10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

June 26, 2019

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

RE: Notice of Exempt Modification
Andrews Road, Wolcott, CT 06617
Latitude: 41.6177000000
Longitude: -73.0045000000
T-Mobile Site#: CT11403A – L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 77-foot level of the existing 80-foot lattice tower on Andrews Road, Wolcott, CT. The 80-foot lattice tower is owned and operated by Everest Infrastructure Partners. The property is owned by Frontier Communications. T-Mobile now intends to replace three (3) existing antennas with three (3) new 600/700 MHz antennas. The new antennas will be installed at the same 77-foot level of the tower.

Planned Modifications:
Tower:

Remove
N/A

Remove and Replace:
(3) LNX-6515DS (Remove) – (3) APXVAARR24-43-U-NA20 Antenna (Replace) 600/700 MHz
(3) RRUS11B12 (Remove) - Radio 4449 B71+B12 (Replace)

Install New:
(3) 1-3/8” Hybrid Cables

Existing to Remain:
(6) AIR 21 Antenna 1900/2100 MHz
(3) TMA
(1) 1-3/8” Hybrid Cable
(12) 1-5/8” Coax

Ground:
Install New: Equipment inside existing 3206 cabinet

The tower facility was originally approved by the Council in Petition No. 67 on March 26, 1981. The proposed modification complies with the original approval. Please see the enclosed.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- SOj-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.SA. § 16-SOj-73, a copy of this letter is being sent to Mayor-Thomas G. Dunn, Mayor, and David Kalinowski, Zoning Inspector for the Town of Wolcott, as well as the tower owner and property owner.

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

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

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

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

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

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

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

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

Sincerely,

Kyle Richers
Transcend Wireless
Cell: 908-447-4716
Email: krichers@transcendwireless.com

Attachments
cc: Thomas Dunn – Town of Wolcott Mayor
David Kalinowski– Town of Wolcott Zoning Inspector
Everest Infrastructure Partners – Tower Owner
Frontier Communications- Property Owner

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, June 26, 2019 9:11 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CTHA506A CSC PO

You have a package coming.

Scheduled Delivery Date: Thursday, 06/27/2019

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424291061988
Ship To:	Frontier Communications 401 Merritt 7 NORWALK, CT 068511000 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	06/27/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CTHA506A CSC PO

Download the UPS mobile app

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, June 26, 2019 9:15 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CTHA506A CSC TO

You have a package coming.

Scheduled Delivery Date: Friday, 06/28/2019

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424290859995
Ship To:	Everest Infrastructure Partners 1435 Bedford Avenue Suite 108 PITTSBURGH, PA 152193675 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	06/28/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CTHA506A CSC TO

Download the UPS mobile app

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, June 26, 2019 11:56 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11403A CSC ZO

You have a package coming.

Scheduled Delivery Date: Thursday, 06/27/2019

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424294668014
Ship To:	David Kalinowski Town of Wolcott 10 Kenea Ave. WOLCOTT, CT 067162114 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	06/27/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11403A CSC ZO

Download the UPS mobile app

Kyle Richers

From: UPS Quantum View <pkginfo@ups.com>
Sent: Wednesday, June 26, 2019 11:32 AM
To: krichers@transcendwireless.com
Subject: UPS Ship Notification, Reference Number 1: CT11403A CSC EO

You have a package coming.

Scheduled Delivery Date: Thursday, 06/27/2019

This message was sent to you at the request of TRANSCEND WIRELESS to notify you that the shipment information below has been transmitted to UPS. The physical package may or may not have actually been tendered to UPS for shipment. To verify the actual transit status of your shipment, click on the tracking link below.

Shipment Details

From:	TRANSCEND WIRELESS
Tracking Number:	1ZV257424294862009
Ship To:	Thomas G. Dunn Town of Wolcott 10 Kenea Ave. WOLCOTT, CT 067162114 US
UPS Service:	UPS GROUND
Number of Packages:	1
Scheduled Delivery:	06/27/2019
Signature Required:	A signature is required for package delivery
Weight:	1.0 LBS
Reference Number 1:	CT11403A CSC EO

Download the UPS mobile app

ANDREWS RD

Location	ANDREWS RD	**Mblu**	106/ 1/ 42B/ /
Acct#	S0522200	**Owner**	SOUTHERN NEW ENG TEL CO
Assessment	$116,960	**Appraisal**	$167,090
PID	5792	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$70,090	$97,000	$167,090
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2016	$49,060	$67,900	$116,960

Owner of Record

Owner	SOUTHERN NEW ENG TEL CO
Co-Owner	C/O FRONTIER COMMUNICATIONS
Address	401 MERRITT 7 TAX DEPT NORWALK , CT 06851
Sale Price	$0
Certificate	
Book & Page	59/ 443
Sale Date	10/17/1957
Instrument	25

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
SOUTHERN NEW ENG TEL CO	$0		59/ 443	25	10/17/1957

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	Outbuildings
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 Percent	
Total Bedrooms:	
Full Bthrms:	
Half Baths:	
Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Num Kitchens	
Fireplace(s)	
% Attic Fin	
LF Dormer	
Foundation	
Bsmt Gar(s)	
Bsmt %	
SF FBM	
Fin Bsmt Qual	
Bsmt Access	

Building Photo

(http://images.vgsi.com/photos/WolcottCTPhotos//\00\01\13/80.

Building Layout

Building Layout
(http://images.vgsi.com/photos/WolcottCTPhotos//Sketches/579

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	202
Description	Comm w/OB
Zone	R-30
Neighborhood	CGEN
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0.92
Frontage	
Depth	
Assessed Value	$67,900
Appraised Value	$97,000

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FN5	FENCE-10'CHAIN			365 L.F.	$3,830	1
CELL	Cell	SH	Cell Shed	221 S.F.	$24,860	1
CELL	Cell	SH	Cell Shed	368 S.F.	$41,400	1

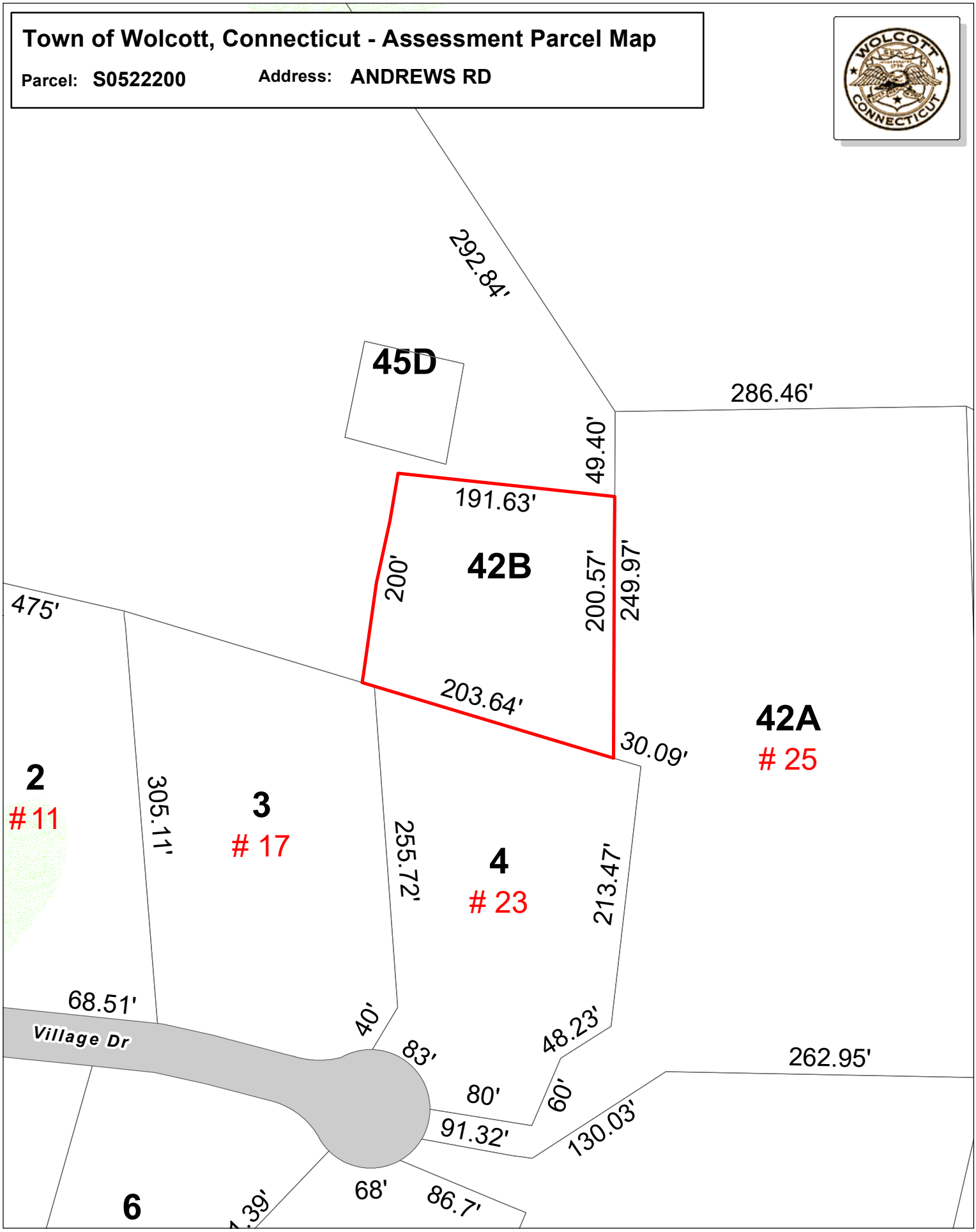
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$70,090	$97,000	$167,090
2017	$70,090	$97,000	$167,090
2015	$70,090	$97,000	$167,090

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$49,060	$67,900	$116,960
2017	$49,060	$67,900	$116,960
2015	$49,060	$67,900	$116,960

Town of Wolcott, Connecticut - Assessment Parcel Map

Parcel: S0522200 **Address:** ANDREWS RD



Map Produced Mar 2019

Approximate Scale: 1 inch = 100 feet

STATE OF CONNECTICUT

DEPARTMENT OF BUSINESS REGULATION

POWER FACILITY EVALUATION COUNCIL

Petition No. 67
Wolcott, Connecticut
March 26, 1981

Mr. Doocy, Mr. Clapp, Mr. Wood, and Mr. Reid met Mr. Kischell and Mr. Bailey of the Southern New England Telephone Company to review the first half of Petition No. 67. Telecommunication facilities were viewed in Wolcott, Waterbury, and Meriden. The second half of Petition No. 67 involves facilities in Shelton, Norwalk, and Bridgeport. These were reviewed on March 31, 1981.

The first half of this petition involves the following changes at the Barry Avenue site in Wolcott: (a) replacing an existing 90 foot tall triangular lattice steel tower with an 80 foot tall square lattice steel tower; (b) replacing two microwave dishes and two reflectors with four new microwave dishes; (c) adding a 12' x 16' concrete radio building and a new fuel storage tank at the base of the tower and extending the fence to encompass the new facilities. Additional changes include: (d) adding two microwave antennae to the Waterbury East Tower in Waterbury and another concrete radio building; and (e) adding one microwave antenna to the West Peak tower in Meriden.

The Wolcott site is in a single family dwelling residential area near the top of Clinton Hill. The tower is visible from several locations within the area. The tower base and radio building are partially screened by vegetation from the nearest residence and are not visible from other residences. The new tower will be located several feet northeast of the existing tower at approximately the same ground elevation. The proposed tower will be 80 feet tall and more narrow than the existing tower; it will be square instead of triangular. The new microwave antennae are to be mounted on a platform at the top of the tower.

The soil appears shallow but stable, and a few bedrock outcrops appear on the site. The proposed tower will require new foundations which will be set in soil or bedrock. If the soil is too shallow or the bedrock unsuitable, some blasting may be necessary.

A new concrete building will be constructed at the base of the tower and will accomodate the generator used for emergency power. The existing fence will be extended to enclose this facility.

The existing tower will remain in place for approximately six months or until the new facility is operating properly. Then the existing tower will be dismantled and removed.

According to the SNETCO representatives, this proposal has been approved by the Wolcott Planning and Zoning Commission.

The Waterbury East tower is located adjacent to a water tower and several other cable TV or telecommunication towers on top of Long Hill in Waterbury. The site is surrounded by single and multiple family dwellings, commercial, and industrial properties. Both the telecommunication tower and the water tower are visible

from many viewpoints in the Waterbury area. Two microwave antennae are to be mounted at the 80 foot level to the existing 90 foot tower. Once the new facilities are operating, two narrow 80 foot tall towers presently on the site can be removed. These two towers now support reflectors which relay signals from the Waterbury central office to Wolcott. A new radio building will be constructed at the base of the tower and the existing fence will be extended to surround this new building. The radio building will house an emergency generator, the new radio equipment, and future radio equipment when existing facilities are replaced. An existing building presently storing a temporary generator may be removed after the new building is constructed. According to SNETCO representatives, this proposal has received planning and zoning approval.

The Meriden tower is adjacent to West Peak State Park and several telecommunication towers on the top of West Peak. The existing telecommunication facilities on West Peak are relatively well screened from most locations within the state park, but they are a prominent feature on the ridge top as seen from viewpoints in the Meriden area and can be seen up to many miles away on clear days.

The telephone company's tower presently supports seven microwave antennae. SNETCO proposes to add one microwave dish to the existing tower at the 90 foot level to complete a route from Meriden to the Wolcott Tower. The existing North Branform to Wolcott route will be eliminated, and an antenna at the North Branford tower may be removed when the Meriden to Wolcott route is in service. No additional buildings are proposed at this site.

Duncan C. Reid
Environmentalist
March 30, 1981

STATE OF CONNECTICUT

DEPARTMENT OF BUSINESS REGULATION

POWER FACILITY EVALUATION COUNCIL

Petition No. 67
Norwalk, Connecticut
March 31, 1981

Commissioner Boucher, Mr. Clapp, Christopher Wood and Duncan Reid met Mr. Bailey and Mr. Kischell of the Southern New England Telephone Company to review the second part of Petition No. 67 which involved facilities in Norwalk, Bridgeport, and Shelton. The first part of this petition involves facilities located in Wolcott, Waterbury, and Meriden which were visited on Thursday, March 26th.

In Norwalk one dish is to be mounted on an existing 350 foot tower located at a telephone company service center immediately north of Route 1. The dish will be directed toward the existing tower in Bridgeport. The general area around the Norwalk site appears to be commercial, residential, and industrial. The tower is visible from many locations in the area.

The Bridgeport tower (40 feet tall) is located on top of the Central Office Building in downtown Bridgeport. One dish will be mounted at approximately the 30 foot level and directed tower the new dish in Norwalk. The location of the tower on top of the office building diminishes its visual impact.

The 181 foot tower in Shelton is located in a rural residential area. One 5 foot dish will be removed and a 12 foot dish mounted in the same location and directed toward an existing facility in Derby. A new and large dish is required in Shelton to prevent interference with transmissions from Shelton to New Haven. This tower is visible from selected locations within the immediate area and from some distant viewpoints.

No additional radio buildings, generators, or fuel tanks, are planned for the facilities in Norwalk, Bridgeport, and Shelton.

