



June 1, 2020

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 CT1259  
38 Rich Road, North Grosvenordale, CT 06255 (the "Property")  
Latitude: 42.011500 N Longitude: 71.852027 W

Dear Ms. Bachman:

AT&T currently maintains (9) antennas at the 127' on the existing 150' monopole tower ("Tower") at 38 Rich Road, in the North Grosvenordale section of Thompson, CT. The tower is owned by SBA Towers, Inc ("SBA") and the property is owned by the Town of Thompson. AT&T intends to modify its facility by replacing (6) antennas with (3) OPA65R -BU8DA & (3) DMP65R-BU8DA, replacing (3) RRUs with (3) 4449 B5/B12 RRUs & (3) 8843 B2 B66 RRUs and installing (3) 4478 B14 RRUs. The height of AT&Ts existing and proposed antennas & RRUs is 127'.

The facility received CT Siting Council ("Council") approval in Docket 344 on January 10, 2008. AT&T received council approval under TS-CING-141-080520 on June 5, 2008. 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 approval.

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 the Honorable Amy St Onge, First Selectman & as property owner, Town of Thompson, Tyra Penn-Gesek, Director of Planning & Development, Town of Thompson, and SBA Towers, Inc. as 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](mailto:hredding@saigrp.com)

Enclosures

Cc: Honorable Amy St Onge, First Selectman & as property owner, Town of Thompson  
Ms. Tyra Penn-Gesek, Director of Planning & Development, Town of Thompson  
SBA Towers, Inc., as tower owner

## Power Density

### Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							5.07%
AT&T UMTS	2	414	127	0.0203	850	0.5667	0.36%
AT&T PCS UMTS	2	656	127	0.0322	1900	1.0000	0.32%
AT&T GSM	2	414	127	0.0203	850	0.5667	0.36%
AT&T LTE	2	1750	127	0.0860	700	0.4667	1.84%
AT&T PCS LTE	2	1964	127	0.0965	1900	1.0000	0.96%
Site Total							8.91%

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

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

### Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm <sup>2</sup> )	Freq. Band (MHz <sup>**</sup> )	Limit S (mW/cm <sup>2</sup> )	%MPE
Other Carriers*							5.07%
AT&T UMTS	1	308	127	0.0076	850	0.5667	0.13%
AT&T LTE	1	1000	127	0.0246	850	0.5667	0.43%
AT&T 5G	1	1000	127	0.0246	850	0.5667	0.43%
AT&T LTE	1	1476	127	0.0363	700	0.4667	0.78%
AT&T LTE	1	2951	127	0.0725	700	0.4667	1.55%
AT&T LTE	2	3664	127	0.1800	1900	1.0000	1.80%
AT&T LTE AWS	1	3837	127	0.0942	2100	1.0000	0.94%
Site Total							11.14%

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

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



SITE NUMBER: CT1259

SITE NAME: THOMPSON CT RICH RD

FA CODE: 10128120

PACE ID: MRCTB047160, MRCTB047200, MRCTB047302, MRCTB047166

PROJECT: LTE 3C\_4C\_5G NR\_4TX4RX 2020 UPGRADE

**PROJECT INFORMATION**

- SCOPE OF WORK:**
- ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE:
    - NEW AT&T ANTENNAS: 0P465R-BUBDA (TYP. OF 1 PER SECTOR, TOTAL OF 3).
    - NEW AT&T ANTENNAS: 0P465R-BUBDA (TYP. OF 1 PER SECTOR, TOTAL OF 3).
    - NEW AT&T RRUS: 4449 B5/B12 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
    - NEW AT&T RRUS: 8843 B2/B6 (PCS/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
    - NEW AT&T DC 3: FIBER SURGE ARRESTOR DCG-48-80-248C-EV (TYP. OF 3).
    - NEW AT&T DC 2: FIBER SURGE ARRESTOR DCG-48-80-248C-EV (TYP. OF 3).
    - TOTAL OF 1 WITH (3) DC POWER & (1) FIBER RUN IN (2) 2" FLEX CONDUIT.
  - PROPOSED MODS (SEE S-1 SHEET).

**ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:**

- ADD (1) RBS 6650.
- ADD (1) MTR.
- ADD (1) XLR.
- ADD (1) DC-12.
- ADD (1) DC-12.
- INSTALL (1) FIBER MANAGEMENT BOX ON ICE BRIDGE POST.
- ADD HOME RUN RET TO UMS ANTENNA.

**ITEMS TO BE REMOVED:**

- EXISTING GSM ANTENNAS: AM-X-CO-17-65-00T-RET (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T GSM ANTENNAS: 7770 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS-11 B12 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS-12 B2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING GSM COAX LINES (TOTAL OF 6).
- EXISTING GSM DIXELEXERS (TYP. OF 6 ON TOP, & 6 IN SHELTER, TOTAL OF 12).

**ITEMS TO REMAIN:**

- (3) ANTENNAS.
- (6) TMA'S (1) SURGE ARRESTOR, (5) COAX CABLES, (2) DC POWER & (1) FIBER.

SITE ADDRESS: 38 RICH ROAD NORTH GROSVENORDALE, CT 06255

LATITUDE: 42.011500° N, 42° 00' 41.4" N

LONGITUDE: 71.852027° W, 71° 51' 07.3" W

TYPE OF SITE: MONOPOLE / INDOOR

STRUCTURE HEIGHT: 150'-0"±

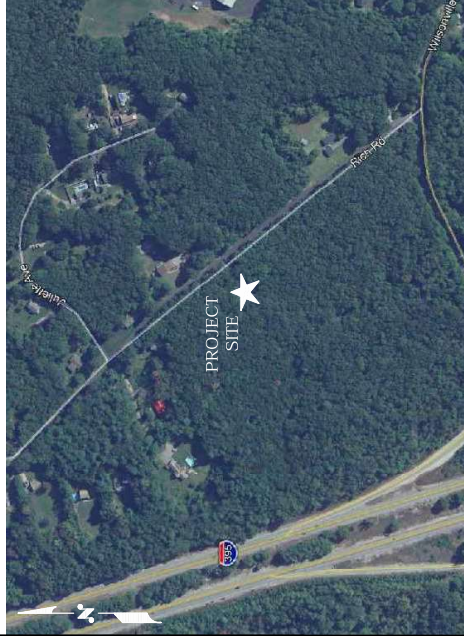
RAO CENTER: 127'-0"±

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY

**VICINITY MAP**

**DIRECTIONS TO SITE:**  
I-395 NORTH TO EXIT 100 AT THE END OF THE RAMP TAKE A RIGHT AND THEN TAKE FIRST LEFT ONTO RICH RD SITE ACCESS ROAD IS ON TOUR LEFT APPROX. 1 MILE.



**GENERAL NOTES**

- THIS DOCUMENT IS THE CREATION, DESIGN, PROPERTY AND COPYRIGHTED WORK OF AT&T. ANY REVISIONS, MODIFICATIONS, ALTERATIONS, ADDITIONS, DELETIONS, OMISSIONS, AND USE BY GOVERNMENT AGENCIES FOR THE PURPOSES OF CONDUCTING THEIR LAWFULLY AUTHORIZED REGULATORY AND ADMINISTRATIVE FUNCTIONS IS SPECIFICALLY ALLOWED.
- THE FACILITY IS AN UNMANNED PRIVATE AND SECURED EQUIPMENT INSTALLATION. IT IS ONLY TO BE USED BY AT&T PERSONNEL. NO OTHER PERSONS ARE TO ENTER THE FACILITY. NO WORK IS TO BE PERFORMED AT THE FACILITY WITHOUT THE WRITTEN PERMISSION OF AT&T. THE FACILITY IS NOT GOVERNED BY REGULATIONS REQUIRING PUBLIC ACCESS PER ADA REQUIREMENTS.
- CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE BEFORE PROCEEDING WITH THE WORK. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL NECESSARY PERMITS AND REPRESENTATION IN WRITING OF DISCREPANCIES BEFORE PROCEEDING WITH THE WORK FOR SIX MONTHS AFTER ENGINEER OF RECORD'S STAMPED AND SIGNED SUBMITTAL DATE LISTED HEREIN.

72 HOURS



CALL TOLL FREE 1-800-922-4455

OR CALL 811

UNDERGROUND SERVICE ALERT

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	06/22/20	ISSUED FOR CONSTRUCTION	ET	HC	DPH
A	04/10/20	ISSUED FOR REVIEW	ET	HC	DPH

DESIGNED BY: HC DRAWN BY: ET

SCALE: AS SHOWN

Professional Engineer License No. 24178

AT&T

CT1259

T-1



500 ENTERPRISE DRIVE SUITE 3A  
ROCKY HILL, CT 06067

SITE NUMBER: CT1259  
SITE NAME: THOMPSON CT RICH RD  
38 RICH ROAD  
NORTH GROSVENORDALE, CT 06255  
WINDHAM COUNTY



12 INDUSTRIAL WAY  
SALEM, NH 03079

HDP HUDSON Design Group LLC  
TEL: 603.652.1550  
FAX: 603.652.1550

**DRAWING INDEX**

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**GROUNDING NOTES**

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM WITH LIGHTING FIXTURES (AS REQUIRED) OR BRIDGE CIRCUITRY (AS REQUIRED) FOR COMPLIANCE WITH THE NEC (AS NOTED) SYSTEMS (AS NOTED) THE STATE-SPECIFIC AND IFC BRITAIN LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELLEORDIA 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 POWER FEES) SHALL BE BOND 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 REMOVE AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 3 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:  
 SUBCONTRACTOR – SAI  
 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 REQUIREMENTS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITIES REGULATIONS, ORDINANCES 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 LISTED 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, AND ALL OTHER CONDUITS. THE POWER CONDUITS SHALL BE PLACED IN THE 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. 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 SHALL BE VERIFIED. DISCREPANCIES SHALL BE REPORTED TO THE CONTRACTOR 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 THE EXISTING CELL SITE SHALL BE SCHEDULED TO TAKE PLACE DURING NORMAL BUSINESS HOURS. 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 IN THE FIELD. ALL ELECTRICAL WORK THAT COULD EXPOSE THE WORKERS TO DANGEROUS PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.
20. APPLICABLE BUILDING CODES: COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL BUILDING CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (ALU) 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-II; 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
BTW	BARE TINNED SOLID COPPER WIRE	MGB	MASTER GROUND BAR	TBR	TO BE REMOVED
BGR	BURIED GROUND RING	MIN	MINIMUM	TBR	TO BE REMOVED AND REPLACED
BTS	BASE TRANSCIEVER STATION	P	PROPOSED	TYP	TYPICAL
E	EXISTING	NTS	NOT TO SCALE	UC	UNDER GROUND
EGB	EQUIPMENT GROUND BAR	RAD	RADIATION CENTER LINE	VIF	VERIFY IN FIELD
EGR	EQUIPMENT GROUND RING	REF	REFER		

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/22/20	ISSUED FOR CONSTRUCTION	ET	HC	EPH
2	04/10/20	ISSUED FOR REVIEW	ET	HC	DFE

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

GENERAL NOTES
GENERAL NOTES SITE NUMBER: CT1259 DRAWING NUMBER: CN-1

at&t  
 500 ENTERPRISE DRIVE, SUITE 3A  
 ROCKY HILL, CT 06267

SAI  
 12 INDUSTRIAL WAY  
 SALEM, NH 03079

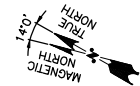
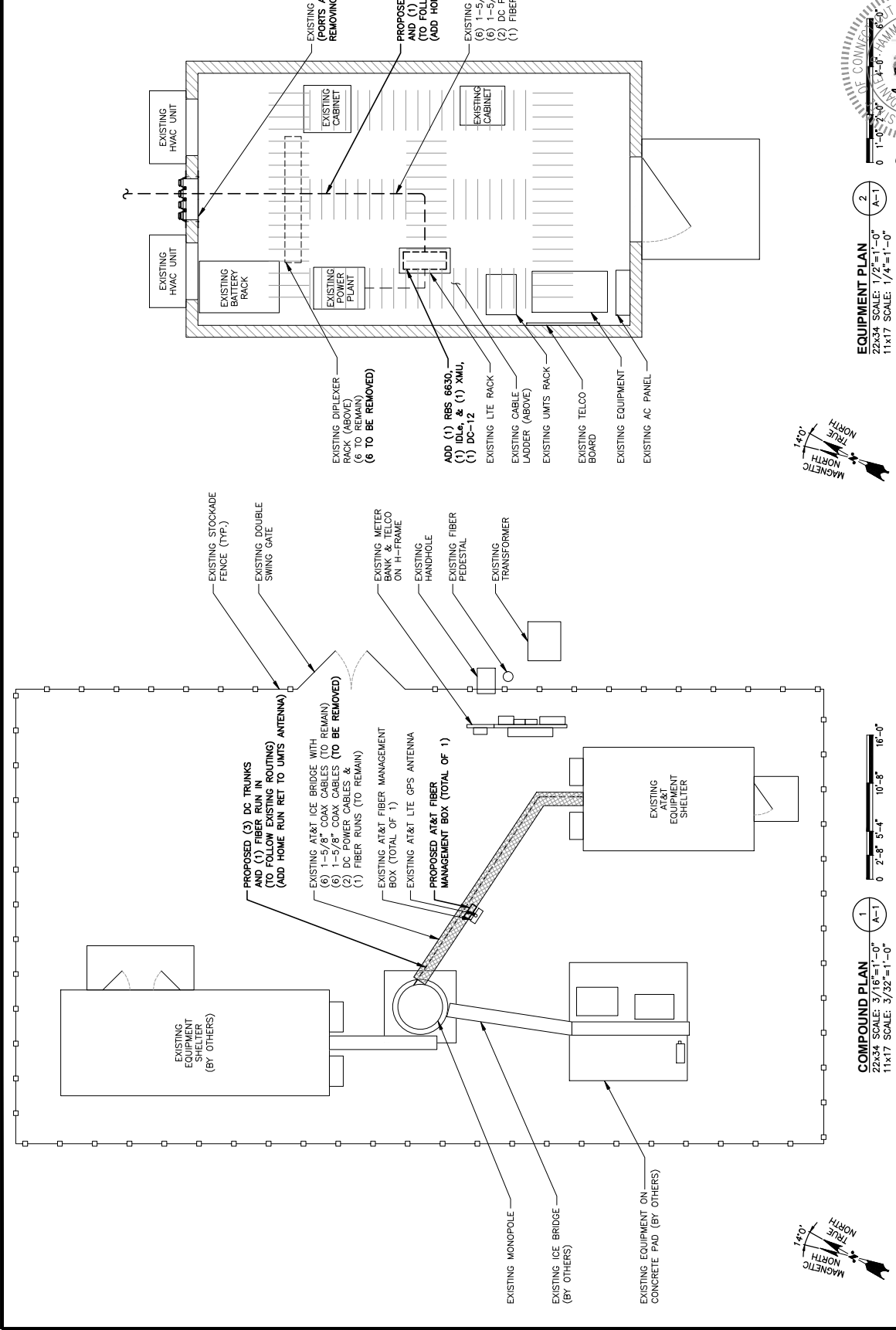
H2G HUDSON Design Group LLC  
 TEL: 603 452 4550  
 NORTH ANDOVER, MA 01845 FAX: 978 334-3394

SITE NUMBER: CT1259  
 SITE NAME: THOMPSON CT RICH RD  
 38 RICH ROAD  
 NORTH ROXBOROUGH, CT  
 06255  
 WINDHAM COUNTY

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

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: APRIL 10, 2020

**NOTE:**  
REFER TO STRUCTURAL ANALYSIS FOR ENGINEERING SOLUTIONS. DATED: APRIL 20, 2020. FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



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

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

<p>500 ENTERPRISE DRIVE SUITE 3A ROCKY HILL, CT 06067</p>		<p>12 INDUSTRIAL WAY SALEM, NH 03079</p>		<p>45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845 TEL: (978) 455-6550 FAX: (978) 334-5394</p>																			
<p>SITE NUMBER: CT1259 SITE NAME: THOMPSON CT RICH RD 38 RICH ROAD NORTH ROXBOROUGH, CT 06255 WINDHAM COUNTY</p>		<p>AT&amp;T COMPOUND &amp; EQUIPMENT PLANS LTE 3C-4C_5G NR_4TX4RX 2020 UPGRADE No. 24178</p>		<p>DATE: 04/10/20 BY: [Signature] CHK: [Signature] APP'D: [Signature]</p>																			
<p>REVISIONS</p> <table border="1"> <tr> <th>NO.</th> <th>DATE</th> <th>REVISIONS</th> <th>BY</th> <th>CHK</th> <th>APP'D</th> </tr> <tr> <td>1</td> <td>04/22/20</td> <td>ISSUED FOR CONSTRUCTION</td> <td>ET</td> <td>HC</td> <td>EPH</td> </tr> <tr> <td>2</td> <td>04/10/20</td> <td>ISSUED FOR REVIEW</td> <td>ET</td> <td>HC</td> <td>DFE</td> </tr> </table>		NO.	DATE	REVISIONS	BY	CHK	APP'D	1	04/22/20	ISSUED FOR CONSTRUCTION	ET	HC	EPH	2	04/10/20	ISSUED FOR REVIEW	ET	HC	DFE	<p>DESIGNED BY: HC DRAWN BY: ET</p>		<p>DRAWING NUMBER: A-1 SITE NUMBER: CT1259</p>	
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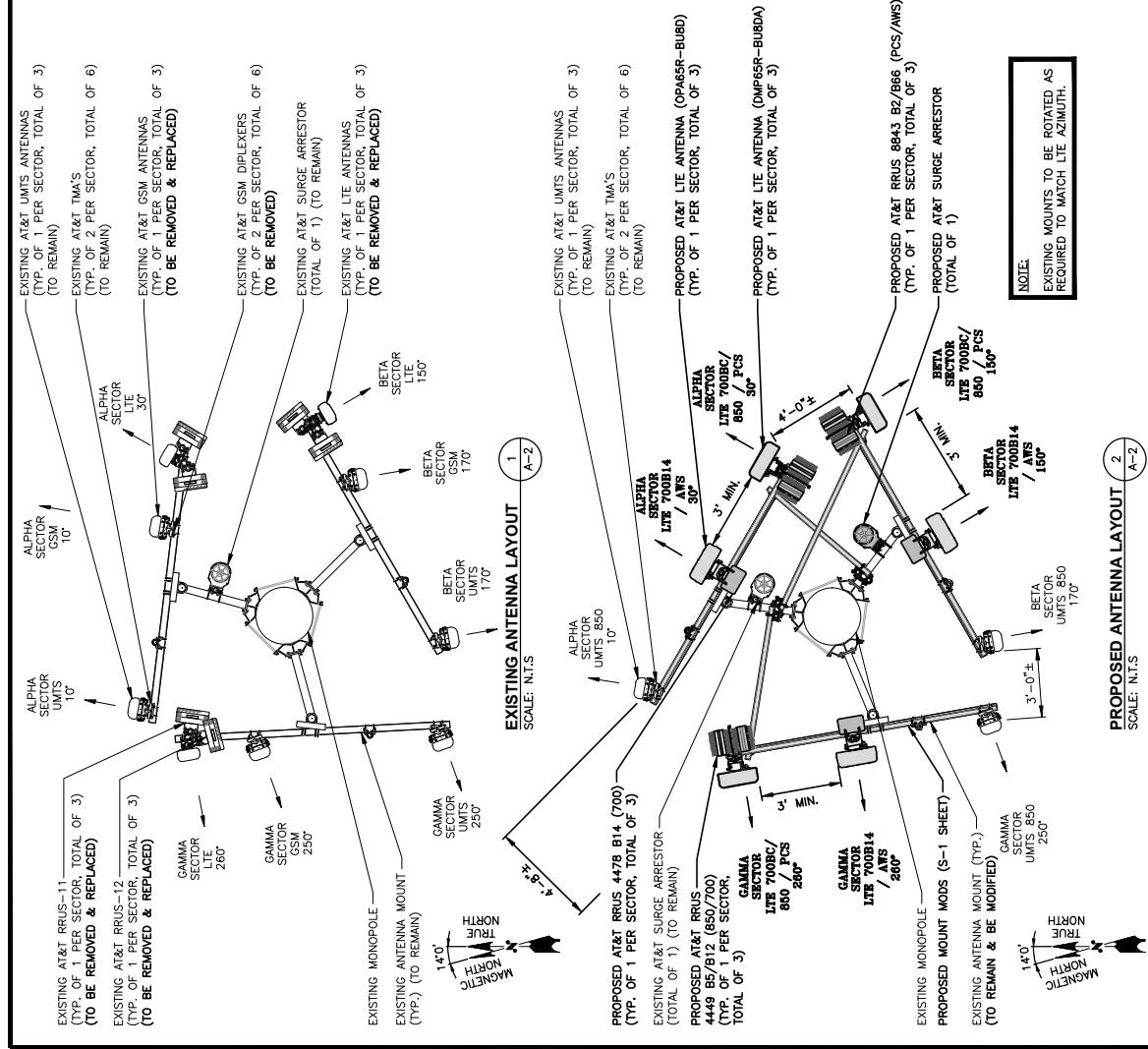
**NOTE:**  
ROTATION OF MOUNTS, OR  
INSTALLATION OF MOUNT MODES MUST  
NOT ADVERSELY AFFECT OBSTRUCT,  
BEND OR PINCH EXISTING SAFETY,  
CABLE IN ANY WAY. GC, C/O AT&T,  
WILL PURCHASE AND INSTALL CABLE,  
RE-ROUTING BRACKETS AS REQUIRED.

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

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF  
THE EXISTING ANTENNA MOUNT TO  
SUPPORT THE PROPOSED LOADING  
HAS BEEN COMPLETED BY:  
HUDSON DESIGN GROUP, LLC.  
DATED: APRIL 10, 2020

**NOTE:**  
REFER TO STRUCTURAL ANALYSIS  
BY CONNER ENGINEERING SOLUTIONS,  
DATED: APRIL 24, 2020,  
FOR THE CAPACITY OF THE  
EXISTING STRUCTURES TO SUPPORT  
THE PROPOSED EQUIPMENT.

**NOTE:**  
GROUND EQUIPMENT NOT  
SHOWN FOR CLARITY



EXISTING AT&T UMTS ANTENNAS  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)  
(TO REMAIN)

EXISTING AT&T TMA'S  
(TYP. OF 2 PER SECTOR, TOTAL OF 6)  
(TO REMAIN)

EXISTING AT&T GSM ANTENNAS  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)  
(TO BE REMOVED & REPLACED)

EXISTING AT&T GSM DIPLEXERS  
(TYP. OF 2 PER SECTOR, TOTAL OF 6)  
(TO BE REMOVED)

EXISTING AT&T SURGE ARRESTOR  
(TOTAL OF 1) (TO REMAIN)

EXISTING AT&T LTE ANTENNAS  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)  
(TO BE REMOVED & REPLACED)

EXISTING AT&T UMTS ANTENNAS  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)  
(TO REMAIN)

EXISTING AT&T TMA'S  
(TYP. OF 2 PER SECTOR, TOTAL OF 6)  
(TO REMAIN)

PROPOSED AT&T LTE ANTENNA (OP46SR-BUBD)  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T LTE ANTENNA (DMP6SR-BUBDA)  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T RRU5 8843 B2/B66 (PCS/AWS)  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T SURGE ARRESTOR  
(TOTAL OF 1)

**NOTE:**  
EXISTING MOUNTS TO BE ROTATED AS  
REQUIRED TO MATCH LTE AZIMUTH.

EXISTING AT&T RRU5-11  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)  
(TO BE REMOVED & REPLACED)

EXISTING AT&T RRU5-12  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)  
(TO BE REMOVED & REPLACED)

EXISTING MONOPOLE  
(TYP.) (TO REMAIN)

EXISTING ANTENNA MOUNT  
(TYP.) (TO REMAIN)

PROPOSED AT&T RRU5 4478 B14 (700)  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

EXISTING AT&T SURGE ARRESTOR  
(TOTAL OF 1) (TO REMAIN)

PROPOSED AT&T RRU5  
4448 B5/B12 (850/700)  
(TYP. OF 1 PER SECTOR,  
TOTAL OF 3)

EXISTING MONOPOLE

PROPOSED MOUNT MODES (S-1 SHEET)  
(TO REMAIN & BE MODIFIED)

EXISTING ANTENNA MOUNT (TYP.)  
(TO REMAIN & BE MODIFIED)

**NOTE:**  
EXISTING MOUNTS TO BE ROTATED AS  
REQUIRED TO MATCH LTE AZIMUTH.

EXISTING ANTENNAS  
(TYP.) (BY OTHERS)

TOP OF MONOPOLE  
ELEV. 150'-0"± (AGL)

PROPOSED AT&T SURGE ARRESTOR  
(TOTAL OF 1)

PROPOSED MOUNT MODES (S-1 SHEET)

EXISTING AT&T ANTENNAS  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

EXISTING AT&T TMA'S  
(TYP. OF 2 PER SECTOR, TOTAL OF 6)  
(TO REMAIN)

PROPOSED AT&T LTE UMTS ANTENNAS  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

EXISTING AT&T UMTS ANTENNAS  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)  
(TO REMAIN)

EXISTING AT&T TMA'S  
(TYP. OF 2 PER SECTOR, TOTAL OF 6)  
(TO REMAIN)

PROPOSED AT&T LTE UMTS ANTENNAS  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED (3) DC TRUNKS  
AND (1) FIBER RUN IN  
(2) 3/4" FLEX CONDUIT  
(TO FOLLOW EXISTING ROUTING)  
(ADD HOME RUN RET TO UMS ANTENNA)

EXISTING MONOPOLE

EXISTING AT&T ICE BRIDGE WITH  
(6) 1-5/8" COAX CABLES (TO REMAIN)  
(6) 1-5/8" COAX CABLES (TO BE REMOVED)  
(2) FIBER CABLES (TO REMAIN)  
(1) FIBER RUNS (TO REMAIN)

**NOTE:**  
GROUND EQUIPMENT NOT  
SHOWN FOR CLARITY

ELEVATION  
22334 SCALE: 3/32"=1'-0" (V=H)  
11417 SCALE: 3/64"=1'-0" (V=H)

GROUND LEVEL  
ELEV. 0'-0"± (AGL)

NO.	DATE	REVISIONS	BY	CHK APP'D	SCALE	AS SHOWN	DESIGNED BY:	HC	DRAWN BY:	ET
1	04/22/20	ISSUED FOR CONSTRUCTION	ET	HC	1/8"	1/8"				
A	04/10/20	ISSUED FOR REVIEW	ET	HC	1/8"	1/8"				

AT&T  
ANTENNA LAYOUTS & ELEVATION  
SITE NAME: LITE 3C-4C\_5G NR\_AT&TARX 2020 UPGRADE  
SITE NUMBER: CT1259  
DRAWING NUMBER: A-2

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

SITE NUMBER: CT1259  
SITE NAME: THOMPSON CT RICH RD  
35 RICH ROAD  
NORTH ROXBOROUGH, CT 06255  
WINDHAM COUNTY

SAI  
12 INDUSTRIAL WAY  
SALEM, NH 03079

HDSG HUDSON Design Group LLC  
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: 978 452 6550  
FAX: 978 334 3394

**ANTENNA SCHEDULE**

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA HEIGHT	AZIMUTH	TWA/ DIPLEXER	RRU	FREQUENCY	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	7770	55X11X5	127'-0"±	10°	(2)(E) LCP21401	-	-	-	(2)1-5/8 COAX	RAYCAP DC9-48-60-18-BF
A2	-	-	-	-	-	-	-	-	-	-	-	-
A3	PROPOSED	LTE 700B14 / ANS	OPA65R-BUBD	96X21X7.8	127'-0"±	30°	-	4478 B14	700	18.1"x13.4"x8.3"	-	RAYCAP DC9-48-60-18-BF
A4	PROPOSED	LTE 700BC/ 850 / PCS	DMP65R-BUBDA	96.0X20.7X7.7	127'-0"±	30°	-	4449 B5/B12 8843 B2/B66	850/700 PCS/ANS	17.9"x13.2"x10.4" 14.9"x13.2"x10.9"	(2)DC/(1)FIBER	RAYCAP DC9-48-60-18-BF
B1	PROPOSED	LTE 700BC/ 850 / PCS	DMP65R-BUBDA	96.0X20.7X7.7	127'-0"±	150°	-	4449 B5/B12 8843 B2/B66	850/700 PCS/ANS	17.9"x13.2"x10.4" 14.9"x13.2"x10.9"	(3)DC/(1)FIBER	RAYCAP DC9-48-60-18-BF
B2	PROPOSED	LTE 700B14 / ANS	OPA65R-BUBD	96X21X7.8	127'-0"±	150°	-	4478 B14	700	18.1"x13.4"x8.3"	-	RAYCAP DC9-48-60-18-BF
B3	-	-	-	-	-	-	-	-	-	-	-	-
B4	EXISTING	UMTS 850	7770	55X11X5	127'-0"±	170°	(2)(E) LCP21401	-	-	-	(2)1-5/8 COAX	RAYCAP DC9-48-60-18-BF
C1	EXISTING	UMTS 850	7770	55X11X5	127'-0"±	250°	(2)(E) LCP21401	-	-	-	(2)1-5/8 COAX	RAYCAP DC9-48-60-18-BF
C2	-	-	-	-	-	-	-	-	-	-	-	-
C3	PROPOSED	LTE 700B14 / ANS	OPA65R-BUBD	96X21X7.8	127'-0"±	260°	-	4478 B14	700	18.1"x13.4"x8.3"	-	RAYCAP DC9-48-60-18-BF
C4	PROPOSED	LTE 700BC/ 850 / PCS	DMP65R-BUBDA	96.0X20.7X7.7	127'-0"±	260°	-	4449 B5/B12 8843 B2/B66	850/700 PCS/ANS	17.9"x13.2"x10.4" 14.9"x13.2"x10.9"	-	RAYCAP DC9-48-60-18-BF

**FINAL ANTENNA SCHEDULE**  
SCALE: N.T.S.

**RRU CHART**

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

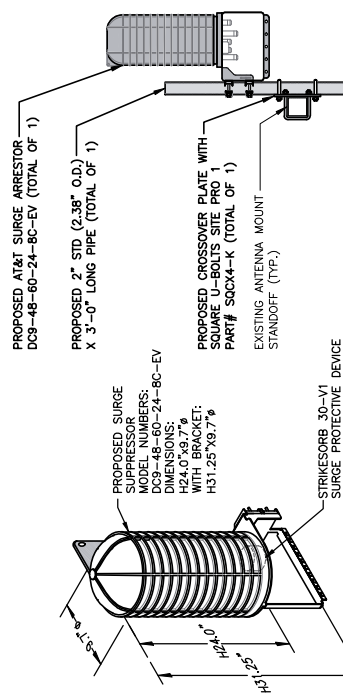
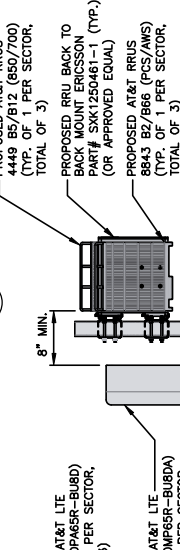
NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS

NOTE:  
SEE RFDs FOR RRU  
FREQUENCY AND  
MODEL NUMBER

NOTE:  
PROPOSED RRU REFER TO THE  
FINAL RRU MANUFACTURER'S  
QUANTITY, MODEL AND DIMENSIONS

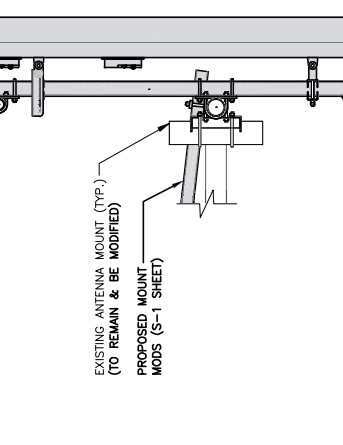
NOTE:  
MOUNT PER MANUFACTURER'S  
SPECIFICATIONS.

