10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

Transcend Wireless

June 9, 2021

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

RE: Notice of Exempt Modification
166 Pawcatuck Ave., Pawcatuck, CT 06379
Latitude: 41.360489
Longitude: -73.854294
T-Mobile Site#: CTNL813C – L600

Dear Ms. Bachman:

T-Mobile currently maintains nine (9) antennas at the 115/117-foot level of the existing 120-foot monopole at 166 Pawcatuck Ave, Pawcatuck, CT, 06379. The 120-foot monopole is owned by American Towers. The property is owned by Warren D. & Patricia L. Main. T-Mobile now intends to remove three (3) existing antennas and add three (3) new L600/L700 MHz antennas. The new antennas will be installed at the same 115-foot level of the tower. The new antennas support 5G services and would be installed at the 115-foot level of the tower.

Planned Modifications:
Tower:
Remove
(12) 1 5/8" Hybrid Cables
(1) 9x18 HCS 1 ⅝" Hybrid Cables
(3) 1B-AWS TMAs

Remove and Replace:
(3) LNX-6515DS-A1M for (3) APXVAALL24_43-U-NA20
(3) RRUS11 B12 RRH for (3) Radio 4449 B71+B85 RRH

Install New:
(3) 1 1/4" Hybrid

Existing to Remain:
(3) AIR 21 KRC 118023-1 B2P B4A Antennas
(3) AIR 21 KRC 118023-1 B2A B4P Antennas

Ground:
Install New:
(1) BB 6648

Remove:
(6) RU22s

This tower was originally approved by the Connecticut Siting Council on August 26, 2010 within Docket No. 399. T-Mobile has been approved for subsequent modifications at their facility. This proposed modification complies with the original approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies§ 16- 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 First Selectman - Danielle Chesebrough, Elected Official, and Keith Brynes, Town Planner, as well as the Tower Owner and the Property Owner.

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

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

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

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

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

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

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

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

Sincerely,

Eric Breun
Transcend Wireless
Cell: 201-658-7728
Email: ebreun@transcendwireless.com

Attachments
cc: Danielle Chesebrough - First Selectman Stonington CT
Keith Brynes - Town Planner
American Tower - Property/Tower Management
Warren D. & Patricia L. Main - Property Owner

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
KEITH BRYNES
152 ELM STREET
STONINGTON CT 06378

CT 063 0-02

UPS GROUND
TRACKING #: 1Z V25 742 43 9666 3684

BILLING: P/P

Reference #1: CTNL813C

XOL 21.05.03 NV45 23.0A 06/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

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

MA 018 9-04

UPS GROUND
TRACKING #: 1Z V25 742 43 9086 8492

BILLING: P/P

Reference #1: CTNL813C

XOL 21.05.03 NV45 23.0A 06/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS 1 OF 1

SHIP TO:
ALAN & JILL MAIN
166 PAWCATUCK AVENUE
STONINGTON CT 06379

CT 063 0-02

UPS GROUND
TRACKING #: 1Z V25 742 43 9646 3702

BILLING: P/P

Reference #1: CTNL813C

XOL 21.05.03 NV45 23.0A 06/2021*

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS 1 OF 1

SHIP TO:
DANIELLE CHESEBROUGH
152 ELM STREET
STONINGTON CT 06378

CT 063 0-02

UPS GROUND
TRACKING #: 1Z V25 742 03 9905 3699

BILLING: P/P

Reference #1: CTNL813C

XOL 21.05.03 NV45 23.0A 06/2021*

DOCKET NO. 399 – T-Mobile Northeast LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, management, and maintenance of a telecommunications facility at 166 Pawcatuck Avenue, Stonington, Connecticut.	}	Connecticut
	}	Siting
	}	Council

August 26, 2010

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, management, and maintenance of a telecommunications facility, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate, either alone or cumulatively with other effects, when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application, and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to T-Mobile Northeast LLC, hereinafter referred to as the Certificate Holder, for a telecommunications facility located at 166 Pawcatuck Avenue in Stonington, Connecticut.

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

1. The tower shall be constructed as a monopole, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of T-Mobile Northeast LLC and other entities, both public and private, but such tower shall not exceed a height of 120 feet above ground level. The tower shall incorporate a yield point at a height approximately 100 feet above ground level.

2. The Certificate Holder shall prepare a Development and Management (D&M) Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be served on the Town of Stonington for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping; and
    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

3. Prior to the commencement of operation, the Certificate Holder shall provide the Council worst-case modeling of the electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Stonington public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.

7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.

8. At least one wireless telecommunications carrier shall install their equipment and shall become operational not later than 120 days after the tower is erected. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

9. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Stonington. Any proposed modifications to this Decision and Order shall likewise be so served.

10. If the facility ceases to provide wireless services for a period of one year, this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

11. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

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

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

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

Pursuant to General Statutes § 16-50p, the Council hereby directs that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in the New London Day.

By this Decision and Order, the Council disposes of the legal rights, duties, and privileges of each party named or admitted to the proceeding in accordance with Section 16-50j-17 of the Regulations of Connecticut State Agencies.

The parties and intervenors to this proceeding are:

Applicant	**Its Representative**
T-Mobile Northeast, LLC	Julie D. Kohler, Esq. Jesse A. Langer, Esq. Cohen and Wolf, P.C. 1115 Broad Street Bridgeport, CT 06604
Intervenor	**Its Representative**
Cellco Partnership d/b/a Verizon Wireless	Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103-3597

Town of Stonington, CT

Property Listing Report

Map Block Lot	26-2-1	Building #	1	Section #	1	Account	00511500

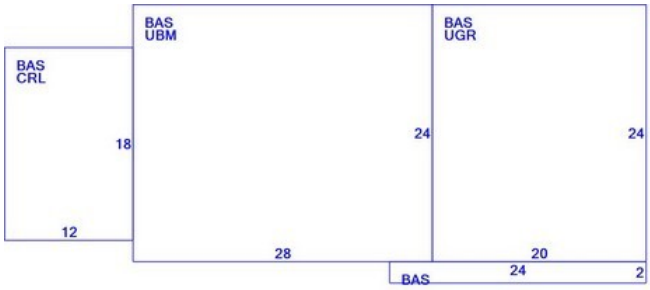
Property Information

Property Location	166 PAWCATUCK AVE
Owner	MAIN ALAN D JR & JILL N M & ALAN D SR
Co-Owner	
Mailing Address	166 PAWCATUCK AVE PAWCATUCK CT 06379
Land Use	0101 Single Fam M-01
Land Class	R
Zoning Code	RR-80
Census Tract	7051

Street Index	0035
Acreage	5.02
Utilities	Public Water,Public Sewer
Lot Setting/Desc	Suburban Level
Survey Map #	4170
School District	
Fire District	Pawcatuck
Trash Day	F
Polling Place (District)	2

Photo

Sketch



Primary Construction Details

Year Built	1967
Stories	1
Building Style	Ranch
Building Use	Residential
Building Condition	AV
Occupancy	1
Extra Fixtures	
Bath Style	Average
Kitchen Style	Average
AC Type	None
Heating Type	Electr Basebrd
Heating Fuel	Electric

Bedrooms	3 Bedrooms
Full Bathrooms	1
Half Bathrooms	1
Total Rooms	6 Rooms
Roof Style	Gable/Hip
Roof Cover	Asph/F Gls/Cmp
Interior Floors 1	Carpet
Interior Floors 2	Hardwood
Exterior Walls	Aluminum Sidng
Exterior Walls 2	NA
Interior Walls	Drywall/Sheet
Interior Walls 2	NA

(*Industrial / Commercial Details)

Building Desc.	Single Fam M-01
Building Grade	Average
Heat / AC	
Frame Type	
Baths / Plumbing	
Ceiling / Wall	
Rooms / Prtns	
Wall Height	
First Floor Use	

Report Created On 6/9/2021

Town of Stonington, CT

Property Listing Report | Map Block Lot **26-2-1** | Building # **1** | Section # **1** | Account **00511500**

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	97900	68500
Extras	18200	12700
Improvements		
Outbuildings	189000	132200
Land	116400	76080
Total	421500	289480

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	1416	1416
Crawl Space	216	0
Basement, Unfinished	672	0
Garage, Under	480	0
Total Area	2784	1416

Outbuilding and Extra Features

Type	Description
W/LOFT-AVG	1944.00 S.F
PLTRY HSE 1 ST	48.00 S.F.
FENCE-8' CHAIN	180.00 L.F.
SOLAR ELEC	28.00 UNITS
CELL TOWER	1.00 UNIT

Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
MAIN ALAN D JR & JILL N M & ALAN D SR	804/68	8/11/2020	256000
MAIN PATRICIA L	0771/0415	12/7/2017	0
MAIN WARREN D & PATRICIA L	0399/0684	1/24/1997	0
MAIN WARREN D & PATRICIA L	0158/0365	8/31/1966	0

Report Created On **6/9/2021**

Town of Stonington, CT

Property Listing Report

Map Block Lot	26-2-1	Building #	2	Section #	1	Account	00511500

Photo

Sketch

Primary Construction Details

				(*Industrial / Commercial Details)	
Year Built		Bedrooms	0	Building Desc.	TEL X STA M-00
Stories		Full Bathrooms	0	Building Grade	
Building Style		Half Bathrooms	0	Heat / AC	
Building Use	Vacant	Total Rooms	0	Frame Type	
Building Condition		Roof Style		Baths / Plumbing	
Occupancy		Roof Cover		Ceiling / Wall	
Extra Fixtures		Interior Floors 1		Rooms / Prtns	
Bath Style	NA	Interior Floors2		Wall Height	
Kitchen Style	NA	Exterior Walls		First Floor Use	
AC Type		Exterior Walls 2	NA		
Heating Type		Interior Walls			
Heating Fuel		Interior Walls 2	NA		

Sub Areas

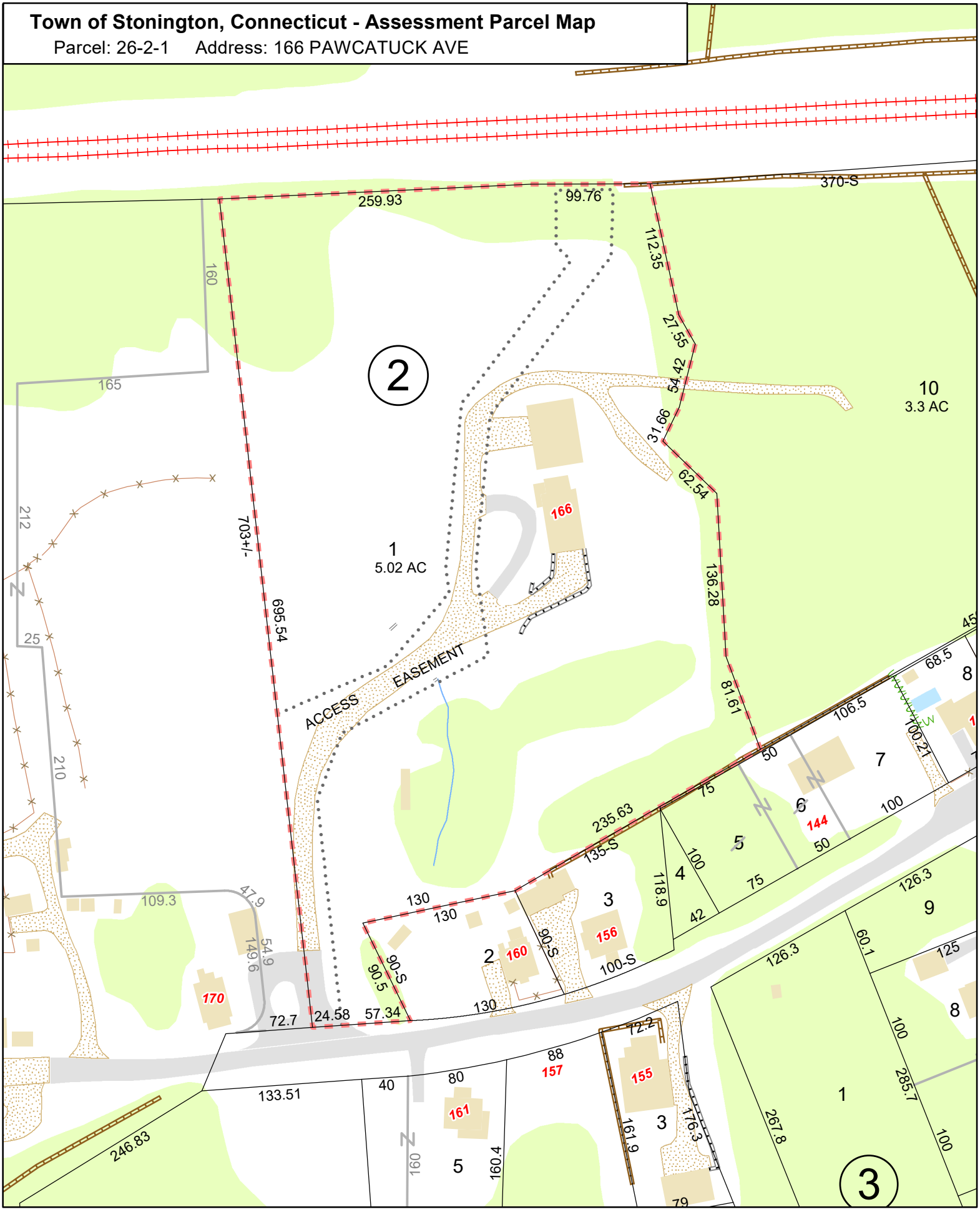
Subarea Type	Gross Area (sq ft)	Living Area (sq ft)

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
Total Area		0

Report Created On

Town of Stonington, Connecticut - Assessment Parcel Map

Parcel: 26-2-1 Address: 166 PAWCATUCK AVE



Approximate Scale:

1 inch = 100 feet

0 60 120 180 240 Feet

Revised To Grand List: October 2020 **Map Produced: March 2021**

VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: PAWCATUCK CT
ATC SITE NUMBER: 284984
T-MOBILE SITE NAME: AMTRACK STONINGTON3
T-MOBILE SITE NUMBER: CTNL813C
SITE ADDRESS: 166 PAWCATUCK AVE PAWCATUCK, CT 06379

T-MOBILE L600 ANTENNA AMENDMENT PLAN
67D02C_OUTDOOR CONFIGURATION

LOCATION MAP

COMPLIANCE CODE

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNMENT AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.

1. 2017 INTERNATIONAL BUILDING CODE (IBC)
2. 2015 NATIONAL ELECTRIC CODE (NEC)
3. LOCAL BUILDING CODE
4. CITY/COUNTY ORDINANCES

UTILITY COMPANIES

POWER COMPANY: TBD
PHONE: N/A

TELEPHONE COMPANY: TBD
PHONE: N/A

CBYD.COM 811 Call Before You Dig, Inc.

PROJECT SUMMARY

SITE ADDRESS:

166 PAWCATUCK AVE

PAWCATUCK, CT 06379

COUNTY: NEW LONDON

GEOGRAPHIC COORDINATES:

LATITUDE: 41.36048900

LONGITUDE: -71.85429000

GROUND ELEVATION: 35' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

APPLICANT:

T-MOBILE
SUE EMORY
SUSAN.EMORY@T-MOBILE.COM

ENGINEER:

KIMLEY-HORN
& ASSOCIATES, INC.
421 FAYETTEVILLE ST, STE 600
RALEIGH, NC 27601
COA: PEC.0000738

PROPERTY OWNER:

MAIN PATRICIA L
166 PAWCATUCK AVE
PAWCATUCK, CT 06379

PROJECT DESCRIPTION

THE PROPOSED PROJECT INCLUDES MODIFYING GROUND BASED AND TOWER MOUNTED EQUIPMENT AS INDICATED PER BELOW:

TOWER WORK:

REMOVE (3) LNX-6515DS-A1M ANTENNA(s), (3) RRUS11 B12 RRH(s), (3) 1B-AWS TMA(s), (12) 1-5/8" COAX CABLE(s)AND (1) 9X18 HCS (1-5/8") HYBRID CABLE

INSTALL (3) APXVAALL24 43-U-NA20 ANTENNA(s), (3) RADIO 4449 B71+B85 RRH(s), AND (3) 6X24 HCS (1-1/4") HYBRID CABLE(s)

EXISTING (3) AIR21 KRC118023-1 B2P B4A ANTENNA(s), AND (3) AIR21 KRC118023-1 B2A B4P ANTENNA(s) TO REMAIN

GROUND WORK:

REMOVE (6) RU22(s)

INSTALL (1) BB 6648

EXISTING (1) RBS 6131 CABINET, (1) DUW30, (1) DUG20, AND (1) BB6630 TO REMAIN

THE PROPOSED PROJECT DOES NOT INCLUDE ELECTRICAL SCOPE

PROJECT NOTES

1. THE FACILITY IS UNMANNED.
2. A TECHNICIAN WILL VISIT THE SITE APPROXIMATELY ONCE A MONTH FOR ROUTINE INSPECTION AND MAINTENANCE.
3. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT LAND DISTURBANCE OR EFFECT OF STORM WATER DRAINAGE.
4. NO SANITARY SEWER, POTABLE WATER OR TRASH DISPOSAL IS REQUIRED.
5. HANDICAP ACCESS IS NOT REQUIRED.

PROJECT LOCATION DIRECTIONS

PROCEED FROM STONINGTON, CT HEAD NORTH ON MAIN ST TOWARD GRAND ST TURN LEFT ONTO HIGH ST, THEN IMMEDIATELY TURN RIGHT ONTO WATER ST TURN RIGHT ONTO ALPHA AVE KEEP STRAIGHT TO GET ONTO US-1A E / ALPHA AVE TURN RIGHT ONTO US-1 N / STONINGTON RD TURN RIGHT ONTO GREENHAVEN RD TURN LEFT ONTO MARY HALL RD TURN LEFT ONTO RIVER RD TURN LEFT ONTO MYSTIC AVE TURN RIGHT ONTO BUCKINGHAM ST TURN LEFT ONTO PAWCATUCK AVE TURN RIGHT TURN LEFT ARRIVE AT YOUR DESTINATION ON THE LEFT

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	0	06/11/21	HG
G-002	GENERAL NOTES	0	06/11/21	HG
C-101	DETAILED SITE PLAN	0	06/11/21	HG
C-102	DETAILED GROUND PLAN	0	06/11/21	HG
C-201	TOWER ELEVATION	0	06/11/21	HG
C-401	ANTENNA INFORMATION & SCHEDULE	0	06/11/21	HG
C-501	CONSTRUCTION DETAILS	0	06/11/21	HG
E-501	GROUNDING DETAILS	0	06/11/21	HG
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			

AMERICAN TOWER®

Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	KC	4/16/21
0	ISSUED FOR CONSTRUCTION	HG	06/11/21

ATC SITE NUMBER:
284984
ATC SITE NAME:
PAWCATUCK CT
T-MOBILE SITE NAME:
AMTRACK STONINGTON3
SITE ADDRESS:
166 PAWCATUCK AVE
PAWCATUCK, CT 06379

SEAL:

6/15/21
Exp. 1/31/22

T-Mobile

DATE DRAWN:	06/11/21
ATC JOB NO:	13663614
CUSTOMER ID:	AMTRACK STONINGTON3
CUSTOMER #:	CTNL813C

TITLE SHEET

SHEET NUMBER:	REVISION:
G-001	0

GENERAL CONSTRUCTION NOTES:

1. OWNER FURNISHED MATERIALS, T-MOBILE "THE COMPANY" WILL PROVIDE AND THE CONTRACTOR WILL INSTALL

   A. BTS EQUIPMENT FRAME (PLATFORM) AND ICEBRIDGE SHELTER (GROUND BUILD/CO-LOCATE ONLY)
   B. AC/TELCO INTERFACE BOX (PPC)
   C. ICE BRIDGE (CABLE TRAY WITH COVER) (GROUND BUILD/CO-LOCATE ONLY, GC TO FURNISH AND INSTALL FOR ROOFTOP INSTALLATION)
   D. TOWERS, MONOPOLES
   E. TOWER LIGHTING
   F. GENERATORS & LIQUID PROPANE TANK
   G. ANTENNA STANDARD BRACKETS, FRAMES AND PIPES FOR MOUNTING
   H. ANTENNAS (INSTALLED BY OTHERS)
   I. TRANSMISSION LINE
   J. TRANSMISSION LINE JUMPERS
   K. TRANSMISSION LINE CONNECTORS WITH WEATHERPROOFING KITS
   L. TRANSMISSION LINE GROUND KITS
   M. HANGERS
   N. HOISTING GRIPS
   O. BTS EQUIPMENT

2. THE CONTRACTOR IS RESPONSIBLE TO PROVIDE ALL OTHER MATERIALS FOR THE COMPLETE INSTALLATION OF THE SITE INCLUDING, BUT NOT LIMITED TO, SUCH MATERIALS AS FENCING, STRUCTURAL STEEL SUPPORTING SUB-FRAME FOR PLATFORM, ROOFING LABOR AND MATERIALS, GROUNDING RINGS, GROUNDING WIRES, COPPER-CLAD OR XIT CHEMICAL GROUND ROD(S), BUSS BARS, TRANSFORMERS AND DISCONNECT SWITCHES WHERE APPLICABLE, TEMPORARY ELECTRICAL POWER, CONDUIT, LANDSCAPING COMPOUND STONE, CRANES, CORE DRILLING, SLEEPERS AND RUBBER MATTING, REBAR, CONCRETE CAISSONS, PADS AND/OR AUGER MOUNTS, MISCELLANEOUS FASTENERS, CABLE TRAYS, NON-STANDARD ANTENNA FRAMES AND ALL OTHER MATERIAL AND LABOR REQUIRED TO COMPLETE THE JOB ACCORDING TO THE DRAWINGS AND SPECIFICATIONS. IT IS THE POSITION OF T-MOBILE TO APPLY FOR PERMITTING AND CONTRACTOR RESPONSIBLE FOR PICKUP AND PAYMENT OF REQUIRED PERMITS.

3. ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH ATC CONSTRUCTION SPECIFICATIONS.

4. CONTRACTOR SHALL CONTACT LOCAL 811 FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.

5. CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.

6. ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.

7. DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.

8. DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.

9. THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.

10. CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.

11. CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, VENTS, ETC. BEFORE COMMENCING WORK.

12. INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE T-MOBILE REP PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE T-MOBILE REP PRIOR TO PROCEEDING.

13. EACH CONTRACTOR SHALL COOPERATE WITH THE T-MOBILE REP, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.

14. CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.

15. ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.

16. WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR SHALL NOTIFY THE T-MOBILE REP AND ENGINEER OF RECORD IMMEDIATELY.

17. CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A COMPLETE AND CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.

18. CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.

19. CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH AMERICAN TOWER CORPORATION (ATC) AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.

20. CONTRACTOR SHALL FURNISH T-MOBILE AND AMERICAN TOWER CORPORATION (ATC) WITH A PDF MARKED UP AS-BUILT SET OF DRAWINGS UPON COMPLETION OF WORK.

21. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE WHAT, IF ANY, ITEMS WILL BE PROVIDED. ALL ITEMS NOT PROVIDED SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. CONTRACTOR WILL INSTALL ALL ITEMS PROVIDED.

22. PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL COORDINATE WITH T-MOBILE REP TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY CONTRACTOR. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.

23. CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.

24. CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO T-MOBILE FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.

25. ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.

26. THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.

27. CONTRACTOR SHALL NOTIFY T-MOBILE REP A MINIMUM OF 48 HOURS IN ADVANCE OF POURING CONCRETE OR BACKFILLING ANY UNDERGROUND UTILITIES, FOUNDATIONS OR SEALING ANY WALL, FLOOR OR ROOF PENETRATIONS FOR ENGINEERING REVIEW AND APPROVAL.

28. CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.

29. THE CONTRACTOR SHALL PROTECT AT HIS OWN EXPENSE, ALL EXISTING FACILITIES AND SUCH OF HIS NEW WORK LIABLE TO INJURY DURING THE CONSTRUCTION PERIOD. ANY DAMAGE CAUSED BY NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, OR BY THE ELEMENTS DUE TO NEGLECT ON THE PART OF THIS CONTRACTOR OR HIS REPRESENTATIVES, EITHER TO THE EXISTING WORK, OR TO HIS WORK OR THE WORK OF ANY OTHER CONTRACTOR, SHALL BE REPAIRED AT HIS EXPENSE TO THE OWNER'S SATISFACTION.

30. ALL WORK SHALL BE INSTALLED IN A FIRST CLASS, NEAT AND WORKMANLIKE MANNER BY MECHANICS SKILLED IN THE TRADE INVOLVED. THE QUALITY OF WORKMANSHIP SHALL BE SUBJECT TO THE APPROVAL OF THE T-MOBILE REP. ANY WORK FOUND BY THE T-MOBILE REP TO BE OF INFERIOR QUALITY AND/OR WORKMANSHIP SHALL BE REPLACED AND/OR REWORKED AT CONTRACTOR EXPENSE UNTIL APPROVAL IS OBTAINED.

31. IN ORDER TO ESTABLISH STANDARDS OF QUALITY AND PERFORMANCE, ALL TYPES OF MATERIALS LISTED HEREINAFTER BY MANUFACTURER'S NAMES AND/OR MANUFACTURER'S CATALOG NUMBER SHALL BE PROVIDED BY THESE MANUFACTURERS AS SPECIFIED.

