**QC Development**
PO Box 916
Storrs, CT 06268
860-670-9068
Mark.Roberts@QCDevelopment.net

March 2, 2018

Melanie A. Bachman
Acting Executive Director
Connecticut Siting Council
10 Franklin Square
New Britain, CT 06051

**Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT2024**
**48 Cow Hill Road, Clinton, CT 06413**
**N 41-17-19**
**W 72-32-21**

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 190-foot level of the existing 212-foot Self-Support Tower at 48 Cow Hill Road, Clinton, CT. The tower and property are owned by Crown Castle. AT&T now intends to add three (3) Andrew antennas and three (3) Ericsson Remote Radio Units (RRUS-32 B66). These antennas and RRUs would be installed at the 190-foot level of the tower.

This facility was approved by the Connecticut Siting Council, Docket No. 148 on May 5, 1992. There were no conditions that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Christine Goupil, First Selectman of the Town of Clinton, as elected official, to Clinton's Zoning Enforcement Officer and to the property and tower owner.

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

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

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

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

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

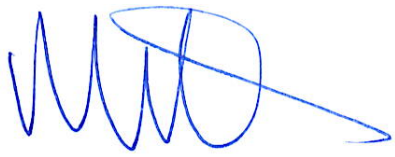
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

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

Please feel free to call me at (860) 670-9068 with any questions regarding this matter. Thank you for your consideration.

Sincerely,



Mark Roberts
QC Development
Consultant for AT&T

Attachments

cc: Christine Goupil - as Elected Official
Eric Knapp– ZEO
Crown Castle– Tower and Property Owner

# Power Density

**Existing Loading on Tower**

| Carrier | # of Channels | ERP/Ch (W) | Antenna Centerline Height (ft) | Power Density (mW/cm^2) | Freq. Band (MHz**) | Limit S (mW /cm^2) | %MPE |
|---|---|---|---|---|---|---|---|
| Other Carriers* | | | | | | | 9.06% |
| AT&T GSM | 1 | 141 | 190 | 0.0015 | 880 | 0.5867 | 0.03% |
| AT&T UMTS | 1 | 259 | 190 | 0.0028 | 880 | 0.5867 | 0.05% |
| AT&T UMTS | 2 | 344 | 190 | 0.0037 | 1900 | 1.0000 | 0.04% |
| AT&T LTE | 2 | 793 | 190 | 0.0168 | 740 | 0.4933 | 0.34% |
| AT&T LTE | 2 | 1734 | 190 | 0.0368 | 1900 | 1.0000 | 0.37% |
| AT&T LTE | 2 | 1094 | 190 | 0.0232 | 2300 | 1.0000 | 0.23% |
| Site Total | | | | | | | 10.11% |

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

**Proposed Loading on Tower**

| Carrier | # of Channels | ERP/Ch (W) | Antenna Centerline Height (ft) | Power Density (mW/cm^2) | Freq. Band (MHz**) | Limit S (mW /cm^2) | %MPE |
|---|---|---|---|---|---|---|---|
| Other Carriers* | | | | | | | 9.06% |
| AT&T UMTS | 1 | 344 | 190 | 0.0037 | 880 | 0.5867 | 0.06% |
| AT&T LTE | 1 | 793 | 190 | 0.0084 | 740 | 0.4933 | 0.17% |
| AT&T LTE | 2 | 1734 | 190 | 0.0368 | 1900 | 1.0000 | 0.37% |
| AT&T LTE | 1 | 3837 | 190 | 0.0408 | 2100 | 1.0000 | 0.41% |
| AT&T LTE | 1 | 1094 | 190 | 0.0116 | 2300 | 1.0000 | 0.12% |
| Site Total | | | | | | | 10.18% |

*Per CSC Records (available upon request, includes calculation formulas)

** If a range of frequencies are used, such as 880-894, enter the lowest value, i.e. 880

Note: Proposed Loading may also include corrections to certain Existing Loading values

## PROJECT INFORMATION

| | |
|---|---|
| SCOPE OF WORK: | ITEMS TO BE MOUNTED ON LATTICE TOWER:<br>• NEW AT&T RRUS: RRUS–32 B66 (TYP. OF 1 PER SECTOR, TOTAL OF 3)<br>• NEW AT&T ANTENNA: SBNHH–1D65A (TYP. OF 1 PER SECTOR, TOTAL OF 3)<br>• COAX JUMPERS (1) PER SECTOR, FROM EACH RRU (TOTAL OF 3).<br>• FIBER JUMPERS (2) PER SECTOR, FROM THE SQUID TO EACH RRU (TOTAL OF 6).<br><br>ITEMS TO REMAIN:<br>• (9) ANTENNAS, (6) RRU'S, (2) SURGE ARRESTORS, (4) DC POWER CABLES, & (2) FIBER RUN. |
| SITE ADDRESS: | 49 COW HILL ROAD<br>CLINTON, CT 06413 |
| LATITUDE: | 41.2889361° N 41° 17' 20.16" N |
| LONGITUDE: | 72.5384711° W 72° 32' 18.49" W |
| TYPE OF SITE: | LATTICE / INDOOR EQUIPMENT |
| TOWER HEIGHT: | 212'–0"± |
| RAD CENTER: | 190'–0"± |
| JURISDICTION: | NATIONAL, STATE & LOCAL CODES OR ORDINANCES |
| CURRENT USE: | TELECOMMUNICATIONS FACILITY |
| PROPOSED USE: | TELECOMMUNICATIONS FACILITY |

# SITE NUMBER: CT2024

# SITE NAME: CLINTON-COW HILL ROAD

# PROJECT: LTE 4C 2018 UPGRADE

## DRAWING INDEX

| SHEET NO. | DESCRIPTION | REV. |
|---|---|---|
| T–1 | TITLE SHEET | B |
| GN–1 | GENERAL NOTES | B |
| A–1 | COMPOUND & EQUIPMENT PLAN | B |
| A–2 | ELEVATION & ANTENNA LAYOUTS | B |
| A–3 | DETAILS | B |
| RF–1 | RF–PLUMBING DIAGRAM | B |
| G–1 | GROUNDING DETAILS | B |

**CCI SITE #: 806363**
**CCI SITE NAME: HRT105**

## VICINITY MAP

**DIRECTIONS TO SITE:**
I–95 TO EXIT 63 TO RT 81 NORTH. JUST PAST HIGH SCHOOL, TURN LEFT ONTO WALNUT HILL ROAD. CONTINUE TO TOP OF HILL. APROX. .4 MILES TURN LEFT (ALMOST 180) ONTO COW HILL ROAD AND CONTINUE .3 MILES TO I–95 INDUSTRIAL PARK ON RIGHT NEXT TO HWY. SITE LOCATED IN REAR.


## 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**


HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079


**SITE NUMBER: CT2024**
**SITE NAME: CLINTON-COW HILL ROAD**
**CCI SITE NUMBER: 806363**
49 COW HILL ROAD
CLINTON, CT 06413
MIDDLESEX COUNTY


500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067


| NO. | DATE | REVISIONS | BY | CHK | APP'D |
|---|---|---|---|---|---|
| B | 02/28/18 | ISSUED FOR PERMITTING | MR | AT | DPH |
| A | 02/05/18 | ISSUED FOR REVIEW | TB | AT | DPH |

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

STATE OF CONNECTICUT · DEREK J. CREASER · No. 25... · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
LTE 4C 2018 UPGRADE

| SITE NUMBER | DRAWING NUMBER | REV |
|---|---|---|
| CT2024 | T–1 | B |

## 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) 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 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 AWS 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. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH LTE 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 2012 WITH 2016 CT BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
    LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

    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-G, STRUCTURAL STANDARDS FOR STEEL

    EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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


HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079


SITE NUMBER: CT2024
SITE NAME: CLINTON-COW HILL ROAD

CCI SITE NUMBER: 806363

49 COW HILL ROAD
CLINTON, CT 06413
MIDDLESEX COUNTY


at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067


| NO. | DATE | REVISIONS | BY | CHK | APP'D |
|---|---|---|---|---|---|
| B | 02/28/18 | ISSUED FOR PERMITTING | MR | AT | DPH |
| A | 02/05/18 | ISSUED FOR REVIEW | TB | AT | DPH |

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

STATE OF CONNECTICUT · DEREK J. CREASER · No. 28358 · LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
LTE 4C 2018 UPGRADE

| SITE NUMBER | DRAWING NUMBER | REV |
|---|---|---|
| CT2024 | GN-1 | B |

NOTE:

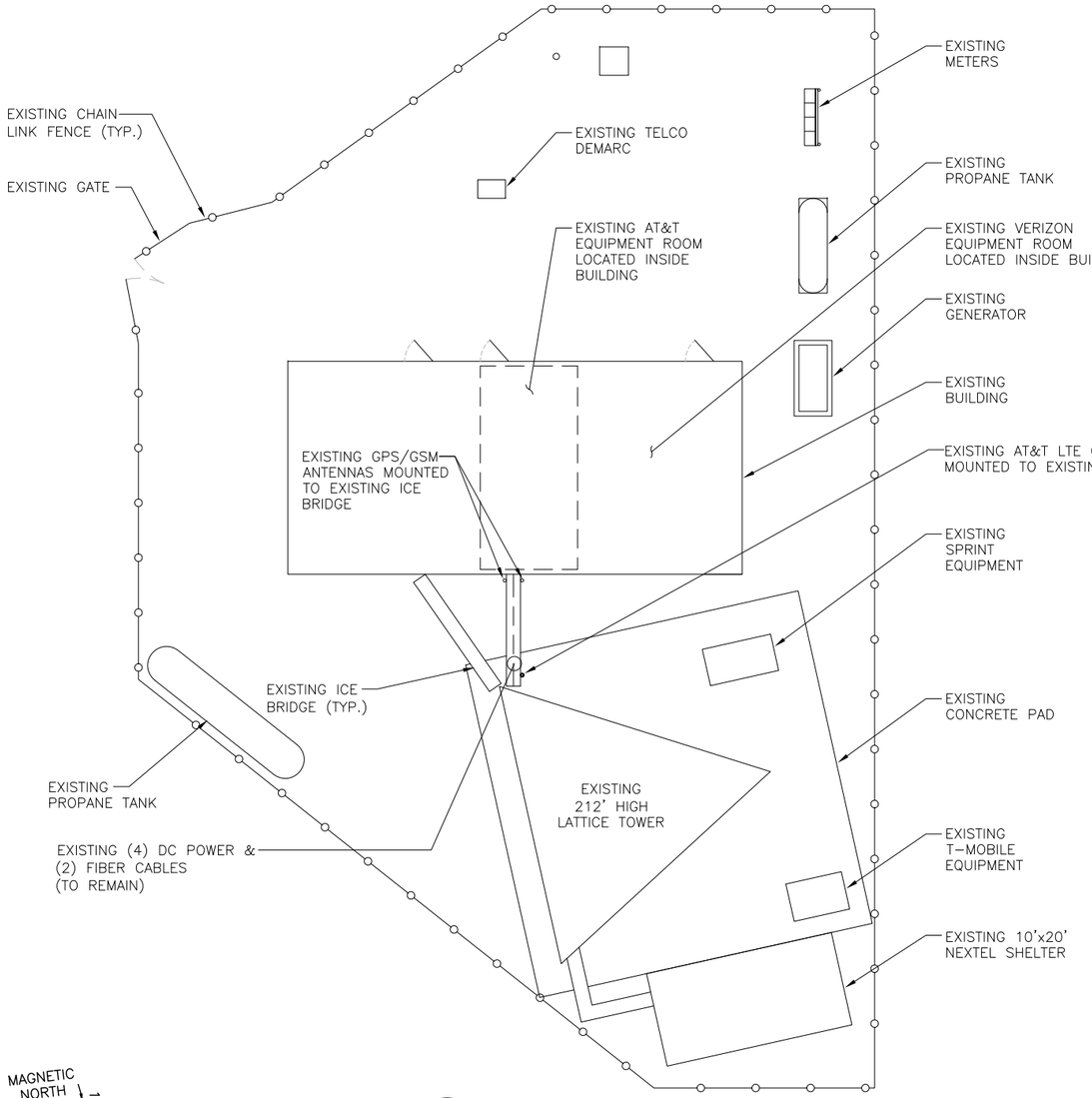
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

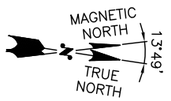
NOTE:

ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

NOTE:

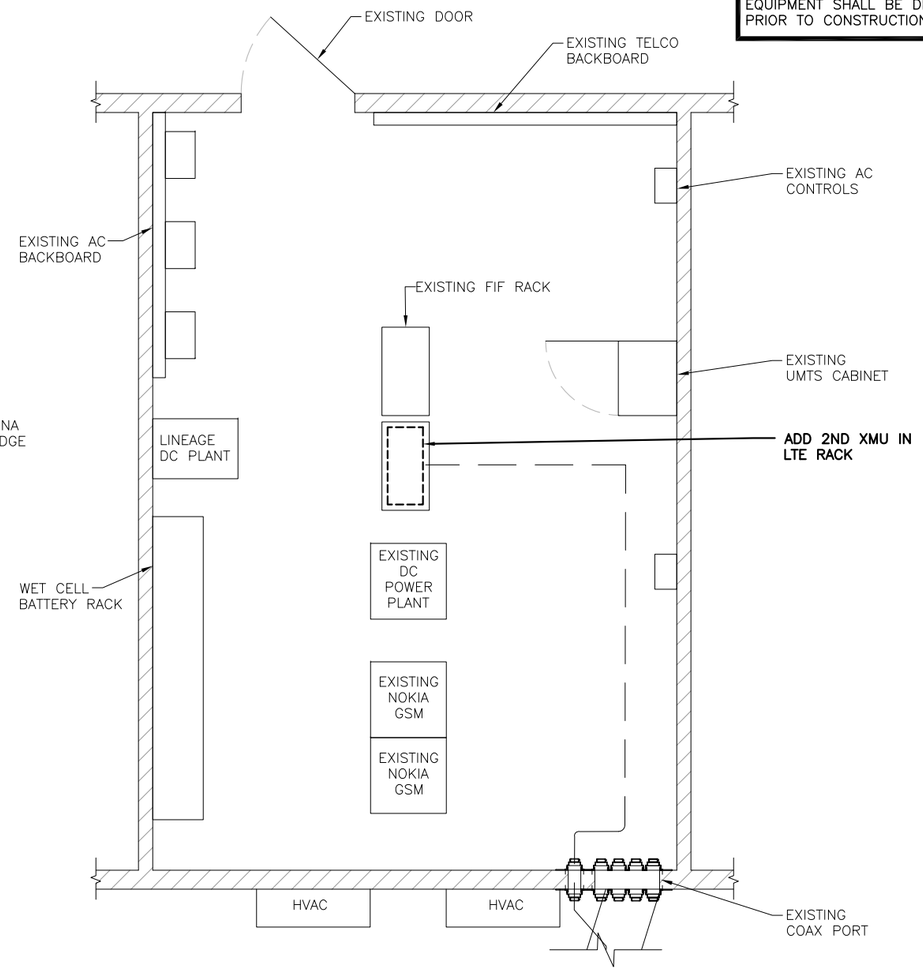
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING MOUNT TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

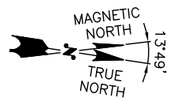



**COMPOUND PLAN** (1 / A-1)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

0 4'-0" 8'-0" 16'-0" 24'-0"




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

0 1'-0" 2'-0" 4'-0" 6'-0"


HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079


**SITE NUMBER: CT2024**
**SITE NAME: CLINTON-COW HILL ROAD**

**CCI SITE NUMBER: 806363**

**49 COW HILL ROAD**
**CLINTON, CT 06413**
**MIDDLESEX COUNTY**


at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067


| NO. | DATE | REVISIONS | BY | CHK | APP'D |
|---|---|---|---|---|---|
| B | 02/28/18 | ISSUED FOR PERMITTING | MR | AT | DPH |
| A | 02/05/18 | ISSUED FOR REVIEW | TB | AT | DPH |

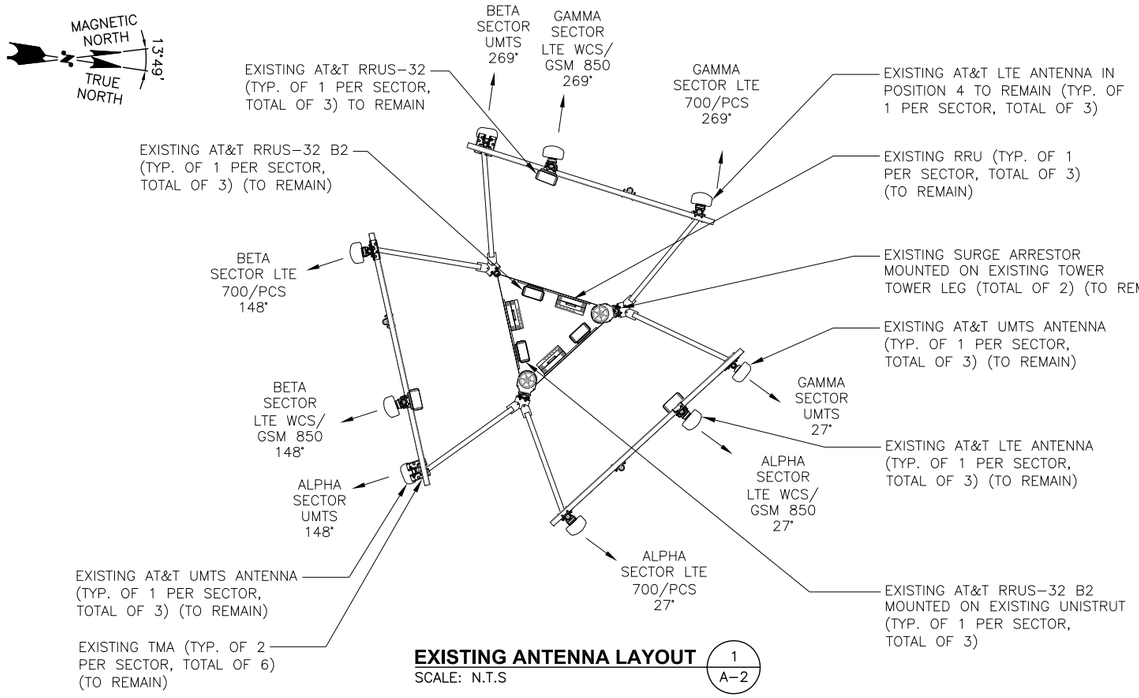
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

STATE OF CONNECTICUT
DEREK P. HAMEL
No. 21555
LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLAN
LTE 4C 2018 UPGRADE

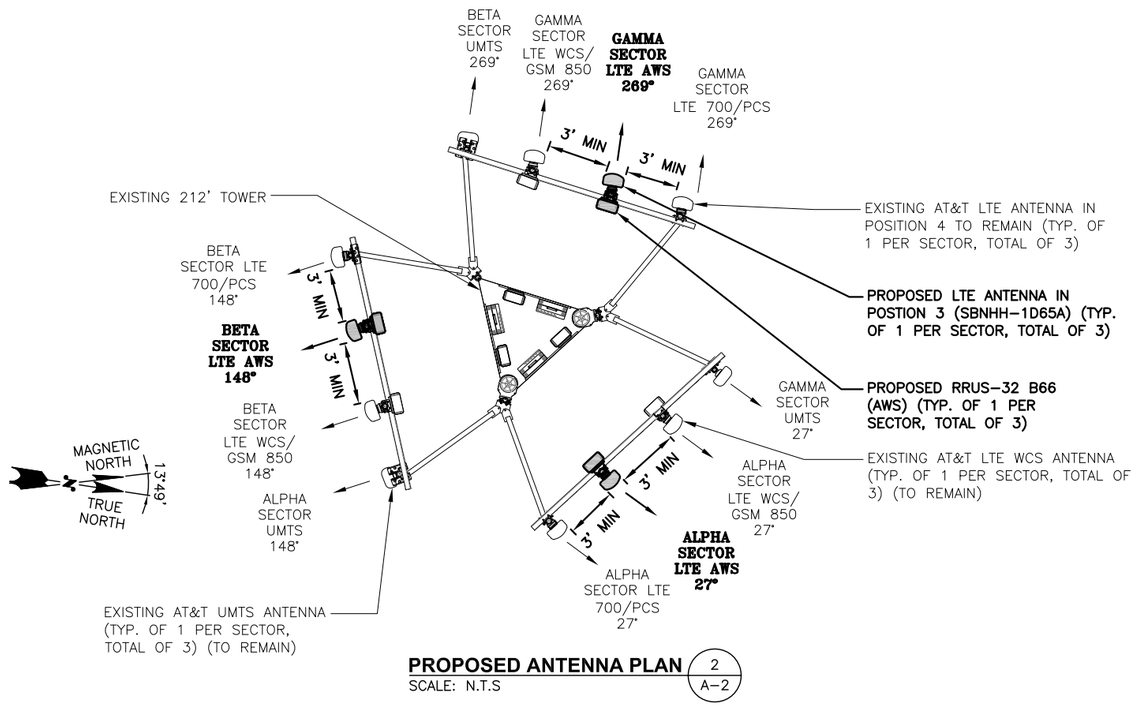
| SITE NUMBER | DRAWING NUMBER | REV |
|---|---|---|
| CT2024 | A-1 | B |




## EXISTING ANTENNA LAYOUT

SCALE: N.T.S

(1 / A-2)




## PROPOSED ANTENNA PLAN

SCALE: N.T.S

(2 / A-2)

NOTE:

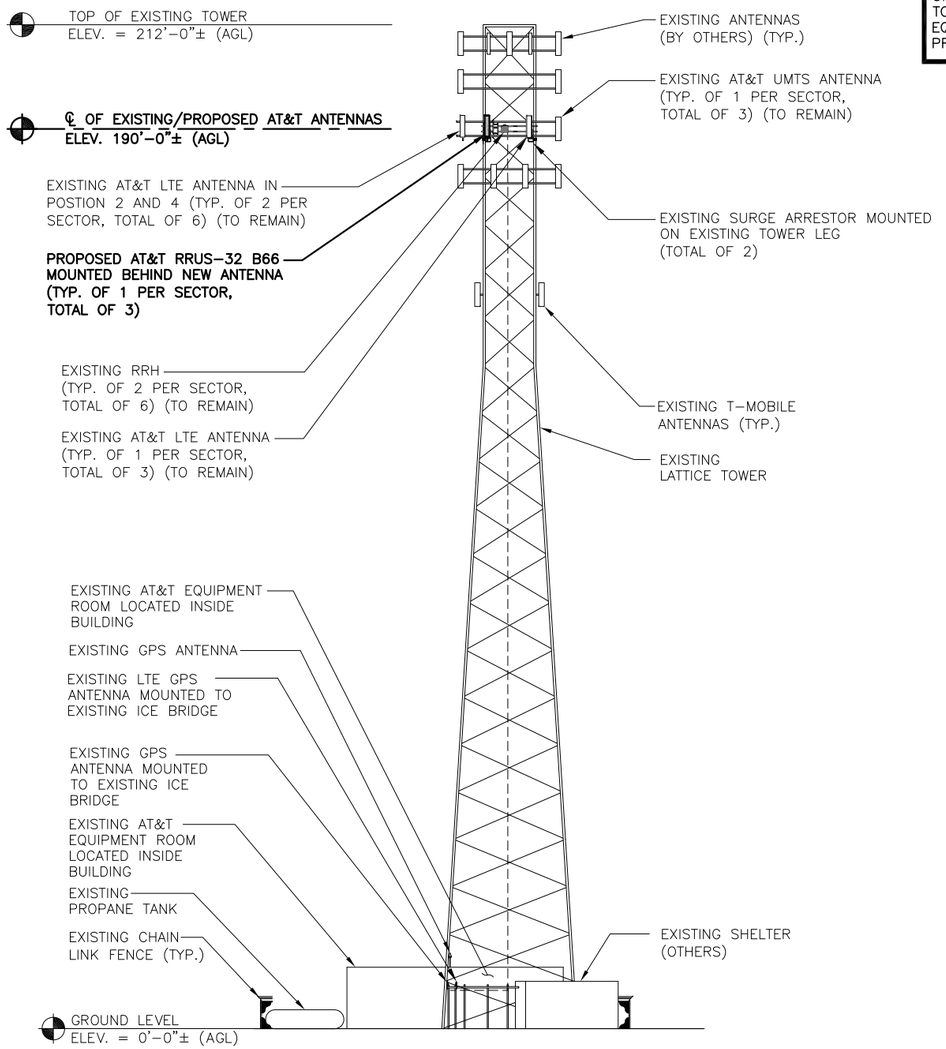
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING MOUNT TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.




## ELEVATION

22x34 SCALE: 1/16"=1'-0"
11x17 SCALE: 1/32"=1'-0"

(3 / A-2)

0 8'-0" 16'-0" 32'-0" 48'-0"

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

**SITE NUMBER: CT2024**
**SITE NAME: CLINTON-COW HILL ROAD**

**CCI SITE NUMBER: 806363**

**49 COW HILL ROAD**
**CLINTON, CT 06413**
**MIDDLESEX COUNTY**

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

| NO. | DATE | REVISIONS | BY | CHK | APP'D |
|---|---|---|---|---|---|
| B | 02/28/18 | ISSUED FOR PERMITTING | MR | AT | DPH |
| A | 02/05/18 | ISSUED FOR REVIEW | TB | AT | DPH |

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28251
LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUTS & ELEVATION
LTE 4C 2018 UPGRADE

| SITE NUMBER | DRAWING NUMBER | REV |
|---|---|---|
| CT2024 | A-2 | B |

NOTE:

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

NOTE:

ALL ANTENNAS AND LINES TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE AND FINAL AT&T RF DATA SHEET.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING MOUNT TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

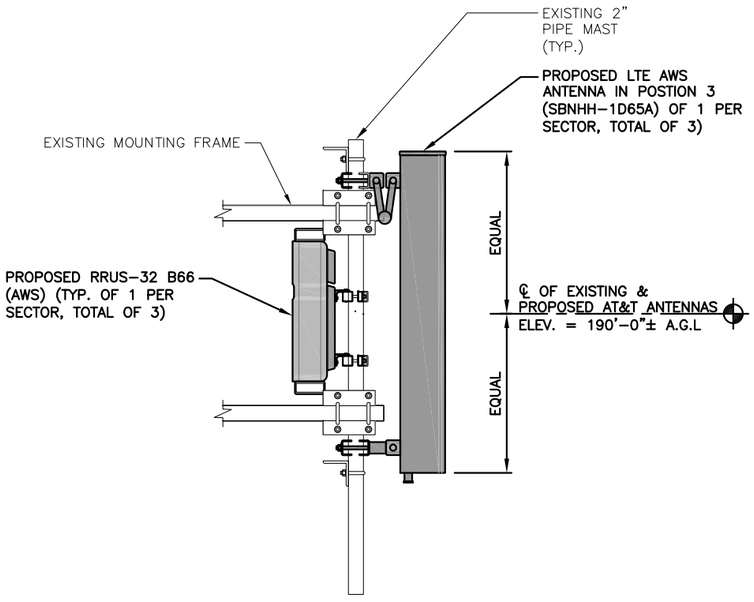
## FINAL ANTENNA SCHEDULE

| SECTOR | BAND | ANTENNA | | SIZE (INCHES) (L X W X D) | RAD CENTER | AZIMUTH | TMA'S | | RRU'S | | SIZE (INCHES) (L X W X D) | COAX JUMPERS | FIBER JUMPERS | COAX |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ALPHA | UMTS 850 | EXISTING | 7770 | 55X11X5 | 190'–0"± | 148° | EXISTING | (2) 1900W800 | – | – | – | – | – | (2) 1–5/8" |
| | LTE WCS | EXISTING | SBNHH–1D65A | 55X11.9X7.1 | 190'–0"± | 27° | – | – | EXISTING | RRUS–32 (WCS) | – | – | – | (2) 1–5/8" |
| | LTE AWS | PROPOSED | SBNHH–1D65A | 55X11.9X7.1 | 190'–0"± | 27° | – | – | PROPOSED | RRUS–32 B66 | 27.2X12.1X7.0 | 1* | 2* | – |
| | LTE 700/PCS | EXISTING | SBNHH–1D65A | 55X11.9X7.1 | 190'–0"± | 27° | – | – | EXISTING<br>EXISTING | RRUS–32 B2 (PCS)<br>RRUS–11 (700) | –<br>– | –<br>– | –<br>– | – |
| BETA | UMTS 850 | EXISTING | 7770 | 55X11X5 | 190'–0"± | 269° | EXISTING | (2) 1900W800 | – | – | – | – | – | (2) 1–5/8" |
| | LTE WCS | EXISTING | SBNHH–1D65A | 55X11.9X7.1 | 190'–0"± | 148° | – | – | EXISTING | RRUS–32 (WCS) | – | – | – | (2) 1–5/8" |
| | LTE AWS | PROPOSED | SBNHH–1D65A | 55X11.9X7.1 | 190'–0"± | 148° | – | – | PROPOSED | RRUS–32 B66 | 27.2X12.1X7.0 | 1* | 2* | – |
| | LTE 700/PCS | EXISTING | SBNHH–1D65A | 55X11.9X7.1 | 190'–0"± | 148° | – | – | EXISTING<br>EXISTING | RRUS–32 B2 (PCS)<br>RRUS–11 (700) | –<br>– | –<br>– | –<br>– | – |
| GAMMA | UMTS 850 | EXISTING | 7770 | 55X11X5 | 190'–0"± | 27° | EXISTING | (2) 1900W800 | – | – | – | – | – | (2) 1–5/8" |
| | LTE WCS | EXISTING | SBNHH–1D65A | 55X11.9X7.1 | 190'–0"± | 269° | – | – | EXISTING | RRUS–32 (WCS) | – | – | – | (2) 1–5/8" |
| | LTE AWS | PROPOSED | SBNHH–1D65A | 55X11.9X7.1 | 190'–0"± | 269° | – | – | PROPOSED | RRUS–32 B66 | 27.2X12.1X7.0 | 1* | 2* | – |
| | LTE 700/PCS | EXISTING | SBNHH–1D65A | 55X11.9X7.1 | 190'–0"± | 269° | – | – | EXISTING<br>EXISTING | RRUS–32 B2 (PCS)<br>RRUS–11 (700) | –<br>– | –<br>– | –<br>– | – |

**FINAL ANTENNA CONFIGURATION** (3 / A–3)
SCALE: N.T.S

*COAX JUMPER NOTE:
COAX JUMPERS (1) PER SECTOR, FROM EACH RRU (TOTAL OF 3).

**FIBER JUMPER NOTE:
FIBER JUMPERS (2) PER SECTOR, FROM THE SQUID TO EACH RRU (TOTAL OF 6).



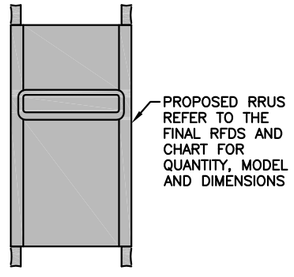

**PROPOSED ANTENNA & RRU MOUNTING DETAIL** (1 / A–3)
22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"

0 0'–6" 1'–0" 2'–0" 3'–0"

### RRU CHART

| QUANTITY | MODEL | L | W | D |
|---|---|---|---|---|
| 3(E) | RRUS–11 | 19.7" | 17.0" | 7.2" |
| 6(E) | RRUS–32 | 27.2" | 12.1" | 7.0" |
| 3(P) | RRUS–32 | 27.2" | 12.1" | 7.0" |
| – | RRUS–E2 | 20.4" | 18.5" | 7.5" |
| – | LTE–A2 | 16.4" | 15.2" | 3.4" |

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS




NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

**RRUS DETAIL** (2 / A–3)
SCALE: N.T.S

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2024
SITE NAME: CLINTON-COW HILL ROAD

CCI SITE NUMBER: 806363

49 COW HILL ROAD
CLINTON, CT 06413
MIDDLESEX COUNTY

at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

| NO. | DATE | REVISIONS | BY | CHK | APP'D |
|---|---|---|---|---|---|
| B | 02/28/18 | ISSUED FOR PERMITTING | MR | AT | DPH |
| A | 02/05/18 | ISSUED FOR REVIEW | TB | AT | DPH |

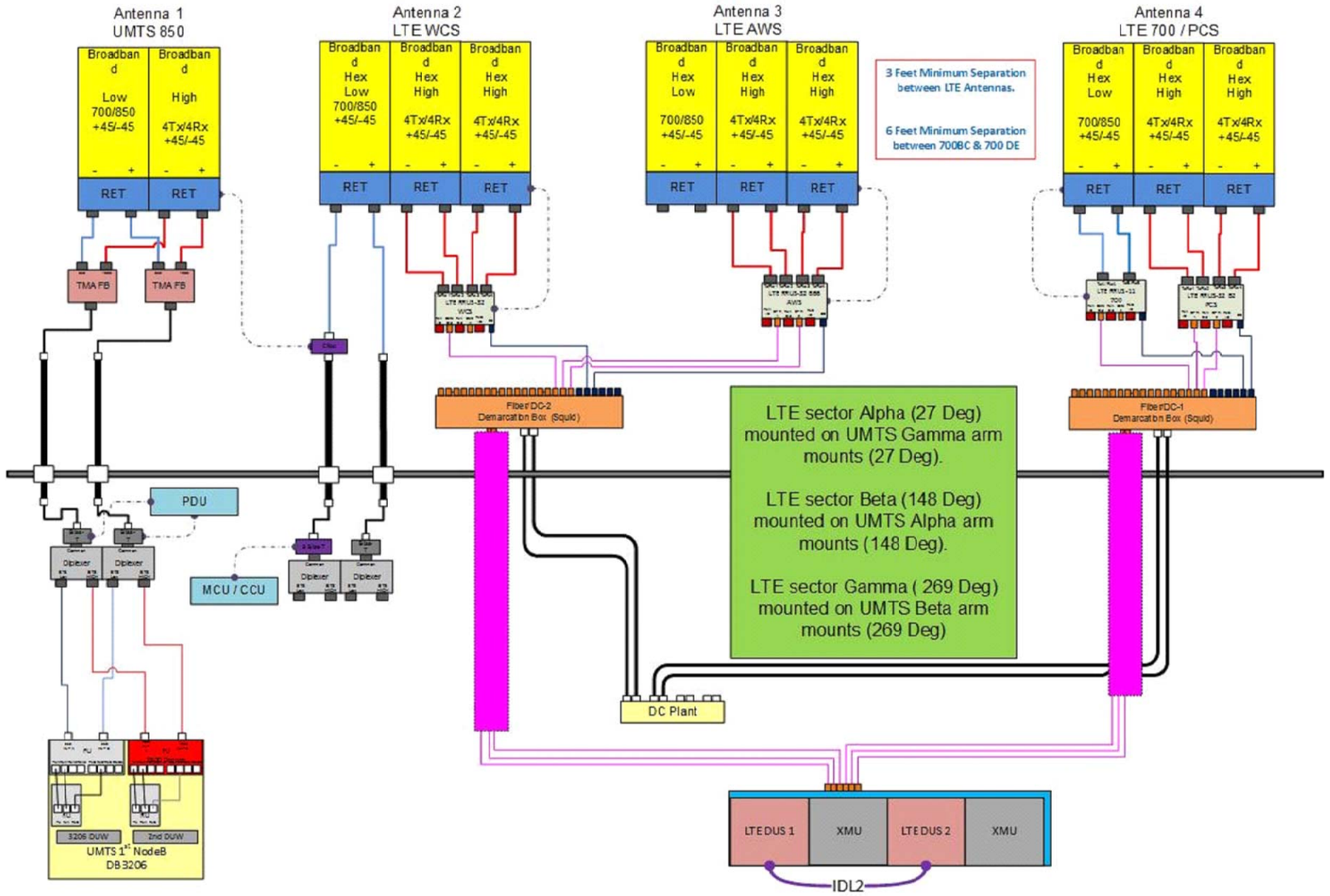
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

STATE OF CONNECTICUT · DEREK J. CREASER · No. 28554 · LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
LTE 4C 2018 UPGRADE

| SITE NUMBER | DRAWING NUMBER | REV |
|---|---|---|
| CT2024 | A–3 | B |




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

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

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


HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067


**SITE NUMBER: CT2024**
**SITE NAME: CLINTON-COW HILL ROAD**

**CCI SITE NUMBER: 806363**

**49 COW HILL ROAD**
**CLINTON, CT 06413**
**MIDDLESEX COUNTY**

| NO. | DATE | REVISIONS | BY | CHK | APP'D |
|---|---|---|---|---|---|
| B | 02/28/18 | ISSUED FOR PERMITTING | MR | AT | DPH |
| A | 02/05/18 | ISSUED FOR REVIEW | TB | AT | DPH |

