



October 11, 2018

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

Re: Notice of Exempt Modification – Antenna Swap
Property Address: 57 COOK DRIVE UNCASVILLE, CT 06382
Applicant: AT&T Mobility, LLC

Dear Ms. Bachman:

On behalf of AT&T, please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72(b) (2).

AT&T currently maintains a wireless telecommunications facility consisting of nine (9) wireless telecommunication antennas at an antenna center line height of 180-feet on an existing 193 foot –guyed tower, owned by WIRELESS SOLUTIONS, LLC & ROBERT KINGSBOROUGH. AT&T now intends to · INSTALL (5) NEW RRU'S AT GRADE, INSTALL (6) NEW RRU'S, (2) PER SECTOR, INSTALL (6) NEW PANEL ANTENNAS, (2) PER SECTOR, REMOVE (6) EXISTING PANEL ANTENNAS, (2) PER SECTOR, REMOVE (6) DIPLEXERS, (2) PER SECTOR, REMOVE (3) TMA's, (1) PER SECTOR, INSTALL (3) LOW BAND COMBINERS, (1) PER SECTOR, INSTALL (3) LOW BAND COMBINERS AT GRADE, INSTALL (1) NEW DC-6 SURGE SUPPRESSION DOME, INSTALL (1) NEW 18-PAIR FIBER TRUNK, INSTALL (2) NEW 6/C DC CABLES, and SWITCH BB TO (2) 5216 AND ADD 2ND XMU + IDLe

This facility was approved by the Montville Planning and Zoning commission on January 14, 1997 for the site plan submitted by Wireless Solutions LLC and Robert W. Kingsborough to install a 180-foot radio and antenna tower for wireless communication purposes at the property located at 57 Cook Drive, Montville, Ct. Shown on Assessors Map 98, lot 2. SEE ATTACHED.

The following is a list of subsequent decisions by the Connecticut Siting Council:

[EM-CING-086-080618](#) - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 57 Cook Road, Montville, Connecticut. **Withdrawn.**

[EM-CING-086-080618](#) - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 57 Cook Road, Montville, Connecticut. **Withdrawn.**



EM-CING-086-080618 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 57 Cook Road, Montville, Connecticut. **Withdrawn.**

EM-CING-086-080618 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 57 Cook Road, Montville, Connecticut. **Withdrawn.**

EM-CING-086-080922 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 57 Cook Drive, **Montville**, Connecticut.

EM-CING-086-130130 - New Cingular Wireless PCS, LLC notice of intent to modify an existing telecommunications facility located at 57 Cook Drive, Uncasville (**Montville**), Connecticut.

EM-AT&T-086-140210- American Telephone & Telegraph (AT&T) notice of intent to modify an existing telecommunications facility located at 57 Cook Drive, Uncasville (**Montville**), Connecticut. [Decision](#). [Extension Request and CSC Decision](#). [Extension Request and CSC Decision](#). [Extension Request and CSC Decision](#).

EM-CING-086-140909 – New Cingular Wireless PCS, LLC (AT&T) notice of intent to modify an existing telecommunications facility located at 57 Cook Drive, **Montville**, Connecticut. [Decision](#). [Extension Request and CSC Decision](#).

Please accept this letter pursuant to Regulation of Connecticut State Agencies §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-510j-72(b) (2). In accordance with R.C.S.A., a copy of this letter is being sent Ronald K. McDaniel, Mayor, Montville Town Hall, 2nd Floor 310 Norwich New London Tpke. Uncasville, CT 06382 Lucy Beit, Assessor Montville Town Hall, Ground Floor, Room 4 310 Norwich-New London Tpke. Uncasville, CT 06382 and the property owner and tower owner, WIRELESS SOLUTIONS, LLC & ROBERT KINGSBOROUGH P.O. BOX 374 UNCASVILLE, CT 06382

The planned modifications to AT&T's 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 tower. AT&T's replacement antennas will be installed at the 180-foot level of the 193-foot guyed tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment and, therefore, will not require an extension of the site boundary.
3. The proposed modifications will not increase the noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. A cumulative worst-case RF emissions calculation for AT&T's modified facility is provided in the RF Emissions Compliance Report, included in [Tab 2](#).



5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The tower and its foundation can support AT&T's proposed modifications. (See Structural Analysis Report included in Tab 3).

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

Sincerely,

David Barbagallo

CC w/enclosures:

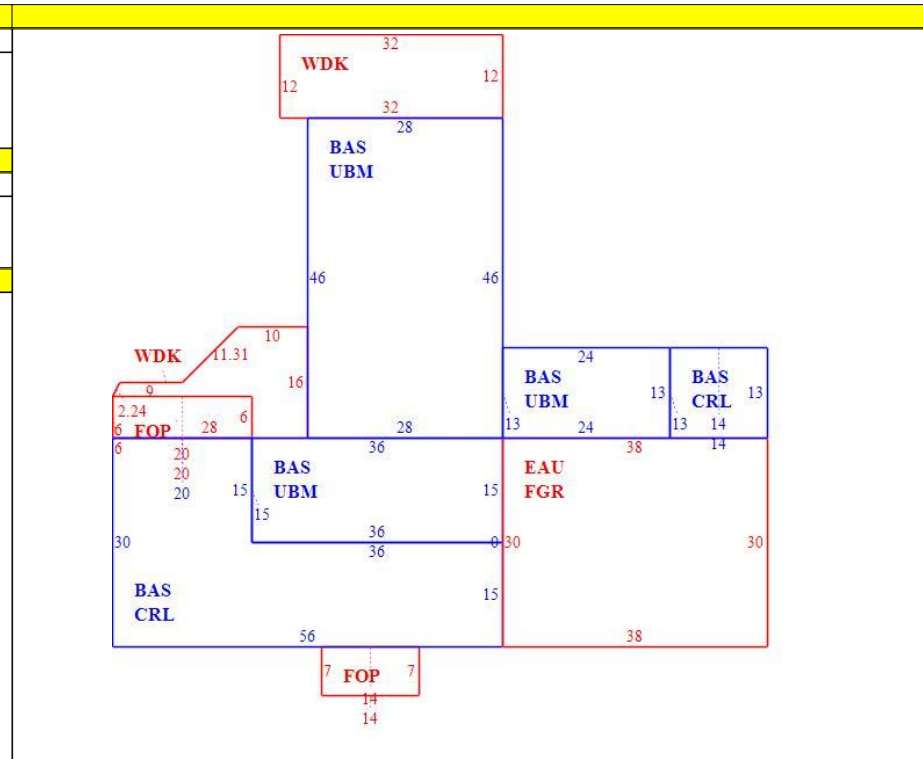
Honorable Ronald K. McDaniel, Mayor, Montville Town Hall
City Assessor, Lucy Beit, Montville Town Hall
Property Owner and Tower Owner, WIRELESS SOLUTIONS, LLC & ROBERT
KINGSBOROUGH

| CURRENT OWNER | | TOPO | UTILITIES | STRT / ROAD | LOCATION | CURRENT ASSESSMENT | | | | 6086 MONTVILLE, CT | | | | | | | | | | | |
|------------------------------------------------|--------------------------|-------------------|-------------------|----------------|-------------|--------------------|---------------------------------------------------------------------|--------------------------------|------------|-----------------------|---------|---------|----------|---------------------------|-------|-----------------|-----------|-------|---------------|------------------|---------|
| KINGSBOROUGH ROBERT W & KAR | 1 Level | 7 Electric | 2 Semi-Improve | S Mohegan Schl | Description | Code | Appraised | Assessed | | | | | | | | | | | | | |
| | | 5 Well | | F Mohegan | Res Land | 1-1 | 60,800 | 42,560 | | | | | | | | | | | | | |
| 57 COOK RD | SUPPLEMENTAL DATA | | | | Res Exces | 1-2 | 330 | 230 | | | | | | | | | | | | | |
| | Alt Parcel ID | 040/013-000 | | | Dwelling | 1-3 | 306,940 | 214,860 | | | | | | | | | | | | | |
| UNCASVILLE CT 06382 | Census | 695100 | | | Res OB | 1-4 | 696,810 | 487,770 | | | | | | | | | | | | | |
| | Dev Lot | | | | Forest | 6-2 | 103,750 | 6,970 | | | | | | | | | | | | | |
| | Subdiv | | | | | | | | | | | | | | | | | | | | |
| | Map # | | | | | | | | | | | | | | | | | | | | |
| Zoning Notes | C3 | | | Callback | R | | | | | | | | | | | | | | | | |
| Gis ID | 040/013-000 | | | ASSOC PID# | | | | | | | | | | | | | | | | | |
| | | | | | | Total | 1,168,630 | 752,390 | | | | | | | | | | | | | |
| RECORD OF OWNERSHIP | | BK-VOL/PAGE | SALE DATE | Q/U | V/I | SALE PRICE | VC | PREVIOUS ASSESSMENTS (HISTORY) | | | | | | | | | | | | | |
| KINGSBOROUGH ROBERT W & KAREN A | 0546 | 0511 | 03-04-2010 | U | I | 0 | 29 | Year | Code | Assessed | Year | Code | Assessed | Year | Code | Assessed | | | | | |
| KINGSBOROUGH ROBERT W | 0292 | 0446 | 10-23-1996 | | I | 0 | | 2016 | 1-1 | 42,560 | 2015 | 1-1 | 53,760 | 2014 | 1-1 | 53,760 | | | | | |
| KINGSBOROUGH ROBERT W & D L MARIE | 0207 | 0299 | 11-12-1988 | | I | 0 | | | 1-2 | 230 | | 1-2 | 410 | | 1-2 | 410 | | | | | |
| | | | | | | | | | 1-3 | 214,860 | | 1-3 | 172,880 | | 1-3 | 172,880 | | | | | |
| | | | | | | | | | 1-4 | 487,770 | | 1-4 | 487,770 | | 1-4 | 487,770 | | | | | |
| | | | | | | Total | | Total | 752,390 | Total | 718,600 | Total | 718,600 | | | | | | | | |
| EXEMPTIONS | | | OTHER ASSESSMENTS | | | | This signature acknowledges a visit by a Data Collector or Assessor | | | | | | | | | | | | | | |
| Year | Code | Description | Amount | Code | Description | Number | Amount | Comm Int | | | | | | | | | | | | | |
| | | | Total | 0.00 | | | | | | | | | | | | | | | | | |
| ASSESSING NEIGHBORHOOD | | | | | | | | | | | | | | | | | | | | | |
| NBHD | NBHD Name | Street Index Name | Tracing | Batch | | | | | | | | | | | | | | | | | |
| 0001 | | | | | | | | | | | | | | | | | | | | | |
| NOTES | | | | | | | | | | | | | | | | | | | | | |
| AT&T ANTENNAE = \$163,600 PER SITE = \$654,400 | | | | | | | | | | | | | | | | | | | | | |
| L: OLD MAPBLOLOT WAS 098/002-000 | | | | | | | | | | | | | | | | | | | | | |
| VC09: ADDITION | | | | | | | | | | | | | | | | | | | | | |
| CELL TOWER VALUE = \$2000 MO LESS | | | | | | | | | | | | | | | | | | | | | |
| 25% EXPENSES = \$18,000 CAPPED AT 11% | | | | | | | | | | | | | | | | | | | | | |
| BUILDING PERMIT RECORD | | | | | | | | VISIT / CHANGE HISTORY | | | | | | | | | | | | | |
| Permit ID | Issue Date | Type | Description | Amount | Insp Date | % Comp | Date Comp | Comments | Date | Type | IS | ID | Cd | Purpost/Result | | | | | | | |
| B2017-0123 | 04-20-2017 | 79 | | 15,000 | | 0 | | VERIZON TO REPL | 03-28-2013 | | | BAA | BN | BAA No Change | | | | | | | |
| B2015-0505 | 11-17-2015 | 79 | Misc | 33,434 | | 100 | 10-27-2016 | CA-THREE ANTEN | 09-12-2011 | | | RH | 00 | Interior + Exterior Inspe | | | | | | | |
| B2015-0345 | 08-13-2015 | 79 | | 15,000 | | 100 | | REPL ANTENNA PA | 07-01-2011 | | | KN | 09 | All Refused- Estimated | | | | | | | |
| E2015-0022 | 02-09-2015 | 00 | | 5,700 | | 100 | 02-11-2015 | CA-REPAIR/RELOC | 10-26-2009 | | | LB | 08 | Interior Refused-Exteri | | | | | | | |
| B2015-0035 | 02-03-2015 | 79 | Misc | 8,000 | | 100 | 08-03-2015 | CA-3 RADIO HEAD | | | | | | | | | | | | | |
| B2014-0221 | 06-25-2014 | 79 | Misc | 15,000 | | 100 | | REPLACE 6 ANTEN | | | | | | | | | | | | | |
| B2013-0052 | 03-20-2013 | 79 | Misc | 129,000 | | 100 | | STRUCTURAL CHA | | | | | | | | | | | | | |
| LAND LINE VALUATION SECTION | | | | | | | | | | | | | | | | | | | | | |
| B | Use co | Description | Zone | D | Fronta | Depth | Units | Unit Price | I. Fact | S.A. | Ac Di | C. Fact | St. Idx | Adj | Notes | Special Pricing | | S Adj | Adj Unit Pric | Land Value | |
| | | | | | | | | | | | | | | | | Spec Use | Spec Calc | | | | |
| 1 | 1010 | Single Family | C-3 | | | | 160,000 SF | 0.38 | 1.000 | 5 | 1.000 | 1.00 | 002 | 1.00 | | | | | 1.000 | | 60,800 |
| 1 | 1010 | Single Family | C3 | | | | 0 AC | 2,500.00 | 1.000 | 0 | 1.000 | 1.00 | 002 | 1.00 | | | | | 0.000 | | 330 |
| 1 | 700 | Forest | C-3 | | | | 42 AC | 2,500.00 | 1.000 | 0 | 1.000 | 1.00 | 002 | 1.00 | | 490 | 240 | | 0.000 | | 103,750 |
| 1 | 4340 | Cell Tower | | | | | SF | 2,500.00 | 1.000 | | 1.000 | 1.00 | | 1.00 | | | | | 0.000 | | 0 |
| Total Card Land Units | | | | | | | 45.303 AC | Parcel Total Land Area | 45.3031 | | | | | | | | | | | Total Land Value | 164,880 |

| CONSTRUCTION DETAIL | | | CONSTRUCTION DETAIL (CONTINUED) | | |
|---------------------|----|--------------|---------------------------------|----|-------------|
| Element | Cd | Description | Element | Cd | Description |
| Style | 01 | Ranch | | | |
| Model | 01 | Residential | | | |
| Grade: | 11 | B | | | |
| Stories: | 1 | | | | |
| Occupancy | 1 | | | | |
| Exterior Wall A | 25 | Vinyl Siding | | | |
| Exterior Wall B | | | | | |
| Roof Structure: | 03 | Gable | | | |
| Roof Cover | 03 | Asphalt | | | |
| Interior Wall A | 05 | Drywall | | | |
| Interior Wall B | | | | | |
| Interior Flr A | 14 | Carpet | | | |
| Interior Flr B | | | | | |
| Heat Fuel | 02 | Oil | | | |
| Heat Type: | 05 | Hot Water | | | |
| AC Type: | 01 | None | | | |
| Total Bedrooms | 05 | 5 Bedrooms | | | |
| Total Bthrms: | 3 | | | | |
| Total Half Baths | 0 | 0 | | | |
| Total Xtra Fixtrs | 0 | | | | |
| Total Rooms: | 9 | | | | |
| Bath Style: | 02 | Average | | | |
| Kitchen Style: | 02 | Average | | | |
| Whirlpool Tub | | | | | |
| Fireplaces | 1 | | | | |
| Fin Bsmnt | | | | | |
| Fin Bsmnt Qual | | | | | |
| Attic Access | 01 | None | | | |
| Basement Gara | 0 | | | | |
| | 1 | | | | |
| MH Basement | | | | | |
| MHP/Complex | | | | | |

| MIXED USE | | |
|-----------|---------------|------------|
| Code | Description | Percentage |
| 1010 | Single Family | 100 |
| | | 0 |
| | | 0 |

| COST / MARKET VALUATION | | |
|--------------------------|------|---------|
| Base Rate | | 90.00 |
| RCN | | |
| Net Other Adj | | |
| Year Built | 1989 | |
| Effective Year Built | | |
| Depreciation Code | G | |
| Remodel Rating | MJ | |
| Year Remodeled | 2009 | |
| Depreciation % | 16 | |
| Functional Obsol | | |
| Economic Obsol | | |
| Cost Trend Factor | 1 | |
| Condition | | |
| % Complete | | |
| | 84 | |
| RCNLD | | 302,740 |
| Dep % Ovr | | |
| Dep Ovr Comment | | |
| Misc Imp Ovr | | |
| Misc Imp Ovr Comment | | |
| Cost to Cure Ovr | | |
| Cost to Cure Ovr Comment | | |



| OB - OUTBUILDING & YARD ITEMS(L) / XF - BUILDING EXTRA FEATURES(B) | | | | | | | | | | | | |
|--------------------------------------------------------------------|--------------|----|----------|-----|-------|------------|------|-----|-------|----------|----|------------|
| Code | Description | Su | Sub Type | Lan | Units | Unit Price | Year | Pct | Depre | Conditio | Qu | Apprais Va |
| SHD1 | Shed | | | B | 168 | 12.00 | 1999 | 50 | 0.00 | AV | A | 1,010 |
| KIT | Kitchen | | | B | 1 | 5000.00 | 2000 | 84 | 1.00 | | | 4,200 |
| CELL | Cell Tower | | | B | 4 | 163600.0 | 2009 | 100 | 0.00 | | | 654,400 |
| CELS | Cell Shed | | | B | 240 | 100.00 | 2009 | 50 | 0.00 | AV | 08 | 12,000 |
| CELS | Cell Shed | | | B | 240 | 100.00 | 2009 | 50 | 0.00 | AV | 08 | 12,000 |
| CELS | Cell Shed | | | B | 144 | 100.00 | 2009 | 50 | 0.00 | AV | 08 | 7,200 |
| CELS | Cell Shed | | | B | 192 | 100.00 | 2009 | 50 | 0.00 | AV | 08 | 9,600 |
| FN3 | 6' Chain Fen | | | B | 100 | 12.00 | 2009 | 50 | 0.00 | AV | 08 | 600 |

| BUILDING SUB-AREA SUMMARY SECTION | | | | | | |
|-----------------------------------|----------------------------|--------|--------|----------|-----------|----------------|
| Subarea | Description | Living | Gross | Eff Area | Unit Cost | Undeprec Value |
| BAS | First Floor | 3,462 | 3,462 | | 79.60 | 275,560 |
| CRL | Crawl Space | 0 | 1,322 | | 0.00 | 0 |
| EAU | Unfinished Expansion Attic | 0 | 1,140 | | 14.31 | 16,317 |
| FGR | Garage | 0 | 1,140 | | 23.88 | 27,222 |
| FOP | Open Porch | 0 | 218 | | 12.05 | 2,627 |
| UBM | Basement | 0 | 2,140 | | 15.92 | 34,067 |
| WDK | Wood Deck | 0 | 719 | | 6.42 | 4,617 |
| Ttl Gross Liv / Lease Area | | 3,462 | 10,141 | | | |





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Smartlink LLC
Dave Barbagallo
265 Lincoln St
KENSINGTON, CT US 06037
860 681-7708

TO

WIRELESS SOLUTIONS, LLC & ROBERT KI
Ken Thomas
UNCASVILLE, CT US 06382
315 360-1639

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Shipment Facts

TRACKING NUMBER

773520193386

SERVICE

FedEx Express Saver

WEIGHT

1 lbs / 0.45 kgs

DELIVERY ATTEMPTS

1

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TOTAL PIECES

1



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Smartlink LLC
David Barbagallo
265 Lincoln St
KENSINGTON, CT US 06037
860 681-7708

TO

Ronald K. McDaniel
UNCASVILLE, CT US 06382
860 848-6778

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Shipment Facts

TRACKING NUMBER

773520000835

SERVICE

FedEx Express Saver

WEIGHT

1 lbs / 0.45 kgs

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Receptionist/Front Desk

TOTAL PIECES

1



SPECIAL HANDLING SECTION

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Fri 10/19/2018

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FROM

Smartlink LLC
Dave Barbagallo
265 Lincoln St
KENSINGTON, CT US 06037
860 681-7708

TO

Montville Town Hall
Lucy Beit
UNCASVILLE, CT US 06382
860 848-6774

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DELIVERY ATTEMPTS

1

DELIVERED TO

Receptionist/Front Desk

TOTAL PIECES

1

TOTAL SHIPMENT WEIGHT

1 lbs / 0.45 kgs

TERMS

Not Available

PACKAGING

FedEx Pak

SPECIAL HANDLING SECTION

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STANDARD TRANSIT



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SHIP DATE



Fri 10/19/2018

Travel History

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PROJECT NOTES

1. SITE INFORMATION OBTAINED FROM THE FOLLOWING:
 - A. PLAN ENTITLED "UNCASVILLE" PREPARED BY DEWBERRY ENGINEERS INC. OF PARSIPPANY, NJ LAST REVISED 09/04/2014.
 - B. LIMITED FIELD OBSERVATION BY MASER CONSULTING ON 05/22/2018.
2. THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES, ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITY COMPANIES OR OTHER PUBLIC/GOVERNING AUTHORITIES.
3. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
4. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK.
5. THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE AS A RESULT OF CONSTRUCTION OF THIS FACILITY AT THE CONTRACTOR'S EXPENSE TO THE SATISFACTION OF THE OWNER.
6. THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.
7. THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING THE BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS AND CONSTRUCTION DRAWINGS.
8. THE CONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THESE DRAWINGS MUST BE VERIFIED. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION MANAGER OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
9. SINCE THE CELL SITE MAY BE 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 REQUIRED TO BE WORN TO ALERT OF ANY POTENTIALLY DANGEROUS EXPOSURE LEVELS.
10. THE PROPOSED FACILITY WILL CAUSE NO INCREASE IN STORM WATER RUNOFF, THEREFORE, NO DRAINAGE STRUCTURES ARE PROPOSED.
11. NO NOISE, SMOKE, DUST OR ODOR WILL RESULT FROM THIS FACILITY AS TO CAUSE A NUISANCE.
12. THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION (NO HANDICAP ACCESS IS REQUIRED).
13. THE FACILITY DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
14. CONTRACTOR SHALL VERIFY ANTENNA ELEVATION AND AZIMUTHS WITH RF ENGINEERING PRIOR TO INSTALLATION.
15. THE TOWER, MOUNTS AND ANTENNAS SHALL BE DESIGNED TO MEET EIA/TIA-222-G AS PER IBC REQUIREMENTS.
16. ALL STRUCTURAL ELEMENTS SHALL BE HOT DIPPED GALVANIZED STEEL.
17. CONTRACTOR MUST FIELD LOCATE ALL EXISTING UNDERGROUND UTILITIES PRIOR TO ANY EXCAVATION.
18. CONSTRUCTION SHALL NOT COMMENCE UNTIL COMPLETION OF A PASSING STRUCTURAL ANALYSIS CERTIFIED BY A LICENSED PROFESSIONAL ENGINEER. THE STRUCTURAL ANALYSIS IS TO BE PERFORMED BY OTHERS.
19. CONTRACTOR SHALL CONTACT STATE SPECIFIC ONE CALL SYSTEM THREE WORKING DAYS PRIOR TO ANY EARTH MOVING ACTIVITIES.



SITE NAME: MONTVILLE EAST
FA NUMBER: 10035116
SITE NUMBER: CTL02171
3C - MRCTB030895
4C - MRCTB031936
5C - MRCTB031457
6C - MRCTB031324
57 COOK DRIVE
UNCASVILLE, CT 06382
NEW LONDON COUNTY

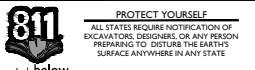


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PROJECT INFORMATION

SITE INFORMATION

LATITUDE: 41.4749919° N
 LONGITUDE: 72.1050269° W
 JURISDICTION: NEW LONDON COUNTY

APPLICANT/LESSEE

COMPANY: NEW CINGULAR WIRELESS PCS, LLC
 ADDRESS: 550 COCHITUATE ROAD
 CITY, STATE, ZIP: FRAMINGHAM, MA 01701

LANDLORD

COMPANY: WIRELESS SOLUTIONS, LLC & ROBERT KINGSBOROUGH
 ADDRESS: P.O. BOX 374
 CITY, STATE, ZIP: UNCASVILLE, CT 06382

CLIENT REPRESENTATIVE

COMPANY: SMARTLINK, LLC
 ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, STE. 102
 CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
 CONTACT: TODD OLIVER
 E-MAIL: TODD.OLIVER@SMARTLINKLLC.COM

SITE ACQUISITION

COMPANY: SMARTLINK, LLC
 ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, STE. 102
 CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
 CONTACT: SHARON KEEFE
 E-MAIL: SHARON.KEEFE@SMARTLINKLLC.COM

CONSTRUCTION MANAGER

COMPANY: SMARTLINK, LLC
 ADDRESS: 85 RANGEWAY ROAD, BUILDING 3, STE. 102
 CITY, STATE, ZIP: NORTH BILLERICA, MA 01862
 CONTACT: MARK DONNELLY
 E-MAIL: MARK.DONNELLY@SMARTLINKLLC.COM

ENGINEER

COMPANY: MASER CONSULTING P.A.
 ADDRESS: 331 NEWMAN SPRINGS ROAD, SUITE 203
 CITY, STATE, ZIP: RED BANK, NJ 07701
 CONTACT: ROBERT ANDREWS
 PHONE: (856) 797-0412
 E-MAIL: RANDREWS@MASERCONSULTING.COM

**PROJECT DESCRIPTION/
SCOPE OF WORK**

- INSTALL (5) NEW RRU'S AT GRADE
- INSTALL (6) NEW RRU'S, (2) PER SECTOR
- INSTALL (6) NEW PANEL ANTENNAS, (2) PER SECTOR
- REMOVE (6) EXISTING PANEL ANTENNAS, (2) PER SECTOR
- REMOVE (6) DIPLEXERS, (2) PER SECTOR
- REMOVE (3) TMA's, (1) PER SECTOR
- INSTALL (3) LOW BAND COMBINERS, (1) PER SECTOR
- INSTALL (3) LOW BAND COMBINERS AT GRADE
- INSTALL (1) NEW DC-6 SURGE SUPPRESSION DOME
- INSTALL (1) NEW 18-PAIR FIBER TRUNK
- INSTALL (2) NEW 6/C DC CABLES
- SWITCH BB TO (2) 5216 AND ADD 2ND XMMU + IDLe
- ADD (1) RBS 6630
- ADD (1) GE RECTIFIER TO EXISTING POWER PLANT

PROPOSED PROJECT SCOPE BASED ON RFDS ID# 2311012, VERSION 3.00, LAST UPDATED 07/18/2018.

SHEET INDEX

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CODE COMPLIANCE

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

- | | |
|---------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| 1. 2016 CONNECTICUT STATE BUILDING CODE, INCORPORATING THE 2012 IBC | 8. INSTITUTE FOR ELECTRICAL AND ELECTRONICS ENGINEERS 81 IEEE C2 LATEST EDITION |
| 2. 2014 NATIONAL ELECTRICAL CODE - NFPA 70 | 9. TELCORDIA GR-1275 |
| 3. 2012 NFPA 101 | 10. ANSI T1.311 |
| 4. AMERICAN INSTITUTE OF STEEL CONSTRUCTION 360-10 | 11. PROPOSED USE: UNMANNED TELECOM FACILITY |
| 5. AMERICAN CONCRETE INSTITUTE | 12. HANDICAP REQUIREMENTS: FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. HANDICAPPED ACCESS NOT REQUIRED. |
| 6. TIA-222-G | 13. CONSTRUCTION TYPE: IIB |
| 7. TIA 607 FOR GROUNDING | 14. USE GROUP: U |

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IT IS THE DUTY OF THE ENGINEER TO VERIFY THE ACCURACY OF ALL INFORMATION PROVIDED TO HIM BY THE CLIENT. THE ENGINEER SHALL BE RESPONSIBLE FOR THE DESIGN AND CONSTRUCTION OF THE PROJECT. ANY CHANGES TO THE DESIGN SHALL BE MADE BY THE ENGINEER, TO WHOM ALL CHANGES SHALL BE REFERRED.

SITE NAME:

MONTVILLE EAST
FA# 10035116
SITE# CTL02171
57 COOK DRIVE
UNCASVILLE, CT 06382
NEW LONDON COUNTY



TITLE SHEET

T-1

GENERAL NOTES:

- THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING 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.
- 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.
- THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 50 HMS OR LESS.
- THE SUBCONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT.
- METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- 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.
- EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE EQUIPMENT GROUND RING WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS; 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
- CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED. BACK TO BACK CONNECTIONS ON OPPOSITE SIDES OF THE GROUND BUS ARE PERMITTED.
- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING, SHALL BE #2 AWG SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED. ALL BENDS SHALL BE MADE WITH 12" RADIUS OR LARGER.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS EXCEPT FOR GROUND BAR CONNECTION FROM MGB TO OUTSIDE EXTERIOR GROUND SHALL ALL BE CADWELD CONNECTIONS.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED TO THE TOWER GROUND BAR.
- APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR AND INTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND WIRES WITH 1-#2 AWG TIN-PLATED COPPER GROUND CONDUCTOR.
- GROUND CONDUCTORS USED IN THE FACILITY GROUND AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC PLASTIC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (E.G. NON-METALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
- ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/4" 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.
- FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 - CONTRACTOR - SMARTLINK
 - SUBCONTRACTOR - GENERAL CONTRACTOR (CONSTRUCTION)
 - OWNER - AT&T (NEW CINGULAR WIRELESS PCS, LLC)
- ALL SITE WORK SHALL BE COMPLETED AS INDICATED ON THE DRAWINGS AND PROJECT SPECIFICATIONS.
- DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
- 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.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

- THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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.
- THE SUBCONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC, AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES, AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY THE RESPONSIBLE ENGINEER. EXTREME CAUTION SHOULD BE USED BY THE SUBCONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. SUBCONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING & EXCAVATION.
- ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, AS DIRECTED BY THE RESPONSIBLE ENGINEER, AND SUBJECT TO THE APPROVAL OF THE OWNER AND/OR LOCAL UTILITIES.
- THE AREAS OF THE OWNER'S PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY SHALL BE GRADED TO A UNIFORM SLOPE AND STABILIZED TO PREVENT EROSION.
- SUBCONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
- NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.
- THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE BTS EQUIPMENT AND TOWER AREAS.
- IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
- THE SUBCONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE.
- SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
- PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF THE CONTRACTOR.
- 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.
- ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.
- ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS.
- 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.
- CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T MOBILITY SITES."
- 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.
- 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.
- 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 ALERT OF DANGEROUS EXPOSURE LEVELS.



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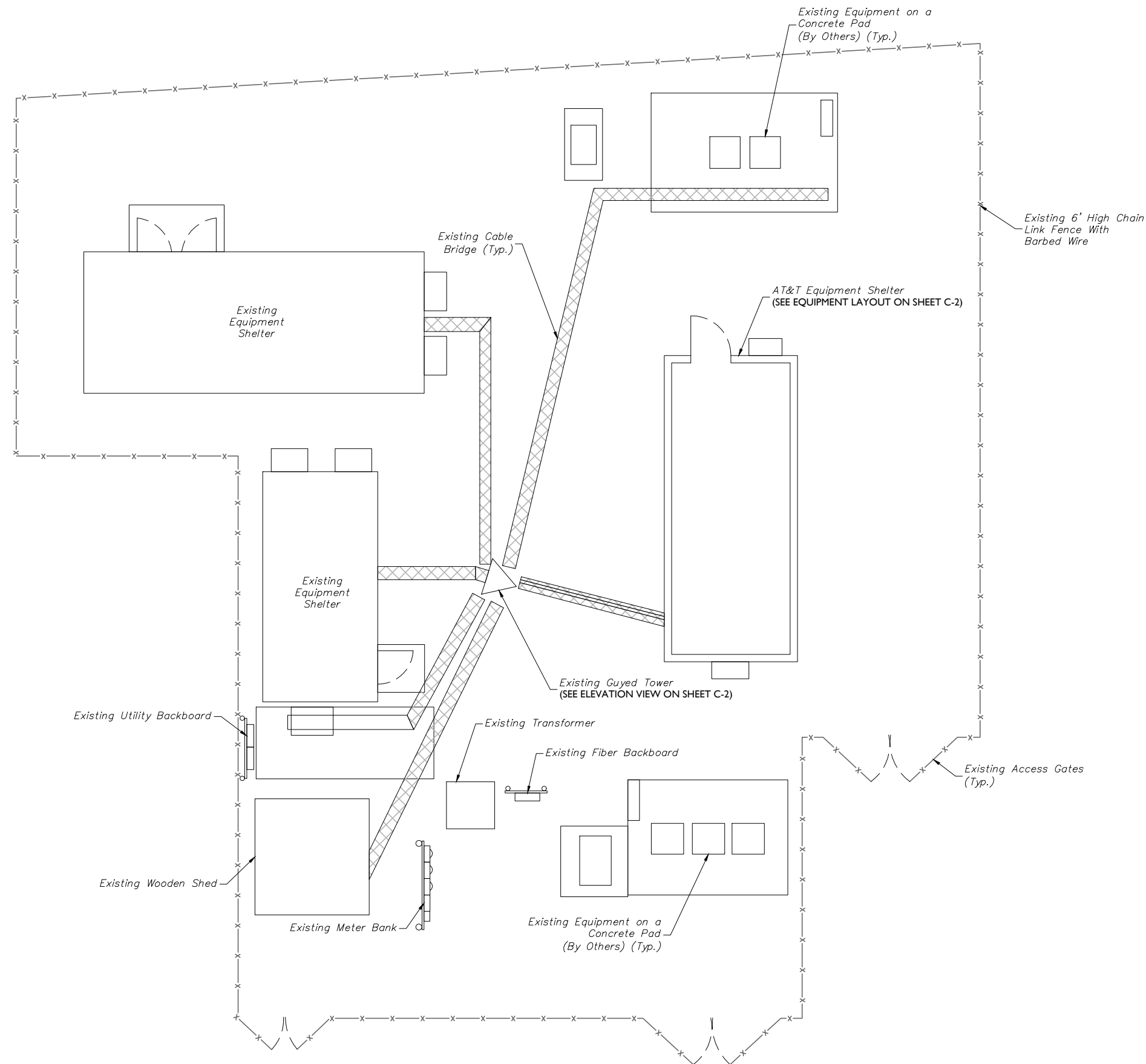
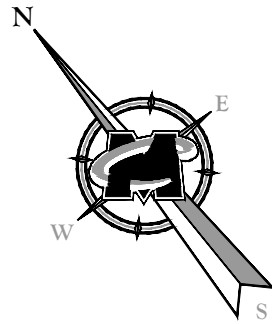
SITE NAME:
MONTVILLE EAST
FA# 10035116
SITE# CTL02171
57 COOK DRIVE
UNCASVILLE, CT 06382
NEW LONDON COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1894
email: solutions@maserconsulting.com

SHEET TITLE:
GENERAL NOTES

SHEET NUMBER:
GN-1

4/0003116_CTL02171_CD_Rev 03/26/2018



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

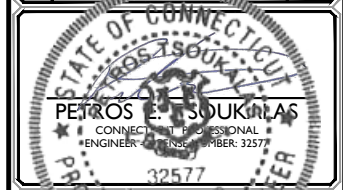
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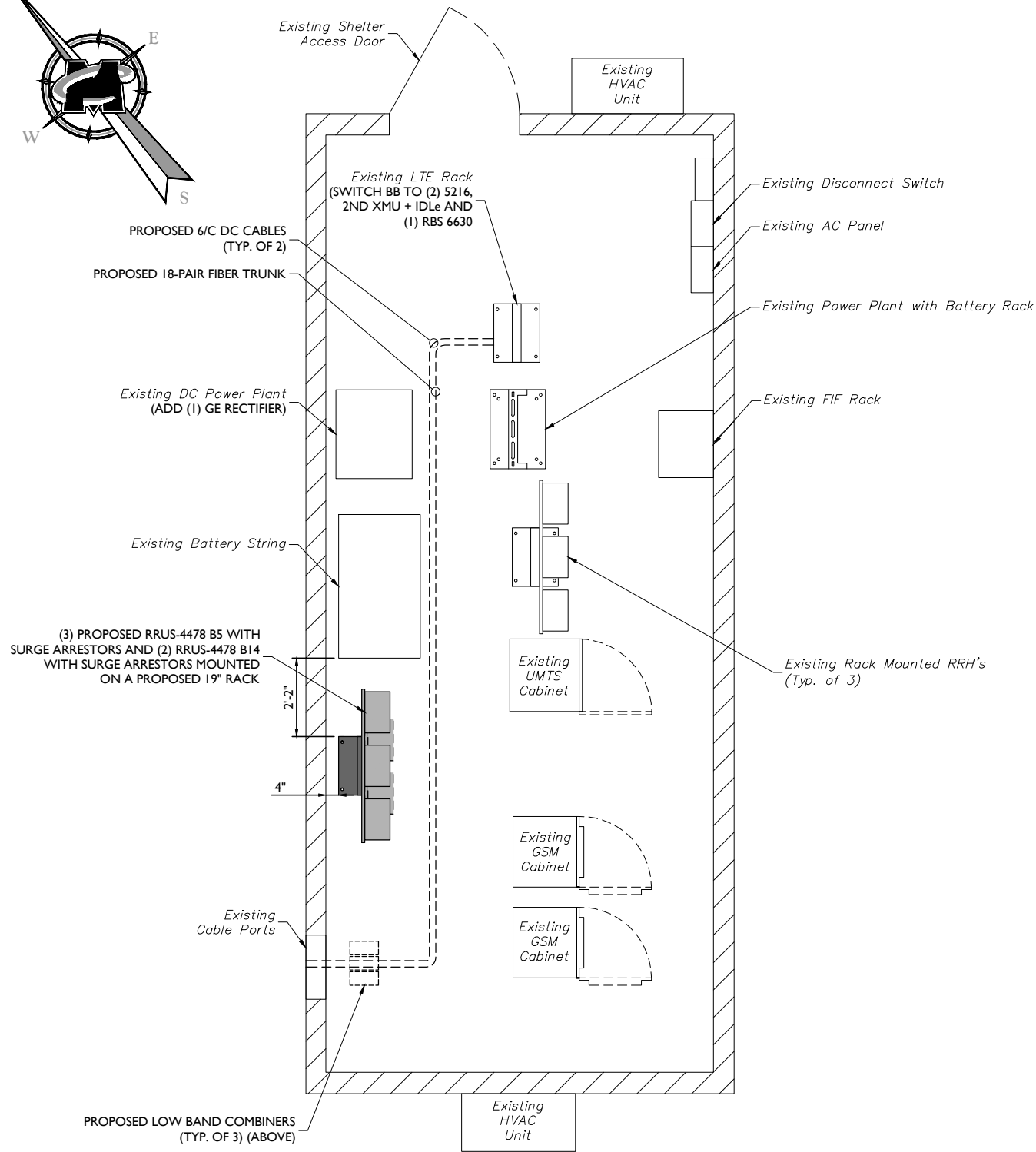
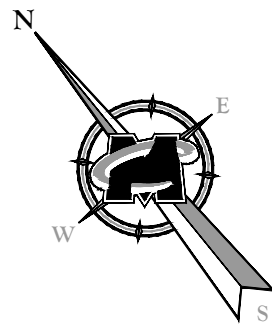
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SHEET TITLE:
COMPOUND PLAN

SHEET NUMBER:
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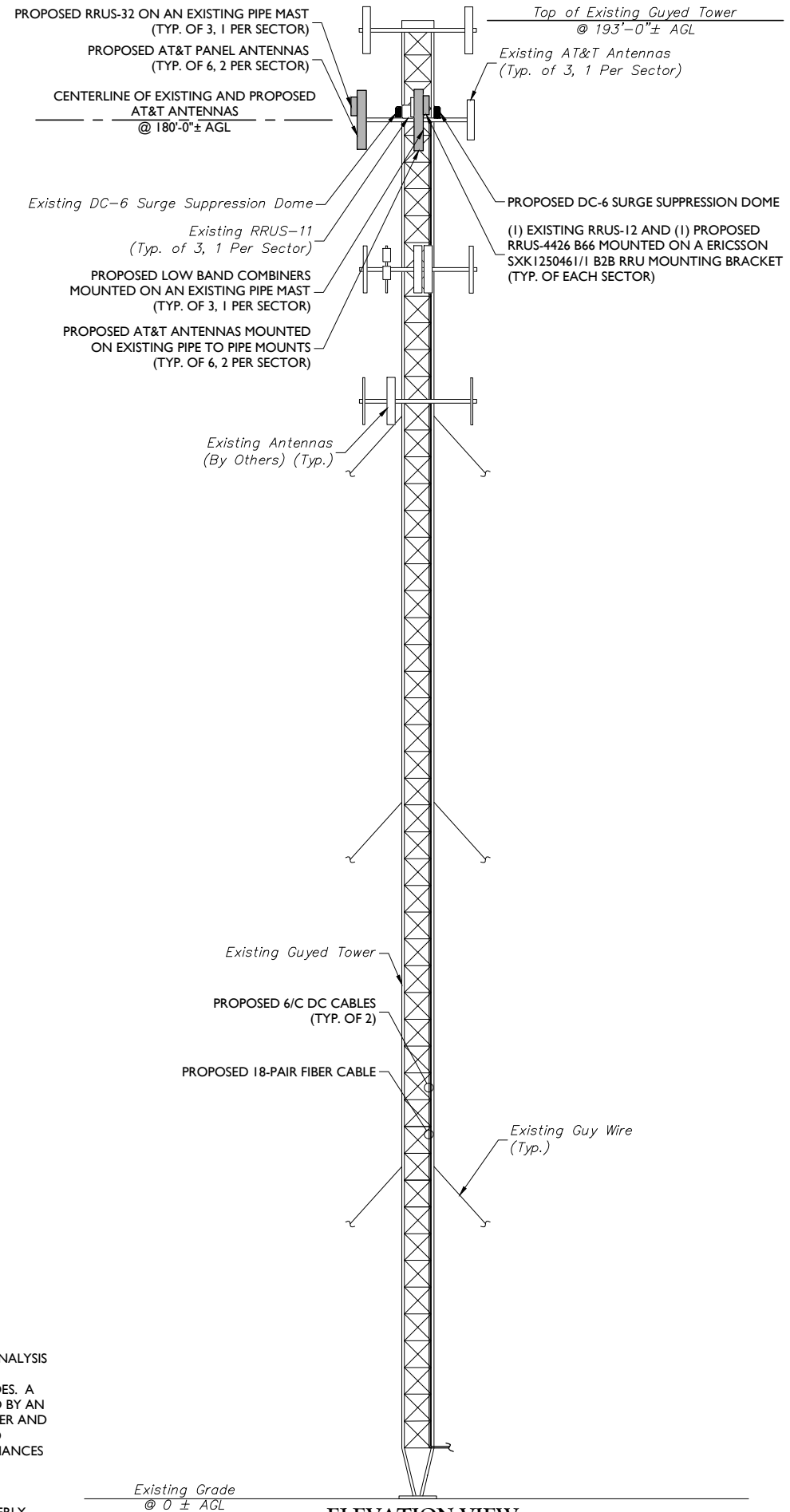
EQUIPMENT LAYOUT



SCALE : 1" = 2' FOR 22"X34"
SCALE : 1" = 4' FOR 11"X17"

STRUCTURAL NOTES:

- MASER CONSULTING P.A. HAS NOT BEEN CONTRACTED TO PERFORM A STRUCTURAL ANALYSIS ON THIS TOWER AND THEREFORE ASSUMES NO RESPONSIBILITY FOR THE STRUCTURAL CAPACITY AS REQUIRED UNDER THE MOST CURRENT LOCAL, STATE AND FEDERAL CODES. A STRUCTURAL ANALYSIS OF THE TOWER AND TOWER FOUNDATION MUST BE PREPARED BY AN APPROPRIATE LICENSED STRUCTURAL ENGINEER CERTIFYING THAT THE EXISTING TOWER AND ANY REQUIRED IMPROVEMENTS AND REINFORCEMENTS HAVE SUFFICIENT CAPACITY TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, SUPPORTS, CABLES AND APPURTENANCES COMPLIES WITH THE MOST CURRENT LOCAL, STATE AND FEDERAL CODES.
- THE CONTRACTOR IS RESPONSIBLE TO CONFIRM THAT ANY IMPROVEMENTS AND REINFORCEMENTS REQUIRED BY THE STRUCTURAL ANALYSIS CERTIFICATION ARE PROPERLY INSTALLED PRIOR TO THE ADDITION OF ANTENNAS, CABLES, SUPPORTS AND APPURTENANCES PROPOSED ON THESE DRAWINGS OR OTHERWISE NOTED IN THE STRUCTURAL ANALYSIS.



