Victoria Masse
Northeast Site Solutions
5 Melrose Drive,
Farmington CT 06032
860-306-2326
victoria@northeastsitesolutions.com

June 5, 2024

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

RE: Notice of Exempt Modification
248 Hall Hill Road, Somers, CT 06071
Latitude: 42.00259444
Longitude: -72.48499722
T-Mobile Site#: CTHA027B_Anchor

Dear Ms. Bachman:
T-Mobile currently maintains six (6) antennas at the 175-foot level of the existing 180-foot monopole located at 248 Hall Hill Road, Somers, CT 06071. The property is owned by John A & Debra Romano and the tower is owned by Vertical Bridge. T-Mobile now intends to replace three (3) existing antennas with three (3) new 600/700/1900/2100 MHz. The new antennas would be installed at the 175-foot level of the tower. T-Mobile also intends to make the following modifications.
Planned Modifications
Remove:
None

Remove and Replace:
(3) RFS APX18-206513 Antenna (Remove) - (3) AIR 6419 B41 600/700/1900/2100 MHz Antenna (Replace)
(3) Hybrid lines (Remove) – (3) Hybrid lines (Replace)
(3) RRUS 2217 Radio (Remove) – (3) 4460 B25+B66 Radio (Replace)

Install New:
None

Existing to Remain:
(3) 4480 B71+B85 Radio (Relocated)
(3) RFS APXVAALL24 Antenna (Relocated)
(1) Commscope VHLP1-23-CR4B (Shown on Structural only for reserved loading)

This facility was approved by the Connecticut Siting Council, Docket No. 476 on February 15, 2018. Please see attached.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Tim Keeney, First Selectman for the Town of Somers, Jennifer Roy, Zoning Enforcement Officer for the Town of Somers, as well as the property owner Deborah and John Romano and Vertical Bridge tower owner.

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

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

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

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

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

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

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

Sincerely,

Victoria Masse

Victoria Masse
Mobile: 860-306-2326
Fax: 413-521-0558
Office: 5 Melrose Drive, Farmington CT 06032
Email: victoria@northeastsitesolutions.com

Attachments:

Cc: Tim Keeney, First Selectman
Town of Somers
600 Main Street
Somers, CT 06071

Jennifer Roy, Zoning Enforcement Officer
Town of Somers
600 Main Street
Somers, CT 06071

Deborah and John Romano, Property Owner
248 Hall Hill Road
Somers, CT 06071

Vertical Bridge, Tower Owner
750 Park of Commerce Dr #200,
Boca Raton, FL 33487

Exhibit A

Original Facility Approval

DOCKET NO. 476 – Eco-Site, Inc. and T-Mobile Northeast, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance, and operation of a telecommunications facility located at 248 Hall Hill Road, Somers, Connecticut.	}	Connecticut
	}	Siting
	}	Council

February 15, 2018

Decision and Order

Pursuant to Connecticut General Statutes §16-50p, and the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, maintenance, and operation of a telecommunications facility, including effects on the natural environment, ecological balance, public health and safety, scenic, historic, and recreational values, agriculture, forests and parks, air and water purity, and fish, aquaculture 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 Eco-Site, Inc., hereinafter referred to as the Certificate Holder, for a telecommunications facility at 248 Hall Hill Road, Somers, Connecticut.

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

1. The tower shall be constructed as a monopole at a height of 180 feet above ground level to provide the proposed wireless services, sufficient to accommodate the antennas of T-Mobile Northeast, LLC and other entities, both public and private. The height of the tower may be extended after the date of this Decision and Order pursuant to regulations of the Federal Communications Commission.

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 Somers 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) final site plan(s) for development of the facility that employ the governing standard in the State of Connecticut for tower design in accordance with the currently adopted International Building Code and include specifications for the tower, tower foundation, antennas, and equipment compound including, but not limited to, fencing, radio equipment, access road, utility line, and emergency backup generator;
    b) construction plans for site clearing, grading, landscaping, water drainage and stormwater control, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended;
    c) plans for seasonal restrictions to protect the potential vernal pool;
    d) hours of construction; and
    e) plans for disposition of 30 cubic yards of net cut.

3. Prior to the commencement of operation, the Certificate Holder shall 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 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. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service 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. 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.

7. Any request for extension of the time period referred to in Condition 6 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 Somers

8. 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 within 90 days from the one year period of cessation of service. The Certificate Holder may submit a written request to the Council for an extension of the 90 day period not later than 60 days prior to the expiration of the 90 day period.

9. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.

10. 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.

11. The Certificate Holder shall remit timely payments associated with annual assessments and invoices submitted by the Council for expenses attributable to the facility under Conn. Gen. Stat. §16-50v.

12. This Certificate may be transferred in accordance with Conn. Gen. Stat. §16-50k(b), provided both the Certificate Holder/transferor and the transferee are current with payments to the Council for their respective annual assessments and invoices under Conn. Gen. Stat. §16-50v. In addition, both the Certificate Holder/transferor and the transferee shall provide the Council a written agreement as to the entity responsible for any quarterly assessment charges under Conn. Gen. Stat. §16-50v(b)(2) that may be associated with this facility.

13. The Certificate Holder shall maintain the facility and associated equipment, including but not limited to, the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line and landscaping in a reasonable physical and operational condition that is consistent with this Decision and Order and a Development and Management Plan to be approved by the Council.

14. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible for management and operations of the Certificate Holder within 30 days of the sale and/or transfer.

15. This Certificate may be surrendered by the Certificate Holder upon written notification and approval by the Council.

We hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed in the Service List, dated September 21, 2017, and notice of issuance published in the Journal Inquirer.

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.

Exhibit B

Property Card

248 HALL HILL RD

Location	248 HALL HILL RD	**Mblu**	07/ 72/ / /
Acct#	00110000	**Owner**	ROMANO JOHN A & DEBRA
Assessment	$401,090	**Appraisal**	$795,300
PID	3008	**Building Count**	1
Dev Lot		**Dev Map**	
Exempt Code			

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$210,200	$585,100	$795,300
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$147,100	$253,990	$401,090

Owner of Record

Owner	ROMANO JOHN A & DEBRA	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	248 HALL HILL RD SOMERS, CT 06071	**Book & Page**	0340/0652
		Sale Date	02/08/2017

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
ROMANO JOHN A & DEBRA	$0		0340/0652	02/08/2017
ROMANO DEBRA	$0	1	0330/0868	07/21/2015
TURBAK STANLEY J EST OF	$0		0299/0007	02/15/2011
TURBAK STANLEY J	$0		0286/0550	06/19/2009

Building Information

Building 1 : Section 1

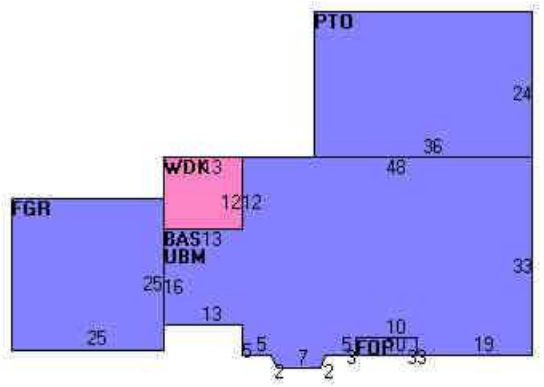
Year Built:	1966
Living Area:	1,778
Replacement Cost:	$294,358
Building Percent Good:	66
Replacement Cost Less Depreciation:	$194,300

Building Attributes	
Field	**Description**
Style:	Ranch
Model	Residential
Grade:	C+
Stories:	1
Occupancy:	1
Exterior Wall 1:	Brick
Exterior Wall 2:	
Roof Structure:	Gable
Roof Cover:	Arch Shingles
Interior Wall 1:	Plywood Panel
Interior Wall 2:	
Interior Flr 1:	Hardwood
Interior Flr 2	
Heat Fuel:	Oil
Heat Type:	Hot Water
AC Type:	Central
Total Bedrooms	2 Bedrooms
Total Full Baths	2
Total Half Baths	1
Total Xtra Fixtrs:	0
Total Rooms	7
Bath Style:	Average
Kitchen Style:	Average
Num Kitchens	2
Fireplace, Plain	2
Basement garage	0
Extra Kitchens	1
Fin Bsmt Area	700
Fin Bsmt Quality	Avg Qual.
Num Park	
Fireplaces	0
Whirlpool Tub	

Building Photo

(https://images.vgsi.com/photos/SomersCTPhotos///0009/DSCF2847_9082

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	1,778	1,778
FGR	Garage	625	0
FOP	Open Porch	30	0
PTO	Patio	864	0
UBM	Basement	1,778	0
WDK	Wood Deck	156	0
		5,231	1,778

Foundation	Poured Conc.
Fndtn Cndtn	
Basement	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	101
Description	Single Family
Zone	A-1
Neighborhood	08
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	38.50
Frontage	1100
Depth	
Assessed Value	$253,990
Appraised Value	$585,100

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
BRN3	Barn w Loft	FR	Frame	1656.00 SF	$15,900	1

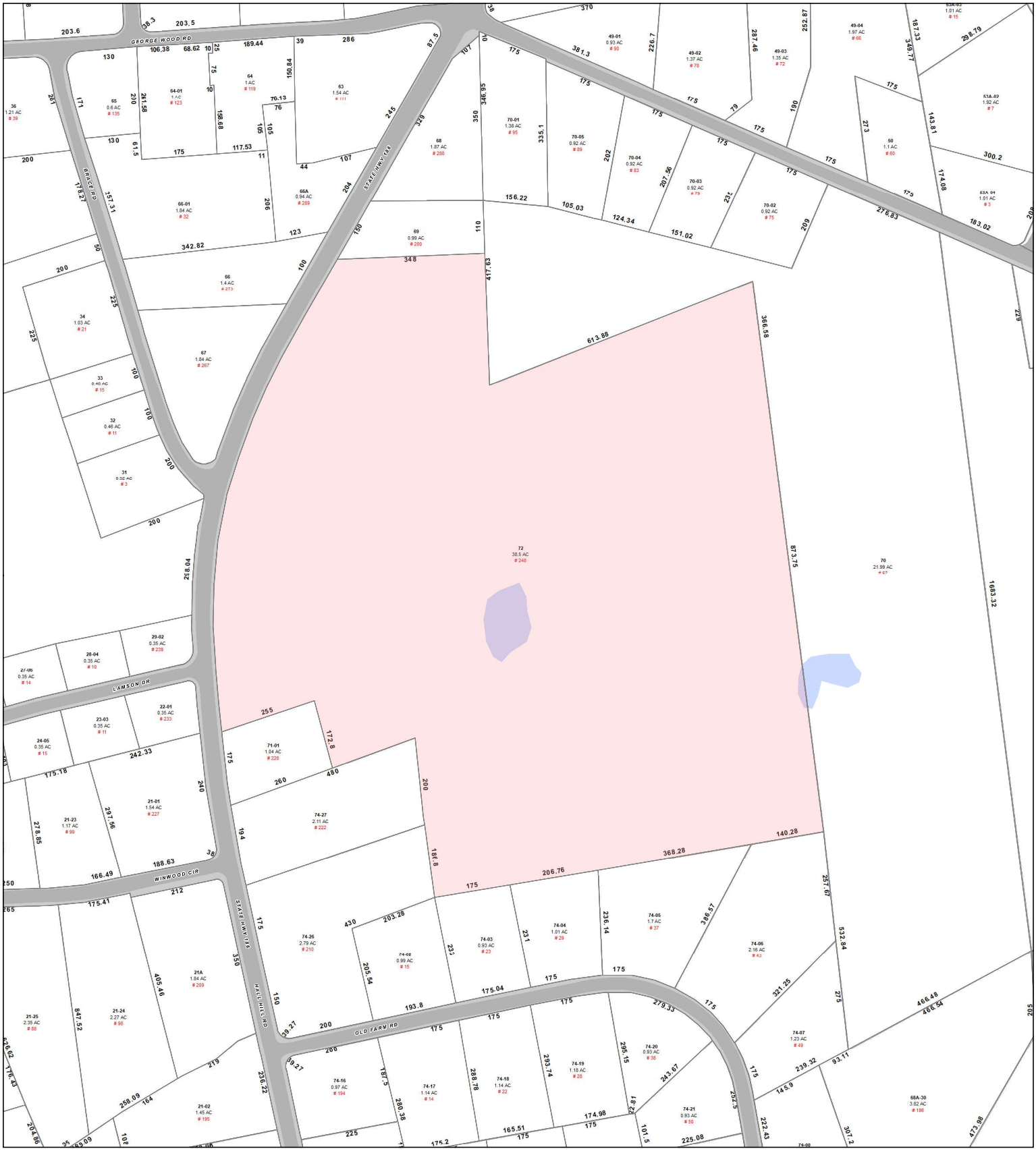
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$210,200	$585,100	$795,300
2020	$210,200	$585,100	$795,300
2019	$177,100	$619,400	$796,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2022	$147,100	$253,990	$401,090
2020	$147,100	$253,990	$401,090
2019	$123,900	$252,760	$376,660

Town of Somers, Connecticut - Assessment Parcel Map

Parcel: 07-72 **Address:** 248 HALL HILL RD



Map Produced June 2023

Approximate Scale: 1 inch = 300 feet

Exhibit C

Construction Drawings

Approved - Dave Deraleau
9:52 AM, Apr 4, 2024

APPROVED
By Ryan Monte de Ramos at 8:24 am, Apr 11, 2024

APPROVED
By Mike DeLia at 9:31 am, Apr 11, 2024

T-Mobile®

T-MOBILE NORTHEAST LLC

ANCHOR

SITE #: CTHA027B
SITE NAME: ROMANO
248 HALL HILL ROAD
SOMERS, CT 06071
TOLLAND COUNTY

CONSTRUCTION DRAWINGS
ALL SCALES RELATIVE TO 24"X36" PAGE SIZE

RAN CONFIGURATION: 67E5D998E 6160

A&L CONFIGURATION: 67E5998E_1xAIR+1QP+1OP

GENERAL NOTES

THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY, AND COPYRIGHTED WORK OF T–MOBILE. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.

THE FACILITY IS AN UNMANNED, PRIVATE, AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND, THEREFORE, DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE T–MOBILE NORTHEAST, LLC REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

SPECIAL STRUCTURAL NOTES

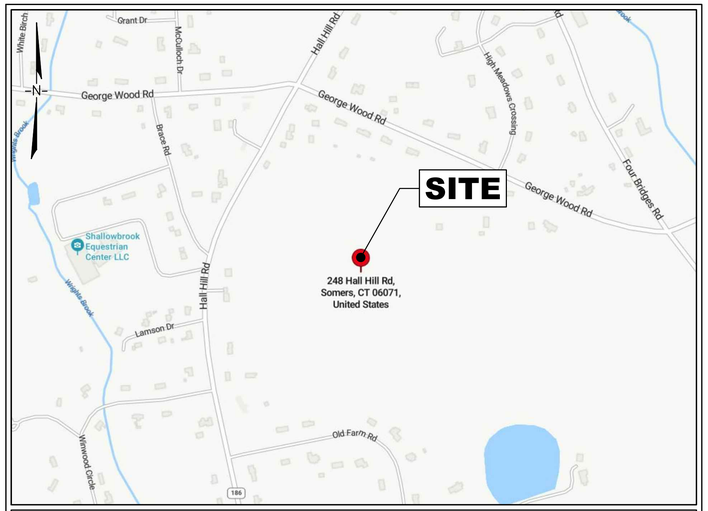
STRUCTURE OWNER SHALL BE RESPONSIBLE FOR GLOBAL STRUCTURAL STABILITY ANALYSIS OF EXISTING SUPPORT STRUCTURE. GENERAL CONTRACTOR SCOPE OF WORK SHALL INCLUDE ALL REQUIRED STRUCTURAL MODIFICATIONS, RE–BUNDLING OF COAXIAL CABLES OR OTHER SPECIAL MODIFICATIONS AS OUTLINED THEREIN.

STRUCTURAL DESIGNS AND DETAILS FOR ANTENNA MOUNTS COMPLETED BY ELEVATED ENGINEERING, PLLC ON BEHALF OF T–MOBILE ARE INCLUSIVE OF THE ENTIRE ANTENNA SUPPORT STRUCTURE (GLOBAL STRUCTURAL STABILITY ANALYSIS BY OTHERS), EXISTING PLATFORM, EXISTING ANTENNA MOUNTS, AND ALL OTHER ASPECTS OF THE STRUCTURE THAT WILL SUPPORT THE T–MOBILE EQUIPMENT DEPLOYMENT AS DEPICTED HEREIN.

ELEVATED ENGINEERING, PLLC ASSUMES THAT THE STRUCTURE IS PROPERLY CONSTRUCTED AND MAINTAINED. ALL STRUCTURAL MEMBERS AND THEIR CONNECTIONS ARE ASSUMED TO BE IN GOOD CONDITION AND ARE FREE FROM DEFECTS WITH NOT DETERIORATION TO IT'S MEMBER CAPACITIES.

APPROVALS

PROJECT MANAGER	DATE
CONSTRUCTION	DATE
RF ENGINEERING	DATE
ZONING / SITE ACQUISITION	DATE
OPERATIONS	DATE
OWNER	DATE



KEY MAP
SCALE = N.T.S.

UNDERGROUND SERVICE ALERT

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

CALL TOLL FREE: 800-922-4455

SITE LOCATION INFORMATION

SITE NUMBER:	CTHA027B
SITE ADDRESS:	248 HALL HILL ROAD SOMERS, CT 06071
JURISDICTION:	TOWN OF SOMERS
COUNTY:	TOLLAND COUNTY
PARCEL ID:	07–72
PROPERTY OWNER:	DEBRA ROMANO 248 HALL HILL ROAD SOMERS, CT 07071
APPLICANT:	T–MOBILE NORTHEAST LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002

SITE CHARACTERISTICS

LATITUDE:	N 42° 00' 09.34"
LONGITUDE:	W 72° 29' 05.99"
STRUCTURE TYPE:	MONOPOLE
LOCATION OF EQUIPMENT:	EXISTING CONCRETE PAD AT GRADE
STRUCTURE HEIGHT:	±180'–0" AGL
ANTENNA (RAD CENTER)	ALPHA – ±175'–0" AGL BETA – ±175'–0" AGL GAMMA – ±175'–0" AGL

SHEET INDEX

SHEET NO.	SHEET DESCRIPTION
T-1	TITLE SHEET
GN-1	GENERAL NOTES
A-1	COMPOUND PLAN & ELEVATION
A-2	EQUIPMENT PLANS & ANTENNA PLANS
A-3	DETAILS
E-1	GROUNDING DETAILS & NOTES

T-Mobile®
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

ELEVATED ENGINEERING
99 FANNY ROAD
BOONTON, NJ 07005
862–242–8050

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4		
3		
2		
1	04/02/24	REVISED PER CLIENT COMMENTS
0	03/05/24	INITIAL SUBMISSION

DRAWN BY:	CJT
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	24008-NSS

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR OFFICIAL USE UNLESS ACCOMPANIED BY THE STAMPED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

STATE OF CONNECTICUT · NICHOLAS D. BARILE · 28643 · LICENSED PROFESSIONAL ENGINEER

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

SITE ID: CTHA027B
SITE NAME: ROMANO
248 HALL HILL ROAD
SOMERS, CT 06071
TOLLAND COUNTY

DRAWING TITLE:

TITLE SHEET

DRAWING SHEET:

T-1

GENERAL NOTES

1. FOR THE PURPOSE OF THE CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTORS – TO BE DETERMINED
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – T–MOBILE

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE PROVIDED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURERS RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSED AND ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY . SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT THE EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTORS EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIAL SUCH AS COAXIAL CABLE AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNERS DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR–ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHED AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH UMTS SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF T–MOBILE SITES."

17. SUBCONTRACTORS SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

19. APPLICABLE BUILDING CODES:

    SUBCONTRACTORS WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    - BUILDING CODE: 2022 CONNECTICUT STATE BUILDING CODE
    - ELECTRICAL CODE: NFPA 70 NATIONAL ELECTRICAL CODE, 2017 EDITION
    - LIGHTNING CODE: NFPA 780–2014 LIGHTNING PROTECTION CODE

    SUBCONTRACTORS WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    - AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENT FOR STRUCTURAL CONCRETE
    - AMERICAN INSTITUTE FOR STEEL CONSTRUCTION (AISC)
    - MANUAL OF STEEL CONSTRUCTION, ASD, NINTH EDITION
    - TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222–H, STRUCTURAL STANDARDS FOR STEEL
    - ANTENNA TOWER AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

    FOR ANY CONFLICTS BETWEEN SECTIONS OF LISTED CODES AND STANDARDS REGARDING MATERIAL, METHODS OF CONSTRUCTION, OR OTHER REQUIREMENTS, THE MOST RESTRICTIVE REQUIREMENT SHALL GOVERN. WHERE THERE IS A CONFLICT BETWEEN A GENERAL REQUIREMENT, THE SPECIFIC REQUIREMENT SHALL GOVERN.

ELECTRICAL & GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE SPECIFIC (UL, LPI, OR NFPA) LIGHTNING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO LIGHTNING PROTECTION AND AS POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL–OF–POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO THE BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATING (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURE WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.

13. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.

14. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.

15. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATIONS INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.

16. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.

17. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.

18. RIGID STEEL CONDUITS SHALL BE GROUNDED AT BOTH ENDS.

19. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN OR THIN INSULATION.

20. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL ROOM AND PROPOSED CELL SITE POWER PEDESTAL AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.

21. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROPOSED CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON DRAWING A–1. PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.

22. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.

23. GROUNDING SHALL COMPLY WITH NEW ART. 250.

24. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.

25. USE #6 COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON DRAWING.

26. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.

27. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.

28. CONNECTIONS TO MGB SHALL BE ARRANGED IN THREE MAIN GROUPS: SURGE PRODUCERS (COAXIAL CABLE GROUND KITS, TELCO AND POWER PANEL GROUND); (GROUNDING ELECTRODE RING OR BUILDING STEEL); NON–SURGING OBJECTS (EGB GROUND IN BTS UNIT)

29. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.

30. BOND ANTENNA MOUNTING BRACKETS. COAXIAL CABLE GROUND KITS AND ALNA TO EGB PLACES NEAR THE ANTENNA LOCATION.

31. BOND ANTENNA EGB'S AND MGB TO WATER MAIN.

32. TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE–OUT DOCUMENTATION.

33. BOND ANY METAL OBJECTS WITHIN 7 FEET OF PROPOSED EQUIPMENT OR CABINET TO MASTER GROUND BAR.

34. VERIFY PROPOSED SERVICE UPGRADE WITH LOCAL UTILITY COMPANY PRIOR TO CONSTRUCTION.

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	G.C.	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
AWG	AMERICAN WIRE GAUGE	MGB	MASTER GROUND BUS		
BCW	BARE COPPER WIRE	MIN	MINIMUM	TBD	TO BE DETERMINED
BTS	BASE TRANSCEIVER STATION	PROPOSED	NEW	TBR	TO BE REMOVED
EXISTING	EXISTING	N.T.S.	NOT TO SCALE	TBRR	TO BE REMOVED AND REPLACED
EG	EQUIPMENT GROUND	REF	REFERENCE	TYP	TYPICAL
EGR	EQUIPMENT GROUND RING	REQ	REQUIRED		

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

ELEVATED ENGINEERING
99 FANNY ROAD
BOONTON, NJ 07005
862–242–8050

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4		
3		
2		
1	04/02/24	REVISED PER CLIENT COMMENTS
0	03/05/24	INITIAL SUBMISSION

DRAWN BY:	CJT
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	24008-NSS

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR OFFICIAL USE UNLESS ACCOMPANIED BY THE STAMPED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

STATE OF CONNECTICUT · NICHOLAS D. BARILE · 28643 · LICENSED PROFESSIONAL ENGINEER

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

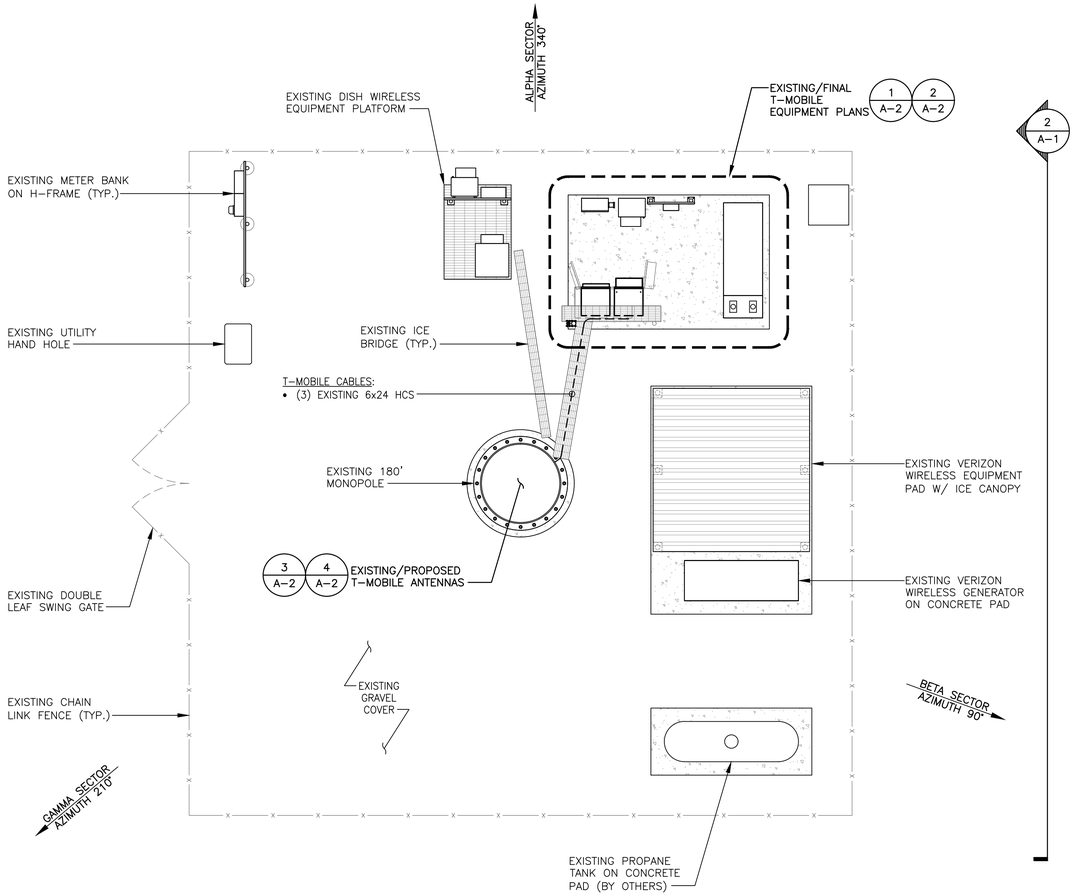
SITE ID: CTHA027B
SITE NAME: ROMANO
248 HALL HILL ROAD
SOMERS, CT 06071
TOLLAND COUNTY

