April 15, 2022

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

Re: Notice of Exempt Modification New Cingular Wireless PCS LLC ("AT&T") Site CT2203
500 Moose Hill Road, Monroe, CT 06468 (the "Property")
Latitude: 41.3209561 N Longitude: 73.2014239 W

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 138' level on the existing 151' monopole tower ("Tower") at 500 Moose Hill Road in Monroe, CT. The property is owned by St John the Baptist Greek Catholic Cemetery Assn and the Tower is owned by SBA Towers LLC. AT&T intends to modify its facility by removing (6) antennas and adding (3) AIR6449 B77 antennas at the 136'1" level, (3) TPA65R-BU6DA-K at the 138' level, and (3) AIR6419 B77G antennas at the 139'8"' level of the tower. The AIR6649 B77 & AIR6419 B77G & antennas are stacked one on top of the other. AT&T also intends on removing (3) RRUs and adding (3) 4478 B14 & (3) 8832 B2/B66A RRUs at the 138' level. The height of AT&Ts existing antennas and RRUs is 138' and the proposed antennas & RRUs is 136'1", 138' and 139'8"' level on 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.

The CT Siting Council ("Council') approved the Tower under Docket 207 on March 21, 2002. This approval limited the tower height to 130 feet. The Council approved a 20-foot tower extension under Petition 628T on June 19, 2003. These approvals contained no conditions that could feasibly be violated by this modification, including facility height or mounting restrictions. AT&Ts modification complies with the above-mentioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent to Mr. Kenneth Kellogg, First Selectman, Town of Monroe, as chief elected official, and Mr. Rick Schultz, AICP, town planner, Town of Monroe, St John the Baptist Greek Catholic Cemetery, the property owner and SBA Towers, LLC the tower owner.

The planned modification of the facility falls squarely within those activities explicitly provided for in R.C.S.A §16-50j-72(b)(2). Specifically:

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

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

3. The proposed modification 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 modified facility 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 foundation can support the proposed loading.

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

Sincerely,

Hollis M. Redding

Hollis M. Redding
SAI Communications, LLC
12 Industrial Way
Salem, NH 03079
Mobile: 860-834-6964
hredding@saigrp.com

Enclosures

Cc:
Mr. Kenneth Kellogg, First Selectman, chief elected official, Town of Monroe
Mr. Rick Schultz, AICP, Town Planner, Town of Monroe
St John the Baptist Greek Catholic Cemetery Assn, the property owner
SBA Towers LLC, the tower owner

C Squared Systems, LLC
65 Dartmouth Drive
Auburn, NH 03032
603-644-2800
support@csquaredsystems.com

Calculated Radio Frequency Exposure

CT2203

500 Moose Hill Road, Monroe, CT

April 11, 2022

Table of Contents

List of Tables

List of Figures

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modification of the AT&T antenna arrays on an existing tower located at 500 Moose Hill Road, Monroe, CT. The coordinates of the tower are 41° 19' 15.44" N, 73° 12' 5.13" W.

AT&T is proposing the following:

1) Install twelve (12) multi-band antennas (four (4) per sector) to support its commercial wireless network and the FirstNet National Public Safety Broadband Network ("NPSBN").

This report considers the planned antenna configuration for AT&T[1] to derive the resulting % Maximum Permissible Exposure of its proposed installation.

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

In 1985, the FCC established rules to regulate radio frequency (RF) exposure from FCC licensed antenna facilities. In 1996, the FCC updated these rules, which were further amended in August 1997 by OET Bulletin 65 Edition 97-01. These new rules include Maximum Permissible Exposure (MPE) limits for transmitters operating between 300 kHz and 100 GHz. The FCC MPE limits are based upon those recommended by the National Council on Radiation Protection and Measurements (NCRP), developed by the Institute of Electrical and Electronics Engineers, Inc., (IEEE) and adopted by the American National Standards Institute (ANSI).

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. 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 cannot exercise control over their exposure.

Public exposure to radio frequencies is regulated and enforced in units of milliwatts per square centimeter (mW/cm^2). The general population exposure limits for the various frequency ranges are defined in the attached "FCC Limits for Maximum Permissible Exposure (MPE)" in Attachment B of this report.

Higher exposure limits are permitted under the occupational/controlled exposure category, but only for persons who are exposed as a consequence of their employment and who have been made fully aware of the potential for exposure, and they must be able to exercise control over their exposure. General population/uncontrolled limits are five times more stringent than the levels that are acceptable for occupational, or radio frequency trained individuals. Attachment B contains excerpts from OET Bulletin 65 and defines the Maximum Exposure Limit.

Finally, it should be noted that the MPE limits adopted by the FCC for both general population/uncontrolled exposure and for occupational/controlled exposure incorporate a substantial margin of safety and have been established to be well below levels generally accepted as having the potential to cause adverse health effects.

[1] As referenced to AT&T's Radio Frequency Design Sheet dated 2/11/22.

3. RF Exposure Calculation Methods

The power density calculation results were generated using the following formula as outlined in FCC bulletin OET 65, and Connecticut Siting Council recommendations:

$$\text{Power Density} = \left(\frac{1.6^2 \times 1.64 \times \text{ERP}}{4\pi \times R^2}\right) \text{X Off Beam Loss}$$

Where:

ERP = Effective Radiated Power

R = Radial Distance = $\sqrt{(H^2 + V^2)}$

H = Horizontal Distance from antenna

V = Vertical Distance from radiation center of antenna

Ground reflection factor of 1.6

Off Beam Loss is determined by the selected antenna pattern

These calculations assume that the antennas are operating at 100 percent capacity and power, and that all antenna channels are transmitting simultaneously. Obstructions (trees, buildings, etc.) that would normally attenuate the signal are not taken into account. The calculations assume even terrain in the area of study and do not consider actual terrain elevations which could attenuate the signal. As a result, the predicted signal levels reported below are much higher than the actual signal levels will be from the final installations.

4. Calculation Results

Table 1 below outlines the cumulative power density information for the AT&T modification on the existing tower at the site. The proposed antennas are directional in nature; therefore, the majority of the RF power is focused out towards the horizon. As a result, there will be less RF power directed below the antennas relative to the horizon, and consequently lower power density levels around the base of the tower. Please refer to Attachment C for the vertical pattern of the proposed AT&T antennas. The calculated results for AT&T in Table 1 include a nominal 10 dB off-beam pattern loss to account for the lower relative gain below the antennas.

Carrier	Antenna Height (Feet)	Operating Frequency (MHz)	Number of Trans.	ERP Per Transmitter (Watts)	Power Density (mw/cm^2)	Limit	% MPE
T-Mobile	121	2500	1	19239	0.5232	1.0000	5.23%
T-Mobile	121	2500	1	19239	0.5232	1.0000	5.23%
T-Mobile	121	600	2	592	0.0322	0.4000	0.80%
T-Mobile	121	600	1	1578	0.0429	0.4000	1.07%
T-Mobile	121	700	2	695	0.0378	0.4667	0.81%
T-Mobile	121	1900	2	2105	0.1145	1.0000	1.14%
T-Mobile	121	2100	2	1325	0.0721	1.0000	0.72%
T-Mobile	121	1900	2	2057	0.1119	1.0000	1.12%
T-Mobile	121	1900	4	1028	0.1118	1.0000	1.12%
T-Mobile	121	2100	2	2308	0.1255	1.0000	1.26%
Clearwire	147	2496	2	153	0.0055	1.0000	0.06%
Clearwire	147	11 GHz	1	211	0.0038	1.0000	0.04%
Sprint	147	1900	3	347	0.0188	1.0000	0.19%
Sprint	147	850	1	195	0.0035	0.5667	0.06%
Sprint	147	2500	2	195	0.0071	1.0000	0.07%
Sprint	147.5	2657	3	562	0.0303	1.0000	0.30%
Sprint	148	19500	2	2512	0.0896	1.0000	0.90%
Sprint	148	11500	2	708	0.0253	1.0000	0.25%
Town PD	receive only - no RF emissions						
Nextel	107.5	851	12	100	0.0419	0.5673	0.74%
Verizon	99	751	4	575	0.0956	0.5007	1.91%
Verizon	99	878	2	400	0.0333	0.5853	0.57%
Verizon	99	874	4	660	0.1098	0.5827	1.88%
Verizon	99	1980	4	2088	0.3473	1.0000	3.47%
Verizon	99	2120	4	2343	0.3897	1.0000	3.90%
Verizon	99	3730	4	6531	1.0862	1.0000	10.86%
AT&T	138	739	1	2450	0.0051	0.4927	1.03%
AT&T	138	763	1	2749	0.0057	0.5087	1.12%
AT&T	138	885	1	2813	0.0058	0.5900	0.98%
AT&T	138	1900	2	6297	0.0260	1.0000	2.60%
AT&T	138	2100	3	10121	0.0627	1.0000	6.27%
AT&T	138	2300	1	6747	0.0139	1.0000	1.39%
AT&T	139.67	3500	1	24286	0.0489	1.0000	4.89%
AT&T	136.25	3500	1	24286	0.0515	1.0000	5.15%
						Total	**67.13%**

Table 1: Carrier Information[2]

[2] The existing record in the CSC Power Density Table for AT&T should be removed and replaced with the updated AT&T technologies and values provided in Table 1. The power density information for Nextel, Verizon, Sprint, Town PD, Clearwire and T-Mobile was taken directly from the CSC database dated 01/21/2022. Please note that % MPE values listed are rounded to two decimal points and the total % MPE listed is a summation of each unrounded contribution. Therefore, summing each rounded value may not identically match the total value reflected in the table.

5. Conclusion

The above analysis concludes that RF exposure at ground level from the proposed site will be below the maximum power density levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using conservative calculation methods, the highest expected percent of Maximum Permissible Exposure at ground level is **67.13% of the FCC General Population/Uncontrolled limit**.

As noted previously, the calculated % MPE levels are more conservative (higher) than the actual signal levels will be from the finished modifications.

6. Statement of Certification

I certify to the best of my knowledge that the statements in this report are true and accurate. The calculations follow guidelines set forth in FCC OET Bulletin 65 Edition 97-01, ANSI/IEEE Std. C95.1 and ANSI/IEEE Std. C95.3.

April 11, 2022
Date

Reviewed/Approved By: Martin J. Lavin
Senior RF Engineer
C Squared Systems, LLC

Attachment A: References

OET Bulletin 65 - Edition 97-01 - August 1997 Federal Communications Commission Office of Engineering & Technology

IEEE C95.1-2005, IEEE Standard Safety Levels With Respect to Human Exposure to Radio Frequency Electromagnetic Fields, 3 kHz to 300 GHz IEEE-SA Standards Board

IEEE C95.3-2002 (R2008), IEEE Recommended Practice for Measurements and Computations of Radio Frequency Electromagnetic Fields With Respect to Human Exposure to Such Fields, 100 kHz-300 GHz IEEE-SA Standards Board

Attachment B: FCC Limits for Maximum Permissible Exposure (MPE)

(A) Limits for Occupational/Controlled Exposure[3]

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

(B) Limits for General Population/Uncontrolled Exposure[4]

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

f = frequency in MHz * Plane-wave equivalent power density

Table 2: FCC Limits for Maximum Permissible Exposure (MPE)

[3] 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 occupational/controlled limits apply provided he or she is made aware of the potential for exposure

[4] 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 cannot exercise control over their exposure

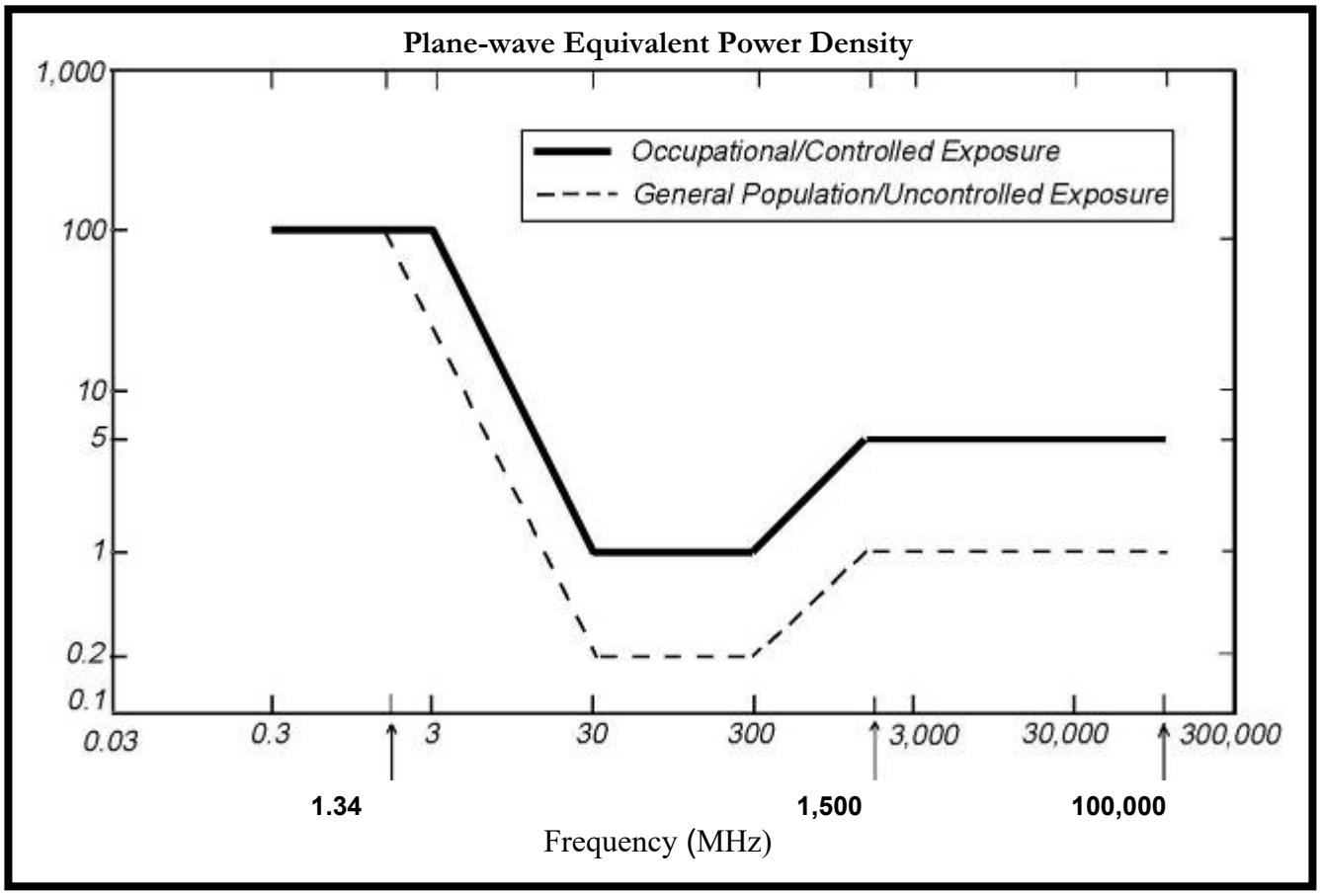
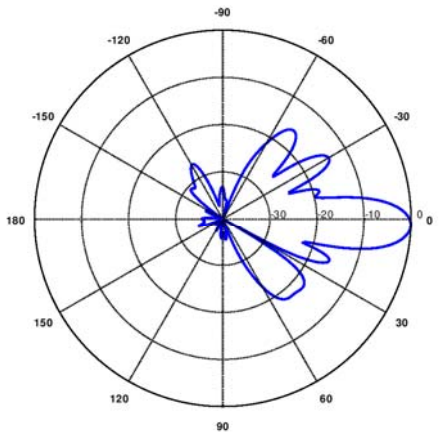
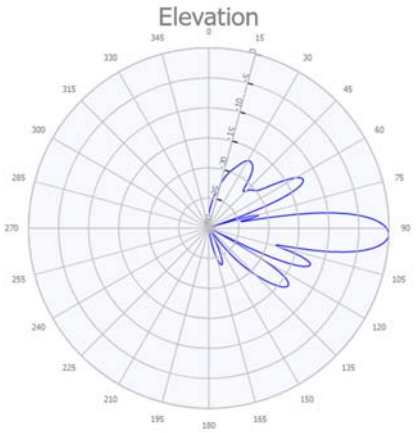
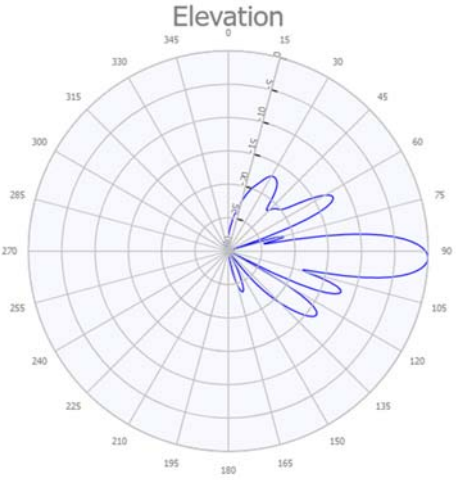
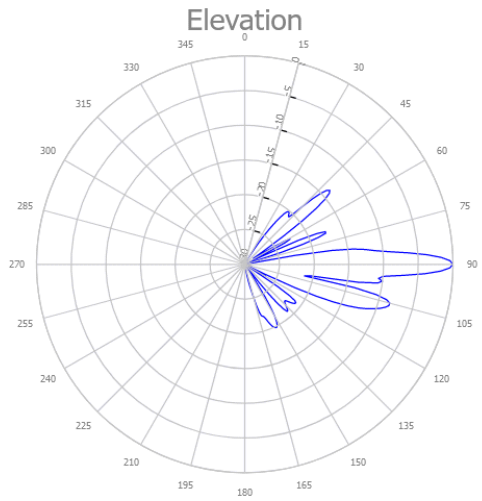
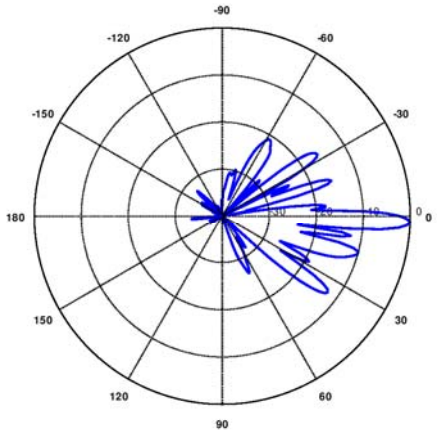
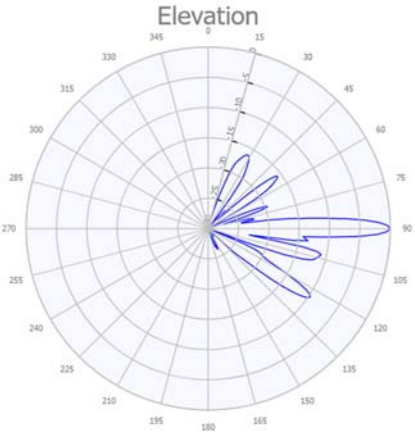


Figure 1: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

Attachment C: AT&T Antenna Data Sheets and Electrical Patterns

700 MHz Manufacturer: CCI Model #: TPA65R-BU6DA Frequency Band: 698-798 MHz Gain: 14.5 dBi Vertical Beamwidth: 12.8° Horizontal Beamwidth: 73° Polarization: Dual Linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	
700 MHz Manufacturer: CCI Model #: DMP65R-BU6DA Frequency Band: 698 - 806MHz Gain: 14.0 dBi Vertical Beamwidth: 13.0° Horizontal Beamwidth: 74° Polarization: Dual Linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	
885 MHz Manufacturer: CCI Model #: DMP65R-BU6DA Frequency Band: 824 - 896 MHz Gain: 14.6 dBi Vertical Beamwidth: 11.1° Horizontal Beamwidth: 63° Polarization: Dual Linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	

1900 MHz Manufacturer: CCI Model #: TPA65R-BU6DA Frequency Band: 1920-1990 MHz Gain: 18.1 dBi Vertical Beamwidth: 5.2° Horizontal Beamwidth: 66° Polarization: Dual Linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	
2100 MHz Manufacturer: CCI Model #: TPA65R-BU6DA Frequency Band: 1920-2180 MHz Gain: 18.4 dBi Vertical Beamwidth: 4.8° Horizontal Beamwidth: 66° Polarization: Dual Linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	
2300 MHz Manufacturer: CCI Model #: DMP65R-BU6DA Frequency Band: 2300-2400 MHz Gain: 18.4 dBi Vertical Beamwidth: 4.1° Horizontal Beamwidth: 54° Polarization: Dual Linear 45° Size L x W x D: 71.2” x 20.7” x 7.7”	

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: TPA65R-BU6DA-K (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 4478 B14 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 8843 B2/B66A (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T DC & FIBER SURGE ARRESTOR DC9-48-60-24-8C-EV (TOTAL OF 2) WITH (2) 6AWG6 DC TRUNK.
- NEW AT&T (2) 24-PAIR FIBER (TO REPLACE EXISTING).
- ADD (6) Y-CABLES.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- ADD (1) 6648 + XCEDE CABLE.
- ADD (3) RECTIFIERS.

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 RRUS: RRUS-32 B2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T SURGE ARRESTOR DC6-48-60-18-8C (TOTAL OF 2).
- EXISTING AT&T DIPLEXERS: LGP21901 (TYP. OF 4 PER SECTOR, TOTAL OF 12).
- EXISTING AT&T TMA'S: LGP13519 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T (2) FIBER.
- EXISTING (6) COAX CABLES.
- DECOMM UMTS, LINE COMPONENTS.

ITEMS TO REMAIN:
- (3) ANTENNAS, (6) RRU'S, (6) COAX CABLES & (4) DC POWER.

SITE ADDRESS:	500 MOOSE HILL ROAD MONROE, CT 06468
LATITUDE:	41.3209561° N, 41° 19' 15.44" N
LONGITUDE:	73.2014239° W, 73° 12' 5.12" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
STRUCTURE HEIGHT:	151'-0"±
RAD CENTER:	138'-0"± LTE, 139'-8"± DOD & 136'-1"± 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
SN-1	STRUCTURAL NOTES	1
G-1	GROUNDING DETAILS	1
RF-1	RF PLUMBING DIAGRAM	1

SITE NUMBER: CT2203

SITE NAME: MONROE CENTER

FA CODE: 10035397

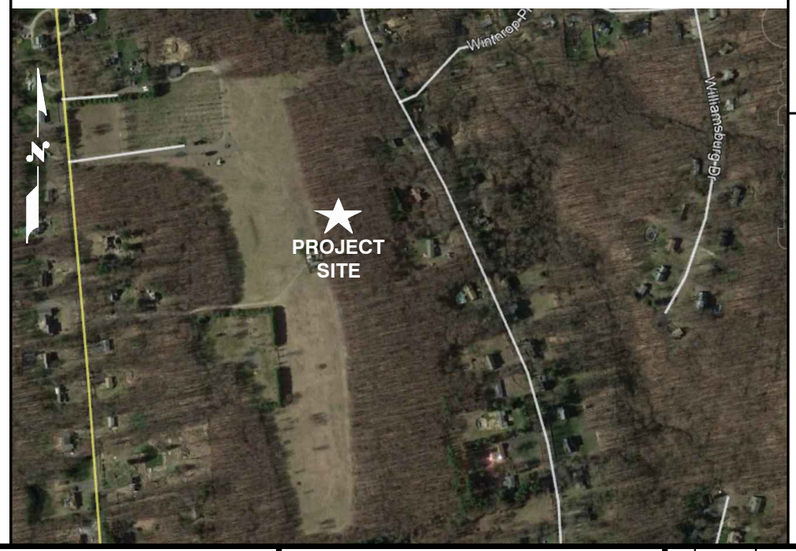
PACE ID: MRCTB056076, MRCTB054754, MRCTB054252, MRCTB054017, MRCTB056081

PROJECT: 5G NR 1SR CBAND_LTE 5C; 5G NR 1SR UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

GET ON I-91 S FROM ENTERPRISE DR. HEAD SOUTHEAST TOWARD CAPITAL BLVD. TURN LEFT ONTO CAPITAL BLVD. USE THE LEFT 2 LANES TO TURN LEFT ONTO STATE HWY 411. TURN LEFT TO MERGE ONTO I-91 S. FOLLOW I-91 S AND CT-15 S TO ORANGE. TAKE EXIT 58 FROM CT-15 S. MERGE ONTO I-91 S. TAKE EXIT 17 TO MERGE ONTO CT-15 S. TAKE EXIT 58 TO MERGE ONTO CT-34 W/DERBY AVE/DERBY TURNPIKE TOWARD DERBY. CONTINUE ON CT-34 W/DERBY AVE TO YOUR DESTINATION IN MONROE. MERGE ONTO CT-34 W/DERBY AVE/DERBY TURNPIKE. CONTINUE TO FOLLOW CT-34 W/DERBY AVE. PASS BY DUNKIN' (ON THE RIGHT IN 1.2 MI). USE THE LEFT 2 LANES TO TURN LEFT ONTO MAIN ST. TURN LEFT ONTO BRIDGE ST. TURN RIGHT ONTO HOWE AVE. CONTINUE ONTO CT-110 N/LEAVENWORTH RD. CONTINUE TO FOLLOW CT-110 N. TURN LEFT ONTO MOOSE HILL RD. 500 MOOSE HILL RD. MONROE, CT 06468.



GENERAL NOTES

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

72 HOURS

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

UNDERGROUND SERVICE ALERT

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT2203
SITE NAME: MONROE CENTER

500 MOOSE HILL ROAD
MONROE, CT 06468
FAIRFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	03/21/22	ISSUED FOR REVIEW	JJ	HC	DPH
A	02/28/22	ISSUED FOR REVIEW	JJ	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: JJ | CHK'D BY: DPH

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

AT&T

TITLE SHEET
5G NR 1SR CBAND_LTE
5C; 5G NR 1SR UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2203	T-1	1

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	REFERENCE		

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SITE NUMBER: CT2203
SITE NAME: MONROE CENTER

500 MOOSE HILL ROAD
MONROE, CT 06468
FAIRFIELD COUNTY

NO.	DATE	REVISIONS	BY	CHK	APP'D
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: JJ | CHK'D BY: DPH

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

AT&T

GENERAL NOTES
5G NR 1SR CBAND_LTE
5C; 5G NR 1SR UPGRADE

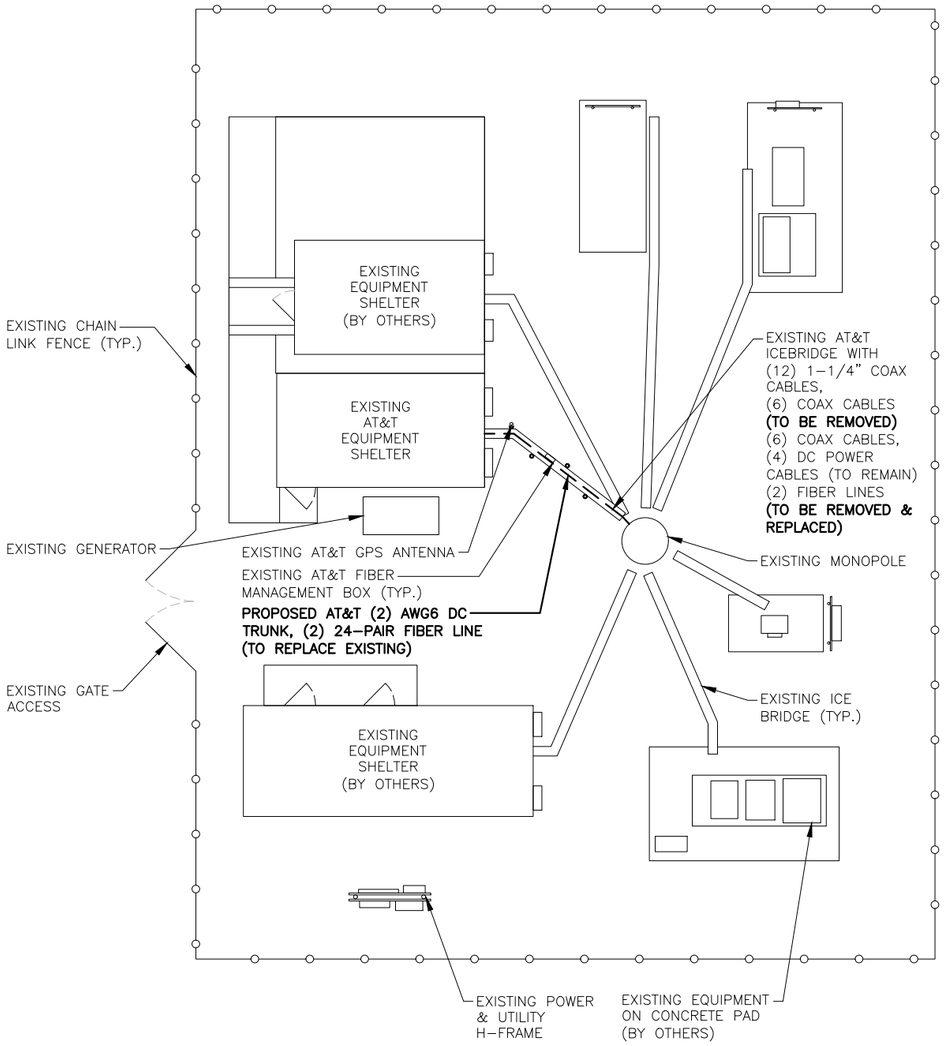
SITE NUMBER	DRAWING NUMBER	REV
CT2203	GN-1	1

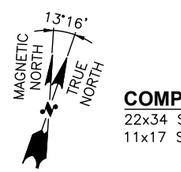
NOTE:

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

NOTE:

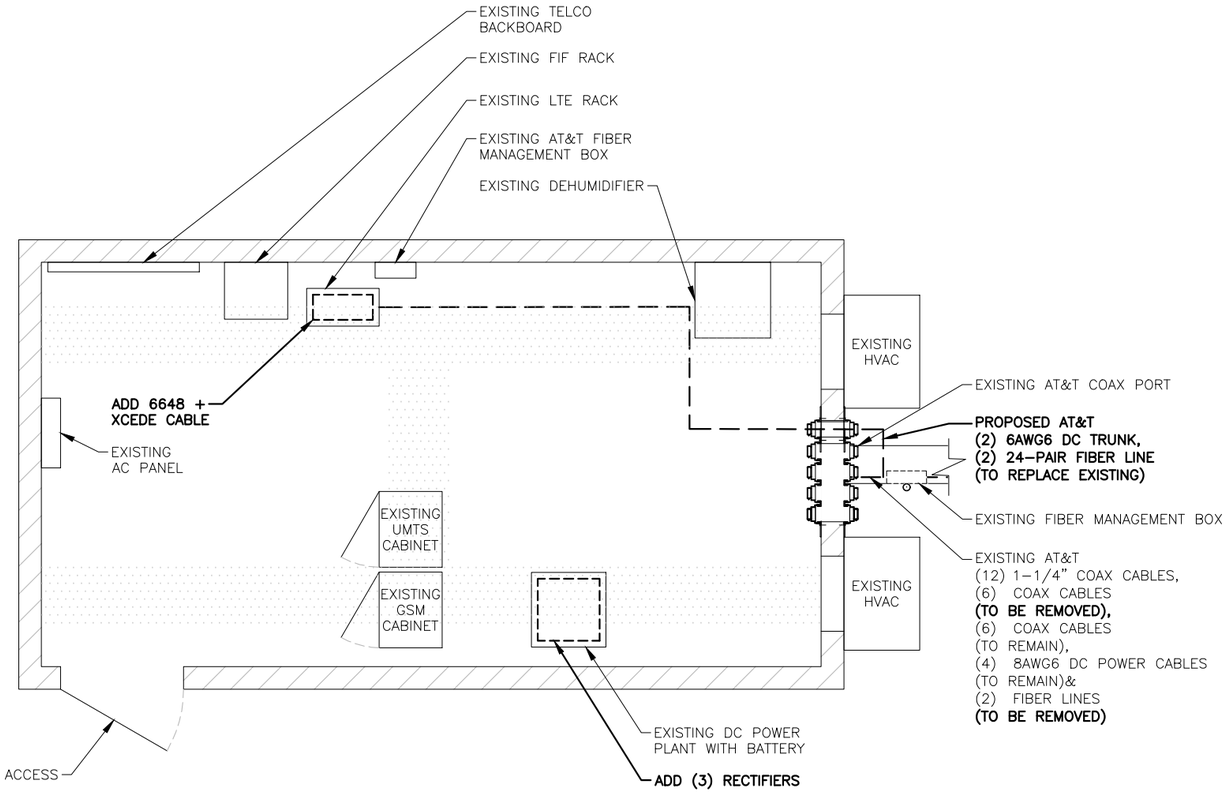
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.

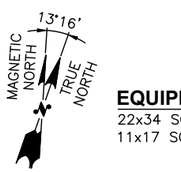




COMPOUND PLAN (1 / A-1)
22x34 SCALE: 1/8"=1'-0"
11x17 SCALE: 1/16"=1'-0"

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





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

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

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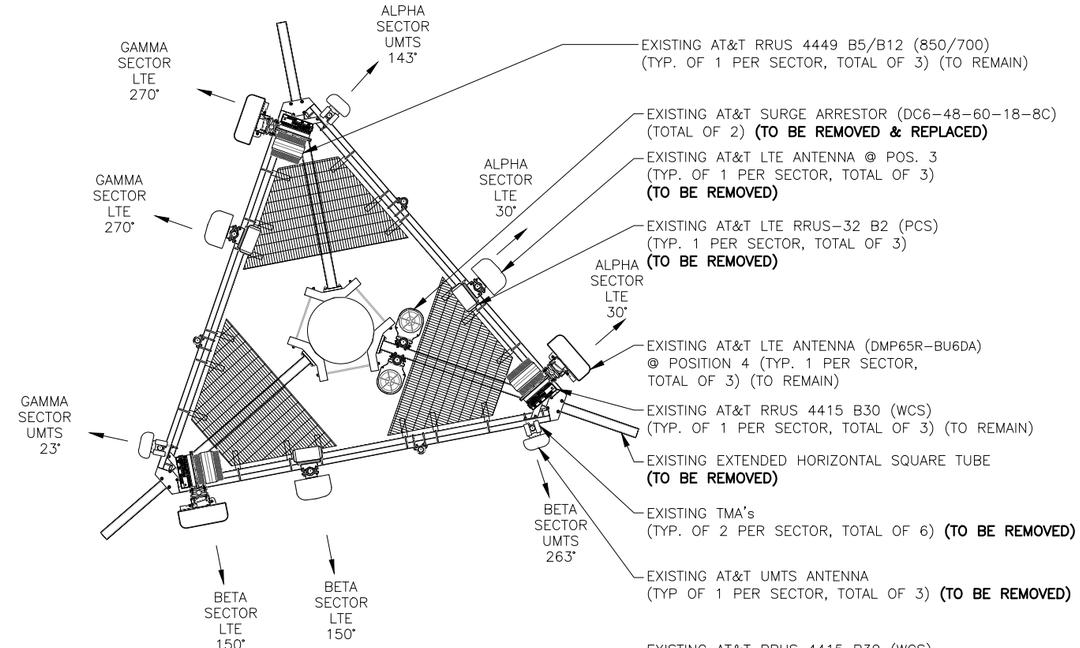
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: JJ | CHK'D BY: DPH

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

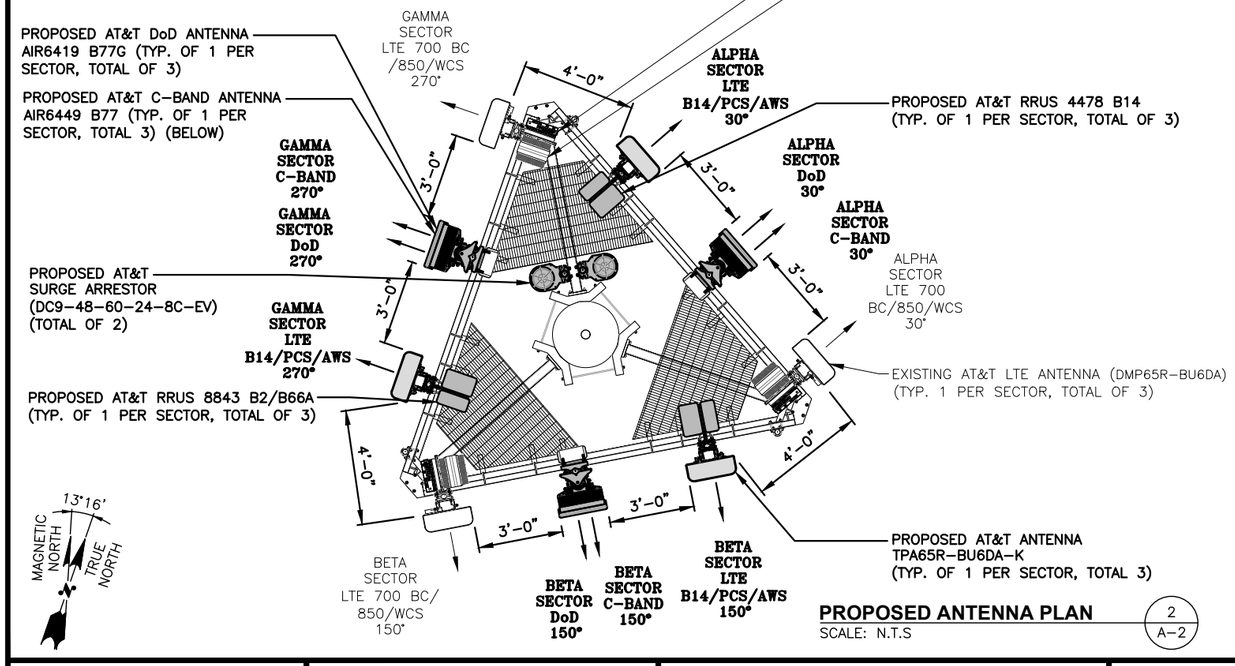
AT&T

COMPOUND & EQUIPMENT PLANS
5G NR 1SR CBAND_LTE
5C; 5G NR 1SR UPGRADE

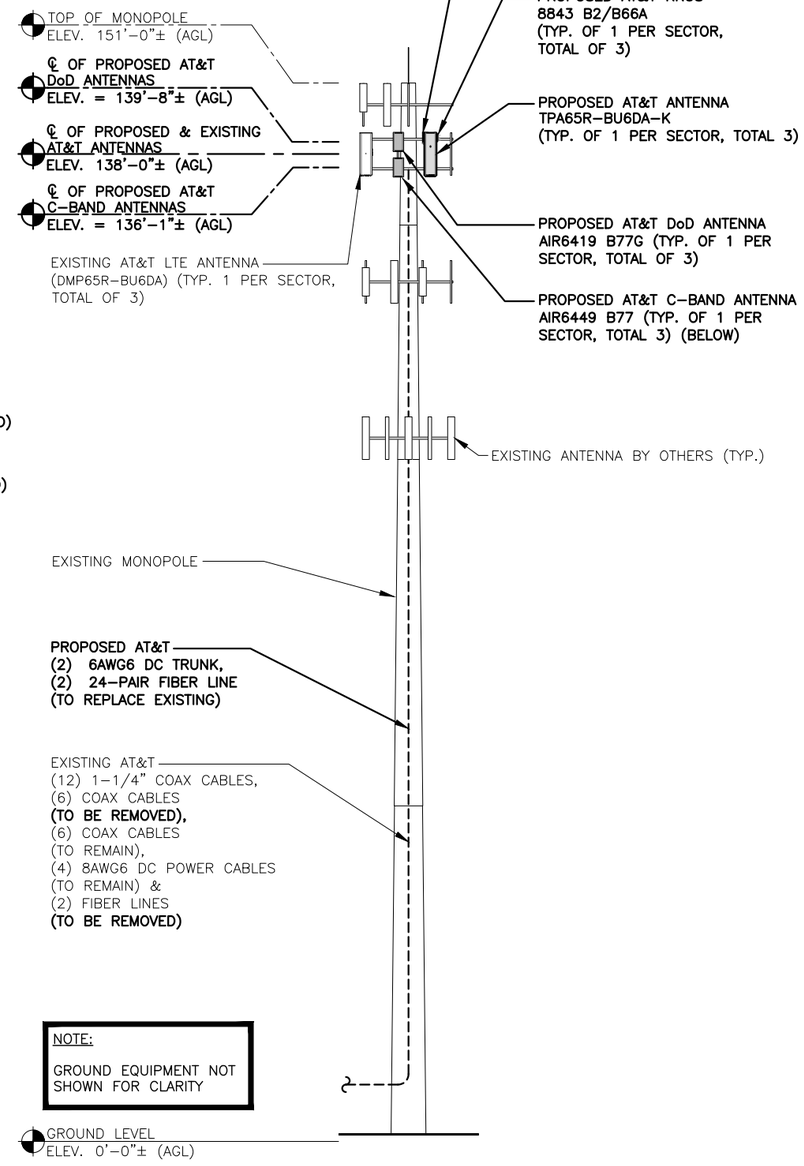
SITE NUMBER	DRAWING NUMBER	REV
CT2203	A-1	1



EXISTING ANTENNA PLAN (1 / A-2)
SCALE: N.T.S



PROPOSED ANTENNA PLAN (2 / A-2)
SCALE: N.T.S



NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY

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

0 5'-4" 10'-8" 21'-4" 32'-0"

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

NOTE:
AN ANALYSIS FOR THE CAPACITY OF EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: FEBRUARY 1, 2022.

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

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: JJ | CHK'D BY: DPH | APP'D BY: DPH

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

AT&T

ANTENNA LAYOUTS & ELEVATION
5G NR 1SR CBAND_LTE
5C; 5G NR 1SR UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2203	A-2	1

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	ANTENNA TIP HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	–	–	–	–	–	–	–	–	–	–	(2)1–1/4 COAX	(P) (1) RAYCAP DC9–48–60–24–8C–EV
A2	PROPOSED	LTE B14/PCS/AWS	TPA65R–BU6DA–K	71.2x20.7x7.7	138'–0"±	141'–0"±	30°	–	(P)(1) 4478 B14 (P)(1) 8843 B2/B66A	18.1"x13.4"x8.3" 14.9"x13.2"x10.9"	(E)(2) DC POWER (P)(1) DC POWER (P)(1) FIBER (P)(1) Y–CABLE	
A3	PROPOSED	DOD + C–BAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	139'–8"± 136'–1"±	141'–0"± 137'–5"±	30°	–	–	–	–	
A4	EXISTING	LTE 700 BC/850/WCS	DMP65R–BU6DA	71.2x20.7x7.7	138'–0"±	141'–0"±	30°	–	(E)(1) 4449 B5/B12 (E)(1) 4415 B30	–	(P)(1) Y–CABLE	
B1	–	–	–	–	–	–	–	–	–	–	(2)1–1/4 COAX–	(P) (1) RAYCAP DC9–48–60–24–8C–EV
B2	PROPOSED	LTE B14/PCS/AWS	TPA65R–BU6DA–K	71.2x20.7x7.7	138'–0"±	141'–0"±	150°	–	(P)(1) 4478 B14 (P)(1) 8843 B2/B66A	18.1"x13.4"x8.3" 14.9"x13.2"x10.9"	(E)(2) DC POWER (P)(1) DC POWER (P)(1) FIBER (P)(1) Y–CABLE	
B3	PROPOSED	DOD + C–BAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	139'–8"± 136'–1"±	141'–0"± 137'–5"±	150°	–	–	–	–	
B4	EXISTING	LTE 700 BC/850/WCS	DMP65R–BU6DA	71.2x20.7x7.7	138'–0"±	141'–0"±	150°	–	(E)(1) 4449 B5/B12 (E)(1) 4415 B30	–	(P)(1) Y–CABLE	
C1	–	–	–	–	–	–	–	–	–	–	(2)1–1/4 COAX–	
C2	PROPOSED	LTE B14/PCS/AWS	TPA65R–BU6DA–K	71.2x20.7x7.7	138'–0"±	141'–0"±	270°	–	(P)(1) 4478 B14 (P)(1) 8843 B2/B66A	18.1"x13.4"x8.3" 14.9"x13.2"x10.9"	(P)(1) Y–CABLE	
C3	PROPOSED	DOD + C–BAND	AIR6419 B77G AIR6449 B77 (STACKED)	31.1X16.1X7.3 30.6X15.9X10.6	139'–8"± 136'–1"±	141'–0"± 137'–5"±	270°	–	–	–	–	
C4	EXISTING	LTE 700 BC/850/WCS	DMP65R–BU6DA	71.2x20.7x7.7	138'–0"±	141'–0"±	270°	–	(E)(1) 4449 B5/B12 (E)(1) 4415 B30	–	(P)(1) Y–CABLE	

NOTE:

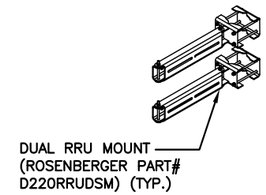
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED
BY: HUDSON DESIGN GROUP, LLC.
DATED: FEBRUARY 1, 2022.