ELEVATION VIEW



SCALE : 1" = 10' FOR 22"X34"
SCALE : 1" = 20' FOR 11"X17"



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| SCALE: AS SHOWN | JOB NUMBER: 18946024A |
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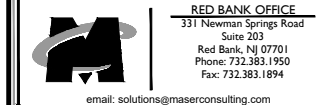
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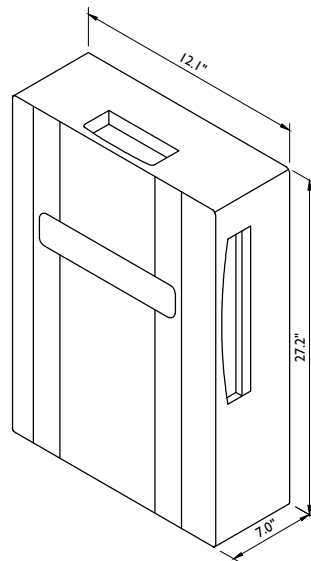
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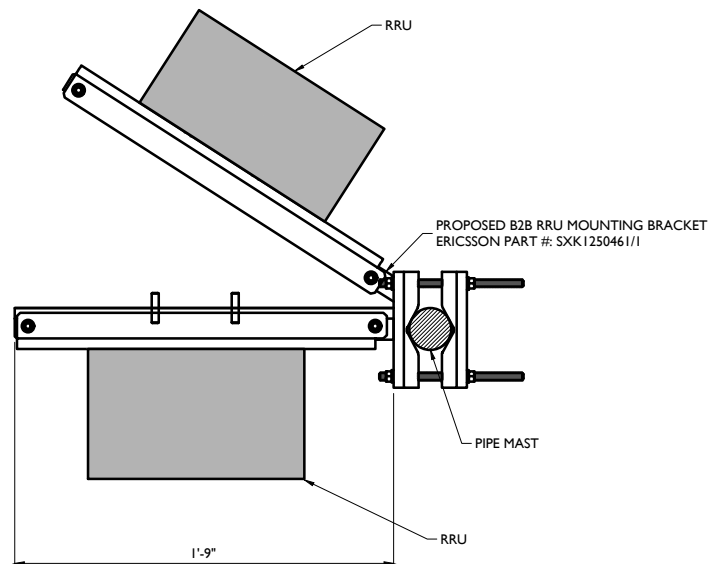
SHEET TITLE:
EQUIPMENT LAYOUT AND ELEVATION VIEW

SHEET NUMBER:
C-2

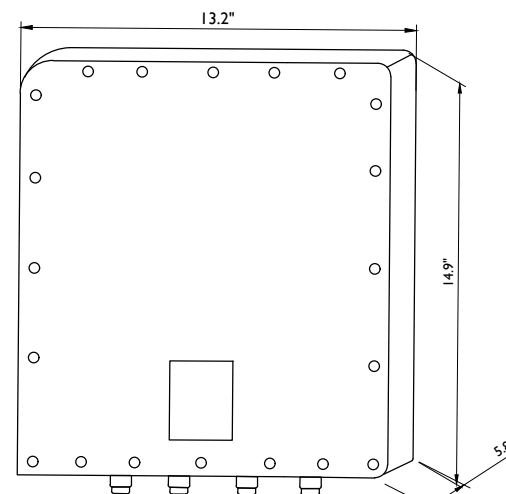


RRUS-32 DIMENSIONS (H X W X D): 27.2" X 12.1" X 7.0" (INCLUDES SUNSHIELD)
WEIGHT: 53 LBS

RRUS-32 DETAIL
NOT TO SCALE

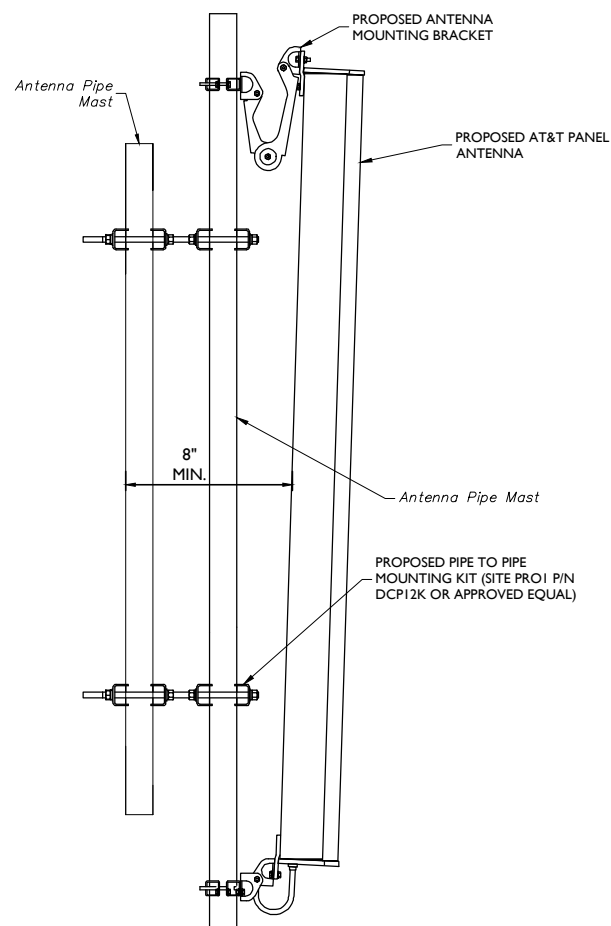


RRU MOUNTING DETAIL
NOT TO SCALE



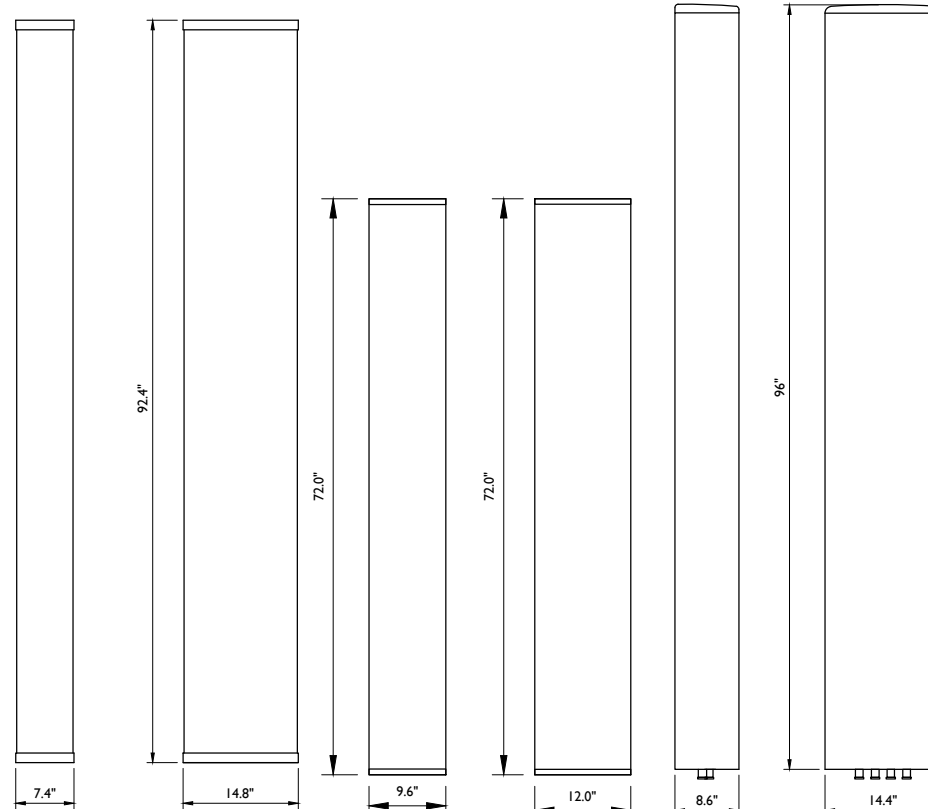
RRUS 4426 B66 DIMENSIONS (H X W X D): 14.9" X 13.2" X 5.9"
(INCLUDES SUNSHIELD) WEIGHT: 48 LBS

RRUS 4426 B66 DETAIL
NOT TO SCALE



ANTENNA MOUNTING DETAIL
NOT TO SCALE

3 FEET MINIMUM SEPARATION BETWEEN LTE ANTENNAS
6 FEET MINIMUM SEPARATION BETWEEN 700BC & 700 DE
8 INCH MINIMUM SEPARATION BETWEEN BACK OF PANEL
ANTENNA AND EXISTING/PROPOSED EQUIPMENT



CCI HPA-65R-BUUJ-H8

QUINTEL QS66512-2

CCI TPA-65R-LCUUUU-H8

ANTENNA DETAILS
NOT TO SCALE



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SCALE: AS SHOWN JOB NUMBER: 18946024A

| REV | DATE | DESCRIPTION | DRAWN BY | CHECKED BY |
|-----|----------|----------------------|----------|------------|
| 2 | 10/18/18 | REVISED PER COMMENTS | AJC | RA |
| 1 | 09/27/18 | FOR CONSTRUCTION | AJC | RA |
| 0 | 08/10/18 | ISSUED FOR REVIEW | AJC | RA |

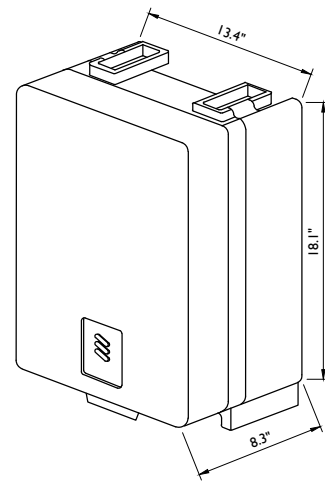


SITE NAME:
MONTVILLE EAST
FA# 10035116
SITE# CTL02171
57 COOK DRIVE
UNCASVILLE, CT 06382
NEW LONDON COUNTY

RED BANK OFFICE
331 Newman Springs Road
Suite 203
Red Bank, NJ 07701
Phone: 732.383.1950
Fax: 732.383.1894
email: solutions@maserconsulting.com

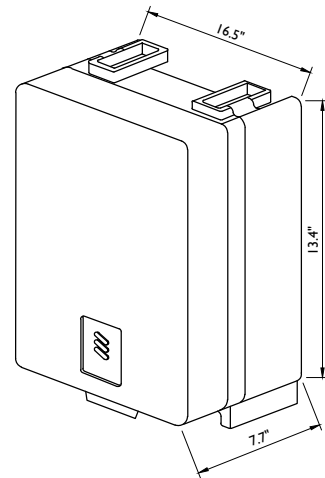
CONSTRUCTION DETAILS

SHEET NUMBER: A-I



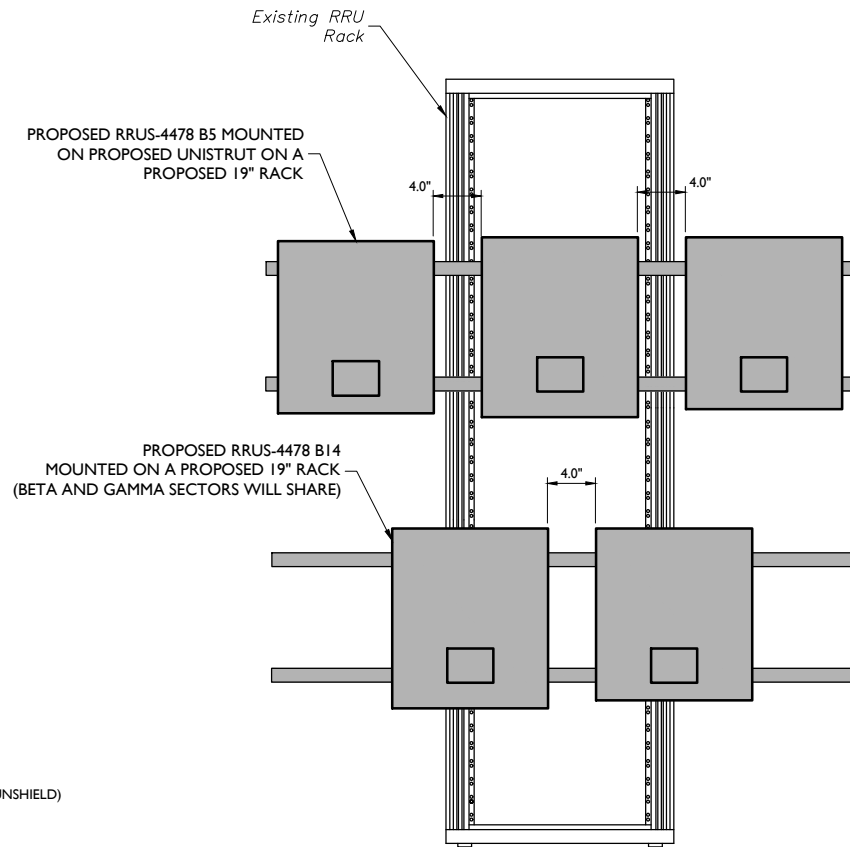
DIMENSIONS (H X W X D): 18.1\"/>

RRUS-4478 B14 DETAIL
NOT TO SCALE



DIMENSIONS (H X W X D): 16.5\"/>

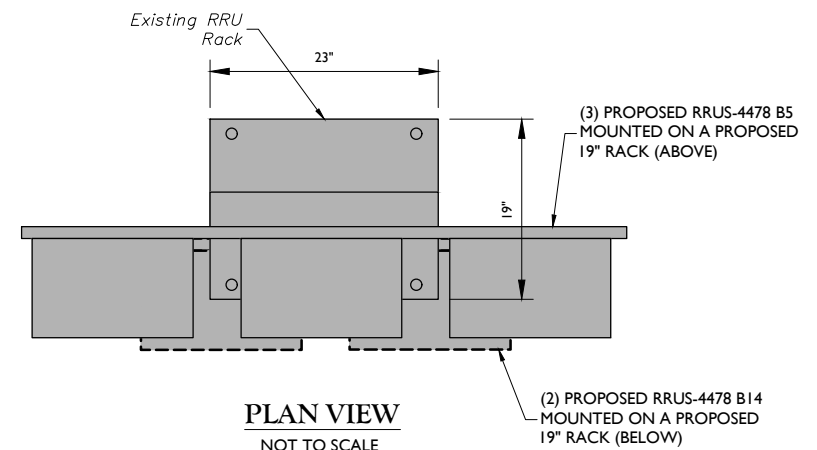
RRU-4478-B5 DETAIL
NOT TO SCALE



NOTE:

MOUNT RRUS TO UNISTRUT WITH 3/8\"/>

RRU RACK MOUNTED DETAIL
NOT TO SCALE

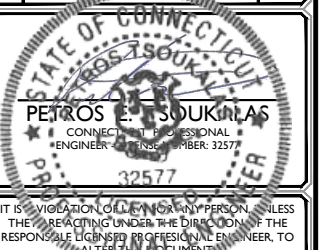


PLAN VIEW
NOT TO SCALE



| | |
|----------|-------------|
| SCALE: | JOB NUMBER: |
| AS SHOWN | 18946024A |

| REV | DATE | DESCRIPTION | DRAWN BY | CHECKED BY |
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| 2 | 10/18/18 | REVISED PER COMMENTS | AJC | RA |
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CONSTRUCTION DETAILS

SHEET NUMBER:
A-2

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|----------|-------------|----------------------|----------|------------|
| AS SHOWN | 18946024A | | | |
| REV | DATE | DESCRIPTION | DRAWN BY | CHECKED BY |
| 2 | 10/18/18 | REVISED PER COMMENTS | AJC | RA |
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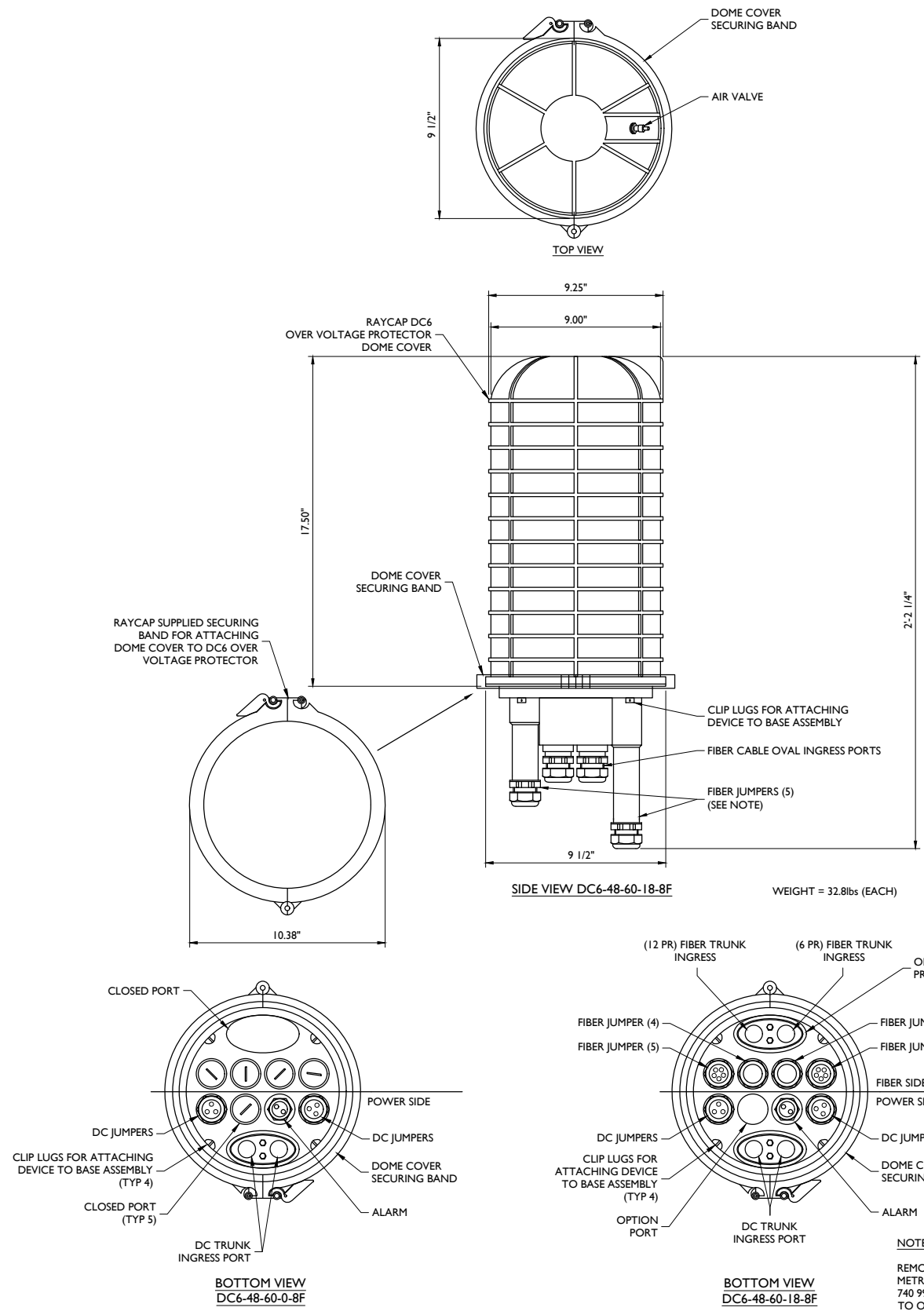
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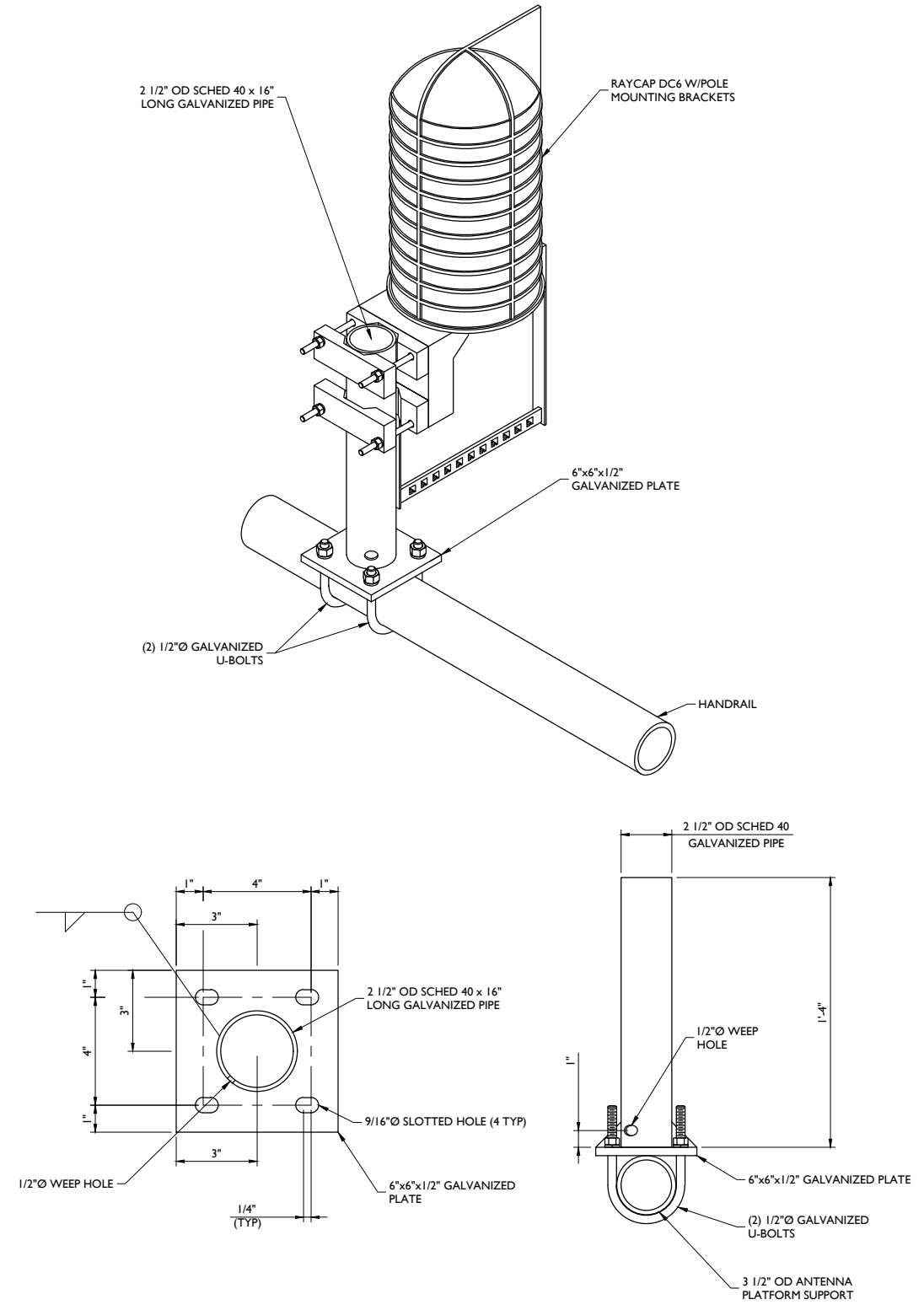
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CONSTRUCTION DETAILS

SHEET NUMBER: A-3

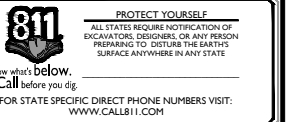


NOTE:
 REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.



DC6 SURGE SUPPRESSION DOME DETAIL
 NOT TO SCALE

4/0005114.ctb:02/21/18 CD Rev 02/26/18



| | | | |
|--------|----------|----------------------|------------|
| SCALE: | AS SHOWN | JOB NUMBER: | 18946024A |
| REV | DATE | DESCRIPTION | CHECKED BY |
| 2 | 10/18/18 | REVISED PER COMMENTS | AJC RA |
| 1 | 09/27/18 | FOR CONSTRUCTION | AJC RA |
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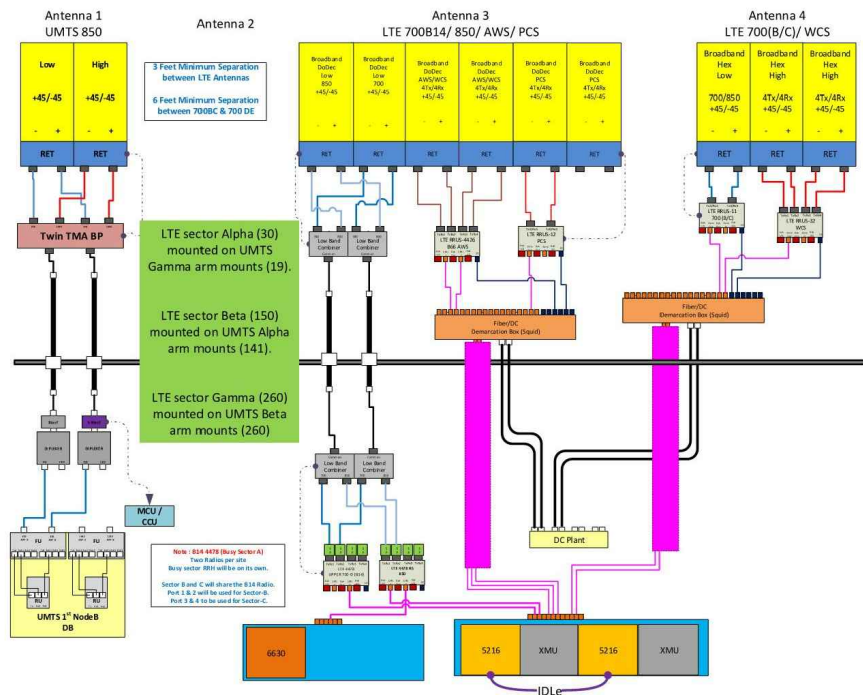
SHEET TITLE:
RF PLUMBING DIAGRAM

SHEET NUMBER:
A-4

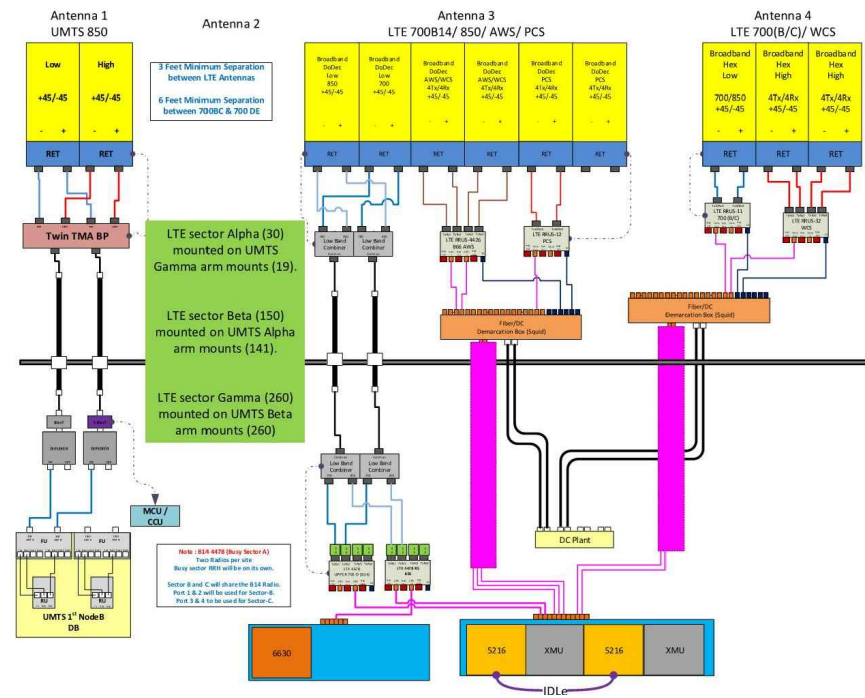
Diagram - Sector A
Apt Site Name: CTV2171
Location Name: MONTVILLE EAST
Market: CONNECTICUT
Market Cluster: NEW ENGLAND
Diagram File Name: FN_50_CTV2171_LTE_6C_A_B_C_R1_3.vsd
Comments: *Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna Radio Connection Drawings Playbook v6.0 Ericsson*

Diagram - Sector B
Apt Site Name: CTV2171
Location Name: MONTVILLE EAST
Market: CONNECTICUT
Market Cluster: NEW ENGLAND
Diagram File Name: FN_50_CTV2171_LTE_6C_A_B_C_R1_3.vsd
Comments: *Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna Radio Connection Drawings Playbook v6.0 Ericsson*

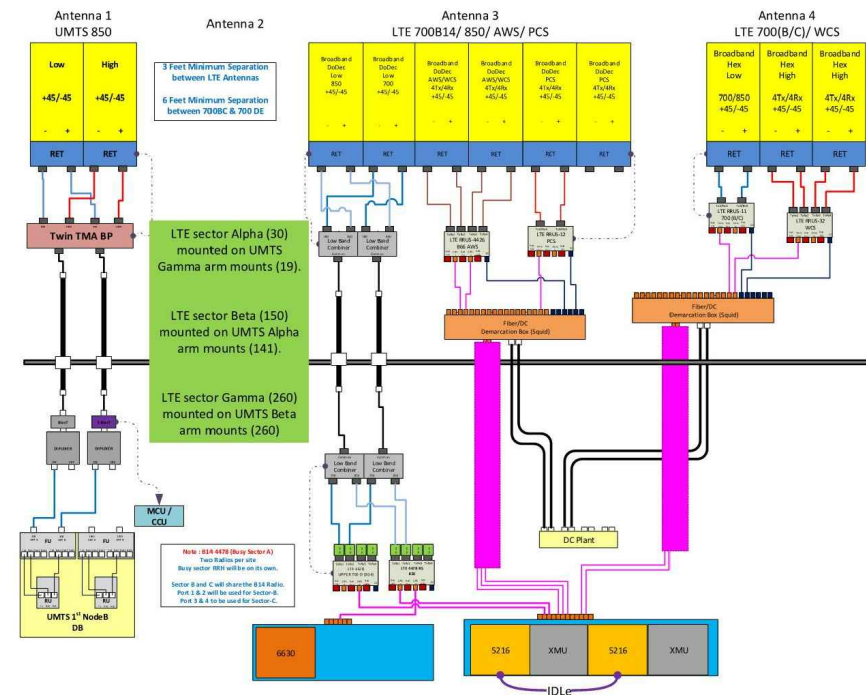
Diagram - Sector C
Apt Site Name: CTV2171
Location Name: MONTVILLE EAST
Market: CONNECTICUT
Market Cluster: NEW ENGLAND
Diagram File Name: FN_50_CTV2171_LTE_6C_A_B_C_R1_3.vsd
Comments: *Important Note: For detailed radio to antenna wiring refer to the latest field notice - Antenna Radio Connection Drawings Playbook v6.0 Ericsson*



ALPHA SECTOR



BETA SECTOR



GAMMA SECTOR

BASED ON: RF ENGINEERING DESIGN ENTITLED "NEW-ENGLAND_CONNECTICUT_CTV2171_2018-LTE-Multi-Carrier_LTE_rx855w_2051A0GHYT_10035116_25907_04-02-2018_Final-Approved_v3.00", LAST REVISED 07/18/2018.

RF PLUMBING DIAGRAMS

4/0003116_CTV2171_CD_Rev 03/26/18



MASER CONSULTING
— CONNECTICUT —

Guyed Tower Analysis

FOR

CTL02171

FA # 10035116
Uncasville, CT 06382
New London County

Scope: 3C-MRCTB030895
4C-MRCTB031936
5C-MRCTB031457
6C-MRCTB031324

Tower Utilization: 98.7%

October 5, 2018

Prepared For

AT&T

550 Cochituate Road
Framingham, MA 01701

Prepared By

Maser Consulting Connecticut

331 Newman Springs Road, Suite 203
Red Bank, NJ 07701
Tel: 908.383.1950



Petros E. Soukolas, P.E.
Geographic Discipline Leader
Connecticut License No. 32557

MC Project No. 18946024A



Objective:

The objective of this report is to determine the capacity of the existing guyed tower at the subject facility for the final wireless telecommunications configuration, per the applicable codes and standards.

Introduction:

Maser Consulting Connecticut has performed limited field observations on May 22, 2018 to verify the existing condition of the structure and to locate and quantify the existing wireless appurtenances where possible, from ground level. Maser Consulting Connecticut has reviewed the following documents in completing this report:

- Structural Analysis prepared by GPD Group, dated January 23, 2015.
- Structural Analysis prepared by Hudson Design Group, dated March 14, 2013.
- RFDS 2311012 provided by Smartlink, dated July 18, 2018.

The proposed AT&T equipment is to be supported on an existing antenna support mount constructed of structural steel antenna support pipes supported by pipes at a centerline of approximately 180'-0" above ground level. This report is based only upon this information.

Codes, Standards and Loading:

Maser Consulting Connecticut utilized the following codes and standards:

- 2016 Connecticut State Building Code, Incorporating the 2012 IBC
- Structural Standards for Antenna Supporting Structures and Antennas ANSI/TIA-222-G
 - Ultimate Wind Speed – 132 mph (3 Second Gust)
 - Basic Wind Speed – 105 mph (3 Second Gust)
 - Exposure Category – B
 - Structural Class – II
 - Topographic Category – 1
 - Ice Wind – 50 mph
 - Ice Thickness – 0.75"
- Specification for Structural Steel Buildings ANSI/AISC 360-10, American Institute of Steel Construction (AISC)

Maser Consulting Connecticut understands the final AT&T loading to be the following:

| Quantity | Manufacturer | Antenna/ Appurtenance | Status | Sector |
|----------|--------------|-----------------------|-------------------|----------------------|
| 3 | POWERWAVE | 7770 | Existing | Alpha, Beta, & Gamma |
| 2 | CCI | TPA-65R-LCUUUU-H8 | Proposed | Alpha & Gamma |
| 3 | CCI | HPA-65R-BUU-H8 | Proposed | Alpha, Beta, & Gamma |
| 1 | QUINTEL | QS66512-2 | Proposed | Beta |
| 3 | ERICSSON | RRUS 4426 B66 | Proposed | Alpha, Beta, & Gamma |
| 6 | KAEUS | DBCT108F1V92-1 | Proposed | Alpha, Beta, & Gamma |
| 3 | ERICSSON | RRUS 12 | Existing | Alpha, Beta, & Gamma |
| 3 | ERICSSON | RRUS 32 | Proposed | Alpha, Beta, & Gamma |
| 6 | POWERWAVE | TT19-08BP111-001 | Existing | Alpha, Beta, & Gamma |
| 2 | RAYCAP | DC6-48-60-18-8F | Existing/Proposed | Alpha & Gamma |
| 3 | ERICSSON | RRUS 11 | Existing | Alpha, Beta, & Gamma |
| | | | | |
| | | | | |
| | | | | |

Analysis Approach & Assumptions:

The analysis approach used in this structural analysis is based on the premise that if the existing guyed structure is structurally adequate to support the existing and proposed equipment per the aforementioned codes and standards, or if the increase in the forces in the structure are deemed to be negligible or acceptable, then the proposed equipment can be installed as intended. Tower Numerics, txn Tower, a tower analysis and design program, designed specifically for the telecommunications industry and for all applicable codes and standards was used for this structural analysis.

General Site Design Assumption:

- All engineering services are performed on the basis that the information used is current and correct.
- It is assumed that the telecommunication equipment supports, antenna supports, and existing structure have been designed by a registered licensed professional engineer for the existing loads acting on the structure, as required by all applicable codes, prior to the proposed modifications listed within this report, if any.
- It is assumed that information provided by the client regarding the structure itself, the antenna models, feed lines, and other relevant information is current and correct.
- It is the responsibility of the client to ensure that the information provided to Maser Consulting Connecticut and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that the original design, material production, fabrication, and erection of the existing structure was performed in accordance with accepted industry design standards and in accordance with all applicable codes. Further, it is assumed that the existing structure and appurtenances have been properly maintained in accordance with all applicable codes and manufacturer's specifications and no structural defects and/or deterioration to the structural members has occurred.
- It is assumed all other existing appurtenances, antennas, cables, etc. belonging to others have been installed and supported per code and per specifications so as not to damage any existing structural support members, and that any contributing loads from adjacent equipment has been taken into consideration for their design.
- All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. Maser Consulting Connecticut is not responsible for the conclusion, opinions, and recommendations made by others based on the information we supply.

Site Specific Design Parameters:

The following design parameters have been utilized in this report:

- *Structural Steel Angles are assumed to be constructed of A36 Steel*
- *Structural Steel Pipes are assumed to be constructed of A53 Grade B Steel*
- *The proposed CCI TPA-65R-LCUUUU-H8 shall be mounted in position 3 in Alpha and Gamma sector*
- *The proposed CCI HPA-65R-BUU-H8 shall be mounted in position 4 in all sectors*
- *The proposed Quintel QS66512-2 shall be mounted in position 3 in Beta sector*
- *The proposed RRUS-4478 B5, and RRUS-4478 B14 shall be mounted on the existing Unistrut at Grade level.*
- *The proposed RRUS 4436 B66, DBCT108F1V92-1 shall be mounted in position 3 in all sectors*
- *The proposed RRUS-32 shall be mounted in position 4 in all sectors*
- *This analysis assumes the referenced structural analysis is accurate and a current representation of what is currently on the tower.*

Calculations:

The calculations are found in Appendix A of this report.

Conclusion:

The existing guyed tower was analyzed for the loading in the applicable codes and standards. The tower has been determined to be structurally **ADEQUATE** to support the proposed and existing loading, based upon the aforementioned assumptions. The guyed tower has been determined to be stressed to a maximum of **98.7%** of its structural capacity with the maximum usage occurring at the tower bolts. Therefore, the proposed **AT&T** installation **CAN** be installed as intended in all sectors.

Additionally, Maser Consulting Connecticut has compared the foundation reactions from this analysis to the previous referenced analysis foundation calculations. Due to the minimal increase in reactions, the foundations have been determined to be **ADEQUATE** to support the existing and proposed loading. Therefore, the proposed **AT&T** installation **CAN** be installed as intended in all sectors.

Maser Consulting Connecticut reserves the right to amend this report if additional information about the existing members is provided. Any change to the installation will require a revision to this structural analysis.

We appreciate the opportunity to be of service on this project. If you should have any questions or require any additional information, please do not hesitate to call our office.
Sincerely,

Maser Consulting Connecticut



Petros E. Tsoukalas, P.E.
Geographic Discipline Leader

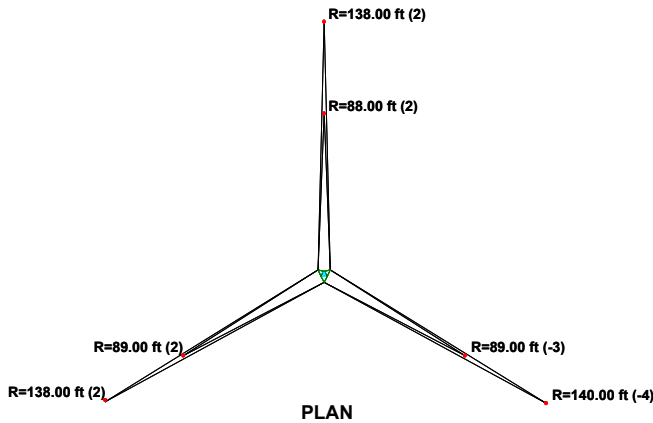
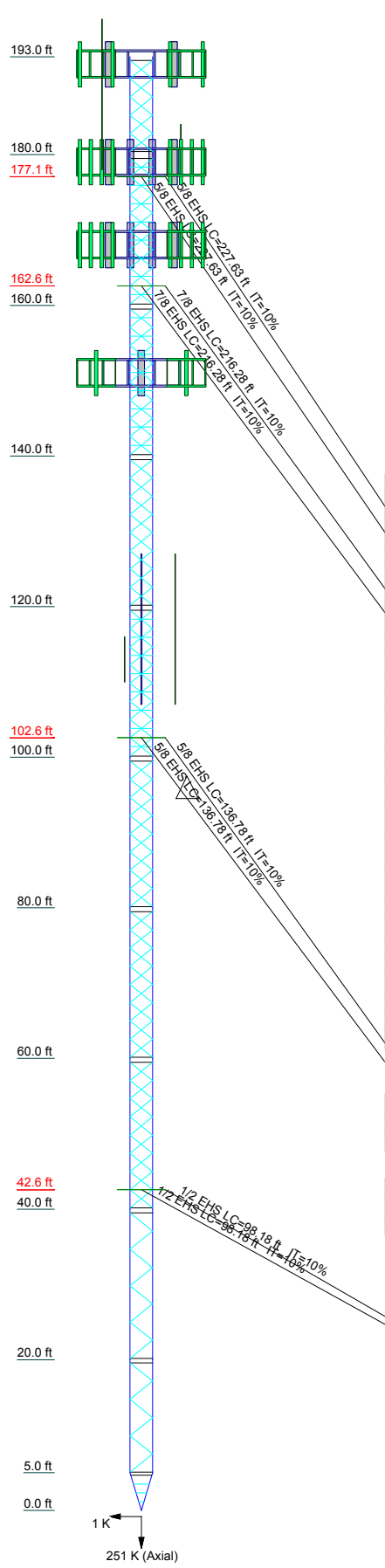


Lauren Luzier, E.I.T.
Engineer



APPENDIX A

| Section | T1 | T2 | T3 | T4 | T5 | T6 | T7 | T8 | T9 | T10 | T11 |
|------------------|------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Legs | ROHN 2.5 EH | | | | | | | | | | |
| Leg Grade | A572-50 | | | | | | | | | | |
| Diagonals | ROHN TS1.5x11 ga | | | | | | | | | | |
| Diagonal Grade | A53-B-42 | | | | | | | | | | |
| Top Girts | ROHN TS1.5x16 ga | | | | | | | | | | |
| Bottom Girts | ROHN TS1.5x16 ga | | | | | | | | | | |
| Horizontal | N.A. | | | | | | | | | | |
| Sec. Horizontals | L2x2x1/4 | | | | | | | | | | |
| Face Width (ft) | 3.42 | | | | | | | | | | |
| # Panels @ (ft) | 75 @ 2.41667 | | | | | | | | | | |
| Weight (K) | 14.5 | 0.3 | 0.6 | 0.7 | 1.6 | 1.1 | 2.5 | 0.9 | 1.4 | 3.7 | 0.8 |



DESIGNED APPURTENANCE LOADING

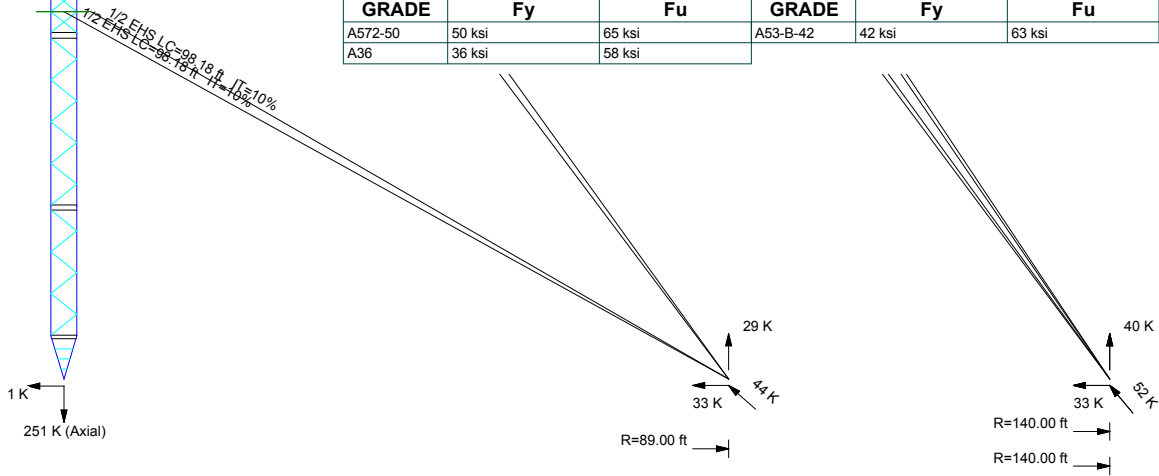
| TYPE | ELEVATION | TYPE | ELEVATION |
|------------------------------------------------|---------------|------------------------------------------------|-------------|
| SBNH-1D6565B | 192.7 | 10' Boom Gate w/3 - 2 3/8" Pipe (Tapered) (3) | 179 |
| SBNH-1D6565B | 192.7 - 129.7 | 14' T Arm round | 168 |
| SBNH-1D6565B | 192.7 | 14' T Arm round | 168 |
| APXV9TM14-C-I20 | 192.7 | 14' T Arm round | 168 |
| APXV9TM14-C-I20 | 192.7 | (2) LPA-80063/8CF | 168 |
| APXV9TM14-C-I20 | 192.7 | (2) LPA-80063/8CF | 168 |
| 10' Boom Gate w/3 - 2 3/8" Pipe (Tapered) (3) | 192 | (2) LPA-80063/8CF | 168 |
| 20' Omni | 188 | BXA-171063-12CF | 168 |
| 2.5" Dia 7' Omni | 181 | BXA-171063-12CF | 168 |
| TPA-65R-LCUUUU-H8 | 180 | BXA-171063-12CF | 168 |
| HPA-65R-BUU-H8 | 180 | BXA-70063/6CF | 168 |
| HPA-65R-BUU-H8 | 180 | BXA-70063/6CF | 168 |
| HPA-65R-BUU-H8 | 180 | BXA-70063/6CF | 168 |
| RRUS 12 + RRRUS 4426 B66 shielded | 180 | (2) B25 RRH4x30-4R | 168 |
| RRUS 12 + RRRUS 4426 B66 shielded | 180 | (2) B25 RRH4x30-4R | 168 |
| RRUS 12 + RRRUS 4426 B66 shielded | 180 | (2) B25 RRH4x30-4R | 168 |
| RRUS11 B12 (Partial Shielded by 11.9" Antenna) | 180 | 7' Whip | 154.5 - 154 |
| RRUS11 B12 (Partial Shielded by 11.9" Antenna) | 180 | DBXLH-6565AVTM | 151 |
| RRUS11 B12 (Partial Shielded by 11.9" Antenna) | 180 | DBXLH-6565AVTM | 151 |
| RRUS11 B12 (Partial Shielded by 11.9" Antenna) | 180 | DBXLH-6565AVTM | 151 |
| RRUS 32 | 180 | 10' Boom Gate w/3 2 - 3/8" Pipe (Vertical) (3) | 151 |
| RRUS 32 | 180 | 10' dipole | 124 |
| RRUS 32 | 180 | Pirot 4' Side Mount Standoff (1) | 119.5 |
| 7770 | 180 | 20' Omni | 117 |
| 7770 | 180 | 20' Omni | 117 |
| TPA-65R-LCUUUU-H8 | 180 | 6' Yagi | 113 |
| Quintel QS66512-2 w/m pipe | 180 | Pirot 4' Side Mount Standoff (1) | 108 |
| 7770 | 180 | Pirot 4' Side Mount Standoff (1) | 108 |
| 7770 | 180 | | |

SYMBOL LIST

| MARK | SIZE | MARK | SIZE |
|------|------------------|------|-------------|
| A | ROHN TS1.5x11 ga | C | 4 @ 1.16667 |
| B | L4x4x1/4 | | |

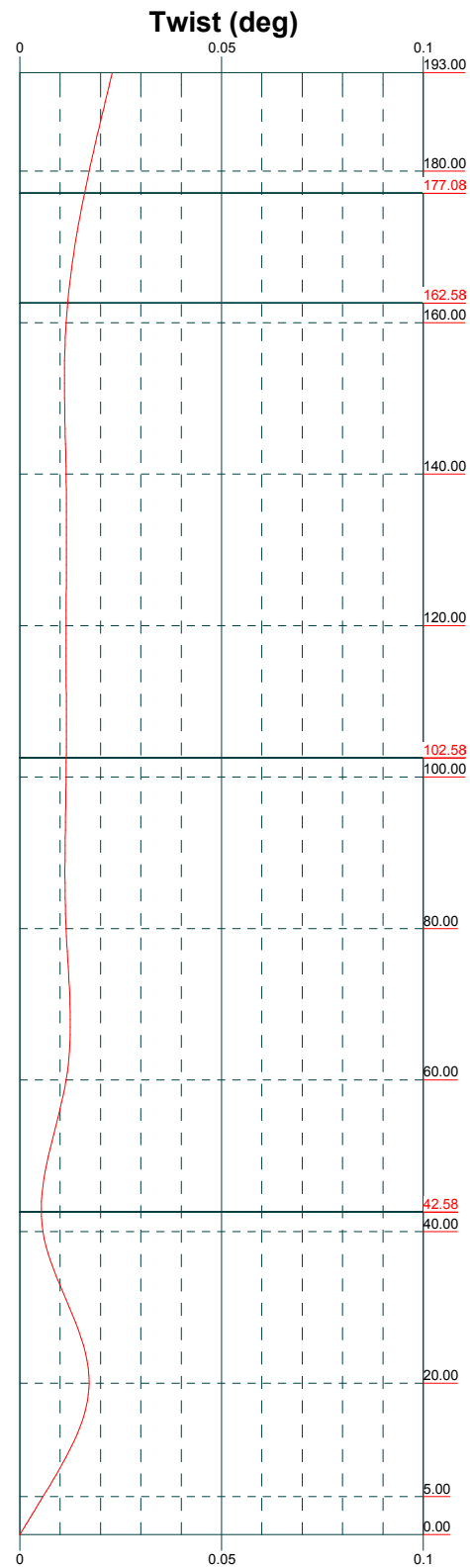
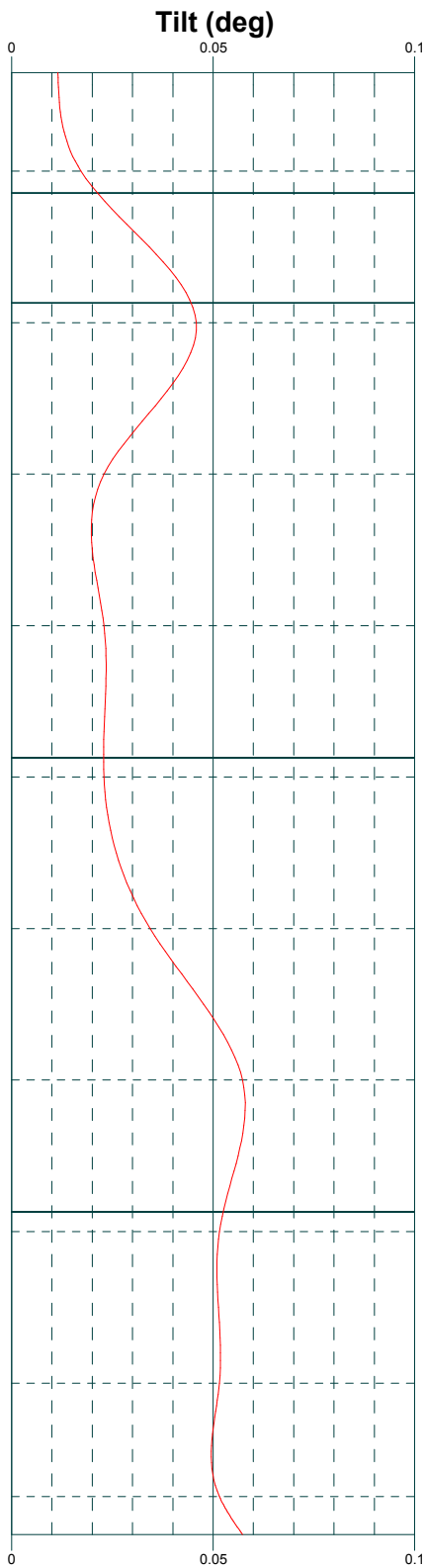
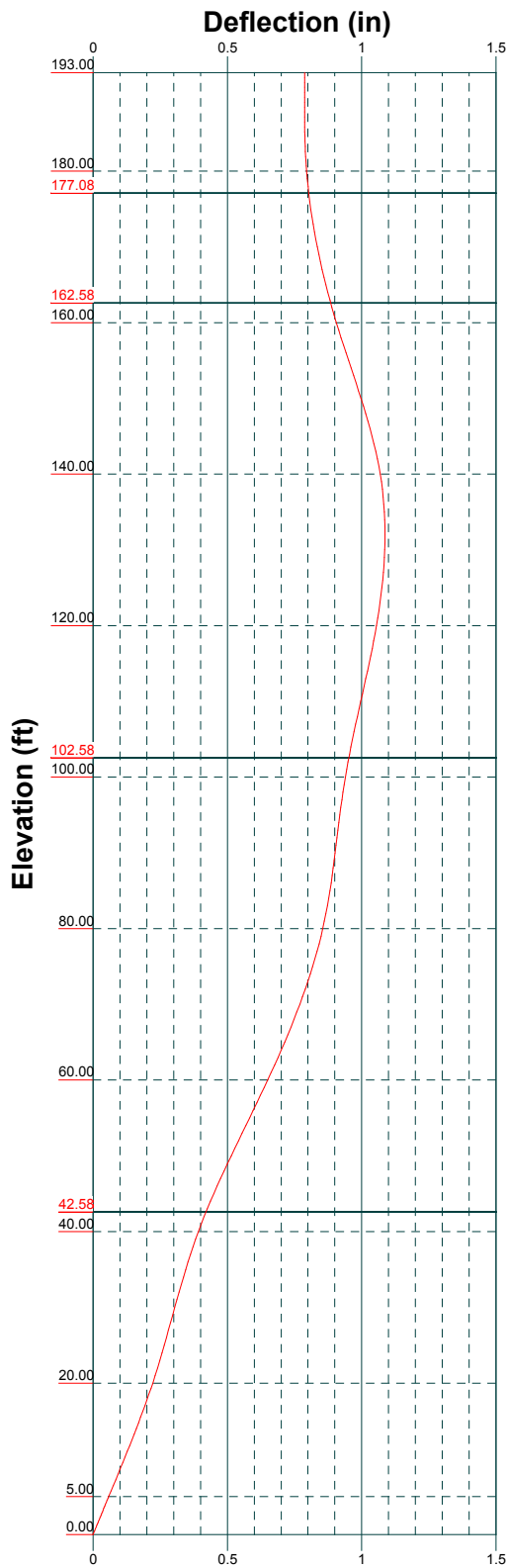
MATERIAL STRENGTH

| GRADE | Fy | Fu | GRADE | Fy | Fu |
|---------|--------|--------|----------|--------|--------|
| A572-50 | 50 ksi | 65 ksi | A53-B-42 | 42 ksi | 63 ksi |
| A36 | 36 ksi | 58 ksi | | | |



ALL REACTIONS ARE FACTORED

| | | | | | | | | |
|--------------------------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------------------|--|--|
| Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | | | Job: 18946024A Project: CTL02171 Client: AT&T Code: TIA-222-G Path: | | | Drawn by: Date: 10/05/18 App'd: Scale: NTS Dwg No. E-1 | | |
|--------------------------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------------------------------------------|--|--|-----------------------------------------------------------------------------------------|--|--|

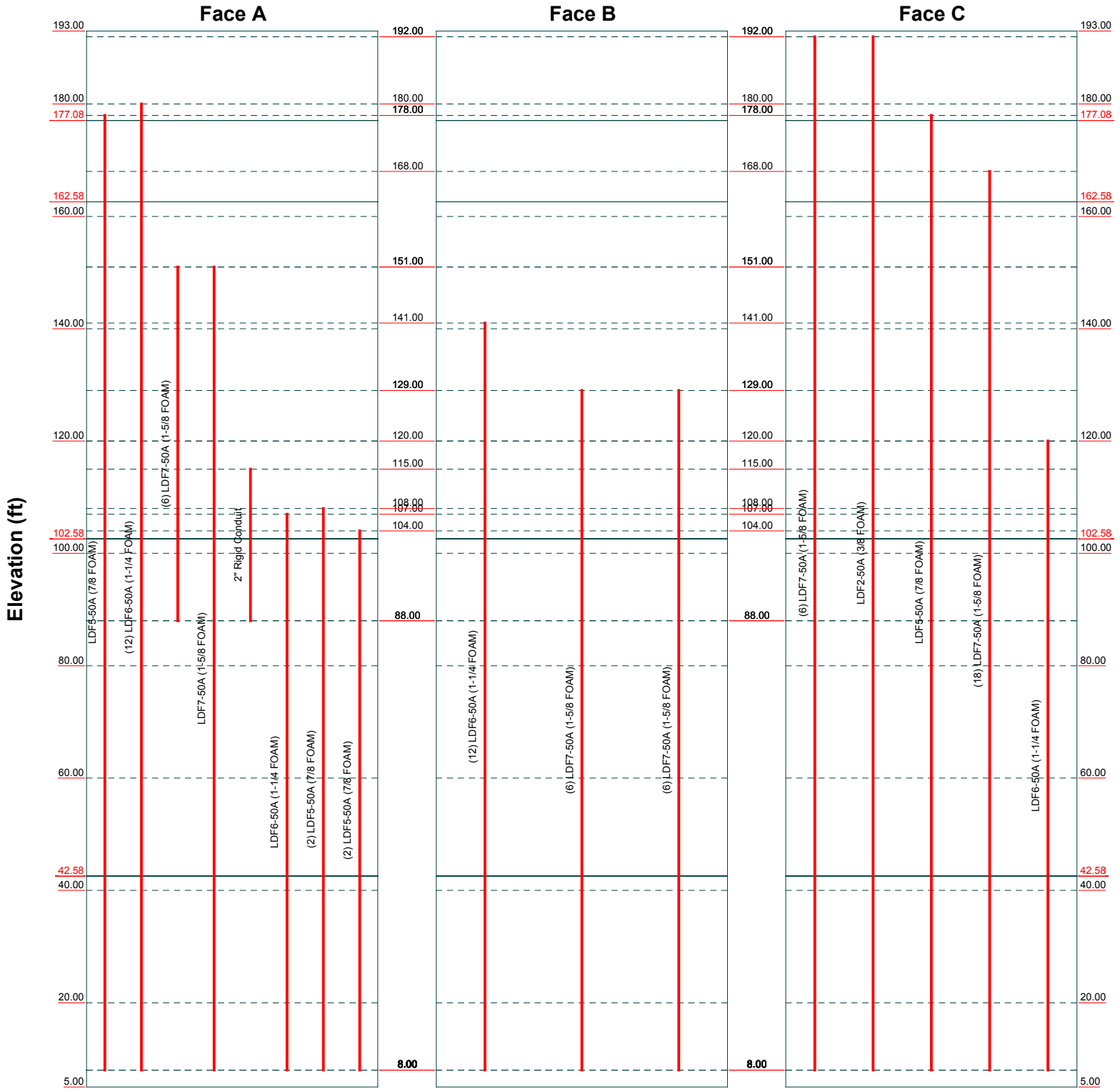


| | | | | | |
|--------------------------------------------------------------------------------------------------------------------------|--|-----------------------|--------------------------|--------------------|--|
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| | | | Project: CTL02171 | | |
| Client: AT&T | | Drawn by: | | App'd: | |
| Code: TIA-222-G | | Date: 09/20/18 | | Scale: NTS | |
| Path: | | | | Dwg No. E-5 | |

Feed Line Distribution Chart

5' - 193'

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



| | | |
|---------------------------------|----------------|------------|
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| Mt. Laurel, NJ | | |
| Phone: 856 797-0412 | | |
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| Job: 18946024A | | |
| Project: CTL02171 | | |
| Client: AT&T | Drawn by: | App'd: |
| Code: TIA-222-G | Date: 09/20/18 | Scale: NTS |
| Path: | Dwg No. E-7 | |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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Tower Input Data

The main tower is a 3x guyed tower with an overall height of 193.00 ft above the ground line.

