10 Industrial Ave,
Suite 3
Mahwah NJ 07430

Phone: 201.684.0055
Fax: 201.684.0066

Transcend Wireless

June 29, 2021

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

RE: Notice of Exempt Modification
61 Moose Hill Road, Guilford, CT, 06437 (aka 79 Moose Hill Road)
Latitude: 41.26746700
Longitude: -72.71606000
T-Mobile Site#: CTNH805A - L600

Dear Ms. Bachman:

T-Mobile currently maintains six (6) antennas at the 108-foot level of the existing 110-foot Monopole at the existing facility at 61 Moose Hill Road (aka 79 Moose Hill Road), in Guilford, CT. The property is owned by Leete Associates Inc. The tower is owned by American Tower. T-Mobile now intends to add three (3) new 600/700 MHz antennas. The new antennas support 5G services and will be installed at the same 108-foot level of the monopole.

Planned Modifications:
Tower:
Install New:
(3) APXVAAR24 Antennas
(3) Radio 4449
(3) 6x24 Hybrid Cables

Existing to Remain:
(3) AIR21 KRC118023 B2A B4P Antennas
(3) AIR21 KRC118023 B2P B4A Antennas
(3) KRY 112 489/2 TMAs
(6) 1 ⅝" Coax Cables
(1) 1 ¼" Hybrid Cables

Ground:
Install New:
(2) BB6648

To Be Removed:
(1) DUS41

This tower facility was approved by the Siting Council in Docket No. 417 dated October 6, 2011. The proposed modification complies with the 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 Matthew Hoey, Elected Official, and George Kral, Town Planner, as well as the property owner and tower owner.

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

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

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

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

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

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

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

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

Sincerely,

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

Attachments
cc: Matthew Hoey – as First Selectman of Guilford
George Kral - Town Planner
American Tower - Tower Owner
Leete Associates Inc - Property Owner

ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430

1 LBS

1 OF 1

SHIP TO:
TOWN PLANNER
GEORGE KRAL
50 BOSTON STREET
GUILFORD CT 06437

CT 065 2-03

UPS GROUND

TRACKING #: 1Z V25 742 03 9905 4198

BILLING: P/P

Reference #1: CTNH805A

XOL 21.06.14 NV45 26.0A 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 03 9566 4189

BILLING: P/P

Reference #1: CTNH805A

XOL 21.06.14 NV45 26.0A 06/2021*


ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430
1 LBS
1 OF 1
SHIP TO:
LEETE ASSOCIATES INC.
79 MOOSE HILL ROAD
GUILFORD CT 06437
CT 065 2-03
UPS GROUND
TRACKING #: 1Z V25 742 03 9746 4203
BILLING: P/P
Reference #1: CTNH805A
XOL 21.06.14 NV45 26.0A 06/2021*
TM


ERIC BREUN
2016587728
10 INDUSTRIAL AVE
MAHWAH NJ 07430
1 LBS
1 OF 1
SHIP TO:
FIRST SELECTMAN
MATTHEW HOEY III
31 PARK STREET
GUILFORD CT 06437
CT 065 2-03
UPS GROUND
TRACKING #: 1Z V25 742 03 9271 1105
BILLING: P/P
Reference #1: CTNH805A
XOL 21.06.14 NV45 26.0A 06/2021*
TM

Property Summary Information

Parcel Data And Values | Sales

Parcel Information

Location:	79 MOOSE HILL RD	Map and Parcel:	066064	Census Tract:	1902
Zoning:	R-8	Developer's Map:		Developer's Lot:	
Total Acreage:	163	Farm, Forest, Open Space Acres:	162	Unique ID:	4101

Value Information

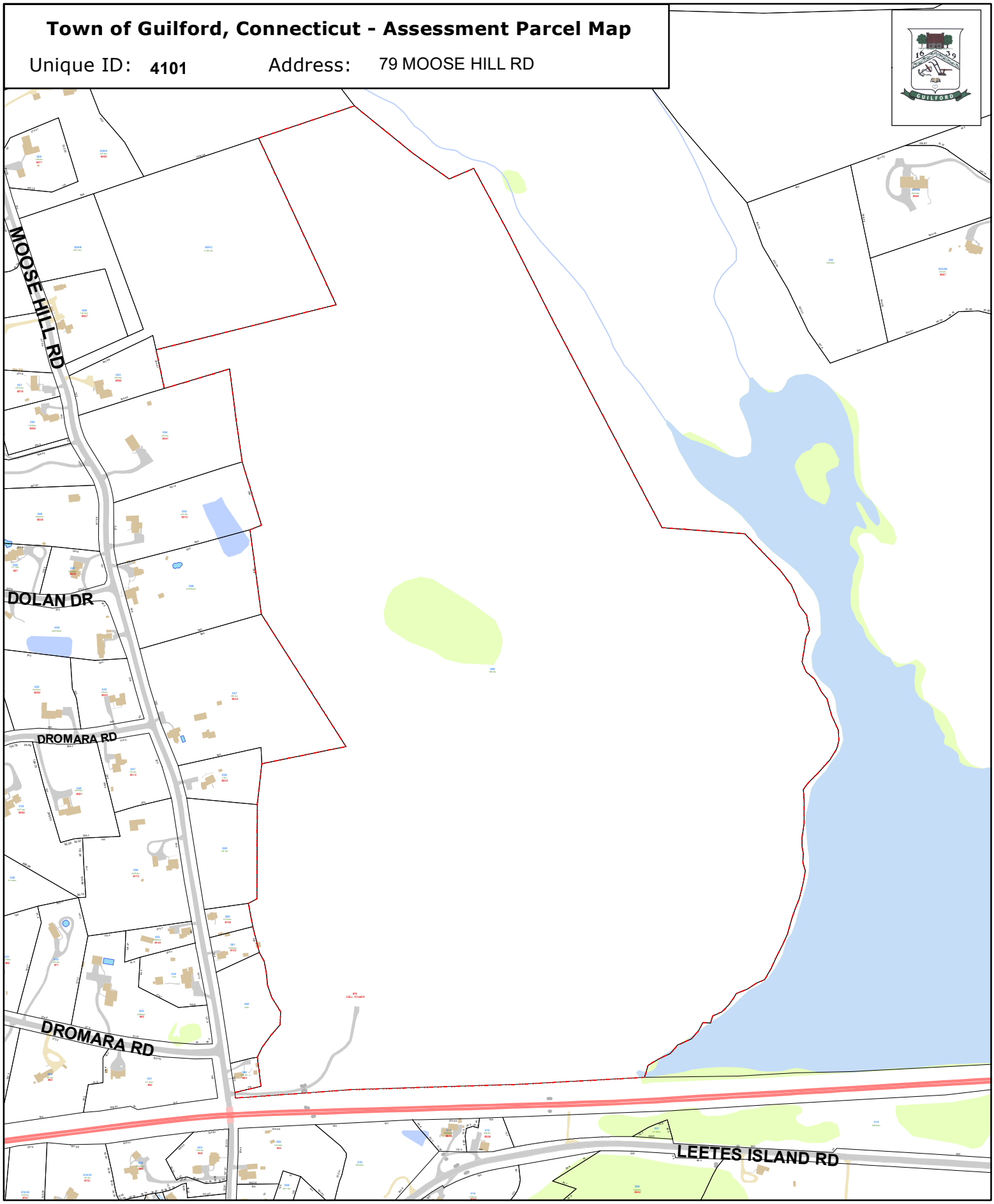
	Appraised Value	Assessed Value
Land	1,120,373	122,160
Buildings	0	0
Detached Outbuildings	0	0
Total	1,120,373	122,160

Owner's Information

Owner's Data
LEETE ASSOCIATES INC PO BOX 45 GUILFORD, CT 06437

Town of Guilford, Connecticut - Assessment Parcel Map

Unique ID: **4101** Address: 79 MOOSE HILL RD



N

Approximate Scale: 1 inch = 500 feet

0 350 700 Feet

Map Produced: September 2020

Disclaimer:
This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Guilford and its mapping contractors assume no legal responsibility for the information contained herein.

DOCKET NO. 417 - T-Mobile Northeast, LLC application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a telecommunications facility located at Moose Hill Road, Guilford, Connecticut.	}	Connecticut
	}	Siting
	}	Council
		October 6, 2011

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, maintenance, and operation 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 off Moose Hill Road (Map 66, Lot 64) in Guilford, 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 the applicant and other entities, both public and private, but such tower shall not exceed a height of 110 feet above ground level. The height at the top of the Certificate Holder's antennas shall not exceed 110 feet above ground level.

2. The Certificate Holder shall install a tower foundation and tower that is capable of supporting an extension. Any extension of the tower must be approved by the Council.

3. 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 Guilford for comment, and all parties and intervenors as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
    a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antennas, equipment compound, radio equipment, access road, utility line, and landscaping;
    b) construction plans for site clearing, grading, landscaping, water drainage, and erosion and sedimentation controls consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended, and;
    c) provisions for a contractor awareness program for the Eastern Box Turtle and Wood Turtle.

4. 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.

5. 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.

6. 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.

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

8. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed with at least one fully operational wireless telecommunications carrier providing wireless service within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), this Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline. Authority to monitor and modify this schedule, as necessary, is delegated to the Executive Director. The Certificate Holder shall provide written notice to the Executive Director of any schedule changes as soon as is practicable.

9. Any request for extension of the time period referred to in Condition 8 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 Guilford. 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. Any nonfunctioning antenna, and associated antenna mounting equipment, on this facility shall be removed within 60 days of the date the antenna ceased to function.

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.

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

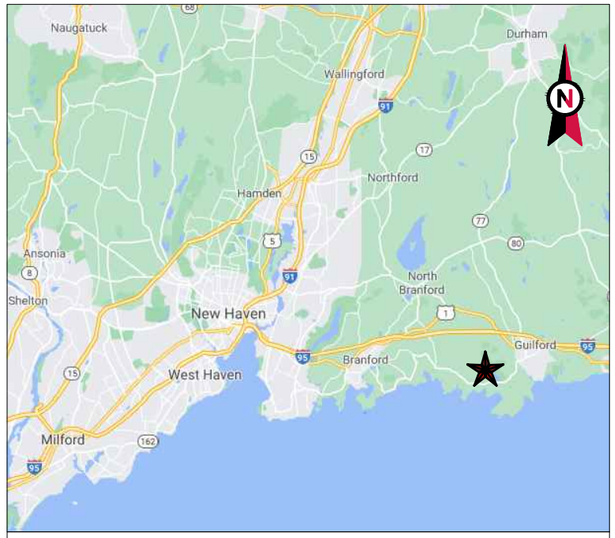
16. If the Certificate Holder is a wholly-owned subsidiary of a corporation or other entity and is sold/transferred to another corporation or other entity, the Council shall be notified of such sale and/or transfer and of any change in contact information for the individual or representative responsible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

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

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

The parties and intervenors to this proceeding are:

Applicant	**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



VICINITY MAP

AMERICAN TOWER®

ATC SITE NAME: GUILFORD CT
ATC SITE NUMBER: 284988
T-MOBILE SITE NAME: AMTRAK_GUILFORD
T-MOBILE SITE NUMBER: CTNH805A
SITE ADDRESS: 61 MOOSE HILL ROAD GUILFORD, CONNECTICUT, 06437

T-MOBILE L600 ANTENNA AMENDMENT PLAN
67D92C 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. 2015 INTERNATIONAL BUILDING CODE (IBC)
2. 2017 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:

61 MOOSE HILL ROAD

GUILFORD, CONNECTICUT, 06437

COUNTY: NEW HAVEN

GEOGRAPHIC COORDINATES:

LATITUDE: 41.26746700

LONGITUDE: -72.71606000

GROUND ELEVATION: 52' AMSL

PROJECT TEAM

TOWER OWNER:

AMERICAN TOWER
10 PRESIDENTIAL WAY
WOBURN, MA 01801

ENGINEER:

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

PROPERTY OWNER:

AMERICAN TOWER
116 HUNTINGTON AVE
BOSTON, MA 02116

APPLICANT:

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

PROJECT DESCRIPTION

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

TOWER WORK:

INSTALL (1) RMQP-496-HK PLATFORM MOUNT, (1) HRK12 PLATFORM MOUNT HANDRAIL, (3) APXVAAR24_43-U-NA20 ANTENNA(s), (3) RADIO 4449 B71+B85A RRU(s), (3) 6X24 (1 5/8") HYBRID CABLE(s)

EXISTING (3) AIR21 KRC118023-1_B2A_B4P ANTENNA(s), (3) AIR21 KRC118023-1_B2P_B4A ANTENNA(s), (3) KRY 112 489/2 (6) 1 5/8" COAX CABLE(s), (1) 1 1/4" HYBRID CABLE(s) TO REMAIN

GROUND WORK:

REMOVE (1) DUS41

INSTALL (2) BB6648

EXISTING (1) RBS 6131 CABINET(s), (1) DUW30, (1) DUG20, AND (6) RU22 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

FROM CITY:

PROCEED FROM GUILFORD HEAD WEST ON BROAD ST TOWARD CT-77 / CHURCH ST 433 FT TURN LEFT ONTO WHITFIELD ST 0.2 MI KEEP STRAIGHT TO GET ONTO CT-146 / WHITFIELD ST 2.6 MI TURN RIGHT ONTO MOOSE HILL RD 246 FT TURN RIGHT TO STAY ON MOOSE HILL RD 400 FT ARRIVE AT MOOSE HILL RD

SHEET INDEX

SHEET NO:	DESCRIPTION:	REV:	DATE:	BY:
G-001	TITLE SHEET	0	06/23/21	SM
G-002	GENERAL NOTES	0	06/23/21	SM
C-101	DETAILED SITE PLAN	0	06/23/21	SM
C-102	DETAILED GROUND PLAN	0	06/23/21	SM
C-201	TOWER ELEVATION	0	06/23/21	SM
C-401	ANTENNA INFORMATION & SCHEDULE	0	06/23/21	SM
C-501	CONSTRUCTION DETAILS	0	06/23/21	SM
E-501	GROUNDING DETAILS	0	06/23/21	SM
R-601	SUPPLEMENTAL			
R-602	SUPPLEMENTAL			
R-603	SUPPLEMENTAL			
R-604	SUPPLEMENTAL			
R-605	SUPPLEMENTAL			

AMERICAN TOWER®

Kimley»Horn

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

REV.	DESCRIPTION	BY	DATE
A	PRELIM	SM	04/16/21
0	ISSUED FOR CONSTRUCTION	CW	06/23/21

ATC SITE NUMBER:
284988
ATC SITE NAME:
GUILFORD CT
T-MOBILE SITE NAME:
AMTRAK_GUILFORD
SITE ADDRESS:
61 MOOSE HILL ROAD
GUILFORD, CONNECTICUT, 06437

SEAL:

T-Mobile

DATE DRAWN:	06/23/21
ATC JOB NO:	13660479
CUSTOMER ID:	AMTRAK_GUILFORD
CUSTOMER #:	CTNH805A

TITLE SHEET

SHEET NUMBER: G-001

REVISION: 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	SM	04/16/21
0	ISSUED FOR CONSTRUCTION	CW	06/23/21

ATC SITE NUMBER:
284988
ATC SITE NAME:
GUILFORD CT
T-MOBILE SITE NAME:
AMTRAK_GUILFORD
SITE ADDRESS:
61 MOOSE HILL ROAD
GUILFORD, CONNECTICUT, 06437

SEAL:

T-Mobile

DATE DRAWN:	06/23/21
ATC JOB NO:	13660479
CUSTOMER ID:	AMTRAK_GUILFORD
CUSTOMER #:	CTNH805A

GENERAL NOTES

SHEET NUMBER:	REVISION:
G-002	0

SITE PLAN NOTES:

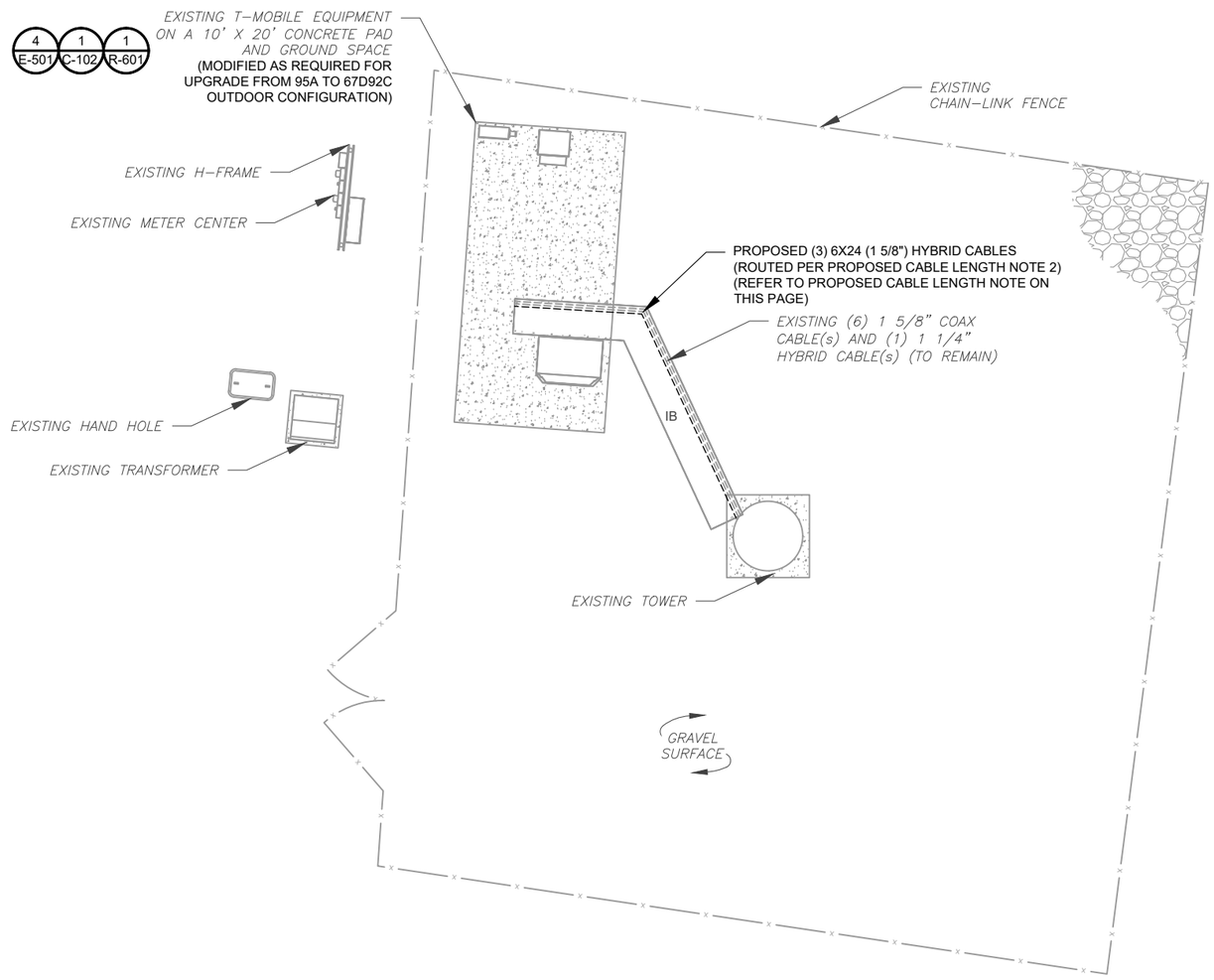
1. THIS SITE PLAN REPRESENTS THE BEST PRESENT KNOWLEDGE AVAILABLE TO THE ENGINEER AT THE TIME OF THIS DESIGN. THE CONTRACTOR SHALL VISIT THE SITE PRIOR TO CONSTRUCTION AND VERIFY ALL EXISTING CONDITIONS RELATED TO THE SCOPE OF WORK FOR THIS PROJECT.

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



1 DETAILED SITE PLAN

0 10' 20'

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

PROPOSED CABLE LENGTH:

1. ESTIMATED LENGTH OF PROPOSED CABLE IS **251'**. 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.

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T-MOBILE SITE NAME:
AMTRAK_GUILFORD
SITE ADDRESS:
61 MOOSE HILL ROAD
GUILFORD, CONNECTICUT, 06437

SEAL:

T-Mobile

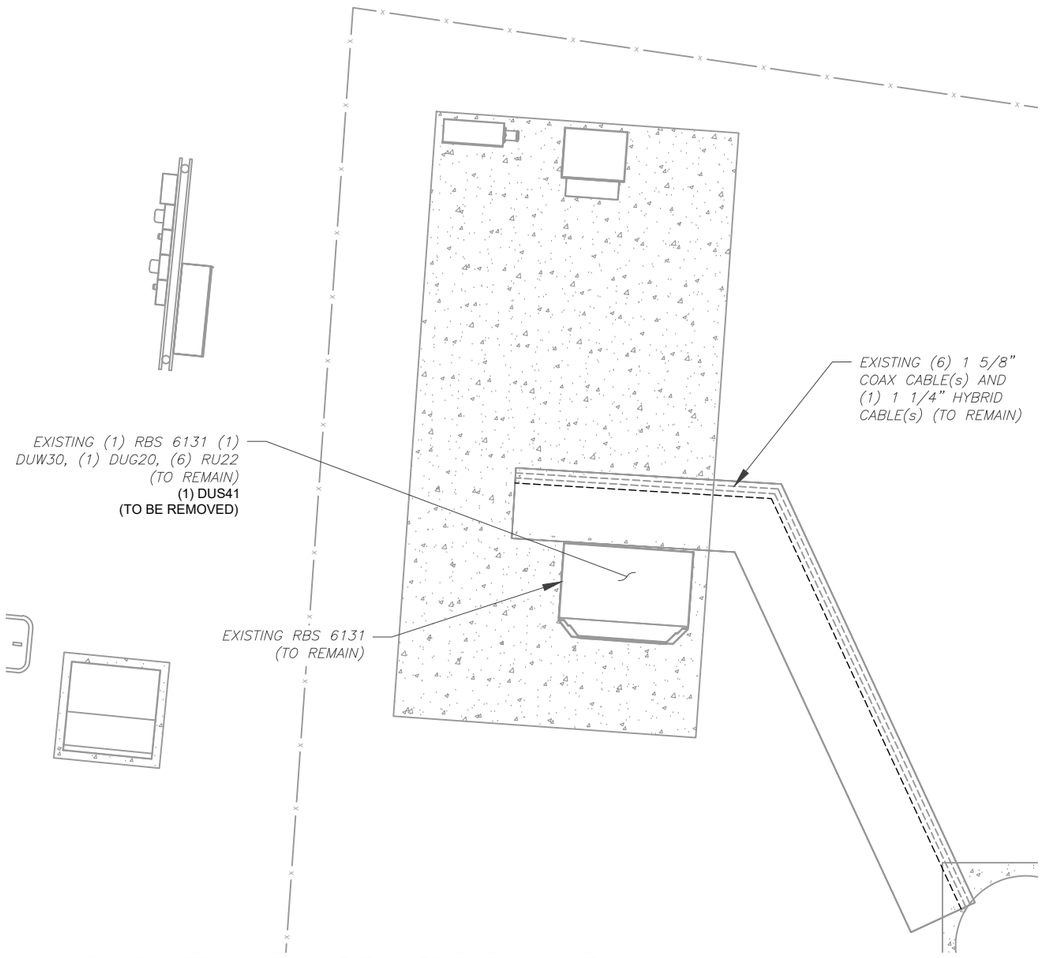
DATE DRAWN:	06/23/21
ATC JOB NO:	13660479
CUSTOMER ID:	AMTRAK_GUILFORD
CUSTOMER #:	CTNH805A

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.

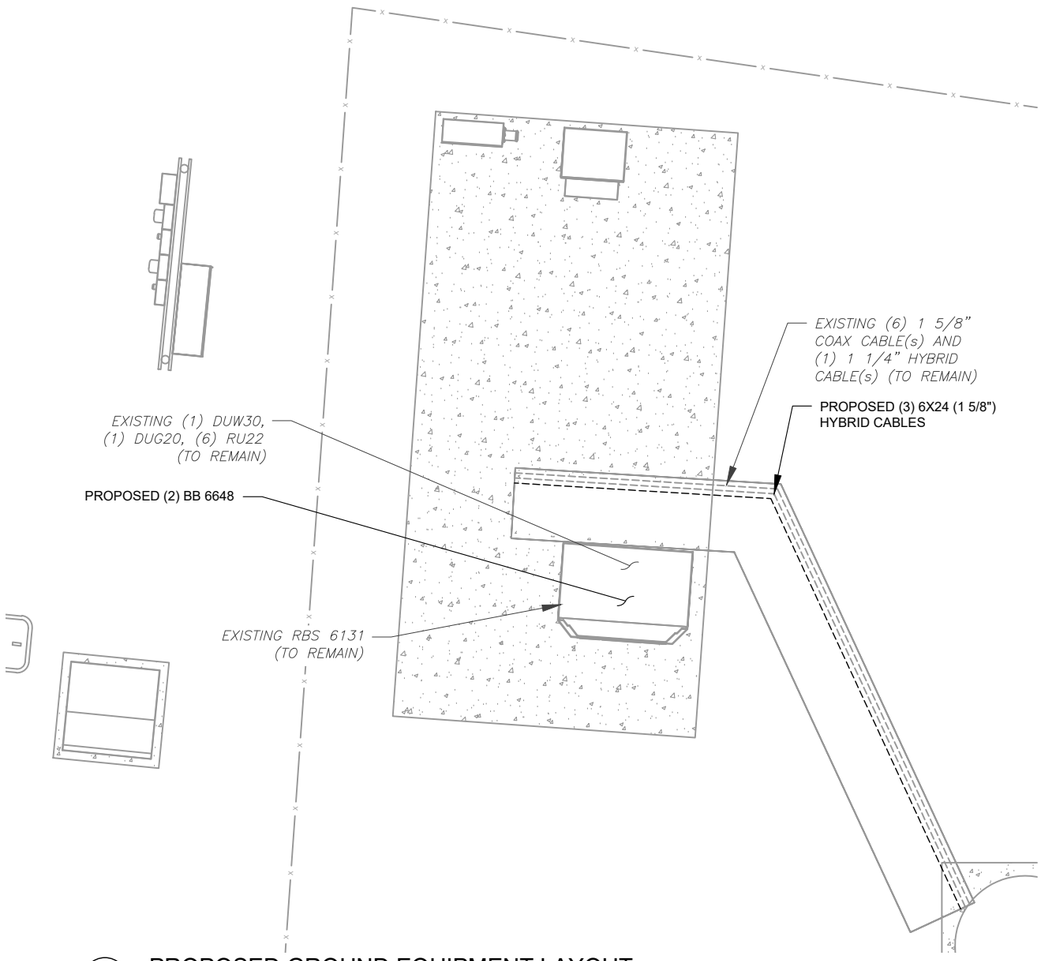


1 EXISTING GROUND EQUIPMENT LAYOUT

0 5' 10'

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

T-MOBILE CM APPROVAL REQUIRED BEFORE INSTALLING CABINETS



2 PROPOSED GROUND EQUIPMENT LAYOUT

0 5' 10'

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

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REV.	DESCRIPTION	BY	DATE
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ATC SITE NUMBER:
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T-MOBILE SITE NAME:
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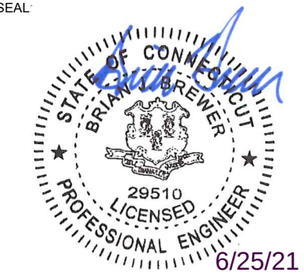
SITE ADDRESS:
61 MOOSE HILL ROAD
GUILFORD, CONNECTICUT, 06437

SEAL:



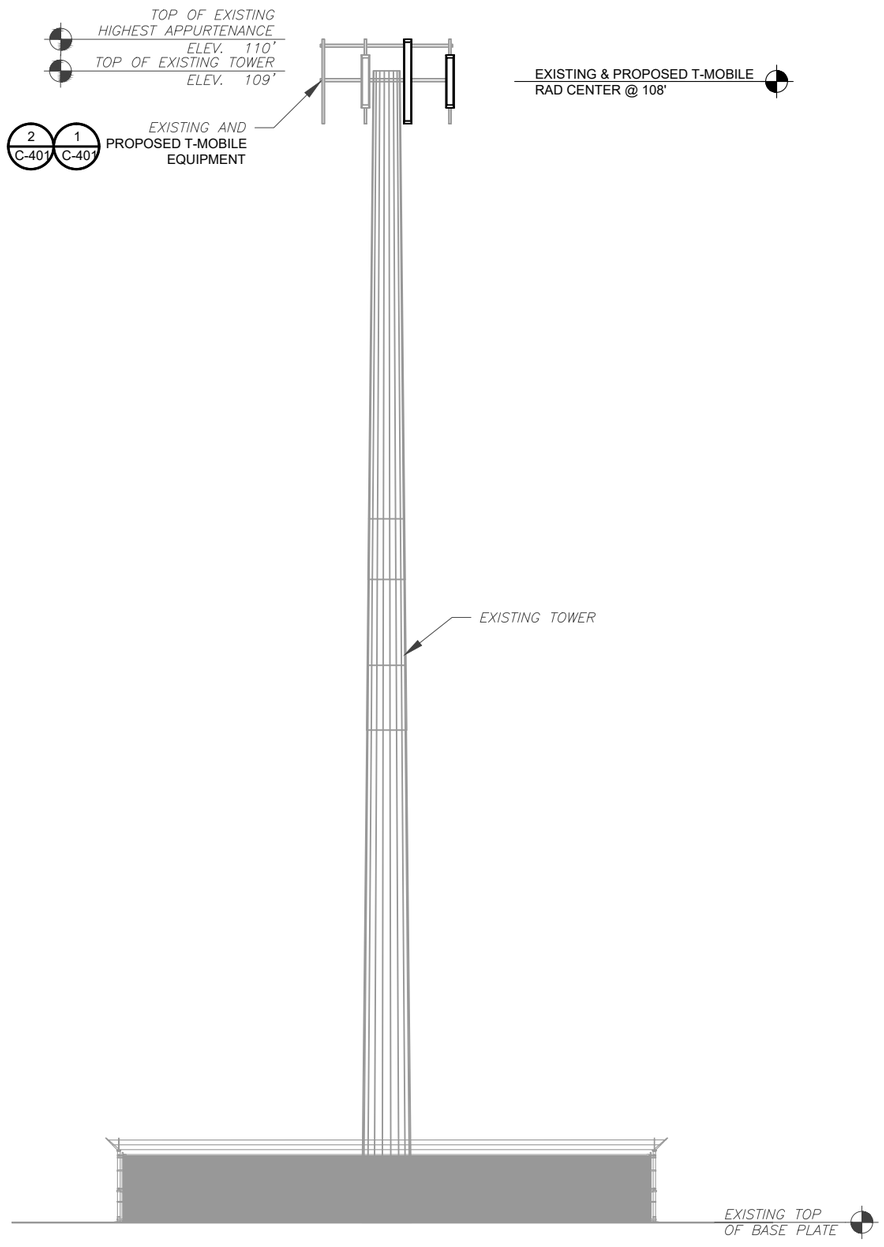
6/25/21

T-Mobile

DATE DRAWN:	06/23/21
ATC JOB NO:	13660479
CUSTOMER ID:	AMTRAK_GUILFORD
CUSTOMER #:	CTNH805A

DETAILED GROUND PLAN

SHEET NUMBER:	REVISION:
C-102	0



1 TOWER ELEVATION
SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY ATC, DATED 05/11/2021, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

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.)

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0	ISSUED FOR CONSTRUCTION	CW	06/23/21

ATC SITE NUMBER:
284988
ATC SITE NAME:
GUILFORD CT
T-MOBILE SITE NAME:
AMTRAK_GUILFORD
SITE ADDRESS:
61 MOOSE HILL ROAD
GUILFORD, CONNECTICUT, 06437

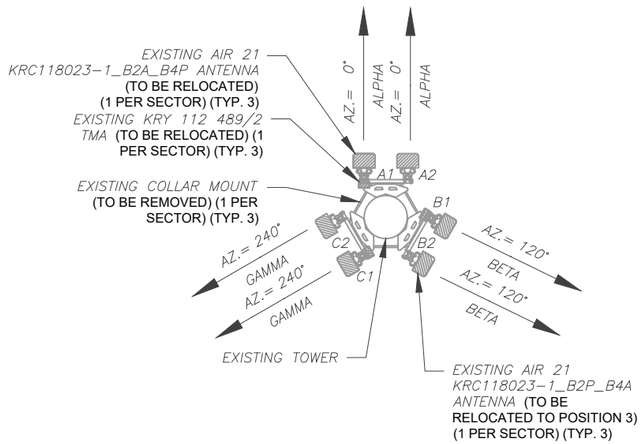
SEAL:

T-Mobile

DATE DRAWN:	06/23/21
ATC JOB NO:	13660479
CUSTOMER ID:	AMTRAK_GUILFORD
CUSTOMER #:	CTNH805A

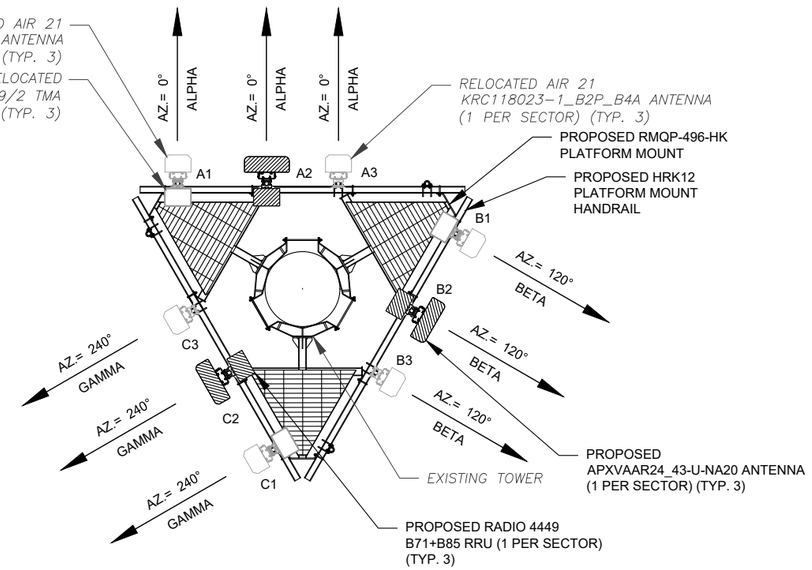
TOWER ELEVATION

SHEET NUMBER: C-201
REVISION: 0



1 EXISTING ANTENNA PLAN

SCALE: N.T.S.