**PROPOSED RRU DETAIL**  
SCALE: N.T.S.



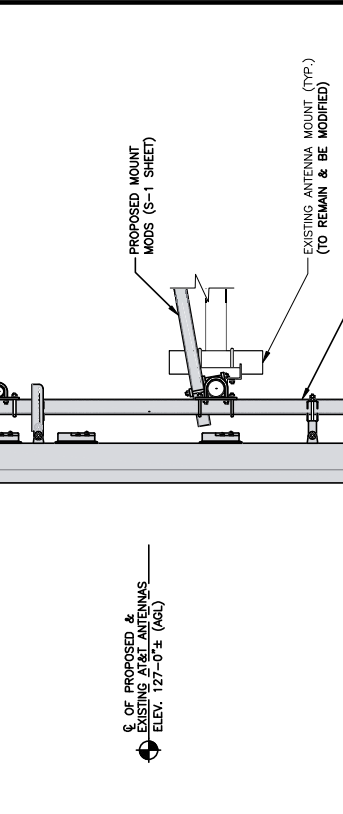
**DC SURGE SUPPRESSOR DETAIL**  
SCALE: N.T.S.

NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



**ARRESTOR MOUNTING DETAIL**  
SCALE: 1/2\"/>

NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.



**PROPOSED LTE ANTENNA & RRU MOUNTING DETAIL**  
SCALE: 1/2\"/>

NOTE:  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

**HDC Hudson Design Group LLC**  
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845  
TEL: 978 452 5550  
FAX: 978 334-3394

**SAI**  
12 INDUSTRIAL WAY  
SALEM, NH 03079

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

at&t  
SITE NAME: THOMPSON CT RICH RD  
35 RICH ROAD  
NORTH ROXBOROUGH, CT 06255  
WINDHAM COUNTY

AT&T  
DETAILS  
SITE NUMBER: CT1259  
DRAWING NUMBER: A-3  
DATE: 04/10/20  
DESIGNED BY: HC  
DRAWN BY: ET  
CHECKED BY: [Signature]  
APPROVED BY: [Signature]  
LICENSED PROFESSIONAL ENGINEER  
No. 24178  
STATE OF CONNECTICUT  
DATE: 06/22/20 ISSUED FOR CONSTRUCTION  
DATE: 04/10/20 ISSUED FOR REVIEW  
REVISIONS: [Table with columns for NO., DATE, REVISIONS, BY, CHK, APPD]  
SCALE: AS SHOWN

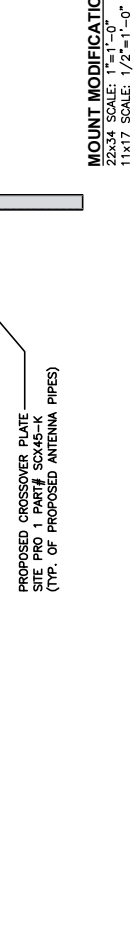
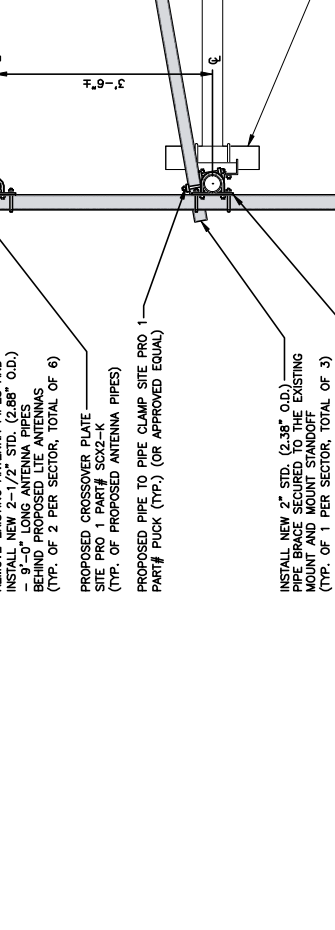
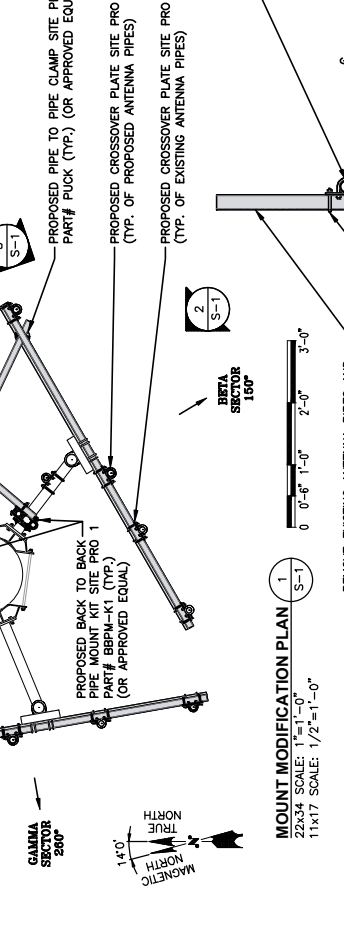
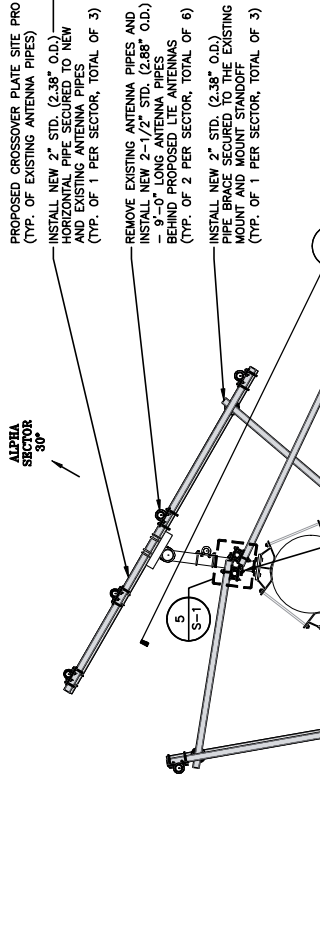
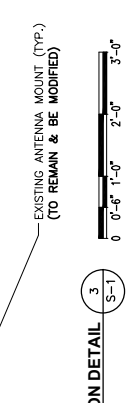
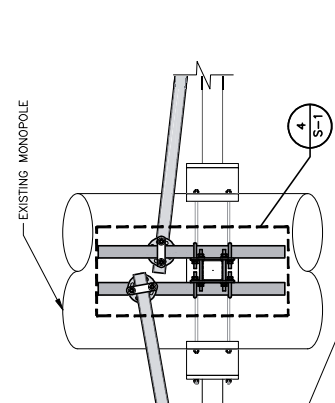
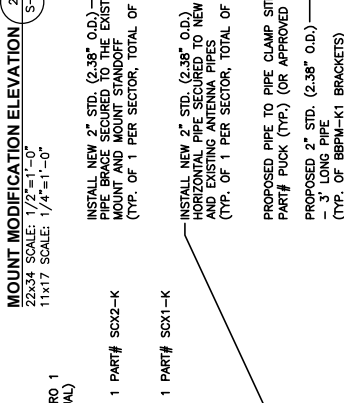
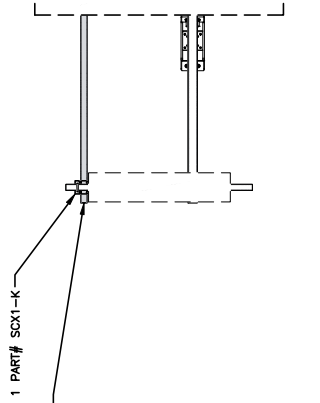
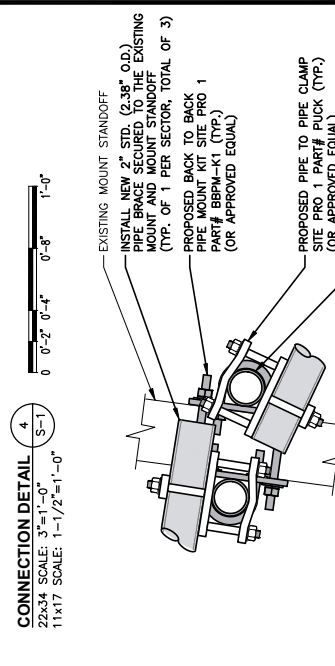
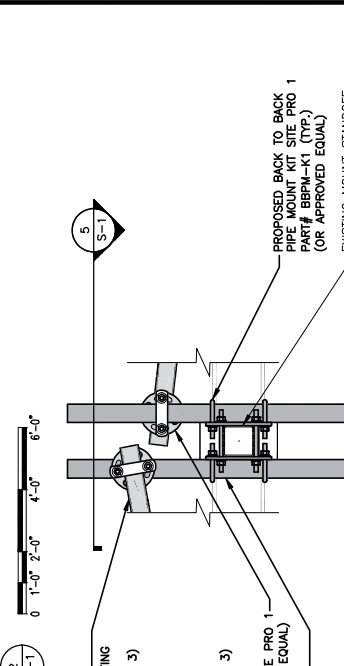
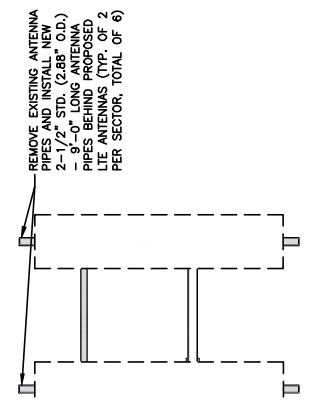




**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: APRIL 16, 2020

**NOTE:**  
REFER TO STRUCTURAL ANALYSIS BY HUDSON DESIGN SOLUTIONS, DATED: APRIL 24, 2020 FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



**ALPHA SECTOR 30°**

**BETA SECTOR 100°**

**GAMMA SECTOR 280°**

MAGNETIC NORTH  
TRUE NORTH  
140°

**MOUNT MODIFICATION PLAN 1**  
22x34 SCALE: 1"=1'-0"  
11x17 SCALE: 1/2"=1'-0"

**MOUNT MODIFICATION PLAN 2**  
22x34 SCALE: 1"=1'-0"  
11x17 SCALE: 1/4"=1'-0"

**MOUNT MODIFICATION PLAN 3**  
22x34 SCALE: 1"=1'-0"  
11x17 SCALE: 1/2"=1'-0"

**MOUNT MODIFICATION PLAN 4**  
22x34 SCALE: 3"=1'-0"  
11x17 SCALE: 1-1/2"=1'-0"

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/22/20	ISSUED FOR CONSTRUCTION	ET	HC	EPH
2	04/19/20	ISSUED FOR REVIEW	ET	HC	DFE

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/22/20	ISSUED FOR CONSTRUCTION	ET	HC	EPH
2	04/19/20	ISSUED FOR REVIEW	ET	HC	DFE

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/22/20	ISSUED FOR CONSTRUCTION	ET	HC	EPH
2	04/19/20	ISSUED FOR REVIEW	ET	HC	DFE

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/22/20	ISSUED FOR CONSTRUCTION	ET	HC	EPH
2	04/19/20	ISSUED FOR REVIEW	ET	HC	DFE

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/22/20	ISSUED FOR CONSTRUCTION	ET	HC	EPH
2	04/19/20	ISSUED FOR REVIEW	ET	HC	DFE

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

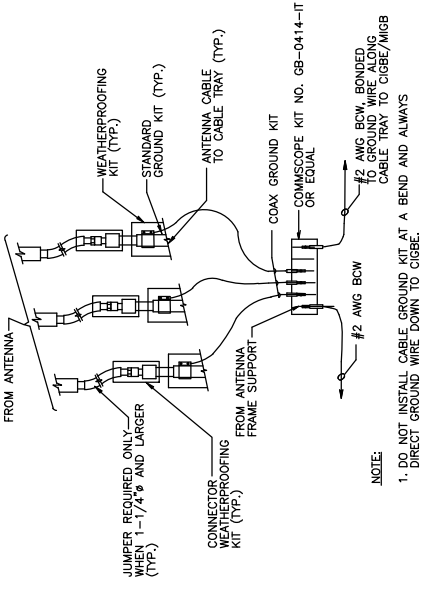
**HDG** HUDSON Design Group LLC  
46 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845  
TEL: 978 455 4555 FAX: 978 334 3394

**SAI**

SITE NUMBER: CT1259  
SITE NAME: THOMPSON CT RICH RD  
38 RICH ROAD  
NORTH GROSVENORDALE, CT 06255  
WINDHAM COUNTY

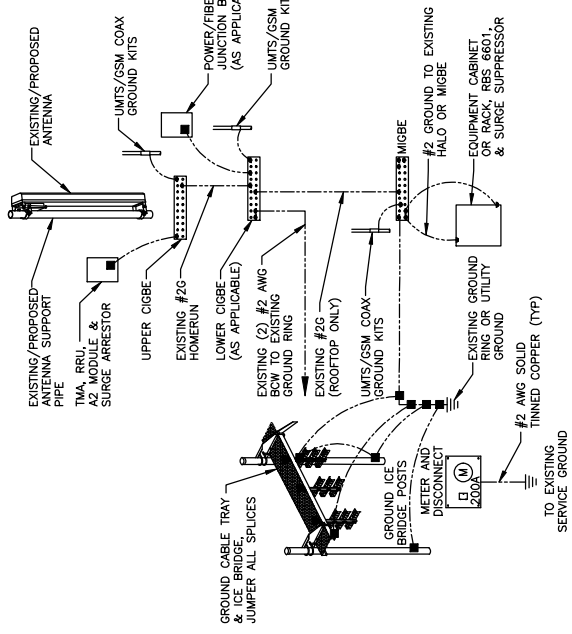
**at&t**  
500 ENTERPRISE DRIVE SUITE 3A  
ROCKY HILL, CT 06067

AT&T  
MOUNT MODIFICATION DESIGN  
SITE 3C\_4C\_5G NR\_ATX4RX 2020 UPGRADE  
SITE NUMBER: CT1259  
DRAWING NUMBER: S-1

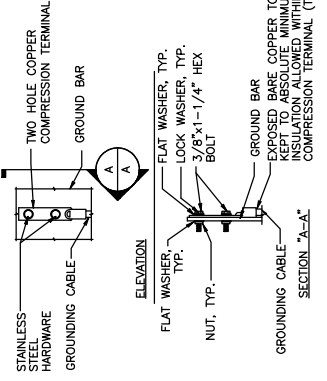


NOTE:  
 1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

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



**GROUNDING RISER DIAGRAM** 2  
 SCALE: N.T.S.



NOTES:  
 1. "LUBING UP" OR "STACKING" OF CONNECTION IS NOT PERMITTED.  
 2. OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.  
 3. CADWELDED DOWNLEADS FROM UPPER EGG, LOWER EGG, AND MGB

**TYPICAL GROUND BAR CONNECTION DETAIL** 3  
 SCALE: N.T.S.

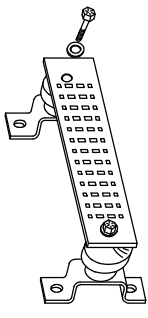
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PRODUCERS**

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

**SECTION "A" - SURGE ABSORBERS**

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



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

NO.	DATE	REVISIONS	BY	CHK APP'D	REV
1	02/22/20	ISSUED FOR CONSTRUCTION	ET	HC	1
A	04/10/20	ISSUED FOR REVIEW	ET	DFE	1

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

500 ENTERPRISE DRIVE SUITE 3A  
 ROCKY HILL, CT 06067

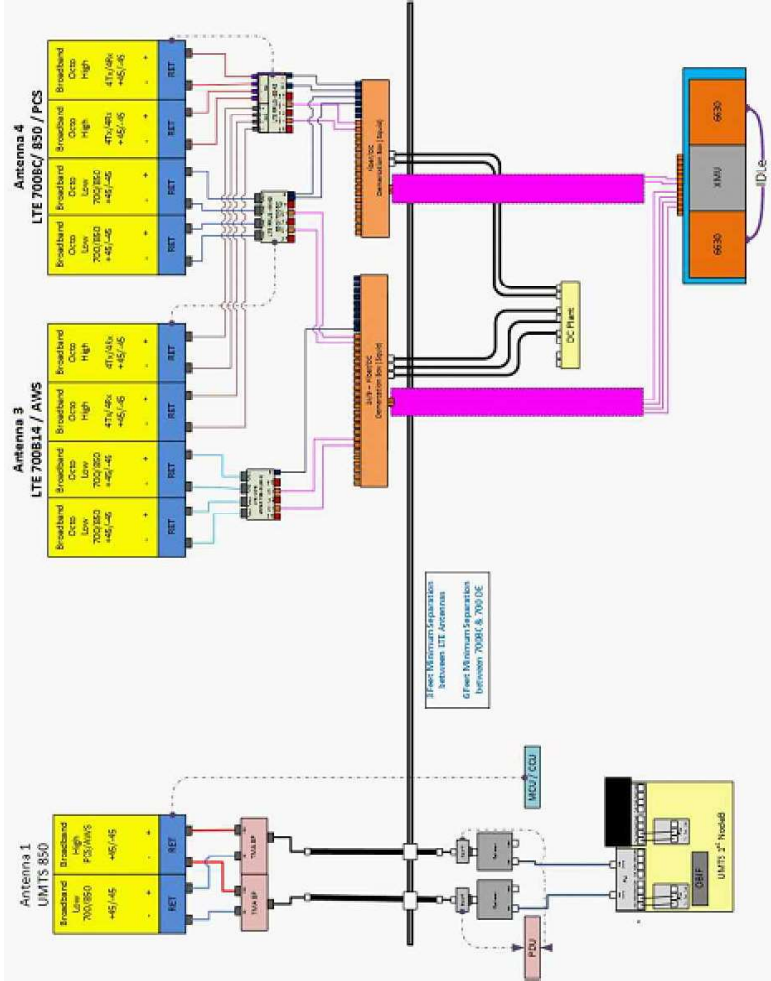
SITE NUMBER: CT1259  
 SITE NAME: THOMPSON CT RICH RD  
 38 RICH ROAD  
 NORTH GAVENHURDALE,  
 CT 06255  
 WINDHAM COUNTY

12 INDUSTRIAL WAY  
 SALEM, NH 03079

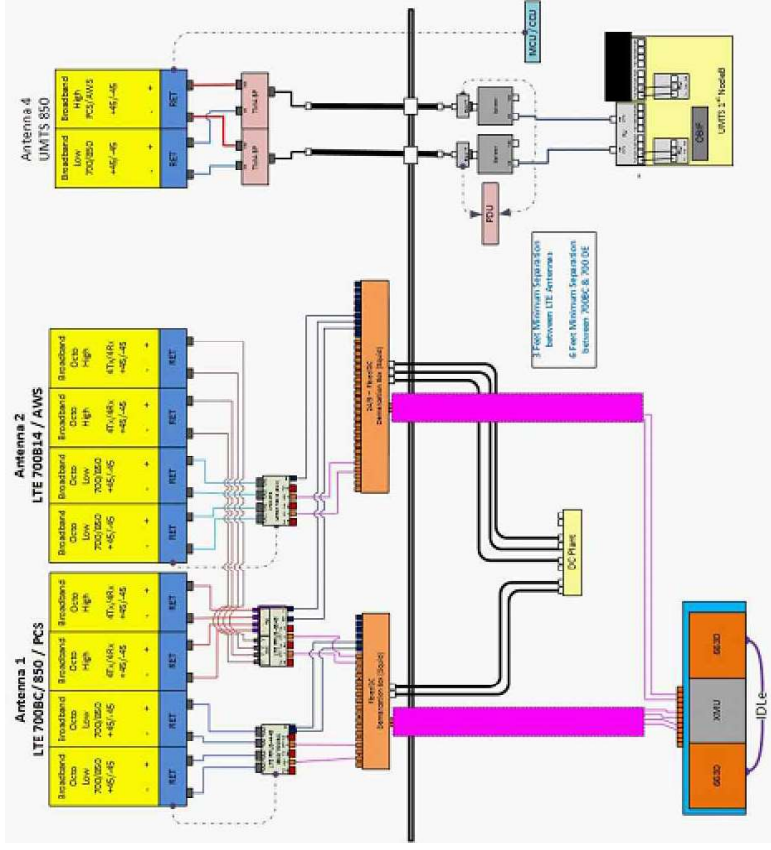
TEL: 603.652.6550  
 FAX: 603.652.6550

AT&T  
 GROUNDING DETAILS  
 DATE: 3C-4C\_5G NR\_ATX4RX 2020 UPGRADE  
 SITE NUMBER: CT1259  
 DRAWING NUMBER: C-1





RF PLUMBING DIAGRAM  
(ALPHA & GAMMA SECTORS)  
SCALE: N.T.S.



RF PLUMBING DIAGRAM  
(BETA SECTOR)  
SCALE: N.T.S.

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

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

SITE NUMBER		CT1259
DRAWING NUMBER		RF-1
RF PLUMBING DIAGRAM		
LTE 3C-4C_5G_NL_4TX4RX 2020 UPGRADE		

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	04/22/20	ISSUED FOR CONSTRUCTION	ET	HC	DPH
A	04/10/20	ISSUED FOR REVIEW	ET	HC	DPH

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

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

SITE NUMBER: CT1259  
SITE NAME: THOMPSON CT RICH RD  
38 RICH ROAD  
NORTH GOSWENDEDALE  
CT 06255  
WINDHAM COUNTY

HSG HUDSON Design Group LLC  
45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845  
TEL: 978 452 5550  
FAX: 978 334 5394

AT&T



**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 Nudd Corporation Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT11559-A**

**Customer Site Name: Thompson 1, CT**

**Carrier Name: AT&T (App#: 132446, V1)**

**Carrier Site ID / Name: CT1259 / THOMPSON CT RICH RD**

**Site Location: 39 Rich Road**

**North Grosvenordale, Connecticut**

**Windham County**

**Latitude: 42.011550**

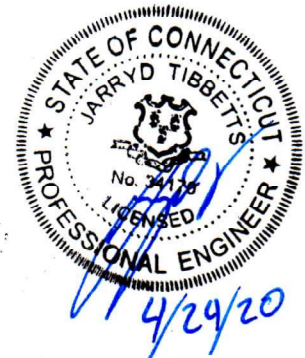
**Longitude: -71.851908**

### **Analysis Result:**

**Max Structural Usage: 63.4% [Pass]**

**Max Foundation Usage: 71.0% [Pass]**

**Additional Usage Caused by Mount Modification: +1.1%**



**Report Prepared By: Younus Alkarawi**



**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 Nudd Corporation Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT11559-A**

**Customer Site Name: Thompson 1, CT**

**Carrier Name: AT&T (App#: 132446, V1)**

**Carrier Site ID / Name: CT1259 / THOMPSON CT RICH RD**

**Site Location: 39 Rich Road**

**North Grosvenordale, Connecticut**

**Windham County**

**Latitude: 42.011550**

**Longitude: -71.851908**

### **Analysis Result:**

**Max Structural Usage: 63.4% [Pass]**

**Max Foundation Usage: 71.0% [Pass]**

**Additional Usage Caused by Mount Modification: +1.1%**

**Report Prepared By: Younus Alkarawi**

## Introduction

The purpose of this report is to summarize the analysis results on the 149 ft Nudd Corporation 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

<b>Tower Drawings</b>	Fred A. Nudd Corporation (Project No. 308-13019) original design drawings dated April 25, 2008.
<b>Foundation Drawing</b>	Fred A. Nudd Corporation (Project No. 308-13019) original design drawings dated April 25, 2008.
<b>Geotechnical Report</b>	N/A
<b>Modification Drawings</b>	N/A

## 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.

<b>Wind Speed Used in the Analysis:</b>	Ultimate Design Wind Speed $V_{ult} = 130.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 101.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 1" radial ice concurrent
<b>Operational Wind Speed:</b>	60 mph + 0" Radial ice
<b>Standard/Codes:</b>	TIA-222-G-2 / 2015 IBC / 2018 Connecticut State Building Code
<b>Exposure Category:</b>	C
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_S = 0.173, S_1 = 0.063$

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	148.0	3	Ericsson Air 21 B2A/B4P	(3)T-Arms w/ (1) Metrosite Heavy Collar Mount Assembly: MS-H1436 (1) Metrosite Support rail kit: MS-HR35-2375 (3) V-braces: L2.5"x2.5"x1/4"	(11) 1 5/8" (2) 1 5/8" Fiber	T-Mobile
2		3	Ericsson Air 21 B4A/B2P			
3		3	RFS APXVAARR24_43-U-NA20			
4		3	Ericsson KRY 112 144/1			
5		3	Ericsson Radio 4449 B71+B12			
6	137.0	3	Antel/BXA-70063-6CF - Panel	(3) T-Arms	(12) 1 5/8" (1) 1 5/8" Fiber	Verizon
7		3	Antel/BXA-171085-12BF - Panel			
8		4	Antel/LPA-80080-6CF - Panel			
9		2	Antel/LPA-4019 - Panel			
10		3	ALU/RRH 2x40 AWS			
11		1	RFS DB-T1-6Z-8AB-OZ Distribution			
-	127.0	9	Powerwave - 7770.00 - Panel	(3) T-Arms	(12) 1 5/8" (1) 1/2" RET [ (2) 3/4" DC (1) 7/16" inside (1) 3" flex Conduit]	AT&T
-		3	KMW - AM-X-CD-17-65-00T-RET - Panel			
-		12	Powerwave LGP21401 TMAs			
-		12	Kathrein 860 10025 RET			
-		3	Ericsson RRUS-11 RRUs			
-		3	Ericsson RRUS 12 RRUs			
-		6	Powerwave LGP13519 Diplexer			
-		1	Raycap DC6-48-60-18-8F DC Surge Suppression System			
-		3	Powerwave 1001983 Bias T			

## 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
12	127.0	6	Powerwave 7770- Panel	(3) Modified T-Arms W/ (3) 2.38" Horizontal Pipe, (3) 2.38" Pipe Brace & (6) 2.88" Antenna Pipes	(6) 1 5/8" (1) 1/2" RET (3) 3/8" RET (1) 3" Conduit <sup>1</sup> (2) 3" Conduit <sup>2</sup>	AT&T
13		3	Cci OPA65R-BU8DA- Panel			
14		3	Cci DMP65R-BU8DA- Panel			
15		12	Powerwave LGP21401 TMA			
16		6	Powerwave LGP13519 Diplexer			
17		12	Powerwave 860 10025			
18		3	Ericsson RRUS 4478 B14			
19		3	Ericsson RRUS 4449 B5/B12			
20		3	Ericsson RRUS 8843 B2 B66A			
21		1	Raycap DC6-48-60-18-8F			
22		1	Raycap DC9-48-60-24-8C-EV			
23		3	Powerwave 1001983- Bias T			