NOTE:

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



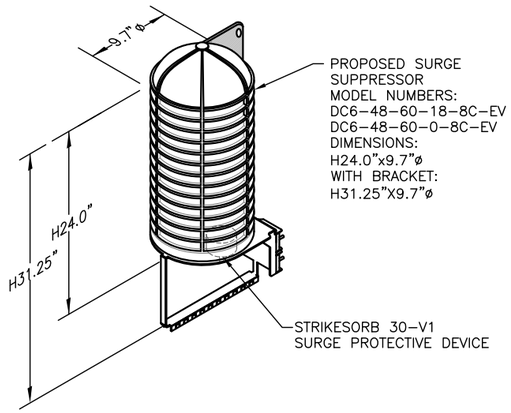
DUAL RRU MOUNT DETAIL (2 / A–3)
SCALE: N.T.S

RRU CHART

QUANTITY	MODEL	SIZE (L x W x D)
(P)(3)	8843 (PCS/AWS)	14.9"x13.2"x10.9"
(P)(3)	4478 B14 (700)	18.1"x13.4"x8.3"
(E)(3)	4415	16.5"x13.4"x5.9"
(E)(3)	4449 (850/700)	17.9"x13.2"x10.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

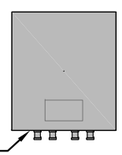
FINAL ANTENNA SCHEDULE (1 / A–3)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

NOTE:

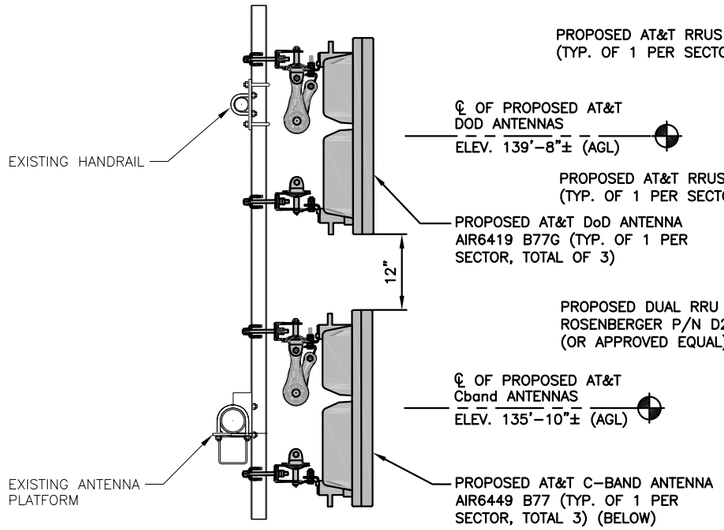
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



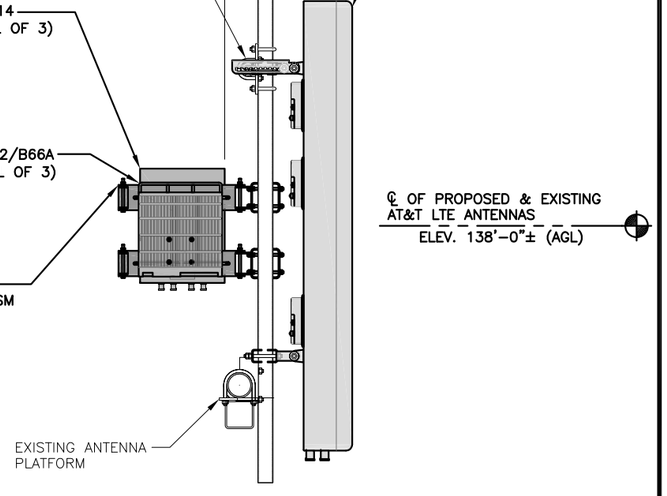
PROPOSED RRU REFER TO THE FINAL RFDS AND CHART FOR QUANTITY, MODEL AND DIMENSIONS

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

DC SURGE SUPPRESSOR DETAIL (4 / A–3)
SCALE: N.T.S



PROPOSED C-BAND ANTENNA MOUNTING DETAIL (5 / A–3)
22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"
0 0'–6" 1'–0" 2'–0" 3'–0"



PROPOSED LTE ANTENNA MOUNTING DETAIL (6 / A–3)
22x34 SCALE: 1"=1'–0"
11x17 SCALE: 1/2"=1'–0"
0 0'–6" 1'–0" 2'–0" 3'–0"

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STATE OF CONNECTION — DANIEL P. HAMM — LICENSED PROFESSIONAL ENGINEER — No. 24178

AT&T

DETAILS
5G NR 1SR CBAND_LTE
5C; 5G NR 1SR UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2203	A–3	1

STRUCTURAL NOTES:

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

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

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:	

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: CT2203
SITE NAME: MONROE CENTER

500 MOOSE HILL ROAD
MONROE, CT 06468
FAIRFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	03/21/22	ISSUED FOR REVIEW	JJ	HC	DPH
A	02/28/22	ISSUED FOR REVIEW	JJ	HC	DPH

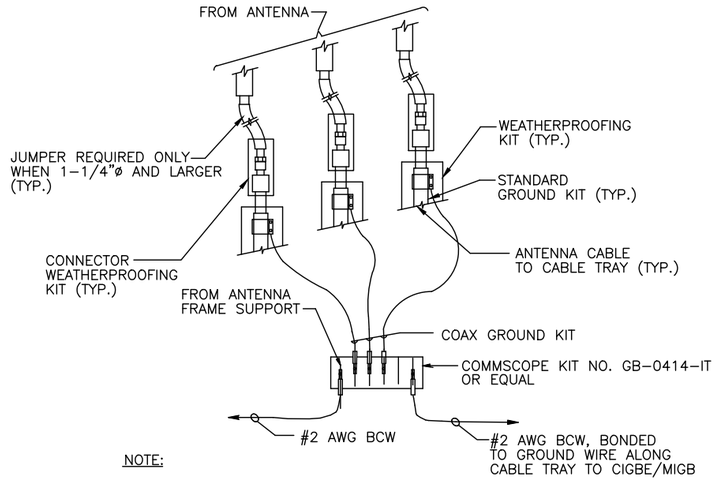
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: JJ | CHK'D BY: DPH

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

AT&T

STRUCTURAL NOTES
5G NR 1SR CBAND_LTE
5C; 5G NR 1SR UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2203	SN-1	1



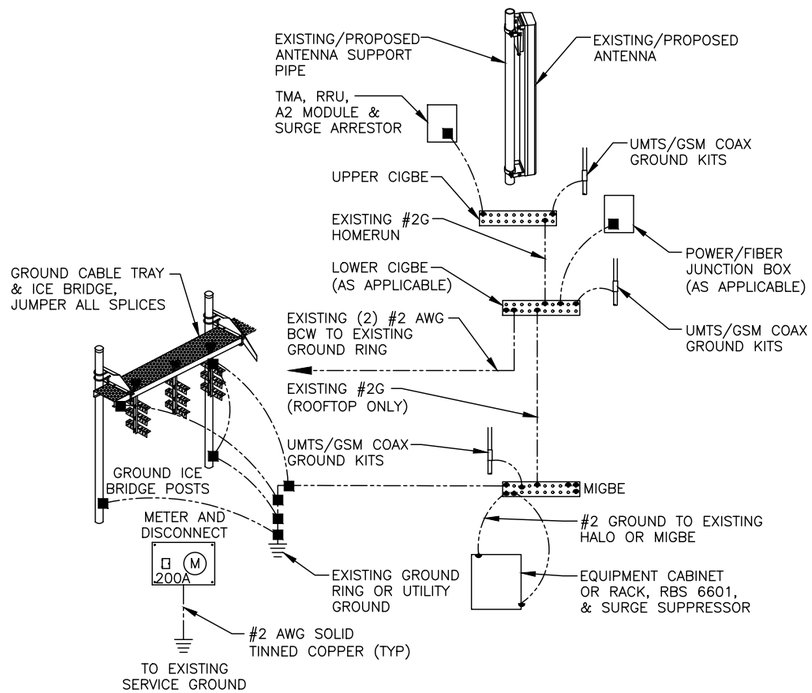
NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

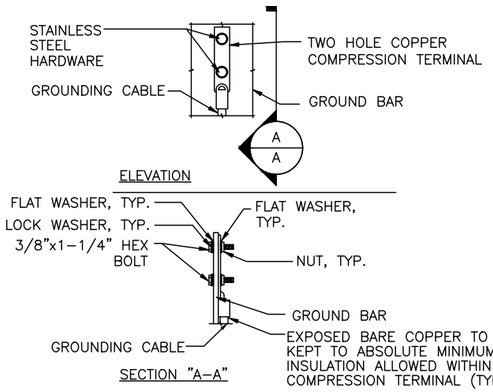
1 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

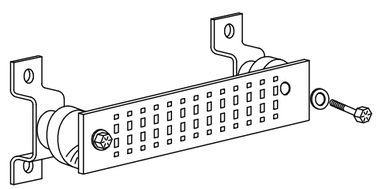
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

CABLE ENTRY PORTS (HATCH PLATES) (#2 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)

SCALE: N.T.S

4 / G-1

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
NORTH ANDOVER, MA 01845
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STATE OF CONNECTICUT
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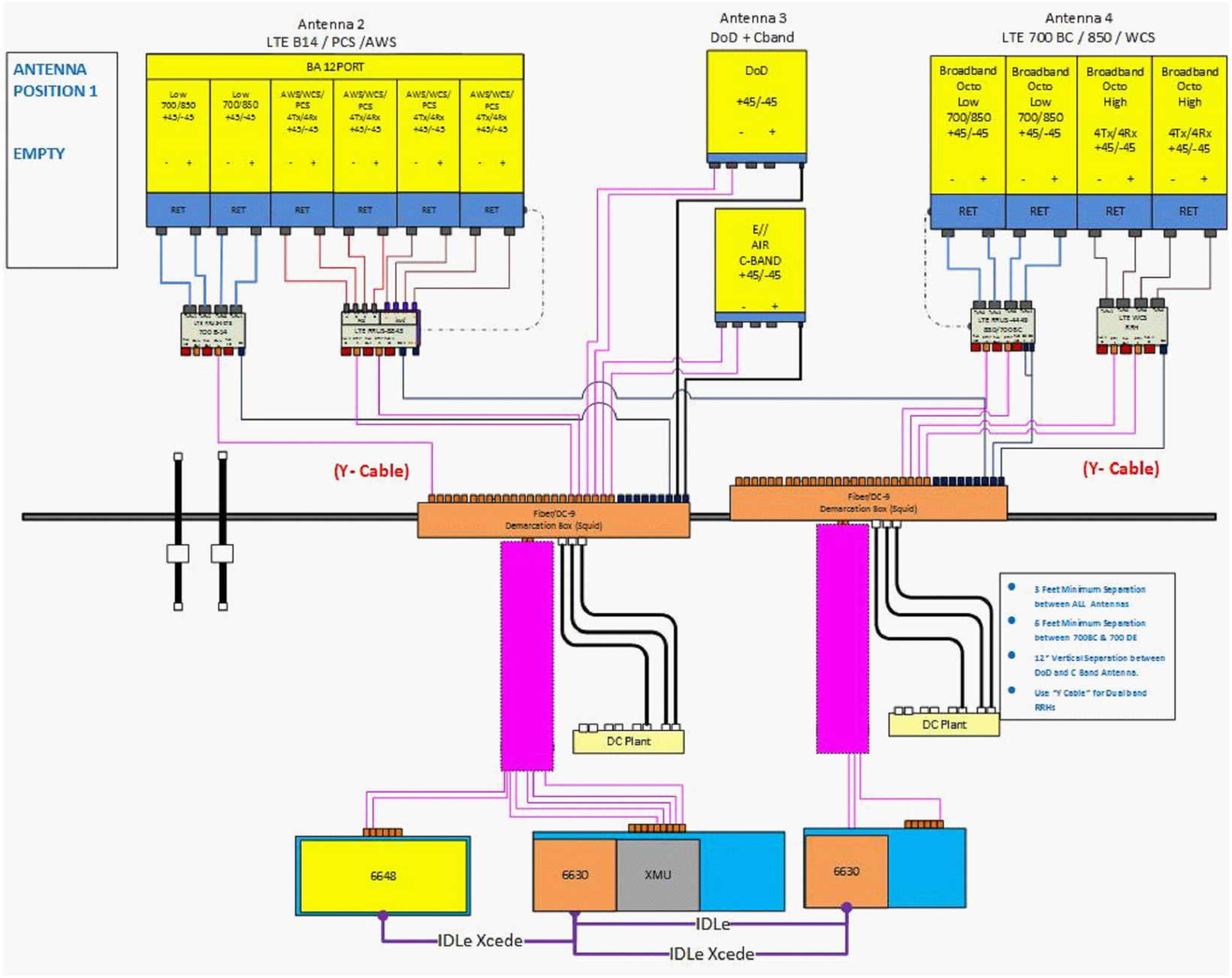
AT&T

GROUNDING DETAILS
5G NR 1SR CBAND_LTE
5C; 5G NR 1SR UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2203	G-1	1

NOTE:

REV: 2
DATED: 01/11/2022
RFDS ID: 4541314



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.

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AT&T

RF PLUMBING DIAGRAM
5G NR 1SR CBAND_LTE
5C; 5G NR 1SR UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT2203	RF–1	1

Tower Engineering Solutions
Phone (972) 483-0607, Fax (972) 975-9615
1320 Greenway Drive, Suite 600, Irving, Texas 75038

Structural Analysis Report

Existing 149 ft SABRE Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT13056-A

Customer Site Name: Moosehill

Carrier Name: AT&T (App#: 188671-2)

Carrier Site ID / Name: CT2203 / Monroe Center

Site Location: 500 Moosehill Road

Monroe, Connecticut

Fairfield County

Latitude: 41.320966

Longitude: -73.201422

Analysis Result:

Max Structural Usage: 81.4% [Pass]

Max Foundation Usage: 76.0% [Pass]

Additional Usage Caused by New Mount/Mount Modification: N/A

Report Prepared By: Bishal Pandit

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Report Prepared By: Bishal Pandit

Introduction

The purpose of this report is to summarize the analysis results on the 149 ft SABRE Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Structural design report prepared by Sabre communication corporation. job #: 02-03107. dated 04/03/2002.
Foundation Drawing	Foundation report prepared by Sabre communication corporation. job #: 02-03107. dated 04/03/2002.
Geotechnical Report	Geotechnical report prepared by ST. Johns Cemetary. dated 03/20/2002.
Modification Drawings	N/A
Mount Analysis	Hudson Design Group, Project# 2051A11LET, Dated: 02/01/2022

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the TIA-222-G-2**.** In accordance with this standard, the structure was analyzed using **TESPoles,** a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed V_{ult} = 120 mph (3-Sec. Gust)/ Nominal Design Wind Speed V_{asd} = 93.0 mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	S_S = 0.205, S_1 = 0.065

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	152.5	1	Decibel DB404-B - Whip	Pipe Mount	(1) 7/8"	Town of Monroe
2	147.0	1	Andrew VHLP2-11 - Dish	12.5' LP Platform	(4) 1 1/4" (2) 1/2" (6) 5/16"	Sprint/ Clearwire
3		1	Andrew VHLP800-11-DW1 - Dish			
4		3	Argus LLPX310R - Panel			
5		4	RFS ACU-A20-N			
6		3	RFS APXVSPP18-C-A20 - Panel			
7		3	RFS APXVTM14-C-120 - Panel			
8		3	ALU 800MHz RRH w/ filter			
9		3	ALU 1900MHz RRH			
10		3	ALU 800MHz RRH			
11		3	ALU TD-RRH8x20-25			
12		3	U-RAS Flexible RRH ODUs			
-	139.0	3	Powerwave 7770	LP Platform w/ Handrails	(12) 1-1/4" (2) 1/2" Fiber (4) 3/4" DC	AT&T
-		3	Cci DMP65R-BU6DA			
-		3	Cci HPA-65R-BUU-H6			
-		6	Powerwave LGP13519 Diplexer			
-		6	Powerwave LGP21901 Diplexer			
-		12	Powerwave 7020.00 RET			
-		3	Ericsson RRUS 32 B2			
-		3	Ericsson 4449 B5/B12			
-		3	Ericsson 4415 B30			
-		2	Raycap DC6-48-60-18-8F			
-		3	Commscope ABT-DFDM-ADBH			
-		1	Commscope WCS-IMFQ-AMT-R40			
27	121.0	3	Ericsson AIR6449 B41	LP Platform w/ kicker and handrail kit Site Pro HRK12	(10) 1 5/8" (3) 1 5/8" Fiber	T-Mobile
28		3	Ericsson AIR32 KRD901146-1_B66A_B2A (Octo)			
29		3	RFS APXVAALL24-43-U-NA20			
30		3	Ericsson KRY 112 144/1			
31		3	Commscope SDX1926Q-43			
32		3	Ericsson 4449 B71 + B85			
33		3	Ericsson 4415 B25			
34	110.0	3	Commscope FFVV-65B-R2 - Panel	Platform w/HRK (Commscope MC-PK8-DSH)	(1) 1.75" Hybrid	Dish Wireless
35		3	Fujitsu TA08025-B605 - RRU			
36		3	Fujitsu TA08025-B604 - RRU			
37		1	Raycap RDIDC-9181-PF-48			

Existing Antennas, Mounts and Transmission Lines

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
38	99.0	3	Samsung B2/B66A RRH-BR049 (RFV01U-D1A) - RRU	12.5' LP Platform (3) Dual Antenna Mount Bracket [Quintel AS-005245]	(6) 1 5/8" (2) 1 5/8" Hybrid	Verizon
39		3	Samsung B5/B13 RRH-BR04C (RFV01U-D2A - RRU			
40		2	RFS DB-C1-12C-24AB-OZ - RRU			
41	97.0	2	Amphenol LPA-80063-6CF-EDIN-2 - Panel			
42		4	Celwave APL866513-42TD - Panel			
43		6	Quintel QS6656-5D - Panel			
44		3	Samsung MT6407-77A - Panel			
45	65.5	1	Decibel 260B	3' Standoff @ 64.0	(1) 1/2"	Sprint

Proposed Carrier's Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier's final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
13	141.97	3	CCI TPA65R-BU6D - Panel	LP Platform w/ Handrails	(10) 1-1/4" (4) 3/4" DC (2) 1/2" Fiber (2) 1" DC Power	AT&T
14	141.0	3	Ericsson AIR 6419 - Panel			
15	139.0	3	CCI DMP65R-BU6DA - Panel			
16		6	Powerwave LGP13519 Diplexer			
17		6	Powerwave LGP21901 Diplexer			
18		12	Powerwave 7020.00 RET			
19		3	Ericsson RRUS 8843 B2 B66A - RRU			
20		3	Ericsson 4449 B5/B12 - RRU			
21		3	Ericsson 4415 B30 - RRU			
22		3	Ericsson RRUS 4478 B14 - RRU			
23		2	Raycap DC9-48-60-24-8C-EV			
24		3	Commscope ABT-DFDM-ADBH Bias T			
25		1	Commscope WCS-IMFQ-AMT - R40			
26	137.0	3	Ericsson AIR 6449 - Panel			

See the attached coax layout for the line placement considered in the analysis.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate	Flange Connection
Max. Usage:	**81.4%**	**78.4%**	**67.2%**	**61.3%**
Pass/Fail	**Pass**	**Pass**	**Pass**	**Pass**

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	4184.0	39.0
Analysis Reactions	4254.0	38.8
Factored Reactions*	5648.4	52.7
% of Design Reactions	75.3%	73.6%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

The foundation has been investigated using the supplied documents and soils report and was found adequate. Therefore, no modification to the foundation will be required.

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.4428 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

Based on the analysis results, the existing structure and its foundation were found to be **adequate** to safely support the existing and proposed equipment and meet the minimum requirements per the TIA-222 Standard under the design basic wind speed as specified in the Analysis Criteria.

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC.** Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.

2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.

3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.

4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.

5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.

6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

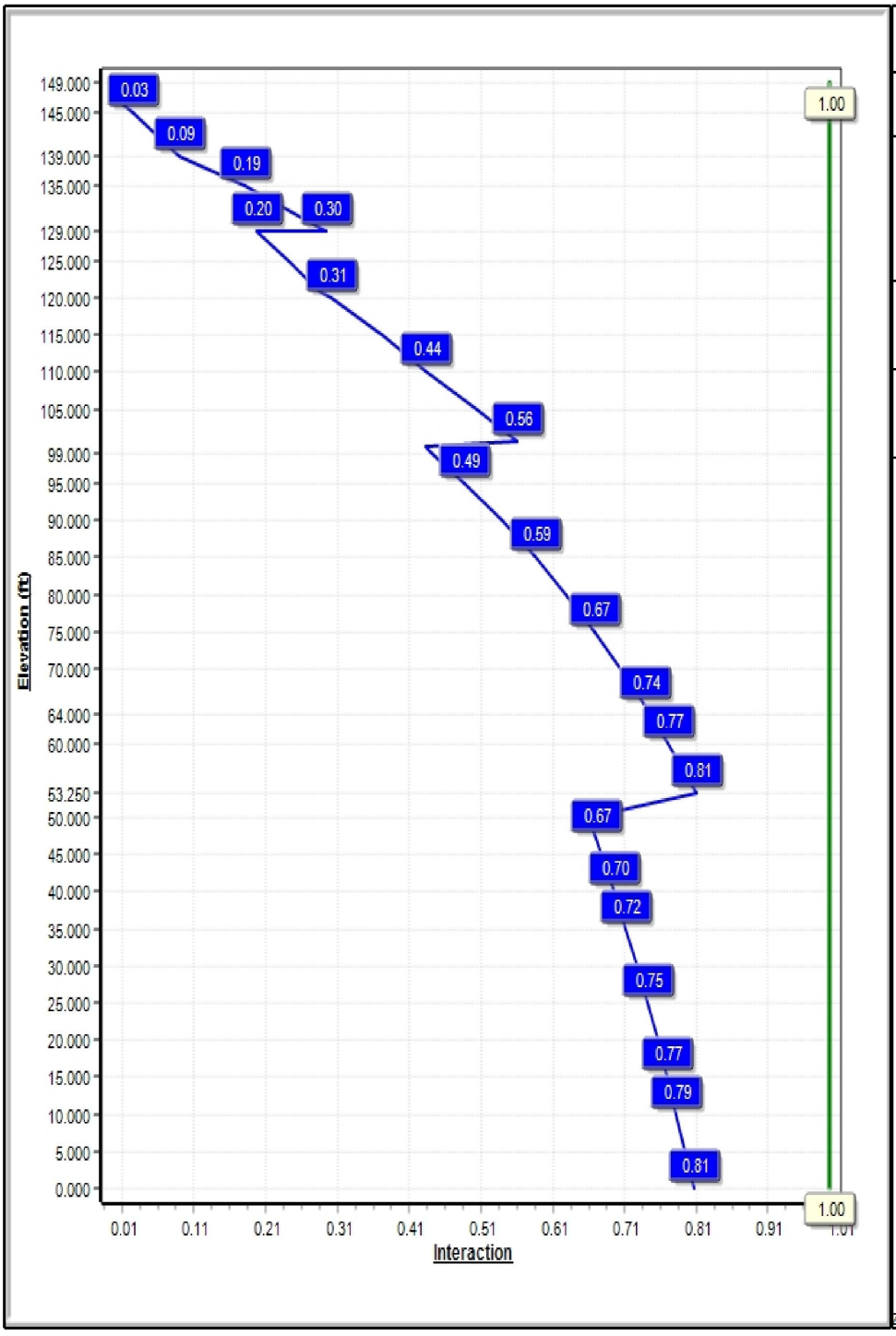
Usage Diagram - Max Ratio 81.44% at 53.3ft

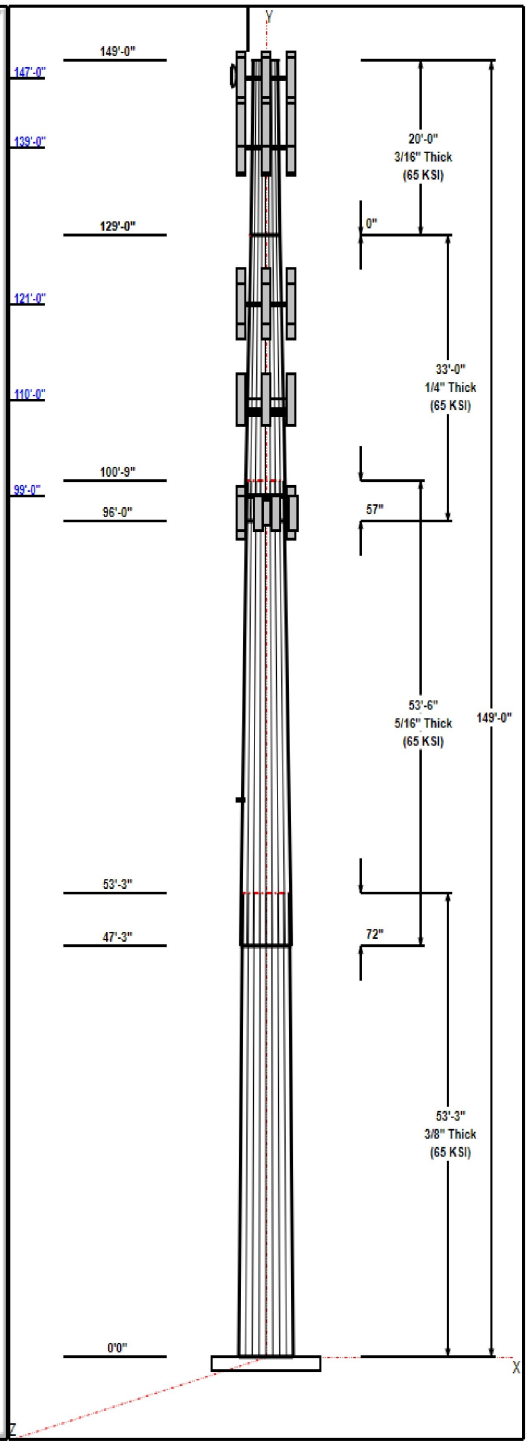
Structure:	CT13056-A-SBA	**Code:**	EIA/TIA-222-G	3/4/2022
Site Name:	Moosehill	**Exposure:**	C	
Height:	149.00 (ft)	**Gh:**	1.1	
Base Elev:	1.000 (ft)			Page: 1

Tower Engineering Solutions

Dead Load Factor:	1.20	**Iterations:**	23
Wind Load Factor:	1.60		

Load Case : 1.2D + 1.6W 93 mph Wind





Structure: CT13056-A-SBA

Type: Tapered
Site Name: Moosehill
Height: 149.00 (ft)
Base Elev: 1.00 (ft)

Base Shape: 18 Sided
Taper: 0.24185

3/4/2022

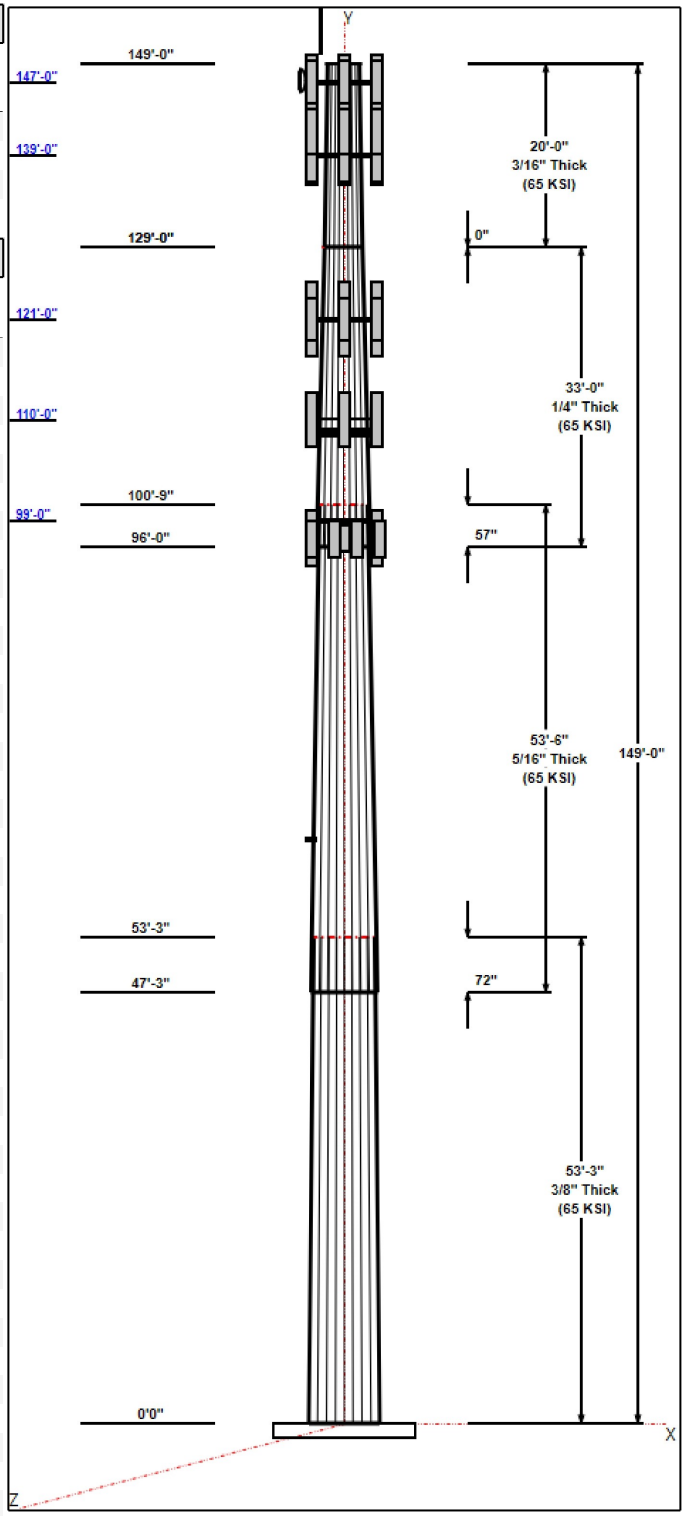
Tower Engineering Solutions

Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	53.25	46.03	58.91	0.375		0.24185	65
2	53.50	35.17	48.11	0.313	Slip	0.24185	65
3	33.00	28.84	36.82	0.250	Slip	0.24185	65
4	20.00	24.00	28.84	0.188	Butt	0.24185	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
149.00	152.50	1	Decibel DB404-B	Town of Monroe
149.00	149.00	1	Pipe Mount	Town of Monroe
147.00	147.00	3	RFS APXVTM14-C-120	Sprint/Clearwire
147.00	147.00	3	ALU TD-RRH8x20-25	Sprint/Clearwire
147.00	147.00	3	RFS APXVSPP18-C-A20	Sprint/Clearwire
147.00	147.00	3	ALU 1900MHz RRH	Sprint/Clearwire
147.00	147.00	3	ALU 800MHz RRH	Sprint/Clearwire
147.00	147.00	3	800MHz RRH w/ filter	Sprint/Clearwire
147.00	147.00	4	RFS ACU-A20-N	Sprint/Clearwire
147.00	147.00	3	Argus LLPX310R	Sprint/Clearwire
147.00	147.00	1	Andrew VHLP2-11	Sprint/Clearwire
147.00	147.00	1	Andrew VHLP800-11-DW1	Sprint/Clearwire
147.00	147.00	3	U-RAS Flexible RRH	Sprint/Clearwire
147.00	147.00	1	12.5' Low Profile Platform	Sprint/Clearwire
139.00	139.00	3	Commscope	AT&T
139.00	139.00	1	Platform w/ Hand Rail	AT&T
139.00	139.00	6	Powerwave LGP13519	AT&T
139.00	139.00	12	Powerwave 7020.00 RET	AT&T
139.00	139.00	6	Powerawve LGP21901	AT&T
139.00	141.00	3	AIR 6419	AT&T
139.00	137.00	3	AIR 6449	AT&T
139.00	139.00	3	DMP65R-BU6DA	AT&T
139.00	139.00	3	4415 B30	AT&T
139.00	139.00	3	4449 B5/B12	AT&T
139.00	139.00	1	WCS-IMFQ-AMT	AT&T
139.00	141.97	3	TPA65R-BU6D	AT&T
139.00	139.00	3	8843 B2 B66A	AT&T
139.00	139.00	3	B14 4478	AT&T
139.00	139.00	2	DC9-48-60-24-8C-EV	AT&T
139.00	139.00	1	(12) Mount Pipes	AT&T
121.00	121.00	3	4449 B71 + B85	T-Mobile
121.00	121.00	3	RRUS 4415 B25	T-Mobile
121.00	121.00	1	HRK12 (Handrail Kit)	T-Mobile
121.00	121.00	1	PRK-1245 (kicker kit)	T-Mobile
121.00	121.00	3	KRD 9011461-B66A-B2A	T-Mobile
121.00	121.00	3	AIR6449 B41	T-Mobile
121.00	121.00	3	APXVAALL24_43-U-NA20	T-Mobile
121.00	121.00	3	SDX1926Q-43	T-Mobile
121.00	121.00	3	Ericsson KRY 112 144/1	T-Mobile
121.00	121.00	1	Low Profile Platform	T-Mobile
110.00	110.00	3	FFVV-65B-R2	Dish Wireless
110.00	110.00	3	TA08025-B605	Dish Wireless
110.00	110.00	3	TA08025-B604	Dish Wireless
110.00	110.00	1	RDIDC-9181-PF-48	Dish Wireless
110.00	110.00	1	MC-PK8-DSH	Dish Wireless



99.00	97.00	3	MT6407-77A	Verizon
99.00	97.00	4	RFS APL866513-42T0	Verizon
99.00	97.00	2	Antel LPA-80063-6CF	Verizon
99.00	99.00	1	12.5' Low Profile Platform	Verizon
99.00	97.00	6	QS6656-5D	Verizon
99.00	99.00	3	AS-005245 (Brackets)	Verizon
99.00	99.00	3	B2/B66A RRH-BR049	Verizon
99.00	99.00	3	B5/B13 RRH-BR04C	Verizon
99.00	99.00	2	DB-C1-12C-24AB-OZ	Verizon
65.50	65.50	1	Decibel 26OB	Sprint
64.00	64.00	1	3 ft Standoff	Sprint

Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	152.50	Inside	7/8" Coax	Town of Monroe
0.00	147.00	Outside	1 1/4" Coax	Sprint/Clearwire
0.00	147.00	Outside	1/2" Coax	Sprint/Clearwire
0.00	147.00	Outside	5/16" Coax	Sprint/Clearwire
0.00	139.00	Inside	1" DC Power	AT&T
0.00	139.00	Inside	1-1/4" Coax	AT&T
0.00	139.00	Inside	1/2" Fiber	AT&T
0.00	139.00	Inside	3/4" DC	AT&T
0.00	121.00	Inside	1 5/8" Coax	T-Mobile
0.00	121.00	Inside	1 5/8" Fiber	T-Mobile
0.00	110.00	Outside	1.75" Hybrid	Dish Wireless
0.00	99.00	Outside	1 5/8" Coax	Verizon
0.00	99.00	Outside	1 5/8" Hybrid	Verizon
0.00	64.00	Outside	1/2" Coax	Sprint

Anchor Bolts

Qty	Specifications	Grade (ksi)	Arrangement
16	2.25" 18J	75.0	Cluster

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
3.0000	64.0	60.0	Clipped

Reactions

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	4254.0	38.8	52.9
0.9D + 1.6W 93 mph Wind	4207.4	38.7	39.6
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1302.7	11.8	90.7
1.2D + 1.0E	287.2	2.4	52.9
0.9D + 1.0E	283.7	2.4	39.7
1.0D + 1.0W 60 mph Wind	1099.9	10.1	44.1

Structure: CT13056-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Moosehill
Height: 149.00 (ft)

3/4/2022

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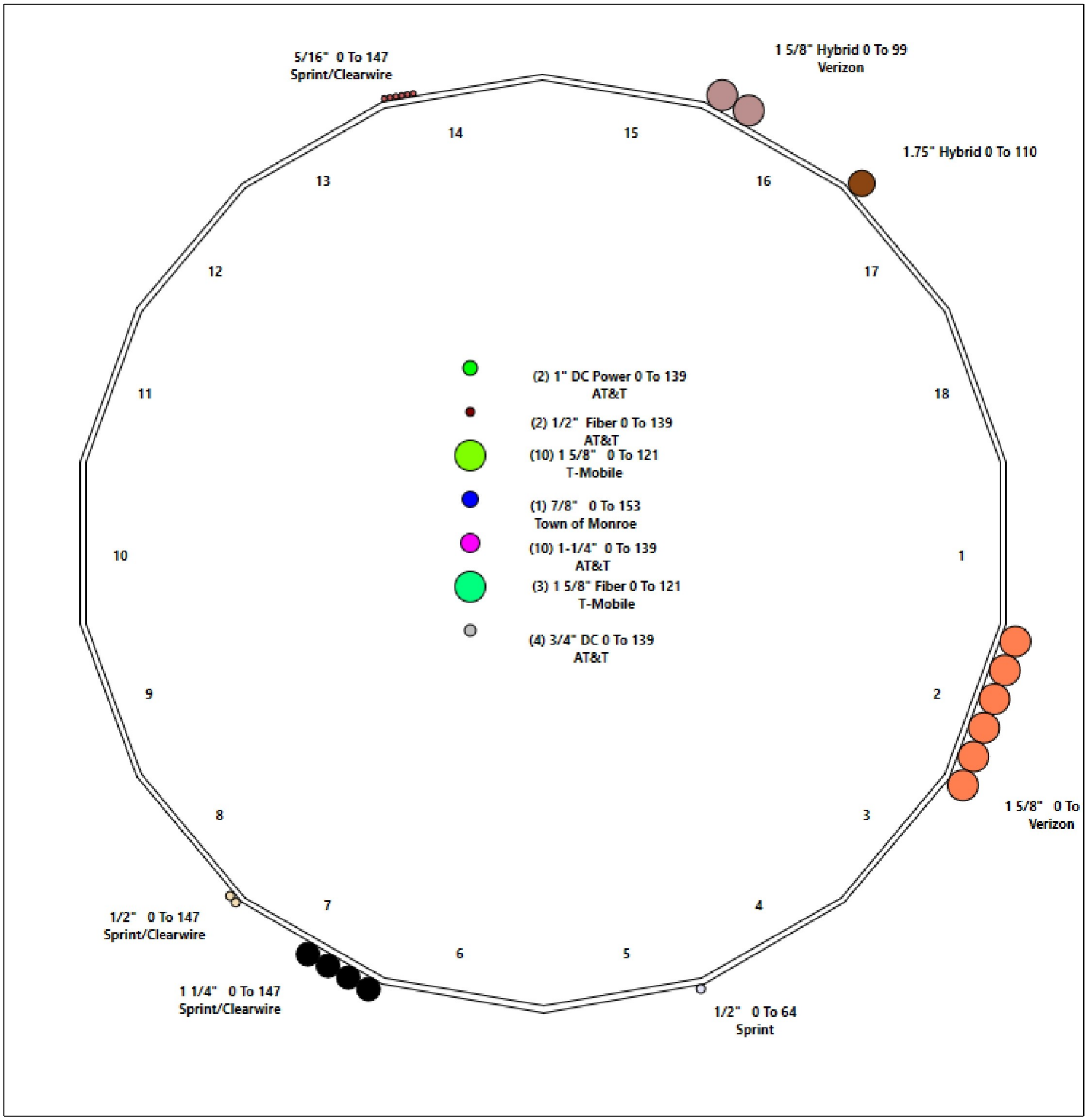


Shaft Properties

Structure:	CT13056-A-SBA		**Code:**	TIA-222-G	3/4/2022
Site Name:	Moosehill		**Exposure:**	C	
Height:	149.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 5

Tower Engineering Solutions

Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	53.250	0.3750	65		0.00	11,235
2	18	53.500	0.3125	65	Slip	72.00	7,462
3	18	33.000	0.2500	65	Slip	57.00	2,903
4	18	20.000	0.1875	65	Flange	0.00	1,062
					Total Shaft Weight:		**22,662**

	Bottom						Top						
Sec. No.	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Dia (in)**	**Elev (ft)**	**Area (sqin)**	**Ix (in^4)**	**W/t Ratio**	**D/t Ratio**	**Taper**
1	58.91	0.00	69.67	30159.39	26.29	157.09	46.03	53.25	54.34	14311.6	20.23	122.7	0.241846
2	48.11	47.25	47.41	13682.01	25.73	153.94	35.17	100.75	34.57	5306.98	18.43	112.5	0.241846
3	36.82	96.00	29.02	4902.09	24.56	147.27	28.84	129.00	22.68	2342.00	18.93	115.3	0.241846
4	28.84	129.0	17.05	1768.04	25.71	153.80	24.00	149.00	14.17	1015.22	21.16	128.0	0.241846

Load Summary

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 6	

Tower Engineering Solutions

Discrete Appurtenances

				No Ice			Ice				
No.	Elev (ft)	Description	Qty	Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
1	149.00	Decibel DB404-B	1	14.00	1.03	1.00	46.46	3.838	1.00	0.00	3.50
2	149.00	Pipe Mount	1	350.00	5.00	1.00	643.20	8.490	1.00	0.00	0.00
3	147.00	RFS APXVTM14-C-120	3	56.00	6.34	0.79	216.15	7.452	0.79	0.00	0.00
4	147.00	ALU TD-RRH8x20-25	3	70.00	4.05	0.67	180.28	4.862	0.67	0.00	0.00
5	147.00	RFS APXVSPP18-C-A20	3	57.00	8.02	0.83	229.62	10.810	0.83	0.00	0.00
6	147.00	ALU 1900MHz RRH	3	44.00	3.80	0.67	153.02	5.188	0.67	0.00	0.00
7	147.00	ALU 800MHz RRH	3	59.50	2.64	0.67	137.40	3.796	0.67	0.00	0.00
8	147.00	800MHz RRH w/ filter	3	68.30	3.46	0.50	158.63	4.772	0.50	0.00	0.00
9	147.00	RFS ACU-A20-N	4	1.00	0.14	0.67	5.29	0.436	0.67	0.00	0.00
10	147.00	Argus LLPX310R	3	28.60	4.30	0.69	118.78	5.958	0.69	0.00	0.00
11	147.00	Andrew VHLP2-11	1	27.00	4.68	1.00	124.73	5.952	1.00	0.00	0.00
12	147.00	Andrew VHLP800-11-DW1	1	49.00	6.70	1.00	186.97	8.223	1.00	0.00	0.00
13	147.00	U-RAS Flexible RRH ODUs	3	50.70	2.23	0.78	109.41	3.290	0.78	0.00	0.00
14	147.00	12.5' Low Profile Platform	1	1500.00	22.00	1.00	2807.16	39.638	1.00	0.00	0.00
15	139.00	Commscope ABT-DRDM-ADBH Bias	3	1.60	0.05	0.67	4.82	0.241	0.67	0.00	0.00
16	139.00	Platform w/ Hand Rail (round)	1	1600.00	32.00	1.00	3685.41	59.731	1.00	0.00	0.00
17	139.00	Powerwave LGP13519 TMAs	6	5.30	0.34	0.67	14.73	0.791	0.67	0.00	0.00
18	139.00	Powerwave 7020.00 RET	12	2.20	0.40	0.67	12.37	0.881	0.67	0.00	0.00
19	139.00	Powerawve LGP21901 Diplexer	6	5.50	0.23	0.67	13.14	0.596	0.67	0.00	0.00
20	139.00	AIR 6419	3	66.00	3.80	0.76	161.40	4.590	0.76	0.00	2.00
21	139.00	AIR 6449	3	82.00	4.13	0.85	218.43	4.981	0.85	0.00	-2.00
22	139.00	DMP65R-BU6DA	3	79.40	12.71	0.73	364.60	14.187	0.73	0.00	0.00
23	139.00	4415 B30	3	46.00	1.64	0.67	86.82	2.152	0.67	0.00	0.00
24	139.00	4449 B5/B12	3	71.00	1.97	0.67	124.01	2.514	0.67	0.00	0.00
25	139.00	WCS-IMFQ-AMT	1	34.50	0.99	0.50	77.26	1.415	0.50	0.00	0.00
26	139.00	TPA65R-BU6D	3	67.50	12.87	0.72	364.00	14.333	0.72	0.00	2.97
27	139.00	8843 B2 B66A	3	72.00	1.64	0.67	118.97	2.153	0.67	0.00	0.00
28	139.00	B14 4478	3	59.90	1.84	0.67	106.58	2.363	0.67	0.00	0.00
29	139.00	DC9-48-60-24-8C-EV	2	26.20	1.14	1.00	131.46	2.716	1.00	0.00	0.00
30	139.00	(12) Mount Pipes	1	500.00	16.50	1.00	1089.29	32.515	1.00	0.00	0.00
31	121.00	4449 B71 + B85	3	73.20	1.97	0.67	129.76	2.528	0.67	0.00	0.00
32	121.00	RRUS 4415 B25	3	46.00	1.64	0.67	86.26	2.145	0.67	0.00	0.00
33	121.00	HRK12 (Handrail Kit)	1	261.72	6.75	1.00	565.96	13.212	1.00	0.00	0.00
34	121.00	PRK-1245 (kicker kit)	1	464.91	9.50	1.00	782.82	19.244	1.00	0.00	0.00
35	121.00	KRD 9011461-B66A-B2A	3	132.20	6.51	0.87	311.02	7.607	0.87	0.00	0.00
36	121.00	AIR6449 B41	3	103.00	5.65	0.71	237.31	6.581	0.71	0.00	0.00
37	121.00	APXVAALL24_43-U-NA20	3	128.00	20.24	0.70	536.32	22.100	0.70	0.00	0.00
38	121.00	SDX1926Q-43	3	4.30	0.52	0.67	15.39	1.041	0.67	0.00	0.00
39	121.00	Ericsson KRY 112 144/1	3	11.00	0.41	0.67	21.56	0.875	0.67	0.00	0.00
40	121.00	Low Profile Platform	1	1500.00	22.00	1.00	2782.14	39.300	1.00	0.00	0.00
41	110.00	FFVV-65B-R2	3	70.80	12.27	0.74	347.52	13.683	0.75	0.00	0.00
42	110.00	TA08025-B605	3	75.00	1.96	0.67	125.75	2.504	0.67	0.00	0.00
43	110.00	TA08025-B604	3	63.90	1.96	0.67	113.03	2.504	0.67	0.00	0.00
44	110.00	RDIDC-9181-PF-48	1	21.90	2.01	1.00	73.57	2.561	1.00	0.00	0.00
45	110.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3364.77	83.423	1.00	0.00	0.00
46	99.00	MT6407-77A	3	79.40	4.69	0.70	193.23	5.598	0.70	0.00	-2.00
47	99.00	RFS APL866513-42T0	4	15.70	4.05	0.93	120.57	5.839	0.93	0.00	-2.00
48	99.00	Antel LPA-80063-6CF	2	27.00	9.76	0.93	278.09	12.403	0.93	0.00	-2.00
49	99.00	12.5' Low Profile Platform	1	1500.00	22.00	1.00	2756.90	38.960	1.00	0.00	0.00
50	99.00	QS6656-5D	6	65.00	8.13	0.93	281.74	9.374	0.93	0.00	-2.00

Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice Weight (lb)	No Ice CaAa (sf)	No Ice CaAa Factor	Ice Weight (lb)	Ice CaAa (sf)	Ice CaAa Factor	Hor. Ecc. (ft)	Vert Ecc (ft)
51	99.00	AS-005245 (Brackets)	3	35.00	0.60	1.00	67.85	1.324	1.00	0.00	0.00
52	99.00	B2/B66A RRH-BR049	3	84.50	1.88	0.67	133.72	2.409	0.67	0.00	0.00
53	99.00	B5/B13 RRH-BR04C (RFV01U-D2A	3	84.50	1.88	0.67	133.72	2.409	0.67	0.00	0.00
54	99.00	DB-C1-12C-24AB-OZ	2	32.00	4.06	1.00	141.40	4.849	1.00	0.00	0.00
55	65.50	Decibel 26OB	1	50.00	2.00	1.00	210.89	5.218	1.00	0.00	0.00
56	64.00	3 ft Standoff	1	40.00	2.63	1.00	113.84	8.120	1.00	0.00	0.00
		Totals:	**153**	**16,269.33**			**38,838.90**				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	152.50	(1) 7/8" Coax	0.00	Inside
0.00	147.00	(4) 1 1/4" Coax	0.00	Outside
0.00	147.00	(2) 1/2" Coax	0.00	Outside
0.00	147.00	(6) 5/16" Coax	1.90	Outside
0.00	139.00	(2) 1" DC Power	0.00	Inside
0.00	139.00	(10) 1-1/4" Coax	0.00	Inside
0.00	139.00	(2) 1/2" Fiber	0.00	Inside
0.00	139.00	(4) 3/4" DC	0.00	Inside
0.00	121.00	(10) 1 5/8" Coax	0.00	Inside
0.00	121.00	(3) 1 5/8" Fiber	0.00	Inside
0.00	110.00	(1) 1.75" Hybrid	1.75	Outside
0.00	99.00	(6) 1 5/8" Coax	0.00	Outside
0.00	99.00	(2) 1 5/8" Hybrid	0.00	Outside
0.00	64.00	(1) 1/2" Coax	0.65	Outside

Shaft Section Properties

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 8	

Tower Engineering Solutions

Increment Length: **5 (ft)**

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in^2)	Ix (in^4)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in^3)	Weight (lb)
0.00		0.3750	58.910	69.669	30159.4	26.29	157.09	70.5	1008.	0.0
5.00		0.3750	57.701	68.230	28328.6	25.72	153.87	71.1	967.0	1173.1
10.00		0.3750	56.492	66.790	26573.5	25.15	150.64	71.8	926.5	1148.6
15.00		0.3750	55.282	65.351	24892.4	24.58	147.42	72.5	886.9	1124.1
20.00		0.3750	54.073	63.912	23283.7	24.01	144.19	73.2	848.1	1099.6
25.00		0.3750	52.864	62.473	21745.9	23.45	140.97	73.8	810.2	1075.1
30.00		0.3750	51.655	61.033	20277.3	22.88	137.75	74.5	773.2	1050.7
35.00		0.3750	50.445	59.594	18876.4	22.31	134.52	75.2	737.0	1026.2
40.00		0.3750	49.236	58.155	17541.5	21.74	131.30	75.8	701.7	1001.7
45.00		0.3750	48.027	56.716	16271.1	21.17	128.07	76.5	667.3	977.2
47.25	Bot - Section 2	0.3750	47.483	56.068	15720.1	20.92	126.62	76.8	652.1	431.8
50.00		0.3750	46.818	55.276	15063.6	20.60	124.85	77.2	633.7	961.5
53.25	Top - Section 1	0.3125	46.657	45.966	12473.3	24.92	149.30	0.0	0.0	1118.8
55.00		0.3125	46.233	45.546	12134.7	24.68	147.95	72.4	517.0	272.5
60.00		0.3125	45.024	44.347	11201.1	23.99	144.08	73.2	490.0	764.7
64.00		0.3125	44.057	43.387	10489.7	23.45	140.98	73.8	469.0	597.1
65.00		0.3125	43.815	43.148	10316.6	23.31	140.21	74.0	463.8	147.2
65.50		0.3125	43.694	43.028	10230.8	23.24	139.82	74.1	461.2	73.3
70.00		0.3125	42.606	41.948	9480.0	22.63	136.34	74.8	438.3	650.6
75.00		0.3125	41.397	40.749	8689.9	21.95	132.47	75.6	413.5	703.5
80.00		0.3125	40.187	39.549	7945.0	21.26	128.60	76.4	389.4	683.1
85.00		0.3125	38.978	38.350	7243.8	20.58	124.73	77.2	366.0	662.7
90.00		0.3125	37.769	37.151	6585.2	19.90	120.86	78.0	343.4	642.3
95.00		0.3125	36.560	35.951	5967.8	19.22	116.99	78.8	321.5	621.9
96.00	Bot - Section 3	0.3125	36.318	35.711	5849.2	19.08	116.22	79.0	317.2	121.9
99.00		0.3125	35.592	34.992	5502.7	18.67	113.90	79.4	304.5	654.1
100.00		0.3125	35.350	34.752	5390.3	18.54	113.12	79.6	300.3	215.1
100.75	Top - Section 2	0.2500	35.669	28.104	4454.5	23.75	142.68	0.0	0.0	160.4
105.00		0.2500	34.641	27.288	4077.8	23.02	138.56	74.3	231.9	400.5
110.00		0.2500	33.432	26.329	3662.6	22.17	133.73	75.3	215.8	456.1
115.00		0.2500	32.223	25.369	3276.6	21.32	128.89	76.3	200.3	439.8
120.00		0.2500	31.014	24.410	2918.7	20.46	124.05	77.3	185.4	423.5
121.00		0.2500	30.772	24.218	2850.4	20.29	123.09	77.5	182.4	82.7
125.00		0.2500	29.804	23.450	2587.9	19.61	119.22	78.3	171.0	324.4
129.00	Top - Section 3	0.2500	28.837	22.683	2342.0	18.93	115.35	79.1	160.0	314.0
129.00	Bot - Section 4	0.1875	28.837	17.049	1768.0	25.24	153.80	71.2	120.8	
130.00		0.1875	28.595	16.905	1723.6	25.48	152.51	71.4	118.7	57.8
135.00		0.1875	27.386	16.186	1512.8	24.34	146.06	72.8	108.8	281.5
139.00		0.1875	26.418	15.610	1357.0	23.43	140.90	73.8	101.2	216.4
140.00		0.1875	26.177	15.466	1319.8	23.21	139.61	74.1	99.3	52.9
145.00		0.1875	24.967	14.747	1144.0	22.07	133.16	75.4	90.3	257.0
147.00		0.1875	24.484	14.459	1078.4	21.61	130.58	76.0	86.7	99.4
149.00		0.1875	24.000	14.171	1015.2	21.16	128.00	76.5	83.3	97.4
										22662.1

Wind Loading - Shaft

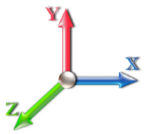
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 9	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	427.41	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	418.64	0.650	0.000	5.00	24.669	16.03	504.6	0.0	1407.7
10.00		1.00	0.85	17.879	19.67	409.87	0.650	0.000	5.00	24.157	15.70	494.1	0.0	1378.3
15.00		1.00	0.86	18.100	19.91	403.56	0.650	0.000	5.00	23.645	15.37	489.6	0.0	1348.9
20.00		1.00	0.91	19.166	21.08	406.20	0.650	0.000	5.00	23.134	15.04	507.2	0.0	1319.6
25.00		1.00	0.95	20.048	22.05	406.14	0.650	0.000	5.00	22.622	14.70	518.8	0.0	1290.2
30.00		1.00	0.99	20.804	22.88	404.27	0.650	0.000	5.00	22.111	14.37	526.2	0.0	1260.8
35.00		1.00	1.02	21.470	23.62	401.07	0.650	0.000	5.00	21.599	14.04	530.5	0.0	1231.4
40.00		1.00	1.05	22.065	24.27	396.85	0.650	0.000	5.00	21.087	13.71	532.3	0.0	1202.0
45.00		1.00	1.07	22.607	24.87	391.82	0.650	0.000	5.00	20.576	13.37	532.1	0.0	1172.6
47.25	Bot - Section 2	1.00	1.09	22.835	25.12	389.33	0.650	0.000	2.25	9.092	5.91	237.5	0.0	518.1
50.00		1.00	1.10	23.103	25.41	386.13	0.650	0.000	2.75	11.117	7.23	293.8	0.0	1153.8
53.25	Top - Section 1	1.00	1.11	23.405	25.75	382.12	0.650	0.000	3.25	12.939	8.41	346.5	0.0	1342.5
55.00		1.00	1.12	23.562	25.92	385.08	0.650	0.000	1.75	6.878	4.47	185.4	0.0	327.0
60.00		1.00	1.14	23.990	26.39	378.40	0.650	0.000	5.00	19.305	12.55	529.8	0.0	917.7
64.00	Appurtenance(s)	1.00	1.16	24.313	26.74	372.75	0.650	0.000	4.00	15.076	9.80	419.3	0.0	716.5
65.00		1.00	1.16	24.392	26.83	371.30	0.650	0.000	1.00	3.718	2.42	103.7	0.0	176.7
65.50	Appurtenance(s)	1.00	1.16	24.430	26.87	370.57	0.650	0.000	0.50	1.851	1.20	51.7	0.0	88.0
70.00		1.00	1.18	24.770	27.25	363.84	0.650	0.000	4.50	16.431	10.68	465.6	0.0	780.7
75.00		1.00	1.19	25.127	27.64	356.06	0.650	0.000	5.00	17.770	11.55	510.8	0.0	844.2
80.00		1.00	1.21	25.466	28.01	347.98	0.650	0.000	5.00	17.259	11.22	502.8	0.0	819.7
85.00		1.00	1.23	25.789	28.37	339.65	0.650	0.000	5.00	16.747	10.89	494.1	0.0	795.2
90.00		1.00	1.24	26.098	28.71	331.07	0.650	0.000	5.00	16.236	10.55	484.7	0.0	770.7
95.00		1.00	1.25	26.394	29.03	322.28	0.650	0.000	5.00	15.724	10.22	474.8	0.0	746.3
96.00	Bot - Section 3	1.00	1.26	26.451	29.10	320.50	0.650	0.000	1.00	3.083	2.00	93.3	0.0	146.3
99.00	Appurtenance(s)	1.00	1.27	26.621	29.28	315.11	0.650	0.000	3.00	9.254	6.02	281.8	0.0	785.0
100.00		1.00	1.27	26.677	29.35	313.29	0.653 *	0.000	1.00	3.044	1.99	93.3	0.0	258.1
100.75	Top - Section 2	1.00	1.27	26.719	29.39	311.93	0.654 *	0.000	0.75	2.269	1.48	69.8	0.0	192.4
105.00		1.00	1.28	26.950	29.65	308.57	0.654 *	0.000	4.25	12.643	8.27	392.4	0.0	480.6
110.00	Appurtenance(s)	1.00	1.29	27.213	29.93	299.25	0.661 *	0.000	5.00	14.401	9.52	455.9	0.0	547.3
115.00		1.00	1.31	27.466	30.21	289.77	0.650	0.000	5.00	13.889	9.03	436.4	0.0	527.8
120.00		1.00	1.32	27.712	30.48	280.13	0.650	0.000	5.00	13.377	8.70	424.1	0.0	508.2
121.00	Appurtenance(s)	1.00	1.32	27.760	30.54	278.19	0.650	0.000	1.00	2.614	1.70	83.0	0.0	99.3
125.00		1.00	1.33	27.949	30.74	270.36	0.650	0.000	4.00	10.252	6.66	327.8	0.0	389.3
129.00	Top - Section 3	1.00	1.34	28.133	30.95	262.45	0.650	0.000	4.00	9.924	6.45	319.4	0.0	376.8
130.00		1.00	1.34	28.179	31.00	260.46	0.650	0.000	1.00	2.430	1.58	78.3	0.0	69.3
135.00		1.00	1.35	28.402	31.24	250.43	0.650	0.000	5.00	11.843	7.70	384.8	0.0	337.8
139.00	Appurtenance(s)	1.00	1.36	28.576	31.43	242.32	0.650	0.000	4.00	9.106	5.92	297.7	0.0	259.7
140.00		1.00	1.36	28.619	31.48	240.28	0.650	0.000	1.00	2.225	1.45	72.9	0.0	63.4
145.00		1.00	1.37	28.829	31.71	230.02	0.650	0.000	5.00	10.819	7.03	356.8	0.0	308.4
147.00	Appurtenance(s)	1.00	1.37	28.912	31.80	225.89	0.650	0.000	2.00	4.184	2.72	138.4	0.0	119.3
149.00	Appurtenance(s)	1.00	1.38	28.994	31.89	221.74	0.650	0.000	2.00	4.103	2.67	136.1	0.0	116.9
								Totals:	**149.00**			**14,178.3**		**27,194.5**

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

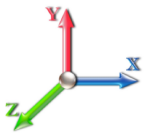
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 10	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	149.00	Decibel DB404-B	1	29.135	32.048	1.00	1.00	1.03	16.80	0.000	3.500	52.82	0.00	184.85
2	149.00	Pipe Mount	1	28.994	31.893	1.00	1.00	5.00	420.00	0.000	0.000	255.14	0.00	0.00
3	147.00	800MHz RRH w/ filter	3	28.912	31.803	0.40	0.80	4.15	245.88	0.000	0.000	211.27	0.00	0.00
4	147.00	ALU TD-RRH8x20-25	3	28.912	31.803	0.54	0.80	6.51	252.00	0.000	0.000	331.38	0.00	0.00
5	147.00	RFS APXVSPP18-C-A20	3	28.912	31.803	0.66	0.80	15.98	205.20	0.000	0.000	812.93	0.00	0.00
6	147.00	ALU 1900MHz RRH	3	28.912	31.803	0.54	0.80	6.11	158.40	0.000	0.000	310.93	0.00	0.00
7	147.00	ALU 800MHz RRH	3	28.912	31.803	0.54	0.80	4.25	214.20	0.000	0.000	216.01	0.00	0.00
8	147.00	RFS APXVTM14-C-120	3	28.912	31.803	0.63	0.80	12.02	201.60	0.000	0.000	611.67	0.00	0.00
9	147.00	RFS ACU-A20-N	4	28.912	31.803	0.54	0.80	0.30	4.80	0.000	0.000	15.27	0.00	0.00
10	147.00	Argus LLPX310R	3	28.912	31.803	0.55	0.80	7.12	102.96	0.000	0.000	362.34	0.00	0.00
11	147.00	Andrew VHLP2-11	1	28.912	31.803	1.00	1.00	4.68	32.40	0.000	0.000	238.14	0.00	0.00
12	147.00	Andrew VHLP800-11-DW1	1	28.912	31.803	1.00	1.00	6.70	58.80	0.000	0.000	340.93	0.00	0.00
13	147.00	U-RAS Flexible RRH	3	28.912	31.803	0.78	1.00	5.22	182.52	0.000	0.000	265.53	0.00	0.00
14	147.00	12.5' Low Profile Platform	1	28.912	31.803	1.00	1.00	22.00	1800.00	0.000	0.000	1119.47	0.00	0.00
15	139.00	DMP65R-BU6DA	3	28.576	31.433	0.55	0.75	20.88	285.84	0.000	0.000	1049.93	0.00	0.00
16	139.00	AIR 6449	3	28.489	31.338	0.64	0.75	7.90	295.20	0.000	-2.000	396.05	0.00	-792.09
17	139.00	AIR 6419	3	28.661	31.527	0.57	0.75	6.50	237.60	0.000	2.000	327.78	0.00	655.56
18	139.00	4415 B30	3	28.576	31.433	0.50	0.75	2.47	165.60	0.000	0.000	124.34	0.00	0.00
19	139.00	Powerawve LGP21901	6	28.576	31.433	0.50	0.75	0.69	39.60	0.000	0.000	34.88	0.00	0.00
20	139.00	Powerwave 7020.00 RET	12	28.576	31.433	0.50	0.75	2.41	31.68	0.000	0.000	121.31	0.00	0.00
21	139.00	Powerwave LGP13519	6	28.576	31.433	0.50	0.75	1.03	38.16	0.000	0.000	51.56	0.00	0.00
22	139.00	8843 B2 B66A	3	28.576	31.433	0.50	0.75	2.47	259.20	0.000	0.000	124.34	0.00	0.00
23	139.00	4449 B5/B12	3	28.576	31.433	0.50	0.75	2.97	255.60	0.000	0.000	149.36	0.00	0.00
24	139.00	WCS-IMFQ-AMT	1	28.576	31.433	0.38	0.75	0.37	41.40	0.000	0.000	18.67	0.00	0.00
25	139.00	TPA65R-BU6D	3	28.702	31.572	0.54	0.75	20.85	243.00	0.000	2.970	1053.23	0.00	3128.08
26	139.00	B14 4478	3	28.576	31.433	0.50	0.75	2.77	215.64	0.000	0.000	139.50	0.00	0.00
27	139.00	DC9-48-60-24-8C-EV	2	28.576	31.433	0.75	0.75	1.71	62.88	0.000	0.000	86.00	0.00	0.00
28	139.00	(12) Mount Pipes	1	28.576	31.433	1.00	1.00	16.50	600.00	0.000	0.000	829.84	0.00	0.00
29	139.00	Platform w/ Hand Rail	1	28.576	31.433	1.00	1.00	32.00	1920.00	0.000	0.000	1609.38	0.00	0.00
30	139.00	Commscope	3	28.576	31.433	0.50	0.75	0.08	5.76	0.000	0.000	3.79	0.00	0.00
31	121.00	4449 B71 + B85	3	27.760	30.536	0.50	0.75	2.97	263.52	0.000	0.000	145.09	0.00	0.00
32	121.00	RRUS 4415 B25	3	27.760	30.536	0.50	0.75	2.47	165.60	0.000	0.000	120.79	0.00	0.00
33	121.00	HRK12 (Handrail Kit)	1	27.760	30.536	1.00	1.00	6.75	314.06	0.000	0.000	329.78	0.00	0.00
34	121.00	PRK-1245 (kicker kit)	1	27.760	30.536	1.00	1.00	9.50	557.89	0.000	0.000	464.14	0.00	0.00
35	121.00	KRD 9011461-B66A-B2A	3	27.760	30.536	0.65	0.75	12.74	475.92	0.000	0.000	622.60	0.00	0.00
36	121.00	AIR6449 B41	3	27.760	30.536	0.53	0.75	9.03	370.80	0.000	0.000	440.98	0.00	0.00
37	121.00	APXVAALL24_43-U-NA20	3	27.760	30.536	0.52	0.75	31.88	460.80	0.000	0.000	1557.46	0.00	0.00
38	121.00	SDX1926Q-43	3	27.760	30.536	0.50	0.75	0.78	15.48	0.000	0.000	38.30	0.00	0.00
39	121.00	Ericsson KRY 112 144/1	3	27.760	30.536	0.50	0.75	0.62	39.60	0.000	0.000	30.20	0.00	0.00
40	121.00	Low Profile Platform	1	27.760	30.536	1.00	1.00	22.00	1800.00	0.000	0.000	1074.85	0.00	0.00
41	110.00	FFVV-65B-R2	3	27.213	29.934	0.55	0.75	20.43	254.88	0.000	0.000	978.47	0.00	0.00
42	110.00	TA08025-B605	3	27.213	29.934	0.50	0.75	2.95	270.00	0.000	0.000	141.51	0.00	0.00
43	110.00	TA08025-B604	3	27.213	29.934	0.50	0.75	2.95	230.04	0.000	0.000	141.51	0.00	0.00
44	110.00	RDIDC-9181-PF-48	1	27.213	29.934	0.75	0.75	1.51	26.28	0.000	0.000	72.20	0.00	0.00
45	110.00	MC-PK8-DSH	1	27.213	29.934	1.00	1.00	37.59	2072.40	0.000	0.000	1800.36	0.00	0.00
46	99.00	MT6407-77A	3	26.509	29.159	0.56	0.80	7.88	285.84	0.000	-2.000	367.60	0.00	-735.21
47	99.00	RFS APL866513-42T0	4	26.509	29.159	0.74	0.80	12.05	75.36	0.000	-2.000	562.32	0.00	-1124.65

Discrete Appurtenance Forces

Structure:	CT13056-A-SBA		**Code:**	TIA-222-G	3/4/2022
Site Name:	Moosehill		**Exposure:**	C	
Height:	149.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 11

Tower Engineering Solutions

48	99.00	Antel LPA-80063-6CF	2	26.509	29.159	0.74	0.80	14.52	64.80	0.000	-2.000	677.56	0.00	-1355.13
49	99.00	12.5' Low Profile Platform	1	26.621	29.284	1.00	1.00	22.00	1800.00	0.000	0.000	1030.78	0.00	0.00
50	99.00	QS6656-5D	6	26.509	29.159	0.74	0.80	36.29	468.00	0.000	-2.000	1693.22	0.00	-3386.43
51	99.00	AS-005245 (Brackets)	3	26.621	29.284	1.00	1.00	1.80	126.00	0.000	0.000	84.34	0.00	0.00
52	99.00	B2/B66A RRH-BR049	3	26.621	29.284	0.54	0.80	3.02	304.20	0.000	0.000	141.64	0.00	0.00
53	99.00	B5/B13 RRH-BR04C	3	26.621	29.284	0.54	0.80	3.02	304.20	0.000	0.000	141.64	0.00	0.00
54	99.00	DB-C1-12C-24AB-OZ	2	26.621	29.284	1.00	1.00	8.12	76.80	0.000	0.000	380.45	0.00	0.00
55	65.50	Decibel 26OB	1	24.430	26.874	0.80	0.80	1.60	60.00	0.000	0.000	68.80	0.00	0.00
56	64.00	3 ft Standoff	1	24.313	26.745	1.00	1.00	2.63	48.00	0.000	0.000	112.54	0.00	0.00
							Totals:		**19,523.20**			**24,482.94**		

Total Applied Force Summary

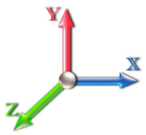
Structure:	CT13056-A-SBA		**Code:**	TIA-222-G	3/4/2022
Site Name:	Moosehill		**Exposure:**	C	
Height:	149.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 12

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		504.57	1657.98	0.00	0.00
10.00		494.10	1628.59	0.00	0.00
15.00		489.61	1599.21	0.00	0.00
20.00		507.24	1569.83	0.00	0.00
25.00		518.84	1540.44	0.00	0.00
30.00		526.23	1511.06	0.00	0.00
35.00		530.50	1481.67	0.00	0.00
40.00		532.31	1452.29	0.00	0.00
45.00		532.13	1422.90	0.00	0.00
47.25		237.52	630.72	0.00	0.00
50.00		293.83	1291.42	0.00	0.00
53.25		346.46	1505.21	0.00	0.00
55.00		185.39	414.56	0.00	0.00
60.00		529.84	1167.92	0.00	0.00
64.00	(1) attachments	531.87	964.71	0.00	0.00
65.00		103.74	226.54	0.00	0.00
65.50	(1) attachments	120.54	172.90	0.00	0.00
70.00		465.59	1005.09	0.00	0.00
75.00		510.82	1093.50	0.00	0.00
80.00		502.81	1069.02	0.00	0.00
85.00		494.10	1044.53	0.00	0.00
90.00		484.73	1020.04	0.00	0.00
95.00		474.78	995.56	0.00	0.00
96.00		93.30	196.17	0.00	0.00
99.00	(27) attachments	5361.41	4439.76	0.00	-6601.42
100.00		93.27	297.86	0.00	0.00
100.75		69.77	222.24	0.00	0.00
105.00		392.42	649.51	0.00	0.00
110.00	(11) attachments	3589.91	3599.61	0.00	0.00
115.00		436.42	714.47	0.00	0.00
120.00		424.09	694.89	0.00	0.00
121.00	(24) attachments	4907.21	4600.30	0.00	0.00
125.00		327.78	472.91	0.00	0.00
129.00		319.41	460.37	0.00	0.00
130.00		78.33	90.23	0.00	0.00
135.00		384.79	442.33	0.00	0.00
139.00	(56) attachments	6417.61	5040.44	0.00	2991.56
140.00		72.85	68.20	0.00	0.00
145.00		356.83	332.18	0.00	0.00
147.00	(31) attachments	4974.29	3587.52	0.00	0.00
149.00	(2) attachments	444.04	554.95	0.00	184.85
	Totals:	**38,661.27**	**52,929.64**	**0.00**	**-3,425.01**

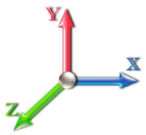
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 13	

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	17.879	0.00	15.84
5.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	17.879	0.00	1.92
5.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.073	0.000	17.879	0.00	2.88
5.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.073	0.000	17.879	0.00	11.95
5.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	17.879	0.00	37.44
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	17.879	0.00	13.20
5.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.073	0.000	17.879	0.00	0.96
10.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	17.879	0.00	15.84
10.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	17.879	0.00	1.92
10.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.074	0.000	17.879	0.00	2.88
10.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.074	0.000	17.879	0.00	11.95
10.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	17.879	0.00	37.44
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	17.879	0.00	13.20
10.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.074	0.000	17.879	0.00	0.96
15.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	18.100	0.00	15.84
15.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	18.100	0.00	1.92
15.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.076	0.000	18.100	0.00	2.88
15.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.076	0.000	18.100	0.00	11.95
15.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	18.100	0.00	37.44
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	18.100	0.00	13.20
15.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.076	0.000	18.100	0.00	0.96
20.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	19.166	0.00	15.84
20.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	19.166	0.00	1.92
20.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.077	0.000	19.166	0.00	2.88
20.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.077	0.000	19.166	0.00	11.95
20.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	19.166	0.00	37.44
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	19.166	0.00	13.20
20.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.077	0.000	19.166	0.00	0.96
25.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	20.048	0.00	15.84
25.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	20.048	0.00	1.92
25.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.079	0.000	20.048	0.00	2.88
25.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.079	0.000	20.048	0.00	11.95
25.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	20.048	0.00	37.44
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	20.048	0.00	13.20
25.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.079	0.000	20.048	0.00	0.96
30.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	20.804	0.00	15.84
30.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	20.804	0.00	1.92
30.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.081	0.000	20.804	0.00	2.88
30.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.081	0.000	20.804	0.00	11.95
30.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	20.804	0.00	37.44
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	20.804	0.00	13.20
30.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.081	0.000	20.804	0.00	0.96
35.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	21.470	0.00	15.84
35.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	21.470	0.00	1.92
35.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.083	0.000	21.470	0.00	2.88
35.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.083	0.000	21.470	0.00	11.95
35.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	21.470	0.00	37.44

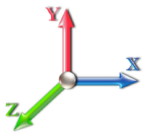
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 14	

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	21.470	0.00	13.20
35.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.083	0.000	21.470	0.00	0.96
40.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	22.065	0.00	15.84
40.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	22.065	0.00	1.92
40.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.085	0.000	22.065	0.00	2.88
40.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.085	0.000	22.065	0.00	11.95
40.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	22.065	0.00	37.44
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	22.065	0.00	13.20
40.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.085	0.000	22.065	0.00	0.96
45.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	22.607	0.00	15.84
45.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	22.607	0.00	1.92
45.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.087	0.000	22.607	0.00	2.88
45.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.087	0.000	22.607	0.00	11.95
45.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	22.607	0.00	37.44
45.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	22.607	0.00	13.20
45.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.087	0.000	22.607	0.00	0.96
47.25	1 1/4" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	22.835	0.00	7.13
47.25	1/2" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	22.835	0.00	0.86
47.25	5/16" Coax	Yes	2.25	0.000	1.90	0.36	0.00	0.089	0.000	22.835	0.00	1.30
47.25	1.75" Hybrid	Yes	2.25	0.000	1.75	0.33	0.00	0.089	0.000	22.835	0.00	5.38
47.25	1 5/8" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	22.835	0.00	16.85
47.25	1 5/8" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	22.835	0.00	5.94
47.25	1/2" Coax	Yes	2.25	0.000	0.65	0.12	0.00	0.089	0.000	22.835	0.00	0.43
50.00	1 1/4" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	23.103	0.00	8.71
50.00	1/2" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	23.103	0.00	1.06
50.00	5/16" Coax	Yes	2.75	0.000	1.90	0.44	0.00	0.090	0.000	23.103	0.00	1.58
50.00	1.75" Hybrid	Yes	2.75	0.000	1.75	0.40	0.00	0.090	0.000	23.103	0.00	6.57
50.00	1 5/8" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	23.103	0.00	20.59
50.00	1 5/8" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	23.103	0.00	7.26
50.00	1/2" Coax	Yes	2.75	0.000	0.65	0.15	0.00	0.090	0.000	23.103	0.00	0.53
53.25	1 1/4" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	23.405	0.00	10.30
53.25	1/2" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	23.405	0.00	1.25
53.25	5/16" Coax	Yes	3.25	0.000	1.90	0.51	0.00	0.091	0.000	23.405	0.00	1.87
53.25	1.75" Hybrid	Yes	3.25	0.000	1.75	0.47	0.00	0.091	0.000	23.405	0.00	7.76
53.25	1 5/8" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	23.405	0.00	24.34
53.25	1 5/8" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	23.405	0.00	8.58
53.25	1/2" Coax	Yes	3.25	0.000	0.65	0.18	0.00	0.091	0.000	23.405	0.00	0.62
55.00	1 1/4" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	23.562	0.00	5.54
55.00	1/2" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	23.562	0.00	0.67
55.00	5/16" Coax	Yes	1.75	0.000	1.90	0.28	0.00	0.091	0.000	23.562	0.00	1.01
55.00	1.75" Hybrid	Yes	1.75	0.000	1.75	0.26	0.00	0.091	0.000	23.562	0.00	4.18
55.00	1 5/8" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	23.562	0.00	13.10
55.00	1 5/8" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	23.562	0.00	4.62
55.00	1/2" Coax	Yes	1.75	0.000	0.65	0.09	0.00	0.091	0.000	23.562	0.00	0.34
60.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	23.990	0.00	15.84
60.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	23.990	0.00	1.92
60.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.093	0.000	23.990	0.00	2.88

Linear Appurtenance Segment Forces (Factored)

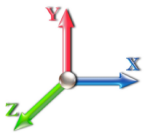
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 15	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.093	0.000	23.990	0.00	11.95
60.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	23.990	0.00	37.44
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	23.990	0.00	13.20
60.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.093	0.000	23.990	0.00	0.96
64.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	24.313	0.00	12.67
64.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	24.313	0.00	1.54
64.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.095	0.000	24.313	0.00	2.30
64.00	1.75" Hybrid	Yes	4.00	0.000	1.75	0.58	0.00	0.095	0.000	24.313	0.00	9.56
64.00	1 5/8" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	24.313	0.00	29.95
64.00	1 5/8" Hybrid	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	24.313	0.00	10.56
64.00	1/2" Coax	Yes	4.00	0.000	0.65	0.22	0.00	0.095	0.000	24.313	0.00	0.77
65.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	24.392	0.00	3.17
65.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	24.392	0.00	0.38
65.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.082	0.000	24.392	0.00	0.58
65.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.082	0.000	24.392	0.00	2.39
65.00	1 5/8" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	24.392	0.00	7.49
65.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	24.392	0.00	2.64
65.50	1 1/4" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	24.430	0.00	1.58
65.50	1/2" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	24.430	0.00	0.19
65.50	5/16" Coax	Yes	0.50	0.000	1.90	0.08	0.00	0.082	0.000	24.430	0.00	0.29
65.50	1.75" Hybrid	Yes	0.50	0.000	1.75	0.07	0.00	0.082	0.000	24.430	0.00	1.19
65.50	1 5/8" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	24.430	0.00	3.74
65.50	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	24.430	0.00	1.32
70.00	1 1/4" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	24.770	0.00	14.26
70.00	1/2" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	24.770	0.00	1.73
70.00	5/16" Coax	Yes	4.50	0.000	1.90	0.71	0.00	0.083	0.000	24.770	0.00	2.59
70.00	1.75" Hybrid	Yes	4.50	0.000	1.75	0.66	0.00	0.083	0.000	24.770	0.00	10.75
70.00	1 5/8" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	24.770	0.00	33.70
70.00	1 5/8" Hybrid	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	24.770	0.00	11.88
75.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	25.127	0.00	15.84
75.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	25.127	0.00	1.92
75.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.086	0.000	25.127	0.00	2.88
75.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.086	0.000	25.127	0.00	11.95
75.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	25.127	0.00	37.44
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	25.127	0.00	13.20
80.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	25.466	0.00	15.84
80.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	25.466	0.00	1.92
80.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.088	0.000	25.466	0.00	2.88
80.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.088	0.000	25.466	0.00	11.95
80.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	25.466	0.00	37.44
80.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	25.466	0.00	13.20
85.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	25.789	0.00	15.84
85.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	25.789	0.00	1.92
85.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.091	0.000	25.789	0.00	2.88
85.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.091	0.000	25.789	0.00	11.95
85.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	25.789	0.00	37.44
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	25.789	0.00	13.20

Linear Appurtenance Segment Forces (Factored)

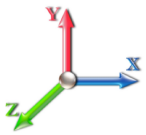
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 16	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
90.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	26.098	0.00	15.84
90.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	26.098	0.00	1.92
90.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.094	0.000	26.098	0.00	2.88
90.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.094	0.000	26.098	0.00	11.95
90.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	26.098	0.00	37.44
90.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	26.098	0.00	13.20
95.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	26.394	0.00	15.84
95.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	26.394	0.00	1.92
95.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.097	0.000	26.394	0.00	2.88
95.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.097	0.000	26.394	0.00	11.95
95.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	26.394	0.00	37.44
95.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	26.394	0.00	13.20
96.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	26.451	0.00	3.17
96.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	26.451	0.00	0.38
96.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.099	0.000	26.451	0.00	0.58
96.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.099	0.000	26.451	0.00	2.39
96.00	1 5/8" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	26.451	0.00	7.49
96.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	26.451	0.00	2.64
99.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	26.621	0.00	9.50
99.00	1/2" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	26.621	0.00	1.15
99.00	5/16" Coax	Yes	3.00	0.000	1.90	0.47	0.00	0.100	0.000	26.621	0.00	1.73
99.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.100	0.000	26.621	0.00	7.17
99.00	1 5/8" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	26.621	0.00	22.46
99.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	26.621	0.00	7.92
100.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.101	1.004	26.677	0.00	3.17
100.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.101	1.004	26.677	0.00	0.38
100.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.101	1.004	26.677	0.00	0.58
100.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.101	1.004	26.677	0.00	2.39
100.75	1 1/4" Coax	Yes	0.75	0.000	0.00	0.00	0.00	0.102	1.006	26.719	0.00	2.38
100.75	1/2" Coax	Yes	0.75	0.000	0.00	0.00	0.00	0.102	1.006	26.719	0.00	0.29
100.75	5/16" Coax	Yes	0.75	0.000	1.90	0.12	0.00	0.102	1.006	26.719	0.00	0.43
100.75	1.75" Hybrid	Yes	0.75	0.000	1.75	0.11	0.00	0.102	1.006	26.719	0.00	1.79
105.00	1 1/4" Coax	Yes	4.25	0.000	0.00	0.00	0.00	0.102	1.007	26.950	0.00	13.46
105.00	1/2" Coax	Yes	4.25	0.000	0.00	0.00	0.00	0.102	1.007	26.950	0.00	1.63
105.00	5/16" Coax	Yes	4.25	0.000	1.90	0.67	0.00	0.102	1.007	26.950	0.00	2.45
105.00	1.75" Hybrid	Yes	4.25	0.000	1.75	0.62	0.00	0.102	1.007	26.950	0.00	10.15
110.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.106	1.017	27.213	0.00	15.84
110.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.106	1.017	27.213	0.00	1.92
110.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.106	1.017	27.213	0.00	2.88
110.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.106	1.017	27.213	0.00	11.95
115.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.057	0.000	27.466	0.00	15.84
115.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.057	0.000	27.466	0.00	1.92
115.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.057	0.000	27.466	0.00	2.88
120.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.059	0.000	27.712	0.00	15.84
120.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.059	0.000	27.712	0.00	1.92
120.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.059	0.000	27.712	0.00	2.88
121.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.061	0.000	27.760	0.00	3.17

Linear Appurtenance Segment Forces (Factored)

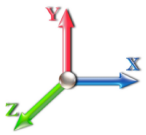
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 17	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
121.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.061	0.000	27.760	0.00	0.38
121.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.061	0.000	27.760	0.00	0.58
125.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.062	0.000	27.949	0.00	12.67
125.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.062	0.000	27.949	0.00	1.54
125.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.062	0.000	27.949	0.00	2.30
129.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	28.133	0.00	12.67
129.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	28.133	0.00	1.54
129.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.064	0.000	28.133	0.00	2.30
130.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.065	0.000	28.179	0.00	3.17
130.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.065	0.000	28.179	0.00	0.38
130.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.065	0.000	28.179	0.00	0.58
135.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	28.402	0.00	15.84
135.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	28.402	0.00	1.92
135.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.067	0.000	28.402	0.00	2.88
139.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.070	0.000	28.576	0.00	12.67
139.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.070	0.000	28.576	0.00	1.54
139.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.070	0.000	28.576	0.00	2.30
140.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.071	0.000	28.619	0.00	3.17
140.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.071	0.000	28.619	0.00	0.38
140.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.071	0.000	28.619	0.00	0.58
145.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	28.829	0.00	15.84
145.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	28.829	0.00	1.92
145.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.073	0.000	28.829	0.00	2.88
147.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	28.912	0.00	6.34
147.00	1/2" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	28.912	0.00	0.77
147.00	5/16" Coax	Yes	2.00	0.000	1.90	0.32	0.00	0.076	0.000	28.912	0.00	1.15
										Totals:	**0.0**	**1,884.6**

Calculated Forces

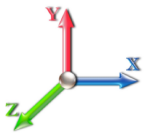
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 18	

Tower Engineering Solutions

Load Case: 1.2D + 1.6W 93 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.60



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-52.86	-38.75	0.00	-4254.0	0.00	4254.05	4419.23	2209.62	10644.5	5330.19	0.00	0.000	0.000	0.810
5.00	-51.07	-38.42	0.00	-4060.2	0.00	4060.29	4369.00	2184.50	10304.7	5160.05	0.11	-0.196	0.000	0.799
10.00	-49.31	-38.09	0.00	-3868.1	0.00	3868.18	4317.04	2158.52	9966.05	4990.43	0.42	-0.395	0.000	0.787
15.00	-47.58	-37.76	0.00	-3677.7	0.00	3677.73	4263.35	2131.68	9628.61	4821.46	0.94	-0.597	0.000	0.774
20.00	-45.89	-37.40	0.00	-3488.9	0.00	3488.94	4207.92	2103.96	9292.72	4653.26	1.68	-0.802	0.000	0.761
25.00	-44.22	-37.02	0.00	-3301.9	0.00	3301.96	4150.77	2075.38	8958.64	4485.98	2.63	-1.009	0.000	0.747
30.00	-42.58	-36.62	0.00	-3116.8	0.00	3116.89	4091.88	2045.94	8626.63	4319.73	3.80	-1.219	0.000	0.732
35.00	-40.98	-36.20	0.00	-2933.8	0.00	2933.81	4031.25	2015.63	8296.96	4154.65	5.19	-1.432	0.000	0.717
40.00	-39.41	-35.78	0.00	-2752.7	0.00	2752.79	3968.90	1984.45	7969.88	3990.86	6.81	-1.646	0.000	0.700
45.00	-37.91	-35.31	0.00	-2573.8	0.00	2573.88	3904.81	1952.40	7645.65	3828.51	8.65	-1.862	0.000	0.682
47.25	-37.22	-35.12	0.00	-2494.4	0.00	2494.44	3875.40	1937.70	7500.75	3755.95	9.55	-1.961	0.000	0.674
50.00	-35.86	-34.87	0.00	-2397.8	0.00	2397.85	3838.99	1919.49	7324.54	3667.71	10.71	-2.083	0.000	0.663
53.25	-34.30	-34.53	0.00	-2284.5	0.00	2284.53	2982.57	1491.28	5685.98	2847.22	12.18	-2.227	0.000	0.814
55.00	-33.79	-34.43	0.00	-2224.1	0.00	2224.10	2966.84	1483.42	5604.01	2806.17	13.01	-2.305	0.000	0.805
60.00	-32.51	-33.98	0.00	-2051.9	0.00	2051.96	2920.75	1460.37	5370.68	2689.33	15.56	-2.556	0.000	0.775
64.00	-31.50	-33.47	0.00	-1916.0	0.00	1916.06	2882.62	1441.31	5185.10	2596.40	17.79	-2.758	0.000	0.749
65.00	-31.26	-33.38	0.00	-1882.5	0.00	1882.59	2872.92	1436.46	5138.87	2573.25	18.37	-2.809	0.000	0.743
65.50	-31.02	-33.32	0.00	-1865.9	0.00	1865.90	2868.04	1434.02	5115.78	2561.69	18.67	-2.835	0.000	0.740
70.00	-29.90	-32.92	0.00	-1715.9	0.00	1715.98	2823.36	1411.68	4908.84	2458.07	21.45	-3.059	0.000	0.709
75.00	-28.70	-32.47	0.00	-1551.3	0.00	1551.37	2772.06	1386.03	4680.84	2343.90	24.79	-3.304	0.000	0.673
80.00	-27.53	-32.02	0.00	-1389.0	0.00	1389.00	2719.04	1359.52	4455.15	2230.89	28.38	-3.545	0.000	0.633
85.00	-26.39	-31.57	0.00	-1228.8	0.00	1228.89	2664.28	1332.14	4232.01	2119.15	32.21	-3.779	0.000	0.590
90.00	-25.29	-31.11	0.00	-1071.0	0.00	1071.05	2607.79	1303.89	4011.70	2008.83	36.29	-4.005	0.000	0.543
95.00	-24.26	-30.62	0.00	-915.48	0.00	915.48	2549.57	1274.78	3794.46	1900.05	40.60	-4.220	0.000	0.492
96.00	-24.03	-30.55	0.00	-884.86	0.00	884.86	2537.71	1268.86	3751.41	1878.49	41.49	-4.262	0.000	0.481
99.00	-19.97	-24.90	0.00	-793.21	0.00	793.21	2501.74	1250.87	3623.07	1814.23	44.21	-4.385	0.000	0.446
100.00	-19.67	-24.79	0.00	-768.31	0.00	768.31	2489.61	1244.80	3580.57	1792.94	45.13	-4.425	0.000	0.437
100.75	-19.41	-24.74	0.00	-749.72	0.00	749.72	1858.32	929.16	2706.71	1355.36	45.83	-4.455	0.000	0.564
105.00	-18.72	-24.36	0.00	-644.58	0.00	644.58	1825.33	912.67	2580.97	1292.40	49.86	-4.614	0.000	0.510
110.00	-15.36	-20.53	0.00	-522.80	0.00	522.80	1784.92	892.46	2434.45	1219.03	54.80	-4.818	0.000	0.438
115.00	-14.62	-20.08	0.00	-420.13	0.00	420.13	1742.78	871.39	2289.70	1146.55	59.94	-5.001	0.000	0.375
120.00	-13.94	-19.62	0.00	-319.72	0.00	319.72	1698.90	849.45	2146.98	1075.09	65.26	-5.162	0.000	0.306
121.00	-9.78	-14.33	0.00	-300.10	0.00	300.10	1689.92	844.96	2118.70	1060.93	66.35	-5.192	0.000	0.289
125.00	-9.31	-13.98	0.00	-242.78	0.00	242.78	1653.30	826.65	2006.56	1004.77	70.74	-5.300	0.000	0.248
129.00	-8.87	-13.62	0.00	-186.88	0.00	186.88	1615.56	807.78	1896.04	949.43	75.22	-5.395	0.000	0.203
129.00	-8.87	-13.62	0.00	-186.88	0.00	186.88	1091.97	545.98	1287.15	644.53	75.22	-5.395	0.000	0.299
130.00	-8.77	-13.55	0.00	-173.25	0.00	173.25	1086.82	543.41	1270.20	636.04	76.35	-5.416	0.000	0.281
135.00	-8.35	-13.14	0.00	-105.50	0.00	105.50	1060.04	530.02	1185.82	593.79	82.08	-5.531	0.000	0.186
139.00	-3.95	-6.26	0.00	-49.96	0.00	49.96	1037.37	518.68	1118.90	560.28	86.74	-5.591	0.000	0.093
140.00	-3.89	-6.19	0.00	-43.70	0.00	43.70	1031.53	515.76	1102.27	551.95	87.91	-5.601	0.000	0.083
145.00	-3.59	-5.80	0.00	-12.77	0.00	12.77	1001.28	500.64	1019.81	510.66	93.78	-5.631	0.000	0.029
147.00	-0.51	-0.50	0.00	-1.18	0.00	1.18	988.70	494.35	987.19	494.33	96.14	-5.635	0.000	0.003
149.00	0.00	-0.44	0.00	-0.18	0.00	0.18	975.84	487.92	954.81	478.11	98.50	-5.635	0.000	0.000

