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

April 2, 2024

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

RE: Notice of Exempt Modification
720 Quinebaug Road, Thompson, CT 06262
Latitude: 42.0228
Longitude: -72.9493
T-Mobile Site#: CTNL193A_Anchor

Dear Ms. Bachman:
T-Mobile currently maintains twelve (12) antennas at the 105-foot level of the existing 125-foot monopole located at 720 Quinebaug Road, Thompson, CT 06262. The monopole and property are owned by Quinebaug Volunteer Fire Department. T-Mobile now intends to replace twelve (12) existing antennas with eight (8) new 600/700/1900/2100 MHz. The new antennas would be installed at the 105-foot level of the tower. T-Mobile also intends to make the following modifications.
Planned Modifications
Remove:
(4) APXVAA24 Antenna

Remove and Replace:
(4) Air32 B66A Antenna (Remove) - (4) APXVAALL24 600/700/1900/2100 MHz Antenna (Replace)
(4) APX16DWV Antenna (Remove) – (4) AIR6419 B41 Antenna (Replace)
(4) 6x12 hybrid lines (Remove) – (4) 6x24 hybrid lines (Replace)
(4) RRUS- 11 Radio (Remove) – (4) 4460 B25+B66 Radio (Replace)

Install New:
None

Existing to Remain:
(4) 4449 B71+B85 Radio (Relocated)

This facility was approved by the Town of Thompson Planning and Zoning Commission on March 23, 1998. A copy of the minutes and decision of the Commission's meeting is attached, with no record of conditions that would restrict exempt modifications. Therefore, this modification complies with the approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Amy St. Onge, First Selectman for the Town of Thompson, Tyra Penn-Gesek, Director of Planning & Development as well as the property owner and the 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: Amy St. Onge, First Selectman, First Selectman
815 Riverside Drive
P.O. Box 899
North Grosvenordale, CT 06255

Tyra Penn-Gesek, Director of Planning & Development
815 Riverside Drive
P.O. Box 899
North Grosvenordale, CT 06255

Quinebaug Volunteer Fire Department C/O Cingular Wireless Prop Tax DIV- as tower owner & property owner
754 Peachtree St
Atlanta, GA 30308

Exhibit A

Original Facility Approval

Town of Thompson

PLANNING & ZONING COMMISSION
MUNICIPAL BUILDING
ROUTE 12
NORTH GROSVENOR DALE, CONN. 06255

TEL.: 203-923-9002

MINUTES
PLANNING & ZONING COMMISSION
MARCH 23, 1998 * 7:00 PM
MERRILL SENEY COMMUNITY ROOM

5). Discussion Regarding Proposed Telecommunications Facility
720 Thompson Road; Map 120, Block 30, Lot 14, Industrial Zone
John Kowalski, Techstar Communications
John Kowalski gave a brief presentation, they received a conceptual approval from the commission last month, he has submitted new information including the 10 ft. fence, materials stating the coverage afforded, they will be located in an industrial zone, the tower will co-host two additional users on the 140 ft. monopole. They are seeking their zoning permit at this time, there is no existing tower in town that will meet their coverage. Atty. St. Onge stated the rules are up in the air at this time, in the Town's Zoning Regulations a structure is defined as all inclusive, a building is defined with the exclusion of radio and TV antennas, and that is the only difference between a building and a structure; clearly there was an intention in the regulations but it was not spelled out. It does fit in under the industrial zone, where it accepts radio & TV towers but the regulations don't list where they're permitted. The law is the Town can regulate but it can't prohibit. The Town does need a regulation to address this issue and specify the height issue, setbacks, screening, fencing, co-location, minimum lot size, signs & lights, removal, etc. The commission may want to act on this application since he already has a conceptual approval but then either a moratorium or drafting of a new regulation must begin immediately to meet the Federal requirements. John Rice noted some approval stipulations: a letter signed by the Director of CT. operations for Techstar Communications that the commission reserves the right to require other applicant's to share their tower; also that Techstar agrees to dismantle and remove at their expense if the facility is not in use for 12 consecutive months, this removal shall occur within 90 days of the end of such 12 month period; the design and plan shall indicate how the tower will collapse without encroaching upon any adjoining property if failure occurs; a report from a licensed telecommunications system engineer indicating that the proposed wireless telecommunications facility will comply with F.C.C. radio frequency emissions standards and that the installation will not interfere with public safety communications. Discussion followed. Mr. Kowalski stated there will be no lights and no signs except for a warning sign.
A Motion was made by John Rice to approve the zoning permit for a free standing 140 ft. monopole tower and in conformity with the drawings submitted upon meeting all aforementioned stipulations and reviewed by the Zoning Enforcement Officer, seconded by Randolph Blackmer. All in favor.
VOTE: 9 YES MOTION CARRIED

Discussion followed regarding amending the regulations, it could be

Exhibit B

Property Card

720 QUINEBAUG RD

Location	720 QUINEBAUG RD	**Mblu**	3/ 81/ 1/ 1/
Acct#	001697	**Owner**	QUINEBAUG VOLUNTEER FIRE DEPT
PBN	DM2	**Assessment**	$277,800
Appraisal	$396,800	**PID**	103800
Building Count	1		

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$180,800	$216,000	$396,800
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2021	$126,600	$151,200	$277,800

Owner of Record

Owner	QUINEBAUG VOLUNTEER FIRE DEPT	**Sale Price**	$0
Co-Owner	C/O CINGULAR WIRELESS PROP TAX DIV	**Certificate**	
Address	754 PEACHTREE ST ATLANTA, GA 30308	**Book & Page**	0368/0336
		Sale Date	12/19/1997

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
QUINEBAUG VOLUNTEER FIRE DEPT	$0		0368/0336	12/19/1997

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:

Replacement Cost
Less Depreciation: $0

Building Attributes	
Field	**Description**
Style:	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Cndtn	
Num Park	
Fireplaces	
Fndtn Cndtn	
Basement	

Building Photo

(https://images.vgsi.com/photos/thompsonctPhotos//\00\00\45\18.jpg)

Building Layout

(ParcelSketch.ashx?pid=103800&bid=103728)

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

lblIndfront

Land Use

Use Code	390A
Description	DEVEL LAND MDL-00
Zone	
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Sqr Feet)	1
Frontage	
Depth	
Assessed Value	$151,200
Appraised Value	$216,000

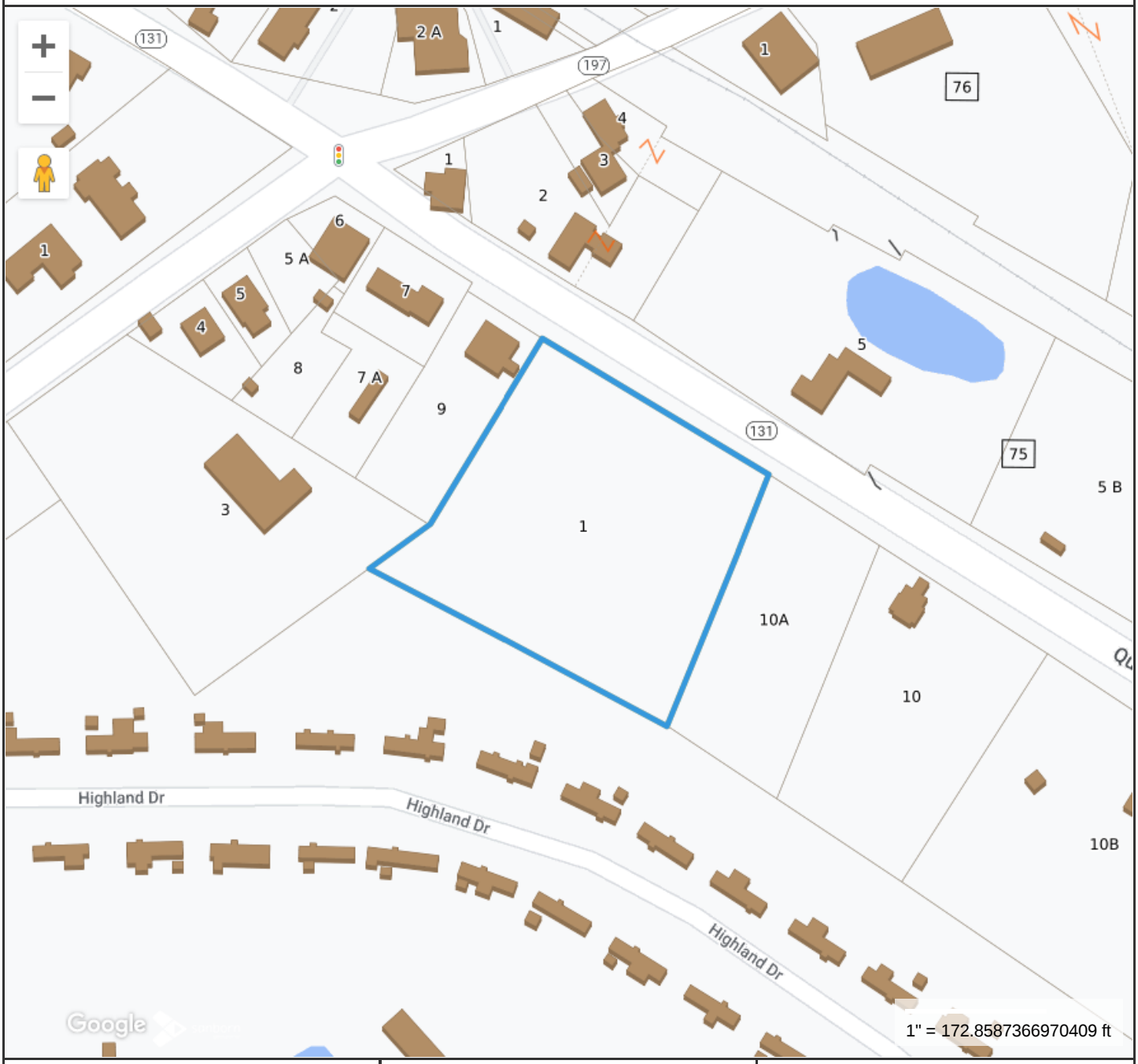
Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
TWR2	MONOPOLE			125.00 HEIGHT	$106,900	1
CB1	PRECAST CONC CELL			240.00 S.F.	$28,500	1
FN4	FENCE-8' CHAIN			94.00 L.F.	$2,600	1
CB1	PRECAST CONC CELL			360.00 S.F.	$42,800	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$180,800	$216,000	$396,800
2019	$180,800	$216,000	$396,800
2018	$180,800	$0	$180,800

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$126,600	$151,200	$277,800
2019	$126,600	$151,200	$277,800
2018	$126,600	$0	$126,600



Property Information

Property ID	144
Location	720 QUINEBAUG RD
Owner	QUINEBAUG VOLUNTEER FIRE DEPT

MAP FOR REFERENCE ONLY
NOT A LEGAL DOCUMENT

Town of Thompson, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated December 1, 2022
Data updated Daily

Print map scale is approximate. Critical layout or measurement activities should not be done using this resource.

