



SAI Group
12 Industrial Way
Salem, NH 03079
603-421-0470

January 27, 2023

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT1026
419 Broad Street, Windsor, CT 06095
N 41.845891
W 72.646236

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 100-foot level of the existing 100-foot Monopole Tower at 419 Broad Street, Windsor, CT. The tower is owned by Everest Infrastructure Partners and the property is owned by Southern New England Telephone. AT&T now intends to replace nine (9) antennas and add (3) antennas. The new antennas will be installed at the 100-foot level of the tower. This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G (LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times. As part of this modification, the existing antenna mounts will be replaced per the attached Mount Analysis by Hudson Design Group dated April 20, 2022.

AT&T Planned Modifications:

Remove:

- (12) Diplexers
- (3) TMAs
- (6) Coax (1-1/4")

Remove and Replace:

- (3) POWERWAVE Antennas (REMOVE) - (3) Ericsson AIR 6419 B77G Antennas (REPLACE)
- (3) CCI Antennas (REMOVE) - (3) Ericsson AIR 6449 B77D Antennas (REPLACE)
- (3) QUINTEL Antennas (REMOVE) - (3) CCI TPA65R-BU6DA-K Antennas (REPLACE)
- (3) Ericsson RRUS-11 B12 (REMOVE) - (3) Ericsson 4449 B5/B12 RRU (REPLACE)
- (3) Ericsson RRUS-32 B2 (REMOVE) - (3) Ericsson 8843 B2/B66A RRU (REPLACE)

Install New:

- (3) CCI OPA65R-BU6BA Antennas
- (3) Ericsson 4478 B14 RRU
- (1) Raycap Surge Unit
- (3) DC Lines
- (1) Fiber Lines

Existing to Remain:

- (3) Ericsson RRUS-32-B30
- (2) Raycap Surge Units
- (6) Coax (1-1/4")
- (3) DC Lines
- (2) Fiber Lines

AT&T's use of this facility was first approved by the Connecticut Siting Council on May 23, 1994. The approval included no conditions that could feasibly be violated by this proposed modification, including total facility height and mounting restrictions. This modification therefore complies with the aforementioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Mayor Donald Trinkins and Eric Barz, Town Planner for the Town of Windsor, as well as the tower and property owners.

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

1. The proposed modifications will not result in an increase in the height of the existing structure.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modifications will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
6. The existing structure and its foundation can support the proposed loading.

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

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

Sincerely,

Mark Roberts

Mark Roberts
Consultant for SAI
Mark.Roberts@QCDevelopment.net

Attachments

Cc: Mayor Donald Trinks - Elected Official
Eric Barz - Town Planner
SNET - Property Owner
Everest Infrastructure Partners – Tower Owner

Exhibit A

Original Facility Approval



STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

136 Main Street, Suite 401
New Britain, Connecticut 06051-4225
Phone: 827-7682

FILE
COPY

May 24, 1994

Peter J. Tyrrell, Senior Attorney
Springwich Cellular Limited Partnership
227 Church Street
New Haven, CT 06510

RE: Springwich Cellular Limited Partnership notice of intent to modify an existing telecommunications tower and associated equipment located at 419 Broad Street in Windsor, Connecticut.

Dear Attorney Tyrrell:

At a meeting held May 23, 1994, the Connecticut Siting Council (Council) acknowledged your notice of an exempt modification at an existing tower site located at 419 Broad Street in Windsor, Connecticut, pursuant to section 16-50j-73 of the Regulations of State Agencies (RSA).

The proposed modification is to be implemented as specified in your notice dated May 13, 1994. The modification is in compliance with the exception criteria in RSA section 16-50j-72(b) as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by 6 decibels, and increase the total radio frequency electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to section 22a-162 of the Connecticut General Statutes.

The Council is pleased to note that the shared use of an existing tower serves the Council's long-term goal of protecting the public interest and avoiding proliferation of additional unnecessary tower structures.

Please notify the Council when all work is complete.

Very truly yours,


Mortimer A. Gelston
Chairman

MAG:RKE:mmb

cc: Hon. Albert G. Ilg, Town Manager, Town of Windsor
Hon. Brian T. Griffin, Mayor, Town of Windsor
Hon. William Donegan, First Selectman, Town of Windsor

7901E 5

Springwich Cellular Limited Partnership
227 Church Street
New Haven, Connecticut 06510
Phone (203) 771-7381



Peter J. Tyrrell
Senior Attorney

May 13, 1994

Mr. Mortimer A. Gelston, Chairman
Connecticut Siting Council
136 Main Street, Suite 401
New Britain, CT 06051

RECEIVED
MAY 13 1994

CONNECTICUT
SITING COUNCIL

Dear Chairman Gelston:

Enclosed please find a Notice of Intent to Modify an Exempt Tower and Associated Equipment for facilities owned and operated by the Southern New England Telephone Company (SNET) located at 419 Broad Street in Windsor, Connecticut.

The Springwich Cellular Limited Partnership (SCLP) proposes to add antennas to an existing monopole tower and place equipment within the existing SNET building, to be used in providing cellular telecommunications services.

The attached pages detail the required information. As is shown in the attachment, the proposed addition meets all the necessary criteria established in the Regulations of Connecticut State Agencies Section 16-50j-72(b)(2), and is thus an exempt facility pursuant to Section 16-50j-73.

Please record me as counsel for SCLP in this matter and in all correspondence from the Council.

Thank you for your cooperation.

Very truly yours,

A handwritten signature in blue ink that reads "Peter J. Tyrrell".

Copy to: Honorable Albert G. Ilg, Town Manager, Town
of Windsor, Town Hall, 275 Broad Street, Windsor,
CT 06095

Honorable Brian T. Griffin, Mayor, Town of Windsor

Honorable William Donegan, First Selectman, Town of Windsor

WINDSOR

Pursuant to Section 16-50i(a)(5) of the Connecticut General Statutes and Section 16-50j-72(b)(2), as amended, of the Regulations of Connecticut State Agencies, the Springwiche Cellular Limited Partnership (SCLP) hereby notifies the Connecticut Siting Council that it intends to modify an existing telecommunications facility by adding cellular service antennas to an existing monopole tower and associated radio equipment within an existing building. The site is located at 419 Broad Street in Windsor, Connecticut.

BACKGROUND

The proposed location is at the SNET Windsor Central Office site. This 25 foot tall one story building contains the equipment required to provide local telephone exchange service to the residents of Windsor.

Adjacent to the building is an existing 100 foot monopole tower with a 15 foot whip style antenna on top. This structure was constructed in approximately 1971 and predates the Siting Council's tower list. This facility provides internal company vehicle to vehicle communications within the greater Windsor area.

DISCUSSION

SCLP proposes to add two 6 foot tall cellular whip antennas on short stand-off brackets below the existing antenna, in order to supplement its cellular coverage in the downtown Windsor area and along nearby Routes 5, 159 and I-91. The proposed additional antennas will not increase the overall height of the existing tower nor will they be very visible from ground level, as can be seen on the attached tower profile.

The cellular equipment required to operate these antennas will be contained within a 12 foot x 16 foot area of the first floor of the existing Central Office building, as shown on the attached floor plan.

The power density in the mobile and cellular frequency bands is set forth below. The levels shown indicate the total power density in milliwatts per square centimeter, and have been calculated at a distance of 25 feet from the base of the tower.

| <u>Service</u> | <u>Power Density</u> | <u>Connecticut Standard</u> | <u>Percent of Standard</u> |
|----------------|----------------------|-----------------------------|----------------------------|
| Mobile Radio | 0.0046 | 0.2000 | 2.30 |
| Cellular | 0.2907 | 0.5867 | 49.55 |

The current Connecticut (and ANSI) power density level standards for non-ionizing radiation are shown above. The levels demonstrated in this case are well below the standard levels.

CONCLUSION

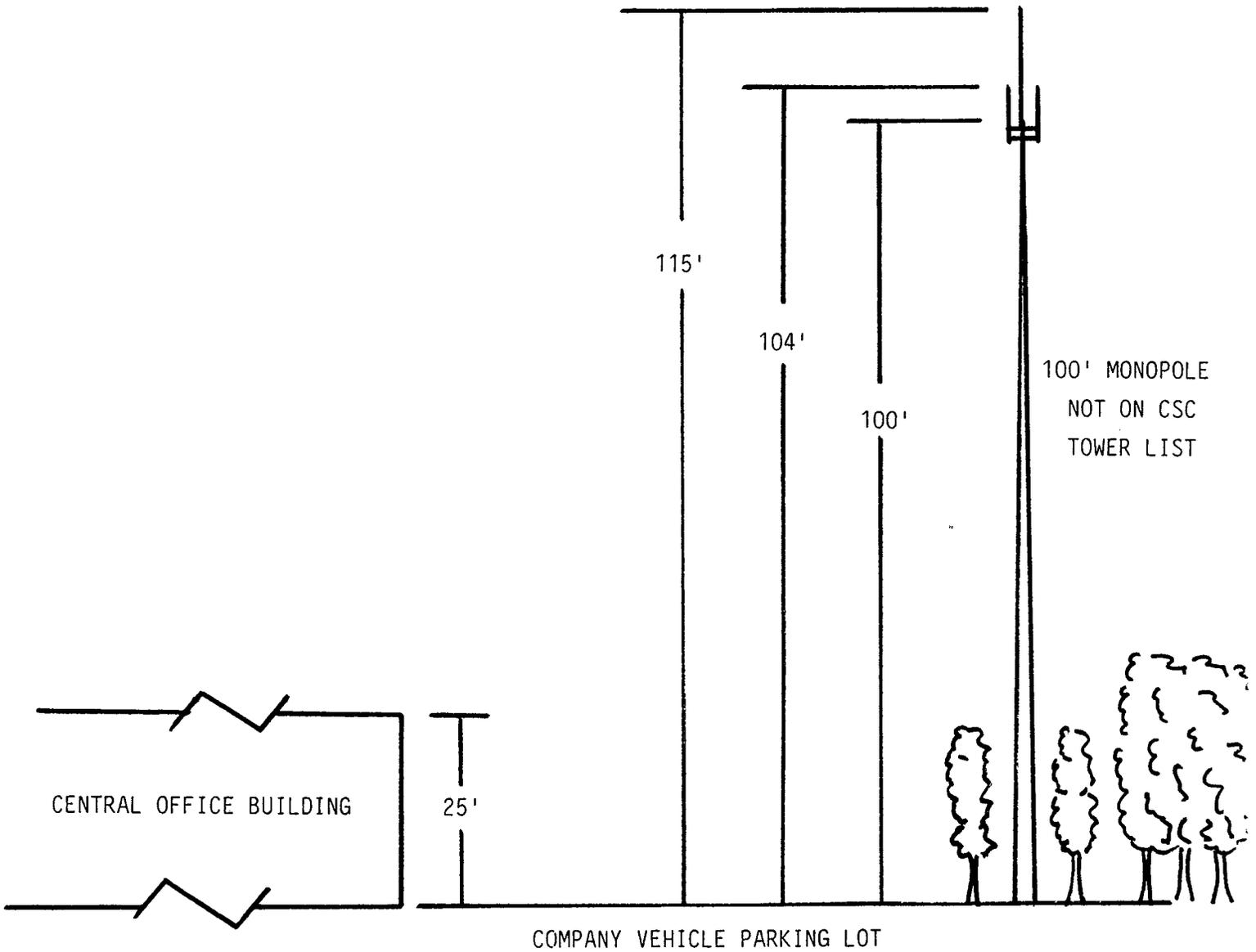
The proposed addition does not constitute a "modification" of an existing facility as defined in Connecticut General Statutes Section 16-50i(d). This is because there is no change in the tower's height. There is no extension of the boundaries of the site. There will be no increase in noise levels at the site's boundary by six decibels or more, and the total radio frequency electromagnetic radiation is not at or above the standard set forth in Section 22(a)-162 of the Connecticut General Statutes. This addition will not have a substantially adverse environmental effect.

For the reasons discussed above, SCLP requests that the Council acknowledge that this Notice of Modification meets the Council's exemption criteria.

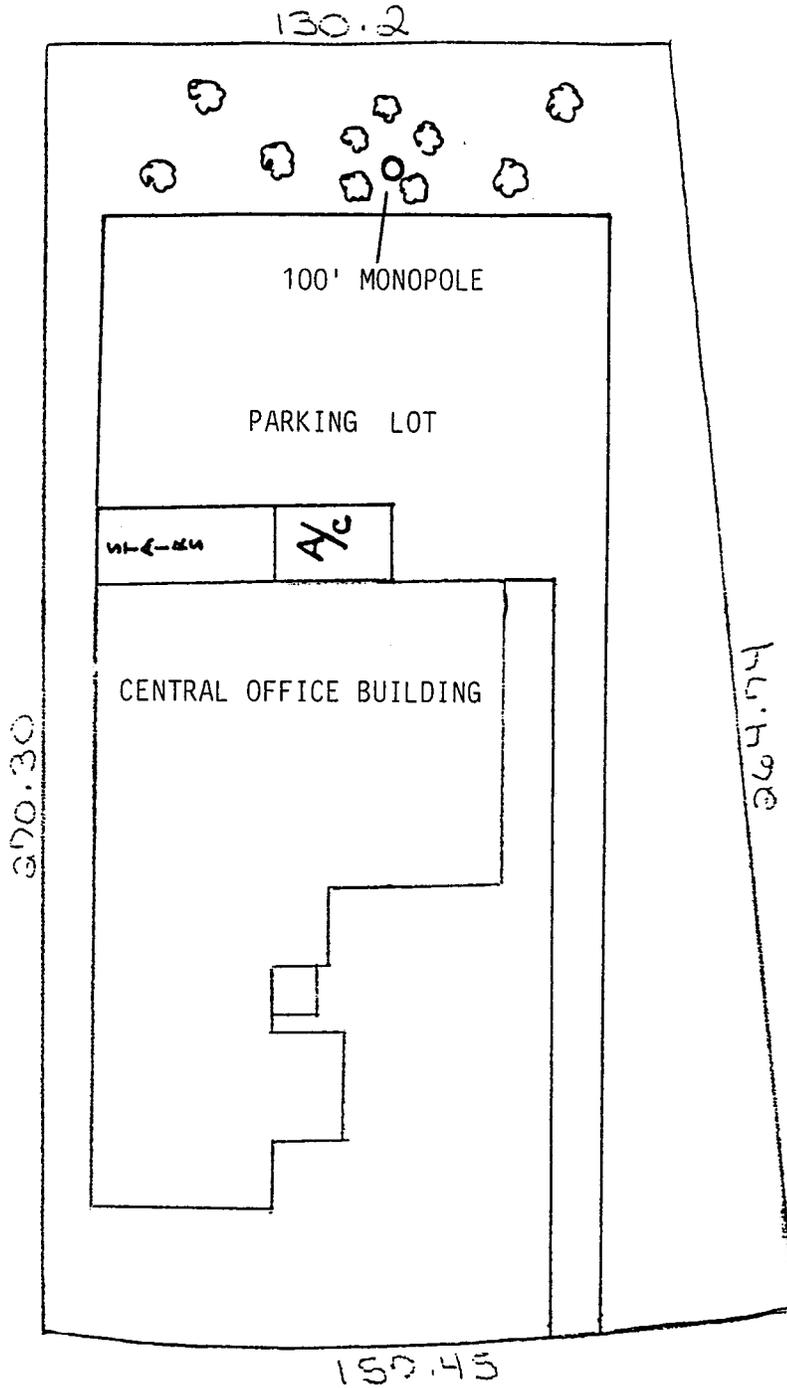
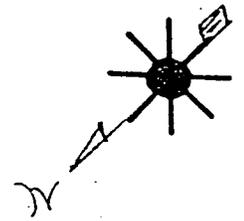
SOUTHERN NEW ENGLAND TELEPHONE

WINDSOR CENTRAL OFFICE

419 BROAD STREET



BUILDING HEIGHT 25'
MONOPOLE PLUS EXISTING ANTENNA 115'
CELLULAR ANTENNAS 104'
MONOPOLE STRUCTURE 100'



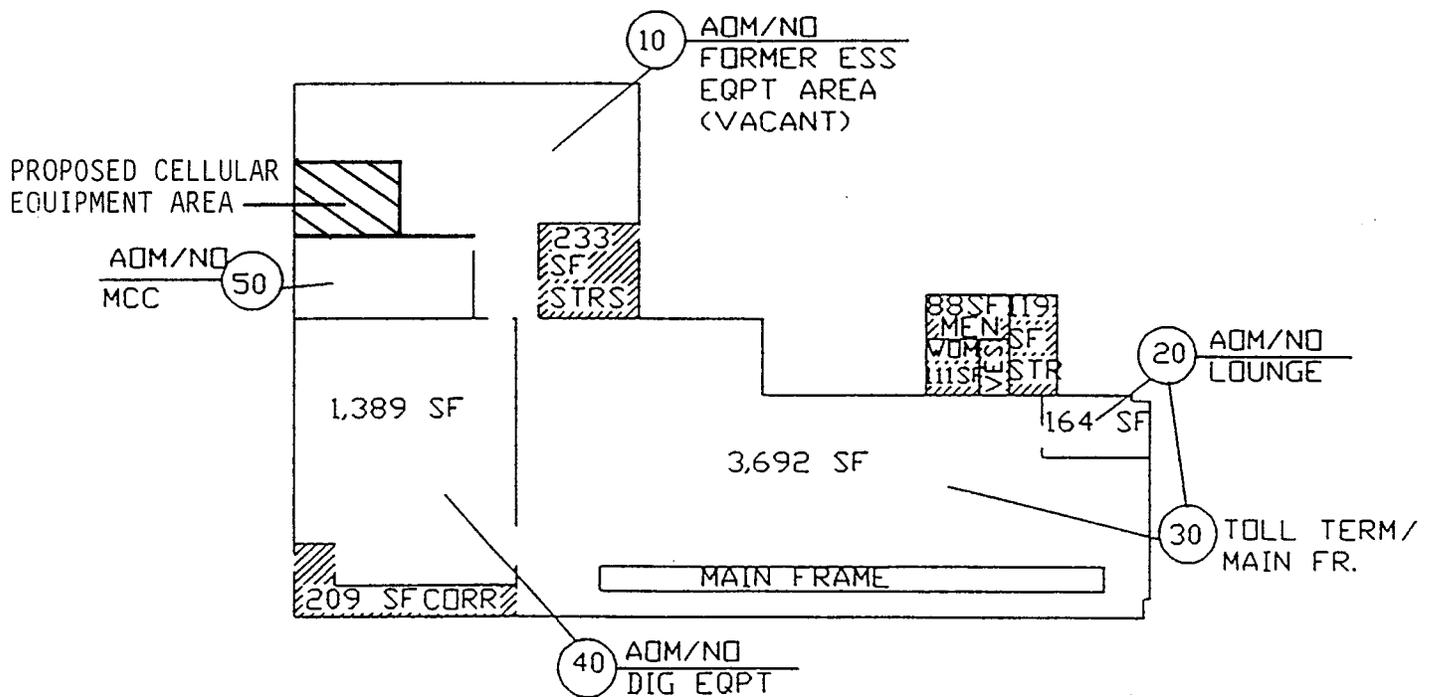
WINDSOR - C.O.

BUILDING ENGINEERING DEPARTMENT

419 BROAD STREET
PLOT FLOOR PLAN

ASSIGN AREA
GROSS AREA
SCALE 1"=40'

ISSUED 3-17-65
REVISED 7-27-79
ENG'R B.B.M.



BLDG: WINDSOR C.O.

ADDRESS: 419 BROAD ST.

FLOOR: First

SNET BUILDINGS AND REAL ESTATE

ASSIGN AREA: 6,973 SF

GROSS AREA: 7,733 SF

RNTBL. AREA -

SCALE: 1"=30'

ISSUED: 7-24-69

REVISED: 9-3-93

ENGR.: NMA

REC: 2-5151

Exhibit B

Property Card

Property Cards

Address Search : [Clear Search](#)

419 Broad St

Property Owner:
Southern New England

Property Co-Owner
C/O Frontier Communications Tax Dept

Mailing Address:
406 Merritt 7
Norwalk, CT
06851

File Code
3407

Map:
77

Block:
65

Lot:
19

Census Tract:
4734.00

Property Type:
Tel X Station

Land Area (Acres):
0.47

Zone:
R11



Construction Details

| | |
|--|-----------------------------------|
| Year Built: 1955 | Total Rooms: |
| Building Style: Telephone Bldg | Bedrooms: |
| Stories: 1 | Bathrooms: |
| Living Area: 0 Sq/Ft | Half Baths: |
| Building ID 10739 | Heating Type Forced Air |
| Grade Average | Heating Fuel Oil |
| Exterior Wall Brick Veneer | AC Type Central |

| Valuation | |
|----------------------------------|-----------|
| Assessed Land Value: | \$100,450 |
| Assessed Building Value: | \$179,900 |
| Total Assessed Value: | \$280,350 |
| Appraised Land Value: | \$143,500 |
| Appraised Building Value: | \$257,000 |
| Total Appraised Value: | \$400,500 |

| Last Sale | |
|-------------------------|-------------------------|
| Last Sale Date: | Friday, June 30th, 1944 |
| Last Sale Price: | \$0 |
| Qualified Sale: | |
| Book/Page: | 124/0030 |

| Prior Owners | | | |
|--------------|------------|------------|-------------|
| Sale Date | Owner Name | Sale Price | Book / Page |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |
| | | | |

Parcel Sketch

| Sub Area Detail | | |
|-----------------|--------------------|---------------------|
| Code | Gross Area (Sq Ft) | Living Area (Sq Ft) |
| BAS | 8253 | 8253 |
| PTO | 184 | 0 |
| UBM | 4598 | 0 |

| Outbuildings & Extra Features | | | |
|-------------------------------|----------------|-----------------|----------------|
| Code | Description | Appraised Value | Assessed Value |
| PAV1 | PAVING-ASPHALT | \$6900.00 | \$4830.00 |

| | | |
|------------------------------------|--|--|
| AOF Office Area | APT Apartment | BAS First Floor |
| CAN Canopy | CDN Canopy (Det) | CLP Loading Platform (Finished) |
| EAF Attic (Expan)(Finished) | EAU Attic (Expan)(Unfinished) | FAT Attic (Finished) |
| FBM Basement (Finished) | FCB Cabana (Encl)(Finished) | FCP Carport (Framed) |
| FDC Carport (Det)(Framed) | FDS Porch (Scrn)(Det)(Finished) | FDU Utility (Det)(Finished) |
| FEP Porch (Encl)(Finished) | FGR Garage (Framed) | FHS Half-Story (Finished) |

-72.648010, 41.846685

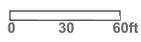


Exhibit C

Construction Drawings

PROJECT INFORMATION

SCOPE OF WORK: ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:

- NEW AT&T ANTENNAS: AIR6419 B77G (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: AIR6449 B77 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: TPA-65R-BU6DA-K (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: OPA65R-BU6BA (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4478 B14 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 8843 B2/B66A (PCS/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T SURGE ARRESTOR: DC6-48-60-18 (TOTAL OF 1).
- NEW (3) 6AWG DC TRUNK.
- NEW (1) 18 PAIR FIBER.
- NEW (6) Y-CABLES.
- PROPOSED ANTENNA MOUNT FRAME (SITEPRO PART# VFA14-H10-2120) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- PROPOSED AT&T MOUNT RING (SITEPRO PART# LWRM) (TOTAL OF 2).
- PROPOSED AT&T STAND-OFF (SITEPRO PART# MM01) (TOTAL OF 6).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- ADD 6648 + XCEDE CABLE.
- ADD 6630 + IDLE CABLE.
- ADD (4) RECTIFIERS.
- ADD (1) STRINGS OF BATTERIES TO EXISTING POWER PLANT.
- ADD DC12-48-60-RM.

ITEMS TO BE REMOVED:

- EXISTING AT&T ANTENNAS: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNAS: HPA-65R-BUU-H6 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNAS: QS66512-2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRUS-11 B12 (700) (TYP. 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRUS-32 B2 (PCS) (TYP. 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T DIPLEXER: LGP 21901 (TYP. 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T DIPLEXER: DBC0061F1V51-2 (TYP. 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T TMAS TT19-08BP111-001 (TYP. 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T (6) 1-1/4" COAX CABLES.

ITEMS TO REMAIN:

- (3) RRU'S, (2) SURGE ARRESTOR, (6) COAX CABLES, (3) DC POWER & (2) FIBER.

SITE ADDRESS: 419 BROAD STREET
WINDSOR, CT 06095

LATITUDE: 41.8458811° N, 41° 50' 45.17" N

LONGITUDE: 72.6461381° W, 72° 38' 46.09" W

TYPE OF SITE: MONOPOLE / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 100'-0"±

RAD CENTER: 100'-0"± (LTE), 101'-8"± (DoD), 98'-2"± (C-Band)

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY

DRAWING INDEX

| SHEET NO. | DESCRIPTION | REV. |
|-----------|-----------------------------|------|
| T-1 | TITLE SHEET | 1 |
| GN-1 | GENERAL NOTES | 1 |
| A-1 | COMPOUND & EQUIPMENT PLANS | 1 |
| A-2 | ANTENNA LAYOUTS & ELEVATION | 1 |
| A-3 | DETAILS | 1 |
| A-4 | DETAILS | 1 |
| SN-1 | STRUCTURAL NOTES | 1 |
| G-1 | GROUNDING DETAILS | 1 |
| RF-1 | RF PLUMBING DIAGRAM | 1 |



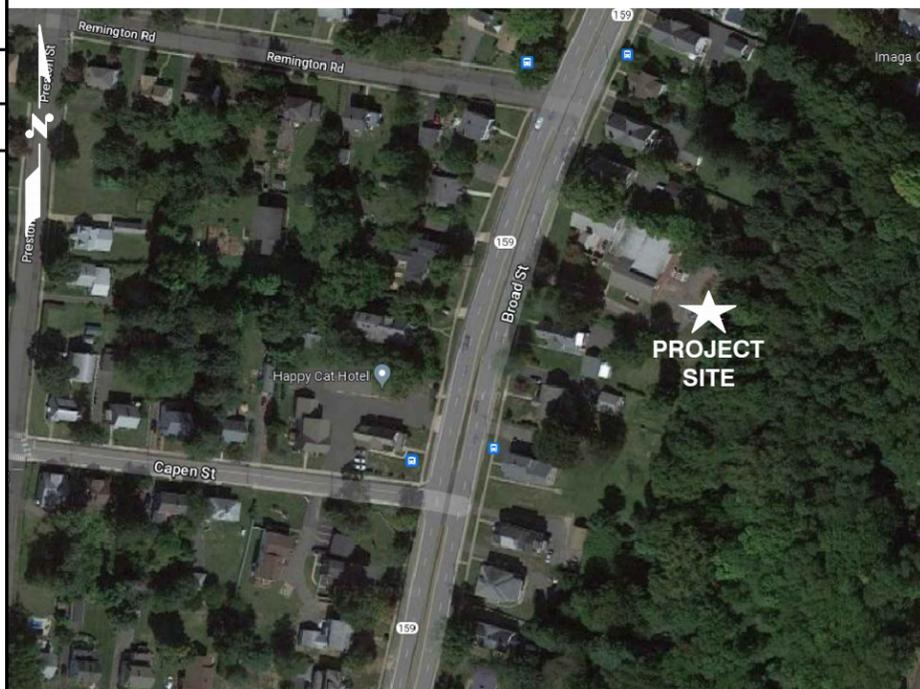
SITE NUMBER: CTL01026
SITE NAME: WINDSOR
FA CODE: 10035043

PACE ID: MRCTB061150, MRCTB061112, MRCTB061146, MRCTB061143, MRCTB061164, MRCTB061113, MRCTB061117, MRCTB061145, MRCTB039871
PROJECT: 5G NR 1SR CBAND_4TX4RX RETOFIT_BBU ADD_5G NR 1DR-1_5G NR 1DR-2_LTE 4C_LTE BBU DUS41 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

START OUT GOING EAST ON ENTERPRISE DR TOWARD CAPITAL BLVD.TURN LEFT ONTO CAPITAL BLVD.TURN LEFT ONTO WEST ST.MERGE ONTO I-91 N VIA THE RAMP ON THE LEFT TOWARD HARTFORD.TAKE THE PARK AVE/CT-178 EXIT, EXIT 36, TOWARD BLOOMFIELD.TURN RIGHT ONTO PARK AVE/CT-178.TURN LEFT ONTO WINDSOR AVE/CT-159. CONTINUE TO FOLLOW CT-159.419 BROAD ST, WINDSOR, CT 06095-3031, 419 BROAD ST IS ON THE RIGHT.



GENERAL NOTES

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

72 HOURS



CALL BEFORE YOU DIG



CALL TOLL FREE 1-800-922-4455

OR CALL 811

UNDERGROUND SERVICE ALERT

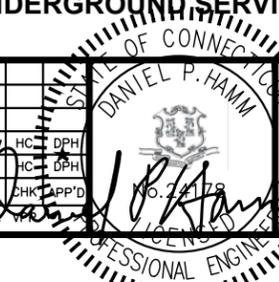
HGD HUDSON Design Group LLC
45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
TEL: (978) 557-5553 FAX: (978) 336-5586

SAI
12 INDUSTRIAL WAY SALEM, NH 03079

SITE NUMBER: CTL01026
SITE NAME: WINDSOR
419 BROAD STREET WINDSOR, CT 06095 HARTFORD COUNTY

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

| NO. | DATE | REVISIONS | DESIGNED BY | DRAWN BY | CHECKED BY | APP'D BY | SCALE | SITE NUMBER | DRAWING NUMBER | REV |
|-----|----------|-------------------------|-------------|----------|------------|----------|-------|-------------|----------------|-----|
| 1 | 06/09/22 | ISSUED FOR CONSTRUCTION | JJ | HC | DPH | | | CTL01026 | T-1 | 1 |
| A | 05/04/22 | ISSUED FOR REVIEW | PS | HC | DPH | | | | | |



AT&T
TITLE SHEET
5G NR 1SR CBAND_4TX4RX RETOFIT_BBU ADD_5G NR 1DR-1_5G NR 1DR-2_LTE 4C_LTE BBU DUS41 UPGRADE

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.
2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
 CONTRACTOR – SAI
 SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
 OWNER – AT&T MOBILITY
2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.
3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.
5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.
7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.
9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.
10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.
13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.
15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."
17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.
18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.
19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. **APPLICABLE BUILDING CODES:**
 SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

**BUILDING CODE: IBC 2015 WITH 2018 CT STATE BUILDING CODE AMENDMENTS
 ELECTRICAL CODE: 2017 NATIONAL ELECTRICAL CODE (NFPA 70-2017)**

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

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

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

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

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

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



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



12 INDUSTRIAL WAY
 SALEM, NH 03079

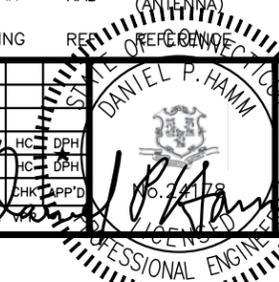
**SITE NUMBER: CTL01026
 SITE NAME: WINDSOR**

419 BROAD STREET
 WINDSOR, CT 06095
 HARTFORD COUNTY



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

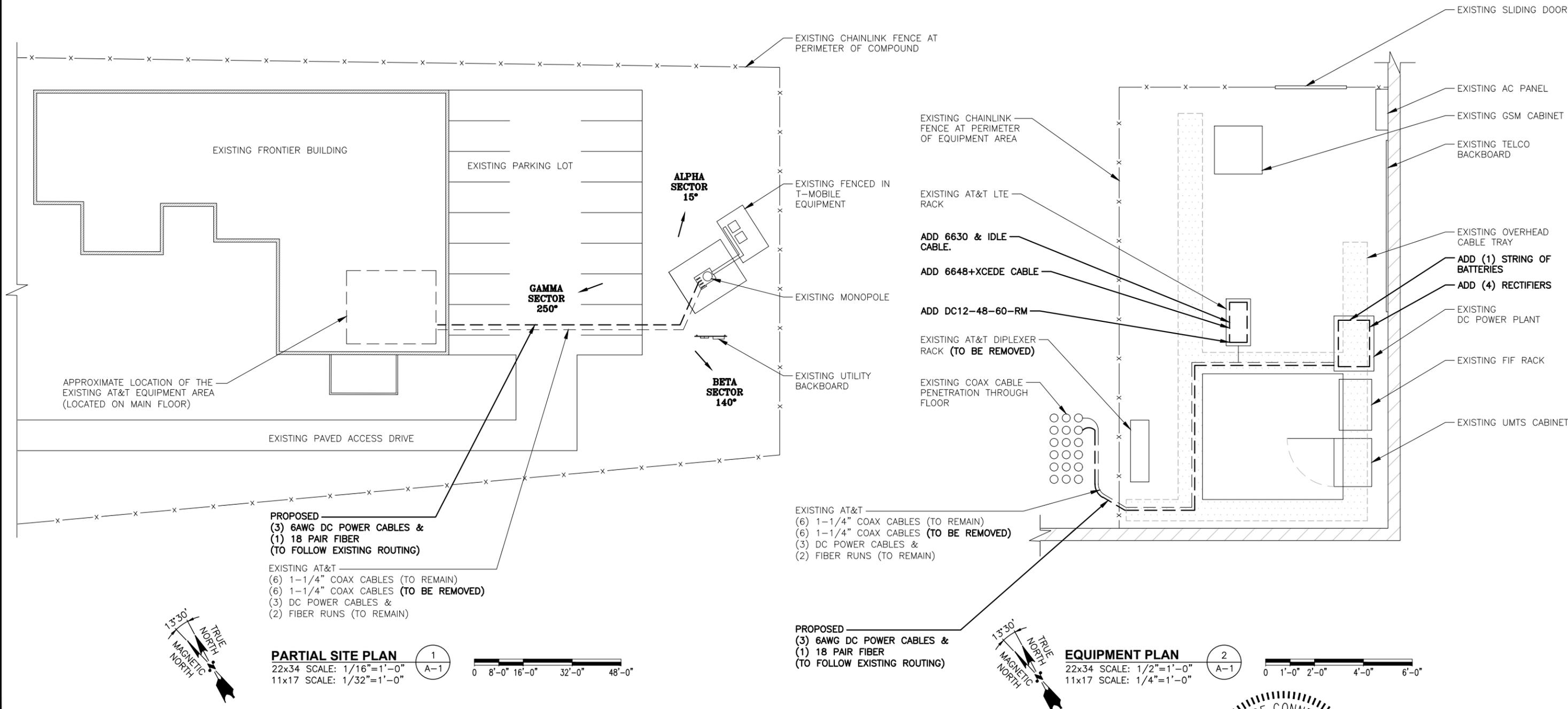
| AT&T GENERAL NOTES | | | | SITE NUMBER | | DRAWING NUMBER | | REV | |
|--------------------|----------|-------------------------|---------------|-------------|-------|----------------|------|-----|---|
| 1 | 06/09/22 | ISSUED FOR CONSTRUCTION | JJ | HC | DPH | CTL01026 | GN-1 | | 1 |
| A | 05/04/22 | ISSUED FOR REVIEW | PS | HC | DPH | | | | |
| NO. | DATE | REVISIONS | BY | CHK | APP'D | | | | |
| SCALE: AS SHOWN | | DESIGNED BY: HC | DRAWN BY: YPA | | | | | | |



5G NR 1SR CBAND_4T4R RETOFT_BBU
 ADD_5G NR 1DR-1.5G NR 1DR-2_LTE
 4C_LTE BBU DU541 UPGRADE

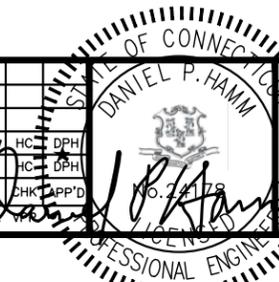
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