Wind Loading - Shaft

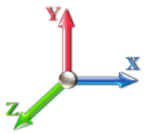
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 19	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	17.879	19.67	427.41	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	17.879	19.67	418.64	0.650	0.000	5.00	24.669	16.03	504.6	0.0	1055.8
10.00		1.00	0.85	17.879	19.67	409.87	0.650	0.000	5.00	24.157	15.70	494.1	0.0	1033.7
15.00		1.00	0.86	18.100	19.91	403.56	0.650	0.000	5.00	23.645	15.37	489.6	0.0	1011.7
20.00		1.00	0.91	19.166	21.08	406.20	0.650	0.000	5.00	23.134	15.04	507.2	0.0	989.7
25.00		1.00	0.95	20.048	22.05	406.14	0.650	0.000	5.00	22.622	14.70	518.8	0.0	967.6
30.00		1.00	0.99	20.804	22.88	404.27	0.650	0.000	5.00	22.111	14.37	526.2	0.0	945.6
35.00		1.00	1.02	21.470	23.62	401.07	0.650	0.000	5.00	21.599	14.04	530.5	0.0	923.6
40.00		1.00	1.05	22.065	24.27	396.85	0.650	0.000	5.00	21.087	13.71	532.3	0.0	901.5
45.00		1.00	1.07	22.607	24.87	391.82	0.650	0.000	5.00	20.576	13.37	532.1	0.0	879.5
47.25	Bot - Section 2	1.00	1.09	22.835	25.12	389.33	0.650	0.000	2.25	9.092	5.91	237.5	0.0	388.6
50.00		1.00	1.10	23.103	25.41	386.13	0.650	0.000	2.75	11.117	7.23	293.8	0.0	865.3
53.25	Top - Section 1	1.00	1.11	23.405	25.75	382.12	0.650	0.000	3.25	12.939	8.41	346.5	0.0	1006.9
55.00		1.00	1.12	23.562	25.92	385.08	0.650	0.000	1.75	6.878	4.47	185.4	0.0	245.2
60.00		1.00	1.14	23.990	26.39	378.40	0.650	0.000	5.00	19.305	12.55	529.8	0.0	688.2
64.00	Appurtenance(s)	1.00	1.16	24.313	26.74	372.75	0.650	0.000	4.00	15.076	9.80	419.3	0.0	537.4
65.00		1.00	1.16	24.392	26.83	371.30	0.650	0.000	1.00	3.718	2.42	103.7	0.0	132.5
65.50	Appurtenance(s)	1.00	1.16	24.430	26.87	370.57	0.650	0.000	0.50	1.851	1.20	51.7	0.0	66.0
70.00		1.00	1.18	24.770	27.25	363.84	0.650	0.000	4.50	16.431	10.68	465.6	0.0	585.5
75.00		1.00	1.19	25.127	27.64	356.06	0.650	0.000	5.00	17.770	11.55	510.8	0.0	633.1
80.00		1.00	1.21	25.466	28.01	347.98	0.650	0.000	5.00	17.259	11.22	502.8	0.0	614.8
85.00		1.00	1.23	25.789	28.37	339.65	0.650	0.000	5.00	16.747	10.89	494.1	0.0	596.4
90.00		1.00	1.24	26.098	28.71	331.07	0.650	0.000	5.00	16.236	10.55	484.7	0.0	578.1
95.00		1.00	1.25	26.394	29.03	322.28	0.650	0.000	5.00	15.724	10.22	474.8	0.0	559.7
96.00	Bot - Section 3	1.00	1.26	26.451	29.10	320.50	0.650	0.000	1.00	3.083	2.00	93.3	0.0	109.7
99.00	Appurtenance(s)	1.00	1.27	26.621	29.28	315.11	0.650	0.000	3.00	9.254	6.02	281.8	0.0	588.7
100.00		1.00	1.27	26.677	29.35	313.29	0.653 *	0.000	1.00	3.044	1.99	93.3	0.0	193.6
100.75	Top - Section 2	1.00	1.27	26.719	29.39	311.93	0.654 *	0.000	0.75	2.269	1.48	69.8	0.0	144.3
105.00		1.00	1.28	26.950	29.65	308.57	0.654 *	0.000	4.25	12.643	8.27	392.4	0.0	360.5
110.00	Appurtenance(s)	1.00	1.29	27.213	29.93	299.25	0.661 *	0.000	5.00	14.401	9.52	455.9	0.0	410.5
115.00		1.00	1.31	27.466	30.21	289.77	0.650	0.000	5.00	13.889	9.03	436.4	0.0	395.8
120.00		1.00	1.32	27.712	30.48	280.13	0.650	0.000	5.00	13.377	8.70	424.1	0.0	381.1
121.00	Appurtenance(s)	1.00	1.32	27.760	30.54	278.19	0.650	0.000	1.00	2.614	1.70	83.0	0.0	74.5
125.00		1.00	1.33	27.949	30.74	270.36	0.650	0.000	4.00	10.252	6.66	327.8	0.0	292.0
129.00	Top - Section 3	1.00	1.34	28.133	30.95	262.45	0.650	0.000	4.00	9.924	6.45	319.4	0.0	282.6
130.00		1.00	1.34	28.179	31.00	260.46	0.650	0.000	1.00	2.430	1.58	78.3	0.0	52.0
135.00		1.00	1.35	28.402	31.24	250.43	0.650	0.000	5.00	11.843	7.70	384.8	0.0	253.4
139.00	Appurtenance(s)	1.00	1.36	28.576	31.43	242.32	0.650	0.000	4.00	9.106	5.92	297.7	0.0	194.8
140.00		1.00	1.36	28.619	31.48	240.28	0.650	0.000	1.00	2.225	1.45	72.9	0.0	47.6
145.00		1.00	1.37	28.829	31.71	230.02	0.650	0.000	5.00	10.819	7.03	356.8	0.0	231.3
147.00	Appurtenance(s)	1.00	1.37	28.912	31.80	225.89	0.650	0.000	2.00	4.184	2.72	138.4	0.0	89.4
149.00	Appurtenance(s)	1.00	1.38	28.994	31.89	221.74	0.650	0.000	2.00	4.103	2.67	136.1	0.0	87.7
								Totals:	**149.00**			**14,178.3**		**20,395.9**

* Cf Adjusted by Linear Load Ra Effect

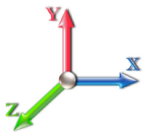
Discrete Appurtenance Forces

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 20	

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	149.00	Decibel DB404-B	1	29.135	32.048	1.00	1.00	1.03	12.60	0.000	3.500	52.82	0.00	184.85
2	149.00	Pipe Mount	1	28.994	31.893	1.00	1.00	5.00	315.00	0.000	0.000	255.14	0.00	0.00
3	147.00	800MHz RRH w/ filter	3	28.912	31.803	0.40	0.80	4.15	184.41	0.000	0.000	211.27	0.00	0.00
4	147.00	ALU TD-RRH8x20-25	3	28.912	31.803	0.54	0.80	6.51	189.00	0.000	0.000	331.38	0.00	0.00
5	147.00	RFS APXVSPP18-C-A20	3	28.912	31.803	0.66	0.80	15.98	153.90	0.000	0.000	812.93	0.00	0.00
6	147.00	ALU 1900MHz RRH	3	28.912	31.803	0.54	0.80	6.11	118.80	0.000	0.000	310.93	0.00	0.00
7	147.00	ALU 800MHz RRH	3	28.912	31.803	0.54	0.80	4.25	160.65	0.000	0.000	216.01	0.00	0.00
8	147.00	RFS APXVTM14-C-120	3	28.912	31.803	0.63	0.80	12.02	151.20	0.000	0.000	611.67	0.00	0.00
9	147.00	RFS ACU-A20-N	4	28.912	31.803	0.54	0.80	0.30	3.60	0.000	0.000	15.27	0.00	0.00
10	147.00	Argus LLPX310R	3	28.912	31.803	0.55	0.80	7.12	77.22	0.000	0.000	362.34	0.00	0.00
11	147.00	Andrew VHLP2-11	1	28.912	31.803	1.00	1.00	4.68	24.30	0.000	0.000	238.14	0.00	0.00
12	147.00	Andrew VHLP800-11-DW1	1	28.912	31.803	1.00	1.00	6.70	44.10	0.000	0.000	340.93	0.00	0.00
13	147.00	U-RAS Flexible RRH	3	28.912	31.803	0.78	1.00	5.22	136.89	0.000	0.000	265.53	0.00	0.00
14	147.00	12.5' Low Profile Platform	1	28.912	31.803	1.00	1.00	22.00	1350.00	0.000	0.000	1119.47	0.00	0.00
15	139.00	DMP65R-BU6DA	3	28.576	31.433	0.55	0.75	20.88	214.38	0.000	0.000	1049.93	0.00	0.00
16	139.00	AIR 6449	3	28.489	31.338	0.64	0.75	7.90	221.40	0.000	-2.000	396.05	0.00	-792.09
17	139.00	AIR 6419	3	28.661	31.527	0.57	0.75	6.50	178.20	0.000	2.000	327.78	0.00	655.56
18	139.00	4415 B30	3	28.576	31.433	0.50	0.75	2.47	124.20	0.000	0.000	124.34	0.00	0.00
19	139.00	Powerawve LGP21901	6	28.576	31.433	0.50	0.75	0.69	29.70	0.000	0.000	34.88	0.00	0.00
20	139.00	Powerwave 7020.00 RET	12	28.576	31.433	0.50	0.75	2.41	23.76	0.000	0.000	121.31	0.00	0.00
21	139.00	Powerwave LGP13519	6	28.576	31.433	0.50	0.75	1.03	28.62	0.000	0.000	51.56	0.00	0.00
22	139.00	8843 B2 B66A	3	28.576	31.433	0.50	0.75	2.47	194.40	0.000	0.000	124.34	0.00	0.00
23	139.00	4449 B5/B12	3	28.576	31.433	0.50	0.75	2.97	191.70	0.000	0.000	149.36	0.00	0.00
24	139.00	WCS-IMFQ-AMT	1	28.576	31.433	0.38	0.75	0.37	31.05	0.000	0.000	18.67	0.00	0.00
25	139.00	TPA65R-BU6D	3	28.702	31.572	0.54	0.75	20.85	182.25	0.000	2.970	1053.23	0.00	3128.08
26	139.00	B14 4478	3	28.576	31.433	0.50	0.75	2.77	161.73	0.000	0.000	139.50	0.00	0.00
27	139.00	DC9-48-60-24-8C-EV	2	28.576	31.433	0.75	0.75	1.71	47.16	0.000	0.000	86.00	0.00	0.00
28	139.00	(12) Mount Pipes	1	28.576	31.433	1.00	1.00	16.50	450.00	0.000	0.000	829.84	0.00	0.00
29	139.00	Platform w/ Hand Rail	1	28.576	31.433	1.00	1.00	32.00	1440.00	0.000	0.000	1609.38	0.00	0.00
30	139.00	Commscope	3	28.576	31.433	0.50	0.75	0.08	4.32	0.000	0.000	3.79	0.00	0.00
31	121.00	4449 B71 + B85	3	27.760	30.536	0.50	0.75	2.97	197.64	0.000	0.000	145.09	0.00	0.00
32	121.00	RRUS 4415 B25	3	27.760	30.536	0.50	0.75	2.47	124.20	0.000	0.000	120.79	0.00	0.00
33	121.00	HRK12 (Handrail Kit)	1	27.760	30.536	1.00	1.00	6.75	235.55	0.000	0.000	329.78	0.00	0.00
34	121.00	PRK-1245 (kicker kit)	1	27.760	30.536	1.00	1.00	9.50	418.42	0.000	0.000	464.14	0.00	0.00
35	121.00	KRD 9011461-B66A-B2A	3	27.760	30.536	0.65	0.75	12.74	356.94	0.000	0.000	622.60	0.00	0.00
36	121.00	AIR6449 B41	3	27.760	30.536	0.53	0.75	9.03	278.10	0.000	0.000	440.98	0.00	0.00
37	121.00	APXVAALL24_43-U-NA20	3	27.760	30.536	0.52	0.75	31.88	345.60	0.000	0.000	1557.46	0.00	0.00
38	121.00	SDX1926Q-43	3	27.760	30.536	0.50	0.75	0.78	11.61	0.000	0.000	38.30	0.00	0.00
39	121.00	Ericsson KRY 112 144/1	3	27.760	30.536	0.50	0.75	0.62	29.70	0.000	0.000	30.20	0.00	0.00
40	121.00	Low Profile Platform	1	27.760	30.536	1.00	1.00	22.00	1350.00	0.000	0.000	1074.85	0.00	0.00
41	110.00	FFVV-65B-R2	3	27.213	29.934	0.55	0.75	20.43	191.16	0.000	0.000	978.47	0.00	0.00
42	110.00	TA08025-B605	3	27.213	29.934	0.50	0.75	2.95	202.50	0.000	0.000	141.51	0.00	0.00
43	110.00	TA08025-B604	3	27.213	29.934	0.50	0.75	2.95	172.53	0.000	0.000	141.51	0.00	0.00
44	110.00	RDIDC-9181-PF-48	1	27.213	29.934	0.75	0.75	1.51	19.71	0.000	0.000	72.20	0.00	0.00
45	110.00	MC-PK8-DSH	1	27.213	29.934	1.00	1.00	37.59	1554.30	0.000	0.000	1800.36	0.00	0.00
46	99.00	MT6407-77A	3	26.509	29.159	0.56	0.80	7.88	214.38	0.000	-2.000	367.60	0.00	-735.21
47	99.00	RFS APL866513-42T0	4	26.509	29.159	0.74	0.80	12.05	56.52	0.000	-2.000	562.32	0.00	-1124.65

Discrete Appurtenance Forces

Structure:	CT13056-A-SBA		**Code:**	TIA-222-G	3/4/2022
Site Name:	Moosehill		**Exposure:**	C	
Height:	149.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 21

Tower Engineering Solutions

48	99.00	Antel LPA-80063-6CF	2	26.509	29.159	0.74	0.80	14.52	48.60	0.000	-2.000	677.56	0.00	-1355.13
49	99.00	12.5' Low Profile Platform	1	26.621	29.284	1.00	1.00	22.00	1350.00	0.000	0.000	1030.78	0.00	0.00
50	99.00	QS6656-5D	6	26.509	29.159	0.74	0.80	36.29	351.00	0.000	-2.000	1693.22	0.00	-3386.43
51	99.00	AS-005245 (Brackets)	3	26.621	29.284	1.00	1.00	1.80	94.50	0.000	0.000	84.34	0.00	0.00
52	99.00	B2/B66A RRH-BR049	3	26.621	29.284	0.54	0.80	3.02	228.15	0.000	0.000	141.64	0.00	0.00
53	99.00	B5/B13 RRH-BR04C	3	26.621	29.284	0.54	0.80	3.02	228.15	0.000	0.000	141.64	0.00	0.00
54	99.00	DB-C1-12C-24AB-OZ	2	26.621	29.284	1.00	1.00	8.12	57.60	0.000	0.000	380.45	0.00	0.00
55	65.50	Decibel 26OB	1	24.430	26.874	0.80	0.80	1.60	45.00	0.000	0.000	68.80	0.00	0.00
56	64.00	3 ft Standoff	1	24.313	26.745	1.00	1.00	2.63	36.00	0.000	0.000	112.54	0.00	0.00
							Totals:		**14,642.40**			**24,482.94**		

Total Applied Force Summary

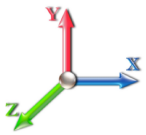
Structure:	CT13056-A-SBA		**Code:**	TIA-222-G	3/4/2022
Site Name:	Moosehill		**Exposure:**	C	
Height:	149.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 22

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		504.57	1243.48	0.00	0.00
10.00		494.10	1221.45	0.00	0.00
15.00		489.61	1199.41	0.00	0.00
20.00		507.24	1177.37	0.00	0.00
25.00		518.84	1155.33	0.00	0.00
30.00		526.23	1133.29	0.00	0.00
35.00		530.50	1111.25	0.00	0.00
40.00		532.31	1089.22	0.00	0.00
45.00		532.13	1067.18	0.00	0.00
47.25		237.52	473.04	0.00	0.00
50.00		293.83	968.56	0.00	0.00
53.25		346.46	1128.91	0.00	0.00
55.00		185.39	310.92	0.00	0.00
60.00		529.84	875.94	0.00	0.00
64.00	(1) attachments	531.87	723.53	0.00	0.00
65.00		103.74	169.90	0.00	0.00
65.50	(1) attachments	120.54	129.68	0.00	0.00
70.00		465.59	753.82	0.00	0.00
75.00		510.82	820.13	0.00	0.00
80.00		502.81	801.76	0.00	0.00
85.00		494.10	783.40	0.00	0.00
90.00		484.73	765.03	0.00	0.00
95.00		474.78	746.67	0.00	0.00
96.00		93.30	147.13	0.00	0.00
99.00	(27) attachments	5361.41	3329.82	0.00	-6601.42
100.00		93.27	223.40	0.00	0.00
100.75		69.77	166.68	0.00	0.00
105.00		392.42	487.13	0.00	0.00
110.00	(11) attachments	3589.91	2699.71	0.00	0.00
115.00		436.42	535.86	0.00	0.00
120.00		424.09	521.16	0.00	0.00
121.00	(24) attachments	4907.21	3450.23	0.00	0.00
125.00		327.78	354.68	0.00	0.00
129.00		319.41	345.28	0.00	0.00
130.00		78.33	67.67	0.00	0.00
135.00		384.79	331.75	0.00	0.00
139.00	(56) attachments	6417.61	3780.33	0.00	2991.56
140.00		72.85	51.15	0.00	0.00
145.00		356.83	249.14	0.00	0.00
147.00	(31) attachments	4974.29	2690.64	0.00	0.00
149.00	(2) attachments	444.04	416.21	0.00	184.85
	Totals:	**38,661.27**	**39,697.23**	**0.00**	**-3,425.01**

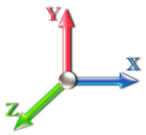
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 23	

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	17.879	0.00	11.88
5.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	17.879	0.00	1.44
5.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.073	0.000	17.879	0.00	2.16
5.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.073	0.000	17.879	0.00	8.96
5.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	17.879	0.00	28.08
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	17.879	0.00	9.90
5.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.073	0.000	17.879	0.00	0.72
10.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	17.879	0.00	11.88
10.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	17.879	0.00	1.44
10.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.074	0.000	17.879	0.00	2.16
10.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.074	0.000	17.879	0.00	8.96
10.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	17.879	0.00	28.08
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	17.879	0.00	9.90
10.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.074	0.000	17.879	0.00	0.72
15.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	18.100	0.00	11.88
15.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	18.100	0.00	1.44
15.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.076	0.000	18.100	0.00	2.16
15.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.076	0.000	18.100	0.00	8.96
15.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	18.100	0.00	28.08
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	18.100	0.00	9.90
15.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.076	0.000	18.100	0.00	0.72
20.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	19.166	0.00	11.88
20.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	19.166	0.00	1.44
20.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.077	0.000	19.166	0.00	2.16
20.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.077	0.000	19.166	0.00	8.96
20.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	19.166	0.00	28.08
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	19.166	0.00	9.90
20.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.077	0.000	19.166	0.00	0.72
25.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	20.048	0.00	11.88
25.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	20.048	0.00	1.44
25.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.079	0.000	20.048	0.00	2.16
25.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.079	0.000	20.048	0.00	8.96
25.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	20.048	0.00	28.08
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	20.048	0.00	9.90
25.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.079	0.000	20.048	0.00	0.72
30.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	20.804	0.00	11.88
30.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	20.804	0.00	1.44
30.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.081	0.000	20.804	0.00	2.16
30.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.081	0.000	20.804	0.00	8.96
30.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	20.804	0.00	28.08
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	20.804	0.00	9.90
30.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.081	0.000	20.804	0.00	0.72
35.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	21.470	0.00	11.88
35.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	21.470	0.00	1.44
35.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.083	0.000	21.470	0.00	2.16
35.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.083	0.000	21.470	0.00	8.96
35.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	21.470	0.00	28.08

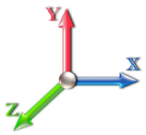
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 24	

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	21.470	0.00	9.90
35.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.083	0.000	21.470	0.00	0.72
40.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	22.065	0.00	11.88
40.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	22.065	0.00	1.44
40.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.085	0.000	22.065	0.00	2.16
40.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.085	0.000	22.065	0.00	8.96
40.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	22.065	0.00	28.08
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	22.065	0.00	9.90
40.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.085	0.000	22.065	0.00	0.72
45.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	22.607	0.00	11.88
45.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	22.607	0.00	1.44
45.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.087	0.000	22.607	0.00	2.16
45.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.087	0.000	22.607	0.00	8.96
45.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	22.607	0.00	28.08
45.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	22.607	0.00	9.90
45.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.087	0.000	22.607	0.00	0.72
47.25	1 1/4" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	22.835	0.00	5.35
47.25	1/2" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	22.835	0.00	0.65
47.25	5/16" Coax	Yes	2.25	0.000	1.90	0.36	0.00	0.089	0.000	22.835	0.00	0.97
47.25	1.75" Hybrid	Yes	2.25	0.000	1.75	0.33	0.00	0.089	0.000	22.835	0.00	4.03
47.25	1 5/8" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	22.835	0.00	12.64
47.25	1 5/8" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	22.835	0.00	4.46
47.25	1/2" Coax	Yes	2.25	0.000	0.65	0.12	0.00	0.089	0.000	22.835	0.00	0.32
50.00	1 1/4" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	23.103	0.00	6.53
50.00	1/2" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	23.103	0.00	0.79
50.00	5/16" Coax	Yes	2.75	0.000	1.90	0.44	0.00	0.090	0.000	23.103	0.00	1.19
50.00	1.75" Hybrid	Yes	2.75	0.000	1.75	0.40	0.00	0.090	0.000	23.103	0.00	4.93
50.00	1 5/8" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	23.103	0.00	15.44
50.00	1 5/8" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	23.103	0.00	5.45
50.00	1/2" Coax	Yes	2.75	0.000	0.65	0.15	0.00	0.090	0.000	23.103	0.00	0.40
53.25	1 1/4" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	23.405	0.00	7.72
53.25	1/2" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	23.405	0.00	0.94
53.25	5/16" Coax	Yes	3.25	0.000	1.90	0.51	0.00	0.091	0.000	23.405	0.00	1.40
53.25	1.75" Hybrid	Yes	3.25	0.000	1.75	0.47	0.00	0.091	0.000	23.405	0.00	5.82
53.25	1 5/8" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	23.405	0.00	18.25
53.25	1 5/8" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	23.405	0.00	6.44
53.25	1/2" Coax	Yes	3.25	0.000	0.65	0.18	0.00	0.091	0.000	23.405	0.00	0.47
55.00	1 1/4" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	23.562	0.00	4.16
55.00	1/2" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	23.562	0.00	0.50
55.00	5/16" Coax	Yes	1.75	0.000	1.90	0.28	0.00	0.091	0.000	23.562	0.00	0.76
55.00	1.75" Hybrid	Yes	1.75	0.000	1.75	0.26	0.00	0.091	0.000	23.562	0.00	3.14
55.00	1 5/8" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	23.562	0.00	9.83
55.00	1 5/8" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	23.562	0.00	3.47
55.00	1/2" Coax	Yes	1.75	0.000	0.65	0.09	0.00	0.091	0.000	23.562	0.00	0.25
60.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	23.990	0.00	11.88
60.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	23.990	0.00	1.44
60.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.093	0.000	23.990	0.00	2.16

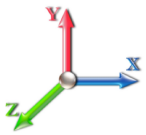
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 25	

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.093	0.000	23.990	0.00	8.96
60.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	23.990	0.00	28.08
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	23.990	0.00	9.90
60.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.093	0.000	23.990	0.00	0.72
64.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	24.313	0.00	9.50
64.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	24.313	0.00	1.15
64.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.095	0.000	24.313	0.00	1.73
64.00	1.75" Hybrid	Yes	4.00	0.000	1.75	0.58	0.00	0.095	0.000	24.313	0.00	7.17
64.00	1 5/8" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	24.313	0.00	22.46
64.00	1 5/8" Hybrid	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	24.313	0.00	7.92
64.00	1/2" Coax	Yes	4.00	0.000	0.65	0.22	0.00	0.095	0.000	24.313	0.00	0.58
65.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	24.392	0.00	2.38
65.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	24.392	0.00	0.29
65.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.082	0.000	24.392	0.00	0.43
65.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.082	0.000	24.392	0.00	1.79
65.00	1 5/8" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	24.392	0.00	5.62
65.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	24.392	0.00	1.98
65.50	1 1/4" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	24.430	0.00	1.19
65.50	1/2" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	24.430	0.00	0.14
65.50	5/16" Coax	Yes	0.50	0.000	1.90	0.08	0.00	0.082	0.000	24.430	0.00	0.22
65.50	1.75" Hybrid	Yes	0.50	0.000	1.75	0.07	0.00	0.082	0.000	24.430	0.00	0.90
65.50	1 5/8" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	24.430	0.00	2.81
65.50	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	24.430	0.00	0.99
70.00	1 1/4" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	24.770	0.00	10.69
70.00	1/2" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	24.770	0.00	1.30
70.00	5/16" Coax	Yes	4.50	0.000	1.90	0.71	0.00	0.083	0.000	24.770	0.00	1.94
70.00	1.75" Hybrid	Yes	4.50	0.000	1.75	0.66	0.00	0.083	0.000	24.770	0.00	8.06
70.00	1 5/8" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	24.770	0.00	25.27
70.00	1 5/8" Hybrid	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	24.770	0.00	8.91
75.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	25.127	0.00	11.88
75.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	25.127	0.00	1.44
75.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.086	0.000	25.127	0.00	2.16
75.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.086	0.000	25.127	0.00	8.96
75.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	25.127	0.00	28.08
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	25.127	0.00	9.90
80.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	25.466	0.00	11.88
80.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	25.466	0.00	1.44
80.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.088	0.000	25.466	0.00	2.16
80.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.088	0.000	25.466	0.00	8.96
80.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	25.466	0.00	28.08
80.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	25.466	0.00	9.90
85.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	25.789	0.00	11.88
85.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	25.789	0.00	1.44
85.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.091	0.000	25.789	0.00	2.16
85.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.091	0.000	25.789	0.00	8.96
85.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	25.789	0.00	28.08
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	25.789	0.00	9.90

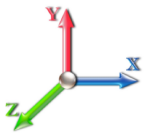
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 26	

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
90.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	26.098	0.00	11.88
90.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	26.098	0.00	1.44
90.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.094	0.000	26.098	0.00	2.16
90.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.094	0.000	26.098	0.00	8.96
90.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	26.098	0.00	28.08
90.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	26.098	0.00	9.90
95.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	26.394	0.00	11.88
95.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	26.394	0.00	1.44
95.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.097	0.000	26.394	0.00	2.16
95.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.097	0.000	26.394	0.00	8.96
95.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	26.394	0.00	28.08
95.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	26.394	0.00	9.90
96.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	26.451	0.00	2.38
96.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	26.451	0.00	0.29
96.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.099	0.000	26.451	0.00	0.43
96.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.099	0.000	26.451	0.00	1.79
96.00	1 5/8" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	26.451	0.00	5.62
96.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	26.451	0.00	1.98
99.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	26.621	0.00	7.13
99.00	1/2" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	26.621	0.00	0.86
99.00	5/16" Coax	Yes	3.00	0.000	1.90	0.47	0.00	0.100	0.000	26.621	0.00	1.30
99.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.100	0.000	26.621	0.00	5.38
99.00	1 5/8" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	26.621	0.00	16.85
99.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	26.621	0.00	5.94
100.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.101	1.004	26.677	0.00	2.38
100.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.101	1.004	26.677	0.00	0.29
100.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.101	1.004	26.677	0.00	0.43
100.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.101	1.004	26.677	0.00	1.79
100.75	1 1/4" Coax	Yes	0.75	0.000	0.00	0.00	0.00	0.102	1.006	26.719	0.00	1.78
100.75	1/2" Coax	Yes	0.75	0.000	0.00	0.00	0.00	0.102	1.006	26.719	0.00	0.22
100.75	5/16" Coax	Yes	0.75	0.000	1.90	0.12	0.00	0.102	1.006	26.719	0.00	0.32
100.75	1.75" Hybrid	Yes	0.75	0.000	1.75	0.11	0.00	0.102	1.006	26.719	0.00	1.34
105.00	1 1/4" Coax	Yes	4.25	0.000	0.00	0.00	0.00	0.102	1.007	26.950	0.00	10.10
105.00	1/2" Coax	Yes	4.25	0.000	0.00	0.00	0.00	0.102	1.007	26.950	0.00	1.22
105.00	5/16" Coax	Yes	4.25	0.000	1.90	0.67	0.00	0.102	1.007	26.950	0.00	1.84
105.00	1.75" Hybrid	Yes	4.25	0.000	1.75	0.62	0.00	0.102	1.007	26.950	0.00	7.62
110.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.106	1.017	27.213	0.00	11.88
110.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.106	1.017	27.213	0.00	1.44
110.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.106	1.017	27.213	0.00	2.16
110.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.106	1.017	27.213	0.00	8.96
115.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.057	0.000	27.466	0.00	11.88
115.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.057	0.000	27.466	0.00	1.44
115.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.057	0.000	27.466	0.00	2.16
120.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.059	0.000	27.712	0.00	11.88
120.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.059	0.000	27.712	0.00	1.44
120.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.059	0.000	27.712	0.00	2.16
121.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.061	0.000	27.760	0.00	2.38

Linear Appurtenance Segment Forces (Factored)

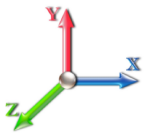
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 27	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
121.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.061	0.000	27.760	0.00	0.29
121.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.061	0.000	27.760	0.00	0.43
125.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.062	0.000	27.949	0.00	9.50
125.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.062	0.000	27.949	0.00	1.15
125.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.062	0.000	27.949	0.00	1.73
129.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	28.133	0.00	9.50
129.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	28.133	0.00	1.15
129.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.064	0.000	28.133	0.00	1.73
130.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.065	0.000	28.179	0.00	2.38
130.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.065	0.000	28.179	0.00	0.29
130.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.065	0.000	28.179	0.00	0.43
135.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	28.402	0.00	11.88
135.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	28.402	0.00	1.44
135.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.067	0.000	28.402	0.00	2.16
139.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.070	0.000	28.576	0.00	9.50
139.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.070	0.000	28.576	0.00	1.15
139.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.070	0.000	28.576	0.00	1.73
140.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.071	0.000	28.619	0.00	2.38
140.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.071	0.000	28.619	0.00	0.29
140.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.071	0.000	28.619	0.00	0.43
145.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	28.829	0.00	11.88
145.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	28.829	0.00	1.44
145.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.073	0.000	28.829	0.00	2.16
147.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	28.912	0.00	4.75
147.00	1/2" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	28.912	0.00	0.58
147.00	5/16" Coax	Yes	2.00	0.000	1.90	0.32	0.00	0.076	0.000	28.912	0.00	0.86
										Totals:	**0.0**	**1,413.4**

Calculated Forces

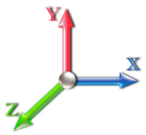
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 28	

Tower Engineering Solutions

Load Case: 0.9D + 1.6W 93 mph Wind

Dead Load Factor 0.90

Wind Load Factor 1.60



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.63	-38.73	0.00	-4207.3	0.00	4207.39	4419.23	2209.62	10644.5	5330.19	0.00	0.000	0.000	0.799
5.00	-38.26	-38.35	0.00	-4013.7	0.00	4013.74	4369.00	2184.50	10304.7	5160.05	0.10	-0.194	0.000	0.787
10.00	-36.91	-37.98	0.00	-3821.9	0.00	3821.98	4317.04	2158.52	9966.05	4990.43	0.41	-0.391	0.000	0.775
15.00	-35.58	-37.61	0.00	-3632.0	0.00	3632.08	4263.35	2131.68	9628.61	4821.46	0.93	-0.590	0.000	0.762
20.00	-34.28	-37.21	0.00	-3444.0	0.00	3444.06	4207.92	2103.96	9292.72	4653.26	1.66	-0.792	0.000	0.749
25.00	-33.00	-36.79	0.00	-3258.0	0.00	3258.03	4150.77	2075.38	8958.64	4485.98	2.60	-0.997	0.000	0.735
30.00	-31.74	-36.36	0.00	-3074.0	0.00	3074.09	4091.88	2045.94	8626.63	4319.73	3.75	-1.204	0.000	0.720
35.00	-30.51	-35.91	0.00	-2892.3	0.00	2892.32	4031.25	2015.63	8296.96	4154.65	5.13	-1.413	0.000	0.704
40.00	-29.31	-35.46	0.00	-2712.7	0.00	2712.76	3968.90	1984.45	7969.88	3990.86	6.72	-1.625	0.000	0.687
45.00	-28.16	-34.97	0.00	-2535.4	0.00	2535.46	3904.81	1952.40	7645.65	3828.51	8.54	-1.837	0.000	0.670
47.25	-27.63	-34.77	0.00	-2456.7	0.00	2456.77	3875.40	1937.70	7500.75	3755.95	9.43	-1.936	0.000	0.662
50.00	-26.59	-34.51	0.00	-2361.1	0.00	2361.15	3838.99	1919.49	7324.54	3667.71	10.58	-2.056	0.000	0.651
53.25	-25.41	-34.17	0.00	-2249.0	0.00	2249.01	2982.57	1491.28	5685.98	2847.22	12.03	-2.197	0.000	0.799
55.00	-25.01	-34.04	0.00	-2189.2	0.00	2189.23	2966.84	1483.42	5604.01	2806.17	12.85	-2.274	0.000	0.789
60.00	-24.03	-33.57	0.00	-2019.0	0.00	2019.03	2920.75	1460.37	5370.68	2689.33	15.36	-2.521	0.000	0.760
64.00	-23.26	-33.05	0.00	-1884.7	0.00	1884.77	2882.62	1441.31	5185.10	2596.40	17.56	-2.719	0.000	0.735
65.00	-23.07	-32.96	0.00	-1851.7	0.00	1851.71	2872.92	1436.46	5138.87	2573.25	18.14	-2.770	0.000	0.728
65.50	-22.88	-32.88	0.00	-1835.2	0.00	1835.24	2868.04	1434.02	5115.78	2561.69	18.43	-2.795	0.000	0.725
70.00	-22.02	-32.47	0.00	-1687.2	0.00	1687.28	2823.36	1411.68	4908.84	2458.07	21.17	-3.016	0.000	0.695
75.00	-21.09	-32.00	0.00	-1524.9	0.00	1524.96	2772.06	1386.03	4680.84	2343.90	24.46	-3.257	0.000	0.659
80.00	-20.20	-31.53	0.00	-1364.9	0.00	1364.97	2719.04	1359.52	4455.15	2230.89	27.99	-3.493	0.000	0.620
85.00	-19.32	-31.07	0.00	-1207.3	0.00	1207.31	2664.28	1332.14	4232.01	2119.15	31.78	-3.724	0.000	0.578
90.00	-18.48	-30.60	0.00	-1051.9	0.00	1051.98	2607.79	1303.89	4011.70	2008.83	35.79	-3.945	0.000	0.531
95.00	-17.70	-30.11	0.00	-898.98	0.00	898.98	2549.57	1274.78	3794.46	1900.05	40.04	-4.156	0.000	0.481
96.00	-17.52	-30.03	0.00	-868.87	0.00	868.87	2537.71	1268.86	3751.41	1878.49	40.91	-4.198	0.000	0.470
99.00	-14.56	-24.46	0.00	-778.76	0.00	778.76	2501.74	1250.87	3623.07	1814.23	43.59	-4.318	0.000	0.435
100.00	-14.33	-24.36	0.00	-754.30	0.00	754.30	2489.61	1244.80	3580.57	1792.94	44.50	-4.358	0.000	0.427
100.75	-14.13	-24.30	0.00	-736.04	0.00	736.04	1858.32	929.16	2706.71	1355.36	45.18	-4.388	0.000	0.551
105.00	-13.60	-23.91	0.00	-632.76	0.00	632.76	1825.33	912.67	2580.97	1292.40	49.16	-4.543	0.000	0.498
110.00	-11.13	-20.15	0.00	-513.19	0.00	513.19	1784.92	892.46	2434.45	1219.03	54.02	-4.743	0.000	0.428
115.00	-10.58	-19.71	0.00	-412.42	0.00	412.42	1742.78	871.39	2289.70	1146.55	59.09	-4.923	0.000	0.366
120.00	-10.07	-19.25	0.00	-313.90	0.00	313.90	1698.90	849.45	2146.98	1075.09	64.32	-5.081	0.000	0.298
121.00	-7.05	-14.07	0.00	-294.65	0.00	294.65	1689.92	844.96	2118.70	1060.93	65.39	-5.110	0.000	0.282
125.00	-6.70	-13.72	0.00	-238.38	0.00	238.38	1653.30	826.65	2006.56	1004.77	69.71	-5.217	0.000	0.242
129.00	-6.37	-13.38	0.00	-183.49	0.00	183.49	1615.56	807.78	1896.04	949.43	74.12	-5.310	0.000	0.197
129.00	-6.37	-13.38	0.00	-183.49	0.00	183.49	1091.97	545.98	1287.15	644.53	74.12	-5.310	0.000	0.291
130.00	-6.30	-13.30	0.00	-170.12	0.00	170.12	1086.82	543.41	1270.20	636.04	75.23	-5.331	0.000	0.274
135.00	-5.98	-12.90	0.00	-103.61	0.00	103.61	1060.04	530.02	1185.82	593.79	80.88	-5.444	0.000	0.181
139.00	-2.83	-6.15	0.00	-49.04	0.00	49.04	1037.37	518.68	1118.90	560.28	85.46	-5.503	0.000	0.090
140.00	-2.78	-6.07	0.00	-42.89	0.00	42.89	1031.53	515.76	1102.27	551.95	86.61	-5.512	0.000	0.081
145.00	-2.57	-5.69	0.00	-12.54	0.00	12.54	1001.28	500.64	1019.81	510.66	92.39	-5.542	0.000	0.027
147.00	-0.37	-0.48	0.00	-1.15	0.00	1.15	988.70	494.35	987.19	494.33	94.71	-5.545	0.000	0.003
149.00	0.00	-0.44	0.00	-0.18	0.00	0.18	975.84	487.92	954.81	478.11	97.03	-5.546	0.000	0.000

Wind Loading - Shaft

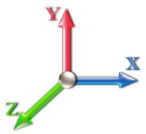
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 29	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	1.057	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.265	5.00	25.723	30.87	175.5	467.2	1875.0
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.344	5.00	25.277	30.33	172.4	486.9	1865.2
15.00		1.00	0.86	5.232	5.76	0.00	1.200	1.395	5.00	24.808	29.77	171.3	495.4	1844.3
20.00		1.00	0.91	5.540	6.09	0.00	1.200	1.434	5.00	24.329	29.19	177.9	498.5	1818.1
25.00		1.00	0.95	5.795	6.37	0.00	1.200	1.465	5.00	23.843	28.61	182.4	498.5	1788.6
30.00		1.00	0.99	6.013	6.61	0.00	1.200	1.491	5.00	23.353	28.02	185.4	496.2	1757.0
35.00		1.00	1.02	6.206	6.83	0.00	1.200	1.513	5.00	22.860	27.43	187.3	492.5	1723.9
40.00		1.00	1.05	6.378	7.02	0.00	1.200	1.533	5.00	22.365	26.84	188.3	487.5	1689.5
45.00		1.00	1.07	6.534	7.19	0.00	1.200	1.551	5.00	21.868	26.24	188.6	481.5	1654.2
47.25	Bot - Section 2	1.00	1.09	6.600	7.26	0.00	1.200	1.558	2.25	9.676	11.61	84.3	215.4	733.5
50.00		1.00	1.10	6.678	7.35	0.00	1.200	1.567	2.75	11.835	14.20	104.3	264.5	1418.3
53.25	Top - Section 1	1.00	1.11	6.765	7.44	0.00	1.200	1.576	3.25	13.793	16.55	123.2	309.6	1652.1
55.00		1.00	1.12	6.811	7.49	0.00	1.200	1.581	1.75	7.339	8.81	66.0	165.8	492.7
60.00		1.00	1.14	6.934	7.63	0.00	1.200	1.595	5.00	20.635	24.76	188.9	465.7	1383.4
64.00	Appurtenance(s)	1.00	1.16	7.028	7.73	0.00	1.200	1.605	4.00	16.146	19.38	149.8	367.3	1083.8
65.00		1.00	1.16	7.050	7.76	0.00	1.200	1.608	1.00	3.986	4.78	37.1	91.5	268.1
65.50	Appurtenance(s)	1.00	1.16	7.062	7.77	0.00	1.200	1.609	0.50	1.985	2.38	18.5	45.7	133.6
70.00		1.00	1.18	7.160	7.88	0.00	1.200	1.619	4.50	17.645	21.17	166.8	403.7	1184.4
75.00		1.00	1.19	7.263	7.99	0.00	1.200	1.631	5.00	19.129	22.96	183.4	439.4	1283.6
80.00		1.00	1.21	7.361	8.10	0.00	1.200	1.641	5.00	18.626	22.35	181.0	429.9	1249.6
85.00		1.00	1.23	7.454	8.20	0.00	1.200	1.651	5.00	18.123	21.75	178.3	420.0	1215.3
90.00		1.00	1.24	7.544	8.30	0.00	1.200	1.660	5.00	17.619	21.14	175.4	409.9	1180.7
95.00		1.00	1.25	7.629	8.39	0.00	1.200	1.669	5.00	17.115	20.54	172.4	399.6	1145.8
96.00	Bot - Section 3	1.00	1.26	7.646	8.41	0.00	1.200	1.671	1.00	3.362	4.03	33.9	79.5	225.8
99.00	Appurtenance(s)	1.00	1.27	7.695	8.46	0.00	1.200	1.676	3.00	10.092	12.11	102.5	237.8	1022.8
100.00		1.00	1.27	7.711	8.48	0.00	1.205 *	1.678	1.00	3.323	4.00	34.0	78.8	337.0
100.75	Top - Section 2	1.00	1.27	7.723	8.50	0.00	1.207 *	1.679	0.75	2.479	2.99	25.4	58.9	251.3
105.00		1.00	1.28	7.790	8.57	0.00	1.208 *	1.686	4.25	13.837	16.72	143.2	325.9	806.6
110.00	Appurtenance(s)	1.00	1.29	7.866	8.65	0.00	1.220 *	1.693	5.00	15.812	19.29	166.9	372.5	919.8
115.00		1.00	1.31	7.939	8.73	0.00	1.200	1.701	5.00	15.307	18.37	160.4	361.3	889.1
120.00		1.00	1.32	8.010	8.81	0.00	1.200	1.708	5.00	14.801	17.76	156.5	350.0	858.1
121.00	Appurtenance(s)	1.00	1.32	8.024	8.83	0.00	1.200	1.710	1.00	2.899	3.48	30.7	69.5	168.8
125.00		1.00	1.33	8.079	8.89	0.00	1.200	1.715	4.00	11.395	13.67	121.5	270.8	660.1
129.00	Top - Section 3	1.00	1.34	8.132	8.95	0.00	1.200	1.720	4.00	11.071	13.29	118.8	263.3	640.1
130.00		1.00	1.34	8.145	8.96	0.00	1.200	1.722	1.00	2.717	3.26	29.2	65.4	134.7
135.00		1.00	1.35	8.210	9.03	0.00	1.200	1.728	5.00	13.283	15.94	143.9	315.0	652.8
139.00	Appurtenance(s)	1.00	1.36	8.260	9.09	0.00	1.200	1.733	4.00	10.261	12.31	111.9	244.4	504.1
140.00		1.00	1.36	8.272	9.10	0.00	1.200	1.734	1.00	2.514	3.02	27.5	60.6	124.1
145.00		1.00	1.37	8.333	9.17	0.00	1.200	1.741	5.00	12.270	14.72	135.0	291.0	599.4
147.00	Appurtenance(s)	1.00	1.37	8.357	9.19	0.00	1.200	1.743	2.00	4.765	5.72	52.6	114.5	233.7
149.00	Appurtenance(s)	1.00	1.38	8.381	9.22	0.00	1.200	1.745	2.00	4.684	5.62	51.8	112.5	229.4
								Totals:	**149.00**			**5,104.2**		**39,698.5**

* Cf Adjusted by Linear Load Ra Effect

Discrete Appurtenance Forces

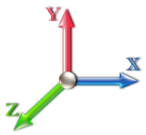
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 30	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	149.00	Decibel DB404-B	1	8.421	9.264	1.00	1.00	3.84	39.96	0.000	3.500	35.55	0.00	124.43
2	149.00	Pipe Mount	1	8.381	9.219	1.00	1.00	8.49	613.20	0.000	0.000	78.27	0.00	0.00
3	147.00	800MHz RRH w/ filter	3	8.357	9.193	0.40	0.80	5.73	439.16	0.000	0.000	52.64	0.00	0.00
4	147.00	ALU TD-RRH8x20-25	3	8.357	9.193	0.54	0.80	7.82	582.85	0.000	0.000	71.87	0.00	0.00
5	147.00	RFS APXVSPP18-C-A20	3	8.357	9.193	0.66	0.80	21.53	574.56	0.000	0.000	197.95	0.00	0.00
6	147.00	ALU 1900MHz RRH	3	8.357	9.193	0.54	0.80	8.34	391.85	0.000	0.000	76.69	0.00	0.00
7	147.00	ALU 800MHz RRH	3	8.357	9.193	0.54	0.80	6.10	380.70	0.000	0.000	56.11	0.00	0.00
8	147.00	RFS APXVTM14-C-120	3	8.357	9.193	0.63	0.80	14.13	682.06	0.000	0.000	129.88	0.00	0.00
9	147.00	RFS ACU-A20-N	4	8.357	9.193	0.54	0.80	0.94	16.76	0.000	0.000	8.60	0.00	0.00
10	147.00	Argus LLPX310R	3	8.357	9.193	0.55	0.80	9.87	295.81	0.000	0.000	90.70	0.00	0.00
11	147.00	Andrew VHLP2-11	1	8.357	9.193	1.00	1.00	5.95	102.13	0.000	0.000	54.72	0.00	0.00
12	147.00	Andrew VHLP800-11-DW1	1	8.357	9.193	1.00	1.00	8.22	157.27	0.000	0.000	75.59	0.00	0.00
13	147.00	U-RAS Flexible RRH	3	8.357	9.193	0.78	1.00	7.70	308.25	0.000	0.000	70.78	0.00	0.00
14	147.00	12.5' Low Profile Platform	1	8.357	9.193	1.00	1.00	39.64	2807.16	0.000	0.000	364.38	0.00	0.00
15	139.00	DMP65R-BU6DA	3	8.260	9.086	0.55	0.75	23.30	1141.43	0.000	0.000	211.72	0.00	0.00
16	139.00	AIR 6449	3	8.235	9.058	0.64	0.75	9.53	704.48	0.000	-2.000	86.29	0.00	-172.58
17	139.00	AIR 6419	3	8.285	9.113	0.57	0.75	7.85	455.41	0.000	2.000	71.53	0.00	143.06
18	139.00	4415 B30	3	8.260	9.086	0.50	0.75	3.24	259.86	0.000	0.000	29.47	0.00	0.00
19	139.00	Powerawve LGP21901	6	8.260	9.086	0.50	0.75	1.80	72.23	0.000	0.000	16.31	0.00	0.00
20	139.00	Powerwave 7020.00 RET	12	8.260	9.086	0.50	0.75	5.31	118.87	0.000	0.000	48.24	0.00	0.00
21	139.00	Powerwave LGP13519	6	8.260	9.086	0.50	0.75	2.38	78.55	0.000	0.000	21.67	0.00	0.00
22	139.00	8843 B2 B66A	3	8.260	9.086	0.50	0.75	3.25	372.21	0.000	0.000	29.49	0.00	0.00
23	139.00	4449 B5/B12	3	8.260	9.086	0.50	0.75	3.79	373.84	0.000	0.000	34.43	0.00	0.00
24	139.00	WCS-IMFQ-AMT	1	8.260	9.086	0.38	0.75	0.53	84.16	0.000	0.000	4.82	0.00	0.00
25	139.00	TPA65R-BU6D	3	8.296	9.126	0.54	0.75	23.22	927.61	0.000	2.970	211.91	0.00	629.36
26	139.00	B14 4478	3	8.260	9.086	0.50	0.75	3.56	320.57	0.000	0.000	32.37	0.00	0.00
27	139.00	DC9-48-60-24-8C-EV	2	8.260	9.086	0.75	0.75	4.07	239.20	0.000	0.000	37.01	0.00	0.00
28	139.00	(12) Mount Pipes	1	8.260	9.086	1.00	1.00	32.51	1039.29	0.000	0.000	295.42	0.00	0.00
29	139.00	Platform w/ Hand Rail	1	8.260	9.086	1.00	1.00	59.73	3405.41	0.000	0.000	542.71	0.00	0.00
30	139.00	Commscope	3	8.260	9.086	0.50	0.75	0.36	14.83	0.000	0.000	3.30	0.00	0.00
31	121.00	4449 B71 + B85	3	8.024	8.826	0.50	0.75	3.81	258.01	0.000	0.000	33.63	0.00	0.00
32	121.00	RRUS 4415 B25	3	8.024	8.826	0.50	0.75	3.23	258.19	0.000	0.000	28.54	0.00	0.00
33	121.00	HRK12 (Handrail Kit)	1	8.024	8.826	1.00	1.00	13.21	880.03	0.000	0.000	116.61	0.00	0.00
34	121.00	PRK-1245 (kicker kit)	1	8.024	8.826	1.00	1.00	19.24	780.71	0.000	0.000	169.86	0.00	0.00
35	121.00	KRD 9011461-B66A-B2A	3	8.024	8.826	0.65	0.75	14.89	1012.38	0.000	0.000	131.43	0.00	0.00
36	121.00	AIR6449 B41	3	8.024	8.826	0.53	0.75	10.51	678.64	0.000	0.000	92.79	0.00	0.00
37	121.00	APXVAALL24_43-U-NA20	3	8.024	8.826	0.52	0.75	34.81	1685.76	0.000	0.000	307.22	0.00	0.00
38	121.00	SDX1926Q-43	3	8.024	8.826	0.50	0.75	1.57	39.15	0.000	0.000	13.85	0.00	0.00
39	121.00	Ericsson KRY 112 144/1	3	8.024	8.826	0.50	0.75	1.32	61.98	0.000	0.000	11.65	0.00	0.00
40	121.00	Low Profile Platform	1	8.024	8.826	1.00	1.00	39.30	2782.14	0.000	0.000	346.88	0.00	0.00
41	110.00	FFVV-65B-R2	3	7.866	8.652	0.56	0.75	23.09	887.64	0.000	0.000	199.79	0.00	0.00
42	110.00	TA08025-B605	3	7.866	8.652	0.50	0.75	3.78	384.46	0.000	0.000	32.67	0.00	0.00
43	110.00	TA08025-B604	3	7.866	8.652	0.50	0.75	3.78	341.12	0.000	0.000	32.67	0.00	0.00
44	110.00	RDIDC-9181-PF-48	1	7.866	8.652	0.75	0.75	1.92	65.25	0.000	0.000	16.62	0.00	0.00
45	110.00	MC-PK8-DSH	1	7.866	8.652	1.00	1.00	83.42	3337.17	0.000	0.000	721.82	0.00	0.00
46	99.00	MT6407-77A	3	7.662	8.429	0.56	0.80	9.40	627.34	0.000	-2.000	79.27	0.00	-158.54
47	99.00	RFS APL866513-42T0	4	7.662	8.429	0.74	0.80	17.38	369.62	0.000	-2.000	146.46	0.00	-292.93