32. T-MOBILE FURNISHED EQUIPMENT SHALL BE PICKED-UP AT THE T-MOBILE WAREHOUSE, NO LATER THAN 48HR AFTER BEING NOTIFIED INSURED, STORED, UNCRATE, PROTECTED AND INSTALLED BY THE CONTRACTOR WITH ALL APPURTENANCES REQUIRED TO PLACE THE EQUIPMENT IN OPERATION, READY FOR USE. THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE EQUIPMENT AFTER PICKING IT UP.

33. T-MOBILE OR HIS ARCHITECT/ENGINEER RESERVES THE RIGHT TO REJECT ANY EQUIPMENT OR MATERIALS WHICH, IN HIS OWN OPINION ARE NOT IN COMPLIANCE WITH THE CONTRACT DOCUMENTS, EITHER BEFORE OR AFTER INSTALLATION AND THE EQUIPMENT SHALL BE REPLACED WITH EQUIPMENT CONFORMING TO THE REQUIREMENTS OF THE CONTRACT DOCUMENTS BY THE CONTRACTOR AT NO COST TO T-MOBILE OR THEIR ARCHITECT/ENGINEER.

SPECIAL CONSTRUCTION ANTENNA INSTALLATION NOTES:

1. WORK INCLUDED:

   A. ANTENNA AND COAXIAL CABLES ARE FURNISHED BY T-MOBILE UNDER A SEPARATE CONTRACT. THE CONTRACTOR SHALL ASSIST ANTENNA INSTALLATION CONTRACTOR IN TERMS OF COORDINATION AND SITE ACCESS. ERECTION SUBCONTRACTOR SHALL BE RESPONSIBLE FOR THE PROTECTION OF PERSONNEL.

   B. INSTALL ANTENNA AS INDICATED ON DRAWINGS AND T-MOBILE SPECIFICATIONS.

   C. INSTALL GALVANIZED STEEL ANTENNA MOUNTS AS INDICATED ON DRAWINGS.

   D. INSTALL FURNISHED GALVANIZED STEEL OR ALUMINUM WAVEGUIDE.

   E. CONTRACTOR SHALL PROVIDE FOUR (4) SETS OF SWEEP TESTS USING ANRITZU-PACKARD 8713B RF SCALAR NETWORK ANALYZER. SUBMIT FREQUENCY DOMAIN REFLECTOMETER(FDR) TESTS RESULTS TO THE PROJECT MANAGER. SWEEP TESTS SHALL BE AS PER ATTACHED RFS "MINIMUM FIELD TESTING RECOMMENDED FOR ANTENNA AND HELIAX COAXIAL CABLE SYSTEMS" DATED 10/5/93. TESTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING SERVICE AND BE BOUND AND SUBMITTED WITHIN ONE WEEK OF WORK COMPLETION.

   F. INSTALL COAXIAL CABLES AND TERMINATING BETWEEN ANTENNAS AND EQUIPMENT PER MANUFACTURER'S RECOMMENDATIONS. WEATHERPROOF ALL CONNECTIONS BETWEEN THE ANTENNA AND EQUIPMENT PER MANUFACTURER'S REQUIREMENTS. TERMINATE ALL COAXIAL CABLE THREE (3) FEET IN EXCESS OF ENTRY PORT LOCATION UNLESS OTHERWISE STATED.

   G. ANTENNA AND COAXIAL CABLE GROUNDING:

i. ALL EXTERIOR #6 GREEN GROUND WIRE "DAISY CHAIN" CONNECTIONS ARE TO BE WEATHER SEALED WITH RFS CONNECTORS/SPLICE WEATHERPROOFING KIT #221213 OR EQUAL.

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

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

AMERICAN TOWER®

Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	KC	4/16/21
0	ISSUED FOR CONSTRUCTION	HG	06/11/21

ATC SITE NUMBER:
284984
ATC SITE NAME:
PAWCATUCK CT
T-MOBILE SITE NAME:
AMTRACK STONINGTON3
SITE ADDRESS:
166 PAWCATUCK AVE
PAWCATUCK, CT 06379

SEAL:

6/15/21
Exp. 1/31/22

T-Mobile

DATE DRAWN:	06/11/21
ATC JOB NO:	13663614
CUSTOMER ID:	AMTRACK STONINGTON3
CUSTOMER #:	CTNL813C

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

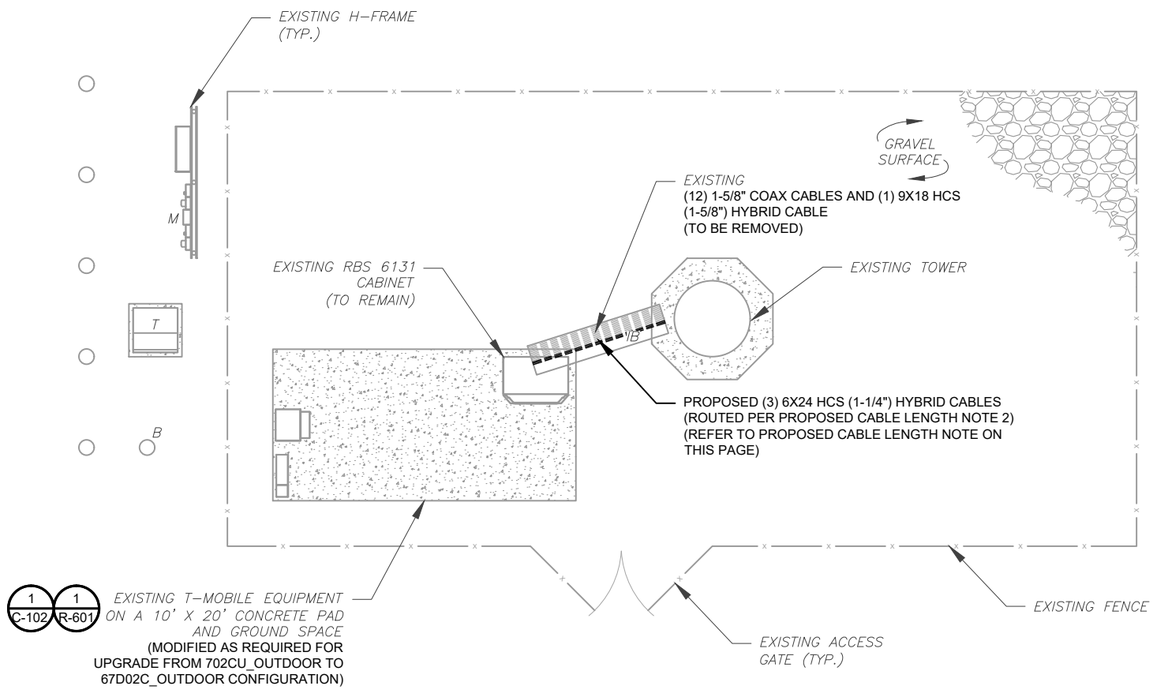
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

2. ICE BRIDGE, CABLE LADDER, COAX PORT, AND COAX CABLE ARE SHOWN FOR REFERENCE ONLY. CONTRACTOR SHALL CONFIRM THE EXACT LOCATION OF ALL PROPOSED AND EXISTING EQUIPMENT AND STRUCTURES DEPICTED ON THIS PLAN. BEFORE UTILIZING EXISTING CABLE SUPPORTS, COAX PORTS, INSTALLING NEW PORTS OR ANY OTHER EQUIPMENT, CONTRACTOR SHALL VERIFY ALL ASPECTS OF THE COMPONENTS MEET THE ATC SPECIFICATIONS.

3. NO ELECTRICAL SCOPE IS INCLUDED IN THIS PROJECT.

LEGEND

⊗	GROUNDING TEST WELL
ATS	AUTOMATIC TRANSFER SWITCH
B	BOLLARD
CSC	CELL SITE CABINET
D	DISCONNECT
E	ELECTRICAL
F	FIBER
GEN	GENERATOR
G	GENERATOR RECEPTACAL
HH, V	HAND HOLE, VAULT
IB	ICE BRIDGE
K	KENTROX BOX
LC	LIGHTING CONTROL
M	METER
PB	PULL BOX
PP	POWER POLE
T	TELCO
TRN	TRANSFORMER
—x—	CHAINLINK FENCE



PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **145'**. ESTIMATED LENGTH OF CABLE WAS PROVIDED BY CUSTOMER OR CALCULATED BY ADDING THE RAD CENTER AND THE DISTANCE FROM THE SHELTER ENTRY PLATE TO THE TOWER (ALONG THE ICE BRIDGE) AND A SAFETY FACTOR MEASUREMENT OF 15% (OF THE TWO PREVIOUS VALUES), CDS DEFER TO GREATEST CABLE LENGTH.
2. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.

1 DETAILED SITE PLAN

0 10' 20'

SCALE: 1"=10' (11X17)
1"=5' (22X34)

AMERICAN TOWER®

Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	KC	4/16/21
0	ISSUED FOR CONSTRUCTION	HG	06/11/21

ATC SITE NUMBER:
284984

ATC SITE NAME:
PAWCATUCK CT

T-MOBILE SITE NAME:
AMTRACK STONINGTON3

SITE ADDRESS:
166 PAWCATUCK AVE
PAWCATUCK, CT 06379

SEAL:

STATE OF CONNECTICUT
BRIAN J. BREWER
29510
LICENSED PROFESSIONAL ENGINEER

6/15/21
Exp. 1/31/22

T-Mobile

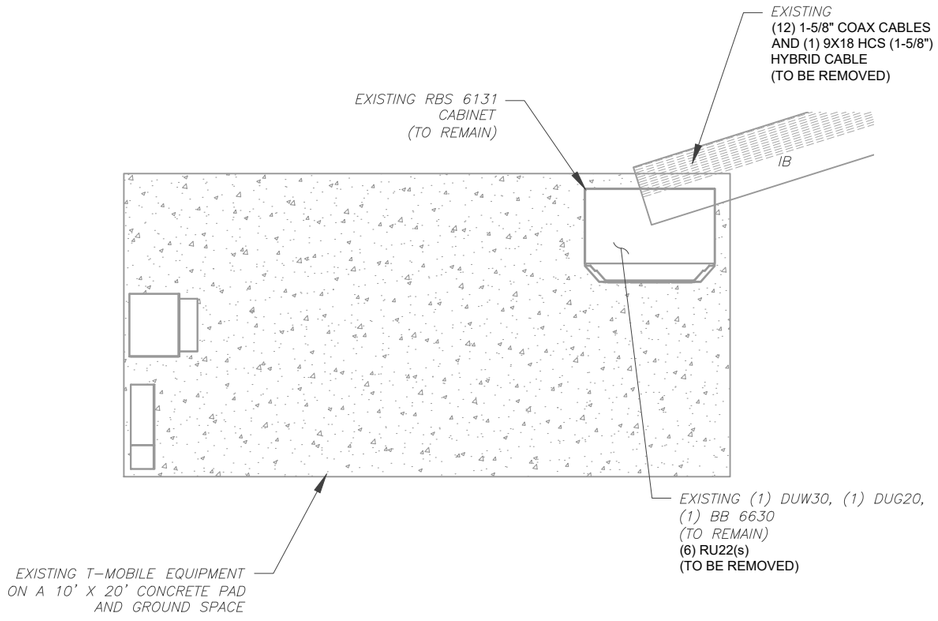
DATE DRAWN:	06/11/21
ATC JOB NO:	13663614
CUSTOMER ID:	AMTRACK STONINGTON3
CUSTOMER #:	CTNL813C

DETAILED SITE PLAN

SHEET NUMBER:	REVISION:
C-101	0

SITE PLAN NOTES:

1. CONTRACTOR TO VERIFY THERE IS NO LIVE AAV FIBER RUNNING THROUGH EXISTING DEAD EQUIPMENT. IF SO, THIS WILL NEED TO BE RERUN THROUGH CONDUIT PRIOR TO REMOVING DEAD 2G (6201 CABS) EQUIPMENT.
2. REMOVE EXISTING 2G CABINETS, AND POWER / TELCO WHIPS ASSOCIATED WITH THE DEAD EQUIPMENT IF APPLICABLE.
3. ALL OPEN PORTS NEED TO BE SEALED / WEATHERPROOFED PROPERLY
4. ALL UNNEEDED / EXCESS EQUIPMENT AND GARBAGE TO BE REMOVED FROM EQUIPMENT AREA. DISPOSE OF MATERIALS PROPERLY OFF SITE.



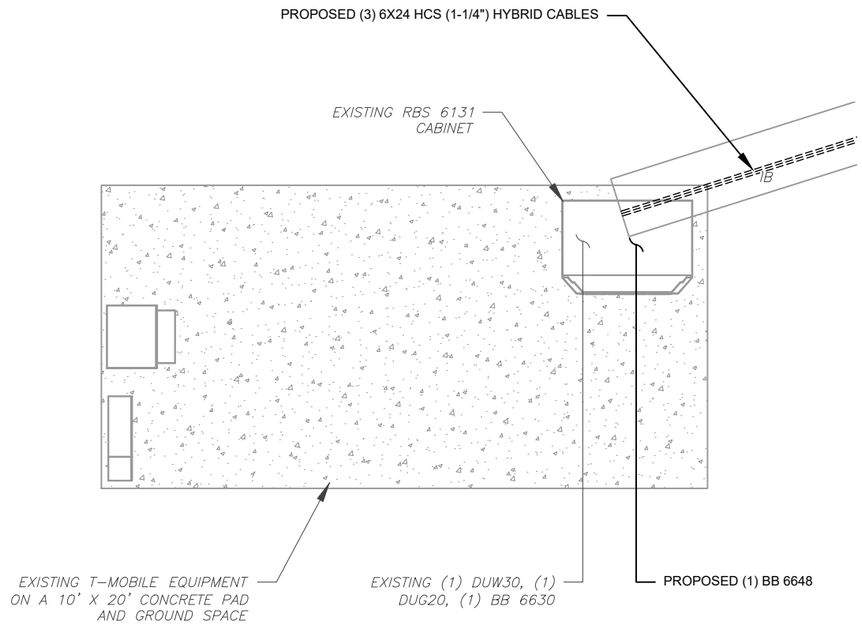
1 EXISTING GROUND EQUIPMENT LAYOUT

0 5' 10'

SCALE: 1"=5' (11X17)
1"=2.5' (22X34)

N

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS



2 PROPOSED GROUND EQUIPMENT LAYOUT

0 5' 10'

SCALE: 1"=5' (11X17)
1"=2.5' (22X34)

N

AMERICAN TOWER®

Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	KC	4/16/21
0	ISSUED FOR CONSTRUCTION	HG	06/11/21

ATC SITE NUMBER:
284984

ATC SITE NAME:
PAWCATUCK CT

T-MOBILE SITE NAME:
AMTRACK STONINGTON3

SITE ADDRESS:
166 PAWCATUCK AVE
PAWCATUCK, CT 06379

SEAL:

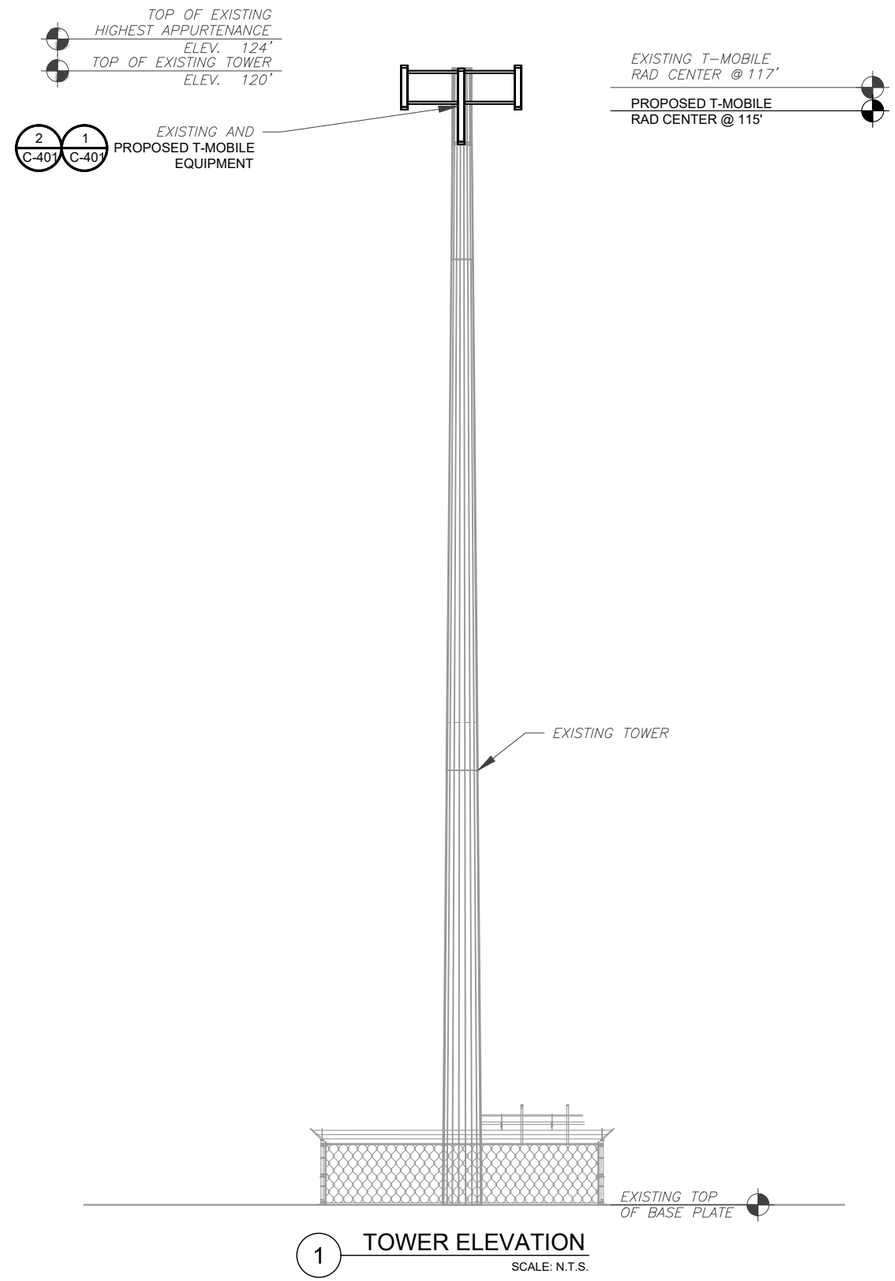
6/15/21
Exp. 1/31/22

T-Mobile

DATE DRAWN:	06/11/21
ATC JOB NO:	13663614
CUSTOMER ID:	AMTRACK STONINGTON3
CUSTOMER #:	CTNL813C

DETAILED GROUND PLAN

SHEET NUMBER:	REVISION:
C-102	0



1 TOWER ELEVATION
SCALE: N.T.S.

ATC IS ANALYZING THE ANTENNA MOUNT UNDER A SEPARATE PROJECT. CONSTRUCTION IS NOT TO PROCEED UNTIL THE MOUNT ANALYSIS IS COMPLETE AND INDICATES THE ADDITIONAL LOADING DOES NOT OVERSTRESS THE MOUNT.

TOWER NOTE:

1. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE PROJECT MANAGER THAT THEY HAVE THE MOST RECENT VERSION OF THE STRUCTURAL ANALYSIS BEFORE COMMENCING WORK. EXISTING AND PROPOSED TOWER APPURTENANCES, MOUNTS, AND ANTENNAS ARE SHOWN BASED ON THE STRUCTURAL ANALYSIS.
2. WHERE APPLICABLE, ALL NEW ANTENNAS, EQUIPMENT, MOUNTS, CABLING, ETC. SHALL BE PAINTED/SOCKED TO MATCH EXISTING EQUIPMENT IN ACCORDANCE WITH FAA, JURISDICTION, AND/OR OTHER LOCAL REQUIREMENTS.
3. ROUTE PROPOSED CABLES ALONG SAME PATH AS EXISTING CABLES AND IN ACCORDANCE WITH STRUCTURAL ANALYSIS. IF ADEQUATE SPACE EXISTS, ROUTE CABLES THROUGH ENTRY PORT HOLE, UP INSIDE OF MONOPOLE, AND THROUGH EXIT PORT HOLE. IF ROUTING OUTSIDE THE MONOPOLE, ATTACH CABLES USING STAND-OFF ADAPTERS MOUNTED TO TOWER USING STAINLESS STEEL BANDING. ADEQUATELY SECURE CABLES USING EITHER APPROPRIATELY SIZED STAINLESS STEEL SNAP-INS OR MOUNTING HARDWARE AND BRACKETS AS SPECIFIED BY CABLE MANUFACTURER.
4. TOWER ELEVATIONS ARE MEASURED FROM TOP OF BASE PLATE TO MATCH STRUCTURAL ANALYSIS. ELEVATIONS DO NOT REFLECT TRUE ABOVE GROUND LEVEL (A.G.L.)

AMERICAN TOWER®

Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	KC	4/16/21
0	ISSUED FOR CONSTRUCTION	HG	06/11/21

ATC SITE NUMBER:
284984
ATC SITE NAME:
PAWCATUCK CT
T-MOBILE SITE NAME:
AMTRACK STONINGTON3
SITE ADDRESS:
166 PAWCATUCK AVE
PAWCATUCK, CT 06379

SEAL:

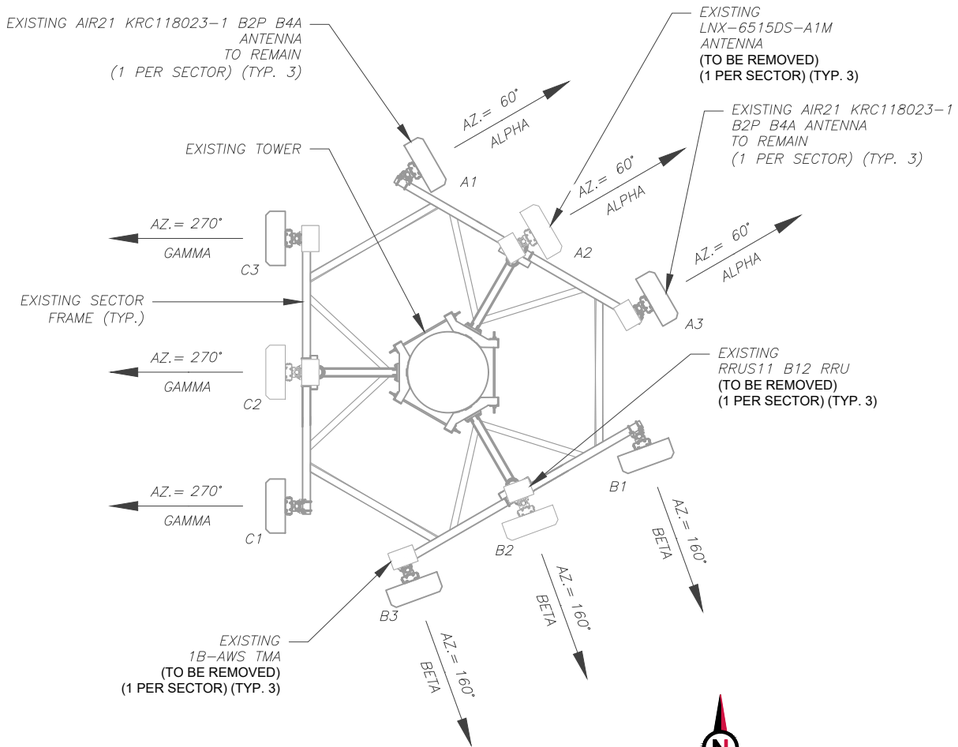
6/15/21
Exp. 1/31/22

T-Mobile

DATE DRAWN:	06/11/21
ATC JOB NO:	13663614
CUSTOMER ID:	AMTRACK STONINGTON3
CUSTOMER #:	CTNL813C

TOWER ELEVATION

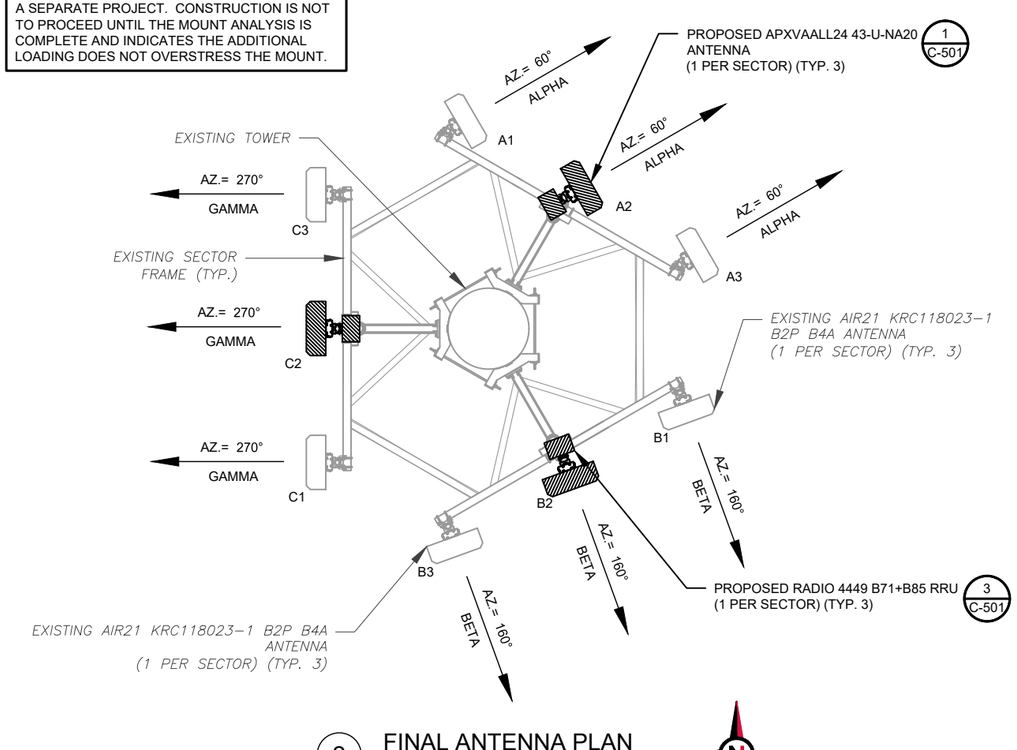
SHEET NUMBER:	REVISION:
C-201	0



1 EXISTING ANTENNA PLAN

SCALE: N.T.S.