The base of the tower is set at an elevation of 0.00 ft above the ground line.

The face width of the tower is 3.42 ft at the top and tapered at the base.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in New London County, Connecticut.

ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).

Basic wind speed of 105 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 0.7500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 50 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

Weld together tower sections have flange connections..

Connections use galvanized A325 bolts, nuts and locking devices. Installation per TIA/EIA-222 and AISC Specifications..

Tower members are "hot dipped" galvanized in accordance with ASTM A123 and ASTM A153 Standards..

Welds are fabricated with ER-70S-6 electrodes..

Pressures are calculated at each section.

Safety factor used in guy design is 1.

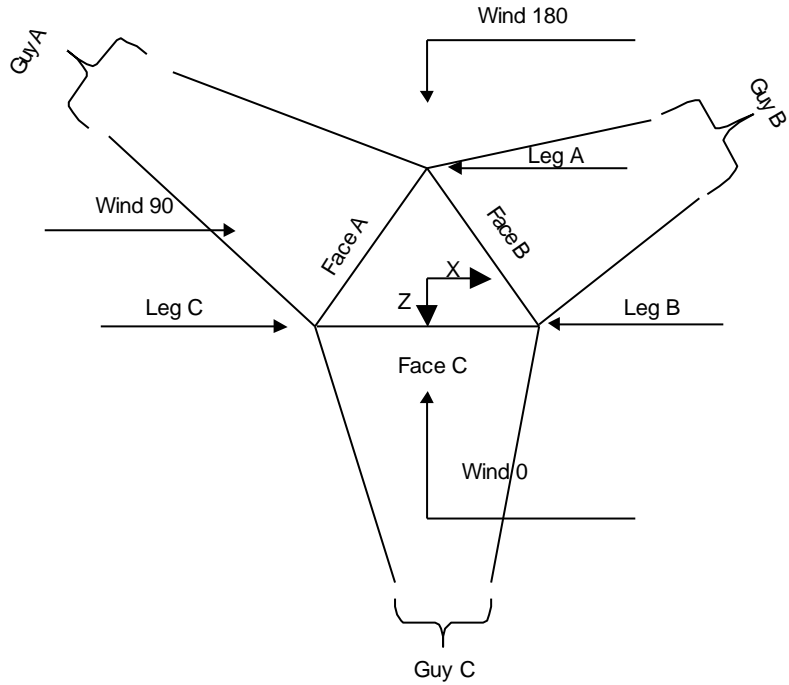
Stress ratio used in tower member design is 1.

Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

| | | |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section √ Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric | <ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area √ Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder | <ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <li style="text-align: center;">Poles Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets |
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Face Guyed

Tower Section Geometry

| <i>Tower Section</i> | <i>Tower Elevation</i> | <i>Assembly Database</i> | <i>Description</i> | <i>Section Width</i> | <i>Number of Sections</i> | <i>Section Length</i> |
|----------------------|------------------------|--------------------------|--------------------|----------------------|---------------------------|-----------------------|
| | <i>ft</i> | | | <i>ft</i> | | <i>ft</i> |
| T1 | 193.00-180.00 | | | 3.42 | 1 | 13.00 |
| T2 | 180.00-160.00 | | | 3.42 | 1 | 20.00 |
| T3 | 160.00-140.00 | | | 3.42 | 1 | 20.00 |
| T4 | 140.00-120.00 | | | 3.42 | 1 | 20.00 |
| T5 | 120.00-100.00 | | | 3.42 | 1 | 20.00 |
| T6 | 100.00-80.00 | | | 3.42 | 1 | 20.00 |
| T7 | 80.00-60.00 | | | 3.42 | 1 | 20.00 |
| T8 | 60.00-40.00 | | | 3.42 | 1 | 20.00 |
| T9 | 40.00-20.00 | | | 3.42 | 1 | 20.00 |
| T10 | 20.00-5.00 | | | 3.42 | 1 | 15.00 |
| T11 | 5.00-0.00 | | | 3.42 | 1 | 5.00 |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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Tower Section Geometry (cont'd)

| Tower Section | Tower Elevation ft | Diagonal Spacing ft | Bracing Type | Has K Brace End Panels | Has Horizontals | Top Girt Offset in | Bottom Girt Offset in |
|---------------|-----------------------|------------------------|--------------|---------------------------|-----------------|-----------------------|--------------------------|
| T1 | 193.00-180.00 | 2.42 | X Brace | No | No | 6.0000 | 5.0000 |
| T2 | 180.00-160.00 | 2.42 | X Brace | No | Yes | 6.0000 | 2.0000 |
| T3 | 160.00-140.00 | 2.42 | X Brace | No | Yes | 6.0000 | 2.0000 |
| T4 | 140.00-120.00 | 2.42 | CX Brace | No | No | 6.0000 | 2.0000 |
| T5 | 120.00-100.00 | 2.42 | X Brace | No | Yes | 6.0000 | 2.0000 |
| T6 | 100.00-80.00 | 2.42 | CX Brace | No | No | 6.0000 | 2.0000 |
| T7 | 80.00-60.00 | 2.42 | X Brace | No | No | 6.0000 | 2.0000 |
| T8 | 60.00-40.00 | 2.42 | CX Brace | No | No | 6.0000 | 2.0000 |
| T9 | 40.00-20.00 | 2.42 | K Brace Left | No | No | 6.0000 | 2.0000 |
| T10 | 20.00-5.00 | 2.42 | K Brace Left | No | No | 5.0000 | 1.0000 |
| T11 | 5.00-0.00 | 1.17 | X Brace | No | Yes | 4.0000 | 0.0000 |

Tower Section Geometry (cont'd)

| Tower Elevation ft | Leg Type | Leg Size | Leg Grade | Diagonal Type | Diagonal Size | Diagonal Grade |
|-----------------------|----------|-------------|---------------------|---------------|-------------------|----------------------|
| T1 193.00-180.00 | Pipe | ROHN 2.5 EH | A572-50 (50 ksi) | Single Angle | L2x2x1/4 | A36 (36 ksi) |
| T2 180.00-160.00 | Pipe | ROHN 2.5 EH | A572-50 (50 ksi) | Single Angle | L2x2x1/4 | A36 (36 ksi) |
| T3 160.00-140.00 | Pipe | ROHN 2.5 EH | A572-50 (50 ksi) | Single Angle | L2x2x1/4 | A36 (36 ksi) |
| T4 140.00-120.00 | Pipe | ROHN 2.5 EH | A572-50 (50 ksi) | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) |
| T5 120.00-100.00 | Pipe | ROHN 3 EH | A572-50 (50 ksi) | Single Angle | L2x2x1/4 | A36 (36 ksi) |
| T6 100.00-80.00 | Pipe | ROHN 3 EH | A572-50 (50 ksi) | Pipe | ROHN TS1.5x16 ga | A53-B-42 (42 ksi) |
| T7 80.00-60.00 | Pipe | ROHN 3 EH | A572-50 (50 ksi) | Single Angle | L1 3/4x1 3/4x3/16 | A36 (36 ksi) |
| T8 60.00-40.00 | Pipe | ROHN 3 EH | A572-50 (50 ksi) | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) |
| T9 40.00-20.00 | Pipe | ROHN 3 EH | A572-50 (50 ksi) | Pipe | ROHN TS1.5x16 ga | A53-B-42 (42 ksi) |
| T10 20.00-5.00 | Pipe | ROHN 3 EH | A572-50 (50 ksi) | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) |
| T11 5.00-0.00 | Pipe | ROHN 3 EH | A572-50 (50 ksi) | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) |

Tower Section Geometry (cont'd)

| Tower Elevation ft | Top Girt Type | Top Girt Size | Top Girt Grade | Bottom Girt Type | Bottom Girt Size | Bottom Girt Grade |
|-----------------------|---------------|---------------|-----------------|------------------|------------------|-------------------|
| T1 193.00-180.00 | Equal Angle | L2x2x1/4 | A36 (36 ksi) | Equal Angle | L2x2x1/4 | A36 (36 ksi) |
| T2 180.00-160.00 | Equal Angle | L2x2x1/4 | A36 (36 ksi) | Equal Angle | L2x2x1/4 | A36 (36 ksi) |

| | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| <i>Tower Elevation</i> <i>ft</i> | <i>Top Girt Type</i> | <i>Top Girt Size</i> | <i>Top Girt Grade</i> | <i>Bottom Girt Type</i> | <i>Bottom Girt Size</i> | <i>Bottom Girt Grade</i> |
|-------------------------------------|----------------------|----------------------|-----------------------|-------------------------|-------------------------|--------------------------|
| T3 160.00-140.00 | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) |
| T4 140.00-120.00 | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) |
| T5 120.00-100.00 | Equal Angle | L2x2x1/4 | A36 (36 ksi) | Equal Angle | L2x2x1/4 | A36 (36 ksi) |
| T6 100.00-80.00 | Pipe | ROHN TS1.5x16 ga | A53-B-42 (42 ksi) | Pipe | ROHN TS1.5x16 ga | A53-B-42 (42 ksi) |
| T7 80.00-60.00 | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) |
| T8 60.00-40.00 | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) |
| T9 40.00-20.00 | Pipe | ROHN TS1.5x16 ga | A53-B-42 (42 ksi) | Pipe | ROHN TS1.5x16 ga | A53-B-42 (42 ksi) |
| T10 20.00-5.00 | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) | Pipe | ROHN TS1.5x11 ga | A53-B-42 (42 ksi) |
| T11 5.00-0.00 | Equal Angle | L4x4x1/4 | A36 (36 ksi) | Equal Angle | L4x4x1/4 | A36 (36 ksi) |

Tower Section Geometry (cont'd)

| <i>Tower Elevation</i> <i>ft</i> | <i>No. of Mid Girts</i> | <i>Mid Girt Type</i> | <i>Mid Girt Size</i> | <i>Mid Girt Grade</i> | <i>Horizontal Type</i> | <i>Horizontal Size</i> | <i>Horizontal Grade</i> |
|-------------------------------------|-------------------------|----------------------|----------------------|-----------------------|------------------------|------------------------|-------------------------|
| T11 5.00-0.00 | None | Flat Bar | | A36 (36 ksi) | Single Angle | L4x4x1/4 | A36 (36 ksi) |

Tower Section Geometry (cont'd)

| <i>Tower Elevation</i> <i>ft</i> | <i>Secondary Horizontal Type</i> | <i>Secondary Horizontal Size</i> | <i>Secondary Horizontal Grade</i> | <i>Inner Bracing Type</i> | <i>Inner Bracing Size</i> | <i>Inner Bracing Grade</i> |
|-------------------------------------|----------------------------------|----------------------------------|-----------------------------------|---------------------------|---------------------------|----------------------------|
| T2 180.00-160.00 | Equal Angle | L2x2x1/4 | A36 (36 ksi) | Pipe | | A36 (36 ksi) |
| T3 160.00-140.00 | Equal Angle | L2x2x1/4 | A36 (36 ksi) | Pipe | | A36 (36 ksi) |
| T5 120.00-100.00 | Equal Angle | L2x2x1/4 | A36 (36 ksi) | Pipe | | A36 (36 ksi) |

Tower Section Geometry (cont'd)

| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------|
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| Tower Elevation | Gusset Area (per face) | Gusset Thickness | 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 |
|---------------------|------------------------|------------------|-----------------|----------------------|----------------------|--------------|-----------------------------------------------|-------------------------------------------------|------------------------------------------------|
| ft | ft ² | in | | | | | | | |
| T1 193.00-180.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |
| T2 180.00-160.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |
| T3 160.00-140.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |
| T4 140.00-120.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |
| T5 120.00-100.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |
| T6 100.00-80.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |
| T7 80.00-60.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |
| T8 60.00-40.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |
| T9 40.00-20.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |
| T10 20.00-5.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |
| T11 5.00-0.00 | 0.00 | 0.0000 | A36 (36 ksi) | 1 | 1 | 1.02 | Mid-Pt | 36.0000 | 36.0000 |

Tower Section Geometry (cont'd)

| Tower Elevation | Calc K Single Angles | Calc K Solid Rounds | Legs | <i>K Factors¹</i> | | | | | | | |
|---------------------|----------------------|---------------------|------|------------------------------|---------------|--------------|-------|--------|-------------|-------------|--------|
| | | | | X Brace Diags | K Brace Diags | Single Diags | Girts | Horiz. | Sec. Horiz. | Inner Brace | |
| | | | | | | | | | | | X Y |
| T1 193.00-180.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| T2 180.00-160.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| T3 160.00-140.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| T4 140.00-120.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| T5 120.00-100.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| T6 100.00-80.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| T7 80.00-60.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| T8 60.00-40.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| T9 40.00-20.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| T10 20.00-5.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| T11 5.00-0.00 | Yes | Yes | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |

¹Note: 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.

| | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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Tower Section Geometry (cont'd)

| Tower Elevation ft | Leg | | Diagonal | | Top Girt | | Bottom Girt | | Mid Girt | | Long Horizontal | | Short Horizontal | |
|---------------------|-----------|---|-----------|------|-----------|------|-------------|------|-----------|------|-----------------|------|------------------|------|
| | Net Width | U | Net Width | U | Net Width | U | Net Width | U | Net Width | U | Net Width | U | Net Width | U |
| | Deduct | | Deduct | | Deduct | | Deduct | | Deduct | | Deduct | | Deduct | |
| | in | | in | | in | | in | | in | | in | | in | |
| T1 193.00-180.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T2 180.00-160.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T3 160.00-140.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T4 140.00-120.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T5 120.00-100.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T6 100.00-80.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T7 80.00-60.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T8 60.00-40.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T9 40.00-20.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T10 20.00-5.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |
| T11 5.00-0.00 | 0.0000 | 1 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 | 0.0000 | 0.75 |

Tower Section Geometry (cont'd)

| Tower Elevation ft | Leg Connection Type | Leg | | Diagonal | | Top Girt | | Bottom Girt | | Mid Girt | | Long Horizontal | | Short Horizontal | |
|---------------------|---------------------|-----------|-----|-----------|-----|-----------|-----|-------------|-----|-----------|-----|-----------------|-----|------------------|-----|
| | | Bolt Size | No. | Bolt Size | No. | Bolt Size | No. | Bolt Size | No. | Bolt Size | No. | Bolt Size | No. | Bolt Size | No. |
| | | in | | in | | in | | in | | in | | in | | in | |
| T1 193.00-180.00 | Flange | 0.7500 | 4 | 0.6250 | 2 | 0.6250 | 2 | 0.6250 | 2 | 0.6250 | 0 | 0.6250 | 2 | 0.6250 | 0 |
| | | A325N | | A325N | | A325N | | A325N | | A325N | | A325N | | A325N | |
| T2 180.00-160.00 | Flange | 0.7500 | 4 | 0.6250 | 2 | 0.6250 | 2 | 0.6250 | 2 | 0.6250 | 0 | 0.6250 | 2 | 0.6250 | 0 |
| | | A325N | | A325N | | A325N | | A325N | | A325N | | A325N | | A325N | |
| T3 160.00-140.00 | Flange | 0.7500 | 4 | 0.6250 | 1 | 0.5000 | 1 | 0.5000 | 1 | 0.6250 | 0 | 0.6250 | 1 | 0.6250 | 0 |
| | | A325N | | A325X | | A325N | | A325N | | A325N | | A325X | | A325N | |
| T4 140.00-120.00 | Flange | 0.7500 | 4 | 0.6250 | 1 | 0.5000 | 1 | 0.5000 | 1 | 0.6250 | 0 | 0.5000 | 1 | 0.6250 | 0 |
| | | A325N | | A325N | | A325N | | A325N | | A325N | | A325N | | A325N | |
| T5 120.00-100.00 | Flange | 0.7500 | 4 | 0.6250 | 2 | 0.6250 | 2 | 0.6250 | 2 | 0.6250 | 0 | 0.6250 | 2 | 0.6250 | 0 |
| | | A325N | | A325N | | A325N | | A325N | | A325N | | A325N | | A325N | |
| T6 100.00-80.00 | Flange | 0.7500 | 4 | 0.5000 | 1 | 0.5000 | 1 | 0.5000 | 1 | 0.6250 | 0 | 0.5000 | 1 | 0.6250 | 0 |
| | | A325N | | A490X | | A325N | | A325N | | A325N | | A490X | | A325N | |
| T7 80.00-60.00 | Flange | 0.7500 | 4 | 0.6250 | 1 | 0.5000 | 1 | 0.5000 | 1 | 0.6250 | 0 | 0.6250 | 1 | 0.6250 | 0 |
| | | A325N | | A325X | | A325N | | A325N | | A325N | | A325X | | A325N | |
| T8 60.00-40.00 | Flange | 0.7500 | 4 | 0.5000 | 1 | 0.5000 | 1 | 0.5000 | 1 | 0.6250 | 0 | 0.5000 | 1 | 0.6250 | 0 |
| | | A325N | | A325X | | A325N | | A325N | | A325N | | A325X | | A325N | |
| T9 40.00-20.00 | Flange | 0.7500 | 4 | 0.6250 | 1 | 0.5000 | 1 | 0.5000 | 1 | 0.6250 | 0 | 0.6250 | 1 | 0.6250 | 0 |
| | | A325N | | A490X | | A325N | | A325N | | A325N | | A490X | | A325N | |
| T10 20.00-5.00 | Flange | 0.7500 | 4 | 0.5000 | 1 | 0.5000 | 1 | 0.5000 | 1 | 0.6250 | 0 | 0.5000 | 1 | 0.6250 | 0 |
| | | A325N | | A490X | | A325N | | A490X | | A325N | | A490X | | A325N | |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| 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. |
| T11 5.00-0.00 | Flange | 0.7500 A325N | 4 | 0.7500 A325N | 0 | 0.5000 A325N | 0 | 0.0000 A325N | 0 | 0.6250 A325N | 0 | 0.5000 A325N | 0 | 0.6250 A325N | 0 |

Guy Data

| Guy Elevation ft | Guy Grade | Guy Size | Initial Tension K | % | Guy Modulus ksi | Guy Weight plf | L _u ft | Anchor Radius ft | Anchor Azimuth Adj. ° | Anchor Elevation ft | End Fitting Efficiency % |
|---------------------|-----------|----------|----------------------|-----|--------------------|-------------------|----------------------|---------------------|-----------------------------|------------------------|-----------------------------|
| 162.583 | EHS | A 7/8 | 7.97 | 10% | 19000 | 1.581 | 210.20 | 138.00 | 0.0000 | 2.00 | 100% |
| | | B 7/8 | 7.97 | 10% | 19000 | 1.581 | 216.08 | 140.00 | 0.0000 | -4.00 | 100% |
| | | C 7/8 | 7.97 | 10% | 19000 | 1.581 | 210.20 | 138.00 | 0.0000 | 2.00 | 100% |
| 102.583 | EHS | A 5/8 | 4.24 | 10% | 21000 | 0.813 | 132.20 | 88.00 | 0.0000 | 2.00 | 100% |
| | | B 5/8 | 4.24 | 10% | 21000 | 0.813 | 136.67 | 89.00 | 0.0000 | -3.00 | 100% |
| | | C 5/8 | 4.24 | 10% | 21000 | 0.813 | 132.85 | 89.00 | 0.0000 | 2.00 | 100% |
| 42.5833 | EHS | A 1/2 | 2.69 | 10% | 21000 | 0.517 | 94.98 | 88.00 | 0.0000 | 2.00 | 100% |
| | | B 1/2 | 2.69 | 10% | 21000 | 0.517 | 98.10 | 89.00 | 0.0000 | -3.00 | 100% |
| | | C 1/2 | 2.69 | 10% | 21000 | 0.517 | 95.88 | 89.00 | 0.0000 | 2.00 | 100% |
| 177.083 | EHS | A 5/8 | 4.24 | 10% | 21000 | 0.813 | 221.47 | 138.00 | 0.0000 | 2.00 | 100% |
| | | B 5/8 | 4.24 | 10% | 21000 | 0.813 | 227.44 | 140.00 | 0.0000 | -4.00 | 100% |
| | | C 5/8 | 4.24 | 10% | 21000 | 0.813 | 221.47 | 138.00 | 0.0000 | 2.00 | 100% |

Guy Data(cont'd)

| Guy Elevation ft | Mount Type | Torque-Arm Spread ft | Torque-Arm Leg Angle ° | Torque-Arm Style | Torque-Arm Grade | Torque-Arm Type | Torque-Arm Size |
|---------------------|------------|-------------------------|---------------------------|------------------|------------------|-----------------|-----------------|
| 162.583 | Torque Arm | 7.33 | 0.0000 | Channel | A36 (36 ksi) | Channel | C15x50 |
| 102.583 | Torque Arm | 7.33 | 0.0000 | Channel | A36 (36 ksi) | Channel | C15x40 |
| 42.5833 | Torque Arm | 7.33 | 0.0000 | Channel | A36 (36 ksi) | Channel | C12x25 |
| 177.083 | Torque Arm | 7.33 | 0.0000 | Channel | A36 (36 ksi) | Channel | C15x50 |

Guy Data (cont'd)

| Guy Elevation ft | Diagonal Grade | Diagonal Type | Upper Diagonal Size | Lower Diagonal Size | Is Strap. | Pull-Off Grade | Pull-Off Type | Pull-Off Size |
|---------------------|---------------------|---------------|---------------------|---------------------|-----------|---------------------|---------------|---------------|
| 162.58 | A572-50 (50 ksi) | Solid Round | | | | A572-50 (50 ksi) | Solid Round | |
| 102.58 | A572-50 | Solid Round | | | | A572-50 | Solid Round | |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
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| Guy Elevation ft | Diagonal Grade | Diagonal Type | Upper Diagonal Size | Lower Diagonal Size | Is Strap. | Pull-Off Grade | Pull-Off Type | Pull-Off Size |
|---------------------|---------------------|---------------|---------------------|---------------------|-----------|---------------------|---------------|---------------|
| 42.58 | (50 ksi) A572-50 | Solid Round | | | | (50 ksi) A572-50 | Solid Round | |
| 177.08 | (50 ksi) A572-50 | Solid Round | | | | (50 ksi) A572-50 | Solid Round | |

Guy Data (cont'd)

| Guy Elevation ft | Cable Weight A K | Cable Weight B K | Cable Weight C K | Cable Weight D K | Tower Intercept A ft | Tower Intercept B ft | Tower Intercept C ft | Tower Intercept D ft |
|---------------------|------------------------|------------------------|------------------------|------------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| 162.583 | 0.33 | 0.34 | 0.33 | | 4.32 | 4.56 | 4.32 | |
| 102.583 | 0.11 | 0.11 | 0.11 | | 3.6 sec/pulse 1.66 | 3.7 sec/pulse 1.77 | 3.6 sec/pulse 1.68 | |
| 42.5833 | 0.05 | 0.05 | 0.05 | | 2.2 sec/pulse 0.86 | 2.3 sec/pulse 0.92 | 2.2 sec/pulse 0.88 | |
| 177.083 | 0.18 | 0.18 | 0.18 | | 1.6 sec/pulse 4.63 | 1.7 sec/pulse 4.88 | 1.6 sec/pulse 4.63 | |
| | | | | | 3.7 sec/pulse | 3.8 sec/pulse | 3.7 sec/pulse | |

Guy Data (cont'd)

| Guy Elevation ft | Calc K Single Angles | Calc K Solid Rounds | Torque Arm | | Pull Off | | Diagonal | |
|---------------------|-------------------------------|------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|
| | | | K _x | K _y | K _x | K _y | K _x | K _y |
| 162.583 | No | No | 1 | 1 | 1 | 1 | 1 | 1 |
| 102.583 | No | No | 1 | 1 | 1 | 1 | 1 | 1 |
| 42.5833 | No | No | 1 | 1 | 1 | 1 | 1 | 1 |
| 177.083 | No | No | 1 | 1 | 1 | 1 | 1 | 1 |

Guy Data (cont'd)

| Guy Elevation ft | Torque-Arm | | | | Pull Off | | | | Diagonal | | | |
|---------------------|-----------------|--------|---------------------------|---|-----------------|--------|---------------------------|------|-----------------|--------|---------------------------|------|
| | Bolt Size in | Number | Net Width Deduct in | U | Bolt Size in | Number | Net Width Deduct in | U | Bolt Size in | Number | Net Width Deduct in | U |
| 162.583 | 0.0000 A325N | 0 | 0.0000 | 1 | 0.6250 A325N | 0 | 0.0000 | 0.75 | 0.6250 A325N | 0 | 0.0000 | 0.75 |
| 102.583 | 0.0000 A325N | 0 | 0.0000 | 1 | 0.6250 A325N | 0 | 0.0000 | 0.75 | 0.6250 A325N | 0 | 0.0000 | 0.75 |
| 42.5833 | 0.0000 A325N | 0 | 0.0000 | 1 | 0.6250 A325N | 0 | 0.0000 | 0.75 | 0.6250 A325N | 0 | 0.0000 | 0.75 |
| 177.083 | 0.0000 A325N | 0 | 0.0000 | 1 | 0.6250 A325N | 0 | 0.0000 | 0.75 | 0.6250 A325N | 0 | 0.0000 | 0.75 |

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Guy Pressures

| Guy Elevation ft | Guy Location | z ft | q _z psf | q _z Ice psf | Ice Thickness in |
|---------------------|--------------|---------|-----------------------|------------------------------|---------------------|
| 162.583 | A | 82.29 | 22 | 5 | 1.6435 |
| | B | 79.29 | 22 | 5 | 1.6374 |
| | C | 82.29 | 22 | 5 | 1.6435 |
| 102.583 | A | 52.29 | 20 | 4 | 1.5707 |
| | B | 49.79 | 19 | 4 | 1.5630 |
| | C | 52.29 | 20 | 4 | 1.5707 |
| 42.5833 | A | 22.29 | 17 | 4 | 1.4423 |
| | B | 19.79 | 17 | 4 | 1.4252 |
| | C | 22.29 | 17 | 4 | 1.4423 |
| 177.083 | A | 89.54 | 23 | 5 | 1.6575 |
| | B | 86.54 | 23 | 5 | 1.6518 |
| | C | 89.54 | 23 | 5 | 1.6575 |

Guy-Tensioning Information

| Temperature At Time Of Tensioning | | | | | | | | | | | | | | | | | |
|-----------------------------------|---------|---------|----------------------|-----------------|----------------------|-----------------|----------------------|-----------------|----------------------|-----------------|----------------------|-----------------|----------------------|-----------------|----------------------|-----------------|------|
| Guy Elevation ft | H ft | V ft | 0 F | | 20 F | | 40 F | | 60 F | | 80 F | | 100 F | | 120 F | | |
| | | | Initial Tension K | Intercept ft | Initial Tension K | Intercept ft | Initial Tension K | Intercept ft | Initial Tension K | Intercept ft | Initial Tension K | Intercept ft | Initial Tension K | Intercept ft | Initial Tension K | Intercept ft | |
| 162.583 | A | 135.93 | 160.58 | 9.325 | 3.70 | 8.870 | 3.89 | 8.418 | 4.09 | 7.970 | 4.32 | 7.526 | 4.57 | 7.088 | 4.85 | 6.656 | 5.16 |
| | B | 137.93 | 166.58 | 9.288 | 3.92 | 8.845 | 4.11 | 8.406 | 4.33 | 7.970 | 4.56 | 7.538 | 4.82 | 7.112 | 5.10 | 6.692 | 5.42 |
| | C | 135.93 | 160.58 | 9.325 | 3.70 | 8.870 | 3.89 | 8.418 | 4.09 | 7.970 | 4.32 | 7.526 | 4.57 | 7.088 | 4.85 | 6.656 | 5.16 |
| 102.583 | A | 85.96 | 100.58 | 5.040 | 1.40 | 4.772 | 1.48 | 4.506 | 1.56 | 4.240 | 1.66 | 3.976 | 1.77 | 3.713 | 1.89 | 3.453 | 2.04 |
| | B | 86.96 | 105.58 | 5.005 | 1.50 | 4.749 | 1.59 | 4.494 | 1.67 | 4.240 | 1.77 | 3.987 | 1.89 | 3.736 | 2.01 | 3.486 | 2.15 |
| | C | 86.96 | 100.58 | 5.050 | 1.41 | 4.779 | 1.49 | 4.509 | 1.58 | 4.240 | 1.68 | 3.972 | 1.79 | 3.707 | 1.92 | 3.443 | 2.06 |
| 42.5833 | A | 85.96 | 40.58 | 3.678 | 0.63 | 3.347 | 0.70 | 3.017 | 0.77 | 2.690 | 0.86 | 2.366 | 0.98 | 2.046 | 1.14 | 1.734 | 1.34 |
| | B | 86.96 | 45.58 | 3.637 | 0.68 | 3.320 | 0.75 | 3.004 | 0.83 | 2.690 | 0.92 | 2.379 | 1.04 | 2.072 | 1.19 | 1.773 | 1.40 |
| | C | 86.96 | 40.58 | 3.681 | 0.64 | 3.349 | 0.71 | 3.019 | 0.79 | 2.690 | 0.88 | 2.365 | 1.00 | 2.044 | 1.16 | 1.731 | 1.37 |
| 177.083 | A | 135.93 | 175.08 | 4.932 | 3.99 | 4.700 | 4.18 | 4.469 | 4.40 | 4.240 | 4.63 | 4.013 | 4.89 | 3.789 | 5.17 | 3.568 | 5.49 |
| | B | 137.93 | 181.08 | 4.915 | 4.22 | 4.688 | 4.42 | 4.463 | 4.64 | 4.240 | 4.88 | 4.019 | 5.14 | 3.800 | 5.43 | 3.585 | 5.76 |
| | C | 135.93 | 175.08 | 4.932 | 3.99 | 4.700 | 4.18 | 4.469 | 4.40 | 4.240 | 4.63 | 4.013 | 4.89 | 3.789 | 5.17 | 3.568 | 5.49 |

Feed Line/Linear Appurtenances - Entered As Round Or Flat

| Description | Face or Leg | Allow Shield | Component Type | Placement ft | Total Number | Number Per Row | Clear Spacing in | Width or Diameter in | Perimeter in | Weight plf |
|-----------------------|-------------|--------------|----------------|-----------------|--------------|----------------|---------------------|-------------------------|-----------------|---------------|
| LDF7-50A (1-5/8 FOAM) | C | No | Ar (CaAa) | 192.00 - 8.00 | 6 | 3 | 1.9800 | 1.9800 | | 0.82 |
| LDF2-50A (3/8 FOAM) | C | No | Ar (CaAa) | 192.00 - 8.00 | 1 | 1 | 0.4400 | 0.4400 | | 0.08 |
| LDF5-50A (7/8 FOAM) | A | No | Ar (CaAa) | 178.00 - 8.00 | 1 | 1 | 1.0900 | 1.0900 | | 0.33 |
| LDF5-50A (7/8 FOAM) | C | No | Ar (CaAa) | 178.00 - 8.00 | 1 | 1 | 1.0900 | 1.0900 | | 0.33 |
| LDF6-50A (1-1/4 FOAM) | A | No | Ar (CaAa) | 180.00 - 8.00 | 12 | 12 | 1.5500 | 1.5500 | | 0.66 |
| LDF7-50A (1-5/8 FOAM) | C | No | Ar (CaAa) | 168.00 - 8.00 | 18 | 6 | 1.9800 | 1.9800 | | 0.82 |
| LDF7-50A (1-5/8 FOAM) | A | No | Ar (CaAa) | 151.00 - 88.00 | 6 | 6 | 1.9800 | 1.9800 | | 0.82 |
| LDF7-50A (1-5/8 FOAM) | A | No | Ar (CaAa) | 151.00 - 8.00 | 1 | 1 | 1.9800 | 1.9800 | | 0.82 |
| LDF6-50A (1-1/4 FOAM) | B | No | Ar (CaAa) | 141.00 - 8.00 | 6 | 3 | 1.5500 | 1.5500 | | 0.66 |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Description | Face or Leg | Allow Shield | Component Type | Placement ft | Total Number | Number Per Row | Clear Spacing in | Width or Diameter in | Perimeter in | Weight plf |
|-----------------------|-------------|--------------|----------------|----------------|--------------|----------------|------------------|----------------------|--------------|------------|
| LDF7-50A (1-5/8 FOAM) | B | No | Ar (CaAa) | 129.00 - 8.00 | 6 | 6 | 1.9800 | 1.9800 | | 0.82 |
| LDF7-50A (1-5/8 FOAM) | B | No | Ar (CaAa) | 129.00 - 8.00 | 6 | 6 | 1.9800 | 1.9800 | | 0.82 |
| LDF6-50A (1-1/4 FOAM) | C | No | Ar (CaAa) | 120.00 - 8.00 | 1 | 1 | 1.5500 | 1.5500 | | 0.66 |
| 2" Rigid Conduit | A | No | Ar (CaAa) | 115.00 - 88.00 | 1 | 1 | 2.0000 | 2.0000 | | 2.80 |
| LDF6-50A (1-1/4 FOAM) | A | No | Ar (CaAa) | 107.00 - 8.00 | 1 | 1 | 1.5500 | 1.5500 | | 0.66 |
| LDF5-50A (7/8 FOAM) | A | No | Ar (CaAa) | 108.00 - 8.00 | 2 | 2 | 1.0900 | 1.0900 | | 0.33 |
| LDF5-50A (7/8 FOAM) | A | No | Ar (CaAa) | 104.00 - 8.00 | 2 | 2 | 1.0900 | 1.0900 | | 0.33 |
| 2" Rigid Conduit | A | No | Ar (CaAa) | 180.00 - 8.00 | 1 | 1 | 2.0000 | 2.0000 | | 2.80 |

Feed Line/Linear Appurtenances Section Areas

| Tower Section | Tower Elevation ft | Face | A _R ft ² | A _F ft ² | C _{AA} In Face ft ² | C _{AA} Out Face ft ² | Weight K |
|---------------|--------------------|------|--------------------------------|--------------------------------|-----------------------------------------|------------------------------------------|----------|
| T1 | 193.00-180.00 | A | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 14.784 | 0.000 | 0.06 |
| T2 | 180.00-160.00 | A | 0.000 | 0.000 | 43.162 | 0.000 | 0.22 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 55.114 | 0.000 | 0.22 |
| T3 | 160.00-140.00 | A | 0.000 | 0.000 | 58.626 | 0.000 | 0.28 |
| | | B | 0.000 | 0.000 | 0.930 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 98.100 | 0.000 | 0.40 |
| T4 | 140.00-120.00 | A | 0.000 | 0.000 | 71.100 | 0.000 | 0.34 |
| | | B | 0.000 | 0.000 | 39.984 | 0.000 | 0.17 |
| | | C | 0.000 | 0.000 | 98.100 | 0.000 | 0.40 |
| T5 | 120.00-100.00 | A | 0.000 | 0.000 | 77.801 | 0.000 | 0.39 |
| | | B | 0.000 | 0.000 | 66.120 | 0.000 | 0.28 |
| | | C | 0.000 | 0.000 | 101.200 | 0.000 | 0.41 |
| T6 | 100.00-80.00 | A | 0.000 | 0.000 | 75.816 | 0.000 | 0.37 |
| | | B | 0.000 | 0.000 | 66.120 | 0.000 | 0.28 |
| | | C | 0.000 | 0.000 | 101.200 | 0.000 | 0.41 |
| T7 | 80.00-60.00 | A | 0.000 | 0.000 | 59.160 | 0.000 | 0.28 |
| | | B | 0.000 | 0.000 | 66.120 | 0.000 | 0.28 |
| | | C | 0.000 | 0.000 | 101.200 | 0.000 | 0.41 |
| T8 | 60.00-40.00 | A | 0.000 | 0.000 | 59.160 | 0.000 | 0.28 |
| | | B | 0.000 | 0.000 | 66.120 | 0.000 | 0.28 |
| | | C | 0.000 | 0.000 | 101.200 | 0.000 | 0.41 |
| T9 | 40.00-20.00 | A | 0.000 | 0.000 | 59.160 | 0.000 | 0.28 |
| | | B | 0.000 | 0.000 | 66.120 | 0.000 | 0.28 |
| | | C | 0.000 | 0.000 | 101.200 | 0.000 | 0.41 |
| T10 | 20.00-5.00 | A | 0.000 | 0.000 | 35.496 | 0.000 | 0.17 |
| | | B | 0.000 | 0.000 | 39.672 | 0.000 | 0.17 |
| | | C | 0.000 | 0.000 | 60.720 | 0.000 | 0.25 |
| T11 | 5.00-0.00 | A | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |

Feed Line/Linear Appurtenances Section Areas - With Ice

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 11 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Tower Section | Tower Elevation ft | Face or Leg | Ice Thickness in | A _R ft ² | A _F ft ² | C _{AA} In Face ft ² | C _{AA} Out Face ft ² | Weight K |
|---------------|-----------------------|-------------|---------------------|-----------------------------------|-----------------------------------|-----------------------------------------------|------------------------------------------------|-------------|
| T1 | 193.00-180.00 | A | 1.784 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 0.000 | 0.000 | 29.536 | 0.000 | 0.60 |
| T2 | 180.00-160.00 | A | 1.767 | 0.000 | 0.000 | 118.175 | 0.000 | 1.82 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 0.000 | 0.000 | 86.029 | 0.000 | 2.09 |
| T3 | 160.00-140.00 | A | 1.745 | 0.000 | 0.000 | 160.370 | 0.000 | 2.45 |
| | | B | | 0.000 | 0.000 | 1.735 | 0.000 | 0.03 |
| | | C | | 0.000 | 0.000 | 129.464 | 0.000 | 3.56 |
| T4 | 140.00-120.00 | A | 1.720 | 0.000 | 0.000 | 193.797 | 0.000 | 2.94 |
| | | B | | 0.000 | 0.000 | 92.566 | 0.000 | 1.53 |
| | | C | | 0.000 | 0.000 | 128.925 | 0.000 | 3.53 |
| T5 | 120.00-100.00 | A | 1.692 | 0.000 | 0.000 | 216.683 | 0.000 | 3.22 |
| | | B | | 0.000 | 0.000 | 162.970 | 0.000 | 2.56 |
| | | C | | 0.000 | 0.000 | 138.174 | 0.000 | 3.64 |
| T6 | 100.00-80.00 | A | 1.658 | 0.000 | 0.000 | 222.424 | 0.000 | 3.12 |
| | | B | | 0.000 | 0.000 | 162.337 | 0.000 | 2.52 |
| | | C | | 0.000 | 0.000 | 137.309 | 0.000 | 3.60 |
| T7 | 80.00-60.00 | A | 1.617 | 0.000 | 0.000 | 176.111 | 0.000 | 2.37 |
| | | B | | 0.000 | 0.000 | 161.562 | 0.000 | 2.47 |
| | | C | | 0.000 | 0.000 | 136.251 | 0.000 | 3.56 |
| T8 | 60.00-40.00 | A | 1.564 | 0.000 | 0.000 | 174.216 | 0.000 | 2.30 |
| | | B | | 0.000 | 0.000 | 160.557 | 0.000 | 2.41 |
| | | C | | 0.000 | 0.000 | 134.875 | 0.000 | 3.49 |
| T9 | 40.00-20.00 | A | 1.486 | 0.000 | 0.000 | 171.459 | 0.000 | 2.19 |
| | | B | | 0.000 | 0.000 | 159.096 | 0.000 | 2.33 |
| | | C | | 0.000 | 0.000 | 132.874 | 0.000 | 3.40 |
| T10 | 20.00-5.00 | A | 1.361 | 0.000 | 0.000 | 100.233 | 0.000 | 1.21 |
| | | B | | 0.000 | 0.000 | 94.060 | 0.000 | 1.31 |
| | | C | | 0.000 | 0.000 | 77.804 | 0.000 | 1.96 |
| T11 | 5.00-0.00 | A | 1.159 | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |

Feed Line Center of Pressure

| Section | Elevation ft | CP _x in | CP _z in | CP _x Ice in | CP _z Ice in |
|---------|-----------------|-----------------------|-----------------------|------------------------------|------------------------------|
| T1 | 193.00-180.00 | 0.0000 | 1.6996 | 0.0000 | 0.5878 |
| T2 | 180.00-160.00 | -0.9470 | 1.0145 | -0.6155 | 0.1208 |
| T3 | 160.00-140.00 | -0.8992 | 1.4070 | -0.7088 | 0.2566 |
| T4 | 140.00-120.00 | -0.3617 | 0.7395 | -0.5609 | -0.0154 |
| T5 | 120.00-100.00 | -0.0935 | 0.4478 | -0.2229 | -0.1171 |
| T6 | 100.00-80.00 | -0.0731 | 0.4807 | -0.2404 | -0.1263 |
| T7 | 80.00-60.00 | 0.1151 | 0.6221 | -0.0747 | -0.0325 |
| T8 | 60.00-40.00 | 0.1158 | 0.6262 | -0.0724 | -0.0345 |
| T9 | 40.00-20.00 | 0.1182 | 0.6391 | -0.0727 | -0.0398 |
| T10 | 20.00-5.00 | 0.1155 | 0.6244 | -0.0614 | -0.0427 |
| T11 | 5.00-0.00 | 0.0000 | 0.0000 | 0.0000 | 0.0000 |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

