-ft)	Flexural Steel Controlling Load Direction	Mat Upper Rebar Flexure Usage, $M_u / \Phi M_n$
1,118.95	2,893.09	Parallel to Pad Edge	38.7%

**MAT REINFORCING FLEXURE ANALYSIS – LOWER STEEL**

Factored Moment, $M_u$ (k-ft)	Nominal Flexural Capacity, $\Phi M_n$ (k-ft)	Flexural Steel Controlling Load Direction	Mat Lower Rebar Flexure Usage, $M_u / \Phi M_n$
1,711.30	2,893.09	Parallel to Pad Edge	59.2%

**PIER REINFORCING STEEL STRENGTH ANALYSIS**

Rebar Cage Diameter (in)	Steel Elastic Modulus, E (ksi)	Strength Bending/Tension Reduction Factor, $\Phi_b$	Strength Shear Reduction Factor, $\Phi_v$	Strength Compression Reduction Factor, $\Phi_c$
76.00	29,000	0.9	0.75	0.65

**PIER REINFORCING MOMENT ANALYSIS**

Design Moment, $M_u$ (k-ft)	Nominal Moment Capacity, $\Phi_b M_n$ (k-ft)	Bending Reinforcement Ratio	Pier Rebar Flexure Usage, $M_u / \Phi_b M_n$
2,258.02	4,756.50	0.004	47.5%

**PIER REINFORCING COMPRESSION ANALYSIS**

Design Compression, $P_u$ (k)	Nominal Compressive Capacity, $\Phi_p P_n$ (k)	Pier Rebar Compressive Usage, $P_u / \Phi_p P_n$
40.07	12,449.37	0.3%

**PIER REINFORCING SHEAR ANALYSIS**

Design Shear, $V_u$ (k)	Nominal Shear Capacity, $\Phi_v V_n$ (k)	Pier Rebar Shear Usage, $V_u / \Phi_v V_n$
28.31	772.09	3.7%

# **EXHIBIT F**

## **Mount Analysis Report**





**AMERICAN TOWER®**  
CORPORATION

## Post Modification Mount Analysis Report

**ATC Asset Name** : MADISON CT  
**ATC Asset Number** : 283421  
**Engineering Number** : 14561673\_C9\_04  
**Mount Elevation** : 95.5 ft  
**Proposed Carrier** : T-Mobile  
**Carrier Site Name** : Amtrak\_Madison  
**Carrier Site Number** : CTNH808A  
**Site Location** : 15 Orchard Park Road  
Madison, CT 06443-2268  
41.2831, -72.6231  
**County** : New Haven  
**Date** : December 18, 2023  
**Max Usage** : 84%  
**Analysis Result** : Contingent Pass

Prepared By:  
Michael Ellis  
Structural Engineer II



Digitally Signed: 2023-12-20

**COA: PEC.0001553**

**Table of Contents**

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Equipment Layout..... 6

Standard Conditions ..... Attached

Calculations..... Attached

## Introduction

The purpose of this report is to summarize results of the mount analysis performed for T-Mobile at 95.5 ft.

## Supporting Documents

<b>Previous Analysis:</b>	CLS Project #41124-12927138-01-MA-R1, dated July 9, 2019
<b>Radio Frequency Data Sheet:</b>	RFDS ID #CTNH808A, dated November 28, 2023
<b>Reference Photos:</b>	Site photos from 2021

## Analysis

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

<b>Basic Wind Speed:</b>	123 mph (3-Second Gust)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1.00" radial ice concurrent
<b>Codes:</b>	ANSI/TIA-222-H / 2021 IBC / 2022 Connecticut State Building Code
<b>Exposure Category:</b>	D
<b>Risk Category:</b>	II
<b>Topographic Factor Procedure:</b>	Method 2
<b>Feature:</b>	Flat
<b>Crest Height (H):</b>	0 ft
<b>Crest Length (L):</b>	0 ft
<b>Spectral Response:</b>	Ss = 0.204, S1 = 0.054
<b>Site Class:</b>	D - Stiff Soil - Default
<b>Live Loads:</b>	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 #14561673\_C9\_04

If you have any questions or require additional information, please reach out to your American Tower contact. If you do not have an American Tower contact and have an Engineering question, please contact [MountAnalysis@americantower.com](mailto:MountAnalysis@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.



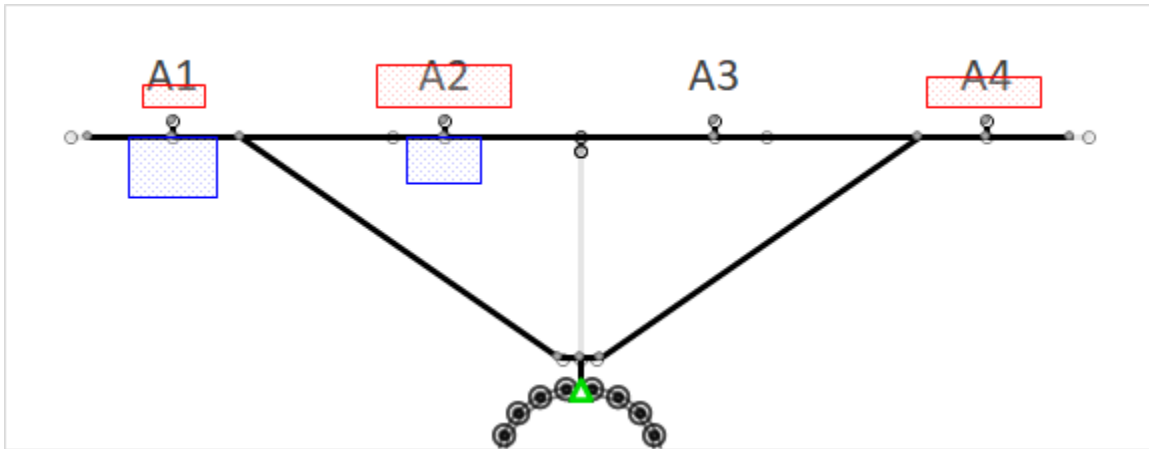
**Application Loading**

Mount Centerline (ft)	Equipment Centerline (ft)	Qty	Equipment Manufacturer & Model
95.5	97.0	3	Ericsson AIR 6419 B41
		3	RFS APXVLL19P_43-C-A20
		3	RFS APXVAARR24_43-U-NA20
		3	Ericsson Radio 4460 B25+B66
		3	Ericsson Radio 4449 B12,B71

**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Horizontals	78%	Pass
Verticals	15%	Pass
Diagonals	24%	Pass
Mount Pipes	84%	Pass
Serviceability	N/A	Pass

**Mount Layout**

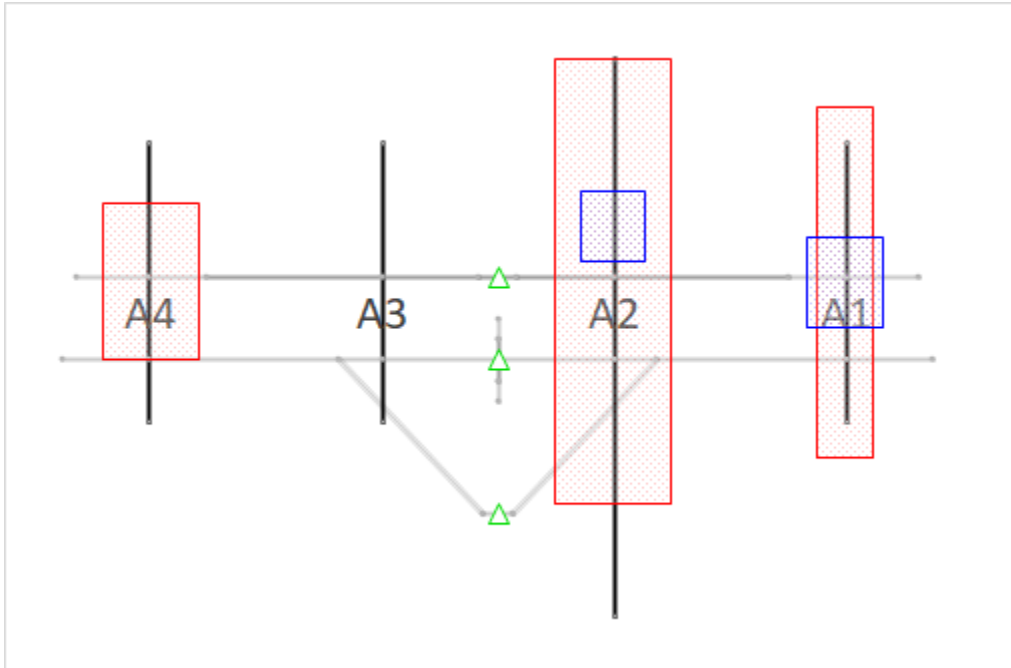


**Equipment Position Table**

MP	RAD Center (ft)	Qty.	Antenna Model
A1	97.0	1	RFS APXVLL19P_43-C-A20
	97.0	1	Ericsson Radio 4460 B25+B66
A2	97.0	1	RFS APXVAARR24_43-U-NA20
	97.0	1	Ericsson Radio 4449 B12,B71
A3	-	-	Empty
A4	97.0	1	Ericsson AIR 6419 B41

**Equipment Layout**

**Front View - Alpha**





## **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: 283421  
 Project Number: 14561673\_C9\_04  
 Carrier: T-Mobile  
 Mount Elevation: 95.5 ft  
 Date: 12/18/2023