DRAWING TITLE:

GENERAL NOTES

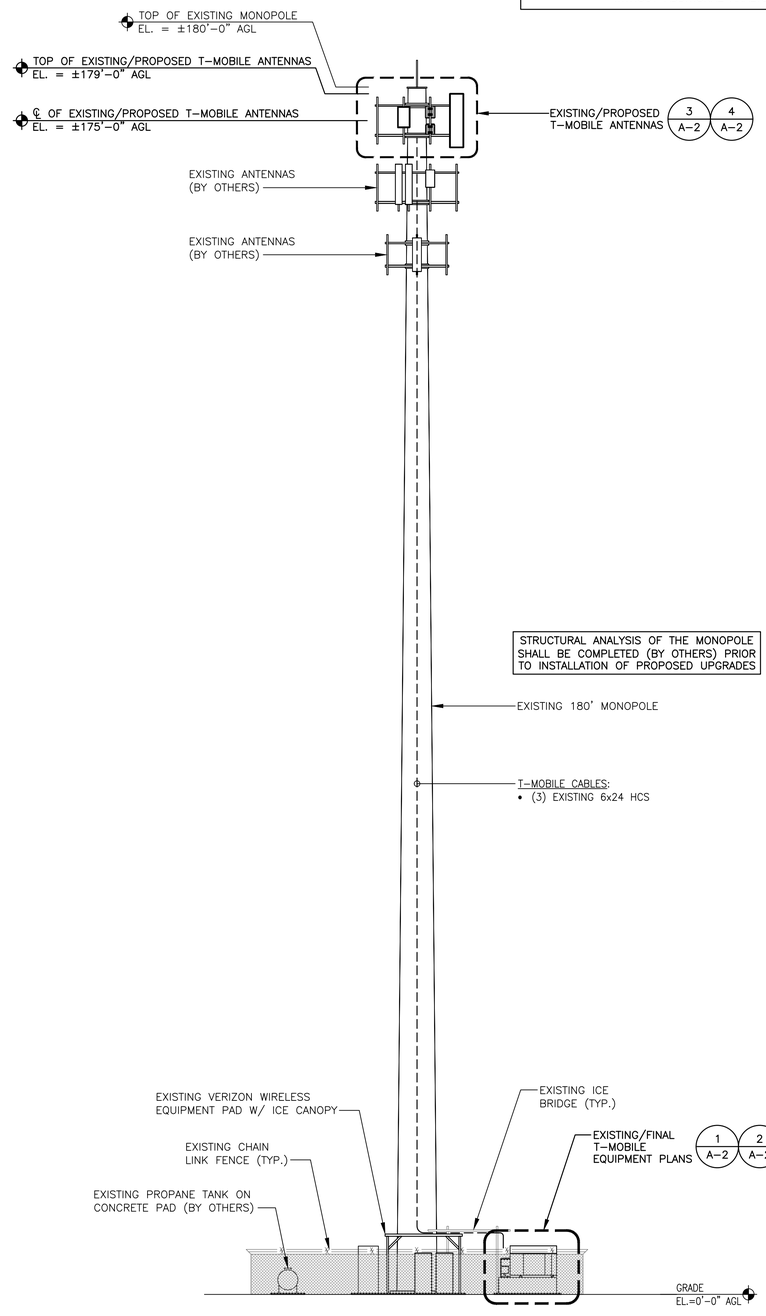
DRAWING SHEET:

GN-1



1 A–1 COMPOUND PLAN
SCALE: 3/16"=1'–0"

LOADING SHOWN ON THIS SET OF DRAWINGS IS BASED ON THE ANTENNA MOUNT ANALYSIS PERFORMED BY ELEVATED ENGINEERING, DATED 02/26/24. CONTRACTOR TO NOTIFY ELEVATED & CARRIER IN THE EVENT SITE CONDITIONS DIFFER FROM WHAT IS REPRESENTED IN THE STRUCTURAL ANALYSIS. NO SUBSTITUTIONS ARE PERMITTED WITHOUT ADDITIONAL ANALYSIS.



2 A–1 ELEVATION
SCALE: 3/32"=1'–0"

T-Mobile®
T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

ELEVATED ENGINEERING
99 FANNY ROAD
BOONTON, NJ 07005
862–242–8050

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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

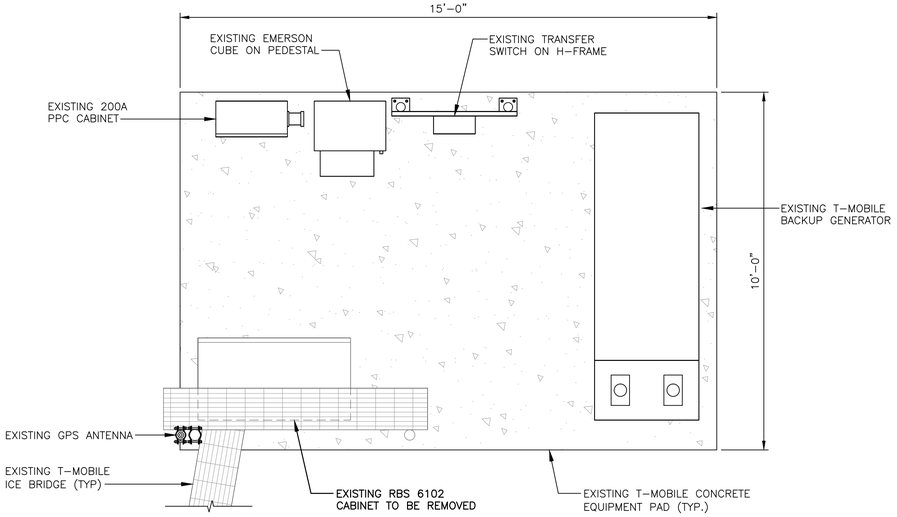
SITE ID: CTHA027B
SITE NAME: ROMANO
248 HALL HILL ROAD
SOMERS, CT 06071
TOLLAND COUNTY

DRAWING TITLE:

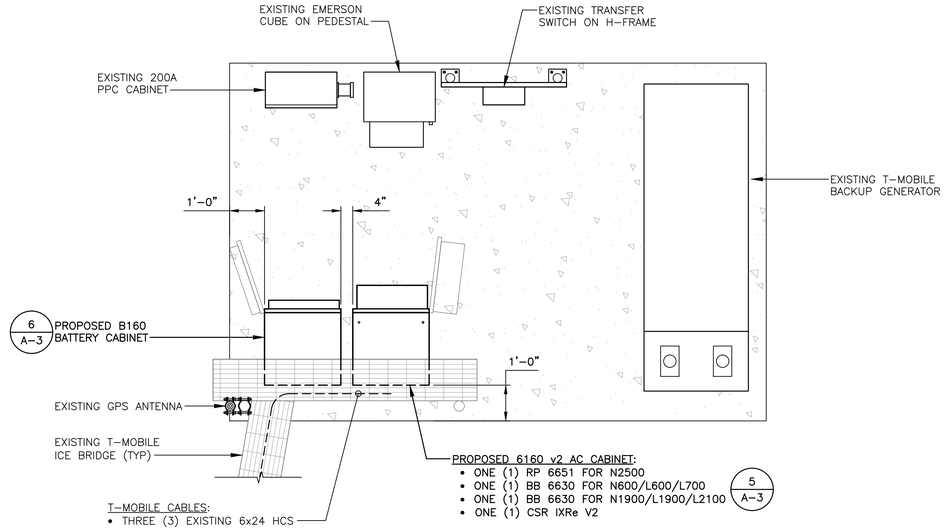
COMPOUND PLAN & ELEVATION

DRAWING SHEET:

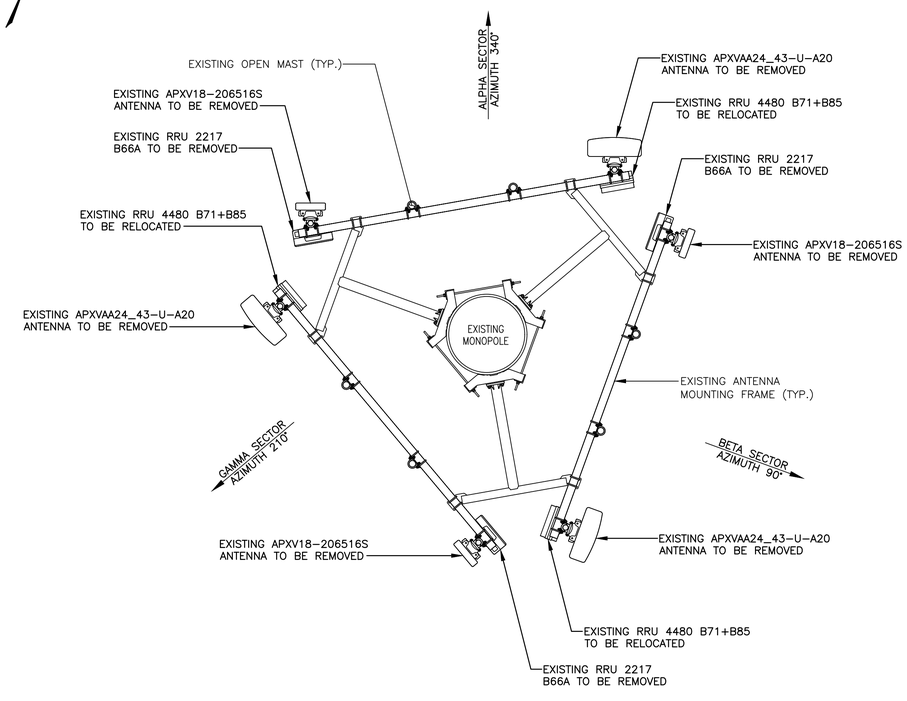
A-1



1 / A-2 EXISTING EQUIPMENT PLAN
SCALE: 1/2"=1'-0"

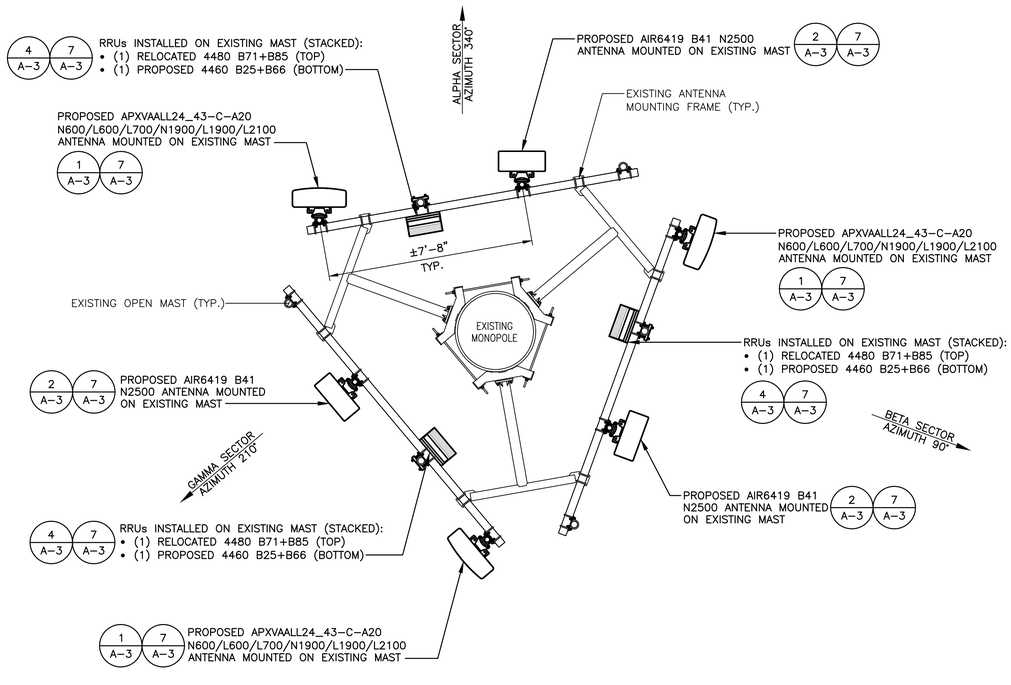


2 / A-2 FINAL EQUIPMENT PLAN
SCALE: 1/2"=1'-0"



3 / A-2 TRUE NORTH EXISTING ANTENNA PLAN
SCALE: 3/8"=1'-0"

GRAPHIC SCALE: 3/8"=1'-0"



4 / A-2 TRUE NORTH PROPOSED ANTENNA PLAN
SCALE: 3/8"=1'-0"

GRAPHIC SCALE: 3/8"=1'-0"

LOADING SHOWN ON THIS SET OF DRAWINGS IS BASED ON THE ANTENNA MOUNT ANALYSIS PERFORMED BY ELEVATED ENGINEERING, DATED 02/26/24. CONTRACTOR TO NOTIFY ELEVATED & CARRIER IN THE EVENT SITE CONDITIONS DIFFER FROM WHAT IS REPRESENTED IN THE STRUCTURAL ANALYSIS. NO SUBSTITUTIONS ARE PERMITTED WITHOUT ADDITIONAL ANALYSIS.

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

ELEVATED ENGINEERING
99 FANNY ROAD
BOONTON, NJ 07005
862-242-8050

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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

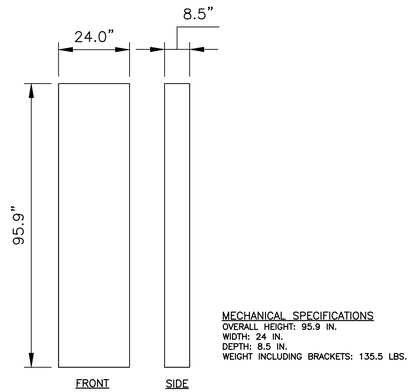
SITE ID: CTHA027B
SITE NAME: ROMANO
248 HALL HILL ROAD
SOMERS, CT 06071
TOLLAND COUNTY

DRAWING TITLE:

EQUIPMENT PLANS & ANTENNA PLANS

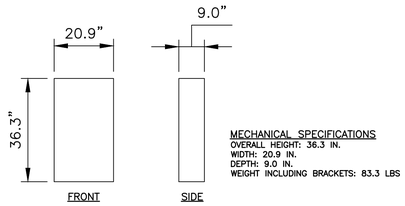
DRAWING SHEET:

A-2



MECHANICAL SPECIFICATIONS
OVERALL HEIGHT: 95.9 IN.
WIDTH: 24 IN.
DEPTH: 8.5 IN.
WEIGHT INCLUDING BRACKETS: 135.5 LBS.

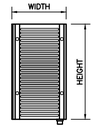
1 A–3 RFS: APXVAALL24_43–C–A20
SCALE: N.T.S.



MECHANICAL SPECIFICATIONS
OVERALL HEIGHT: 36.3 IN.
WIDTH: 20.9 IN.
DEPTH: 9.0 IN.
WEIGHT INCLUDING BRACKETS: 83.3 LBS

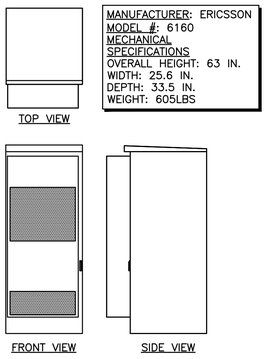
2 A–3 ERICSSON: AIR6419 B41
SCALE: N.T.S.

3 A–3 DETAIL NOT USED
SCALE: N.T.S.



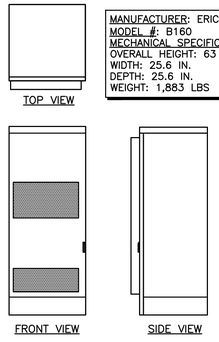
RRH	HEIGHT	WIDTH	DEPTH	WEIGHT
RADIO 4460 B25+B66	17.0"	15.1"	11.9"	104 LBS.

4 A–3 RRU DETAILS
SCALE: N.T.S.



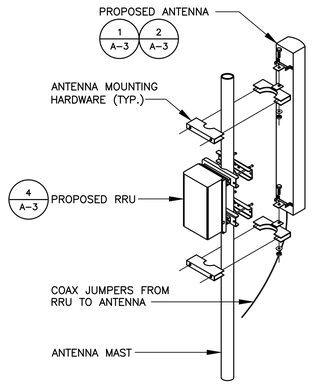
MANUFACTURER: ERICSSON
MODEL #: 6160
MECHANICAL SPECIFICATIONS
OVERALL HEIGHT: 63 IN.
WIDTH: 25.6 IN.
DEPTH: 33.5 IN.
WEIGHT: 605LBS

5 A–3 ERICSSON: 6160 CABINET
SCALE: N.T.S.

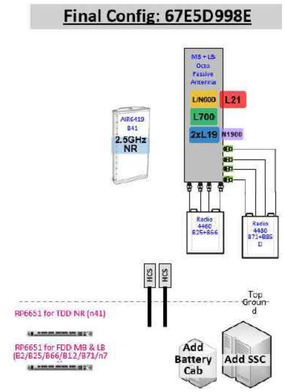


MANUFACTURER: ERICSSON
MODEL #: B160
MECHANICAL SPECIFICATIONS
OVERALL HEIGHT: 63 IN.
WIDTH: 25.6 IN.
DEPTH: 25.6 IN.
WEIGHT: 1,883 LBS

6 A–3 ERICSSON: B160 CABINET
SCALE: N.T.S.



7 A–3 TYPICAL ANTENNA INSTALLATION DETAIL
SCALE: N.T.S.



8 A–3 ANTENNA & COAX CABLE SCHEMATIC
SCALE: N.T.S.

ANTENNA INFORMATION

SECTOR	POSITION (FROM REAR LEFT TO RIGHT)	EXISTING		PROPOSED											
		MODEL	QTY.	MODEL	ANT. C.L.	SECTOR MARK	QTY.	E-TILT	M-TILT	RRU MODEL/QUANTITY	DIPLEXER/ COMBINERS	TMA	COAX/ FIBER QUANTITY	COAX/ FIBER SIZE	COAX/ FIBER LENGTH
ALPHA 340°	R1	APXV18–206516S–C–A20	1	**APXVAALL24_43-U-NA20**	175'–0"	N600/L600/ L700/N1900/ L1900/L2100	1	2/2/0/0	0	(1) **4460 B25+B66** (1) 4480 B71+B85	–	–	**8** **4**	COAX JUMPER FIBER JUMPER	**10'** **15'**
	R2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	R3	–	–	**AIR6419 B41**	175'–0"	N2500	1	2/2	0	–	–	–	**1** **4**	6x24 HCS FIBER JUMPER	**230'** **15'**
	R4	APXVAA24_43–U–A20	1	–	–	–	–	–	–	–	–	–	–	–	–
BETA 90°	W1	APXV18–206516S–C–A20	1	**APXVAALL24_43-U-NA20**	175'–0"	N600/L600/ L700/N1900/ L1900/L2100	1	2/2/0/0	0	(1) **4460 B25+B66** (1) 4480 B71+B85	–	–	**8** **4**	COAX JUMPER FIBER JUMPER	**10'** **15'**
	W2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	W3	–	–	**AIR6419 B41**	175'–0"	N2500	1	2/2	0	–	–	–	**1** **4**	6x24 HCS FIBER JUMPER	**230'** **15'**
	W4	APXVAA24_43–U–A20	1	–	–	–	–	–	–	–	–	–	–	–	–
GAMMA 210°	B1	APXV18–206516S–C–A20	1	**APXVAALL24_43-U-NA20**	175'–0"	N600/L600/ L700/N1900/ L1900/L2100	1	2/2/0/0	0	(1) **4460 B25+B66** (1) 4480 B71+B85	–	–	**8** **4**	COAX JUMPER FIBER JUMPER	**10'** **15'**
	B2	–	–	–	–	–	–	–	–	–	–	–	–	–	–
	B3	–	–	**AIR6419 B41**	175'–0"	N2500	1	2/2	0	–	–	–	**1** **4**	6x24 HCS FIBER JUMPER	**230'** **15'**
	B4	APXVAA24_43–U–A20	1	–	–	–	–	–	–	–	–	–	–	–	–

AT TIME OF CONSTRUCTION, CONTRACTOR TO VERIFY AZIMUTHS OF EXISTING ANTENNAS. IF DIFFERENT FROM RFDS, PLEASE NOTIFY THE RF ENGINEER AND CONSTRUCTION MANAGER WITH ACTUAL AZIMUTH TO ENSURE T–MOBILE'S DATABASE IS ACCURATE AND UP–TO–DATE.

ANTENNA LOCATIONS TO BE VERIFIED IN FIELD. RFDS TO BE REDLINED ACCORDINGLY.

INFORMATION SHOWN PROVIDED ON T–MOBILE RFDS DATED 02/08/24.

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

ELEVATED ENGINEERING
99 FANNY ROAD
BOONTON, NJ 07005
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NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

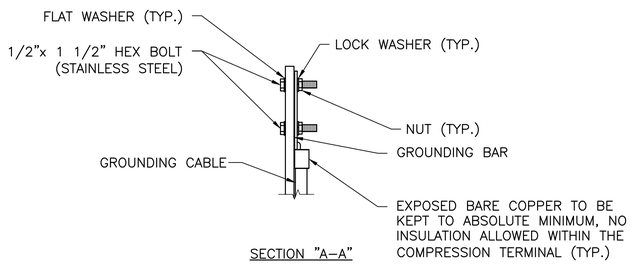
SITE ID: CTHA027B
SITE NAME: ROMANO
248 HALL HILL ROAD
SOMERS, CT 06071
TOLLAND COUNTY

DRAWING TITLE:

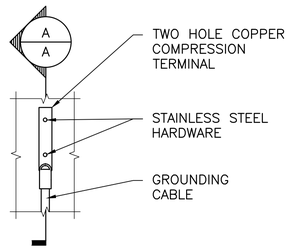
DETAILS

DRAWING SHEET:

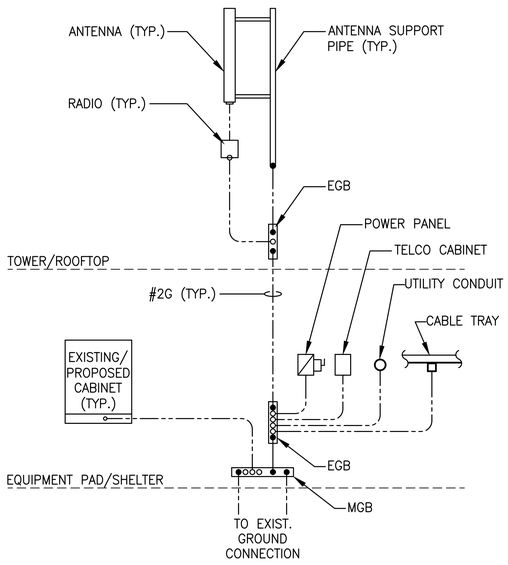
A-3



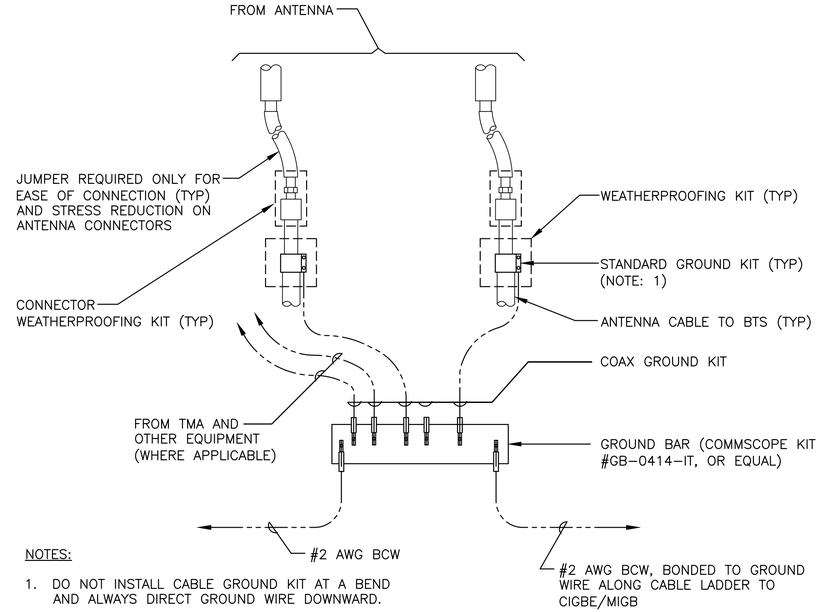
NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.



1 E–1 TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.

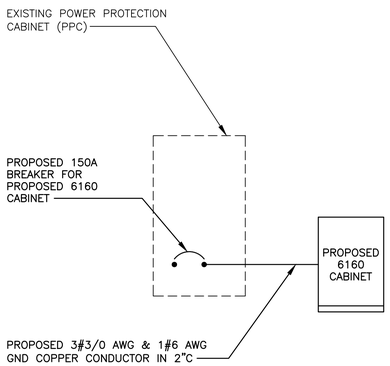


2 E–1 GROUNDING RISER DIAGRAM
SCALE: N.T.S.



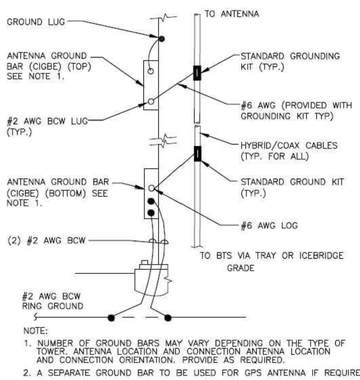
NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWNWARD.