ATC IS ANALYZING THE ANTENNA MOUNT UNDER A SEPARATE PROJECT. CONSTRUCTION IS NOT TO PROCEED UNTIL THE MOUNT ANALYSIS IS COMPLETE AND INDICATES THE ADDITIONAL LOADING DOES NOT OVERSTRESS THE MOUNT.



2 FINAL ANTENNA PLAN

SCALE: N.T.S.

EXISTING ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	117'	60°	A1	AIR21 KRC118023-1 B2P B4A	L2100	0°/2°	RMN	–	–
	115'		A2	LNX-6515DS-A1M	L700	0°/2°	RMV	RRUS11 B12	RMV
	117'		A3	AIR21 KRC118023-1 B2A B4P	U1900, G1900	0°/2°	RMN	1B-AWS	RMV
BETA	117'	160°	B1	AIR21 KRC118023-1 B2P B4A	L2100	0°/2°	RMN	–	–
	115'		B2	LNX-6515DS-A1M	L700	0°/2°	RMV	RRUS11 B12	RMV
	117'		B3	AIR21 KRC118023-1 B2A B4P	U1900, G1900	0°/2°	RMN	1B-AWS	RMV
GAMMA	117'	270°	C1	AIR21 KRC118023-1 B2P B4A	L2100	0°/2°	RMN	–	–
	115'		C2	LNX-6515DS-A1M	L700	0°/2°	RMV	RRUS11 B12	RMV
	117'		C3	AIR21 KRC118023-1 B2A B4P	U1900, G1900	0°/2°	RMN	1B-AWS	RMV

NOTES

1. CONFIRM WITH T-MOBILE REP FOR APPLICABLE UPDATES/REVISIONS AND MOST RECENT RFDS FOR NSN CONFIGURATION (CONFIG). GC TO CAP ALL UNUSED PORTS.
2. CONFIRM SPACING OF PROPOSED EQUIP DOES NOT CAUSE TOWER CONFLICTS NOR IMPEDE TOWER CLIMBING PEGS.

STATUS ABBREVIATIONS

RMV: TO BE REMOVED
RMN: TO REMAIN
REL: TO BE RELOCATED
ADD: TO BE ADDED

CABLE LENGTHS FOR JUMPERS

JUNCTION BOX TO RRU: 15'
RRU TO ANTENNA: 10'

FINAL ANTENNA SCHEDULE

LOCATION			ANTENNA SUMMARY					NON ANTENNA SUMMARY	
SECTOR	RAD	AZ	POS	ANTENNA	BAND	MECH/ELEC D-TILT	STATUS	ADDITIONAL TOWER MOUNTED EQUIPMENT	STATUS
ALPHA	117'	60°	A1	AIR21 KRC118023-1 B2P B4A	L2100	0°/2°	RMN	-	-
	115'		A2	APXVAALL24 43-U-NA20	L700, L600, N600	0°/2°	ADD	RADIO 4449 B71+B85	ADD
	117'		A3	AIR21 KRC118023-1 B2A B4P	U1900, G1900	0°/2°	RMN	-	-
BETA	117'	160°	B1	AIR21 KRC118023-1 B2P B4A	L2100	0°/2°	RMN	-	-
	115'		B2	APXVAALL24 43-U-NA20	L700, L600, N600	0°/2°	ADD	RADIO 4449 B71+B85	ADD
	117'		B3	AIR21 KRC118023-1 B2A B4P	U1900, G1900	0°/2°	RMN	-	-
GAMMA	117'	270°	C1	AIR21 KRC118023-1 B2P B4A	L2100	0°/2°	RMN	-	-
	115'		C2	APXVAALL24 43-U-NA20	L700, L600, N600	0°/2°	ADD	RADIO 4449 B71+B85	ADD
	117'		C3	AIR21 KRC118023-1 B2A B4P	U1900, G1900	0°/2°	RMN	-	-

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	(12) 1-5/8"	(1) HCS 9X18 (1-5/8")	RMV

3 EQUIPMENT SCHEDULES

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(3) 6X24 (1-1/4")	ADD

AMERICAN TOWER®

Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	KC	4/16/21
0	ISSUED FOR CONSTRUCTION	HG	06/11/21

ATC SITE NUMBER:

284984

ATC SITE NAME:

PAWCATUCK CT

T-MOBILE SITE NAME:

AMTRACK STONINGTON3

SITE ADDRESS:
166 PAWCATUCK AVE
PAWCATUCK, CT 06379

SEAL:

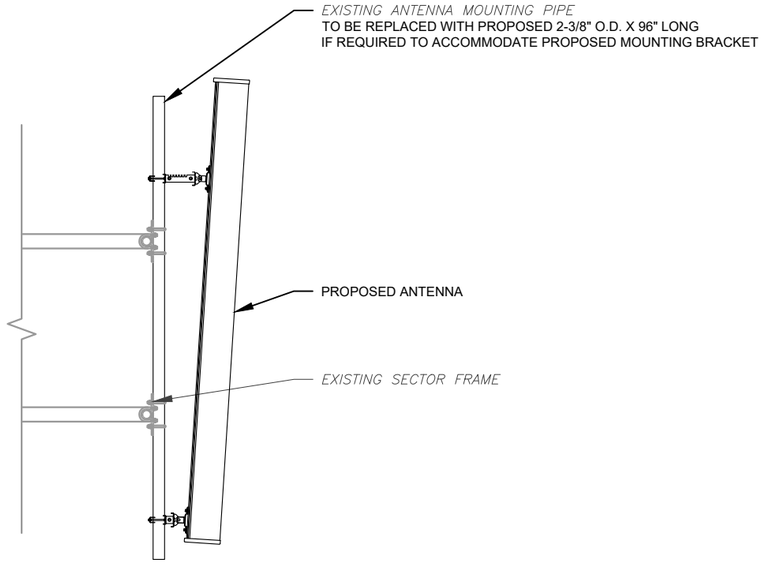
6/15/21
Exp. 1/31/22

T-Mobile

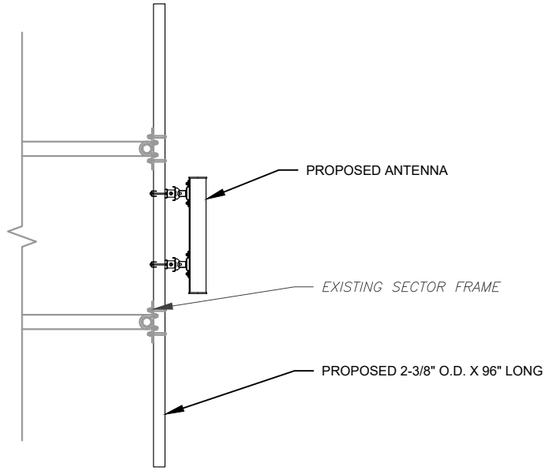
DATE DRAWN:	06/11/21
ATC JOB NO:	13663614
CUSTOMER ID:	AMTRACK STONINGTON3
CUSTOMER #:	CTNL813C

ANTENNA INFORMATION & SCHEDULE

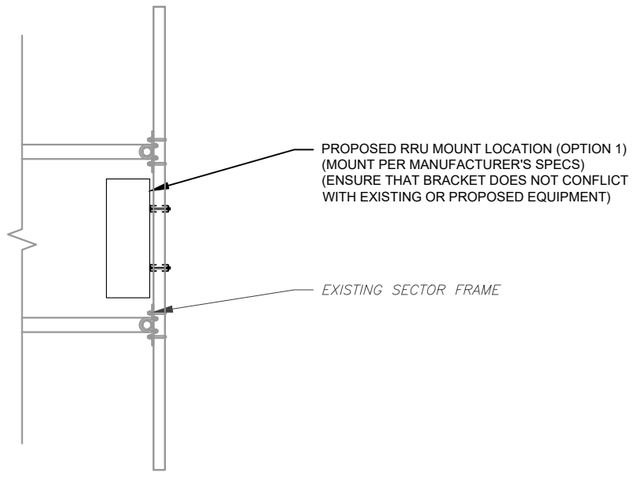
SHEET NUMBER:	REVISION:
C-401	0



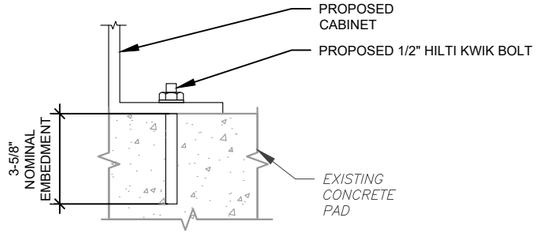
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL
SCALE: N.T.S.



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



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



NOTE:

INSTALL HILTI KWIK BOLT ANCHORS STRICTLY PER INSTALLATION INSTRUCTIONS INCLUDED WITH PRODUCT OR FOUND ONLINE AT WWW.US.HILTI.COM. PROPER INSTALLATION IS CRITICAL FOR FULL PERFORMANCE.

4 CABINET ATTACHMENT DETAIL
SCALE: NOT TO SCALE

AMERICAN TOWER®

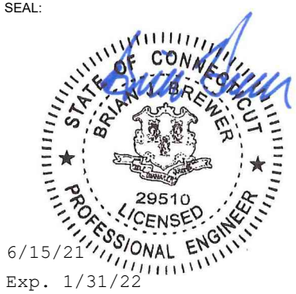
Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	KC	4/16/21
0	ISSUED FOR CONSTRUCTION	HG	06/11/21

ATC SITE NUMBER:
284984
ATC SITE NAME:
PAWCATUCK CT
T-MOBILE SITE NAME:
AMTRACK STONINGTON3
SITE ADDRESS:
166 PAWCATUCK AVE
PAWCATUCK, CT 06379

SEAL:



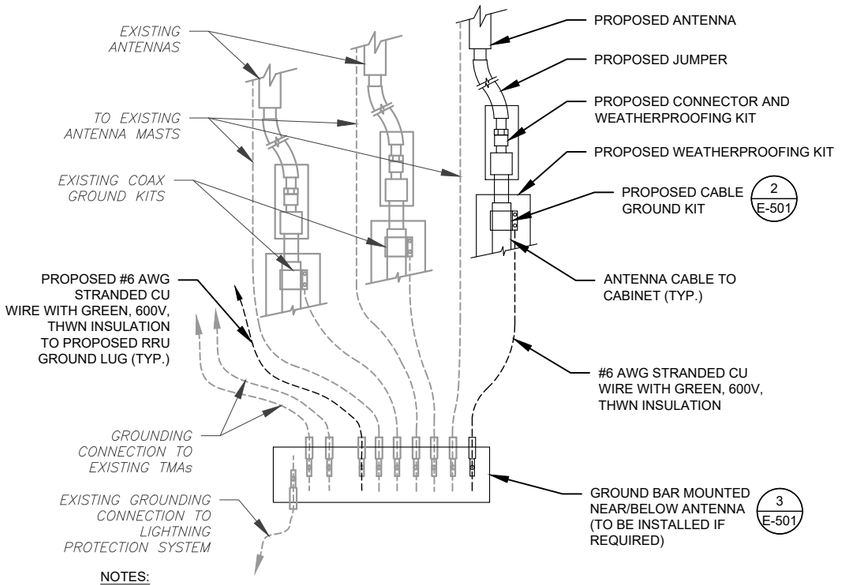
6/15/21
Exp. 1/31/22

T-Mobile

DATE DRAWN:	06/11/21
ATC JOB NO:	13663614
CUSTOMER ID:	AMTRACK STONINGTON3
CUSTOMER #:	CTNL813C

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-501	0

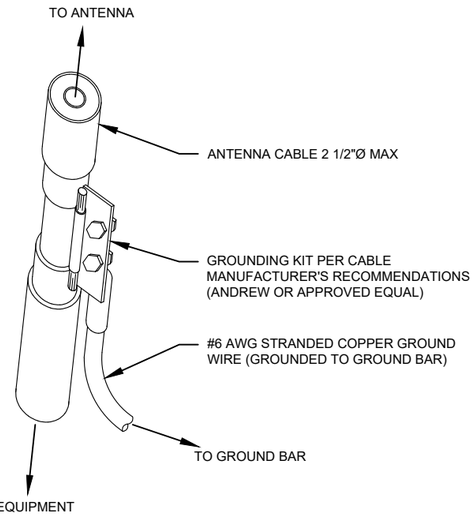


NOTES:

1. THIS DETAIL IS INTENDED TO SHOW THE GENERAL GROUNDING REQUIREMENTS. SLIGHT ADJUSTMENTS MAY BE REQUIRED BASED ON EXISTING SITE CONDITIONS. THE CONTRACTOR SHALL MAKE FIELD ADJUSTMENTS AS NEEDED AND INFORM THE CONSTRUCTION MANAGER OF ANY CONFLICTS.
2. SITE GROUNDING SHALL COMPLY WITH T-MOBILE GROUNDING STANDARDS, LATEST EDITION, AND COMPLY WITH T-MOBILE GROUNDING CHECKLIST, LATEST VERSION. WHEN NATIONAL AND LOCAL GROUNDING CODES ARE MORE STRINGENT THEY SHALL GOVERN.

1 TYPICAL ANTENNA GROUNDING DIAGRAM

SCALE: N.T.S.

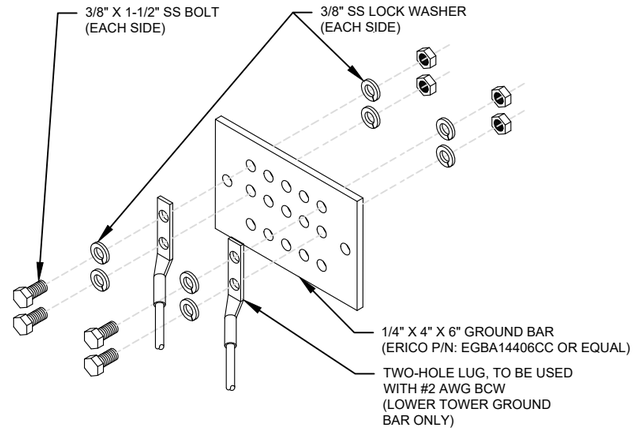


GROUND KIT NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. CONTRACTOR SHALL PROVIDE WEATHERPROOFING KIT (ANDREW PART NUMBER 221213) AND INSTALL/TAPE PER MANUFACTURER'S SPECIFICATIONS.

2 CABLE GROUND KIT CONNECTION DETAIL

SCALE: N.T.S.

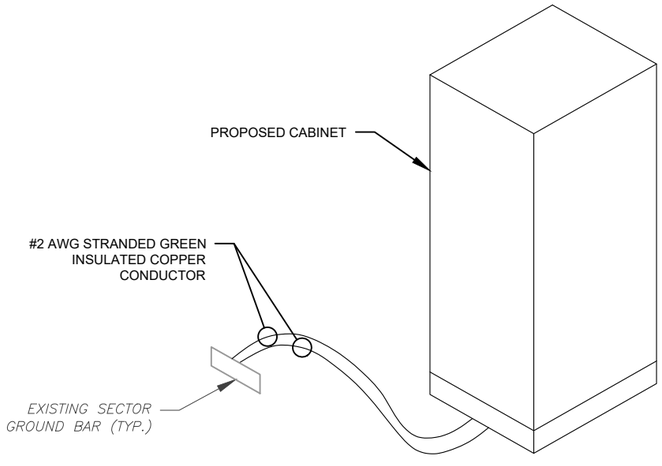


GROUND BAR NOTES:

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

3 TOWER GROUND BAR DETAIL

SCALE: N.T.S.



4 CABINET GROUNDING DETAIL

SCALE: N.T.S.

ELECTRICAL NOTES:

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

OCPD SIZE	WIRE SIZE	GROUND SIZE	CONDUIT SIZE
80A/2P	2#3 AWG	#8 AWG	1-1/4"
100/2P	2#2 AWG	#8 AWG	1-1/4"
125A/2P	2#1 AWG	#8 AWG	1-1/2"
150A/2P	2#1/0 AWG	#8 AWG	1-1/2"

AMERICAN TOWER®

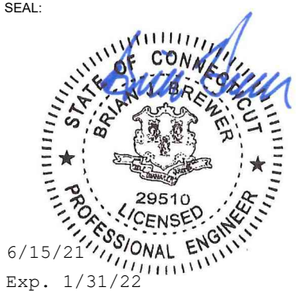
Kimley»Horn

COA: PEC.0000738
421 FAYETTEVILLE ST, SUITE 600
RALEIGH, NC 27601

REV.	DESCRIPTION	BY	DATE
A	PRELIM	KC	4/16/21
0	ISSUED FOR CONSTRUCTION	HG	06/11/21

ATC SITE NUMBER:
284984
ATC SITE NAME:
PAWCATUCK CT
T-MOBILE SITE NAME:
AMTRACK STONINGTON3
SITE ADDRESS:
166 PAWCATUCK AVE
PAWCATUCK, CT 06379

SEAL:



6/15/21
Exp. 1/31/22

T-Mobile

DATE DRAWN:	06/11/21
ATC JOB NO:	13663614
CUSTOMER ID:	AMTRACK STONINGTON3
CUSTOMER #:	CTNL813C

GROUNDING DETAILS

SHEET NUMBER:	REVISION:
E-501	0

Section 5 - RAN Equipment

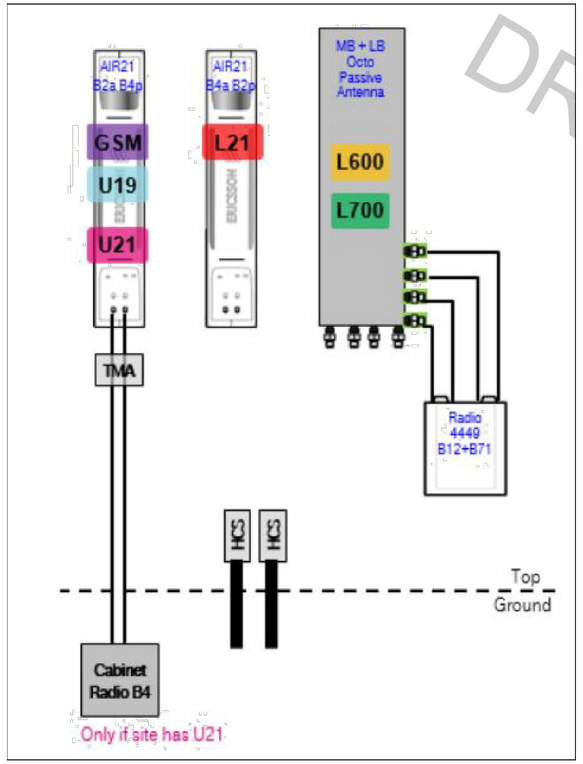
Existing RAN Equipment	
	Template: 702Cu Outdoor
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 (U1900) DUG20 (G1900) BB 6630 (L2100, L700)
Hybrid Cable System	Ericsson 9x18 HCS *Select Length*
Radio	RU22 **(x 6)**

Proposed RAN Equipment	
	Template: 67D02C Outdoor
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 (U1900) DUG20 (G1900) BB 6630 (L2100) BB 6648 (L700, L600, N600)
Functionality Groups	Ericsson Hybrid Trunk 6/24 4AWG *Select Length* **(x 3)**

RAN Scope of Work:

*** Existing Cabinet is a RBS6131 ***
*** No 6601 in Cabinet ***
Add BB6648
Add (3) 6X24 HCS.
Existing: (12) Coaxial Lines; (1) HCS.
Remove all existing coax & 9x18 hybrid.

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

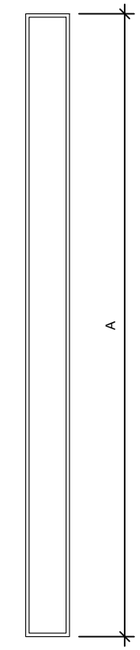


2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

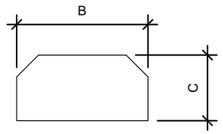
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0



FRONT VIEW

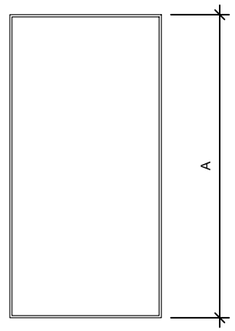


TOP VIEW

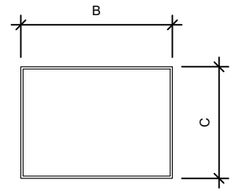
1 ANTENNA SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
APXVAALL24 43-U-NA20	95.9"	24.0"	8.5"	122.8



FRONT VIEW



TOP VIEW

2 RRU SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

RRU SPECIFICATIONS				
RRU MODEL	A	B	C	WEIGHT (LBS)
RADIO 4449 B71 B85A	15.0"	13.2"	10.5"	75

SUPPLEMENTAL

SHEET NUMBER: R-602

REVISION: 0

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

TOWER ENGINEERING PROFESSIONALS

Structural Analysis Report

Structure	:	**119 ft Monopole**
ATC Site Name	:	**PAWCATUCK CT, CT**
ATC Asset Number	:	**284984**
Engineering Number	:	**13663614_C3_03**
Proposed Carrier	:	**T-MOBILE**
Carrier Site Name	:	**Amtrak_Stonington3**
Carrier Site Number	:	**CTNL813C**
Site Location	:	**166 Pawcatuck Ave** **Pawcatuck, CT 06379** **41.360500,-71.854300**
County	:	**New London**
Date	:	**April 22, 2021**
Max Usage	:	**44%**
Result	:	**Pass**

Prepared By:
Ayoub Sabor
TEP

Reviewed By:

STATE OF CONNECTICUT
AARON THOMAS RUCKER
32608
LICENSED
PROFESSIONAL ENGINEER

04/23/2021

COA: PEC.0001553

Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 119 ft monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	Sabre Job #36879, dated November 15, 2010
Foundation Drawing	Sabre Job #36879, dated November 15, 2010
Geotechnical Report	Terracon Project #J2105210, dated September 22, 2010
Mount Analysis	ATC Project #13663614_C8_02, dated April 21, 2021

Analysis

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

Basic Wind Speed:	129 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1" radial ice concurrent
Code:	ANSI/TIA-222-H / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 1
Topographic Category:	1
Crest Height (H):	0 ft
Spectral Response:	Ss = 0.18, S_1 = 0.05
Site Class:	D - Stiff Soil

Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

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

Existing and Reserved Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
117.0	3	Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)	T-Arm	(4) 1 5/8" Coax	T-MOBILE
	3	Ericsson AIR 21, 1.3M, B4A B2P (90.4 lbs)			

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
117.0	3	Ericsson KRY 112 144/2	-	(3) 1 1/4" (1.25"-31.8mm) Fiber (1) 1 5/8" (1.63"-41.3mm) Fiber (8) 1 5/8" Coax	T-MOBILE
	3	Ericsson Radio 4449 B12,B71			
115.0	3	RFS APXVAARR24_43-U-NA20			

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
115.0	3	Ericsson Radio 4449 B71 B85A	T-Arm	(3) 1 5/8" Hybriflex	T-MOBILE
	3	RFS APXVAALL24 43-U-NA20			

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

Install proposed lines inside the pole shaft.