Discrete Appurtenance Forces

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 31

48	99.00	Antel LPA-80063-6CF	2	7.662	8.429	0.74	0.80	18.46	417.19	0.000	-2.000	155.56	0.00	-311.11
49	99.00	12.5' Low Profile Platform	1	7.695	8.464	1.00	1.00	38.96	2756.90	0.000	0.000	329.77	0.00	0.00
50	99.00	QS6656-5D	6	7.662	8.429	0.74	0.80	41.85	1768.43	0.000	-2.000	352.71	0.00	-705.41
51	99.00	AS-005245 (Brackets)	3	7.695	8.464	1.00	1.00	3.97	164.54	0.000	0.000	33.62	0.00	0.00
52	99.00	B2/B66A RRH-BR049	3	7.695	8.464	0.54	0.80	3.87	414.37	0.000	0.000	32.79	0.00	0.00
53	99.00	B5/B13 RRH-BR04C	3	7.695	8.464	0.54	0.80	3.87	414.37	0.000	0.000	32.79	0.00	0.00
54	99.00	DB-C1-12C-24AB-OZ	2	7.695	8.464	1.00	1.00	9.70	238.40	0.000	0.000	82.09	0.00	0.00
55	65.50	Decibel 26OB	1	7.062	7.768	0.80	0.80	4.17	170.89	0.000	0.000	32.42	0.00	0.00
56	64.00	3 ft Standoff	1	7.028	7.731	1.00	1.00	8.12	98.84	0.000	0.000	62.77	0.00	0.00
							Totals:		**37,893.19**			**6,636.70**		

Total Applied Force Summary

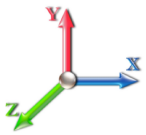
Structure:	CT13056-A-SBA		**Code:**	TIA-222-G	3/4/2022
Site Name:	Moosehill		**Exposure:**	C	
Height:	149.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 32

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		175.47	2352.90	0.00	0.00
10.00		172.43	2360.73	0.00	0.00
15.00		171.33	2351.49	0.00	0.00
20.00		177.91	2334.14	0.00	0.00
25.00		182.38	2311.96	0.00	0.00
30.00		185.37	2286.52	0.00	0.00
35.00		187.26	2258.72	0.00	0.00
40.00		188.29	2229.12	0.00	0.00
45.00		188.62	2198.10	0.00	0.00
47.25		84.31	979.05	0.00	0.00
50.00		104.33	1719.61	0.00	0.00
53.25		123.18	2009.75	0.00	0.00
55.00		65.98	685.74	0.00	0.00
60.00		188.88	1938.20	0.00	0.00
64.00	(1) attachments	212.55	1628.45	0.00	0.00
65.00		37.09	375.54	0.00	0.00
65.50	(1) attachments	50.93	358.23	0.00	0.00
70.00		166.76	1670.07	0.00	0.00
75.00		183.39	1825.70	0.00	0.00
80.00		180.98	1794.06	0.00	0.00
85.00		178.33	1762.01	0.00	0.00
90.00		175.44	1729.56	0.00	0.00
95.00		172.35	1696.76	0.00	0.00
96.00		33.93	336.07	0.00	0.00
99.00	(27) attachments	1347.58	8525.47	0.00	-1467.99
100.00		33.96	407.20	0.00	0.00
100.75		25.42	304.03	0.00	0.00
105.00		143.24	1105.93	0.00	0.00
110.00	(11) attachments	1170.49	6288.64	0.00	0.00
115.00		160.41	1200.74	0.00	0.00
120.00		156.49	1170.54	0.00	0.00
121.00	(24) attachments	1283.16	8668.33	0.00	0.00
125.00		121.51	844.80	0.00	0.00
129.00		118.84	825.25	0.00	0.00
130.00		29.21	181.01	0.00	0.00
135.00		143.94	885.08	0.00	0.00
139.00	(56) attachments	1788.58	10298.23	0.00	599.84
140.00		27.45	154.49	0.00	0.00
145.00		134.96	752.20	0.00	0.00
147.00	(31) attachments	1302.47	7033.47	0.00	0.00
149.00	(2) attachments	165.64	883.82	0.00	124.43
	Totals:	**11,740.89**	**90,721.68**	**0.00**	**-743.72**

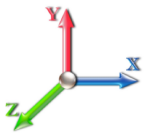
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 33	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	5.168	0.00	60.12
5.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	5.168	0.00	18.44
5.00	5/16" Coax	Yes	5.00	0.000	1.90	1.85	0.00	0.073	0.000	5.168	0.00	26.12
5.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.78	0.00	0.073	0.000	5.168	0.00	31.61
5.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	5.168	0.00	115.47
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	5.168	0.00	45.99
5.00	1/2" Coax	Yes	5.00	0.000	0.65	1.32	0.00	0.073	0.000	5.168	0.00	14.11
10.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	5.168	0.00	63.29
10.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	5.168	0.00	20.10
10.00	5/16" Coax	Yes	5.00	0.000	1.90	1.91	0.00	0.074	0.000	5.168	0.00	28.20
10.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.85	0.00	0.074	0.000	5.168	0.00	33.40
10.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	5.168	0.00	120.38
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	5.168	0.00	48.48
10.00	1/2" Coax	Yes	5.00	0.000	0.65	1.39	0.00	0.074	0.000	5.168	0.00	15.57
15.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	5.232	0.00	65.38
15.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	5.232	0.00	21.22
15.00	5/16" Coax	Yes	5.00	0.000	1.90	1.95	0.00	0.076	0.000	5.232	0.00	29.58
15.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.89	0.00	0.076	0.000	5.232	0.00	34.61
15.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	5.232	0.00	123.61
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	5.232	0.00	50.13
15.00	1/2" Coax	Yes	5.00	0.000	0.65	1.43	0.00	0.076	0.000	5.232	0.00	16.56
20.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	5.540	0.00	66.97
20.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	5.540	0.00	22.08
20.00	5/16" Coax	Yes	5.00	0.000	1.90	1.99	0.00	0.077	0.000	5.540	0.00	30.64
20.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.92	0.00	0.077	0.000	5.540	0.00	35.54
20.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	5.540	0.00	126.05
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	5.540	0.00	51.40
20.00	1/2" Coax	Yes	5.00	0.000	0.65	1.47	0.00	0.077	0.000	5.540	0.00	17.32
25.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	5.795	0.00	68.27
25.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	5.795	0.00	22.78
25.00	5/16" Coax	Yes	5.00	0.000	1.90	2.01	0.00	0.079	0.000	5.795	0.00	31.51
25.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.95	0.00	0.079	0.000	5.795	0.00	36.30
25.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	5.795	0.00	128.03
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	5.795	0.00	52.43
25.00	1/2" Coax	Yes	5.00	0.000	0.65	1.49	0.00	0.079	0.000	5.795	0.00	17.94
30.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	6.013	0.00	69.37
30.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	6.013	0.00	23.38
30.00	5/16" Coax	Yes	5.00	0.000	1.90	2.03	0.00	0.081	0.000	6.013	0.00	32.24
30.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.97	0.00	0.081	0.000	6.013	0.00	36.94
30.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	6.013	0.00	129.70
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	6.013	0.00	53.30
30.00	1/2" Coax	Yes	5.00	0.000	0.65	1.51	0.00	0.081	0.000	6.013	0.00	18.48
35.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	6.206	0.00	70.32
35.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	6.206	0.00	23.91
35.00	5/16" Coax	Yes	5.00	0.000	1.90	2.05	0.00	0.083	0.000	6.206	0.00	32.89
35.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.99	0.00	0.083	0.000	6.206	0.00	37.51
35.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	6.206	0.00	131.15

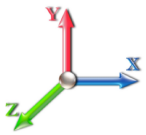
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 34	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	6.206	0.00	54.06
35.00	1/2" Coax	Yes	5.00	0.000	0.65	1.53	0.00	0.083	0.000	6.206	0.00	18.95
40.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	6.378	0.00	71.16
40.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	6.378	0.00	24.38
40.00	5/16" Coax	Yes	5.00	0.000	1.90	2.07	0.00	0.085	0.000	6.378	0.00	33.46
40.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.01	0.00	0.085	0.000	6.378	0.00	38.01
40.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	6.378	0.00	132.43
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	6.378	0.00	54.74
40.00	1/2" Coax	Yes	5.00	0.000	0.65	1.55	0.00	0.085	0.000	6.378	0.00	19.37
45.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	6.534	0.00	71.93
45.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	6.534	0.00	24.80
45.00	5/16" Coax	Yes	5.00	0.000	1.90	2.08	0.00	0.087	0.000	6.534	0.00	33.97
45.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.02	0.00	0.087	0.000	6.534	0.00	38.47
45.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	6.534	0.00	133.58
45.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	6.534	0.00	55.35
45.00	1/2" Coax	Yes	5.00	0.000	0.65	1.56	0.00	0.087	0.000	6.534	0.00	19.74
47.25	1 1/4" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	6.600	0.00	32.51
47.25	1/2" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	6.600	0.00	11.24
47.25	5/16" Coax	Yes	2.25	0.000	1.90	0.94	0.00	0.089	0.000	6.600	0.00	15.39
47.25	1.75" Hybrid	Yes	2.25	0.000	1.75	0.91	0.00	0.089	0.000	6.600	0.00	17.40
47.25	1 5/8" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	6.600	0.00	60.33
47.25	1 5/8" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	6.600	0.00	25.02
47.25	1/2" Coax	Yes	2.25	0.000	0.65	0.71	0.00	0.089	0.000	6.600	0.00	8.96
50.00	1 1/4" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	6.678	0.00	39.94
50.00	1/2" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	6.678	0.00	13.85
50.00	5/16" Coax	Yes	2.75	0.000	1.90	1.15	0.00	0.090	0.000	6.678	0.00	18.94
50.00	1.75" Hybrid	Yes	2.75	0.000	1.75	1.12	0.00	0.090	0.000	6.678	0.00	21.38
50.00	1 5/8" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	6.678	0.00	74.05
50.00	1 5/8" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	6.678	0.00	30.75
50.00	1/2" Coax	Yes	2.75	0.000	0.65	0.87	0.00	0.090	0.000	6.678	0.00	11.05
53.25	1 1/4" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	6.765	0.00	47.48
53.25	1/2" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	6.765	0.00	16.53
53.25	5/16" Coax	Yes	3.25	0.000	1.90	1.37	0.00	0.091	0.000	6.765	0.00	22.57
53.25	1.75" Hybrid	Yes	3.25	0.000	1.75	1.33	0.00	0.091	0.000	6.765	0.00	25.44
53.25	1 5/8" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	6.765	0.00	87.92
53.25	1 5/8" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	6.765	0.00	36.56
53.25	1/2" Coax	Yes	3.25	0.000	0.65	1.03	0.00	0.091	0.000	6.765	0.00	13.20
55.00	1 1/4" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	6.811	0.00	25.64
55.00	1/2" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	6.811	0.00	8.94
55.00	5/16" Coax	Yes	1.75	0.000	1.90	0.74	0.00	0.091	0.000	6.811	0.00	12.21
55.00	1.75" Hybrid	Yes	1.75	0.000	1.75	0.72	0.00	0.091	0.000	6.811	0.00	13.74
55.00	1 5/8" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	6.811	0.00	47.46
55.00	1 5/8" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	6.811	0.00	19.75
55.00	1/2" Coax	Yes	1.75	0.000	0.65	0.56	0.00	0.091	0.000	6.811	0.00	7.14
60.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	6.934	0.00	73.85
60.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	6.934	0.00	25.88
60.00	5/16" Coax	Yes	5.00	0.000	1.90	2.12	0.00	0.093	0.000	6.934	0.00	35.28

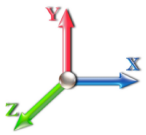
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 35	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.06	0.00	0.093	0.000	6.934	0.00	39.62
60.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	6.934	0.00	136.49
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	6.934	0.00	56.89
60.00	1/2" Coax	Yes	5.00	0.000	0.65	1.60	0.00	0.093	0.000	6.934	0.00	20.71
64.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	7.028	0.00	59.43
64.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	7.028	0.00	20.90
64.00	5/16" Coax	Yes	4.00	0.000	1.90	1.70	0.00	0.095	0.000	7.028	0.00	28.47
64.00	1.75" Hybrid	Yes	4.00	0.000	1.75	1.65	0.00	0.095	0.000	7.028	0.00	31.91
64.00	1 5/8" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	7.028	0.00	109.72
64.00	1 5/8" Hybrid	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	7.028	0.00	45.80
64.00	1/2" Coax	Yes	4.00	0.000	0.65	1.29	0.00	0.095	0.000	7.028	0.00	16.75
65.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	7.050	0.00	14.88
65.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	7.050	0.00	5.24
65.00	5/16" Coax	Yes	1.00	0.000	1.90	0.43	0.00	0.082	0.000	7.050	0.00	7.13
65.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.41	0.00	0.082	0.000	7.050	0.00	7.99
65.00	1 5/8" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	7.050	0.00	27.46
65.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	7.050	0.00	11.47
65.50	1 1/4" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	7.062	0.00	7.45
65.50	1/2" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	7.062	0.00	2.62
65.50	5/16" Coax	Yes	0.50	0.000	1.90	0.21	0.00	0.082	0.000	7.062	0.00	3.57
65.50	1.75" Hybrid	Yes	0.50	0.000	1.75	0.21	0.00	0.082	0.000	7.062	0.00	4.00
65.50	1 5/8" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	7.062	0.00	13.74
65.50	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	7.062	0.00	5.74
70.00	1 1/4" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	7.160	0.00	67.43
70.00	1/2" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	7.160	0.00	23.83
70.00	5/16" Coax	Yes	4.50	0.000	1.90	1.93	0.00	0.083	0.000	7.160	0.00	32.41
70.00	1.75" Hybrid	Yes	4.50	0.000	1.75	1.87	0.00	0.083	0.000	7.160	0.00	36.24
70.00	1 5/8" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	7.160	0.00	124.28
70.00	1 5/8" Hybrid	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	7.160	0.00	51.98
75.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	7.263	0.00	75.40
75.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	7.263	0.00	26.76
75.00	5/16" Coax	Yes	5.00	0.000	1.90	2.15	0.00	0.086	0.000	7.263	0.00	36.34
75.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.09	0.00	0.086	0.000	7.263	0.00	40.56
75.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	7.263	0.00	138.82
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	7.263	0.00	58.14
80.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	7.361	0.00	75.86
80.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	7.361	0.00	27.02
80.00	5/16" Coax	Yes	5.00	0.000	1.90	2.16	0.00	0.088	0.000	7.361	0.00	36.66
80.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.10	0.00	0.088	0.000	7.361	0.00	40.84
80.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	7.361	0.00	139.51
80.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	7.361	0.00	58.51
85.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	7.454	0.00	76.30
85.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	7.454	0.00	27.26
85.00	5/16" Coax	Yes	5.00	0.000	1.90	2.17	0.00	0.091	0.000	7.454	0.00	36.96
85.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.10	0.00	0.091	0.000	7.454	0.00	41.10
85.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	7.454	0.00	140.17
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	7.454	0.00	58.86

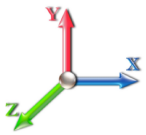
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 36	

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
90.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	7.544	0.00	76.71
90.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	7.544	0.00	27.50
90.00	5/16" Coax	Yes	5.00	0.000	1.90	2.18	0.00	0.094	0.000	7.544	0.00	37.24
90.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.11	0.00	0.094	0.000	7.544	0.00	41.36
90.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	7.544	0.00	140.79
90.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	7.544	0.00	59.20
95.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	7.629	0.00	77.11
95.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	7.629	0.00	27.73
95.00	5/16" Coax	Yes	5.00	0.000	1.90	2.18	0.00	0.097	0.000	7.629	0.00	37.52
95.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.12	0.00	0.097	0.000	7.629	0.00	41.60
95.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	7.629	0.00	141.38
95.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	7.629	0.00	59.52
96.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	7.646	0.00	15.44
96.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	7.646	0.00	5.55
96.00	5/16" Coax	Yes	1.00	0.000	1.90	0.44	0.00	0.099	0.000	7.646	0.00	7.51
96.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.42	0.00	0.099	0.000	7.646	0.00	8.33
96.00	1 5/8" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	7.646	0.00	28.30
96.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	7.646	0.00	11.92
99.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	7.695	0.00	46.45
99.00	1/2" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	7.695	0.00	16.74
99.00	5/16" Coax	Yes	3.00	0.000	1.90	1.31	0.00	0.100	0.000	7.695	0.00	22.64
99.00	1.75" Hybrid	Yes	3.00	0.000	1.75	1.28	0.00	0.100	0.000	7.695	0.00	25.07
99.00	1 5/8" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	7.695	0.00	85.10
99.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	7.695	0.00	35.86
100.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.101	1.004	7.711	0.00	15.50
100.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.101	1.004	7.711	0.00	5.59
100.00	5/16" Coax	Yes	1.00	0.000	1.90	0.44	0.00	0.101	1.004	7.711	0.00	7.56
100.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.43	0.00	0.101	1.004	7.711	0.00	8.37
100.75	1 1/4" Coax	Yes	0.75	0.000	0.00	0.00	0.00	0.102	1.006	7.723	0.00	11.63
100.75	1/2" Coax	Yes	0.75	0.000	0.00	0.00	0.00	0.102	1.006	7.723	0.00	4.20
100.75	5/16" Coax	Yes	0.75	0.000	1.90	0.33	0.00	0.102	1.006	7.723	0.00	5.67
100.75	1.75" Hybrid	Yes	0.75	0.000	1.75	0.32	0.00	0.102	1.006	7.723	0.00	6.28
105.00	1 1/4" Coax	Yes	4.25	0.000	0.00	0.00	0.00	0.102	1.007	7.790	0.00	66.17
105.00	1/2" Coax	Yes	4.25	0.000	0.00	0.00	0.00	0.102	1.007	7.790	0.00	23.93
105.00	5/16" Coax	Yes	4.25	0.000	1.90	1.87	0.00	0.102	1.007	7.790	0.00	32.32
105.00	1.75" Hybrid	Yes	4.25	0.000	1.75	1.81	0.00	0.102	1.007	7.790	0.00	35.75
110.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.106	1.017	7.866	0.00	78.20
110.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.106	1.017	7.866	0.00	28.35
110.00	5/16" Coax	Yes	5.00	0.000	1.90	2.20	0.00	0.106	1.017	7.866	0.00	38.27
110.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.14	0.00	0.106	1.017	7.866	0.00	42.27
115.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.057	0.000	7.939	0.00	78.53
115.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.057	0.000	7.939	0.00	28.54
115.00	5/16" Coax	Yes	5.00	0.000	1.90	2.21	0.00	0.057	0.000	7.939	0.00	38.50
120.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.059	0.000	8.010	0.00	78.86
120.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.059	0.000	8.010	0.00	28.73
120.00	5/16" Coax	Yes	5.00	0.000	1.90	2.22	0.00	0.059	0.000	8.010	0.00	38.72
121.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.061	0.000	8.024	0.00	15.78

Linear Appurtenance Segment Forces (Factored)

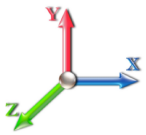
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 37	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
121.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.061	0.000	8.024	0.00	5.75
121.00	5/16" Coax	Yes	1.00	0.000	1.90	0.44	0.00	0.061	0.000	8.024	0.00	7.75
125.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.062	0.000	8.079	0.00	63.34
125.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.062	0.000	8.079	0.00	23.13
125.00	5/16" Coax	Yes	4.00	0.000	1.90	1.78	0.00	0.062	0.000	8.079	0.00	31.15
129.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	8.132	0.00	63.53
129.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	8.132	0.00	23.24
129.00	5/16" Coax	Yes	4.00	0.000	1.90	1.78	0.00	0.064	0.000	8.132	0.00	31.29
130.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.065	0.000	8.145	0.00	15.89
130.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.065	0.000	8.145	0.00	5.82
130.00	5/16" Coax	Yes	1.00	0.000	1.90	0.45	0.00	0.065	0.000	8.145	0.00	7.83
135.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	8.210	0.00	79.76
135.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	8.210	0.00	29.25
135.00	5/16" Coax	Yes	5.00	0.000	1.90	2.23	0.00	0.067	0.000	8.210	0.00	39.35
139.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.070	0.000	8.260	0.00	63.99
139.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.070	0.000	8.260	0.00	23.51
139.00	5/16" Coax	Yes	4.00	0.000	1.90	1.79	0.00	0.070	0.000	8.260	0.00	31.61
140.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.071	0.000	8.272	0.00	16.01
140.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.071	0.000	8.272	0.00	5.88
140.00	5/16" Coax	Yes	1.00	0.000	1.90	0.45	0.00	0.071	0.000	8.272	0.00	7.91
145.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	8.333	0.00	80.32
145.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	8.333	0.00	29.58
145.00	5/16" Coax	Yes	5.00	0.000	1.90	2.24	0.00	0.073	0.000	8.333	0.00	39.74
147.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	8.357	0.00	32.17
147.00	1/2" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	8.357	0.00	11.86
147.00	5/16" Coax	Yes	2.00	0.000	1.90	0.90	0.00	0.076	0.000	8.357	0.00	15.93
										Totals:	**0.0**	**8,802.7**

Calculated Forces

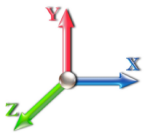
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 38	

Tower Engineering Solutions

Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Dead Load Factor 1.20

Wind Load Factor 1.00



Iterations 23

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-90.72	-11.79	0.00	-1302.6	0.00	1302.68	4419.23	2209.62	10644.5	5330.19	0.00	0.000	0.000	0.265
5.00	-88.35	-11.71	0.00	-1243.7	0.00	1243.74	4369.00	2184.50	10304.7	5160.05	0.03	-0.060	0.000	0.261
10.00	-85.98	-11.62	0.00	-1185.2	0.00	1185.21	4317.04	2158.52	9966.05	4990.43	0.13	-0.121	0.000	0.257
15.00	-83.61	-11.54	0.00	-1127.1	0.00	1127.10	4263.35	2131.68	9628.61	4821.46	0.29	-0.183	0.000	0.253
20.00	-81.27	-11.44	0.00	-1069.4	0.00	1069.43	4207.92	2103.96	9292.72	4653.26	0.51	-0.246	0.000	0.249
25.00	-78.94	-11.33	0.00	-1012.2	0.00	1012.24	4150.77	2075.38	8958.64	4485.98	0.81	-0.309	0.000	0.245
30.00	-76.65	-11.22	0.00	-955.58	0.00	955.58	4091.88	2045.94	8626.63	4319.73	1.16	-0.374	0.000	0.240
35.00	-74.38	-11.10	0.00	-899.48	0.00	899.48	4031.25	2015.63	8296.96	4154.65	1.59	-0.439	0.000	0.235
40.00	-72.14	-10.98	0.00	-843.97	0.00	843.97	3968.90	1984.45	7969.88	3990.86	2.09	-0.504	0.000	0.230
45.00	-69.93	-10.83	0.00	-789.08	0.00	789.08	3904.81	1952.40	7645.65	3828.51	2.65	-0.571	0.000	0.224
47.25	-68.95	-10.77	0.00	-764.72	0.00	764.72	3875.40	1937.70	7500.75	3755.95	2.93	-0.601	0.000	0.221
50.00	-67.22	-10.70	0.00	-735.09	0.00	735.09	3838.99	1919.49	7324.54	3667.71	3.28	-0.639	0.000	0.218
53.25	-65.21	-10.59	0.00	-700.32	0.00	700.32	2982.57	1491.28	5685.98	2847.22	3.73	-0.683	0.000	0.268
55.00	-64.51	-10.57	0.00	-681.78	0.00	681.78	2966.84	1483.42	5604.01	2806.17	3.99	-0.707	0.000	0.265
60.00	-62.56	-10.44	0.00	-628.91	0.00	628.91	2920.75	1460.37	5370.68	2689.33	4.77	-0.783	0.000	0.255
64.00	-60.93	-10.24	0.00	-587.17	0.00	587.17	2882.62	1441.31	5185.10	2596.40	5.45	-0.845	0.000	0.247
65.00	-60.55	-10.21	0.00	-576.93	0.00	576.93	2872.92	1436.46	5138.87	2573.25	5.63	-0.861	0.000	0.245
65.50	-60.19	-10.20	0.00	-571.82	0.00	571.82	2868.04	1434.02	5115.78	2561.69	5.72	-0.869	0.000	0.244
70.00	-58.51	-10.08	0.00	-525.94	0.00	525.94	2823.36	1411.68	4908.84	2458.07	6.58	-0.938	0.000	0.235
75.00	-56.67	-9.94	0.00	-475.57	0.00	475.57	2772.06	1386.03	4680.84	2343.90	7.60	-1.013	0.000	0.223
80.00	-54.87	-9.79	0.00	-425.89	0.00	425.89	2719.04	1359.52	4455.15	2230.89	8.70	-1.087	0.000	0.211
85.00	-53.10	-9.64	0.00	-376.94	0.00	376.94	2664.28	1332.14	4232.01	2119.15	9.88	-1.158	0.000	0.198
90.00	-51.37	-9.49	0.00	-328.72	0.00	328.72	2607.79	1303.89	4011.70	2008.83	11.13	-1.228	0.000	0.183
95.00	-49.67	-9.32	0.00	-281.26	0.00	281.26	2549.57	1274.78	3794.46	1900.05	12.45	-1.294	0.000	0.168
96.00	-49.33	-9.30	0.00	-271.94	0.00	271.94	2537.71	1268.86	3751.41	1878.49	12.72	-1.307	0.000	0.164
99.00	-40.83	-7.77	0.00	-244.05	0.00	244.05	2501.74	1250.87	3623.07	1814.23	13.55	-1.344	0.000	0.151
100.00	-40.42	-7.73	0.00	-236.28	0.00	236.28	2489.61	1244.80	3580.57	1792.94	13.84	-1.357	0.000	0.148
100.75	-40.12	-7.72	0.00	-230.48	0.00	230.48	1858.32	929.16	2706.71	1355.36	14.05	-1.366	0.000	0.192
105.00	-39.01	-7.59	0.00	-197.66	0.00	197.66	1825.33	912.67	2580.97	1292.40	15.29	-1.415	0.000	0.174
110.00	-32.74	-6.30	0.00	-159.70	0.00	159.70	1784.92	892.46	2434.45	1219.03	16.81	-1.477	0.000	0.149
115.00	-31.54	-6.13	0.00	-128.22	0.00	128.22	1742.78	871.39	2289.70	1146.55	18.39	-1.533	0.000	0.130
120.00	-30.37	-5.96	0.00	-97.56	0.00	97.56	1698.90	849.45	2146.98	1075.09	20.02	-1.582	0.000	0.109
121.00	-21.74	-4.44	0.00	-91.60	0.00	91.60	1689.92	844.96	2118.70	1060.93	20.35	-1.591	0.000	0.099
125.00	-20.90	-4.31	0.00	-73.83	0.00	73.83	1653.30	826.65	2006.56	1004.77	21.70	-1.624	0.000	0.086
129.00	-20.08	-4.17	0.00	-56.58	0.00	56.58	1615.56	807.78	1896.04	949.43	23.07	-1.653	0.000	0.072
129.00	-20.08	-4.17	0.00	-56.58	0.00	56.58	1091.97	545.98	1287.15	644.53	23.07	-1.653	0.000	0.106
130.00	-19.89	-4.15	0.00	-52.41	0.00	52.41	1086.82	543.41	1270.20	636.04	23.42	-1.660	0.000	0.101
135.00	-19.01	-3.99	0.00	-31.67	0.00	31.67	1060.04	530.02	1185.82	593.79	25.18	-1.694	0.000	0.071
139.00	-8.77	-1.89	0.00	-15.13	0.00	15.13	1037.37	518.68	1118.90	560.28	26.61	-1.712	0.000	0.035
140.00	-8.62	-1.86	0.00	-13.23	0.00	13.23	1031.53	515.76	1102.27	551.95	26.96	-1.715	0.000	0.032
145.00	-7.87	-1.71	0.00	-3.92	0.00	3.92	1001.28	500.64	1019.81	510.66	28.77	-1.724	0.000	0.016
147.00	-0.88	-0.19	0.00	-0.51	0.00	0.51	988.70	494.35	987.19	494.33	29.49	-1.725	0.000	0.002
149.00	0.00	-0.17	0.00	-0.12	0.00	0.12	975.84	487.92	954.81	478.11	30.21	-1.726	0.000	0.000

Seismic Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 39	

IES Tower Engineering Solutions

Load Case:	1.2D + 1.0E					**Iterations**	21
Gust Response Factor	1.10			**Sds**	0.22	**Ss**	0.20
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.35	**SA**	0.04	**Seismic Importance Factor**	1.00

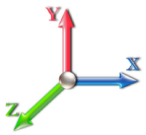
Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.01	0.00	0.00	
5.00		1173.0	0.00	0.04	0.02	29.30	
10.00		1148.6	0.01	0.06	0.03	38.21	
15.00		1124.1	0.02	0.06	0.04	41.94	
20.00		1099.6	0.04	0.07	0.04	43.32	
25.00		1075.1	0.06	0.07	0.04	43.71	
30.00		1050.6	0.08	0.07	0.04	43.79	
35.00		1026.1	0.11	0.07	0.04	43.81	
40.00		1001.6	0.14	0.07	0.03	43.74	
45.00		977.20	0.18	0.07	0.03	43.31	
47.25	Bot - Section 2	431.75	0.20	0.06	0.02	19.16	
50.00		961.48	0.22	0.06	0.02	42.42	
53.25	Top - Section 1	1118.7	0.25	0.06	0.02	48.32	
55.00		272.47	0.26	0.05	0.02	11.53	
60.00		764.72	0.31	0.04	0.01	28.98	
64.00	Appurtenance(s)	637.08	0.35	0.03	0.01	20.25	
65.00		147.23	0.37	0.03	0.01	4.40	
65.50	Appurtenance(s)	123.31	0.37	0.03	0.01	3.55	
70.00		650.60	0.42	0.01	0.01	11.47	
75.00		703.50	0.49	-0.01	0.01	1.31	
80.00		683.09	0.55	-0.03	0.01	-10.39	
85.00		662.69	0.62	-0.06	0.02	-20.15	
90.00		642.28	0.70	-0.09	0.03	-26.40	
95.00		621.88	0.77	-0.11	0.05	-28.62	
96.00	Bot - Section 3	121.93	0.79	-0.11	0.05	-5.64	
99.00	Appurtenance(s)	3575.1	0.84	-0.12	0.07	-162.89	
100.00		215.11	0.86	-0.12	0.07	-9.65	
100.75	Top - Section 2	160.37	0.87	-0.12	0.08	-7.08	
105.00		400.54	0.94	-0.12	0.11	-15.11	
110.00	Appurtenance(s)	2834.1	1.03	-0.10	0.15	-70.33	
115.00		439.80	1.13	-0.05	0.21	-2.75	
120.00		423.47	1.23	0.03	0.28	7.60	
121.00	Appurtenance(s)	3802.4	1.25	0.06	0.29	89.19	
125.00		324.41	1.33	0.17	0.37	15.51	
129.00	Top - Section 3	313.96	1.42	0.32	0.45	23.82	
130.00		57.77	1.44	0.37	0.48	4.82	
135.00		281.51	1.55	0.64	0.61	35.20	
139.00	Appurtenance(s)	4130.6	1.65	0.93	0.73	671.82	
140.00		52.87	1.67	1.01	0.77	9.13	
145.00		257.02	1.79	1.50	0.96	58.21	
147.00	Appurtenance(s)	2981.6	1.84	1.73	1.05	744.71	
149.00	Appurtenance(s)	461.42	1.89	1.98	1.14	126.47	
	Totals:	**38,931.4**				**1,990.0**	**Total Wind:** **38,661.3**

Calculated Forces

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 40	

Tower Engineering Solutions

Load Case: 1.2D + 1.0E



Gust Response Factor	1.10			**Sds**	0.22			**Iterations**	21
Dead Load Factor	1.20	**Seismic Load Factor**	1.00	**Sd1**	0.10			**Ss**	0.20
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.35	**SA**	0.04			**S1**	0.07
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-52.93	-2.35	0.00	-287.17	0.00	287.17	4419.23	2209.62	10644.5	5330.19		0.00	0.00	0.066
5.00	-51.27	-2.34	0.00	-275.40	0.00	275.40	4369.00	2184.50	10304.7	5160.05		0.01	-0.01	0.065
10.00	-49.64	-2.31	0.00	-263.72	0.00	263.72	4317.04	2158.52	9966.05	4990.43		0.03	-0.03	0.064
15.00	-48.04	-2.28	0.00	-252.17	0.00	252.17	4263.35	2131.68	9628.61	4821.46		0.06	-0.04	0.064
20.00	-46.47	-2.25	0.00	-240.78	0.00	240.78	4207.92	2103.96	9292.72	4653.26		0.11	-0.05	0.063
25.00	-44.93	-2.21	0.00	-229.55	0.00	229.55	4150.77	2075.38	8958.64	4485.98		0.18	-0.07	0.062
30.00	-43.42	-2.18	0.00	-218.49	0.00	218.49	4091.88	2045.94	8626.63	4319.73		0.26	-0.08	0.061
35.00	-41.94	-2.14	0.00	-207.61	0.00	207.61	4031.25	2015.63	8296.96	4154.65		0.35	-0.10	0.060
40.00	-40.48	-2.11	0.00	-196.90	0.00	196.90	3968.90	1984.45	7969.88	3990.86		0.47	-0.11	0.060
45.00	-39.06	-2.07	0.00	-186.37	0.00	186.37	3904.81	1952.40	7645.65	3828.51		0.59	-0.13	0.059
47.25	-38.43	-2.05	0.00	-181.72	0.00	181.72	3875.40	1937.70	7500.75	3755.95		0.66	-0.14	0.058
50.00	-37.14	-2.01	0.00	-176.08	0.00	176.08	3838.99	1919.49	7324.54	3667.71		0.74	-0.15	0.058
53.25	-35.63	-1.97	0.00	-169.53	0.00	169.53	2982.57	1491.28	5685.98	2847.22		0.84	-0.16	0.071
55.00	-35.22	-1.96	0.00	-166.09	0.00	166.09	2966.84	1483.42	5604.01	2806.17		0.90	-0.16	0.071
60.00	-34.05	-1.94	0.00	-156.29	0.00	156.29	2920.75	1460.37	5370.68	2689.33		1.08	-0.18	0.070
64.00	-33.08	-1.92	0.00	-148.54	0.00	148.54	2882.62	1441.31	5185.10	2596.40		1.24	-0.20	0.069
65.00	-32.86	-1.92	0.00	-146.62	0.00	146.62	2872.92	1436.46	5138.87	2573.25		1.28	-0.20	0.068
65.50	-32.68	-1.92	0.00	-145.66	0.00	145.66	2868.04	1434.02	5115.78	2561.69		1.30	-0.20	0.068
70.00	-31.68	-1.91	0.00	-137.02	0.00	137.02	2823.36	1411.68	4908.84	2458.07		1.50	-0.22	0.067
75.00	-30.58	-1.92	0.00	-127.45	0.00	127.45	2772.06	1386.03	4680.84	2343.90		1.74	-0.24	0.065
80.00	-29.52	-1.92	0.00	-117.86	0.00	117.86	2719.04	1359.52	4455.15	2230.89		2.00	-0.26	0.064
85.00	-28.47	-1.93	0.00	-108.23	0.00	108.23	2664.28	1332.14	4232.01	2119.15		2.29	-0.28	0.062
90.00	-27.45	-1.93	0.00	-98.58	0.00	98.58	2607.79	1303.89	4011.70	2008.83		2.59	-0.30	0.060
95.00	-26.45	-1.93	0.00	-88.91	0.00	88.91	2549.57	1274.78	3794.46	1900.05		2.92	-0.32	0.057
96.00	-26.26	-1.94	0.00	-86.98	0.00	86.98	2537.71	1268.86	3751.41	1878.49		2.98	-0.33	0.057
99.00	-21.82	-1.91	0.00	-81.17	0.00	81.17	2501.74	1250.87	3623.07	1814.23		3.19	-0.34	0.053
100.00	-21.52	-1.91	0.00	-79.25	0.00	79.25	2489.61	1244.80	3580.57	1792.94		3.26	-0.34	0.053
100.75	-21.30	-1.92	0.00	-77.81	0.00	77.81	1858.32	929.16	2706.71	1355.36		3.32	-0.34	0.069
105.00	-20.65	-1.92	0.00	-69.67	0.00	69.67	1825.33	912.67	2580.97	1292.40		3.63	-0.36	0.065
110.00	-17.05	-1.90	0.00	-60.07	0.00	60.07	1784.92	892.46	2434.45	1219.03		4.02	-0.38	0.059
115.00	-16.33	-1.90	0.00	-50.55	0.00	50.55	1742.78	871.39	2289.70	1146.55		4.44	-0.41	0.053
120.00	-15.64	-1.90	0.00	-41.03	0.00	41.03	1698.90	849.45	2146.98	1075.09		4.87	-0.43	0.047
121.00	-11.04	-1.77	0.00	-39.13	0.00	39.13	1689.92	844.96	2118.70	1060.93		4.96	-0.43	0.043
125.00	-10.56	-1.76	0.00	-32.04	0.00	32.04	1653.30	826.65	2006.56	1004.77		5.33	-0.44	0.038
129.00	-10.10	-1.73	0.00	-25.01	0.00	25.01	1615.56	807.78	1896.04	949.43		5.71	-0.46	0.033
129.00	-10.10	-1.73	0.00	-25.01	0.00	25.01	1091.97	545.98	1287.15	644.53		5.71	-0.46	0.048
130.00	-10.01	-1.73	0.00	-23.28	0.00	23.28	1086.82	543.41	1270.20	636.04		5.80	-0.46	0.046
135.00	-9.57	-1.69	0.00	-14.65	0.00	14.65	1060.04	530.02	1185.82	593.79		6.29	-0.47	0.034
139.00	-4.53	-0.98	0.00	-7.89	0.00	7.89	1037.37	518.68	1118.90	560.28		6.69	-0.48	0.018
140.00	-4.47	-0.97	0.00	-6.91	0.00	6.91	1031.53	515.76	1102.27	551.95		6.79	-0.48	0.017
145.00	-4.13	-0.91	0.00	-2.08	0.00	2.08	1001.28	500.64	1019.81	510.66		7.30	-0.49	0.008
147.00	-0.55	-0.13	0.00	-0.26	0.00	0.26	988.70	494.35	987.19	494.33		7.51	-0.49	0.001
149.00	0.00	-0.13	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11		7.72	-0.49	0.000

Seismic Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 41	

Tower Engineering Solutions

Load Case:	0.9D + 1.0E					**Iterations**	21
Gust Response Factor	1.10			**Sds**	0.22	**Ss**	0.20
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10	**S1**	0.07
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.35	**SA**	0.04	**Seismic Importance Factor**	1.00

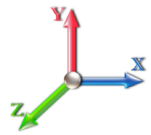
Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.01	0.00	0.00	
5.00		1173.0	0.00	0.04	0.02	29.30	
10.00		1148.6	0.01	0.06	0.03	38.21	
15.00		1124.1	0.02	0.06	0.04	41.94	
20.00		1099.6	0.04	0.07	0.04	43.32	
25.00		1075.1	0.06	0.07	0.04	43.71	
30.00		1050.6	0.08	0.07	0.04	43.79	
35.00		1026.1	0.11	0.07	0.04	43.81	
40.00		1001.6	0.14	0.07	0.03	43.74	
45.00		977.20	0.18	0.07	0.03	43.31	
47.25	Bot - Section 2	431.75	0.20	0.06	0.02	19.16	
50.00		961.48	0.22	0.06	0.02	42.42	
53.25	Top - Section 1	1118.7	0.25	0.06	0.02	48.32	
55.00		272.47	0.26	0.05	0.02	11.53	
60.00		764.72	0.31	0.04	0.01	28.98	
64.00	Appurtenance(s)	637.08	0.35	0.03	0.01	20.25	
65.00		147.23	0.37	0.03	0.01	4.40	
65.50	Appurtenance(s)	123.31	0.37	0.03	0.01	3.55	
70.00		650.60	0.42	0.01	0.01	11.47	
75.00		703.50	0.49	-0.01	0.01	1.31	
80.00		683.09	0.55	-0.03	0.01	-10.39	
85.00		662.69	0.62	-0.06	0.02	-20.15	
90.00		642.28	0.70	-0.09	0.03	-26.40	
95.00		621.88	0.77	-0.11	0.05	-28.62	
96.00	Bot - Section 3	121.93	0.79	-0.11	0.05	-5.64	
99.00	Appurtenance(s)	3575.1	0.84	-0.12	0.07	-162.89	
100.00		215.11	0.86	-0.12	0.07	-9.65	
100.75	Top - Section 2	160.37	0.87	-0.12	0.08	-7.08	
105.00		400.54	0.94	-0.12	0.11	-15.11	
110.00	Appurtenance(s)	2834.1	1.03	-0.10	0.15	-70.33	
115.00		439.80	1.13	-0.05	0.21	-2.75	
120.00		423.47	1.23	0.03	0.28	7.60	
121.00	Appurtenance(s)	3802.4	1.25	0.06	0.29	89.19	
125.00		324.41	1.33	0.17	0.37	15.51	
129.00	Top - Section 3	313.96	1.42	0.32	0.45	23.82	
130.00		57.77	1.44	0.37	0.48	4.82	
135.00		281.51	1.55	0.64	0.61	35.20	
139.00	Appurtenance(s)	4130.6	1.65	0.93	0.73	671.82	
140.00		52.87	1.67	1.01	0.77	9.13	
145.00		257.02	1.79	1.50	0.96	58.21	
147.00	Appurtenance(s)	2981.6	1.84	1.73	1.05	744.71	
149.00	Appurtenance(s)	461.42	1.89	1.98	1.14	126.47	
	Totals:	**38,931.4**				**1,990.0**	**Total Wind:** **38,661.3**

Calculated Forces

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 42	

Tower Engineering Solutions

Load Case: 0.9D + 1.0E



Gust Response Factor	1.10			**Sds**	0.22			**Iterations**	21
Dead Load Factor	0.90	**Seismic Load Factor**	1.00	**Sd1**	0.10			**Ss**	0.20
Wind Load Factor	0.00	**Structure Frequency (f1)**	0.35	**SA**	0.04			**S1**	0.07
								Seismic Importance Factor	1.00