2 FINAL ANTENNA PLAN

SCALE: N.T.S.

PER MOUNT ANALYSIS COMPLETED BY ATC, DATED 05/11/2021, THE PROPOSED MOUNT CAN ADEQUATELY SUPPORT THE PROPOSED LOADING.

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	108'	0°	A1	AIR 21 KRC118023-1_B2A_B4P	G1900, L1900, U2100	0/2°	REL	KRY 112 489/2	REL
			A2	AIR 21 KRC118023-1_B2P_B4A	L2100	0/2°	REL	–	-
BETA	108'	120°	B1	AIR 21 KRC118023-1_B2A_B4P	G1900, L1900, U2100	0/2°	REL	KRY 112 489/2	REL
			B2	AIR 21 KRC118023-1_B2P_B4A	L2100	0/2°	REL	–	-
GAMMA	108'	240°	C1	AIR 21 KRC118023-1_B2A_B4P	G1900, L1900, U2100	0/2°	REL	KRY 112 489/2	REL
			C2	AIR 21 KRC118023-1_B2P_B4A	L2100	0/2°	REL	–	-

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	108'	0°	A1	AIR 21 KRC118023-1_B2A_B4P	L1900, G1900, U2100	0/2°	RMN	KRY 112 489/2	RMN
			A2	APXCAARR24_43-U-NA20	L700, L600, N600	0/2°	ADD	RADIO 4449 B71 B85A	ADD
			A3	AIR 21 KRC118023-1_B2P_B4A	L2100	0/2°	REL		
BETA	108'	120°	B1	AIR 21 KRC118023-1_B2A_B4P	L1900, G1900, U2100	0/2°	RMN	KRY 112 489/2	RMN
			B2	APXCAARR24_43-U-NA20	L700, L600, N600	0/2°	ADD	RADIO 4449 B71 B85A	ADD
			B3	AIR 21 KRC118023-1_B2P_B4A	L2100	0/2°	REL		
GAMMA	108'	240°	C1	AIR 21 KRC118023-1_B2A_B4P	L1900, G1900, U2100	0/2°	RMN	KRY 112 489/2	RMN
			C2	APXCAARR24_43-U-NA20	L700, L600, N600	0/2°	ADD	RADIO 4449 B71 B85A	ADD
			C3	AIR 21 KRC118023-1_B2P_B4A	L2100	0/2°	REL		

EXISTING FIBER DISTRIBUTION/OVP BOX		EXISTING CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
–	–	(6) 1 5/8"	(1) 1 1/4"	RMN
–	–	–	–	–

FINAL FIBER DISTRIBUTION / OVP BOX		FINAL CABLING SUMMARY		
MODEL NUMBER	STATUS	COAX	HYBRID	STATUS
-	-	-	(3) 1 5/8"	ADD
-	-	(6) 1 5/8"	(1) 1 1/4"	RMN

3 EQUIPMENT SCHEDULES

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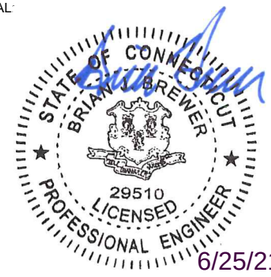
GUILFORD CT

T-MOBILE SITE NAME:
AMTRAK_GUILFORD

SITE ADDRESS:
61 MOOSE HILL ROAD
GUILFORD, CONNECTICUT, 06437

SEAL:

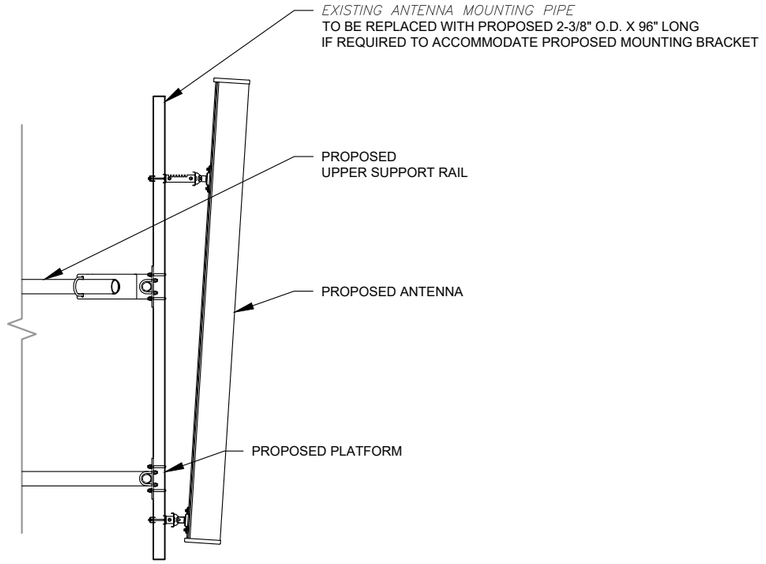


T-Mobile

DATE DRAWN:	06/23/21
ATC JOB NO:	13660479
CUSTOMER ID:	AMTRAK_GUILFORD
CUSTOMER #:	CTNH805A

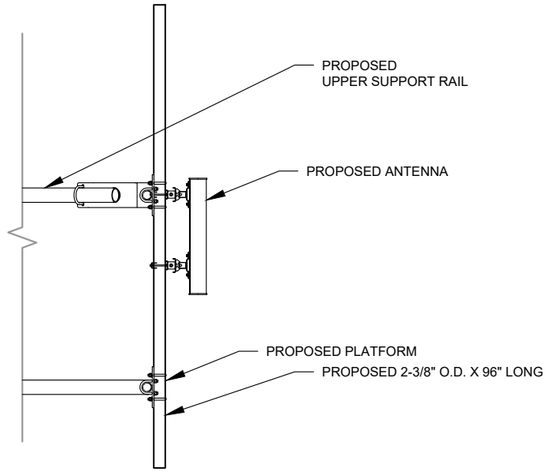
ANTENNA INFORMATION & SCHEDULE

SHEET NUMBER:	REVISION:
C-401	0



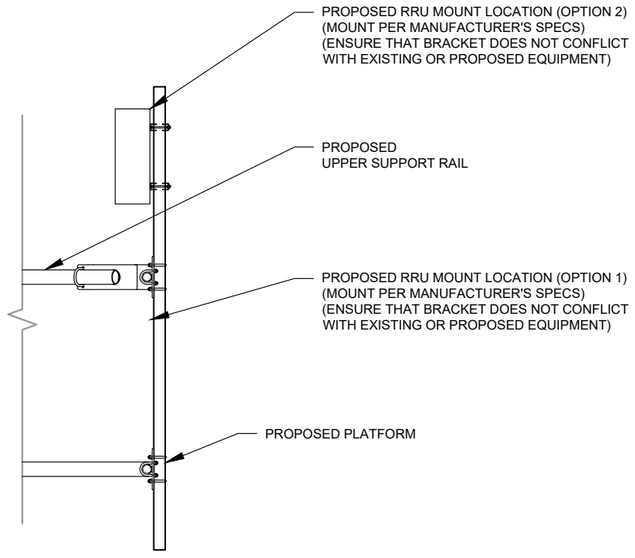
1 PROPOSED ANTENNA MOUNTING DETAIL - TYPICAL

SCALE: N.T.S.



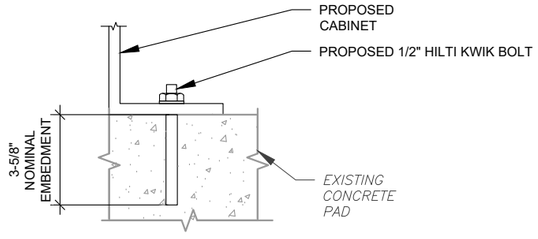
2 PROPOSED 5G ANTENNA MOUNTING DETAIL - TYPICAL

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

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284988

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GUILFORD CT

T-MOBILE SITE NAME:
AMTRAK_GUILFORD

SITE ADDRESS:
61 MOOSE HILL ROAD
GUILFORD, CONNECTICUT, 06437

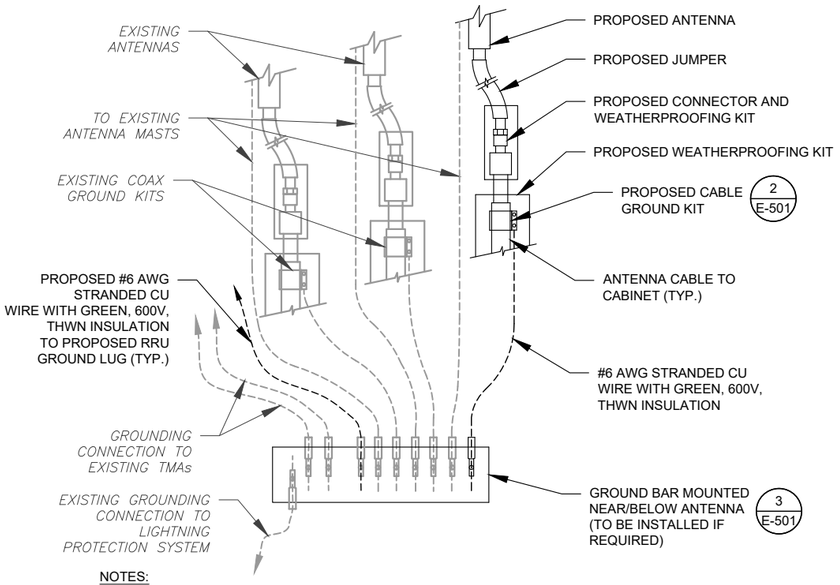
SEAL:

T-Mobile

DATE DRAWN:	06/23/21
ATC JOB NO:	13660479
CUSTOMER ID:	AMTRAK_GUILFORD
CUSTOMER #:	CTNH805A

CONSTRUCTION DETAILS

SHEET NUMBER:	REVISION:
C-501	0

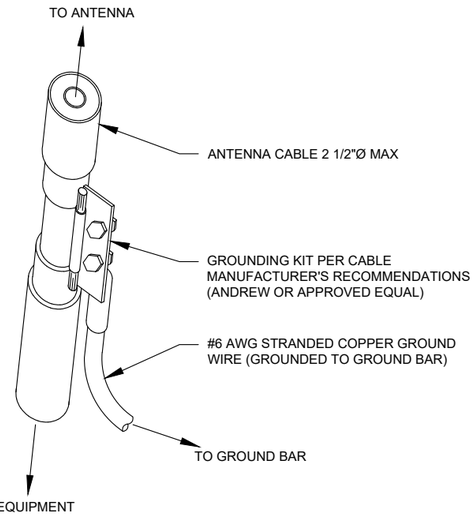


NOTES:

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.

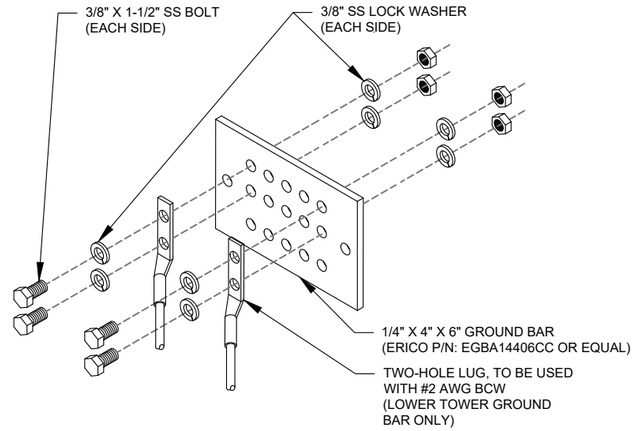


GROUND KIT NOTES:

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.

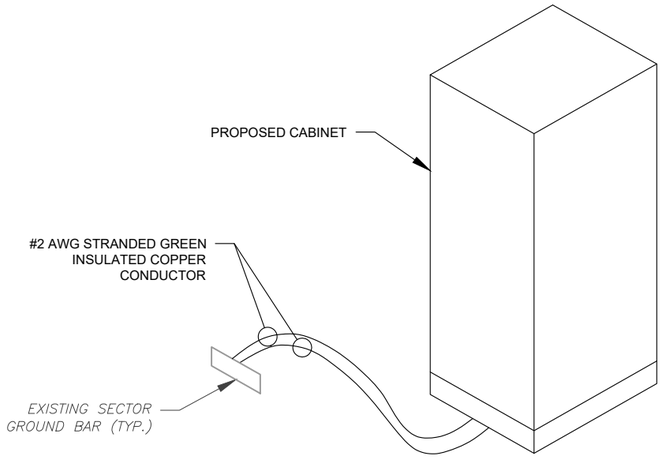


GROUND BAR NOTES:

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	SM	04/16/21
0	ISSUED FOR CONSTRUCTION	CW	06/23/21

ATC SITE NUMBER:
284988
ATC SITE NAME:
GUILFORD CT
T-MOBILE SITE NAME:
AMTRAK_GUILFORD
SITE ADDRESS:
61 MOOSE HILL ROAD
GUILFORD, CONNECTICUT, 06437

SEAL:

T-Mobile

DATE DRAWN:	06/23/21
ATC JOB NO:	13660479
CUSTOMER ID:	AMTRAK_GUILFORD
CUSTOMER #:	CTNH805A

GROUNDING DETAILS

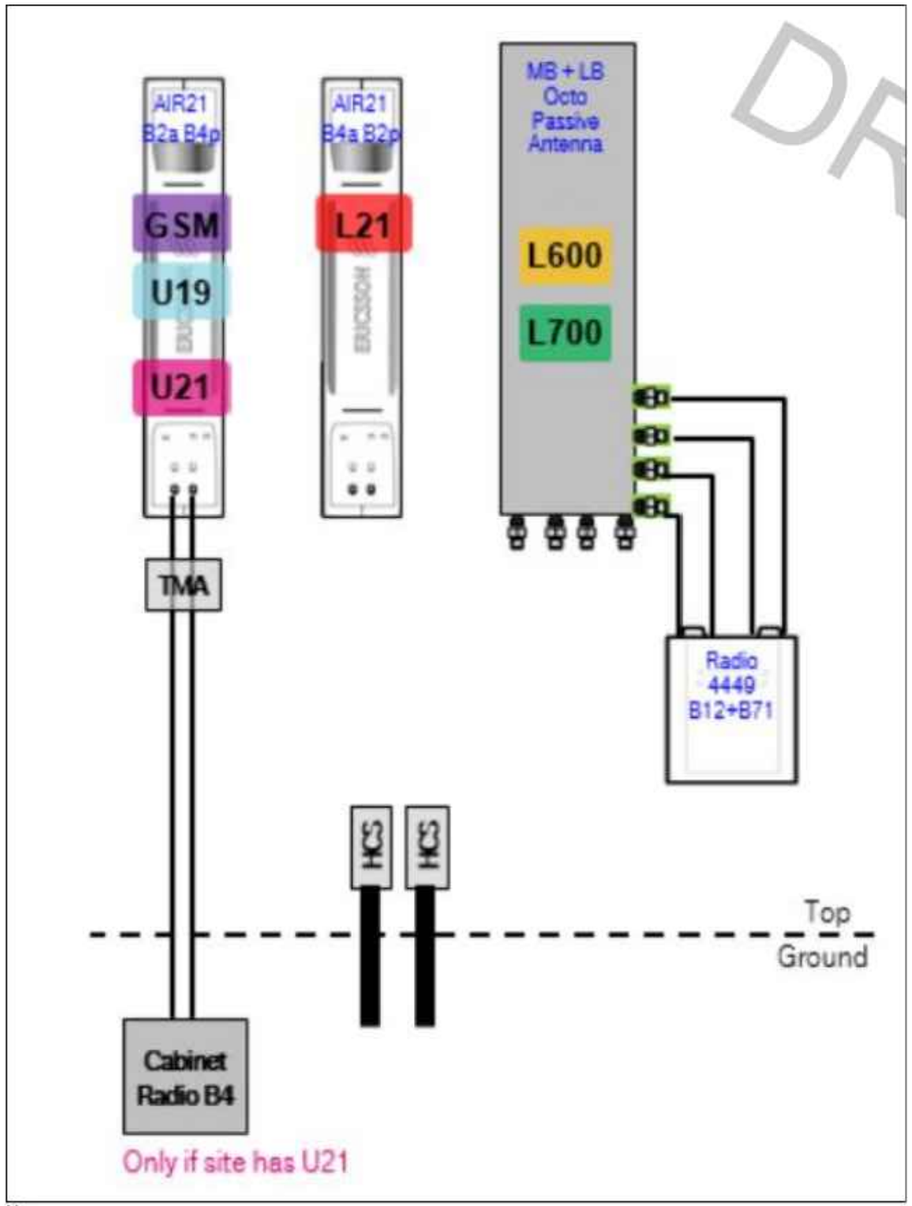
SHEET NUMBER:	REVISION:
E-501	0

Section 5 - RAN Equipment

Existing RAN Equipment	
	Template: 95A
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 U2100 · DUG20 G1900 · DUS41 L1900 L2100
Radio	RU22 (x 6) U2100

Proposed RAN Equipment	
	Template: 67D92C Outdoor
Enclosure	1
Enclosure Type	RBS 6131
Baseband	DUW30 U2100 · DUG20 G1900 · BB 6648 L1900 L2100 · BB 6648 N600 L700 L600
Hybrid Cable System	Ericsson Hybrid Trunk 6/24 4AWG 100m (x 3)
Radio	RU22 (x 6) U2100
RAN Scope of Work:	
Replace(1) DUS41 with (1) BB6648 for L2100, L700, and L600. Add (1) BB6648 for 5G N600. Add (3) 6X24 HCS. Existing: (6) 1-5/8" Coaxial Lines; (1) HCS	

1 CABINET CONFIGURATION
SCALE: NOT TO SCALE

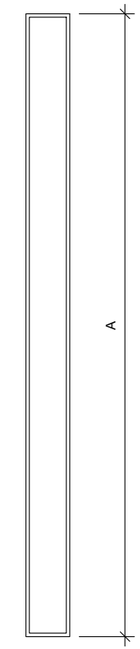


2 ANTENNA CONFIGURATION
SCALE: NOT TO SCALE

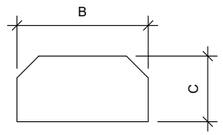
NOTE: THIS SHEET CREATED BY OTHERS AND PROVIDED BY REQUEST OF CUSTOMER WITHOUT EDIT.

SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-601	0



FRONT VIEW

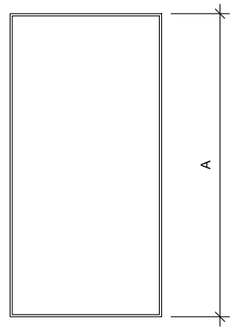


TOP VIEW

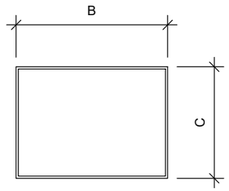
1 ANTENNA SPECIFICATIONS

FOR ILLUSTRATIVE PURPOSES ONLY - NOT TO SCALE

ANTENNA SPECIFICATIONS				
ANTENNA MODEL	A	B	C	WEIGHT (LBS)
APXVAARR24_43-U-NA20	95.9"	24.0"	8.7"	127.9



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

Antenna Mount Analysis Report

ATC Site Name	:	**Guilford CT, CT**
ATC Site Number	:	**284988**
Engineering Number	:	**13660479_C8_03**
Mount Elevation	:	**108 ft**
Carrier	:	**T-Mobile**
Carrier Site Name	:	**Amtrak_Guilford**
Carrier Site Number	:	**CTNH805A**
Site Location	:	**Moose Hill Rd.** **Guilford, CT 06437** **41.267500, -72.716100**
County	:	**New Haven**
Date	:	**May 11, 2021**
Max Usage	:	**69%**
Result	:	**Pass**

Prepared By:
Sorin Capra
TEP No. 177168.534968

Reviewed By:

STATE OF CONNECTICUT
AARON THOMAS RUCKER
32608
LICENSED PROFESSIONAL ENGINEER

05/11/2021

Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for T-Mobile at 108ft.

Supporting Documents

Spec Sheet	Spec Sheet for SitePro RMQP
Spec Sheet	Spec Sheet for SitePro HRK12-3HD
RFDS	RFDS dated February 16, 2021
Photos	Site photos from 2018

Analysis

This antenna mount was analyzed using RISA-3D v17 analysis software

Basic Wind Speed:	130 mph (Vult 3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (Vult 3-Second Gust) w/ 1.0" radial ice
Codes:	ANSI/TIA-222-H
Risk Category:	II
Exposure Category:	C
Topographic Factor Procedure:	Method 2
Kzt:	1.000
Spectral Response:	Ss = 0.202, S1 = 0.053
Site Class:	D – Default
Live Loads:	Lm = 500 lbs, Lv = 250 lbs

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report. Analysis is based on new SitePro RMQP platform mount with SitePro HRK12-3HD handrail kit.

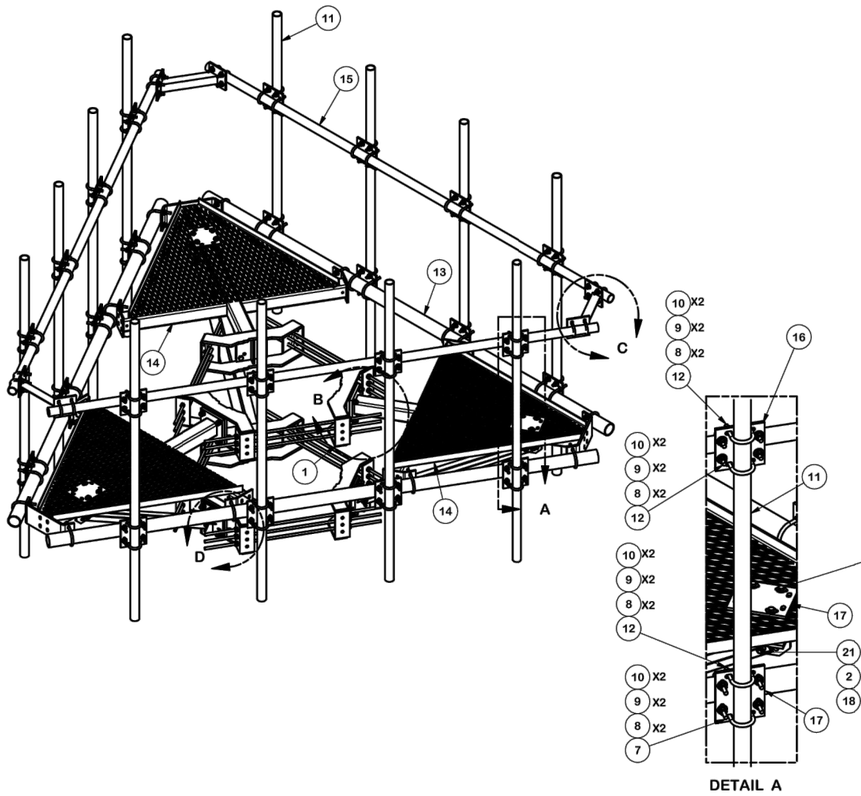
If the load differs from that described in this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed

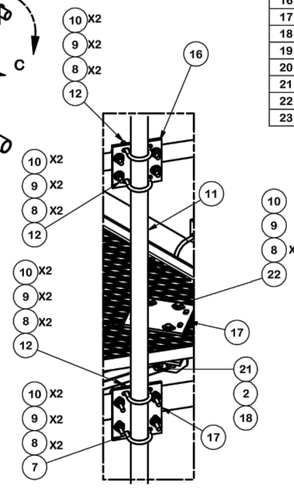
If you have any questions or require additional information, please contact American Tower via email at Engineering@americantower.com. Please include the American Tower site name, site number, and engineering number in the subject line for any questions.

Tower Engineering Professionals, Inc. – 326 Tryon Road - Raleigh, NC 27603 - 919-661-6351 Office - 919-661-6351 Fax - www.tepgroup.net

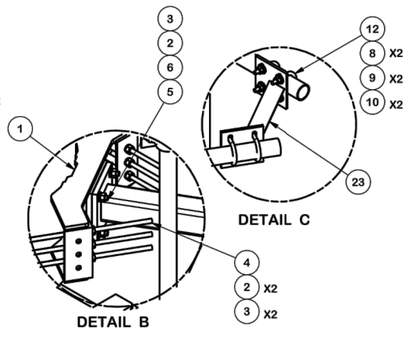
SUPPLEMENTAL

SHEET NUMBER:	REVISION:
R-603	0



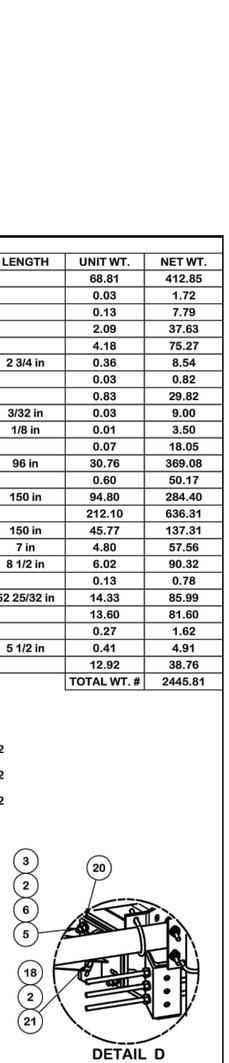


DETAIL A



DETAIL B

DETAIL C



DETAIL D

PARTS LIST

ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	6	X-LWRM	RING MOUNT WELDMENT		68.81	412.85
2	66	G58LW	5/8" HDG LOCKWASHER		0.03	1.72
3	60	A58NUT	5/8" HDG A325 HEX NUT		0.13	7.79
4	18	G58R-24	5/8" x 24" THREADED ROD (HDG.)		2.09	37.63
4	18	G58R-48	5/8" x 48" THREADED ROD (HDG.)		4.18	75.27
5	24	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	8.54
6	24	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.82
7	36	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.83	29.82
8	264	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	9.00
9	252	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	3.50
10	252	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	18.05
11	12	P296	2-3/8" X 96" SCH. 40 GALVANIZED PIPE	96 in	30.76	369.08
12	84	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.60	50.17
13	3	P3150	3-1/2" X 150" (3" SCH 40) GALVANIZED PIPE	150 in	94.80	284.40
14	3	X-SV196	LOW PROFILE PLATFORM CORNER		212.10	636.31
15	3	P2150	2-3/8" O.D. X 150" SCH 40 GALVANIZED PIPE	150 in	45.77	137.31
16	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
17	15	SCX4	CROSSOVER PLATE	8 1/2 in	6.02	90.32
18	6	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	0.78
19	6	X-253993	PLATFORM REINFORCEMENT KIT ANGLE	52 25/32 in	14.33	85.99
20	6	X-TBW	T-BRACKET WELDMENT		13.60	81.60
21	6	G5802	5/8" x 2" HDG HEX BOLT GR5		0.27	1.62
22	12	G12065	1/2" x 6-1/2" HDG HEX BOLT GR5 FULL THREAD	5 1/2 in	0.41	4.91
23	3	X-AHCP	ANGLE HANDRAIL CORNER PLATE		12.92	38.76
					TOTAL WT. #	2445.81

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	CHANGED X-253992 TO X-TBW	4488	CEK	9/20/2018

REVISION HISTORY

DESCRIPTION
12' 6" LOW PROFILE PLATFORM
WITH TWELVE 2-3/8" ANTENNA MOUTING
PIPES, AND HANDRAIL

SITE PRO 1 — A valmont COMPANY

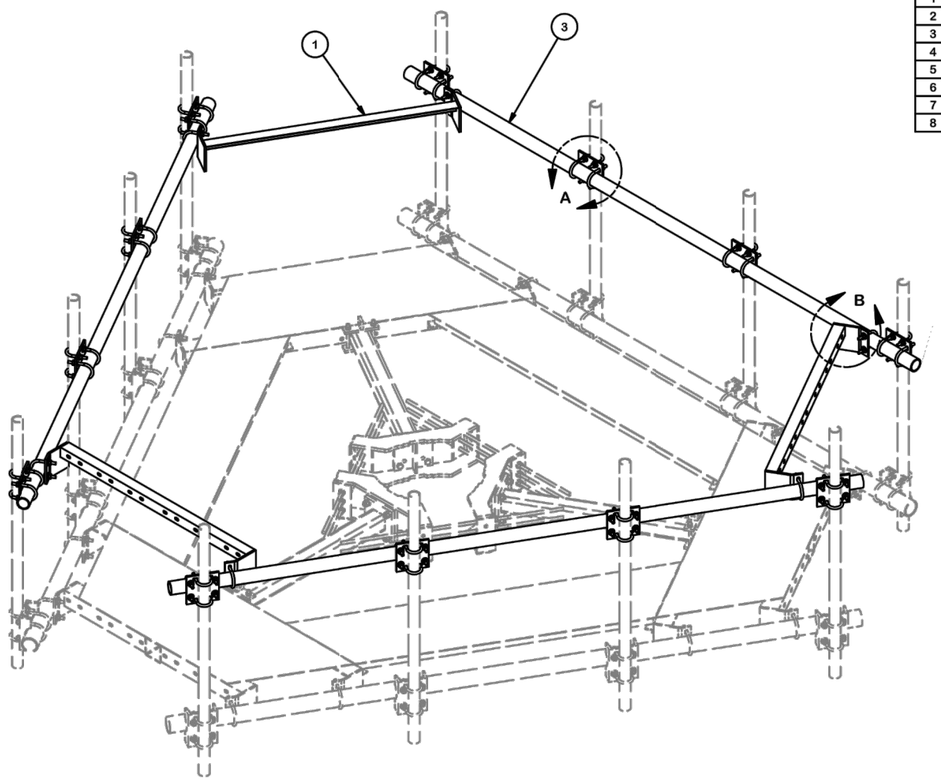
Engineering Support Team: 1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

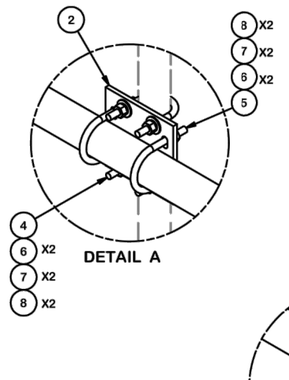
CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.	PAGE
4488	CEK 7/14/2014		RMQP-496-HK	1 OF 3
CLASS 81 / SUB 02	DRAWING USAGE: CUSTOMER	CHECKED BY: BMC 7/14/2014	DWG. NO.: RMQP-496-HK	

SUPPLEMENTAL

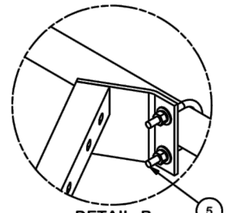
SHEET NUMBER:	REVISION:
R-604	0



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-SNP-HRA	CORNER BRACKET FOR SNPX PLATFORMS		25.95	77.86
2	12	SCX2	CROSSOVER PLATE	7 in	4.80	57.56
3	3	P30150	2-7/8" O.D. X 150" SCH. 40 PIPE	150 in	76.94	230.81
4	24	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.73	17.56
5	30	X-UB1300	1/2" X 3" X 5" X 2" U-BOLT (HDG.)		0.73	21.95
6	108	G12FW	1/2" HDG USS FLATWASHER		0.03	3.68
7	108	G12LW	1/2" HDG LOCKWASHER		0.01	1.50
8	108	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	7.74
					TOTAL WT. #	415.06



DETAIL A



DETAIL B

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION: HANDRAIL KIT FOR 12' SNUB NOSE PLATFORM

CPD NO.:

DRAWN BY: CEK 4/6/2015

ENG. APPROVAL:

PART NO.: HRA12

CLASS: 81 | SUB: 02

DRAWING USAGE: CUSTOMER

CHECKED BY: BMC 4/6/2015

DWG. NO.: HRA12

PAGE 1 OF 1

SITE PRO 1 — A valmont COMPANY
Engineering Support Team: 1-888-753-7446
Locations: New York, NY; Atlanta, GA; Los Angeles, CA; Plymouth, IN; Salem, OR; Dallas, TX

SUPPLEMENTAL

SHEET NUMBER: R-605

REVISION: 0

AMERICAN TOWER®
CORPORATION

This report was prepared for American Tower Corporation by

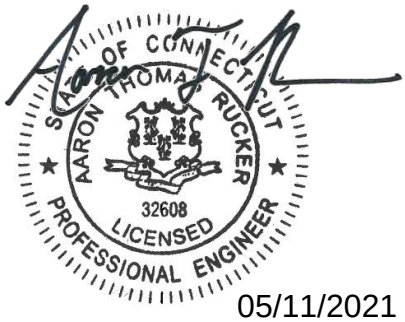
TOWER ENGINEERING PROFESSIONALS

Antenna Mount Analysis Report

ATC Site Name	:	Guilford CT, CT
ATC Site Number	:	284988
Engineering Number	:	13660479_C8_03
Mount Elevation	:	108 ft
Carrier	:	T-Mobile
Carrier Site Name	:	Amtrak_Guilford
Carrier Site Number	:	CTNH805A
Site Location	:	Moose Hill Rd. Guilford, CT 06437 41.267500, -72.716100
County	:	New Haven
Date	:	May 11, 2021
Max Usage	:	69%
Result	:	Pass

Prepared By:
Sorin Capra
TEP No. 177168.534968

Reviewed By:



05/11/2021

Table of Contents

Introduction

The purpose of this report is to summarize results of the antenna mount analysis performed for T-Mobile at 108ft.

Supporting Documents

Spec Sheet	Spec Sheet for SitePro RMQP
Spec Sheet	Spec Sheet for SitePro HRK12-3HD
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Photos	Site photos from 2018

Analysis

This antenna mount was analyzed using RISA-3D v17 analysis software

Basic Wind Speed:	130 mph (Vult 3-Second Gust)
Basic Wind Speed w/ Ice:	50 mph (Vult 3-Second Gust) w/ 1.0" radial ice
Codes:	ANSI/TIA-222-H
Risk Category:	II
Exposure Category:	C
Topographic Factor Procedure:	Method 2
Kzt:	1.000
Spectral Response:	Ss = 0.202, S1 = 0.053
Site Class:	D – Default
Live Loads:	Lm = 500 lbs, Lv = 250 lbs

Conclusion

Based on the analysis results, the antenna mount meets the requirements per the applicable codes listed above. The mount can support the equipment as described in this report. Analysis is based on new SitePro RMQP platform mount with SitePro HRK12-3HD handrail kit.