Structure Usages

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	34%	Pass
Shaft	32%	Pass
Base Plate	9%	Pass
Flanges	44%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,243.8	29%
Axial (Kips)	30.2	17%
Shear (Kips)	16.7	10%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

Deflection and Sway*

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
115.0	Ericsson Radio 4449 B71 B85A	T-MOBILE	0.421	0.377
	RFS APXVAALL24 43-U-NA20			

***Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-H**

Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

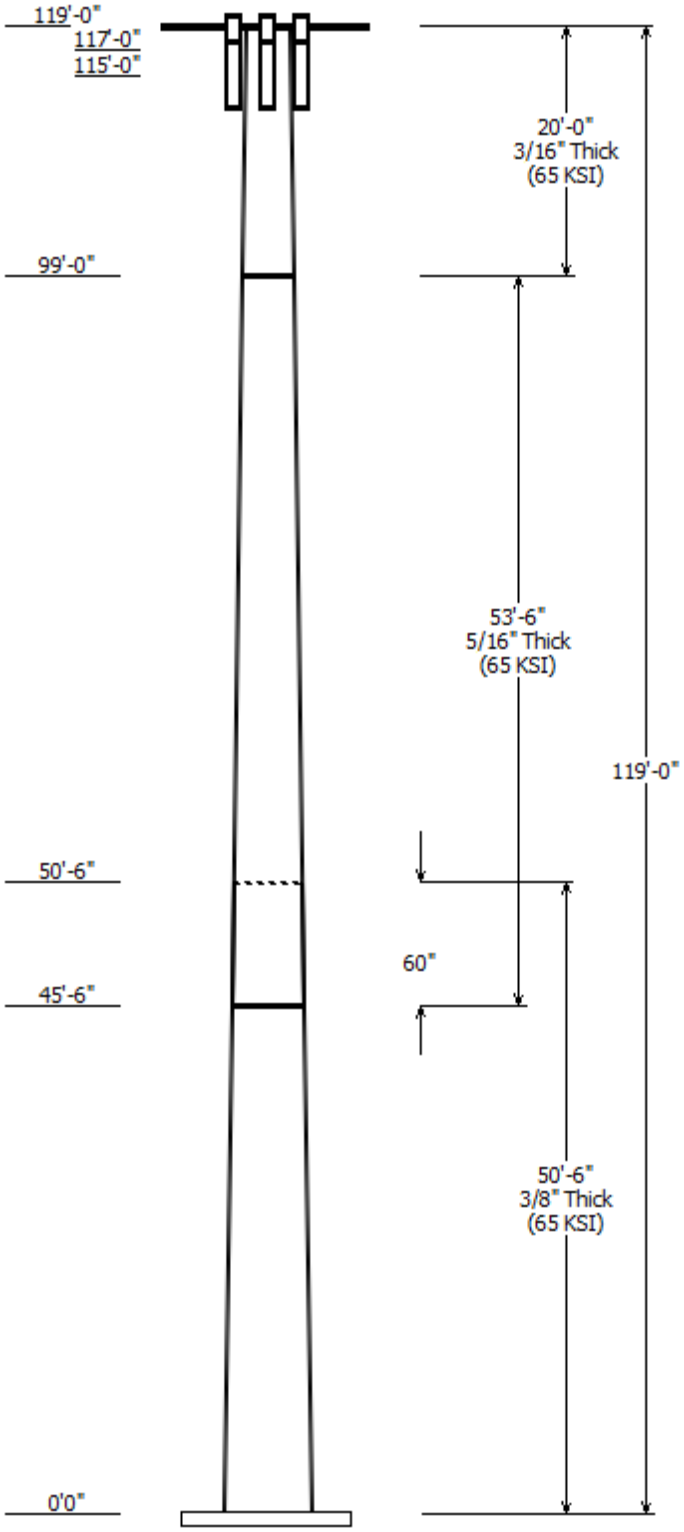
All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with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

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

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

Job Information

Client :	T-MOBILE		
Pole :	284984	Code:	ANSI/TIA-222-H
Location :	PAWCATUCK CT, CT		
Description :		Risk Category :	II
Shape :	18 Sides	Exposure :	C
Height :	119.00 (ft)	Topo Method :	Method 1
Base Elev (ft):	0.00	Topographic Category :	1
Taper:	0.222059 (in/ft)		



Sections Properties

Shaft Section	Length (ft)	Diameter (in) Accross Flats Top	Bottom	Thick (in)	Joint Type	Overlap Length (in)	Shape	Steel Grade (ksi)
1	50.500	37.58	48.80	0.375		0.000	18 Sides	65
2	53.500	27.44	39.32	0.313	Slip Joint	60.000	18 Sides	65
3	20.000	23.00	27.44	0.188	Butt Joint	0.000	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
119.000	119.000	3	Round T-Arm
117.000	117.000	3	Ericsson AIR 21, 1.3M, B4A B2P
117.000	117.000	3	Ericsson AIR 21, 1.3M, B2A B4P
115.000	115.000	3	RFS APXVAALL24 43-U-NA20
115.000	115.000	3	Ericsson Radio 4449 B71 B85A

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	115.0	1 5/8" Coax	No
0.000	115.0	1 5/8" Hybriflex	No

Load Cases

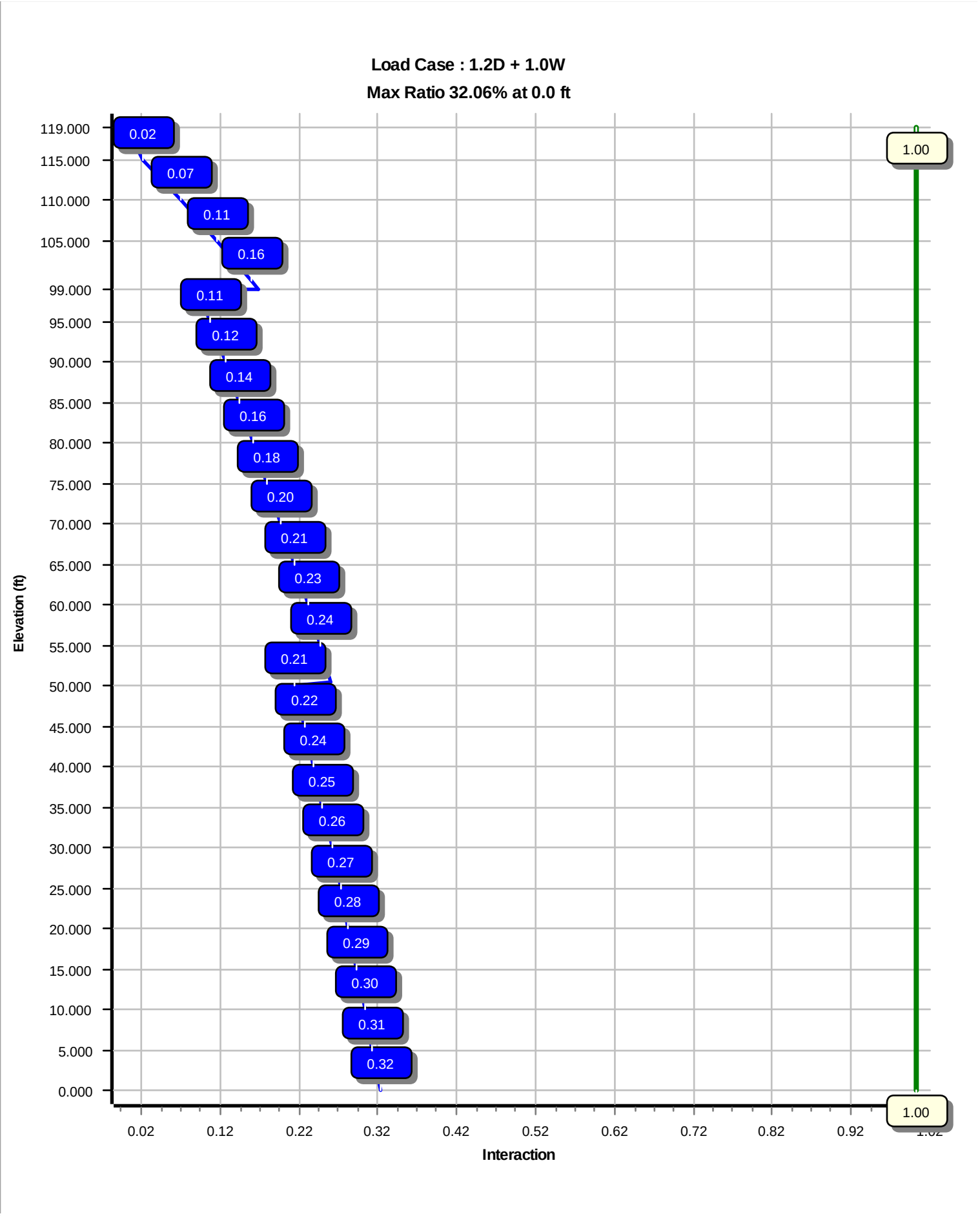
1.2D + 1.0W	129 mph with No Ice
0.9D + 1.0W	129 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	1243.79	16.68	22.90
0.9D + 1.0W	1239.06	16.67	17.17
1.2D + 1.0Di + 1.0Wi	294.05	4.07	30.17
1.2D + 1.0Ev + 1.0Eh	96.50	1.11	22.41
0.9D - 1.0Ev + 1.0Eh	96.07	1.11	15.58
1.0D + 1.0W	240.15	3.23	19.10

Dish Deflections

Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
	0.00	0.000	0.000


Load Case : 1.2D + 1.0W
Max Ratio 32.06% at 0.0 ft
Elevation (ft)
119.000
115.000
110.000
105.000
99.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
55.000
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.02
0.07
0.11
0.16
0.11
0.12
0.14
0.16
0.18
0.20
0.21
0.23
0.24
0.21
0.22
0.24
0.25
0.26
0.27
0.28
0.29
0.30
0.31
0.32
1.00
1.00
0.02
0.12
0.22
0.32
0.42
0.52
0.62
0.72
0.82
0.92
Interaction

Site Number: 284984 Code: ANSI/TIA-222-H

Site Name: PAWCATUCK CT, CT Engineering Number:13663614_C3_03 4/23/2021 12:47:30 PM

Customer: T-MOBILE

Analysis Parameters

Location :	New London County, CT	Height (ft) :	119
Code :	ANSI/TIA-222-H	Base Diameter (in) :	48.80
Shape :	18 Sides	Top Diameter (in) :	23.00
Pole Type :	Taper	Taper (in/ft) :	0.222
Pole Manfacturer :	Sabre	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	1.00

Ice & Wind Parameters

Exposure Category:	C	Design Wind Speed Without Ice:	129 mph
Risk Category:	II	Design Wind Speed With Ice:	50 mph
Topographic Factor Procedure:	Method 1	Operational Wind Speed:	60 mph
Topographic Category:	1	Design Ice Thickness:	1.00 in
Crest Height:	0 ft	HMSL:	34.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	1.24				
T_L (sec):	6	p:	1.3	C_s:	0.045
S_s:	0.182	S_1:	0.052	C_s Max:	0.045
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.194	S_{d1}:	0.083		

Load Cases

1.2D + 1.0W	129 mph with No Ice
0.9D + 1.0W	129 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Shaft Section Properties

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Slip Joint Len (in)	Weight (lb)	Bottom Dia (in)	Bottom Elev (ft)	Bottom Area (in²)	Bottom Ix (in⁴)	Bottom W/t Ratio	Bottom D/t Ratio	Top Dia (in)	Top Elev (ft)	Top Area (in²)	Top Ix (in⁴)	Top W/t Ratio	Top D/t Ratio	Taper (in/ft)
1-18	50.500	0.3750	65		0.00	8,757	48.80	0.00	57.64	17075.9	21.18	130.13	37.58	50.50	44.29	7748.0	15.91	100.23	0.222059
2-18	53.500	0.3125	65	Slip	60.00	5,971	39.32	45.50	38.69	7438.5	20.42	125.83	27.44	99.00	26.91	2502.0	13.72	87.81	0.222059
3-18	20.000	0.1875	65	Butt	0.00	1,014	27.44	99.00	16.22	1522.0	24.04	146.35	23.00	119.00	13.58	892.6	19.87	122.67	0.222059
				Shaft Weight		15,742													

Discrete Appurtenance Properties

Attach Elev (ft)	Description	Qty	Ka	Vert Ecc (ft)	No Ice Weight (lb)	No Ice EPAa (sf)	No Ice Orientation Factor	Ice Weight (lb)	Ice EPAa (sf)	Ice Orientation Factor
119.00	Round T-Arm	3	0.75	0.000	464.00	14.700	0.67	716.99	22.848	0.67
117.00	Ericsson AIR 21, 1.3M, B2A B4P	3	0.80	0.000	91.50	6.037	0.70	186.29	7.434	0.70
117.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.80	0.000	90.40	6.092	0.70	185.20	7.501	0.70
115.00	Ericsson Radio 4449 B71 B85A	3	0.80	0.000	75.00	1.650	0.50	114.04	2.201	0.50
115.00	RFS APXVAALL24 43-U-NA20	3	0.80	0.000	122.80	20.243	0.63	375.62	22.650	0.63
Totals	Num Loadings:5	15			2,531.10			4,734.42		

Linear Appurtenance Properties

Load Case Azimuth (deg) :

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Dia (in)	Coax Wt (lb/ft)	Flat	Max Coax / Row	Dist Between Rows (in)	Dist Between Cols (in)	Azimuth (deg)	Dist From Face (in)	Exposed To Wind	Carrier
0.00	115.00	4	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	115.00	3	1 5/8" Hybriflex	1.98	1.30	N	0	0.00	0.00	0	0.00	N	T-MOBILE

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	F'y (ksi)	S (in^3)	Z (in^3)	Weight (lb)
0.00		0.3750	48.800	57.636	17,075.9	21.18	130.13	76.5	689.2	0.0	0.0
5.00		0.3750	47.690	56.314	15,928.1	20.66	127.17	77.1	657.8	0.0	969.4
10.00		0.3750	46.579	54.993	14,832.9	20.14	124.21	77.7	627.2	0.0	946.9
15.00		0.3750	45.469	53.671	13,789.1	19.62	121.25	78.3	597.3	0.0	924.4
20.00		0.3750	44.359	52.350	12,795.4	19.09	118.29	78.9	568.1	0.0	901.9
25.00		0.3750	43.249	51.028	11,850.7	18.57	115.33	79.6	539.7	0.0	879.4
30.00		0.3750	42.138	49.707	10,953.6	18.05	112.37	80.2	512.0	0.0	856.9
35.00		0.3750	41.028	48.385	10,103.0	17.53	109.41	80.8	485.0	0.0	834.5
40.00		0.3750	39.918	47.064	9,297.6	17.01	106.45	81.4	458.8	0.0	812.0
45.00		0.3750	38.807	45.742	8,536.2	16.48	103.49	82.0	433.2	0.0	789.5
45.50	Bot - Section 2	0.3750	38.696	45.610	8,462.5	16.43	103.19	82.1	430.7	0.0	77.7
50.00		0.3750	37.697	44.421	7,817.6	15.96	100.53	82.6	408.5	0.0	1,274.2
50.50	Top - Section 1	0.3125	38.211	37.589	6,821.2	19.80	122.28	78.1	351.6	0.0	139.5
55.00		0.3125	37.212	36.598	6,295.8	19.23	119.08	78.8	333.2	0.0	568.0
60.00		0.3125	36.101	35.497	5,744.4	18.61	115.52	79.5	313.4	0.0	613.3
65.00		0.3125	34.991	34.396	5,226.2	17.98	111.97	80.3	294.2	0.0	594.6
70.00		0.3125	33.881	33.294	4,740.1	17.35	108.42	81.0	275.6	0.0	575.8
75.00		0.3125	32.771	32.193	4,285.1	16.73	104.87	81.7	257.5	0.0	557.1
80.00		0.3125	31.660	31.092	3,860.2	16.10	101.31	82.5	240.1	0.0	538.4
85.00		0.3125	30.550	29.991	3,464.4	15.47	97.76	82.6	223.4	0.0	519.6
90.00		0.3125	29.440	28.890	3,096.6	14.85	94.21	82.6	207.2	0.0	500.9
95.00		0.3125	28.329	27.788	2,755.8	14.22	90.65	82.6	191.6	0.0	482.2
99.00	Top - Section 2	0.3125	27.441	26.907	2,502.0	13.72	87.81	82.6	179.6	0.0	372.2
99.00	Bot - Section 3	0.1875	27.441	16.219	1,522.0	24.04	146.35	73.1	109.2	0.0	
100.0		0.1875	27.219	16.087	1,485.1	23.83	145.17	73.4	107.5	0.0	55.0
105.0		0.1875	26.109	15.426	1,309.5	22.79	139.25	74.6	98.8	0.0	268.1
110.0		0.1875	24.999	14.765	1,148.4	21.75	133.33	75.8	90.5	0.0	256.8
115.0		0.1875	23.888	14.104	1,001.0	20.70	127.40	77.1	82.5	0.0	245.6
117.0		0.1875	23.444	13.840	945.8	20.28	125.04	77.5	79.5	0.0	95.1
119.0		0.1875	23.000	13.576	892.6	19.87	122.67	78.0	76.4	0.0	93.3
											15,742.2

Site Number: 284984 Code: ANSI/TIA-222-H

Site Name: PAWCATUCK CT, CT Engineering Number:13663614_C3_03 4/23/2021 12:47:30 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0W 129 mph with No Ice 20 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		281.6	0.0					0.0	0.0	281.6	0.0	0.0	0.0
5.00		556.7	1,163.2					0.0	43.1	556.7	1,206.3	0.0	0.0
10.00		543.7	1,136.3					0.0	43.1	543.7	1,179.3	0.0	0.0
15.00		539.0	1,109.3					0.0	43.1	539.0	1,152.4	0.0	0.0
20.00		548.5	1,082.3					0.0	43.1	548.5	1,125.4	0.0	0.0
25.00		560.8	1,055.3					0.0	43.1	560.8	1,098.4	0.0	0.0
30.00		567.9	1,028.3					0.0	43.1	567.9	1,071.4	0.0	0.0
35.00		571.3	1,001.4					0.0	43.1	571.3	1,044.4	0.0	0.0
40.00		571.8	974.4					0.0	43.1	571.8	1,017.5	0.0	0.0
45.00		314.2	947.4					0.0	43.1	314.2	990.5	0.0	0.0
45.50	Bot - Section 2	288.4	93.3					0.0	4.3	288.4	97.6	0.0	0.0
50.00		288.6	1,529.0					0.0	38.8	288.6	1,567.8	0.0	0.0
50.50	Top - Section 1	286.6	167.4					0.0	4.3	286.6	171.7	0.0	0.0
55.00		541.3	681.6					0.0	38.8	541.3	720.4	0.0	0.0
60.00		563.3	736.0					0.0	43.1	563.3	779.1	0.0	0.0
65.00		555.3	713.5					0.0	43.1	555.3	756.6	0.0	0.0
70.00		546.1	691.0					0.0	43.1	546.1	734.1	0.0	0.0
75.00		536.0	668.5					0.0	43.1	536.0	711.6	0.0	0.0
80.00		524.9	646.0					0.0	43.1	524.9	689.1	0.0	0.0
85.00		513.0	623.6					0.0	43.1	513.0	666.6	0.0	0.0
90.00		500.4	601.1					0.0	43.1	500.4	644.1	0.0	0.0
95.00		439.6	578.6					0.0	43.1	439.6	621.7	0.0	0.0
99.00	Top - Section 2	240.1	446.7					0.0	34.5	240.1	481.1	0.0	0.0
100.00		280.4	66.0					0.0	8.6	280.4	74.6	0.0	0.0
105.00		458.4	321.7					0.0	43.1	458.4	364.8	0.0	0.0
110.00		443.2	308.2					0.0	43.1	443.2	351.3	0.0	0.0
115.00	Appurtenance(s)	291.0	294.7	1,888.6	0.0	0.0	712.1	0.0	43.1	2,179.6	1,049.9	0.0	0.0
117.00	Appurtenance(s)	145.4	114.1	1,185.2	0.0	0.0	654.8	0.0	0.0	1,330.6	768.9	0.0	0.0
119.00	Appurtenance(s)	72.1	111.9	1,293.6	0.0	0.0	1,670.4	0.0	0.0	1,365.7	1,782.3	0.0	0.0
								Totals:		16,937.0	22,918.8	0.00	0.00

Load Case: 1.2D + 1.0W 129 mph with No Ice 20 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-22.90	-16.68	0.00	-1,243.79	0.00	1,243.79	3,967.50	1,011.51	4,424.19	3,953.57	0.00	0.00	0.321
5.00	-21.67	-16.16	0.00	-1,160.41	0.00	1,160.41	3,907.65	988.32	4,223.66	3,803.96	0.05	-0.10	0.311
10.00	-20.46	-15.64	0.00	-1,079.64	0.00	1,079.64	3,846.34	965.12	4,027.79	3,655.73	0.21	-0.20	0.301
15.00	-19.29	-15.13	0.00	-1,001.41	0.00	1,001.41	3,783.57	941.93	3,836.56	3,508.96	0.48	-0.30	0.291
20.00	-18.14	-14.61	0.00	-925.74	0.00	925.74	3,719.35	918.74	3,649.98	3,363.77	0.84	-0.40	0.280
25.00	-17.02	-14.07	0.00	-852.69	0.00	852.69	3,653.66	895.55	3,468.06	3,220.24	1.32	-0.50	0.270
30.00	-15.93	-13.52	0.00	-782.35	0.00	782.35	3,586.51	872.36	3,290.78	3,078.48	1.89	-0.60	0.259
35.00	-14.87	-12.96	0.00	-714.75	0.00	714.75	3,517.90	849.16	3,118.16	2,938.60	2.57	-0.69	0.248
40.00	-13.84	-12.40	0.00	-649.95	0.00	649.95	3,447.83	825.97	2,950.18	2,800.69	3.35	-0.79	0.236
45.00	-12.85	-12.08	0.00	-587.95	0.00	587.95	3,376.30	802.78	2,786.86	2,664.86	4.23	-0.88	0.225
45.50	-12.74	-11.80	0.00	-581.91	0.00	581.91	3,369.06	800.46	2,770.78	2,651.39	4.32	-0.89	0.223
50.00	-11.17	-11.50	0.00	-528.80	0.00	528.80	3,300.26	779.59	2,628.19	2,528.86	5.20	-0.98	0.213
50.50	-11.00	-11.22	0.00	-523.05	0.00	523.05	2,642.68	659.69	2,258.21	2,059.93	5.31	-0.99	0.258
55.00	-10.27	-10.68	0.00	-472.57	0.00	472.57	2,594.84	642.30	2,140.71	1,968.88	6.28	-1.07	0.244
60.00	-9.48	-10.12	0.00	-419.18	0.00	419.18	2,540.30	622.97	2,013.84	1,869.01	7.45	-1.17	0.228
65.00	-8.72	-9.56	0.00	-368.59	0.00	368.59	2,484.30	603.64	1,890.84	1,770.62	8.73	-1.27	0.212
70.00	-7.99	-9.01	0.00	-320.79	0.00	320.79	2,426.84	584.32	1,771.72	1,673.79	10.11	-1.36	0.195
75.00	-7.28	-8.47	0.00	-275.74	0.00	275.74	2,367.92	564.99	1,656.47	1,578.64	11.59	-1.45	0.178
80.00	-6.59	-7.93	0.00	-233.40	0.00	233.40	2,307.54	545.66	1,545.10	1,485.26	13.15	-1.54	0.160
85.00	-5.93	-7.41	0.00	-193.72	0.00	193.72	2,228.16	526.34	1,437.60	1,382.87	14.80	-1.61	0.143
90.00	-5.29	-6.90	0.00	-156.67	0.00	156.67	2,146.35	507.01	1,333.98	1,282.68	16.54	-1.69	0.125
95.00	-4.68	-6.45	0.00	-122.17	0.00	122.17	2,064.53	487.68	1,234.24	1,186.25	18.34	-1.75	0.105
99.00	-4.20	-6.19	0.00	-96.39	0.00	96.39	1,999.08	472.22	1,157.23	1,111.83	19.82	-1.80	0.089
99.00	-4.20	-6.19	0.00	-96.39	0.00	96.39	1,067.36	284.64	700.65	599.12	19.82	-1.80	0.165
100.00	-4.13	-5.91	0.00	-90.20	0.00	90.20	1,062.22	282.32	689.28	591.34	20.20	-1.81	0.157
105.00	-3.77	-5.45	0.00	-60.63	0.00	60.63	1,035.64	270.72	633.83	552.70	22.13	-1.88	0.114
110.00	-3.43	-5.00	0.00	-33.39	0.00	33.39	1,007.60	259.13	580.70	514.53	24.13	-1.93	0.069
115.00	-2.46	-2.78	0.00	-8.42	0.00	8.42	978.09	247.53	529.90	476.95	26.17	-1.96	0.020
117.00	-1.73	-1.43	0.00	-2.85	0.00	2.85	965.89	242.89	510.23	462.10	26.99	-1.96	0.008
119.00	0.00	-1.37	0.00	0.00	0.00	0.00	953.44	238.26	490.93	447.37	27.81	-1.96	0.000