Exhibit C

Construction Drawings

Approved - Dave Deraleau
10:32 AM, Mar 19, 2024

APPROVED
By Ryan Monte de Ramos at 2:20 pm, Mar 21, 2024

APPROVED
By Mike DeLia at 5:19 pm, Mar 25, 2024

T-MOBILE NORTHEAST LLC

ANCHOR

SITE #: CTNL193A
SITE NAME: CTNL193A
720 QUINEBAUG ROAD
QUINEBAUG, CT 06262
WINDHAM COUNTY

RAN CONFIGURATION: 4Sec-67D5D998E 6160

A&L CONFIGURATION: 4Sec-67D5998E_1xAIR+1QP+1OP

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

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:	CTNL193A
SITE ADDRESS:	720 QUINEBAUG ROAD QUINEBAUG, CT 06262
JURISDICTION:	TOWN OF THOMPSON
COUNTY:	WINDHAM COUNTY
MAP/LOT/BLOCK:	3/81/1
PROPERTY OWNER:	QUINEBAUG VOLUNTEER FIRE DEPT. P.O. BOX 144 QUINEBAUG, CT 062662
APPLICANT:	T–MOBILE NORTHEAST LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002

SITE CHARACTERISTICS

LATITUDE:	42.0228°
LONGITUDE:	–71.9493°
STRUCTURE TYPE:	MONOPOLE
LOCATION OF EQUIPMENT:	EXISTING CONCRETE PAD AT GRADE
STRUCTURE HEIGHT:	±125'–0" AGL
ANTENNA (RAD CENTER)	ALPHA – ±105'–0" AGL BETA – ±105'–0" AGL GAMMA – ±105'–0" AGL DELTA – ±105'–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 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	03/18/24	REVISED PER CLIENT COMMENTS
0	03/05/24	INITIAL SUBMISSION

DRAWN BY:	CJT
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	24007-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 · No. 28643 · LICENSED PROFESSIONAL ENGINEER

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

SITE ID: CTNL193A
SITE NAME: CTNL193A
720 QUINEBAUG RD
QUINEBAUG, CT 06262
WINDHAM 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	03/18/24	REVISED PER CLIENT COMMENTS
0	03/05/24	INITIAL SUBMISSION

DRAWN BY:	CJT
CHECKED BY:	NDB
SCALE:	AS NOTED
JOB NO:	24007-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: CTNL193A
SITE NAME: CTNL193A
720 QUINEBAUG RD
QUINEBAUG, CT 06262
WINDHAM COUNTY

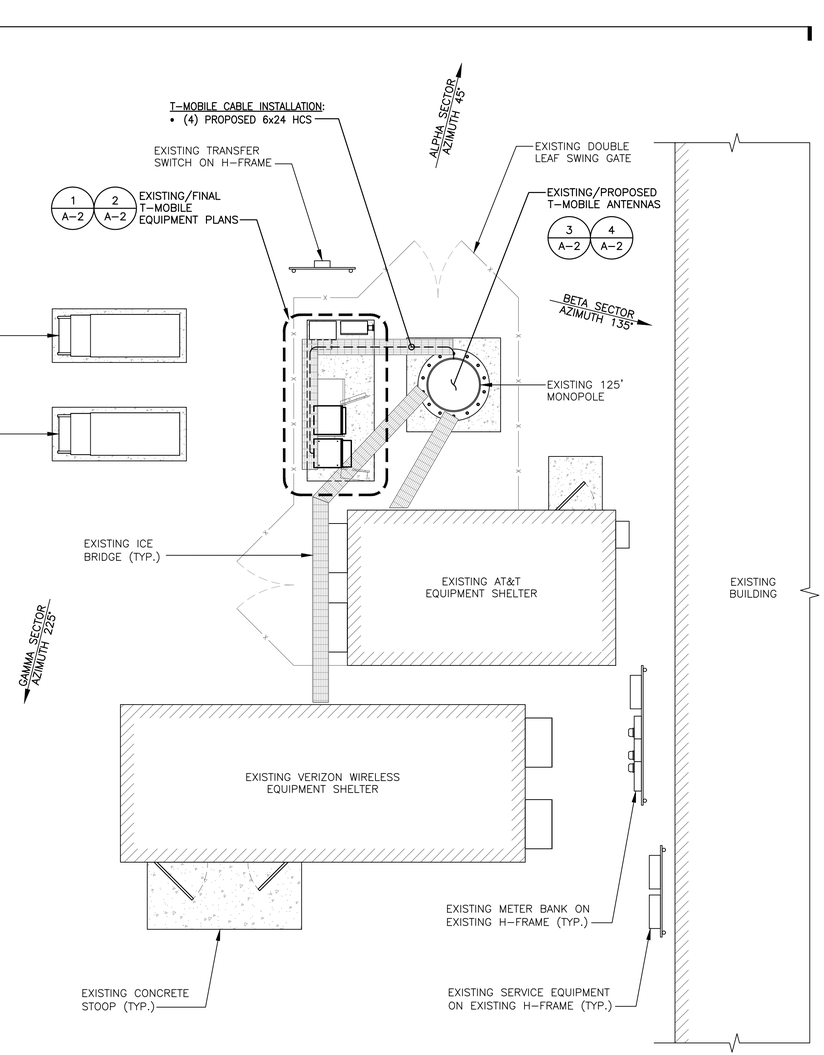
DRAWING TITLE:

GENERAL NOTES

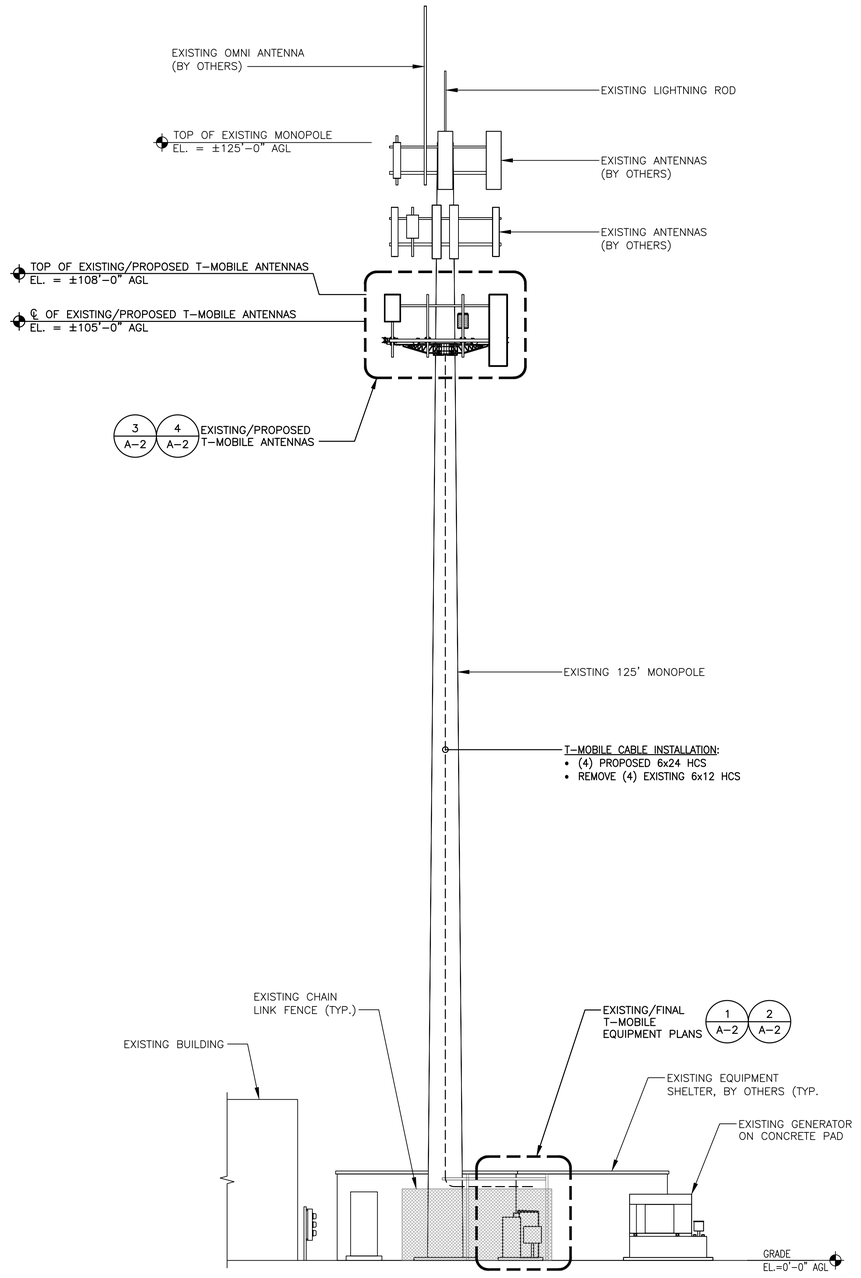
DRAWING SHEET:

GN-1

LOADING SHOWN ON THIS SET OF DRAWINGS IS BASED ON THE STRUCTURAL ANALYSIS & ANTENNA MOUNT ANALYSIS PERFORMED BY ASCEND CONSULTING GROUP, DATED 02/28/24. 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.



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



2 A-1 ELEVATION
SCALE: 1/8"=1'-0"

0 4 8 16
GRAPHIC SCALE: 1/8"=1'-0"

T-Mobile
T-MOBILE NORTHEAST LLC
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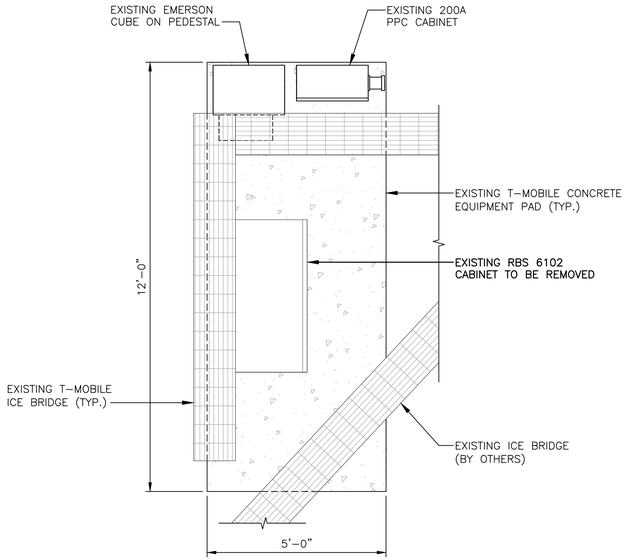
SITE ID: CTNL193A
SITE NAME: CTNL193A
720 QUINEBAUG RD
QUINEBAUG, CT 06262
WINDHAM COUNTY

DRAWING TITLE:

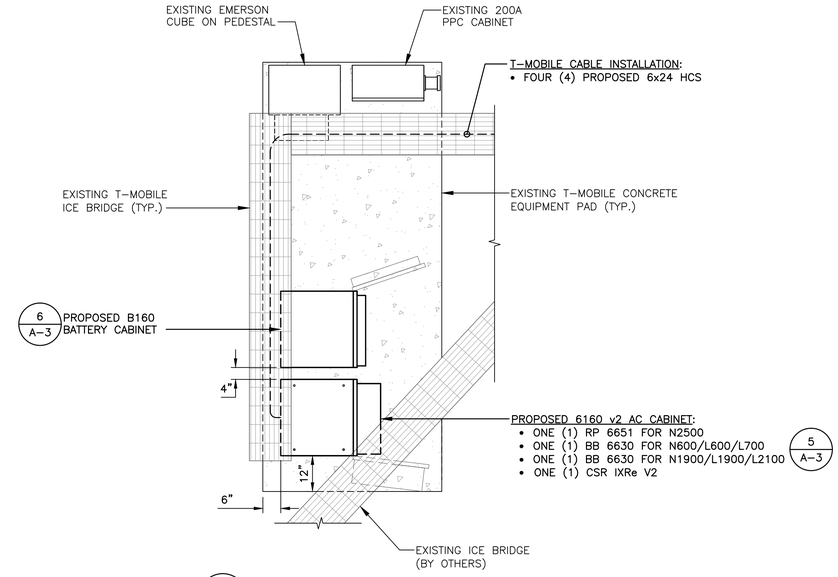
COMPOUND PLAN & ELEVATION

DRAWING SHEET:

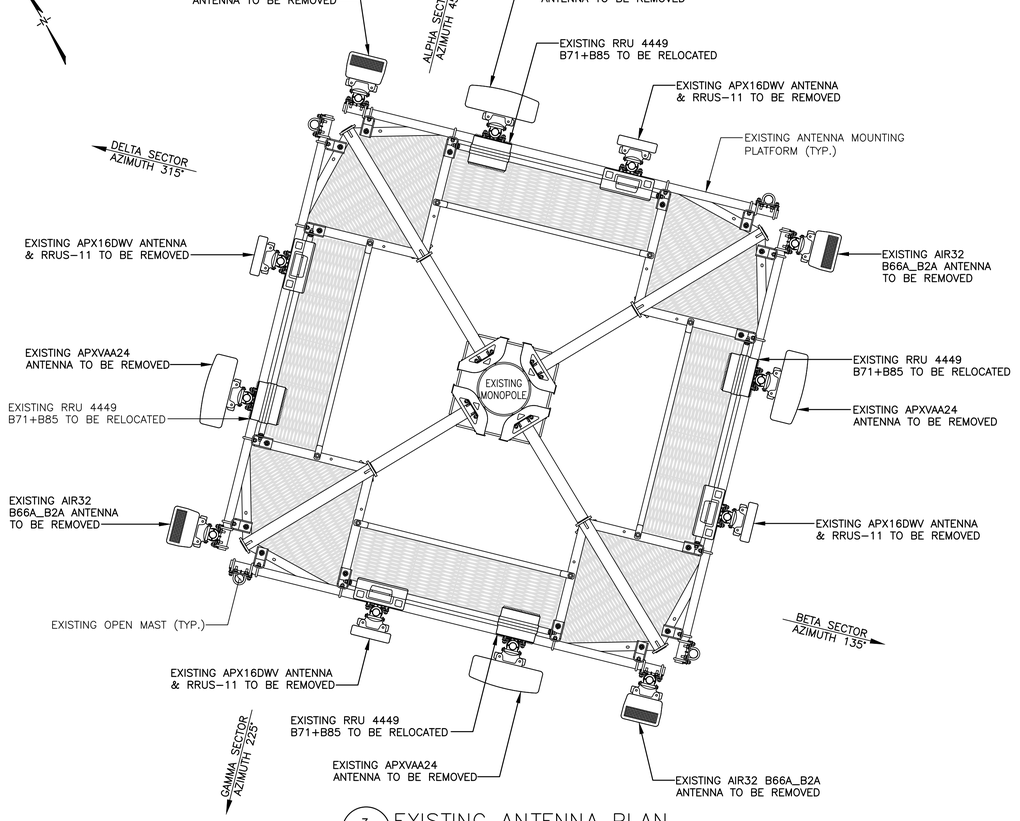
A-1



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

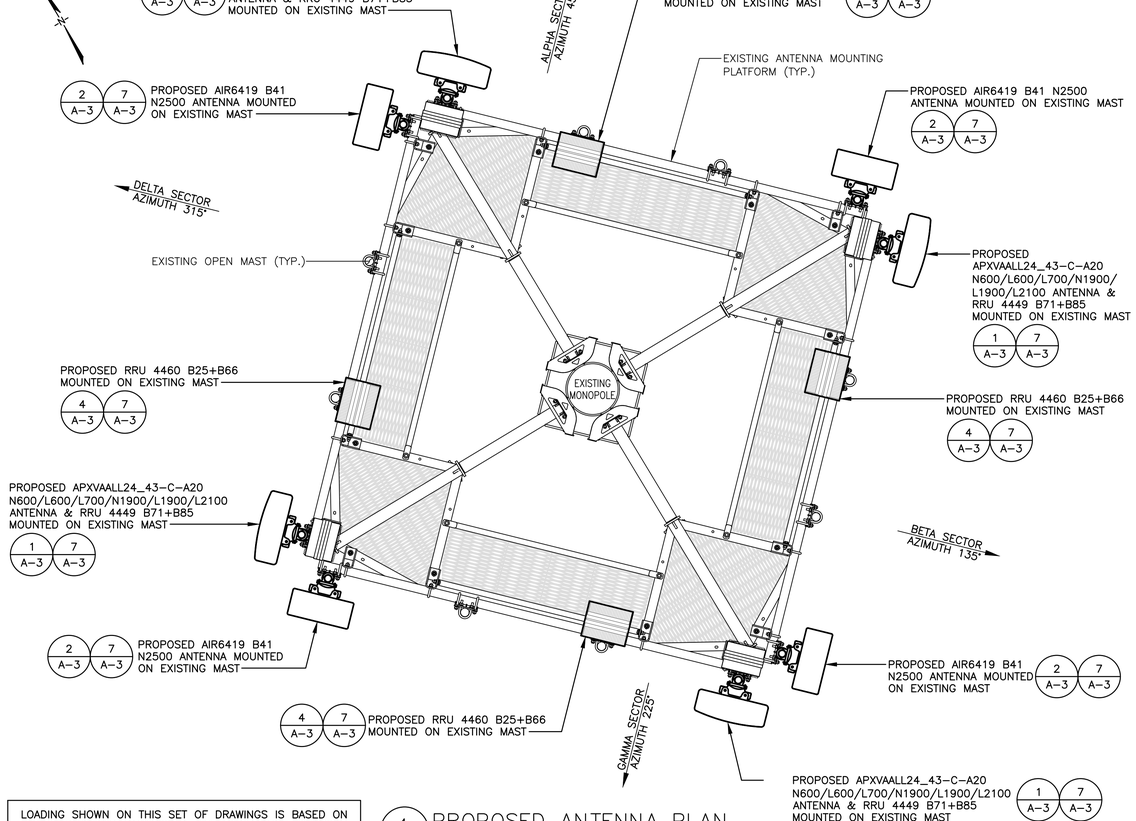


2 / A-2 FINAL EQUIPMENT PLAN
SCALE: 1/2"=1'-0"



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

GRAPHIC SCALE: 1/2"=1'-0"



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4 / A-2 PROPOSED ANTENNA PLAN
SCALE: 1/2"=1'-0"

GRAPHIC SCALE: 1/2"=1'-0"

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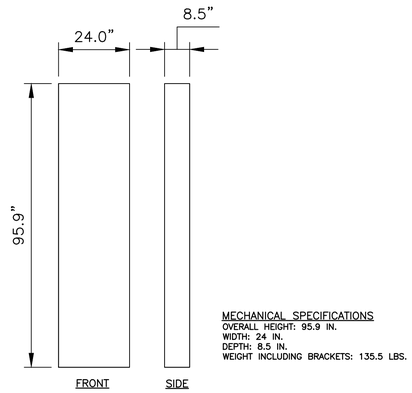
720 QUINEBAUG RD
QUINEBAUG, CT 06262
WINDHAM COUNTY

DRAWING TITLE:

EQUIPMENT PLANS & ANTENNA PLANS

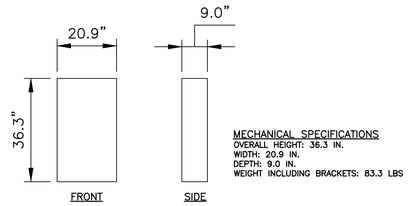
DRAWING SHEET:

A-2



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

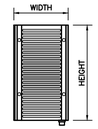
1 / A-3 RFS: APXVAALL24_43-C-A20
SCALE: N.T.S.



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

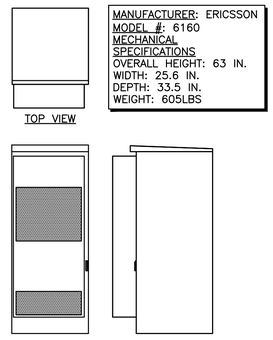
2 / A-3 ERICSSON: AIR6419 B41
SCALE: N.T.S.

3 / A-3 DETAIL NOT USED
SCALE: N.T.S.



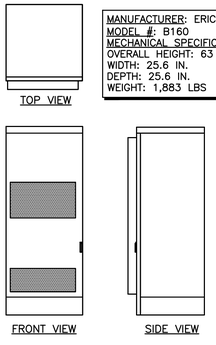
RRH	HEIGHT	WIDTH	DEPTH	WEIGHT
RADIO 4460 B25+B66	17.0"	15.1"	11.9"	104 LBS.

4 / A-3 RRU DETAILS
SCALE: N.T.S.



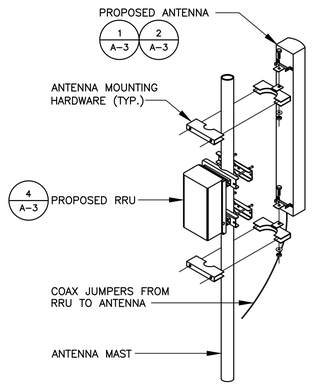
MANUFACTURER: ERICSSON
MODEL #: 6160
MECHANICAL SPECIFICATIONS
OVERALL HEIGHT: 63 IN.
WIDTH: 25.6 IN.
DEPTH: 33.5 IN.
WEIGHT: 605LBS

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

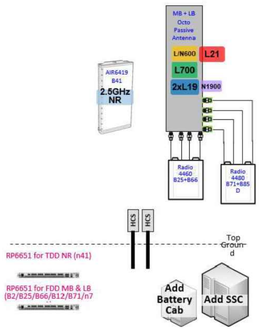


MANUFACTURER: ERICSSON
MODEL #: B160
MECHANICAL SPECIFICATIONS
OVERALL HEIGHT: 63 IN.
WIDTH: 25.6 IN.
DEPTH: 25.6 IN.
WEIGHT: 1,883 LBS

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 MODEL	EXISTING QTY.	PROPOSED 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 45°	R1	AIR32 B66A_B2A	1	**APXVAALL24_43-U-NA20**	105'-0"	N600/L600/ L700/N1900/ L1900/L2100	1	2/2/0/0	0	(1) 4460 B25+B66 (1) 4449 B71+B85	–	–	8 4	COAX JUMPER FIBER JUMPER	10' 15'
	R2	APXVAA24_43-U-A20	1	–	–	–	–	–	–	–	–	–	–	–	–
	R3	APX16DWV-16DWV-S-E-A20	1	–	–	–	–	–	–	–	–	–	–	–	–
	R4	–	–	**AIR6419 B41**	105'-0"	N2500	1	2/2	0	–	–	–	1 4	6x24 HCS FIBER JUMPER	170' 15'
BETA 135°	W1	AIR32 B66A_B2A	1	**APXVAALL24_43-U-NA20**	105'-0"	N600/L600/ L700/N1900/ L1900/L2100	1	2/2/0/0	0	(1) 4460 B25+B66 (1) 4449 B71+B85	–	–	8 4	COAX JUMPER FIBER JUMPER	10' 15'
	W2	APXVAA24_43-U-A20	1	–	–	–	–	–	–	–	–	–	–	–	–
	W3	APX16DWV-16DWV-S-E-A20	1	–	–	–	–	–	–	–	–	–	–	–	–
	W4	–	–	**AIR6419 B41**	105'-0"	N2500	1	2/2	0	–	–	–	1 4	6x24 HCS FIBER JUMPER	170' 15'
GAMMA 225°	B1	AIR32 B66A_B2A	1	**APXVAALL24_43-U-NA20**	105'-0"	N600/L600/ L700/N1900/ L1900/L2100	1	2/2/0/0	0	(1) 4460 B25+B66 (1) 4449 B71+B85	–	–	8 4	COAX JUMPER FIBER JUMPER	10' 15'
	B2	APXVAA24_43-U-A20	1	–	–	–	–	–	–	–	–	–	–	–	–
	B3	APX16DWV-16DWV-S-E-A20	1	–	–	–	–	–	–	–	–	–	–	–	–
	B4	–	–	**AIR6419 B41**	105'-0"	N2500	1	2/2	0	–	–	–	1 4	6x24 HCS FIBER JUMPER	170' 15'
DELTA 315°	G1	AIR32 B66A_B2A	1	**APXVAALL24_43-U-NA20**	105'-0"	N600/L600/ L700/N1900/ L1900/L2100	1	2/2/0/0	0	(1) 4460 B25+B66 (1) 4449 B71+B85	–	–	8 4	COAX JUMPER FIBER JUMPER	10' 15'
	G2	APXVAA24_43-U-A20	1	–	–	–	–	–	–	–	–	–	–	–	–
	G3	APX16DWV-16DWV-S-E-A20	1	–	–	–	–	–	–	–	–	–	–	–	–
	G4	–	–	**AIR6419 B41**	105'-0"	N2500	1	2/2	0	–	–	–	1 4	6x24 HCS FIBER JUMPER	170' 15'

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

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99 FANNY ROAD
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PROFESSIONAL ENGINEER, CT LIC. No. 28643

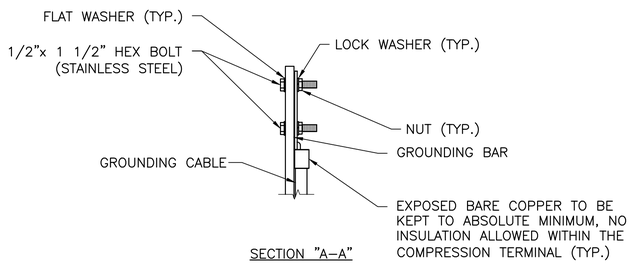
SITE ID: CTNL193A
SITE NAME: CTNL193A
720 QUINEBAUG RD
QUINEBAUG, CT 06262
WINDHAM COUNTY