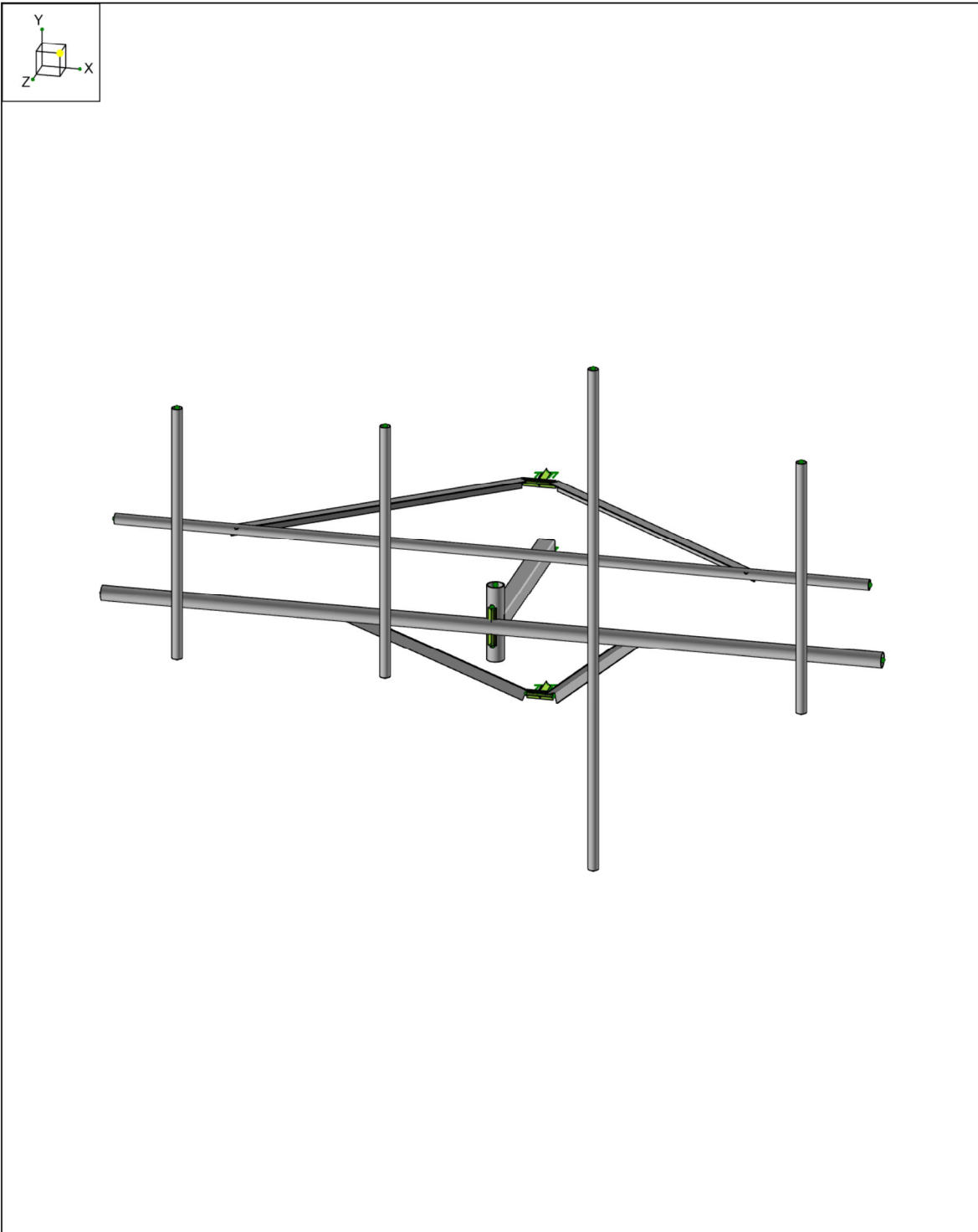
## Mount Analysis Force Calculations

Wind & Ice Load Calculations			
Velocity Pressure Coefficient	$K_z$	1.42	
Topographic Factor	$K_{zt}$	1.00	
Rooftop Wind Speed-up Factor	$K_s$	1.00	
Shielding Factor	$K_a$	0.90	
Ground Elevation Factor	$K_e$	1.00	
Wind Direction Probability Factor	$K_d$	0.95	
Basic Wind Speed	$V$	123	mph
Velocity Pressure	$q_z$	52.3	psf
Height Escalation Factor	$K_{iz}$	1.11	
Thickness of Radial Glaze Ice	$T_{iz}$	1.11	in

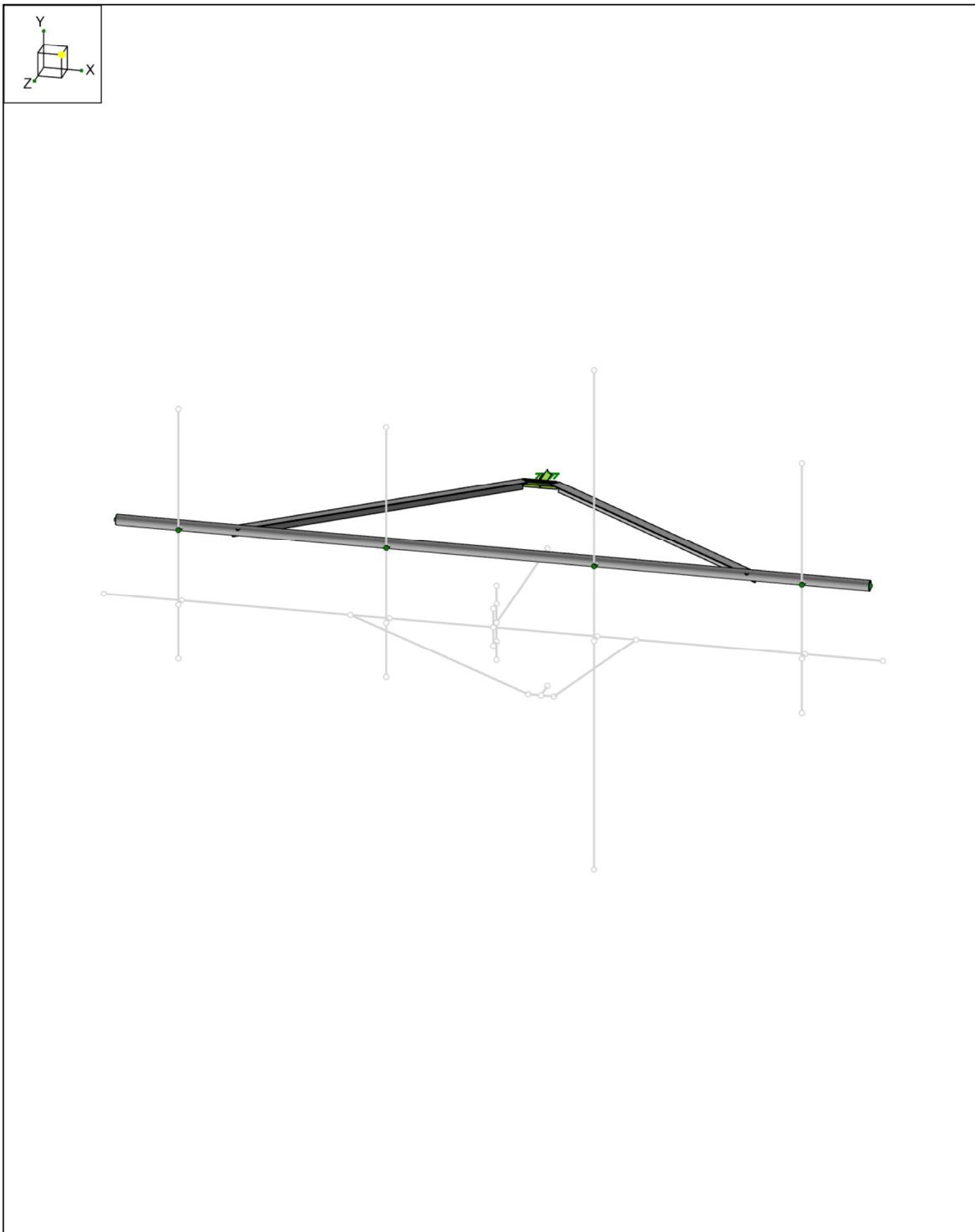
Seismic Load Calculations			
Short Period DSRAP	$S_{DS}$	0.163	
1 Second DSRAP	$S_{D1}$	0.086	
Importance Factor	$I$	1.0	
Response Modification Coefficient	$R$	2.0	
Seismic Response Coefficient	$C_s$	0.082	
Amplification Factor	$A$	1.0	
Total Weight	$W$	802.1	lbs
Total Shear Force	$V_s$	65.4	lbs
Horizontal Seismic Load	$E_h$	65.4	lbs
Vertical Seismic Load	$E_v$	26.2	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	33.6	20.0	6.3	68.5	5.60	0.83	6.63	1.20
RFS APXVLL19P_43-C-A20	75.8	11.3	4.6	40.9	8.25	1.85	10.16	2.82
RFS APXVAARR24_43-U-NA20	95.9	24.0	8.7	127.9	20.24	3.48	22.63	4.47
Ericsson Radio 4460 B25+B66	19.6	15.7	12.1	109.0	2.56	1.98	3.26	2.61
Ericsson Radio 4449 B12,B71	14.9	13.2	9.3	74.0	1.64	1.15	2.20	1.64

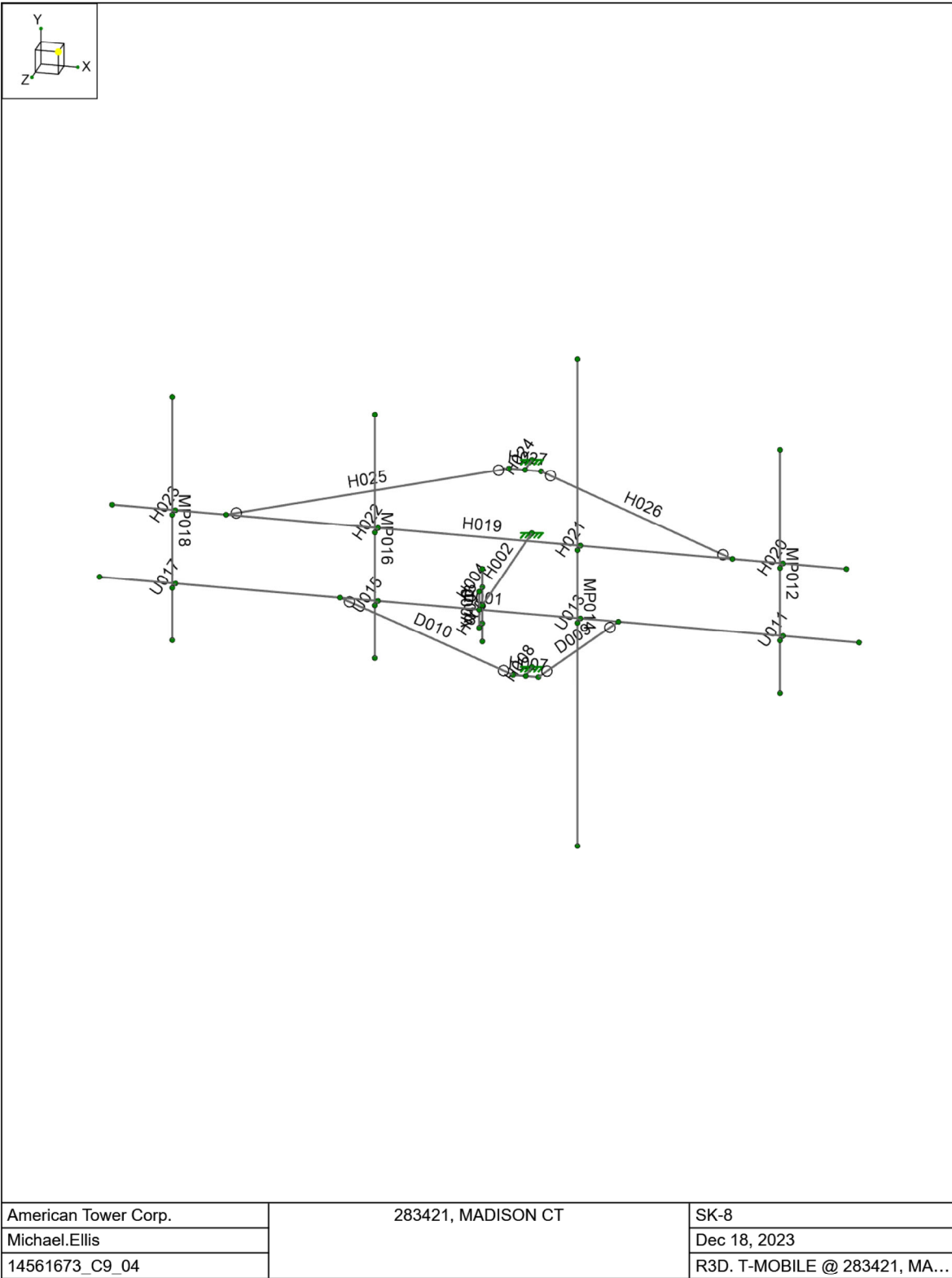
\* Equipment with EPA values N/A were not considered in the mount analysis



American Tower Corp.	283421, MADISON CT	SK-6
Michael.Ellis		Dec 18, 2023
14561673_C9_04	3D Rendering (Final Configuration)	R3D. T-MOBILE @ 283421, MA...

