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Daniel Patrick
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March 30, 2023

VIA EMAIL & OVERNIGHT DELIVERY
Members of the Connecticut Siting Council
Connecticut Siting Council
10 Franklin Square
New Britain, Connecticut 06051

Re: Tower Sharing Request by New Cingular Wireless PCS, LLC
Premises: 812 Providence Pike, Danielson (Killingly), Connecticut

Dear Members of the Siting Council:

Pursuant to Connecticut General Statutes (C.G.S.) § 16-50aa, New Cingular Wireless PCS, LLC ("AT&T" or "the Applicant") hereby requests an order from the Connecticut Siting Council (the "Council") approving the proposed shared use of a communications tower and associated compound at the parcel owned by the Quinebaug Valley Emergency Communication, Inc. ("QVEC") and identified as 812 Providence Pike, Danielson (Killingly), Connecticut (the "Providence Pike Facility"). The owner of the facility, QVEC, and AT&T have agreed to share the use of the Providence Pike Facility as detailed below. Additionally, annexed here as **Attachment 1** is the Letter of Authorization between AT&T and QVEC, owner of the tower equipment, authorizing AT&T to prepare and file an application for shared use of the tower.

The Providence Pike Facility

The Council's records indicate that the Providence Pike Facility consists of a 190' guyed-wire lattice tower which was originally approved in or around 2013 or 2014 by the Town of Killingly Planning and Zoning Commission. At a hearing on February 6, 2014, the Council granted approval for the shared use of the Providence Pike Facility by Cellco Partnership ("Verizon") in TS-VER-069-140117. Since then, the Council has approved applications for modifications by Verizon and other carriers located at the Providence Pike Facility.

AT&T's Wireless Facility

As depicted on the plans annexed hereto as **Attachment 2** prepared by TEP OPCO, LLC last revised March 3, 2023, including a site plan, compound plan, and tower elevation, AT&T now proposes the shared use of the Providence Pike Facility to provide FCC licensed services as well as FirstNet services.[1] AT&T will install 3 face-mounted antennas and 6 RRHs face at the centerline

[1] FirstNet is a nationwide broadband public safety network dedicated to the needs of first responders. For more information, see https://about.att.com/newsroom/2019/fn_purpose_built_cell_sites.html and http://about.att.com/sites/first_net_powered_by_att.

height of approximately 175' AGL and 3 face-mounted antennas and 6 RRHs face at the centerline height of approximately 161' AGL upon the existing tower structure. As also depicted on the drawings, AT&T will install its unmanned equipment within a proposed 6'8"x6'8" walk-in equipment cabinet on a concrete pad within AT&T's 12'6"x21' leased area located within the existing fenced compound. AT&T also proposes to install a new 15kw propane generator on an existing 8'x4' concrete pad along with a new 500 gallon propane storage tank on a separate 4'x10' concrete pad.

Connecticut General Statutes § 16-50aa provides that, upon written request for shared use approval, an order approving such use shall be issued "if the Council finds that the proposed shared use of the facility is technically, legally, environmentally and economically feasible and meets public safety concerns." (C.G.S. § 16-50aa(c)(1)). Further, upon approval of such shared use, it is exclusive, and no local zoning or land use approvals are required. (C.G.S. § 16-50x). Shared use of the Providence Pike Facility satisfies the approval criteria set forth in C.G.S. § 16-50aa as follows:

A. Technical Feasibility: As evidenced in the structural analysis report and reinforcement design prepared by Centek Engineering dated February 20, 2023, annexed hereto as **Attachment 3,** and the mount analysis prepared by Hudson Design Group LLC, dated August 2, 2022, annexed hereto as **Attachment 4**, AT&T confirmed that the Providence Pike Facility is capable of supporting AT&T's antennas and tower mounted equipment in addition to the existing loading. The proposed shared use of this tower is therefore technically feasible.

B. Legal Feasibility: Pursuant to C.G.S. § 16-50aa, the Council is authorized to issue an order approving shared use of the existing Providence Pike Facility. (C.G.S. § 16-50aa(c)(1)). Under the authority vested in the Council by C.G.S. § 16-50aa, an order by the Council approving the shared use of a tower would permit the Applicant to obtain a building permit for the proposed installation.

C. Environmental Feasibility: The proposed shared use would have a minimal environmental effect, for the following reasons:

1. Given the height of the existing tower and the fact that AT&T is not proposing to extend the height of the tower, AT&T's proposed installation would have no visual impact and would not cause any significant change or alteration in the physical or environmental characteristics of the facility;

2. The proposed installation will not increase the noise levels at the site boundaries by six decibels or more;

3. Operation of AT&T's antennas at this site will not exceed the total radio frequency electromagnetic radiation power density level adopted by the FCC and Connecticut Department of Health. AT&T's proposed antenna

installation along with the existing equipment is calculated to be within 2.88% of the FCC Standard for General Public/Uncontrolled Maximum Permissible Exposure ("MPE"). Please see the radio frequency exposure theoretical study dated February 28, 2023, prepared by the SAI Group annexed hereto as **Attachment 5**; and

4. The proposed shared use of the Providence Pike Facility would not require any water or sanitary facilities or discharges into any waterbodies nor will there be any additional air emissions beyond the minimal emissions resulting from the emergency use of the proposed propane back-up generator. Further, the installation will not generate any traffic other than for periodic maintenance visits.

D. Economic Feasibility: The Applicant and the tower owner entered into a mutual agreement to share use of the Providence Pike Facility on terms agreeable to both parties. The proposed tower sharing is therefore economically feasible.

E. Public Safety: As stated above and evidenced in attachments hereto the tower is structurally capable of supporting AT&T's installation and emissions are well within the maximum permitted by the FCC and the Connecticut Department of Health. Further, the addition of AT&T's telecommunications service and the provision of FirstNet service in the Danielson (Killingly) area through shared use of the Providence Pike Facility will ensure that critical wireless services including emergency services are provided to the community. The installation of AT&T's equipment with shared use of the Providence Pike Facility will enhance the safety and welfare of local residents and travelers through the surrounding area resulting in an improvement to public safety in this area of the State.

Notice of Tower Share Filing

Pursuant to R.C.S.A. Section 16-50j-88 and the August 2013 Tower Share Filing Guide, copies of AT&T's tower share filing request were sent to the owner of the tower and underlying property, as well as the Town of Killingly chief elected official and Planning and Development Department. Copies of each notice and their respective FedEx labels are included in **Attachment 6**.

Conclusion

As explained above, the proposed shared use of the Providence Pike Facility satisfies the criteria set forth in C.G.S. §16-50aa and advances the General Assembly's and the Siting Council's goal of preventing the proliferation of towers in the State of Connecticut. AT&T therefore requests the Siting Council issue an order approving the proposed shared use of the Providence Pike Facility.

Respectfully submitted,

Daniel Patrick
On behalf of AT&T

Attachments

cc: Quinebaug Valley Emergency Communication, Inc., Tower and Property Owner
Jason Anderson, Town Council Chair, Town of Killingly
Ann-Marie L. Aubrey, Director of Planning and Development, Town of Killingly
AT&T
Lucia Chiocchio, Esq.
Riddar Nget

Attachment 1

QV 911

Quinebaug Valley
Emergency
Communications, Inc.

1249 Hartford Pike
East Killingly, CT 06243
860.774.7555

March 16, 2023

Connecticut Siting Council
Ten Franklin Square
New Britain, CT 06051

Re: Letter of Authorization

Property: 812 Providence Pike, Danielson, CT 06239

To Whom It May Concern:

I, Charles Kelleher, hereby authorize New Cingular Wireless PCS, LLC (AT&T Mobility) and its representatives to seek and obtain all necessary federal, state, and local permits and approvals, as well as install, operate, maintain, and replace a wireless communications facility located at the above property.

All fees and/or charges associated with the permitting, installation, replacement or maintenance of the proposed wireless communications facility at the above property shall be the responsibility of New Cingular Wireless PCS and its sponsors.

Signature of Authority: _____

Charles Kelleher
Director
Quinebaug Valley Emergency Communications

Attachment 2

PROJECT INFORMATION

SCOPE OF WORK:	TELECOMMUNICATIONS FACILITY (NSB A EXISTING 190'-6" A.G.L. TALL GUYED TOWER. PROPOSED WALK-IN CABINET, AND GENERATOR WILL BE INSTALLED AT GRADE INSIDE A EXISTING FENCED-IN COMPOUND. PROPOSED SIX PANEL ANTENNAS AND ASSOCIATED EQUIPMENT WILL BE INSTALLED AT A HEIGHT OF 175'-0" & 161'-0" A.G.L.):
SITE ADDRESS:	812 PROVIDENCE PIKE DANIELSON, CT 06239
APPLICANT:	AT&T 550 COCHITUATE ROAD FRAMINGHAM, MA 01701
SITE OWNER:	QUINEBAUG VALLEY EMERGENCY COMMUNICATIONS INC 1249 HARTFORD PIKE KILLINGLY, CT 06239
LATITUDE:	41.7914 N, 41° 47' 29.02" N
LONGITUDE:	71.8223 W, 71° 49' 20.48" W
TYPE OF SITE:	GUYED TOWER/ WALK-IN CABINET
TOWER HEIGHT:	190'-6"±
RAD CENTER POS 1:	175'-0"±
RAD CENTER POS 2:	161'-0"±

SITE NUMBER: CT1166

SITE NAME: DANIELSON

FA CODE:10141308

PACE ID: MRCTB057569

PROJECT: NSB

DRAWING INDEX

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VICINITY MAP

DIRECTIONS TO SITE:

HEAD SOUTHWEST. TURN RIGHT TOWARD LEGGATT MCCALL CONN. TURN LEFT ONTO LEGGATT MCCALL CONN. CONTINUE ONTO BURR ST. TURN LEFT ONTO COCHITUATE RD. USE THE RIGHT LANE TO MERGE ONTO I-90 W VIA THE RAMP TO SPRINGFIELD. MERGE ONTO I-90 W. TAKE EXIT 90 FOR I-395 S/I-290 E TOWARD WORCESTER. KEEP RIGHT AT THE FORK, FOLLOW SIGNS FOR I-395 S/NEW LONDON AND MERGE ONTO I-395 S. TAKE EXIT 37A TO MERGE ONTO US-6 E TOWARD PROVIDENCE. MERGE ONTO US-6 E. DESTINATION WILL BE ON THE LEFT

GENERAL NOTES

1. THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY DUPLICATION OR USE WITHOUT EXPRESS WRITTEN CONSENT IS STRICTLY PROHIBITED. DUPLICATION AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
2. THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY ACCESSED BY TRAINED TECHNICIANS FOR PERIODIC ROUTINE MAINTENANCE AND THEREFORE DOES NOT REQUIRE ANY WATER OR SANITARY SEWER SERVICE. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
3. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE AT&T MOBILITY REPRESENTATIVE IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
4. CONSTRUCTION DRAWINGS ARE VALID FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS

CALL
BEFORE YOU DIG
CALL TOLL FREE 1-800-922-4455
OR CALL 811

UNDERGROUND SERVICE ALERT

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1166
SITE NAME: DANIELSON

812 PROVIDENCE PIKE
DANIELSON, CT 06239
WINDHAM COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
5	03/03/23	ISSUED FOR CONSTRUCTION	JC	JC	DPH
4	02/06/23	ISSUED FOR CONSTRUCTION	JC	JC	DPH
3	01/05/23	ISSUED FOR CONSTRUCTION	JC	JC	DPH
2	12/02/22	ISSUED FOR CONSTRUCTION	MJ	JC	DPH
1	10/03/22	ISSUED FOR REVIEW	MJ	JC	DPH

SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: MJ

STATE OF CONNECTICUT · DANIEL P. HAMM · No.24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1166	T-1	5

GROUNDING NOTES

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

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

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

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

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

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

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

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

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

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

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

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

GENERAL NOTES

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

   CONTRACTOR – SAI
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

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

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

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

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

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

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

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

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

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

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

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

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

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

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

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

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

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

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

    BUILDING CODE: IBC 2021 WITH 2022 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)

    SUBCONTRACTOR'S WORK SHALL COMPLY WITH THE LATEST EDITION OF THE FOLLOWING STANDARDS:

    AMERICAN CONCRETE INSTITUTE (ACI) 318; BUILDING CODE REQUIREMENTS FOR STRUCTURAL CONCRETE;

    AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC) MANUAL OF STEEL CONSTRUCTION, ASD, FOURTEENTH EDITION;

    TELECOMMUNICATIONS INDUSTRY ASSOCIATION (TIA) 222-H, STRUCTURAL STANDARDS FOR STEEL

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

ABBREVIATIONS

AGL	ABOVE GRADE LEVEL	EQ	EQUAL	REQ	REQUIRED
AWG	AMERICAN WIRE GAUGE	GC	GENERAL CONTRACTOR	RF	RADIO FREQUENCY
BBU	BATTERY BACKUP UNIT	GRC	GALVANIZED RIGID CONDUIT	TBD	TO BE DETERMINED
BTCW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBRR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCEIVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UG	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE (ANTENNA)	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFERENCE		

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1166
SITE NAME: DANIELSON

812 PROVIDENCE PIKE
DANIELSON, CT 06239
WINDHAM COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: MJ

STATE OF CONNECTICUT · DANIEL P. HAMM · No.24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1166	GN-1	5

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND DI.I. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

GENERAL: WHERE APPLICATION IS MADE FOR CONSTRUCTION, THE OWNER OR THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE ACTING AS THE OWNER'S AGENT SHALL EMPLOY ONE OR MORE APPROVED AGENCIES TO PERFORM INSPECTIONS DURING CONSTRUCTION ON THE TYPES OF WORK LISTED IN THE INSPECTION CHECKLIST ABOVE.

THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE AND ENGINEERS OF RECORD INVOLVED IN THE DESIGN OF THE PROJECT ARE PERMITTED TO ACT AS THE APPROVED AGENCY AND THEIR PERSONNEL ARE PERMITTED TO ACT AS THE SPECIAL INSPECTOR FOR THE WORK DESIGNED BY THEM, PROVIDED THOSE PERSONNEL MEET THE QUALIFICATION REQUIREMENTS.

STATEMENT OF SPECIAL INSPECTIONS: THE APPLICANT SHALL SUBMIT A STATEMENT OF SPECIAL INSPECTIONS PREPARED BY THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE IN ACCORDANCE WITH SECTION 107.1 AS A CONDITION FOR ISSUANCE. THIS STATEMENT SHALL BE IN ACCORDANCE WITH SECTION 1705.

REPORT REQUIREMENT: SPECIAL INSPECTORS SHALL KEEP RECORDS OF INSPECTIONS. THE SPECIAL INSPECTOR SHALL FURNISH INSPECTION REPORTS TO THE BUILDING OFFICIAL, AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. REPORTS SHALL INDICATE THAT WORK INSPECTED WAS OR WAS NOT COMPLETED IN CONFORMANCE TO APPROVED CONSTRUCTION DOCUMENTS. DISCREPANCIES SHALL BE BROUGHT TO THE IMMEDIATE ATTENTION OF THE CONTRACTOR FOR CORRECTION. IF THEY ARE NOT CORRECTED, THE DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE BUILDING OFFICIAL AND TO THE REGISTERED DESIGN PROFESSIONAL IN RESPONSIBLE CHARGE. A FINAL REPORT DOCUMENTING REQUIRED SPECIAL INSPECTIONS SHALL BE SUBMITTED.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

SPECIAL INSPECTION CHECKLIST

BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
REQUIRED	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
REQUIRED	PACKING SLIPS [3]
ADDITIONAL TESTING AND INSPECTIONS:	
DURING CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	STEEL INSPECTIONS
N/A	HIGH STRENGTH BOLT INSPECTIONS
N/A	HIGH WIND ZONE INSPECTIONS [4]
N/A	FOUNDATION INSPECTIONS
N/A	CONCRETE COMP. STRENGTH, SLUMP TESTS AND PLACEMENT
N/A	POST INSTALLED ANCHOR VERIFICATION [5]
N/A	GROUT VERIFICATION
N/A	CERTIFIED WELD INSPECTION
N/A	EARTHWORK: LIFT AND DENSITY
N/A	ON SITE COLD GALVANIZING VERIFICATION
N/A	GUY WIRE TENSION REPORT
ADDITIONAL TESTING AND INSPECTIONS:	
AFTER CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
REQUIRED	MODIFICATION INSPECTOR REDLINE OR RECORD DRAWINGS [6]
N/A	POST INSTALLED ANCHOR PULL-OUT TESTING
REQUIRED	PHOTOGRAPHS
ADDITIONAL TESTING AND INSPECTIONS:	

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1166
SITE NAME: DANIELSON

812 PROVIDENCE PIKE
DANIELSON, CT 06239
WINDHAM COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
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2	12/02/22	ISSUED FOR CONSTRUCTION	MJ	JC	DPH
1	10/03/22	ISSUED FOR REVIEW	MJ	JC	DPH

SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: MJ

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SPECIAL INSPECTION NOTES (NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1166	SN-1	5

ZONING DISTRICT: RESIDENTIAL DEVELOPMENT – MEDIUM DENSITY

INFORMATION TAKEN FROM KILLINGLY CT GIS

782 PROVIDENCE PIKE
SHATZMAN GERTRUDE & ABRAHAM & JOHN
400 BARNARD AV
CEDARHURST, NY 11516

820 PROVIDENCE PIKE
LITKE PAUL P
820 PROVIDENCE PIKE
KILLINGLY, CT 06239

842 PROVIDENCE PIKE
KRAJEWSKI DAWN
842 PROVIDENCE PIKE
KILLINGLY, CT 06239

796 PROVIDENCE PIKE
MELLO JOSEPH E & JODY C
796 PROVIDENCE PIKE
KILLINGLY, CT 06239

804 PROVIDENCE PIKE
MORIN GAIL E
1010 NORTH RD
KILLINGLY, CT 06241

826 PROVIDENCE PIKE
KIEFER MATTHEW J &
EMILY S TRUSTEES
72 BONNEVILLE ST
KILLINGLY, CT 06239

160'-0"±

SUBJECT PARCEL
812 PROVIDENCE PIKE
QUINEBAUG VALLEY
EMERGENCY COMMUNICATIONS
INC
1249 HARTFORD PIKE
KILLINGLY, CT 06239

130'-0"±

16'-0"±

147'-0"±

832 PROVIDENCE PIKE
LEONE FRANK
573 RIVER RD
NORTH MIANUS, CT 06807

PROVIDENCE PIKE

827 PROVIDENCE PIKE
PETRILLO LORENA
10 SQUARE COURT
EAST WALPOLE, MA 02032

817 PROVIDENCE PIKE
PETRILLO LORENA
10 SQUARE COURT
EAST WALPOLE, MA 02032

837 PROVIDENCE PIKE
CHARETTE STEPHEN
204 SAWMILL HILL RD
KILLINGLY, CT 06239

803 PROVIDENCE PIKE
SO KILLINGLY FIRE DISTRICT
PO BOX 31
KILLINGLY, CT 06239–0031

13°22'
MAGNETIC NORTH
TRUE NORTH

PLOT PLAN (1 / C–1)
22x34 SCALE: 1/64"=1'–0"
11x17 SCALE: 1/128"=1'–0"

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SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: MJ

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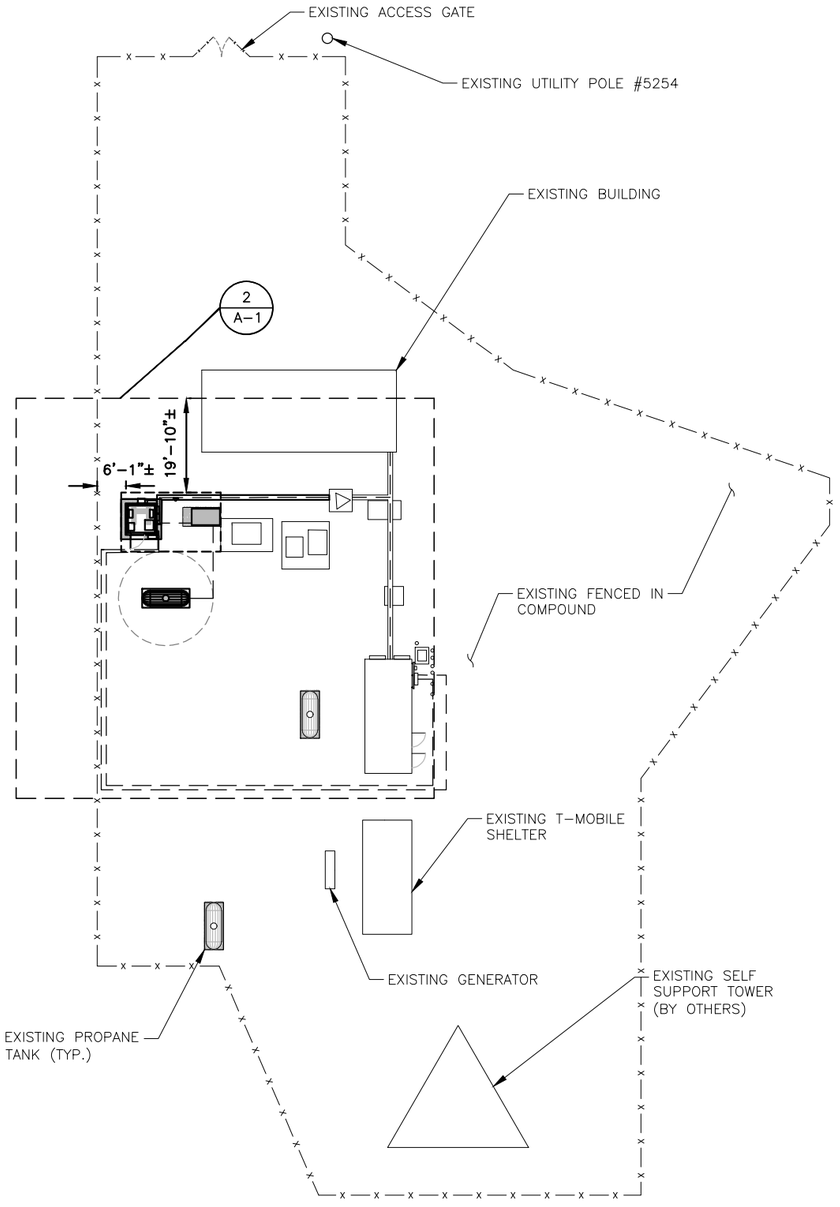
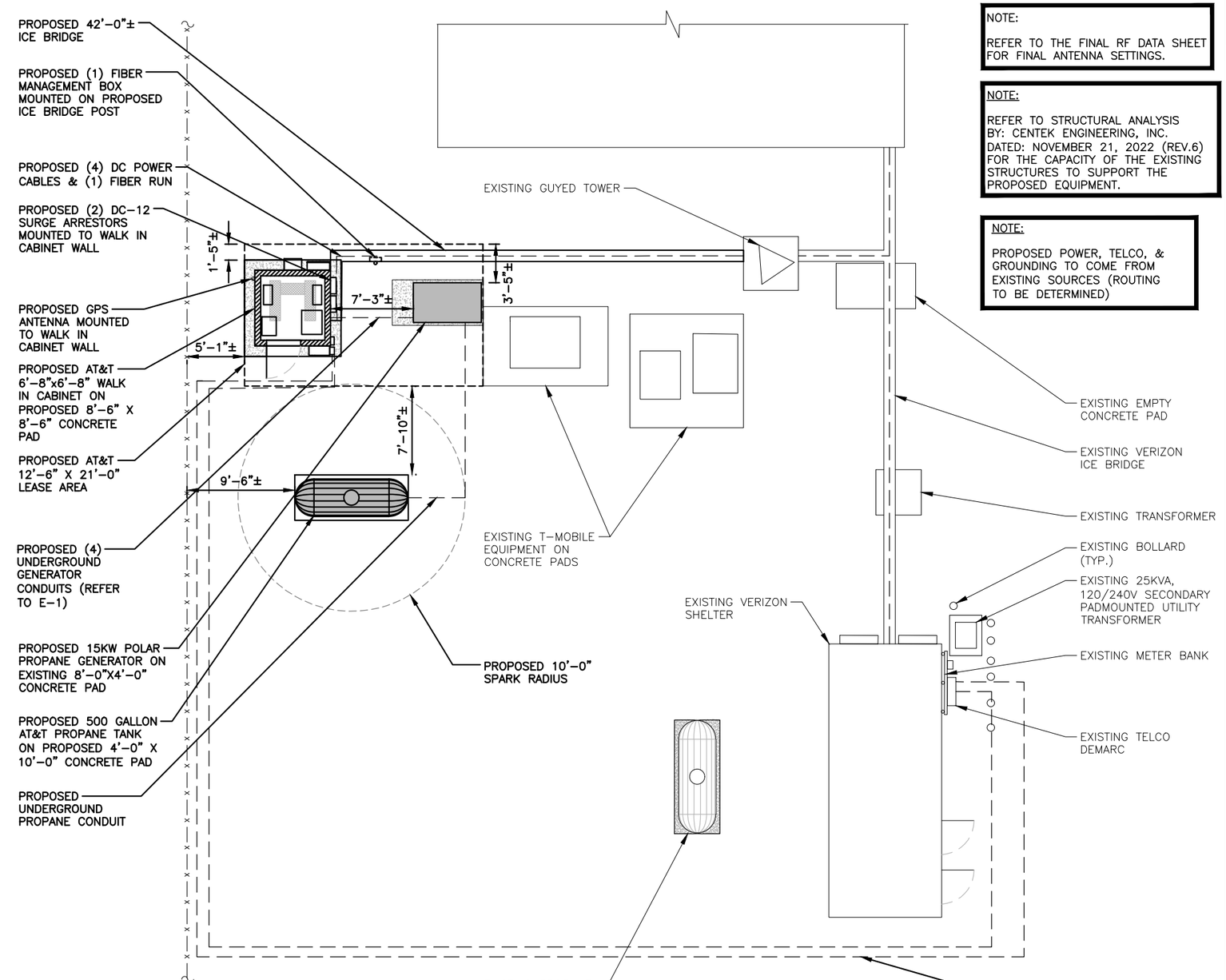
PLOT PLAN
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1166	C–1	5



COMPOUND PLAN (1 / A-1)
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"

0 2'-8" 5'-4" 10'-8" 16'-0"



EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"

NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
REFER TO STRUCTURAL ANALYSIS BY: CENTEK ENGINEERING, INC. DATED: NOVEMBER 21, 2022 (REV.6) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:
PROPOSED POWER, TELCO, & GROUNDING TO COME FROM EXISTING SOURCES (ROUTING TO BE DETERMINED)

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

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at&t
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1	10/03/22	ISSUED FOR REVIEW	MJ	JC	DPH

SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: MJ

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DANIEL P. HAMM
No. 24178
LICENSED PROFESSIONAL ENGINEER

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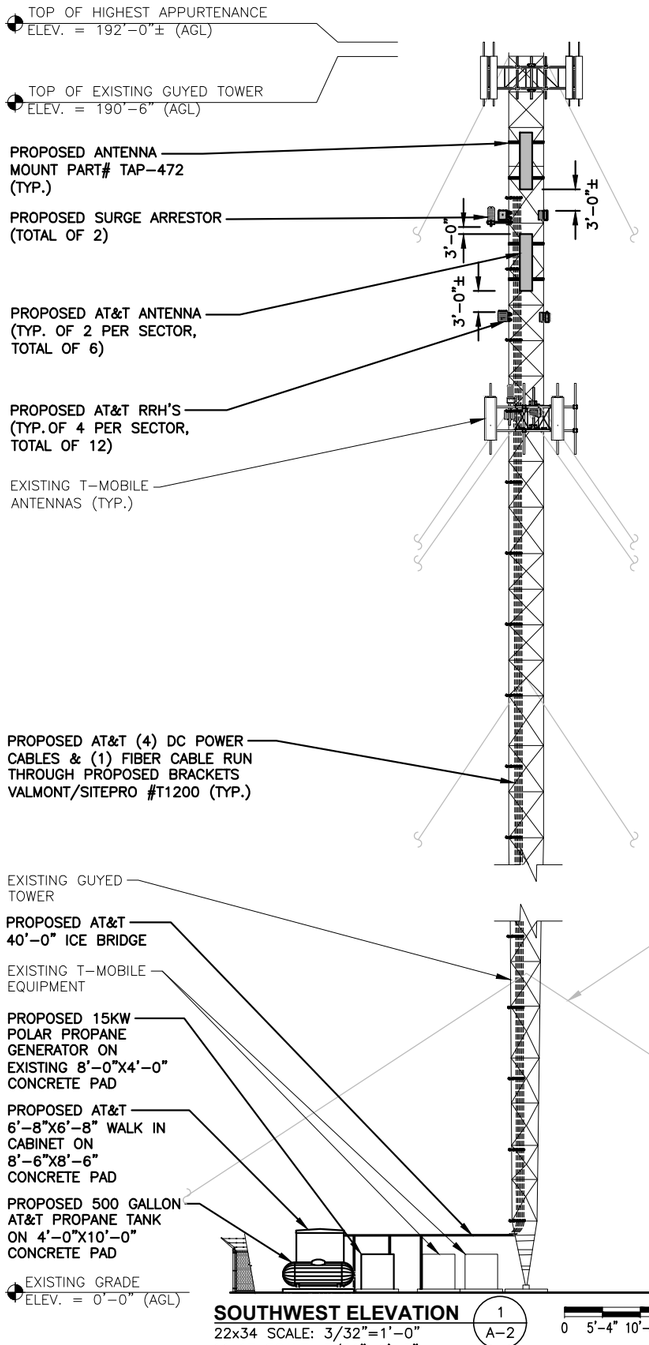
COMPOUND & EQUIPMENT PLANS
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1166	A-1	5



SOUTHWEST ELEVATION (1 / A-2)
22x34 SCALE: 3/32"=1'-0"
11x17 SCALE: 3/64"=1'-0"

℄ OF EXISTING VERIZON ANTENNAS
ELEV. = 187'-0" (AGL)

℄ OF PROPOSED AT&T ANTENNAS
ELEV. = 175'-0" (AGL)

℄ OF PROPOSED AT&T RRH'S
ELEV. = 168'-0"± (AGL)

℄ OF PROPOSED AT&T ANTENNAS
ELEV. = 161'-0"± (AGL)

℄ OF PROPOSED AT&T RRH'S
ELEV. = 153'-6"± (AGL)

℄ OF EXISTING T-MOBILE ANTENNAS
ELEV. = 140'-0" (AGL)

NOTE:

PROPOSED TOWER MODIFICATIONS TO BE COMPLETED PRIOR TO AT&T INSTALLATION. REFER TO TOWER MODIFICATION DRAWINGS BY: CENTEK ENGINEERING, INC. DATED: NOVEMBER 21, 2022.

NOTE:

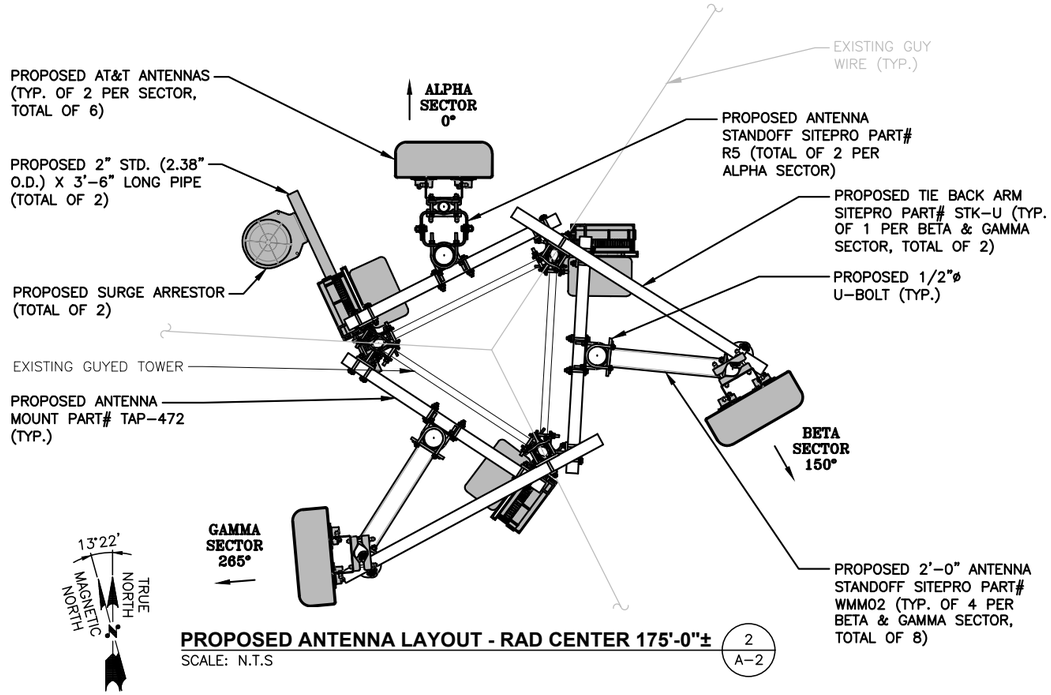
REFER TO STRUCTURAL ANALYSIS BY: CENTEK ENGINEERING, INC. DATED: NOVEMBER 21, 2022 (REV.6) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

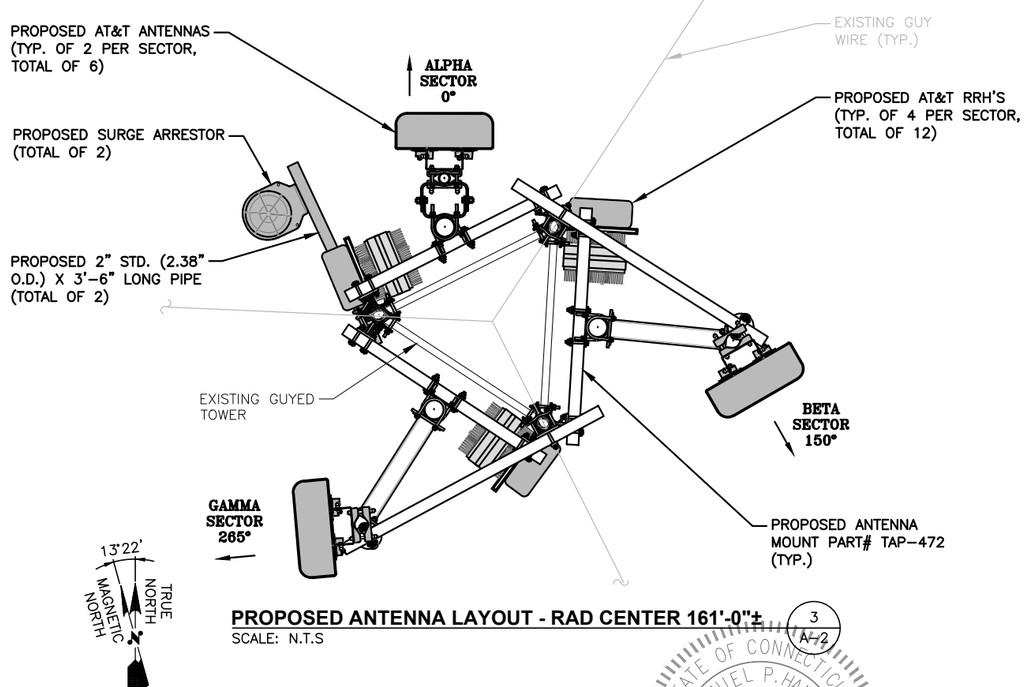
AN ANALYSIS FOR THE CAPACITY FOR THE PROPOSED **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: TEP NORTHEAST DATED: NOVEMBER 28, 2022 (REV.2)

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.



PROPOSED ANTENNA LAYOUT - RAD CENTER 175'-0"± (2 / A-2)
SCALE: N.T.S



PROPOSED ANTENNA LAYOUT - RAD CENTER 161'-0"± (3 / A-2)
SCALE: N.T.S

TEP NORTHEAST
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45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

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SALEM, NH 03079

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SITE NAME: DANIELSON

812 PROVIDENCE PIKE
DANIELSON, CT 06239
WINDHAM COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

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2	12/02/22	ISSUED FOR CONSTRUCTION	MJ	JC	DPH
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SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: MJ

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ANTENNA LAYOUT & ELEVATION (NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1166	A-2	5

NOTE:

REFER TO STRUCTURAL ANALYSIS BY: CENTEK ENGINEERING, INC.
DATED: NOVEMBER 21, 2022 (REV.6) FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

AN ANALYSIS FOR THE CAPACITY FOR THE PROPOSED **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
TEP NORTHEAST
DATED: NOVEMBER 28, 2022 (REV.2)

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

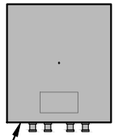
ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	PROPOSED	LTE B14/PCS/WCS	TPA65R-BU8DA-K	96X21X7.8	175'-0"	0°	–	(P) (1) 4415 B25 (P) (1) B14 4478	16.5X13.4X5.9 18.1X13.4X8.3	–	(P) (1) RAYCAP DC9-48-60-24-8C-EV (P) (1) RAYCAP DC6-48-60-0-8C-EV
A2	–	–	–	–	–	–	–	–	–	–	
A3	PROPOSED	LTE 700 BC/850/AWS	DMP65R-BU8DA-K	96X20.7X7.7	161'-0"	0°	–	(P) (1) 4449 B5/B12 (P) (1) 4426 B66	14.9X13.2X10.4 14.9X13.2X5.8	–	
A4	–	–	–	–	–	–	–	–	–	–	
B1	PROPOSED	LTE B14/PCS/WCS	TPA65R-BU8DA-K	96X21X7.8	175'-0"	150°	–	(P) (1) 4415 B25 (P) (1) B14 4478	16.5X13.4X5.9 18.1X13.4X8.3	–	
B2	–	–	–	–	–	–	–	–	–	–	
B3	PROPOSED	LTE 700 BC/850/AWS	DMP65R-BU8DA-K	96X20.7X7.7	161'-0"	150°	–	(P) (1) 4449 B5/B12 (P) (1) 4426 B66	14.9X13.2X10.4 14.9X13.2X5.8	–	
B4	–	–	–	–	–	–	–	–	–	–	
C1	PROPOSED	LTE B14/PCS/WCS	TPA65R-BU8DA-K	96X21X7.8	175'-0"	265°	–	(P) (1) 4415 B25 (P) (1) B14 4478	16.5X13.4X5.9 18.1X13.4X8.3	–	
C2	–	–	–	–	–		–	–	–	–	
C3	PROPOSED	LTE 700 BC/850/AWS	DMP65R-BU8DA-K	96X20.7X7.7	161'-0"	265°	–	(P) (1) 4449 B5/B12 (P) (1) 4426 B66	14.9X13.2X10.4 14.9X13.2X5.8	–	
C4	–	–	–	–	–	–	–	–	–	–	

FINAL ANTENNA SCHEDULE (1 / A-3)
SCALE: N.T.S

NOTE:

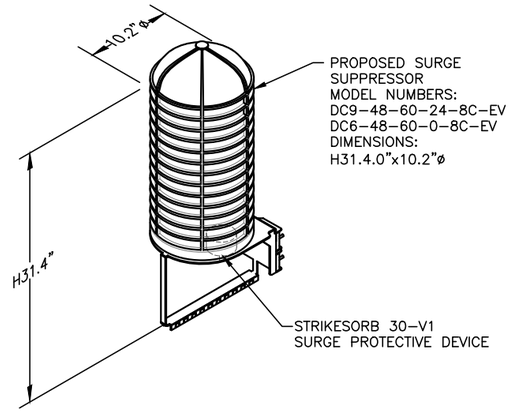
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

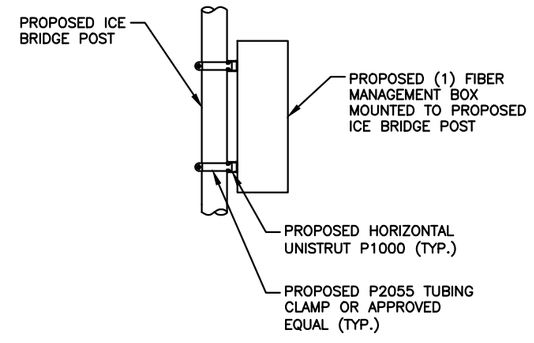
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (2 / A-3)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL (3 / A-3)
SCALE: N.T.S



PROPOSED FIBER MANAGEMENT BOX MOUNTING DETAIL (4 / A-3)
SCALE: N.T.S

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
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SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: MJ

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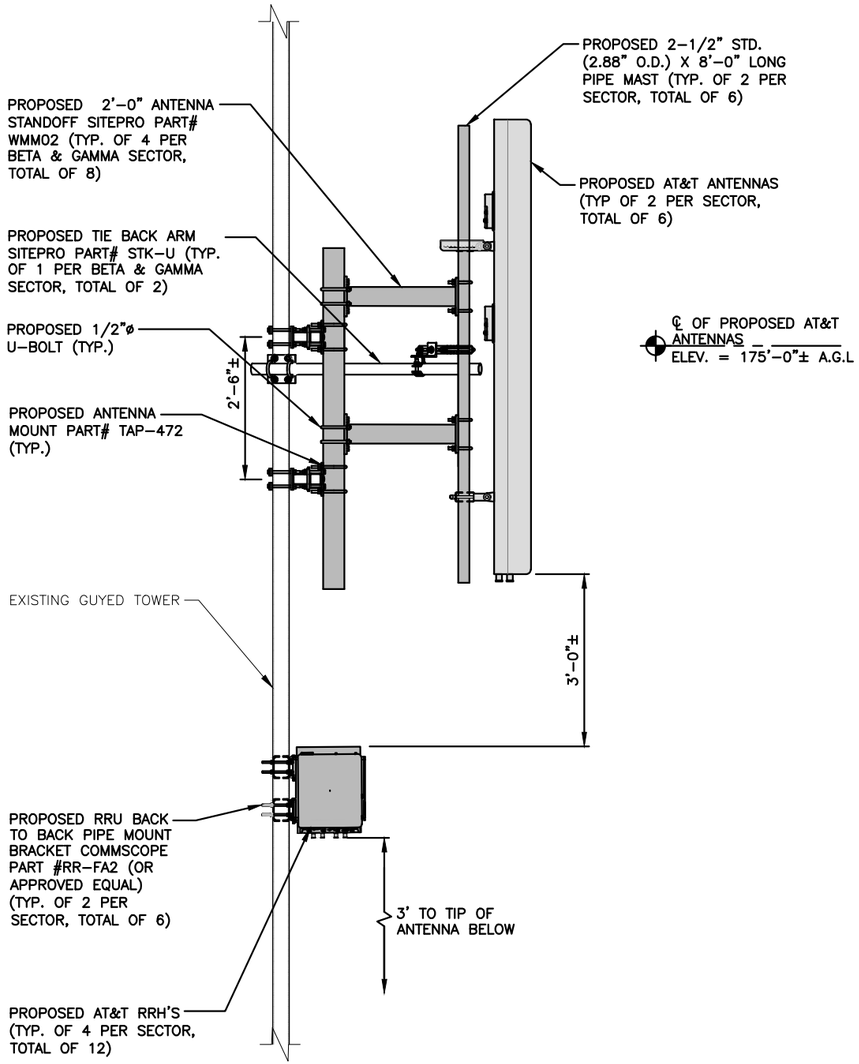
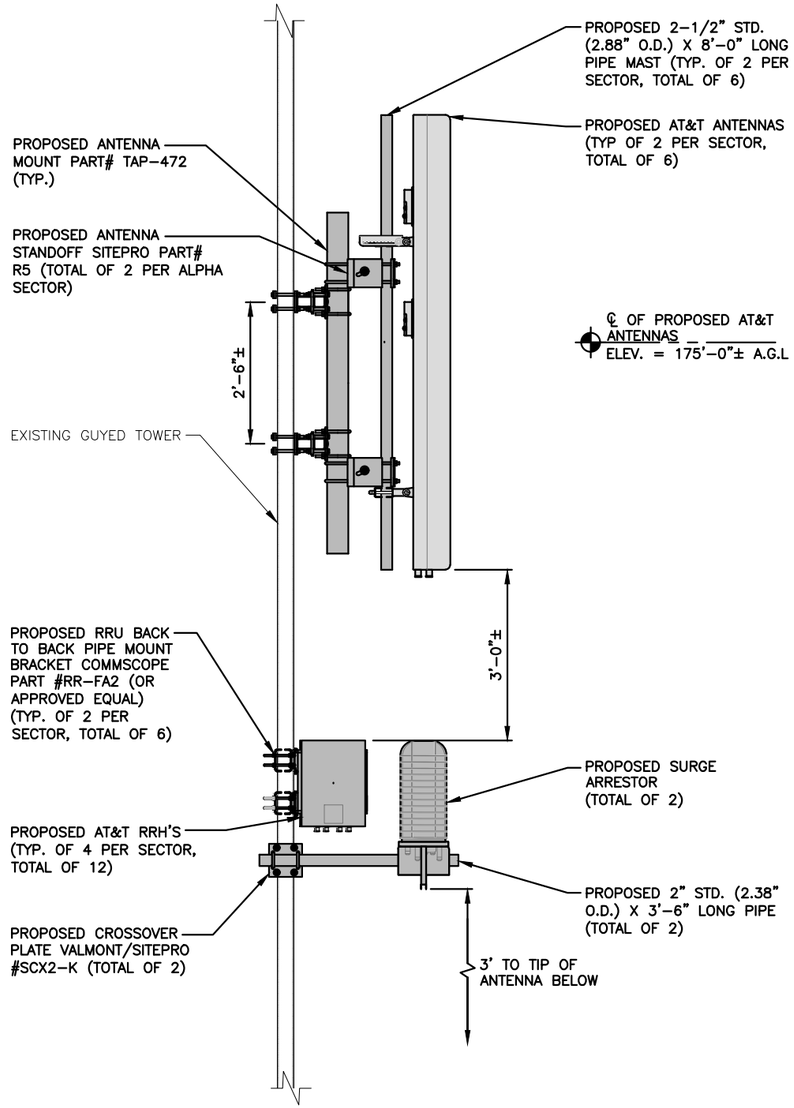
DETAILS
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1166	A-3	5



PROPOSED SECTOR FRAME, ANTENNA,SURGE SUPPRESSOR & RRH'S MOUNTING DETAIL (BETA & GAMMA) 1 / A–4

SCALE: N.T.S



PROPOSED SECTOR FRAME, ANTENNA,SURGE SUPPRESSOR & RRH'S MOUNTING DETAIL (ALPHA) 2 / A–4

SCALE: N.T.S

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SALEM, NH 03079

SITE NUMBER: CT1166
SITE NAME: DANIELSON

812 PROVIDENCE PIKE
DANIELSON, CT 06239
WINDHAM COUNTY

at&t
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

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1	10/03/22	ISSUED FOR REVIEW	MJ	JC	DPH

SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: MJ

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(NSB)

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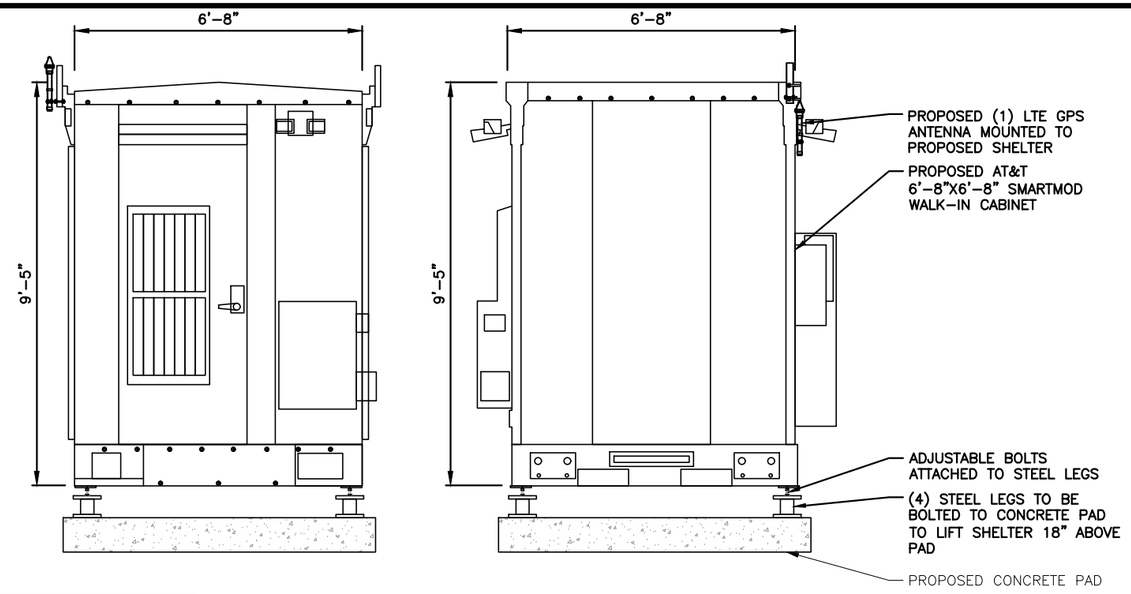
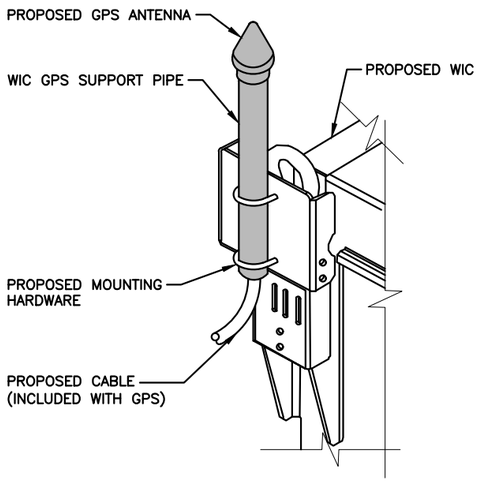
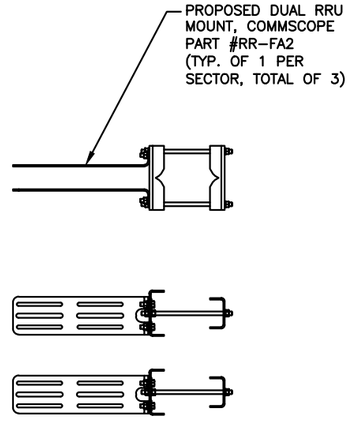


NOTE:
SHELTER SHALL BE MOUNTED PER MANUFACTURER'S SPECIFICATIONS.

TYPICAL SHELTER DETAIL (1 / A-5)
SCALE: N.T.S

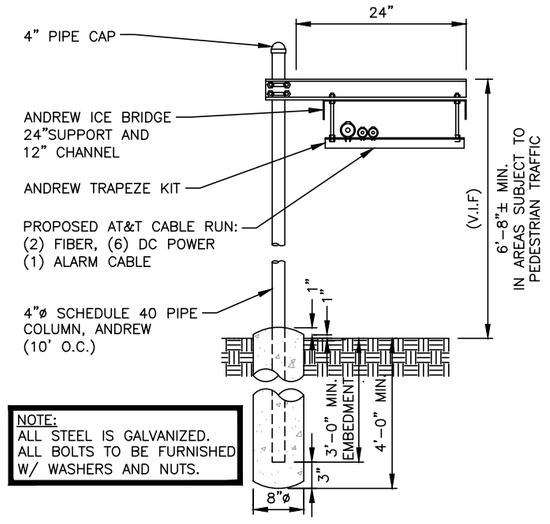


GPS MOUNTING DETAIL (2 / A-5)
N.T.S



BACK TO BACK RRU MOUNT DETAIL (3 / A-5)
SCALE: N.T.S

PROPOSED 15kW PROPANE POLAR GENERATOR (4 / A-5)
SCALE: N.T.S

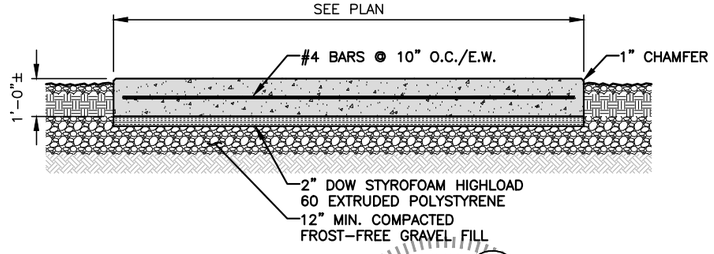


NOTE:
ALL STEEL IS GALVANIZED.
ALL BOLTS TO BE FURNISHED W/ WASHERS AND NUTS.