DRAWING TITLE:

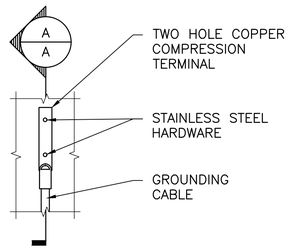
DETAILS

DRAWING SHEET:

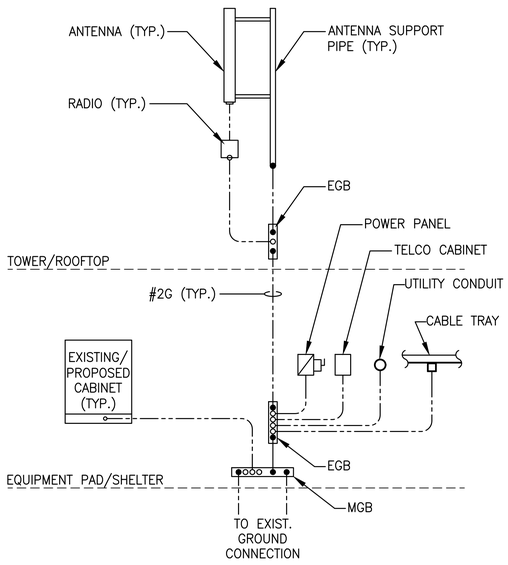
A-3



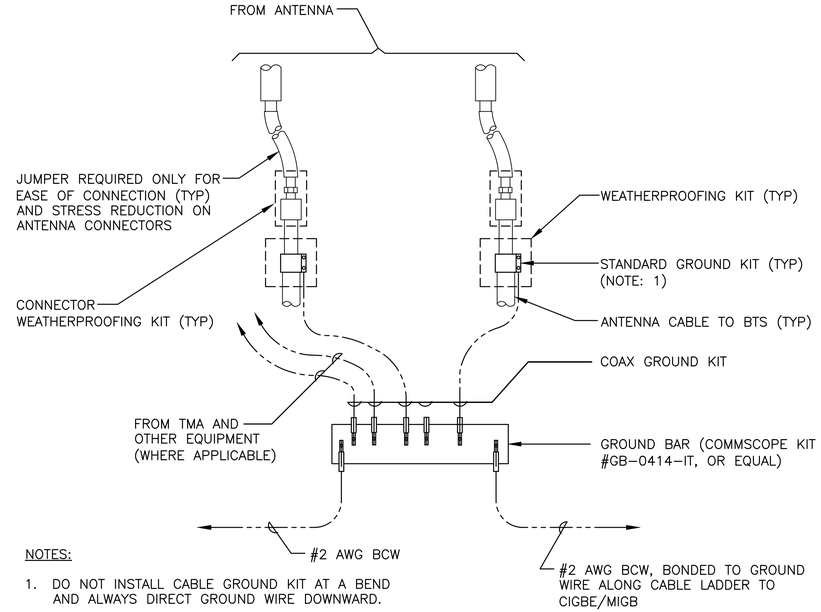
NOTE:
1. "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.



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

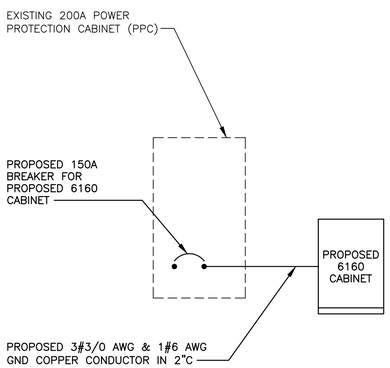


2 E–1 GROUNDING RISER DIAGRAM
SCALE: N.T.S.



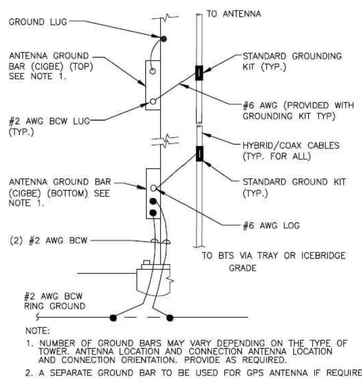
NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWNWARD.

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.

AC BREAKER PANEL SCHEDULE (200A, 120/240V, 1ϕ)

CIRCUIT NO.	AMPS	DESCRIPTION	DESCRIPTION	AMPS	CIRCUIT NO.
1	60	SURGE	OUTLET	20	2
3			*NOT LABELED*	20	4
5	**150**	**6160 CABINET**	LIGHT	20	6
7			–	–	8
9	20	*NOT LABELED*	–	–	10
11	–	–	–	–	12
13	–	–	–	–	14
15	–	–	–	–	16
17	–	–	–	–	18
19	–	–	–	–	20
21	–	–	–	–	22
23	–	–	–	–	24

6 E–1 FINAL AC BREAKER PANEL SCHEDULE
SCALE: N.T.S.

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WINDHAM COUNTY

DRAWING TITLE:

GROUNDING DETAILS & NOTES

DRAWING SHEET:

E-1

Exhibit D

Structural Analysis Report

TOWER STRUCTURAL ANALYSIS REPORT

Approved - Dave Deraleau
1:46 PM, Mar 4, 2024

Site ID #: CTNL193A
720 Quinebaug Road
Quinebaug, CT 06262
Windham County

February 28, 2024

Result	Capacity
PASS	96%

Prepared By:

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1284 Gap Newport Pike, Suite 100
Avondale, PA 19311

Prepared For:

ELEVATED ENGINEERING

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STATE OF CONNECTICUT
KELLY M. SHANAHAN
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LICENSED
PROFESSIONAL ENGINEER

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OBJECTIVE

The objective of this report is to determine if the proposed installation of T-Mobile equipment on the existing monopole tower will exceed the structural capacity of the tower and supporting foundation structure.

Our analysis was based on:

- Construction Drawings prepared by Centek Engineering, Rev 1, dated 6/18/2019
- T-Mobile RFDS, RFDS Version 3, last updated 2/8/2024
- Structural Analysis Report prepared by Centerline Engineering, Rev 0, dated 12/27/2023
- Structural Analysis Report prepared by Centek Engineering, Rev 1, dated 5/14/2019
- Site inspection by Elevated Engineering on 2/20/2024

ANALYSIS STANDARDS AND LOADINGS

The following standards are referenced in this analysis:

- 2022 Connecticut State Building Code
- Minimum Design Loads for Buildings and Other Structures, ASCE 7-16
- Structural Standard for Antenna Supporting Structures TIA/EIA-222-H
- Specification for Structural Steel Buildings, AISC 360-16

The following data is used for this analysis:

- Analysis Type: Feasibility
- Structure Classification III
- Ultimate Wind Speed V = 130 mph
- Wind Exposure Category B
- Topographic Category 1
- Escalating Ice Thickness of 1.5 in
- Wind speed with ice of 50 mph
- Maintenance wind speed of 30 mph
- Service wind speed of 60 mph

FINAL ANTENNA LOADING

Final Alpha / Beta / Gamma / Delta Sector Configuration (quantities listed per sector)
RAD Center 105'-0"
(1) RFS APXVAALL24_43-U-NA20 Antenna
(1) Ericsson AIR 6419 B41 Antenna
(1) Ericsson Radio 4460 B25+B66 RRH
(1) Ericsson Radio 4449 B71+B85 RRH

Only T-Mobile loading is shown. See TNX report below for full tower loading. The loading used in this analysis is based upon the sources referenced above and assumes that no alterations have been made beyond those described therein.

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ANALYSIS APPROACH

The analysis approach used in this report was founded on the premise if the existing structural members of the structures which were to support the proposed equipment are adequate, per the aforementioned standards, then the proposed T-Mobile telecommunication equipment may be placed at the desired location.

CALCULATIONS

Calculations are attached in this report.

CONCLUSIONS

Structural Analysis of Tower / Foundation:

Item	Pass/Fail	Capacity
Tower – pole	PASS	96%
Tower – baseplate	PASS	91%
Tower – anchor bolts	PASS	83%
Tower foundation – end bearing	PASS	1%
Tower foundation – overturning	PASS	87%
Tower foundation – bending	PASS	68%

Based on this information, the proposed T-Mobile equipment may be placed on the existing monopole tower.

The conclusions reached in this report were applicable for the aforementioned equipment loading. Any deviation of equipment loadings, placement, etc., will require an additional structural analysis.

RECOMMENDATIONS

None.

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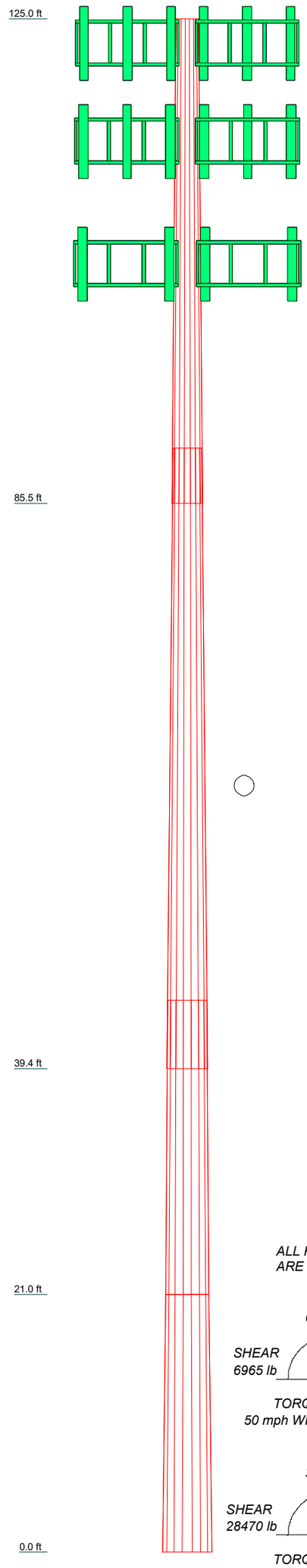
GENERAL COMMENTS

If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, Ascend Consulting Group, LLC 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 Ascend Consulting Group, LLC.

Section	1	2	3	4
Length (ft)	39.50	50.58	24.00	21.00
Number of Sides	16	16	16	16
Thickness (in)	0.1875	0.2813	0.3125	0.3393
Socket Length (ft)	4.50	5.58		
Top Dia (in)	21.0370	28.3602	37.6953	42.9741
Bot Dia (in)	29.7250	39.4853	42.9741	47.5931
Grade	A572-65			
Weight (lb)	2025.4	5195.8	3258.3	3476.2



DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
20' 4-Bay Dipole	123	LPA-80080/6CF	115
10' x 1" Omni	123	B2/B66A RRH-BR049 (RFV01U-D1A)	115
10ft 8-Bay Dipole	123	B2/B66A RRH-BR049 (RFV01U-D1A)	115
91" x 21" x 7" Panel	123	B2/B66A RRH-BR049 (RFV01U-D1A)	115
91" x 21" x 7" Panel	123	B5/B13 RRH-BR04C (RFV01U-D2A)	115
91" x 21" x 7" Panel	123	B5/B13 RRH-BR04C (RFV01U-D2A)	115
91" x 21" x 7" Panel	123	B5/B13 RRH-BR04C (RFV01U-D2A)	115
91" x 21" x 7" Panel	123	CBC78T-DS-43-2X	115
91" x 21" x 7" Panel	123	CBC78T-DS-43-2X	115
54.5" x 10.3" x 5.9" Panel	123	CBC78T-DS-43-2X	115
54.5" x 10.3" x 5.9" Panel	123	6 OVP Juction Box	115
54.5" x 10.3" x 5.9" Panel	123	6 OVP Juction Box	115
(2) RRU Unit	123	12 ft platform w/ handrail	115
(2) RRU Unit	123	Kicker kit	115
(2) RRU Unit	123	(2) KA-6030	115
RRU Unit	123	Site Pro 1 Swivel Mount	115
RRU Unit	123	12 ft Quad Platform w/ Walkways	105
RRU Unit	123	Handrail	105
(2) TMA	123	APXVAALL24_43-U-NA20 [P2.0][96]	105
(2) TMA	123	AIR 6419 B41 [P2.0][96"]	105
(2) TMA	123	RRU 4460	105
squid / junction box	123	RRU 4449	105
12 ft platform w/ handrail	123	APXVAALL24_43-U-NA20 [P2.0][96]	105
Kicker kit	123	AIR 6419 B41 [P2.0][96"]	105
MT6407-77A	115	RRU 4460	105
MT6407-77A	115	RRU 4449	105
MT6407-77A	115	APXVAALL24_43-U-NA20 [P2.0][96]	105
(2) JAHH-65B-R3B	115	AIR 6419 B41 [P2.0][96"]	105
(2) JAHH-65B-R3B	115	RRU 4460	105
(2) JAHH-65B-R3B	115	RRU 4449	105
LPA-80080/6CF	115	APXVAALL24_43-U-NA20 [P2.0][96]	105
LPA-80080/6CF	115	AIR 6419 B41 [P2.0][96"]	105
LPA-80080/6CF	115	RRU 4460	105
LPA-80080/6CF	115	RRU 4449	105
LPA-80080/6CF	115		