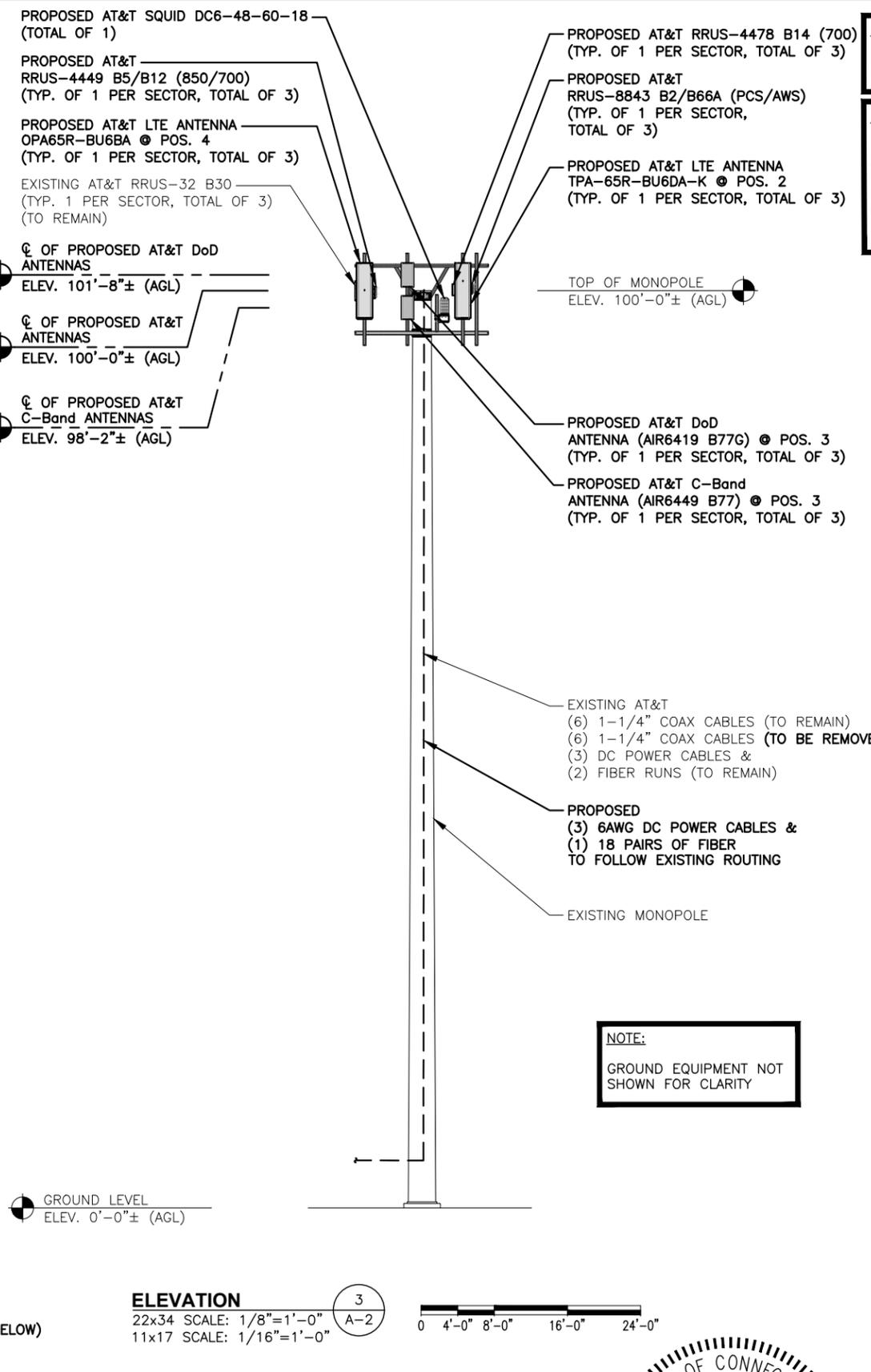
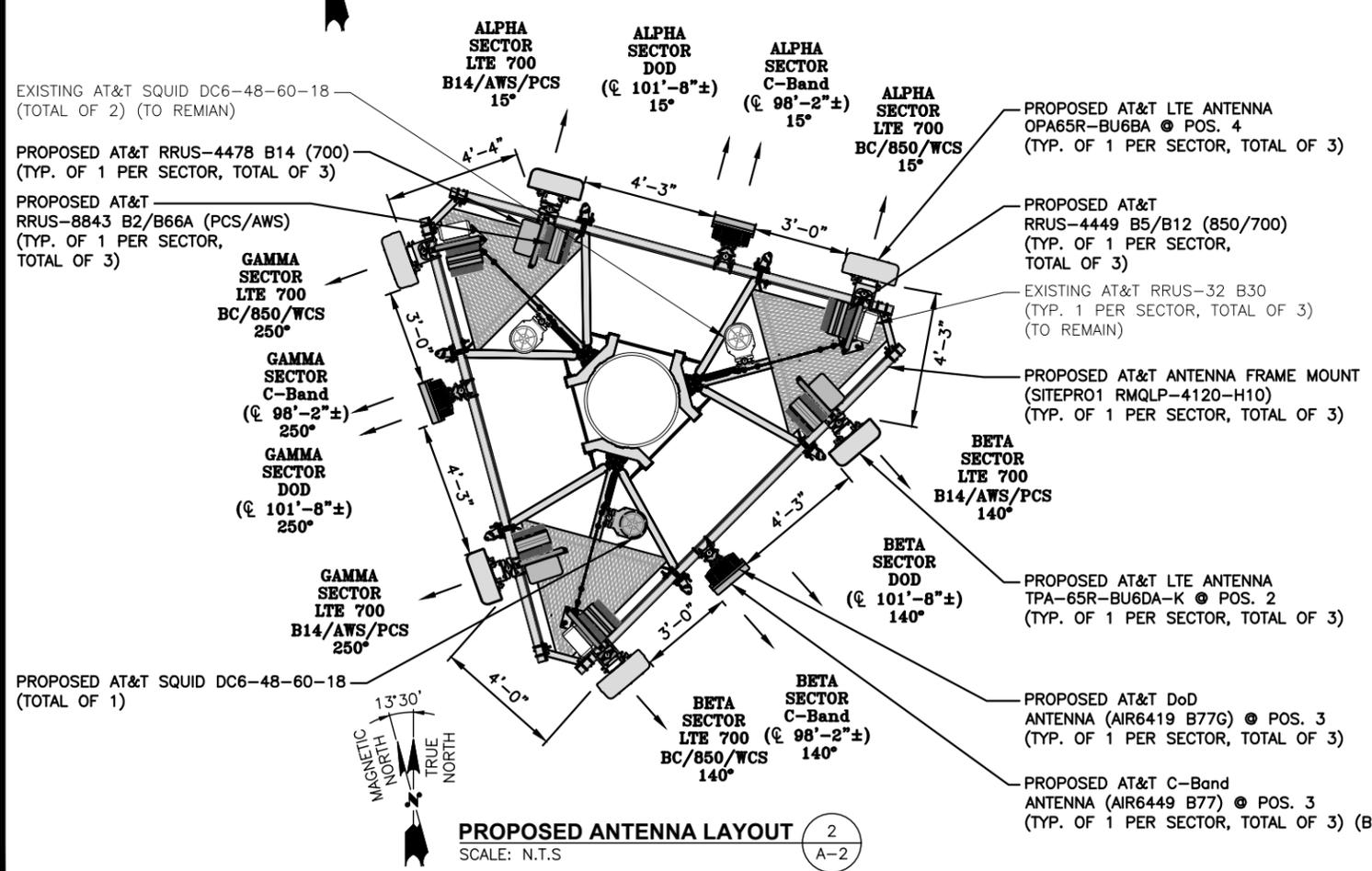
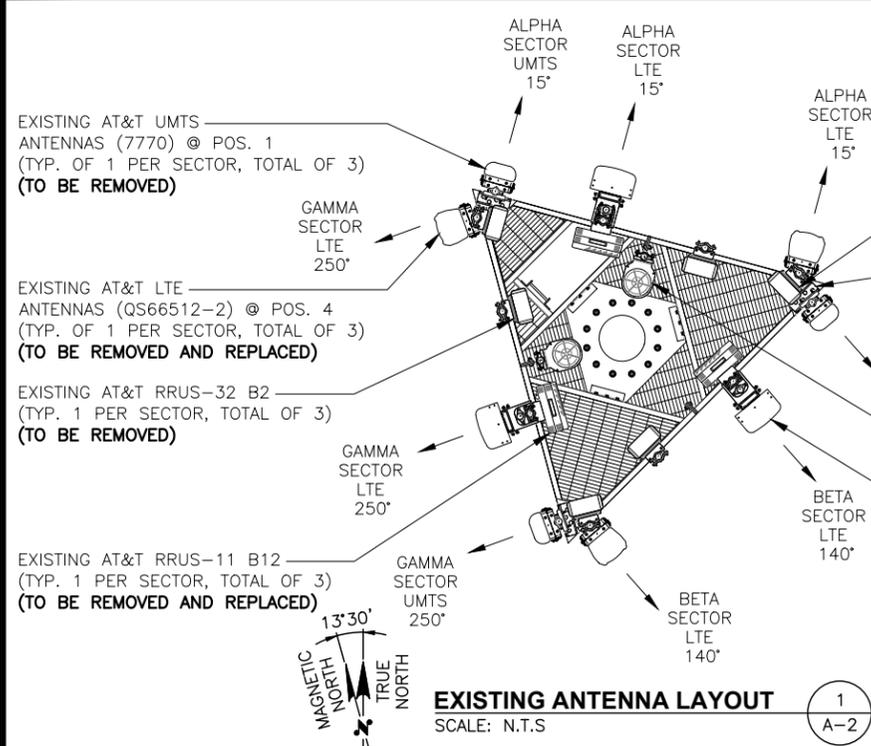
NOTE:
REFER TO MOUNT STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: APRIL 20, 2022, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT



| NO. | DATE | REVISIONS | BY | CHK | APP'D |
|-----|----------|-------------------------|----|-----|-------|
| 1 | 06/09/22 | ISSUED FOR CONSTRUCTION | JJ | HC | DPH |
| A | 05/04/22 | ISSUED FOR REVIEW | PS | HC | DPH |

SCALE: AS SHOWN DESIGNED BY: HC DRAWN BY: YPK





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

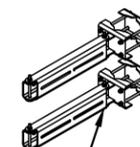
NOTE:
REFER TO MOUNT STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: APRIL 20, 2022, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT

ANTENNA SCHEDULE

| SECTOR | EXISTING/ PROPOSED | BAND | ANTENNA | SIZE (INCHES) (L x W x D) | ANTENNA Ø HEIGHT | ANTENNA TIP HEIGHT | AZIMUTH | TMA/ DIPLEXER | RRU | SIZE (INCHES) (L x W x D) | FEEDER | RAYCAP |
|--------|-----------------------|------------------------|--|---------------------------------|---------------------|-----------------------|---------|------------------|--|---------------------------------|--|-------------------------------|
| A1 | - | - | - | - | - | - | - | - | - | - | (E)(2)1-1/4 COAX | (E)(1) RAYCAP DC6-48-60-18 |
| A2 | PROPOSED | LTE 700 B14/AWS/PCS | TPA-65R-BU6DA-K | 71.2x20.7x7.7 | 100'-0"± | 103'-0"± | 15° | - | (P)(1) 4478 B14 (700) (P)(1) 8843 B2/B66A (PCS/AWS) | 18.1x13.4x8.3 14.9x13.2x10.9 | (E)(2) DC POWER, (E)(1) FIBER & (P)(1) Y-CABLE | (E)(1) RAYCAP DC6-48-60-18 |
| A3 | PROPOSED | C-BAND/DOD | AIR6419 B77G AIR6449 B77 (STACKED) | 31.1X16.1X7.3 30.6X15.9X10.6 | 101'-8"± 98'-2"± | 103'-0"± 99'-5"± | 15° | - | - | - | - | (E)(1) RAYCAP DC6-48-60-18 |
| A4 | PROPOSED | LTE 700 BC/850/WCS | OPA65R-BU6BA | 71.1x11.7x8.4 | 100'-0"± | 103'-0"± | 15° | - | (P)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS) | 17.9x13.2x10.4 | (P)(1) Y-CABLE | (E)(1) RAYCAP DC6-48-60-18 |
| B1 | - | - | - | - | - | - | - | - | - | - | (E)(2)1-1/4 COAX | (E)(1) RAYCAP DC6-48-60-18 |
| B2 | PROPOSED | LTE 700 B14/AWS/PCS | TPA-65R-BU6DA-K | 71.2x20.7x7.7 | 100'-0"± | 103'-0"± | 140° | - | (P)(1) 4478 B14 (700) (P)(1) 8843 B2/B66A (PCS/AWS) | 18.1x13.4x8.3 14.9x13.2x10.9 | (E)(1) DC POWER, (P)(1) DC POWER, (E)(1) FIBER & (P)(1) Y-CABLE | (E)(1) RAYCAP DC6-48-60-18 |
| B3 | PROPOSED | C-BAND/DOD | AIR6419 B77G AIR6449 B77 (STACKED) | 31.1X16.1X7.3 30.6X15.9X10.6 | 101'-8"± 98'-2"± | 103'-0"± 99'-5"± | 140° | - | - | - | - | (E)(1) RAYCAP DC6-48-60-18 |
| B4 | PROPOSED | LTE 700 BC/850/WCS | OPA65R-BU6BA | 71.1x11.7x8.4 | 100'-0"± | 103'-0"± | 140° | - | (P)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS) | 17.9x13.2x10.4 | (P)(1) Y-CABLE | (E)(1) RAYCAP DC6-48-60-18 |
| C1 | - | - | - | - | - | - | - | - | - | - | (E)(2)1-1/4 COAX | (E)(1) RAYCAP DC6-48-60-18 |
| C2 | PROPOSED | LTE 700 B14/AWS/PCS | TPA-65R-BU6DA-K | 71.2x20.7x7.7 | 100'-0"± | 103'-0"± | 250° | - | (P)(1) 4478 B14 (700) (P)(1) 8843 B2/B66A (PCS/AWS) | 18.1x13.4x8.3 14.9x13.2x10.9 | (P)(2) DC POWER & (P)(1) FIBER (P)(1) Y-CABLE | (E)(1) RAYCAP DC6-48-60-18 |
| C3 | PROPOSED | C-BAND/DOD | AIR6419 B77G AIR6449 B77 (STACKED) | 31.1X16.1X7.3 30.6X15.9X10.6 | 101'-8"± 98'-2"± | 103'-0"± 99'-5"± | 250° | - | - | - | - | (E)(1) RAYCAP DC6-48-60-18 |
| C4 | PROPOSED | LTE 700 BC/850/WCS | OPA65R-BU6BA | 71.1x11.7x8.4 | 100'-0"± | 103'-0"± | 250° | - | (P)(1) 4449 B5/B12 (850/700) (E)(1) RRUS-32 B30 (WCS) | 17.9x13.2x10.4 | (P)(1) Y-CABLE | (E)(1) RAYCAP DC6-48-60-18 |

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

NOTE:
REFER TO MOUNT STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: APRIL 20, 2022, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT



DUAL RRU MOUNT
(ROSENBERGER PART#
D22ORRUDSM) (TYP. OF 2
PER SECTOR, TOTAL OF 6)

DUAL RRU MOUNT DETAIL
SCALE: N.T.S.

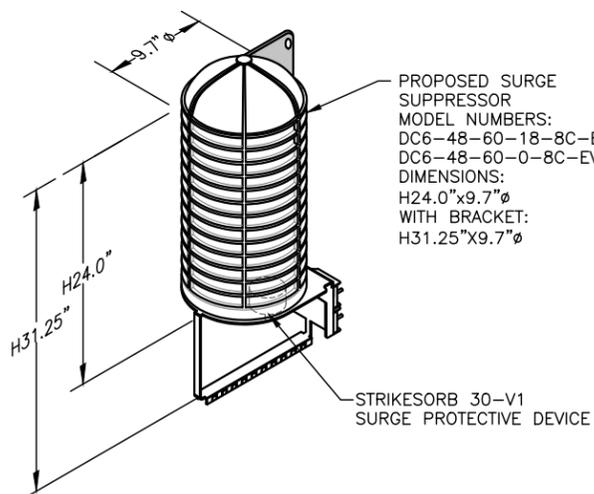
7
A-3

| QUANTITY | MODEL | SIZE (L x W x D) |
|----------|----------------|-------------------|
| P(3) | 4478 B14 (700) | 18.1"x13.4"x8.3" |
| P(3) | 8843 (PCS/AWS) | 14.9"x13.2"x10.9" |
| P(3) | 4449 (850/700) | 17.9"x13.2"x10.4" |
| E(3) | RRUS-32 (WCS) | 27.2"x12.1"x7.0" |

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

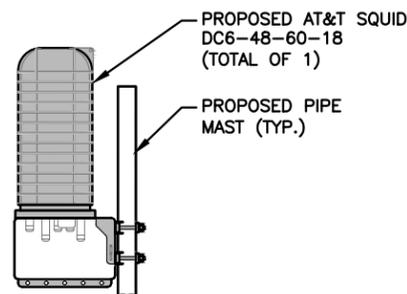
FINAL ANTENNA SCHEDULE
SCALE: N.T.S.

1
A-3



DC SURGE SUPPRESSOR DETAIL
SCALE: N.T.S.

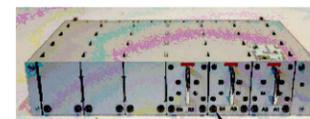
3
A-3



PROPOSED SURGE PROTECTOR MOUNTING DETAIL

22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

4
A-3



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED DC12 RAYCAP
P/N DC12-48-60-RM
WEIGHT: 15.0 LBS.

DC12 DETAIL

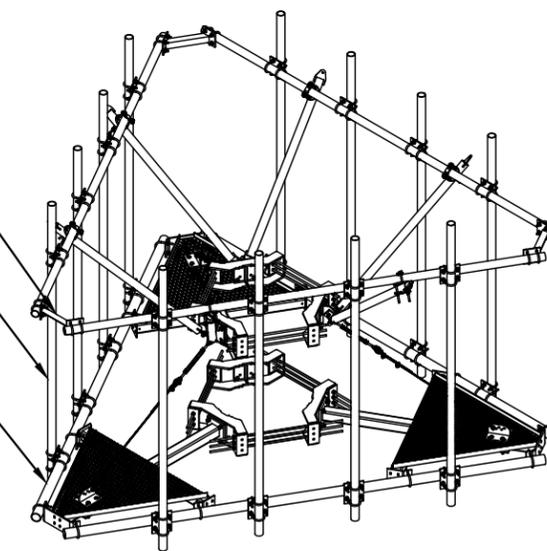
SCALE: N.T.S.

5
A-3

PROPOSED 2-1/2" STD. (2.88" O.D.)
14'-6" LONG PIPE MAST (TYP. OF 1
PER SECTOR, TOTAL OF 3)

PROPOSED 2-1/2" STD. (2.88" O.D.)
10' LONG PIPE MAST (TYP. OF 4 PER
SECTOR, TOTAL OF 12)

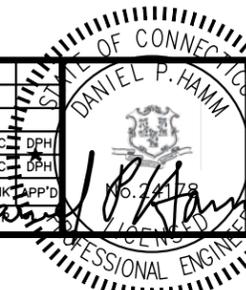
PROPOSED 3-1/2" STD. (4" O.D.)
14'-6" LONG PIPE MAST (TYP. OF 1
PER SECTOR, TOTAL OF 3)



PROPOSED MOUNT MODIFICATIONS DETAIL

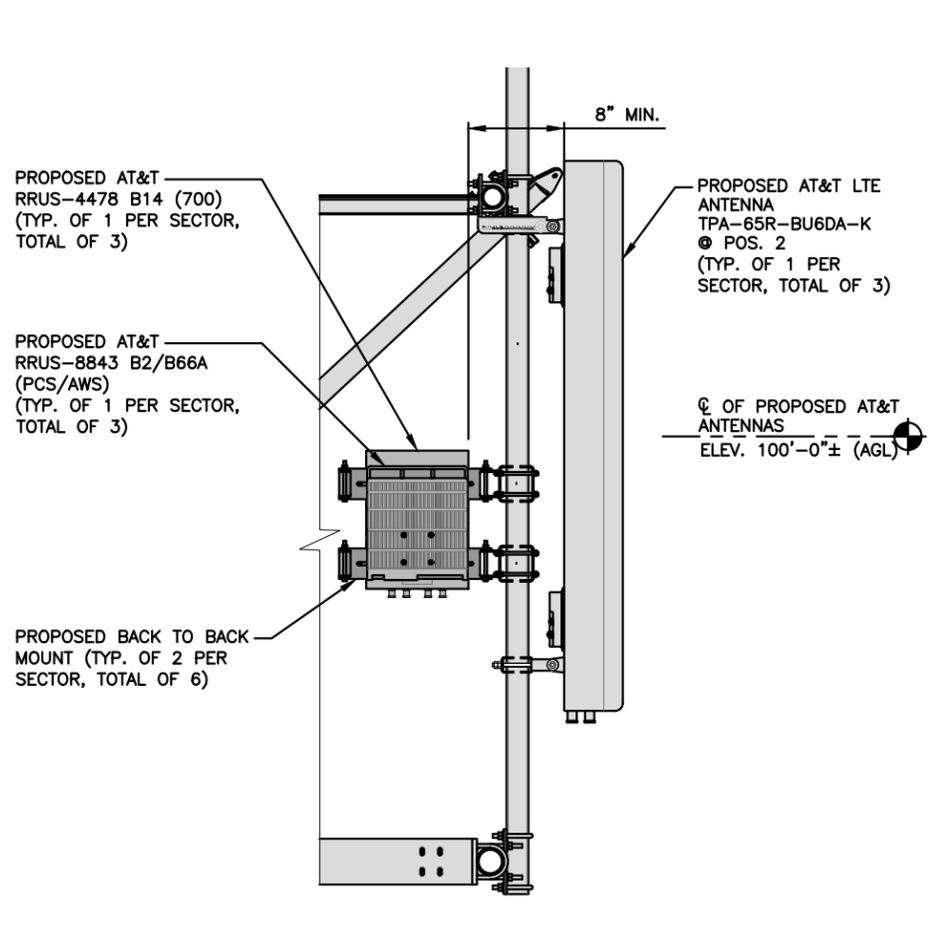
SCALE: N.T.S.

6
A-3

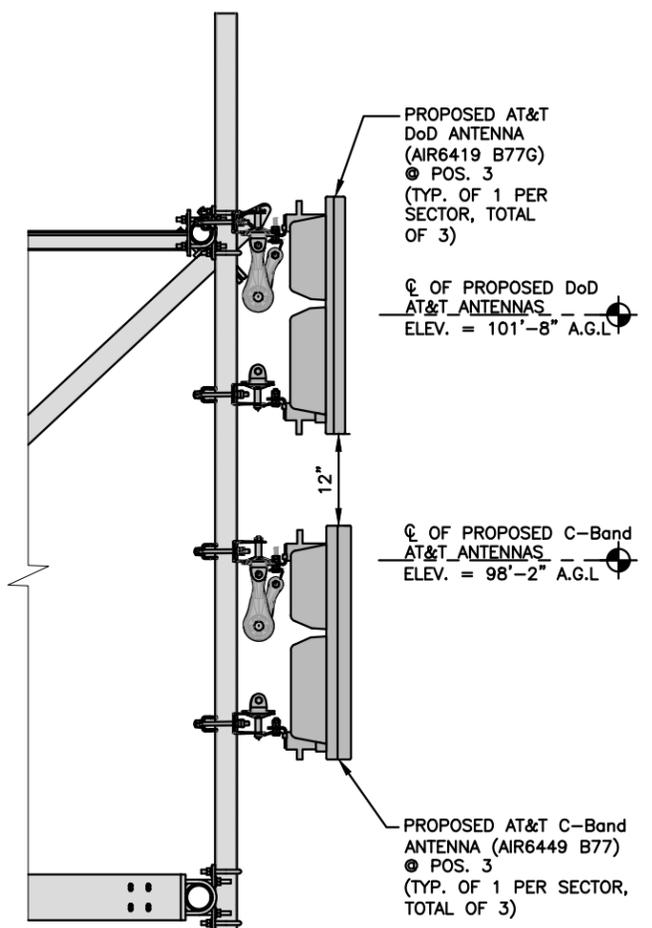


NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

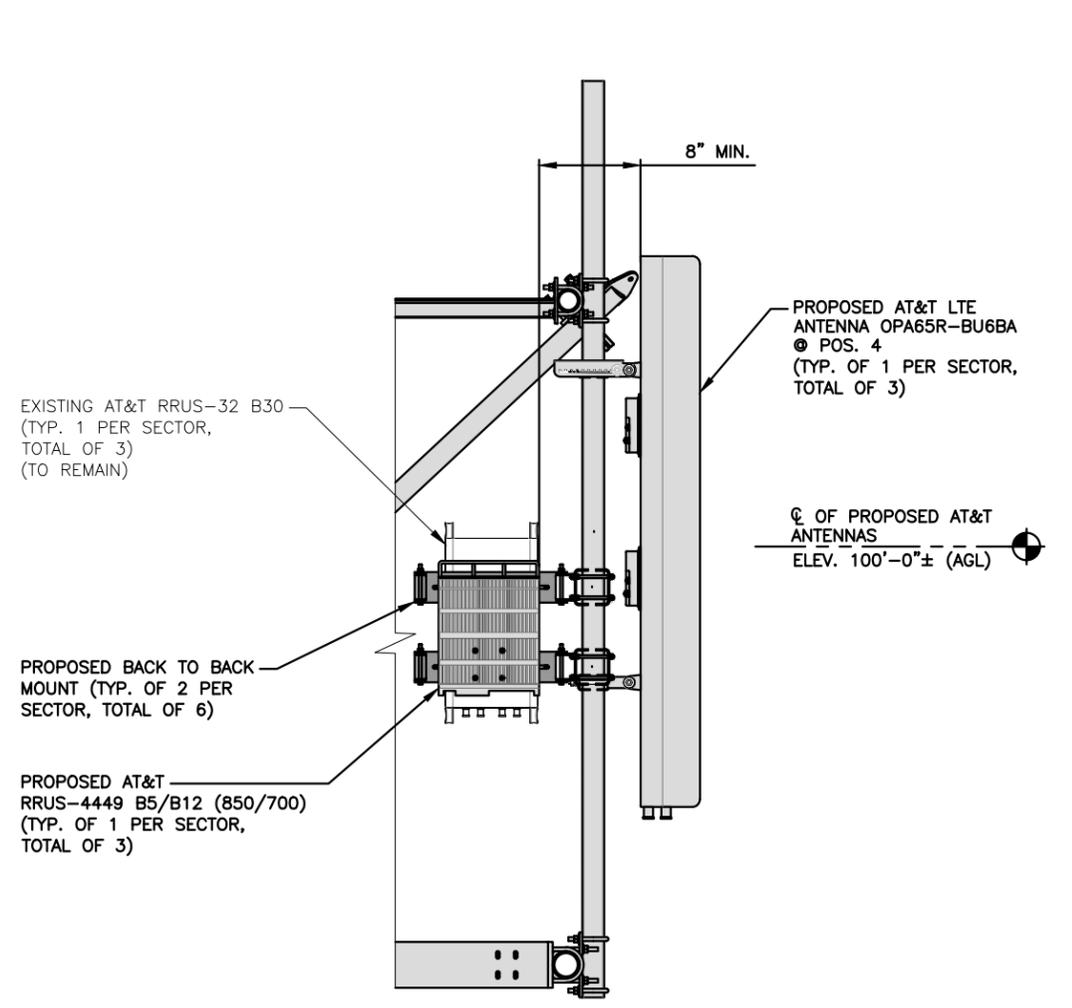
NOTE:
REFER TO MOUNT STRUCTURAL ANALYSIS BY: HUDSON DESIGN GROUP, LLC, DATED: APRIL 20, 2022, FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT



PROPOSED LTE ANTENNA MOUNTING DETAIL
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
1
A-4



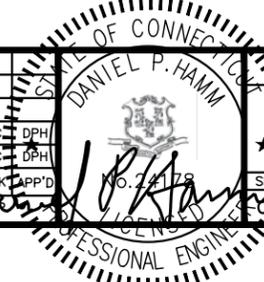
PROPOSED DOD AND C-BAND ANTENNA MOUNTING DETAIL
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
2
A-4



PROPOSED LTE ANTENNA MOUNTING DETAIL
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"
3
A-4

| | | | | | |
|-----|----------|-------------------------|----|-----|-------|
| NO. | DATE | REVISIONS | BY | CHK | APP'D |
| 1 | 06/09/22 | ISSUED FOR CONSTRUCTION | JJ | HC | DPH |
| A | 05/04/22 | ISSUED FOR REVIEW | PS | HC | DPH |

SCALE: AS SHOWN DESIGNED BY: HC DRAWN BY: TPK



| | |
|--|----------------|
| AT&T DETAILS | |
| 5G NR 1SR CBAND_4T4RX RETOFTT_BBU ADD_5G NR 1DR-1.5G NR 1DR-2_LTE 4G_LTE BBU DU541 UPGRADE | |
| SITE NUMBER | DRAWING NUMBER |
| CTL01026 | A-4 |
| REV | 1 |

STRUCTURAL NOTES:

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

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

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



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



12 INDUSTRIAL WAY
SALEM, NH 03079

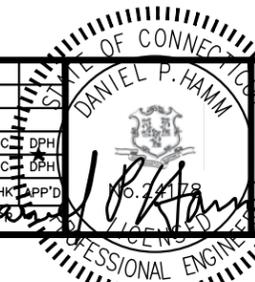
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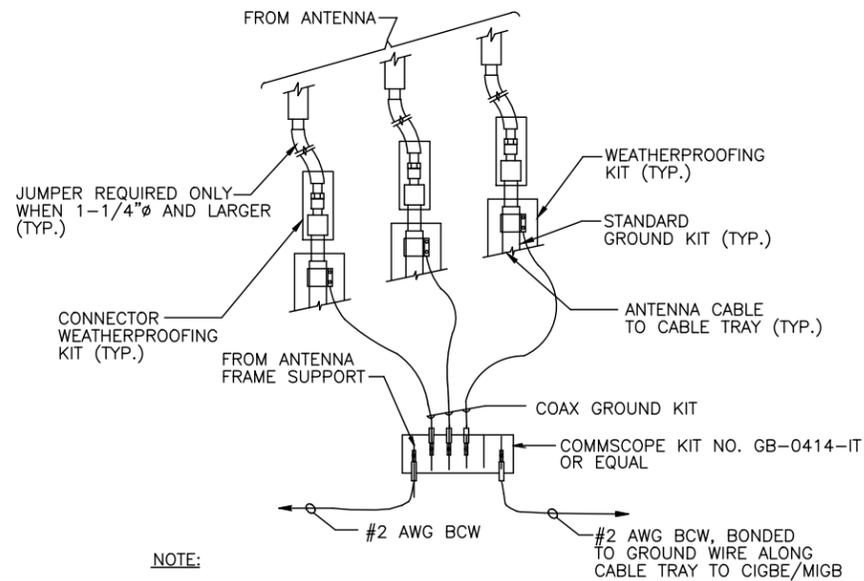
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WINDSOR, CT 06095
HARTFORD COUNTY



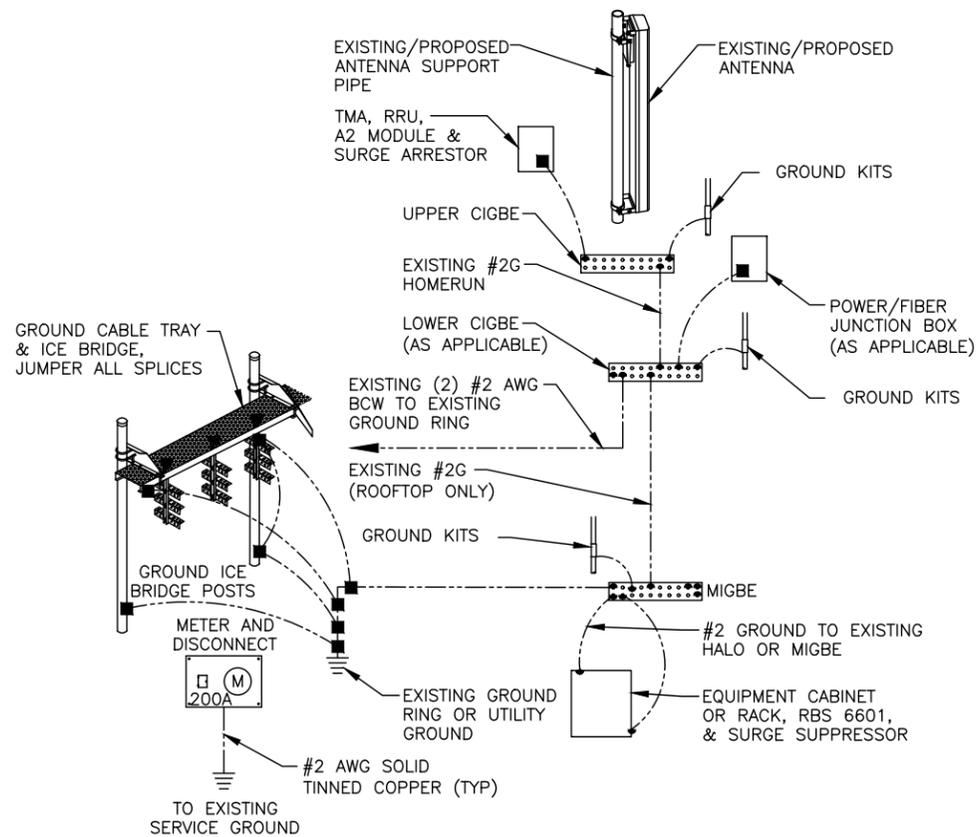
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

| | | | |
|--|------|---|---------------|
| 1 06/09/22 ISSUED FOR CONSTRUCTION JJ HC DPH | | AT&T STRUCTURAL NOTES | |
| A 05/04/22 ISSUED FOR REVIEW PS HC DPH | | 5G NR 1SR CBAND_4TX4RX RETOFTT_BBU ADD_5G NR 1DR-1.5G NR 1DR-2_LTE 4G_LTE BBU DUS41 UPGRADE | |
| NO. | DATE | REVISIONS | BY CHK APP'D |
| SCALE: AS SHOWN | | DESIGNED BY: HC | DRAWN BY: YPA |
| SITE NUMBER: CTL01026 | | DRAWING NUMBER: SN-1 | |
| | | REV: 1 | |

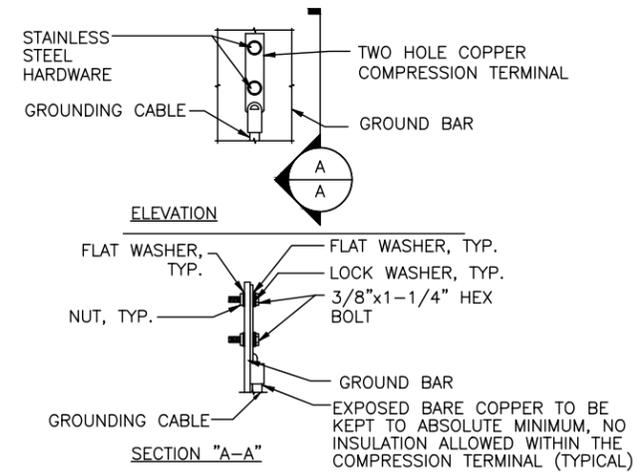




GROUND WIRE TO GROUND BAR CONNECTION DETAIL 1
SCALE: N.T.S. G-1



GROUNDING RISER DIAGRAM 2
SCALE: N.T.S. G-1



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

TYPICAL GROUND BAR CONNECTION DETAIL 3
SCALE: N.T.S. G-1

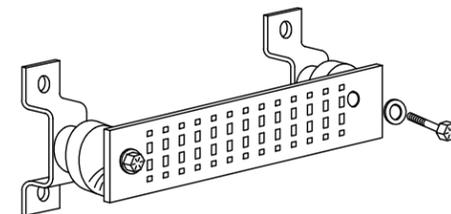
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

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

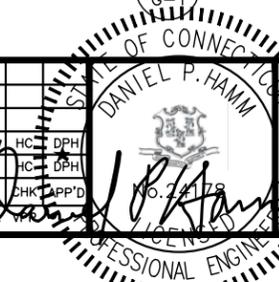
SECTION "A" - SURGE ABSORBERS

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



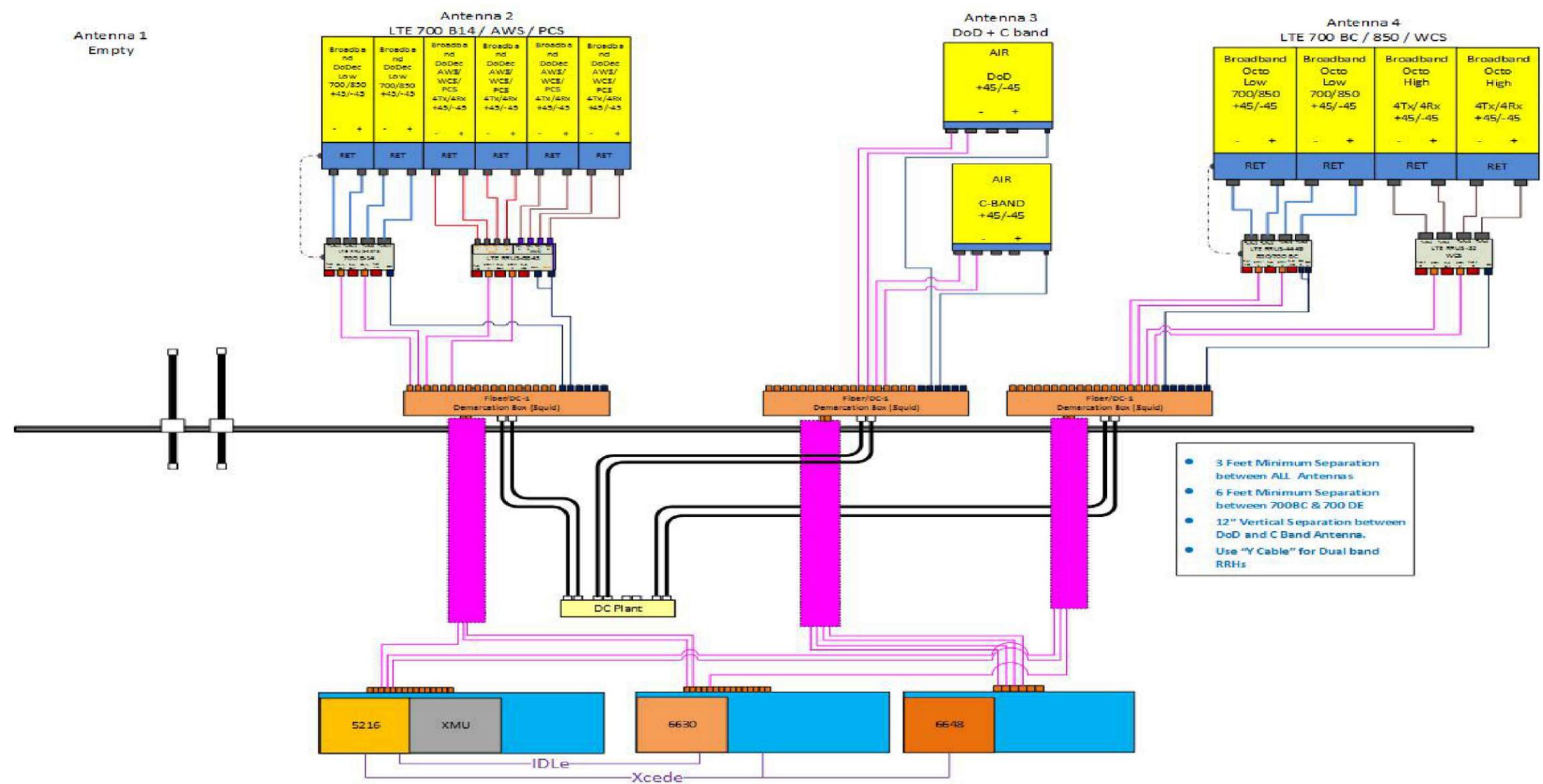
GROUND BAR - DETAIL (AS REQUIRED) 4
SCALE: N.T.S. G-1

| REVISIONS | | | SITE NUMBER | | DRAWING NUMBER | | REV | |
|-----------------|----------|-------------------------|-----------------|-----|----------------|----------|-----|---|
| 1 | 06/09/22 | ISSUED FOR CONSTRUCTION | JJ | HC | DPH | CTL01026 | G-1 | 1 |
| A | 05/04/22 | ISSUED FOR REVIEW | PS | HC | DPH | | | |
| NO. | DATE | REVISIONS | BY | CHK | APP'D | | | |
| SCALE: AS SHOWN | | | DESIGNED BY: HC | | DRAWN BY: TYP | | | |



AT&T
GROUNDING DETAILS
5G NR 1SR CBAND_4TX4RX RETOFT_BBU
ADD_5G NR 1DR-1.5G NR 1DR-2_LTE
4G_LTE BBU DUS41 UPGRADE

NOTE:
 REV: 2
 DATED: 05/04/2022
 RFDS ID: 5023306



- 3 Feet Minimum Separation between ALL Antennas
- 6 Feet Minimum Separation between 700BC & 700 DE
- 12" Vertical Separation between DoD and C Band Antenna.
- Use "Y Cable" for Dual band RRHs

RF PLUMBING DIAGRAM 1/RF-1
 SCALE: N.T.S

NOTE:
 1. CONTRACTOR TO CONFIRM ALL PARTS.
 2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS.
 3. RFDS USED FOR REFERENCE.

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

| | | | | | |
|-----------------|----------|-------------------------|---------------|-----|-------|
| NO. | DATE | REVISIONS | BY | CHK | APP'D |
| 1 | 06/09/22 | ISSUED FOR CONSTRUCTION | JJ | HC | DPH |
| A | 05/04/22 | ISSUED FOR REVIEW | PS | HC | DPH |
| SCALE: AS SHOWN | | DESIGNED BY: HC | DRAWN BY: VPP | | |

| | | |
|--|----------------|-----|
| AT&T | | |
| RF PLUMBING DIAGRAM | | |
| 5G NR 1SR CBAND_4TX4RX RETOFT_BBU ADD_5G NR 1DR-1.5G NR 1DR-2_LTE 4C_LTE BBU DUS41 UPGRADE | | |
| SITE NUMBER | DRAWING NUMBER | REV |
| CTL01026 | RF-1 | 1 |

Exhibit D

Structural Analysis Report

November 21, 2022

Thomas L. Rigg Jr.
Everest Infrastructure Partners, LLC
Two Allegheny Center, Nova Tower 2, Suite 703
Pittsburgh, PA 15212
(603) 498-7462



Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351
Structures@tepgroup.net

Subject: Structural Analysis Report

Carrier Designation: **AT&T Mobility Reconfiguration**
Site Number: CT1026
Site Name: Windsor

Client Designation: **Site Number:** 701776
Site Name: Windsor CO

Engineering Firm Designation: **TEP Project Number:** 260307.785714

Site Data: **419 Broad Street, Windsor, Hartford County, CT 06095**
Latitude 41° 50' 45.20", Longitude -72° 38' 46.10"
100± Foot - Monopole

Dear Thomas L. Rigg Jr.,

Tower Engineering Professionals is pleased to submit this "**Structural Analysis Report**" to determine the structural integrity of the above-mentioned tower.

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

LC1: Existing + Proposed + Reserved Loading
Note: See Table 1 for the existing, proposed, and reserved loading

Sufficient Capacity

| Structure Capacity | Foundation Capacity |
|--------------------|---------------------|
| 82.5% | 64.7% |

The analysis has been performed in accordance with the ANSI/TIA-222-H Structural Standard for Antenna Supporting Structures, Antennas, and Small Wind Turbine Support Structures and the 2022 Connecticut State Building Code.