1- (Housing (2) 3/4" DC & (1) 7/16" fiber cables)

2- (Housing (1) 7/16" fiber, & (3) 1" DC power cables)

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
Max. Usage:	<b>63.0%</b>	<b>63.4%</b>	<b>38.9%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3720.0	34.7	77.5

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 ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 0.9264 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 ANSI/TIA/EIA 222-G 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 EIA/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 62.97% at 25.0ft

**Structure:** CT11559-A-SBA  
**Site Name:** Thompson 1, CT  
**Height:** 149.00 (ft)  
**Base Elev:** 0.000 (ft)

**Code:** EIA/TIA-222-G  
**Exposure:** C  
**Gh:** 1.1

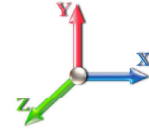
4/24/2020

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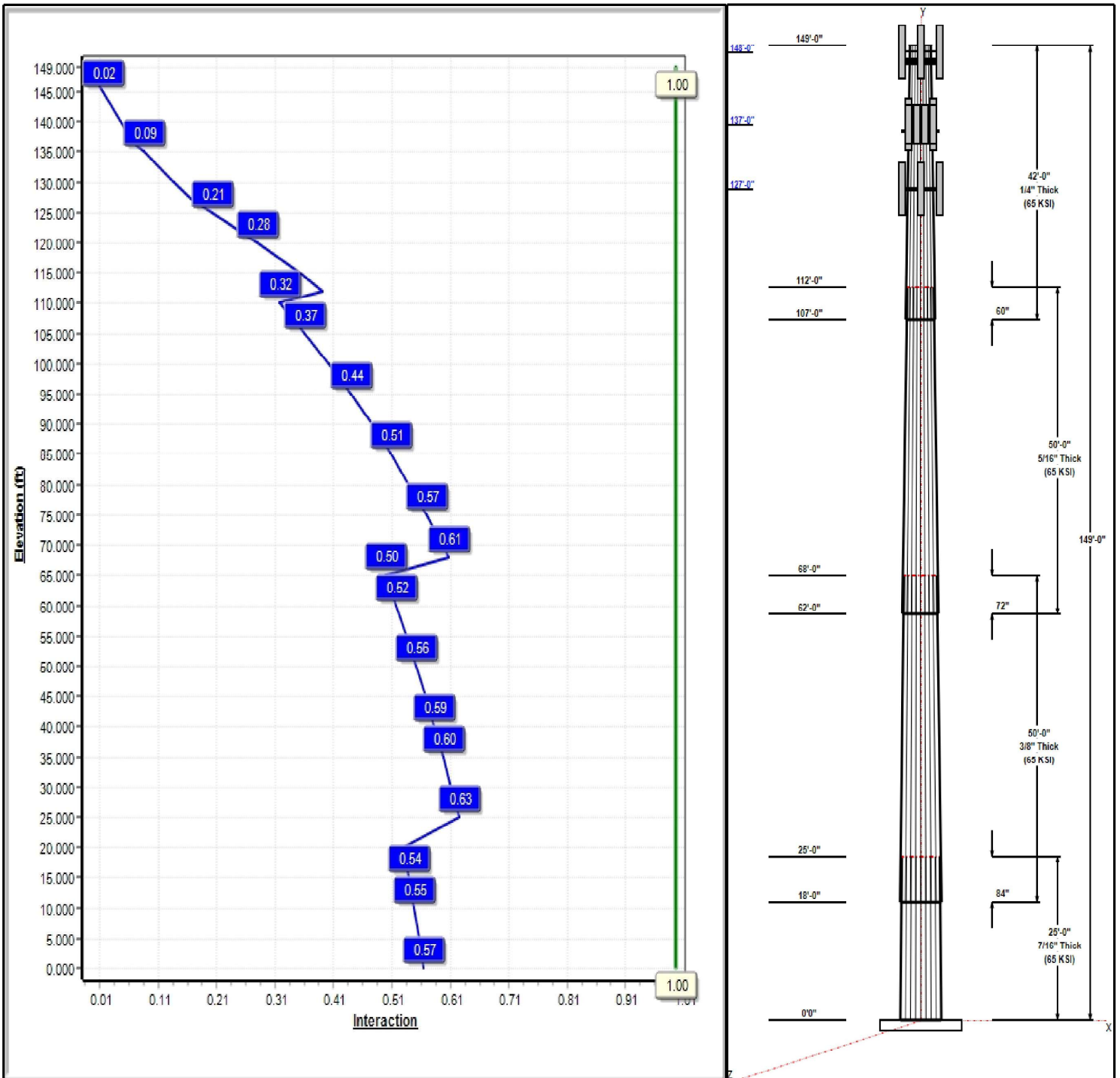
Dead Load Factor: 1.20  
 Wind Load Factor: 1.60

**Load Case : 1.2D + 1.6W 101 mph Wind**



**Iterations:** 23

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## Structure: CT11559-A-SBA

**Type:** Tapered  
**Site Name:** Thompson 1, CT  
**Height:** 149.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.23532

4/24/2020

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### Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	25.00	53.18	59.06	0.438		0.23532	65
2	50.00	43.81	55.58	0.375	Slip	0.23532	65
3	50.00	34.08	45.85	0.313	Slip	0.23532	65
4	42.00	25.88	35.76	0.250	Slip	0.23532	65

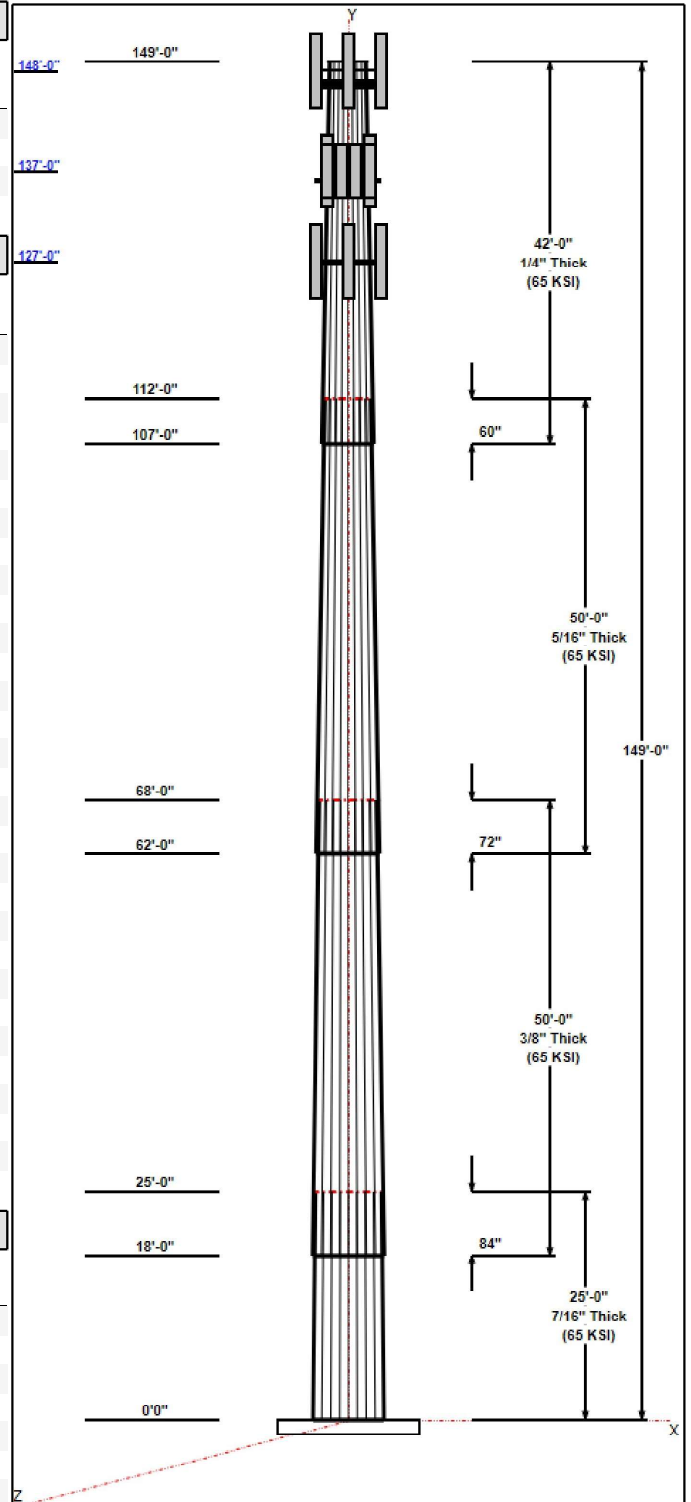
### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
148.00	148.00	3	AIR21 B2A B4P	T-Mobile
148.00	148.00	3	AIR21 B2A B4P	T-Mobile
148.00	148.00	3	APXVAARR24_43-U-NA20	T-Mobile
148.00	148.00	3	Ericsson KRY112 144/1	T-Mobile
148.00	148.00	3	4449	T-Mobile
148.00	148.00	1	HRK12 (Handrail Kit)	T-Mobile
148.00	148.00	1	(3) Stabilizer Kit (4' FW)	T-Mobile
148.00	148.00	1	T-Arms	T-Mobile
137.00	137.00	3	Antel/BXA-70063-6CF	Verizon
137.00	137.00	3	Antel/BXA-171085-12BF	Verizon
137.00	137.00	4	Antel/LPA-80080-6CF	Verizon
137.00	137.00	2	Antel/LPA-4019	Verizon
137.00	137.00	3	ALU/RRH 2x40 AWS	Verizon
137.00	137.00	1	RFS DB-T1-6Z-8AB-0Z	Verizon
136.00	136.00	3	T-Arms	Verizon
127.00	127.00	3	T-Arms	AT&T
127.00	127.00	3	OPA65R-BU8DA	AT&T
127.00	127.00	3	DMP65R-BU8DA	AT&T
127.00	127.00	3	Horizontal Pipe	AT&T
127.00	127.00	3	RRUS 4478 B14	AT&T
127.00	127.00	3	4449 B5/B12	AT&T
127.00	127.00	3	RRUS 8843 B2 B66A	AT&T
127.00	127.00	1	DC9-48-60-24-8C-EV	AT&T
127.00	127.00	1	(3) Stabilizer Kit	AT&T
127.00	127.00	6	7770.00	AT&T
127.00	127.00	12	Powerwave LGP21401	AT&T
127.00	127.00	12	Kathrein 860 10025 RET	AT&T
127.00	127.00	6	Powerwave LGP13519	AT&T
127.00	127.00	1	Raycap DC6-48-60-18-8F	AT&T
127.00	127.00	3	Powerwave 1001983 Bias	AT&T

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	148.00	Inside	1 5/8" Coax	T-Mobile
0.00	148.00	Inside	1 5/8" Fiber	T-Mobile
0.00	137.00	Inside	1 5/8" Coax	Verizon
0.00	137.00	Inside	1 5/8" Fiber	Verizon
0.00	127.00	Inside	1 5/8" Coax	AT&T
0.00	127.00	Inside	1" DC	AT&T
0.00	127.00	Inside	1/2" RET	AT&T
0.00	127.00	Inside	3" flex Conduit	AT&T
0.00	127.00	Inside	3/4" DC	AT&T
0.00	127.00	Inside	7/16" Fiber	AT&T

### Anchor Bolts



**Structure: CT11559-A-SBA**

**Type:** Tapered  
**Site Name:** Thompson 1, CT  
**Height:** 149.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.23532

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Qty	Specifications	Grade (ksi)	Arrangement
18	2.00" F1554 105	105.0	Radial

**Base Plate**

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	72.0	50.0	Round

**Reactions**

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	3720.0	34.7	46.4
0.9D + 1.6W 101 mph Wind	3694.2	34.7	34.8
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1066.2	9.9	77.5
1.2D + 1.0E	178.3	1.6	46.5
0.9D + 1.0E	177.0	1.6	34.9
1.0D + 1.0W 60 mph Wind	817.3	7.6	38.7

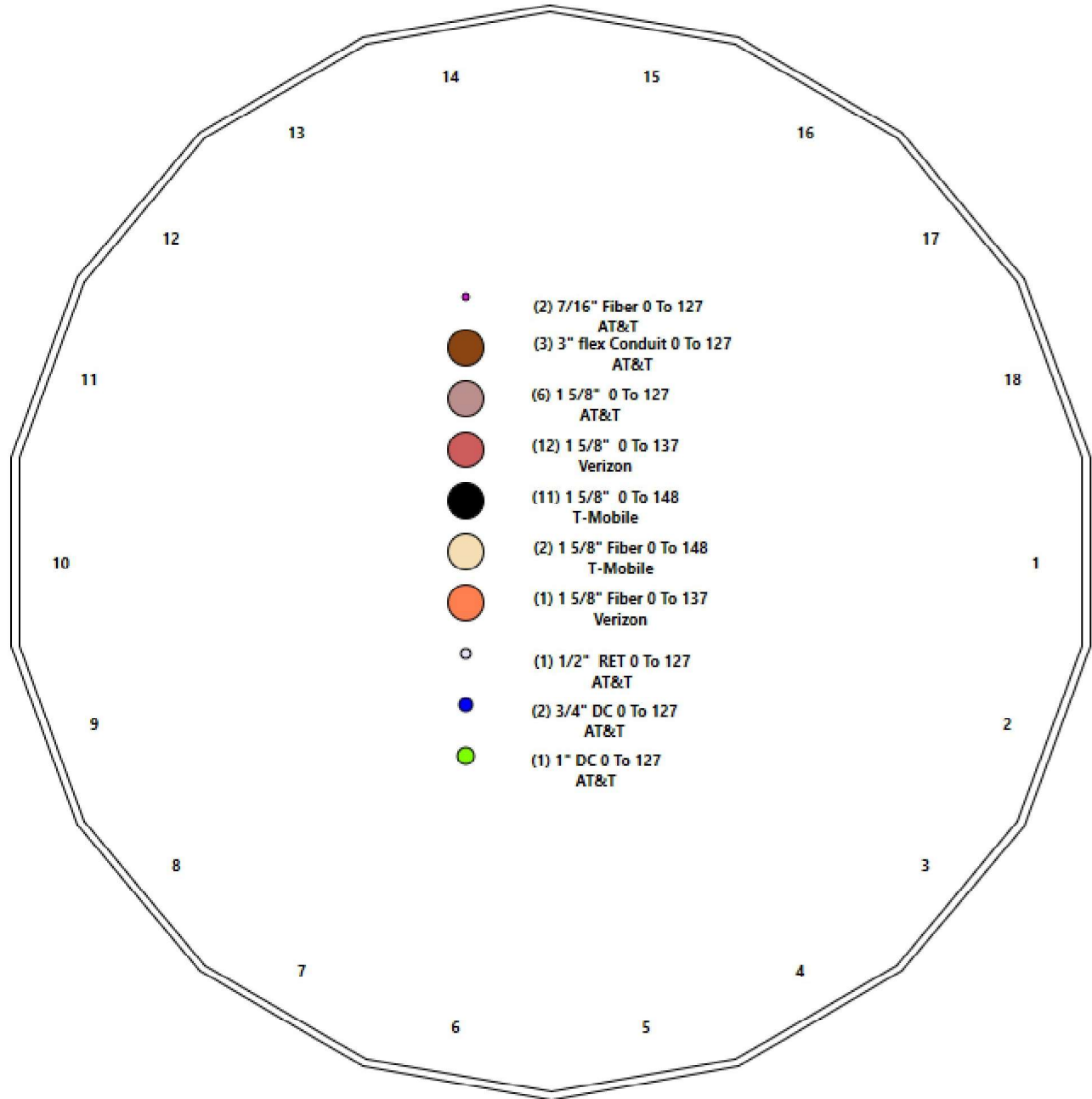
# Structure: CT11559-A-SBA - Coax Line Placement

**Type:** Monopole  
**Site Name:** Thompson 1, CT  
**Height:** 149.00 (ft)

4/24/2020



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## Shaft Properties

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	18	25.000	0.4375	65		0.00	6,578
2	18	50.000	0.3750	65	Slip	84.00	9,987
3	18	50.000	0.3125	65	Slip	72.00	6,691
4	18	42.000	0.2500	65	Slip	60.00	3,466
<b>Total Shaft Weight:</b>							<b>26,722</b>

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	59.06	0.00	81.41	35348.50	22.39	135.00	53.18	25.00	73.24	25739.0	20.02	121.5	0.235319
2	55.58	18.00	65.70	25294.99	24.72	148.20	43.81	68.00	51.70	12323.0	19.19	116.8	0.235319
3	45.85	62.00	45.16	11831.43	24.46	146.71	34.08	112.00	33.49	4825.70	17.82	109.0	0.235319
4	35.76	107.0	28.17	4488.25	23.81	143.03	25.88	149.00	20.33	1686.85	16.84	103.5	0.235319



## Load Summary

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	148.00	AIR21 B2A B4P	3	91.50	6.09	0.86	329.95	7.583	0.86	0.00	0.00
2	148.00	AIR21 B2A B4P	3	90.40	6.09	0.86	329.95	7.583	0.86	0.00	0.00
3	148.00	APXVAARR24_43-U-NA20	3	128.00	20.24	0.70	708.17	22.801	0.70	0.00	0.00
4	148.00	Ericsson KRY112 144/1 TMA	3	11.00	0.41	0.70	25.36	1.043	0.70	0.00	0.00
5	148.00	4449	3	70.00	1.65	0.67	168.83	2.392	0.67	0.00	0.00
6	148.00	HRK12 (Handrail Kit)	1	261.72	6.75	0.75	675.29	15.534	0.75	0.00	0.00
7	148.00	(3) Stabilizer Kit (4' FW)	1	140.00	3.70	0.75	374.24	8.859	0.75	0.00	0.00
8	148.00	T-Arms	1	500.00	15.00	0.75	1197.15	41.027	0.75	0.00	0.00
9	137.00	Antel/BXA-70063-6CF	3	17.00	7.57	0.73	263.16	9.274	0.73	0.00	0.00
10	137.00	Antel/BXA-171085-12BF	3	15.00	4.74	0.84	140.43	7.844	0.84	0.00	0.00
11	137.00	Antel/LPA-80080-6CF	4	21.00	4.33	1.70	243.54	6.147	1.70	0.00	0.00
12	137.00	Antel/LPA-4019	2	41.00	12.74	1.00	598.47	48.511	1.00	0.00	0.00
13	137.00	ALU/RRH 2x40 AWS	3	44.00	2.16	0.67	124.24	3.545	0.67	0.00	0.00
14	137.00	RFS DB-T1-6Z-8AB-OZ Distributi	1	18.90	4.80	1.00	219.89	5.979	1.00	0.00	0.00
15	136.00	T-Arms	3	350.00	8.00	0.75	672.60	17.217	0.75	0.00	0.00
16	127.00	T-Arms	3	350.00	8.00	0.75	670.40	17.154	0.75	0.00	0.00
17	127.00	OPA65R-BU8DA	3	76.50	18.09	0.73	462.99	21.617	0.74	0.00	0.00
18	127.00	DMP65R-BU8DA	3	95.70	17.87	0.73	561.24	20.569	0.75	0.00	0.00
19	127.00	Horizontal Pipe	3	45.75	2.97	0.75	104.38	7.861	0.75	0.00	0.00
20	127.00	RRUS 4478 B14	3	59.40	1.65	0.67	113.78	2.330	0.67	0.00	0.00
21	127.00	4449 B5/B12	3	71.00	1.97	0.67	141.00	2.688	0.67	0.00	0.00
22	127.00	RRUS 8843 B2 B66A	3	72.00	1.64	0.67	133.43	2.292	0.67	0.00	0.00
23	127.00	DC9-48-60-24-8C-EV	1	26.20	1.14	1.00	165.19	3.221	1.00	0.00	0.00
24	127.00	(3) Stabilizer Kit	1	180.00	6.10	0.75	476.60	14.476	0.75	0.00	0.00
25	127.00	7770.00	6	35.00	5.50	0.73	225.00	6.925	0.73	0.00	0.00
26	127.00	Powerwave LGP21401 TMAs	12	14.10	1.29	1.00	46.88	2.386	1.00	0.00	0.00
27	127.00	Kathrein 860 10025 RET	12	1.10	0.14	1.00	7.02	0.561	1.00	0.00	0.00
28	127.00	Powerwave LGP13519 Diplexer	6	5.30	0.34	1.00	17.75	0.935	1.00	0.00	0.00
29	127.00	Raycap DC6-48-60-18-8F	1	31.80	0.92	1.00	112.87	1.494	1.00	0.00	0.00
30	127.00	Powerwave 1001983 Bias T	3	4.40	0.21	1.00	11.69	0.684	1.00	0.00	0.00
<b>Totals:</b>			<b>100</b>	<b>6,523.77</b>			<b>22,380.41</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	148.00	(11) 1 5/8" Coax	0.00	Inside
0.00	148.00	(2) 1 5/8" Fiber	0.00	Inside
0.00	137.00	(12) 1 5/8" Coax	0.00	Inside
0.00	137.00	(1) 1 5/8" Fiber	0.00	Inside
0.00	127.00	(6) 1 5/8" Coax	0.00	Inside
0.00	127.00	(1) 1" DC	0.00	Inside
0.00	127.00	(1) 1/2" RET	0.00	Inside
0.00	127.00	(3) 3" flex Conduit	0.00	Inside
0.00	127.00	(2) 3/4" DC	0.00	Inside
0.00	127.00	(2) 7/16" Fiber	0.00	Inside

## Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		

## Shaft Section Properties

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Increment Length:** 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in <sup>3</sup> )	Weight (lb)
0.00		0.4375	59.063	81.405	35348.5	22.39	135.00	75.1	1178.	0.0
5.00		0.4375	57.886	79.771	33262.6	21.92	132.31	75.6	1131.	1371.1
10.00		0.4375	56.709	78.138	31260.4	21.45	129.62	76.2	1085.	1343.3
15.00		0.4375	55.533	76.504	29340.3	20.97	126.93	76.7	1040.	1315.5
18.00	Bot - Section 2	0.4375	54.827	75.524	28226.8	20.69	125.32	77.1	1014.	776.0
20.00		0.4375	54.356	74.870	27500.4	20.50	124.24	77.3	996.5	957.0
25.00	Top - Section 1	0.3750	53.930	63.741	23097.5	23.95	143.81	0.0	0.0	2356.3
30.00		0.3750	52.753	62.341	21608.3	23.39	140.67	73.9	806.8	1072.6
35.00		0.3750	51.576	60.940	20184.6	22.84	137.54	74.5	770.8	1048.7
40.00		0.3750	50.400	59.540	18824.8	22.29	134.40	75.2	735.7	1024.9
45.00		0.3750	49.223	58.139	17527.5	21.73	131.26	75.8	701.3	1001.1
50.00		0.3750	48.047	56.739	16291.2	21.18	128.12	76.5	667.8	977.3
55.00		0.3750	46.870	55.339	15114.5	20.63	124.99	77.1	635.2	953.4
60.00		0.3750	45.693	53.938	13995.8	20.07	121.85	77.8	603.3	929.6
62.00	Bot - Section 3	0.3750	45.223	53.378	13564.3	19.85	120.59	78.0	590.8	365.2
65.00		0.3750	44.517	52.538	12933.8	19.52	118.71	78.4	572.2	998.1
68.00	Top - Section 2	0.3125	44.436	43.763	10764.6	23.66	142.19	0.0	0.0	982.4
70.00		0.3125	43.965	43.296	10423.8	23.40	140.69	73.9	467.0	296.2
75.00		0.3125	42.789	42.129	9603.5	22.73	136.92	74.7	442.1	726.7
80.00		0.3125	41.612	40.962	8827.3	22.07	133.16	75.4	417.8	706.9
85.00		0.3125	40.435	39.795	8094.2	21.40	129.39	76.2	394.3	687.0
90.00		0.3125	39.259	38.628	7402.8	20.74	125.63	77.0	371.4	667.1
95.00		0.3125	38.082	37.461	6751.9	20.08	121.86	77.8	349.2	647.3
100.00		0.3125	36.906	36.294	6140.3	19.41	118.10	78.6	327.7	627.4
105.00		0.3125	35.729	35.128	5566.9	18.75	114.33	79.3	306.9	607.6
107.00	Bot - Section 4	0.3125	35.258	34.661	5347.9	18.48	112.83	79.7	298.7	237.5
110.00		0.3125	34.552	33.961	5030.3	18.09	110.57	80.1	286.7	635.0
112.00	Top - Section 3	0.2500	34.582	27.241	4056.7	22.98	138.33	0.0	0.0	416.2
115.00		0.2500	33.876	26.681	3811.6	22.48	135.50	75.0	221.6	275.2
120.00		0.2500	32.699	25.748	3425.3	21.65	130.80	75.9	206.3	446.0
125.00		0.2500	31.523	24.814	3066.0	20.82	126.09	76.9	191.6	430.1
127.00		0.2500	31.052	24.441	2929.7	20.49	124.21	77.3	185.8	167.6
130.00		0.2500	30.346	23.880	2732.8	19.99	121.38	77.9	177.4	246.6
135.00		0.2500	29.169	22.947	2424.7	19.16	116.68	78.9	163.7	398.4
136.00		0.2500	28.934	22.760	2366.0	19.00	115.74	79.1	161.1	77.8
137.00		0.2500	28.699	22.573	2308.2	18.83	114.80	79.3	158.4	77.1
140.00		0.2500	27.993	22.013	2140.6	18.33	111.97	79.8	150.6	227.6
145.00		0.2500	26.816	21.080	1879.6	17.50	107.27	80.8	138.1	366.6
148.00		0.2500	26.110	20.519	1733.7	17.01	104.44	81.4	130.8	212.3
149.00		0.2500	25.875	20.333	1686.8	16.84	103.50	81.6	128.4	69.5

**26722.3**

## Wind Loading - Shaft

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Page:</b> 9
	<b>Struct Class:</b> II	

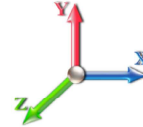


**Load Case:** 1.2D + 1.6W 101 mph Wind

**Iterations** 23

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60



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	21.088	23.20	465.38	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	456.11	0.650	0.000	5.00	24.740	16.08	596.8	0.0	1645.3
10.00		1.00	0.85	21.088	23.20	446.84	0.650	0.000	5.00	24.242	15.76	584.8	0.0	1612.0
15.00		1.00	0.85	21.088	23.20	437.57	0.650	0.000	5.00	23.744	15.43	572.8	0.0	1578.6
18.00	Bot - Section 2	1.00	0.88	21.884	24.07	440.09	0.650	0.000	3.00	14.008	9.11	350.7	0.0	931.2
20.00		1.00	0.90	22.375	24.61	441.18	0.650	0.000	2.00	9.366	6.09	239.7	0.0	1148.4
25.00	Top - Section 1	1.00	0.95	23.451	25.80	441.89	0.650	0.000	5.00	23.066	14.99	618.8	0.0	2827.6
30.00		1.00	0.98	24.369	26.81	446.83	0.650	0.000	5.00	22.568	14.67	629.2	0.0	1287.1
35.00		1.00	1.01	25.172	27.69	444.02	0.650	0.000	5.00	22.071	14.35	635.6	0.0	1258.5
40.00		1.00	1.04	25.890	28.48	440.03	0.650	0.000	5.00	21.573	14.02	638.9	0.0	1229.9
45.00		1.00	1.07	26.540	29.19	435.12	0.650	0.000	5.00	21.075	13.70	639.9	0.0	1201.3
50.00		1.00	1.09	27.135	29.85	429.45	0.650	0.000	5.00	20.577	13.38	638.8	0.0	1172.7
55.00		1.00	1.12	27.685	30.45	423.16	0.650	0.000	5.00	20.079	13.05	636.0	0.0	1144.1
60.00		1.00	1.14	28.197	31.02	416.33	0.650	0.000	5.00	19.582	12.73	631.7	0.0	1115.5
62.00	Bot - Section 3	1.00	1.14	28.392	31.23	413.47	0.650	0.000	2.00	7.693	5.00	249.9	0.0	438.2
65.00		1.00	1.16	28.676	31.54	409.04	0.650	0.000	3.00	11.549	7.51	378.9	0.0	1197.7
68.00	Top - Section 2	1.00	1.17	28.950	31.84	404.47	0.650	0.000	3.00	11.370	7.39	376.6	0.0	1178.8
70.00		1.00	1.17	29.127	32.04	407.14	0.650	0.000	2.00	7.480	4.86	249.3	0.0	355.5
75.00		1.00	1.19	29.553	32.51	399.13	0.650	0.000	5.00	18.353	11.93	620.5	0.0	872.1
80.00		1.00	1.21	29.958	32.95	390.80	0.650	0.000	5.00	17.855	11.61	611.9	0.0	848.2
85.00		1.00	1.22	30.342	33.38	382.18	0.650	0.000	5.00	17.357	11.28	602.5	0.0	824.4
90.00		1.00	1.24	30.710	33.78	373.30	0.650	0.000	5.00	16.859	10.96	592.3	0.0	800.6
95.00		1.00	1.25	31.061	34.17	364.18	0.650	0.000	5.00	16.361	10.63	581.4	0.0	776.8
100.00		1.00	1.27	31.399	34.54	354.84	0.650	0.000	5.00	15.863	10.31	569.8	0.0	752.9
105.00		1.00	1.28	31.723	34.89	345.30	0.650	0.000	5.00	15.366	9.99	557.6	0.0	729.1
107.00	Bot - Section 4	1.00	1.28	31.849	35.03	341.43	0.650	0.000	2.00	6.007	3.90	218.9	0.0	285.0
110.00		1.00	1.29	32.035	35.24	335.56	0.650	0.000	3.00	8.988	5.84	329.4	0.0	762.0
112.00	Top - Section 3	1.00	1.30	32.157	35.37	331.62	0.650	0.000	2.00	5.892	3.83	216.8	0.0	499.4
115.00		1.00	1.30	32.336	35.57	330.54	0.650	0.000	3.00	8.689	5.65	321.4	0.0	330.3
120.00		1.00	1.32	32.627	35.89	320.49	0.650	0.000	5.00	14.084	9.15	525.7	0.0	535.2
125.00		1.00	1.33	32.909	36.20	310.29	0.650	0.000	5.00	13.586	8.83	511.5	0.0	516.1
127.00	Appurtenance(s)	1.00	1.33	33.019	36.32	306.17	0.650	0.000	2.00	5.295	3.44	200.0	0.0	201.1
130.00		1.00	1.34	33.182	36.50	299.94	0.650	0.000	3.00	7.793	5.07	295.8	0.0	296.0
135.00		1.00	1.35	33.446	36.79	289.46	0.650	0.000	5.00	12.590	8.18	481.7	0.0	478.0
136.00	Appurtenance(s)	1.00	1.35	33.498	36.85	287.35	0.650	0.000	1.00	2.458	1.60	94.2	0.0	93.3
137.00	Appurtenance(s)	1.00	1.35	33.550	36.90	285.23	0.650	0.000	1.00	2.438	1.58	93.6	0.0	92.6
140.00		1.00	1.36	33.703	37.07	278.85	0.650	0.000	3.00	7.196	4.68	277.4	0.0	273.1
145.00		1.00	1.37	33.953	37.35	268.12	0.650	0.000	5.00	11.595	7.54	450.4	0.0	439.9
148.00	Appurtenance(s)	1.00	1.37	34.100	37.51	261.62	0.650	0.000	3.00	6.718	4.37	262.1	0.0	254.8
149.00		1.00	1.38	34.148	37.56	259.45	0.650	0.000	1.00	2.199	1.43	85.9	0.0	83.4
<b>Totals:</b>									<b>149.00</b>			<b>17,169.0</b>	<b>32,066.8</b>	