3 E–1 GROUND WIRE TO GROUND BAR CONNECTION DETAIL
SCALE: N.T.S.



EXISTING ELECTRIC FEEDERS AND CONDUIT TO BE UPGRADED AS REQUIRED, CONDUIT AND WIRE LENGTH/SIZE TO BE VERIFIED BY LICENSED ELECTRICIAN

4 E–1 ONE LINE DIAGRAM
SCALE: 1/4"=1'–0"



NOTE:
1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATION AND CONNECTION ANTENNA LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

ELECTRICAL LEGEND

A	AMPERE
V	VOLT
KWH	KILOWATT – HOUR
C	CONDUIT
GRC	GALVANIZED RIGID CONDUIT
G	GROUND
⏚	GROUND
MGB	MASTER GROUND BAR ○ MECHANICAL CONNECTION ● CADWELD CONNECTION
EGB	EQUIPMENT GROUND BAR
—G—	GROUND COPPER WIRE, SIZE AS NOTED
	EXPOSED WIRING
	COAXIAL CABLE
⊙	5/8"x8" COPPER CLAD STAINLESS STEEL GROUND ROD
	● EXOTHERMIC (CAD WELD) OR ○ MECHANICAL (COMPRESSION TYPE) CONNECTION
PPC	POWER PROTECTION CABINET
⊠	OMNI-DIRECTIONAL ELECTRONIC MARKER SYSTEM (EMS) BALL

5 E–1 ANTENNA CABLE GROUNDING
SCALE: N.T.S.

T-MOBILE NORTHEAST LLC
35 GRIFFIN ROAD SOUTH
BLOOMFIELD, CT 06002

ELEVATED ENGINEERING
99 FANNY ROAD
BOONTON, NJ 07005
862–242–8050

SCHEDULE OF REVISIONS

REV. NO.	DATE	DESCRIPTION OF CHANGES
7		
6		
5		
4		
3		
2		
1	04/02/24	REVISED PER CLIENT COMMENTS
0	03/05/24	INITIAL SUBMISSION

DRAWN BY:	CJT
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	24008-NSS

INFORMATION ON THIS SET OF DRAWINGS IS NOT FOR OFFICIAL USE UNLESS ACCOMPANIED BY THE STAMPED SEAL & SIGNATURE OF A PROFESSIONAL ENGINEER

STATE OF CONNECTICUT · DOUGLAS D. BARILE · 28643 · LICENSED PROFESSIONAL ENGINEER

NICHOLAS D. BARILE
PROFESSIONAL ENGINEER, CT LIC. No. 28643

SITE ID: CTHA027B
SITE NAME: ROMANO
248 HALL HILL ROAD
SOMERS, CT 06071
TOLLAND COUNTY

DRAWING TITLE:

GROUNDING DETAILS & NOTES

DRAWING SHEET:

E-1

Exhibit D

Structural Analysis Report

Structural Analysis Report

Structure	: 180 Foot Monopole Tower
VB Site Name	: Blue Ridge
VB Site Number	: US-CT-5017
Deal Number	: P-049077
Proposed Carrier	: T-Mobile
Carrier Site Name	: ROMANO
Carrier Site Number	: CTHA027B
Site Location	: 248 Hall Hill Road
	Somers, CT 06071 (Tolland County)
	42.00259444, -72.48499722
Date	: May 24, 2024
Max Member Stress Level	: 59.2% (Foundation)
	54.1% (Tower)
	53.9% (Base Plate)
Result	: **PASS**

05/24/2024

Prepared by:

VERTICAL BRIDGE ENGINEERING, LLC

750 Park of Commerce Drive Suite 200 | Boca Raton, FL 33487 | 561-948-6367
VerticalBridge.com

Table of Contents

Introduction

We have completed our structural analysis of the proposed equipment installation on the foregoing tower to determine its ability to support the new loads proposed by T-Mobile. The objective of the analysis was to determine if the tower meets the current structural codes and standards with the proposed equipment installation.

Existing Structural Information

The following documents for the existing structure were made available for our structural analysis.

Tower Information	Sabre Tower Calculations Job No. 18-6446-JDS, dated 04/06/2018
Foundation Information	
Geotechnical Information	Delta Oaks Geotechnical Report Job No. GEO17-01159-08 Rev. 0, dated 07/18/2017
Existing Equipment Information	Vertical Bridge Collocation Application Version 2
Tower Reinforcement Information	Tower has not been previously modified
Mount Information	Elevated Engineering Mount Analysis, dated 02/26/2024

Final Proposed Equipment Loading for T-Mobile

The following proposed loading was obtained from the Vertical Bridge Collocation Application:

Antenna/Equipment					Coax	
Mount (ft)	RAD (ft)	Qty	Antenna	Type	Qty	Size/Type
175	-	3	Site Pro #ULPD12-4xx	Mount	**3**	**1.58" Hybrid**
	175	3	RFS APXVAALL24_43-U-NA20	Panel		
		3	Ericsson Radio 4480 B71+B85	RRU		
		3	**Ericsson AIR 6419 B41**	**Panel**		
		3	**RFS APX18-206513-C-A20**	**Panel**		
		3	**RFS APXVAALL24_43-U-NA20**	**Panel**		
		3	**Ericsson Radio 4460 B25+B66**	**RRU**		
		1	**Commscope VHLP1-23-CR4B**	**Dish**		

Notes:

1. Proposed equipment shown in bold.
2. Other existing loading can be found on the tower profile attached.
3. All feedlines are assumed to be installed inside monopole shaft.
4. The remainder of 25000 sq. in. reserved rights for T-Mobile has been included in this analysis.
5. (3) 1.58" Hybrid, (3) RFS - Andrews APXV18-206516s- C-A20 Panels, and (3) Ericsson Radio 2217 B66A RRUS are to be removed.

Design Criteria

The tower was analyzed using tnxTower (Version 8.2.4) tower analysis software using the following design criteria.

State	Connecticut
City/County Building Code	IBC 2021 / CSBC 2022
TIA/EIA Standard Code	TIA-222-H
Basic Wind Speed	120 mph (V_{ult})
Basic Wind Speed w/Ice	50 mph w/1.5" Ice
Steel Grade	65 ksi Pole / 50 ksi Baseplate / A615-75 ksi Anchor Rods
Exposure Category	C
Topographic Category (height)	1 (0.0 ft.)
Risk Category	II
S_s	0.173
Seismic Design Category	B

Analysis Results

Based on the foregoing information, our structural analysis determined that the existing tower **is structurally capable of supporting the proposed equipment loads without modification**. The existing tower anchor rods, base plate and foundation have also been evaluated and **was found to be structurally capable of supporting the proposed equipment load**. A seismic analysis has been performed on this tower and does not control.

Assumptions

The below assumptions are true, complete, and accurate.

1. The existing tower has been maintained to manufacturer's specifications and is in good condition.
2. Foundations are considered to have been properly designed for the original design loads.
3. All member connections are considered to have been designed to meet the load carrying capacity of the connected member.
4. Antenna mount loads have been estimated based on generally accepted industry standards.
5. The mounts for the proposed antennas have been analyzed and designed by others.
6. See additional assumptions contained in the report attached.
7. Tower is within acceptable engineering tolerance at 105%.
8. Foundations are within acceptable engineering tolerance at 110%.

Conclusions

The existing tower described above **has sufficient capacity** to support the proposed loading based on the governing Building Code. The existing tower anchor rods, base plate and foundation have also been evaluated and **are acceptable**. A seismic analysis has been performed on this tower and does not control.

We appreciate the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance, please call us anytime at 561-948-6367.

Sincerely,

Analysis by:

Nicole Hoffman, EI
Design Engineer III

Reviewed by:

Michael T. De Boer, PE
Engineer

05/24/2024

Standard Conditions

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but not necessarily limited, to:

- Information supplied by the client regarding the structure itself, the antenna and transmission line loading on the structure and its components, or relevant information.

- Information from drawings in possession of Vertical Bridge Engineering, LLC, or generated by field inspections or measurements of the structure.

It is the responsibility of the client to ensure that the information provided to Vertical Bridge Engineering, LLC and used in the performance of our engineering services is correct and complete. In the absence of information contrary, we consider that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated; and we, therefore consider that their capacity has not significantly changed from the original design condition.

All services will be performed to the codes and standards specified by the client, and we do not imply to meet any other code and standard requirements unless explicitly agreed to in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes and standards, the client shall specify the exact requirements. In the absence of information to the contrary, all work will be performed in accordance with the revision of ANSI/TIA/EIA-222-H requested.

All services are performed, results obtained and recommendations made in accordance with the generally accepted engineering principles and practices. Vertical Bridge Engineering LLC and its affiliates are not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

Disclaimer of Warranties

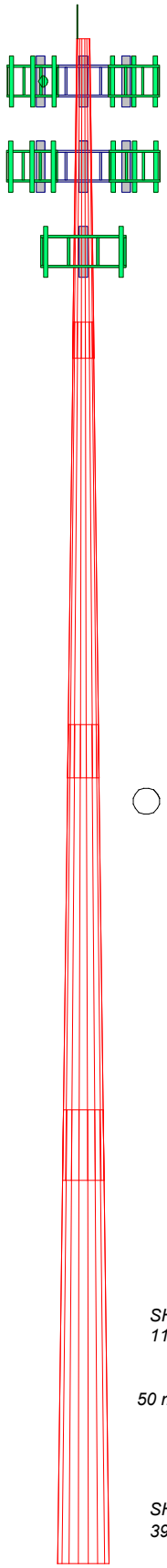
The engineering services by Vertical Bridge Engineering, LLC in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. Vertical Bridge Engineering, LLC does not analyze the fabrication, including welding, except as may be expressly included in this report.

The purpose of this report is to assess the feasibility of adding appurtenances usually accompanied by transmission lines. Any mention of structural modifications are reasonable estimates and should not be used a precise construction document. Precise modification drawings are obtainable from Vertical Bridge Engineering, LLC but are beyond the scope of this report.

Vertical Bridge Engineering, LLC makes no warranties, express or implied, in connection with this report and disclaims any liability arising from material, fabrication and erection of this tower, or installation and compliance with legal and permitting requirements of the proposed equipment. Vertical Bridge Engineering, LLC will not be responsible whatsoever for or on account of, punitive, special, consequential or incidental damages sustained by any person, firm, or organization as a result of any data or conclusions contained in this report. The maximum liability of Vertical Bridge Engineering, LLC pursuant to this report will be limited to the total fee received for preparation of this report.

Attachment 1: Calculations

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	37.500	18	0.2500	4.250	18.7500	30.2800	A572-65	2.5
2	53.500	18	0.3750	6.250	28.4733	44.9300		7.9
3	53.500	18	0.4375	8.250	42.2575	58.7000		12.7
4	53.250	18	0.4375		55.2895	71.6700		15.9



ALL REACTIONS ARE FACTORED

AXIAL 96 K

SHEAR 11 K

TORQUE 2 kip-ft

50 mph WIND - 1.5000 i

AXIAL 61 K

SHEAR 39 K

MOMENT 4740 kip-ft

TORQUE 8 kip-ft

REACTIONS - 120 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
Lightning Rod 5/8x4'	180	COMMSCOPE NHHSS-65B-R2B (VZW)	165
Site Pro ULPD12-4xx (TMO)	175	COMMSCOPE NHHSS-65B-R2B (VZW)	165
(4) 2.0 STD Mount Pipe (96") (TMO)	175	COMMSCOPE NHHSS-65B-R2B (VZW)	165
(4) 2.0 STD Mount Pipe (96") (TMO)	175	COMMSCOPE NHH-65B-R2B (VZW)	165
(4) 2.0 STD Mount Pipe (96") (TMO)	175	COMMSCOPE NHH-65B-R2B (VZW)	165
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	175	COMMSCOPE NHH-65B-R2B (VZW)	165
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	175	SAMSUNG TELECOMMUNICATIONS MT6407-77A (VZW)	165
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	175	SAMSUNG TELECOMMUNICATIONS MT6407-77A (VZW)	165
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	175	SAMSUNG TELECOMMUNICATIONS MT6407-77A (VZW)	165
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	175	SAMSUNG TELECOMMUNICATIONS RFV01U-D2A (VZW)	165
RFS/CELWAVE APX18-206513-C-A20 (TMO)	175	SAMSUNG TELECOMMUNICATIONS RFV01U-D2A (VZW)	165
RFS/CELWAVE APX18-206513-C-A20 (TMO)	175	SAMSUNG TELECOMMUNICATIONS RFV01U-D2A (VZW)	165
RFS/CELWAVE APX18-206513-C-A20 (TMO)	175	SAMSUNG TELECOMMUNICATIONS RFV01U-D1A (VZW)	165
ERICSSON AIR 6419 B41_TMO (TMO)	175	SAMSUNG TELECOMMUNICATIONS RFV01U-D1A (VZW)	165
ERICSSON AIR 6419 B41_TMO (TMO)	175	SAMSUNG TELECOMMUNICATIONS RFV01U-D1A (VZW)	165
ERICSSON AIR 6419 B41_TMO (TMO)	175	SAMSUNG TELECOMMUNICATIONS RT4401-48A (VZW)	165
ERICSSON RADIO 4480 B71/B85 (TMO)	175	SAMSUNG TELECOMMUNICATIONS RT4401-48A (VZW)	165
ERICSSON RADIO 4480 B71/B85 (TMO)	175	SAMSUNG TELECOMMUNICATIONS RT4401-48A (VZW)	165
ERICSSON RADIO 4480 B71/B85 (TMO)	175	RAYCAP RC3DC-3315-PF-48 (VZW)	165
ERICSSON RADIO 4480 B71/B85 (TMO)	175	RAYCAP RC3DC-3315-PF-48 (VZW)	165
ERICSSON RADIO 4480 B71/B85 (TMO)	175	Site Pro RMQP-496-HK (VZW)	165
ERICSSON RADIO 4480 B71/B85 (TMO)	175	(3) 2.0 STD Mount Pipe (96") (DISH)	155
ERICSSON RADIO 4480 B71/B85 (TMO)	175	(3) 2.0 STD Mount Pipe (96") (DISH)	155
ERICSSON RADIO 4460 B2/B25 B66_TMO (TMO)	175	(3) 2.0 STD Mount Pipe (96") (DISH)	155
ERICSSON RADIO 4460 B2/B25 B66_TMO (TMO)	175	JMA WIRELESS MX08FRO665-20 (DISH)	155
ERICSSON RADIO 4460 B2/B25 B66_TMO (TMO)	175	JMA WIRELESS MX08FRO665-20 (DISH)	155
1/3 Remaining Reserve Rights (25000 sq.in.) (TMO)	175	JMA WIRELESS MX08FRO665-20 (DISH)	155
1/3 Remaining Reserve Rights (25000 sq.in.) (TMO)	175	FUJITSU TA08025-B604 (DISH)	155
1/3 Remaining Reserve Rights (25000 sq.in.) (TMO)	175	FUJITSU TA08025-B604 (DISH)	155
VHLP1-23 (TMO)	175	FUJITSU TA08025-B604 (DISH)	155
(4) 2.0 STD Mount Pipe (96") (VZW)	165	FUJITSU TA08025-B605 (DISH)	155
(4) 2.0 STD Mount Pipe (96") (VZW)	165	FUJITSU TA08025-B605 (DISH)	155
(4) 2.0 STD Mount Pipe (96") (VZW)	165	FUJITSU TA08025-B605 (DISH)	155
		RAYCAP RDIDC-9181-PF-48 (DISH)	155
		1/3 Remaining Reserve Rights (DISH)	155
		1/3 Remaining Reserve Rights (DISH)	155
		1/3 Remaining Reserve Rights (DISH)	155
		Site Pro SNP8HR-3xx (DISH)	155

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

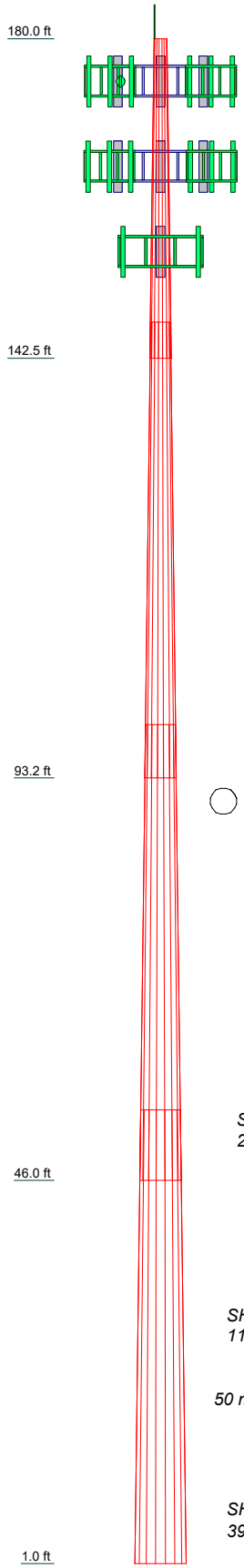
TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 54.1%

Vertical Bridge, LLC
750 Park of Commerce Drive
Boca Raton, Florida 33487
Phone:
FAX:

Job: ***US-CT-5017***			
Project: ***P-049077***			
Client: T-Mobile	Drawn by: Nicole.Hoffman		App'd:
Code: TIA-222-H	Date: 05/23/24		Scale: NTS
Path:			Dwg No. E-1

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	37.500	18	0.2500	4.250	18.7500	30.2800	A572-65	2.5
2	53.500	18	0.3750	6.250	28.4733	44.9300		7.9
3	53.500	18	0.4375	8.250	42.2575	58.7000		12.7
4	53.250	18	0.4375		55.2895	71.6700		15.9



MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Tolland County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 120 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 54.1%

ALL REACTIONS ARE FACTORED

AXIAL 63 K
SHEAR 2 K
MOMENT 227 kip-ft
TORQUE 0 kip-ft
SEISMIC

AXIAL 96 K
SHEAR 11 K
MOMENT 1408 kip-ft
TORQUE 2 kip-ft
50 mph WIND - 1.5000 in ICE

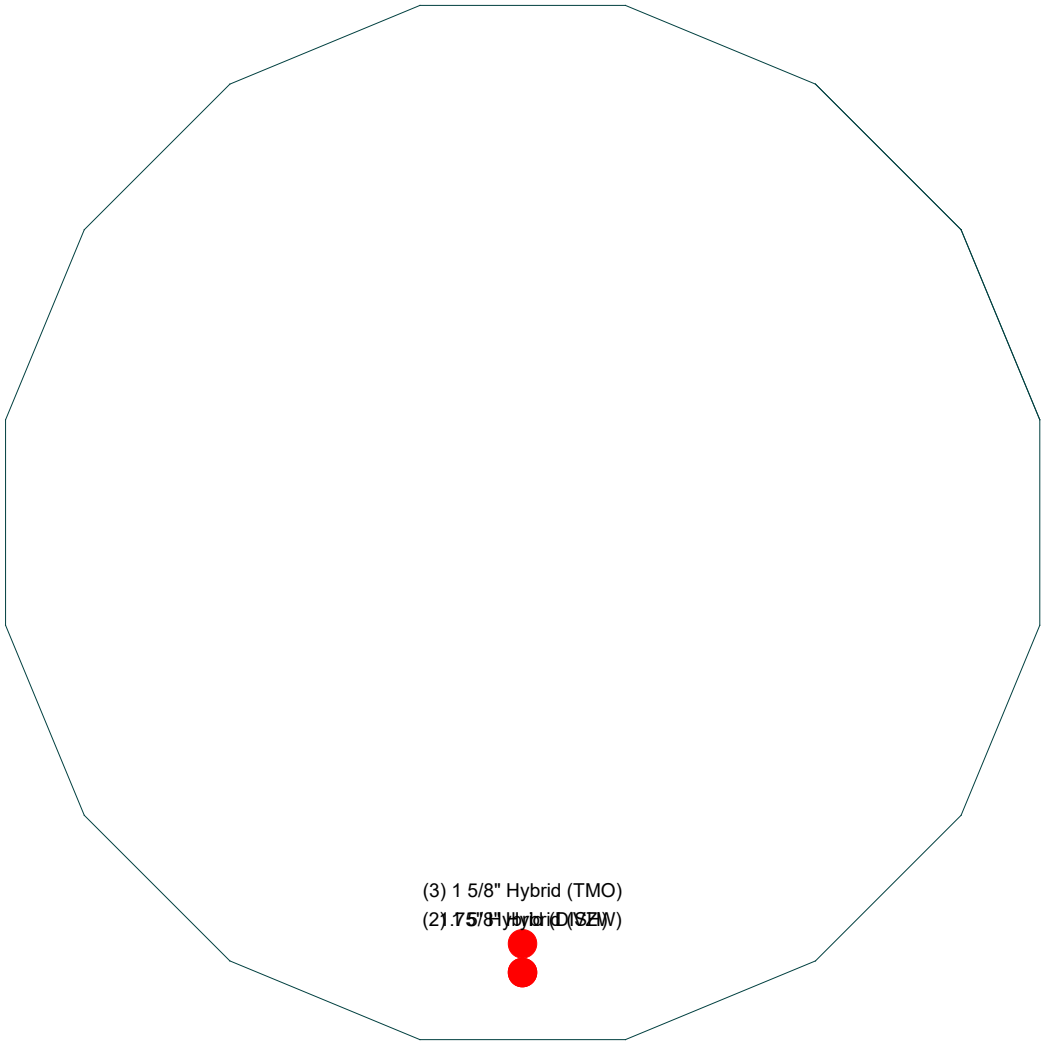
AXIAL 61 K
SHEAR 39 K
MOMENT 4740 kip-ft
TORQUE 8 kip-ft
REACTIONS - 120 mph WIND

Vertical Bridge, LLC
750 Park of Commerce Drive
Boca Raton, Florida 33487
Phone:
FAX:

Job: *US-CT-5017*			
Project: *P-049077*			
Client: T-Mobile	Drawn by: Nicole.Hoffman		App'd:
Code: TIA-222-H	Date: 05/23/24		Scale: NTS
Path:			Dwg No. E-1

Feed Line Plan

Round Flat App In Face App Out Face



Vertical Bridge, LLC 750 Park of Commerce Drive Boca Raton, Florida 33487 Phone: FAX:	Job: ***US-CT-5017***		
	Project: ***P-049077***		
	Client: T-Mobile	Drawn by: Nicole.Hoffman	App'd:
	Code: TIA-222-H	Date: 05/23/24	Scale: NTS
	Path:		Dwg No. E-7

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Tolland County, Connecticut.
Tower base elevation above sea level: 231.700 ft.
Basic wind speed of 120 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.000 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

	Consider Moments - Legs		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Horizontals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Consider Moments - Diagonals	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
	Use Moment Magnification		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Stress Ratios		Retension Guys To Initial Tension		Offset Girt At Foundation
	Use Code Safety Factors - Guys	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Escalate Ice	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Always Use Max Kz	√	Project Wind Area of Appurtenances		Use TIA-222-H Bracing Resist. Exemption
	Use Special Wind Profile		Alternative Appurt. EPA Calculation		Use TIA-222-H Tension Splice Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Poles
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination	√	Include Shear-Torsion Interaction
	Secondary Horizontal Braces Leg	√	Sort Capacity Reports By Component		Always Use Sub-Critical Flow
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Use Top Mounted Sockets
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Pole Without Linear Attachments
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole With Shroud Or No Appurtenances
	Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules		Outside and Inside Corner Radii Are Known

Tapered Pole Section Geometry

Section	*Elevation* *ft*	*Section Length* *ft*	*Splice Length* *ft*	*Number of Sides*	*Top Diameter* *in*	*Bottom Diameter* *in*	*Wall Thickness* *in*	*Bend Radius* *in*	*Pole Grade*
L1	180.000-142.500	37.500	4.250	18	18.7500	30.2800	0.2500	1.0000	A572-65 (65 ksi)
L2	142.500-93.250	53.500	6.250	18	28.4733	44.9300	0.3750	1.5000	A572-65

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L3	93.250-46.000	53.500	8.250	18	42.2575	58.7000	0.4375	1.7500	(65 ksi) A572-65 (65 ksi)
L4	46.000-1.000	53.250		18	55.2895	71.6700	0.4375	1.7500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	19.0007	14.6798	634.7454	6.5675	9.5250	66.6399	1270.3260	7.3413	2.8600	11.44
	30.7086	23.8288	2714.8784	10.6607	15.3822	176.4943	5433.3291	11.9167	4.8893	19.557
L2	30.1821	33.4440	3335.9093	9.9749	14.4644	230.6286	6676.2080	16.7252	4.3513	11.603
	45.5653	53.0316	13300.4086	15.8170	22.8244	582.7266	26618.3183	26.5208	7.2477	19.327
L3	44.7924	58.0723	12831.3996	14.8461	21.4668	597.7322	25679.6831	29.0417	6.6673	15.24
	59.5381	80.9048	34696.8284	20.6832	29.8196	1163.5578	69439.3117	40.4601	9.5612	21.854
L4	58.6519	76.1688	28953.3729	19.4725	28.0871	1030.8441	57944.8435	38.0916	8.9609	20.482
	72.7081	98.9152	63409.8886	25.2875	36.4084	1741.6299	126903.2136	49.4670	11.8439	27.072

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 180.000-142.500				1	1	1			
L2 142.500-93.250				1	1	1			
L3 93.250-46.000				1	1	1			
L4 46.000-1.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight klf
***										
Safety Line 3/8	C	No	Surface Ar (CaAa)	180.000 - 6.000	1	1	0.000 0.000	0.3750		0.000
Step Pegs	C	No	Surface Ar (CaAa)	180.000 - 6.000	1	1	0.000 0.000	0.7500		0.002
***										

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
***									
1 5/8" Hybrid (TMO)	C	No	No	Inside Pole	175.000 - 6.000	3	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
***									
1 5/8" Hybrid (VZW)	C	No	No	Inside Pole	165.000 - 6.000	2	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
***									
1.75" Hybrid (DISH)	C	No	No	Inside Pole	165.000 - 6.000	1	No Ice	0.000	0.001
							1/2" Ice	0.000	0.001
							1" Ice	0.000	0.001
							2" Ice	0.000	0.001
***									

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	180.000-142.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	4.219	0.000	0.279
L2	142.500-93.250	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	5.541	0.000	0.469
L3	93.250-46.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	5.316	0.000	0.450
L4	46.000-1.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	4.500	0.000	0.381

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	180.000-142.500	A	1.756	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	30.565	0.000	0.652
L2	142.500-93.250	A	1.702	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	40.142	0.000	0.959
L3	93.250-46.000	A	1.615	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	37.476	0.000	0.895
L4	46.000-1.000	A	1.451	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	30.335	0.000	0.724

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	180.000-142.500	0.0000	0.8705	0.0000	2.7995
L2	142.500-93.250	0.0000	0.8841	0.0000	3.1270
L3	93.250-46.000	0.0000	0.8913	0.0000	3.2571
L4	46.000-1.000	0.0000	0.7887	0.0000	2.8885

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	2	Safety Line 3/8	142.50 - 180.00	1.0000	1.0000
L1	3	Step Pegs	142.50 - 180.00	1.0000	1.0000
L2	2	Safety Line 3/8	93.25 - 142.50	1.0000	1.0000
L2	3	Step Pegs	93.25 - 142.50	1.0000	1.0000
L3	2	Safety Line 3/8	46.00 - 93.25	1.0000	1.0000
L3	3	Step Pegs	46.00 - 93.25	1.0000	1.0000
L4	2	Safety Line 3/8	6.00 - 46.00	1.0000	1.0000
L4	3	Step Pegs	6.00 - 46.00	1.0000	1.0000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
***									
Lightning Rod 5/8x4'	C	From Leg	0.000	0.0000	180.000	No Ice	0.250	0.250	0.031