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category III.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. Weld together tower sections have flange connections.
8. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
9. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
10. Welds are fabricated with ER-70S-6 electrodes.
11. TOWER RATING: 96.4%

ALL REACTIONS ARE FACTORED

AXIAL 65172 lb

SHEAR 6965 lb

MOMENT 739397 lb-ft

TORQUE 1963 lb-ft
50 mph WIND - 1.5000 in ICE

AXIAL 34975 lb

SHEAR 28470 lb

MOMENT 2831789 lb-ft

TORQUE 8628 lb-ft
REACTIONS - 130 mph WIND

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Phone:
FAX:

Job: ***24007-NNS - CTNL193A***			
Project:			
Client: Elevated Engineering	Drawn by: kshanahan	App'd:	
Code: TIA-222-H	Date: 02/28/24	Scale: NTS	
Path: P:\05 Elevated Engineering\05-264 - 24007-NNS - CTNL193A\Structural\TNX\05-264 - 24007-NNS - CTNL193A - Tower Sk.eri		Dwg No. E-1	

Tower Input Data

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

Tower base elevation above sea level: 0.00 ft.
Basic wind speed of 130 mph.
Risk Category III.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.5000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Weld together tower sections have flange connections..
Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..
Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..
Welds are fabricated with ER-70S-6 electrodes..
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		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios	√	Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys	√	Retension Guys To Initial Tension		Offset Girt At Foundation
	Escalate Ice		Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-H Bracing Resist. Exemption
√	Include Bolts In Member Capacity	√	Autocalc Torque Arm Areas		Use TIA-222-H Tension Splice Exemption
√	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric		Ignore KL/ry For 60 Deg. Angle Legs		Pole Without Linear Attachments
					Pole With Shroud Or No Appurtenances
					Outside and Inside Corner Radii Are Known

Exhibit E

Mount Analysis

Approved - Dave Deraleau
1:44 PM, Mar 4, 2024

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Site ID: CTNL193A

"Structural Analysis of Antenna Mounts"

720 Quinebaug Road
Quinebaug, CT, 06262
(Windham County)

February 28, 2024

Item	Pass/Fail	Capacity
Platform Mount	PASS	41%

Prepared For:

ELEVATED ENGINEERING

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Ascend Project No. 05-264
Elevated Engineering No. 24007-NNS

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Summary

At the request of Elevated Engineering, Ascend Consulting Group, LLC has performed a structural analysis of the antenna mounting system for the proposed antenna equipment loading.

The following standards are referenced in this analysis:

- 2022 Connecticut State Building Code (2021 IBC)
- Minimum Design Loads for Buildings and Other Structures, ASCE 7-16
- Structural Standard for Antenna Supporting Structures TIA/EIA-222-H
- Specification for Structural Steel Buildings, AISC 360-16

Our analysis was based on:

- Construction Drawings prepared by T-Mobile, Rev 1, dated 06/18/2019
- T-Mobile RFDS Version 3, last updated 2/8/2024
- Structural Analysis Report – Antenna Mount Analysis issued by Centek Engineering, dated 05/20/2019
- Site inspection complete 2/20/2024 by Elevated Engineering personnel

The following data is used for this analysis:

- Structure Classification II
- Ultimate Wind Speed V = 120 mph
- Wind Exposure Category B
- Topographic category 1 (no abrupt changes in topography)
- Escalating Ice Thickness of 1.5 in
- Wind speed with ice of 50 mph
- Maintenance wind speed of 30 mph

Discussion

Objective

The objective of this report is to structurally qualify the existing antenna mount supporting the proposed final configuration of antennas (refer to Attachment A for loading summary).

Structural analysis of the existing tower structure will be issued under a separate cover. No qualification is made or implied of the tower in this report.

Load cases per TIA-222-H are:

1. 1.4D
2. 1.2D + 1.0W (in 30 degree increments)
3. 1.2D + 1.0*Ice + 1.0W, where the wind load is reduced for combination with ice loading
4. 1.2D + 1.5Lm + 1.0Wm, where the wind is reduced for maintenance loading
5. 1.2D + 1.5Lv

Analysis approach

A finite element analysis model of the mount was created in RISA 3D, a commercially available program, to determine the adequacy of the existing steel members comprising the mount. If the existing structural members

which are to support the proposed equipment are adequate, per the aforementioned standards, then the proposed telecommunications equipment may be placed at the desired location.

Calculations
Calculations are provided in Attachment B of this report.

Conclusions

Per our analysis, the antenna mounts can support proposed loading under the ANSI/TIA-222 requirements.

Recommendations

None.

General Comments

If there are substantial modifications to be made or the assumptions made in this analysis are not accurate, Ascend Consulting Group, LLC 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 Ascend Consulting Group, LLC.

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Attachment A

Proposed Equipment - Calculations

Final Alpha Sector Antenna Configuration
RAD Center 105'-0"
(1) RFS APXVAALL24_43-U-NA20 Antenna
(1) Ericsson AIR 6419 B41 Antenna
(1) Ericsson Radio 4460 B25+B66 RRU
(1) Ericsson Radio 4449 B71+B85 RRU

Final Beta Sector Antenna Configuration
RAD Center 105'-0"
(1) RFS APXVAALL24_43-U-NA20 Antenna
(1) Ericsson AIR 6419 B41 Antenna
(1) Ericsson Radio 4460 B25+B66 RRU
(1) Ericsson Radio 4449 B71+B85 RRU

Final Gamma Sector Antenna Configuration
RAD Center 105'-0"
(1) RFS APXVAALL24_43-U-NA20 Antenna
(1) Ericsson AIR 6419 B41 Antenna
(1) Ericsson Radio 4460 B25+B66 RRU
(1) Ericsson Radio 4449 B71+B85 RRU

Final Delta Sector Antenna Configuration
RAD Center 105'-0"
(1) RFS APXVAALL24_43-U-NA20 Antenna
(1) Ericsson AIR 6419 B41 Antenna
(1) Ericsson Radio 4460 B25+B66 RRU
(1) Ericsson Radio 4449 B71+B85 RRU

Structural Calculations for Antenna Mounts

Standards:

2021 International Building Code
Telecommunications Industry Association TIA-222-H
American Steel Institute Construction AISC 15th Edition

Wind Load Input Parameters per TIA-222-H

Ultimate wind speed	$V_{ult} := 120$	mph	ATC Council website or local ordinance
Maintenance Wind Speed	$V_m := 30$		TIA-222-H Sect. 16.3
Exposure category	$Exp :=$ B		
Structure class (risk category)	II. Normal		TIA-222-H Table 2-1
Centerline elevation	$z := 105\ ft$		
Ground elevation	$z_s := 0\ ft$		
Topographic Category	$Topo := 1$		
Crest Height	$H := 0\ ft$		

$K_{zt} :=$

```
if Topo = 1
    return 1.0
else if Topo = 2
    K_t ← 0.43
    f ← 1.25
else if Topo = 3
    K_t ← 0.53
    f ← 2.00
else if Topo = 4
    K_t ← 0.72
    f ← 1.50
else
    error("Invalid Topo Category")
```

TIA-222-H Table 2-5

```
if Exp = "B"
    K_c ← 0.90
else if Exp = "C"
    K_c ← 1.00
else if Exp = "D"
    K_c ← 1.10
else
    error("Invalid Exposure")
K_h ← e^((f·z)/H)
return (1 + (K_c · K_t)/K_h)^2
```

TIA-222-H Table 2-4

Topographic factor	$K_{zt} = 1.0$	TIA-222-H Sect. 2.6.6.2.1
Wind direction factor	$K_d := 0.95$	TIA-222-H Sect. 16.6
Shielding factor	$K_a := 0.90$	TIA-222-H Sect. 16.6
Gust effect factor	$G_h := 1.0$	TIA-222-H Sect. 16.6
Ground elevation factor	$K_e := e^{-0.0000362 \frac{z_s}{ft}} = 1.00$	TIA-222-H Sect. 2.6.6.2.1
Velocity pressure coeff.	$K_z :=$ if $Exp =$ "B": $z_g \leftarrow 1200\ ft$, $\alpha \leftarrow 7.0$, $K_{zmin} \leftarrow 0.70$; else if $Exp =$ "C": $z_g \leftarrow 900\ ft$, $\alpha \leftarrow 9.5$, $K_{zmin} \leftarrow 0.85$; else if $Exp =$ "D": $z_g \leftarrow 700\ ft$, $\alpha \leftarrow 11.5$, $K_{zmin} \leftarrow 1.03$; else return "Error: Invalid Exposure"; return $\max\left(K_{zmin}, 2.01 \cdot \left(\frac{z}{z_g}\right)^{\left(\frac{2}{\alpha}\right)}\right)$ $= 1$	TIA-222-H Sect. 2.6.5.2
Wind pressure	$q_z := 0.00256 \cdot K_e \cdot K_z \cdot K_{zt} \cdot K_d \cdot V_{ult}^{\ 2} \cdot psf = 35.1\ psf$	
Maintenance Wind pressure	$q_m := 0.00256 \cdot K_e \cdot K_z \cdot K_{zt} \cdot K_d \cdot V_m^{\ 2} \cdot psf = 2.2\ psf$	

Ice Load Input Parameters per TIA-222-H

Wind speed with ice $V_{ice} := 50mph$ TIA-222-H Figure A1-1

Wind pressure, with ice $q_{z\_ice} := 0.00256 \cdot K_z \cdot K_{zt} \cdot K_d \cdot V_{ice}^{\ 2} \cdot psf = 6.1\ psf$

Ice importance factor $I_{ice} := 1.0$

Radial ice thickness $t := 1\text{-}1/2"$

Escalating ice thickness at height z

$$K_{iz} := min\left(1.4, \left(\frac{z}{33\ ft}\right)^{0.1}\right) = 1.1$$

$$t_{iz} := t \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{\ 0.35} = 1.7\ in$$

Density of ice $\gamma_{ice} := 56\ pcf$

Ice Load Calculation Functions

$DL_{i\_app}(equip) :=$
- $H \leftarrow equip_{1,1}$
- $D \leftarrow equip_{2,1}$
- if rows$(equip) = 5$
  - if IsString$(equip_{4,1})$
    - $D_c \leftarrow D$
  - else
    - $W \leftarrow equip_{3,1}$
    - $D_c \leftarrow \sqrt{D^2 + W^2}$
- else
  - $D_c \leftarrow D$
- $P_i \leftarrow \pi \cdot (D_c + t_{iz})$
- $A_i \leftarrow P_i \cdot t_{iz}$
- $DL_i \leftarrow A_i \cdot H \cdot \gamma_{ice}$
- return DL_i