Load Case: 0.9D + 1.0W — 129 mph with No Ice (Reduced DL) — 20 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		281.6	0.0					0.0	0.0	281.6	0.0	0.0	0.0
5.00		556.7	872.4					0.0	32.3	556.7	904.7	0.0	0.0
10.00		543.7	852.2					0.0	32.3	543.7	884.5	0.0	0.0
15.00		539.0	832.0					0.0	32.3	539.0	864.3	0.0	0.0
20.00		548.5	811.7					0.0	32.3	548.5	844.0	0.0	0.0
25.00		560.8	791.5					0.0	32.3	560.8	823.8	0.0	0.0
30.00		567.9	771.3					0.0	32.3	567.9	803.6	0.0	0.0
35.00		571.3	751.0					0.0	32.3	571.3	783.3	0.0	0.0
40.00		571.8	730.8					0.0	32.3	571.8	763.1	0.0	0.0
45.00		314.2	710.5					0.0	32.3	314.2	742.9	0.0	0.0
45.50	Bot - Section 2	288.4	69.9					0.0	3.2	288.4	73.2	0.0	0.0
50.00		288.6	1,146.7					0.0	29.1	288.6	1,175.8	0.0	0.0
50.50	Top - Section 1	286.6	125.6					0.0	3.2	286.6	128.8	0.0	0.0
55.00		541.3	511.2					0.0	29.1	541.3	540.3	0.0	0.0
60.00		563.3	552.0					0.0	32.3	563.3	584.3	0.0	0.0
65.00		555.3	535.1					0.0	32.3	555.3	567.4	0.0	0.0
70.00		546.1	518.3					0.0	32.3	546.1	550.6	0.0	0.0
75.00		536.0	501.4					0.0	32.3	536.0	533.7	0.0	0.0
80.00		524.9	484.5					0.0	32.3	524.9	516.8	0.0	0.0
85.00		513.0	467.7					0.0	32.3	513.0	500.0	0.0	0.0
90.00		500.4	450.8					0.0	32.3	500.4	483.1	0.0	0.0
95.00		439.6	433.9					0.0	32.3	439.6	466.2	0.0	0.0
99.00	Top - Section 2	240.1	335.0					0.0	25.8	240.1	360.9	0.0	0.0
100.00		280.4	49.5					0.0	6.5	280.4	55.9	0.0	0.0
105.00		458.4	241.3					0.0	32.3	458.4	273.6	0.0	0.0
110.00		443.2	231.1					0.0	32.3	443.2	263.5	0.0	0.0
115.00	Appurtenance(s)	291.0	221.0	1,888.6	0.0	0.0	534.1	0.0	32.3	2,179.6	787.4	0.0	0.0
117.00	Appurtenance(s)	145.4	85.6	1,185.2	0.0	0.0	491.1	0.0	0.0	1,330.6	576.7	0.0	0.0
119.00	Appurtenance(s)	72.1	84.0	1,293.6	0.0	0.0	1,252.8	0.0	0.0	1,365.7	1,336.8	0.0	0.0
								Totals:		16,937.0	17,189.1	0.00	0.00

Load Case: 0.9D + 1.0W 129 mph with No Ice (Reduced DL) 20 Iterations

Gust Response Factor :1.10
Dead Load Factor :0.90
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-17.17	-16.67	0.00	-1,239.06	0.00	1,239.06	3,967.50	1,011.51	4,424.19	3,953.57	0.00	0.00	0.318
5.00	-16.24	-16.14	0.00	-1,155.71	0.00	1,155.71	3,907.65	988.32	4,223.66	3,803.96	0.05	-0.10	0.308
10.00	-15.33	-15.62	0.00	-1,075.00	0.00	1,075.00	3,846.34	965.12	4,027.79	3,655.73	0.21	-0.20	0.298
15.00	-14.44	-15.10	0.00	-996.90	0.00	996.90	3,783.57	941.93	3,836.56	3,508.96	0.48	-0.30	0.288
20.00	-13.58	-14.57	0.00	-921.38	0.00	921.38	3,719.35	918.74	3,649.98	3,363.77	0.84	-0.40	0.278
25.00	-12.73	-14.03	0.00	-848.51	0.00	848.51	3,653.66	895.55	3,468.06	3,220.24	1.31	-0.50	0.267
30.00	-11.91	-13.47	0.00	-778.37	0.00	778.37	3,586.51	872.36	3,290.78	3,078.48	1.88	-0.59	0.256
35.00	-11.12	-12.91	0.00	-711.00	0.00	711.00	3,517.90	849.16	3,118.16	2,938.60	2.56	-0.69	0.245
40.00	-10.34	-12.35	0.00	-646.45	0.00	646.45	3,447.83	825.97	2,950.18	2,800.69	3.33	-0.79	0.234
45.00	-9.59	-12.03	0.00	-584.71	0.00	584.71	3,376.30	802.78	2,786.86	2,664.86	4.21	-0.88	0.222
45.50	-9.51	-11.75	0.00	-578.70	0.00	578.70	3,369.06	800.46	2,770.78	2,651.39	4.30	-0.89	0.221
50.00	-8.33	-11.45	0.00	-525.82	0.00	525.82	3,300.26	779.59	2,628.19	2,528.86	5.18	-0.97	0.211
50.50	-8.20	-11.17	0.00	-520.10	0.00	520.10	2,642.68	659.69	2,258.21	2,059.93	5.28	-0.98	0.256
55.00	-7.65	-10.63	0.00	-469.85	0.00	469.85	2,594.84	642.30	2,140.71	1,968.88	6.25	-1.06	0.242
60.00	-7.06	-10.06	0.00	-416.72	0.00	416.72	2,540.30	622.97	2,013.84	1,869.01	7.42	-1.16	0.226
65.00	-6.49	-9.51	0.00	-366.39	0.00	366.39	2,484.30	603.64	1,890.84	1,770.62	8.69	-1.26	0.210
70.00	-5.94	-8.96	0.00	-318.85	0.00	318.85	2,426.84	584.32	1,771.72	1,673.79	10.06	-1.36	0.193
75.00	-5.40	-8.42	0.00	-274.06	0.00	274.06	2,367.92	564.99	1,656.47	1,578.64	11.53	-1.44	0.176
80.00	-4.89	-7.89	0.00	-231.96	0.00	231.96	2,307.54	545.66	1,545.10	1,485.26	13.09	-1.53	0.159
85.00	-4.39	-7.37	0.00	-192.53	0.00	192.53	2,228.16	526.34	1,437.60	1,382.87	14.73	-1.61	0.141
90.00	-3.92	-6.86	0.00	-155.69	0.00	155.69	2,146.35	507.01	1,333.98	1,282.68	16.45	-1.68	0.123
95.00	-3.46	-6.41	0.00	-121.41	0.00	121.41	2,064.53	487.68	1,234.24	1,186.25	18.25	-1.74	0.104
99.00	-3.10	-6.16	0.00	-95.78	0.00	95.78	1,999.08	472.22	1,157.23	1,111.83	19.73	-1.79	0.088
99.00	-3.10	-6.16	0.00	-95.78	0.00	95.78	1,067.36	284.64	700.65	599.12	19.73	-1.79	0.163
100.00	-3.05	-5.88	0.00	-89.62	0.00	89.62	1,062.22	282.32	689.28	591.34	20.10	-1.80	0.155
105.00	-2.79	-5.41	0.00	-60.23	0.00	60.23	1,035.64	270.72	633.83	552.70	22.02	-1.87	0.112
110.00	-2.53	-4.96	0.00	-33.16	0.00	33.16	1,007.60	259.13	580.70	514.53	24.01	-1.92	0.067
115.00	-1.82	-2.76	0.00	-8.34	0.00	8.34	978.09	247.53	529.90	476.95	26.04	-1.94	0.019
117.00	-1.29	-1.41	0.00	-2.82	0.00	2.82	965.89	242.89	510.23	462.10	26.85	-1.95	0.007
119.00	0.00	-1.37	0.00	0.00	0.00	0.00	953.44	238.26	490.93	447.37	27.67	-1.95	0.000

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 19 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		71.7	0.0					0.0	0.0	71.7	0.0	0.0	0.0
5.00		142.1	1,397.8					0.0	43.1	142.1	1,440.9	0.0	0.0
10.00		139.3	1,392.5					0.0	43.1	139.3	1,435.6	0.0	0.0
15.00		138.4	1,372.9					0.0	43.1	138.4	1,416.0	0.0	0.0
20.00		141.2	1,348.6					0.0	43.1	141.2	1,391.7	0.0	0.0
25.00		144.6	1,321.9					0.0	43.1	144.6	1,365.0	0.0	0.0
30.00		146.8	1,293.6					0.0	43.1	146.8	1,336.7	0.0	0.0
35.00		147.9	1,264.2					0.0	43.1	147.9	1,307.3	0.0	0.0
40.00		148.3	1,234.1					0.0	43.1	148.3	1,277.2	0.0	0.0
45.00		81.6	1,203.3					0.0	43.1	81.6	1,246.4	0.0	0.0
45.50	Bot - Section 2	75.0	118.9					0.0	4.3	75.0	123.2	0.0	0.0
50.00		75.0	1,759.2					0.0	38.8	75.0	1,798.0	0.0	0.0
50.50	Top - Section 1	74.6	193.1					0.0	4.3	74.6	197.4	0.0	0.0
55.00		141.1	907.6					0.0	38.8	141.1	946.4	0.0	0.0
60.00		147.2	982.0					0.0	43.1	147.2	1,025.1	0.0	0.0
65.00		145.4	954.2					0.0	43.1	145.4	997.3	0.0	0.0
70.00		143.3	926.2					0.0	43.1	143.3	969.3	0.0	0.0
75.00		141.0	897.9					0.0	43.1	141.0	941.0	0.0	0.0
80.00		138.4	869.4					0.0	43.1	138.4	912.5	0.0	0.0
85.00		135.7	840.8					0.0	43.1	135.7	883.9	0.0	0.0
90.00		132.7	812.0					0.0	43.1	132.7	855.0	0.0	0.0
95.00		116.9	783.0					0.0	43.1	116.9	826.1	0.0	0.0
99.00	Top - Section 2	64.0	606.0					0.0	34.5	64.0	640.5	0.0	0.0
100.00		74.9	105.6					0.0	8.6	74.9	114.2	0.0	0.0
105.00		122.8	512.7					0.0	43.1	122.8	555.8	0.0	0.0
110.00		119.2	492.3					0.0	43.1	119.2	535.4	0.0	0.0
115.00	Appurtenance(s)	79.7	471.8	321.2	0.0	0.0	1,394.0	0.0	43.1	400.9	1,908.9	0.0	0.0
117.00	Appurtenance(s)	41.8	183.9	219.2	0.0	0.0	1,098.2	0.0	0.0	261.0	1,282.1	0.0	0.0
119.00	Appurtenance(s)	20.7	180.6	302.1	0.0	0.0	2,262.3	0.0	0.0	322.8	2,442.9	0.0	0.0
								Totals:		4,133.94	30,171.8	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 19 Iterations

Gust Response Factor :1.10 Ice Dead Load Factor :1.00
Dead Load Factor :1.20 Ice Importance Factor :1.00
Wind Load Factor :1.00

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-30.17	-4.07	0.00	-294.05	0.00	294.05	3,967.50	1,011.51	4,424.19	3,953.57	0.00	0.00	0.082
5.00	-28.73	-3.94	0.00	-273.71	0.00	273.71	3,907.65	988.32	4,223.66	3,803.96	0.01	-0.02	0.079
10.00	-27.29	-3.81	0.00	-254.03	0.00	254.03	3,846.34	965.12	4,027.79	3,655.73	0.05	-0.05	0.077
15.00	-25.87	-3.68	0.00	-234.98	0.00	234.98	3,783.57	941.93	3,836.56	3,508.96	0.11	-0.07	0.074
20.00	-24.48	-3.55	0.00	-216.59	0.00	216.59	3,719.35	918.74	3,649.98	3,363.77	0.20	-0.09	0.071
25.00	-23.11	-3.41	0.00	-198.86	0.00	198.86	3,653.66	895.55	3,468.06	3,220.24	0.31	-0.12	0.068
30.00	-21.78	-3.27	0.00	-181.82	0.00	181.82	3,586.51	872.36	3,290.78	3,078.48	0.45	-0.14	0.065
35.00	-20.47	-3.12	0.00	-165.49	0.00	165.49	3,517.90	849.16	3,118.16	2,938.60	0.60	-0.16	0.062
40.00	-19.19	-2.98	0.00	-149.87	0.00	149.87	3,447.83	825.97	2,950.18	2,800.69	0.79	-0.18	0.059
45.00	-17.94	-2.90	0.00	-134.97	0.00	134.97	3,376.30	802.78	2,786.86	2,664.86	0.99	-0.21	0.056
45.50	-17.82	-2.82	0.00	-133.53	0.00	133.53	3,369.06	800.46	2,770.78	2,651.39	1.01	-0.21	0.056
50.00	-16.02	-2.75	0.00	-120.82	0.00	120.82	3,300.26	779.59	2,628.19	2,528.86	1.22	-0.23	0.053
50.50	-15.83	-2.67	0.00	-119.44	0.00	119.44	2,642.68	659.69	2,258.21	2,059.93	1.24	-0.23	0.064
55.00	-14.88	-2.53	0.00	-107.41	0.00	107.41	2,594.84	642.30	2,140.71	1,968.88	1.47	-0.25	0.060
60.00	-13.85	-2.39	0.00	-94.75	0.00	94.75	2,540.30	622.97	2,013.84	1,869.01	1.74	-0.27	0.056
65.00	-12.86	-2.24	0.00	-82.81	0.00	82.81	2,484.30	603.64	1,890.84	1,770.62	2.04	-0.29	0.052
70.00	-11.89	-2.10	0.00	-71.60	0.00	71.60	2,426.84	584.32	1,771.72	1,673.79	2.36	-0.31	0.048
75.00	-10.95	-1.95	0.00	-61.12	0.00	61.12	2,367.92	564.99	1,656.47	1,578.64	2.70	-0.33	0.043
80.00	-10.03	-1.81	0.00	-51.34	0.00	51.34	2,307.54	545.66	1,545.10	1,485.26	3.06	-0.35	0.039
85.00	-9.15	-1.68	0.00	-42.27	0.00	42.27	2,228.16	526.34	1,437.60	1,382.87	3.44	-0.37	0.035
90.00	-8.30	-1.54	0.00	-33.90	0.00	33.90	2,146.35	507.01	1,333.98	1,282.68	3.84	-0.39	0.030
95.00	-7.47	-1.42	0.00	-26.20	0.00	26.20	2,064.53	487.68	1,234.24	1,186.25	4.25	-0.40	0.026
99.00	-6.83	-1.35	0.00	-20.53	0.00	20.53	1,999.08	472.22	1,157.23	1,111.83	4.59	-0.41	0.022
99.00	-6.83	-1.35	0.00	-20.53	0.00	20.53	1,067.36	284.64	700.65	599.12	4.59	-0.41	0.041
100.00	-6.72	-1.28	0.00	-19.18	0.00	19.18	1,062.22	282.32	689.28	591.34	4.67	-0.41	0.039
105.00	-6.16	-1.15	0.00	-12.80	0.00	12.80	1,035.64	270.72	633.83	552.70	5.11	-0.43	0.029
110.00	-5.63	-1.03	0.00	-7.05	0.00	7.05	1,007.60	259.13	580.70	514.53	5.57	-0.44	0.019
115.00	-3.72	-0.61	0.00	-1.91	0.00	1.91	978.09	247.53	529.90	476.95	6.03	-0.44	0.008
117.00	-2.44	-0.34	0.00	-0.68	0.00	0.68	965.89	242.89	510.23	462.10	6.22	-0.44	0.004
119.00	0.00	-0.32	0.00	0.00	0.00	0.00	953.44	238.26	490.93	447.37	6.40	-0.44	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 19 Iterations

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

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces Wind FX (lb)	Shaft Forces Dead Load (lb)	Discrete Forces Wind FX (lb)	Discrete Forces Torsion MY (lb-ft)	Discrete Forces Moment MZ (lb-ft)	Discrete Forces Dead Load (lb)	Linear Forces Wind FX (lb)	Linear Forces Dead Load (lb)	Sum of Forces Wind FX (lb)	Sum of Forces Dead Load (lb)	Sum of Forces Torsion MY (lb-ft)	Sum of Forces Moment MZ (lb)
0.00		54.5	0.0					0.0	0.0	54.5	0.0	0.0	0.0
5.00		107.8	969.4					0.0	35.9	107.8	1,005.3	0.0	0.0
10.00		105.2	946.9					0.0	35.9	105.2	982.8	0.0	0.0
15.00		104.3	924.4					0.0	35.9	104.3	960.3	0.0	0.0
20.00		106.2	901.9					0.0	35.9	106.2	937.8	0.0	0.0
25.00		108.5	879.4					0.0	35.9	108.5	915.3	0.0	0.0
30.00		109.9	856.9					0.0	35.9	109.9	892.8	0.0	0.0
35.00		110.6	834.5					0.0	35.9	110.6	870.4	0.0	0.0
40.00		110.7	812.0					0.0	35.9	110.7	847.9	0.0	0.0
45.00		60.8	789.5					0.0	35.9	60.8	825.4	0.0	0.0
45.50	Bot - Section 2	55.8	77.7					0.0	3.6	55.8	81.3	0.0	0.0
50.00		55.9	1,274.2					0.0	32.3	55.9	1,306.5	0.0	0.0
50.50	Top - Section 1	55.5	139.5					0.0	3.6	55.5	143.1	0.0	0.0
55.00		104.8	568.0					0.0	32.3	104.8	600.3	0.0	0.0
60.00		109.0	613.3					0.0	35.9	109.0	649.2	0.0	0.0
65.00		107.5	594.6					0.0	35.9	107.5	630.5	0.0	0.0
70.00		105.7	575.8					0.0	35.9	105.7	611.7	0.0	0.0
75.00		103.7	557.1					0.0	35.9	103.7	593.0	0.0	0.0
80.00		101.6	538.4					0.0	35.9	101.6	574.3	0.0	0.0
85.00		99.3	519.6					0.0	35.9	99.3	555.5	0.0	0.0
90.00		96.9	500.9					0.0	35.9	96.9	536.8	0.0	0.0
95.00		85.1	482.2					0.0	35.9	85.1	518.1	0.0	0.0
99.00	Top - Section 2	46.5	372.2					0.0	28.7	46.5	401.0	0.0	0.0
100.00		54.3	55.0					0.0	7.2	54.3	62.1	0.0	0.0
105.00		88.7	268.1					0.0	35.9	88.7	304.0	0.0	0.0
110.00		85.8	256.8					0.0	35.9	85.8	292.7	0.0	0.0
115.00	Appurtenance(s)	56.3	245.6	365.6	0.0	0.0	593.4	0.0	35.9	421.9	874.9	0.0	0.0
117.00	Appurtenance(s)	28.1	95.1	229.4	0.0	0.0	545.7	0.0	0.0	257.6	640.8	0.0	0.0
119.00	Appurtenance(s)	14.0	93.3	250.4	0.0	0.0	1,392.0	0.0	0.0	264.3	1,485.3	0.0	0.0
								Totals:		3,278.35	19,099.0	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 19 Iterations

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-19.10	-3.23	0.00	-240.15	0.00	240.15	3,967.50	1,011.51	4,424.19	3,953.57	0.00	0.00	0.066
5.00	-18.09	-3.12	0.00	-224.01	0.00	224.01	3,907.65	988.32	4,223.66	3,803.96	0.01	-0.02	0.064
10.00	-17.11	-3.02	0.00	-208.39	0.00	208.39	3,846.34	965.12	4,027.79	3,655.73	0.04	-0.04	0.061
15.00	-16.15	-2.93	0.00	-193.26	0.00	193.26	3,783.57	941.93	3,836.56	3,508.96	0.09	-0.06	0.059
20.00	-15.21	-2.82	0.00	-178.64	0.00	178.64	3,719.35	918.74	3,649.98	3,363.77	0.16	-0.08	0.057
25.00	-14.29	-2.72	0.00	-164.52	0.00	164.52	3,653.66	895.55	3,468.06	3,220.24	0.25	-0.10	0.055
30.00	-13.40	-2.61	0.00	-150.93	0.00	150.93	3,586.51	872.36	3,290.78	3,078.48	0.37	-0.12	0.053
35.00	-12.53	-2.50	0.00	-137.88	0.00	137.88	3,517.90	849.16	3,118.16	2,938.60	0.50	-0.13	0.050
40.00	-11.68	-2.39	0.00	-125.37	0.00	125.37	3,447.83	825.97	2,950.18	2,800.69	0.65	-0.15	0.048
45.00	-10.85	-2.33	0.00	-113.40	0.00	113.40	3,376.30	802.78	2,786.86	2,664.86	0.82	-0.17	0.046
45.50	-10.77	-2.28	0.00	-112.24	0.00	112.24	3,369.06	800.46	2,770.78	2,651.39	0.83	-0.17	0.046
50.00	-9.47	-2.22	0.00	-101.99	0.00	101.99	3,300.26	779.59	2,628.19	2,528.86	1.00	-0.19	0.043
50.50	-9.32	-2.16	0.00	-100.88	0.00	100.88	2,642.68	659.69	2,258.21	2,059.93	1.02	-0.19	0.053
55.00	-8.72	-2.06	0.00	-91.14	0.00	91.14	2,594.84	642.30	2,140.71	1,968.88	1.21	-0.21	0.050
60.00	-8.07	-1.95	0.00	-80.84	0.00	80.84	2,540.30	622.97	2,013.84	1,869.01	1.44	-0.23	0.046
65.00	-7.44	-1.84	0.00	-71.08	0.00	71.08	2,484.30	603.64	1,890.84	1,770.62	1.69	-0.24	0.043
70.00	-6.83	-1.74	0.00	-61.86	0.00	61.86	2,426.84	584.32	1,771.72	1,673.79	1.95	-0.26	0.040
75.00	-6.24	-1.63	0.00	-53.17	0.00	53.17	2,367.92	564.99	1,656.47	1,578.64	2.24	-0.28	0.036
80.00	-5.66	-1.53	0.00	-45.01	0.00	45.01	2,307.54	545.66	1,545.10	1,485.26	2.54	-0.30	0.033
85.00	-5.11	-1.43	0.00	-37.36	0.00	37.36	2,228.16	526.34	1,437.60	1,382.87	2.86	-0.31	0.029
90.00	-4.57	-1.33	0.00	-30.21	0.00	30.21	2,146.35	507.01	1,333.98	1,282.68	3.19	-0.33	0.026
95.00	-4.05	-1.24	0.00	-23.56	0.00	23.56	2,064.53	487.68	1,234.24	1,186.25	3.54	-0.34	0.022
99.00	-3.65	-1.19	0.00	-18.59	0.00	18.59	1,999.08	472.22	1,157.23	1,111.83	3.83	-0.35	0.019
99.00	-3.65	-1.19	0.00	-18.59	0.00	18.59	1,067.36	284.64	700.65	599.12	3.83	-0.35	0.034
100.00	-3.59	-1.14	0.00	-17.39	0.00	17.39	1,062.22	282.32	689.28	591.34	3.90	-0.35	0.033
105.00	-3.29	-1.05	0.00	-11.69	0.00	11.69	1,035.64	270.72	633.83	552.70	4.27	-0.36	0.024
110.00	-2.99	-0.96	0.00	-6.44	0.00	6.44	1,007.60	259.13	580.70	514.53	4.66	-0.37	0.015
115.00	-2.12	-0.54	0.00	-1.62	0.00	1.62	978.09	247.53	529.90	476.95	5.05	-0.38	0.006
117.00	-1.48	-0.27	0.00	-0.55	0.00	0.55	965.89	242.89	510.23	462.10	5.21	-0.38	0.003
119.00	0.00	-0.26	0.00	0.00	0.00	0.00	953.44	238.26	490.93	447.37	5.37	-0.38	0.000

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.18
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.05
Long-Period Transition Period (T_L):	6
Importance Factor (I_E):	1.00
Site Coefficient F_a:	1.60
Site Coeffiecient F_v:	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period (S_{ds}):	0.19
Design Spectral Response Acceleration at 1.0 Second Period (S_{d1}):	0.08
Seismic Response Coefficient (C_s):	0.04
Upper Limit C_s	0.04
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.24
Redundancy Factor (p):	1.30
Seismic Force Distribution Exponent (k):	1.37
Total Unfactored Dead Load:	19.10 k
Seismic Base Shear (E):	1.11 k

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
28	118.00	93	65	0.012	13	116
27	116.00	95	64	0.012	13	118
26	112.50	281	182	0.034	37	349
25	107.50	293	178	0.033	36	363
24	102.50	304	173	0.032	35	377
23	99.50	62	34	0.006	7	77
22	97.00	401	212	0.039	43	497
21	92.50	518	257	0.047	52	642
20	87.50	537	246	0.045	50	665
19	82.50	556	235	0.043	48	688
18	77.50	574	223	0.041	46	711
17	72.50	593	210	0.039	43	735
16	67.50	612	197	0.036	40	758
15	62.50	630	183	0.034	37	781
14	57.50	649	168	0.031	34	804
13	52.75	600	138	0.025	28	744
12	50.25	143	31	0.006	6	177
11	47.75	1,306	262	0.048	53	1,618
10	45.25	81	15	0.003	3	101
9	42.50	825	141	0.026	29	1,023
8	37.50	848	122	0.022	25	1,050
7	32.50	870	103	0.019	21	1,078
6	27.50	893	84	0.015	17	1,106
5	22.50	915	65	0.012	13	1,134
4	17.50	938	47	0.009	10	1,162

3	12.50	960	31	0.006	6	1,190
2	7.50	983	16	0.003	3	1,217
1	2.50	1,005	4	0.001	1	1,245
Round T-Arm	119.00	1,392	974	0.179	199	1,724
Ericsson AIR 21, 1.3	117.00	275	188	0.035	38	340
Ericsson AIR 21, 1.3	117.00	271	185	0.034	38	336
Ericsson Radio 4449	115.00	225	150	0.028	31	279
RFS APXVAALL24 43-U-	115.00	368	246	0.045	50	456
		19,099	5,429	1.000	1,109	23,660