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000				1/2" Ice	0.664	0.664	0.034
			2.000				1" Ice	0.973	0.973	0.039
							2" Ice	1.494	1.494	0.059
***										
Site Pro ULPD12-4xx (TMO)	C	None			0.0000	175.000	No Ice	25.540	23.880	2.060
							1/2" Ice	31.800	30.600	2.356
							1" Ice	38.240	36.960	2.780
							2" Ice	50.580	50.760	3.244
(4) 2.0 STD Mount Pipe (96") (TMO)	A	From Leg	4.000		0.0000	175.000	No Ice	1.900	1.900	0.028
			0.000				1/2" Ice	2.728	2.728	0.043
			0.000				1" Ice	3.401	3.401	0.062
							2" Ice	4.396	4.396	0.118
(4) 2.0 STD Mount Pipe (96") (TMO)	B	From Leg	4.000		0.0000	175.000	No Ice	1.900	1.900	0.028
			0.000				1/2" Ice	2.728	2.728	0.043
			0.000				1" Ice	3.401	3.401	0.062
							2" Ice	4.396	4.396	0.118
(4) 2.0 STD Mount Pipe (96") (TMO)	C	From Leg	4.000		0.0000	175.000	No Ice	1.900	1.900	0.028
			0.000				1/2" Ice	2.728	2.728	0.043
			0.000				1" Ice	3.401	3.401	0.062
							2" Ice	4.396	4.396	0.118
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	A	From Leg	4.000		0.0000	175.000	No Ice	20.243	8.733	0.123
			0.000				1/2" Ice	20.890	9.330	0.235
			0.000				1" Ice	21.544	9.935	0.355
							2" Ice	22.874	11.166	0.622
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	B	From Leg	4.000		0.0000	175.000	No Ice	20.243	8.733	0.123
			0.000				1/2" Ice	20.890	9.330	0.235
			0.000				1" Ice	21.544	9.935	0.355
							2" Ice	22.874	11.166	0.622
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	C	From Leg	4.000		0.0000	175.000	No Ice	20.243	8.733	0.123
			0.000				1/2" Ice	20.890	9.330	0.235
			0.000				1" Ice	21.544	9.935	0.355
							2" Ice	22.874	11.166	0.622
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	A	From Leg	4.000		0.0000	175.000	No Ice	20.243	8.733	0.123
			0.000				1/2" Ice	20.890	9.330	0.235
			0.000				1" Ice	21.544	9.935	0.355
							2" Ice	22.874	11.166	0.622
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	B	From Leg	4.000		0.0000	175.000	No Ice	20.243	8.733	0.123
			0.000				1/2" Ice	20.890	9.330	0.235
			0.000				1" Ice	21.544	9.935	0.355
							2" Ice	22.874	11.166	0.622
RFS/CELWAVE APXVAALL24_43-U-NA20 (TMO)	C	From Leg	4.000		0.0000	175.000	No Ice	20.243	8.733	0.123
			0.000				1/2" Ice	20.890	9.330	0.235
			0.000				1" Ice	21.544	9.935	0.355
							2" Ice	22.874	11.166	0.622
RFS/CELWAVE APX18-206513-C-A20 (TMO)	A	From Leg	4.000		0.0000	175.000	No Ice	3.759	2.604	0.083
			0.000				1/2" Ice	4.112	2.944	0.106
			0.000				1" Ice	4.467	3.291	0.134
							2" Ice	5.176	4.008	0.203
RFS/CELWAVE APX18-206513-C-A20 (TMO)	B	From Leg	4.000		0.0000	175.000	No Ice	3.759	2.604	0.083
			0.000				1/2" Ice	4.112	2.944	0.106
			0.000				1" Ice	4.467	3.291	0.134
							2" Ice	5.176	4.008	0.203
RFS/CELWAVE APX18-206513-C-A20 (TMO)	C	From Leg	4.000		0.0000	175.000	No Ice	3.759	2.604	0.083
			0.000				1/2" Ice	4.112	2.944	0.106
			0.000				1" Ice	4.467	3.291	0.134
							2" Ice	5.176	4.008	0.203
ERICSSON AIR 6419	A	From Leg	4.000		0.0000	175.000	No Ice	6.317	2.878	0.097

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
B41_TMO			0.000				1/2" Ice	6.638	3.125	0.140
(TMO)			0.000				1" Ice	6.966	3.378	0.188
							2" Ice	7.646	3.907	0.298
ERICSSON AIR 6419	B	From Leg	4.000		0.0000	175.000	No Ice	6.317	2.878	0.097
B41_TMO			0.000				1/2" Ice	6.638	3.125	0.140
(TMO)			0.000				1" Ice	6.966	3.378	0.188
							2" Ice	7.646	3.907	0.298
ERICSSON AIR 6419	C	From Leg	4.000		0.0000	175.000	No Ice	6.317	2.878	0.097
B41_TMO			0.000				1/2" Ice	6.638	3.125	0.140
(TMO)			0.000				1" Ice	6.966	3.378	0.188
							2" Ice	7.646	3.907	0.298
ERICSSON RADIO 4480	A	From Leg	4.000		0.0000	175.000	No Ice	2.878	1.397	0.077
B71/B85			0.000				1/2" Ice	3.091	1.558	0.099
(TMO)			0.000				1" Ice	3.312	1.727	0.124
							2" Ice	3.775	2.090	0.184
ERICSSON RADIO 4480	B	From Leg	4.000		0.0000	175.000	No Ice	2.878	1.397	0.077
B71/B85			0.000				1/2" Ice	3.091	1.558	0.099
(TMO)			0.000				1" Ice	3.312	1.727	0.124
							2" Ice	3.775	2.090	0.184
ERICSSON RADIO 4480	C	From Leg	4.000		0.0000	175.000	No Ice	2.878	1.397	0.077
B71/B85			0.000				1/2" Ice	3.091	1.558	0.099
(TMO)			0.000				1" Ice	3.312	1.727	0.124
							2" Ice	3.775	2.090	0.184
ERICSSON RADIO 4480	A	From Leg	4.000		0.0000	175.000	No Ice	2.878	1.397	0.077
B71/B85			0.000				1/2" Ice	3.091	1.558	0.099
(TMO)			0.000				1" Ice	3.312	1.727	0.124
							2" Ice	3.775	2.090	0.184
ERICSSON RADIO 4480	B	From Leg	4.000		0.0000	175.000	No Ice	2.878	1.397	0.077
B71/B85			0.000				1/2" Ice	3.091	1.558	0.099
(TMO)			0.000				1" Ice	3.312	1.727	0.124
							2" Ice	3.775	2.090	0.184
ERICSSON RADIO 4480	C	From Leg	4.000		0.0000	175.000	No Ice	2.878	1.397	0.077
B71/B85			0.000				1/2" Ice	3.091	1.558	0.099
(TMO)			0.000				1" Ice	3.312	1.727	0.124
							2" Ice	3.775	2.090	0.184
ERICSSON RADIO 4460	A	From Leg	4.000		0.0000	175.000	No Ice	2.139	1.686	0.109
B2/B25 B66_TMO			0.000				1/2" Ice	2.321	1.850	0.131
(TMO)			0.000				1" Ice	2.511	2.022	0.156
							2" Ice	2.912	2.387	0.217
ERICSSON RADIO 4460	B	From Leg	4.000		0.0000	175.000	No Ice	2.139	1.686	0.109
B2/B25 B66_TMO			0.000				1/2" Ice	2.321	1.850	0.131
(TMO)			0.000				1" Ice	2.511	2.022	0.156
							2" Ice	2.912	2.387	0.217
ERICSSON RADIO 4460	C	From Leg	4.000		0.0000	175.000	No Ice	2.139	1.686	0.109
B2/B25 B66_TMO			0.000				1/2" Ice	2.321	1.850	0.131
(TMO)			0.000				1" Ice	2.511	2.022	0.156
							2" Ice	2.912	2.387	0.217
1/3 Remaining Reserve	A	None			0.0000	175.000	No Ice	5.730	5.730	0.061
Rights (25000 sq.in.)							1/2" Ice	6.720	6.720	0.092
(TMO)							1" Ice	7.710	7.710	0.123
							2" Ice	9.690	9.690	0.185
1/3 Remaining Reserve	B	None			0.0000	175.000	No Ice	5.730	5.730	0.061
Rights (25000 sq.in.)							1/2" Ice	6.720	6.720	0.092
(TMO)							1" Ice	7.710	7.710	0.123
							2" Ice	9.690	9.690	0.185
1/3 Remaining Reserve	C	None			0.0000	175.000	No Ice	5.730	5.730	0.061
Rights (25000 sq.in.)							1/2" Ice	6.720	6.720	0.092

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral ft* / *Vert ft* / *ft*	*Azimuth Adjustment* °	*Placement* *ft*		*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *K*
(TMO)						1" Ice	7.710	7.710	0.123
						2" Ice	9.690	9.690	0.185
***									
Site Pro RMQP-496-HK	C	None		0.0000	165.000	No Ice	34.540	31.940	1.945
(VZW)						1/2" Ice	42.040	39.460	2.335
						1" Ice	49.600	47.160	2.845
						2" Ice	64.540	62.020	3.505
(4) 2.0 STD Mount Pipe (96")	A	From Leg	4.000	0.0000	165.000	No Ice	1.900	1.900	0.028
(VZW)			0.000			1/2" Ice	2.728	2.728	0.043
			0.000			1" Ice	3.401	3.401	0.062
						2" Ice	4.396	4.396	0.118
(4) 2.0 STD Mount Pipe (96")	B	From Leg	4.000	0.0000	165.000	No Ice	1.900	1.900	0.028
(VZW)			0.000			1/2" Ice	2.728	2.728	0.043
			0.000			1" Ice	3.401	3.401	0.062
						2" Ice	4.396	4.396	0.118
(4) 2.0 STD Mount Pipe (96")	C	From Leg	4.000	0.0000	165.000	No Ice	1.900	1.900	0.028
(VZW)			0.000			1/2" Ice	2.728	2.728	0.043
			0.000			1" Ice	3.401	3.401	0.062
						2" Ice	4.396	4.396	0.118
COMMSCOPE	A	From Leg	4.000	0.0000	165.000	No Ice	8.079	5.342	0.066
NHHSS-65B-R2B			0.000			1/2" Ice	8.535	5.795	0.116
(VZW)			0.000			1" Ice	8.998	6.255	0.172
						2" Ice	9.945	7.199	0.303
COMMSCOPE	B	From Leg	4.000	0.0000	165.000	No Ice	8.079	5.342	0.066
NHHSS-65B-R2B			0.000			1/2" Ice	8.535	5.795	0.116
(VZW)			0.000			1" Ice	8.998	6.255	0.172
						2" Ice	9.945	7.199	0.303
COMMSCOPE	C	From Leg	4.000	0.0000	165.000	No Ice	8.079	5.342	0.066
NHHSS-65B-R2B			0.000			1/2" Ice	8.535	5.795	0.116
(VZW)			0.000			1" Ice	8.998	6.255	0.172
						2" Ice	9.945	7.199	0.303
COMMSCOPE	A	From Leg	4.000	0.0000	165.000	No Ice	8.079	5.342	0.044
NHH-65B-R2B			0.000			1/2" Ice	8.535	5.795	0.094
(VZW)			0.000			1" Ice	8.998	6.255	0.150
						2" Ice	9.945	7.199	0.281
COMMSCOPE	B	From Leg	4.000	0.0000	165.000	No Ice	8.079	5.342	0.044
NHH-65B-R2B			0.000			1/2" Ice	8.535	5.795	0.094
(VZW)			0.000			1" Ice	8.998	6.255	0.150
						2" Ice	9.945	7.199	0.281
COMMSCOPE	C	From Leg	4.000	0.0000	165.000	No Ice	8.079	5.342	0.044
NHH-65B-R2B			0.000			1/2" Ice	8.535	5.795	0.094
(VZW)			0.000			1" Ice	8.998	6.255	0.150
						2" Ice	9.945	7.199	0.281
SAMSUNG	A	From Leg	4.000	0.0000	165.000	No Ice	4.692	1.840	0.082
TELECOMMUNICATIONS			0.000			1/2" Ice	4.980	2.063	0.111
MT6407-77A			0.000			1" Ice	5.275	2.292	0.144
(VZW)						2" Ice	5.887	2.772	0.223
SAMSUNG	B	From Leg	4.000	0.0000	165.000	No Ice	4.692	1.840	0.082
TELECOMMUNICATIONS			0.000			1/2" Ice	4.980	2.063	0.111
MT6407-77A			0.000			1" Ice	5.275	2.292	0.144
(VZW)						2" Ice	5.887	2.772	0.223
SAMSUNG	C	From Leg	4.000	0.0000	165.000	No Ice	4.692	1.840	0.082
TELECOMMUNICATIONS			0.000			1/2" Ice	4.980	2.063	0.111
MT6407-77A			0.000			1" Ice	5.275	2.292	0.144
(VZW)						2" Ice	5.887	2.772	0.223
SAMSUNG	A	From Leg	4.000	0.0000	165.000	No Ice	1.875	1.012	0.070
TELECOMMUNICATIONS			0.000			1/2" Ice	2.045	1.145	0.087

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RFV01U-D2A			0.000				1" Ice	2.223	1.284	0.106
(VZW)							2" Ice	2.601	1.585	0.153
SAMSUNG	B	From Leg	4.000		0.0000	165.000	No Ice	1.875	1.012	0.070
TELECOMMUNICATIONS			0.000				1/2" Ice	2.045	1.145	0.087
RFV01U-D2A			0.000				1" Ice	2.223	1.284	0.106
(VZW)							2" Ice	2.601	1.585	0.153
SAMSUNG	C	From Leg	4.000		0.0000	165.000	No Ice	1.875	1.012	0.070
TELECOMMUNICATIONS			0.000				1/2" Ice	2.045	1.145	0.087
RFV01U-D2A			0.000				1" Ice	2.223	1.284	0.106
(VZW)							2" Ice	2.601	1.585	0.153
SAMSUNG	A	From Leg	4.000		0.0000	165.000	No Ice	1.875	1.250	0.084
TELECOMMUNICATIONS			0.000				1/2" Ice	2.045	1.393	0.103
RFV01U-D1A			0.000				1" Ice	2.223	1.543	0.124
(VZW)							2" Ice	2.601	1.865	0.175
SAMSUNG	B	From Leg	4.000		0.0000	165.000	No Ice	1.875	1.250	0.084
TELECOMMUNICATIONS			0.000				1/2" Ice	2.045	1.393	0.103
RFV01U-D1A			0.000				1" Ice	2.223	1.543	0.124
(VZW)							2" Ice	2.601	1.865	0.175
SAMSUNG	C	From Leg	4.000		0.0000	165.000	No Ice	1.875	1.250	0.084
TELECOMMUNICATIONS			0.000				1/2" Ice	2.045	1.393	0.103
RFV01U-D1A			0.000				1" Ice	2.223	1.543	0.124
(VZW)							2" Ice	2.601	1.865	0.175
SAMSUNG	A	From Leg	4.000		0.0000	165.000	No Ice	0.996	0.501	0.023
TELECOMMUNICATIONS			0.000				1/2" Ice	1.125	0.602	0.031
RT4401-48A			0.000				1" Ice	1.261	0.709	0.041
(VZW)							2" Ice	1.555	0.948	0.067
SAMSUNG	B	From Leg	4.000		0.0000	165.000	No Ice	0.996	0.501	0.023
TELECOMMUNICATIONS			0.000				1/2" Ice	1.125	0.602	0.031
RT4401-48A			0.000				1" Ice	1.261	0.709	0.041
(VZW)							2" Ice	1.555	0.948	0.067
SAMSUNG	C	From Leg	4.000		0.0000	165.000	No Ice	0.996	0.501	0.023
TELECOMMUNICATIONS			0.000				1/2" Ice	1.125	0.602	0.031
RT4401-48A			0.000				1" Ice	1.261	0.709	0.041
(VZW)							2" Ice	1.555	0.948	0.067
RAYCAP	B	From Leg	4.000		0.0000	165.000	No Ice	3.792	2.512	0.032
RC3DC-3315-PF-48			0.000				1/2" Ice	4.044	2.725	0.063
(VZW)			0.000				1" Ice	4.303	2.945	0.099
							2" Ice	4.844	3.414	0.181
RAYCAP	C	From Leg	4.000		0.0000	165.000	No Ice	3.792	2.512	0.032
RC3DC-3315-PF-48			0.000				1/2" Ice	4.044	2.725	0.063
(VZW)			0.000				1" Ice	4.303	2.945	0.099
							2" Ice	4.844	3.414	0.181
***										
Site Pro SNP8HR-3xx	C	None			0.0000	155.000	No Ice	26.900	26.000	1.472
(DISH)							1/2" Ice	31.560	30.670	1.714
							1" Ice	35.730	34.650	2.002
							2" Ice	45.540	44.680	2.440
(3) 2.0 STD Mount Pipe (96")	A	From Leg	4.000		0.0000	155.000	No Ice	1.900	1.900	0.028
(DISH)			0.000				1/2" Ice	2.728	2.728	0.043
			0.000				1" Ice	3.401	3.401	0.062
							2" Ice	4.396	4.396	0.118
(3) 2.0 STD Mount Pipe (96")	B	From Leg	4.000		0.0000	155.000	No Ice	1.900	1.900	0.028
(DISH)			0.000				1/2" Ice	2.728	2.728	0.043
			0.000				1" Ice	3.401	3.401	0.062
							2" Ice	4.396	4.396	0.118
(3) 2.0 STD Mount Pipe (96")	C	From Leg	4.000		0.0000	155.000	No Ice	1.900	1.900	0.028
(DISH)			0.000				1/2" Ice	2.728	2.728	0.043

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			0.000			1" Ice	3.401	3.401	0.062
						2" Ice	4.396	4.396	0.118
JMA WIRELESS MX08FRO665-20 (DISH)	A	From Leg	4.000 0.000 0.000	0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.900 12.986 13.490 14.519	0.923 6.325 6.790 7.743	0.072 0.146 0.226 0.408
JMA WIRELESS MX08FRO665-20 (DISH)	B	From Leg	4.000 0.000 0.000	0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.900 12.986 13.490 14.519	0.923 6.325 6.790 7.743	0.072 0.146 0.226 0.408
JMA WIRELESS MX08FRO665-20 (DISH)	C	From Leg	4.000 0.000 0.000	0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	4.900 12.986 13.490 14.519	0.923 6.325 6.790 7.743	0.072 0.146 0.226 0.408
FUJITSU TA08025-B604 (DISH)	A	From Leg	4.000 0.000 0.000	0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
FUJITSU TA08025-B604 (DISH)	B	From Leg	4.000 0.000 0.000	0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
FUJITSU TA08025-B604 (DISH)	C	From Leg	4.000 0.000 0.000	0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	0.981 1.112 1.250 1.548	0.064 0.081 0.100 0.148
FUJITSU TA08025-B605 (DISH)	A	From Leg	4.000 0.000 0.000	0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
FUJITSU TA08025-B605 (DISH)	B	From Leg	4.000 0.000 0.000	0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
FUJITSU TA08025-B605 (DISH)	C	From Leg	4.000 0.000 0.000	0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	1.964 2.138 2.320 2.705	1.129 1.267 1.411 1.723	0.075 0.093 0.114 0.164
RAYCAP RDIDC-9181-PF-48 (DISH)	C	From Leg	4.000 0.000 0.000	0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	2.012 2.189 2.373 2.763	1.168 1.311 1.461 1.784	0.022 0.040 0.060 0.110
1/3 Remaining Reserve Rights (DISH)	A	None		0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.774 6.755 7.736 9.698	5.774 6.755 7.736 9.698	0.062 0.092 0.122 0.182
1/3 Remaining Reserve Rights (DISH)	B	None		0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.774 6.755 7.736 9.698	5.774 6.755 7.736 9.698	0.062 0.092 0.122 0.182
1/3 Remaining Reserve Rights (DISH)	C	None		0.0000	155.000	No Ice 1/2" Ice 1" Ice 2" Ice	5.774 6.755 7.736 9.698	5.774 6.755 7.736 9.698	0.062 0.092 0.122 0.182
***									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral / Vert (ft)	Azimuth Adjustment (°)	3 dB Beam Width (°)	Elevation (ft)	Outside Diameter (ft)		Aperture Area (ft^2)	Weight (K)
***											
VHLP1-23 (TMO)	C	Paraboloid w/Radome	From Leg	4.000 0.000 0.000	0.0000		175.000	1.275	No Ice 1/2" Ice 1" Ice 2" Ice	1.277 1.449 1.621 1.966	0.014 0.021 0.029 0.044
***											

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice
19	0.9 Dead+1.0 Wind 240 deg - No Ice
20	1.2 Dead+1.0 Wind 270 deg - No Ice
21	0.9 Dead+1.0 Wind 270 deg - No Ice
22	1.2 Dead+1.0 Wind 300 deg - No Ice
23	0.9 Dead+1.0 Wind 300 deg - No Ice
24	1.2 Dead+1.0 Wind 330 deg - No Ice
25	0.9 Dead+1.0 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp

Comb. No.	Description
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	180 - 142.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.612	0.707	-1.758
			Max. Mx	8	-14.169	-427.741	0.073
			Max. My	14	-14.184	0.133	-426.156
			Max. Vy	8	20.860	-427.741	0.073
			Max. Vx	2	-20.768	-0.033	425.894
			Max. Torque	9			-8.529
L2	142.5 - 93.25	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-46.255	0.730	-2.716
			Max. Mx	8	-23.635	-1530.629	-0.271
			Max. My	2	-23.644	-0.401	1524.259
			Max. Vy	8	26.036	-1530.629	-0.271
			Max. Vx	2	-25.944	-0.401	1524.259
			Max. Torque	9			-8.523
L3	93.25 - 46	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-66.338	0.730	-3.805
			Max. Mx	8	-38.432	-2843.823	-0.477
			Max. My	2	-38.436	-0.760	2833.096
			Max. Vy	8	32.056	-2843.823	-0.477
			Max. Vx	2	-31.965	-0.760	2833.096
			Max. Torque	9			-8.500
L4	46 - 1	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-96.197	0.730	-5.157
			Max. Mx	8	-61.336	-4739.670	-0.646
			Max. My	2	-61.336	-1.181	4723.881
			Max. Vy	8	38.878	-4739.670	-0.646
			Max. Vx	2	-38.790	-1.181	4723.881
			Max. Torque	9			-8.489

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	33	96.197	-0.001	-11.338
	Max. H_x	20	61.353	38.832	-0.002
	Max. H_z	2	61.353	-0.008	38.763

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Max. M_x	2	4723.881	-0.008	38.763
	Max. M_z	8	4739.670	-38.851	0.002
	Max. Torsion	21	8.454	38.832	-0.002
	Min. Vert	25	46.015	19.368	33.564
	Min. H_x	8	61.353	-38.851	0.002
	Min. H_z	14	61.353	-0.002	-38.745
	Min. M_x	14	-4722.704	-0.002	-38.745
	Min. M_z	20	-4736.640	38.832	-0.002
	Min. Torsion	9	-8.486	-38.851	0.002

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	51.128	0.000	0.000	0.825	0.177	0.000
1.2 Dead+1.0 Wind 0 deg - No Ice	61.353	0.008	-38.763	-4723.881	-1.181	-0.434
0.9 Dead+1.0 Wind 0 deg - No Ice	46.015	0.008	-38.763	-4685.079	-1.227	-0.433
1.2 Dead+1.0 Wind 30 deg - No Ice	61.353	19.406	-33.609	-4097.581	-2366.553	-7.594
0.9 Dead+1.0 Wind 30 deg - No Ice	46.015	19.406	-33.609	-4063.953	-2347.020	-7.595
1.2 Dead+1.0 Wind 60 deg - No Ice	61.353	33.642	-19.423	-2368.452	-4103.837	0.513
0.9 Dead+1.0 Wind 60 deg - No Ice	46.015	33.642	-19.423	-2349.116	-4069.944	0.514
1.2 Dead+1.0 Wind 90 deg - No Ice	61.353	38.851	-0.002	0.645	-4739.670	8.482
0.9 Dead+1.0 Wind 90 deg - No Ice	46.015	38.851	-0.002	0.399	-4700.514	8.486
1.2 Dead+1.0 Wind 120 deg - No Ice	61.353	33.609	19.395	2365.776	-4098.448	0.946
0.9 Dead+1.0 Wind 120 deg - No Ice	46.015	33.609	19.395	2345.950	-4064.602	0.948
1.2 Dead+1.0 Wind 150 deg - No Ice	61.353	19.384	33.555	4090.366	-2362.609	-6.856
0.9 Dead+1.0 Wind 150 deg - No Ice	46.015	19.384	33.555	4056.274	-2343.139	-6.857
1.2 Dead+1.0 Wind 180 deg - No Ice	61.353	0.002	38.745	4722.704	-0.174	0.397
0.9 Dead+1.0 Wind 180 deg - No Ice	46.015	0.002	38.745	4683.399	-0.229	0.397
1.2 Dead+1.0 Wind 210 deg - No Ice	61.353	-19.397	33.593	4096.709	2365.128	7.563
0.9 Dead+1.0 Wind 210 deg - No Ice	46.015	-19.397	33.593	4062.559	2345.522	7.564
1.2 Dead+1.0 Wind 240 deg - No Ice	61.353	-33.631	19.417	2369.438	4102.428	-0.513
0.9 Dead+1.0 Wind 240 deg - No Ice	46.015	-33.631	19.417	2349.578	4068.433	-0.514
1.2 Dead+1.0 Wind 270 deg - No Ice	61.353	-38.832	0.002	1.256	4736.640	-8.450
0.9 Dead+1.0 Wind 270 deg - No Ice	46.015	-38.832	0.002	1.003	4697.398	-8.454
1.2 Dead+1.0 Wind 300 deg -	61.353	-33.589	-19.395	-2363.658	4095.187	-0.909