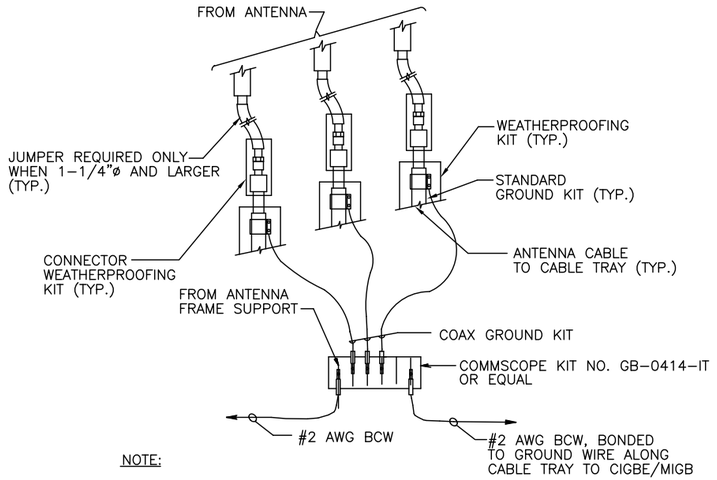
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

STATE OF CONNECTICUT · DEREK J. CREASER · No. 25... · LICENSED PROFESSIONAL ENGINEER

AT&T

RF PLUMBING DIAGRAM
LTE 4C 2018 UPGRADE

| SITE NUMBER | DRAWING NUMBER | REV |
|---|---|---|
| CT2024 | RF–1 | B |



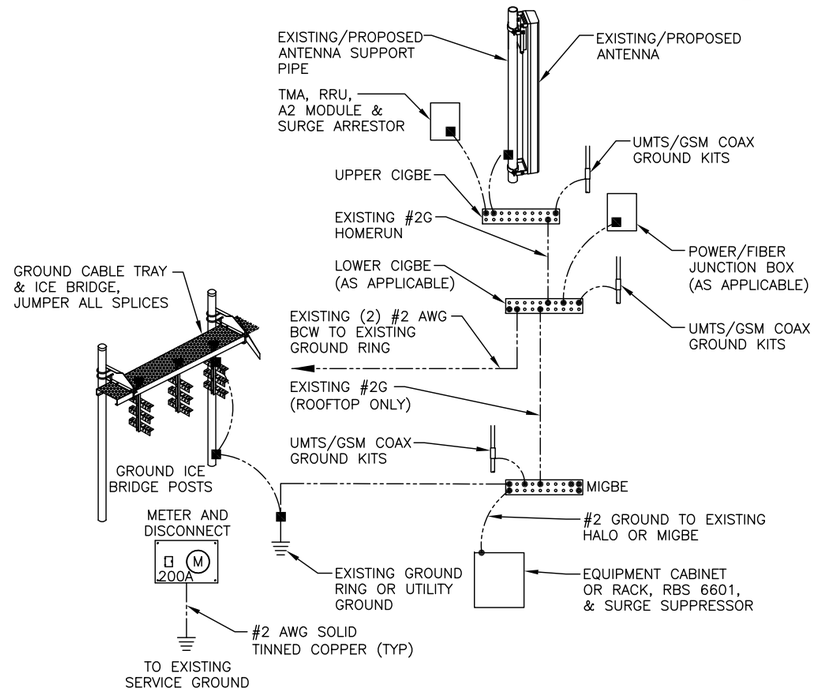

NOTE:

1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

## GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

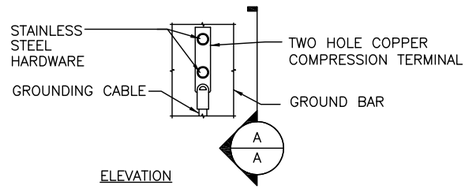
1 / G-1




## GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1




NOTE:

1. "DOUBLING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.
2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATION.
3. CADWELD DOWNLEADS FROM UPPER EGB, LOWER EGB, AND MGB

## TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

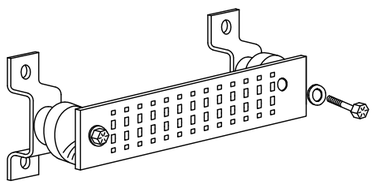
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



## GROUND BAR - DETAIL

SCALE: N.T.S

4 / G-1

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
TEL: (978) 557-5553
FAX: (978) 336-5586

12 INDUSTRIAL WAY
SALEM, NH 03079

500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

**SITE NUMBER: CT2024**
**SITE NAME: CLINTON-COW HILL ROAD**

**CCI SITE NUMBER: 806363**

**49 COW HILL ROAD**
**CLINTON, CT 06413**
**MIDDLESEX COUNTY**

| NO. | DATE | REVISIONS | BY | CHK | APP'D |
|---|---|---|---|---|---|
| B | 02/28/18 | ISSUED FOR PERMITTING | MR | AT | DPH |
| A | 02/05/18 | ISSUED FOR REVIEW | TB | AT | DPH |

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: LL

STATE OF CONNECTICUT · DEREK J. CREASER · No. 28055 · LICENSED PROFESSIONAL ENGINEER

AT&T

GROUNDING DETAILS
LTE 4C 2018 UPGRADE

| SITE NUMBER | DRAWING NUMBER | REV |
|---|---|---|
| CT2024 | G-1 | B |

January 25, 2018

Rebecca Klein
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(704) 405-6525

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

| | | |
|---|---|---|
| **Subject:** | **Structural Analysis Report** | |
| ***Carrier Designation:*** | ***AT&T Mobility* Co-Locate** | |
| | **Carrier Site Number:** | CT2024 |
| | **Carrier Site Name:** | Clinton - Cow Hill RD |
| ***Crown Castle Designation:*** | **Crown Castle BU Number:** | 806363 |
| | **Crown Castle Site Name:** | HRT 105 943201 |
| | **Crown Castle JDE Job Number:** | 478064 |
| | **Crown Castle Work Order Number:** | 1516360 |
| | **Crown Castle Application Number:** | 421190 Rev. 3 |
| ***Engineering Firm Designation:*** | **B+T Group Project Number:** | 100083.002.01 |
| ***Site Data:*** | **48 Cow Hill Road, Clinton, Middlesex County, CT**<br>**Latitude *41° 17' 20.2"*, Longitude *-72° 32' 18.5"***<br>**212.625 Foot - Self Support Tower** | |

Dear Rebecca Klein,

*B+T Group* is pleased to submit this **"Structural Analysis Report"** to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural 'Statement of Work' and the terms of Crown Castle Purchase Order Number 1132878, in accordance with application 421190, revision 3.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC7: Existing + Reserved + Proposed Equipment **Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing/reserved loading, respectively.

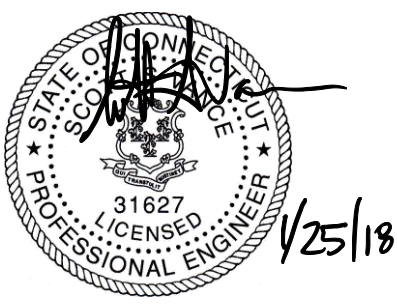
This analysis has been performed in accordance with the 2016 Connecticut State Building Code based upon an ultimate 3-second gust wind speed of 130 mph converted to a nominal 3-second gust wind speed of 101 mph per Section 1609.3 and Appendix N as required for use in the TIA-222-G Standard per Exception #5 of Section 1609.1.1. Exposure Category B and Risk Category II were used in this analysis.

All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *B+T Group* appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Jason Brock, E.I.

Respectfully submitted by: B&T Engineering, Inc.
COA: PEC.0001564 Expires: 02/10/2018




Scott S. Vance, P.E.

tnxTower Report - version 7.0.5.1

## TABLE OF CONTENTS

## 1) INTRODUCTION

This tower is a 212.625 ft Self Support tower designed by ROHN in June of 1992. The tower was originally designed for a wind speed of 90 mph per TIA/EIA-222-E. The tower has been modified by VSI in June of 2007 and those modifications were incorporated in this analysis.

## 2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA-222-G Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a 3-second gust wind speed of 101 mph with no ice, 50 mph with 0.75 inch ice thickness and 60 mph under service loads, exposure category B with topographic category 1 and crest height of 0 feet.

**Table 1 - Proposed Antenna and Cable Information**

| Mounting Level (ft) | Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Number of Feed Lines | Feed Line Size (in) | Note |
|---|---|---|---|---|---|---|---|
| 189.0 | 190.0 | 3 | Andrew | SBNHH-1D65A | 4 | 3/4 | -- |
| | | 3 | Ericsson | RRUS 32 | | | |
| | | 3 | Ericsson | RRUS 32 B2 | | | |
| | | 3 | Ericsson | RRUS 32 B66 | | | |

**Table 2 - Existing and Reserved Antenna and Cable Information**

| Mounting Level (ft) | Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Number of Feed Lines | Feed Line Size (in) | Note |
|---|---|---|---|---|---|---|---|
| 208.0 | 209.0 | 3 | Alcatel Lucent | RRH2X60-AWS | 2 | 1-5/8 | 2 |
| | | 3 | Alcatel Lucent | RRH2X60-PCS | | | |
| | | 3 | Alcatel Lucent | RRH2x60-700 | | | |
| | | 9 | Andrew | SBNHH-1D65B | | | |
| | | 1 | Rfs Celwave | DB-B1-6C-12AB-0Z | | | |
| | | 6 | Antel | LPA-80080/6CF | 18<br>1 | 1-5/8<br>1-1/4 | 1 |
| | | 1 | Rfs Celwave | DB-T1-6Z-8AB-0Z | | | |
| | 208.0 | 1 | -- | Sector Mount [SM 510-3] | | | |
| 199.0 | 199.0 | 1 | -- | Sector Mount [SM 504-3] | 4 | 1-1/4 | 1 |
| | 198.0 | 3 | Alcatel Lucent | 1900MHz RRH (65MHz) | | | |
| | | 3 | Alcatel Lucent | 800MHz 2X50W RRH W/FILTER | | | |
| | | 3 | Alcatel Lucent | TD-RRH8x20-25 | | | |
| | | 3 | Rfs Celwave | APXVSPP18-C-A20 | | | |
| | | 3 | Rfs Celwave | APXVTM14-C-120 | | | |
| 189.0 | 190.0 | **3** | **Ericsson** | **RRUS 11** | **2** | **7/8** | **4** |
| | | **3** | **Ericsson** | **WCS RRUS-32-B30** | | | |
| | | 6 | ADC | Dual Band 800/1900 Full Band Masthead | 12<br>2<br>2 | 1-5/8<br>13/16<br>3/8 | 1 |
| | | 6 | Andrew | SBNHH-1D65A | | | |
| | | 3 | Ericsson | RRUS 11 | | | |
| | | 3 | Powerwave Tech. | 7020.00 | | | |

| Mounting Level (ft) | Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Number of Feed Lines | Feed Line Size (in) | Note |
|---|---|---|---|---|---|---|---|
| | | 3 | Powerwave Tech. | 7770.00 | | | |
| | | 2 | Raycap | DC6-48-60-18-8F | | | |
| | 189.0 | 1 | -- | Sector Mount [SM 602-3] | | | |
| 183.0 | 183.0 | 3 | Rfs Celwave | APXV18-206517LS | -- | -- | 1 |
| 175.0 | 179.0 | 2 | Radio waves | HPD2-23 | 4 | 1/4 | 1 |
| | 176.0 | 12 | Decibel | DB844H90E-XY | -- | -- | 3 |
| | 175.0 | 1 | -- | Sector Mount [SM 510-3] | | | |
| 167.0 | 173.0 | 1 | Rfs Celwave | 1151-3 | 1 | 7/8 | 1 |
| | 167.0 | 1 | -- | Side Arm Mount [SO 308-1] | | | |
| 164.0 | 173.0 | 1 | Rfs Celwave | 1151-3 | 1 | 7/8 | 1 |
| | 164.0 | 1 | -- | Side Arm Mount [SO 308-1] | | | |
| | 162.0 | 1 | Andrew | DB224-JJ | | | |
| 162.0 | 162.0 | 1 | -- | Side Arm Mount [SO 308-1] | 1 | 7/8 | 1 |
| | 160.0 | 1 | Sinclair | SD310-HL | | | |
| 147.0 | 153.0 | 1 | Rfs Celwave | 1151-3 | 1 | 7/8 | 1 |
| | 147.0 | 1 | -- | Side Arm Mount [SO 308-1] | | | |
| 145.0 | 148.0 | 1 | Sinclair | SD310-HL | 1 | 7/8 | 1 |
| | 145.0 | 1 | -- | Side Arm Mount [SO 308-1] | | | |
| 139.0 | 140.0 | 3 | Ericsson | ERICSSON AIR 21 B2A B4P | 7<br>5<br>3 | 1-5/8<br>1-1/4<br>7/8 | 1 |
| | | 3 | Ericsson | ERICSSON AIR 21 B4A B2P | | | |
| | | 3 | Ericsson | KRY 112 144/1 | | | |
| | 139.0 | 1 | -- | Side Arm Mount [SO 104-3] | | | |
| 128.0 | 132.0 | 1 | Rfs Celwave | 1142-2C | -- | -- | 1 |
| | 128.0 | 1 | -- | Side Arm Mount [SO 308-1] | | | |
| 51.0 | 51.0 | 1 | GPS | GPS_A | 1 | 1/2 | 1 |
| | | 1 | -- | Side Arm Mount [SO 701-1] | | | |

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Abandoned Equipment; Considered in This Analysis
4) **Equipment To Be Removed; Not Considered in This Analysis**

**Table 3 - Design Antenna and Cable Information**

| Mounting Level (ft) | Center Line Elevation (ft) | Number of Antennas | Antenna Manufacturer | Antenna Model | Number of Feed Lines | Feed Line Size (in) |
|---|---|---|---|---|---|---|
| 212 | 212 | 12 | Sinclair | SRL410C4 w/ 6' Side Arms | -- | -- |
| 200 | 200 | 2 | Generic | 6' Grid Dish | -- | -- |
| 190 | 190 | 9 | Swedcom | ALP9212N w/ Mounting Frame | -- | -- |
| 100 | 100 | 1 | Decibel | DB222 w/ Mount | -- | -- |
| 90 | 90 | 1 | Decibel | DB225 w/ Mount | -- | -- |
| 80 | 80 | 2 | Decibel | DB225-2 w/ Mounts | -- | -- |
| 60 | 60 | 1 | Decibel | DB212-2 w/ Mount | -- | -- |
| | | 1 | Decibel | DB225 w/ Mount | | |
| | | 1 | Decibel | DB225-2 w/ Mount | | |
| 50 | 50 | 1 | Decibel | DB212-2 w/ Mount | -- | -- |
| 40 | 40 | 1 | Decibel | DB212 w/ Mount | -- | -- |

## 3) ANALYSIS PROCEDURE

**Table 4 - Documents Provided**

| Document | Remarks | Reference | Source |
|---|---|---|---|
| Online Application | AT&T Mobility Co-Locate, Revision # 3 | 421190 | CCI Sites |
| Tower Manufacturer Drawing | ROHN, Eng. File No: 28529JC | 262274 | CCI Sites |
| Tower Modification Drawing | VSI, Date: 06/29/2007 | 2169576 | CCI Sites |
| Post Modification Inspection | VSI, Date: 10/30/2007 | 2146143 | CCI Sites |
| Foundation Drawing | ROHN, Eng. File No: 28529JC | 262273 | CCI Sites |
| Geotech Report | Clarence Welti Assoc., Inc., Date: 07/06/1992 | 262276 | CCI Sites |
| Antenna Configuration | Crown CAD Package | Date: 01/22/2018 | CCI Sites |

### 3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

### 3.2) Assumptions

1) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) Mount areas and weights are assumed based on photographs provided.
5) The existing base plate grout was considered in this analysis. Grout must be maintained and inspected periodically, and must be replaced if damaged or cracked. Refer to crown document ENG-BUL-10122, Tower Base Plate Grout Inspection and Classification.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T Group should be notified to determine the effect on the structural integrity of the tower.

## 4) ANALYSIS RESULTS

### Table 5 - Section Capacity (Summary)

| Section No. | Elevation (ft) | Component Type | Size | Critical Element | P (K) | SF*P_allow (K) | % Capacity | Pass / Fail |
|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | Leg | ROHN 2.5 STD | 1 | -5.717 | 56.631 | 10.1 | Pass |
| T2 | 202.458 - 182.292 | Leg | ROHN 3 EH | 28 | -30.268 | 93.888 | 32.2 | Pass |
| T3 | 182.292 - 162.104 | Leg | ROHN 4 EH | 67 | -76.131 | 159.259 | 47.8 | Pass |
| T4 | 162.104 - 141.896 | Leg | ROHN 5 EH | 108 | -128.440 | 238.686 | 53.8 | Pass |
| T5 | 141.896 - 121.688 | Leg | ROHN 6 EHS | 146 | -160.525 | 242.933 | 66.1 | Pass |
| T6 | 121.688 - 101.479 | Leg | ROHN 6 EH | 173 | -196.727 | 302.237 | 65.1 | Pass |
| T7 | 101.479 - 81.2708 | Leg | ROHN 6 EH | 200 | -229.984 | 302.237 | 76.1 | Pass |
| T8 | 81.2708 - 61 | Leg | ROHN 8 EHS | 227 | -261.735 | 384.981 | 68.0 | Pass |
| T9 | 61 - 40.6667 | Leg | ROHN 8 EHS | 254 | -292.818 | 384.707 | 76.1 | Pass |
| T10 | 40.6667 - 20.3333 | Leg | ROHN 8 EH | 281 | -306.548 | 503.236 | 60.9 | Pass |
| T11 | 20.3333 - 0 | Leg | ROHN 8 EH | 314 | -335.559 | 503.352 | 66.7 | Pass |
| T1 | 212.625 - 202.458 | Diagonal | ROHN 2 STD | 14 | -3.494 | 23.829 | 14.7 | Pass |
| T2 | 202.458 - 182.292 | Diagonal | ROHN 2 STD | 39 | -10.586 | 17.541 | 60.4 | Pass |
| T3 | 182.292 - 162.104 | Diagonal | ROHN 2 STD | 77 | -10.843 | 15.159 | 71.5 | Pass |
| T4 | 162.104 - 141.896 | Diagonal | ROHN 2 STD | 117 | -10.858 | 13.026 | 83.4 | Pass |
| T5 | 141.896 - 121.688 | Diagonal | ROHN 2.5 STD | 156 | -14.129 | 16.287 | 86.8 | Pass |
| T6 | 121.688 - 101.479 | Diagonal | ROHN 2.5 STD | 183 | -13.171 | 14.278 | 92.2 | Pass |
| T7 | 101.479 - 81.2708 | Diagonal | ROHN 3 STD | 210 | -13.495 | 24.700 | 54.6 | Pass |
| T8 | 81.2708 - 61 | Diagonal | ROHN 3 STD | 237 | -13.437 | 21.813 | 61.6 | Pass |
| T9 | 61 - 40.6667 | Diagonal | ROHN 3 STD | 264 | -14.582 | 19.146 | 76.2 | Pass |
| T10 | 40.6667 - 20.3333 | Diagonal | ROHN 3 STD | 303 | -20.582 | 31.156 | 66.1 | Pass |
| T11 | 20.3333 - 0 | Diagonal | ROHN 3 STD | 336 | -23.698 | 29.608 | 80.0 | Pass |
| T1 | 212.625 - 202.458 | Horizontal | ROHN 1.5 STD | 13 | -2.534 | 22.582 | 11.2 | Pass |
| T2 | 202.458 - 182.292 | Horizontal | ROHN 1.5 STD | 37 | -5.794 | 22.520 | 25.7 | Pass |
| T3 | 182.292 - 162.104 | Horizontal | ROHN 1.5 STD | 76 | -6.833 | 19.143 | 35.7 | Pass |
| T4 | 162.104 - 141.896 | Horizontal | ROHN 2 STD | 115 | -7.578 | 27.209 | 27.9<br>30.5 (b) | Pass |
| T5 | 141.896 - 121.688 | Horizontal | ROHN 2 STD | 154 | -8.521 | 22.640 | 37.6 | Pass |
| T6 | 121.688 - 101.479 | Horizontal | ROHN 2 STD | 181 | -8.739 | 16.864 | 51.8 | Pass |
| T7 | 101.479 - 81.2708 | Horizontal | ROHN 2.5 STD | 208 | -9.608 | 28.852 | 33.3<br>38.7 (b) | Pass |
| T8 | 81.2708 - 61 | Horizontal | ROHN 2.5 STD | 235 | -10.137 | 22.530 | 45.0 | Pass |
| T9 | 61 - 40.6667 | Horizontal | ROHN 2.5 STD | 262 | -11.495 | 17.820 | 64.5 | Pass |
| T10 | 40.6667 - 20.3333 | Horizontal | ROHN 3 STD | 299 | -11.375 | 31.651 | 35.9 | Pass |

| Section No. | Elevation (ft) | Component Type | Size | Critical Element | P (K) | SF*P_allow (K) | % Capacity | Pass / Fail |
|---|---|---|---|---|---|---|---|---|
| T11 | 20.3333 - 0 | Horizontal | ROHN 3 STD | 332 | -13.885 | 25.753 | 53.9 | Pass |
| T1 | 212.625 - 202.458 | Top Girt | ROHN 1.5 STD | 5 | -0.256 | 22.635 | 1.1 | Pass |
| T10 | 40.6667 - 20.3333 | Redund Horz 1 Bracing | ROHN 1.5 STD | 288 | -5.324 | 13.007 | 40.9 | Pass |
| T11 | 20.3333 - 0 | Redund Horz 1 Bracing | ROHN 1.5 STD | 321 | -5.823 | 11.053 | 52.7 | Pass |
| T10 | 40.6667 - 20.3333 | Redund Diag 1 Bracing | ROHN 2 STD | 293 | -4.918 | 8.811 | 55.8 | Pass |
| T11 | 20.3333 - 0 | Redund Diag 1 Bracing | ROHN 2 STD | 322 | -5.030 | 8.111 | 62.0 | Pass |
| T10 | 40.6667 - 20.3333 | Redund Hip 1 Bracing | ROHN 1.5 STD | 306 | -0.029 | 11.936 | 0.2 | Pass |
| T11 | 20.3333 - 0 | Redund Hip 1 Bracing | ROHN 1.5 STD | 339 | -0.027 | 10.041 | 0.3 | Pass |
| T10 | 40.6667 - 20.3333 | Redund Hip Diagonal 1 Bracing | ROHN 2.5 STD | 307 | -0.094 | 10.381 | 0.9 | Pass |
| T11 | 20.3333 - 0 | Redund Hip Diagonal 1 Bracing | ROHN 2.5 STD | 340 | -0.086 | 9.348 | 0.9 | Pass |
| T1 | 212.625 - 202.458 | Inner Bracing | L2x2x1/8 | 17 | -0.004 | 6.538 | 0.5 | Pass |
| T2 | 202.458 - 182.292 | Inner Bracing | L2x2x1/8 | 41 | -0.007 | 6.440 | 0.5 | Pass |
| T3 | 182.292 - 162.104 | Inner Bracing | L2x2x1/8 | 79 | -0.006 | 4.790 | 0.6 | Pass |
| T4 | 162.104 - 141.896 | Inner Bracing | L2x2x1/8 | 120 | -0.007 | 3.283 | 0.7 | Pass |
| T5 | 141.896 - 121.688 | Inner Bracing | L2x2x1/8 | 159 | -0.009 | 2.480 | 0.8 | Pass |
| T6 | 121.688 - 101.479 | Inner Bracing | L2 1/2x2 1/2x3/16 | 186 | -0.011 | 5.225 | 0.7 | Pass |
| T7 | 101.479 - 81.2708 | Inner Bracing | L3x3x3/16 | 212 | -0.014 | 6.881 | 0.7 | Pass |
| T8 | 81.2708 - 61 | Inner Bracing | L3 1/2x3 1/2x1/4 | 239 | -0.017 | 11.196 | 0.5 | Pass |
| T9 | 61 - 40.6667 | Inner Bracing | L3 1/2x3 1/2x1/4 | 266 | -0.017 | 8.922 | 0.5 | Pass |
| T10 | 40.6667 - 20.3333 | Inner Bracing | ROHN 3 STD | 311 | -0.020 | 29.869 | 0.3 | Pass |
| T11 | 20.3333 - 0 | Inner Bracing | ROHN 3 STD | 344 | -0.017 | 24.440 | 0.2 | Pass |
| | | | | | | | Summary | |
| | | | | | | Leg (T9) | 76.1 | Pass |
| | | | | | | Diagonal (T6) | 92.2 | Pass |
| | | | | | | Horizontal (T9) | 64.5 | Pass |
| | | | | | | Top Girt (T1) | 1.1 | Pass |
| | | | | | | Redund Horz 1 Bracing (T11) | 52.7 | Pass |
| | | | | | | Redund Diag 1 Bracing (T11) | 62.0 | Pass |
| | | | | | | Redund Hip 1 Bracing (T11) | 0.3 | Pass |
| | | | | | | Redund Hip | 0.9 | Pass |

| Section No. | Elevation (ft) | Component Type | Size | Critical Element | P (K) | SF*P_allow (K) | % Capacity | Pass / Fail |
|---|---|---|---|---|---|---|---|---|
| | | | | | | Diagonal 1 Bracing (T11) | | |
| | | | | | | Inner Bracing (T5) | 0.8 | Pass |
| | | | | | | Bolt Checks | 60.9 | Pass |
| | | | | | | Rating = | 92.2 | Pass |

**Table 6 - Tower Component Stresses vs. Capacity – LC7**

| Notes | Component | Elevation (ft) | % Capacity | Pass / Fail |
|---|---|---|---|---|
| 1 | Anchor Rods | Base | 63.0 | Pass |
| 1 | Base Foundation (Steel) | Base | 25.8 | Pass |
| 1 | Base Foundation (Soil Interaction) | Base | 51.7 | Pass |

| Structure Rating (max from all components) = | 92.2% |
|---|---|

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.

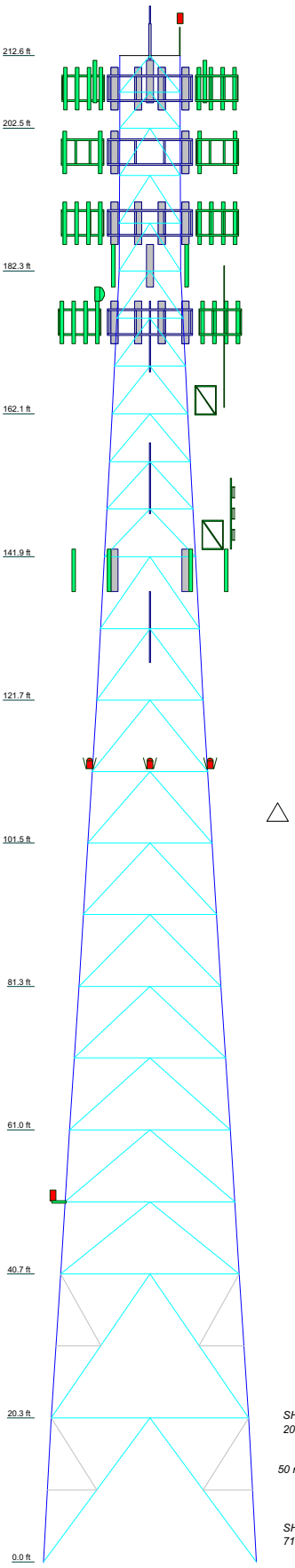
### 4.1) Recommendations

The tower and its foundation have sufficient capacity to carry the final load configuration. No modifications are required at this time.

# APPENDIX A

# TNXTOWER OUTPUT

| Section | T11 | T10 | T9 | T8 | T7 | T6 | T5 | T4 | T3 | T2 | T1 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Legs | ROHN 8 EH | | ROHN 8 EHS | | | ROHN 6 EH | ROHN 6 EHS | ROHN 5 EH | ROHN 4 EH | ROHN 3 EH | ROHN 2.5 STD |
| Leg Grade | | | | | | A572-50 | | | | | |
| Diagonals | | | ROHN 3 STD | | | | ROHN 2.5 STD | | | | |
| Diagonal Grade | | | | | | A572-50 | | | | | |
| Top Girts | | | | | | N.A. | | | | | ROHN 1.5 STD |
| Horizontals | | ROHN 3 STD | | ROHN 2.5 STD | | | ROHN 2 STD | | | | |
| Red. Horizontals | | ROHN 1.5 STD | | | | | N.A. | | | | |
| Red. Diagonals | | ROHN 2 STD | | | | | N.A. | | | | |
| Red. Hips | | ROHN 1.5 STD | | | | | N.A. | | | | |
| Inner Bracing | | ROHN 3 STD | | L3 1/2x3 1/2x1/4 | L3x3x3/16 | L2 1/2x2 1/2x3/16 | | | L2x2x1/8 | | |
| Face Width (ft) | 30.0417 | 27.8333 | 25.1771 | 22.6771 | 20.0417 | 17.5417 | 15.0417 | 12.7917 | 10.7083 | 8.625 | 8.5 |
| # Panels @ (ft) | | 2 @ 20.3333 | | 2 @ 10.1667 | 2 @ 10.1354 | 6 @ 10.1042 | | 3 @ 6.73611 | 3 @ 6.72917 | 3 @ 6.72222 | 2 @ 5.08333 |
| Weight (K) | 37.5 | 9.7 | 9.6 | 4.9 | 4.7 | 4.0 | 3.3 | 2.7 | 2.4 | 1.8 | 1.5 | 0.7 |




## DESIGNED APPURTENANCE LOADING

| TYPE | ELEVATION | TYPE | ELEVATION |
|---|---|---|---|
| Flash Beacon Lighting (E) | 216.625 | DC6-48-60-18-8F (Hor.Off./Photo) | 189 |
| Lightning Rod 5/8" x 6' (E) | 213.625 | SBNHH-1D65A w/ Mount Pipe (P) | 189 |
| Climb Leg Extension (E) | 212.625 | SBNHH-1D65A w/ Mount Pipe (P) | 189 |
| 4' x 2" Pipe Mount (E-For Beacon) | 212.625 | SBNHH-1D65A w/ Mount Pipe (P) | 189 |
| (2) LPA-80080/6CF w/ Mount Pipe (E) | 208 | RRUS 32 (P) | 189 |
| (2) LPA-80080/6CF w/ Mount Pipe (E) | 208 | RRUS 32 (P) | 189 |
| (2) LPA-80080/6CF w/ Mount Pipe (E) | 208 | RRUS 32 (P) | 189 |
| DB-T1-6Z-8AB-0Z (E) | 208 | RRUS 32 B66 (P) | 189 |
| (3) SBNHH-1D65B w/ Mount Pipe (R) | 208 | RRUS 32 B66 (P) | 189 |
| (3) SBNHH-1D65B w/ Mount Pipe (R) | 208 | RRUS 32 B66 (P) | 189 |
| (3) SBNHH-1D65B w/ Mount Pipe (R) | 208 | RRUS 32 B2 (P) | 189 |
| RRH2X60-PCS (R) | 208 | RRUS 32 B2 (P) | 189 |
| RRH2X60-PCS (R) | 208 | RRUS 32 B2 (P) | 189 |
| RRH2X60-PCS (R) | 208 | Sector Mount [SM 602-3] (E) | 189 |
| RRH2x60-700 (R) | 208 | APXV18-206517LS w/ Mount Pipe (Leg Mounted/Photo) | 183 |
| RRH2x60-700 (R) | 208 | | |
| RRH2x60-700 (R) | 208 | APXV18-206517LS w/ Mount Pipe (Leg Mounted/Photo) | 183 |
| DB-B1-6C-12AB-0Z (R) | 208 | | |
| RRH2X60-AWS (R) | 208 | APXV18-206517LS w/ Mount Pipe (Leg Mounted/Photo) | 183 |
| RRH2X60-AWS (R) | 208 | | |
| RRH2X60-AWS (R) | 208 | (4) DB844H90E-XY w/ Mount Pipe (AB-Inactive/TIA) | 175 |
| Sector Mount [SM 510-3] (E) | 208 | | |
| APXVSPP18-C-A20 w/ Mount Pipe (E) | 199 | (4) DB844H90E-XY w/ Mount Pipe (AB-Inactive/TIA) | 175 |
| APXVSPP18-C-A20 w/ Mount Pipe (E) | 199 | | |
| APXVSPP18-C-A20 w/ Mount Pipe (E) | 199 | (4) DB844H90E-XY w/ Mount Pipe (AB-Inactive/TIA) | 175 |
| APXVTM14-C-120 w/ Mount Pipe (E) | 199 | | |
| APXVTM14-C-120 w/ Mount Pipe (E) | 199 | 6' x 2" Mount Pipe (Dish Mount) | 175 |
| APXVTM14-C-120 w/ Mount Pipe (E) | 199 | 6' x 2" Mount Pipe (Dish Mount) | 175 |
| 800MHz 2X50W RRH W/FILTER (E) | 199 | Sector Mount [SM 510-3] (E) | 175 |
| 800MHz 2X50W RRH W/FILTER (E) | 199 | HPD2-23 (Az._Face/Prev.SA) | 175 |
| 800MHz 2X50W RRH W/FILTER (E) | 199 | HPD2-23 (Az._Face/Prev.SA) | 175 |
| 1900MHz RRH (65MHz) (E) | 199 | 1151-3 (E) | 167 |
| 1900MHz RRH (65MHz) (E) | 199 | Side Arm Mount [SO 308-1] (E) | 167 |
| 1900MHz RRH (65MHz) (E) | 199 | 1151-3 (E) | 164 |
| TD-RRH8x20-25 (E) | 199 | Andrew DB224-JJ (Per Photo) | 164 |
| TD-RRH8x20-25 (E) | 199 | Side Arm Mount [SO 308-1] (E) | 164 |
| TD-RRH8x20-25 (E) | 199 | SD310-HL (E) | 162 |
| (3) 4' x 2" Pipe Mount (E) | 199 | Side Arm Mount [SO 308-1] (E) | 162 |
| (3) 4' x 2" Pipe Mount (E) | 199 | 1151-3 (E) | 147 |
| (3) 4' x 2" Pipe Mount (E) | 199 | Side Arm Mount [SO 308-1] (E) | 147 |
| Sector Mount [SM 504-3] (14'/TIA) | 199 | SD310-HL (E) | 145 |
| 7770.00 w/ Mount Pipe (E) | 189 | Side Arm Mount [SO 308-1] (E) | 145 |
| 7770.00 w/ Mount Pipe (E) | 189 | ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E) | 139 |
| 7770.00 w/ Mount Pipe (E) | 189 | ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E) | 139 |
| (2) SBNHH-1D65A w/ Mount Pipe (E) | 189 | ERICSSON AIR 21 B2A B4P w/ Mount Pipe (E) | 139 |
| (2) SBNHH-1D65A w/ Mount Pipe (E) | 189 | ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E) | 139 |
| (2) SBNHH-1D65A w/ Mount Pipe (E) | 189 | ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E) | 139 |
| (2) DUAL BAND 800/1900 FULL BAND MASTHEAD (E) | 189 | ERICSSON AIR 21 B4A B2P w/ Mount Pipe (E) | 139 |
| (2) DUAL BAND 800/1900 FULL BAND MASTHEAD (E) | 189 | KRY 112 144/1 (E) | 139 |
| (2) DUAL BAND 800/1900 FULL BAND MASTHEAD (E) | 189 | KRY 112 144/1 (E) | 139 |
| 7020.00 (E) | 189 | KRY 112 144/1 (E) | 139 |
| 7020.00 (E) | 189 | Side Arm Mount [SO 104-3] (E) | 139 |
| 7020.00 (E) | 189 | 1142-2C (Inactive/TIA) | 128 |
| RRUS 11 (E) | 189 | Side Arm Mount [SO 308-1] (E) | 128 |
| RRUS 11 (E) | 189 | Side Lighting (E) | 112 |
| RRUS 11 (E) | 189 | Side Lighting (E) | 112 |
| DC6-48-60-18-8F (Hor.Off./Photo) | 189 | Side Lighting (E) | 112 |
| | | GPS_A (E) | 51 |
| | | Side Arm Mount [SO 701-1] (E) | 51 |

## MATERIAL STRENGTH

| GRADE | Fy | Fu | GRADE | Fy | Fu |
|---|---|---|---|---|---|
| A572-50 | 50 ksi | 65 ksi | | | |

## TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for Exposure B to the TIA-222-G Standard.
3. Tower designed for a 101 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 92.2%