ICE BRIDGE DETAIL (5 / A-5)
SCALE: N.T.S

FOUNDATION NOTES & CONCRETE SPECIFICATIONS:

1. FOUNDATION AREA SHALL BE EXCAVATED TO THE DEPTH AND DIMENSIONS SHOWN ON THE PLANS. EXISTING LEDGE AND ALL OTHER EXISTING UNSUITABLE MATERIAL SHALL BE REMOVED AND LEGALLY DISPOSED OF OFF-SITE. THE SUBGRADE SHALL BE ROLLED WITH A 1-TON, VIBRATORY, WALK-BEHIND ROLLER AT A SPEED OF LESS THAN 2 FPS, 6 PASSES MINIMUM, TO PROVIDE UNYIELDING SURFACE.
2. UNDERCUT SOFT OR "WEAVING" AREAS A MINIMUM OF 12 INCHES DEEP. BACKFILL UNDERCUT AREA WITH FILL MEETING THE SPECIFICATIONS OF STRUCTURAL FILL.
3. CONCRETE TO HAVE A MINIMUM 28 DAY COMPRESSIVE STRENGTH (f'c)=4000 psi. CONCRETE TO BE AIR ENTRAINED, DESIRED AIR CONTENT TO BE 6% (PLUS OR MINUS 2%)
4. REINFORCING BAR TO BE ASTM A615 GRADE 60.
5. WELDED WIRE FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A185. WIRES FOR FABRIC TO CONFORM TO THE REQUIREMENTS OF ASTM A82.
6. COORDINATE WITH MANUFACTURER OF PREFABRICATED SHELTER FOR LOCATION OF ATTACHMENTS TO BASE SLAB.
7. ALL REINFORCING TO HAVE MINIMUM CONCRETE COVER PER ACI SPECIFICATIONS.
8. ALL CONCRETE MATERIALS AND WORKMANSHIP SHALL CONFORM TO LATEST EDITION OF ACI 318 AND APPLICABLE STATE BUILDING CODE.



CONCRETE PAD DETAIL (6 / A-5)
22x34 SCALE: N.T.S

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(NSB)

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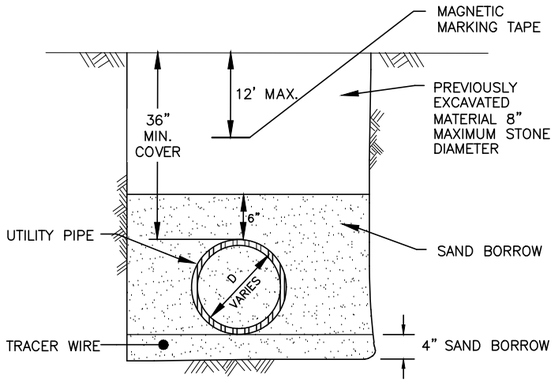
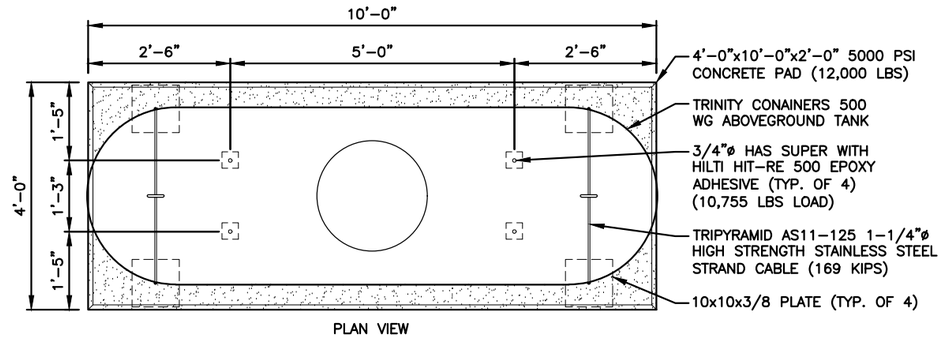
CT1166	A-5	5

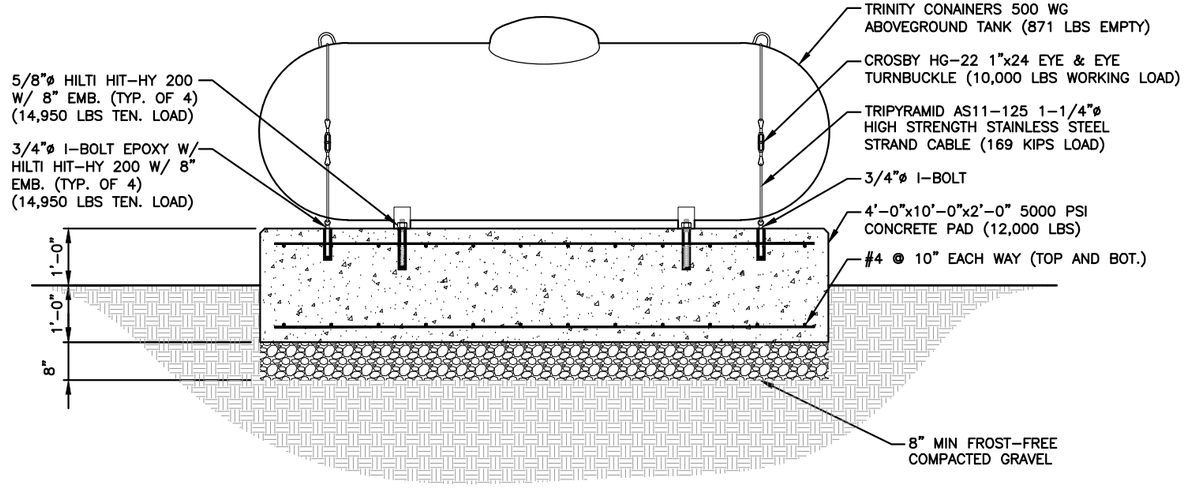


NOTES: 1 COMPACT ALL BACKFILL MATERIAL WITH VIBRATORY PLATE EQUIPMENT (MINIMUM TWO PASSES) TO A MINIMUM DENSITY OF 95 PERCENT OF THE STANDARD PROCTOR DENSITY AS DETERMINED BY ASTM D698. 2 PLACE BACKFILL MATERIALS IN MAXIMUM ONE FOOT LIFTS.

GAS PIPING TRENCH SECTION (1 / A–6)
SCALE: N.T.S



PLAN VIEW



ELEVATION VIEW

PROPANE TANK MOUNTING (2 / A–6)
22x34 SCALE: 3/4"=1'–0"
11x17 SCALE: 3/8"=1'–0"

GRAPHIC SCALE
0 8" 1'–4" 2'–8" 4'–0"

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SITE NUMBER	DRAWING NUMBER	REV
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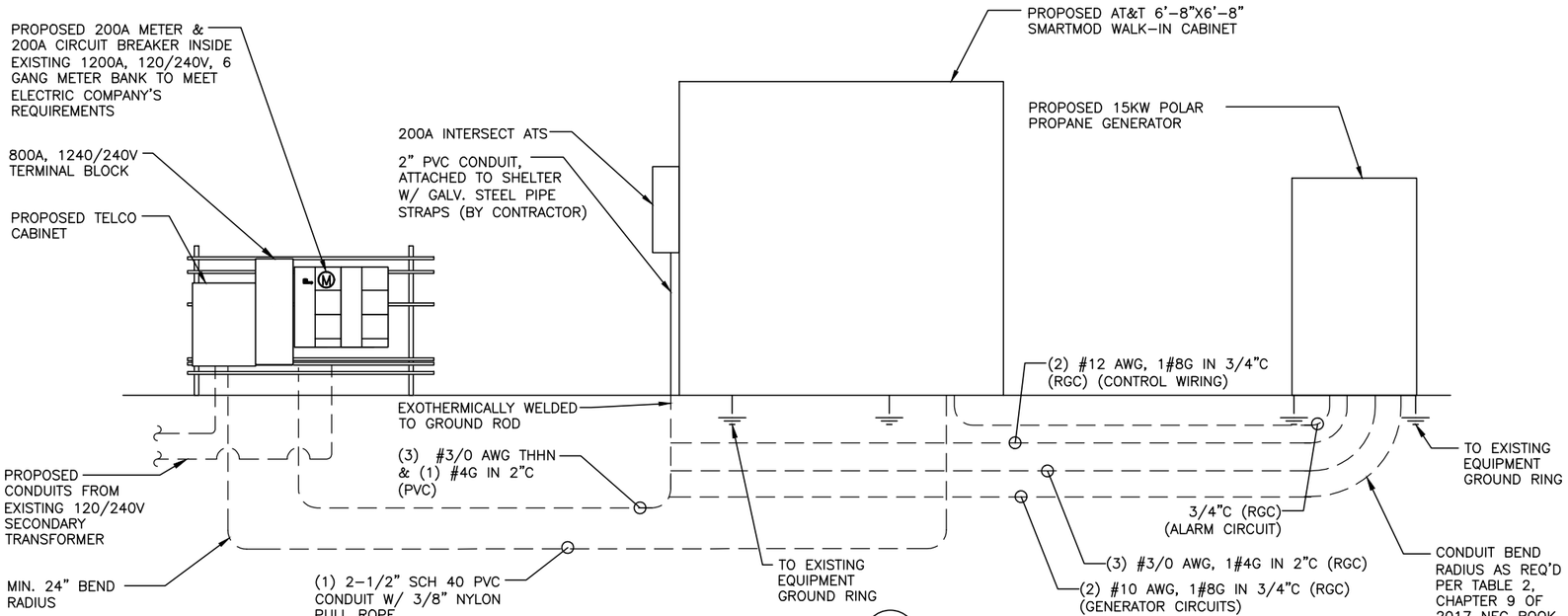
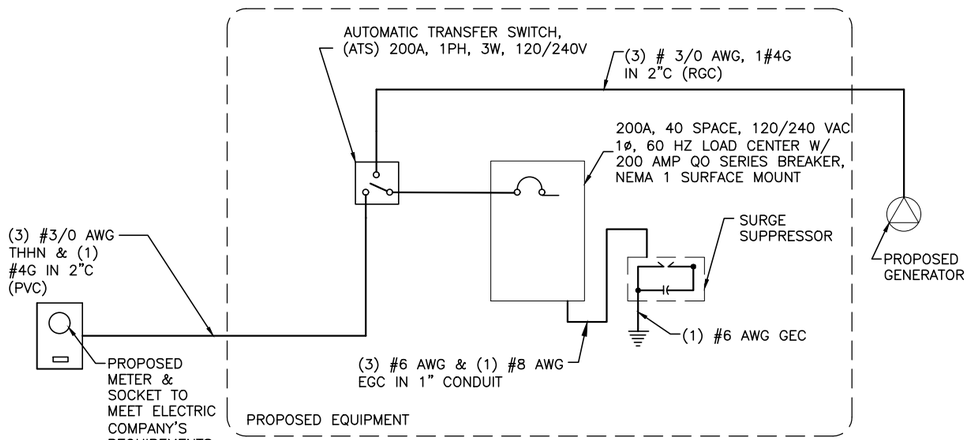
NOTES:

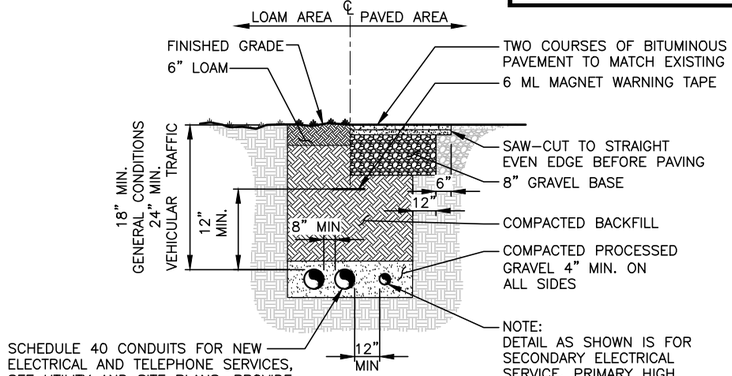
1. GROUND [ATS] TO EXISTING GROUND BAR
2. GROUND GENERATOR TO EXISTING GROUND RING WITH (2) #2 AWG GROUND WIRES.



GENERATOR WIRING DETAIL 1 / E-1
SCALE: N.T.S



TYPICAL ONE-LINE DIAGRAM 2 / E-1
SCALE: N.T.S



BURIED CONDUIT DETAIL 3 / E-1
SCALE: N.T.S

ELECTRICAL LEGEND & ABBREVIATIONS

	NEW PANEL BOARD, SURFACE MOUNTED
	EXISTING PANEL BOARD, SURFACE MOUNTED
T	DRY TYPE TRANSFORMER
M	METER
	CIRCUIT BREAKER
	NON-FUSIBLE DISCONNECT SWITCH, MOUNTED 54" A.F.F.
F	FUSIBLE DISCONNECT SWITCH, MOUNTED 54"A.F.F.
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR WITH BUILT-IN FUSES, SURFACE MOUNTED
	DUPLEX OUTLET, SURFACE MOUNTED, 20 AMPS, 125 VOLTS, SINGLE PHASE
J	JUNCTION BOX, SURFACE MOUNTED 18" A.F.F.
	EXPOSED WIRING
	HOME RUNS, MINIMUM 2#10 + 1#8G IN 3/4" CONDUIT U.O.N.
A.F.F.	ABOVE FINISHED FLOOR
U.O.N.	UNLESS OTHERWISE NOTED
WP	WEATHERPROOF
GFI	GROUND FAULT INTERRUPTER
A	AMPERE
V	VOLT
KWH	KILOWATT - HOUR
C	CONDUIT
PVC	POLYVINYL CHLORIDE
HZ	HERTZ
PH, ø	PHASE
W	WATTS
NEC	NATIONAL ELECTRIC CODE
PPC	POWER PROTECTION CABINET
UL	UNDERWRITER LABORATORIES
PTS	POWER TRANSFER SWITCH
QO	QUICK OPEN
GRC	GALVANIZED RIGID CONDUIT
G	GROUND
	GROUND
MGB	MASTER GROUND BAR — ○ MECHANICAL CONNECTION ● CADWELD CONNECTION
EQB	EQUIPMENT GROUND BAR
G	GROUND COPPER WIRE, SIZE AS NOTED
	EXPOSED WIRING
	COAXIAL CABLE
	5/8"x8" COPPER CLAD STAINLESS STEEL GROUND ROD
	● EXOTHERMIC (CAD WELD) OR ○ MECHANICAL (COMPRESSION TYPE) CONNECTION
PF	POWER FACTOR

ELECTRICAL AND GROUNDING NOTES

1. ALL ELECTRICAL WORK SHALL CONFORM TO THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE (NEC) AS WELL AS APPLICABLE STATE AND LOCAL CODES.
2. ALL ELECTRICAL ITEMS SHALL BE U.L. APPROVED OR LISTED AND PROCURED PER SPECIFICATION REQUIREMENTS.
3. THE ELECTRICAL WORK INCLUDES ALL LABOR AND MATERIAL DESCRIBED BY DRAWINGS AND SPECIFICATION INCLUDING INCIDENTAL WORK TO PROVIDE COMPLETE OPERATING AND APPROVED ELECTRICAL SYSTEM.
4. GENERAL CONTRACTOR SHALL PAY FEES FOR PERMITS, AND IS RESPONSIBLE FOR OBTAINING SAID PERMITS AND COORDINATION OF INSPECTIONS.
5. ELECTRICAL AND TELCO WIRING OUTSIDE A BUILDING AND EXPOSED TO WEATHER SHALL BE IN WATER TIGHT GALVANIZED RIGID STEEL CONDUITS OR SCHEDULE 80 PVC (AS PERMITTED BY CODE) AND WHERE REQUIRED IN LIQUID TIGHT FLEXIBLE METAL OR NONMETALLIC CONDUITS.
6. BURIED CONDUIT SHALL BE SCHEDULE 40 PVC.
7. ELECTRICAL WIRING SHALL BE COPPER WITH TYPE XHHW, THWN, OR THININSULATION.
8. RUN ELECTRICAL CONDUIT OR CABLE BETWEEN ELECTRICAL UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE PPC AS INDICATED ON THIS DRAWING. PROVIDE FULL LENGTH PULL ROPE. COORDINATE INSTALLATION WITH UTILITY COMPANY.
9. RUN TELCO CONDUIT OR CABLE BETWEEN TELEPHONE UTILITY DEMARCATION POINT AND PROJECT OWNER CELL SITE TELCO CABINET AND BTS CABINET AS INDICATED ON THIS DRAWING PROVIDE FULL LENGTH PULL ROPE IN INSTALLED TELCO CONDUIT. PROVIDE GREENLEE CONDUIT MEASURING TAPE AT EACH END.
10. WHERE CONDUIT BETWEEN BTS AND PROJECT OWNER CELL SITE PPC AND BETWEEN BTS AND PROJECT OWNER CELL SITE TELCO SERVICE CABINET ARE UNDERGROUND USE PVC, SCHEDULE 40 CONDUIT. ABOVE THE GROUND PORTION OF THESE CONDUITS SHALL BE PVC CONDUIT.
11. ALL EQUIPMENT LOCATED OUTSIDE SHALL HAVE NEMA 3R ENCLOSURE.
12. PPC SUPPLIED BY PROJECT OWNER.
13. GROUNDING SHALL COMPLY WITH NEC ART. 250.
14. GROUND COAXIAL CABLE SHIELDS MINIMUM AT BOTH ENDS USING MANUFACTURERS COAX CABLE GROUNDING KITS SUPPLIED BY PROJECT OWNER.
15. USE #6 AWG COPPER STRANDED WIRE WITH GREEN COLOR INSULATION FOR ABOVE GRADE GROUNDING (UNLESS OTHERWISE SPECIFIED) AND #2 AWG SOLID TINNED BARE COPPER WIRE FOR BELOW GRADE GROUNDING AS INDICATED ON THE DRAWING.
16. ALL GROUND CONNECTIONS TO BE BURNDY HYGROUND COMPRESSION TYPE CONNECTORS OR CADWELD EXOTHERMIC WELD. DO NOT ALLOW BARE COPPER WIRE TO BE IN CONTACT WITH GALVANIZED STEEL.
17. ROUTE GROUNDING CONDUCTORS ALONG THE SHORTEST AND STRAIGHTEST PATH POSSIBLE, EXCEPT AS OTHERWISE INDICATED. GROUNDING LEADS SHOULD NEVER BE BENT AT RIGHT ANGLE. ALWAYS MAKE AT LEAST 12" RADIUS BENDS. #6 AWG WIRE CAN BE BENT AT 6" RADIUS WHEN NECESSARY. BOND ANY METAL OBJECTS WITHIN 6 FEET OF PROJECT OWNER EQUIPMENT OR CABINET TO MASTER GROUND BAR OR GROUNDING RING.
18. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO HOLE COMPRESSION TYPE COPPER LUGS. APPLY OXIDE INHIBITING COMPOUND TO ALL LOCATIONS.
19. APPLY OXIDE INHIBITING COMPOUND TO ALL COMPRESSION TYPE GROUND CONNECTIONS.
20. BOND ANTENNA MOUNTING BRACKETS, COAXIAL CABLE GROUND KITS, AND ALNA TO EGB PLACED NEAR THE ANTENNA LOCATION.
21. BOND ANTENNA EGB'S AND MGB TO GROUND RING.
22. CONTRACTOR SHALL TEST COMPLETED GROUND SYSTEM AND RECORD RESULTS FOR PROJECT CLOSE-OUT DOCUMENTATION. 5 OHMS MAXIMUM RESISTANCE REQUIRED.
23. CONTRACTOR SHALL CONDUCT ANTENNA, COAX, AND LNA RETURN-LOSS AND DISTANCE-TO-FAULT MEASUREMENTS (SWEEP TESTS) AND RECORD RESULTS FOR PROJECT CLOSE OUT.
24. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2" OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL, MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50.

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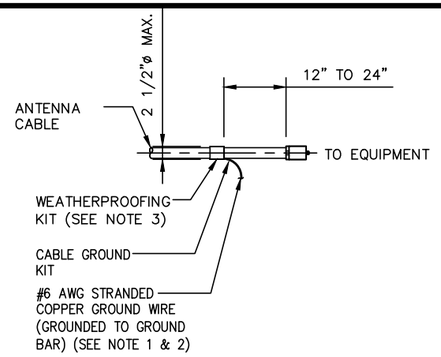
ELECTRICAL NOTES & ONE-LINE DIAGRAM (NSB)

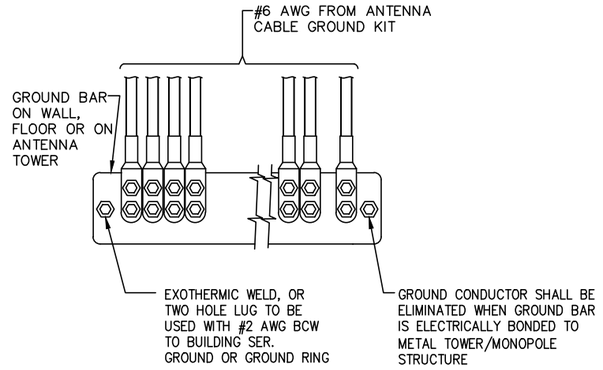
SITE NUMBER	DRAWING NUMBER	REV
CT1166	E-1	5



NOTES:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE SUPPLIED WITH KIT. COLD SHRINK SHALL NOT BE USED.

CONNECTION OF CABLE GROUND KIT TO ANTENNA CABLE (1 / G-1)
SCALE: N.T.S



INSTALLATION OF GROUND WIRE TO GROUND BAR (2 / G-1)
SCALE: N.T.S

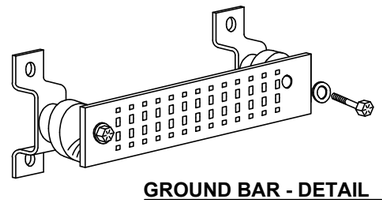
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

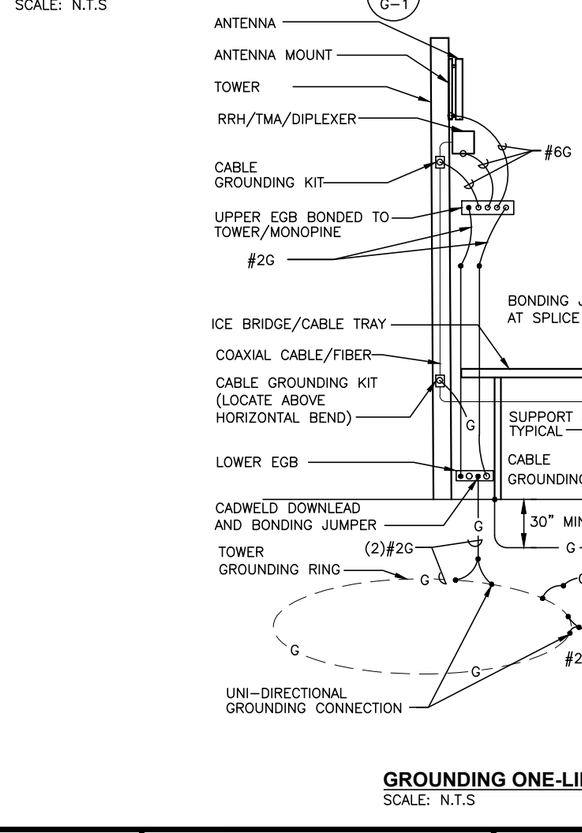
CABLE ENTRY PORTS (HATCH PLATES) (#2 AWG)
GENERATOR FRAMEWORK (IF AVAILABLE) (#2 AWG)
TELCO GROUND BAR
COMMERCIAL POWER COMMON NEUTRAL/GROUND BOND (#2 AWG)
+24V POWER SUPPLY RETURN BAR (#2 AWG)
–48V POWER SUPPLY RETURN BAR (#2 AWG)
RECTIFIER FRAMES.

SECTION "A" – SURGE ABSORBERS

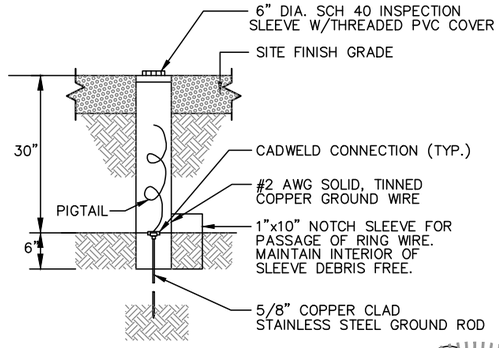
INTERIOR GROUND RING (#2 AWG)
EXTERNAL EARTH GROUND FIELD (BURIED GROUND RING) (#2 AWG)
METALLIC COLD WATER PIPE (IF AVAILABLE) (#2 AWG)
BUILDING STEEL (IF AVAILABLE) (#2 AWG)



GROUND BAR - DETAIL (3 / G-1)
SCALE: N.T.S



GROUNDING ONE-LINE DIAGRAM (4 / G-1)
SCALE: N.T.S



GROUND ROD TEST WELL DETAIL (5 / G-1)
SCALE: N.T.S

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GROUNDING DETAILS
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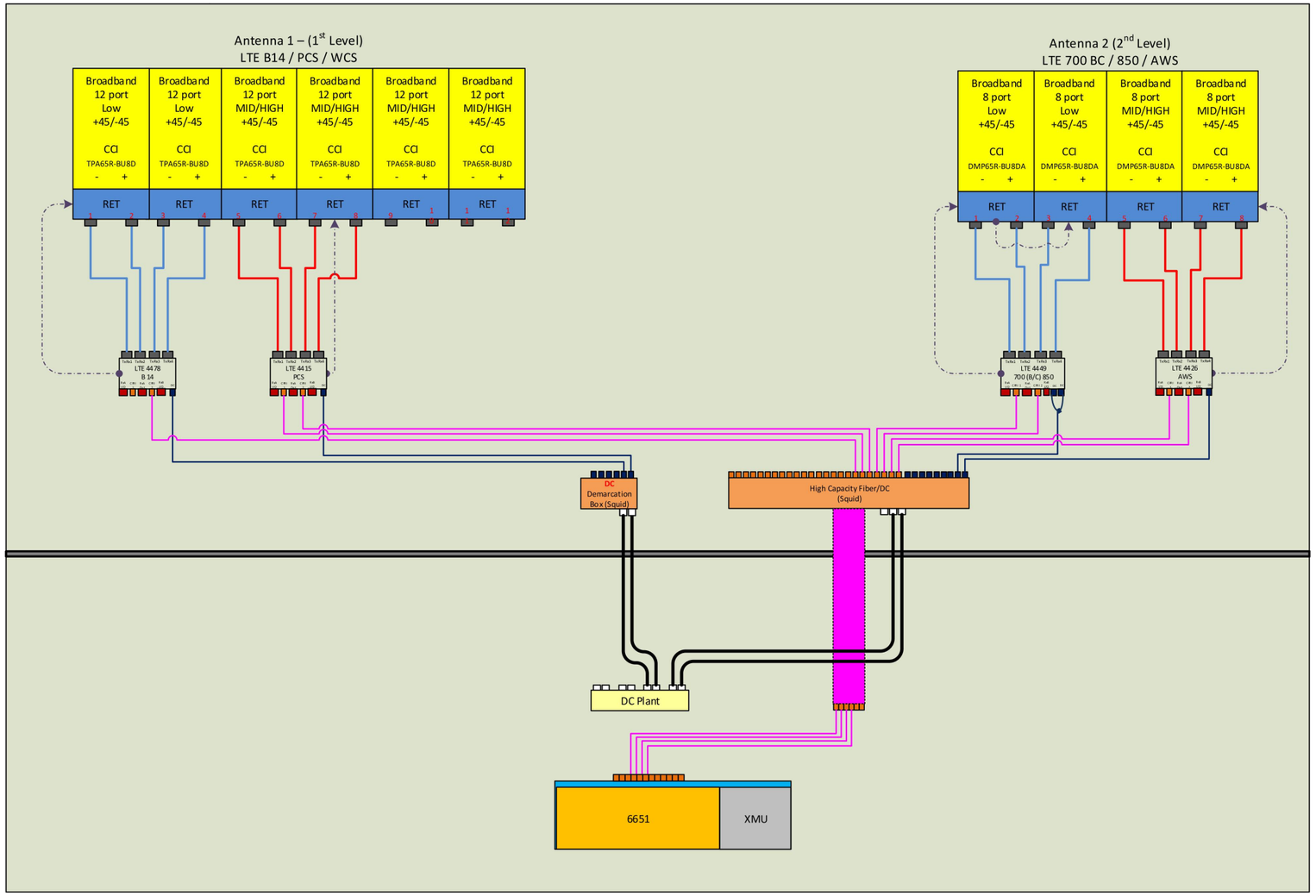

RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

NOTE:

REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

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FRAMINGHAM, MA 01701

NO.	DATE	REVISIONS	BY	CHK	APP'D
5	03/03/23	ISSUED FOR CONSTRUCTION	CJ	JC	DPH
4	02/06/23	ISSUED FOR CONSTRUCTION	CC	JC	DPH
3	01/05/23	ISSUED FOR CONSTRUCTION	CC	JC	DPH
2	12/02/22	ISSUED FOR CONSTRUCTION	MJ	JC	DPH
1	10/03/22	ISSUED FOR REVIEW	MJ	JC	DPH

SCALE: AS SHOWN | DESIGNED BY: JC | DRAWN BY: MJ

AT&T

RF PLUMBING DIAGRAM
(NSB)

SITE NUMBER	DRAWING NUMBER	REV
CT1166	RF–1	5

Attachment 3

CENTEK engineering

Centered on Solutions℠

Structural Analysis Report & Reinforcement Design

190-ft Existing ROHN Guyed Lattice Tower

Proposed AT&T
Antenna Installation

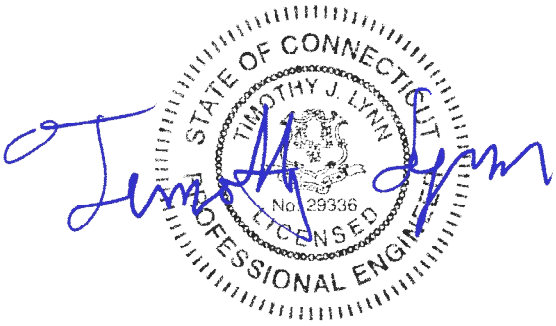
AT&T Site Ref: CT1166

812 Providence Pike
Danielson, CT

Centek Project No. 21140.00

~~Date: December 20, 2021~~
Rev 8: February 20, 2023

Max Stress Ratio = 71.6%



Prepared for:
AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

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

Table of Contents

Introduction

The purpose of this report is to summarize the results of the non-linear, P-Δ structural analysis of the antenna installation proposed by AT&T on the existing guyed lattice tower located in Danielson, CT.

The host tower is a 190-ft tall, eleven-section, Rohn model 80 guyed lattice tower. The manufacturer's drawings and calculations were unavailable for use in this report. The tower geometry, structure member sizes and foundation system information were obtained from a previous structural analysis report prepared by Centek; job no; 20074.28 dated May 27, 2020.

Antenna and appurtenance information were obtained from a previous structural analysis report prepared by All-Points Technology; job no; CT141_12710 dated December 1, 2021 and an RF data sheet.

The tower consists of eleven (11) vertical sections constructed of steel pipe legs conforming to ASTM A572-50. Diagonal and horizontal lateral support bracing consists of steel pipe construction conforming to ASTM A53-B-42. The vertical tower sections are connected by bolted flange plates with the diagonal and horizontal bracing to pipe legs consisting of bolted connections. The width of the tower face is 3.42-ft throughout its length with the exception of a 5'-0" high tapered base section.

Antenna and Appurtenance Summary

- VERIZON (Existing):
  Antennas: Three (3) Samsung MT6407-77A panel antennas, six (6) Commscope JAHH-65B-R3B panel antennas, three (3) Samsung RF4439d-25A remote radio heads, three (3) Samsung RF4440d-13A remote radio heads, three (3) Commscope CBC78T-Ds-43 diplexers and one (1) main distribution box mounted on three (3) Valmont 13-ft lightweight T-Frames with a RAD center elevation of 187-ft above the existing tower base.
  Cables: One (1) 1-5/8" dia. Hybriflex Fiber feeder cables running on the exterior of the existing tower.
- T-MOBILE (Existing):
  Antennas: Three (3) RFS APX16DWV-16DWVS panel antennas, three (3) RFS APXVAARR24_43 panel antennas, three (3) Ericsson AIR6449 panel antennas, three (3) Ericsson 4415 remote radio units, three (3) Ericsson 4424 remote radio units and three (3) Ericsson 4449 B71 B12 remote radio units mounted three (3) V-Frames with a RAD center elevation of 140-ft above the existing tower base.
  Coax Cables: Four (4) 6x12 fiber cable running on the exterior of the existing tower.
- **AT&T (Proposed):**
  Antenna: Three (3) CCI TPA65R-BU8DA antennas face mounted on 2-ft standoffs (SitePro p/n MM02) with a RAD center elevation of ±175-ft AGL. Three (3) Ericsson 4478 B14 RRHs and three (3) Ericsson 4415 B25 RRHs mounted 2-ft below antennas on Commscope RR-B2B-AR brackets. Three (3) CCI DMP65R-BU8DA antennas face mounted on 2-ft standoffs (SitePro p/n MM02) with a RAD center elevation of ±161-ft AGL. Three (3) Ericsson 4449 B5/B12 RRHs and three (3) Ericsson 4426 B66 RRHs mounted 2-ft below antennas on Commscope RR-B2B-AR brackets. One (1) Raycap DC6-48-60-0-8C-EV surge arrestor mounted to the face of the tower on unistrut at 168' and one (1) Raycap DC9-48-60-24-8C-EV surge arrestor mounted to the face of the tower on unistrut at 154'

Coax Cable: One (1) fiber cable and four (4) DC cables running on a leg/face of the existing tower as specified in Section 3 of this report.

Primary Assumptions Used in the Analysis

- The tower structure's theoretical capacity not including any assessment of the condition of the tower.
- The tower carries the horizontal and vertical loads due to the weight of antennas, ice load and wind.
- Tower is properly installed and maintained.
- Tower is in plumb condition.
- Tower loading for antennas and mounts as listed in this report.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds are fabricated with ER-70S-6 electrodes.
- All members are assumed to be as specified in the original tower design documents or reinforcement drawings.
- All members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards.
- All member protective coatings are in good condition.
- All tower members were properly designed, detailed, fabricated, installed and have been properly maintained since erection.
- Any deviation from the analyzed antenna loading will require a new analysis for verification of structural adequacy.
- All coax cables to be installed as indicated in this report.

Analysis

The existing tower was analyzed using a comprehensive computer program entitled tnxTower. The program analyzes the tower, considering the worst case loading condition. The tower is considered as loaded by concentric forces along the tower, and the model assumes that the tower members are subjected to bending, axial, and shear forces.

The existing tower was analyzed for the controlling basic wind speed (3-second gust) with no ice and the applicable wind and ice combination to determine stresses in members as per guidelines of TIA-222-H entitled "Structural Standard for Antenna Support Structures and Antennas", the American Institute of Steel Construction (AISC) and the Manual of Steel Construction; Load and Resistance Factor Design (LRFD).

The controlling wind speed is determined by evaluating the local available wind speed data as provided in Appendix P of the CSBC[1] and the wind speed data available in the TIA-222-H Standard.

Tower Loading

Tower loading was determined by the basic wind speed as applied to projected surface areas with modification factors per TIA-222-H, gravity loads of the tower structure and its components, and the application of 1.00" radial ice on the tower structure and its components.

Load Cases:	Load Case 1; 125 mph (Ultimate) wind speed w/ no ice plus gravity load – used in calculation of tower stresses and rotation.	*[Appendix P of the 2022 CT Building Code]*
	Load Case 2; 50 mph wind speed w/ 1.00" radial ice plus gravity load – used in calculation of tower stresses.	*[Annex B of TIA-222-H]*

[1] The 2021 International Building Code as amended by the 2022 Connecticut State Building Code (CSBC).

Tower Capacity

- Calculated stresses **with the reinforcements detailed in section 4 of this report were found** to be within allowable limits. This tower was found to be at **76.5%** of its total capacity.

Tower Section	Elevation	Stress Ratio (percentage of capacity)	Result
Leg (T6)	80.1' - 100.1'	68.9%	**PASS**
Diagonal (T1)	175.35' - 190.6'	56.2%	**PASS**
Bottom Girt (T10)	4.58' - 20.1'	63.1%	**PASS**
Guy B (T4)	139.49'	66.4%	**PASS**
Torque Arm (T4)	139.49'	71.6%	**PASS**

Foundations and Anchorage

The existing tower base foundation consists of a 2.0-ft square x 3.75-ft long reinforced concrete pedestal with a 4.0-ft square x 1.75-ft thick reinforced concrete pad bearing directly on the existing sub grade. Additionally, guy wire loading is transferred to six (6) existing 7-ft x 4-ft x 2-ft reinforced concrete anchor support blocks. The foundation information was obtained from the original design documents prepared by ROHN dated September 27, 1979.

- The worst case tower base and guy anchor reactions developed from the governing Load Case were used in the verification of the anchorage foundations:

Tower Guy Reactions		
Vector	**Inner**	**Outer**
Horizontal (In Plane of GW)	7 kips	18 kips
Horizontal (Out of Plane of GW)	0 kips	1 kips
Vertical	7 kips	29 kips
Resultant Force at end of Guy Wire	10 kips	34 kips
Tower Base Reactions		
Vector	**Proposed Reaction**	
Horizontal Shear	1.0 kips	
Axial Compression	83 kips	

Foundation	Design Limit	TIA-222-G Section 9.4 FS(1)	Proposed Loading (FS)(1)	Result
Reinf. Conc. Anchor Block (C) at 99-ft radius.	Uplift	1.0	1.9	**PASS**
	Sliding	1.0	1.3	**PASS**
		Ultimate Bearing	**Proposed**	
Base Foundation	Bearing	12.0 ksf	5.4 ksf	**PASS**

Note 1: FS denotes 'Factor of Safety'.

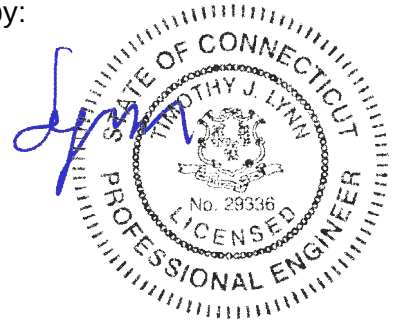
Conclusion

This analysis shows that the subject tower **with the reinforcements detailed in section 4 of this report is structurally adequate** to support the proposed modified antenna configuration.

The analysis is based, in part, on the information provided to this office by AT&T. If the existing conditions are different than the information in this report, Centek Engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

Standard Conditions for Furnishing of Professional Engineering Services on Existing Structures

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

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.
- Information from the field and/or drawings in the possession of Centek Engineering, Inc. or generated by field inspections or measurements of the structure.
- It is the responsibility of the client to ensure that the information provided to Centek Engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the "as new" condition.
- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222
- All services performed, results obtained, and recommendations made are in accordance with generally accepted engineering principles and practices. Centek Engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

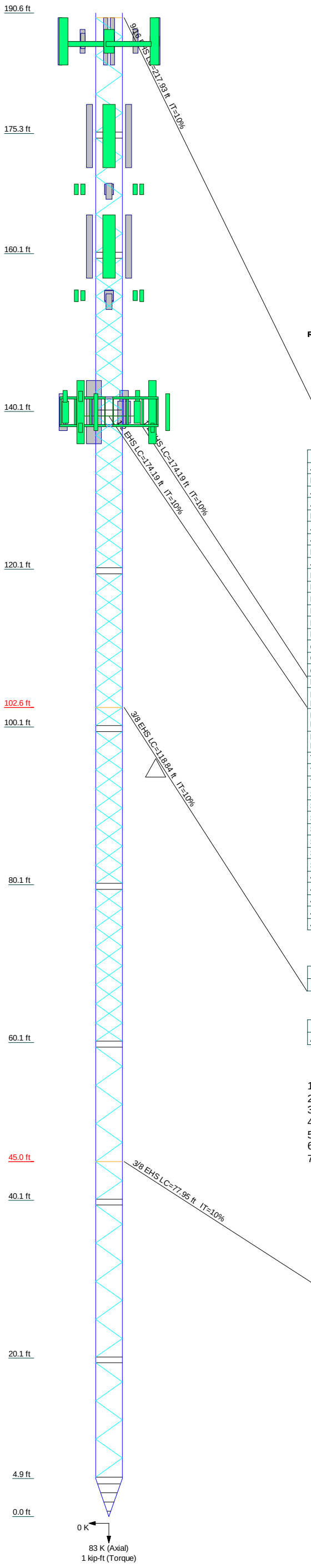
GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM

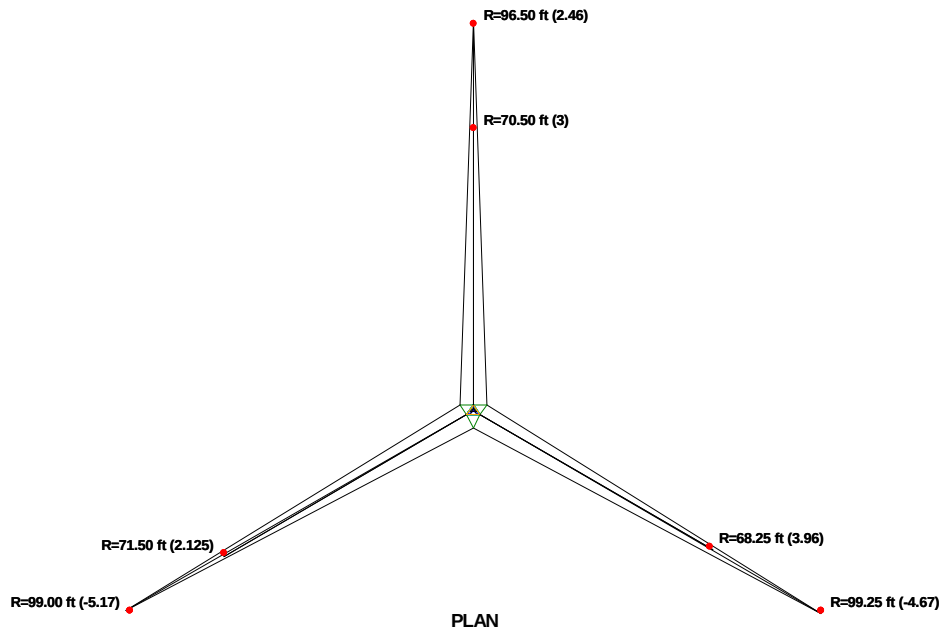
TnxTower, is an integrated structural analysis and design software package for Designed specifically for the telecommunications industry, TnxTower, formerly ERITower, automates much of the tower analysis and design required by the TIA/EIA 222 Standard.

TnxTower Features:

- TnxTower can analyze and design 3- and 4-sided guyed towers, 3- and 4-sided self-supporting towers and either round or tapered ground mounted poles with or without guys.
- The program analyzes towers using the TIA-222-H standard or any of the previous TIA/EIA standards back to RS-222 (1959). Steel design is checked using the AISC ASD Edition or the AISC LRFD specifications.
- Linear and non-linear (P-delta) analyses can be used in determining displacements and forces in the structure. Wind pressures and forces are automatically calculated.
- Extensive graphics plots include material take-off, shear-moment, leg compression, displacement, twist, feed line, guy anchor and stress plots.
- TnxTower contains unique features such as True Cable behavior, hog rod take-up, foundation stiffness and much more.

Section	T1	T2	T3	T4	T5	T6	T7	T8	T9	T10	T11	
Legs	ROHN 2.5 X-STR			ROHN 2 STD			ROHN 2 EH		ROHN 2.5 STD		A	
Leg Grade		A572-50										
Diagonals	N.A.										N.A.	
Diagonal Grade	N.A.				A53-B-42						N.A.	
Top Girts	14x3/16				ROHN TS1.5x16 ga						14x3/16	
Mid Girts	14x3/16				N.A.						14x3/16	
Bottom Girts	14x3/16				ROHN TS1.5x16 ga						14x3/16	
Top Guy Pull-Offs	N.A.				4 1/2x3/8			C4x5.4			N.A.	
Face Width (ft)	3.458					56 @ 2.40885				6 @ 2.41947		
# Panels @ (ft)	12 @ 2.42014										B	
Weight (K)	0.5	0.4	0.4	0.7	0.5	0.4	0.5	0.5	0.5	0.4	0.3	5.1





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
JAHH-65B-R3B (Verizon - Existing)	187	4415 B25 (ATI - Proposed)	168.25
MT6407-77A (Verizon - Existing)	187	DC6-48-60-0-8C-EV (ATI - Proposed)	168
JAHH-65B-R3B (Verizon - Existing)	187	DMP65R-BU8DA (ATI - Proposed)	161
JAHH-65B-R3B (Verizon - Existing)	187	DMP65R-BU8DA (ATI - Proposed)	161
MT6407-77A (Verizon - Existing)	187	DMP65R-BU8DA (ATI - Proposed)	161
JAHH-65B-R3B (Verizon - Existing)	187	SitePro TAP-472 (ATI - Proposed)	161
JAHH-65B-R3B (Verizon - Existing)	187	SitePro TAP-472 (ATI - Proposed)	161
MT6407-77A (Verizon - Existing)	187	SitePro TAP-472 (ATI - Proposed)	161
JAHH-65B-R3B (Verizon - Existing)	187	SitePro MM02 (ATI - Proposed)	161
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	187	SitePro MM02 (ATI - Proposed)	161
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	187	SitePro MM02 (ATI - Proposed)	161
RF4439d-25A (B2/B66A RRH) (Verizon - Existing)	187	SitePro MM02 (ATI - Proposed)	161
RF4440d-13A (B5/B13 RRH) (Verizon - Existing)	187	4449 B5/B12 (ATI - Proposed)	154.75
RF4440d-13A (B5/B13 RRH) (Verizon - Existing)	187	4426 B66 (ATI - Proposed)	154.75
RF4440d-13A (B5/B13 RRH) (Verizon - Existing)	187	4449 B5/B12 (ATI - Proposed)	154.75
CBC78T-DS-43 (Verizon - Existing)	187	4426 B66 (ATI - Proposed)	154.75
CBC78T-DS-43 (Verizon - Existing)	187	4449 B5/B12 (ATI - Proposed)	154.75
CBC78T-DS-43 (Verizon - Existing)	187	4426 B66 (ATI - Proposed)	154.75
RC2DC-3315-PF-48 (Verizon - Existing)	187	DC9-48-60-24-8C-EV (ATI - Proposed)	154
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	187	Radio 4449 B71 B12 (T-Mobile - Existing)	140
		4415 B25 (T-Mobile - Existing)	140
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	187	4424 B25 (T-Mobile - Existing)	140
		4415 B25 (T-Mobile - Existing)	140
Pirod 12' T-Frame Sector Mount (1) (Verizon - Existing)	187	4415 B25 (T-Mobile - Existing)	140
		4424 B25 (T-Mobile - Existing)	140
TPA65R-BU8DA (ATI - Proposed)	175	Radio 4449 B71 B12 (T-Mobile - Existing)	140
TPA65R-BU8DA (ATI - Proposed)	175	APX16DWV-16DWVS-E-A20 (T-Mobile - Existing)	140
TPA65R-BU8DA (ATI - Proposed)	175	APXVAARR24-43 (T-Mobile - Existing)	140
SitePro TAP-472 (ATI - Proposed)	175	AIR6449 (T-Mobile - Existing)	140
SitePro TAP-472 (ATI - Proposed)	175	APX16DWV-16DWVS-E-A20 (T-Mobile - Existing)	140
SitePro TAP-472 (ATI - Proposed)	175	APXVAARR24-43 (T-Mobile - Existing)	140
SitePro MM02 (ATI - Proposed)	175	AIR6449 (T-Mobile - Existing)	140
SitePro MM02 (ATI - Proposed)	175	Radio 4449 B71 B12 (T-Mobile - Existing)	140
SitePro MM02 (ATI - Proposed)	175	12' V-Frame (T-Mobile - Existing)	140
SitePro MM02 (ATI - Proposed)	175	APX16DWV-16DWVS-E-A20 (T-Mobile - Existing)	140
4478 B14 (ATI - Proposed)	168.25	4424 B25 (T-Mobile - Existing)	140
4415 B25 (ATI - Proposed)	168.25	APXVAARR24-43 (T-Mobile - Existing)	140
4478 B14 (ATI - Proposed)	168.25	12' V-Frame (T-Mobile - Existing)	140
4415 B25 (ATI - Proposed)	168.25	AIR6449 (T-Mobile - Existing)	140
4478 B14 (ATI - Proposed)	168.25	12' V-Frame (T-Mobile - Existing)	140

SYMBOL LIST

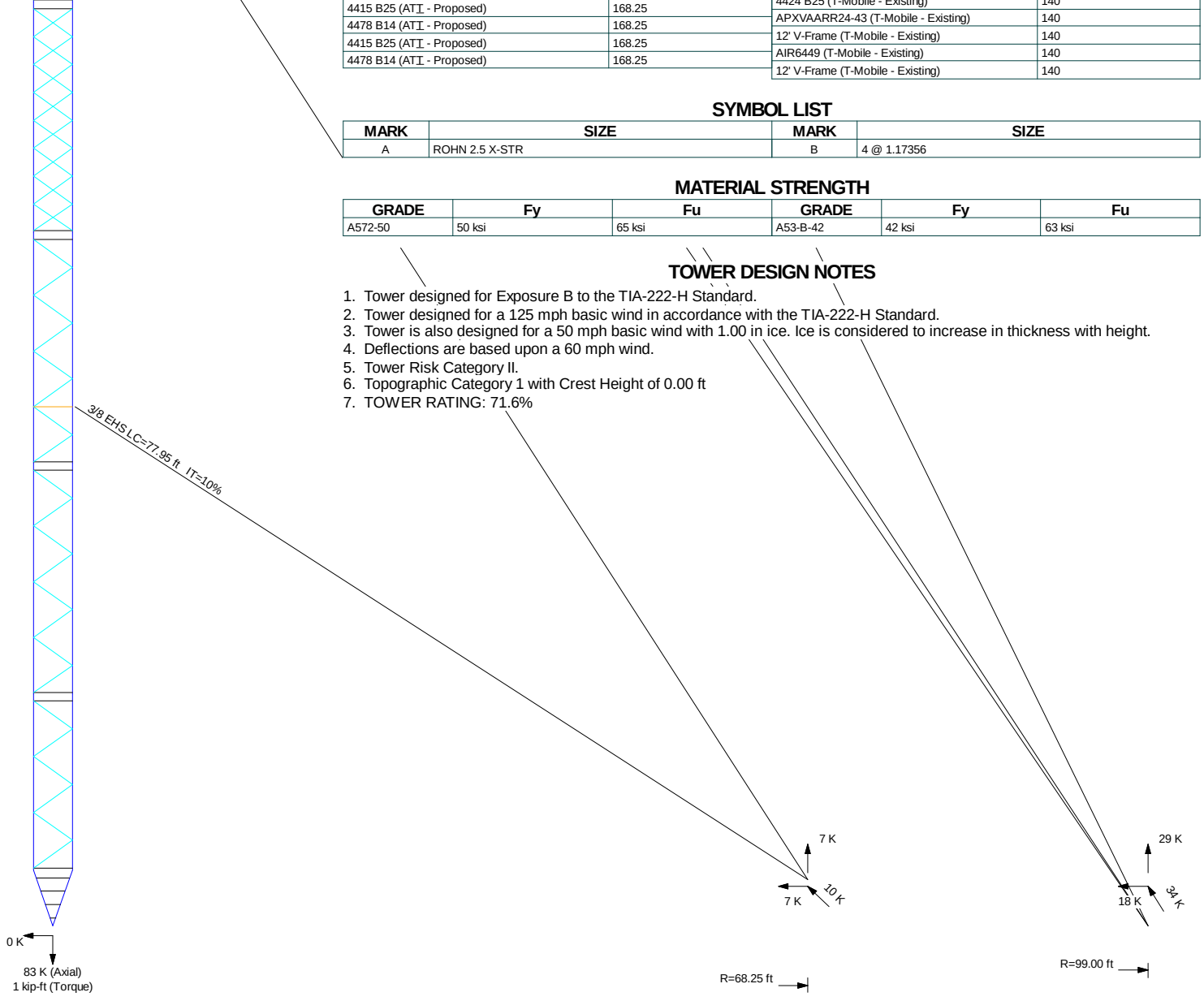
MARK	SIZE	MARK	SIZE
A	ROHN 2.5 X-STR	B	4 @ 1.17356