$DL_{i\_mem}(mem) :=$
- if $mem_{3,1} =$ "Round"
  - $D \leftarrow mem_{2,1}$
  - $D_c \leftarrow D$
- else
  - $W \leftarrow mem_{1,1}$
  - $D \leftarrow mem_{2,1}$
  - if $mem_{3,1} =$ "2L" $\vee$ $mem_{3,1} =$ "Tee"
    - $l \leftarrow \sqrt{\left(\frac{W}{2}\right)^2 + D^2}$
    - $s \leftarrow \sqrt{\left(\frac{D}{2}\right)^2 + W^2}$
    - $D_c \leftarrow \max(W, D, min(s, l))$
  - else if $mem_{3,1} =$ "Plate"
    - $D_c \leftarrow \max(W, D)$
  - else
    - $D_c \leftarrow \sqrt{W^2 + D^2}$
- $P_i \leftarrow \pi \cdot (D_c + t_{iz})$
- $A_i \leftarrow P_i \cdot t_{iz}$
- $DL_i \leftarrow A_i \cdot \gamma_{ice}$
- return DL_i

Shape Factor Functions

$$C_{f\_flat}(H,D) := \begin{cases} 1.2 & \text{if } \frac{H}{D} \le 2.5 \\ 1.2 + \frac{0.2}{4.5}\cdot\left(\frac{H}{D}-1\right) & \text{else if } 2.5 < \frac{H}{D} < 7 \\ 1.4 + \frac{0.6}{18}\cdot\left(\frac{H}{D}-7\right) & \text{else if } 7 \le \frac{H}{D} \le 25 \\ 2 & \text{else} \end{cases}$$

$$C_{f\_round}(H,D) := \begin{cases} 0.7 & \text{if } \frac{H}{D} \le 2.5 \\ 0.7 + \frac{0.1}{4.5}\cdot\left(\frac{H}{D}-1\right) & \text{else if } 2.5 < \frac{H}{D} < 7 \\ 0.8 + \frac{0.4}{18}\cdot\left(\frac{H}{D}-7\right) & \text{else if } 7 \le \frac{H}{D} \le 25 \\ 1.2 & \text{else} \end{cases}$$

TIA-222-H Table 2-9

Wind Load Calculation Functions

$Fw\_app(equip, q) :=$

- $H \leftarrow equip_{1,1}$
- $D \leftarrow equip_{2,1}$
- if $\text{rows}(equip) = 5$
  - if $\text{IsString}(equip_{4,1})$
    - $C_{f\_f} \leftarrow C_{A\_dish}(equip_{4,1})_0$
    - $C_{f\_s} \leftarrow C_{A\_dish}(equip_{4,1})_1$
    - $A_f \leftarrow \frac{\pi \cdot D^2}{4}$
    - $A_s \leftarrow A_f$
  - else
    - $W \leftarrow equip_{3,1}$
    - $C_{f\_f} \leftarrow C_{f\_flat}(H, D)$
    - $C_{f\_s} \leftarrow C_{f\_flat}(H, W)$
    - $A_f \leftarrow H \cdot D$
    - $A_s \leftarrow H \cdot W$
- else
  - $C_{f\_f} \leftarrow C_{f\_flat}(D, D)$
  - $C_{f\_s} \leftarrow C_{f\_round}(D, H)$
  - $A_f \leftarrow \frac{\pi \cdot D^2}{4}$
  - $A_s \leftarrow D \cdot H$
- $AC_f \leftarrow \max\left(A_f \cdot C_{f\_f}, A_s \cdot C_{f\_s}\right)$
- $Fw \leftarrow K_a \cdot AC_f \cdot G_h \cdot q$
- return Fw

Wind on Ice Load Calculation Functions

$Fw\_ice\_app(equip) :=$

- $H_i \leftarrow equip_{1,1} + 2 \cdot t_{iz}$
- $D_i \leftarrow equip_{2,1} + 2 \cdot t_{iz}$
- if $\text{rows}(equip) = 5$
  - if $\text{IsString}(equip_{4,1})$
    - $C_{f\_f\_i} \leftarrow C_{A\_dish}(equip_{4,1})_0$
    - $C_{f\_s\_i} \leftarrow C_{A\_dish}(equip_{4,1})_1$
    - $A_{f\_i} \leftarrow \frac{\pi \cdot D_i^2}{4}$
    - $A_{s\_i} \leftarrow A_{f\_i}$
  - else
    - $W_i \leftarrow equip_{2,1} + 2 \cdot t_{iz}$
    - $C_{f\_f\_i} \leftarrow C_{f\_round}(H_i, D_i)$
    - $C_{f\_s\_i} \leftarrow C_{f\_round}(H_i, W_i)$
    - $A_{f\_i} \leftarrow H_i \cdot D_i$
    - $A_{s\_i} \leftarrow H_i \cdot W_i$
- else
  - $C_{f\_f\_i} \leftarrow C_{f\_round}(D_i, D_i)$
  - $C_{f\_s\_i} \leftarrow C_{f\_round}(D_i, H_i)$
  - $A_{f\_i} \leftarrow \frac{\pi \cdot D_i^2}{4}$
  - $A_{s\_i} \leftarrow D_i \cdot H_i$
- $AC_{f\_i} \leftarrow \max\left(A_{f\_i} \cdot C_{f\_f\_i}, A_{s\_i} \cdot C_{f\_s\_i}\right)$
- $Fw\_ice \leftarrow AC_{f\_i} \cdot K_a \cdot G_h \cdot q_{z\_ice}$
- return Fw_ice

$$Fw\_mem(mem, q) := \begin{array}{l} \text{if } mem_{3,1} = \text{“Round”} \\ \quad D \leftarrow mem_{2,1} \\ \quad C_f \leftarrow 1.2 \\ \text{else} \\ \quad D \leftarrow mem_{2,1} \\ \quad C_f \leftarrow 2.0 \\ \text{return } q \cdot K_a \cdot C_f \cdot G_h \cdot D \end{array}$$

$$Fw\_ice\_mem(mem) := \begin{array}{l} \text{if } mem_{3,1} = \text{“Round”} \\ \quad D \leftarrow mem_{2,1} \\ \quad D_i \leftarrow D + 2\ t_{iz} \\ \text{else} \\ \quad D \leftarrow mem_{2,1} \\ \quad D_i \leftarrow D + 2\ t_{iz} \\ C_f \leftarrow 1.2 \\ \text{return } q_{z\_ice} \cdot K_a \cdot C_f \cdot G_h \cdot D_i \end{array}$$

Combined Load Calculation Function

$$loads(x) := \begin{array}{l} \text{if } x_{0,0} = \text{“Name”} \\ \quad \text{return} \begin{bmatrix} \text{“Name”} & x_{0,1} \\ \text{“Weight”} & \text{if IsString}\left(x_{\text{rows}(x)-1,1}\right) \\ & \quad x_{\text{rows}(x)-2,1} \\ & \text{else} \\ & \quad x_{\text{rows}(x)-1,1} \\ \text{“Ice Weight”} & DL_{i\_app}(x) \\ \text{“Wind Load”} & Fw\_app(x, q_z) \\ \text{“Ice Wind Load”} & Fw\_ice\_app(x) \\ \text{“Maintenance Wind Load”} & Fw\_app(x, q_m) \end{bmatrix} \\ \text{else} \\ \quad \text{return} \begin{bmatrix} \text{“Size”} & x_{0,1} \\ \text{“Ice Weight (/ft)”} & DL_{i\_mem}(x) \cdot ft \\ \text{“Wind Load (/ft)”} & Fw\_mem(x, q_z) \cdot ft \\ \text{“Ice Wind Load (/ft)”} & Fw\_ice\_mem(x) \cdot ft \\ \text{“Maintenance Wind Load”} & Fw\_mem(x, q_m) \cdot ft \end{bmatrix} \end{array}$$

Antennas

$$Ant_1 = \begin{bmatrix} \text{“Name”} & \text{“APXVAALL24\_43-U-NA20”} \\ \text{“Height”} & 8\ ft \\ \text{“Width”} & 2\ ft \\ \text{“Depth”} & 0.7\ ft \\ \text{“Weight”} & 149.9\ lbf \end{bmatrix}$$

$$loads\left(Ant_1\right) = \begin{bmatrix} \text{“Name”} & \text{“APXVAALL24\_43-U-NA20”} \\ \text{“Weight”} & 149.9\ lbf \\ \text{“Ice Weight”} & 446.8\ lbf \\ \text{“Wind Load”} & 673.8\ lbf \\ \text{“Ice Wind Load”} & 78.5\ lbf \\ \text{“Maintenance Wind Load”} & 42.1\ lbf \end{bmatrix}$$

$$Ant_2 = \begin{bmatrix} \text{“Name”} & \text{“AIR 6419 B41”} \\ \text{“Height”} & 3\ ft \\ \text{“Width”} & 1.7\ ft \\ \text{“Depth”} & 0.8\ ft \\ \text{“Weight”} & 83.3\ lbf \end{bmatrix}$$

$$loads\left(Ant_2\right) = \begin{bmatrix} \text{“Name”} & \text{“AIR 6419 B41”} \\ \text{“Weight”} & 83.3\ lbf \\ \text{“Ice Weight”} & 152.1\ lbf \\ \text{“Wind Load”} & 199.7\ lbf \\ \text{“Ice Wind Load”} & 25.7\ lbf \\ \text{“Maintenance Wind Load”} & 12.5\ lbf \end{bmatrix}$$

RRUs

$$RRU_1 = \begin{bmatrix} \text{“Name”} & \text{“RRU 4460 B25+B66”} \\ \text{“Height”} & 1.6\ ft \\ \text{“Width”} & 1.3\ ft \\ \text{“Depth”} & 1\ ft \\ \text{“Weight”} & 104\ lbf \end{bmatrix}$$

$$loads\left(RRU_1\right) = \begin{bmatrix} \text{“Name”} & \text{“RRU 4460 B25+B66”} \\ \text{“Weight”} & 104\ lbf \\ \text{“Ice Weight”} & 72.3\ lbf \\ \text{“Wind Load”} & 81\ lbf \\ \text{“Ice Wind Load”} & 11.7\ lbf \\ \text{“Maintenance Wind Load”} & 5.1\ lbf \end{bmatrix}$$

$$RRU_2 = \begin{bmatrix} \text{“Name”} & \text{“RRU 4449 B71+B85”} \\ \text{“Height”} & 1.1\ ft \\ \text{“Width”} & 1.2\ ft \\ \text{“Depth”} & 0.9\ ft \\ \text{“Weight”} & 74.9\ lbf \end{bmatrix}$$

$$loads\left(RRU_2\right) = \begin{bmatrix} \text{“Name”} & \text{“RRU 4449 B71+B85”} \\ \text{“Weight”} & 74.9\ lbf \\ \text{“Ice Weight”} & 44.9\ lbf \\ \text{“Wind Load”} & 51.8\ lbf \\ \text{“Ice Wind Load”} & 8.1\ lbf \\ \text{“Maintenance Wind Load”} & 3.2\ lbf \end{bmatrix}$$