All modifications and equipment proposed in this report shall be installed in accordance with the appurtenances listed in Table 1 for the determined available structural capacity to be effective.

We at *Tower Engineering Professionals* appreciate the opportunity of providing our continuing professional services to you and *Everest Infrastructure Partners, LLC*. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: Gautam Sopal, E.I. / NPD

Respectfully submitted by:

Aaron T. Rucker, P.E.



11/21/2022

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2) ANALYSIS CRITERIA

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tnxTower Output

6) APPENDIX B

Additional Calculations

1) INTRODUCTION

The tower is a 100± Foot Monopole designed by Engineered Endeavors. The tower was originally designed for a 3-second gust wind speed of 70 mph with 0.5 inch radial ice thickness per TIA/EIA-222-F. The tower has been modified multiple times in the past to accommodate additional loading. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

| | |
|---------------------------------|--------------------|
| TIA-222 Revision: | ANSI/TIA-222-H |
| Type of Analysis: | Comprehensive |
| Risk Category: | II |
| Wind Speed: | 117 mph (Ultimate) |
| Exposure Category: | C |
| Topographic Procedure: | 1 (Kzt = 1.0) |
| Ice Thickness: | 1.50 in |
| Wind Speed with Ice: | 50 mph |
| Seismic Design Category: | B |
| Seismic Ss: | 0.182 |
| Seismic S1: | 0.055 |
| Service Wind Speed: | 60 mph |

Table 1 - Existing, Proposed, and Reserved Antenna and Cable Information

| Existing/ Proposed/ Reserved | Mount Level (ft) | Ant CL (ft) | Qty | Antenna Model | Mount Type | Qty Coax | Coax Size | Coax Location | Owner/ Tenant |
|------------------------------------|------------------------|-------------------|------------------------------|-----------------------------------|-------------------------------------|----------------------|---|------------------|------------------|
| Proposed | 100.0 | 101.8 | 3 | Ericsson AIR6419 B77G | Platform Mount | 4 2 | 1" DC 5/8" Fiber | Inside | AT&T |
| | | | 3 | CCI TPA-65R-BU6DA-K | | | | | |
| | | | 3 | CCI OPA65R-BU6BA | | | | | |
| | | | 3 | Ericsson 4478-B14 | | | | | |
| | | | 3 | Ericsson 8843-B2/B66A | | | | | |
| | | | 3 | Ericsson 4449 B5/B12 | | | | | |
| | | | 1 | Raycap DC6-48-60-18 | | | | | |
| | 98.2 | 3 | Ericsson AIR6449 B77D | | | | | | |
| Existing | 100.0 | 100.0 | 3 | Ericsson RRUS-32 B30 | | 6 2 1 | 1-1/4 3/4" DC 5/8" Fiber | Inside | AT&T |
| | | | 2 | Raycap DC6-48-60-18 | | | | | |
| To Be Removed | 100.0 | 100.0 | 3 | Quintel QS66512-2 | Low Profile Platform | 6 | 1-1/4 | Inside | AT&T |
| | | | 3 | Powerwave 7770 | | | | | |
| | | | 3 | CCI HPA-65R-BUU-H6 | | | | | |
| | | | 3 | Ericsson RRUS-11 | | | | | |
| | | | 3 | Ericsson RRUS-32 B2 | | | | | |
| | | | 3 | Powerwave TT19-08BP111-001 | | | | | |
| | | | 6 | Kaelus DBC0061F1V51-2 | | | | | |

| Existing/ Proposed/ Reserved | Mount Level (ft) | Ant CL (ft) | Qty | Antenna Model | Mount Type | Qty Coax | Coax Size | Coax Location | Owner/ Tenant |
|------------------------------------|------------------------|-------------------|-----|-------------------------------|----------------------------|-------------|------------------------|-----------------------------------|------------------|
| Reserved | 94.0 | 94.0 | 3 | <i>Ericsson AIR6449 B41</i> | Platform w/ Handrail | 1 | 1-1/4 Hybrid | Outside Pole | T-Mobile |
| | | | 3 | <i>Ericsson RRUS 4415 B25</i> | | | | | |
| | | | 3 | <i>Commscope SDX192</i> | | | | | |
| Existing | 94.0 | 94.0 | 3 | Ericsson AIR32 B66A B2A | Platform w/ Handrail | 2 | 1-1/4 Hybrid 7/8 | Outside Pole Inside Pole | T-Mobile |
| | | | 3 | RFS APXVAARR24_43-U-NA20 | | | | | |
| | | | 3 | Ericsson RRUS 4449 | | | | | |
| | | | 3 | Ericsson KRY 112 71 | | | | | |
| To Be Removed | 94.0 | 94.0 | 3 | Ericsson AIR 21 B2A B4P | - | 1 6 | 1-5/8 Hybrid 7/8 | Inside Pole | T-Mobile |
| Existing | 10.5 | 10.5 | 1 | GPS-TMG-HR-26NCM | Standoff | 1 | 1/2 | Outside Pole | AT&T |

3) ANALYSIS PROCEDURE

Table 2 - Documents Provided

| Document | Remarks | Source |
|---------------------------------|--|---------|
| Geotechnical Report | WEI Geotechnical Engineering, dated March 12, 2009 Project No. 2009-758 | Everest |
| Previous Modification Design | GDP Associates, dated May 12, 2009 Project No. 2009262.22 | Everest |
| Previous Modification Design | Malouf Engineering International, Inc., dated October 4, 2018 Project No. CT00873M-18V3 | Everest |
| Mount Replacement Analysis | Hudson Design Group, LCC, dated April 20 2022 Project No. 2051A13REG | Everest |
| Previous Structural Analysis | Tower Engineering Professionals, Inc., dated February 01, 2021 TEP No. 260307.487571 | TEP |
| Correspondence | Correspondence in reference to the existing, proposed, and reserved loading. | Everest |

3.1) Analysis Method

tnxTower (version 8.1.1.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

For analysis of monopole shaft reinforcements, the plates are modeled as linear appurtenances along the exterior of the pole. The loads calculated from tnxTower are then exported to a proprietary calculation sheet created by Tower Engineering Professionals, Inc. that analyzes each reinforcing element along each critical axis and presents percent capacities for each element and the pole shaft along each critical axis. The actual percent capacity of the tower structure including the reinforcing elements is reported in Table 3 - Section Capacity (Summary).

3.2) Analysis Assumptions

- 1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
- 2) The configuration of existing antennas, transmission cables, mounts and other appurtenances are as specified in the tower mapping report by TEP.
- 3) Unless specified by the client or tower mapping, the location of the existing and proposed coax is assumed by TEP and listed in Table 1.
- 4) All tower components are in sufficient condition to carry their full design capacity.
- 5) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
- 6) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.
- 7) TEP assumed the tower and foundation geometry provided in the Previous Modification Design by GDP Associates and Malouf Engineering International listed in Table 2 was accurate.

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

4) ANALYSIS RESULTS

Table 3 - Section Capacity (Summary)

| Section No. | Elevation (ft) | Component Type | Size | Critical Element | P (K) | ϕP_{allow} (K) | % Capacity | Pass / Fail |
|-------------|----------------|----------------|----------------------|------------------|--------|----------------------|-------------|-------------|
| L1 | 100.00-86.73 | Pole | TP16.34x14.50x0.1875 | 1 | Note 1 | Note 1 | 41.1 | Pass |
| L2 | 89.27-45.40 | Pole | TP21.72x15.62x0.2500 | 2 | Note 1 | Note 1 | 66.2 | Pass |
| L3 | 48.61-0.00 | Pole | TP27.50x20.77x0.3125 | 3 | Note 1 | Note 1 | 62.8 | Pass |
| M1b | 15.50-0.50 | Mod (Ex) | (Aero) MP306 | 1 | Note 1 | Note 1 | 77.5 | Pass |
| M2 | 45.33-0.50 | Mod (Ex) | (Aero) MP306 | 2 | Note 1 | Note 1 | 81.1 | Pass |
| M3 | 45.33-12.00 | Mod (Ex) | (Aero) MP306 | 3 | Note 1 | Note 1 | 73.0 | Pass |
| M4 | 80.00-45.33 | Mod (Ex) | (Aero) MP305 | 4 | Note 1 | Note 1 | 82.5 | Pass |
| M5 | 25.50-15.50 | Mod (Ex) | (Aero) MP306 | 5 | Note 1 | Note 1 | 59.2 | Pass |
| | | | | | | | Summary | |
| | | | | | | Pole (L2) | 66.2 | Pass |
| | | | | | | Mod (M4) | 82.5 | Pass |
| | | | | | | RATING = | 82.5 | Pass |

Table 4 - Tower Component Stresses vs. Capacity

| Notes | Component | Elevation (ft) | % Capacity | Pass / Fail |
|---|-------------------------------------|----------------|------------|--------------|
| 1,2 | Anchor Rods | - | 67.2 | Pass |
| 4 | Base Plate | - | - | Pass |
| 1,2,3 | Base Foundation Reaction Comparison | - | 64.7 | Pass |
| Structure Rating (max from all components) = | | | | 82.5% |

Notes:

- 1) See additional documentation in "Appendix B - Additional Calculations" for calculations supporting the % capacity listed.
- 2) Rating per TIA-222-H, Section 15.5
- 3) Design loads were multiplied by 1.35 for comparison as allowed by TIA-222-H, Section 15.6.2.
- 4) Base plate was not analyzed as part of this analysis, but deemed sufficient based on a drop in moment loading from the previous finite element analysis performed in the previous structural analysis (TEP No. 260307.487571) listed in Table 2.

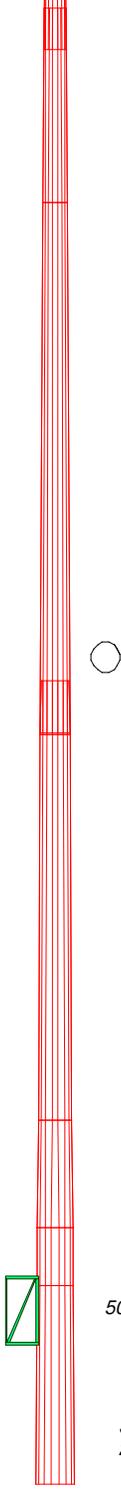
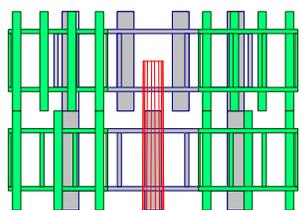
4.1) Recommendations

- 1) If the load differs from that described in Table 1 of this report or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
- 2) The tower and its foundation have sufficient capacity to carry the proposed load configuration. No modifications are required at this time.

APPENDIX A
TNX TOWER OUTPUT

| | | | | | | | | | |
|--------------------|-----------------------------|---------|---------|----------------------------|---------|-----------------------------|---------|----------------------------|--|
| Section | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | |
| Length (ft) | 13.27 | 11.77 | 32.10 | 3:88 | 23.33 | 6.50 | 3.50 | 12.00 | |
| Number of Sides | 18 | 18 | 18 | 18 | 18 | 18 | 18 | 18 | |
| Thickness (in) | 0.1875 | 0.2500 | 0.5065 | 0.5751 | 0.6565 | 0.7732 | 0.7608 | 0.7372 | |
| Socket Length (ft) | 2.54 | | 3.21 | | | | | | |
| Top Dia (in) | 14.5000 | 15.6153 | 17.2531 | 20.7717 | 21.2260 | 24.4550 | 25.3547 | 25.8391 | |
| Bot Dia (in) | 16.3438 | 17.2531 | 21.7188 | 21.2260 | 24.4550 | 25.3547 | 25.8391 | 27.5000 | |
| Grade | MPRF-Fy=65ksi, Density=100% | | | MPRF-Fy=65ksi, Density=50% | | MPRF-Fy=65ksi, Density=100% | | MPRF-Fy=65ksi, Density=50% | |
| Weight (K) | 0.4 | 0.5 | 1.7 | 0.2 | 1.8 | 0.5 | 0.3 | 1.1 | |

100.0 ft
86.7 ft
77.5 ft
45.4 ft
22.0 ft
15.5 ft
12.0 ft
0.0 ft



DESIGNED APPURTENANCE LOADING

| TYPE | ELEVATION | TYPE | ELEVATION |
|--------------------------|-----------|------------------------------------|-----------|
| TPA-65R-BU6DA-K | 100 | Platform Mount [LP 303-1_HR-1] | 94 |
| TPA-65R-BU6DA-K | 100 | AIR 32 B66Aa/B2a w/ Mount Pipe | 94 |
| TPA-65R-BU6DA-K | 100 | AIR 32 B66Aa/B2a w/ Mount Pipe | 94 |
| AIR 6449 B77D | 100 | AIR 32 B66Aa/B2a w/ Mount Pipe | 94 |
| AIR 6449 B77D | 100 | APXVAARR24_43-U-NA20 w/ Mount Pipe | 94 |
| AIR 6449 B77D | 100 | APXVAARR24_43-U-NA20 w/ Mount Pipe | 94 |
| AIR6419 B77G | 100 | APXVAARR24_43-U-NA20 w/ Mount Pipe | 94 |
| AIR6419 B77G | 100 | APXVAARR24_43-U-NA20 w/ Mount Pipe | 94 |
| OPA65R-BU6BA-K | 100 | AIR6449 B41 w/ Mount Pipe | 94 |
| OPA65R-BU6BA-K | 100 | AIR6449 B41 w/ Mount Pipe | 94 |
| OPA65R-BU6BA-K | 100 | AIR6449 B41 w/ Mount Pipe | 94 |
| RRUS 32 B30 | 100 | KRY 112 71 | 94 |
| RRUS 32 B30 | 100 | KRY 112 71 | 94 |
| RRUS 32 B30 | 100 | KRY 112 71 | 94 |
| RADIO 4478 B14 | 100 | RADIO 4449 | 94 |
| RADIO 4478 B14 | 100 | RADIO 4449 | 94 |
| RADIO 4478 B14 | 100 | RADIO 4449 | 94 |
| RADIO 8843 B2/B66A | 100 | RRUS 4415 B25 | 94 |
| RADIO 8843 B2/B66A | 100 | RRUS 4415 B25 | 94 |
| RADIO 8843 B2/B66A | 100 | RRUS 4415 B25 | 94 |
| RADIO 4449 B5/B12 | 100 | SDX1926Q-43 | 94 |
| RADIO 4449 B5/B12 | 100 | SDX1926Q-43 | 94 |
| RADIO 4449 B5/B12 | 100 | SDX1926Q-43 | 94 |
| DC6-48-60-18-8F | 100 | Side Arm Mount [SO 901-1] | 10.5 |
| DC6-48-60-18-8F | 100 | GPS_A | 10.5 |
| DC6-48-60-18-8C | 100 | | |
| SitePro 1 RMQLP-4120-H10 | 100 | | |

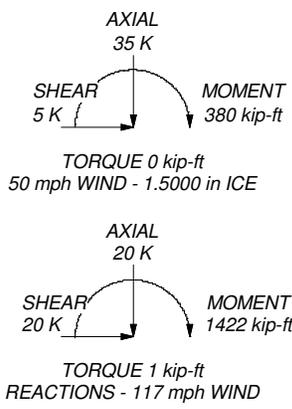
MATERIAL STRENGTH

| GRADE | Fy | Fu | GRADE | Fy | Fu |
|-------------------------------|--------|--------|------------------------------|--------|--------|
| MPRF-Fy=65ksi Density=100% | 65 ksi | 80 ksi | MPRF-Fy=65ksi Density=50% | 65 ksi | 80 ksi |

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 117 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft

ALL REACTIONS ARE FACTORED



| | |
|--|--|
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| | <p>Client: Everest Code: TIA-222-H Path:</p> |

| | |
|---|--|
| <p>Drawn by: npdanyluk Date: 11/21/22</p> | <p>App'd: Scale: NTS Dwg No. E-1</p> |
|---|--|

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| | Client Everest | Designed by npdanyluk |

Tower Input Data

The tower is a monopole.

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

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Tower base elevation above sea level: 44.99 ft.

Basic wind speed of 117 mph.

Risk Category II.

Exposure Category C.

Simplified Topographic Factor Procedure for wind speed-up calculations is used.

Topographic Category: 1.

Crest Height: 0.00 ft.

Nominal ice thickness of 1.5000 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.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

Tower analysis based on target reliabilities in accordance with Annex S.

Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.

Maximum demand-capacity ratio is: 1.05.

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 Ignore KL/r For 60 Deg. Angle Legs | <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-H Bracing Resist. Exemption Use TIA-222-H Tension Splice Exemption <p style="text-align: center; background-color: #e0e0e0; margin: 5px 0;">Poles</p> <ul style="list-style-type: none"> √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets Pole Without Linear Attachments Pole With Shroud Or No Appurtenances Outside and Inside Corner Radii Are Known |
|--|--|--|

| | | |
|--|---|----------------------------------|
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Tapered Pole Section Geometry

| Section | Elevation ft | Section Length ft | Splice Length ft | Number of Sides | Top Diameter in | Bottom Diameter in | Wall Thickness in | Bend Radius in | Pole Grade |
|---------|-----------------|----------------------|---------------------|-----------------|--------------------|-----------------------|----------------------|-------------------|--------------------------------------|
| L1 | 100.00-86.73 | 13.27 | 2.5440 | 18 | 14.5000 | 16.3438 | 0.1875 | 0.7500 | MPRF-Fy=65ksi, Density=100% (65 ksi) |
| L2 | 86.73-77.50 | 11.77 | 0.0000 | 18 | 15.6153 | 17.2531 | 0.2500 | 1.0000 | MPRF-Fy=65ksi, Density=100% (65 ksi) |
| L3 | 77.50-45.40 | 32.10 | 3.2140 | 18 | 17.2531 | 21.7188 | 0.5065 | 2.0261 | MPRF-Fy=65ksi, Density=50% (65 ksi) |
| L4 | 45.40-45.33 | 3.28 | 0.0000 | 18 | 20.7717 | 21.2260 | 0.5751 | 2.3004 | MPRF-Fy=65ksi, Density=100% (65 ksi) |
| L5 | 45.33-22.00 | 23.33 | 0.0000 | 18 | 21.2260 | 24.4550 | 0.6565 | 2.6260 | MPRF-Fy=65ksi, Density=50% (65 ksi) |
| L6 | 22.00-15.50 | 6.50 | 0.0000 | 18 | 24.4550 | 25.3547 | 0.7732 | 3.0927 | MPRF-Fy=65ksi, Density=50% (65 ksi) |
| L7 | 15.50-12.00 | 3.50 | 0.0000 | 18 | 25.3547 | 25.8391 | 0.7608 | 3.0432 | MPRF-Fy=65ksi, Density=50% (65 ksi) |
| L8 | 12.00-0.00 | 12.00 | | 18 | 25.8391 | 27.5000 | 0.7372 | 2.9487 | MPRF-Fy=65ksi, Density=50% (65 ksi) |

Tapered Pole Properties

| Section | Tip Dia. in | Area in ² | I in ⁴ | r in | C in | I/C in ³ | J in ⁴ | I/Q in ² | w in | w/t |
|---------|----------------|-------------------------|----------------------|---------|---------|------------------------|----------------------|------------------------|---------|--------|
| L1 | 14.6948 | 8.5177 | 220.4409 | 5.0809 | 7.3660 | 29.9268 | 441.1718 | 4.2597 | 2.2220 | 11.851 |
| L2 | 16.5670 | 9.6150 | 317.0818 | 5.7355 | 8.3027 | 38.1904 | 634.5809 | 4.8084 | 2.5465 | 13.581 |
| L3 | 16.1770 | 12.1924 | 363.6733 | 5.4547 | 7.9326 | 45.8454 | 727.8251 | 6.0974 | 2.3083 | 9.233 |
| L4 | 17.4807 | 13.4920 | 492.7988 | 6.0361 | 8.7646 | 56.2262 | 986.2461 | 6.7473 | 2.5965 | 10.386 |
| L5 | 17.4411 | 26.9232 | 953.9303 | 5.9450 | 8.7646 | 108.8392 | 1909.1157 | 13.4641 | 2.1451 | 4.235 |
| L6 | 21.9757 | 34.1026 | 1938.6493 | 7.5304 | 11.0332 | 175.7113 | 3879.8495 | 17.0545 | 2.9310 | 5.787 |
| L7 | 21.4551 | 36.8670 | 1899.9009 | 7.1698 | 10.5520 | 180.0509 | 3802.3016 | 18.4370 | 2.6436 | 4.597 |
| L8 | 21.4647 | 37.6962 | 2031.0083 | 7.3311 | 10.7828 | 188.3564 | 4064.6891 | 18.8517 | 2.7236 | 4.736 |
| L9 | 21.4521 | 42.8612 | 2291.1230 | 7.3022 | 10.7828 | 212.4795 | 4585.2608 | 21.4347 | 2.5803 | 3.93 |
| L10 | 24.7310 | 49.5897 | 3548.3709 | 8.4485 | 12.4232 | 285.6256 | 7101.4108 | 24.7995 | 3.1486 | 4.796 |
| L11 | 24.7130 | 58.1162 | 4117.8127 | 8.4071 | 12.4232 | 331.4627 | 8241.0438 | 29.0636 | 2.9433 | 3.807 |
| L12 | 25.6265 | 60.3240 | 4605.1613 | 8.7264 | 12.8802 | 357.5387 | 9216.3822 | 30.1677 | 3.1016 | 4.012 |
| L13 | 25.6285 | 59.3886 | 4538.3190 | 8.7308 | 12.8802 | 352.3491 | 9082.6097 | 29.7000 | 3.1234 | 4.105 |
| L14 | 26.1204 | 60.5584 | 4811.8105 | 8.9028 | 13.1263 | 366.5788 | 9629.9525 | 30.2850 | 3.2087 | 4.218 |
| L15 | 26.1240 | 58.7325 | 4675.5288 | 8.9112 | 13.1263 | 356.1964 | 9357.2098 | 29.3718 | 3.2503 | 4.409 |
| L16 | 27.8105 | 62.6186 | 5666.3723 | 9.5008 | 13.9700 | 405.6100 | 11340.2005 | 31.3153 | 3.5426 | 4.806 |

| | | | | |
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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 | Double Angle Stitch Bolt Spacing Horizontals | Double Angle Stitch Bolt Spacing Redundants |
|--------------------|------------------------|------------------|--------------|----------------------|----------------------|--------------|--|--|---|
| ft | ft ² | in | | | | | in | in | in |
| L1 100.00-86.73 | | | | 1 | 1 | 1 | | | |
| L2 86.73-77.50 | | | | 1 | 1 | 1 | | | |
| L3 77.50-45.40 | | | | 1 | 1 | 0.999331 | | | |
| L4 45.40-45.33 | | | | 1 | 1 | 0.550282 | | | |
| L5 45.33-22.00 | | | | 1 | 1 | 0.965781 | | | |
| L6 22.00-15.50 | | | | 1 | 1 | 0.82351 | | | |
| L7 15.50-12.00 | | | | 1 | 1 | 0.836191 | | | |
| L8 12.00-0.00 | | | | 1 | 1 | 0.861297 | | | |

Feed Line/Linear Appurtenances - Entered As Round Or Flat

| Description | Sector | Exclude From Torque Calculation | Component Type | Placement | Total Number | Number Per Row | Start/End Position | Width or Diameter | Perimeter | Weight |
|--|--------|---------------------------------|-------------------|----------------|--------------|----------------|--------------------|-------------------|-----------|--------|
| | | | | ft | | | | in | in | plf |
| Step Pegs SR 5/8 (7" width, 15" step) | C | No | Surface Ar (CaAa) | 100.00 - 10.00 | 1 | 1 | 0.000 0.000 | 0.2920 | | 0.49 |
| Safety Line 3/8 | C | No | Surface Ar (CaAa) | 100.00 - 10.00 | 1 | 1 | 0.000 0.000 | 0.3750 | | 0.22 |
| ***T-Mobile*** | | | | | | | | | | |
| MLE Hybrid 3Power/6Fiber RL 2(1 -1/4") | A | No | Surface Ar (CaAa) | 94.00 - 0.00 | 3 | 3 | 0.000 0.000 | 1.2500 | | 0.68 |
| 1/2" dia. coax | B | No | Surface Ar (CaAa) | 10.50 - 0.00 | 1 | 1 | 0.250 0.250 | 0.5000 | | 0.15 |
| ***Modifications*** | | | | | | | | | | |
| (Area) Aero MP3-06 | A | No | Surface Af (CaAa) | 15.42 - 0.50 | 1 | 1 | 0.250 0.250 | 2.6100 | 15.2000 | 0.00 |
| (Area) Aero MP3-06 | A | No | Surface Af (CaAa) | 25.42 - 0.50 | 1 | 1 | -0.250 -0.250 | 2.6100 | 15.2000 | 0.00 |
| (Area) Aero MP3-06 | A | No | Surface Af (CaAa) | 45.33 - 12.00 | 1 | 1 | 0.000 0.000 | 2.6100 | 15.2000 | 0.00 |
| (Area) Aero MP3-06 | B | No | Surface Af (CaAa) | 45.33 - 0.50 | 1 | 1 | 0.250 0.250 | 2.6100 | 15.2000 | 0.00 |
| (Area) Aero MP3-06 | C | No | Surface Af (CaAa) | 45.33 - 0.50 | 1 | 1 | 0.000 0.000 | 2.6100 | 15.2000 | 0.00 |
| (Area) Aero MP3-05 | A | No | Surface Af (CaAa) | 80.00 - 45.33 | 1 | 1 | 0.000 0.000 | 2.0900 | 11.7100 | 0.00 |
| (Area) Aero MP3-05 | B | No | Surface Af (CaAa) | 80.00 - 45.33 | 1 | 1 | 0.250 0.250 | 2.0900 | 11.7100 | 0.00 |
| (Area) Aero MP3-05 | C | No | Surface Af (CaAa) | 80.00 - 45.33 | 1 | 1 | 0.000 0.000 | 2.0900 | 11.7100 | 0.00 |

Feed Line/Linear Appurtenances - Entered As Area

| Description | Face or Leg | Allow Shield | Exclude From Torque Calculation | Component Type | Placement | Total Number | $C_A A_A$ | Weight | |
|----------------|-------------|--------------|---------------------------------|----------------|--------------|--------------|---------------------|--------|------|
| | | | | | ft | | ft ² /ft | plf | |
| LDF5-50A (7/8) | A | No | No | Inside Pole | 94.00 - 0.00 | 10 | No Ice | 0.00 | 0.33 |

| | | | | |
|--|----------------|-----------------------|--------------------|-------------------|
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| Description | Face or Leg | Allow Shield | Exclude From Torque Calculation | Component Type | Placement ft | Total Number | | C _{AA} ft ² /ft | Weight plf |
|-----------------------|-------------|--------------|---------------------------------|----------------|---------------|--------------|----------|-------------------------------------|------------|
| FOAM) | | | | | | | 1/2" Ice | 0.00 | 0.33 |
| | | | | | | | 1" Ice | 0.00 | 0.33 |
| | | | | | | | 2" Ice | 0.00 | 0.33 |
| ***AT&T*** | | | | | | | | | |
| LDF6-50A (1-1/4 FOAM) | C | No | No | Inside Pole | 100.00 - 0.00 | 6 | No Ice | 0.00 | 0.66 |
| | | | | | | | 1/2" Ice | 0.00 | 0.66 |
| | | | | | | | 1" Ice | 0.00 | 0.66 |
| | | | | | | | 2" Ice | 0.00 | 0.66 |
| 1" DC Power Cable | C | No | No | Inside Pole | 100.00 - 0.00 | 4 | No Ice | 0.00 | 0.76 |
| | | | | | | | 1/2" Ice | 0.00 | 0.76 |
| | | | | | | | 1" Ice | 0.00 | 0.76 |
| | | | | | | | 2" Ice | 0.00 | 0.76 |
| 3/4" DC | C | No | No | Inside Pole | 100.00 - 0.00 | 2 | No Ice | 0.00 | 1.24 |
| | | | | | | | 1/2" Ice | 0.00 | 1.24 |
| | | | | | | | 1" Ice | 0.00 | 1.24 |
| | | | | | | | 2" Ice | 0.00 | 1.24 |
| 5/8" dia. coax | C | No | No | Inside Pole | 100.00 - 0.00 | 3 | No Ice | 0.00 | 0.15 |
| | | | | | | | 1/2" Ice | 0.00 | 0.15 |
| | | | | | | | 1" Ice | 0.00 | 0.15 |
| | | | | | | | 2" Ice | 0.00 | 0.15 |
| *** | | | | | | | | | |

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 |
|---------------|--------------------|------|--------------------------------|--------------------------------|---|--|----------|
| L1 | 100.00-86.73 | A | 0.000 | 0.000 | 2.727 | 0.000 | 0.04 |
| | | B | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 0.885 | 0.000 | 0.14 |
| L2 | 86.73-77.50 | A | 0.000 | 0.000 | 4.332 | 0.000 | 0.05 |
| | | B | 0.000 | 0.000 | 0.871 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 1.486 | 0.000 | 0.10 |
| L3 | 77.50-45.40 | A | 0.000 | 0.000 | 23.220 | 0.000 | 0.17 |
| | | B | 0.000 | 0.000 | 11.182 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 13.323 | 0.000 | 0.34 |
| L4 | 45.40-45.33 | A | 0.000 | 0.000 | 0.050 | 0.000 | 0.00 |
| | | B | 0.000 | 0.000 | 0.024 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 0.029 | 0.000 | 0.00 |
| L5 | 45.33-22.00 | A | 0.000 | 0.000 | 20.384 | 0.000 | 0.12 |
| | | B | 0.000 | 0.000 | 10.149 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 11.705 | 0.000 | 0.25 |
| L6 | 22.00-15.50 | A | 0.000 | 0.000 | 8.092 | 0.000 | 0.03 |
| | | B | 0.000 | 0.000 | 2.828 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 3.261 | 0.000 | 0.07 |
| L7 | 15.50-12.00 | A | 0.000 | 0.000 | 5.844 | 0.000 | 0.02 |
| | | B | 0.000 | 0.000 | 1.523 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 1.756 | 0.000 | 0.04 |
| L8 | 12.00-0.00 | A | 0.000 | 0.000 | 14.505 | 0.000 | 0.06 |
| | | B | 0.000 | 0.000 | 5.527 | 0.000 | 0.00 |
| | | C | 0.000 | 0.000 | 5.136 | 0.000 | 0.12 |

| | | | | |
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Feed Line/Linear Appurtenances Section Areas - With Ice

| Tower Section | Tower Elevation ft | Face or Leg | Ice Thickness in | A _R ft ² | A _F ft ² | C _{AA} In Face ft ² | C _{AA} Out Face ft ² | Weight K |
|---------------|-----------------------|-------------|---------------------|-----------------------------------|-----------------------------------|---|--|-------------|
| L1 | 100.00-86.73 | A | 1.415 | 0.000 | 0.000 | 5.979 | 0.000 | 0.09 |
| | | B | | 0.000 | 0.000 | 0.000 | 0.000 | 0.00 |
| | | C | | 0.000 | 0.000 | 8.394 | 0.000 | 0.22 |
| L2 | 86.73-77.50 | A | 1.397 | 0.000 | 0.000 | 9.168 | 0.000 | 0.14 |
| | | B | | 0.000 | 0.000 | 1.578 | 0.000 | 0.02 |
| | | C | | 0.000 | 0.000 | 7.416 | 0.000 | 0.18 |
| L3 | 77.50-45.40 | A | 1.356 | 0.000 | 0.000 | 45.817 | 0.000 | 0.69 |
| | | B | | 0.000 | 0.000 | 19.888 | 0.000 | 0.29 |
| | | C | | 0.000 | 0.000 | 39.440 | 0.000 | 0.81 |
| L4 | 45.40-45.33 | A | 1.316 | 0.000 | 0.000 | 0.098 | 0.000 | 0.00 |
| | | B | | 0.000 | 0.000 | 0.042 | 0.000 | 0.00 |
| | | C | | 0.000 | 0.000 | 0.084 | 0.000 | 0.00 |
| L5 | 45.33-22.00 | A | 1.276 | 0.000 | 0.000 | 36.844 | 0.000 | 0.55 |
| | | B | | 0.000 | 0.000 | 16.105 | 0.000 | 0.23 |
| | | C | | 0.000 | 0.000 | 29.573 | 0.000 | 0.60 |
| L6 | 22.00-15.50 | A | 1.205 | 0.000 | 0.000 | 13.792 | 0.000 | 0.20 |
| | | B | | 0.000 | 0.000 | 4.394 | 0.000 | 0.06 |
| | | C | | 0.000 | 0.000 | 7.960 | 0.000 | 0.16 |
| L7 | 15.50-12.00 | A | 1.168 | 0.000 | 0.000 | 9.594 | 0.000 | 0.13 |
| | | B | | 0.000 | 0.000 | 2.340 | 0.000 | 0.03 |
| | | C | | 0.000 | 0.000 | 4.209 | 0.000 | 0.08 |
| L8 | 12.00-0.00 | A | 1.074 | 0.000 | 0.000 | 23.714 | 0.000 | 0.31 |
| | | B | | 0.000 | 0.000 | 10.253 | 0.000 | 0.12 |
| | | C | | 0.000 | 0.000 | 8.465 | 0.000 | 0.22 |

Feed Line Center of Pressure

| Section | Elevation ft | CP _x in | CP _z in | CP _x Ice in | CP _z Ice in |
|---------|-----------------|-----------------------|-----------------------|------------------------------|------------------------------|
| L1 | 100.00-86.73 | -1.2430 | -0.2879 | -1.0391 | 0.9531 |
| L2 | 86.73-77.50 | -1.5815 | -0.1226 | -1.3788 | 0.7451 |
| L3 | 77.50-45.40 | -0.8169 | 0.7054 | -1.0457 | 1.4083 |
| L4 | 45.40-45.33 | -0.8391 | 0.7371 | -1.1005 | 1.4919 |
| L5 | 45.33-22.00 | -0.9786 | 1.0707 | -1.2784 | 1.7182 |
| L6 | 22.00-15.50 | -2.1023 | 1.5021 | -2.4137 | 2.1219 |
| L7 | 15.50-12.00 | -2.1207 | 0.0496 | -2.4174 | 0.6226 |
| L8 | 12.00-0.00 | -1.0073 | 0.5373 | -1.0290 | 0.5228 |

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | K _a No Ice | K _a Ice |
|---------------|----------------------|-----------------------------|-------------------------|--------------------------|-----------------------|
| L1 | 1 | Step Pegs SR 5/8 (7" width, | 86.73 - 100.00 | 1.0000 | 1.0000 |

| | | |
|--|---|----------------------------------|
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| | Client Everest | Designed by npdanyluk |

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | K_a No Ice | K_a Ice |
|---------------|----------------------|---|-------------------------|--------------|-----------|
| | | 15" step) | | | |
| L1 | 2 | Safety Line 3/8 | 86.73 - 100.00 | 1.0000 | 1.0000 |
| L1 | 4 | MLE Hybrid 3Power/6Fiber RL 2(1 -1/4") | 86.73 - 94.00 | 1.0000 | 1.0000 |
| L2 | 1 | Step Pegs SR 5/8 (7" width, 15" step) | 77.50 - 86.73 | 1.0000 | 1.0000 |
| L2 | 2 | Safety Line 3/8 | 77.50 - 86.73 | 1.0000 | 1.0000 |
| L2 | 4 | MLE Hybrid 3Power/6Fiber RL 2(1 -1/4") | 77.50 - 86.73 | 1.0000 | 1.0000 |
| L2 | 18 | (Area) Aero MP3-05 | 77.50 - 80.00 | 1.0000 | 1.0000 |
| L2 | 19 | (Area) Aero MP3-05 | 77.50 - 80.00 | 1.0000 | 1.0000 |
| L2 | 20 | (Area) Aero MP3-05 | 77.50 - 80.00 | 1.0000 | 1.0000 |
| L3 | 1 | Step Pegs SR 5/8 (7" width, 15" step) | 45.40 - 77.50 | 1.0000 | 1.0000 |
| L3 | 2 | Safety Line 3/8 | 45.40 - 77.50 | 1.0000 | 1.0000 |
| L3 | 4 | MLE Hybrid 3Power/6Fiber RL 2(1 -1/4") | 45.40 - 77.50 | 1.0000 | 1.0000 |
| L3 | 18 | (Area) Aero MP3-05 | 45.40 - 77.50 | 1.0000 | 1.0000 |
| L3 | 19 | (Area) Aero MP3-05 | 45.40 - 77.50 | 1.0000 | 1.0000 |
| L3 | 20 | (Area) Aero MP3-05 | 45.40 - 77.50 | 1.0000 | 1.0000 |
| L4 | 1 | Step Pegs SR 5/8 (7" width, 15" step) | 45.33 - 45.40 | 1.0000 | 1.0000 |
| L4 | 2 | Safety Line 3/8 | 45.33 - 45.40 | 1.0000 | 1.0000 |
| L4 | 4 | MLE Hybrid 3Power/6Fiber RL 2(1 -1/4") | 45.33 - 45.40 | 1.0000 | 1.0000 |
| L4 | 15 | (Area) Aero MP3-06 | 45.33 - 45.33 | 1.0000 | 1.0000 |
| L4 | 16 | (Area) Aero MP3-06 | 45.33 - 45.33 | 1.0000 | 1.0000 |
| L4 | 17 | (Area) Aero MP3-06 | 45.33 - 45.33 | 1.0000 | 1.0000 |
| L4 | 18 | (Area) Aero MP3-05 | 45.33 - 45.40 | 1.0000 | 1.0000 |
| L4 | 19 | (Area) Aero MP3-05 | 45.33 - 45.40 | 1.0000 | 1.0000 |
| L4 | 20 | (Area) Aero MP3-05 | 45.33 - 45.40 | 1.0000 | 1.0000 |
| L5 | 1 | Step Pegs SR 5/8 (7" width, 15" step) | 22.00 - 45.33 | 1.0000 | 1.0000 |
| L5 | 2 | Safety Line 3/8 | 22.00 - 45.33 | 1.0000 | 1.0000 |
| L5 | 4 | MLE Hybrid 3Power/6Fiber RL 2(1 -1/4") | 22.00 - 45.33 | 1.0000 | 1.0000 |
| L5 | 14 | (Area) Aero MP3-06 | 22.00 - 25.42 | 1.0000 | 1.0000 |
| L5 | 15 | (Area) Aero MP3-06 | 22.00 - 45.33 | 1.0000 | 1.0000 |
| L5 | 16 | (Area) Aero MP3-06 | 22.00 - 45.33 | 1.0000 | 1.0000 |
| L5 | 17 | (Area) Aero MP3-06 | 22.00 - 45.33 | 1.0000 | 1.0000 |
| L6 | 1 | Step Pegs SR 5/8 (7" width, 15" step) | 15.50 - 22.00 | 1.0000 | 1.0000 |
| L6 | 2 | Safety Line 3/8 | 15.50 - 22.00 | 1.0000 | 1.0000 |
| L6 | 4 | MLE Hybrid 3Power/6Fiber RL 2(1 -1/4") | 15.50 - 22.00 | 1.0000 | 1.0000 |
| L6 | 14 | (Area) Aero MP3-06 | 15.50 - 22.00 | 1.0000 | 1.0000 |
| L6 | 15 | (Area) Aero MP3-06 | 15.50 - 22.00 | 1.0000 | 1.0000 |
| L6 | 16 | (Area) Aero MP3-06 | 15.50 - 22.00 | 1.0000 | 1.0000 |
| L6 | 17 | (Area) Aero MP3-06 | 15.50 - 22.00 | 1.0000 | 1.0000 |
| L7 | 1 | Step Pegs SR 5/8 (7" width, 15" step) | 12.00 - 15.50 | 1.0000 | 1.0000 |
| L7 | 2 | Safety Line 3/8 | 12.00 - 15.50 | 1.0000 | 1.0000 |
| L7 | 4 | MLE Hybrid 3Power/6Fiber RL 2(1 -1/4") | 12.00 - 15.50 | 1.0000 | 1.0000 |
| L7 | 13 | (Area) Aero MP3-06 | 12.00 - 15.42 | 1.0000 | 1.0000 |
| L7 | 14 | (Area) Aero MP3-06 | 12.00 - 15.50 | 1.0000 | 1.0000 |
| L7 | 15 | (Area) Aero MP3-06 | 12.00 - 15.50 | 1.0000 | 1.0000 |
| L7 | 16 | (Area) Aero MP3-06 | 12.00 - 15.50 | 1.0000 | 1.0000 |
| L7 | 17 | (Area) Aero MP3-06 | 12.00 - 15.50 | 1.0000 | 1.0000 |
| L8 | 1 | Step Pegs SR 5/8 (7" width, 15" step) | 10.00 - 12.00 | 1.0000 | 1.0000 |
| L8 | 2 | Safety Line 3/8 | 10.00 - 12.00 | 1.0000 | 1.0000 |

| | | | | |
|--|----------------|-----------------------|--------------------|-------------------|
| tnxTower Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | Windsor CO (701776) | Page | 7 of 16 |
| | Project | TEP No. 260307.785714 | Date | 16:35:16 11/21/22 |
| | Client | Everest | Designed by | npdanyluk |

| Tower Section | Feed Line Record No. | Description | Feed Line Segment Elev. | K_a No Ice | K_a Ice |
|---------------|----------------------|--|-------------------------|--------------|-----------|
| L8 | 4 | MLE Hybrid 3Power/6Fiber RL 2(1 -1/4") | 0.00 - 12.00 | 1.0000 | 1.0000 |
| L8 | 11 | 1/2" dia. coax | 0.00 - 10.50 | 1.0000 | 1.0000 |
| L8 | 13 | (Area) Aero MP3-06 | 0.50 - 12.00 | 1.0000 | 1.0000 |
| L8 | 14 | (Area) Aero MP3-06 | 0.50 - 12.00 | 1.0000 | 1.0000 |
| L8 | 16 | (Area) Aero MP3-06 | 0.50 - 12.00 | 1.0000 | 1.0000 |
| L8 | 17 | (Area) Aero MP3-06 | 0.50 - 12.00 | 1.0000 | 1.0000 |