*ALL REACTIONS ARE FACTORED*

*MAX. CORNER REACTIONS AT BASE:*
*DOWN: 368 K*
*SHEAR: 43 K*

*UPLIFT: -311 K*
*SHEAR: 39 K*

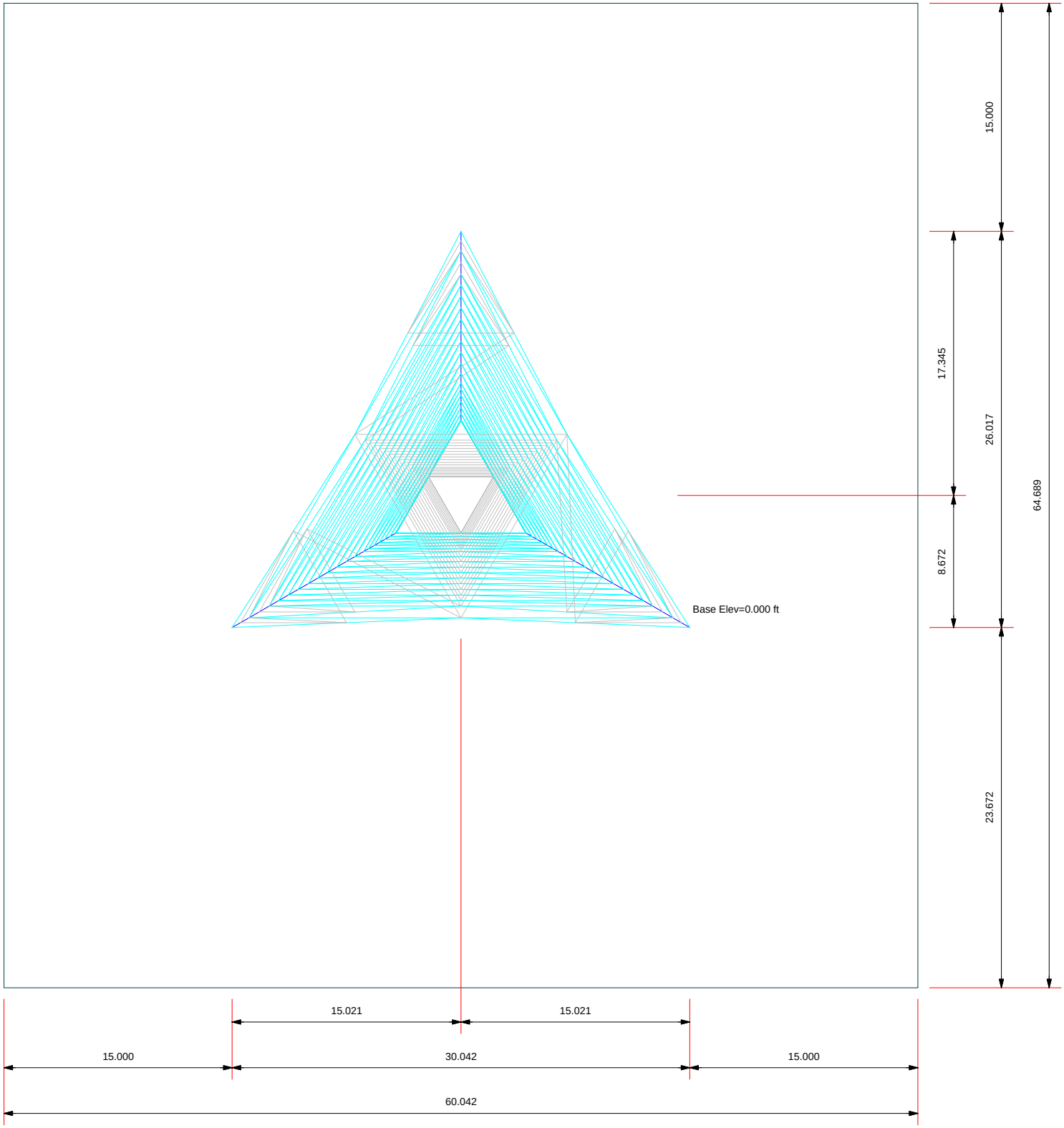
*AXIAL 229 K*
*SHEAR 20 K* *MOMENT 2725 kip-ft*
*TORQUE 8 kip-ft*
*50 mph WIND - 0.750 in ICE*
*AXIAL 100 K*
*SHEAR 71 K* *MOMENT 8763 kip-ft*
*TORQUE 47 kip-ft*
*REACTIONS - 101 mph WIND*


B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265


| | | | |
|---|---|---|---|
| Job: 100083.002.01 - HRT 105 943201, CT (BU# 80636 | | | |
| Project: | | | |
| Client: Crown Castle | Drawn by: Yathish | App'd: | |
| Code: TIA-222-G | Date: 01/25/18 | Scale: NTS | |
| Path: | | Dwg No. E-1 | |

# Plot Plan

**Total Area - 0.09 Acres**



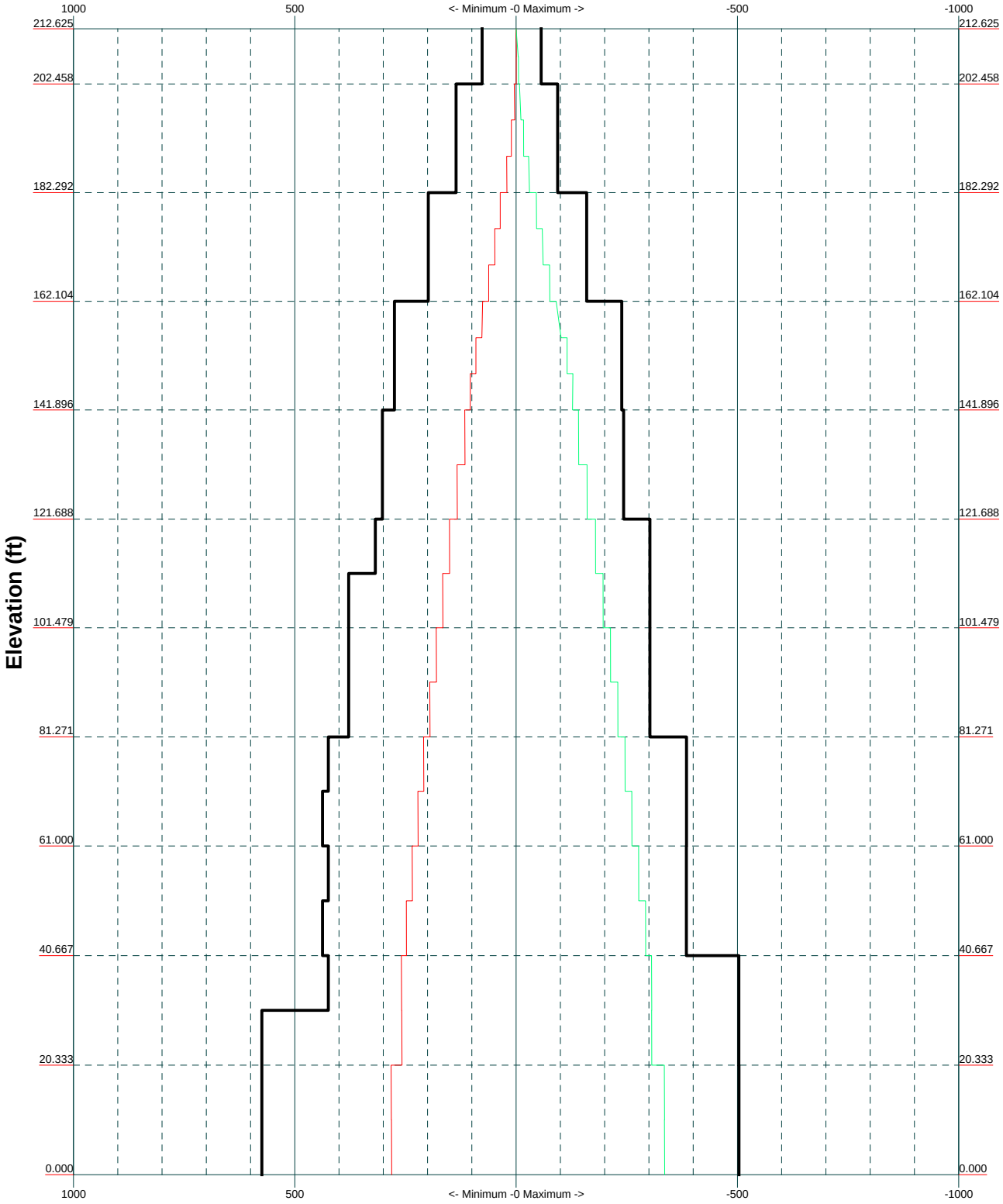


**B+T Group**
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265


| | | | |
|---|---|---|---|
| Job: | ***100083.002.01 - HRT 105 943201, CT (BU# 806363*** | | |
| Project: | | | |
| Client: Crown Castle | Drawn by: Yathish | App'd: | |
| Code: TIA-222-G | Date: 01/25/18 | Scale: NTS | |
| Path: | | Dwg No. E-2 | |

## TIA-222-G - 101 mph/50 mph 0.750 in Ice Exposure B

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





B+T GRP

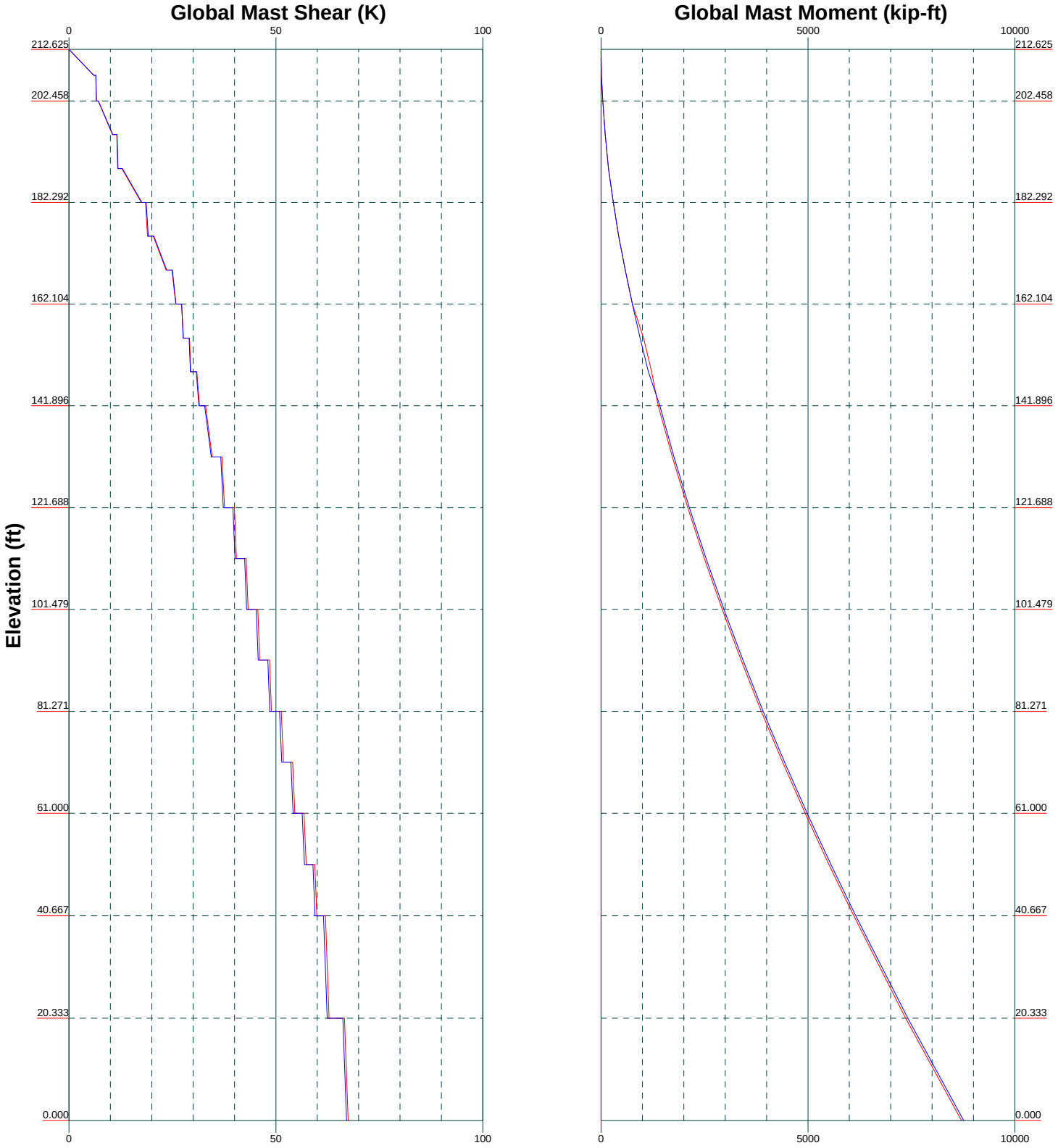
*B+T Group*
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265


| | | |
|---|---|---|
| Job: ***100083.002.01 - HRT 105 943201, CT (BU# 806363*** | | |
| Project: | | |
| Client: Crown Castle | Drawn by: Yathish | App'd: |
| Code: TIA-222-G | Date: 01/25/18 | Scale: NTS |
| Path: | | Dwg No. E-3 |

TIA-222-G - 101 mph/50 mph 0.750 in Ice Exposure B

Maximum Values

Vx Vz Mx Mz





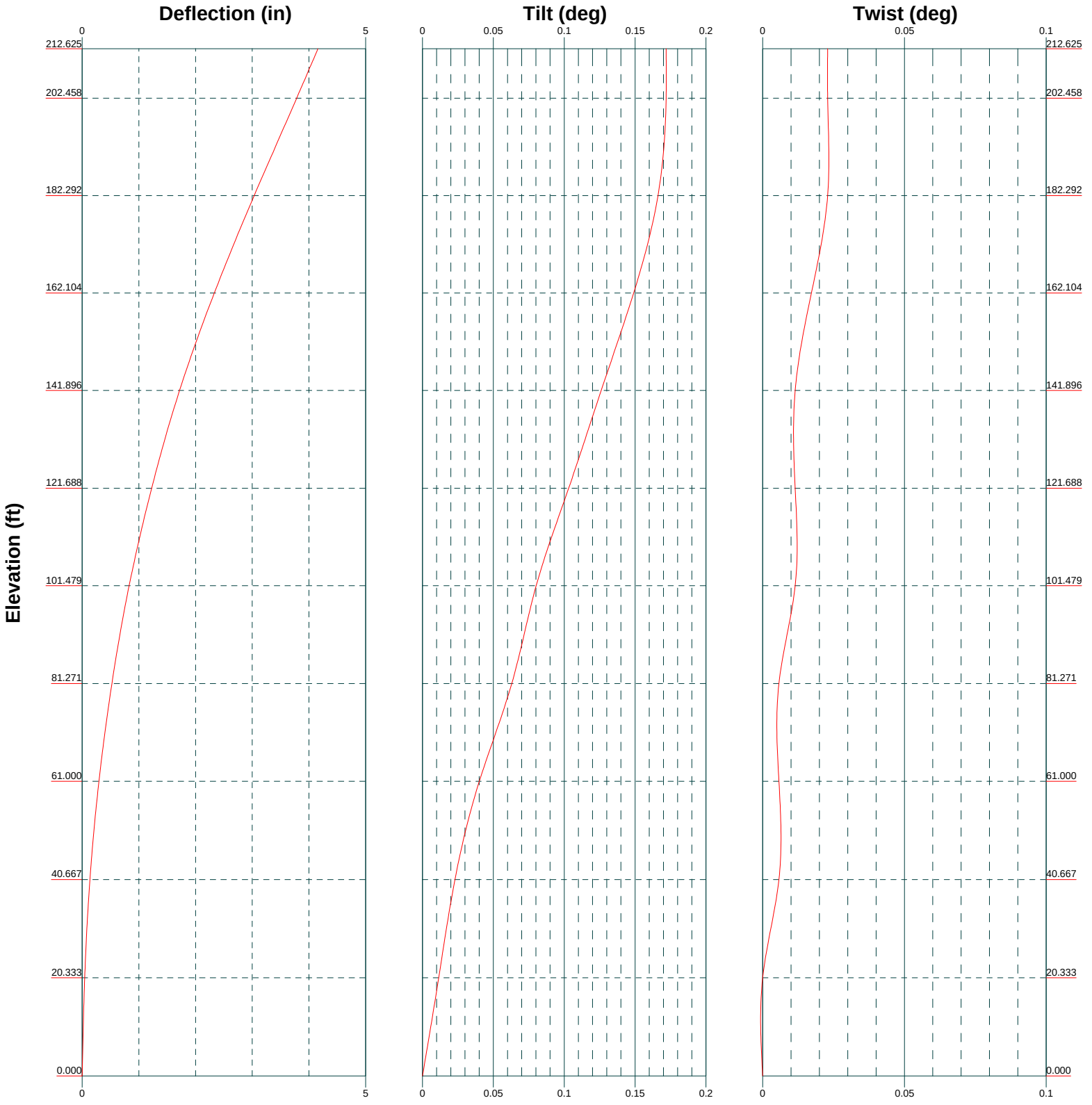
B+T GRP

*B+T Group*
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265


| | | | |
|---|---|---|---|
| Job: ***100083.002.01 - HRT 105 943201, CT (BU# 806363*** | | | |
| Project: | | | |
| Client: Crown Castle | Drawn by: Yathish | App'd: | |
| Code: TIA-222-G | Date: 01/25/18 | Scale: NTS | |
| Path: | | Dwg No. E-4 | |

## TIA-222-G - Service - 60 mph

**Maximum Values**



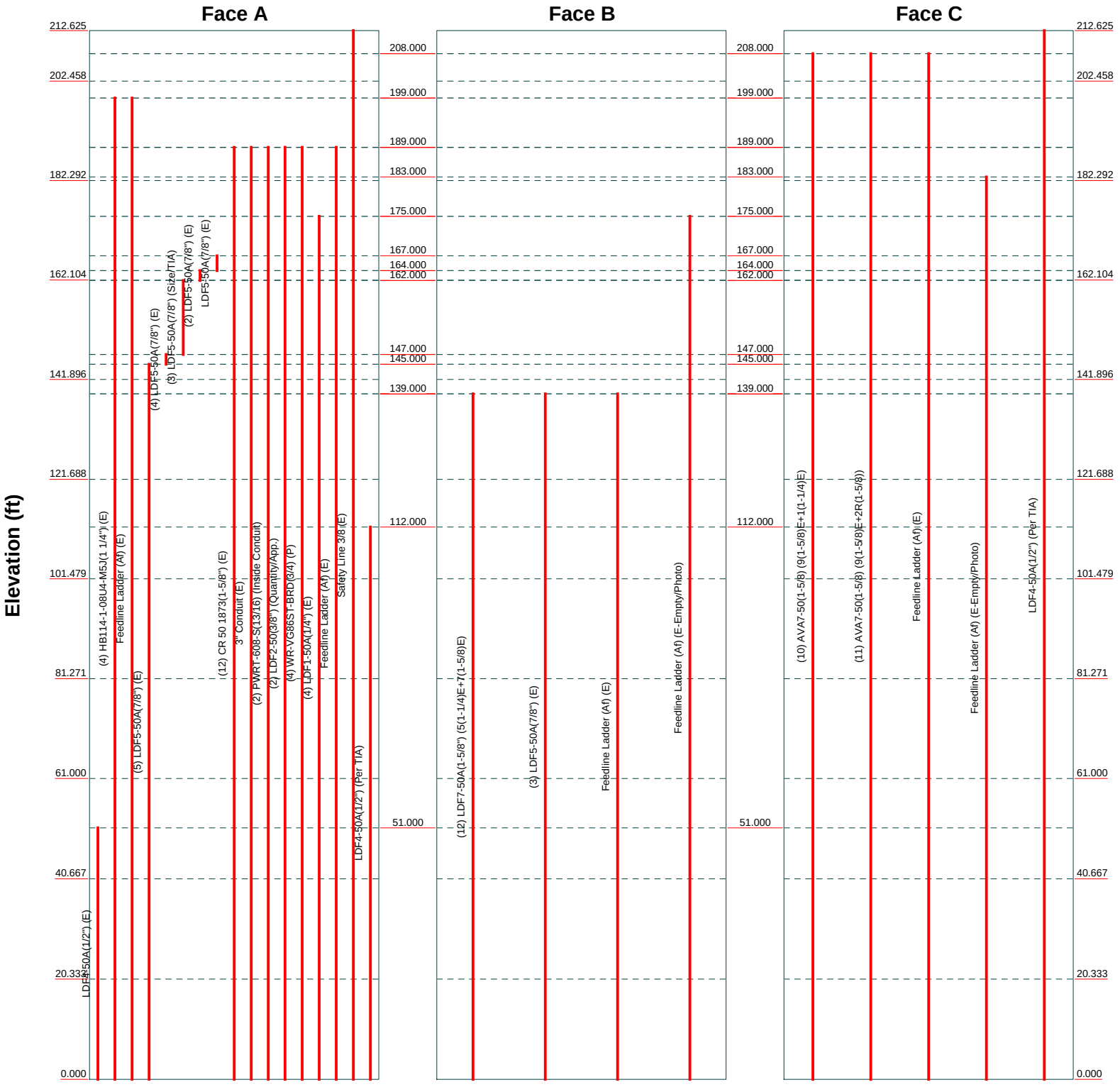


**B+T Group**
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265


| | | | |
|---|---|---|---|
| Job: | ***100083.002.01 - HRT 105 943201, CT (BU# 806363*** | | |
| Project: | | | |
| Client: Crown Castle | Drawn by: Yathish | App'd: | |
| Code: TIA-222-G | Date: 01/25/18 | Scale: NTS | |
| Path: | | Dwg No. E-5 | |

# Feed Line Distribution Chart
## 0' - 212'7-1/2"

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





**B+T Group**
1717 S. Boulder, Suite 300
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265


| | | |
|---|---|---|
| Job: ***100083.002.01 - HRT 105 943201, CT (BU# 806363*** | | |
| Project: | | |
| Client: Crown Castle | Drawn by: Yathish | App'd: |
| Code: TIA-222-G | Date: 01/25/18 | Scale: NTS |
| Path: | | Dwg No. E-7 |

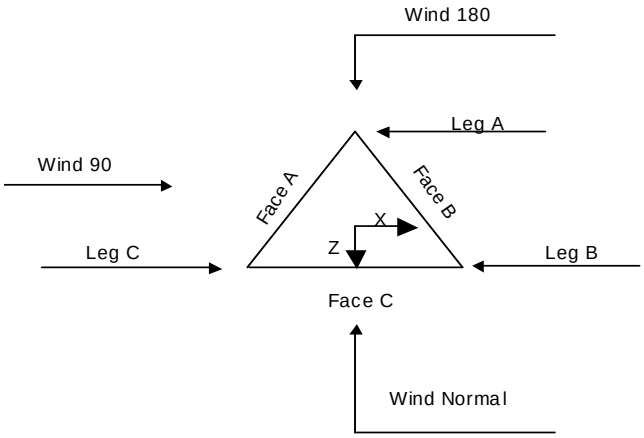
# Tower Input Data

The main tower is a 3x free standing tower with an overall height of 212.625 ft above the ground line.
The base of the tower is set at an elevation of 0.000 ft above the ground line.
The face width of the tower is 8.500 ft at the top and 30.042 ft at the base.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in Middlesex County, Connecticut.
Basic wind speed of 101 mph.
Structure Class II.
Exposure Category B.
Topographic Category 1.
Crest Height 0.000 ft.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50.000 °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.
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-G Bracing Resist. Exemption |
| √ | Include Bolts In Member Capacity | | Autocalc Torque Arm Areas | | Use TIA-222-G 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 | | | | |




***Triangular Tower***

## Tower Section Geometry

| Tower Section | Tower Elevation<br>ft | Assembly Database | Description | Section Width<br>ft | Number of Sections | Section Length<br>ft |
|---|---|---|---|---|---|---|
| T1 | 212.625-202.458 | | | 8.500 | 1 | 10.167 |
| T2 | 202.458-182.292 | | | 8.542 | 1 | 20.167 |
| T3 | 182.292-162.104 | | | 8.625 | 1 | 20.188 |
| T4 | 162.104-141.896 | | | 10.708 | 1 | 20.208 |
| T5 | 141.896-121.688 | | | 12.792 | 1 | 20.208 |
| T6 | 121.688-101.479 | | | 15.042 | 1 | 20.208 |
| T7 | 101.479-81.271 | | | 17.542 | 1 | 20.208 |
| T8 | 81.271-61.000 | | | 20.042 | 1 | 20.271 |
| T9 | 61.000-40.667 | | | 22.677 | 1 | 20.333 |
| T10 | 40.667-20.333 | | | 25.177 | 1 | 20.333 |
| T11 | 20.333-0.000 | | | 27.833 | 1 | 20.333 |

## Tower Section Geometry *(cont'd)*

| Tower Section | Tower Elevation<br>ft | Diagonal Spacing<br>ft | Bracing Type | Has K Brace End Panels | Has Horizontals | Top Girt Offset<br>in | Bottom Girt Offset<br>in |
|---|---|---|---|---|---|---|---|
| T1 | 212.625-202.458 | 5.083 | K Brace Down | No | Yes | 0.000 | 0.000 |
| T2 | 202.458-182.292 | 6.722 | K Brace Down | No | Yes | 0.000 | 0.000 |
| T3 | 182.292-162.104 | 6.729 | K Brace Down | No | Yes | 0.000 | 0.000 |
| T4 | 162.104-141.896 | 6.736 | K Brace Down | No | Yes | 0.000 | 0.000 |

| 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 |
|---|---|---|---|---|---|---|---|
| T5 | 141.896-121.688 | 10.104 | K Brace Down | No | Yes | 0.000 | 0.000 |
| T6 | 121.688-101.479 | 10.104 | K Brace Down | No | Yes | 0.000 | 0.000 |
| T7 | 101.479-81.271 | 10.104 | K Brace Down | No | Yes | 0.000 | 0.000 |
| T8 | 81.271-61.000 | 10.135 | K Brace Down | No | Yes | 0.000 | 0.000 |
| T9 | 61.000-40.667 | 10.167 | K Brace Down | No | Yes | 0.000 | 0.000 |
| T10 | 40.667-20.333 | 20.333 | K1 Down | No | Yes | 0.000 | 0.000 |
| T11 | 20.333-0.000 | 20.333 | K1 Down | No | Yes | 0.000 | 0.000 |

## Tower Section Geometry *(cont'd)*

| Tower Elevation ft | Leg Type | Leg Size | Leg Grade | Diagonal Type | Diagonal Size | Diagonal Grade |
|---|---|---|---|---|---|---|
| T1 212.625-202.458 | Pipe | ROHN 2.5 STD | A572-50 (50 ksi) | Pipe | ROHN 2 STD | A572-50 (50 ksi) |
| T2 202.458-182.292 | Pipe | ROHN 3 EH | A572-50 (50 ksi) | Pipe | ROHN 2 STD | A572-50 (50 ksi) |
| T3 182.292-162.104 | Pipe | ROHN 4 EH | A572-50 (50 ksi) | Pipe | ROHN 2 STD | A572-50 (50 ksi) |
| T4 162.104-141.896 | Pipe | ROHN 5 EH | A572-50 (50 ksi) | Pipe | ROHN 2 STD | A572-50 (50 ksi) |
| T5 141.896-121.688 | Pipe | ROHN 6 EHS | A572-50 (50 ksi) | Pipe | ROHN 2.5 STD | A572-50 (50 ksi) |
| T6 121.688-101.479 | Pipe | ROHN 6 EH | A572-50 (50 ksi) | Pipe | ROHN 2.5 STD | A572-50 (50 ksi) |
| T7 101.479-81.271 | Pipe | ROHN 6 EH | A572-50 (50 ksi) | Pipe | ROHN 3 STD | A572-50 (50 ksi) |
| T8 81.271-61.000 | Pipe | ROHN 8 EHS | A572-50 (50 ksi) | Pipe | ROHN 3 STD | A572-50 (50 ksi) |
| T9 61.000-40.667 | Pipe | ROHN 8 EHS | A572-50 (50 ksi) | Pipe | ROHN 3 STD | A572-50 (50 ksi) |
| T10 40.667-20.333 | Pipe | ROHN 8 EH | A572-50 (50 ksi) | Pipe | ROHN 3 STD | A572-50 (50 ksi) |
| T11 20.333-0.000 | Pipe | ROHN 8 EH | A572-50 (50 ksi) | Pipe | ROHN 3 STD | A572-50 (50 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 |
|---|---|---|---|---|---|---|---|
| T1 212.625-202.458 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 1.5 STD | A572-50 (50 ksi) |
| T2 202.458-182.292 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 1.5 STD | A572-50 (50 ksi) |
| T3 182.292-162.104 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 1.5 STD | A572-50 (50 ksi) |
| T4 162.104-141.896 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 2 STD | A572-50 (50 ksi) |
| T5 141.896-121.688 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 2 STD | A572-50 (50 ksi) |

| Tower Elevation ft | No. of Mid Girts | Mid Girt Type | Mid Girt Size | Mid Girt Grade | Horizontal Type | Horizontal Size | Horizontal Grade |
|---|---|---|---|---|---|---|---|
| T6 121.688-101.479 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 2 STD | A572-50 (50 ksi) |
| T7 101.479-81.271 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 2.5 STD | A572-50 (50 ksi) |
| T8 81.271-61.000 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 2.5 STD | A572-50 (50 ksi) |
| T9 61.000-40.667 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 2.5 STD | A572-50 (50 ksi) |
| T10 40.667-20.333 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 3 STD | A572-50 (50 ksi) |
| T11 20.333-0.000 | None | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 3 STD | A572-50 (50 ksi) |

## Tower Section Geometry *(cont'd)*

| Tower Elevation ft | Secondary Horizontal Type | Secondary Horizontal Size | Secondary Horizontal Grade | Inner Bracing Type | Inner Bracing Size | Inner Bracing Grade |
|---|---|---|---|---|---|---|
| T1 212.625-202.458 | Single Angle | | A572-50 (50 ksi) | Equal Angle | L2x2x1/8 | A36 (36 ksi) |
| T2 202.458-182.292 | Single Angle | | A572-50 (50 ksi) | Equal Angle | L2x2x1/8 | A36 (36 ksi) |
| T3 182.292-162.104 | Single Angle | | A572-50 (50 ksi) | Equal Angle | L2x2x1/8 | A36 (36 ksi) |
| T4 162.104-141.896 | Single Angle | | A572-50 (50 ksi) | Equal Angle | L2x2x1/8 | A36 (36 ksi) |
| T5 141.896-121.688 | Single Angle | | A572-50 (50 ksi) | Equal Angle | L2x2x1/8 | A36 (36 ksi) |
| T6 121.688-101.479 | Single Angle | | A572-50 (50 ksi) | Equal Angle | L2 1/2x2 1/2x3/16 | A36 (36 ksi) |
| T7 101.479-81.271 | Single Angle | | A572-50 (50 ksi) | Equal Angle | L3x3x3/16 | A36 (36 ksi) |
| T8 81.271-61.000 | Single Angle | | A572-50 (50 ksi) | Equal Angle | L3 1/2x3 1/2x1/4 | A572-50 (50 ksi) |
| T9 61.000-40.667 | Single Angle | | A572-50 (50 ksi) | Equal Angle | L3 1/2x3 1/2x1/4 | A572-50 (50 ksi) |
| T10 40.667-20.333 | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 3 STD | A572-50 (50 ksi) |
| T11 20.333-0.000 | Single Angle | | A572-50 (50 ksi) | Pipe | ROHN 3 STD | A572-50 (50 ksi) |

## Tower Section Geometry *(cont'd)*

| Tower Elevation ft | Redundant Bracing Grade | | Redundant Type | Redundant Size | K Factor |
|---|---|---|---|---|---|
| T10 40.667-20.333 | A36 (36 ksi) | Horizontal (1) | Pipe | ROHN 1.5 STD | 1 |
| | | Diagonal (1) | Pipe | ROHN 2 STD | 1 |
| | | Hip (1) | Pipe | ROHN 1.5 STD | 1 |

| Tower Elevation ft | Redundant Bracing Grade | | Redundant Type | Redundant Size | K Factor |
|---|---|---|---|---|---|
| T11 20.333-0.000 | A36 (36 ksi) | Hip Diagonal (1) | Pipe | ROHN 2.5 STD | 1 |
| | | Horizontal (1) | Pipe | ROHN 1.5 STD | 1 |
| | | Diagonal (1) | Pipe | ROHN 2 STD | 1 |
| | | Hip (1) | Pipe | ROHN 1.5 STD | 1 |
| | | Hip Diagonal (1) | Pipe | ROHN 2.5 STD | 1 |

## 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 212.625-202.458 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |
| T2 202.458-182.292 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |
| T3 182.292-162.104 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |
| T4 162.104-141.896 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |
| T5 141.896-121.688 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |
| T6 121.688-101.479 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |
| T7 101.479-81.271 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |
| T8 81.271-61.000 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |
| T9 61.000-40.667 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |
| T10 40.667-20.333 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |
| T11 20.333-0.000 | 0.000 | 0.000 | A36 (36 ksi) | 1 | 1.03 | 1.05 | Mid-Pt | Mid-Pt | Mid-Pt |

## Tower Section Geometry *(cont'd)*

| Tower Elevation ft | Calc K Single Angles | Calc K Solid Rounds | K Factors[1] Legs | X Brace Diags X | X Brace Diags Y | K Brace Diags X | K Brace Diags Y | Single Diags X | Single Diags Y | Girts X | Girts Y | Horiz. X | Horiz. Y | Sec. Horiz. X | Sec. Horiz. Y | Inner Brace X | Inner Brace Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T1 212.625-202.4 | Yes | No | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

| Tower Elevation ft | Calc K Single Angles | Calc K Solid Rounds | K Factors[1] Legs | X Brace Diags X | X Brace Diags Y | K Brace Diags X | K Brace Diags Y | Single Diags X | Single Diags Y | Girts X | Girts Y | Horiz. X | Horiz. Y | Sec. Horiz. X | Sec. Horiz. Y | Inner Brace X | Inner Brace Y |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 58 | | | | | | | | | | | | | | | | | |
| T2 | Yes | No | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| 202.458-182.292 | | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| T3 | Yes | No | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| 182.292-162.104 | | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| T4 | Yes | No | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| 162.104-141.896 | | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| T5 | Yes | No | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| 141.896-121.688 | | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| T6 | Yes | No | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| 121.688-101.479 | | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| T7 | Yes | No | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| 101.479-81.271 | | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| T8 | Yes | No | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| 81.271-61.000 | | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| T9 | Yes | No | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| 61.000-40.667 | | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| T10 | No | No | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| 40.667-20.333 | | | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| T11 | No | No | 1 | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | | 1 | |
| 20.333-0.000 | | | | 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 Net Width Deduct in | Leg U | Diagonal Net Width Deduct in | Diagonal U | Top Girt Net Width Deduct in | Top Girt U | Bottom Girt Net Width Deduct in | Bottom Girt U | Mid Girt Net Width Deduct in | Mid Girt U | Long Horizontal Net Width Deduct in | Long Horizontal U | Short Horizontal Net Width Deduct in | Short Horizontal U |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| T1 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 0.75 |
| 212.625-202.458 | | | | | | | | | | | | | | |
| T2 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 0.75 |
| 202.458-182.292 | | | | | | | | | | | | | | |
| T3 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 0.75 |
| 182.292-162.104 | | | | | | | | | | | | | | |
| T4 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 0.75 |
| 162.104-141.896 | | | | | | | | | | | | | | |
| T5 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 0.75 |
| 141.896-121.688 | | | | | | | | | | | | | | |

| 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 |
| T6 121.688-101.479 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 0.75 |
| T7 101.479-81.271 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 0.75 |
| T8 81.271-61.000 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 0.75 |
| T9 61.000-40.667 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 0.75 |
| T10 40.667-20.333 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 0.75 |
| T11 20.333-0.000 | 0.000 | 1 | 0.000 | 1 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 0.75 | 0.000 | 1 | 0.000 | 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 212.625-202.458 | Flange | 0.750 A325N | 4 | 0.625 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.625 A325N | 2 | 0.625 A325X | 0 |
| T2 202.458-182.292 | Flange | 0.875 A325N | 4 | 0.625 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.625 A325N | 2 | 0.625 A325X | 0 |
| T3 182.292-162.104 | Flange | 1.000 A325N | 4 | 0.625 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.625 A325N | 2 | 0.625 A325X | 0 |
| T4 162.104-141.896 | Flange | 1.000 A325N | 6 | 0.625 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.625 A325N | 2 | 0.625 A325X | 0 |
| T5 141.896-121.688 | Flange | 1.000 A325N | 6 | 0.625 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.625 A325N | 2 | 0.625 A325X | 0 |
| T6 121.688-101.479 | Flange | 1.000 A325N | 6 | 0.625 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.625 A325N | 2 | 0.625 A325X | 0 |
| T7 101.479-81.271 | Flange | 1.000 A325N | 8 | 0.625 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.625 A325N | 2 | 0.625 A325X | 0 |
| T8 81.271-61.000 | Flange | 1.000 A325N | 8 | 0.625 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.625 A325N | 2 | 0.625 A325X | 0 |
| T9 61.000-40.667 | Flange | 1.000 A325N | 8 | 0.625 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.625 A325N | 2 | 0.625 A325X | 0 |
| T10 40.667-20.333 | Flange | 1.000 A325N | 8 | 0.750 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.750 A325N | 2 | 0.625 A325X | 0 |
| T11 20.333-0.000 | Flange | 1.000 A354-BC | 0 | 0.750 A325N | 3 | 0.625 A325N | 0 | 0.625 A325X | 0 | 0.625 A325X | 0 | 0.750 A325N | 2 | 0.625 A325X | 0 |