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-39.70	-2.35	0.00	-283.67	0.00	283.67	4419.23	2209.62	10644.5	5330.19		0.00	0.00	0.062
5.00	-38.45	-2.33	0.00	-271.91	0.00	271.91	4369.00	2184.50	10304.7	5160.05		0.01	-0.01	0.061
10.00	-37.23	-2.30	0.00	-260.25	0.00	260.25	4317.04	2158.52	9966.05	4990.43		0.03	-0.03	0.061
15.00	-36.03	-2.27	0.00	-248.74	0.00	248.74	4263.35	2131.68	9628.61	4821.46		0.06	-0.04	0.060
20.00	-34.85	-2.23	0.00	-237.40	0.00	237.40	4207.92	2103.96	9292.72	4653.26		0.11	-0.05	0.059
25.00	-33.70	-2.20	0.00	-226.23	0.00	226.23	4150.77	2075.38	8958.64	4485.98		0.18	-0.07	0.059
30.00	-32.56	-2.16	0.00	-215.26	0.00	215.26	4091.88	2045.94	8626.63	4319.73		0.26	-0.08	0.058
35.00	-31.45	-2.12	0.00	-204.46	0.00	204.46	4031.25	2015.63	8296.96	4154.65		0.35	-0.10	0.057
40.00	-30.36	-2.08	0.00	-193.85	0.00	193.85	3968.90	1984.45	7969.88	3990.86		0.46	-0.11	0.056
45.00	-29.29	-2.04	0.00	-183.44	0.00	183.44	3904.81	1952.40	7645.65	3828.51		0.59	-0.13	0.055
47.25	-28.82	-2.03	0.00	-178.84	0.00	178.84	3875.40	1937.70	7500.75	3755.95		0.65	-0.13	0.055
50.00	-27.85	-1.99	0.00	-173.26	0.00	173.26	3838.99	1919.49	7324.54	3667.71		0.73	-0.14	0.054
53.25	-26.72	-1.94	0.00	-166.80	0.00	166.80	2982.57	1491.28	5685.98	2847.22		0.83	-0.15	0.068
55.00	-26.41	-1.93	0.00	-163.41	0.00	163.41	2966.84	1483.42	5604.01	2806.17		0.89	-0.16	0.067
60.00	-25.54	-1.91	0.00	-153.74	0.00	153.74	2920.75	1460.37	5370.68	2689.33		1.06	-0.18	0.066
64.00	-24.81	-1.89	0.00	-146.10	0.00	146.10	2882.62	1441.31	5185.10	2596.40		1.22	-0.19	0.065
65.00	-24.64	-1.89	0.00	-144.21	0.00	144.21	2872.92	1436.46	5138.87	2573.25		1.26	-0.20	0.065
65.50	-24.51	-1.89	0.00	-143.27	0.00	143.27	2868.04	1434.02	5115.78	2561.69		1.28	-0.20	0.064
70.00	-23.76	-1.88	0.00	-134.78	0.00	134.78	2823.36	1411.68	4908.84	2458.07		1.48	-0.22	0.063
75.00	-22.94	-1.88	0.00	-125.37	0.00	125.37	2772.06	1386.03	4680.84	2343.90		1.72	-0.24	0.062
80.00	-22.13	-1.89	0.00	-115.95	0.00	115.95	2719.04	1359.52	4455.15	2230.89		1.97	-0.26	0.060
85.00	-21.35	-1.89	0.00	-106.51	0.00	106.51	2664.28	1332.14	4232.01	2119.15		2.25	-0.28	0.058
90.00	-20.58	-1.90	0.00	-97.05	0.00	97.05	2607.79	1303.89	4011.70	2008.83		2.55	-0.30	0.056
95.00	-19.84	-1.90	0.00	-87.57	0.00	87.57	2549.57	1274.78	3794.46	1900.05		2.87	-0.32	0.054
96.00	-19.69	-1.90	0.00	-85.67	0.00	85.67	2537.71	1268.86	3751.41	1878.49		2.94	-0.32	0.053
99.00	-16.36	-1.88	0.00	-79.98	0.00	79.98	2501.74	1250.87	3623.07	1814.23		3.15	-0.33	0.051
100.00	-16.14	-1.88	0.00	-78.10	0.00	78.10	2489.61	1244.80	3580.57	1792.94		3.22	-0.34	0.050
100.75	-15.97	-1.88	0.00	-76.69	0.00	76.69	1858.32	929.16	2706.71	1355.36		3.27	-0.34	0.065
105.00	-15.48	-1.89	0.00	-68.69	0.00	68.69	1825.33	912.67	2580.97	1292.40		3.58	-0.36	0.062
110.00	-12.78	-1.87	0.00	-59.26	0.00	59.26	1784.92	892.46	2434.45	1219.03		3.96	-0.38	0.056
115.00	-12.25	-1.87	0.00	-49.90	0.00	49.90	1742.78	871.39	2289.70	1146.55		4.37	-0.40	0.051
120.00	-11.72	-1.86	0.00	-40.53	0.00	40.53	1698.90	849.45	2146.98	1075.09		4.80	-0.42	0.045
121.00	-8.27	-1.75	0.00	-38.67	0.00	38.67	1689.92	844.96	2118.70	1060.93		4.89	-0.42	0.041
125.00	-7.92	-1.74	0.00	-31.66	0.00	31.66	1653.30	826.65	2006.56	1004.77		5.25	-0.44	0.036
129.00	-7.57	-1.71	0.00	-24.72	0.00	24.72	1615.56	807.78	1896.04	949.43		5.62	-0.45	0.031
129.00	-7.57	-1.71	0.00	-24.72	0.00	24.72	1091.97	545.98	1287.15	644.53		5.62	-0.45	0.045
130.00	-7.51	-1.71	0.00	-23.01	0.00	23.01	1086.82	543.41	1270.20	636.04		5.71	-0.45	0.043
135.00	-7.17	-1.67	0.00	-14.48	0.00	14.48	1060.04	530.02	1185.82	593.79		6.20	-0.47	0.031
139.00	-3.40	-0.97	0.00	-7.81	0.00	7.81	1037.37	518.68	1118.90	560.28		6.59	-0.48	0.017
140.00	-3.35	-0.96	0.00	-6.84	0.00	6.84	1031.53	515.76	1102.27	551.95		6.69	-0.48	0.016
145.00	-3.10	-0.90	0.00	-2.05	0.00	2.05	1001.28	500.64	1019.81	510.66		7.20	-0.48	0.007
147.00	-0.42	-0.13	0.00	-0.26	0.00	0.26	988.70	494.35	987.19	494.33		7.40	-0.48	0.001
149.00	0.00	-0.13	0.00	0.00	0.00	0.00	975.84	487.92	954.81	478.11		7.60	-0.48	0.000

Wind Loading - Shaft

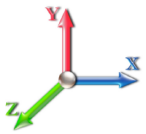
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 43	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	275.75	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	270.09	0.650	0.000	5.00	24.669	16.03	131.3	0.0	1173.1
10.00		1.00	0.85	7.442	8.19	264.43	0.650	0.000	5.00	24.157	15.70	128.5	0.0	1148.6
15.00		1.00	0.86	7.534	8.29	260.36	0.650	0.000	5.00	23.645	15.37	127.4	0.0	1124.1
20.00		1.00	0.91	7.978	8.78	262.06	0.650	0.000	5.00	23.134	15.04	132.0	0.0	1099.6
25.00		1.00	0.95	8.345	9.18	262.03	0.650	0.000	5.00	22.622	14.70	135.0	0.0	1075.1
30.00		1.00	0.99	8.659	9.53	260.82	0.650	0.000	5.00	22.111	14.37	136.9	0.0	1050.7
35.00		1.00	1.02	8.936	9.83	258.75	0.650	0.000	5.00	21.599	14.04	138.0	0.0	1026.2
40.00		1.00	1.05	9.184	10.10	256.03	0.650	0.000	5.00	21.087	13.71	138.5	0.0	1001.7
45.00		1.00	1.07	9.410	10.35	252.79	0.650	0.000	5.00	20.576	13.37	138.4	0.0	977.2
47.25	Bot - Section 2	1.00	1.09	9.505	10.46	251.18	0.650	0.000	2.25	9.092	5.91	61.8	0.0	431.8
50.00		1.00	1.10	9.616	10.58	249.11	0.650	0.000	2.75	11.117	7.23	76.4	0.0	961.5
53.25	Top - Section 1	1.00	1.11	9.742	10.72	246.53	0.650	0.000	3.25	12.939	8.41	90.1	0.0	1118.8
55.00		1.00	1.12	9.807	10.79	248.44	0.650	0.000	1.75	6.878	4.47	48.2	0.0	272.5
60.00		1.00	1.14	9.986	10.98	244.13	0.650	0.000	5.00	19.305	12.55	137.8	0.0	764.7
64.00	Appurtenance(s)	1.00	1.16	10.120	11.13	240.49	0.650	0.000	4.00	15.076	9.80	109.1	0.0	597.1
65.00		1.00	1.16	10.153	11.17	239.55	0.650	0.000	1.00	3.718	2.42	27.0	0.0	147.2
65.50	Appurtenance(s)	1.00	1.16	10.169	11.19	239.08	0.650	0.000	0.50	1.851	1.20	13.5	0.0	73.3
70.00		1.00	1.18	10.310	11.34	234.74	0.650	0.000	4.50	16.431	10.68	121.1	0.0	650.6
75.00		1.00	1.19	10.459	11.50	229.71	0.650	0.000	5.00	17.770	11.55	132.9	0.0	703.5
80.00		1.00	1.21	10.600	11.66	224.51	0.650	0.000	5.00	17.259	11.22	130.8	0.0	683.1
85.00		1.00	1.23	10.734	11.81	219.13	0.650	0.000	5.00	16.747	10.89	128.5	0.0	662.7
90.00		1.00	1.24	10.863	11.95	213.60	0.650	0.000	5.00	16.236	10.55	126.1	0.0	642.3
95.00		1.00	1.25	10.986	12.08	207.92	0.650	0.000	5.00	15.724	10.22	123.5	0.0	621.9
96.00	Bot - Section 3	1.00	1.26	11.010	12.11	206.77	0.650	0.000	1.00	3.083	2.00	24.3	0.0	121.9
99.00	Appurtenance(s)	1.00	1.27	11.081	12.19	203.29	0.650	0.000	3.00	9.254	6.02	73.3	0.0	654.1
100.00		1.00	1.27	11.104	12.21	202.12	0.653 *	0.000	1.00	3.044	1.99	24.3	0.0	215.1
100.75	Top - Section 2	1.00	1.27	11.121	12.23	201.24	0.654 *	0.000	0.75	2.269	1.48	18.2	0.0	160.4
105.00		1.00	1.28	11.218	12.34	199.08	0.654 *	0.000	4.25	12.643	8.27	102.1	0.0	400.5
110.00	Appurtenance(s)	1.00	1.29	11.327	12.46	193.06	0.661 *	0.000	5.00	14.401	9.52	118.6	0.0	456.1
115.00		1.00	1.31	11.432	12.58	186.95	0.650	0.000	5.00	13.889	9.03	113.5	0.0	439.8
120.00		1.00	1.32	11.534	12.69	180.73	0.650	0.000	5.00	13.377	8.70	110.3	0.0	423.5
121.00	Appurtenance(s)	1.00	1.32	11.554	12.71	179.48	0.650	0.000	1.00	2.614	1.70	21.6	0.0	82.7
125.00		1.00	1.33	11.633	12.80	174.43	0.650	0.000	4.00	10.252	6.66	85.3	0.0	324.4
129.00	Top - Section 3	1.00	1.34	11.710	12.88	169.32	0.650	0.000	4.00	9.924	6.45	83.1	0.0	314.0
130.00		1.00	1.34	11.729	12.90	168.04	0.650	0.000	1.00	2.430	1.58	20.4	0.0	57.8
135.00		1.00	1.35	11.822	13.00	161.57	0.650	0.000	5.00	11.843	7.70	100.1	0.0	281.5
139.00	Appurtenance(s)	1.00	1.36	11.894	13.08	156.34	0.650	0.000	4.00	9.106	5.92	77.4	0.0	216.4
140.00		1.00	1.36	11.912	13.10	155.02	0.650	0.000	1.00	2.225	1.45	19.0	0.0	52.9
145.00		1.00	1.37	12.000	13.20	148.40	0.650	0.000	5.00	10.819	7.03	92.8	0.0	257.0
147.00	Appurtenance(s)	1.00	1.37	12.034	13.24	145.74	0.650	0.000	2.00	4.184	2.72	36.0	0.0	99.4
149.00	Appurtenance(s)	1.00	1.38	12.068	13.27	143.06	0.650	0.000	2.00	4.103	2.67	35.4	0.0	97.4
								Totals:	**149.00**			**3,688.4**		**22,662.1**

* Cf Adjusted by Linear Load Ra Effect

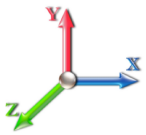
Discrete Appurtenance Forces

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 44	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	Orient Factor x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	149.00	Decibel DB404-B	1	12.127	13.340	1.00	1.00	1.03	14.00	0.000	3.500	13.74	0.00	48.09
2	149.00	Pipe Mount	1	12.068	13.275	1.00	1.00	5.00	350.00	0.000	0.000	66.37	0.00	0.00
3	147.00	800MHz RRH w/ filter	3	12.034	13.238	0.40	0.80	4.15	204.90	0.000	0.000	54.96	0.00	0.00
4	147.00	ALU TD-RRH8x20-25	3	12.034	13.238	0.54	0.80	6.51	210.00	0.000	0.000	86.21	0.00	0.00
5	147.00	RFS APXVSPP18-C-A20	3	12.034	13.238	0.66	0.80	15.98	171.00	0.000	0.000	211.48	0.00	0.00
6	147.00	ALU 1900MHz RRH	3	12.034	13.238	0.54	0.80	6.11	132.00	0.000	0.000	80.89	0.00	0.00
7	147.00	ALU 800MHz RRH	3	12.034	13.238	0.54	0.80	4.25	178.50	0.000	0.000	56.19	0.00	0.00
8	147.00	RFS APXVTM14-C-120	3	12.034	13.238	0.63	0.80	12.02	168.00	0.000	0.000	159.12	0.00	0.00
9	147.00	RFS ACU-A20-N	4	12.034	13.238	0.54	0.80	0.30	4.00	0.000	0.000	3.97	0.00	0.00
10	147.00	Argus LLPX310R	3	12.034	13.238	0.55	0.80	7.12	85.80	0.000	0.000	94.26	0.00	0.00
11	147.00	Andrew VHLP2-11	1	12.034	13.238	1.00	1.00	4.68	27.00	0.000	0.000	61.95	0.00	0.00
12	147.00	Andrew VHLP800-11-DW1	1	12.034	13.238	1.00	1.00	6.70	49.00	0.000	0.000	88.69	0.00	0.00
13	147.00	U-RAS Flexible RRH	3	12.034	13.238	0.78	1.00	5.22	152.10	0.000	0.000	69.08	0.00	0.00
14	147.00	12.5' Low Profile Platform	1	12.034	13.238	1.00	1.00	22.00	1500.00	0.000	0.000	291.23	0.00	0.00
15	139.00	DMP65R-BU6DA	3	11.894	13.084	0.55	0.75	20.88	238.20	0.000	0.000	273.13	0.00	0.00
16	139.00	AIR 6449	3	11.858	13.044	0.64	0.75	7.90	246.00	0.000	-2.000	103.03	0.00	-206.06
17	139.00	AIR 6419	3	11.930	13.123	0.57	0.75	6.50	198.00	0.000	2.000	85.27	0.00	170.54
18	139.00	4415 B30	3	11.894	13.084	0.50	0.75	2.47	138.00	0.000	0.000	32.35	0.00	0.00
19	139.00	Powerawve LGP21901	6	11.894	13.084	0.50	0.75	0.69	33.00	0.000	0.000	9.07	0.00	0.00
20	139.00	Powerwave 7020.00 RET	12	11.894	13.084	0.50	0.75	2.41	26.40	0.000	0.000	31.56	0.00	0.00
21	139.00	Powerwave LGP13519	6	11.894	13.084	0.50	0.75	1.03	31.80	0.000	0.000	13.41	0.00	0.00
22	139.00	8843 B2 B66A	3	11.894	13.084	0.50	0.75	2.47	216.00	0.000	0.000	32.35	0.00	0.00
23	139.00	4449 B5/B12	3	11.894	13.084	0.50	0.75	2.97	213.00	0.000	0.000	38.86	0.00	0.00
24	139.00	WCS-IMFQ-AMT	1	11.894	13.084	0.38	0.75	0.37	34.50	0.000	0.000	4.86	0.00	0.00
25	139.00	TPA65R-BU6D	3	11.947	13.141	0.54	0.75	20.85	202.50	0.000	2.970	273.99	0.00	813.76
26	139.00	B14 4478	3	11.894	13.084	0.50	0.75	2.77	179.70	0.000	0.000	36.29	0.00	0.00
27	139.00	DC9-48-60-24-8C-EV	2	11.894	13.084	0.75	0.75	1.71	52.40	0.000	0.000	22.37	0.00	0.00
28	139.00	(12) Mount Pipes	1	11.894	13.084	1.00	1.00	16.50	500.00	0.000	0.000	215.88	0.00	0.00
29	139.00	Platform w/ Hand Rail	1	11.894	13.084	1.00	1.00	32.00	1600.00	0.000	0.000	418.67	0.00	0.00
30	139.00	Commscope	3	11.894	13.084	0.50	0.75	0.08	4.80	0.000	0.000	0.99	0.00	0.00
31	121.00	4449 B71 + B85	3	11.554	12.710	0.50	0.75	2.97	219.60	0.000	0.000	37.75	0.00	0.00
32	121.00	RRUS 4415 B25	3	11.554	12.710	0.50	0.75	2.47	138.00	0.000	0.000	31.42	0.00	0.00
33	121.00	HRK12 (Handrail Kit)	1	11.554	12.710	1.00	1.00	6.75	261.72	0.000	0.000	85.79	0.00	0.00
34	121.00	PRK-1245 (kicker kit)	1	11.554	12.710	1.00	1.00	9.50	464.91	0.000	0.000	120.74	0.00	0.00
35	121.00	KRD 9011461-B66A-B2A	3	11.554	12.710	0.65	0.75	12.74	396.60	0.000	0.000	161.97	0.00	0.00
36	121.00	AIR6449 B41	3	11.554	12.710	0.53	0.75	9.03	309.00	0.000	0.000	114.72	0.00	0.00
37	121.00	APXVAALL24_43-U-NA20	3	11.554	12.710	0.52	0.75	31.88	384.00	0.000	0.000	405.17	0.00	0.00
38	121.00	SDX1926Q-43	3	11.554	12.710	0.50	0.75	0.78	12.90	0.000	0.000	9.96	0.00	0.00
39	121.00	Ericsson KRY 112 144/1	3	11.554	12.710	0.50	0.75	0.62	33.00	0.000	0.000	7.86	0.00	0.00
40	121.00	Low Profile Platform	1	11.554	12.710	1.00	1.00	22.00	1500.00	0.000	0.000	279.62	0.00	0.00
41	110.00	FFVV-65B-R2	3	11.327	12.460	0.55	0.75	20.43	212.40	0.000	0.000	254.54	0.00	0.00
42	110.00	TA08025-B605	3	11.327	12.460	0.50	0.75	2.95	225.00	0.000	0.000	36.81	0.00	0.00
43	110.00	TA08025-B604	3	11.327	12.460	0.50	0.75	2.95	191.70	0.000	0.000	36.81	0.00	0.00
44	110.00	RDIDC-9181-PF-48	1	11.327	12.460	0.75	0.75	1.51	21.90	0.000	0.000	18.78	0.00	0.00
45	110.00	MC-PK8-DSH	1	11.327	12.460	1.00	1.00	37.59	1727.00	0.000	0.000	468.36	0.00	0.00
46	99.00	MT6407-77A	3	11.034	12.137	0.56	0.80	7.88	238.20	0.000	-2.000	95.63	0.00	-191.26
47	99.00	RFS APL866513-42T0	4	11.034	12.137	0.74	0.80	12.05	62.80	0.000	-2.000	146.29	0.00	-292.57

Discrete Appurtenance Forces

Structure:	CT13056-A-SBA		**Code:**	TIA-222-G	3/4/2022
Site Name:	Moosehill		**Exposure:**	C	
Height:	149.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 45

48	99.00	Antel LPA-80063-6CF	2	11.034	12.137	0.74	0.80	14.52	54.00	0.000	-2.000	176.27	0.00	-352.53
49	99.00	12.5' Low Profile Platform	1	11.081	12.189	1.00	1.00	22.00	1500.00	0.000	0.000	268.15	0.00	0.00
50	99.00	QS6656-5D	6	11.034	12.137	0.74	0.80	36.29	390.00	0.000	-2.000	440.48	0.00	-880.97
51	99.00	AS-005245 (Brackets)	3	11.081	12.189	1.00	1.00	1.80	105.00	0.000	0.000	21.94	0.00	0.00
52	99.00	B2/B66A RRH-BR049	3	11.081	12.189	0.54	0.80	3.02	253.50	0.000	0.000	36.85	0.00	0.00
53	99.00	B5/B13 RRH-BR04C	3	11.081	12.189	0.54	0.80	3.02	253.50	0.000	0.000	36.85	0.00	0.00
54	99.00	DB-C1-12C-24AB-OZ	2	11.081	12.189	1.00	1.00	8.12	64.00	0.000	0.000	98.97	0.00	0.00
55	65.50	Decibel 26OB	1	10.169	11.186	0.80	0.80	1.60	50.00	0.000	0.000	17.90	0.00	0.00
56	64.00	3 ft Standoff	1	10.120	11.132	1.00	1.00	2.63	40.00	0.000	0.000	29.28	0.00	0.00
							Totals:		**16,269.33**			**6,369.13**		

Total Applied Force Summary

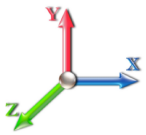
Structure:	CT13056-A-SBA		**Code:**	TIA-222-G	3/4/2022
Site Name:	Moosehill		**Exposure:**	C	
Height:	149.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 46

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		131.26	1381.65	0.00	0.00
10.00		128.54	1357.16	0.00	0.00
15.00		127.37	1332.67	0.00	0.00
20.00		131.96	1308.19	0.00	0.00
25.00		134.97	1283.70	0.00	0.00
30.00		136.90	1259.21	0.00	0.00
35.00		138.01	1234.73	0.00	0.00
40.00		138.48	1210.24	0.00	0.00
45.00		138.43	1185.75	0.00	0.00
47.25		61.79	525.60	0.00	0.00
50.00		76.44	1076.18	0.00	0.00
53.25		90.13	1254.34	0.00	0.00
55.00		48.23	345.47	0.00	0.00
60.00		137.83	973.27	0.00	0.00
64.00	(1) attachments	138.36	803.92	0.00	0.00
65.00		26.99	188.78	0.00	0.00
65.50	(1) attachments	31.36	144.08	0.00	0.00
70.00		121.12	837.58	0.00	0.00
75.00		132.89	911.25	0.00	0.00
80.00		130.80	890.85	0.00	0.00
85.00		128.54	870.44	0.00	0.00
90.00		126.10	850.04	0.00	0.00
95.00		123.51	829.63	0.00	0.00
96.00		24.27	163.48	0.00	0.00
99.00	(27) attachments	1394.75	3699.80	0.00	-1717.33
100.00		24.26	248.22	0.00	0.00
100.75		18.15	185.20	0.00	0.00
105.00		102.09	541.26	0.00	0.00
110.00	(11) attachments	933.90	2999.68	0.00	0.00
115.00		113.53	595.40	0.00	0.00
120.00		110.33	579.07	0.00	0.00
121.00	(24) attachments	1276.59	3833.59	0.00	0.00
125.00		85.27	394.09	0.00	0.00
129.00		83.09	383.64	0.00	0.00
130.00		20.38	75.19	0.00	0.00
135.00		100.10	368.61	0.00	0.00
139.00	(56) attachments	1669.51	4200.37	0.00	778.24
140.00		18.95	56.83	0.00	0.00
145.00		92.83	276.82	0.00	0.00
147.00	(31) attachments	1294.04	2989.60	0.00	0.00
149.00	(2) attachments	115.52	462.46	0.00	48.09
	Totals:	**10,057.56**	**44,108.03**	**0.00**	**-891.00**

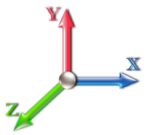
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 47	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	7.442	0.00	13.20
5.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	7.442	0.00	1.60
5.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.073	0.000	7.442	0.00	2.40
5.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.073	0.000	7.442	0.00	9.96
5.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	7.442	0.00	31.20
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	7.442	0.00	11.00
5.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.073	0.000	7.442	0.00	0.80
10.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	7.442	0.00	13.20
10.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	7.442	0.00	1.60
10.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.074	0.000	7.442	0.00	2.40
10.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.074	0.000	7.442	0.00	9.96
10.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	7.442	0.00	31.20
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.074	0.000	7.442	0.00	11.00
10.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.074	0.000	7.442	0.00	0.80
15.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	7.534	0.00	13.20
15.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	7.534	0.00	1.60
15.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.076	0.000	7.534	0.00	2.40
15.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.076	0.000	7.534	0.00	9.96
15.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	7.534	0.00	31.20
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.076	0.000	7.534	0.00	11.00
15.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.076	0.000	7.534	0.00	0.80
20.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	7.978	0.00	13.20
20.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	7.978	0.00	1.60
20.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.077	0.000	7.978	0.00	2.40
20.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.077	0.000	7.978	0.00	9.96
20.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	7.978	0.00	31.20
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.077	0.000	7.978	0.00	11.00
20.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.077	0.000	7.978	0.00	0.80
25.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	8.345	0.00	13.20
25.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	8.345	0.00	1.60
25.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.079	0.000	8.345	0.00	2.40
25.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.079	0.000	8.345	0.00	9.96
25.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	8.345	0.00	31.20
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.079	0.000	8.345	0.00	11.00
25.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.079	0.000	8.345	0.00	0.80
30.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	8.659	0.00	13.20
30.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	8.659	0.00	1.60
30.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.081	0.000	8.659	0.00	2.40
30.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.081	0.000	8.659	0.00	9.96
30.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	8.659	0.00	31.20
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.081	0.000	8.659	0.00	11.00
30.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.081	0.000	8.659	0.00	0.80
35.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	8.936	0.00	13.20
35.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	8.936	0.00	1.60
35.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.083	0.000	8.936	0.00	2.40
35.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.083	0.000	8.936	0.00	9.96
35.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	8.936	0.00	31.20

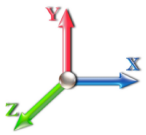
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 48	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.083	0.000	8.936	0.00	11.00
35.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.083	0.000	8.936	0.00	0.80
40.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	9.184	0.00	13.20
40.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	9.184	0.00	1.60
40.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.085	0.000	9.184	0.00	2.40
40.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.085	0.000	9.184	0.00	9.96
40.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	9.184	0.00	31.20
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.085	0.000	9.184	0.00	11.00
40.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.085	0.000	9.184	0.00	0.80
45.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	9.410	0.00	13.20
45.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	9.410	0.00	1.60
45.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.087	0.000	9.410	0.00	2.40
45.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.087	0.000	9.410	0.00	9.96
45.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	9.410	0.00	31.20
45.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.087	0.000	9.410	0.00	11.00
45.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.087	0.000	9.410	0.00	0.80
47.25	1 1/4" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	9.505	0.00	5.94
47.25	1/2" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	9.505	0.00	0.72
47.25	5/16" Coax	Yes	2.25	0.000	1.90	0.36	0.00	0.089	0.000	9.505	0.00	1.08
47.25	1.75" Hybrid	Yes	2.25	0.000	1.75	0.33	0.00	0.089	0.000	9.505	0.00	4.48
47.25	1 5/8" Coax	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	9.505	0.00	14.04
47.25	1 5/8" Hybrid	Yes	2.25	0.000	0.00	0.00	0.00	0.089	0.000	9.505	0.00	4.95
47.25	1/2" Coax	Yes	2.25	0.000	0.65	0.12	0.00	0.089	0.000	9.505	0.00	0.36
50.00	1 1/4" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	9.616	0.00	7.26
50.00	1/2" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	9.616	0.00	0.88
50.00	5/16" Coax	Yes	2.75	0.000	1.90	0.44	0.00	0.090	0.000	9.616	0.00	1.32
50.00	1.75" Hybrid	Yes	2.75	0.000	1.75	0.40	0.00	0.090	0.000	9.616	0.00	5.48
50.00	1 5/8" Coax	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	9.616	0.00	17.16
50.00	1 5/8" Hybrid	Yes	2.75	0.000	0.00	0.00	0.00	0.090	0.000	9.616	0.00	6.05
50.00	1/2" Coax	Yes	2.75	0.000	0.65	0.15	0.00	0.090	0.000	9.616	0.00	0.44
53.25	1 1/4" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	9.742	0.00	8.58
53.25	1/2" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	9.742	0.00	1.04
53.25	5/16" Coax	Yes	3.25	0.000	1.90	0.51	0.00	0.091	0.000	9.742	0.00	1.56
53.25	1.75" Hybrid	Yes	3.25	0.000	1.75	0.47	0.00	0.091	0.000	9.742	0.00	6.47
53.25	1 5/8" Coax	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	9.742	0.00	20.28
53.25	1 5/8" Hybrid	Yes	3.25	0.000	0.00	0.00	0.00	0.091	0.000	9.742	0.00	7.15
53.25	1/2" Coax	Yes	3.25	0.000	0.65	0.18	0.00	0.091	0.000	9.742	0.00	0.52
55.00	1 1/4" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	9.807	0.00	4.62
55.00	1/2" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	9.807	0.00	0.56
55.00	5/16" Coax	Yes	1.75	0.000	1.90	0.28	0.00	0.091	0.000	9.807	0.00	0.84
55.00	1.75" Hybrid	Yes	1.75	0.000	1.75	0.26	0.00	0.091	0.000	9.807	0.00	3.48
55.00	1 5/8" Coax	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	9.807	0.00	10.92
55.00	1 5/8" Hybrid	Yes	1.75	0.000	0.00	0.00	0.00	0.091	0.000	9.807	0.00	3.85
55.00	1/2" Coax	Yes	1.75	0.000	0.65	0.09	0.00	0.091	0.000	9.807	0.00	0.28
60.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	9.986	0.00	13.20
60.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	9.986	0.00	1.60
60.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.093	0.000	9.986	0.00	2.40

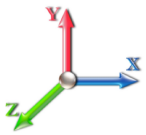
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 49	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
60.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.093	0.000	9.986	0.00	9.96
60.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	9.986	0.00	31.20
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.093	0.000	9.986	0.00	11.00
60.00	1/2" Coax	Yes	5.00	0.000	0.65	0.27	0.00	0.093	0.000	9.986	0.00	0.80
64.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	10.120	0.00	10.56
64.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	10.120	0.00	1.28
64.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.095	0.000	10.120	0.00	1.92
64.00	1.75" Hybrid	Yes	4.00	0.000	1.75	0.58	0.00	0.095	0.000	10.120	0.00	7.96
64.00	1 5/8" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	10.120	0.00	24.96
64.00	1 5/8" Hybrid	Yes	4.00	0.000	0.00	0.00	0.00	0.095	0.000	10.120	0.00	8.80
64.00	1/2" Coax	Yes	4.00	0.000	0.65	0.22	0.00	0.095	0.000	10.120	0.00	0.64
65.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	10.153	0.00	2.64
65.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	10.153	0.00	0.32
65.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.082	0.000	10.153	0.00	0.48
65.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.082	0.000	10.153	0.00	1.99
65.00	1 5/8" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	10.153	0.00	6.24
65.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.082	0.000	10.153	0.00	2.20
65.50	1 1/4" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	10.169	0.00	1.32
65.50	1/2" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	10.169	0.00	0.16
65.50	5/16" Coax	Yes	0.50	0.000	1.90	0.08	0.00	0.082	0.000	10.169	0.00	0.24
65.50	1.75" Hybrid	Yes	0.50	0.000	1.75	0.07	0.00	0.082	0.000	10.169	0.00	1.00
65.50	1 5/8" Coax	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	10.169	0.00	3.12
65.50	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.082	0.000	10.169	0.00	1.10
70.00	1 1/4" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	10.310	0.00	11.88
70.00	1/2" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	10.310	0.00	1.44
70.00	5/16" Coax	Yes	4.50	0.000	1.90	0.71	0.00	0.083	0.000	10.310	0.00	2.16
70.00	1.75" Hybrid	Yes	4.50	0.000	1.75	0.66	0.00	0.083	0.000	10.310	0.00	8.96
70.00	1 5/8" Coax	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	10.310	0.00	28.08
70.00	1 5/8" Hybrid	Yes	4.50	0.000	0.00	0.00	0.00	0.083	0.000	10.310	0.00	9.90
75.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	10.459	0.00	13.20
75.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	10.459	0.00	1.60
75.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.086	0.000	10.459	0.00	2.40
75.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.086	0.000	10.459	0.00	9.96
75.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	10.459	0.00	31.20
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.086	0.000	10.459	0.00	11.00
80.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	10.600	0.00	13.20
80.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	10.600	0.00	1.60
80.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.088	0.000	10.600	0.00	2.40
80.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.088	0.000	10.600	0.00	9.96
80.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	10.600	0.00	31.20
80.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.088	0.000	10.600	0.00	11.00
85.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	10.734	0.00	13.20
85.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	10.734	0.00	1.60
85.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.091	0.000	10.734	0.00	2.40
85.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.091	0.000	10.734	0.00	9.96
85.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	10.734	0.00	31.20
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.091	0.000	10.734	0.00	11.00

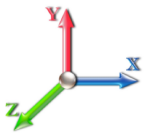
Linear Appurtenance Segment Forces (Factored)

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 50	

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
90.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	10.863	0.00	13.20
90.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	10.863	0.00	1.60
90.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.094	0.000	10.863	0.00	2.40
90.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.094	0.000	10.863	0.00	9.96
90.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	10.863	0.00	31.20
90.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.094	0.000	10.863	0.00	11.00
95.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	10.986	0.00	13.20
95.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	10.986	0.00	1.60
95.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.097	0.000	10.986	0.00	2.40
95.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.097	0.000	10.986	0.00	9.96
95.00	1 5/8" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	10.986	0.00	31.20
95.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.097	0.000	10.986	0.00	11.00
96.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	11.010	0.00	2.64
96.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	11.010	0.00	0.32
96.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.099	0.000	11.010	0.00	0.48
96.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.099	0.000	11.010	0.00	1.99
96.00	1 5/8" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	11.010	0.00	6.24
96.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.099	0.000	11.010	0.00	2.20
99.00	1 1/4" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	11.081	0.00	7.92
99.00	1/2" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	11.081	0.00	0.96
99.00	5/16" Coax	Yes	3.00	0.000	1.90	0.47	0.00	0.100	0.000	11.081	0.00	1.44
99.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.100	0.000	11.081	0.00	5.97
99.00	1 5/8" Coax	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	11.081	0.00	18.72
99.00	1 5/8" Hybrid	Yes	3.00	0.000	0.00	0.00	0.00	0.100	0.000	11.081	0.00	6.60
100.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.101	1.004	11.104	0.00	2.64
100.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.101	1.004	11.104	0.00	0.32
100.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.101	1.004	11.104	0.00	0.48
100.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.101	1.004	11.104	0.00	1.99
100.75	1 1/4" Coax	Yes	0.75	0.000	0.00	0.00	0.00	0.102	1.006	11.121	0.00	1.98
100.75	1/2" Coax	Yes	0.75	0.000	0.00	0.00	0.00	0.102	1.006	11.121	0.00	0.24
100.75	5/16" Coax	Yes	0.75	0.000	1.90	0.12	0.00	0.102	1.006	11.121	0.00	0.36
100.75	1.75" Hybrid	Yes	0.75	0.000	1.75	0.11	0.00	0.102	1.006	11.121	0.00	1.49
105.00	1 1/4" Coax	Yes	4.25	0.000	0.00	0.00	0.00	0.102	1.007	11.218	0.00	11.22
105.00	1/2" Coax	Yes	4.25	0.000	0.00	0.00	0.00	0.102	1.007	11.218	0.00	1.36
105.00	5/16" Coax	Yes	4.25	0.000	1.90	0.67	0.00	0.102	1.007	11.218	0.00	2.04
105.00	1.75" Hybrid	Yes	4.25	0.000	1.75	0.62	0.00	0.102	1.007	11.218	0.00	8.46
110.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.106	1.017	11.327	0.00	13.20
110.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.106	1.017	11.327	0.00	1.60
110.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.106	1.017	11.327	0.00	2.40
110.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.106	1.017	11.327	0.00	9.96
115.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.057	0.000	11.432	0.00	13.20
115.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.057	0.000	11.432	0.00	1.60
115.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.057	0.000	11.432	0.00	2.40
120.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.059	0.000	11.534	0.00	13.20
120.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.059	0.000	11.534	0.00	1.60
120.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.059	0.000	11.534	0.00	2.40
121.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.061	0.000	11.554	0.00	2.64

Linear Appurtenance Segment Forces (Factored)

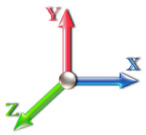
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 51	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
121.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.061	0.000	11.554	0.00	0.32
121.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.061	0.000	11.554	0.00	0.48
125.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.062	0.000	11.633	0.00	10.56
125.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.062	0.000	11.633	0.00	1.28
125.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.062	0.000	11.633	0.00	1.92
129.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	11.710	0.00	10.56
129.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.064	0.000	11.710	0.00	1.28
129.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.064	0.000	11.710	0.00	1.92
130.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.065	0.000	11.729	0.00	2.64
130.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.065	0.000	11.729	0.00	0.32
130.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.065	0.000	11.729	0.00	0.48
135.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	11.822	0.00	13.20
135.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.067	0.000	11.822	0.00	1.60
135.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.067	0.000	11.822	0.00	2.40
139.00	1 1/4" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.070	0.000	11.894	0.00	10.56
139.00	1/2" Coax	Yes	4.00	0.000	0.00	0.00	0.00	0.070	0.000	11.894	0.00	1.28
139.00	5/16" Coax	Yes	4.00	0.000	1.90	0.63	0.00	0.070	0.000	11.894	0.00	1.92
140.00	1 1/4" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.071	0.000	11.912	0.00	2.64
140.00	1/2" Coax	Yes	1.00	0.000	0.00	0.00	0.00	0.071	0.000	11.912	0.00	0.32
140.00	5/16" Coax	Yes	1.00	0.000	1.90	0.16	0.00	0.071	0.000	11.912	0.00	0.48
145.00	1 1/4" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	12.000	0.00	13.20
145.00	1/2" Coax	Yes	5.00	0.000	0.00	0.00	0.00	0.073	0.000	12.000	0.00	1.60
145.00	5/16" Coax	Yes	5.00	0.000	1.90	0.79	0.00	0.073	0.000	12.000	0.00	2.40
147.00	1 1/4" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	12.034	0.00	5.28
147.00	1/2" Coax	Yes	2.00	0.000	0.00	0.00	0.00	0.076	0.000	12.034	0.00	0.64
147.00	5/16" Coax	Yes	2.00	0.000	1.90	0.32	0.00	0.076	0.000	12.034	0.00	0.96
										Totals:	**0.0**	**1,570.5**

Calculated Forces

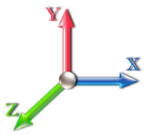
Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 52	

Tower Engineering Solutions

Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00

Wind Load Factor 1.00



Iterations 22

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-44.10	-10.08	0.00	-1099.9	0.00	1099.92	4419.23	2209.62	10644.5	5330.19	0.00	0.000	0.000	0.216
5.00	-42.71	-9.98	0.00	-1049.5	0.00	1049.53	4369.00	2184.50	10304.7	5160.05	0.03	-0.051	0.000	0.213
10.00	-41.35	-9.89	0.00	-999.62	0.00	999.62	4317.04	2158.52	9966.05	4990.43	0.11	-0.102	0.000	0.210
15.00	-40.01	-9.80	0.00	-950.17	0.00	950.17	4263.35	2131.68	9628.61	4821.46	0.24	-0.154	0.000	0.206
20.00	-38.69	-9.70	0.00	-901.19	0.00	901.19	4207.92	2103.96	9292.72	4653.26	0.43	-0.207	0.000	0.203
25.00	-37.40	-9.59	0.00	-852.72	0.00	852.72	4150.77	2075.38	8958.64	4485.98	0.68	-0.261	0.000	0.199
30.00	-36.13	-9.48	0.00	-804.76	0.00	804.76	4091.88	2045.94	8626.63	4319.73	0.98	-0.315	0.000	0.195
35.00	-34.89	-9.37	0.00	-757.35	0.00	757.35	4031.25	2015.63	8296.96	4154.65	1.34	-0.370	0.000	0.191
40.00	-33.67	-9.26	0.00	-710.50	0.00	710.50	3968.90	1984.45	7969.88	3990.86	1.76	-0.425	0.000	0.187
45.00	-32.48	-9.13	0.00	-664.22	0.00	664.22	3904.81	1952.40	7645.65	3828.51	2.23	-0.481	0.000	0.182
47.25	-31.95	-9.08	0.00	-643.68	0.00	643.68	3875.40	1937.70	7500.75	3755.95	2.47	-0.507	0.000	0.180
50.00	-30.87	-9.01	0.00	-618.71	0.00	618.71	3838.99	1919.49	7324.54	3667.71	2.77	-0.538	0.000	0.177
53.25	-29.61	-8.93	0.00	-589.42	0.00	589.42	2982.57	1491.28	5685.98	2847.22	3.15	-0.575	0.000	0.217
55.00	-29.26	-8.90	0.00	-573.80	0.00	573.80	2966.84	1483.42	5604.01	2806.17	3.36	-0.595	0.000	0.214
60.00	-28.28	-8.78	0.00	-529.32	0.00	529.32	2920.75	1460.37	5370.68	2689.33	4.02	-0.660	0.000	0.207
64.00	-27.47	-8.64	0.00	-494.22	0.00	494.22	2882.62	1441.31	5185.10	2596.40	4.60	-0.712	0.000	0.200
65.00	-27.28	-8.62	0.00	-485.57	0.00	485.57	2872.92	1436.46	5138.87	2573.25	4.75	-0.725	0.000	0.198
65.50	-27.13	-8.60	0.00	-481.27	0.00	481.27	2868.04	1434.02	5115.78	2561.69	4.82	-0.732	0.000	0.197
70.00	-26.29	-8.50	0.00	-442.56	0.00	442.56	2823.36	1411.68	4908.84	2458.07	5.54	-0.790	0.000	0.189
75.00	-25.37	-8.38	0.00	-400.08	0.00	400.08	2772.06	1386.03	4680.84	2343.90	6.40	-0.853	0.000	0.180
80.00	-24.47	-8.26	0.00	-358.19	0.00	358.19	2719.04	1359.52	4455.15	2230.89	7.33	-0.915	0.000	0.170
85.00	-23.59	-8.14	0.00	-316.89	0.00	316.89	2664.28	1332.14	4232.01	2119.15	8.32	-0.975	0.000	0.158
90.00	-22.74	-8.02	0.00	-276.18	0.00	276.18	2607.79	1303.89	4011.70	2008.83	9.37	-1.034	0.000	0.146
95.00	-21.91	-7.90	0.00	-236.06	0.00	236.06	2549.57	1274.78	3794.46	1900.05	10.49	-1.089	0.000	0.133
96.00	-21.74	-7.88	0.00	-228.17	0.00	228.17	2537.71	1268.86	3751.41	1878.49	10.72	-1.100	0.000	0.130
99.00	-18.07	-6.42	0.00	-204.54	0.00	204.54	2501.74	1250.87	3623.07	1814.23	11.42	-1.132	0.000	0.120
100.00	-17.82	-6.39	0.00	-198.12	0.00	198.12	2489.61	1244.80	3580.57	1792.94	11.66	-1.142	0.000	0.118
100.75	-17.63	-6.38	0.00	-193.32	0.00	193.32	1858.32	929.16	2706.71	1355.36	11.84	-1.150	0.000	0.152
105.00	-17.09	-6.28	0.00	-166.22	0.00	166.22	1825.33	912.67	2580.97	1292.40	12.88	-1.191	0.000	0.138
110.00	-14.10	-5.29	0.00	-134.83	0.00	134.83	1784.92	892.46	2434.45	1219.03	14.16	-1.243	0.000	0.119
115.00	-13.51	-5.18	0.00	-108.37	0.00	108.37	1742.78	871.39	2289.70	1146.55	15.48	-1.290	0.000	0.102
120.00	-12.93	-5.06	0.00	-82.49	0.00	82.49	1698.90	849.45	2146.98	1075.09	16.86	-1.332	0.000	0.084
121.00	-9.12	-3.70	0.00	-77.43	0.00	77.43	1689.92	844.96	2118.70	1060.93	17.14	-1.340	0.000	0.078
125.00	-8.73	-3.61	0.00	-62.64	0.00	62.64	1653.30	826.65	2006.56	1004.77	18.27	-1.368	0.000	0.068
129.00	-8.35	-3.52	0.00	-48.22	0.00	48.22	1615.56	807.78	1896.04	949.43	19.43	-1.392	0.000	0.056
129.00	-8.35	-3.52	0.00	-48.22	0.00	48.22	1091.97	545.98	1287.15	644.53	19.43	-1.392	0.000	0.083
130.00	-8.27	-3.50	0.00	-44.71	0.00	44.71	1086.82	543.41	1270.20	636.04	19.72	-1.398	0.000	0.078
135.00	-7.90	-3.39	0.00	-27.23	0.00	27.23	1060.04	530.02	1185.82	593.79	21.20	-1.427	0.000	0.053
139.00	-3.75	-1.62	0.00	-12.89	0.00	12.89	1037.37	518.68	1118.90	560.28	22.41	-1.443	0.000	0.027
140.00	-3.69	-1.60	0.00	-11.28	0.00	11.28	1031.53	515.76	1102.27	551.95	22.71	-1.445	0.000	0.024
145.00	-3.42	-1.50	0.00	-3.30	0.00	3.30	1001.28	500.64	1019.81	510.66	24.23	-1.453	0.000	0.010
147.00	-0.46	-0.13	0.00	-0.30	0.00	0.30	988.70	494.35	987.19	494.33	24.84	-1.454	0.000	0.001
149.00	0.00	-0.12	0.00	-0.05	0.00	0.05	975.84	487.92	954.81	478.11	25.45	-1.454	0.000	0.000

Final Analysis Summary

Structure:	CT13056-A-SBA	**Code:**	TIA-222-G	3/4/2022	
Site Name:	Moosehill	**Exposure:**	C		
Height:	149.00 (ft)	**Crest Height:**	0.00		
Base Elev:	1.000 (ft)	**Site Class:**	D - Stiff Soil		
Gh:	1.1 **Topography:** 1	**Struct Class:**	II	Page: 53	

Tower Engineering Solutions

Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 93 mph Wind	38.8	0.00	52.86	0.00	0.00	4254.05
0.9D + 1.6W 93 mph Wind	38.7	0.00	39.63	0.00	0.00	4207.39
1.2D + 1.0Di + 1.0Wi 50 mph Wind	11.8	0.00	90.72	0.00	0.00	1302.68
1.2D + 1.0E	2.4	0.00	52.93	0.00	0.00	287.17
0.9D + 1.0E	2.4	0.00	39.70	0.00	0.00	283.67
1.0D + 1.0W 60 mph Wind	10.1	0.00	44.10	0.00	0.00	1099.92

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-34.30	-34.53	0.00	-2284.5	0.00	-2284.5	2982.57	1491.2	5685.98	2847.22	53.25	0.814
0.9D + 1.6W 93 mph Wind	-25.41	-34.17	0.00	-2249.0	0.00	-2249.0	2982.57	1491.2	5685.98	2847.22	53.25	0.799
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-65.21	-10.59	0.00	-700.32	0.00	-700.32	2982.57	1491.2	5685.98	2847.22	53.25	0.268
1.2D + 1.0E	-35.63	-1.97	0.00	-169.53	0.00	-169.53	2982.57	1491.2	5685.98	2847.22	53.25	0.071
0.9D + 1.0E	-26.72	-1.94	0.00	-166.80	0.00	-166.80	2982.57	1491.2	5685.98	2847.22	53.25	0.068
1.0D + 1.0W 60 mph Wind	-29.61	-8.93	0.00	-589.42	0.00	-589.42	2982.57	1491.2	5685.98	2847.22	53.25	0.217

Base Plate Summary

Structure:	CT13056-A-SB		**Code:**	TIA-222-G	3/4/2022
Site Name:	Moosehill		**Exposure:**	C	
Height:	149.00 (ft)		**Crest Height:**	0.00	
Base Elev:	1.000 (ft)		**Site Class:**	D - Stiff Soil	
Gh:	1.1	**Topography:** 1	**Struct Class:**	II	Page: 54

Tower Engineering Solutions

Reactions

Original Design

Moment (kip-ft):	4184.00
Axial (kip):	45.00
Shear (kip):	39.00

Analysis (1.2D + 1.6W)

Moment (kip-ft):	4254.05
Axial (kip):	52.86
Shear (kip):	38.75

Base Plate

Yield (ksi):	60.00
Width (in):	64.00
Style:	Clipped
Polygon Sides:	4.00
Clip Length (in):	12.00
Effective Len (in):	8.64
Moment (kip-in):	705.58
Allow Stress (ksi):	81.00
Applied Stress (ksi):	54.27
Stress Ratio:	0.67

Anchor Bolts

Bolt Circle:	66.00
Number Bolts:	16.00
Bolt Type:	2.25" 18J
Bolt Diameter (in):	2.25
Yield (ksi):	75.00
Ultimate (ksi):	100.00
Arrangement:	Clustered
Cluster Dist (in):	6.00
Start Angle (deg):	45.00

Compression

Force (kip):	199.04
Allowable (kip):	260.00
Ratio:	0.78

Tension

Force (kip):	187.70
Allowable (kip):	260.00
Ratio:	0.74

Monopole Mat Foundation Design

			Date: 3/4/2022
Customer Name:	AT&T	**TIA Standard:**	TIA-222-G
Site Name:		**Structure Height (Ft.):**	149
Site Number:	CT13056-A-SBA	**Engineer Name:**	J. Tibbetts
Engr. Number:	125400	**Engineer Login ID:**	

Foundation Info Obtained from: Drawings/Calculations

Structure Type: Monopole

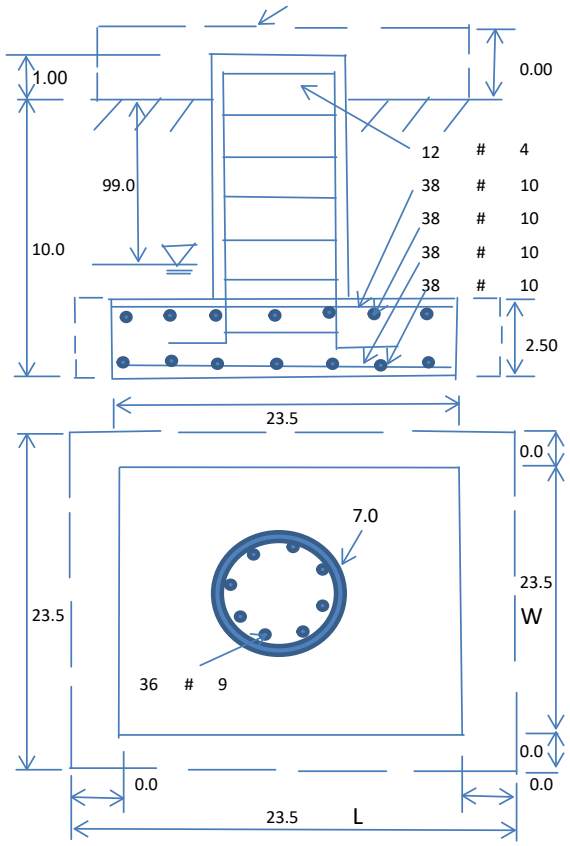
Analysis or Design? Analysis

Base Reactions (Factored):

Axial Load (Kips):	52.9	Shear Force (Kips):	38.8
Uplift Force (Kips):	0.0	Moment (Kips-ft):	4254.1
Allowable overstress %:	5.0%		

Foundation Geometries:

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	10.0
Pier Height A. G. (ft.):	1.00	Thickness of Pad (ft):	2.50
Length of Pad (ft.):	23.5	Width of Pad (ft.):	23.5
Final Length of pad (ft)	23.5	Final width of pad (ft):	23.5



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	10	
Concrete Cover (in.):	3	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	38	Qty. of Rebar in Pad (W):	38

Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	38	Qty. of Rebar in Pad (W):	38
Apply 1.35 factor for e/w Per G:	1.35		

Soil Design Parameters:

Soil Unit Weight (pcf):	100.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	8000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:			1.00	

Foundation Analysis and Design: Uplift Strength Reduction Factor: 0.75 — Compression Strength Reduction Factor: 0.75

Total Dry Soil Volume (cu. Ft.):	3853.24	Total Dry Soil Weight (Kips):	385.32
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	385.32	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1707.74	Total Dry Concrete Weight (Kips):	256.16
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	256.16	Total Vertical Load on Base (Kips):	694.39

Check Soil Capacities:

					Load/ Capacity Ratio	
Calculated Maxium Net Soil Pressure under the base (psf):	3609	<	Allowable Factored Soil Bearing (psf):	6000	0.60	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	7405.3	>	Design Factored Momont (kips-ft):	4324	0.58	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.71	OK!				