Effective Width of Flat Linear Attachments / Feed Lines

| Tower Section | Attachment Record No. | Description | Attachment Segment Elev. | Ratio Calculation Method | Effective Width Ratio |
|---------------|-----------------------|--------------------|--------------------------|--------------------------|-----------------------|
| L2 | 18 | (Area) Aero MP3-05 | 77.50 - 80.00 | Manual | 1.0000 |
| L2 | 19 | (Area) Aero MP3-05 | 77.50 - 80.00 | Manual | 1.0000 |
| L2 | 20 | (Area) Aero MP3-05 | 77.50 - 80.00 | Manual | 1.0000 |
| L3 | 18 | (Area) Aero MP3-05 | 45.40 - 77.50 | Manual | 1.0000 |
| L3 | 19 | (Area) Aero MP3-05 | 45.40 - 77.50 | Manual | 1.0000 |
| L3 | 20 | (Area) Aero MP3-05 | 45.40 - 77.50 | Manual | 1.0000 |
| L4 | 15 | (Area) Aero MP3-06 | 45.33 - 45.33 | Manual | 1.0000 |
| L4 | 16 | (Area) Aero MP3-06 | 45.33 - 45.33 | Manual | 1.0000 |
| L4 | 17 | (Area) Aero MP3-06 | 45.33 - 45.33 | Manual | 1.0000 |
| L4 | 18 | (Area) Aero MP3-05 | 45.33 - 45.40 | Manual | 1.0000 |
| L4 | 19 | (Area) Aero MP3-05 | 45.33 - 45.40 | Manual | 1.0000 |
| L4 | 20 | (Area) Aero MP3-05 | 45.33 - 45.40 | Manual | 1.0000 |
| L5 | 14 | (Area) Aero MP3-06 | 22.00 - 25.42 | Manual | 1.0000 |
| L5 | 15 | (Area) Aero MP3-06 | 22.00 - 45.33 | Manual | 1.0000 |
| L5 | 16 | (Area) Aero MP3-06 | 22.00 - 45.33 | Manual | 1.0000 |
| L5 | 17 | (Area) Aero MP3-06 | 22.00 - 45.33 | Manual | 1.0000 |
| L6 | 14 | (Area) Aero MP3-06 | 15.50 - 22.00 | Manual | 1.0000 |
| L6 | 15 | (Area) Aero MP3-06 | 15.50 - 22.00 | Manual | 1.0000 |
| L6 | 16 | (Area) Aero MP3-06 | 15.50 - 22.00 | Manual | 1.0000 |
| L6 | 17 | (Area) Aero MP3-06 | 15.50 - 22.00 | Manual | 1.0000 |
| L7 | 13 | (Area) Aero MP3-06 | 12.00 - 15.42 | Manual | 1.0000 |
| L7 | 14 | (Area) Aero MP3-06 | 12.00 - 15.50 | Manual | 1.0000 |
| L7 | 15 | (Area) Aero MP3-06 | 12.00 - 15.50 | Manual | 1.0000 |
| L7 | 16 | (Area) Aero MP3-06 | 12.00 - 15.50 | Manual | 1.0000 |
| L7 | 17 | (Area) Aero MP3-06 | 12.00 - 15.50 | Manual | 1.0000 |
| L8 | 13 | (Area) Aero MP3-06 | 0.50 - 12.00 | Manual | 1.0000 |
| L8 | 14 | (Area) Aero MP3-06 | 0.50 - 12.00 | Manual | 1.0000 |
| L8 | 16 | (Area) Aero MP3-06 | 0.50 - 12.00 | Manual | 1.0000 |
| L8 | 17 | (Area) Aero MP3-06 | 0.50 - 12.00 | Manual | 1.0000 |

Discrete Tower Loads

| | | | | |
|--|----------------|-----------------------|--------------------|-------------------|
| tnxTower Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | Windsor CO (701776) | Page | 8 of 16 |
| | Project | TEP No. 260307.785714 | Date | 16:35:16 11/21/22 |
| | Client | Everest | Designed by | npdanyluk |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight |
|-----------------|-------------|--------------------|----------|--------|--------------------|-----------|-----------------------|----------------------|--------|
| | | | Horz | Vert | | | | | |
| ***100*** | | | | | | | | | |
| TPA-65R-BU6DA-K | A | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 12.71 | 5.62 | 0.07 |
| | | | 0.00 | | | 1/2" Ice | 13.21 | 6.07 | 0.14 |
| | | | 0.00 | | | 1" Ice | 13.71 | 6.53 | 0.22 |
| | | | | | | 2" Ice | 14.74 | 7.47 | 0.41 |
| TPA-65R-BU6DA-K | B | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 12.71 | 5.62 | 0.07 |
| | | | 0.00 | | | 1/2" Ice | 13.21 | 6.07 | 0.14 |
| | | | 0.00 | | | 1" Ice | 13.71 | 6.53 | 0.22 |
| | | | | | | 2" Ice | 14.74 | 7.47 | 0.41 |
| TPA-65R-BU6DA-K | C | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 12.71 | 5.62 | 0.07 |
| | | | 0.00 | | | 1/2" Ice | 13.21 | 6.07 | 0.14 |
| | | | 0.00 | | | 1" Ice | 13.71 | 6.53 | 0.22 |
| | | | | | | 2" Ice | 14.74 | 7.47 | 0.41 |
| AIR 6449 B77D | A | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 4.02 | 2.14 | 0.08 |
| | | | 0.00 | | | 1/2" Ice | 4.28 | 2.35 | 0.11 |
| | | | -1.80 | | | 1" Ice | 4.55 | 2.57 | 0.14 |
| | | | | | | 2" Ice | 5.11 | 3.02 | 0.22 |
| AIR 6449 B77D | B | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 4.02 | 2.14 | 0.08 |
| | | | 0.00 | | | 1/2" Ice | 4.28 | 2.35 | 0.11 |
| | | | -1.80 | | | 1" Ice | 4.55 | 2.57 | 0.14 |
| | | | | | | 2" Ice | 5.11 | 3.02 | 0.22 |
| AIR 6449 B77D | C | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 4.02 | 2.14 | 0.08 |
| | | | 0.00 | | | 1/2" Ice | 4.28 | 2.35 | 0.11 |
| | | | -1.80 | | | 1" Ice | 4.55 | 2.57 | 0.14 |
| | | | | | | 2" Ice | 5.11 | 3.02 | 0.22 |
| AIR6419 B77G | A | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 4.16 | 2.01 | 0.07 |
| | | | 0.00 | | | 1/2" Ice | 4.42 | 2.22 | 0.10 |
| | | | 1.80 | | | 1" Ice | 4.70 | 2.43 | 0.13 |
| | | | | | | 2" Ice | 5.27 | 2.89 | 0.21 |
| AIR6419 B77G | B | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 4.16 | 2.01 | 0.07 |
| | | | 0.00 | | | 1/2" Ice | 4.42 | 2.22 | 0.10 |
| | | | 1.80 | | | 1" Ice | 4.70 | 2.43 | 0.13 |
| | | | | | | 2" Ice | 5.27 | 2.89 | 0.21 |
| AIR6419 B77G | C | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 4.16 | 2.01 | 0.07 |
| | | | 0.00 | | | 1/2" Ice | 4.42 | 2.22 | 0.10 |
| | | | 1.80 | | | 1" Ice | 4.70 | 2.43 | 0.13 |
| | | | | | | 2" Ice | 5.27 | 2.89 | 0.21 |
| OPA65R-BU6BA-K | A | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 7.85 | 6.01 | 0.09 |
| | | | 0.00 | | | 1/2" Ice | 8.30 | 6.46 | 0.14 |
| | | | 0.00 | | | 1" Ice | 8.76 | 6.93 | 0.20 |
| | | | | | | 2" Ice | 9.69 | 7.85 | 0.33 |
| OPA65R-BU6BA-K | B | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 7.85 | 6.01 | 0.09 |
| | | | 0.00 | | | 1/2" Ice | 8.30 | 6.46 | 0.14 |
| | | | 0.00 | | | 1" Ice | 8.76 | 6.93 | 0.20 |
| | | | | | | 2" Ice | 9.69 | 7.85 | 0.33 |
| OPA65R-BU6BA-K | C | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 7.85 | 6.01 | 0.09 |
| | | | 0.00 | | | 1/2" Ice | 8.30 | 6.46 | 0.14 |
| | | | 0.00 | | | 1" Ice | 8.76 | 6.93 | 0.20 |
| | | | | | | 2" Ice | 9.69 | 7.85 | 0.33 |
| RRUS 32 B30 | A | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 2.73 | 1.67 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 2.95 | 1.86 | 0.07 |
| | | | 0.00 | | | 1" Ice | 3.18 | 2.05 | 0.10 |
| | | | | | | 2" Ice | 3.66 | 2.46 | 0.16 |
| RRUS 32 B30 | B | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 2.73 | 1.67 | 0.05 |
| | | | 0.00 | | | 1/2" Ice | 2.95 | 1.86 | 0.07 |
| | | | 0.00 | | | 1" Ice | 3.18 | 2.05 | 0.10 |
| | | | | | | 2" Ice | 3.66 | 2.46 | 0.16 |

| | | | | |
|--|----------------|-----------------------|--------------------|-------------------|
| tnxTower Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | Windsor CO (701776) | Page | 9 of 16 |
| | Project | TEP No. 260307.785714 | Date | 16:35:16 11/21/22 |
| | Client | Everest | Designed by | npdanyluk |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | CAAA Front | CAAA Side | Weight |
|--------------------------|-------------|--------------------|----------|---------|--------------------|-----------|------------|-----------|--------|
| | | | Horz | Lateral | | | | | |
| RRUS 32 B30 | C | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 2.73 | 1.67 | 0.05 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 2.95 | 1.86 | 0.07 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 3.18 | 2.05 | 0.10 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 3.66 | 2.46 | 0.16 |
| RADIO 4478 B14 | A | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 2.02 | 1.25 | 0.06 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 2.20 | 1.40 | 0.08 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 2.39 | 1.55 | 0.10 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 2.78 | 1.89 | 0.15 |
| RADIO 4478 B14 | B | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 2.02 | 1.25 | 0.06 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 2.20 | 1.40 | 0.08 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 2.39 | 1.55 | 0.10 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 2.78 | 1.89 | 0.15 |
| RADIO 4478 B14 | C | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 2.02 | 1.25 | 0.06 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 2.20 | 1.40 | 0.08 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 2.39 | 1.55 | 0.10 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 2.78 | 1.89 | 0.15 |
| RADIO 8843 B2/B66A | A | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 1.64 | 1.38 | 0.08 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 1.80 | 1.53 | 0.09 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 1.97 | 1.69 | 0.11 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 2.33 | 2.02 | 0.16 |
| RADIO 8843 B2/B66A | B | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 1.64 | 1.38 | 0.08 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 1.80 | 1.53 | 0.09 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 1.97 | 1.69 | 0.11 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 2.33 | 2.02 | 0.16 |
| RADIO 8843 B2/B66A | C | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 1.64 | 1.38 | 0.08 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 1.80 | 1.53 | 0.09 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 1.97 | 1.69 | 0.11 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 2.33 | 2.02 | 0.16 |
| RADIO 4449 B5/B12 | A | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 1.64 | 1.30 | 0.07 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 1.80 | 1.45 | 0.09 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 1.97 | 1.60 | 0.11 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 2.33 | 1.92 | 0.16 |
| RADIO 4449 B5/B12 | B | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 1.64 | 1.30 | 0.07 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 1.80 | 1.45 | 0.09 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 1.97 | 1.60 | 0.11 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 2.33 | 1.92 | 0.16 |
| RADIO 4449 B5/B12 | C | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 1.64 | 1.30 | 0.07 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 1.80 | 1.45 | 0.09 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 1.97 | 1.60 | 0.11 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 2.33 | 1.92 | 0.16 |
| DC6-48-60-18-8F | A | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 0.85 | 0.85 | 0.02 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 1.36 | 1.36 | 0.04 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 1.53 | 1.53 | 0.05 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 1.91 | 1.91 | 0.10 |
| DC6-48-60-18-8F | B | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 0.85 | 0.85 | 0.02 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 1.36 | 1.36 | 0.04 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 1.53 | 1.53 | 0.05 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 1.91 | 1.91 | 0.10 |
| DC6-48-60-18-8C | C | From Centroid-Le g | 4.00 | 0.0000 | 100.00 | No Ice | 1.14 | 1.14 | 0.03 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 1.79 | 1.79 | 0.05 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 2.00 | 2.00 | 0.07 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 2.45 | 2.45 | 0.13 |
| SitePro 1 RMQLP-4120-H10 | C | None | 4.00 | 0.0000 | 100.00 | No Ice | 28.15 | 26.41 | 3.27 |
| | | | 0.00 | 0.0000 | 100.00 | 1/2" Ice | 34.10 | 32.35 | 3.66 |
| | | | 0.00 | 0.0000 | 100.00 | 1" Ice | 40.10 | 38.54 | 4.18 |
| | | | 0.00 | 0.0000 | 100.00 | 2" Ice | 51.95 | 50.17 | 4.83 |

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| | | | | |
|--|----------------|-----------------------|--------------------|-------------------|
| tnxTower Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | Windsor CO (701776) | Page | 10 of 16 |
| | Project | TEP No. 260307.785714 | Date | 16:35:16 11/21/22 |
| | Client | Everest | Designed by | npdanyluk |

| Description | Face or Leg | Offset Type | Offsets: | | Azimuth Adjustment | Placement | C _{AA} Front | C _{AA} Side | Weight |
|------------------------------------|-------------|--------------------|----------|--------------|--------------------|-----------|-----------------------|----------------------|--------|
| | | | Horz | Lateral Vert | | | | | |
| | | | ft | ft | ° | ft | ft ² | ft ² | K |
| Platform Mount [LP 303-1_HR-1] | C | None | | | 0.0000 | 94.00 | No Ice 17.09 | 17.09 | 1.50 |
| | | | | | | | 1/2" Ice 21.47 | 21.47 | 1.88 |
| | | | | | | | 1" Ice 25.72 | 25.72 | 2.35 |
| | | | | | | | 2" Ice 33.96 | 33.96 | 3.52 |
| AIR 32 B66Aa/B2a w/ Mount Pipe | A | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 6.81 | 6.14 | 0.16 |
| | | | | | | | 1/2" Ice 7.30 | 6.99 | 0.22 |
| | | | | | | | 1" Ice 7.76 | 7.73 | 0.29 |
| | | | | | | | 2" Ice 8.71 | 9.24 | 0.45 |
| AIR 32 B66Aa/B2a w/ Mount Pipe | B | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 6.81 | 6.14 | 0.16 |
| | | | | | | | 1/2" Ice 7.30 | 6.99 | 0.22 |
| | | | | | | | 1" Ice 7.76 | 7.73 | 0.29 |
| | | | | | | | 2" Ice 8.71 | 9.24 | 0.45 |
| AIR 32 B66Aa/B2a w/ Mount Pipe | C | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 6.81 | 6.14 | 0.16 |
| | | | | | | | 1/2" Ice 7.30 | 6.99 | 0.22 |
| | | | | | | | 1" Ice 7.76 | 7.73 | 0.29 |
| | | | | | | | 2" Ice 8.71 | 9.24 | 0.45 |
| APXVAARR24_43-U-NA20 w/ Mount Pipe | A | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 20.48 | 11.02 | 0.16 |
| | | | | | | | 1/2" Ice 21.23 | 12.55 | 0.30 |
| | | | | | | | 1" Ice 21.99 | 14.10 | 0.44 |
| | | | | | | | 2" Ice 23.44 | 16.45 | 0.78 |
| APXVAARR24_43-U-NA20 w/ Mount Pipe | B | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 20.48 | 11.02 | 0.16 |
| | | | | | | | 1/2" Ice 21.23 | 12.55 | 0.30 |
| | | | | | | | 1" Ice 21.99 | 14.10 | 0.44 |
| | | | | | | | 2" Ice 23.44 | 16.45 | 0.78 |
| APXVAARR24_43-U-NA20 w/ Mount Pipe | C | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 20.48 | 11.02 | 0.16 |
| | | | | | | | 1/2" Ice 21.23 | 12.55 | 0.30 |
| | | | | | | | 1" Ice 21.99 | 14.10 | 0.44 |
| | | | | | | | 2" Ice 23.44 | 16.45 | 0.78 |
| AIR6449 B41 w/ Mount Pipe | A | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 5.89 | 3.28 | 0.12 |
| | | | | | | | 1/2" Ice 6.26 | 3.74 | 0.17 |
| | | | | | | | 1" Ice 6.63 | 4.22 | 0.22 |
| | | | | | | | 2" Ice 7.41 | 5.21 | 0.35 |
| AIR6449 B41 w/ Mount Pipe | B | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 5.89 | 3.28 | 0.12 |
| | | | | | | | 1/2" Ice 6.26 | 3.74 | 0.17 |
| | | | | | | | 1" Ice 6.63 | 4.22 | 0.22 |
| | | | | | | | 2" Ice 7.41 | 5.21 | 0.35 |
| AIR6449 B41 w/ Mount Pipe | C | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 5.89 | 3.28 | 0.12 |
| | | | | | | | 1/2" Ice 6.26 | 3.74 | 0.17 |
| | | | | | | | 1" Ice 6.63 | 4.22 | 0.22 |
| | | | | | | | 2" Ice 7.41 | 5.21 | 0.35 |
| KRY 112 71 | A | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 0.63 | 0.61 | 0.02 |
| | | | | | | | 1/2" Ice 0.75 | 0.79 | 0.03 |
| | | | | | | | 1" Ice 0.89 | 0.99 | 0.04 |
| | | | | | | | 2" Ice 1.18 | 1.44 | 0.07 |
| KRY 112 71 | B | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 0.63 | 0.61 | 0.02 |
| | | | | | | | 1/2" Ice 0.75 | 0.79 | 0.03 |
| | | | | | | | 1" Ice 0.89 | 0.99 | 0.04 |
| | | | | | | | 2" Ice 1.18 | 1.44 | 0.07 |
| KRY 112 71 | C | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 0.63 | 0.61 | 0.02 |
| | | | | | | | 1/2" Ice 0.75 | 0.79 | 0.03 |
| | | | | | | | 1" Ice 0.89 | 0.99 | 0.04 |
| | | | | | | | 2" Ice 1.18 | 1.44 | 0.07 |
| RADIO 4449 | A | From Centroid-Le g | 4.00 | 0.00 | 0.0000 | 94.00 | No Ice 3.50 | 2.36 | 0.09 |
| | | | | | | | 1/2" Ice 3.74 | 2.57 | 0.11 |
| | | | | | | | 1" Ice 3.99 | 2.78 | 0.15 |
| | | | | | | | 2" Ice 4.51 | 3.24 | 0.22 |
| RADIO 4449 | B | From | 4.00 | | 0.0000 | 94.00 | No Ice 3.50 | 2.36 | 0.09 |

| | | | | |
|--|----------------|-----------------------|--------------------|-------------------|
| tnxTower Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | Windsor CO (701776) | Page | 12 of 16 |
| | Project | TEP No. 260307.785714 | Date | 16:35:16 11/21/22 |
| | Client | Everest | Designed by | npdanyluk |

| <i>Description</i> | <i>Face or Leg</i> | <i>Offset Type</i> | <i>Offsets: Horz Lateral Vert</i> | <i>Azimuth Adjustment</i> | <i>Placement</i> | <i>C_{AA} Front</i> | <i>C_{AA} Side</i> | <i>Weight</i> |
|--------------------|--------------------|--------------------|-------------------------------------|---------------------------|------------------|-----------------------------|----------------------------|---------------|
| | | | <i>ft</i> <i>ft</i> <i>ft</i> | <i>°</i> | <i>ft</i> | <i>ft²</i> | <i>ft²</i> | <i>K</i> |
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Load Combinations

| <i>Comb. No.</i> | <i>Description</i> |
|------------------|--|
| 1 | Dead Only |
| 2 | 1.2 Dead+1.0 Wind 0 deg - No Ice |
| 3 | 0.9 Dead+1.0 Wind 0 deg - No Ice |
| 4 | 1.2 Dead+1.0 Wind 30 deg - No Ice |
| 5 | 0.9 Dead+1.0 Wind 30 deg - No Ice |
| 6 | 1.2 Dead+1.0 Wind 60 deg - No Ice |
| 7 | 0.9 Dead+1.0 Wind 60 deg - No Ice |
| 8 | 1.2 Dead+1.0 Wind 90 deg - No Ice |
| 9 | 0.9 Dead+1.0 Wind 90 deg - No Ice |
| 10 | 1.2 Dead+1.0 Wind 120 deg - No Ice |
| 11 | 0.9 Dead+1.0 Wind 120 deg - No Ice |
| 12 | 1.2 Dead+1.0 Wind 150 deg - No Ice |
| 13 | 0.9 Dead+1.0 Wind 150 deg - No Ice |
| 14 | 1.2 Dead+1.0 Wind 180 deg - No Ice |
| 15 | 0.9 Dead+1.0 Wind 180 deg - No Ice |
| 16 | 1.2 Dead+1.0 Wind 210 deg - No Ice |
| 17 | 0.9 Dead+1.0 Wind 210 deg - No Ice |
| 18 | 1.2 Dead+1.0 Wind 240 deg - No Ice |
| 19 | 0.9 Dead+1.0 Wind 240 deg - No Ice |
| 20 | 1.2 Dead+1.0 Wind 270 deg - No Ice |
| 21 | 0.9 Dead+1.0 Wind 270 deg - No Ice |
| 22 | 1.2 Dead+1.0 Wind 300 deg - No Ice |
| 23 | 0.9 Dead+1.0 Wind 300 deg - No Ice |
| 24 | 1.2 Dead+1.0 Wind 330 deg - No Ice |
| 25 | 0.9 Dead+1.0 Wind 330 deg - No Ice |
| 26 | 1.2 Dead+1.0 Ice+1.0 Temp |
| 27 | 1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp |
| 28 | 1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp |
| 29 | 1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp |
| 30 | 1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp |
| 31 | 1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp |

| | | | | |
|--|----------------|-----------------------|--------------------|-------------------|
| tnxTower Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | Windsor CO (701776) | Page | 13 of 16 |
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| | Client | Everest | Designed by | npdanyluk |

| <i>Comb. No.</i> | <i>Description</i> |
|------------------|--|
| 32 | 1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp |
| 33 | 1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp |
| 34 | 1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp |
| 35 | 1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp |
| 36 | 1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp |
| 37 | 1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp |
| 38 | 1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp |
| 39 | Dead+Wind 0 deg - Service |
| 40 | Dead+Wind 30 deg - Service |
| 41 | Dead+Wind 60 deg - Service |
| 42 | Dead+Wind 90 deg - Service |
| 43 | Dead+Wind 120 deg - Service |
| 44 | Dead+Wind 150 deg - Service |
| 45 | Dead+Wind 180 deg - Service |
| 46 | Dead+Wind 210 deg - Service |
| 47 | Dead+Wind 240 deg - Service |
| 48 | Dead+Wind 270 deg - Service |
| 49 | Dead+Wind 300 deg - Service |
| 50 | Dead+Wind 330 deg - Service |

Maximum Tower Deflections - Service 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> |
|--------------------|---------------------|----------------------------|------------------------|---------------|----------------|
| L1 | 100 - 86.7292 | 19.424 | 46 | 1.7928 | 0.0012 |
| L2 | 89.2732 - 77.5 | 15.469 | 46 | 1.6946 | 0.0010 |
| L3 | 77.5 - 45.3982 | 11.556 | 46 | 1.4371 | 0.0009 |
| L4 | 48.6122 - 45.33 | 4.468 | 46 | 0.8744 | 0.0006 |
| L5 | 45.33 - 22 | 3.879 | 46 | 0.8379 | 0.0006 |
| L6 | 22 - 15.5 | 0.890 | 46 | 0.3830 | 0.0003 |
| L7 | 15.5 - 12 | 0.444 | 46 | 0.2724 | 0.0002 |
| L8 | 12 - 0 | 0.266 | 46 | 0.2120 | 0.0002 |

Critical Deflections and Radius of Curvature - Service 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> |
|---------------------|--------------------------------|------------------------|----------------------|---------------|----------------|-------------------------------|
| 100.00 | TPA-65R-BU6DA-K | 46 | 19.424 | 1.7928 | 0.0012 | 7017 |
| 94.00 | Platform Mount [LP 303-1_HR-1] | 46 | 17.184 | 1.7506 | 0.0011 | 5848 |
| 10.50 | Side Arm Mount [SO 901-1] | 46 | 0.207 | 0.1857 | 0.0002 | 2832 |

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> |
|--------------------|---------------------|----------------------------|------------------------|---------------|----------------|
| L1 | 100 - 86.7292 | 78.985 | 16 | 7.3154 | 0.0044 |
| L2 | 89.2732 - 77.5 | 62.915 | 16 | 6.9145 | 0.0037 |
| L3 | 77.5 - 45.3982 | 47.008 | 16 | 5.8613 | 0.0034 |

| | | | | |
|--|----------------|-----------------------|--------------------|-------------------|
| tnxTower Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | Windsor CO (701776) | Page | 14 of 16 |
| | Project | TEP No. 260307.785714 | Date | 16:35:16 11/21/22 |
| | Client | Everest | Designed by | npdanyluk |

| Section No. | Elevation ft | Horz. Deflection in | Gov. Load Comb. | Tilt ° | Twist ° |
|-------------|-----------------|------------------------|-----------------|-----------|------------|
| L4 | 48.6122 - 45.33 | 18.175 | 16 | 3.5615 | 0.0024 |
| L5 | 45.33 - 22 | 15.779 | 16 | 3.4126 | 0.0023 |
| L6 | 22 - 15.5 | 3.617 | 16 | 1.5577 | 0.0012 |
| L7 | 15.5 - 12 | 1.803 | 16 | 1.1074 | 0.0009 |
| L8 | 12 - 0 | 1.081 | 16 | 0.8618 | 0.0007 |

Critical Deflections and Radius of Curvature - Design Wind

| Elevation ft | Appurtenance | Gov. Load Comb. | Deflection in | Tilt ° | Twist ° | Radius of Curvature ft |
|-----------------|--------------------------------|-----------------|------------------|-----------|------------|---------------------------|
| 100.00 | TPA-65R-BU6DA-K | 16 | 78.985 | 7.3154 | 0.0044 | 1768 |
| 94.00 | Platform Mount [LP 303-1_HR-1] | 16 | 69.887 | 7.1436 | 0.0040 | 1473 |
| 10.50 | Side Arm Mount [SO 901-1] | 16 | 0.842 | 0.7549 | 0.0006 | 697 |

Compression Checks

Pole Design Data

| 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 |
|-------------|------------------------|--------------------------|---------|----------------------|------|----------------------|---------------------|----------------------|--|
| L1 | 100 - 86.7292 (1) | TP16.3438x14.5x0.1875 | 13.27 | 0.00 | 0.0 | 9.4047 | -9.35 | 550.17 | 0.017 |
| L2 | 86.7292 - 77.5 (2) | TP17.2531x15.6153x0.25 | 11.77 | 0.00 | 0.0 | 13.4920 | -10.41 | 789.28 | 0.013 |
| L3 | 77.5 - 45.3982 (3) | TP21.7188x17.2531x0.5065 | 32.10 | 0.00 | 0.0 | 33.3838 | -12.94 | 1952.95 | 0.007 |
| L4 | 45.3982 - 45.33 (4) | TP21.226x20.7717x0.5751 | 3.28 | 0.00 | 0.0 | 37.6962 | -13.53 | 2205.23 | 0.006 |
| L5 | 45.33 - 22 (5) | TP24.455x21.226x0.6565 | 23.33 | 0.00 | 0.0 | 49.5897 | -16.47 | 2901.00 | 0.006 |
| L6 | 22 - 15.5 (6) | TP25.3547x24.455x0.7732 | 6.50 | 0.00 | 0.0 | 60.3240 | -17.37 | 3528.96 | 0.005 |
| L7 | 15.5 - 12 (7) | TP25.8391x25.3547x0.7608 | 3.50 | 0.00 | 0.0 | 60.5584 | -17.86 | 3542.67 | 0.005 |
| L8 | 12 - 0 (8) | TP27.5x25.8391x0.7372 | 12.00 | 0.00 | 0.0 | 62.6186 | -19.78 | 3663.19 | 0.005 |

Pole 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} |
|-------------|-----------------------|--------------------------|---------------------------|----------------------------|--|---------------------------|----------------------------|--|
| L1 | 100 - 86.7292 (1) | TP16.3438x14.5x0.1875 | 83.69 | 226.16 | 0.370 | 0.00 | 226.16 | 0.000 |
| L2 | 86.7292 - 77.5 (2) | TP17.2531x15.6153x0.25 | 210.76 | 348.11 | 0.605 | 0.00 | 348.11 | 0.000 |
| L3 | 77.5 - 45.3982 (3) | TP21.7188x17.2531x0.5065 | 577.21 | 1041.97 | 0.554 | 0.00 | 1041.97 | 0.000 |

| | | | | |
|--|----------------|-----------------------|--------------------|-------------------|
| tnxTower Tower Engineering Professionals, Inc. 326 Tryon Road Raleigh, NC 27603 Phone: (919) 661-6351 FAX: (919) 661-6350 | Job | Windsor CO (701776) | Page | 15 of 16 |
| | Project | TEP No. 260307.785714 | Date | 16:35:16 11/21/22 |
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| Section No. | Elevation ft | Size | M_{ux} kip-ft | ϕM_{rx} kip-ft | Ratio $\frac{M_{ux}}{\phi M_{rx}}$ | M_{uy} kip-ft | ϕM_{ry} kip-ft | Ratio $\frac{M_{uy}}{\phi M_{ry}}$ |
|-------------|---------------------|--------------------------|--------------------|-------------------------|---------------------------------------|--------------------|-------------------------|---------------------------------------|
| L4 | 45.3982 - 45.33 (4) | TP21.226x20.7717x0.5751 | 625.05 | 1166.16 | 0.536 | 0.00 | 1166.16 | 0.000 |
| L5 | 45.33 - 22 (5) | TP24.455x21.226x0.6565 | 1002.98 | 1768.38 | 0.567 | 0.00 | 1768.38 | 0.000 |
| L6 | 22 - 15.5 (6) | TP25.3547x24.455x0.7732 | 1120.31 | 2213.61 | 0.506 | 0.00 | 2213.61 | 0.000 |
| L7 | 15.5 - 12 (7) | TP25.8391x25.3547x0.7608 | 1185.78 | 2269.58 | 0.522 | 0.00 | 2269.58 | 0.000 |
| L8 | 12 - 0 (8) | TP27.5x25.8391x0.7372 | 1421.65 | 2511.23 | 0.566 | 0.00 | 2511.23 | 0.000 |

Pole Shear Design Data

| Section No. | Elevation ft | Size | Actual V_u K | ϕV_n K | Ratio $\frac{V_u}{\phi V_n}$ | Actual T_u kip-ft | ϕT_n kip-ft | Ratio $\frac{T_u}{\phi T_n}$ |
|-------------|---------------------|--------------------------|----------------------|-----------------|---------------------------------|---------------------------|----------------------|---------------------------------|
| L1 | 100 - 86.7292 (1) | TP16.3438x14.5x0.1875 | 10.53 | 165.05 | 0.064 | 0.03 | 228.42 | 0.000 |
| L2 | 86.7292 - 77.5 (2) | TP17.2531x15.6153x0.25 | 11.05 | 236.78 | 0.047 | 0.03 | 352.58 | 0.000 |
| L3 | 77.5 - 45.3982 (3) | TP21.7188x17.2531x0.5065 | 14.37 | 585.88 | 0.025 | 0.12 | 1065.44 | 0.000 |
| L4 | 45.3982 - 45.33 (4) | TP21.226x20.7717x0.5751 | 14.80 | 661.57 | 0.022 | 0.13 | 1196.45 | 0.000 |
| L5 | 45.33 - 22 (5) | TP24.455x21.226x0.6565 | 17.66 | 870.30 | 0.020 | 0.21 | 1813.84 | 0.000 |
| L6 | 22 - 15.5 (6) | TP25.3547x24.455x0.7732 | 18.47 | 1058.69 | 0.017 | 0.29 | 2279.06 | 0.000 |
| L7 | 15.5 - 12 (7) | TP25.8391x25.3547x0.7608 | 18.96 | 1062.80 | 0.018 | 0.37 | 2334.16 | 0.000 |
| L8 | 12 - 0 (8) | TP27.5x25.8391x0.7372 | 20.33 | 1098.96 | 0.018 | 0.47 | 2575.68 | 0.000 |

Pole Interaction Design Data

| Section No. | Elevation ft | Ratio P_u | Ratio M_{ux} | Ratio M_{uy} | Ratio V_u | Ratio T_u | Comb. Stress Ratio | Allow. Stress Ratio | Criteria |
|-------------|---------------------|----------------|-------------------|-------------------|----------------|----------------|--------------------------|---------------------------|----------|
| L1 | 100 - 86.7292 (1) | 0.017 | 0.370 | 0.000 | 0.064 | 0.000 | 0.391 | 1.050 | 4.8.2 |
| L2 | 86.7292 - 77.5 (2) | 0.013 | 0.605 | 0.000 | 0.047 | 0.000 | 0.621 | 1.050 | 4.8.2 |
| L3 | 77.5 - 45.3982 (3) | 0.007 | 0.554 | 0.000 | 0.025 | 0.000 | 0.561 | 1.050 | 4.8.2 |
| L4 | 45.3982 - 45.33 (4) | 0.006 | 0.536 | 0.000 | 0.022 | 0.000 | 0.543 | 1.050 | 4.8.2 |
| L5 | 45.33 - 22 (5) | 0.006 | 0.567 | 0.000 | 0.020 | 0.000 | 0.573 | 1.050 | 4.8.2 |
| L6 | 22 - 15.5 (6) | 0.005 | 0.506 | 0.000 | 0.017 | 0.000 | 0.511 | 1.050 | 4.8.2 |
| L7 | 15.5 - 12 (7) | 0.005 | 0.522 | 0.000 | 0.018 | 0.000 | 0.528 | 1.050 | 4.8.2 |
| L8 | 12 - 0 (8) | 0.005 | 0.566 | 0.000 | 0.018 | 0.000 | 0.572 | 1.050 | 4.8.2 |

| | | |
|--|---|----------------------------------|
| <i>tnxTower</i> <i>Tower Engineering Professionals, Inc.</i> <small>Program Version 8.1.10 Rev 6/2021 File:G:\Shared drives\260149 - 260844\260307\P-372006 L-785714 701776 Windsor CO Structural Analysis\tnx Tower\260307 Windsor CO</small> <small>Phone: (919) 661-6351 FAX: (919) 661-6350</small> | Job Windsor CO (701776) | Page 16 of 16 |
| | Project TEP No. 260307.785714 | Date 16:35:16 11/21/22 |
| Client Everest | | Designed by npdanyluk |

APPENDIX B
ADDITIONAL CALCULATIONS



Windsor CO (701776)

| | | |
|-----------|-------|------|
| Pole (L2) | 66.2% | Pass |
| Mod (M4) | 82.5% | Pass |