Mount Members

$$pipe1.5 := \begin{bmatrix} \text{“Size”} & \text{“1.5\" STD Pipe”} \\ \text{“Diameter”} & 1.9\ in \\ \text{“Diameter”} & 1.9\ in \\ \text{“Profile”} & \text{Round} \end{bmatrix}$$

$$loads\left(pipe1.5\right) = \begin{bmatrix} \text{“Size”} & \text{“1.5\" STD Pipe”} \\ \text{“Ice Weight (/ft)”} & 7.4\ lbf \\ \text{“Wind Load (/ft)”} & 6\ lbf \\ \text{“Ice Wind Load (/ft)”} & 2.9\ lbf \\ \text{“Maintenance Wind Load”} & 0.4\ lbf \end{bmatrix}$$

$$pipe2 := \begin{bmatrix} \text{“Size”} & \text{“2\" STD Pipe”} \\ \text{“Diameter”} & 2.375\ in \\ \text{“Diameter”} & 2.375\ in \\ \text{“Profile”} & \text{Round} \end{bmatrix}$$

$$loads\left(pipe2\right) = \begin{bmatrix} \text{“Size”} & \text{“2\" STD Pipe”} \\ \text{“Ice Weight (/ft)”} & 8.4\ lbf \\ \text{“Wind Load (/ft)”} & 7.5\ lbf \\ \text{“Ice Wind Load (/ft)”} & 3.1\ lbf \\ \text{“Maintenance Wind Load”} & 0.5\ lbf \end{bmatrix}$$

$$pipe2.5 := \begin{bmatrix} \text{“Size”} & \text{“2.5\" STD Pipe”} \\ \text{“Diameter”} & 2.875\ in \\ \text{“Diameter”} & 2.775\ in \\ \text{“Profile”} & \text{Round} \end{bmatrix}$$

$$loads\left(pipe2.5\right) = \begin{bmatrix} \text{“Size”} & \text{“2.5\" STD Pipe”} \\ \text{“Ice Weight (/ft)”} & 9.2\ lbf \\ \text{“Wind Load (/ft)”} & 8.8\ lbf \\ \text{“Ice Wind Load (/ft)”} & 3.4\ lbf \\ \text{“Maintenance Wind Load”} & 0.5\ lbf \end{bmatrix}$$

$$ang3 := \begin{bmatrix} \text{"Size"} & \text{"L3x3x3/8"} \\ \text{"Width"} & 3\ in \\ \text{"Depth"} & 3\ in \\ \text{"Profile"} & \text{Angle} \end{bmatrix}$$

$$loads(ang3) = \begin{bmatrix} \text{"Size"} & \text{"L3x3x3/8"} \\ \text{"Ice Weight (/ft)"} & 12.2\ lbf \\ \text{"Wind Load (/ft)"} & 15.8\ lbf \\ \text{"Ice Wind Load (/ft)"} & 3.5\ lbf \\ \text{"Maintenance Wind Load"} & 1\ lbf \end{bmatrix}$$

$$tube4 := \begin{bmatrix} \text{"Size"} & \text{"HSS4X3X1/4"} \\ \text{"Width"} & 4\ in \\ \text{"Depth"} & 3\ in \\ \text{"Profile"} & \text{Rectangular Tube} \end{bmatrix}$$

$$loads(tube4) = \begin{bmatrix} \text{"Size"} & \text{"HSS4X3X1/4"} \\ \text{"Ice Weight (/ft)"} & 13.8\ lbf \\ \text{"Wind Load (/ft)"} & 15.8\ lbf \\ \text{"Ice Wind Load (/ft)"} & 3.5\ lbf \\ \text{"Maintenance Wind Load"} & 1\ lbf \end{bmatrix}$$

$$tube1 := \begin{bmatrix} \text{"Size"} & \text{"truss chords"} \\ \text{"Width"} & 1\ in \\ \text{"Depth"} & 1\ in \\ \text{"Profile"} & \text{Rectangular Tube} \end{bmatrix}$$

$$loads(tube1) = \begin{bmatrix} \text{"Size"} & \text{"truss chords"} \\ \text{"Ice Weight (/ft)"} & 6.4\ lbf \\ \text{"Wind Load (/ft)"} & 5.3\ lbf \\ \text{"Ice Wind Load (/ft)"} & 2.4\ lbf \\ \text{"Maintenance Wind Load"} & 0.3\ lbf \end{bmatrix}$$

$$wt1 := \begin{bmatrix} \text{"Size"} & \text{"Corner bracket T-plate \#1"} \\ \text{"Width"} & 4\ in \\ \text{"Depth"} & 3.4\ in \\ \text{"Profile"} & \text{Angle} \end{bmatrix}$$

$$loads(wt1) = \begin{bmatrix} \text{"Size"} & \text{"Corner bracket T-plate \#1"} \\ \text{"Ice Weight (/ft)"} & 14.3\ lbf \\ \text{"Wind Load (/ft)"} & 17.9\ lbf \\ \text{"Ice Wind Load (/ft)"} & 3.7\ lbf \\ \text{"Maintenance Wind Load"} & 1.1\ lbf \end{bmatrix}$$

$$wt2 := \begin{bmatrix} \text{"Size"} & \text{"Corner bracket T-plate \#2"} \\ \text{"Width"} & 4\ in \\ \text{"Depth"} & 1.5\ in \\ \text{"Profile"} & \text{Angle} \end{bmatrix}$$

$$loads(wt2) = \begin{bmatrix} \text{"Size"} & \text{"Corner bracket T-plate \#2"} \\ \text{"Ice Weight (/ft)"} & 12.3\ lbf \\ \text{"Wind Load (/ft)"} & 7.9\ lbf \\ \text{"Ice Wind Load (/ft)"} & 2.7\ lbf \\ \text{"Maintenance Wind Load"} & 0.5\ lbf \end{bmatrix}$$

$$wj1 := \begin{bmatrix} \text{"Size"} & \text{"walkway joist"} \\ \text{"Width"} & 1.5\ in \\ \text{"Depth"} & 0.1875\ in \\ \text{"Profile"} & \text{Angle} \end{bmatrix}$$

$$loads(wj1) = \begin{bmatrix} \text{"Size"} & \text{"walkway joist"} \\ \text{"Ice Weight (/ft)"} & 6.6\ lbf \\ \text{"Wind Load (/ft)"} & 1\ lbf \\ \text{"Ice Wind Load (/ft)"} & 1.9\ lbf \\ \text{"Maintenance Wind Load"} & 0.1\ lbf \end{bmatrix}$$

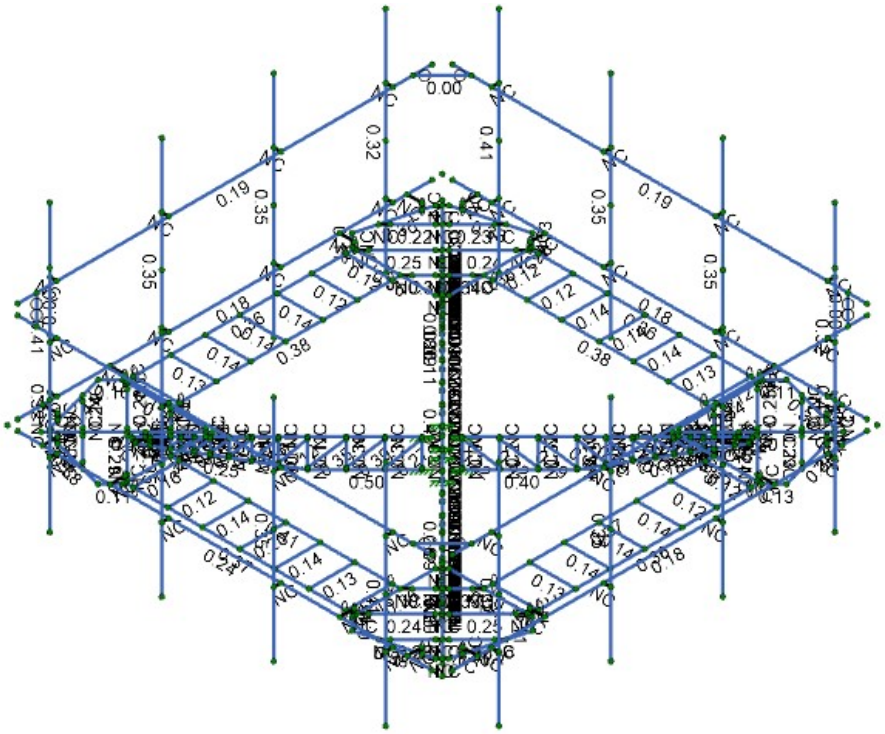
$$sp1 := \begin{bmatrix} \text{"Size"} & \text{"spade general"} \\ \text{"Width"} & 3\ in \\ \text{"Depth"} & 3\ in \\ \text{"Profile"} & \text{Angle} \end{bmatrix}$$

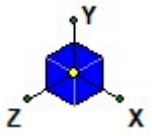
$$loads(sp1) = \begin{bmatrix} \text{"Size"} & \text{"spade general"} \\ \text{"Ice Weight (/ft)"} & 12.2\ lbf \\ \text{"Wind Load (/ft)"} & 15.8\ lbf \\ \text{"Ice Wind Load (/ft)"} & 3.5\ lbf \\ \text{"Maintenance Wind Load"} & 1\ lbf \end{bmatrix}$$

$$DL_{i\_grat} := 2\ t_{iz}\ \gamma_{ice} = 15.7\ psf$$

Check Antenna Mount

Drawing excerpt depicts existing condition on 2/20/24





Maximum Code Interaction = **41%** <= 100%, Therefore **OK**

Exhibit F

Power Density/RF Emissions Report

FOX HILL TELECOM

Radio Frequency Emissions Analysis Report

T-Mobile

Site ID: CTNL193A

720 Quinebaug Road
Quinebaug, CT 06262

March 29, 2024

Fox Hill Telecom Project Number: 240082

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	20.06 %

FOX HILL TELECOM

March 29, 2024

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

Emissions Analysis for Site: **CTNL193A**

Fox Hill Telecom, Inc ("Fox Hill") was directed to analyze the proposed upgrades to the T-MOBILE facility located at **720 Quinebaug Road, Quinebaug, 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 the percentage 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 **720 Quinebaug Road, Quinebaug, 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	105
A	2	Ericsson AIR6419 B41	105
B	1	RFS APXVAALL24_43-U-NA20	105
B	2	Ericsson AIR6419 B41	105
C	1	RFS APXVAALL24_43-U-NA20	105
C	2	Ericsson AIR6419 B41	105
D	1	RFS APXVAALL24_43-U-NA20	105
D	2	Ericsson AIR6419 B41	105

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	3.76
Antenna A2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	240	33,900.90	3.50
						Sector A Composite MPE%	**7.26**
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	3.76
Antenna B2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	240	33,900.90	3.50
						Sector B Composite MPE%	**7.26**
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	3.76
Antenna C2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	240	33,900.90	3.50
						Sector C Composite MPE%	**7.26**
Antenna D1	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	3.76
Antenna D2	Ericsson AIR6419 B41	2500 MHz (BRS)	21.5	8	240	33,900.90	3.50
						Sector D Composite MPE%	**7.26**

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 four T-Mobile sectors have the same configuration yielding the same results for all four 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	**7.26 %**
Verizon Wireless	5.75 %
AT&T	6.60 %
Omni Antenna @ 125 feet	0.45 %
Site Total MPE %:	**20.06 %**

Table 4: All Carrier MPE Contributions

T-MOBILE Sector A Total:	7.26 %
T-MOBILE Sector B Total:	7.26 %
T-MOBILE Sector C Total:	7.26 %
T-MOBILE Sector D Total:	7.26 %
Site Total:	20.06 %

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 four T-Mobile sectors have the same configuration yielding the same results for all four 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	105	5.88	600 MHz	400	1.47%
T-Mobile 700 MHz LTE	2	485.32	105	1.45	700 MHz	467	0.31%
T-Mobile 1900 MHz (PCS) LTE	4	1,618.33	105	5.10	1900 MHz (PCS)	1000	0.51%
T-Mobile 1900 MHz (PCS) 5G	4	1,849.52	105	5.90	1900 MHz (PCS)	1000	0.59%
T-Mobile 2100 MHz (AWS) LTE	4	2,972.70	105	8.80	2100 MHz (AWS)	1000	0.88%
T-Mobile 2500 MHz (BRS) LTE / 5G NR	8	4,237.61	105	35.00	2500 MHz (BRS)	1000	3.50%
						Total:	**7.26 %**

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:	7.26 %
Sector B:	7.26 %
Sector C:	7.26 %
Sector D:	7.26 %
T-MOBILE Maximum Total (per sector):	7.26 %
Site Total:	20.06 %
Site Compliance Status:	**COMPLIANT**