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A53-B-42	42 ksi	63 ksi

TOWER DESIGN NOTES

1. Tower designed for Exposure B to the TIA-222-H Standard.
2. Tower designed for a 125 mph basic wind in accordance with the TIA-222-H Standard.
3. Tower is also designed for a 50 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 60 mph wind.
5. Tower Risk Category II.
6. Topographic Category 1 with Crest Height of 0.00 ft
7. TOWER RATING: 71.6%



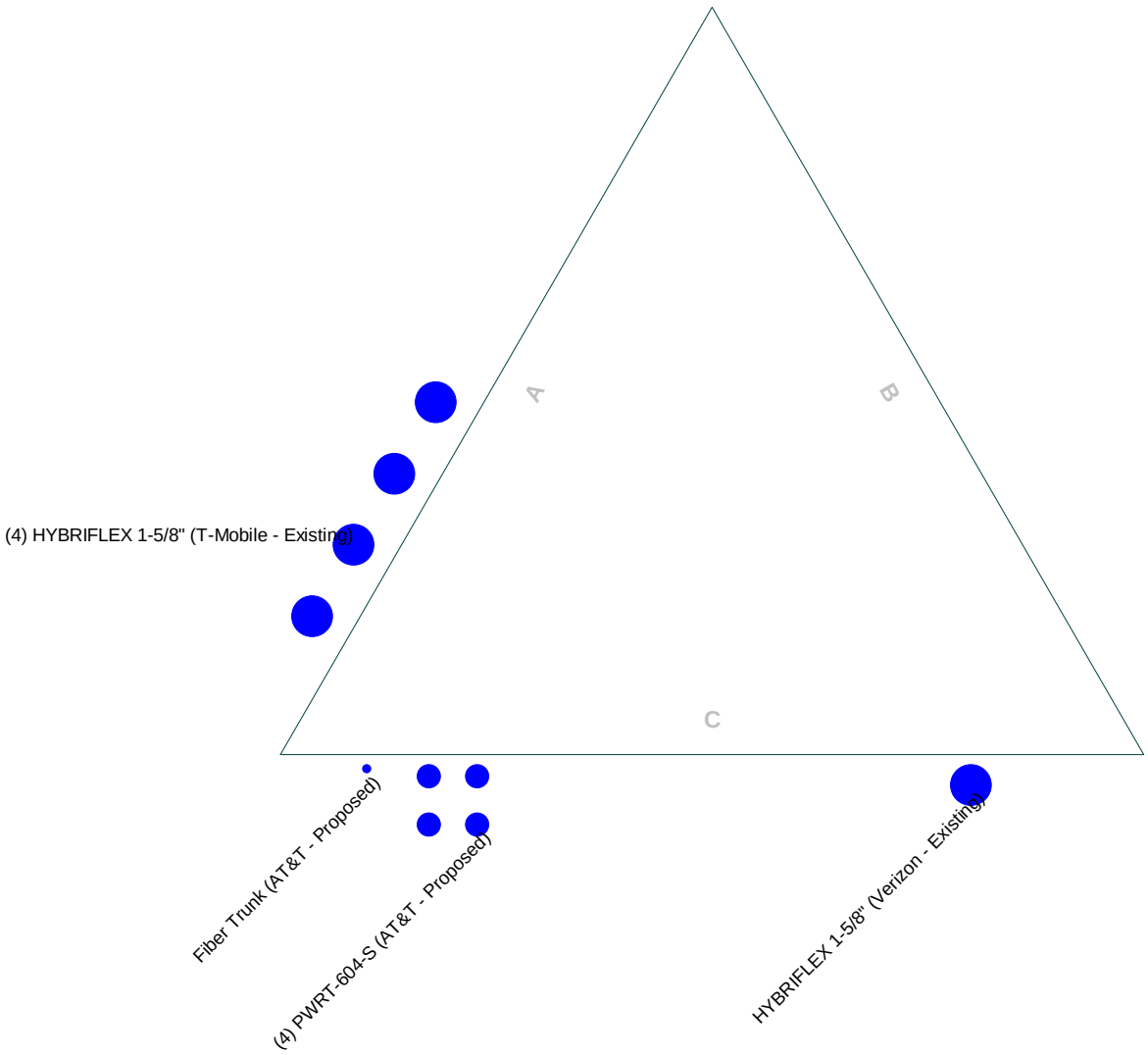
ALL REACTIONS ARE FACTORED

Centek Engineering Inc.
63-2 North Branford Rd.
Branford, CT 06405
Phone: (203) 488-0580
FAX: (203) 488-8587

Job: 21140.00 - CT1166		
Project: 190-ft Guyed Tower - 812 Providence Pike, Danielson, CT		
Client: AT&T	Drawn by: TJL	App'd:
Code: TIA-222-H	Date: 02/20/23	Scale: NTS
Path:		Dwg No. E-1

Feed Line Plan

Round Flat App In Face App Out Face



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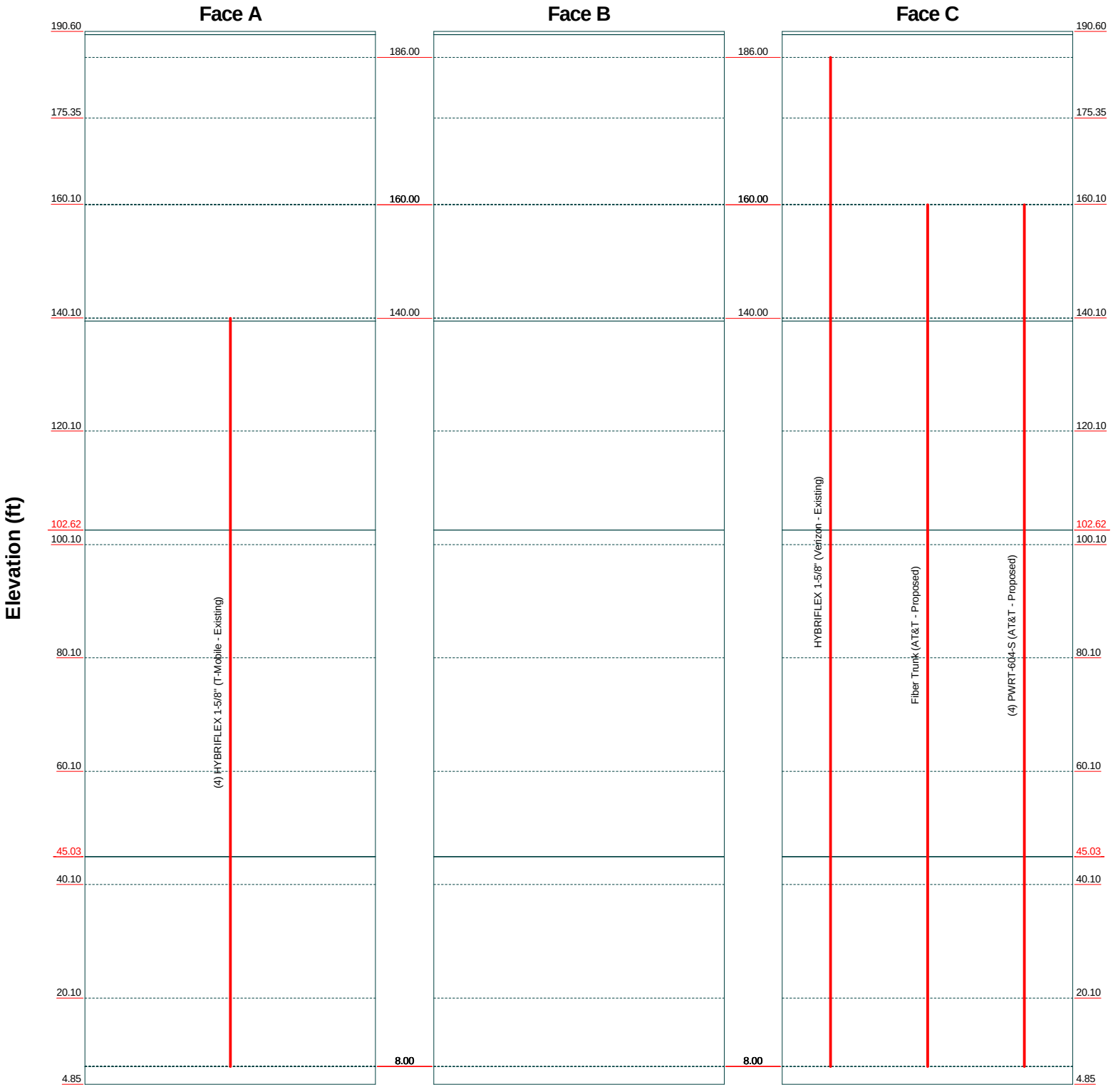
Client: AT&T	Drawn by: TJL	App'd:	
Code: TIA-222-H	Date: 02/20/23	Scale: NTS	
Path:		Dwg No. E-7	

Feed Line Distribution Chart
4'10-3/16" - 190'7-3/16"

Round | Flat | App In Face | App Out Face | Truss Leg



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Project: ***190-ft Guyed Tower - 812 Providence Pike, Danielson, CT***		
Client: AT&T	Drawn by: TJL	App'd:
Code: TIA-222-H	Date: 02/20/23	Scale: NTS
Path:		Dwg No. E-7

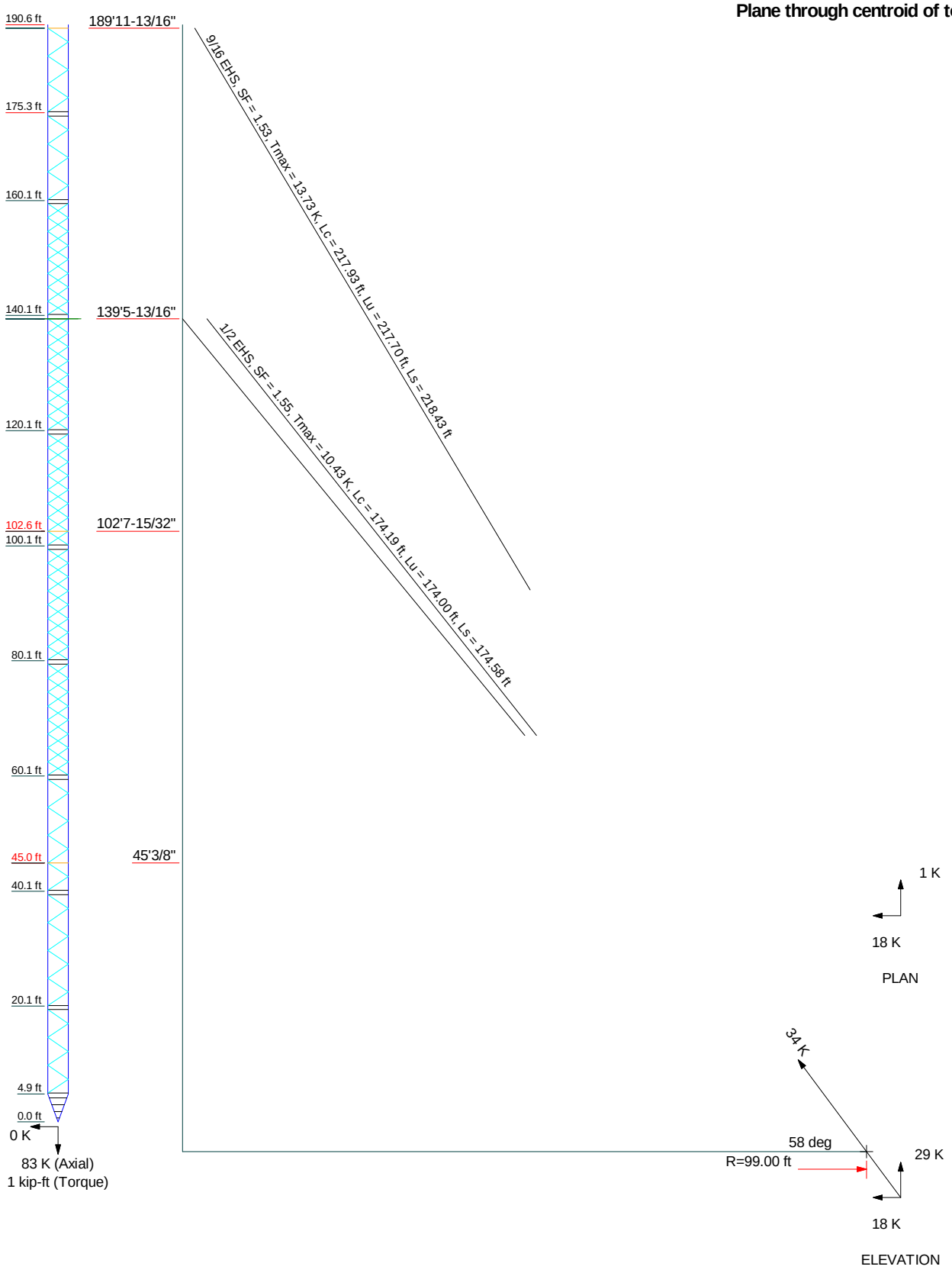
Guy Tensions and Tower Reactions

TIA-222-H - 125 mph/50 mph 1.0000 in Ice Exposure B

Maximum Values

Anchor 'C'@99 ft Azimuth 240 deg Elev -5.17 ft

Plane through centroid of tower



Centek Engineering Inc. 63-2 North Branford Rd. Branford, CT 06405 Phone: (203) 488-0580 FAX: (203) 488-8587	Job: ***21140.00 - CT1166***	
	Project: ***190-ft Guyed Tower - 812 Providence Pike, Danielson, CT***	
	Client: AT&T	Drawn by: TJL / App'd:
	Code: TIA-222-H	Date: 02/20/23 / Scale: NTS
	Path:	Dwg No. E-6

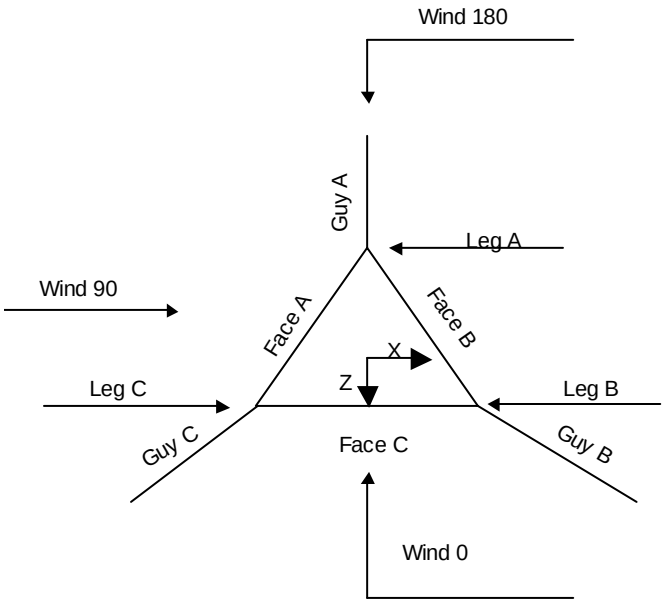
Tower Input Data

The main tower is a 3x guyed tower with an overall height of 190.60 ft above the ground line.
The base of the tower is set at an elevation of 0.00 ft above the ground line.
The face width of the tower is 3.46 ft at the top and tapered at the base.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

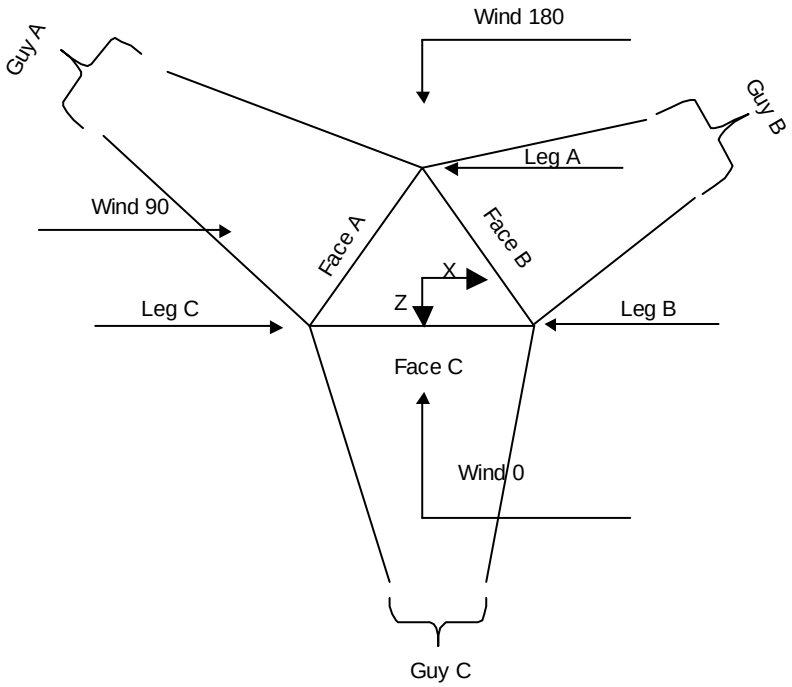
Tower base elevation above sea level: 0.00 ft.
Basic wind speed of 125 mph.
Risk Category II.
Exposure Category B.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.0000 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
Pressures are calculated at each section.
Stress ratio used in tower member design is 1.
Safety factor used in guy design is 1.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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



Corner & Starmount Guyed Tower



Face Guyed

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	190.60-175.35			3.46	1	15.25
T2	175.35-160.10			3.46	1	15.25
T3	160.10-140.10			3.46	1	20.00
T4	140.10-120.10			3.46	1	20.00
T5	120.10-100.10			3.46	1	20.00
T6	100.10-80.10			3.46	1	20.00
T7	80.10-60.10			3.46	1	20.00
T8	60.10-40.10			3.46	1	20.00
T9	40.10-20.10			3.46	1	20.00
T10	20.10-4.85			3.46	1	15.25
T11	4.85-0.00			3.46	1	4.85

Tower Section Geometry *(cont'd)*

Tower Section	Tower Elevation ft	Diagonal Spacing ft	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset in	Bottom Girt Offset in
T1	190.60-175.35	2.42	K Brace Left	No	Yes	7.3750	1.3750
T2	175.35-160.10	2.42	K Brace Left	No	Yes	7.3750	1.3750
T3	160.10-140.10	2.41	CX Brace	No	Yes	7.3750	1.3750
T4	140.10-120.10	2.41	CX Brace	No	Yes	7.3750	1.3750
T5	120.10-100.10	2.41	CX Brace	No	Yes	7.3750	1.3750
T6	100.10-80.10	2.41	CX Brace	No	Yes	7.3750	1.3750
T7	80.10-60.10	2.41	CX Brace	No	Yes	7.3750	1.3750
T8	60.10-40.10	2.41	K Brace Left	No	Yes	7.3750	1.3750
T9	40.10-20.10	2.41	K Brace Left	No	Yes	7.3750	1.3750
T10	20.10-4.85	2.42	K Brace Left	No	Yes	7.3750	1.3750
T11	4.85-0.00	1.17	X Brace	No	Yes	8.0000	8.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Type	Leg Size	Leg Grade	Diagonal Type	Diagonal Size	Diagonal Grade
T1 190.60-175.35	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T2 175.35-160.10	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T3 160.10-140.10	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T4 140.10-120.10	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T5 120.10-100.10	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T6 100.10-80.10	Pipe	ROHN 2 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 80.10-60.10	Pipe	ROHN 2 EH	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T8 60.10-40.10	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T9 40.10-20.10	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T10 20.10-4.85	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T11 4.85-0.00	Pipe	ROHN 2.5 X-STR	A572-50 (50 ksi)	Pipe		A53-B-42 (42 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T1 190.60-175.35	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T2 175.35-160.10	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)

Tower Elevation ft	Top Girt Type	Top Girt Size	Top Girt Grade	Bottom Girt Type	Bottom Girt Size	Bottom Girt Grade
T3 160.10-140.10	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T4 140.10-120.10	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T5 120.10-100.10	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T6 100.10-80.10	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T7 80.10-60.10	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T8 60.10-40.10	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T9 40.10-20.10	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T10 20.10-4.85	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)	Pipe	ROHN TS1.5x16 ga	A53-B-42 (42 ksi)
T11 4.85-0.00	Flat Bar	14x3/16	A36 (36 ksi)	Flat Bar	14x3/16	A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	No. of Mid Girts	Mid Girt Type	Mid Girt Size	Mid Girt Grade	Horizontal Type	Horizontal Size	Horizontal Grade
T11 4.85-0.00	2	Flat Bar	14x3/16	A36 (36 ksi)	Flat Bar		A36 (36 ksi)

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T1 190.60-175.35	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T2 175.35-160.10	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T3 160.10-140.10	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T4 140.10-120.10	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T5 120.10-100.10	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T6 100.10-80.10	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T7 80.10-60.10	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T8 60.10-40.10	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
T9 40.10-20.10	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T10 20.10-4.85	0.00	0.3750	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000
T11 4.85-0.00	0.00	0.0000	A36 (36 ksi)	1	1	1	36.0000	36.0000	36.0000

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Calc K Single Angles	Calc K Solid Rounds	K Factors[1] Legs	X Brace Diags X Y	K Brace Diags X Y	Single Diags X Y	Girts X Y	Horiz. X Y	Sec. Horiz. X Y	Inner Brace X Y
T1	Yes	Yes	1	1	1	1	1	1	1	1
190.60-175.35				1	1	1	1	1	1	1
T2	Yes	Yes	1	1	1	1	1	1	1	1
175.35-160.10				1	1	1	1	1	1	1
T3	Yes	Yes	1	1	1	1	1	1	1	1
160.10-140.10				1	1	1	1	1	1	1
T4	Yes	Yes	1	1	1	1	1	1	1	1
140.10-120.10				1	1	1	1	1	1	1
T5	Yes	Yes	1	1	1	1	1	1	1	1
120.10-100.10				1	1	1	1	1	1	1
T6	Yes	Yes	1	1	1	1	1	1	1	1
100.10-80.10				1	1	1	1	1	1	1
T7	Yes	Yes	1	1	1	1	1	1	1	1
80.10-60.10				1	1	1	1	1	1	1
T8	Yes	Yes	1	1	1	1	1	1	1	1
60.10-40.10				1	1	1	1	1	1	1
T9	Yes	Yes	1	1	1	1	1	1	1	1
40.10-20.10				1	1	1	1	1	1	1
T10	Yes	Yes	1	1	1	1	1	1	1	1
20.10-4.85				1	1	1	1	1	1	1
T11 4.85-0.00	Yes	Yes	1	1	1	1	1	1	1	1
				1	1	1	1	1	1	1

[1]*Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.*

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 190.60-175.35	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T2 175.35-160.10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T3 160.10-140.10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T4 140.10-120.10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T5 120.10-100.10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T6 100.10-80.10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T7 80.10-60.10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T8 60.10-40.10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T9 40.10-20.10	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T10 20.10-4.85	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1
T11 4.85-0.00	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1	0.0000	1

Tower Elevation ft	Redundant Horizontal		Redundant Diagonal		Redundant Sub-Diagonal		Redundant Sub-Horizontal		Redundant Vertical		Redundant Hip		Redundant Hip Diagonal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 190.60-175.35	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T2 175.35-160.10	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T3 160.10-140.10	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T4 140.10-120.10	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T5 120.10-100.10	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T6 100.10-80.10	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T7 80.10-60.10	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T8 60.10-40.10	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T9 40.10-20.10	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T10 20.10-4.85	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75
T11 4.85-0.00	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75	0.0000	0.75

Tower Section Geometry *(cont'd)*

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 190.60-175.35	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Tower Elevation ft	Leg Connection Type	Leg Bolt Size in	Leg No.	Diagonal Bolt Size in	Diagonal No.	Top Girt Bolt Size in	Top Girt No.	Bottom Girt Bolt Size in	Bottom Girt No.	Mid Girt Bolt Size in	Mid Girt No.	Long Horizontal Bolt Size in	Long Horizontal No.	Short Horizontal Bolt Size in	Short Horizontal No.
T2 175.35-160.10	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T3 160.10-140.10	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T4 140.10-120.10	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T5 120.10-100.10	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T6 100.10-80.10	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T7 80.10-60.10	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T8 60.10-40.10	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T9 40.10-20.10	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T10 20.10-4.85	Flange	0.7500 A325N	4	0.5000 A325X	1	0.5000 A325X	1	0.5000 A325X	1	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0
T11 4.85-0.00	Flange	0.7500 A325N	0	0.0000 A325X	0	0.0000 A325X	0	0.0000 A325X	0	0.6250 A325N	0	0.6250 A325N	0	0.6250 A325N	0

Guy Data

Guy Elevation ft	Guy Grade		Guy Size	Initial Tension K	%	Guy Modulus ksi	Guy Weight plf	L_u ft	Anchor Radius ft	Anchor Azimuth Adj. °	Anchor Elevation ft	End Fitting Efficiency %
189.985	EHS	A	9/16	3.50	10%	21000	0.671	209.81	96.50	0.0000	2.46	100%
		B	9/16	3.50	10%	21000	0.671	217.41	99.25	0.0000	-4.67	100%
		C	9/16	3.50	10%	21000	0.671	217.75	99.00	0.0000	-5.17	100%
139.485	EHS	A	1/2	2.69	10%	21000	0.517	166.33	96.50	0.0000	2.46	100%
		B	1/2	2.69	10%	21000	0.517	173.77	99.25	0.0000	-4.67	100%
		C	1/2	2.69	10%	21000	0.517	174.04	99.00	0.0000	-5.17	100%
102.623	EHS	A	3/8	1.54	10%	21000	0.273	120.79	70.50	0.0000	3.00	100%
		B	3/8	1.54	10%	21000	0.273	118.73	68.25	0.0000	3.96	100%
		C	3/8	1.54	10%	21000	0.273	122.08	71.50	0.0000	2.13	100%
45.0323	EHS	A	3/8	1.54	10%	21000	0.273	80.30	70.50	0.0000	3.00	100%
		B	3/8	1.54	10%	21000	0.273	77.88	68.25	0.0000	3.96	100%
		C	3/8	1.54	10%	21000	0.273	81.61	71.50	0.0000	2.13	100%

Guy Data*(cont'd)*

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
189.985	Corner						
139.485	Torque Arm	7.00	0.0000	Channel	A36 (36 ksi)	Channel	C10x15.3
102.623	Corner						

Guy Elevation ft	Mount Type	Torque-Arm Spread ft	Torque-Arm Leg Angle °	Torque-Arm Style	Torque-Arm Grade	Torque-Arm Type	Torque-Arm Size
45.0323	Corner						

Guy Data *(cont'd)*

Guy Elevation ft	Diagonal Grade	Diagonal Type	Upper Diagonal Size	Lower Diagonal Size	Is Strap.	Pull-Off Grade	Pull-Off Type	Pull-Off Size
189.99	A53-B-42 (42 ksi)	Pipe			No	A36 (36 ksi)	Flat Bar	4 1/2x3/8
139.49	A53-B-42 (42 ksi)	Pipe				A36 (36 ksi)	Flat Bar	
102.62	A53-B-42 (42 ksi)	Pipe			No	A36 (36 ksi)	Channel	C4x5.4
45.03	A53-B-42 (42 ksi)	Pipe			Yes	A36 (36 ksi)	Channel	C4x5.4

Guy Data *(cont'd)*

Guy Elevation ft	Cable Weight A K	Cable Weight B K	Cable Weight C K	Cable Weight D K	Tower Intercept A ft	Tower Intercept B ft	Tower Intercept C ft	Tower Intercept D ft
189.985	0.14	0.15	0.15		4.15 3.5 sec/pulse	4.45 3.6 sec/pulse	4.47 3.6 sec/pulse	
139.485	0.09	0.09	0.09		2.63 2.8 sec/pulse	2.86 2.9 sec/pulse	2.87 2.9 sec/pulse	
102.623	0.03	0.03	0.03		1.28 2.0 sec/pulse	1.24 1.9 sec/pulse	1.31 2.0 sec/pulse	
45.0323	0.02	0.02	0.02		0.57 1.3 sec/pulse	0.54 1.3 sec/pulse	0.59 1.3 sec/pulse	

Guy Data *(cont'd)*

Guy Elevation ft	Calc K Single Angles	Calc K Solid Rounds	Torque Arm K_x	Torque Arm K_y	Pull Off K_x	Pull Off K_y	Diagonal K_x	Diagonal K_y
189.985	Yes	No			1	1	1	1
139.485	Yes	No	1	1	1	1	1	1
102.623	Yes	No			1	1	1	1
45.0323	No	No			1	1	1	1

Guy Data *(cont'd)*

Guy Elevation ft	Torque-Arm Bolt Size in	Torque-Arm Number	Torque-Arm Net Width Deduct in	Torque-Arm U	Pull Off Bolt Size in	Pull Off Number	Pull Off Net Width Deduct in	Pull Off U	Diagonal Bolt Size in	Diagonal Number	Diagonal Net Width Deduct in	Diagonal U
189.985	0.6250 A325N	2	0.0000	1	0.0000 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
139.485	0.6250 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
102.623	0.6250 A325N	2	0.0000	1	0.0000 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75
45.0323	0.0000 A325N	0	0.0000	1	0.0000 A325N	0	0.0000	0.75	0.6250 A325N	0	0.0000	0.75

Guy Pressures

Guy Elevation ft	Guy Location	z ft	q_z psf	q_z Ice psf	Ice Thickness in
189.985	A	96.22	33	5	1.1130
	B	92.66	33	5	1.1088
	C	92.41	33	5	1.1085
139.485	A	70.97	30	5	1.0796
	B	67.41	30	5	1.0740
	C	67.16	30	5	1.0736
102.623	A	52.81	28	4	1.0481
	B	53.29	28	4	1.0491
	C	52.37	28	4	1.0473
45.0323	A	24.02	24	4	0.9687
	B	24.50	24	4	0.9706
	C	23.58	24	4	0.9669

Guy-Mast Forces (Excluding Wind) - No Ice

Guy Elevation ft	Guy Location	Chord Angle °	Guy Tension Top / Bottom K	F_x K	F_y K	F_z K	M_x kip-ft	M_y kip-ft	M_z kip-ft
189.985	A	63.2542	3.63 3.50	0.00	3.25	-1.60	-6.49	0.00	0.00
	B	63.4524	3.63 3.50	1.38	3.26	0.80	3.26	0.00	-5.64
	C	63.5700	3.63 3.50	-1.37	3.27	0.79	3.26	0.00	5.65
			Sum:	**0.01**	9.78	**-0.01**	**0.02**	0.00	**0.01**
139.485	A	55.3953	2.76 2.69	-0.06	2.29	-1.55	-4.62	5.53	-8.00
	A	55.3953	2.76 2.69	0.06	2.29	-1.55	-4.62	-5.53	8.00
	B	55.9841	2.76 2.69	1.35	2.31	0.71	9.32	5.45	0.00
	B	55.9841	2.76 2.69	1.29	2.31	0.81	-4.66	-5.45	-8.07
	C	56.1442	2.76 2.69	-1.29	2.31	0.81	-4.67	5.42	8.08
	C	56.1442	2.76	-1.34	2.31	0.71	9.34	-5.42	0.00

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
			2.69						
			Sum:	**0.01**	13.80	**-0.05**	**0.09**	0.00	**0.02**
102.623	A	55.4866	1.57	0.00	1.30	-0.88	-2.59	0.00	0.00
			1.54						
	B	56.1182	1.57	0.75	1.31	0.43	1.30	0.00	-2.26
			1.54						
	C	55.3327	1.57	-0.77	1.29	0.44	1.29	0.00	2.24
			1.54						
			Sum:	**-0.02**	3.90	**-0.01**	**0.01**	0.00	**-0.02**
45.0323	A	31.5324	1.55	0.00	0.82	-1.32	-1.64	0.00	0.00
			1.54						
	B	31.7959	1.55	1.14	0.82	0.66	0.82	0.00	-1.43
			1.54						
	C	31.6887	1.55	-1.14	0.82	0.66	0.82	0.00	1.42
			1.54						
			Sum:	**-0.00**	2.47	**-0.00**	**0.01**	0.00	**-0.00**

Guy-Mast Forces (Excluding Wind) - Ice

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
189.985	A	63.2542	5.58	0.00	5.05	-2.39	-10.08	0.00	0.00
			5.03						
	B	63.4524	5.61	2.06	5.08	1.19	5.07	0.00	-8.79
			5.04						
	C	63.5700	5.61	-2.05	5.09	1.18	5.08	0.00	8.79
			5.04						
			Sum:	**0.01**	15.22	**-0.01**	**0.07**	0.00	**0.01**
139.485	A	55.3953	4.34	-0.09	3.64	-2.36	-7.36	8.44	-12.75
			3.98						
	A	55.3953	4.34	0.09	3.64	-2.36	-7.36	-8.44	12.75
			3.98						
	B	55.9841	4.36	2.06	3.69	1.09	14.90	8.34	0.00
			3.99						
	B	55.9841	4.36	1.98	3.69	1.24	-7.45	-8.34	-12.91
			3.99						
	C	56.1442	4.36	-1.97	3.69	1.23	-7.46	8.30	12.92
			3.99						
	C	56.1442	4.36	-2.05	3.69	1.09	14.92	-8.30	0.00
			3.99						
			Sum:	**0.02**	22.04	**-0.06**	**0.20**	0.00	**0.02**
102.623	A	55.4866	2.45	0.00	2.06	-1.33	-4.11	0.00	0.00
			2.24						
	B	56.1182	2.44	1.12	2.06	0.65	2.06	0.00	-3.56
			2.23						
	C	55.3327	2.46	-1.16	2.06	0.67	2.06	0.00	3.56
			2.25						
			Sum:	**-0.03**	6.18	**-0.01**	**0.00**	0.00	0.00
45.0323	A	31.5324	2.33	0.00	1.27	-1.95	-2.54	0.00	0.00
			2.25						
	B	31.7959	2.32	1.68	1.27	0.97	1.27	0.00	-2.20

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
			2.24						
	C	31.6887	2.34	-1.69	1.28	0.98	1.28	0.00	2.22
			2.26						
			Sum:	**-0.01**	3.83	**-0.01**	**0.01**	0.00	**0.01**

Guy-Mast Forces (Excluding Wind) - Service

Guy Elevation	Guy Location	Chord Angle	Guy Tension Top Bottom K	F_x	F_y	F_z	M_x	M_y	M_z
ft		°		K	K	K	kip-ft	kip-ft	kip-ft
189.985	A	63.2542	3.63	0.00	3.25	-1.60	-6.49	0.00	0.00
			3.50						
	B	63.4524	3.63	1.38	3.26	0.80	3.26	0.00	-5.64
			3.50						
	C	63.5700	3.63	-1.37	3.27	0.79	3.26	0.00	5.65
			3.50						
			Sum:	**0.01**	9.78	**-0.01**	**0.02**	0.00	**0.01**
139.485	A	55.3953	2.76	-0.06	2.29	-1.55	-4.62	5.53	-8.00
			2.69						
	A	55.3953	2.76	0.06	2.29	-1.55	-4.62	-5.53	8.00
			2.69						
	B	55.9841	2.76	1.35	2.31	0.71	9.32	5.45	0.00
			2.69						
	B	55.9841	2.76	1.29	2.31	0.81	-4.66	-5.45	-8.07
			2.69						
	C	56.1442	2.76	-1.29	2.31	0.81	-4.67	5.42	8.08
			2.69						
	C	56.1442	2.76	-1.34	2.31	0.71	9.34	-5.42	0.00
			2.69						
			Sum:	**0.01**	13.80	**-0.05**	**0.09**	0.00	**0.02**
102.623	A	55.4866	1.57	0.00	1.30	-0.88	-2.59	0.00	0.00
			1.54						
	B	56.1182	1.57	0.75	1.31	0.43	1.30	0.00	-2.26
			1.54						
	C	55.3327	1.57	-0.77	1.29	0.44	1.29	0.00	2.24
			1.54						
			Sum:	**-0.02**	3.90	**-0.01**	**0.01**	0.00	**-0.02**
45.0323	A	31.5324	1.55	0.00	0.82	-1.32	-1.64	0.00	0.00
			1.54						
	B	31.7959	1.55	1.14	0.82	0.66	0.82	0.00	-1.43
			1.54						
	C	31.6887	1.55	-1.14	0.82	0.66	0.82	0.00	1.42
			1.54						
			Sum:	**-0.00**	2.47	**-0.00**	**0.01**	0.00	**-0.00**

Guy-Tensioning Information

Temperature At Time Of Tensioning

Guy Elevation ft		H ft	V ft	0 F Initial Tension K	0 F Intercept ft	20 F Initial Tension K	20 F Intercept ft	40 F Initial Tension K	40 F Intercept ft	60 F Initial Tension K	60 F Intercept ft	80 F Initial Tension K	80 F Intercept ft	100 F Initial Tension K	100 F Intercept ft	120 F Initial Tension K	120 F Intercept ft
189.985	A	94.50	187.53	3.814	3.81	3.709	3.92	3.605	4.03	3.500	4.15	3.396	4.27	3.292	4.41	3.188	4.55
	B	97.25	194.66	3.810	4.09	3.706	4.21	3.603	4.33	3.500	4.45	3.397	4.58	3.295	4.72	3.193	4.87
	C	97.00	195.16	3.807	4.11	3.704	4.22	3.602	4.34	3.500	4.47	3.398	4.60	3.297	4.74	3.196	4.88
139.485	A	94.54	137.03	3.076	2.30	2.947	2.40	2.818	2.51	2.690	2.63	2.562	2.76	2.435	2.90	2.309	3.05
	B	97.29	144.16	3.064	2.52	2.939	2.62	2.814	2.74	2.690	2.86	2.566	3.00	2.443	3.15	2.321	3.31
	C	97.04	144.66	3.061	2.53	2.937	2.63	2.813	2.75	2.690	2.87	2.567	3.01	2.445	3.16	2.324	3.32
102.623	A	68.50	99.62	1.746	1.13	1.677	1.18	1.608	1.23	1.540	1.28	1.471	1.34	1.403	1.41	1.335	1.48
	B	66.25	98.66	1.740	1.10	1.673	1.14	1.607	1.19	1.540	1.24	1.474	1.30	1.408	1.36	1.341	1.42
	C	69.50	100.50	1.748	1.16	1.678	1.20	1.609	1.25	1.540	1.31	1.471	1.37	1.402	1.44	1.333	1.51
45.0323	A	68.50	42.03	2.008	0.44	1.851	0.47	1.695	0.52	1.540	0.57	1.385	0.63	1.231	0.71	1.079	0.81
	B	66.25	41.07	2.005	0.41	1.850	0.45	1.695	0.49	1.540	0.54	1.386	0.60	1.233	0.67	1.081	0.76
	C	69.50	42.91	2.006	0.45	1.850	0.49	1.695	0.53	1.540	0.59	1.386	0.65	1.232	0.73	1.081	0.84

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight plf
HYBRIFLEX 1-5/8" (Verizon - Existing)	C	No	No	Ar (CaAa)	186.00 - 8.00	0.5000	-0.3	1	1	1.9800	1.9800		1.90
HYBRIFLEX 1-5/8" (T-Mobile - Existing)	A	No	No	Ar (CaAa)	140.00 - 8.00	1.0000	-0.2	4	4	1.9800	1.9800		1.90
Fiber Trunk (AT&T - Proposed)	C	No	No	Ar (CaAa)	160.00 - 8.00	0.5000	0.4	1	1	0.4000	0.4000		1.00
PWRT-604-S (AT&T - Proposed)	C	No	No	Ar (CaAa)	160.00 - 8.00	0.5000	0.3	4	2	1.1600	1.1600		1.25

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	190.60-175.35	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	2.109	0.000	0.02
T2	175.35-160.10	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	3.019	0.000	0.03
T3	160.10-140.10	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	13.990	0.000	0.16
T4	140.10-120.10	A	0.000	0.000	15.761	0.000	0.15
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	14.040	0.000	0.16
T5	120.10-100.10	A	0.000	0.000	15.840	0.000	0.15
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	14.040	0.000	0.16

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T6	100.10-80.10	A	0.000	0.000	15.840	0.000	0.15
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	14.040	0.000	0.16
T7	80.10-60.10	A	0.000	0.000	15.840	0.000	0.15
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	14.040	0.000	0.16
T8	60.10-40.10	A	0.000	0.000	15.840	0.000	0.15
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	14.040	0.000	0.16
T9	40.10-20.10	A	0.000	0.000	15.840	0.000	0.15
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	14.040	0.000	0.16
T10	20.10-4.85	A	0.000	0.000	9.583	0.000	0.09
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	8.494	0.000	0.10
T11	4.85-0.00	A	0.000	0.000	0.000	0.000	0.00
		B	0.000	0.000	0.000	0.000	0.00
		C	0.000	0.000	0.000	0.000	0.00

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
T1	190.60-175.35	A	1.187	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	4.637	0.000	0.07
T2	175.35-160.10	A	1.177	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	6.608	0.000	0.10
T3	160.10-140.10	A	1.164	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	34.470	0.000	0.50
T4	140.10-120.10	A	1.147	0.000	0.000	41.566	0.000	0.56
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	34.351	0.000	0.50
T5	120.10-100.10	A	1.128	0.000	0.000	41.659	0.000	0.56
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	34.065	0.000	0.49
T6	100.10-80.10	A	1.106	0.000	0.000	41.522	0.000	0.55
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	33.727	0.000	0.48
T7	80.10-60.10	A	1.078	0.000	0.000	41.355	0.000	0.54
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	33.314	0.000	0.47
T8	60.10-40.10	A	1.043	0.000	0.000	41.138	0.000	0.53
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	32.777	0.000	0.46
T9	40.10-20.10	A	0.991	0.000	0.000	40.824	0.000	0.52
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	31.997	0.000	0.45
T10	20.10-4.85	A	0.907	0.000	0.000	18.366	0.000	0.25
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	18.596	0.000	0.25
T11	4.85-0.00	A	0.770	0.000	0.000	0.000	0.000	0.00
		B		0.000	0.000	0.000	0.000	0.00
		C		0.000	0.000	0.000	0.000	0.00

Feed Line Center of Pressure

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
T1	190.60-175.35	0.7840	0.8683	0.9885	1.0811
T2	175.35-160.10	1.2279	1.3286	1.4434	1.5616
T3	160.10-140.10	-1.4505	3.5814	-1.7939	3.5953
T4	140.10-120.10	-4.7815	2.8302	-5.3001	2.8006
T5	120.10-100.10	-4.5399	2.7015	-5.0513	2.6583
T6	100.10-80.10	-4.7944	2.8273	-5.4052	2.8214
T7	80.10-60.10	-4.7923	2.8260	-5.4643	2.8356
T8	60.10-40.10	-4.8282	2.8756	-6.3810	3.2990
T9	40.10-20.10	-5.1288	3.0245	-6.6305	3.3747
T10	20.10-4.85	-4.4631	2.6319	-5.1953	3.1727
T11	4.85-0.00	0.0000	0.0000	0.0000	0.0000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T1	2	HYBRIFLEX 1-5/8"	175.35 - 186.00	0.6000	0.5988
T2	2	HYBRIFLEX 1-5/8"	160.10 - 175.35	0.6000	0.6000
T3	2	HYBRIFLEX 1-5/8"	140.10 - 160.10	0.6000	0.5061
T3	4	Fiber Trunk	140.10 - 160.00	0.6000	0.5061
T3	5	PWRT-604-S	140.10 - 160.00	0.6000	0.5061
T4	2	HYBRIFLEX 1-5/8"	120.10 - 140.10	0.6000	0.5097
T4	3	HYBRIFLEX 1-5/8"	120.10 - 140.00	0.6000	0.5097
T4	4	Fiber Trunk	120.10 - 140.10	0.6000	0.5097
T4	5	PWRT-604-S	120.10 - 140.10	0.6000	0.5097
T5	2	HYBRIFLEX 1-5/8"	100.10 - 120.10	0.6000	0.4917
T5	3	HYBRIFLEX 1-5/8"	100.10 - 120.10	0.6000	0.4917
T5	4	Fiber Trunk	100.10 - 120.10	0.6000	0.4917
T5	5	PWRT-604-S	100.10 - 120.10	0.6000	0.4917
T6	2	HYBRIFLEX 1-5/8"	80.10 - 100.10	0.6000	0.5187
T6	3	HYBRIFLEX 1-5/8"	80.10 - 100.10	0.6000	0.5187
T6	4	Fiber Trunk	80.10 - 100.10	0.6000	0.5187
T6	5	PWRT-604-S	80.10 - 100.10	0.6000	0.5187
T7	2	HYBRIFLEX 1-5/8"	60.10 - 80.10	0.6000	0.5246
T7	3	HYBRIFLEX 1-5/8"	60.10 - 80.10	0.6000	0.5246

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
T7	4	Fiber Trunk	60.10 - 80.10	0.6000	0.5246
T7	5	PWRT-604-S	60.10 - 80.10	0.6000	0.5246
T8	2	HYBRIFLEX 1-5/8"	40.10 - 60.10	0.6000	0.6000
T8	3	HYBRIFLEX 1-5/8"	40.10 - 60.10	0.6000	0.6000
T8	4	Fiber Trunk	40.10 - 60.10	0.6000	0.6000
T8	5	PWRT-604-S	40.10 - 60.10	0.6000	0.6000
T9	2	HYBRIFLEX 1-5/8"	20.10 - 40.10	0.6000	0.6000
T9	3	HYBRIFLEX 1-5/8"	20.10 - 40.10	0.6000	0.6000
T9	4	Fiber Trunk	20.10 - 40.10	0.6000	0.6000
T9	5	PWRT-604-S	20.10 - 40.10	0.6000	0.6000
T10	2	HYBRIFLEX 1-5/8"	8.00 - 20.10	0.6000	0.6000
T10	3	HYBRIFLEX 1-5/8"	8.00 - 20.10	0.6000	0.6000
T10	4	Fiber Trunk	8.00 - 20.10	0.6000	0.6000
T10	5	PWRT-604-S	8.00 - 20.10	0.6000	0.6000

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
JAHH-65B-R3B	A	From Face	3.00	0.0000	187.00	No Ice	9.11	5.98	0.06
(Verizon - Existing)			-6.00			1/2" Ice	9.58	6.44	0.12
			0.00			1" Ice	10.05	6.91	0.19
MT6407-77A	A	From Face	3.00	0.0000	187.00	No Ice	4.71	1.84	0.09
(Verizon - Existing)			0.00			1/2" Ice	5.00	2.06	0.12
			0.00			1" Ice	5.29	2.29	0.15
JAHH-65B-R3B	A	From Face	3.00	0.0000	187.00	No Ice	9.11	5.98	0.06
(Verizon - Existing)			6.00			1/2" Ice	9.58	6.44	0.12
			0.00			1" Ice	10.05	6.91	0.19
JAHH-65B-R3B	B	From Face	3.00	0.0000	187.00	No Ice	9.11	5.98	0.06
(Verizon - Existing)			-6.00			1/2" Ice	9.58	6.44	0.12
			0.00			1" Ice	10.05	6.91	0.19
MT6407-77A	B	From Face	3.00	0.0000	187.00	No Ice	4.71	1.84	0.09
(Verizon - Existing)			0.00			1/2" Ice	5.00	2.06	0.12
			0.00			1" Ice	5.29	2.29	0.15
JAHH-65B-R3B	B	From Face	3.00	0.0000	187.00	No Ice	9.11	5.98	0.06
(Verizon - Existing)			6.00			1/2" Ice	9.58	6.44	0.12
			0.00			1" Ice	10.05	6.91	0.19
JAHH-65B-R3B	C	From Face	3.00	0.0000	187.00	No Ice	9.11	5.98	0.06
(Verizon - Existing)			-6.00			1/2" Ice	9.58	6.44	0.12
			0.00			1" Ice	10.05	6.91	0.19
MT6407-77A	C	From Face	3.00	0.0000	187.00	No Ice	4.71	1.84	0.09
(Verizon - Existing)			0.00			1/2" Ice	5.00	2.06	0.12
			0.00			1" Ice	5.29	2.29	0.15
JAHH-65B-R3B	C	From Face	3.00	0.0000	187.00	No Ice	9.11	5.98	0.06
(Verizon - Existing)			6.00			1/2" Ice	9.58	6.44	0.12
			0.00			1" Ice	10.05	6.91	0.19
RF4439d-25A (B2/B66A	A	From Face	3.00	0.0000	187.00	No Ice	1.88	1.25	0.08
RRH)			-6.00			1/2" Ice	2.05	1.39	0.09
(Verizon - Existing)			0.00			1" Ice	2.22	1.54	0.11
RF4439d-25A (B2/B66A	B	From Face	3.00	0.0000	187.00	No Ice	1.88	1.25	0.08

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
RRH)			-6.00			1/2" Ice	2.05	1.39	0.09
(Verizon - Existing)			0.00			1" Ice	2.22	1.54	0.11
RF4439d-25A (B2/B66A	C	From Face	3.00	0.0000	187.00	No Ice	1.88	1.25	0.08
RRH)			-6.00			1/2" Ice	2.05	1.39	0.09
(Verizon - Existing)			0.00			1" Ice	2.22	1.54	0.11
RF4440d-13A (B5/B13 RRH)	A	From Face	3.00	0.0000	187.00	No Ice	1.88	1.13	0.08
(Verizon - Existing)			0.00			1/2" Ice	2.05	1.26	0.09
			0.00			1" Ice	2.22	1.41	0.11
RF4440d-13A (B5/B13 RRH)	B	From Face	3.00	0.0000	187.00	No Ice	1.88	1.13	0.08
(Verizon - Existing)			0.00			1/2" Ice	2.05	1.26	0.09
			0.00			1" Ice	2.22	1.41	0.11
RF4440d-13A (B5/B13 RRH)	C	From Face	3.00	0.0000	187.00	No Ice	1.88	1.13	0.08
(Verizon - Existing)			0.00			1/2" Ice	2.05	1.26	0.09
			0.00			1" Ice	2.22	1.41	0.11
CBC78T-DS-43	A	From Face	3.00	0.0000	187.00	No Ice	0.37	0.26	0.01
(Verizon - Existing)			-6.00			1/2" Ice	0.45	0.32	0.02
			0.00			1" Ice	0.53	0.40	0.02
CBC78T-DS-43	B	From Face	3.00	0.0000	187.00	No Ice	0.37	0.26	0.01
(Verizon - Existing)			-6.00			1/2" Ice	0.45	0.32	0.02
			0.00			1" Ice	0.53	0.40	0.02
CBC78T-DS-43	C	From Face	3.00	0.0000	187.00	No Ice	0.37	0.26	0.01
(Verizon - Existing)			-6.00			1/2" Ice	0.45	0.32	0.02
			0.00			1" Ice	0.53	0.40	0.02
RC2DC-3315-PF-48	A	From Face	3.00	0.0000	187.00	No Ice	3.01	1.96	0.03
(Verizon - Existing)			0.00			1/2" Ice	3.23	2.15	0.05
			0.00			1" Ice	3.46	2.35	0.08
Pirod 12' T-Frame Sector	A	From Leg	1.00	0.0000	187.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(Verizon - Existing)			0.00			1" Ice	23.20	23.20	0.73
Pirod 12' T-Frame Sector	B	From Leg	1.00	0.0000	187.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(Verizon - Existing)			0.00			1" Ice	23.20	23.20	0.73
Pirod 12' T-Frame Sector	C	From Leg	1.00	0.0000	187.00	No Ice	13.60	13.60	0.47
Mount (1)			0.00			1/2" Ice	18.40	18.40	0.60
(Verizon - Existing)			0.00			1" Ice	23.20	23.20	0.73
APX16DWV-16DWVS-E-A	A	From Leg	3.50	0.0000	140.00	No Ice	6.46	2.15	0.04
20			-6.00			1/2" Ice	6.83	2.49	0.07
(T-Mobile - Existing)			0.00			1" Ice	7.21	2.84	0.11
APXVAARR24-43	A	From Leg	3.50	0.0000	140.00	No Ice	20.24	8.89	0.15
(T-Mobile - Existing)			-2.00			1/2" Ice	20.89	9.49	0.27
			0.00			1" Ice	21.54	10.09	0.39
AIR6449	A	From Leg	3.50	0.0000	140.00	No Ice	5.65	2.42	0.10
(T-Mobile - Existing)			2.00			1/2" Ice	5.96	2.64	0.14
			0.00			1" Ice	6.26	2.87	0.18
APX16DWV-16DWVS-E-A	B	From Leg	3.50	0.0000	140.00	No Ice	6.46	2.15	0.04
20			-6.00			1/2" Ice	6.83	2.49	0.07
(T-Mobile - Existing)			0.00			1" Ice	7.21	2.84	0.11
APXVAARR24-43	B	From Leg	3.50	0.0000	140.00	No Ice	20.24	8.89	0.15
(T-Mobile - Existing)			-2.00			1/2" Ice	20.89	9.49	0.27
			0.00			1" Ice	21.54	10.09	0.39
AIR6449	B	From Leg	3.50	0.0000	140.00	No Ice	5.65	2.42	0.10
(T-Mobile - Existing)			2.00			1/2" Ice	5.96	2.64	0.14
			0.00			1" Ice	6.26	2.87	0.18
APX16DWV-16DWVS-E-A	C	From Leg	3.50	0.0000	140.00	No Ice	6.46	2.15	0.04
20			-6.00			1/2" Ice	6.83	2.49	0.07
(T-Mobile - Existing)			0.00			1" Ice	7.21	2.84	0.11
APXVAARR24-43	C	From Leg	3.50	0.0000	140.00	No Ice	20.24	8.89	0.15