Check the capacities of Reinforceing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90		Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compresion):	0.65		Wind Load Factor on Concrete Design:	1.00		
					Load/ Capacity Ratio	
(1) Concrete Pier:						
Vertical Steel Rebar Area (sq. in./each):	1.00		Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	6026.1	>	Design Factored Moment (Mu, Kips-F	4583.9	0.76	OK!
Calculated Shear Capacity (Kips):	660.1	>	Design Factored Shear (Kips):	38.8	0.06	OK!
Calculated Tension Capacity (Tn, Kips):	1944.0	>	Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	9734.2	>	Design Factored Axial Load (Pu Kips):	52.9	0.01	OK!
Moment & Axial Strength Combination:	0.76	OK!	Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.006		Reinforcement Ratio is satisfied per ACI			
(2).Concrete Pad:						
One-Way Design Shear Capacity (L-Direction, Kips):	705.6	>	One-Way Factored Shear (L-D. Kips):	285.5	0.40	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	705.6	>	One-Way Factored Shear (W-D., Kips)	285.5	0.40	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	655.7	>	One-Way Factored Shear (C-C, Kips):	276.1	0.42	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0065	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0065		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	5399.9	>	Moment at Bottom (L-Dir. K-Ft):	1400.4	0.26	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	5399.9	>	Moment at Bottom (W-Dir. K-Ft):	1400.4	0.26	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	7512.9	>	Moment at Bottom (C-C Dir. K-Ft):	1980.4	0.26	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0065	OK!	Upper Steel Reinf. Ratio (W-Dir.):	0.0065		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	5399.9	>	Moment at the top (L-Dir K-Ft):	630.4	0.12	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	5399.9	>	Moment at the top (W-Dir K-Ft):	630.4	0.12	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	7512.9	>	Moment at the top (C-C Dir. K-Ft):	593.0	0.08	OK!
(3).Check Punching Shear Capacity due to Moment in the Pier:						
Moment transferred by punching shear:	1701.6	k-ft.	Max. factored shear stress v_{u_CD}:		5.1	Psi
Max. factored shear stress v_{u_AB}:	14.4	Psi	Factored shear Strength ϕv_n:		189.7	Psi
Max. factored shear stress v_u:	14.4	Psi	Check Usage of Punching Shear Capacity:		0.08	OK!

February 1, 2022

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:	Site Number:	CT2203
	FA Number:	10035397
	PACE Number:	MRCTB056076
	PT Number:	2051A11LEY
	Site Name:	MONROE CENTER
	Site Address:	500 Moose Hill Road Monroe, CT 06468

To Whom It May Concern:

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

- (3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)
- (3) B5/B12 4449 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)
- (3) 4415 B30 RRH's (16.5"x13.4"x5.9" – Wt. = 46 lbs. /each)
- (3) RRUS-32 B2 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" Ø – Wt. = 33 lbs.)
- **(3) TPA65R-BU6DA-K Antennas (71.2"x20.7"x7.7" – Wt. = 69 lbs. /each)**
- **(3) AIR6449 B77D Antennas (30.4"x15.9"x8.1" – Wt. = 82 lbs. /each)**
- **(3) AIR6419 B77G Antennas (28.0"x15.7"x6.7" – Wt. = 66 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Ø – Wt. = 33 lbs.)**

**Proposed equipment shown in bold.*

No original structural design documents or fabrication drawings were available for the existing mounts. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on May 28, 2019. HDG conducted a ground audit of the existing antenna mount on December 15, 2021.

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 120mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.15 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 0.205 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.065.
- 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 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount are 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 existing mount **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Existing Mount Rating	7	LC12	89%	**PASS**

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

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 existing mount has been adequately secured to the tower structure per the mount manufacturer's specifications.
5. All components pertaining to AT&T's mounts must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

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

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Vice President

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 1/31/2022
Project Name: MONROE CENTER
Project No.: CT2203
Designed By: KM **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

z=	138	(ft)
z_g=	1200	(ft)
α=	7.0	
K_z=	**1.083**	

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

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

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

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

K_{zt}=	**1**	
K_h=	1	
K_c=	0.9	(from Table 2-4)
K_t=	0	(from Table 2-5)
f=	0	(from Table 2-5)

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

Category=	**1**

z=	138	
z_s=	620	(Mean elevation of base of structure above sea level)
H=	0	(Ht. of the crest above surrounding terrain)
K_{zt}=	1.00	(from 2.6.6.2.1)
K_e=	0.98	(from 2.6.8)

2.6.10 Design Ice Thickness

Max Ice Thickness =	t_i =	1.00 in
Importance Factor =	I=	1.0 (from Table 2-3)
	K_{iz} =	1.15 (from Sec. 2.6.10)

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

t_{iz} = 1.15 in

Date: 1/31/2022
Project Name: MONROE CENTER
Project No.: CT2203
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

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=	149	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

2.6.9.4 Structures Supported on Other Structures

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

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

2.6.11.2 Design Wind Force on Appurtenances

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

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

		K_z=	1.083	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**37.10**	K_e=	0.98	(from 2.6.8)
$q_{z\ (ice)}$=	**6.44**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.32**	V_{max}=	120	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

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

Date: 1/31/2022
Project Name: MONROE CENTER
Project No.: CT2203
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

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 = 1.15 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	472	94	29
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.91	1.20	149	32	9
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.78	1.20	136	29	8
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	472	94	29
B14 4478 RRH	18.1	8.3	13.4	1.04	2.18	1.20	46	12	3
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	4.36	1.28	25	8	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.20	50	12	3
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	2.73	1.21	25	7	2
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.90	1.20	52	13	3
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	3.81	1.26	27	8	2
4415 B30 RRH	16.5	5.9	13.4	0.68	2.80	1.21	30	8	2
4415 B30 RRH (Shielded)	16.5	3.0	5.9	0.34	5.59	1.34	17	6	1
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	2.25	1.20	102	23	6
RRUS-32 B2 RRH (Shielded)	27.2	0.0	12.1	0.00	0.00	1.20	0	4	0
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	42	10	3
PL 6-1/2/1/2	0.5	12.0	-	0.04	0.04	2.00	3		
HSS 4x4	4.0	12.0	-	0.33	0.33	1.25	15		
L 2-1/2x2-1/2 Angle	2.5	12.0	-	0.21	0.21	2.00	15		
3" Pipe	3.5	12.0	-	0.29	0.29	1.20	13		
2" Pipe	2.4	12.0	-	0.20	0.20	1.20	9		

Date: 1/31/2022
Project Name: MONROE CENTER
Project No.: CT2203
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.15	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	472	208	406
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.71	1.91	3.75	1.20	1.26	149	80	132
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.30	1.78	4.18	1.20	1.27	136	62	117
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	472	208	406
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	46	75	54
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	25	46	30
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	53
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	25	50	32
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	52	73	57
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	27	52	33
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	30	68	40
4415 B30 RRH (Shielded)	16.5	3.0	5.9	0.34	0.68	5.59	2.80	1.34	1.21	17	30	20
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	102	62	92
RRUS-32 B2 RRH (Shielded)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	55	102	66

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.74	5.11	3.19	7.35	1.23	1.41	93	46	81
AIR6449 B77D Antenna	32.7	18.2	10.4	4.14	2.36	1.80	3.14	1.20	1.23	32	19	29
AIR6419 B77G Antenna	30.3	18.0	9.0	3.79	1.90	1.68	3.36	1.20	1.24	29	15	26
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.74	5.11	3.19	7.35	1.23	1.41	93	46	81
B14 4478 RRH	20.4	10.6	15.7	1.50	2.23	1.92	1.30	1.20	1.20	12	17	13
B14 4478 RRH (Shielded)	20.4	5.3	10.6	0.75	1.50	3.85	1.92	1.26	1.20	6	12	7
B2/B66A 8843 RRH	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	12	14	13
B2/B66A 8843 RRH (Shielded)	17.2	6.6	13.2	0.79	1.58	2.61	1.30	1.20	1.20	6	12	8
B5/B12 4449 RRH	20.2	11.7	15.5	1.64	2.18	1.73	1.30	1.20	1.20	13	17	14
B5/B12 4449 RRH (Shielded)	20.2	5.9	11.7	0.82	1.64	3.45	1.73	1.24	1.20	7	13	8
4415 B30 RRH	18.8	8.2	15.7	1.07	2.05	2.29	1.20	1.20	1.20	8	16	10
4415 B30 RRH (Shielded)	18.8	4.1	8.2	0.54	1.07	4.58	2.29	1.29	1.20	4	8	5
RRUS-32 B2 RRH	29.5	14.4	9.3	2.95	1.91	2.05	3.17	1.20	1.23	23	15	21
RRUS-32 B2 RRH (Shielded)	29.5	7.2	14.4	1.48	2.95	4.10	2.05	1.27	1.20	12	23	15

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	29	13	25
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.71	1.91	3.75	1.20	1.26	9	5	8
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.30	1.78	4.18	1.20	1.27	8	4	7
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	25
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	3
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	2	3	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	2	3	2
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	2	3	2
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	2
4415 B30 RRH (Shielded)	16.5	3.0	5.9	0.34	0.68	5.59	2.80	1.34	1.21	1	2	1
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	6
RRUS-32 B2 RRH (Shielded)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	3	6	4

Date: 1/31/2022
Project Name: MONROE CENTER
Project No.: CT2203
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.15 in. | Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	472	208	274
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.71	1.91	3.75	1.20	1.26	149	80	97
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.30	1.78	4.18	1.20	1.27	136	62	80
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	472	208	274
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	46	75	68
B14 4478 RRH (Shielded)	18.1	6.2	8.3	0.78	1.04	2.91	2.18	1.22	1.20	35	46	44
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	58
B2/B66A 8843 RRH (Shielded)	14.9	8.2	10.9	0.85	1.13	1.82	1.37	1.20	1.20	38	50	47
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	52	73	68
B5/B12 4449 RRH (Shielded)	17.9	7.1	9.4	0.88	1.17	2.54	1.90	1.20	1.20	39	52	49
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	30	68	59
4415 B30 RRH (Shielded)	16.5	4.4	5.9	0.51	0.68	3.73	2.80	1.25	1.21	24	30	29
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	102	62	72
RRUS-32 B2 RRH (Shielded)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	78	102	96

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.74	5.11	3.19	7.35	1.23	1.41	93	46	58
AIR6449 B77D Antenna	32.7	18.2	10.4	4.14	2.36	1.80	3.14	1.20	1.23	32	19	22
AIR6419 B77G Antenna	30.3	18.0	9.0	3.79	1.90	1.68	3.36	1.20	1.24	29	15	19
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.74	5.11	3.19	7.35	1.23	1.41	93	46	58
B14 4478 RRH	20.4	10.6	15.7	1.50	2.23	1.92	1.30	1.20	1.20	12	17	16
B14 4478 RRH (Shielded)	20.4	8.0	10.6	1.13	1.50	2.57	1.92	1.20	1.20	9	12	11
B2/B66A 8843 RRH	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	12	14	14
B2/B66A 8843 RRH (Shielded)	17.2	9.9	13.2	1.18	1.58	1.74	1.30	1.20	1.20	9	12	11
B5/B12 4449 RRH	20.2	11.7	15.5	1.64	2.18	1.73	1.30	1.20	1.20	13	17	16
B5/B12 4449 RRH (Shielded)	20.2	8.8	11.7	1.23	1.64	2.30	1.73	1.20	1.20	10	13	12
4415 B30 RRH	18.8	8.2	15.7	1.07	2.05	2.29	1.20	1.20	1.20	8	16	14
4415 B30 RRH (Shielded)	18.8	6.2	8.2	0.80	1.07	3.06	2.29	1.22	1.20	6	8	8
RRUS-32 B2 RRH	29.5	14.4	9.3	2.95	1.91	2.05	3.17	1.20	1.23	23	15	17
RRUS-32 B2 RRH (Shielded)	29.5	10.8	14.4	2.21	2.95	2.73	2.05	1.21	1.20	17	23	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	29	13	17
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.71	1.91	3.75	1.20	1.26	9	5	6
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.30	1.78	4.18	1.20	1.27	8	4	5
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	17
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	4
B14 4478 RRH (Shielded)	18.1	6.2	8.3	0.78	1.04	2.91	2.18	1.22	1.20	2	3	3
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH (Shielded)	14.9	8.2	10.9	0.85	1.13	1.82	1.37	1.20	1.20	2	3	3
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
B5/B12 4449 RRH (Shielded)	17.9	7.1	9.4	0.88	1.17	2.54	1.90	1.20	1.20	2	3	3
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	4
4415 B30 RRH (Shielded)	16.5	4.4	5.9	0.51	0.68	3.73	2.80	1.25	1.21	1	2	2
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 B2 RRH (Shielded)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	5	6	6

Date: 1/31/2022
Project Name: MONROE CENTER
Project No.: CT2203
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.15	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio (normal)	Aspect Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	472	208	208
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.71	1.91	3.75	1.20	1.26	149	80	80
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.30	1.78	4.18	1.20	1.27	136	62	62
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	472	208	208
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	46	75	75
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	25	46	46
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	61
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	25	50	50
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	52	73	73
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	27	52	52
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	30	68	68
4415 B30 RRH (Shielded)	16.5	3.0	5.9	0.34	0.68	5.59	2.80	1.34	1.21	17	30	30
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	102	62	62
RRUS-32 B2 RRH (Shielded)	27.2	0.0	12.1	0.00	2.29	0.00	2.25	1.20	1.20	0	102	102

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.74	5.11	3.19	7.35	1.23	1.41	93	46	46
AIR6449 B77D Antenna	32.7	18.2	10.4	4.14	2.36	1.80	3.14	1.20	1.23	32	19	19
AIR6419 B77G Antenna	30.3	18.0	9.0	3.79	1.90	1.68	3.36	1.20	1.24	29	15	15
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.74	5.11	3.19	7.35	1.23	1.41	93	46	46
B14 4478 RRH	20.4	10.6	15.7	1.50	2.23	1.92	1.30	1.20	1.20	12	17	17
B14 4478 RRH (Shielded)	20.4	6.5	10.6	0.92	1.50	3.16	1.92	1.23	1.20	7	12	12
B2/B66A 8843 RRH	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	12	14	14
B2/B66A 8843 RRH (Shielded)	17.2	7.8	13.2	0.93	1.58	2.22	1.30	1.20	1.20	7	12	12
B5/B12 4449 RRH	20.2	11.7	15.5	1.64	2.18	1.73	1.30	1.20	1.20	13	17	17
B5/B12 4449 RRH (Shielded)	20.2	7.0	11.7	0.98	1.64	2.88	1.73	1.22	1.20	8	13	13
4415 B30 RRH	18.8	8.2	15.7	1.07	2.05	2.29	1.20	1.20	1.20	8	16	16
4415 B30 RRH (Shielded)	18.8	5.3	8.2	0.69	1.07	3.58	2.29	1.25	1.20	6	8	8
RRUS-32 B2 RRH	29.5	14.4	9.3	2.95	1.91	2.05	3.17	1.20	1.23	23	15	15
RRUS-32 B2 RRH (Shielded)	29.5	2.3	14.4	0.47	2.95	12.79	2.05	1.59	1.20	5	23	23

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	29	13	13
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.71	1.91	3.75	1.20	1.26	9	5	5
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.30	1.78	4.18	1.20	1.27	8	4	4
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	13
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	5
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	2	3	3
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	2	3	3
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	5
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	2	3	3
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	4
4415 B30 RRH (Shielded)	16.5	3.0	5.9	0.34	0.68	5.59	2.80	1.34	1.21	1	2	2
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 B2 RRH (Shielded)	27.2	0.0	12.1	0.00	2.29	0.00	2.25	1.20	1.20	0	6	6

Date: 1/31/2022
Project Name: MONROE CENTER
Project No.: CT2203
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 120 (deg) | Ice Thickness = 1.15 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	472	208	274
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.71	1.91	3.75	1.20	1.26	149	80	97
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.30	1.78	4.18	1.20	1.27	136	62	80
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	472	208	274
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	46	75	68
B14 4478 RRH (Shielded)	18.1	6.2	8.3	0.78	1.04	2.91	2.18	1.22	1.20	35	46	44
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	58
B2/B66A 8843 RRH (Shielded)	14.9	8.2	10.9	0.85	1.13	1.82	1.37	1.20	1.20	38	50	47
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	52	73	68
B5/B12 4449 RRH (Shielded)	17.9	7.1	9.4	0.88	1.17	2.54	1.90	1.20	1.20	39	52	49
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	30	68	59
4415 B30 RRH (Shielded)	16.5	4.4	5.9	0.51	0.68	3.73	2.80	1.25	1.21	24	30	29
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	102	62	72
RRUS-32 B2 RRH (Shielded)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	78	102	96

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.74	5.11	3.19	7.35	1.23	1.41	93	46	58
AIR6449 B77D Antenna	32.7	18.2	10.4	4.14	2.36	1.80	3.14	1.20	1.23	32	19	22
AIR6419 B77G Antenna	30.3	18.0	9.0	3.79	1.90	1.68	3.36	1.20	1.24	29	15	19
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.74	5.11	3.19	7.35	1.23	1.41	93	46	58
B14 4478 RRH	20.4	10.6	15.7	1.50	2.23	1.92	1.30	1.20	1.20	12	17	16
B14 4478 RRH (Shielded)	20.4	8.0	10.6	1.13	1.50	2.57	1.92	1.20	1.20	9	12	11
B2/B66A 8843 RRH	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	12	14	14
B2/B66A 8843 RRH (Shielded)	17.2	9.9	13.2	1.18	1.58	1.74	1.30	1.20	1.20	9	12	11
B5/B12 4449 RRH	20.2	11.7	15.5	1.64	2.18	1.73	1.30	1.20	1.20	13	17	16
B5/B12 4449 RRH (Shielded)	20.2	8.8	11.7	1.23	1.64	2.30	1.73	1.20	1.20	10	13	12
4415 B30 RRH	18.8	8.2	15.7	1.07	2.05	2.29	1.20	1.20	1.20	8	16	14
4415 B30 RRH (Shielded)	18.8	6.2	8.2	0.80	1.07	3.06	2.29	1.22	1.20	6	8	8
RRUS-32 B2 RRH	29.5	14.4	9.3	2.95	1.91	2.05	3.17	1.20	1.23	23	15	17
RRUS-32 B2 RRH (Shielded)	29.5	10.8	14.4	2.21	2.95	2.73	2.05	1.21	1.20	17	23	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	29	13	17
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.71	1.91	3.75	1.20	1.26	9	5	6
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.30	1.78	4.18	1.20	1.27	8	4	5
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	17
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	4
B14 4478 RRH (Shielded)	18.1	6.2	8.3	0.78	1.04	2.91	2.18	1.22	1.20	2	3	3
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH (Shielded)	14.9	8.2	10.9	0.85	1.13	1.82	1.37	1.20	1.20	2	3	3
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
B5/B12 4449 RRH (Shielded)	17.9	7.1	9.4	0.88	1.17	2.54	1.90	1.20	1.20	2	3	3
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	4
4415 B30 RRH (Shielded)	16.5	4.4	5.9	0.51	0.68	3.73	2.80	1.25	1.21	1	2	2
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	4
RRUS-32 B2 RRH (Shielded)	27.2	9.1	12.1	1.71	2.29	3.00	2.25	1.22	1.20	5	6	6

Date: 1/31/2022
Project Name: MONROE CENTER
Project No.: CT2203
Designed By: KM Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 150 (deg) | Ice Thickness = 1.15 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	472	208	406
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.71	1.91	3.75	1.20	1.26	149	80	132
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.30	1.78	4.18	1.20	1.27	136	62	117
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	472	208	406
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	46	75	54
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	25	46	30
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	50	61	53
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	25	50	32
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	52	73	57
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	27	52	33
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	30	68	40
4415 B30 RRH (Shielded)	16.5	3.0	5.9	0.34	0.68	5.59	2.80	1.34	1.21	17	30	20
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	102	62	92
RRUS-32 B2 RRH (Shielded)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	55	102	66

WIND LOADS WITH ICE:

TPA65R-BU6DA-K Antenna	73.5	23.0	10.0	11.74	5.11	3.19	7.35	1.23	1.41	93	46	81
AIR6449 B77D Antenna	32.7	18.2	10.4	4.14	2.36	1.80	3.14	1.20	1.23	32	19	29
AIR6419 B77G Antenna	30.3	18.0	9.0	3.79	1.90	1.68	3.36	1.20	1.24	29	15	26
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.74	5.11	3.19	7.35	1.23	1.41	93	46	81
B14 4478 RRH	20.4	10.6	15.7	1.50	2.23	1.92	1.30	1.20	1.20	12	17	13
B14 4478 RRH (Shielded)	20.4	5.3	10.6	0.75	1.50	3.85	1.92	1.26	1.20	6	12	7
B2/B66A 8843 RRH	17.2	13.2	15.5	1.58	1.85	1.30	1.11	1.20	1.20	12	14	13
B2/B66A 8843 RRH (Shielded)	17.2	6.6	13.2	0.79	1.58	2.61	1.30	1.20	1.20	6	12	8
B5/B12 4449 RRH	20.2	11.7	15.5	1.64	2.18	1.73	1.30	1.20	1.20	13	17	14
B5/B12 4449 RRH (Shielded)	20.2	5.9	11.7	0.82	1.64	3.45	1.73	1.24	1.20	7	13	8
4415 B30 RRH	18.8	8.2	15.7	1.07	2.05	2.29	1.20	1.20	1.20	8	16	10
4415 B30 RRH (Shielded)	18.8	4.1	8.2	0.54	1.07	4.58	2.29	1.29	1.20	4	8	5
RRUS-32 B2 RRH	29.5	14.4	9.3	2.95	1.91	2.05	3.17	1.20	1.23	23	15	21
RRUS-32 B2 RRH (Shielded)	29.5	7.2	14.4	1.48	2.95	4.10	2.05	1.27	1.20	12	23	15

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	29	13	25
AIR6449 B77D Antenna	30.4	15.9	8.1	3.36	1.71	1.91	3.75	1.20	1.26	9	5	8
AIR6419 B77G Antenna	28.0	15.7	6.7	3.05	1.30	1.78	4.18	1.20	1.27	8	4	7
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	25
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	3
B14 4478 RRH (Shielded)	18.1	4.2	8.3	0.52	1.04	4.36	2.18	1.28	1.20	2	3	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
B2/B66A 8843 RRH (Shielded)	14.9	5.5	10.9	0.56	1.13	2.73	1.37	1.21	1.20	2	3	2
B5/B12 4449 RRH	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	5	4
B5/B12 4449 RRH (Shielded)	17.9	4.7	9.4	0.58	1.17	3.81	1.90	1.26	1.20	2	3	2
4415 B30 RRH	16.5	5.9	13.4	0.68	1.54	2.80	1.23	1.21	1.20	2	4	2
4415 B30 RRH (Shielded)	16.5	3.0	5.9	0.34	0.68	5.59	2.80	1.34	1.21	1	2	1
RRUS-32 B2 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	6	4	6
RRUS-32 B2 RRH (Shielded)	27.2	6.1	12.1	1.14	2.29	4.50	2.25	1.29	1.20	3	6	4

Date: 1/31/2022
Project Name: MONROE CENTER
Project No.: CT2203
Designed By: KM **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.15 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:		194 lbs
Weight of object:	69.0 lbs	
Combined weight of ice and object:		263 lbs

AIR6449 B77D Antenna

Weight of ice based on total radial SF area:

Height (in):	30.4	
Width (in):	15.9	
Depth (in):	8.1	
Total weight of ice on object:		68 lbs
Weight of object:	82.0 lbs	
Combined weight of ice and object:		150 lbs

AIR6419 B77G Antenna

Weight of ice based on total radial SF area:

Height (in):	28.0	
Width (in):	15.7	
Depth (in):	6.7	
Total weight of ice on object:		60 lbs
Weight of object:	66.0 lbs	
Combined weight of ice and object:		126 lbs

DMP65R-BU6DA 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:		194 lbs
Weight of object:	80.0 lbs	
Combined weight of ice and object:		274 lbs

B14 4478 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:		36 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		96 lbs

B2/B66A 8843 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:		32 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		104 lbs

B5/B12 4449 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:		36 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		109 lbs

4415 B30 RRH

Weight of ice based on total radial SF area:

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

RRUS-32 B2 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:		48 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		108 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		30 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		63 lbs

HSS 4x4

Weight of ice based on total radial SF area:

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

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:		7 plf

3" Pipe

Per foot weight of ice:

diameter (in):	3.5	
Per foot weight of ice on object:		7 plf

2" pipe

Per foot weight of ice:

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

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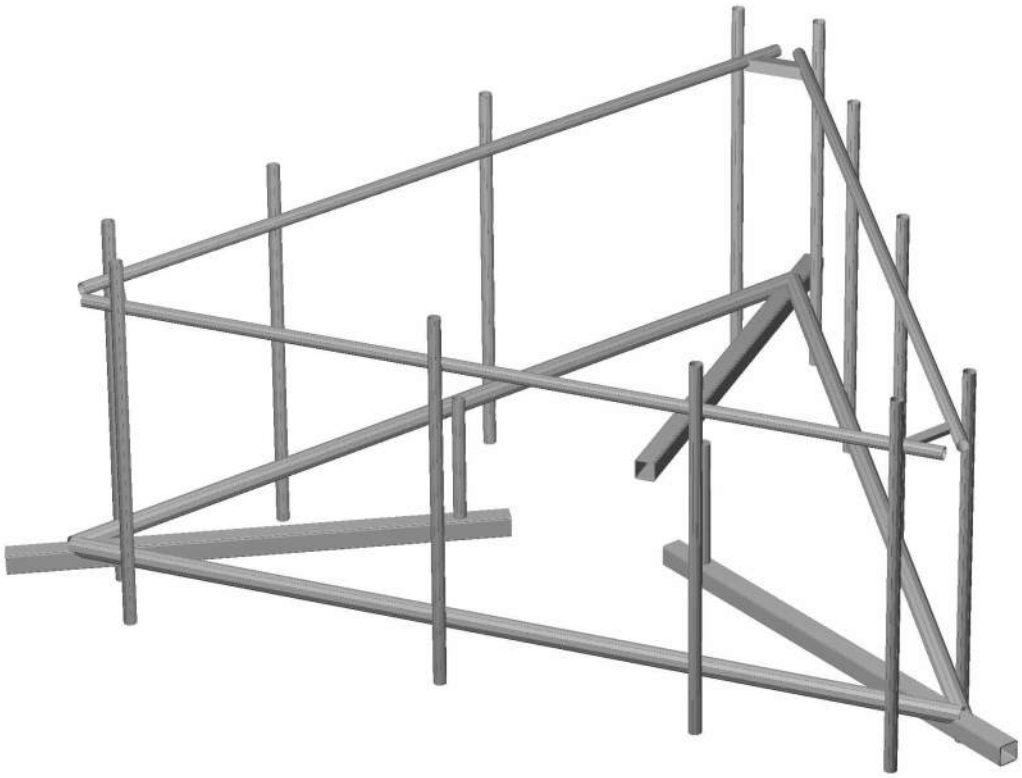
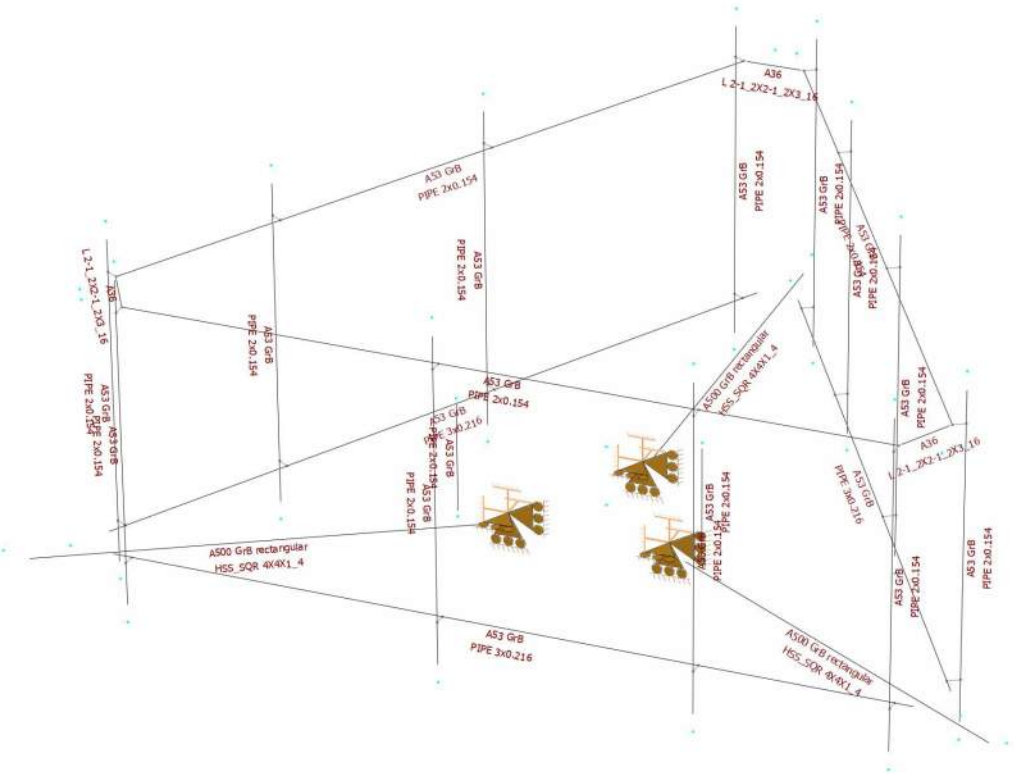
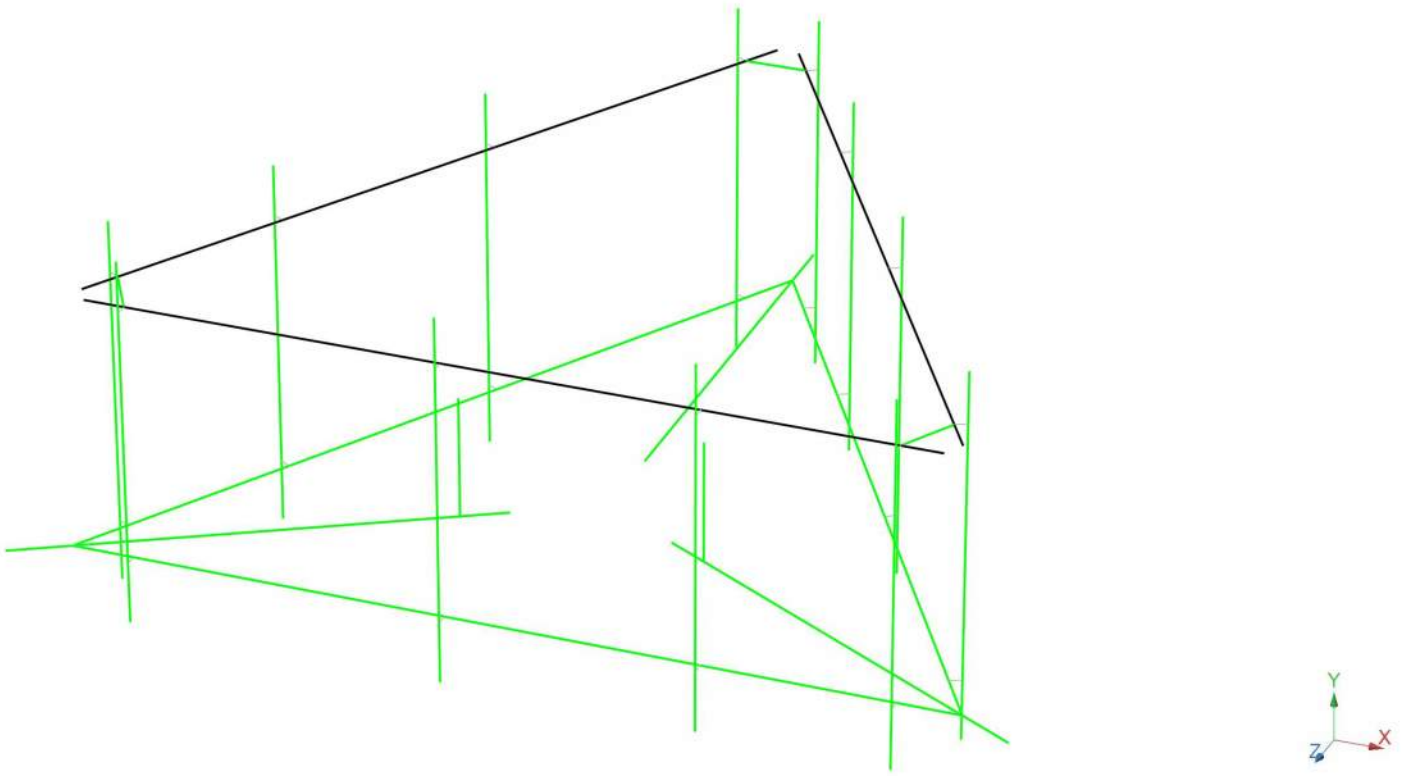
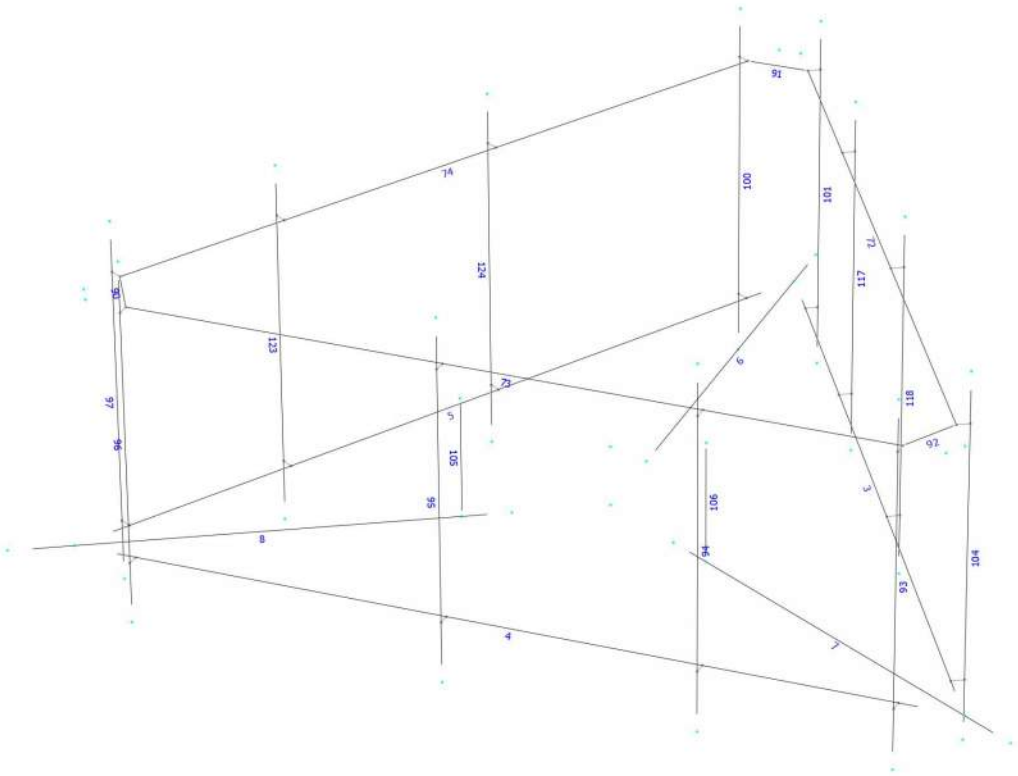
Mount Calculations
(Existing Conditions)


Y
X
Z


A36
L 2-1_2X2-1_2X3_16
A53 GrB
PIPE 2x0.154
A500 GrB rectangular
HSS_SQR 4X4X1_4
A53 GrB
PIPE 3x0.216


Design status
Not designed
Error on design
Design O.K.
With warnings
Y
X
Z


Y
X
Z

Current Date: 2/1/2022 3:41 PM
Units system: English

Load data

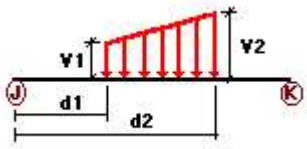
GLOSSARY

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

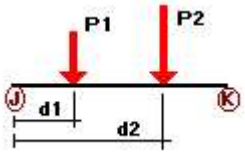
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	3	y	-0.01	-0.01	3.00	No	10.00	No
	4	y	-0.01	-0.01	3.00	No	10.00	No
	5	y	-0.01	-0.01	3.00	No	10.00	No
	6	y	-0.01	-0.01	4.00	No	7.00	No
	7	y	-0.01	-0.01	4.00	No	7.00	No
	8	y	-0.01	-0.01	4.00	No	7.00	No
W0	3	z	-0.013	-0.013	0.00	No	100.00	Yes
	4	z	-0.013	-0.013	0.00	No	100.00	Yes
	5	z	-0.013	-0.013	0.00	No	100.00	Yes
	7	z	-0.015	-0.015	0.00	No	100.00	Yes
	8	z	-0.015	-0.015	0.00	No	100.00	Yes
	72	z	-0.009	-0.009	0.00	No	100.00	Yes
	73	z	-0.009	-0.009	0.00	No	100.00	Yes
	74	z	-0.009	-0.009	0.00	No	100.00	Yes
	90	z	-0.015	-0.015	0.00	No	100.00	Yes
	91	z	-0.015	-0.015	0.00	No	100.00	Yes