Shielding Factor Ka

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | K _a No Ice | K _a Ice |
|---------------|----------------------|-----------------------|-------------------------|-----------------------|--------------------|
| T1 | 1 | LDF7-50A (1-5/8 FOAM) | 180.00 - 192.00 | 0.6000 | 0.3200 |
| T1 | 2 | LDF2-50A (3/8 FOAM) | 180.00 - 192.00 | 0.6000 | 0.3200 |
| T2 | 1 | LDF7-50A (1-5/8 FOAM) | 160.00 - 180.00 | 0.6000 | 0.1810 |
| T2 | 2 | LDF2-50A (3/8 FOAM) | 160.00 - 180.00 | 0.6000 | 0.1810 |
| T2 | 3 | LDF5-50A (7/8 FOAM) | 160.00 - 178.00 | 0.6000 | 0.1810 |
| T2 | 4 | LDF5-50A (7/8 FOAM) | 160.00 - 178.00 | 0.6000 | 0.1810 |
| T2 | 5 | LDF6-50A (1-1/4 FOAM) | 160.00 - 180.00 | 0.6000 | 0.1810 |
| T2 | 6 | LDF7-50A (1-5/8 FOAM) | 160.00 - 168.00 | 0.6000 | 0.1810 |
| T2 | 17 | 2" Rigid Conduit | 160.00 - 180.00 | 0.6000 | 0.1810 |
| T3 | 1 | LDF7-50A (1-5/8 FOAM) | 140.00 - 160.00 | 0.6000 | 0.1898 |
| T3 | 2 | LDF2-50A (3/8 FOAM) | 140.00 - 160.00 | 0.6000 | 0.1898 |
| T3 | 3 | LDF5-50A (7/8 FOAM) | 140.00 - 160.00 | 0.6000 | 0.1898 |
| T3 | 4 | LDF5-50A (7/8 FOAM) | 140.00 - 160.00 | 0.6000 | 0.1898 |
| T3 | 5 | LDF6-50A (1-1/4 FOAM) | 140.00 - 160.00 | 0.6000 | 0.1898 |
| T3 | 6 | LDF7-50A (1-5/8 FOAM) | 140.00 - 160.00 | 0.6000 | 0.1898 |
| T3 | 7 | LDF7-50A (1-5/8 FOAM) | 140.00 - 151.00 | 0.6000 | 0.1898 |
| T3 | 8 | LDF7-50A (1-5/8 FOAM) | 140.00 - 151.00 | 0.6000 | 0.1898 |
| T3 | 9 | LDF6-50A (1-1/4 FOAM) | 140.00 - 141.00 | 0.6000 | 0.1898 |
| T3 | 17 | 2" Rigid Conduit | 140.00 - 160.00 | 0.6000 | 0.1898 |
| T4 | 1 | LDF7-50A (1-5/8 FOAM) | 120.00 - 140.00 | 0.6000 | 0.3750 |
| T4 | 2 | LDF2-50A (3/8 FOAM) | 120.00 - 140.00 | 0.6000 | 0.3750 |
| T4 | 3 | LDF5-50A (7/8 FOAM) | 120.00 - 140.00 | 0.6000 | 0.3750 |
| T4 | 4 | LDF5-50A (7/8 FOAM) | 120.00 - 140.00 | 0.6000 | 0.3750 |
| T4 | 5 | LDF6-50A (1-1/4 FOAM) | 120.00 - 140.00 | 0.6000 | 0.3750 |
| T4 | 6 | LDF7-50A (1-5/8 FOAM) | 120.00 - 140.00 | 0.6000 | 0.3750 |
| T4 | 7 | LDF7-50A (1-5/8 FOAM) | 120.00 - 140.00 | 0.6000 | 0.3750 |
| T4 | 8 | LDF7-50A (1-5/8 FOAM) | 120.00 - 140.00 | 0.6000 | 0.3750 |
| T4 | 9 | LDF6-50A (1-1/4 FOAM) | 120.00 - 140.00 | 0.6000 | 0.3750 |
| T4 | 10 | LDF7-50A (1-5/8 FOAM) | 120.00 - 129.00 | 0.6000 | 0.3750 |
| T4 | 11 | LDF7-50A (1-5/8 FOAM) | 120.00 - | 0.6000 | 0.3750 |

| | | | |
|----------------|-----------|--------------------|-------------------|
| Job | 18946024A | Page | 13 of 55 |
| Project | CTL02171 | Date | 08:42:18 10/05/18 |
| Client | AT&T | Designed by | |

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | K_a No Ice | K_a Ice |
|---------------|----------------------|-----------------------|-------------------------|--------------|-----------|
| | | | 129.00 | | |
| T4 | 17 | 2" Rigid Conduit | 120.00 - 140.00 | 0.6000 | 0.3750 |
| T5 | 1 | LDF7-50A (1-5/8 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 2 | LDF2-50A (3/8 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 3 | LDF5-50A (7/8 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 4 | LDF5-50A (7/8 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 5 | LDF6-50A (1-1/4 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 6 | LDF7-50A (1-5/8 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 7 | LDF7-50A (1-5/8 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 8 | LDF7-50A (1-5/8 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 9 | LDF6-50A (1-1/4 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 10 | LDF7-50A (1-5/8 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 11 | LDF7-50A (1-5/8 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 12 | LDF6-50A (1-1/4 FOAM) | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T5 | 13 | 2" Rigid Conduit | 100.00 - 115.00 | 0.6000 | 0.1927 |
| T5 | 14 | LDF6-50A (1-1/4 FOAM) | 100.00 - 107.00 | 0.6000 | 0.1927 |
| T5 | 15 | LDF5-50A (7/8 FOAM) | 100.00 - 108.00 | 0.6000 | 0.1927 |
| T5 | 16 | LDF5-50A (7/8 FOAM) | 100.00 - 104.00 | 0.6000 | 0.1927 |
| T5 | 17 | 2" Rigid Conduit | 100.00 - 120.00 | 0.6000 | 0.1927 |
| T6 | 1 | LDF7-50A (1-5/8 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 2 | LDF2-50A (3/8 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 3 | LDF5-50A (7/8 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 4 | LDF5-50A (7/8 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 5 | LDF6-50A (1-1/4 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 6 | LDF7-50A (1-5/8 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 7 | LDF7-50A (1-5/8 FOAM) | 88.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 8 | LDF7-50A (1-5/8 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 9 | LDF6-50A (1-1/4 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 10 | LDF7-50A (1-5/8 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 11 | LDF7-50A (1-5/8 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 12 | LDF6-50A (1-1/4 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 13 | 2" Rigid Conduit | 88.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 14 | LDF6-50A (1-1/4 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 15 | LDF5-50A (7/8 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 16 | LDF5-50A (7/8 FOAM) | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T6 | 17 | 2" Rigid Conduit | 80.00 - 100.00 | 0.6000 | 0.3752 |
| T7 | 1 | LDF7-50A (1-5/8 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 2 | LDF2-50A (3/8 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 3 | LDF5-50A (7/8 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 4 | LDF5-50A (7/8 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 5 | LDF6-50A (1-1/4 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 6 | LDF7-50A (1-5/8 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 8 | LDF7-50A (1-5/8 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 9 | LDF6-50A (1-1/4 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 14 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| <i>Tower Section</i> | <i>Feed Line Record No.</i> | <i>Description</i> | <i>Feed Line Segment Elev.</i> | <i>K_a No Ice</i> | <i>K_a Ice</i> |
|----------------------|-----------------------------|-----------------------|--------------------------------|-----------------------------|--------------------------|
| T7 | 10 | LDF7-50A (1-5/8 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 11 | LDF7-50A (1-5/8 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 12 | LDF6-50A (1-1/4 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 14 | LDF6-50A (1-1/4 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 15 | LDF5-50A (7/8 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 16 | LDF5-50A (7/8 FOAM) | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T7 | 17 | 2" Rigid Conduit | 60.00 - 80.00 | 0.6000 | 0.3674 |
| T8 | 1 | LDF7-50A (1-5/8 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 2 | LDF2-50A (3/8 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 3 | LDF5-50A (7/8 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 4 | LDF5-50A (7/8 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 5 | LDF6-50A (1-1/4 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 6 | LDF7-50A (1-5/8 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 8 | LDF7-50A (1-5/8 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 9 | LDF6-50A (1-1/4 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 10 | LDF7-50A (1-5/8 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 11 | LDF7-50A (1-5/8 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 12 | LDF6-50A (1-1/4 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 14 | LDF6-50A (1-1/4 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 15 | LDF5-50A (7/8 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 16 | LDF5-50A (7/8 FOAM) | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T8 | 17 | 2" Rigid Conduit | 40.00 - 60.00 | 0.6000 | 0.3941 |
| T9 | 1 | LDF7-50A (1-5/8 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 2 | LDF2-50A (3/8 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 3 | LDF5-50A (7/8 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 4 | LDF5-50A (7/8 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 5 | LDF6-50A (1-1/4 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 6 | LDF7-50A (1-5/8 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 8 | LDF7-50A (1-5/8 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 9 | LDF6-50A (1-1/4 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 10 | LDF7-50A (1-5/8 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 11 | LDF7-50A (1-5/8 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 12 | LDF6-50A (1-1/4 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 14 | LDF6-50A (1-1/4 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 15 | LDF5-50A (7/8 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 16 | LDF5-50A (7/8 FOAM) | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T9 | 17 | 2" Rigid Conduit | 20.00 - 40.00 | 0.6000 | 0.5539 |
| T10 | 1 | LDF7-50A (1-5/8 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 2 | LDF2-50A (3/8 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 3 | LDF5-50A (7/8 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 4 | LDF5-50A (7/8 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 5 | LDF6-50A (1-1/4 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 6 | LDF7-50A (1-5/8 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 8 | LDF7-50A (1-5/8 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 9 | LDF6-50A (1-1/4 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 10 | LDF7-50A (1-5/8 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 11 | LDF7-50A (1-5/8 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 12 | LDF6-50A (1-1/4 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 14 | LDF6-50A (1-1/4 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 15 | LDF5-50A (7/8 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 16 | LDF5-50A (7/8 FOAM) | 8.00 - 20.00 | 0.6000 | 0.5625 |
| T10 | 17 | 2" Rigid Conduit | 8.00 - 20.00 | 0.6000 | 0.5625 |

Discrete Tower Loads

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 15 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | CAAA Front | CAAA Side | Weight |
|------------------------------------------------|-------------|-------------|----------------------|------|--------------------|-----------|------------------------------------------------|-------------------------|----------------------|
| | | | Horz | Vert | | | | | |
| | | | ft | ft | ° | ft | ft ² | ft ² | K |
| 10' Boom Gate w/3 - 2 3/8" Pipe (Tapered) (3) | A | None | | | 0.0000 | 192.00 | No Ice 35.30 1/2" Ice 46.40 1" Ice 57.50 | 35.30 46.40 57.50 | 1.75 2.40 3.05 |
| 20' Omni | C | From Leg | 5.00 0.00 0.00 | | 0.0000 | 188.00 | No Ice 6.00 1/2" Ice 8.03 1" Ice 10.08 | 6.00 8.03 10.08 | 0.04 0.08 0.14 |
| 2.5" Dia 7' Omni | B | From Leg | 5.00 0.00 0.00 | | 0.0000 | 181.00 | No Ice 1.75 1/2" Ice 2.45 1" Ice 2.87 | 1.75 2.45 2.87 | 0.03 0.04 0.06 |
| 10' Boom Gate w/3 - 2 3/8" Pipe (Tapered) (3) | A | None | | | 0.0000 | 179.00 | No Ice 35.30 1/2" Ice 46.40 1" Ice 57.50 | 35.30 46.40 57.50 | 1.75 2.40 3.05 |
| 7770 | A | From Leg | 5.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 5.51 1/2" Ice 5.87 1" Ice 6.23 | 2.93 3.27 3.63 | 0.04 0.07 0.11 |
| 7770 | B | From Leg | 5.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 5.51 1/2" Ice 5.87 1" Ice 6.23 | 2.93 3.27 3.63 | 0.04 0.07 0.11 |
| 7770 | C | From Leg | 5.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 5.51 1/2" Ice 5.87 1" Ice 6.23 | 2.93 3.27 3.63 | 0.04 0.07 0.11 |
| TPA-65R-LCUUUU-H8 | A | From Leg | 5.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 12.75 1/2" Ice 13.33 1" Ice 13.92 | 7.25 7.82 8.40 | 0.11 0.18 0.26 |
| Quintel QS66512-2 w/m pipe | B | From Leg | 5.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 8.85 1/2" Ice 9.61 1" Ice 10.39 | 8.94 10.33 11.73 | 0.14 0.22 0.31 |
| TPA-65R-LCUUUU-H8 | C | From Leg | 5.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 12.75 1/2" Ice 13.33 1" Ice 13.92 | 7.25 7.82 8.40 | 0.11 0.18 0.26 |
| HPA-65R-BUU-H8 | A | From Leg | 5.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 12.98 1/2" Ice 13.56 1" Ice 14.15 | 7.52 8.09 8.67 | 0.07 0.14 0.22 |
| HPA-65R-BUU-H8 | B | From Leg | 5.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 12.98 1/2" Ice 13.56 1" Ice 14.15 | 7.52 8.09 8.67 | 0.07 0.14 0.22 |
| HPA-65R-BUU-H8 | C | From Leg | 5.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 12.98 1/2" Ice 13.56 1" Ice 14.15 | 7.52 8.09 8.67 | 0.07 0.14 0.22 |
| RRUS 12 + RRUS 4426 B66 shielded | A | From Leg | 4.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 0.00 1/2" Ice 0.01 1" Ice 0.02 | 0.02 0.10 0.19 | 0.10 0.10 0.10 |
| RRUS 12 + RRUS 4426 B66 shielded | B | From Leg | 4.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 0.00 1/2" Ice 0.01 1" Ice 0.02 | 0.02 0.10 0.19 | 0.10 0.10 0.10 |
| RRUS 12 + RRUS 4426 B66 shielded | C | From Leg | 4.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 0.00 1/2" Ice 0.01 1" Ice 0.02 | 0.02 0.10 0.19 | 0.10 0.10 0.10 |
| RRUS11 B12 (Partial Shielded by 11.9" Antenna) | A | From Leg | 4.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 0.88 1/2" Ice 1.02 1" Ice 1.16 | 1.18 1.33 1.48 | 0.05 0.06 0.07 |
| RRUS11 B12 (Partial Shielded by 11.9" Antenna) | B | From Leg | 4.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 0.88 1/2" Ice 1.02 1" Ice 1.16 | 1.18 1.33 1.48 | 0.05 0.06 0.07 |
| RRUS11 B12 (Partial Shielded by 11.9" Antenna) | C | From Leg | 4.00 0.00 0.00 | | 0.0000 | 180.00 | No Ice 0.88 1/2" Ice 1.02 1" Ice 1.16 | 1.18 1.33 1.48 | 0.05 0.06 0.07 |

| | | | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| <p>tnxTower</p> <p>Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120</p> | Job | 18946024A | Page | 16 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | CAAA Front | CAAA Side | Weight |
|-------------------|-------------|-------------|----------|---------|--------------------|-----------|------------|-----------|--------|
| | | | Horz | Lateral | | | | | |
| RRUS 32 | A | From Leg | 4.00 | 0.0000 | 180.00 | No Ice | 2.74 | 1.67 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 2.96 | 1.86 | 0.07 |
| | | | 0.00 | | | 1" Ice | 3.19 | 2.05 | 0.10 |
| RRUS 32 | B | From Leg | 4.00 | 0.0000 | 180.00 | No Ice | 2.72 | 1.67 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 2.94 | 1.86 | 0.07 |
| | | | 0.00 | | | 1" Ice | 3.17 | 2.05 | 0.10 |
| RRUS 32 | C | From Leg | 4.00 | 0.0000 | 180.00 | No Ice | 2.72 | 1.67 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 2.94 | 1.86 | 0.07 |
| | | | 0.00 | | | 1" Ice | 3.17 | 2.05 | 0.10 |
| 14' T Arm round | A | From Leg | 1.50 | 0.0000 | 168.00 | No Ice | 3.50 | 1.60 | 0.34 |
| | | | 0.00 | | | 1/2" Ice | 5.25 | 2.40 | 0.41 |
| | | | 0.00 | | | 1" Ice | 7.88 | 3.60 | 0.49 |
| 14' T Arm round | B | From Leg | 1.50 | 0.0000 | 168.00 | No Ice | 3.50 | 1.60 | 0.34 |
| | | | 0.00 | | | 1/2" Ice | 5.25 | 2.40 | 0.41 |
| | | | 0.00 | | | 1" Ice | 7.88 | 3.60 | 0.49 |
| 14' T Arm round | C | From Leg | 1.50 | 0.0000 | 168.00 | No Ice | 3.50 | 1.60 | 0.34 |
| | | | 0.00 | | | 1/2" Ice | 5.25 | 2.40 | 0.41 |
| | | | 0.00 | | | 1" Ice | 7.88 | 3.60 | 0.49 |
| SBNH-1D6565B | A | From Leg | 5.00 | 0.0000 | 192.70 | No Ice | 8.17 | 6.83 | 0.07 |
| | | | 0.00 | | | 1/2" Ice | 8.63 | 7.79 | 0.14 |
| | | | 0.00 | | | 1" Ice | 9.10 | 8.62 | 0.21 |
| SBNH-1D6565B | B | From Leg | 5.00 | 0.0000 | 129.70 - 192.70 | No Ice | 8.17 | 6.83 | 0.07 |
| | | | 0.00 | | | 1/2" Ice | 8.63 | 7.79 | 0.14 |
| | | | 0.00 | | | 1" Ice | 9.10 | 8.62 | 0.21 |
| SBNH-1D6565B | C | From Leg | 5.00 | 0.0000 | 192.70 | No Ice | 8.17 | 6.83 | 0.07 |
| | | | 0.00 | | | 1/2" Ice | 8.63 | 7.79 | 0.14 |
| | | | 0.00 | | | 1" Ice | 9.10 | 8.62 | 0.21 |
| APXV9TM14-C-I20 | A | From Leg | 5.00 | 0.0000 | 192.70 | No Ice | 6.34 | 3.61 | 0.06 |
| | | | 0.00 | | | 1/2" Ice | 6.72 | 3.97 | 0.09 |
| | | | 0.00 | | | 1" Ice | 7.10 | 4.33 | 0.14 |
| APXV9TM14-C-I20 | B | From Leg | 5.00 | 0.0000 | 192.70 | No Ice | 6.34 | 3.61 | 0.06 |
| | | | 0.00 | | | 1/2" Ice | 6.72 | 3.97 | 0.09 |
| | | | 0.00 | | | 1" Ice | 7.10 | 4.33 | 0.14 |
| APXV9TM14-C-I20 | C | From Leg | 5.00 | 0.0000 | 192.70 | No Ice | 6.34 | 3.61 | 0.06 |
| | | | 0.00 | | | 1/2" Ice | 6.72 | 3.97 | 0.09 |
| | | | 0.00 | | | 1" Ice | 7.10 | 4.33 | 0.14 |
| (2) LPA-80063/8CF | A | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 13.62 | 12.17 | 0.04 |
| | | | 0.00 | | | 1/2" Ice | 14.21 | 12.77 | 0.14 |
| | | | 0.00 | | | 1" Ice | 14.82 | 13.37 | 0.24 |
| (2) LPA-80063/8CF | B | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 13.62 | 12.17 | 0.04 |
| | | | 0.00 | | | 1/2" Ice | 14.21 | 12.77 | 0.14 |
| | | | 0.00 | | | 1" Ice | 14.82 | 13.37 | 0.24 |
| (2) LPA-80063/8CF | C | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 13.62 | 12.17 | 0.04 |
| | | | 0.00 | | | 1/2" Ice | 14.21 | 12.77 | 0.14 |
| | | | 0.00 | | | 1" Ice | 14.82 | 13.37 | 0.24 |
| BXA-171063-12CF | A | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 4.80 | 3.63 | 0.01 |
| | | | 0.00 | | | 1/2" Ice | 5.25 | 4.06 | 0.04 |
| | | | 0.00 | | | 1" Ice | 5.71 | 4.51 | 0.07 |
| BXA-171063-12CF | B | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 4.80 | 3.63 | 0.01 |
| | | | 0.00 | | | 1/2" Ice | 5.25 | 4.06 | 0.04 |
| | | | 0.00 | | | 1" Ice | 5.71 | 4.51 | 0.07 |
| BXA-171063-12CF | C | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 4.80 | 3.63 | 0.01 |
| | | | 0.00 | | | 1/2" Ice | 5.25 | 4.06 | 0.04 |
| | | | 0.00 | | | 1" Ice | 5.71 | 4.51 | 0.07 |
| BXA-70063/6CF | A | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 7.57 | 4.16 | 0.03 |
| | | | 0.00 | | | 1/2" Ice | 8.02 | 4.60 | 0.07 |
| | | | 0.00 | | | 1" Ice | 8.47 | 5.04 | 0.12 |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 17 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment ° | Placement ft | C _{AA} Front ft ² | C _{AA} Side ft ² | Weight K |
|---------------------------------------------------|-------------------|----------------|-----------------------|------------|----------------------------|-----------------|---------------------------------------------|--------------------------------------------|-------------|
| | | | Horz Lateral ft | Vert ft | | | | | |
| BXA-70063/6CF | B | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 7.57 | 4.16 | 0.03 |
| | | | 0.00 | | | 1/2" Ice | 8.02 | 4.60 | 0.07 |
| | | | 0.00 | | | 1" Ice | 8.47 | 5.04 | 0.12 |
| BXA-70063/6CF | C | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 7.57 | 4.16 | 0.03 |
| | | | 0.00 | | | 1/2" Ice | 8.02 | 4.60 | 0.07 |
| | | | 0.00 | | | 1" Ice | 8.47 | 5.04 | 0.12 |
| (2) B25 RRH4x30-4R | A | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 2.12 | 1.29 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 2.31 | 1.45 | 0.07 |
| | | | 0.00 | | | 1" Ice | 2.50 | 1.61 | 0.09 |
| (2) B25 RRH4x30-4R | B | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 2.12 | 1.29 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 2.31 | 1.45 | 0.07 |
| | | | 0.00 | | | 1" Ice | 2.50 | 1.61 | 0.09 |
| (2) B25 RRH4x30-4R | C | From Leg | 2.50 | 0.0000 | 168.00 | No Ice | 2.12 | 1.29 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 2.31 | 1.45 | 0.07 |
| | | | 0.00 | | | 1" Ice | 2.50 | 1.61 | 0.09 |
| 10' Boom Gate w/3 2 - 3/8" Pipe (Vertical) (3) | A | None | | 0.0000 | 151.00 | No Ice | 39.20 | 39.20 | 1.50 |
| | | | | | | 1/2" Ice | 51.70 | 51.70 | 2.10 |
| | | | | | | 1" Ice | 64.20 | 64.20 | 2.70 |
| DBXLH-6565AVTM | A | From Leg | 5.00 | 0.0000 | 151.00 | No Ice | 4.88 | 2.74 | 0.03 |
| | | | 0.00 | | | 1/2" Ice | 5.21 | 3.07 | 0.06 |
| | | | 0.00 | | | 1" Ice | 5.56 | 3.40 | 0.10 |
| DBXLH-6565AVTM | B | From Leg | 5.00 | 0.0000 | 151.00 | No Ice | 4.88 | 2.74 | 0.03 |
| | | | 0.00 | | | 1/2" Ice | 5.21 | 3.07 | 0.06 |
| | | | 0.00 | | | 1" Ice | 5.56 | 3.40 | 0.10 |
| DBXLH-6565AVTM | C | From Leg | 5.00 | 0.0000 | 151.00 | No Ice | 4.88 | 2.74 | 0.03 |
| | | | 0.00 | | | 1/2" Ice | 5.21 | 3.07 | 0.06 |
| | | | 0.00 | | | 1" Ice | 5.56 | 3.40 | 0.10 |
| 7' Whip | B | From Leg | 4.00 | 0.0000 | 154.00 - 154.50 | No Ice | 1.74 | 1.74 | 0.04 |
| | | | 0.00 | | | 1/2" Ice | 2.60 | 2.60 | 0.05 |
| | | | 0.00 | | | 1" Ice | 3.29 | 3.29 | 0.08 |
| 10' dipole | B | From Leg | 2.00 | 0.0000 | 124.00 | No Ice | 3.00 | 3.00 | 0.02 |
| | | | 0.00 | | | 1/2" Ice | 4.03 | 4.03 | 0.04 |
| | | | 0.00 | | | 1" Ice | 5.03 | 5.03 | 0.07 |
| Pirot 4' Side Mount Standoff (1) | C | From Leg | 4.00 | 0.0000 | 119.50 | No Ice | 2.72 | 2.72 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 4.91 | 4.91 | 0.09 |
| | | | 0.00 | | | 1" Ice | 7.10 | 7.10 | 0.13 |
| 6' Yagi | C | From Leg | 1.00 | 0.0000 | 113.00 | No Ice | 0.00 | 0.00 | 0.00 |
| | | | 0.00 | | | 1/2" Ice | 0.00 | 0.00 | 0.00 |
| | | | 0.00 | | | 1" Ice | 0.00 | 0.00 | 0.00 |
| Pirot 4' Side Mount Standoff (1) | B | From Leg | 2.00 | 0.0000 | 108.00 | No Ice | 2.72 | 2.72 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 4.91 | 4.91 | 0.09 |
| | | | 0.00 | | | 1" Ice | 7.10 | 7.10 | 0.13 |
| 20' Omni | B | From Leg | 4.00 | 0.0000 | 117.00 | No Ice | 6.00 | 6.00 | 0.04 |
| | | | 0.00 | | | 1/2" Ice | 8.03 | 8.03 | 0.08 |
| | | | 0.00 | | | 1" Ice | 10.08 | 10.08 | 0.14 |
| Pirot 4' Side Mount Standoff (1) | A | From Leg | 2.00 | 0.0000 | 108.00 | No Ice | 2.72 | 2.72 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 4.91 | 4.91 | 0.09 |
| | | | 0.00 | | | 1" Ice | 7.10 | 7.10 | 0.13 |
| 20' Omni | A | From Leg | 4.00 | 0.0000 | 117.00 | No Ice | 6.00 | 6.00 | 0.04 |
| | | | 0.00 | | | 1/2" Ice | 8.03 | 8.03 | 0.08 |
| | | | 0.00 | | | 1" Ice | 10.08 | 10.08 | 0.14 |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 18 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

Tower Pressures - No Ice

$G_H = 0.850$

| Section Elevation | z | K _Z | q _z | A _G | F a c e | A _F | A _R | A _{leg} | Leg % | C _A A _A In Face | C _A A _A Out Face |
|---------------------|--------|----------------|----------------|-----------------|---------|-----------------|-----------------|------------------|-------|---------------------------------------|----------------------------------------|
| ft | ft | | psf | ft ² | e | ft ² | ft ² | ft ² | | ft ² | ft ² |
| T1 193.00-180.00 | 186.50 | 1.181 | 28 | 47.575 | A | 7.551 | 6.229 | 6.229 | 45.20 | 0.000 | 0.000 |
| | | | | | B | 7.551 | 6.229 | | 45.20 | 0.000 | 0.000 |
| | | | | | C | 7.551 | 6.229 | | 45.20 | 14.784 | 0.000 |
| T2 180.00-160.00 | 170.00 | 1.15 | 28 | 73.192 | A | 15.686 | 9.583 | 9.583 | 37.93 | 43.162 | 0.000 |
| | | | | | B | 15.686 | 9.583 | | 37.93 | 0.000 | 0.000 |
| | | | | | C | 15.686 | 9.583 | | 37.93 | 55.114 | 0.000 |
| T3 160.00-140.00 | 150.00 | 1.11 | 27 | 73.192 | A | 14.625 | 10.378 | 9.583 | 38.33 | 58.626 | 0.000 |
| | | | | | B | 14.625 | 10.378 | | 38.33 | 0.930 | 0.000 |
| | | | | | C | 14.625 | 10.378 | | 38.33 | 98.100 | 0.000 |
| T4 140.00-120.00 | 130.00 | 1.065 | 26 | 73.192 | A | 0.000 | 18.167 | 9.583 | 52.75 | 71.100 | 0.000 |
| | | | | | B | 0.000 | 18.167 | | 52.75 | 39.984 | 0.000 |
| | | | | | C | 0.000 | 18.167 | | 52.75 | 98.100 | 0.000 |
| T5 120.00-100.00 | 110.00 | 1.016 | 24 | 74.233 | A | 15.429 | 11.667 | 11.667 | 43.06 | 77.801 | 0.000 |
| | | | | | B | 15.429 | 11.667 | | 43.06 | 66.120 | 0.000 |
| | | | | | C | 15.429 | 11.667 | | 43.06 | 101.200 | 0.000 |
| T6 100.00-80.00 | 90.00 | 0.959 | 23 | 74.233 | A | 0.000 | 20.110 | 11.667 | 58.01 | 75.816 | 0.000 |
| | | | | | B | 0.000 | 20.110 | | 58.01 | 66.120 | 0.000 |
| | | | | | C | 0.000 | 20.110 | | 58.01 | 101.200 | 0.000 |
| T7 80.00-60.00 | 70.00 | 0.892 | 21 | 74.233 | A | 8.938 | 12.449 | 11.667 | 54.55 | 59.160 | 0.000 |
| | | | | | B | 8.938 | 12.449 | | 54.55 | 66.120 | 0.000 |
| | | | | | C | 8.938 | 12.449 | | 54.55 | 101.200 | 0.000 |
| T8 60.00-40.00 | 50.00 | 0.811 | 19 | 74.233 | A | 0.000 | 20.110 | 11.667 | 58.01 | 59.160 | 0.000 |
| | | | | | B | 0.000 | 20.110 | | 58.01 | 66.120 | 0.000 |
| | | | | | C | 0.000 | 20.110 | | 58.01 | 101.200 | 0.000 |
| T9 40.00-20.00 | 30.00 | 0.701 | 17 | 74.233 | A | 0.000 | 16.279 | 11.667 | 71.67 | 59.160 | 0.000 |
| | | | | | B | 0.000 | 16.279 | | 71.67 | 66.120 | 0.000 |
| | | | | | C | 0.000 | 16.279 | | 71.67 | 101.200 | 0.000 |
| T10 20.00-5.00 | 12.50 | 0.7 | 17 | 55.675 | A | 0.000 | 12.405 | 8.750 | 70.54 | 35.496 | 0.000 |
| | | | | | B | 0.000 | 12.405 | | 70.54 | 39.672 | 0.000 |
| | | | | | C | 0.000 | 12.405 | | 70.54 | 60.720 | 0.000 |
| T11 5.00-0.00 | 2.50 | 0.7 | 17 | 10.091 | A | 2.271 | 3.136 | 3.136 | 58.00 | 0.000 | 0.000 |
| | | | | | B | 2.271 | 3.136 | | 58.00 | 0.000 | 0.000 |
| | | | | | C | 2.271 | 3.136 | | 58.00 | 0.000 | 0.000 |

Tower Pressure - With Ice

$G_H = 0.850$

| Section Elevation | z | K _Z | q _z | t _z | A _G | F a c e | A _F | A _R | A _{leg} | Leg % | C _A A _A In Face | C _A A _A Out Face |
|---------------------|--------|----------------|----------------|----------------|-----------------|---------|-----------------|-----------------|------------------|-------|---------------------------------------|----------------------------------------|
| ft | ft | | psf | in | ft ² | e | ft ² | ft ² | ft ² | | ft ² | ft ² |
| T1 193.00-180.00 | 186.50 | 1.181 | 6 | 1.7836 | 51.439 | A | 7.551 | 27.426 | 13.958 | 39.91 | 0.000 | 0.000 |
| | | | | | | B | 7.551 | 27.426 | | 39.91 | 0.000 | 0.000 |
| | | | | | | C | 7.551 | 27.426 | | 39.91 | 29.536 | 0.000 |
| T2 180.00-160.00 | 170.00 | 1.15 | 6 | 1.7672 | 79.082 | A | 15.686 | 49.084 | 21.365 | 32.99 | 118.175 | 0.000 |
| | | | | | | B | 15.686 | 49.084 | | 32.99 | 0.000 | 0.000 |
| | | | | | | C | 15.686 | 49.084 | | 32.99 | 86.029 | 0.000 |
| T3 160.00-140.00 | 150.00 | 1.11 | 6 | 1.7452 | 79.009 | A | 14.625 | 49.388 | 21.218 | 33.15 | 160.370 | 0.000 |
| | | | | | | B | 14.625 | 49.388 | | 33.15 | 1.735 | 0.000 |
| | | | | | | C | 14.625 | 49.388 | | 33.15 | 129.464 | 0.000 |

| | | | |
|----------------|-----------|--------------------|-------------------|
| Job | 18946024A | Page | 19 of 55 |
| Project | CTL02171 | Date | 08:42:18 10/05/18 |
| Client | AT&T | Designed by | |

| Section Elevation | z | K _Z | q _z | t _z | A _G | F a c e | A _F | A _R | A _{leg} | Leg % | C _{AA} In Face | C _{AA} Out Face |
|---------------------|--------|----------------|----------------|----------------|-----------------|---------|-----------------|-----------------|------------------|-------|-------------------------|--------------------------|
| ft | ft | | psf | in | ft ² | | ft ² | ft ² | ft ² | | ft ² | ft ² |
| T4 140.00-120.00 | 130.00 | 1.065 | 6 | 1.7204 | 78.926 | A | 0.000 | 49.327 | 21.053 | 42.68 | 193.797 | 0.000 |
| | | | | | | B | 0.000 | 49.327 | | 42.68 | 92.566 | 0.000 |
| | | | | | | C | 0.000 | 49.327 | | 42.68 | 128.925 | 0.000 |
| T5 120.00-100.00 | 110.00 | 1.016 | 6 | 1.6919 | 79.873 | A | 15.429 | 49.050 | 22.946 | 35.59 | 216.683 | 0.000 |
| | | | | | | B | 15.429 | 49.050 | | 35.59 | 162.970 | 0.000 |
| | | | | | | C | 15.429 | 49.050 | | 35.59 | 138.174 | 0.000 |
| T6 100.00-80.00 | 90.00 | 0.959 | 5 | 1.6583 | 79.761 | A | 0.000 | 49.834 | 22.722 | 45.60 | 222.424 | 0.000 |
| | | | | | | B | 0.000 | 49.834 | | 45.60 | 162.337 | 0.000 |
| | | | | | | C | 0.000 | 49.834 | | 45.60 | 137.309 | 0.000 |
| T7 80.00-60.00 | 70.00 | 0.892 | 5 | 1.6171 | 79.624 | A | 8.938 | 41.435 | 22.448 | 44.56 | 176.111 | 0.000 |
| | | | | | | B | 8.938 | 41.435 | | 44.56 | 161.562 | 0.000 |
| | | | | | | C | 8.938 | 41.435 | | 44.56 | 136.251 | 0.000 |
| T8 60.00-40.00 | 50.00 | 0.811 | 4 | 1.5636 | 79.445 | A | 0.000 | 48.137 | 22.091 | 45.89 | 174.216 | 0.000 |
| | | | | | | B | 0.000 | 48.137 | | 45.89 | 160.557 | 0.000 |
| | | | | | | C | 0.000 | 48.137 | | 45.89 | 134.875 | 0.000 |
| T9 40.00-20.00 | 30.00 | 0.701 | 4 | 1.4858 | 79.186 | A | 0.000 | 35.322 | 21.572 | 61.07 | 171.459 | 0.000 |
| | | | | | | B | 0.000 | 35.322 | | 61.07 | 159.096 | 0.000 |
| | | | | | | C | 0.000 | 35.322 | | 61.07 | 132.874 | 0.000 |
| T10 20.00-5.00 | 12.50 | 0.7 | 4 | 1.3612 | 59.078 | A | 0.000 | 25.845 | 15.556 | 60.19 | 100.233 | 0.000 |
| | | | | | | B | 0.000 | 25.845 | | 60.19 | 94.060 | 0.000 |
| | | | | | | C | 0.000 | 25.845 | | 60.19 | 77.804 | 0.000 |
| T11 5.00-0.00 | 2.50 | 0.7 | 4 | 1.1589 | 11.112 | A | 2.271 | 6.528 | 5.212 | 59.24 | 0.000 | 0.000 |
| | | | | | | B | 2.271 | 6.528 | | 59.24 | 0.000 | 0.000 |
| | | | | | | C | 2.271 | 6.528 | | 59.24 | 0.000 | 0.000 |

Tower Pressure - Service

$G_H = 0.850$

| Section Elevation | z | K _Z | q _z | A _G | F a c e | A _F | A _R | A _{leg} | Leg % | C _{AA} In Face | C _{AA} Out Face |
|---------------------|--------|----------------|----------------|-----------------|---------|-----------------|-----------------|------------------|-------|-------------------------|--------------------------|
| ft | ft | | psf | ft ² | | ft ² | ft ² | ft ² | | ft ² | ft ² |
| T1 193.00-180.00 | 186.50 | 1.181 | 9 | 47.575 | A | 7.551 | 6.229 | 6.229 | 45.20 | 0.000 | 0.000 |
| | | | | | B | 7.551 | 6.229 | | 45.20 | 0.000 | 0.000 |
| | | | | | C | 7.551 | 6.229 | | 45.20 | 14.784 | 0.000 |
| T2 180.00-160.00 | 170.00 | 1.15 | 9 | 73.192 | A | 15.686 | 9.583 | 9.583 | 37.93 | 43.162 | 0.000 |
| | | | | | B | 15.686 | 9.583 | | 37.93 | 0.000 | 0.000 |
| | | | | | C | 15.686 | 9.583 | | 37.93 | 55.114 | 0.000 |
| T3 160.00-140.00 | 150.00 | 1.11 | 9 | 73.192 | A | 14.625 | 10.378 | 9.583 | 38.33 | 58.626 | 0.000 |
| | | | | | B | 14.625 | 10.378 | | 38.33 | 0.930 | 0.000 |
| | | | | | C | 14.625 | 10.378 | | 38.33 | 98.100 | 0.000 |
| T4 140.00-120.00 | 130.00 | 1.065 | 8 | 73.192 | A | 0.000 | 18.167 | 9.583 | 52.75 | 71.100 | 0.000 |
| | | | | | B | 0.000 | 18.167 | | 52.75 | 39.984 | 0.000 |
| | | | | | C | 0.000 | 18.167 | | 52.75 | 98.100 | 0.000 |
| T5 120.00-100.00 | 110.00 | 1.016 | 8 | 74.233 | A | 15.429 | 11.667 | 11.667 | 43.06 | 77.801 | 0.000 |
| | | | | | B | 15.429 | 11.667 | | 43.06 | 66.120 | 0.000 |
| | | | | | C | 15.429 | 11.667 | | 43.06 | 101.200 | 0.000 |
| T6 100.00-80.00 | 90.00 | 0.959 | 8 | 74.233 | A | 0.000 | 20.110 | 11.667 | 58.01 | 75.816 | 0.000 |
| | | | | | B | 0.000 | 20.110 | | 58.01 | 66.120 | 0.000 |
| | | | | | C | 0.000 | 20.110 | | 58.01 | 101.200 | 0.000 |
| T7 80.00-60.00 | 70.00 | 0.892 | 7 | 74.233 | A | 8.938 | 12.449 | 11.667 | 54.55 | 59.160 | 0.000 |
| | | | | | B | 8.938 | 12.449 | | 54.55 | 66.120 | 0.000 |
| | | | | | C | 8.938 | 12.449 | | 54.55 | 101.200 | 0.000 |
| T8 60.00-40.00 | 50.00 | 0.811 | 6 | 74.233 | A | 0.000 | 20.110 | 11.667 | 58.01 | 59.160 | 0.000 |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 20 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Section Elevation ft | z ft | K _Z | q _z psf | A _G ft ² | F _{a c e} ft ² | A _F ft ² | A _R ft ² | A _{leg} ft ² | Leg % | C _{AA} In Face ft ² | C _{AA} Out Face ft ² |
|-------------------------|---------|----------------|-----------------------|-----------------------------------|---------------------------------------|-----------------------------------|-----------------------------------|-------------------------------------|-------|-----------------------------------------------|------------------------------------------------|
| T9 40.00-20.00 | 30.00 | 0.701 | 5 | 74.233 | B | 0.000 | 20.110 | 11.667 | 58.01 | 66.120 | 0.000 |
| | | | | | C | 0.000 | 20.110 | | | 101.200 | 0.000 |
| | | | | | A | 0.000 | 16.279 | | | 59.160 | 0.000 |
| | | | | | B | 0.000 | 16.279 | | | 66.120 | 0.000 |
| T10 20.00-5.00 | 12.50 | 0.7 | 5 | 55.675 | C | 0.000 | 16.279 | 8.750 | 71.67 | 101.200 | 0.000 |
| | | | | | A | 0.000 | 12.405 | | | 35.496 | 0.000 |
| | | | | | B | 0.000 | 12.405 | | | 39.672 | 0.000 |
| | | | | | C | 0.000 | 12.405 | | | 60.720 | 0.000 |
| T11 5.00-0.00 | 2.50 | 0.7 | 5 | 10.091 | A | 2.271 | 3.136 | 3.136 | 70.54 | 58.00 | 0.000 |
| | | | | | B | 2.271 | 3.136 | | | 0.000 | 0.000 |
| | | | | | C | 2.271 | 3.136 | | | 58.00 | 0.000 |
| | | | | | C | 2.271 | 3.136 | | | 58.00 | 0.000 |

Tower Forces - No Ice - Wind Normal To Face

| Section Elevation ft | Add Weight K | Self Weight K | F _{a c e} | e | C _F | q _z psf | D _F | D _R | A _E ft ² | F K | w plf | Ctrl. Face |
|-------------------------|-----------------|------------------|--------------------|-------|----------------|-----------------------|----------------|----------------|-----------------------------------|--------|----------|------------|
| T1 193.00-180.00 | 0.06 | 0.78 | A | 0.29 | 2.324 | 28 | 1 | 1 | 11.262 | 0.84 | 64.91 | C |
| | | | B | 0.29 | 2.324 | 1 | 1 | 11.262 | | | | |
| | | | C | 0.29 | 2.324 | 1 | 1 | 11.262 | | | | |
| T2 180.00-160.00 | 0.44 | 1.46 TA 2.25 | A | 0.345 | 2.183 | 28 | 1 | 1 | 21.573 | 2.39 | 119.61 | C |
| | | | B | 0.345 | 2.183 | 1 | 1 | 21.573 | | | | |
| | | | C | 0.345 | 2.183 | 1 | 1 | 21.573 | | | | |
| T3 160.00-140.00 | 0.69 | 1.43 | A | 0.342 | 2.191 | 27 | 1 | 1 | 20.987 | 2.95 | 147.45 | C |
| | | | B | 0.342 | 2.191 | 1 | 1 | 20.987 | | | | |
| | | | C | 0.342 | 2.191 | 1 | 1 | 20.987 | | | | |
| T4 140.00-120.00 | 0.91 | 0.87 | A | 0.248 | 2.443 | 26 | 1 | 1 | 10.620 | 3.00 | 150.23 | C |
| | | | B | 0.248 | 2.443 | 1 | 1 | 10.620 | | | | |
| | | | C | 0.248 | 2.443 | 1 | 1 | 10.620 | | | | |
| T5 120.00-100.00 | 1.08 | 1.62 TA 0.90 | A | 0.365 | 2.137 | 24 | 1 | 1 | 22.683 | 3.23* | 161.41 | C |
| | | | B | 0.365 | 2.137 | 1 | 1 | 22.683 | | | | |
| | | | C | 0.365 | 2.137 | 1 | 1 | 22.683 | | | | |
| T6 100.00-80.00 | 1.06 | 0.83 | A | 0.271 | 2.376 | 23 | 1 | 1 | 11.873 | 3.05* | 152.42 | C |
| | | | B | 0.271 | 2.376 | 1 | 1 | 11.873 | | | | |
| | | | C | 0.271 | 2.376 | 1 | 1 | 11.873 | | | | |
| T7 80.00-60.00 | 0.97 | 1.10 | A | 0.288 | 2.328 | 21 | 1 | 1 | 16.349 | 2.84* | 141.86 | C |
| | | | B | 0.288 | 2.328 | 1 | 1 | 16.349 | | | | |
| | | | C | 0.288 | 2.328 | 1 | 1 | 16.349 | | | | |
| T8 60.00-40.00 | 0.97 | 1.03 TA 0.56 | A | 0.271 | 2.376 | 19 | 1 | 1 | 11.873 | 2.50 | 124.80 | C |
| | | | B | 0.271 | 2.376 | 1 | 1 | 11.873 | | | | |
| | | | C | 0.271 | 2.376 | 1 | 1 | 11.873 | | | | |
| T9 40.00-20.00 | 0.97 | 0.74 | A | 0.219 | 2.533 | 17 | 1 | 1 | 9.411 | 2.09 | 104.72 | C |
| | | | B | 0.219 | 2.533 | 1 | 1 | 9.411 | | | | |
| | | | C | 0.219 | 2.533 | 1 | 1 | 9.411 | | | | |
| T10 20.00-5.00 | 0.58 | 0.64 | A | 0.223 | 2.522 | 17 | 1 | 1 | 7.181 | 1.31 | 87.33 | C |
| | | | B | 0.223 | 2.522 | 1 | 1 | 7.181 | | | | |
| | | | C | 0.223 | 2.522 | 1 | 1 | 7.181 | | | | |
| T11 5.00-0.00 | 0.00 | 0.33 | A | 0.536 | 1.858 | 17 | 1 | 1 | 4.482 | 0.12 | 23.77 | C |
| | | | B | 0.536 | 1.858 | 1 | 1 | 4.482 | | | | |
| | | | C | 0.536 | 1.858 | 1 | 1 | 4.482 | | | | |
| Sum Weight: | 7.73 | 14.53 | | | | | | | | 24.32 | | |

*2.1A_g limit

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| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job 18946024A | Page 21 of 55 |
| | Project CTL02171 | Date 08:42:18 10/05/18 |
| | Client AT&T | Designed by |

Tower Forces - No Ice - Wind 60 To Face

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | q _z | D _F | D _R | A _E | F | w | Ctrl. Face |
|---------------------|------------|-------------|---------|-------|--------------------------|----------------|----------------|----------------|-----------------|-------|--------|------------|
| ft | K | K | | | | psf | | | ft ² | K | plf | |
| T1 193.00-180.00 | 0.06 | 0.78 | A | 0.29 | 2.324 | 28 | 0.8 | 1 | 9.752 | 0.76 | 58.41 | A |
| | | | B | 0.29 | 2.324 | | 0.8 | 1 | 9.752 | | | |
| | | | C | 0.29 | 2.324 | | 0.8 | 1 | 9.752 | | | |
| T2 180.00-160.00 | 0.44 | 1.46 | A | 0.345 | 2.183 | 28 | 0.8 | 1 | 18.435 | 2.23 | 111.58 | A |
| | | TA 2.25 | B | 0.345 | 2.183 | | 0.8 | 1 | 18.435 | | | |
| | | | C | 0.345 | 2.183 | | 0.8 | 1 | 18.435 | | | |
| T3 160.00-140.00 | 0.69 | 1.43 | A | 0.342 | 2.191 | 27 | 0.8 | 1 | 18.062 | 2.80 | 140.20 | A |
| | | | B | 0.342 | 2.191 | | 0.8 | 1 | 18.062 | | | |
| | | | C | 0.342 | 2.191 | | 0.8 | 1 | 18.062 | | | |
| T4 140.00-120.00 | 0.91 | 0.87 | A | 0.248 | 2.443 | 26 | 0.8 | 1 | 10.620 | 3.00 | 150.23 | A |
| | | | B | 0.248 | 2.443 | | 0.8 | 1 | 10.620 | | | |
| | | | C | 0.248 | 2.443 | | 0.8 | 1 | 10.620 | | | |
| T5 120.00-100.00 | 1.08 | 1.62 | A | 0.365 | 2.137 | 24 | 0.8 | 1 | 19.597 | 3.23* | 161.41 | C |
| | | TA 0.90 | B | 0.365 | 2.137 | | 0.8 | 1 | 19.597 | | | |
| | | | C | 0.365 | 2.137 | | 0.8 | 1 | 19.597 | | | |
| T6 100.00-80.00 | 1.06 | 0.83 | A | 0.271 | 2.376 | 23 | 0.8 | 1 | 11.873 | 3.05* | 152.42 | A |
| | | | B | 0.271 | 2.376 | | 0.8 | 1 | 11.873 | | | |
| | | | C | 0.271 | 2.376 | | 0.8 | 1 | 11.873 | | | |
| T7 80.00-60.00 | 0.97 | 1.10 | A | 0.288 | 2.328 | 21 | 0.8 | 1 | 14.561 | 2.84* | 141.86 | A |
| | | | B | 0.288 | 2.328 | | 0.8 | 1 | 14.561 | | | |
| | | | C | 0.288 | 2.328 | | 0.8 | 1 | 14.561 | | | |
| T8 60.00-40.00 | 0.97 | 1.03 | A | 0.271 | 2.376 | 19 | 0.8 | 1 | 11.873 | 2.50 | 124.80 | A |
| | | TA 0.56 | B | 0.271 | 2.376 | | 0.8 | 1 | 11.873 | | | |
| | | | C | 0.271 | 2.376 | | 0.8 | 1 | 11.873 | | | |
| T9 40.00-20.00 | 0.97 | 0.74 | A | 0.219 | 2.533 | 17 | 0.8 | 1 | 9.411 | 2.09 | 104.72 | A |
| | | | B | 0.219 | 2.533 | | 0.8 | 1 | 9.411 | | | |
| | | | C | 0.219 | 2.533 | | 0.8 | 1 | 9.411 | | | |
| T10 20.00-5.00 | 0.58 | 0.64 | A | 0.223 | 2.522 | 17 | 0.8 | 1 | 7.181 | 1.31 | 87.33 | A |
| | | | B | 0.223 | 2.522 | | 0.8 | 1 | 7.181 | | | |
| | | | C | 0.223 | 2.522 | | 0.8 | 1 | 7.181 | | | |
| T11 5.00-0.00 | 0.00 | 0.33 | A | 0.536 | 1.858 | 17 | 0.8 | 1 | 4.028 | 0.11 | 21.36 | C |
| | | | B | 0.536 | 1.858 | | 0.8 | 1 | 4.028 | | | |
| | | | C | 0.536 | 1.858 | | 0.8 | 1 | 4.028 | | | |
| Sum Weight: | 7.73 | 14.53 | | | *2.1A _g limit | | | | | 23.92 | | |