## Discrete Appurtenance Forces

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

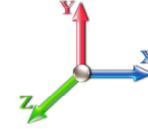


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**Load Case:** 1.2D + 1.6W 101 mph Wind

**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	148.00	T-Arms	1	34.100	37.510	0.56	0.75	8.44	600.00	0.000	0.000	506.38	0.00	0.00	
2	148.00	(3) Stabilizer Kit (4' FW)	1	34.100	37.510	0.56	0.75	2.08	168.00	0.000	0.000	124.91	0.00	0.00	
3	148.00	HRK12 (Handrail Kit)	1	34.100	37.510	0.56	0.75	3.80	314.06	0.000	0.000	227.87	0.00	0.00	
4	148.00	4449	3	34.100	37.510	0.54	0.80	2.65	252.00	0.000	0.000	159.23	0.00	0.00	
5	148.00	Ericsson KRY112 144/1	3	34.100	37.510	0.56	0.80	0.69	39.60	0.000	0.000	41.34	0.00	0.00	
6	148.00	APXVAARR24_43-U-NA2	3	34.100	37.510	0.56	0.80	34.00	460.80	0.000	0.000	2040.73	0.00	0.00	
7	148.00	AIR21 B2A B4P	3	34.100	37.510	0.69	0.80	12.57	325.44	0.000	0.000	754.39	0.00	0.00	
8	148.00	AIR21 B2A B4P	3	34.100	37.510	0.69	0.80	12.57	329.40	0.000	0.000	754.39	0.00	0.00	
9	137.00	Antel/LPA-80080-6CF	4	33.550	36.905	1.36	0.80	23.56	100.80	0.000	0.000	1390.89	0.00	0.00	
10	137.00	Antel/LPA-4019	2	33.550	36.905	0.80	0.80	20.38	98.40	0.000	0.000	1203.63	0.00	0.00	
11	137.00	Antel/BXA-171085-12BF	3	33.550	36.905	0.67	0.80	9.56	54.00	0.000	0.000	564.25	0.00	0.00	
12	137.00	Antel/BXA-70063-6CF	3	33.550	36.905	0.58	0.80	13.26	61.20	0.000	0.000	783.13	0.00	0.00	
13	137.00	ALU/RRH 2x40 AWS	3	33.550	36.905	0.67	1.00	4.34	158.40	0.000	0.000	256.36	0.00	0.00	
14	137.00	RFS DB-T1-6Z-8AB-OZ	1	33.550	36.905	1.00	1.00	4.80	22.68	0.000	0.000	283.43	0.00	0.00	
15	136.00	T-Arms	3	33.498	36.848	0.56	0.75	13.50	1260.00	0.000	0.000	795.92	0.00	0.00	
16	127.00	T-Arms	3	33.019	36.321	0.56	0.75	13.50	1260.00	0.000	0.000	784.53	0.00	0.00	
17	127.00	Powerwave 1001983 Bias	3	33.019	36.321	0.80	0.80	0.50	15.84	0.000	0.000	29.29	0.00	0.00	
18	127.00	RRUS 8843 B2 B66A	3	33.019	36.321	0.54	0.80	2.64	259.20	0.000	0.000	153.25	0.00	0.00	
19	127.00	OPA65R-BU8DA	3	33.019	36.321	0.58	0.80	31.56	275.40	0.000	0.000	1834.25	0.00	0.00	
20	127.00	DMP65R-BU8DA	3	33.019	36.321	0.58	0.80	31.18	344.52	0.000	0.000	1811.95	0.00	0.00	
21	127.00	Horizontal Pipe	3	33.019	36.321	0.56	0.75	5.01	164.70	0.000	0.000	291.14	0.00	0.00	
22	127.00	RRUS 4478 B14	3	33.019	36.321	0.54	0.80	2.65	213.84	0.000	0.000	154.19	0.00	0.00	
23	127.00	4449 B5/B12	3	33.019	36.321	0.54	0.80	3.17	255.60	0.000	0.000	184.09	0.00	0.00	
24	127.00	Raycap DC6-48-60-18-8F	1	33.019	36.321	1.00	1.00	0.92	38.16	0.000	0.000	53.46	0.00	0.00	
25	127.00	DC9-48-60-24-8C-EV	1	33.019	36.321	1.00	1.00	1.14	31.44	0.000	0.000	66.25	0.00	0.00	
26	127.00	(3) Stabilizer Kit	1	33.019	36.321	0.56	0.75	3.43	216.00	0.000	0.000	199.40	0.00	0.00	
27	127.00	7770.00	6	33.019	36.321	0.58	0.80	19.27	252.00	0.000	0.000	1119.96	0.00	0.00	
28	127.00	Powerwave LGP21401	12	33.019	36.321	0.80	0.80	12.38	203.04	0.000	0.000	719.67	0.00	0.00	
29	127.00	Kathrein 860 10025 RET	12	33.019	36.321	0.80	0.80	1.34	15.84	0.000	0.000	78.10	0.00	0.00	
30	127.00	Powerwave LGP13519	6	33.019	36.321	0.80	0.80	1.63	38.16	0.000	0.000	94.84	0.00	0.00	
<b>Totals:</b>									<b>7,828.52</b>			<b>17,461.24</b>			

## Total Applied Force Summary

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

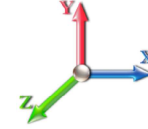


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**Load Case:** 1.2D + 1.6W 101 mph Wind

**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		596.83	1884.20	0.00	0.00
10.00		584.82	1850.85	0.00	0.00
15.00		572.81	1817.49	0.00	0.00
18.00		350.69	1074.48	0.00	0.00
20.00		239.73	1243.93	0.00	0.00
25.00		618.82	3066.45	0.00	0.00
30.00		629.15	1525.94	0.00	0.00
35.00		635.57	1497.35	0.00	0.00
40.00		638.95	1468.76	0.00	0.00
45.00		639.87	1440.17	0.00	0.00
50.00		638.77	1411.58	0.00	0.00
55.00		635.95	1382.99	0.00	0.00
60.00		631.65	1354.39	0.00	0.00
62.00		249.88	533.75	0.00	0.00
65.00		378.88	1341.02	0.00	0.00
68.00		376.56	1322.15	0.00	0.00
70.00		249.26	451.04	0.00	0.00
75.00		620.48	1110.92	0.00	0.00
80.00		611.91	1087.09	0.00	0.00
85.00		602.49	1063.26	0.00	0.00
90.00		592.29	1039.44	0.00	0.00
95.00		581.38	1015.61	0.00	0.00
100.00		569.81	991.79	0.00	0.00
105.00		557.63	967.96	0.00	0.00
107.00		218.86	380.51	0.00	0.00
110.00		329.39	905.33	0.00	0.00
112.00		216.76	594.98	0.00	0.00
115.00		321.44	473.59	0.00	0.00
120.00		525.68	774.07	0.00	0.00
125.00		511.48	755.01	0.00	0.00
127.00	(63) attachments	7774.39	3880.41	0.00	0.00
130.00		295.83	393.96	0.00	0.00
135.00		481.74	641.35	0.00	0.00
136.00	(3) attachments	890.13	1385.98	0.00	0.00
137.00	(16) attachments	4575.29	620.70	0.00	0.00
140.00		277.45	322.20	0.00	0.00
145.00		450.37	521.75	0.00	0.00
148.00	(18) attachments	4871.31	2793.20	0.00	0.00
149.00		85.92	83.41	0.00	0.00
	Totals:	34,630.23	46,469.04	0.00	0.00

## Calculated Forces

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

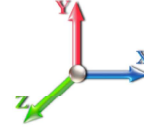


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**Load Case:** 1.2D + 1.6W 101 mph Wind

**Iterations** 23

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.60



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	-46.42	-34.69	0.00	-3719.9	0.00	3719.96	5499.39	2749.69	13252.7	6636.23	0.00	0.000	0.000	0.569
5.00	-44.45	-34.21	0.00	-3546.5	0.00	3546.51	5429.06	2714.53	12818.7	6418.90	0.08	-0.146	0.000	0.561
10.00	-42.52	-33.72	0.00	-3375.4	0.00	3375.49	5357.09	2678.54	12387.8	6203.11	0.31	-0.294	0.000	0.552
15.00	-40.63	-33.23	0.00	-3206.8	0.00	3206.87	5283.48	2641.74	11960.1	5988.97	0.70	-0.444	0.000	0.543
18.00	-39.52	-32.92	0.00	-3107.1	0.00	3107.19	5238.53	2619.26	11705.2	5861.33	1.01	-0.536	0.000	0.538
20.00	-38.21	-32.74	0.00	-3041.3	0.00	3041.36	5208.23	2604.11	11536.0	5776.60	1.25	-0.598	0.000	0.534
25.00	-35.07	-32.18	0.00	-2877.6	0.00	2877.67	4201.23	2100.61	9252.96	4633.35	1.96	-0.751	0.000	0.630
30.00	-33.46	-31.62	0.00	-2716.7	0.00	2716.78	4145.44	2072.72	8928.09	4470.68	2.83	-0.905	0.000	0.616
35.00	-31.88	-31.06	0.00	-2558.6	0.00	2558.67	4088.00	2044.00	8605.21	4309.00	3.87	-1.079	0.000	0.602
40.00	-30.33	-30.48	0.00	-2403.3	0.00	2403.38	4028.93	2014.47	8284.56	4148.44	5.09	-1.254	0.000	0.587
45.00	-28.82	-29.90	0.00	-2250.9	0.00	2250.97	3968.22	1984.11	7966.37	3989.11	6.50	-1.430	0.000	0.572
50.00	-27.33	-29.31	0.00	-2101.4	0.00	2101.48	3905.86	1952.93	7650.88	3831.13	8.09	-1.606	0.000	0.556
55.00	-25.88	-28.71	0.00	-1954.9	0.00	1954.95	3841.87	1920.93	7338.34	3674.63	9.87	-1.784	0.000	0.539
60.00	-24.49	-28.09	0.00	-1811.4	0.00	1811.40	3776.23	1888.12	7028.98	3519.72	11.84	-1.961	0.000	0.521
62.00	-23.92	-27.86	0.00	-1755.2	0.00	1755.23	3749.52	1874.76	6906.19	3458.23	12.67	-2.033	0.000	0.514
65.00	-22.54	-27.47	0.00	-1671.6	0.00	1671.66	3708.96	1854.48	6723.05	3366.52	13.99	-2.141	0.000	0.503
68.00	-21.19	-27.08	0.00	-1589.2	0.00	1589.24	2897.69	1448.84	5257.67	2632.74	15.37	-2.249	0.000	0.611
70.00	-20.68	-26.86	0.00	-1535.0	0.00	1535.09	2878.95	1439.48	5167.56	2587.62	16.32	-2.321	0.000	0.601
75.00	-19.51	-26.26	0.00	-1400.7	0.00	1400.79	2830.96	1415.48	4943.48	2475.42	18.86	-2.521	0.000	0.573
80.00	-18.36	-25.66	0.00	-1269.4	0.00	1269.48	2781.33	1390.66	4721.30	2364.16	21.61	-2.719	0.000	0.544
85.00	-17.25	-25.07	0.00	-1141.1	0.00	1141.16	2730.06	1365.03	4501.25	2253.97	24.56	-2.913	0.000	0.513
90.00	-16.16	-24.47	0.00	-1015.8	0.00	1015.82	2677.14	1338.57	4283.57	2144.97	27.71	-3.103	0.000	0.480
95.00	-15.10	-23.88	0.00	-893.45	0.00	893.45	2622.59	1311.30	4068.50	2037.27	31.06	-3.286	0.000	0.445
100.00	-14.08	-23.30	0.00	-774.03	0.00	774.03	2566.40	1283.20	3856.28	1931.01	34.60	-3.462	0.000	0.407
105.00	-13.10	-22.71	0.00	-657.53	0.00	657.53	2508.57	1254.28	3647.16	1826.29	38.31	-3.628	0.000	0.366
107.00	-12.71	-22.48	0.00	-612.12	0.00	612.12	2484.97	1242.49	3564.43	1784.86	39.85	-3.693	0.000	0.348
110.00	-11.79	-22.11	0.00	-544.66	0.00	544.66	2449.09	1224.55	3441.37	1723.24	42.20	-3.785	0.000	0.321
112.00	-11.19	-21.87	0.00	-500.44	0.00	500.44	1823.39	911.69	2573.73	1288.78	43.79	-3.844	0.000	0.395
115.00	-10.69	-21.54	0.00	-434.83	0.00	434.83	1799.96	899.98	2488.04	1245.87	46.24	-3.927	0.000	0.356
120.00	-9.91	-20.98	0.00	-327.14	0.00	327.14	1759.59	879.80	2346.51	1175.00	50.43	-4.069	0.000	0.285
125.00	-9.17	-20.43	0.00	-222.23	0.00	222.23	1717.59	858.79	2206.80	1105.04	54.75	-4.183	0.000	0.207
127.00	-5.86	-12.40	0.00	-181.37	0.00	181.37	1700.33	850.16	2151.49	1077.34	56.51	-4.220	0.000	0.172
130.00	-5.48	-12.08	0.00	-144.18	0.00	144.18	1673.94	836.97	2069.17	1036.12	59.17	-4.268	0.000	0.143
135.00	-4.87	-11.55	0.00	-83.80	0.00	83.80	1628.66	814.33	1933.84	968.36	63.68	-4.327	0.000	0.090
136.00	-3.55	-10.56	0.00	-72.25	0.00	72.25	1619.40	809.70	1907.07	954.95	64.58	-4.336	0.000	0.078
137.00	-3.28	-5.95	0.00	-61.69	0.00	61.69	1610.09	805.04	1880.41	941.60	65.49	-4.344	0.000	0.068
140.00	-2.98	-5.65	0.00	-43.84	0.00	43.84	1581.73	790.87	1801.05	901.87	68.23	-4.364	0.000	0.051
145.00	-2.49	-5.16	0.00	-15.58	0.00	15.58	1533.17	766.58	1671.06	836.77	72.80	-4.384	0.000	0.020
148.00	-0.08	-0.09	0.00	-0.09	0.00	0.09	1503.24	751.62	1594.49	798.43	75.56	-4.387	0.000	0.000
149.00	0.00	-0.09	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	76.48	-4.387	0.000	0.000



## Wind Loading - Shaft

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

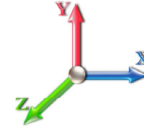


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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Iterations** 23

**Dead Load Factor** 0.90  
**Wind Load Factor** 1.60



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	21.088	23.20	465.38	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	456.11	0.650	0.000	5.00	24.740	16.08	596.8	0.0	1234.0
10.00		1.00	0.85	21.088	23.20	446.84	0.650	0.000	5.00	24.242	15.76	584.8	0.0	1209.0
15.00		1.00	0.85	21.088	23.20	437.57	0.650	0.000	5.00	23.744	15.43	572.8	0.0	1184.0
18.00	Bot - Section 2	1.00	0.88	21.884	24.07	440.09	0.650	0.000	3.00	14.008	9.11	350.7	0.0	698.4
20.00		1.00	0.90	22.375	24.61	441.18	0.650	0.000	2.00	9.366	6.09	239.7	0.0	861.3
25.00	Top - Section 1	1.00	0.95	23.451	25.80	441.89	0.650	0.000	5.00	23.066	14.99	618.8	0.0	2120.7
30.00		1.00	0.98	24.369	26.81	446.83	0.650	0.000	5.00	22.568	14.67	629.2	0.0	965.3
35.00		1.00	1.01	25.172	27.69	444.02	0.650	0.000	5.00	22.071	14.35	635.6	0.0	943.9
40.00		1.00	1.04	25.890	28.48	440.03	0.650	0.000	5.00	21.573	14.02	638.9	0.0	922.4
45.00		1.00	1.07	26.540	29.19	435.12	0.650	0.000	5.00	21.075	13.70	639.9	0.0	901.0
50.00		1.00	1.09	27.135	29.85	429.45	0.650	0.000	5.00	20.577	13.38	638.8	0.0	879.5
55.00		1.00	1.12	27.685	30.45	423.16	0.650	0.000	5.00	20.079	13.05	636.0	0.0	858.1
60.00		1.00	1.14	28.197	31.02	416.33	0.650	0.000	5.00	19.582	12.73	631.7	0.0	836.7
62.00	Bot - Section 3	1.00	1.14	28.392	31.23	413.47	0.650	0.000	2.00	7.693	5.00	249.9	0.0	328.7
65.00		1.00	1.16	28.676	31.54	409.04	0.650	0.000	3.00	11.549	7.51	378.9	0.0	898.3
68.00	Top - Section 2	1.00	1.17	28.950	31.84	404.47	0.650	0.000	3.00	11.370	7.39	376.6	0.0	884.1
70.00		1.00	1.17	29.127	32.04	407.14	0.650	0.000	2.00	7.480	4.86	249.3	0.0	266.6
75.00		1.00	1.19	29.553	32.51	399.13	0.650	0.000	5.00	18.353	11.93	620.5	0.0	654.0
80.00		1.00	1.21	29.958	32.95	390.80	0.650	0.000	5.00	17.855	11.61	611.9	0.0	636.2
85.00		1.00	1.22	30.342	33.38	382.18	0.650	0.000	5.00	17.357	11.28	602.5	0.0	618.3
90.00		1.00	1.24	30.710	33.78	373.30	0.650	0.000	5.00	16.859	10.96	592.3	0.0	600.4
95.00		1.00	1.25	31.061	34.17	364.18	0.650	0.000	5.00	16.361	10.63	581.4	0.0	582.6
100.00		1.00	1.27	31.399	34.54	354.84	0.650	0.000	5.00	15.863	10.31	569.8	0.0	564.7
105.00		1.00	1.28	31.723	34.89	345.30	0.650	0.000	5.00	15.366	9.99	557.6	0.0	546.8
107.00	Bot - Section 4	1.00	1.28	31.849	35.03	341.43	0.650	0.000	2.00	6.007	3.90	218.9	0.0	213.7
110.00		1.00	1.29	32.035	35.24	335.56	0.650	0.000	3.00	8.988	5.84	329.4	0.0	571.5
112.00	Top - Section 3	1.00	1.30	32.157	35.37	331.62	0.650	0.000	2.00	5.892	3.83	216.8	0.0	374.6
115.00		1.00	1.30	32.336	35.57	330.54	0.650	0.000	3.00	8.689	5.65	321.4	0.0	247.7
120.00		1.00	1.32	32.627	35.89	320.49	0.650	0.000	5.00	14.084	9.15	525.7	0.0	401.4
125.00		1.00	1.33	32.909	36.20	310.29	0.650	0.000	5.00	13.586	8.83	511.5	0.0	387.1
127.00	Appurtenance(s)	1.00	1.33	33.019	36.32	306.17	0.650	0.000	2.00	5.295	3.44	200.0	0.0	150.8
130.00		1.00	1.34	33.182	36.50	299.94	0.650	0.000	3.00	7.793	5.07	295.8	0.0	222.0
135.00		1.00	1.35	33.446	36.79	289.46	0.650	0.000	5.00	12.590	8.18	481.7	0.0	358.5
136.00	Appurtenance(s)	1.00	1.35	33.498	36.85	287.35	0.650	0.000	1.00	2.458	1.60	94.2	0.0	70.0
137.00	Appurtenance(s)	1.00	1.35	33.550	36.90	285.23	0.650	0.000	1.00	2.438	1.58	93.6	0.0	69.4
140.00		1.00	1.36	33.703	37.07	278.85	0.650	0.000	3.00	7.196	4.68	277.4	0.0	204.8
145.00		1.00	1.37	33.953	37.35	268.12	0.650	0.000	5.00	11.595	7.54	450.4	0.0	329.9
148.00	Appurtenance(s)	1.00	1.37	34.100	37.51	261.62	0.650	0.000	3.00	6.718	4.37	262.1	0.0	191.1
149.00		1.00	1.38	34.148	37.56	259.45	0.650	0.000	1.00	2.199	1.43	85.9	0.0	62.6
<b>Totals:</b>								<b>149.00</b>			<b>17,169.0</b>	<b>24,050.1</b>		

## Discrete Appurtenance Forces

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

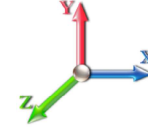


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**Load Case:** 0.9D + 1.6W 101 mph Wind

**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	148.00	T-Arms	1	34.100	37.510	0.56	0.75	8.44	450.00	0.000	0.000	506.38	0.00	0.00	
2	148.00	(3) Stabilizer Kit (4' FW)	1	34.100	37.510	0.56	0.75	2.08	126.00	0.000	0.000	124.91	0.00	0.00	
3	148.00	HRK12 (Handrail Kit)	1	34.100	37.510	0.56	0.75	3.80	235.55	0.000	0.000	227.87	0.00	0.00	
4	148.00	4449	3	34.100	37.510	0.54	0.80	2.65	189.00	0.000	0.000	159.23	0.00	0.00	
5	148.00	Ericsson KRY112 144/1	3	34.100	37.510	0.56	0.80	0.69	29.70	0.000	0.000	41.34	0.00	0.00	
6	148.00	APXVAARR24_43-U-NA2	3	34.100	37.510	0.56	0.80	34.00	345.60	0.000	0.000	2040.73	0.00	0.00	
7	148.00	AIR21 B2A B4P	3	34.100	37.510	0.69	0.80	12.57	244.08	0.000	0.000	754.39	0.00	0.00	
8	148.00	AIR21 B2A B4P	3	34.100	37.510	0.69	0.80	12.57	247.05	0.000	0.000	754.39	0.00	0.00	
9	137.00	Antel/LPA-80080-6CF	4	33.550	36.905	1.36	0.80	23.56	75.60	0.000	0.000	1390.89	0.00	0.00	
10	137.00	Antel/LPA-4019	2	33.550	36.905	0.80	0.80	20.38	73.80	0.000	0.000	1203.63	0.00	0.00	
11	137.00	Antel/BXA-171085-12BF	3	33.550	36.905	0.67	0.80	9.56	40.50	0.000	0.000	564.25	0.00	0.00	
12	137.00	Antel/BXA-70063-6CF	3	33.550	36.905	0.58	0.80	13.26	45.90	0.000	0.000	783.13	0.00	0.00	
13	137.00	ALU/RRH 2x40 AWS	3	33.550	36.905	0.67	1.00	4.34	118.80	0.000	0.000	256.36	0.00	0.00	
14	137.00	RFS DB-T1-6Z-8AB-OZ	1	33.550	36.905	1.00	1.00	4.80	17.01	0.000	0.000	283.43	0.00	0.00	
15	136.00	T-Arms	3	33.498	36.848	0.56	0.75	13.50	945.00	0.000	0.000	795.92	0.00	0.00	
16	127.00	T-Arms	3	33.019	36.321	0.56	0.75	13.50	945.00	0.000	0.000	784.53	0.00	0.00	
17	127.00	Powerwave 1001983 Bias	3	33.019	36.321	0.80	0.80	0.50	11.88	0.000	0.000	29.29	0.00	0.00	
18	127.00	RRUS 8843 B2 B66A	3	33.019	36.321	0.54	0.80	2.64	194.40	0.000	0.000	153.25	0.00	0.00	
19	127.00	OPA65R-BU8DA	3	33.019	36.321	0.58	0.80	31.56	206.55	0.000	0.000	1834.25	0.00	0.00	
20	127.00	DMP65R-BU8DA	3	33.019	36.321	0.58	0.80	31.18	258.39	0.000	0.000	1811.95	0.00	0.00	
21	127.00	Horizontal Pipe	3	33.019	36.321	0.56	0.75	5.01	123.53	0.000	0.000	291.14	0.00	0.00	
22	127.00	RRUS 4478 B14	3	33.019	36.321	0.54	0.80	2.65	160.38	0.000	0.000	154.19	0.00	0.00	
23	127.00	4449 B5/B12	3	33.019	36.321	0.54	0.80	3.17	191.70	0.000	0.000	184.09	0.00	0.00	
24	127.00	Raycap DC6-48-60-18-8F	1	33.019	36.321	1.00	1.00	0.92	28.62	0.000	0.000	53.46	0.00	0.00	
25	127.00	DC9-48-60-24-8C-EV	1	33.019	36.321	1.00	1.00	1.14	23.58	0.000	0.000	66.25	0.00	0.00	
26	127.00	(3) Stabilizer Kit	1	33.019	36.321	0.56	0.75	3.43	162.00	0.000	0.000	199.40	0.00	0.00	
27	127.00	7770.00	6	33.019	36.321	0.58	0.80	19.27	189.00	0.000	0.000	1119.96	0.00	0.00	
28	127.00	Powerwave LGP21401	12	33.019	36.321	0.80	0.80	12.38	152.28	0.000	0.000	719.67	0.00	0.00	
29	127.00	Kathrein 860 10025 RET	12	33.019	36.321	0.80	0.80	1.34	11.88	0.000	0.000	78.10	0.00	0.00	
30	127.00	Powerwave LGP13519	6	33.019	36.321	0.80	0.80	1.63	28.62	0.000	0.000	94.84	0.00	0.00	
<b>Totals:</b>									<b>5,871.39</b>			<b>17,461.24</b>			

## Total Applied Force Summary

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

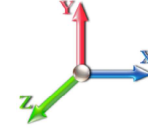


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**Load Case:** 0.9D + 1.6W 101 mph Wind

**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		596.83	1413.15	0.00	0.00
10.00		584.82	1388.14	0.00	0.00
15.00		572.81	1363.12	0.00	0.00
18.00		350.69	805.86	0.00	0.00
20.00		239.73	932.94	0.00	0.00
25.00		618.82	2299.84	0.00	0.00
30.00		629.15	1144.46	0.00	0.00
35.00		635.57	1123.01	0.00	0.00
40.00		638.95	1101.57	0.00	0.00
45.00		639.87	1080.13	0.00	0.00
50.00		638.77	1058.68	0.00	0.00
55.00		635.95	1037.24	0.00	0.00
60.00		631.65	1015.80	0.00	0.00
62.00		249.88	400.31	0.00	0.00
65.00		378.88	1005.76	0.00	0.00
68.00		376.56	991.61	0.00	0.00
70.00		249.26	338.28	0.00	0.00
75.00		620.48	833.19	0.00	0.00
80.00		611.91	815.32	0.00	0.00
85.00		602.49	797.45	0.00	0.00
90.00		592.29	779.58	0.00	0.00
95.00		581.38	761.71	0.00	0.00
100.00		569.81	743.84	0.00	0.00
105.00		557.63	725.97	0.00	0.00
107.00		218.86	285.38	0.00	0.00
110.00		329.39	679.00	0.00	0.00
112.00		216.76	446.23	0.00	0.00
115.00		321.44	355.19	0.00	0.00
120.00		525.68	580.55	0.00	0.00
125.00		511.48	566.26	0.00	0.00
127.00	(63) attachments	7774.39	2910.30	0.00	0.00
130.00		295.83	295.47	0.00	0.00
135.00		481.74	481.01	0.00	0.00
136.00	(3) attachments	890.13	1039.49	0.00	0.00
137.00	(16) attachments	4575.29	465.52	0.00	0.00
140.00		277.45	241.65	0.00	0.00
145.00		450.37	391.31	0.00	0.00
148.00	(18) attachments	4871.31	2094.90	0.00	0.00
149.00		85.92	62.55	0.00	0.00
	<b>Totals:</b>	<b>34,630.23</b>	<b>34,851.78</b>	<b>0.00</b>	<b>0.00</b>