If the load differs from that described in this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed

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.

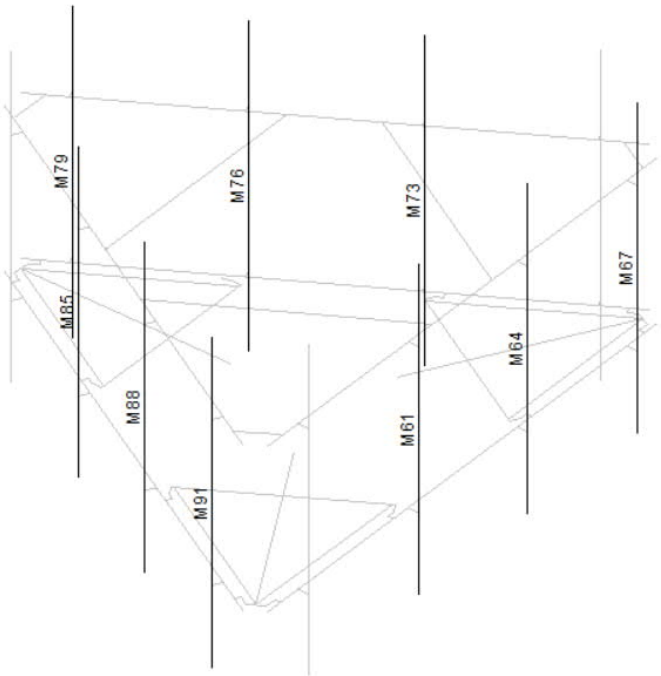
Antenna Loading

Mount Centerline (ft)	Antenna Centerline (ft)	Qty	Antenna Model
108	108	3	RFS APXVAARR24_43-U-NA20
		3	Ericsson AIR 21, 1.3M, B4A B2P
		3	Ericsson AIR 21, 1.3 M, B2A B4P
		3	Ericsson KRY 112 489/2
		3	Ericsson Radio 4449 B71 B85A

Structure Usage

Structural Component	Controlling Usage	Pass/Fail
Face Horizontals	20%	Pass
Support Rail	36%	Pass
Mount Pipes	69%	Pass
Standoff Members	48%	Pass
Grating Members	19%	Pass
Corner Members	59%	Pass
Mount to Tower Connection	54%	Pass

Mount Layout



POSITION	MEMBER LABEL (mounting pipe)	LOCATION (measured from I node of mount pipe to C/L of antenna)	MANUFACTURER	DESCRIPTION	Flat or Round	Length of Normal Face	Width of Normal Face	Width of Transversal Face	θ (wind direction from normal face)	Weight
		[in]				[in]	[in]	[in]	[°]	[lbs]
1	M67	28	Ericsson	AIR 21, 1.3M, B2A B4P	F	56	12	8	0	83.00
2	M64	48	RFS	APXVAARR24_43-U-NA20	F	95.9	24	8.7	0	127.90
3	M61	28	Ericsson	AIR 21, 1.3M, B4A B2P	F	56	12.1	7.9	0	81.50
1	M91	28	Ericsson	AIR 21, 1.3M, B2A B4P	F	56	12	8	120	83.00
2	M88	48	RFS	APXVAARR24_43-U-NA20	F	95.9	24	8.7	120	127.90
3	M85	28	Ericsson	AIR 21, 1.3M, B4A B2P	F	56	12.1	7.9	120	81.50
1	M79	28	Ericsson	AIR 21, 1.3M, B2A B4P	F	56	12	8	240	83.00
2	M76	48	RFS	APXVAARR24_43-U-NA20	F	95.9	24	8.7	240	127.90
3	M73	28	Ericsson	AIR 21, 1.3M, B4A B2P	F	56	12.1	7.9	240	81.50
1	M67	18	Ericsson	KRY 112 489/2	F	11	6.1	3.9	0	15.40
2	M64	18	Ericsson	Radio 4449 B71 B85A	F	15	13.2	10.5	0	75.00
1	M91	18	Ericsson	KRY 112 489/2	F	11	6.1	3.9	120	15.40
2	M88	18	Ericsson	Radio 4449 B71 B85A	F	15	13.2	10.5	120	75.00
1	M79	18	Ericsson	KRY 112 489/2	F	11	6.1	3.9	240	15.40
2	M76	18	Ericsson	Radio 4449 B71 B85A	F	15	13.2	10.5	240	75.00

Standard Conditions

All engineering services performed by TEP 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 TEP

It is the responsibility of the client to ensure that the information provided to TEP and used in the performance of our engineering services is correct and complete.

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

TEP assumes that the mount has been maintained in accordance with the manufacturer's specification.

TEP assumes that all mount components are in sufficient condition to carry their full design capacity for this analysis.

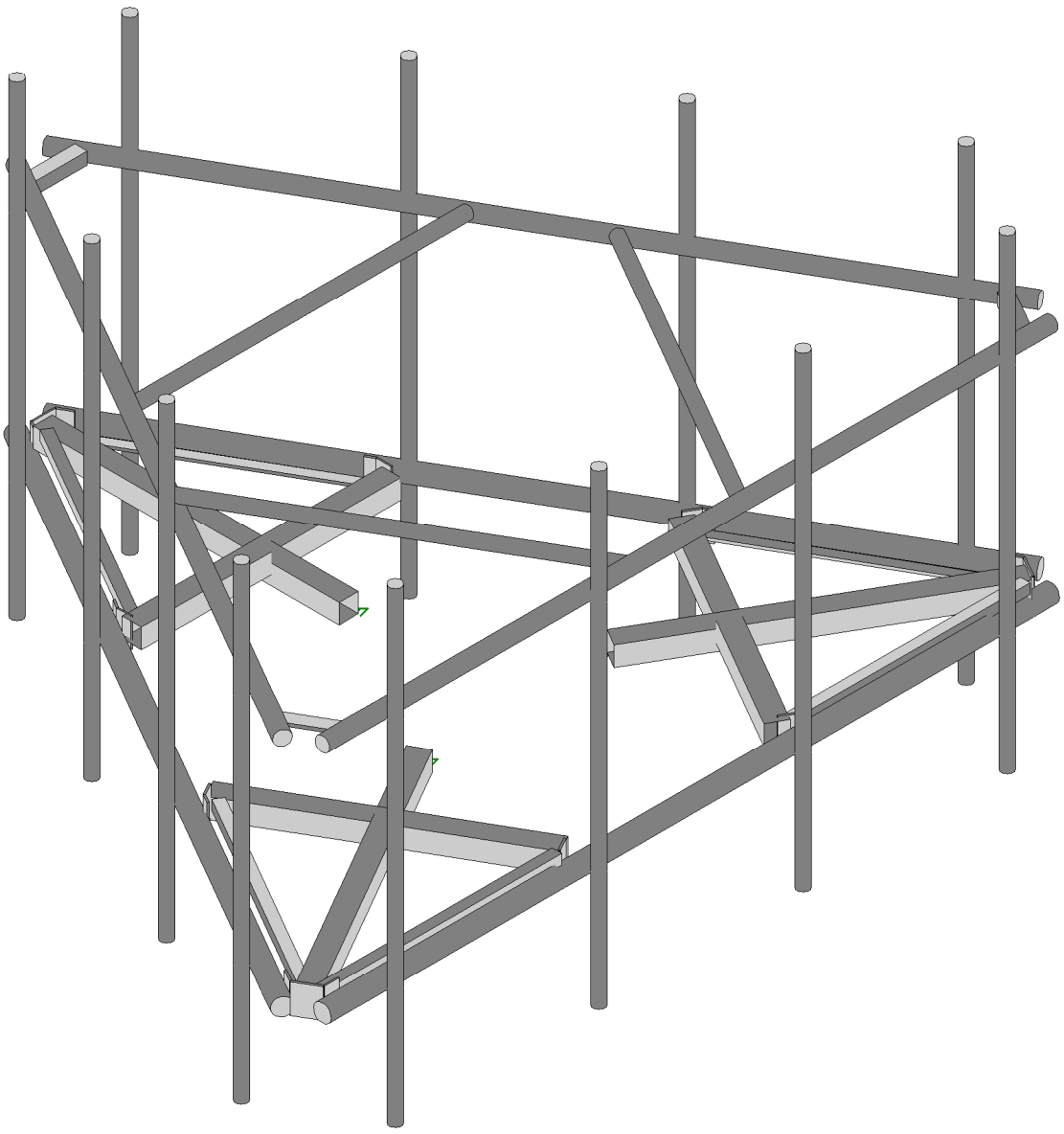
Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.

All material grades used for this analysis, unless verified by mount manufacturer design, were assumed per AISC Table 2-4, 15th Edition. See RISA 3-D output for confirmation on grades used in this analysis.

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 TEP, 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. TEP is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.



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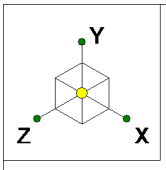
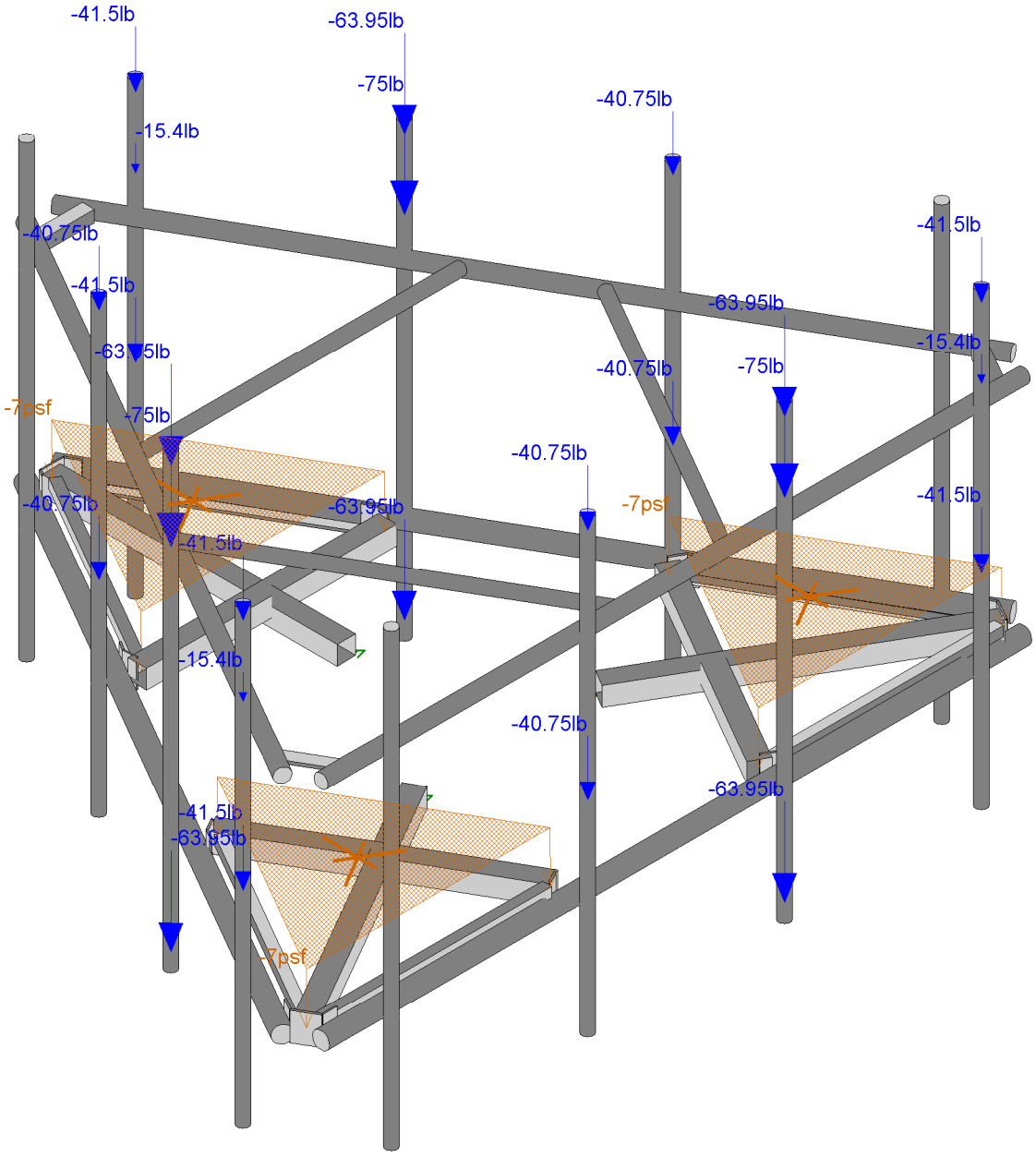
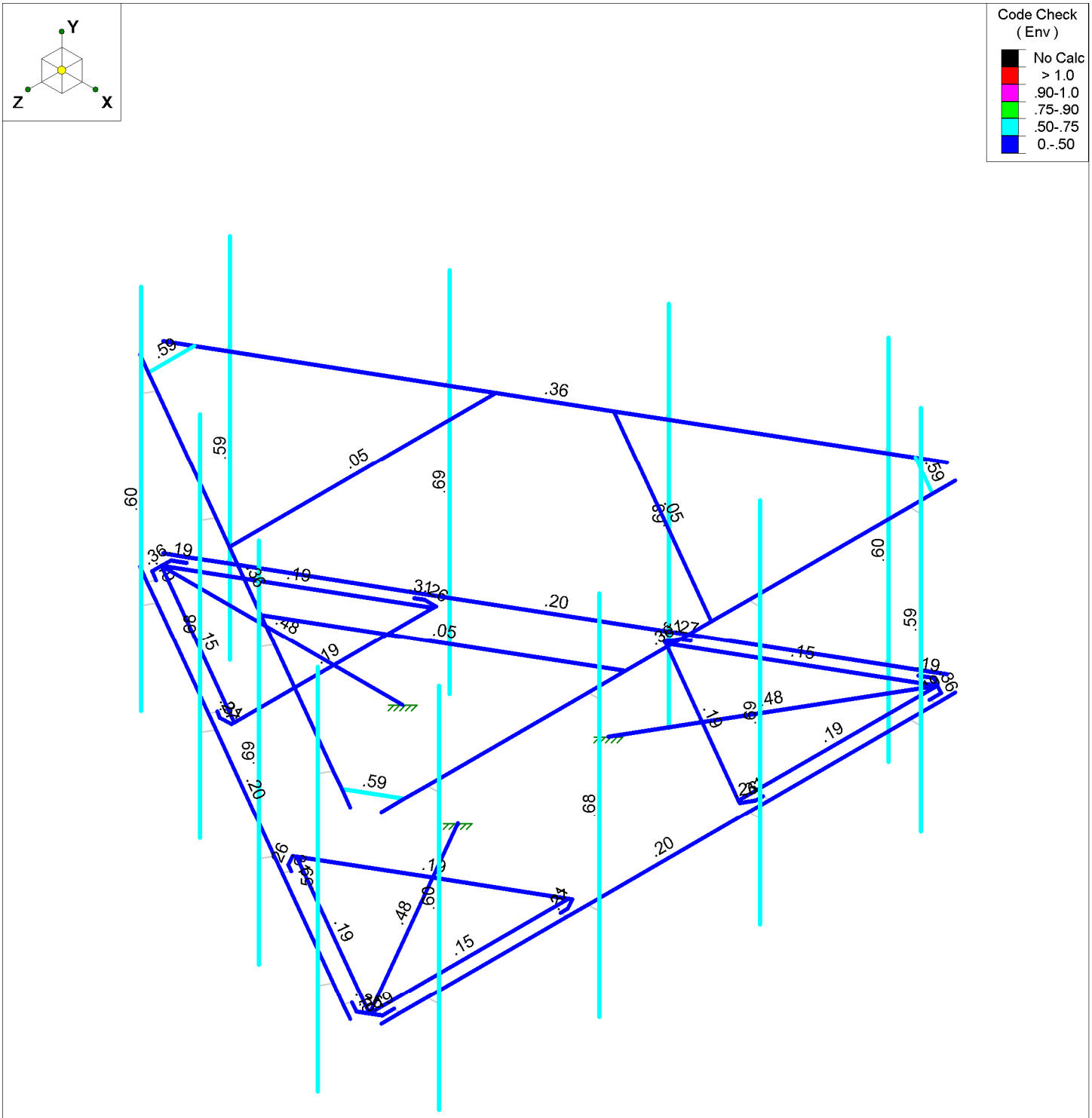
Tower Engineering Profess...	284988 - GUILFORD CT	SK - 1
VAA		May 7, 2021 at 5:16 PM
TEP No. 177168.534968		284988 - GUILFORD CT.r3d





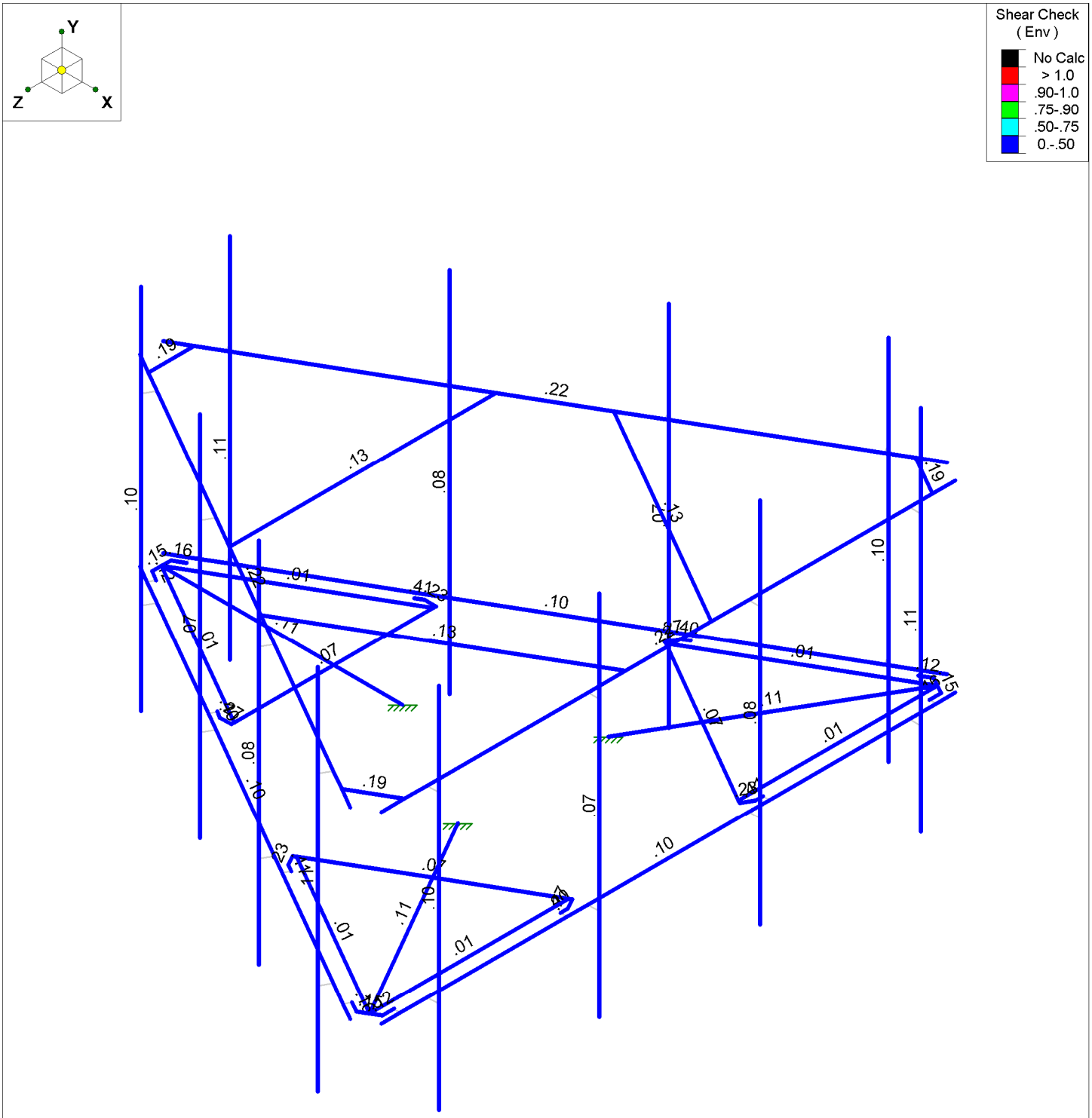
Loads: BLC 2, We
Envelope Only Solution

Tower Engineering Profess...		SK - 2
VAA	284988 - GUILFORD CT	May 7, 2021 at 5:16 PM
TEP No. 177168.534968		284988 - GUILFORD CT.r3d



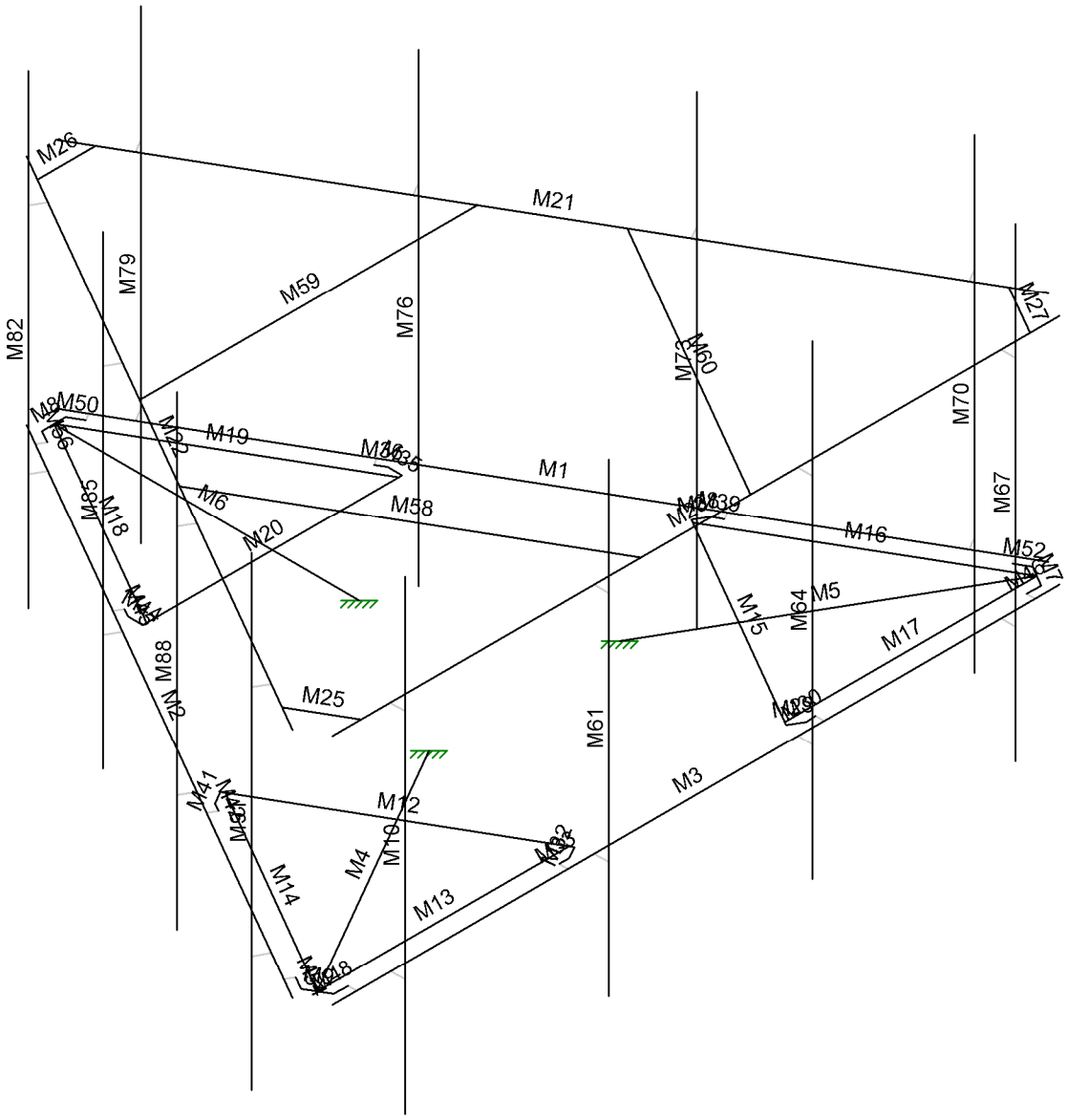
Member Code Checks Displayed (Enveloped)
Envelope Only Solution

Tower Engineering Profess...		SK - 3
VAA	284988 - GUILFORD CT	May 7, 2021 at 5:16 PM
TEP No. 177168.534968		284988 - GUILFORD CT.r3d



Member Shear Checks Displayed (Enveloped)
Envelope Only Solution

Tower Engineering Profess...		SK - 4
VAA	284988 - GUILFORD CT	May 7, 2021 at 5:16 PM
TEP No. 177168.534968		284988 - GUILFORD CT.r3d



Envelope Only Solution

Tower Engineering Profess...		SK - 5
VAA	284988 - GUILFORD CT	May 7, 2021 at 5:16 PM
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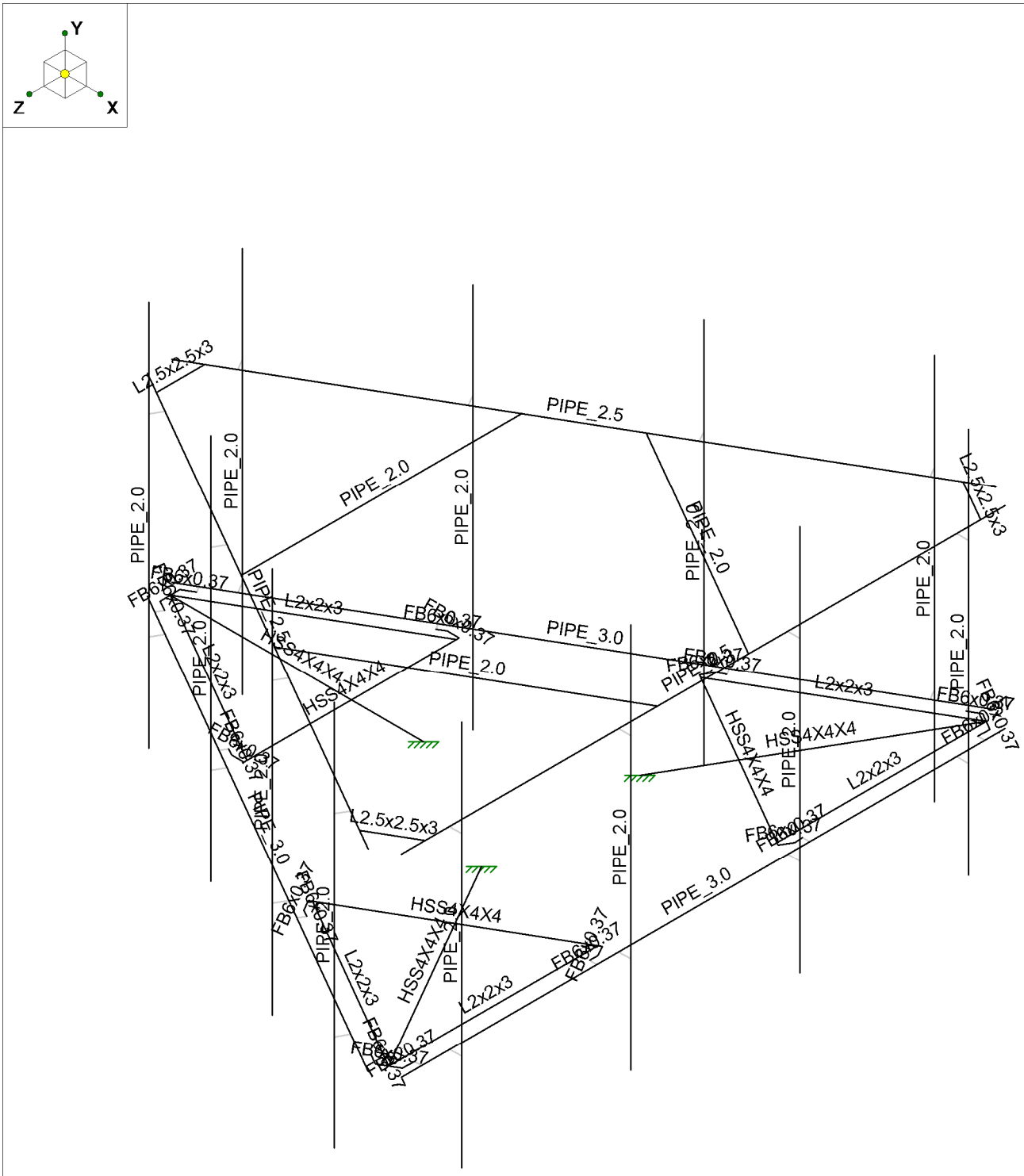

Envelope Only Solution

Tower Engineering Profess...		SK - 6
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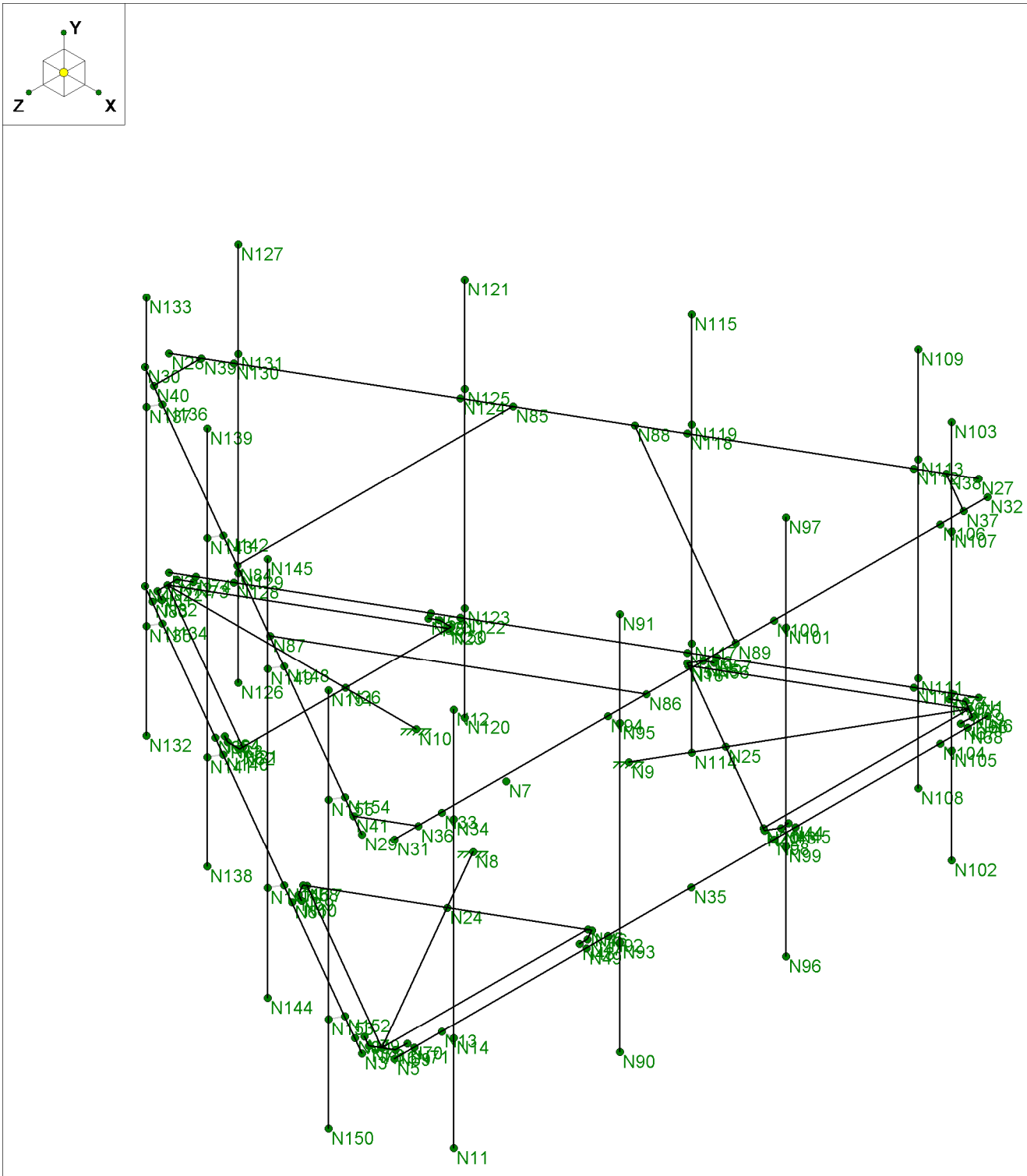
TEP No. 177168.534968		284988 - GUILFORD CT.r3d



Envelope Only Solution

Tower Engineering Profess...	284988 - GUILFORD CT	SK - 7
VAA		May 7, 2021 at 5:16 PM
TEP No. 177168.534968		284988 - GUILFORD CT.r3d

(Global) Model Settings

Display Sections for Member Calcs	5
Max Internal Sections for Member Calcs	97
Include Shear Deformation?	Yes
Increase Nailing Capacity for Wind?	Yes
Include Warping?	Yes
Trans Load Btwn Intersecting Wood Wall?	Yes
Area Load Mesh (in^2)	144
Merge Tolerance (in)	.12
P-Delta Analysis Tolerance	0.50%
Include P-Delta for Walls?	Yes
Automatically Iterate Stiffness for Walls?	Yes
Max Iterations for Wall Stiffness	3
Gravity Acceleration (in/sec^2)	386.4
Wall Mesh Size (in)	24
Eigensolution Convergence Tol. (1.E-)	4
Vertical Axis	Y
Global Member Orientation Plane	XZ
Static Solver	Sparse Accelerated
Dynamic Solver	Accelerated Solver