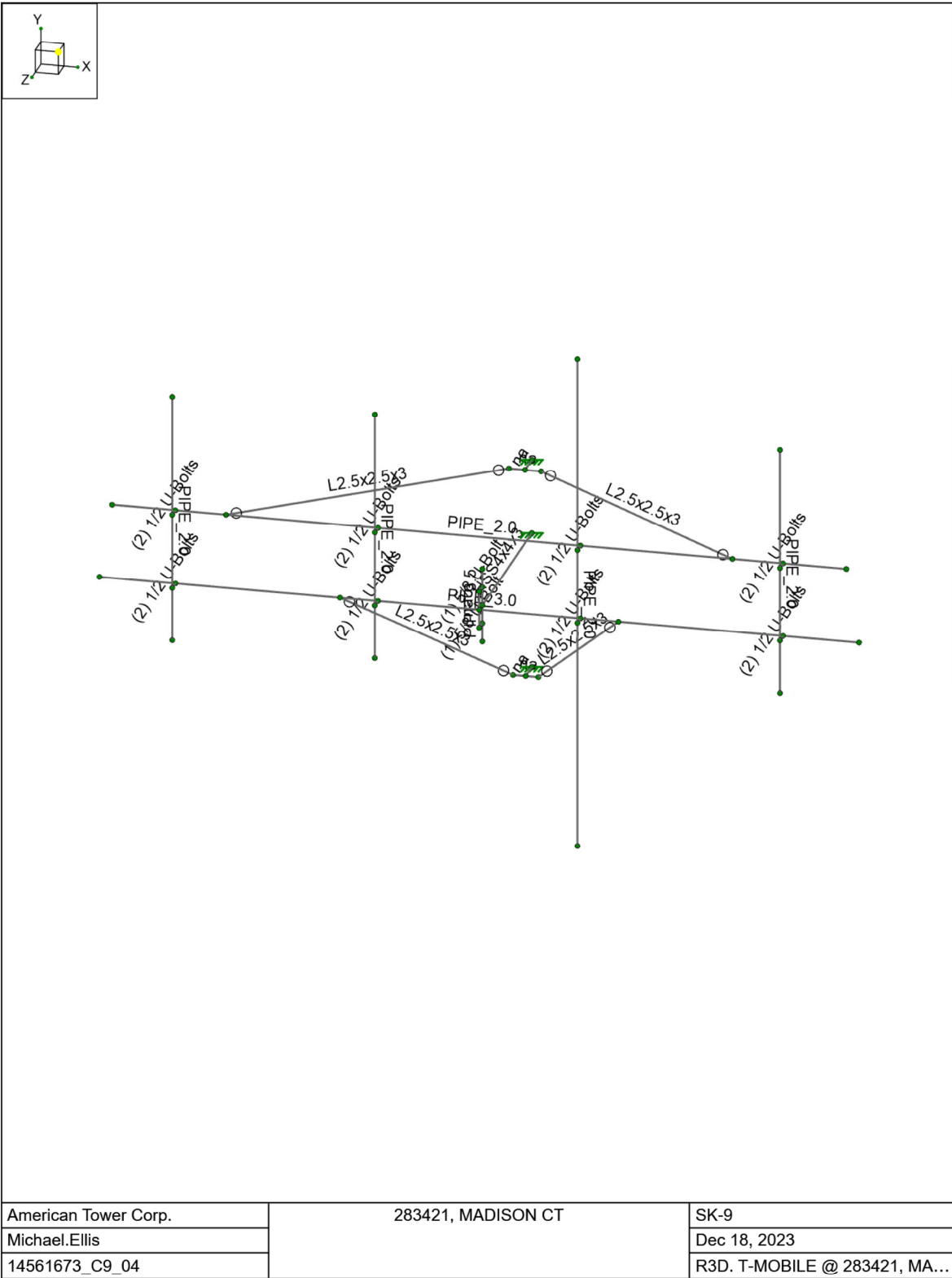


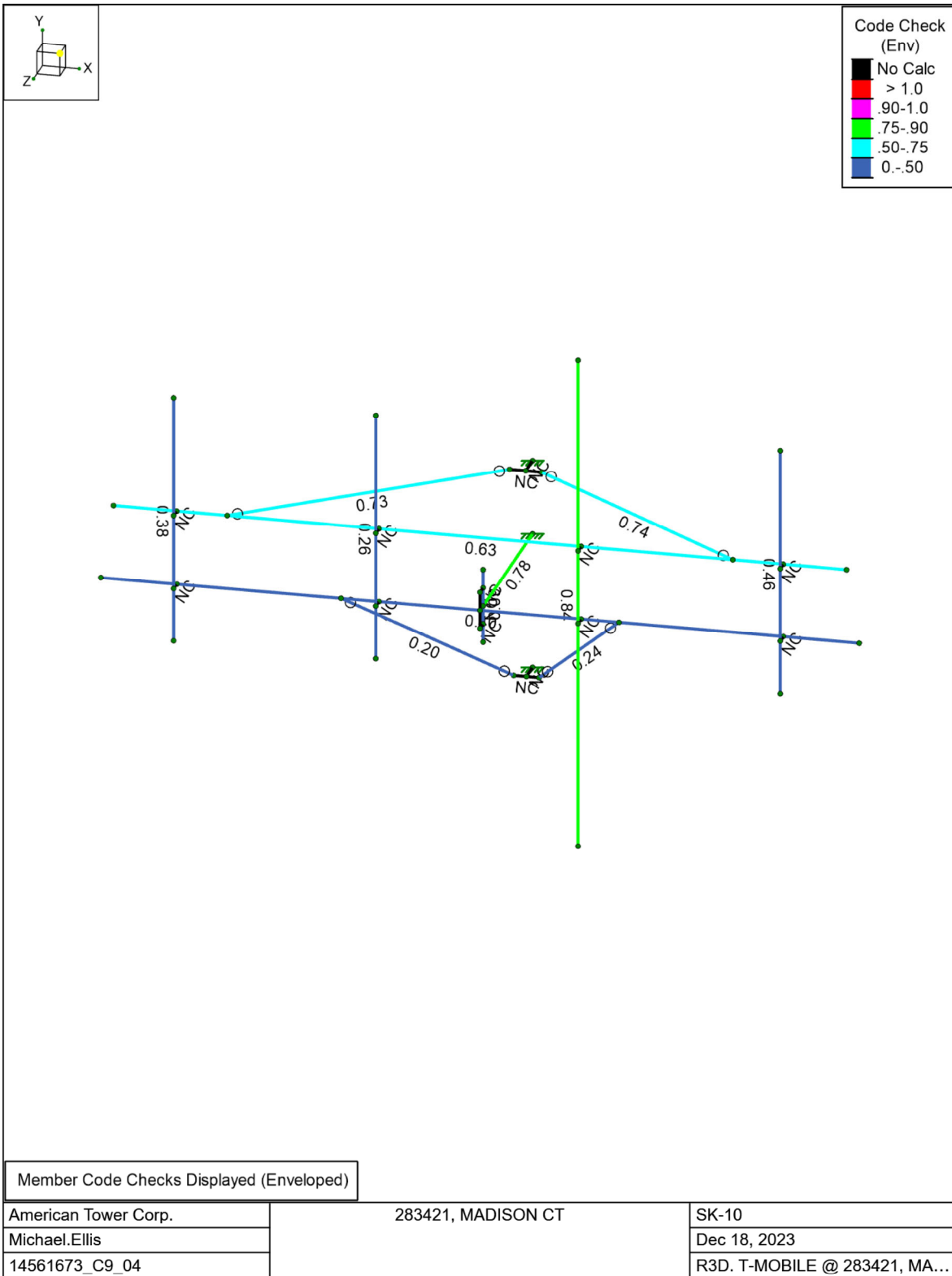
American Tower Corp.	283421, MADISON CT	SK-7
Michael.Ellis		Dec 18, 2023
14561673_C9_04	3D Rendering (Proposed Configuration)	R3D. T-MOBILE @ 283421, MA...

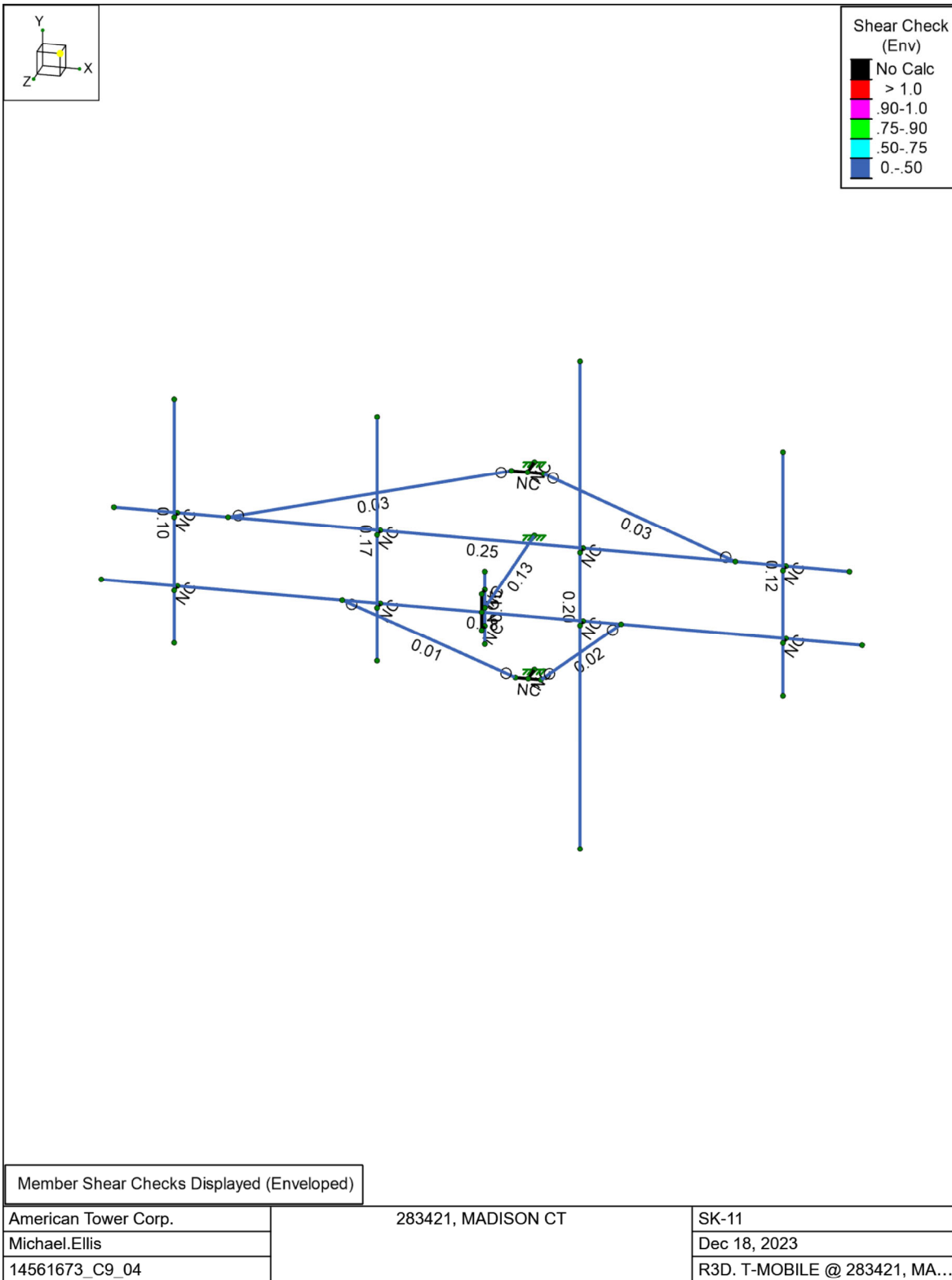


American Tower Corp.	283421, MADISON CT	SK-8
Michael.Ellis		Dec 18, 2023
14561673_C9_04		R3D. T-MOBILE @ 283421, MA...