## Calculated Forces

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



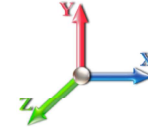
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**Load Case:** 0.9D + 1.6W 101 mph Wind

**Iterations** 23

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



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	-34.81	-34.68	0.00	-3694.2	0.00	3694.24	5499.39	2749.69	13252.7	6636.23	0.00	0.000	0.000	0.563
5.00	-33.31	-34.16	0.00	-3520.8	0.00	3520.86	5429.06	2714.53	12818.7	6418.90	0.08	-0.145	0.000	0.555
10.00	-31.83	-33.65	0.00	-3350.0	0.00	3350.06	5357.09	2678.54	12387.8	6203.11	0.31	-0.292	0.000	0.546
15.00	-30.41	-33.14	0.00	-3181.7	0.00	3181.79	5283.48	2641.74	11960.1	5988.97	0.70	-0.441	0.000	0.537
18.00	-29.56	-32.82	0.00	-3082.3	0.00	3082.38	5238.53	2619.26	11705.2	5861.33	1.00	-0.532	0.000	0.532
20.00	-28.57	-32.62	0.00	-3016.7	0.00	3016.75	5208.23	2604.11	11536.0	5776.60	1.24	-0.593	0.000	0.528
25.00	-26.19	-32.05	0.00	-2853.6	0.00	2853.64	4201.23	2100.61	9252.96	4633.35	1.94	-0.745	0.000	0.622
30.00	-24.97	-31.47	0.00	-2693.4	0.00	2693.41	4145.44	2072.72	8928.09	4470.68	2.81	-0.898	0.000	0.609
35.00	-23.76	-30.89	0.00	-2536.0	0.00	2536.06	4088.00	2044.00	8605.21	4309.00	3.84	-1.071	0.000	0.595
40.00	-22.58	-30.30	0.00	-2381.6	0.00	2381.61	4028.93	2014.47	8284.56	4148.44	5.05	-1.244	0.000	0.580
45.00	-21.43	-29.70	0.00	-2230.1	0.00	2230.13	3968.22	1984.11	7966.37	3989.11	6.45	-1.418	0.000	0.565
50.00	-20.29	-29.09	0.00	-2081.6	0.00	2081.65	3905.86	1952.93	7650.88	3831.13	8.03	-1.593	0.000	0.549
55.00	-19.19	-28.49	0.00	-1936.1	0.00	1936.19	3841.87	1920.93	7338.34	3674.63	9.79	-1.768	0.000	0.532
60.00	-18.14	-27.86	0.00	-1793.7	0.00	1793.76	3776.23	1888.12	7028.98	3519.72	11.74	-1.944	0.000	0.515
62.00	-17.70	-27.62	0.00	-1738.0	0.00	1738.04	3749.52	1874.76	6906.19	3458.23	12.57	-2.016	0.000	0.508
65.00	-16.66	-27.24	0.00	-1655.1	0.00	1655.17	3708.96	1854.48	6723.05	3366.52	13.87	-2.123	0.000	0.496
68.00	-15.64	-26.85	0.00	-1573.4	0.00	1573.45	2897.69	1448.84	5257.67	2632.74	15.24	-2.229	0.000	0.603
70.00	-15.25	-26.62	0.00	-1519.7	0.00	1519.75	2878.95	1439.48	5167.56	2587.62	16.19	-2.300	0.000	0.593
75.00	-14.35	-26.02	0.00	-1386.6	0.00	1386.63	2830.96	1415.48	4943.48	2475.42	18.71	-2.499	0.000	0.566
80.00	-13.48	-25.42	0.00	-1256.5	0.00	1256.54	2781.33	1390.66	4721.30	2364.16	21.43	-2.695	0.000	0.537
85.00	-12.63	-24.82	0.00	-1129.4	0.00	1129.45	2730.06	1365.03	4501.25	2253.97	24.35	-2.887	0.000	0.506
90.00	-11.81	-24.22	0.00	-1005.3	0.00	1005.36	2677.14	1338.57	4283.57	2144.97	27.48	-3.074	0.000	0.473
95.00	-11.00	-23.64	0.00	-884.24	0.00	884.24	2622.59	1311.30	4068.50	2037.27	30.80	-3.256	0.000	0.439
100.00	-10.23	-23.05	0.00	-766.06	0.00	766.06	2566.40	1283.20	3856.28	1931.01	34.30	-3.430	0.000	0.401
105.00	-9.49	-22.47	0.00	-650.80	0.00	650.80	2508.57	1254.28	3647.16	1826.29	37.98	-3.594	0.000	0.360
107.00	-9.19	-22.25	0.00	-605.85	0.00	605.85	2484.97	1242.49	3564.43	1784.86	39.50	-3.658	0.000	0.343
110.00	-8.51	-21.89	0.00	-539.11	0.00	539.11	2449.09	1224.55	3441.37	1723.24	41.83	-3.750	0.000	0.317
112.00	-8.05	-21.65	0.00	-495.34	0.00	495.34	1823.39	911.69	2573.73	1288.78	43.41	-3.808	0.000	0.389
115.00	-7.67	-21.32	0.00	-430.39	0.00	430.39	1799.96	899.98	2488.04	1245.87	45.83	-3.890	0.000	0.350
120.00	-7.08	-20.77	0.00	-323.78	0.00	323.78	1759.59	879.80	2346.51	1175.00	49.98	-4.031	0.000	0.280
125.00	-6.53	-20.23	0.00	-219.92	0.00	219.92	1717.59	858.79	2206.80	1105.04	54.26	-4.144	0.000	0.203
127.00	-4.18	-12.27	0.00	-179.46	0.00	179.46	1700.33	850.16	2151.49	1077.34	56.00	-4.181	0.000	0.169
130.00	-3.90	-11.95	0.00	-142.66	0.00	142.66	1673.94	836.97	2069.17	1036.12	58.65	-4.227	0.000	0.140
135.00	-3.45	-11.44	0.00	-82.89	0.00	82.89	1628.66	814.33	1933.84	968.36	63.10	-4.286	0.000	0.088
136.00	-2.48	-10.48	0.00	-71.44	0.00	71.44	1619.40	809.70	1907.07	954.95	64.00	-4.295	0.000	0.077
137.00	-2.35	-5.88	0.00	-60.97	0.00	60.97	1610.09	805.04	1880.41	941.60	64.90	-4.303	0.000	0.066
140.00	-2.13	-5.58	0.00	-43.33	0.00	43.33	1581.73	790.87	1801.05	901.87	67.61	-4.322	0.000	0.049
145.00	-1.78	-5.11	0.00	-15.41	0.00	15.41	1533.17	766.58	1671.06	836.77	72.15	-4.342	0.000	0.020
148.00	-0.06	-0.09	0.00	-0.09	0.00	0.09	1503.24	751.62	1594.49	798.43	74.87	-4.346	0.000	0.000
149.00	0.00	-0.09	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	75.78	-4.346	0.000	0.000

## Wind Loading - Shaft

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

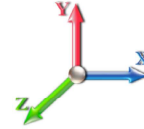


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 22

**Dead Load Factor** 1.20  
**Wind Load Factor** 1.00



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	0.000	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	1.656	5.00	26.120	31.34	178.2	617.7	2263.0
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.775	5.00	25.721	30.87	175.5	650.2	2262.2
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.848	5.00	25.285	30.34	172.5	664.3	2243.0
18.00	Bot - Section 2	1.00	0.88	5.363	5.90	0.00	1.200	1.882	3.00	14.949	17.94	105.8	401.2	1332.3
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.902	2.00	10.000	12.00	72.4	271.7	1420.1
25.00	Top - Section 1	1.00	0.95	5.747	6.32	0.00	1.200	1.945	5.00	24.687	29.62	187.3	680.8	3508.4
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.981	5.00	24.219	29.06	190.9	679.1	1966.2
35.00		1.00	1.01	6.169	6.79	0.00	1.200	2.012	5.00	23.747	28.50	193.4	675.2	1933.7
40.00		1.00	1.04	6.345	6.98	0.00	1.200	2.039	5.00	23.272	27.93	194.9	669.6	1899.5
45.00		1.00	1.07	6.504	7.15	0.00	1.200	2.063	5.00	22.794	27.35	195.7	662.6	1863.9
50.00		1.00	1.09	6.650	7.32	0.00	1.200	2.085	5.00	22.315	26.78	195.9	654.6	1827.3
55.00		1.00	1.12	6.785	7.46	0.00	1.200	2.105	5.00	21.833	26.20	195.5	645.6	1789.7
60.00		1.00	1.14	6.910	7.60	0.00	1.200	2.123	5.00	21.351	25.62	194.8	635.8	1751.3
62.00	Bot - Section 3	1.00	1.14	6.958	7.65	0.00	1.200	2.130	2.00	8.403	10.08	77.2	252.7	690.9
65.00		1.00	1.16	7.028	7.73	0.00	1.200	2.140	3.00	12.619	15.14	117.1	380.2	1577.9
68.00	Top - Section 2	1.00	1.17	7.095	7.80	0.00	1.200	2.150	3.00	12.445	14.93	116.5	376.3	1555.2
70.00		1.00	1.17	7.138	7.85	0.00	1.200	2.156	2.00	8.199	9.84	77.3	249.1	604.6
75.00		1.00	1.19	7.243	7.97	0.00	1.200	2.171	5.00	20.162	24.19	192.8	611.3	1483.3
80.00		1.00	1.21	7.342	8.08	0.00	1.200	2.185	5.00	19.676	23.61	190.7	599.3	1447.5
85.00		1.00	1.22	7.436	8.18	0.00	1.200	2.198	5.00	19.189	23.03	188.4	586.9	1411.3
90.00		1.00	1.24	7.526	8.28	0.00	1.200	2.211	5.00	18.702	22.44	185.8	574.1	1374.7
95.00		1.00	1.25	7.612	8.37	0.00	1.200	2.223	5.00	18.214	21.86	183.0	561.0	1337.8
100.00		1.00	1.27	7.695	8.46	0.00	1.200	2.234	5.00	17.726	21.27	180.0	547.6	1300.5
105.00		1.00	1.28	7.774	8.55	0.00	1.200	2.245	5.00	17.237	20.68	176.9	533.9	1263.0
107.00	Bot - Section 4	1.00	1.28	7.805	8.59	0.00	1.200	2.250	2.00	6.757	8.11	69.6	211.3	496.3
110.00		1.00	1.29	7.851	8.64	0.00	1.200	2.256	3.00	10.116	12.14	104.8	316.2	1078.2
112.00	Top - Section 3	1.00	1.30	7.881	8.67	0.00	1.200	2.260	2.00	6.646	7.97	69.1	208.5	707.9
115.00		1.00	1.30	7.925	8.72	0.00	1.200	2.266	3.00	9.822	11.79	102.7	307.6	637.9
120.00		1.00	1.32	7.996	8.80	0.00	1.200	2.276	5.00	15.980	19.18	168.7	498.3	1033.5
125.00		1.00	1.33	8.065	8.87	0.00	1.200	2.285	5.00	15.490	18.59	164.9	483.6	999.7
127.00	Appurtenance(s)	1.00	1.33	8.092	8.90	0.00	1.200	2.289	2.00	6.058	7.27	64.7	191.1	392.2
130.00		1.00	1.34	8.132	8.95	0.00	1.200	2.294	3.00	8.940	10.73	96.0	281.2	577.2
135.00		1.00	1.35	8.197	9.02	0.00	1.200	2.303	5.00	14.509	17.41	157.0	453.6	931.6
136.00	Appurtenance(s)	1.00	1.35	8.210	9.03	0.00	1.200	2.304	1.00	2.842	3.41	30.8	90.1	183.4
137.00	Appurtenance(s)	1.00	1.35	8.222	9.04	0.00	1.200	2.306	1.00	2.823	3.39	30.6	89.5	182.1
140.00		1.00	1.36	8.260	9.09	0.00	1.200	2.311	3.00	8.351	10.02	91.1	263.0	536.1
145.00		1.00	1.37	8.321	9.15	0.00	1.200	2.319	5.00	13.527	16.23	148.6	422.9	862.8
148.00	Appurtenance(s)	1.00	1.37	8.357	9.19	0.00	1.200	2.324	3.00	7.880	9.46	86.9	248.1	502.9
149.00		1.00	1.38	8.369	9.21	0.00	1.200	2.325	1.00	2.587	3.10	28.6	82.1	165.5
<b>Totals:</b>								<b>149.00</b>			<b>5,352.4</b>	<b>49,394.6</b>		

## Discrete Appurtenance Forces

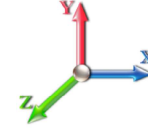
<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

**Dead Load Factor** 1.20  
**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	148.00	T-Arms	1	8.357	9.193	0.56	0.75	23.08	1147.15	0.000	0.000	212.15	0.00	0.00	
2	148.00	(3) Stabilizer Kit (4' FW)	1	8.357	9.193	0.56	0.75	4.98	342.24	0.000	0.000	45.81	0.00	0.00	
3	148.00	HRK12 (Handrail Kit)	1	8.357	9.193	0.56	0.75	8.74	314.06	0.000	0.000	80.33	0.00	0.00	
4	148.00	4449	3	8.357	9.193	0.54	0.80	3.85	548.48	0.000	0.000	35.36	0.00	0.00	
5	148.00	Ericsson KRY112 144/1	3	8.357	9.193	0.56	0.80	1.75	73.37	0.000	0.000	16.10	0.00	0.00	
6	148.00	APXVAARR24_43-U-NA2	3	8.357	9.193	0.56	0.80	38.31	2201.32	0.000	0.000	352.14	0.00	0.00	
7	148.00	AIR21 B2A B4P	3	8.357	9.193	0.69	0.80	15.65	1044.08	0.000	0.000	143.88	0.00	0.00	
8	148.00	AIR21 B2A B4P	3	8.357	9.193	0.69	0.80	15.65	1048.04	0.000	0.000	143.88	0.00	0.00	
9	137.00	Antel/LPA-80080-6CF	4	8.222	9.044	1.36	0.80	33.44	797.77	0.000	0.000	302.46	0.00	0.00	
10	137.00	Antel/LPA-4019	2	8.222	9.044	0.80	0.80	77.62	971.74	0.000	0.000	702.00	0.00	0.00	
11	137.00	Antel/BXA-171085-12BF	3	8.222	9.044	0.67	0.80	15.81	348.70	0.000	0.000	143.03	0.00	0.00	
12	137.00	Antel/BXA-70063-6CF	3	8.222	9.044	0.58	0.80	16.25	799.68	0.000	0.000	146.95	0.00	0.00	
13	137.00	ALU/RRH 2x40 AWS	3	8.222	9.044	0.67	1.00	7.12	346.91	0.000	0.000	64.44	0.00	0.00	
14	137.00	RFS DB-T1-6Z-8AB-OZ	1	8.222	9.044	1.00	1.00	5.98	223.67	0.000	0.000	54.08	0.00	0.00	
15	136.00	T-Arms	3	8.210	9.031	0.56	0.75	29.05	2017.79	0.000	0.000	262.37	0.00	0.00	
16	127.00	T-Arms	3	8.092	8.901	0.56	0.75	28.95	2011.19	0.000	0.000	257.67	0.00	0.00	
17	127.00	Powerwave 1001983 Bias	3	8.092	8.901	0.80	0.80	1.64	33.22	0.000	0.000	14.61	0.00	0.00	
18	127.00	RRUS 8843 B2 B66A	3	8.092	8.901	0.54	0.80	3.68	407.48	0.000	0.000	32.80	0.00	0.00	
19	127.00	OPA65R-BU8DA	3	8.092	8.901	0.60	0.80	38.65	1439.68	0.000	0.000	344.05	0.00	0.00	
20	127.00	DMP65R-BU8DA	3	8.092	8.901	0.60	0.80	36.83	1588.13	0.000	0.000	327.81	0.00	0.00	
21	127.00	Horizontal Pipe	3	8.092	8.901	0.56	0.75	13.26	297.85	0.000	0.000	118.07	0.00	0.00	
22	127.00	RRUS 4478 B14	3	8.092	8.901	0.54	0.80	3.75	348.77	0.000	0.000	33.35	0.00	0.00	
23	127.00	4449 B5/B12	3	8.092	8.901	0.54	0.80	4.32	424.80	0.000	0.000	38.47	0.00	0.00	
24	127.00	Raycap DC6-48-60-18-8F	1	8.092	8.901	1.00	1.00	1.49	101.53	0.000	0.000	13.30	0.00	0.00	
25	127.00	DC9-48-60-24-8C-EV	1	8.092	8.901	1.00	1.00	3.22	153.33	0.000	0.000	28.67	0.00	0.00	
26	127.00	(3) Stabilizer Kit	1	8.092	8.901	0.56	0.75	8.14	442.60	0.000	0.000	72.48	0.00	0.00	
27	127.00	7770.00	6	8.092	8.901	0.58	0.80	24.27	1392.01	0.000	0.000	216.00	0.00	0.00	
28	127.00	Powerwave LGP21401	12	8.092	8.901	0.80	0.80	22.90	511.26	0.000	0.000	203.88	0.00	0.00	
29	127.00	Kathrein 860 10025 RET	12	8.092	8.901	0.80	0.80	5.38	70.03	0.000	0.000	47.93	0.00	0.00	
30	127.00	Powerwave LGP13519	6	8.092	8.901	0.80	0.80	4.49	96.69	0.000	0.000	39.97	0.00	0.00	
<b>Totals:</b>									<b>21,543.54</b>						<b>4,494.04</b>



## Total Applied Force Summary

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

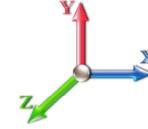


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20

**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		178.19	2501.87	0.00	0.00
10.00		175.47	2501.06	0.00	0.00
15.00		172.49	2481.81	0.00	0.00
18.00		105.83	1475.65	0.00	0.00
20.00		72.38	1515.63	0.00	0.00
25.00		187.29	3747.21	0.00	0.00
30.00		190.92	2205.06	0.00	0.00
35.00		193.38	2172.57	0.00	0.00
40.00		194.91	2138.36	0.00	0.00
45.00		195.70	2102.80	0.00	0.00
50.00		195.88	2066.13	0.00	0.00
55.00		195.54	2028.55	0.00	0.00
60.00		194.76	1990.19	0.00	0.00
62.00		77.18	786.43	0.00	0.00
65.00		117.07	1721.25	0.00	0.00
68.00		116.55	1698.47	0.00	0.00
70.00		77.26	700.14	0.00	0.00
75.00		192.76	1722.17	0.00	0.00
80.00		190.68	1686.38	0.00	0.00
85.00		188.35	1650.17	0.00	0.00
90.00		185.79	1613.58	0.00	0.00
95.00		183.02	1576.64	0.00	0.00
100.00		180.04	1539.38	0.00	0.00
105.00		176.89	1501.83	0.00	0.00
107.00		69.62	591.83	0.00	0.00
110.00		104.83	1221.50	0.00	0.00
112.00		69.13	803.49	0.00	0.00
115.00		102.75	781.22	0.00	0.00
120.00		168.67	1272.33	0.00	0.00
125.00		164.91	1238.59	0.00	0.00
127.00	(63) attachments	1853.77	9806.27	0.00	0.00
130.00		95.96	675.18	0.00	0.00
135.00		156.99	1094.96	0.00	0.00
136.00	(3) attachments	293.17	2233.89	0.00	0.00
137.00	(16) attachments	1443.60	3703.19	0.00	0.00
140.00		91.05	585.21	0.00	0.00
145.00		148.58	944.65	0.00	0.00
148.00	(18) attachments	1116.57	7270.78	0.00	0.00
149.00		28.58	165.49	0.00	0.00
	<b>Totals:</b>	<b>9,846.48</b>	<b>77,511.92</b>	<b>0.00</b>	<b>0.00</b>

## Calculated Forces

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

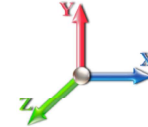


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 22

**Dead Load Factor** 1.20  
**Wind Load 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	-77.51	-9.88	0.00	-1066.2	0.00	1066.21	5499.39	2749.69	13252.7	6636.23	0.00	0.000	0.000	0.175
5.00	-75.00	-9.75	0.00	-1016.8	0.00	1016.83	5429.06	2714.53	12818.7	6418.90	0.02	-0.042	0.000	0.172
10.00	-72.49	-9.63	0.00	-968.08	0.00	968.08	5357.09	2678.54	12387.8	6203.11	0.09	-0.084	0.000	0.170
15.00	-70.00	-9.49	0.00	-919.95	0.00	919.95	5283.48	2641.74	11960.1	5988.97	0.20	-0.127	0.000	0.167
18.00	-68.52	-9.41	0.00	-891.47	0.00	891.47	5238.53	2619.26	11705.2	5861.33	0.29	-0.154	0.000	0.165
20.00	-67.00	-9.37	0.00	-872.65	0.00	872.65	5208.23	2604.11	11536.0	5776.60	0.36	-0.171	0.000	0.164
25.00	-63.25	-9.22	0.00	-825.81	0.00	825.81	4201.23	2100.61	9252.96	4633.35	0.56	-0.215	0.000	0.193
30.00	-61.04	-9.07	0.00	-779.73	0.00	779.73	4145.44	2072.72	8928.09	4470.68	0.81	-0.260	0.000	0.189
35.00	-58.86	-8.91	0.00	-734.39	0.00	734.39	4088.00	2044.00	8605.21	4309.00	1.11	-0.310	0.000	0.185
40.00	-56.71	-8.76	0.00	-689.82	0.00	689.82	4028.93	2014.47	8284.56	4148.44	1.46	-0.360	0.000	0.180
45.00	-54.61	-8.60	0.00	-646.03	0.00	646.03	3968.22	1984.11	7966.37	3989.11	1.86	-0.410	0.000	0.176
50.00	-52.53	-8.43	0.00	-603.06	0.00	603.06	3905.86	1952.93	7650.88	3831.13	2.32	-0.461	0.000	0.171
55.00	-50.50	-8.26	0.00	-560.91	0.00	560.91	3841.87	1920.93	7338.34	3674.63	2.83	-0.512	0.000	0.166
60.00	-48.51	-8.08	0.00	-519.59	0.00	519.59	3776.23	1888.12	7028.98	3519.72	3.40	-0.563	0.000	0.160
62.00	-47.72	-8.02	0.00	-503.44	0.00	503.44	3749.52	1874.76	6906.19	3458.23	3.64	-0.583	0.000	0.158
65.00	-45.99	-7.91	0.00	-479.39	0.00	479.39	3708.96	1854.48	6723.05	3366.52	4.01	-0.614	0.000	0.155
68.00	-44.29	-7.79	0.00	-455.67	0.00	455.67	2897.69	1448.84	5257.67	2632.74	4.41	-0.645	0.000	0.188
70.00	-43.59	-7.73	0.00	-440.09	0.00	440.09	2878.95	1439.48	5167.56	2587.62	4.68	-0.666	0.000	0.185
75.00	-41.86	-7.56	0.00	-401.42	0.00	401.42	2830.96	1415.48	4943.48	2475.42	5.41	-0.723	0.000	0.177
80.00	-40.17	-7.39	0.00	-363.61	0.00	363.61	2781.33	1390.66	4721.30	2364.16	6.20	-0.780	0.000	0.168
85.00	-38.52	-7.21	0.00	-326.66	0.00	326.66	2730.06	1365.03	4501.25	2253.97	7.05	-0.836	0.000	0.159
90.00	-36.90	-7.04	0.00	-290.59	0.00	290.59	2677.14	1338.57	4283.57	2144.97	7.95	-0.890	0.000	0.149
95.00	-35.32	-6.86	0.00	-255.39	0.00	255.39	2622.59	1311.30	4068.50	2037.27	8.91	-0.942	0.000	0.139
100.00	-33.78	-6.69	0.00	-221.08	0.00	221.08	2566.40	1283.20	3856.28	1931.01	9.93	-0.992	0.000	0.128
105.00	-32.27	-6.50	0.00	-187.65	0.00	187.65	2508.57	1254.28	3647.16	1826.29	10.99	-1.040	0.000	0.116
107.00	-31.68	-6.43	0.00	-174.65	0.00	174.65	2484.97	1242.49	3564.43	1784.86	11.43	-1.058	0.000	0.111
110.00	-30.46	-6.32	0.00	-155.36	0.00	155.36	2449.09	1224.55	3441.37	1723.24	12.11	-1.085	0.000	0.103
112.00	-29.66	-6.24	0.00	-142.73	0.00	142.73	1823.39	911.69	2573.73	1288.78	12.56	-1.101	0.000	0.127
115.00	-28.87	-6.14	0.00	-124.00	0.00	124.00	1799.96	899.98	2488.04	1245.87	13.26	-1.125	0.000	0.116
120.00	-27.60	-5.96	0.00	-93.30	0.00	93.30	1759.59	879.80	2346.51	1175.00	14.47	-1.166	0.000	0.095
125.00	-26.36	-5.78	0.00	-63.48	0.00	63.48	1717.59	858.79	2206.80	1105.04	15.70	-1.198	0.000	0.073
127.00	-16.60	-3.73	0.00	-51.91	0.00	51.91	1700.33	850.16	2151.49	1077.34	16.21	-1.209	0.000	0.058
130.00	-15.92	-3.62	0.00	-40.73	0.00	40.73	1673.94	836.97	2069.17	1036.12	16.97	-1.222	0.000	0.049
135.00	-14.83	-3.44	0.00	-22.62	0.00	22.62	1628.66	814.33	1933.84	968.36	18.26	-1.239	0.000	0.032
136.00	-12.60	-3.10	0.00	-19.18	0.00	19.18	1619.40	809.70	1907.07	954.95	18.52	-1.241	0.000	0.028
137.00	-8.93	-1.58	0.00	-16.07	0.00	16.07	1610.09	805.04	1880.41	941.60	18.78	-1.243	0.000	0.023
140.00	-8.35	-1.48	0.00	-11.34	0.00	11.34	1581.73	790.87	1801.05	901.87	19.57	-1.248	0.000	0.018
145.00	-7.41	-1.31	0.00	-3.95	0.00	3.95	1533.17	766.58	1671.06	836.77	20.88	-1.254	0.000	0.010
148.00	-0.16	-0.03	0.00	-0.03	0.00	0.03	1503.24	751.62	1594.49	798.43	21.67	-1.254	0.000	0.000
149.00	0.00	-0.03	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	21.93	-1.254	0.000	0.000



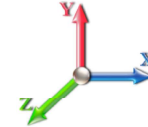
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0E				<b>Iterations</b> 20
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.18	<b>Ss</b> 0.17
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.46	<b>SA</b> 0.05
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1371.1	0.00	0.03	0.02	19.38	
10.00		1343.3	0.01	0.05	0.03	28.60	
15.00		1315.5	0.02	0.06	0.04	32.95	
18.00	Bot - Section 2	775.97	0.03	0.07	0.04	20.49	
20.00		956.99	0.03	0.07	0.04	25.91	
25.00	Top - Section 1	2356.3	0.05	0.07	0.04	66.71	
30.00		1072.5	0.08	0.07	0.04	31.35	
35.00		1048.7	0.10	0.07	0.04	31.53	
40.00		1024.9	0.14	0.07	0.03	31.61	
45.00		1001.0	0.17	0.07	0.03	31.43	
50.00		977.26	0.21	0.06	0.02	30.74	
55.00		953.44	0.26	0.05	0.02	29.17	
60.00		929.61	0.31	0.04	0.01	26.37	
62.00	Bot - Section 3	365.17	0.33	0.04	0.01	9.86	
65.00		998.08	0.36	0.03	0.01	24.29	
68.00	Top - Section 2	982.36	0.39	0.02	0.01	20.56	
70.00		296.24	0.42	0.01	0.01	5.41	
75.00		726.71	0.48	-0.01	0.01	7.43	
80.00		706.86	0.54	-0.03	0.01	0.68	
85.00		687.00	0.62	-0.06	0.02	-5.73	
90.00		667.15	0.69	-0.08	0.03	-10.76	
95.00		647.29	0.77	-0.11	0.05	-13.59	
100.00		627.44	0.85	-0.12	0.07	-13.73	
105.00		607.58	0.94	-0.12	0.10	-11.03	
107.00	Bot - Section 4	237.47	0.97	-0.12	0.12	-3.63	
110.00		635.01	1.03	-0.10	0.15	-6.04	
112.00	Top - Section 3	416.19	1.07	-0.09	0.17	-1.93	
115.00		275.23	1.13	-0.05	0.20	1.15	
120.00		446.01	1.23	0.03	0.27	10.25	
125.00		430.12	1.33	0.16	0.36	20.18	
127.00	Appurtenance(s)	3154.0	1.37	0.23	0.40	182.79	
130.00		246.64	1.44	0.36	0.47	18.76	
135.00		398.36	1.55	0.64	0.61	44.01	
136.00	Appurtenance(s)	1127.7	1.57	0.70	0.64	133.06	
137.00	Appurtenance(s)	490.03	1.60	0.77	0.67	61.61	
140.00		227.58	1.67	1.01	0.77	34.19	
145.00		366.59	1.79	1.49	0.96	71.63	
148.00	Appurtenance(s)	2286.7	1.86	1.85	1.09	514.88	
149.00		69.51	1.89	1.98	1.14	16.37	
<b>Totals:</b>		<b>33,246.1</b>				<b>1,516.9</b>	<b>Total Wind: 34,630.2</b>

Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

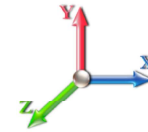
## Calculated Forces

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	<b>4/24/2020</b>
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 1.2D + 1.0E										<b>Iterations</b> 20
<b>Gust Response Factor</b> 1.10					<b>Sds</b> 0.18					<b>Ss</b> 0.17
<b>Dead Load Factor</b> 1.20			<b>Seismic Load Factor</b> 1.00			<b>Sd1</b> 0.10			<b>S1</b> 0.06	
<b>Wind Load Factor</b> 0.00		<b>Structure Frequency (f1)</b> 0.46		<b>SA</b> 0.05		<b>Seismic Importance Factor</b> 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	-46.47	-1.59	0.00	-178.27	0.00	178.27	5499.39	2749.69	13252.7	6636.23	0.00	0.00	0.00	0.035
5.00	-44.58	-1.57	0.00	-170.34	0.00	170.34	5429.06	2714.53	12818.7	6418.90	0.00	-0.01	0.035	
10.00	-42.73	-1.55	0.00	-162.48	0.00	162.48	5357.09	2678.54	12387.8	6203.11	0.01	-0.01	0.034	
15.00	-40.92	-1.52	0.00	-154.75	0.00	154.75	5283.48	2641.74	11960.1	5988.97	0.03	-0.02	0.034	
18.00	-39.84	-1.50	0.00	-150.19	0.00	150.19	5238.53	2619.26	11705.2	5861.33	0.05	-0.03	0.033	
20.00	-38.60	-1.48	0.00	-147.19	0.00	147.19	5208.23	2604.11	11536.0	5776.60	0.06	-0.03	0.033	
25.00	-35.53	-1.41	0.00	-139.81	0.00	139.81	4201.23	2100.61	9252.96	4633.35	0.09	-0.04	0.039	
30.00	-34.00	-1.39	0.00	-132.74	0.00	132.74	4145.44	2072.72	8928.09	4470.68	0.14	-0.04	0.038	
35.00	-32.51	-1.36	0.00	-125.82	0.00	125.82	4088.00	2044.00	8605.21	4309.00	0.19	-0.05	0.037	
40.00	-31.04	-1.33	0.00	-119.03	0.00	119.03	4028.93	2014.47	8284.56	4148.44	0.25	-0.06	0.036	
45.00	-29.60	-1.30	0.00	-112.38	0.00	112.38	3968.22	1984.11	7966.37	3989.11	0.31	-0.07	0.036	
50.00	-28.19	-1.27	0.00	-105.88	0.00	105.88	3905.86	1952.93	7650.88	3831.13	0.39	-0.08	0.035	
55.00	-26.80	-1.25	0.00	-99.52	0.00	99.52	3841.87	1920.93	7338.34	3674.63	0.48	-0.09	0.034	
60.00	-25.45	-1.22	0.00	-93.29	0.00	93.29	3776.23	1888.12	7028.98	3519.72	0.58	-0.10	0.033	
62.00	-24.91	-1.21	0.00	-90.85	0.00	90.85	3749.52	1874.76	6906.19	3458.23	0.62	-0.10	0.033	
65.00	-23.57	-1.19	0.00	-87.22	0.00	87.22	3708.96	1854.48	6723.05	3366.52	0.68	-0.11	0.032	
68.00	-22.25	-1.17	0.00	-83.66	0.00	83.66	2897.69	1448.84	5257.67	2632.74	0.75	-0.11	0.039	
70.00	-21.80	-1.16	0.00	-81.33	0.00	81.33	2878.95	1439.48	5167.56	2587.62	0.80	-0.12	0.039	
75.00	-20.69	-1.16	0.00	-75.52	0.00	75.52	2830.96	1415.48	4943.48	2475.42	0.92	-0.13	0.038	
80.00	-19.60	-1.16	0.00	-69.74	0.00	69.74	2781.33	1390.66	4721.30	2364.16	1.06	-0.14	0.037	
85.00	-18.54	-1.16	0.00	-63.95	0.00	63.95	2730.06	1365.03	4501.25	2253.97	1.21	-0.15	0.035	
90.00	-17.50	-1.16	0.00	-58.17	0.00	58.17	2677.14	1338.57	4283.57	2144.97	1.37	-0.16	0.034	
95.00	-16.48	-1.16	0.00	-52.38	0.00	52.38	2622.59	1311.30	4068.50	2037.27	1.54	-0.17	0.032	
100.00	-15.49	-1.16	0.00	-46.59	0.00	46.59	2566.40	1283.20	3856.28	1931.01	1.73	-0.18	0.030	
105.00	-14.52	-1.16	0.00	-40.80	0.00	40.80	2508.57	1254.28	3647.16	1826.29	1.92	-0.19	0.028	
107.00	-14.14	-1.16	0.00	-38.48	0.00	38.48	2484.97	1242.49	3564.43	1784.86	2.00	-0.19	0.027	
110.00	-13.24	-1.15	0.00	-35.01	0.00	35.01	2449.09	1224.55	3441.37	1723.24	2.12	-0.20	0.026	
112.00	-12.64	-1.15	0.00	-32.70	0.00	32.70	1823.39	911.69	2573.73	1288.78	2.21	-0.20	0.032	
115.00	-12.17	-1.15	0.00	-29.24	0.00	29.24	1799.96	899.98	2488.04	1245.87	2.34	-0.21	0.030	
120.00	-11.39	-1.14	0.00	-23.48	0.00	23.48	1759.59	879.80	2346.51	1175.00	2.56	-0.22	0.026	
125.00	-10.64	-1.12	0.00	-17.77	0.00	17.77	1717.59	858.79	2206.80	1105.04	2.79	-0.23	0.022	
127.00	-6.76	-0.92	0.00	-15.54	0.00	15.54	1700.33	850.16	2151.49	1077.34	2.89	-0.23	0.018	
130.00	-6.36	-0.90	0.00	-12.77	0.00	12.77	1673.94	836.97	2069.17	1036.12	3.04	-0.23	0.016	
135.00	-5.72	-0.86	0.00	-8.26	0.00	8.26	1628.66	814.33	1933.84	968.36	3.28	-0.24	0.012	
136.00	-4.34	-0.72	0.00	-7.41	0.00	7.41	1619.40	809.70	1907.07	954.95	3.33	-0.24	0.010	
137.00	-3.72	-0.65	0.00	-6.69	0.00	6.69	1610.09	805.04	1880.41	941.60	3.39	-0.24	0.009	
140.00	-3.40	-0.62	0.00	-4.73	0.00	4.73	1581.73	790.87	1801.05	901.87	3.54	-0.24	0.007	
145.00	-2.87	-0.54	0.00	-1.65	0.00	1.65	1533.17	766.58	1671.06	836.77	3.79	-0.25	0.004	
148.00	-0.08	-0.02	0.00	-0.02	0.00	0.02	1503.24	751.62	1594.49	798.43	3.95	-0.25	0.000	
149.00	0.00	-0.02	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	4.00	-0.25	0.000	

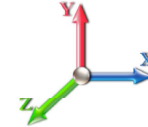
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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<b>Load Case:</b> 0.9D + 1.0E				<b>Iterations</b> 20
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.18	<b>Ss</b> 0.17
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.46	<b>SA</b> 0.05
				<b>Seismic Importance Factor</b> 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1371.1	0.00	0.03	0.02	19.38	
10.00		1343.3	0.01	0.05	0.03	28.60	
15.00		1315.5	0.02	0.06	0.04	32.95	
18.00	Bot - Section 2	775.97	0.03	0.07	0.04	20.49	
20.00		956.99	0.03	0.07	0.04	25.91	
25.00	Top - Section 1	2356.3	0.05	0.07	0.04	66.71	
30.00		1072.5	0.08	0.07	0.04	31.35	
35.00		1048.7	0.10	0.07	0.04	31.53	
40.00		1024.9	0.14	0.07	0.03	31.61	
45.00		1001.0	0.17	0.07	0.03	31.43	
50.00		977.26	0.21	0.06	0.02	30.74	
55.00		953.44	0.26	0.05	0.02	29.17	
60.00		929.61	0.31	0.04	0.01	26.37	
62.00	Bot - Section 3	365.17	0.33	0.04	0.01	9.86	
65.00		998.08	0.36	0.03	0.01	24.29	
68.00	Top - Section 2	982.36	0.39	0.02	0.01	20.56	
70.00		296.24	0.42	0.01	0.01	5.41	
75.00		726.71	0.48	-0.01	0.01	7.43	
80.00		706.86	0.54	-0.03	0.01	0.68	
85.00		687.00	0.62	-0.06	0.02	-5.73	
90.00		667.15	0.69	-0.08	0.03	-10.76	
95.00		647.29	0.77	-0.11	0.05	-13.59	
100.00		627.44	0.85	-0.12	0.07	-13.73	
105.00		607.58	0.94	-0.12	0.10	-11.03	
107.00	Bot - Section 4	237.47	0.97	-0.12	0.12	-3.63	
110.00		635.01	1.03	-0.10	0.15	-6.04	
112.00	Top - Section 3	416.19	1.07	-0.09	0.17	-1.93	
115.00		275.23	1.13	-0.05	0.20	1.15	
120.00		446.01	1.23	0.03	0.27	10.25	
125.00		430.12	1.33	0.16	0.36	20.18	
127.00	Appurtenance(s)	3154.0	1.37	0.23	0.40	182.79	
130.00		246.64	1.44	0.36	0.47	18.76	
135.00		398.36	1.55	0.64	0.61	44.01	
136.00	Appurtenance(s)	1127.7	1.57	0.70	0.64	133.06	
137.00	Appurtenance(s)	490.03	1.60	0.77	0.67	61.61	
140.00		227.58	1.67	1.01	0.77	34.19	
145.00		366.59	1.79	1.49	0.96	71.63	
148.00	Appurtenance(s)	2286.7	1.86	1.85	1.09	514.88	
149.00		69.51	1.89	1.98	1.14	16.37	
<b>Totals:</b>		<b>33,246.1</b>				<b>1,516.9</b>	<b>Total Wind: 34,630.2</b>

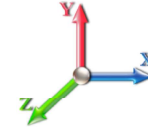
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

## Calculated Forces

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



<b>Load Case:</b> 0.9D + 1.0E						<b>Iterations</b> 20
<b>Gust Response Factor</b>	1.10		<b>Sds</b>	0.18		<b>Ss</b> 0.17
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>Sd1</b>	0.10	<b>S1</b> 0.06
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.46	<b>SA</b>	0.05	<b>Seismic Importance Factor</b> 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	-34.85	-1.58	0.00	-176.96	0.00	176.96	5499.39	2749.69	13252.7	6636.23	0.00	0.00	0.00	0.033
5.00	-33.44	-1.57	0.00	-169.04	0.00	169.04	5429.06	2714.53	12818.7	6418.90	0.00	-0.01	0.00	0.032
10.00	-32.05	-1.54	0.00	-161.19	0.00	161.19	5357.09	2678.54	12387.8	6203.11	0.01	-0.01	0.00	0.032
15.00	-30.69	-1.51	0.00	-153.47	0.00	153.47	5283.48	2641.74	11960.1	5988.97	0.03	-0.02	0.00	0.031
18.00	-29.88	-1.50	0.00	-148.93	0.00	148.93	5238.53	2619.26	11705.2	5861.33	0.05	-0.03	0.00	0.031
20.00	-28.95	-1.47	0.00	-145.94	0.00	145.94	5208.23	2604.11	11536.0	5776.60	0.06	-0.03	0.00	0.031
25.00	-26.65	-1.41	0.00	-138.58	0.00	138.58	4201.23	2100.61	9252.96	4633.35	0.09	-0.04	0.00	0.036
30.00	-25.50	-1.38	0.00	-131.55	0.00	131.55	4145.44	2072.72	8928.09	4470.68	0.14	-0.04	0.00	0.036
35.00	-24.38	-1.35	0.00	-124.66	0.00	124.66	4088.00	2044.00	8605.21	4309.00	0.18	-0.05	0.00	0.035
40.00	-23.28	-1.32	0.00	-117.91	0.00	117.91	4028.93	2014.47	8284.56	4148.44	0.24	-0.06	0.00	0.034
45.00	-22.20	-1.29	0.00	-111.31	0.00	111.31	3968.22	1984.11	7966.37	3989.11	0.31	-0.07	0.00	0.033
50.00	-21.14	-1.26	0.00	-104.86	0.00	104.86	3905.86	1952.93	7650.88	3831.13	0.39	-0.08	0.00	0.033
55.00	-20.10	-1.23	0.00	-98.55	0.00	98.55	3841.87	1920.93	7338.34	3674.63	0.47	-0.09	0.00	0.032
60.00	-19.09	-1.21	0.00	-92.38	0.00	92.38	3776.23	1888.12	7028.98	3519.72	0.57	-0.10	0.00	0.031
62.00	-18.69	-1.20	0.00	-89.96	0.00	89.96	3749.52	1874.76	6906.19	3458.23	0.61	-0.10	0.00	0.031
65.00	-17.68	-1.18	0.00	-86.36	0.00	86.36	3708.96	1854.48	6723.05	3366.52	0.68	-0.10	0.00	0.030
68.00	-16.69	-1.15	0.00	-82.83	0.00	82.83	2897.69	1448.84	5257.67	2632.74	0.74	-0.11	0.00	0.037
70.00	-16.35	-1.15	0.00	-80.53	0.00	80.53	2878.95	1439.48	5167.56	2587.62	0.79	-0.11	0.00	0.037
75.00	-15.52	-1.14	0.00	-74.77	0.00	74.77	2830.96	1415.48	4943.48	2475.42	0.92	-0.12	0.00	0.036
80.00	-14.70	-1.14	0.00	-69.05	0.00	69.05	2781.33	1390.66	4721.30	2364.16	1.05	-0.14	0.00	0.034
85.00	-13.90	-1.14	0.00	-63.33	0.00	63.33	2730.06	1365.03	4501.25	2253.97	1.20	-0.15	0.00	0.033
90.00	-13.12	-1.15	0.00	-57.61	0.00	57.61	2677.14	1338.57	4283.57	2144.97	1.36	-0.16	0.00	0.032
95.00	-12.36	-1.15	0.00	-51.88	0.00	51.88	2622.59	1311.30	4068.50	2037.27	1.53	-0.17	0.00	0.030
100.00	-11.62	-1.15	0.00	-46.16	0.00	46.16	2566.40	1283.20	3856.28	1931.01	1.71	-0.18	0.00	0.028
105.00	-10.89	-1.14	0.00	-40.43	0.00	40.43	2508.57	1254.28	3647.16	1826.29	1.90	-0.19	0.00	0.026
107.00	-10.61	-1.14	0.00	-38.14	0.00	38.14	2484.97	1242.49	3564.43	1784.86	1.98	-0.19	0.00	0.026
110.00	-9.93	-1.14	0.00	-34.71	0.00	34.71	2449.09	1224.55	3441.37	1723.24	2.10	-0.20	0.00	0.024
112.00	-9.48	-1.14	0.00	-32.43	0.00	32.43	1823.39	911.69	2573.73	1288.78	2.19	-0.20	0.00	0.030
115.00	-9.12	-1.14	0.00	-29.00	0.00	29.00	1799.96	899.98	2488.04	1245.87	2.32	-0.21	0.00	0.028
120.00	-8.54	-1.13	0.00	-23.30	0.00	23.30	1759.59	879.80	2346.51	1175.00	2.54	-0.22	0.00	0.025
125.00	-7.98	-1.11	0.00	-17.65	0.00	17.65	1717.59	858.79	2206.80	1105.04	2.77	-0.23	0.00	0.021
127.00	-5.07	-0.91	0.00	-15.43	0.00	15.43	1700.33	850.16	2151.49	1077.34	2.86	-0.23	0.00	0.017
130.00	-4.77	-0.89	0.00	-12.69	0.00	12.69	1673.94	836.97	2069.17	1036.12	3.01	-0.23	0.00	0.015
135.00	-4.29	-0.85	0.00	-8.21	0.00	8.21	1628.66	814.33	1933.84	968.36	3.25	-0.24	0.00	0.011
136.00	-3.25	-0.71	0.00	-7.36	0.00	7.36	1619.40	809.70	1907.07	954.95	3.30	-0.24	0.00	0.010
137.00	-2.79	-0.65	0.00	-6.65	0.00	6.65	1610.09	805.04	1880.41	941.60	3.35	-0.24	0.00	0.009
140.00	-2.55	-0.61	0.00	-4.70	0.00	4.70	1581.73	790.87	1801.05	901.87	3.51	-0.24	0.00	0.007
145.00	-2.16	-0.54	0.00	-1.64	0.00	1.64	1533.17	766.58	1671.06	836.77	3.76	-0.24	0.00	0.003
148.00	-0.06	-0.02	0.00	-0.02	0.00	0.02	1503.24	751.62	1594.49	798.43	3.91	-0.24	0.00	0.000
149.00	0.00	-0.02	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	3.96	-0.24	0.00	0.000

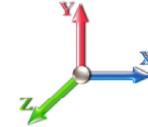
## Wind Loading - Shaft

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Page:</b> 25
	<b>Struct Class:</b> II	



**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00  
**Wind Load Factor** 1.00



**Iterations** 21

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	276.46	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	270.96	0.650	0.000	5.00	24.740	16.08	131.6	0.0	1371.1
10.00		1.00	0.85	7.442	8.19	265.45	0.650	0.000	5.00	24.242	15.76	129.0	0.0	1343.3
15.00		1.00	0.85	7.442	8.19	259.94	0.650	0.000	5.00	23.744	15.43	126.3	0.0	1315.5
18.00	Bot - Section 2	1.00	0.88	7.723	8.50	261.44	0.650	0.000	3.00	14.008	9.11	77.3	0.0	776.0
20.00		1.00	0.90	7.896	8.69	262.09	0.650	0.000	2.00	9.366	6.09	52.9	0.0	957.0
25.00	Top - Section 1	1.00	0.95	8.276	9.10	262.51	0.650	0.000	5.00	23.066	14.99	136.5	0.0	2356.3
30.00		1.00	0.98	8.600	9.46	265.45	0.650	0.000	5.00	22.568	14.67	138.8	0.0	1072.6
35.00		1.00	1.01	8.883	9.77	263.77	0.650	0.000	5.00	22.071	14.35	140.2	0.0	1048.7
40.00		1.00	1.04	9.137	10.05	261.40	0.650	0.000	5.00	21.573	14.02	140.9	0.0	1024.9
45.00		1.00	1.07	9.366	10.30	258.49	0.650	0.000	5.00	21.075	13.70	141.1	0.0	1001.1
50.00		1.00	1.09	9.576	10.53	255.12	0.650	0.000	5.00	20.577	13.38	140.9	0.0	977.3
55.00		1.00	1.12	9.770	10.75	251.38	0.650	0.000	5.00	20.079	13.05	140.3	0.0	953.4
60.00		1.00	1.14	9.951	10.95	247.33	0.650	0.000	5.00	19.582	12.73	139.3	0.0	929.6
62.00	Bot - Section 3	1.00	1.14	10.020	11.02	245.63	0.650	0.000	2.00	7.693	5.00	55.1	0.0	365.2
65.00		1.00	1.16	10.120	11.13	243.00	0.650	0.000	3.00	11.549	7.51	83.6	0.0	998.1
68.00	Top - Section 2	1.00	1.17	10.217	11.24	240.28	0.650	0.000	3.00	11.370	7.39	83.1	0.0	982.4
70.00		1.00	1.17	10.279	11.31	241.87	0.650	0.000	2.00	7.480	4.86	55.0	0.0	296.2
75.00		1.00	1.19	10.430	11.47	237.11	0.650	0.000	5.00	18.353	11.93	136.9	0.0	726.7
80.00		1.00	1.21	10.572	11.63	232.16	0.650	0.000	5.00	17.855	11.61	135.0	0.0	706.9
85.00		1.00	1.22	10.708	11.78	227.04	0.650	0.000	5.00	17.357	11.28	132.9	0.0	687.0
90.00		1.00	1.24	10.838	11.92	221.76	0.650	0.000	5.00	16.859	10.96	130.6	0.0	667.1
95.00		1.00	1.25	10.962	12.06	216.35	0.650	0.000	5.00	16.361	10.63	128.2	0.0	647.3
100.00		1.00	1.27	11.081	12.19	210.80	0.650	0.000	5.00	15.863	10.31	125.7	0.0	627.4
105.00		1.00	1.28	11.195	12.31	205.13	0.650	0.000	5.00	15.366	9.99	123.0	0.0	607.6
107.00	Bot - Section 4	1.00	1.28	11.240	12.36	202.83	0.650	0.000	2.00	6.007	3.90	48.3	0.0	237.5
110.00		1.00	1.29	11.305	12.44	199.35	0.650	0.000	3.00	8.988	5.84	72.7	0.0	635.0
112.00	Top - Section 3	1.00	1.30	11.348	12.48	197.00	0.650	0.000	2.00	5.892	3.83	47.8	0.0	416.2
115.00		1.00	1.30	11.412	12.55	196.36	0.650	0.000	3.00	8.689	5.65	70.9	0.0	275.2
120.00		1.00	1.32	11.514	12.67	190.39	0.650	0.000	5.00	14.084	9.15	115.9	0.0	446.0
125.00		1.00	1.33	11.614	12.78	184.33	0.650	0.000	5.00	13.586	8.83	112.8	0.0	430.1
127.00	Appurtenance(s)	1.00	1.33	11.653	12.82	181.88	0.650	0.000	2.00	5.295	3.44	44.1	0.0	167.6
130.00		1.00	1.34	11.710	12.88	178.18	0.650	0.000	3.00	7.793	5.07	65.2	0.0	246.6
135.00		1.00	1.35	11.803	12.98	171.96	0.650	0.000	5.00	12.590	8.18	106.3	0.0	398.4
136.00	Appurtenance(s)	1.00	1.35	11.822	13.00	170.70	0.650	0.000	1.00	2.458	1.60	20.8	0.0	77.8
137.00	Appurtenance(s)	1.00	1.35	11.840	13.02	169.44	0.650	0.000	1.00	2.438	1.58	20.6	0.0	77.1
140.00		1.00	1.36	11.894	13.08	165.65	0.650	0.000	3.00	7.196	4.68	61.2	0.0	227.6
145.00		1.00	1.37	11.982	13.18	159.28	0.650	0.000	5.00	11.595	7.54	99.3	0.0	366.6
148.00	Appurtenance(s)	1.00	1.37	12.034	13.24	155.42	0.650	0.000	3.00	6.718	4.37	57.8	0.0	212.3
149.00		1.00	1.38	12.051	13.26	154.13	0.650	0.000	1.00	2.199	1.43	19.0	0.0	69.5
<b>Totals:</b>									<b>149.00</b>			<b>3,786.9</b>		<b>26,722.3</b>

## Discrete Appurtenance Forces

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

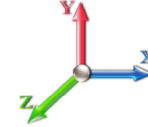


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



**Iterations** 21

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	148.00	T-Arms	1	12.034	13.238	0.56	0.75	8.44	500.00	0.000	0.000	111.69	0.00	0.00	
2	148.00	(3) Stabilizer Kit (4' FW)	1	12.034	13.238	0.56	0.75	2.08	140.00	0.000	0.000	27.55	0.00	0.00	
3	148.00	HRK12 (Handrail Kit)	1	12.034	13.238	0.56	0.75	3.80	261.72	0.000	0.000	50.26	0.00	0.00	
4	148.00	4449	3	12.034	13.238	0.54	0.80	2.65	210.00	0.000	0.000	35.12	0.00	0.00	
5	148.00	Ericsson KRY112 144/1	3	12.034	13.238	0.56	0.80	0.69	33.00	0.000	0.000	9.12	0.00	0.00	
6	148.00	APXVAARR24_43-U-NA2	3	12.034	13.238	0.56	0.80	34.00	384.00	0.000	0.000	450.12	0.00	0.00	
7	148.00	AIR21 B2A B4P	3	12.034	13.238	0.69	0.80	12.57	271.20	0.000	0.000	166.39	0.00	0.00	
8	148.00	AIR21 B2A B4P	3	12.034	13.238	0.69	0.80	12.57	274.50	0.000	0.000	166.39	0.00	0.00	
9	137.00	Antel/LPA-80080-6CF	4	11.840	13.024	1.36	0.80	23.56	84.00	0.000	0.000	306.78	0.00	0.00	
10	137.00	Antel/LPA-4019	2	11.840	13.024	0.80	0.80	20.38	82.00	0.000	0.000	265.48	0.00	0.00	
11	137.00	Antel/BXA-171085-12BF	3	11.840	13.024	0.67	0.80	9.56	45.00	0.000	0.000	124.46	0.00	0.00	
12	137.00	Antel/BXA-70063-6CF	3	11.840	13.024	0.58	0.80	13.26	51.00	0.000	0.000	172.73	0.00	0.00	
13	137.00	ALU/RRH 2x40 AWS	3	11.840	13.024	0.67	1.00	4.34	132.00	0.000	0.000	56.55	0.00	0.00	
14	137.00	RFS DB-T1-6Z-8AB-OZ	1	11.840	13.024	1.00	1.00	4.80	18.90	0.000	0.000	62.52	0.00	0.00	
15	136.00	T-Arms	3	11.822	13.004	0.56	0.75	13.50	1050.00	0.000	0.000	175.55	0.00	0.00	
16	127.00	T-Arms	3	11.653	12.818	0.56	0.75	13.50	1050.00	0.000	0.000	173.04	0.00	0.00	
17	127.00	Powerwave 1001983 Bias	3	11.653	12.818	0.80	0.80	0.50	13.20	0.000	0.000	6.46	0.00	0.00	
18	127.00	RRUS 8843 B2 B66A	3	11.653	12.818	0.54	0.80	2.64	216.00	0.000	0.000	33.80	0.00	0.00	
19	127.00	OPA65R-BU8DA	3	11.653	12.818	0.58	0.80	31.56	229.50	0.000	0.000	404.58	0.00	0.00	
20	127.00	DMP65R-BU8DA	3	11.653	12.818	0.58	0.80	31.18	287.10	0.000	0.000	399.66	0.00	0.00	
21	127.00	Horizontal Pipe	3	11.653	12.818	0.56	0.75	5.01	137.25	0.000	0.000	64.22	0.00	0.00	
22	127.00	RRUS 4478 B14	3	11.653	12.818	0.54	0.80	2.65	178.20	0.000	0.000	34.01	0.00	0.00	
23	127.00	4449 B5/B12	3	11.653	12.818	0.54	0.80	3.17	213.00	0.000	0.000	40.60	0.00	0.00	
24	127.00	Raycap DC6-48-60-18-8F	1	11.653	12.818	1.00	1.00	0.92	31.80	0.000	0.000	11.79	0.00	0.00	
25	127.00	DC9-48-60-24-8C-EV	1	11.653	12.818	1.00	1.00	1.14	26.20	0.000	0.000	14.61	0.00	0.00	
26	127.00	(3) Stabilizer Kit	1	11.653	12.818	0.56	0.75	3.43	180.00	0.000	0.000	43.98	0.00	0.00	
27	127.00	7770.00	6	11.653	12.818	0.58	0.80	19.27	210.00	0.000	0.000	247.03	0.00	0.00	
28	127.00	Powerwave LGP21401	12	11.653	12.818	0.80	0.80	12.38	169.20	0.000	0.000	158.74	0.00	0.00	
29	127.00	Kathrein 860 10025 RET	12	11.653	12.818	0.80	0.80	1.34	13.20	0.000	0.000	17.23	0.00	0.00	
30	127.00	Powerwave LGP13519	6	11.653	12.818	0.80	0.80	1.63	31.80	0.000	0.000	20.92	0.00	0.00	
<b>Totals:</b>									<b>6,523.77</b>						<b>3,851.37</b>