Hot Rolled Steel Code	AISC 15th(360-16): LRFD
Adjust Stiffness?	Yes(Iterative)
RISAConnection Code	AISC 15th(360-16): LRFD
Cold Formed Steel Code	AISI S100-16: LRFD
Wood Code	None
Wood Temperature	< 100F
Concrete Code	None
Masonry Code	None
Aluminum Code	AA ADM1-15: LRFD - Building
Stainless Steel Code	AISC 14th(360-10): LRFD
Adjust Stiffness?	Yes(Iterative)

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

(Global) Model Settings, Continued

Seismic Code	ASCE 7-16
Seismic Base Elevation (in)	Not Entered
Add Base Weight?	Yes
Ct X	.02
Ct Z	.02
T X (sec)	Not Entered
T Z (sec)	Not Entered
R X	3
R Z	3
Ct Exp. X	.75
Ct Exp. Z	.75
SD1	1
SDS	1
S1	1
TL (sec)	5
Risk Cat	I or II
Drift Cat	Other
Om Z	1
Om X	1
Cd Z	4
Cd X	4
Rho Z	1
Rho X	1

Hot Rolled Steel Properties

	Label	E [ksi]	G [ksi]	Nu	Therm (/1E5 F)	Density[k/ft^3]	Yield[ksi]	Ry	Fu[ksi]	Rt
1	A992	29000	11154	.3	.65	.49	50	1.1	65	1.1
2	A36 Gr.36	29000	11154	.3	.65	.49	36	1.5	58	1.2
3	A572 Gr.50	29000	11154	.3	.65	.49	50	1.1	65	1.1
4	A500 Gr.B RND	29000	11154	.3	.65	.527	42	1.4	58	1.3
5	A500 Gr.B Rect	29000	11154	.3	.65	.527	46	1.4	58	1.3
6	A53 Gr.B	29000	11154	.3	.65	.49	35	1.6	60	1.2
7	A1085	29000	11154	.3	.65	.49	50	1.25	65	1.15
8	A913 Gr.65	29000	11154	.3	.65	.49	65	1.1	80	1.1

Hot Rolled Steel Section Sets

	Label	Shape	Type	Design List	Material	Design Ru...	A [in2]	Iyy [in4]	Izz [in4]	J [in4]
1	HR1A	W10X33	Beam	None	A992	Typical	9.71	36.6	171	.583

Joint Boundary Conditions

	Joint Label	X [k/in]	Y [k/in]	Z [k/in]	X Rot.[k-in/rad]	Y Rot.[k-in/rad]	Z Rot.[k-in/rad]
1	N8	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
2	N9	Reaction	Reaction	Reaction	Reaction	Reaction	Reaction
3	N10	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	M1	N1	N2			PIPE_3.0	None	None	A53 Gr.B	Typical
2	M2	N3	N4			PIPE_3.0	None	None	A53 Gr.B	Typical
3	M3	N5	N6			PIPE_3.0	None	None	A53 Gr.B	Typical
4	M4	N16	N8			HSS4X4X4	None	None	A500 Gr.B...	Typical
5	M5	N19	N9			HSS4X4X4	None	None	A500 Gr.B...	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
6	M6	N22	N10			HSS4X4X4	None	None	A500 Gr.B..	Typical
7	M7	N66	N75			FB6x0.37	None	None	A36 Gr.36	Typical
8	M8	N72	N81			FB6x0.37	None	None	A36 Gr.36	Typical
9	M9	N78	N69			FB6x0.37	None	None	A36 Gr.36	Typical
10	M10	N12	N11			PIPE_2.0	None	None	A53 Gr.B	Typical
11	M11	N13	N14			RIGID	None	None	RIGID	Typical
12	M12	N46	N58			HSS4X4X4	None	None	A500 Gr.B..	Typical
13	M13	N16	N15		180	L2x2x3	Beam	None	A36 Gr.36	Typical
14	M14	N16	N17		90	L2x2x3	Beam	None	A36 Gr.36	Typical
15	M15	N54	N42			HSS4X4X4	None	None	A500 Gr.B..	Typical
16	M16	N19	N18		180	L2x2x3	Beam	None	A36 Gr.36	Typical
17	M17	N19	N20		90	L2x2x3	Beam	None	A36 Gr.36	Typical
18	M18	N22	N21		180	L2x2x3	Beam	None	A36 Gr.36	Typical
19	M19	N22	N23		90	L2x2x3	Beam	None	A36 Gr.36	Typical
20	M20	N50	N62			HSS4X4X4	None	None	A500 Gr.B..	Typical
21	M21	N27	N28			PIPE_2.5	None	None	A53 Gr.B	Typical
22	M22	N29	N30			PIPE_2.5	None	None	A53 Gr.B	Typical
23	M23	N31	N32			PIPE_2.5	None	None	A53 Gr.B	Typical
24	M24	N33	N34			RIGID	None	None	RIGID	Typical
25	M25	N41	N36		90	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
26	M26	N39	N40		90	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
27	M27	N38	N37		180	L2.5x2.5x3	Beam	None	A36 Gr.36	Typical
28	M28	N44	N45			RIGID	None	None	RIGID	Typical
29	M29	N42	N43			FB6x0.37	Beam	None	A36 Gr.36	Typical
30	M30	N43	N44			FB6x0.37	Beam	None	A36 Gr.36	Typical
31	M31	N48	N49			RIGID	None	None	RIGID	Typical
32	M32	N46	N47			FB6x0.37	Beam	None	A36 Gr.36	Typical
33	M33	N47	N48			FB6x0.37	Beam	None	A36 Gr.36	Typical
34	M34	N52	N53			RIGID	None	None	RIGID	Typical
35	M35	N50	N51			FB6x0.37	Beam	None	A36 Gr.36	Typical
36	M36	N51	N52			FB6x0.37	Beam	None	A36 Gr.36	Typical
37	M37	N56	N57			RIGID	None	None	RIGID	Typical
38	M38	N54	N55			FB6x0.37	Beam	None	A36 Gr.36	Typical
39	M39	N55	N56			FB6x0.37	Beam	None	A36 Gr.36	Typical
40	M40	N60	N61			RIGID	None	None	RIGID	Typical
41	M41	N58	N59			FB6x0.37	Beam	None	A36 Gr.36	Typical
42	M42	N59	N60			FB6x0.37	Beam	None	A36 Gr.36	Typical
43	M43	N64	N65			RIGID	None	None	RIGID	Typical
44	M44	N62	N63			FB6x0.37	Beam	None	A36 Gr.36	Typical
45	M45	N63	N64			FB6x0.37	Beam	None	A36 Gr.36	Typical
46	M46	N66	N67			FB6x0.37	None	None	A36 Gr.36	Typical
47	M47	N67	N68			RIGID	None	None	RIGID	Typical
48	M48	N69	N70			FB6x0.37	None	None	A36 Gr.36	Typical
49	M49	N70	N71			RIGID	None	None	RIGID	Typical
50	M50	N72	N73			FB6x0.37	None	None	A36 Gr.36	Typical
51	M51	N73	N74			RIGID	None	None	RIGID	Typical
52	M52	N75	N76			FB6x0.37	None	None	A36 Gr.36	Typical
53	M53	N76	N77			RIGID	None	None	RIGID	Typical
54	M54	N78	N79			FB6x0.37	None	None	A36 Gr.36	Typical
55	M55	N79	N80			RIGID	None	None	RIGID	Typical
56	M56	N81	N82			FB6x0.37	None	None	A36 Gr.36	Typical
57	M57	N82	N83			RIGID	None	None	RIGID	Typical
58	M58	N87	N86			PIPE_2.0	None	None	A53 Gr.B	Typical
59	M59	N84	N85			PIPE_2.0	None	None	A53 Gr.B	Typical
60	M60	N88	N89			PIPE_2.0	None	None	A53 Gr.B	Typical
61	M61	N91	N90			PIPE_2.0	None	None	A53 Gr.B	Typical
62	M62	N92	N93			RIGID	None	None	RIGID	Typical

Member Primary Data (Continued)

	Label	I Joint	J Joint	K Joint	Rotate(deg)	Section/Shape	Type	Design List	Material	Design Rules
63	M63	N94	N95			RIGID	None	None	RIGID	Typical
64	M64	N97	N96			PIPE_2.0	None	None	A53 Gr.B	Typical
65	M65	N98	N99			RIGID	None	None	RIGID	Typical
66	M66	N100	N101			RIGID	None	None	RIGID	Typical
67	M67	N103	N102			PIPE_2.0	None	None	A53 Gr.B	Typical
68	M68	N104	N105			RIGID	None	None	RIGID	Typical
69	M69	N106	N107			RIGID	None	None	RIGID	Typical
70	M70	N109	N108			PIPE_2.0	None	None	A53 Gr.B	Typical
71	M71	N110	N111			RIGID	None	None	RIGID	Typical
72	M72	N112	N113			RIGID	None	None	RIGID	Typical
73	M73	N115	N114			PIPE_2.0	None	None	A53 Gr.B	Typical
74	M74	N116	N117			RIGID	None	None	RIGID	Typical
75	M75	N118	N119			RIGID	None	None	RIGID	Typical
76	M76	N121	N120			PIPE_2.0	None	None	A53 Gr.B	Typical
77	M77	N122	N123			RIGID	None	None	RIGID	Typical
78	M78	N124	N125			RIGID	None	None	RIGID	Typical
79	M79	N127	N126			PIPE_2.0	None	None	A53 Gr.B	Typical
80	M80	N128	N129			RIGID	None	None	RIGID	Typical
81	M81	N130	N131			RIGID	None	None	RIGID	Typical
82	M82	N133	N132			PIPE_2.0	None	None	A53 Gr.B	Typical
83	M83	N134	N135			RIGID	None	None	RIGID	Typical
84	M84	N136	N137			RIGID	None	None	RIGID	Typical
85	M85	N139	N138			PIPE_2.0	None	None	A53 Gr.B	Typical
86	M86	N140	N141			RIGID	None	None	RIGID	Typical
87	M87	N142	N143			RIGID	None	None	RIGID	Typical
88	M88	N145	N144			PIPE_2.0	None	None	A53 Gr.B	Typical
89	M89	N146	N147			RIGID	None	None	RIGID	Typical
90	M90	N148	N149			RIGID	None	None	RIGID	Typical
91	M91	N151	N150			PIPE_2.0	None	None	A53 Gr.B	Typical
92	M92	N152	N153			RIGID	None	None	RIGID	Typical
93	M93	N154	N155			RIGID	None	None	RIGID	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	M1						Yes	** NA **			None
2	M2						Yes	** NA **			None
3	M3						Yes	** NA **			None
4	M4						Yes	** NA **			None
5	M5						Yes	** NA **			None
6	M6						Yes	** NA **			None
7	M7						Yes	** NA **			None
8	M8						Yes	** NA **			None
9	M9						Yes	** NA **			None
10	M10						Yes	** NA **			None
11	M11						Yes	** NA **			None
12	M12						Yes	** NA **			None
13	M13	BenPIN	BenPIN				Yes				None
14	M14	BenPIN	BenPIN				Yes				None
15	M15						Yes	** NA **			None
16	M16	BenPIN	BenPIN				Yes				None
17	M17	BenPIN	BenPIN				Yes				None
18	M18	BenPIN	BenPIN				Yes				None
19	M19	BenPIN	BenPIN				Yes				None
20	M20						Yes	** NA **			None
21	M21						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
22	M22						Yes	** NA **			None
23	M23						Yes	** NA **			None
24	M24						Yes	** NA **			None
25	M25						Yes				None
26	M26						Yes				None
27	M27						Yes				None
28	M28		BenPIN				Yes	** NA **			None
29	M29						Yes				None
30	M30						Yes				None
31	M31		BenPIN				Yes	** NA **			None
32	M32						Yes				None
33	M33						Yes				None
34	M34		BenPIN				Yes	** NA **			None
35	M35						Yes				None
36	M36						Yes				None
37	M37		BenPIN				Yes	** NA **			None
38	M38						Yes				None
39	M39						Yes				None
40	M40		BenPIN				Yes	** NA **			None
41	M41						Yes				None
42	M42						Yes				None
43	M43		BenPIN				Yes	** NA **			None
44	M44						Yes				None
45	M45						Yes				None
46	M46						Yes	** NA **			None
47	M47		BenPIN				Yes	** NA **			None
48	M48						Yes	** NA **			None
49	M49		BenPIN				Yes	** NA **			None
50	M50						Yes	** NA **			None
51	M51		BenPIN				Yes	** NA **			None
52	M52						Yes	** NA **			None
53	M53		BenPIN				Yes	** NA **			None
54	M54						Yes	** NA **			None
55	M55		BenPIN				Yes	** NA **			None
56	M56						Yes	** NA **			None
57	M57		BenPIN				Yes	** NA **			None
58	M58	BenPIN	BenPIN				Yes	** NA **			None
59	M59	BenPIN	BenPIN				Yes	** NA **			None
60	M60	BenPIN	BenPIN				Yes	** NA **			None
61	M61						Yes	** NA **			None
62	M62						Yes	** NA **			None
63	M63						Yes	** NA **			None
64	M64						Yes	** NA **			None
65	M65						Yes	** NA **			None
66	M66						Yes	** NA **			None
67	M67						Yes	** NA **			None
68	M68						Yes	** NA **			None
69	M69						Yes	** NA **			None
70	M70						Yes	** NA **			None
71	M71						Yes	** NA **			None
72	M72						Yes	** NA **			None
73	M73						Yes	** NA **			None
74	M74						Yes	** NA **			None
75	M75						Yes	** NA **			None
76	M76						Yes	** NA **			None
77	M77						Yes	** NA **			None
78	M78						Yes	** NA **			None

Member Advanced Data (Continued)

	Label	I Release	J Release	I Offset[in]	J Offset[in]	T/C Only	Physical	Defl Rat...	Analysis ...	Inactive	Seismic...
79	M79						Yes	** NA **			None
80	M80						Yes	** NA **			None
81	M81						Yes	** NA **			None
82	M82						Yes	** NA **			None
83	M83						Yes	** NA **			None
84	M84						Yes	** NA **			None
85	M85						Yes	** NA **			None
86	M86						Yes	** NA **			None
87	M87						Yes	** NA **			None
88	M88						Yes	** NA **			None
89	M89						Yes	** NA **			None
90	M90						Yes	** NA **			None
91	M91						Yes	** NA **			None
92	M92						Yes	** NA **			None
93	M93						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	M1	PIPE_3.0	150			Lbyy						Lateral
2	M2	PIPE_3.0	150			Lbyy						Lateral
3	M3	PIPE_3.0	150			Lbyy						Lateral
4	M4	HSS4X4X4	63			Lbyy						Lateral
5	M5	HSS4X4X4	63			Lbyy						Lateral
6	M6	HSS4X4X4	63			Lbyy						Lateral
7	M7	FB6x0.37	4.959			Lbyy						Lateral
8	M8	FB6x0.37	4.959			Lbyy						Lateral
9	M9	FB6x0.37	4.959			Lbyy						Lateral
10	M10	PIPE_2.0	96			Lbyy						Lateral
11	M12	HSS4X4X4	53.507			Lbyy						Lateral
12	M13	L2x2x3	52.013			Lbyy						Lateral
13	M14	L2x2x3	52.013			Lbyy						Lateral
14	M15	HSS4X4X4	53.507			Lbyy						Lateral
15	M16	L2x2x3	52.013			Lbyy						Lateral
16	M17	L2x2x3	52.013			Lbyy						Lateral
17	M18	L2x2x3	52.013			Lbyy						Lateral
18	M19	L2x2x3	52.013			Lbyy						Lateral
19	M20	HSS4X4X4	53.507			Lbyy						Lateral
20	M21	PIPE_2.5	150			Lbyy			2.1	2.1		Lateral
21	M22	PIPE_2.5	150			Lbyy			2.1	2.1		Lateral
22	M23	PIPE_2.5	150			Lbyy			2.1	2.1		Lateral
23	M25	L2.5x2.5x3	12			Lbyy						Lateral
24	M26	L2.5x2.5x3	12			Lbyy						Lateral
25	M27	L2.5x2.5x3	12			Lbyy						Lateral
26	M29	FB6x0.37	3			Lbyy						Lateral
27	M30	FB6x0.37	2			Lbyy						Lateral
28	M32	FB6x0.37	3			Lbyy						Lateral
29	M33	FB6x0.37	2			Lbyy						Lateral
30	M35	FB6x0.37	3			Lbyy						Lateral
31	M36	FB6x0.37	2			Lbyy						Lateral
32	M38	FB6x0.37	3			Lbyy						Lateral
33	M39	FB6x0.37	2			Lbyy						Lateral
34	M41	FB6x0.37	3			Lbyy						Lateral
35	M42	FB6x0.37	2			Lbyy						Lateral
36	M44	FB6x0.37	3			Lbyy						Lateral
37	M45	FB6x0.37	2			Lbyy						Lateral

Hot Rolled Steel Design Parameters (Continued)

	Label	Shape	Length[in]	Lbyy[in]	Lbzz[in]	Lcomp top[in]	Lcomp bot[in]	L-torqu...	Kyy	Kzz	Cb	Function
38	M46	FB6x0.37	3									Lateral
39	M48	FB6x0.37	3									Lateral
40	M50	FB6x0.37	3									Lateral
41	M52	FB6x0.37	3									Lateral
42	M54	FB6x0.37	3									Lateral
43	M56	FB6x0.37	3									Lateral
44	M58	PIPE_2.0	69.735									Lateral
45	M59	PIPE_2.0	69.735									Lateral
46	M60	PIPE_2.0	69.735									Lateral
47	M61	PIPE_2.0	96			Lbyy						Lateral
48	M64	PIPE_2.0	96			Lbyy						Lateral
49	M67	PIPE_2.0	96			Lbyy						Lateral
50	M70	PIPE_2.0	96			Lbyy						Lateral
51	M73	PIPE_2.0	96			Lbyy						Lateral
52	M76	PIPE_2.0	96			Lbyy						Lateral
53	M79	PIPE_2.0	96			Lbyy						Lateral
54	M82	PIPE_2.0	96			Lbyy						Lateral
55	M85	PIPE_2.0	96			Lbyy						Lateral
56	M88	PIPE_2.0	96			Lbyy						Lateral
57	M91	PIPE_2.0	96			Lbyy						Lateral

Basic Load Cases

	BLC Description	Category	X Gravity	Y Gravity	Z Gravity	Joint	Point	Distributed	Area(Me...	Surface(P...
1	Self We	DL		-1.1						
2	We	DL					24		3	
3	Ice We	DL					24	33	3	
4	W0	WL					24	33		
5	W30	WL					48	66		
6	W60	WL					48	66		
7	W90	WL					24	33		
8	W120	WL					48	66		
9	W150	WL					48	66		
10	W0 + Ice	WL					24	33		
11	W30 + Ice	WL					48	66		
12	W60 + Ice	WL					48	66		
13	W90 + Ice	WL					24	33		
14	W120 + Ice	WL					48	66		
15	W150 + Ice	WL					48	66		
16	500lbs LM 1	LL				1				
17	500lbs LM 2	LL				1				
18	500lbs LM 3	LL				1				
19	500lbs LM 4	LL				1				
20	250lbs LV 5	LL				1				
21	250lbs LV 6	LL				1				
22	E0	EL	-.11				24			
23	E90	EL			.11		24			
24	BLC 2 Transient Area...	None						18		
25	BLC 3 Transient Area...	None						18		

Load Combinations

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
1	Dead	Yes	Y		1	1.4	2	1.4	0		0													
2	Dead + Wind 0	Yes	Y		1	1.2	2	1.2	4	1	0													
3	Dead + Wind 30	Yes	Y		1	1.2	2	1.2	5	1	0													

Load Combinations (Continued)

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
4	Dead + Wind 60	Yes	Y		1	1.2	2	1.2	6	1	0													
5	Dead + Wind 90	Yes	Y		1	1.2	2	1.2	7	1	0													
6	Dead + Wind 120	Yes	Y		1	1.2	2	1.2	8	1	0													
7	Dead + Wind 150	Yes	Y		1	1.2	2	1.2	9	1	0													
8	Dead + Wind 180	Yes	Y		1	1.2	2	1.2	4	-1	0													
9	Dead + Wind 210	Yes	Y		1	1.2	2	1.2	5	-1	0													
10	Dead + Wind 240	Yes	Y		1	1.2	2	1.2	6	-1	0													
11	Dead + Wind 270	Yes	Y		1	1.2	2	1.2	7	-1	0													
12	Dead + Wind 300	Yes	Y		1	1.2	2	1.2	8	-1	0													
13	Dead + Wind 330	Yes	Y		1	1.2	2	1.2	9	-1	0													
14	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	10	1	3	1												
15	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	11	1	3	1												
16	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	12	1	3	1												
17	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	13	1	3	1												
18	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	14	1	3	1												
19	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	15	1	3	1												
20	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	10	-1	3	1												
21	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	11	-1	3	1												
22	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	12	-1	3	1												
23	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	13	-1	3	1												
24	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	14	-1	3	1												
25	Dead + Ice + Wind..	Yes	Y		1	1.2	2	1.2	15	-1	3	1												
26	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	4	.053												
27	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	5	.053												
28	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	6	.053												
29	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	7	.053												
30	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	8	.053												
31	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	9	.053												
32	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	4	-.0...												
33	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	5	-.0...												
34	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	6	-.0...												
35	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	7	-.0...												
36	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	8	-.0...												
37	Dead + LM5001 + ..	Yes	Y		1	1.2	2	1.2	16	1.5	9	-.0...												
38	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	4	.053												
39	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	5	.053												
40	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	6	.053												
41	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	7	.053												
42	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	8	.053												
43	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	9	.053												
44	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	4	-.0...												
45	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	5	-.0...												
46	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	6	-.0...												
47	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	7	-.0...												
48	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	8	-.0...												
49	Dead + LM5002 + ..	Yes	Y		1	1.2	2	1.2	17	1.5	9	-.0...												
50	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	4	.053												
51	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	5	.053												
52	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	6	.053												
53	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	7	.053												
54	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	8	.053												
55	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	9	.053												
56	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	4	-.0...												
57	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	5	-.0...												
58	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	6	-.0...												
59	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	7	-.0...												
60	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	8	-.0...												

Load Combinations (Continued)

	Description	Solve	P...	S...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...	B...	Fa...
61	Dead + LM5003 + ..	Yes	Y		1	1.2	2	1.2	18	1.5	9	-.0...												
62	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	4	.053												
63	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	5	.053												
64	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	6	.053												
65	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	7	.053												
66	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	8	.053												
67	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	9	.053												
68	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	4	-.0...												
69	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	5	-.0...												
70	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	6	-.0...												
71	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	7	-.0...												
72	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	8	-.0...												
73	Dead + LM5004 + ..	Yes	Y		1	1.2	2	1.2	19	1.5	9	-.0...												
74	Dead + LV2505	Yes	Y		1	1.2	2	1.2	20	1.5	0													
75	Dead + LV2506	Yes	Y		1	1.2	2	1.2	21	1.5	0													
76	Service 60mph Wi...	Yes	Y		1	1	2	1	4	.213	0													
77	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	1	23													
78	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	.866	23	.5												
79	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	.5	23	.866												
80	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22		23	1												
81	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	-.5	23	.866												
82	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	-.8...	23	.5												
83	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	-1	23													
84	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	-.8...	23	-.5												
85	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	-.5	23	-.8...												
86	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22		23	-1												
87	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	.5	23	-.8...												
88	(1.2 + 0.2SDS)De...	Yes	Y		1	1.2...	2	1.2...	22	.866	23	-.5												

Joint Loads and Enforced Displacements (BLC 16 : 500lbs LM 1)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-in), (in,rad), (lb*s^2...
1	N107	L	Y	-500

Joint Loads and Enforced Displacements (BLC 17 : 500lbs LM 2)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-in), (in,rad), (lb*s^2...
1	N101	L	Y	-500

Joint Loads and Enforced Displacements (BLC 18 : 500lbs LM 3)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-in), (in,rad), (lb*s^2...
1	N95	L	Y	-500

Joint Loads and Enforced Displacements (BLC 19 : 500lbs LM 4)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-in), (in,rad), (lb*s^2...
1	N34	L	Y	-500

Joint Loads and Enforced Displacements (BLC 20 : 250lbs LV 5)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-in), (in,rad), (lb*s^2...
1	N35	L	Y	-250

Joint Loads and Enforced Displacements (BLC 21 : 250lbs LV 6)

	Joint Label	L,D,M	Direction	Magnitude[(lb,k-in), (in,rad), (lb*s^2...
1	N19	L	Y	-250

Member Point Loads (BLC 2 : We)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	Y	-41.5	3
2	M64	Y	-63.95	3.05
3	M61	Y	-40.75	3
4	M91	Y	-41.5	3
5	M88	Y	-63.95	3.05
6	M85	Y	-40.75	3
7	M79	Y	-41.5	3
8	M76	Y	-63.95	3.05
9	M73	Y	-40.75	3
10	M67	Y	-41.5	53
11	M64	Y	-63.95	92.95
12	M61	Y	-40.75	53
13	M91	Y	-41.5	53
14	M88	Y	-63.95	92.95
15	M85	Y	-40.75	53
16	M79	Y	-41.5	53
17	M76	Y	-63.95	92.95
18	M73	Y	-40.75	53
19	M67	Y	-15.4	18
20	M64	Y	-75	18
21	M91	Y	-15.4	18
22	M88	Y	-75	18
23	M79	Y	-15.4	18
24	M76	Y	-75	18

Member Point Loads (BLC 3 : Ice We)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	Y	-50.906	3
2	M64	Y	-148.22	3.05
3	M61	Y	-50.999	3
4	M91	Y	-50.906	3
5	M88	Y	-148.22	3.05
6	M85	Y	-50.999	3
7	M79	Y	-50.906	3
8	M76	Y	-148.22	3.05
9	M73	Y	-50.999	3
10	M67	Y	-50.906	53
11	M64	Y	-148.22	92.95
12	M61	Y	-50.999	53
13	M91	Y	-50.906	53
14	M88	Y	-148.22	92.95
15	M85	Y	-50.999	53
16	M79	Y	-50.906	53
17	M76	Y	-148.22	92.95
18	M73	Y	-50.999	53
19	M67	Y	-11.628	18
20	M64	Y	-33.259	18
21	M91	Y	-11.628	18
22	M88	Y	-33.259	18
23	M79	Y	-11.628	18
24	M76	Y	-33.259	18

Member Point Loads (BLC 4 : W0)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	-143.65	3

Member Point Loads (BLC 4 : W0) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
2	M64	X	-480.684	3.05
3	M61	X	-144.655	3
4	M91	X	-113.483	3
5	M88	X	-278.472	3.05
6	M85	X	-112.927	3
7	M79	X	-113.483	3
8	M76	X	-278.472	3.05
9	M73	X	-112.927	3
10	M67	X	-143.65	53
11	M64	X	-480.684	92.95
12	M61	X	-144.655	53
13	M91	X	-113.483	53
14	M88	X	-278.472	92.95
15	M85	X	-112.927	53
16	M79	X	-113.483	53
17	M76	X	-278.472	92.95
18	M73	X	-112.927	53
19	M67	X	-26.556	18
20	M64	X	-78.362	18
21	M91	X	-19.524	18
22	M88	X	-66.341	18
23	M79	X	-19.524	18
24	M76	X	-66.341	18

Member Point Loads (BLC 5 : W30)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	-115.696	3
2	M64	X	-357.911	3.05
3	M61	X	-116.116	3
4	M91	X	-115.696	3
5	M88	X	-357.911	3.05
6	M85	X	-116.116	3
7	M79	X	-89.571	3
8	M76	X	-182.79	3.05
9	M73	X	-88.638	3
10	M67	X	-115.696	53
11	M64	X	-357.911	92.95
12	M61	X	-116.116	53
13	M91	X	-115.696	53
14	M88	X	-357.911	92.95
15	M85	X	-116.116	53
16	M79	X	-89.571	53
17	M76	X	-182.79	92.95
18	M73	X	-88.638	53
19	M67	X	-20.968	18
20	M64	X	-64.393	18
21	M91	X	-20.968	18
22	M88	X	-64.393	18
23	M79	X	-14.878	18
24	M76	X	-53.983	18
25	M67	Z	66.797	3
26	M64	Z	206.64	3.05
27	M61	Z	67.039	3
28	M91	Z	66.797	3
29	M88	Z	206.64	3.05
30	M85	Z	67.039	3

Member Point Loads (BLC 5 : W30) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
31	M79	Z	51.714	3
32	M76	Z	105.534	3.05
33	M73	Z	51.175	3
34	M67	Z	66.797	53
35	M64	Z	206.64	92.95
36	M61	Z	67.039	53
37	M91	Z	66.797	53
38	M88	Z	206.64	92.95
39	M85	Z	67.039	53
40	M79	Z	51.714	53
41	M76	Z	105.534	92.95
42	M73	Z	51.175	53
43	M67	Z	12.106	18
44	M64	Z	37.178	18
45	M91	Z	12.106	18
46	M88	Z	37.178	18
47	M79	Z	8.59	18
48	M76	Z	31.167	18

Member Point Loads (BLC 6 : W60)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	-56.742	3
2	M64	X	-139.236	3.05
3	M61	X	-56.463	3
4	M91	X	-71.825	3
5	M88	X	-240.342	3.05
6	M85	X	-72.328	3
7	M79	X	-56.742	3
8	M76	X	-139.236	3.05
9	M73	X	-56.463	3
10	M67	X	-56.742	53
11	M64	X	-139.236	92.95
12	M61	X	-56.463	53
13	M91	X	-71.825	53
14	M88	X	-240.342	92.95
15	M85	X	-72.328	53
16	M79	X	-56.742	53
17	M76	X	-139.236	92.95
18	M73	X	-56.463	53
19	M67	X	-9.762	18
20	M64	X	-33.17	18
21	M91	X	-13.278	18
22	M88	X	-39.181	18
23	M79	X	-9.762	18
24	M76	X	-33.17	18
25	M67	Z	98.279	3
26	M64	Z	241.164	3.05
27	M61	Z	97.797	3
28	M91	Z	124.404	3
29	M88	Z	416.284	3.05
30	M85	Z	125.275	3
31	M79	Z	98.279	3
32	M76	Z	241.164	3.05
33	M73	Z	97.797	3
34	M67	Z	98.279	53
35	M64	Z	241.164	92.95

Member Point Loads (BLC 6 : W60) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
36	M61	Z	97.797	53
37	M91	Z	124.404	53
38	M88	Z	416.284	92.95
39	M85	Z	125.275	53
40	M79	Z	98.279	53
41	M76	Z	241.164	92.95
42	M73	Z	97.797	53
43	M67	Z	16.908	18
44	M64	Z	57.453	18
45	M91	Z	22.998	18
46	M88	Z	67.864	18
47	M79	Z	16.908	18
48	M76	Z	57.453	18

Member Point Loads (BLC 7 : W90)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	Z	103.428	3
2	M64	Z	211.068	3.05
3	M61	Z	102.35	3
4	M91	Z	133.594	3
5	M88	Z	413.28	3.05
6	M85	Z	134.079	3
7	M79	Z	133.594	3
8	M76	Z	413.28	3.05
9	M73	Z	134.079	3
10	M67	Z	103.428	53
11	M64	Z	211.068	92.95
12	M61	Z	102.35	53
13	M91	Z	133.594	53
14	M88	Z	413.28	92.95
15	M85	Z	134.079	53
16	M79	Z	133.594	53
17	M76	Z	413.28	92.95
18	M73	Z	134.079	53
19	M67	Z	17.18	18
20	M64	Z	62.334	18
21	M91	Z	24.212	18
22	M88	Z	74.355	18
23	M79	Z	24.212	18
24	M76	Z	74.355	18

Member Point Loads (BLC 8 : W120)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	56.742	3
2	M64	X	139.236	3.05
3	M61	X	56.463	3
4	M91	X	56.742	3
5	M88	X	139.236	3.05
6	M85	X	56.463	3
7	M79	X	71.825	3
8	M76	X	240.342	3.05
9	M73	X	72.328	3
10	M67	X	56.742	53
11	M64	X	139.236	92.95
12	M61	X	56.463	53
13	M91	X	56.742	53

Member Point Loads (BLC 8 : W120) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
14	M88	X	139.236	92.95
15	M85	X	56.463	53
16	M79	X	71.825	53
17	M76	X	240.342	92.95
18	M73	X	72.328	53
19	M67	X	9.762	18
20	M64	X	33.17	18
21	M91	X	9.762	18
22	M88	X	33.17	18
23	M79	X	13.278	18
24	M76	X	39.181	18
25	M67	Z	98.279	3
26	M64	Z	241.164	3.05
27	M61	Z	97.797	3
28	M91	Z	98.279	3
29	M88	Z	241.164	3.05
30	M85	Z	97.797	3
31	M79	Z	124.404	3
32	M76	Z	416.284	3.05
33	M73	Z	125.275	3
34	M67	Z	98.279	53
35	M64	Z	241.164	92.95
36	M61	Z	97.797	53
37	M91	Z	98.279	53
38	M88	Z	241.164	92.95
39	M85	Z	97.797	53
40	M79	Z	124.404	53
41	M76	Z	416.284	92.95
42	M73	Z	125.275	53
43	M67	Z	16.908	18
44	M64	Z	57.453	18
45	M91	Z	16.908	18
46	M88	Z	57.453	18
47	M79	Z	22.998	18
48	M76	Z	67.864	18

Member Point Loads (BLC 9 : W150)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	115.696	3
2	M64	X	357.911	3.05
3	M61	X	116.116	3
4	M91	X	89.571	3
5	M88	X	182.79	3.05
6	M85	X	88.638	3
7	M79	X	115.696	3
8	M76	X	357.911	3.05
9	M73	X	116.116	3
10	M67	X	115.696	53
11	M64	X	357.911	92.95
12	M61	X	116.116	53
13	M91	X	89.571	53
14	M88	X	182.79	92.95
15	M85	X	88.638	53
16	M79	X	115.696	53
17	M76	X	357.911	92.95
18	M73	X	116.116	53