	92	z	-0.015	-0.015	0.00	No	100.00	Yes
	93	z	-0.009	-0.009	0.00	No	100.00	Yes
	97	z	-0.009	-0.009	0.00	No	100.00	Yes
	100	z	-0.009	-0.009	0.00	No	100.00	Yes
	101	z	-0.009	-0.009	0.00	No	100.00	Yes
	104	z	-0.009	-0.009	0.00	No	100.00	Yes
	105	z	-0.009	-0.009	0.00	No	100.00	Yes
	106	z	-0.009	-0.009	0.00	No	100.00	Yes
	117	z	-0.009	-0.009	0.00	No	100.00	Yes
	118	z	-0.009	-0.009	0.00	No	100.00	Yes
	123	z	-0.009	-0.009	0.00	No	100.00	Yes
	124	z	-0.009	-0.009	0.00	No	100.00	Yes
W30	3	x	-0.013	-0.013	0.00	No	100.00	Yes
	5	x	-0.013	-0.013	0.00	No	100.00	Yes
	6	x	-0.015	-0.015	0.00	No	100.00	Yes
	7	x	-0.015	-0.015	0.00	No	100.00	Yes
	8	x	-0.015	-0.015	0.00	No	100.00	Yes
	72	x	-0.009	-0.009	0.00	No	100.00	Yes
	73	x	-0.009	-0.009	0.00	No	100.00	Yes
	74	x	-0.009	-0.009	0.00	No	100.00	Yes
	90	x	-0.015	-0.015	0.00	No	100.00	Yes
	92	x	-0.015	-0.015	0.00	No	100.00	Yes
	93	x	-0.009	-0.009	0.00	No	100.00	Yes
	94	x	-0.009	-0.009	0.00	No	100.00	Yes
	95	x	-0.009	-0.009	0.00	No	100.00	Yes
	96	x	-0.009	-0.009	0.00	No	100.00	Yes
	97	x	-0.009	-0.009	0.00	No	100.00	Yes
	100	x	-0.009	-0.009	0.00	No	100.00	Yes
	101	x	-0.009	-0.009	0.00	No	100.00	Yes
	105	x	-0.009	-0.009	0.00	No	100.00	Yes
	106	x	-0.009	-0.009	0.00	No	100.00	Yes
	123	x	-0.009	-0.009	0.00	No	100.00	Yes
	124	x	-0.009	-0.009	0.00	No	100.00	Yes
Di	3	y	-0.007	-0.007	0.00	No	100.00	Yes
	4	y	-0.007	-0.007	0.00	No	100.00	Yes
	5	y	-0.007	-0.007	0.00	No	100.00	Yes
	6	y	-0.01	-0.01	0.00	No	100.00	Yes
	7	y	-0.01	-0.01	0.00	No	100.00	Yes
	8	y	-0.01	-0.01	0.00	No	100.00	Yes
	72	y	-0.005	-0.005	0.00	No	100.00	Yes
	73	y	-0.005	-0.005	0.00	No	100.00	Yes
	74	y	-0.005	-0.005	0.00	No	100.00	Yes
	90	y	-0.007	-0.007	0.00	No	100.00	Yes
	91	y	-0.007	-0.007	0.00	No	100.00	Yes
	92	y	-0.007	-0.007	0.00	No	100.00	Yes
	93	y	-0.005	-0.005	0.00	No	100.00	Yes
	94	y	-0.005	-0.005	0.00	No	100.00	Yes
	95	y	-0.005	-0.005	0.00	No	100.00	Yes
	96	y	-0.005	-0.005	0.00	No	100.00	Yes
	97	y	-0.005	-0.005	0.00	No	100.00	Yes
	100	y	-0.005	-0.005	0.00	No	100.00	Yes
	101	y	-0.005	-0.005	0.00	No	100.00	Yes
	104	y	-0.005	-0.005	0.00	No	100.00	Yes
	105	y	-0.005	-0.005	0.00	No	100.00	Yes
	106	y	-0.005	-0.005	0.00	No	100.00	Yes
	117	y	-0.005	-0.005	0.00	No	100.00	Yes
	118	y	-0.005	-0.005	0.00	No	100.00	Yes
	123	y	-0.005	-0.005	0.00	No	100.00	Yes
	124	y	-0.005	-0.005	0.00	No	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	94	y	-0.035	0.50	No
		y	-0.035	5.50	No
		y	-0.06	3.00	No
		y	-0.072	3.00	No
	95	y	-0.041	0.50	No
		y	-0.041	2.50	No
		y	-0.033	3.50	No
		y	-0.033	5.50	No
		y	-0.06	3.00	No
	96	y	-0.04	0.50	No
		y	-0.04	5.50	No
		y	-0.073	3.00	No
		y	-0.046	3.00	No
	100	y	-0.04	0.50	No
		y	-0.04	5.50	No
		y	-0.073	3.00	No
		y	-0.046	3.00	No
	104	y	-0.04	0.50	No
		y	-0.04	5.50	No
		y	-0.073	3.00	No
		y	-0.046	3.00	No
	105	y	-0.033	1.00	No
	106	y	-0.033	1.00	No
		y	-0.033	1.50	No
	117	y	-0.035	0.50	No
		y	-0.035	5.50	No
		y	-0.06	3.00	No
		y	-0.072	3.00	No
	118	y	-0.041	0.50	No
		y	-0.041	2.50	No
		y	-0.033	3.50	No
		y	-0.033	5.50	No
		y	-0.06	3.00	No
	123	y	-0.035	0.50	No
		y	-0.035	5.50	No
		y	-0.06	3.00	No
		y	-0.072	3.00	No
	124	y	-0.041	0.50	No
		y	-0.041	2.50	No
		y	-0.033	3.50	No
		y	-0.033	5.50	No
		y	-0.06	3.00	No
W0	94	z	-0.236	0.50	No
		z	-0.236	5.50	No
		z	-0.025	3.00	No
		z	-0.025	3.00	No
	95	z	-0.075	0.50	No
		z	-0.075	2.50	No
		z	-0.068	3.50	No
		z	-0.068	5.50	No
	96	z	-0.236	0.50	No
		z	-0.236	5.50	No

		z	-0.027	3.00	No
		z	-0.017	3.00	No
	100	z	-0.137	0.50	No
		z	-0.137	5.50	No
		z	-0.049	3.00	No
	104	z	-0.137	0.50	No
		z	-0.137	5.50	No
		z	-0.049	3.00	No
	105	z	-0.042	1.00	No
	106	z	-0.042	1.00	No
		z	-0.042	1.50	No
	117	z	-0.137	0.50	No
		z	-0.137	5.50	No
		z	-0.047	3.00	No
	118	z	-0.049	0.50	No
		z	-0.049	2.50	No
		z	-0.04	3.50	No
		z	-0.04	5.50	No
		z	-0.096	3.00	No
	123	z	-0.137	0.50	No
		z	-0.137	5.50	No
		z	-0.047	3.00	No
	124	z	-0.049	0.50	No
		z	-0.049	2.50	No
		z	-0.04	3.50	No
		z	-0.04	5.50	No
		z	-0.096	3.00	No
W30	94	x	-0.104	0.50	No
		x	-0.104	5.50	No
		x	-0.05	3.00	No
	95	x	-0.04	0.50	No
		x	-0.04	2.50	No
		x	-0.031	3.50	No
		x	-0.031	5.50	No
		x	-0.102	3.00	No
	96	x	-0.104	0.50	No
		x	-0.104	5.50	No
		x	-0.052	3.00	No
	100	x	-0.203	0.50	No
		x	-0.203	5.50	No
		x	-0.033	3.00	No
	104	x	-0.203	0.50	No
		x	-0.203	5.50	No
		x	-0.033	3.00	No
	105	x	-0.042	1.00	No
	106	x	-0.042	1.00	No
		x	-0.042	1.50	No
	117	x	-0.203	0.50	No
		x	-0.203	5.50	No
		x	-0.032	3.00	No
	118	x	-0.066	0.50	No
		x	-0.066	2.50	No
		x	-0.058	3.50	No
		x	-0.058	5.50	No
		x	-0.066	3.00	No
	123	x	-0.203	0.50	No
		x	-0.203	5.50	No
		x	-0.032	3.00	No
	124	x	-0.066	0.50	No
		x	-0.066	2.50	No

		x	-0.058	3.50	No
		x	-0.058	5.50	No
		x	-0.066	3.00	No
Di	94	y	-0.097	0.50	No
		y	-0.097	5.50	No
		y	-0.036	3.00	No
		y	-0.032	3.00	No
	95	y	-0.034	0.50	No
		y	-0.034	2.50	No
		y	-0.03	3.50	No
		y	-0.03	5.50	No
		y	-0.048	3.00	No
	96	y	-0.097	0.50	No
		y	-0.097	5.50	No
		y	-0.036	3.00	No
		y	-0.031	3.00	No
	100	y	-0.097	0.50	No
		y	-0.097	5.50	No
		y	-0.036	3.00	No
		y	-0.031	3.00	No
	104	y	-0.097	0.50	No
		y	-0.097	5.50	No
		y	-0.036	3.00	No
		y	-0.031	3.00	No
	105	y	-0.03	1.00	No
	106	y	-0.03	1.00	No
		y	-0.03	1.50	No
	117	y	-0.097	0.50	No
		y	-0.097	5.50	No
		y	-0.036	3.00	No
		y	-0.032	3.00	No
	118	y	-0.034	0.50	No
		y	-0.034	2.50	No
		y	-0.03	3.50	No
		y	-0.03	5.50	No
		y	-0.048	3.00	No
	123	y	-0.097	0.50	No
		y	-0.097	5.50	No
		y	-0.036	3.00	No
		y	-0.032	3.00	No
	124	y	-0.034	0.50	No
		y	-0.034	2.50	No
		y	-0.03	3.50	No
		y	-0.03	5.50	No
		y	-0.048	3.00	No
Wi0	94	z	-0.047	0.50	No
		z	-0.047	5.50	No
		z	-0.008	3.00	No
		z	-0.007	3.00	No
	95	z	-0.016	0.50	No
		z	-0.016	2.50	No
		z	-0.015	3.50	No
		z	-0.015	5.50	No
	96	z	-0.047	0.50	No
		z	-0.047	5.50	No
		z	-0.008	3.00	No
		z	-0.006	3.00	No
	100	z	-0.029	0.50	No
		z	-0.029	5.50	No
		z	-0.012	3.00	No

	104	z	-0.029	0.50	No
		z	-0.029	5.50	No
		z	-0.012	3.00	No
	105	z	-0.01	1.00	No
	106	z	-0.01	1.00	No
		z	-0.01	1.50	No
	117	z	-0.029	0.50	No
		z	-0.029	5.50	No
		z	-0.011	3.00	No
	118	z	-0.011	0.50	No
		z	-0.011	2.50	No
		z	-0.01	3.50	No
		z	-0.01	5.50	No
		z	-0.021	3.00	No
	123	z	-0.029	0.50	No
		z	-0.029	5.50	No
		z	-0.011	3.00	No
	124	z	-0.011	0.50	No
		z	-0.011	2.50	No
		z	-0.01	3.50	No
		z	-0.01	5.50	No
		z	-0.021	3.00	No
Wi30	94	x	-0.023	0.50	No
		x	-0.023	5.50	No
		x	-0.012	3.00	No
	95	x	-0.01	0.50	No
		x	-0.01	2.50	No
		x	-0.008	3.50	No
		x	-0.008	5.50	No
		x	-0.023	3.00	No
	96	x	-0.023	0.50	No
		x	-0.023	5.50	No
		x	-0.013	3.00	No
	100	x	-0.041	0.50	No
		x	-0.041	5.50	No
		x	-0.008	3.00	No
	104	x	-0.041	0.50	No
		x	-0.041	5.50	No
		x	-0.008	3.00	No
	105	x	-0.01	1.00	No
	106	x	-0.01	1.00	No
		x	-0.01	1.50	No
	117	x	-0.041	0.50	No
		x	-0.041	5.50	No
		x	-0.008	3.00	No
	118	x	-0.015	0.50	No
		x	-0.015	2.50	No
		x	-0.013	3.50	No
		x	-0.013	5.50	No
		x	-0.015	3.00	No
	123	x	-0.041	0.50	No
		x	-0.041	5.50	No
		x	-0.008	3.00	No
	124	x	-0.015	0.50	No
		x	-0.015	2.50	No
		x	-0.013	3.50	No
		x	-0.013	5.50	No
		x	-0.015	3.00	No
WL0	94	z	-0.015	0.50	No
		z	-0.015	5.50	No

		z	-0.002	3.00	No
		z	-0.002	3.00	No
	95	z	-0.005	0.50	No
		z	-0.005	2.50	No
		z	-0.004	3.50	No
		z	-0.004	5.50	No
	96	z	-0.015	0.50	No
		z	-0.015	5.50	No
		z	-0.002	3.00	No
		z	-0.001	3.00	No
	100	z	-0.009	0.50	No
		z	-0.009	5.50	No
		z	-0.003	3.00	No
	104	z	-0.009	0.50	No
		z	-0.009	5.50	No
		z	-0.003	3.00	No
	105	z	-0.003	1.00	No
	106	z	-0.003	1.00	No
		z	-0.003	1.50	No
	117	z	-0.009	0.50	No
		z	-0.009	5.50	No
		z	-0.003	3.00	No
	118	z	-0.003	0.50	No
		z	-0.003	2.50	No
		z	-0.003	3.50	No
		z	-0.003	5.50	No
		z	-0.006	3.00	No
	123	z	-0.009	0.50	No
		z	-0.009	5.50	No
		z	-0.003	3.00	No
	124	z	-0.003	0.50	No
		z	-0.003	2.50	No
		z	-0.003	3.50	No
		z	-0.003	5.50	No
		z	-0.006	3.00	No
WL30	94	x	-0.007	0.50	No
		x	-0.007	5.50	No
		x	-0.003	3.00	No
	95	x	-0.003	0.50	No
		x	-0.003	2.50	No
		x	-0.002	3.50	No
		x	-0.002	5.50	No
		x	-0.006	3.00	No
	96	x	-0.007	0.50	No
		x	-0.007	5.50	No
		x	-0.003	3.00	No
	100	x	-0.013	0.50	No
		x	-0.013	5.50	No
		x	-0.002	3.00	No
	104	x	-0.013	0.50	No
		x	-0.013	5.50	No
		x	-0.002	3.00	No
	105	x	-0.003	1.00	No
	106	x	-0.003	1.00	No
		x	-0.003	1.50	No
	117	x	-0.013	0.50	No
		x	-0.013	5.50	No
		x	-0.002	3.00	No
	118	x	-0.004	0.50	No
		x	-0.004	2.50	No

		x	-0.004	3.50	No
		x	-0.004	5.50	No
		x	-0.004	3.00	No
	123	x	-0.013	0.50	No
		x	-0.013	5.50	No
		x	-0.002	3.00	No
	124	x	-0.004	0.50	No
		x	-0.004	2.50	No
		x	-0.004	3.50	No
		x	-0.004	5.50	No
		x	-0.004	3.00	No
LL1	4	y	-0.25	50.00	Yes
LL2	8	y	-0.25	0.00	Yes
LLa1	93	y	-0.50	50.00	Yes
LLa2	94	y	-0.50	50.00	Yes
LLa3	95	y	-0.50	50.00	Yes
LLa4	96	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

Current Date: 2/1/2022 3:42 PM
Units system: English

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+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3
LC28=1.2DL+WL0+1.6LLa4
LC29=1.2DL+WL30+1.6LLa4
LC30=1.2DL-WL0+1.6LLa4
LC31=1.2DL-WL30+1.6LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X1_4	**6**	LC9 at 100.00%	0.88	OK	Eq. H1-1b
		7	LC12 at 100.00%	**0.89**	**OK**	Eq. H1-1b
		8	LC10 at 100.00%	0.88	OK	Eq. H1-1b
	L 2-1_2X2-1_2X3_16	**90**	LC1 at 0.00%	0.67	OK	Eq. H3-8
		91	LC4 at 0.00%	**0.80**	**OK**	Eq. H3-8
		92	LC3 at 0.00%	0.66	OK	Eq. H3-8
	PIPE 2x0.154	**72**	LC1 at 95.00%	0.52	With warnings	Eq. H1-1b
		73	LC2 at 95.00%	0.52	With warnings	Eq. H1-1b
		74	LC1 at 95.00%	0.51	With warnings	Eq. H1-1b
		93	LC4 at 14.58%	0.35	OK	Eq. H1-1b
		94	LC4 at 81.25%	0.64	OK	Eq. H1-1b
		95	LC2 at 81.25%	0.70	OK	Eq. H1-1b
		96	LC2 at 81.25%	0.47	OK	Eq. H1-1b
		97	LC3 at 81.25%	0.37	OK	Eq. H1-1b
		100	LC1 at 81.25%	0.46	OK	Eq. H1-1b
		101	LC2 at 14.58%	0.37	OK	Eq. H1-1b
		104	LC3 at 81.25%	0.47	OK	Eq. H1-1b

	105	LC2 at 100.00%	0.05	OK	Eq. H1-1b
	106	LC4 at 100.00%	0.07	OK	Eq. H1-1b
	117	LC2 at 81.25%	0.63	OK	Eq. H1-1b
	118	LC3 at 81.25%	**0.79**	**OK**	Eq. H1-1b
	123	LC3 at 81.25%	0.72	OK	Eq. H1-1b
	124	LC4 at 81.25%	0.72	OK	Eq. H1-1b
PIPE 3x0.216	**3**	LC4 at 0.00%	0.81	OK	Eq. H1-1b
	4	LC3 at 0.00%	**0.83**	**OK**	Eq. H1-1b
	5	LC2 at 0.00%	0.83	OK	Eq. H1-1b

Current Date: 2/1/2022 3:42 PM
Units system: English

Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
16	7.866	0.00	4.5413	0
17	-1.299	0.00	0.75	0
18	0.00	0.00	-1.50	0
19	1.299	0.00	0.75	0
20	0.00	0.00	-9.0828	0
21	-7.8659	0.00	4.5415	0
77	0.6732	-1.00	-7.3169	0
78	0.6732	5.00	-7.3169	0
103	6.6732	-1.00	3.0755	0
104	6.6732	5.00	3.0755	0
131	-0.6732	-1.00	-7.3169	0
132	-0.6732	5.00	-7.3169	0
141	-6.6732	-1.00	3.0754	0
142	-6.6732	5.00	3.0754	0
147	-6.00	-1.00	4.2414	0
148	-6.00	5.00	4.2414	0
151	-1.00	-1.00	4.2414	0
152	-1.00	5.00	4.2414	0
155	3.00	-1.00	4.2414	0
156	3.00	5.00	4.2414	0
157	6.00	-1.00	4.2415	0
158	6.00	5.00	4.2415	0
172	0.1771	4.167	-7.7762	0

173	6.8228	4.167	3.7348	0
174	-6.823	4.167	3.7347	0
175	-0.177	4.167	-7.7761	0
176	6.6458	4.167	4.0415	0
177	-6.6458	4.167	4.0413	0
194	-9.69E-05	0.00	-8.0829	0
195	6.9999	0.00	4.0415	0
196	-7.00	0.00	4.0413	0
202	1.9568	0.00	1.1298	0
205	-1.9568	0.00	1.1298	0
206	-1.9568	2.00	1.1298	0
207	1.9568	2.00	1.1298	0
208	0.00	0.00	0.00	0
210	0.00	1.00	0.00	0
225	4.1732	-1.00	-1.2547	0
226	4.1732	5.00	-1.2547	0
229	2.1732	-1.00	-4.7188	0
230	2.1732	5.00	-4.7188	0
237	-3.1732	-1.00	-2.9867	0
238	-3.1732	5.00	-2.9867	0
241	-5.1732	-1.00	0.4774	0
242	-5.1732	5.00	0.4774	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
17	1	1	1	1	1	1
18	1	1	1	1	1	1
19	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
3	195	194		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
4	195	196		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
5	196	194		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
6	20	18		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
7	16	19		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
8	21	17		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
72	173	172		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
73	176	177		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
74	174	175		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
90	184	186		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
91	168	178		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
92	192	170		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
93	158	157		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
94	156	155		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
95	152	151		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
96	148	147		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
97	142	141		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

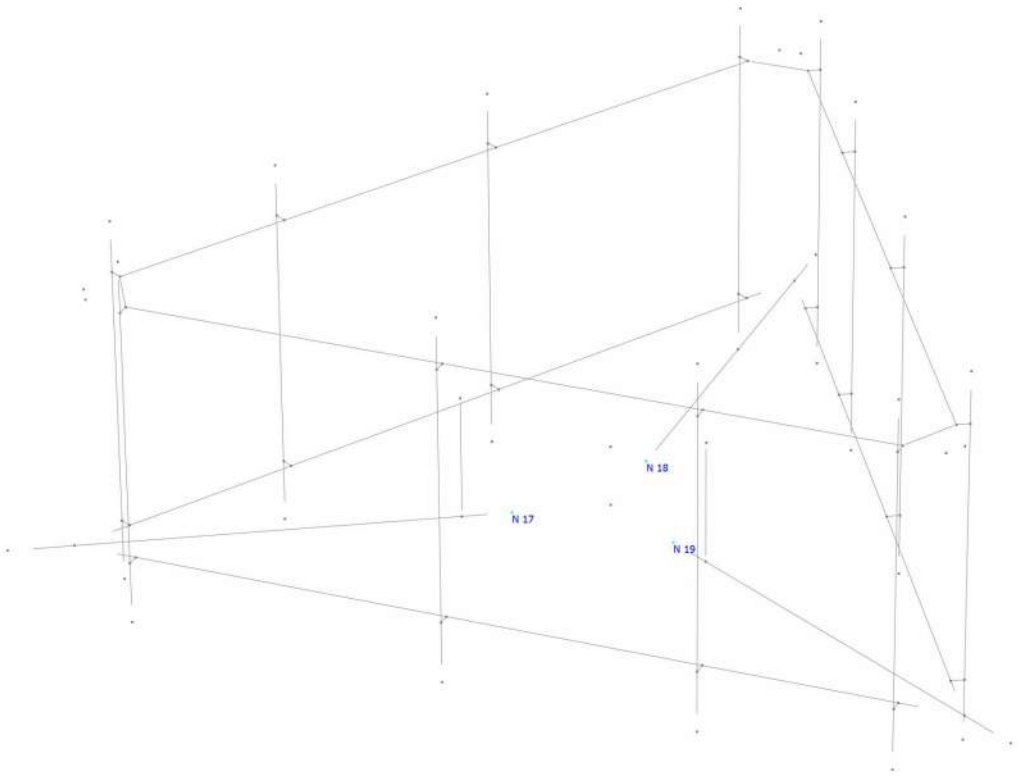
100	132	131		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
101	78	77		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
104	104	103		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
105	206	205		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
106	207	202		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
117	230	229		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
118	226	225		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
123	242	241		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
124	238	237		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
90	90.00	0	0.00	0.00	0.00
91	90.00	0	0.00	0.00	0.00
92	90.00	0	0.00	0.00	0.00
117	0.00	2	-0.50	0.00	-0.866
118	0.00	2	-0.50	0.00	-0.866
123	0.00	2	-0.50	0.00	0.866
124	0.00	2	-0.50	0.00	0.866

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
6	0.00	-2.00	0.00	0.00	-2.00	0.00
7	0.00	-2.00	0.00	0.00	-2.00	0.00
8	0.00	-2.00	0.00	0.00	-2.00	0.00

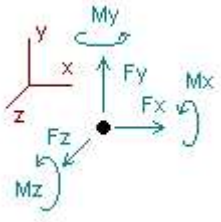

N 18
N 17
N 19


Y
X
Z

Current Date: 2/1/2022 3:42 PM
Units system: English

Analysis result

Reactions



Direction of positive forces and moments

	Forces [Kip]			Moments [Kip*ft]		
Node	**FX**	**FY**	**FZ**	**MX**	**MY**	**MZ**
Condition **LC1=1.2DL+W0**						
17	-3.80284	0.94199	2.77094	-0.91111	1.05128	-3.43636
18	-0.02250	1.93538	-0.92954	8.76075	0.10870	-0.01585
19	3.82533	0.98783	2.79686	-0.98048	-0.90930	3.51101
SUM	0.00000	3.86519	4.63825	6.86916	0.25069	0.05880
Condition **LC2=1.2DL+W30**						
17	-0.99109	1.88106	0.74946	-3.72505	-0.13613	-7.45311
18	0.66756	1.23085	-3.40739	5.22511	-1.85987	-0.99074
19	4.89142	0.75328	2.65793	-1.58558	-0.19450	1.65914
SUM	4.56789	3.86519	0.00000	-0.08552	-2.19050	-6.78471
Condition **LC3=1.2DL-W0**						
17	-2.01494	1.63680	0.58335	-4.33943	-1.05804	-5.66805
18	0.02191	0.54381	-5.78087	1.58120	-0.10753	0.03156
19	1.99303	1.68458	0.55927	-4.35553	0.91370	5.69160
SUM	0.00000	3.86519	-4.63825	-7.11376	-0.25187	0.05511
Condition **LC4=1.2DL-W30**						
17	-4.82669	0.70403	2.60816	-1.51221	0.13522	-1.63911
18	-0.66725	1.23403	-3.30862	5.15476	1.85892	1.00827
19	0.92604	1.92713	0.70045	-3.73776	0.19173	7.53574
SUM	-4.56789	3.86519	0.00000	-0.09521	2.18588	6.90490
Condition **LC5=0.9DL+W0**						
17	-3.05355	0.61803	2.34042	-0.24457	1.05424	-2.27832
18	-0.02260	1.62870	-0.06835	7.44943	0.10850	-0.01799
19	3.07615	0.65217	2.36618	-0.30342	-0.91246	2.34023
SUM	0.00000	2.89890	4.63825	6.90143	0.25029	0.04392

Condition **LC6=0.9DL+W30**

17	-0.24472	1.56022	0.31931	-3.06137	-0.13322	-6.30056
18	0.67010	0.92190	-2.54442	3.90906	-1.86278	-0.99155
19	4.14251	0.41678	2.22511	-0.90664	-0.19235	0.48785
SUM	4.56789	2.89889	0.00000	-0.05896	-2.18835	-6.80426

Condition **LC7=0.9DL-W0**

17	-1.26958	1.31523	0.15114	-3.67390	-1.06058	-4.51536
18	0.02202	0.23249	-4.91636	0.26114	-0.10772	0.02971
19	1.24756	1.35118	0.12697	-3.67929	0.91658	4.52634
SUM	0.00000	2.89889	-4.63825	-7.09205	-0.25172	0.04069

Condition **LC8=0.9DL-W30**

17	-4.07833	0.37932	2.17561	-0.84385	0.13284	-0.48093
18	-0.66978	0.92504	-2.44593	3.83938	1.86144	1.00508
19	0.18022	1.59454	0.27032	-3.06342	0.18920	6.37096
SUM	-4.56789	2.89889	0.00000	-0.06789	2.18348	6.89512

Condition **LC9=1.2DL+Di+Wi0**

17	-5.56206	2.21171	3.29953	-4.47082	0.17531	-8.06392
18	-0.00511	2.29379	-5.88883	10.00121	0.03019	0.00724
19	5.56716	2.28855	3.30229	-4.53335	-0.12624	8.13546
SUM	0.00000	6.79405	0.71300	0.99704	0.07926	0.07877

Condition **LC10=1.2DL+Di+Wi30**

17	-5.12842	2.36369	2.99114	-4.93574	0.00445	-8.72481
18	0.09030	2.18210	-6.27213	9.42843	-0.24863	-0.15764
19	5.74612	2.24826	3.28099	-4.63429	0.00857	7.82116
SUM	0.70800	6.79405	0.00000	-0.14159	-0.23561	-1.06129

Condition **LC11=1.2DL+Di-Wi0**

17	-5.29385	2.32296	2.96669	-5.03470	-0.17709	-8.42396
18	0.00532	2.07099	-6.64522	8.84155	-0.02805	0.01503
19	5.28853	2.40010	2.96553	-5.08932	0.12799	8.48715
SUM	0.00000	6.79405	-0.71300	-1.28246	-0.07715	0.07822

Condition **LC12=1.2DL+Di-Wi30**

17	-5.72744	2.17115	3.27517	-4.56943	-0.00607	-7.76275
18	-0.09006	2.18231	-6.26204	9.41529	0.25074	0.17994
19	5.10949	2.44059	2.98687	-4.98799	-0.00698	8.80114
SUM	-0.70800	6.79405	0.00000	-0.14212	0.23769	1.21833

Condition **LC13=1.4DL**

17	-3.43950	1.50628	1.98526	-3.08334	-0.00108	-5.34934
18	-0.00003	1.44187	-3.97107	6.09114	0.00089	0.00954
19	3.43953	1.56125	1.98580	-3.13321	0.00076	5.40800
SUM	0.00000	4.50939	0.00000	-0.12542	0.00057	0.06820

Condition **LC14=1.2DL+1.6LL1**

17	-3.16181	1.50063	1.82786	-3.18713	0.00705	-5.28851
18	0.00023	1.21364	-3.65560	5.05525	0.00059	0.00402
19	3.16158	1.55093	1.82774	-3.24628	-0.00731	5.33819
SUM	0.00000	4.26519	0.00000	-1.37817	0.00033	0.05370

Condition **LC15=1.2DL+1.6LL2**

17	-3.73998	1.73186	2.15814	-3.93158	-0.00147	-6.81003
18	0.00963	1.21590	-4.30061	5.11328	-0.04048	-0.15020
19	3.73035	1.31743	2.14248	-2.76639	0.04317	4.46237
SUM	0.00000	4.26519	0.00000	-1.58469	0.00122	-2.49786

Condition **LC16=1.2DL+WL0+1.6LLa1**

17	-3.94797	1.29877	2.29471	-2.81306	0.01333	-4.46654
18	-0.01533	1.22705	-4.40334	5.12749	0.06969	0.22298
19	3.96330	2.13937	2.32263	-4.78986	-0.05501	8.08696
SUM	0.00000	4.66519	0.21400	-2.47543	0.02801	3.84340

Condition **LC17=1.2DL+WL30+1.6LLa1**

17	-3.81950	1.34422	2.20219	-2.95262	-0.04190	-4.66386
18	0.01435	1.19350	-4.51860	4.95492	-0.01840	0.17444
19	4.01615	2.12747	2.31641	-4.82095	-0.01817	7.99480
SUM	0.21100	4.66519	0.00000	-2.81866	-0.07848	3.50539

Condition **LC18=1.2DL-WL0+1.6LLa1**

17	-3.86716	1.33218	2.19423	-2.98232	-0.09328	-4.57464
18	-0.01192	1.15985	-4.62903	4.77745	0.05140	0.22519
19	3.87908	2.17317	2.22081	-4.95647	0.02165	8.19171
SUM	0.00000	4.66519	-0.21400	-3.16134	-0.02023	3.84226

Condition **LC19=1.2DL-WL30+1.6LLa1**

17	-3.99563	1.28675	2.28676	-2.84273	-0.03803	-4.37730
18	-0.04159	1.19337	-4.51378	4.95010	0.13950	0.27374
19	3.82622	2.18508	2.22703	-4.92534	-0.01521	8.28384
SUM	-0.21100	4.66519	0.00000	-2.81797	0.08626	4.18028

Condition **LC20=1.2DL+WL0+1.6LLa2**

17	-3.55371	1.48133	2.07912	-3.19620	0.05340	-5.16087
18	-0.00836	1.21721	-3.95949	5.04336	0.04056	0.09830
19	3.56207	1.96665	2.09437	-4.30055	-0.06651	6.95695
SUM	0.00000	4.66519	0.21400	-2.45339	0.02745	1.89438

Condition **LC21=1.2DL+WL30+1.6LLa2**

17	-3.42495	1.52694	1.98640	-3.33551	-0.00184	-5.35762
18	0.02137	1.18351	-4.07431	4.87056	-0.04761	0.04979
19	3.61457	1.95474	2.08791	-4.33158	-0.02959	6.86459
SUM	0.21100	4.66519	0.00000	-2.79653	-0.07904	1.55676

Condition **LC22=1.2DL-WL0+1.6LLa2**

17	-3.47289	1.51492	1.97854	-3.36547	-0.05332	-5.26870
18	-0.00494	1.14980	-4.18502	4.69336	0.02223	0.10055
19	3.47783	2.00047	1.99248	-4.46739	0.01022	7.06187
SUM	0.00000	4.66519	-0.21400	-3.13951	-0.02088	1.89372

Condition **LC23=1.2DL-WL30+1.6LLa2**

17	-3.60165	1.46932	2.07127	-3.22614	0.00194	-5.07192
18	-0.03467	1.18347	-4.07022	4.86624	0.11040	0.14906
19	3.42532	2.01240	1.99894	-4.43633	-0.02672	7.15421
SUM	-0.21100	4.66519	0.00000	-2.79622	0.08561	2.23135

Condition **LC24=1.2DL+WL0+1.6LLa3**

17	-3.45227	1.77202	2.02983	-3.87193	0.07874	-6.26442
18	0.00116	1.21489	-3.84065	5.02254	-0.00063	-0.03318
19	3.45111	1.67829	2.02482	-3.59865	-0.05468	5.73512
SUM	0.00000	4.66519	0.21400	-2.44805	0.02342	-0.56248

Condition **LC25=1.2DL+WL30+1.6LLa3**

17	-3.32311	1.81774	1.93688	-4.01095	0.02351	-6.46053
18	0.03092	1.18110	-3.95496	4.84945	-0.08884	-0.08166
19	3.50319	1.66636	2.01808	-3.62944	-0.01771	5.64247
SUM	0.21100	4.66519	0.00000	-2.79094	-0.08304	-0.89972

Condition **LC26=1.2DL-WL0+1.6LLa3**

17	-3.37141	1.80574	1.92924	-4.04119	-0.02796	-6.37189
18	0.00459	1.14743	-4.06610	4.67255	-0.01900	-0.03087
19	3.36682	1.71202	1.92285	-3.76556	0.02209	5.84031
SUM	0.00000	4.66519	-0.21400	-3.13420	-0.02487	-0.56246

Condition **LC27=1.2DL-WL30+1.6LLa3**

17	-3.50058	1.76003	2.02220	-3.90214	0.02728	-6.17574
18	-0.02516	1.18119	-3.95180	4.84572	0.06920	0.01760
19	3.31474	1.72397	1.92960	-3.73474	-0.01489	5.93293
SUM	-0.21100	4.66519	0.00000	-2.79116	0.08159	-0.22521

Condition **LC28=1.2DL+WL0+1.6LLa4**

17	-3.96859	2.09185	2.32398	-4.75398	0.06855	-8.03448
18	0.01203	1.22816	-4.40955	5.13217	-0.04873	-0.21156
19	3.95657	1.34518	2.29957	-2.85588	0.00326	4.51967
SUM	0.00000	4.66519	0.21400	-2.47769	0.02309	-3.72636

Condition **LC29=1.2DL+WL30+1.6LLa4**

17	-3.83893	2.13756	2.23077	-4.89257	0.01329	-8.23001
18	0.04171	1.19442	-4.52341	4.95868	-0.13690	-0.26002
19	4.00822	1.33321	2.29264	-2.88622	0.04011	4.42657
SUM	0.21100	4.66519	0.00000	-2.82011	-0.08349	-4.06347

Condition **LC30=1.2DL-WL0+1.6LLa4**

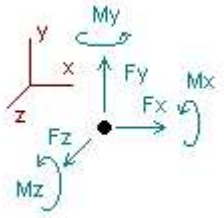
17	-3.88780	2.12558	2.22354	-4.92297	-0.03807	-8.14162
18	0.01545	1.16096	-4.63526	4.78216	-0.06716	-0.20918
19	3.87235	1.37865	2.19773	-3.02277	0.07989	4.62538
SUM	0.00000	4.66519	-0.21400	-3.16358	-0.02535	-3.72543

Condition **LC31=1.2DL-WL30+1.6LLa4**

17	-4.01747	2.07988	2.31675	-4.78435	0.01720	-7.94607
18	-0.01423	1.19467	-4.52142	4.95574	0.02100	-0.16071
19	3.82070	1.39064	2.20467	-2.99239	0.04302	4.71845
SUM	-0.21100	4.66519	0.00000	-2.82100	0.08122	-3.38833

Envelope for nodal reactions

Note.- **Ic** 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+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+WL0+1.6LLa1
LC17=1.2DL+WL30+1.6LLa1
LC18=1.2DL-WL0+1.6LLa1
LC19=1.2DL-WL30+1.6LLa1
LC20=1.2DL+WL0+1.6LLa2
LC21=1.2DL+WL30+1.6LLa2
LC22=1.2DL-WL0+1.6LLa2
LC23=1.2DL-WL30+1.6LLa2
LC24=1.2DL+WL0+1.6LLa3
LC25=1.2DL+WL30+1.6LLa3
LC26=1.2DL-WL0+1.6LLa3
LC27=1.2DL-WL30+1.6LLa3
LC28=1.2DL+WL0+1.6LLa4
LC29=1.2DL+WL30+1.6LLa4

LC30=1.2DL-WL0+1.6LLa4
LC31=1.2DL-WL30+1.6LLa4

Node		Forces						Moments					
		Fx [Kip]	**Ic**	**Fy** [Kip]	**Ic**	**Fz** [Kip]	**Ic**	**Mx** [Kip*ft]	**Ic**	**My** [Kip*ft]	**Ic**	**Mz** [Kip*ft]	**Ic**
17	Max	-0.245	LC6	2.364	LC10	3.300	LC9	-0.24457	LC5	1.05424	LC5	-0.48093	LC8
	Min	-5.727	LC12	0.379	LC8	0.151	LC7	-5.03470	LC11	-1.06058	LC7	-8.72481	LC10
18	Max	0.670	LC6	2.294	LC9	-0.068	LC5	10.00121	LC9	1.86144	LC8	1.00827	LC4
	Min	-0.670	LC8	0.232	LC7	-6.645	LC11	0.26114	LC7	-1.86278	LC6	-0.99155	LC6
19	Max	5.746	LC10	2.441	LC12	3.302	LC9	-0.30342	LC5	0.91658	LC7	8.80114	LC12
	Min	0.180	LC8	0.417	LC6	0.127	LC7	-5.08932	LC11	-0.91246	LC5	0.48785	LC6

Date: 2/1/2022
Project Name: MONROE CENTER
Project No.: CT2203
Designed By: KM **Checked By:** MSC

HUDSON Design Group LLC

CHECK CONNECTION CAPACITY (Worst Case)

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

Bolt Type = A36 5/8" Threaded Rod

Allowable Tensile Load =

F_{Tall} = 6673 lbs.

Allowable Shear Load =

F_{Vall}= 4004 lbs.

TENSILE FORCES

Reaction **F =** 3302 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 5746 lbs. (See Bentley Output)
Reactions in Y direction: 2441 lbs. (See Bentley Output)

Resultant: 6243 lbs.

No. of Supports = 1
No. of Bolts / Support = 3

Tension Design Load /Bolts =

f_t= 1100.67 lbs. < 6673 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 2081.00 lbs. < 4004 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.165	+	0.520	=	0.685	<	1.0	**Therefore, OK !**

500 MOOSE HILL RD

Location	500 MOOSE HILL RD	**Map/Lot**	051/ 067/ 0C/ /
Acct#	0510670C	**Owner**	ST JOHN THE BAPTIST GREEK CATHOLIC CEM
Assessment	$928,000	**Appraisal**	$1,325,700
PID	8045	**Building Count**	1
Survey	2806 2859	**Affordable**	

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$97,300	$1,228,400	$1,325,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2019	$68,100	$859,900	$928,000

Owner of Record

Owner	ST JOHN THE BAPTIST GREEK CATHOLIC CEM	**Sale Price**	$0
Co-Owner	ASSOC INC	**Certificate**	1
Address	50 PARADISE GREEN PL STRATFORD, CT 33487	**Book & Page**	176/ 349
		Sale Date	08/01/1978

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
ST JOHN THE BAPTIST GREEK CATHOLIC CEM	$0	1	176/ 349	08/01/1978

Building Information

Building 1 : Section 1

Year Built:

Living Area: 0

Building Attributes

Field	Description
Style	Vacant Land
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplaces	
Wdstv Flues	
Basement Gar.	
Attic	
Basement	
In Law Apt	

Building Photo

(http://images.vgsi.com/photos/MonroeCTPhotos/\00\01\37/67.jpg)

Building Layout

(http://images.vgsi.com/photos/MonroeCTPhotos//Sketches/8045_8045.jpg

Building Sub-Areas (sq ft)	Legend
No Data for Building Sub-Areas	

Extra Features

Extra Features	Legend
No Data for Extra Features	

Parcel Information

Use Code 906V
Description Church
Deeded Acres 52.42

Land

Land Use

Use Code	906V
Description	Church
Zone	RF1
Neighborhood	Monroe
Alt Land Approved	No
Category	

Land Line Valuation

Size (Acres)	52.42
Appraised Value	$1,228,400

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
FGR7	Garage +.5s Fin			1920 S.F.	$66,200	1
PA1	ASPHALT PARKING			6000 S.F.	$9,000	1
RS1	Frame Utility Shed			360 S.F.	$8,100	1
RS1	Frame Utility Shed			240 S.F.	$5,400	1
RS1	Frame Utility Shed			216 S.F.	$4,900	1
FN1	FENCE CHAIN			350 L.F.	$3,700	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$97,300	$1,228,400	$1,325,700
2019	$97,300	$1,228,400	$1,325,700
2019	$97,300	$1,228,400	$1,325,700

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2020	$68,100	$859,900	$928,000
2019	$68,100	$859,900	$928,000
2019	$68,100	$859,900	$928,000

Search... Sign in

Parcels (1)

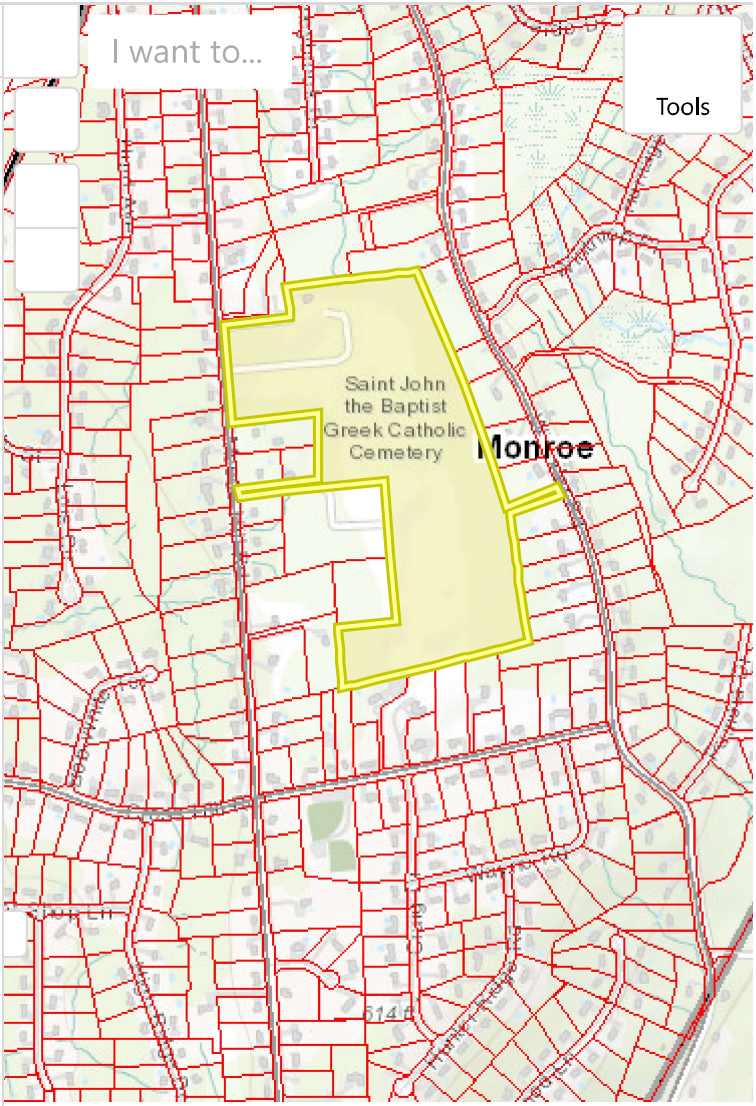
☆ **Parcel ID: 051 067 0C**

No Image is Available

500 MOOSE HILL RD

Field Card | Zoom to Feature | Buffer Feature

Septic As-Built Reports | Well Completion Reports



Displaying 1 - 1 (Total: 1)

Page 1 of 1

Home Layers Parcels (1)

TOPO M... 0 0.1 0.2mi

Connecticut Siting Council (/CSC)

DOCKET NO 207 - James E. Dwyer Co., Inc. application for a Certificate of Environmental Compatibility and Public Need for the construction, maintenance and operation of a cellular telecommunications facility at 500 Moose Hill Road, Monroe, Connecticut.	} } }	Connecticut Siting Council March 21, 2002

Decision and Order

Pursuant to the foregoing Findings of Fact and Opinion, the Connecticut Siting Council (Council) finds that the effects associated with the construction, operation, and maintenance of a telecommunications facility at the proposed site in Monroe, Connecticut, including effects on the natural environment; ecological integrity and balance; public health and safety; scenic, historic, and recreational values; forests and parks; air and water purity; and fish and wildlife are not disproportionate either alone or cumulatively with other effects when compared to need, are not in conflict with the policies of the State concerning such effects, and are not sufficient reason to deny the application and therefore directs that a Certificate of Environmental Compatibility and Public Need, as provided by General Statutes § 16-50k, be issued to James E. Dwyer Co., Inc. for the construction, maintenance and operation of a cellular telecommunications facility at the proposed site located at 500 Moose Hill Road, Monroe, Connecticut.

The facility shall be constructed, operated, and maintained substantially as specified in the Council's record in this matter, and subject to the following conditions:

1. The tower shall be constructed as a monopole facility, no taller than necessary to provide the proposed telecommunications services, sufficient to accommodate the antennas of AT&T and other entities, both public and private, but such tower shall not exceed a height of 130 feet above ground level (AGL).

2. The Certificate Holder shall prepare a D&M Plan for this site in compliance with Sections 16-50j-75 through 16-50j-77 of the Regulations of Connecticut State Agencies. The D&M Plan shall be submitted to and approved by the Council prior to the commencement of facility construction and shall include: a final site plan(s) for site development to include the location and specifications for the tower foundation, placement of carrier antennas, tower height, provisions for tower extension, equipment buildings, security fence, access road, and utility line; construction plans for site clearing, tree trimming, water drainage, and erosion and sedimentation controls consistent with the Connecticut Guidelines for Soil Erosion and Sediment Control, as amended; landscaping and provisions to protect the existing vegetative buffer that would extend around the facility compound; a tower finish that may include painting; and provisions for the prevention and containment of spills and/or other discharge into surface water and groundwater bodies. The applicant must have commitments from at least two carriers prior to commencement of construction of the facility.

3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of electromagnetic radio frequency power density of all proposed entities' antennas at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin No. 65, August 1997. The Certificate Holder shall provide a recalculated report of electromagnetic radio frequency power density if and when circumstances in operation cause a change in power density above the levels calculated and provided pursuant to this Decision and Order.

4. Upon the establishment of any new State or Federal radio frequency standards applicable to frequencies of this facility, the facility granted herein shall be brought into compliance with such standards.

5. The Certificate Holder shall permit public or private entities to share space on the proposed tower for fair consideration, or shall provide any requesting entity with specific legal, technical, environmental, or economic reasons precluding such tower sharing.

6. If the facility does not initially provide, or permanently ceases to provide cellular services following completion of construction, this

Decision and Order shall be void, and the Certificate Holder shall dismantle the tower and remove all associated equipment or reapply for any continued or new use to the Council before any such use is made.

7. Any antenna that becomes obsolete and ceases to function shall be removed within 60 days after such antenna becomes obsolete and ceases to function.

8. Unless otherwise approved by the Council, this Decision and Order shall be void if all construction authorized herein is not completed and the site in operation as a telecommunications facility within one year of the effective date of this Decision and Order or within one year after all appeals to this Decision and Order have been resolved.

Pursuant to General Statutes § 16-50p, we hereby direct that a copy of the Findings of Fact, Opinion, and Decision and Order be served on each person listed below, and notice of issuance shall be published in The Hartford Courant and The Advocate.

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

The parties and intervenors to this proceeding are:

James E. Dwyer Co., Inc.
(Dwyer)
Dennis Morrissey, P.E.
Attorney at Law
106 Sherman Street
Fairfield, CT 06430

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MONROE TOWN HALL
7 FAN HILL RD
MONROE CT 06468-1847

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SAI GROUP
12 INDUSTRIAL WAY
SALEM NH 03079-2837

Expected Delivery Date: 04/18/22
Ref#: CT2203
0006

C020

SHIP TO:
ST JOHN THE BAPTIST GREEK CATHOLIC CEMETERY
50 PARADISE GREEN PL
STRATFORD CT 06614-4012

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Ref#: CT2203
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C036

SHIP TO:
SBA COMMUNICATIONS CORP
8051 CONGRESS AVE
BOCA RATON FL 33487-1307

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Ref#: CT2203
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SHIP TO:
MELANIE BACHMAN EXECUTIVE DIRECTOR
CT SITING COUNCIL
10 FRANKLIN SQ
NEW BRITAIN CT 06051-2655

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From: auto-reply@usps.com
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Subject: USPS® Expected Delivery by Saturday, April 16, 2022 arriving by 9:00pm 9405503699300223062310

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Apr

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Sent: Friday, April 15, 2022 12:18 PM
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Subject: USPS® Expected Delivery by Monday, April 18, 2022 arriving by 9:00pm 9405503699300223062327

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Mon
18
Apr

By 9:00pm

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To: Hollis Redding
Subject: USPS® Expected Delivery by Monday, April 18, 2022 arriving by 9:00pm 9405503699300223062334

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Expected Delivery By

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18
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By 9:00pm

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