Company : American Tower Corp.  
 Designer : Michael.Ellis  
 Job Number : 14561673\_C9\_04  
 Model Name : 283421, MADISON CT

12/18/2023  
 11:21:27 AM  
 Checked By : -

**Basic Load Cases**

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Nodal	Point	Distributed
1	D	DL		-1			8	
2	Di	IL					8	12
3	W 0	WL					8	23
4	W 30	WL					16	45
5	W 60	WL					16	45
6	W 90	WL					8	23
7	W 120	WL					16	45
8	W 150	WL					16	45
9	W 180	WL					8	23
10	W 210	WL					16	45
11	W 240	WL					16	45
12	W 270	WL					8	23
13	W 300	WL					16	45
14	W 330	WL					16	45
15	Wi 0	WL					8	23
16	Wi 30	WL					16	45
17	Wi 60	WL					16	45
18	Wi 90	WL					8	23
19	Wi 120	WL					16	45
20	Wi 150	WL					16	45
21	Wi 180	WL					8	23
22	Wi 210	WL					16	45
23	Wi 240	WL					16	45
24	Wi 270	WL					8	23
25	Wi 300	WL					16	45
26	Wi 330	WL					16	45
27	Ws 0	WL					8	23
28	Ws 30	WL					16	45
29	Ws 60	WL					16	45
30	Ws 90	WL					8	23
31	Ws 120	WL					16	45
32	Ws 150	WL					16	45
33	Ws 180	WL					8	23
34	Ws 210	WL					16	45
35	Ws 240	WL					16	45
36	Ws 270	WL					8	23
37	Ws 300	WL					16	45
38	Ws 330	WL					16	45
39	Ev -Y	ELY		-0.033			8	
40	Eh -Z	ELZ			-0.082		8	
41	Eh -X	ELX	-0.082				8	
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	Lm (1)	LL				1		
49	Lm (2)	LL				1		
50	Lm (3)	LL				1		
51	Lm (4)	LL				1		



Company : American Tower Corp.  
 Designer : Michael.Ellis  
 Job Number : 14561673\_C9\_04  
 Model Name : 283421, MADISON CT

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 Checked By : -

**Load Combinations**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
1	1.4D	Yes	Y	DL	1.4						
2	1.2D + 1.0W [0°]	Yes	Y	DL	1.2	3	1				
3	1.2D + 1.0W [30°]	Yes	Y	DL	1.2	4	1				
4	1.2D + 1.0W [60°]	Yes	Y	DL	1.2	5	1				
5	1.2D + 1.0W [90°]	Yes	Y	DL	1.2	6	1				
6	1.2D + 1.0W [120°]	Yes	Y	DL	1.2	7	1				
7	1.2D + 1.0W [150°]	Yes	Y	DL	1.2	8	1				
8	1.2D + 1.0W [180°]	Yes	Y	DL	1.2	9	1				
9	1.2D + 1.0W [210°]	Yes	Y	DL	1.2	10	1				
10	1.2D + 1.0W [240°]	Yes	Y	DL	1.2	11	1				
11	1.2D + 1.0W [270°]	Yes	Y	DL	1.2	12	1				
12	1.2D + 1.0W [300°]	Yes	Y	DL	1.2	13	1				
13	1.2D + 1.0W [330°]	Yes	Y	DL	1.2	14	1				
14	0.9D + 1.0W [0°]	Yes	Y	DL	0.9	3	1				
15	0.9D + 1.0W [30°]	Yes	Y	DL	0.9	4	1				
16	0.9D + 1.0W [60°]	Yes	Y	DL	0.9	5	1				
17	0.9D + 1.0W [90°]	Yes	Y	DL	0.9	6	1				
18	0.9D + 1.0W [120°]	Yes	Y	DL	0.9	7	1				
19	0.9D + 1.0W [150°]	Yes	Y	DL	0.9	8	1				
20	0.9D + 1.0W [180°]	Yes	Y	DL	0.9	9	1				
21	0.9D + 1.0W [210°]	Yes	Y	DL	0.9	10	1				
22	0.9D + 1.0W [240°]	Yes	Y	DL	0.9	11	1				
23	0.9D + 1.0W [270°]	Yes	Y	DL	0.9	12	1				
24	0.9D + 1.0W [300°]	Yes	Y	DL	0.9	13	1				
25	0.9D + 1.0W [330°]	Yes	Y	DL	0.9	14	1				
26	1.2D + 1.0Di + 1.0Wi [0°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	15	1		
27	1.2D + 1.0Di + 1.0Wi [30°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	16	1		
28	1.2D + 1.0Di + 1.0Wi [60°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	17	1		
29	1.2D + 1.0Di + 1.0Wi [90°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	18	1		
30	1.2D + 1.0Di + 1.0Wi [120°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	19	1		
31	1.2D + 1.0Di + 1.0Wi [150°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	20	1		
32	1.2D + 1.0Di + 1.0Wi [180°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	21	1		
33	1.2D + 1.0Di + 1.0Wi [210°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	22	1		
34	1.2D + 1.0Di + 1.0Wi [240°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	23	1		
35	1.2D + 1.0Di + 1.0Wi [270°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	24	1		
36	1.2D + 1.0Di + 1.0Wi [300°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	25	1		
37	1.2D + 1.0Di + 1.0Wi [330°] + 1.0Ti	Yes	Y	DL	1.2	IL	1	26	1		
38	1.2D + 1.0Ev + 1.0Eh [0°]	Yes	Y	DL	1.2	ELY	1	ELZ	1	ELX	0.001
39	1.2D + 1.0Ev + 1.0Eh [30°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.866	ELX	0.5
40	1.2D + 1.0Ev + 1.0Eh [60°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.5	ELX	0.866
41	1.2D + 1.0Ev + 1.0Eh [90°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.001	ELX	1
42	1.2D + 1.0Ev + 1.0Eh [120°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.5	ELX	0.866
43	1.2D + 1.0Ev + 1.0Eh [150°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.866	ELX	0.5
44	1.2D + 1.0Ev + 1.0Eh [180°]	Yes	Y	DL	1.2	ELY	1	ELZ	-1	ELX	0.001
45	1.2D + 1.0Ev + 1.0Eh [210°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.866	ELX	-0.5
46	1.2D + 1.0Ev + 1.0Eh [240°]	Yes	Y	DL	1.2	ELY	1	ELZ	-0.5	ELX	-0.866
47	1.2D + 1.0Ev + 1.0Eh [270°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.001	ELX	-1
48	1.2D + 1.0Ev + 1.0Eh [300°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.5	ELX	-0.866
49	1.2D + 1.0Ev + 1.0Eh [330°]	Yes	Y	DL	1.2	ELY	1	ELZ	0.866	ELX	-0.5
50	0.9D + 1.0Ev + 1.0Eh [0°]	Yes	Y	DL	0.9	ELY	1	ELZ	1	ELX	0.001
51	0.9D + 1.0Ev + 1.0Eh [30°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.866	ELX	0.5
52	0.9D + 1.0Ev + 1.0Eh [60°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.5	ELX	0.866
53	0.9D + 1.0Ev + 1.0Eh [90°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.001	ELX	1
54	0.9D + 1.0Ev + 1.0Eh [120°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.5	ELX	0.866
55	0.9D + 1.0Ev + 1.0Eh [150°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.866	ELX	0.5



**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
56	0.9D + 1.0Ev + 1.0Eh [180°]	Yes	Y	DL	0.9	ELY	1	ELZ	-1	ELX	0.001
57	0.9D + 1.0Ev + 1.0Eh [210°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.866	ELX	-0.5
58	0.9D + 1.0Ev + 1.0Eh [240°]	Yes	Y	DL	0.9	ELY	1	ELZ	-0.5	ELX	-0.866
59	0.9D + 1.0Ev + 1.0Eh [270°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.001	ELX	-1
60	0.9D + 1.0Ev + 1.0Eh [300°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.5	ELX	-0.866
61	0.9D + 1.0Ev + 1.0Eh [330°]	Yes	Y	DL	0.9	ELY	1	ELZ	0.866	ELX	-0.5
62	1.2D + 1.5Lv(1)	Yes	Y	DL	1.2	42	1.5				
63	1.2D + 1.5Lv(2)	Yes	Y	DL	1.2	43	1.5				
64	1.2D + 1.5Lv(3)	Yes	Y	DL	1.2	44	1.5				
65	1.2D + 1.5Lv(4)	Yes	Y	DL	1.2	45	1.5				
66	1.2D + 1.5Lv(5)	Yes	Y	DL	1.2	46	1.5				
67	1.2D + 1.5Lv(6)	Yes	Y	DL	1.2	47	1.5				
68	1.2D + 1.5Lm(1) + 1.0Wm [0°]	Yes	Y	DL	1.2	48	1.5	27	1		
69	1.2D + 1.5Lm(1) + 1.0Wm [30°]	Yes	Y	DL	1.2	48	1.5	28	1		
70	1.2D + 1.5Lm(1) + 1.0Wm [60°]	Yes	Y	DL	1.2	48	1.5	29	1		
71	1.2D + 1.5Lm(1) + 1.0Wm [90°]	Yes	Y	DL	1.2	48	1.5	30	1		
72	1.2D + 1.5Lm(1) + 1.0Wm [120°]	Yes	Y	DL	1.2	48	1.5	31	1		
73	1.2D + 1.5Lm(1) + 1.0Wm [150°]	Yes	Y	DL	1.2	48	1.5	32	1		
74	1.2D + 1.5Lm(1) + 1.0Wm [180°]	Yes	Y	DL	1.2	48	1.5	33	1		
75	1.2D + 1.5Lm(1) + 1.0Wm [210°]	Yes	Y	DL	1.2	48	1.5	34	1		
76	1.2D + 1.5Lm(1) + 1.0Wm [240°]	Yes	Y	DL	1.2	48	1.5	35	1		
77	1.2D + 1.5Lm(1) + 1.0Wm [270°]	Yes	Y	DL	1.2	48	1.5	36	1		
78	1.2D + 1.5Lm(1) + 1.0Wm [300°]	Yes	Y	DL	1.2	48	1.5	37	1		
79	1.2D + 1.5Lm(1) + 1.0Wm [330°]	Yes	Y	DL	1.2	48	1.5	38	1		
80	1.2D + 1.5Lm(2) + 1.0Wm [0°]	Yes	Y	DL	1.2	49	1.5	27	1		
81	1.2D + 1.5Lm(2) + 1.0Wm [30°]	Yes	Y	DL	1.2	49	1.5	28	1		
82	1.2D + 1.5Lm(2) + 1.0Wm [60°]	Yes	Y	DL	1.2	49	1.5	29	1		
83	1.2D + 1.5Lm(2) + 1.0Wm [90°]	Yes	Y	DL	1.2	49	1.5	30	1		
84	1.2D + 1.5Lm(2) + 1.0Wm [120°]	Yes	Y	DL	1.2	49	1.5	31	1		
85	1.2D + 1.5Lm(2) + 1.0Wm [150°]	Yes	Y	DL	1.2	49	1.5	32	1		
86	1.2D + 1.5Lm(2) + 1.0Wm [180°]	Yes	Y	DL	1.2	49	1.5	33	1		
87	1.2D + 1.5Lm(2) + 1.0Wm [210°]	Yes	Y	DL	1.2	49	1.5	34	1		
88	1.2D + 1.5Lm(2) + 1.0Wm [240°]	Yes	Y	DL	1.2	49	1.5	35	1		
89	1.2D + 1.5Lm(2) + 1.0Wm [270°]	Yes	Y	DL	1.2	49	1.5	36	1		
90	1.2D + 1.5Lm(2) + 1.0Wm [300°]	Yes	Y	DL	1.2	49	1.5	37	1		
91	1.2D + 1.5Lm(2) + 1.0Wm [330°]	Yes	Y	DL	1.2	49	1.5	38	1		
92	1.2D + 1.5Lm(3) + 1.0Wm [0°]	Yes	Y	DL	1.2	50	1.5	27	1		
93	1.2D + 1.5Lm(3) + 1.0Wm [30°]	Yes	Y	DL	1.2	50	1.5	28	1		
94	1.2D + 1.5Lm(3) + 1.0Wm [60°]	Yes	Y	DL	1.2	50	1.5	29	1		
95	1.2D + 1.5Lm(3) + 1.0Wm [90°]	Yes	Y	DL	1.2	50	1.5	30	1		
96	1.2D + 1.5Lm(3) + 1.0Wm [120°]	Yes	Y	DL	1.2	50	1.5	31	1		
97	1.2D + 1.5Lm(3) + 1.0Wm [150°]	Yes	Y	DL	1.2	50	1.5	32	1		
98	1.2D + 1.5Lm(3) + 1.0Wm [180°]	Yes	Y	DL	1.2	50	1.5	33	1		
99	1.2D + 1.5Lm(3) + 1.0Wm [210°]	Yes	Y	DL	1.2	50	1.5	34	1		
100	1.2D + 1.5Lm(3) + 1.0Wm [240°]	Yes	Y	DL	1.2	50	1.5	35	1		
101	1.2D + 1.5Lm(3) + 1.0Wm [270°]	Yes	Y	DL	1.2	50	1.5	36	1		
102	1.2D + 1.5Lm(3) + 1.0Wm [300°]	Yes	Y	DL	1.2	50	1.5	37	1		
103	1.2D + 1.5Lm(3) + 1.0Wm [330°]	Yes	Y	DL	1.2	50	1.5	38	1		
104	1.2D + 1.5Lm(4) + 1.0Wm [0°]	Yes	Y	DL	1.2	51	1.5	27	1		
105	1.2D + 1.5Lm(4) + 1.0Wm [30°]	Yes	Y	DL	1.2	51	1.5	28	1		
106	1.2D + 1.5Lm(4) + 1.0Wm [60°]	Yes	Y	DL	1.2	51	1.5	29	1		
107	1.2D + 1.5Lm(4) + 1.0Wm [90°]	Yes	Y	DL	1.2	51	1.5	30	1		
108	1.2D + 1.5Lm(4) + 1.0Wm [120°]	Yes	Y	DL	1.2	51	1.5	31	1		
109	1.2D + 1.5Lm(4) + 1.0Wm [150°]	Yes	Y	DL	1.2	51	1.5	32	1		
110	1.2D + 1.5Lm(4) + 1.0Wm [180°]	Yes	Y	DL	1.2	51	1.5	33	1		