Duncan C. Reid
Environmentalist
March 31, 1981

Phone 566-5612
State Office Building — Hartford, Connecticut 06115

T-Mobile

WIRELESS COMMUNICATIONS FACILITY

WOLCOTT/ANDREWS RD._1

SITE ID: CT11403A

ANDREWS RD

WOLCOTT,CT 06716

T-MOBILE RF CONFIGURATION
67D02C_2XAIR+1OP

PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

   A. REMOVE (3) EXISTING ANTENNA, (1) PER SECTOR.
   B. INSTALL (3) NEW RFS ANTENNAS, (1) PER SECTOR.
   C. REMOVE (3) EXISTING RRUS, (1) PER SECTOR.
   D. INSTALL (3) NEW RADIO 4449, (1) PER SECTOR.
   E. INSTALL (3) 6X12 HYBRID CABLE.
   F. SWAP EXISTING (1) 100 AMP MAIN BREAKER WITH (1) 200 AMP MAIN BREAKER.
   G. INSTALL (8) 25A BREAKERS
   H. SWAP (1) DUS41 WITH (1) BB 6630 AND INSTALL (1) ADDITIONAL BB 6630.
   I. ADD (1) SPD BOX
   J. SWAP PBC 6500 WITH PBC 6200

PROJECT INFORMATION

SITE NAME:	WOLCOTT/ANDREWS RD._1
SITE ID:	CT11403A
SITE ADDRESS:	ANDREWS RD WOLCOTT, CT 06716
APPLICANT:	T-MOBILE NORTHEAST, LLC 35 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002
CONTACT PERSON:	DAN REID (PROJECT MANAGER) TRANSCEND WIRELESS, LLC (203) 592-8291
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-37'-03.61" N LONGITUDE: 73°-00'-15.89" W GROUND ELEVATION: 1003'± AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2015 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2018 CONNECTICUT SUPPLEMENT, INCLUDING THE TIA/EIA-222 REVISION "G" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2017 CONNECTICUT FIRE SAFETY CODE, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
3. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
4. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
5. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
6. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN "AS-BUILT" SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
7. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
8. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY.
9. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
10. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
11. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
12. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE T-MOBILE CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
13. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
14. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
15. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
16. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
17. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
18. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
19. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

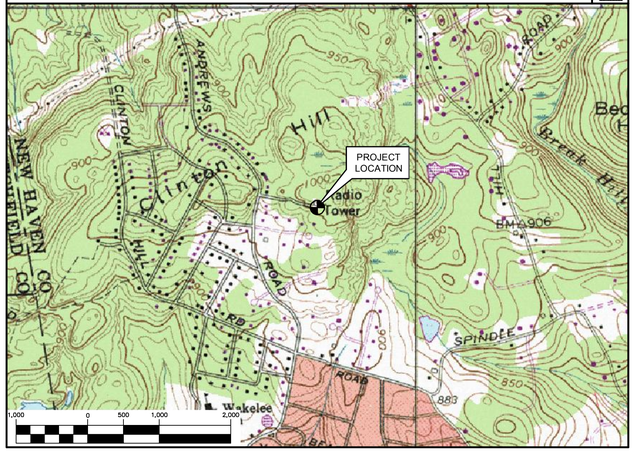
SITE DIRECTIONS

FROM: 35 GRIFFIN ROAD SOUTH, BLOOMFIELD, CT 06002 **TO:** ANDREWS RD, WOLCOTT,CT 06716

1.	HEAD NORTH ON GRIFFIN ROAD S. TOWARD HARTMAN RD.	0.21 MI.
2.	TAKE THE 2ND RIGHT ONTO DAY HILL RD.	0.14 MI.
3.	TAKE THE 1ST RIGHT ONTO BLUE HILLS AVENUE EXT/CT-187	1.89 MI.
4.	TURN LEFT ONTO CT-305/OLD WINDSOR RD.	2.32 MI.
5.	STAY STRAIGHT TO GO ONTO BLOOMFIELD AVE/CT-305.	0.01 MI.
6.	MERGE ONTO I-91 S TOWARD HARTFORD	5.66 MI.
7.	MERGE ONTO I-84 W via EXIT 32A TOWARD WATERBURY	22.17 MI.
8.	TAKE THE CT-322 EXIT, EXIT 28, TURN LEFT ONTO MERIDEN WATERBURY TURNPIKE	1.89 MI.
9.	TAKE RIGHT ONTO EAST ST/CT-322	4.32 MI.
10.	CT-322 BECOMES BEACH ROAD	0.58 MI.
11.	TAKE SLIGHT RIGHT ONTO ALCOTT ROAD	0.58 MI.
12.	TAKE RIGHT ONTO ANDREWS ROAD	0.90 MI.

VICINITY MAP

SCALE: 1" = 1000'



SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	DESIGN BASIS AND SITE NOTES	0
C-1	SITE LOCATION PLAN	0
C-2	COMPOUND PLAN AND ELEVATION	0
C-3	ANTENNA MOUNTING CONFIGURATION	0
E-1	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	06/26/19	RTS	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

STATE OF CONNECTICUT · CHRISTOPHER A. GAUDIO · 21917 · REGISTERED PROFESSIONAL ENGINEER

T-Mobile

Transcend Wireless

CENTEK engineering
Centered on Solutions℠
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

T-MOBILE NORTHEAST LLC
WIRELESS COMMUNICATIONS FACILITY
WOLCOTT/ANDREWS RD_1
SITE ID: CT11403A
ANDREWS RD
WOLCOTT,CT 06716

DATE:	05/01/19
SCALE:	AS NOTED
JOB NO.	19027.21

TITLE SHEET

T-1

Sheet No. 1 of 7

DESIGN BASIS:

GOVERNING CODE: 2015 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2018 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:

- RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
- ULTIMATE DESIGN SPEED (OTHER STRUCTURE): 25 MPH (Vasd) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10) PER 2015 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2018 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
7. AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
8. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
9. THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
13. NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	06/26/19	RTS	CAG	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION

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T-MOBILE NORTHEAST LLC

WIRELESS COMMUNICATIONS FACILITY

WOLCOTT/ANDREWS RD_1

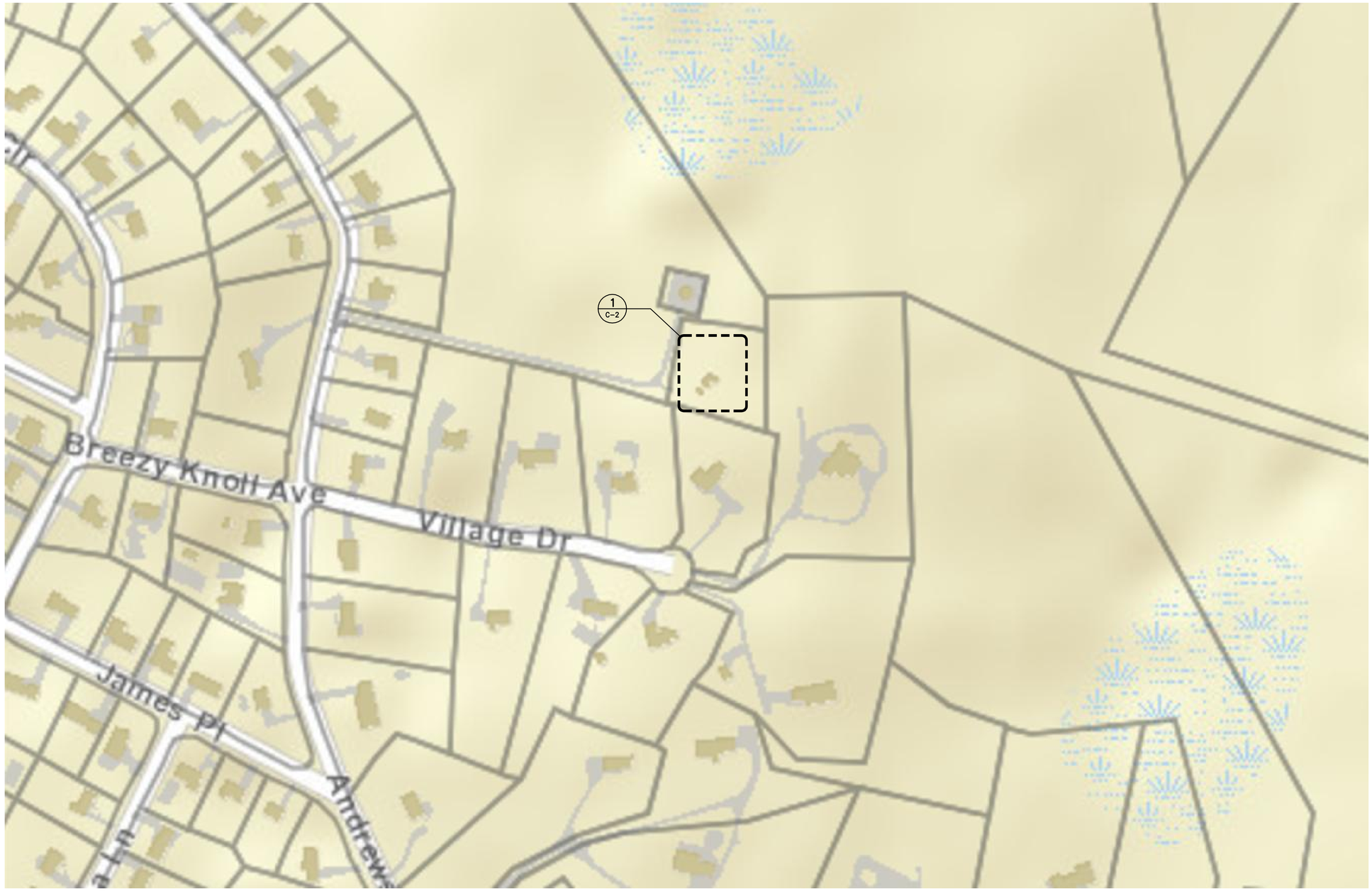
SITE ID: CT11403A

ANDREWS RD
WOLCOTT,CT 06716

DATE: 05/01/19
SCALE: AS NOTED
JOB NO. 19027.21

DESIGN BASIS AND SITE NOTES

N-1



1 / C-1 **SITE LOCATION PLAN**
SCALE: 1" = 50'

APPROX. NORTH

GRAPHIC SCALE
50 0 25 50 100 200
(IN FEET)
1 inch = 50 ft.

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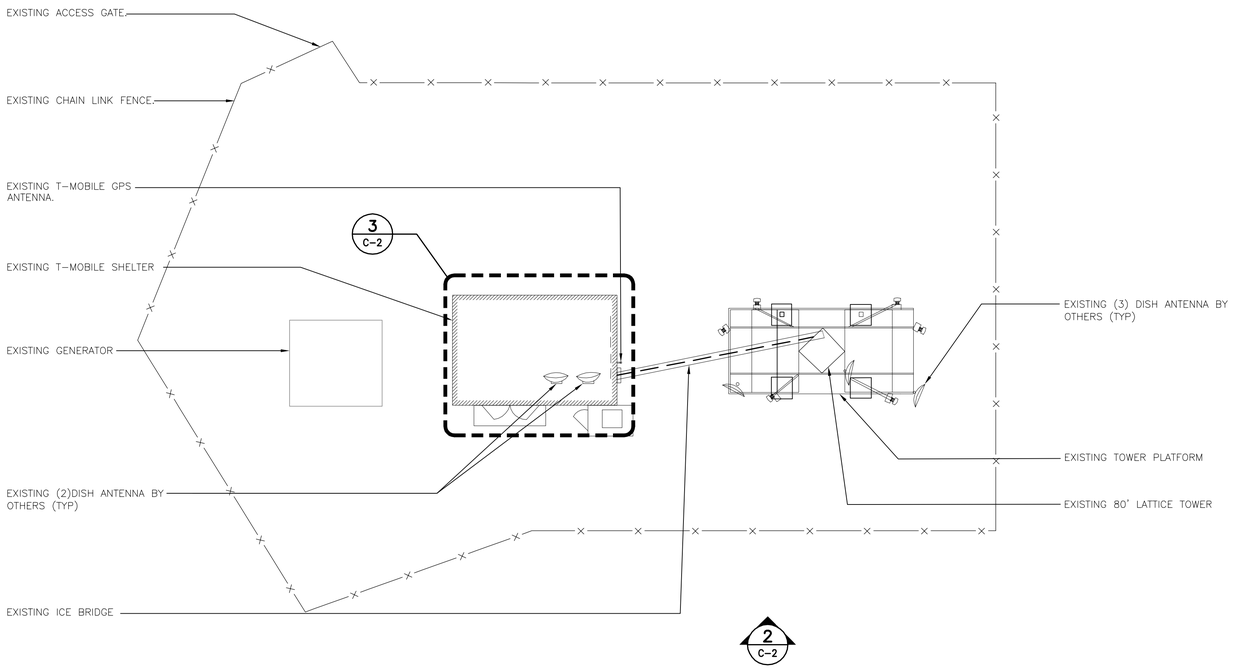
SITE LOCATION PLAN

C-1

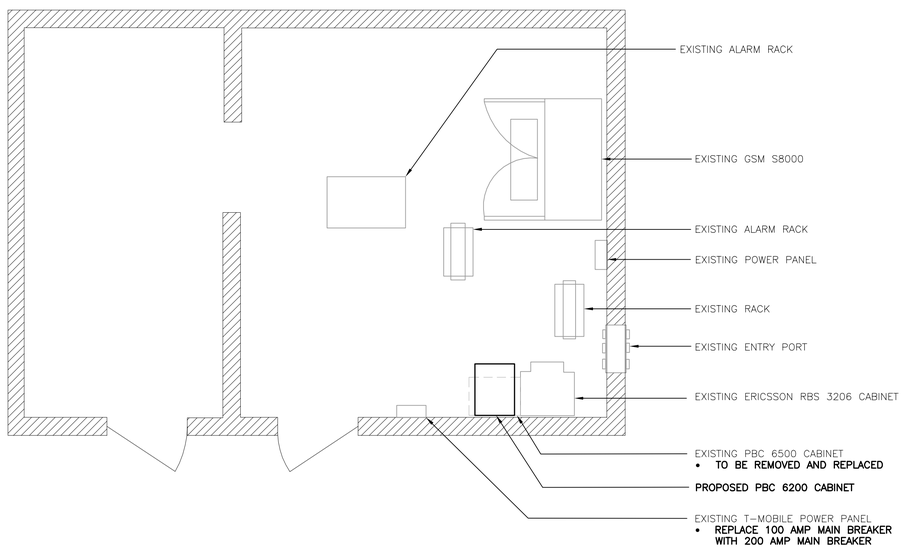
Sheet No. 3 of 7



1 C-2 **COMPOUND PLAN**
SCALE: 1" = 10'

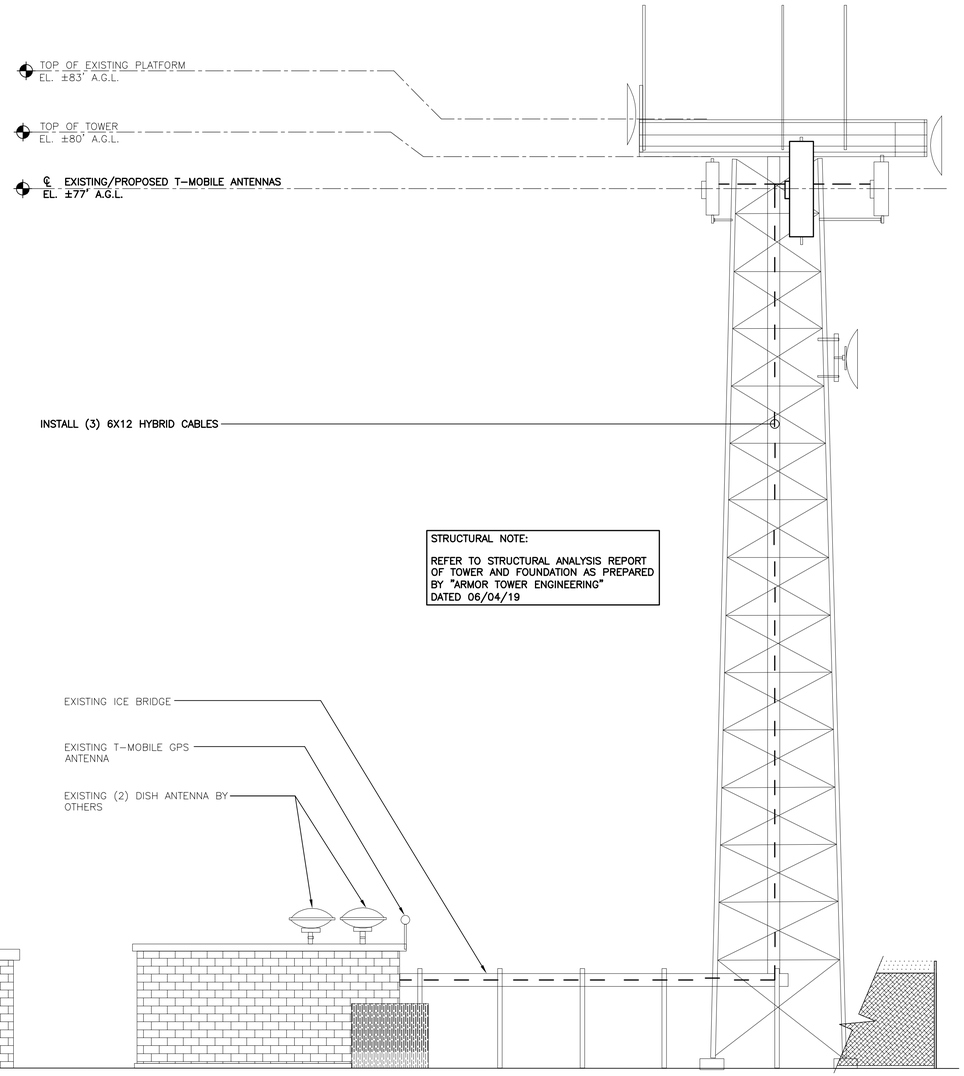
TRUE NORTH

GRAPHIC SCALE
10 0 5 10 20 40
(IN FEET)
1 inch = 10 ft.