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(T-Mobile - Existing)			-2.00			1/2" Ice	20.89	9.49	0.27
			0.00			1" Ice	21.54	10.09	0.39
AIR6449	C	From Leg	3.50	0.0000	140.00	No Ice	5.65	2.42	0.10
(T-Mobile - Existing)			2.00			1/2" Ice	5.96	2.64	0.14
			0.00			1" Ice	6.26	2.87	0.18
Radio 4449 B71 B12	A	From Leg	3.50	0.0000	140.00	No Ice	1.64	1.29	0.07
(T-Mobile - Existing)			-2.00			1/2" Ice	1.80	1.44	0.09
			-2.00			1" Ice	1.97	1.59	0.11
Radio 4449 B71 B12	B	From Leg	3.50	0.0000	140.00	No Ice	1.64	1.29	0.07
(T-Mobile - Existing)			-2.00			1/2" Ice	1.80	1.44	0.09
			-2.00			1" Ice	1.97	1.59	0.11
Radio 4449 B71 B12	C	From Leg	3.50	0.0000	140.00	No Ice	1.64	1.29	0.07
(T-Mobile - Existing)			-2.00			1/2" Ice	1.80	1.44	0.09
			-2.00			1" Ice	1.97	1.59	0.11
4415 B25	A	From Leg	3.50	0.0000	140.00	No Ice	1.84	0.82	0.05
(T-Mobile - Existing)			-2.00			1/2" Ice	2.01	0.94	0.06
			2.00			1" Ice	2.19	1.07	0.08
4415 B25	B	From Leg	3.50	0.0000	140.00	No Ice	1.84	0.82	0.05
(T-Mobile - Existing)			-2.00			1/2" Ice	2.01	0.94	0.06
			2.00			1" Ice	2.19	1.07	0.08
4415 B25	C	From Leg	3.50	0.0000	140.00	No Ice	1.84	0.82	0.05
(T-Mobile - Existing)			-2.00			1/2" Ice	2.01	0.94	0.06
			2.00			1" Ice	2.19	1.07	0.08
4424 B25	A	From Leg	3.50	0.0000	140.00	No Ice	2.05	1.61	0.09
(T-Mobile - Existing)			2.00			1/2" Ice	2.23	1.77	0.11
			2.00			1" Ice	2.42	1.94	0.13
4424 B25	B	From Leg	3.50	0.0000	140.00	No Ice	2.05	1.61	0.09
(T-Mobile - Existing)			2.00			1/2" Ice	2.23	1.77	0.11
			2.00			1" Ice	2.42	1.94	0.13
4424 B25	C	From Leg	3.50	0.0000	140.00	No Ice	2.05	1.61	0.09
(T-Mobile - Existing)			2.00			1/2" Ice	2.23	1.77	0.11
			2.00			1" Ice	2.42	1.94	0.13
12' V-Frame	A	From Leg	2.00	0.0000	140.00	No Ice	9.22	12.97	0.30
(T-Mobile - Existing)			0.00			1/2" Ice	9.22	12.97	0.40
			0.00			1" Ice	9.22	12.97	0.50
12' V-Frame	B	From Leg	2.00	0.0000	140.00	No Ice	9.22	12.97	0.30
(T-Mobile - Existing)			0.00			1/2" Ice	9.22	12.97	0.40
			0.00			1" Ice	9.22	12.97	0.50
12' V-Frame	C	From Leg	2.00	0.0000	140.00	No Ice	9.22	12.97	0.30
(T-Mobile - Existing)			0.00			1/2" Ice	9.22	12.97	0.40
			0.00			1" Ice	9.22	12.97	0.50
TPA65R-BU8DA	A	From Face	2.00	0.0000	175.00	No Ice	17.87	8.12	0.09
(AT&T - Proposed)			0.00			1/2" Ice	18.50	8.72	0.19
			0.00			1" Ice	19.14	9.32	0.29
DMP65R-BU8DA	A	From Face	2.00	0.0000	161.00	No Ice	17.87	8.12	0.12
(AT&T - Proposed)			0.00			1/2" Ice	18.50	8.72	0.22
			0.00			1" Ice	19.14	9.32	0.32
TPA65R-BU8DA	B	From Face	2.00	0.0000	175.00	No Ice	17.87	8.12	0.09
(AT&T - Proposed)			0.00			1/2" Ice	18.50	8.72	0.19
			0.00			1" Ice	19.14	9.32	0.29
DMP65R-BU8DA	B	From Face	2.00	0.0000	161.00	No Ice	17.87	8.12	0.12
(AT&T - Proposed)			0.00			1/2" Ice	18.50	8.72	0.22
			0.00			1" Ice	19.14	9.32	0.32
TPA65R-BU8DA	C	From Face	2.00	0.0000	175.00	No Ice	17.87	8.12	0.09
(AT&T - Proposed)			0.00			1/2" Ice	18.50	8.72	0.19
			0.00			1" Ice	19.14	9.32	0.29
DMP65R-BU8DA	C	From Face	2.00	0.0000	161.00	No Ice	17.87	8.12	0.12

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Offsets: ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(AT&T - Proposed)			0.00					1/2" Ice	18.50	8.72	0.22
			0.00					1" Ice	19.14	9.32	0.32
4478 B14	A	From Leg	3.00			0.0000	168.25	No Ice	1.84	1.06	0.06
(AT&T - Proposed)			0.00					1/2" Ice	2.01	1.20	0.08
			0.00					1" Ice	2.19	1.34	0.09
4415 B25	A	From Leg	2.00			0.0000	168.25	No Ice	1.84	0.82	0.05
(AT&T - Proposed)			0.00					1/2" Ice	2.01	0.94	0.06
			0.00					1" Ice	2.19	1.07	0.08
4449 B5/B12	A	From Leg	3.00			0.0000	154.75	No Ice	1.97	1.41	0.07
(AT&T - Proposed)			0.00					1/2" Ice	2.14	1.56	0.09
			0.00					1" Ice	2.33	1.73	0.11
4426 B66	A	From Leg	2.00			0.0000	154.75	No Ice	1.65	0.73	0.05
(AT&T - Proposed)			0.00					1/2" Ice	1.81	0.84	0.06
			0.00					1" Ice	1.98	0.97	0.08
4478 B14	B	From Leg	3.00			0.0000	168.25	No Ice	1.84	1.06	0.06
(AT&T - Proposed)			0.00					1/2" Ice	2.01	1.20	0.08
			0.00					1" Ice	2.19	1.34	0.09
4415 B25	B	From Leg	2.00			0.0000	168.25	No Ice	1.84	0.82	0.05
(AT&T - Proposed)			0.00					1/2" Ice	2.01	0.94	0.06
			0.00					1" Ice	2.19	1.07	0.08
4449 B5/B12	B	From Leg	3.00			0.0000	154.75	No Ice	1.97	1.41	0.07
(AT&T - Proposed)			0.00					1/2" Ice	2.14	1.56	0.09
			0.00					1" Ice	2.33	1.73	0.11
4426 B66	B	From Leg	2.00			0.0000	154.75	No Ice	1.65	0.73	0.05
(AT&T - Proposed)			0.00					1/2" Ice	1.81	0.84	0.06
			0.00					1" Ice	1.98	0.97	0.08
4478 B14	C	From Leg	3.00			0.0000	168.25	No Ice	1.84	1.06	0.06
(AT&T - Proposed)			0.00					1/2" Ice	2.01	1.20	0.08
			0.00					1" Ice	2.19	1.34	0.09
4415 B25	C	From Leg	2.00			0.0000	168.25	No Ice	1.84	0.82	0.05
(AT&T - Proposed)			0.00					1/2" Ice	2.01	0.94	0.06
			0.00					1" Ice	2.19	1.07	0.08
4449 B5/B12	C	From Leg	3.00			0.0000	154.75	No Ice	1.97	1.41	0.07
(AT&T - Proposed)			0.00					1/2" Ice	2.14	1.56	0.09
			0.00					1" Ice	2.33	1.73	0.11
4426 B66	C	From Leg	2.00			0.0000	154.75	No Ice	1.65	0.73	0.05
(AT&T - Proposed)			0.00					1/2" Ice	1.81	0.84	0.06
			0.00					1" Ice	1.98	0.97	0.08
DC6-48-60-0-8C-EV	A	From Leg	1.00			0.0000	168.00	No Ice	1.91	1.91	0.02
(AT&T - Proposed)			0.00					1/2" Ice	2.10	2.10	0.04
			0.00					1" Ice	2.29	2.29	0.06
DC9-48-60-24-8C-EV	A	From Leg	1.00			0.0000	154.00	No Ice	1.91	1.91	0.02
(AT&T - Proposed)			0.00					1/2" Ice	2.10	2.10	0.04
			0.00					1" Ice	2.29	2.29	0.06
SitePro TAP-472	A	From Face	0.50			0.0000	175.00	No Ice	0.00	2.70	0.24
(AT&T - Proposed)			0.00					1/2" Ice	0.00	3.80	0.30
			0.00					1" Ice	0.00	4.90	0.36
SitePro TAP-472	B	From Face	0.50			0.0000	175.00	No Ice	0.00	2.70	0.24
(AT&T - Proposed)			0.00					1/2" Ice	0.00	3.80	0.30
			0.00					1" Ice	0.00	4.90	0.36
SitePro TAP-472	C	From Face	0.50			0.0000	175.00	No Ice	0.00	2.70	0.24
(AT&T - Proposed)			0.00					1/2" Ice	0.00	3.80	0.30
			0.00					1" Ice	0.00	4.90	0.36
SitePro MM02	A	From Face	0.50			0.0000	175.00	No Ice	0.50	0.80	0.04
(AT&T - Proposed)			0.00					1/2" Ice	1.00	1.60	0.06
			1.50					1" Ice	1.50	2.40	0.08
SitePro MM02	A	From Face	0.50			0.0000	175.00	No Ice	0.50	0.80	0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(AT&T - Proposed)			0.00			1/2" Ice	1.00	1.60	0.06
			-1.50			1" Ice	1.50	2.40	0.08
SitePro MM02	B	From Face	0.50	0.0000	175.00	No Ice	0.50	0.80	0.04
(AT&T - Proposed)			0.00			1/2" Ice	1.00	1.60	0.06
			1.50			1" Ice	1.50	2.40	0.08
SitePro MM02	B	From Face	0.50	0.0000	175.00	No Ice	0.50	0.80	0.04
(AT&T - Proposed)			0.00			1/2" Ice	1.00	1.60	0.06
			-1.50			1" Ice	1.50	2.40	0.08
SitePro TAP-472	A	From Face	0.50	0.0000	161.00	No Ice	0.00	2.70	0.24
(AT&T - Proposed)			0.00			1/2" Ice	0.00	3.80	0.30
			0.00			1" Ice	0.00	4.90	0.36
SitePro TAP-472	B	From Face	0.50	0.0000	161.00	No Ice	0.00	2.70	0.24
(AT&T - Proposed)			0.00			1/2" Ice	0.00	3.80	0.30
			0.00			1" Ice	0.00	4.90	0.36
SitePro TAP-472	C	From Face	0.50	0.0000	161.00	No Ice	0.00	2.70	0.24
(AT&T - Proposed)			0.00			1/2" Ice	0.00	3.80	0.30
			0.00			1" Ice	0.00	4.90	0.36
SitePro MM02	A	From Face	0.50	0.0000	161.00	No Ice	0.50	0.80	0.04
(AT&T - Proposed)			0.00			1/2" Ice	1.00	1.60	0.06
			1.50			1" Ice	1.50	2.40	0.08
SitePro MM02	A	From Face	0.50	0.0000	161.00	No Ice	0.50	0.80	0.04
(AT&T - Proposed)			0.00			1/2" Ice	1.00	1.60	0.06
			-1.50			1" Ice	1.50	2.40	0.08
SitePro MM02	B	From Face	0.50	0.0000	161.00	No Ice	0.50	0.80	0.04
(AT&T - Proposed)			0.00			1/2" Ice	1.00	1.60	0.06
			1.50			1" Ice	1.50	2.40	0.08
SitePro MM02	B	From Face	0.50	0.0000	161.00	No Ice	0.50	0.80	0.04
(AT&T - Proposed)			0.00			1/2" Ice	1.00	1.60	0.06
			-1.50			1" Ice	1.50	2.40	0.08

Tower Pressures - No Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft^2	Face	A_F ft^2	A_R ft^2	A_{leg} ft^2	Leg % 	C_AA_A In Face ft^2	C_AA_A Out Face ft^2
T1	182.98	1.174	40	56.388	A	1.207	10.656	7.307	61.60	0.000	0.000
190.60-175.35					B	1.207	10.656		61.60	0.000	0.000
					C	1.207	10.656		61.60	2.109	0.000
T2	167.73	1.146	39	56.388	A	0.000	11.058	7.307	66.08	0.000	0.000
175.35-160.10					B	0.000	11.058		66.08	0.000	0.000
					C	0.000	11.058		66.08	3.019	0.000
T3	150.10	1.11	38	73.118	A	0.000	16.678	7.917	47.47	0.000	0.000
160.10-140.10					B	0.000	16.678		47.47	0.000	0.000
					C	0.000	16.678		47.47	13.990	0.000
T4	130.10	1.065	36	73.118	A	0.000	16.678	7.917	47.47	15.761	0.000
140.10-120.10					B	0.000	16.678		47.47	0.000	0.000
					C	0.000	16.678		47.47	14.040	0.000

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T5	110.10	1.016	35	73.118	A	1.087	16.678	7.917	44.56	15.840	0.000
120.10-100.10					B	1.087	16.678		44.56	0.000	0.000
					C	1.087	16.678		44.56	14.040	0.000
T6	90.10	0.959	33	73.118	A	0.000	16.678	7.917	47.47	15.840	0.000
100.10-80.10					B	0.000	16.678		47.47	0.000	0.000
					C	0.000	16.678		47.47	14.040	0.000
T7 80.10-60.10	70.10	0.893	30	73.127	A	0.000	16.693	7.933	47.52	15.840	0.000
					B	0.000	16.693		47.52	0.000	0.000
					C	0.000	16.693		47.52	14.040	0.000
T8 60.10-40.10	50.10	0.811	28	73.952	A	1.073	14.310	9.583	62.30	15.840	0.000
					B	1.073	14.310		62.30	0.000	0.000
					C	1.073	14.310		62.30	14.040	0.000
T9 40.10-20.10	30.10	0.701	24	73.952	A	0.000	14.310	9.583	66.97	15.840	0.000
					B	0.000	14.310		66.97	0.000	0.000
					C	0.000	14.310		66.97	14.040	0.000
T10 20.10-4.85	12.48	0.7	24	56.373	A	0.000	11.056	7.305	66.08	9.583	0.000
					B	0.000	11.056		66.08	0.000	0.000
					C	0.000	11.056		66.08	8.494	0.000
T11 4.85-0.00	2.43	0.7	24	9.627	A	6.951	2.515	2.515	26.57	0.000	0.000
					B	6.951	2.515		26.57	0.000	0.000
					C	6.951	2.515		26.57	0.000	0.000

Tower Pressure - With Ice

$G_H = 0.850$

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	182.98	1.174	6	1.1868	59.405	A	1.207	22.624	13.340	55.98	0.000	0.000
190.60-175.35						B	1.207	22.624		55.98	0.000	0.000
						C	1.207	22.624		55.98	4.637	0.000
T2	167.73	1.146	6	1.1765	59.379	A	0.000	22.923	13.288	57.97	0.000	0.000
175.35-160.10						B	0.000	22.923		57.97	0.000	0.000
						C	0.000	22.923		57.97	6.608	0.000
T3	150.10	1.11	6	1.1636	76.997	A	0.000	38.027	15.674	41.22	0.000	0.000
160.10-140.10						B	0.000	38.027		41.22	0.000	0.000
						C	0.000	38.027		41.22	34.470	0.000
T4	130.10	1.065	6	1.1470	76.942	A	0.000	37.724	15.564	41.26	41.566	0.000
140.10-120.10						B	0.000	37.724		41.26	0.000	0.000
						C	0.000	37.724		41.26	34.351	0.000
T5	110.10	1.016	6	1.1280	76.878	A	1.087	37.989	15.437	39.51	41.659	0.000
120.10-100.10						B	1.087	37.989		39.51	0.000	0.000
						C	1.087	37.989		39.51	34.065	0.000
T6 100.10-80.10	90.10	0.959	5	1.1057	76.804	A	0.000	36.965	15.288	41.36	41.522	0.000
						B	0.000	36.965		41.36	0.000	0.000
						C	0.000	36.965		41.36	33.727	0.000
T7 80.10-60.10	70.10	0.893	5	1.0783	76.721	A	0.000	36.476	15.122	41.46	41.355	0.000
						B	0.000	36.476		41.46	0.000	0.000
						C	0.000	36.476		41.46	33.314	0.000
T8 60.10-40.10	50.10	0.811	4	1.0426	77.427	A	1.073	28.392	16.534	56.12	41.138	0.000
						B	1.073	28.392		56.12	0.000	0.000
						C	1.073	28.392		56.12	32.777	0.000
T9 40.10-20.10	30.10	0.701	4	0.9908	77.254	A	0.000	27.161	16.189	59.60	40.824	0.000
						B	0.000	27.161		59.60	0.000	0.000

Section Elevation ft	z ft	K_Z	q_z psf	t_Z in	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
						C	0.000	27.161		59.60	31.997	0.000
T10 20.10-4.85	12.48	0.7	4	0.9073	58.679	A	0.000	20.204	11.916	58.98	18.366	0.000
						B	0.000	20.204		58.98	0.000	0.000
						C	0.000	20.204		58.98	18.596	0.000
T11 4.85-0.00	2.43	0.7	4	0.7703	10.289	A	6.951	4.627	3.863	33.36	0.000	0.000
						B	6.951	4.627		33.36	0.000	0.000
						C	6.951	4.627		33.36	0.000	0.000

Tower Pressure - Service

G_H = 0.850

Section Elevation ft	z ft	K_Z	q_z psf	A_G ft²	Face	A_F ft²	A_R ft²	A_{leg} ft²	Leg %	C_AA_A In Face ft²	C_AA_A Out Face ft²
T1	182.98	1.174	9	56.388	A	1.207	10.656	7.307	61.60	0.000	0.000
190.60-175.35					B	1.207	10.656		61.60	0.000	0.000
					C	1.207	10.656		61.60	2.109	0.000
T2	167.73	1.146	9	56.388	A	0.000	11.058	7.307	66.08	0.000	0.000
175.35-160.10					B	0.000	11.058		66.08	0.000	0.000
					C	0.000	11.058		66.08	3.019	0.000
T3	150.10	1.11	9	73.118	A	0.000	16.678	7.917	47.47	0.000	0.000
160.10-140.10					B	0.000	16.678		47.47	0.000	0.000
					C	0.000	16.678		47.47	13.990	0.000
T4	130.10	1.065	8	73.118	A	0.000	16.678	7.917	47.47	15.761	0.000
140.10-120.10					B	0.000	16.678		47.47	0.000	0.000
					C	0.000	16.678		47.47	14.040	0.000
T5	110.10	1.016	8	73.118	A	1.087	16.678	7.917	44.56	15.840	0.000
120.10-100.10					B	1.087	16.678		44.56	0.000	0.000
					C	1.087	16.678		44.56	14.040	0.000
T6	90.10	0.959	8	73.118	A	0.000	16.678	7.917	47.47	15.840	0.000
100.10-80.10					B	0.000	16.678		47.47	0.000	0.000
					C	0.000	16.678		47.47	14.040	0.000
T7 80.10-60.10	70.10	0.893	7	73.127	A	0.000	16.693	7.933	47.52	15.840	0.000
					B	0.000	16.693		47.52	0.000	0.000
					C	0.000	16.693		47.52	14.040	0.000
T8 60.10-40.10	50.10	0.811	6	73.952	A	1.073	14.310	9.583	62.30	15.840	0.000
					B	1.073	14.310		62.30	0.000	0.000
					C	1.073	14.310		62.30	14.040	0.000
T9 40.10-20.10	30.10	0.701	5	73.952	A	0.000	14.310	9.583	66.97	15.840	0.000
					B	0.000	14.310		66.97	0.000	0.000
					C	0.000	14.310		66.97	14.040	0.000
T10 20.10-4.85	12.48	0.7	5	56.373	A	0.000	11.056	7.305	66.08	9.583	0.000
					B	0.000	11.056		66.08	0.000	0.000
					C	0.000	11.056		66.08	8.494	0.000
T11 4.85-0.00	2.43	0.7	5	9.627	A	6.951	2.515	2.515	26.57	0.000	0.000
					B	6.951	2.515		26.57	0.000	0.000
					C	6.951	2.515		26.57	0.000	0.000

Tower Forces - No Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.02	0.49	A	0.21	2.562	40	1	1	7.349	0.68	44.71	C
190.60-175.35			B	0.21	2.562		1	1	7.349			
			C	0.21	2.562		1	1	7.349			
T2	0.03	0.44	A	0.196	2.609	39	1	1	6.345	0.61	39.87	C
175.35-160.10			B	0.196	2.609		1	1	6.345			
			C	0.196	2.609		1	1	6.345			
T3	0.16	0.42	A	0.228	2.505	38	1	1	9.673	1.05	52.32	C
160.10-140.10			B	0.228	2.505		1	1	9.673			
			C	0.228	2.505		1	1	9.673			
T4	0.31	0.42	A	0.228	2.505	36	1	1	9.673	1.30	64.83	C
140.10-120.10		TA 0.32	B	0.228	2.505		1	1	9.673			
			C	0.228	2.505		1	1	9.673			
T5	0.31	0.47	A	0.243	2.459	35	1	1	10.815	1.31	65.35	C
120.10-100.10			B	0.243	2.459		1	1	10.815			
			C	0.243	2.459		1	1	10.815			
T6	0.31	0.42	A	0.228	2.505	33	1	1	9.673	1.17	58.43	C
100.10-80.10			B	0.228	2.505		1	1	9.673			
			C	0.228	2.505		1	1	9.673			
T7	0.31	0.50	A	0.228	2.504	30	1	1	9.682	1.09	54.41	C
80.10-60.10			B	0.228	2.504		1	1	9.682			
			C	0.228	2.504		1	1	9.682			
T8	0.31	0.51	A	0.208	2.569	28	1	1	9.315	0.98	49.07	C
60.10-40.10			B	0.208	2.569		1	1	9.315			
			C	0.208	2.569		1	1	9.315			
T9	0.31	0.46	A	0.194	2.618	24	1	1	8.205	0.80	39.93	C
40.10-20.10			B	0.194	2.618		1	1	8.205			
			C	0.194	2.618		1	1	8.205			
T10	0.19	0.35	A	0.196	2.609	24	1	1	6.344	0.55	36.35	C
20.10-4.85			B	0.196	2.609		1	1	6.344			
			C	0.196	2.609		1	1	6.344			
T11 4.85-0.00	0.00	0.31	A	0.983	2.066	24	1	1	9.466	0.40	81.49	C
			B	0.983	2.066		1	1	9.466			
			C	0.983	2.066		1	1	9.466			
Sum Weight:	2.25	5.11								9.93		

Tower Forces - No Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.02	0.49	A	0.21	2.562	40	0.8	1	7.107	0.66	43.34	C
190.60-175.35			B	0.21	2.562		0.8	1	7.107			
			C	0.21	2.562		0.8	1	7.107			
T2	0.03	0.44	A	0.196	2.609	39	0.8	1	6.345	0.61	39.87	C
175.35-160.10			B	0.196	2.609		0.8	1	6.345			
			C	0.196	2.609		0.8	1	6.345			
T3	0.16	0.42	A	0.228	2.505	38	0.8	1	9.673	1.05	52.32	C
160.10-140.10			B	0.228	2.505		0.8	1	9.673			
			C	0.228	2.505		0.8	1	9.673			
T4	0.31	0.42	A	0.228	2.505	36	0.8	1	9.673	1.30	64.83	C
140.10-120.10		TA 0.32	B	0.228	2.505		0.8	1	9.673			
			C	0.228	2.505		0.8	1	9.673			
T5	0.31	0.47	A	0.243	2.459	35	0.8	1	10.598	1.29	64.56	C

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
120.10-100.10			B	0.243	2.459		0.8	1	10.598			
			C	0.243	2.459		0.8	1	10.598			
T6	0.31	0.42	A	0.228	2.505	33	0.8	1	9.673	1.17	58.43	C
100.10-80.10			B	0.228	2.505		0.8	1	9.673			
			C	0.228	2.505		0.8	1	9.673			
T7	0.31	0.50	A	0.228	2.504	30	0.8	1	9.682	1.09	54.41	C
80.10-60.10			B	0.228	2.504		0.8	1	9.682			
			C	0.228	2.504		0.8	1	9.682			
T8	0.31	0.51	A	0.208	2.569	28	0.8	1	9.100	0.97	48.42	C
60.10-40.10			B	0.208	2.569		0.8	1	9.100			
			C	0.208	2.569		0.8	1	9.100			
T9	0.31	0.46	A	0.194	2.618	24	0.8	1	8.205	0.80	39.93	C
40.10-20.10			B	0.194	2.618		0.8	1	8.205			
			C	0.194	2.618		0.8	1	8.205			
T10	0.19	0.35	A	0.196	2.609	24	0.8	1	6.344	0.55	36.35	C
20.10-4.85			B	0.196	2.609		0.8	1	6.344			
			C	0.196	2.609		0.8	1	6.344			
T11 4.85-0.00	0.00	0.31	A	0.983	2.066	24	0.8	1	8.075	0.34	69.52	C
			B	0.983	2.066		0.8	1	8.075			
			C	0.983	2.066		0.8	1	8.075			
Sum Weight:	2.25	5.11								9.82		

Tower Forces - No Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.02	0.49	A	0.21	2.562	40	0.85	1	7.168	0.67	43.68	C
190.60-175.35			B	0.21	2.562		0.85	1	7.168			
			C	0.21	2.562		0.85	1	7.168			
T2	0.03	0.44	A	0.196	2.609	39	0.85	1	6.345	0.61	39.87	C
175.35-160.10			B	0.196	2.609		0.85	1	6.345			
			C	0.196	2.609		0.85	1	6.345			
T3	0.16	0.42	A	0.228	2.505	38	0.85	1	9.673	1.05	52.32	C
160.10-140.10			B	0.228	2.505		0.85	1	9.673			
			C	0.228	2.505		0.85	1	9.673			
T4	0.31	0.42	A	0.228	2.505	36	0.85	1	9.673	1.30	64.83	C
140.10-120.10		TA 0.32	B	0.228	2.505		0.85	1	9.673			
			C	0.228	2.505		0.85	1	9.673			
T5	0.31	0.47	A	0.243	2.459	35	0.85	1	10.652	1.30	64.76	C
120.10-100.10			B	0.243	2.459		0.85	1	10.652			
			C	0.243	2.459		0.85	1	10.652			
T6	0.31	0.42	A	0.228	2.505	33	0.85	1	9.673	1.17	58.43	C
100.10-80.10			B	0.228	2.505		0.85	1	9.673			
			C	0.228	2.505		0.85	1	9.673			
T7	0.31	0.50	A	0.228	2.504	30	0.85	1	9.682	1.09	54.41	C
80.10-60.10			B	0.228	2.504		0.85	1	9.682			
			C	0.228	2.504		0.85	1	9.682			
T8	0.31	0.51	A	0.208	2.569	28	0.85	1	9.154	0.97	48.58	C
60.10-40.10			B	0.208	2.569		0.85	1	9.154			
			C	0.208	2.569		0.85	1	9.154			
T9	0.31	0.46	A	0.194	2.618	24	0.85	1	8.205	0.80	39.93	C
40.10-20.10			B	0.194	2.618		0.85	1	8.205			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
			C	0.194	2.618		0.85	1	8.205			
T10	0.19	0.35	A	0.196	2.609	24	0.85	1	6.344	0.55	36.35	C
20.10-4.85			B	0.196	2.609		0.85	1	6.344			
			C	0.196	2.609		0.85	1	6.344			
T11 4.85-0.00	0.00	0.31	A	0.983	2.066	24	0.85	1	8.423	0.35	72.52	C
			B	0.983	2.066		0.85	1	8.423			
			C	0.983	2.066		0.85	1	8.423			
Sum Weight:	2.25	5.11								9.85		

Tower Forces - With Ice - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft²	F K	w plf	Ctrl. Face
T1	0.07	1.18	A	0.401	2.062	6	1	1	15.613	0.19	12.45	C
190.60-175.35			B	0.401	2.062		1	1	15.613			
			C	0.401	2.062		1	1	15.613			
T2	0.10	1.08	A	0.386	2.092	6	1	1	14.449	0.18	11.88	C
175.35-160.10			B	0.386	2.092		1	1	14.449			
			C	0.386	2.092		1	1	14.449			
T3	0.50	1.57	A	0.494	1.908	6	1	1	25.924	0.34	17.17	C
160.10-140.10			B	0.494	1.908		1	1	25.924			
			C	0.494	1.908		1	1	25.924			
T4	1.06	1.54	A	0.49	1.913	6	1	1	25.645	0.43	21.62	C
140.10-120.10		TA 0.66	B	0.49	1.913		1	1	25.645			
			C	0.49	1.913		1	1	25.645			
T5	1.05	1.65	A	0.508	1.889	6	1	1	27.280	0.42	20.85	C
120.10-100.10			B	0.508	1.889		1	1	27.280			
			C	0.508	1.889		1	1	27.280			
T6	1.03	1.49	A	0.481	1.926	5	1	1	24.954	0.39	19.31	C
100.10-80.10			B	0.481	1.926		1	1	24.954			
			C	0.481	1.926		1	1	24.954			
T7	1.02	1.53	A	0.475	1.934	5	1	1	24.513	0.36	17.87	C
80.10-60.10			B	0.475	1.934		1	1	24.513			
			C	0.475	1.934		1	1	24.513			
T8	0.99	1.28	A	0.381	2.104	4	1	1	18.904	0.32	15.78	C
60.10-40.10			B	0.381	2.104		1	1	18.904			
			C	0.381	2.104		1	1	18.904			
T9	0.96	1.11	A	0.352	2.168	4	1	1	16.749	0.26	12.97	C
40.10-20.10			B	0.352	2.168		1	1	16.749			
			C	0.352	2.168		1	1	16.749			
T10	0.50	0.80	A	0.344	2.185	4	1	1	12.405	0.16	10.46	C
20.10-4.85			B	0.344	2.185		1	1	12.405			
			C	0.344	2.185		1	1	12.405			
T11 4.85-0.00	0.00	0.65	A	1	2.1	4	1	1	11.578	0.07*	14.41	C
			B	1	2.1		1	1	11.578			
			C	1	2.1		1	1	11.578			
Sum Weight:	7.28	14.52			*2.1A_g limit					3.11		

Tower Forces - With Ice - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.07	1.18	A	0.401	2.062	6	0.8	1	15.372	0.19	12.27	C
190.60-175.35			B	0.401	2.062		0.8	1	15.372			
			C	0.401	2.062		0.8	1	15.372			
T2	0.10	1.08	A	0.386	2.092	6	0.8	1	14.449	0.18	11.88	C
175.35-160.10			B	0.386	2.092		0.8	1	14.449			
			C	0.386	2.092		0.8	1	14.449			
T3	0.50	1.57	A	0.494	1.908	6	0.8	1	25.924	0.34	17.17	C
160.10-140.10			B	0.494	1.908		0.8	1	25.924			
			C	0.494	1.908		0.8	1	25.924			
T4	1.06	1.54	A	0.49	1.913	6	0.8	1	25.645	0.43	21.62	C
140.10-120.10		TA 0.66	B	0.49	1.913		0.8	1	25.645			
			C	0.49	1.913		0.8	1	25.645			
T5	1.05	1.65	A	0.508	1.889	6	0.8	1	27.063	0.42	20.75	C
120.10-100.10			B	0.508	1.889		0.8	1	27.063			
			C	0.508	1.889		0.8	1	27.063			
T6	1.03	1.49	A	0.481	1.926	5	0.8	1	24.954	0.39	19.31	C
100.10-80.10			B	0.481	1.926		0.8	1	24.954			
			C	0.481	1.926		0.8	1	24.954			
T7	1.02	1.53	A	0.475	1.934	5	0.8	1	24.513	0.36	17.87	C
80.10-60.10			B	0.475	1.934		0.8	1	24.513			
			C	0.475	1.934		0.8	1	24.513			
T8	0.99	1.28	A	0.381	2.104	4	0.8	1	18.689	0.31	15.69	C
60.10-40.10			B	0.381	2.104		0.8	1	18.689			
			C	0.381	2.104		0.8	1	18.689			
T9	0.96	1.11	A	0.352	2.168	4	0.8	1	16.749	0.26	12.97	C
40.10-20.10			B	0.352	2.168		0.8	1	16.749			
			C	0.352	2.168		0.8	1	16.749			
T10	0.50	0.80	A	0.344	2.185	4	0.8	1	12.405	0.16	10.46	C
20.10-4.85			B	0.344	2.185		0.8	1	12.405			
			C	0.344	2.185		0.8	1	12.405			
T11 4.85-0.00	0.00	0.65	A	1	2.1	4	0.8	1	10.188	0.07	14.27	C
			B	1	2.1		0.8	1	10.188			
			C	1	2.1		0.8	1	10.188			
Sum Weight:	7.28	14.52								3.10		

Tower Forces - With Ice - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.07	1.18	A	0.401	2.062	6	0.85	1	15.432	0.19	12.32	C
190.60-175.35			B	0.401	2.062		0.85	1	15.432			
			C	0.401	2.062		0.85	1	15.432			
T2	0.10	1.08	A	0.386	2.092	6	0.85	1	14.449	0.18	11.88	C
175.35-160.10			B	0.386	2.092		0.85	1	14.449			
			C	0.386	2.092		0.85	1	14.449			
T3	0.50	1.57	A	0.494	1.908	6	0.85	1	25.924	0.34	17.17	C
160.10-140.10			B	0.494	1.908		0.85	1	25.924			
			C	0.494	1.908		0.85	1	25.924			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T4	1.06	1.54	A	0.49	1.913	6	0.85	1	25.645	0.43	21.62	C
140.10-120.10		TA 0.66	B	0.49	1.913		0.85	1	25.645			
			C	0.49	1.913		0.85	1	25.645			
T5	1.05	1.65	A	0.508	1.889	6	0.85	1	27.117	0.42	20.78	C
120.10-100.10			B	0.508	1.889		0.85	1	27.117			
			C	0.508	1.889		0.85	1	27.117			
T6	1.03	1.49	A	0.481	1.926	5	0.85	1	24.954	0.39	19.31	C
100.10-80.10			B	0.481	1.926		0.85	1	24.954			
			C	0.481	1.926		0.85	1	24.954			
T7	1.02	1.53	A	0.475	1.934	5	0.85	1	24.513	0.36	17.87	C
80.10-60.10			B	0.475	1.934		0.85	1	24.513			
			C	0.475	1.934		0.85	1	24.513			
T8	0.99	1.28	A	0.381	2.104	4	0.85	1	18.743	0.31	15.71	C
60.10-40.10			B	0.381	2.104		0.85	1	18.743			
			C	0.381	2.104		0.85	1	18.743			
T9	0.96	1.11	A	0.352	2.168	4	0.85	1	16.749	0.26	12.97	C
40.10-20.10			B	0.352	2.168		0.85	1	16.749			
			C	0.352	2.168		0.85	1	16.749			
T10	0.50	0.80	A	0.344	2.185	4	0.85	1	12.405	0.16	10.46	C
20.10-4.85			B	0.344	2.185		0.85	1	12.405			
			C	0.344	2.185		0.85	1	12.405			
T11 4.85-0.00	0.00	0.65	A	1	2.1	4	0.85	1	10.535	0.07*	14.41	C
			B	1	2.1		0.85	1	10.535			
			C	1	2.1		0.85	1	10.535			
Sum Weight:	7.28	14.52			*2.1A_g limit					3.11		

Tower Forces - Service - Wind Normal To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.02	0.49	A	0.21	2.562	9	1	1	7.349	0.16	10.30	C
190.60-175.35			B	0.21	2.562		1	1	7.349			
			C	0.21	2.562		1	1	7.349			
T2	0.03	0.44	A	0.196	2.609	9	1	1	6.345	0.14	9.19	C
175.35-160.10			B	0.196	2.609		1	1	6.345			
			C	0.196	2.609		1	1	6.345			
T3	0.16	0.42	A	0.228	2.505	9	1	1	9.673	0.24	12.05	C
160.10-140.10			B	0.228	2.505		1	1	9.673			
			C	0.228	2.505		1	1	9.673			
T4	0.31	0.42	A	0.228	2.505	8	1	1	9.673	0.30	14.94	C
140.10-120.10		TA 0.32	B	0.228	2.505		1	1	9.673			
			C	0.228	2.505		1	1	9.673			
T5	0.31	0.47	A	0.243	2.459	8	1	1	10.815	0.30	15.06	C
120.10-100.10			B	0.243	2.459		1	1	10.815			
			C	0.243	2.459		1	1	10.815			
T6	0.31	0.42	A	0.228	2.505	8	1	1	9.673	0.27	13.46	C
100.10-80.10			B	0.228	2.505		1	1	9.673			
			C	0.228	2.505		1	1	9.673			
T7	0.31	0.50	A	0.228	2.504	7	1	1	9.682	0.25	12.54	C
80.10-60.10			B	0.228	2.504		1	1	9.682			
			C	0.228	2.504		1	1	9.682			

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T8	0.31	0.51	A	0.208	2.569	6	1	1	9.315	0.23	11.30	C
60.10-40.10			B	0.208	2.569		1	1	9.315			
			C	0.208	2.569		1	1	9.315			
T9	0.31	0.46	A	0.194	2.618	5	1	1	8.205	0.18	9.20	C
40.10-20.10			B	0.194	2.618		1	1	8.205			
			C	0.194	2.618		1	1	8.205			
T10	0.19	0.35	A	0.196	2.609	5	1	1	6.344	0.13	8.38	C
20.10-4.85			B	0.196	2.609		1	1	6.344			
			C	0.196	2.609		1	1	6.344			
T11 4.85-0.00	0.00	0.31	A	0.983	2.066	5	1	1	9.466	0.09	18.78	C
			B	0.983	2.066		1	1	9.466			
			C	0.983	2.066		1	1	9.466			
Sum Weight:	2.25	5.11								2.29		

Tower Forces - Service - Wind 60 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.02	0.49	A	0.21	2.562	9	0.8	1	7.107	0.15	9.99	C
190.60-175.35			B	0.21	2.562		0.8	1	7.107			
			C	0.21	2.562		0.8	1	7.107			
T2	0.03	0.44	A	0.196	2.609	9	0.8	1	6.345	0.14	9.19	C
175.35-160.10			B	0.196	2.609		0.8	1	6.345			
			C	0.196	2.609		0.8	1	6.345			
T3	0.16	0.42	A	0.228	2.505	9	0.8	1	9.673	0.24	12.05	C
160.10-140.10			B	0.228	2.505		0.8	1	9.673			
			C	0.228	2.505		0.8	1	9.673			
T4	0.31	0.42	A	0.228	2.505	8	0.8	1	9.673	0.30	14.94	C
140.10-120.10		TA 0.32	B	0.228	2.505		0.8	1	9.673			
			C	0.228	2.505		0.8	1	9.673			
T5	0.31	0.47	A	0.243	2.459	8	0.8	1	10.598	0.30	14.88	C
120.10-100.10			B	0.243	2.459		0.8	1	10.598			
			C	0.243	2.459		0.8	1	10.598			
T6	0.31	0.42	A	0.228	2.505	8	0.8	1	9.673	0.27	13.46	C
100.10-80.10			B	0.228	2.505		0.8	1	9.673			
			C	0.228	2.505		0.8	1	9.673			
T7	0.31	0.50	A	0.228	2.504	7	0.8	1	9.682	0.25	12.54	C
80.10-60.10			B	0.228	2.504		0.8	1	9.682			
			C	0.228	2.504		0.8	1	9.682			
T8	0.31	0.51	A	0.208	2.569	6	0.8	1	9.100	0.22	11.16	C
60.10-40.10			B	0.208	2.569		0.8	1	9.100			
			C	0.208	2.569		0.8	1	9.100			
T9	0.31	0.46	A	0.194	2.618	5	0.8	1	8.205	0.18	9.20	C
40.10-20.10			B	0.194	2.618		0.8	1	8.205			
			C	0.194	2.618		0.8	1	8.205			
T10	0.19	0.35	A	0.196	2.609	5	0.8	1	6.344	0.13	8.38	C
20.10-4.85			B	0.196	2.609		0.8	1	6.344			
			C	0.196	2.609		0.8	1	6.344			
T11 4.85-0.00	0.00	0.31	A	0.983	2.066	5	0.8	1	8.075	0.08	16.02	C
			B	0.983	2.066		0.8	1	8.075			
			C	0.983	2.066		0.8	1	8.075			
Sum Weight:	2.25	5.11								2.26		

Tower Forces - Service - Wind 90 To Face

Section Elevation ft	Add Weight K	Self Weight K	Face	e	C_F	q_z psf	D_F	D_R	A_E ft^2	F K	w plf	Ctrl. Face
T1	0.02	0.49	A	0.21	2.562	9	0.85	1	7.168	0.15	10.06	C
190.60-175.35			B	0.21	2.562		0.85	1	7.168			
			C	0.21	2.562		0.85	1	7.168			
T2	0.03	0.44	A	0.196	2.609	9	0.85	1	6.345	0.14	9.19	C
175.35-160.10			B	0.196	2.609		0.85	1	6.345			
			C	0.196	2.609		0.85	1	6.345			
T3	0.16	0.42	A	0.228	2.505	9	0.85	1	9.673	0.24	12.05	C
160.10-140.10			B	0.228	2.505		0.85	1	9.673			
			C	0.228	2.505		0.85	1	9.673			
T4	0.31	0.42	A	0.228	2.505	8	0.85	1	9.673	0.30	14.94	C
140.10-120.10		TA 0.32	B	0.228	2.505		0.85	1	9.673			
			C	0.228	2.505		0.85	1	9.673			
T5	0.31	0.47	A	0.243	2.459	8	0.85	1	10.652	0.30	14.92	C
120.10-100.10			B	0.243	2.459		0.85	1	10.652			
			C	0.243	2.459		0.85	1	10.652			
T6	0.31	0.42	A	0.228	2.505	8	0.85	1	9.673	0.27	13.46	C
100.10-80.10			B	0.228	2.505		0.85	1	9.673			
			C	0.228	2.505		0.85	1	9.673			
T7	0.31	0.50	A	0.228	2.504	7	0.85	1	9.682	0.25	12.54	C
80.10-60.10			B	0.228	2.504		0.85	1	9.682			
			C	0.228	2.504		0.85	1	9.682			
T8	0.31	0.51	A	0.208	2.569	6	0.85	1	9.154	0.22	11.19	C
60.10-40.10			B	0.208	2.569		0.85	1	9.154			
			C	0.208	2.569		0.85	1	9.154			
T9	0.31	0.46	A	0.194	2.618	5	0.85	1	8.205	0.18	9.20	C
40.10-20.10			B	0.194	2.618		0.85	1	8.205			
			C	0.194	2.618		0.85	1	8.205			
T10	0.19	0.35	A	0.196	2.609	5	0.85	1	6.344	0.13	8.38	C
20.10-4.85			B	0.196	2.609		0.85	1	6.344			
			C	0.196	2.609		0.85	1	6.344			
T11 4.85-0.00	0.00	0.31	A	0.983	2.066	5	0.85	1	8.423	0.08	16.71	C
			B	0.983	2.066		0.85	1	8.423			
			C	0.983	2.066		0.85	1	8.423			
Sum Weight:	2.25	5.11								2.27		

Force Totals (Does not include forces on guys)

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Leg Weight	2.96			
Bracing Weight	2.14			
Total Member Self-Weight	5.11			
Guy Weight	1.13			
Total Weight	16.57			

Load Case	Vertical Forces K	Sum of Forces X K	Sum of Forces Z K	Sum of Torques kip-ft
Wind 0 deg - No Ice		-0.01	-19.64	-3.06
Wind 30 deg - No Ice		9.76	-16.93	-1.89
Wind 60 deg - No Ice		16.89	-9.75	-0.22
Wind 90 deg - No Ice		19.54	0.01	1.51
Wind 120 deg - No Ice		17.00	9.83	2.84
Wind 150 deg - No Ice		9.78	16.94	3.41
Wind 180 deg - No Ice		0.01	19.53	3.06
Wind 210 deg - No Ice		-9.76	16.93	1.89
Wind 240 deg - No Ice		-16.99	9.81	0.22
Wind 270 deg - No Ice		-19.54	-0.01	-1.51
Wind 300 deg - No Ice		-16.91	-9.78	-2.84
Wind 330 deg - No Ice		-9.78	-16.94	-3.41
Member Ice	9.42			
Guy Ice	4.63			
Total Weight Ice	43.87			
Wind 0 deg - Ice		-0.00	-5.07	-1.13
Wind 30 deg - Ice		2.52	-4.39	-0.71
Wind 60 deg - Ice		4.37	-2.53	-0.09
Wind 90 deg - Ice		5.05	0.00	0.55
Wind 120 deg - Ice		4.38	2.54	1.05
Wind 150 deg - Ice		2.53	4.39	1.26
Wind 180 deg - Ice		0.00	5.06	1.13
Wind 210 deg - Ice		-2.52	4.39	0.71
Wind 240 deg - Ice		-4.38	2.53	0.09
Wind 270 deg - Ice		-5.05	-0.00	-0.55
Wind 300 deg - Ice		-4.38	-2.53	-1.05
Wind 330 deg - Ice		-2.53	-4.39	-1.26
Total Weight	16.57			
Wind 0 deg - Service		-0.00	-4.52	-0.71
Wind 30 deg - Service		2.25	-3.90	-0.44
Wind 60 deg - Service		3.89	-2.25	-0.05
Wind 90 deg - Service		4.50	0.00	0.35
Wind 120 deg - Service		3.92	2.26	0.65
Wind 150 deg - Service		2.25	3.90	0.78
Wind 180 deg - Service		0.00	4.50	0.71
Wind 210 deg - Service		-2.25	3.90	0.44
Wind 240 deg - Service		-3.91	2.26	0.05
Wind 270 deg - Service		-4.50	-0.00	-0.35
Wind 300 deg - Service		-3.90	-2.25	-0.65
Wind 330 deg - Service		-2.25	-3.90	-0.78

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy
3	1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy
4	1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy
5	1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy
6	1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy
7	1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy
8	1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy
9	1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	190.6 - 175.35	Leg	Max Tension	2	6.75	-0.02	-0.04
			Max. Compression	4	-21.73	0.06	-0.12
			Max. Mx	6	-12.40	0.91	0.19
			Max. My	2	-12.47	-0.24	-0.95
			Max. Vy	10	0.91	0.26	0.41
			Max. Vx	2	0.89	-0.54	0.01
		Diagonal	Max Tension	5	3.29	0.00	0.00
			Max. Compression	11	-3.30	0.00	0.00
			Max. Mx	17	-0.12	0.01	0.00
			Max. My	2	0.27	0.00	0.00
			Max. Vy	17	-0.01	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Bottom Girt	Max Tension	4	0.35	0.00	0.00
			Max. Compression	10	-0.31	0.00	0.00
			Max. Mx	25	-0.02	0.01	0.00
			Max. My	13	0.28	0.00	-0.00
			Max. Vy	25	0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Guy A	Bottom Tension	7	13.45		
			Top Tension	7	13.57		
			Top Cable Vert	7	12.15		
			Top Cable Norm	7	6.03		
			Top Cable Tan	7	0.00		
			Bot Cable Vert	7	-11.91		