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

Segment	Height Above Base (ft)	Weight (lb)	W_z (lb-ft)	C_{vx}	Horizontal Force (lb)	Vertical Force (lb)
28	118.00	93	65	0.012	13	80
27	116.00	95	64	0.012	13	82
26	112.50	281	182	0.034	37	242
25	107.50	293	178	0.033	36	252
24	102.50	304	173	0.032	35	262
23	99.50	62	34	0.006	7	54
22	97.00	401	212	0.039	43	345
21	92.50	518	257	0.047	52	446
20	87.50	537	246	0.045	50	462
19	82.50	556	235	0.043	48	478
18	77.50	574	223	0.041	46	495
17	72.50	593	210	0.039	43	511
16	67.50	612	197	0.036	40	527
15	62.50	630	183	0.034	37	543
14	57.50	649	168	0.031	34	559
13	52.75	600	138	0.025	28	517
12	50.25	143	31	0.006	6	123
11	47.75	1,306	262	0.048	53	1,125
10	45.25	81	15	0.003	3	70
9	42.50	825	141	0.026	29	711
8	37.50	848	122	0.022	25	730
7	32.50	870	103	0.019	21	750
6	27.50	893	84	0.015	17	769
5	22.50	915	65	0.012	13	788
4	17.50	938	47	0.009	10	808
3	12.50	960	31	0.006	6	827
2	7.50	983	16	0.003	3	846
1	2.50	1,005	4	0.001	1	866
Round T-Arm	119.00	1,392	974	0.179	199	1,199
Ericsson AIR 21, 1.3	117.00	275	188	0.035	38	236
Ericsson AIR 21, 1.3	117.00	271	185	0.034	38	234
Ericsson Radio 4449	115.00	225	150	0.028	31	194
RFS APXVAALL24 43-U-	115.00	368	246	0.045	50	317
		19,099	5,429	1.000	1,109	16,448

Load Case 1.2D + 1.0Ev + 1.0Eh Seismic

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-22.41	-1.11	0.00	-96.50	0.00	96.50	3,967.50	1,011.51	4,424.19	3,953.57	0.00	0.00	0.030
5.00	-21.20	-1.11	0.00	-90.96	0.00	90.96	3,907.65	988.32	4,223.66	3,803.96	0.00	-0.01	0.029
10.00	-20.01	-1.11	0.00	-85.41	0.00	85.41	3,846.34	965.12	4,027.79	3,655.73	0.02	-0.02	0.029
15.00	-18.85	-1.10	0.00	-79.88	0.00	79.88	3,783.57	941.93	3,836.56	3,508.96	0.04	-0.02	0.028
20.00	-17.71	-1.09	0.00	-74.40	0.00	74.40	3,719.35	918.74	3,649.98	3,363.77	0.07	-0.03	0.027
25.00	-16.61	-1.07	0.00	-68.96	0.00	68.96	3,653.66	895.55	3,468.06	3,220.24	0.10	-0.04	0.026
30.00	-15.53	-1.05	0.00	-63.61	0.00	63.61	3,586.51	872.36	3,290.78	3,078.48	0.15	-0.05	0.025
35.00	-14.48	-1.03	0.00	-58.35	0.00	58.35	3,517.90	849.16	3,118.16	2,938.60	0.20	-0.06	0.024
40.00	-13.45	-1.00	0.00	-53.22	0.00	53.22	3,447.83	825.97	2,950.18	2,800.69	0.27	-0.06	0.023
45.00	-13.35	-1.00	0.00	-48.22	0.00	48.22	3,376.30	802.78	2,786.86	2,664.86	0.34	-0.07	0.022
45.50	-11.73	-0.94	0.00	-47.72	0.00	47.72	3,369.06	800.46	2,770.78	2,651.39	0.34	-0.07	0.021
50.00	-11.56	-0.94	0.00	-43.48	0.00	43.48	3,300.26	779.59	2,628.19	2,528.86	0.41	-0.08	0.021
50.50	-10.81	-0.91	0.00	-43.01	0.00	43.01	2,642.68	659.69	2,258.21	2,059.93	0.42	-0.08	0.025
55.00	-10.01	-0.87	0.00	-38.92	0.00	38.92	2,594.84	642.30	2,140.71	1,968.88	0.50	-0.09	0.024
60.00	-9.23	-0.84	0.00	-34.55	0.00	34.55	2,540.30	622.97	2,013.84	1,869.01	0.60	-0.09	0.022
65.00	-8.47	-0.80	0.00	-30.37	0.00	30.37	2,484.30	603.64	1,890.84	1,770.62	0.70	-0.10	0.021
70.00	-7.74	-0.75	0.00	-26.38	0.00	26.38	2,426.84	584.32	1,771.72	1,673.79	0.81	-0.11	0.019
75.00	-7.02	-0.71	0.00	-22.62	0.00	22.62	2,367.92	564.99	1,656.47	1,578.64	0.93	-0.12	0.017
80.00	-6.34	-0.66	0.00	-19.08	0.00	19.08	2,307.54	545.66	1,545.10	1,485.26	1.06	-0.12	0.016
85.00	-5.67	-0.61	0.00	-15.79	0.00	15.79	2,228.16	526.34	1,437.60	1,382.87	1.19	-0.13	0.014
90.00	-5.03	-0.55	0.00	-12.75	0.00	12.75	2,146.35	507.01	1,333.98	1,282.68	1.33	-0.14	0.012
95.00	-4.53	-0.51	0.00	-9.98	0.00	9.98	2,064.53	487.68	1,234.24	1,186.25	1.48	-0.14	0.011
99.00	-4.46	-0.50	0.00	-7.94	0.00	7.94	1,999.08	472.22	1,157.23	1,111.83	1.60	-0.15	0.009
99.00	-4.46	-0.50	0.00	-7.94	0.00	7.94	1,067.36	284.64	700.65	599.12	1.60	-0.15	0.017
100.00	-4.08	-0.47	0.00	-7.44	0.00	7.44	1,062.22	282.32	689.28	591.34	1.63	-0.15	0.016
105.00	-3.72	-0.43	0.00	-5.11	0.00	5.11	1,035.64	270.72	633.83	552.70	1.79	-0.15	0.013
110.00	-3.37	-0.39	0.00	-2.96	0.00	2.96	1,007.60	259.13	580.70	514.53	1.95	-0.16	0.009
115.00	-2.52	-0.30	0.00	-1.00	0.00	1.00	978.09	247.53	529.90	476.95	2.12	-0.16	0.005
117.00	-1.72	-0.20	0.00	-0.41	0.00	0.41	965.89	242.89	510.23	462.10	2.18	-0.16	0.003
119.00	0.00	-0.20	0.00	0.00	0.00	0.00	953.44	238.26	490.93	447.37	2.25	-0.16	0.000

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

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-15.58	-1.11	0.00	-96.07	0.00	96.07	3,967.50	1,011.51	4,424.19	3,953.57	0.00	0.00	0.028
5.00	-14.74	-1.11	0.00	-90.52	0.00	90.52	3,907.65	988.32	4,223.66	3,803.96	0.00	-0.01	0.028
10.00	-13.91	-1.10	0.00	-84.98	0.00	84.98	3,846.34	965.12	4,027.79	3,655.73	0.02	-0.02	0.027
15.00	-13.10	-1.10	0.00	-79.47	0.00	79.47	3,783.57	941.93	3,836.56	3,508.96	0.04	-0.02	0.026
20.00	-12.31	-1.08	0.00	-73.99	0.00	73.99	3,719.35	918.74	3,649.98	3,363.77	0.07	-0.03	0.025
25.00	-11.54	-1.07	0.00	-68.58	0.00	68.58	3,653.66	895.55	3,468.06	3,220.24	0.10	-0.04	0.024
30.00	-10.79	-1.05	0.00	-63.24	0.00	63.24	3,586.51	872.36	3,290.78	3,078.48	0.15	-0.05	0.024
35.00	-10.06	-1.02	0.00	-58.01	0.00	58.01	3,517.90	849.16	3,118.16	2,938.60	0.20	-0.06	0.023
40.00	-9.35	-0.99	0.00	-52.89	0.00	52.89	3,447.83	825.97	2,950.18	2,800.69	0.26	-0.06	0.022
45.00	-9.28	-0.99	0.00	-47.92	0.00	47.92	3,376.30	802.78	2,786.86	2,664.86	0.33	-0.07	0.021
45.50	-8.16	-0.94	0.00	-47.42	0.00	47.42	3,369.06	800.46	2,770.78	2,651.39	0.34	-0.07	0.020
50.00	-8.03	-0.93	0.00	-43.20	0.00	43.20	3,300.26	779.59	2,628.19	2,528.86	0.41	-0.08	0.020
50.50	-7.52	-0.90	0.00	-42.74	0.00	42.74	2,642.68	659.69	2,258.21	2,059.93	0.42	-0.08	0.024
55.00	-6.96	-0.87	0.00	-38.67	0.00	38.67	2,594.84	642.30	2,140.71	1,968.88	0.50	-0.09	0.022
60.00	-6.41	-0.83	0.00	-34.32	0.00	34.32	2,540.30	622.97	2,013.84	1,869.01	0.59	-0.09	0.021
65.00	-5.89	-0.79	0.00	-30.16	0.00	30.16	2,484.30	603.64	1,890.84	1,770.62	0.70	-0.10	0.019
70.00	-5.38	-0.75	0.00	-26.20	0.00	26.20	2,426.84	584.32	1,771.72	1,673.79	0.81	-0.11	0.018
75.00	-4.88	-0.70	0.00	-22.46	0.00	22.46	2,367.92	564.99	1,656.47	1,578.64	0.93	-0.12	0.016
80.00	-4.40	-0.65	0.00	-18.95	0.00	18.95	2,307.54	545.66	1,545.10	1,485.26	1.05	-0.12	0.015
85.00	-3.94	-0.60	0.00	-15.68	0.00	15.68	2,228.16	526.34	1,437.60	1,382.87	1.19	-0.13	0.013
90.00	-3.50	-0.55	0.00	-12.66	0.00	12.66	2,146.35	507.01	1,333.98	1,282.68	1.32	-0.14	0.011
95.00	-3.15	-0.51	0.00	-9.91	0.00	9.91	2,064.53	487.68	1,234.24	1,186.25	1.47	-0.14	0.010
99.00	-3.10	-0.50	0.00	-7.88	0.00	7.88	1,999.08	472.22	1,157.23	1,111.83	1.59	-0.14	0.009
99.00	-3.10	-0.50	0.00	-7.88	0.00	7.88	1,067.36	284.64	700.65	599.12	1.59	-0.14	0.016
100.00	-2.84	-0.46	0.00	-7.39	0.00	7.39	1,062.22	282.32	689.28	591.34	1.62	-0.15	0.015
105.00	-2.58	-0.43	0.00	-5.07	0.00	5.07	1,035.64	270.72	633.83	552.70	1.78	-0.15	0.012
110.00	-2.34	-0.39	0.00	-2.94	0.00	2.94	1,007.60	259.13	580.70	514.53	1.94	-0.16	0.008
115.00	-1.75	-0.29	0.00	-0.99	0.00	0.99	978.09	247.53	529.90	476.95	2.10	-0.16	0.004
117.00	-1.20	-0.20	0.00	-0.40	0.00	0.40	965.89	242.89	510.23	462.10	2.17	-0.16	0.002
119.00	0.00	-0.20	0.00	0.00	0.00	0.00	953.44	238.26	490.93	447.37	2.24	-0.16	0.000

Analysis Summary

	Reactions						Max Usage	
Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.0W	16.68	0.00	22.90	0.00	0.00	1243.79	0.00	0.32
0.9D + 1.0W	16.67	0.00	17.17	0.00	0.00	1239.06	0.00	0.32
1.2D + 1.0Di + 1.0Wi	4.07	0.00	30.17	0.00	0.00	294.05	0.00	0.08
1.2D + 1.0Ev + 1.0Eh	1.11	0.00	22.41	0.00	0.00	96.50	0.00	0.03
0.9D - 1.0Ev + 1.0Eh	1.11	0.00	15.58	0.00	0.00	96.07	0.00	0.03
1.0D + 1.0W	3.23	0.00	19.10	0.00	0.00	240.15	0.00	0.07

Base Plate & Anchor Rod Analysis

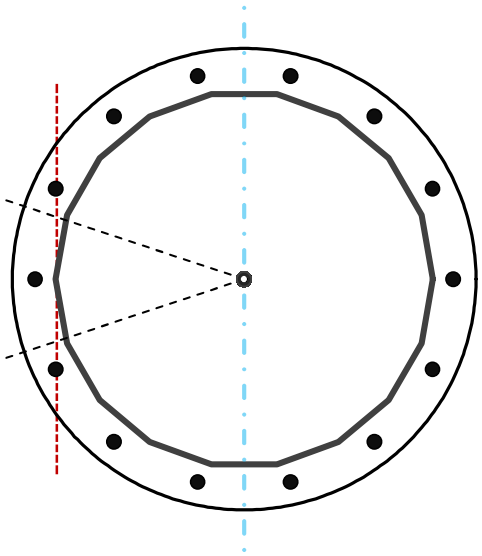
Pole Dimensions		
Number of Sides	18	-
Diameter	48.8	in
Thickness	3/8	in
Orientation Offset	0	°

Base Reactions		
Moment, Mu	1,243.8	k-ft
Axial, Pu	22.9	k
Shear, Vu	16.7	k
Neutral Axis	90	°

Report Capacities		
Component	Capacity	Result
Base Plate	9%	Pass
Anchor Rods	34%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	61	in
Thickness	2 3/4	in
Grade	A572-50	
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	N/A	in
Orientation Offset	0	°
Anchor Rod Detail	d	η=0.5
Clear Distance	4 1/2	in
Applied Moment, Mu	152.8	k
Bending Stress, ϕMn	1723.2	k

Original Anchor Rods		
Arrangement	Radial	-
Quantity	14	-
Diameter, ø	2 1/4	in
Bolt Circle	55	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	12.3	in
Orientation Offset	0	°
Applied Force, Pu	82.6	k
Anchor Rods, ϕPn	243.6	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	16.7	1243.8	1.00
Anchor Rod Forces	16.7	1243.8	1.00
Additional Bolt (Grp1) Forces	0.0	0.0	0.00
Additional Bolt (Grp2) Forces	0.0	0.0	0.00
Dywidag Forces	0.0	0.0	0.00
Stiffener Forces	0.0	0.0	0.00

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	56.7602	3.1533	0.1484		16640.36
Bolt	3.9761	3.2477	0.8393	4.5	15751.46
Bolt1	0.0000	0.0000	0.0000	0	0.00
Bolt2	0.0000	0.0000	0.0000	0	0.00
Dywidag	0.0000	0.0000	0.0000		0.00
Stiffener	0.0000	0.0000	0.0000		0.00

Base Plate		
Shape	Round	-
Diameter, D	61	in
Thickness, t	2.75	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	36.600	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	4.5	-

Anchor Rods		
Anchor Rod Quantity, N	14	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	55	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	82.6	k
Applied Shear, Vu	0.4	k
Compressive Capacity, ϕPn	243.6	k
Tensile Capacity, ϕRnt	0.339	OK
Interaction Capacity	0.120	OK

External Base Plate		
Chord Length AA	30.209	in
Additional AA	5.500	in
Section Modulus, Z	67.513	in^3
Applied Moment, Mu	152.8	k-ft
Bending Capacity, ϕMn	3038.1	k-ft
Capacity, Mu/ϕMn	0.050	OK
Chord Length AB	28.951	in
Additional AB	5.500	in
Section Modulus, Z	65.134	in^3
Applied Moment, Mu	121.7	k-ft
Bending Capacity, ϕMn	2931.0	k-ft
Capacity, Mu/ϕMn	0.042	OK
Bend Line Length	20.254	in
Additional Bend Line	0.000	in
Section Modulus, Z	38.293	in^3
Applied Moment, Mu	152.8	k-ft
Bending Capacity, ϕMn	1723.2	k-ft
Capacity, Mu/ϕMn	0.089	OK

Internal Base Plate		
Arc Length	0.000	in
Section Modulus, Z	0.000	in^3
Moment Arm	0.000	in
Applied Moment, Mu	0.0	k-ft
Bending Capacity, ϕMn	0.0	k-ft
Capacity, Mu/ϕMn		

Flange Plate Analysis

Flange Plate

Plate Type	***Flange***	***@ 99 ft***
Pole Diameter	27.4	in
Pole Thickness	0.1875	in
Plate Diameter	35.125	in
Plate Thickness	0.75	in
Plate Fy	60	ksi
Weld Length	0.1875	in
f_s Resistance	40.71	k-in
Applied	17.93	k-in

Code Rev.	***H***
Moment	96.4 k-ft
Axial	4.2 k

Required Flange Thickness:
0.50 in OK

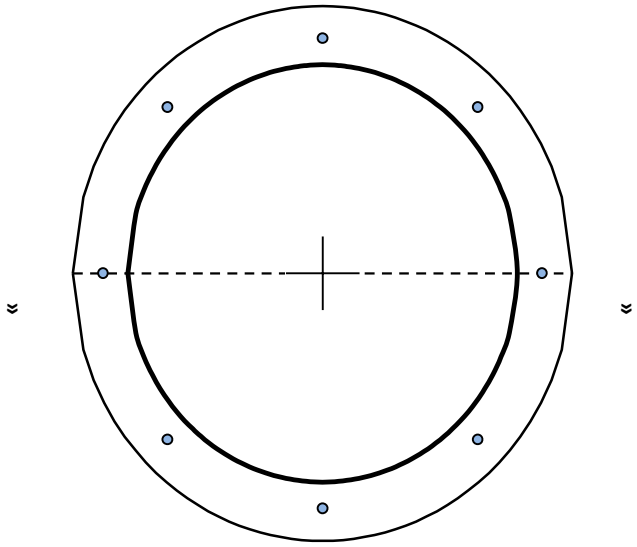
Date	4/22/2021
Engineer	LMY
Site #	284984
Carrier	T-MOBILE

Stiffeners

#	***0***

Bolts

#	***8***	
Bolt Circle	30.87	in
(R)adial / (S)quare	R	
Bolt Gap	6	in
Diameter	1	in
Hole Diameter	1.125	in
Type	A325	
Fy	92	ksi
Fu	120	ksi
f_s Resistance	54.52	k
Applied	18.20	k



Reinforcement

#	***0***

Plate Stress Ratio:
44% Pass

Bolt Stress Ratio:
33% Pass

Extra Bolts 0

#	

Site Name: PAWCATUCK CT, CT
Site Number: 284984
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-H Standards

Monolithic Mat & Pier Foundation Analysis

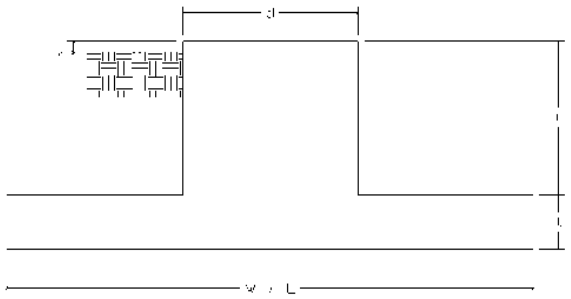
Foundation Analysis Parameters		
Design / Analysis / Mapping:	Analysis	-
Compression/Leg:		k
Uplift/Leg:		k
Total Shear:	16.7	k
Moment:	1,243.8	k-ft
Tower + Appurtenance Weight:	22.9	k
Depth to Base of Foundation (l + t - h):	5.5	ft
Diameter of Pier (d):	7	ft
Length of Pier (l):	4.5	ft
Height of Pier above Ground (h):	1	ft
Width of Pad (W):	23	ft
Length of Pad (L):	23	ft
Thickness of Pad (t):	2	ft
Tower Leg Center to Center:	0	ft
Number of Tower Legs:	1	-
Tower Center from Mat Center:	0	ft
Depth Below Ground Surface to Water Table:	99	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	130	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	67.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.5	-
Ultimate Compressive Bearing Pressure:	12,000	psf
Ultimate Passive Pressure on Pad Face:	0	psf
$f_{Soil\ and\ Concrete\ Weight}$:	0.9	-
f_{Soil}:	0.75	-

Overturning Moment Usage		
Design OTM:	1352.2	k-ft
OTM Resistance:	4612.6	k-ft
Design OTM / OTM Resistance:	29%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	1488	psf
Factored Nominal Bearing Pressure:	9000	psf
Factored Nominal (Net) Bearing Pressure:	17%	Pass
Load Direction Controling Design Bearing Pressure:	*Diagonal to Pad Edge*	

Sliding Factor of Safety		
Ultimate Friction Resistance:	213.5	k
Ultimate Passive Pressure Resistance:	0.0	k
Total Factored Sliding Resistance:	160.1	k
Sliding Design / Sliding Resistance:	10%	Pass

Foundation Steel Parameters		
Shear/Leg (Compression):	11.1	k
Shear/Leg (Uplift):	9.2	k
Concrete Strength (f'_c):	4,000	psi
Pad Tension Steel Depth:	20.50	in
Dead Load Factor:	0.9	-
f_{Shear}:	0.75	-
$f_{Flexure\ /\ Tension}$:	0.9	-
$f_{Compression:}$	0.65	-
b:	0.85	-
Bottom Pad Rebar Size #:	8	-
# of Bottom Pad Rebar:	28	-
Pad Bottom Steel Area:	22.12	in^2
Pad Steel F_y:	60,000	psi
Top Pad Rebar Size #:	8	-
# of Top Pad Rebar:	28	-
Pad Top Steel Area:	22.12	in^2
Pier Rebar Size #:	8	-
Pier Steel Area (Single Bar):	0.79	in^2
# of Pier Rebar:	36	-
Pier Steel F_y:	60,000	psi
Pier Cage Diameter:	76.0	in
Rebar Strain Limit:	0.008	-
Steel Elastic Modulus:	29,000	ksi
Tie Rebar Size #:	4	-
Tie Steel Area (Single Bar):	0.20	in^2
Tie Spacing:	12	in
Tie Steel F_y:	60,000	psi
Clear Cover:	3	in



Pad Strength Capacity			
Factored One Way Shear (V_u):	128.3	k	
One Way Shear Capacity (fV_c):	536.8	k	*ACI 318-14 25.5.5.1*
V_u / fV_c:	24%	Pass	
Load Direction Controling Shear Capacity:	*Parallel to Pad Edge*		
Lower Steel Pad Factored Moment (M_u):	679.3	k-ft	
Lower Steel Pad Moment Capacity (fM_n):	1980.7	k-ft	*ACI 318-14 22.3.1.1*
M_u / fM_n:	34%	Pass	
Load Direction Controling Flexural Capacity:	*Parallel to Pad Edge*		
Upper Steel Pad Factored Moment (M_u):	335.6	k-ft	
Upper Steel Pad Moment Capacity (fM_n):	1980.7	k-ft	
M_u / fM_n:	17%	Pass	
Lower Pad Flexural Reinforcement Ratio:	0.0039		*OK - ACI 318-14 7.6.1.1 & 8.6.1.1*
Upper Pad Flexural Reinforcement Ratio:	0.0039		*OK - ACI 318-14 7.6.1.1 & 8.6.1.1*
Pad Shrinkage Reinforcement Ratio:	0.0078		*OK - ACI 318-14 24.4.3.2*
Lower Pad Reinforcement Spacing:	10.0	in	*OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3*
Upper Pad Reinforcement Spacing:	10.0	in	*OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3*
Ultimate Punching Shear Stress, v_u:	25.72	psi	*ACI 318-14 R8.4.4.2.3*
Nominal Punching Shear Capacity (f_cv_c):	189.7	psi	*ACI 318-14 22.6.5.2*
v_u / f_cv_c:	14%	Pass	
Pier Moment Pad Flexure Transfer Ratio, γ_f:	0.60		*TIA-222-H 9.4.2*
Moment Transfer Effective Flexural Width, B_{eff}:	13.00	ft	*TIA-222-H 9.4.2*
Moment Transfer Through Pad Flexure:	9495.72	k-in	*TIA-222-H 9.4.2*
Moment Transfer Flexural Capacity ($fM_{sc,f}$):	14094.47	k-in	
g_fM_{sc} / $fM_{sc,f}$:	0%	Pass	

Pier Strength Capacity			
Factored Moment in Pier (M_u):	1318.9	k-ft	
Pier Moment Capacity (fM_n):	4756.5	k-ft	
M_u / fM_n:	28%	Pass	
Factored Shear in Pier (V_u):	16.7	k	
Pier Shear Capacity (fV_n):	626.5	k	*ACI 318-14 22.5.1.1*
V_u / fV_c:	3%	Pass	
Pier Shear Reinforcement Ratio:	0.0004		*OK - No Ties Necessary for Shear - ACI11.5.6.1*
Factored Tension in Pier (T_u):	0.0	k	
Pier Tension Capacity (fT_n):	1535.8	k	
T_u / fT_n:	0%	Pass	
Factored Compression in Pier (P_u):	0.0	k	
Pier Compression Capacity (fP_n):	9772.2	k	*ACI 318-14 22.4.2.1*
P_u / fP_n:	0%	Pass	
Pier Compression Reinforcement Ratio:	0.005		*OK - TIA-222-H 9.4.1*
Minimum Depth to Develop Vertical Rebar:	29	in	*ACI 318-14 25.4.2.3*
Minimum Hook Development Length:	19	in	*ACI 318-14 25.4.3.1*
Minimum Mat Thickness / Edge Distance from Pier:	22.0	in	
Minimum Foundation Depth:	4.02	ft	
$M_u/f_BM_n + T_u/f_TT_n$:	28%	Pass	

AMERICAN TOWER®
CORPORATION

Antenna Mount Analysis Report

ATC Site Name	:	**PAWCATUCK CT, CT**
ATC Site Number	:	**284984**
Engineering Number	:	**13663614_C8_02**
Mount Elevation	:	**116 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**Amtrak_Stonington3**
Carrier Site Number	:	**CTNL813C**
Site Location	:	**166 Pawcatuck Ave** **Pawcatuck, CT 6379** **41.360489 , -71.85429**
County	:	**New London**
Date	:	**April 21, 2021**
Max Usage	:	**81%**
Result	:	**Contingent Pass**

Prepared By:
Kyle Sammarco
Structural Engineer

Reviewed By:

Authorized by "EOR"
21 Apr 2021 09:20:22 cosign

COA: PEC.0001553

AMERICAN TOWER®
CORPORATION

Table of Contents

Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for T-Mobile at 116 ft.