3 C-2 **EQUIPMENT PLAN**
SCALE: 3/8" = 1'

TRUE NORTH



STRUCTURAL NOTE:

REFER TO STRUCTURAL ANALYSIS REPORT OF TOWER AND FOUNDATION AS PREPARED BY "ARMOR TOWER ENGINEERING" DATED 06/04/19

2 C-2 **SOUTH TOWER ELEVATION**
SCALE: 1" = 6'

GRAPHIC SCALE
6 0 3 6 12 24
(IN FEET)
1 inch = 6 ft.

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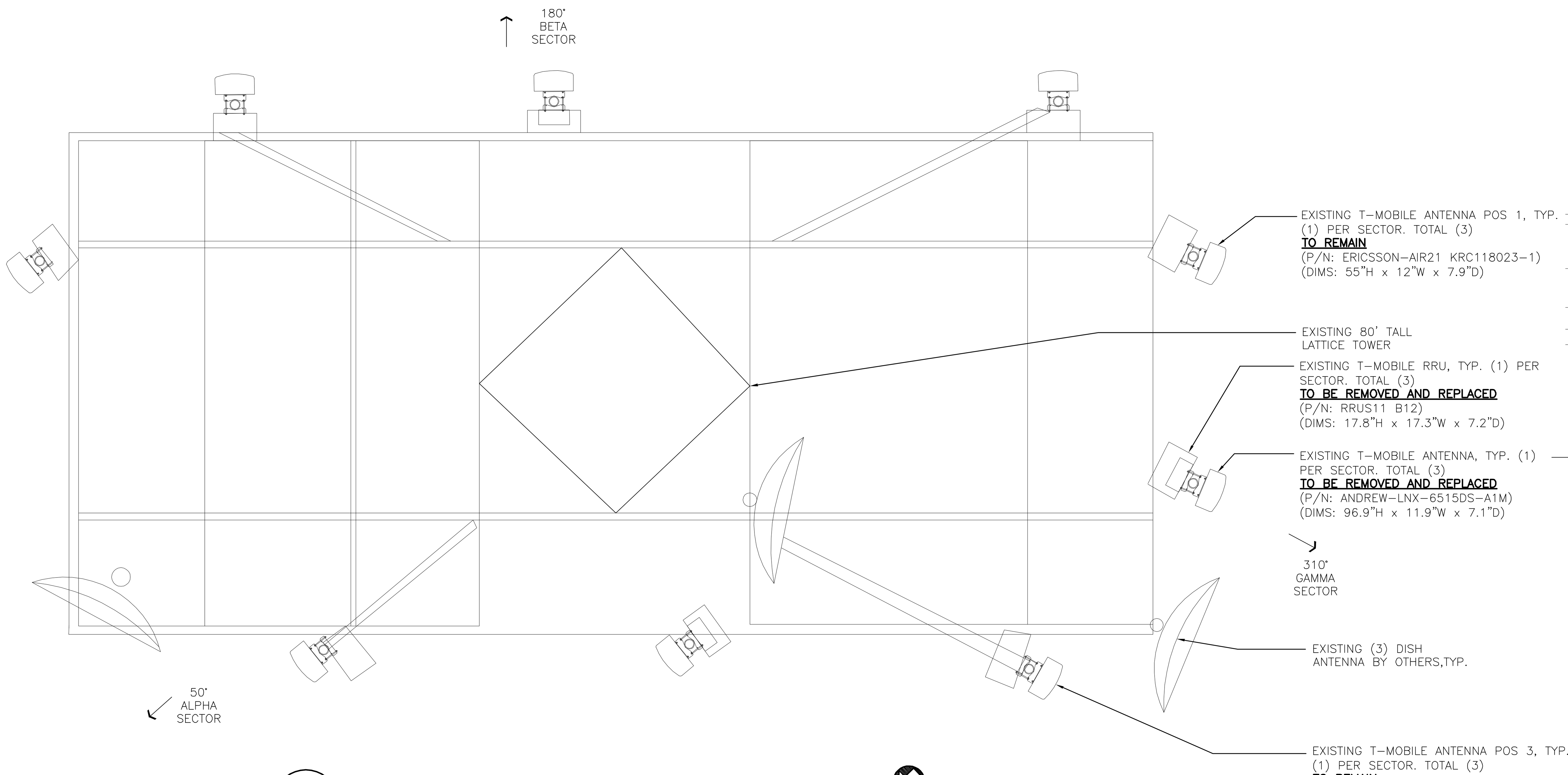
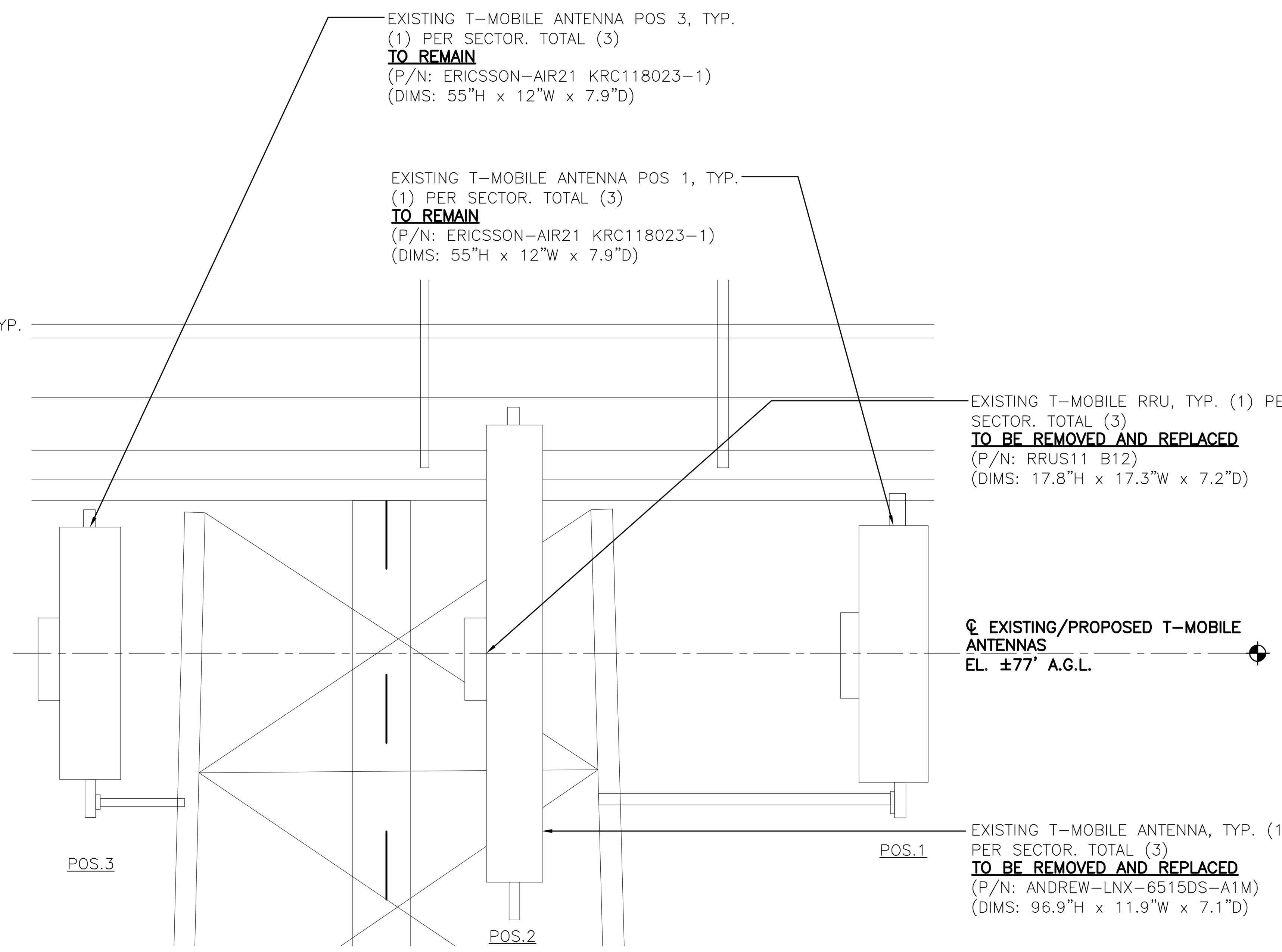
COMPOUND PLAN, AND ELEVATION

C-2

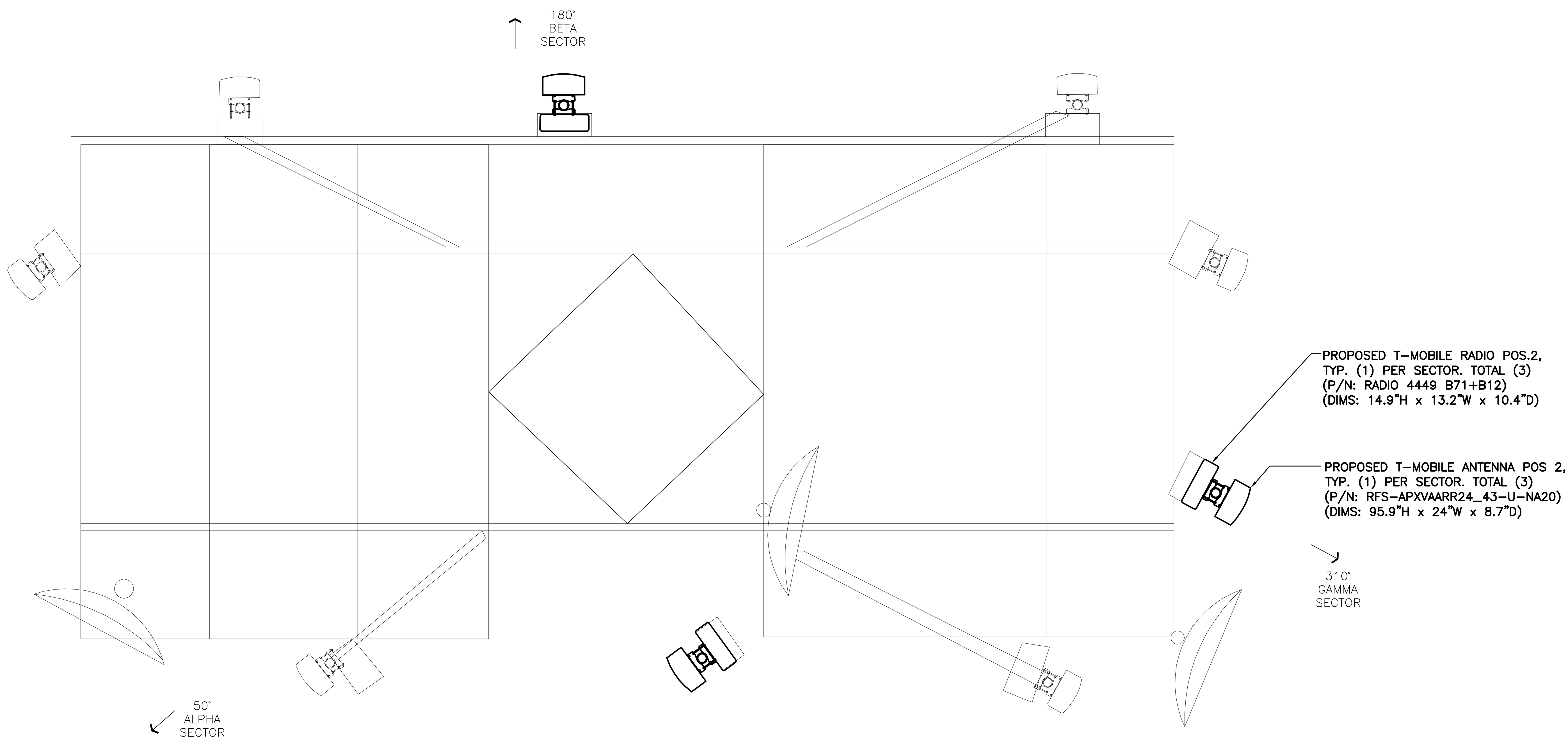
Sheet No. 4 of 7



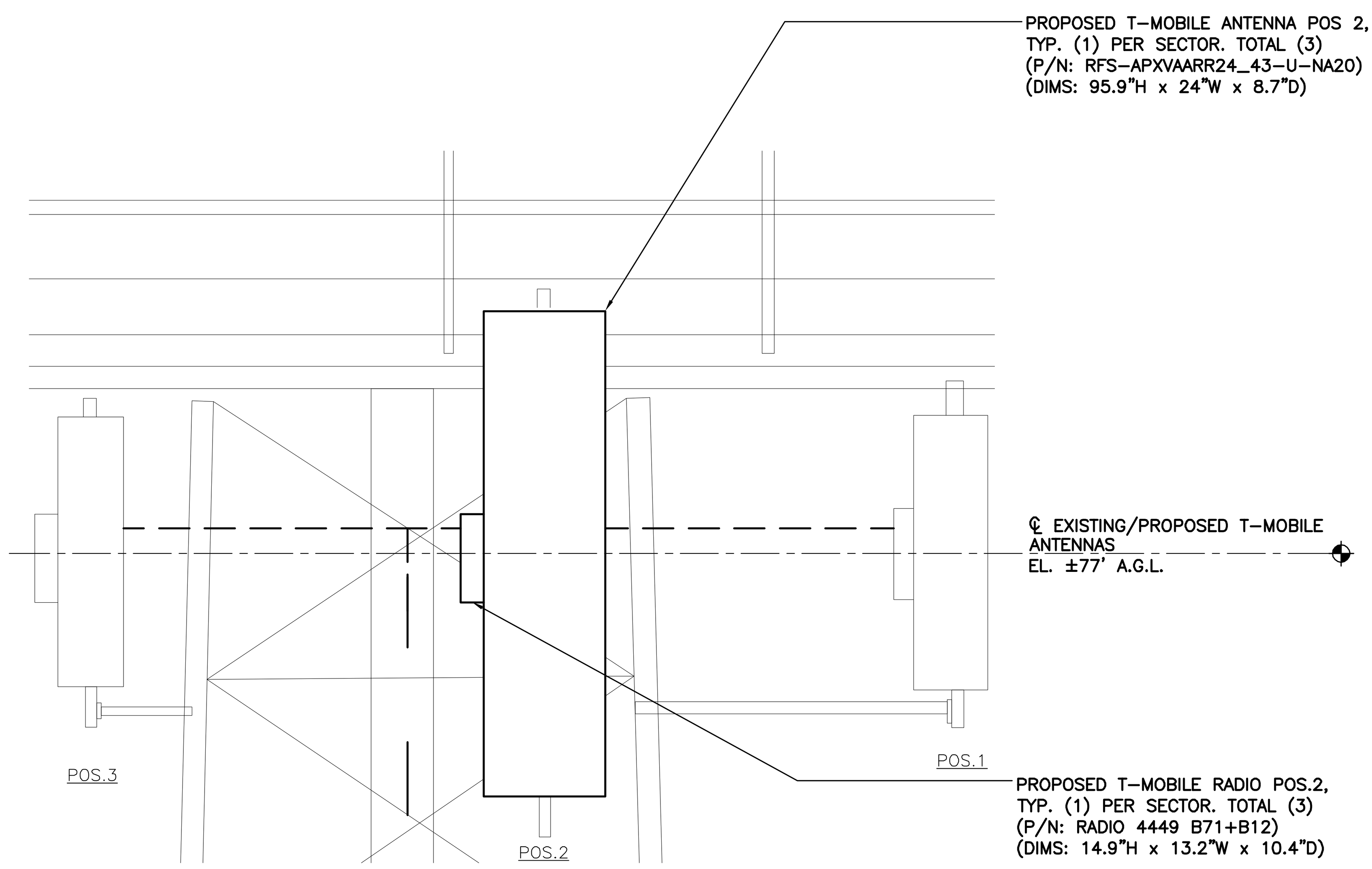
1 (C-3) EXISTING ANTENNA MOUNTING CONFIGURATION — 77' ELEVATION
SCALE: 1/2" = 1'



2 (C-3) EXISTING ANTENNA ELEVATION
SCALE: 1/2" = 1'



3 (C-3) PROPOSED ANTENNA MOUNTING CONFIGURATION — 77' ELEVATION
SCALE: 1/2" = 1'



4 (C-3) PROPOSED ANTENNA ELEVATION
SCALE: 1/2" = 1'