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
No Ice 0.9 Dead+1.0 Wind 300 deg - No Ice	46.015	-33.589	-19.395	-2344.366	4061.259	-0.911
1.2 Dead+1.0 Wind 330 deg - No Ice	61.353	-19.368	-33.564	-4089.909	2360.275	6.856
0.9 Dead+1.0 Wind 330 deg - No Ice	46.015	-19.368	-33.564	-4056.351	2340.687	6.857
1.2 Dead+1.0 Ice+1.0 Temp	96.197	-0.000	0.000	5.157	0.730	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	96.197	0.002	-11.343	-1396.504	0.403	-0.115
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	96.197	5.677	-9.832	-1210.189	-701.156	-1.479
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	96.197	9.838	-5.680	-697.051	-1215.920	0.109
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	96.197	11.361	-0.000	5.317	-1404.321	1.668
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	96.197	9.831	5.674	706.738	-1214.708	0.224
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	96.197	5.672	9.819	1218.750	-700.249	-1.283
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	96.197	0.001	11.338	1406.456	0.671	0.106
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	96.197	-5.674	9.827	1220.214	702.225	1.471
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	96.197	-9.835	5.678	707.583	1216.977	-0.109
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	96.197	-11.356	0.000	5.479	1404.946	-1.659
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	96.197	-9.826	-5.674	-695.902	1215.273	-0.214
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	96.197	-5.668	-9.821	-1208.368	701.048	1.283
Dead+Wind 0 deg - Service	51.128	0.002	-8.671	-1051.049	-0.125	-0.098
Dead+Wind 30 deg - Service	51.128	4.341	-7.518	-911.622	-526.718	-1.714
Dead+Wind 60 deg - Service	51.128	7.525	-4.345	-526.661	-913.501	0.116
Dead+Wind 90 deg - Service	51.128	8.690	-0.000	0.784	-1055.057	1.915
Dead+Wind 120 deg - Service	51.128	7.518	4.338	527.321	-912.299	0.214
Dead+Wind 150 deg - Service	51.128	4.336	7.506	911.258	-525.857	-1.548
Dead+Wind 180 deg - Service	51.128	0.000	8.667	1052.042	0.099	0.089
Dead+Wind 210 deg - Service	51.128	-4.339	7.514	912.672	526.695	1.707
Dead+Wind 240 deg - Service	51.128	-7.523	4.343	528.137	913.462	-0.116
Dead+Wind 270 deg - Service	51.128	-8.686	0.000	0.919	1054.656	-1.908
Dead+Wind 300 deg - Service	51.128	-7.513	-4.338	-525.592	911.848	-0.205
Dead+Wind 330 deg - Service	51.128	-4.332	-7.508	-909.910	525.595	1.548

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-51.128	0.000	0.000	51.128	0.000	0.000%
2	0.008	-61.353	-38.763	-0.008	61.353	38.763	0.000%
3	0.008	-46.015	-38.763	-0.008	46.015	38.763	0.000%
4	19.406	-61.353	-33.609	-19.406	61.353	33.609	0.000%
5	19.406	-46.015	-33.609	-19.406	46.015	33.609	0.000%
6	33.642	-61.353	-19.423	-33.642	61.353	19.423	0.000%
7	33.642	-46.015	-19.423	-33.642	46.015	19.423	0.000%
8	38.851	-61.353	-0.002	-38.851	61.353	0.002	0.000%

Load Comb.	Sum of Applied Forces PX K	PY K	PZ K	Sum of Reactions PX K	PY K	PZ K	% Error
9	38.851	-46.015	-0.002	-38.851	46.015	0.002	0.000%
10	33.609	-61.353	19.395	-33.609	61.353	-19.395	0.000%
11	33.609	-46.015	19.395	-33.609	46.015	-19.395	0.000%
12	19.384	-61.353	33.555	-19.384	61.353	-33.555	0.000%
13	19.384	-46.015	33.555	-19.384	46.015	-33.555	0.000%
14	0.002	-61.353	38.745	-0.002	61.353	-38.745	0.000%
15	0.002	-46.015	38.745	-0.002	46.015	-38.745	0.000%
16	-19.397	-61.353	33.593	19.397	61.353	-33.593	0.000%
17	-19.397	-46.015	33.593	19.397	46.015	-33.593	0.000%
18	-33.631	-61.353	19.417	33.631	61.353	-19.417	0.000%
19	-33.631	-46.015	19.417	33.631	46.015	-19.417	0.000%
20	-38.832	-61.353	0.002	38.832	61.353	-0.002	0.000%
21	-38.832	-46.015	0.002	38.832	46.015	-0.002	0.000%
22	-33.589	-61.353	-19.395	33.589	61.353	19.395	0.000%
23	-33.589	-46.015	-19.395	33.589	46.015	19.395	0.000%
24	-19.368	-61.353	-33.564	19.368	61.353	33.564	0.000%
25	-19.368	-46.015	-33.564	19.368	46.015	33.564	0.000%
26	0.000	-96.197	0.000	0.000	96.197	-0.000	0.000%
27	0.002	-96.197	-11.343	-0.002	96.197	11.343	0.000%
28	5.677	-96.197	-9.832	-5.677	96.197	9.832	0.000%
29	9.838	-96.197	-5.680	-9.838	96.197	5.680	0.000%
30	11.361	-96.197	-0.000	-11.361	96.197	0.000	0.000%
31	9.831	-96.197	5.674	-9.831	96.197	-5.674	0.000%
32	5.672	-96.197	9.819	-5.672	96.197	-9.819	0.000%
33	0.001	-96.197	11.338	-0.001	96.197	-11.338	0.000%
34	-5.674	-96.197	9.827	5.674	96.197	-9.827	0.000%
35	-9.835	-96.197	5.678	9.835	96.197	-5.678	0.000%
36	-11.356	-96.197	0.000	11.356	96.197	-0.000	0.000%
37	-9.826	-96.197	-5.674	9.826	96.197	5.674	0.000%
38	-5.668	-96.197	-9.821	5.668	96.197	9.821	0.000%
39	0.002	-51.128	-8.671	-0.002	51.128	8.671	0.000%
40	4.341	-51.128	-7.518	-4.341	51.128	7.518	0.000%
41	7.525	-51.128	-4.345	-7.525	51.128	4.345	0.000%
42	8.690	-51.128	-0.000	-8.690	51.128	0.000	0.000%
43	7.518	-51.128	4.338	-7.518	51.128	-4.338	0.000%
44	4.336	-51.128	7.506	-4.336	51.128	-7.506	0.000%
45	0.000	-51.128	8.667	-0.000	51.128	-8.667	0.000%
46	-4.339	-51.128	7.514	4.339	51.128	-7.514	0.000%
47	-7.523	-51.128	4.343	7.523	51.128	-4.343	0.000%
48	-8.686	-51.128	0.000	8.686	51.128	-0.000	0.000%
49	-7.513	-51.128	-4.338	7.513	51.128	4.338	0.000%
50	-4.332	-51.128	-7.508	4.332	51.128	7.508	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00017366
3	Yes	4	0.00000001	0.00008701
4	Yes	5	0.00000001	0.00029624
5	Yes	5	0.00000001	0.00013119
6	Yes	5	0.00000001	0.00032915
7	Yes	5	0.00000001	0.00014681
8	Yes	5	0.00000001	0.00010114
9	Yes	5	0.00000001	0.00004754

10	Yes	5	0.00000001	0.00033740
11	Yes	5	0.00000001	0.00015091
12	Yes	5	0.00000001	0.00038229
13	Yes	5	0.00000001	0.00017315
14	Yes	4	0.00000001	0.00017013
15	Yes	4	0.00000001	0.00008401
16	Yes	5	0.00000001	0.00038918
17	Yes	5	0.00000001	0.00017640
18	Yes	5	0.00000001	0.00033574
19	Yes	5	0.00000001	0.00014998
20	Yes	5	0.00000001	0.00010086
21	Yes	5	0.00000001	0.00004751
22	Yes	5	0.00000001	0.00032528
23	Yes	5	0.00000001	0.00014508
24	Yes	5	0.00000001	0.00029656
25	Yes	5	0.00000001	0.00013143
26	Yes	4	0.00000001	0.00000872
27	Yes	5	0.00000001	0.00019675
28	Yes	5	0.00000001	0.00023434
29	Yes	5	0.00000001	0.00023592
30	Yes	5	0.00000001	0.00020164
31	Yes	5	0.00000001	0.00023912
32	Yes	5	0.00000001	0.00024323
33	Yes	5	0.00000001	0.00019896
34	Yes	5	0.00000001	0.00024525
35	Yes	5	0.00000001	0.00023984
36	Yes	5	0.00000001	0.00020205
37	Yes	5	0.00000001	0.00023575
38	Yes	5	0.00000001	0.00023433
39	Yes	4	0.00000001	0.00002219
40	Yes	4	0.00000001	0.00012671
41	Yes	4	0.00000001	0.00011356
42	Yes	4	0.00000001	0.00013767
43	Yes	4	0.00000001	0.00012414
44	Yes	4	0.00000001	0.00019309
45	Yes	4	0.00000001	0.00002208
46	Yes	4	0.00000001	0.00020272
47	Yes	4	0.00000001	0.00012148
48	Yes	4	0.00000001	0.00013720
49	Yes	4	0.00000001	0.00011087
50	Yes	4	0.00000001	0.00012067

Maximum Tower Deflections - Service Wind

Section No.	*Elevation* *ft*	*Horz. Deflection* *in*	*Gov. Load Comb.*	*Tilt* °	*Twist* °
L1	180 - 142.5	20.282	47	1.1330	0.0184
L2	146.75 - 93.25	12.797	47	0.9440	0.0074
L3	99.5 - 46	5.373	47	0.5442	0.0023
L4	54.25 - 1	1.515	47	0.2630	0.0008

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.000	Lightning Rod 5/8x4'	47	20.282	1.1330	0.0184	37871
175.000	VHLP1-23	47	19.099	1.1082	0.0166	37871
165.000	Site Pro RMQP-496-HK	47	16.766	1.0566	0.0129	12623
155.000	Site Pro SNP8HR-3xx	47	14.527	0.9990	0.0096	7574

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	180 - 142.5	91.144	8	5.0920	0.0821
L2	146.75 - 93.25	57.528	8	4.2459	0.0327
L3	99.5 - 46	24.155	8	2.4477	0.0100
L4	54.25 - 1	6.811	8	1.1821	0.0035

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
180.000	Lightning Rod 5/8x4'	8	91.144	5.0920	0.0821	8554
175.000	VHLP1-23	8	85.833	4.9812	0.0736	8554
165.000	Site Pro RMQP-496-HK	8	75.354	4.7504	0.0573	2850
155.000	Site Pro SNP8HR-3xx	8	65.301	4.4923	0.0427	1708

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	180 - 142.5 (1)	TP30.28x18.75x0.25	37.500	0.000	0.0	22.7919	-14.169	1333.330	0.011
L2	142.5 - 93.25 (2)	TP44.93x28.4733x0.375	53.500	0.000	0.0	50.7433	-23.635	2968.480	0.008
L3	93.25 - 46 (3)	TP58.7x42.2575x0.4375	53.500	0.000	0.0	77.3839	-38.432	4526.960	0.008
L4	46 - 1 (4)	TP71.67x55.2895x0.4375	53.250	0.000	0.0	98.9152	-61.336	5786.540	0.011

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	180 - 142.5 (1)	TP30.28x18.75x0.25	427.741	949.625	0.450	0.000	949.625	0.000
L2	142.5 - 93.25 (2)	TP44.93x28.4733x0.375	1530.625	3147.725	0.486	0.000	3147.725	0.000
L3	93.25 - 46 (3)	TP58.7x42.2575x0.4375	2843.825	6054.425	0.470	0.000	6054.425	0.000
L4	46 - 1 (4)	TP71.67x55.2895x0.4375	4739.667	8950.833	0.530	0.000	8950.833	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	180 - 142.5 (1)	TP30.28x18.75x0.25	20.860	399.998	0.052	8.522	1006.167	0.008
L2	142.5 - 93.25 (2)	TP44.93x28.4733x0.375	26.036	890.545	0.029	8.498	3324.883	0.003
L3	93.25 - 46 (3)	TP58.7x42.2575x0.4375	32.056	1358.090	0.024	8.486	6627.859	0.001
L4	46 - 1 (4)	TP71.67x55.2895x0.4375	38.878	1735.960	0.022	8.482	10829.250	0.001

Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	180 - 142.5 (1)	0.011	0.450	0.000	0.052	0.008	0.465 ✔	1.000	✔
L2	142.5 - 93.25 (2)	0.008	0.486	0.000	0.029	0.003	0.495 ✔	1.000	✔
L3	93.25 - 46 (3)	0.008	0.470	0.000	0.024	0.001	0.479 ✔	1.000	✔
L4	46 - 1 (4)	0.011	0.530	0.000	0.022	0.001	0.541 ✔	1.000	✔

Section Capacity Table

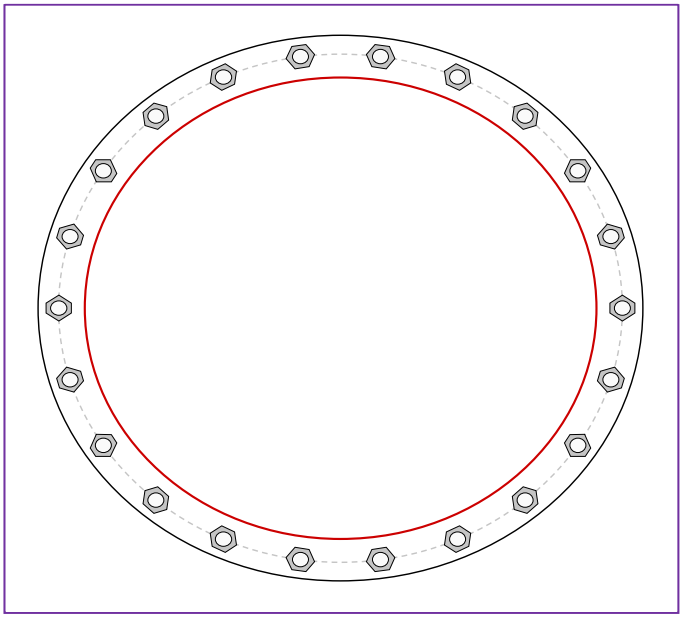
Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	180 - 142.5	Pole	TP30.28x18.75x0.25	1	-14.169	1333.330	46.5	Pass
L2	142.5 - 93.25	Pole	TP44.93x28.4733x0.375	2	-23.635	2968.480	49.5	Pass
L3	93.25 - 46	Pole	TP58.7x42.2575x0.4375	3	-38.432	4526.960	47.9	Pass
L4	46 - 1	Pole	TP71.67x55.2895x0.4375	4	-61.336	5786.540	54.1	Pass
							Summary	
						Pole (L4)	54.1	Pass
						RATING =	**54.1**	**Pass**

Monopole Base Plate Connection

Site Info	
Site Number	US-CT-5017

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	0

Applied Loads	
Moment (kip-ft)	4739.67
Axial Force (kips)	61.34
Shear Force (kips)	38.88



Connection Properties

Anchor Rod Data

(22) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 79" BC

Base Plate Data

84.75" OD x 2.25" Plate (A572-50; Fy=50 ksi, Fu=65 ksi)

Stiffener Data

N/A

Pole Data

71.67" x 0.4375" 18-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

Pu_t = 128.07	ϕPn_t = 243.75	**Stress Rating**
Vu = 1.77	ϕVn = 149.1	**52.5%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	24.25	(Flexural)
Allowable Stress (ksi):	45	
Stress Rating:	**53.9%**	**Pass**

Pier and Pad Foundation

Site Number: US-CT-5017

TIA-222 Revision:	H
Tower Type:	Monopole

Top & Bot. Pad Rein. Different?:	☐
Block Foundation?:	☐
Rectangular Pad?:	☐

Superstructure Analysis Reactions		
Compression, P_{comp}:	61.35	kips
Base Shear, Vu_comp:	38.85	kips
Moment, M_u:	4739.67	ft-kips
Tower Height, **H**:	180	ft
BP Dist. Above Fdn, bp_{dist}:		in

Pier Properties		
Pier Shape:	Circular	
Pier Diameter, **dpier**:	8	ft
Ext. Above Grade, **E**:	0.5	ft
Pier Rebar Size, **Sc**:	9	
Pier Rebar Quantity, **mc**:	50	
Pier Tie/Spiral Size, **St**:	5	
Pier Tie/Spiral Quantity, **mt**:	8	
Pier Reinforcement Type:	Tie	
Pier Clear Cover, cc_{pier}:	3	in

Pad Properties		
Depth, **D**:	6	ft
Pad Width, W_1:	29.5	ft
Pad Thickness, **T**:	2	ft
Pad Rebar Size (Bottom dir. 2), Sp_2:	9	
Pad Rebar Quantity (Bottom dir. 2), mp_2:	65	
Pad Clear Cover, cc_{pad}:	3	in

Material Properties		
Rebar Grade, **Fy**:	60	ksi
Concrete Compressive Strength, **F'c**:	4.5	ksi
Dry Concrete Density, δ**c**:	150	pcf

Soil Properties		
Total Soil Unit Weight, γ:	130	pcf
Ultimate Net Bearing, Qnet:	30.000	ksf
Cohesion, **Cu**:	0.000	ksf
Friction Angle, φ:	40	degrees
SPT Blow Count, N_{blows}:		
Base Friction, μ:	0.35	
Neglected Depth, **N**:	3.33	ft
Foundation Bearing on Rock?	No	
Groundwater Depth, **gw**:	7.5	ft

<--Toggle between Gross and Net

Foundation Analysis Checks	Capacity	Demand	Rating	Check
Lateral (Sliding) (kips)	323.55	38.85	**12.0%**	**Pass**
Bearing Pressure (ksf)	23.09	1.91	**8.3%**	**Pass**
*Overturning (kip*ft)*	9939.69	4992.20	**50.2%**	**Pass**
*Pier Flexure (Comp.) (kip*ft)*	9329.85	4914.50	**52.7%**	**Pass**
Pier Compression (kip)	35992.10	102.07	**0.3%**	**Pass**
*Pad Flexure (kip*ft)*	5226.35	1721.84	**32.9%**	**Pass**
Pad Shear - 1-way (kips)	687.76	248.06	**36.1%**	**Pass**
Pad Shear - 2-way (Comp) (ksi)	0.201	0.080	**39.7%**	**Pass**
*Flexural 2-way (Comp) (kip*ft)*	4982.71	2948.70	**59.2%**	**Pass**

Structural Rating:	**59.2%**
Soil Rating:	**50.2%**

Version 4.1.1

Site: US-CT-5017 Structure: A

Location

	Decimal Degrees		Deg	Min	Sec
Lat:		+			
Long:		-			

Code and Site Parameters

Seismic Design Code:	TIA-222-H	
Site Soil:	D (Default)	Default
Risk Category:	II	
USGS Seismic Reference S_S:	0.1730	g
S_1:	0.0550	g
T_L:	6	s

Seismic Design Category Determination

Importance Factor, I_e:	1	
Acceleration-based site coefficient, F_a:	1.6000	
Velocity-based site coefficient, F_v:	2.4000	
Design spectral response acceleration short period, S_{DS}:	0.1845	g
Design spectral response acceleration 1 s period, S_{D1}:	0.0880	g
Seismic Design Category Based on S_{DS}:	B	
Seismic Design Category Based on S_{D1}:	B	
Seismic Design Category Based on S_1:	N/A	
Controlling Seismic Design Category:	B	

Site: US-CT-5017 Structure: A

Tower Details

Tower Type:	Tapered Monopole		
Height, h:	179	ft	
Effective Seismic Weight, W:	51.13	kips	
Amplification Factor, A_s:	1.0		2.7.8.1

Seismic Base Shear

Response Modification Factor, R:	1.5		
Discrete Appurtenance Weight in Top 1/3 of Structure, W_u:	10.708	kips	
W_L:	40.41810476	kips	
E:	29000.0	ksi	
g:	386.088	in/s^2	
Average Moment of Inertia, I_{avg}:	20507.84597	in^4	
F_a:	0.294886361	hz	
Approximate Fundamental Period Monopole, T_a:	3.3911	s	2.7.7.1.3.3
Seismic Response Coefficient, C_s	0.1230		2.7.7.1.1
Seismic Response Coefficient Max 1, C_{smax}	0.0173		2.7.7.1.1
Seismic Response Coefficient Max 2, C_{smax}	N/A		2.7.7.1.1
Seismic Response Coefficient Min 1, C_{smin}	0.0300		2.7.7.1.1
Seismic Response Coefficient Min 2, C_{smin}	N/A		2.7.7.1.1
Controlling Seismic Response Coefficient, C_{sc}	0.0300		
Seismic Base Shear, V	1.534	kips	2.7.7.1.1

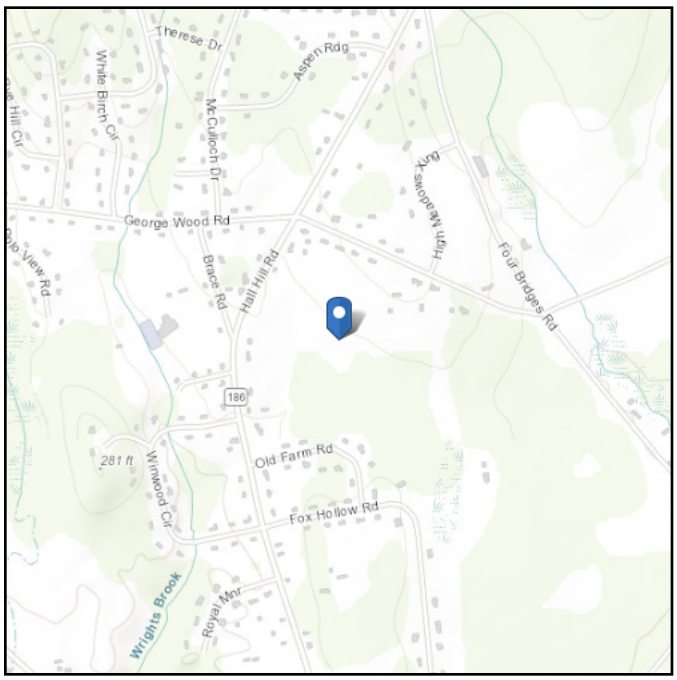
Vertical Distribution Factors

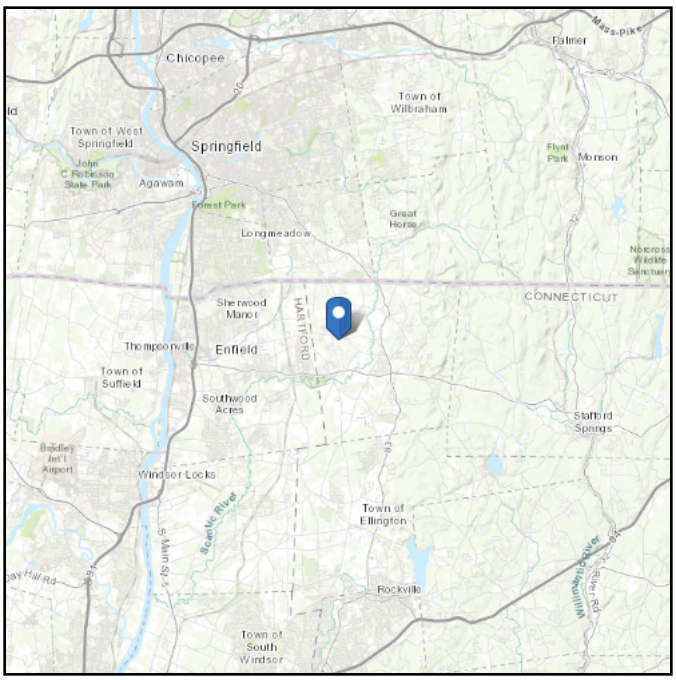
Period Related Exponent, k:	2.000	2.7.7.1.2
Sum of $w_i h_i^k$	562886.21	2.7.7.1.2

ASCE Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Latitude:**	42.002594
Risk Category:	II	**Longitude:**	-72.484997
Soil Class:	D - Default (see Section 11.4.3)	**Elevation:**	230.68659061359796 ft (NAVD 88)





Wind

Results:

Wind Speed	120 mph
10-year MRI	75 Vmph
25-year MRI	83 Vmph
50-year MRI	90 Vmph
100-year MRI	97 Vmph

Data Source:	ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed:	Thu May 23 2024

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

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

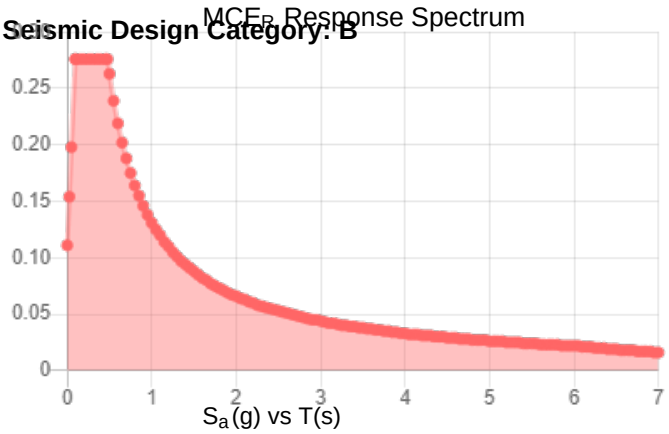
Seismic

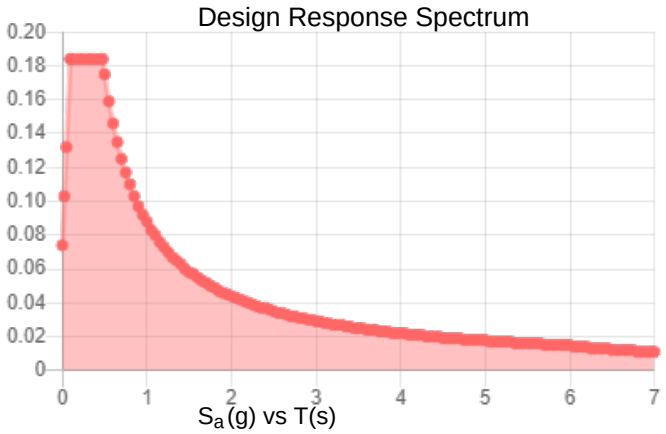
Site Soil Class: D - Default (see Section 11.4.3)

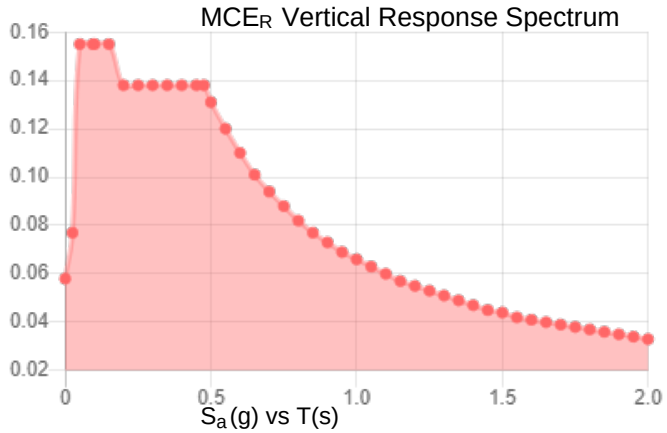
Results:

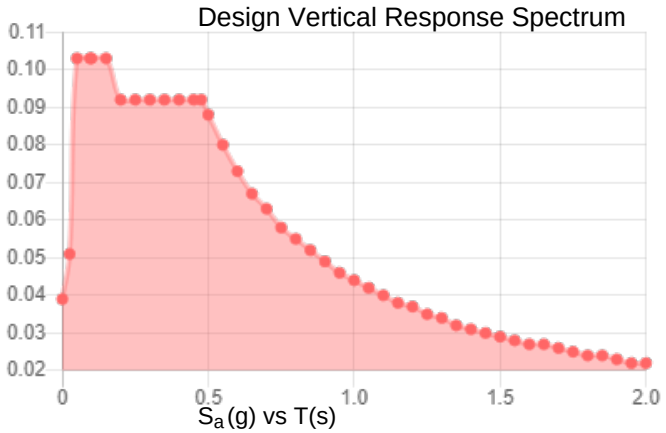
S_S :	0.173	S_{D1} :	0.088
S_1 :	0.055	T_L :	6
F_a :	1.6	PGA :	0.091
F_v :	2.4	PGA_M :	0.145
S_{MS} :	0.276	F_{PGA} :	1.6
S_{M1} :	0.131	I_e :	1
S_{DS} :	0.184	C_v :	0.7

Seismic Design Category: B









Data Accessed: **Thu May 23 2024**

Date Source:

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

Ice

Results:

Ice Thickness:	1.50 in.
Concurrent Temperature:	5 F
Gust Speed	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Thu May 23 2024

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

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

Attachment 2: Collocation Application

COLOCATION APPLICATION - P-049077
US-CT-5017
Version 2
T-Mobile Northeast LLC

Vertical Bridge REIT, LLC.
750 Park of Commerce Dr, ste 200
Boca Raton, FL 33487

SUMMARY

PRIMARY INFO

Application #:	P-049077
Application Version:	2 (Submitted: 4/30/2024 4:25:00 PM)
Application Type:	Broadband
Application Name:	CTHA027A amendment 6
Lease Type:	Amendment
ASR Number:	
Description:	Swapping (3) Antenna, Swapping (6) RRU

VERTICAL BRIDGE SITE INFO

VB Site #:	US-CT-5017
VB Site Name:	Blue Ridge
Latitude:	42.00259444
Longitude:	-72.48499722
Structure Type:	Monopole
Structure Height:	181.0000
Site Address:	248 Hall Hill Road - Somers, CT 06071

VERTICAL BRIDGE DEAL TEAM

RLM:	Floyd Jenkins Floyd.Jenkins@verticalbridge.com (301) 667-0069	**LPM:**	Sam Bowden Sam.Bowden@verticalbridge.com	**ROM:**	Joe Bascelli Joe.Bascelli@verticalbridge.com (484) 288-9586

TENANT LEGAL INFO

Tenant Legal Name:	T-Mobile Northeast LLC
State of Registration:	Delaware
Type of Entity:	LLC
Carrier NOC #:	8776115868
Tenant Site #:	CTHA027B
Tenant Site Name:	ROMANO

APPLICANT

Name:	Phillip Sipe
Address:	5 Melrose Drive Farmington, CT 06032
Phone Number:	(860) 305-3084
Email Address:	phillip@northeastsitesolutions.com

FINAL LEASED RIGHTS CONFIGURATION TOTALS

This is a summary of your remaining existing equipment plus the new equipment.