**Load Combinations (Continued)**

	Description	Solve	P-Delta	BLC	Factor	BLC	Factor	BLC	Factor	BLC	Factor
111	1.2D + 1.5Lm(4) + 1.0Wm [210°]	Yes	Y	DL	1.2	51	1.5	34	1		
112	1.2D + 1.5Lm(4) + 1.0Wm [240°]	Yes	Y	DL	1.2	51	1.5	35	1		
113	1.2D + 1.5Lm(4) + 1.0Wm [270°]	Yes	Y	DL	1.2	51	1.5	36	1		
114	1.2D + 1.5Lm(4) + 1.0Wm [300°]	Yes	Y	DL	1.2	51	1.5	37	1		
115	1.2D + 1.5Lm(4) + 1.0Wm [330°]	Yes	Y	DL	1.2	51	1.5	38	1		

**Member Primary Data**

	Label	I Node	J Node	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rule
1	H001	N003	N004		PIPE 3.0	Beam	None	A53 Gr. B	Typical
2	H002	N001	N002		HSS4x4x3	Beam	None	A500 Gr. B [SQR]	Typical
3	V003	N006	N005		PIPE 3.5	Column	None	A53 Gr. B	Typical
4	H004	N007	N008		(1) 5/8 U-Bolt	Beam	None	SAE J429 Gr. 2	Typical
5	H005	N009	N010		(1) 5/8 U-Bolt	Beam	None	SAE J429 Gr. 2	Typical
6	V006	N010	N008		RIGID	None	None	RIGID	Typical
7	H007	N020	N019		RIGID	None	None	RIGID	Typical
8	H008	N018	N021		RIGID	None	None	RIGID	Typical
9	D009	N016	N020	180	L2.5x2.5x3	Column	None	A36	Typical
10	D010	N017	N019	90	L2.5x2.5x3	Column	None	A36	Typical
11	U011	N012	N022		(2) 1/2 U-Bolts	Beam	None	A36	Typical
12	MP012	N023	N024		PIPE 2.0	Column	None	A53 Gr. B	Typical
13	U013	N013	N025		(2) 1/2 U-Bolts	Beam	None	A36	Typical
14	MP014	N026	N027		PIPE 2.0	Column	None	A53 Gr. B	Typical
15	U015	N014	N028		(2) 1/2 U-Bolts	Beam	None	A36	Typical
16	MP016	N029	N030		PIPE 2.0	Column	None	A53 Gr. B	Typical
17	U017	N015	N031		(2) 1/2 U-Bolts	Beam	None	A36	Typical
18	MP018	N032	N033		PIPE 2.0	Column	None	A53 Gr. B	Typical
19	H019	N034	N035		PIPE 2.0	Beam	None	A53 Gr. B	Typical
20	H020	N036	N037		(2) 1/2 U-Bolts	Beam	None	A36	Typical
21	H021	N038	N039		(2) 1/2 U-Bolts	Beam	None	A36	Typical
22	H022	N040	N041		(2) 1/2 U-Bolts	Beam	None	A36	Typical
23	H023	N042	N043		(2) 1/2 U-Bolts	Beam	None	A36	Typical
24	H024	N045	N044		RIGID	None	None	RIGID	Typical
25	H025	N048	N047	90	L2.5x2.5x3	Beam	None	A36	Typical
26	H026	N049	N046	180	L2.5x2.5x3	Beam	None	A36	Typical
27	H027	N046	N047		RIGID	None	None	RIGID	Typical

**Hot Rolled Steel Design Parameters**

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
1	H001	PIPE 3.0	180				Lbyy	1	1	Lateral
2	H002	HSS4x4x3	48				Lbyy	1	1	Lateral
3	V003	PIPE 3.5	18				Lbyy	1	1	Lateral
4	H004	(1) 5/8 U-Bolt	3				Lbyy	0.65	0.65	Lateral
5	H005	(1) 5/8 U-Bolt	3				Lbyy	0.65	0.65	Lateral
6	D009	L2.5x2.5x3	63.356				Lbyy	1	1	Lateral
7	D010	L2.5x2.5x3	63.356				Lbyy	1	1	Lateral
8	U011	(2) 1/2 U-Bolts	3				Lbyy	0.5	0.5	Lateral
9	MP012	PIPE 2.0	60	Segment	Segment		Lbyy	2.1	2.1	Lateral
10	U013	(2) 1/2 U-Bolts	3				Lbyy	0.5	0.5	Lateral
11	MP014	PIPE 2.0	120	Segment	Segment		Lbyy	2.1	2.1	Lateral
12	U015	(2) 1/2 U-Bolts	3				Lbyy	0.5	0.5	Lateral
13	MP016	PIPE 2.0	60	Segment	Segment		Lbyy	2.1	2.1	Lateral
14	U017	(2) 1/2 U-Bolts	3				Lbyy	0.5	0.5	Lateral
15	MP018	PIPE 2.0	60	Segment	Segment		Lbyy	2.1	2.1	Lateral



Company : American Tower Corp.  
 Designer : Michael.Ellis  
 Job Number : 14561673\_C9\_04  
 Model Name : 283421, MADISON CT

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 11:21:27 AM  
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**Hot Rolled Steel Design Parameters (Continued)**

	Label	Shape	Length [in]	Lb y-y [in]	Lb z-z [in]	Lcomp top [in]	L-Torque [in]	K y-y	K z-z	Function
16	H019	PIPE 2.0	174			Lbyy		1	1	Lateral
17	H020	(2) 1/2 U-Bolts	3			Lbyy		0.65	0.65	Lateral
18	H021	(2) 1/2 U-Bolts	3			Lbyy		0.65	0.65	Lateral
19	H022	(2) 1/2 U-Bolts	3			Lbyy		0.65	0.65	Lateral
20	H023	(2) 1/2 U-Bolts	3			Lbyy		0.65	0.65	Lateral
21	H025	L2.5x2.5x3	71.545			Lbyy		1	1	Lateral
22	H026	L2.5x2.5x3	71.545			Lbyy		1	1	Lateral

**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	N021	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N044	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

**Member Advanced Data**

	Label	I Release	J Release	Physical	Deflection Ratio Options	Activation	Seismic DR
1	H001			Yes	N/A		None
2	H002			Yes	N/A		None
3	V003			Yes	** NA **		None
4	H004			Yes	N/A	Exclude	None
5	H005			Yes	N/A	Exclude	None
6	V006			Yes	** NA **		None
7	H007			Yes	** NA **		None
8	H008			Yes	** NA **		None
9	D009	BenPIN	BenPIN	Yes	** NA **		None
10	D010	BenPIN	BenPIN	Yes	** NA **		None
11	U011			Yes	N/A	Exclude	None
12	MP012			Yes	** NA **		None
13	U013			Yes	N/A	Exclude	None
14	MP014			Yes	** NA **		None
15	U015			Yes	N/A	Exclude	None
16	MP016			Yes	** NA **		None
17	U017			Yes	N/A	Exclude	None
18	MP018			Yes	** NA **		None
19	H019			Yes	N/A		None
20	H020			Yes	N/A	Exclude	None
21	H021			Yes	N/A	Exclude	None
22	H022			Yes	N/A	Exclude	None
23	H023			Yes	N/A	Exclude	None
24	H024			Yes	** NA **		None
25	H025	BenPIN	BenPIN	Yes	N/A		None
26	H026	BenPIN	BenPIN	Yes	N/A		None
27	H027			Yes	** NA **		None

**Hot Rolled Steel Properties**

	Label	E [psi]	G [psi]	Nu	Therm. Coeff. [1e <sup>5</sup> F <sup>-1</sup> ]	Density [lb/ft <sup>3</sup> ]	Yield [psi]	Ry	Fu [psi]	Rt
1	A53 Gr. B	2.9e+07	1.115e+07	0.3	0.65	490	35000	1.6	60000	1.2
2	A500 Gr. B [SQR]	2.9e+07	1.115e+07	0.3	0.65	490	46000	1.4	58000	1.3
3	SAE J429 Gr. 2	2.9e+07	1.115e+07	0.3	0.65	490	57000	1.1	74000	1.1
4	A36	2.9e+07	1.115e+07	0.3	0.65	490	36000	1.5	58000	1.2