# Feed Line/Linear Appurtenances - Entered As Round Or Flat

| Description | Face or Leg | Allow Shield | Component Type | Placement ft | Face Offset in | Lateral Offset (Frac FW) | # | # Per Row | Clear Spacing in | Width or Diameter in | Perimeter in | Weight klf |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| LDF4-50A(1/2") (E) | A | No | Ar (CaAa) | 51.000 - 0.000 | 0.000 | 0.46 | 1 | 1 | 0.630 | 0.630 | | 0.000 |
| HB114-1-08U4-M5J(1 1/4") (E) | A | No | Ar (CaAa) | 199.000 - 0.000 | 0.000 | 0.42 | 4 | 4 | 0.850<br>0.750 | 1.540 | | 0.001 |
| Feedline Ladder (Af) (E) *-*-*-* | A | No | Af (CaAa) | 199.000 - 0.000 | 0.000 | -0.43 | 1 | 1 | 3.000 | 3.000 | | 0.008 |
| LDF5-50A(7/8") (E) | A | No | Ar (CaAa) | 145.000 - 0.000 | 0.000 | -0.4 | 5 | 5 | 1.000 | 1.090 | | 0.000 |
| LDF5-50A(7/8") (E) | A | No | Ar (CaAa) | 147.000 - 145.000 | 0.000 | -0.4 | 4 | 4 | 1.000 | 1.090 | | 0.000 |
| LDF5-50A(7/8") (Size/TIA) | A | No | Ar (CaAa) | 162.000 - 147.000 | 0.000 | -0.4 | 3 | 3 | 1.000 | 1.090 | | 0.000 |
| LDF5-50A(7/8") (E) | A | No | Ar (CaAa) | 164.000 - 162.000 | 0.000 | -0.4 | 2 | 2 | 1.000 | 1.090 | | 0.000 |
| LDF5-50A(7/8") (E) ******* | A | No | Ar (CaAa) | 167.000 - 164.000 | 0.000 | -0.4 | 1 | 1 | 1.000 | 1.090 | | 0.000 |
| CR 50 1873(1-5/8") (E) | A | No | Ar (CaAa) | 189.000 - 0.000 | 0.000 | -0.44 | 12 | 6 | 0.850<br>0.750 | 1.980 | | 0.001 |
| 3" Conduit (E) | A | No | Ar (CaAa) | 189.000 - 0.000 | 0.000 | -0.4 | 1 | 1 | 3.000 | 3.000 | | 0.003 |
| PWRT-608-S(13/16) (Inside Conduit) | A | No | Ar (CaAa) | 189.000 - 0.000 | 0.000 | -0.36 | 2 | 1 | 0.850<br>0.750 | 0.820 | | 0.001 |
| LDF2-50(3/8") (Quantity/App.) | A | No | Ar (CaAa) | 189.000 - 0.000 | 0.000 | -0.36 | 2 | 2 | 0.440 | 0.440 | | 0.000 |
| WR-VG86ST-BRD(3/4) (P) *-*-*-* | A | No | Ar (CaAa) | 189.000 - 0.000 | 0.000 | -0.35 | 4 | 2 | 0.850<br>0.750 | 0.795 | | 0.001 |
| LDF1-50A(1/4") (E) | A | No | Ar (CaAa) | 175.000 - 0.000 | 0.000 | -0.47 | 4 | 2 | 0.345 | 0.345 | | 0.000 |
| Feedline Ladder (Af) (E) *-*-*-* | A | No | Af (CaAa) | 189.000 - 0.000 | 0.000 | -0.4 | 1 | 1 | 3.000 | 3.000 | | 0.008 |
| Safety Line 3/8 (E) *-*-*-* | A | No | Ar (CaAa) | 212.625 - 0.000 | 0.000 | 0 | 1 | 1 | 0.375 | 0.375 | | 0.000 |
| LDF7-50A(1-5/8") | B | No | Ar (CaAa) | 139.000 - 0.000 | 0.000 | -0.45 | 12 | 6 | 0.850<br>0.750 | 1.980 | | 0.001 |

| Description | Face or Leg | Allow Shield | Component Type | Placement<br>ft | Face Offset<br>in | Lateral Offset (Frac FW) | # | # Per Row | Clear Spacing<br>in | Width or Diameter<br>in | Perimeter<br>in | Weight<br>klf |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| (5(1-1/4)E+7(1-5/8)E) | | | | | | | | | | | | |
| LDF5-50A(7/8") | B | No | Ar (CaAa) | 139.000 - 0.000 | 0.000 | -0.41 | 3 | 2 | 0.500 | 1.090 | | 0.000 |
| (E) | | | | | | | | | | | | |
| Feedline Ladder (Af) (E) | B | No | Af (CaAa) | 139.000 - 0.000 | 0.000 | -0.45 | 1 | 1 | 3.000 | 3.000 | | 0.008 |
| *-*-*-* | | | | | | | | | | | | |
| Feedline Ladder (Af) (E-Empty/Photo) | B | No | Af (CaAa) | 175.000 - 0.000 | 0.000 | 0.45 | 1 | 1 | 3.000 | 3.000 | | 0.008 |
| *-*-*-* | | | | | | | | | | | | |
| AVA7-50(1-5/8) | C | No | Ar (CaAa) | 208.000 - 0.000 | 0.000 | 0.45 | 10 | 6 | 0.500 | 2.010 | | 0.001 |
| (9(1-5/8)E+1(1-1/4)E) | | | | | | | | | | | | |
| AVA7-50(1-5/8) | C | No | Ar (CaAa) | 208.000 - 0.000 | 0.000 | 0.38 | 11 | 6 | 0.500 | 2.010 | | 0.001 |
| (9(1-5/8)E+2R(1-5/8)) | | | | | | | | | | | | |
| Feedline Ladder (Af) (E) | C | No | Af (CaAa) | 208.000 - 0.000 | 0.000 | 0.43 | 1 | 1 | 3.000 | 3.000 | | 0.008 |
| Feedline Ladder (Af) (E-Empty/Photo) | C | No | Af (CaAa) | 183.000 - 0.000 | 0.000 | -0.45 | 1 | 1 | 3.000 | 3.000 | | 0.008 |
| *-*-*-* | | | | | | | | | | | | |
| LDF4-50A(1/2") | A | No | Ar (CaAa) | 112.000 - 0.000 | 0.000 | -0.49 | 1 | 1 | 0.300 | 0.630 | | 0.000 |
| (Per TIA) | | | | | | | | | | | | |
| LDF4-50A(1/2") | C | No | Ar (CaAa) | 212.625 - 0.000 | 0.000 | 0.49 | 1 | 1 | 0.300 | 0.630 | | 0.000 |
| (Per TIA) | | | | | | | | | | | | |
| *-*-*-* | | | | | | | | | | | | |

## Feed Line/Linear Appurtenances - Entered As Area

| Description | Face or Leg | Allow Shield | Component Type | Placement<br>ft | Total Number | $C_AA_A$<br>$ft^2/ft$ | Weight<br>klf |
|---|---|---|---|---|---|---|---|
| *-*-*-* | | | | | | | |

## Feed Line/Linear Appurtenances Section Areas

| Tower Section | Tower Elevation<br>ft | Face | $A_R$<br>$ft^2$ | $A_F$<br>$ft^2$ | $C_AA_A$ In Face<br>$ft^2$ | $C_AA_A$ Out Face<br>$ft^2$ | Weight<br>K |
|---|---|---|---|---|---|---|---|
| T1 | 212.625-202.458 | A | 0.000 | 0.000 | 0.381 | 0.000 | 0.002 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | C | 0.000 | 0.000 | 26.803 | 0.000 | 0.130 |
| T2 | 202.458-182.292 | A | 0.000 | 0.000 | 44.532 | 0.000 | 0.384 |

| 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 |
|---|---|---|---|---|---|---|---|
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | C | 0.000 | 0.000 | 96.832 | 0.000 | 0.475 |
| T3 | 182.292-162.104 | A | 0.000 | 0.000 | 101.406 | 0.000 | 0.769 |
| | | B | 0.000 | 0.000 | 6.448 | 0.000 | 0.108 |
| | | C | 0.000 | 0.000 | 106.671 | 0.000 | 0.639 |
| T4 | 162.104-141.896 | A | 0.000 | 0.000 | 109.242 | 0.000 | 0.792 |
| | | B | 0.000 | 0.000 | 10.104 | 0.000 | 0.170 |
| | | C | 0.000 | 0.000 | 106.781 | 0.000 | 0.640 |
| T5 | 141.896-121.688 | A | 0.000 | 0.000 | 112.813 | 0.000 | 0.803 |
| | | B | 0.000 | 0.000 | 65.556 | 0.000 | 0.503 |
| | | C | 0.000 | 0.000 | 106.781 | 0.000 | 0.640 |
| T6 | 121.688-101.479 | A | 0.000 | 0.000 | 113.476 | 0.000 | 0.804 |
| | | B | 0.000 | 0.000 | 74.831 | 0.000 | 0.558 |
| | | C | 0.000 | 0.000 | 106.781 | 0.000 | 0.640 |
| T7 | 101.479-81.271 | A | 0.000 | 0.000 | 114.086 | 0.000 | 0.806 |
| | | B | 0.000 | 0.000 | 74.831 | 0.000 | 0.558 |
| | | C | 0.000 | 0.000 | 106.781 | 0.000 | 0.640 |
| T8 | 81.271-61.000 | A | 0.000 | 0.000 | 114.439 | 0.000 | 0.808 |
| | | B | 0.000 | 0.000 | 75.063 | 0.000 | 0.560 |
| | | C | 0.000 | 0.000 | 107.111 | 0.000 | 0.642 |
| T9 | 61.000-40.667 | A | 0.000 | 0.000 | 115.443 | 0.000 | 0.812 |
| | | B | 0.000 | 0.000 | 75.294 | 0.000 | 0.562 |
| | | C | 0.000 | 0.000 | 107.441 | 0.000 | 0.644 |
| T10 | 40.667-20.333 | A | 0.000 | 0.000 | 116.073 | 0.000 | 0.814 |
| | | B | 0.000 | 0.000 | 75.294 | 0.000 | 0.562 |
| | | C | 0.000 | 0.000 | 107.441 | 0.000 | 0.644 |
| T11 | 20.333-0.000 | A | 0.000 | 0.000 | 116.073 | 0.000 | 0.814 |
| | | B | 0.000 | 0.000 | 75.294 | 0.000 | 0.562 |
| | | C | 0.000 | 0.000 | 107.441 | 0.000 | 0.644 |

## 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 | 212.625-202.458 | A | 1.803 | 0.000 | 0.000 | 4.047 | 0.000 | 0.051 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | C | | 0.000 | 0.000 | 36.645 | 0.000 | 0.673 |
| T2 | 202.458-182.292 | A | 1.789 | 0.000 | 0.000 | 96.811 | 0.000 | 1.687 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.000 |
| | | C | | 0.000 | 0.000 | 126.543 | 0.000 | 2.356 |
| T3 | 182.292-162.104 | A | 1.769 | 0.000 | 0.000 | 211.763 | 0.000 | 3.610 |
| | | B | | 0.000 | 0.000 | 11.012 | 0.000 | 0.274 |
| | | C | | 0.000 | 0.000 | 142.881 | 0.000 | 2.752 |
| T4 | 162.104-141.896 | A | 1.748 | 0.000 | 0.000 | 240.640 | 0.000 | 3.893 |
| | | B | | 0.000 | 0.000 | 17.167 | 0.000 | 0.425 |
| | | C | | 0.000 | 0.000 | 142.470 | 0.000 | 2.728 |
| T5 | 141.896-121.688 | A | 1.723 | 0.000 | 0.000 | 246.812 | 0.000 | 3.959 |
| | | B | | 0.000 | 0.000 | 96.327 | 0.000 | 1.932 |
| | | C | | 0.000 | 0.000 | 141.840 | 0.000 | 2.698 |
| T6 | 121.688-101.479 | A | 1.694 | 0.000 | 0.000 | 249.213 | 0.000 | 3.952 |
| | | B | | 0.000 | 0.000 | 108.964 | 0.000 | 2.157 |
| | | C | | 0.000 | 0.000 | 141.116 | 0.000 | 2.663 |
| T7 | 101.479-81.271 | A | 1.661 | 0.000 | 0.000 | 250.818 | 0.000 | 3.926 |
| | | B | | 0.000 | 0.000 | 108.233 | 0.000 | 2.126 |
| | | C | | 0.000 | 0.000 | 140.263 | 0.000 | 2.623 |
| T8 | 81.271-61.000 | A | 1.620 | 0.000 | 0.000 | 248.782 | 0.000 | 3.849 |
| | | B | | 0.000 | 0.000 | 107.669 | 0.000 | 2.094 |

| 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 |
|---|---|---|---|---|---|---|---|---|
| | | C | | 0.000 | 0.000 | 139.649 | 0.000 | 2.582 |
| T9 | 61.000-40.667 | A | 1.566 | 0.000 | 0.000 | 249.764 | 0.000 | 3.792 |
| | | B | | 0.000 | 0.000 | 106.826 | 0.000 | 2.051 |
| | | C | | 0.000 | 0.000 | 138.711 | 0.000 | 2.526 |
| T10 | 40.667-20.333 | A | 1.488 | 0.000 | 0.000 | 247.860 | 0.000 | 3.664 |
| | | B | | 0.000 | 0.000 | 105.114 | 0.000 | 1.980 |
| | | C | | 0.000 | 0.000 | 136.718 | 0.000 | 2.434 |
| T11 | 20.333-0.000 | A | 1.333 | 0.000 | 0.000 | 236.629 | 0.000 | 3.338 |
| | | B | | 0.000 | 0.000 | 101.720 | 0.000 | 1.843 |
| | | C | | 0.000 | 0.000 | 132.766 | 0.000 | 2.257 |

## Feed Line Center of Pressure

| Section | Elevation ft | $CP_X$ in | $CP_Z$ in | $CP_X$ Ice in | $CP_Z$ Ice in |
|---|---|---|---|---|---|
| T1 | 212.625-202.458 | -6.387 | 4.639 | -4.498 | 2.779 |
| T2 | 202.458-182.292 | -8.208 | 4.481 | -6.527 | 3.135 |
| T3 | 182.292-162.104 | -8.289 | 5.175 | -5.715 | 4.210 |
| T4 | 162.104-141.896 | -9.514 | 6.106 | -6.318 | 4.978 |
| T5 | 141.896-121.688 | -9.107 | 2.315 | -6.462 | 2.512 |
| T6 | 121.688-101.479 | -10.294 | 2.004 | -7.454 | 2.479 |
| T7 | 101.479-81.271 | -11.614 | 2.274 | -8.583 | 2.883 |
| T8 | 81.271-61.000 | -12.756 | 2.493 | -9.547 | 3.186 |
| T9 | 61.000-40.667 | -14.143 | 2.684 | -10.577 | 3.224 |
| T10 | 40.667-20.333 | -15.461 | 2.855 | -11.532 | 3.211 |
| T11 | 20.333-0.000 | -16.766 | 3.092 | -12.713 | 3.479 |

## Shielding Factor Ka

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | $K_a$ No Ice | $K_a$ Ice |
|---|---|---|---|---|---|
| T1 | 22 | Safety Line 3/8 | 202.46 - 212.63 | 0.6000 | 0.6000 |
| T1 | 33 | AVA7-50(1-5/8) | 202.46 - 208.00 | 0.6000 | 0.6000 |
| T1 | 34 | AVA7-50(1-5/8) | 202.46 - 208.00 | 0.6000 | 0.6000 |
| T1 | 36 | Feedline Ladder (Af) | 202.46 - 208.00 | 0.6000 | 0.6000 |
| T1 | 41 | LDF4-50A(1/2") | 202.46 - 212.63 | 0.6000 | 0.6000 |
| T2 | 2 | HB114-1-08U4-M5J(1 1/4") | 182.29 - 199.00 | 0.6000 | 0.6000 |
| T2 | 3 | Feedline Ladder (Af) | 182.29 - 199.00 | 0.6000 | 0.6000 |
| T2 | 13 | CR 50 1873(1-5/8") | 182.29 - 189.00 | 0.6000 | 0.6000 |
| T2 | 14 | 3" Conduit | 182.29 - 189.00 | 0.6000 | 0.6000 |
| T2 | 15 | PWRT-608-S(13/16) | 182.29 - | 0.0000 | 0.0000 |

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | $K_a$ No Ice | $K_a$ Ice |
|---|---|---|---|---|---|
| T2 | 16 | LDF2-50(3/8") | 189.00<br>182.29 - 189.00 | 0.6000 | 0.6000 |
| T2 | 17 | WR-VG86ST-BRD(3/4) | 182.29 - 189.00 | 0.6000 | 0.6000 |
| T2 | 20 | Feedline Ladder (Af) | 182.29 - 189.00 | 0.6000 | 0.6000 |
| T2 | 22 | Safety Line 3/8 | 182.29 - 202.46 | 0.6000 | 0.6000 |
| T2 | 33 | AVA7-50(1-5/8) | 182.29 - 202.46 | 0.6000 | 0.6000 |
| T2 | 34 | AVA7-50(1-5/8) | 182.29 - 202.46 | 0.6000 | 0.6000 |
| T2 | 36 | Feedline Ladder (Af) | 182.29 - 202.46 | 0.6000 | 0.6000 |
| T2 | 38 | Feedline Ladder (Af) | 182.29 - 183.00 | 0.6000 | 0.6000 |
| T2 | 41 | LDF4-50A(1/2") | 182.29 - 202.46 | 0.6000 | 0.6000 |
| T3 | 2 | HB114-1-08U4-M5J(1 1/4") | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 3 | Feedline Ladder (Af) | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 9 | LDF5-50A(7/8") | 162.10 - 164.00 | 0.6000 | 0.6000 |
| T3 | 10 | LDF5-50A(7/8") | 164.00 - 167.00 | 0.6000 | 0.6000 |
| T3 | 13 | CR 50 1873(1-5/8") | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 14 | 3" Conduit | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 15 | PWRT-608-S(13/16) | 162.10 - 182.29 | 0.0000 | 0.0000 |
| T3 | 16 | LDF2-50(3/8") | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 17 | WR-VG86ST-BRD(3/4) | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 19 | LDF1-50A(1/4") | 162.10 - 175.00 | 0.6000 | 0.6000 |
| T3 | 20 | Feedline Ladder (Af) | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 22 | Safety Line 3/8 | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 30 | Feedline Ladder (Af) | 162.10 - 175.00 | 0.6000 | 0.6000 |
| T3 | 33 | AVA7-50(1-5/8) | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 34 | AVA7-50(1-5/8) | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 36 | Feedline Ladder (Af) | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 38 | Feedline Ladder (Af) | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T3 | 41 | LDF4-50A(1/2") | 162.10 - 182.29 | 0.6000 | 0.6000 |
| T4 | 2 | HB114-1-08U4-M5J(1 1/4") | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 3 | Feedline Ladder (Af) | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 6 | LDF5-50A(7/8") | 141.90 - 145.00 | 0.6000 | 0.6000 |
| T4 | 7 | LDF5-50A(7/8") | 145.00 - | 0.6000 | 0.6000 |

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | $K_a$ No Ice | $K_a$ Ice |
|---|---|---|---|---|---|
| | | | 147.00 | | |
| T4 | 8 | LDF5-50A(7/8") | 147.00 - 162.00 | 0.6000 | 0.6000 |
| T4 | 9 | LDF5-50A(7/8") | 162.00 - 162.10 | 0.6000 | 0.6000 |
| T4 | 13 | CR 50 1873(1-5/8") | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 14 | 3" Conduit | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 15 | PWRT-608-S(13/16) | 141.90 - 162.10 | 0.0000 | 0.0000 |
| T4 | 16 | LDF2-50(3/8") | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 17 | WR-VG86ST-BRD(3/4) | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 19 | LDF1-50A(1/4") | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 20 | Feedline Ladder (Af) | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 22 | Safety Line 3/8 | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 30 | Feedline Ladder (Af) | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 33 | AVA7-50(1-5/8) | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 34 | AVA7-50(1-5/8) | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 36 | Feedline Ladder (Af) | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 38 | Feedline Ladder (Af) | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T4 | 41 | LDF4-50A(1/2") | 141.90 - 162.10 | 0.6000 | 0.6000 |
| T5 | 2 | HB114-1-08U4-M5J(1 1/4") | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 3 | Feedline Ladder (Af) | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 6 | LDF5-50A(7/8") | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 13 | CR 50 1873(1-5/8") | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 14 | 3" Conduit | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 15 | PWRT-608-S(13/16) | 121.69 - 141.90 | 0.0000 | 0.0000 |
| T5 | 16 | LDF2-50(3/8") | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 17 | WR-VG86ST-BRD(3/4) | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 19 | LDF1-50A(1/4") | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 20 | Feedline Ladder (Af) | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 22 | Safety Line 3/8 | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 25 | LDF7-50A(1-5/8") | 121.69 - 139.00 | 0.6000 | 0.6000 |
| T5 | 26 | LDF5-50A(7/8") | 121.69 - 139.00 | 0.6000 | 0.6000 |
| T5 | 27 | Feedline Ladder (Af) | 121.69 - 139.00 | 0.6000 | 0.6000 |
| T5 | 30 | Feedline Ladder (Af) | 121.69 - | 0.6000 | 0.6000 |

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | $K_a$ No Ice | $K_a$ Ice |
|---|---|---|---|---|---|
| T5 | 33 | AVA7-50(1-5/8) | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 34 | AVA7-50(1-5/8) | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 36 | Feedline Ladder (Af) | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 38 | Feedline Ladder (Af) | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T5 | 41 | LDF4-50A(1/2") | 121.69 - 141.90 | 0.6000 | 0.6000 |
| T6 | 2 | HB114-1-08U4-M5J(1 1/4") | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 3 | Feedline Ladder (Af) | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 6 | LDF5-50A(7/8") | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 13 | CR 50 1873(1-5/8") | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 14 | 3" Conduit | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 15 | PWRT-608-S(13/16) | 101.48 - 121.69 | 0.0000 | 0.0000 |
| T6 | 16 | LDF2-50(3/8") | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 17 | WR-VG86ST-BRD(3/4) | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 19 | LDF1-50A(1/4") | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 20 | Feedline Ladder (Af) | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 22 | Safety Line 3/8 | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 25 | LDF7-50A(1-5/8") | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 26 | LDF5-50A(7/8") | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 27 | Feedline Ladder (Af) | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 30 | Feedline Ladder (Af) | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 33 | AVA7-50(1-5/8) | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 34 | AVA7-50(1-5/8) | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 36 | Feedline Ladder (Af) | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 38 | Feedline Ladder (Af) | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T6 | 40 | LDF4-50A(1/2") | 101.48 - 112.00 | 0.6000 | 0.6000 |
| T6 | 41 | LDF4-50A(1/2") | 101.48 - 121.69 | 0.6000 | 0.6000 |
| T7 | 2 | HB114-1-08U4-M5J(1 1/4") | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 3 | Feedline Ladder (Af) | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 6 | LDF5-50A(7/8") | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 13 | CR 50 1873(1-5/8") | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 14 | 3" Conduit | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 15 | PWRT-608-S(13/16) | 81.27 - 101.48 | 0.0000 | 0.0000 |
| T7 | 16 | LDF2-50(3/8") | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 17 | WR-VG86ST-BRD(3/4) | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 19 | LDF1-50A(1/4") | 81.27 - 101.48 | 0.6000 | 0.6000 |

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | $K_a$ No Ice | $K_a$ Ice |
|---|---|---|---|---|---|
| T7 | 20 | Feedline Ladder (Af) | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 22 | Safety Line 3/8 | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 25 | LDF7-50A(1-5/8") | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 26 | LDF5-50A(7/8") | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 27 | Feedline Ladder (Af) | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 30 | Feedline Ladder (Af) | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 33 | AVA7-50(1-5/8) | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 34 | AVA7-50(1-5/8) | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 36 | Feedline Ladder (Af) | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 38 | Feedline Ladder (Af) | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 40 | LDF4-50A(1/2") | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T7 | 41 | LDF4-50A(1/2") | 81.27 - 101.48 | 0.6000 | 0.6000 |
| T8 | 2 | HB114-1-08U4-M5J(1 1/4") | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 3 | Feedline Ladder (Af) | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 6 | LDF5-50A(7/8") | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 13 | CR 50 1873(1-5/8") | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 14 | 3" Conduit | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 15 | PWRT-608-S(13/16) | 61.00 - 81.27 | 0.0000 | 0.0000 |
| T8 | 16 | LDF2-50(3/8") | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 17 | WR-VG86ST-BRD(3/4) | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 19 | LDF1-50A(1/4") | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 20 | Feedline Ladder (Af) | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 22 | Safety Line 3/8 | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 25 | LDF7-50A(1-5/8") | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 26 | LDF5-50A(7/8") | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 27 | Feedline Ladder (Af) | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 30 | Feedline Ladder (Af) | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 33 | AVA7-50(1-5/8) | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 34 | AVA7-50(1-5/8) | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 36 | Feedline Ladder (Af) | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 38 | Feedline Ladder (Af) | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 40 | LDF4-50A(1/2") | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T8 | 41 | LDF4-50A(1/2") | 61.00 - 81.27 | 0.6000 | 0.6000 |
| T9 | 1 | LDF4-50A(1/2") | 40.67 - 51.00 | 0.6000 | 0.6000 |
| T9 | 2 | HB114-1-08U4-M5J(1 1/4") | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 3 | Feedline Ladder (Af) | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 6 | LDF5-50A(7/8") | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 13 | CR 50 1873(1-5/8") | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 14 | 3" Conduit | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 15 | PWRT-608-S(13/16) | 40.67 - 61.00 | 0.0000 | 0.0000 |
| T9 | 16 | LDF2-50(3/8") | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 17 | WR-VG86ST-BRD(3/4) | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 19 | LDF1-50A(1/4") | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 20 | Feedline Ladder (Af) | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 22 | Safety Line 3/8 | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 25 | LDF7-50A(1-5/8") | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 26 | LDF5-50A(7/8") | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 27 | Feedline Ladder (Af) | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 30 | Feedline Ladder (Af) | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 33 | AVA7-50(1-5/8) | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 34 | AVA7-50(1-5/8) | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 36 | Feedline Ladder (Af) | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 38 | Feedline Ladder (Af) | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 40 | LDF4-50A(1/2") | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T9 | 41 | LDF4-50A(1/2") | 40.67 - 61.00 | 0.6000 | 0.6000 |
| T10 | 1 | LDF4-50A(1/2") | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 2 | HB114-1-08U4-M5J(1 1/4") | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 3 | Feedline Ladder (Af) | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 6 | LDF5-50A(7/8") | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 13 | CR 50 1873(1-5/8") | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 14 | 3" Conduit | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 15 | PWRT-608-S(13/16) | 20.33 - 40.67 | 0.0000 | 0.0000 |

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | $K_a$ No Ice | $K_a$ Ice |
|---|---|---|---|---|---|
| T10 | 16 | LDF2-50(3/8") | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 17 | WR-VG86ST-BRD(3/4) | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 19 | LDF1-50A(1/4") | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 20 | Feedline Ladder (Af) | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 22 | Safety Line 3/8 | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 25 | LDF7-50A(1-5/8") | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 26 | LDF5-50A(7/8") | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 27 | Feedline Ladder (Af) | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 30 | Feedline Ladder (Af) | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 33 | AVA7-50(1-5/8) | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 34 | AVA7-50(1-5/8) | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 36 | Feedline Ladder (Af) | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 38 | Feedline Ladder (Af) | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 40 | LDF4-50A(1/2") | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T10 | 41 | LDF4-50A(1/2") | 20.33 - 40.67 | 0.6000 | 0.6000 |
| T11 | 1 | LDF4-50A(1/2") | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 2 | HB114-1-08U4-M5J(1 1/4") | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 3 | Feedline Ladder (Af) | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 6 | LDF5-50A(7/8") | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 13 | CR 50 1873(1-5/8") | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 14 | 3" Conduit | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 15 | PWRT-608-S(13/16) | 0.00 - 20.33 | 0.0000 | 0.0000 |
| T11 | 16 | LDF2-50(3/8") | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 17 | WR-VG86ST-BRD(3/4) | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 19 | LDF1-50A(1/4") | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 20 | Feedline Ladder (Af) | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 22 | Safety Line 3/8 | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 25 | LDF7-50A(1-5/8") | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 26 | LDF5-50A(7/8") | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 27 | Feedline Ladder (Af) | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 30 | Feedline Ladder (Af) | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 33 | AVA7-50(1-5/8) | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 34 | AVA7-50(1-5/8) | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 36 | Feedline Ladder (Af) | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 38 | Feedline Ladder (Af) | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 40 | LDF4-50A(1/2") | 0.00 - 20.33 | 0.6000 | 0.6000 |
| T11 | 41 | LDF4-50A(1/2") | 0.00 - 20.33 | 0.6000 | 0.6000 |

## Discrete Tower Loads

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral ft / Vert ft / ft | Azimuth Adjustment ° | Placement ft | | $C_AA_A$ Front $ft^2$ | $C_AA_A$ Side $ft^2$ | Weight K |
|---|---|---|---|---|---|---|---|---|---|
| Lightning Rod 5/8" x 6' (E) | A | From Leg | 0.000<br>0.000<br>3.000 | 0.000 | 213.625 | No Ice<br>1/2" Ice<br>1" Ice | 0.375<br>0.989<br>1.619 | 0.375<br>0.989<br>1.619 | 0.033<br>0.037<br>0.045 |
| Climb Leg Extension (E) | A | From Leg | 0.000<br>0.000<br>2.000 | 0.000 | 212.625 | No Ice<br>1/2" Ice<br>1" Ice | 1.473<br>1.803<br>2.119 | 1.473<br>1.803<br>2.119 | 0.025<br>0.038<br>0.054 |
| Flash Beacon Lighting (E) | B | From Leg | 0.000<br>0.000 | 0.000 | 216.625 | No Ice<br>1/2" Ice | 2.700<br>3.100 | 2.700<br>3.100 | 0.050<br>0.070 |

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert<br>ft<br>ft<br>ft | Azimuth Adjustment<br>° | Placement<br>ft | | $C_AA_A$ Front<br>$ft^2$ | $C_AA_A$ Side<br>$ft^2$ | Weight<br>K |
|---|---|---|---|---|---|---|---|---|---|
| | | | 0.500 | | | 1" Ice | 3.500 | 3.500 | 0.090 |
| 4' x 2" Pipe Mount | B | From Leg | 0.000 | 0.000 | 212.625 | No Ice | 0.785 | 0.785 | 0.029 |
| (E-For Beacon) | | | 0.000 | | | 1/2" Ice | 1.028 | 1.028 | 0.035 |
| | | | 2.000 | | | 1" Ice | 1.281 | 1.281 | 0.044 |
| Side Lighting | A | From Leg | 0.500 | 0.000 | 112.000 | No Ice | 0.113 | 0.113 | 0.005 |
| (E) | | | 0.000 | | | 1/2" Ice | 0.170 | 0.170 | 0.007 |
| | | | 0.000 | | | 1" Ice | 0.233 | 0.233 | 0.010 |
| Side Lighting | B | From Leg | 0.500 | 0.000 | 112.000 | No Ice | 0.113 | 0.113 | 0.005 |
| (E) | | | 0.000 | | | 1/2" Ice | 0.170 | 0.170 | 0.007 |
| | | | 0.000 | | | 1" Ice | 0.233 | 0.233 | 0.010 |
| Side Lighting | C | From Leg | 0.500 | 0.000 | 112.000 | No Ice | 0.113 | 0.113 | 0.005 |
| (E) | | | 0.000 | | | 1/2" Ice | 0.170 | 0.170 | 0.007 |
| | | | 0.000 | | | 1" Ice | 0.233 | 0.233 | 0.010 |
| *-*-*-* | | | | | | | | | |
| (2) LPA-80080/6CF w/ | A | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 4.564 | 10.259 | 0.046 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 5.105 | 11.427 | 0.113 |
| (E) | | | 1.000 | | | 1" Ice | 5.612 | 12.312 | 0.187 |
| (2) LPA-80080/6CF w/ | B | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 4.564 | 10.259 | 0.046 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 5.105 | 11.427 | 0.113 |
| (E) | | | 1.000 | | | 1" Ice | 5.612 | 12.312 | 0.187 |
| (2) LPA-80080/6CF w/ | C | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 4.564 | 10.259 | 0.046 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 5.105 | 11.427 | 0.113 |
| (E) | | | 1.000 | | | 1" Ice | 5.612 | 12.312 | 0.187 |
| DB-T1-6Z-8AB-0Z | C | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 4.800 | 2.000 | 0.044 |
| (E) | | | 0.000 | | | 1/2" Ice | 5.070 | 2.193 | 0.080 |
| | | | 1.000 | | | 1" Ice | 5.348 | 2.393 | 0.120 |
| (3) SBNHH-1D65B w/ | A | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 8.397 | 7.071 | 0.066 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 8.960 | 8.260 | 0.135 |
| (R) | | | 1.000 | | | 1" Ice | 9.490 | 9.170 | 0.212 |
| (3) SBNHH-1D65B w/ | B | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 8.397 | 7.071 | 0.066 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 8.960 | 8.260 | 0.135 |
| (R) | | | 1.000 | | | 1" Ice | 9.490 | 9.170 | 0.212 |
| (3) SBNHH-1D65B w/ | C | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 8.397 | 7.071 | 0.066 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 8.960 | 8.260 | 0.135 |
| (R) | | | 1.000 | | | 1" Ice | 9.490 | 9.170 | 0.212 |
| RRH2X60-PCS | A | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 2.200 | 1.723 | 0.055 |
| (R) | | | 0.000 | | | 1/2" Ice | 2.393 | 1.901 | 0.075 |
| | | | 1.000 | | | 1" Ice | 2.593 | 2.087 | 0.099 |
| RRH2X60-PCS | B | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 2.200 | 1.723 | 0.055 |
| (R) | | | 0.000 | | | 1/2" Ice | 2.393 | 1.901 | 0.075 |
| | | | 1.000 | | | 1" Ice | 2.593 | 2.087 | 0.099 |
| RRH2X60-PCS | C | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 2.200 | 1.723 | 0.055 |
| (R) | | | 0.000 | | | 1/2" Ice | 2.393 | 1.901 | 0.075 |
| | | | 1.000 | | | 1" Ice | 2.593 | 2.087 | 0.099 |
| RRH2x60-700 | A | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 3.500 | 1.816 | 0.060 |
| (R) | | | 0.000 | | | 1/2" Ice | 3.761 | 2.052 | 0.083 |
| | | | 1.000 | | | 1" Ice | 4.029 | 2.289 | 0.109 |
| RRH2x60-700 | B | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 3.500 | 1.816 | 0.060 |
| (R) | | | 0.000 | | | 1/2" Ice | 3.761 | 2.052 | 0.083 |
| | | | 1.000 | | | 1" Ice | 4.029 | 2.289 | 0.109 |
| RRH2x60-700 | C | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 3.500 | 1.816 | 0.060 |
| (R) | | | 0.000 | | | 1/2" Ice | 3.761 | 2.052 | 0.083 |
| | | | 1.000 | | | 1" Ice | 4.029 | 2.289 | 0.109 |
| DB-B1-6C-12AB-0Z | A | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 3.364 | 2.192 | 0.021 |
| (R) | | | 0.000 | | | 1/2" Ice | 3.597 | 2.395 | 0.050 |
| | | | 1.000 | | | 1" Ice | 3.838 | 2.606 | 0.082 |
| RRH2X60-AWS | A | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 3.500 | 1.816 | 0.060 |