Tower Forces - No Ice - Wind 90 To Face

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | q _z | D _F | D _R | A _E | F | w | Ctrl. Face |
|---------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|-----------------|------|--------|------------|
| ft | K | K | | | | psf | | | ft ² | K | plf | |
| T1 193.00-180.00 | 0.06 | 0.78 | A | 0.29 | 2.324 | 28 | 0.85 | 1 | 10.129 | 0.77 | 59.04 | B |
| | | | B | 0.29 | 2.324 | | 0.85 | 1 | 10.129 | | | |
| | | | C | 0.29 | 2.324 | | 0.85 | 1 | 10.129 | | | |
| T2 180.00-160.00 | 0.44 | 1.46 | A | 0.345 | 2.183 | 28 | 0.85 | 1 | 19.220 | 2.21 | 110.46 | B |
| | | TA 2.25 | B | 0.345 | 2.183 | | 0.85 | 1 | 19.220 | | | |
| | | | C | 0.345 | 2.183 | | 0.85 | 1 | 19.220 | | | |
| T3 160.00-140.00 | 0.69 | 1.43 | A | 0.342 | 2.191 | 27 | 0.85 | 1 | 18.793 | 2.72 | 136.09 | A |
| | | | B | 0.342 | 2.191 | | 0.85 | 1 | 18.793 | | | |

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| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job 18946024A | Page 22 of 55 |
| | Project CTL02171 | Date 08:42:18 10/05/18 |
| | Client AT&T | Designed by |

| Section Elevation ft | Add Weight K | Self Weight K | F a c e | e | C _F | q _z psf | D _F | D _R | A _E ft ² | F K | w plf | Ctrl. Face |
|-------------------------|-----------------|------------------|---------|-------|----------------|-----------------------|----------------|----------------|-----------------------------------|--------|----------|------------|
| T4 140.00-120.00 | 0.91 | 0.87 | C | 0.342 | 2.191 | | 0.85 | 1 | 18.793 | | | |
| | | | A | 0.248 | 2.443 | 26 | 0.85 | 1 | 10.620 | 2.94 | 146.95 | A |
| | | | B | 0.248 | 2.443 | | 0.85 | 1 | 10.620 | | | |
| | | | C | 0.248 | 2.443 | | 0.85 | 1 | 10.620 | | | |
| T5 120.00-100.00 | 1.08 | 1.62 | A | 0.365 | 2.137 | 24 | 0.85 | 1 | 20.369 | 3.23* | 161.41 | C |
| | | TA 0.90 | B | 0.365 | 2.137 | | 0.85 | 1 | 20.369 | | | |
| | | | C | 0.365 | 2.137 | | 0.85 | 1 | 20.369 | | | |
| T6 100.00-80.00 | 1.06 | 0.83 | A | 0.271 | 2.376 | 23 | 0.85 | 1 | 11.873 | 3.05* | 152.42 | A |
| | | | B | 0.271 | 2.376 | | 0.85 | 1 | 11.873 | | | |
| | | | C | 0.271 | 2.376 | | 0.85 | 1 | 11.873 | | | |
| T7 80.00-60.00 | 0.97 | 1.10 | A | 0.288 | 2.328 | 21 | 0.85 | 1 | 15.008 | 2.82 | 140.76 | A |
| | | | B | 0.288 | 2.328 | | 0.85 | 1 | 15.008 | | | |
| | | | C | 0.288 | 2.328 | | 0.85 | 1 | 15.008 | | | |
| T8 60.00-40.00 | 0.97 | 1.03 | A | 0.271 | 2.376 | 19 | 0.85 | 1 | 11.873 | 2.45 | 122.30 | A |
| | | TA 0.56 | B | 0.271 | 2.376 | | 0.85 | 1 | 11.873 | | | |
| | | | C | 0.271 | 2.376 | | 0.85 | 1 | 11.873 | | | |
| T9 40.00-20.00 | 0.97 | 0.74 | A | 0.219 | 2.533 | 17 | 0.85 | 1 | 9.411 | 2.05 | 102.56 | A |
| | | | B | 0.219 | 2.533 | | 0.85 | 1 | 9.411 | | | |
| | | | C | 0.219 | 2.533 | | 0.85 | 1 | 9.411 | | | |
| T10 20.00-5.00 | 0.58 | 0.64 | A | 0.223 | 2.522 | 17 | 0.85 | 1 | 7.181 | 1.28 | 85.60 | A |
| | | | B | 0.223 | 2.522 | | 0.85 | 1 | 7.181 | | | |
| | | | C | 0.223 | 2.522 | | 0.85 | 1 | 7.181 | | | |
| T11 5.00-0.00 | 0.00 | 0.33 | A | 0.536 | 1.858 | 17 | 0.85 | 1 | 4.141 | 0.11 | 21.96 | C |
| | | | B | 0.536 | 1.858 | | 0.85 | 1 | 4.141 | | | |
| | | | C | 0.536 | 1.858 | | 0.85 | 1 | 4.141 | | | |
| Sum Weight: | 7.73 | 14.53 | | | | | | | | 23.62 | | |

Tower Forces - With Ice - Wind Normal To Face

| Section Elevation ft | Add Weight K | Self Weight K | F a c e | e | C _F | q _z psf | D _F | D _R | A _E ft ² | F K | w plf | Ctrl. Face |
|-------------------------|-----------------|------------------|---------|-------|----------------|-----------------------|----------------|----------------|-----------------------------------|--------|----------|------------|
| T1 193.00-180.00 | 0.60 | 2.65 | A | 0.68 | 1.776 | 6 | 1 | 1 | 29.408 | 0.33 | 25.30 | C |
| | | | B | 0.68 | 1.776 | | 1 | 1 | 29.408 | | | |
| | | | C | 0.68 | 1.776 | | 1 | 1 | 29.408 | | | |
| T2 180.00-160.00 | 3.92 | 5.07 | A | 0.819 | 1.831 | 6 | 1 | 1 | 59.879 | 0.77 | 38.46 | C |
| | | TA 3.88 | B | 0.819 | 1.831 | | 1 | 1 | 59.879 | | | |
| | | | C | 0.819 | 1.831 | | 1 | 1 | 59.879 | | | |
| T3 160.00-140.00 | 6.04 | 4.92 | A | 0.81 | 1.824 | 6 | 1 | 1 | 58.751 | 0.82 | 40.89 | C |
| | | | B | 0.81 | 1.824 | | 1 | 1 | 58.751 | | | |
| | | | C | 0.81 | 1.824 | | 1 | 1 | 58.751 | | | |
| T4 140.00-120.00 | 7.99 | 2.95 | A | 0.625 | 1.791 | 6 | 1 | 1 | 37.480 | 0.82* | 40.82 | C |
| | | | B | 0.625 | 1.791 | | 1 | 1 | 37.480 | | | |
| | | | C | 0.625 | 1.791 | | 1 | 1 | 37.480 | | | |
| T5 120.00-100.00 | 9.42 | 5.10 | A | 0.807 | 1.822 | 6 | 1 | 1 | 59.141 | 0.79* | 39.38 | C |
| | | TA 1.68 | B | 0.807 | 1.822 | | 1 | 1 | 59.141 | | | |
| | | | C | 0.807 | 1.822 | | 1 | 1 | 59.141 | | | |
| T6 100.00-80.00 | 9.24 | 2.87 | A | 0.625 | 1.791 | 5 | 1 | 1 | 37.859 | 0.74* | 37.13 | C |
| | | | B | 0.625 | 1.791 | | 1 | 1 | 37.859 | | | |
| | | | C | 0.625 | 1.791 | | 1 | 1 | 37.859 | | | |
| T7 80.00-60.00 | 8.40 | 3.46 | A | 0.633 | 1.787 | 5 | 1 | 1 | 40.630 | 0.69* | 34.50 | C |
| | | | B | 0.633 | 1.787 | | 1 | 1 | 40.630 | | | |

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| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job 18946024A | Page 23 of 55 |
| | Project CTL02171 | Date 08:42:18 10/05/18 |
| | Client AT&T | Designed by |

| Section Elevation ft | Add Weight K | Self Weight K | F a c e | e | C _F | q _z psf | D _F | D _R | A _E ft ² | F K | w plf | Ctrl. Face |
|-------------------------|-----------------|------------------|------------------|----------------------------------|-----------------------------|-----------------------|------------------|------------------|--------------------------------------|--------|----------|------------|
| T8 60.00-40.00 | 8.20 | 2.91 TA 1.15 | C A B C | 0.633 0.606 0.606 0.606 | 1.787 1.8 1.8 1.8 | 4 | 1 1 1 1 | 1 1 1 1 | 40.630 35.983 35.983 35.983 | 0.63* | 31.27 | C |
| T9 40.00-20.00 | 7.92 | 1.94 | A B C | 0.446 0.446 0.446 | 1.98 1.98 1.98 | 4 | 1 1 1 | 1 1 1 | 23.220 23.220 23.220 | 0.54* | 26.94 | C |
| T10 20.00-5.00 | 4.48 | 1.46 | A B C | 0.437 0.437 0.437 | 1.995 1.995 1.995 | 4 | 1 1 1 | 1 1 1 | 16.883 16.883 16.883 | 0.40* | 26.77 | C |
| T11 5.00-0.00 | 0.00 | 0.67 | A B C | 0.792 0.792 0.792 | 1.81 1.81 1.81 | 4 | 1 1 1 | 1 1 1 | 8.011 8.011 8.011 | 0.05 | 9.39 | C |
| Sum Weight: | 66.23 | 40.70 | | | *2.1A _g limit | | | | | 6.57 | | |

Tower Forces - With Ice - Wind 60 To Face

| Section Elevation ft | Add Weight K | Self Weight K | F a c e | e | C _F | q _z psf | D _F | D _R | A _E ft ² | F K | w plf | Ctrl. Face |
|-------------------------|-----------------|------------------|-------------|-------------------------|-------------------------|-----------------------|-------------------|----------------|-----------------------------------|--------|----------|------------|
| T1 193.00-180.00 | 0.60 | 2.65 | A B C | 0.68 0.68 0.68 | 1.776 1.776 1.776 | 6 | 0.8 0.8 0.8 | 1 1 1 | 27.898 27.898 27.898 | 0.31 | 24.17 | A |
| T2 180.00-160.00 | 3.92 | 5.07 TA 3.88 | A B C | 0.819 0.819 0.819 | 1.831 1.831 1.831 | 6 | 0.8 0.8 0.8 | 1 1 1 | 56.742 56.742 56.742 | 0.74 | 36.93 | A |
| T3 160.00-140.00 | 6.04 | 4.92 | A B C | 0.81 0.81 0.81 | 1.824 1.824 1.824 | 6 | 0.8 0.8 0.8 | 1 1 1 | 55.826 55.826 55.826 | 0.79 | 39.52 | A |
| T4 140.00-120.00 | 7.99 | 2.95 | A B C | 0.625 0.625 0.625 | 1.791 1.791 1.791 | 6 | 0.8 0.8 0.8 | 1 1 1 | 37.480 37.480 37.480 | 0.82* | 40.82 | C |
| T5 120.00-100.00 | 9.42 | 5.10 TA 1.68 | A B C | 0.807 0.807 0.807 | 1.822 1.822 1.822 | 6 | 0.8 0.8 0.8 | 1 1 1 | 56.055 56.055 56.055 | 0.79* | 39.38 | C |
| T6 100.00-80.00 | 9.24 | 2.87 | A B C | 0.625 0.625 0.625 | 1.791 1.791 1.791 | 5 | 0.8 0.8 0.8 | 1 1 1 | 37.859 37.859 37.859 | 0.74* | 37.13 | C |
| T7 80.00-60.00 | 8.40 | 3.46 | A B C | 0.633 0.633 0.633 | 1.787 1.787 1.787 | 5 | 0.8 0.8 0.8 | 1 1 1 | 38.842 38.842 38.842 | 0.69* | 34.50 | C |
| T8 60.00-40.00 | 8.20 | 2.91 TA 1.15 | A B C | 0.606 0.606 0.606 | 1.8 1.8 1.8 | 4 | 0.8 0.8 0.8 | 1 1 1 | 35.983 35.983 35.983 | 0.63* | 31.27 | C |
| T9 40.00-20.00 | 7.92 | 1.94 | A B C | 0.446 0.446 0.446 | 1.98 1.98 1.98 | 4 | 0.8 0.8 0.8 | 1 1 1 | 23.220 23.220 23.220 | 0.54* | 26.94 | C |
| T10 20.00-5.00 | 4.48 | 1.46 | A B C | 0.437 0.437 0.437 | 1.995 1.995 1.995 | 4 | 0.8 0.8 0.8 | 1 1 1 | 16.883 16.883 16.883 | 0.40* | 26.77 | C |
| T11 5.00-0.00 | 0.00 | 0.67 | A B | 0.792 0.792 | 1.81 1.81 | 4 | 0.8 0.8 | 1 1 | 7.557 7.557 | 0.04 | 8.86 | C |

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| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job 18946024A | Page 24 of 55 |
| | Project CTL02171 | Date 08:42:18 10/05/18 |
| | Client AT&T | Designed by |

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | q _z | D _F | D _R | A _E | F | w | Ctrl. Face |
|-------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|-----------------|------|-----|------------|
| ft | K | K | | | | psf | | | ft ² | K | plf | |
| Sum Weight: | 66.23 | 40.70 | C | 0.792 | 1.81 | | 0.8 | 1 | 7.557 | 6.49 | | |

Tower Forces - With Ice - Wind 90 To Face

| Section Elevation | Add Weight | Self Weight | F a c e | e | C _F | q _z | D _F | D _R | A _E | F | w | Ctrl. Face |
|---------------------|------------|-------------|---------|-------|----------------|----------------|----------------|----------------|-----------------|-------|-------|------------|
| ft | K | K | | | | psf | | | ft ² | K | plf | |
| T1 193.00-180.00 | 0.60 | 2.65 | A | 0.68 | 1.776 | 6 | 0.85 | 1 | 28.276 | 0.32 | 24.26 | B |
| | | | B | 0.68 | 1.776 | | 0.85 | 1 | 28.276 | | | |
| | | | C | 0.68 | 1.776 | | 0.85 | 1 | 28.276 | | | |
| T2 180.00-160.00 | 3.92 | 5.07 | A | 0.819 | 1.831 | 6 | 0.85 | 1 | 57.526 | 0.74 | 37.05 | B |
| | | TA 3.88 | B | 0.819 | 1.831 | | 0.85 | 1 | 57.526 | | | |
| | | | C | 0.819 | 1.831 | | 0.85 | 1 | 57.526 | | | |
| T3 160.00-140.00 | 6.04 | 4.92 | A | 0.81 | 1.824 | 6 | 0.85 | 1 | 56.558 | 0.79 | 39.39 | A |
| | | | B | 0.81 | 1.824 | | 0.85 | 1 | 56.558 | | | |
| | | | C | 0.81 | 1.824 | | 0.85 | 1 | 56.558 | | | |
| T4 140.00-120.00 | 7.99 | 2.95 | A | 0.625 | 1.791 | 6 | 0.85 | 1 | 37.480 | 0.82* | 40.82 | C |
| | | | B | 0.625 | 1.791 | | 0.85 | 1 | 37.480 | | | |
| | | | C | 0.625 | 1.791 | | 0.85 | 1 | 37.480 | | | |
| T5 120.00-100.00 | 9.42 | 5.10 | A | 0.807 | 1.822 | 6 | 0.85 | 1 | 56.826 | 0.79* | 39.38 | C |
| | | TA 1.68 | B | 0.807 | 1.822 | | 0.85 | 1 | 56.826 | | | |
| | | | C | 0.807 | 1.822 | | 0.85 | 1 | 56.826 | | | |
| T6 100.00-80.00 | 9.24 | 2.87 | A | 0.625 | 1.791 | 5 | 0.85 | 1 | 37.859 | 0.74* | 37.13 | C |
| | | | B | 0.625 | 1.791 | | 0.85 | 1 | 37.859 | | | |
| | | | C | 0.625 | 1.791 | | 0.85 | 1 | 37.859 | | | |
| T7 80.00-60.00 | 8.40 | 3.46 | A | 0.633 | 1.787 | 5 | 0.85 | 1 | 39.289 | 0.69* | 34.50 | C |
| | | | B | 0.633 | 1.787 | | 0.85 | 1 | 39.289 | | | |
| | | | C | 0.633 | 1.787 | | 0.85 | 1 | 39.289 | | | |
| T8 60.00-40.00 | 8.20 | 2.91 | A | 0.606 | 1.8 | 4 | 0.85 | 1 | 35.983 | 0.63* | 31.27 | C |
| | | TA 1.15 | B | 0.606 | 1.8 | | 0.85 | 1 | 35.983 | | | |
| | | | C | 0.606 | 1.8 | | 0.85 | 1 | 35.983 | | | |
| T9 40.00-20.00 | 7.92 | 1.94 | A | 0.446 | 1.98 | 4 | 0.85 | 1 | 23.220 | 0.54* | 26.94 | C |
| | | | B | 0.446 | 1.98 | | 0.85 | 1 | 23.220 | | | |
| | | | C | 0.446 | 1.98 | | 0.85 | 1 | 23.220 | | | |
| T10 20.00-5.00 | 4.48 | 1.46 | A | 0.437 | 1.995 | 4 | 0.85 | 1 | 16.883 | 0.40* | 26.77 | C |
| | | | B | 0.437 | 1.995 | | 0.85 | 1 | 16.883 | | | |
| | | | C | 0.437 | 1.995 | | 0.85 | 1 | 16.883 | | | |
| T11 5.00-0.00 | 0.00 | 0.67 | A | 0.792 | 1.81 | 4 | 0.85 | 1 | 7.671 | 0.04 | 8.99 | C |
| | | | B | 0.792 | 1.81 | | 0.85 | 1 | 7.671 | | | |
| | | | C | 0.792 | 1.81 | | 0.85 | 1 | 7.671 | | | |
| Sum Weight: | 66.23 | 40.70 | | | 1.81 | | 0.85 | 1 | 7.671 | 6.49 | | |

Tower Forces - Service - Wind Normal To Face

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|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 25 of 55 |
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| | Client | AT&T | Designed by | |

| Section Elevation ft | Add Weight K | Self Weight K | F a c e | e | C _F | q _z psf | D _F | D _R | A _E ft ² | F K | w plf | Ctrl. Face |
|-------------------------|-----------------|------------------|---------|-------|-----------------------------|-----------------------|----------------|----------------|-----------------------------------|--------|----------|------------|
| T1 193.00-180.00 | 0.06 | 0.78 | A | 0.29 | 2.324 | 9 | 1 | 1 | 11.262 | 0.28 | 21.19 | C |
| | | | B | 0.29 | 2.324 | | 1 | 1 | 11.262 | | | |
| | | | C | 0.29 | 2.324 | | 1 | 1 | 11.262 | | | |
| T2 180.00-160.00 | 0.44 | 1.46 TA 2.25 | A | 0.345 | 2.183 | 9 | 1 | 1 | 21.573 | 0.78 | 39.06 | C |
| | | | B | 0.345 | 2.183 | | 1 | 1 | 21.573 | | | |
| | | | C | 0.345 | 2.183 | | 1 | 1 | 21.573 | | | |
| T3 160.00-140.00 | 0.69 | 1.43 | A | 0.342 | 2.191 | 9 | 1 | 1 | 20.987 | 0.96 | 48.15 | C |
| | | | B | 0.342 | 2.191 | | 1 | 1 | 20.987 | | | |
| | | | C | 0.342 | 2.191 | | 1 | 1 | 20.987 | | | |
| T4 140.00-120.00 | 0.91 | 0.87 | A | 0.248 | 2.443 | 8 | 1 | 1 | 10.620 | 0.98 | 49.06 | C |
| | | | B | 0.248 | 2.443 | | 1 | 1 | 10.620 | | | |
| | | | C | 0.248 | 2.443 | | 1 | 1 | 10.620 | | | |
| T5 120.00-100.00 | 1.08 | 1.62 TA 0.90 | A | 0.365 | 2.137 | 8 | 1 | 1 | 22.683 | 1.05* | 52.71 | C |
| | | | B | 0.365 | 2.137 | | 1 | 1 | 22.683 | | | |
| | | | C | 0.365 | 2.137 | | 1 | 1 | 22.683 | | | |
| T6 100.00-80.00 | 1.06 | 0.83 | A | 0.271 | 2.376 | 8 | 1 | 1 | 11.873 | 1.00* | 49.77 | C |
| | | | B | 0.271 | 2.376 | | 1 | 1 | 11.873 | | | |
| | | | C | 0.271 | 2.376 | | 1 | 1 | 11.873 | | | |
| T7 80.00-60.00 | 0.97 | 1.10 | A | 0.288 | 2.328 | 7 | 1 | 1 | 16.349 | 0.93* | 46.32 | C |
| | | | B | 0.288 | 2.328 | | 1 | 1 | 16.349 | | | |
| | | | C | 0.288 | 2.328 | | 1 | 1 | 16.349 | | | |
| T8 60.00-40.00 | 0.97 | 1.03 TA 0.56 | A | 0.271 | 2.376 | 6 | 1 | 1 | 11.873 | 0.81 | 40.75 | C |
| | | | B | 0.271 | 2.376 | | 1 | 1 | 11.873 | | | |
| | | | C | 0.271 | 2.376 | | 1 | 1 | 11.873 | | | |
| T9 40.00-20.00 | 0.97 | 0.74 | A | 0.219 | 2.533 | 5 | 1 | 1 | 9.411 | 0.68 | 34.20 | C |
| | | | B | 0.219 | 2.533 | | 1 | 1 | 9.411 | | | |
| | | | C | 0.219 | 2.533 | | 1 | 1 | 9.411 | | | |
| T10 20.00-5.00 | 0.58 | 0.64 | A | 0.223 | 2.522 | 5 | 1 | 1 | 7.181 | 0.43 | 28.51 | C |
| | | | B | 0.223 | 2.522 | | 1 | 1 | 7.181 | | | |
| | | | C | 0.223 | 2.522 | | 1 | 1 | 7.181 | | | |
| T11 5.00-0.00 | 0.00 | 0.33 | A | 0.536 | 1.858 | 5 | 1 | 1 | 4.482 | 0.04 | 7.76 | C |
| | | | B | 0.536 | 1.858 | | 1 | 1 | 4.482 | | | |
| | | | C | 0.536 | 1.858 | | 1 | 1 | 4.482 | | | |
| Sum Weight: | 7.73 | 14.53 | | | *2.1A _g limit | | | | | 7.94 | | |

Tower Forces - Service - Wind 60 To Face

| Section Elevation ft | Add Weight K | Self Weight K | F a c e | e | C _F | q _z psf | D _F | D _R | A _E ft ² | F K | w plf | Ctrl. Face |
|-------------------------|-----------------|------------------|---------|-------|----------------|-----------------------|----------------|----------------|-----------------------------------|--------|----------|------------|
| T1 193.00-180.00 | 0.06 | 0.78 | A | 0.29 | 2.324 | 9 | 0.8 | 1 | 9.752 | 0.25 | 19.07 | A |
| | | | B | 0.29 | 2.324 | | 0.8 | 1 | 9.752 | | | |
| | | | C | 0.29 | 2.324 | | 0.8 | 1 | 9.752 | | | |
| T2 180.00-160.00 | 0.44 | 1.46 TA 2.25 | A | 0.345 | 2.183 | 9 | 0.8 | 1 | 18.435 | 0.73 | 36.44 | A |
| | | | B | 0.345 | 2.183 | | 0.8 | 1 | 18.435 | | | |
| | | | C | 0.345 | 2.183 | | 0.8 | 1 | 18.435 | | | |
| T3 160.00-140.00 | 0.69 | 1.43 | A | 0.342 | 2.191 | 9 | 0.8 | 1 | 18.062 | 0.92 | 45.78 | A |
| | | | B | 0.342 | 2.191 | | 0.8 | 1 | 18.062 | | | |
| | | | C | 0.342 | 2.191 | | 0.8 | 1 | 18.062 | | | |
| T4 140.00-120.00 | 0.91 | 0.87 | A | 0.248 | 2.443 | 8 | 0.8 | 1 | 10.620 | 0.98 | 49.06 | A |
| | | | B | 0.248 | 2.443 | | 0.8 | 1 | 10.620 | | | |
| | | | C | 0.248 | 2.443 | | 0.8 | 1 | 10.620 | | | |

| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------|
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| | Client AT&T | Designed by |

| Section Elevation ft | Add Weight K | Self Weight K | F a c e | e | C _F | q _z psf | D _F | D _R | A _E ft ² | F K | w plf | Ctrl. Face |
|-------------------------|-----------------|------------------|-------------|-------------------------|-----------------------------|-----------------------|-------------------|----------------|-----------------------------------|--------|----------|------------|
| T5 120.00-100.00 | 1.08 | 1.62 TA 0.90 | A B C | 0.365 0.365 0.365 | 2.137 2.137 2.137 | 8 | 0.8 0.8 0.8 | 1 1 1 | 19.597 19.597 19.597 | 1.05* | 52.71 | C |
| T6 100.00-80.00 | 1.06 | 0.83 | A B C | 0.271 0.271 0.271 | 2.376 2.376 2.376 | 8 | 0.8 0.8 0.8 | 1 1 1 | 11.873 11.873 11.873 | 1.00* | 49.77 | A |
| T7 80.00-60.00 | 0.97 | 1.10 | A B C | 0.288 0.288 0.288 | 2.328 2.328 2.328 | 7 | 0.8 0.8 0.8 | 1 1 1 | 14.561 14.561 14.561 | 0.93* | 46.32 | A |
| T8 60.00-40.00 | 0.97 | 1.03 TA 0.56 | A B C | 0.271 0.271 0.271 | 2.376 2.376 2.376 | 6 | 0.8 0.8 0.8 | 1 1 1 | 11.873 11.873 11.873 | 0.81 | 40.75 | A |
| T9 40.00-20.00 | 0.97 | 0.74 | A B C | 0.219 0.219 0.219 | 2.533 2.533 2.533 | 5 | 0.8 0.8 0.8 | 1 1 1 | 9.411 9.411 9.411 | 0.68 | 34.20 | A |
| T10 20.00-5.00 | 0.58 | 0.64 | A B C | 0.223 0.223 0.223 | 2.522 2.522 2.522 | 5 | 0.8 0.8 0.8 | 1 1 1 | 7.181 7.181 7.181 | 0.43 | 28.51 | A |
| T11 5.00-0.00 | 0.00 | 0.33 | A B C | 0.536 0.536 0.536 | 1.858 1.858 1.858 | 5 | 0.8 0.8 0.8 | 1 1 1 | 4.028 4.028 4.028 | 0.03 | 6.98 | C |
| Sum Weight: | 7.73 | 14.53 | | | *2.1A _g limit | | | | | 7.81 | | |

Tower Forces - Service - Wind 90 To Face

| Section Elevation ft | Add Weight K | Self Weight K | F a c e | e | C _F | q _z psf | D _F | D _R | A _E ft ² | F K | w plf | Ctrl. Face |
|-------------------------|-----------------|------------------|-------------|-------------------------|-------------------------|-----------------------|----------------------|----------------|-----------------------------------|--------|----------|------------|
| T1 193.00-180.00 | 0.06 | 0.78 | A B C | 0.29 0.29 0.29 | 2.324 2.324 2.324 | 9 | 0.85 0.85 0.85 | 1 1 1 | 10.129 10.129 10.129 | 0.25 | 19.28 | B |
| T2 180.00-160.00 | 0.44 | 1.46 TA 2.25 | A B C | 0.345 0.345 0.345 | 2.183 2.183 2.183 | 9 | 0.85 0.85 0.85 | 1 1 1 | 19.220 19.220 19.220 | 0.72 | 36.07 | B |
| T3 160.00-140.00 | 0.69 | 1.43 | A B C | 0.342 0.342 0.342 | 2.191 2.191 2.191 | 9 | 0.85 0.85 0.85 | 1 1 1 | 18.793 18.793 18.793 | 0.89 | 44.44 | A |
| T4 140.00-120.00 | 0.91 | 0.87 | A B C | 0.248 0.248 0.248 | 2.443 2.443 2.443 | 8 | 0.85 0.85 0.85 | 1 1 1 | 10.620 10.620 10.620 | 0.96 | 47.98 | A |
| T5 120.00-100.00 | 1.08 | 1.62 TA 0.90 | A B C | 0.365 0.365 0.365 | 2.137 2.137 2.137 | 8 | 0.85 0.85 0.85 | 1 1 1 | 20.369 20.369 20.369 | 1.05* | 52.71 | C |
| T6 100.00-80.00 | 1.06 | 0.83 | A B C | 0.271 0.271 0.271 | 2.376 2.376 2.376 | 8 | 0.85 0.85 0.85 | 1 1 1 | 11.873 11.873 11.873 | 1.00* | 49.77 | A |
| T7 80.00-60.00 | 0.97 | 1.10 | A B C | 0.288 0.288 0.288 | 2.328 2.328 2.328 | 7 | 0.85 0.85 0.85 | 1 1 1 | 15.008 15.008 15.008 | 0.92 | 45.96 | A |
| T8 60.00-40.00 | 0.97 | 1.03 TA 0.56 | A B C | 0.271 0.271 0.271 | 2.376 2.376 2.376 | 6 | 0.85 0.85 0.85 | 1 1 1 | 11.873 11.873 11.873 | 0.80 | 39.93 | A |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
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| Section Elevation ft | Add Weight K | Self Weight K | F a c e | e | C _F | q _z psf | D _F | D _R | A _E ft ² | F K | w plf | Ctrl. Face |
|-------------------------|-----------------|------------------|---------|-------|-----------------------------|-----------------------|----------------|----------------|-----------------------------------|--------|----------|------------|
| T9 40.00-20.00 | 0.97 | 0.74 | A | 0.219 | 2.533 | 5 | 0.85 | 1 | 9.411 | 0.67 | 33.49 | A |
| | | | B | 0.219 | 2.533 | | 0.85 | 1 | 9.411 | | | |
| | | | C | 0.219 | 2.533 | | 0.85 | 1 | 9.411 | | | |
| T10 20.00-5.00 | 0.58 | 0.64 | A | 0.223 | 2.522 | 5 | 0.85 | 1 | 7.181 | 0.42 | 27.95 | A |
| | | | B | 0.223 | 2.522 | | 0.85 | 1 | 7.181 | | | |
| | | | C | 0.223 | 2.522 | | 0.85 | 1 | 7.181 | | | |
| T11 5.00-0.00 | 0.00 | 0.33 | A | 0.536 | 1.858 | 5 | 0.85 | 1 | 4.141 | 0.04 | 7.17 | C |
| | | | B | 0.536 | 1.858 | | 0.85 | 1 | 4.141 | | | |
| | | | C | 0.536 | 1.858 | | 0.85 | 1 | 4.141 | | | |
| Sum Weight: | 7.73 | 14.53 | | | *2.1A _g limit | | | | | 7.71 | | |

Force Totals (Does not include forces on guys)

| Load Case | Vertical Forces K | Sum of Forces X K | Sum of Forces Z K | Sum of Torques kip-ft |
|--------------------------|----------------------|----------------------|----------------------|--------------------------|
| Leg Weight | 5.49 | | | |
| Bracing Weight | 9.04 | | | |
| Total Member Self-Weight | 14.53 | | | |
| Guy Weight | 4.05 | | | |
| Total Weight | 35.11 | | | |
| Wind 0 deg - No Ice | | 0.05 | -31.83 | 0.05 |
| Wind 30 deg - No Ice | | 15.58 | -26.98 | 1.15 |
| Wind 60 deg - No Ice | | 25.51 | -14.78 | 1.83 |
| Wind 90 deg - No Ice | | 28.66 | -0.05 | 1.99 |
| Wind 120 deg - No Ice | | 25.61 | 14.79 | 1.74 |
| Wind 150 deg - No Ice | | 15.34 | 26.67 | 1.00 |
| Wind 180 deg - No Ice | | -0.05 | 31.43 | -0.07 |
| Wind 210 deg - No Ice | | -15.58 | 26.98 | -1.15 |
| Wind 240 deg - No Ice | | -25.92 | 15.02 | -1.86 |
| Wind 270 deg - No Ice | | -28.66 | 0.05 | -1.99 |
| Wind 300 deg - No Ice | | -25.20 | -14.55 | -1.69 |
| Wind 330 deg - No Ice | | -15.34 | -26.67 | -1.00 |
| Member Ice | 26.17 | | | |
| Guy Ice | 17.95 | | | |
| Total Weight Ice | 154.55 | | | |
| Wind 0 deg - Ice | | 0.01 | -9.43 | 0.05 |
| Wind 30 deg - Ice | | 4.68 | -8.11 | 0.24 |
| Wind 60 deg - Ice | | 8.05 | -4.66 | 0.36 |
| Wind 90 deg - Ice | | 9.28 | -0.01 | 0.38 |
| Wind 120 deg - Ice | | 8.10 | 4.67 | 0.31 |
| Wind 150 deg - Ice | | 4.66 | 8.09 | 0.15 |
| Wind 180 deg - Ice | | -0.01 | 9.35 | -0.05 |
| Wind 210 deg - Ice | | -4.68 | 8.11 | -0.24 |
| Wind 240 deg - Ice | | -8.11 | 4.70 | -0.36 |
| Wind 270 deg - Ice | | -9.28 | 0.01 | -0.38 |
| Wind 300 deg - Ice | | -8.03 | -4.64 | -0.31 |
| Wind 330 deg - Ice | | -4.66 | -8.09 | -0.15 |
| Total Weight | 35.11 | | | |
| Wind 0 deg - Service | | 0.02 | -10.39 | 0.02 |
| Wind 30 deg - Service | | 5.09 | -8.81 | 0.38 |
| Wind 60 deg - Service | | 8.33 | -4.83 | 0.60 |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| | Client | AT&T | Designed by | |

| Load Case | Vertical Forces K | Sum of Forces X K | Sum of Forces Z K | Sum of Torques kip-ft |
|------------------------|----------------------|-------------------------|-------------------------|--------------------------|
| Wind 90 deg - Service | | 9.36 | -0.02 | 0.65 |
| Wind 120 deg - Service | | 8.36 | 4.83 | 0.57 |
| Wind 150 deg - Service | | 5.01 | 8.71 | 0.33 |
| Wind 180 deg - Service | | -0.02 | 10.26 | -0.02 |
| Wind 210 deg - Service | | -5.09 | 8.81 | -0.38 |
| Wind 240 deg - Service | | -8.46 | 4.90 | -0.61 |
| Wind 270 deg - Service | | -9.36 | 0.02 | -0.65 |
| Wind 300 deg - Service | | -8.23 | -4.75 | -0.55 |
| Wind 330 deg - Service | | -5.01 | -8.71 | -0.33 |

Load Combinations

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

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| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
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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 | 193 - 180 | Leg | Max Tension | 8 | 10.58 | -0.14 | 0.72 |
| | | | Max. Compression | 10 | -13.34 | -0.07 | 0.04 |
| | | | Max. Mx | 6 | -10.91 | 0.69 | 0.27 |
| | | | Max. My | 2 | -11.08 | 0.14 | -0.75 |
| | | | Max. Vy | 6 | 1.50 | 0.07 | 0.04 |
| | | | Max. Vx | 2 | -1.59 | -0.00 | -0.08 |
| | | Diagonal | Max Tension | 8 | 2.21 | 0.00 | 0.00 |
| | | | Max. Compression | 2 | -2.32 | 0.00 | 0.00 |
| | | | Max. Mx | 23 | 0.34 | 0.02 | -0.00 |
| | | | Max. My | 2 | -1.61 | -0.00 | 0.01 |
| | | | Max. Vy | 23 | -0.02 | 0.02 | -0.00 |
| | | | Max. Vx | 2 | -0.00 | 0.00 | 0.00 |
| | | Top Girt | Max Tension | 2 | 0.31 | 0.00 | 0.00 |
| | | | Max. Compression | 4 | -0.30 | 0.00 | 0.00 |
| | | | Max. Mx | 22 | 0.02 | -0.02 | 0.00 |
| | | | Max. My | 7 | -0.25 | 0.00 | 0.00 |
| | | | Max. Vy | 22 | 0.02 | 0.00 | 0.00 |
| | | | Max. Vx | 7 | -0.00 | 0.00 | 0.00 |
| | | Bottom Girt | Max Tension | 12 | 0.58 | 0.00 | 0.00 |
| | | | Max. Compression | 10 | -0.50 | 0.00 | 0.00 |
| | | | Max. Mx | 16 | 0.01 | -0.02 | 0.00 |
| | | | Max. My | 7 | 0.51 | 0.00 | 0.00 |
| | | | Max. Vy | 16 | -0.02 | 0.00 | 0.00 |
| | | | Max. Vx | 7 | -0.00 | 0.00 | 0.00 |
| T2 | 180 - 160 | Leg | Max Tension | 8 | 17.09 | -0.00 | 0.08 |
| | | | Max. Compression | 10 | -43.43 | 0.45 | -0.26 |
| | | | Max. Mx | 10 | 0.93 | 2.60 | -0.98 |
| | | | Max. My | 13 | -13.37 | -0.06 | 2.89 |
| | | | Max. Vy | 10 | 4.04 | 1.24 | -0.65 |
| | | | Max. Vx | 2 | 4.54 | 0.06 | 1.39 |
| | | Diagonal | Max Tension | 2 | 5.55 | -0.00 | 0.02 |
| | | | Max. Compression | 8 | -7.13 | 0.00 | 0.00 |
| | | | Max. Mx | 9 | 1.88 | -0.12 | 0.03 |
| | | | Max. My | 7 | -4.44 | 0.06 | -0.05 |
| | | | Max. Vy | 9 | -0.06 | 0.00 | 0.00 |
| | | | Max. Vx | 7 | 0.02 | 0.06 | -0.05 |
| | | Secondary Horizontal | Max Tension | 7 | 3.62 | -0.09 | -0.00 |
| | | | Max. Compression | 10 | -2.93 | -0.06 | -0.01 |
| | | | Max. Mx | 8 | 3.35 | -0.11 | -0.01 |
| | | | Max. My | 8 | -2.06 | -0.01 | -0.02 |
| | | | Max. Vy | 8 | 0.07 | 0.00 | 0.00 |
| | | | Max. Vx | 8 | 0.01 | 0.00 | 0.00 |
| | | Top Girt | Max Tension | 10 | 2.30 | 0.00 | 0.00 |
| | | | Max. Compression | 8 | -2.55 | 0.00 | 0.00 |
| | | | Max. Mx | 25 | 0.04 | -0.02 | 0.00 |
| | | | Max. My | 7 | -2.26 | 0.00 | 0.00 |
| | | | Max. Vy | 25 | 0.02 | 0.00 | 0.00 |
| | | | Max. Vx | 7 | -0.00 | 0.00 | 0.00 |
| Bottom Girt | Max Tension | 10 | 5.17 | 0.00 | 0.00 | | |
| | Max. Compression | 12 | -3.20 | 0.00 | 0.00 | | |
| | Max. Mx | 22 | 1.87 | -0.02 | 0.00 | | |
| | Max. My | 10 | -1.25 | 0.00 | 0.00 | | |
| | Max. Vy | 22 | 0.02 | 0.00 | 0.00 | | |
| | Max. Vx | 10 | -0.00 | 0.00 | 0.00 | | |
| Guy A | Bottom Tension | 8 | 17.18 | | | | |
| | Top Tension | 8 | 17.43 | | | | |
| | Top Cable Vert | 8 | 13.46 | | | | |

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| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|--------------|----------------|------------------|-----------------|---------|--------------------------|--------------------------|
| | | | Top Cable Norm | 8 | 11.08 | | |
| | | | Top Cable Tan | 8 | 0.00 | | |
| | | | Bot Cable Vert | 8 | -12.91 | | |
| | | | Bot Cable Norm | 8 | 11.33 | | |
| | | | Bot Cable Tan | 8 | 0.01 | | |
| | | Guy A | Bottom Tension | 8 | 8.90 | | |
| | | | Top Tension | 8 | 9.04 | | |
| | | | Top Cable Vert | 8 | 7.25 | | |
| | | | Top Cable Norm | 8 | 5.41 | | |
| | | | Top Cable Tan | 8 | 0.00 | | |
| | | | Bot Cable Vert | 8 | -6.90 | | |
| | | | Bot Cable Norm | 8 | 5.62 | | |
| | | | Bot Cable Tan | 8 | 0.01 | | |
| | | Guy B | Bottom Tension | 11 | 17.40 | | |
| | | | Top Tension | 11 | 17.66 | | |
| | | | Top Cable Vert | 11 | 13.75 | | |
| | | | Top Cable Norm | 11 | 11.08 | | |
| | | | Top Cable Tan | 11 | 0.08 | | |
| | | | Bot Cable Vert | 11 | -13.21 | | |
| | | | Bot Cable Norm | 11 | 11.33 | | |
| | | | Bot Cable Tan | 11 | 0.14 | | |
| | | Guy B | Bottom Tension | 12 | 8.91 | | |
| | | | Top Tension | 12 | 9.06 | | |
| | | | Top Cable Vert | 12 | 7.31 | | |
| | | | Top Cable Norm | 12 | 5.34 | | |
| | | | Top Cable Tan | 12 | 0.00 | | |
| | | | Bot Cable Vert | 12 | -6.96 | | |
| | | | Bot Cable Norm | 12 | 5.57 | | |
| | | | Bot Cable Tan | 12 | 0.00 | | |
| | | Guy C | Bottom Tension | 4 | 17.26 | | |
| | | | Top Tension | 4 | 17.51 | | |
| | | | Top Cable Vert | 4 | 13.52 | | |
| | | | Top Cable Norm | 4 | 11.13 | | |
| | | | Top Cable Tan | 4 | 0.01 | | |
| | | | Bot Cable Vert | 4 | -12.98 | | |
| | | | Bot Cable Norm | 4 | 11.38 | | |
| | | | Bot Cable Tan | 4 | 0.01 | | |
| | | Guy C | Bottom Tension | 4 | 8.92 | | |
| | | | Top Tension | 4 | 9.07 | | |
| | | | Top Cable Vert | 4 | 7.27 | | |
| | | | Top Cable Norm | 4 | 5.42 | | |
| | | | Top Cable Tan | 4 | 0.00 | | |
| | | | Bot Cable Vert | 4 | -6.92 | | |
| | | | Bot Cable Norm | 4 | 5.63 | | |
| | | | Bot Cable Tan | 4 | 0.00 | | |
| | | Torque Arm Top | Max Tension | 11 | 12.62 | -9.88 | -0.00 |
| | | | Max. Compression | 11 | -6.16 | -45.48 | 0.00 |
| | | | Max. Mx | 12 | -4.14 | -47.88 | -0.00 |
| | | | Max. My | 10 | 4.57 | -39.13 | -0.00 |
| | | | Max. Vy | 12 | 13.17 | -47.88 | -0.00 |
| | | | Max. Vx | 10 | -0.00 | -39.13 | -0.00 |
| | | Torque Arm Top | Max Tension | 5 | 5.66 | 0.00 | 0.00 |
| | | | Max. Compression | 11 | -2.32 | -24.41 | 0.00 |
| | | | Max. Mx | 8 | -1.36 | -25.85 | 0.00 |
| | | | Max. My | 6 | 2.22 | -21.21 | 0.00 |
| | | | Max. Vy | 8 | 7.16 | -25.85 | 0.00 |
| | | | Max. Vx | 6 | 0.00 | -21.21 | 0.00 |
| T3 | 160 - 140 | Leg | Max Tension | 2 | 0.10 | 0.05 | 0.31 |
| | | | Max. Compression | 12 | -51.09 | 0.17 | 0.13 |
| | | | Max. Mx | 10 | -37.32 | -1.45 | 0.77 |
| | | | Max. My | 2 | -37.10 | -0.06 | -1.64 |

| | | | | |
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| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 31 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft | | |
|------------------|--------------|----------------------|------------------|-----------------|------------------|--------------------------|--------------------------|-------|-------|
| T4 | 140 - 120 | Diagonal | Max. Vy | 10 | 4.04 | 0.57 | -0.30 | | |
| | | | Max. Vx | 2 | 4.55 | 0.03 | 0.64 | | |
| | | | Max Tension | 7 | 3.82 | 0.00 | 0.00 | | |
| | | | Max. Compression | 13 | -5.65 | 0.01 | 0.01 | | |
| | | | Max. Mx | 16 | -1.57 | 0.08 | -0.01 | | |
| | | | Max. My | 13 | -1.87 | -0.06 | 0.01 | | |
| | | Secondary Horizontal | Max. Vy | 16 | -0.05 | 0.08 | -0.01 | | |
| | | | Max. Vx | 13 | 0.00 | 0.00 | 0.00 | | |
| | | | Max Tension | 11 | 1.85 | 0.00 | 0.00 | | |
| | | | Max. Compression | 7 | -0.53 | 0.00 | 0.00 | | |
| | | | Max. Mx | 15 | 1.20 | 0.04 | -0.01 | | |
| | | | Max. My | 11 | 1.56 | -0.02 | -0.01 | | |
| | | Top Girt | Max. Vy | 15 | -0.04 | 0.04 | -0.01 | | |
| | | | Max. Vx | 13 | 0.01 | 0.00 | 0.00 | | |
| | | | Max Tension | 21 | 0.72 | 0.00 | 0.00 | | |
| | | | Max. Compression | 1 | 0.00 | 0.00 | 0.00 | | |
| | | | Max. Mx | 22 | 0.64 | 0.01 | 0.00 | | |
| | | | Max. My | 10 | 0.63 | 0.00 | -0.00 | | |
| | | Bottom Girt | Max. Vy | 22 | -0.02 | 0.00 | 0.00 | | |
| | | | Max. Vx | 10 | 0.00 | 0.00 | 0.00 | | |
| | | | Max Tension | 10 | 0.91 | 0.00 | 0.00 | | |
| | | | Max. Compression | 12 | -0.02 | 0.00 | 0.00 | | |
| | | | Max. Mx | 14 | 0.58 | 0.01 | 0.00 | | |
| | | | Max. Vy | 14 | -0.02 | 0.00 | 0.00 | | |
| | | Leg | | Diagonal | Max. Vx | 10 | 0.00 | 0.00 | 0.00 |
| | | | | | Max Tension | 2 | 3.83 | -0.00 | -0.16 |
| | | | | | Max. Compression | 12 | -53.25 | -0.11 | -0.07 |
| | | | | Diagonal | Max. Mx | 12 | -46.03 | -0.43 | -0.22 |
| | | | | | Max. My | 8 | -44.74 | -0.01 | 0.48 |
| | | | | | Max. Vy | 12 | -1.72 | -0.15 | -0.08 |
| | | | | | Max. Vx | 8 | 1.88 | -0.00 | 0.16 |
| | | | | | Max Tension | 12 | 1.38 | 0.00 | 0.00 |
| | | | | | Max. Compression | 12 | -1.87 | 0.00 | 0.00 |
| | | | | Top Girt | Max. Mx | 15 | -0.47 | 0.02 | 0.00 |
| | | | | | Max. My | 10 | -0.56 | 0.00 | 0.00 |
| | | | | | Max. Vy | 15 | 0.02 | 0.00 | 0.00 |
| | | | | | Max. Vx | 10 | -0.00 | 0.00 | 0.00 |
| | | | | | Max Tension | 15 | 1.01 | 0.00 | 0.00 |
| | | | | | Max. Compression | 1 | 0.00 | 0.00 | 0.00 |
| | | | | Bottom Girt | Max. Mx | 14 | 0.93 | 0.01 | 0.00 |
| | | | | | Max. Vy | 14 | 0.02 | 0.00 | 0.00 |
| | | | | | Max Tension | 23 | 0.91 | 0.00 | 0.00 |
| Max. Compression | 1 | 0.00 | 0.00 | | 0.00 | | | | |
| Max. Mx | 14 | 0.89 | 0.01 | | 0.00 | | | | |
| Max. Vy | 14 | 0.02 | 0.00 | | 0.00 | | | | |
| T5 | 120 - 100 | Leg | Max Tension | 1 | 0.00 | 0.00 | 0.00 | | |
| | | | Max. Compression | 15 | -62.61 | 0.07 | 0.05 | | |
| | | | Max. Mx | 9 | -39.21 | 3.15 | -1.84 | | |
| | | Diagonal | Max. My | 3 | -39.32 | -0.02 | 3.66 | | |
| | | | Max. Vy | 9 | -3.53 | 3.15 | -1.84 | | |
| | | | Max. Vx | 3 | -3.81 | -0.02 | 3.66 | | |
| | | | Max Tension | 10 | 3.59 | 0.00 | 0.00 | | |
| | | | Max. Compression | 13 | -6.24 | 0.00 | 0.00 | | |
| | | | Max. Mx | 4 | 1.83 | 0.10 | -0.00 | | |
| | | Secondary Horizontal | Max. My | 3 | -3.76 | 0.04 | -0.03 | | |
| | | | Max. Vy | 17 | -0.05 | 0.08 | -0.00 | | |
| | | | Max. Vx | 3 | 0.01 | 0.04 | -0.03 | | |
| | | | Max Tension | 3 | 4.70 | 0.00 | 0.00 | | |
| | | | Max. Compression | 7 | -1.66 | 0.00 | 0.00 | | |