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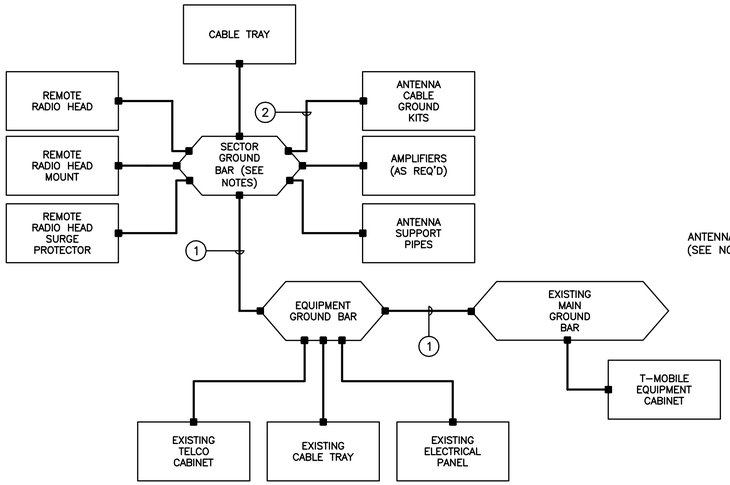
ANTENNA MOUNTING CONFIGURATION

C-3

Sheet No. 5 of 7



GROUNDING SCHEMATIC NOTES

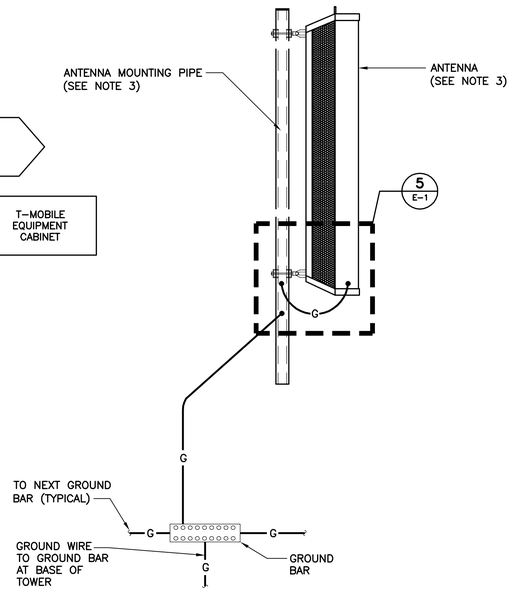
(1) #2 AWG

(2) #6 AWG

GENERAL NOTES:

1. ALL SURGE SUPPRESSION EQUIPMENT SHALL BE BONDED TO GROUND PER MANUFACTURER'S SPECIFICATIONS
2. UNLESS OTHERWISE NOTED OR REQUIRED BY CODE, GROUND CONDUCTORS SHOWN SHALL BE #2 AWG (SOLID TINNED BCW – EXTERIOR; STRANDED GREEN INSULATED – INTERIOR).
3. ALL SECTOR GROUND BARS SHALL BE BONDED TOGETHER WITH #2 AWG SOLID TINNED BCW.
4. BOND ALL EQUIPMENT CABINETS AND BATTERY CABINETS TO GROUND PER MANUFACTURER'S SPECIFICATIONS.
5. COORDINATE ALL ROOF MOUNTED EQUIPMENT WITH OWNER.
6. ALL ROOF MOUNTED AMPLIFIERS AND ASSOCIATED EQUIPMENT SHALL BE BONDED TO THE SECTOR GROUND BAR PER MANUFACTURER'S SPECIFICATIONS.
7. ALL GROUNDING SHALL BE IN ACCORDANCE WITH NEC AND OWNER'S REQUIREMENTS.

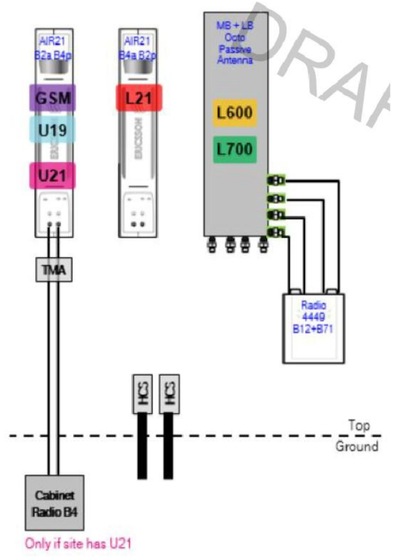
1 TYPICAL GROUNDING SCHEMATIC DETAIL
E-1 — SCALE: NOT TO SCALE



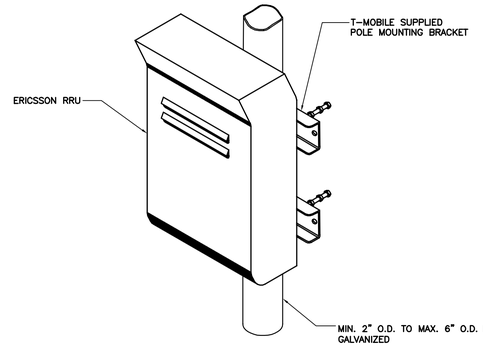
NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

2 TYPICAL ANTENNA GROUNDING DETAIL
E-1 — SCALE: NOT TO SCALE



3 PROPOSED PLUMBING DIAGRAM
E-1 — SCALE: NONE

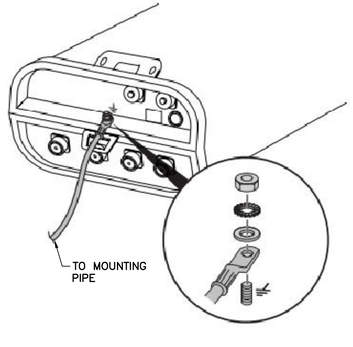


ISOMETRIC VIEW

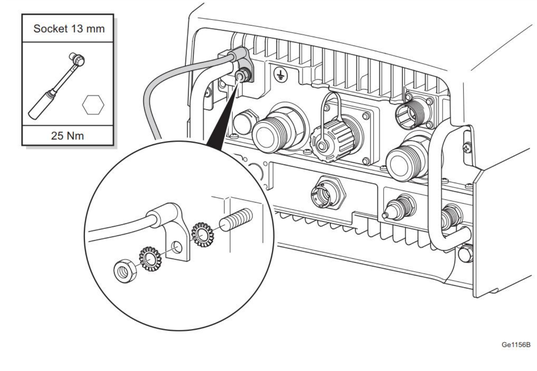
NOTES:

1. T-MOBILE SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL INSTALLS RRU AND MAKES CABLE TERMINATIONS.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

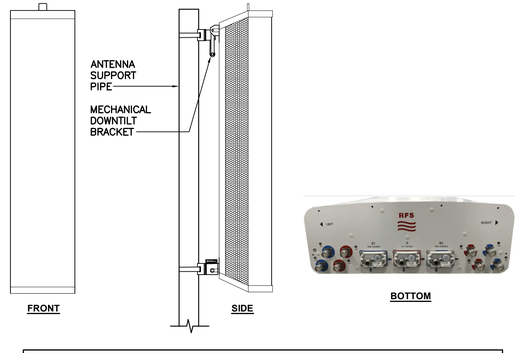
4 TYPICAL RRUS MOUNTING DETAILS
E-1 — SCALE: NOT TO SCALE



5 TYPICAL ANTENNA GROUNDING DETAIL
E-1 — SCALE: NOT TO SCALE



6 TYPICAL RRU GROUNDING DETAIL
E-1 — SCALE: NOT TO SCALE



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: RFS MODEL: APXVAARR24_43-U-NA20	95.9"L x 24"W x 8.7"D	153 LBS.

7 PROPOSED ANTENNA DETAIL
E-1 — SCALE: NOT TO SCALE

ISOMETRIC VIEW

RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RADIO 4449 B71B12	14.9"L x 13.2"W x 10.4"D	74 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:
1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH T-MOBILE CONSTRUCTION MANAGER PRIOR TO ORDERING.

8 PROPOSED RRU DETAIL
E-1 — SCALE: NOT TO SCALE

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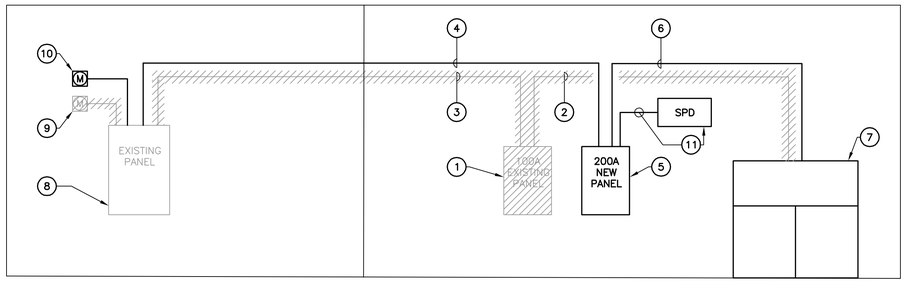
TYPICAL ELECTRICAL DETAILS

E-1

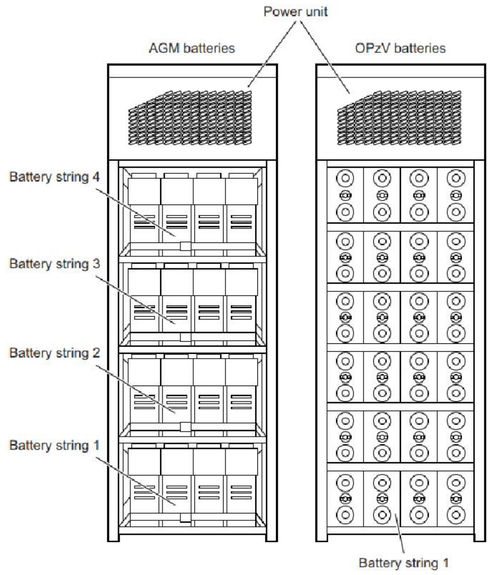
Sheet No. 6 of 7

RISER DIAGRAM NOTES

1. EXISTING T-MOBILE 100A DISTRIBUTION PANEL TO BE REMOVED AND REPLACED.
2. CONDUITS AND CONDUCTORS SERVING EXISTING RADIO EQUIPMENT CABINETS TO BE REMOVED.
3. CONDUITS AND CONDUCTORS FEEDING EXISTING 100A PANEL TO BE REMOVED.
4. (3) #3/0 AWG, (1) #6 AWG GROUND, 2 1/2" CONDUIT CONNECTED TO SOURCE PREVIOUSLY FEEDING REMOVED 100A PANEL. MAXIMUM CIRCUIT LENGTH OF 200FT. VERIFY LOCATION IN FIELD.
5. NEW 200A, 240V, SINGLE PHASE, 30 POSITION, NEMA 3R PANEL WITH COPPER BUS, BOLT ON CIRCUIT BREAKERS AND 200A/2P MAIN CIRCUIT BREAKER.
6. (3) #10 AWG, (1) #10 AWG GROUND, 3/4" CONDUIT CONNECTED TO NEW 25A/2P CIRCUIT BREAKER (TYPICAL OF 8)
7. NEW PBC6200 (REPLACE PBC6500)
8. EXISTING 200A DISTRIBUTION PANEL TO REMOVED AND REPLACED WITH NEW 400A, 240V, SINGLE PHASE DISTRIBUTION PANEL. PROVIDE WITH (3) #600 KCMIL, (1) #3 AWG GROUND, 4" CONDUIT ROUTED BACK TO PANEL SOURCE CONNECTED TO NEW 400A/2P CIRCUIT BREAKER. COORDINATE ANY REQUIRED SERVICE UPGRADES WITH BUILDING OWNER AND LOCAL UTILITY COMPANY. COORDINATE ALL OUTAGES WITH OWNER. VERIFY SOURCE LOCATION IN FIELD.
9. EXISTING 100A, 240V RATED EMON DMON SUBMETER TO BE REMOVED. REMOVE ALL ASSOCIATED CONDUITS, CONDUCTORS, AND ACCESSORIES.
10. NEW 200A, 240V RATED, SINGLE PHASE, EMON DMON SUBMETER MOUNTED IN OWNER APPROVED LOCATION. PROVIDE WITH ALL CONDUITS, CONDUCTORS, AND ACCESSORIES AS REQUIRED BY MANUFACTURER.
11. NEW SURGE PROTECTION DEVICE. PROVIDE WITH CONDUITS, CONDUCTORS, AND FUSE ASSEMBLIES AS REQUIRED BY MANUFACTURER. (RAYCAP 2080 OR APPROVED EQUAL)



1 / E-2 **ELECTRICAL POWER RISER DIAGRAM**
SCALE: NOT TO SCALE



BATTERY CABINET		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: ERICSSON MODEL: PBC 6200	60.82"H x 23"W x 23"D	2182 LBS.

2 / E-2 **ERICSSON BATTERY CABINET DETAIL**
SCALE: NOT TO SCALE

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TYPICAL ELECTRICAL DETAILS

E-2

Sheet No. 7 of 7

Structural Analysis of a 80 ft Self-Supporting Tower

Site Number: T-Mobile CT11403A

Site Name: Wolcott
County: New Haven
Location: Wolcott, CT
Tower Stress Rating: 65.4%

Transcend Wireless

10 Industrial Ave., Suite 3

Mahwah, NJ 07430

June 2019

9 North Main Street, 2nd Floor, Cortland, NY 13045
(607)591-5381 Fax: (866)870-0840 www.ArmorTower.com

June 4, 2019

Kyle Richers
Transcend Wireless
10 Industrial Ave., Suite 3
Mahwah, NJ 07430

RE: T-Mobile – CT11403A – Wolcott
Andrews Road, Wolcott, CT

Kyle:

We have completed the structural analysis of the subject tower and **have found it to be adequate within the scope of this analysis to support the proposed antenna loading**. The tower was analyzed according to the code wind and ice parameters outlined in the *Code Requirements Table* following this letter.

The subject tower is a 80' self-supporting tower consisting of all-bolted sections with angle legs and bracing. Tower face dimensions range from 6'1" at the top to 10'7" at the base. Foundation details are based on the geotechnical report prepared by our office is December 2017 and dispersive wave foundation results prepared by FDH on July 2013.

The loading used in the analysis consisted of the existing antennas/lines as well as the following for T-Mobile at 77':

- (3) existing Ericsson Air21-B4A B2P antennas [one per sector]
- (3) existing Ericsson Air21-B2A B4P antennas [one per sector]
- (3) proposed RFS APXVAARR24_43-U-NA20 antennas [one per sector]
- (3) proposed Ericsson RRUS 4449 B7/B12 units [one per sector]
- (3) existing Andrew ETW190VS12UB TMAs [one per sector]
- (12) existing 1-5/8" coax and (4) proposed 1-3/8" hybrid fiber cables

The proposed feed lines or hybrid line are to be located as shown on drawing E-7.

The results of the analysis showed all tower and foundation elements to be loaded within allowable limits with a maximum stress rating of 65.4%. We recommend a post-construction inspection be completed by an engineer to document that tower-mounted equipment has been placed in compliance with the requirements of this analysis. For a detailed listing of tower performance, please see pages 6 and 7 of the calculations.

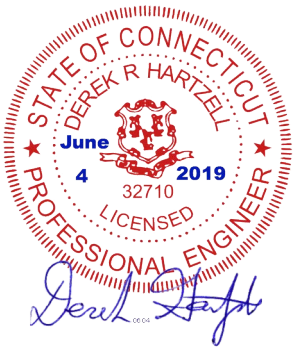
We appreciate the opportunity to provide our professional services to Transcend Wireless and T-Mobile, and if you have any questions concerning this analysis, please contact us.

Sincerely,

ARMOR TOWER, INC.

Patrick Propert

Patrick Propert
Structural Design Engineer III



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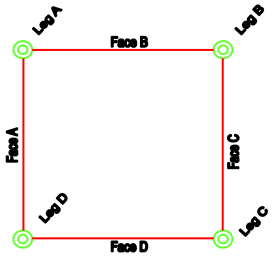
CODE REQUIREMENTS

Governing code:	CT State Building Code
Code basis:	2015 IBC
Referenced standard:	ANSI/TIA 222-G-2
Basic wind speed: (3-sec. gust):	V_{ult}/V_{asd}: 120 mph/93 mph with no ice 50 mph with 3/4" concurrent ice
Nominal design wind speed conversion for TIA 222 considerations based on IBC 1609.3.1	
County of site location:	**New Haven**
ASCE 7 Special wind region:	No
Structure/Risk Category:	II
Exposure Category:	B
Topographic Category:	1 - no topographic escalation
Crest Height:	0 ft

PRIMARY ASSUMPTIONS CONSIDERED IN THIS PROJECT



1. Leg A is assumed to be oriented west.
2. Allowable steel stresses are defined by AISC-LRFD-99/360-16 and all welds conform to AWS D1.1 specifications.
3. It is the client's responsibility to check with local authorities or the tower owner if a greater wind or ice loading is required to be considered in the analysis.
4. If reserved antennas/feed lines by other carriers or the tower owner are to be considered in this analysis, it is the responsibility of Transcend Wireless and its affiliates to provide this information.
5. Any deviation from the analyzed antenna loading will require a re-analysis of the tower for verification of structural integrity. This analysis has considered the proposed feed lines to be located as shown on drawing E-7.
6. This analysis assumes all tower members are galvanized adequately to prevent corrosion of the steel and that all tower members are in "like new" condition with no physical deterioration. This analysis also assumes the tower has been maintained properly per TIA 222-G Annex J recommended inspection and maintenance procedures for tower owners and is in a plumb condition. Armor Tower has not completed a condition assessment of the tower. Site observations indicate an adequately galvanized tower.
7. No accounting for residual stresses due to incorrect tower erection can be made. This analysis assumes all bolts are appropriately tightened providing necessary connection continuity and that the installation of the tower was performed by a qualified tower erector.
8. Foundation details are based on the geotechnical report prepared by our office on December 2017 and dispersive wave foundation results prepared by FDH on July 2013.
9. No conclusions, expressed or implied, shall indicate that Armor Tower has made an evaluation of the original design, materials, fabrication, or potential installation or erection deficiencies. Any information contrary to that assumed for the purpose of preparing this analysis could alter the findings and conclusions stated herein.