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral ft / Vert ft / ft | Azimuth Adjustment ° | Placement ft | | $C_AA_A$ Front $ft^2$ | $C_AA_A$ Side $ft^2$ | Weight K |
|---|---|---|---|---|---|---|---|---|---|
| (R) | | | 0.000 | | | 1/2" Ice | 3.761 | 2.052 | 0.083 |
| | | | 1.000 | | | 1" Ice | 4.029 | 2.289 | 0.109 |
| RRH2X60-AWS | B | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 3.500 | 1.816 | 0.060 |
| (R) | | | 0.000 | | | 1/2" Ice | 3.761 | 2.052 | 0.083 |
| | | | 1.000 | | | 1" Ice | 4.029 | 2.289 | 0.109 |
| RRH2X60-AWS | C | From Leg | 4.000 | 0.000 | 208.000 | No Ice | 3.500 | 1.816 | 0.060 |
| (R) | | | 0.000 | | | 1/2" Ice | 3.761 | 2.052 | 0.083 |
| | | | 1.000 | | | 1" Ice | 4.029 | 2.289 | 0.109 |
| Sector Mount [SM 510-3] | C | None | | 0.000 | 208.000 | No Ice | 40.100 | 40.100 | 2.396 |
| (E) | | | | | | 1/2" Ice | 57.330 | 57.330 | 3.089 |
| | | | | | | 1" Ice | 74.560 | 74.560 | 3.782 |
| *-*-*-* | | | | | | | | | |
| APXVSPP18-C-A20 w/ | A | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 8.262 | 6.946 | 0.083 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 8.822 | 8.127 | 0.151 |
| (E) | | | -1.000 | | | 1" Ice | 9.346 | 9.021 | 0.227 |
| APXVSPP18-C-A20 w/ | B | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 8.262 | 6.946 | 0.083 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 8.822 | 8.127 | 0.151 |
| (E) | | | -1.000 | | | 1" Ice | 9.346 | 9.021 | 0.227 |
| APXVSPP18-C-A20 w/ | C | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 8.262 | 6.946 | 0.083 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 8.822 | 8.127 | 0.151 |
| (E) | | | -1.000 | | | 1" Ice | 9.346 | 9.021 | 0.227 |
| APXVTM14-C-120 w/ | A | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 6.580 | 4.959 | 0.077 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 7.031 | 5.754 | 0.131 |
| (E) | | | -1.000 | | | 1" Ice | 7.473 | 6.472 | 0.193 |
| APXVTM14-C-120 w/ | B | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 6.580 | 4.959 | 0.077 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 7.031 | 5.754 | 0.131 |
| (E) | | | -1.000 | | | 1" Ice | 7.473 | 6.472 | 0.193 |
| APXVTM14-C-120 w/ | C | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 6.580 | 4.959 | 0.077 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 7.031 | 5.754 | 0.131 |
| (E) | | | -1.000 | | | 1" Ice | 7.473 | 6.472 | 0.193 |
| 800MHz 2X50W RRH | A | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 2.058 | 1.932 | 0.064 |
| W/FILTER | | | 0.000 | | | 1/2" Ice | 2.240 | 2.109 | 0.086 |
| (E) | | | -1.000 | | | 1" Ice | 2.429 | 2.293 | 0.111 |
| 800MHz 2X50W RRH | B | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 2.058 | 1.932 | 0.064 |
| W/FILTER | | | 0.000 | | | 1/2" Ice | 2.240 | 2.109 | 0.086 |
| (E) | | | -1.000 | | | 1" Ice | 2.429 | 2.293 | 0.111 |
| 800MHz 2X50W RRH | C | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 2.058 | 1.932 | 0.064 |
| W/FILTER | | | 0.000 | | | 1/2" Ice | 2.240 | 2.109 | 0.086 |
| (E) | | | -1.000 | | | 1" Ice | 2.429 | 2.293 | 0.111 |
| 1900MHz RRH (65MHz) | A | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 2.313 | 2.375 | 0.060 |
| (E) | | | 0.000 | | | 1/2" Ice | 2.517 | 2.581 | 0.084 |
| | | | -1.000 | | | 1" Ice | 2.728 | 2.794 | 0.111 |
| 1900MHz RRH (65MHz) | B | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 2.313 | 2.375 | 0.060 |
| (E) | | | 0.000 | | | 1/2" Ice | 2.517 | 2.581 | 0.084 |
| | | | -1.000 | | | 1" Ice | 2.728 | 2.794 | 0.111 |
| 1900MHz RRH (65MHz) | C | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 2.313 | 2.375 | 0.060 |
| (E) | | | 0.000 | | | 1/2" Ice | 2.517 | 2.581 | 0.084 |
| | | | -1.000 | | | 1" Ice | 2.728 | 2.794 | 0.111 |
| TD-RRH8x20-25 | A | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 4.045 | 1.535 | 0.070 |
| (E) | | | 0.000 | | | 1/2" Ice | 4.298 | 1.714 | 0.097 |
| | | | -1.000 | | | 1" Ice | 4.557 | 1.901 | 0.128 |
| TD-RRH8x20-25 | B | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 4.045 | 1.535 | 0.070 |
| (E) | | | 0.000 | | | 1/2" Ice | 4.298 | 1.714 | 0.097 |
| | | | -1.000 | | | 1" Ice | 4.557 | 1.901 | 0.128 |
| TD-RRH8x20-25 | C | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 4.045 | 1.535 | 0.070 |
| (E) | | | 0.000 | | | 1/2" Ice | 4.298 | 1.714 | 0.097 |
| | | | -1.000 | | | 1" Ice | 4.557 | 1.901 | 0.128 |

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral ft / Vert ft / ft | Azimuth Adjustment ° | Placement ft | | $C_AA_A$ Front $ft^2$ | $C_AA_A$ Side $ft^2$ | Weight K |
|---|---|---|---|---|---|---|---|---|---|
| (3) 4' x 2" Pipe Mount | A | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 0.785 | 0.785 | 0.029 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.028 | 1.028 | 0.035 |
| | | | -1.000 | | | 1" Ice | 1.281 | 1.281 | 0.044 |
| (3) 4' x 2" Pipe Mount | B | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 0.785 | 0.785 | 0.029 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.028 | 1.028 | 0.035 |
| | | | -1.000 | | | 1" Ice | 1.281 | 1.281 | 0.044 |
| (3) 4' x 2" Pipe Mount | C | From Leg | 4.000 | 0.000 | 199.000 | No Ice | 0.785 | 0.785 | 0.029 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.028 | 1.028 | 0.035 |
| | | | -1.000 | | | 1" Ice | 1.281 | 1.281 | 0.044 |
| Sector Mount [SM 504-3] | C | None | | 0.000 | 199.000 | No Ice | 34.250 | 34.250 | 1.708 |
| (14'/TIA) | | | | | | 1/2" Ice | 48.980 | 48.980 | 2.286 |
| | | | | | | 1" Ice | 63.710 | 63.710 | 2.864 |
| *-*-*-* | | | | | | | | | |
| 7770.00 w/ Mount Pipe | A | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 5.746 | 4.254 | 0.055 |
| (E) | | | 0.000 | | | 1/2" Ice | 6.179 | 5.014 | 0.103 |
| | | | 1.000 | | | 1" Ice | 6.607 | 5.711 | 0.157 |
| 7770.00 w/ Mount Pipe | B | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 5.746 | 4.254 | 0.055 |
| (E) | | | 0.000 | | | 1/2" Ice | 6.179 | 5.014 | 0.103 |
| | | | 1.000 | | | 1" Ice | 6.607 | 5.711 | 0.157 |
| 7770.00 w/ Mount Pipe | C | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 5.746 | 4.254 | 0.055 |
| (E) | | | 0.000 | | | 1/2" Ice | 6.179 | 5.014 | 0.103 |
| | | | 1.000 | | | 1" Ice | 6.607 | 5.711 | 0.157 |
| (2) SBNHH-1D65A w/ | A | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 5.954 | 5.190 | 0.061 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 6.390 | 5.961 | 0.114 |
| (E) | | | 1.000 | | | 1" Ice | 6.820 | 6.658 | 0.174 |
| (2) SBNHH-1D65A w/ | B | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 5.954 | 5.190 | 0.061 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 6.390 | 5.961 | 0.114 |
| (E) | | | 1.000 | | | 1" Ice | 6.820 | 6.658 | 0.174 |
| (2) SBNHH-1D65A w/ | C | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 5.954 | 5.190 | 0.061 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 6.390 | 5.961 | 0.114 |
| (E) | | | 1.000 | | | 1" Ice | 6.820 | 6.658 | 0.174 |
| (2) DUAL BAND 800/1900 | A | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 1.328 | 0.693 | 0.027 |
| FULL BAND MASTHEAD | | | 0.000 | | | 1/2" Ice | 1.473 | 0.808 | 0.038 |
| (E) | | | 1.000 | | | 1" Ice | 1.625 | 0.930 | 0.052 |
| (2) DUAL BAND 800/1900 | B | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 1.328 | 0.693 | 0.027 |
| FULL BAND MASTHEAD | | | 0.000 | | | 1/2" Ice | 1.473 | 0.808 | 0.038 |
| (E) | | | 1.000 | | | 1" Ice | 1.625 | 0.930 | 0.052 |
| (2) DUAL BAND 800/1900 | C | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 1.328 | 0.693 | 0.027 |
| FULL BAND MASTHEAD | | | 0.000 | | | 1/2" Ice | 1.473 | 0.808 | 0.038 |
| (E) | | | 1.000 | | | 1" Ice | 1.625 | 0.930 | 0.052 |
| 7020.00 | A | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 0.102 | 0.175 | 0.002 |
| (E) | | | 0.000 | | | 1/2" Ice | 0.147 | 0.239 | 0.005 |
| | | | 1.000 | | | 1" Ice | 0.199 | 0.311 | 0.009 |
| 7020.00 | B | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 0.102 | 0.175 | 0.002 |
| (E) | | | 0.000 | | | 1/2" Ice | 0.147 | 0.239 | 0.005 |
| | | | 1.000 | | | 1" Ice | 0.199 | 0.311 | 0.009 |
| 7020.00 | C | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 0.102 | 0.175 | 0.002 |
| (E) | | | 0.000 | | | 1/2" Ice | 0.147 | 0.239 | 0.005 |
| | | | 1.000 | | | 1" Ice | 0.199 | 0.311 | 0.009 |
| RRUS 11 | A | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.784 | 1.187 | 0.048 |
| (E) | | | 0.000 | | | 1/2" Ice | 2.992 | 1.334 | 0.068 |
| | | | 1.000 | | | 1" Ice | 3.207 | 1.490 | 0.092 |
| RRUS 11 | B | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.784 | 1.187 | 0.048 |
| (E) | | | 0.000 | | | 1/2" Ice | 2.992 | 1.334 | 0.068 |
| | | | 1.000 | | | 1" Ice | 3.207 | 1.490 | 0.092 |
| RRUS 11 | C | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.784 | 1.187 | 0.048 |
| (E) | | | 0.000 | | | 1/2" Ice | 2.992 | 1.334 | 0.068 |

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral ft / Vert ft / ft | Azimuth Adjustment ° | Placement ft | | $C_AA_A$ Front $ft^2$ | $C_AA_A$ Side $ft^2$ | Weight K |
|---|---|---|---|---|---|---|---|---|---|
| | | | 1.000 | | | 1" Ice | 3.207 | 1.490 | 0.092 |
| DC6-48-60-18-8F | A | From Leg | 1.000 | 0.000 | 189.000 | No Ice | 0.917 | 0.917 | 0.019 |
| (Hor.Off./Photo) | | | 0.000 | | | 1/2" Ice | 1.458 | 1.458 | 0.037 |
| | | | 1.000 | | | 1" Ice | 1.643 | 1.643 | 0.057 |
| DC6-48-60-18-8F | C | From Leg | 1.000 | 0.000 | 189.000 | No Ice | 0.917 | 0.917 | 0.019 |
| (Hor.Off./Photo) | | | 0.000 | | | 1/2" Ice | 1.458 | 1.458 | 0.037 |
| | | | 1.000 | | | 1" Ice | 1.643 | 1.643 | 0.057 |
| SBNHH-1D65A w/ Mount | A | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 5.954 | 5.190 | 0.061 |
| Pipe | | | 0.000 | | | 1/2" Ice | 6.390 | 5.961 | 0.114 |
| (P) | | | 1.000 | | | 1" Ice | 6.820 | 6.658 | 0.174 |
| SBNHH-1D65A w/ Mount | B | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 5.954 | 5.190 | 0.061 |
| Pipe | | | 0.000 | | | 1/2" Ice | 6.390 | 5.961 | 0.114 |
| (P) | | | 1.000 | | | 1" Ice | 6.820 | 6.658 | 0.174 |
| SBNHH-1D65A w/ Mount | C | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 5.954 | 5.190 | 0.061 |
| Pipe | | | 0.000 | | | 1/2" Ice | 6.390 | 5.961 | 0.114 |
| (P) | | | 1.000 | | | 1" Ice | 6.820 | 6.658 | 0.174 |
| RRUS 32 | A | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.857 | 1.777 | 0.055 |
| (P) | | | 0.000 | | | 1/2" Ice | 3.083 | 1.968 | 0.077 |
| | | | 1.000 | | | 1" Ice | 3.316 | 2.166 | 0.103 |
| RRUS 32 | B | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.857 | 1.777 | 0.055 |
| (P) | | | 0.000 | | | 1/2" Ice | 3.083 | 1.968 | 0.077 |
| | | | 1.000 | | | 1" Ice | 3.316 | 2.166 | 0.103 |
| RRUS 32 | C | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.857 | 1.777 | 0.055 |
| (P) | | | 0.000 | | | 1/2" Ice | 3.083 | 1.968 | 0.077 |
| | | | 1.000 | | | 1" Ice | 3.316 | 2.166 | 0.103 |
| RRUS 32 B66 | A | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.743 | 1.668 | 0.053 |
| (P) | | | 0.000 | | | 1/2" Ice | 2.965 | 1.855 | 0.074 |
| | | | 1.000 | | | 1" Ice | 3.194 | 2.049 | 0.098 |
| RRUS 32 B66 | B | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.743 | 1.668 | 0.053 |
| (P) | | | 0.000 | | | 1/2" Ice | 2.965 | 1.855 | 0.074 |
| | | | 1.000 | | | 1" Ice | 3.194 | 2.049 | 0.098 |
| RRUS 32 B66 | C | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.743 | 1.668 | 0.053 |
| (P) | | | 0.000 | | | 1/2" Ice | 2.965 | 1.855 | 0.074 |
| | | | 1.000 | | | 1" Ice | 3.194 | 2.049 | 0.098 |
| RRUS 32 B2 | A | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.731 | 1.668 | 0.053 |
| (P) | | | 0.000 | | | 1/2" Ice | 2.953 | 1.855 | 0.074 |
| | | | 1.000 | | | 1" Ice | 3.182 | 2.049 | 0.098 |
| RRUS 32 B2 | B | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.731 | 1.668 | 0.053 |
| (P) | | | 0.000 | | | 1/2" Ice | 2.953 | 1.855 | 0.074 |
| | | | 1.000 | | | 1" Ice | 3.182 | 2.049 | 0.098 |
| RRUS 32 B2 | C | From Leg | 4.000 | 0.000 | 189.000 | No Ice | 2.731 | 1.668 | 0.053 |
| (P) | | | 0.000 | | | 1/2" Ice | 2.953 | 1.855 | 0.074 |
| | | | 1.000 | | | 1" Ice | 3.182 | 2.049 | 0.098 |
| Sector Mount [SM 602-3] | C | None | | 0.000 | 189.000 | No Ice | 33.110 | 33.110 | 1.541 |
| (E) | | | | | | 1/2" Ice | 44.900 | 44.900 | 2.159 |
| | | | | | | 1" Ice | 56.690 | 56.690 | 2.777 |
| *-*-*-* | | | | | | | | | |
| APXV18-206517LS w/ | A | From Leg | 1.000 | 0.000 | 183.000 | No Ice | 5.286 | 4.667 | 0.053 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 5.839 | 5.822 | 0.097 |
| (Leg Mounted/Photo) | | | 0.000 | | | 1" Ice | 6.357 | 6.687 | 0.149 |
| APXV18-206517LS w/ | B | From Leg | 1.000 | 0.000 | 183.000 | No Ice | 5.286 | 4.667 | 0.053 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 5.839 | 5.822 | 0.097 |
| (Leg Mounted/Photo) | | | 0.000 | | | 1" Ice | 6.357 | 6.687 | 0.149 |
| APXV18-206517LS w/ | C | From Leg | 1.000 | 0.000 | 183.000 | No Ice | 5.286 | 4.667 | 0.053 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 5.839 | 5.822 | 0.097 |
| (Leg Mounted/Photo) | | | 0.000 | | | 1" Ice | 6.357 | 6.687 | 0.149 |
| *-*-*-* | | | | | | | | | |

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert<br>ft<br>ft<br>ft | Azimuth Adjustment<br>° | Placement<br>ft | | $C_AA_A$ Front<br>$ft^2$ | $C_AA_A$ Side<br>$ft^2$ | Weight<br>K |
|---|---|---|---|---|---|---|---|---|---|
| (4) DB844H90E-XY w/ | A | From Leg | 4.000 | 0.000 | 175.000 | No Ice | 3.299 | 4.802 | 0.032 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 3.667 | 5.416 | 0.072 |
| (AB-Inactive/TIA) | | | 1.000 | | | 1" Ice | 4.035 | 6.040 | 0.117 |
| (4) DB844H90E-XY w/ | B | From Leg | 4.000 | 0.000 | 175.000 | No Ice | 3.299 | 4.802 | 0.032 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 3.667 | 5.416 | 0.072 |
| (AB-Inactive/TIA) | | | 1.000 | | | 1" Ice | 4.035 | 6.040 | 0.117 |
| (4) DB844H90E-XY w/ | C | From Leg | 4.000 | 0.000 | 175.000 | No Ice | 3.299 | 4.802 | 0.032 |
| Mount Pipe | | | 0.000 | | | 1/2" Ice | 3.667 | 5.416 | 0.072 |
| (AB-Inactive/TIA) | | | 1.000 | | | 1" Ice | 4.035 | 6.040 | 0.117 |
| 6' x 2" Mount Pipe | C | From Face | 2.000 | 0.000 | 175.000 | No Ice | 1.425 | 1.425 | 0.022 |
| (Dish Mount) | | | 0.000 | | | 1/2" Ice | 1.925 | 1.925 | 0.033 |
| | | | 4.000 | | | 1" Ice | 2.294 | 2.294 | 0.048 |
| 6' x 2" Mount Pipe | C | From Face | 2.000 | 0.000 | 175.000 | No Ice | 1.425 | 1.425 | 0.022 |
| (Dish Mount) | | | 0.000 | | | 1/2" Ice | 1.925 | 1.925 | 0.033 |
| | | | 4.000 | | | 1" Ice | 2.294 | 2.294 | 0.048 |
| Sector Mount [SM 510-3] | C | None | | 0.000 | 175.000 | No Ice | 40.100 | 40.100 | 2.396 |
| (E) | | | | | | 1/2" Ice | 57.330 | 57.330 | 3.089 |
| | | | | | | 1" Ice | 74.560 | 74.560 | 3.782 |
| *-*-*-* | | | | | | | | | |
| 1151-3 | A | From Leg | 6.000 | 0.000 | 167.000 | No Ice | 4.180 | 4.180 | 0.016 |
| (E) | | | 0.000 | | | 1/2" Ice | 5.731 | 5.731 | 0.047 |
| | | | 6.000 | | | 1" Ice | 7.299 | 7.299 | 0.087 |
| Side Arm Mount [SO 308-1] | A | From Leg | 3.000 | 0.000 | 167.000 | No Ice | 0.980 | 3.030 | 0.053 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.700 | 5.220 | 0.079 |
| | | | 0.000 | | | 1" Ice | 2.420 | 7.410 | 0.105 |
| *-*-*-* | | | | | | | | | |
| 1151-3 | B | From Leg | 6.000 | 0.000 | 164.000 | No Ice | 4.180 | 4.180 | 0.016 |
| (E) | | | 0.000 | | | 1/2" Ice | 5.731 | 5.731 | 0.047 |
| | | | 9.000 | | | 1" Ice | 7.299 | 7.299 | 0.087 |
| Andrew DB224-JJ | B | From Leg | 6.000 | 0.000 | 164.000 | No Ice | 5.670 | 5.670 | 0.032 |
| (Per Photo) | | | 0.000 | | | 1/2" Ice | 10.200 | 10.200 | 0.042 |
| | | | -2.000 | | | 1" Ice | 14.730 | 14.730 | 0.051 |
| Side Arm Mount [SO 308-1] | B | From Leg | 3.000 | 0.000 | 164.000 | No Ice | 0.980 | 3.030 | 0.053 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.700 | 5.220 | 0.079 |
| | | | 0.000 | | | 1" Ice | 2.420 | 7.410 | 0.105 |
| *-*-*-* | | | | | | | | | |
| SD310-HL | A | From Leg | 6.000 | 0.000 | 162.000 | No Ice | 1.107 | 1.107 | 6.500 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.357 | 1.357 | 6.510 |
| | | | -2.000 | | | 1" Ice | 1.617 | 1.617 | 6.524 |
| Side Arm Mount [SO 308-1] | A | From Leg | 3.000 | 0.000 | 162.000 | No Ice | 0.980 | 3.030 | 0.053 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.700 | 5.220 | 0.079 |
| | | | 0.000 | | | 1" Ice | 2.420 | 7.410 | 0.105 |
| *-*-*-* | | | | | | | | | |
| 1151-3 | A | From Leg | 6.000 | 0.000 | 147.000 | No Ice | 4.180 | 4.180 | 0.016 |
| (E) | | | 0.000 | | | 1/2" Ice | 5.731 | 5.731 | 0.047 |
| | | | 6.000 | | | 1" Ice | 7.299 | 7.299 | 0.087 |
| Side Arm Mount [SO 308-1] | A | From Leg | 3.000 | 0.000 | 147.000 | No Ice | 0.980 | 3.030 | 0.053 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.700 | 5.220 | 0.079 |
| | | | 0.000 | | | 1" Ice | 2.420 | 7.410 | 0.105 |
| *-*-*-* | | | | | | | | | |
| SD310-HL | B | From Leg | 6.000 | 0.000 | 145.000 | No Ice | 1.107 | 1.107 | 6.500 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.357 | 1.357 | 6.510 |
| | | | 3.000 | | | 1" Ice | 1.617 | 1.617 | 6.524 |
| Side Arm Mount [SO 308-1] | B | From Leg | 3.000 | 0.000 | 145.000 | No Ice | 0.980 | 3.030 | 0.053 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.700 | 5.220 | 0.079 |
| | | | 0.000 | | | 1" Ice | 2.420 | 7.410 | 0.105 |
| *-*-*-* | | | | | | | | | |

| Description | Face or Leg | Offset Type | Offsets: Horz Lateral Vert<br>ft<br>ft<br>ft | Azimuth Adjustment<br>° | Placement<br>ft | | $C_AA_A$ Front<br>$ft^2$ | $C_AA_A$ Side<br>$ft^2$ | Weight<br>K |
|---|---|---|---|---|---|---|---|---|---|
| ERICSSON AIR 21 B2A | A | From Leg | 2.000 | 0.000 | 139.000 | No Ice | 6.329 | 5.642 | 0.112 |
| B4P w/ Mount Pipe | | | 0.000 | | | 1/2" Ice | 6.775 | 6.426 | 0.169 |
| (E) | | | 1.000 | | | 1" Ice | 7.214 | 7.131 | 0.233 |
| ERICSSON AIR 21 B2A | B | From Leg | 2.000 | 0.000 | 139.000 | No Ice | 6.329 | 5.642 | 0.112 |
| B4P w/ Mount Pipe | | | 0.000 | | | 1/2" Ice | 6.775 | 6.426 | 0.169 |
| (E) | | | 1.000 | | | 1" Ice | 7.214 | 7.131 | 0.233 |
| ERICSSON AIR 21 B2A | C | From Leg | 2.000 | 0.000 | 139.000 | No Ice | 6.329 | 5.642 | 0.112 |
| B4P w/ Mount Pipe | | | 0.000 | | | 1/2" Ice | 6.775 | 6.426 | 0.169 |
| (E) | | | 1.000 | | | 1" Ice | 7.214 | 7.131 | 0.233 |
| ERICSSON AIR 21 B4A | A | From Leg | 2.000 | 0.000 | 139.000 | No Ice | 6.329 | 5.642 | 0.112 |
| B2P w/ Mount Pipe | | | 0.000 | | | 1/2" Ice | 6.775 | 6.426 | 0.169 |
| (E) | | | 1.000 | | | 1" Ice | 7.214 | 7.131 | 0.233 |
| ERICSSON AIR 21 B4A | B | From Leg | 2.000 | 0.000 | 139.000 | No Ice | 6.329 | 5.642 | 0.112 |
| B2P w/ Mount Pipe | | | 0.000 | | | 1/2" Ice | 6.775 | 6.426 | 0.169 |
| (E) | | | 1.000 | | | 1" Ice | 7.214 | 7.131 | 0.233 |
| ERICSSON AIR 21 B4A | C | From Leg | 2.000 | 0.000 | 139.000 | No Ice | 6.329 | 5.642 | 0.112 |
| B2P w/ Mount Pipe | | | 0.000 | | | 1/2" Ice | 6.775 | 6.426 | 0.169 |
| (E) | | | 1.000 | | | 1" Ice | 7.214 | 7.131 | 0.233 |
| KRY 112 144/1 | A | From Leg | 2.000 | 0.000 | 139.000 | No Ice | 0.350 | 0.175 | 0.011 |
| (E) | | | 0.000 | | | 1/2" Ice | 0.426 | 0.234 | 0.014 |
| | | | 1.000 | | | 1" Ice | 0.509 | 0.301 | 0.019 |
| KRY 112 144/1 | B | From Leg | 2.000 | 0.000 | 139.000 | No Ice | 0.350 | 0.175 | 0.011 |
| (E) | | | 0.000 | | | 1/2" Ice | 0.426 | 0.234 | 0.014 |
| | | | 1.000 | | | 1" Ice | 0.509 | 0.301 | 0.019 |
| KRY 112 144/1 | C | From Leg | 2.000 | 0.000 | 139.000 | No Ice | 0.350 | 0.175 | 0.011 |
| (E) | | | 0.000 | | | 1/2" Ice | 0.426 | 0.234 | 0.014 |
| | | | 1.000 | | | 1" Ice | 0.509 | 0.301 | 0.019 |
| Side Arm Mount [SO 104-3] | C | None | | 0.000 | 139.000 | No Ice | 3.300 | 3.300 | 0.287 |
| (E) | | | | | | 1/2" Ice | 4.130 | 4.130 | 0.317 |
| | | | | | | 1" Ice | 4.960 | 4.960 | 0.347 |
| *-*-*-* | | | | | | | | | |
| 1142-2C | A | From Leg | 6.000 | 0.000 | 128.000 | No Ice | 2.092 | 2.092 | 0.024 |
| (Inactive/TIA) | | | 0.000 | | | 1/2" Ice | 3.374 | 3.374 | 0.041 |
| | | | 4.000 | | | 1" Ice | 4.673 | 4.673 | 0.066 |
| Side Arm Mount [SO 308-1] | A | From Leg | 3.000 | 0.000 | 128.000 | No Ice | 0.980 | 3.030 | 0.053 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.700 | 5.220 | 0.079 |
| | | | 0.000 | | | 1" Ice | 2.420 | 7.410 | 0.105 |
| *-*-*-* | | | | | | | | | |
| GPS_A | C | From Leg | 2.000 | 0.000 | 51.000 | No Ice | 0.255 | 0.255 | 0.001 |
| (E) | | | 0.000 | | | 1/2" Ice | 0.320 | 0.320 | 0.005 |
| | | | 0.000 | | | 1" Ice | 0.393 | 0.393 | 0.010 |
| Side Arm Mount [SO 701-1] | C | From Leg | 1.000 | 0.000 | 51.000 | No Ice | 0.850 | 1.670 | 0.065 |
| (E) | | | 0.000 | | | 1/2" Ice | 1.140 | 2.340 | 0.079 |
| | | | 0.000 | | | 1" Ice | 1.430 | 3.010 | 0.093 |
| *-*-*-* | | | | | | | | | |

## Dishes

| Description | Face or Leg | Dish Type | Offset Type | Offsets: Horz Lateral Vert<br>ft | Azimuth Adjustment<br>° | 3 dB Beam Width<br>° | Elevation<br>ft | Outside Diameter<br>ft | | Aperture Area<br>$ft^2$ | Weight<br>K |
|---|---|---|---|---|---|---|---|---|---|---|---|
| HPD2-23 | C | Paraboloid | From | 2.000 | 74.000 | | 175.000 | 2.000 | No Ice | 3.142 | 0.027 |
| (Az.,Face/Prev.SA) | | w/Shroud (HP) | Leg | 0.000 | | | | | 1/2" Ice | 3.409 | 0.044 |
| | | | | 4.000 | | | | | 1" Ice | 3.676 | 0.062 |
| HPD2-23 | C | Paraboloid | From | 2.000 | -90.000 | | 175.000 | 2.000 | No Ice | 3.142 | 0.027 |
| (Az.,Face/Prev.SA) | | w/Shroud (HP) | Leg | 0.000 | | | | | 1/2" Ice | 3.409 | 0.044 |
| | | | | 4.000 | | | | | 1" Ice | 3.676 | 0.062 |
| *-*-*-* | | | | | | | | | | | |

# Load Combinations

| Comb. No. | Description |
|---|---|
| 1 | Dead Only |
| 2 | 1.2 Dead+1.6 Wind 0 deg - No Ice |
| 3 | 0.9 Dead+1.6 Wind 0 deg - No Ice |
| 4 | 1.2 Dead+1.6 Wind 30 deg - No Ice |
| 5 | 0.9 Dead+1.6 Wind 30 deg - No Ice |
| 6 | 1.2 Dead+1.6 Wind 60 deg - No Ice |
| 7 | 0.9 Dead+1.6 Wind 60 deg - No Ice |
| 8 | 1.2 Dead+1.6 Wind 90 deg - No Ice |
| 9 | 0.9 Dead+1.6 Wind 90 deg - No Ice |
| 10 | 1.2 Dead+1.6 Wind 120 deg - No Ice |
| 11 | 0.9 Dead+1.6 Wind 120 deg - No Ice |
| 12 | 1.2 Dead+1.6 Wind 150 deg - No Ice |
| 13 | 0.9 Dead+1.6 Wind 150 deg - No Ice |
| 14 | 1.2 Dead+1.6 Wind 180 deg - No Ice |
| 15 | 0.9 Dead+1.6 Wind 180 deg - No Ice |
| 16 | 1.2 Dead+1.6 Wind 210 deg - No Ice |
| 17 | 0.9 Dead+1.6 Wind 210 deg - No Ice |
| 18 | 1.2 Dead+1.6 Wind 240 deg - No Ice |
| 19 | 0.9 Dead+1.6 Wind 240 deg - No Ice |
| 20 | 1.2 Dead+1.6 Wind 270 deg - No Ice |
| 21 | 0.9 Dead+1.6 Wind 270 deg - No Ice |
| 22 | 1.2 Dead+1.6 Wind 300 deg - No Ice |
| 23 | 0.9 Dead+1.6 Wind 300 deg - No Ice |
| 24 | 1.2 Dead+1.6 Wind 330 deg - No Ice |
| 25 | 0.9 Dead+1.6 Wind 330 deg - No Ice |
| 26 | 1.2 Dead+1.0 Ice+1.0 Temp |
| 27 | 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp |
| 28 | 1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp |
| 29 | 1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp |
| 30 | 1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp |
| 31 | 1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp |
| 32 | 1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp |
| 33 | 1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp |
| 34 | 1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp |
| 35 | 1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp |
| 36 | 1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp |
| 37 | 1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp |
| 38 | 1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp |
| 39 | Dead+Wind 0 deg - Service |
| 40 | Dead+Wind 30 deg - Service |
| 41 | Dead+Wind 60 deg - Service |
| 42 | Dead+Wind 90 deg - Service |
| 43 | Dead+Wind 120 deg - Service |
| 44 | Dead+Wind 150 deg - Service |

| Comb. No. | Description |
|---|---|
| 45 | Dead+Wind 180 deg - Service |
| 46 | Dead+Wind 210 deg - Service |
| 47 | Dead+Wind 240 deg - Service |
| 48 | Dead+Wind 270 deg - Service |
| 49 | Dead+Wind 300 deg - Service |
| 50 | Dead+Wind 330 deg - Service |