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|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|--------------|----------------|------------------|-----------------|---------|--------------------------|--------------------------|
| | | | Max. Mx | 4 | 3.01 | 0.07 | -0.00 |
| | | | Max. My | 11 | -1.56 | -0.02 | -0.01 |
| | | | Max. Vy | 4 | -0.04 | 0.07 | -0.00 |
| | | | Max. Vx | 11 | 0.01 | -0.02 | -0.01 |
| | | Top Girt | Max Tension | 2 | 1.08 | 0.00 | 0.00 |
| | | | Max. Compression | 12 | -0.11 | 0.00 | 0.00 |
| | | | Max. Mx | 14 | 0.69 | -0.02 | 0.00 |
| | | | Max. Vy | 14 | -0.02 | 0.00 | 0.00 |
| | | Bottom Girt | Max Tension | 2 | 3.80 | 0.00 | 0.00 |
| | | | Max. Compression | 12 | -2.12 | 0.00 | 0.00 |
| | | | Max. Mx | 14 | 1.17 | -0.02 | 0.00 |
| | | | Max. My | 10 | -0.52 | 0.00 | -0.00 |
| | | | Max. Vy | 14 | -0.02 | 0.00 | 0.00 |
| | | | Max. Vx | 10 | 0.00 | 0.00 | 0.00 |
| | | Guy A | Bottom Tension | 7 | 13.88 | | |
| | | | Top Tension | 7 | 13.97 | | |
| | | | Top Cable Vert | 7 | 10.65 | | |
| | | | Top Cable Norm | 7 | 9.03 | | |
| | | | Top Cable Tan | 7 | 0.00 | | |
| | | | Bot Cable Vert | 7 | -10.47 | | |
| | | | Bot Cable Norm | 7 | 9.12 | | |
| | | | Bot Cable Tan | 7 | 0.08 | | |
| | | Guy B | Bottom Tension | 11 | 14.17 | | |
| | | | Top Tension | 11 | 14.26 | | |
| | | | Top Cable Vert | 11 | 11.04 | | |
| | | | Top Cable Norm | 11 | 9.02 | | |
| | | | Top Cable Tan | 11 | 0.00 | | |
| | | | Bot Cable Vert | 11 | -10.85 | | |
| | | | Bot Cable Norm | 11 | 9.12 | | |
| | | | Bot Cable Tan | 11 | 0.09 | | |
| | | Guy C | Bottom Tension | 5 | 13.92 | | |
| | | | Top Tension | 5 | 14.00 | | |
| | | | Top Cable Vert | 5 | 10.62 | | |
| | | | Top Cable Norm | 5 | 9.11 | | |
| | | | Top Cable Tan | 5 | 0.00 | | |
| | | | Bot Cable Vert | 5 | -10.44 | | |
| | | | Bot Cable Norm | 5 | 9.20 | | |
| | | | Bot Cable Tan | 5 | 0.08 | | |
| | | Torque Arm Top | Max Tension | 5 | 10.78 | 0.00 | 0.00 |
| | | | Max. Compression | 5 | -5.86 | 0.00 | 0.00 |
| | | | Max. Mx | 11 | -1.09 | -37.61 | 0.00 |
| | | | Max. My | 10 | -4.99 | -29.58 | -0.00 |
| | | | Max. Vy | 11 | 10.34 | -37.61 | 0.00 |
| | | | Max. Vx | 10 | -0.00 | -29.58 | -0.00 |
| T6 | 100 - 80 | Leg | Max Tension | 1 | 0.00 | 0.00 | 0.00 |
| | | | Max. Compression | 25 | -69.33 | -0.32 | -0.19 |
| | | | Max. Mx | 4 | -36.30 | -0.81 | 0.48 |
| | | | Max. My | 8 | -36.86 | 0.01 | -0.94 |
| | | | Max. Vy | 4 | -3.00 | -0.81 | 0.48 |
| | | | Max. Vx | 8 | -3.46 | 0.01 | -0.94 |
| | | Diagonal | Max Tension | 3 | 2.16 | 0.00 | 0.00 |
| | | | Max. Compression | 3 | -2.66 | 0.00 | 0.00 |
| | | | Max. Mx | 18 | 0.13 | 0.01 | 0.00 |
| | | | Max. My | 10 | -0.44 | 0.00 | 0.00 |
| | | | Max. Vy | 18 | 0.01 | 0.00 | 0.00 |
| | | | Max. Vx | 10 | -0.00 | 0.00 | 0.00 |
| | | Top Girt | Max Tension | 10 | 0.83 | 0.00 | 0.00 |
| | | | Max. Compression | 1 | 0.00 | 0.00 | 0.00 |
| | | | Max. Mx | 14 | 0.71 | 0.01 | 0.00 |
| | | | Max. Vy | 14 | -0.01 | 0.00 | 0.00 |
| | | Bottom Girt | Max Tension | 10 | 0.55 | 0.00 | 0.00 |

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| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft | |
|-------------|----------------|----------------|------------------|------------------|---------|--------------------------|--------------------------|------|
| T7 | 80 - 60 | Leg | Max. Compression | 1 | 0.00 | 0.00 | 0.00 | |
| | | | Max. Mx | 14 | 0.50 | 0.01 | 0.00 | |
| | | | Max. Vy | 14 | -0.01 | 0.00 | 0.00 | |
| | | | Max Tension | 1 | 0.00 | 0.00 | 0.00 | |
| | | | Max. Compression | 25 | -72.18 | 0.40 | 0.23 | |
| | | | Max. Mx | 11 | -54.28 | -0.91 | -0.24 | |
| | | | Max. My | 8 | -49.60 | 0.01 | 0.92 | |
| | | | Max. Vy | 10 | -1.92 | -0.18 | 0.09 | |
| | | | Max. Vx | 2 | -2.17 | -0.01 | -0.20 | |
| | | | Max Tension | 11 | 1.82 | 0.00 | 0.00 | |
| | | | Max. Compression | 11 | -2.75 | 0.00 | 0.00 | |
| | | | Max. Mx | 26 | -1.13 | 0.05 | 0.00 | |
| | | Max. My | 11 | -2.75 | 0.00 | 0.00 | | |
| | | Max. Vy | 26 | -0.03 | 0.05 | 0.00 | | |
| | | Max. Vx | 11 | 0.00 | 0.00 | 0.00 | | |
| | | Top Girt | Max Tension | 15 | 1.05 | 0.00 | 0.00 | |
| | | | Max. Compression | 1 | 0.00 | 0.00 | 0.00 | |
| | | | Max. Mx | 14 | 0.99 | 0.01 | 0.00 | |
| | | | Max. Vy | 14 | 0.01 | 0.00 | 0.00 | |
| | | | Max. Vx | 10 | -0.00 | 0.00 | 0.00 | |
| | | | Max Tension | 17 | 1.04 | 0.00 | 0.00 | |
| | | Bottom Girt | Max. Compression | 1 | 0.00 | 0.00 | 0.00 | |
| | | | Max. Mx | 14 | 1.01 | 0.01 | 0.00 | |
| | | | Max. My | 10 | 0.73 | 0.00 | 0.00 | |
| Max. Vy | 14 | | 0.01 | 0.00 | 0.00 | | | |
| Max. Vx | 10 | | -0.00 | 0.00 | 0.00 | | | |
| Max Tension | 17 | | 1.04 | 0.00 | 0.00 | | | |
| T8 | 60 - 40 | Leg | Max. Compression | 1 | 0.00 | 0.00 | 0.00 | |
| | | | Max. Mx | 19 | -80.67 | -0.55 | -0.14 | |
| | | | Max. My | 11 | -44.34 | 2.66 | -0.54 | |
| | | | Max. Vy | 13 | -44.28 | 0.82 | 2.63 | |
| | | | Max. Vx | 4 | -2.73 | -1.42 | 0.56 | |
| | | | Max Tension | 8 | -2.93 | 0.22 | -1.52 | |
| | | | Diagonal | Max Tension | 3 | 4.70 | 0.00 | 0.00 |
| | | | | Max. Compression | 11 | -4.73 | 0.00 | 0.00 |
| | | | | Max. Mx | 26 | 0.85 | 0.01 | 0.00 |
| | | | | Max. My | 10 | -2.75 | 0.00 | 0.00 |
| | | | | Max. Vy | 26 | 0.01 | 0.00 | 0.00 |
| | | | | Max. Vx | 10 | -0.00 | 0.00 | 0.00 |
| | | Top Girt | Max Tension | 10 | 1.12 | 0.00 | 0.00 | |
| | | | Max. Compression | 1 | 0.00 | 0.00 | 0.00 | |
| | | | Max. Mx | 14 | 0.94 | 0.01 | 0.00 | |
| | | | Max. My | 10 | 0.38 | 0.00 | 0.00 | |
| | | | Max. Vy | 14 | -0.01 | 0.00 | 0.00 | |
| | | | Max. Vx | 10 | -0.00 | 0.00 | 0.00 | |
| | | Bottom Girt | Max Tension | 13 | 1.90 | 0.00 | 0.00 | |
| | | | Max. Compression | 11 | -0.82 | 0.00 | 0.00 | |
| | | | Max. Mx | 14 | 0.93 | 0.01 | 0.00 | |
| | | | Max. Vy | 14 | -0.01 | 0.00 | 0.00 | |
| | | | Max. Vx | 10 | -0.00 | 0.00 | 0.00 | |
| | | | Max Tension | 13 | 1.90 | 0.00 | 0.00 | |
| Guy A | Bottom Tension | 9 | 8.33 | | | | | |
| | Top Tension | 9 | 8.35 | | | | | |
| | Top Cable Vert | 9 | 3.59 | | | | | |
| | Top Cable Norm | 9 | 7.54 | | | | | |
| | Top Cable Tan | 9 | 0.00 | | | | | |
| | Bot Cable Vert | 9 | -3.52 | | | | | |
| | Bot Cable Norm | 9 | 7.55 | | | | | |
| | Bot Cable Tan | 9 | 0.04 | | | | | |
| | Guy B | Bottom Tension | 13 | 8.51 | | | | |
| | | Top Tension | 13 | 8.53 | | | | |
| | | Top Cable Vert | 13 | 3.99 | | | | |
| | | Top Cable Norm | 13 | 7.54 | | | | |

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| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft | |
|------------------|------------------|----------------|------------------|------------------|---------|--------------------------|--------------------------|-------|
| T9 | 40 - 20 | Guy C | Top Cable Tan | 13 | 0.00 | | | |
| | | | Bot Cable Vert | 13 | -3.91 | | | |
| | | | Bot Cable Norm | 13 | 7.56 | | | |
| | | | Bot Cable Tan | 13 | 0.04 | | | |
| | | | Bottom Tension | 3 | 8.26 | | | |
| | | | Top Tension | 3 | 8.28 | | | |
| | | | Top Cable Vert | 3 | 3.53 | | | |
| | | | Top Cable Norm | 3 | 7.49 | | | |
| | | | Top Cable Tan | 3 | 0.00 | | | |
| | | | Bot Cable Vert | 3 | -3.46 | | | |
| | | | Bot Cable Norm | 3 | 7.51 | | | |
| | | | Bot Cable Tan | 3 | 0.04 | | | |
| | | | Max Tension | 11 | 8.99 | 0.00 | 0.00 | |
| | | | Max. Compression | 11 | -4.97 | 0.00 | 0.00 | |
| | | | Max. Mx | 13 | -0.30 | -14.16 | -0.00 | |
| | | Max. My | 10 | -4.33 | -10.58 | -0.00 | | |
| | | Max. Vy | 13 | 3.92 | -14.16 | -0.00 | | |
| | | Max. Vx | 10 | -0.00 | -10.58 | -0.00 | | |
| | | Leg | Max Tension | 1 | 0.00 | 0.00 | 0.00 | |
| | | | Max. Compression | 24 | -82.31 | -0.49 | 0.11 | |
| | | | Max. Mx | 6 | -64.47 | -1.23 | -0.66 | |
| | | | Max. My | 2 | -64.22 | 0.04 | 1.38 | |
| | | | Max. Vy | 4 | -2.74 | -0.96 | 0.37 | |
| | | | Max. Vx | 8 | -2.94 | 0.16 | -1.03 | |
| | | | Diagonal | Max Tension | 5 | 3.27 | 0.00 | 0.00 |
| | | | | Max. Compression | 7 | -3.70 | 0.00 | 0.00 |
| | | | | Max. Mx | 24 | -0.33 | 0.01 | 0.00 |
| | | | | Max. My | 15 | 0.01 | 0.00 | -0.00 |
| | | | | Max. Vy | 24 | -0.01 | 0.00 | 0.00 |
| | | | | Max. Vx | 15 | 0.00 | 0.00 | 0.00 |
| | | | Top Girt | Max Tension | 12 | 1.41 | 0.00 | 0.00 |
| | | | | Max. Compression | 6 | -1.07 | 0.00 | 0.00 |
| | | | | Max. Mx | 14 | 0.28 | 0.01 | 0.00 |
| Bottom Girt | Max. Vy | | 14 | 0.01 | 0.00 | 0.00 | | |
| | Max Tension | | 8 | 0.31 | 0.00 | 0.00 | | |
| | Max. Compression | | 6 | -0.05 | 0.00 | 0.00 | | |
| T10 | 20 - 5 | Leg | Max. Mx | 19 | 0.23 | 0.01 | 0.00 | |
| | | | Max. Vy | 19 | 0.01 | 0.00 | 0.00 | |
| | | | Max Tension | 1 | 0.00 | 0.00 | 0.00 | |
| | | | Max. Compression | 26 | -84.31 | 1.40 | 0.54 | |
| | | | Max. Mx | 24 | -84.02 | 2.53 | 1.19 | |
| | | | Max. My | 23 | -83.71 | -0.22 | -2.77 | |
| | | Diagonal | Max. Vy | 26 | -13.59 | 2.53 | 1.20 | |
| | | | Max. Vx | 22 | 15.61 | -0.22 | -2.77 | |
| | | | Max Tension | 5 | 1.21 | 0.00 | 0.00 | |
| | | | Max. Compression | 7 | -0.99 | 0.00 | 0.00 | |
| | | | Max. Mx | 26 | 0.85 | 0.01 | 0.00 | |
| | | | Max. My | 10 | 0.25 | 0.00 | 0.00 | |
| | | Top Girt | Max. Vy | 26 | -0.01 | 0.00 | 0.00 | |
| | | | Max. Vx | 10 | -0.00 | 0.00 | 0.00 | |
| | | | Max Tension | 20 | 0.39 | 0.00 | 0.00 | |
| Max. Compression | 1 | | 0.00 | 0.00 | 0.00 | | | |
| Max. Mx | 19 | | 0.33 | 0.01 | 0.00 | | | |
| Max. Vy | 19 | | -0.01 | 0.00 | 0.00 | | | |
| Bottom Girt | Max. Vx | 10 | -0.00 | 0.00 | 0.00 | | | |
| | Max Tension | 15 | 8.51 | 0.00 | 0.00 | | | |
| | Max. Compression | 1 | 0.00 | 0.00 | 0.00 | | | |
| | Max. Mx | 17 | 8.38 | 0.01 | 0.00 | | | |
| | Max. Vy | 17 | -0.01 | 0.00 | 0.00 | | | |
| | Max Tension | 1 | 0.00 | 0.00 | 0.00 | | | |
| T11 | 5 - 0 | Leg | Max. Mx | 17 | -0.01 | 0.00 | 0.00 | |
| | | | Max Tension | 1 | 0.00 | 0.00 | 0.00 | |
| | | | Max. Compression | 23 | -91.18 | 0.16 | -0.10 | |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| Section No. | Elevation ft | Component Type | Condition | Gov. Load Comb. | Axial K | Major Axis Moment kip-ft | Minor Axis Moment kip-ft |
|-------------|--------------|----------------|------------------|-----------------|---------|--------------------------|--------------------------|
| | | Horizontal | Max. Mx | 23 | -82.91 | -3.08 | -0.23 |
| | | | Max. My | 25 | -82.88 | -3.08 | -0.24 |
| | | | Max. Vy | 15 | 16.33 | -3.08 | -0.23 |
| | | | Max. Vx | 2 | -0.24 | -1.81 | -0.01 |
| | | | Max Tension | 23 | 0.12 | 0.20 | -0.10 |
| | | | Max. Compression | 26 | -1.43 | 0.13 | -0.04 |
| | | | Max. Mx | 15 | -0.63 | 0.50 | -0.20 |
| | | | Max. My | 15 | -0.63 | 0.41 | -0.21 |
| | | | Max. Vy | 6 | 0.30 | 0.39 | -0.17 |
| | | | Max. Vx | 2 | 0.15 | 0.24 | -0.08 |
| | | Top Girt | Max Tension | 15 | 11.29 | 0.49 | -0.27 |
| | | | Max. Compression | 1 | 0.00 | 0.00 | 0.00 |
| | | | Max. Mx | 24 | 11.26 | 0.63 | -0.21 |
| | | | Max. My | 15 | 11.23 | 0.49 | -0.28 |
| | | | Max. Vy | 25 | -0.07 | 0.63 | -0.21 |
| | | | Max. Vx | 10 | -0.03 | 0.34 | -0.11 |

Maximum Reactions

| Location | Condition | Gov. Load Comb. | Vertical K | Horizontal, X K | Horizontal, Z K | |
|-------------------------------------------------|------------------------------------------------|---------------------|------------|-----------------|-----------------|------|
| Mast | Max. Vert | 23 | 251.46 | 0.10 | 0.04 | |
| | Max. H _x | 12 | 135.44 | 0.61 | 0.36 | |
| | Max. H _z | 4 | 134.73 | -0.65 | 0.39 | |
| | Max. M _x | 1 | 0.00 | 0.01 | 0.02 | |
| | Max. M _z | 1 | 0.00 | 0.01 | 0.02 | |
| | Max. Torsion | 10 | 0.09 | 0.17 | -0.10 | |
| | Min. Vert | 1 | 100.56 | 0.01 | 0.02 | |
| | Min. H _x | 4 | 134.73 | -0.65 | 0.39 | |
| | Min. H _z | 8 | 134.99 | 0.01 | -0.72 | |
| | Min. M _x | 1 | 0.00 | 0.01 | 0.02 | |
| | Min. M _z | 1 | 0.00 | 0.01 | 0.02 | |
| | Min. Torsion | 3 | -0.33 | -0.45 | 0.25 | |
| | Guy C @ 138 ft Elev 2 ft Azimuth 240 deg | Max. Vert | 10 | -2.25 | -1.27 | 0.73 |
| | | Max. H _x | 10 | -2.25 | -1.27 | 0.73 |
| Max. H _z | | 4 | -39.53 | -29.27 | 16.89 | |
| Min. Vert | | 4 | -39.53 | -29.27 | 16.89 | |
| Min. H _x | | 4 | -39.53 | -29.27 | 16.89 | |
| Min. H _z | | 10 | -2.25 | -1.27 | 0.73 | |
| Guy B @ 140 ft Elev -4 ft Azimuth 120 deg | Max. Vert | 6 | -2.52 | 1.40 | 0.81 | |
| | Max. H _x | 12 | -39.94 | 28.99 | 16.73 | |
| | Max. H _z | 12 | -39.94 | 28.99 | 16.73 | |
| | Min. Vert | 12 | -39.94 | 28.99 | 16.73 | |
| | Min. H _x | 6 | -2.52 | 1.40 | 0.81 | |
| | Min. H _z | 6 | -2.52 | 1.40 | 0.81 | |
| Guy A @ 138 ft Elev 2 ft Azimuth 0 deg | Max. Vert | 2 | -2.26 | 0.00 | -1.47 | |
| | Max. H _x | 11 | -21.60 | 1.09 | -18.16 | |
| | Max. H _z | 2 | -2.26 | 0.00 | -1.47 | |
| | Min. Vert | 8 | -39.59 | 0.00 | -33.84 | |
| | Min. H _x | 5 | -21.64 | -1.09 | -18.19 | |

| | | | | |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| <p style="text-align: center;">tnxTower</p> <p style="text-align: center;">Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120</p> | Job | 18946024A | Page | 36 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
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| Location | Condition | Gov. Load Comb. | Vertical K | Horizontal, X K | Horizontal, Z K |
|------------------------------------------------|---------------------|-----------------|------------|-----------------|-----------------|
| Guy C @ 89 ft Elev 2 ft Azimuth 240 deg | Min. H _z | 8 | -39.59 | 0.00 | -33.84 |
| | Max. Vert | 10 | -0.34 | -0.30 | 0.18 |
| | Max. H _x | 10 | -0.34 | -0.30 | 0.18 |
| | Max. H _z | 3 | -27.12 | -28.22 | 16.59 |
| | Min. Vert | 5 | -27.21 | -28.56 | 16.18 |
| | Min. H _x | 5 | -27.21 | -28.56 | 16.18 |
| Guy B @ 89 ft Elev -3 ft Azimuth 120 deg | Min. H _z | 10 | -0.34 | -0.30 | 0.18 |
| | Max. Vert | 6 | -0.41 | 0.31 | 0.18 |
| | Max. H _x | 11 | -28.90 | 28.51 | 16.14 |
| | Max. H _z | 13 | -28.90 | 28.24 | 16.61 |
| | Min. Vert | 13 | -28.90 | 28.24 | 16.61 |
| | Min. H _x | 6 | -0.41 | 0.31 | 0.18 |
| Guy A @ 88 ft Elev 2 ft Azimuth 0 deg | Min. H _z | 6 | -0.41 | 0.31 | 0.18 |
| | Max. Vert | 2 | -0.35 | 0.00 | -0.35 |
| | Max. H _x | 10 | -23.40 | 0.44 | -28.21 |
| | Max. H _z | 2 | -0.35 | 0.00 | -0.35 |
| | Min. Vert | 7 | -27.46 | -0.26 | -32.80 |
| | Min. H _x | 6 | -23.50 | -0.44 | -28.28 |
| | Min. H _z | 7 | -27.46 | -0.26 | -32.80 |

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 | 100.56 | -0.01 | -0.02 | 0.00 | 0.00 | 0.09 |
| 1.2 Dead+1.6 Wind 0 deg - No Ice+1.0 Guy | 157.28 | 0.02 | -0.22 | 0.00 | 0.00 | 0.22 |
| 1.2 Dead+1.6 Wind 30 deg - No Ice+1.0 Guy | 147.98 | 0.45 | -0.25 | 0.00 | 0.00 | 0.33 |
| 1.2 Dead+1.6 Wind 60 deg - No Ice+1.0 Guy | 134.73 | 0.65 | -0.39 | 0.00 | 0.00 | 0.32 |
| 1.2 Dead+1.6 Wind 90 deg - No Ice+1.0 Guy | 147.33 | 0.42 | -0.29 | 0.00 | 0.00 | 0.27 |
| 1.2 Dead+1.6 Wind 120 deg - No Ice+1.0 Guy | 155.76 | 0.20 | 0.09 | 0.00 | 0.00 | 0.26 |
| 1.2 Dead+1.6 Wind 150 deg - No Ice+1.0 Guy | 147.49 | -0.03 | 0.48 | 0.00 | 0.00 | 0.21 |
| 1.2 Dead+1.6 Wind 180 deg - No Ice+1.0 Guy | 134.99 | -0.01 | 0.72 | 0.00 | 0.00 | 0.05 |
| 1.2 Dead+1.6 Wind 210 deg - No Ice+1.0 Guy | 148.28 | 0.03 | 0.48 | 0.00 | 0.00 | -0.07 |
| 1.2 Dead+1.6 Wind 240 deg - No Ice+1.0 Guy | 157.56 | -0.17 | 0.10 | 0.00 | 0.00 | -0.09 |
| 1.2 Dead+1.6 Wind 270 deg - No Ice+1.0 Guy | 148.94 | -0.38 | -0.28 | 0.00 | 0.00 | -0.05 |
| 1.2 Dead+1.6 Wind 300 deg - No Ice+1.0 Guy | 135.44 | -0.61 | -0.36 | 0.00 | 0.00 | -0.04 |
| 1.2 Dead+1.6 Wind 330 deg - No Ice+1.0 Guy | 148.78 | -0.42 | -0.21 | 0.00 | 0.00 | 0.07 |
| 1.2 Dead+1.0 Ice+1.0 | 248.92 | -0.02 | -0.08 | 0.00 | 0.00 | 0.21 |

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| 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 |
|------------------------------|---------------|-------------------------|-------------------------|-------------------------------------------------|-------------------------------------------------|------------------|
| Temp+Guy | | | | | | |
| 1.2 Dead+1.0 Wind 0 deg+1.0 | 251.44 | -0.02 | -0.17 | 0.00 | 0.00 | 0.22 |
| Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 30 deg+1.0 | 250.86 | 0.01 | -0.16 | 0.00 | 0.00 | 0.23 |
| Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 60 deg+1.0 | 250.32 | 0.04 | -0.12 | 0.00 | 0.00 | 0.22 |
| Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 90 deg+1.0 | 250.66 | 0.06 | -0.08 | 0.00 | 0.00 | 0.21 |
| Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 120 | 251.15 | 0.05 | -0.04 | 0.00 | 0.00 | 0.22 |
| deg+1.0 Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 150 | 250.71 | 0.02 | -0.02 | 0.00 | 0.00 | 0.22 |
| deg+1.0 Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 180 | 250.37 | -0.03 | -0.01 | 0.00 | 0.00 | 0.21 |
| deg+1.0 Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 210 | 250.90 | -0.07 | -0.02 | 0.00 | 0.00 | 0.20 |
| deg+1.0 Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 240 | 251.46 | -0.10 | -0.04 | 0.00 | 0.00 | 0.21 |
| deg+1.0 Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 270 | 250.95 | -0.10 | -0.07 | 0.00 | 0.00 | 0.21 |
| deg+1.0 Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 300 | 250.50 | -0.08 | -0.11 | 0.00 | 0.00 | 0.21 |
| deg+1.0 Ice+1.0 Temp+1.0 Guy | | | | | | |
| 1.2 Dead+1.0 Wind 330 | 250.95 | -0.05 | -0.15 | 0.00 | 0.00 | 0.21 |
| deg+1.0 Ice+1.0 Temp+1.0 Guy | | | | | | |
| Dead+Wind 0 deg - | 101.03 | -0.01 | -0.25 | 0.00 | 0.00 | 0.10 |
| Service+Guy | | | | | | |
| Dead+Wind 30 deg - | 101.03 | 0.10 | -0.21 | 0.00 | 0.00 | 0.12 |
| Service+Guy | | | | | | |
| Dead+Wind 60 deg - | 101.05 | 0.19 | -0.13 | 0.00 | 0.00 | 0.12 |
| Service+Guy | | | | | | |
| Dead+Wind 90 deg - | 101.11 | 0.21 | -0.02 | 0.00 | 0.00 | 0.12 |
| Service+Guy | | | | | | |
| Dead+Wind 120 deg - | 101.17 | 0.19 | 0.10 | 0.00 | 0.00 | 0.11 |
| Service+Guy | | | | | | |
| Dead+Wind 150 deg - | 101.13 | 0.10 | 0.17 | 0.00 | 0.00 | 0.10 |
| Service+Guy | | | | | | |
| Dead+Wind 180 deg - | 101.09 | -0.01 | 0.21 | 0.00 | 0.00 | 0.08 |
| Service+Guy | | | | | | |
| Dead+Wind 210 deg - | 101.07 | -0.12 | 0.18 | 0.00 | 0.00 | 0.06 |
| Service+Guy | | | | | | |
| Dead+Wind 240 deg - | 101.06 | -0.21 | 0.10 | 0.00 | 0.00 | 0.05 |
| Service+Guy | | | | | | |
| Dead+Wind 270 deg - | 100.96 | -0.23 | -0.01 | 0.00 | 0.00 | 0.06 |
| Service+Guy | | | | | | |
| Dead+Wind 300 deg - | 100.91 | -0.20 | -0.13 | 0.00 | 0.00 | 0.06 |
| Service+Guy | | | | | | |
| Dead+Wind 330 deg - | 100.94 | -0.11 | -0.20 | 0.00 | 0.00 | 0.08 |
| Service+Guy | | | | | | |

Solution Summary

| Load Comb. | Sum of Applied Forces | | | Sum of Reactions | | | % Error |
|------------|-----------------------|---------|---------|------------------|---------|---------|---------|
| | PX K | PY K | PZ K | PX K | PY K | PZ K | |
| 1 | 0.00 | -35.11 | 0.00 | -0.00 | 35.11 | -0.00 | 0.007% |
| 2 | 0.07 | -41.58 | -56.57 | -0.07 | 41.58 | 56.57 | 0.002% |
| 3 | 27.74 | -41.32 | -48.05 | -27.74 | 41.32 | 48.04 | 0.004% |

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|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| Load Comb. | Sum of Applied Forces | | | Sum of Reactions | | | % Error |
|------------|-----------------------|---------|--------|------------------|--------|--------|---------|
| | PX K | PY K | PZ K | PX K | PY K | PZ K | |
| 4 | 48.40 | -41.06 | -28.02 | -48.40 | 41.06 | 28.02 | 0.002% |
| 5 | 55.36 | -41.30 | -0.07 | -55.36 | 41.30 | 0.07 | 0.003% |
| 6 | 48.88 | -41.54 | 28.23 | -48.88 | 41.54 | -28.22 | 0.004% |
| 7 | 27.62 | -41.30 | 47.98 | -27.62 | 41.30 | -47.98 | 0.003% |
| 8 | -0.07 | -41.06 | 55.93 | 0.07 | 41.06 | -55.93 | 0.002% |
| 9 | -27.74 | -41.32 | 48.05 | 27.74 | 41.32 | -48.05 | 0.004% |
| 10 | -48.95 | -41.58 | 28.35 | 48.95 | 41.58 | -28.34 | 0.002% |
| 11 | -55.36 | -41.34 | 0.07 | 55.36 | 41.34 | -0.07 | 0.004% |
| 12 | -48.33 | -41.10 | -27.90 | 48.32 | 41.10 | 27.90 | 0.002% |
| 13 | -27.62 | -41.34 | -47.98 | 27.62 | 41.34 | 47.98 | 0.004% |
| 14 | -0.00 | -160.76 | 0.00 | -0.00 | 160.76 | -0.00 | 0.001% |
| 15 | 0.01 | -160.97 | -13.91 | -0.01 | 160.97 | 13.91 | 0.001% |
| 16 | 6.92 | -160.76 | -11.98 | -6.92 | 160.76 | 11.98 | 0.001% |
| 17 | 11.98 | -160.55 | -6.93 | -11.97 | 160.55 | 6.92 | 0.002% |
| 18 | 13.82 | -160.74 | -0.01 | -13.82 | 160.74 | 0.01 | 0.001% |
| 19 | 12.03 | -160.94 | 6.95 | -12.03 | 160.94 | -6.95 | 0.001% |
| 20 | 6.90 | -160.74 | 11.98 | -6.90 | 160.74 | -11.98 | 0.001% |
| 21 | -0.01 | -160.55 | 13.84 | 0.01 | 160.55 | -13.84 | 0.002% |
| 22 | -6.92 | -160.76 | -11.98 | 6.92 | 160.76 | -11.98 | 0.001% |
| 23 | -12.04 | -160.97 | 6.96 | 12.04 | 160.97 | -6.96 | 0.001% |
| 24 | -13.82 | -160.77 | 0.01 | 13.82 | 160.77 | -0.01 | 0.001% |
| 25 | -11.97 | -160.58 | -6.91 | 11.96 | 160.58 | 6.91 | 0.002% |
| 26 | -6.90 | -160.77 | -11.98 | 6.90 | 160.77 | 11.98 | 0.001% |
| 27 | 0.01 | -35.16 | -11.55 | -0.01 | 35.16 | 11.54 | 0.004% |
| 28 | 5.66 | -35.11 | -9.81 | -5.66 | 35.11 | 9.80 | 0.003% |
| 29 | 9.88 | -35.06 | -5.72 | -9.88 | 35.06 | 5.72 | 0.002% |
| 30 | 11.30 | -35.10 | -0.01 | -11.30 | 35.10 | 0.01 | 0.003% |
| 31 | 9.98 | -35.15 | 5.76 | -9.97 | 35.15 | -5.76 | 0.004% |
| 32 | 5.64 | -35.10 | 9.79 | -5.64 | 35.10 | -9.79 | 0.003% |
| 33 | -0.01 | -35.06 | 11.41 | 0.01 | 35.06 | -11.41 | 0.002% |
| 34 | -5.66 | -35.11 | 9.81 | 5.66 | 35.11 | -9.80 | 0.003% |
| 35 | -9.99 | -35.16 | 5.78 | 9.99 | 35.16 | -5.78 | 0.004% |
| 36 | -11.30 | -35.11 | 0.01 | 11.30 | 35.11 | -0.01 | 0.003% |
| 37 | -9.86 | -35.06 | -5.69 | 9.86 | 35.06 | 5.69 | 0.003% |
| 38 | -5.64 | -35.11 | -9.79 | 5.64 | 35.11 | 9.79 | 0.003% |

Non-Linear Convergence Results

| Load Combination | Converged? | Number of Cycles | Displacement Tolerance | Force Tolerance |
|------------------|------------|------------------|------------------------|-----------------|
| 1 | Yes | 6 | 0.0000001 | 0.00003056 |
| 2 | Yes | 18 | 0.0000001 | 0.00004613 |
| 3 | Yes | 17 | 0.0000001 | 0.00007185 |
| 4 | Yes | 13 | 0.0000001 | 0.00004930 |
| 5 | Yes | 17 | 0.0000001 | 0.00005623 |
| 6 | Yes | 17 | 0.00006342 | 0.00008360 |
| 7 | Yes | 17 | 0.0000001 | 0.00005624 |
| 8 | Yes | 13 | 0.0000001 | 0.00004675 |
| 9 | Yes | 17 | 0.0000001 | 0.00007306 |
| 10 | Yes | 18 | 0.0000001 | 0.00004691 |
| 11 | Yes | 17 | 0.0000001 | 0.00007626 |
| 12 | Yes | 13 | 0.0000001 | 0.00006674 |
| 13 | Yes | 17 | 0.0000001 | 0.00007496 |
| 14 | Yes | 10 | 0.0000001 | 0.00004278 |
| 15 | Yes | 13 | 0.0000001 | 0.00007386 |
| 16 | Yes | 13 | 0.0000001 | 0.00005294 |

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| | | | | |
|----|-----|----|------------|------------|
| 17 | Yes | 12 | 0.00000001 | 0.00007361 |
| 18 | Yes | 13 | 0.00000001 | 0.00004325 |
| 19 | Yes | 13 | 0.00000001 | 0.00006014 |
| 20 | Yes | 13 | 0.00000001 | 0.00004408 |
| 21 | Yes | 12 | 0.00000001 | 0.00007001 |
| 22 | Yes | 13 | 0.00000001 | 0.00004841 |
| 23 | Yes | 13 | 0.00000001 | 0.00006816 |
| 24 | Yes | 13 | 0.00000001 | 0.00005129 |
| 25 | Yes | 12 | 0.00010000 | 0.00009128 |
| 26 | Yes | 13 | 0.00000001 | 0.00005665 |
| 27 | Yes | 10 | 0.00000001 | 0.00007168 |
| 28 | Yes | 10 | 0.00000001 | 0.00005314 |
| 29 | Yes | 10 | 0.00000001 | 0.00004000 |
| 30 | Yes | 10 | 0.00000001 | 0.00005225 |
| 31 | Yes | 10 | 0.00000001 | 0.00006580 |
| 32 | Yes | 10 | 0.00000001 | 0.00005227 |
| 33 | Yes | 10 | 0.00000001 | 0.00004065 |
| 34 | Yes | 10 | 0.00000001 | 0.00005426 |
| 35 | Yes | 10 | 0.00000001 | 0.00007334 |
| 36 | Yes | 10 | 0.00000001 | 0.00005984 |
| 37 | Yes | 10 | 0.00000001 | 0.00004982 |
| 38 | Yes | 10 | 0.00000001 | 0.00005917 |

Maximum Tower Deflections - Service Wind

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|-----------------|------------------------|-----------------|-----------|------------|
| T1 | 193 - 180 | 0.754 | 33 | 0.0107 | 0.0207 |
| T2 | 180 - 160 | 0.758 | 37 | 0.0169 | 0.0155 |
| T3 | 160 - 140 | 0.859 | 37 | 0.0444 | 0.0109 |
| T4 | 140 - 120 | 1.013 | 37 | 0.0223 | 0.0131 |
| T5 | 120 - 100 | 1.006 | 37 | 0.0211 | 0.0120 |
| T6 | 100 - 80 | 0.905 | 37 | 0.0174 | 0.0100 |
| T7 | 80 - 60 | 0.831 | 37 | 0.0329 | 0.0094 |
| T8 | 60 - 40 | 0.633 | 37 | 0.0576 | 0.0084 |
| T9 | 40 - 20 | 0.380 | 37 | 0.0504 | 0.0054 |
| T10 | 20 - 5 | 0.213 | 37 | 0.0474 | 0.0150 |
| T11 | 5 - 0 | 0.055 | 37 | 0.0518 | 0.0052 |

Critical Deflections and Radius of Curvature - Service Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------------|-----------------------------------------------|-----------------|------------------|-----------|------------|---------------------------|
| 192.70 | SBNH-1D6565B | 33 | 0.754 | 0.0107 | 0.0206 | 112889 |
| 192.00 | 10' Boom Gate w/3 - 2 3/8" Pipe (Tapered) (3) | 33 | 0.753 | 0.0108 | 0.0203 | 112889 |
| 188.00 | 20' Omni | 33 | 0.749 | 0.0116 | 0.0187 | 112889 |
| 187.45 | SBNH-1D6565B | 33 | 0.749 | 0.0118 | 0.0185 | 101702 |
| 182.20 | SBNH-1D6565B | 37 | 0.753 | 0.0147 | 0.0163 | 52964 |
| 181.00 | 2.5" Dia 7' Omni | 37 | 0.756 | 0.0158 | 0.0159 | 48728 |
| 180.00 | 7770 | 37 | 0.758 | 0.0169 | 0.0155 | 46316 |
| 179.00 | 10' Boom Gate w/3 - 2 3/8" Pipe (Tapered) (3) | 37 | 0.760 | 0.0182 | 0.0151 | 44769 |
| 177.08 | Guy | 37 | 0.766 | 0.0209 | 0.0146 | 43378 |

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| <i>Elevation</i> | <i>Appurtenance</i> | <i>Gov. Load Comb.</i> | <i>Deflection in</i> | <i>Tilt °</i> | <i>Twist °</i> | <i>Radius of Curvature ft</i> |
|------------------|------------------------------------------------|------------------------|----------------------|---------------|----------------|-------------------------------|
| 176.95 | SBNH-1D6565B | 37 | 0.766 | 0.0211 | 0.0145 | 43332 |
| 171.70 | SBNH-1D6565B | 37 | 0.786 | 0.0302 | 0.0132 | 41550 |
| 168.00 | 14' T Arm round | 37 | 0.805 | 0.0365 | 0.0123 | 40108 |
| 166.45 | SBNH-1D6565B | 37 | 0.814 | 0.0388 | 0.0120 | 39379 |
| 162.58 | Guy | 37 | 0.839 | 0.0431 | 0.0113 | 38218 |
| 161.20 | SBNH-1D6565B | 37 | 0.849 | 0.0440 | 0.0111 | 39243 |
| 155.95 | SBNH-1D6565B | 37 | 0.892 | 0.0431 | 0.0112 | 82186 |
| 154.50 | 7' Whip | 37 | 0.905 | 0.0418 | 0.0114 | 147581 |
| 154.25 | 7' Whip | 37 | 0.907 | 0.0416 | 0.0114 | 171164 |
| 154.00 | 7' Whip | 37 | 0.909 | 0.0413 | 0.0114 | 203716 |
| 151.00 | 10' Boom Gate w/3 2 - 3/8" Pipe (Vertical) (3) | 37 | 0.935 | 0.0376 | 0.0119 | 89618 |
| 150.70 | SBNH-1D6565B | 37 | 0.938 | 0.0372 | 0.0119 | 81380 |
| 145.45 | SBNH-1D6565B | 37 | 0.980 | 0.0293 | 0.0126 | 31194 |
| 140.20 | SBNH-1D6565B | 37 | 1.012 | 0.0225 | 0.0130 | 20850 |
| 134.95 | SBNH-1D6565B | 37 | 1.029 | 0.0190 | 0.0131 | 22157 |
| 129.70 | SBNH-1D6565B | 37 | 1.031 | 0.0182 | 0.0128 | 26746 |
| 124.00 | 10' dipole | 37 | 1.020 | 0.0198 | 0.0122 | 34510 |
| 119.50 | Pirod 4' Side Mount Standoff (1) | 37 | 1.004 | 0.0212 | 0.0120 | 46421 |
| 117.00 | 20' Omni | 37 | 0.992 | 0.0213 | 0.0118 | 62236 |
| 113.00 | 6' Yagi | 37 | 0.971 | 0.0206 | 0.0115 | 152784 |
| 108.00 | Pirod 4' Side Mount Standoff (1) | 37 | 0.944 | 0.0190 | 0.0109 | 138659 |
| 102.58 | Guy | 37 | 0.916 | 0.0175 | 0.0103 | 50607 |
| 42.58 | Guy | 37 | 0.408 | 0.0519 | 0.0045 | 31914 |

Maximum Tower Deflections - Design Wind

| <i>Section No.</i> | <i>Elevation ft</i> | <i>Horz. Deflection in</i> | <i>Gov. Load Comb.</i> | <i>Tilt °</i> | <i>Twist °</i> |
|--------------------|---------------------|----------------------------|------------------------|---------------|----------------|
| T1 | 193 - 180 | 6.614 | 10 | 0.1518 | 0.1375 |
| T2 | 180 - 160 | 7.015 | 10 | 0.1811 | 0.1116 |
| T3 | 160 - 140 | 8.028 | 10 | 0.3326 | 0.0855 |
| T4 | 140 - 120 | 9.323 | 10 | 0.2070 | 0.0954 |
| T5 | 120 - 100 | 9.585 | 10 | 0.1314 | 0.0854 |
| T6 | 100 - 80 | 8.957 | 10 | 0.1723 | 0.0720 |
| T7 | 80 - 60 | 8.018 | 10 | 0.3381 | 0.0645 |
| T8 | 60 - 40 | 6.165 | 10 | 0.5163 | 0.0555 |
| T9 | 40 - 20 | 3.889 | 10 | 0.4941 | 0.0405 |
| T10 | 20 - 5 | 2.052 | 10 | 0.4748 | 0.0480 |
| T11 | 5 - 0 | 0.524 | 10 | 0.4952 | 0.0211 |

Critical Deflections and Radius of Curvature - Design Wind

| <i>Elevation ft</i> | <i>Appurtenance</i> | <i>Gov. Load Comb.</i> | <i>Deflection in</i> | <i>Tilt °</i> | <i>Twist °</i> | <i>Radius of Curvature ft</i> |
|---------------------|-----------------------------------------------|------------------------|----------------------|---------------|----------------|-------------------------------|
| 192.70 | SBNH-1D6565B | 10 | 6.622 | 0.1519 | 0.1369 | 23263 |
| 192.00 | 10' Boom Gate w/3 - 2 3/8" Pipe (Tapered) (3) | 10 | 6.642 | 0.1522 | 0.1355 | 23263 |
| 188.00 | 20' Omni | 10 | 6.756 | 0.1550 | 0.1276 | 23263 |
| 187.45 | SBNH-1D6565B | 10 | 6.772 | 0.1557 | 0.1265 | 20957 |

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| Elevation | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------|------------------------------------------------|-----------------|---------------|--------|---------|------------------------|
| 182.20 | SBNH-1D6565B | 10 | 6.937 | 0.1698 | 0.1161 | 10893 |
| 181.00 | 2.5" Dia 7' Omni | 10 | 6.979 | 0.1755 | 0.1136 | 9988 |
| 180.00 | 7770 | 10 | 7.015 | 0.1811 | 0.1116 | 9451 |
| 179.00 | 10' Boom Gate w/3 - 2 3/8" Pipe (Tapered) (3) | 10 | 7.052 | 0.1876 | 0.1095 | 9077 |
| 177.08 | Guy | 10 | 7.127 | 0.2021 | 0.1056 | 8653 |
| 176.95 | SBNH-1D6565B | 10 | 7.132 | 0.2031 | 0.1053 | 8633 |
| 171.70 | SBNH-1D6565B | 10 | 7.364 | 0.2511 | 0.0956 | 8078 |
| 168.00 | 14' T Arm round | 10 | 7.551 | 0.2855 | 0.0911 | 7742 |
| 166.45 | SBNH-1D6565B | 10 | 7.636 | 0.2984 | 0.0894 | 7610 |
| 162.58 | Guy | 10 | 7.863 | 0.3237 | 0.0857 | 7303 |
| 161.20 | SBNH-1D6565B | 10 | 7.950 | 0.3294 | 0.0850 | 7467 |
| 155.95 | SBNH-1D6565B | 10 | 8.306 | 0.3305 | 0.0877 | 15254 |
| 154.50 | 7' Whip | 10 | 8.408 | 0.3255 | 0.0886 | 26609 |
| 154.25 | 7' Whip | 10 | 8.426 | 0.3244 | 0.0887 | 30547 |
| 154.00 | 7' Whip | 10 | 8.444 | 0.3233 | 0.0889 | 35853 |
| 151.00 | 10' Boom Gate w/3 2 - 3/8" Pipe (Vertical) (3) | 10 | 8.656 | 0.3060 | 0.0908 | 15775 |
| 150.70 | SBNH-1D6565B | 10 | 8.677 | 0.3039 | 0.0910 | 14278 |
| 145.45 | SBNH-1D6565B | 10 | 9.026 | 0.2600 | 0.0938 | 5366 |
| 140.20 | SBNH-1D6565B | 10 | 9.314 | 0.2089 | 0.0953 | 3538 |
| 134.95 | SBNH-1D6565B | 10 | 9.509 | 0.1602 | 0.0947 | 3548 |
| 129.70 | SBNH-1D6565B | 10 | 9.611 | 0.1195 | 0.0923 | 3913 |
| 124.00 | 10' dipole | 10 | 9.627 | 0.1163 | 0.0885 | 4406 |
| 119.50 | Pirod 4' Side Mount Standoff (1) | 10 | 9.577 | 0.1326 | 0.0851 | 5065 |
| 117.00 | 20' Omni | 10 | 9.528 | 0.1367 | 0.0832 | 5797 |
| 113.00 | 6' Yagi | 10 | 9.423 | 0.1373 | 0.0803 | 7849 |
| 108.00 | Pirod 4' Side Mount Standoff (1) | 10 | 9.258 | 0.1321 | 0.0768 | 14099 |
| 102.58 | Guy | 10 | 9.056 | 0.1541 | 0.0735 | 12537 |
| 42.58 | Guy | 10 | 4.161 | 0.5017 | 0.0407 | 5949 |

Bolt Design Data

| 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 |
|-------------|--------------|----------------|------------|--------------|-----------------|-------------------------|------------------|----------------------|-----------------|--------------|
| T1 | 193 | Leg | A325N | 0.7500 | 4 | 2.64 | 29.82 | 0.089 ✓ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.6250 | 2 | 1.16 | 12.43 | 0.093 ✓ | 1 | Bolt Shear |
| | | Top Girt | A325N | 0.6250 | 2 | 0.15 | 12.43 | 0.012 ✓ | 1 | Bolt Shear |
| | | Bottom Girt | A325N | 0.6250 | 2 | 0.29 | 12.43 | 0.023 ✓ | 1 | Bolt Shear |
| T2 | 180 | Leg | A325N | 0.7500 | 4 | 3.36 | 29.82 | 0.113 ✓ | 1 | Bolt Tension |
| | | Diagonal | A325N | 0.6250 | 2 | 3.56 | 12.43 | 0.287 ✓ | 1 | Bolt Shear |
| | | Top Girt | A325N | 0.6250 | 2 | 1.28 | 12.43 | 0.103 ✓ | 1 | Bolt Shear |
| | | Bottom Girt | A325N | 0.6250 | 2 | 2.58 | 12.43 | 0.208 ✓ | 1 | Bolt Shear |
| T3 | 160 | Leg | A325N | 0.7500 | 4 | 4.26 | 29.82 | 0.143 ✓ | 1 | Bolt Tension |
| | | Diagonal | A325X | 0.6250 | 1 | 5.65 | 15.19 | 0.372 ✓ | 1 | Bolt Shear |
| | | Top Girt | A325N | 0.5000 | 1 | 0.72 | 7.95 | 0.090 ✓ | 1 | Bolt Shear |
| | | Bottom Girt | A325N | 0.5000 | 1 | 0.91 | 7.95 | 0.115 ✓ | 1 | Bolt Shear |
| T4 | 140 | Leg | A325N | 0.7500 | 4 | 4.32 | 29.82 | 0.145 ✓ | 1 | Bolt Tension |