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**Envelope Node Reactions**

Node Label		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC	
1	N001	max	2556.031	18	506.359	63	300.956	14	-309.733	14	9258.484	6	484.793	73
2		min	-2639.079	12	49.191	20	-1581.068	32	-1100.87	86	-9353.98	25	-256.978	25
3	N021	max	1254.729	79	1512.492	33	1991.31	33	-224.221	14	155.018	79	344.833	79
4		min	-786.373	109	449.174	14	636.943	15	-755.789	33	-97.056	109	-216.172	109
5	N044	max	661.563	105	211.023	66	1696.732	14	-6.042	14	205.413	105	60.521	66
6		min	-1043.05	75	13.331	14	-2174.974	8	-117.224	66	-323.041	75	-59.581	65
7	Totals:	max	1889.578	16	1965.496	26	2646.169	14						
8		min	-1889.578	10	707.574	20	-2646.169	8						

**Envelope AISC 15TH (360-16): LRFD Member Steel Code Checks**

Member	Shape	Code Check	Loc[in]	LC	Shear Check	Loc[in]	Dir	LC	phi*Pnc [lb]	phi*Pnt [lb]	phi*Mn y-y [lb-ft]	phi*Mn z-z [lb-ft]	Cb	Eqn	
1	H001	PIPE 3.0	0.404	56.25	78	0.183	67.5	79	19871.914	65205	5748.75	5748.75	1.773	H1-1b	
2	H002	HSS4x4x3	0.775	0	6	0.126	0	z	7	100151.124	106812	12661.5	12661.5	2.115	H1-1b
3	V003	PIPE 3.5	0.093	9	7	0.153	9	13	78031.006	78750	7953.75	7953.75	1.915	H1-1b	
4	D009	L2.5x2.5x3	0.24	32.338	76	0.017	63.356	z	6	11755.711	29192.4	872.574	1592.367	1.136	H2-1
5	D010	L2.5x2.5x3	0.199	32.338	108	0.012	63.356	z	115	11755.711	29192.4	872.574	1592.367	1.136	H2-1
6	MP012	PIPE 2.0	0.46	46.875	72	0.118	46.875	74	28526.146	32130	1871.625	1871.625	2.213	H1-1b	
7	MP014	PIPE 2.0	0.844	46.25	2	0.201	47.5	75	14277.295	32130	1871.625	1871.625	2.581	H1-1b	
8	MP016	PIPE 2.0	0.261	46.875	13	0.173	46.875	7	28526.146	32130	1871.625	1871.625	1.587	H1-1b	
9	MP018	PIPE 2.0	0.383	46.875	112	0.103	42.5	7	28526.146	32130	1871.625	1871.625	1.66	H1-1b	
10	H019	PIPE 2.0	0.627	27.188	8	0.247	25.375	8	4678.524	32130	1871.625	1871.625	2.858	H1-1a	
11	H025	L2.5x2.5x3	0.729	35.773	65	0.026	71.545	z	65	9238.462	29192.4	872.574	1601.899	1.31	H2-1
12	H026	L2.5x2.5x3	0.737	35.773	66	0.029	71.545	y	66	9238.462	29192.4	872.574	1601.899	1.31	H2-1



# **EXHIBIT G**

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



# Radio Frequency Exposure Analysis Report

January 17, 2024

T-Mobile

Site Name: Amtrak\_Madison

Site ID: CTNH808A

Site Address: 15 Orchard Park Road, Madison, CT 06443



Michael Fischer, P.E.  
Registered Professional Engineer (Electrical)  
Connecticut License Number 33928  
Expires January 31, 2024

Signed 17 January 2024

## Site Compliance Summary

<b>T-Mobile Compliance Status:</b>	Compliant
<b>Cumulative Calculated Power Density (Ground Level):</b>	143.36254 $\mu\text{W}/\text{cm}^2$
<b>Cumulative General Population % MPE (Ground Level):</b>	14.33683%
<b>Cumulative Calculated Power Density (15' Adjacent Rooftop Level):</b>	192.02811 $\mu\text{W}/\text{cm}^2$
<b>Cumulative General Population % MPE (15' Adjacent Rooftop Level):</b>	19.20415%



January 17, 2024

Centerline  
Attn: Peter Fales, Vice President SAC  
750 W Center St, Suite 301  
West Bridgewater, MA 02379

RF Exposure Analysis for Site: **Amtrak\_Madison**

Centerline was contracted to analyze the proposed T-Mobile facility at **15 Orchard Park Road, Madison, CT 06443** for the purpose of determining whether the predictive exposure from the proposed facility is within specified federal limits.

All information used in this report was analyzed as a percentage of the Maximum Permissible Exposure (% MPE) limits as detailed in 47 CFR § 1.1310 as well as Federal Communications Commission (FCC) OET Bulletin 65 Edition 97-01. The FCC MPE limits are typically expressed in units of milliwatts per square centimeter ( $\text{mW}/\text{cm}^2$ ) or microwatts per square centimeter ( $\mu\text{W}/\text{cm}^2$ ). The exposure limits vary depending upon the frequencies being utilized. The General Population/Uncontrolled MPE limit (in  $\text{mW}/\text{cm}^2$ ) for frequencies between 300 and 1500 is defined as frequency (in MHz) divided by 1500 ( $f_{\text{MHz}}/1500$ ). Frequencies between 1500 and 100,000 MHz have a General Population/Uncontrolled MPE limit of  $1 \text{ mW}/\text{cm}^2$  ( $1000 \mu\text{W}/\text{cm}^2$ ). The calculated power density at each sample point divided by the limit at each calculated frequency provides a result in % MPE. Summing the calculated % MPE from all contributors provides a cumulative % MPE at a particular sample point. Wireless carriers use different frequency bands with varying MPE limits; therefore, it is useful to report results in terms of % MPE as opposed to power density.

All results were compared to the FCC radio frequency exposure rules as detailed in 47 CFR § 1.1307(b) to determine compliance with the 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.

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, 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.



## **Calculation Methodology**

Centerline Communications, LLC has performed theoretical modeling of the site using a software tool, RoofMaster®, which incorporates calculation methodologies detailed in FCC OET 65. RoofMaster® uses a cylindrical model for conservative power density predictions within the near field of the antenna where the antenna pattern has not truly formed yet. Within this area power density values tend to decrease based upon an inverse distance function. At the point where it is appropriate for modeling to change from near-field calculations to far-field calculations, the power decreases inversely with the square of the distance. The modeling is based on worst-case assumptions in terms of transmitter power and duty cycle. No losses were included in the power calculations unless they were specifically provided for the project.

In OET 65, a far field model is presented to calculate the spatial peak power density. The RoofMaster® implementation of this model incorporates antenna manufacturer's horizontal and vertical pattern data to determine the power density in all directions. This model yields the power density at a single point in space. In order to determine the spatial power density for comparison to the FCC limits, the average of several points calculated within the human profile (0-6') must be conducted. RoofMaster® calculates seven power density values between 0-6' above the specified study plane and performs a linear spatial average.



## **Data & Results**

The following table details the antennas and operating parameters for the T-Mobile antenna system as well as any other antenna systems at the site. This is based on antenna information provided by the client and data compiled from other sources where necessary. The data below was input into Roofmaster® to perform the theoretical exposure calculations at the ground level and adjacent building level.

The theoretical calculations performed in Roofmaster® determine the cumulative exposure at all sample points at the ground level (0-6' spatial average) and the 15' adjacent building level (15'-21' spatial average). The results from the highest cumulative sample point at ground level and adjacent building level surrounding the site are displayed in the table below. The contribution from directional antennas to the maximum cumulative totals varies greatly depending on location; therefore, the contribution from one antenna sector at the highest calculated exposure point may be greater or less than other sectors since sectorized directional antennas are pointed in different directions and there is not much overlapping exposure.

The contribution to the cumulative power density and % MPE for each antenna/frequency band is listed in the table(s) below. The cumulative power density and cumulative % MPE are displayed at the bottom of the table(s) below.



**Maximum Calculated Cumulative Power Density @ Ground Level**  
**(Location: approximately 266' west of site)**

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile A 1	RFS APXVLL19P_43-C-A20	2100	17.33	97.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile A 2	RFS APXVAARR24 43-U-NA20	700	13.17	97.00	4.00	40.00	3319.86	0.00000	466.67	0.00000
T-Mobile A 2	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	40.00	3259.27	0.00000	400.00	0.00000
T-Mobile A 2	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	30.00	2444.45	0.00000	400.00	0.00000
T-Mobile A 3	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile A 3	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile A 3	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	0.48916	1000.00	0.04892
T-Mobile A 3	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	0.48916	1000.00	0.04892
T-Mobile B 4	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 4	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 4	RFS APXVLL19P_43-C-A20	2100	17.33	97.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile B 5	RFS APXVAARR24 43-U-NA20	700	13.17	97.00	4.00	40.00	3319.86	0.00000	466.67	0.00000
T-Mobile B 5	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	40.00	3259.27	0.00000	400.00	0.00000
T-Mobile B 5	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	30.00	2444.45	0.00000	400.00	0.00000
T-Mobile B 6	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile B 6	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile B 6	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	0.10825	1000.00	0.01083
T-Mobile B 6	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	0.10825	1000.00	0.01083
T-Mobile C 7	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00051	1000.00	0.00005
T-Mobile C 7	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00051	1000.00	0.00005
T-Mobile C 7	RFS APXVLL19P_43-C-A20	2100	17.33	97.00	4.00	60.00	12978.10	0.00081	1000.00	0.00008
T-Mobile C 8	RFS APXVAARR24 43-U-NA20	700	13.17	97.00	4.00	40.00	3319.86	0.00050	466.67	0.00011
T-Mobile C 8	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	40.00	3259.27	0.00041	400.00	0.00010
T-Mobile C 8	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	30.00	2444.45	0.00031	400.00	0.00008
T-Mobile C 9	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00046	1000.00	0.00005
T-Mobile C 9	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00046	1000.00	0.00005
T-Mobile C 9	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	22.66979	1000.00	2.26698
T-Mobile C 9	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	22.66979	1000.00	2.26698
AT&T A 10	CCI DMP65R-BU8D	700	12.25	85.00	4.00	40.00	2686.09	0.00004	466.67	0.00001
AT&T A 10	CCI DMP65R-BU8D	850	12.55	85.00	4.00	40.00	2878.19	0.00002	566.67	0.00000
AT&T A 11	CCI TPA65R-BU8D	1900	14.35	85.00	4.00	40.00	4356.32	0.00003	1000.00	0.00000