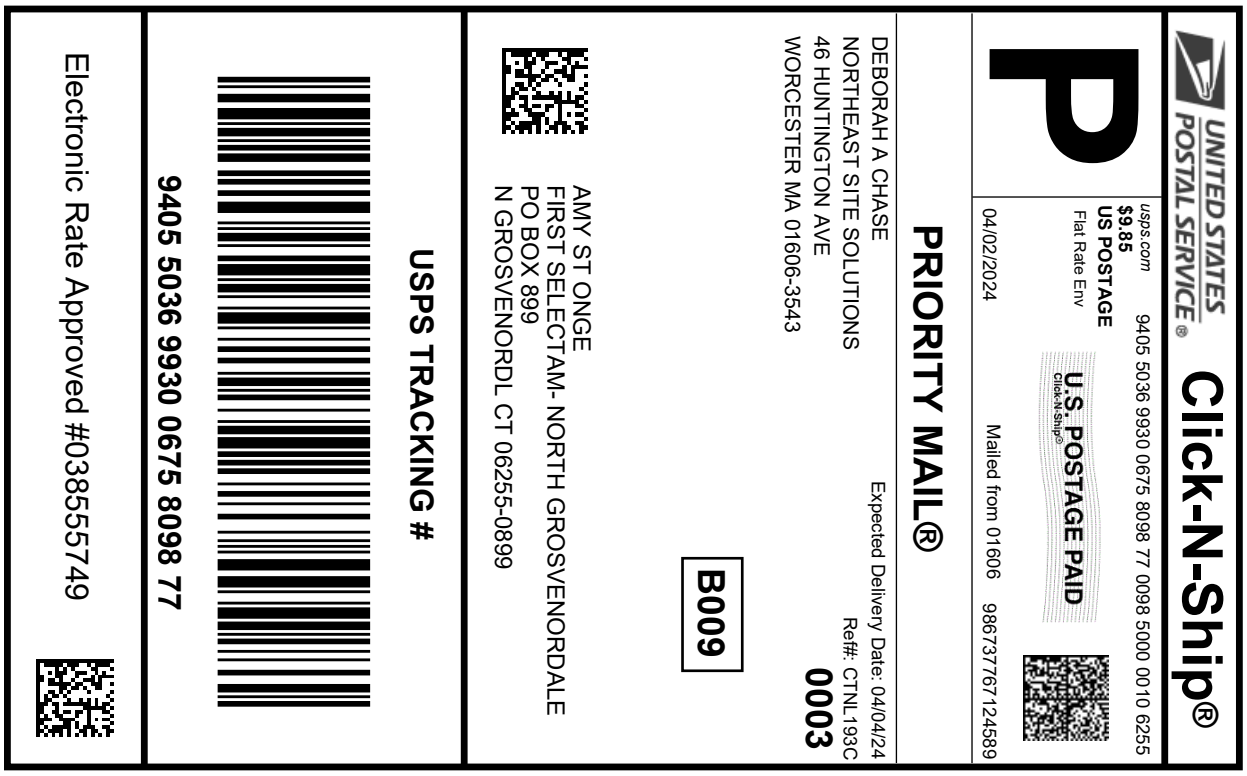
The estimated composite MPE value for this site assuming all carriers present is **20.06 %** of the allowable FCC established general population limit sampled at the ground level. This is based upon the far field calculations performed for all carriers identified in this report.

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



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0675 8098 77

Trans. #:	601413635
Print Date:	04/02/2024
Ship Date:	04/02/2024
Expected Delivery Date:	04/04/2024

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

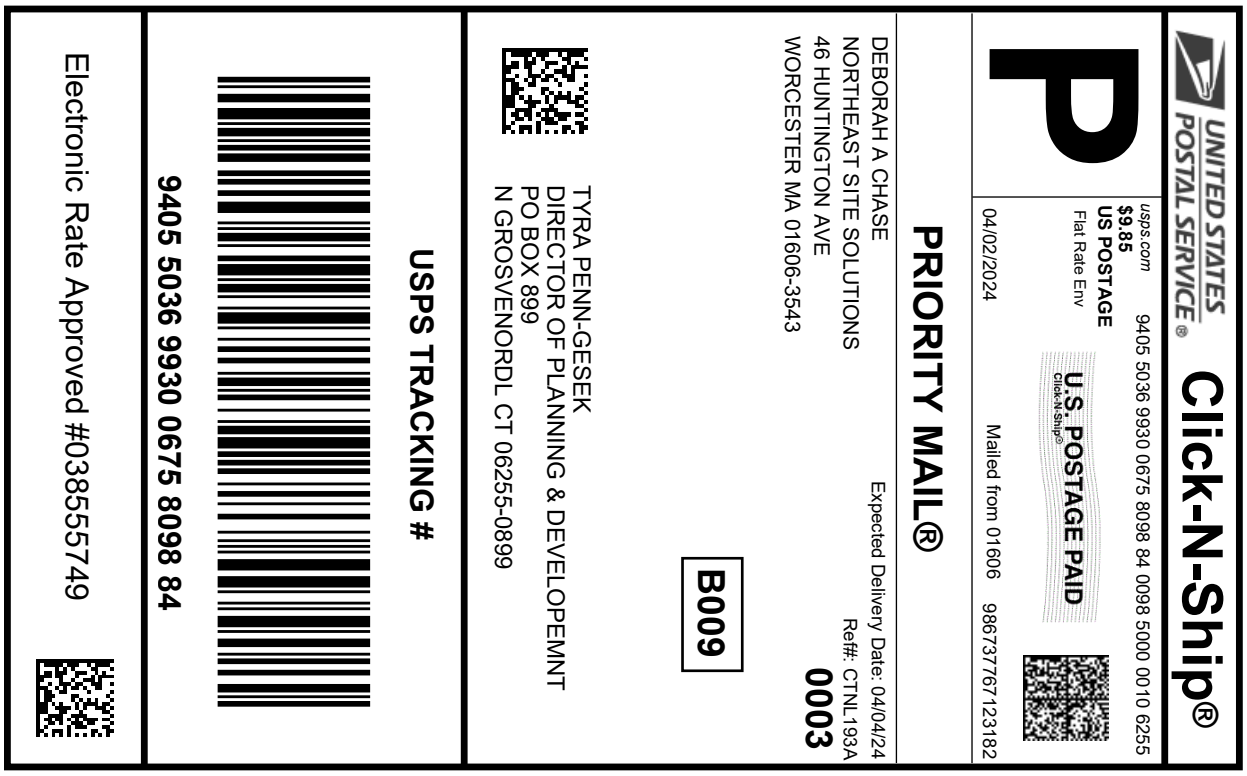
From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CTNL193C

To: AMY ST ONGE
FIRST SELECTAM- NORTH GROSVENORDALE
PO BOX 899
N GROSVENORDL CT 06255-0899

* 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.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

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2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0675 8098 84

Trans. #:	601413635
Print Date:	04/02/2024
Ship Date:	04/02/2024
Expected Delivery Date:	04/04/2024

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

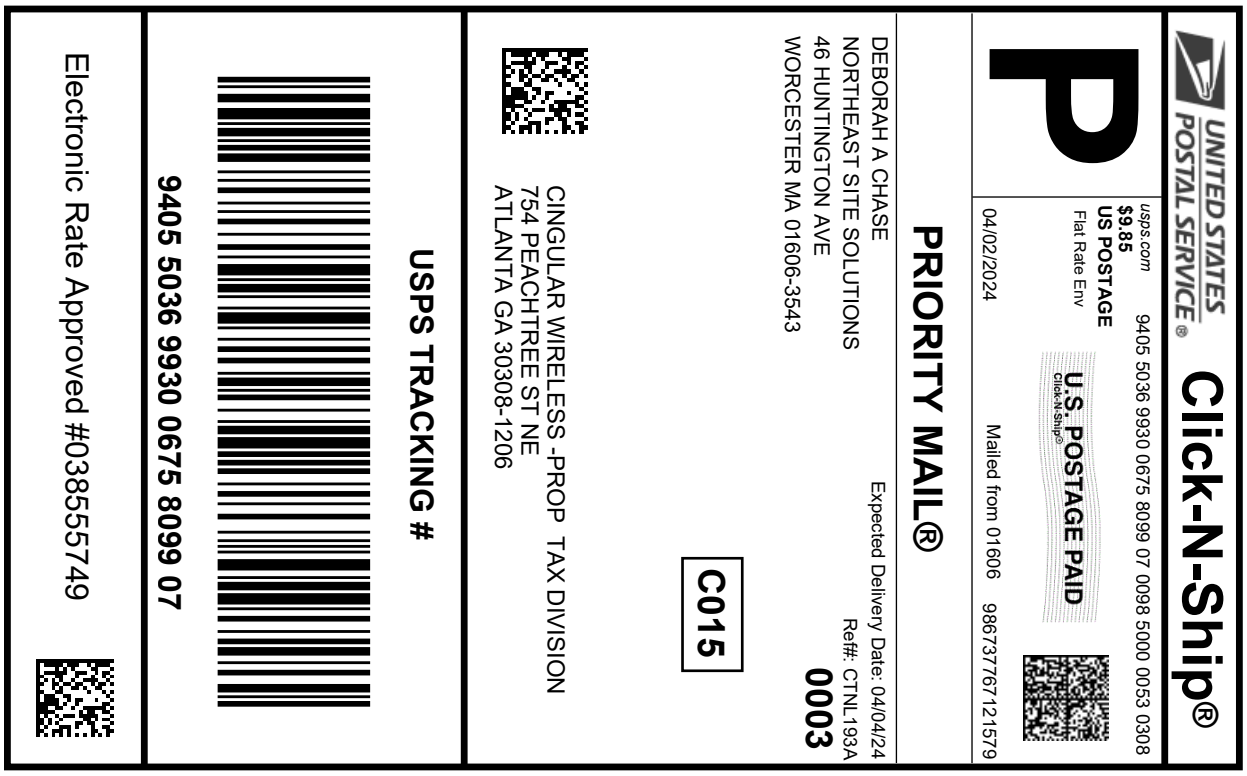
From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543

Ref#: CTNL193A

To: TYRA PENN-GESEK
DIRECTOR OF PLANNING & DEVELOPEMNT
PO BOX 899
N GROSVENORDL CT 06255-0899

* 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.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com



Cut on dotted line.

Instructions

1. **Each Click-N-Ship® label is unique. Labels are to be used as printed and used only once. DO NOT PHOTO COPY OR ALTER LABEL.**
2. **Place your label so it does not wrap around the edge of the package.**
3. **Adhere your label to the package. A self-adhesive label is recommended. If tape or glue is used, DO NOT TAPE OVER BARCODE. Be sure all edges are secure.**
4. **To mail your package with PC Postage®, you may schedule a Package Pickup online, hand to your letter carrier, take to a Post Office™, or drop in a USPS collection box.**
5. **Mail your package on the "Ship Date" you selected when creating this label.**

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0675 8099 07

Trans. #:	601413635
Print Date:	04/02/2024
Ship Date:	04/02/2024
Expected Delivery Date:	04/04/2024

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

From: DEBORAH A CHASE
NORTHEAST SITE SOLUTIONS
46 HUNTINGTON AVE
WORCESTER MA 01606-3543
Ref#: CTNL193A

To: CINGULAR WIRELESS -PROP TAX DIVISION
754 PEACHTREE ST NE
ATLANTA GA 30308-1206

* 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.

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

CTNL193 - NORTH GROSVENORDALE

UNITED STATES POSTAL SERVICE.

LINCOLN MALL
560 LINCOLN ST STE 8
WORCESTER, MA 01605-1925
(800)275-8777

04/03/2024 09:44 AM

Product	Qty	Unit Price	Price
Prepaid Mail Atlanta, GA 30308 Weight: 0 lb 9.40 oz Acceptance Date: Wed 04/03/2024 Tracking #: 9405 5036 9930 0675 8099 07	1		$0.00
Prepaid Mail North Grosvenordale, CT 06255 Weight: 0 lb 9.40 oz Acceptance Date: Wed 04/03/2024 Tracking #: 9405 5036 9930 0675 8098 77	1		$0.00
Prepaid Mail North Grosvenordale, CT 06255 Weight: 0 lb 9.40 oz Acceptance Date: Wed 04/03/2024 Tracking #: 9405 5036 9930 0675 8098 84	1		$0.00
Grand Total:			$0.00

Text your tracking number to 28777 (2USPS) to get the latest status. Standard Message and Data rates may apply. You may also visit www.usps.com USPS Tracking or call 1-800-222-1811.

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Sign up for FREE @
https://informeddelivery.usps.com

All sales final on stamps and postage.
Refunds for guaranteed services only.
Thank you for your business.

Tell us about your experience.
Go to: https://postalexperience.com/Pos
or scan this code with your mobile device,

or call 1-800-410-7420.

UFN: 249632-1106
Receipt #: 840-50180078-2-5806410-1
Clerk: 17