## 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 | 212.625 - 202.458 | Leg | Max Tension | 1 | 0.000 | 0.000 | 0.000 |
| | | | Max. Compression | 35 | -5.717 | 0.077 | 0.001 |
| | | | Max. Mx | 6 | -1.018 | 0.508 | 0.006 |
| | | | Max. My | 8 | -1.636 | 0.002 | -0.529 |
| | | | Max. Vy | 6 | 1.816 | -0.323 | 0.006 |
| | | | Max. Vx | 24 | -1.821 | -0.002 | 0.316 |
| | | Diagonal | Max Tension | 5 | 3.424 | 0.000 | 0.000 |
| | | | Max. Compression | 4 | -3.494 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.101 | 0.049 | 0.000 |
| | | | Max. Vy | 26 | -0.029 | 0.000 | 0.000 |
| | | Horizontal | Max Tension | 14 | 2.534 | 0.000 | 0.000 |
| | | | Max. Compression | 2 | -2.534 | -0.010 | -0.003 |
| | | | Max. Mx | 37 | 0.093 | -0.031 | -0.002 |
| | | | Max. My | 6 | 0.042 | -0.011 | -0.007 |
| | | | Max. Vy | 37 | -0.032 | -0.031 | -0.002 |
| | | | Max. Vx | 6 | -0.002 | -0.011 | -0.007 |
| | | Top Girt | Max Tension | 15 | 0.256 | -0.005 | 0.000 |
| | | | Max. Compression | 2 | -0.256 | 0.000 | 0.000 |
| | | | Max. Mx | 33 | -0.040 | -0.027 | -0.000 |
| | | | Max. My | 18 | 0.134 | -0.006 | 0.001 |
| | | | Max. Vy | 33 | 0.031 | -0.027 | -0.000 |
| | | | Max. Vx | 18 | -0.000 | 0.000 | 0.000 |
| | | Inner Bracing | Max Tension | 2 | 0.004 | 0.000 | 0.000 |
| | | | Max. Compression | 2 | -0.004 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.000 | -0.028 | 0.000 |
| | | | Max. Vy | 26 | 0.026 | 0.000 | 0.000 |
| T2 | 202.458 - 182.292 | Leg | Max Tension | 15 | 21.324 | 0.130 | -0.019 |
| | | | Max. Compression | 18 | -30.268 | 0.283 | 0.000 |
| | | | Max. Mx | 6 | 1.858 | 1.381 | 0.001 |
| | | | Max. My | 12 | -3.510 | -0.001 | 1.395 |
| | | | Max. Vy | 6 | -1.338 | 0.129 | 0.002 |
| | | | Max. Vx | 24 | 1.362 | -0.001 | -0.113 |
| | | Diagonal | Max Tension | 17 | 10.514 | 0.000 | 0.000 |
| | | | Max. Compression | 16 | -10.586 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.090 | 0.059 | 0.000 |
| | | | Max. Vy | 26 | -0.030 | 0.000 | 0.000 |
| | | Horizontal | Max Tension | 16 | 5.796 | 0.000 | 0.000 |
| | | | Max. Compression | 4 | -5.794 | -0.012 | -0.000 |
| | | | Max. Mx | 37 | -0.585 | -0.041 | -0.003 |
| | | | Max. My | 6 | 0.331 | -0.022 | -0.013 |
| | | | Max. Vy | 37 | 0.034 | -0.041 | -0.003 |
| | | | Max. Vx | 6 | 0.003 | 0.000 | 0.000 |
| | | Inner Bracing | Max Tension | 19 | 0.007 | 0.000 | 0.000 |
| | | | Max. Compression | 6 | -0.007 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.000 | -0.028 | 0.000 |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|---|---|---|---|---|---|---|---|
| | | | Max. Vy | 26 | 0.026 | 0.000 | 0.000 |
| T3 | 182.292 - 162.104 | Leg | Max Tension | 15 | 62.048 | -0.279 | 0.096 |
| | | | Max. Compression | 18 | -76.131 | 0.292 | 0.135 |
| | | | Max. Mx | 14 | 46.132 | -0.391 | 0.034 |
| | | | Max. My | 4 | -7.149 | -0.043 | -0.486 |
| | | | Max. Vy | 6 | -0.970 | -0.353 | -0.021 |
| | | | Max. Vx | 24 | 0.983 | -0.031 | 0.441 |
| | | Diagonal | Max Tension | 4 | 10.750 | 0.000 | 0.000 |
| | | | Max. Compression | 4 | -10.843 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.142 | 0.078 | 0.000 |
| | | | Max. Vy | 26 | -0.036 | 0.000 | 0.000 |
| | | Horizontal | Max Tension | 16 | 6.818 | 0.000 | 0.000 |
| | | | Max. Compression | 4 | -6.833 | -0.014 | 0.000 |
| | | | Max. Mx | 37 | -0.622 | -0.048 | -0.003 |
| | | | Max. My | 10 | 0.546 | -0.000 | 0.012 |
| | | | Max. Vy | 37 | 0.038 | -0.048 | -0.003 |
| | | | Max. Vx | 2 | -0.003 | 0.000 | 0.012 |
| | | Inner Bracing | Max Tension | 3 | 0.005 | 0.000 | 0.000 |
| | | | Max. Compression | 6 | -0.007 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.004 | -0.038 | 0.000 |
| | | | Max. Vy | 26 | 0.030 | 0.000 | 0.000 |
| T4 | 162.104 - 141.896 | Leg | Max Tension | 7 | 103.750 | -1.142 | -0.010 |
| | | | Max. Compression | 2 | -128.440 | 0.336 | 0.012 |
| | | | Max. Mx | 22 | 89.687 | -1.515 | 0.007 |
| | | | Max. My | 12 | -6.651 | -0.003 | -1.132 |
| | | | Max. Vy | 14 | -0.810 | -0.267 | 0.096 |
| | | | Max. Vx | 12 | 0.214 | -0.003 | -1.132 |
| | | Diagonal | Max Tension | 16 | 10.854 | 0.000 | 0.000 |
| | | | Max. Compression | 16 | -10.973 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.345 | 0.100 | 0.000 |
| | | | Max. Vy | 26 | 0.043 | 0.000 | 0.000 |
| | | Horizontal | Max Tension | 4 | 7.591 | -0.026 | 0.000 |
| | | | Max. Compression | 16 | -7.578 | 0.000 | 0.000 |
| | | | Max. Mx | 37 | 0.855 | -0.080 | -0.004 |
| | | | Max. My | 10 | 0.484 | -0.001 | 0.018 |
| | | | Max. Vy | 37 | 0.054 | -0.080 | -0.004 |
| | | | Max. Vx | 10 | -0.003 | -0.001 | 0.018 |
| | | Inner Bracing | Max Tension | 11 | 0.006 | 0.000 | 0.000 |
| | | | Max. Compression | 14 | -0.009 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.005 | -0.054 | 0.000 |
| | | | Max. Vy | 26 | 0.036 | 0.000 | 0.000 |
| T5 | 141.896 - 121.688 | Leg | Max Tension | 7 | 133.279 | -0.935 | 0.058 |
| | | | Max. Compression | 10 | -160.525 | 0.679 | -0.023 |
| | | | Max. Mx | 22 | 102.117 | -1.515 | 0.007 |
| | | | Max. My | 12 | -7.285 | -0.003 | -1.132 |
| | | | Max. Vy | 22 | -0.430 | -1.515 | 0.007 |
| | | | Max. Vx | 12 | -0.402 | -0.003 | -1.132 |
| | | Diagonal | Max Tension | 16 | 13.944 | 0.000 | 0.000 |
| | | | Max. Compression | 16 | -14.129 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.195 | 0.201 | 0.000 |
| | | | Max. Vy | 26 | -0.064 | 0.000 | 0.000 |
| | | Horizontal | Max Tension | 4 | 8.532 | -0.034 | -0.000 |
| | | | Max. Compression | 16 | -8.521 | 0.000 | 0.000 |
| | | | Max. Mx | 29 | -0.974 | -0.104 | -0.004 |
| | | | Max. My | 18 | 1.094 | -0.001 | 0.017 |
| | | | Max. Vy | 29 | -0.061 | -0.104 | -0.004 |
| | | | Max. Vx | 18 | -0.003 | -0.001 | 0.017 |
| | | Inner Bracing | Max Tension | 19 | 0.004 | 0.000 | 0.000 |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|---|---|---|---|---|---|---|---|
| | | | Max. Compression | 37 | -0.009 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.008 | -0.071 | 0.000 |
| | | | Max. Vy | 26 | -0.041 | 0.000 | 0.000 |
| T6 | 121.688 - 101.479 | Leg | Max Tension | 7 | 165.752 | -0.690 | 0.005 |
| | | | Max. Compression | 10 | -196.727 | 0.997 | -0.069 |
| | | | Max. Mx | 6 | 161.881 | -1.045 | 0.028 |
| | | | Max. My | 12 | -13.497 | -0.043 | -1.088 |
| | | | Max. Vy | 6 | 0.138 | -1.045 | 0.028 |
| | | | Max. Vx | 24 | -0.161 | -0.040 | 1.087 |
| | | Diagonal | Max Tension | 16 | 13.007 | 0.000 | 0.000 |
| | | | Max. Compression | 16 | -13.224 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.291 | 0.246 | 0.000 |
| | | | Max. Vy | 26 | 0.074 | 0.000 | 0.000 |
| | | Horizontal | Max Tension | 4 | 8.749 | -0.042 | -0.000 |
| | | | Max. Compression | 16 | -8.739 | 0.000 | 0.000 |
| | | | Max. Mx | 37 | 1.145 | -0.124 | -0.004 |
| | | | Max. My | 18 | 1.082 | -0.014 | 0.015 |
| | | | Max. Vy | 37 | -0.068 | -0.124 | -0.004 |
| | | | Max. Vx | 18 | 0.002 | 0.000 | 0.000 |
| | | Inner Bracing | Max Tension | 19 | 0.002 | 0.000 | 0.000 |
| | | | Max. Compression | 29 | -0.011 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.010 | -0.122 | 0.000 |
| | | | Max. Vy | 26 | 0.060 | 0.000 | 0.000 |
| T7 | 101.479 - 81.2708 | Leg | Max Tension | 7 | 194.875 | -0.674 | 0.015 |
| | | | Max. Compression | 10 | -229.984 | 0.847 | -0.051 |
| | | | Max. Mx | 6 | 176.769 | -1.045 | 0.028 |
| | | | Max. My | 12 | -14.551 | -0.043 | -1.088 |
| | | | Max. Vy | 6 | -0.137 | -1.045 | 0.028 |
| | | | Max. Vx | 24 | 0.158 | -0.040 | 1.087 |
| | | Diagonal | Max Tension | 16 | 13.119 | 0.000 | 0.000 |
| | | | Max. Compression | 16 | -13.495 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.435 | 0.357 | 0.000 |
| | | | Max. Vy | 26 | -0.100 | 0.000 | 0.000 |
| | | Horizontal | Max Tension | 4 | 9.616 | -0.088 | -0.000 |
| | | | Max. Compression | 16 | -9.608 | 0.000 | 0.000 |
| | | | Max. Mx | 37 | -1.410 | -0.215 | -0.005 |
| | | | Max. My | 18 | 0.351 | -0.032 | 0.020 |
| | | | Max. Vy | 37 | 0.100 | -0.215 | -0.005 |
| | | | Max. Vx | 18 | -0.002 | -0.032 | 0.020 |
| | | Inner Bracing | Max Tension | 19 | 0.001 | 0.000 | 0.000 |
| | | | Max. Compression | 29 | -0.014 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.013 | -0.184 | 0.000 |
| | | | Max. Vy | 26 | 0.078 | 0.000 | 0.000 |
| T8 | 81.2708 - 61 | Leg | Max Tension | 7 | 221.977 | -1.397 | 0.012 |
| | | | Max. Compression | 10 | -261.735 | 0.797 | -0.044 |
| | | | Max. Mx | 6 | 203.725 | -1.410 | 0.012 |
| | | | Max. My | 12 | -18.684 | -0.051 | -1.304 |
| | | | Max. Vy | 6 | 0.166 | -1.410 | 0.012 |
| | | | Max. Vx | 12 | 0.170 | -0.051 | -1.304 |
| | | Diagonal | Max Tension | 17 | 12.972 | 0.000 | 0.000 |
| | | | Max. Compression | 16 | -13.437 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.564 | 0.425 | 0.000 |
| | | | Max. Vy | 26 | -0.112 | 0.000 | 0.000 |
| | | Horizontal | Max Tension | 4 | 10.144 | -0.110 | -0.000 |
| | | | Max. Compression | 16 | -10.137 | 0.000 | 0.000 |
| | | | Max. Mx | 37 | -1.628 | -0.255 | -0.005 |
| | | | Max. My | 18 | 0.529 | -0.061 | 0.018 |
| | | | Max. Vy | 37 | -0.110 | -0.255 | -0.005 |
| | | | Max. Vx | 18 | 0.002 | -0.061 | 0.018 |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|---|---|---|---|---|---|---|---|
| | | Inner Bracing | Max Tension | 1 | 0.000 | 0.000 | 0.000 |
| | | | Max. Compression | 29 | -0.017 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.016 | -0.289 | 0.000 |
| | | | Max. Vy | 26 | 0.108 | 0.000 | 0.000 |
| T9 | 61 - 40.6667 | Leg | Max Tension | 7 | 248.144 | -1.986 | 0.002 |
| | | | Max. Compression | 10 | -292.818 | -2.823 | -0.147 |
| | | | Max. Mx | 2 | -292.389 | -2.827 | 0.224 |
| | | | Max. My | 24 | -24.644 | -0.644 | 3.701 |
| | | | Max. Vy | 10 | 0.567 | 2.196 | -0.010 |
| | | | Max. Vx | 24 | -0.415 | -0.644 | 3.701 |
| | | Diagonal | Max Tension | 17 | 14.061 | 0.000 | 0.000 |
| | | | Max. Compression | 16 | -14.582 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.648 | 0.490 | 0.000 |
| | | | Max. Vy | 26 | -0.121 | 0.000 | 0.000 |
| | | Horizontal | Max Tension | 4 | 11.502 | -0.136 | -0.000 |
| | | | Max. Compression | 16 | -11.495 | 0.000 | 0.000 |
| | | | Max. Mx | 37 | 1.669 | -0.305 | -0.005 |
| | | | Max. My | 22 | -2.733 | -0.155 | -0.017 |
| | | | Max. Vy | 37 | -0.120 | -0.305 | -0.005 |
| | | | Max. Vx | 22 | 0.002 | 0.000 | 0.000 |
| | | Inner Bracing | Max Tension | 1 | 0.000 | 0.000 | 0.000 |
| | | | Max. Compression | 29 | -0.017 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.016 | -0.353 | 0.000 |
| | | | Max. Vy | 26 | 0.118 | 0.000 | 0.000 |
| T10 | 40.6667 - 20.3333 | Leg | Max Tension | 7 | 259.079 | 1.698 | 0.064 |
| | | | Max. Compression | 10 | -306.548 | -8.317 | -0.308 |
| | | | Max. Mx | 10 | -306.155 | 9.580 | 0.223 |
| | | | Max. My | 24 | -27.390 | -1.361 | 5.935 |
| | | | Max. Vy | 10 | 1.816 | 9.580 | 0.223 |
| | | | Max. Vx | 24 | -1.007 | -1.361 | 5.935 |
| | | Diagonal | Max Tension | 17 | 19.519 | -0.156 | 0.105 |
| | | | Max. Compression | 16 | -20.582 | 0.000 | 0.000 |
| | | | Max. Mx | 6 | 14.847 | -0.210 | 0.080 |
| | | | Max. My | 4 | -19.463 | 0.007 | -0.118 |
| | | | Max. Vy | 37 | -0.081 | -0.200 | 0.009 |
| | | | Max. Vx | 4 | 0.010 | 0.000 | 0.000 |
| | | Horizontal | Max Tension | 4 | 11.381 | -0.203 | -0.000 |
| | | | Max. Compression | 16 | -11.375 | 0.000 | 0.000 |
| | | | Max. Mx | 37 | -1.998 | -0.431 | -0.007 |
| | | | Max. My | 18 | 0.831 | -0.119 | 0.026 |
| | | | Max. Vy | 37 | 0.151 | -0.431 | -0.007 |
| | | | Max. Vx | 18 | 0.002 | -0.125 | 0.026 |
| | | Redund Horz 1 Bracing | Max Tension | 10 | 5.324 | 0.000 | 0.000 |
| | | | Max. Compression | 10 | -5.324 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | 1.010 | 0.047 | 0.000 |
| | | | Max. Vy | 26 | 0.030 | 0.000 | 0.000 |
| | | Redund Diag 1 Bracing | Max Tension | 10 | 4.918 | 0.000 | 0.000 |
| | | | Max. Compression | 10 | -4.918 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | 1.083 | 0.095 | 0.000 |
| | | | Max. Vy | 26 | -0.033 | 0.000 | 0.000 |
| | | Redund Hip 1 Bracing | Max Tension | 5 | 0.017 | 0.000 | 0.000 |
| | | | Max. Compression | 16 | -0.029 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.015 | 0.047 | 0.000 |
| | | | Max. Vy | 26 | -0.030 | 0.000 | 0.000 |
| | | Redund Hip Diagonal 1 Bracing | Max Tension | 31 | 0.080 | 0.000 | 0.000 |
| | | | Max. Compression | 29 | -0.094 | 0.000 | 0.000 |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|---|---|---|---|---|---|---|---|
| | | | Max. Mx | 26 | 0.071 | 0.327 | 0.000 |
| | | | Max. Vy | 26 | -0.086 | 0.000 | 0.000 |
| | | Inner Bracing | Max Tension | 1 | 0.000 | 0.000 | 0.000 |
| | | | Max. Compression | 31 | -0.021 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.018 | 0.369 | 0.000 |
| | | | Max. Vy | 26 | -0.117 | 0.000 | 0.000 |
| T11 | 20.3333 - 0 | Leg | Max Tension | 7 | 282.458 | 5.906 | 0.140 |
| | | | Max. Compression | 10 | -335.559 | 0.000 | 0.000 |
| | | | Max. Mx | 10 | -335.167 | 8.695 | 0.207 |
| | | | Max. My | 24 | -29.584 | -1.363 | 5.932 |
| | | | Max. Vy | 10 | -1.733 | 8.695 | 0.207 |
| | | | Max. Vx | 24 | 0.982 | -1.363 | 5.932 |
| | | Diagonal | Max Tension | 17 | 22.676 | -0.148 | 0.104 |
| | | | Max. Compression | 16 | -23.698 | 0.000 | 0.000 |
| | | | Max. Mx | 4 | 10.543 | -0.209 | 0.033 |
| | | | Max. My | 4 | -23.521 | -0.021 | -0.118 |
| | | | Max. Vy | 37 | -0.082 | -0.205 | 0.009 |
| | | | Max. Vx | 4 | 0.009 | -0.021 | -0.118 |
| | | Horizontal | Max Tension | 4 | 13.892 | -0.244 | -0.000 |
| | | | Max. Compression | 16 | -13.885 | 0.000 | 0.000 |
| | | | Max. Mx | 37 | -2.179 | -0.447 | -0.007 |
| | | | Max. My | 22 | 3.185 | -0.321 | -0.026 |
| | | | Max. Vy | 37 | 0.153 | -0.447 | -0.007 |
| | | | Max. Vx | 22 | -0.002 | 0.000 | 0.000 |
| | | Redund Horz 1 Bracing | Max Tension | 10 | 5.823 | 0.000 | 0.000 |
| | | | Max. Compression | 10 | -5.823 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | 1.212 | 0.053 | 0.000 |
| | | | Max. Vy | 26 | -0.030 | 0.000 | 0.000 |
| | | Redund Diag 1 Bracing | Max Tension | 10 | 5.030 | 0.000 | 0.000 |
| | | | Max. Compression | 10 | -5.030 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | 1.108 | 0.103 | 0.000 |
| | | | Max. Vy | 26 | -0.034 | 0.000 | 0.000 |
| | | Redund Hip 1 Bracing | Max Tension | 5 | 0.016 | 0.000 | 0.000 |
| | | | Max. Compression | 16 | -0.027 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.012 | 0.053 | 0.000 |
| | | | Max. Vy | 26 | 0.030 | 0.000 | 0.000 |
| | | Redund Hip Diagonal 1 Bracing | Max Tension | 31 | 0.076 | 0.000 | 0.000 |
| | | | Max. Compression | 29 | -0.086 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | 0.067 | 0.351 | 0.000 |
| | | | Max. Vy | 26 | 0.088 | 0.000 | 0.000 |
| | | Inner Bracing | Max Tension | 23 | 0.000 | 0.000 | 0.000 |
| | | | Max. Compression | 31 | -0.018 | 0.000 | 0.000 |
| | | | Max. Mx | 26 | -0.015 | 0.422 | 0.000 |
| | | | Max. Vy | 26 | -0.121 | 0.000 | 0.000 |

## Maximum Reactions

| Location | Condition | Gov. Load Comb. | Vertical K | Horizontal, X K | Horizontal, Z K |
|---|---|---|---|---|---|
| Leg C | Max. Vert | 18 | 368.054 | 36.869 | -21.590 |
| | Max. $H_x$ | 18 | 368.054 | 36.869 | -21.590 |
| | Max. $H_z$ | 5 | -266.372 | -26.657 | 20.169 |

| Location | Condition | Gov. Load Comb. | Vertical K | Horizontal, X K | Horizontal, Z K |
|---|---|---|---|---|---|
| | Min. Vert | 7 | -310.834 | -33.260 | 19.492 |
| | Min. $H_x$ | 7 | -310.834 | -33.260 | 19.492 |
| | Min. $H_z$ | 16 | 323.691 | 30.359 | -22.304 |
| Leg B | Max. Vert | 10 | 368.313 | -37.275 | -20.856 |
| | Max. $H_x$ | 23 | -309.918 | 33.641 | 18.739 |
| | Max. $H_z$ | 25 | -265.537 | 27.385 | 18.831 |
| | Min. Vert | 23 | -309.918 | 33.641 | 18.739 |
| | Min. $H_x$ | 10 | 368.313 | -37.275 | -20.856 |
| | Min. $H_z$ | 12 | 324.047 | -31.103 | -21.002 |
| Leg A | Max. Vert | 2 | 368.104 | -0.872 | 42.655 |
| | Max. $H_x$ | 20 | 33.910 | 6.845 | 2.481 |
| | Max. $H_z$ | 2 | 368.104 | -0.872 | 42.655 |
| | Min. Vert | 15 | -309.125 | 0.901 | -38.439 |
| | Min. $H_x$ | 9 | 25.175 | -6.827 | 1.835 |
| | Min. $H_z$ | 15 | -309.125 | 0.901 | -38.439 |

## Tower Mast Reaction Summary

| Load Combination | Vertical K | $Shear_x$ K | $Shear_z$ K | Overturning Moment, $M_x$ kip-ft | Overturning Moment, $M_z$ kip-ft | Torque kip-ft |
|---|---|---|---|---|---|---|
| Dead Only | 83.226 | 0.000 | 0.000 | -9.289 | -8.451 | 0.000 |
| 1.2 Dead+1.6 Wind 0 deg - No Ice | 99.871 | -0.007 | -70.722 | -8710.791 | -9.635 | -45.943 |
| 0.9 Dead+1.6 Wind 0 deg - No Ice | 74.903 | -0.007 | -70.722 | -8708.004 | -7.099 | -45.943 |
| 1.2 Dead+1.6 Wind 30 deg - No Ice | 99.871 | 35.578 | -61.561 | -7576.155 | -4382.393 | -33.505 |
| 0.9 Dead+1.6 Wind 30 deg - No Ice | 74.903 | 35.578 | -61.561 | -7573.369 | -4379.858 | -33.505 |
| 1.2 Dead+1.6 Wind 60 deg - No Ice | 99.871 | 61.624 | -35.469 | -4361.257 | -7574.206 | -13.452 |
| 0.9 Dead+1.6 Wind 60 deg - No Ice | 74.903 | 61.624 | -35.469 | -4358.470 | -7571.671 | -13.452 |
| 1.2 Dead+1.6 Wind 90 deg - No Ice | 99.871 | 71.212 | 0.021 | -8.188 | -8763.428 | 8.869 |
| 0.9 Dead+1.6 Wind 90 deg - No Ice | 74.903 | 71.212 | 0.021 | -5.401 | -8760.893 | 8.869 |
| 1.2 Dead+1.6 Wind 120 deg - No Ice | 99.871 | 61.369 | 35.344 | 4335.049 | -7561.795 | 30.343 |
| 0.9 Dead+1.6 Wind 120 deg - No Ice | 74.903 | 61.369 | 35.344 | 4337.836 | -7559.260 | 30.343 |
| 1.2 Dead+1.6 Wind 150 deg - No Ice | 99.871 | 35.579 | 61.490 | 7540.487 | -4381.316 | 45.170 |
| 0.9 Dead+1.6 Wind 150 deg - No Ice | 74.903 | 35.579 | 61.490 | 7543.274 | -4378.781 | 45.170 |
| 1.2 Dead+1.6 Wind 180 deg - No Ice | 99.871 | 0.015 | 70.946 | 8689.251 | -12.129 | 46.523 |
| 0.9 Dead+1.6 Wind 180 deg - No Ice | 74.903 | 0.015 | 70.946 | 8692.038 | -9.594 | 46.523 |
| 1.2 Dead+1.6 Wind 210 deg - No Ice | 99.871 | -35.594 | 61.540 | 7550.207 | 4365.022 | 33.281 |
| 0.9 Dead+1.6 Wind 210 deg - No Ice | 74.903 | -35.594 | 61.540 | 7552.994 | 4367.557 | 33.281 |
| 1.2 Dead+1.6 Wind 240 deg - No Ice | 99.871 | -61.409 | 35.381 | 4342.818 | 7549.527 | 13.803 |
| 0.9 Dead+1.6 Wind 240 deg - | 74.903 | -61.409 | 35.381 | 4345.605 | 7552.062 | 13.803 |

| Load Combination | Vertical K | $Shear_x$ K | $Shear_z$ K | Overturning Moment, $M_x$ kip-ft | Overturning Moment, $M_z$ kip-ft | Torque kip-ft |
|---|---|---|---|---|---|---|
| No Ice | | | | | | |
| 1.2 Dead+1.6 Wind 270 deg - No Ice | 99.871 | -71.198 | -0.032 | -16.128 | 8740.690 | -8.837 |
| 0.9 Dead+1.6 Wind 270 deg - No Ice | 74.903 | -71.198 | -0.032 | -13.342 | 8743.225 | -8.837 |
| 1.2 Dead+1.6 Wind 300 deg - No Ice | 99.871 | -61.567 | -35.462 | -4358.741 | 7543.086 | -30.085 |
| 0.9 Dead+1.6 Wind 300 deg - No Ice | 74.903 | -61.567 | -35.462 | -4355.954 | 7545.621 | -30.085 |
| 1.2 Dead+1.6 Wind 330 deg - No Ice | 99.871 | -35.572 | -61.492 | -7563.018 | 4359.812 | -45.171 |
| 0.9 Dead+1.6 Wind 330 deg - No Ice | 74.903 | -35.572 | -61.492 | -7560.231 | 4362.347 | -45.171 |
| 1.2 Dead+1.0 Ice+1.0 Temp | 229.076 | -0.000 | 0.000 | 50.242 | 282.291 | 0.000 |
| 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp | 229.076 | 0.016 | -19.689 | -2367.746 | 279.564 | -7.563 |
| 1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp | 229.076 | 9.910 | -17.076 | -2054.775 | -940.744 | -5.597 |
| 1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp | 229.076 | 17.103 | -9.829 | -1160.724 | -1827.139 | -2.160 |
| 1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp | 229.076 | 19.801 | -0.014 | 48.005 | -2160.633 | 1.720 |
| 1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp | 229.076 | 17.125 | 9.826 | 1256.064 | -1822.760 | 5.503 |
| 1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp | 229.076 | 9.880 | 17.045 | 2149.764 | -935.631 | 7.708 |
| 1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp | 229.076 | -0.015 | 19.629 | 2467.314 | 284.723 | 7.671 |
| 1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp | 229.076 | -9.913 | 17.072 | 2154.531 | 1505.907 | 5.553 |
| 1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp | 229.076 | -17.150 | 9.864 | 1262.512 | 2391.769 | 2.224 |
| 1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp | 229.076 | -19.798 | 0.011 | 52.077 | 2724.726 | -1.714 |
| 1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp | 229.076 | -17.074 | -9.797 | -1155.325 | 2386.732 | -5.449 |
| 1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp | 229.076 | -9.878 | -17.045 | -2049.327 | 1499.970 | -7.708 |
| Dead+Wind 0 deg - Service | 83.226 | -0.002 | -15.599 | -1928.140 | -8.339 | -10.133 |
| Dead+Wind 30 deg - Service | 83.226 | 7.847 | -13.578 | -1677.878 | -972.823 | -7.390 |
| Dead+Wind 60 deg - Service | 83.226 | 13.592 | -7.823 | -968.778 | -1676.831 | -2.967 |
| Dead+Wind 90 deg - Service | 83.226 | 15.707 | 0.005 | -8.637 | -1939.134 | 1.956 |
| Dead+Wind 120 deg - Service | 83.226 | 13.536 | 7.796 | 949.336 | -1674.093 | 6.693 |
| Dead+Wind 150 deg - Service | 83.226 | 7.847 | 13.563 | 1656.349 | -972.586 | 9.963 |
| Dead+Wind 180 deg - Service | 83.226 | 0.003 | 15.648 | 1909.728 | -8.889 | 10.261 |
| Dead+Wind 210 deg - Service | 83.226 | -7.851 | 13.574 | 1658.493 | 956.564 | 7.341 |
| Dead+Wind 240 deg - Service | 83.226 | -13.545 | 7.804 | 951.050 | 1658.960 | 3.045 |
| Dead+Wind 270 deg - Service | 83.226 | -15.704 | -0.007 | -10.388 | 1921.690 | -1.949 |
| Dead+Wind 300 deg - Service | 83.226 | -13.580 | -7.822 | -968.223 | 1657.539 | -6.636 |
| Dead+Wind 330 deg - Service | 83.226 | -7.846 | -13.563 | -1674.980 | 955.415 | -9.963 |

# Solution Summary

| | Sum of Applied Forces | | | Sum of Reactions | | | |
|---|---|---|---|---|---|---|---|
| Load Comb. | PX K | PY K | PZ K | PX K | PY K | PZ K | % Error |
| 1 | 0.000 | -83.226 | 0.000 | 0.000 | 83.226 | 0.000 | 0.000% |
| 2 | -0.007 | -99.871 | -70.722 | 0.007 | 99.871 | 70.722 | 0.000% |

| | Sum of Applied Forces | | | Sum of Reactions | | | |
|---|---|---|---|---|---|---|---|
| Load Comb. | PX<br>K | PY<br>K | PZ<br>K | PX<br>K | PY<br>K | PZ<br>K | % Error |
| 3 | -0.007 | -74.903 | -70.722 | 0.007 | 74.903 | 70.722 | 0.000% |
| 4 | 35.578 | -99.871 | -61.561 | -35.578 | 99.871 | 61.561 | 0.000% |
| 5 | 35.578 | -74.903 | -61.561 | -35.578 | 74.903 | 61.561 | 0.000% |
| 6 | 61.624 | -99.871 | -35.469 | -61.624 | 99.871 | 35.469 | 0.000% |
| 7 | 61.624 | -74.903 | -35.469 | -61.624 | 74.903 | 35.469 | 0.000% |
| 8 | 71.212 | -99.871 | 0.021 | -71.212 | 99.871 | -0.021 | 0.000% |
| 9 | 71.212 | -74.903 | 0.021 | -71.212 | 74.903 | -0.021 | 0.000% |
| 10 | 61.369 | -99.871 | 35.344 | -61.369 | 99.871 | -35.344 | 0.000% |
| 11 | 61.369 | -74.903 | 35.344 | -61.369 | 74.903 | -35.344 | 0.000% |
| 12 | 35.579 | -99.871 | 61.490 | -35.579 | 99.871 | -61.490 | 0.000% |
| 13 | 35.579 | -74.903 | 61.490 | -35.579 | 74.903 | -61.490 | 0.000% |
| 14 | 0.015 | -99.871 | 70.946 | -0.015 | 99.871 | -70.946 | 0.000% |
| 15 | 0.015 | -74.903 | 70.946 | -0.015 | 74.903 | -70.946 | 0.000% |
| 16 | -35.594 | -99.871 | 61.540 | 35.594 | 99.871 | -61.540 | 0.000% |
| 17 | -35.594 | -74.903 | 61.540 | 35.594 | 74.903 | -61.540 | 0.000% |
| 18 | -61.409 | -99.871 | 35.381 | 61.409 | 99.871 | -35.381 | 0.000% |
| 19 | -61.409 | -74.903 | 35.381 | 61.409 | 74.903 | -35.381 | 0.000% |
| 20 | -71.198 | -99.871 | -0.032 | 71.198 | 99.871 | 0.032 | 0.000% |
| 21 | -71.198 | -74.903 | -0.032 | 71.198 | 74.903 | 0.032 | 0.000% |
| 22 | -61.567 | -99.871 | -35.462 | 61.567 | 99.871 | 35.462 | 0.000% |
| 23 | -61.567 | -74.903 | -35.462 | 61.567 | 74.903 | 35.462 | 0.000% |
| 24 | -35.572 | -99.871 | -61.492 | 35.572 | 99.871 | 61.492 | 0.000% |
| 25 | -35.572 | -74.903 | -61.492 | 35.572 | 74.903 | 61.492 | 0.000% |
| 26 | 0.000 | -229.076 | 0.000 | 0.000 | 229.076 | 0.000 | 0.000% |
| 27 | 0.016 | -229.076 | -19.689 | -0.016 | 229.076 | 19.689 | 0.000% |
| 28 | 9.910 | -229.076 | -17.076 | -9.910 | 229.076 | 17.076 | 0.000% |
| 29 | 17.103 | -229.076 | -9.829 | -17.103 | 229.076 | 9.829 | 0.000% |
| 30 | 19.801 | -229.076 | -0.014 | -19.801 | 229.076 | 0.014 | 0.000% |
| 31 | 17.125 | -229.076 | 9.826 | -17.125 | 229.076 | -9.826 | 0.000% |
| 32 | 9.880 | -229.076 | 17.045 | -9.880 | 229.076 | -17.045 | 0.000% |
| 33 | -0.015 | -229.076 | 19.629 | 0.015 | 229.076 | -19.629 | 0.000% |
| 34 | -9.913 | -229.076 | 17.072 | 9.913 | 229.076 | -17.072 | 0.000% |
| 35 | -17.150 | -229.076 | 9.864 | 17.150 | 229.076 | -9.864 | 0.000% |
| 36 | -19.798 | -229.076 | 0.011 | 19.798 | 229.076 | -0.011 | 0.000% |
| 37 | -17.074 | -229.076 | -9.797 | 17.074 | 229.076 | 9.797 | 0.000% |
| 38 | -9.878 | -229.076 | -17.045 | 9.878 | 229.076 | 17.045 | 0.000% |
| 39 | -0.002 | -83.226 | -15.599 | 0.002 | 83.226 | 15.599 | 0.000% |
| 40 | 7.847 | -83.226 | -13.578 | -7.847 | 83.226 | 13.578 | 0.000% |
| 41 | 13.592 | -83.226 | -7.823 | -13.592 | 83.226 | 7.823 | 0.000% |
| 42 | 15.707 | -83.226 | 0.005 | -15.707 | 83.226 | -0.005 | 0.000% |
| 43 | 13.536 | -83.226 | 7.796 | -13.536 | 83.226 | -7.796 | 0.000% |
| 44 | 7.847 | -83.226 | 13.563 | -7.847 | 83.226 | -13.563 | 0.000% |
| 45 | 0.003 | -83.226 | 15.648 | -0.003 | 83.226 | -15.648 | 0.000% |
| 46 | -7.851 | -83.226 | 13.574 | 7.851 | 83.226 | -13.574 | 0.000% |
| 47 | -13.545 | -83.226 | 7.804 | 13.545 | 83.226 | -7.804 | 0.000% |
| 48 | -15.704 | -83.226 | -0.007 | 15.704 | 83.226 | 0.007 | 0.000% |
| 49 | -13.580 | -83.226 | -7.822 | 13.580 | 83.226 | 7.822 | 0.000% |
| 50 | -7.846 | -83.226 | -13.563 | 7.846 | 83.226 | 13.563 | 0.000% |

## Maximum Tower Deflections - Service Wind

| Section No. | Elevation<br>ft | Horz. Deflection<br>in | Gov. Load Comb. | Tilt<br>° | Twist<br>° |
|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | 4.157 | 41 | 0.174 | 0.025 |
| T2 | 202.458 - 182.292 | 3.784 | 41 | 0.173 | 0.025 |

| Section No. | Elevation<br>ft | Horz. Deflection<br>in | Gov. Load Comb. | Tilt<br>° | Twist<br>° |
|---|---|---|---|---|---|
| T3 | 182.292 - 162.104 | 3.035 | 41 | 0.166 | 0.023 |
| T4 | 162.104 - 141.896 | 2.331 | 41 | 0.150 | 0.018 |
| T5 | 141.896 - 121.688 | 1.717 | 41 | 0.127 | 0.014 |
| T6 | 121.688 - 101.479 | 1.226 | 42 | 0.102 | 0.012 |
| T7 | 101.479 - 81.2708 | 0.828 | 42 | 0.081 | 0.009 |
| T8 | 81.2708 - 61 | 0.525 | 42 | 0.060 | 0.008 |
| T9 | 61 - 40.6667 | 0.296 | 42 | 0.043 | 0.006 |
| T10 | 40.6667 - 20.3333 | 0.137 | 48 | 0.025 | 0.004 |
| T11 | 20.3333 - 0 | 0.045 | 48 | 0.013 | 0.002 |

## Critical Deflections and Radius of Curvature - Service Wind

| Elevation<br>ft | Appurtenance | Gov. Load Comb. | Deflection<br>in | Tilt<br>° | Twist<br>° | Radius of Curvature<br>ft |
|---|---|---|---|---|---|---|
| 216.625 | Flash Beacon Lighting | 41 | 4.157 | 0.174 | 0.025 | 237902 |
| 213.625 | Lightning Rod 5/8" x 6' | 41 | 4.157 | 0.174 | 0.025 | 237902 |
| 212.625 | Climb Leg Extension | 41 | 4.157 | 0.174 | 0.025 | 237902 |
| 208.000 | (2) LPA-80080/6CF w/ Mount Pipe | 41 | 3.988 | 0.174 | 0.025 | 237902 |
| 199.000 | APXVSPP18-C-A20 w/ Mount Pipe | 41 | 3.656 | 0.173 | 0.025 | 224680 |
| 189.000 | 7770.00 w/ Mount Pipe | 41 | 3.282 | 0.169 | 0.024 | 111388 |
| 183.000 | APXV18-206517LS w/ Mount Pipe | 41 | 3.060 | 0.166 | 0.023 | 63699 |
| 179.000 | HPD2-23 | 41 | 2.915 | 0.164 | 0.022 | 62304 |
| 175.000 | (4) DB844H90E-XY w/ Mount Pipe | 41 | 2.772 | 0.161 | 0.021 | 62032 |
| 167.000 | 1151-3 | 41 | 2.495 | 0.155 | 0.019 | 49020 |
| 164.000 | 1151-3 | 41 | 2.394 | 0.152 | 0.018 | 45179 |
| 162.000 | SD310-HL | 41 | 2.327 | 0.150 | 0.018 | 43517 |
| 147.000 | 1151-3 | 41 | 1.861 | 0.133 | 0.015 | 38075 |
| 145.000 | SD310-HL | 41 | 1.803 | 0.131 | 0.015 | 36512 |
| 139.000 | ERICSSON AIR 21 B2A B4P w/ Mount Pipe | 41 | 1.639 | 0.123 | 0.014 | 36351 |
| 128.000 | 1142-2C | 41 | 1.367 | 0.109 | 0.013 | 49932 |
| 112.000 | Side Lighting | 42 | 1.024 | 0.091 | 0.011 | 54067 |
| 51.000 | GPS_A | 42 | 0.209 | 0.034 | 0.005 | 70561 |

## Maximum Tower Deflections - Design Wind

| Section No. | Elevation<br>ft | Horz. Deflection<br>in | Gov. Load Comb. | Tilt<br>° | Twist<br>° |
|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | 18.036 | 6 | 0.744 | 0.115 |
| T2 | 202.458 - 182.292 | 16.432 | 6 | 0.743 | 0.115 |
| T3 | 182.292 - 162.104 | 13.215 | 6 | 0.706 | 0.105 |
| T4 | 162.104 - 141.896 | 10.232 | 8 | 0.629 | 0.080 |
| T5 | 141.896 - 121.688 | 7.615 | 8 | 0.540 | 0.065 |
| T6 | 121.688 - 101.479 | 5.476 | 8 | 0.440 | 0.054 |
| T7 | 101.479 - 81.2708 | 3.717 | 8 | 0.355 | 0.042 |
| T8 | 81.2708 - 61 | 2.365 | 8 | 0.266 | 0.034 |
| T9 | 61 - 40.6667 | 1.341 | 8 | 0.190 | 0.026 |
| T10 | 40.6667 - 20.3333 | 0.620 | 20 | 0.113 | 0.017 |
| T11 | 20.3333 - 0 | 0.205 | 20 | 0.056 | 0.009 |