Supporting Documents

Previous Analysis	CLS Engineering Project #41124-12948443-01-MA, dated August 2, 2019
Radio Frequency Data Sheet	RFDS ID #CTNL813C, dated February 16, 2021
Reference Photos	Site photos from 2018

Analysis

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

Basic Wind Speed:	129 mph (3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (3-Second Gust) w/ 1'' radial ice concurrent
Codes:	ANSI/TIA-222-H/2018 Connecticut State Building Code
Exposure Category:	C
Risk Category:	II
Topographic Factor Procedure:	Method 2
Feature:	Flat
Crest Height (H):	0 ft
Crest Length (L):	0 ft
Spectral Response:	Ss = 0.182, S1 = 0.052
Site Class:	C - Very Dense Soil
Live Loads:	Lm = 500 lbs, Lv = 250 lbs

Conclusion

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

- Replace Mount Pipe B with P2.5 (2.875" x 120") antenna mounting pipe with Site Pro 1 SCX45-K crossover plate kits.

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

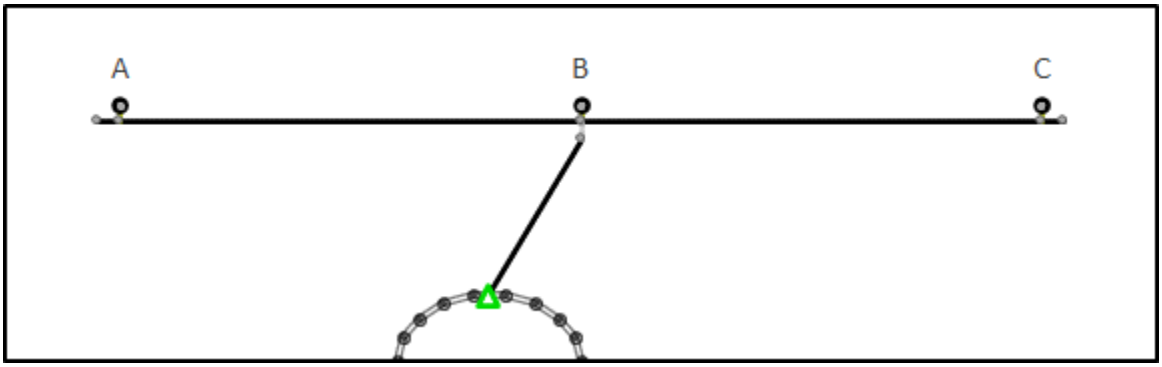
Application Loading

Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
116.0	117.0	3	Ericsson AIR 21, 1.3M, B4A B2P (90.4 lbs)
		3	Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)
	115.0	3	RFS APXVAALL24 43-U-NA20
		3	Ericsson Radio 4449 B71 B85A

Structure Usages

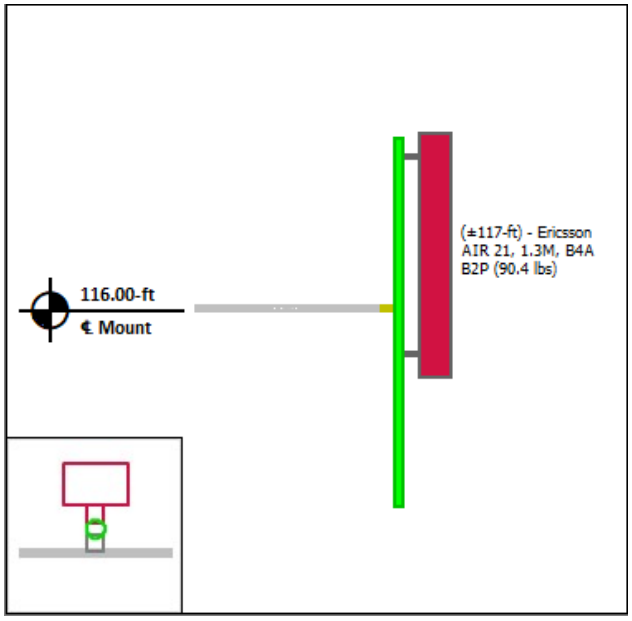
Structural Component	Controlling Usage	Pass/Fail
Horizontals	81%	Pass
Verticals	35%	Pass
Mount Pipes	57%	Pass

Mount Layout

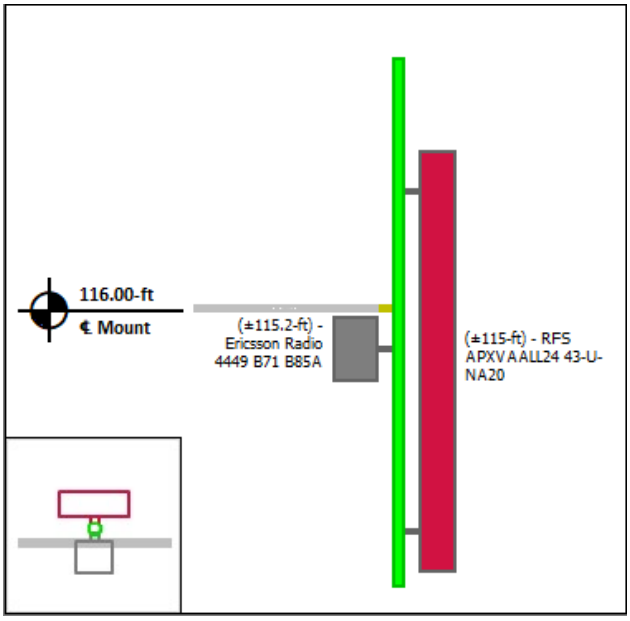


Equipment Layout

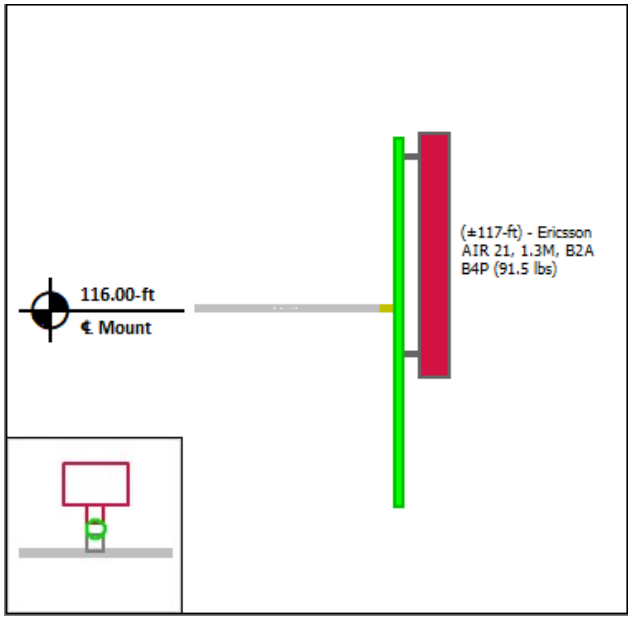
Mount Pipe A



Mount Pipe B



Mount Pipe C



Standard Conditions

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

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

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

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

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

AMERICAN TOWER®
CORPORATION

Site Number:	*284984*
Project Number:	*13663614_C8_02*
Carrier:	*T-Mobile*
Mount Elevation:	*116 ft*
Date:	4/21/2021

Mount Analysis Force Calculations

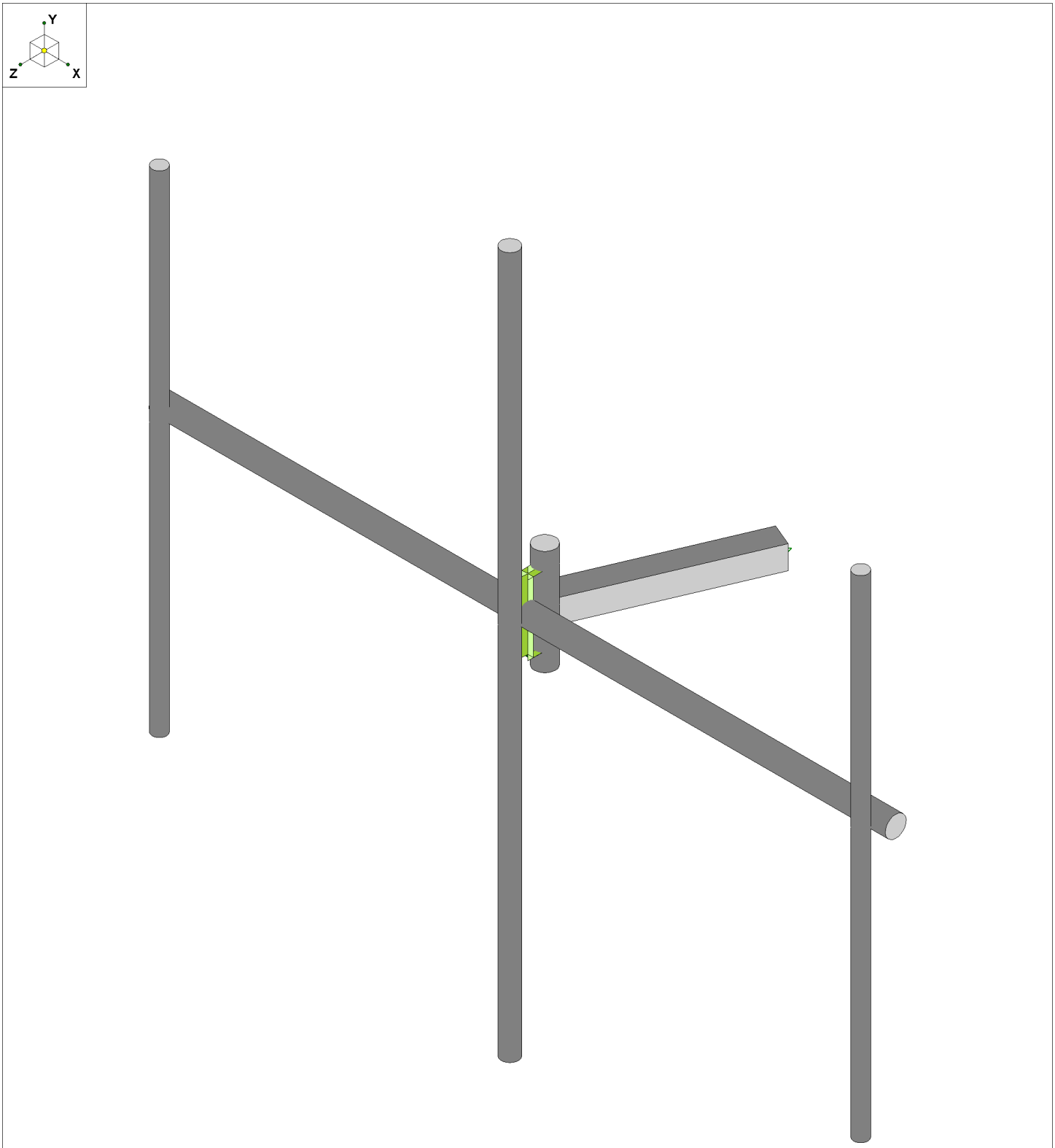
Wind & Ice Load Calculations			
Velocity Pressure Coefficient	K_z	1.31	
Topographic Factor	K_{zt}	1.00	
Rooftop Wind Speed-up Factor	K_s	1.00	
Shielding Factor	K_a	0.90	
Ground Elevation Factor	K_e	1.00	
Wind Direction Probability Factor	K_d	0.95	
Basic Wind Speed	V	129	mph
Velocity Pressure	q_z	52.8	psf
Height Escalation Factor	K_{iz}	1.13	
Thickness of Radial Glaze Ice	T_{iz}	1.13	in

Seismic Load Calculations			
Short Period DSRAP	S_{DS}	0.158	
1 Second DSRAP	S_{D1}	0.052	
Importance Factor	I	1.0	
Response Modification Coefficient	R	2.0	
Seismic Response Coefficient	C_S	0.079	
Amplification Factor	A	1.0	
Total Weight	W	613.5	lbs
Total Shear Force	V_S	48.4	lbs
Horizontal Seismic Load	Eh	48.4	lbs
Vertical Seismic Load	Ev	19.4	lbs

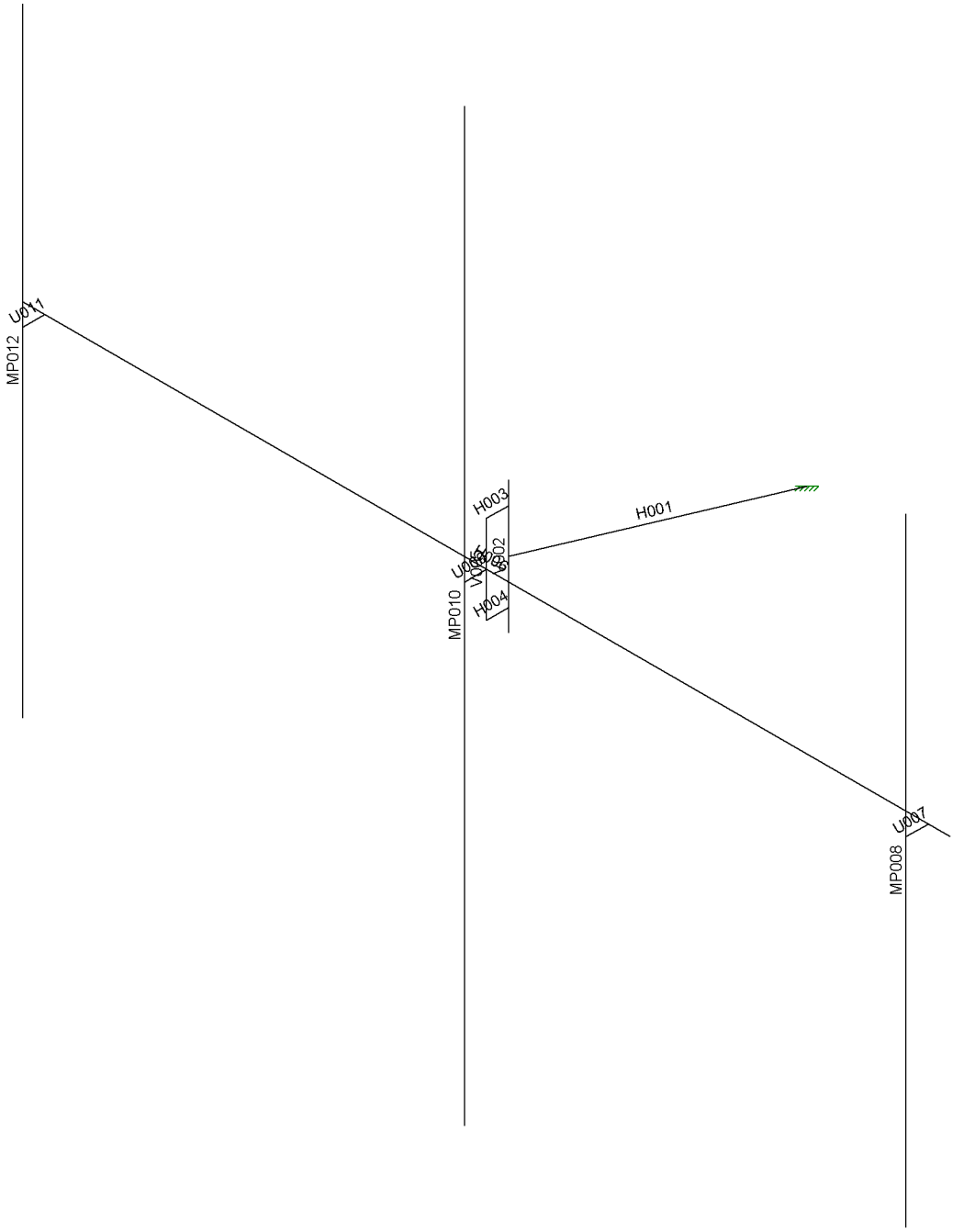
Antenna Calculations (Elevations per Application/RFDS)*

Equipment	Height	Width	Depth	Weight	EPA_N	EPA_T	EPA_{Ni}	EPA_{Ti}
Model #	in	in	in	lbs	sqft	sqft	sqft	sqft
Ericsson AIR 21, 1.3M, B4A B2P (90.4 lbs)	56.0	12.1	7.9	90.4	6.09	1.84	7.53	2.47
Ericsson AIR 21, 1.3M, B2A B4P (91.5 lbs)	55.9	12.0	7.8	91.5	6.04	1.82	7.47	2.44
RFS APXVAALL24 43-U-NA20	95.9	24.0	8.5	122.8	20.24	3.40	22.68	4.40
Ericsson Radio 4449 B71 B85A	15.0	13.2	10.5	75.0	1.65	1.31	2.23	1.84

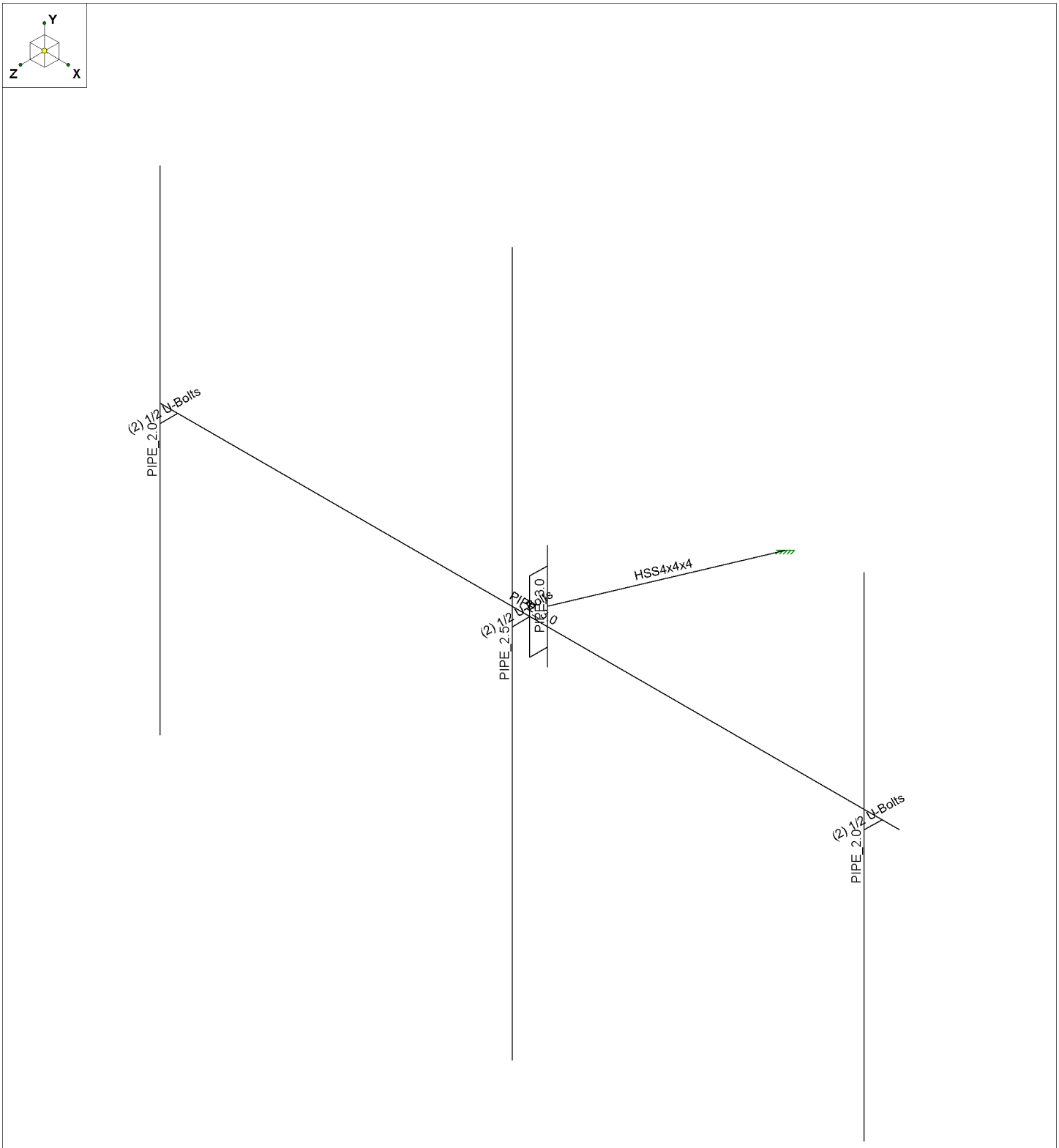
**** Equipment with EPA values N/A were not considered in the mount analysis***



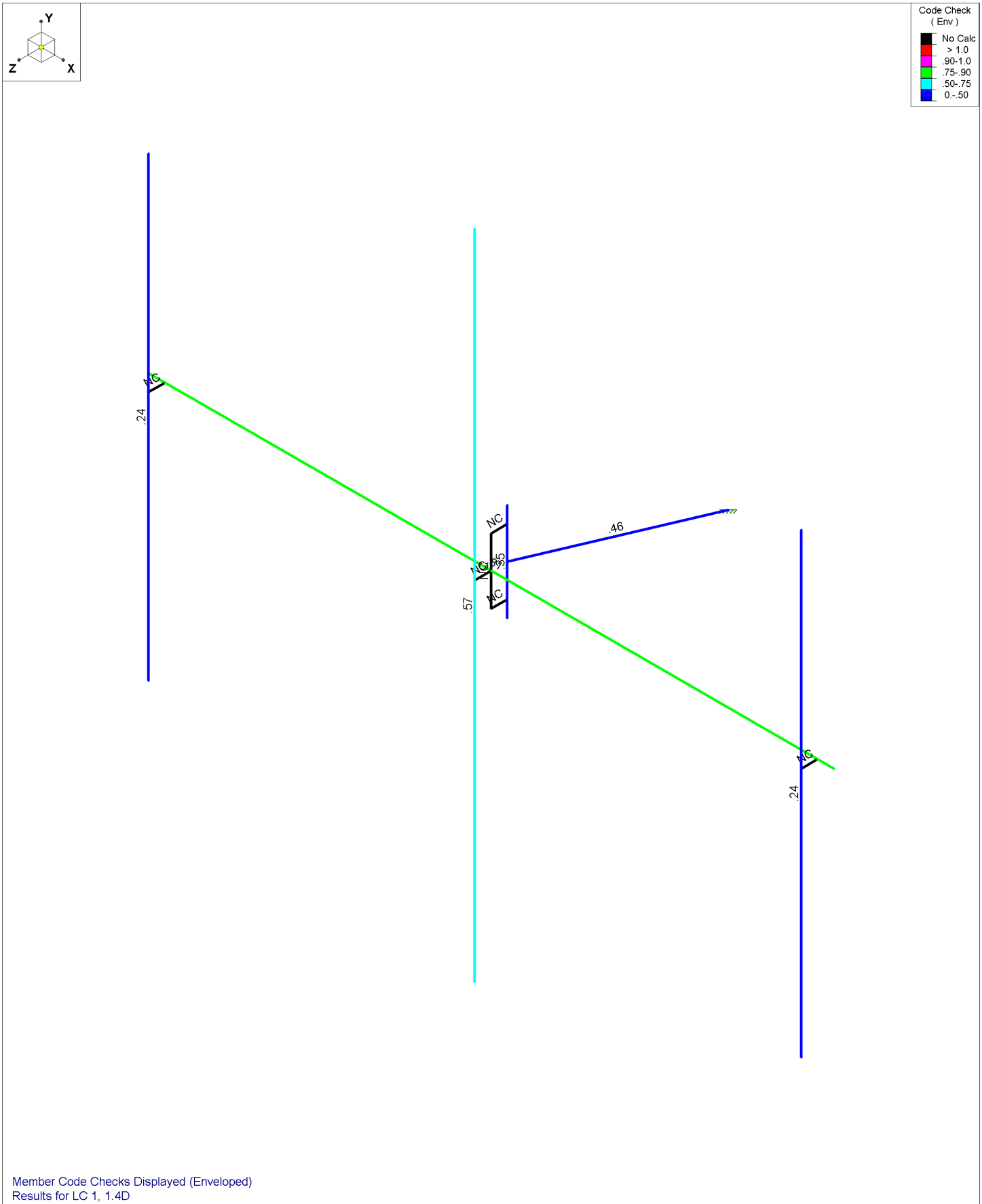
American Tower Corp.		SK - 1
Kyle.Sammarco	284984, PAWCATUCK CT	Apr 21, 2021 at 5:12 PM
13663614_C8_02	3D Rendering	R3D. T-MOBILE @ 284984, PAWC...