TEP #: 260307.785714
 Analysis: GJS 11/21/2022
 Check: NPD 11/21/2022

Monopole Reinforcement_v1.9.5 - TIA-222-H - Per Section 15.5 - Capacities

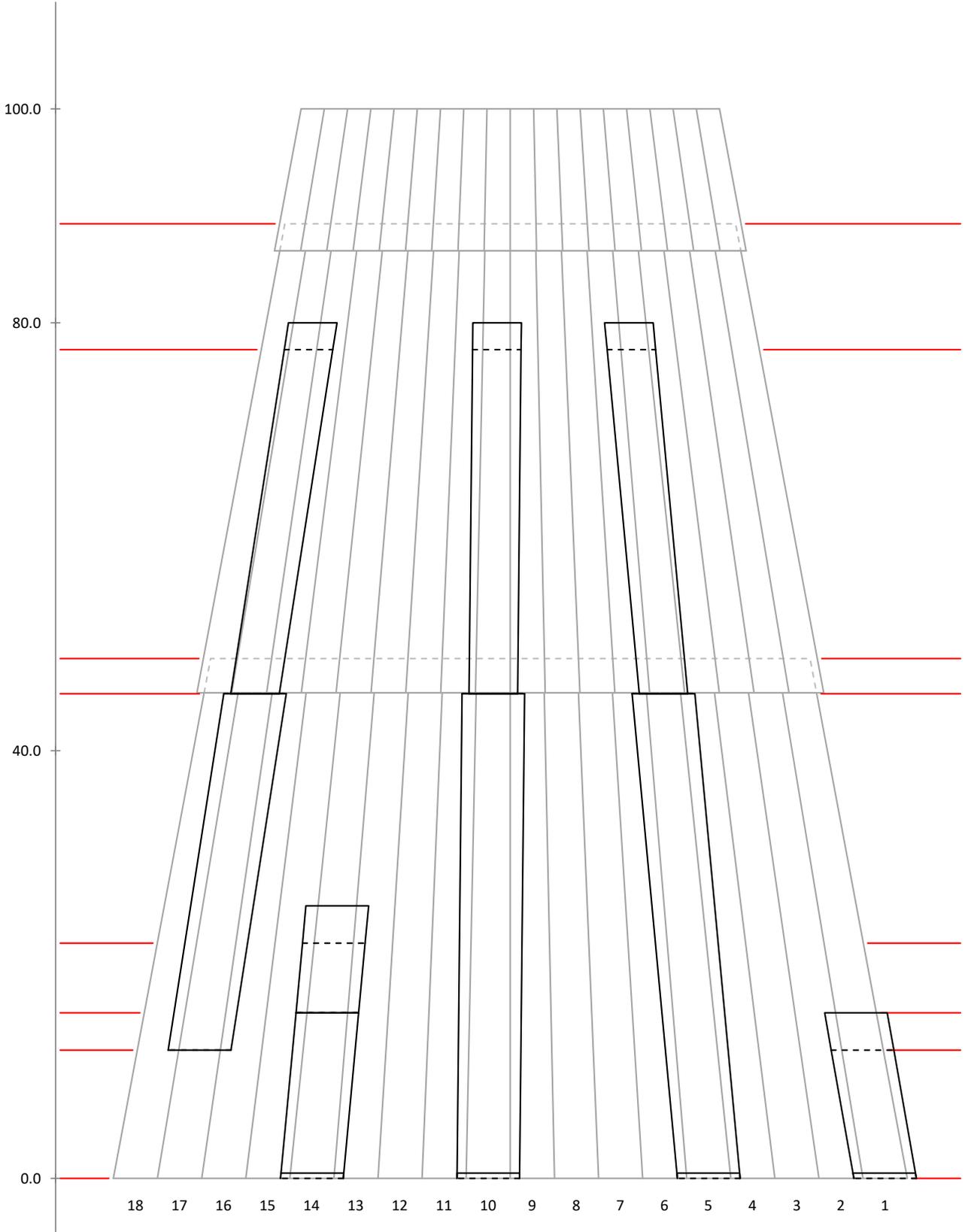
| Section No. | Elevation (ft) | Type | Size | Critical Element | Pu (k) | ϕPn (k) | % Capacity (Note 2) | Pass/Fail |
|-------------|----------------|----------|----------------------|------------------|--------|---------------|---------------------|-----------|
| L1 | 100.00-86.73 | Pole | TP16.34x14.50x0.1875 | 1 | Note 1 | Note 1 | 41.1 | Pass |
| L2 | 89.27-45.40 | Pole | TP21.72x15.62x0.2500 | 2 | Note 1 | Note 1 | 66.2 | Pass |
| L3 | 48.61-0.00 | Pole | TP27.50x20.77x0.3125 | 3 | Note 1 | Note 1 | 62.8 | Pass |
| M1b | 15.50-0.50 | Mod (Ex) | (Aero) MP306 | 1 | Note 1 | Note 1 | 77.5 | Pass |
| M2 | 45.33-0.50 | Mod (Ex) | (Aero) MP306 | 2 | Note 1 | Note 1 | 81.1 | Pass |
| M3 | 45.33-12.00 | Mod (Ex) | (Aero) MP306 | 3 | Note 1 | Note 1 | 73.0 | Pass |
| M4 | 80.00-45.33 | Mod (Ex) | (Aero) MP305 | 4 | Note 1 | Note 1 | 82.5 | Pass |
| M5 | 25.50-15.50 | Mod (Ex) | (Aero) MP306 | 5 | Note 1 | Note 1 | 59.2 | Pass |

| Summary | | |
|-----------------|-------------|-------------|
| Pole (L2) | 66.2 | Pass |
| Mod (M4) | 82.5 | Pass |
| RATING = | 82.5 | Pass |

*Note 2: Per TIA-222-H Section 15.5



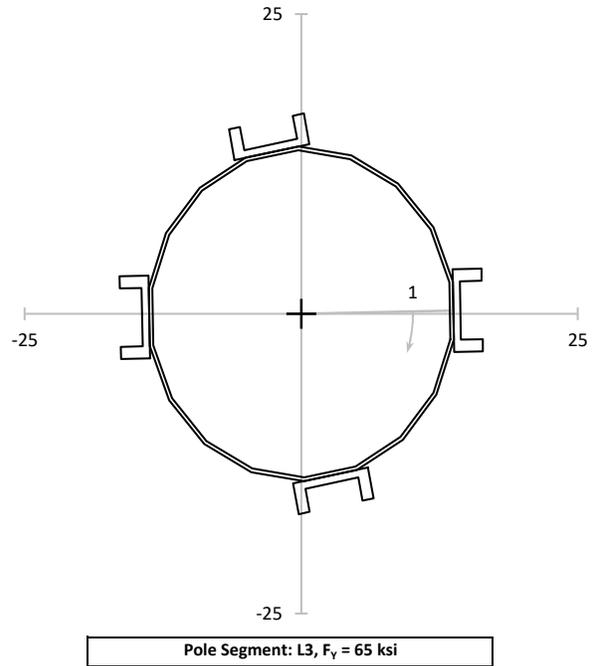
Reinforcement Layout



Elevation: 0.00-ft

| Loads | |
|--------------------------|--------------|
| Axial: | 19.7 k |
| Moment: | 1,542.6 k-ft |
| Shear: | 20.7 k |
| Torsion: | 0.5 k-ft |
| Equivalent Loads to Pole | |
| Axial: | 8.7 k |
| Moment: | 685.6 k-ft |
| Shear: | 9.2 k |
| Torsion: | 0.5 k-ft |
| Shear Flow | |
| Controlling Mod: | 2 |
| q: | 0.410 k/in |
| Bolt/Weld Cap: | 36.0 k/bolt |
| Max Spacing: | 87.70 in |
| Stitch: | 24.00 in |
| Capacity: | 27.4% |

| Pole Info | |
|--------------|-------------------------|
| OD: | 27.50 in |
| t: | 0.3125 in |
| Pole A_G : | 26.97 in ² |
| Pole I_G : | 2,518.3 in ⁴ |
| Controlling | |
| Angle: | 88.90° |
| I_{CONT} : | 6,153.3 in ⁴ |
| A_G : | 60.85 in ² |
| Minimum | |
| Angle: | 230.00° |
| I_{MIN} : | 5,666.4 in ⁴ |
| t_{EFF} : | 0.7372 in |



| POLE CAPACITY | | | | | | | | | | | |
|---------------|-----------------------|------------------------|------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|--------------------|----------|
| Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | σ_T (ksi) | ϕ_{F_A} (ksi) | ϕ_{F_B} (ksi) | ϕ_{F_V} (ksi) | ϕ_{F_T} (ksi) | Capacity |
| 230.00 | 13.97 | 5666.4 | 0.324 | 45.637 | 0.340 | 0.017 | 58.500 | 74.295 | 17.550 | 37.050 | 59.1% |

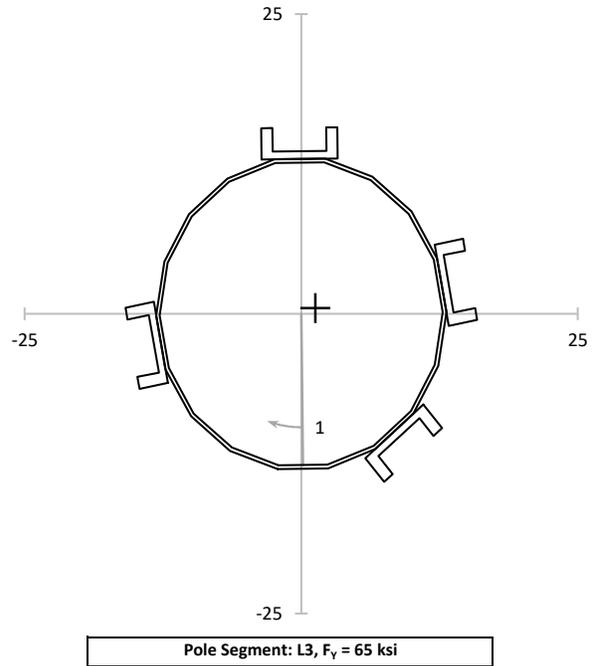
| MODIFICATION CAPACITIES | | | | | | | | | | | |
|-------------------------|---|-----------|-----------------------|------------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|----------|
| Mod Number | # | Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | ϕ_{F_A} (ksi) | ϕ_{F_B} (ksi) | ϕ_{F_V} (ksi) | Capacity |
| 1a | 1 | 11.10 | 14.41 | 6153.3 | 0.324 | 43.336 | 0.340 | 55.096 | 52.899 | 29.250 | 77.5% |
| 1b | 1 | 88.90 | 14.41 | 6153.3 | 0.324 | 43.336 | 0.340 | 55.096 | 52.899 | 29.250 | 77.5% |
| 2 | 1 | 268.90 | 14.41 | 6153.3 | 0.324 | 43.336 | 0.340 | 55.096 | 52.899 | 29.250 | 77.5% |
| 2 | 2 | 191.10 | 14.41 | 6153.3 | 0.324 | 43.336 | 0.340 | 55.096 | 52.899 | 29.250 | 77.5% |



Elevation: 12.00-ft

| Loads | |
|--------------------------|--------------|
| Axial: | 17.4 k |
| Moment: | 1,300.7 k-ft |
| Shear: | 19.7 k |
| Torsion: | 0.4 k-ft |
| Equivalent Loads to Pole | |
| Axial: | 7.4 k |
| Moment: | 557.6 k-ft |
| Shear: | 8.4 k |
| Torsion: | 0.4 k-ft |
| Shear Flow | |
| Controlling Mod: | 3 |
| q: | 0.457 k/in |
| Bolt/Weld Cap: | 36.0 k/bolt |
| Max Spacing: | 78.74 in |
| Stitch: | 24.00 in |
| Capacity: | 30.5% |

| Pole Info | |
|--------------|-------------------------|
| OD: | 25.84 in |
| t: | 0.3125 in |
| Pole A_G : | 25.32 in ² |
| Pole I_G : | 2,084.4 in ⁴ |
| Controlling | |
| Angle: | 179.35° |
| I_G : | 4,873.3 in ⁴ |
| A_G : | 59.20 in ² |
| Minimum | |
| Angle: | 166.05° |
| I_{MIN} : | 4,811.8 in ⁴ |
| t_{EFF} : | 0.7608 in |



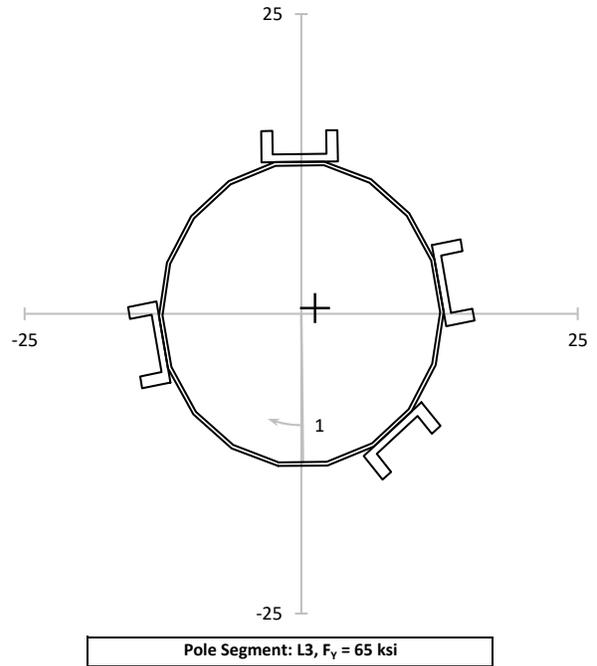
| POLE CAPACITY | | | | | | | | | | | |
|---------------|-----------------------|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | σ_T (ksi) | ϕF_A (ksi) | ϕF_B (ksi) | ϕF_V (ksi) | ϕF_T (ksi) | Capacity |
| 332.65 | 14.11 | 4874.5 | 0.293 | 45.177 | 0.332 | 0.015 | 58.500 | 74.295 | 17.550 | 37.050 | 58.4% |

| MODIFICATION CAPACITIES | | | | | | | | | | | |
|-------------------------|---|-----------|-----------------------|----------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| Mod Number | # | Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | ϕF_A (ksi) | ϕF_B (ksi) | ϕF_V (ksi) | Capacity |
| 1b | 1 | 109.75 | 12.29 | 5618.3 | 0.293 | 34.153 | 0.332 | 55.096 | 52.899 | 29.250 | 61.0% |
| 2 | 1 | 292.15 | 14.89 | 5572.6 | 0.293 | 41.715 | 0.332 | 55.096 | 52.899 | 29.250 | 74.6% |
| 2 | 2 | 179.35 | 13.37 | 4873.3 | 0.293 | 42.823 | 0.332 | 55.096 | 52.899 | 29.250 | 76.6% |
| 3 | 1 | 22.55 | 13.15 | 5223.5 | 0.293 | 39.298 | 0.332 | 55.096 | 52.899 | 29.250 | 70.2% |

Elevation: 15.50-ft

| Loads | |
|--------------------------|--------------|
| Axial: | 16.8 k |
| Moment: | 1,232.7 k-ft |
| Shear: | 19.3 k |
| Torsion: | 0.4 k-ft |
| Equivalent Loads to Pole | |
| Axial: | 7.1 k |
| Moment: | 521.4 k-ft |
| Shear: | 8.2 k |
| Torsion: | 0.4 k-ft |
| Shear Flow | |
| Controlling Mod: | 3 |
| q: | 0.461 k/in |
| Bolt/Weld Cap: | 36.0 k/bolt |
| Max Spacing: | 78.06 in |
| Stitch: | 24.00 in |
| Capacity: | 30.7% |

| Pole Info | |
|--------------|-------------------------|
| OD: | 25.35 in |
| t: | 0.3125 in |
| Pole A_G : | 24.84 in ² |
| Pole I_G : | 1,967.9 in ⁴ |
| Controlling | |
| Angle: | 179.35° |
| I_G : | 4,664.6 in ⁴ |
| A_G : | 58.72 in ² |
| Minimum | |
| Angle: | 166.05° |
| I_{MIN} : | 4,605.2 in ⁴ |
| t_{EFF} : | 0.7732 in |



| POLE CAPACITY | | | | | | | | | | | |
|---------------|-----------------------|------------------------|------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|--------------------|----------|
| Angle (°) | \bar{Y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | σ_T (ksi) | ϕ_{F_A} (ksi) | ϕ_{F_B} (ksi) | ϕ_{F_V} (ksi) | ϕ_{F_T} (ksi) | Capacity |
| 152.65 | 13.85 | 4665.4 | 0.285 | 43.926 | 0.329 | 0.015 | 58.500 | 74.295 | 17.550 | 37.050 | 56.8% |

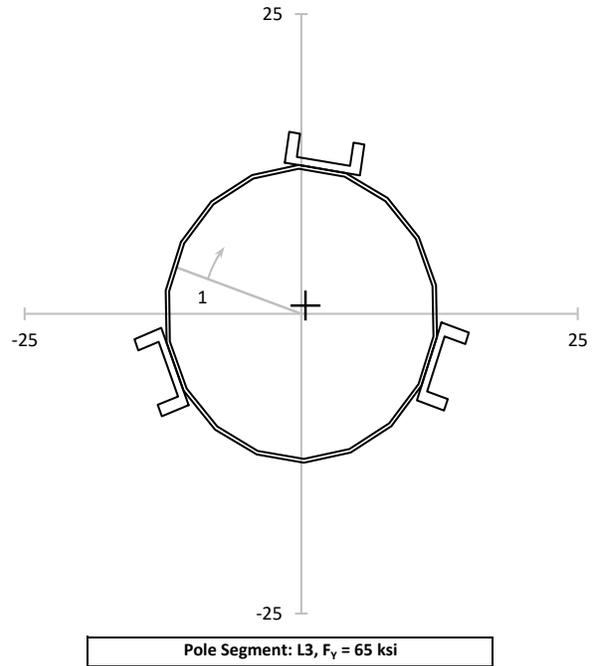
| MODIFICATION CAPACITIES | | | | | | | | | | | |
|-------------------------|---|-----------|-----------------------|------------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|----------|
| Mod Number | # | Angle (°) | \bar{Y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | ϕ_{F_A} (ksi) | ϕ_{F_B} (ksi) | ϕ_{F_V} (ksi) | Capacity |
| 2 | 1 | 292.25 | 14.64 | 5336.2 | 0.285 | 40.581 | 0.329 | 55.096 | 52.899 | 29.250 | 72.6% |
| 2 | 2 | 179.35 | 13.13 | 4664.6 | 0.285 | 41.648 | 0.329 | 55.096 | 52.899 | 29.250 | 74.5% |
| 3 | 1 | 22.40 | 12.91 | 4999.6 | 0.285 | 38.209 | 0.329 | 55.096 | 52.899 | 29.250 | 68.3% |
| 5 | 1 | 109.85 | 12.06 | 5380.4 | 0.285 | 33.168 | 0.329 | 55.096 | 52.899 | 29.250 | 59.2% |



Elevation: 22.00-ft

| Loads | |
|--------------------------|--------------|
| Axial: | 15.7 k |
| Moment: | 1,109.4 k-ft |
| Shear: | 18.7 k |
| Torsion: | 0.3 k-ft |
| Equivalent Loads to Pole | |
| Axial: | 7.6 k |
| Moment: | 546.6 k-ft |
| Shear: | 9.1 k |
| Torsion: | 0.3 k-ft |
| Shear Flow | |
| Controlling Mod: | 3 |
| q: | 0.540 k/in |
| Bolt/Weld Cap: | 36.0 k/bolt |
| Max Spacing: | 66.67 in |
| Stitch: | 24.00 in |
| Capacity: | 36.0% |

| Pole Info | |
|--------------|-------------------------|
| OD: | 24.46 in |
| t: | 0.3125 in |
| Pole A_G : | 23.95 in ² |
| Pole I_G : | 1,763.4 in ⁴ |
| Controlling | |
| Angle: | 288.95° |
| I_G : | 3,614.7 in ⁴ |
| A_G : | 49.36 in ² |
| Minimum | |
| Angle: | 304.10° |
| I_{MIN} : | 3,548.4 in ⁴ |
| t_{EFF} : | 0.6565 in |



| POLE CAPACITY | | | | | | | | | | | |
|---------------|-----------------------|------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | σ_T (ksi) | ϕF_A (ksi) | ϕF_B (ksi) | ϕF_V (ksi) | ϕF_T (ksi) | Capacity |
| 113.75 | 13.05 | 3579.7 | 0.317 | 48.528 | 0.379 | 0.014 | 58.500 | 74.295 | 17.550 | 37.050 | 62.8% |

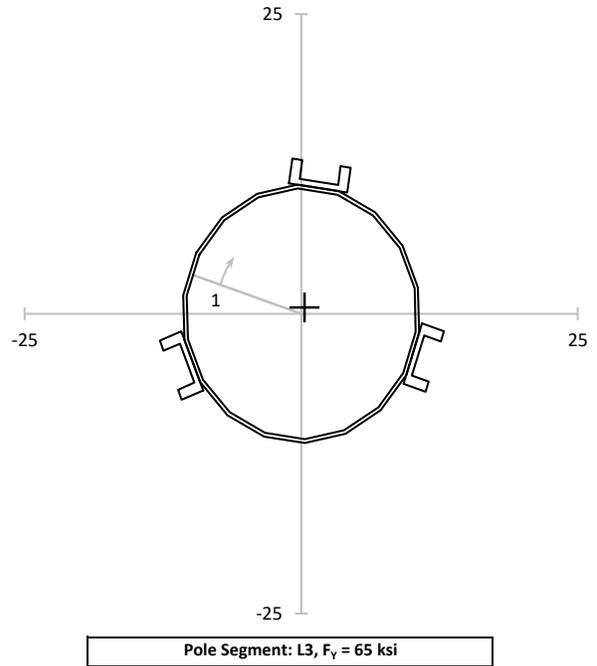
| MODIFICATION CAPACITIES | | | | | | | | | | | |
|-------------------------|---|-----------|-----------------------|------------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| Mod Number | # | Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | ϕF_A (ksi) | ϕF_B (ksi) | ϕF_V (ksi) | Capacity |
| 2 | 1 | 288.95 | 12.31 | 3614.7 | 0.317 | 45.342 | 0.379 | 55.096 | 52.899 | 29.250 | 81.1% |
| 2 | 2 | 163.05 | 12.68 | 3932.0 | 0.317 | 42.935 | 0.379 | 55.096 | 52.899 | 29.250 | 76.7% |
| 3 | 1 | 47.80 | 13.70 | 4464.9 | 0.317 | 40.847 | 0.379 | 55.096 | 52.899 | 29.250 | 73.0% |



Elevation: 45.33-ft

| Loads | |
|--------------------------|-------------|
| Axial: | 12.3 k |
| Moment: | 702.2 k-ft |
| Shear: | 16.1 k |
| Torsion: | 0.2 k-ft |
| Equivalent Loads to Pole | |
| Axial: | 6.8 k |
| Moment: | 396.2 k-ft |
| Shear: | 8.9 k |
| Torsion: | 0.2 k-ft |
| Shear Flow | |
| Controlling Mod: | 5 |
| q: | 0.474 k/in |
| Bolt/Weld Cap: | 36.0 k/bolt |
| Max Spacing: | 75.88 in |
| Stitch: | 18.00 in |
| Capacity: | 23.7% |

| Pole Info | |
|--------------|-------------------------|
| OD: | 21.23 in |
| t: | 0.3125 in |
| Pole A_G : | 20.74 in ² |
| Pole I_G : | 1,146.2 in ⁴ |
| Controlling | |
| Angle: | 288.25° |
| I_G : | 2,068.1 in ⁴ |
| A_G : | 37.69 in ² |
| Minimum | |
| Angle: | 124.20° |
| I_{MIN} : | 2,031.0 in ⁴ |
| t_{EFF} : | 0.5751 in |



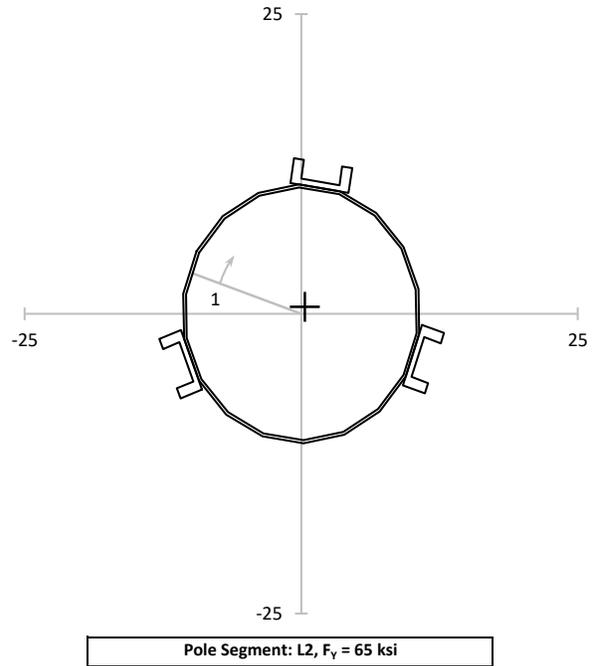
| POLE CAPACITY | | | | | | | | | | | |
|---------------|-----------------------|------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | σ_T (ksi) | ϕF_A (ksi) | ϕF_B (ksi) | ϕF_V (ksi) | ϕF_T (ksi) | Capacity |
| 126.55 | 11.17 | 2031.8 | 0.326 | 46.330 | 0.428 | 0.010 | 58.500 | 74.295 | 17.550 | 37.050 | 60.0% |

| MODIFICATION CAPACITIES | | | | | | | | | | | |
|-------------------------|---|-----------|-----------------------|------------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| Mod Number | # | Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | ϕF_A (ksi) | ϕF_B (ksi) | ϕF_V (ksi) | Capacity |
| 4 | 1 | 288.25 | 10.76 | 2068.1 | 0.326 | 43.849 | 0.428 | 55.547 | 51.640 | 29.250 | 80.3% |
| 4 | 2 | 164.85 | 11.06 | 2238.7 | 0.326 | 41.628 | 0.428 | 55.547 | 51.640 | 29.250 | 76.2% |
| 4 | 3 | 46.50 | 11.82 | 2498.8 | 0.326 | 39.874 | 0.428 | 55.547 | 51.640 | 29.250 | 73.0% |

Elevation: 48.61-ft

| Loads | |
|--------------------------|-------------|
| Axial: | 11.6 k |
| Moment: | 649.8 k-ft |
| Shear: | 15.8 k |
| Torsion: | 0.2 k-ft |
| Equivalent Loads to Pole | |
| Axial: | 5.8 k |
| Moment: | 332.7 k-ft |
| Shear: | 7.8 k |
| Torsion: | 0.2 k-ft |
| Shear Flow | |
| Controlling Mod: | 5 |
| q: | 0.515 k/in |
| Bolt/Weld Cap: | 36.0 k/bolt |
| Max Spacing: | 69.85 in |
| Stitch: | 18.00 in |
| Capacity: | 25.8% |

| Pole Info | |
|--------------|-------------------------|
| OD: | 21.27 in |
| t: | 0.2500 in |
| Pole A_G : | 16.68 in ² |
| Pole I_G : | 931.3 in ⁴ |
| Controlling | |
| Angle: | 288.90° |
| I_G : | 1,852.6 in ⁴ |
| A_G : | 33.63 in ² |
| Minimum | |
| Angle: | 124.15° |
| I_{MIN} : | 1,818.6 in ⁴ |
| t_{EFF} : | 0.5065 in |



| POLE CAPACITY | | | | | | | | | | | |
|---------------|-----------------------|------------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | σ_T (ksi) | ϕF_A (ksi) | ϕF_B (ksi) | ϕF_V (ksi) | ϕF_T (ksi) | Capacity |
| 126.25 | 11.24 | 1819.3 | 0.345 | 48.191 | 0.469 | 0.012 | 58.500 | 74.295 | 17.550 | 37.050 | 62.4% |

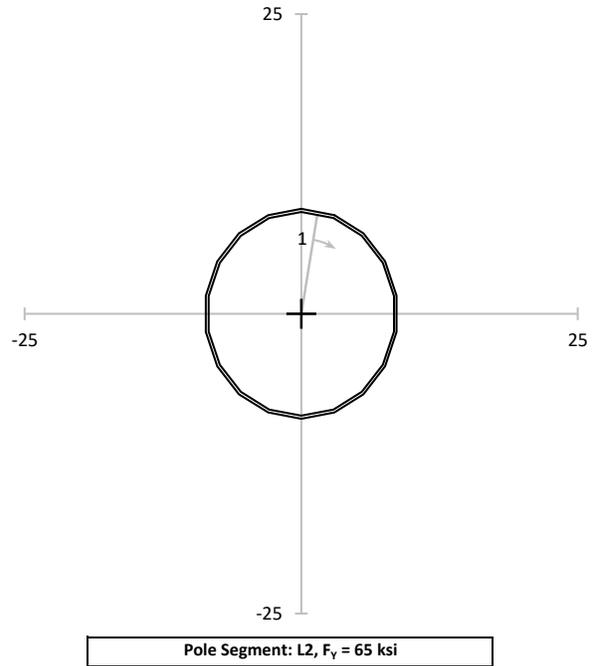
| MODIFICATION CAPACITIES | | | | | | | | | | | |
|-------------------------|---|-----------|-----------------------|------------------------|------------------|------------------|------------------|------------------|------------------|------------------|----------|
| Mod Number | # | Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | ϕF_A (ksi) | ϕF_B (ksi) | ϕF_V (ksi) | Capacity |
| 4 | 1 | 288.90 | 10.70 | 1852.6 | 0.345 | 45.055 | 0.469 | 55.547 | 51.640 | 29.250 | 82.5% |
| 4 | 2 | 163.25 | 11.02 | 2014.5 | 0.345 | 42.652 | 0.469 | 55.547 | 51.640 | 29.250 | 78.1% |
| 4 | 3 | 47.65 | 11.89 | 2283.8 | 0.345 | 40.587 | 0.469 | 55.547 | 51.640 | 29.250 | 74.2% |



Elevation: 77.50-ft

| Loads | |
|--------------------------|------------|
| Axial: | 8.7 k |
| Moment: | 237.0 k-ft |
| Shear: | 12.8 k |
| Torsion: | 0.1 k-ft |
| Equivalent Loads to Pole | |
| Axial: | 8.7 k |
| Moment: | 237.0 k-ft |
| Shear: | 12.8 k |
| Torsion: | 0.1 k-ft |
| Shear Flow N/A | |

| Pole Info | |
|--------------|-----------------------|
| OD: | 17.25 in |
| t: | 0.2500 in |
| Pole A_G : | 13.49 in ² |
| Pole I_G : | 492.8 in ⁴ |
| Controlling | |
| Angle: | 10.00° |
| I_G : | 492.8 in ⁴ |
| A_G : | 13.49 in ² |
| Minimum | |
| Angle: | 0.00° |
| I_{MIN} : | 492.8 in ⁴ |
| t_{EFF} : | 0.2500 in |



| POLE CAPACITY | | | | | | | | | | | |
|---------------|-----------------------|------------------------|------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|--------------------|----------|
| Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | σ_T (ksi) | ϕ_{F_A} (ksi) | ϕ_{F_B} (ksi) | ϕ_{F_V} (ksi) | ϕ_{F_T} (ksi) | Capacity |
| 10.00 | 8.76 | 492.8 | 0.647 | 50.578 | 0.951 | 0.006 | 58.500 | 74.295 | 17.550 | 37.050 | 66.2% |

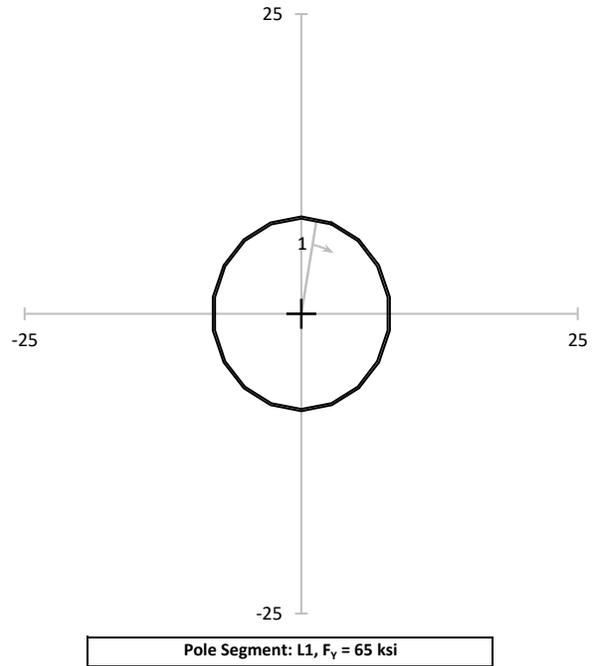
| MODIFICATION CAPACITIES | | | | | | | | | | | |
|-------------------------|---|-----------|-----------------------|------------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|----------|
| Mod Number | # | Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | ϕ_{F_A} (ksi) | ϕ_{F_B} (ksi) | ϕ_{F_V} (ksi) | Capacity |



Elevation: 89.27-ft

| Loads | |
|--------------------------|-----------|
| Axial: | 7.9 k |
| Moment: | 93.2 k-ft |
| Shear: | 11.7 k |
| Torsion: | 0.0 k-ft |
| Equivalent Loads to Pole | |
| Axial: | 7.9 k |
| Moment: | 93.2 k-ft |
| Shear: | 11.7 k |
| Torsion: | 0.0 k-ft |
| Shear Flow N/A | |

| Pole Info | |
|--------------|-----------------------|
| OD: | 15.99 in |
| t: | 0.1875 in |
| Pole A_G : | 9.40 in ² |
| Pole I_G : | 296.7 in ⁴ |
| Controlling | |
| Angle: | 10.00° |
| I_G : | 296.7 in ⁴ |
| A_G : | 9.40 in ² |
| Minimum | |
| Angle: | 0.00° |
| I_{MIN} : | 296.7 in ⁴ |
| t_{EFF} : | 0.1875 in |



| POLE CAPACITY | | | | | | | | | | | |
|---------------|-----------------------|------------------------|------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|--------------------|----------|
| Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | σ_T (ksi) | ϕ_{F_A} (ksi) | ϕ_{F_B} (ksi) | ϕ_{F_V} (ksi) | ϕ_{F_T} (ksi) | Capacity |
| 10.00 | 8.12 | 296.7 | 0.836 | 30.628 | 1.243 | 0.005 | 58.500 | 74.295 | 17.550 | 37.050 | 41.1% |

| MODIFICATION CAPACITIES | | | | | | | | | | | |
|-------------------------|---|-----------|-----------------------|------------------------|------------------|------------------|------------------|--------------------|--------------------|--------------------|----------|
| Mod Number | # | Angle (°) | \bar{y}_{CONT} (in) | I (in ⁴) | σ_A (ksi) | σ_B (ksi) | σ_V (ksi) | ϕ_{F_A} (ksi) | ϕ_{F_B} (ksi) | ϕ_{F_V} (ksi) | Capacity |

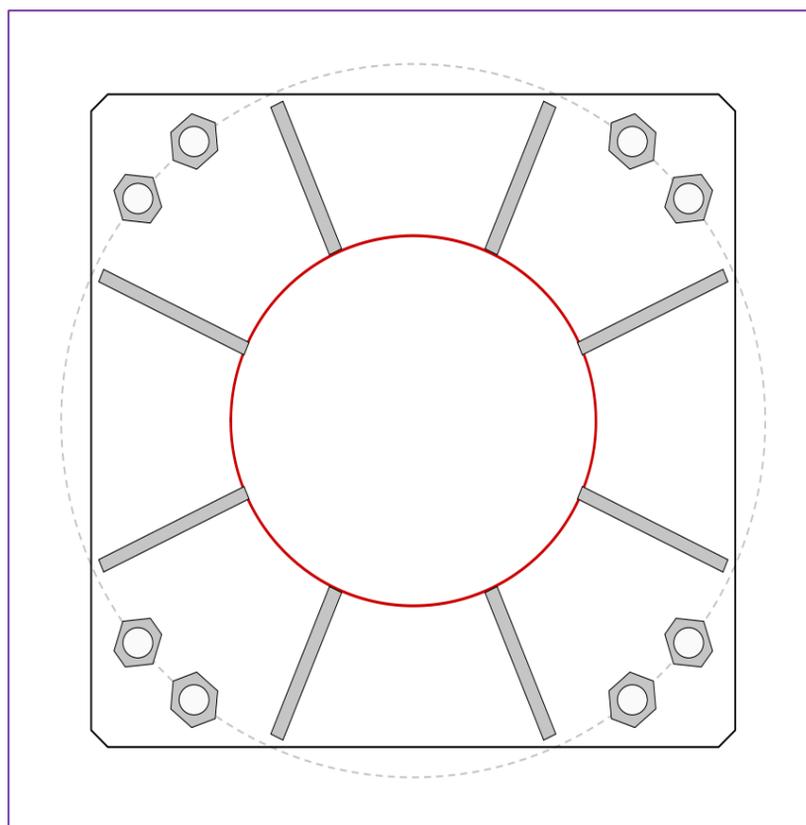
Monopole Base Plate Connection

| Site Info | |
|-----------|---------------|
| Site No. | 701776 |
| Site Name | Windsor CO |
| TEP No. | 260307.785714 |

| Analysis Considerations | |
|-------------------------|----|
| TIA-222 Revision | H |
| Grout Considered: | No |
| l_{ar} (in) | 0 |

| Applied Loads | |
|--------------------|---------|
| Moment (kip-ft) | 1542.60 |
| Axial Force (kips) | 19.70 |
| Shear Force (kips) | 20.70 |

*TIA-222-H Section 15.5 Applied



Connection Properties

Anchor Rod Data

(8) 2-1/4" ϕ bolts (A615-75 N; $F_y=75$ ksi, $F_u=100$ ksi) on 53" BC
Anchor Spacing: 6 in

Base Plate Data

48.5" W x 2.5" Plate (A572-60; $F_y=60$ ksi, $F_u=75$ ksi); Clip: 1.25 in

Stiffener Data

(8) 48"H x 12"W x 1"T, Notch: 0.75"
plate: $F_y=65$ ksi ; weld: $F_y=70$ ksi
horiz. weld: 0.4375" groove, 45° dbl bevel, 0.1875" fillet
vert. weld: 0.25" fillet

Pole Data

27.5" x 0.737164" 18-sided pole (MPRF- $F_y=65$ ksi, Density=50%; $F_y=65$ ksi, $F_u=80$ ksi)

Analysis Results

Anchor Rod Summary

(units of kips, kip-in)

| | | |
|--------------------|-------------------------|----------------------|
| $P_{u_t} = 171.98$ | $\phi P_{n_t} = 243.75$ | Stress Rating |
| $V_u = 2.59$ | $\phi V_n = 149.1$ | 67.2% |
| $M_u = n/a$ | $\phi M_n = n/a$ | Pass |

Base Plate Summary

| | |
|-------------------------|------------|
| Max Stress (ksi): | - |
| Allowable Stress (ksi): | - |
| Stress Rating: | N/A |

Stiffener Summary

| | |
|----------------------|------------|
| Horizontal Weld: | N/A |
| Vertical Weld: | N/A |
| Plate Flexure+Shear: | N/A |
| Plate Tension+Shear: | N/A |
| Plate Compression: | N/A |

Pole Summary

| | |
|-----------------|------------|
| Punching Shear: | N/A |
|-----------------|------------|



Windsor CO (701776)

TEP #: 260307.785714
Analysis: GJS 11/21/2022
Check: NPD 11/21/2022

Design Reaction Comparison Tool

Code Revisions: TIA-222-H

Tower Type: Monopole

| Monopole | | | | | |
|------------------|--------|-------------|----------|----------|-------------|
| Reactions | Design | Design*1.35 | Analysis | Capacity | Pass / Fail |
| Moment (kips.ft) | 1682.2 | 2270.97 | 1542.6 | 64.7% | Pass |

Note 1: Design loads were multiplied by 1.35 for comparison as allowed by TIA-222-H, Section 15.6.2.

Note 2: Rating per TIA-222-H, Section 15.5

Exhibit E

Mount Analysis

April 20, 2022



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT1026
 FA Number: 10035043
 PACE Number: MRCTB061145
 PT Number: 2051A13REG
 Site Name: WINDSOR
 Site Address: 419 Broad Street
 Windsor, CT 06095

To Whom It May Concern:

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

- (3) RRUS-32 B30 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (2) DC6-48-60-18 Surge Arrestors (31.4"x10.2" Ø – Wt. = 33 lbs.)
- **(3) TPA65R-BU6DA-K Antennas (71.2"x20.7"x7.7" – Wt. = 69 lbs. /each)**
- **(3) AIR6419 Antennas (31.0"x16.1"x7.3" – Wt. = 66 lbs. /each)**
- **(3) AIR6449 Antennas (30.6"x15.9"x10.6" – Wt. = 82 lbs. /each)**
- **(3) OPA65R-BU6DA Antennas (71.2"x21.0"x7.8" – Wt. = 64 lbs. /each)**
- (3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)
- (3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)
- (3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (1) DC6-48-60-18 Surge Arrestor (31.4"x10.2" Ø – Wt. = 33 lbs.)

*Proposed equipment shown in bold.

Mount fabrication drawings prepared by SitePro1 P/N RMQLP-4120-H10 dated October 18, 2019, were used to perform this analysis. HDG conducted a ground audit of the existing AT&T antenna mount on March 8, 2022.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R16.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 125 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.68 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods, S_s , of 0.179 and a spectral response acceleration parameter at a period of 1 second, S_1 , of 0.064.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 1.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The proposed mount is to be secured to the existing monopole with ring mounts and threaded rods. HDG considers the threaded rods to be the governing connection member.

Based on our evaluation, we have determined that the Proposed SitePro1 RMQLP-4120-H10 mount **IS CAPABLE** of supporting the proposed installation.

| | Component | Controlling Load Case | Stress Ratio | Pass/Fail |
|------------------------------|-----------|-----------------------|--------------|-------------|
| Proposed Mount Rating | 45 | LC2 | 43% | PASS |

Reference Documents:

- Fabrication drawings prepared by SitePro1 P/N RMQLP-4120-H10 dated October 18, 2019

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,
Hudson Design Group LLC



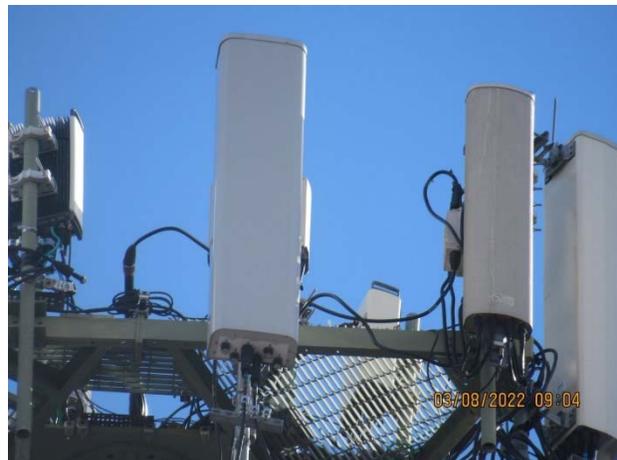
Michael Cabral
Vice President



Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

*Note: Existing mount to be removed.