FINAL EQUIPMENT

QTY	Equipment Type
1	Microwave Dish
9	RRU
12	Panel

FINAL LINES

QTY	Line Type
3	Hybrid

FREQUENCY & TECHNOLOGY INFO

Type of Tehnology:	Broadband Wireless
Is TX Frequency Licensed:	Yes
TX Frequency:	668.000 - 678.000MHZ - 728.000 - 734.000MHZ - 1935.000 -1990.000MHZ 2120.000 -2155.000MHZ - 1930.000 -1990.000MHZ - 2496.000 -2690.000MHZ
Is RX Frequency Licensed:	Yes
RX Frequency:	668.000 - 678.000MHZ - 728.000 - 734.000MHZ - 1935.000 -1990.000MHZ 2120.000 -2155.000MHZ - 1930.000 -1990.000MHZ - 2496.000 -2690.000MHZ

MOUNT & STRUCTURAL ANALYSIS

MOUNT ANALYSIS

Provided by Tenant:	Yes
To Be Run by VB:	
Include Mount Mapping:	

STRUCTURAL HARD COPIES

Required:	No
Number of Hard Copies:	

CONTACTS

INVOICE CONTACT

Attention To	Name	Address	Phone Number 1	Phone Number 2	Email 1	Email 2
Debbie Nichols	Debbie Nichols	5 Melrose Drive Farmington, CT 06032	(860) 543-4300		Dnichols @northeastsitesolutions.com	

PO CONTACT

Name	Phone	Email
Debbie Nichols	(860) 543-4300	Dnichols@northeastsitesolutions.com

LEASING CONTACT

Name	Phone	Email
Phillip Sipe	(860) 305-3841	Phillip@northeastsitesoliutions.com

LINE & EQUIPMENT

EXISTING LINE(S)

Qty	Line Type	Line Diameter(In.)	Line Location	Comments	Remain
3	Hybrid	1.58	Interior		No

NEW LINE(S)

Qty	Line Type	Line Diameter(In.)	Line Location	Comments
3	Hybrid	1.58	Interior	

EXISTING EQUIPMENT

Qty	Equipment Type	Mount RAD Height	Equipment RAD Height (H')	Mount Type	Manfacturer	Model Number	Dimensions (H"xW"xD")	Weight (Lbs.)	Azimuth	Comments	Remain
3	Panel	175.00	175.00	Platform (Handrail)	RFS - Andrews	APXVAALL24_43-U- NA20	95.90 x 24.00 x 8.50	122.00	340/ 90/ 210		Yes
3	Panel	175.00	175.00	Platform (Handrail)	RFS - Andrews	APXV18-206516s- C-A20	53.10 x 6.90 x 3.15	18.70	340/ 90/ 210		No
3	RRU	175.00	175.00	Platform (Handrail)	Ericsson	Radio 2217 B66A	13.81 x 11.70 x 5.03	26.40	340/ 90/ 210		No
3	RRU	175.00	175.00	Platform (Handrail)	Ericsson	Radio 4480 B71+B85	21.60 x 15.70 x 5.70	70.54	340/ 90/ 210		Yes

NEW EQUIPMENT

Qty	Equipment Type	Mount RAD Height	Equipment RAD Height (H')	Mount Type	Manfacturer	Model Number	Dimensions (H"xW"xD")	Weight (Lbs.)	Azimuth	Comments
3	Panel	175.00	175.00	Platform (Handrail)	Ericsson	AIR 6419 B41	36.30 x 20.90 x 9.00	83.30	340/ 90/ 210	
3	Panel	175.00	175.00	Platform (Handrail)	RFS - Andrews	APX18-206513- C-A20	54.80 x 6.90 x 4.30	35.00	340/ 90/ 210	This antenna is shown to reflect reserved loading
1	Microwave Dish	175.00	175.00	Platform (Handrail)	Commscope	VHLP1- 23-CR4B	13.80 x 15.70 x	15.00	TBD	
3	RRU	175.00	175.00	Platform (Handrail)	Ericsson	Radio 4460 B25+B66	19.60 x 15.70 x 12.10	109.00	340/ 90/ 210	
3	Panel	175.00	175.00	Platform (Handrail)	RFS	APXVAALL24_43-U- NA20	96.00 x 24.00 x 8.50	56.00	340/ 90/ 210	
3	RRU	175.00	175.00	Platform (Handrail)	Ericsson	Radio 4480 B71+B85	21.65 x 15.74 x 5.70	70.54	340/ 90/ 210	

NEW EQUIPMENT CABINET(S)

Qty of Cabinets	Cabinet Dimensions (H x W x D)	Manfacturer	Comments
1	63.00 x 25.60 x 25.60	Ericsson	B160
1	63.00 x 25.60 x 33.50	Ericsson	6160

ADDITIONAL SITE REQUIREMENTS

GROUND & INTERIOR SPACE REQUIREMENTS

Requirement Type	Total Lease Area (L x W)	Cabinet Required	Cabinet Area (L x W)	Shelter Required	Shelter Pad (L x W)	Comments
Not Required						

GENERATOR REQUIREMENTS

Requirement Type	Fuel Type	Kilowatt Size	Pad Dimensions (L x D)	Generator Manufacturer	Fuel Tank Manufacturer	Comments
Not Required						

AC POWER REQUIREMENTS

Meter Type	Additional Details	Comments
Existing Tenant Meter		

BACKHAUL REQUIREMENTS

Requirement Type	Cable Type	Number of Points of Entry	Riser Size (Inches)	Comments
Not Required				

Exhibit E

Mount Analysis

Approved - Dave Deraleau
9:16 AM, Feb 28, 2024

ELEVATED ENGINEERING

CTHA027B

248 Hall Hill Road, Somers, CT 06071

Mount Analysis

February 26, 2024

Item	Pass/Fail	Capacity
Antenna Pipe – Alpha/Beta/Gamma	PASS	41.8%
Antenna Mounts – Alpha/Beta/Gamma	PASS	29.9%

Nicholas D. Barile, PE
CT PE License No.: 28643
Elevated Engineering Project No.: 24008-NSS

ELEVATED ENGINEERING

Summary

At the request of T-Mobile, ELEVATED ENGINEERING has performed a structural analysis of the antenna mounting system for the antenna equipment loading under the *2022 Connecticut Building Code, ASCE 7, ANSI/TIA-222-H, and AISC (LRFD14).* Information pertaining to the antenna mounts was obtained from:

- Construction drawings by FORESITE dated 5/5/2022.
- Valmont Site Pro 1's ULPD12-4xx mount.
- RFDS Version-3 last modified 02/08/2024.

Loading Criteria

	Wind Factors		
	Basic Wind Speed; Vult	116	mph
	Risk Category	II	
	Exposure	C	
	Flat Terrain		
	Ground Elevation	242	ft
	Ice Thickness	3/4"	
	Wi	40	mph
	Seismic Factors		
	Ss:	0.173	
	S_1:	0.055	
	Loading Combinations at (12) 30° Intervals		

Discussion

The tower supporting the antenna mounts was not analyzed in this report.

Conclusions

Per our analysis, the antenna mounting system can support the proposed loading under the *2022 Connecticut Building Code.*

General Comments

If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, ELEVATED ENGINEERING should be notified immediately to perform a revised analysis. This report is not a condition assessment and assumes good workmanship will be used and systems will be properly maintained.

Limitations

All opinions and conclusions are considered accurate to a reasonable degree of engineering certainty based upon the evidence available at the time of this report. All opinions and conclusions are subject to revision based upon receipt of new or additional/updated information. All services are provided exercising a level of care and diligence equivalent to the standard and care of our profession. No other warranty or guarantee, expressed or implied, is offered. Our services are confidential in nature, and we will not release this report to any other party without the client's consent. The use of this engineering work is limited to the express purpose for which it was commissioned, and it may not be reused, copied, or distributed for any other purpose without the written consent of ELEVATED ENGINEERING.

ELEVATED
ENGINEERING

Attachment A
Final Equipment Configuration

Final Alpha Sector Antenna Configuration
Rad Center is 175'-0"
(1) RFS APXVAALL24-43-U-NA20 Antenna
(1) Ericsson AIR6419 B41 Antenna
(1) Ericsson Radio 4460 B25+B66 RRU
(1) Ericsson Radio 4480 B71+B85 RRU

Final Beta Sector Antenna Configuration
Rad Center is 175'-0"
(1) RFS APXVAALL24-43-U-NA20 Antenna
(1) Ericsson AIR6419 B41 Antenna
(1) Ericsson Radio 4460 B25+B66 RRU
(1) Ericsson Radio 4480 B71+B85 RRU

Final Gamma Sector Antenna Configuration
Rad Center is 175'-0"
(1) RFS APXVAALL24-43-U-NA20 Antenna
(1) Ericsson AIR6419 B41 Antenna
(1) Ericsson Radio 4460 B25+B66 RRU
(1) Ericsson Radio 4480 B71+B85 RRU

99 Fanny Road, PO Box 8, Boonton, NJ 07005

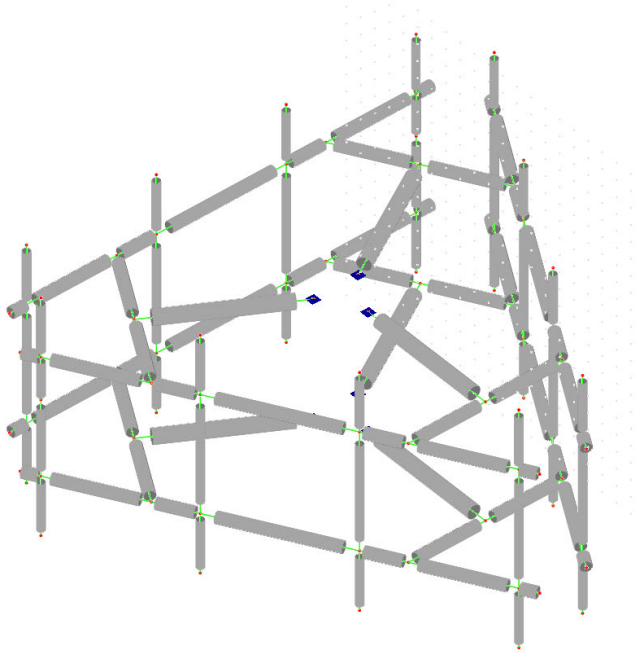
Office: 862-242-8050

Wind Analysis F = qz x Gh x (EPA) per TIA-222-H

Kz=2.01 (Z/Zg)^(2/α) =	1.424		
Zg =	900	Table 2-4	Exposure C
Alpha (α) =	9.5	Table 2-4	
Z=	175	ft	
Terrain Category	I		
Kzt = (1+KcKt/Kh)^2	1.00	for Category I	
Kc=	1.00	Table 2-4	
Kt=	0.53	Table 2-5	
Kh=e^(f * Z/H) =	0.000	for H=0	
f=	2.00	Table 2-5	
H =Height of Crest Surrounding Terrain	0.00	ft	
Kz =	1.424		
Kzt =	1.0		
Kd =	0.95		
Importance Factor Table 2-3 = I =	1.0	Use Class II	
Zs =	**442**	ft	
Ke= e^(-0.0000362xZs) =	**0.98**		
Vult =	120	mph	
qz=0.00256xKzxKztxKdxKsxKexV^2xI =	49.1	psf	
Gh =	1.00		
qz Gh =	**49.1**	**psf**	

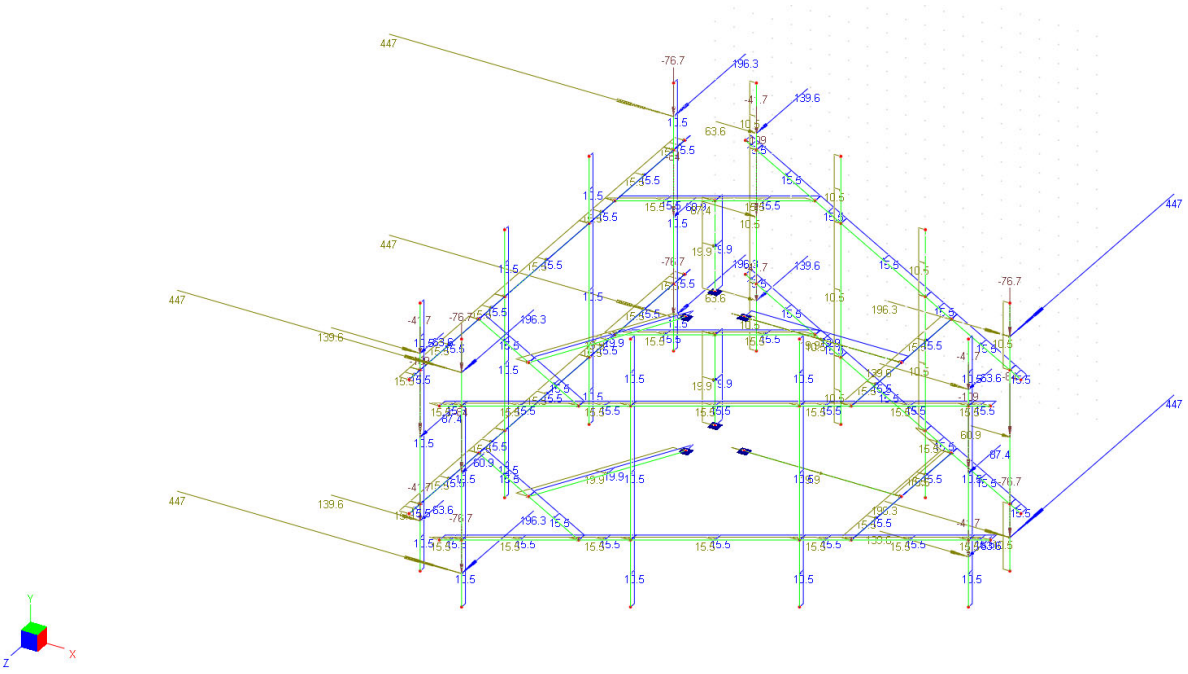
	Equipment Loading	CaAa (sf or sf/lf)	Wind (psf)	Ka	Wind Load (lb)	Weight (lb)
F_{N1}	APXVAALL24-43-U-NA20	20.240	49.1	0.9	893.9	153.3
F_{N2}	AIR6419	6.320	49.1	0.9	279.1	83.3
F_{N3}	RRU 4460 B25 +B66	1.98	49.1	0.9	87.4	109
F_{N4}	RRU 4480 B71+B85	2.850	49.1	0.9	125.9	84
F_{N5}						
	2" Std. Pipe	0.238	49.1	0.9	10.5	
	3" Std. Pipe	0.3500	49.1	0.9	15.5	
	4" Std. Pipe	0.4500	49.1	0.9	19.9	
F_{T1}	APXVAALL24-43-U-NA20	8.89	49.1	0.9	392.6	153.3
F_{T2}	AIR6419	2.88	49.1	0.9	127.2	83.3
F_{T3}	RRU 4460 B25 +B66	1.98	49.1	0.9	87.4	109
F_{T4}	RRU 4480 B71+B85	1.380	49.1	0.9	60.9	84
F_{T5}						

Company/Project: Elavated Engineering / 24008-NSS		**VersaFrame V9.0 (609.0)** (C) Digital Canal Corp.
Engineer:	Date/Time: 02/23/24 11:46:04	



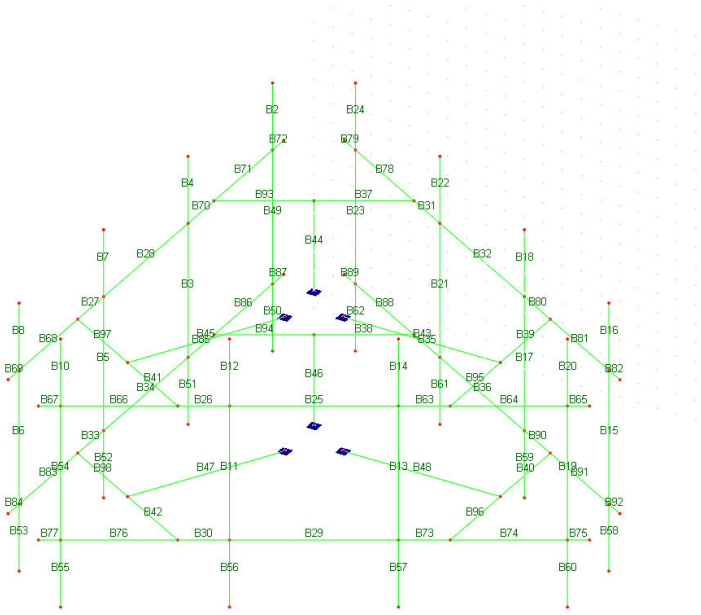
Note:

Company/Project: Elavated Engineering / 24008-NSS		**VersaFrame V9.0 (609.0)** (C) Digital Canal Corp.
Engineer:	Date/Time: 02/26/24 11:33:30	



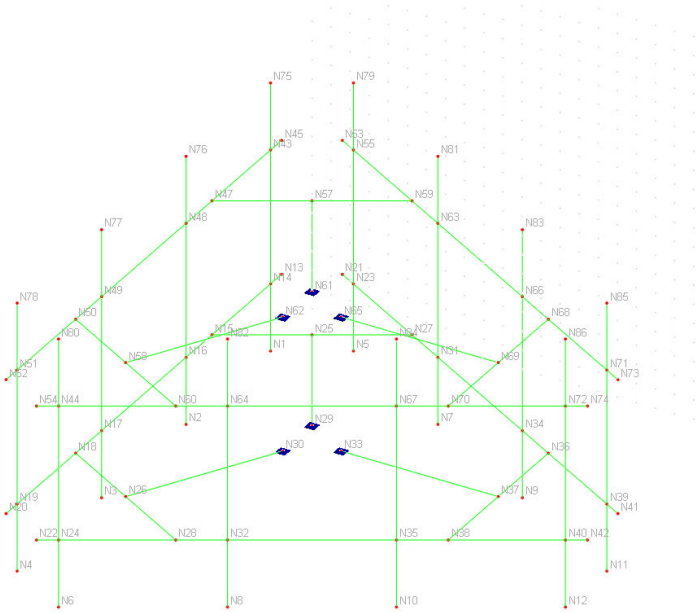
Note:

Company/Project: Elavated Engineering / 24008-NSS		**VersaFrame V9.0 (609.0)** (C) Digital Canal Corp.
Engineer:	Date/Time: 02/23/24 12:14:10	



Note:

Company/Project: Elavated Engineering / 24008-NSS		**VersaFrame V9.0 (609.0)** (C) Digital Canal Corp.
Engineer:	Date/Time: 02/23/24 12:13:50	



Note:

Steel Check Report

Project::	**24008-NSS**	Company:	**Elevated Engineering**
Description:	**Antenna Mount**	User:	
Date:	**02/26/2024 11:35 AM**	Software:	**Digital Canal VersaFrame**

Code Check Results (LRFD14)

CRITICAL STRESS SUMMARY

ID	Section Name	Status	Governing Criteria	Stress Ratio	Load Combination	Distance (ft)
2	Pipe2STD	OK	Axial-Bending	0.2331	TIA-222-H_240	0.0000
3	Pipe2STD	OK	Axial-Bending	0.1425	1.4Dead	3.5000
4	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_180	0.0000
5	Pipe2STD	OK	Axial-Bending	0.1358	1.4Dead	3.5000
6	Pipe2STD	OK	Axial-Bending	0.1699	TIA-222-H_150	3.5000
7	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_0	0.0000
8	Pipe2STD	OK	Axial-Bending	0.0410	TIA-222-H_300	0.0000
10	Pipe2STD	OK	Axial-Bending	0.2287	TIA-222-H_60	0.0000
11	Pipe2STD	OK	Axial-Bending	0.1107	TIA-222-H_330	0.0000
12	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_0	0.0000
13	Pipe2STD	OK	Axial-Bending	0.1393	1.2D+1.5Lm+1.0Wm	3.5000
14	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_0	0.0000
15	Pipe2STD	OK	Axial-Bending	0.4184	1.2D+1.5Lm+1.0Wm	3.5000
16	Pipe2STD	OK	Axial-Bending	0.2331	TIA-222-H_150	0.0000
17	Pipe2STD	OK	Axial-Bending	0.2702	1.2D+1.5Lm+1.0Wm	3.5000
18	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_270	0.0000
19	Pipe2STD	OK	Axial-Bending	0.2010	1.2D+1.5Lm+1.0Wm	3.5000
20	Pipe2STD	OK	Axial-Bending	0.0410	TIA-222-H_60	0.0000
21	Pipe2STD	OK	Axial-Bending	0.1251	1.2D+1.5Lv	0.0000
22	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_270	0.0000
23	Pipe2STD	OK	Axial-Bending	0.1838	TIA-222-H_60	3.5000
24	Pipe2STD	OK	Axial-Bending	0.0410	TIA-222-H_210	0.0000
25	Pipe3STD	OK	Axial-Bending	0.0667	TIA-222-H_150	0.0000
26	Pipe3STD	OK	Axial-Bending	0.1149	TIA-222-H_270	1.1753
27	Pipe3STD	OK	Axial-Bending	0.0960	TIA-222-H_150	1.1753
28	Pipe3STD	OK	Axial-Bending	0.0626	TIA-222-H_300	3.8333
29	Pipe3STD	OK	Axial-Bending	0.0800	TIA-222-H_300	0.0000
30	Pipe3STD	OK	Axial-Bending	0.1188	TIA-222-H_270	1.1753
31	Pipe3STD	OK	Axial-Bending	0.1096	TIA-222-H_0	1.1753
32	Pipe3STD	OK	Axial-Bending	0.0736	TIA-222-H_210	3.8333
33	Pipe3STD	OK	Axial-Bending	0.0942	TIA-222-H_300	1.1753
34	Pipe3STD	OK	Axial-Bending	0.0604	TIA-222-H_150	3.8333
35	Pipe3STD	OK	Axial-Bending	0.1100	TIA-222-H_180	1.1753
36	Pipe3STD	OK	Axial-Bending	0.0745	TIA-222-H_30	3.8333
37	Pipe3STD	OK	Axial-Bending	0.2085	TIA-222-H_180	2.2689
38	Pipe3STD	OK	Axial-Bending	0.2073	TIA-222-H_0	2.2689
39	Pipe3STD	OK	Axial-Bending	0.2091	TIA-222-H_150	2.2689
40	Pipe3STD	OK	Axial-Bending	0.2235	TIA-222-H_300	2.2689
41	Pipe3STD	OK	Axial-Bending	0.2164	TIA-222-H_0	2.2689
42	Pipe3STD	OK	Axial-Bending	0.2189	TIA-222-H_180	2.2689
43	Pipe4STD	OK	Axial-Bending	0.2988	TIA-222-H_120	0.0000
44	Pipe4STD	OK	Axial-Bending	0.2399	TIA-222-H_60	0.0000
45	Pipe4STD	OK	Axial-Bending	0.2420	TIA-222-H_240	0.0000
46	Pipe4STD	OK	Axial-Bending	0.2481	TIA-222-H_270	0.0000
47	Pipe4STD	OK	Axial-Bending	0.2428	TIA-222-H_60	0.0000
48	Pipe4STD	OK	Axial-Bending	0.2961	1.2D+1.5Lm+1.0Wm	0.0000
49	Pipe2STD	OK	Axial-Bending	0.2336	TIA-222-H_60	3.5000
50	Pipe2STD	OK	Axial-Bending	0.2327	TIA-222-H_240	0.0000
51	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_180	0.0000
52	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_0	0.0000
53	Pipe2STD	OK	Axial-Bending	0.0409	TIA-222-H_300	0.0000
54	Pipe2STD	OK	Axial-Bending	0.2105	TIA-222-H_150	3.5000
55	Pipe2STD	OK	Axial-Bending	0.2327	TIA-222-H_300	0.0000
56	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_0	0.0000