10. Tower member sizes and geometry are based on a tower mapping completed by this office in December 2017. Existing antenna loading is based on a previous analysis by this office dated December 2017 and on collocation app dated May 2019. Proposed equipment was outlined in a collocation app dated May 2019.
11. The investigation of the load carrying capacities of the antenna supporting frames/mounts is outside the scope of this analysis. Antenna mount certification can be completed under separate contract.

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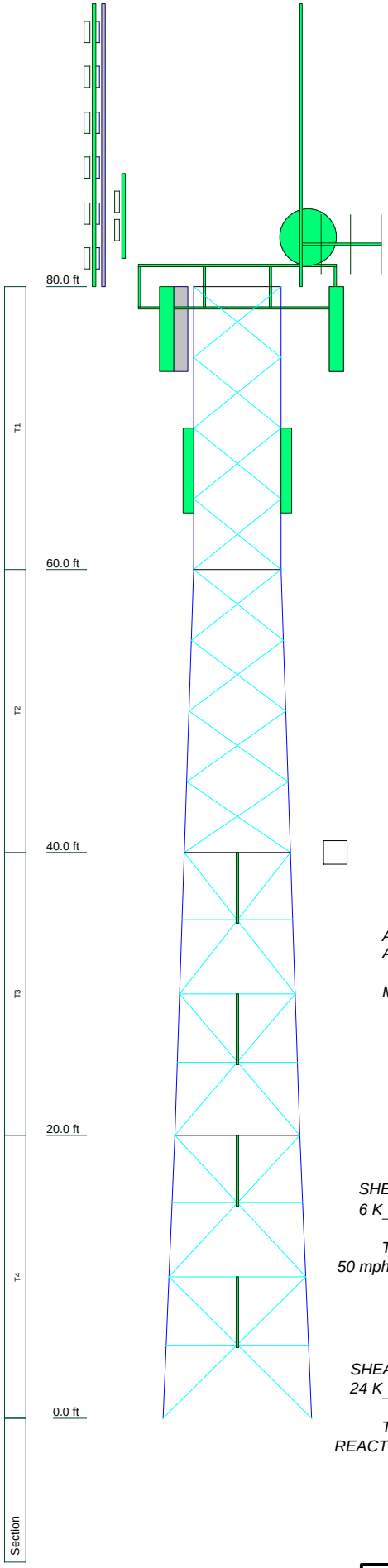

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
2.5"ODx20' Omni (E)	90	ETW190VS12UB (E-Beta-TMobile)	77
20' Dipole (E)	90	ETW190VS12UB (E-Delta-TMobile)	77
20' Dipole (E)	90	(2) NNHH-65B-R4 w. Mtg Pipe (Delta-VZW)	67
10' Dipole (E)	85	(2) NNHH-65B-R4 w. Mtg Pipe (Gamma-VZW)	67
Yagi (E)	83	AWS(B66)/PCS(B2) Dual Band RRH (Delta-VZW)	67
Top Platform - WolcottNW	80	AWS(B66)/PCS(B2) Dual Band RRH (Gamma-VZW)	67
4 FT DISH	80	RVZDC-6627-PF-48 (12Circuit OVP) (Delta-VZW)	67
4 FT DISH	80	700(B13)/850(B5) Dual Band RRH (Delta-VZW)	67
Ericsson AIR21 B4A/B2P w. Mtg Pipe (E-Alpha-TMobile)	77	700(B13)/850(B5) Dual Band RRH (Gamma-VZW)	67
Ericsson AIR21 B4A/B2P w. Mtg Pipe (E-Beta-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	37.5
Ericsson AIR21 B4A/B2P w. Mtg Pipe (E-Gamma-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	37.5
Ericsson AIR21 B2A/B4P w. Mtg Pipe (E-Alpha-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	37.5
Ericsson AIR21 B2A/B4P w. Mtg Pipe (E-Beta-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	37.5
Ericsson AIR21 B2A/B4P w. Mtg Pipe (E-Gamma-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	27.5
APXVAARR24_43-U-NA20 w. MtgPipe (E-Alpha-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	27.5
APXVAARR24_43-U-NA20 w. MtgPipe (E-Beta-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	27.5
APXVAARR24_43-U-NA20 w. MtgPipe (E-Gamma-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	27.5
Ericsson Radio 4449 B12/B71 (E-Alpha-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	17.5
Ericsson Radio 4449 B12/B71 (E-Beta-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	17.5
Ericsson Radio 4449 B12/B71 (E-Gamma-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	17.5
ETW190VS12UB (E-Alpha-TMobile)	77	L2 1/2x2x1/4 @ 5ft Vert.	17.5
		L2 1/2x2x1/4 @ 5ft Vert.	7.5
		L2 1/2x2x1/4 @ 5ft Vert.	7.5
		L2 1/2x2x1/4 @ 5ft Vert.	7.5
		L2 1/2x2x1/4 @ 5ft Vert.	7.5

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-G Standard.
2. Tower designed for a 120 mph basic wind in accordance with the TIA-222-G Standard.
3. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0'
7. Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications.
8. Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
9. Welds are fabricated with ER-70S-6 electrodes.
10. T-Mobile appurtenances are indicated as (E)xisting or (P)roposed. All others is existing.
11. TOWER RATING: 65.4%

AL
AR

MAX. CORNER REACTIONS AT BASE:
DOWN: 98 K
SHEAR: 13 K

UPLIFT: -86 K
SHEAR: 11 K

AXIAL
67 K
SHEAR
6 K
MOMENT
374 kip-ft

TORQUE 3 kip-ft
50 mph WIND - 0.7500 in ICE

AXIAL
27 K
SHEAR
24 K
MOMENT
1357 kip-ft

TORQUE 8 kip-ft
REACTIONS - 120 mph WIND

ARMOR TOWER
Armor Tower, Inc.
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Cortland, NY 13045
Phone: (607) 591-5381
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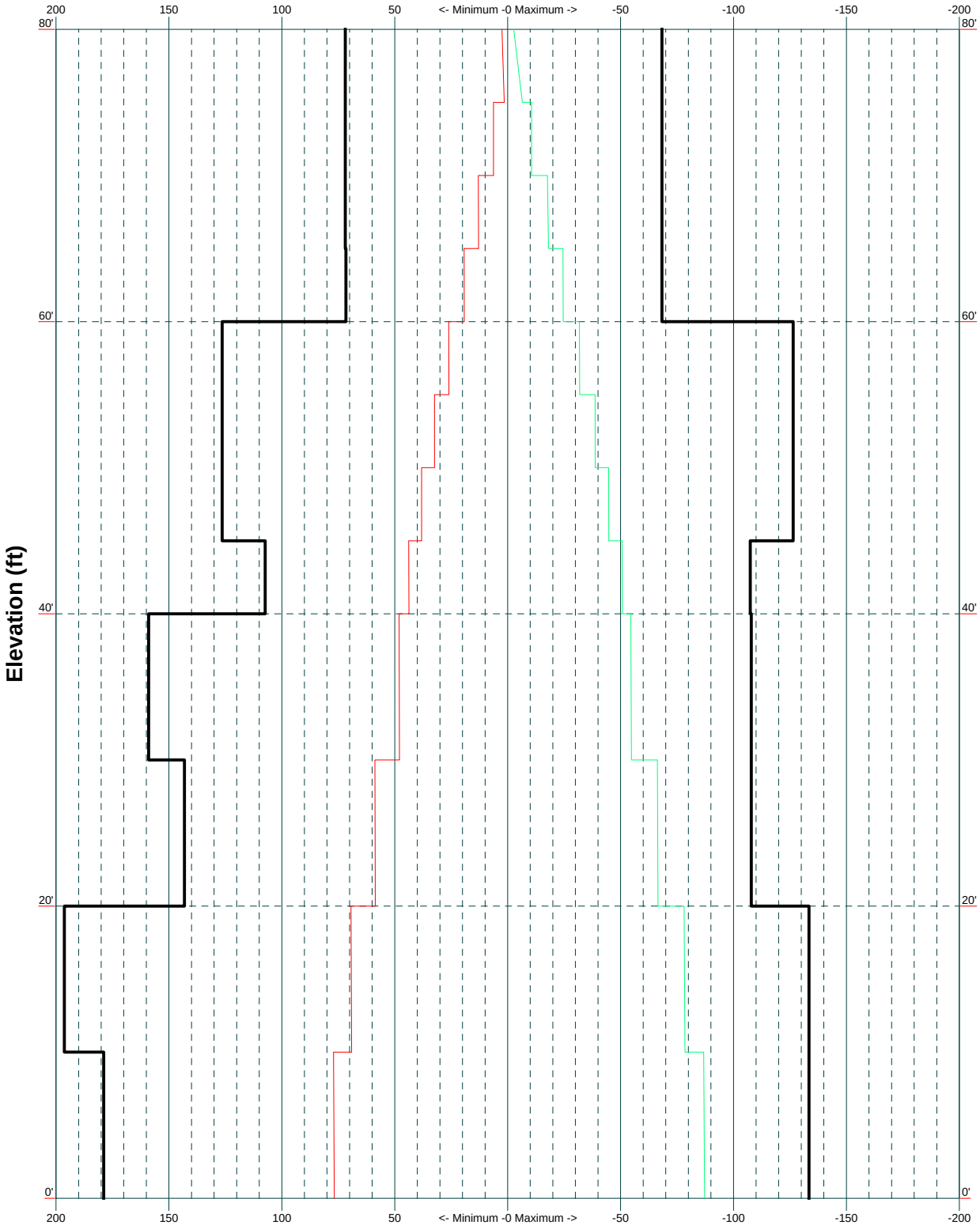
Job: ***80' Self-Supporting Tower Analysis***			
Project: ***T-Mobile CT11403A Wolcott***			
Client: Transcend Wireless	Drawn by: PEP	App'd:	
Code: TIA-222-G	Date: 05/29/19	Scale: NTS	
Path: Z:\Transcend Wireless\T-Mobile\CT11403A WolcottCT-EI\TNX\WolcottNW actual section.eri		Dwg No. E-1	

TIA-222-G - 120 mph/50 mph 0.7500 in Ice Exposure B

Leg Capacity ——— **Leg Compression (K)**



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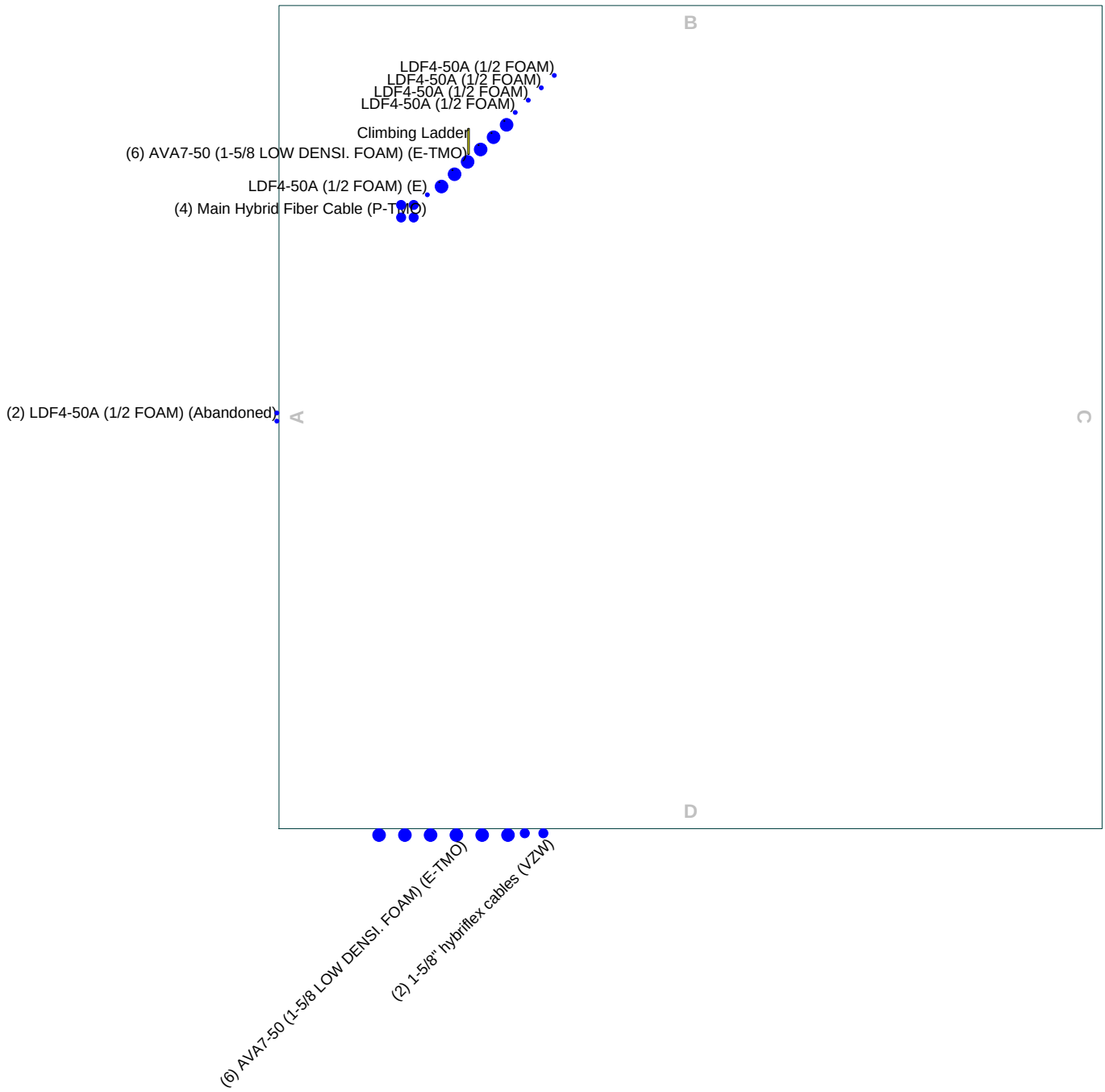
Feed Line Plan

Round Flat App In Face App Out Face



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Path: Z:\Transcend Wireless\T-Mobile\CT11403A WolcottCT-EI\TNX\WolcottNW actual section.eri		Dwg No. E-7	

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Job	Page
80' Self-Supporting Tower Analysis	1 of 7
Project	**Date**
T-Mobile CT11403A Wolcott	10:17:35 05/29/19
Client	**Designed by**
Transcend Wireless	PEP

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 45 deg - No Ice
5	0.9 Dead+1.0 Wind 45 deg - No Ice
6	1.2 Dead+1.0 Wind 90 deg - No Ice
7	0.9 Dead+1.0 Wind 90 deg - No Ice
8	1.2 Dead+1.0 Wind 135 deg - No Ice
9	0.9 Dead+1.0 Wind 135 deg - No Ice
10	1.2 Dead+1.0 Wind 180 deg - No Ice
11	0.9 Dead+1.0 Wind 180 deg - No Ice
12	1.2 Dead+1.0 Wind 225 deg - No Ice
13	0.9 Dead+1.0 Wind 225 deg - No Ice
14	1.2 Dead+1.0 Wind 270 deg - No Ice
15	0.9 Dead+1.0 Wind 270 deg - No Ice
16	1.2 Dead+1.0 Wind 315 deg - No Ice
17	0.9 Dead+1.0 Wind 315 deg - No Ice
18	1.2 Dead+1.0 Ice+1.0 Temp
19	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
20	1.2 Dead+1.0 Wind 45 deg+1.0 Ice+1.0 Temp
21	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
22	1.2 Dead+1.0 Wind 135 deg+1.0 Ice+1.0 Temp
23	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
24	1.2 Dead+1.0 Wind 225 deg+1.0 Ice+1.0 Temp
25	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
26	1.2 Dead+1.0 Wind 315 deg+1.0 Ice+1.0 Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 45 deg - Service
29	Dead+Wind 90 deg - Service
30	Dead+Wind 135 deg - Service
31	Dead+Wind 180 deg - Service
32	Dead+Wind 225 deg - Service
33	Dead+Wind 270 deg - Service
34	Dead+Wind 315 deg - Service