FIELD PHOTOS (CONT.):

*Note: Existing mount to be removed.





HUDSON
Design Group LLC

**Wind & Ice
Calculations**

Date: 4/20/2022
 Project Name: WINDSOR
 Project No.: CT1026
 Designed By: KSBM Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

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

$K_z =$ **0.988**

$z =$ 100.0 (ft)
 $z_g =$ 1200 (ft)
 $\alpha =$ 7

$K_{zmin} \leq K_z \leq 2.01$

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

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

$$K_h = e^{(fz/H)}$$

$K_{zt} =$ **1**

$K_h =$ 1

$K_c =$ 0.9 (from Table 2-4)

$K_t =$ 0 (from Table 2-5)

$f =$ 0 (from Table 2-5)

$z =$ 100.0

$z_s =$ 44 (Mean elevation of base of structure above sea level)

$H =$ 0 (Ht. of the crest above surrounding terrain)

$K_{zt} =$ 1.00 (from 2.6.6.2.1)

$K_e =$ 1.00 (from 2.6.8)

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

Category = **1**

2.6.10 Design Ice Thickness

Max Ice Thickness =

$t_i =$ 1.50 in

Importance Factor =

$I =$ 1.00 (from Table 2-3)

$K_{iz} =$ 1.12 (from Sec. 2.6.10)

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

$t_{iz} =$ 1.68 in

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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

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

$h =$ 100

$G_h =$ 0.85

2.6.9.2 Guyed Masts

$G_h =$ 0.85

2.6.9.3 Pole Structures

$G_h =$ 1.1

2.6.9 Appurtenances

$G_h =$ 1.0

2.6.9.4 Structures Supported on Other Structures

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

$G_h =$ 1.35

$G_h =$ 1.00

2.6.11.2 Design Wind Force on Appurtenances

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

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

| | |
|----------------|--------------|
| $q_z =$ | 37.49 |
| $q_{z(ice)} =$ | 6.00 |
| $q_{z(30)} =$ | 2.16 |

| | |
|------------------|-------------------------------|
| $K_z =$ | 0.988 (from 2.6.5.2) |
| $K_{zt} =$ | 1.0 (from 2.6.6.2.1) |
| $K_s =$ | 1.0 (from 2.6.7) |
| $K_e =$ | 1.00 (from 2.6.8) |
| $K_d =$ | 0.95 (from Table 2-2) |
| $V_{max} =$ | 125 mph (Ultimate Wind Speed) |
| $V_{max(ice)} =$ | 50 mph |
| $V_{30} =$ | 30 mph |

Table 2-2

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

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Determine Ca:

Table 2-9

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

Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction.
 (Aspect ratio is independent of the spacing between support points of a linear appurtenance,
 Note: Linear interpolation may be used for aspect ratios other than those shown.

Ice Thickness = 1.68 in Angle = 0 (deg) Equivalent Angle = 180 (deg)

| Appurtenances | Height | Width | Depth | Flat Area | Aspect Ratio | Ca | Force (lbs) | Force (lbs) (w/ Ice) | Force (lbs) (30 mph) |
|-----------------------------|--------|-------|-------|-----------|--------------|------|-------------|-------------------------|-------------------------|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.44 | 1.24 | 477 | 93 | 27 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.93 | 1.20 | 156 | 34 | 9 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 1.92 | 1.20 | 152 | 33 | 9 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.39 | 1.24 | 483 | 94 | 28 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 2.18 | 1.20 | 47 | 12 | 3 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 4.36 | 1.28 | 25 | 9 | 1 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.20 | 51 | 13 | 3 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 2.73 | 1.21 | 26 | 8 | 1 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.90 | 1.20 | 53 | 14 | 3 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 3.81 | 1.26 | 28 | 9 | 2 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 3.89 | 1.26 | 63 | 17 | 4 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 7.77 | 1.43 | 35 | 12 | 2 |
| DC6-48-60-18 Surge Arrestor | 31.4 | 10.2 | 10.2 | 2.22 | 3.08 | 0.70 | 58 | 14 | 3 |
| Plate 6x3/8 | 6.0 | 12.0 | | 0.50 | 0.50 | 2.00 | 37 | | |
| 2x2 Angle | 2.0 | 12.0 | | 0.17 | 0.17 | 2.00 | 12 | | |
| 2-1/2x2-1/2 Angle | 2.5 | 12.0 | | 0.21 | 0.21 | 2.00 | 16 | | |
| 2" Pipe | 2.4 | 12.0 | | 0.20 | 0.20 | 1.20 | 9 | | |
| 2-1/2" Pipe | 2.9 | 12.0 | | 0.24 | 0.24 | 1.20 | 11 | | |
| 3" Pipe | 3.5 | 12.0 | | 0.29 | 0.29 | 1.20 | 13 | | |
| HSS 4x4 | 4.0 | 12.0 | | 0.33 | 0.33 | 1.25 | 16 | | |

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WIND LOADS

Angle = **30** (deg) Ice Thickness = **1.68** in. Equivalent Angle = **210** (deg)

WIND LOADS WITH NO ICE:

| Appurtenances | Height | Width | Depth | Flat Area (normal) | Flat Area (side) | Aspect Ratio | Aspect Ratio | Ca (normal) | Ca (side) | Force (lbs) | Force (lbs) | Force (lbs) |
|-----------------------------|--------|-------|-------|--------------------|------------------|--------------|--------------|-------------|-----------|-------------|-------------|-------------|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.81 | 3.44 | 9.25 | 1.24 | 1.47 | 477 | 211 | 410 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.58 | 1.93 | 4.26 | 1.20 | 1.28 | 156 | 76 | 136 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 2.25 | 1.92 | 2.89 | 1.20 | 1.22 | 152 | 103 | 140 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.86 | 3.39 | 9.13 | 1.24 | 1.47 | 483 | 213 | 415 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 1.68 | 2.18 | 1.35 | 1.20 | 1.20 | 47 | 76 | 54 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 1.68 | 4.36 | 1.35 | 1.28 | 1.20 | 25 | 76 | 38 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.37 | 1.13 | 1.20 | 1.20 | 51 | 61 | 53 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 1.37 | 2.73 | 1.13 | 1.21 | 1.20 | 26 | 61 | 35 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.64 | 1.90 | 1.36 | 1.20 | 1.20 | 53 | 74 | 58 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 1.64 | 3.81 | 1.36 | 1.26 | 1.20 | 28 | 74 | 39 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 2.29 | 3.89 | 2.25 | 1.26 | 1.20 | 63 | 103 | 73 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 2.29 | 7.77 | 2.25 | 1.43 | 1.20 | 35 | 103 | 52 |

WIND LOADS WITH ICE:

| | | | | | | | | | | | | |
|-----------------------------|------|------|------|-------|------|------|------|------|------|----|----|----|
| TPA65R-BU6DA-K Antenna | 74.6 | 24.1 | 11.1 | 12.45 | 5.72 | 3.10 | 6.75 | 1.23 | 1.39 | 92 | 48 | 81 |
| AIR6419 Antenna | 34.5 | 19.5 | 10.7 | 4.65 | 2.55 | 1.77 | 3.23 | 1.20 | 1.23 | 34 | 19 | 30 |
| AIR6449 Antenna | 34.0 | 19.3 | 14.0 | 4.54 | 3.29 | 1.76 | 2.43 | 1.20 | 1.20 | 33 | 24 | 30 |
| OPA65R-BU6DA Antenna | 74.6 | 24.4 | 11.2 | 12.61 | 5.77 | 3.06 | 6.69 | 1.22 | 1.39 | 93 | 48 | 81 |
| 4478 B14 RRH (Side) | 21.5 | 11.7 | 16.8 | 1.74 | 2.50 | 1.84 | 1.28 | 1.20 | 1.20 | 12 | 18 | 14 |
| 4478 B14 RRH (Shielded) | 21.5 | 7.5 | 16.8 | 1.12 | 2.50 | 2.86 | 1.28 | 1.22 | 1.20 | 8 | 18 | 11 |
| 8843 B2/B66A RRH (Side) | 18.3 | 14.3 | 16.6 | 1.81 | 2.10 | 1.28 | 1.10 | 1.20 | 1.20 | 13 | 15 | 14 |
| 8843 B2/B66A RRH (Shielded) | 18.3 | 8.8 | 16.6 | 1.12 | 2.10 | 2.07 | 1.10 | 1.20 | 1.20 | 8 | 15 | 10 |
| 4449 B5/B12 RRH (Side) | 21.3 | 12.8 | 16.6 | 1.88 | 2.44 | 1.67 | 1.28 | 1.20 | 1.20 | 14 | 18 | 15 |
| 4449 B5/B12 RRH (Shielded) | 21.3 | 8.1 | 16.6 | 1.19 | 2.44 | 2.64 | 1.28 | 1.21 | 1.20 | 9 | 18 | 11 |
| RRUS-32 B30 RRH (Side) | 30.6 | 10.4 | 15.5 | 2.20 | 3.28 | 2.95 | 1.98 | 1.22 | 1.20 | 16 | 24 | 18 |
| RRUS-32 B30 RRH (Shielded) | 30.6 | 6.9 | 15.5 | 1.45 | 3.28 | 4.46 | 1.98 | 1.29 | 1.20 | 11 | 24 | 14 |

WIND LOADS AT 30 MPH:

| | | | | | | | | | | | | |
|-----------------------------|------|------|------|-------|------|------|------|------|------|----|----|----|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.81 | 3.44 | 9.25 | 1.24 | 1.47 | 27 | 12 | 24 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.58 | 1.93 | 4.26 | 1.20 | 1.28 | 9 | 4 | 8 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 2.25 | 1.92 | 2.89 | 1.20 | 1.22 | 9 | 6 | 8 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.86 | 3.39 | 9.13 | 1.24 | 1.47 | 28 | 12 | 24 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 1.68 | 2.18 | 1.35 | 1.20 | 1.20 | 3 | 4 | 3 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 1.68 | 4.36 | 1.35 | 1.28 | 1.20 | 1 | 4 | 2 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.37 | 1.13 | 1.20 | 1.20 | 3 | 4 | 3 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 1.37 | 2.73 | 1.13 | 1.21 | 1.20 | 1 | 4 | 2 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.64 | 1.90 | 1.36 | 1.20 | 1.20 | 3 | 4 | 3 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 1.64 | 3.81 | 1.36 | 1.26 | 1.20 | 2 | 4 | 2 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 2.29 | 3.89 | 2.25 | 1.26 | 1.20 | 4 | 6 | 4 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 2.29 | 7.77 | 2.25 | 1.43 | 1.20 | 2 | 6 | 3 |

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WIND LOADS

Angle = **60** (deg) Ice Thickness = **1.68** in. Equivalent Angle = **240** (deg)

WIND LOADS WITH NO ICE:

| Appurtenances | Height | Width | Depth | Flat Area (normal) | Flat Area (side) | Ratio (normal) | Ratio (side) | Ca (normal) | Ca (side) | Force (lbs) | Force (lbs) | Force (lbs) |
|-----------------------------|--------|-------|-------|-----------------------|---------------------|-------------------|-----------------|----------------|--------------|----------------|----------------|----------------|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.81 | 3.44 | 9.25 | 1.24 | 1.47 | 477 | 211 | 277 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.58 | 1.93 | 4.26 | 1.20 | 1.28 | 156 | 76 | 96 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 2.25 | 1.92 | 2.89 | 1.20 | 1.22 | 152 | 103 | 115 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.86 | 3.39 | 9.13 | 1.24 | 1.47 | 483 | 213 | 280 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 1.68 | 2.18 | 1.35 | 1.20 | 1.20 | 47 | 76 | 69 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 1.68 | 4.36 | 1.35 | 1.28 | 1.20 | 25 | 76 | 63 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.37 | 1.13 | 1.20 | 1.20 | 51 | 61 | 59 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 1.37 | 2.73 | 1.13 | 1.21 | 1.20 | 26 | 61 | 52 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.64 | 1.90 | 1.36 | 1.20 | 1.20 | 53 | 74 | 69 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 1.64 | 3.81 | 1.36 | 1.26 | 1.20 | 28 | 74 | 62 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 2.29 | 3.89 | 2.25 | 1.26 | 1.20 | 63 | 103 | 93 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 2.29 | 7.77 | 2.25 | 1.43 | 1.20 | 35 | 103 | 86 |

WIND LOADS WITH ICE:

| | | | | | | | | | | | | |
|-----------------------------|------|------|------|-------|------|------|------|------|------|----|----|----|
| TPA65R-BU6DA-K Antenna | 74.6 | 24.1 | 11.1 | 12.45 | 5.72 | 3.10 | 6.75 | 1.23 | 1.39 | 92 | 48 | 59 |
| AIR6419 Antenna | 34.5 | 19.5 | 10.7 | 4.65 | 2.55 | 1.77 | 3.23 | 1.20 | 1.23 | 34 | 19 | 23 |
| AIR6449 Antenna | 34.0 | 19.3 | 14.0 | 4.54 | 3.29 | 1.76 | 2.43 | 1.20 | 1.20 | 33 | 24 | 26 |
| OPA65R-BU6DA Antenna | 74.6 | 24.4 | 11.2 | 12.61 | 5.77 | 3.06 | 6.69 | 1.22 | 1.39 | 93 | 48 | 59 |
| 4478 B14 RRH (Side) | 21.5 | 11.7 | 16.8 | 1.74 | 2.50 | 1.84 | 1.28 | 1.20 | 1.20 | 12 | 18 | 17 |
| 4478 B14 RRH (Shielded) | 21.5 | 7.5 | 16.8 | 1.12 | 2.50 | 2.86 | 1.28 | 1.22 | 1.20 | 8 | 18 | 16 |
| 8843 B2/B66A RRH (Side) | 18.3 | 14.3 | 16.6 | 1.81 | 2.10 | 1.28 | 1.10 | 1.20 | 1.20 | 13 | 15 | 15 |
| 8843 B2/B66A RRH (Shielded) | 18.3 | 8.8 | 16.6 | 1.12 | 2.10 | 2.07 | 1.10 | 1.20 | 1.20 | 8 | 15 | 13 |
| 4449 B5/B12 RRH (Side) | 21.3 | 12.8 | 16.6 | 1.88 | 2.44 | 1.67 | 1.28 | 1.20 | 1.20 | 14 | 18 | 17 |
| 4449 B5/B12 RRH (Shielded) | 21.3 | 8.1 | 16.6 | 1.19 | 2.44 | 2.64 | 1.28 | 1.21 | 1.20 | 9 | 18 | 15 |
| RRUS-32 B30 RRH (Side) | 30.6 | 10.4 | 15.5 | 2.20 | 3.28 | 2.95 | 1.98 | 1.22 | 1.20 | 16 | 24 | 22 |
| RRUS-32 B30 RRH (Shielded) | 30.6 | 6.9 | 15.5 | 1.45 | 3.28 | 4.46 | 1.98 | 1.29 | 1.20 | 11 | 24 | 21 |

WIND LOADS AT 30 MPH:

| | | | | | | | | | | | | |
|-----------------------------|------|------|------|-------|------|------|------|------|------|----|----|----|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.81 | 3.44 | 9.25 | 1.24 | 1.47 | 27 | 12 | 16 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.58 | 1.93 | 4.26 | 1.20 | 1.28 | 9 | 4 | 6 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 2.25 | 1.92 | 2.89 | 1.20 | 1.22 | 9 | 6 | 7 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.86 | 3.39 | 9.13 | 1.24 | 1.47 | 28 | 12 | 16 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 1.68 | 2.18 | 1.35 | 1.20 | 1.20 | 3 | 4 | 4 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 1.68 | 4.36 | 1.35 | 1.28 | 1.20 | 1 | 4 | 4 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.37 | 1.13 | 1.20 | 1.20 | 3 | 4 | 3 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 1.37 | 2.73 | 1.13 | 1.21 | 1.20 | 1 | 4 | 3 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.64 | 1.90 | 1.36 | 1.20 | 1.20 | 3 | 4 | 4 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 1.64 | 3.81 | 1.36 | 1.26 | 1.20 | 2 | 4 | 4 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 2.29 | 3.89 | 2.25 | 1.26 | 1.20 | 4 | 6 | 5 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 2.29 | 7.77 | 2.25 | 1.43 | 1.20 | 2 | 6 | 5 |

Date: 4/20/2022
 Project Name: WINDSOR
 Project No.: CT1026
 Designed By: KSMB Checked By: MSC



WIND LOADS

Angle = **90** (deg) Ice Thickness = **1.68** in. Equivalent Angle = **270** (deg)

WIND LOADS WITH NO ICE:

| Appurtenances | Height | Width | Depth | Flat Area (normal) | Flat Area (side) | Ratio (normal) | Ratio (side) | Ca (normal) | Ca (side) | Force (lbs) | Force (lbs) | Force (lbs) |
|-----------------------------|--------|-------|-------|-----------------------|---------------------|-------------------|-----------------|----------------|--------------|----------------|----------------|----------------|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.81 | 3.44 | 9.25 | 1.24 | 1.47 | 477 | 211 | 211 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.58 | 1.93 | 4.26 | 1.20 | 1.28 | 156 | 76 | 76 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 2.25 | 1.92 | 2.89 | 1.20 | 1.22 | 152 | 103 | 103 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.86 | 3.39 | 9.13 | 1.24 | 1.47 | 483 | 213 | 213 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 1.68 | 2.18 | 1.35 | 1.20 | 1.20 | 47 | 76 | 76 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 1.68 | 4.36 | 1.35 | 1.28 | 1.20 | 25 | 76 | 76 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.37 | 1.13 | 1.20 | 1.20 | 51 | 61 | 61 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 1.37 | 2.73 | 1.13 | 1.21 | 1.20 | 26 | 61 | 61 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.64 | 1.90 | 1.36 | 1.20 | 1.20 | 53 | 74 | 74 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 1.64 | 3.81 | 1.36 | 1.26 | 1.20 | 28 | 74 | 74 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 2.29 | 3.89 | 2.25 | 1.26 | 1.20 | 63 | 103 | 103 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 2.29 | 7.77 | 2.25 | 1.43 | 1.20 | 35 | 103 | 103 |

WIND LOADS WITH ICE:

| | | | | | | | | | | | | |
|-----------------------------|------|------|------|-------|------|------|------|------|------|----|----|----|
| TPA65R-BU6DA-K Antenna | 74.6 | 24.1 | 11.1 | 12.45 | 5.72 | 3.10 | 6.75 | 1.23 | 1.39 | 92 | 48 | 48 |
| AIR6419 Antenna | 34.5 | 19.5 | 10.7 | 4.65 | 2.55 | 1.77 | 3.23 | 1.20 | 1.23 | 34 | 19 | 19 |
| AIR6449 Antenna | 34.0 | 19.3 | 14.0 | 4.54 | 3.29 | 1.76 | 2.43 | 1.20 | 1.20 | 33 | 24 | 24 |
| OPA65R-BU6DA Antenna | 74.6 | 24.4 | 11.2 | 12.61 | 5.77 | 3.06 | 6.69 | 1.22 | 1.39 | 93 | 48 | 48 |
| 4478 B14 RRH (Side) | 21.5 | 11.7 | 16.8 | 1.74 | 2.50 | 1.84 | 1.28 | 1.20 | 1.20 | 12 | 18 | 18 |
| 4478 B14 RRH (Shielded) | 21.5 | 7.5 | 16.8 | 1.12 | 2.50 | 2.86 | 1.28 | 1.22 | 1.20 | 8 | 18 | 18 |
| 8843 B2/B66A RRH (Side) | 18.3 | 14.3 | 16.6 | 1.81 | 2.10 | 1.28 | 1.10 | 1.20 | 1.20 | 13 | 15 | 15 |
| 8843 B2/B66A RRH (Shielded) | 18.3 | 8.8 | 16.6 | 1.12 | 2.10 | 2.07 | 1.10 | 1.20 | 1.20 | 8 | 15 | 15 |
| 4449 B5/B12 RRH (Side) | 21.3 | 12.8 | 16.6 | 1.88 | 2.44 | 1.67 | 1.28 | 1.20 | 1.20 | 14 | 18 | 18 |
| 4449 B5/B12 RRH (Shielded) | 21.3 | 8.1 | 16.6 | 1.19 | 2.44 | 2.64 | 1.28 | 1.21 | 1.20 | 9 | 18 | 18 |
| RRUS-32 B30 RRH (Side) | 30.6 | 10.4 | 15.5 | 2.20 | 3.28 | 2.95 | 1.98 | 1.22 | 1.20 | 16 | 24 | 24 |
| RRUS-32 B30 RRH (Shielded) | 30.6 | 6.9 | 15.5 | 1.45 | 3.28 | 4.46 | 1.98 | 1.29 | 1.20 | 11 | 24 | 24 |

WIND LOADS AT 30 MPH:

| | | | | | | | | | | | | |
|-----------------------------|------|------|------|-------|------|------|------|------|------|----|----|----|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.81 | 3.44 | 9.25 | 1.24 | 1.47 | 27 | 12 | 12 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.58 | 1.93 | 4.26 | 1.20 | 1.28 | 9 | 4 | 4 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 2.25 | 1.92 | 2.89 | 1.20 | 1.22 | 9 | 6 | 6 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.86 | 3.39 | 9.13 | 1.24 | 1.47 | 28 | 12 | 12 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 1.68 | 2.18 | 1.35 | 1.20 | 1.20 | 3 | 4 | 4 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 1.68 | 4.36 | 1.35 | 1.28 | 1.20 | 1 | 4 | 4 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.37 | 1.13 | 1.20 | 1.20 | 3 | 4 | 4 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 1.37 | 2.73 | 1.13 | 1.21 | 1.20 | 1 | 4 | 4 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.64 | 1.90 | 1.36 | 1.20 | 1.20 | 3 | 4 | 4 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 1.64 | 3.81 | 1.36 | 1.26 | 1.20 | 2 | 4 | 4 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 2.29 | 3.89 | 2.25 | 1.26 | 1.20 | 4 | 6 | 6 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 2.29 | 7.77 | 2.25 | 1.43 | 1.20 | 2 | 6 | 6 |

Date: 4/20/2022
 Project Name: WINDSOR
 Project No.: CT1026
 Designed By: KSMB Checked By: MSC



WIND LOADS

Angle = **120** (deg) Ice Thickness = **1.68** in. Equivalent Angle = **300** (deg)

WIND LOADS WITH NO ICE:

| Appurtenances | Height | Width | Depth | Flat Area (normal) | Flat Area (side) | Ratio (normal) | Ratio (side) | Ca (normal) | Ca (side) | Force (lbs) | Force (lbs) | Force (lbs) |
|-----------------------------|--------|-------|-------|-----------------------|---------------------|-------------------|-----------------|----------------|--------------|----------------|----------------|----------------|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.81 | 3.44 | 9.25 | 1.24 | 1.47 | 477 | 211 | 277 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.58 | 1.93 | 4.26 | 1.20 | 1.28 | 156 | 76 | 96 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 2.25 | 1.92 | 2.89 | 1.20 | 1.22 | 152 | 103 | 115 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.86 | 3.39 | 9.13 | 1.24 | 1.47 | 483 | 213 | 280 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 1.68 | 2.18 | 1.35 | 1.20 | 1.20 | 47 | 76 | 69 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 1.68 | 4.36 | 1.35 | 1.28 | 1.20 | 25 | 76 | 63 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.37 | 1.13 | 1.20 | 1.20 | 51 | 61 | 59 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 1.37 | 2.73 | 1.13 | 1.21 | 1.20 | 26 | 61 | 52 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.64 | 1.90 | 1.36 | 1.20 | 1.20 | 53 | 74 | 69 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 1.64 | 3.81 | 1.36 | 1.26 | 1.20 | 28 | 74 | 62 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 2.29 | 3.89 | 2.25 | 1.26 | 1.20 | 63 | 103 | 93 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 2.29 | 7.77 | 2.25 | 1.43 | 1.20 | 35 | 103 | 86 |

WIND LOADS WITH ICE:

| | | | | | | | | | | | | |
|-----------------------------|------|------|------|-------|------|------|------|------|------|----|----|----|
| TPA65R-BU6DA-K Antenna | 74.6 | 24.1 | 11.1 | 12.45 | 5.72 | 3.10 | 6.75 | 1.23 | 1.39 | 92 | 48 | 59 |
| AIR6419 Antenna | 34.5 | 19.5 | 10.7 | 4.65 | 2.55 | 1.77 | 3.23 | 1.20 | 1.23 | 34 | 19 | 23 |
| AIR6449 Antenna | 34.0 | 19.3 | 14.0 | 4.54 | 3.29 | 1.76 | 2.43 | 1.20 | 1.20 | 33 | 24 | 26 |
| OPA65R-BU6DA Antenna | 74.6 | 24.4 | 11.2 | 12.61 | 5.77 | 3.06 | 6.69 | 1.22 | 1.39 | 93 | 48 | 59 |
| 4478 B14 RRH (Side) | 21.5 | 11.7 | 16.8 | 1.74 | 2.50 | 1.84 | 1.28 | 1.20 | 1.20 | 12 | 18 | 17 |
| 4478 B14 RRH (Shielded) | 21.5 | 7.5 | 16.8 | 1.12 | 2.50 | 2.86 | 1.28 | 1.22 | 1.20 | 8 | 18 | 16 |
| 8843 B2/B66A RRH (Side) | 18.3 | 14.3 | 16.6 | 1.81 | 2.10 | 1.28 | 1.10 | 1.20 | 1.20 | 13 | 15 | 15 |
| 8843 B2/B66A RRH (Shielded) | 18.3 | 8.8 | 16.6 | 1.12 | 2.10 | 2.07 | 1.10 | 1.20 | 1.20 | 8 | 15 | 13 |
| 4449 B5/B12 RRH (Side) | 21.3 | 12.8 | 16.6 | 1.88 | 2.44 | 1.67 | 1.28 | 1.20 | 1.20 | 14 | 18 | 17 |
| 4449 B5/B12 RRH (Shielded) | 21.3 | 8.1 | 16.6 | 1.19 | 2.44 | 2.64 | 1.28 | 1.21 | 1.20 | 9 | 18 | 15 |
| RRUS-32 B30 RRH (Side) | 30.6 | 10.4 | 15.5 | 2.20 | 3.28 | 2.95 | 1.98 | 1.22 | 1.20 | 16 | 24 | 22 |
| RRUS-32 B30 RRH (Shielded) | 30.6 | 6.9 | 15.5 | 1.45 | 3.28 | 4.46 | 1.98 | 1.29 | 1.20 | 11 | 24 | 21 |

WIND LOADS AT 30 MPH:

| | | | | | | | | | | | | |
|-----------------------------|------|------|------|-------|------|------|------|------|------|----|----|----|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.81 | 3.44 | 9.25 | 1.24 | 1.47 | 27 | 12 | 16 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.58 | 1.93 | 4.26 | 1.20 | 1.28 | 9 | 4 | 6 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 2.25 | 1.92 | 2.89 | 1.20 | 1.22 | 9 | 6 | 7 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.86 | 3.39 | 9.13 | 1.24 | 1.47 | 28 | 12 | 16 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 1.68 | 2.18 | 1.35 | 1.20 | 1.20 | 3 | 4 | 4 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 1.68 | 4.36 | 1.35 | 1.28 | 1.20 | 1 | 4 | 4 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.37 | 1.13 | 1.20 | 1.20 | 3 | 4 | 3 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 1.37 | 2.73 | 1.13 | 1.21 | 1.20 | 1 | 4 | 3 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.64 | 1.90 | 1.36 | 1.20 | 1.20 | 3 | 4 | 4 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 1.64 | 3.81 | 1.36 | 1.26 | 1.20 | 2 | 4 | 4 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 2.29 | 3.89 | 2.25 | 1.26 | 1.20 | 4 | 6 | 5 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 2.29 | 7.77 | 2.25 | 1.43 | 1.20 | 2 | 6 | 5 |

Date: 4/20/2022
 Project Name: WINDSOR
 Project No.: CT1026
 Designed By: KSBM Checked By: MSC



WIND LOADS

Angle = 150 (deg) Ice Thickness = 1.68 in. Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

| Appurtenances | Height | Width | Depth | Flat Area (normal) | Flat Area (side) | Ratio (normal) | Ratio (side) | Ca (normal) | Ca (side) | Force (lbs) | Force (lbs) | Force (lbs) |
|-----------------------------|--------|-------|-------|--------------------|------------------|----------------|--------------|-------------|-----------|-------------|-------------|-------------|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.81 | 3.44 | 9.25 | 1.24 | 1.47 | 477 | 211 | 410 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.58 | 1.93 | 4.26 | 1.20 | 1.28 | 156 | 76 | 136 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 2.25 | 1.92 | 2.89 | 1.20 | 1.22 | 152 | 103 | 140 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.86 | 3.39 | 9.13 | 1.24 | 1.47 | 483 | 213 | 415 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 1.68 | 2.18 | 1.35 | 1.20 | 1.20 | 47 | 76 | 54 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 1.68 | 4.36 | 1.35 | 1.28 | 1.20 | 25 | 76 | 38 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.37 | 1.13 | 1.20 | 1.20 | 51 | 61 | 53 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 1.37 | 2.73 | 1.13 | 1.21 | 1.20 | 26 | 61 | 35 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.64 | 1.90 | 1.36 | 1.20 | 1.20 | 53 | 74 | 58 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 1.64 | 3.81 | 1.36 | 1.26 | 1.20 | 28 | 74 | 39 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 2.29 | 3.89 | 2.25 | 1.26 | 1.20 | 63 | 103 | 73 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 2.29 | 7.77 | 2.25 | 1.43 | 1.20 | 35 | 103 | 52 |

WIND LOADS WITH ICE:

| | | | | | | | | | | | | |
|-----------------------------|------|------|------|-------|------|------|------|------|------|----|----|----|
| TPA65R-BU6DA-K Antenna | 74.6 | 24.1 | 11.1 | 12.45 | 5.72 | 3.10 | 6.75 | 1.23 | 1.39 | 92 | 48 | 81 |
| AIR6419 Antenna | 34.5 | 19.5 | 10.7 | 4.65 | 2.55 | 1.77 | 3.23 | 1.20 | 1.23 | 34 | 19 | 30 |
| AIR6449 Antenna | 34.0 | 19.3 | 14.0 | 4.54 | 3.29 | 1.76 | 2.43 | 1.20 | 1.20 | 33 | 24 | 30 |
| OPA65R-BU6DA Antenna | 74.6 | 24.4 | 11.2 | 12.61 | 5.77 | 3.06 | 6.69 | 1.22 | 1.39 | 93 | 48 | 81 |
| 4478 B14 RRH (Side) | 21.5 | 11.7 | 16.8 | 1.74 | 2.50 | 1.84 | 1.28 | 1.20 | 1.20 | 12 | 18 | 14 |
| 4478 B14 RRH (Shielded) | 21.5 | 7.5 | 16.8 | 1.12 | 2.50 | 2.86 | 1.28 | 1.22 | 1.20 | 8 | 18 | 11 |
| 8843 B2/B66A RRH (Side) | 18.3 | 14.3 | 16.6 | 1.81 | 2.10 | 1.28 | 1.10 | 1.20 | 1.20 | 13 | 15 | 14 |
| 8843 B2/B66A RRH (Shielded) | 18.3 | 8.8 | 16.6 | 1.12 | 2.10 | 2.07 | 1.10 | 1.20 | 1.20 | 8 | 15 | 10 |
| 4449 B5/B12 RRH (Side) | 21.3 | 12.8 | 16.6 | 1.88 | 2.44 | 1.67 | 1.28 | 1.20 | 1.20 | 14 | 18 | 15 |
| 4449 B5/B12 RRH (Shielded) | 21.3 | 8.1 | 16.6 | 1.19 | 2.44 | 2.64 | 1.28 | 1.21 | 1.20 | 9 | 18 | 11 |
| RRUS-32 B30 RRH (Side) | 30.6 | 10.4 | 15.5 | 2.20 | 3.28 | 2.95 | 1.98 | 1.22 | 1.20 | 16 | 24 | 18 |
| RRUS-32 B30 RRH (Shielded) | 30.6 | 6.9 | 15.5 | 1.45 | 3.28 | 4.46 | 1.98 | 1.29 | 1.20 | 11 | 24 | 14 |

WIND LOADS AT 30 MPH:

| | | | | | | | | | | | | |
|-----------------------------|------|------|------|-------|------|------|------|------|------|----|----|----|
| TPA65R-BU6DA-K Antenna | 71.2 | 20.7 | 7.7 | 10.24 | 3.81 | 3.44 | 9.25 | 1.24 | 1.47 | 27 | 12 | 24 |
| AIR6419 Antenna | 31.1 | 16.1 | 7.3 | 3.48 | 1.58 | 1.93 | 4.26 | 1.20 | 1.28 | 9 | 4 | 8 |
| AIR6449 Antenna | 30.6 | 15.9 | 10.6 | 3.38 | 2.25 | 1.92 | 2.89 | 1.20 | 1.22 | 9 | 6 | 8 |
| OPA65R-BU6DA Antenna | 71.2 | 21.0 | 7.8 | 10.38 | 3.86 | 3.39 | 9.13 | 1.24 | 1.47 | 28 | 12 | 24 |
| 4478 B14 RRH (Side) | 18.1 | 8.3 | 13.4 | 1.04 | 1.68 | 2.18 | 1.35 | 1.20 | 1.20 | 3 | 4 | 3 |
| 4478 B14 RRH (Shielded) | 18.1 | 4.2 | 13.4 | 0.52 | 1.68 | 4.36 | 1.35 | 1.28 | 1.20 | 1 | 4 | 2 |
| 8843 B2/B66A RRH (Side) | 14.9 | 10.9 | 13.2 | 1.13 | 1.37 | 1.37 | 1.13 | 1.20 | 1.20 | 3 | 4 | 3 |
| 8843 B2/B66A RRH (Shielded) | 14.9 | 5.5 | 13.2 | 0.56 | 1.37 | 2.73 | 1.13 | 1.21 | 1.20 | 1 | 4 | 2 |
| 4449 B5/B12 RRH (Side) | 17.9 | 9.4 | 13.2 | 1.17 | 1.64 | 1.90 | 1.36 | 1.20 | 1.20 | 3 | 4 | 3 |
| 4449 B5/B12 RRH (Shielded) | 17.9 | 4.7 | 13.2 | 0.58 | 1.64 | 3.81 | 1.36 | 1.26 | 1.20 | 2 | 4 | 2 |
| RRUS-32 B30 RRH (Side) | 27.2 | 7.0 | 12.1 | 1.32 | 2.29 | 3.89 | 2.25 | 1.26 | 1.20 | 4 | 6 | 4 |
| RRUS-32 B30 RRH (Shielded) | 27.2 | 3.5 | 12.1 | 0.66 | 2.29 | 7.77 | 2.25 | 1.43 | 1.20 | 2 | 6 | 3 |

Date: 4/20/2022
 Project Name: WINDSOR
 Project No.: CT1026
 Designed By: KSBM Checked By: MSC



ICE WEIGHT CALCULATIONS

Thickness of ice: 1.68 in.
 Density of ice: 56 pcf

TPA65R-BU6DA-K Antenna

Weight of ice based on total radial SF area:
 Height (in): 71.2
 Width (in): 20.7
 Depth (in): 7.7
 Total weight of ice on object: 289 lbs
 Weight of object: 69.0 lbs
Combined weight of ice and object: 358 lbs

AIR6419 Antenna

Weight of ice based on total radial SF area:
 Height (in): 31.1
 Width (in): 16.1
 Depth (in): 7.3
 Total weight of ice on object: 103 lbs
 Weight of object: 66.0 lbs
Combined weight of ice and object: 169 lbs

AIR6449 Antenna

Weight of ice based on total radial SF area:
 Height (in): 30.6
 Width (in): 15.9
 Depth (in): 10.6
 Total weight of ice on object: 109 lbs
 Weight of object: 82.0 lbs
Combined weight of ice and object: 191 lbs

OPA65R-BU6DA Antenna

Weight of ice based on total radial SF area:
 Height (in): 71.2
 Width (in): 21.0
 Depth (in): 7.8
 Total weight of ice on object: 293 lbs
 Weight of object: 64.0 lbs
Combined weight of ice and object: 357 lbs

4478 B14 RRH

Weight of ice based on total radial SF area:
 Height (in): 18.1
 Width (in): 13.4
 Depth (in): 8.3
 Total weight of ice on object: 54 lbs
 Weight of object: 60.0 lbs
Combined weight of ice and object: 114 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:
 Height (in): 14.9
 Width (in): 13.2
 Depth (in): 10.9
 Total weight of ice on object: 48 lbs
 Weight of object: 72.0 lbs
Combined weight of ice and object: 120 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:
 Height (in): 17.9
 Width (in): 13.2
 Depth (in): 9.4
 Total weight of ice on object: 55 lbs
 Weight of object: 73.0 lbs
Combined weight of ice and object: 128 lbs

RRUS-32 B30 RRH

Weight of ice based on total radial SF area:
 Height (in): 27.2
 Width (in): 12.1
 Depth (in): 7.0
 Total weight of ice on object: 73 lbs
 Weight of object: 60.0 lbs
Combined weight of ice and object: 133 lbs

DC6-48-60-18-8F Surge Arrestor

Weight of ice based on total radial SF area:
 Depth (in): 31.4
 Diameter(in): 10.2
 Total weight of ice on object: 64 lbs
 Weight of object: 33 lbs
Combined weight of ice and object: 97 lbs

PL 6x3/8

Weight of ice based on total radial SF area:
 Height (in): 6
 Width (in): 0.38
Per foot weight of ice on object: 16 plf

L 2x2 Angles

Weight of ice based on total radial SF area:
 Height (in): 2
 Width (in): 2
Per foot weight of ice on object: 9 plf

L 2-1/2x2-1/2 Angles

Weight of ice based on total radial SF area:
 Height (in): 2.5
 Width (in): 2.5
Per foot weight of ice on object: 11 plf

HSS 4x4

Weight of ice based on total radial SF area:
 Height (in): 4
 Width (in): 4
Per foot weight of ice on object: 15 plf

2" pipe

Per foot weight of ice:
 diameter (in): 2.38
Per foot weight of ice on object: 8 plf

3" Pipe

Per foot weight of ice:
 diameter (in): 3.5
Per foot weight of ice on object: 11 plf