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/ Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
AT&T A 11	CCI TPA65R-BU8D	2100	15.25	85.00	4.00	40.00	5359.45	0.00003	1000.00	0.00000
AT&T A 11	CCI TPA65R-BU8D	2300	14.05	85.00	4.00	25.00	2540.97	0.00001	1000.00	0.00000
AT&T A 12	ERICSSON SON_AIR6449	6449	23.55	85.00	1.00	86.75	19645.79	0.00056	1000.00	0.00006
AT&T A 13	ERICSSON SON_AIR6419	6419	22.85	85.00	1.00	54.22	10451.04	2.66423	1000.00	0.26642
AT&T B 14	CCI DMP65R-BU8D	700	12.25	85.00	4.00	40.00	2686.09	0.00000	466.67	0.00000
AT&T B 14	CCI DMP65R-BU8D	850	12.55	85.00	4.00	40.00	2878.19	0.00000	566.67	0.00000
AT&T B 15	CCI TPA65R-BU8D	1900	14.35	85.00	4.00	40.00	4356.32	0.00000	1000.00	0.00000
AT&T B 15	CCI TPA65R-BU8D	2100	15.25	85.00	4.00	40.00	5359.45	0.00000	1000.00	0.00000
AT&T B 15	CCI TPA65R-BU8D	2300	14.05	85.00	4.00	25.00	2540.97	0.00000	1000.00	0.00000
AT&T B 16	ERICSSON SON_AIR6449	6449	23.55	85.00	1.00	86.75	19645.79	0.00001	1000.00	0.00000
AT&T B 17	ERICSSON SON_AIR6419	6419	22.85	85.00	1.00	54.22	10451.04	0.01673	1000.00	0.00167
AT&T C 18	CCI DMP65R-BU8D	700	12.25	85.00	4.00	40.00	2686.09	0.00025	466.67	0.00005
AT&T C 18	CCI DMP65R-BU8D	850	12.55	85.00	4.00	40.00	2878.19	0.00033	566.67	0.00006
AT&T C 19	CCI TPA65R-BU8D	1900	14.35	85.00	4.00	40.00	4356.32	0.00026	1000.00	0.00003
AT&T C 19	CCI TPA65R-BU8D	2100	15.25	85.00	4.00	40.00	5359.45	0.00022	1000.00	0.00002
AT&T C 19	CCI TPA65R-BU8D	2300	14.05	85.00	4.00	25.00	2540.97	0.00013	1000.00	0.00001
AT&T C 20	ERICSSON SON_AIR6449	6449	23.55	85.00	1.00	86.75	19645.79	0.00381	1000.00	0.00038
AT&T C 21	ERICSSON SON_AIR6419	6419	22.85	85.00	1.00	54.22	10451.04	12.95899	1000.00	1.29590
Verizon A 22	SAMSUNG SON_MT6413-77A	3700	23.35	77.50	2.00	160.00	69206.99	1.78231	1000.00	0.17823
Verizon A 23	JMA MX06FRO660-03	700	12.05	76.00	4.00	40.00	2565.19	0.00000	466.67	0.00000
Verizon A 23	JMA MX06FRO660-03	850	12.05	76.00	4.00	40.00	2565.19	0.00001	566.67	0.00000
Verizon A 23	JMA MX06FRO660-03	1900	15.75	76.00	4.00	40.00	6013.40	0.00000	1000.00	0.00000
Verizon A 23	JMA MX06FRO660-03	2100	15.95	76.00	4.00	40.00	6296.80	0.00000	1000.00	0.00000
Verizon A 24	SAMSUNG RT4401-48A	3600	8.40	76.00	4.00	5.00	138.37	0.00000	1000.00	0.00000
Verizon B 25	SAMSUNG SON_MT6413-77A	3700	23.35	77.50	2.00	160.00	69206.99	1.58849	1000.00	0.15885
Verizon B 26	JMA MX06FRO660-03	700	12.05	76.00	4.00	40.00	2565.19	0.00000	466.67	0.00000
Verizon B 26	JMA MX06FRO660-03	850	12.05	76.00	4.00	40.00	2565.19	0.00000	566.67	0.00000
Verizon B 26	JMA MX06FRO660-03	1900	15.75	76.00	4.00	40.00	6013.40	0.00000	1000.00	0.00000
Verizon B 26	JMA MX06FRO660-03	2100	15.95	76.00	4.00	40.00	6296.80	0.00000	1000.00	0.00000
Verizon B 27	SAMSUNG RT4401-48A	3600	8.40	76.00	4.00	5.00	138.37	0.00000	1000.00	0.00000
Verizon C 28	SAMSUNG SON_MT6413-77A	3700	23.35	77.50	2.00	160.00	69206.99	77.80070	1000.00	7.78007
Verizon C 29	JMA MX06FRO660-03	700	12.05	76.00	4.00	40.00	2565.19	0.00140	466.67	0.00030
Verizon C 29	JMA MX06FRO660-03	850	12.05	76.00	4.00	40.00	2565.19	0.00245	566.67	0.00043
Verizon C 29	JMA MX06FRO660-03	1900	15.75	76.00	4.00	40.00	6013.40	0.00131	1000.00	0.00013
Verizon C 29	JMA MX06FRO660-03	2100	15.95	76.00	4.00	40.00	6296.80	0.00142	1000.00	0.00014
Verizon C 30	SAMSUNG RT4401-48A	3600	8.40	76.00	4.00	5.00	138.37	0.00043	1000.00	0.00004





Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
							Cumulative Power Density:	143.36254 $\mu\text{W}/\text{cm}^2$	Cumulative % MPE:	14.33683%



**Maximum Calculated Cumulative Power Density @ 15' Adjacent Building**  
**(Location: approximately 186' west of site)**

Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00001	1000.00	0.00000
T-Mobile A 1	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00001	1000.00	0.00000
T-Mobile A 1	RFS APXVLL19P_43-C-A20	2100	17.33	97.00	4.00	60.00	12978.10	0.00001	1000.00	0.00000
T-Mobile A 2	RFS APXVAARR24 43-U-NA20	700	13.17	97.00	4.00	40.00	3319.86	0.00000	466.67	0.00000
T-Mobile A 2	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	40.00	3259.27	0.00000	400.00	0.00000
T-Mobile A 2	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	30.00	2444.45	0.00000	400.00	0.00000
T-Mobile A 3	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile A 3	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile A 3	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	0.59693	1000.00	0.05969
T-Mobile A 3	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	0.59693	1000.00	0.05969
T-Mobile B 4	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 4	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00000	1000.00	0.00000
T-Mobile B 4	RFS APXVLL19P_43-C-A20	2100	17.33	97.00	4.00	60.00	12978.10	0.00000	1000.00	0.00000
T-Mobile B 5	RFS APXVAARR24 43-U-NA20	700	13.17	97.00	4.00	40.00	3319.86	0.00001	466.67	0.00000
T-Mobile B 5	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	40.00	3259.27	0.00000	400.00	0.00000
T-Mobile B 5	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	30.00	2444.45	0.00000	400.00	0.00000
T-Mobile B 6	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile B 6	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00000	1000.00	0.00000
T-Mobile B 6	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	0.13211	1000.00	0.01321
T-Mobile B 6	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	0.13211	1000.00	0.01321
T-Mobile C 7	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00106	1000.00	0.00011
T-Mobile C 7	RFS APXVLL19P_43-C-A20	1900	16.24	97.00	4.00	40.00	6731.63	0.00106	1000.00	0.00011
T-Mobile C 7	RFS APXVLL19P_43-C-A20	2100	17.33	97.00	4.00	60.00	12978.10	0.00168	1000.00	0.00017
T-Mobile C 8	RFS APXVAARR24 43-U-NA20	700	13.17	97.00	4.00	40.00	3319.86	0.00105	466.67	0.00023
T-Mobile C 8	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	40.00	3259.27	0.00086	400.00	0.00021
T-Mobile C 8	RFS APXVAARR24 43-U-NA20	600	13.09	97.00	4.00	30.00	2444.45	0.00064	400.00	0.00016
T-Mobile C 9	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00093	1000.00	0.00009
T-Mobile C 9	ERICSSON SON_AIR6419	2500	15.55	97.00	1.00	30.00	1076.77	0.00093	1000.00	0.00009
T-Mobile C 9	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	27.66432	1000.00	2.76643
T-Mobile C 9	ERICSSON SON_AIR6419	2500	22.05	97.00	1.00	90.00	14429.21	27.66432	1000.00	2.76643
AT&T A 10	CCI DMP65R-BU8D	700	12.25	85.00	4.00	40.00	2686.09	0.00008	466.67	0.00002
AT&T A 10	CCI DMP65R-BU8D	850	12.55	85.00	4.00	40.00	2878.19	0.00003	566.67	0.00001
AT&T A 11	CCI TPA65R-BU8D	1900	14.35	85.00	4.00	40.00	4356.32	0.00006	1000.00	0.00001
AT&T A 11	CCI TPA65R-BU8D	2100	15.25	85.00	4.00	40.00	5359.45	0.00006	1000.00	0.00001
AT&T A 11	CCI TPA65R-BU8D	2300	14.05	85.00	4.00	25.00	2540.97	0.00003	1000.00	0.00000



Antenna ID	Make / Model	Frequency Band (MHz)	Antenna Gain (dBd)	Antenna Centerline (ft)	Channel Count	TX Power/Channel (watts)	ERP (watts)	Calculated Power Density ( $\mu\text{W}/\text{cm}^2$ )	General Population MPE Limit ( $\mu\text{W}/\text{cm}^2$ )	General Population % MPE
AT&T A 12	ERICSSON SON_AIR6449	6449	23.55	85.00	1.00	86.75	19645.79	0.00126	1000.00	0.00013
AT&T A 13	ERICSSON SON_AIR6419	6419	22.85	85.00	1.00	54.22	10451.04	3.30444	1000.00	0.33044
AT&T B 14	CCI DMP65R-BU8D	700	12.25	85.00	4.00	40.00	2686.09	0.00000	466.67	0.00000
AT&T B 14	CCI DMP65R-BU8D	850	12.55	85.00	4.00	40.00	2878.19	0.00000	566.67	0.00000
AT&T B 15	CCI TPA65R-BU8D	1900	14.35	85.00	4.00	40.00	4356.32	0.00000	1000.00	0.00000
AT&T B 15	CCI TPA65R-BU8D	2100	15.25	85.00	4.00	40.00	5359.45	0.00000	1000.00	0.00000
AT&T B 15	CCI TPA65R-BU8D	2300	14.05	85.00	4.00	25.00	2540.97	0.00000	1000.00	0.00000
AT&T B 16	ERICSSON SON_AIR6449	6449	23.55	85.00	1.00	86.75	19645.79	0.00001	1000.00	0.00000
AT&T B 17	ERICSSON SON_AIR6419	6419	22.85	85.00	1.00	54.22	10451.04	0.02075	1000.00	0.00208
AT&T C 18	CCI DMP65R-BU8D	700	12.25	85.00	4.00	40.00	2686.09	0.00055	466.67	0.00012
AT&T C 18	CCI DMP65R-BU8D	850	12.55	85.00	4.00	40.00	2878.19	0.00075	566.67	0.00013
AT&T C 19	CCI TPA65R-BU8D	1900	14.35	85.00	4.00	40.00	4356.32	0.00058	1000.00	0.00006
AT&T C 19	CCI TPA65R-BU8D	2100	15.25	85.00	4.00	40.00	5359.45	0.00048	1000.00	0.00005
AT&T C 19	CCI TPA65R-BU8D	2300	14.05	85.00	4.00	25.00	2540.97	0.00029	1000.00	0.00003
AT&T C 20	ERICSSON SON_AIR6449	6449	23.55	85.00	1.00	86.75	19645.79	0.00849	1000.00	0.00085
AT&T C 21	ERICSSON SON_AIR6419	6419	22.85	85.00	1.00	54.22	10451.04	16.07303	1000.00	1.60730
Verizon A 22	SAMSUNG SON_MT6413-77A	3700	23.35	77.50	2.00	160.00	69206.99	2.54277	1000.00	0.25428
Verizon A 23	JMA MX06FRO660-03	700	12.05	76.00	4.00	40.00	2565.19	0.00000	466.67	0.00000
Verizon A 23	JMA MX06FRO660-03	850	12.05	76.00	4.00	40.00	2565.19	0.00003	566.67	0.00001
Verizon A 23	JMA MX06FRO660-03	1900	15.75	76.00	4.00	40.00	6013.40	0.00000	1000.00	0.00000
Verizon A 23	JMA MX06FRO660-03	2100	15.95	76.00	4.00	40.00	6296.80	0.00000	1000.00	0.00000
Verizon A 24	SAMSUNG RT4401-48A	3600	8.40	76.00	4.00	5.00	138.37	0.00000	1000.00	0.00000
Verizon B 25	SAMSUNG SON_MT6413-77A	3700	23.35	77.50	2.00	160.00	69206.99	2.26625	1000.00	0.22663
Verizon B 26	JMA MX06FRO660-03	700	12.05	76.00	4.00	40.00	2565.19	0.00000	466.67	0.00000
Verizon B 26	JMA MX06FRO660-03	850	12.05	76.00	4.00	40.00	2565.19	0.00001	566.67	0.00000
Verizon B 26	JMA MX06FRO660-03	1900	15.75	76.00	4.00	40.00	6013.40	0.00001	1000.00	0.00000
Verizon B 26	JMA MX06FRO660-03	2100	15.95	76.00	4.00	40.00	6296.80	0.00001	1000.00	0.00000
Verizon B 27	SAMSUNG RT4401-48A	3600	8.40	76.00	4.00	5.00	138.37	0.00000	1000.00	0.00000
Verizon C 28	SAMSUNG SON_MT6413-77A	3700	23.35	77.50	2.00	160.00	69206.99	110.99599	1000.00	11.09960
Verizon C 29	JMA MX06FRO660-03	700	12.05	76.00	4.00	40.00	2565.19	0.00339	466.67	0.00073
Verizon C 29	JMA MX06FRO660-03	850	12.05	76.00	4.00	40.00	2565.19	0.00613	566.67	0.00108
Verizon C 29	JMA MX06FRO660-03	1900	15.75	76.00	4.00	40.00	6013.40	0.00313	1000.00	0.00031
Verizon C 29	JMA MX06FRO660-03	2100	15.95	76.00	4.00	40.00	6296.80	0.00342	1000.00	0.00034
Verizon C 30	SAMSUNG RT4401-48A	3600	8.40	76.00	4.00	5.00	138.37	0.00111	1000.00	0.00011
							<b>Cumulative Power Density:</b>	<b>192.02811 <math>\mu\text{W}/\text{cm}^2</math></b>	<b>Cumulative % MPE:</b>	<b>19.20415%</b>