Member Point Loads (BLC 9 : W150) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
19	M67	X	20.968	18
20	M64	X	64.393	18
21	M91	X	14.878	18
22	M88	X	53.983	18
23	M79	X	20.968	18
24	M76	X	64.393	18
25	M67	Z	66.797	3
26	M64	Z	206.64	3.05
27	M61	Z	67.039	3
28	M91	Z	51.714	3
29	M88	Z	105.534	3.05
30	M85	Z	51.175	3
31	M79	Z	66.797	3
32	M76	Z	206.64	3.05
33	M73	Z	67.039	3
34	M67	Z	66.797	53
35	M64	Z	206.64	92.95
36	M61	Z	67.039	53
37	M91	Z	51.714	53
38	M88	Z	105.534	92.95
39	M85	Z	51.175	53
40	M79	Z	66.797	53
41	M76	Z	206.64	92.95
42	M73	Z	67.039	53
43	M67	Z	12.106	18
44	M64	Z	37.178	18
45	M91	Z	8.59	18
46	M88	Z	31.167	18
47	M79	Z	12.106	18
48	M76	Z	37.178	18

Member Point Loads (BLC 10 : W0 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	-25.731	3
2	M64	X	-78.887	3.05
3	M61	X	-25.885	3
4	M91	X	-21.089	3
5	M88	X	-48.541	3.05
6	M85	X	-21.011	3
7	M79	X	-21.089	3
8	M76	X	-48.541	3.05
9	M73	X	-21.011	3
10	M67	X	-25.731	53
11	M64	X	-78.887	92.95
12	M61	X	-25.885	53
13	M91	X	-21.089	53
14	M88	X	-48.541	92.95
15	M85	X	-21.011	53
16	M79	X	-21.089	53
17	M76	X	-48.541	92.95
18	M73	X	-21.011	53
19	M67	X	-6.48	18
20	M64	X	-15.607	18
21	M91	X	-5.199	18
22	M88	X	-13.561	18
23	M79	X	-5.199	18

Member Point Loads (BLC 10 : W0 + Ice) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
24	M76	X	-13.561	18

Member Point Loads (BLC 11 : W30 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	-20.943	3
2	M64	X	-59.558	3.05
3	M61	X	-21.01	3
4	M91	X	-20.943	3
5	M88	X	-59.558	3.05
6	M85	X	-21.01	3
7	M79	X	-16.923	3
8	M76	X	-33.278	3.05
9	M73	X	-16.789	3
10	M67	X	-20.943	53
11	M64	X	-59.558	92.95
12	M61	X	-21.01	53
13	M91	X	-20.943	53
14	M88	X	-59.558	92.95
15	M85	X	-21.01	53
16	M79	X	-16.923	53
17	M76	X	-33.278	92.95
18	M73	X	-16.789	53
19	M67	X	-5.242	18
20	M64	X	-12.925	18
21	M91	X	-5.242	18
22	M88	X	-12.925	18
23	M79	X	-4.133	18
24	M76	X	-11.154	18
25	M67	Z	12.092	3
26	M64	Z	34.386	3.05
27	M61	Z	12.13	3
28	M91	Z	12.092	3
29	M88	Z	34.386	3.05
30	M85	Z	12.13	3
31	M79	Z	9.771	3
32	M76	Z	19.213	3.05
33	M73	Z	9.693	3
34	M67	Z	12.092	53
35	M64	Z	34.386	92.95
36	M61	Z	12.13	53
37	M91	Z	12.092	53
38	M88	Z	34.386	92.95
39	M85	Z	12.13	53
40	M79	Z	9.771	53
41	M76	Z	19.213	92.95
42	M73	Z	9.693	53
43	M67	Z	3.026	18
44	M64	Z	7.462	18
45	M91	Z	3.026	18
46	M88	Z	7.462	18
47	M79	Z	2.386	18
48	M76	Z	6.44	18

Member Point Loads (BLC 12 : W60 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	-10.544	3

Member Point Loads (BLC 12 : W60 + Ice) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
2	M64	X	-24.271	3.05
3	M61	X	-10.506	3
4	M91	X	-12.865	3
5	M88	X	-39.443	3.05
6	M85	X	-12.943	3
7	M79	X	-10.544	3
8	M76	X	-24.271	3.05
9	M73	X	-10.506	3
10	M67	X	-10.544	53
11	M64	X	-24.271	92.95
12	M61	X	-10.506	53
13	M91	X	-12.865	53
14	M88	X	-39.443	92.95
15	M85	X	-12.943	53
16	M79	X	-10.544	53
17	M76	X	-24.271	92.95
18	M73	X	-10.506	53
19	M67	X	-2.6	18
20	M64	X	-6.781	18
21	M91	X	-3.24	18
22	M88	X	-7.803	18
23	M79	X	-2.6	18
24	M76	X	-6.781	18
25	M67	Z	18.263	3
26	M64	Z	42.038	3.05
27	M61	Z	18.196	3
28	M91	Z	22.283	3
29	M88	Z	68.318	3.05
30	M85	Z	22.417	3
31	M79	Z	18.263	3
32	M76	Z	42.038	3.05
33	M73	Z	18.196	3
34	M67	Z	18.263	53
35	M64	Z	42.038	92.95
36	M61	Z	18.196	53
37	M91	Z	22.283	53
38	M88	Z	68.318	92.95
39	M85	Z	22.417	53
40	M79	Z	18.263	53
41	M76	Z	42.038	92.95
42	M73	Z	18.196	53
43	M67	Z	4.503	18
44	M64	Z	11.744	18
45	M91	Z	5.611	18
46	M88	Z	13.516	18
47	M79	Z	4.503	18
48	M76	Z	11.744	18

Member Point Loads (BLC 13 : W90 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	Z	19.542	3
2	M64	Z	38.426	3.05
3	M61	Z	19.387	3
4	M91	Z	24.183	3
5	M88	Z	68.772	3.05
6	M85	Z	24.261	3

Member Point Loads (BLC 13 : W90 + Ice) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
7	M79	Z	24.183	3
8	M76	Z	68.772	3.05
9	M73	Z	24.261	3
10	M67	Z	19.542	53
11	M64	Z	38.426	92.95
12	M61	Z	19.387	53
13	M91	Z	24.183	53
14	M88	Z	68.772	92.95
15	M85	Z	24.261	53
16	M79	Z	24.183	53
17	M76	Z	68.772	92.95
18	M73	Z	24.261	53
19	M67	Z	4.773	18
20	M64	Z	12.879	18
21	M91	Z	6.053	18
22	M88	Z	14.925	18
23	M79	Z	6.053	18
24	M76	Z	14.925	18

Member Point Loads (BLC 14 : W120 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	10.544	3
2	M64	X	24.271	3.05
3	M61	X	10.506	3
4	M91	X	10.544	3
5	M88	X	24.271	3.05
6	M85	X	10.506	3
7	M79	X	12.865	3
8	M76	X	39.443	3.05
9	M73	X	12.943	3
10	M67	X	10.544	53
11	M64	X	24.271	92.95
12	M61	X	10.506	53
13	M91	X	10.544	53
14	M88	X	24.271	92.95
15	M85	X	10.506	53
16	M79	X	12.865	53
17	M76	X	39.443	92.95
18	M73	X	12.943	53
19	M67	X	2.6	18
20	M64	X	6.781	18
21	M91	X	2.6	18
22	M88	X	6.781	18
23	M79	X	3.24	18
24	M76	X	7.803	18
25	M67	Z	18.263	3
26	M64	Z	42.038	3.05
27	M61	Z	18.196	3
28	M91	Z	18.263	3
29	M88	Z	42.038	3.05
30	M85	Z	18.196	3
31	M79	Z	22.283	3
32	M76	Z	68.318	3.05
33	M73	Z	22.417	3
34	M67	Z	18.263	53
35	M64	Z	42.038	92.95

Member Point Loads (BLC 14 : W120 + Ice) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
36	M61	Z	18.196	53
37	M91	Z	18.263	53
38	M88	Z	42.038	92.95
39	M85	Z	18.196	53
40	M79	Z	22.283	53
41	M76	Z	68.318	92.95
42	M73	Z	22.417	53
43	M67	Z	4.503	18
44	M64	Z	11.744	18
45	M91	Z	4.503	18
46	M88	Z	11.744	18
47	M79	Z	5.611	18
48	M76	Z	13.516	18

Member Point Loads (BLC 15 : W150 + Ice)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	20.943	3
2	M64	X	59.558	3.05
3	M61	X	21.01	3
4	M91	X	16.923	3
5	M88	X	33.278	3.05
6	M85	X	16.789	3
7	M79	X	20.943	3
8	M76	X	59.558	3.05
9	M73	X	21.01	3
10	M67	X	20.943	53
11	M64	X	59.558	92.95
12	M61	X	21.01	53
13	M91	X	16.923	53
14	M88	X	33.278	92.95
15	M85	X	16.789	53
16	M79	X	20.943	53
17	M76	X	59.558	92.95
18	M73	X	21.01	53
19	M67	X	5.242	18
20	M64	X	12.925	18
21	M91	X	4.133	18
22	M88	X	11.154	18
23	M79	X	5.242	18
24	M76	X	12.925	18
25	M67	Z	12.092	3
26	M64	Z	34.386	3.05
27	M61	Z	12.13	3
28	M91	Z	9.771	3
29	M88	Z	19.213	3.05
30	M85	Z	9.693	3
31	M79	Z	12.092	3
32	M76	Z	34.386	3.05
33	M73	Z	12.13	3
34	M67	Z	12.092	53
35	M64	Z	34.386	92.95
36	M61	Z	12.13	53
37	M91	Z	9.771	53
38	M88	Z	19.213	92.95
39	M85	Z	9.693	53
40	M79	Z	12.092	53

Member Point Loads (BLC 15 : W150 + Ice) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
41	M76	Z	34.386	92.95
42	M73	Z	12.13	53
43	M67	Z	3.026	18
44	M64	Z	7.462	18
45	M91	Z	2.386	18
46	M88	Z	6.44	18
47	M79	Z	3.026	18
48	M76	Z	7.462	18

Member Point Loads (BLC 22 : E0)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	X	-4.471	3
2	M64	X	-6.89	3.05
3	M61	X	-4.39	3
4	M91	X	-4.471	3
5	M88	X	-6.89	3.05
6	M85	X	-4.39	3
7	M79	X	-4.471	3
8	M76	X	-6.89	3.05
9	M73	X	-4.39	3
10	M67	X	-4.471	53
11	M64	X	-6.89	92.95
12	M61	X	-4.39	53
13	M91	X	-4.471	53
14	M88	X	-6.89	92.95
15	M85	X	-4.39	53
16	M79	X	-4.471	53
17	M76	X	-6.89	92.95
18	M73	X	-4.39	53
19	M67	X	-1.659	18
20	M64	X	-8.08	18
21	M91	X	-1.659	18
22	M88	X	-8.08	18
23	M79	X	-1.659	18
24	M76	X	-8.08	18

Member Point Loads (BLC 23 : E90)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
1	M67	Z	4.471	3
2	M64	Z	6.89	3.05
3	M61	Z	4.39	3
4	M91	Z	4.471	3
5	M88	Z	6.89	3.05
6	M85	Z	4.39	3
7	M79	Z	4.471	3
8	M76	Z	6.89	3.05
9	M73	Z	4.39	3
10	M67	Z	4.471	53
11	M64	Z	6.89	92.95
12	M61	Z	4.39	53
13	M91	Z	4.471	53
14	M88	Z	6.89	92.95
15	M85	Z	4.39	53
16	M79	Z	4.471	53
17	M76	Z	6.89	92.95
18	M73	Z	4.39	53

Member Point Loads (BLC 23 : E90) (Continued)

	Member Label	Direction	Magnitude[lb,k-in]	Location[in,%]
19	M67	Z	1.659	18
20	M64	Z	8.08	18
21	M91	Z	1.659	18
22	M88	Z	8.08	18
23	M79	Z	1.659	18
24	M76	Z	8.08	18

Envelope Joint Reactions

	Joint		X [lb]	LC	Y [lb]	LC	Z [lb]	LC	MX [k-in]	LC	MY [k-in]	LC	MZ [k-in]	LC
1	N8	max	1547.115	12	2960.748	6	2774.951	12	34.798	12	21.36	3	44.177	6
2		min	-1499.345	6	-721.437	12	-2682.208	6	-79.071	6	-21.177	9	-20.74	12
3	N9	max	1693.553	3	2960.746	10	2639.546	10	77.793	10	21.358	7	46.389	10
4		min	-1629.396	9	-721.37	4	-2727.269	4	-35.358	4	-21.174	13	-19.765	4
5	N10	max	3072.577	2	2960.81	2	983.773	11	9.642	11	21.36	11	40.509	8
6		min	-3176.838	8	-721.493	8	-986.739	5	-7.808	5	-21.176	5	-90.567	2
7	Totals:	max	6030.759	2	6627.498	16	6030.604	11						
8		min	-6030.758	8	2787.961	76	-6030.603	5						

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

	Member	Shape	Code Check	Loc[in]	LC	Shear Che..	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
1	M88	PIPE_2.0	.689	72	13	.080	24		4	14916.0...	32130	22.459	22.459	1.497	H1-1b
2	M76	PIPE_2.0	.689	72	9	.080	24		12	14916.0...	32130	22.459	22.459	1.502	H1-1b
3	M64	PIPE_2.0	.689	72	5	.080	24		8	14916.0...	32130	22.459	22.459	1.594	H1-1b
4	M85	PIPE_2.0	.683	72	7	.073	72		6	14916.0...	32130	22.459	22.459	1.549	H1-1b
5	M73	PIPE_2.0	.683	72	3	.073	72		2	14916.0...	32130	22.459	22.459	1.509	H1-1b
6	M61	PIPE_2.0	.683	72	11	.073	72		10	14916.0...	32130	22.459	22.459	1.581	H1-1b
7	M70	PIPE_2.0	.599	24	2	.096	72		2	14916.0...	32130	22.459	22.459	1.472	H1-1b
8	M82	PIPE_2.0	.599	24	6	.096	72		6	14916.0...	32130	22.459	22.459	1.497	H1-1b
9	M10	PIPE_2.0	.599	24	10	.096	72		10	14916.0...	32130	22.459	22.459	1.363	H1-1b
10	M27	L2.5x2.5x3	.587	12	2	.187	0	y	13	27702.87	29192.4	10.471	23.662	2.159	H2-1
11	M26	L2.5x2.5x3	.587	0	6	.187	12	z	5	27702.87	29192.4	10.471	23.662	2.159	H2-1
12	M25	L2.5x2.5x3	.587	0	10	.188	12	z	9	27702.87	29192.4	10.471	23.662	2.159	H2-1
13	M91	PIPE_2.0	.586	72	2	.106	72		3	14916.0...	32130	22.459	22.459	1.453	H1-1b
14	M67	PIPE_2.0	.586	72	6	.106	72		7	14916.0...	32130	22.459	22.459	1.526	H1-1b
15	M79	PIPE_2.0	.586	72	10	.106	72		11	14916.0...	32130	22.459	22.459	1.522	H1-1b
16	M4	HSS4X4X4	.482	63	6	.107	63	y	4	124317....	139518	194.166	194.166	2.492	H1-1b
17	M6	HSS4X4X4	.482	63	2	.107	63	y	12	124317....	139518	194.166	194.166	2.492	H1-1b
18	M5	HSS4X4X4	.482	63	10	.107	63	y	8	124317....	139518	194.166	194.166	2.492	H1-1b
19	M22	PIPE_2.5	.361	95.312	13	.215	6.25		10	3301.313	50715	43.155	43.155	4.387	H1-1b
20	M21	PIPE_2.5	.361	54.687	9	.215	143.75		6	3301.313	50715	43.155	43.155	4.387	H1-1b
21	M23	PIPE_2.5	.361	54.688	5	.215	143.75		2	3301.313	50715	43.155	43.155	4.387	H1-1b
22	M8	FB6x0.37	.360	2.479	9	.149	2.479	y	11	64213.0...	71928	6.653	107.892	1.312	H1-1b
23	M7	FB6x0.37	.360	2.479	5	.149	2.479	y	7	64213.0...	71928	6.653	107.892	1.312	H1-1b
24	M9	FB6x0.37	.360	2.479	13	.149	2.479	y	3	64213.0...	71928	6.653	107.892	1.312	H1-1b
25	M32	FB6x0.37	.313	0	7	.266	0	y	18	69002.0...	71928	6.653	107.892	1.279	H1-1b
26	M44	FB6x0.37	.313	0	3	.266	0	y	14	69002.0...	71928	6.653	107.892	1.279	H1-1b
27	M38	FB6x0.37	.313	0	11	.266	0	y	22	69002.0...	71928	6.653	107.892	1.279	H1-1b
28	M36	FB6x0.37	.311	2	7	.408	0	y	2	70612.4...	71928	6.653	107.892	1.139	H1-1b
29	M42	FB6x0.37	.311	2	11	.408	0	y	6	70612.4...	71928	6.653	107.892	1.139	H1-1b
30	M30	FB6x0.37	.311	2	3	.408	0	y	10	70612.4...	71928	6.653	107.892	1.139	H1-1b
31	M45	FB6x0.37	.272	2	9	.402	0	y	2	70612.4...	71928	6.653	107.892	1.101	H1-1b
32	M33	FB6x0.37	.272	2	13	.402	0	y	6	70612.4...	71928	6.653	107.892	1.101	H1-1b
33	M39	FB6x0.37	.272	2	5	.402	0	y	10	70612.4...	71928	6.653	107.892	1.101	H1-1b
34	M41	FB6x0.37	.262	0	6	.225	0	y	18	69002.0...	71928	6.653	107.892	1.285	H1-1b

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

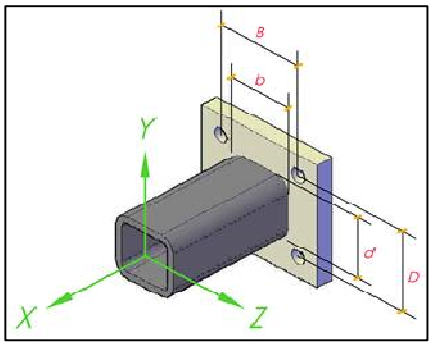
	Member	Shape	Code Check	Loc[in]	LC	Shear Che..	Loc[in]	Dir	LC	phi*Pnc ...	phi*Pnt [...	phi*Mn y...	phi*Mn z...	Cb	Eqn
35	M29	FB6x0.37	.262	0	10	.225	0	y	22	69002.0...	71928	6.653	107.892	1.285	H1-1b
36	M35	FB6x0.37	.262	0	2	.225	0	y	14	69002.0...	71928	6.653	107.892	1.285	H1-1b
37	M2	PIPE_3.0	.198	95.312	2	.096	50		9	28250.5...	65205	68.985	68.985	2.322	H1-1b
38	M1	PIPE_3.0	.198	54.687	10	.096	100		5	28250.5...	65205	68.985	68.985	2.322	H1-1b
39	M3	PIPE_3.0	.198	54.688	6	.096	100		13	28250.5...	65205	68.985	68.985	2.321	H1-1b
40	M56	FB6x0.37	.192	3	8	.123	3	y	9	69001.8...	71928	6.653	107.892	2.179	H1-1b
41	M48	FB6x0.37	.192	3	12	.123	3	y	13	69001.8...	71928	6.653	107.892	2.179	H1-1b
42	M52	FB6x0.37	.192	3	4	.123	3	y	5	69001.8...	71928	6.653	107.892	2.179	H1-1b
43	M54	FB6x0.37	.189	3	12	.156	0	y	5	69001.8...	71928	6.653	107.892	1.963	H1-1b
44	M50	FB6x0.37	.189	3	8	.156	0	y	13	69001.8...	71928	6.653	107.892	1.964	H1-1b
45	M46	FB6x0.37	.189	3	4	.156	0	y	9	69001.8...	71928	6.653	107.892	1.964	H1-1b
46	M20	HSS4X4X4	.189	26.754	13	.067	.557	z	13	128378....	139518	194.166	194.166	1.337	H1-1b
47	M12	HSS4X4X4	.189	26.754	5	.067	52.95	z	5	128378....	139518	194.166	194.166	1.337	H1-1b
48	M15	HSS4X4X4	.189	26.754	9	.067	52.95	z	9	128378....	139518	194.166	194.166	1.337	H1-1b
49	M17	L2x2x3	.187	25.465	8	.010	52.013	z	14	9123.422	23392.8	6.693	12.761	1.137	H2-1
50	M14	L2x2x3	.187	25.465	4	.010	52.013	z	22	9123.425	23392.8	6.693	12.761	1.137	H2-1
51	M19	L2x2x3	.187	25.465	12	.010	52.013	z	18	9123.425	23392.8	6.693	12.761	1.137	H2-1
52	M18	L2x2x3	.155	25.465	4	.010	52.013	y	24	9123.425	23392.8	6.693	12.761	1.137	H2-1
53	M13	L2x2x3	.155	25.465	8	.010	52.013	y	16	9123.422	23392.8	6.693	12.761	1.137	H2-1
54	M16	L2x2x3	.155	25.465	12	.010	52.013	y	20	9123.425	23392.8	6.693	12.761	1.137	H2-1
55	M60	PIPE_2.0	.049	34.868	4	.129	0		7	21432.0...	32130	22.459	22.459	1.136	H1-1b
56	M59	PIPE_2.0	.049	34.868	8	.129	0		11	21432.0...	32130	22.459	22.459	1.136	H1-1b
57	M58	PIPE_2.0	.049	34.868	12	.129	0		3	21432.0...	32130	22.459	22.459	1.136	H1-1b

SITE DETAILS

Site Name/Code	284988 - GUILFORD CT
Date	05/07/2021
Engineer	VAA

CONNECTION PARAMETERS

Number of bolts		4	
b - width of member		4	
d - height of member		4	
B - horizontal bolt spacing		7	*in*
D - vertical bolt spacing		7	*in*
Bolt Diameter	d	5/8	*in*
Section Shape		HSS	
Weld Thickness		3/8	*in*
Tensile Area	A_b	0.31	in^2
Tensile Area	A_n	0.23	in^2
Grade		A325	
Bolt Ultimate Strength	F_{ub}	120	*ksi*
Connection length reduction factor	R_b	1	



Connection Sketch/Photo

FLANGE LOADS

Loadcase #		6	
Bending Moment	Mzz	90.57	*kips-in*
Bending Moment	Myy	0.89	*kips-in*
Torsional Moment	Mxx	1.28	*kips-in*
Shear Force	Vy	2.95	*kips*
Shear Force	Vz	0.04	*kips*
Axial Force	Px	3.07	*kips*

BOLT CHECK

Bolt Tension Capacity

$\phi R_{nt} = 0.75 * F_{ub} * A_n$

ϕR_{nt}= **20.3** *kips*

Bolt Shear Capacity

$\phi R_{nv} = 0.75 * 0.625 * 0.8 * Fub * Ab * Rb$

ϕR_{nv}= **13.8** *kips*

Maximum Bolt Tension

$T_{ub} = F_{Mxx} + F_{Mzz} + T_y/4$

T_{ub}= **7.30** *kips*

Maximum Bolt Shear

$V_{ub} = \text{sqrt}((V_x/4)^2 + (V_y/4)^2) + F_{Myy}$

V_{ub}= **0.80** *kips*

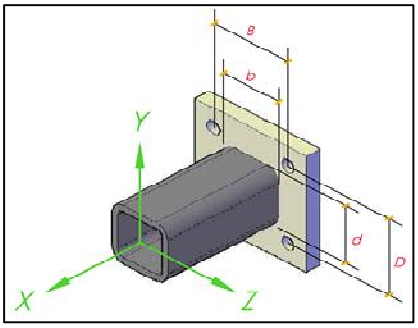
Tension Ratio:	**35.9%**	**%**	**Shear Ratio:**	**5.8%**	**%**
	PASS			PASS	

$(T_{ub} / \phi R_{nt})^2 + (V_{ub} / \phi R_{nv})^2 < 1.0$ **OK** Ratio **13.2%** PASS

WELD CHECK

Filler Metal F_{EXX}	**70**	ksi	
Weld Thk.	**0.375**	in	
Base metal F_u	**58**	ksi	
Type of section	**HSS**		
Length of Section [b]	**4.0**	in	
Length of Section [d]	**4.0**	in	
I_{total}	**16.00**	in	
I_p	**85.33**	in^3	
S_z	**21.33**	in^2	
S_y	**21.33**	in^2	
R_{ux}	4.48	kips/in	
R_{uy}	0.21	kips/in	
R_{uz}	0.03	kips/in	
R_u	4.48	kips/in	
Allowable Weld Stress	**8.35**	kips/in	**53.7%** PASS

Are stiffners present? **No**



Connection Sketch

ANSI/TIA-222H - WIND, ICE & SEISMIC LOAD CALCULATIONS

Site Code/Name		284988 - GUILFORD CT		
State		Connecticut		
County		New Haven		*Reference*
Structure Class		II		*Table 2-1*
Exposure Category		C		*Section 2.6.5.1.2*
Topographic Category		1 - Kzt = 1		*Section 2.6.6.2.1*
Mean Elevation of base of structure	z_s	51.46	ft	*ASCE7-16 Hazards*
Height Above Ground	z	108	ft	
Wind Parameters				
Basic wind speed	V	130	mph	*ASCE7-16 Hazards Tool*
Wind direction probability factor	K_d	0.95		*Section 16.6*
Gust effect factor	G_h	1		*Section 16.6*
Velocity Pressure (Ka = 0.9)		47.49	psf	*Section 2.6.11.6*
Wind & Ice Parameters				
Base windspeed in conjunction with ice, V_i		50	mph	*ASCE7-16 Hazards Tool*
Base Ice thickness	t_i	1.00	in	*ASCE7-16 Hazards Tool*
Ice Velocity Pressure (Ka = 0.9)	q_{ice}	7.03	psf	*Section 2.6.11.6*
Design Ice Thickness	t_{iz}	1.13	in	*Section 2.6.10*
Seismic Parameters				
Site Soil Class		D- Default		*Table 2-10*
Seismic Design Category		B		*ASCE7-16 Hazards Tool*
Spectral Response at Short Periods	S_s	0.202		*ASCE7-16 Hazards Tool*
Spectral Response at 1sec	S_1	0.053		*ASCE7-16 Hazards Tool*
Long Period Transition Period	T_L	6		*ASCE7-16 Hazards Tool*
Seismic Importance Factor	I_s	1		*Table 2-3*
Response modification coefficient	R	2		*Section 16.7*
Short-Period Site Coefficient	F_a	1.6		*Table 2-11*
Design Spectral Response at Short Periods	S_{DS}	0.215		*Section 2.7.5*
Seismic Response Coefficient	C_s	0.108		*Section 2.7.7.1*

ALPHA SECTOR

Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0^o [lbs]	90^o [lbs]	IceWeight [lbs]	E_H [lbs]
1	Ericsson	AIR 21, 1.3M, B2A B4P	56.0	12.0	8.0	83.0	287.3	206.9	101.8	8.9
2	RFS	APXVAARR24_43-U-NA20	95.9	24.0	8.7	127.9	961.4	422.1	296.4	13.8
3	Ericsson	AIR 21, 1.3M, B4A B2P	56.0	12.1	7.9	81.5	289.3	204.7	102.0	8.8
1	Ericsson	KRY 112 489/2	11.0	6.1	3.9	15.4	26.6	17.2	11.6	1.7
2	Ericsson	Radio 4449 B71 B85A	15.0	13.2	10.5	75.0	78.4	62.3	33.3	8.1

BETA SECTOR

Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0^o [lbs]	90^o [lbs]	IceWeight [lbs]	E_H [lbs]
1	Ericsson	AIR 21, 1.3M, B2A B4P	56.0	12.0	8.0	83.0	227.0	267.2	101.8	8.9
2	RFS	APXVAARR24_43-U-NA20	95.9	24.0	8.7	127.9	556.9	826.6	296.4	13.8
3	Ericsson	AIR 21, 1.3M, B4A B2P	56.0	12.1	7.9	81.5	225.9	268.2	102.0	8.8
1	Ericsson	KRY 112 489/2	11.0	6.1	3.9	15.4	19.5	24.2	11.6	1.7
2	Ericsson	Radio 4449 B71 B85A	15.0	13.2	10.5	75.0	66.3	74.4	33.3	8.1

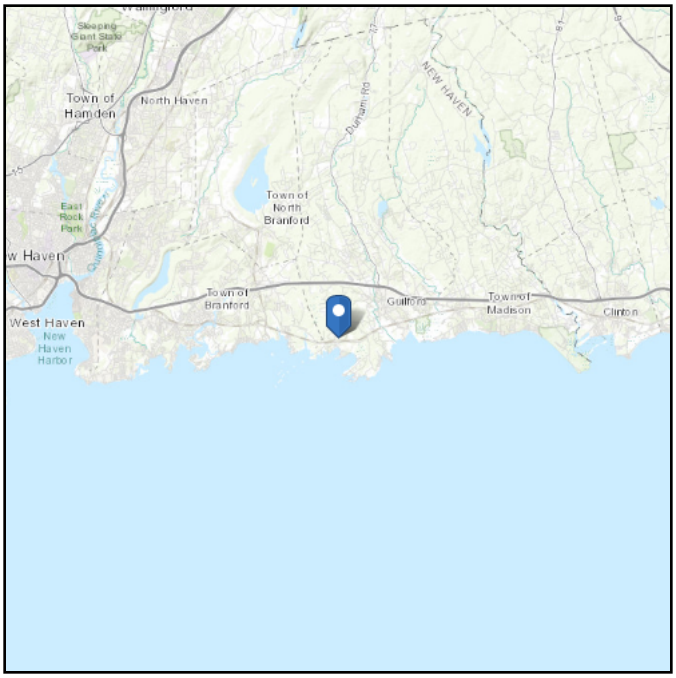
GAMMA SECTOR

Position	Appurtenance properties						Wind		Ice	Seismic
	Manufacturer	Model	L [in]	W [in]	D [in]	Weight [lbs]	0^o [lbs]	90^o [lbs]	IceWeight [lbs]	E_H [lbs]
1	Ericsson	AIR 21, 1.3M, B2A B4P	56.0	12.0	8.0	83.0	227.0	267.2	101.8	8.9
2	RFS	APXVAARR24_43-U-NA20	95.9	24.0	8.7	127.9	556.9	826.6	296.4	13.8
3	Ericsson	AIR 21, 1.3M, B4A B2P	56.0	12.1	7.9	81.5	225.9	268.2	102.0	8.8
1	Ericsson	KRY 112 489/2	11.0	6.1	3.9	15.4	19.5	24.2	11.6	1.7
2	Ericsson	Radio 4449 B71 B85A	15.0	13.2	10.5	75.0	66.3	74.4	33.3	8.1

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard:	ASCE/SEI 7-16	**Elevation:**	51.46 ft (NAVD 88)
Risk Category:	II	**Latitude:**	41.2675
Soil Class:	D - Default (see Section 11.4.3)	**Longitude:**	-72.7161



Wind

Results:

Wind Speed:	122 Vmph	130 mph per Local Jurisdiction
10-year MRI	75 Vmph	
25-year MRI	85 Vmph	
50-year MRI	93 Vmph	
100-year MRI	100 Vmph	

Data Source: ASCE/SEI 7-16, Fig. 26.5-1B and Figs. CC.2-1–CC.2-4, and Section 26.5.2
Date Accessed: Fri May 07 2021

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

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

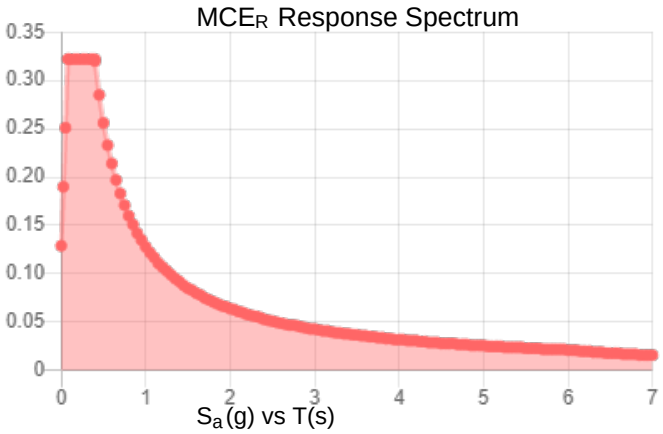
Seismic

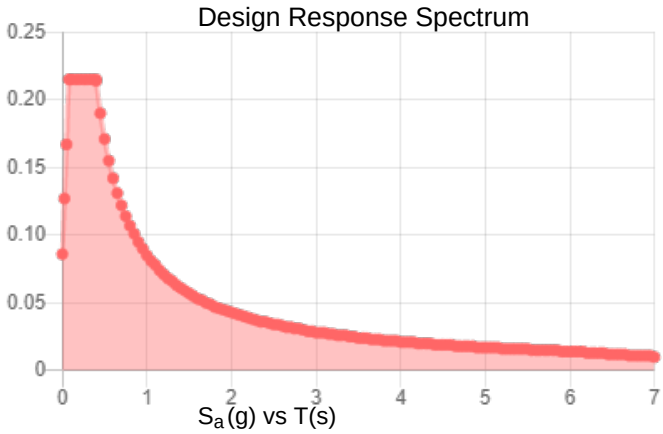
Site Soil Class: D - Default (see Section 11.4.3)

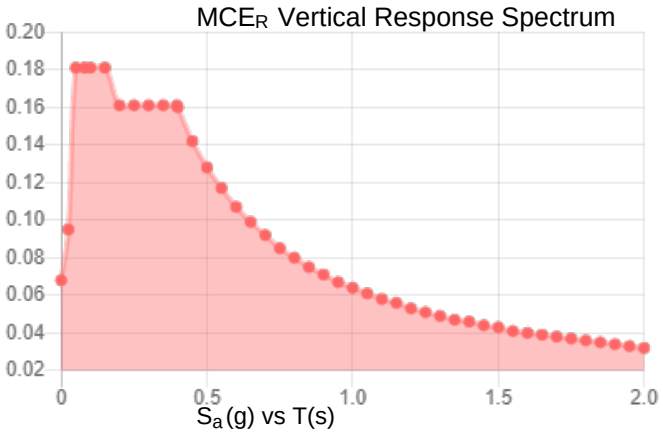
Results:

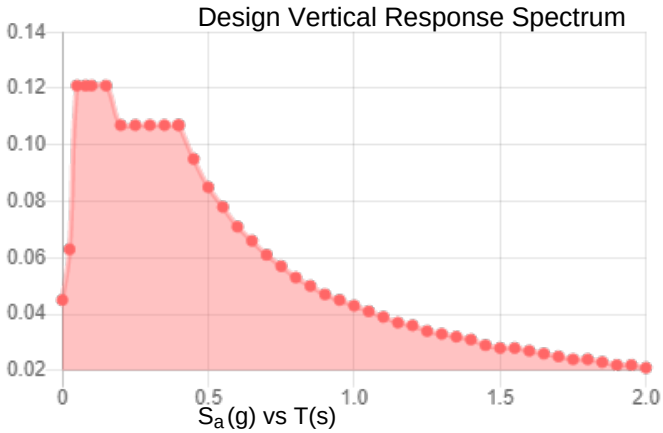
S_S :	0.202	S_{D1} :	0.085
S_1 :	0.053	T_L :	6
F_a :	1.6	PGA :	0.113
F_v :	2.4	PGA_M :	0.177
S_{MS} :	0.322	F_{PGA} :	1.575
S_{M1} :	0.128	I_e :	1
S_{DS} :	0.215	C_v :	0.703

Seismic Design Category B









Data Accessed: Fri May 07 2021

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

Ice

Results:

Ice Thickness:	1.00 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-16, Figs. 10-2 through 10-8
Date Accessed:	Fri May 07 2021

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

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

AMERICAN TOWER®
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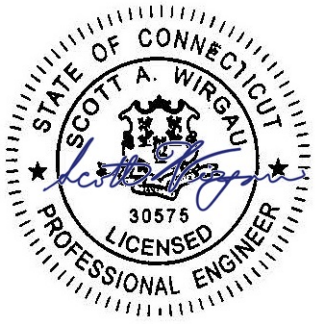
Structural Analysis Report

Structure	:	**109 ft Monopole**
ATC Site Name	:	**GUILFORD CT, CT**
ATC Asset Number	:	**284988**
Engineering Number	:	**13660479_C3_02**
Proposed Carrier	:	**T-MOBILE**
Carrier Site Name	:	**Amtrak_Guilford**
Carrier Site Number	:	**CTNH805A**
Site Location	:	**Moose Hill Road** **Guilford, CT 06437** **41.267500,-72.716100**
County	:	**New Haven**
Date	:	**June 14, 2021**
Max Usage	:	**35%**
Result	:	**Pass**



Prepared By:
Josh Krehnbrink
Structural Engineer

Reviewed By:

Authorized by "EOR"
14 Jun 2021 05:49:00 cosign

COA: PEC.0001553

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Table of Contents

Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 109 ft monopole to reflect the change in loading by T-MOBILE.