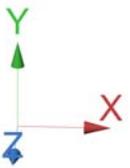
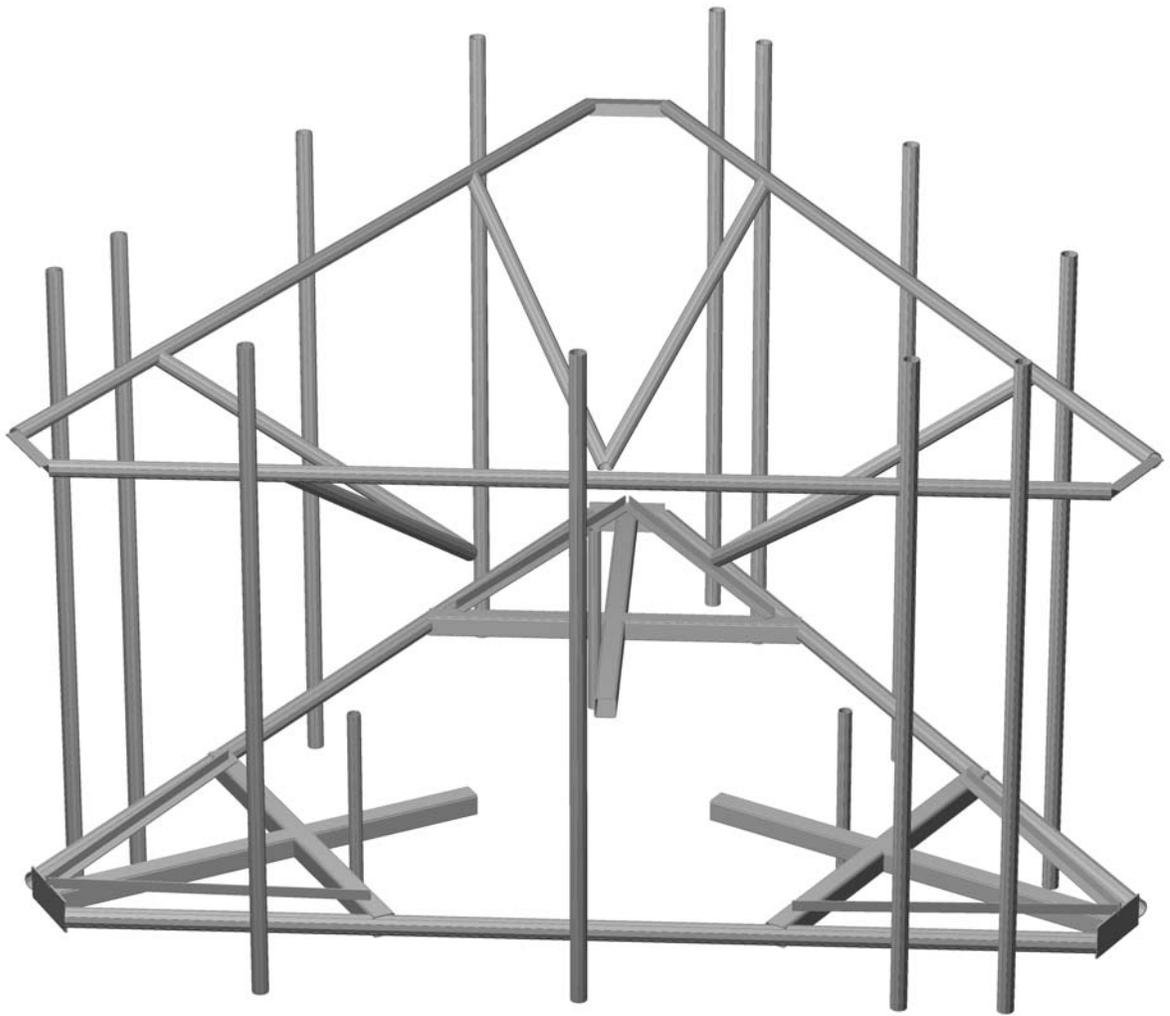
2-1/2" pipe

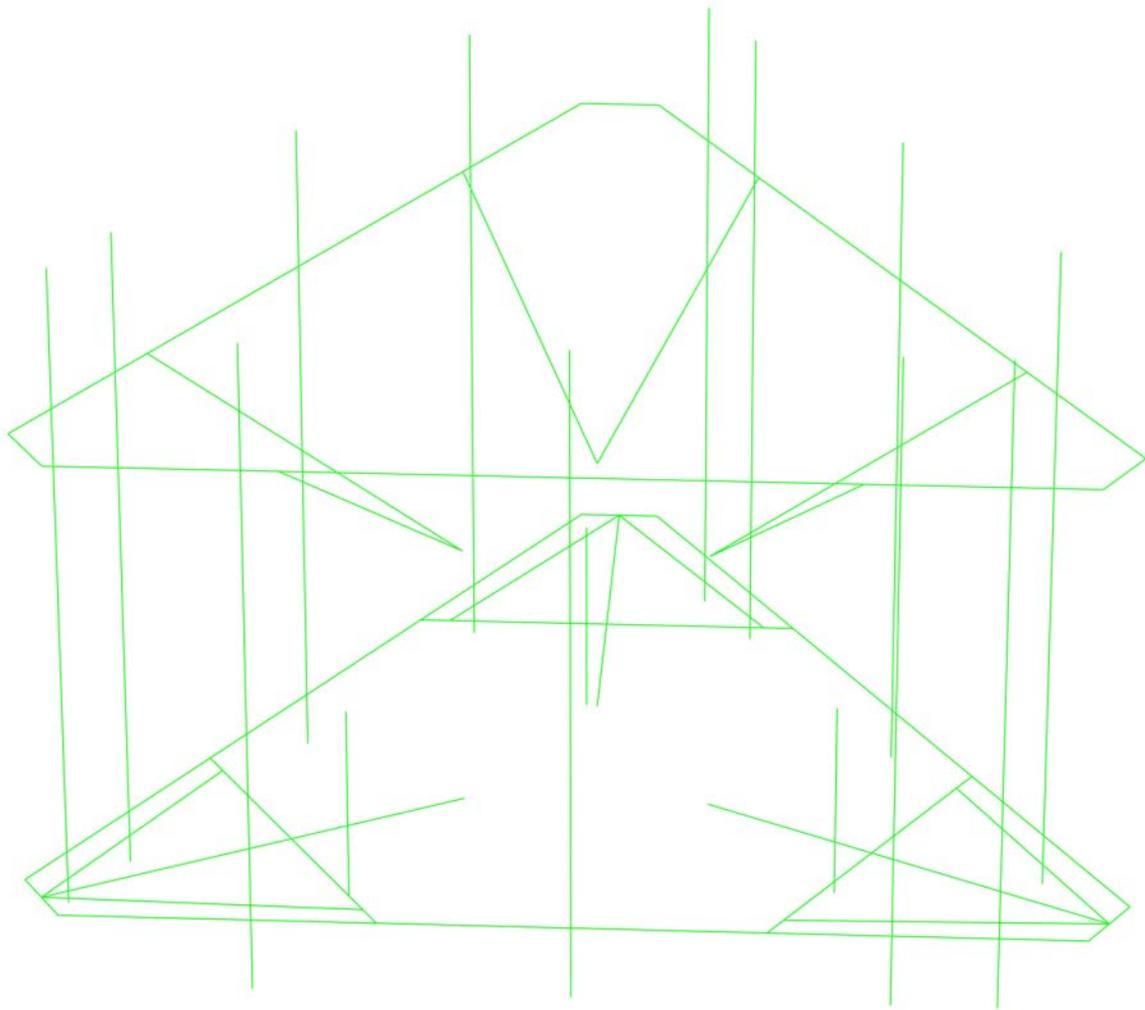
Per foot weight of ice:
 diameter (in): 2.88
Per foot weight of ice on object: 9 plf

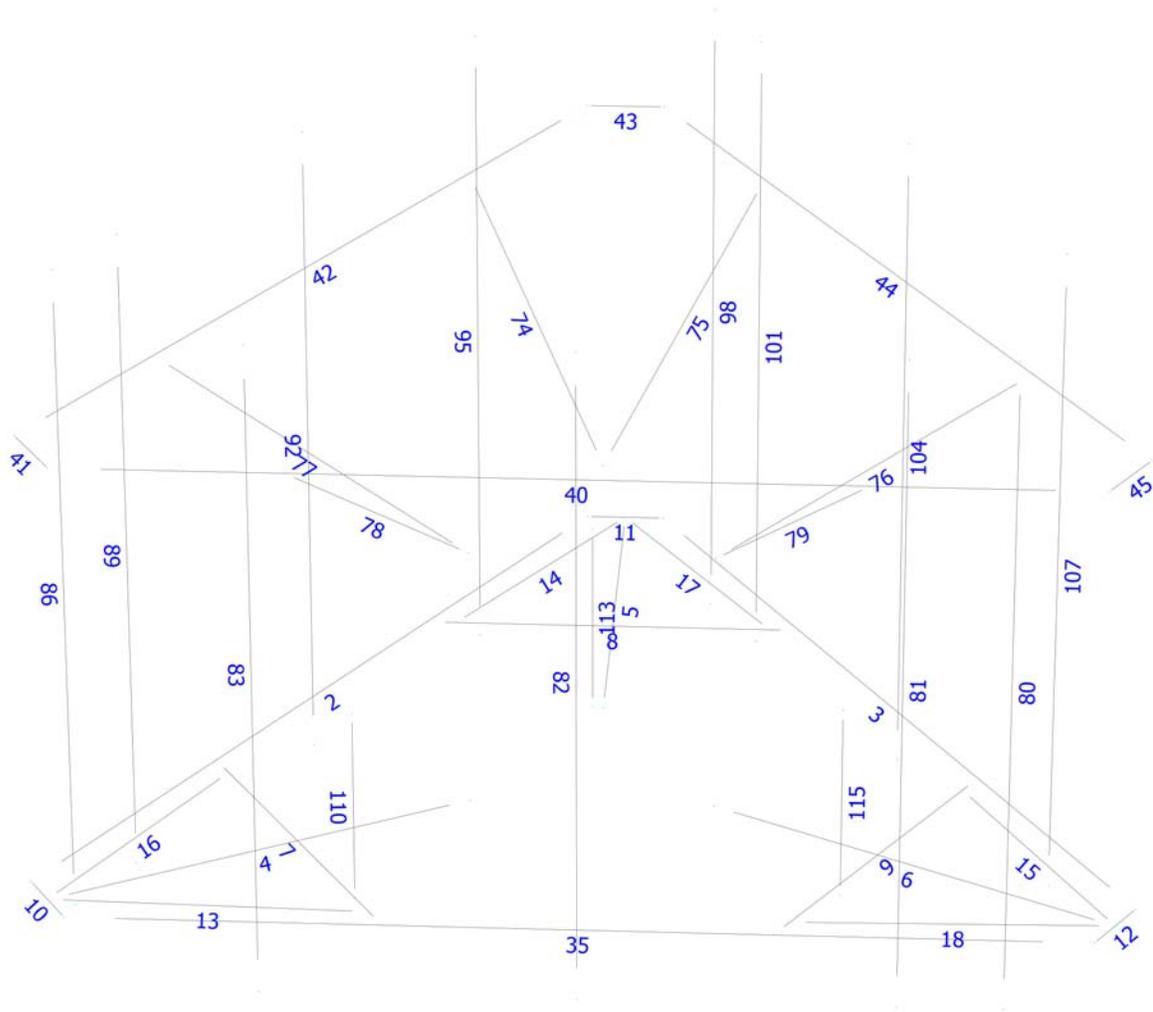


HUDSON
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**Mount Calculations
(Proposed Conditions)**







Load data

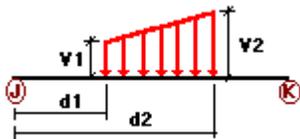
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

| Condition | Description | Comb. | Category |
|-----------|----------------------------------|-------|----------|
| DL | Dead Load | No | DL |
| W0 | Wind Load 0/60/120 deg | No | WIND |
| W30 | Wind Load 30/90/150 deg | No | WIND |
| Di | Ice Load | No | LL |
| Wi0 | Ice Wind Load 0/60/120 deg | No | WIND |
| Wi30 | Ice Wind Load 30/90/150 deg | No | WIND |
| WL0 | WL 30 mph 0/60/120 deg | No | WIND |
| WL30 | WL 30 mph 30/90/150 deg | No | WIND |
| LL1 | 250 lb Live Load Center of Mount | No | LL |
| LL2 | 250 lb Live Load End of Mount | No | LL |
| LLa1 | 500 lb Live Load Antenna 1 | No | LL |
| LLa2 | 500 lb Live Load Antenna 2 | No | LL |
| LLa3 | 500 lb Live Load Antenna 3 | No | LL |
| LLa4 | 500 lb Live Load Antenna 4 | No | LL |

Distributed force on members



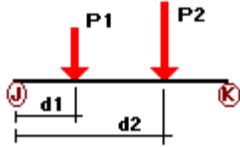
| Condition | Member | Dir1 | Val1 [Kip/ft] | Val2 [Kip/ft] | Dist1 [ft] | % | Dist2 [ft] | % | |
|-----------|--------|------|------------------|------------------|---------------|------|---------------|------|----|
| DL | 4 | y | -0.01 | -0.01 | 0.00 | No | 3.90 | No | |
| | 5 | y | -0.01 | -0.01 | 0.00 | No | 3.90 | No | |
| | 6 | y | -0.01 | -0.01 | 0.00 | No | 3.90 | No | |
| | 7 | y | -0.01 | 0.00 | 0.00 | No | 0.00 | No | |
| | 8 | y | -0.01 | 0.00 | 0.00 | No | 0.00 | No | |
| | 9 | y | -0.01 | 0.00 | 0.00 | No | 0.00 | No | |
| | 13 | y | -0.01 | 0.00 | 0.00 | No | 0.00 | No | |
| | 14 | y | -0.01 | 0.00 | 0.00 | No | 0.00 | No | |
| | 15 | y | -0.01 | 0.00 | 0.00 | No | 0.00 | No | |
| | 16 | y | -0.01 | 0.00 | 0.00 | No | 0.00 | No | |
| | 17 | y | -0.01 | 0.00 | 0.00 | No | 0.00 | No | |
| | 18 | y | -0.01 | 0.00 | 0.00 | No | 0.00 | No | |
| | W0 | 2 | z | -0.013 | 0.00 | 0.00 | No | 0.00 | No |
| | | 3 | z | -0.013 | 0.00 | 0.00 | No | 0.00 | No |
| | | 4 | z | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | | 5 | z | -0.016 | 0.00 | 0.00 | No | 0.00 | No |

| | | | | | | | | |
|-----|----|--------|--------|------|------|------|------|----|
| 6 | z | -0.016 | 0.00 | 0.00 | No | 0.00 | No | |
| 7 | z | -0.016 | 0.00 | 0.00 | No | 0.00 | No | |
| 8 | z | -0.016 | 0.00 | 0.00 | No | 0.00 | No | |
| 9 | z | -0.016 | 0.00 | 0.00 | No | 0.00 | No | |
| 10 | z | -0.037 | 0.00 | 0.00 | No | 0.00 | No | |
| 11 | z | -0.037 | 0.00 | 0.00 | No | 0.00 | No | |
| 12 | z | -0.037 | 0.00 | 0.00 | No | 0.00 | No | |
| 13 | z | -0.012 | 0.00 | 0.00 | No | 0.00 | No | |
| 14 | z | -0.012 | 0.00 | 0.00 | No | 0.00 | No | |
| 15 | z | -0.012 | 0.00 | 0.00 | No | 0.00 | No | |
| 16 | z | -0.012 | 0.00 | 0.00 | No | 0.00 | No | |
| 17 | z | -0.012 | 0.00 | 0.00 | No | 0.00 | No | |
| 18 | z | -0.012 | 0.00 | 0.00 | No | 0.00 | No | |
| 35 | z | -0.013 | 0.00 | 0.00 | No | 0.00 | No | |
| 40 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 41 | z | -0.016 | 0.00 | 0.00 | No | 0.00 | No | |
| 42 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 43 | z | -0.016 | 0.00 | 0.00 | No | 0.00 | No | |
| 44 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 45 | z | -0.016 | 0.00 | 0.00 | No | 0.00 | No | |
| 74 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 75 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 76 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 77 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 78 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 79 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 80 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 86 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 89 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 92 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 95 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 98 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 101 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 104 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 107 | z | -0.011 | 0.00 | 0.00 | No | 0.00 | No | |
| 110 | z | -0.009 | 0.00 | 0.00 | No | 0.00 | No | |
| 113 | z | -0.009 | 0.00 | 0.00 | No | 0.00 | No | |
| 115 | z | -0.009 | 0.00 | 0.00 | No | 0.00 | No | |
| W30 | 2 | x | -0.013 | 0.00 | 0.00 | No | 0.00 | No |
| | 3 | x | -0.013 | 0.00 | 0.00 | No | 0.00 | No |
| | 4 | x | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 5 | x | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 6 | x | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 7 | x | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 8 | x | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 9 | x | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 10 | x | -0.037 | 0.00 | 0.00 | No | 0.00 | No |
| | 11 | x | -0.037 | 0.00 | 0.00 | No | 0.00 | No |
| | 12 | x | -0.037 | 0.00 | 0.00 | No | 0.00 | No |
| | 13 | x | -0.012 | 0.00 | 0.00 | No | 0.00 | No |
| | 14 | x | -0.012 | 0.00 | 0.00 | No | 0.00 | No |
| | 15 | x | -0.012 | 0.00 | 0.00 | No | 0.00 | No |
| | 16 | x | -0.012 | 0.00 | 0.00 | No | 0.00 | No |
| | 17 | x | -0.012 | 0.00 | 0.00 | No | 0.00 | No |
| | 18 | x | -0.012 | 0.00 | 0.00 | No | 0.00 | No |
| | 41 | x | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 42 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 43 | x | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 44 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 45 | x | -0.016 | 0.00 | 0.00 | No | 0.00 | No |

| | | | | | | | | |
|----|-----|---|--------|------|------|----|------|----|
| | 74 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 75 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 76 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 77 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 78 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 79 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 80 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 81 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 82 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 83 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 86 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 89 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 92 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 95 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 98 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 101 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 104 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 107 | x | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 110 | x | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 113 | x | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 115 | x | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| Di | 2 | y | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 3 | y | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 4 | y | -0.015 | 0.00 | 0.00 | No | 0.00 | No |
| | 5 | y | -0.015 | 0.00 | 0.00 | No | 0.00 | No |
| | 6 | y | -0.015 | 0.00 | 0.00 | No | 0.00 | No |
| | 7 | y | -0.015 | 0.00 | 0.00 | No | 0.00 | No |
| | 8 | y | -0.015 | 0.00 | 0.00 | No | 0.00 | No |
| | 9 | y | -0.015 | 0.00 | 0.00 | No | 0.00 | No |
| | 10 | y | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 11 | y | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 12 | y | -0.016 | 0.00 | 0.00 | No | 0.00 | No |
| | 13 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 14 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 15 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 16 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 17 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 18 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 35 | y | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 40 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 41 | y | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 42 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 43 | y | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 44 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 45 | y | -0.011 | 0.00 | 0.00 | No | 0.00 | No |
| | 74 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 75 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 76 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 77 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 78 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 79 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 80 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 81 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 82 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 83 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 86 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 89 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 92 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 95 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| | 98 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |

| | | | | | | | |
|-----|---|--------|------|------|----|------|----|
| 101 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| 104 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| 107 | y | -0.009 | 0.00 | 0.00 | No | 0.00 | No |
| 110 | y | -0.008 | 0.00 | 0.00 | No | 0.00 | No |
| 113 | y | -0.008 | 0.00 | 0.00 | No | 0.00 | No |
| 115 | y | -0.008 | 0.00 | 0.00 | No | 0.00 | No |

Concentrated forces on members



| Condition | Member | Dir1 | Value1 [Kip] | Dist1 [ft] | % |
|-----------|--------|--------|-----------------|---------------|----|
| DL | 81 | y | -0.035 | 1.00 | No |
| | | y | -0.035 | 6.00 | No |
| | | y | -0.06 | 4.00 | No |
| | | y | -0.072 | 4.00 | No |
| 82 | y | y | -0.033 | 1.25 | No |
| | | y | -0.033 | 3.00 | No |
| | | y | -0.041 | 5.00 | No |
| | | y | -0.041 | 6.75 | No |
| 83 | y | y | -0.032 | 1.00 | No |
| | | y | -0.032 | 6.00 | No |
| | | y | -0.073 | 4.00 | No |
| | | y | -0.06 | 4.00 | No |
| 89 | y | y | -0.035 | 1.00 | No |
| | | y | -0.035 | 6.00 | No |
| | | y | -0.06 | 4.00 | No |
| | | y | -0.072 | 4.00 | No |
| 92 | y | y | -0.033 | 1.25 | No |
| | | y | -0.033 | 3.00 | No |
| | | y | -0.041 | 5.00 | No |
| | | y | -0.041 | 6.75 | No |
| 95 | y | y | -0.032 | 1.00 | No |
| | | y | -0.032 | 6.00 | No |
| | | y | -0.073 | 4.00 | No |
| | | y | -0.06 | 4.00 | No |
| 101 | y | y | -0.035 | 1.00 | No |
| | | y | -0.035 | 6.00 | No |
| | | y | -0.06 | 4.00 | No |
| | | y | -0.072 | 4.00 | No |
| 104 | y | y | -0.033 | 1.25 | No |
| | | y | -0.033 | 3.00 | No |
| | | y | -0.041 | 5.00 | No |
| | | y | -0.041 | 6.75 | No |
| 107 | y | y | -0.032 | 1.00 | No |
| | | y | -0.032 | 6.00 | No |
| | | y | -0.073 | 4.00 | No |
| | | y | -0.06 | 4.00 | No |
| 110 | y | -0.033 | 1.00 | No | |
| 113 | y | -0.033 | 1.00 | No | |
| 115 | y | -0.033 | 1.00 | No | |

| | | | | | |
|-----|----|--------|--------|------|----|
| W0 | 81 | z | -0.239 | 1.00 | No |
| | | z | -0.239 | 6.00 | No |
| | | z | -0.025 | 4.00 | No |
| | 82 | z | -0.026 | 4.00 | No |
| | | z | -0.079 | 1.25 | No |
| | | z | -0.079 | 3.00 | No |
| | 83 | z | -0.077 | 5.00 | No |
| | | z | -0.077 | 6.75 | No |
| | | z | -0.242 | 1.00 | No |
| | 89 | z | -0.242 | 6.00 | No |
| | | z | -0.028 | 4.00 | No |
| | | z | -0.035 | 4.00 | No |
| | 92 | z | -0.139 | 1.00 | No |
| | | z | -0.139 | 6.00 | No |
| | | z | -0.063 | 4.00 | No |
| 95 | z | -0.048 | 1.25 | No | |
| | z | -0.048 | 3.00 | No | |
| | z | -0.058 | 5.00 | No | |
| 101 | z | -0.058 | 6.75 | No | |
| | z | -0.141 | 1.00 | No | |
| | z | -0.141 | 6.00 | No | |
| 104 | z | -0.086 | 4.00 | No | |
| | z | -0.139 | 1.00 | No | |
| | z | -0.139 | 6.00 | No | |
| 107 | z | -0.063 | 4.00 | No | |
| | z | -0.048 | 1.25 | No | |
| | z | -0.048 | 3.00 | No | |
| 110 | z | -0.058 | 5.00 | No | |
| | z | -0.058 | 6.75 | No | |
| | z | -0.141 | 1.00 | No | |
| 113 | z | -0.141 | 6.00 | No | |
| | z | -0.086 | 4.00 | No | |
| | z | -0.058 | 1.00 | No | |
| 115 | z | -0.058 | 1.00 | No | |
| | 81 | x | -0.106 | 1.00 | No |
| | | x | -0.106 | 6.00 | No |
| x | | -0.076 | 4.00 | No | |
| 82 | x | -0.038 | 1.25 | No | |
| | x | -0.038 | 3.00 | No | |
| | x | -0.052 | 5.00 | No | |
| 83 | x | -0.052 | 6.75 | No | |
| | x | -0.107 | 1.00 | No | |
| | x | -0.107 | 6.00 | No | |
| 89 | x | -0.103 | 4.00 | No | |
| | x | -0.206 | 1.00 | No | |
| | x | -0.206 | 6.00 | No | |
| 92 | x | -0.038 | 4.00 | No | |
| | x | -0.069 | 1.25 | No | |
| | x | -0.069 | 3.00 | No | |
| 95 | x | -0.07 | 5.00 | No | |
| | x | -0.07 | 6.75 | No | |
| | x | -0.208 | 1.00 | No | |
| 101 | x | -0.208 | 6.00 | No | |
| | x | -0.052 | 4.00 | No | |
| | x | -0.206 | 1.00 | No | |
| 104 | x | -0.206 | 6.00 | No | |
| | x | -0.038 | 4.00 | No | |
| | x | -0.069 | 1.25 | No | |
| | | x | -0.069 | 3.00 | No |

| | | | | | |
|-----|-----|---|--------|------|----|
| | | x | -0.07 | 5.00 | No |
| | | x | -0.07 | 6.75 | No |
| | 107 | x | -0.208 | 1.00 | No |
| | | x | -0.208 | 6.00 | No |
| | | x | -0.052 | 4.00 | No |
| | 110 | x | -0.058 | 1.00 | No |
| | 113 | x | -0.058 | 1.00 | No |
| | 115 | x | -0.058 | 1.00 | No |
| Di | 81 | y | -0.145 | 1.00 | No |
| | | y | -0.145 | 6.00 | No |
| | | y | -0.054 | 4.00 | No |
| | | y | -0.048 | 4.00 | No |
| | 82 | y | -0.052 | 1.25 | No |
| | | y | -0.052 | 3.00 | No |
| | | y | -0.055 | 5.00 | No |
| | | y | -0.055 | 6.75 | No |
| | 83 | y | -0.032 | 1.00 | No |
| | | y | -0.032 | 6.00 | No |
| | | y | -0.073 | 4.00 | No |
| | | y | -0.06 | 4.00 | No |
| | 89 | y | -0.145 | 1.00 | No |
| | | y | -0.145 | 6.00 | No |
| | | y | -0.054 | 4.00 | No |
| | | y | -0.048 | 4.00 | No |
| | 92 | y | -0.052 | 1.25 | No |
| | | y | -0.052 | 3.00 | No |
| | | y | -0.055 | 5.00 | No |
| | | y | -0.055 | 6.75 | No |
| | 95 | y | -0.147 | 1.00 | No |
| | | y | -0.147 | 6.00 | No |
| | | y | -0.055 | 4.00 | No |
| | | y | -0.073 | 4.00 | No |
| | 101 | y | -0.145 | 1.00 | No |
| | | y | -0.145 | 6.00 | No |
| | | y | -0.054 | 4.00 | No |
| | | y | -0.048 | 4.00 | No |
| | 104 | y | -0.052 | 1.25 | No |
| | | y | -0.052 | 3.00 | No |
| | | y | -0.055 | 5.00 | No |
| | | y | -0.055 | 6.75 | No |
| | 107 | y | -0.147 | 1.00 | No |
| | | y | -0.147 | 6.00 | No |
| | | y | -0.055 | 4.00 | No |
| | | y | -0.073 | 4.00 | No |
| | 110 | y | -0.064 | 1.00 | No |
| | 113 | y | -0.064 | 1.00 | No |
| | 115 | y | -0.064 | 1.00 | No |
| Wi0 | 81 | z | -0.047 | 1.00 | No |
| | | z | -0.047 | 6.00 | No |
| | | z | -0.009 | 4.00 | No |
| | | z | -0.008 | 4.00 | No |
| | 82 | z | -0.017 | 1.25 | No |
| | | z | -0.017 | 3.00 | No |
| | | z | -0.017 | 5.00 | No |
| | | z | -0.017 | 6.75 | No |
| | 83 | z | -0.047 | 1.00 | No |
| | | z | -0.047 | 6.00 | No |
| | | z | -0.009 | 4.00 | No |
| | | z | -0.012 | 4.00 | No |
| | 89 | z | -0.03 | 1.00 | No |

| | | | | | |
|------|-----|---|--------|------|----|
| | | z | -0.03 | 6.00 | No |
| | | z | -0.016 | 4.00 | No |
| | 92 | z | -0.012 | 1.25 | No |
| | | z | -0.012 | 3.00 | No |
| | | z | -0.013 | 5.00 | No |
| | | z | -0.013 | 6.75 | No |
| | 95 | z | -0.03 | 1.00 | No |
| | | z | -0.03 | 6.00 | No |
| | | z | -0.021 | 4.00 | No |
| | 101 | z | -0.03 | 1.00 | No |
| | | z | -0.03 | 6.00 | No |
| | | z | -0.016 | 4.00 | No |
| | 104 | z | -0.012 | 1.25 | No |
| | | z | -0.012 | 3.00 | No |
| | | z | -0.013 | 5.00 | No |
| | | z | -0.013 | 6.75 | No |
| | 107 | z | -0.03 | 1.00 | No |
| | | z | -0.03 | 6.00 | No |
| | | z | -0.021 | 4.00 | No |
| | 110 | z | -0.014 | 1.00 | No |
| | 113 | z | -0.014 | 1.00 | No |
| | 115 | z | -0.014 | 1.00 | No |
| Wi30 | 81 | x | -0.024 | 1.00 | No |
| | | x | -0.024 | 6.00 | No |
| | | x | -0.018 | 4.00 | No |
| | 82 | x | -0.01 | 1.25 | No |
| | | x | -0.01 | 3.00 | No |
| | | x | -0.012 | 5.00 | No |
| | | x | -0.012 | 6.75 | No |
| | 83 | x | -0.025 | 1.00 | No |
| | | x | -0.025 | 6.00 | No |
| | | x | -0.024 | 4.00 | No |
| | 89 | x | -0.041 | 1.00 | No |
| | | x | -0.041 | 6.00 | No |
| | | x | -0.011 | 4.00 | No |
| | 92 | x | -0.015 | 1.25 | No |
| | | x | -0.015 | 3.00 | No |
| | | x | -0.016 | 5.00 | No |
| | | x | -0.016 | 6.75 | No |
| | 95 | x | -0.041 | 1.00 | No |
| | | x | -0.041 | 6.00 | No |
| | | x | -0.014 | 4.00 | No |
| | 101 | x | -0.041 | 1.00 | No |
| | | x | -0.041 | 6.00 | No |
| | | x | -0.011 | 4.00 | No |
| | 104 | x | -0.015 | 1.25 | No |
| | | x | -0.015 | 3.00 | No |
| | | x | -0.016 | 5.00 | No |
| | | x | -0.016 | 6.75 | No |
| | 107 | x | -0.041 | 1.00 | No |
| | | x | -0.041 | 6.00 | No |
| | | x | -0.014 | 4.00 | No |
| | 110 | x | -0.014 | 1.00 | No |
| | 113 | x | -0.014 | 1.00 | No |
| | 115 | x | -0.014 | 1.00 | No |
| WLO | 81 | z | -0.014 | 1.00 | No |
| | | z | -0.014 | 6.00 | No |
| | | z | -0.001 | 4.00 | No |
| | | z | -0.001 | 4.00 | No |
| | 82 | z | -0.005 | 1.25 | No |

| | | | | | |
|------|----|---|--------|------|----|
| | | z | -0.005 | 3.00 | No |
| | | z | -0.005 | 5.00 | No |
| | | z | -0.005 | 6.75 | No |
| 83 | | z | -0.014 | 1.00 | No |
| | | z | -0.014 | 6.00 | No |
| | | z | -0.002 | 4.00 | No |
| | | z | -0.002 | 4.00 | No |
| 89 | | z | -0.008 | 1.00 | No |
| | | z | -0.008 | 6.00 | No |
| | | z | -0.004 | 4.00 | No |
| 92 | | z | -0.003 | 1.25 | No |
| | | z | -0.003 | 3.00 | No |
| | | z | -0.004 | 5.00 | No |
| | | z | -0.004 | 6.75 | No |
| 95 | | z | -0.009 | 1.00 | No |
| | | z | -0.009 | 6.00 | No |
| | | z | -0.005 | 4.00 | No |
| 101 | | z | -0.008 | 1.00 | No |
| | | z | -0.008 | 6.00 | No |
| | | z | -0.004 | 4.00 | No |
| 104 | | z | -0.003 | 1.25 | No |
| | | z | -0.003 | 3.00 | No |
| | | z | -0.004 | 5.00 | No |
| | | z | -0.004 | 6.75 | No |
| 107 | | z | -0.009 | 1.00 | No |
| | | z | -0.009 | 6.00 | No |
| | | z | -0.005 | 4.00 | No |
| 110 | | z | -0.003 | 1.00 | No |
| 113 | | z | -0.003 | 1.00 | No |
| 115 | | z | -0.003 | 1.00 | No |
| WL30 | 81 | x | -0.007 | 1.00 | No |
| | | x | -0.007 | 6.00 | No |
| | | x | -0.004 | 4.00 | No |
| 82 | | x | -0.003 | 1.25 | No |
| | | x | -0.003 | 3.00 | No |
| | | x | -0.003 | 5.00 | No |
| | | x | -0.003 | 6.75 | No |
| 83 | | x | -0.007 | 1.00 | No |
| | | x | -0.007 | 6.00 | No |
| | | x | -0.006 | 4.00 | No |
| 89 | | x | -0.012 | 1.00 | No |
| | | x | -0.012 | 6.00 | No |
| | | x | -0.002 | 4.00 | No |
| 92 | | x | -0.004 | 1.25 | No |
| | | x | -0.004 | 3.00 | No |
| | | x | -0.005 | 5.00 | No |
| | | x | -0.005 | 6.75 | No |
| 95 | | x | -0.012 | 1.00 | No |
| | | x | -0.012 | 6.00 | No |
| | | x | -0.003 | 4.00 | No |
| 101 | | x | -0.012 | 1.00 | No |
| | | x | -0.012 | 6.00 | No |
| | | x | -0.002 | 4.00 | No |
| 104 | | x | -0.004 | 1.25 | No |
| | | x | -0.004 | 3.00 | No |
| | | x | -0.005 | 5.00 | No |
| | | x | -0.005 | 6.75 | No |
| 107 | | x | -0.012 | 1.00 | No |
| | | x | -0.012 | 6.00 | No |
| | | x | -0.003 | 4.00 | No |

| | | | | | |
|------|-----|---|--------|-------|-----|
| | 110 | x | -0.003 | 1.00 | No |
| | 113 | x | -0.003 | 1.00 | No |
| | 115 | x | -0.003 | 1.00 | No |
| LL1 | 40 | y | -0.25 | 50.00 | Yes |
| LL2 | 40 | y | -0.25 | 0.00 | Yes |
| LLa1 | 80 | y | -0.50 | 50.00 | Yes |
| LLa2 | 81 | y | -0.50 | 50.00 | Yes |
| LLa3 | 82 | y | -0.50 | 50.00 | Yes |
| LLa4 | 83 | y | -0.50 | 50.00 | Yes |

Self weight multipliers for load conditions

| Condition | Description | Self weight multiplier | | | |
|-----------|----------------------------------|------------------------|-------|-------|-------|
| | | Comb. | MultX | MultY | MultZ |
| DL | Dead Load | No | 0.00 | -1.00 | 0.00 |
| W0 | Wind Load 0/60/120 deg | No | 0.00 | 0.00 | 0.00 |
| W30 | Wind Load 30/90/150 deg | No | 0.00 | 0.00 | 0.00 |
| Di | Ice Load | No | 0.00 | 0.00 | 0.00 |
| Wi0 | Ice Wind Load 0/60/120 deg | No | 0.00 | 0.00 | 0.00 |
| Wi30 | Ice Wind Load 30/90/150 deg | No | 0.00 | 0.00 | 0.00 |
| WL0 | WL 30 mph 0/60/120 deg | No | 0.00 | 0.00 | 0.00 |
| WL30 | WL 30 mph 30/90/150 deg | No | 0.00 | 0.00 | 0.00 |
| LL1 | 250 lb Live Load Center of Mount | No | 0.00 | 0.00 | 0.00 |
| LL2 | 250 lb Live Load End of Mount | No | 0.00 | 0.00 | 0.00 |
| LLa1 | 500 lb Live Load Antenna 1 | No | 0.00 | 0.00 | 0.00 |
| LLa2 | 500 lb Live Load Antenna 2 | No | 0.00 | 0.00 | 0.00 |
| LLa3 | 500 lb Live Load Antenna 3 | No | 0.00 | 0.00 | 0.00 |
| LLa4 | 500 lb Live Load Antenna 4 | No | 0.00 | 0.00 | 0.00 |

Earthquake (Dynamic analysis only)

| Condition | a/g | Ang. [Deg] | Damp. [%] |
|-----------|------|---------------|--------------|
| DL | 0.00 | 0.00 | 0.00 |
| W0 | 0.00 | 0.00 | 0.00 |
| W30 | 0.00 | 0.00 | 0.00 |
| Di | 0.00 | 0.00 | 0.00 |
| Wi0 | 0.00 | 0.00 | 0.00 |
| Wi30 | 0.00 | 0.00 | 0.00 |
| WL0 | 0.00 | 0.00 | 0.00 |
| WL30 | 0.00 | 0.00 | 0.00 |
| LL1 | 0.00 | 0.00 | 0.00 |
| LL2 | 0.00 | 0.00 | 0.00 |
| LLa1 | 0.00 | 0.00 | 0.00 |
| LLa2 | 0.00 | 0.00 | 0.00 |
| LLa3 | 0.00 | 0.00 | 0.00 |
| LLa4 | 0.00 | 0.00 | 0.00 |

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

- LC1=1.2DL+W0
- LC2=1.2DL+W30
- LC3=1.2DL-W0
- LC4=1.2DL-W30
- LC5=0.9DL+W0
- LC6=0.9DL+W30
- LC7=0.9DL-W0
- LC8=0.9DL-W30
- LC9=1.2DL+Di+Wi0
- LC10=1.2DL+Di+Wi30
- LC11=1.2DL+Di-Wi0
- LC12=1.2DL+Di-Wi30
- LC13=1.4DL
- LC14=1.2DL+1.6LL1
- LC15=1.2DL+1.6LL2
- LC16=1.2DL+W0+1.6LLa1
- LC17=1.2DL+W30+1.6LLa1
- LC18=1.2DL-W0+1.6LLa1
- LC19=1.2DL-W30+1.6LLa1
- LC20=1.2DL+W0+1.6LLa2
- LC21=1.2DL+W30+1.6LLa2
- LC22=1.2DL-W0+1.6LLa2
- LC23=1.2DL-W30+1.6LLa2
- LC24=1.2DL+W0+1.6LLa3
- LC25=1.2DL+W30+1.6LLa3
- LC26=1.2DL-W0+1.6LLa3
- LC27=1.2DL-W30+1.6LLa3
- LC28=1.2DL+W0+1.6LLa4
- LC29=1.2DL+W30+1.6LLa4
- LC30=1.2DL-W0+1.6LLa4
- LC31=1.2DL-W30+1.6LLa4

| Description | Section | Member | Ctrl Eq. | Ratio | Status | Reference |
|-------------|---------------------------|-----------|-----------------|-------------|-----------|-----------|
| | HSS_SQR 4X4X1_4 | 4 | LC3 at 100.00% | 0.13 | OK | |
| | | 5 | LC4 at 100.00% | 0.14 | OK | |
| | | 6 | LC12 at 100.00% | 0.13 | OK | |
| | | 7 | LC2 at 50.00% | 0.15 | OK | |
| | | 8 | LC9 at 48.44% | 0.14 | OK | |
| | | 9 | LC4 at 48.44% | 0.15 | OK | |
| | L 2-1_2X2-1_2X3_16 | 41 | LC4 at 100.00% | 0.38 | OK | |
| | | 43 | LC3 at 0.00% | 0.42 | OK | |
| | | 45 | LC2 at 100.00% | 0.43 | OK | |
| | L 2X2X1_4 | 13 | LC3 at 100.00% | 0.14 | OK | |
| | | 14 | LC1 at 100.00% | 0.15 | OK | |
| | | 15 | LC4 at 100.00% | 0.16 | OK | |
| | | 16 | LC2 at 0.00% | 0.14 | OK | |
| | | 17 | LC1 at 0.00% | 0.13 | OK | |
| | | 18 | LC3 at 0.00% | 0.13 | OK | |
| | PIPE 2-1_2x0.203 | 40 | LC1 at 76.79% | 0.19 | OK | |

| | | | |
|-----|---------------|-------------|-----------|
| 42 | LC3 at 77.68% | 0.21 | OK |
| 44 | LC2 at 76.79% | 0.22 | OK |
| 74 | LC2 at 0.00% | 0.22 | OK |
| 75 | LC4 at 0.00% | 0.24 | OK |
| 76 | LC4 at 0.00% | 0.18 | OK |
| 77 | LC1 at 0.00% | 0.20 | OK |
| 78 | LC3 at 0.00% | 0.13 | OK |
| 79 | LC3 at 0.00% | 0.15 | OK |
| 80 | LC4 at 89.58% | 0.09 | OK |
| 81 | LC3 at 60.42% | 0.11 | OK |
| 82 | LC2 at 89.58% | 0.08 | OK |
| 83 | LC3 at 60.42% | 0.12 | OK |
| 86 | LC2 at 89.58% | 0.13 | OK |
| 89 | LC2 at 89.58% | 0.13 | OK |
| 92 | LC1 at 89.58% | 0.11 | OK |
| 95 | LC1 at 89.58% | 0.16 | OK |
| 98 | LC1 at 89.58% | 0.12 | OK |
| 101 | LC1 at 89.58% | 0.14 | OK |
| 104 | LC1 at 89.58% | 0.10 | OK |
| 107 | LC4 at 89.58% | 0.15 | OK |