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Bot Cable Norm	7	6.25		
			Bot Cable Tan	7	0.15		
		Guy B	Bottom Tension	11	13.58		
			Top Tension	11	13.71		
			Top Cable Vert	11	12.30		
			Top Cable Norm	11	6.05		
			Top Cable Tan	11	0.00		
			Bot Cable Vert	11	-12.05		
			Bot Cable Norm	11	6.27		
			Bot Cable Tan	11	0.16		
		Guy C	Bottom Tension	5	13.61		
			Top Tension	5	13.73		
			Top Cable Vert	5	12.34		
			Top Cable Norm	5	6.04		
			Top Cable Tan	5	0.00		
			Bot Cable Vert	5	-12.08		
			Bot Cable Norm	5	6.26		
			Bot Cable Tan	5	0.16		
		Top Guy Pull-Off	Max Tension	13	3.69	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	14	1.04	0.02	0.00
			Max. My	2	2.84	0.00	0.00
			Max. Vy	14	0.03	0.00	0.00
			Max. Vx	2	0.00	0.00	0.00
T2	175.35 - 160.1	Leg	Max Tension	2	6.75	-0.02	-0.08
			Max. Compression	4	-22.17	0.13	-0.13
			Max. Mx	5	-17.93	0.65	-0.18
			Max. My	8	-17.66	0.06	0.67
			Max. Vy	5	1.17	0.36	0.08
			Max. Vx	2	-1.33	-0.04	-0.39
		Diagonal	Max Tension	13	2.01	0.00	0.00
			Max. Compression	7	-2.07	0.00	0.00
			Max. Mx	17	0.39	0.01	0.00
			Max. My	26	-0.23	0.00	0.00
			Max. Vy	17	-0.01	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Top Girt	Max Tension	11	0.29	0.00	0.00
			Max. Compression	6	-0.26	0.00	0.00
			Max. Mx	25	-0.02	0.01	0.00
			Max. My	13	0.21	0.00	-0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	7	0.96	0.00	0.00
			Max. Compression	13	-0.96	0.00	0.00
			Max. Mx	23	-0.01	0.01	0.00
			Max. My	13	-0.96	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T3	160.1 - 140.1	Leg	Max Tension	8	7.96	-0.01	0.20
			Max. Compression	6	-27.21	0.11	0.07
			Max. Mx	11	-2.63	0.41	-0.07
			Max. My	2	-1.12	-0.03	0.44
			Max. Vy	5	2.83	-0.06	0.02
			Max. Vx	13	-2.51	0.04	0.04
		Diagonal	Max Tension	9	1.86	0.00	0.00
			Max. Compression	9	-2.07	0.00	0.00
			Max. Mx	17	0.28	0.01	0.00
			Max. My	2	0.03	0.00	0.00
			Max. Vy	17	0.01	0.00	0.00
			Max. Vx	2	-0.00	0.00	0.00
		Top Girt	Max Tension	6	0.57	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	12	-0.36	0.00	0.00
			Max. Mx	23	0.21	0.01	0.00
			Max. My	13	0.10	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	8	2.53	0.00	0.00
			Max. Compression	6	-2.14	0.00	0.00
			Max. Mx	23	-0.38	0.01	0.00
			Max. My	13	0.24	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T4	140.1 - 120.1	Leg	Max Tension	8	7.96	-0.01	0.17
			Max. Compression	6	-29.08	0.11	0.06
			Max. Mx	5	-9.60	-2.29	-0.10
			Max. My	13	-9.74	1.03	2.01
			Max. Vy	5	3.78	-2.29	-0.10
			Max. Vx	13	-3.34	1.03	2.01
		Diagonal	Max Tension	7	1.01	0.00	0.00
			Max. Compression	8	-1.01	0.00	0.00
			Max. Mx	17	-0.38	0.01	0.00
			Max. My	26	-0.08	0.00	0.00
			Max. Vy	17	-0.01	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Top Girt	Max Tension	8	2.50	0.00	0.00
			Max. Compression	10	-2.11	0.00	0.00
			Max. Mx	26	0.71	0.01	0.00
			Max. My	13	0.05	0.00	-0.00
			Max. Vy	26	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	6	0.29	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.23	0.01	0.00
			Max. My	13	0.26	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Guy A	Bottom Tension	7	10.60		
			Top Tension	7	10.67		
			Top Cable Vert	7	8.81		
			Top Cable Norm	7	6.02		
			Top Cable Tan	7	0.00		
			Bot Cable Vert	7	-8.65		
			Bot Cable Norm	7	6.13		
			Bot Cable Tan	7	0.10		
		Guy B	Bottom Tension	13	10.64		
			Top Tension	13	10.72		
			Top Cable Vert	13	8.91		
			Top Cable Norm	13	5.95		
			Top Cable Tan	13	0.00		
			Bot Cable Vert	13	-8.75		
			Bot Cable Norm	13	6.07		
			Bot Cable Tan	13	0.10		
		Guy C	Bottom Tension	5	10.36		
			Top Tension	5	10.43		
			Top Cable Vert	5	8.69		
			Top Cable Norm	5	5.77		
			Top Cable Tan	5	0.00		
			Bot Cable Vert	5	-8.53		
			Bot Cable Norm	5	5.88		
			Bot Cable Tan	5	0.10		
		Torque Arm Top	Max Tension	9	6.55	0.00	0.00
			Max. Compression	9	-3.21	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	3	0.06	-29.90	0.00
			Max. My	2	-2.55	-23.90	-0.00
			Max. Vy	3	8.57	-29.90	0.00
			Max. Vx	2	-0.00	-23.90	-0.00
T5	120.1 - 100.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-29.76	-0.04	0.06
			Max. Mx	11	-17.84	0.23	0.02
			Max. My	8	-16.29	0.04	-0.23
			Max. Vy	11	0.68	0.23	0.02
			Max. Vx	8	-0.68	0.04	-0.23
		Diagonal	Max Tension	13	0.75	0.00	0.00
			Max. Compression	2	-2.15	0.00	0.00
			Max. Mx	25	0.16	0.01	0.00
			Max. My	26	-0.25	0.00	0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Top Girt	Max Tension	6	0.29	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.23	0.01	0.00
			Max. My	13	0.23	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	10	0.96	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	0.90	0.01	0.00
			Max. My	13	0.90	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Guy A	Bottom Tension	9	5.24		
			Top Tension	9	5.26		
			Top Cable Vert	9	4.35		
			Top Cable Norm	9	2.96		
			Top Cable Tan	9	0.00		
			Bot Cable Vert	9	-4.28		
			Bot Cable Norm	9	3.02		
			Bot Cable Tan	9	0.04		
		Guy B	Bottom Tension	11	5.42		
			Top Tension	11	5.45		
			Top Cable Vert	11	4.54		
			Top Cable Norm	11	3.02		
			Top Cable Tan	11	0.00		
			Bot Cable Vert	11	-4.47		
			Bot Cable Norm	11	3.07		
			Bot Cable Tan	11	0.05		
		Guy C	Bottom Tension	5	5.41		
			Top Tension	5	5.43		
			Top Cable Vert	5	4.48		
			Top Cable Norm	5	3.07		
			Top Cable Tan	5	0.00		
			Bot Cable Vert	5	-4.41		
			Bot Cable Norm	5	3.13		
			Bot Cable Tan	5	0.05		
		Top Guy Pull-Off	Max Tension	2	2.67	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	26	1.74	0.02	0.00
			Max. My	13	2.24	0.00	-0.00
			Max. Vy	26	-0.02	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T6	100.1 - 80.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-29.76	0.05	-0.01
			Max. Mx	11	-19.87	-0.27	-0.06

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	8	-16.29	-0.04	0.27
			Max. Vy	11	0.68	0.15	0.01
			Max. Vx	8	-0.68	0.03	-0.15
		Diagonal	Max Tension	11	0.60	0.00	0.00
			Max. Compression	2	-0.92	0.00	0.00
			Max. Mx	25	-0.32	0.01	0.00
			Max. My	26	-0.24	0.00	0.00
			Max. Vy	25	-0.01	0.00	0.00
			Max. Vx	26	0.00	0.00	0.00
		Top Girt	Max Tension	5	0.60	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	0.34	0.01	0.00
			Max. My	13	0.42	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	6	0.31	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	17	0.27	0.01	0.00
			Max. My	13	0.29	0.00	-0.00
			Max. Vy	17	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T7	80.1 - 60.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-31.01	0.07	-0.02
			Max. Mx	5	-20.15	0.22	-0.07
			Max. My	8	-17.09	-0.02	0.23
			Max. Vy	11	-0.50	-0.06	-0.07
			Max. Vx	2	-0.51	0.07	-0.02
		Diagonal	Max Tension	3	0.52	0.00	0.00
			Max. Compression	3	-0.80	0.00	0.00
			Max. Mx	24	0.27	0.01	0.00
			Max. My	26	-0.38	0.00	0.00
			Max. Vy	24	0.01	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Top Girt	Max Tension	15	0.24	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	17	0.19	0.01	0.00
			Max. My	13	0.22	0.00	-0.00
			Max. Vy	17	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	7	0.39	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	0.17	0.01	0.00
			Max. My	13	0.30	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T8	60.1 - 40.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-37.74	-0.18	-0.18
			Max. Mx	6	-36.86	-0.37	0.01
			Max. My	2	-36.31	0.07	0.39
			Max. Vy	10	0.65	0.33	-0.23
			Max. Vx	2	0.65	0.07	0.39
		Diagonal	Max Tension	7	1.41	0.00	0.00
			Max. Compression	13	-1.70	0.00	0.00
			Max. Mx	24	0.32	0.01	0.00
			Max. My	26	0.16	0.00	0.00
			Max. Vy	24	-0.01	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Top Girt	Max Tension	8	0.49	0.00	0.00
			Max. Compression	2	-0.37	0.00	0.00
			Max. Mx	19	0.11	0.01	0.00
			Max. My	13	0.41	0.00	-0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	13	0.67	0.00	0.00
			Max. Compression	7	-0.41	0.00	0.00
			Max. Mx	19	0.14	0.01	0.00
			Max. My	13	0.67	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Guy A	Bottom Tension	9	4.60		
			Top Tension	9	4.62		
			Top Cable Vert	9	2.42		
			Top Cable Norm	9	3.93		
			Top Cable Tan	9	0.00		
			Bot Cable Vert	9	-2.39		
			Bot Cable Norm	9	3.94		
			Bot Cable Tan	9	0.02		
		Guy B	Bottom Tension	11	4.68		
			Top Tension	11	4.69		
			Top Cable Vert	11	2.48		
			Top Cable Norm	11	3.98		
			Top Cable Tan	11	0.00		
			Bot Cable Vert	11	-2.45		
			Bot Cable Norm	11	3.99		
			Bot Cable Tan	11	0.02		
		Guy C	Bottom Tension	3	4.62		
			Top Tension	3	4.63		
			Top Cable Vert	3	2.44		
			Top Cable Norm	3	3.93		
			Top Cable Tan	3	0.00		
			Bot Cable Vert	3	-2.41		
			Bot Cable Norm	3	3.94		
			Bot Cable Tan	3	0.02		
		Top Guy Pull-Off	Max Tension	13	2.39	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	19	1.51	0.02	0.00
			Max. My	13	0.47	0.00	-0.00
			Max. Vy	19	-0.02	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T9	40.1 - 20.1	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-35.88	0.09	-0.08
			Max. Mx	6	-35.28	-0.30	-0.13
			Max. My	2	-35.87	0.08	0.32
			Max. Vy	10	0.66	0.26	-0.21
			Max. Vx	2	0.66	0.08	0.32
		Diagonal	Max Tension	13	1.38	0.00	0.00
			Max. Compression	7	-1.57	0.00	0.00
			Max. Mx	24	-0.42	0.01	0.00
			Max. My	26	-0.19	0.00	0.00
			Max. Vy	24	0.01	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Top Girt	Max Tension	7	0.57	0.00	0.00
			Max. Compression	13	-0.44	0.00	0.00
			Max. Mx	19	0.05	0.01	0.00
			Max. My	13	-0.44	0.00	-0.00
			Max. Vy	19	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	13	0.40	0.00	0.00
			Max. Compression	7	-0.29	0.00	0.00
			Max. Mx	14	0.07	0.01	0.00
			Max. My	13	0.40	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	13	0.00	0.00	0.00
T10	20.1 - 4.854	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-29.12	0.04	0.00
			Max. Mx	6	-27.15	1.08	0.39
			Max. My	10	-27.47	-0.09	-1.13
			Max. Vy	6	5.59	-0.89	0.74
			Max. Vx	6	6.41	-0.18	-1.12
		Diagonal	Max Tension	13	0.88	0.00	0.00
			Max. Compression	7	-1.05	0.00	0.00
			Max. Mx	16	0.23	0.01	0.00
			Max. My	26	0.00	0.00	0.00
			Max. Vy	16	-0.01	0.00	0.00
			Max. Vx	26	-0.00	0.00	0.00
		Top Girt	Max Tension	7	0.41	0.00	0.00
			Max. Compression	13	-0.27	0.00	0.00
			Max. Mx	14	0.06	0.01	0.00
			Max. My	13	-0.27	0.00	-0.00
			Max. Vy	14	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
		Bottom Girt	Max Tension	2	3.73	0.00	0.00
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	23	3.39	0.01	0.00
			Max. My	13	3.47	0.00	-0.00
			Max. Vy	23	-0.01	0.00	0.00
			Max. Vx	13	0.00	0.00	0.00
T11	4.854 - 0	Leg	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-29.94	0.05	-0.30
			Max. Mx	2	-27.81	-2.27	-0.11
			Max. My	13	-27.10	-0.51	-0.84
			Max. Vy	2	4.69	-2.27	-0.11
			Max. Vx	13	1.73	0.48	0.40
		Top Girt	Max Tension	2	2.91	-1.77	-0.01
			Max. Compression	1	0.00	0.00	0.00
			Max. Mx	2	2.89	-1.81	-0.01
			Max. My	13	2.60	-1.67	-0.01
			Max. Vy	13	0.36	-1.77	-0.01
			Max. Vx	26	0.01	-1.52	-0.01
		Bottom Girt	Max Tension	1	0.00	0.00	0.00
			Max. Compression	2	-0.84	0.46	0.01
			Max. Mx	13	-0.79	-1.45	-0.01
			Max. My	13	-0.74	-1.43	-0.01
			Max. Vy	13	4.48	-1.45	-0.01
			Max. Vx	13	0.06	-1.43	-0.01
		Mid Girt	Max Tension	20	0.08	0.00	0.00
			Max. Compression	6	-0.16	0.00	0.00
			Max. Mx	19	0.08	0.01	0.00
			Max. My	15	0.08	0.00	0.00
			Max. Vy	21	-0.03	0.00	0.00
			Max. Vx	15	-0.01	0.00	0.00

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Mast	Max. Vert	2	82.72	-0.02	-0.22
	Max. H_x	7	75.79	0.18	-0.09

Location	*Condition*	*Gov. Load Comb.*	*Vertical K*	*Horizontal, X K*	*Horizontal, Z K*
	Max. H_z	5	76.01	0.03	0.21
	Max. M_x	1	0.00	-0.01	0.01
	Max. M_z	1	0.00	-0.01	0.01
	Max. Torsion	13	1.16	0.13	-0.16
	Min. Vert	1	45.38	-0.01	0.01
	Min. H_x	9	75.81	-0.21	-0.09
	Min. H_z	8	63.18	-0.01	-0.25
	Min. M_x	1	0.00	-0.01	0.01
	Min. M_z	1	0.00	-0.01	0.01
	Min. Torsion	7	-1.27	0.18	-0.09
Guy C @ 99 ft Elev -5.17 ft Azimuth 240 deg	Max. Vert	10	-1.19	-0.39	0.22
	Max. H_x	10	-1.19	-0.39	0.22
	Max. H_z	3	-29.00	-15.36	9.27
	Min. Vert	5	-29.08	-15.74	8.69
	Min. H_x	5	-29.08	-15.74	8.69
	Min. H_z	9	-1.61	-0.72	0.21
Guy B @ 99.25 ft Elev -4.67 ft Azimuth 120 deg	Max. Vert	6	-1.18	0.38	0.22
	Max. H_x	11	-29.01	15.80	8.72
	Max. H_z	13	-28.96	15.43	9.29
	Min. Vert	11	-29.01	15.80	8.72
	Min. H_x	6	-1.18	0.38	0.22
	Min. H_z	7	-1.60	0.72	0.21
Guy A @ 96.5 ft Elev 2.46 ft Azimuth 0 deg	Max. Vert	2	-1.08	-0.00	-0.41
	Max. H_x	10	-24.68	0.53	-15.52
	Max. H_z	2	-1.08	-0.00	-0.41
	Min. Vert	7	-28.67	-0.33	-18.12
	Min. H_x	6	-24.71	-0.52	-15.54
	Min. H_z	7	-28.67	-0.33	-18.12
Guy C @ 71.5 ft Elev 2.125 ft Azimuth 240 deg	Max. Vert	10	-0.16	-0.07	0.04
	Max. H_x	10	-0.16	-0.07	0.04
	Max. H_z	3	-6.81	-6.09	3.59
	Min. Vert	3	-6.81	-6.09	3.59
	Min. H_x	5	-6.81	-6.14	3.47
	Min. H_z	10	-0.16	-0.07	0.04
Guy B @ 68.25 ft Elev 3.96 ft Azimuth 120 deg	Max. Vert	6	-0.17	0.07	0.04
	Max. H_x	11	-6.91	6.15	3.48
	Max. H_z	13	-6.89	6.07	3.58
	Min. Vert	11	-6.91	6.15	3.48
	Min. H_x	6	-0.17	0.07	0.04
	Min. H_z	6	-0.17	0.07	0.04
Guy A @ 70.5 ft Elev 3 ft Azimuth 0 deg	Max. Vert	2	-0.16	-0.00	-0.08
	Max. H_x	10	-5.72	0.11	-5.96
	Max. H_z	2	-0.16	-0.00	-0.08
	Min. Vert	9	-6.67	0.07	-6.96
	Min. H_x	5	-3.52	-0.11	-3.65
	Min. H_z	9	-6.67	0.07	-6.96

Tower Mast Reaction Summary

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead Only	45.38	0.01	-0.01	0.00	0.00	0.03
1.2 Dead+1.0 Wind 0 deg - No Ice+1.0 Guy	82.72	0.02	0.22	0.00	0.00	-0.98
1.2 Dead+1.0 Wind 30 deg - No Ice+1.0 Guy	76.07	0.17	0.15	0.00	0.00	-0.56
1.2 Dead+1.0 Wind 60 deg - No Ice+1.0 Guy	62.98	0.21	-0.13	0.00	0.00	0.02
1.2 Dead+1.0 Wind 90 deg - No Ice+1.0 Guy	76.01	-0.03	-0.21	0.00	0.00	0.64
1.2 Dead+1.0 Wind 120 deg - No Ice+1.0 Guy	82.40	-0.15	-0.08	0.00	0.00	1.09
1.2 Dead+1.0 Wind 150 deg - No Ice+1.0 Guy	75.79	-0.18	0.09	0.00	0.00	1.27
1.2 Dead+1.0 Wind 180 deg - No Ice+1.0 Guy	63.18	0.01	0.25	0.00	0.00	1.19
1.2 Dead+1.0 Wind 210 deg - No Ice+1.0 Guy	75.81	0.21	0.09	0.00	0.00	0.66
1.2 Dead+1.0 Wind 240 deg - No Ice+1.0 Guy	82.41	0.20	-0.08	0.00	0.00	0.08
1.2 Dead+1.0 Wind 270 deg - No Ice+1.0 Guy	76.07	0.08	-0.20	0.00	0.00	-0.52
1.2 Dead+1.0 Wind 300 deg - No Ice+1.0 Guy	63.15	-0.16	-0.12	0.00	0.00	-1.10
1.2 Dead+1.0 Wind 330 deg - No Ice+1.0 Guy	76.11	-0.13	0.16	0.00	0.00	-1.16
1.2 Dead+1.0 Ice+1.0 Temp+Guy	79.11	0.05	-0.02	0.00	0.00	0.06
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.04	0.05	-0.10	0.00	0.00	-0.35
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.44	0.05	-0.08	0.00	0.00	-0.16
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.79	0.07	-0.04	0.00	0.00	0.04
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.42	0.10	-0.00	0.00	0.00	0.25
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.04	0.11	0.02	0.00	0.00	0.45
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.56	0.09	0.02	0.00	0.00	0.55
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.98	0.05	0.01	0.00	0.00	0.47
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.59	0.00	0.02	0.00	0.00	0.28
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.10	-0.02	0.02	0.00	0.00	0.08
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.52	-0.00	0.00	0.00	0.00	-0.12
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.89	0.03	-0.04	0.00	0.00	-0.33
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp+1.0 Guy	80.50	0.04	-0.08	0.00	0.00	-0.43
Dead+Wind 0 deg - Service+Guy	45.38	0.02	-0.12	0.00	0.00	-0.20
Dead+Wind 30 deg - Service+Guy	45.45	0.06	-0.10	0.00	0.00	-0.09
Dead+Wind 60 deg -	45.55	0.09	-0.06	0.00	0.00	0.03

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Service+Guy						
Dead+Wind 90 deg - Service+Guy	45.55	0.11	-0.01	0.00	0.00	0.16
Dead+Wind 120 deg - Service+Guy	45.55	0.11	0.05	0.00	0.00	0.26
Dead+Wind 150 deg - Service+Guy	45.68	0.06	0.08	0.00	0.00	0.31
Dead+Wind 180 deg - Service+Guy	45.78	0.01	0.09	0.00	0.00	0.27
Dead+Wind 210 deg - Service+Guy	45.71	-0.04	0.08	0.00	0.00	0.16
Dead+Wind 240 deg - Service+Guy	45.60	-0.08	0.05	0.00	0.00	0.04
Dead+Wind 270 deg - Service+Guy	45.60	-0.08	-0.00	0.00	0.00	-0.09
Dead+Wind 300 deg - Service+Guy	45.60	-0.06	-0.05	0.00	0.00	-0.19
Dead+Wind 330 deg - Service+Guy	45.48	-0.03	-0.09	0.00	0.00	-0.24

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-16.57	0.00	0.00	16.57	-0.00	0.016%
2	-0.01	-19.72	-21.88	0.01	19.72	21.88	0.009%
3	10.88	-19.67	-18.87	-10.88	19.67	18.87	0.007%
4	18.84	-19.61	-10.87	-18.84	19.61	10.87	0.004%
5	21.79	-19.66	0.01	-21.78	19.66	-0.01	0.010%
6	18.94	-19.71	10.95	-18.94	19.71	-10.95	0.007%
7	10.90	-19.66	18.89	-10.90	19.66	-18.88	0.010%
8	0.01	-19.60	21.77	-0.01	19.60	-21.77	0.006%
9	-10.88	-19.66	18.87	10.88	19.66	-18.87	0.009%
10	-18.93	-19.71	10.93	18.93	19.71	-10.93	0.007%
11	-21.79	-19.66	-0.01	21.78	19.66	0.01	0.010%
12	-18.85	-19.61	-10.90	18.85	19.61	10.90	0.004%
13	-10.90	-19.67	-18.89	10.90	19.67	18.88	0.007%
14	0.00	-46.96	0.00	-0.00	46.96	-0.00	0.004%
15	-0.00	-47.01	-6.99	0.00	47.01	6.99	0.003%
16	3.48	-46.97	-6.05	-3.48	46.97	6.05	0.003%
17	6.04	-46.92	-3.49	-6.04	46.92	3.49	0.002%
18	6.97	-46.96	0.00	-6.97	46.96	-0.00	0.003%
19	6.05	-47.01	3.50	-6.04	47.01	-3.50	0.003%
20	3.49	-46.96	6.05	-3.49	46.96	-6.05	0.002%
21	0.00	-46.91	6.98	-0.00	46.91	-6.98	0.005%
22	-3.48	-46.96	6.05	3.48	46.96	-6.05	0.003%
23	-6.04	-47.01	3.49	6.04	47.01	-3.49	0.003%
24	-6.97	-46.96	-0.00	6.97	46.96	0.00	0.003%
25	-6.04	-46.91	-3.49	6.04	46.91	3.49	0.002%
26	-3.49	-46.96	-6.05	3.49	46.96	6.05	0.003%
27	-0.00	-16.59	-5.04	0.00	16.59	5.04	0.012%
28	2.51	-16.57	-4.35	-2.51	16.57	4.35	0.006%
29	4.34	-16.56	-2.51	-4.34	16.56	2.50	0.008%
30	5.02	-16.57	0.00	-5.02	16.57	-0.00	0.006%
31	4.36	-16.59	2.52	-4.36	16.59	-2.52	0.012%
32	2.51	-16.57	4.35	-2.51	16.57	-4.35	0.006%
33	0.00	-16.56	5.02	-0.00	16.56	-5.02	0.007%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
34	-2.51	-16.57	4.35	2.51	16.57	-4.35	0.006%
35	-4.36	-16.58	2.52	4.36	16.58	-2.52	0.012%
36	-5.02	-16.57	-0.00	5.02	16.57	0.00	0.007%
37	-4.34	-16.56	-2.51	4.34	16.56	2.51	0.008%
38	-2.51	-16.57	-4.35	2.51	16.57	4.35	0.006%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	9	0.00000001	0.00009662
2	Yes	22	0.00007849	0.00007715
3	Yes	22	0.00006699	0.00006007
4	Yes	15	0.00000001	0.00005020
5	Yes	21	0.00009935	0.00009041
6	Yes	22	0.00006470	0.00006378
7	Yes	21	0.00009949	0.00008695
8	Yes	14	0.00000001	0.00008303
9	Yes	21	0.00009544	0.00008455
10	Yes	22	0.00006209	0.00006129
11	Yes	21	0.00009528	0.00008668
12	Yes	15	0.00000001	0.00007484
13	Yes	22	0.00006696	0.00005966
14	Yes	9	0.00000001	0.00004634
15	Yes	14	0.00000001	0.00006626
16	Yes	14	0.00000001	0.00005124
17	Yes	14	0.00000001	0.00003022
18	Yes	14	0.00000001	0.00004522
19	Yes	14	0.00000001	0.00005815
20	Yes	14	0.00000001	0.00004355
21	Yes	13	0.00000001	0.00006198
22	Yes	14	0.00000001	0.00005166
23	Yes	14	0.00000001	0.00006796
24	Yes	14	0.00000001	0.00005214
25	Yes	14	0.00000001	0.00003058
26	Yes	14	0.00000001	0.00005038
27	Yes	9	0.00000001	0.00007995
28	Yes	10	0.00000001	0.00005306
29	Yes	10	0.00000001	0.00006842
30	Yes	10	0.00000001	0.00005655
31	Yes	9	0.00000001	0.00008530
32	Yes	10	0.00000001	0.00004992
33	Yes	10	0.00000001	0.00005794
34	Yes	10	0.00000001	0.00004913
35	Yes	9	0.00000001	0.00007498
36	Yes	10	0.00000001	0.00005428
37	Yes	10	0.00000001	0.00006595
38	Yes	10	0.00000001	0.00005187

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	190.6 - 175.35	2.403	29	0.0504	0.0682
T2	175.35 - 160.1	2.237	29	0.0690	0.0692
T3	160.1 - 140.1	1.969	29	0.0894	0.0705
T4	140.1 - 120.1	1.549	37	0.0815	0.0719
T5	120.1 - 100.1	1.265	37	0.0633	0.1004
T6	100.1 - 80.1	1.030	37	0.0494	0.1241
T7	80.1 - 60.1	0.823	37	0.0550	0.1384
T8	60.1 - 40.1	0.576	37	0.0593	0.1426
T9	40.1 - 20.1	0.341	28	0.0464	0.1322
T10	20.1 - 4.854	0.177	28	0.0411	0.1111
T11	4.854 - 0	0.044	27	0.0426	0.0623

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
189.99	Guy	29	2.398	0.0511	0.0682	64368
187.00	JAHH-65B-R3B	29	2.369	0.0544	0.0683	64368
175.00	TPA65R-BU8DA	29	2.232	0.0695	0.0693	22673
168.25	4478 B14	29	2.126	0.0800	0.0702	25520
168.00	DC6-48-60-0-8C-EV	29	2.121	0.0803	0.0702	25708
161.00	DMP65R-BU8DA	29	1.988	0.0887	0.0706	33483
154.75	4449 B5/B12	29	1.854	0.0909	0.0698	108927
154.00	DC9-48-60-24-8C-EV	29	1.838	0.0908	0.0696	160369
140.00	APX16DWV-16DWVS-E-A20	37	1.547	0.0814	0.0720	22307
139.49	Guy	37	1.538	0.0809	0.0724	22221
102.62	Guy	37	1.057	0.0502	0.1217	75652
45.03	Guy	28	0.392	0.0498	0.1368	54225

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	190.6 - 175.35	25.020	2	0.7392	0.3989
T2	175.35 - 160.1	22.636	2	0.8192	0.3955
T3	160.1 - 140.1	19.812	2	0.9051	0.3940
T4	140.1 - 120.1	15.846	2	0.8473	0.4033
T5	120.1 - 100.1	12.575	2	0.7327	0.4932
T6	100.1 - 80.1	9.723	2	0.6181	0.5762
T7	80.1 - 60.1	7.291	2	0.5645	0.6247
T8	60.1 - 40.1	4.981	2	0.5219	0.6307
T9	40.1 - 20.1	2.959	2	0.4134	0.5671
T10	20.1 - 4.854	1.450	2	0.3544	0.4526
T11	4.854 - 0	0.355	2	0.3485	0.2794

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
189.99	Guy	2	24.928	0.7421	0.3987	14676
187.00	JAHH-65B-R3B	2	24.479	0.7561	0.3977	14676
175.00	TPA65R-BU8DA	2	22.577	0.8214	0.3955	5196
168.25	4478 B14	2	21.377	0.8667	0.3959	5976
168.00	DC6-48-60-0-8C-EV	2	21.331	0.8683	0.3960	6024
161.00	DMP65R-BU8DA	2	19.990	0.9027	0.3945	8103
154.75	4449 B5/B12	2	18.736	0.9072	0.3895	30836
154.00	DC9-48-60-24-8C-EV	2	18.583	0.9061	0.3888	50971
140.00	APX16DWV-16DWVS-E-A20	2	15.828	0.8468	0.4036	4595
139.49	Guy	2	15.734	0.8439	0.4051	4573
102.62	Guy	2	10.059	0.6298	0.5678	8992
45.03	Guy	2	3.409	0.4516	0.5948	7902

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
T1	190.6	Leg	A325N	0.7500	4	1.81	30.10	0.060 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	3.29	5.92	0.555 ✔	1	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.38	5.92	0.064 ✔	1	Member Bearing
T2	175.35	Leg	A325N	0.7500	4	1.42	30.10	0.047 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	2.01	5.92	0.340 ✔	1	Member Bearing
		Top Girt	A325X	0.5000	1	0.38	4.17	0.092 ✔	1	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.96	5.92	0.162 ✔	1	Member Bearing
T3	160.1	Leg	A325N	0.7500	4	2.27	30.10	0.075 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	1.86	5.92	0.314 ✔	1	Member Bearing
		Top Girt	A325X	0.5000	1	0.57	4.17	0.138 ✔	1	Member Bearing
		Bottom Girt	A325X	0.5000	1	2.53	5.92	0.427 ✔	1	Member Bearing
T4	140.1	Leg	A325N	0.7500	4	2.22	30.10	0.074 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	1.01	5.92	0.170 ✔	1	Member Bearing
		Top Girt	A325X	0.5000	1	2.50	4.17	0.599 ✔	1	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.50	5.92	0.085 ✔	1	Member Bearing
T5	120.1	Leg	A325N	0.7500	4	2.48	30.10	0.082 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	2.15	7.02	0.306 ✔	1	Member Bearing
		Top Girt	A325X	0.5000	1	0.52	4.17	0.124 ✔	1	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.96	5.92	0.163 ✔	1	Member Bearing
T6	100.1	Leg	A325N	0.7500	4	2.23	30.10	0.074 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	0.92	7.02	0.131 ✔	1	Member Bearing
		Top Girt	A325X	0.5000	1	0.60	4.17	0.144 ✔	1	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.52	5.92	0.087 ✔	1	Member Bearing
T7	80.1	Leg	A325N	0.7500	4	2.58	30.10	0.086 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	0.80	7.02	0.114 ✔	1	Member Bearing

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load / Allowable	Allowable Ratio	Criteria
		Top Girt	A325X	0.5000	1	0.54	4.17	0.129 ✔	1	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.54	5.92	0.091 ✔	1	Member Bearing
T8	60.1	Leg	A325N	0.7500	4	2.99	30.10	0.099 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	1.70	7.02	0.242 ✔	1	Member Bearing
		Top Girt	A325X	0.5000	1	0.65	4.17	0.157 ✔	1	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.67	5.92	0.114 ✔	1	Member Bearing
T9	40.1	Leg	A325N	0.7500	4	2.43	30.10	0.081 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	1.38	5.92	0.233 ✔	1	Member Bearing
		Top Girt	A325X	0.5000	1	0.62	4.17	0.149 ✔	1	Member Bearing
		Bottom Girt	A325X	0.5000	1	0.62	5.92	0.105 ✔	1	Member Bearing
T10	20.1	Leg	A325N	0.7500	4	2.30	30.10	0.076 ✔	1	Bolt Tension
		Diagonal	A325X	0.5000	1	1.05	7.02	0.149 ✔	1	Member Bearing
		Top Girt	A325X	0.5000	1	0.50	4.17	0.121 ✔	1	Member Bearing
		Bottom Girt	A325X	0.5000	1	3.73	5.92	0.631 ✔	1	Member Bearing

Guy Design Data

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
T1	189.99 (A) (450)	9/16 EHS	3.50	35.00	13.57	21.00	1.000	1.548 ✔
	189.99 (B) (449)	9/16 EHS	3.50	35.00	13.71	21.00	1.000	1.532 ✔
	189.99 (C) (448)	9/16 EHS	3.50	35.00	13.73	21.00	1.000	1.529 ✔
T4	139.49 (A) (459)	1/2 EHS	2.69	26.90	10.34	16.14	1.000	1.561 ✔
	139.49 (A) (460)	1/2 EHS	2.69	26.90	10.67	16.14	1.000	1.512 ✔
	139.49 (B) (455)	1/2 EHS	2.69	26.90	10.72	16.14	1.000	1.506 ✔
	139.49 (B) (456)	1/2 EHS	2.69	26.90	10.42	16.14	1.000	1.549 ✔
	139.49 (C) (451)	1/2 EHS	2.69	26.90	10.43	16.14	1.000	1.547 ✔
	139.49 (C) (452)	1/2 EHS	2.69	26.90	10.37	16.14	1.000	1.557 ✔
T5	102.62 (A) (468)	3/8 EHS	1.54	15.40	5.26	9.24	1.000	1.755 ✔
	102.62 (B) (467)	3/8 EHS	1.54	15.40	5.45	9.24	1.000	1.696 ✔
	102.62 (C) (463)	3/8 EHS	1.54	15.40	5.43	9.24	1.000	1.701 ✔
T8	45.03 (A) (474)	3/8 EHS	1.54	15.40	4.62	9.24	1.000	2.002 ✔
	45.03 (B) (473)	3/8 EHS	1.54	15.40	4.69	9.24	1.000	1.969 ✔

Section No.	Elevation ft	Size	Initial Tension K	Breaking Load K	Actual T_u K	Allowable ϕT_n K	Required S.F.	Actual S.F.
	45.03 (C) (469)	3/8 EHS	1.54	15.40	4.63	9.24	1.000	1.995 ✔

Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	Mast Stability Index	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	190.6 - 175.35	ROHN 2.5 X-STR	15.25	2.42	62.9 K=2.00	2.2535	1.00	-21.73	75.97	0.286 [1] ✔
T2	175.35 - 160.1	ROHN 2.5 X-STR	15.25	2.42	62.9 K=2.00	2.2535	1.00	-22.17	75.97	0.292 [1] ✔
T3	160.1 - 140.1	ROHN 2 STD	20.00	2.41	36.7 K=1.00	1.0745	1.00	-27.21	43.81	0.621 [1] ✔
T4	140.1 - 120.1	ROHN 2 STD	20.00	2.41	36.7 K=1.00	1.0745	1.00	-29.08	43.81	0.664 [1] ✔
T5	120.1 - 100.1	ROHN 2 STD	20.00	2.41	36.7 K=1.00	1.0745	1.00	-29.76	43.81	0.679 [1] ✔
T6	100.1 - 80.1	ROHN 2 STD	20.00	2.41	36.7 K=1.00	1.0745	0.98	-29.76	43.14	0.690 [1] ✔
T7	80.1 - 60.1	ROHN 2 EH	20.00	2.41	37.6 K=1.00	1.4807	0.99	-31.01	59.31	0.523 [1] ✔
T8	60.1 - 40.1	ROHN 2.5 STD	20.00	2.41	61.0 K=2.00	1.7040	1.00	-37.74	58.41	0.646 [1] ✔
T9	40.1 - 20.1	ROHN 2.5 STD	20.00	2.41	61.0 K=2.00	1.7040	1.00	-35.88	58.41	0.614 [1] ✔
T10	20.1 - 4.854	ROHN 2.5 STD	15.25	2.42	61.3 K=2.00	1.7040	1.00	-29.12	58.27	0.500 [1] ✔
T11	4.854 - 0	ROHN 2.5 X-STR	5.25	1.27	16.5 K=1.00	2.2535	0.96	-29.94	95.65	0.313 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	190.6 - 175.35	ROHN TS1.5x16 ga	4.22	3.93	92.4 K=1.00	0.2627	-3.30	5.88	0.562 [1] ✔
T2	175.35 - 160.1	ROHN TS1.5x16 ga	4.22	3.93	92.4 K=1.00	0.2627	-2.07	5.88	0.353 [1] ✔
T3	160.1 - 140.1	ROHN TS1.5x16 ga	4.21	3.97	93.4	0.2627	-2.07	5.81	0.356 [1]

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	140.1 - 120.1	ROHN TS1.5x16 ga	4.21	3.97	93.4 K=1.00	0.2627	-1.01	5.81	0.174 [1]
T5	120.1 - 100.1	ROHN TS1.5x16 ga	4.21	3.97	93.4 K=1.00	0.2627	-2.15	5.81	0.370 [1]
T6	100.1 - 80.1	ROHN TS1.5x16 ga	4.21	3.97	93.4 K=1.00	0.2627	-0.92	5.81	0.158 [1]
T7	80.1 - 60.1	ROHN TS1.5x16 ga	4.21	3.97	93.4 K=1.00	0.2627	-0.80	5.81	0.138 [1]
T8	60.1 - 40.1	ROHN TS1.5x16 ga	4.21	3.92	92.2 K=1.00	0.2627	-1.70	5.89	0.288 [1]
T9	40.1 - 20.1	ROHN TS1.5x16 ga	4.21	3.92	92.2 K=1.00	0.2627	-1.57	5.89	0.266 [1]
T10	20.1 - 4.854	ROHN TS1.5x16 ga	4.22	3.93	92.4 K=1.00	0.2627	-1.05	5.88	0.178 [1]

[1] P_u / ϕP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	175.35 - 160.1	ROHN TS1.5x16 ga	3.46	3.22	75.7 K=1.00	0.2627	-0.38	6.99	0.055 [1]
T3	160.1 - 140.1	ROHN TS1.5x16 ga	3.46	3.26	76.7 K=1.00	0.2627	-0.47	6.92	0.068 [1]
T4	140.1 - 120.1	ROHN TS1.5x16 ga	3.46	3.26	76.7 K=1.00	0.2627	-2.11	6.92	0.305 [1]
T5	120.1 - 100.1	ROHN TS1.5x16 ga	3.46	3.26	76.7 K=1.00	0.2627	-0.52	6.92	0.074 [1]
T6	100.1 - 80.1	ROHN TS1.5x16 ga	3.46	3.26	76.7 K=1.00	0.2627	-0.52	6.92	0.074 [1]
T7	80.1 - 60.1	ROHN TS1.5x16 ga	3.46	3.26	76.7 K=1.00	0.2627	-0.54	6.92	0.078 [1]
T8	60.1 - 40.1	ROHN TS1.5x16 ga	3.46	3.22	75.7 K=1.00	0.2627	-0.65	6.99	0.094 [1]
T9	40.1 - 20.1	ROHN TS1.5x16 ga	3.46	3.22	75.7 K=1.00	0.2627	-0.62	6.99	0.089 [1]
T10	20.1 - 4.854	ROHN TS1.5x16 ga	3.46	3.22	75.7 K=1.00	0.2627	-0.50	6.99	0.072 [1]
T11	4.854 - 0	14x3/16	2.98	2.74	608.2 K=1.00	2.6250	-0.55	1.60	0.343 [1]

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T1	190.6 - 175.35	ROHN TS1.5x16 ga	3.46	3.22	75.7 K=1.00	0.2627	-0.38	6.99	0.054 [1] ✔
T2	175.35 - 160.1	ROHN TS1.5x16 ga	3.46	3.22	75.7 K=1.00	0.2627	-0.96	6.99	0.137 [1] ✔
T3	160.1 - 140.1	ROHN TS1.5x16 ga	3.46	3.26	76.7 K=1.00	0.2627	-2.14	6.92	0.310 [1] ✔
T4	140.1 - 120.1	ROHN TS1.5x16 ga	3.46	3.26	76.7 K=1.00	0.2627	-0.50	6.92	0.073 [1] ✔
T5	120.1 - 100.1	ROHN TS1.5x16 ga	3.46	3.26	76.7 K=1.00	0.2627	-0.52	6.92	0.074 [1] ✔
T6	100.1 - 80.1	ROHN TS1.5x16 ga	3.46	3.26	76.7 K=1.00	0.2627	-0.52	6.92	0.074 [1] ✔
T7	80.1 - 60.1	ROHN TS1.5x16 ga	3.46	3.26	76.7 K=1.00	0.2627	-0.54	6.92	0.078 [1] ✔
T8	60.1 - 40.1	ROHN TS1.5x16 ga	3.46	3.22	75.7 K=1.00	0.2627	-0.65	6.99	0.094 [1] ✔
T9	40.1 - 20.1	ROHN TS1.5x16 ga	3.46	3.22	75.7 K=1.00	0.2627	-0.62	6.99	0.089 [1] ✔
T10	20.1 - 4.854	ROHN TS1.5x16 ga	3.46	3.22	75.7 K=1.00	0.2627	-0.50	6.99	0.072 [1] ✔
T11	4.854 - 0	14x3/16	0.47	0.24	52.2 K=1.00	2.6250	-0.84	73.69	0.011 [1] ✔

[1] P_u / ϕP_n controls

Mid Girt Design Data (Compression)

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T11	4.854 - 0	14x3/16	1.31	1.07	237.5 K=1.00	2.6250	-0.16	10.51	0.015 [1] ✔
		KL/R > 200 (C) - 443							

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
T4	140.1 - 120.1 (453)	C10x15.3	3.50	3.40	57.2 K=1.00	4.4900	-3.17	122.43	0.026
T4	140.1 - 120.1 (454)	C10x15.3	3.50	3.40	57.2 K=1.00	4.4900	-3.21	122.43	0.026

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	140.1 - 120.1 (457)	C10x15.3	3.50	3.40	57.2 K=1.00	4.4900	-3.14	122.43	0.026
T4	140.1 - 120.1 (458)	C10x15.3	3.50	3.40	57.2 K=1.00	4.4900	-3.16	122.43	0.026
T4	140.1 - 120.1 (461)	C10x15.3	3.50	3.40	57.2 K=1.00	4.4900	-3.00	122.43	0.025
T4	140.1 - 120.1 (462)	C10x15.3	3.50	3.40	57.2 K=1.00	4.4900	-3.04	122.43	0.025

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T4	140.1 - 120.1 (453)	C10x15.3	-28.65	41.76	0.686	-0.00	4.70	0.000
T4	140.1 - 120.1 (454)	C10x15.3	-28.23	41.76	0.676	0.00	4.70	0.000
T4	140.1 - 120.1 (457)	C10x15.3	-28.62	41.76	0.685	0.00	4.70	0.000
T4	140.1 - 120.1 (458)	C10x15.3	-28.59	41.76	0.685	-0.00	4.70	0.000
T4	140.1 - 120.1 (461)	C10x15.3	-27.67	41.76	0.663	-0.00	4.70	0.000
T4	140.1 - 120.1 (462)	C10x15.3	-27.39	41.76	0.656	0.00	4.70	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T4	140.1 - 120.1 (453)	C10x15.3	0.026	0.686	0.000	0.699 ✔	1.000	4.8.1 ✔
T4	140.1 - 120.1 (454)	C10x15.3	0.026	0.676	0.000	0.689 ✔	1.000	4.8.1 ✔
T4	140.1 - 120.1 (457)	C10x15.3	0.026	0.685	0.000	0.698 ✔	1.000	4.8.1 ✔
T4	140.1 - 120.1 (458)	C10x15.3	0.026	0.685	0.000	0.698 ✔	1.000	4.8.1 ✔
T4	140.1 - 120.1 (461)	C10x15.3	0.025	0.663	0.000	0.675 ✔	1.000	4.8.1 ✔
T4	140.1 - 120.1 (462)	C10x15.3	0.025	0.656	0.000	0.668 ✔	1.000	4.8.1 ✔

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	190.6 - 175.35	ROHN 2.5 X-STR	15.25	2.42	31.4	2.2535	6.75	101.41	0.067 [1] ✔
T2	175.35 - 160.1	ROHN 2.5 X-STR	15.25	2.42	31.4	2.2535	6.75	101.41	0.067 [1] ✔
T3	160.1 - 140.1	ROHN 2 STD	20.00	2.41	36.7	1.0745	7.96	48.35	0.165 [1] ✔
T4	140.1 - 120.1	ROHN 2 STD	20.00	2.41	36.7	1.0745	7.96	48.35	0.165 [1] ✔

[1] P_u / ϕP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	190.6 - 175.35	ROHN TS1.5x16 ga	4.22	3.93	92.4	0.2627	3.29	9.93	0.331 [1] ✔
T2	175.35 - 160.1	ROHN TS1.5x16 ga	4.22	3.93	92.4	0.2627	2.01	9.93	0.202 [1] ✔
T3	160.1 - 140.1	ROHN TS1.5x16 ga	4.21	3.97	93.4	0.2627	1.86	9.93	0.187 [1] ✔
T4	140.1 - 120.1	ROHN TS1.5x16 ga	4.21	3.97	93.4	0.2627	1.01	9.93	0.101 [1] ✔
T5	120.1 - 100.1	ROHN TS1.5x16 ga	4.21	3.97	93.4	0.2627	0.75	9.93	0.075 [1] ✔
T6	100.1 - 80.1	ROHN TS1.5x16 ga	4.21	3.97	93.4	0.2627	0.60	9.93	0.060 [1] ✔
T7	80.1 - 60.1	ROHN TS1.5x16 ga	4.21	3.97	93.4	0.2627	0.52	9.93	0.053 [1] ✔
T8	60.1 - 40.1	ROHN TS1.5x16 ga	4.21	3.92	92.2	0.2627	1.41	9.93	0.142 [1] ✔
T9	40.1 - 20.1	ROHN TS1.5x16 ga	4.21	3.92	92.2	0.2627	1.38	9.93	0.139 [1] ✔
T10	20.1 - 4.854	ROHN TS1.5x16 ga	4.22	3.93	92.4	0.2627	0.88	9.93	0.089 [1] ✔

[1] P_u / ϕP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T2	175.35 - 160.1	ROHN TS1.5x16 ga	3.46	3.22	75.7	0.2627	0.38	9.93	0.039 [1] ✔
T3	160.1 - 140.1	ROHN TS1.5x16 ga	3.46	3.26	76.7	0.2627	0.57	9.93	0.058 [1] ✔
T4	140.1 - 120.1	ROHN TS1.5x16 ga	3.46	3.26	76.7	0.2627	2.50	9.93	0.251 [1] ✔
T5	120.1 - 100.1	ROHN TS1.5x16 ga	3.46	3.26	76.7	0.2627	0.52	9.93	0.052 [1] ✔
T6	100.1 - 80.1	ROHN TS1.5x16 ga	3.46	3.26	76.7	0.2627	0.60	9.93	0.060 [1] ✔
T7	80.1 - 60.1	ROHN TS1.5x16 ga	3.46	3.26	76.7	0.2627	0.54	9.93	0.054 [1] ✔
T8	60.1 - 40.1	ROHN TS1.5x16 ga	3.46	3.22	75.7	0.2627	0.65	9.93	0.066 [1] ✔
T9	40.1 - 20.1	ROHN TS1.5x16 ga	3.46	3.22	75.7	0.2627	0.62	9.93	0.063 [1] ✔
T10	20.1 - 4.854	ROHN TS1.5x16 ga	3.46	3.22	75.7	0.2627	0.50	9.93	0.051 [1] ✔
T11	4.854 - 0	14x3/16 L/R > 500 (T) - 436	2.98	2.74	608.2	2.6250	2.91	85.05	0.034 [1] ✔

[1] P_u / ϕP_n controls

Bottom Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	190.6 - 175.35	ROHN TS1.5x16 ga	3.46	3.22	75.7	0.2627	0.38	9.93	0.038 [1] ✔
T2	175.35 - 160.1	ROHN TS1.5x16 ga	3.46	3.22	75.7	0.2627	0.96	9.93	0.097 [1] ✔
T3	160.1 - 140.1	ROHN TS1.5x16 ga	3.46	3.26	76.7	0.2627	2.53	9.93	0.254 [1] ✔
T4	140.1 - 120.1	ROHN TS1.5x16 ga	3.46	3.26	76.7	0.2627	0.50	9.93	0.051 [1] ✔
T5	120.1 - 100.1	ROHN TS1.5x16 ga	3.46	3.26	76.7	0.2627	0.96	9.93	0.097 [1] ✔
T6	100.1 - 80.1	ROHN TS1.5x16 ga	3.46	3.26	76.7	0.2627	0.52	9.93	0.052 [1] ✔
T7	80.1 - 60.1	ROHN TS1.5x16 ga	3.46	3.26	76.7	0.2627	0.54	9.93	0.054 [1] ✔
T8	60.1 - 40.1	ROHN TS1.5x16 ga	3.46	3.22	75.7	0.2627	0.67	9.93	0.068 [1] ✔
T9	40.1 - 20.1	ROHN TS1.5x16 ga	3.46	3.22	75.7	0.2627	0.62	9.93	0.063 [1] ✔
T10	20.1 - 4.854	ROHN TS1.5x16 ga	3.46	3.22	75.7	0.2627	3.73	9.93	0.376 [1] ✔

[1] P_u / ϕP_n controls

Mid Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T11	4.854 - 0	14x3/16	2.15	1.91	422.9	2.6250	0.08	85.05	0.001 [1] ✔

[1] P_u / ϕP_n controls

Top Guy Pull-Off Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T1	190.6 - 175.35	4 1/2x3/8	3.46	3.22	356.8	1.6875	3.69	54.67	0.067 [1]
T5	120.1 - 100.1	C4x5.4	3.46	3.26	87.1	1.5900	2.67	51.52	0.052 [1]
T8	60.1 - 40.1	C4x5.4	3.46	3.22	86.0	1.5900	2.39	51.52	0.046 [1]

[1] P_u / ϕP_n controls

Top Guy Pull-Off Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T1	190.6 - 175.35	4 1/2x3/8	0.00	5.13	0.000	0.00	0.43	0.000
T5	120.1 - 100.1	C4x5.4	0.00	5.74	0.000	0.00	1.15	0.000
T8	60.1 - 40.1	C4x5.4	0.00	5.75	0.000	0.00	1.15	0.000

Top Guy Pull-Off Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T1	190.6 - 175.35	4 1/2x3/8	0.067	0.000	0.000	0.067 [1] ✔	1.000	4.8.1 ✔
T5	120.1 - 100.1	C4x5.4	0.052	0.000	0.000	0.052 [1] ✔	1.000	4.8.1 ✔
T8	60.1 - 40.1	C4x5.4	0.046	0.000	0.000	0.046 [1] ✔	1.000	4.8.1 ✔

[1] P_u / ϕP_n controls

Torque-Arm Top Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
T4	140.1 - 120.1 (453)	C10x15.3	3.50	3.40	57.2	4.4900	0.04	145.48	0.000
T4	140.1 - 120.1 (454)	C10x15.3	3.50	3.40	57.2	4.4900	2.39	145.48	0.016
T4	140.1 - 120.1 (457)	C10x15.3	3.50	3.40	57.2	4.4900	0.06	145.48	0.000
T4	140.1 - 120.1 (458)	C10x15.3	3.50	3.40	57.2	4.4900	2.38	145.48	0.016
T4	140.1 - 120.1 (461)	C10x15.3	3.50	3.40	57.2	4.4900	0.04	145.48	0.000
T4	140.1 - 120.1 (462)	C10x15.3	3.50	3.40	57.2	4.4900	0.00	145.48	0.000

Torque-Arm Top Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
T4	140.1 - 120.1 (453)	C10x15.3	-29.83	41.76	0.714	-0.00	4.70	0.000
T4	140.1 - 120.1 (454)	C10x15.3	-25.87	41.76	0.619	-0.00	4.70	0.000
T4	140.1 - 120.1 (457)	C10x15.3	-29.90	41.76	0.716	0.00	4.70	0.000
T4	140.1 - 120.1 (458)	C10x15.3	-26.08	41.76	0.625	0.00	4.70	0.000
T4	140.1 - 120.1 (461)	C10x15.3	-29.79	41.76	0.713	0.00	4.70	0.000
T4	140.1 - 120.1 (462)	C10x15.3	-29.47	41.76	0.706	-0.00	4.70	0.000

Torque-Arm Top Interaction Design Data

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
T4	140.1 - 120.1 (453)	C10x15.3	0.000	0.714	0.000	0.715 ✔	1.000	4.8.1 ✔
T4	140.1 - 120.1 (454)	C10x15.3	0.016	0.619	0.000	0.628 ✔	1.000	4.8.1 ✔
T4	140.1 - 120.1 (457)	C10x15.3	0.000	0.716	0.000	0.716 ✔	1.000	4.8.1 ✔
T4	140.1 - 120.1	C10x15.3	0.016	0.625	0.000	0.633	1.000	4.8.1 ✔

Section No.	Elevation ft	Size	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
	(458)					✔		
T4	140.1 - 120.1	C10x15.3	0.000	0.713	0.000	0.714	1.000	4.8.1 ✔
	(461)					✔		
T4	140.1 - 120.1	C10x15.3	0.000	0.706	0.000	0.706	1.000	4.8.1 ✔
	(462)					✔		