## Critical Deflections and Radius of Curvature - Design Wind

| Elevation<br>ft | Appurtenance | Gov. Load Comb. | Deflection<br>in | Tilt<br>° | Twist<br>° | Radius of Curvature<br>ft |
|---|---|---|---|---|---|---|
| 216.625 | Flash Beacon Lighting | 6 | 18.036 | 0.744 | 0.115 | 55845 |
| 213.625 | Lightning Rod 5/8" x 6' | 6 | 18.036 | 0.744 | 0.115 | 55845 |
| 212.625 | Climb Leg Extension | 6 | 18.036 | 0.744 | 0.115 | 55845 |
| 208.000 | (2) LPA-80080/6CF w/ Mount Pipe | 6 | 17.309 | 0.745 | 0.115 | 55845 |
| 199.000 | APXVSPP18-C-A20 w/ Mount Pipe | 6 | 15.880 | 0.740 | 0.114 | 53391 |
| 189.000 | 7770.00 w/ Mount Pipe | 6 | 14.275 | 0.724 | 0.110 | 29582 |
| 183.000 | APXV18-206517LS w/ Mount Pipe | 6 | 13.326 | 0.708 | 0.106 | 16184 |
| 179.000 | HPD2-23 | 6 | 12.706 | 0.695 | 0.101 | 14883 |
| 175.000 | (4) DB844H90E-XY w/ Mount Pipe | 6 | 12.099 | 0.681 | 0.096 | 14907 |
| 167.000 | 1151-3 | 8 | 10.923 | 0.650 | 0.086 | 13685 |
| 164.000 | 1151-3 | 8 | 10.497 | 0.637 | 0.082 | 13220 |
| 162.000 | SD310-HL | 8 | 10.218 | 0.629 | 0.080 | 12860 |
| 147.000 | 1151-3 | 8 | 8.233 | 0.564 | 0.068 | 9726 |
| 145.000 | SD310-HL | 8 | 7.987 | 0.554 | 0.066 | 9343 |
| 139.000 | ERICSSON AIR 21 B2A B4P w/ Mount Pipe | 8 | 7.280 | 0.525 | 0.063 | 9363 |
| 128.000 | 1142-2C | 8 | 6.099 | 0.470 | 0.057 | 12430 |
| 112.000 | Side Lighting | 8 | 4.585 | 0.398 | 0.048 | 12738 |
| 51.000 | GPS_A | 9 | 0.947 | 0.151 | 0.022 | 15875 |

## Bolt Design Data

| Section No. | Elevation<br>ft | Component Type | Bolt Grade | Bolt Size<br>in | Number Of Bolts | Maximum Load per Bolt<br>K | Allowable Load<br>K | Ratio<br>Load / Allowable | Allowable Ratio | Criteria |
|---|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 | Leg | A325N | 0.750 | 4 | 0.476 | 29.821 | 0.016 ✔ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.625 | 3 | 1.165 | 12.425 | 0.094 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.625 | 2 | 1.267 | 12.425 | 0.102 ✔ | 1 | Bolt Shear |
| T2 | 202.458 | Leg | A325N | 0.875 | 4 | 5.331 | 40.589 | 0.131 ✔ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.625 | 3 | 3.529 | 12.425 | 0.284 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.625 | 2 | 2.898 | 12.425 | 0.233 ✔ | 1 | Bolt Shear |
| T3 | 182.292 | Leg | A325N | 1.000 | 4 | 15.512 | 53.014 | 0.293 ✔ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.625 | 3 | 3.614 | 12.425 | 0.291 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.625 | 2 | 3.416 | 12.425 | 0.275 ✔ | 1 | Bolt Shear |
| T4 | 162.104 | Leg | A325N | 1.000 | 6 | 17.292 | 53.014 | 0.326 ✔ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.625 | 3 | 3.658 | 12.425 | 0.294 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.625 | 2 | 3.796 | 12.425 | 0.305 ✔ | 1 | Bolt Shear |
| T5 | 141.896 | Leg | A325N | 1.000 | 6 | 22.213 | 53.014 | 0.419 ✔ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.625 | 3 | 4.710 | 12.425 | 0.379 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.625 | 2 | 4.266 | 12.425 | 0.343 ✔ | 1 | Bolt Shear |
| T6 | 121.688 | Leg | A325N | 1.000 | 6 | 27.625 | 53.014 | 0.521 ✔ | 1 | Bolt Tension |

| Section No. | Elevation ft | Component Type | Bolt Grade | Bolt Size in | Number Of Bolts | Maximum Load per Bolt K | Allowable Load K | Ratio Load / Allowable | Allowable Ratio | Criteria |
|---|---|---|---|---|---|---|---|---|---|---|
| | | Diagonal | A325N | 0.625 | 3 | 4.408 | 12.425 | 0.355 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.625 | 2 | 4.374 | 12.425 | 0.352 ✔ | 1 | Bolt Shear |
| T7 | 101.479 | Leg | A325N | 1.000 | 8 | 24.359 | 53.014 | 0.459 ✔ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.625 | 3 | 4.498 | 12.425 | 0.362 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.625 | 2 | 4.808 | 12.425 | 0.387 ✔ | 1 | Bolt Shear |
| T8 | 81.2708 | Leg | A325N | 1.000 | 8 | 27.747 | 53.014 | 0.523 ✔ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.625 | 3 | 4.479 | 12.425 | 0.360 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.625 | 2 | 5.072 | 12.425 | 0.408 ✔ | 1 | Bolt Shear |
| T9 | 61 | Leg | A325N | 1.000 | 8 | 31.018 | 53.014 | 0.585 ✔ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.625 | 3 | 4.861 | 12.425 | 0.391 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.625 | 2 | 5.751 | 12.425 | 0.463 ✔ | 1 | Bolt Shear |
| T10 | 40.6667 | Leg | A325N | 1.000 | 8 | 32.285 | 53.014 | 0.609 ✔ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.750 | 3 | 6.861 | 17.892 | 0.383 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.750 | 2 | 5.690 | 17.892 | 0.318 ✔ | 1 | Bolt Shear |
| T11 | 20.3333 | Diagonal | A325N | 0.750 | 3 | 7.899 | 17.892 | 0.441 ✔ | 1 | Bolt Shear |
| | | Horizontal | A325N | 0.750 | 2 | 6.946 | 17.892 | 0.388 ✔ | 1 | Bolt Shear |

## Compression Checks

## Leg Design Data (Compression)

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | ROHN 2.5 STD | 10.167 | 5.083 | 64.4 K=1.00 | 1.704 | -5.717 | 56.631 | 0.101 [1] ✔ |
| T2 | 202.458 - 182.292 | ROHN 3 EH | 20.167 | 6.722 | 71.0 K=1.00 | 3.016 | -30.268 | 93.888 | 0.322 [1] ✔ |
| T3 | 182.292 - 162.104 | ROHN 4 EH | 20.223 | 6.741 | 54.8 K=1.00 | 4.407 | -76.131 | 159.259 | 0.478 [1] ✔ |
| T4 | 162.104 - 141.896 | ROHN 5 EH | 20.244 | 6.748 | 44.0 K=1.00 | 6.112 | -128.440 | 238.686 | 0.538 [1] ✔ |
| T5 | 141.896 - 121.688 | ROHN 6 EHS | 20.250 | 10.125 | 54.6 K=1.00 | 6.713 | -160.525 | 242.933 | 0.661 [1] ✔ |
| T6 | 121.688 - 101.479 | ROHN 6 EH | 20.260 | 10.130 | 55.4 K=1.00 | 8.405 | -196.727 | 302.237 | 0.651 [1] ✔ |
| T7 | 101.479 - 81.2708 | ROHN 6 EH | 20.260 | 10.130 | 55.4 K=1.00 | 8.405 | -229.984 | 302.237 | 0.761 [1] ✔ |
| T8 | 81.2708 - 61 | ROHN 8 EHS | 20.328 | 10.164 | 41.8 K=1.00 | 9.719 | -261.735 | 384.981 | 0.680 [1] ✔ |
| T9 | 61 - 40.6667 | ROHN 8 EHS | 20.384 | 10.192 | 41.9 K=1.00 | 9.719 | -292.818 | 384.707 | 0.761 [1] |

| Section No. | Elevation<br>ft | Size | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T10 | 40.6667 - 20.3333 | ROHN 8 EH | 20.391 | 10.196 | 42.5<br>K=1.00 | 12.763 | -306.548 | 503.236 | 0.609 [1] |
| T11 | 20.3333 - 0 | ROHN 8 EH | 20.373 | 10.187 | 42.5<br>K=1.00 | 12.763 | -335.559 | 503.352 | 0.667 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Diagonal Design Data (Compression)

| Section No. | Elevation<br>ft | Size | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | ROHN 2 STD | 6.639 | 6.453 | 98.4<br>K=1.00 | 1.075 | -3.494 | 23.829 | 0.147 [1] |
| T2 | 202.458 - 182.292 | ROHN 2 STD | 7.987 | 7.717 | 117.6<br>K=1.00 | 1.075 | -10.586 | 17.541 | 0.604 [1] |
| T3 | 182.292 - 162.104 | ROHN 2 STD | 8.602 | 8.301 | 126.5<br>K=1.00 | 1.075 | -10.843 | 15.159 | 0.715 [1] |
| T4 | 162.104 - 141.896 | ROHN 2 STD | 9.291 | 8.954 | 136.5<br>K=1.00 | 1.075 | -10.858 | 13.026 | 0.834 [1] |
| T5 | 141.896 - 121.688 | ROHN 2.5 STD | 12.600 | 12.138 | 153.7<br>K=1.00 | 1.704 | -14.129 | 16.287 | 0.868 [1] |
| T6 | 121.688 - 101.479 | ROHN 2.5 STD | 13.385 | 12.964 | 164.2<br>K=1.00 | 1.704 | -13.171 | 14.278 | 0.922 [1] |
| T7 | 101.479 - 81.2708 | ROHN 3 STD | 14.235 | 13.843 | 142.8<br>K=1.00 | 2.228 | -13.495 | 24.700 | 0.546 [1] |
| T8 | 81.2708 - 61 | ROHN 3 STD | 15.213 | 14.731 | 151.9<br>K=1.00 | 2.228 | -13.437 | 21.813 | 0.616 [1] |
| T9 | 61 - 40.6667 | ROHN 3 STD | 16.185 | 15.723 | 162.2<br>K=1.00 | 2.228 | -14.582 | 19.146 | 0.762 [1] |
| T10 | 40.6667 - 20.3333 | ROHN 3 STD | 24.652 | 12.326 | 127.1<br>K=1.00 | 2.228 | -20.582 | 31.156 | 0.661 [1] |
| T11 | 20.3333 - 0 | ROHN 3 STD | 25.288 | 12.644 | 130.4<br>K=1.00 | 2.228 | -23.698 | 29.608 | 0.800 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Horizontal Design Data (Compression)

| Section No. | Elevation<br>ft | Size | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | ROHN 1.5 STD | 8.521 | 4.141 | 79.8<br>K=1.00 | 0.799 | -2.534 | 22.582 | 0.112 [1] |
| T2 | 202.458 - 182.292 | ROHN 1.5 STD | 8.597 | 4.153 | 80.0<br>K=1.00 | 0.799 | -5.794 | 22.520 | 0.257 [1] |

| Section No. | Elevation<br>ft | Size | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T3 | 182.292 - 162.104 | ROHN 1.5 STD | 10.014 | 4.819 | 92.9<br>K=1.00 | 0.799 | -6.833 | 19.143 | 0.357 [1] |
| T4 | 162.104 - 141.896 | ROHN 2 STD | 12.097 | 5.817 | 88.7<br>K=1.00 | 1.075 | -7.578 | 27.209 | 0.279 [1] |
| T5 | 141.896 - 121.688 | ROHN 2 STD | 13.917 | 6.682 | 101.9<br>K=1.00 | 1.075 | -8.521 | 22.640 | 0.376 [1] |
| T6 | 121.688 - 101.479 | ROHN 2 STD | 16.292 | 7.870 | 120.0<br>K=1.00 | 1.075 | -8.739 | 16.864 | 0.518 [1] |
| T7 | 101.479 - 81.2708 | ROHN 2.5 STD | 18.792 | 9.120 | 115.5<br>K=1.00 | 1.704 | -9.608 | 28.852 | 0.333 [1] |
| T8 | 81.2708 - 61 | ROHN 2.5 STD | 21.359 | 10.320 | 130.7<br>K=1.00 | 1.704 | -10.137 | 22.530 | 0.450 [1] |
| T9 | 61 - 40.6667 | ROHN 2.5 STD | 23.927 | 11.604 | 147.0<br>K=1.00 | 1.704 | -11.495 | 17.820 | 0.645 [1] |
| T10 | 40.6667 - 20.3333 | ROHN 3 STD | 25.177 | 12.229 | 126.1<br>K=1.00 | 2.228 | -11.375 | 31.651 | 0.359 [1] |
| T11 | 20.3333 - 0 | ROHN 3 STD | 27.833 | 13.557 | 139.8<br>K=1.00 | 2.228 | -13.885 | 25.753 | 0.539 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Top Girt Design Data (Compression)

| Section No. | Elevation<br>ft | Size | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | ROHN 1.5 STD | 8.500 | 4.130 | 79.6<br>K=1.00 | 0.799 | -0.256 | 22.635 | 0.011 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Redundant Horizontal (1) Design Data (Compression)

| Section No. | Elevation<br>ft | Size | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T10 | 40.6667 - 20.3333 | ROHN 1.5 STD | 6.294 | 5.935 | 114.4<br>K=1.00 | 0.799 | -5.324 | 13.007 | 0.409 [1] |
| T11 | 20.3333 - 0 | ROHN 1.5 STD | 6.958 | 6.599 | 127.2<br>K=1.00 | 0.799 | -5.823 | 11.053 | 0.527 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Redundant Diagonal (1) Design Data (Compression)

| Section No. | Elevation<br>ft | Size | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T10 | 40.6667 - 20.3333 | ROHN 2 STD | 11.628 | 10.887 | 166.0<br>K=1.00 | 1.075 | -4.918 | 8.811 | 0.558 [1] ✔ |
| T11 | 20.3333 - 0 | ROHN 2 STD | 12.021 | 11.347 | 173.0<br>K=1.00 | 1.075 | -5.030 | 8.111 | 0.620 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Redundant Hip (1) Design Data (Compression)

| Section No. | Elevation<br>ft | Size | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T10 | 40.6667 - 20.3333 | ROHN 1.5 STD | 6.294 | 6.294 | 121.3<br>K=1.00 | 0.799 | -0.029 | 11.936 | 0.002 [1] ✔ |
| T11 | 20.3333 - 0 | ROHN 1.5 STD | 6.958 | 6.958 | 134.1<br>K=1.00 | 0.799 | -0.027 | 10.041 | 0.003 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Redundant Hip Diagonal (1) Design Data (Compression)

| Section No. | Elevation<br>ft | Size | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T10 | 40.6667 - 20.3333 | ROHN 2.5 STD | 15.204 | 15.204 | 192.6<br>K=1.00 | 1.704 | -0.094 | 10.381 | 0.009 [1] ✔ |
| T11 | 20.3333 - 0 | ROHN 2.5 STD | 16.022 | 16.022 | 202.9<br>K=1.00 | 1.704 | -0.086 | 9.348 | 0.009 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Inner Bracing Design Data (Compression)

| Section No. | Elevation<br>ft | Size | L<br>ft | $L_u$<br>ft | Kl/r | A<br>$in^2$ | $P_u$<br>K | $\phi P_n$<br>K | Ratio<br>$\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | L2x2x1/8 | 4.250 | 4.250 | 128.3<br>K=1.00 | 0.484 | -0.004 | 6.565 | 0.001 [1] ✔ |
| T2 | 202.458 - 182.292 | L2x2x1/8 | 4.299 | 4.299 | 129.8<br>K=1.00 | 0.484 | -0.007 | 6.440 | 0.001 [1] ✔ |
| T3 | 182.292 - | L2x2x1/8 | 5.007 | 5.007 | 151.1 | 0.484 | -0.006 | 4.790 | 0.001 [1] |

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| | 162.104 | | | | K=1.00 | | | | ✔ |
| T4 | 162.104 - 141.896 | L2x2x1/8 | 6.049 | 6.049 | 182.6<br>K=1.00 | 0.484 | -0.008 | 3.283 | 0.002 [1]<br>✔ |
| T5 | 141.896 - 121.688 | L2x2x1/8 | 6.958 | 6.958 | 210.0<br>K=1.00 | 0.484 | -0.009 | 2.480 | 0.004 [1]<br>✔ |
| T6 | 121.688 - 101.479 | L2 1/2x2 1/2x3/16 | 8.146 | 8.146 | 197.5<br>K=1.00 | 0.902 | -0.011 | 5.225 | 0.002 [1]<br>✔ |
| T7 | 101.479 - 81.2708 | L3x3x3/16 | 9.396 | 9.396 | 189.2<br>K=1.00 | 1.090 | -0.014 | 6.881 | 0.002 [1]<br>✔ |
| T8 | 81.2708 - 61 | L3 1/2x3 1/2x1/4 | 10.680 | 10.680 | 184.7<br>K=1.00 | 1.690 | -0.017 | 11.196 | 0.002 [1]<br>✔ |
| T9 | 61 - 40.6667 | L3 1/2x3 1/2x1/4 | 11.964 | 11.964 | 206.9<br>K=1.00 | 1.690 | -0.017 | 8.922 | 0.002 [1]<br>✔ |
| T10 | 40.6667 - 20.3333 | ROHN 3 STD | 12.589 | 12.589 | 129.8<br>K=1.00 | 2.228 | -0.021 | 29.869 | 0.001 [1]<br>✔ |
| T11 | 20.3333 - 0 | ROHN 3 STD | 13.917 | 13.917 | 143.5<br>K=1.00 | 2.228 | -0.018 | 24.440 | 0.001 [1]<br>✔ |

[1] $P_u$ / $\phi P_n$ controls

## Tension Checks

## Leg Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | ROHN 2.5 STD | 10.167 | 5.083 | 64.4 | 1.704 | 0.083 | 76.682 | 0.001 [1]<br>✔ |
| T2 | 202.458 - 182.292 | ROHN 3 EH | 20.167 | 6.722 | 71.0 | 3.016 | 21.324 | 135.717 | 0.157 [1]<br>✔ |
| T3 | 182.292 - 162.104 | ROHN 4 EH | 20.223 | 6.741 | 54.8 | 4.407 | 62.048 | 198.335 | 0.313 [1]<br>✔ |
| T4 | 162.104 - 141.896 | ROHN 5 EH | 20.244 | 6.748 | 44.0 | 6.112 | 103.750 | 275.039 | 0.377 [1]<br>✔ |
| T5 | 141.896 - 121.688 | ROHN 6 EHS | 20.250 | 10.125 | 54.6 | 6.713 | 133.279 | 302.097 | 0.441 [1]<br>✔ |
| T6 | 121.688 - 101.479 | ROHN 6 EH | 20.260 | 10.130 | 55.4 | 8.405 | 165.752 | 378.222 | 0.438 [1]<br>✔ |
| T7 | 101.479 - 81.2708 | ROHN 6 EH | 20.260 | 10.130 | 55.4 | 8.405 | 194.875 | 378.222 | 0.515 [1]<br>✔ |
| T8 | 81.2708 - 61 | ROHN 8 EHS | 20.328 | 10.164 | 41.8 | 9.719 | 221.977 | 437.369 | 0.508 [1]<br>✔ |
| T9 | 61 - 40.6667 | ROHN 8 EHS | 20.384 | 10.192 | 41.9 | 9.719 | 248.144 | 437.369 | 0.567 [1]<br>✔ |
| T10 | 40.6667 - 20.3333 | ROHN 8 EH | 20.391 | 10.196 | 42.5 | 12.763 | 259.079 | 574.322 | 0.451 [1]<br>✔ |
| T11 | 20.3333 - 0 | ROHN 8 EH | 20.373 | 10.187 | 42.5 | 12.763 | 282.458 | 574.322 | 0.492 [1] |

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

[1] $P_u$ / $\phi P_n$ controls

## Diagonal Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | ROHN 2 STD | 6.639 | 6.453 | 98.4 | 1.075 | 3.424 | 48.354 | 0.071 [1] |
| T2 | 202.458 - 182.292 | ROHN 2 STD | 7.987 | 7.717 | 117.6 | 1.075 | 10.514 | 48.354 | 0.217 [1] |
| T3 | 182.292 - 162.104 | ROHN 2 STD | 8.602 | 8.301 | 126.5 | 1.075 | 10.750 | 48.354 | 0.222 [1] |
| T4 | 162.104 - 141.896 | ROHN 2 STD | 9.055 | 8.719 | 132.9 | 1.075 | 10.854 | 48.354 | 0.224 [1] |
| T5 | 141.896 - 121.688 | ROHN 2.5 STD | 12.600 | 12.138 | 153.7 | 1.704 | 13.944 | 76.682 | 0.182 [1] |
| T6 | 121.688 - 101.479 | ROHN 2.5 STD | 12.984 | 12.563 | 159.1 | 1.704 | 13.007 | 76.682 | 0.170 [1] |
| T7 | 101.479 - 81.2708 | ROHN 3 STD | 14.235 | 13.843 | 142.8 | 2.228 | 13.119 | 100.281 | 0.131 [1] |
| T8 | 81.2708 - 61 | ROHN 3 STD | 15.213 | 14.731 | 151.9 | 2.228 | 12.972 | 100.281 | 0.129 [1] |
| T9 | 61 - 40.6667 | ROHN 3 STD | 16.185 | 15.723 | 162.2 | 2.228 | 14.061 | 100.281 | 0.140 [1] |
| T10 | 40.6667 - 20.3333 | ROHN 3 STD | 24.652 | 12.326 | 127.1 | 2.228 | 19.519 | 100.281 | 0.195 [1] |
| T11 | 20.3333 - 0 | ROHN 3 STD | 25.288 | 12.644 | 130.4 | 2.228 | 22.676 | 100.281 | 0.226 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Horizontal Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | ROHN 1.5 STD | 8.521 | 4.141 | 79.8 | 0.799 | 2.534 | 35.976 | 0.070 [1] |
| T2 | 202.458 - 182.292 | ROHN 1.5 STD | 8.597 | 4.153 | 80.0 | 0.799 | 5.796 | 35.976 | 0.161 [1] |
| T3 | 182.292 - 162.104 | ROHN 1.5 STD | 10.014 | 4.819 | 92.9 | 0.799 | 6.818 | 35.976 | 0.190 [1] |
| T4 | 162.104 - 141.896 | ROHN 2 STD | 12.097 | 5.817 | 88.7 | 1.075 | 7.591 | 48.354 | 0.157 [1] |

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T5 | 141.896 - 121.688 | ROHN 2 STD | 13.917 | 6.682 | 101.9 | 1.075 | 8.532 | 48.354 | 0.176 [1] |
| T6 | 121.688 - 101.479 | ROHN 2 STD | 16.292 | 7.870 | 120.0 | 1.075 | 8.749 | 48.354 | 0.181 [1] |
| T7 | 101.479 - 81.2708 | ROHN 2.5 STD | 18.792 | 9.120 | 115.5 | 1.704 | 9.616 | 76.682 | 0.125 [1] |
| T8 | 81.2708 - 61 | ROHN 2.5 STD | 21.359 | 10.320 | 130.7 | 1.704 | 10.144 | 76.682 | 0.132 [1] |
| T9 | 61 - 40.6667 | ROHN 2.5 STD | 23.927 | 11.604 | 147.0 | 1.704 | 11.502 | 76.682 | 0.150 [1] |
| T10 | 40.6667 - 20.3333 | ROHN 3 STD | 25.177 | 12.229 | 126.1 | 2.228 | 11.381 | 100.281 | 0.113 [1] |
| T11 | 20.3333 - 0 | ROHN 3 STD | 27.833 | 13.557 | 139.8 | 2.228 | 13.892 | 100.281 | 0.139 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Top Girt Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | ROHN 1.5 STD | 8.500 | 4.130 | 79.6 | 0.799 | 0.256 | 35.976 | 0.007 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Redundant Horizontal (1) Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T10 | 40.6667 - 20.3333 | ROHN 1.5 STD | 6.294 | 5.935 | 114.4 | 0.799 | 5.324 | 25.902 | 0.206 [1] |
| T11 | 20.3333 - 0 | ROHN 1.5 STD | 6.958 | 6.599 | 127.2 | 0.799 | 5.823 | 25.902 | 0.225 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Redundant Diagonal (1) Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T10 | 40.6667 - 20.3333 | ROHN 2 STD | 11.628 | 10.887 | 166.0 | 1.075 | 4.918 | 34.815 | 0.141 [1] ✔ |
| T11 | 20.3333 - 0 | ROHN 2 STD | 12.021 | 11.347 | 173.0 | 1.075 | 5.030 | 34.815 | 0.144 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Redundant Hip (1) Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T10 | 40.6667 - 20.3333 | ROHN 1.5 STD | 6.294 | 6.294 | 121.3 | 0.799 | 0.017 | 25.902 | 0.001 [1] ✔ |
| T11 | 20.3333 - 0 | ROHN 1.5 STD | 6.958 | 6.958 | 134.1 | 0.799 | 0.016 | 25.902 | 0.001 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Redundant Hip Diagonal (1) Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T10 | 40.6667 - 20.3333 | ROHN 2.5 STD | 15.204 | 15.204 | 192.6 | 1.704 | 0.080 | 55.211 | 0.001 [1] ✔ |
| T11 | 20.3333 - 0 | ROHN 2.5 STD | 16.022 | 16.022 | 202.9 | 1.704 | 0.076 | 55.211 | 0.001 [1] ✔ |

[1] $P_u$ / $\phi P_n$ controls

## Inner Bracing Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | L2x2x1/8 | 4.250 | 4.250 | 81.4 | 0.484 | 0.004 | 15.694 | 0.000 [1] ✔ |
| T2 | 202.458 - 182.292 | L2x2x1/8 | 4.299 | 4.299 | 82.4 | 0.484 | 0.007 | 15.694 | 0.000 [1] ✔ |
| T3 | 182.292 - 162.104 | L2x2x1/8 | 4.313 | 4.313 | 82.6 | 0.484 | 0.005 | 15.694 | 0.000 [1] ✔ |
| T4 | 162.104 - 141.896 | L2x2x1/8 | 5.354 | 5.354 | 102.6 | 0.484 | 0.006 | 15.694 | 0.000 [1] |

| Section No. | Elevation ft | Size | L ft | $L_u$ ft | Kl/r | A $in^2$ | $P_u$ K | $\phi P_n$ K | Ratio $\frac{P_u}{\phi P_n}$ |
|---|---|---|---|---|---|---|---|---|---|
| T5 | 141.896 - 121.688 | L2x2x1/8 | 6.396 | 6.396 | 122.6 | 0.484 | 0.004 | 15.694 | 0.000 [1] |
| T6 | 121.688 - 101.479 | L2 1/2x2 1/2x3/16 | 7.521 | 7.521 | 116.0 | 0.902 | 0.002 | 29.225 | 0.000 [1] |
| T7 | 101.479 - 81.2708 | L3x3x3/16 | 8.771 | 8.771 | 112.1 | 1.090 | 0.001 | 35.316 | 0.000 [1] |
| T11 | 20.3333 - 0 | ROHN 3 STD | 13.917 | 13.917 | 143.5 | 2.228 | 0.000 | 100.281 | 0.000 [1] |

[1] $P_u$ / $\phi P_n$ controls

## Section Capacity Table

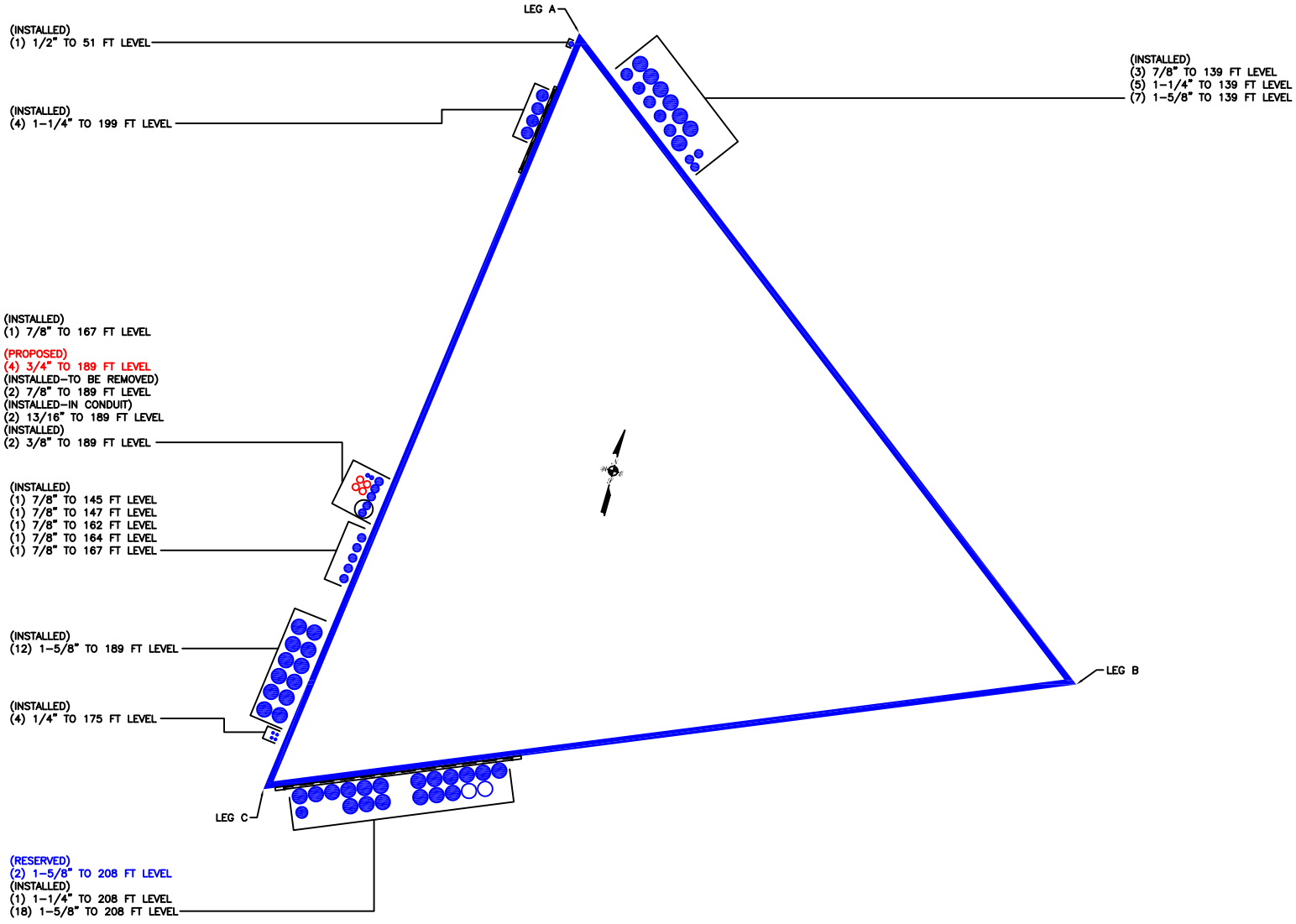
| Section No. | Elevation ft | Component Type | Size | Critical Element | P K | $\phi P_{allow}$ K | % Capacity | Pass Fail |
|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | Leg | ROHN 2.5 STD | 1 | -5.717 | 56.631 | 10.1 | Pass |
| T2 | 202.458 - 182.292 | Leg | ROHN 3 EH | 28 | -30.268 | 93.888 | 32.2 | Pass |
| T3 | 182.292 - 162.104 | Leg | ROHN 4 EH | 67 | -76.131 | 159.259 | 47.8 | Pass |
| T4 | 162.104 - 141.896 | Leg | ROHN 5 EH | 108 | -128.440 | 238.686 | 53.8 | Pass |
| T5 | 141.896 - 121.688 | Leg | ROHN 6 EHS | 146 | -160.525 | 242.933 | 66.1 | Pass |
| T6 | 121.688 - 101.479 | Leg | ROHN 6 EH | 173 | -196.727 | 302.237 | 65.1 | Pass |
| T7 | 101.479 - 81.2708 | Leg | ROHN 6 EH | 200 | -229.984 | 302.237 | 76.1 | Pass |
| T8 | 81.2708 - 61 | Leg | ROHN 8 EHS | 227 | -261.735 | 384.981 | 68.0 | Pass |
| T9 | 61 - 40.6667 | Leg | ROHN 8 EHS | 254 | -292.818 | 384.707 | 76.1 | Pass |
| T10 | 40.6667 - 20.3333 | Leg | ROHN 8 EH | 281 | -306.548 | 503.236 | 60.9 | Pass |
| T11 | 20.3333 - 0 | Leg | ROHN 8 EH | 314 | -335.559 | 503.352 | 66.7 | Pass |
| T1 | 212.625 - 202.458 | Diagonal | ROHN 2 STD | 14 | -3.494 | 23.829 | 14.7 | Pass |
| T2 | 202.458 - 182.292 | Diagonal | ROHN 2 STD | 39 | -10.586 | 17.541 | 60.4 | Pass |
| T3 | 182.292 - 162.104 | Diagonal | ROHN 2 STD | 77 | -10.843 | 15.159 | 71.5 | Pass |
| T4 | 162.104 - 141.896 | Diagonal | ROHN 2 STD | 117 | -10.858 | 13.026 | 83.4 | Pass |
| T5 | 141.896 - 121.688 | Diagonal | ROHN 2.5 STD | 156 | -14.129 | 16.287 | 86.8 | Pass |
| T6 | 121.688 - 101.479 | Diagonal | ROHN 2.5 STD | 183 | -13.171 | 14.278 | 92.2 | Pass |
| T7 | 101.479 - 81.2708 | Diagonal | ROHN 3 STD | 210 | -13.495 | 24.700 | 54.6 | Pass |
| T8 | 81.2708 - 61 | Diagonal | ROHN 3 STD | 237 | -13.437 | 21.813 | 61.6 | Pass |
| T9 | 61 - 40.6667 | Diagonal | ROHN 3 STD | 264 | -14.582 | 19.146 | 76.2 | Pass |
| T10 | 40.6667 - 20.3333 | Diagonal | ROHN 3 STD | 303 | -20.582 | 31.156 | 66.1 | Pass |
| T11 | 20.3333 - 0 | Diagonal | ROHN 3 STD | 336 | -23.698 | 29.608 | 80.0 | Pass |

| Section No. | Elevation ft | Component Type | Size | Critical Element | P K | $\phi P_{allow}$ K | % Capacity | Pass Fail |
|---|---|---|---|---|---|---|---|---|
| T1 | 212.625 - 202.458 | Horizontal | ROHN 1.5 STD | 13 | -2.534 | 22.582 | 11.2 | Pass |
| T2 | 202.458 - 182.292 | Horizontal | ROHN 1.5 STD | 37 | -5.794 | 22.520 | 25.7 | Pass |
| T3 | 182.292 - 162.104 | Horizontal | ROHN 1.5 STD | 76 | -6.833 | 19.143 | 35.7 | Pass |
| T4 | 162.104 - 141.896 | Horizontal | ROHN 2 STD | 115 | -7.578 | 27.209 | 27.9<br>30.5 (b) | Pass |
| T5 | 141.896 - 121.688 | Horizontal | ROHN 2 STD | 154 | -8.521 | 22.640 | 37.6 | Pass |
| T6 | 121.688 - 101.479 | Horizontal | ROHN 2 STD | 181 | -8.739 | 16.864 | 51.8 | Pass |
| T7 | 101.479 - 81.2708 | Horizontal | ROHN 2.5 STD | 208 | -9.608 | 28.852 | 33.3<br>38.7 (b) | Pass |
| T8 | 81.2708 - 61 | Horizontal | ROHN 2.5 STD | 235 | -10.137 | 22.530 | 45.0 | Pass |
| T9 | 61 - 40.6667 | Horizontal | ROHN 2.5 STD | 262 | -11.495 | 17.820 | 64.5 | Pass |
| T10 | 40.6667 - 20.3333 | Horizontal | ROHN 3 STD | 299 | -11.375 | 31.651 | 35.9 | Pass |
| T11 | 20.3333 - 0 | Horizontal | ROHN 3 STD | 332 | -13.885 | 25.753 | 53.9 | Pass |
| T1 | 212.625 - 202.458 | Top Girt | ROHN 1.5 STD | 5 | -0.256 | 22.635 | 1.1 | Pass |
| T10 | 40.6667 - 20.3333 | Redund Horz 1 Bracing | ROHN 1.5 STD | 288 | -5.324 | 13.007 | 40.9 | Pass |
| T11 | 20.3333 - 0 | Redund Horz 1 Bracing | ROHN 1.5 STD | 321 | -5.823 | 11.053 | 52.7 | Pass |
| T10 | 40.6667 - 20.3333 | Redund Diag 1 Bracing | ROHN 2 STD | 293 | -4.918 | 8.811 | 55.8 | Pass |
| T11 | 20.3333 - 0 | Redund Diag 1 Bracing | ROHN 2 STD | 322 | -5.030 | 8.111 | 62.0 | Pass |
| T10 | 40.6667 - 20.3333 | Redund Hip 1 Bracing | ROHN 1.5 STD | 306 | -0.029 | 11.936 | 0.2 | Pass |
| T11 | 20.3333 - 0 | Redund Hip 1 Bracing | ROHN 1.5 STD | 339 | -0.027 | 10.041 | 0.3 | Pass |
| T10 | 40.6667 - 20.3333 | Redund Hip Diagonal 1 Bracing | ROHN 2.5 STD | 307 | -0.094 | 10.381 | 0.9 | Pass |
| T11 | 20.3333 - 0 | Redund Hip Diagonal 1 Bracing | ROHN 2.5 STD | 340 | -0.086 | 9.348 | 0.9 | Pass |
| T1 | 212.625 - 202.458 | Inner Bracing | L2x2x1/8 | 17 | -0.004 | 6.538 | 0.5 | Pass |
| T2 | 202.458 - 182.292 | Inner Bracing | L2x2x1/8 | 41 | -0.007 | 6.440 | 0.5 | Pass |
| T3 | 182.292 - 162.104 | Inner Bracing | L2x2x1/8 | 79 | -0.006 | 4.790 | 0.6 | Pass |
| T4 | 162.104 - 141.896 | Inner Bracing | L2x2x1/8 | 120 | -0.007 | 3.283 | 0.7 | Pass |
| T5 | 141.896 - 121.688 | Inner Bracing | L2x2x1/8 | 159 | -0.009 | 2.480 | 0.8 | Pass |
| T6 | 121.688 - 101.479 | Inner Bracing | L2 1/2x2 1/2x3/16 | 186 | -0.011 | 5.225 | 0.7 | Pass |
| T7 | 101.479 - 81.2708 | Inner Bracing | L3x3x3/16 | 212 | -0.014 | 6.881 | 0.7 | Pass |
| T8 | 81.2708 - 61 | Inner Bracing | L3 1/2x3 1/2x1/4 | 239 | -0.017 | 11.196 | 0.5 | Pass |
| T9 | 61 - 40.6667 | Inner Bracing | L3 1/2x3 1/2x1/4 | 266 | -0.017 | 8.922 | 0.5 | Pass |
| T10 | 40.6667 - 20.3333 | Inner Bracing | ROHN 3 STD | 311 | -0.020 | 29.869 | 0.3 | Pass |
| T11 | 20.3333 - 0 | Inner Bracing | ROHN 3 STD | 344 | -0.017 | 24.440 | 0.2 | Pass |
| | | | | | | | Summary | |
| | | | | | | Leg (T9) | 76.1 | Pass |
| | | | | | | Diagonal (T6) | 92.2 | Pass |
| | | | | | | Horizontal | 64.5 | Pass |

| Section No. | Elevation ft | Component Type | Size | Critical Element | P K | $\phi P_{allow}$ K | % Capacity | Pass Fail |
|---|---|---|---|---|---|---|---|---|
| | | | | | | (T9) Top Girt (T1) | 1.1 | Pass |
| | | | | | | Redund Horz 1 Bracing (T11) | 52.7 | Pass |
| | | | | | | Redund Diag 1 Bracing (T11) | 62.0 | Pass |
| | | | | | | Redund Hip 1 Bracing (T11) | 0.3 | Pass |
| | | | | | | Redund Hip Diagonal 1 Bracing (T11) | 0.9 | Pass |
| | | | | | | Inner Bracing (T5) | 0.8 | Pass |
| | | | | | | Bolt Checks | 60.9 | Pass |
| | | | | | | **RATING =** | **92.2** | **Pass** |