## Summary

The theoretical calculations performed for this analysis yielded cumulative power density totals in all areas at the ground level and the 15' adjacent building level that are within the allowable federal limits for public exposure to RF energy. Therefore, the site is **compliant** with FCC rules and regulations.

Michelle Stone  
RF EME Technical Writer II  
Centerline



# **EXHIBIT H**

**Mailing Receipts/Proof of Notice**

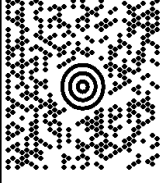


C/O CULLEN MORGAN  
(941) 549-7263  
CENTERLINE COMMUNICATIONS, LLC  
12579 SAGEWOOD DRIVE  
VENICE FL 34293

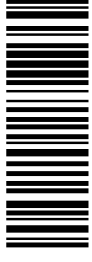
2 LBS

1 OF 1

**SHIP TO:**  
ATTN: CHRISTOPHER SANDOR  
808-223-8587  
AMERICAN TOWER CORPORATION  
10 PRESIDENTIAL WAY  
**WOBURN MA 01801-1053**

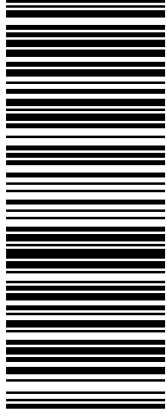


**MA 018 9-04**



**UPS GROUND**

TRACKING #: 1Z 9Y4 503 03 3044 1516



BILLING: P/P

Reference # 1: CTNH808A CC

CS 24.1.00. MACNV50 3.0A 01/2024\*



TM

**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030330441516  
**Date:** Wednesday, January 24, 2024 at 11:45:58 AM Eastern Standard Time  
**From:** UPS <pkginfo@ups.com>  
**To:** Cullen Morgan <cmorgan@clinellc.com>



**Hello, your package has been delivered.**

**Delivery Date:** Wednesday, 01/24/2024  
**Delivery Time:** 11:44 AM  
**Left At:** INSIDE DELIV  
**Signed by:** DONNA

## CENTERLINE SITE ACQUISITION

<b>Tracking Number:</b>	<a href="#"><u>1Z9Y45030330441516</u></a>
<b>Ship To:</b>	AMERICAN TOWER CORPORATION 10 PRESIDENTIAL WAY WOBURN, MA 018011053 US
<b>Number of Packages:</b>	1
<b>UPS Service:</b>	UPS Ground
<b>Package Weight:</b>	1.5 LBS
<b>Reference Number:</b>	CTNH808A CC

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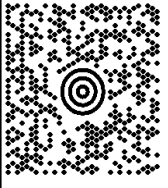
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(941) 549-7263  
CENTERLINE COMMUNICATIONS, LLC  
12579 SAGEWOOD DRIVE  
VENICE FL 34293

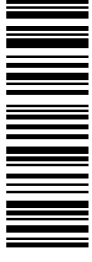
2 LBS

1 OF 1

**SHIP TO:**  
FLORIDA TOWER PARTNERS LLC  
SUITE 103  
8916 77TH TERRACE E  
**LAKWOOD RANCH FL 34202-6415**

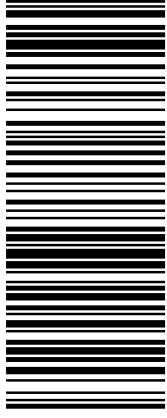


**FL 335 0-02**



**UPS GROUND**

TRACKING #: 1Z 9Y4 503 03 0263 3433



BILLING: P/P

Reference # 1: CTNH808A CC

CS 24.1.00. MACNV50 3.0A 01/2024\*



TM



**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030302633433  
**Date:** Tuesday, January 23, 2024 at 1:24:33 PM Eastern Standard Time  
**From:** UPS <pkginfo@ups.com>  
**To:** Cullen Morgan <cmorgan@clinellc.com>



**Hello, your package has been delivered.**

**Delivery Date:** Tuesday, 01/23/2024  
**Delivery Time:** 1:23 PM  
**Signed by:** BRETT

### CENTERLINE SITE ACQUISITION

<b>Tracking Number:</b>	<a href="#">1Z9Y45030302633433</a>
<b>Ship To:</b>	FLORIDA TOWER PARTNERS LLC 8916 77TH TERRACE E SUITE 103 LAKEWOOD RANCH, FL 342026415 US
<b>Number of Packages:</b>	1
<b>UPS Service:</b>	UPS Ground
<b>Package Weight:</b>	1.5 LBS
<b>Reference Number:</b>	CTNH808A CC

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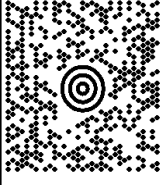
C/O CULLEN MORGAN  
(941) 549-7263  
CENTERLINE COMMUNICATIONS, LLC  
12579 SAGEWOOD DRIVE  
VENICE FL 34293

2 LBS

1 OF 1

**SHIP TO:**

PEGGY WILSON, FIRST SELECTWOMAN  
TOWN OF MADISON  
8 CAMPUS DRIVE  
**MADISON CT 06443-2562**

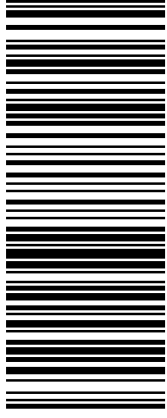


**CT 065 2-03**



**UPS GROUND**

TRACKING #: 1Z 9Y4 503 03 0932 2444



BILLING: P/P

Reference # 1: CTNH808A CC

CS 24.1.00. MACNV50 3.0A 01/2024\*



TM

**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030309322444

**Date:** Tuesday, January 23, 2024 at 12:07:21 PM Eastern Standard Time

**From:** UPS <pkginfo@ups.com>

**To:** Cullen Morgan <cmorgan@clinellc.com>



**Hello, your package has been delivered.**

**Delivery Date:** Tuesday, 01/23/2024

**Delivery Time:** 12:06 PM

**Signed by:** CHAMPAGNE

## CENTERLINE SITE ACQUISITION

<b>Tracking Number:</b>	<a href="#">1Z9Y45030309322444</a>
<b>Ship To:</b>	TOWN OF MADISON 8 CAMPUS DRIVE MADISON, CT 064432562 US
<b>Number of Packages:</b>	1
<b>UPS Service:</b>	UPS Ground
<b>Package Weight:</b>	1.5 LBS
<b>Reference Number:</b>	CTNH808A CC

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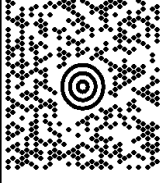
Please do not reply directly to this email. UPS will not receive any reply message.

C/O CULLEN MORGAN  
9415497262  
CENTERLINE COMMUNICATIONS, LLC  
12579 SAGEWOOD DRIVE  
VENICE FL 34293

2 LBS

1 OF 1

**SHIP TO:**  
VINCENT GAROFALO, BLDG OFFICIAL  
TOWN OF MADISON  
8 CAMPUS DRIVE  
**MADISON CT 06443-2562**

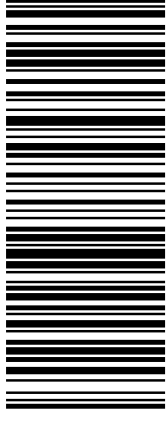


**CT 065 2-03**



**UPS GROUND**

TRACKING #: 1Z 9Y4 503 03 1381 3450



BILLING: P/P

Reference # 1: CTNH808A CC

CS 24.1.00. MACNV50 3.0A 01/2024\*



TM

**Subject:** UPS Delivery Notification, Tracking Number 1Z9Y45030313813450  
**Date:** Tuesday, January 23, 2024 at 12:12:56 PM Eastern Standard Time  
**From:** UPS <pkginfo@ups.com>  
**To:** Cullen Morgan <cmorgan@clinellc.com>



**Hello, your package has been delivered.**

**Delivery Date:** Tuesday, 01/23/2024  
**Delivery Time:** 12:06 PM  
**Signed by:** CHAMPAGNE

### CENTERLINE SITE ACQUISITION

<b>Tracking Number:</b>	<a href="#">1Z9Y45030313813450</a>
<b>Ship To:</b>	TOWN OF MADISON 8 CAMPUS DRIVE MADISON, CT 064432562 US
<b>Number of Packages:</b>	1
<b>UPS Service:</b>	UPS Ground
<b>Package Weight:</b>	1.5 LBS
<b>Reference Number:</b>	CTNH808A CC

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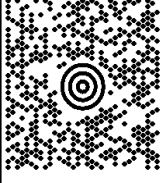
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(941) 549-7263  
CENTERLINE COMMUNICATIONS, LLC  
12579 SAGEWOOD DRIVE  
VENICE FL 34293

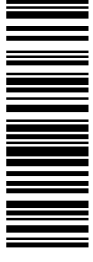
3 LBS

1 OF 1

**SHIP TO:**  
CONNECTICUT SITTING COUNCIL  
10 FRANKLIN SQUARE  
**NEW BRITAIN CT 06051-2655**

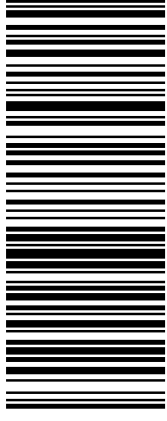


**CT 067 9-06**



**UPS GROUND**

TRACKING #: 1Z 9Y4 503 03 0173 8706



BILLING: P/P

Reference # 1: CTNH808A ZAP

CS 24.1.00. MACNVS0 4.0A 01/2024\*



TM