57	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_0	0.0000
58	Pipe2STD	OK	Axial-Bending	0.2327	TIA-222-H_30	0.0000
59	Pipe2STD	OK	Axial-Bending	0.0001	1.4Dead	0.0000
60	Pipe2STD	OK	Axial-Bending	0.0409	TIA-222-H_60	0.0000
61	Pipe2STD	OK	Axial-Bending	0.0087	TIA-222-H_270	0.0000
62	Pipe2STD	OK	Axial-Bending	0.0409	TIA-222-H_210	0.0000
63	Pipe3STD	OK	Axial-Bending	0.1085	TIA-222-H_270	1.1753
64	Pipe3STD	OK	Axial-Bending	0.1259	TIA-222-H_30	0.0000
65	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_210	0.0000
66	Pipe3STD	OK	Axial-Bending	0.2050	TIA-222-H_30	0.0000
67	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_30	0.0000
68	Pipe3STD	OK	Axial-Bending	0.1247	TIA-222-H_270	0.0000
69	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_270	0.0000
70	Pipe3STD	OK	Axial-Bending	0.1123	TIA-222-H_300	1.1753
71	Pipe3STD	OK	Axial-Bending	0.2707	TIA-222-H_270	0.0000
72	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_270	0.0000
73	Pipe3STD	OK	Axial-Bending	0.0965	TIA-222-H_150	1.1753
74	Pipe3STD	OK	Axial-Bending	0.1268	TIA-222-H_210	0.0000
75	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_210	0.0000
76	Pipe3STD	OK	Axial-Bending	0.2103	TIA-222-H_210	0.0000
77	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_30	0.0000
78	Pipe3STD	OK	Axial-Bending	0.1212	TIA-222-H_150	0.0000
79	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_0	0.0000
80	Pipe3STD	OK	Axial-Bending	0.1205	TIA-222-H_180	1.1753
81	Pipe3STD	OK	Axial-Bending	0.2449	TIA-222-H_150	0.0000
82	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_180	0.0000
83	Pipe3STD	OK	Axial-Bending	0.1134	TIA-222-H_60	0.0000
84	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_270	0.0000
85	Pipe3STD	OK	Axial-Bending	0.1074	TIA-222-H_150	1.1753
86	Pipe3STD	OK	Axial-Bending	0.2568	TIA-222-H_270	0.0000
87	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_270	0.0000
88	Pipe3STD	OK	Axial-Bending	0.1150	TIA-222-H_0	0.0000
89	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_0	0.0000
90	Pipe3STD	OK	Axial-Bending	0.1218	TIA-222-H_0	1.1753
91	Pipe3STD	OK	Axial-Bending	0.2425	TIA-222-H_0	0.0000
92	Pipe3STD	OK	Axial-Bending	0.0005	TIA-222-H_180	0.0000
93	Pipe3STD	OK	Axial-Bending	0.2343	TIA-222-H_240	0.0000
94	Pipe3STD	OK	Axial-Bending	0.2348	TIA-222-H_270	2.2689
95	Pipe3STD	OK	Axial-Bending	0.1947	TIA-222-H_60	0.0000
96	Pipe3STD	OK	Axial-Bending	0.1945	TIA-222-H_240	0.0000
97	Pipe3STD	OK	Axial-Bending	0.1992	TIA-222-H_300	0.0000
98	Pipe3STD	OK	Axial-Bending	0.1957	TIA-222-H_300	0.0000

SELECTED LOAD COMBINATIONS

Load Combination	Code Check	Total	Live	Dependent	Conditional
TIA-222-H_0	x			-	-
TIA-222-H_30	x			-	-
TIA-222-H_60	x			-	-
TIA-222-H_90	x			-	-
TIA-222-H_120	x			-	-
TIA-222-H_150	x			-	-
TIA-222-H_180	x			-	-
TIA-222-H_210	x			-	-
TIA-222-H_240	x			-	-
TIA-222-H_270	x			-	-
TIA-222-H_300	x			-	-
TIA-222-H_330	x			-	-
1.2D+1.5Lv	x			-	-
1.2D+1.5Lm+1.0Wm	x			-	-
1.4Dead	x			-	-

INPUT Contents

OUTPUT Contents

Nodes

Units: Coordinates X, Y, Z [in]

No.	X	Y	Z	No.	X	Y	Z
1	-52.86	-63.00	-69.00	2	-52.86	-63.00	-23.00
3	-52.86	-63.00	23.00	4	-52.86	-63.00	69.00
5	-33.33	-63.00	-80.28	6	-33.33	-63.00	80.28
7	6.51	-63.00	-57.28	8	6.51	-63.00	57.28
9	46.35	-63.00	-34.28	10	46.35	-63.00	34.28
11	86.19	-63.00	-11.28	12	86.19	-63.00	11.28
13	-52.86	-42.00	-75.00	14	-52.86	-42.00	-69.00
15	-52.86	-42.00	-37.10	16	-52.86	-42.00	-23.00
17	-52.86	-42.00	23.00	18	-52.86	-42.00	37.10
19	-52.86	-42.00	69.00	20	-52.86	-42.00	75.00
21	-38.52	-42.00	-83.28	22	-38.52	-42.00	83.28
23	-33.33	-42.00	-80.28	24	-33.33	-42.00	80.28
25	-29.28	-42.00	-50.72	26	-29.28	-42.00	50.72
27	-5.70	-42.00	-64.33	28	-5.70	-42.00	64.33
29	-4.59	-42.00	-7.96	30	-4.59	-42.00	7.96
31	6.51	-42.00	-57.28	32	6.51	-42.00	57.28
33	9.19	-42.00	-0.00	34	46.35	-42.00	-34.28
35	46.35	-42.00	34.28	36	58.56	-42.00	-27.23
37	58.56	-42.00	-0.00	38	58.56	-42.00	27.23
39	86.19	-42.00	-11.28	40	86.19	-42.00	11.28
41	91.38	-42.00	-8.28	42	91.38	-42.00	8.28
43	-52.86	0.00	-69.00	44	-33.33	0.00	80.28
45	-52.86	0.00	-75.00	47	-52.86	0.00	-37.10
48	-52.86	0.00	-23.00	49	-52.86	0.00	23.00
50	-52.86	0.00	37.10	51	-52.86	0.00	69.00
52	-52.86	0.00	75.00	53	-38.52	0.00	-83.28
54	-38.52	0.00	83.28	55	-33.33	0.00	-80.28
57	-29.28	0.00	-50.72	58	-29.28	0.00	50.72
59	-5.70	0.00	-64.33	60	-5.70	0.00	64.33
61	-4.59	0.00	-7.96	62	-4.59	0.00	7.96
63	6.51	0.00	-57.28	64	6.51	0.00	57.28
65	9.19	0.00	-0.00	66	46.35	0.00	-34.28
67	46.35	0.00	34.28	68	58.56	0.00	-27.23
69	58.56	0.00	-0.00	70	58.56	0.00	27.23
71	86.19	0.00	-11.28	72	86.19	0.00	11.28
73	91.38	0.00	-8.28	74	91.38	0.00	8.28
75	-52.86	21.00	-69.00	76	-52.86	21.00	-23.00
77	-52.86	21.00	23.00	78	-52.86	21.00	69.00
79	-33.33	21.00	-80.28	80	-33.33	21.00	80.28
81	6.51	21.00	-57.28	82	6.51	21.00	57.28
83	46.35	21.00	-34.28	84	46.35	21.00	34.28
85	86.19	21.00	-11.28	86	86.19	21.00	11.28

Supports

Units: Forced Displacements Dx, Dy, Dz [in]; Dox, Doy, Doz [rad]

Node	Flag	Dx	Dy	Dz	Dox	Doy	Doz
29	111111	0.000	0.000	0.000	0.000	0.000	0.000
30	111111	0.000	0.000	0.000	0.000	0.000	0.000
33	111111	0.000	0.000	0.000	0.000	0.000	0.000
61	111111	0.000	0.000	0.000	0.000	0.000	0.000
62	111111	0.000	0.000	0.000	0.000	0.000	0.000
65	111111	0.000	0.000	0.000	0.000	0.000	0.000

Point Loads

Units: Force [lb]; Moment [lb-ft]; Coord-Sys: Local=0, Global=1;
Direction: 0=X, 1=Y, 2=Z, 3=OX, 4=OY, 5=OZ

********** LOAD CASE - [Lv]**********

Member	Coord-Sys	Direction	Value	Distance
32	1	1	-250.000	0.5

********** LOAD CASE - [Dead]**********

Member	Coord-Sys	Direction	Value	Distance
2	1	1	-76.700	0.5
6	1	1	-109.000	0.5
8	1	1	-41.700	0.25
10	1	1	-76.700	0.5
15	1	1	-84.000	0.5
16	1	1	-76.700	0.5
19	1	1	-109.000	0.5
20	1	1	-41.700	0.25
23	1	1	-109.000	0.5
24	1	1	-41.700	0.25
49	1	1	-84.000	0.5
50	1	1	-76.700	0.5
53	1	1	-41.700	0.25
54	1	1	-84.000	0.5
55	1	1	-76.700	0.5
58	1	1	-76.700	0.5
60	1	1	-41.700	0.25
62	1	1	-41.700	0.25

********** LOAD CASE - [Wind Normal]**********

Member	Coord-Sys	Direction	Value	Distance
2	1	2	196.300	0.5
6	1	2	87.400	0.5
8	1	2	63.600	0.25
10	1	2	196.300	0.5
16	1	2	447.000	0.5
19	1	2	87.400	0.5
20	1	2	63.600	0.25
24	1	2	139.600	0.25
49	1	2	60.900	0.5
50	1	2	196.300	0.5
53	1	2	63.600	0.25
54	1	2	60.900	0.5
55	1	2	196.300	0.5
58	1	2	447.000	0.5
60	1	2	63.600	0.25
62	1	2	139.600	0.25

********** LOAD CASE - [Wind Transverse]**********

Member	Coord-Sys	Direction	Value	Distance
2	1	0	447.000	0.5
8	1	0	139.600	0.25
10	1	0	447.000	0.5
15	1	0	60.900	0.5
16	1	0	196.300	0.5
20	1	0	139.600	0.25
23	1	0	87.400	0.5
24	1	0	63.600	0.25
50	1	0	447.000	0.5
53	1	0	139.600	0.25
55	1	0	447.000	0.5
58	1	0	196.300	0.5
60	1	0	139.600	0.25
62	1	0	63.600	0.25

********** LOAD CASE - [Lm]**********

Member	Coord-Sys	Direction	Value	Distance
15	1	1	-500.000	0.5

Line Loads

Units: Force [lb/ft]; Coord-Sys: Local=0, Global=1; Direction: 0=X, 1=Y, 2=Z

********** LOAD CASE - [Wind Normal]**********

Member	Coord-Sys	Direction	Value1	Value2	Distance1	Distance2
2	1	2	10.500	10.500	0	1
3	1	2	10.500	10.500	0	1

4	1	2	10.500	10.500	0	1
5	1	2	10.500	10.500	0	1
6	1	2	10.500	10.500	0	1
7	1	2	10.500	10.500	0	1
8	1	2	10.500	10.500	0	1
11	1	2	10.500	10.500	0	1
12	1	2	10.500	10.500	0	1
13	1	2	10.500	10.500	0	1
14	1	2	10.500	10.500	0	1
19	1	2	10.500	10.500	0	1
20	1	2	10.500	10.500	0	1
25	1	2	15.500	15.500	0	1
26	1	2	15.500	15.500	0	1
27	1	2	15.500	15.500	0	1
28	1	2	15.500	15.500	0	1
29	1	2	15.500	15.500	0	1
30	1	2	15.500	15.500	0	1
31	1	2	15.500	15.500	0	1
32	1	2	15.500	15.500	0	1
33	1	2	15.500	15.500	0	1
34	1	2	15.500	15.500	0	1
35	1	2	15.500	15.500	0	1
36	1	2	15.500	15.500	0	1
37	1	2	15.500	15.500	0	1
38	1	2	15.500	15.500	0	1
39	1	2	15.500	15.500	0	1
40	1	2	15.500	15.500	0	1
41	1	2	15.500	15.500	0	1
42	1	2	15.500	15.500	0	1
43	1	2	19.900	19.900	0	1
44	1	2	19.900	19.900	0	1
45	1	2	19.900	19.900	0	1
46	1	2	19.900	19.900	0	1
47	1	2	19.900	19.900	0	1
49	1	2	10.500	10.500	0	1
50	1	2	10.500	10.500	0	1
51	1	2	10.500	10.500	0	1
52	1	2	10.500	10.500	0	1
53	1	2	10.500	10.500	0	1
54	1	2	10.500	10.500	0	1
55	1	2	10.500	10.500	0	1
56	1	2	10.500	10.500	0	1
57	1	2	10.500	10.500	0	1
60	1	2	10.500	10.500	0	1
63	1	2	15.500	15.500	0	1
64	1	2	15.500	15.500	0	1
65	1	2	15.500	15.500	0	1
66	1	2	15.500	15.500	0	1
67	1	2	15.500	15.500	0	1
68	1	2	15.500	15.500	0	1
69	1	2	15.500	15.500	0	1
70	1	2	15.500	15.500	0	1
71	1	2	15.500	15.500	0	1
72	1	2	15.500	15.500	0	1
73	1	2	15.500	15.500	0	1
74	1	2	15.500	15.500	0	1
75	1	2	15.500	15.500	0	1
76	1	2	15.500	15.500	0	1
77	1	2	15.500	15.500	0	1
78	1	2	15.500	15.500	0	1
79	1	2	15.500	15.500	0	1
80	1	2	15.500	15.500	0	1
81	1	2	15.500	15.500	0	1
82	1	2	15.500	15.500	0	1
83	1	2	15.500	15.500	0	1
84	1	2	15.500	15.500	0	1
85	1	2	15.500	15.500	0	1
86	1	2	15.500	15.500	0	1
87	1	2	15.500	15.500	0	1
88	1	2	15.500	15.500	0	1
89	1	2	15.500	15.500	0	1
90						

	1	2	15.500	15.500	0	1
91	1	2	15.500	15.500	0	1
92	1	2	15.500	15.500	0	1
93	1	2	15.500	15.500	0	1
94	1	2	15.500	15.500	0	1
95	1	2	15.500	15.500	0	1
96	1	2	15.500	15.500	0	1
97	1	2	15.500	15.500	0	1
98	1	2	15.500	15.500	0	1

********** LOAD CASE - [Wind_Transverse]**********

Member	Coord-Sys	Direction	Value1	Value2	Distance1	Distance2
16	1	0	10.500	10.500	0	1
17	1	0	10.500	10.500	0	1
18	1	0	10.500	10.500	0	1
21	1	0	10.500	10.500	0	1
22	1	0	10.500	10.500	0	1
23	1	0	10.500	10.500	0	1
24	1	0	10.500	10.500	0	1
25	1	0	15.500	15.500	0	1
26	1	0	15.500	15.500	0	1
27	1	0	15.500	15.500	0	1
28	1	0	15.500	15.500	0	1
29	1	0	15.500	15.500	0	1
30	1	0	15.500	15.500	0	1
33	1	0	15.500	15.500	0	1
34	1	0	15.500	15.500	0	1
37	1	0	15.500	15.500	0	1
38	1	0	15.500	15.500	0	1
39	1	0	15.500	15.500	0	1
40	1	0	15.500	15.500	0	1
40	1	0	10.500	10.500	0	1
43	1	0	19.900	19.900	0	1
43	1	0	10.500	10.500	0	1
44	1	0	19.900	19.900	0	1
45	1	0	19.900	19.900	0	1
46	1	0	19.900	19.900	0	1
47	1	0	19.900	19.900	0	1
48	1	0	19.900	19.900	0	1
58	1	0	10.500	10.500	0	1
61	1	0	10.500	10.500	0	1
62	1	0	10.500	10.500	0	1
63	1	0	15.500	15.500	0	1
64	1	0	15.500	15.500	0	1
65	1	0	15.500	15.500	0	1
66	1	0	15.500	15.500	0	1
67	1	0	15.500	15.500	0	1
68	1	0	15.500	15.500	0	1
69	1	0	15.500	15.500	0	1
70	1	0	15.500	15.500	0	1
71	1	0	15.500	15.500	0	1
72	1	0	15.500	15.500	0	1
73	1	0	15.500	15.500	0	1
74	1	0	15.500	15.500	0	1
75	1	0	15.500	15.500	0	1
76	1	0	15.500	15.500	0	1
77	1	0	15.500	15.500	0	1
83	1	0	15.500	15.500	0	1
84	1	0	15.500	15.500	0	1
85	1	0	15.500	15.500	0	1
86	1	0	15.500	15.500	0	1
87	1	0	15.500	15.500	0	1
90	1	0	15.500	15.500	0	1
93	1	0	15.500	15.500	0	1
94	1	0	15.500	15.500	0	1
95	1	0	15.500	15.500	0	1
96	1	0	15.500	15.500	0	1

Support Reactions

Units: Force Reactions Rx, Ry, Rz [lb]; Moment Reactions Rox, Roy, Roz [lb-ft]

Load Combination 2: TIA-222-H_0

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	-484.530	498.869	-1014.517	1442.087	-44.910	-847.387
30	278.709	522.769	-959.847	-1506.891	-382.605	-847.010
33	207.195	477.480	-539.284	12.607	1260.524	1639.363
61	-448.084	518.519	-959.347	1493.118	-35.367	-883.167
62	307.522	497.079	-1000.763	-1445.139	-357.326	-825.590
65	139.188	540.197	-599.180	16.912	1342.381	1760.285

Load Combination 3: TIA-222-H_30

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	-789.638	480.622	-1080.722	1410.515	365.014	-823.819
30	-54.077	524.475	-683.889	-1502.298	-719.979	-848.272
33	-371.642	488.993	-412.455	15.558	932.164	1666.650
61	-752.355	536.318	-1023.763	1525.141	374.008	-907.518
62	-24.601	495.125	-727.518	-1452.621	-696.576	-826.340
65	-450.807	529.379	-464.815	14.552	1005.153	1730.446

Load Combination 4: TIA-222-H_60

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	-888.070	469.986	-865.018	1393.477	675.834	-810.700
30	-376.427	522.070	-217.007	-1491.646	-866.219	-846.553
33	-841.877	505.914	-175.230	18.322	352.855	1702.876
61	-850.355	546.872	-806.288	1541.023	684.498	-919.921
62	-345.774	496.936	-267.587	-1467.368	-848.327	-829.994
65	-928.982	513.133	-205.339	12.269	400.055	1692.454

Load Combination 5: TIA-222-H_90

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	717.727	548.432	368.179	1534.052	-813.306	-914.140
30	571.187	501.979	-257.112	-1481.469	771.162	-831.937
33	1144.184	494.566	-110.568	9.554	311.266	1661.701
61	751.655	471.013	421.981	1393.259	-802.321	-808.748
62	601.934	516.410	-316.089	-1474.081	780.559	-838.787
65	1099.552	522.513	-106.392	19.014	319.491	1743.566

Load Combination 6: TIA-222-H_120

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	307.052	529.721	544.177	1519.935	-99.809	-849.656
30	-117.905	503.717	472.123	-1468.672	206.809	-806.250
33	147.011	724.258	231.072	151.408	-585.345	2503.010
61	159.657	519.726	442.570	1494.518	138.988	-831.821
62	-175.306	516.514	508.242	-1499.594	163.295	-817.001
65	-320.509	693.977	338.285	149.272	-716.041	2442.757

Load Combination 7: TIA-222-H_150

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	18.760	498.312	627.040	1449.870	433.082	-850.610
30	-563.882	500.856	1029.632	-1455.198	-66.425	-831.199
33	-672.627	543.768	519.890	19.428	-1258.782	1771.603
61	54.890	520.214	686.979	1476.211	442.525	-872.402
62	-529.925	516.063	953.937	-1512.475	-69.791	-846.386
65	-750.336	475.700	575.686	10.987	-1310.567	1626.197

Load Combination 8: TIA-222-H_180

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	449.324	519.376	957.501	1487.568	33.917	-878.347
30	-310.137	495.461	1019.231	-1452.460	373.058	-827.277
33	-140.569	540.695	536.907	17.074	-1270.186	1760.551
61	484.442	499.839	1016.124	1436.599	43.981	-842.594
62	-276.158	521.291	941.293	-1514.268	367.408	-848.740
65	-206.903	478.251	601.881	12.799	-1332.425	1639.921

Load Combination 9: TIA-222-H_210

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	754.638	537.691	1023.719	1519.156	-375.387	-901.925

30	22.636	493.713	743.484	-1456.996	710.973	-825.991
33	438.081	529.172	409.859	14.127	-942.763	1733.287
61	788.921	481.969	1080.567	1404.572	-364.767	-818.231
62	55.943	523.290	668.258	-1506.820	707.180	-847.998
65	382.900	489.077	467.277	15.158	-996.148	1669.740

Load Combination 10: TIA-222-H_240

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	852.843	548.325	808.029	1536.165	-685.356	-915.022
30	345.234	496.096	276.303	-1467.608	856.596	-827.695
33	908.299	512.295	172.921	11.377	-364.029	1697.116
61	886.690	471.419	863.113	1388.712	-674.398	-805.846
62	377.357	521.507	208.015	-1492.118	858.310	-844.357
65	861.061	505.269	208.087	17.431	-391.624	1707.666

Load Combination 11: TIA-222-H_270

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	717.727	548.432	368.179	1534.052	-813.306	-914.140
30	571.187	501.979	-257.112	-1481.469	771.162	-831.937
33	1144.184	494.566	-110.568	9.554	311.266	1661.701
61	751.655	471.013	421.981	1393.259	-802.321	-808.748
62	601.934	516.410	-316.089	-1474.081	780.559	-838.787
65	1099.552	522.513	-106.392	19.014	319.491	1743.566

Load Combination 12: TIA-222-H_300

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	385.597	538.003	-177.985	1513.393	-724.962	-899.522
30	639.794	509.780	-713.596	-1494.859	477.919	-837.578
33	1082.359	480.718	-364.810	9.145	901.978	1636.527
61	420.104	480.833	-124.637	1416.989	-714.268	-826.153
62	669.340	509.370	-763.379	-1457.541	495.112	-832.780
65	1034.291	536.208	-392.061	19.485	946.447	1767.834

Load Combination 13: TIA-222-H_330

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	-474.654	491.052	-928.166	1419.046	26.623	-861.264
30	213.239	520.173	-796.897	-1501.963	-345.119	-860.709
33	68.364	366.649	-446.067	-65.307	1060.664	1201.677
61	-333.069	508.266	-781.191	1463.233	-95.947	-892.240
62	294.447	498.053	-900.980	-1448.488	-295.662	-842.158
65	231.672	420.719	-539.863	-61.570	1193.471	1306.402

Load Combination 14: 1.2D+1.5Lv

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	-1.631	608.435	-69.354	1785.823	-79.648	-926.260
30	7.242	501.493	-10.008	-1451.380	-4.905	-820.809
33	60.878	608.435	-35.800	120.445	69.838	2009.699
61	1.631	605.168	69.354	1769.908	79.648	-924.914
62	-7.242	501.214	10.008	-1450.780	4.905	-820.462
65	-60.878	605.168	35.800	113.653	-69.838	1995.242

Load Combination 15: 1.2D+1.5Lm+1.0Wm

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	140.275	535.990	109.328	1541.550	-203.118	-826.931
30	62.344	511.412	-61.144	-1483.957	34.540	-792.160
33	380.566	855.055	-64.806	249.466	85.735	3038.131
61	-140.275	535.990	-109.328	1541.550	203.118	-826.931
62	-62.344	511.412	61.144	-1483.957	-34.540	-792.160
65	-380.566	855.055	64.806	249.466	-85.735	3038.131

Load Combination 16: 1.4Dead

Node	Rx	Ry	Rz	Rox	Roy	Roz
29	-20.872	594.011	-33.194	1708.977	-5.723	-1006.682
30	-18.311	594.011	34.673	-1726.301	-5.723	-976.676
33	39.183	594.011	-1.479	17.324	-5.723	1983.359
61	20.872	594.011	33.194	1708.977	5.723	-1006.682
62	18.311	594.011	-34.673	-1726.301	5.723	-976.676
65	-39.183	594.011	1.479	17.324	5.723	1983.359

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Hazards by Location

Search Information

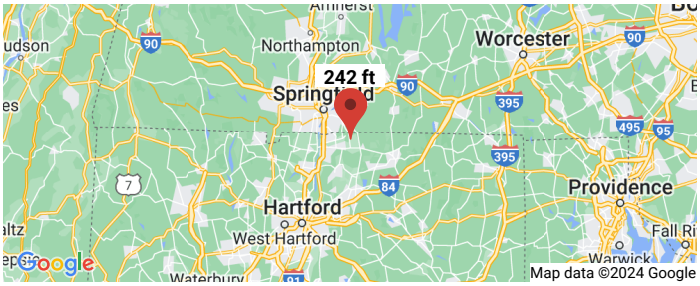
Address: 248 Hall Hill Road, Somers, CT 06071

Coordinates: 42.0021997, -72.48819859999999

Elevation: 242 ft

Timestamp: 2024-02-23T16:35:10.310Z

Hazard Type: Wind



ASCE 7-16

MRI 10-Year	74 mph
MRI 25-Year	83 mph
MRI 50-Year	89 mph
MRI 100-Year	96 mph
Risk Category I	107 mph
Risk Category II	116 mph
Risk Category III	125 mph
Risk Category IV	130 mph

You are in a wind-borne debris region if you are also within 1 mile of the coastal mean high water line.