Supporting Documents

Tower Drawings	Nello Drawing #147997, dated December 22, 2014
Foundation Drawing	Nello Drawing #147998, dated October 17, 2014
Geotechnical Report	AEG Site #CT0007, dated June 25, 2014
Mount Analysis	ATC Job #13660479_C8_03, dated May 11, 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:	122 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 = 0.17, S_1 = 0.06
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
108.0	3	Ericsson KRY 112 489/2	-	(6) 1 5/8" Coax	T-MOBILE
	3	Ericsson AIR 21, 1.3 M, B2A B4P			
	3	Ericsson AIR 21, 1.3M, B4A B2P			

-

Equipment to be Removed

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
108.0	3	Ericsson Radio 4449 B12,B71	T-Arm	(1) 1 1/4" (1.25"-31.8mm) Fiber (3) 1 5/8" (1.63"-41.3mm) Fiber	T-MOBILE

Proposed Equipment

Elev.[1] (ft)	Qty	Antenna	Mount Type	Lines	Carrier
108.0	3	Ericsson Radio 4449 B71 B85A	Triangular Platform with Handrails	(3) 1 5/8" Hybriflex	T-MOBILE
	3	RFS APXVAARR24_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	31%	Pass
Shaft	35%	Pass
Base Plate	6%	Pass

Foundations

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	1,272.7	31%
Axial (Kips)	26.3	10%
Shear (Kips)	17.5	21%

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) (°)
108.0	Ericsson Radio 4449 B71 B85A	T-MOBILE	0.325	0.292
	Ericsson AIR 21, 1.3 M, B2A B4P			
	Ericsson AIR 21, 1.3M, B4A B2P			
	RFS APXVAARR24_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:

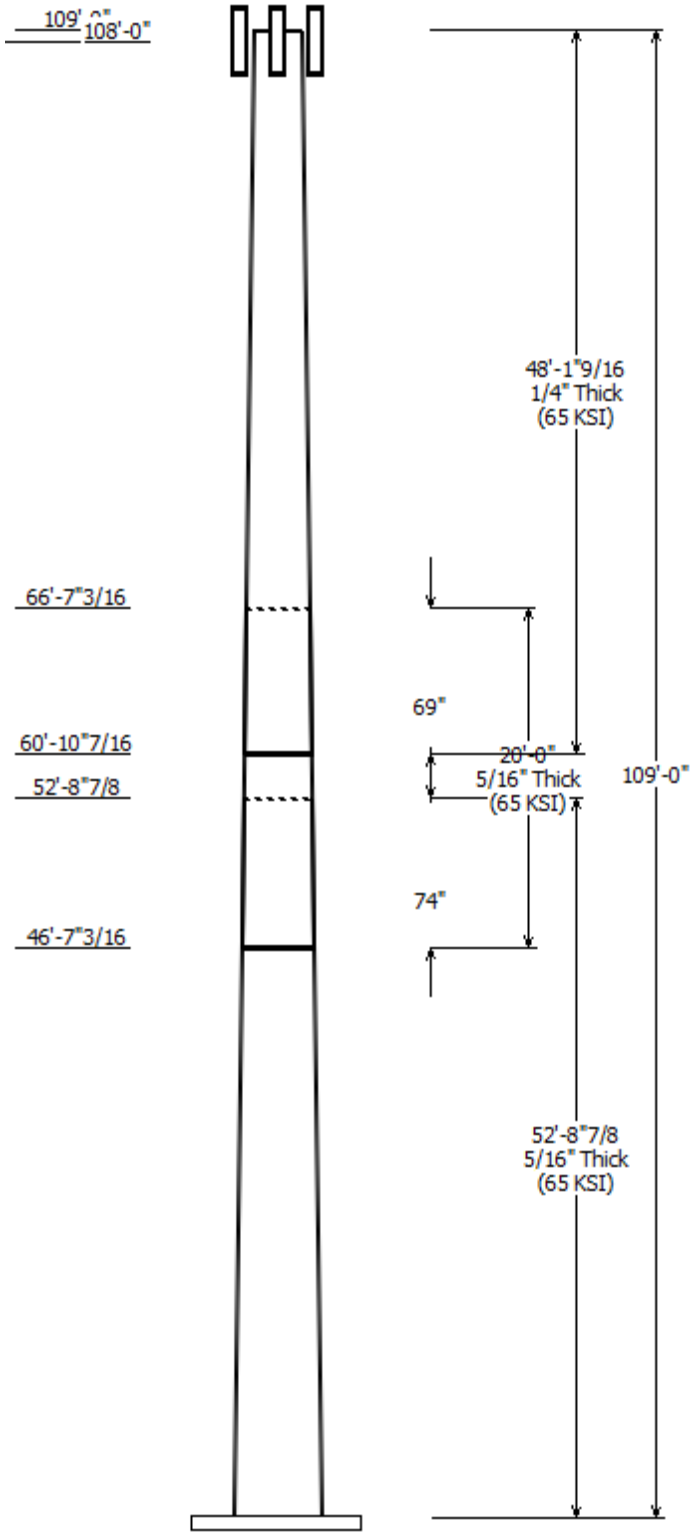
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

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 :	284988	Code:	ANSI/TIA-222-H
Location :	GUILFORD CT, CT		
Description :		Risk Category :	II
Shape :	18 Sides	Exposure :	C
Height :	109.00 (ft)	Topo Method :	Method 1
Base Elev (ft):	0.00	Topographic Category :	1
Taper:	0.244999 (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	52.740	42.53	55.45	0.313		0.000	18 Sides	65
2	20.000	39.76	44.66	0.313	Slip Joint	73.688	18 Sides	65
3	48.130	29.87	41.66	0.250	Slip Joint	68.750	18 Sides	65

Discrete Appurtenance

Attach Elev (ft)	Force Elev (ft)	Qty	Description
108.000	108.000	3	Ericsson KRY 112 489/2
108.000	108.000	1	Generic Heavy Platform with
108.000	108.000	3	RFS APXVAARR24_43-U-NA20
108.000	108.000	3	Ericsson AIR 21, 1.3M, B4A B2P
108.000	108.000	3	Ericsson AIR 21, 1.3 M, B2A B4
108.000	108.000	3	Ericsson Radio 4449 B71 B85A

Linear Appurtenance

Elev (ft) From	To	Description	Exposed To Wind
0.000	108.0	1 5/8" Coax	No
0.000	108.0	1 5/8" Hybriflex	No

Load Cases

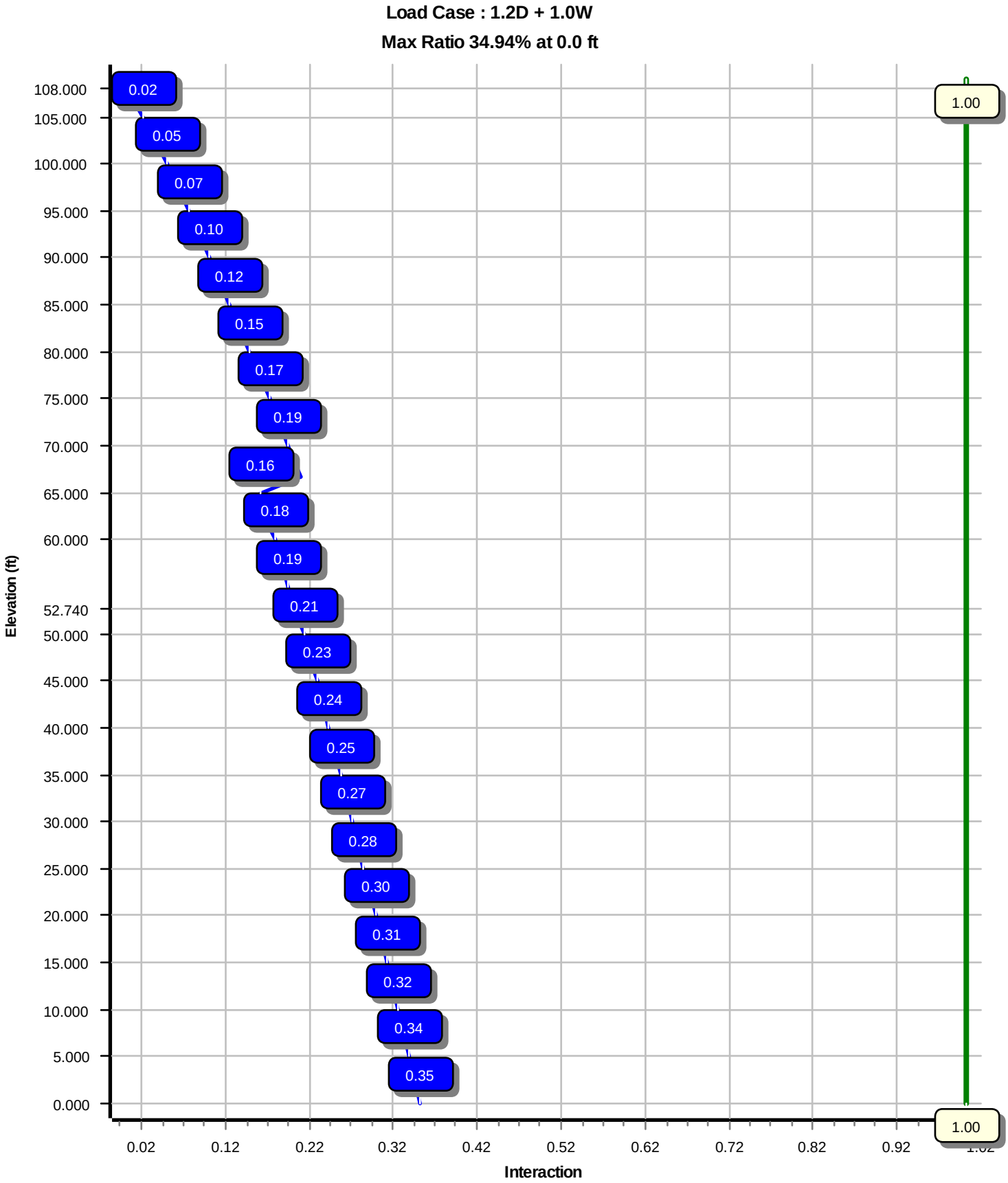
1.2D + 1.0W	122 mph with No Ice
0.9D + 1.0W	122 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
1.2D + 1.0Ev + 1.0Eh	Seismic
0.9D - 1.0Ev + 1.0Eh	Seismic (Reduced DL)
1.0D + 1.0W	Serviceability 60 mph

Reactions

Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.0W	1272.73	17.48	26.34
0.9D + 1.0W	1268.12	17.48	19.75
1.2D + 1.0Di + 1.0Wi	320.74	4.60	34.81
1.2D + 1.0Ev + 1.0Eh	101.53	1.17	25.98
0.9D - 1.0Ev + 1.0Eh	101.08	1.17	18.11
1.0D + 1.0W	274.77	3.78	21.96

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 34.94% at 0.0 ft
Elevation (ft)
108.000
105.000
100.000
95.000
90.000
85.000
80.000
75.000
70.000
65.000
60.000
52.740
50.000
45.000
40.000
35.000
30.000
25.000
20.000
15.000
10.000
5.000
0.000
0.02
0.05
0.07
0.10
0.12
0.15
0.17
0.19
0.16
0.18
0.19
0.21
0.23
0.24
0.25
0.27
0.28
0.30
0.31
0.32
0.34
0.35
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: 284988 Code: ANSI/TIA-222-H

Site Name: GUILFORD CT, CT Engineering Number:13660479_C3_02 6/14/2021 4:49:15 PM

Customer: T-MOBILE

Analysis Parameters

Location :	New Haven County, CT	Height (ft) :	109
Code :	ANSI/TIA-222-H	Base Diameter (in) :	55.46
Shape :	18 Sides	Top Diameter (in) :	29.88
Pole Type :	Taper	Taper (in/ft) :	0.245
Pole Manfacturer :	Nello Corp	Rotation (deg) :	0.00
Kd (non-service) :	0.95	Ke :	1.00

Ice & Wind Parameters

Exposure Category:	C	Design Wind Speed Without Ice:	122 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:	51.00 ft

Seismic Parameters

Analysis Method:	Equivalent Lateral Force Method				
Site Class:	D - Stiff Soil				
Period Based on Rayleigh Method (sec):	1.20				
T_L (sec):	6	p:	1	C_s:	0.053
S_s:	0.175	S_1:	0.060	C_s Max:	0.053
F_a:	1.600	F_v:	2.400	C_s Min:	0.030
S_{ds}:	0.187	S_{d1}:	0.096		

Load Cases

1.2D + 1.0W	122 mph with No Ice
0.9D + 1.0W	122 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	52.740	0.3125	65		0.00	8,665	55.45	0.00	54.69	21012.4	29.53	177.46	42.53	52.74	41.88	9432.2	22.24	136.11	0.244999
2-18	20.000	0.3125	65	Slip	73.69	2,828	44.66	46.60	43.99	10932.6	23.44	142.93	39.76	66.60	39.13	7694.6	20.67	127.25	0.244999
3-18	48.130	0.2500	65	Slip	68.75	4,616	41.66	60.87	32.86	7122.7	27.63	166.67	29.87	109.00	23.51	2606.8	19.31	119.50	0.244999
				Shaft Weight		16,110													

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
108.00	Ericsson KRY 112 489/2	3	0.75	0.000	15.40	0.650	0.50	26.80	1.044	0.50
108.00	Ericsson Radio 4449 B71 B85A	3	0.75	0.000	75.00	1.650	0.50	113.82	2.198	0.50
108.00	Ericsson AIR 21, 1.3 M, B2A B4P	3	0.75	0.000	83.00	6.049	0.71	177.21	7.445	0.71
108.00	Ericsson AIR 21, 1.3M, B4A B2P	3	0.75	0.000	81.50	6.092	0.70	175.37	7.489	0.70
108.00	RFS APXVAARR24_43-U-NA20	3	0.75	0.000	127.90	20.243	0.63	381.33	22.637	0.63
108.00	Generic Heavy Platform with	1	1.00	0.000	3,750.00	59.800	1.00	5,487.05	76.743	1.00
Totals	Num Loadings:6	16			4,898.40			8,110.64		

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	108.00	6	1 5/8" Coax	1.98	0.82	N	0	0.00	0.00	0	0.00	N	T-MOBILE
0.00	108.00	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		0.3125	55.456	54.693	21,012.4	29.53	177.46	66.7	746.3	0.0	0.0
5.00		0.3125	54.231	53.478	19,642.9	28.84	173.54	67.5	713.4	0.0	920.2
10.00		0.3125	53.006	52.263	18,334.3	28.15	169.62	68.3	681.3	0.0	899.5
15.00		0.3125	51.781	51.048	17,085.1	27.45	165.70	69.1	649.9	0.0	878.9
20.00		0.3125	50.556	49.833	15,894.0	26.76	161.78	69.9	619.2	0.0	858.2
25.00		0.3125	49.331	48.618	14,759.5	26.07	157.86	70.7	589.3	0.0	837.5
30.00		0.3125	48.106	47.403	13,680.4	25.38	153.94	71.5	560.1	0.0	816.9
35.00		0.3125	46.881	46.188	12,655.2	24.69	150.02	72.4	531.7	0.0	796.2
40.00		0.3125	45.656	44.973	11,682.5	24.00	146.10	73.2	504.0	0.0	775.5
45.00		0.3125	44.431	43.758	10,761.1	23.31	142.18	74.0	477.0	0.0	754.8
46.60	Bot - Section 2	0.3125	44.039	43.370	10,476.9	23.09	140.93	74.2	468.6	0.0	237.1
50.00		0.3125	43.206	42.543	9,889.3	22.62	138.26	74.8	450.8	0.0	1,001.3
52.74	Top - Section 1	0.3125	43.160	42.497	9,857.3	22.59	138.11	74.8	449.8	0.0	792.9
55.00		0.3125	42.606	41.948	9,480.1	22.28	136.34	75.2	438.3	0.0	324.7
60.00		0.3125	41.381	40.733	8,680.0	21.59	132.42	76.0	413.1	0.0	703.4
60.87	Bot - Section 3	0.3125	41.168	40.522	8,545.5	21.47	131.74	76.2	408.8	0.0	120.3
65.00		0.3125	40.156	39.518	7,926.2	20.89	128.50	76.8	388.8	0.0	1,018.6
66.60	Top - Section 2	0.2500	40.264	31.750	6,422.8	26.64	161.06	70.1	314.2	0.0	387.7
70.00		0.2500	39.431	31.089	6,029.9	26.05	157.72	70.8	301.2	0.0	363.6
75.00		0.2500	38.206	30.117	5,481.8	25.18	152.82	71.8	282.6	0.0	520.7
80.00		0.2500	36.981	29.145	4,968.0	24.32	147.92	72.8	264.6	0.0	504.1
85.00		0.2500	35.756	28.173	4,487.3	23.46	143.02	73.8	247.2	0.0	487.6
90.00		0.2500	34.531	27.201	4,038.7	22.59	138.12	74.8	230.4	0.0	471.1
95.00		0.2500	33.306	26.229	3,621.1	21.73	133.22	75.8	214.1	0.0	454.5
100.0		0.2500	32.081	25.257	3,233.2	20.86	128.32	76.9	198.5	0.0	438.0
105.0		0.2500	30.856	24.285	2,874.1	20.00	123.42	77.9	183.5	0.0	421.5
108.0		0.2500	30.121	23.702	2,672.0	19.48	120.48	78.5	174.7	0.0	244.9
109.0		0.2500	29.876	23.507	2,606.8	19.31	119.50	78.7	171.9	0.0	80.3
											16,109.9

Site Number: 284988 Code: ANSI/TIA-222-H

Site Name: GUILFORD CT, CT Engineering Number:13660479_C3_02 6/14/2021 4:49:15 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0W 122 mph with No Ice 18 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		286.1	0.0					0.0	0.0	286.1	0.0	0.0	0.0
5.00		565.8	1,104.3					0.0	52.9	565.8	1,157.2	0.0	0.0
10.00		553.1	1,079.4					0.0	52.9	553.1	1,132.4	0.0	0.0
15.00		548.7	1,054.6					0.0	52.9	548.7	1,107.6	0.0	0.0
20.00		558.8	1,029.8					0.0	52.9	558.8	1,082.8	0.0	0.0
25.00		571.8	1,005.0					0.0	52.9	571.8	1,057.9	0.0	0.0
30.00		579.6	980.2					0.0	52.9	579.6	1,033.1	0.0	0.0
35.00		583.5	955.4					0.0	52.9	583.5	1,008.3	0.0	0.0
40.00		584.6	930.6					0.0	52.9	584.6	983.5	0.0	0.0
45.00		385.5	905.8					0.0	52.9	385.5	958.7	0.0	0.0
46.60	Bot - Section 2	293.8	284.5					0.0	16.9	293.8	301.4	0.0	0.0
50.00		361.5	1,201.6					0.0	36.0	361.5	1,237.6	0.0	0.0
52.74	Top - Section 1	293.1	951.5					0.0	29.0	293.1	980.5	0.0	0.0
55.00		422.5	389.6					0.0	23.9	422.5	413.6	0.0	0.0
60.00		340.5	844.0					0.0	52.9	340.5	897.0	0.0	0.0
60.87	Bot - Section 3	289.8	144.4					0.0	9.2	289.8	153.6	0.0	0.0
65.00		331.6	1,222.3					0.0	43.7	331.6	1,266.0	0.0	0.0
66.60	Top - Section 2	286.3	465.2					0.0	16.9	286.3	482.1	0.0	0.0
70.00		476.1	436.3					0.0	36.0	476.1	472.3	0.0	0.0
75.00		558.6	624.8					0.0	52.9	558.6	677.7	0.0	0.0
80.00		548.1	605.0					0.0	52.9	548.1	657.9	0.0	0.0
85.00		536.7	585.1					0.0	52.9	536.7	638.0	0.0	0.0
90.00		524.6	565.3					0.0	52.9	524.6	618.2	0.0	0.0
95.00		511.8	545.4					0.0	52.9	511.8	598.4	0.0	0.0
100.00		498.3	525.6					0.0	52.9	498.3	578.5	0.0	0.0
105.00		389.7	505.7					0.0	52.9	389.7	558.7	0.0	0.0
108.00	Appurtenance(s)	184.9	293.9	5,640.9	0.0	0.0	5,878.1	0.0	31.8	5,825.8	6,203.8	0.0	0.0
109.00		40.9	96.4					0.0	0.0	40.9	96.4	0.0	0.0
								Totals:		17,747.2	26,353.0	0.00	0.00

Load Case: 1.2D + 1.0W 122 mph with No Ice 18 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	-26.34	-17.48	0.00	-1,272.73	0.00	1,272.73	3,281.83	959.87	4,780.50	3,731.72	0.00	0.00	0.349
5.00	-25.16	-16.95	0.00	-1,185.33	0.00	1,185.33	3,248.05	938.55	4,570.48	3,610.80	0.05	-0.08	0.336
10.00	-24.00	-16.43	0.00	-1,100.57	0.00	1,100.57	3,212.50	917.22	4,365.18	3,489.67	0.18	-0.17	0.323
15.00	-22.88	-15.91	0.00	-1,018.43	0.00	1,018.43	3,175.17	895.90	4,164.60	3,368.46	0.40	-0.25	0.310
20.00	-21.77	-15.38	0.00	-938.88	0.00	938.88	3,136.05	874.58	3,968.73	3,247.31	0.70	-0.33	0.296
25.00	-20.70	-14.83	0.00	-862.00	0.00	862.00	3,095.17	853.25	3,777.58	3,126.34	1.09	-0.41	0.283
30.00	-19.65	-14.27	0.00	-787.87	0.00	787.87	3,052.50	831.93	3,591.15	3,005.71	1.56	-0.49	0.269
35.00	-18.63	-13.70	0.00	-716.54	0.00	716.54	3,008.05	810.61	3,409.44	2,885.53	2.12	-0.57	0.255
40.00	-17.63	-13.13	0.00	-648.05	0.00	648.05	2,961.83	789.28	3,232.44	2,765.96	2.76	-0.64	0.241
45.00	-16.67	-12.74	0.00	-582.42	0.00	582.42	2,913.83	767.96	3,060.17	2,647.11	3.47	-0.72	0.226
46.60	-16.36	-12.46	0.00	-562.04	0.00	562.04	2,898.10	761.14	3,006.05	2,609.27	3.72	-0.74	0.221
50.00	-15.12	-12.09	0.00	-519.68	0.00	519.68	2,864.05	746.64	2,892.61	2,529.14	4.27	-0.79	0.211
52.74	-14.14	-11.79	0.00	-486.55	0.00	486.55	2,862.14	745.83	2,886.36	2,524.70	4.73	-0.83	0.198
55.00	-13.72	-11.38	0.00	-459.90	0.00	459.90	2,839.02	736.19	2,812.26	2,471.71	5.14	-0.87	0.191
60.00	-12.82	-11.03	0.00	-403.03	0.00	403.03	2,786.60	714.87	2,651.72	2,355.29	6.08	-0.93	0.176
60.87	-12.67	-10.74	0.00	-393.43	0.00	393.43	2,777.29	711.16	2,624.27	2,335.14	6.25	-0.94	0.173
65.00	-11.40	-10.40	0.00	-349.06	0.00	349.06	2,732.39	693.55	2,495.91	2,240.06	7.09	-0.99	0.160
66.60	-10.92	-10.11	0.00	-332.43	0.00	332.43	2,002.34	557.21	2,013.77	1,651.20	7.42	-1.01	0.207
70.00	-10.45	-9.63	0.00	-298.05	0.00	298.05	1,979.98	545.61	1,930.79	1,598.56	8.16	-1.05	0.192
75.00	-9.77	-9.07	0.00	-249.88	0.00	249.88	1,945.62	528.55	1,811.96	1,521.39	9.30	-1.12	0.170
80.00	-9.11	-8.52	0.00	-204.51	0.00	204.51	1,909.49	511.49	1,696.90	1,444.63	10.50	-1.18	0.147
85.00	-8.48	-7.98	0.00	-161.91	0.00	161.91	1,871.57	494.44	1,585.61	1,368.40	11.76	-1.23	0.123
90.00	-7.87	-7.45	0.00	-122.02	0.00	122.02	1,831.88	477.38	1,478.10	1,292.85	13.07	-1.27	0.099
95.00	-7.28	-6.92	0.00	-84.79	0.00	84.79	1,790.40	460.32	1,374.36	1,218.10	14.43	-1.31	0.074
100.00	-6.71	-6.42	0.00	-50.16	0.00	50.16	1,747.15	443.26	1,274.40	1,144.29	15.81	-1.34	0.048
105.00	-6.16	-6.01	0.00	-18.08	0.00	18.08	1,702.13	426.20	1,178.21	1,071.56	17.22	-1.35	0.021
108.00	-0.10	-0.04	0.00	-0.04	0.00	0.04	1,674.26	415.97	1,122.31	1,028.50	18.07	-1.35	0.000
109.00	0.00	-0.04	0.00	0.00	0.00	0.00	1,664.82	412.55	1,103.97	1,014.25	18.36	-1.35	0.000

Site Number: 284988 Code: ANSI/TIA-222-H

Site Name: GUILFORD CT, CT Engineering Number:13660479_C3_02 6/14/2021 4:49:16 PM

Customer: T-MOBILE

Load Case: 0.9D + 1.0W 122 mph with No Ice (Reduced DL) 18 Iterations

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		286.1	0.0					0.0	0.0	286.1	0.0	0.0	0.0
5.00		565.8	828.2					0.0	39.7	565.8	867.9	0.0	0.0
10.00		553.1	809.6					0.0	39.7	553.1	849.3	0.0	0.0
15.00		548.7	791.0					0.0	39.7	548.7	830.7	0.0	0.0
20.00		558.8	772.4					0.0	39.7	558.8	812.1	0.0	0.0
25.00		571.8	753.8					0.0	39.7	571.8	793.5	0.0	0.0
30.00		579.6	735.2					0.0	39.7	579.6	774.9	0.0	0.0
35.00		583.5	716.6					0.0	39.7	583.5	756.3	0.0	0.0
40.00		584.6	698.0					0.0	39.7	584.6	737.6	0.0	0.0
45.00		385.5	679.4					0.0	39.7	385.5	719.0	0.0	0.0
46.60	Bot - Section 2	293.8	213.4					0.0	12.7	293.8	226.1	0.0	0.0
50.00		361.5	901.2					0.0	27.0	361.5	928.2	0.0	0.0
52.74	Top - Section 1	293.1	713.6					0.0	21.8	293.1	735.3	0.0	0.0
55.00		422.5	292.2					0.0	17.9	422.5	310.2	0.0	0.0
60.00		340.5	633.0					0.0	39.7	340.5	672.7	0.0	0.0
60.87	Bot - Section 3	289.8	108.3					0.0	6.9	289.8	115.2	0.0	0.0
65.00		331.6	916.7					0.0	32.8	331.6	949.5	0.0	0.0
66.60	Top - Section 2	286.3	348.9					0.0	12.7	286.3	361.6	0.0	0.0
70.00		476.1	327.2					0.0	27.0	476.1	354.2	0.0	0.0
75.00		558.6	468.6					0.0	39.7	558.6	508.3	0.0	0.0
80.00		548.1	453.7					0.0	39.7	548.1	493.4	0.0	0.0
85.00		536.7	438.8					0.0	39.7	536.7	478.5	0.0	0.0
90.00		524.6	424.0					0.0	39.7	524.6	463.6	0.0	0.0
95.00		511.8	409.1					0.0	39.7	511.8	448.8	0.0	0.0
100.00		498.3	394.2					0.0	39.7	498.3	433.9	0.0	0.0
105.00		389.7	379.3					0.0	39.7	389.7	419.0	0.0	0.0
108.00	Appurtenance(s)	184.9	220.4	5,640.9	0.0	0.0	4,408.6	0.0	23.8	5,825.8	4,652.8	0.0	0.0
109.00		40.9	72.3					0.0	0.0	40.9	72.3	0.0	0.0
								Totals:		17,747.2	19,764.7	0.00	0.00

Load Case: 0.9D + 1.0W 122 mph with No Ice (Reduced DL) 18 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	-19.75	-17.48	0.00	-1,268.12	0.00	1,268.12	3,281.83	959.87	4,780.50	3,731.72	0.00	0.00	0.346
5.00	-18.86	-16.94	0.00	-1,180.74	0.00	1,180.74	3,248.05	938.55	4,570.48	3,610.80	0.05	-0.08	0.333
10.00	-17.99	-16.41	0.00	-1,096.06	0.00	1,096.06	3,212.50	917.22	4,365.18	3,489.67	0.18	-0.17	0.320
15.00	-17.14	-15.88	0.00	-1,014.02	0.00	1,014.02	3,175.17	895.90	4,164.60	3,368.46	0.39	-0.25	0.307
20.00	-16.31	-15.34	0.00	-934.62	0.00	934.62	3,136.05	874.58	3,968.73	3,247.31	0.70	-0.33	0.293
25.00	-15.50	-14.78	0.00	-857.92	0.00	857.92	3,095.17	853.25	3,777.58	3,126.34	1.09	-0.41	0.280
30.00	-14.71	-14.22	0.00	-784.00	0.00	784.00	3,052.50	831.93	3,591.15	3,005.71	1.56	-0.49	0.266
35.00	-13.94	-13.65	0.00	-712.90	0.00	712.90	3,008.05	810.61	3,409.44	2,885.53	2.11	-0.57	0.252
40.00	-13.19	-13.07	0.00	-644.67	0.00	644.67	2,961.83	789.28	3,232.44	2,765.96	2.74	-0.64	0.238
45.00	-12.46	-12.69	0.00	-579.30	0.00	579.30	2,913.83	767.96	3,060.17	2,647.11	3.46	-0.72	0.223
46.60	-12.23	-12.40	0.00	-559.01	0.00	559.01	2,898.10	761.14	3,006.05	2,609.27	3.70	-0.74	0.219
50.00	-11.30	-12.04	0.00	-516.84	0.00	516.84	2,864.05	746.64	2,892.61	2,529.14	4.25	-0.79	0.209
52.74	-10.56	-11.74	0.00	-483.86	0.00	483.86	2,862.14	745.83	2,886.36	2,524.70	4.71	-0.83	0.196
55.00	-10.25	-11.32	0.00	-457.34	0.00	457.34	2,839.02	736.19	2,812.26	2,471.71	5.11	-0.86	0.189
60.00	-9.57	-10.98	0.00	-400.73	0.00	400.73	2,786.60	714.87	2,651.72	2,355.29	6.05	-0.93	0.174
60.87	-9.46	-10.69	0.00	-391.18	0.00	391.18	2,777.29	711.16	2,624.27	2,335.14	6.22	-0.94	0.171
65.00	-8.51	-10.35	0.00	-347.04	0.00	347.04	2,732.39	693.55	2,495.91	2,240.06	7.06	-0.99	0.158
66.60	-8.15	-10.06	0.00	-330.49	0.00	330.49	2,002.34	557.21	2,013.77	1,651.20	7.39	-1.01	0.205
70.00	-7.79	-9.58	0.00	-296.29	0.00	296.29	1,979.98	545.61	1,930.79	1,598.56	8.12	-1.05	0.190
75.00	-7.28	-9.02	0.00	-248.37	0.00	248.37	1,945.62	528.55	1,811.96	1,521.39	9.25	-1.11	0.167
80.00	-6.79	-8.47	0.00	-203.26	0.00	203.26	1,909.49	511.49	1,696.90	1,444.63	10.45	-1.17	0.145
85.00	-6.32	-7.93	0.00	-160.90	0.00	160.90	1,871.57	494.44	1,585.61	1,368.40	11.71	-1.22	0.121
90.00	-5.86	-7.40	0.00	-121.25	0.00	121.25	1,831.88	477.38	1,478.10	1,292.85	13.01	-1.27	0.097
95.00	-5.42	-6.88	0.00	-84.25	0.00	84.25	1,790.40	460.32	1,374.36	1,218.10	14.36	-1.30	0.072
100.00	-5.00	-6.37	0.00	-49.84	0.00	49.84	1,747.15	443.26	1,274.40	1,144.29	15.74	-1.33	0.047
105.00	-4.59	-5.98	0.00	-17.97	0.00	17.97	1,702.13	426.20	1,178.21	1,071.56	17.14	-1.34	0.020
108.00	-0.07	-0.04	0.00	-0.04	0.00	0.04	1,674.26	415.97	1,122.31	1,028.50	17.99	-1.35	0.000
109.00	0.00	-0.04	0.00	0.00	0.00	0.00	1,664.82	412.55	1,103.97	1,014.25	18.27	-1.35	0.000