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| 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 | |
|-------------|-----------------|----------------|------------|-----------------|-----------------|----------------------------|---------------------|-------------------------|-----------------|----------|----------------|
| T5 | 120 | Diagonal | A325N | 0.6250 | 1 | 1.87 | 12.43 | 0.150 | ✓ | 1 | Bolt Shear |
| | | Top Girt | A325N | 0.5000 | 1 | 1.01 | 7.95 | 0.127 | ✓ | 1 | Bolt Shear |
| | | Bottom Girt | A325N | 0.5000 | 1 | 0.91 | 7.95 | 0.114 | ✓ | 1 | Bolt Shear |
| | | Leg | A325N | 0.7500 | 4 | 5.22 | 29.82 | 0.175 | ✓ | 1 | Bolt Tension |
| T6 | 100 | Diagonal | A325N | 0.6250 | 2 | 3.12 | 12.43 | 0.251 | ✓ | 1 | Bolt Shear |
| | | Top Girt | A325N | 0.6250 | 2 | 0.54 | 12.43 | 0.044 | ✓ | 1 | Bolt Shear |
| | | Bottom Girt | A325N | 0.6250 | 2 | 1.90 | 12.43 | 0.153 | ✓ | 1 | Bolt Shear |
| | | Leg | A325N | 0.7500 | 4 | 5.78 | 29.82 | 0.194 | ✓ | 1 | Bolt Tension |
| T7 | 80 | Diagonal | A490X | 0.5000 | 1 | 2.16 | 4.17 | 0.518 | ✓ | 1 | Member Bearing |
| | | Top Girt | A325N | 0.5000 | 1 | 0.83 | 4.17 | 0.200 | ✓ | 1 | Member Bearing |
| | | Bottom Girt | A325N | 0.5000 | 1 | 0.55 | 4.17 | 0.132 | ✓ | 1 | Member Bearing |
| | | Leg | A325N | 0.7500 | 4 | 5.96 | 29.82 | 0.200 | ✓ | 1 | Bolt Tension |
| T8 | 60 | Diagonal | A325X | 0.6250 | 1 | 1.82 | 7.83 | 0.233 | ✓ | 1 | Member Bearing |
| | | Top Girt | A325N | 0.5000 | 1 | 1.05 | 7.95 | 0.132 | ✓ | 1 | Bolt Shear |
| | | Bottom Girt | A325N | 0.5000 | 1 | 1.04 | 7.95 | 0.131 | ✓ | 1 | Bolt Shear |
| | | Leg | A325N | 0.7500 | 4 | 6.72 | 29.82 | 0.225 | ✓ | 1 | Bolt Tension |
| T9 | 40 | Diagonal | A325X | 0.5000 | 1 | 4.70 | 8.62 | 0.546 | ✓ | 1 | Member Bearing |
| | | Top Girt | A325N | 0.5000 | 1 | 1.12 | 7.95 | 0.141 | ✓ | 1 | Bolt Shear |
| | | Bottom Girt | A325N | 0.5000 | 1 | 1.90 | 7.95 | 0.239 | ✓ | 1 | Bolt Shear |
| | | Leg | A325N | 0.7500 | 4 | 6.86 | 29.82 | 0.230 | ✓ | 1 | Bolt Tension |
| T10 | 20 | Diagonal | A490X | 0.6250 | 1 | 3.27 | 5.26 | 0.621 | ✓ | 1 | Member Bearing |
| | | Top Girt | A325N | 0.5000 | 1 | 1.41 | 4.17 | 0.338 | ✓ | 1 | Member Bearing |
| | | Bottom Girt | A325N | 0.5000 | 1 | 0.31 | 4.17 | 0.076 | ✓ | 1 | Member Bearing |
| | | Leg | A325N | 0.7500 | 4 | 7.00 | 29.82 | 0.235 | ✓ | 1 | Bolt Tension |
| T11 | 5 | Diagonal | A490X | 0.5000 | 1 | 1.21 | 8.62 | 0.141 | ✓ | 1 | Member Bearing |
| | | Top Girt | A325N | 0.5000 | 1 | 0.39 | 7.95 | 0.049 | ✓ | 1 | Bolt Shear |
| | | Bottom Girt | A490X | 0.5000 | 1 | 8.51 | 8.62 | 0.987 | ✓ | 1 | Member Bearing |
| | | Leg | A325N | 0.7500 | 4 | 7.50 | 29.82 | 0.252 | ✓ | 1 | Bolt Tension |

Guy Design Data

| Section No. | Elevation ft | Size | Initial Tension K | Breaking Load K | Actual T_u K | Allowable ϕT_n K | Required S.F. | Actual S.F. |
|-------------|---------------------|---------|----------------------|--------------------|-------------------|---------------------------|---------------|-------------|
| T2 | 162.58 (A) (594) | 7/8 EHS | 7.97 | 79.70 | 17.41 | 47.82 | 1.000 | 2.747 ✓ |
| | 162.58 (A) (595) | 7/8 EHS | 7.97 | 79.70 | 17.43 | 47.82 | 1.000 | 2.744 ✓ |
| | 162.58 (B) (590) | 7/8 EHS | 7.97 | 79.70 | 17.66 | 47.82 | 1.000 | 2.708 ✓ |

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| Section No. | Elevation ft | Size | Initial Tension K | Breaking Load K | Actual T_u K | Allowable ϕT_n K | Required S.F. | Actual S.F. |
|-------------|------------------|---------|----------------------|--------------------|-------------------|---------------------------|---------------|-------------|
| | 162.58 (B) (591) | 7/8 EHS | 7.97 | 79.70 | 17.45 | 47.82 | 1.000 | 2.740 ✓ |
| | 162.58 (C) (586) | 7/8 EHS | 7.97 | 79.70 | 17.30 | 47.82 | 1.000 | 2.764 ✓ |
| | 162.58 (C) (587) | 7/8 EHS | 7.97 | 79.70 | 17.51 | 47.82 | 1.000 | 2.731 ✓ |
| | 177.08 (A) (630) | 5/8 EHS | 4.24 | 42.40 | 9.01 | 25.44 | 1.000 | 2.825 ✓ |
| | 177.08 (A) (631) | 5/8 EHS | 4.24 | 42.40 | 9.04 | 25.44 | 1.000 | 2.813 ✓ |
| | 177.08 (B) (626) | 5/8 EHS | 4.24 | 42.40 | 9.06 | 25.44 | 1.000 | 2.808 ✓ |
| | 177.08 (B) (627) | 5/8 EHS | 4.24 | 42.40 | 8.92 | 25.44 | 1.000 | 2.853 ✓ |
| | 177.08 (C) (622) | 5/8 EHS | 4.24 | 42.40 | 8.96 | 25.44 | 1.000 | 2.840 ✓ |
| | 177.08 (C) (623) | 5/8 EHS | 4.24 | 42.40 | 9.07 | 25.44 | 1.000 | 2.806 ✓ |
| T5 | 102.58 (A) (606) | 5/8 EHS | 4.24 | 42.40 | 13.97 | 25.44 | 1.000 | 1.822 ✓ |
| | 102.58 (A) (607) | 5/8 EHS | 4.24 | 42.40 | 13.83 | 25.44 | 1.000 | 1.839 ✓ |
| | 102.58 (B) (602) | 5/8 EHS | 4.24 | 42.40 | 14.26 | 25.44 | 1.000 | 1.784 ✓ |
| | 102.58 (B) (603) | 5/8 EHS | 4.24 | 42.40 | 14.19 | 25.44 | 1.000 | 1.793 ✓ |
| | 102.58 (C) (598) | 5/8 EHS | 4.24 | 42.40 | 13.81 | 25.44 | 1.000 | 1.843 ✓ |
| | 102.58 (C) (599) | 5/8 EHS | 4.24 | 42.40 | 14.00 | 25.44 | 1.000 | 1.818 ✓ |
| T8 | 42.58 (A) (618) | 1/2 EHS | 2.69 | 26.90 | 8.35 | 16.14 | 1.000 | 1.934 ✓ |
| | 42.58 (A) (619) | 1/2 EHS | 2.69 | 26.90 | 8.30 | 16.14 | 1.000 | 1.944 ✓ |
| | 42.58 (B) (614) | 1/2 EHS | 2.69 | 26.90 | 8.53 | 16.14 | 1.000 | 1.892 ✓ |
| | 42.58 (B) (615) | 1/2 EHS | 2.69 | 26.90 | 8.47 | 16.14 | 1.000 | 1.907 ✓ |
| | 42.58 (C) (610) | 1/2 EHS | 2.69 | 26.90 | 8.22 | 16.14 | 1.000 | 1.964 ✓ |
| | 42.58 (C) (611) | 1/2 EHS | 2.69 | 26.90 | 8.28 | 16.14 | 1.000 | 1.948 ✓ |

Compression Checks

Leg Design Data (Compression)

| Section No. | Elevation ft | Size | L ft | L_u ft | Kl/r | A in ² | P_u K | ϕP_n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|-------------|---------|-------------|----------------|----------------------|------------|-----------------|------------------------------|
| T1 | 193 - 180 | ROHN 2.5 EH | 13.00 | 0.42 | 5.4 K=1.00 | 2.2535 | -13.34 | 101.19 | 0.132 ¹ ✓ |
| T2 | 180 - 160 | ROHN 2.5 EH | 20.00 | 1.21 | 15.7 K=1.00 | 2.2535 | -43.43 | 99.60 | 0.436 ¹ ✓ |

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| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|-------------|---------|----------------------|----------------|----------------------|---------------------|----------------------|---------------------------------|
| T3 | 160 - 140 | ROHN 2.5 EH | 20.00 | 0.17 | 2.2 K=1.00 | 2.2535 | -51.09 | 101.38 | 0.504 ¹ ✓ |
| T4 | 140 - 120 | ROHN 2.5 EH | 20.00 | 2.42 | 31.4 K=1.00 | 2.2535 | -53.25 | 94.36 | 0.564 ¹ ✓ |
| T5 | 120 - 100 | ROHN 3 EH | 20.00 | 0.17 | 1.8 K=1.00 | 3.0159 | -62.61 | 135.69 | 0.461 ¹ ✓ |
| T6 | 100 - 80 | ROHN 3 EH | 20.00 | 2.42 | 25.5 K=1.00 | 3.0159 | -68.61 | 129.41 | 0.530 ¹ ✓ |
| T7 | 80 - 60 | ROHN 3 EH | 20.00 | 2.42 | 25.5 K=1.00 | 3.0159 | -72.18 | 129.41 | 0.558 ¹ ✓ |
| T8 | 60 - 40 | ROHN 3 EH | 20.00 | 2.42 | 25.5 K=1.00 | 3.0159 | -79.96 | 129.41 | 0.618 ¹ ✓ |
| T9 | 40 - 20 | ROHN 3 EH | 20.00 | 2.42 | 51.0 K=2.00 | 3.0159 | -81.98 | 112.18 | 0.731 ¹ ✓ |
| T10 | 20 - 5 | ROHN 3 EH | 15.00 | 2.42 | 51.0 K=2.00 | 3.0159 | -84.31 | 112.18 | 0.752 ¹ ✓ |
| T11 | 5 - 0 | ROHN 3 EH | 5.38 | 1.25 | 13.2 K=1.00 | 3.0159 | -91.18 | 133.99 | 0.681 ¹ ✓ |

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|-------------------|---------|----------------------|----------------|----------------------|---------------------|----------------------|---------------------------------|
| T1 | 193 - 180 | L2x2x1/4 | 4.19 | 1.75 | 70.3 K=1.31 | 0.9380 | -2.32 | 23.44 | 0.099 ¹ ✓ |
| T2 | 180 - 160 | L2x2x1/4 | 4.19 | 1.75 | 70.3 K=1.31 | 0.9380 | -7.13 | 23.44 | 0.304 ¹ ✓ |
| T3 | 160 - 140 | L2x2x1/4 | 4.19 | 1.83 | 72.1 K=1.28 | 0.9380 | -5.65 | 23.12 | 0.244 ¹ ✓ |
| T4 | 140 - 120 | ROHN TS1.5x11 ga | 4.19 | 3.89 | 95.4 K=1.00 | 0.5202 | -1.87 | 11.24 | 0.166 ¹ ✓ |
| T5 | 120 - 100 | L2x2x1/4 | 4.19 | 1.72 | 69.5 K=1.32 | 0.9380 | -6.24 | 23.56 | 0.265 ¹ ✓ |
| T6 | 100 - 80 | ROHN TS1.5x16 ga | 4.19 | 3.83 | 90.1 K=1.00 | 0.2627 | -2.66 | 6.03 | 0.441 ¹ ✓ |
| T7 | 80 - 60 | L1 3/4x1 3/4x3/16 | 4.19 | 1.80 | 77.1 K=1.23 | 0.6211 | -2.75 | 14.72 | 0.187 ¹ ✓ |
| T8 | 60 - 40 | ROHN TS1.5x11 ga | 4.19 | 3.83 | 93.9 K=1.00 | 0.5202 | -4.73 | 11.45 | 0.413 ¹ ✓ |
| T9 | 40 - 20 | ROHN TS1.5x16 ga | 4.19 | 3.83 | 90.1 K=1.00 | 0.2627 | -3.70 | 6.03 | 0.613 ¹ ✓ |
| T10 | 20 - 5 | ROHN TS1.5x11 ga | 4.19 | 3.83 | 93.9 K=1.00 | 0.5202 | -0.99 | 11.45 | 0.086 ¹ ✓ |

¹ P_u / φP_n controls

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Horizontal Design Data (Compression)

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|----------|---------|----------------------|----------------|----------------------|---------------------|----------------------|---------------------------------|
| T11 | 5 - 0 | L4x4x1/4 | 2.39 | 2.10 | 75.9 K=2.39 | 1.9400 | -1.43 | 45.32 | 0.032 ¹ |

¹ P_u / φP_n controls

Secondary Horizontal Design Data (Compression)

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|----------|---------|----------------------|----------------|----------------------|---------------------|----------------------|---------------------------------|
| T2 | 180 - 160 | L2x2x1/4 | 3.42 | 3.18 | 91.3 K=1.46 | 0.9380 | -2.93 | 19.59 | 0.149 ¹ |
| T3 | 160 - 140 | L2x2x1/4 | 3.42 | 3.18 | 91.3 K=1.46 | 0.9380 | -0.53 | 19.59 | 0.027 ¹ |
| T5 | 120 - 100 | L2x2x1/4 | 3.42 | 3.13 | 90.8 K=1.47 | 0.9380 | -1.66 | 19.69 | 0.084 ¹ |

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|------------------|---------|----------------------|-----------------|----------------------|---------------------|----------------------|---------------------------------|
| T1 | 193 - 180 | L2x2x1/4 | 3.42 | 2.78 | 102.7 K=1.20 | 0.9380 | -0.30 | 17.44 | 0.017 ¹ |
| T2 | 180 - 160 | L2x2x1/4 | 3.42 | 2.78 | 102.7 K=1.20 | 0.9380 | -2.55 | 17.44 | 0.146 ¹ |
| T5 | 120 - 100 | L2x2x1/4 | 3.42 | 2.73 | 101.9 K=1.22 | 0.9380 | -0.11 | 17.59 | 0.006 ¹ |
| T9 | 40 - 20 | ROHN TS1.5x16 ga | 3.42 | 3.13 | 73.6 K=1.00 | 0.2627 | -1.07 | 7.12 | 0.150 ¹ |

¹ P_u / φP_n controls

Bottom Girt Design Data (Compression)

| | | |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|---------------------------------------------|
| <p>tnxTower</p> <p>Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120</p> | <p>Job</p> <p>18946024A</p> | <p>Page</p> <p>46 of 55</p> |
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| | <p>Client</p> <p>AT&T</p> | <p>Designed by</p> |

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|------------------|---------|----------------------|-----------------|----------------------|---------------------|----------------------|---------------------------------|
| T1 | 193 - 180 | L2x2x1/4 | 3.42 | 2.78 | 102.7 K=1.20 | 0.9380 | -0.50 | 17.44 | 0.029 ¹ ✓ |
| T2 | 180 - 160 | L2x2x1/4 | 3.42 | 2.78 | 102.7 K=1.20 | 0.9380 | -3.20 | 17.44 | 0.184 ¹ ✓ |
| T3 | 160 - 140 | ROHN TS1.5x11 ga | 3.42 | 3.18 | 77.9 K=1.00 | 0.5202 | -0.02 | 13.54 | 0.001 ¹ ✓ |
| T5 | 120 - 100 | L2x2x1/4 | 3.42 | 2.73 | 101.9 K=1.22 | 0.9380 | -2.12 | 17.59 | 0.120 ¹ ✓ |
| T8 | 60 - 40 | ROHN TS1.5x11 ga | 3.42 | 3.13 | 76.7 K=1.00 | 0.5202 | -0.82 | 13.71 | 0.060 ¹ ✓ |
| T9 | 40 - 20 | ROHN TS1.5x16 ga | 3.42 | 3.13 | 73.6 K=1.00 | 0.2627 | -0.05 | 7.12 | 0.007 ¹ ✓ |

¹ P_u / φP_n controls

Torque-Arm Top Design Data

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|--------|---------|----------------------|----------------|----------------------|---------------------|----------------------|---------------------------------|
| T2 | 180 - 160 (588) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -4.13 | 419.50 | 0.010 |
| T2 | 180 - 160 (589) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -4.26 | 419.50 | 0.010 |
| T2 | 180 - 160 (592) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -4.36 | 419.50 | 0.010 |
| T2 | 180 - 160 (593) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -4.29 | 419.50 | 0.010 |
| T2 | 180 - 160 (596) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -4.14 | 419.50 | 0.010 |
| T2 | 180 - 160 (597) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -4.20 | 419.50 | 0.010 |
| T2 | 180 - 160 (624) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -1.35 | 419.50 | 0.003 |
| T2 | 180 - 160 (625) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -1.42 | 419.50 | 0.003 |
| T2 | 180 - 160 (628) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -1.43 | 419.50 | 0.003 |
| T2 | 180 - 160 (629) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -1.41 | 419.50 | 0.003 |
| T2 | 180 - 160 (632) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -1.30 | 419.50 | 0.003 |
| T2 | 180 - 160 (633) | C15x50 | 3.67 | 3.55 | 49.1 K=1.00 | 14.7000 | -1.36 | 419.50 | 0.003 |
| T5 | 120 - 100 (600) | C15x40 | 3.67 | 3.52 | 47.7 K=1.00 | 11.8000 | -1.08 | 339.16 | 0.003 |
| T5 | 120 - 100 (601) | C15x40 | 3.67 | 3.52 | 47.7 K=1.00 | 11.8000 | -4.89 | 339.16 | 0.014 |
| T5 | 120 - 100 (604) | C15x40 | 3.67 | 3.52 | 47.7 K=1.00 | 11.8000 | -5.84 | 339.16 | 0.017 |
| T5 | 120 - 100 (605) | C15x40 | 3.67 | 3.52 | 47.7 K=1.00 | 11.8000 | -5.86 | 339.16 | 0.017 |
| T5 | 120 - 100 (608) | C15x40 | 3.67 | 3.52 | 47.7 K=1.00 | 11.8000 | -1.09 | 339.16 | 0.003 |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|--------|---------|----------------------|----------------|----------------------|---------------------|----------------------|---------------------------------|
| T5 | 120 - 100 (609) | C15x40 | 3.67 | 3.52 | 47.7 K=1.00 | 11.8000 | -4.95 | 339.16 | 0.015 |
| T8 | 60 - 40 (612) | C12x25 | 3.67 | 3.52 | 54.2 K=1.00 | 7.3500 | -0.16 | 204.04 | 0.001 |
| T8 | 60 - 40 (613) | C12x25 | 3.67 | 3.52 | 54.2 K=1.00 | 7.3500 | -4.87 | 204.04 | 0.024 |
| T8 | 60 - 40 (616) | C12x25 | 3.67 | 3.52 | 54.2 K=1.00 | 7.3500 | -4.97 | 204.04 | 0.024 |
| T8 | 60 - 40 (617) | C12x25 | 3.67 | 3.52 | 54.2 K=1.00 | 7.3500 | -4.92 | 204.04 | 0.024 |
| T8 | 60 - 40 (620) | C12x25 | 3.67 | 3.52 | 54.2 K=1.00 | 7.3500 | -0.17 | 204.04 | 0.001 |
| T8 | 60 - 40 (621) | C12x25 | 3.67 | 3.52 | 54.2 K=1.00 | 7.3500 | -0.30 | 204.04 | 0.001 |

Torque-Arm Top Bending Design Data

| Section No. | Elevation ft | Size | M _{ux} kip-ft | φM _{ux} kip-ft | Ratio $\frac{M_{ux}}{\phi M_{ux}}$ | M _{uy} kip-ft | φM _{uy} kip-ft | Ratio $\frac{M_{uy}}{\phi M_{uy}}$ |
|-------------|-----------------|--------|---------------------------|----------------------------|---------------------------------------|---------------------------|----------------------------|---------------------------------------|
| T2 | 180 - 160 (588) | C15x50 | -47.25 | 145.26 | 0.325 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (589) | C15x50 | -47.30 | 145.26 | 0.326 | -0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (592) | C15x50 | -47.86 | 145.26 | 0.329 | -0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (593) | C15x50 | -47.30 | 145.26 | 0.326 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (596) | C15x50 | -47.88 | 145.26 | 0.330 | -0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (597) | C15x50 | -47.37 | 145.26 | 0.326 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (624) | C15x50 | -25.76 | 145.26 | 0.177 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (625) | C15x50 | -25.77 | 145.26 | 0.177 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (628) | C15x50 | -25.80 | 145.26 | 0.178 | -0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (629) | C15x50 | -25.79 | 145.26 | 0.178 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (632) | C15x50 | -25.85 | 145.26 | 0.178 | -0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (633) | C15x50 | -25.85 | 145.26 | 0.178 | 0.00 | 22.06 | 0.000 |
| T5 | 120 - 100 (600) | C15x40 | -36.27 | 125.55 | 0.289 | -0.00 | 18.55 | 0.000 |
| T5 | 120 - 100 (601) | C15x40 | -35.78 | 125.55 | 0.285 | -0.00 | 18.55 | 0.000 |
| T5 | 120 - 100 (604) | C15x40 | -36.82 | 125.55 | 0.293 | -0.00 | 18.55 | 0.000 |
| T5 | 120 - 100 (605) | C15x40 | -35.47 | 125.55 | 0.282 | 0.00 | 18.55 | 0.000 |
| T5 | 120 - 100 (608) | C15x40 | -37.61 | 125.55 | 0.300 | 0.00 | 18.55 | 0.000 |
| T5 | 120 - 100 (609) | C15x40 | -35.78 | 125.55 | 0.285 | 0.00 | 18.55 | 0.000 |
| T8 | 60 - 40 (612) | C12x25 | -12.66 | 65.07 | 0.195 | -0.00 | 10.37 | 0.000 |
| T8 | 60 - 40 (613) | C12x25 | -11.91 | 65.07 | 0.183 | -0.00 | 10.37 | 0.000 |
| T8 | 60 - 40 (616) | C12x25 | -13.46 | 65.07 | 0.207 | 0.00 | 10.37 | 0.000 |
| T8 | 60 - 40 (617) | C12x25 | -11.82 | 65.07 | 0.182 | -0.00 | 10.37 | 0.000 |
| T8 | 60 - 40 (620) | C12x25 | -14.14 | 65.07 | 0.217 | 0.00 | 10.37 | 0.000 |
| T8 | 60 - 40 (621) | C12x25 | -12.78 | 65.07 | 0.196 | 0.00 | 10.37 | 0.000 |

Torque-Arm Top Interaction Design Data

| Section No. | Elevation ft | Size | Ratio $\frac{P_u}{\phi P_n}$ | Ratio $\frac{M_{ux}}{\phi M_{ux}}$ | Ratio $\frac{M_{uy}}{\phi M_{uy}}$ | Comb. Stress Ratio | Allow. Stress Ratio | Criteria |
|-------------|-----------------|--------|---------------------------------|---------------------------------------|---------------------------------------|--------------------------|---------------------------|----------|
| T2 | 180 - 160 (588) | C15x50 | 0.010 | 0.325 | 0.000 | 0.330 | 1.000 | 4.8.1 ✓ |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| Section No. | Elevation ft | Size | Ratio | Ratio | Ratio | Comb. Stress Ratio | Allow. Stress Ratio | Criteria |
|-------------|-----------------|--------|------------------------|------------------------------|------------------------------|--------------------|---------------------|----------|
| | | | $\frac{P_u}{\phi P_n}$ | $\frac{M_{ux}}{\phi M_{nx}}$ | $\frac{M_{uy}}{\phi M_{ny}}$ | | | |
| T2 | 180 - 160 (589) | C15x50 | 0.010 | 0.326 | 0.000 | 0.331 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (592) | C15x50 | 0.010 | 0.329 | 0.000 | 0.335 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (593) | C15x50 | 0.010 | 0.326 | 0.000 | 0.331 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (596) | C15x50 | 0.010 | 0.330 | 0.000 | 0.335 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (597) | C15x50 | 0.010 | 0.326 | 0.000 | 0.331 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (624) | C15x50 | 0.003 | 0.177 | 0.000 | 0.179 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (625) | C15x50 | 0.003 | 0.177 | 0.000 | 0.179 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (628) | C15x50 | 0.003 | 0.178 | 0.000 | 0.179 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (629) | C15x50 | 0.003 | 0.178 | 0.000 | 0.179 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (632) | C15x50 | 0.003 | 0.178 | 0.000 | 0.179 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (633) | C15x50 | 0.003 | 0.178 | 0.000 | 0.180 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (600) | C15x40 | 0.003 | 0.289 | 0.000 | 0.290 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (601) | C15x40 | 0.014 | 0.285 | 0.000 | 0.292 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (604) | C15x40 | 0.017 | 0.293 | 0.000 | 0.302 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (605) | C15x40 | 0.017 | 0.282 | 0.000 | 0.291 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (608) | C15x40 | 0.003 | 0.300 | 0.000 | 0.301 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (609) | C15x40 | 0.015 | 0.285 | 0.000 | 0.292 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (612) | C12x25 | 0.001 | 0.195 | 0.000 | 0.195 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (613) | C12x25 | 0.024 | 0.183 | 0.000 | 0.195 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (616) | C12x25 | 0.024 | 0.207 | 0.000 | 0.219 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (617) | C12x25 | 0.024 | 0.182 | 0.000 | 0.194 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (620) | C12x25 | 0.001 | 0.217 | 0.000 | 0.218 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (621) | C12x25 | 0.001 | 0.196 | 0.000 | 0.197 | 1.000 | 4.8.1 ✓ |

Tension Checks

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 49 of 55 |
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Leg Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|-------------|---------|----------------------|------|----------------------|---------------------|----------------------|---------------------------------|
| T1 | 193 - 180 | ROHN 2.5 EH | 13.00 | 0.42 | 5.4 | 2.2535 | 10.58 | 101.41 | 0.104 ¹ |
| T2 | 180 - 160 | ROHN 2.5 EH | 20.00 | 1.21 | 15.7 | 2.2535 | 17.09 | 101.41 | 0.169 ¹ |
| T3 | 160 - 140 | ROHN 2.5 EH | 20.00 | 0.17 | 2.2 | 2.2535 | 0.10 | 101.41 | 0.001 ¹ |
| T4 | 140 - 120 | ROHN 2.5 EH | 20.00 | 2.42 | 31.4 | 2.2535 | 3.83 | 101.41 | 0.038 ¹ |

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|-------------------|---------|----------------------|------|----------------------|---------------------|----------------------|---------------------------------|
| T1 | 193 - 180 | L2x2x1/4 | 4.19 | 1.75 | 38.4 | 0.5629 | 2.21 | 24.49 | 0.090 ¹ |
| T2 | 180 - 160 | L2x2x1/4 | 4.19 | 1.75 | 38.4 | 0.5629 | 5.55 | 24.49 | 0.226 ¹ |
| T3 | 160 - 140 | L2x2x1/4 | 4.19 | 1.83 | 38.4 | 0.5629 | 3.82 | 24.49 | 0.156 ¹ |
| T4 | 140 - 120 | ROHN TS1.5x11 ga | 4.19 | 3.89 | 95.4 | 0.5202 | 1.38 | 19.67 | 0.070 ¹ |
| T5 | 120 - 100 | L2x2x1/4 | 4.19 | 1.72 | 37.7 | 0.5629 | 3.59 | 24.49 | 0.147 ¹ |
| T6 | 100 - 80 | ROHN TS1.5x16 ga | 4.19 | 3.83 | 90.1 | 0.2627 | 2.16 | 9.93 | 0.217 ¹ |
| T7 | 80 - 60 | L1 3/4x1 3/4x3/16 | 4.19 | 1.80 | 42.8 | 0.3604 | 1.82 | 15.68 | 0.116 ¹ |
| T8 | 60 - 40 | ROHN TS1.5x11 ga | 4.19 | 3.83 | 93.9 | 0.5202 | 4.70 | 19.67 | 0.239 ¹ |
| T9 | 40 - 20 | ROHN TS1.5x16 ga | 4.19 | 3.83 | 90.1 | 0.2627 | 3.27 | 9.93 | 0.329 ¹ |
| T10 | 20 - 5 | ROHN TS1.5x11 ga | 4.19 | 3.83 | 93.9 | 0.5202 | 1.21 | 19.67 | 0.062 ¹ |

¹ P_u / φP_n controls

Horizontal Design Data (Tension)

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

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|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|----------|---------|----------------------|------|----------------------|---------------------|----------------------|---------------------------------|
| T11 | 5 - 0 | L4x4x1/4 | 1.60 | 1.30 | 12.5 | 1.9400 | 0.12 | 62.86 | 0.002 ¹ ✓ |

¹ P_u / φP_n controls

Secondary Horizontal Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|----------|---------|----------------------|------|----------------------|---------------------|----------------------|---------------------------------|
| T2 | 180 - 160 | L2x2x1/4 | 3.42 | 3.18 | 62.7 | 0.9380 | 3.62 | 30.39 | 0.119 ¹ ✓ |
| T3 | 160 - 140 | L2x2x1/4 | 3.42 | 3.18 | 62.7 | 0.9380 | 1.85 | 30.39 | 0.061 ¹ ✓ |
| T5 | 120 - 100 | L2x2x1/4 | 3.42 | 3.13 | 61.6 | 0.9380 | 4.70 | 30.39 | 0.155 ¹ ✓ |

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|------------------|---------|----------------------|------|----------------------|---------------------|----------------------|---------------------------------|
| T1 | 193 - 180 | L2x2x1/4 | 3.42 | 2.78 | 62.7 | 0.5629 | 0.31 | 24.49 | 0.013 ¹ ✓ |
| T2 | 180 - 160 | L2x2x1/4 | 3.42 | 2.78 | 62.7 | 0.5629 | 2.30 | 24.49 | 0.094 ¹ ✓ |
| T3 | 160 - 140 | ROHN TS1.5x11 ga | 3.42 | 3.18 | 77.9 | 0.5202 | 0.72 | 19.67 | 0.036 ¹ ✓ |
| T4 | 140 - 120 | ROHN TS1.5x11 ga | 3.42 | 3.18 | 77.9 | 0.5202 | 1.01 | 19.67 | 0.052 ¹ ✓ |
| T5 | 120 - 100 | L2x2x1/4 | 3.42 | 2.73 | 61.6 | 0.5629 | 1.08 | 24.49 | 0.044 ¹ ✓ |
| T6 | 100 - 80 | ROHN TS1.5x16 ga | 3.42 | 3.13 | 73.6 | 0.2627 | 0.83 | 9.93 | 0.084 ¹ ✓ |
| T7 | 80 - 60 | ROHN TS1.5x11 ga | 3.42 | 3.13 | 76.7 | 0.5202 | 1.05 | 19.67 | 0.054 ¹ ✓ |
| T8 | 60 - 40 | ROHN TS1.5x11 ga | 3.42 | 3.13 | 76.7 | 0.5202 | 1.12 | 19.67 | 0.057 ¹ ✓ |
| T9 | 40 - 20 | ROHN TS1.5x16 ga | 3.42 | 3.13 | 73.6 | 0.2627 | 1.41 | 9.93 | 0.142 ¹ ✓ |
| T10 | 20 - 5 | ROHN TS1.5x11 ga | 3.42 | 3.13 | 76.7 | 0.5202 | 0.39 | 19.67 | 0.020 ¹ ✓ |
| T11 | 5 - 0 | L4x4x1/4 | 3.19 | 2.90 | 27.8 | 1.9400 | 11.29 | 62.86 | 0.180 ¹ ✓ |

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|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
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| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

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

¹ P_u / φP_n controls

Bottom Girt Design Data (Tension)

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|------------------|---------|----------------------|------|----------------------|---------------------|----------------------|---------------------------------|
| T1 | 193 - 180 | L2x2x1/4 | 3.42 | 2.78 | 62.7 | 0.5629 | 0.58 | 24.49 | 0.024 ¹ |
| T2 | 180 - 160 | L2x2x1/4 | 3.42 | 2.78 | 62.7 | 0.5629 | 5.17 | 24.49 | 0.211 ¹ |
| T3 | 160 - 140 | ROHN TS1.5x11 ga | 3.42 | 3.18 | 77.9 | 0.5202 | 0.91 | 19.67 | 0.046 ¹ |
| T4 | 140 - 120 | ROHN TS1.5x11 ga | 3.42 | 3.18 | 77.9 | 0.5202 | 0.91 | 19.67 | 0.046 ¹ |
| T5 | 120 - 100 | L2x2x1/4 | 3.42 | 2.73 | 61.6 | 0.5629 | 3.80 | 24.49 | 0.155 ¹ |
| T6 | 100 - 80 | ROHN TS1.5x16 ga | 3.42 | 3.13 | 73.6 | 0.2627 | 0.55 | 9.93 | 0.055 ¹ |
| T7 | 80 - 60 | ROHN TS1.5x11 ga | 3.42 | 3.13 | 76.7 | 0.5202 | 1.04 | 19.67 | 0.053 ¹ |
| T8 | 60 - 40 | ROHN TS1.5x11 ga | 3.42 | 3.13 | 76.7 | 0.5202 | 1.90 | 19.67 | 0.097 ¹ |
| T9 | 40 - 20 | ROHN TS1.5x16 ga | 3.42 | 3.13 | 73.6 | 0.2627 | 0.31 | 9.93 | 0.032 ¹ |
| T10 | 20 - 5 | ROHN TS1.5x11 ga | 3.42 | 3.13 | 76.7 | 0.5202 | 8.51 | 19.67 | 0.433 ¹ |

¹ P_u / φP_n controls

Torque-Arm Top Design Data

| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio $\frac{P_u}{\phi P_n}$ |
|-------------|-----------------|--------|---------|----------------------|------|----------------------|---------------------|----------------------|---------------------------------|
| T2 | 180 - 160 (588) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 4.59 | 476.28 | 0.010 |
| T2 | 180 - 160 (589) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 4.27 | 476.28 | 0.009 |
| T2 | 180 - 160 (592) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 4.40 | 476.28 | 0.009 |
| T2 | 180 - 160 (593) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 4.45 | 476.28 | 0.009 |
| T2 | 180 - 160 (596) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 4.57 | 476.28 | 0.010 |
| T2 | 180 - 160 (597) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 4.29 | 476.28 | 0.009 |
| T2 | 180 - 160 (624) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 0.29 | 476.28 | 0.001 |
| T2 | 180 - 160 (625) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 0.14 | 476.28 | 0.000 |
| T2 | 180 - 160 (628) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 0.18 | 476.28 | 0.000 |
| T2 | 180 - 160 (629) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 0.19 | 476.28 | 0.000 |
| T2 | 180 - 160 (632) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 0.33 | 476.28 | 0.001 |
| T2 | 180 - 160 (633) | C15x50 | 3.67 | 3.55 | 49.1 | 14.7000 | 0.19 | 476.28 | 0.000 |

| | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------|----------------------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job 18946024A | Page 52 of 55 |
| | Project CTL02171 | Date 08:42:18 10/05/18 |
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| Section No. | Elevation ft | Size | L ft | L _u ft | Kl/r | A in ² | P _u K | φP _n K | Ratio P _u / φP _n |
|-------------|-----------------|--------|---------|----------------------|------|----------------------|---------------------|----------------------|----------------------------------------------|
| T5 | 120 - 100 (600) | C15x40 | 3.67 | 3.52 | 47.7 | 11.8000 | 3.74 | 382.32 | 0.010 |
| T5 | 120 - 100 (601) | C15x40 | 3.67 | 3.52 | 47.7 | 11.8000 | 3.71 | 382.32 | 0.010 |
| T5 | 120 - 100 (604) | C15x40 | 3.67 | 3.52 | 47.7 | 11.8000 | 3.79 | 382.32 | 0.010 |
| T5 | 120 - 100 (605) | C15x40 | 3.67 | 3.52 | 47.7 | 11.8000 | 3.63 | 382.32 | 0.010 |
| T5 | 120 - 100 (608) | C15x40 | 3.67 | 3.52 | 47.7 | 11.8000 | 3.80 | 382.32 | 0.010 |
| T5 | 120 - 100 (609) | C15x40 | 3.67 | 3.52 | 47.7 | 11.8000 | 3.60 | 382.32 | 0.009 |
| T8 | 60 - 40 (612) | C12x25 | 3.67 | 3.52 | 54.2 | 7.3500 | 3.47 | 238.14 | 0.015 |
| T8 | 60 - 40 (613) | C12x25 | 3.67 | 3.52 | 54.2 | 7.3500 | 3.35 | 238.14 | 0.014 |
| T8 | 60 - 40 (616) | C12x25 | 3.67 | 3.52 | 54.2 | 7.3500 | 3.39 | 238.14 | 0.014 |
| T8 | 60 - 40 (617) | C12x25 | 3.67 | 3.52 | 54.2 | 7.3500 | 3.46 | 238.14 | 0.015 |
| T8 | 60 - 40 (620) | C12x25 | 3.67 | 3.52 | 54.2 | 7.3500 | 3.50 | 238.14 | 0.015 |
| T8 | 60 - 40 (621) | C12x25 | 3.67 | 3.52 | 54.2 | 7.3500 | 3.36 | 238.14 | 0.014 |

Torque-Arm Top Bending Design Data

| Section No. | Elevation ft | Size | M _{ux} kip-ft | φM _{ux} kip-ft | Ratio M _{ux} / φM _{ux} | M _{uy} kip-ft | φM _{uy} kip-ft | Ratio M _{uy} / φM _{uy} |
|-------------|-----------------|--------|---------------------------|----------------------------|------------------------------------------------|---------------------------|----------------------------|------------------------------------------------|
| T2 | 180 - 160 (588) | C15x50 | -38.40 | 145.26 | 0.264 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (589) | C15x50 | -37.86 | 145.26 | 0.261 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (592) | C15x50 | -38.77 | 145.26 | 0.267 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (593) | C15x50 | -38.16 | 145.26 | 0.263 | -0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (596) | C15x50 | -39.13 | 145.26 | 0.269 | -0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (597) | C15x50 | -37.94 | 145.26 | 0.261 | -0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (624) | C15x50 | -24.56 | 145.26 | 0.169 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (625) | C15x50 | -24.40 | 145.26 | 0.168 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (628) | C15x50 | -24.51 | 145.26 | 0.169 | -0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (629) | C15x50 | -24.52 | 145.26 | 0.169 | 0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (632) | C15x50 | -24.75 | 145.26 | 0.170 | -0.00 | 22.06 | 0.000 |
| T2 | 180 - 160 (633) | C15x50 | -24.58 | 145.26 | 0.169 | -0.00 | 22.06 | 0.000 |
| T5 | 120 - 100 (600) | C15x40 | -31.45 | 125.55 | 0.250 | -0.00 | 18.55 | 0.000 |
| T5 | 120 - 100 (601) | C15x40 | -31.46 | 125.55 | 0.251 | -0.00 | 18.55 | 0.000 |
| T5 | 120 - 100 (604) | C15x40 | -32.65 | 125.55 | 0.260 | -0.00 | 18.55 | 0.000 |
| T5 | 120 - 100 (605) | C15x40 | -31.12 | 125.55 | 0.248 | -0.00 | 18.55 | 0.000 |
| T5 | 120 - 100 (608) | C15x40 | -32.73 | 125.55 | 0.261 | 0.00 | 18.55 | 0.000 |
| T5 | 120 - 100 (609) | C15x40 | -31.17 | 125.55 | 0.248 | 0.00 | 18.55 | 0.000 |
| T8 | 60 - 40 (612) | C12x25 | -11.81 | 65.07 | 0.182 | -0.00 | 10.37 | 0.000 |
| T8 | 60 - 40 (613) | C12x25 | -11.72 | 65.07 | 0.180 | 0.00 | 10.37 | 0.000 |
| T8 | 60 - 40 (616) | C12x25 | -13.19 | 65.07 | 0.203 | -0.00 | 10.37 | 0.000 |
| T8 | 60 - 40 (617) | C12x25 | -11.74 | 65.07 | 0.180 | 0.00 | 10.37 | 0.000 |
| T8 | 60 - 40 (620) | C12x25 | -13.13 | 65.07 | 0.202 | 0.00 | 10.37 | 0.000 |
| T8 | 60 - 40 (621) | C12x25 | -11.96 | 65.07 | 0.184 | 0.00 | 10.37 | 0.000 |

Torque-Arm Top Interaction Design Data

| Section No. | Elevation ft | Size | Ratio P _u / φP _n | Ratio M _{ux} / φM _{ux} | Ratio M _{uy} / φM _{uy} | Comb. Stress Ratio | Allow. Stress Ratio | Criteria |
|-------------|-----------------|--------|----------------------------------------------|------------------------------------------------|------------------------------------------------|--------------------------|---------------------------|----------|
| T2 | 180 - 160 (588) | C15x50 | 0.010 | 0.264 | 0.000 | 0.269 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (589) | C15x50 | 0.009 | 0.261 | 0.000 | 0.265 | 1.000 | 4.8.1 ✓ |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 53 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Section No. | Elevation ft | Size | Ratio | Ratio | Ratio | Comb. Stress Ratio | Allow. Stress Ratio | Criteria |
|-------------|-----------------|--------|------------|---------------|---------------|--------------------|---------------------|----------|
| | | | ϕP_n | ϕM_{ux} | ϕM_{uy} | | | |
| T2 | 180 - 160 (592) | C15x50 | 0.009 | 0.267 | 0.000 | 0.272 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (593) | C15x50 | 0.009 | 0.263 | 0.000 | 0.267 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (596) | C15x50 | 0.010 | 0.269 | 0.000 | 0.274 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (597) | C15x50 | 0.009 | 0.261 | 0.000 | 0.266 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (624) | C15x50 | 0.001 | 0.169 | 0.000 | 0.169 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (625) | C15x50 | 0.000 | 0.168 | 0.000 | 0.168 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (628) | C15x50 | 0.000 | 0.169 | 0.000 | 0.169 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (629) | C15x50 | 0.000 | 0.169 | 0.000 | 0.169 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (632) | C15x50 | 0.001 | 0.170 | 0.000 | 0.171 | 1.000 | 4.8.1 ✓ |
| T2 | 180 - 160 (633) | C15x50 | 0.000 | 0.169 | 0.000 | 0.169 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (600) | C15x40 | 0.010 | 0.250 | 0.000 | 0.255 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (601) | C15x40 | 0.010 | 0.251 | 0.000 | 0.255 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (604) | C15x40 | 0.010 | 0.260 | 0.000 | 0.265 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (605) | C15x40 | 0.010 | 0.248 | 0.000 | 0.253 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (608) | C15x40 | 0.010 | 0.261 | 0.000 | 0.266 | 1.000 | 4.8.1 ✓ |
| T5 | 120 - 100 (609) | C15x40 | 0.009 | 0.248 | 0.000 | 0.253 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (612) | C12x25 | 0.015 | 0.182 | 0.000 | 0.189 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (613) | C12x25 | 0.014 | 0.180 | 0.000 | 0.187 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (616) | C12x25 | 0.014 | 0.203 | 0.000 | 0.210 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (617) | C12x25 | 0.015 | 0.180 | 0.000 | 0.188 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (620) | C12x25 | 0.015 | 0.202 | 0.000 | 0.209 | 1.000 | 4.8.1 ✓ |
| T8 | 60 - 40 (621) | C12x25 | 0.014 | 0.184 | 0.000 | 0.191 | 1.000 | 4.8.1 ✓ |