Maximum Tower Deflections - Service Wind

Section No.	*Elevation*	*Horz. Deflection*	*Gov. Load*	*Tilt*	*Twist*
	ft	*in*	*Comb.*	*°*	*°*
T1	80 - 60	0.579	32	0.0574	0.0034
T2	60 - 40	0.339	32	0.0476	0.0027
T3	40 - 20	0.157	32	0.0317	0.0015
T4	20 - 0	0.043	32	0.0153	0.0006

Critical Deflections and Radius of Curvature - Service Wind

Elevation	*Appurtenance*	*Gov. Load*	*Deflection*	*Tilt*	*Twist*	*Radius of Curvature*
ft		*Comb.*	*in*	*°*	*°*	*ft*
90'	2.5"ODx20' Omni	32	0.579	0.0574	0.0034	278030
85'	10' Dipole	32	0.579	0.0574	0.0034	278030
83'6"	4 FT DISH	32	0.579	0.0574	0.0034	278030
83'	Yagi	32	0.579	0.0574	0.0034	278030

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
80'	Top Platform - WolcottNW	32	0.579	0.0574	0.0034	278030
77'	Ericsson AIR21 B4A/B2P w. Mtg Pipe	32	0.541	0.0562	0.0033	278030
67'	(2) NNHH-65B-R4 w. Mtg Pipe	32	0.419	0.0516	0.0030	106934
37'6"	L2 1/2x2x1/4 @ 5ft Vert.	32	0.138	0.0296	0.0014	71268
27'6"	L2 1/2x2x1/4 @ 5ft Vert.	32	0.076	0.0213	0.0009	59419
17'6"	L2 1/2x2x1/4 @ 5ft Vert.	32	0.034	0.0134	0.0005	60766
7'6"	L2 1/2x2x1/4 @ 5ft Vert.	32	0.011	0.0057	0.0002	140690

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	80 - 60	2.284	12	0.2254	0.0137
T2	60 - 40	1.344	12	0.1875	0.0110
T3	40 - 20	0.621	12	0.1253	0.0062
T4	20 - 0	0.170	12	0.0607	0.0024

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
90'	2.5"ODx20' Omni	12	2.284	0.2254	0.0137	72326
85'	10' Dipole	12	2.284	0.2254	0.0137	72326
83'6"	4 FT DISH	12	2.284	0.2254	0.0137	72326
83'	Yagi	12	2.284	0.2254	0.0137	72326
80'	Top Platform - WolcottNW	12	2.284	0.2254	0.0137	72326
77'	Ericsson AIR21 B4A/B2P w. Mtg Pipe	12	2.137	0.2207	0.0134	72326
67'	(2) NNHH-65B-R4 w. Mtg Pipe	12	1.657	0.2031	0.0122	27818
37'6"	L2 1/2x2x1/4 @ 5ft Vert.	12	0.549	0.1170	0.0056	18061
27'6"	L2 1/2x2x1/4 @ 5ft Vert.	12	0.302	0.0844	0.0036	15024
17'6"	L2 1/2x2x1/4 @ 5ft Vert.	12	0.136	0.0529	0.0021	15346
7'6"	L2 1/2x2x1/4 @ 5ft Vert.	12	0.044	0.0225	0.0008	35531

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	80	Leg	A307	6.14	17.89	0.343 ✔	1	Bolt DS
		Diagonal	A307	2.18	8.95	0.244 ✔	1	Bolt Shear
		Top Girt	A325N	0.07	11.15	0.007 ✔	1	Member Block Shear
T2	60	Leg	A307	8.47	17.89	0.474 ✔	1	Bolt DS
		Diagonal	A307	1.84	8.95	0.205 ✔	1	Bolt Shear
		Top Girt	A325N	0.07	17.89	0.004 ✔	1	Bolt Shear
T3	40	Leg	A307	8.33	17.89	0.465 ✔	1	Bolt DS
		Diagonal	A307	3.67	8.95	0.410 ✔	1	Bolt Shear
		Horizontal	A307	2.63	8.95	0.294 ✔	1	Bolt Shear

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Section No.	Elevation ft	Component Type	Bolt Grade	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Secondary Horizontal	A307	0.17	8.95	0.019 ✔	1	Bolt Shear
		Top Girt	A325N	1.38	10.47	0.132 ✔	1	Member Block Shear
T4	20	Leg	A307	8.72	17.89	0.487 ✔	1	Bolt DS
		Diagonal	A307	3.94	8.95	0.440 ✔	1	Bolt Shear
		Horizontal	A307	3.04	8.95	0.340 ✔	1	Bolt Shear
		Secondary Horizontal	A307	0.20	8.95	0.022 ✔	1	Bolt Shear
		Top Girt	A325N	2.33	10.47	0.223 ✔	1	Member Block Shear

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio P_u / ϕP_n
T1	80 - 60	20'	5'	76.1 K=1.00	2.8600	-24.56	68.29	0.360 [1] ✔
T2	60 - 40	20'1/4"	5'1/8"	61.1 K=1.00	4.7500	-50.84	126.43	0.402 [1] ✔
T3	40 - 20	20'1/4"	10'1/8"	101.8 K=1.00	5.7500	-66.61	107.95	0.617 [1] ✔
T4	20 - 0	20'3/8"	10'1/4"	101.9 K=1.00	7.1100	-87.21	133.41	0.654 [1] ✔

Diagonal Design Data (Compression)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio P_u / ϕP_n
T1	80 - 60	7'11-9/32"	3'9-1/8"	91.8 K=1.00	1.1900	-4.36	24.74	0.176 [1] ✔
T2	60 - 40	8'10-13/16"	4'3-19/32"	121.8 K=1.00	1.0600	-3.67	15.73	0.233 [1] ✔
T3	40 - 20	13'2-1/32"	6'5-17/32"	131.0 K=1.00	1.4400	-7.33	18.91	0.388 [1] ✔
T4	20 - 0	14'2-7/8"	7'23/32"	143.8 K=1.00	1.7800	-7.88	19.45	0.405 [1] ✔

Horizontal Design Data (Compression)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio P_u / ϕP_n
T3	40 - 20	8'2-5/8"	7'8-5/8"	188.6 K=1.00	1.1900	-4.39	7.56	0.580 [1] ✔
T4	20 - 0	9'8-5/8"	9'2-5/8"	112.7	1.1900	-5.10	19.76	0.258 [1] ✔

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Section No.	Elevation	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft	ft	ft		in^2	K	K	
				K=0.50				

Secondary Horizontal Design Data (Compression)

Section No.	Elevation	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft	ft	ft		in^2	K	K	
T3	40 - 20	8'6-19/32"	8'19/32"	125.5 K=1.00	1.1900	-0.32	16.82	0.019 [1] ✔
T4	20 - 0	10'1-5/16"	9'7-5/16"	150.0 K=1.00	1.1900	-0.32	11.95	0.027 [1] ✔

Top Girt Design Data (Compression)

Section No.	Elevation	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft	ft	ft		in^2	K	K	
T1	80 - 60	6'2-1/32"	5'10-3/32"	118.3 K=1.00	1.4400	-0.18	22.33	0.008 [1] ✔
T2	60 - 40	6'2-1/32"	5'10-3/32"	122.6 K=1.00	3.6000	-0.13	52.84	0.003 [1] ✔
T3	40 - 20	7'6-3/8"	7'1-7/16"	173.9 K=1.00	1.1900	-2.37	8.89	0.267 [1] ✔
T4	20 - 0	8'10-13/16"	8'4-13/16"	205.3 K=1.00	1.1900	-3.99	6.38	0.626 [1] ✔

Inner Bracing Design Data (Compression)

Section No.	Elevation	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft	ft	ft		in^2	K	K	
T1	80 - 60	8'8-5/8"	8'4-11/16"	716.1 K=1.00	0.2485	-0.01	0.11	0.103 [*1] ✔
T2	60 - 40	8'8-5/8"	8'4-11/16"	716.1 K=1.00	0.2485	-0.00	0.11	0.037 [1] ✔

ARMOR TOWER ENGINEERING

Armor Tower, Inc.
9 N Main St
Cortland, NY 13045
Phone: (607) 591-5381
FAX: (866) 870-0840

Job	Page
80' Self-Supporting Tower Analysis	5 of 7
Project	**Date**
T-Mobile CT11403A Wolcott	10:17:35 05/29/19
Client	**Designed by**
Transcend Wireless	PEP

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft	ft	ft		in^2	K	K	
T1	80 - 60	20'	5'	48.8	1.6528	19.27	71.90	0.268 [1] ✓
T2	60 - 40	20'1/4"	5'1/8"	39.0	2.9063	43.77	126.42	0.346 [1] ✓
T3	40 - 20	20'1/4"	10'1/8"	64.6	3.6563	58.81	159.05	0.370 [1] ✓
T4	20 - 0	20'3/8"	10'1/4"	65.3	4.5122	77.09	196.28	0.393 [1] ✓

Diagonal Design Data (Tension)

Section No.	Elevation	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft	ft	ft		in^2	K	K	
T1	80 - 60	7'11-9/32"	3'9-1/8"	58.6	0.7284	4.26	31.69	0.134 [1] ✓
T2	60 - 40	8'10-13/16"	4'3-19/32"	87.2	0.6309	3.66	27.45	0.133 [1] ✓
T3	40 - 20	13'2-1/32"	6'5-17/32"	83.4	0.9159	6.51	39.84	0.163 [1] ✓
T4	20 - 0	14'2-7/8"	7'23/32"	91.8	1.1299	6.88	49.15	0.140 [1] ✓

Horizontal Design Data (Tension)

Section No.	Elevation	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft	ft	ft		in^2	K	K	
T3	40 - 20	8'2-5/8"	7'8-5/8"	120.4	0.7284	5.25	31.69	0.166 [1] ✓
T4	20 - 0	9'8-5/8"	9'2-5/8"	143.9	0.7284	6.08	31.69	0.192 [1] ✓

Secondary Horizontal Design Data (Tension)

Section No.	Elevation	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft	ft	ft		in^2	K	K	
T3	40 - 20	8'6-19/32"	8'19/32"	125.5	0.7284	0.34	31.69	0.011 [1] ✓
T4	20 - 0	9'3-15/32"	8'9-15/32"	137.2	0.7284	0.39	31.69	0.012 [1] ✓

Top Girt Design Data (Tension)

Section No.	Elevation	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft	ft	ft		in^2	K	K	

Armor Tower, Inc.
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Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	80 - 60	6'2-1/32"	5'10-3/32"	75.3	0.9159	0.15	39.84	0.004 [1] ✓
T2	60 - 40	6'2-1/32"	5'10-3/32"	122.6	2.4939	0.08	108.49	0.001 [1] ✓
T3	40 - 20	7'6-3/8"	7'1-7/16"	111.1	0.7284	2.76	31.69	0.087 [1] ✓
T4	20 - 0	8'10-13/16"	8'4-13/16"	131.1	0.7284	4.66	31.69	0.147 [1] ✓

Inner Bracing Design Data (Tension)

Section No.	Elevation ft	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T3	40 - 20	10'7-13/16"	10'2-7/8"	873.6	0.2485	0.12	11.18	0.011 [1] ✓
T4	20 - 0	12'7-3/32"	12'1-3/32"	1031.5	0.2485	0.26	11.18	0.023 [1] ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	80 - 60	Leg	1	-24.56	68.29	36.0	Pass
T2	60 - 40	Leg	43	-50.84	126.43	40.2	Pass
						47.4 (b)	
T3	40 - 20	Leg	85	-66.61	107.95	61.7	Pass
T4	20 - 0	Leg	123	-87.21	133.41	65.4	Pass
T1	80 - 60	Diagonal	11	-4.36	24.74	17.6	Pass
						24.4 (b)	
T2	60 - 40	Diagonal	59	-3.67	15.73	23.3	Pass
T3	40 - 20	Diagonal	96	-7.33	18.91	38.8	Pass
						41.0 (b)	
T4	20 - 0	Diagonal	134	-7.88	19.45	40.5	Pass
						44.0 (b)	
T3	40 - 20	Horizontal	105	-4.39	7.56	58.0	Pass
T4	20 - 0	Horizontal	143	-5.10	19.76	25.8	Pass
						34.0 (b)	
T3	40 - 20	Secondary Horizontal	109	-0.32	16.82	1.9	Pass
T4	20 - 0	Secondary Horizontal	148	-0.32	11.95	2.7	Pass
T1	80 - 60	Top Girt	7	-0.18	22.33	0.8	Pass
T2	60 - 40	Top Girt	50	-0.13	52.84	0.3	Pass
						0.4 (b)	
T3	40 - 20	Top Girt	93	-2.37	8.89	26.7	Pass
T4	20 - 0	Top Girt	131	-3.99	6.38	62.6	Pass
T1	80 - 60	Inner Bracing	6	-0.01	0.11	10.3	Pass
T2	60 - 40	Inner Bracing	48	-0.00	0.11	3.7	Pass
T3	40 - 20	Inner Bracing	90	0.12	11.18	1.1	Pass
T4	20 - 0	Inner Bracing	127	0.26	11.18	2.3	Pass
						Summary	
					Leg (T4)	65.4	Pass
					Diagonal (T4)	44.0	Pass
					Horizontal (T3)	58.0	Pass
					Secondary Horizontal (T4)	2.7	Pass
					Top Girt (T4)	62.6	Pass

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Job	80' Self-Supporting Tower Analysis
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Designed by	PEP

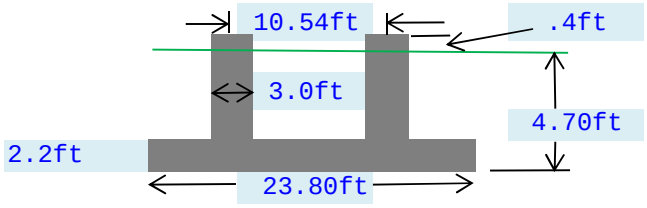
Section No.	Elevation ft	Component Type	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
					Inner Bracing (T1)	10.3	Pass
					Bolt Checks	48.7	Pass
					RATING =	**65.4**	**Pass**

SS Tower Pad & 4Pier Calculations

Client: Transcend Wireless
Project: TMO Wolcott
05/29/19 10:32

Applied Factored Loads:

OTM:	1357	kip-ft
Uplift:	86	kip
DownLoad:	98	kip
ΣDeadLoad:	27.00	kip
Shear:	13.00	kip



Specific Gravity:	2.65	
Soil Unit Weight:	110	lb/ft^3
Submerged Unit Wt:	62.00	lb/ft^3
Concrete Unit Wt:	150	lb/ft^3
Concrete f`c:	3000	psi
Rebar Fy:	60000	psi
Σ Concr Vol:	50.0	cuyd
Depth to Water:	5	ft

Pier Depth:	2.5	ft
Total Moment:	1508	kip-ft

OTM Safety Factor: 0.75 TIA-G 9.4.1 Toe:
Add Toe at Base of Pad? No 0

Bearing Pressure: ϕs: 0.75

Soil Type @ Bearing Location:	Sand	fb(max):	1252	psf
SPT-N @ Bearing Location:	50	Fb:	9000	psf
			13.9%	Loaded

Overturning Moment Capacity:

3644 kip ft 55.2% Loaded

Global Check: **OK**

Foundation Design per ACI 318-08, TIA 222-G

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report

Antenna Mount Analysis

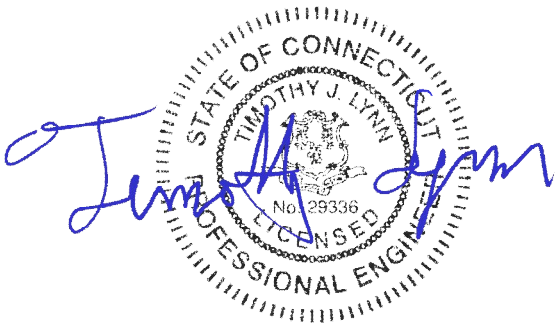
T-Mobile Site #: CT11403A

Andrews Road
Wolcott, CT

Centek Project No. 19027.21

Date: May 3, 2019

Max Stress Ratio = 73.2%



Prepared for:

T-Mobile USA
35 Griffin Road
Bloomfield, CT 06002

63-2 North Branford Road, Branford, CT 06405 203.488.0580 Fax 203.488.8587 www.CentekEng.com

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CENTEK engineering

Centered on Solutions℠

May 3, 2019

Mr. Dan Reid
Transcend Wireless
10 Industrial Ave
Mahwah, NJ 07430

Re: Structural Letter ~ Antenna Mount
T-Mobile – Site Ref: CT11403A
Andrews Road
Wolcott, CT 06716

Centek Project No. 19027.21

Dear Mr. Reid,

Centek Engineering, Inc. has reviewed the T-Mobile antenna installation at the above referenced site. The purpose of the review is to determine the structural adequacy of the existing critical mount, consisting of custom mounts attached to the host structure to support the proposed/existing equipment configuration. The review considered the effects of wind load, dead load and ice load in accordance with the 2015 International Building Code as modified by the 2018 Connecticut State Building Code (CTBC) including ASCE 7-10 and ANSI/TIA-222-G *Structural Standards for Steel Antenna Towers and Supporting Structures*.