PIPE 2x0.154

| | | | |
|-----|---------------|-------------|-----------|
| 110 | LC3 at 65.63% | 0.04 | OK |
| 113 | LC2 at 65.63% | 0.04 | OK |
| 115 | LC3 at 65.63% | 0.04 | OK |

PIPE 3x0.216

| | | | |
|----|----------------|-------------|-----------|
| 2 | LC1 at 81.25% | 0.13 | OK |
| 3 | LC4 at 81.25% | 0.15 | OK |
| 35 | LC25 at 50.00% | 0.17 | OK |

PL 6x3/8

| | | | |
|----|---------------|-------------|-----------|
| 10 | LC2 at 50.00% | 0.11 | OK |
| 11 | LC1 at 50.00% | 0.13 | OK |
| 12 | LC4 at 46.88% | 0.12 | OK |

Geometry data

GLOSSARY

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

Nodes

| Node | X [ft] | Y [ft] | Z [ft] | Rigid Floor |
|------|-----------|-----------|-----------|-------------|
| 3 | 0.596 | -4.00 | -8.7157 | 0 |
| 4 | 7.846 | -4.00 | 3.8417 | 0 |
| 9 | -7.846 | -4.00 | 3.8417 | 0 |
| 10 | -0.596 | -4.00 | -8.7157 | 0 |
| 12 | 7.25 | -4.00 | 4.874 | 0 |
| 13 | -7.25 | -4.00 | 4.874 | 0 |
| 14 | 7.548 | -4.00 | 4.3578 | 0 |
| 15 | 1.7716 | -4.00 | 1.0228 | 0 |
| 18 | -7.548 | -4.00 | 4.3578 | 0 |
| 19 | -1.7716 | -4.00 | 1.0228 | 0 |
| 20 | 0.00 | -4.00 | -8.7157 | 0 |
| 21 | 0.00 | -4.00 | -2.0457 | 0 |
| 22 | 2.846 | -4.00 | -4.8186 | 0 |
| 23 | 5.596 | -4.00 | -0.0554 | 0 |
| 26 | -2.846 | -4.00 | -4.8186 | 0 |
| 27 | -5.596 | -4.00 | -0.0554 | 0 |
| 28 | -2.75 | -4.00 | 4.874 | 0 |
| 29 | 2.75 | -4.00 | 4.874 | 0 |
| 30 | 5.3725 | -4.00 | 0.3317 | 0 |
| 31 | 2.9735 | -4.00 | 4.4869 | 0 |
| 34 | -2.9735 | -4.00 | 4.4869 | 0 |
| 35 | -5.3725 | -4.00 | 0.3317 | 0 |
| 36 | -2.399 | -4.00 | -4.8186 | 0 |

| | | | | |
|-----|---------|-------|---------|---|
| 37 | 2.399 | -4.00 | -4.8186 | 0 |
| 108 | -7.25 | 3.00 | 4.874 | 0 |
| 109 | -7.846 | 3.00 | 3.8417 | 0 |
| 110 | -0.596 | 3.00 | -8.7157 | 0 |
| 111 | 0.596 | 3.00 | -8.7157 | 0 |
| 112 | 7.25 | 3.00 | 4.874 | 0 |
| 113 | 7.846 | 3.00 | 3.8417 | 0 |
| 114 | -1.7716 | 0.00 | 1.0228 | 0 |
| 115 | 0.00 | 0.00 | -2.0457 | 0 |
| 116 | 1.7716 | 0.00 | 1.0228 | 0 |
| 173 | 6.221 | 3.00 | 1.0271 | 0 |
| 174 | -4.00 | 3.00 | 4.874 | 0 |
| 175 | -2.221 | 3.00 | -5.9011 | 0 |
| 176 | 4.00 | 3.00 | 4.874 | 0 |
| 177 | -6.221 | 3.00 | 1.0271 | 0 |
| 178 | 2.221 | 3.00 | -5.9011 | 0 |
| 182 | 6.00 | 5.00 | 5.074 | 0 |
| 183 | 6.00 | -5.00 | 5.074 | 0 |
| 184 | 4.50 | 5.00 | 5.074 | 0 |
| 185 | 4.50 | -5.00 | 5.074 | 0 |
| 186 | 0.00 | 5.00 | 5.074 | 0 |
| 187 | 0.00 | -5.00 | 5.074 | 0 |
| 188 | -4.50 | 5.00 | 5.074 | 0 |
| 189 | -4.50 | -5.00 | 5.074 | 0 |
| 198 | -7.3942 | 5.00 | 2.6592 | 0 |
| 199 | 1.3942 | 5.00 | -7.7332 | 0 |
| 200 | -7.3942 | -5.00 | 2.6592 | 0 |
| 201 | 1.3942 | -5.00 | -7.7332 | 0 |
| 210 | -6.6442 | 5.00 | 1.3601 | 0 |
| 211 | 2.1442 | 5.00 | -6.4341 | 0 |
| 212 | -6.6442 | -5.00 | 1.3601 | 0 |
| 213 | 2.1442 | -5.00 | -6.4341 | 0 |
| 222 | -4.3942 | 5.00 | -2.537 | 0 |
| 223 | 4.3942 | 5.00 | -2.537 | 0 |
| 224 | -4.3942 | -5.00 | -2.537 | 0 |
| 225 | 4.3942 | -5.00 | -2.537 | 0 |
| 234 | -2.1442 | 5.00 | -6.4341 | 0 |
| 235 | 6.6442 | 5.00 | 1.3601 | 0 |
| 236 | -2.1442 | -5.00 | -6.4341 | 0 |
| 237 | 6.6442 | -5.00 | 1.3601 | 0 |
| 244 | -3.3707 | -2.00 | 2.2531 | 0 |
| 245 | -3.3707 | -5.00 | 2.2531 | 0 |
| 250 | -0.2658 | -2.00 | -4.0457 | 0 |
| 251 | -0.2658 | -5.00 | -4.0457 | 0 |
| 254 | 3.6366 | -2.00 | 1.7926 | 0 |
| 255 | 3.6366 | -5.00 | 1.7926 | 0 |

Restraints

| Node | TX | TY | TZ | RX | RY | RZ |
|------|----|----|----|----|----|----|
| 15 | 1 | 1 | 1 | 1 | 1 | 1 |
| 19 | 1 | 1 | 1 | 1 | 1 | 1 |
| 21 | 1 | 1 | 1 | 1 | 1 | 1 |
| 114 | 1 | 1 | 1 | 1 | 1 | 1 |
| 115 | 1 | 1 | 1 | 1 | 1 | 1 |

Members

| Member | NJ | NK | Description | Section | Material | d0 [in] | dL [in] | Ig factor |
|--------|-----|-----|-------------|--------------------|----------------------|------------|------------|-----------|
| 2 | 9 | 10 | | PIPE 3x0.216 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 3 | 3 | 4 | | PIPE 3x0.216 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 4 | 18 | 19 | | HSS_SQR 4X4X1_4 | A500 GrB rectangular | 0.00 | 0.00 | 0.00 |
| 5 | 20 | 21 | | HSS_SQR 4X4X1_4 | A500 GrB rectangular | 0.00 | 0.00 | 0.00 |
| 6 | 14 | 15 | | HSS_SQR 4X4X1_4 | A500 GrB rectangular | 0.00 | 0.00 | 0.00 |
| 7 | 28 | 27 | | HSS_SQR 4X4X1_4 | A500 GrB rectangular | 0.00 | 0.00 | 0.00 |
| 8 | 26 | 22 | | HSS_SQR 4X4X1_4 | A500 GrB rectangular | 0.00 | 0.00 | 0.00 |
| 9 | 23 | 29 | | HSS_SQR 4X4X1_4 | A500 GrB rectangular | 0.00 | 0.00 | 0.00 |
| 10 | 13 | 9 | | PL 6x3/8 | A36 | 0.00 | 0.00 | 0.00 |
| 11 | 10 | 3 | | PL 6x3/8 | A36 | 0.00 | 0.00 | 0.00 |
| 12 | 12 | 4 | | PL 6x3/8 | A36 | 0.00 | 0.00 | 0.00 |
| 13 | 34 | 18 | | L 2X2X1_4 | A36 | 0.00 | 0.00 | 0.00 |
| 14 | 36 | 20 | | L 2X2X1_4 | A36 | 0.00 | 0.00 | 0.00 |
| 15 | 30 | 14 | | L 2X2X1_4 | A36 | 0.00 | 0.00 | 0.00 |
| 16 | 18 | 35 | | L 2X2X1_4 | A36 | 0.00 | 0.00 | 0.00 |
| 17 | 20 | 37 | | L 2X2X1_4 | A36 | 0.00 | 0.00 | 0.00 |
| 18 | 14 | 31 | | L 2X2X1_4 | A36 | 0.00 | 0.00 | 0.00 |
| 35 | 12 | 13 | | PIPE 3x0.216 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 40 | 112 | 108 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 41 | 108 | 109 | | L 2-1_2X2-1_2X3_16 | A36 | 0.00 | 0.00 | 0.00 |
| 42 | 109 | 110 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 43 | 110 | 111 | | L 2-1_2X2-1_2X3_16 | A36 | 0.00 | 0.00 | 0.00 |
| 44 | 111 | 113 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 45 | 112 | 113 | | L 2-1_2X2-1_2X3_16 | A36 | 0.00 | 0.00 | 0.00 |
| 74 | 115 | 175 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 75 | 115 | 178 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 76 | 116 | 173 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 77 | 114 | 177 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 78 | 114 | 174 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 79 | 116 | 176 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 80 | 182 | 183 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 81 | 184 | 185 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 82 | 186 | 187 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 83 | 188 | 189 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 86 | 198 | 200 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 89 | 210 | 212 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 92 | 222 | 224 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 95 | 234 | 236 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 98 | 199 | 201 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 101 | 211 | 213 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 104 | 223 | 225 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 107 | 235 | 237 | | PIPE 2-1_2x0.203 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 110 | 244 | 245 | | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 113 | 250 | 251 | | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |
| 115 | 254 | 255 | | PIPE 2x0.154 | A53 GrB | 0.00 | 0.00 | 0.00 |

Orientation of local axes

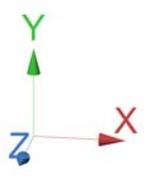
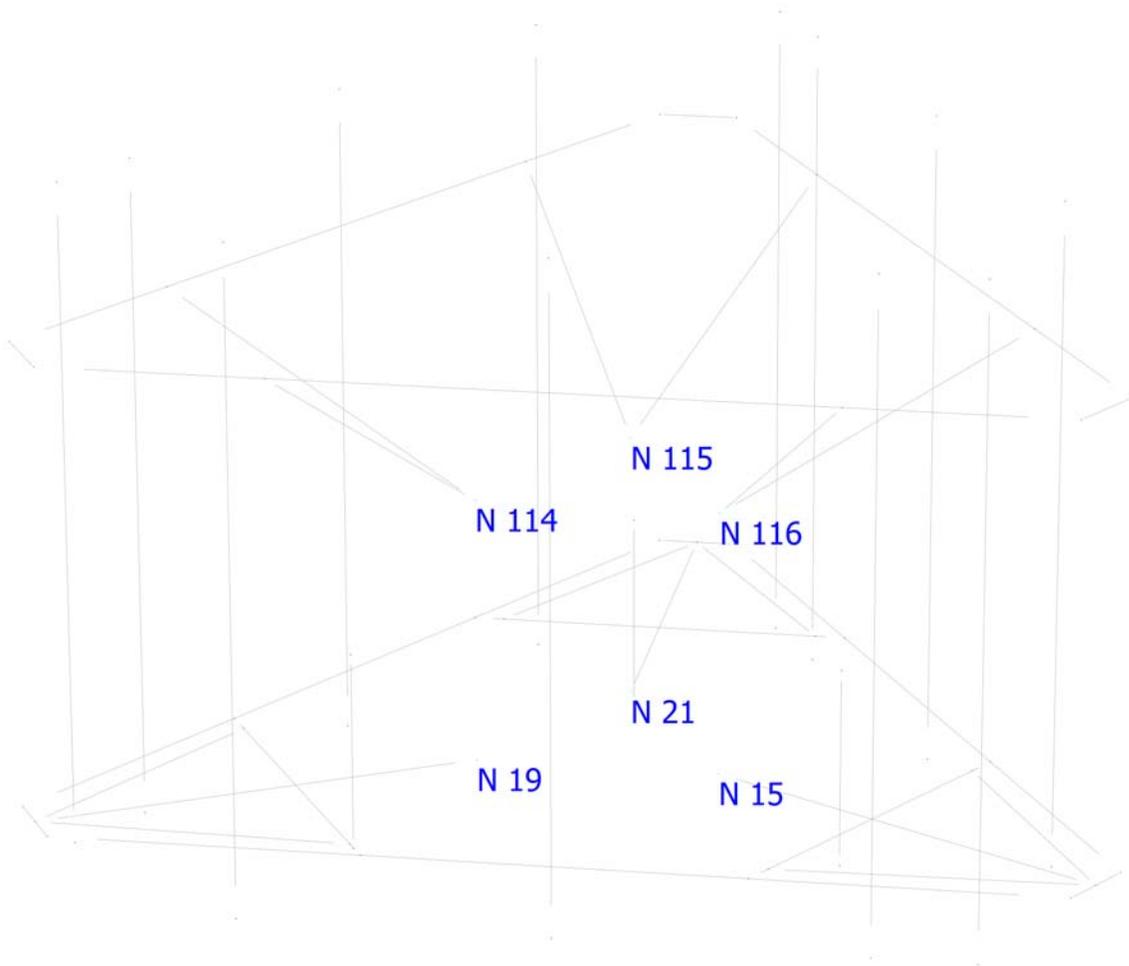
| Member | Rotation [Deg] | Axes23 | NX | NY | NZ |
|--------|-------------------|--------|------|------|------|
| 41 | 180.00 | 0 | 0.00 | 0.00 | 0.00 |
| 43 | 180.00 | 0 | 0.00 | 0.00 | 0.00 |
| 45 | 90.00 | 0 | 0.00 | 0.00 | 0.00 |

Rigid end offsets

| Member | DJX [in] | DJY [in] | DJZ [in] | DKX [in] | DKY [in] | DKZ [in] |
|--------|-------------|-------------|-------------|-------------|-------------|-------------|
| 13 | 0.00 | 3.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| 14 | 0.00 | 3.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| 15 | 0.00 | 3.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| 16 | 0.00 | 3.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| 17 | 0.00 | 3.00 | 0.00 | 0.00 | 3.00 | 0.00 |
| 18 | 0.00 | 3.00 | 0.00 | 0.00 | 3.00 | 0.00 |

Hinges

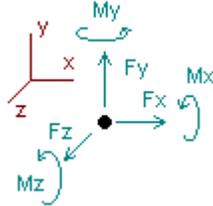
| Member | Node-J | | | | Node-K | | | | TOR | AXL | Axial rigidity |
|--------|--------|-----|----|----|--------|-----|----|----|-----|-----|----------------|
| | M33 | M22 | V3 | V2 | M33 | M22 | V3 | V2 | | | |
| 74 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | Full |
| 75 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | Full |
| 76 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | Full |
| 77 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | Full |
| 78 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | Full |
| 79 | 0 | 0 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | Full |



Analysis result

Envelope for nodal reactions

Note.- I_c is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

- LC1=1.2DL+W0
- LC2=1.2DL+W30
- LC3=1.2DL-W0
- LC4=1.2DL-W30
- LC5=0.9DL+W0
- LC6=0.9DL+W30
- LC7=0.9DL-W0
- LC8=0.9DL-W30
- LC9=1.2DL+Di+W0
- LC10=1.2DL+Di+W30
- LC11=1.2DL+Di-W0
- LC12=1.2DL+Di-W30
- LC13=1.4DL
- LC14=1.2DL+1.6LL1
- LC15=1.2DL+1.6LL2
- LC16=1.2DL+W0+1.6LLa1
- LC17=1.2DL+W30+1.6LLa1
- LC18=1.2DL-W0+1.6LLa1
- LC19=1.2DL-W30+1.6LLa1
- LC20=1.2DL+W0+1.6LLa2
- LC21=1.2DL+W30+1.6LLa2
- LC22=1.2DL-W0+1.6LLa2
- LC23=1.2DL-W30+1.6LLa2
- LC24=1.2DL+W0+1.6LLa3
- LC25=1.2DL+W30+1.6LLa3
- LC26=1.2DL-W0+1.6LLa3
- LC27=1.2DL-W30+1.6LLa3
- LC28=1.2DL+W0+1.6LLa4
- LC29=1.2DL+W30+1.6LLa4
- LC30=1.2DL-W0+1.6LLa4
- LC31=1.2DL-W30+1.6LLa4

| Node | | Forces | | | | | | Moments | | | | | |
|------|-----|--------|-------|-------|-------|--------|-------|----------|-------|----------|-------|----------|-------|
| | | Fx | I_c | Fy | I_c | Fz | I_c | Mx | I_c | My | I_c | Mz | I_c |
| | | [Kip] | | [Kip] | | [Kip] | | [Kip*ft] | | [Kip*ft] | | [Kip*ft] | |
| 15 | Max | 1.095 | LC2 | 1.364 | LC12 | 0.814 | LC1 | 0.27870 | LC5 | 0.70256 | LC7 | 1.79244 | LC12 |
| | Min | -1.050 | LC8 | 0.143 | LC6 | -0.775 | LC7 | -1.12364 | LC3 | -0.74316 | LC1 | -0.01389 | LC6 |
| 19 | Max | 1.042 | LC6 | 1.328 | LC10 | 0.795 | LC1 | 0.28787 | LC5 | 0.70320 | LC5 | -0.02902 | LC8 |
| | Min | -1.100 | LC4 | 0.154 | LC8 | -0.777 | LC7 | -1.14126 | LC3 | -0.74190 | LC3 | -1.73823 | LC10 |

| | | | | | | | | | | | | | |
|-----|-----|--------|-----|--------|-----|--------|-----|----------|-----|----------|-----|----------|-----|
| 21 | Max | 0.801 | LC2 | 1.419 | LC9 | 1.293 | LC5 | 2.07824 | LC9 | 1.31306 | LC8 | 0.71328 | LC8 |
| | Min | -0.789 | LC8 | 0.134 | LC7 | -1.352 | LC3 | 0.18572 | LC7 | -1.35265 | LC2 | -0.71850 | LC2 |
| 114 | Max | 1.284 | LC6 | 1.090 | LC4 | 0.918 | LC1 | 0.44884 | LC5 | 0.46401 | LC1 | 0.27570 | LC8 |
| | Min | -1.403 | LC4 | -0.839 | LC6 | -0.847 | LC7 | -0.54725 | LC3 | -0.40614 | LC7 | -0.52421 | LC2 |
| 115 | Max | 0.711 | LC6 | 1.173 | LC3 | 1.442 | LC5 | 0.57979 | LC1 | 0.77699 | LC4 | 0.66964 | LC4 |
| | Min | -0.715 | LC4 | -0.922 | LC5 | -1.578 | LC3 | -0.31510 | LC7 | -0.71777 | LC6 | -0.63030 | LC6 |
| 116 | Max | 1.401 | LC2 | 1.098 | LC2 | 0.931 | LC1 | 0.41007 | LC5 | 0.47496 | LC3 | 0.52015 | LC4 |
| | Min | -1.279 | LC8 | -0.846 | LC8 | -0.865 | LC7 | -0.57640 | LC3 | -0.41461 | LC5 | -0.31089 | LC6 |



HUDSON
Design Group LLC

Connection Check

Date: 4/20/2022
Project Name: WINDSOR
Project No.: CT1026
Designed By: KSBM Checked By: MSC



CHECK CONNECTION CAPACITY (Worst Case)

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

Bolt Type = A325 5/8" (Threaded Rod)

Allowable Tensile Load =

$$F_{Tall} = 13806 \text{ lbs.}$$

Allowable Shear Load =

$$F_{Vall} = 8283 \text{ lbs.}$$

TENSILE FORCES

Reaction $F = 1352$ lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 801 lbs. (See Bentley Output)

Reactions in Y direction: 1419 lbs. (See Bentley Output)

Resultant: 1629 lbs.

No. of Supports = 1

No. of Bolts / Support = 3

Tension Design Load /Bolts =

$$f_t = 450.67 \text{ lbs.} < 13806 \text{ lbs.} \text{ Therefore, OK !}$$

Shear Design Load / Bolts=

$$f_v = 543.16 \text{ lbs.} < 8283 \text{ lbs.} \text{ Therefore, OK !}$$

CHECK COMBINED TENSION AND SHEAR

$$\begin{array}{rclclcl} f_t / F_T & + & f_v / F_V & \leq & 1.0 & \\ 0.033 & + & 0.066 & = & 0.098 < 1.0 & \text{Therefore, OK !} \end{array}$$

Exhibit F

Power Density/RF Emissions Report



Radio Frequency Exposure Theoretical Study

Prepared For:

AT&T Mobility



Site Name: Windsor
FA#: 10035043
Site ID: CTL01026
Address: 419 Broad Street, Windsor, CT 06095

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

Date of Report: January 20, 2023

Statement of Compliance

AT&T's proposed antenna installation along with other existing antennas is calculated to be within 12.12% of FCC Standard for General Public/Uncontrolled Maximum Permissible Exposure (MPE).



Table of Contents

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1 General Summary

SAI Group was contracted by AT&T Mobility to conduct a Radio Frequency (RF) Analysis for a wireless facility located at 419 Broad Street, Windsor, CT to determine whether the radio facility is in compliance with Federal Communications Commission (FCC) regulations and standards regarding RF exposure.

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

2 Site Compliance Summary

| Compliance Summary (General Public Limit) | |
|---|---|
| Site Compliance | Yes |
| Maximum Calculated %MPE at 0-6' Ground Level (Cumulative) | 12.12% at about 265ft South-West from Site. |



3 RF Design Specifications

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

| Ant ID | Operator | Antenna Make | Antenna Model | Type | TX Freq (MHz) | Az (Deg) | Ant Gain (dBd) | Total ERP (Watts) | Z Rad Center (ft) |
|--------|----------|--------------|----------------------|-------|---------------|----------|----------------|-------------------|-------------------|
| 1 | AT&T | CCI | TPA65R-BU6DA | Panel | 700 | 15 | 11.75 | 2394 | 100.00 |
| 1 | AT&T | CCI | TPA65R-BU6DA | Panel | 1900 | 15 | 15.55 | 2871 | 100.00 |
| 1 | AT&T | CCI | TPA65R-BU6DA | Panel | 2100 | 15 | 15.95 | 3148 | 100.00 |
| 1 | AT&T | CCI | TPA65R-BU6DA | Panel | 1900 | 15 | 15.55 | 2871 | 100.00 |
| 1 | AT&T | CCI | TPA65R-BU6DA | Panel | 2100 | 15 | 15.95 | 3148 | 100.00 |
| 2 | AT&T | ERICSSON | AIR6419 | Panel | 3500 | 15 | 23.45 | 23990 | 101.67 |
| 3 | AT&T | ERICSSON | AIR6449 | Panel | 3700 | 15 | 23.5 | 24268 | 98.17 |
| 4 | AT&T | CCI | OPA65R-BU6BA | Panel | 700 | 15 | 12.15 | 1312 | 100.00 |
| 4 | AT&T | CCI | OPA65R-BU6BA | Panel | 850 | 15 | 11.95 | 1000 | 100.00 |
| 4 | AT&T | CCI | OPA65R-BU6BA | Panel | 2300 | 15 | 15.05 | 3199 | 100.00 |
| 5 | AT&T | CCI | TPA65R-BU6DA | Panel | 700 | 140 | 11.75 | 2394 | 100.00 |
| 5 | AT&T | CCI | TPA65R-BU6DA | Panel | 1900 | 140 | 15.55 | 2871 | 100.00 |
| 5 | AT&T | CCI | TPA65R-BU6DA | Panel | 2100 | 140 | 15.95 | 3148 | 100.00 |
| 5 | AT&T | CCI | TPA65R-BU6DA | Panel | 1900 | 140 | 15.55 | 2871 | 100.00 |
| 5 | AT&T | CCI | TPA65R-BU6DA | Panel | 2100 | 140 | 15.95 | 3148 | 100.00 |
| 6 | AT&T | ERICSSON | AIR6419 | Panel | 3500 | 140 | 23.45 | 23990 | 101.67 |
| 7 | AT&T | ERICSSON | AIR6449 | Panel | 3700 | 140 | 23.5 | 24268 | 98.17 |
| 8 | AT&T | CCI | OPA65R-BU6BA | Panel | 700 | 140 | 12.15 | 1312 | 100.00 |
| 8 | AT&T | CCI | OPA65R-BU6BA | Panel | 850 | 140 | 11.95 | 1000 | 100.00 |
| 8 | AT&T | CCI | OPA65R-BU6BA | Panel | 2300 | 140 | 15.05 | 3199 | 100.00 |
| 9 | AT&T | CCI | TPA65R-BU6DA | Panel | 700 | 250 | 11.75 | 2394 | 100.00 |
| 9 | AT&T | CCI | TPA65R-BU6DA | Panel | 1900 | 250 | 15.55 | 2871 | 100.00 |
| 9 | AT&T | CCI | TPA65R-BU6DA | Panel | 2100 | 250 | 15.95 | 3148 | 100.00 |
| 9 | AT&T | CCI | TPA65R-BU6DA | Panel | 1900 | 250 | 15.55 | 2871 | 100.00 |
| 9 | AT&T | CCI | TPA65R-BU6DA | Panel | 2100 | 250 | 15.95 | 3148 | 100.00 |
| 10 | AT&T | ERICSSON | AIR6419 | Panel | 3500 | 250 | 23.45 | 23990 | 101.67 |
| 11 | AT&T | ERICSSON | AIR6449 | Panel | 3700 | 250 | 23.5 | 24268 | 98.17 |
| 12 | AT&T | CCI | OPA65R-BU6BA | Panel | 700 | 250 | 12.15 | 1312 | 100.00 |
| 12 | AT&T | CCI | OPA65R-BU6BA | Panel | 850 | 250 | 11.95 | 1000 | 100.00 |
| 12 | AT&T | CCI | OPA65R-BU6BA | Panel | 2300 | 250 | 15.05 | 3199 | 100.00 |
| 13 | T-Mobile | ERICSSON | AIR6449 | Panel | 2500 | 0 | 22.35 | 20615 | 94.00 |
| 13 | T-Mobile | ERICSSON | AIR6449 | Panel | 2500 | 0 | 22.35 | 20615 | 94.00 |
| 14 | T-Mobile | ERICSSON | AIR 32 | Panel | 2100 | 0 | 15.75 | 4510 | 94.00 |
| 14 | T-Mobile | ERICSSON | AIR 32 | Panel | 1900 | 0 | 15.55 | 2154 | 94.00 |
| 14 | T-Mobile | ERICSSON | AIR 32 | Panel | 1900 | 0 | 15.55 | 2154 | 94.00 |
| 15 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 700 | 0 | 13.17 | 1660 | 94.00 |
| 15 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 600 | 0 | 13.09 | 815 | 94.00 |
| 15 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 600 | 0 | 13.09 | 815 | 94.00 |
| 15 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 1900 | 0 | 15.29 | 2705 | 94.00 |
| 15 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 2100 | 0 | 17.32 | 3237 | 94.00 |
| 16 | T-Mobile | ERICSSON | AIR6449 | Panel | 2500 | 120 | 22.35 | 20615 | 94.00 |
| 16 | T-Mobile | ERICSSON | AIR6449 | Panel | 2500 | 120 | 22.35 | 20615 | 94.00 |
| 17 | T-Mobile | ERICSSON | AIR 32 | Panel | 2100 | 120 | 15.75 | 4510 | 94.00 |
| 17 | T-Mobile | ERICSSON | AIR 32 | Panel | 1900 | 120 | 15.55 | 2154 | 94.00 |
| 17 | T-Mobile | ERICSSON | AIR 32 | Panel | 1900 | 120 | 15.55 | 2154 | 94.00 |
| 18 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 700 | 120 | 13.17 | 1660 | 94.00 |
| 18 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 600 | 120 | 13.09 | 815 | 94.00 |
| 18 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 600 | 120 | 13.09 | 815 | 94.00 |
| 18 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 1900 | 120 | 15.29 | 2705 | 94.00 |
| 18 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 2100 | 120 | 17.32 | 3237 | 94.00 |
| 19 | T-Mobile | ERICSSON | AIR6449 | Panel | 2500 | 220 | 22.35 | 20615 | 94.00 |
| 19 | T-Mobile | ERICSSON | AIR6449 | Panel | 2500 | 220 | 22.35 | 20615 | 94.00 |



| | | | | | | | | | |
|----|----------|----------|----------------------|-------|------|-----|-------|------|-------|
| 20 | T-Mobile | ERICSSON | AIR 32 | Panel | 2100 | 220 | 15.75 | 4510 | 94.00 |
| 20 | T-Mobile | ERICSSON | AIR 32 | Panel | 1900 | 220 | 15.55 | 2154 | 94.00 |
| 20 | T-Mobile | ERICSSON | AIR 32 | Panel | 1900 | 220 | 15.55 | 2154 | 94.00 |
| 21 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 700 | 220 | 13.17 | 1660 | 94.00 |
| 21 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 600 | 220 | 13.09 | 815 | 94.00 |
| 21 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 600 | 220 | 13.09 | 815 | 94.00 |
| 21 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 1900 | 220 | 15.29 | 2705 | 94.00 |
| 21 | T-Mobile | RFS | APXVAARR24 43-U-NA20 | Panel | 2100 | 220 | 17.32 | 3237 | 94.00 |

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

4 Conclusion

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

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



Sanket Joshi
RF Engineer
SAI Group

January 20, 2023
Date



Matthew Smelcer
RF Engineering Manager

January 20, 2023
Date

Appendix A – FCC Rules and Regulations

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

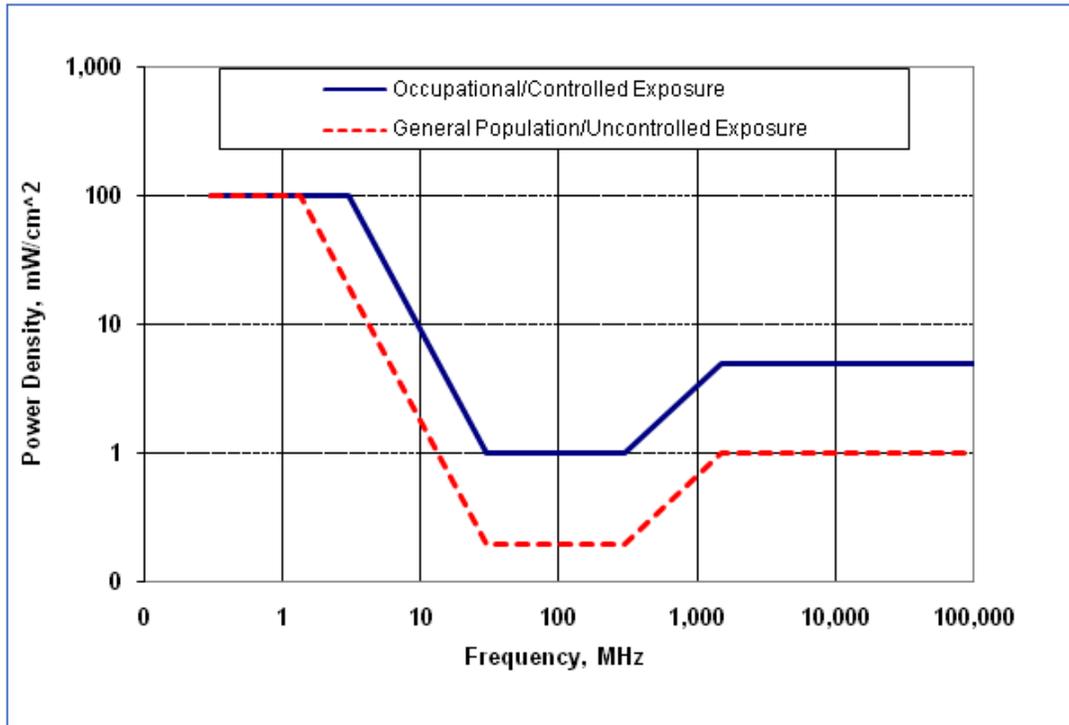
Maximum Permissible Exposure (MPE) limits utilized in this analysis are outlined in the following Tables and diagram:

| Table 1. MPE Limits for General Population/ Uncontrolled Exposure | | | | |
|---|-------------------------------|---|-------------------------------------|---|
| Frequency Range (MHz) | Electric Field Strength (V/m) | Magnetic Field Strength (A/m) | Power Density (mW/cm ²) | Averaging Time for E ² , H ² , or S (Minutes) |
| 0.3 – 1.34 | 614 | 1.63 | (100)* | 30 |
| 1.34 -30 | 824/f | 2.19/f | (180/f ²)* | 30 |
| 30 – 300 | 27.5 | 0.073 | 0.2 | 30 |
| 300 – 1500 | -- | -- | f/1500 | 30 |
| 1500– 100,000 | -- | -- | 1.0 | 30 |
| f = frequency in MHz | | * = Plane wave equivalent power density | | |

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

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

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



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

Appendix B – Calculations Methodology and Assumptions

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

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

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

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

Appendix C – Informative References

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

FCC Radio Frequency Safety

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

FCC OET Bulletin 56

https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet56/oet56e4.pdf

FCC OET Bulletin 65

https://transition.fcc.gov/Bureaus/Engineering_Technology/Documents/bulletins/oet65/oet65.pdf

National Council on Radiation Protection and Measurements (NCRP)

<http://www.ncrponline.org>

American National Standards Institute (ANSI)

<http://www.ansi.org>

Environmental Protection Agency (EPA)

<https://www3.epa.gov/radtown/wireless-technology.html>

National Institutes of Health (NIH)

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

Occupational Safety and Health Agency (OSHA)

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

International Commission on Non-Ionizing Radiation Protection (ICNIRP)

<http://www.icnirp.org/>

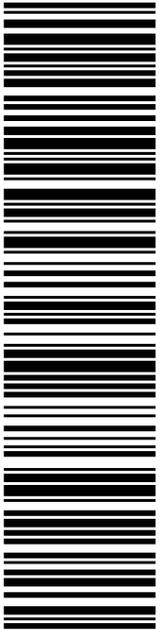
Exhibit G

Recipient Mailings



MAYOR DONALD TRINKS
TOWN OF WINDSOR
CC: ERIC BARZ, TOWN PLANNER
275 BROAD ST
WINDSOR CT 06095-2940

USPS TRACKING #



9405 5036 9930 0465 9944 31

P

usps.com 9405 5036 9930 0465 9944 31 0096 5000 0020 6095
US POSTAGE \$9.65
 Flat Rate Envoy

U.S. POSTAGE PAID
 Click-N-Ship®

Mailed from 05751 986767714670899

QC DEVELOPMENT Expected Delivery Date: 02/01/23
 5900 BALCONES DR STE 8148
 AUSTIN TX 78731-4257

PRIORITY MAIL®

C036

0000

Electronic Rate Approved #038555749





Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0465 9944 31

| | |
|--|---|
| Trans. #: 581386857 Print Date: 01/26/2023 Ship Date: 01/28/2023 Expected Delivery Date: 02/01/2023 | Priority Mail® Postage: \$9.65 Total: \$9.65 |
|--|---|

From: QC DEVELOPMENT
 5900 BALCONES DR STE 8148
 AUSTIN TX 78731-4257

To: MAYOR DONALD TRINKS
 TOWN OF WINDSOR
 CC: ERIC BARZ, TOWN PLANNER
 275 BROAD ST
 WINDSOR CT 06095-2940

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



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

Tracking Number:

9405503699300465994431

Remove X

[Copy](#) [Add to Informed Delivery](#)
(<https://informedelivery.usps.com/>)

Expected Delivery by

MONDAY

30 January 2023 ⓘ by **9:00pm** ⓘ

Feedback

Your item arrived at our USPS facility in SPRINGFIELD MA NETWORK DISTRIBUTION CENTER on January 29, 2023 at 7:01 am. The item is currently in transit to the destination.

Get More Out of USPS Tracking:

USPS Tracking Plus[®]

Delivered

Out for Delivery

Preparing for Delivery

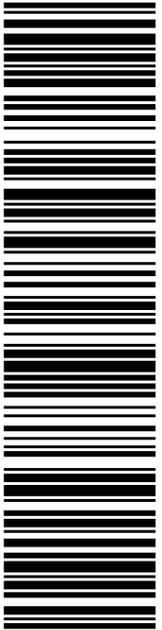
Moving Through Network

Arrived at USPS Regional Facility

SPRINGFIELD MA NETWORK DISTRIBUTION CENTER
January 29, 2023, 7:01 am

Departed USPS Regional Facility

NASHUA NH DISTRIBUTION CENTER
January 29, 2023, 5:13 am



USPS TRACKING #

9405 5036 9930 0465 9944 17



SOUTHERN NEW ENGLAND TELEPHONE
C/O FRONTIER COMMUNICATIONS
406 MERRITT 7
NORWALK CT 06851

P

PRIORITY MAIL®

QC DEVELOPMENT
5900 BALCONES DR STE 8148
AUSTIN TX 78731-4257

Expected Delivery Date: 02/01/23

0000

usps.com 9405 5036 9930 0465 9944 17 0096 5000 0030 6851

US POSTAGE \$9.65

Flat Rate Envoy

U.S. POSTAGE PAID

Click-N-Ship®

Mailed from 05751 986767714672230

01/28/2023

986767714672230

Electronic Rate Approved #038555749

✂ ————— Cut on dotted line. —————

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0465 9944 17

| | |
|------------------------------------|---------------------------------------|
| Trans. #: 581386857 | Priority Mail® Postage: \$9.65 |
| Print Date: 01/26/2023 | Total: \$9.65 |
| Ship Date: 01/28/2023 | |
| Expected Delivery Date: 02/01/2023 | |

From: QC DEVELOPMENT
5900 BALCONES DR STE 8148
AUSTIN TX 78731-4257

To: SOUTHERN NEW ENGLAND TELEPHONE
C/O FRONTIER COMMUNICATIONS
406 MERRITT 7
NORWALK CT 06851

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



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Check the status of your shipment on the USPS Tracking® page at usps.com

Tracking Number:

9405503699300465994417

Remove X

[Copy](#) [Add to Informed Delivery](#)
(<https://informedelivery.usps.com/>)

Expected Delivery by

MONDAY

30 January 2023 ⓘ by **9:00pm** ⓘ

Feedback

Your item arrived at our NASHUA NH DISTRIBUTION CENTER origin facility on January 29, 2023 at 12:56 am. The item is currently in transit to the destination.

Get More Out of USPS Tracking:

USPS Tracking Plus[®]

Delivered

Out for Delivery

Preparing for Delivery

In Transit from Origin Processing

Arrived at USPS Regional Origin Facility

NASHUA NH DISTRIBUTION CENTER

January 29, 2023, 12:56 am

Departed Post Office

KILLINGTON, VT 05751

January 28, 2023, 12:31 pm