Site Number: 284988 Code: ANSI/TIA-222-H

Site Name: GUILFORD CT, CT Engineering Number:13660479_C3_02 6/14/2021 4:49:16 PM

Customer: T-MOBILE

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 17 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

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		81.2	0.0					0.0	0.0	81.2	0.0	0.0	0.0
5.00		160.9	1,370.5					0.0	52.9	160.9	1,423.4	0.0	0.0
10.00		157.7	1,370.5					0.0	52.9	157.7	1,423.4	0.0	0.0
15.00		156.8	1,354.2					0.0	52.9	156.8	1,407.1	0.0	0.0
20.00		160.0	1,332.6					0.0	52.9	160.0	1,385.5	0.0	0.0
25.00		164.0	1,308.3					0.0	52.9	164.0	1,361.2	0.0	0.0
30.00		166.5	1,282.2					0.0	52.9	166.5	1,335.1	0.0	0.0
35.00		167.9	1,254.9					0.0	52.9	167.9	1,307.8	0.0	0.0
40.00		168.5	1,226.7					0.0	52.9	168.5	1,279.7	0.0	0.0
45.00		111.2	1,197.9					0.0	52.9	111.2	1,250.8	0.0	0.0
46.60	Bot - Section 2	84.9	377.8					0.0	16.9	84.9	394.8	0.0	0.0
50.00		104.5	1,400.2					0.0	36.0	104.5	1,436.2	0.0	0.0
52.74	Top - Section 1	84.8	1,110.1					0.0	29.0	84.8	1,139.1	0.0	0.0
55.00		122.4	519.5					0.0	23.9	122.4	543.4	0.0	0.0
60.00		98.7	1,125.1					0.0	52.9	98.7	1,178.0	0.0	0.0
60.87	Bot - Section 3	84.1	193.3					0.0	9.2	84.1	202.5	0.0	0.0
65.00		96.3	1,452.6					0.0	43.7	96.3	1,496.3	0.0	0.0
66.60	Top - Section 2	83.2	553.9					0.0	16.9	83.2	570.9	0.0	0.0
70.00		138.6	621.9					0.0	36.0	138.6	657.9	0.0	0.0
75.00		162.9	891.1					0.0	52.9	162.9	944.0	0.0	0.0
80.00		160.1	864.7					0.0	52.9	160.1	917.6	0.0	0.0
85.00		157.2	838.1					0.0	52.9	157.2	891.0	0.0	0.0
90.00		154.0	811.3					0.0	52.9	154.0	864.3	0.0	0.0
95.00		150.6	784.4					0.0	52.9	150.6	837.3	0.0	0.0
100.00		147.0	757.3					0.0	52.9	147.0	810.2	0.0	0.0
105.00		115.2	730.1					0.0	52.9	115.2	783.0	0.0	0.0
108.00	Appurtenance(s)	55.5	425.9	1,169.2	0.0	0.0	8,376.1	0.0	31.8	1,224.8	8,833.7	0.0	0.0
109.00		12.9	140.1					0.0	0.0	12.9	140.1	0.0	0.0
								Totals:		4,676.89	34,814.1	0.00	0.00

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph with 1.00 in Radial Ice 17 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	-34.81	-4.60	0.00	-320.74	0.00	320.74	3,281.83	959.87	4,780.50	3,731.72	0.00	0.00	0.097
5.00	-33.39	-4.45	0.00	-297.73	0.00	297.73	3,248.05	938.55	4,570.48	3,610.80	0.01	-0.02	0.093
10.00	-31.96	-4.31	0.00	-275.47	0.00	275.47	3,212.50	917.22	4,365.18	3,489.67	0.04	-0.04	0.089
15.00	-30.55	-4.16	0.00	-253.94	0.00	253.94	3,175.17	895.90	4,164.60	3,368.46	0.10	-0.06	0.085
20.00	-29.17	-4.01	0.00	-233.14	0.00	233.14	3,136.05	874.58	3,968.73	3,247.31	0.18	-0.08	0.081
25.00	-27.81	-3.85	0.00	-213.11	0.00	213.11	3,095.17	853.25	3,777.58	3,126.34	0.27	-0.10	0.077
30.00	-26.47	-3.69	0.00	-193.86	0.00	193.86	3,052.50	831.93	3,591.15	3,005.71	0.39	-0.12	0.073
35.00	-25.16	-3.53	0.00	-175.40	0.00	175.40	3,008.05	810.61	3,409.44	2,885.53	0.53	-0.14	0.069
40.00	-23.88	-3.36	0.00	-157.77	0.00	157.77	2,961.83	789.28	3,232.44	2,765.96	0.69	-0.16	0.065
45.00	-22.63	-3.25	0.00	-140.95	0.00	140.95	2,913.83	767.96	3,060.17	2,647.11	0.87	-0.18	0.061
46.60	-22.23	-3.17	0.00	-135.74	0.00	135.74	2,898.10	761.14	3,006.05	2,609.27	0.93	-0.18	0.060
50.00	-20.80	-3.07	0.00	-124.96	0.00	124.96	2,864.05	746.64	2,892.61	2,529.14	1.06	-0.20	0.057
52.74	-19.66	-2.98	0.00	-116.56	0.00	116.56	2,862.14	745.83	2,886.36	2,524.70	1.18	-0.21	0.053
55.00	-19.12	-2.86	0.00	-109.83	0.00	109.83	2,839.02	736.19	2,812.26	2,471.71	1.28	-0.21	0.051
60.00	-17.94	-2.76	0.00	-95.53	0.00	95.53	2,786.60	714.87	2,651.72	2,355.29	1.51	-0.23	0.047
60.87	-17.74	-2.68	0.00	-93.13	0.00	93.13	2,777.29	711.16	2,624.27	2,335.14	1.55	-0.23	0.046
65.00	-16.24	-2.58	0.00	-82.08	0.00	82.08	2,732.39	693.55	2,495.91	2,240.06	1.76	-0.24	0.043
66.60	-15.67	-2.49	0.00	-77.96	0.00	77.96	2,002.34	557.21	2,013.77	1,651.20	1.84	-0.25	0.055
70.00	-15.01	-2.35	0.00	-69.49	0.00	69.49	1,979.98	545.61	1,930.79	1,598.56	2.02	-0.26	0.051
75.00	-14.07	-2.19	0.00	-57.72	0.00	57.72	1,945.62	528.55	1,811.96	1,521.39	2.30	-0.27	0.045
80.00	-13.15	-2.03	0.00	-46.76	0.00	46.76	1,909.49	511.49	1,696.90	1,444.63	2.59	-0.29	0.039
85.00	-12.26	-1.87	0.00	-36.62	0.00	36.62	1,871.57	494.44	1,585.61	1,368.40	2.90	-0.30	0.033
90.00	-11.40	-1.71	0.00	-27.28	0.00	27.28	1,831.88	477.38	1,478.10	1,292.85	3.21	-0.31	0.027
95.00	-10.56	-1.56	0.00	-18.71	0.00	18.71	1,790.40	460.32	1,374.36	1,218.10	3.54	-0.32	0.021
100.00	-9.75	-1.41	0.00	-10.92	0.00	10.92	1,747.15	443.26	1,274.40	1,144.29	3.88	-0.32	0.015
105.00	-8.97	-1.29	0.00	-3.88	0.00	3.88	1,702.13	426.20	1,178.21	1,071.56	4.21	-0.33	0.009
108.00	-0.14	-0.01	0.00	-0.01	0.00	0.01	1,674.26	415.97	1,122.31	1,028.50	4.42	-0.33	0.000
109.00	0.00	-0.01	0.00	0.00	0.00	0.00	1,664.82	412.55	1,103.97	1,014.25	4.49	-0.33	0.000

Load Case: 1.0D + 1.0W Serviceability 60 mph 17 Iterations

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

Applied Segment Forces Summary

		Shaft Forces		Discrete Forces				Linear Forces		Sum of Forces			
Seg Elev (ft)	Description	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		61.9	0.0					0.0	0.0	61.9	0.0	0.0	0.0
5.00		122.5	920.2					0.0	44.1	122.5	964.3	0.0	0.0
10.00		119.7	899.5					0.0	44.1	119.7	943.6	0.0	0.0
15.00		118.8	878.9					0.0	44.1	118.8	923.0	0.0	0.0
20.00		120.9	858.2					0.0	44.1	120.9	902.3	0.0	0.0
25.00		123.7	837.5					0.0	44.1	123.7	881.6	0.0	0.0
30.00		125.4	816.9					0.0	44.1	125.4	861.0	0.0	0.0
35.00		126.3	796.2					0.0	44.1	126.3	840.3	0.0	0.0
40.00		126.5	775.5					0.0	44.1	126.5	819.6	0.0	0.0
45.00		83.4	754.8					0.0	44.1	83.4	798.9	0.0	0.0
46.60	Bot - Section 2	63.6	237.1					0.0	14.1	63.6	251.2	0.0	0.0
50.00		78.2	1,001.3					0.0	30.0	78.2	1,031.3	0.0	0.0
52.74	Top - Section 1	63.4	792.9					0.0	24.2	63.4	817.1	0.0	0.0
55.00		91.4	324.7					0.0	19.9	91.4	344.6	0.0	0.0
60.00		73.7	703.4					0.0	44.1	73.7	747.5	0.0	0.0
60.87	Bot - Section 3	62.7	120.3					0.0	7.7	62.7	128.0	0.0	0.0
65.00		71.8	1,018.6					0.0	36.4	71.8	1,055.0	0.0	0.0
66.60	Top - Section 2	62.0	387.7					0.0	14.1	62.0	401.8	0.0	0.0
70.00		103.0	363.6					0.0	30.0	103.0	393.6	0.0	0.0
75.00		120.9	520.7					0.0	44.1	120.9	564.8	0.0	0.0
80.00		118.6	504.1					0.0	44.1	118.6	548.2	0.0	0.0
85.00		116.2	487.6					0.0	44.1	116.2	531.7	0.0	0.0
90.00		113.5	471.1					0.0	44.1	113.5	515.2	0.0	0.0
95.00		110.8	454.5					0.0	44.1	110.8	498.6	0.0	0.0
100.00		107.8	438.0					0.0	44.1	107.8	482.1	0.0	0.0
105.00		84.3	421.5					0.0	44.1	84.3	465.6	0.0	0.0
108.00	Appurtenance(s)	40.0	244.9	1,220.7	0.0	0.0	4,898.4	0.0	26.5	1,260.8	5,169.8	0.0	0.0
109.00		8.9	80.3					0.0	0.0	8.9	80.3	0.0	0.0
								Totals:		3,840.69	21,960.8	0.00	0.00

Load Case: 1.0D + 1.0W Serviceability 60 mph 17 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	-21.96	-3.78	0.00	-274.77	0.00	274.77	3,281.83	959.87	4,780.50	3,731.72	0.00	0.00	0.080
5.00	-20.99	-3.67	0.00	-255.86	0.00	255.86	3,248.05	938.55	4,570.48	3,610.80	0.01	-0.02	0.077
10.00	-20.05	-3.55	0.00	-237.53	0.00	237.53	3,212.50	917.22	4,365.18	3,489.67	0.04	-0.04	0.074
15.00	-19.13	-3.44	0.00	-219.77	0.00	219.77	3,175.17	895.90	4,164.60	3,368.46	0.09	-0.05	0.071
20.00	-18.22	-3.32	0.00	-202.58	0.00	202.58	3,136.05	874.58	3,968.73	3,247.31	0.15	-0.07	0.068
25.00	-17.34	-3.20	0.00	-185.97	0.00	185.97	3,095.17	853.25	3,777.58	3,126.34	0.24	-0.09	0.065
30.00	-16.48	-3.08	0.00	-169.96	0.00	169.96	3,052.50	831.93	3,591.15	3,005.71	0.34	-0.11	0.062
35.00	-15.64	-2.96	0.00	-154.55	0.00	154.55	3,008.05	810.61	3,409.44	2,885.53	0.46	-0.12	0.059
40.00	-14.82	-2.83	0.00	-139.77	0.00	139.77	2,961.83	789.28	3,232.44	2,765.96	0.59	-0.14	0.056
45.00	-14.02	-2.75	0.00	-125.60	0.00	125.60	2,913.83	767.96	3,060.17	2,647.11	0.75	-0.16	0.052
46.60	-13.77	-2.69	0.00	-121.21	0.00	121.21	2,898.10	761.14	3,006.05	2,609.27	0.80	-0.16	0.051
50.00	-12.74	-2.61	0.00	-112.07	0.00	112.07	2,864.05	746.64	2,892.61	2,529.14	0.92	-0.17	0.049
52.74	-11.92	-2.54	0.00	-104.92	0.00	104.92	2,862.14	745.83	2,886.36	2,524.70	1.02	-0.18	0.046
55.00	-11.57	-2.45	0.00	-99.17	0.00	99.17	2,839.02	736.19	2,812.26	2,471.71	1.11	-0.19	0.044
60.00	-10.83	-2.38	0.00	-86.90	0.00	86.90	2,786.60	714.87	2,651.72	2,355.29	1.31	-0.20	0.041
60.87	-10.70	-2.32	0.00	-84.83	0.00	84.83	2,777.29	711.16	2,624.27	2,335.14	1.35	-0.20	0.040
65.00	-9.64	-2.24	0.00	-75.26	0.00	75.26	2,732.39	693.55	2,495.91	2,240.06	1.53	-0.21	0.037
66.60	-9.24	-2.18	0.00	-71.67	0.00	71.67	2,002.34	557.21	2,013.77	1,651.20	1.60	-0.22	0.048
70.00	-8.85	-2.08	0.00	-64.26	0.00	64.26	1,979.98	545.61	1,930.79	1,598.56	1.76	-0.23	0.045
75.00	-8.28	-1.96	0.00	-53.87	0.00	53.87	1,945.62	528.55	1,811.96	1,521.39	2.01	-0.24	0.040
80.00	-7.73	-1.84	0.00	-44.09	0.00	44.09	1,909.49	511.49	1,696.90	1,444.63	2.27	-0.25	0.035
85.00	-7.20	-1.72	0.00	-34.90	0.00	34.90	1,871.57	494.44	1,585.61	1,368.40	2.54	-0.26	0.029
90.00	-6.69	-1.61	0.00	-26.30	0.00	26.30	1,831.88	477.38	1,478.10	1,292.85	2.82	-0.27	0.024
95.00	-6.19	-1.49	0.00	-18.28	0.00	18.28	1,790.40	460.32	1,374.36	1,218.10	3.11	-0.28	0.018
100.00	-5.71	-1.38	0.00	-10.81	0.00	10.81	1,747.15	443.26	1,274.40	1,144.29	3.41	-0.29	0.013
105.00	-5.24	-1.30	0.00	-3.90	0.00	3.90	1,702.13	426.20	1,178.21	1,071.56	3.72	-0.29	0.007
108.00	-0.08	-0.01	0.00	-0.01	0.00	0.01	1,674.26	415.97	1,122.31	1,028.50	3.90	-0.29	0.000
109.00	0.00	-0.01	0.00	0.00	0.00	0.00	1,664.82	412.55	1,103.97	1,014.25	3.96	-0.29	0.000

Equivalent Lateral Forces Method Analysis

Spectral Response Acceleration for Short Period (S_s):	0.17
Spectral Response Acceleration at 1.0 Second Period (S_1):	0.06
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}):	0.10
Seismic Response Coefficient (C_s):	0.05
Upper Limit C_s	0.05
Lower Limit C_s	0.03
Period based on Rayleigh Method (sec):	1.20
Redundancy Factor (p):	1.00
Seismic Force Distribution Exponent (k):	1.35
Total Unfactored Dead Load:	21.96 k
Seismic Base Shear (E):	1.17 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)
27	108.50	80	45	0.007	9	99
26	106.50	271	147	0.024	28	336
25	102.50	466	240	0.039	46	576
24	97.50	482	232	0.038	44	597
23	92.50	499	224	0.036	43	617
22	87.50	515	215	0.035	41	637
21	82.50	532	205	0.033	39	658
20	77.50	548	194	0.032	37	678
19	72.50	565	183	0.030	35	699
18	68.30	394	117	0.019	22	487
17	65.80	402	114	0.019	22	497
16	62.94	1,055	282	0.046	54	1,305
15	60.44	128	32	0.005	6	158
14	57.50	747	177	0.029	34	925
13	53.87	345	75	0.012	14	426
12	51.37	817	166	0.027	32	1,011
11	48.30	1,031	193	0.031	37	1,276
10	45.80	251	44	0.007	8	311
9	42.50	799	126	0.020	24	989
8	37.50	820	109	0.018	21	1,014
7	32.50	840	92	0.015	18	1,040
6	27.50	861	75	0.012	14	1,065
5	22.50	882	59	0.010	11	1,091
4	17.50	902	43	0.007	8	1,116
3	12.50	923	28	0.005	5	1,142

2	7.50	944	14	0.002	3	1,168
1	2.50	964	3	0.001	1	1,193
Ericsson KRY 112 489	108.00	46	26	0.004	5	57
Ericsson Radio 4449	108.00	225	124	0.020	24	278
Ericsson AIR 21, 1.3	108.00	249	138	0.022	26	308
Ericsson AIR 21, 1.3	108.00	244	135	0.022	26	303
RFS APXVAARR24_43-U-	108.00	384	212	0.035	41	475
Generic Heavy Platfo	108.00	3,750	2,075	0.338	396	4,640
		21,961	6,142	1.000	1,173	27,173

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)
27	108.50	80	45	0.007	9	69
26	106.50	271	147	0.024	28	234
25	102.50	466	240	0.039	46	402
24	97.50	482	232	0.038	44	416
23	92.50	499	224	0.036	43	430
22	87.50	515	215	0.035	41	444
21	82.50	532	205	0.033	39	459
20	77.50	548	194	0.032	37	473
19	72.50	565	183	0.030	35	487
18	68.30	394	117	0.019	22	340
17	65.80	402	114	0.019	22	347
16	62.94	1,055	282	0.046	54	910
15	60.44	128	32	0.005	6	110
14	57.50	747	177	0.029	34	645
13	53.87	345	75	0.012	14	297
12	51.37	817	166	0.027	32	705
11	48.30	1,031	193	0.031	37	890
10	45.80	251	44	0.007	8	217
9	42.50	799	126	0.020	24	689
8	37.50	820	109	0.018	21	707
7	32.50	840	92	0.015	18	725
6	27.50	861	75	0.012	14	743
5	22.50	882	59	0.010	11	761
4	17.50	902	43	0.007	8	778
3	12.50	923	28	0.005	5	796
2	7.50	944	14	0.002	3	814
1	2.50	964	3	0.001	1	832
Ericsson KRY 112 489	108.00	46	26	0.004	5	40
Ericsson Radio 4449	108.00	225	124	0.020	24	194
Ericsson AIR 21, 1.3	108.00	249	138	0.022	26	215
Ericsson AIR 21, 1.3	108.00	244	135	0.022	26	211
RFS APXVAARR24_43-U-	108.00	384	212	0.035	41	331
Generic Heavy Platfo	108.00	3,750	2,075	0.338	396	3,235
		21,961	6,142	1.000	1,173	18,945

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	-25.98	-1.17	0.00	-101.53	0.00	101.53	3,281.83	959.87	4,780.50	3,731.72	0.00	0.00	0.035
5.00	-24.81	-1.17	0.00	-95.66	0.00	95.66	3,248.05	938.55	4,570.48	3,610.80	0.00	-0.01	0.034
10.00	-23.67	-1.17	0.00	-89.79	0.00	89.79	3,212.50	917.22	4,365.18	3,489.67	0.01	-0.01	0.033
15.00	-22.55	-1.17	0.00	-83.94	0.00	83.94	3,175.17	895.90	4,164.60	3,368.46	0.03	-0.02	0.032
20.00	-21.46	-1.16	0.00	-78.11	0.00	78.11	3,136.05	874.58	3,968.73	3,247.31	0.06	-0.03	0.031
25.00	-20.40	-1.14	0.00	-72.33	0.00	72.33	3,095.17	853.25	3,777.58	3,126.34	0.09	-0.03	0.030
30.00	-19.36	-1.13	0.00	-66.61	0.00	66.61	3,052.50	831.93	3,591.15	3,005.71	0.13	-0.04	0.029
35.00	-18.34	-1.11	0.00	-60.98	0.00	60.98	3,008.05	810.61	3,409.44	2,885.53	0.17	-0.05	0.027
40.00	-17.35	-1.09	0.00	-55.44	0.00	55.44	2,961.83	789.28	3,232.44	2,765.96	0.23	-0.05	0.026
45.00	-17.04	-1.08	0.00	-50.01	0.00	50.01	2,913.83	767.96	3,060.17	2,647.11	0.29	-0.06	0.025
46.60	-15.77	-1.04	0.00	-48.29	0.00	48.29	2,898.10	761.14	3,006.05	2,609.27	0.31	-0.06	0.024
50.00	-14.76	-1.01	0.00	-44.75	0.00	44.75	2,864.05	746.64	2,892.61	2,529.14	0.35	-0.07	0.023
52.74	-14.33	-0.99	0.00	-41.99	0.00	41.99	2,862.14	745.83	2,886.36	2,524.70	0.39	-0.07	0.022
55.00	-13.40	-0.96	0.00	-39.74	0.00	39.74	2,839.02	736.19	2,812.26	2,471.71	0.42	-0.07	0.021
60.00	-13.25	-0.96	0.00	-34.93	0.00	34.93	2,786.60	714.87	2,651.72	2,355.29	0.50	-0.08	0.020
60.87	-11.94	-0.90	0.00	-34.10	0.00	34.10	2,777.29	711.16	2,624.27	2,335.14	0.52	-0.08	0.019
65.00	-11.44	-0.88	0.00	-30.39	0.00	30.39	2,732.39	693.55	2,495.91	2,240.06	0.59	-0.08	0.018
66.60	-10.96	-0.86	0.00	-28.98	0.00	28.98	2,002.34	557.21	2,013.77	1,651.20	0.62	-0.09	0.023
70.00	-10.26	-0.82	0.00	-26.07	0.00	26.07	1,979.98	545.61	1,930.79	1,598.56	0.68	-0.09	0.021
75.00	-9.58	-0.78	0.00	-21.97	0.00	21.97	1,945.62	528.55	1,811.96	1,521.39	0.77	-0.09	0.019
80.00	-8.92	-0.74	0.00	-18.05	0.00	18.05	1,909.49	511.49	1,696.90	1,444.63	0.88	-0.10	0.017
85.00	-8.28	-0.70	0.00	-14.33	0.00	14.33	1,871.57	494.44	1,585.61	1,368.40	0.98	-0.10	0.015
90.00	-7.67	-0.66	0.00	-10.82	0.00	10.82	1,831.88	477.38	1,478.10	1,292.85	1.09	-0.11	0.013
95.00	-7.07	-0.61	0.00	-7.52	0.00	7.52	1,790.40	460.32	1,374.36	1,218.10	1.21	-0.11	0.010
100.00	-6.50	-0.57	0.00	-4.45	0.00	4.45	1,747.15	443.26	1,274.40	1,144.29	1.33	-0.11	0.008
105.00	-6.16	-0.54	0.00	-1.62	0.00	1.62	1,702.13	426.20	1,178.21	1,071.56	1.45	-0.12	0.005
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,674.26	415.97	1,122.31	1,028.50	1.52	-0.12	0.000
109.00	0.00	0.00	0.00	0.00	0.00	0.00	1,664.82	412.55	1,103.97	1,014.25	1.54	-0.12	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	-18.11	-1.17	0.00	-101.08	0.00	101.08	3,281.83	959.87	4,780.50	3,731.72	0.00	0.00	0.033
5.00	-17.30	-1.17	0.00	-95.21	0.00	95.21	3,248.05	938.55	4,570.48	3,610.80	0.00	-0.01	0.032
10.00	-16.50	-1.17	0.00	-89.35	0.00	89.35	3,212.50	917.22	4,365.18	3,489.67	0.01	-0.01	0.031
15.00	-15.72	-1.16	0.00	-83.51	0.00	83.51	3,175.17	895.90	4,164.60	3,368.46	0.03	-0.02	0.030
20.00	-14.96	-1.15	0.00	-77.69	0.00	77.69	3,136.05	874.58	3,968.73	3,247.31	0.06	-0.03	0.029
25.00	-14.22	-1.14	0.00	-71.93	0.00	71.93	3,095.17	853.25	3,777.58	3,126.34	0.09	-0.03	0.028
30.00	-13.50	-1.12	0.00	-66.23	0.00	66.23	3,052.50	831.93	3,591.15	3,005.71	0.13	-0.04	0.026
35.00	-12.79	-1.10	0.00	-60.62	0.00	60.62	3,008.05	810.61	3,409.44	2,885.53	0.17	-0.05	0.025
40.00	-12.10	-1.08	0.00	-55.10	0.00	55.10	2,961.83	789.28	3,232.44	2,765.96	0.22	-0.05	0.024
45.00	-11.88	-1.07	0.00	-49.70	0.00	49.70	2,913.83	767.96	3,060.17	2,647.11	0.28	-0.06	0.023
46.60	-10.99	-1.04	0.00	-47.99	0.00	47.99	2,898.10	761.14	3,006.05	2,609.27	0.30	-0.06	0.022
50.00	-10.29	-1.00	0.00	-44.47	0.00	44.47	2,864.05	746.64	2,892.61	2,529.14	0.35	-0.07	0.021
52.74	-9.99	-0.99	0.00	-41.72	0.00	41.72	2,862.14	745.83	2,886.36	2,524.70	0.39	-0.07	0.020
55.00	-9.35	-0.96	0.00	-39.49	0.00	39.49	2,839.02	736.19	2,812.26	2,471.71	0.42	-0.07	0.019
60.00	-9.23	-0.95	0.00	-34.71	0.00	34.71	2,786.60	714.87	2,651.72	2,355.29	0.50	-0.08	0.018
60.87	-8.32	-0.89	0.00	-33.88	0.00	33.88	2,777.29	711.16	2,624.27	2,335.14	0.52	-0.08	0.018
65.00	-7.98	-0.87	0.00	-30.19	0.00	30.19	2,732.39	693.55	2,495.91	2,240.06	0.59	-0.08	0.016
66.60	-7.64	-0.85	0.00	-28.79	0.00	28.79	2,002.34	557.21	2,013.77	1,651.20	0.61	-0.08	0.021
70.00	-7.15	-0.82	0.00	-25.90	0.00	25.90	1,979.98	545.61	1,930.79	1,598.56	0.67	-0.09	0.020
75.00	-6.68	-0.78	0.00	-21.82	0.00	21.82	1,945.62	528.55	1,811.96	1,521.39	0.77	-0.09	0.018
80.00	-6.22	-0.74	0.00	-17.93	0.00	17.93	1,909.49	511.49	1,696.90	1,444.63	0.87	-0.10	0.016
85.00	-5.78	-0.70	0.00	-14.23	0.00	14.23	1,871.57	494.44	1,585.61	1,368.40	0.98	-0.10	0.013
90.00	-5.35	-0.65	0.00	-10.74	0.00	10.74	1,831.88	477.38	1,478.10	1,292.85	1.09	-0.11	0.011
95.00	-4.93	-0.61	0.00	-7.47	0.00	7.47	1,790.40	460.32	1,374.36	1,218.10	1.20	-0.11	0.009
100.00	-4.53	-0.56	0.00	-4.42	0.00	4.42	1,747.15	443.26	1,274.40	1,144.29	1.32	-0.11	0.006
105.00	-4.29	-0.53	0.00	-1.60	0.00	1.60	1,702.13	426.20	1,178.21	1,071.56	1.44	-0.11	0.004
108.00	0.00	0.00	0.00	0.00	0.00	0.00	1,674.26	415.97	1,122.31	1,028.50	1.51	-0.11	0.000
109.00	0.00	0.00	0.00	0.00	0.00	0.00	1,664.82	412.55	1,103.97	1,014.25	1.54	-0.11	0.000

Analysis Summary

Load Case	Reactions Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Max Usage Elev (ft)	Interaction Ratio
1.2D + 1.0W	17.48	0.00	26.34	0.00	0.00	1272.73	0.00	0.35
0.9D + 1.0W	17.48	0.00	19.75	0.00	0.00	1268.12	0.00	0.35
1.2D + 1.0Di + 1.0Wi	4.60	0.00	34.81	0.00	0.00	320.74	0.00	0.10
1.2D + 1.0Ev + 1.0Eh	1.17	0.00	25.98	0.00	0.00	101.53	0.00	0.04
0.9D - 1.0Ev + 1.0Eh	1.17	0.00	18.11	0.00	0.00	101.08	0.00	0.03
1.0D + 1.0W	3.78	0.00	21.96	0.00	0.00	274.77	0.00	0.08

Site Name: Guilford CT, CT
Site Number: 284988
Tower Type: MP
Design Loads (Factored) - Analysis per TIA-222-H Standards

Monolithic Mat & Pier Foundation Analysis

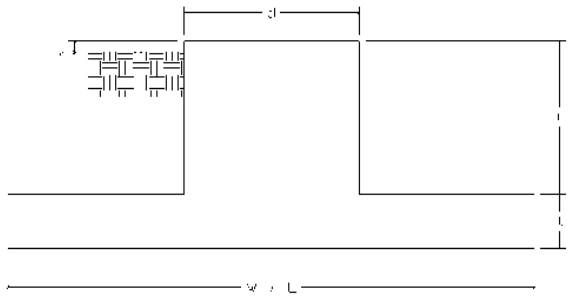
Foundation Analysis Parameters		
Design / Analysis / Mapping:	Analysis	-
Compression/Leg:	26.3	k
Uplift/Leg:	0.0	k
Total Shear:	17.5	k
Moment:	1,272.7	k-ft
Tower + Appurtenance Weight:	26.3	k
Depth to Base of Foundation (l + t - h):	5	ft
Diameter of Pier (d):	7	ft
Length of Pier (l):	3.75	ft
Height of Pier above Ground (h):	1	ft
Width of Pad (W):	23.5	ft
Length of Pad (L):	23.5	ft
Thickness of Pad (t):	2.25	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:	7	ft
Unit Weight of Concrete:	150	pcf
Unit Weight of Soil Above Water Table:	125	pcf
Unit Weight of Water:	62.4	pcf
Unit Weight of Soil Below Water Table:	62.6	pcf
Friction Angle of Uplift:	15	°
Coefficient of Shear Friction:	0.3	-
Ultimate Compressive Bearing Pressure:	20,000	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:	1377.7	k-ft
OTM Resistance:	4452.9	k-ft
Design OTM / OTM Resistance:	31%	Pass

Soil Bearing Pressure Usage		
Net Bearing Pressure:	1442	psf
Factored Nominal Bearing Pressure:	15000	psf
Factored Nominal (Net) Bearing Pressure:	10%	Pass
Load Direction Controling Design Bearing Pressure:	*Diagonal to Pad Edge*	

Sliding Factor of Safety		
Ultimate Friction Resistance:	122.0	k
Ultimate Passive Pressure Resistance:	0.0	k
Total Factored Sliding Resistance:	91.5	k
Sliding Design / Sliding Resistance:	19%	Pass

Foundation Steel Parameters		
Shear/Leg (Compression):	11.7	k
Shear/Leg (Uplift):	9.6	k
Concrete Strength (f'_c):	4,000	psi
Pad Tension Steel Depth:	23.44	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 #:	9	-
# of Bottom Pad Rebar:	29	-
Pad Bottom Steel Area:	29.00	in^2
Pad Steel F_y:	60,000	psi
Top Pad Rebar Size #:	9	-
# of Top Pad Rebar:	29	-
Pad Top Steel Area:	29.00	in^2
Pier Rebar Size #:	8	-
Pier Steel Area (Single Bar):	0.79	in^2
# of Pier Rebar:	57	-
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:	24.33	in
Tie Steel F_y:	60,000	psi
Clear Cover:	3	in



Pad Strength Capacity			
Factored One Way Shear (V_u):	130.0	k	
One Way Shear Capacity (fV_c):	627.0	k	*ACI 318-14 25.5.5.1*
V_u / fV_c:	21%	Pass	
Load Direction Controling Shear Capacity:	*Parallel to Pad Edge*		
Lower Steel Pad Factored Moment (M_u):	725.5	k-ft	
Lower Steel Pad Moment Capacity (fM_n):	2957.9	k-ft	*ACI 318-14 22.3.1.1*
M_u / fM_n:	25%	Pass	
Load Direction Controling Flexural Capacity:	*Parallel to Pad Edge*		
Upper Steel Pad Factored Moment (M_u):	357.2	k-ft	
Upper Steel Pad Moment Capacity (fM_n):	2957.9	k-ft	
M_u / fM_n:	12%	Pass	
Lower Pad Flexural Reinforcement Ratio:	0.0044		*OK - ACI 318-14 7.6.1.1 & 8.6.1.1*
Upper Pad Flexural Reinforcement Ratio:	0.0044		*OK - ACI 318-14 7.6.1.1 & 8.6.1.1*
Pad Shrinkage Reinforcement Ratio:	0.0088		*OK - ACI 318-14 24.4.3.2*
Lower Pad Reinforcement Spacing:	9.8	in	*OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3*
Upper Pad Reinforcement Spacing:	9.8	in	*OK - ACI 318-14 7.7.2.3, 8.7.2.2, & 24.4.3.3*
Ultimate Punching Shear Stress, v_u:	24.06	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:	13%	Pass	
Pier Moment Pad Flexure Transfer Ratio, γ_f:	0.60		*TIA-222-H 9.4.2*
Moment Transfer Effective Flexural Width, B_{eff}:	13.75	ft	*TIA-222-H 9.4.2*
Moment Transfer Through Pad Flexure:	9635.94	k-in	*TIA-222-H 9.4.2*
Moment Transfer Flexural Capacity ($fM_{sc,f}$):	21718.98	k-in	
g_fM_{sc} / $fM_{sc,f}$:	0%	Pass	