ASCE 7-10

MRI 10-Year	76 mph
MRI 25-Year	86 mph
MRI 50-Year	92 mph
MRI 100-Year	99 mph
Risk Category I	111 mph
Risk Category II	122 mph
Risk Category III-IV	131 mph

If the structure under consideration is a healthcare facility and you are also within 1 mile of the coastal mean high water line, you are in a wind-borne debris region. If other occupancy, use the Risk Category II basic wind speed contours to determine if you are in a wind-borne debris region.

ASCE 7-05

ASCE 7-05 Wind Speed	97 mph

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Disclaimer

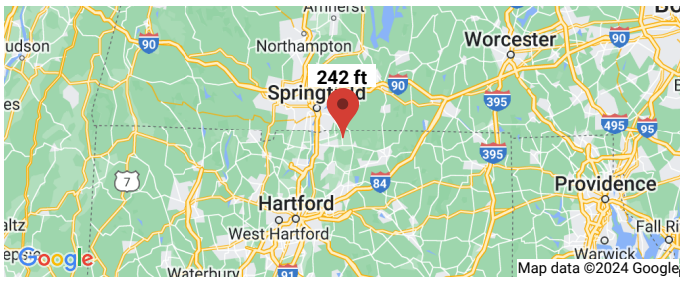
Hazard loads are interpolated from data provided in ASCE 7 and rounded up to the nearest whole integer. Per ASCE 7, islands and coastal areas outside the last contour should use the last wind speed contour of the coastal area – in some cases, this website will extrapolate past the last wind speed contour and therefore, provide a wind speed that is slightly higher. NOTE: For queries near wind-borne debris region boundaries, the resulting determination is sensitive to rounding which may affect whether or not it is considered to be within a wind-borne debris region.

Mountainous terrain, gorges, ocean promontories, and special wind regions shall be examined for unusual wind conditions.

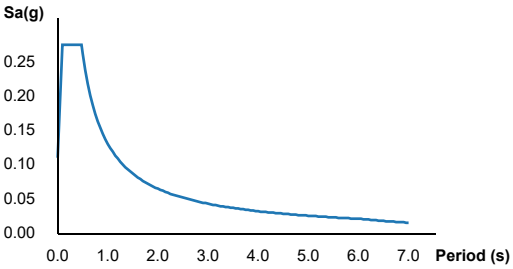
Hazards by Location

Search Information

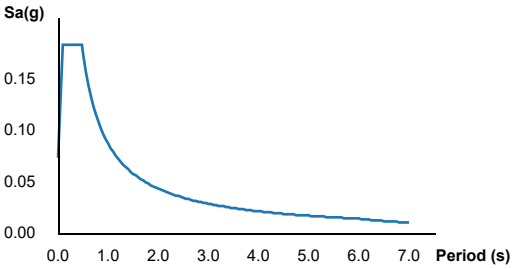
Address:	248 Hall Hill Road, Somers, CT 06071
Coordinates:	42.0021997, -72.48819859999999
Elevation:	242 ft
Timestamp:	2024-02-23T16:36:20.684Z
Hazard Type:	Seismic
Reference Document:	ASCE7-16
Risk Category:	II
Site Class:	D



MCER Horizontal Response Spectrum



Design Horizontal Response Spectrum



Basic Parameters

Name	Value	Description
S_S	0.173	MCE_R ground motion (period=0.2s)
S_1	0.055	MCE_R ground motion (period=1.0s)
S_{MS}	0.276	Site-modified spectral acceleration value
S_{M1}	0.131	Site-modified spectral acceleration value
S_{DS}	0.184	Numeric seismic design value at 0.2s SA
S_{D1}	0.088	Numeric seismic design value at 1.0s SA

Additional Information

Name	Value	Description
SDC	B	Seismic design category
F_a	1.6	Site amplification factor at 0.2s
F_v	2.4	Site amplification factor at 1.0s
CR_S	0.935	Coefficient of risk (0.2s)
CR_1	0.917	Coefficient of risk (1.0s)
PGA	0.09	MCE_G peak ground acceleration
F_{PGA}	1.6	Site amplification factor at PGA
PGA_M	0.145	Site modified peak ground acceleration
T_L	6	Long-period transition period (s)
SsRT	0.173	Probabilistic risk-targeted ground motion (0.2s)
SsUH	0.185	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)
SsD	1.5	Factored deterministic acceleration value (0.2s)
S1RT	0.055	Probabilistic risk-targeted ground motion (1.0s)
S1UH	0.06	Factored uniform-hazard spectral acceleration (2% probability of exceedance in 50 years)

S1D	0.6	Factored deterministic acceleration value (1.0s)
PGAd	0.5	Factored deterministic acceleration value (PGA)

The results indicated here DO NOT reflect any state or local amendments to the values or any delineation lines made during the building code adoption process. Users should confirm any output obtained from this tool with the local Authority Having Jurisdiction before proceeding with design.

Please note that the ATC Hazards by Location website will not be updated to support ASCE 7-22. Find out why.

Disclaimer

Hazard loads are provided by the U.S. Geological Survey Seismic Design Web Services.

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Exhibit F

Power Density/RF Emissions Report

FOX HILL TELECOM

Radio Frequency Emissions Analysis Report

T-Mobile

Site ID: CTHA027B

Romano
248 Hall Hill Road
Somers, CT 06071

June 5, 2024

Fox Hill Telecom Project Number: 240154

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	7.17 %

FOX HILL TELECOM

June 5, 2024

T-MOBILE
Attn: RF Manager
35 Griffin Road South
Bloomfield, CT 06009

Emissions Analysis for Site: **CTHA027B – Romano**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **248 Hall Hill Road, Somers, CT**, for the purpose of determining whether the emissions from the Proposed T-MOBILE Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

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

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

General population exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu W/cm^2$). The general population exposure limits for the 600 MHz & 700 MHz bands are approximately 400 $\mu W/cm^2$ and 467 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) bands is 1000 $\mu W/cm^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were performed for the proposed upgrades to the T-MOBILE antenna facility located at **248 Hall Hill Road, Somers, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65 for far field modeling calculations.

In OET-65, plane wave power densities in the Far Field of an antenna are calculated by considering antenna gain and reflective waves that would contribute to exposure.

Since the radiation pattern of an antenna has developed in the **Far Field** region the power gain in specific directions needs to be considered in exposure predictions to yield an Effective Radiated Power (ERP) in each specific direction from the antenna. Also, since the vertical radiation pattern of the antenna is considered, the exposure calculations would most likely be reduced significantly at ground level, resulting in a more realistic estimate of the actual exposure levels. To determine a worst-case scenario at each point along the calculation radials, each point was calculated using the antenna gain value at each angle of incident and compared against the result using an isotropic radiator at the antenna height with the greater of the two used to yield the more pessimistic far field value for each point along the calculation radial.

Additionally, to model a truly "worst case" prediction of exposure levels at or near a surface, such as at ground-level or on a rooftop, reflection off the surface of antenna radiation power can be assumed, resulting in a potential 1.6 times increase in power density in calculating far field power density values.

With these factors Considered, the worst case **Far Field prediction model** utilized in this analysis is determined by the following equation:

Equation 9 per FCC OET65 for Far Field Modeling

$$S = \frac{33.4\ ERP}{R^2}$$

S = Power Density (in μw/cm^2)
ERP = Effective Radiated Power from antenna (watts)
R = Distance from the antenna (meters)

Predicted far field power density values for all carriers identified in this report were calculated 6 feet above the ground level and are displayed as a percentage of the applicable FCC standards. All emissions values for other carriers were calculated using the same Far Field model outlined above, using industry standard radio configurations and frequency band selection based upon available licenses in this geographic area for emissions contribution estimates.

For each T-Mobile sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
LTE / 5G NR	600 MHz	4	40
LTE	700 MHz	2	20
LTE	1900 MHz (PCS)	4	35
5G	1900 MHz (PCS)	4	40
LTE	2100 MHz (AWS)	4	60
LTE / 5G NR	2500 MHz (BRS)	8	30

Table 1: Channel Data Table

The following T-Mobile antennas listed in *Table 2* were used in the modeling for transmission in the 600 MHz, 700 MHz, 1900 MHz (PCS), 2100 MHz (AWS) and 2500 MHz (BRS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	RFS APXVAALL24_43-U-NA20	175
A	2	Ericsson AIR6419 B41	175
B	1	RFS APXVAALL24_43-U-NA20	175
B	2	Ericsson AIR6419 B41	175
C	1	RFS APXVAALL24_43-U-NA20	175
C	2	Ericsson AIR6419 B41	175

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed T-MOBILE configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	18	740	30,440.71	1.29
Antenna A2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	240	33,900.90	1.20
						Sector A Composite MPE%	**2.49**
Antenna B1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	18	740	30,440.71	1.29
Antenna B2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	240	33,900.90	1.20
						Sector B Composite MPE%	**2.49**
Antenna C1	RFS APXVAALL24_43-U-NA20	600 MHz / 700 MHz / 1900 MHz (PCS) / 2100 MHz (AWS)	13.65 / 13.85 / 16.65 / 16.95	18	740	30,440.71	1.29
Antenna C2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	240	33,900.90	1.20
						Sector C Composite MPE%	**2.49**

Table 3: T-MOBILE Emissions Levels

The Following table (*table 4*) shows all additional identified carriers on site and their emissions contribution estimates, along with the newly calculated maximum T-MOBILE MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three T-Mobile sectors have the same configuration yielding the same results for all three sectors. *Table 5* below shows a summary for each T-MOBILE Sector as well as the composite estimated MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
T-MOBILE – Max Per Sector Value	**2.49 %**
Verizon Wireless	3.15 %
Dish Wireless	1.53 %
Site Total MPE %:	**7.17 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	2.49 %
T-MOBILE Sector B Total:	2.49 %
T-MOBILE Sector C Total:	2.49 %
Site Total:	7.17 %

Table 5: Site MPE Summary

Table 6 below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated T-MOBILE sector(s). For this site, all three T-Mobile sectors have the same configuration yielding the same results on all three sectors.

T-MOBILE _ Frequency Band / Technology Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
T-Mobile 600 MHz LTE / 5G NR	4	926.96	175	2.00	600 MHz	400	0.50%
T-Mobile 700 MHz LTE	2	485.32	175	0.51	700 MHz	467	0.11%
T-Mobile 1900 MHz (PCS) LTE	4	1,618.33	175	1.80	1900 MHz (PCS)	1000	0.18%
T-Mobile 1900 MHz (PCS) 5G	4	1,849.52	175	2.00	1900 MHz (PCS)	1000	0.20%
T-Mobile 2100 MHz (AWS) LTE	4	2,972.70	175	3.00	2100 MHz (AWS)	1000	0.30%
T-Mobile 2500 MHz (BRS) LTE / 5G NR	8	4,237.61	175	12.00	2500 MHz (BRS)	1000	1.20%
						Total:	**2.49 %**

Table 6: T-MOBILE Maximum Sector MPE Power Values

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population exposure to RF Emissions.

The anticipated maximum composite contributions from the T-MOBILE facility as well as the site composite emissions estimates value with regards to compliance with FCC's allowable limits for general population exposure to RF Emissions are shown here:

T-MOBILE Sector	Power Density Value (%)
Sector A:	2.49 %
Sector B:	2.49 %
Sector C:	2.49 %
T-MOBILE Maximum Total (per sector):	2.49 %
Site Total:	7.17 %
Site Compliance Status:	**COMPLIANT**

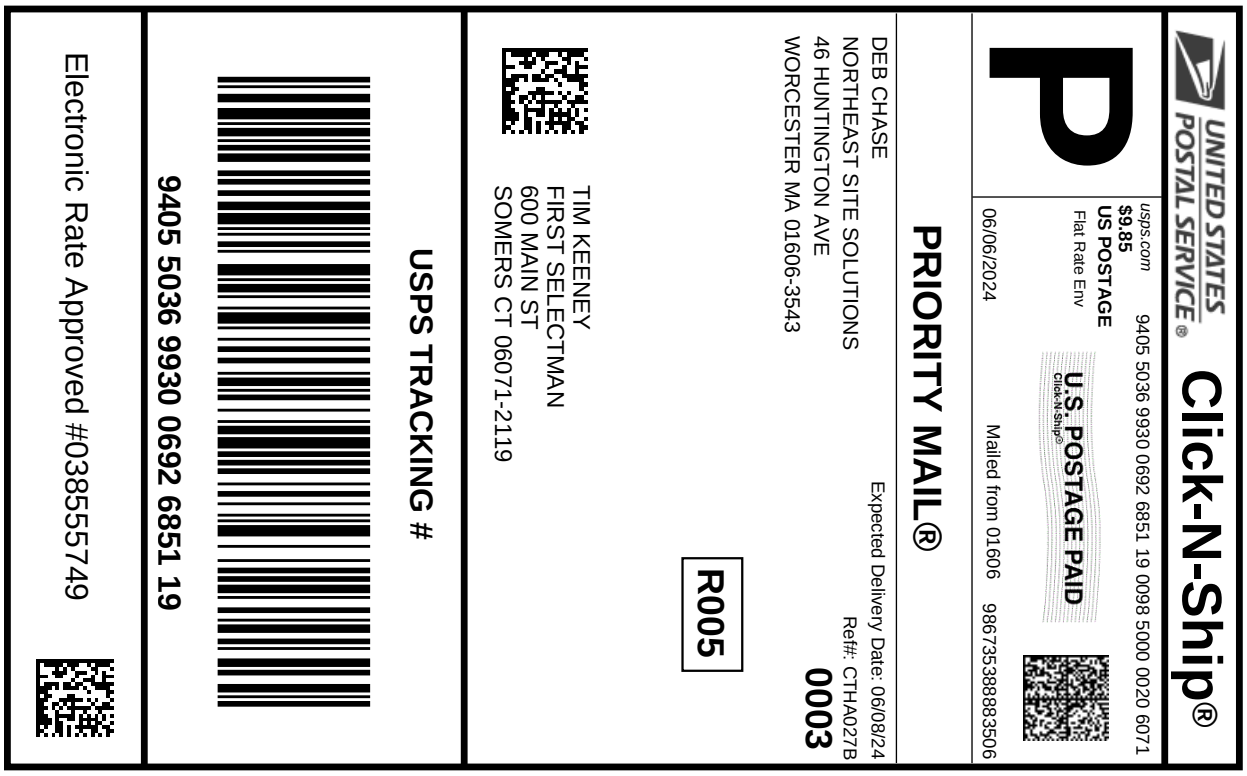
The estimated composite MPE value for this site assuming all carriers present is **7.17 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite estimated values calculated were well within the allowable 100% threshold standard per the federal government.

Scott Heffernan
Principal RF Engineer
Fox Hill Telecom, Inc
Worcester, MA 01609
(978)660-3998

Exhibit G

Recipient Mailings



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9405 5036 9930 0692 6851 19

Trans. #:	603057376
Print Date:	06/06/2024
Ship Date:	06/06/2024
Expected Delivery Date:	06/08/2024

Priority Mail® Postage:	**$9.85**
Total:	**$9.85**

From: DEB CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CTHA027B

To: TIM KEENEY
FIRST SELECTMAN
600 MAIN ST
SOMERS CT 06071-2119

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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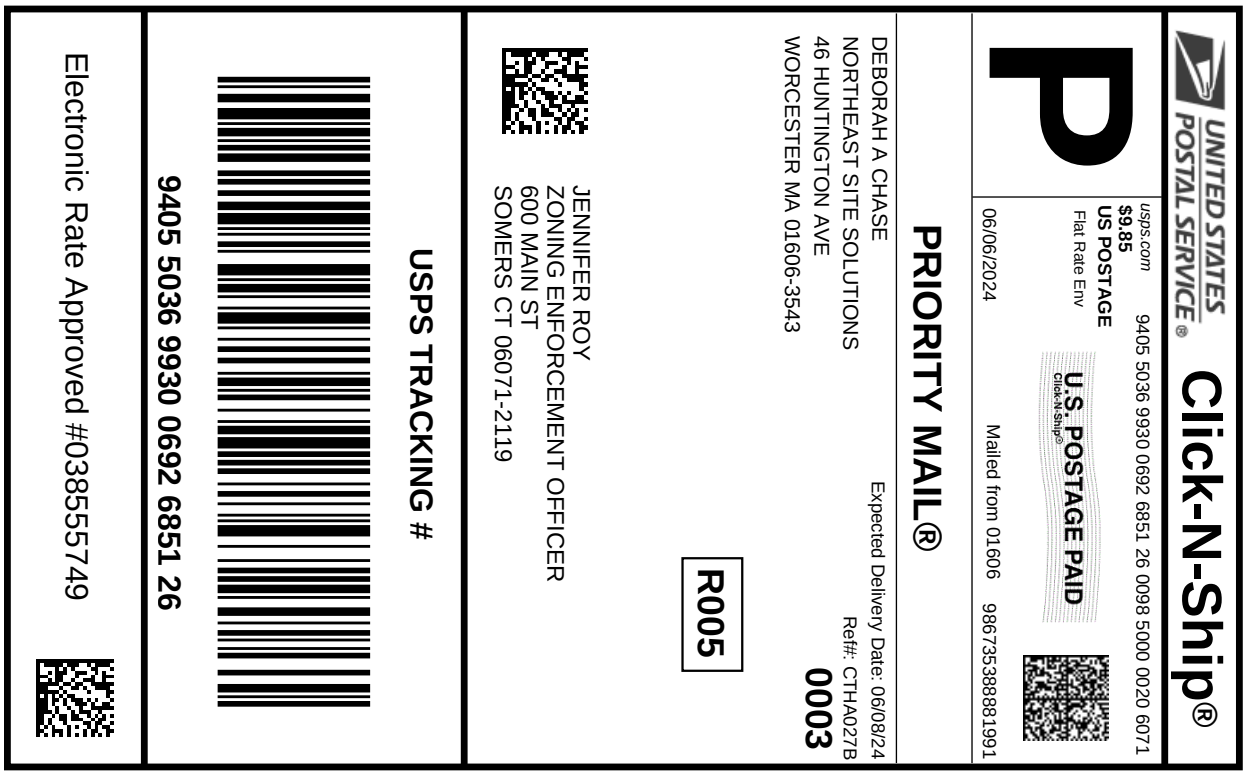
Check the status of your shipment on the USPS Tracking® page at usps.com



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Print Date:	06/06/2024
Ship Date:	06/06/2024
Expected Delivery Date:	06/08/2024

Priority Mail® Postage:	**$9.85**
Total:	**$9.85**

From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543
Ref#: CTHA027B

To: JENNIFER ROY
ZONING ENFORCEMENT OFFICER
600 MAIN ST
SOMERS CT 06071-2119

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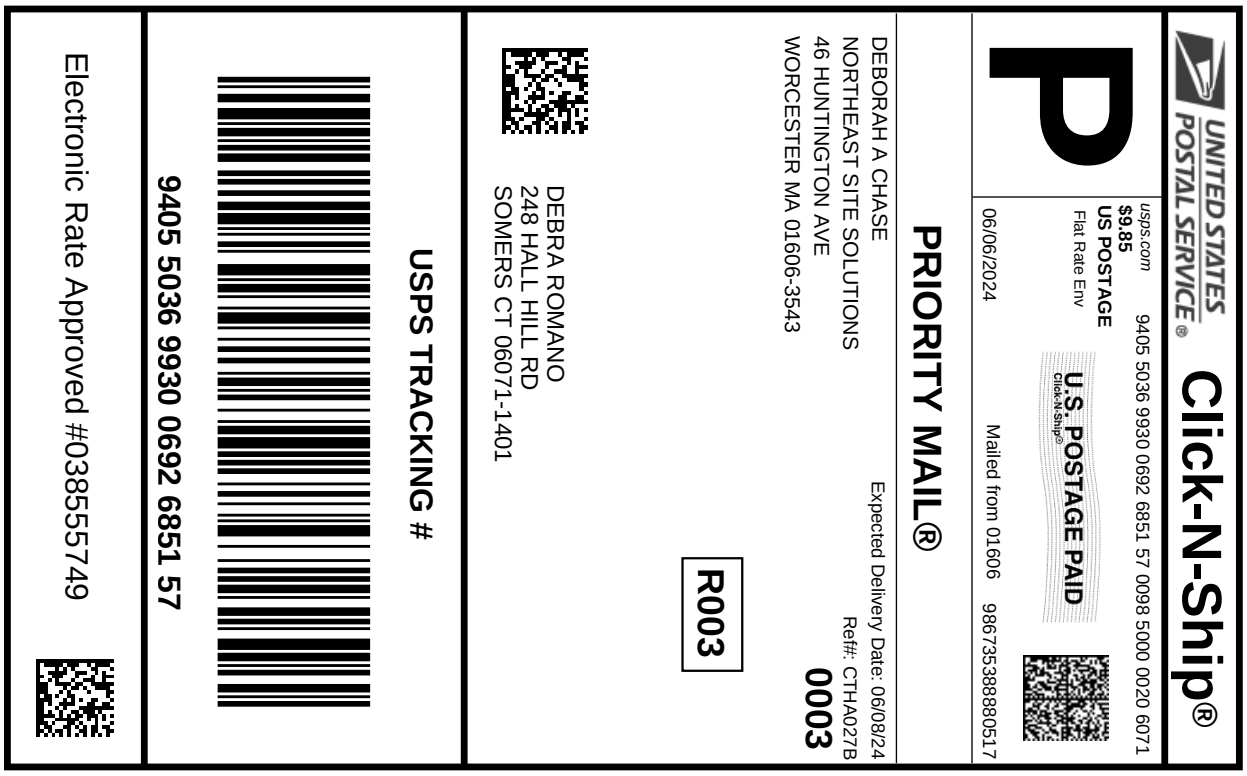

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9405 5036 9930 0692 6851 57

Trans. #:	603057376
Print Date:	06/06/2024
Ship Date:	06/06/2024
Expected Delivery Date:	06/08/2024

Priority Mail® Postage:	**$9.85**
Total:	**$9.85**

From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CTHA027B

To: DEBRA ROMANO
248 HALL HILL RD
SOMERS CT 06071-1401

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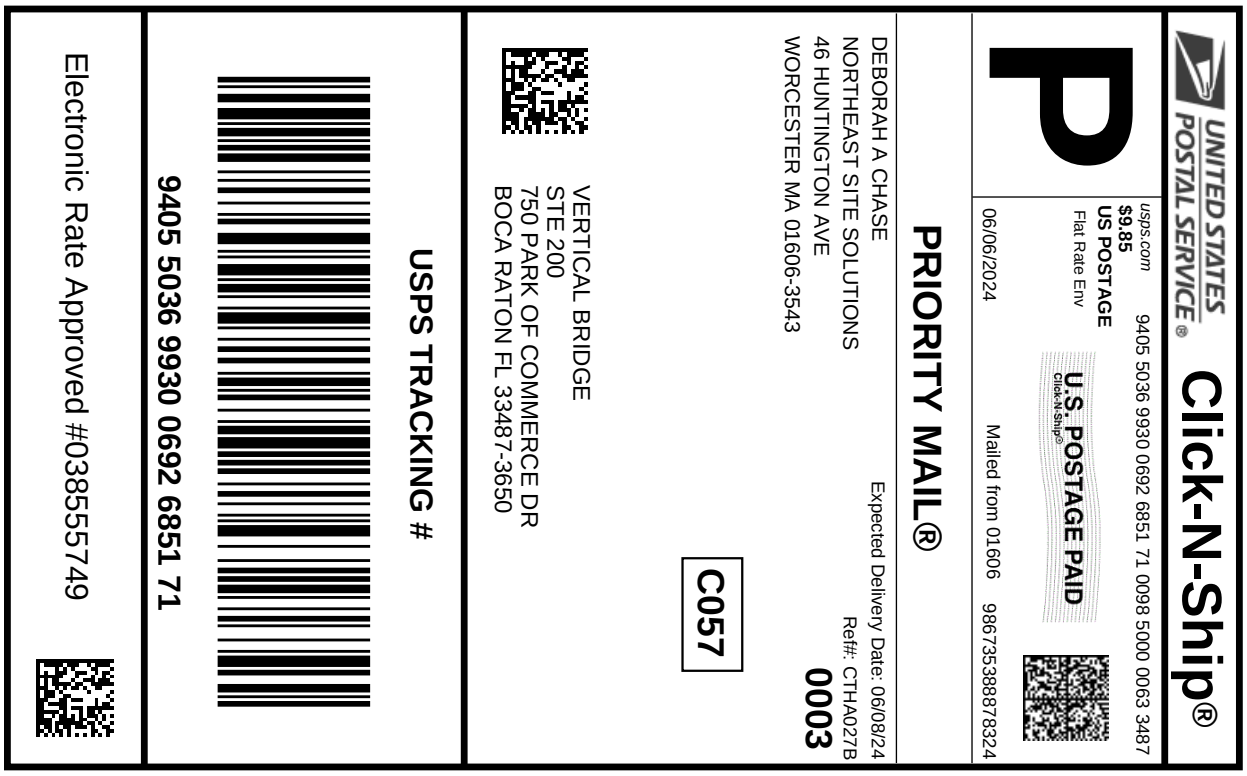

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Click-N-Ship® Label Record

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9405 5036 9930 0692 6851 71

Trans. #:	603057376
Print Date:	06/06/2024
Ship Date:	06/06/2024
Expected Delivery Date:	06/08/2024

Priority Mail® Postage:	**$9.85**
Total:	**$9.85**

From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CTHA027B

To: VERTICAL BRIDGE
STE 200
750 PARK OF COMMERCE DR
BOCA RATON FL 33487-3650

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CTHA027B

UNITED STATES POSTAL SERVICE.

GREENDALE
290 W BOYLSTON ST
WORCESTER, MA 01606-2378
(800)275-8777

06/06/2024 03:22 PM

Product	Qty	Unit Price	Price
Prepaid Mail Somers, CT 06071 Weight: 0 lb 10.60 oz Acceptance Date: Thu 06/06/2024 Tracking #: 9405 5036 9930 0692 6851 57	1		$0.00
Prepaid Mail Somers, CT 06071 Weight: 0 lb 10.50 oz Acceptance Date: Thu 06/06/2024 Tracking #: 9405 5036 9930 0692 6851 19	1		$0.00
Prepaid Mail Boca Raton, FL 33487 Weight: 0 lb 10.60 oz Acceptance Date: Thu 06/06/2024 Tracking #: 9405 5036 9930 0692 6851 71	1		$0.00
Prepaid Mail Somers, CT 06071 Weight: 0 lb 10.50 oz Acceptance Date: Thu 06/06/2024 Tracking #: 9405 5036 9930 0692 6851 26	1		$0.00
Grand Total:			$0.00