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	190.6 - 175.35	Leg	ROHN 2.5 X-STR	1	-21.73	75.97	28.6	Pass
T2	175.35 - 160.1	Leg	ROHN 2.5 X-STR	28	-22.17	75.97	29.2	Pass
T3	160.1 - 140.1	Leg	ROHN 2 STD	56	-27.21	43.81	62.1	Pass
T4	140.1 - 120.1	Leg	ROHN 2 STD	113	-29.08	43.81	66.4	Pass
T5	120.1 - 100.1	Leg	ROHN 2 STD	171	-29.76	43.81	67.9	Pass
T6	100.1 - 80.1	Leg	ROHN 2 STD	228	-29.76	43.14	69.0	Pass
T7	80.1 - 60.1	Leg	ROHN 2 EH	285	-31.01	59.31	52.3	Pass
T8	60.1 - 40.1	Leg	ROHN 2.5 STD	342	-37.74	58.41	64.6	Pass
T9	40.1 - 20.1	Leg	ROHN 2.5 STD	375	-35.88	58.41	61.4	Pass
T10	20.1 - 4.854	Leg	ROHN 2.5 STD	408	-29.12	58.27	50.0	Pass
T11	4.854 - 0	Leg	ROHN 2.5 X-STR	433	-29.94	95.65	31.3	Pass
T1	190.6 - 175.35	Diagonal	ROHN TS1.5x16 ga	25	-3.30	5.88	56.2	Pass
T2	175.35 - 160.1	Diagonal	ROHN TS1.5x16 ga	38	-2.07	5.88	35.3	Pass
T3	160.1 - 140.1	Diagonal	ROHN TS1.5x16 ga	69	-2.07	5.81	35.6	Pass
T4	140.1 - 120.1	Diagonal	ROHN TS1.5x16 ga	167	-1.01	5.81	17.4	Pass
T5	120.1 - 100.1	Diagonal	ROHN TS1.5x16 ga	183	-2.15	5.81	37.0	Pass
T6	100.1 - 80.1	Diagonal	ROHN TS1.5x16 ga	282	-0.92	5.81	15.8	Pass
T7	80.1 - 60.1	Diagonal	ROHN TS1.5x16 ga	296	-0.80	5.81	13.8	Pass
T8	60.1 - 40.1	Diagonal	ROHN TS1.5x16 ga	350	-1.70	5.89	28.8	Pass
T9	40.1 - 20.1	Diagonal	ROHN TS1.5x16 ga	404	-1.57	5.89	26.6	Pass
T10	20.1 - 4.854	Diagonal	ROHN TS1.5x16 ga	431	-1.05	5.88	17.8	Pass
T2	175.35 - 160.1	Top Girt	ROHN TS1.5x16 ga	33	-0.38	6.99	5.5	Pass
							9.2 (b)	
T3	160.1 - 140.1	Top Girt	ROHN TS1.5x16 ga	58	-0.47	6.92	6.8	Pass
							13.8 (b)	
T4	140.1 - 120.1	Top Girt	ROHN TS1.5x16 ga	116	-2.11	6.92	30.5	Pass
							59.9 (b)	
T5	120.1 - 100.1	Top Girt	ROHN TS1.5x16 ga	173	-0.52	6.92	7.4	Pass
							12.4 (b)	
T6	100.1 - 80.1	Top Girt	ROHN TS1.5x16 ga	230	-0.52	6.92	7.4	Pass
							14.4 (b)	
T7	80.1 - 60.1	Top Girt	ROHN TS1.5x16 ga	287	-0.54	6.92	7.8	Pass
							12.9 (b)	
T8	60.1 - 40.1	Top Girt	ROHN TS1.5x16 ga	344	-0.65	6.99	9.4	Pass
							15.7 (b)	
T9	40.1 - 20.1	Top Girt	ROHN TS1.5x16 ga	377	-0.62	6.99	8.9	Pass
							14.9 (b)	
T10	20.1 - 4.854	Top Girt	ROHN TS1.5x16 ga	410	-0.50	6.99	7.2	Pass
							12.1 (b)	
T11	4.854 - 0	Top Girt	14x3/16	438	-0.55	1.60	34.3	Pass
T1	190.6 - 175.35	Bottom Girt	ROHN TS1.5x16 ga	9	-0.38	6.99	5.4	Pass
							6.4 (b)	
T2	175.35 - 160.1	Bottom Girt	ROHN TS1.5x16 ga	35	-0.96	6.99	13.7	Pass
							16.2 (b)	
T3	160.1 - 140.1	Bottom Girt	ROHN TS1.5x16 ga	63	-2.14	6.92	31.0	Pass

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
							42.7 (b)	
T4	140.1 - 120.1	Bottom Girt	ROHN TS1.5x16 ga	118	-0.50	6.92	7.3	Pass
							8.5 (b)	
T5	120.1 - 100.1	Bottom Girt	ROHN TS1.5x16 ga	176	0.96	9.93	9.7	Pass
							16.3 (b)	
T6	100.1 - 80.1	Bottom Girt	ROHN TS1.5x16 ga	233	-0.52	6.92	7.4	Pass
							8.7 (b)	
T7	80.1 - 60.1	Bottom Girt	ROHN TS1.5x16 ga	290	-0.54	6.92	7.8	Pass
							9.1 (b)	
T8	60.1 - 40.1	Bottom Girt	ROHN TS1.5x16 ga	347	-0.65	6.99	9.4	Pass
							11.4 (b)	
T9	40.1 - 20.1	Bottom Girt	ROHN TS1.5x16 ga	380	-0.62	6.99	8.9	Pass
							10.5 (b)	
T10	20.1 - 4.854	Bottom Girt	ROHN TS1.5x16 ga	412	3.73	9.93	37.6	Pass
							63.1 (b)	
T11	4.854 - 0	Bottom Girt	14x3/16	439	-0.83	73.69	8.8	Pass
T11	4.854 - 0	Mid Girt	14x3/16	443	-0.16	10.51	1.5	Pass
T1	190.6 - 175.35	Guy A@189.985	9/16	450	13.57	21.00	64.6	Pass
T4	140.1 - 120.1	Guy A@139.485	1/2	460	10.67	16.14	66.1	Pass
T5	120.1 - 100.1	Guy A@102.623	3/8	468	5.26	9.24	57.0	Pass
T8	60.1 - 40.1	Guy A@45.0323	3/8	474	4.62	9.24	50.0	Pass
T1	190.6 - 175.35	Guy B@189.985	9/16	449	13.71	21.00	65.3	Pass
T4	140.1 - 120.1	Guy B@139.485	1/2	455	10.72	16.14	66.4	Pass
T5	120.1 - 100.1	Guy B@102.623	3/8	467	5.45	9.24	59.0	Pass
T8	60.1 - 40.1	Guy B@45.0323	3/8	473	4.69	9.24	50.8	Pass
T1	190.6 - 175.35	Guy C@189.985	9/16	448	13.73	21.00	65.4	Pass
T4	140.1 - 120.1	Guy C@139.485	1/2	451	10.43	16.14	64.6	Pass
T5	120.1 - 100.1	Guy C@102.623	3/8	463	5.43	9.24	58.8	Pass
T8	60.1 - 40.1	Guy C@45.0323	3/8	469	4.63	9.24	50.1	Pass
T1	190.6 - 175.35	Top Guy Pull-Off@189.985	4 1/2x3/8	4	3.69	54.67	6.7	Pass
T5	120.1 - 100.1	Top Guy Pull-Off@102.623	C4x5.4	464	2.67	51.52	5.2	Pass
T8	60.1 - 40.1	Top Guy Pull-Off@45.0323	C4x5.4	470	2.39	51.52	4.6	Pass
T4	140.1 - 120.1	Torque Arm Top@139.485	C10x15.3	457	-3.14	122.43	71.6	Pass

Summary		
Leg (T6)	69.0	Pass
Diagonal (T1)	56.2	Pass
Top Girt (T4)	59.9	Pass
Bottom Girt (T10)	63.1	Pass
Mid Girt (T11)	1.5	Pass
Guy A (T4)	66.1	Pass
Guy B (T4)	66.4	Pass
Guy C (T1)	65.4	Pass
Top Guy Pull-Off (T1)	6.7	Pass
Torque Arm Top (T4)	71.6	Pass
Bolt Checks	63.1	Pass
RATING =	**71.6**	**Pass**

Centek Engineering Inc.
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CENTEK engineering
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Branford, CT 06405 F: (203) 488-8587

Job :	AT&T ~ CT1166: 190-ft Guyed Lattice Tower	Project No.	21140.00	Sheet	1	of	2
Address:	812 Providence Pike, Danileson, CT	Computed by	TJL	Date		11/7/22	
Description:	Guy Anchor Evaluation	Checked by	CFC	Date			

CHECK UPLIFT RESISTANCE

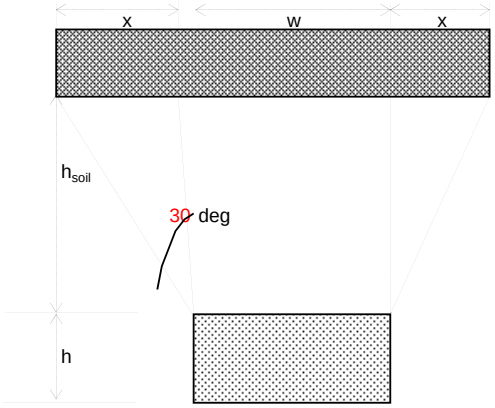
ANCHOR (C) AT 99ft RADIUS

RESULTS FROM COMPUTER ANALYSIS:

Uplift =	29	kips
Sliding =	18	kips
Wdepth =	1	ft

CONCRETE PARAMETERS:

γ_{conc} =	150	pcf
$\gamma_{conc.sub}$ =	87.6	pcf
w =	4	ft
h =	2	ft
d =	7	ft
Vol. =	0.00	ft^3
Vol.sub =	56.00	ft^3
Wc =	*4.91*	kips
Ø =	*0.90*	
	4.42	



Foundation Section

SOIL PARAMETERS:

γ_{soil} =	105	pcf
$\gamma_{soil.sub}$ =	42.6	pcf
h_{soil} =	8	ft
x =	*4.62*	ft

Soil Weight (Wr):

B1 =	28.00
B2 =	182.25
B3 =	214.95

W.soil =	20.83	kips
W.soil.sub =	28.00	kips
Total =	*48.83*	kips
Ø =	*0.75*	
	36.62	

SF AGAINST SLIDING

1.85 **>** *1* ***OK***

GUY ANCHORS AGAINST UPLIFT ARE ADEQUATE

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Job :	AT&T ~ CT1166: 190-ft Guyed Lattice Tower	Project No.	21140.00	Sheet	2	of	2
Address:	812 Providence Pike, Danileson, CT	Computed by	TJL	Date		11/7/22	
Description:	Guy Anchor Evaluation	Checked by	CFC	Date			

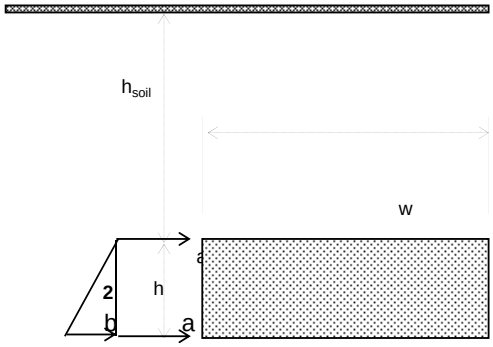
CHECK SLIDING RESISTANCE

SOIL PARAMETERS

$\gamma soil$ =	105	pcf
$\gamma soil$ =	42.6	pcf
h_{soil} =	8	ft
h =	2	ft
ϕ =	30	degrees

ANCHOR PARAMETERS

w =	4.0	ft
h =	2.0	ft
d =	7.0	ft



Foundation Elevation View

K_p = 3.00

HORIZONTAL FORCES

		1.21	ksf
		1.47	ksf
RESIST TO SLIDING =		18.72	k
SOIL & CONCRETE WEIGHT =	Wr + Wc =	41.04	k
UPLIFT REACTIONS =		-29	k
SUM =		12.04	k
COEF. OF FRICTION, (0.45) =		5.42	k
RESIST TO SLIDING =		18.72	k
SUM =		24.14	k

SF AGAINST SLIDING

SF = 1.3 > 1 OK

CENTEK engineering
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Subject:	Base Foundation Analysis
Location:	190-ft Guyed Lattice Tower Danielson, CT
Rev. 7: 12/8/22	Prepared by: T.J.L. Checked by: C.F.C. Job No. 21140.00

Guyed Tower Base Foundation:

Input Data:

Tower Data

Shear Force =	$Shear := 1 \cdot kip$	(User Input from tnxTower)	
Axial Force =	$Axial := 83 \cdot kip$	(User Input from tnxTower)	
Tower Height =	$H_t := 190 \cdot ft$	(User Input)	

Footing Data:

Overall Depth of Footing =	$D_f := 4.0 \cdot ft$	(User Input)	
Length of Pier =	$L_p := 3.75 \cdot ft$	(User Input)	
Extension of Pier Above Grade =	$L_{pag} := 1.0 \cdot ft$	(User Input)	
Width of Pier =	$W_p := 2.0 \cdot ft$	(User Input)	
Thickness of Footing =	$T_f := 1.25 \cdot ft$	(User Input)	
Width of Footing =	$W_{f1} := 4 \cdot ft$	(User Input)	
Length of Footing =	$W_{f2} := 4 \cdot ft$	(User Input)	

Material Properties:

Concrete Compressive Strength =	$f_c := 3000 \cdot psi$	(User Input)	
Steel Reinforcment Yield Strength =	$f_y := 60000 \cdot psi$	(User Input)	
Internal Friction Angle of Soil =	$\Phi_s := 30 \cdot deg$	(User Input)	
Ultimate Soil Bearing Capacity =	$q_s := 12000 \cdot psf$	(User Input)	
Unit Weight of Soil =	$\gamma_{soil} := 120 \cdot pcf$	(User Input)	
Unit Weight of Concrete =	$\gamma_{conc} := 150 \cdot pcf$	(User Input)	
Foundation Bouyancy =	$Bouyancy := 1$	(User Input)	(Yes=1 / No=0)
Depth to Neglect =	$n := 0 \cdot ft$	(User Input)	
Cohesion of Clay Type Soil =	$c := 0 \cdot ksf$	(User Input)	(Use 0 for Sandy Soil)
Seismic Zone Factor =	$Z := 2$	(User Input)	
Coefficient of Friction Between Concrete =	$\mu := 0.45$	(User Input)	

Calculated Factors:

Coefficient of Lateral Soil Pressure =

$$K_p := \frac{1 + \sin(\Phi_s)}{1 - \sin(\Phi_s)} = 3$$

Load Factor =

$$LF := \begin{cases} 1.333 & \text{if } H_t \le 700 \cdot ft \\ 1.7 & \text{if } H_t \ge 1200 \cdot ft \\ 1.333 + \left(\frac{H_t - 700ft}{1200ft - 700ft}\right) \cdot 0.4 & \text{otherwise} \end{cases} = 1.333$$

Stability of Footing:

Adjusted Concrete Unit Weight = $\gamma_c := if(Bouyancy = 1, \gamma_{conc} - 62.4pcf, \gamma_{conc}) = 87.6 \cdot pcf$

Adjusted Soil Unit Weight = $\gamma_s := if(Bouyancy = 1, \gamma_{soil} - 62.4pcf, \gamma_{soil}) = 57.6 \cdot pcf$

Passive Pressure = $P_{pn} := K_p \cdot \gamma_s \cdot n + c \cdot 2 \cdot \sqrt{K_p} = 0 \cdot ksf$

$P_{pt} := K_p \cdot \gamma_s \cdot (D_f - T_f) + c \cdot 2 \cdot \sqrt{K_p} = 0.475 \cdot ksf$

$P_{top} := if[n < (D_f - T_f), P_{pt}, P_{pn}] = 0.475 \cdot ksf$

$P_{bot} := K_p \cdot \gamma_s \cdot D_f + c \cdot 2 \cdot \sqrt{K_p} = 0.691 \cdot ksf$

$P_{ave} := \frac{P_{top} + P_{bot}}{2} = 0.583 \cdot ksf$

$T_p := if[n < (D_f - T_f), T_f, (D_f - n)] = 1.25$

$A_p := W_{f1} \cdot T_p = 5$

Soil Shear Resistance = $Sl_1 := P_{ave} \cdot A_p = 2.92 \cdot kip$

Weight of Concrete = $WT_c := [(W_{f1} \cdot W_{f2} \cdot T_f) + W_p^2 L_p] \cdot \gamma_c = 3.07 \cdot kip$

Total Weight = $WT_{tot} := WT_c + Axial = 86.07 \cdot kip$

Soil/Concrete Friction Resistance = $Sl_2 := \mu \cdot WT_{tot} = 38.73 \cdot kips$

Total Sliding Resistance = $Sl_{tot} := Sl_1 + Sl_2 = 41.65 \cdot kips$

Sliding Resistance Ratio = $Sliding\_Resistance_{ratio} := \frac{0.75 Sl_{tot}}{Shear} = 31.23$

$Sliding\_Resistance\_Check := if\left[\left(\frac{Shear}{0.75 Sl_{tot}} < 1.0\right), "Okay", "No Good"\right]$

Sliding_Resistance_Check = "Okay"

Bearing Pressure Caused by Footing:

Area of the Mat = $A_{mat} := W_{f1} \cdot W_{f2} = 16$

Maximum Pressure in Mat = $P_{max} := \frac{WT_{tot}}{A_{mat}} = 5.38 \cdot ksf$

$Max\_Pressure\_Check := if(P_{max} < 0.6 q_s, "Okay", "No Good")$

Max_Pressure_Check = "Okay"

TOWER REINFORCEMENT DESIGN

CT1166

812 PROVIDENCE PIKE

DANIELSON, CT 06239

VICINITY MAP

NORTH

PROJECT SUMMARY

SITE ADDRESS:	812 PROVIDENCE PIKE DANIELSON, CT 06239
PROJECT COORDINATES:	LAT: 41°–47'–29.44N LON: 71°–49'–20.66W ELEV:±680' AMSL
AT&T SITE REF.:	CT1166
AT&T CONTACT:	DAN BILEZIKIAN 401.368.0006
ENGINEER OF RECORD:	CENTEK ENGINEERING, INC. 63–2 NORTH BRANFORD ROAD BRANFORD, CT 06405
CENTEK CONTACT:	TIMOTHY J. LYNN, PE 203.433.7507

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T–1	TITLE SHEET	7
N–1	DESIGN BASIS & GENERAL NOTES	7
N–2	STRUCTURAL STEEL NOTES	7
MI–1	MODIFICATION INSPECTION REQUIREMENTS	7
S–1	TOWER REINFORCEMENT ELEVATION & PLAN	7
S–2	TOWER REINFORCEMENT DETAILS	7

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
7	2/20/23	TJL	CFC	ISSUED FOR CONSTRUCTION
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3	5/4/22	TJL	CFC	FEEDLINE PLAN UPDATED
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1	2/18/22	TJL	CFC	ISSUED FOR CONSTRUCTION
0	1/6/22	TJL	CFC	ISSUED FOR CONSTRUCTION

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AT&T MOBILITY
TOWER REINFORCEMENT DESIGN

CT1166

812 PROVIDENCE PIKE
DANIELSON, CT 06239

DATE:	1/3/2022
SCALE:	AS SHOWN
JOB NO.	21140.00

TITLE SHEET

SHEET NO.
T-1
Sheet No. 1 of 6

DESIGN BASIS

GOVERNING CODE: 2021 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2022 CT STATE BUILDING CODE.

1. TIA–222–H, "STRUCTURAL STANDARD FOR ANTENNA SUPPORTING STRUCTURES, ANTENNAS AND SMALL WIND TURBINE SUPPORT STRUCTURES"

2. DESIGN CRITERIA

   WIND LOAD:
   ULTIMATE DESIGN WIND SPEED (Vult) = 125 MPH (2022 CSBC: APPENDIX 'P')

GENERAL NOTES

1. REFER TO STRUCTURAL ANALYSIS AND REINFORCEMENT DESIGN PREPARED BY CENTEK ENGINEERING, INC., MARKED REV 8 DATED 2/20/23.

2. TOWER GEOMETRY AND STRUCTURE MEMBER SIZES WERE OBTAINED FROM A TOWER MAPPING REPORT PREPARED BY CSB COMMUNICATIONS, DATED OCTOBER 26, 2013.

3. PROVIDE TEMPORARY ANCHORS, GUYING AND/OR BRACING AS REQUIRED TO SAFELY CONDUCT THE WORK.

4. ALL WORK SHALL BE IN ACCORDANCE WITH TIA–222–F "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND ANTENNA SUPPORTING STRUCTURES".

5. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO INSURE THE SAFETY OF THE TOWER STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIE–DOWNS, WHICH MIGHT BE NECESSARY.

6. DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS SCOPE OF WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.

7. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.

8. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.

9. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON–SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.

11. TOWER REINFORCING SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS AND SUPPORT STRUCTURES. ALL SAFETY PROCEDURES, RIGGING AND ERECTION METHODS SHALL BE STANDARD TO THE INDUSTRY AND IN COMPLIANCE WITH OSHA.

12. EXISTING COAXIAL CABLES AND ALL ACCESSORIES SHALL BE RELOCATED AS NECESSARY AND REINSTALLED BY THE CONTRACTOR WITHOUT INTERRUPTION IN SERVICE WHERE THEY ARE IN CONFLICT WITH TOWER REINFORCEMENT.

13. IF ANY FIELD CONDITIONS EXIST WHICH PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL PROCEED WITH AFFECTED WORK AFTER CONFLICT IS SATISFACTORILY RESOLVED.

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CT1166

512 PROVIDENCE PIKE
SMITHFIELD, RI 02828

DATE: 1/3/2022
SCALE: AS SHOWN
JOB NO. 21140.00

DESIGN BASIS & GENERAL NOTES

SHEET NO.
N-1
Sheet No. 2 of 6

STRUCTURAL STEEL

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

2. MATERIAL SPECIFICATIONS

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI).
   C. STRUCTURAL STEEL (TOWER REINF. PLATES)--- ASTM A572 GR50 (FY = 50 KSI)
   D. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   E. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   F. PIPE ---ASTM A53 GRADE B (FY = 35 KSI)

3. FASTENER SPECIFICATIONS

   A. CONNECTION BOLTS---ASTM A325-N, UNLESS OTHERWISE SCHEDULED.
   B. U-BOLTS---ASTM A307
   C. ANCHOR RODS---ASTM F1554
   D. WELDING ELECTRODES---ASTM E70XX FOR A36 & A572_GR50 STEELS, ASTM E80XX FOR A572_GR65 STEEL.
   E. BLIND BOLTS---AS1252 PROPERTY CLASS 8.8 (FU=120 KSI).

4. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.

5. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.

6. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.

7. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.

8. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.

9. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.

10. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.

11. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".

12. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES APPEARANCE AND QUALITY OF WELDS, AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING THE SCHEDULED ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1 WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLET J2.4 IN THE AISC "MANUAL OF STEEL CONSTRUCTION" 14TH EDITION. AT THE COMPLETION OF WELDING, ALL DAMAGE TO GALVANIZED COATING SHALL BE REPAIRED.

13. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.

14. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.

15. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.

16. LOCK WASHER ARE NOT PERMITTED FOR A325 BOLTED STEEL ASSEMBLIES.

17. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.

18. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.

19. FABRICATE BEAMS WITH MILL CAMBER UP.

20. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.

21. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.

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TOWER REINFORCEMENT DESIGN

CT1166

812 PROVIDENCE PIKE
SMALLVILLE, CT 06950

DATE: 1/3/2022
SCALE: AS SHOWN
JOB NO. 21140.00

STRUCTURAL STEEL NOTES

SHEET NO.
N-2
Sheet No. 3 of 6

MODIFICATION INSPECTION REPORT REQUIREMENTS

PRE-CONSTUCTION		DURING CONSTRUCTION		POST-CONSTRUCTION	
SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM	SCHEDULED ITEM	REPORT ITEM
X	EOR MODIFICATION INSPECTION DRAWING	–	FOUNDATIONS	X	MODIFICATION INSPECTOR RECORD REDLINE DRAWING
X	EOR APPROVED SHOP DRAWINGS	–	EARTHWORK: BACKFILL MATERIAL & COMPACTION	–	POST–INSTALLED ANCHOR ROD PULL–OUT TEST
–	EOR APPROVED POST–INSTALLED ANCHOR MPII	–	CONCRETE TESTING	X	PHOTOGRAPHS
–	FABRICATION INSPECTION	X	STEEL INSPECTION		
–	FABRICATOR CERTIFIED WELDER INSPECTION	–	POST INSTALLED ANCHOR ROD VERIFICATION		
X	MATERIAL CERTIFICATIONS	–	BASE PLATE GROUT VERIFICATION		
		–	CONTRACTOR'S CERTIFIED WELD INSPECTION		
		X	ON–SITE COLD GALVANIZING VERIFICATION		
		X	GUY WIRE TENSION REPORT		
		X	CONTRACTOR AS–BUILT REDLINE DRAWINGS		

NOTES:
1. REFER TO MODIFICATION INSPECTION NOTES FOR ADDITIONAL REQUIREMENTS
2. "X" DENOTES DOCUMENT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT.
3. "–" DENOTES DOCUMENT NOT REQUIRED FOR INCLUSION IN MODIFICATION INSPECTION FINAL REPORT.
4. EOR – ENGINEER OF RECORD
4. MPII – "MANUFACTURER'S PRINTED INSTALLATION GUIDELINES"

GENERAL

1. THE MODIFICATION INSPECTION IS A VISUAL INSPECTION OF STRUCTURAL MODIFICATIONS, TO INCLUDE A REVIEW AND COMPILATION OF SPECIFIED SUBMITTALS AND CONSTRUCTION INSPECTIONS, AS AN ASSURANCE OF COMPLIANCE WITH THE CONSTRUCTION DOCUMENTS PREPARED UNDER THE DIRECTION OF THE ENGINEER OF RECORD (EOR).

2. THE MODIFICATION INSPECTION IS TO CONFIRM INSTALLATION CONFIGURATION AND GENERAL WORKMANSHIP AND IS NOT A REVIEW OF THE MODIFICATION DESIGN. OWNERSHIP OF THE MODIFICATION DESIGN EFFECTIVENESS AND INTENT RESIDES WITH THE ENGINEER OF RECORD.

3. TO ENSURE COMPLIANCE WITH THE MODIFICATION INSPECTION REQUIREMENTS THE GENERAL CONTRACTOR (GC) AND THE MODIFICATION INSPECTOR (MI) COMMENCE COMMUNICATION UPON AUTHORIZATION TO PROCEED BY THE CLIENT. EACH PARTY SHALL BE PROACTIVE IN CONTACTING THE OTHER. THE EOR SHALL BE CONTACTED IF SPECIFIC GC/MI CONTACT INFORMATION IS NOT MADE AVAILABLE.

4. THE GC SHALL PROVIDE THE MI WITH A MINIMUM OF 5 BUSINESS DAYS NOTICE OF IMPENDING INSPECTIONS.

5. WHEN POSSIBLE, THE GC AND MI SHALL BE ON SITE DURING THE MODIFICATION INSPECTION TO HAVE ANY NOTED DEFICIENCIES ADDRESSED DURING THE INITIAL MODIFICATION INSPECTION.

MODIFICATION INSPECTOR (MI)

1. THE MI SHALL CONTACT THE GC UPON AUTHORIZATION BY THE CLIENT TO:

   – REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
   – WORK WITH THE GC IN DEVELOPMENT OF A SCHEDULE FOR ON–SITE INSPECTIONS.
   – DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.

2. THE MI IS RESPONSIBLE FOR COLLECTION OF ALL INSPECTION AND TEST REPORTS, REVIEWING REPORTS FOR ADHERENCE TO THE CONTRACT DOCUMENTS, CONDUCTING ON–SITE INSPECTIONS AND COMPILATION & SUBMISSION OF THE MODIFICATION INSPECTION REPORT TO THE CLIENT AND THE EOR.

GENERAL CONTRACTOR (GC)

1. THE GC IS REQUIRED TO CONTACT THE GC UPON AUTHORIZATION TO PROCEED WITH CONSTRUCTION BY THE CLIENT TO:

   – REVIEW THE MODIFICATION INSPECTION REPORT REQUIREMENTS.
   – WORK WITH THE MI IN DEVELOPMENT OF A SCHEDULE FOR ON–SITE INSPECTIONS.
   – DISCUSS CRITICAL INSPECTIONS AND PROJECT CONCERNS.

2. THE GC IS RESPONSIBLE FOR COORDINATING AND SCHEDULING IN ADVANCE ALL REQUIRED INSPECTIONS AND TESTS WITH THE MI.

CORRECTION OF FAILING MODIFICATION INSPECTION

1. SHOULD THE STRUCTURAL MODIFICATION NOT COMPLY WITH THE REQUIREMENTS OF THE CONSTRUCTION DOCUMENTS, THE GC SHALL WORK WITH THE MODIFICATION INSPECTOR IN A VIABLE REMEDIATION PLAN AS FOLLOWS:

   – CORRECT ALL DEFICIENCIES TO COMPLY WITH THE CONTRACT DOCUMENTS AND COORDINATE WITH THE MI FOR A FOLLOW UP INSPECTION.
   – WITH CLIENT AUTHORIZATION, THE GC MAY WORK WITH THE EOR TO REANALYZE THE MODIFICATION USING THE AS–BUILT CONDITION.

REQUIRED PHOTOGRAPHS

1. THE GC AND MI SHALL AT MINIMUM PHOTO DOCUMENT THE FOLLOWING FOR INCLUSION IN THE MODIFICATION INSPECTION REPORT:

   – PRE–CONSTRUCTION: GENERAL CONDITION OF THE SITE.
   – DURING CONSTRUCTION: RAW MATERIALS, CRITICAL DETAILS, WELD PREPARATION, BOLT INSTALLATION & TORQUE, FINAL INSTALLED CONDITION & SURFACE COATING REPAIRS.
   – POST–CONSTRUCTION: FINAL CONDITION OF THE SITE

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512 PROVIDENCE PIKE
SPRING HILL, CT 06238

DATE:	1/3/2022
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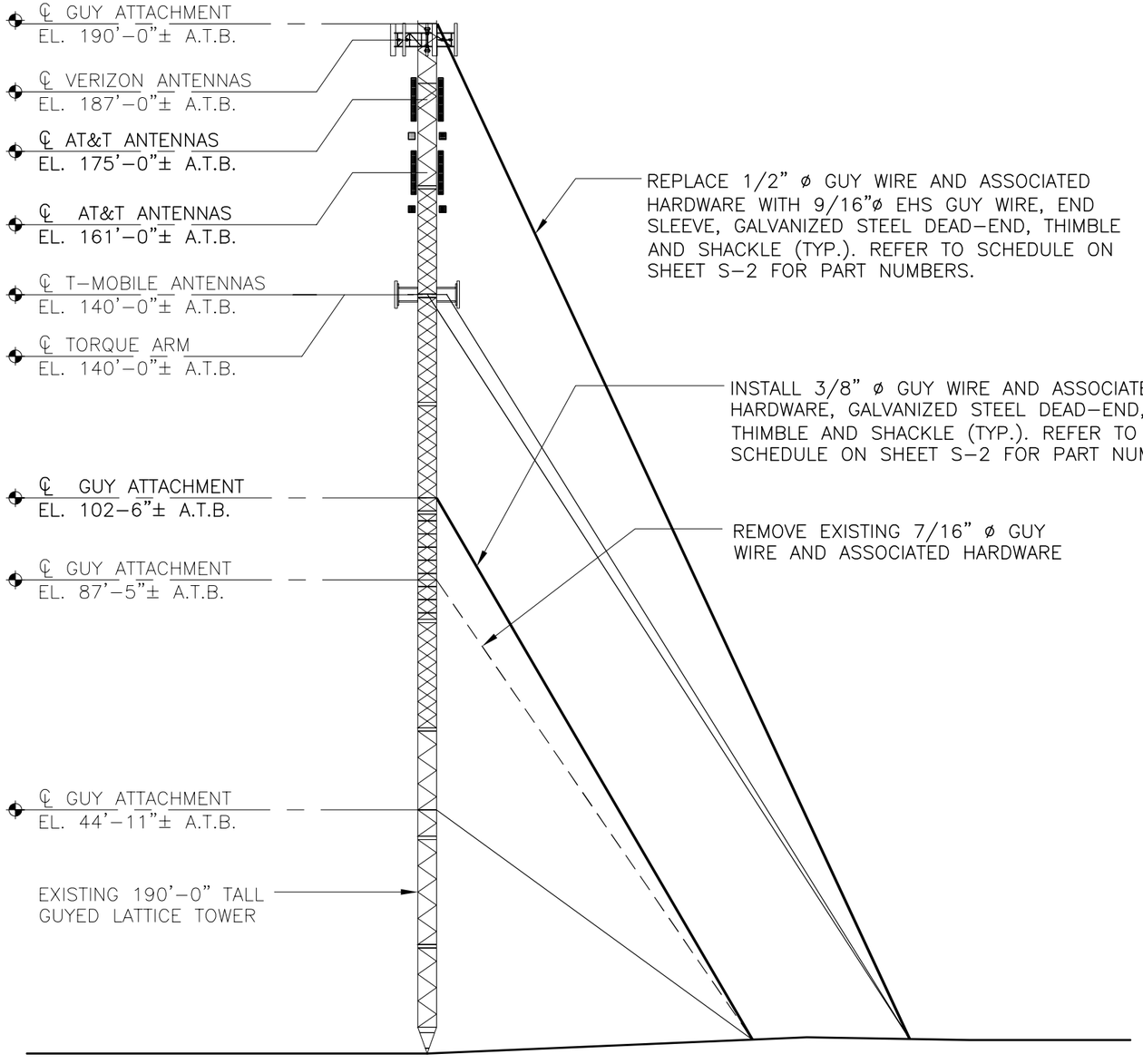
JOB NO.	21140.00

MODIFICATION INSPECTION REQUIREMENTS

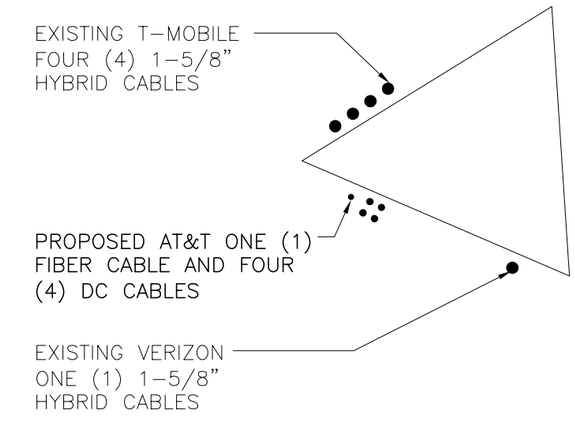
SHEET NO.
MI-1
Sheet No. 4 of 6

AGL DENOTES ABOVE GRADE LEVEL
ATB DENOTES ABOVE TOWER BASE



NOTES

1. WHERE REINFORCEMENT INSTALLATION COINCIDES WITH EXIST. EXTERIOR COAX CABLE PLACEMENT. GC. TO TEMPORARILY DETACH COAX TO PERMIT THE INSTALLATION OF THE REINFORCEMENT THEN REINSTATE COAX PRE–EXISTING CONDITION



1 / S–1 **TOWER ELEVATION – PROPOSED**
SCALE: 1" = 25'–0"

2 / S–1 **FEEDLINE PLAN – PROPOSED**
NOT TO SCALE

APPROX TRUE NORTH

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TOWER REINFORCEMENT ELEVATION & PLAN

SHEET NO.
S–1
Sheet No. 5 of 6

TOWER GUY WIRE COMPONENT SCHEDULE

ELEVATION	GUY WIRE SIZE	GUY WIRE ATTACHMENT/ TORQUE ARM P/N	BOLT TYPE SHACKLE P/N	END SLEEVE (ICE CLIP) P/N	GALV. DEAD END (BIG GRIP) P/N	THIMBLE P/N	TURNBUCKLE P/N	ANCHOR ROD P/N
190' (A.T.B)	9/16" (320107)	EXIST.	5/8" (320752-I)	9/16" (320556)	9/16" (320506)	5/8" (320782-I)	7/8" JAW EYE (162930-I)	EXIST.
140' (A.T.B)	EXIST. 1/2"	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.
102.5' (A.T.B)	3/8" (320103)	RGA-0002-42*	1/2" (320751-I)	3/8" (320553)	3/8" (320503)	3/8" (320778-I)	1/2" JAW EYE (320596-I)	EXIST.
44.9' (A.T.B)	EXIST. 3/8"	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.	EXIST.

NOTE: ALL PART NUMBERS SHOWN ABOVE ARE BASED ON SITEPRO MATERIALS UNLESS OTHERWISE SPECIFIED.
* STRUCTURAL COMPONENTS ADJUSTABLE GUY ATTACHEMENT RGA-002-42 WITH RGA-1000-23 PIPE SLEEVE

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812 PROVIDENCE PIKE
HAMPTON, CT 06256

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TOWER REINFORCEMENT DETAILS

SHEET NO.
S-2
Sheet No. 6 of 6

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CT1166	DATE:	10/14/2022	RF DESIGN ENG:	Radu Alecsandru
ISSUE:	Bronze Standard	Approved? (Y/N):	Yes	RF DESIGN PHONE:	
REVISION:	FINAL	RF MANAGER:	John Benedetto	RF DESIGN EMAIL:	RA9161@ATT.COM
INITIATIVE /PROJECT:	11/16/2021 initial release of the RFDS 6/3/2022 stacked the two antennas of each sector due to structural issues 9/6/2022 6630 BBU updated to 6651 BBU per HQ. 10/14/2022 section 16/17 corrections to match the plumbing				

RF PERF ENG:		RFDS PROGRAM TYPE:		2023 New Site	
RF PERF PHONE:		RFDS TECHNOLOGY:		New	
RF PERF EMAIL:		STATE/STATUS:		Preliminary/In Progress	
ADDITIONAL WORKFLOW NOTIFICATIONS:		RFDS ID:		4863735	
RFDS VERSION:	4.00	Created By:	ra9161	Updated By:	ra9161
UMTS FREQUENCY:		Date Created:	11/16/2021 12:01:51 PM	Date Updated:	10/14/2022 10:44:16 AM
LTE FREQUENCY:	700, 1900, AWS	Estimated SQIN:	15,356	Expiration :	
5G FREQUENCY:	850, 1900, AWS	RER Initiative:		Calculation ID:	20221014104416 2023
I-PLAN JOB # 1:	NER-RCTB-15-01636	IPLAN PRD GRP || SUB GRP #1:		New Site || LTE Only 1C	
I-PLAN JOB # 2:	ER_-RCTB-21-10298	IPLAN PRD GRP || SUB GRP #2:		LTE Next Carrier || LTE 4C	
I-PLAN JOB # 3:	ER_-RCTB-21-10251	IPLAN PRD GRP || SUB GRP #3:		LTE Software Carrier || LTE 3C	
I-PLAN JOB # 4:	ER_-RCTB-21-10387	IPLAN PRD GRP || SUB GRP #4:		5G NR Radio || 5G NR 1DR-1	
I-PLAN JOB # 5:	ER_-RCTB-21-10441	IPLAN PRD GRP || SUB GRP #5:		5G NR Software Radio || 5G NR Activation	
I-PLAN JOB # 6:	ER_-RCTB-21-10194	IPLAN PRD GRP || SUB GRP #6:		LTE Next Carrier || LTE 2C	
I-PLAN JOB # 7:	ER_-RCTB-21-10440	IPLAN PRD GRP || SUB GRP #7:		5G NR Software Radio || 5G NR Activation	
I-PLAN JOB # 8:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 9:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 10:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 11:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 12:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 13:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 14:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 15:		IPLAN PRD GRP || SUB GRP #8:			
I-PLAN JOB # 16:		IPLAN PRD GRP || SUB GRP #8:			

Section 2 - LOCATION INFORMATION

USID:	314085	FA LOCATION CODE:	10141308	LOCATION NAME:	DANIELSON
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT
ADDRESS:	812 PROVIDENCE PIKE	CITY:	DANIELSON	STATE:	CT
ZIP CODE:	06239	COUNTY:	WINDHAM	LONG (DEC. DEG.):	-71.8223556
LATITUDE (D-M-S):	41d 47m29.14008s	LONGITUDE (D-M-S):	-71d -49m-20.48016s	LAT (DEC. DEG.):	41.7914278
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	QUINEBAUG VALLEY EMERGENCY COMMUNICATIONS GUYED TOWER, 812 PROVIDENCE PIKE, DANIELSON (KILLINGLY), CT 06239.COORDINATES CORRECTED FOR FRONT GUYED TOWER. BACK SELF SUPPORT IS LOADED WITH PUBLIC SAFETY WHIPS.				

ORACLE PTN # 1:	2051A12J0J	PACE JOB # 1:		MRCTB057569	
ORACLE PTN # 2:	2051A13RSB	PACE JOB # 2:		MRCTB061480	
ORACLE PTN # 3:	2051A13RPW	PACE JOB # 3:		MRCTB061417	
ORACLE PTN # 4:	2051A13RQW	PACE JOB # 4:		MRCTB061493	
ORACLE PTN # 5:		PACE JOB # 5:		MRCTB061261	
ORACLE PTN # 6:	2051A13RKP	PACE JOB # 6:		MRCTB061305	
ORACLE PTN # 7:		PACE JOB # 7:		MRCTB061250	
ORACLE PTN # 8:		PACE JOB # 8:			
ORACLE PTN # 9:		PACE JOB # 9:			
ORACLE PTN # 10:		PACE JOB # 10:			
ORACLE PTN # 11:		PACE JOB # 11:			
ORACLE PTN # 12:		PACE JOB # 12:			
ORACLE PTN # 13:		PACE JOB # 13:			
ORACLE PTN # 14:		PACE JOB # 14:			
ORACLE PTN # 15:		PACE JOB # 15:			
ORACLE PTN # 16:		PACE JOB # 16:			
BORDER CELL WITH CONTOUR COORD:		SEARCH RING NAME:			
AM STUDY REQ'D (Y/N):	No	SEARCH_RING_ID:			
FREQ COORD:		BTA:		MSA / RSA:	
		LAC(UMTS):			
RF DISTRICT:					
RF ZONE:		RNC(UMTS):			
		MME POOL ID(LTE):		FF01	
PARENT NAME(UMTS):					

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:	
CGSA - MINOR FILING NEEDED (Yes/No)::	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:	
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:			

CGSA CALL SIGNS:	

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	**GROUND ELEVATION (ft):**		**STRUCTURE TYPE:**	GUYED
ADDITIONAL REGULATORY?:	Yes	**HEIGHT OVERALL (ft):**		**FCC ASR NUMBER:**	NR
SUB-LEASE RIGHTS?:	No	**STRUCTURE HEIGHT (ft):**	190.00		
LIGHTING TYPE:	NOT REQUIRED				

MARKET LOCATION 700 MHz Band:			
MARKET LOCATION 850 MHz Band:			
MARKET LOCATION 1900 MHz Band:			
MARKET LOCATION AWS Band:			
MARKET LOCATION WCS Band:			
MARKET LOCATION Future Band:			

Section 5 - E-911 INFORMATION - existing

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A E-911										
SECTOR B										
SECTOR C										
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

Section 5 - E-911 INFORMATION - final

	PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:		
SECTOR A E-911										
SECTOR B										
SECTOR C										
SECTOR D										
SECTOR E										
SECTOR F										
OMNI										

SECTION 6/7 - BBU INFORMATION - final

	BBU 1								
BBU RBS ID:	RFDS_73810942								
TECHNOLOGY:	LTE,5G								
BBU NAME:	CTL01166,CTCN001166								
BBU USID:	314085								
CELL ID / BCF:	CTCN001166								
BTA/TID:									
4-9 DIGIT SITE ID:	231166								
COW OR TOY?:	No								
CELL SITE TYPE:	SECTORIZED								
SITE TYPE:	MACRO-CONVENTIONAL								
BTS LOCATION ID:	GROUND								
BASE STATION TYPE:	BASE								
EQUIPMENT NAME:	CTL01166								
DISASTER PRIORITY:	0								
EQUIPMENT VENDOR:	ERICSSON								
EQUIPMENT TYPE (Model):	RAN PROCESSOR 6651								
BASEBAND CONFIGURATION:	xxxxx / 1x6651 / 1xXMU								
MARKET STATE CODE:	CT,CTC								
NODE B NUMBER:	1166,1166								
SIDEHAUL SWITCH VENDOR:									
SIDEHAUL SWITCH MODEL:									
SIDEHAUL SWITCH NAME:									
SIDEHAUL SWITCH ADDITIONAL CARDS:									
UL-CoMP:									
CSS - CTS COMMON ID:									
CSS - SECONDARY FUNCTION ID:									

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1																							
CTS Common ID	CTL01166,CTCN001166																							
Soft Sector IDs	CTCN001166_N002A_1																							
	CTCN001166_N002B_1																							
	CTCN001166_N002C_1																							
	CTCN001166_N005A_1																							
	CTCN001166_N005B_1																							
	CTCN001166_N005C_1																							
	CTCN001166_N066A_1																							
	CTCN001166_N066B_1																							
	CTCN001166_N066C_1																							
	CTL01166_2A_2																							
	CTL01166_2B_2																							
	CTL01166_2C_2																							
	CTL01166_7A_1																							
	CTL01166_7A_3_F																							
	CTL01166_7B_1																							
	CTL01166_7B_3_F																							
	CTL01166_7C_1																							
	CTL01166_7C_3_F																							
	CTL01166_9A_1																							
	CTL01166_9A_2																							
	CTL01166_9B_1																							
	CTL01166_9B_2																							
	CTL01166_9C_1																							
	CTL01166_9C_2																							

Section 9 - SOFT SECTOR ID - existing

	LTE 1ST 700	LTE 1ST 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS																		
USEID (excluding Hard Sector)																										
SECTOR A SOFT SECTOR ID																										
SECTOR B																										
SECTOR C																										
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 9 - SOFT SECTOR ID - final

	LTE 1ST 700	LTE 1ST 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS																		
USEID (excluding Hard Sector)																										
SECTOR A SOFT SECTOR ID	CTL01166_7A_1	CTL01166_9A_1	CTL01166_9A_2	CTL01166_2A_2	CTL01166_7A_3_F	CTCN001166_N005A_1	CTCN001166_N002A_1	CTCN001166_N066A_1																		
SECTOR B	CTL01166_7B_1	CTL01166_9B_1	CTL01166_9B_2	CTL01166_2B_2	CTL01166_7B_3_F	CTCN001166_N005B_1	CTCN001166_N002B_1	CTCN001166_N066B_1																		
SECTOR C	CTL01166_7C_1	CTL01166_9C_1	CTL01166_9C_2	CTL01166_2C_2	CTL01166_7C_3_F	CTCN001166_N005C_1	CTCN001166_N002C_1	CTCN001166_N066C_1																		
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 9 - Cell Number - existing

	LTE 1ST 700	LTE 1ST 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS																		
USEID (excluding Hard Sector)																										
SECTOR A CELL NUMBER																										
SECTOR B																										
SECTOR C																										
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 9 - Cell Number - final

	LTE 1ST 700	LTE 1ST 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS																		
USEID (excluding Hard Sector)																										
SECTOR A CELL NUMBER	15	8	178	192	171	25	26	27																		
SECTOR B	16	9	179	193	172	49	50	51																		
SECTOR C	17	10	180	194	173	73	74	75																		
SECTOR D																										
SECTOR E																										
SECTOR F																										
OMNI																										

Section 10 - CID/SAC - existing

	LTE 1ST 700	LTE 1ST 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS																			
SECTOR A CID/SAC																											
SECTOR B																											
SECTOR C																											
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 10 - CID/SAC - final

	LTE 1ST 700	LTE 1ST 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS																			
SECTOR A CID/SAC																											
SECTOR B																											
SECTOR C																											
SECTOR D																											
SECTOR E																											
SECTOR F																											
OMNI																											

Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?														
ANTENNA MAKE - MODEL	TPA65R-BU8DA-K		DMP65R-BU8DA-K											
ANTENNA VENDOR	CCI Antennas		CCI Antennas											
ANTENNA SIZE (H x W x D)	96X21X7.8		96X20.7X7.7											
ANTENNA WEIGHT	83		96											
AZIMUTH	0		0											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	175		161											
ANTENNA TIP HEIGHT	179		165											
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)	36		36											
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)	36		36											
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built-In		Built-In										
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)														
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)	1	DC6-48-60-0-8C-EV	1	DC9-48-60-24-8C-EV										
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14	1	4449 B5/B12										
RRH - 850 band (QTY/MODEL)				RRH is shared with another band										
RRH - 1900 band (QTY/MODEL)	1	4415 B25												
RRH - AWS band (QTY/MODEL)			1	4426 B66										
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH 7B 1 (QTY/MODEL)														
RRH 7B 2 (QTY/MODEL)														
RRH 7B 3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	4 DC and 1 Fiber lines with the DC power split cable per site													
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1			CTL01166_7A_3_F	CTL01166_7A_3_F	TxRx/TxRx	LTE 700	TPA65R-BU8D_770MHz_02DT	14.9	0	2	Top	FIBER	0	0	0							
	PORT 5			CTL01166_9A_1,CTL01166_9A_2	CTL01166_9A_1,CTL01166_9A_2	TxRx/TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	0	2	Top	FIBER	0	0	0							

	PORT 6			CTCN001166_N002A_1	CTCN001166_N002A_1	TxRx/ TxRx	5G 1900	TPA65R-BU8D_1930MHz_02DT	17.8	0	2	Top	FIBER	0	0	0							
	PORT 7			CTL01166_9A_1,CTL01166_9A_2	CTL01166_9A_1,CTL01166_9A_2	TxRx/ TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	0	2	Top	FIBER	0	0	0							
ANTENNA POSITION 2	**PORT 1**			CTL01166_7A_1	CTL01166_7A_1	TxRx/ TxRx	LTE 700	DMP65R-BU8D_725MHz_02DT	14.3	0	2	Top	FIBER	0	0	0							
	PORT 3			CTCN001166_N005A_1	CTCN001166_N005A_1	TxRx/ TxRx	5G 850	DMP65R-BU8D_850MHz_02DT	14.7	0	2	Top	FIBER	0	0	0							
	PORT 5			CTL01166_2A_2	CTL01166_2A_2	TxRx/ TxRx	LTE AWS	DMP65R-BU8D_2170MHz_02DT	16.7	0	2	Top	FIBER	0	0	0							
	PORT 6			CTCN001166_N066A_1	CTCN001166_N066A_1	TxRx/ TxRx	5G AWS	DMP65R-BU8D_2170MHz_02DT	16.7	0	2	Top	FIBER	0	0	0							

Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?														
ANTENNA MAKE - MODEL	TPA65R-BU8DA-K		DMP65R-BU8DA-K											
ANTENNA VENDOR	CCI Antennas		CCI Antennas											
ANTENNA SIZE (H x W x D)	96X21X7.8		96X20.7X7.7											
ANTENNA WEIGHT	83		96											
AZIMUTH	150		150											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	175		161											
ANTENNA TIP HEIGHT	179		165											
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)	36		36											
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)	36		36											
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built-In		Built-In										
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)														
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14	1	4449 B5/B12										
RRH - 850 band (QTY/MODEL)				RRH is shared with another band										
RRH - 1900 band (QTY/MODEL)	1	4415 B25												
RRH - AWS band (QTY/MODEL)			1	4426 B66										
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH 7B 1 (QTY/MODEL)														
RRH 7B 2 (QTY/MODEL)														
RRH 7B 3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	4 DC and 1 Fiber lines with the DC power split cable per site													
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1			CTL01166_7B_3_F	CTL01166_7B_3_F	TxRx/TxRx	LTE 700	TPA65R-BU8D_770MHz_02DT	14.9	150	2	Top	FIBER	0	0	0							
	PORT 5			CTL01166_9B_1,CTL01166_9B_2	CTL01166_9B_1,CTL01166_9B_2	TxRx/TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	150	2	Top	FIBER	0	0	0							

	PORT 6			CTCN001166_N002B_1	CTCN001166_N002B_1	TxRx/ TxRx	5G 1900	TPA65R-BU8D_1930MHz_02DT	17.8	150	2	Top	FIBER	0	0	0							
	PORT 7			CTL01166_9B_1,CTL01166_9B_2	CTL01166_9B_1,CTL01166_9B_2	TxRx/ TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	150	2	Top	FIBER	0	0	0							
ANTENNA POSITION 2	**PORT 1**			CTL01166_7B_1	CTL01166_7B_1	TxRx/ TxRx	LTE 700	DMP65R-BU8D_725MHz_02DT	14.3	150	2	Top	FIBER	0	0	0							
	PORT 3			CTCN001166_N005B_1	CTCN001166_N005B_1	TxRx/ TxRx	5G 850	DMP65R-BU8D_850MHz_02DT	14.7	150	2	Top	FIBER	0	0	0							
	PORT 5			CTL01166_2B_2	CTL01166_2B_2	TxRx/ TxRx	LTE AWS	DMP65R-BU8D_2170MHz_02DT	16.7	150	2	Top	FIBER	0	0	0							
	PORT 6			CTCN001166_N066B_1	CTCN001166_N066B_1	TxRx/ TxRx	5G AWS	DMP65R-BU8D_2170MHz_02DT	16.7	150	2	Top	FIBER	0	0	0							

Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?														
ANTENNA MAKE - MODEL	TPA65R-BU8DA-K		DMP65R-BU8DA-K											
ANTENNA VENDOR	CCI Antennas		CCI Antennas											
ANTENNA SIZE (H x W x D)	96X21X7.8		96X20.7X7.7											
ANTENNA WEIGHT	83		96											
AZIMUTH	265		265											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	175		161											
ANTENNA TIP HEIGHT	179		165											
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)	36		36											
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)	36		36											
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built-In		Built-In										
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)														
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14	1	4449 B5/B12										
RRH - 850 band (QTY/MODEL)				RRH is shared with another band										
RRH - 1900 band (QTY/MODEL)	1	4415 B25												
RRH - AWS band (QTY/MODEL)			1	4426 B66										
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH 7B 1 (QTY/MODEL)														
RRH 7B 2 (QTY/MODEL)														
RRH 7B 3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	4 DC and 1 Fiber lines with the DC power split cable per site													
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1			CTL01166_7C_3_F	CTL01166_7C_3_F	TxRx/TxRx	LTE 700	TPA65R-BU8D_770MHz_02DT	14.9	265	2	Top	FIBER	0	0	0							
	PORT 5			CTL01166_9C_1,CTL01166_9C_2	CTL01166_9C_1,CTL01166_9C_2	TxRx/TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	265	2	Top	FIBER	0	0	0							

	PORT 6			CTCN001166_N002C_1	CTCN001166_N002C_1	TxRx/ TxRx	5G 1900	TPA65R-BU8D_1930MHz_02DT	17.8	265	2	Top	FIBER	0	0	0							
	PORT 7			CTL01166_9C_1,CTL01166_9C_2	CTL01166_9C_1,CTL01166_9C_2	TxRx/ TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	265	2	Top	FIBER	0	0	0							
ANTENNA POSITION 2	**PORT 1**			CTL01166_7C_1	CTL01166_7C_1	TxRx/ TxRx	LTE 700	DMP65R-BU8D_725MHz_02DT	14.3	265	2	Top	FIBER	0	0	0							
	PORT 3			CTCN001166_N005C_1	CTCN001166_N005C_1	TxRx/ TxRx	5G 850	DMP65R-BU8D_850MHz_02DT	14.7	265	2	Top	FIBER	0	0	0							
	PORT 5			CTL01166_2C_2	CTL01166_2C_2	TxRx/ TxRx	LTE AWS	DMP65R-BU8D_2170MHz_02DT	16.7	265	2	Top	FIBER	0	0	0							
	PORT 6			CTCN001166_N066C_1	CTCN001166_N066C_1	TxRx/ TxRx	5G AWS	DMP65R-BU8D_2170MHz_02DT	16.7	265	2	Top	FIBER	0	0	0							

Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	TPA65R-BU8DA-K		DMP65R-BU8DA-K											
ANTENNA VENDOR	CCI Antennas		CCI Antennas											
ANTENNA SIZE (H x W x D)	96X21X7.8		96X20.7X7.7											
ANTENNA WEIGHT	83		96											
AZIMUTH	0		0											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	175		161											
ANTENNA TIP HEIGHT	179		165											
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)	36		36											
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)	36		36											
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built-In		Built-In										
SURGE ARRESTOR (QTY/MODEL)														
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)														
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)	1	DC6-48-60-0-8C-EV	1	DC9-48-60-24-8C-EV										
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14	1	4449 B5/B12										
RRH - 850 band (QTY/MODEL)				RRH is shared with another band										
RRH - 1900 band (QTY/MODEL)	1	4415 B25												
RRH - AWS band (QTY/MODEL)			1	4426 B66										
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH 7B 1 (QTY/MODEL)														
RRH 7B 2 (QTY/MODEL)														
RRH 7B 3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1	4 DC and 1 Fiber lines with the DC power split cable per site													
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX ?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1	314085.A.700.4G.tmp5		CTL01166_7A_3_F	CTL01166_7A_3_F	TxRx/ TxRx	LTE 700	TPA65R-BU8D_770MHz_02DT	14.9	0	2	Top	FIBER	0	0	0							
	PORT 5	314085.A.1900.4G.tmp1, 314085.A.1900.4G.tmp4		CTL01166_9A_1,CTL01166_9A_2	CTL01166_9A_1,CTL01166_9A_2	TxRx/ TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	0	2	Top	FIBER	0	0	0							
	PORT 6	314085.A.1900.5G.tmp1		CTCN001166_N002A	CTCN001166_N002A	TxRx/	5G 1900	TPA65R-	17.8	0	2	Top	FIBER	0	0	0							

				_1	_1	TxRx		BU8D_1930MHz_02DT														
	PORT 7	314085.A.1900.4G.tmp1, 314085.A.1900.4G.tmp4		CTL01166_9A_1,CTL01166_9A_2	CTL01166_9A_1,CTL01166_9A_2	TxRx/TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	0	2	Top	FIBER	0	0	0							
ANTENNA POSITION 2	**PORT 1**	314085.A.700.4G.tmp1		CTL01166_7A_1	CTL01166_7A_1	TxRx/TxRx	LTE 700	DMP65R-BU8D_725MHz_02DT	14.3	0	2	Top	FIBER	0	0	0							
	PORT 3	314085.A.850.5G.tmp1		CTCN001166_N005A_1	CTCN001166_N005A_1	TxRx/TxRx	5G 850	DMP65R-BU8D_850MHz_02DT	14.7	0	2	Top	FIBER	0	0	0							
	PORT 5	314085.A.AWS.4G.tmp4		CTL01166_2A_2	CTL01166_2A_2	TxRx/TxRx	LTE AWS	DMP65R-BU8D_2170MHz_02DT	16.7	0	2	Top	FIBER	0	0	0							
	PORT 6	314085.A.AWS.5G.tmp1		CTCN001166_N066A_1	CTCN001166_N066A_1	TxRx/TxRx	5G AWS	DMP65R-BU8D_2170MHz_02DT	16.7	0	2	Top	FIBER	0	0	0							

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	TPA65R-BU8DA-K	DMP65R-BU8DA-K					
ANTENNA VENDOR	CCI Antennas	CCI Antennas					
ANTENNA SIZE (H x W x D)	96X21X7.8	96X20.7X7.7					
ANTENNA WEIGHT	83	96					
AZIMUTH	150	150					
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	175	161					
ANTENNA TIP HEIGHT	179	165					
MECHANICAL DOWNTILT	0	0					
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)	36	36					
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)	36	36					
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In	Built-In					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1 4478 B14	1 4449 B5/B12					
RRH - 850 band (QTY/MODEL)		RRH is shared with another band					
RRH - 1900 band (QTY/MODEL)	1 4415 B25						
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH 7B 1 (QTY/MODEL)							
RRH 7B 2 (QTY/MODEL)							
RRH 7B 3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	4 DC and 1 Fiber lines with the DC power split cable per site						
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1	314085.B.700.4G.tmp5		CTL01166_7B_3_F	CTL01166_7B_3_F	TxRx/TxRx	LTE 700	TPA65R-BU8D_770MHz_02DT	14.9	150	2	Top	FIBER	0	0	0							
	PORT 5	314085.B.1900.4G.tmp1, 314085.B.1900.4G.tmp4		CTL01166_9B_1,CTL01166_9B_2	CTL01166_9B_1,CTL01166_9B_2	TxRx/TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	150	2	Top	FIBER	0	0	0							
	PORT 6	314085.B.1900.5G.tmp1		CTCN001166_N002B	CTCN001166_N002B	TxRx/	5G 1900	TPA65R-	17.8	150	2	Top	FIBER	0	0	0							

				_1	_1	TxRx		BU8D_1930MHz_02DT															
	PORT 7	314085.B.1900.4G.tmp1, 314085.B.1900.4G.tmp4		CTL01166_9B_1,CTL01166_9B_2	CTL01166_9B_1,CTL01166_9B_2	TxRx/TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	150	2	Top	FIBER	0	0	0							
ANTENNA POSITION 2	**PORT 1**	314085.B.700.4G.tmp1		CTL01166_7B_1	CTL01166_7B_1	TxRx/TxRx	LTE 700	DMP65R-BU8D_725MHz_02DT	14.3	150	2	Top	FIBER	0	0	0							
	PORT 3	314085.B.850.5G.tmp1		CTCN001166_N005B_1	CTCN001166_N005B_1	TxRx/TxRx	5G 850	DMP65R-BU8D_850MHz_02DT	14.7	150	2	Top	FIBER	0	0	0							
	PORT 5	314085.B.AWS.4G.tmp4		CTL01166_2B_2	CTL01166_2B_2	TxRx/TxRx	LTE AWS	DMP65R-BU8D_2170MHz_02DT	16.7	150	2	Top	FIBER	0	0	0							
	PORT 6	314085.B.AWS.5G.tmp1		CTCN001166_N066B_1	CTCN001166_N066B_1	TxRx/TxRx	5G AWS	DMP65R-BU8D_2170MHz_02DT	16.7	150	2	Top	FIBER	0	0	0							

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	TPA65R-BU8DA-K	DMP65R-BU8DA-K					
ANTENNA VENDOR	CCI Antennas	CCI Antennas					
ANTENNA SIZE (H x W x D)	96X21X7.8	96X20.7X7.7					
ANTENNA WEIGHT	83	96					
AZIMUTH	265	265					
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	175	161					
ANTENNA TIP HEIGHT	179	165					
MECHANICAL DOWNTILT	0	0					
FEEDER AMOUNT							
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)	36	36					
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)	36	36					
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Built-In	Built-In					
SURGE ARRESTOR (QTY/MODEL)							
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)							
CURRENT INJECTORS FOR TMA (QTY/MODEL)							
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1 4478 B14	1 4449 B5/B12					
RRH - 850 band (QTY/MODEL)		RRH is shared with another band					
RRH - 1900 band (QTY/MODEL)	1 4415 B25						
RRH - AWS band (QTY/MODEL)		1 4426 B66					
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)							
Additional RRH #2 - any band (QTY/MODEL)							
RRH 7B 1 (QTY/MODEL)							
RRH 7B 2 (QTY/MODEL)							
RRH 7B 3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)							
Additional Component 2 (QTY/MODEL)							
Additional Component 3 (QTY/MODEL)							
Local Market Note 1	4 DC and 1 Fiber lines with the DC power split cable per site						
Local Market Note 2							
Local Market Note 3							

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY/FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID (CSSNG)
ANTENNA POSITION 1	PORT 1	314085.C.700.4G.tmp5		CTL01166_7C_3_F	CTL01166_7C_3_F	TxRx/TxRx	LTE 700	TPA65R-BU8D_770MHz_02DT	14.9	265	2	Top	FIBER	0	0	0							
	PORT 5	314085.C.1900.4G.tmp1, 314085.C.1900.4G.tmp4		CTL01166_9C_1,CTL01166_9C_2	CTL01166_9C_1,CTL01166_9C_2	TxRx/TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	265	2	Top	FIBER	0	0	0							
	PORT 6	314085.C.1900.5G.tmp1		CTCN001166_N002C	CTCN001166_N002C	TxRx/	5G 1900	TPA65R-	17.8	265	2	Top	FIBER	0	0	0							

				_1	_1	TxRx		BU8D_1930MHz_02DT															
	PORT 7	314085.C.1900.4G.tmp1, 314085.C.1900.4G.tmp4		CTL01166_9C_1,CTL01166_9C_2	CTL01166_9C_1,CTL01166_9C_2	TxRx/TxRx	LTE 1900	TPA65R-BU8D_1930MHz_02DT	17.8	265	2	Top	FIBER	0	0	0							
ANTENNA POSITION 2	**PORT 1**	314085.C.700.4G.tmp1		CTL01166_7C_1	CTL01166_7C_1	TxRx/TxRx	LTE 700	DMP65R-BU8D_725MHz_02DT	14.3	265	2	Top	FIBER	0	0	0							
	PORT 3	314085.C.850.5G.tmp1		CTCN001166_N005C_1	CTCN001166_N005C_1	TxRx/TxRx	5G 850	DMP65R-BU8D_850MHz_02DT	14.7	265	2	Top	FIBER	0	0	0							
	PORT 5	314085.C.AWS.4G.tmp4		CTL01166_2C_2	CTL01166_2C_2	TxRx/TxRx	LTE AWS	DMP65R-BU8D_2170MHz_02DT	16.7	265	2	Top	FIBER	0	0	0							
	PORT 6	314085.C.AWS.5G.tmp1		CTCN001166_N066C_1	CTCN001166_N066C_1	TxRx/TxRx	5G AWS	DMP65R-BU8D_2170MHz_02DT	16.7	265	2	Top	FIBER	0	0	0							

Diagram - Sector	A	Diagram File Name - CT1166 5C 2ANT v3.vsd					
Atoll Site Name -	CT1166	Location Name -	DANIELSON	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments:							

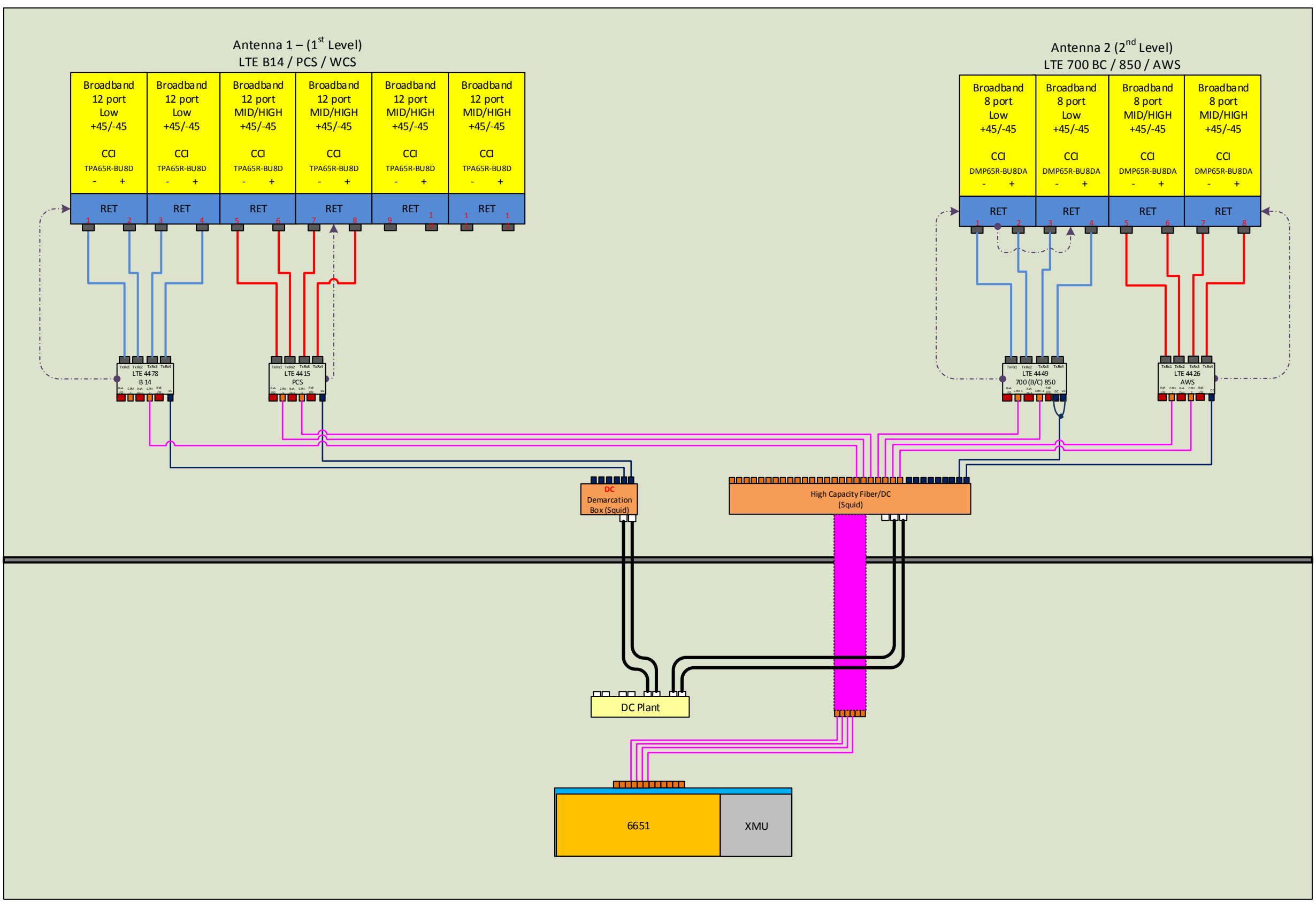


Diagram - Sector	B	Diagram File Name - CT1166 5C 2ANT v3.vsd					
Atoll Site Name -	CT1166	Location Name -	DANIELSON	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments:							

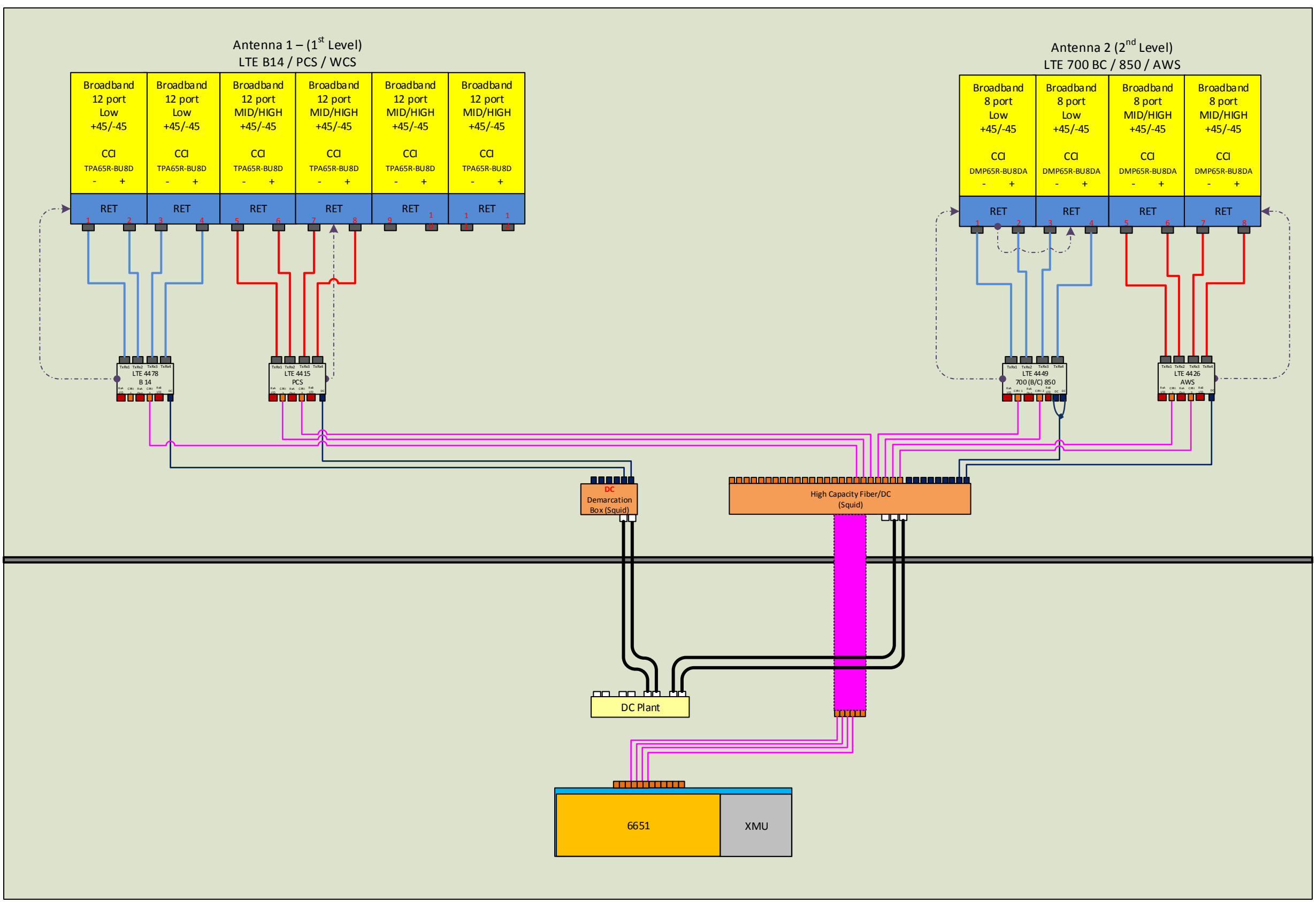
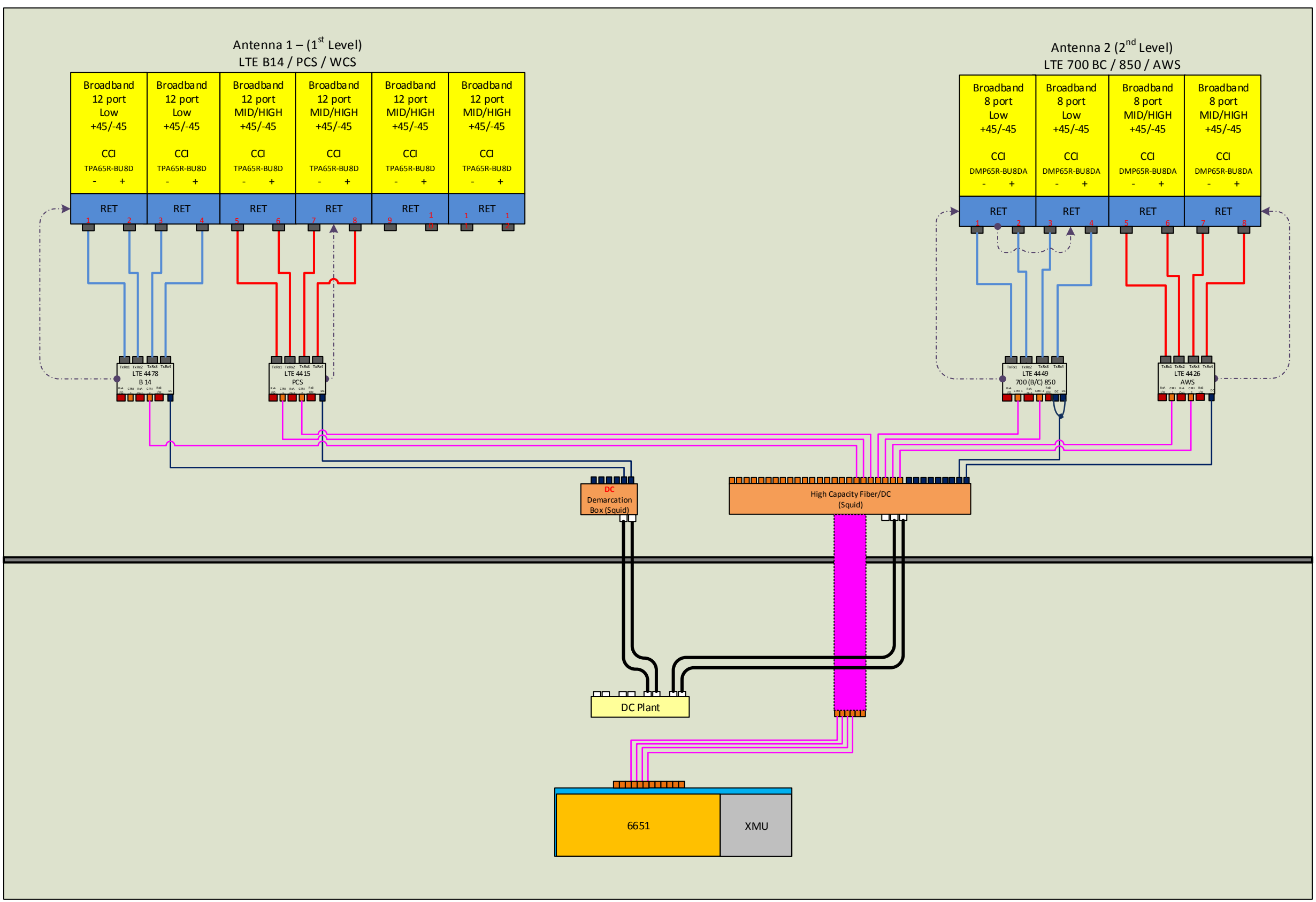


Diagram - Sector	C	Diagram File Name - CT1166 5C 2ANT v3.vsd					
Atoll Site Name -	CT1166	Location Name -	DANIELSON	Market -	CONNECTICUT	Market Cluster -	NEW ENGLAND
Comments:							



NOTES			
Date Time (Eastern)	Version	ATTUID	Note
6/3/2022 1:25:28 PM	2.00	ra9161	RFDS VERSION incremented.
8/26/2022 5:14:23 PM	3.00	mh705r	RFDS VERSION incremented.
10/14/2022 10:42:41 AM	4.00	ra9161	RFDS VERSION incremented.

Attachment 4

December 7, 2021
August 2, 2022 (Rev.1)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT1166 (NSB)
	FA Number:	10141308
	PACE Number:	MRCTB057569
	PT Number:	2051A12J0J
	Site Name:	DANIELSON
	Site Address:	812 Providence Pike Danielson, CT 06239

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the proposed AT&T antenna/RRH mounts to determine its capability of supporting the following loading:

- **(3) TPA65R-BU8DA-K Antennas (96.0"x20.7"x7.7" – Wt. = 87 lbs. /each)**
- **(3) DMP65R-BU8DA-K Antennas (96.0"x20.7"x7.7" – Wt. = 119 lbs. /each)**
- **(3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) 4415 B30 RRH's (16.5"x13.4"x5.9" – Wt. = 46 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**
- **(3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(2) DC9-48-60-24-8C-EV Surge Arrestors (31.4"x10.3" Ø – Wt. = 29 lbs. /each)**

*Proposed equipment shown in bold.

Mount fabrication drawings prepared by SitePro1 P/N TAP-472 dated March 29, 2011, P/N R5 dated November 12, 2015, and P/N MM02 dated May 10, 2010, were used to perform this analysis.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 130 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.18 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.171 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.062.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 1.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mounts are to be secured to the existing guyed tower with bolts and plate clamps tightened around the tower leg. HDG considers the bolts as the governing connection members.

Based on our evaluation, we have determined that the (3) Proposed SitePro1 TAP-472 mounts, (4) Proposed SitePro1 MM02 standoffs, and (1) Proposed SitePro1 R5 mount **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed (NSB) Mount Rating	269	LC1	60%	**PASS**

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N TAP-472, dated March 29, 2011
- Fabrication drawings prepared by SitePro1 P/N R5, dated November 12, 2015
- Fabrication drawings prepared by SitePro1 P/N MM02, dated May 10, 2010

This determination was based on the following limitations and assumptions:

1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The proposed mounts will be adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

Please feel free to contact our office should you have any questions.

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 8/1/2022
Project Name: DANIELSON
Project No.: CT1166
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

$K_z = 2.01\ (z/z_g)^{2/\alpha}$

z=	175.0	(ft)
z_g=	1200	(ft)
α=	7	

K_z= 1.161

Kzmin ≤ Kz ≤ 2.01

Table 2-4

Exposure	Z_g	α	K_{zmin}	K_c
B	1200 ft	7.0	0.70	0.9
C	900 ft	9.5	0.85	1.0
D	700 ft	11.5	1.03	1.1

2.6.6.2 Topographic Factor:

Table 2-5

Topo. Category	K_t	f
2	0.43	1.25
3	0.53	2.0
4	0.72	1.5

$K_{zt} = [1+(K_c\ K_t/K_h)]^2$

$K_h = e^{(f*z/H)}$

K_{zt}= 1

(If Category 1 then K_{zt} =1.0)

Category= **1**

K_h=	1	
K_c=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)
z=	175.0	
z_s=	665	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.98	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness = t_i =	1.00	in
Importance Factor = I=	1.00	(from Table 2-3)
K_{iz} =	1.18	(from Sec. 2.6.10)

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$

t_{iz} = 1.18 in

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

G_h = 0.85 + 0.15 [h/150 - 3.0] h= ht. of structure

h=	190	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

(Cantilivered tubular or latticed spines, pole, structures on buildings (ht. : width ratio > 5)

G_h=	1.35	**Gh=**	**1.00**

2.6.11.2 Design Wind Force on Appurtenances

$F = q_z * G_h * (EPA)_A$

$q_z = 0.00256 * K_z * K_{zt} * K_s * K_e * K_d * V_{max}^2$

		K_z=	1.161	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**41.70**	K_e=	0.98	(from 2.6.8)
$q_{z\ (ice)}$=	**6.17**	K_d=	0.85	(from Table 2-2)
$q_{z\ (30)}$=	**2.22**	V_{max}=	130	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

Structure Type	Wind Direction Probability Factor, Kd
Latticed structures with triangular, square or rectangular cross sections	0.85
Tubular pole structures, latticed structures with other cross sections, appurtenances	0.95
Tubular pole structures supporting antennas enclosed within a cylindrical shroud	1.00

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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		**Aspect Ratio ≤ 2.5**	**Aspect Ratio = 7**	**Aspect Ratio ≥ 25**
		Ca	**Ca**	**Ca**
Flat		1.2	1.4	2.0
Square/Rectangular HSS		$1.2 - 2.8(r_s) \geq 0.85$	$1.4 - 4.0(r_s) \geq 0.90$	$2.0 - 6.0(r_s) \geq 1.25$
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
(Aspect ratio is independent of the spacing between support points of a linear appurtenance,

Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = **1.18** in | **Angle =** **0 (deg)** | **Equivalent Angle =** **180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	4.64	1.30	**745**	**126**	**40**
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	4.64	1.30	**745**	**126**	**40**
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	**52**	**11**	**3**
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	2.80	1.21	**34**	**8**	**2**
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	**58**	**12**	**3**
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	**56**	**12**	**3**
DC9-48-60-24-8C-EV Surge Arrestor	31.4	10.2	10.2	2.22	3.08	0.70	**65**	**13**	**3**
2" Pipe	2.4	12.0		0.20	0.20	1.20	**10**		
4" Pipe	4.5	12.0		0.38	0.38	1.20	**19**		
HSS 2-1/2x2-1/2	2.5	12.0		0.21	0.21	1.25	**11**		
HSS 4x4	4.0	12.0		0.33	0.33	1.25	**17**		

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HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.18	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	745	339	644
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	745	339	644
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	60
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	34	77	45
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	58	82	64
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	56	68	59

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	98.4	23.1	10.1	15.76	6.87	4.26	9.77	1.28	1.49	124	63	109
DMP65R-BU8DA-K Antenna	98.4	23.1	10.1	15.76	6.87	4.26	9.77	1.28	1.49	124	63	109
4478 B14 RRH (Side)	20.5	10.7	15.8	1.52	2.24	1.92	1.30	1.20	1.20	11	17	13
4415 B30 RRH (Side)	18.9	8.3	15.8	1.08	2.07	2.28	1.20	1.20	1.20	8	15	10
4449 B5/B12 RRH (Side)	20.3	11.8	15.6	1.66	2.19	1.72	1.30	1.20	1.20	12	16	13
8843 B2/B66A RRH (Side)	17.3	13.3	15.6	1.59	1.87	1.30	1.11	1.20	1.20	12	14	12

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	34
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	34
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	4	3
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	2
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	3
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3

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HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.18 in. | Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	745	339	440
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	745	339	440
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	76
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	34	77	66
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	58	82	76
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	56	68	65

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	98.4	23.1	10.1	15.76	6.87	4.26	9.77	1.28	1.49	124	63	79
DMP65R-BU8DA-K Antenna	98.4	23.1	10.1	15.76	6.87	4.26	9.77	1.28	1.49	124	63	79
4478 B14 RRH (Side)	20.5	10.7	15.8	1.52	2.24	1.92	1.30	1.20	1.20	11	17	15
4415 B30 RRH (Side)	18.9	8.3	15.8	1.08	2.07	2.28	1.20	1.20	1.20	8	15	13
4449 B5/B12 RRH (Side)	20.3	11.8	15.6	1.66	2.19	1.72	1.30	1.20	1.20	12	16	15
8843 B2/B66A RRH (Side)	17.3	13.3	15.6	1.59	1.87	1.30	1.11	1.20	1.20	12	14	13

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	23
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	23
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	4	4
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	4
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	4
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3

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WIND LOADS

Angle = 90 (deg) | Ice Thickness = 1.18 in. | Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	745	339	339
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	745	339	339
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	84
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	34	77	77
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	58	82	82
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	56	68	68

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	98.4	23.1	10.1	15.76	6.87	4.26	9.77	1.28	1.49	124	63	63
DMP65R-BU8DA-K Antenna	98.4	23.1	10.1	15.76	6.87	4.26	9.77	1.28	1.49	124	63	63
4478 B14 RRH (Side)	20.5	10.7	15.8	1.52	2.24	1.92	1.30	1.20	1.20	11	17	17
4415 B30 RRH (Side)	18.9	8.3	15.8	1.08	2.07	2.28	1.20	1.20	1.20	8	15	15
4449 B5/B12 RRH (Side)	20.3	11.8	15.6	1.66	2.19	1.72	1.30	1.20	1.20	12	16	16
8843 B2/B66A RRH (Side)	17.3	13.3	15.6	1.59	1.87	1.30	1.11	1.20	1.20	12	14	14

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	18
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	18
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	4	4
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	4
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	4
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4

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HUDSON Design Group LLC

WIND LOADS

Angle = 120 (deg) | Ice Thickness = 1.18 in. | Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	745	339	440
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	745	339	440
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	76
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	34	77	66
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	58	82	76
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	56	68	65

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	98.4	23.1	10.1	15.76	6.87	4.26	9.77	1.28	1.49	124	63	79
DMP65R-BU8DA-K Antenna	98.4	23.1	10.1	15.76	6.87	4.26	9.77	1.28	1.49	124	63	79
4478 B14 RRH (Side)	20.5	10.7	15.8	1.52	2.24	1.92	1.30	1.20	1.20	11	17	15
4415 B30 RRH (Side)	18.9	8.3	15.8	1.08	2.07	2.28	1.20	1.20	1.20	8	15	13
4449 B5/B12 RRH (Side)	20.3	11.8	15.6	1.66	2.19	1.72	1.30	1.20	1.20	12	16	15
8843 B2/B66A RRH (Side)	17.3	13.3	15.6	1.59	1.87	1.30	1.11	1.20	1.20	12	14	13

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	23
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	23
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	4	4
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	4
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	4
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3

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Designed By: KSBM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 150 (deg) | Ice Thickness = 1.18 in. | Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	745	339	644
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	745	339	644
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	52	84	60
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	34	77	45
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	58	82	64
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	56	68	59

WIND LOADS WITH ICE:

TPA65R-BU8DA-K Antenna	98.4	23.1	10.1	15.76	6.87	4.26	9.77	1.28	1.49	124	63	109
DMP65R-BU8DA-K Antenna	98.4	23.1	10.1	15.76	6.87	4.26	9.77	1.28	1.49	124	63	109
4478 B14 RRH (Side)	20.5	10.7	15.8	1.52	2.24	1.92	1.30	1.20	1.20	11	17	13
4415 B30 RRH (Side)	18.9	8.3	15.8	1.08	2.07	2.28	1.20	1.20	1.20	8	15	10
4449 B5/B12 RRH (Side)	20.3	11.8	15.6	1.66	2.19	1.72	1.30	1.20	1.20	12	16	13
8843 B2/B66A RRH (Side)	17.3	13.3	15.6	1.59	1.87	1.30	1.11	1.20	1.20	12	14	12

WIND LOADS AT 30 MPH:

TPA65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	34
DMP65R-BU8DA-K Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	34
4478 B14 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	4	3
4415 B30 RRH (Side)	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	2
4449 B5/B12 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	3
8843 B2/B66A RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3

Date: 8/1/2022
Project Name: DANIELSON
Project No.: CT1166
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.18 in.
Density of ice: 56 pcf

TPA65R-BU8DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		268 lbs
Weight of object:	87.0 lbs	
Combined weight of ice and object:		355 lbs

DMP65R-BU8DA-K Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:		268 lbs
Weight of object:	119.0 lbs	
Combined weight of ice and object:		387 lbs

4478 B14 RRH

Weight of ice based on total radial SF area:

Height (in):	18.1	
Width (in):	13.4	
Depth (in):	8.3	
Total weight of ice on object:		37 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		97 lbs

4415 B30 RRH

Weight of ice based on total radial SF area:

Height (in):	16.5	
Width (in):	13.4	
Depth (in):	5.9	
Total weight of ice on object:		31 lbs
Weight of object:	46.0 lbs	
Combined weight of ice and object:		77 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	17.9	
Width (in):	13.2	
Depth (in):	9.4	
Total weight of ice on object:		37 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		110 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		33 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		105 lbs

DC9-48-60-24-8C-EV Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	31.4	
Diameter(in):	10.2	
Total weight of ice on object:		43 lbs
Weight of object:	29 lbs	
Combined weight of ice and object:		72 lbs

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		10 plf

HSS 2-1/2x2-1/2

Weight of ice based on total radial SF area:

Height (in):	2.5	
Width (in):	2.5	
Per foot weight of ice on object:		7 plf

2" pipe

Per foot weight of ice:

diameter (in):	2.38	
Per foot weight of ice on object:		5 plf

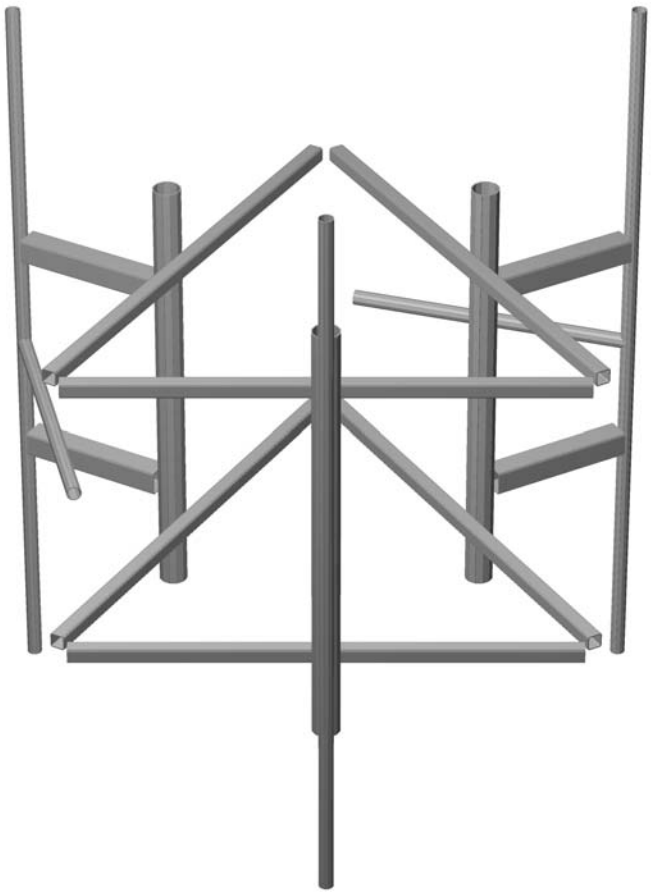
4" Pipe

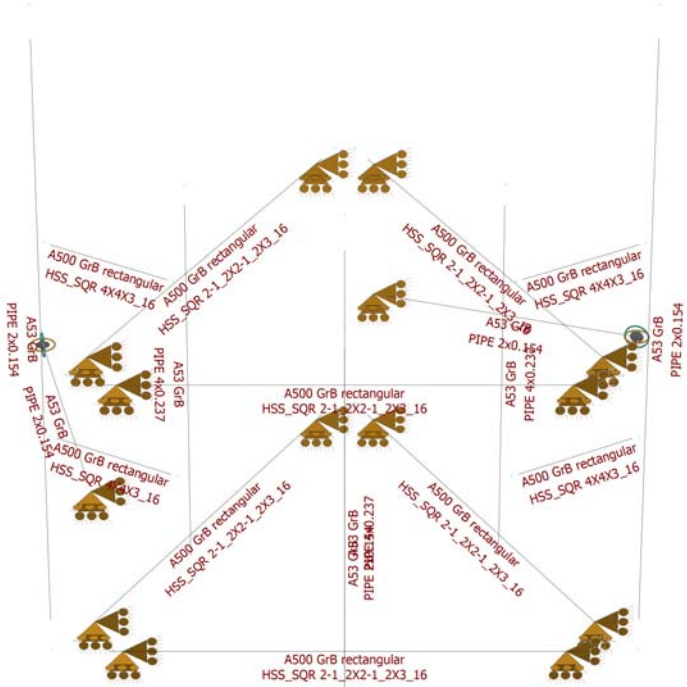
Per foot weight of ice:

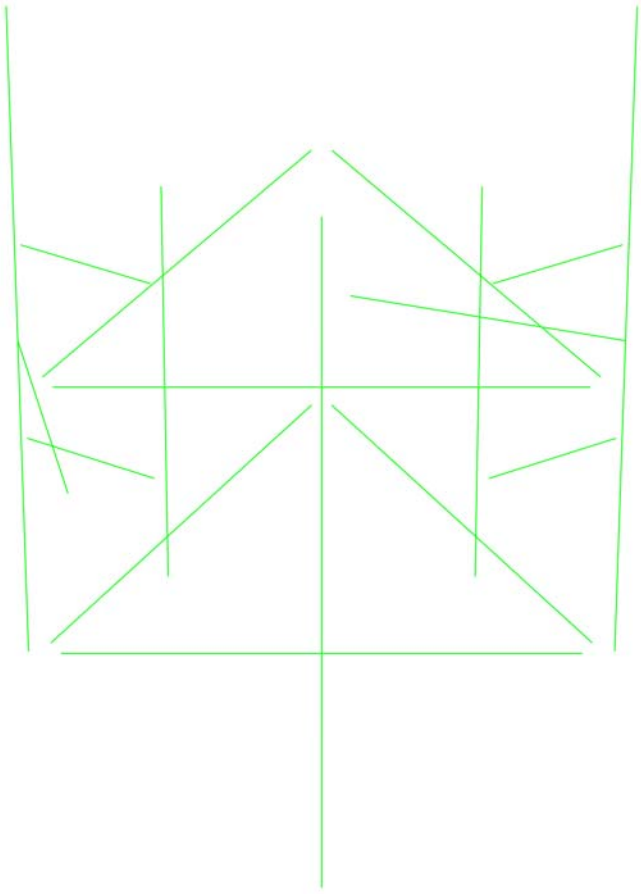
diameter (in):	4.5	
Per foot weight of ice on object:		8 plf

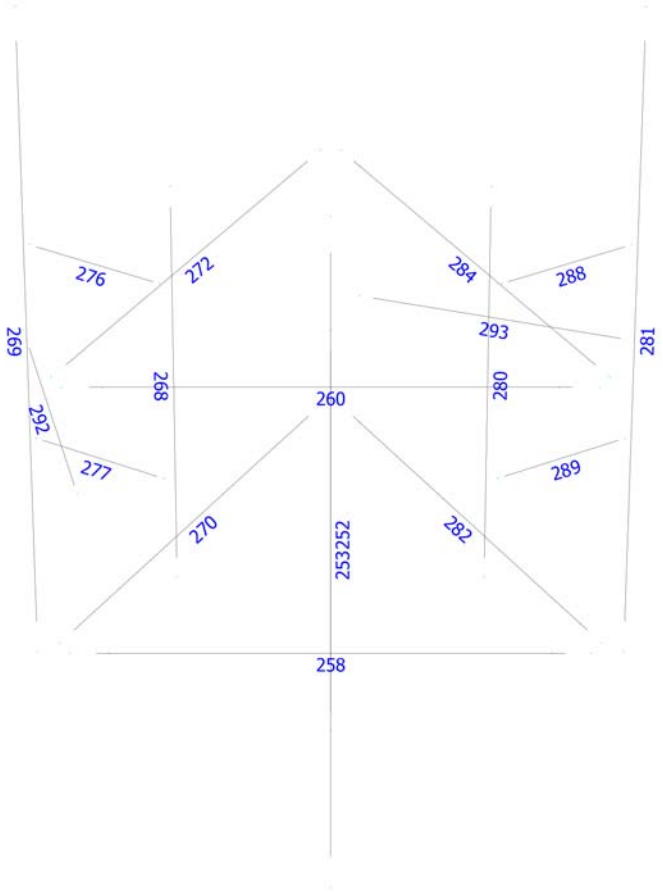
HUDSON
Design Group LLC

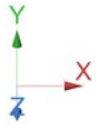
Mount Calculations
(Proposed Conditions)


Y
X
Z


A500 GrB rectangular
HSS_SQR 2-1_2X2-1_2X3_16
A500 GrB rectangular
HSS_SQR 4X4X3_16
A53 GrB
PIPE 4X0.237
A53 GrB
PIPE 2X0.154
Y
X
Z


Y
X
Z


276
272
284
288
293
269
281
268
260
280
292
277
289
270
253252
282
258


Y
X
Z

RAM® Elements
CONNECT Edition

Current Date: 8/1/2022 7:24 PM
Units system: English

Load data

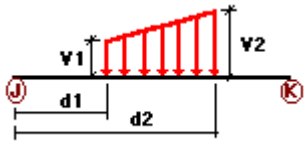
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left End of Mount	No	LL
LLa1	500 lb Live Load Antenna 1	No	LL
LLa2	500 lb Live Load Antenna 2	No	LL

Distributed force on members



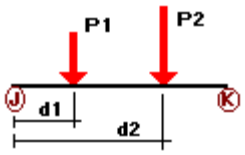
Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	252	z	-0.019	0.00	0.00	No	0.00	No
	253	z	-0.01	0.00	0.00	No	0.00	No
	258	z	-0.011	0.00	0.00	No	0.00	No
	260	z	-0.011	0.00	0.00	No	0.00	No
	268	z	-0.019	0.00	0.00	No	0.00	No

	269	z	-0.01	0.00	0.00	No	0.00	No
	270	z	-0.011	0.00	0.00	No	0.00	No
	272	z	-0.011	0.00	0.00	No	0.00	No
	276	z	-0.017	0.00	0.00	No	0.00	No
	277	z	-0.017	0.00	0.00	No	0.00	No
	280	z	-0.019	0.00	0.00	No	0.00	No
	281	z	-0.01	0.00	0.00	No	0.00	No
	282	z	-0.011	0.00	0.00	No	0.00	No
	284	z	-0.011	0.00	0.00	No	0.00	No
	288	z	-0.017	0.00	0.00	No	0.00	No
	289	z	-0.017	0.00	0.00	No	0.00	No
	292	z	-0.01	0.00	0.00	No	0.00	No
	293	z	-0.01	0.00	0.00	No	0.00	No
W30	252	z	-0.019	0.00	0.00	No	0.00	No
	253	z	-0.01	0.00	0.00	No	0.00	No
	258	z	-0.011	0.00	0.00	No	0.00	No
	260	z	-0.011	0.00	0.00	No	0.00	No
	268	z	-0.019	0.00	0.00	No	0.00	No
	269	z	-0.01	0.00	0.00	No	0.00	No
	270	z	-0.011	0.00	0.00	No	0.00	No
	272	z	-0.011	0.00	0.00	No	0.00	No
	276	z	-0.017	0.00	0.00	No	0.00	No
	277	z	-0.017	0.00	0.00	No	0.00	No
	280	z	-0.019	0.00	0.00	No	0.00	No
	281	z	-0.01	0.00	0.00	No	0.00	No
	282	z	-0.011	0.00	0.00	No	0.00	No
	284	z	-0.011	0.00	0.00	No	0.00	No
	288	z	-0.017	0.00	0.00	No	0.00	No
	289	z	-0.017	0.00	0.00	No	0.00	No
	292	z	-0.01	0.00	0.00	No	0.00	No
	293	z	-0.01	0.00	0.00	No	0.00	No
W60	252	x	-0.019	0.00	0.00	No	0.00	No
	253	x	-0.01	0.00	0.00	No	0.00	No
	258	x	-0.011	0.00	0.00	No	0.00	No
	260	x	-0.011	0.00	0.00	No	0.00	No
	268	x	-0.019	0.00	0.00	No	0.00	No
	269	x	-0.01	0.00	0.00	No	0.00	No
	270	x	-0.011	0.00	0.00	No	0.00	No
	272	x	-0.011	0.00	0.00	No	0.00	No
	276	x	-0.017	0.00	0.00	No	0.00	No
	277	x	-0.017	0.00	0.00	No	0.00	No
	280	x	-0.019	0.00	0.00	No	0.00	No
	281	x	-0.01	0.00	0.00	No	0.00	No
	282	x	-0.011	0.00	0.00	No	0.00	No
	284	x	-0.011	0.00	0.00	No	0.00	No
	288	x	-0.017	0.00	0.00	No	0.00	No
	289	x	-0.017	0.00	0.00	No	0.00	No
	292	x	-0.01	0.00	0.00	No	0.00	No
	293	x	-0.01	0.00	0.00	No	0.00	No
W90	252	x	-0.019	0.00	0.00	No	0.00	No
	253	x	-0.01	0.00	0.00	No	0.00	No
	258	x	-0.011	0.00	0.00	No	0.00	No
	260	x	-0.011	0.00	0.00	No	0.00	No
	268	x	-0.019	0.00	0.00	No	0.00	No
	269	x	-0.01	0.00	0.00	No	0.00	No
	270	x	-0.011	0.00	0.00	No	0.00	No
	272	x	-0.011	0.00	0.00	No	0.00	No
	276	x	-0.017	0.00	0.00	No	0.00	No
	277	x	-0.017	0.00	0.00	No	0.00	No
	280	x	-0.019	0.00	0.00	No	0.00	No

	281	x	-0.01	0.00	0.00	No	0.00	No
	282	x	-0.011	0.00	0.00	No	0.00	No
	284	x	-0.011	0.00	0.00	No	0.00	No
	288	x	-0.017	0.00	0.00	No	0.00	No
	289	x	-0.017	0.00	0.00	No	0.00	No
	292	x	-0.01	0.00	0.00	No	0.00	No
	293	x	-0.01	0.00	0.00	No	0.00	No
W120	252	x	-0.019	0.00	0.00	No	0.00	No
	253	x	-0.01	0.00	0.00	No	0.00	No
	258	x	-0.011	0.00	0.00	No	0.00	No
	260	x	-0.011	0.00	0.00	No	0.00	No
	268	x	-0.019	0.00	0.00	No	0.00	No
	269	x	-0.01	0.00	0.00	No	0.00	No
	270	x	-0.011	0.00	0.00	No	0.00	No
	272	x	-0.011	0.00	0.00	No	0.00	No
	276	x	-0.017	0.00	0.00	No	0.00	No
	277	x	-0.017	0.00	0.00	No	0.00	No
	280	x	-0.019	0.00	0.00	No	0.00	No
	281	x	-0.01	0.00	0.00	No	0.00	No
	282	x	-0.011	0.00	0.00	No	0.00	No
	284	x	-0.011	0.00	0.00	No	0.00	No
	288	x	-0.017	0.00	0.00	No	0.00	No
	289	x	-0.017	0.00	0.00	No	0.00	No
	292	x	-0.01	0.00	0.00	No	0.00	No
	293	x	-0.01	0.00	0.00	No	0.00	No
W150	252	z	0.019	0.00	0.00	No	0.00	No
	253	z	0.01	0.00	0.00	No	0.00	No
	258	z	0.011	0.00	0.00	No	0.00	No
	260	z	0.011	0.00	0.00	No	0.00	No
	268	z	0.019	0.00	0.00	No	0.00	No
	269	z	0.01	0.00	0.00	No	0.00	No
	270	z	0.011	0.00	0.00	No	0.00	No
	272	z	0.011	0.00	0.00	No	0.00	No
	276	z	0.017	0.00	0.00	No	0.00	No
	277	z	0.017	0.00	0.00	No	0.00	No
	280	z	0.019	0.00	0.00	No	0.00	No
	281	z	0.01	0.00	0.00	No	0.00	No
	282	z	0.011	0.00	0.00	No	0.00	No
	284	z	0.011	0.00	0.00	No	0.00	No
	288	z	0.017	0.00	0.00	No	0.00	No
	289	z	0.017	0.00	0.00	No	0.00	No
	292	z	0.01	0.00	0.00	No	0.00	No
	293	z	0.01	0.00	0.00	No	0.00	No
Di	252	y	-0.008	0.00	0.00	No	0.00	No
	253	y	-0.005	0.00	0.00	No	0.00	No
	258	y	-0.007	0.00	0.00	No	0.00	No
	260	y	-0.007	0.00	0.00	No	0.00	No
	268	y	-0.008	0.00	0.00	No	0.00	No
	269	y	-0.005	0.00	0.00	No	0.00	No
	270	y	-0.007	0.00	0.00	No	0.00	No
	272	y	-0.007	0.00	0.00	No	0.00	No
	276	y	-0.01	0.00	0.00	No	0.00	No
	277	y	-0.01	0.00	0.00	No	0.00	No
	280	y	-0.008	0.00	0.00	No	0.00	No
	281	y	-0.005	0.00	0.00	No	0.00	No
	282	y	-0.007	0.00	0.00	No	0.00	No
	284	y	-0.007	0.00	0.00	No	0.00	No
	288	y	-0.01	0.00	0.00	No	0.00	No
	289	y	-0.01	0.00	0.00	No	0.00	No
	292	y	-0.005	0.00	0.00	No	0.00	No