Pier Strength Capacity			
Factored Moment in Pier (M_u):	1338.3	k-ft	
Pier Moment Capacity (fM_n):	7261.6	k-ft	
M_u / fM_n:	18%	Pass	
Factored Shear in Pier (V_u):	17.5	k	
Pier Shear Capacity (fV_n):	576.7	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):	2431.6	k	
T_u / fT_n:	0%	Pass	
Factored Compression in Pier (P_u):	26.3	k	
Pier Compression Capacity (fP_n):	9742.9	k	*ACI 318-14 22.4.2.1*
P_u / fP_n:	0%	Pass	
Pier Compression Reinforcement Ratio:	0.008		*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	
$M_u/f_BM_n + T_u/f_TT_n$:	18%	Pass	

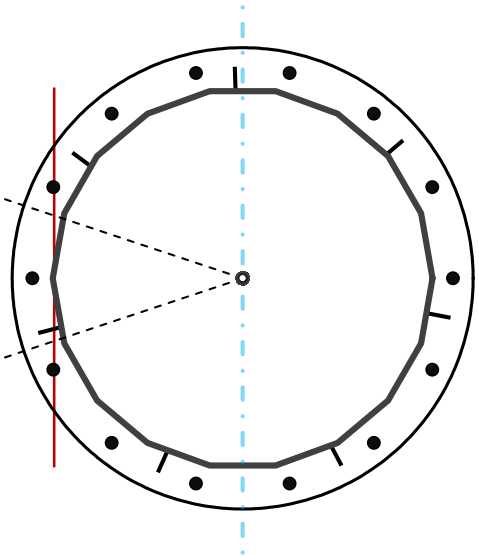
Base Plate & Anchor Rod Analysis

Pole Dimensions		
Number of Sides	18	-
Diameter	55.4559	in
Thickness	5/16	in
Orientation Offset		°

Base Reactions		
Moment, Mu	1,272.7	k-ft
Axial, Pu	26.3	k
Shear, Vu	17.5	k
Neutral Axis	90	°

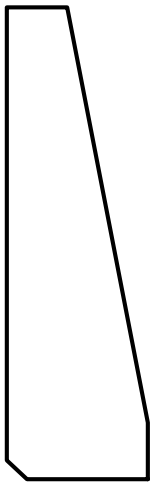
Report Capacities		
Component	Capacity	Result
Base Plate	6%	Pass
Anchor Rods	31%	Pass
Dwyidag	-	-

Base Plate		
Shape	Round	-
Diameter, ø	68.5	in
Thickness	2 1/2	in
Grade	A572-50	
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Clip	N/A	in
Orientation Offset		°
Anchor Rod Detail	d	η=0.5
Clear Distance	3	in
Applied Moment, Mu	169.1	k
Bending Stress, ϕMn	2862.9	k



Original Anchor Rods		
Arrangement	Radial	-
Quantity	14	-
Diameter, ø	2 1/4	in
Bolt Circle	62.5	in
Grade	A615-75	
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Spacing	14.0	in
Orientation Offset		°
Applied Force, Pu	74.4	k
Anchor Rods, ϕPn	243.6	k

Stiffeners		
Arrangement	Radial	-
Quantity	7	-
Height	12.5	in
Width	3.5	in
Effective Width	3.500	in
Thickness	3/4	in
Effective Thickness	0.650	in
Notch	0.5	in
Flat Edge	1.5	in
Grade	A36	-
Yield Strength, Fy	36	ksi
Tensile Strength, Fu	58	ksi
Horizontal Weld	Fillet	
Horizontal Fillet Size	5/16	in
Bevel Depth	5/32	in
Vertical Weld	Fillet	
Vertical Fillet Size	5/16	in
Weld Strength	70	ksi
Electrode Coefficient	1	-
Orientation Offset	15	°
Vertical Weld, ϕRn	158.0	k
Horz. Weld, ϕRn	30.5	k
Ten. Capacity, ϕTn	72.9	k
Comp. Capacity, ϕPn	318.2	k



Calculations for Monopole Base Plate & Anchor Rod Analysis

Reaction Distribution

Reaction	Shear Vu	Moment Mu	Factor
-	k	k-ft	-
Base Forces	17.5	1272.7	1.00
Anchor Rod Forces	17.5	1272.7	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	3.6	263.5	0.21

Geometric Properties

Section	Gross Area	Net Area	Individual Inertia	Threads per Inch	Moment of Inertia
-	in^2	in^2	in^4	#	in^4
Pole	53.8625	2.9924	0.0977		20474.85
Bolt	3.9761	3.2477	0.8393	4.5	20557.54
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	1.9500	1.7550	9.2896		5345.93

Base Plate		
Shape	Round	-
Diameter, D	68.5	in
Thickness, t	2.5	in
Yield Strength, Fy	50	ksi
Tensile Strength, Fu	65	ksi
Base Plate Chord	40.211	in
Detail Type	d	-
Detail Factor	0.50	-
Clear Distance	3	-

External Base Plate		
Chord Length AA	33.701	in
Additional AA	7.016	in
Section Modulus, Z	63.621	in^3
Applied Moment, Mu	169.1	k-ft
Bending Capacity, ϕMn	2862.9	k-ft
Capacity, Mu/ϕMn	0.059	OK
Chord Length AB	32.245	in
Additional AB	6.159	in
Section Modulus, Z	60.005	in^3
Applied Moment, Mu	137.2	k-ft
Bending Capacity, ϕMn	2700.2	k-ft
Capacity, Mu/ϕMn	0.051	OK
Bend Line Length	23.012	in
Additional Bend Line	29.050	in
Section Modulus, Z	81.346	in^3
Applied Moment, Mu	169.1	k-ft
Bending Capacity, ϕMn	3660.6	k-ft
Capacity, Mu/ϕMn	0.046	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		

Anchor Rods		
Anchor Rod Quantity, N	14	-
Rod Diameter, d	2.25	in
Bolt Circle, BC	62.5	in
Yield Strength, Fy	75	ksi
Tensile Strength, Fu	100	ksi
Applied Axial, Pu	74.4	k
Applied Shear, Vu	0.4	k
Compressive Capacity, ϕPn	243.6	k
Tensile Capacity, ϕRnt	0.306	OK
Interaction Capacity	0.309	OK

Base Plate Stiffeners		
Applied Axial Force, Pu	30.3	k
Applied Horizontal Force, Vu	0.26	k

Vertical Weld		
Vert.-to-Stiffener a=e_x/l	0.093	-
Spacing Ratio, k	0.060	-
Weld Coefficient, C	3.371	-
Compressive Capacity, ϕPn	158.0	k
Vert.-to-Plate a=e_x/l	0.333	-
Spacing Ratio, k	0.060	-
Weld Coefficient, C	2.940	-
Shear Capacity, ϕVn	137.8	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	0.194	OK

Horizontal Weld		
Horz.-to-Stiffener a=e_x/l	0.167	-
Spacing Ratio, k	0.214	-
Weld Coefficient, C	2.240	-
Effective Fillet	0.313	in
Compressive Capacity, ϕPn	29.4	k
Horz.-to-Pole a=e_x/l	0.595	-
Spacing Ratio, k	0.214	-
Weld Coefficient, C	2.320	-
Shear Capacity, ϕVn	30.5	k
$P_u/\phi_P P_n + V_u/\phi_V V_n$	1.040	OK

Plate Tension		
Gross Cross Section	1.950	in^2
Net Cross Section	1.755	in^2
Tensile Capacity, ϕTn	72.9	k
Capacity, Tu/ϕTn	0.208	OK

Plate Compression		
Radius of Gyration	0.188	in^3
kl/r	39.97	-
4.71 $\sqrt{(E/Fy)}$	133.68	-
Buckling Stress(Fe)	179.2	-
Crit. Buckling Stress(Fcr)	157.1	ksi
Compressive Capacity, ϕPn	318.2	k
Capacity, Pu/ϕPn	0.048	OK

RAN Template:	A&L Template:
67D92C Outdoor	67D92C_2xAIR+1OP

CTNH805A_L600_5_draft

Print Name: Standard (1)
PORs: L600_5G POPs

Section 1 - Site Information

Site ID: CTNH805A
Status: Draft
Version: 5
Project Type: L600
Approved: Not Approved
Approved By: Not Approved
Last Modified: 2/5/2021 9:3:17 AM
Last Modified By: Richard.Kane@sprint.com

Site Name: Amtrak_Guilford
Site Class: Monopole
Site Type: Structure Non Building
Plan Year:
Market: CONNECTICUT CT
Vendor: Ericsson
Landlord: T-Mobile USA Inc

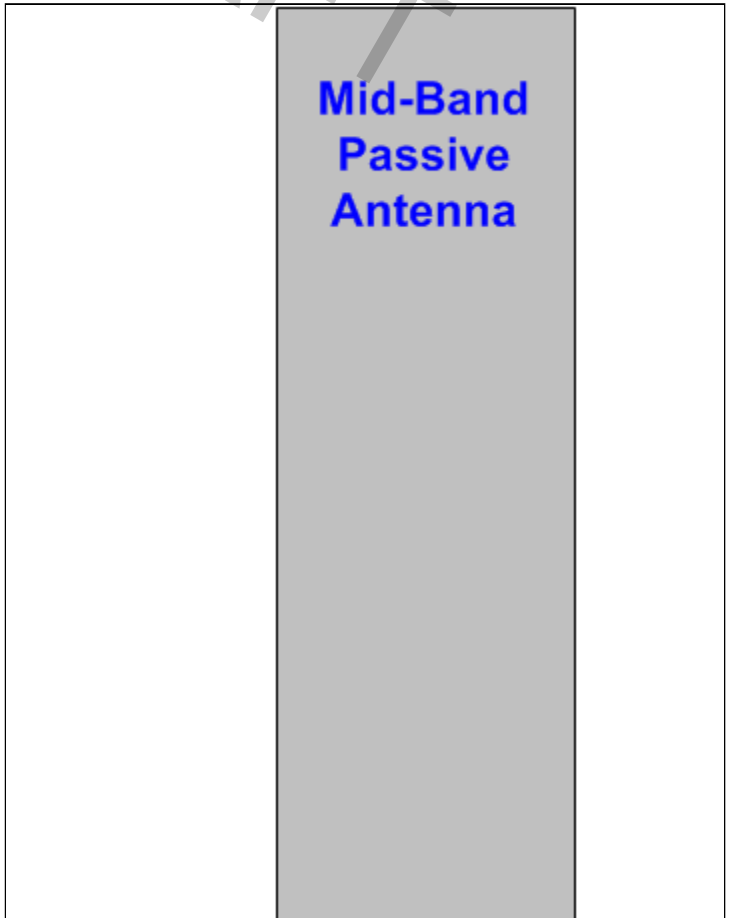
Latitude: 41.26724500
Longitude: -72.71620500
Address: 79 Moose Hill Road
City, State: Guilford, CT
Region: NORTHEAST

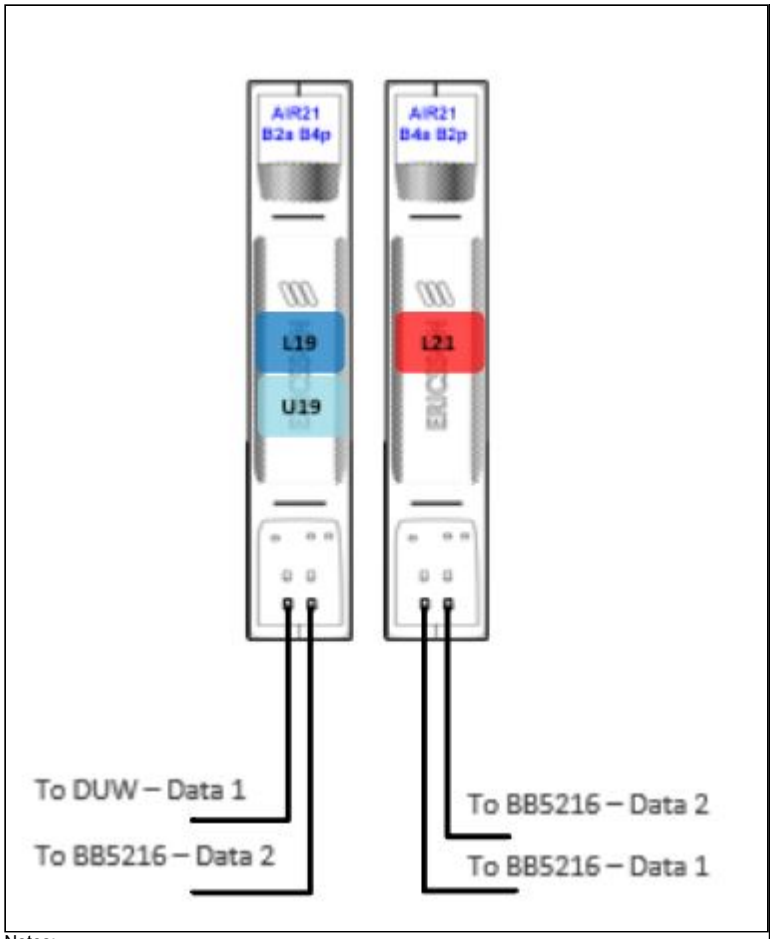
RAN Template: 67D92C Outdoor			AL Template: 67D92C_2xAIR+1OP	
Sector Count: 3	**Antenna Count:** 9	**Coax Line Count:** 6	**TMA Count:** 3	**RRU Count:** 3

Section 2 - Existing Template Images

95A_2xAIR.JPG

95F.png

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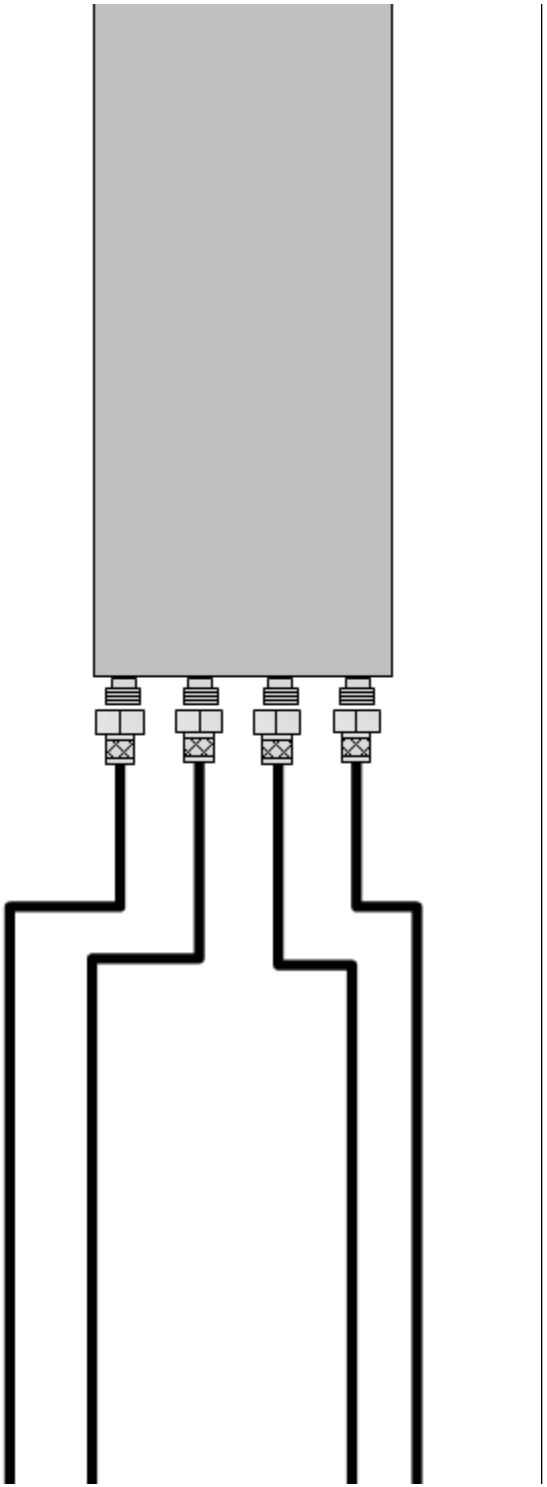
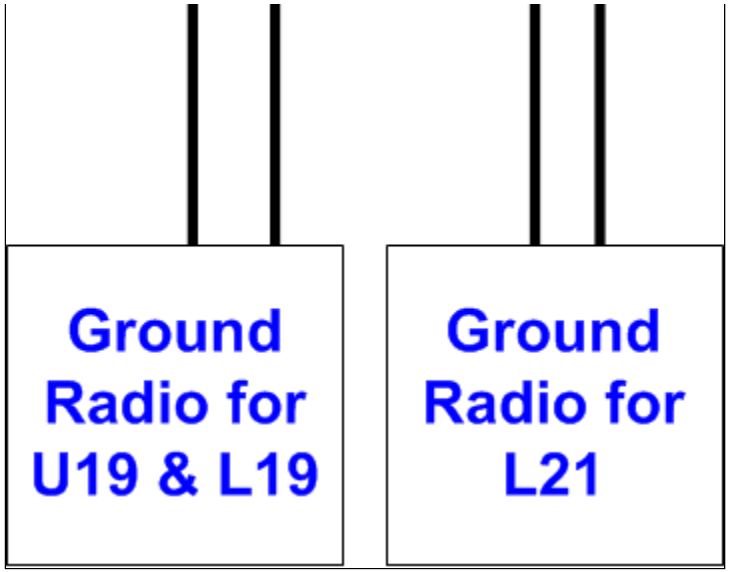
B2a B4p
AIR21
B4a B2p
L19
U19
L21
To DUW – Data 1
To BB5216 – Data 2
To BB5216 – Data 2
To BB5216 – Data 1

Notes:

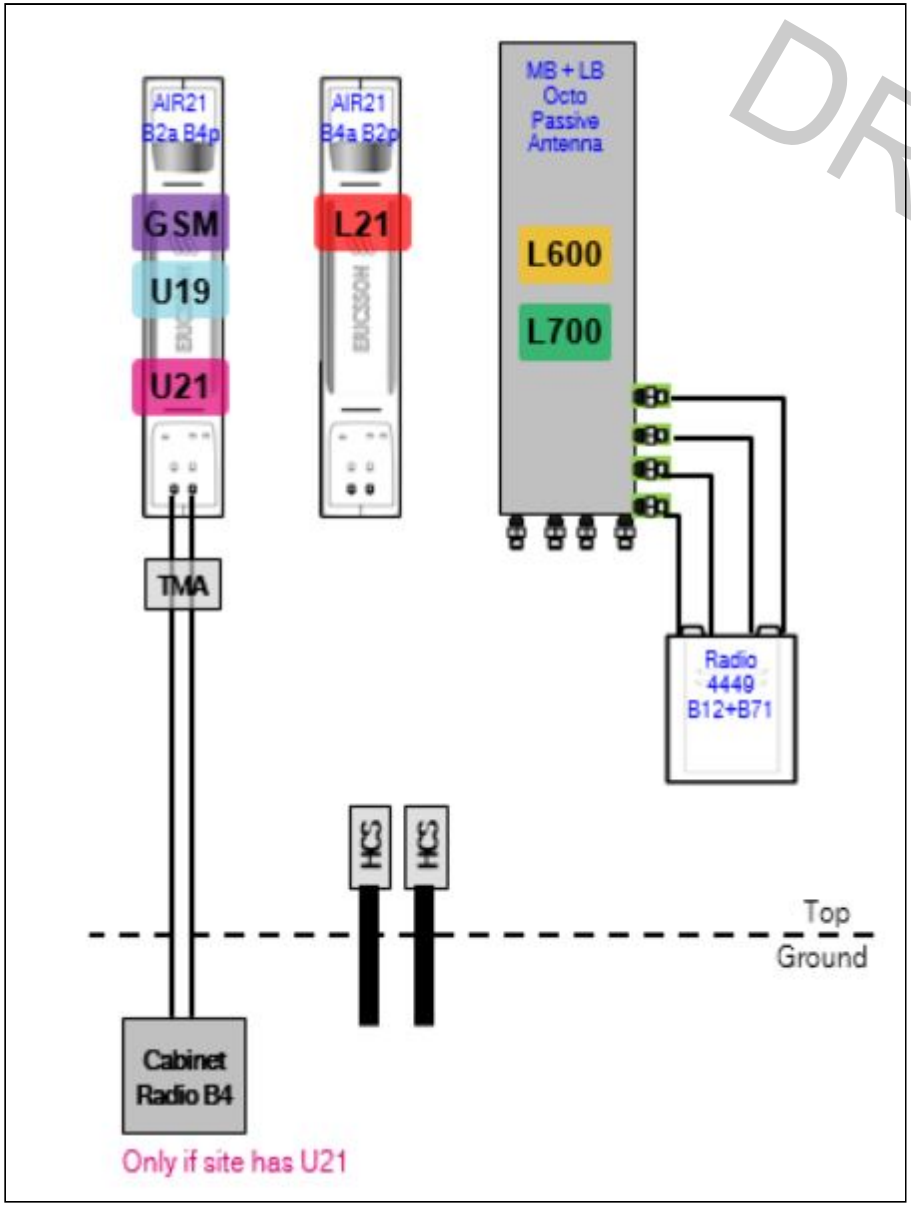




Notes:

Section 3 - Proposed Template Images

67D02C.JPG



Notes:

Section 4 - Siteplan Images

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RAN Template:	A&L Template:
67D92C Outdoor	67D92C_2xAIR+1OP

CTNH805A_L600_5_draft

Print Name: Standard (1)
PORs: L600_5G POPs

Section 5 - RAN Equipment

Existing RAN Equipment

Template: 95A

Enclosure	**1**
Enclosure Type	RBS 6131
Baseband	DUW30 (U2100); DUG20 (G1900); DUS41 (L1900, L2100)
Radio	RU22 **(x 6)** (U2100)

Proposed RAN Equipment

Template: 67D92C Outdoor

Enclosure	**1**
Enclosure Type	RBS 6131
Baseband	DUW30 (U2100); DUG20 (G1900); BB 6648 (L1900, L2100); BB 6648 (N600, L700, L600)
Hybrid Cable System	Ericsson Hybrid Trunk 6/24 4AWG 100m **(x 3)**
Radio	RU22 **(x 6)** (U2100)

RAN Scope of Work:

Replace(1) DUS41 with (1) BB6648 for L2100, L700, and L600.
Add (1) BB6648 for 5G N600.
Add (3) 6X24 HCS.

Existing: (6) 1-5/8" Coaxial Lines; (1) HCS

RAN Template:	A&L Template:
67D92C Outdoor	67D92C_2xAIR+1OP

CTNH805A_L600_5_draft

Print Name: Standard (1)
PORs: L600_5G POPs

Section 6 - A&L Equipment

Existing Template: 95A_2xAIR
Proposed Template: 67D92C_2xAIR+1OP

Sector 1 (Existing) view from behind				
Coverage Type	A - Outdoor Macro			
Antenna	**1**		**2**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	0		0	
M. Tilt	0		0	
Height	108		108	
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech.	G1900, L1900	U2100		L2100
Dark Tech.				
Restricted Tech.				
Decomm. Tech.	U1900			
E. Tilt	2	2	2	2
Cables	Fiber Jumper - 15 ft. **(x2)**	1-5/8" Coax - 120 ft. **(x2)**		Fiber Jumper - 15 ft. **(x2)**
TMAs		Generic Twin Style 1B - AWS (AtAntenna)		
Diplexers / Combiners				
Radio				
Sector Equipment				

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
67D92C Outdoor	67D92C_2xAIR+1OP

CTNH805A_L600_5_draft

Print Name: Standard (1)
PORs: L600_5G POPs

Sector 1 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	0		0				0	
M. Tilt	0		0				0	
Height	108		108				108	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L1900 G1900	U2100	L700 L600 N600	L700 L600 N600				L2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.	U1900							
E. Tilt	2	2	2	2			2	2
Cables	Fiber Jumper - 15 ft. **(x2)**	1-5/8" Coax - 120 ft. **(x2)**	Coax Jumper **(x2)** Fiber Jumper - 15 ft.	Coax Jumper **(x2)**				Fiber Jumper - 15 ft. **(x2)**
TMAs		Generic Twin Style 1B - AWS (AtAntenna)						
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

New Platform with Three Mounts per Sector.
AIR21 B2A/B4P for GSM, U1900, and U2100 in Position 1.
Add (1) LB/MB Octo to Position 2.
Add (1) Radio 4449 B71+B12 to Position 2 for L600 and L700.
AIR21 B2P/B4A for L2100 in Position 3.

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

RAN Template:	A&L Template:
67D92C Outdoor	67D92C_2xAIR+1OP

CTNH805A_L600_5_draft

Print Name: Standard (1)
PORs: L600_5G POPs

Sector 2 (Existing) view from behind				
Coverage Type	A - Outdoor Macro			
Antenna	**1**		**2**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	120		120	
M. Tilt	0		0	
Height	108		108	
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech.	G1900 L1900	U2100		L2100
Dark Tech.				
Restricted Tech.				
Decomm. Tech.	U1900			
E. Tilt	2	2	2	2
Cables	Fiber Jumper - 15 ft. **(x2)**	1-5/8" Coax - 120 ft. **(x2)**		Fiber Jumper - 15 ft. **(x2)**
TMAs		Generic Twin Style 1B - AWS (AtAntenna)		
Diplexers / Combiners				
Radio				
Sector Equipment				

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
67D92C Outdoor	67D92C_2xAIR+1OP

CTNH805A_L600_5_draft

Print Name: Standard (1)
PORs: L600_5G POPs

Sector 2 (Proposed) view from behind

Coverage Type	A - Outdoor Macro							
Antenna	**1**		**2**				**3**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	120		120				120	
M. Tilt	0		0				0	
Height	108		108				108	
Ports	**P1**	**P2**	**P3**	**P4**	**P5**	**P6**	**P7**	**P8**
Active Tech.	L1900, G1900	U2100	L700, L600, N600	L700, L600, N600				L2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.	U1900							
E. Tilt	2	2	2	2			2	
Cables	Fiber Jumper - 15 ft. **(x2)**	1-5/8" Coax - 120 ft. **(x2)**	Coax Jumper **(x2)**, Fiber Jumper - 15 ft.	Coax Jumper **(x2)**				Fiber Jumper - 15 ft. **(x2)**
TMAs		Generic Twin Style 1B - AWS (AtAntenna)						
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

New Platform with Three Mounts per Sector.
AIR21 B2A/B4P for GSM, U1900, and U2100 in Position 1.
Add (1) LB/MB Octo to Position 2.
Add (1) Radio 4449 B71+B12 to Position 2 for L600 and L700.
AIR21 B2P/B4A for L2100 in Position 3.

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

RAN Template:	A&L Template:
67D92C Outdoor	67D92C_2xAIR+1OP

CTNH805A_L600_5_draft

Print Name: Standard (1)
PORs: L600_5G POPs

Sector 3 (Existing) view from behind				
Coverage Type	A - Outdoor Macro			
Antenna	**1**		**2**	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	240		240	
M. Tilt	0		0	
Height	108		108	
Ports	**P1**	**P2**	**P3**	**P4**
Active Tech.	G1900 L1900	U2100		L2100
Dark Tech.				
Restricted Tech.				
Decomm. Tech.	U1900			
E. Tilt	2	2	2	2
Cables	Fiber Jumper - 15 ft. **(x2)**	1-5/8" Coax - 120 ft. **(x2)**		Fiber Jumper - 15 ft. **(x2)**
TMAs		Generic Twin Style 1B - AWS (AtAntenna)		
Diplexers / Combiners				
Radio				
Sector Equipment				

Unconnected Equipment:

Scope of Work:

RAN Template:	A&L Template:
67D92C Outdoor	67D92C_2xAIR+1OP

CTNH805A_L600_5_draft

Print Name: Standard (1)
PORs: L600_5G POPs

Sector 3 (Proposed) view from behind								
Coverage Type	A - Outdoor Macro							
Antenna	1		2				3	
Antenna Model	Ericsson - AIR21 KRC118023-1_B2A_B4P (Quad)		RFS - APXVAARR24_43-U-NA20 (Octo)				Ericsson - AIR21 KRC118023-1_B2P_B4A (Quad)	
Azimuth	240		240				240	
M. Tilt	0		0				0	
Height	108		108				108	
Ports	P1	P2	P3	P4	P5	P6	P7	P8
Active Tech.	L1900 G1900	U2100	L700 L600 N600	L700 L600 N600				L2100
Dark Tech.								
Restricted Tech.								
Decomm. Tech.	U1900							
E. Tilt	2	2	2	2			2	
Cables	Fiber Jumper - 15 ft. **(x2)**	1-5/8" Coax - 120 ft. **(x2)**	Coax Jumper **(x2)** Fiber Jumper - 15 ft.	Coax Jumper **(x2)**				Fiber Jumper - 15 ft. **(x2)**
TMAs		Generic Twin Style 1B - AWS (AtAntenna)						
Diplexers / Combiners								
Radio			Radio 4449 B71+B85 (At Antenna)	SHARED Radio 4449 B71+B85 (At Antenna)				
Sector Equipment								

Unconnected Equipment:

Scope of Work:

New Platform with Three Mounts per Sector.
AIR21 B2A/B4P for GSM, U1900, and U2100 in Position 1.
Add (1) LB/MB Octo to Position 2.
Add (1) Radio 4449 B71+B12 to Position 2 for L600 and L700.
AIR21 B2P/B4A for L2100 in Position 3.

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

RAN Template:	A&L Template:
67D92C Outdoor	67D92C_2xAIR+1OP

CTNH805A_L600_5_draft

Print Name: Standard (1)
PORs: L600_5G POPs

Section 7 - Power Systems Equipment

Existing Power Systems Equipment

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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: CTNH805A

Amtrak_Guilford
79 Moose Hill Road
Guilford, Connecticut 06437

June 28, 2021

EBI Project Number: 6221003338

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**8.32%**

June 28, 2021

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

Emissions Analysis for Site: CTNH805A - Amtrak_Guilford

EBI Consulting was directed to analyze the proposed T-Mobile facility located at **79 Moose Hill Road** in **Guilford, 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 79 Moose Hill Road in Guilford, 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 LTE channels (PCS Band - 1900 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

6) 2 UMTS channels (AWS Band - 2100 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

7) 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.

8) 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.

9) 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.

10) The antennas used in this modeling are the Ericsson AIR 21 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector A, the Ericsson AIR 21 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector B, the Ericsson AIR 21 for the 1900 MHz / 1900 MHz / 2100 MHz channel(s), the RFS APXVAARR24_43-U-NA20 for the 600 MHz / 600 MHz / 700 MHz channel(s), the Ericsson AIR 21 for the 2100 MHz channel(s) in Sector C. This is based on feedback from the carrier with regard to anticipated antenna selection. All Antenna gain values and associated transmit power levels are shown in the Site Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufacturer's supplied specifications, minus 10 dB for directional panel antennas and 20 dB for highly focused parabolic microwave dishes, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

11) The antenna mounting height centerline of the proposed antennas is 108 feet above ground level (AGL).

12) 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.

13) Emissions from additional carriers were not included because other carrier emissions data is not entered for this site.

14) 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:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz	Frequency Bands:	1900 MHz / 1900 MHz / 2100 MHz
Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd	Gain:	15.35 dBd / 15.35 dBd / 15.35 dBd
Height (AGL):	108 feet	Height (AGL):	108 feet	Height (AGL):	108 feet
Channel Count:	8	Channel Count:	8	Channel Count:	8
Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts	Total TX Power (W):	300 Watts
ERP (W):	10,283.03	ERP (W):	10,283.03	ERP (W):	10,283.03
Antenna A1 MPE %:	**3.55%**	Antenna B1 MPE %:	**3.55%**	Antenna C1 MPE %:	**3.55%**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20	Make / Model:	RFS APXVAARR24_43-U-NA20
Frequency Bands:	600 MHz / 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 / 13.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd	Gain:	12.95 dBd / 12.95 dBd / 13.35 dBd
Height (AGL):	108 feet	Height (AGL):	108 feet	Height (AGL):	108 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):	4,059.02	ERP (W):	4,059.02	ERP (W):	4,059.02
Antenna A2 MPE %:	**3.35%**	Antenna B2 MPE %:	**3.35%**	Antenna C2 MPE %:	**3.35%**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
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):	108 feet	Height (AGL):	108 feet	Height (AGL):	108 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 A3 MPE %:	**1.42%**	Antenna B3 MPE %:	**1.42%**	Antenna C3 MPE %:	**1.42%**

Site Composite MPE %	
Carrier	**MPE %**
T-Mobile (Max at Sector A):	8.32%
no additional carriers	N/A
Site Total MPE % :	8.32%

T-Mobile MPE % Per Sector	
T-Mobile Sector A Total:	8.32%
T-Mobile Sector B Total:	8.32%
T-Mobile Sector C Total:	8.32%
Site Total MPE % :	8.32%

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 1900 MHz GSM	4	1028.30	108.0	14.21	1900 MHz GSM	1000	1.42%
T-Mobile 1900 MHz LTE	2	2056.61	108.0	14.21	1900 MHz LTE	1000	1.42%
T-Mobile 2100 MHz UMTS	2	1028.30	108.0	7.11	2100 MHz UMTS	1000	0.71%
T-Mobile 600 MHz LTE	2	591.73	108.0	4.09	600 MHz LTE	400	1.02%
T-Mobile 600 MHz NR	1	1577.94	108.0	5.45	600 MHz NR	400	1.36%
T-Mobile 700 MHz LTE	2	648.82	108.0	4.48	700 MHz LTE	467	0.96%
T-Mobile 2100 MHz LTE	2	2056.61	108.0	14.21	2100 MHz LTE	1000	1.42%
						Total:	**8.32%**

• 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:	8.32%
Sector B:	8.32%
Sector C:	8.32%
T-Mobile Maximum MPE % (Sector A):	8.32%
Site Total:	8.32%
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **8.32%** 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.