The loads considered in this analysis consist of the following:

- T-Mobile:
  Equipment Mounts: Three (3) Ericsson AIR21 KRC118023-1_B2P_B4A panel antennas, three (3) RFS APXVAARR24-43-NA20 panel antennas, three (3) Ericsson - AIR21 KRC118023-1_B2A_B4P panel antennas, three (3) KRY112 TMAs and three (3) Ericsson 4449 B71_B12 remote radio units mounted on custom made mounts with a RAD center elevation of 77-ft +/- AGL.

The antenna mount was analyzed per the requirements of the 2015 International Building Code as modified by the 2018 Connecticut State Building Code considering a nominal design wind speed of 97 mph for Wolcott as required in Appendix N of the 2018 Connecticut State Building Code.

A structural analysis of tower and foundation needs to be completed prior to any work.

Based on our review of the installation, it is our opinion that the subject antenna mount has sufficient capacity to support the aforementioned antenna configuration. If there are any questions regarding this matter, please feel free to call.

Respectfully Submitted by:

Timothy J. Lynn, PE
Structural Engineer

STATE OF CONNECTICUT
TIMOTHY J. LYNN
No. 29336
LICENSED
PROFESSIONAL ENGINEER

Prepared by:

Fernando J. Palacios
Engineer

Section 2 - Calculations

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Loads on Equipment

Location: Wolcott, CT

Rev. 0: 05/03/19

Prepared by: F.J.P Checked by: C.A.G.
Job No. 19027.21

Development of Design Heights, Exposure Coefficients, and Velocity Pressures Per TIA-222-G

Wind Speeds

Basic Wind Speed	$V := 97$	mph	(User Input - 2018 CSBC Appendix N)
Basic Wind Speed with Ice	$V_i := 50$	mph	(User Input per Annex B of TIA-222-G)

Input

Structure Type =	Structure_Type := Lattice		(User Input)
Structure Category =	SC := II		(User Input)
Exposure Category =	Exp := B		(User Input)
Structure Height =	$h := 80$	ft	(User Input)
Height to Center of Antennas =	$z := 77$	ft	(User Input)
Radial Ice Thickness =	$t_i := 0.75$	in	(User Input per Annex B of TIA-222-G)
Radial Ice Density =	$Id := 56.00$	pcf	(User Input)
Topograpic Factor =	$K_{zt} := 1.0$		(User Input)
	$K_a := 1.0$		(User Input)
Gust Response Factor =	$G_H = 1.22$		(User Input)

Output

Wind Direction Probability Factor =

$$K_d := \begin{cases} 0.95 & \text{if Structure\_Type} = \text{Pole} \\ 0.85 & \text{if Structure\_Type} = \text{Lattice} \end{cases} = 0.85$$

(Per Table 2-2 of TIA-222-G)

(Per Table 2-3 of TIA-222-G)

Importance Factors =

$$I_{Wind} := \begin{cases} 0.87 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.15 & \text{if } SC = 3 \end{cases} = 1$$

$$I_{Wind\_w\_Ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.00 & \text{if } SC = 3 \end{cases} = 1$$

$$I_{ice} := \begin{cases} 0 & \text{if } SC = 1 \\ 1.00 & \text{if } SC = 2 \\ 1.25 & \text{if } SC = 3 \end{cases} = 1$$

$$K_{iz} := \left(\frac{z}{33}\right)^{0.1} = 1.088$$

Velocity Pressure Coefficient Antennas =

$$t_{iz} := 2.0 \cdot t_i \cdot I_{ice} \cdot K_{iz} \cdot K_{zt}^{0.35} = 1.633$$

$$Kz := 2.01 \cdot \left(\left(\frac{z}{zg}\right)\right)^{\frac{2}{\alpha}} = 0.917$$

Velocity Pressure w/o Ice Antennas = $qz := 0.00256 \cdot K_d \cdot Kz \cdot V^2 \cdot I_{Wind} = 18.777$

Velocity Pressure with Ice Antennas = $qz_{ice} := 0.00256 \cdot K_d \cdot Kz \cdot V_i^2 \cdot I_{Wind} = 4.989$

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	RFS APXVARR24_43-C-NA20		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 95.9$	in	(User Input)
Antenna Width =	$W_{ant} := 19.7$	in	(User Input)
Antenna Thickness =	$T_{ant} := 8.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 133.4$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.9$		
Antenna Force Coefficient =	$Ca_{ant} = 1.31$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 13.1$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 392$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 5.8$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 173$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 15.8$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 126$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 8.2$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 65$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 133$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 2 \cdot 10^4$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 1 \cdot 10^4$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 350$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 350$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson - AIR21 KRC118023-1_B2P_B4A		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)
Antenna Width =	$W_{ant} := 12.1$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.8$	in	(User Input)
Antenna Weight =	$WT_{ant} := 90.4$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.6$		
Antenna Force Coefficient =	$Ca_{ant} = 1.29$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.7$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 139$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 90$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.3$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 50$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 4.5$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 36$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 90$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5276$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 4783$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 155$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 155$	lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Ericsson - AIR21 KRC118023-1_B2A_B4P		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 55.9$	in	(User Input)
Antenna Width =	$W_{ant} := 12.1$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.9$	in	(User Input)
Antenna Weight =	$WT_{ant} := 91.5$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 1$		(User Input)
Antenna Aspect Ratio =	$Ar_{ant} := \frac{L_{ant}}{W_{ant}} = 4.6$		
Antenna Force Coefficient =	$Ca_{ant} = 1.29$		

Wind Load (without ice)

Surface Area for One Antenna =	$SA_{antF} := \frac{L_{ant} \cdot W_{ant}}{144} = 4.7$	sf
Total Antenna Wind Force Front =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antF} = 139$	lbs
Surface Area for One Antenna =	$SA_{antS} := \frac{L_{ant} \cdot T_{ant}}{144} = 3.1$	sf
Total Antenna Wind Force Side =	$F_{ant} := qz \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{antS} = 91$	lbs

Wind Load (with ice)

Surface Area for One Antenna w/ Ice =	$SA_{ICEantF} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz})}{144} = 6.3$	sf
Total Antenna Wind Force w/ Ice Front =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantF} = 50$	lbs
Surface Area for One Antenna w/ Ice =	$SA_{ICEantS} := \frac{(L_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz})}{144} = 4.6$	sf
Total Antenna Wind Force w/ Ice Side =	$Fi_{ant} := qz_{ice} \cdot G_H \cdot Ca_{ant} \cdot K_a \cdot SA_{ICEantS} = 36$	lbs

Gravity Load (without ice)

Weight of All Antennas =	$WT_{ant} \cdot N_{ant} = 92$	lbs

Gravity Loads (ice only)

Volume of Each Antenna =	$V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 5343$	cu in
Volume of Ice on Each Antenna =	$V_{ice} := (L_{ant} + 2 \cdot t_{iz}) \cdot (W_{ant} + 2 \cdot t_{iz}) \cdot (T_{ant} + 2 \cdot t_{iz}) - V_{ant} = 4807$	cu in
Weight of Ice on Each Antenna =	$W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 156$	lbs
Weight of Ice on All Antennas =	$W_{ICEant} \cdot N_{ant} = 156$	lbs

Development of Wind & Ice Load on RRUS's

RRUS Data:

RRUS Model =	Ericsson 4449 B71B12		
RRUS Shape =	Flat		(User Input)
RRUS Height =	$L_{RRUS} := 14.9$	in	(User Input)
RRUS Width =	$W_{RRUS} := 13.2$	in	(User Input)
RRUS Thickness =	$T_{RRUS} := 10.4$	in	(User Input)
RRUS Weight =	$WT_{RRUS} := 74$	lbs	(User Input)
Number of RRUS's =	$N_{RRUS} := 1$		
RRUS Aspect Ratio =	$Ar_{RRUS} := \frac{L_{RRUS}}{W_{RRUS}} = 1.1$		
RRUS Force Coefficient =	$Ca_{RRUS} = 1.2$		

Wind Load (without ice)

Surface Area for One RRUS =	$SA_{RRUSF} := \frac{L_{RRUS} \cdot W_{RRUS}}{144} = 1.4$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSF} = 38$	lbs
Surface Area for One RRUS =	$SA_{RRUSS} := \frac{L_{RRUS} \cdot T_{RRUS}}{144} = 1.1$	sf
Total RRUS Wind Force =	$F_{RRUS} := qz \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{RRUSS} = 30$	lbs

Wind Load (with ice)

Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSF} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz})}{144} = 2.1$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSF} = 15$	lbs
Surface Area for One RRUS w/ Ice =	$SA_{ICERRUSS} := \frac{(L_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz})}{144} = 1.7$	sf
Total RRUS Wind Force w/ Ice =	$Fi_{RRUS} := qz_{ice} \cdot G_H \cdot Ca_{RRUS} \cdot K_a \cdot SA_{ICERRUSS} = 13$	lbs

Gravity Load (without ice)

Weight of All RRUSs =	$WT_{RRUS} \cdot N_{RRUS} = 74$	lbs

Gravity Loads (ice only)

Volume of Each RRUS =	$V_{RRUS} := L_{RRUS} \cdot W_{RRUS} \cdot T_{RRUS} = 2045$	cu in
Volume of Ice on Each RRUS =	$V_{ice} := (L_{RRUS} + 2 \cdot t_{iz}) \cdot (W_{RRUS} + 2 \cdot t_{iz}) \cdot (T_{RRUS} + 2 \cdot t_{iz}) - V_{RRUS} = 2042$	cu in
Weight of Ice on Each RRUS =	$W_{ICERRUS} := \frac{V_{ice}}{1728} \cdot Id = 66$	lbs
Weight of Ice on All RRUSs =	$W_{ICERRUS} \cdot N_{RRUS} = 66$	lbs

Development of Wind & Ice Load on TMA's

TMA Data:

TMA Model =	Ericsson KRY112 TMA		
TMA Shape =	Flat	in	(User Input)
TMA Height =	$L_{TMA} := 6.9$	in	(User Input)
TMA Width =	$W_{TMA} := 6.1$	in	(User Input)
TMA Thickness =	$T_{TMA} := 2.8$	lbs	(User Input)
TMA Weight =	$WT_{TMA} := 11$		(User Input)
Number of TMA's =	$N_{TMA} := 1$		(User Input)
TMA Aspect Ratio =	$Ar_{TMA} := \frac{L_{TMA}}{W_{TMA}} = 1.1$		
TMA Force Coefficient =	$Ca_{TMA} = 1.2$		

Wind Load (without ice)

Surface Area for One TMA =	$SA_{TMAF} := \frac{L_{TMA} \cdot W_{TMA}}{144} = 0.3$	sf
Total TMA Wind Force =	$F_{TMA} := qz \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAF} = 8$	lbs
Surface Area for One TMA =	$SA_{TMAS} := \frac{L_{TMA} \cdot T_{TMA}}{144} = 0.1$	sf
Total TMA Wind Force =	$F_{TMA} := qz \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{TMAS} = 4$	lbs

Wind Load (with ice)

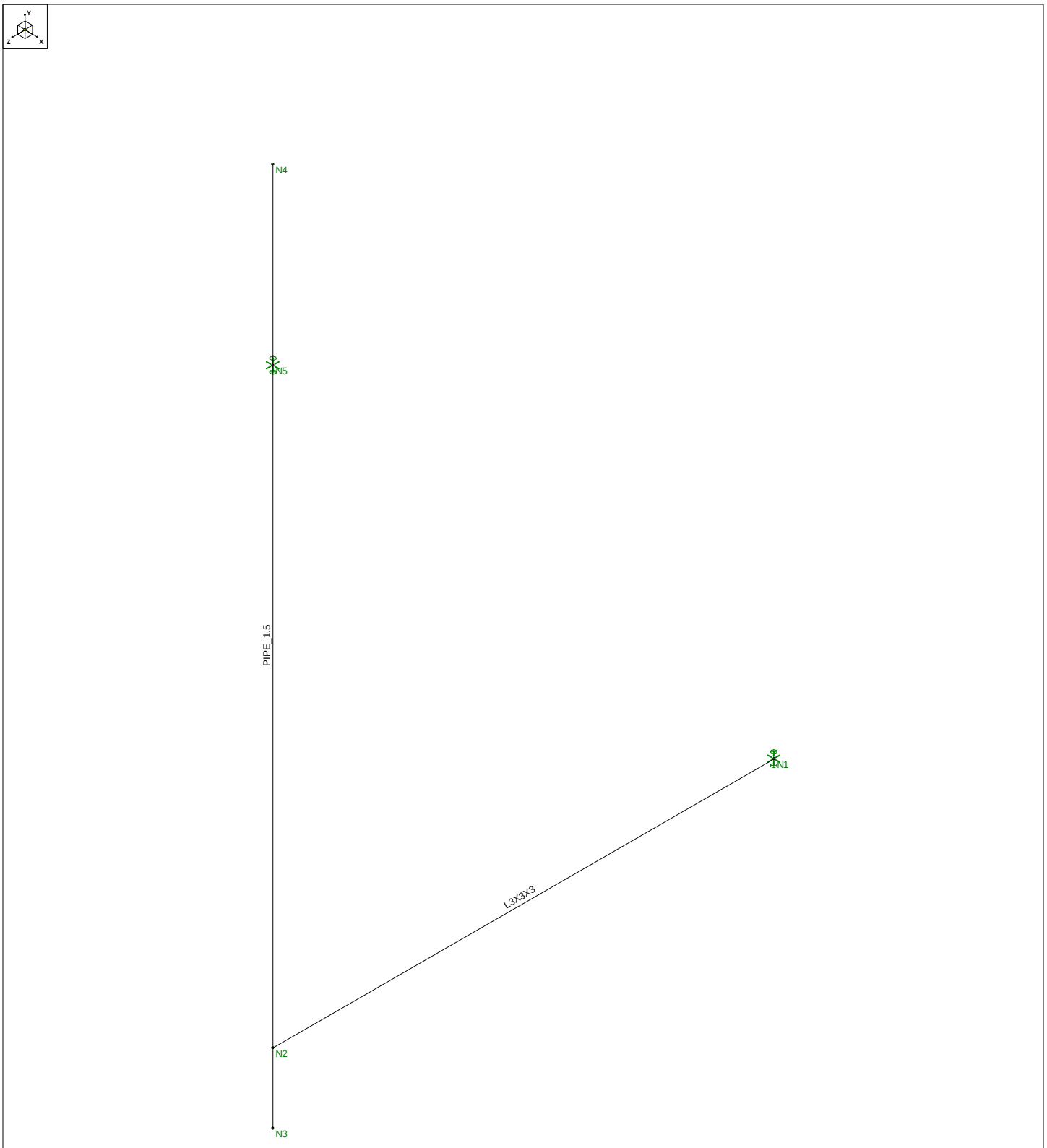
Surface Area for One TMA w/ Ice =	$SA_{ICETMAF} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz})}{144} = 0.7$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAF} = 5$	lbs
Surface Area for One TMA w/ Ice =	$SA_{ICETMAS} := \frac{(L_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz})}{144} = 0.4$	sf
Total TMA Wind Force w/ Ice =	$Fi_{TMA} := qz_{ice} \cdot G_H \cdot Ca_{TMA} \cdot K_a \cdot SA_{ICETMAS} = 3$	lbs

Gravity Load (without ice)

Weight of All TMAs =	$WT_{TMA} \cdot N_{TMA} = 11$	lbs

Gravity Loads (ice only)

Volume of Each TMA =	$V_{TMA} := L_{TMA} \cdot W_{TMA} \cdot T_{TMA} = 118$	cu in
Volume of Ice on Each TMA =	$V_{ice} := (L_{TMA} + 2 \cdot t_{iz}) \cdot (W_{TMA} + 2 \cdot t_{iz}) \cdot (T_{TMA} + 2 \cdot t_{iz}) - V_{TMA} = 460$	cu in
Weight of Ice on Each TMA =	$W_{ICETMA} := \frac{V_{ice}}{1728} \cdot Id = 15$	lbs
Weight of Ice on All TMAs =	$W_{ICETMA} \cdot N_{TMA} = 15$	lbs