Section Capacity Table

| Section No. | Elevation ft | Component Type | Size | Critical Element | P K | ϕP_{allow} K | % Capacity | Pass Fail |
|-------------|-----------------|----------------|-------------|------------------|--------|-----------------------|---------------|--------------|
| T1 | 193 - 180 | Leg | ROHN 2.5 EH | 1 | -13.34 | 101.19 | 13.2 | Pass |

| | | | |
|----------------|-----------|--------------------|-------------------|
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| Section No. | Elevation ft | Component Type | Size | Critical Element | P K | ϕP_{allow} K | % Capacity | Pass Fail |
|-------------|--------------|----------------------|-------------------|------------------|--------|--------------------|------------|-----------|
| T2 | 180 - 160 | Diagonal | L2x2x1/4 | 14 | -2.32 | 23.44 | 9.9 | Pass |
| | | Top Girt | L2x2x1/4 | 5 | -0.30 | 17.44 | 1.7 | Pass |
| | | Bottom Girt | L2x2x1/4 | 8 | -0.50 | 17.44 | 2.9 | Pass |
| | | Leg | ROHN 2.5 EH | 40 | -43.43 | 99.60 | 43.6 | Pass |
| | | Diagonal | L2x2x1/4 | 52 | -7.13 | 23.44 | 30.4 | Pass |
| | | Secondary Horizontal | L2x2x1/4 | 56 | -2.93 | 19.59 | 14.9 | Pass |
| | | Top Girt | L2x2x1/4 | 43 | -2.55 | 17.44 | 14.6 | Pass |
| | | Bottom Girt | L2x2x1/4 | 47 | 5.17 | 24.49 | 21.1 | Pass |
| | | Guy A@162.583 | 7/8 | 595 | 17.43 | 47.82 | 36.4 | Pass |
| | | Guy A@177.083 | 5/8 | 631 | 9.04 | 25.44 | 35.5 | Pass |
| | | Guy B@162.583 | 7/8 | 590 | 17.66 | 47.82 | 36.9 | Pass |
| | | Guy B@177.083 | 5/8 | 626 | 9.06 | 25.44 | 35.6 | Pass |
| | | Guy C@162.583 | 7/8 | 587 | 17.51 | 47.82 | 36.6 | Pass |
| | | Guy C@177.083 | 5/8 | 623 | 9.07 | 25.44 | 35.6 | Pass |
| | | Torque Arm | C15x50 | 592 | -4.36 | 419.50 | 33.5 | Pass |
| Top@162.583 | | | | | | | | |
| Torque Arm | C15x50 | 633 | -1.36 | 419.50 | 18.0 | Pass | | |
| Top@177.083 | | | | | | | | |
| T3 | 160 - 140 | Leg | ROHN 2.5 EH | 122 | -51.09 | 101.38 | 50.4 | Pass |
| | | Diagonal | L2x2x1/4 | 195 | -5.65 | 23.12 | 24.4 | Pass |
| | | Secondary Horizontal | L2x2x1/4 | 199 | 1.85 | 30.39 | 6.1 | Pass |
| T4 | 140 - 120 | Top Girt | ROHN TS1.5x11 ga | 124 | 0.72 | 19.67 | 3.6 | Pass |
| | | Bottom Girt | ROHN TS1.5x11 ga | 128 | 0.91 | 19.67 | 4.6 | Pass |
| | | Leg | ROHN 2.5 EH | 203 | -53.25 | 94.36 | 56.4 | Pass |
| T5 | 120 - 100 | Diagonal | ROHN TS1.5x11 ga | 211 | -1.87 | 11.24 | 16.6 | Pass |
| | | Top Girt | ROHN TS1.5x11 ga | 205 | 1.01 | 19.67 | 5.2 | Pass |
| | | Bottom Girt | ROHN TS1.5x11 ga | 209 | 0.91 | 19.67 | 4.6 | Pass |
| T6 | 100 - 80 | Leg | ROHN 3 EH | 260 | -62.61 | 135.69 | 46.1 | Pass |
| | | Diagonal | L2x2x1/4 | 269 | -6.24 | 23.56 | 26.5 | Pass |
| | | Secondary Horizontal | L2x2x1/4 | 284 | 4.70 | 30.39 | 15.5 | Pass |
| | | Top Girt | L2x2x1/4 | 262 | 1.08 | 24.49 | 4.4 | Pass |
| | | Bottom Girt | L2x2x1/4 | 265 | 3.80 | 24.49 | 15.5 | Pass |
| | | Guy A@102.583 | 5/8 | 606 | 13.97 | 25.44 | 54.9 | Pass |
| | | Guy B@102.583 | 5/8 | 602 | 14.26 | 25.44 | 56.1 | Pass |
| | | Guy C@102.583 | 5/8 | 599 | 14.00 | 25.44 | 55.0 | Pass |
| | | Torque Arm | C15x40 | 604 | -5.84 | 339.16 | 30.2 | Pass |
| | | Top@102.583 | | | | | | |
| T7 | 80 - 60 | Leg | ROHN 3 EH | 341 | -68.61 | 129.41 | 53.0 | Pass |
| | | Diagonal | ROHN TS1.5x16 ga | 396 | -2.66 | 6.03 | 44.1 | Pass |
| | | Top Girt | ROHN TS1.5x16 ga | 344 | 0.83 | 9.93 | 8.4 | Pass |
| T8 | 60 - 40 | Bottom Girt | ROHN TS1.5x16 ga | 347 | 0.55 | 9.93 | 5.5 | Pass |
| | | Leg | ROHN 3 EH | 398 | -72.18 | 129.41 | 55.8 | Pass |
| | | Diagonal | L1 3/4x1 3/4x3/16 | 406 | -2.75 | 14.72 | 18.7 | Pass |
| T9 | 40 - 20 | Top Girt | ROHN TS1.5x11 ga | 400 | 1.05 | 19.67 | 5.4 | Pass |
| | | Bottom Girt | ROHN TS1.5x11 ga | 404 | 1.04 | 19.67 | 5.3 | Pass |
| | | Leg | ROHN 3 EH | 455 | -79.96 | 129.41 | 61.8 | Pass |
| | | Diagonal | ROHN TS1.5x11 ga | 465 | -4.73 | 11.45 | 41.3 | Pass |
| | | Top Girt | ROHN TS1.5x11 ga | 458 | 1.12 | 19.67 | 5.7 | Pass |
| | | Bottom Girt | ROHN TS1.5x11 ga | 460 | 1.90 | 19.67 | 9.7 | Pass |
| | | Guy A@42.5833 | 1/2 | 618 | 8.35 | 16.14 | 51.7 | Pass |
| | | Guy B@42.5833 | 1/2 | 614 | 8.53 | 16.14 | 52.9 | Pass |
| | | Guy C@42.5833 | 1/2 | 611 | 8.28 | 16.14 | 51.3 | Pass |
| | | Torque Arm | C12x25 | 616 | -4.97 | 204.04 | 21.9 | Pass |
| Top@42.5833 | | | | | | | | |
| T10 | 20 - 5 | Leg | ROHN 3 EH | 512 | -81.98 | 112.18 | 73.1 | Pass |
| | | Diagonal | ROHN TS1.5x16 ga | 542 | -3.70 | 6.03 | 61.3 | Pass |
| | | Top Girt | ROHN TS1.5x16 ga | 514 | -1.07 | 7.12 | 15.0 | Pass |
| T11 | | Bottom Girt | ROHN TS1.5x16 ga | 519 | 0.31 | 9.93 | 3.2 | Pass |
| | | Leg | ROHN 3 EH | 545 | -84.31 | 112.18 | 75.2 | Pass |
| | | Diagonal | ROHN TS1.5x11 ga | 569 | -0.99 | 11.45 | 8.6 | Pass |
| | | Top Girt | ROHN TS1.5x11 ga | 548 | 0.39 | 19.67 | 2.0 | Pass |

| | | | | |
|-------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------|--------------------|-------------------|
| tnxTower Maser Consulting 2000 Midlantic Drive, Suite 100 Mt. Laurel, NJ Phone: 856 797-0412 FAX: 856 722-1120 | Job | 18946024A | Page | 55 of 55 |
| | Project | CTL02171 | Date | 08:42:18 10/05/18 |
| | Client | AT&T | Designed by | |

| Section No. | Elevation ft | Component Type | Size | Critical Element | P K | ϕP_{allow} K | % Capacity | Pass Fail |
|-------------|--------------|----------------|------------------|------------------|--------|---------------------------|-------------|-------------|
| T11 | 5 - 0 | Bottom Girt | ROHN TS1.5x11 ga | 550 | 8.51 | 19.67 | 43.3 | Pass |
| | | Leg | ROHN 3 EH | 572 | -91.18 | 133.99 | 68.1 | Pass |
| | | Horizontal | L4x4x1/4 | 583 | -1.43 | 45.32 | 3.2 | Pass |
| | | Top Girt | L4x4x1/4 | 574 | 11.29 | 62.86 | 18.0 | Pass |
| Summary | | | | | | | | |
| | | | | | | Leg (T10) | 75.2 | Pass |
| | | | | | | Diagonal (T9) | 61.3 | Pass |
| | | | | | | Horizontal (T11) | 3.2 | Pass |
| | | | | | | Secondary Horizontal (T5) | 15.5 | Pass |
| | | | | | | Top Girt (T11) | 18.0 | Pass |
| | | | | | | Bottom Girt (T10) | 43.3 | Pass |
| | | | | | | Guy A (T5) | 54.9 | Pass |
| | | | | | | Guy B (T5) | 56.1 | Pass |
| | | | | | | Guy C (T5) | 55.0 | Pass |
| | | | | | | Torque Arm Top (T2) | 33.5 | Pass |
| | | | | | | Bolt Checks | 98.7 | Pass |
| | | | | | | RATING = | 98.7 | Pass |



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info@sitesafe.com • www.sitesafe.com



**Smartlink on behalf of
AT&T Mobility, LLC
Site FA – 10035116
Site ID – CTL2171 (MRCTB031324-
MRCTB030895-MRCTB031457-
MRCTB031936)
USID – 25907
Site Name – MONTVILLE EAST**

**57 Cook Drive
Uncasville, CT 06382**

Latitude: N41-28-29.99
Longitude: W72-6-18.19
Structure Type: Guyed

Report generated date: October 17, 2018
Report by: Zyotty Thamsil
Customer Contact: David Barbagallo

**AT&T Mobility, LLC will be compliant when the
remediation recommended in Section 5.2 or
other appropriate remediation is implemented.**

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1 General Site Summary

1.1 Report Summary

| AT&T Mobility, LLC | Summary |
|--------------------------------------------------|--------------------------|
| Access to Antennas Locked? | No |
| Max Cumulative Simulated RFE Level on the Ground | <1% General Public Limit |
| FCC & AT&T Compliant? | Will Be Compliant |
| Optional AT&T Mitigation Items? | No |










The following documents were provided by the client and were utilized to create this report:

RFDS: RFDS 10035116

CD's: 10035116_AE201_180927_CTL02171_Rev 1_3C-4C-5C-6C

RF Powers Used: RFDS 10035116

1.2 Signage Summary

| AT&T Signage Locations |  |  |  |  |  |  |  |  |  |
|------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
| | Information 1 | Information 2 | Notice | Notice 2 | Caution | Caution 2 | Warning | Warning 2 | Barriers |
| Access Point(s) | | | | | | | | | |
| Alpha | | | | | | | | | |
| Beta | | | | | | | | | |
| Gamma | | | | | | | | | |
| Delta | | | | | | | | | |
| Epsilon | | | | | | | | | |

1.3 Fall Arrest Anchor Point Summary

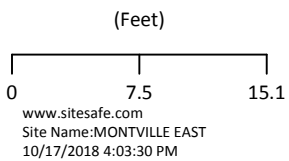
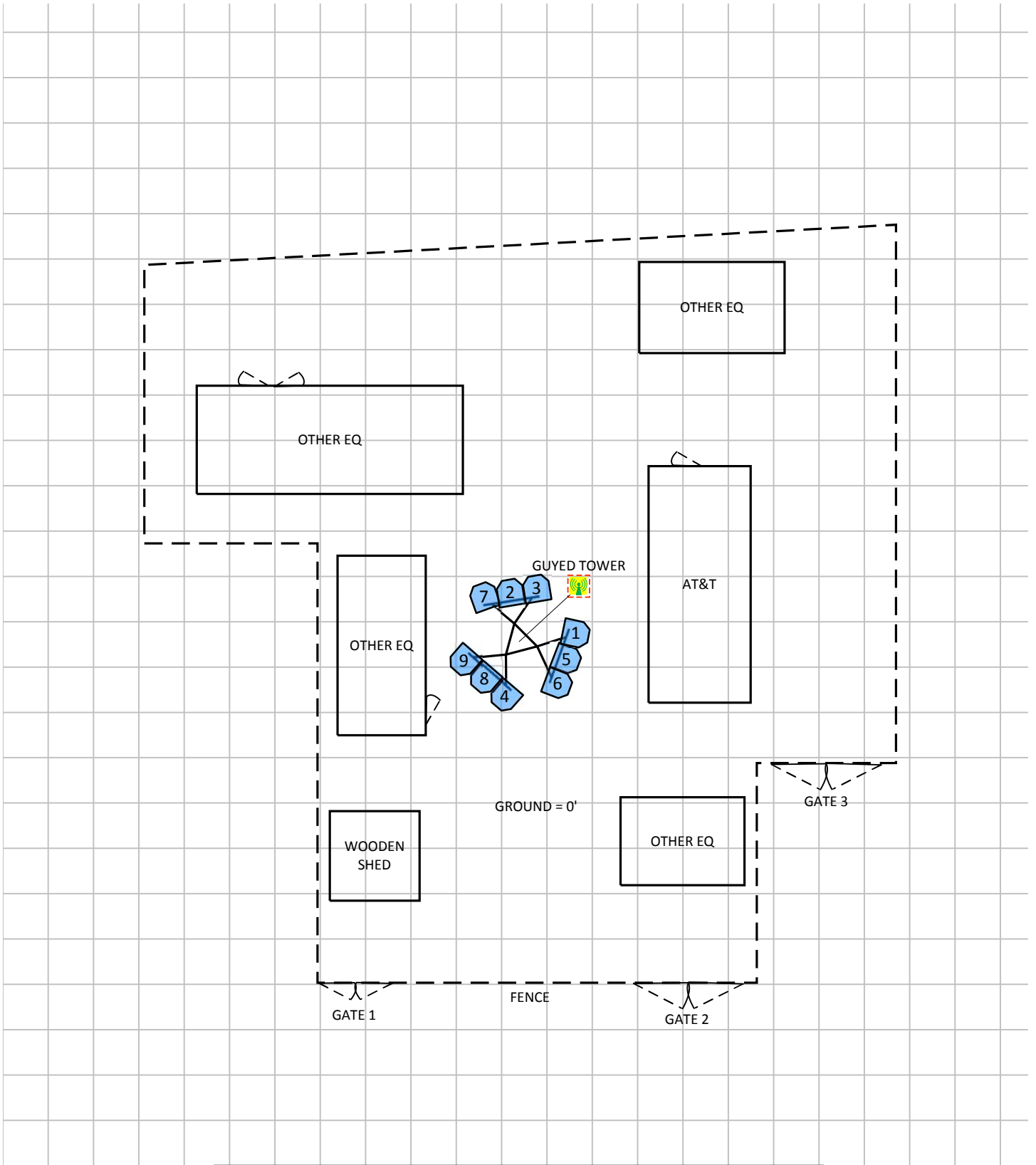
| Fall Arrest Anchor & Parapet Info | Parapet Available (Y/N) | Parapet Height (inches) | Fall Arrest Anchor Available (Y/N) |
|-----------------------------------|-------------------------|-------------------------|------------------------------------|
| Roof Safety Info | N | N/A | N |

2 Scale Maps of Site

The following diagrams are included:

-) Site Scale Map
-) RF Exposure Diagram
-) RF Exposure Diagram – Elevation View

Site Scale Map For: MONTVILLE EAST



| Carrier Identification | |
|------------------------|-------------------|
| | AT&T MOBILITY LLC |
| | VERIZON WIRELESS |
| | T-MOBILE |
| | SPRINT |
| | UNKNOWN CARRIER |

| Sign Legend | |
|-------------|----------------|
| | Caution 1 |
| | Caution 2 |
| | Notice 2 |
| | Notice 1 |
| | Warning |
| | Warning 2 |
| | Info 1 |
| | Info 2 |
| | RF Safety Plan |

| Proposed Barriers/ Signs | |
|--------------------------|--------------------------|
| | Barrier |
| | Proposed Barriers/ Signs |

3 Antenna Inventory

The following antenna inventory was obtained by the customer and was utilized to create the site model diagrams:

| Ant ID | Operator | Antenna Make & Model | Type | TX Freq (MHz) | Technology | Az (Deg) | Hor BW (Deg) | Ant Len (ft) | Power | Power Type | Power Unit | Radio Count | Total ERP (Watts) | Ant Gain (dBd) | Z (AGL) | MDT | EDT |
|--------|------------------------------|--------------------------------|-------|---------------|------------|----------|--------------|--------------|----------|------------|------------|-------------|-------------------|----------------|---------|-----|-----|
| 1 | AT&T MOBILITY LLC (SPARE) | Powerwave 7770 | Panel | 850 | | 141 | 82 | 4.6 | 0 | ERP | Watt | 0 | 0 | 11.51 | 177.7' | 0' | 0' |
| 2 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 763 | LTE | 30 | 61.9 | 8 | 2951.413 | ERP | Watt | 1 | 2951.4 | 13.56 | 176' | 2' | 10' |
| 2 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 850 | LTE | 30 | 63 | 8 | 1000 | ERP | Watt | 1 | 1000 | 13.56 | 176' | 2' | 6' |
| 2 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 1900 | LTE | 30 | 68.2 | 8 | 3664.276 | ERP | Watt | 1 | 3664.3 | 13.86 | 176' | 2' | 7' |
| 2 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 1900 | LTE | 30 | 68.2 | 8 | 3664.276 | ERP | Watt | 1 | 3664.3 | 13.86 | 176' | 2' | 7' |
| 2 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 850 | 5G | 30 | 63 | 8 | 1000 | ERP | Watt | 0 | 1000 | 13.56 | 176' | 2' | 6' |
| 2 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 2100 | LTE | 30 | 65.2 | 8 | 3837.072 | ERP | Watt | 1 | 3837.1 | 13.96 | 176' | 2' | 8' |
| 2 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 2100 | LTE | 30 | 65.2 | 8 | 3837.072 | ERP | Watt | 1 | 3837.1 | 13.96 | 176' | 2' | 8' |
| 3 | AT&T MOBILITY LLC | CCI Antennas HPA-65R-BUU-H8 | Panel | 737 | LTE | 30 | 64.9 | 7.7 | 1475.707 | ERP | Watt | 1 | 1475.7 | 13.26 | 176.2' | 2' | 6' |
| 3 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas HPA-65R-BUU-H8 | Panel | 2300 | LTE | 30 | 63.3 | 7.7 | 1285.287 | ERP | Watt | 1 | 1285.3 | 15.26 | 176.2' | 2' | 8' |
| 4 | AT&T MOBILITY LLC (SPARE) | Powerwave 7770 | Panel | 850 | | 260 | 82 | 4.6 | 0 | ERP | Watt | 0 | 0 | 11.51 | 177.7' | 0' | 0' |
| 5 | AT&T MOBILITY LLC (PROPOSED) | Quintel QS66512-2 | Panel | 763 | LTE | 150 | 69 | 6 | 2951.413 | ERP | Watt | 1 | 2951.4 | 11.46 | 177' | 0' | 6' |
| 5 | AT&T MOBILITY LLC (PROPOSED) | Quintel QS66512-2 | Panel | 850 | LTE | 150 | 63 | 6 | 1000 | ERP | Watt | 1 | 1000 | 10.96 | 177' | 0' | 6' |
| 5 | AT&T MOBILITY LLC (PROPOSED) | Quintel QS66512-2 | Panel | 1900 | LTE | 150 | 68 | 6 | 3664.376 | ERP | Watt | 1 | 3664.4 | 14.16 | 177' | 0' | 3' |
| 5 | AT&T MOBILITY LLC (PROPOSED) | Quintel QS66512-2 | Panel | 1900 | LTE | 150 | 68 | 6 | 3664.376 | ERP | Watt | 1 | 3664.4 | 14.16 | 177' | 0' | 3' |
| 5 | AT&T MOBILITY LLC (PROPOSED) | Quintel QS66512-2 | Panel | 850 | 5G | 150 | 63 | 6 | 1000 | ERP | Watt | 0 | 1000 | 10.96 | 177' | 0' | 6' |
| 5 | AT&T MOBILITY LLC (PROPOSED) | Quintel QS66512-2 | Panel | 2100 | LTE | 150 | 57 | 6 | 3837.072 | ERP | Watt | 1 | 3837.1 | 14.76 | 177' | 0' | 3' |
| 5 | AT&T MOBILITY LLC (PROPOSED) | Quintel QS66512-2 | Panel | 2100 | LTE | 150 | 57 | 6 | 3837.072 | ERP | Watt | 1 | 3837.1 | 14.76 | 177' | 0' | 3' |
| 6 | AT&T MOBILITY LLC | CCI Antennas HPA-65R-BUU-H8 | Panel | 737 | LTE | 150 | 64.9 | 7.7 | 1475.707 | ERP | Watt | 1 | 1475.7 | 13.26 | 176.2' | 0' | 6' |

| Ant ID | Operator | Antenna Make & Model | Type | TX Freq (MHz) | Technology | Az (Deg) | Hor BW (Deg) | Ant Len (ft) | Power | Power Type | Power Unit | Radio Count | Total ERP (Watts) | Ant Gain (dBd) | Z (AGL) | MDT | EDT |
|--------|------------------------------|--------------------------------|-------|---------------|------------|----------|--------------|--------------|----------|------------|------------|-------------|-------------------|----------------|---------|-----|-----|
| 6 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas HPA-65R-BUU-H8 | Panel | 2300 | LTE | 150 | 63.3 | 7.7 | 1285.287 | ERP | Watt | 1 | 1285.3 | 15.26 | 176.2' | 0' | 3' |
| 7 | AT&T MOBILITY LLC (SPARE) | Powerwave 7770 | Panel | 850 | | 19 | 82 | 4.6 | 0 | ERP | Watt | 0 | 0 | 11.51 | 177.7' | 0' | 0' |
| 8 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 763 | LTE | 260 | 61.9 | 8 | 2951.413 | ERP | Watt | 1 | 2951.4 | 13.56 | 176' | 0' | 3' |
| 8 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 850 | LTE | 260 | 63 | 8 | 1000 | ERP | Watt | 1 | 1000 | 13.56 | 176' | 0' | 3' |
| 8 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 1900 | LTE | 260 | 68.2 | 8 | 3664.376 | ERP | Watt | 1 | 3664.4 | 13.86 | 176' | 0' | 4' |
| 8 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 1900 | LTE | 260 | 68.2 | 8 | 3664.376 | ERP | Watt | 1 | 3664.4 | 13.86 | 176' | 0' | 4' |
| 8 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 850 | 5G | 260 | 63 | 8 | 1000 | ERP | Watt | 0 | 1000 | 13.56 | 176' | 0' | 3' |
| 8 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 2100 | LTE | 260 | 65.2 | 8 | 3837.072 | ERP | Watt | 1 | 3837.1 | 13.96 | 176' | 0' | 4' |
| 8 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas TPA-65R-LCUUUU-H8 | Panel | 2100 | LTE | 260 | 65.2 | 8 | 3837.072 | ERP | Watt | 1 | 3837.1 | 13.96 | 176' | 0' | 4' |
| 9 | AT&T MOBILITY LLC | CCI Antennas HPA-65R-BUU-H8 | Panel | 737 | LTE | 260 | 64.9 | 7.7 | 1475.707 | ERP | Watt | 0 | 1475.7 | 13.26 | 176.2' | 0' | 3' |
| 9 | AT&T MOBILITY LLC (PROPOSED) | CCI Antennas HPA-65R-BUU-H8 | Panel | 2300 | LTE | 260 | 63.3 | 7.7 | 1285.287 | ERP | Watt | 0 | 1285.3 | 15.26 | 176.2' | 0' | 4' |

NOTE: X, Y and Z indicate relative position of the bottom of the antenna to the origin location on the site, displayed in the model results diagram. Specifically, the Z reference indicates the bottom of the antenna height above the main site level unless otherwise indicated. The distance to the bottom of the antenna is calculated by subtracting half of the length of the antenna from the antenna centerline. Effective Radiated Power (ERP) is provided by the operator or based on Sitesafe experience. The values used in the modeling may be greater than are currently deployed. For other operators at this site the use of "Generic" as an antenna model or "Unknown" for a wireless operator means the information with regard to operator, their FCC license and/or antenna information was not available nor could it be secured while on site. Other operator's equipment, antenna models and powers used for modeling are based on obtained information or Sitesafe experience.

Note: The 2300 MHz LTE technology is being added to an existing antenna.

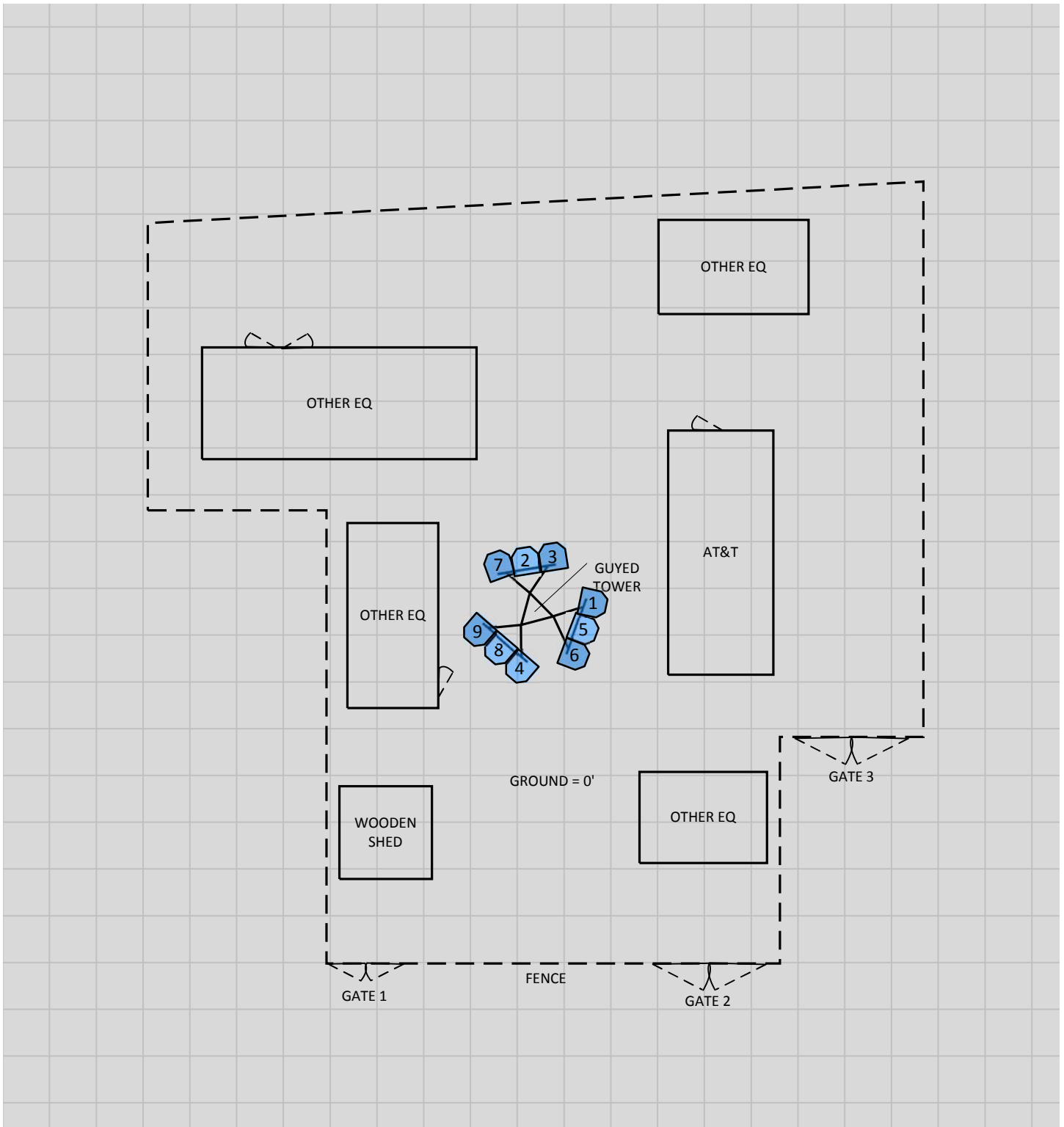
4 Emission Predictions

In the RF Exposure Simulations below all heights are reflected with respect to main site level. In most rooftop cases this is the height of the main rooftop and in other cases this can be ground level. Each different height area, rooftop, or platform level is labeled with its height relative to the main site level. Emissions are calculated appropriately based on the relative height and location of that area to all antennas. The total analyzed elevations in the below RF Exposure Simulations are listed below.

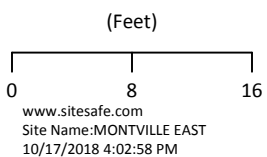
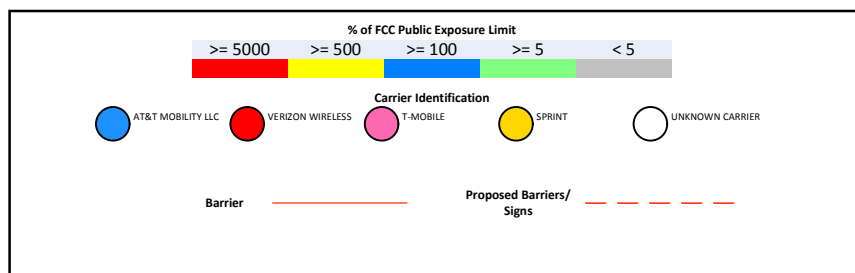
) Ground = 0'

The Antenna Inventory heights are referenced to the same level.

RF Exposure Simulation For: MONTVILLE EAST

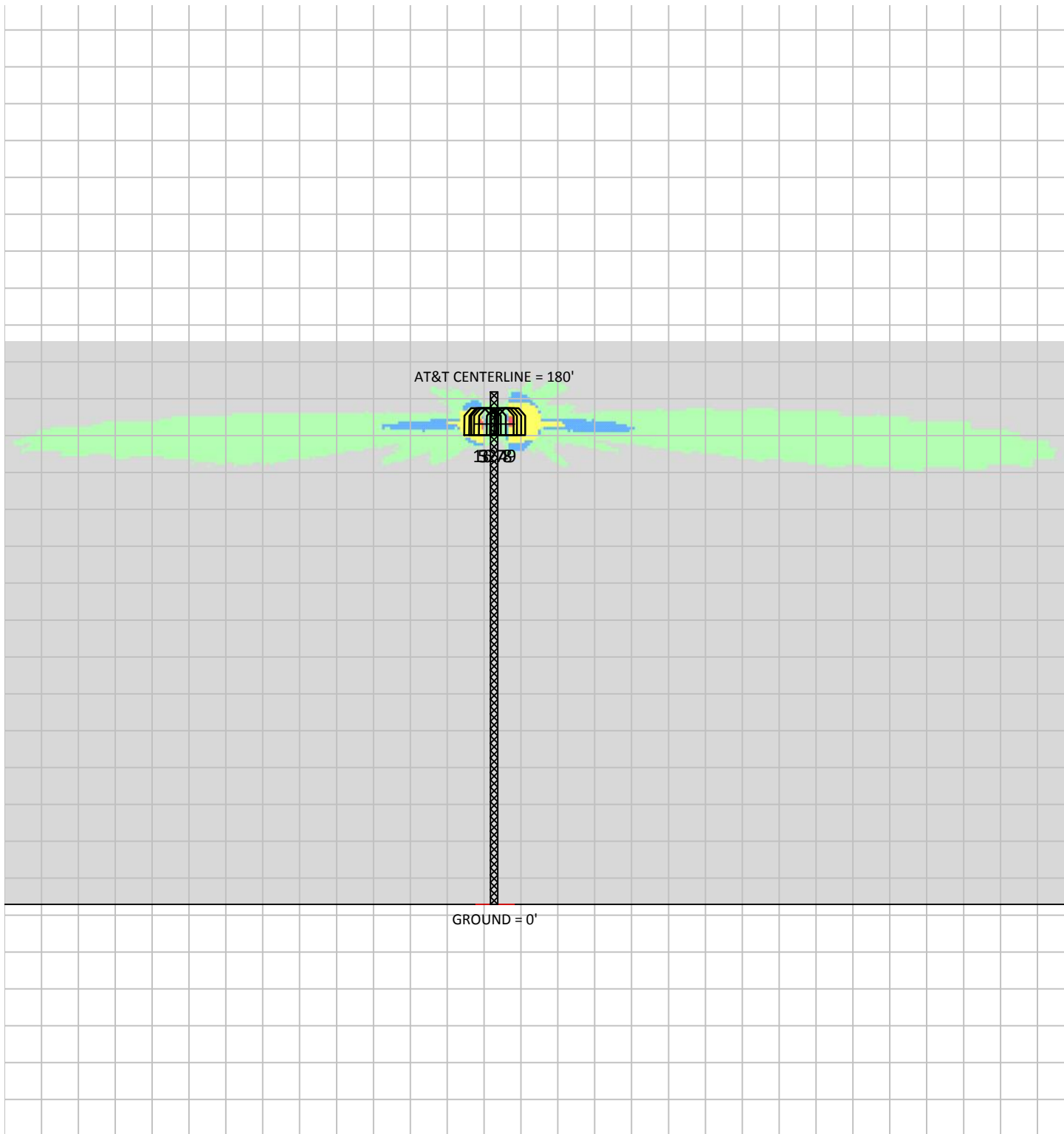


% of FCC Public Exposure Limit
Spatial average 0' - 6'

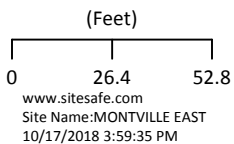
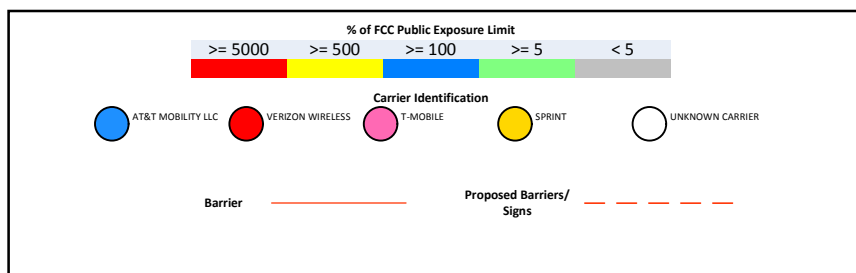


Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Spatially Averaged

RF Exposure Simulation For: MONTVILLE EAST Elevation View



% of FCC Public Exposure Limit



Sitesafe OET-65 Model
Near Field Boundary:
1.5 * Aperture
Reflection Factor: 1
Single Level (0)

5 Site Compliance

5.1 Site Compliance Statement

Upon evaluation of the cumulative RF emission levels from all operators at this site, RF hazard signage and antenna locations, Sitesafe has determined that:

AT&T Mobility, LLC will be compliant when the remediation recommended in Section 5.2 or other appropriate remediation is implemented.

The compliance determination is based on General Public RFE levels derived from theoretical modeling, RF signage placement, proposed antenna inventory and the level of restricted access to the antennas at the site. Any deviation from the AT&T Mobility, LLC's proposed deployment plan could result in the site being rendered non-compliant.

Modeling is used for determining compliance and the percentage of MPE contribution.

5.2 Actions for Site Compliance

Based on FCC regulations, common industry practice, and our understanding of AT&T Mobility, LLC RF Safety Policy requirements, this section provides a statement of recommendations for site compliance. Recommendations have been proposed based on our understanding of existing access restrictions, signage, and an analysis of predicted RFE levels.

AT&T Mobility, LLC will be made compliant if the following changes are implemented:

Site Access Location

(1) Yellow Caution 2B sign(s) required on the base of the guyed tower.

Notes:

-) Data concerning all other carriers on site was unavailable and therefore not included in this report.
-) Signage may already be in place. Sitesafe does not have record of any existing signage because there were no previous visits or data supplied regarding them. All remediation is based on a worst-case scenario.



6 Reviewer Certification

The reviewer whose signature appears below hereby certifies and affirms:

That I am an employee of Sitesafe, LLC., in Vienna, Virginia, at which place the staff and I provide RF compliance services to clients in the wireless communications industry; and

That I am thoroughly familiar with the Rules and Regulations of the Federal Communications Commission (FCC) as well as the regulations of the Occupational Safety and Health Administration (OSHA), both in general and specifically as they apply to the FCC Guidelines for Human Exposure to Radio-frequency Radiation; and

That I have thoroughly reviewed this Site Compliance Report and believe it to be true and accurate to the best of my knowledge as assembled by and attested to by Zyotty Thamsil.

October 17, 2018



Appendix A – Statement of Limiting Conditions

Sitesafe has provided computer generated model(s) in this Site Compliance Report to show approximate dimensions of the site, and the model is included to assist the reader of the compliance report to visualize the site area, and to provide supporting documentation for Sitesafe's recommendations.

Sitesafe may note in the Site Compliance Report any adverse physical conditions, such as needed repairs, that Sitesafe became aware of during the normal research involved in creating this report. Sitesafe will not be responsible for any such conditions that do exist or for any engineering or testing that might be required to discover whether such conditions exist. Because Sitesafe is not an expert in the field of mechanical engineering or building maintenance, the Site Compliance Report must not be considered a structural or physical engineering report.

Sitesafe obtained information used in this Site Compliance Report from sources that Sitesafe considers reliable and believes them to be true and correct. Sitesafe does not assume any responsibility for the accuracy of such items that were furnished by other parties. When conflicts in information occur between data collected by Sitesafe provided by a second party and data collected by Sitesafe, the data will be used.

Appendix B – Regulatory Background Information

FCC Rules and Regulations

In 1996, the Federal Communications Commission (FCC) adopted regulations for the evaluating of the effects of RF emissions in 47 CFR § 1.1307 and 1.1310. The guideline from the FCC Office of Engineering and Technology is Bulletin 65 ("OET Bulletin 65"), *Evaluating Compliance with FCC Guidelines for Human Exposure to Radio Frequency Electromagnetic Fields*, Edition 97-01, published August 1997. Since 1996 the FCC periodically reviews these rules and regulations as per their congressional mandate.

FCC regulations define two separate tiers of exposure limits: Occupational or "Controlled environment" and General Public or "Uncontrolled environment". The General Public limits are generally five times more conservative or restrictive than the Occupational limit. These limits apply to *accessible* areas where workers or the general public may be exposed to Radio Frequency (RF) electromagnetic fields.

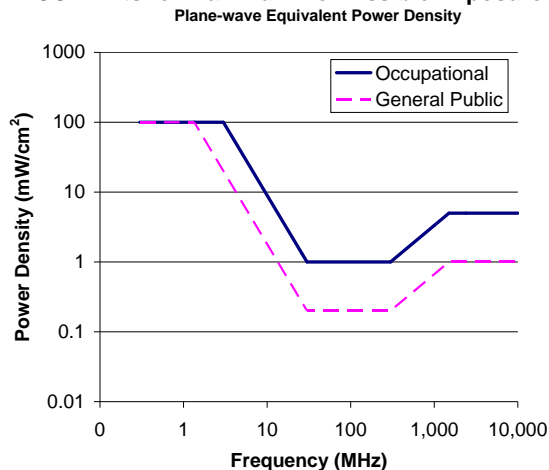
Occupational or Controlled limits apply in situations in which persons are exposed as a consequence of their employment and where those persons exposed have been made fully aware of the potential for exposure and can exercise control over their exposure.

An area is considered a Controlled environment when access is limited to these aware personnel. Typical criteria are restricted access (i.e. locked or alarmed doors, barriers, etc.) to the areas where antennas are located coupled with proper RF warning signage. A site with Controlled environments is evaluated with Occupational limits.

All other areas are considered Uncontrolled environments. If a site has no access controls or no RF warning signage it is evaluated with General Public limits.

The theoretical modeling of the RF electromagnetic fields has been performed in accordance with OET Bulletin 65. The Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following diagram:

FCC Limits for Maximum Permissible Exposure (MPE)



Limits for Occupational/Controlled Exposure (MPE)

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Time E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------|
| 0.3-3.0 | 614 | 1.63 | (100)* | 6 |
| 3.0-30 | 1842/f | 4.89/f | (900/f ²)* | 6 |
| 30-300 | 61.4 | 0.163 | 1.0 | 6 |
| 300-1500 | -- | -- | f/300 | 6 |
| 1500-100,000 | -- | -- | 5 | 6 |

Limits for General Population/Uncontrolled Exposure (MPE)

| Frequency Range (MHz) | Electric Field Strength (E) (V/m) | Magnetic Field Strength (H) (A/m) | Power Density (S) (mW/cm ²) | Averaging Time E ² , H ² or S (minutes) |
|-----------------------|-----------------------------------|-----------------------------------|-----------------------------------------|-------------------------------------------------------------------|
| 0.3-1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34-30 | 824/f | 2.19/f | (180/f ²)* | 30 |
| 30-300 | 27.5 | 0.073 | 0.2 | 30 |
| 300-1500 | -- | -- | f/1500 | 30 |
| 1500-100,000 | -- | -- | 1.0 | 30 |

f = frequency in MHz

*Plane-wave equivalent power density

OSHA Statement

The General Duty clause of the OSHA Act (Section 5) outlines the occupational safety and health responsibilities of the employer and employee. The General Duty clause in Section 5 states:

- (a) Each employer –
 - (1) shall furnish to each of his employees employment and a place of employment which are free from recognized hazards that are causing or are likely to cause death or serious physical harm to his employees;
 - (2) shall comply with occupational safety and health standards promulgated under this Act.

- (b) Each employee shall comply with occupational safety and health standards and all rules, regulations, and orders issued pursuant to this Act which are applicable to his own actions and conduct.

OSHA has defined Radiofrequency and Microwave Radiation safety standards for workers who may enter hazardous RF areas. Regulation Standards 29 CFR § 1910.147 identify a generic Lock Out Tag Out procedure aimed to control the unexpected energization or start up of machines when maintenance or service is being performed.

Appendix C – Safety Plan and Procedures

The following items are general safety recommendations that should be administered on a site by site basis as needed by the carrier.

General Maintenance Work: Any maintenance personnel required to work immediately in front of antennas and / or in areas indicated as above 100% of the Occupational MPE limits should coordinate with the wireless operators to disable transmitters during their work activities.

Training and Qualification Verification: All personnel accessing areas indicated as exceeding the General Population MPE limits should have a basic understanding of EME awareness and RF Safety procedures when working around transmitting antennas. Awareness training increases a workers understanding to potential RF exposure scenarios. Awareness can be achieved in a number of ways (e.g. videos, formal classroom lecture or internet based courses).

Physical Access Control: Access restrictions to transmitting antennas locations is the primary element in a site safety plan. Examples of access restrictions are as follows:

-) Locked door or gate
-) Alarmed door
-) Locked ladder access
-) Restrictive Barrier at antenna (e.g. Chain link with posted RF Sign)

RF Signage: Everyone should obey all posted signs at all times. RF signs play an important role in properly warning a worker prior to entering into a potential RF Exposure area.

Assume all antennas are active: Due to the nature of telecommunications transmissions, an antenna transmits intermittently. Always assume an antenna is transmitting. Never stop in front of an antenna. If you have to pass by an antenna, move through as quickly and safely as possible thereby reducing any exposure to a minimum.

Maintain a 3 foot clearance from all antennas: There is a direct correlation between the strength of an EME field and the distance from the transmitting antenna. The further away from an antenna, the lower the corresponding EME field is.

Site RF Emissions Diagram: Section 4 of this report contains an RF Diagram that outlines various theoretical Maximum Permissible Exposure (MPE) areas at the site. The modeling is a worst case scenario assuming a duty cycle of 100% for each transmitting antenna at full power. This analysis is based on one of two access control criteria: General Public criteria means the access to the site is uncontrolled and anyone can gain access. Occupational criteria means the access is restricted and only properly trained individuals can gain access to the antenna locations.

Appendix D – RF Emissions

The RF Emissions Simulation(s) in this report display theoretical spatially averaged percentage of the Maximum Permissible Exposure for all systems at the site unless otherwise noted. These diagrams use modeling as prescribed in OET Bulletin 65 and assumptions detailed in Appendix E.

The key at the bottom of each RF Emissions Simulation indicates percentages displayed referenced to FCC General Public Maximum Permissible Exposure (MPE) limits. Color coding on the diagram is as follows:

- J Areas indicated as Gray are predicted to be below 5% of the MPE limits. Gray represents areas more than 20 times below the most conservative exposure limit.
- J Green represents areas are predicted to be between 5% and 100% of the MPE limits. **Green areas are accessible to anyone.**
- J Blue represents areas predicted to exceed the General Public MPE limits but are less than Occupational limits. **Blue areas should be accessible only to RF trained workers.**
- J Yellow represents areas predicted to exceed Occupational MPE limits. Yellow areas should be accessible only to RF trained workers able to assess current exposure levels.
- J Red represents areas predicted to have exposure more than 10 times the Occupational MPE limits. **Red indicates that the RF levels must be reduced prior to access.** An RF Safety Plan is required which outlines how to reduce the RF energy in these areas prior to access.

Appendix E – Assumptions and Definitions

General Model Assumptions

In this site compliance report, it is assumed that all antennas are operating at **full power at all times**. Software modeling was performed for all transmitting antennas located on the site. Sitesafe has further assumed a 100% duty cycle and maximum radiated power.

The modeling is based on recommendations from the FCC's OET-65 bulletin with the following variances per AT&T guidance. Reflection has not been considered in the modeling, i.e. the reflection factor is 1.0. The near / far field boundary has been set to 1.5 times the aperture height of the antenna and modeling beyond that point is the lesser of the near field cylindrical model and the far field model taking into account the gain of the antenna.

The site has been modeled with these assumptions to show the maximum RF energy density. Areas modeled with exposure greater than 100% of the General Public MPE level may not actually occur, but are shown as a prediction that could be realized. Sitesafe believes these areas to be safe for entry by occupationally trained personnel utilizing appropriate personal protective equipment (in most cases, a personal monitor).

Use of Generic Antennas

For the purposes of this report, the use of "Generic" as an antenna model, or "Unknown" for an operator means the information about a carrier, their FCC license and/or antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of equipment, antenna models, and transmit power to model the site. If more specific information can be obtained for the unknown measurement criteria, Sitesafe recommends remodeling of the site utilizing the more complete and accurate data. Information about similar facilities is used when the service is identified and associated with a particular antenna. If no information is available regarding the transmitting service associated with an unidentified antenna, using the antenna manufacturer's published data regarding the antenna's physical characteristics makes more conservative assumptions.

Where the frequency is unknown, Sitesafe uses the closest frequency in the antenna's range that corresponds to the highest Maximum Permissible Exposure (MPE), resulting in a conservative analysis.

Definitions

5% Rule – The rules adopted by the FCC specify that, in general, at multiple transmitter sites actions necessary to bring the area into compliance with the guidelines are the shared responsibility of all licensees whose transmitters produce field strengths or power density levels at the area in question in excess of 5% of the exposure limits. In other words, any wireless operator that contributes 5% or greater of the MPE limit in an area that is identified to be greater than 100% of the MPE limit is responsible taking corrective actions to bring the site into compliance.

Compliance – The determination of whether a site is safe or not with regards to Human Exposure to Radio Frequency Radiation from transmitting antennas.

Decibel (dB) – A unit for measuring power or strength of a signal.

Duty Cycle – The percent of pulse duration to the pulse period of a periodic pulse train. Also, may be a measure of the temporal transmission characteristic of an intermittently transmitting RF source such as a paging antenna by dividing average transmission duration by the average period for transmission. A duty cycle of 100% corresponds to continuous operation.

Effective (or Equivalent) Isotropic Radiated Power (EIRP) – The product of the power supplied to the antenna and the antenna gain in a given direction relative to an isotropic antenna.

Effective Radiated Power (ERP) – In a given direction, the relative gain of a transmitting antenna with respect to the maximum directivity of a half wave dipole multiplied by the net power accepted by the antenna from the connecting transmitter.

Gain (of an antenna) – The ratio of the maximum intensity in a given direction to the maximum radiation in the same direction from an isotropic radiator. Gain is a measure of the relative efficiency of a directional antennas as compared to an omni directional antenna.

General Population/Uncontrolled Environment – Defined by the FCC, as an area where exposure to RF energy may occur to persons who are **unaware** of the potential for exposure and who have no control of their exposure. General Population is also referenced as General Public.

Generic Antenna – For the purposes of this report, the use of "Generic" as an antenna model means the antenna information was not provided and could not be obtained while on site. In the event of unknown information, Sitesafe will use our industry specific knowledge of antenna models to select a worst case scenario antenna to model the site.

Isotropic Antenna – An antenna that is completely non-directional. In other words, an antenna that radiates energy equally in all directions.

Maximum Measurement – This measurement represents the single largest measurement recorded when performing a spatial average measurement.

Maximum Permissible Exposure (MPE) – The maximum levels of RF exposure a person may be exposed to without harmful effect and with acceptable safety factor.

Occupational/Controlled Environment – Defined by the FCC, as an area where Radio Frequency Radiation (RFR) exposure may occur to persons who are **aware** of the



potential for exposure as a condition of employment or specific activity and can exercise control over their exposure.

OET Bulletin 65 – Technical guideline developed by the FCC’s Office of Engineering and Technology to determine the impact of Radio Frequency radiation on Humans. The guideline was published in August 1997.

OSHA (Occupational Safety and Health Administration) – Under the Occupational Safety and Health Act of 1970, employers are responsible for providing a safe and healthy workplace for their employees. OSHA’s role is to promote the safety and health of America’s working men and women by setting and enforcing standards; providing training, outreach and education; establishing partnerships; and encouraging continual process improvement in workplace safety and health. For more information, visit www.osha.gov.

Radio Frequency (RF) – The frequencies of electromagnetic waves which are used for radio communications. Approximately 3 kHz to 300 GHz.

Radio Frequency Exposure (RFE) – The amount of RF power density that a person is or might be exposed to.

Spatial Average Measurement – A technique used to average a minimum of ten (10) measurements taken in a ten (10) second interval from zero (0) to six (6) feet. This measurement is intended to model the average power density an average sized human will be exposed to at a location.

Transmitter Power Output (TPO) – The radio frequency output power of a transmitter’s final radio frequency stage as measured at the output terminal while connected to a load.

Appendix F – References

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

Sitesafe, LLC.

<http://www.sitesafe.com>

FCC Radio Frequency Safety

<http://www.fcc.gov/encyclopedia/radio-frequency-safety>

National Council on Radiation Protection and Measurements (NCRP)

<http://www.ncrponline.org>

Institute of Electrical and Electronics Engineers, Inc., (IEEE)

<http://www.ieee.org>

American National Standards Institute (ANSI)

<http://www.ansi.org>

Environmental Protection Agency (EPA)

<http://www.epa.gov/radtown/wireless-tech.html>

National Institutes of Health (NIH)

<http://www.niehs.nih.gov/health/topics/agents/emf/>

Occupational Safety and Health Agency (OSHA)

<http://www.osha.gov/SLTC/radiofrequencyradiation/>

International Commission on Non-Ionizing Radiation Protection (ICNIRP)

<http://www.icnirp.org>

World Health Organization (WHO)

<http://www.who.int/peh-emf/en/>

National Cancer Institute

<http://www.cancer.gov/cancertopics/factsheet/Risk/cellphones>

American Cancer Society (ACS)

http://www.cancer.org/docroot/PED/content/PED_1_3X_Cellular_Phone_Towers.asp?sitearea=PED

European Commission Scientific Committee on Emerging and Newly Identified Health Risks

http://ec.europa.eu/health/ph_risk/committees/04_scenihp/docs/scenihp_o_022.pdf

Fairfax County, Virginia Public School Survey

<http://www.fcps.edu/fts/safety-security/RFEESurvey/>

UK Health Protection Agency Advisory Group on Non-ionising Radiation

http://www.hpa.org.uk/webw/HPAweb&HPAwebStandard/HPAweb_C/1317133826368

Norwegian Institute of Public Health

<http://www.fhi.no/dokumenter/545eea7147.pdf>