	293	y	-0.005	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	252	y	-0.073	3.00	No
		y	-0.072	3.00	No
		y	-0.029	90.00	Yes
	253	y	-0.06	1.50	No
		y	-0.06	8.50	No
	268	y	-0.073	3.00	No
		y	-0.072	3.00	No
		y	-0.029	90.00	Yes
	269	y	-0.06	1.50	No
		y	-0.06	8.50	No
	280	y	-0.073	3.00	No
		y	-0.072	3.00	No
		y	-0.029	90.00	Yes
	281	y	-0.06	1.50	No
		y	-0.06	8.50	No
Wo	252	z	-0.058	3.00	No
		z	-0.056	3.00	No
		z	-0.065	90.00	Yes
	253	z	-0.373	1.50	No
		z	-0.373	8.50	No
	268	z	-0.058	3.00	No
		z	-0.056	3.00	No
		z	-0.065	90.00	Yes
	269	z	-0.373	1.50	No
		z	-0.373	8.50	No
	280	z	-0.058	3.00	No
		z	-0.056	3.00	No
		z	-0.065	90.00	Yes
	281	z	-0.373	1.50	No
		z	-0.373	8.50	No
W30	252	3	-0.064	3.00	No
		3	-0.065	90.00	Yes
	253	3	-0.322	1.50	No
		3	-0.322	8.50	No
	268	3	-0.064	3.00	No
		3	-0.065	90.00	Yes
	269	3	-0.322	1.50	No
		3	-0.322	8.50	No
	280	3	-0.064	3.00	No
		3	-0.065	90.00	Yes
	281	3	-0.322	1.50	No
		3	-0.322	8.50	No
W60	252	3	-0.076	3.00	No
		3	-0.065	90.00	Yes

	253	3	-0.221	1.50	No
		3	-0.221	8.50	No
	268	3	-0.076	3.00	No
		3	-0.065	90.00	Yes
	269	3	-0.221	1.50	No
		3	-0.221	8.50	No
	280	3	-0.076	3.00	No
		3	-0.065	90.00	Yes
	281	3	-0.221	1.50	No
		3	-0.221	8.50	No
W90	252	x	-0.082	3.00	No
		x	-0.065	90.00	Yes
	253	x	-0.17	1.50	No
		x	-0.17	8.50	No
	268	x	-0.082	3.00	No
		x	-0.065	90.00	Yes
	269	x	-0.17	1.50	No
		x	-0.17	8.50	No
	280	x	-0.082	3.00	No
		x	-0.065	90.00	Yes
	281	x	-0.17	1.50	No
		x	-0.17	8.50	No
W120	252	2	-0.076	3.00	No
		2	-0.065	90.00	Yes
	253	2	-0.221	1.50	No
		2	-0.221	8.50	No
	268	2	-0.076	3.00	No
		2	-0.065	90.00	Yes
	269	2	-0.221	1.50	No
		2	-0.221	8.50	No
	280	2	-0.076	3.00	No
		2	-0.065	90.00	Yes
	281	2	-0.221	1.50	No
		2	-0.221	8.50	No
W150	252	2	-0.064	3.00	No
		2	-0.065	90.00	Yes
	253	2	-0.322	1.50	No
		2	-0.322	8.50	No
	268	2	-0.064	3.00	No
		2	-0.065	90.00	Yes
	269	2	-0.322	1.50	No
		2	-0.322	8.50	No
	280	2	-0.064	3.00	No
		2	-0.065	90.00	Yes
	281	2	-0.322	1.50	No
		2	-0.322	8.50	No
Di	252	y	-0.037	3.00	No
		y	-0.033	3.00	No
		y	-0.043	90.00	Yes
	253	y	-0.135	1.50	No
		y	-0.135	8.50	No
	268	y	-0.037	3.00	No
		y	-0.033	3.00	No
		y	-0.043	90.00	Yes
	269	y	-0.135	1.50	No
		y	-0.135	8.50	No
	280	y	-0.037	3.00	No
		y	-0.033	3.00	No
		y	-0.043	90.00	Yes
	281	y	-0.135	1.50	No

		y	-0.135	8.50	No
WI0	252	z	-0.012	3.00	No
		z	-0.012	3.00	No
		z	-0.013	90.00	Yes
	253	z	-0.063	1.50	No
		z	-0.063	8.50	No
	268	z	-0.012	3.00	No
		z	-0.012	3.00	No
		z	-0.013	90.00	Yes
	269	z	-0.063	1.50	No
		z	-0.063	8.50	No
	280	z	-0.012	3.00	No
		z	-0.012	3.00	No
		z	-0.013	90.00	Yes
	281	z	-0.063	1.50	No
		z	-0.063	8.50	No
WI30	252	3	-0.013	3.00	No
		3	-0.013	90.00	Yes
	253	3	-0.055	1.50	No
		3	-0.055	8.50	No
	268	3	-0.013	3.00	No
		3	-0.013	90.00	Yes
	269	3	-0.055	1.50	No
		3	-0.055	8.50	No
	280	3	-0.013	3.00	No
		3	-0.013	90.00	Yes
	281	3	-0.055	1.50	No
		3	-0.055	8.50	No
WI60	252	3	-0.015	3.00	No
		3	-0.013	90.00	Yes
	253	3	-0.04	1.50	No
		3	-0.04	8.50	No
	268	3	-0.015	3.00	No
		3	-0.013	90.00	Yes
	269	3	-0.04	1.50	No
		3	-0.04	8.50	No
	280	3	-0.015	3.00	No
		3	-0.013	90.00	Yes
	281	3	-0.04	1.50	No
		3	-0.04	8.50	No
WI90	252	x	-0.016	3.00	No
		x	-0.013	90.00	Yes
	253	x	-0.032	1.50	No
		x	-0.032	8.50	No
	268	x	-0.016	3.00	No
		x	-0.013	90.00	Yes
	269	x	-0.032	1.50	No
		x	-0.032	8.50	No
	280	x	-0.016	3.00	No
		x	-0.013	90.00	Yes
	281	x	-0.032	1.50	No
		x	-0.032	8.50	No
WI120	252	2	-0.015	3.00	No
		2	-0.013	90.00	Yes
	253	2	-0.04	1.50	No
		2	-0.04	8.50	No
	268	2	-0.015	3.00	No
		2	-0.013	90.00	Yes
	269	2	-0.04	1.50	No
		2	-0.04	8.50	No

	280	2	-0.015	3.00	No
		2	-0.013	90.00	Yes
	281	2	-0.04	1.50	No
		2	-0.04	8.50	No
WI150	252	2	-0.013	3.00	No
		2	-0.013	90.00	Yes
	253	2	-0.055	1.50	No
		2	-0.055	8.50	No
	268	2	-0.013	3.00	No
		2	-0.013	90.00	Yes
	269	2	-0.055	1.50	No
		2	-0.055	8.50	No
	280	2	-0.013	3.00	No
		2	-0.013	90.00	Yes
	281	2	-0.055	1.50	No
		2	-0.055	8.50	No
WL0	252	z	-0.003	3.00	No
		z	-0.003	3.00	No
		z	-0.003	90.00	Yes
	253	z	-0.02	1.50	No
		z	-0.02	8.50	No
	268	z	-0.003	3.00	No
		z	-0.003	3.00	No
		z	-0.003	90.00	Yes
	269	z	-0.02	1.50	No
		z	-0.02	8.50	No
	280	z	-0.003	3.00	No
		z	-0.003	3.00	No
		z	-0.003	90.00	Yes
	281	z	-0.02	1.50	No
		z	-0.02	8.50	No
WL30	252	3	-0.003	3.00	No
		3	-0.003	90.00	Yes
	253	3	-0.018	1.50	No
		3	-0.018	8.50	No
	268	3	-0.003	3.00	No
		3	-0.003	90.00	Yes
	269	3	-0.018	1.50	No
		3	-0.018	8.50	No
	280	3	-0.003	3.00	No
		3	-0.003	90.00	Yes
	281	3	-0.018	1.50	No
		3	-0.018	8.50	No
WL60	252	3	-0.004	3.00	No
		3	-0.003	90.00	Yes
	253	3	-0.012	1.50	No
		3	-0.012	8.50	No
	268	3	-0.004	3.00	No
		3	-0.003	90.00	Yes
	269	3	-0.012	1.50	No
		3	-0.012	8.50	No
	280	3	-0.004	3.00	No
		3	-0.003	90.00	Yes
	281	3	-0.012	1.50	No
		3	-0.012	8.50	No
WL90	252	x	-0.004	3.00	No
		x	-0.003	90.00	Yes
	253	x	-0.01	1.50	No
		x	-0.01	8.50	No
	268	x	-0.004	3.00	No

		x	-0.003	90.00	Yes
	269	x	-0.01	1.50	No
		x	-0.01	8.50	No
	280	x	-0.004	3.00	No
		x	-0.003	90.00	Yes
	281	x	-0.01	1.50	No
		x	-0.01	8.50	No
WL120	252	2	-0.004	3.00	No
		2	-0.003	90.00	Yes
	253	2	-0.012	1.50	No
		2	-0.012	8.50	No
	268	2	-0.004	3.00	No
		2	-0.003	90.00	Yes
	269	2	-0.012	1.50	No
		2	-0.012	8.50	No
	280	2	-0.004	3.00	No
		2	-0.003	90.00	Yes
	281	2	-0.012	1.50	No
		2	-0.012	8.50	No
WL150	252	2	-0.003	3.00	No
		2	-0.003	90.00	Yes
	253	2	-0.018	1.50	No
		2	-0.018	8.50	No
	268	2	-0.003	3.00	No
		2	-0.003	90.00	Yes
	269	2	-0.018	1.50	No
		2	-0.018	8.50	No
	280	2	-0.003	3.00	No
		2	-0.003	90.00	Yes
	281	2	-0.018	1.50	No
		2	-0.018	8.50	No
LL1	260	y	-0.25	50.00	Yes
LL2	260	y	-0.25	100.00	Yes
LL3	260	y	-0.25	0.00	Yes
LLa1	253	y	-0.50	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00

WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left End of Mount	No	0.00	0.00	0.00
LLa1	500 lb Live Load Antenna 1	No	0.00	0.00	0.00
LLa2	500 lb Live Load Antenna 2	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	0.00	0.00	0.00
LLa1	0.00	0.00	0.00
LLa2	0.00	0.00	0.00

RAM® Elements
CONNECT Edition

Current Date: 8/1/2022 7:25 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1
LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2

LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 2-1_2X2-1_2X3_16	**258**	LC1 at 50.00%	0.31	OK	
		260	LC46 at 50.00%	0.30	OK	
		270	LC32 at 50.00%	0.30	OK	
		272	LC26 at 50.00%	0.29	OK	
		282	LC7 at 48.44%	**0.35**	**OK**	
		284	LC1 at 48.44%	0.33	OK	
	HSS_SQR 4X4X3_16	**276**	LC8 at 0.00%	**0.05**	**OK**	
		277	LC2 at 0.00%	0.05	OK	
		288	LC6 at 0.00%	0.05	OK	
		289	LC12 at 0.00%	0.05	OK	
	PIPE 2x0.154	**253**	LC7 at 33.33%	0.56	OK	
		269	LC1 at 34.38%	**0.60**	**OK**	
		281	LC1 at 34.38%	0.60	OK	
		292	LC7 at 100.00%	0.03	OK	
		293	LC2 at 100.00%	0.03	OK	
	PIPE 4x0.237	**252**	LC1 at 50.00%	**0.07**	**OK**	
		268	LC6 at 73.75%	0.06	OK	
		280	LC7 at 25.00%	0.06	OK	

RAM® Elements
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Current Date: 8/1/2022 7:25 PM
Units system: English

Geometry data

GLOSSARY

Cb22, Cb33	: Moment gradient coefficients
Cm22, Cm33	: Coefficients applied to bending term in interaction formula
d0	: Tapered member section depth at J end of member
DJX	: Rigid end offset distance measured from J node in axis X
DJY	: Rigid end offset distance measured from J node in axis Y
DJZ	: Rigid end offset distance measured from J node in axis Z
DKX	: Rigid end offset distance measured from K node in axis X
DKY	: Rigid end offset distance measured from K node in axis Y
DKZ	: Rigid end offset distance measured from K node in axis Z
dL	: Tapered member section depth at K end of member
Ig factor	: Inertia reduction factor (Effective Inertia/Gross Inertia) for reinforced concrete members
K22	: Effective length factor about axis 2
K33	: Effective length factor about axis 3
L22	: Member length for calculation of axial capacity
L33	: Member length for calculation of axial capacity
LB pos	: Lateral unbraced length of the compression flange in the positive side of local axis 2
LB neg	: Lateral unbraced length of the compression flange in the negative side of local axis 2
RX	: Rotation about X
RY	: Rotation about Y
RZ	: Rotation about Z
TO	: 1 = Tension only member 0 = Normal member
TX	: Translation in X
TY	: Translation in Y
TZ	: Translation in Z

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
441	3.3333	0.00	2.0833	0
442	-3.3333	0.00	2.0833	0
444	-3.3333	4.00	2.0833	0
445	3.3333	4.00	2.0833	0
448	0.00	-1.00	2.375	0
449	0.00	5.00	2.375	0
458	0.00	-3.00	3.0625	0
459	0.00	7.00	3.0625	0
460	2.8333	0.00	2.0833	0
461	2.8333	4.00	2.0833	0
462	-2.8333	0.00	2.0833	0
463	-2.8333	4.00	2.0833	0
471	-3.4709	0.00	1.8451	0
472	0.1376	0.00	-3.9284	0
473	-0.1376	0.00	-3.9284	0
474	3.4709	0.00	1.8451	0
477	-0.1376	4.00	-3.9284	0
478	3.4709	4.00	1.8451	0
479	-3.4709	4.00	1.8451	0
480	0.1376	4.00	-3.9284	0
485	-2.0568	-1.00	-1.1875	0
486	2.0568	-1.00	-1.1875	0
487	-2.0568	5.00	-1.1875	0

488	2.0568	5.00	-1.1875	0
493	-2.2192	0.50	-1.2812	0
494	2.2192	0.50	-1.2812	0
495	-2.2192	3.50	-1.2812	0
496	2.2192	3.50	-1.2812	0
497	-3.9512	0.50	-2.2812	0
498	3.9512	0.50	-2.2812	0
499	-3.9512	3.50	-2.2812	0
500	3.9512	3.50	-2.2812	0
505	-4.0371	-3.00	-2.3308	0
506	4.0371	-3.00	-2.3308	0
507	-4.0371	7.00	-2.3308	0
508	4.0371	7.00	-2.3308	0
509	-3.2209	0.00	1.4121	0
510	0.3876	0.00	-3.4954	0
511	-3.2209	4.00	1.4121	0
512	0.3876	4.00	-3.4954	0
513	-0.3876	0.00	-3.4954	0
514	3.2209	0.00	1.4121	0
515	-0.3876	4.00	-3.4954	0
516	3.2209	4.00	1.4121	0
517	-3.2209	2.00	1.4121	0
518	-4.0371	2.00	-2.3308	0
519	4.0371	2.00	-2.3308	0
520	0.3876	2.00	-3.4954	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
460	1	1	1	0	0	0
461	1	1	1	0	0	0
462	1	1	1	0	0	0
463	1	1	1	0	0	0
509	1	1	1	0	0	0
510	1	1	1	0	0	0
511	1	1	1	0	0	0
512	1	1	1	0	0	0
513	1	1	1	0	0	0
514	1	1	1	0	0	0
515	1	1	1	0	0	0
516	1	1	1	0	0	0
517	1	1	1	0	0	0
520	1	1	1	0	0	0

Members

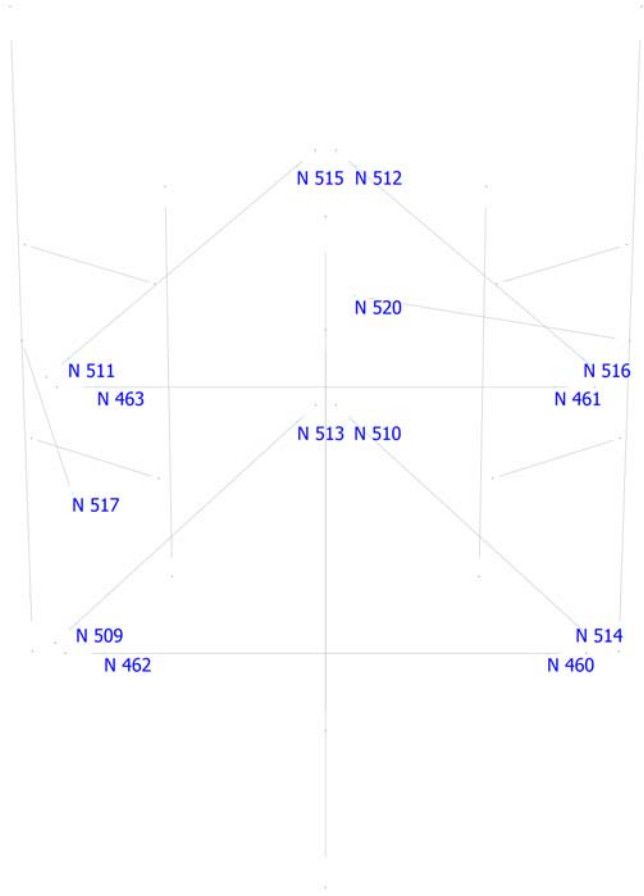
Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
252	449	448		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
253	459	458		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
258	442	441		HSS_SQR 2-1_2X2-1_2...	A500 GrB rectangular	0.00	0.00	0.00
260	444	445		HSS_SQR 2-1_2X2-1_2...	A500 GrB rectangular	0.00	0.00	0.00
268	487	485		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
269	507	505		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
270	473	471		HSS_SQR 2-1_2X2-1_2...	A500 GrB rectangular	0.00	0.00	0.00
272	477	479		HSS_SQR 2-1_2X2-1_2...	A500 GrB rectangular	0.00	0.00	0.00
276	499	495		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00
277	497	493		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00
280	488	486		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
281	508	506		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
282	474	472		HSS_SQR 2-1_2X2-1_2...	A500 GrB rectangular	0.00	0.00	0.00
284	478	480		HSS_SQR 2-1_2X2-1_2...	A500 GrB rectangular	0.00	0.00	0.00
288	500	496		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00
289	498	494		HSS_SQR 4X4X3_16	A500 GrB rectangular	0.00	0.00	0.00
292	518	517		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
293	519	520		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
252	315.00	0	0.00	0.00	0.00
253	315.00	0	0.00	0.00	0.00
268	315.00	0	0.00	0.00	0.00
269	315.00	0	0.00	0.00	0.00
280	315.00	0	0.00	0.00	0.00
281	315.00	0	0.00	0.00	0.00

Hinges

	Node-J				Node-K						
Member	M33	M22	V3	V2	M33	M22	V3	V2	TOR	AXL	Axial rigidity
292	1	1	0	0	0	0	0	0	0	0	Full
293	1	1	0	0	0	0	0	0	0	0	Full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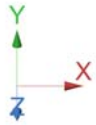
Y
X
Z

RAM® Elements
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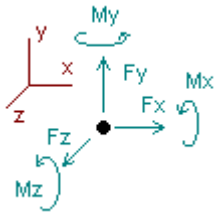
Current Date: 8/1/2022 7:26 PM
Units system: English

Analysis result

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150
LC37=1.2D+1.6LL1
LC38=1.2D+1.6LL2
LC39=1.2D+1.6LL3
LC40=1.2D+WL0+1.6LLa1
LC41=1.2D+WL30+1.6LLa1
LC42=1.2D+WL60+1.6LLa1

LC43=1.2D+WL90+1.6LLa1
LC44=1.2D+WL120+1.6LLa1
LC45=1.2D+WL150+1.6LLa1
LC46=1.2D-WL0+1.6LLa1
LC47=1.2D-WL30+1.6LLa1
LC48=1.2D-WL60+1.6LLa1
LC49=1.2D-WL90+1.6LLa1
LC50=1.2D-WL120+1.6LLa1
LC51=1.2D-WL150+1.6LLa1
LC52=1.2D+WL0+1.6LLa2
LC53=1.2D+WL30+1.6LLa2
LC54=1.2D+WL60+1.6LLa2
LC55=1.2D+WL90+1.6LLa2
LC56=1.2D+WL120+1.6LLa2
LC57=1.2D+WL150+1.6LLa2
LC58=1.2D-WL0+1.6LLa2
LC59=1.2D-WL30+1.6LLa2
LC60=1.2D-WL60+1.6LLa2
LC61=1.2D-WL90+1.6LLa2
LC62=1.2D-WL120+1.6LLa2
LC63=1.2D-WL150+1.6LLa2

		Forces						Moments					
Node		**Fx** [Kip]	**lc**	**Fy** [Kip]	**lc**	**Fz** [Kip]	**lc**	**Mx** [Kip*ft]	**lc**	**My** [Kip*ft]	**lc**	**Mz** [Kip*ft]	**lc**
460	Max	0.194	LC16	0.341	LC40	0.374	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.194	LC22	0.101	LC19	-0.315	LC19	0.00000	LC1	0.00000	LC1	0.00000	LC1
461	Max	0.156	LC4	0.605	LC38	0.277	LC13	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.156	LC10	0.101	LC13	-0.336	LC7	0.00000	LC1	0.00000	LC1	0.00000	LC1
462	Max	0.194	LC16	0.341	LC40	0.374	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.194	LC22	0.101	LC19	-0.315	LC19	0.00000	LC1	0.00000	LC1	0.00000	LC1
463	Max	0.156	LC4	0.605	LC39	0.277	LC13	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.156	LC10	0.101	LC13	-0.336	LC7	0.00000	LC1	0.00000	LC1	0.00000	LC1
509	Max	0.158	LC16	0.285	LC36	0.129	LC13	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.281	LC10	0.106	LC18	-0.200	LC7	0.00000	LC1	0.00000	LC1	0.00000	LC1
510	Max	0.235	LC5	0.285	LC31	0.225	LC13	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.112	LC23	0.105	LC13	-0.294	LC7	0.00000	LC1	0.00000	LC1	0.00000	LC1
511	Max	0.243	LC4	0.285	LC30	0.161	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.121	LC22	0.106	LC24	-0.090	LC19	0.00000	LC1	0.00000	LC1	0.00000	LC1
512	Max	0.085	LC17	0.285	LC25	0.258	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.207	LC11	0.105	LC19	-0.186	LC19	0.00000	LC1	0.00000	LC1	0.00000	LC1
513	Max	0.230	LC17	0.285	LC31	0.106	LC14	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.351	LC11	0.106	LC13	-0.177	LC8	0.00000	LC1	0.00000	LC1	0.00000	LC1
514	Max	0.296	LC6	0.284	LC26	0.303	LC13	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.173	LC24	0.108	LC20	-0.372	LC7	0.00000	LC1	0.00000	LC1	0.00000	LC1
515	Max	0.323	LC5	0.284	LC25	0.149	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.201	LC23	0.107	LC19	-0.079	LC20	0.00000	LC1	0.00000	LC1	0.00000	LC1
516	Max	0.164	LC19	0.284	LC32	0.335	LC1	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.286	LC1	0.109	LC14	-0.263	LC19	0.00000	LC1	0.00000	LC1	0.00000	LC1
517	Max	0.174	LC13	0.018	LC25	0.805	LC13	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.175	LC7	0.004	LC19	-0.805	LC7	0.00000	LC1	0.00000	LC1	0.00000	LC1

520	Max	0.675	LC2	0.018	LC32	0.232	LC2	0.00000	LC1	0.00000	LC1	0.00000	LC1
	Min	-0.675	LC20	0.005	LC14	-0.235	LC20	0.00000	LC1	0.00000	LC1	0.00000	LC1

HUDSON
Design Group LLC

Connection Check

Date: 8/1/2022
Project Name: DANIELSON
Project No.: CT1166
Designed By: KSBM **Checked By:** MSC

HUDSON Design Group LLC

CHECK CONNECTION CAPACITY (Worst Case)

Reference: AISC Steel Construction Manual 14th Edition (ASD)

Bolt Type = GR5 1/2" Bolt

Allowable Tensile Load =

F_{Tall} = 8836 lbs.

Allowable Shear Load =

F_{Vall} = 5301 lbs.

TENSILE FORCES

Reaction **F =** 336 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 156 lbs. (See Bentley Output)
Reactions in Y direction: 605 lbs. (See Bentley Output)

Resultant: 625 lbs.

No. of Supports = 1
No. of Bolts / Support = 4

Tension Design Load /Bolts =

f_t = 84.00 lbs. < 8836 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v = 156.20 lbs. < 5301 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.010	+	0.029	=	0.039	<	1.0	**Therefore, OK !**

Attachment 5

SAI Group
12 Industrial Way
Salem, NH 03079
(603) 421-0470
www.saigrp.com

Radio Frequency Exposure Theoretical Study

Prepared For:

AT&T Mobility

Site Name:	Danielson
FA#:	10141308
Site ID:	CT1166
Address:	812 Providence Pike, Danielson, CT 06239

Prepared by: **SAI Group**
12 Industrial Way
Salem, NH 03079
(603) 421-0470

Date of Report: February 28, 2023

Statement of Compliance

AT&T's proposed antenna installation along with other existing antennas is calculated to be within *2.88%* of FCC Standard for General Public/Uncontrolled Maximum Permissible Exposure (MPE).

Table of Contents

1 General Summary

SAI Group was contracted by AT&T Mobility to conduct a Radio Frequency (RF) Analysis for a wireless facility located at 812 Providence Pike, Danielson, CT to determine whether the radio facility is in compliance with Federal Communications Commission (FCC) regulations and standards regarding RF exposure.

RF exposure is calculated in accordance with FCC's suggested prediction methods.

2 Site Compliance Summary

Compliance Summary (General Public Limit)	
Site Compliance	Yes
Maximum Calculated %MPE at 0-6' Ground Level (Cumulative)	2.88% at about 419ft South-West from the tower.

3 RF Design Specifications

Table below shows the technical data used for the calculation of cumulative %MPE results.

Ant ID	Operator	Antenna Make	Antenna Model	Type	TX Freq (MHz)	Az (Deg)	Ant Gain (dBd)	Total ERP (Watts)	Z Rad Center (ft)
1	AT&T	CCI	TPA65R-BU8D	Panel	700	0	13.05	3229	175
1	AT&T	CCI	TPA65R-BU8D	Panel	1900	0	14.95	1250	175
1	AT&T	CCI	TPA65R-BU8D	Panel	1900	0	14.95	1250	175
1	AT&T	CCI	TPA65R-BU8D	Panel	1900	0	14.95	2501	175
2	AT&T	CCI	DMP65R-BU8D	Panel	700	0	12.25	1343	161
2	AT&T	CCI	DMP65R-BU8D	Panel	850	0	12.55	1000	161
2	AT&T	CCI	DMP65R-BU8D	Panel	2100	0	15.35	4113	161
2	AT&T	CCI	DMP65R-BU8D	Panel	2100	0	15.35	4113	161
3	AT&T	CCI	TPA65R-BU8D	Panel	700	150	13.05	3229	175
3	AT&T	CCI	TPA65R-BU8D	Panel	1900	150	14.95	1250	175
3	AT&T	CCI	TPA65R-BU8D	Panel	1900	150	14.95	1250	175
3	AT&T	CCI	TPA65R-BU8D	Panel	1900	150	14.95	2501	175
4	AT&T	CCI	DMP65R-BU8D	Panel	700	150	12.25	1343	161
4	AT&T	CCI	DMP65R-BU8D	Panel	850	150	12.55	1000	161
4	AT&T	CCI	DMP65R-BU8D	Panel	2100	150	15.35	4113	161
4	AT&T	CCI	DMP65R-BU8D	Panel	2100	150	15.35	4113	161
5	AT&T	CCI	TPA65R-BU8D	Panel	700	265	13.05	3229	175
5	AT&T	CCI	TPA65R-BU8D	Panel	1900	265	14.95	1250	175
5	AT&T	CCI	TPA65R-BU8D	Panel	1900	265	14.95	1250	175
5	AT&T	CCI	TPA65R-BU8D	Panel	1900	265	14.95	2501	175
6	AT&T	CCI	DMP65R-BU8D	Panel	700	265	12.25	1343	161
6	AT&T	CCI	DMP65R-BU8D	Panel	850	265	12.55	1000	161
6	AT&T	CCI	DMP65R-BU8D	Panel	2100	265	15.35	4113	161
6	AT&T	CCI	DMP65R-BU8D	Panel	2100	265	15.35	4113	161
7	T-Mobile	RFS	APX16DWV-16DWVS-E-A20	Panel	1900	90	16.25	6747	145
7	T-Mobile	RFS	APX16DWV-16DWVS-E-A20	Panel	1900	90	16.25	6747	145
8	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	90	13.14	1649	145
8	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	90	13.14	1649	145
8	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	90	13.2	3343	145
8	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	2100	90	17.32	8632	145
9	T-Mobile	ERICSSON	AIR6449 LTE TB 2500	Panel	2500	90	22.35	20615	145
9	T-Mobile	ERICSSON	AIR6449 NR TB 2500	Panel	2500	90	22.35	20615	145
10	T-Mobile	RFS	APX16DWV-16DWVS-E-A20	Panel	1900	200	16.25	6747	145
10	T-Mobile	RFS	APX16DWV-16DWVS-E-A20	Panel	1900	200	16.25	6747	145
11	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	200	13.14	1649	145
11	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	200	13.14	1649	145
11	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	200	13.2	3343	145
11	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	2100	200	17.32	4316	145
12	T-Mobile	ERICSSON	AIR6449 LTE TB 2500	Panel	2500	200	22.35	20615	145
12	T-Mobile	ERICSSON	AIR6449 NR TB 2500	Panel	2500	200	22.35	20615	145

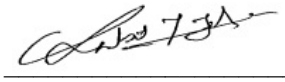
13	T-Mobile	RFS	APX16DWV-16DWVS-E-A20	Panel	1900	315	16.25	6747	145
13	T-Mobile	RFS	APX16DWV-16DWVS-E-A20	Panel	1900	315	16.25	6747	145
14	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	315	13.14	1649	145
14	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	600	315	13.14	1649	145
14	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	700	315	13.2	3343	145
14	T-Mobile	RFS	APXVAARR24_43-U-NA20	Panel	2100	315	17.32	4316	145
15	T-Mobile	ERICSSON	AIR6449 LTE TB 2500	Panel	2500	315	22.35	20615	145
15	T-Mobile	ERICSSON	AIR6449 NR TB 2500	Panel	2500	315	22.35	20615	145
16	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	700	60	12.11	2601	187
16	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	850	60	12.81	3056	187
17	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	1900	60	15.72	5972	187
17	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	2100	60	15.71	5958	187
18	VZW	SAMSUNG	MT6407 TB	Panel	3700	60	23.45	26557	187
19	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	700	160	12.11	2601	187
19	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	850	160	12.81	3056	187
20	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	1900	160	15.72	5972	187
20	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	2100	160	15.71	5958	187
21	VZW	SAMSUNG	MT6407 TB	Panel	3700	160	23.45	26557	187
22	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	700	320	12.11	2601	187
22	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	850	320	12.81	3056	187
23	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	1900	320	15.72	5972	187
23	VZW	COMMSCOPE	JAHH-65B-R3B	Panel	2100	320	15.71	5958	187
24	VZW	SAMSUNG	MT6407 TB	Panel	3700	320	23.45	26557	187

NOTE: The Z value indicates the distance of radiation center of the antenna height above the ground site level unless otherwise indicated. Effective Radiated Power (ERP) is provided by the operator or calculated based on SAI Group experience. SAI Group has assumed transmission parameters for “Unknown” RF emitters based on either similar installations found at other radio communications sites or from the latest data available for the site. “Generic” antenna models have been used where existing antenna part numbers or radiation patterns are not available. The frequencies presented in this table may have been assumed in order to represent the approximate band of operation and to support a worst-case calculation of power density

4 Conclusion

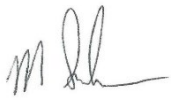
I certify to the best of my knowledge that the statements contained in this report are true and accurate. The theoretical computations contained are based on FCC recommended methods, with industry standard assumptions & formulas, and complies with FCC mandated Maximum Permissible RF Exposure requirements.

A comprehensive field survey was not performed prior to the generation of this report. If questions arise regarding the calculations herein, SAI Group recommends that a comprehensive field survey be performed to resolve any disputes.



Sanket Joshi
RF Engineer
SAI Group

February 28, 2023
Date



Matthew Smelcer
RF Engineering Manager

February 28, 2023
Date

Appendix A – FCC Rules and Regulations

In 1996, the Federal Communication Commission (FCC) adopted procedures and guidelines for evaluating of the effects of RF exposure. This guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following Tables and diagram:

Table 1. MPE Limits for General Population/ Uncontrolled Exposure

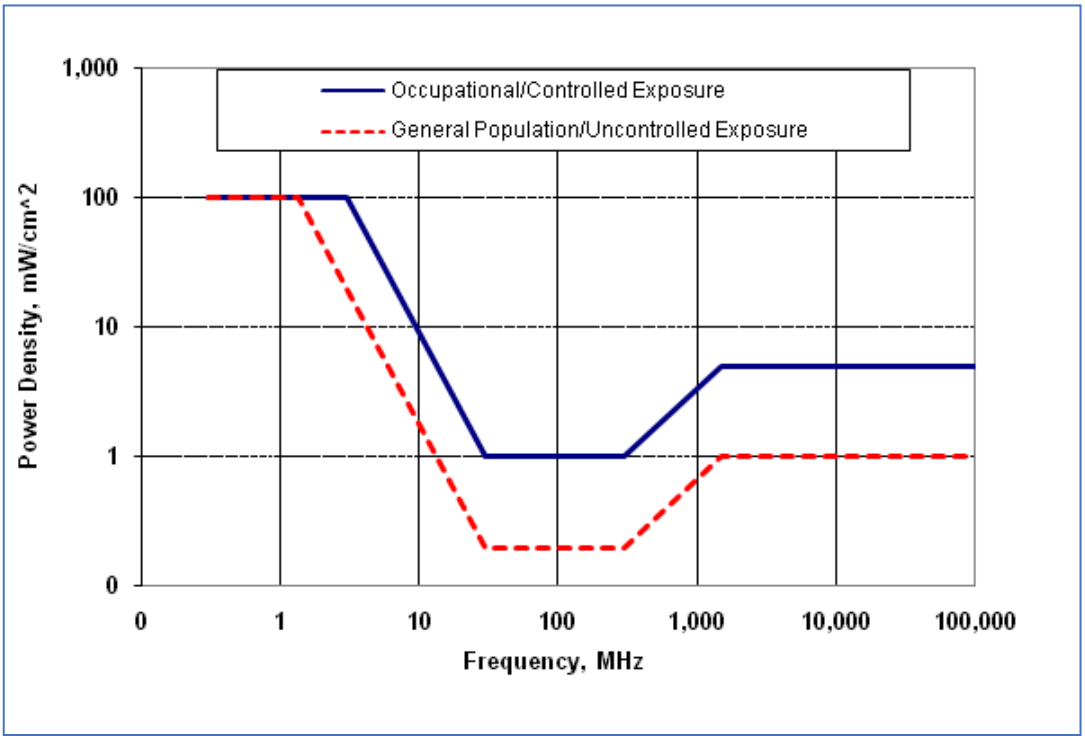
Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time for $\|E\|^2$, $\|H\|^2$, or S (Minutes)
0.3 – 1.34	614	1.63	(100)*	30
1.34 -30	824/f	2.19/f	($180/f^2$)*	30
30 – 300	27.5	0.073	0.2	30
300 – 1500	--	--	f/1500	30
1500– 100,000	--	--	1.0	30
f = frequency in MHz		* = Plane wave equivalent power density		

General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or can't exercise control over their exposure. A site is evaluated with General Public limits if there is no access controls or no RF warning signage present.

Table 2. MPE Limits for Occupational/Controlled Exposure

Frequency Range (MHz)	Electric Field Strength (V/m)	Magnetic Field Strength (A/m)	Power Density (mW/cm^2)	Averaging Time for $\|E\|^2$, $\|H\|^2$, or S (Minutes)
0.3 – 3.0	614	1.63	(100)*	6
3.0 – 30	1842/f	4.89/f	($900/f^2$)*	6
30 – 300	61.4	0.163	1.0	6
300 – 1500	--	--	f/300	6
1500– 100,000	--	--	5.0	6
f = frequency in MHz		* = Plane wave equivalent power density		

Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where such occupational/controlled limits apply provided he or she is made aware of the potential for exposure. Typical criteria to remediate controlled environment are restricted access to the areas where antennas are located along with appropriate RF warning signage. A site with Controlled environment is evaluated with Occupational limits.



Maximum Permissible Exposures. Occupational/Controlled and General Population/Uncontrolled MPE's are functions of frequency.

Appendix B – Calculations Methodology and Assumptions

SAI Group has performed theoretical analysis using Waterford Consultants' RoofMaster™ 2020 Version 30.5.26.2022 which uses a cylindrical model for very conservative power density calculations within the near field of the antenna where the antenna pattern has not truly formed yet. The Cylindrical Model is used to determine the spatially averaged power density in the near field directly in front of an antenna. In order to implement this model in all directions, the calculations utilize the antenna manufacturer horizontal pattern data. Additionally, the model also incorporates factors that reduce the power density by inverse square of horizontal and vertical distances beyond the near field region.

RoofMaster™ uses far field model to calculate the spatial peak power density. The RoofMaster™ implementation of this model incorporated manufacturer's horizontal and vertical pattern data to determine the power density in all directions.

The calculations are based on worst-case assumptions that, all antennas are always operating at full power.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized.

Appendix C – Informative References

The following references can be followed for further information about RF Health and Safety.

FCC Radio Frequency Safety
http://www.fcc.gov/encyclopedia/radio-frequency-safety

FCC OET Bulletin 56
https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet56/oet56e4.pdf

FCC OET Bulletin 65
https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf

National Council on Radiation Protection and Measurements (NCRP)
http://www.ncrponline.org

American National Standards Institute (ANSI)
http://www.ansi.org

Environmental Protection Agency (EPA)
https://www3.epa.gov/radtown/wireless-technology.html

National Institutes of Health (NIH)
http://www.niehs.nih.gov/health/topics/agents/emf/

Occupational Safety and Health Agency (OSHA)
http://www.osha.gov/SLTC/radiofrequencyradiation/

International Commission on Non-Ionizing Radiation Protection (ICNIRP)
http://www.icnirp.org/

Attachment 6

CUDDY +FEDER LLP

445 Hamilton Avenue, 14th Floor
White Plains, New York 10601
T 914 761 1300
F 914 761 5372
cuddyfeder.com

Daniel Patrick
dpatrick@cuddyfeder.com

March 30, 2023

FEDERAL EXPRESS
Jason Anderson, Chair
Killingly Town Hall
172 Main Street
Killingly, CT 06239

Re: Tower Sharing Request by New Cingular Wireless PCS, LLC
Premises: 812 Providence Pike, Danielson (Killingly), Connecticut

Dear Chair Anderson:

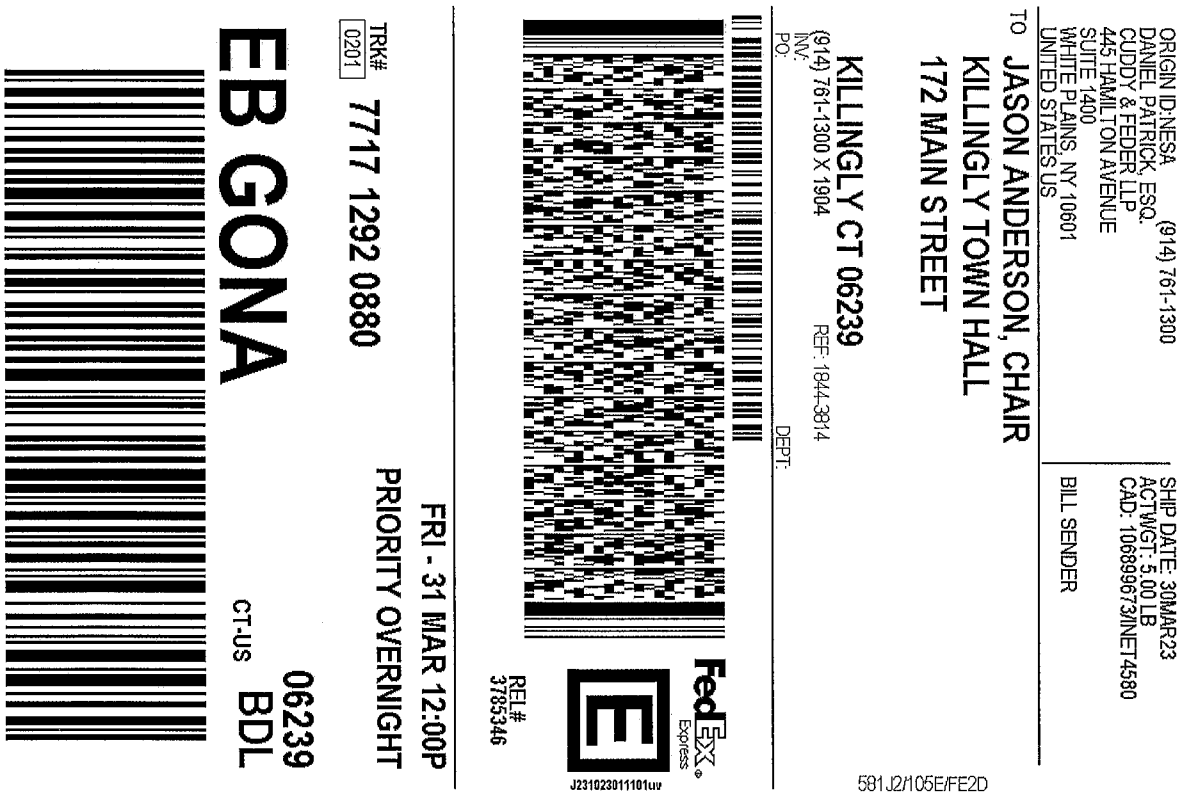
We are writing to you on behalf of our client New Cingular Wireless PCS, LLC ("AT&T") with respect to the above referenced request to the Connecticut Siting Council ("Council") for shared use approval to allow AT&T to install its wireless communications equipment on the existing communications tower and at the associated compound at 812 Providence Pike, Danielson, in the Town of Killingly. AT&T proposes to install 3 face-mounted antennas and 6 RRHs face at the centerline height of approximately 175' AGL and 3 face-mounted antennas and 6 RRHs face at the centerline height of approximately 161' AGL upon the existing 190' tower structure. AT&T also proposes to install its unmanned equipment within a proposed 6'8"x6'8" walk-in equipment cabinet on a concrete pad within AT&T's 12'6"x21' leased area located within the existing fenced compound. AT&T's equipment includes a new 15kw propane generator on an existing 8'x4' concrete pad along with a new 500 gallon propane storage tank on a separate 4'x10' concrete pad.

Enclosed herein is a copy of the submission made to the Council requesting approval of the tower share which includes information regarding the technical, legal, environmental, and economic feasibility of AT&T's proposed installation.

Should you have any questions please feel free to contact me at the address above or the Council at 860.827.2935.

Very truly yours,

Daniel Patrick
Enclosure



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2. Fold the printed page along the horizontal line.
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March 30, 2023

FEDERAL EXPRESS
Ann-Marie L. Aubrey, Director of Planning & Development
Killingly Town Hall
172 Main Street
Killingly, CT 06239

Re: Tower Sharing Request by New Cingular Wireless PCS, LLC
Premises: 812 Providence Pike, Danielson (Killingly), Connecticut

Dear Director Aubrey:

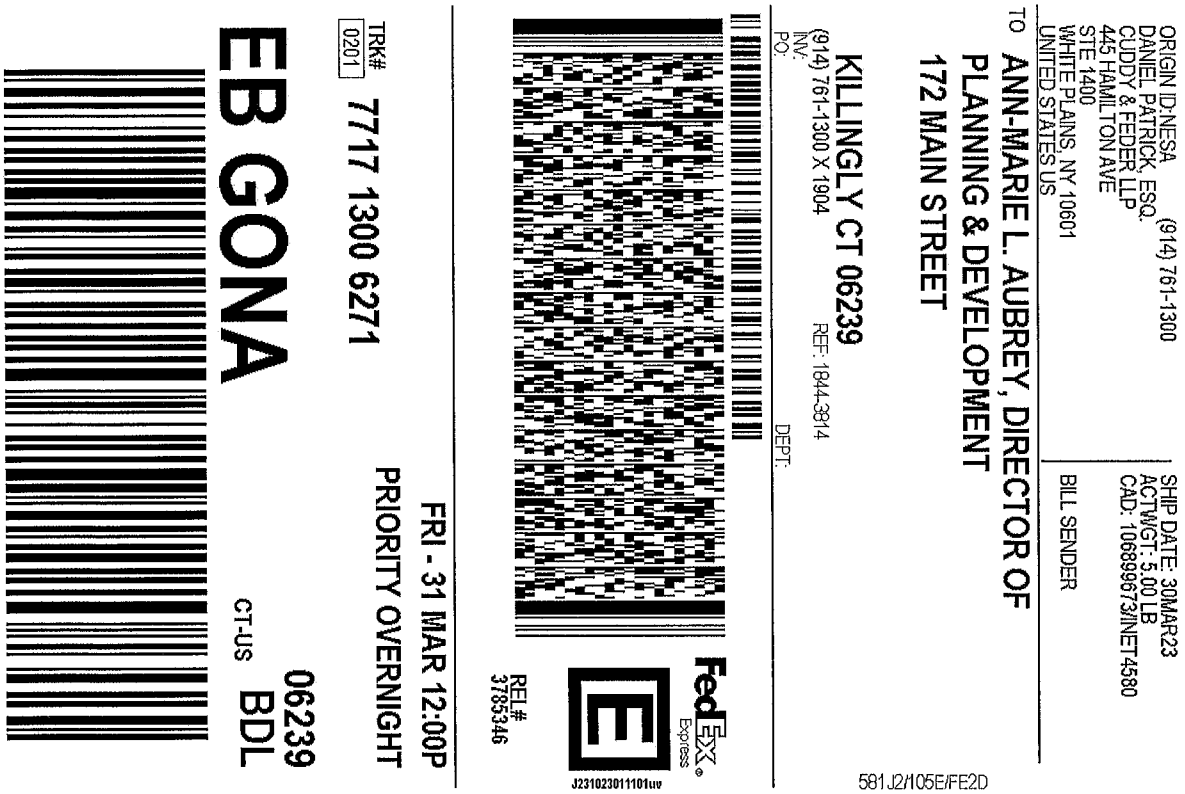
We are writing to you on behalf of our client New Cingular Wireless PCS, LLC ("AT&T") with respect to the above referenced request to the Connecticut Siting Council ("Council") for shared use approval to allow AT&T to install its wireless communications equipment on the existing communications tower and at the associated compound at 812 Providence Pike, Danielson, in the Town of Killingly. AT&T proposes to install 3 face-mounted antennas and 6 RRHs face at the centerline height of approximately 175' AGL and 3 face-mounted antennas and 6 RRHs face at the centerline height of approximately 161' AGL upon the existing 190' tower structure. AT&T also proposes to install its unmanned equipment within a proposed 6'8"x6'8" walk-in equipment cabinet on a concrete pad within AT&T's 12'6"x21' leased area located within the existing fenced compound. AT&T's equipment includes a new 15kw propane generator on an existing 8'x4' concrete pad along with a new 500 gallon propane storage tank on a separate 4'x10' concrete pad.

Enclosed herein is a copy of the submission made to the Council requesting approval of the tower share which includes information regarding the technical, legal, environmental, and economic feasibility of AT&T's proposed installation.

Should you have any questions please feel free to contact me at the address above or the Council at 860.827.2935.

Very truly yours,

Daniel Patrick
Enclosure



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March 30, 2023

FEDERAL EXPRESS
Quinebaug Valley Emergency
Communications Inc.
1249 Hartford Pike
Killingly, CT 06239

Re: Tower Sharing Request by New Cingular Wireless PCS, LLC
Premises: 812 Providence Pike, Danielson (Killingly), Connecticut

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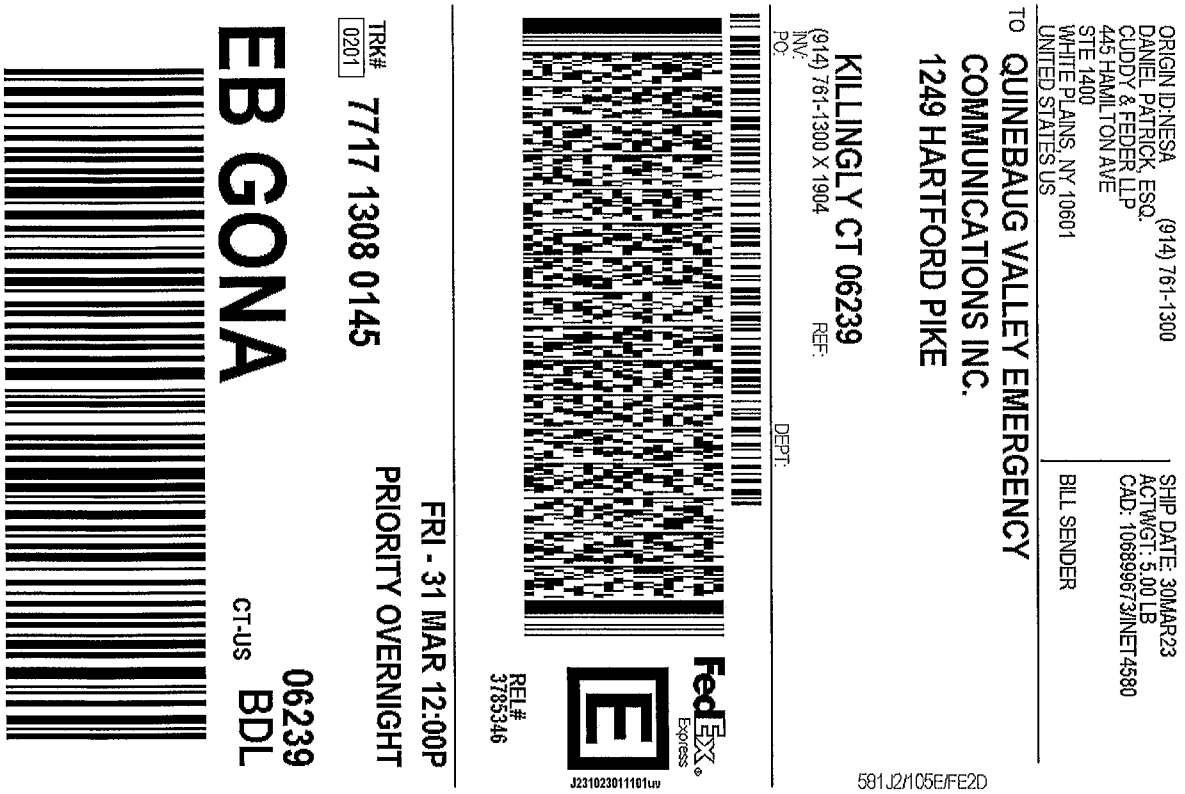

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