Envelope Only Solution

Centek		
FJP	CT11403A_AMA Arm Mount	May 3, 2019 at 12:56 PM
19027.21	Member Framing	CT11403A_AMA.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (ft/sec^2)	32.2
Wall Mesh Size (in)	12
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 14th(360-10): ASD
Cold Formed Steel Code	AISI S100-10: ASD
Wood Code	AWC NDS-12: ASD
Wood Temperature	< 100F
Concrete Code	ACI 318-11
Masonry Code	ACI 530-11: ASD
Aluminum Code	AA ADM1-10: ASD - Building
Stainless Steel Code	AISC 14th(360-10): ASD
Adjust Stiffness?	Yes(Iterative)

Number of Shear Regions	4
Region Spacing Increment (in)	4
Biaxial Column Method	Exact Integration
Parme Beta Factor (PCA)	.65
Concrete Stress Block	Rectangular
Use Cracked Sections?	Yes
Use Cracked Sections Slab?	No
Bad Framing Warnings?	No
Unused Force Warnings?	Yes
Min 1 Bar Diam. Spacing?	No
Concrete Rebar Set	REBAR_SET_ASTMA615
Min % Steel for Column	1
Max % Steel for Column	8

(Global) Model Settings, Continued

Seismic Code	ASCE 7-10
Seismic Base Elevation (ft)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (\1E5 F)	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
2	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	58	1.2
3	A992	29000	11154	.3	.65	.49	50	1.1	58	1.2
4	A500 Gr.42	29000	11154	.3	.65	.49	42	1.3	58	1.1
5	A500 Gr.46	29000	11154	.3	.65	.49	46	1.2	58	1.1
6	A53 Grade B	29000	11154	.3	.65	.49	35	1.5	58	1.2

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Desig..A [in2]	Iyy [i...	Izz [i...	J [in4]
1	(E) Kicker L3x3x1/4	L3X3X3	Beam	Single An...	A36 Gr.36	Typical	1.09	.948	.948	.014
2	(E) Antenna Mast Pip...	PIPE_1.5	Colu...	Pipe	A53 Grade B	Typical	.749	.293	.293	.586

Hot Rolled Steel Design Parameters

	Label	Shape	Length[ft]	Lbyy[ft]	Lbzz[ft]	Lcomp top[...	Lcomp bot[...	L-torq...	Kyy	Kzz	Cb	Functi...
1	M1	(E) Kicker ...	6			Lbyy						Lateral
2	M2	(E) Antenn...	10			Lbyy						Lateral

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	M1	N1	N2		180	(E) Kicker L3x3x1/4	Beam	Single Angle	A36 Gr.36	Typical
2	M2	N4	N3			(E) Antenna Mast ...	Column	Pipe	A53 Grad...	Typical

Joint Coordinates and Temperatures

	Label	X [ft]	Y [ft]	Z [ft]	Temp [F]	Detach From Diaphragm
1	N1	0	0	0	0	
2	N2	0	0	6	0	
3	N3	0	-0.8333...	6	0	
4	N4	0	9.166667	6	0	
5	N5	0	7.083333	6	0	

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-ft/rad]	Y Rot.[k-ft/rad]	Z Rot.[k-ft/rad]
1	N5	Reaction	Reaction	Reaction		Reaction	
2	N1	Reaction	Reaction	Reaction		Reaction	

Member Point Loads (BLC 2 : Dead Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Y	-.067	1.833
2	M2	Y	-.067	8.167
3	M2	Y	-.074	%50

Member Point Loads (BLC 3 : Ice Load)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Y	-.175	1.833
2	M2	Y	-.175	8.167
3	M2	Y	-.066	%50

Member Point Loads (BLC 4 : Wind with Ice X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	X	-.033	1.833
2	M2	X	-.033	8.167
3	M2	X	-.013	%50

Member Point Loads (BLC 5 : Wind X)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	X	-.086	1.833
2	M2	X	-.086	8.167
3	M2	X	-.03	%50

Member Point Loads (BLC 6 : Wind with Ice Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	-.063	1.833
2	M2	Z	-.063	8.167
3	M2	Z	-.015	%50

Member Point Loads (BLC 7 : Wind Z)

	Member Label	Direction	Magnitude[k,k-ft]	Location[ft,%]
1	M2	Z	-.196	1.833
2	M2	Z	-.196	8.167
3	M2	Z	-.038	%50

Member Distributed Loads (BLC 4 : Wind with Ice X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	M2	X	-.0008	-.0008	0	0
2	M1	X	-.001	-.001	0	0

Member Distributed Loads (BLC 5 : Wind X)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	M2	X	-.003	-.003	0	0
2	M1	X	-.005	-.005	0	0

Member Distributed Loads (BLC 6 : Wind with Ice Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	-.0008	-.0008	0	1
2	M2	Z	-.0008	-.0008	9	10

Member Distributed Loads (BLC 7 : Wind Z)

	Member Label	Direction	Start Magnitude[k/ft,F,ksf]	End Magnitude[k/ft,F,ksf]	Start Location[ft,%]	End Location[ft,%]
1	M2	Z	-.003	-.003	0	1
2	M2	Z	-.003	-.003	9	10

Basic Load Cases

	BLC Description	Category	X Gr...	Y Gr...	Z Gr...	Joint	Point	Distri...	Area(...	Surface(Plate/Wall)
1	Self Weight	DL		-1						
2	Dead Load	None					3			
3	Ice Load	None					3			
4	Wind with Ice X	None					3	2		
5	Wind X	None					3	2		
6	Wind with Ice Z	None					3	2		
7	Wind Z	None					3	2		

Load Combinations

	Description	Solve	P...	SR...	BLC	F...	BLC	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	1.2D + 1.6W (X-direction)	Yes	Y		1	1...	2	1.2	5	1.6																
2	0.9D + 1.6W (X-direction)	Yes	Y		1	.9	2	.9	5	1.6																
3	1.2D + 1.0Di + 1.0Wi (X...	Yes	Y		1	1...	2	1.2	3	1	4	1														
4	1.2D + 1.6W (Z-direction)	Yes	Y		1	1...	2	1.2	7	1.6																
5	0.9D + 1.6W (Z-direction)	Yes	Y		1	.9	2	.9	7	1.6																
6	1.2D + 1.0Di + 1.0Wi (Z...	Yes	Y		1	1...	2	1.2	3	1	6	1														

Envelope Joint Reactions

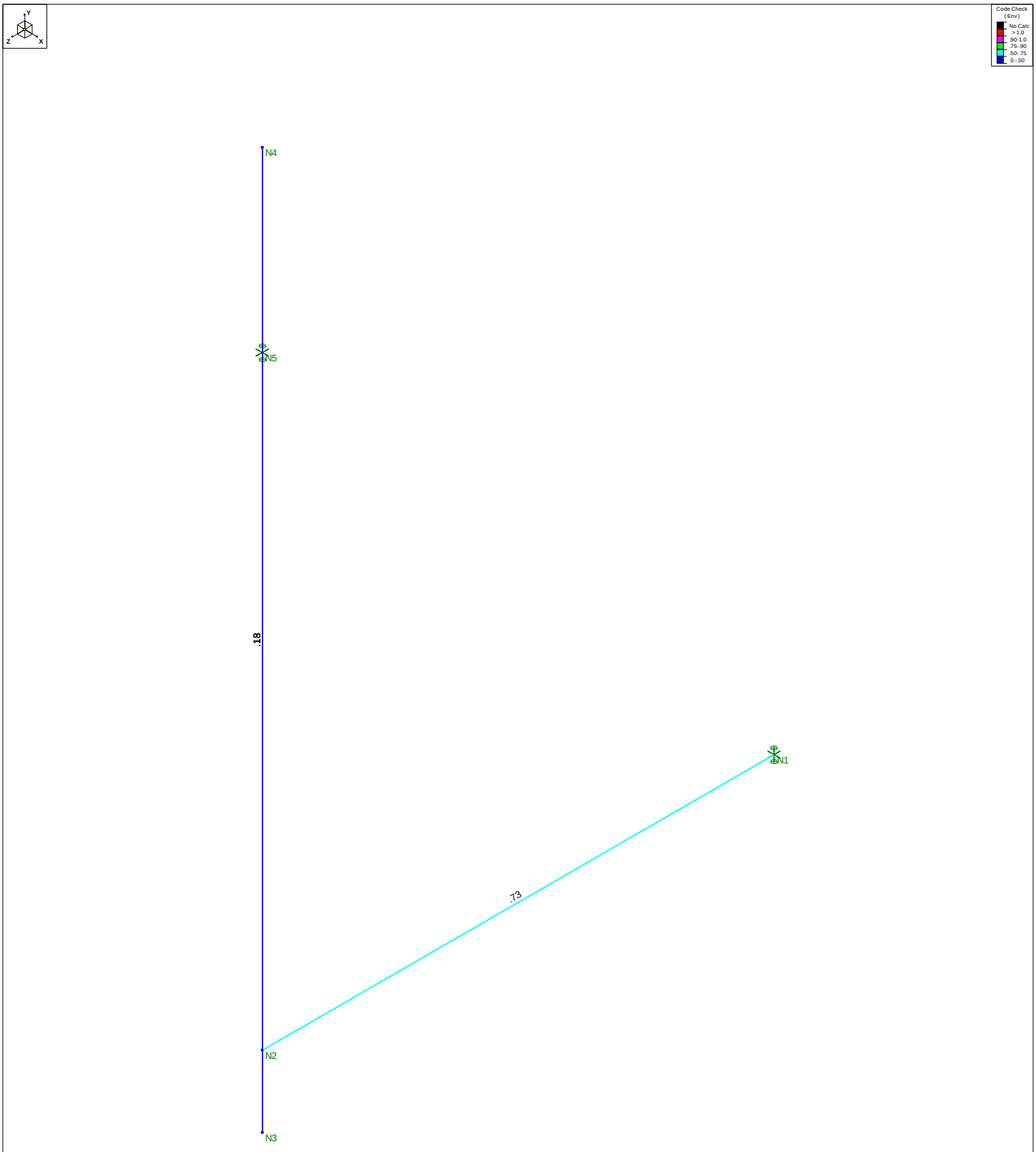
	Joint		X [k]	LC	Y [k]	LC	Z [k]	LC	MX [k-ft]	LC	MY [k-ft]	LC	MZ [k-ft]	LC
1	N5	max	.221	1	.711	3	.383	4	0	6	.14	1	0	6
2		min	0	5	.186	5	.002	3	0	1	.006	6	0	1
3	N1	max	.198	2	.046	4	.315	5	0	6	.909	2	0	6
4		min	0	4	.001	2	-.008	1	0	1	-.018	4	0	1
5	Totals:	max	.418	2	.722	6	.698	5						
6		min	0	4	.229	2	0	1						

Envelope Joint Displacements

	Joint		X [in]	LC	Y [in]	LC	Z [in]	LC	X Rotation [...	LC	Y Rotation [...	LC	Z Rotation [...	LC
1	N1	max	0	6	0	6	0	6	9.899e-03	1	0	6	-2.635e-04	6
2		min	0	1	0	1	0	1	7.212e-04	6	0	1	-5.233e-03	2
3	N2	max	-.023	6	0	5	0	1	-8.175e-04	3	-8.671e-04	6	-2.635e-04	6
4		min	-1.191	1	-.002	3	0	5	-4.124e-03	4	-2.184e-02	1	-5.233e-03	2
5	N3	max	-.025	6	0	5	.04	4	-8.175e-04	3	-8.671e-04	6	-2.635e-04	6
6		min	-1.243	1	-.002	3	.008	3	-4.114e-03	4	-2.184e-02	1	-5.242e-03	2
7	N4	max	.495	1	0	5	.057	4	2.25e-03	4	0	6	-2.707e-04	6
8		min	.007	6	0	3	.01	3	4.146e-04	3	0	1	-1.976e-02	1
9	N5	max	0	6	0	6	0	6	2.585e-03	4	0	6	-2.691e-04	6
10		min	0	1	0	1	0	1	4.121e-04	3	0	1	-1.997e-02	1

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

	Me...	Shape	Code C...	Loc...	LC	Shear C...	Loc[ft]	Dir	LC	phi*Pn...	phi*P...	phi*Mn...	phi*...	Cb	Eqn
1	M1	L3X3X3	.732	0	2	.018	0	z	2	15.606	35.316	1.32	2.631	1.902	H2-1
2	M2	PIPE_1.5	.183	9.1...	5	.165	9.167		1	4.597	23.593	1.105	1.105	1.483	H1-1b



Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Centek		
FJP	CT11403A_AMA Arm Mount	May 3, 2019 at 1:16 PM
19027.21	Member Unity Check	CT11403A_AMA.r3d

EBI Consulting

environmental | engineering | due diligence

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

T-Mobile Existing Facility

Site ID: CT11403A

Wolcott / Andrews Rd._1
Andrews Road
Wolcott, Connecticut 06716

May 20, 2019

EBI Project Number: 6219001680

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**11.38%**

21 B Street, Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

May 20, 2019

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

Emissions Analysis for Site: CT11403A - Wolcott / Andrews Rd._1

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

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

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

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

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

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

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed T-Mobile Wireless antenna facility located at Andrews Road in Wolcott, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

1) 2 LTE channels (600 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

2) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

3) 2 GSM/UMTS channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 LTE channels (AWS Band – 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.

7) For the following calculations, the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

8) The antennas used in this modeling are the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s) in Sector A, the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s) in Sector B, the Ericsson AIR21 B2P_B4A for the 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 700 MHz channel(s), the Ericsson AIR21 B2A_B4P for the 1900 MHz / 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

9) The antenna mounting height centerline of the proposed antennas is 77 feet above ground level (AGL).

10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

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

T-Mobile Site Inventory and Power Data

Sector:	A	Sector:	B	Sector:	C
Antenna #:	**1**	Antenna #:	**1**	Antenna #:	**1**
Make / Model:	Ericsson AIR21 B2P_B4A	Make / Model:	Ericsson AIR21 B2P_B4A	Make / Model:	Ericsson AIR21 B2P_B4A
Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz	Frequency Bands:	2100 MHz
Gain:	15.35 dBd	Gain:	15.35 dBd	Gain:	15.35 dBd
Height (AGL):	77 feet	Height (AGL):	77 feet	Height (AGL):	77 feet
Channel Count:	2	Channel Count:	2	Channel Count:	2
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A1 MPE %:	**2.49%**	Antenna B1 MPE %:	**2.49%**	Antenna C1 MPE %:	**2.49%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz	Frequency Bands:	600 MHz / 700 MHz
Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 13.35 dBd
Height (AGL):	77 feet	Height (AGL):	77 feet	Height (AGL):	77 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	2,481.08	ERP (W):	2,481.08	ERP (W):	2,481.08
Antenna A2 MPE %:	**3.48%**	Antenna B2 MPE %:	**3.48%**	Antenna C2 MPE %:	**3.48%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P	Make / Model:	Ericsson AIR21 B2A_B4P
Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	77 feet	Height (AGL):	77 feet	Height (AGL):	77 feet
Channel Count:	4	Channel Count:	4	Channel Count:	4
Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts	Total TX Power (W):	120 Watts
ERP (W):	4,113.21	ERP (W):	4,113.21	ERP (W):	4,113.21
Antenna A3 MPE %:	**2.49%**	Antenna B3 MPE %:	**2.49%**	Antenna C3 MPE %:	**2.49%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	8.47%
Personal Vision	0%
SNET TMRS	2.91%
Site Total MPE % :	11.38%

T-Mobile Sector A Total:	8.47%
T-Mobile Sector B Total:	8.47%
T-Mobile Sector C Total:	8.47%
Site Total:	11.38%

T-Mobile Maximum MPE Power Values (Sector A)

T-Mobile Frequency Band / Technology (Sector A)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density (μW/cm²)	Frequency (MHz)	Allowable MPE (μW/cm²)	Calculated % MPE
T-Mobile 2100 MHz LTE AWS	2	2056.61	77.0	24.94	2100 MHz LTE AWS	1000	2.49%
T-Mobile 600 MHz LTE	2	591.73	77.0	7.18	600 MHz LTE	400	1.79%
T-Mobile 700 MHz LTE	2	648.82	77.0	7.87	700 MHz LTE	467	1.68%
T-Mobile 1900 MHz GSM/UMTS	2	1028.30	77.0	12.47	1900 MHz GSM/UMTS	1000	1.25%
T-Mobile 2100 MHz UMTS	2	1028.30	77.0	12.47	2100 MHz UMTS	1000	1.25%
						Total:	**8.47%**

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	8.47%
Sector B:	8.47%
Sector C:	8.47%
T-Mobile Maximum MPE % (Sector A):	8.47%
Site Total:	11.38%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **11.38%** of the allowable FCC established general population limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

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