American Tower Corp.		SK - 2
Kyle.Sammarco	284984, PAWCATUCK CT	Apr 21, 2021 at 5:13 PM
13663614_C8_02	Member Labels	R3D. T-MOBILE @ 284984, PAWC...

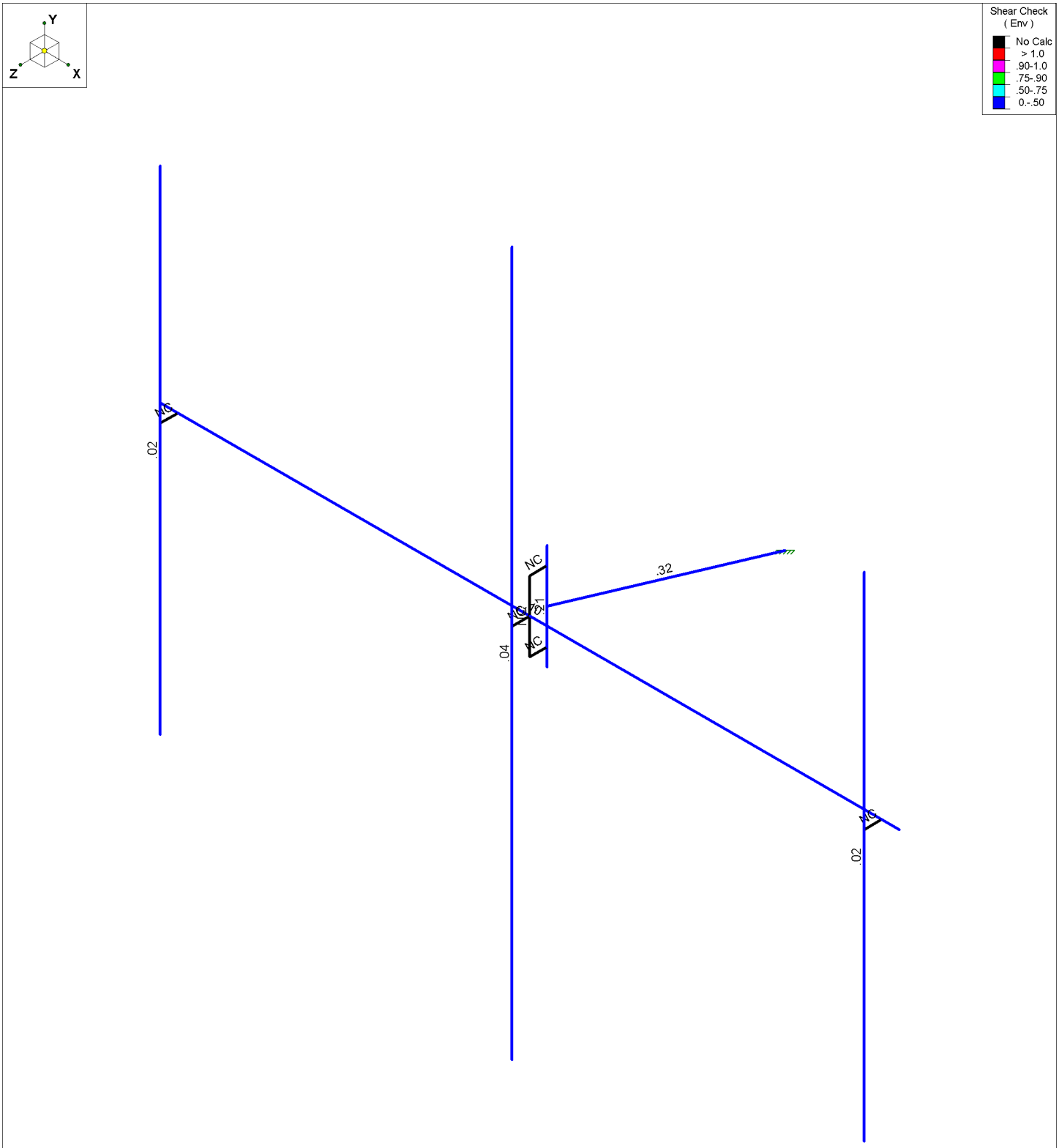


American Tower Corp.		SK - 3
Kyle.Sammarco	284984, PAWCATUCK CT	Apr 21, 2021 at 5:13 PM
13663614_C8_02	Member Shapes	R3D. T-MOBILE @ 284984, PAWC...



Member Code Checks Displayed (Enveloped)
Results for LC 1, 1.4D

American Tower Corp.		SK - 4
Kyle.Sammarco	284984, PAWCATUCK CT	Apr 21, 2021 at 5:13 PM
13663614_C8_02	Unity Bending Checks	R3D. T-MOBILE @ 284984, PAWC...



Member Shear Checks Displayed (Enveloped)
Results for LC 1, 1.4D

American Tower Corp.		SK - 5
Kyle.Sammarco	284984, PAWCATUCK CT	Apr 21, 2021 at 5:13 PM
13663614_C8_02	Shear Checks	R3D. T-MOBILE @ 284984, PAWC...

Joint Boundary Conditions

	Joint Label	X [lb/in]	Y [lb/in]	Z [lb/in]	X Rot.[k-in/rad]	Y Rot.[k-in/rad]	Z Rot.[k-in/rad]
1	N001	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction

Member Primary Data

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
1	H001	N001	N002			HSS4x4x4	Beam	None	A500 Gr. ...	Typical
2	V002	N004	N003			PIPE_3.0	Column	None	A53 Gr. B	Typical
3	H003	N005	N006			RIGID	None	None	RIGID	Typical
4	H004	N007	N008			RIGID	None	None	RIGID	Typical
5	V005	N008	N006			RIGID	None	None	RIGID	Typical
6	H006	N010	N011			PIPE_3.0	Beam	None	A53 Gr. B	Typical
7	U007	N012	N013			(2) 1/2 U-Bolts	Beam	None	A36	Typical
8	MP008	N014	N015			PIPE_2.0	Column	None	A53 Gr. B	Typical
9	U009	N016	N009			(2) 1/2 U-Bolts	Beam	None	A36	Typical
10	MP010	N019	N020			PIPE_2.5	Column	None	A53 Gr. B	Typical
11	U011	N017	N021			(2) 1/2 U-Bolts	Beam	None	A36	Typical
12	MP012	N022	N023			PIPE_2.0	Column	None	A53 Gr. B	Typical

Member Advanced Data

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
1	H001						Yes				None
2	V002						Yes	** NA **			None
3	H003						Yes	** NA **			None
4	H004						Yes	** NA **			None
5	V005						Yes	** NA **			None
6	H006						Yes				None
7	U007						Yes			Exclude	None
8	MP008						Yes	** NA **			None
9	U009						Yes			Exclude	None
10	MP010						Yes	** NA **			None
11	U011						Yes			Exclude	None
12	MP012						Yes	** NA **			None

Hot Rolled Steel Design Parameters

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
1	H001	HSS4x4x4	30.923						2.1	2.1		Lateral
2	V002	PIPE_3.0	18						2.1	2.1		Lateral
3	H006	PIPE_3.0	126						2.1	2.1		Lateral
4	U007	(2) 1/2 U-B...	3						.5	.5		Lateral
5	MP008	PIPE_2.0	84						2.1	2.1		Lateral
6	U009	(2) 1/2 U-B...	3						.5	.5		Lateral
7	MP010	PIPE_2.5	120						2.1	2.1		Lateral
8	U011	(2) 1/2 U-B...	3						.5	.5		Lateral
9	MP012	PIPE_2.0	84						2.1	2.1		Lateral

Hot Rolled Steel Properties

	Label	E [psi]	G [psi]	Nu	Therm (/1...	Density[lb...	Yield[psi]	Ry	Fu[psi]	Rt
1	A500 Gr. B [SQR]	2.9e+7	1.115e+7	.3	.65	527	46000	1.4	58000	1.3
2	A53 Gr. B	2.9e+7	1.115e+7	.3	.65	490	35000	1.6	60000	1.2

Hot Rolled Steel Properties (Continued)

	Label	E [psi]	G [psi]	Nu	Therm (/1...	Density[lb...	Yield[psi]	Ry	Fu[psi]	Rt
3	A36	2.9e+7	1.115e+7	.3	.65	490	36000	1.5	58000	1.2

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [lb-ft]	LC	MY [lb-ft]	LC	MZ [lb-ft]	LC
1	N001	max	1419.67	16	1471.633	71	1889.552	2	-974.314	20	4594.514	16	2391.547	69
2		min	-1419.67	10	541.224	14	-1889.552	20	-4182.429	65	-4602.868	10	-5316.3	99
3	Totals:	max	1419.67	16	1471.633	71	1889.552	2						
4		min	-1419.67	10	541.224	14	-1889.552	20						

Envelope AISC 15th(360-16): LRFD Steel Code Checks

	Member	Shape	Code Ch...	Loc[in]	LC	Shear C...	Loc[in]	Dir	LC	phi*Pnc...	phi*Pnt [lb]	phi*Mn y-y [l...	phi*Mn z-...	Cb	Eqn
1	H001	HSS4x4x4	.458	0	97	.318	0	y	66	123424...	139518	16180.5	16180.5	1.344	H3-6
2	V002	PIPE_3.0	.349	9	99	.213	9		99	61831....	65205	5748.75	5748.75	1.596	H1-...
3	H006	PIPE_3.0	.812	63	93	.097	63		71	9196.128	65205	5748.75	5748.75	1.53	H1-...
4	MP008	PIPE_2.0	.238	37.625	9	.019	38.5		9	4552.084	32130	1871.625	1871.625	2.333	H1-...
5	MP010	PIPE_2.5	.573	56.25	8	.036	56.25		19	5158.302	50715	3596.25	3596.25	1.484	H1-...
6	MP012	PIPE_2.0	.235	37.625	7	.018	38.5		7	4552.084	32130	1871.625	1871.625	2.332	H1-...

RAN Template:	A&L Template:
67D02C Outdoor	67D02C_2xAIR+1OP

CTNL813C_L600_4_draft

Print Name: Standard (2)
PORs: L600_CMP5

Section 1 - Site Information

Site ID: CTNL813C
Status: Draft
Version: 4
Project Type: L600
Approved: Not Approved
Approved By: Not Approved
Last Modified: 2/9/2021 1:17:24 PM
Last Modified By: Michael.Low1@T-Mobile.com

Site Name: Amtrak_Stonington3
Site Class: Monopole
Site Type: Structure Non Building
Plan Year: 2021
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: Netedgenetworks

Latitude: 41.36048900
Longitude: -71.85429400
Address: 166 Pawcatuck Ave
City, State: Pawcatuck, CT
Region: NORTHEAST

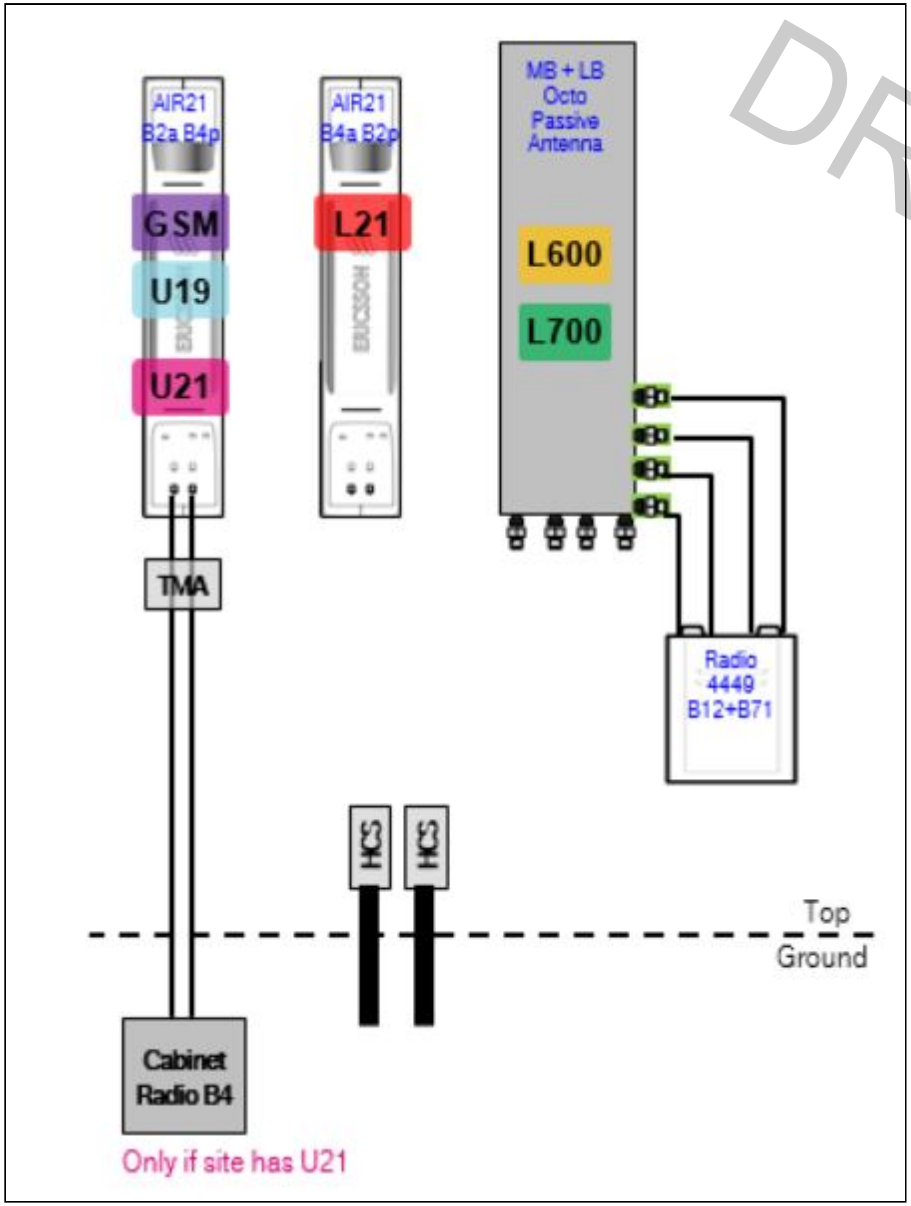
RAN Template: 67D02C Outdoor			**AL Template:** 67D02C_2xAIR+1OP	
Sector Count: 3	**Antenna Count:** 9	**Coax Line Count:** 4	**TMA Count:** 0	**RRU Count:** 3

Section 2 - Existing Template Images

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

Section 3 - Proposed Template Images

67D02C.JPG



Notes:

Section 4 - Siteplan Images

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

RAN Template:	A&L Template:
67D02C Outdoor	67D02C_2xAIR+1OP

CTNL813C_L600_4_draft

Print Name: Standard (2)
PORs: L600_CMP5

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 702Cu Outdoor

Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 (U1900); DUG20 (G1900); BB 6630 (L2100, L700)
Hybrid Cable System	Ericsson 9x18 HCS *Select Length*
Radio	RU22 **(x 6)**

Proposed RAN Equipment

Template: 67D02C Outdoor

Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 (U1900); DUG20 (G1900); BB 6630 (L2100); BB 6648 (L700, L600, N600)
Functionality Groups	Ericsson Hybrid Trunk 6/24 4AWG *Select Length* **(x 3)**

RAN Scope of Work:

*** Existing Cabinet is a RBS6131 ***
*** No 6601 in Cabinet ***
Add BB6648
Add (3) 6X24 HCS.
Existing: (12) Coaxial Lines; (1) HCS.
Remove all existing coax & 9x18 hybrid.

RAN Template:	A&L Template:
67D02C Outdoor	67D02C_2xAIR+1OP

CTNL813C_L600_4_draft

Print Name: Standard (2)
PORs: L600_CMP5

Section 6 - A&L Equipment

Existing Template: 702Cu
Proposed Template: 67D02C_2xAIR+1OP

Sector 1 (Existing) view from behind

Coverage Type	A - Outdoor Macro				
Antenna	1		2	3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	60		60	60	
M. Tilt	0		0	0	
Height	117		115	117	
Ports	P1	P2	P3	P4	P5
Active Tech.	L2100		L700	U1900 G1900	
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	2		2	2	2
Cables	Fiber Jumper - 15 ft.		Fiber Jumper - 15 ft. **(x2)**	1-5/8" LMU Coax - 140 ft. **(x2)** Fiber Jumper - 15 ft. **(x2)**	1-5/8" Coax - 140 ft. **(x2)**
TMAs					Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners					
Radio			RRUS11 B12 (At Antenna)		
Sector Equipment					

Unconnected Equipment:

Cable: 1-5/8" Coax
Cable: 1-5/8" Coax

Scope of Work:

RAN Template:	A&L Template:
67D02C Outdoor	67D02C_2xAIR+1OP

CTNL813C_L600_4_draft

Print Name: Standard (2)
PORs: L600_CMP5

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	60		60				60	
M. Tilt	0		0				0	
Height	117		115				117	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L2100		L700 L600 N600	L700 L600 N600			U1900 G1900	
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2		2				2	2
Cables	Fiber Jumper - 15 ft.						Fiber Jumper - 15 ft. **(x2)**	
TMAs								
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

Replace LB Dual in Position 2 with (1) LB/MB Octo.
Replace RRUS11 B12 with (1) Radio 4449 B71+B85 for 600/700.

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

RAN Template:	A&L Template:
67D02C Outdoor	67D02C_2xAIR+1OP

CTNL813C_L600_4_draft

Print Name: Standard (2)
PORs: L600_CMP5

Sector 2 (Existing) view from behind					
Coverage Type	A - Outdoor Macro				
Antenna	**1**		**2**	**3**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	160		160	160	
M. Tilt	0		0	0	
Height	117		115	117	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**
Active Tech.	L2100		L700	U1900 G1900	
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	2		2	2	2
Cables	Fiber Jumper - 15 ft.		Fiber Jumper - 15 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)** 1-5/8" LMU Coax - 140 ft. **(x2)**	1-5/8" Coax - 140 ft. **(x2)**
TMAs					Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners					
Radio			RRUS11 B12 (At Antenna)		
Sector Equipment					

Unconnected Equipment:

Cable: 1-5/8" Coax - 140 ft. Cable: 1-5/8" Coax - 140 ft.

Scope of Work:

RAN Template:	A&L Template:
67D02C Outdoor	67D02C_2xAIR+1OP

CTNL813C_L600_4_draft

Print Name: Standard (2)
PORs: L600_CMP5

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2			3		
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)			Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		
Azimuth	160		160			160		
M. Tilt	0		0			0		
Height	117		115			117		
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L2100		L700 L600 N600	L700 L600 N600			U1900 G1900	
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2		2	2			2	2
Cables	Fiber Jumper - 15 ft.						Fiber Jumper - 15 ft. **(x2)**	
TMAs								
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Cable: 1-5/8" Coax - 140 ft. | Cable: 1-5/8" Coax - 140 ft.

Scope of Work:

Replace LB Dual in Position 2 with (1) LB/MB Octo.
Replace RRUS11 B12 with (1) Radio 4449 B71+B85 for 600/700.

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

RAN Template:	A&L Template:
67D02C Outdoor	67D02C_2xAIR+1OP

CTNL813C_L600_4_draft

Print Name: Standard (2)
PORs: L600_CMP5

Sector 3 (Existing) view from behind					
Coverage Type	A - Outdoor Macro				
Antenna	**1**		**2**	**3**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		Andrew - LNX-6515DS-A1M (Dual)	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	270		270	270	
M. Tilt	0		0	0	
Height	117		115	117	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**
Active Tech.	L2100		L700	U1900 G1900	
Dark Tech.					
Restricted Tech.					
Decomm. Tech.					
E. Tilt	2		2	2	2
Cables	Fiber Jumper - 15 ft.		Fiber Jumper - 15 ft. **(x2)**	Fiber Jumper - 15 ft. **(x2)** 1-5/8" LMU Coax - 140 ft. **(x2)**	1-5/8" Coax - 140 ft. **(x2)**
TMAs					Generic Twin Style 1B - AWS (AtAntenna)
Diplexers / Combiners					
Radio			RRUS11 B12 (At Antenna)		
Sector Equipment					

Unconnected Equipment:

Cable: 1-5/8" Coax - 140 ft. Cable: 1-5/8" Coax - 140 ft.

Scope of Work:

RAN Template:	A&L Template:
67D02C Outdoor	67D02C_2xAIR+1OP

CTNL813C_L600_4_draft

Print Name: Standard (2)
PORs: L600_CMP5

Sector 3 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)		RFS - APXVAALL24_43-U-NA20 (Octo)				Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)	
Azimuth	270		270				270	
M. Tilt	0		0				0	
Height	117		115				117	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L2100		L700 L600 N600	L700 L600 N600			U1900 G1900	
Dark Tech.								
Restricted Tech.								
Decomm. Tech.								
E. Tilt	2		2	2			2	2
Cables	Fiber Jumper - 15 ft.						Fiber Jumper - 15 ft. **(x2)**	
TMAs								
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Cable: 1-5/8" Coax - 140 ft. | Cable: 1-5/8" Coax - 140 ft.

Scope of Work:

Replace LB Dual in Position 2 with (1) LB/MB Octo.
Replace RRUS11 B12 with (1) Radio 4449 B71+B85 for 600/700.

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

RAN Template:	A&L Template:
67D02C Outdoor	67D02C_2xAIR+1OP

CTNL813C_L600_4_draft

Print Name: Standard (2)
PORs: L600_CMP5

Section 7 - Power Systems Equipment

Existing Power Systems Equipment

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

Proposed Power Systems Equipment

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: CTNL813C

Amtrak_Stonington3
166 Pawcatuck Avenue
Pawcatuck, Connecticut 06379

May 14, 2021

EBI Project Number: 6221002331

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**11.78%**

May 14, 2021

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

Emissions Analysis for Site: CTNL813C - Amtrak_Stonington3

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **166 Pawcatuck Avenue** in **Pawcatuck, 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 166 Pawcatuck Avenue in Pawcatuck, Connecticut using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since T-Mobile is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was focused at the base of the tower. For this report, the sample point is the top of a 6-foot person standing at the base of the tower.

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

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

2) 1 NR channel (600 MHz Band) was considered for each sector of the proposed installation. This Channel has a transmit power of 80 Watts.

3) 2 LTE channels (700 MHz Band) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

4) 4 GSM channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

5) 2 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.

6) 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.

7) 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.

8) 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.

9) The antennas used in this modeling are the Ericsson AIR 21 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s) in Sector A, the Ericsson AIR 21 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 1900 MHz channel(s) in Sector B, the Ericsson AIR 21 for the 2100 MHz channel(s), the RFS APXVAALL24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 1900 MHz / 1900 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.

10) The antenna mounting height centerline of the proposed antennas is 115 feet above ground level (AGL).

11) 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.

12) 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 AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
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):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 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 %:	**1.24%**	Antenna B1 MPE %:	**1.24%**	Antenna C1 MPE %:	**1.24%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20	Make / Model:	RFS APXVAALL24_43-U-NA20
Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz	Frequency Bands:	600 MHz / 600 MHz / 700 MHz
Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.65 dBd
Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet
Channel Count:	5	Channel Count:	5	Channel Count:	5
Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts	Total TX Power (W):	200 Watts
ERP (W):	4,151.83	ERP (W):	4,151.83	ERP (W):	4,151.83
Antenna A2 MPE %:	**2.99%**	Antenna B2 MPE %:	**2.99%**	Antenna C2 MPE %:	**2.99%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21	Make / Model:	Ericsson AIR 21
Frequency Bands:	1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz	Frequency Bands:	1900 MHz / 1900 MHz
Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd
Height (AGL):	115 feet	Height (AGL):	115 feet	Height (AGL):	115 feet
Channel Count:	6	Channel Count:	6	Channel Count:	6
Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts	Total TX Power (W):	180 Watts
ERP (W):	6,169.82	ERP (W):	6,169.82	ERP (W):	6,169.82
Antenna A3 MPE %:	**1.87%**	Antenna B3 MPE %:	**1.87%**	Antenna C3 MPE %:	**1.87%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	6.10%
Verizon	5.68%
Site Total MPE % :	11.78%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	6.10%
T-Mobile Sector B Total:	6.10%
T-Mobile Sector C Total:	6.10%
Site Total MPE % :	11.78%

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	2	2056.61	115.0	12.45	2100 MHz LTE	1000	1.24%
T-Mobile 600 MHz LTE	2	591.73	115.0	3.58	600 MHz LTE	400	0.90%
T-Mobile 600 MHz NR	1	1577.94	115.0	4.77	600 MHz NR	400	1.19%
T-Mobile 700 MHz LTE	2	695.22	115.0	4.21	700 MHz LTE	467	0.90%
T-Mobile 1900 MHz GSM	4	1028.30	115.0	12.45	1900 MHz GSM	1000	1.24%
T-Mobile 1900 MHz UMTS	2	1028.30	115.0	6.22	1900 MHz UMTS	1000	0.62%
						Total:	**6.10%**

• NOTE: Totals may vary by approximately 0.01% due to summation of remainders in calculations.

Summary

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

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

T-Mobile Sector	Power Density Value (%)
Sector A:	6.10%
Sector B:	6.10%
Sector C:	6.10%
T-Mobile Maximum MPE % (Sector A):	6.10%
Site Total:	11.78%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **11.78%** 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.