# APPENDIX B

# BASE LEVEL DRAWING




BUSINESS UNIT: 806363

# APPENDIX C

# ADDITIONAL CALCULATIONS

# Anchor Rod Check for Self Supporting Towers

TIA-222-G, Section 4.9.9

V7.3

| Site Data | |
|---|---|
| BU#: | 806363 |
| Site Name: | HRT 105 943201, CT |
| App #: | 421190 Revision # 3 |

| No. of Mods: | 0 |
|---|---|

| Reactions | | |
|---|---|---|
| Eta Factor, η | 0.55 | Detail Type |
| Uplift, Pu: | 311 | kips |
| Shear, Vu: | 39 | kips |

| | | |
|---|---|---|
| $l_{ar}$: | | in |
| Mu = 0.65*$l_{ar}$*$V_u$ | | ft-kips |

| Anchor Rod Data | | | | |
|---|---|---|---|---|
| | Existing | | | |
| Qty: | 10 | | | |
| Diam: | 1 | | | in |
| Rod Material: | BC (1/4 to 2 | | | |
| Strength (Fu): | 125 | | | ksi |
| Yield (Fy): | 109 | | | ksi |
| Net Area (An): | 6.06 | | | in^2 |

| Anchor Rod Results: | Existing | | | |
|---|---|---|---|---|
| Rod Vu: | 3.90 | | | k |
| Max Rod (Cu+ Vu/ŋ): | 38.19 | | | k |
| Design Axial, Φ*Fu*Anet: | 60.6 | | | k |
| Anchor Rod Stress Ratio: | 63.0% | | | |

**If Applicable;**

$(V_u/\phi R_{nv})^2 + [(P_u/\phi R_{nt}) + (M_u/\phi R_{nm})]^2 <= 1$

**Anchor Rod Results with Bending Considered:**

*When the clear distance from the top of concrete to the bottom of level nut exceeds 1.0 times the diameter of the anchor rod, the following interaction equation shall also be satisfied (see Figure 4-4 of Rev. G):*

| | | |
|---|---|---|
| $\phi R_{nv}=\phi*0.45*F_{ub}*A_b=$ | | kips |
| $\phi R_{nt}=\phi*F_u*A_{net}=$ | | kips |
| $\phi R_{nm}=\phi*F_y*Z=$ | | ft-kips |

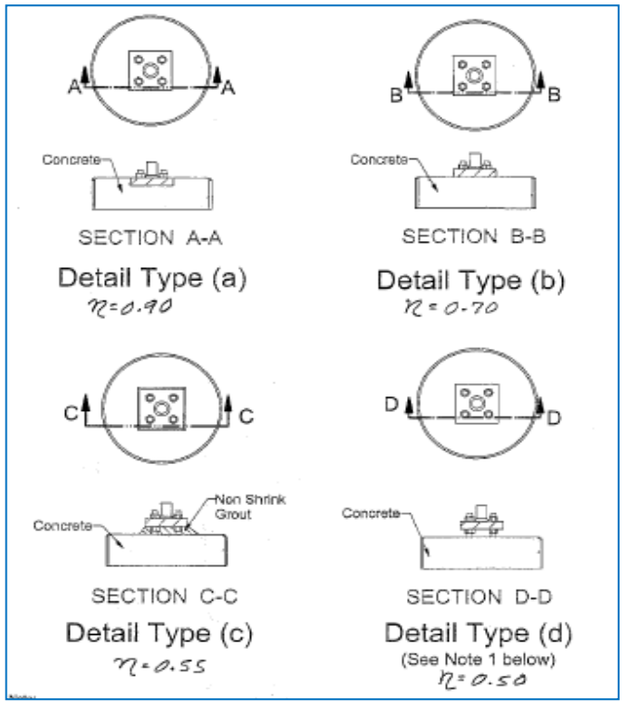



**Figure 4-4 of TIA-222-G**

| Eccentric Load Calculations | | |
|---|---|---|
| MOI= | 246 | in^4 |
| e= | 0 | in |
| Distance to Extreme fibre, $y_0$= | 0.0 | in |
| Eccentric load on Existing= | 0.000 | kips |

**Maximum Acceptable Ratio:** 105 %

**Governing Stress Ratio:** 63.0% **Pass**

# SST Unit Base Foundation

| | |
|---|---|
| **BU # :** | 806363 |
| **Site Name:** | HRT 105 943201, |
| **App. Number:** | 421190 Revision # |

TIA-222 Revision: G

| | |
|---|---|
| Tower Centroid Offset?: | ☐ |
| Block Foundation?: | ☑ |

| Superstructure Analysis Reactions | | |
|---|---|---|
| Global Moment, **M**: | 8763 | ft-kips |
| Global Axial, **P**: | 100 | kips |
| Global Shear, **V**: | 71 | kips |
| Leg Compression, $\mathbf{P_{comp}}$: | 368 | kips |
| Leg Comp. Shear, $\mathbf{V_{u\_comp}}$: | 43 | kips |
| Leg Uplift, $\mathbf{P_{uplift}}$: | 311 | kips |
| Leg Uplift. Shear, $\mathbf{V_{u\_uplift}}$: | 39 | kips |
| Tower Height, **H**: | 212.625 | ft |
| Base Face Width, **BW**: | 30.041667 | ft |
| BP Dist. Above Fdn, $\mathbf{bp_{dist}}$: | 3 | in |
| Anchor Bolt Circle, **BC**: | 12 | in |

| Foundation Analysis Checks | | | | |
|---|---|---|---|---|
| | **Capacity** | **Demand** | **Rating** | **Check** |
| *Lateral (Sliding) (kips)* | 343.72 | 71.00 | **20.7%** | **Pass** |
| *Bearing Pressure (ksf)* | 6.00 | 1.39 | **23.1%** | **Pass** |
| *Overturning (kip*ft)* | 17616.57 | 9100.25 | **51.7%** | **Pass** |
| | | | | |
| | | | | |
| | | | | |
| *Pad Flexure (kip*ft)* | 7259.38 | 1870.15 | **25.8%** | **Pass** |
| *Pad Shear - 1-way (kips)* | 1974.17 | 215.26 | **10.9%** | **Pass** |
| *Pad Shear - 2-way (ksi)* | 0.16 | 0.04 | **22.9%** | **Pass** |

| | |
|---|---|
| Soil Rating: | **51.7%** |
| Structural Rating: | **25.8%** |

| Pad Properties | | |
|---|---|---|
| Depth, **D**: | 4.00 | ft |
| Pad Width, **W**: | 40.30 | ft |
| Pad Thickness, **T**: | 4.50 | ft |
| Pad Rebar Size (Bottom), **Sp**: | 7 | |
| Pad Rebar Quantity (Bottom), **mp**: | 55 | |
| Pad Clear Cover, $\mathbf{cc_{pad}}$: | 3 | in |

| Material Properties | | |
|---|---|---|
| Rebar Grade, **Fy**: | 60000 | psi |
| Concrete Compressive Strength, **F'c**: | 3000 | psi |
| Dry Concrete Density, $\delta$**c**: | 150 | pcf |

| Soil Properties | | |
|---|---|---|
| Total Soil Unit Weight, $\gamma$: | 120 | pcf |
| Ultimate Gross Bearing, Qult: | 8.000 | ksf |
| Cohesion, **Cu**: | 0.000 | ksf |
| Friction Angle, $\varphi$: | 35 | degrees |
| SPT Blow Count, $\mathbf{N_{blows}}$: | | |
| Base Friction, $\mu$: | | |
| Neglected Depth, **N**: | 3.3 | ft |
| Foundation Bearing on Rock? | No | |
| Groundwater Depth, **gw**: | 3 | ft |

<-- Toggle between Gross and Net

Version 2.6.4

# Exposure Category Determination
# BU#806363

- Latitude/Longitude = 41° 17' 20.2",-72° 32' 18.5"
- Tower Height = 212 ft
- Upwind Fetch Radius = Greater of 25 x Tower Height or 3250 ft = 5300 ft
- Minimum Open Patch = 164 ft x 164 ft
- Maximum continuous surface roughness category C arc angle = 15 degrees
- Kmz file saved in folder … R:\SA Models - Letters\Work Area\Exposure_Topo_KMZ


**Exposure Category for this site is B.**

***The determination is based on Crown Castle standard ENG-PRC-10202, Determination of Exposure Category, revision C.***

| | | | |
|---|---|---|---|
| Completed by: | Erin Doyle | Approved by: | Jason Hedrich |
| Date: | 11/05/2015 | Date: | 11/06/2015 |

## Unmitigated Percentage (B/C)

### Inputs

| | |
|---|---|
| Tower Height (ft): | 180' |
| Starting Azimuth: | 30° |
| Upwind Fetch Radius (ft): | 4500' |
| 20% Unmitigated Limit (ft): | 900' |
| Overlay Size Selected: | 30° |

| Subsector (Degrees) | Total Unmitigated Length (ft) | Percentage of Subsector Unmitigated |
|---|---|---|
| 15° | | 0.0% |
| 20° | | 0.0% |
| 25° | ' | 0.0% |
| 30° | ' | 0.0% |
| 35° | 295' | 6.6% |
| 40° | ' | 0.0% |
| 45° | ' | 0.0% |
| 50° | ' | 0.0% |
| 55° | ' | 0.0% |
| 60° | ' | 0.0% |
| 65° | | 0.0% |
| 70° | | 0.0% |
| 75° | | 0.0% |
| 80° | | 0.0% |

| | |
|---|---|
| THIS SITE IS EXPOSURE: | B |

***Length measurements should be taken to the nearest 5' increment.***

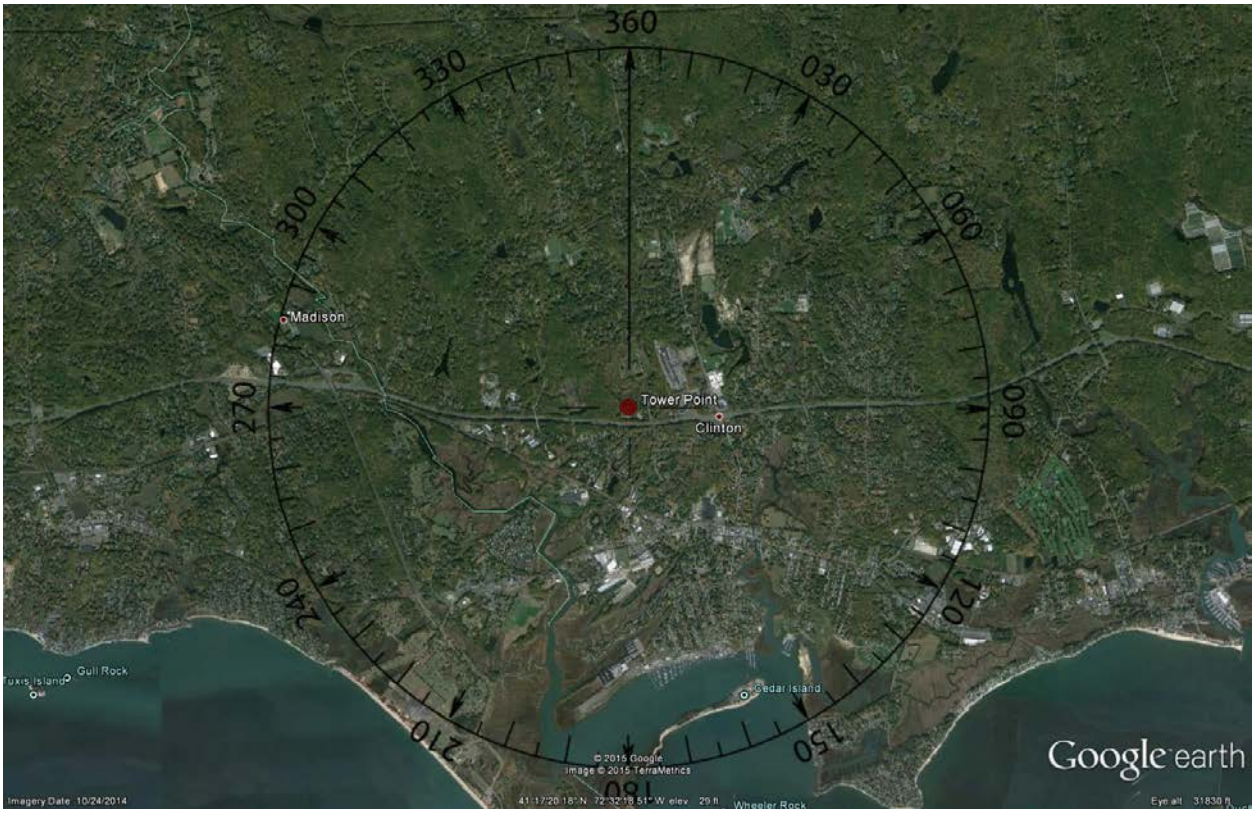
***The determination is based on Crown Castle standard ENG-PRC-10202, Determination of Exposure Category, revision C.***

***This chart is intended only for use with Exposures B and C and is Not applicable for Exposure D.***

| LEGEND | |
|---|---|
| | Considered Subsector |
| | Bookending Subsector |

# Topographic Factor Determination
# BU#806363

- Latitude/Longitude = 41° 17' 20.2",-72° 32' 18.5"
- Tower Height = 212 ft
- Topo Radius = 10,560 ft
- Maximum continuous effective topo arc angle = 0 degrees
- Critical wind azimuth used in topo tool = 0
- Kmz file saved in folder … R:\SA Models - Letters\Work Area\Exposure_Topo_KMZ




**Exposure Category for this site is B.**
**No topo feature.**
**Topographic Factor ($K_{ZT}$) at base is 1.0.**

***The determination is based on Crown Castle standard ENG-PRC-10040, Determination of Topographic Factor, initial release.***

| | | | |
|---|---|---|---|
| Completed by: | Erin Doyle | Approved by: | Jason Hedrich |
| Date: | 11/05/2015 | Date: | 11/06/2015 |



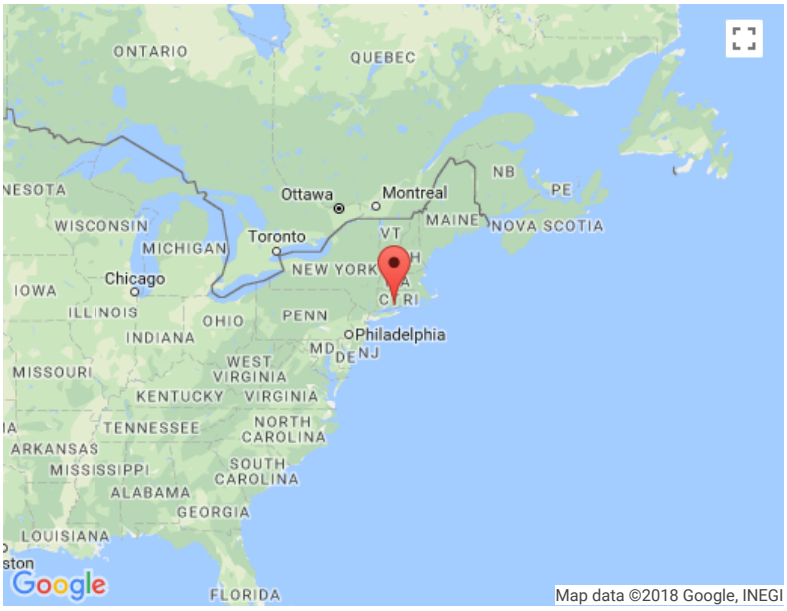

# Search Results

**Query Date:** Thu Jan 25 2018
**Latitude:** 41.2889
**Longitude:** -72.5385

**ASCE 7-10 Windspeeds (3-sec peak gust in mph*):**

**Risk Category I:** 119
**Risk Category II:** 130
**Risk Category III-IV:** 140
**MRI** 10-Year:** 78
**MRI** 25-Year:** 88
**MRI** 50-Year:** 97
**MRI** 100-Year:** 106

**ASCE 7-05 Windspeed:**
115 (3-sec peak gust in mph)
**ASCE 7-93 Windspeed:**
84 (fastest mile in mph)




*Miles per hour
**Mean Recurrence Interval

Users should consult with local building officials to determine if there are community-specific wind speed requirements that govern.

Print your results

**WINDSPEED WEBSITE DISCLAIMER**

While the information presented on this website is believed to be correct, ATC and its sponsors and contributors assume no responsibility or liability for its accuracy. The material presented in the windspeed report should not be used or relied upon for any specific application without competent examination and verification of its accuracy, suitability and applicability by engineers or other licensed professionals. ATC does not intend that the use of this information replace the sound judgment of such competent professionals, having experience and knowledge in the field of practice, nor to substitute for the standard of care required of such professionals in interpreting and applying the results of the windspeed report provided by this website. Users of the information from this website assume all liability arising from such use. Use of the output of this website does not imply approval by the governing building code bodies responsible for building code approval and interpretation for the building site described by latitude/longitude location in the windspeed load report.

# 49B COW HILL RD

| | | | |
|---|---|---|---|
| **Location** | 49B COW HILL RD | **Mblu** | 32/ 6/ 48/ H026570/A |
| **Acct#** | H0265701 | **Owner** | HESER RAYMOND |
| **Assessment** | $561,600 | **Appraisal** | $802,300 |
| **PID** | 106785 | **Building Count** | 1 |

## Current Value

| Appraisal | | | |
|---|---|---|---|
| **Valuation Year** | **Improvements** | **Land** | **Total** |
| 2016 | $160,800 | $641,500 | $802,300 |
| **Assessment** | | | |
| **Valuation Year** | **Improvements** | **Land** | **Total** |
| 2016 | $112,500 | $449,100 | $561,600 |

## Owner of Record

| | | | |
|---|---|---|---|
| **Owner** | HESER RAYMOND | **Sale Price** | $0 |
| **Co-Owner** | CROWN CASTLE ATLANTIC CO LLC | **Certificate** | |
| **Address** | 4017 WASHINGTON RD PMB353<br>MCMURRAY, PA 15317 | **Book & Page** | 088/ 061 |
| | | **Sale Date** | |

## Ownership History

| Ownership History | | | | |
|---|---|---|---|---|
| **Owner** | **Sale Price** | **Certificate** | **Book & Page** | **Sale Date** |
| HESER RAYMOND | $0 | | 088/ 061 | |
| HESER RAYMOND | | | | |

## Building Information

### Building 1 : Section 1

| | |
|---|---|
| **Year Built:** | 1993 |
| **Living Area:** | 1104 |
| **Replacement Cost:** | $176,872 |
| **Building Percent Good:** | 87 |
| **Replacement Cost Less Depreciation:** | $153,900 |

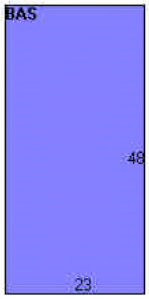
| Building Attributes | |
|---|---|
| **Field** | **Description** |
| STYLE | Telephone Bldg |
| MODEL | Ind/Comm |

**Building Photo**

| | |
|---|---|
| Grade | Average |
| Stories: | 1 |
| Occupancy | 1 |
| Exterior Wall 1 | Brick/Masonry |
| Exterior Wall 2 | |
| Roof Structure | Flat |
| Roof Cover | Tar & Gravel |
| Interior Wall 1 | Minim/Masonry |
| Interior Wall 2 | |
| Interior Floor 1 | Concr-Finished |
| Interior Floor 2 | |
| Heating Fuel | Gas |
| Heating Type | Hot Air-no Duc |
| AC Type | Central |
| Bldg Use | TEL X STA MDL-96 |
| Total Rooms | |
| Total Bedrms | 00 |
| Total Baths | 0 |
| 1st Floor Use: | 4300 |
| Heat/AC | NONE |
| Frame Type | STEEL |
| Baths/Plumbing | NONE |
| Ceiling/Wall | NONE |
| Rooms/Prtns | AVERAGE |
| Wall Height | 12 |
| % Comn Wall | |

(http://images.vgsi.com/photos/ClintonCTPhotos//\00\00\07/11.jpg)

### Building Layout




| Building Sub-Areas (sq ft) | | | Legend |
|---|---|---|---|
| Code | Description | Gross Area | Living Area |
| BAS | First Floor | 1104 | 1104 |
| | | 1104 | 1104 |

### Extra Features

| Extra Features | Legend |
|---|---|
| No Data for Extra Features | |

### Land

#### Land Use

| | |
|---|---|
| **Use Code** | 4300 |
| **Description** | TEL X STA MDL-96 |
| **Zone** | I-P |
| **Neighborhood** | 1100 |
| **Alt Land Appr** | No |
| **Category** | |

#### Land Line Valuation

| | |
|---|---|
| **Size (Acres)** | 0.18 |
| **Frontage** | |
| **Depth** | |
| **Assessed Value** | $449,100 |
| **Appraised Value** | $641,500 |

### Outbuildings

| Outbuildings | | | | | | Legend |
|---|---|---|---|---|---|---|
| **Code** | **Description** | **Sub Code** | **Sub Description** | **Size** | **Value** | **Bldg #** |
| FN4 | FENCE-8' CHAIN | | | 360 L.F. | $900 | 1 |
| PAV2 | PAVING-CONC | | | 1296 S.F. | $2,900 | 1 |
| SHD5 | COMM WOOD | | | 200 S.F. | $3,100 | 1 |

**Valuation History**

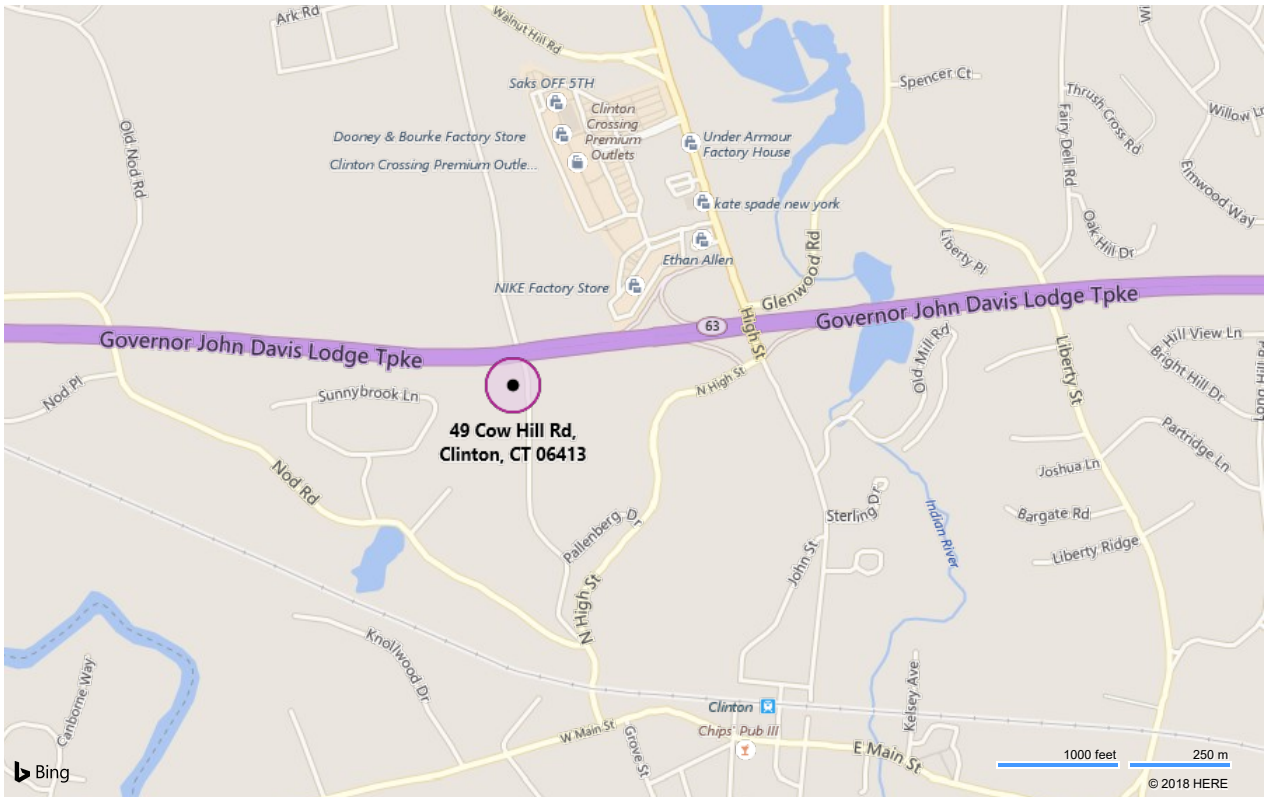
| Appraisal | | | |
|---|---|---|---|
| **Valuation Year** | **Improvements** | **Land** | **Total** |
| 2010 | $131,500 | $641,500 | $773,000 |
| 2009 | $203,500 | $717,300 | $920,800 |
| 2005 | $203,500 | $717,300 | $920,800 |

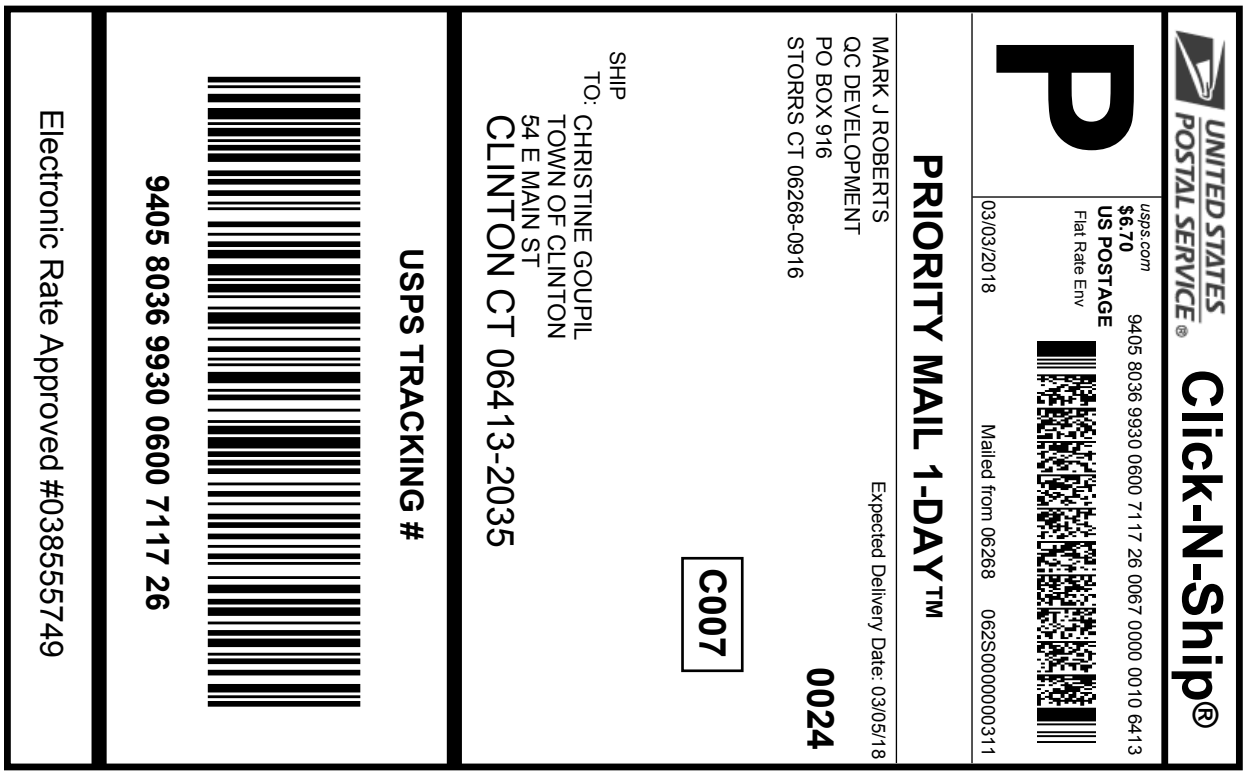
| Assessment | | | |
|---|---|---|---|
| **Valuation Year** | **Improvements** | **Land** | **Total** |
| 2010 | $92,200 | $449,100 | $541,300 |
| 2009 | $142,600 | $502,100 | $644,700 |
| 2005 | $142,600 | $502,100 | $644,700 |

bing maps

**49 Cow Hill Rd, Clinton, CT 06413**

**Location:** 41.28688, -72.53608






*Cut on dotted line.*

## Instructions

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

## Click-N-Ship® Label Record

**USPS TRACKING # / Insurance Number:**
**9405 8036 9930 0600 7117 26**

| | |
|---|---|
| Trans. #: | 428911728 |
| Print Date: | 03/02/2018 |
| Ship Date: | 03/03/2018 |
| Expected Delivery Date: | 03/05/2018 |
| Insured Value: | $50.00 |

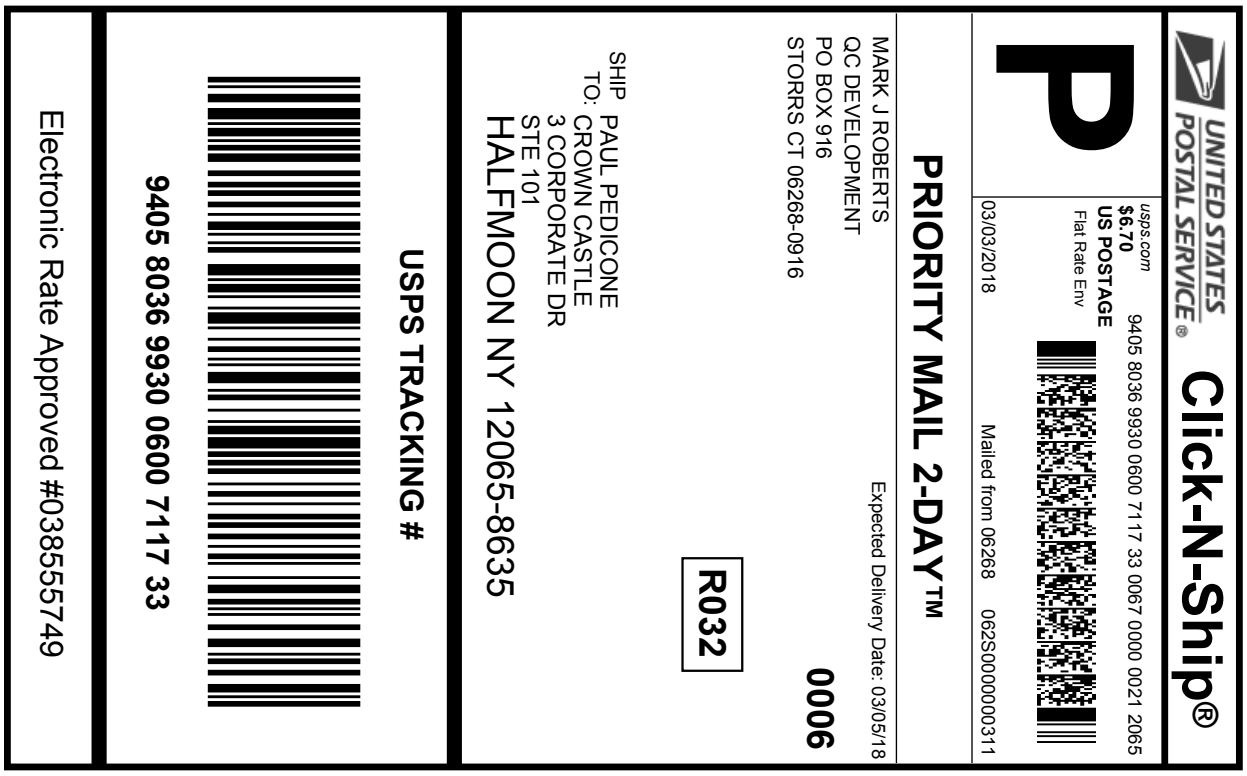
| | |
|---|---|
| Priority Mail® Postage: | **$6.70** |
| Insurance Fee | **$0.00** |
| Total | **$6.70** |

**From:** MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

**To:** CHRISTINE GOUPIL
TOWN OF CLINTON
54 E MAIN ST
CLINTON CT 06413-2035

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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




*Cut on dotted line.*

## Instructions

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

## Click-N-Ship® Label Record

**USPS TRACKING # / Insurance Number:**
**9405 8036 9930 0600 7117 33**

| | |
|---|---|
| Trans. #: | 428911728 |
| Print Date: | 03/02/2018 |
| Ship Date: | 03/03/2018 |
| Expected Delivery Date: | 03/05/2018 |
| Insured Value: | $50.00 |

| | |
|---|---|
| Priority Mail® Postage: | **$6.70** |
| Insurance Fee | **$0.00** |
| Total | **$6.70** |

**From:** MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

**To:** PAUL PEDICONE
CROWN CASTLE
3 CORPORATE DR
STE 101
HALFMOON NY 12065-8635

* Retail Pricing Priority Mail rates apply. There is no fee for USPS Tracking® service on Priority Mail service with use of this electronic rate shipping label. Refunds for unused postage paid labels can be requested online 30 days from the print date.

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