## Total Applied Force Summary

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II

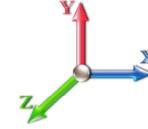


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



**Iterations** 21

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		131.64	1570.17	0.00	0.00
10.00		128.99	1542.37	0.00	0.00
15.00		126.34	1514.58	0.00	0.00
18.00		77.35	895.40	0.00	0.00
20.00		52.88	1036.61	0.00	0.00
25.00		136.49	2555.38	0.00	0.00
30.00		138.77	1271.62	0.00	0.00
35.00		140.19	1247.79	0.00	0.00
40.00		140.93	1223.97	0.00	0.00
45.00		141.13	1200.14	0.00	0.00
50.00		140.89	1176.31	0.00	0.00
55.00		140.27	1152.49	0.00	0.00
60.00		139.32	1128.66	0.00	0.00
62.00		55.12	444.79	0.00	0.00
65.00		83.57	1117.51	0.00	0.00
68.00		83.06	1101.79	0.00	0.00
70.00		54.98	375.86	0.00	0.00
75.00		136.86	925.76	0.00	0.00
80.00		134.97	905.91	0.00	0.00
85.00		132.89	886.05	0.00	0.00
90.00		130.64	866.20	0.00	0.00
95.00		128.23	846.34	0.00	0.00
100.00		125.68	826.49	0.00	0.00
105.00		122.99	806.63	0.00	0.00
107.00		48.27	317.09	0.00	0.00
110.00		72.65	754.44	0.00	0.00
112.00		47.81	495.81	0.00	0.00
115.00		70.90	394.66	0.00	0.00
120.00		115.95	645.06	0.00	0.00
125.00		112.82	629.17	0.00	0.00
127.00	(63) attachments	1714.77	3233.67	0.00	0.00
130.00		65.25	328.30	0.00	0.00
135.00		106.26	534.46	0.00	0.00
136.00	(3) attachments	196.33	1154.99	0.00	0.00
137.00	(16) attachments	1009.16	517.25	0.00	0.00
140.00		61.20	268.50	0.00	0.00
145.00		99.34	434.79	0.00	0.00
148.00	(18) attachments	1074.45	2327.67	0.00	0.00
149.00		18.95	69.51	0.00	0.00
	<b>Totals:</b>	<b>7,638.27</b>	<b>38,724.20</b>	<b>0.00</b>	<b>0.00</b>

## Calculated Forces

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



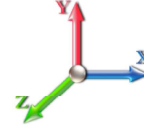
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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 21

**Dead Load Factor** 1.00

**Wind Load 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	-38.72	-7.65	0.00	-817.26	0.00	817.26	5499.39	2749.69	13252.7	6636.23	0.00	0.000	0.000	0.130
5.00	-37.15	-7.54	0.00	-779.02	0.00	779.02	5429.06	2714.53	12818.7	6418.90	0.02	-0.032	0.000	0.128
10.00	-35.60	-7.43	0.00	-741.34	0.00	741.34	5357.09	2678.54	12387.8	6203.11	0.07	-0.065	0.000	0.126
15.00	-34.08	-7.31	0.00	-704.20	0.00	704.20	5283.48	2641.74	11960.1	5988.97	0.15	-0.098	0.000	0.124
18.00	-33.19	-7.25	0.00	-682.26	0.00	682.26	5238.53	2619.26	11705.2	5861.33	0.22	-0.118	0.000	0.123
20.00	-32.15	-7.20	0.00	-667.77	0.00	667.77	5208.23	2604.11	11536.0	5776.60	0.27	-0.131	0.000	0.122
25.00	-29.59	-7.08	0.00	-631.76	0.00	631.76	4201.23	2100.61	9252.96	4633.35	0.43	-0.165	0.000	0.143
30.00	-28.31	-6.95	0.00	-596.37	0.00	596.37	4145.44	2072.72	8928.09	4470.68	0.62	-0.199	0.000	0.140
35.00	-27.06	-6.83	0.00	-561.61	0.00	561.61	4088.00	2044.00	8605.21	4309.00	0.85	-0.237	0.000	0.137
40.00	-25.83	-6.70	0.00	-527.48	0.00	527.48	4028.93	2014.47	8284.56	4148.44	1.12	-0.275	0.000	0.134
45.00	-24.63	-6.57	0.00	-494.00	0.00	494.00	3968.22	1984.11	7966.37	3989.11	1.43	-0.314	0.000	0.130
50.00	-23.45	-6.43	0.00	-461.17	0.00	461.17	3905.86	1952.93	7650.88	3831.13	1.78	-0.353	0.000	0.126
55.00	-22.29	-6.30	0.00	-429.00	0.00	429.00	3841.87	1920.93	7338.34	3674.63	2.17	-0.392	0.000	0.123
60.00	-21.16	-6.16	0.00	-397.49	0.00	397.49	3776.23	1888.12	7028.98	3519.72	2.60	-0.430	0.000	0.119
62.00	-20.72	-6.11	0.00	-385.16	0.00	385.16	3749.52	1874.76	6906.19	3458.23	2.78	-0.446	0.000	0.117
65.00	-19.60	-6.03	0.00	-366.83	0.00	366.83	3708.96	1854.48	6723.05	3366.52	3.07	-0.470	0.000	0.114
68.00	-18.49	-5.94	0.00	-348.74	0.00	348.74	2897.69	1448.84	5257.67	2632.74	3.37	-0.494	0.000	0.139
70.00	-18.11	-5.89	0.00	-336.86	0.00	336.86	2878.95	1439.48	5167.56	2587.62	3.58	-0.509	0.000	0.136
75.00	-17.19	-5.76	0.00	-307.39	0.00	307.39	2830.96	1415.48	4943.48	2475.42	4.14	-0.553	0.000	0.130
80.00	-16.28	-5.63	0.00	-278.58	0.00	278.58	2781.33	1390.66	4721.30	2364.16	4.75	-0.597	0.000	0.124
85.00	-15.39	-5.50	0.00	-250.43	0.00	250.43	2730.06	1365.03	4501.25	2253.97	5.39	-0.639	0.000	0.117
90.00	-14.52	-5.37	0.00	-222.94	0.00	222.94	2677.14	1338.57	4283.57	2144.97	6.09	-0.681	0.000	0.109
95.00	-13.67	-5.24	0.00	-196.10	0.00	196.10	2622.59	1311.30	4068.50	2037.27	6.82	-0.721	0.000	0.101
100.00	-12.84	-5.11	0.00	-169.91	0.00	169.91	2566.40	1283.20	3856.28	1931.01	7.60	-0.760	0.000	0.093
105.00	-12.04	-4.98	0.00	-144.35	0.00	144.35	2508.57	1254.28	3647.16	1826.29	8.41	-0.796	0.000	0.084
107.00	-11.72	-4.93	0.00	-134.39	0.00	134.39	2484.97	1242.49	3564.43	1784.86	8.75	-0.810	0.000	0.080
110.00	-10.96	-4.85	0.00	-119.59	0.00	119.59	2449.09	1224.55	3441.37	1723.24	9.27	-0.831	0.000	0.074
112.00	-10.47	-4.80	0.00	-109.88	0.00	109.88	1823.39	911.69	2573.73	1288.78	9.62	-0.844	0.000	0.091
115.00	-10.07	-4.73	0.00	-95.48	0.00	95.48	1799.96	899.98	2488.04	1245.87	10.15	-0.862	0.000	0.082
120.00	-9.43	-4.61	0.00	-71.83	0.00	71.83	1759.59	879.80	2346.51	1175.00	11.07	-0.893	0.000	0.067
125.00	-8.80	-4.49	0.00	-48.80	0.00	48.80	1717.59	858.79	2206.80	1105.04	12.02	-0.918	0.000	0.049
127.00	-5.59	-2.72	0.00	-39.82	0.00	39.82	1700.33	850.16	2151.49	1077.34	12.41	-0.926	0.000	0.040
130.00	-5.26	-2.65	0.00	-31.66	0.00	31.66	1673.94	836.97	2069.17	1036.12	13.00	-0.937	0.000	0.034
135.00	-4.73	-2.54	0.00	-18.39	0.00	18.39	1628.66	814.33	1933.84	968.36	13.98	-0.950	0.000	0.022
136.00	-3.58	-2.32	0.00	-15.86	0.00	15.86	1619.40	809.70	1907.07	954.95	14.18	-0.952	0.000	0.019
137.00	-3.08	-1.31	0.00	-13.53	0.00	13.53	1610.09	805.04	1880.41	941.60	14.38	-0.954	0.000	0.016
140.00	-2.81	-1.24	0.00	-9.62	0.00	9.62	1581.73	790.87	1801.05	901.87	14.98	-0.958	0.000	0.012
145.00	-2.38	-1.13	0.00	-3.42	0.00	3.42	1533.17	766.58	1671.06	836.77	15.99	-0.962	0.000	0.006
148.00	-0.07	-0.02	0.00	-0.02	0.00	0.02	1503.24	751.62	1594.49	798.43	16.60	-0.963	0.000	0.000
149.00	0.00	-0.02	0.00	0.00	0.00	0.00	1493.13	746.57	1569.22	785.78	16.80	-0.963	0.000	0.000



## Final Analysis Summary

<b>Structure:</b> CT11559-A-SBA	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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### 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 101 mph Wind	34.7	0.00	46.42	0.00	0.00	3719.96
0.9D + 1.6W 101 mph Wind	34.7	0.00	34.81	0.00	0.00	3694.24
1.2D + 1.0Di + 1.0Wi 50 mph Wind	9.9	0.00	77.51	0.00	0.00	1066.21
1.2D + 1.0E	1.6	0.00	46.47	0.00	0.00	178.27
0.9D + 1.0E	1.6	0.00	34.85	0.00	0.00	176.96
1.0D + 1.0W 60 mph Wind	7.6	0.00	38.72	0.00	0.00	817.26

### 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 101 mph Wind	-35.07	-32.18	0.00	-2877.6	0.00	-2877.6	4201.23	2100.6	9252.96	4633.35	25.00	0.630
0.9D + 1.6W 101 mph Wind	-26.19	-32.05	0.00	-2853.6	0.00	-2853.6	4201.23	2100.6	9252.96	4633.35	25.00	0.622
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-63.25	-9.22	0.00	-825.81	0.00	-825.81	4201.23	2100.6	9252.96	4633.35	25.00	0.193
1.2D + 1.0E	-22.25	-1.17	0.00	-83.66	0.00	-83.66	2897.69	1448.8	5257.67	2632.74	68.00	0.039
0.9D + 1.0E	-16.69	-1.15	0.00	-82.83	0.00	-82.83	2897.69	1448.8	5257.67	2632.74	68.00	0.037
1.0D + 1.0W 60 mph Wind	-29.59	-7.08	0.00	-631.76	0.00	-631.76	4201.23	2100.6	9252.96	4633.35	25.00	0.143

## Base Plate Summary

<b>Structure:</b> CT11559-A-SB	<b>Code:</b> EIA/TIA-222-G	4/24/2020
<b>Site Name:</b> Thompson 1, CT	<b>Exposure:</b> C	
<b>Height:</b> 149.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 50.00	<b>Bolt Circle:</b> 66.00
<b>Moment (kip-ft):</b> 4056.00	<b>Width (in):</b> 72.00	<b>Number Bolts:</b> 18.00
<b>Axial (kip):</b> 38.00	<b>Style:</b> Round	<b>Bolt Type:</b> 2.00" F1554 105
<b>Shear (kip):</b> 36.00	<b>Polygon Sides:</b> 0.00	<b>Bolt Diameter (in):</b> 2.00
Analysis	<b>Clip Length (in):</b> 0.00	<b>Yield (ksi):</b> 105.00
<b>Moment (kip-ft):</b> 3719.96	<b>Effective Len (in):</b> 16.22	<b>Ultimate (ksi):</b> 125.00
<b>Axial (kip):</b> 77.51	<b>Moment (kip-in):</b> 536.30	<b>Arrangement:</b> Radial
<b>Shear (kip):</b> 34.69	<b>Allow Stress (ksi):</b> 67.50	<b>Cluster Dist (in):</b> 0.00
	<b>Applied Stress (ksi):</b> 0.00	<b>Start Angle (deg):</b> 0.00
<b>Moment Design %:</b> 91.72	<b>Stress Ratio:</b> 0.39	<b>Compression</b>
		<b>Force (kip):</b> 154.61
		<b>Allowable (kip):</b> 250.00
		<b>Ratio:</b> 0.63
		<b>Tension</b>
		<b>Force (kip):</b> 146.00
		<b>Allowable (kip):</b> 250.00
		<b>Ratio:</b> 0.60



# Monopole Mat Foundation Design

Date

4/24/2020

<b>Customer Name:</b>	AT&T	<b>EIA/TIA Standard:</b>	EIA-222-G
<b>Site Name:</b>		<b>Structure Height (Ft.):</b>	149
<b>Site Number:</b>	CT11559-A-SBA	<b>Engineer Name:</b>	T. Alajaj
<b>Engr. Number:</b>	93445	<b>Engineer Login ID:</b>	

**Foundation Info Obtained from:**

Drawings/Calculations
Monopole
Analysis

**Structure Type:**

**Analysis or Design?**

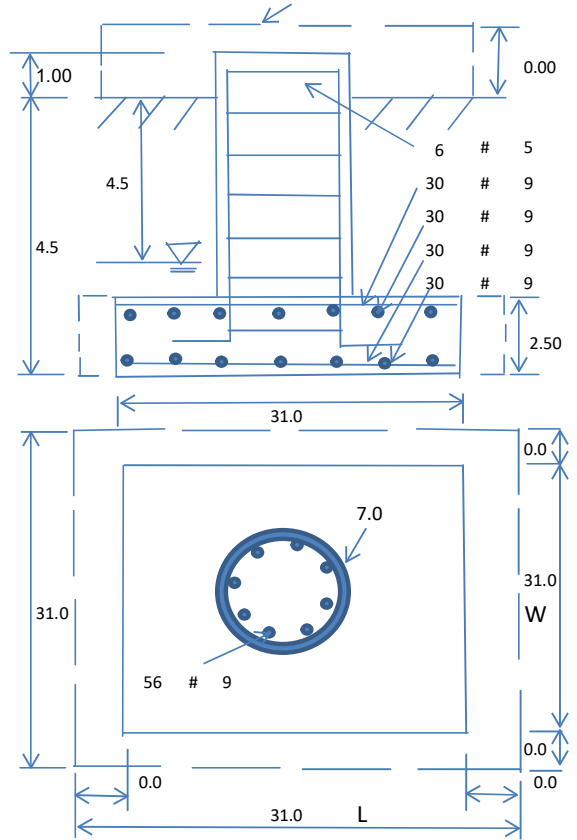
**Base Reactions (Factored):**

Axial Load (Kips):	77.5	Shear Force (Kips):	34.7
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3720.0

Allowable overstress %: 5.0%

**Foundation Geometries:**

Diameter of Pier (ft.):	7.0	Mods required -Yes/No ?:	No
Pier Height A. G. (ft.):	1.00	Depth of Base BG (ft.):	4.5
Length of Pad (ft.):	31	Thickness of Pad (ft.):	2.50
Final Length of pad (ft)	31.0	Final width of pad (ft):	31.0



**Material Properties and Rebar Info:**

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	9	Tie / Stirrup Size #:	5	
Qty. of Vertical Rebars:	56	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	9	
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):	30	Qty. of Rebar in Pad (W):	30
---------------------------	----	---------------------------	----

**Rebar at the top of the concrete pad:**

Qty. of Rebar in Pad (L):	30	Qty. of Rebar in Pad (W):	30
---------------------------	----	---------------------------	----

Apply 1.35 factor for e/w Per G: 1.35

**Soil Design Parameters:**

Soil Unit Weight (pcf):	120.0	Soil Buoyant Weight:	50.0	Pcf	Angle from Top of Pad:	30
Water Table B.G.S. (ft):	4.5	Unit Weight of Water:	62.4	pcf	Angle from Bottm of Pad:	25
Ultimate Bearing Pressure (psf):	10400	Ultimate Skin Friction:	175	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	Yes		Reduction factor on the maximum soil bearing pressure:	1.00
Consider soil hor. resist. for OTM.:	No					

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	1845.03	Total Dry Soil Weight (Kips):	221.40
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	221.40	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	2517.95	Total Dry Concrete Weight (Kips):	377.69
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	377.69	Total Vertical Load on Base (Kips):	676.60

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	1699	<	Allowable Factored Soil Bearing (psf):	7800	0.22	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	9558.6	>	Design Factored Momont (kips-ft):	3911	0.41	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	2.44					OK!

**Check the capacities of Reinforcing Concrete:**

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75		
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00		
<b>(1) Concrete Pier:</b>					
Vertical Steel Rebar Area (sq. in./each):	1.00	Tie / Stirrup Area (sq. in./each):	0.31		
Calculated Moment Capacity (Mn,Kips-Ft):	8863.4	> Design Factored Moment (Mu, Kips-F	3824.1	0.43	OK!
Calculated Shear Capacity (Kips):	663.6	> Design Factored Shear (Kips):	34.7	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	3024.0	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7274.1	> Design Factored Axial Load (Pu Kips):	77.5	0.01	OK!
Moment & Axial Strength Combination:	0.43	OK! Check Tie Spacing (Design/Required):	1		OK!
Pier Reinforcement Ratio:	0.010	Reinforcement Ratio is satisfied per ACI			
<b>(2).Concrete Pad:</b>					
One-Way Design Shear Capacity (L-Direction, Kips):	808.0	> One-Way Factored Shear (L-D. Kips):	353.3	0.44	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	808.0	> One-Way Factored Shear (W-D., Kips)	353.3	0.44	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	845.4	> One-Way Factored Shear (C-C, Kips):	336.9	0.40	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0031	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0031		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	3441.0	> Moment at Bottom ( L-Dir. K-Ft):	2429.6	0.71	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	3441.0	> Moment at Bottom ( W-Dir. K-Ft):	2429.6	0.71	OK!
Lower Steel Pad Moment Capacity (Corner-Corner, K-ft):	4831.9	> Moment at Bottom ( C-C Dir. K-Ft):	3436.0	0.71	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0031	OK! Upper Steel Reinf. Ratio (W-Dir. ):	0.0031		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	3441.0	> Moment at the top (L-Dir K-Ft):	673.9	0.20	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	3441.0	> Moment at the top (W-Dir K-Ft):	673.9	0.20	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	4831.9	> Moment at the top (C-C Dir. K-Ft):	629.1	0.13	OK!
<b>(3).Check Punching Shear Capacity due to Moment in the Pier:</b>					
Moment transferred by punching shear:	1488.0	k-ft. Max. factored shear stress $v_{u,CD}$ :	1.7	Psi	
Max. factored shear stress $v_{u,AB}$ :	15.3	Psi Factored shear Strength $\phi v_n$ :	164.3	Psi	
Max. factored shear stress $v_u$ :	15.3	Psi Check Usage of Punching Shear Capacity:	0.09		OK!

April 10, 2020



at&t



SAI Communications  
12 Industrial Way  
Salem NH, 03079

RE: SBA Site I.D. CT11559-A  
Site Number: CT1259 (LTE 5G)  
FA Number: 10128120  
PACE Number: MRCTB047160  
PT Number: 2051A0VFCV  
Site Name: THOMPSON CT RICH RD  
Site Address: 38 Rich Road  
North Grosvenordale, CT 06255

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 mounts to determine their capability of supporting the following additional loading:

- (3) 7770 Antennas (55.0"x11.0"x5.0" - Wt. = 35 lbs. /each)
- (6) LGP21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7"  $\Phi$  – Wt. = 33 lbs. /each) (Tower Mount)
- **(3) OPA65R-BU8DA Antennas (96.0"x21.0"x7.8" – Wt. = 77 lbs. /each)**
- **(3) DMP65R-BU8DA Antennas (96.0"x20.7"x7.7" – Wt. = 96 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each)**
- **(3) B5/B12 4449 RRH's (17.9"x13.2"x9.5" – Wt. = 71 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"  $\Phi$  – Wt. = 33 lbs. /each) (Tower Mount)**

*\*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 March 23, 2020.

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 – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 130 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.5 in. An escalated ice thickness of 1.72 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.
- AT&T policy forbids walking on or suspending below T-arm mounts. This analysis does not include live load conditions for this mount.
- The existing mount is secured to the existing monopole with a ring mount. The connection is considered OK by visual inspection.

Based on our evaluation, we have determined that the existing mounts **ARE NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Remove existing antenna pipes and install new 2-1/2" std. (2.88" O.D.) antenna pipes behind new OPA65R-BU8DA and DMP65R-BU8DA Antennas (typ. of 2 per sector, total of 6).**
- **Install new 2" std. (2.38" O.D.) horizontal pipe secured to new and existing antenna pipes (typ. of 1 per sector, total of 3).**
- **Install new 2" std. (2.38" O.D.) pipe brace secured to the mount standoff (typ. of 1 per sector, total of 3).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
<b>Existing (LTE 5G) Mount Rating</b>	1	LC1	118%	<b>FAIL</b>
<b>Modified (LTE 5G) Mount Rating</b>	4	LC30	58%	<b>PASS</b>

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.

This determination was based on the following limitations and assumptions:

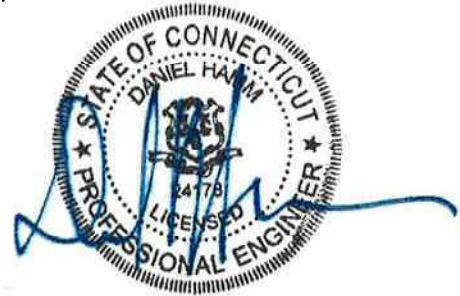
1. HDG is not responsible for any modifications completed prior to and hereafter which HDG was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables 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



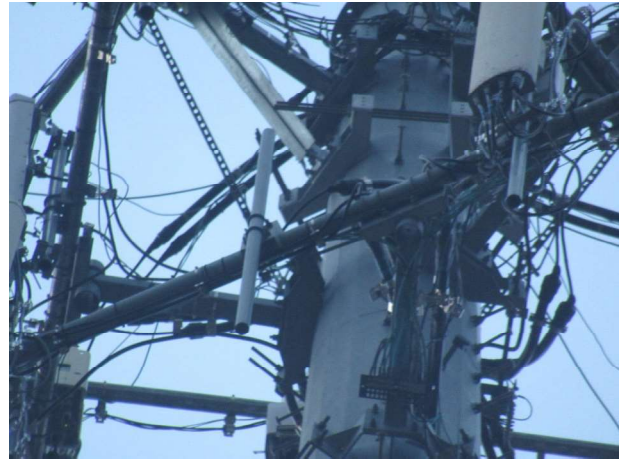
Michael Cabral  
Vice President



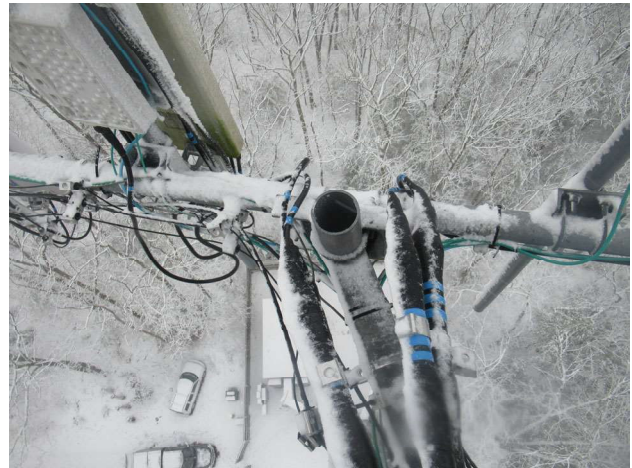
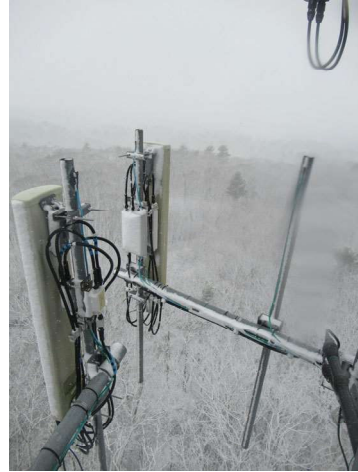
Daniel P. Hamm, PE  
Principal



**FIELD PHOTOS:**









**HUDSON**  
Design Group LLC

**Wind & Ice  
Calculations**

Date: 4/8/2020  
 Project Name: THOMPSON CT RICH RD  
 Project No.: CT1259  
 Designed By: LBW Checked By: MSC



**2.6.5.2 Velocity Pressure Coeff:**

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

$K_z =$  **1.058**

$z =$  127 (ft)  
 $z_g =$  1200 (ft)  
 $\alpha =$  7.0

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

**Table 2-4**

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

**2.6.6.2 Topographic Factor:**

**Table 2-5**

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

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

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

$K_{zt} =$  #DIV/0!

$K_h =$  #DIV/0!

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

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

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

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

Category = 1

$z =$  127

$z_s =$  640 (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 =

$t_i =$  1.50 in

Importance Factor =

$I =$  1.0 (from Table 2-3)

$K_{iz} =$  1.14 (from Sec. 2.6.10)

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

$t_{iz} =$  1.72 in

Date: 4/8/2020  
 Project Name: THOMPSON CT RICH RD  
 Project No.: CT1259  
 Designed By: LBW Checked By: MSC



**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

$h = 151$   $G_h = 0.85$

2.6.9.2 Guyed Masts  $G_h = 0.85$

2.6.9.3 Pole Structures  $G_h = 1.1$

2.6.9 Appurtenances  $G_h = 1.0$

2.6.9.4 Structures Supported on Other Structures

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

$G_h = 1.35$   $G_h = 1.00$

**2.6.11.2 Design Wind Force on Appurtenances**

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

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

$q_z =$	<b>42.49</b>
$q_{z(ice)} =$	<b>6.29</b>
$q_{z(30)} =$	<b>2.26</b>

$K_z =$	1.058 (from 2.6.5.2)
$K_{zt} =$	1.0 (from 2.6.6.2.1)
$K_s =$	1.0 (from 2.6.7)
$K_e =$	0.98 (from 2.6.8)
$K_d =$	<b>0.95</b> (from Table 2-2)
$V_{max} =$	130 mph (Ultimate Wind Speed)
$V_{max(ice)} =$	50 mph
$V_{30} =$	30 mph

**Table 2-2**

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

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**Determine Ca:**

**Table 2-9**

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

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

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

Ice Thickness = **1.72 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)
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	234	48	12
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	4.57	1.29	769	137	41
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	4.64	1.30	759	136	40
B14 4478 RRH	18.1	13.4	8.3	1.68	1.35	1.20	86	19	5
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	2.18	1.20	53	13	3
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.13	1.20	70	16	4
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.43	1.20	55	13	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.20	70	16	4
LGP21401 TMA	14.4	2.7	9.0	0.27	5.33	1.33	15	6	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	48	11	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	10	5	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	15	6	1
4" Pipe	4.5	12.0		0.38	0.38	1.20	19	6	1
4x4 HSS	4.0	12.0		0.33	0.33	1.25	18	6	1

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WIND LOADS

Angle = 30 (deg)

Ice Thickness = 1.72 in.

Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	234	124	207
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	769	348	664
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	759	345	656
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	86	53	78
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	43	86	54
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	70	55	66
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	35	70	44
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	70	58	67
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	15	46	23

WIND LOADS WITH ICE:

7770 Antenna	58.4	14.4	8.4	5.86	3.42	4.05	6.93	1.27	1.40	47	30	43
OPA65R-BU8DA Antenna	99.4	24.4	11.2	16.87	7.76	4.07	8.85	1.27	1.46	135	71	119
DMP65R-BU8DA Antenna	99.4	24.1	11.1	16.66	7.69	4.12	8.93	1.27	1.46	133	71	118
B14 4478 RRH	21.5	16.8	11.7	2.52	1.75	1.28	1.84	1.20	1.20	19	13	18
B14 4478 RRH (Side)	21.5	8.4	16.8	1.26	2.52	2.56	1.28	1.20	1.20	10	19	12
B5/B12 4449 RRH	18.3	16.6	13.8	2.12	1.76	1.10	1.33	1.20	1.20	16	13	15
B5/B12 4449 RRH (Side)	18.3	8.3	16.6	1.06	2.12	2.20	1.10	1.20	1.20	8	16	10
B2/B66A 8843 RRH	18.3	16.6	14.3	2.12	1.82	1.10	1.28	1.20	1.20	16	14	15
LGP21401 TMA	17.8	6.1	12.4	0.76	1.54	2.91	1.43	1.22	1.20	6	12	7

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	7	11
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	41	19	35
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	35
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	2	5	3
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	4
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	4	2
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	1



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**WIND LOADS**

Angle = **60** (deg)      Ice Thickness = **1.72** in.      Equivalent Angle = **240** (deg)

**WIND LOADS WITH NO ICE:**

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	234	124	152
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	769	348	453
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	759	345	449
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	86	53	61
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	64	86	81
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	70	55	59
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	52	70	65
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	70	58	61
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	15	46	38

**WIND LOADS WITH ICE:**

7770 Antenna	58.4	14.4	8.4	5.86	3.42	4.05	6.93	1.27	1.40	47	30	34
OPA65R-BU8DA Antenna	99.4	24.4	11.2	16.87	7.76	4.07	8.85	1.27	1.46	135	71	87
DMP65R-BU8DA Antenna	99.4	24.1	11.1	16.66	7.69	4.12	8.93	1.27	1.46	133	71	86
B14 4478 RRH	21.5	16.8	11.7	2.52	1.75	1.28	1.84	1.20	1.20	19	13	15
B14 4478 RRH (Side)	21.5	12.6	16.8	1.89	2.52	1.71	1.28	1.20	1.20	14	19	18
B5/B12 4449 RRH	18.3	16.6	13.8	2.12	1.76	1.10	1.33	1.20	1.20	16	13	14
B5/B12 4449 RRH (Side)	18.3	12.5	16.6	1.59	2.12	1.47	1.10	1.20	1.20	12	16	15
B2/B66A 8843 RRH	18.3	16.6	14.3	2.12	1.82	1.10	1.28	1.20	1.20	16	14	14
LGP21401 TMA	17.8	6.1	12.4	0.76	1.54	2.91	1.43	1.22	1.20	6	12	10

**WIND LOADS AT 30 MPH:**

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	7	8
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	41	19	24
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	24
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	3	5	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	3	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2

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WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.72 in. Equivalent Angle = 270 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	234	124	124
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	769	348	348
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	759	345	345
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	86	53	53
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	53	86	86
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	70	55	55
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	55	70	70
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	70	58	58
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	15	46	46

WIND LOADS WITH ICE:

7770 Antenna	58.4	14.4	8.4	5.86	3.42	4.05	6.93	1.27	1.40	47	30	30
OPA65R-BU8DA Antenna	99.4	24.4	11.2	16.87	7.76	4.07	8.85	1.27	1.46	135	71	71
DMP65R-BU8DA Antenna	99.4	24.1	11.1	16.66	7.69	4.12	8.93	1.27	1.46	133	71	71
B14 4478 RRH	21.5	16.8	11.7	2.52	1.75	1.28	1.84	1.20	1.20	19	13	13
B14 4478 RRH (Side)	21.5	11.7	16.8	1.75	2.52	1.84	1.28	1.20	1.20	13	19	19
B5/B12 4449 RRH	18.3	16.6	13.8	2.12	1.76	1.10	1.33	1.20	1.20	16	13	13
B5/B12 4449 RRH (Side)	18.3	13.8	16.6	1.76	2.12	1.33	1.10	1.20	1.20	13	16	16
B2/B66A 8843 RRH	18.3	16.6	14.3	2.12	1.82	1.10	1.28	1.20	1.20	16	14	14
LGP21401 TMA	17.8	6.1	12.4	0.76	1.54	2.91	1.43	1.22	1.20	6	12	12

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	7	7
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	41	19	19
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	18
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
B14 4478 RRH (Side)	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	5	5
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2

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 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 120 (deg) Ice Thickness = 1.72 in. Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	234	124	152
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	769	348	453
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	759	345	449
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	86	53	61
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	64	86	81
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	70	55	59
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	52	70	65
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	70	58	61
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	15	46	38

WIND LOADS WITH ICE:

7770 Antenna	58.4	14.4	8.4	5.86	3.42	4.05	6.93	1.27	1.40	47	30	34
OPA65R-BU8DA Antenna	99.4	24.4	11.2	16.87	7.76	4.07	8.85	1.27	1.46	135	71	87
DMP65R-BU8DA Antenna	99.4	24.1	11.1	16.66	7.69	4.12	8.93	1.27	1.46	133	71	86
B14 4478 RRH	21.5	16.8	11.7	2.52	1.75	1.28	1.84	1.20	1.20	19	13	15
B14 4478 RRH (Side)	21.5	12.6	16.8	1.89	2.52	1.71	1.28	1.20	1.20	14	19	18
B5/B12 4449 RRH	18.3	16.6	13.8	2.12	1.76	1.10	1.33	1.20	1.20	16	13	14
B5/B12 4449 RRH (Side)	18.3	12.5	16.6	1.59	2.12	1.47	1.10	1.20	1.20	12	16	15
B2/B66A 8843 RRH	18.3	16.6	14.3	2.12	1.82	1.10	1.28	1.20	1.20	16	14	14
LGP21401 TMA	17.8	6.1	12.4	0.76	1.54	2.91	1.43	1.22	1.20	6	12	10

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	7	8
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	41	19	24
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	24
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	3
B14 4478 RRH (Side)	18.1	10.1	13.4	1.26	1.68	1.80	1.35	1.20	1.20	3	5	4
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	3	4	3
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2

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 Project Name: THOMPSON CT RICH RD  
 Project No.: CT1259  
 Designed By: LBW Checked By: MSC



WIND LOADS

Angle = 150 (deg)      Ice Thickness = 1.72 in.      Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	234	124	207
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	769	348	664
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	759	345	656
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	86	53	78
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	43	86	54
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	70	55	66
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	35	70	44
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	70	58	67
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	15	46	23

WIND LOADS WITH ICE:

7770 Antenna	58.4	14.4	8.4	5.86	3.42	4.05	6.93	1.27	1.40	47	30	43
OPA65R-BU8DA Antenna	99.4	24.4	11.2	16.87	7.76	4.07	8.85	1.27	1.46	135	71	119
DMP65R-BU8DA Antenna	99.4	24.1	11.1	16.66	7.69	4.12	8.93	1.27	1.46	133	71	118
B14 4478 RRH	21.5	16.8	11.7	2.52	1.75	1.28	1.84	1.20	1.20	19	13	18
B14 4478 RRH (Side)	21.5	8.4	16.8	1.26	2.52	2.56	1.28	1.20	1.20	10	19	12
B5/B12 4449 RRH	18.3	16.6	13.8	2.12	1.76	1.10	1.33	1.20	1.20	16	13	15
B5/B12 4449 RRH (Side)	18.3	8.3	16.6	1.06	2.12	2.20	1.10	1.20	1.20	8	16	10
B2/B66A 8843 RRH	18.3	16.6	14.3	2.12	1.82	1.10	1.28	1.20	1.20	16	14	15
LGP21401 TMA	17.8	6.1	12.4	0.76	1.54	2.91	1.43	1.22	1.20	6	12	7

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	7	11
OPA65R-BU8DA Antenna	96.0	21.0	7.8	14.00	5.20	4.57	12.31	1.29	1.58	41	19	35
DMP65R-BU8DA Antenna	96.0	20.7	7.7	13.80	5.13	4.64	12.47	1.30	1.58	40	18	35
B14 4478 RRH	18.1	13.4	8.3	1.68	1.04	1.35	2.18	1.20	1.20	5	3	4
B14 4478 RRH (Side)	18.1	6.7	13.4	0.84	1.68	2.70	1.35	1.21	1.20	2	5	3
B5/B12 4449 RRH	14.9	13.2	10.4	1.37	1.08	1.13	1.43	1.20	1.20	4	3	4
B5/B12 4449 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	4	2
B2/B66A 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	1

Date: 4/8/2020

Project Name: THOMPSON CT RICH RD

Project No.: CT1259

Designed By: LBW Checked By: MSC



HUDSON  
Design Group LLC

### ICE WEIGHT CALCULATIONS

Thickness of ice: 1.72 in.  
Density of ice: 56 pcf

#### 7770 Antenna

Weight of ice based on total radial SF area:  
Height (in): 55.0  
Width (in): 11.0  
Depth (in): 5.0  
Total weight of ice on object: 133 lbs  
Weight of object: 35.0 lbs  
Combined weight of ice and object: 168 lbs

#### OPA65R-BU8DA Antenna

Weight of ice based on total radial SF area:  
Height (in): 96.0  
Width (in): 21.0  
Depth (in): 7.8  
Total weight of ice on object: 406 lbs  
Weight of object: 77.0 lbs  
Combined weight of ice and object: 483 lbs

#### DMP65R-BU8DA Antenna

Weight of ice based on total radial SF area:  
Height (in): 96.0  
Width (in): 20.7  
Depth (in): 7.7  
Total weight of ice on object: 400 lbs  
Weight of object: 96.0 lbs  
Combined weight of ice and object: 496 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: 55 lbs  
Weight of object: 60.0 lbs  
Combined weight of ice and object: 115 lbs

#### B5/B12 4449 RRH

Weight of ice based on total radial SF area:  
Height (in): 14.9  
Width (in): 13.2  
Depth (in): 10.4  
Total weight of ice on object: 48 lbs  
Weight of object: 73.0 lbs  
Combined weight of ice and object: 121 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: 49 lbs  
Weight of object: 72.0 lbs  
Combined weight of ice and object: 121 lbs

#### LGP21401 TMA

Weight of ice based on total radial SF area:  
Height (in): 14.4  
Width (in): 2.7  
Depth (in): 9.0  
Total weight of ice on object: 28 lbs  
Weight of object: 19.0 lbs  
Combined weight of ice and object: 47 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: 48 lbs  
Weight of object: 33 lbs  
Combined weight of ice and object: 81 lbs

#### 2" pipe

Per foot weight of ice:  
diameter (in): 2.38  
Per foot weight of ice on object: 9 plf

#### 3" Pipe

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

#### 4" Pipe

Per foot weight of ice:  
diameter (in): 4.5  
Per foot weight of ice on object: 13 plf

#### HSS 4x4

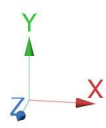
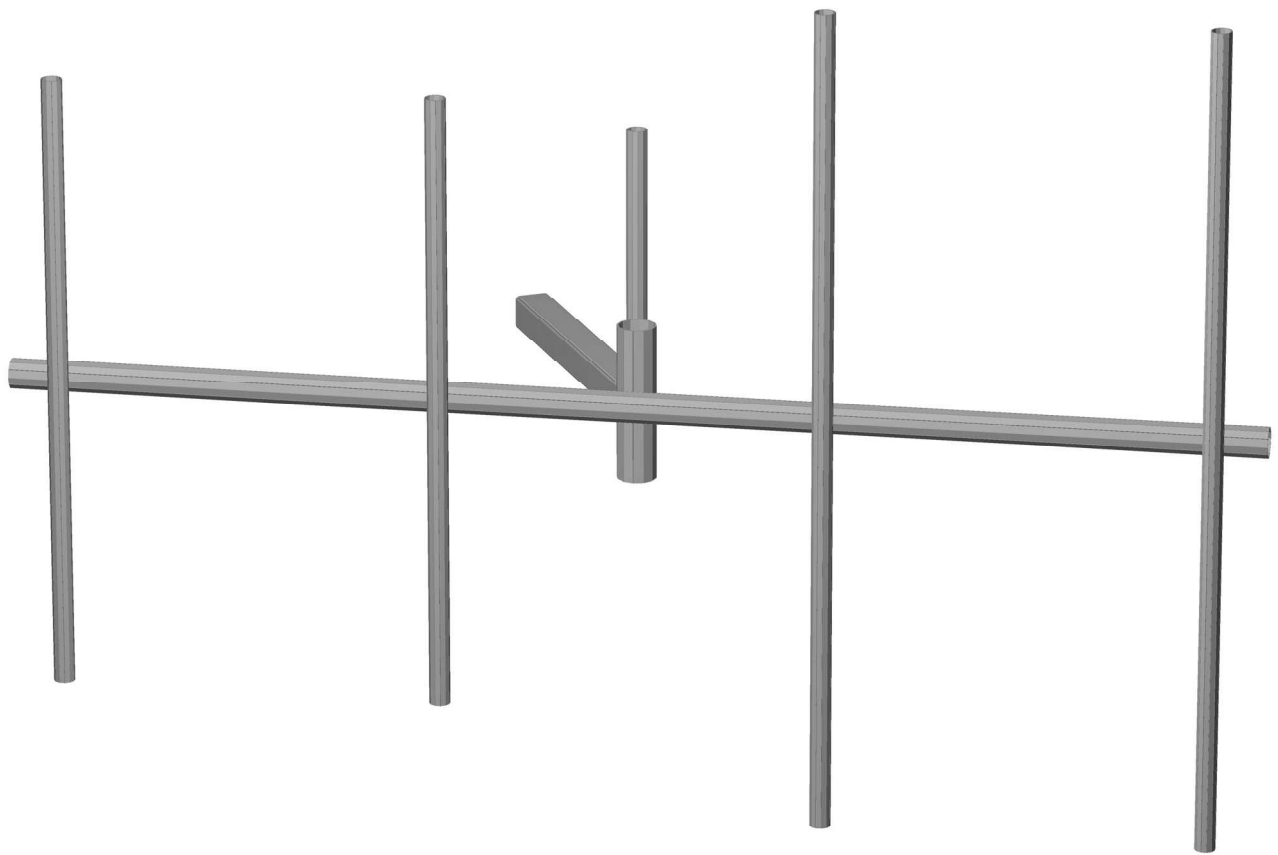
Weight of ice based on total radial SF area:  
Height (in): 4  
Width (in): 4  
Per foot weight of ice on object: 16 plf

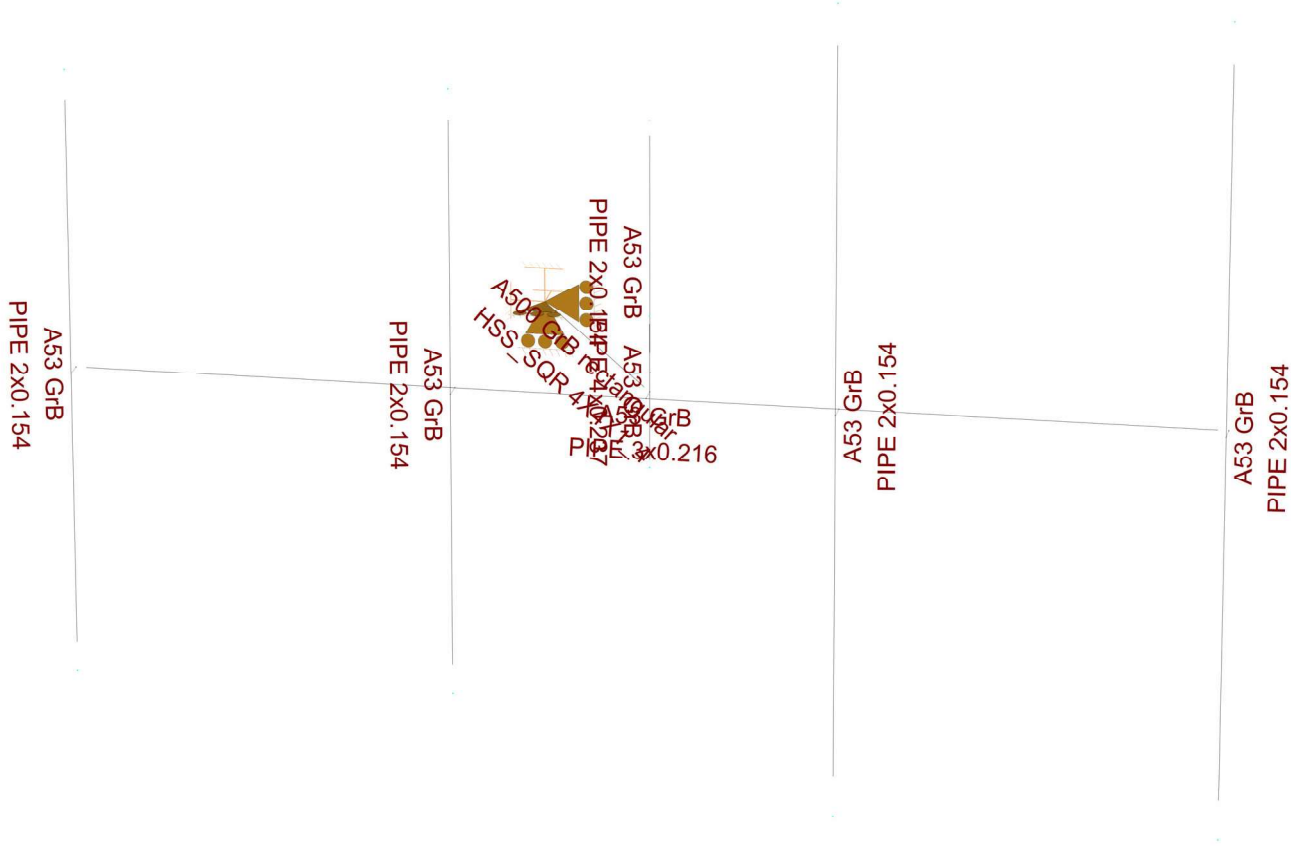


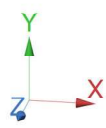
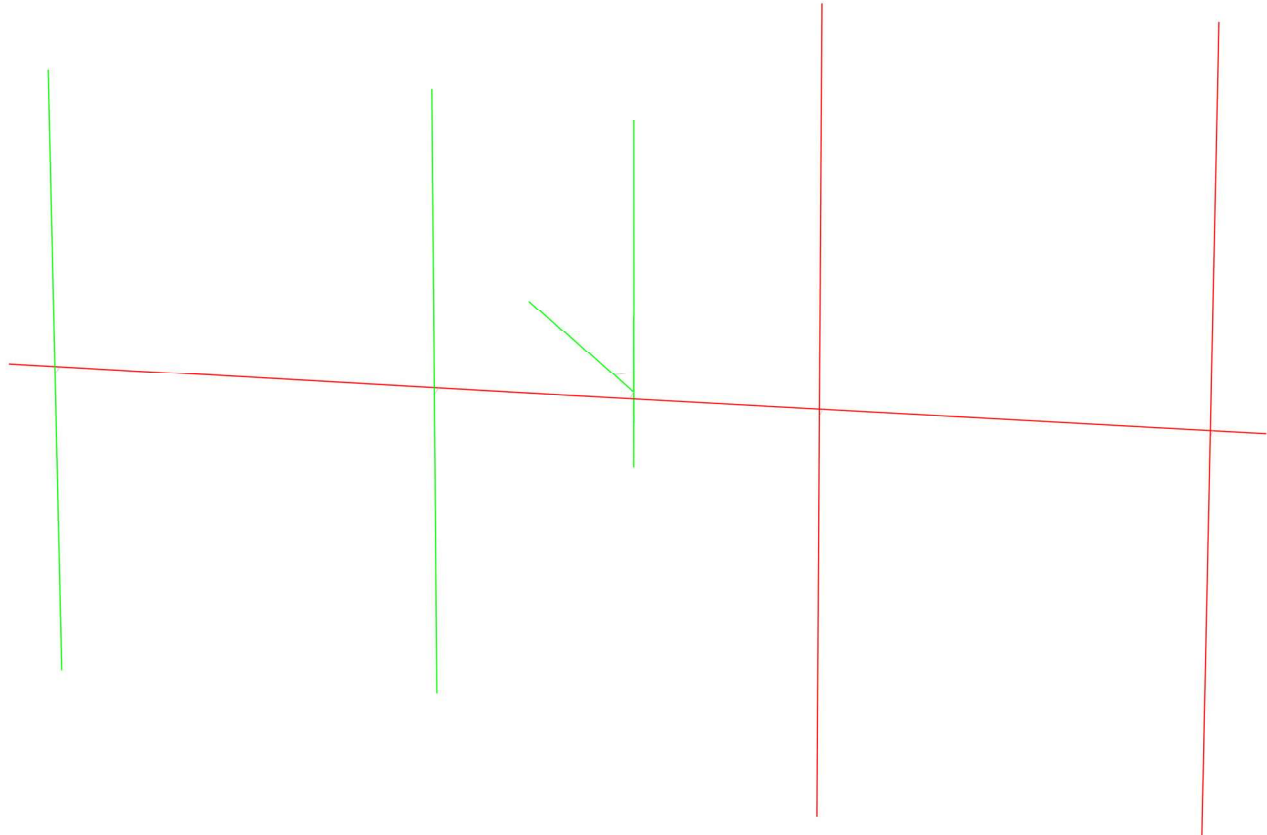
**HUDSON**  
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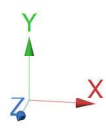
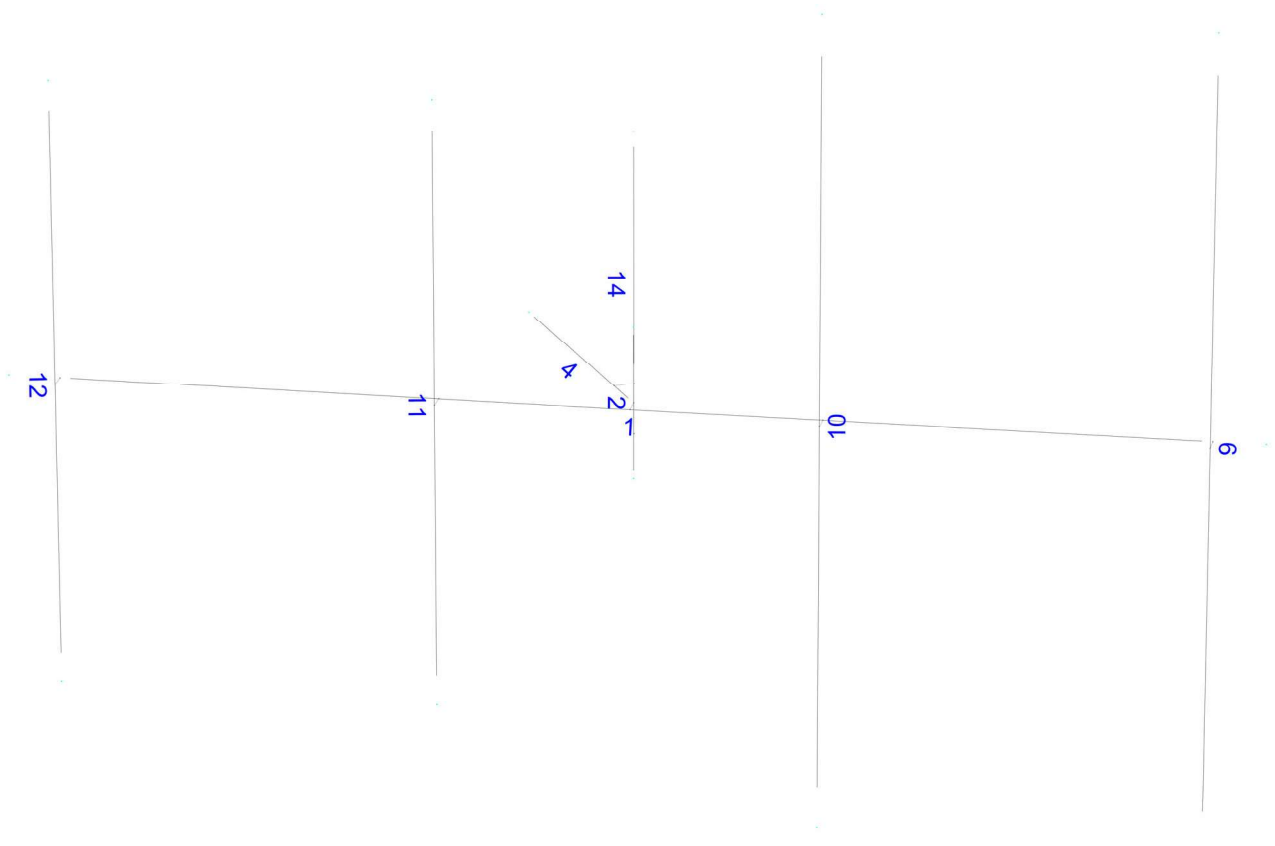
**Mount Calculations  
(Existing Conditions)**











## Load data

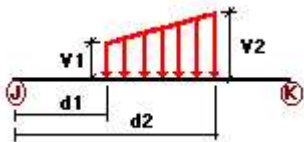
### GLOSSARY

Comb : Indicates if load condition is a load combination

### Load Conditions

Condition	Description	Comb.	Category																																																											
D	Dead Load	No	DL																																																											
Wo	Wind Load (NO ICE)	No	WIND																																																											
W30	WL 30deg	No	WIND																																																											
W60	WL 60deg	No	WIND																																																											
W90	WL 90deg	No </tr <tr> <td>W120</td> <td>WL 120deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>W150</td> <td>WL 150deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>Di</td> <td>Ice Load</td> <td>No</td> <td>LL</td> </tr> <tr> <td>WI0</td> <td>WL ICE 0deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI30</td> <td>WL ICE 30deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI60</td> <td>WL ICE 60deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI90</td> <td>WL ICE 90deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI120</td> <td>WL ICE 120deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI150</td> <td>WL ICE 150deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL0</td> <td>WL 30 mph 0deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL30</td> <td>WL 30 mph 30deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL60</td> <td>WL 30 mph 60deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL90</td> <td>WL 30 mph 90deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL120</td> <td>WL 30 mph 120deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL150</td> <td>WL 30 mph 150deg</td> <td>No</td> <td>WIND</td> </tr>	W120	WL 120deg	No	WIND	W150	WL 150deg	No	WIND	Di	Ice Load	No	LL	WI0	WL ICE 0deg	No	WIND	WI30	WL ICE 30deg	No	WIND	WI60	WL ICE 60deg	No	WIND	WI90	WL ICE 90deg	No	WIND	WI120	WL ICE 120deg	No	WIND	WI150	WL ICE 150deg	No	WIND	WL0	WL 30 mph 0deg	No	WIND	WL30	WL 30 mph 30deg	No	WIND	WL60	WL 30 mph 60deg	No	WIND	WL90	WL 30 mph 90deg	No	WIND	WL120	WL 30 mph 120deg	No	WIND	WL150	WL 30 mph 150deg	No	WIND
W120	WL 120deg	No	WIND																																																											
W150	WL 150deg	No	WIND																																																											
Di	Ice Load	No	LL																																																											
WI0	WL ICE 0deg	No	WIND																																																											
WI30	WL ICE 30deg	No	WIND																																																											
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WL0	WL 30 mph 0deg	No	WIND																																																											
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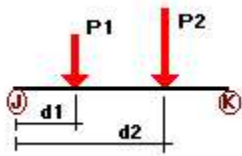
### Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.015	0.00	0.00	No	0.00	No
	2	z	-0.019	0.00	0.00	No	0.00	No
	4	z	-0.018	0.00	0.00	No	0.00	No
	11	z	-0.01	0.00	0.00	No	0.00	No
	14	z	-0.01	0.00	0.00	No	0.00	No
W30	1	z	-0.015	0.00	0.00	No	0.00	No
	2	z	-0.019	0.00	0.00	No	0.00	No
	4	z	-0.018	0.00	0.00	No	0.00	No
	11	z	-0.01	0.00	0.00	No	0.00	No

	14	z	-0.01	0.00	0.00	No	0.00	No
W60	1	x	-0.015	0.00	0.00	No	0.00	No
	2	x	-0.019	0.00	0.00	No	0.00	No
	4	x	-0.018	0.00	0.00	No	0.00	No
	9	x	-0.01	0.00	0.00	No	0.00	No
	10	x	-0.01	0.00	0.00	No	0.00	No
	11	x	-0.01	0.00	0.00	No	0.00	No
W90	12	x	-0.01	0.00	0.00	No	0.00	No
	14	x	-0.01	0.00	0.00	No	0.00	No
	2	x	-0.019	0.00	0.00	No	0.00	No
	4	x	-0.018	0.00	0.00	No	0.00	No
	9	x	-0.01	0.00	0.00	No	0.00	No
	10	x	-0.01	0.00	0.00	No	0.00	No
W120	11	x	-0.01	0.00	0.00	No	0.00	No
	12	x	-0.01	0.00	0.00	No	0.00	No
	14	x	-0.01	0.00	0.00	No	0.00	No
	1	x	-0.015	0.00	0.00	No	0.00	No
	2	x	-0.019	0.00	0.00	No	0.00	No
	4	x	-0.018	0.00	0.00	No	0.00	No
W150	9	x	-0.01	0.00	0.00	No	0.00	No
	10	x	-0.01	0.00	0.00	No	0.00	No
	11	x	-0.01	0.00	0.00	No	0.00	No
	12	x	-0.01	0.00	0.00	No	0.00	No
	14	x	-0.01	0.00	0.00	No	0.00	No
	1	z	0.015	0.00	0.00	No	0.00	No
Di	2	z	0.019	0.00	0.00	No	0.00	No
	4	z	0.018	0.00	0.00	No	0.00	No
	11	z	0.01	0.00	0.00	No	0.00	No
	14	z	0.01	0.00	0.00	No	0.00	No
Di	1	y	-0.011	0.00	0.00	No	0.00	No
	2	y	-0.013	0.00	0.00	No	0.00	No
	4	y	-0.016	0.00	0.00	No	0.00	No
	9	y	-0.009	0.00	0.00	No	0.00	No
	10	y	-0.009	0.00	0.00	No	0.00	No
	11	y	-0.009	0.00	0.00	No	0.00	No
	12	y	-0.009	0.00	0.00	No	0.00	No
14	y	-0.009	0.00	0.00	No	0.00	No	

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	9	y	-0.039	0.50	No
		y	-0.039	7.50	No
	10	y	-0.048	0.50	No
		y	-0.048	7.50	No
	11	y	-0.06	1.00	No
		y	-0.073	1.00	No
		y	-0.072	5.00	No
12	y	-0.018	0.50	No	



		y	-0.018	5.00	No
		y	-0.038	4.00	No
Wo	14	y	-0.033	1.00	No
	9	z	-0.385	0.50	No
		z	-0.385	7.50	No
	10	z	-0.38	0.50	No
		z	-0.38	7.50	No
	11	z	-0.053	1.00	No
		z	-0.055	1.00	No
		z	-0.07	5.00	No
	12	z	-0.118	0.50	No
		z	-0.118	5.00	No
		z	-0.015	4.00	No
W30	14	z	-0.048	1.00	No
	9	3	-0.332	0.50	No
		3	-0.332	7.50	No
	10	3	-0.328	0.50	No
		3	-0.328	7.50	No
	11	3	-0.054	1.00	No
		3	-0.067	5.00	No
	12	3	-0.104	0.50	No
		3	-0.104	5.00	No
		3	-0.023	4.00	No
W60	14	3	-0.048	1.00	No
	9	3	-0.227	0.50	No
		3	-0.227	7.50	No
	10	3	-0.225	0.50	No
		3	-0.225	7.50	No
	11	3	-0.081	1.00	No
		3	-0.061	5.00	No
	12	3	-0.076	0.50	No
		3	-0.076	5.00	No
		3	-0.038	4.00	No
W90	14	3	-0.048	1.00	No
	9	x	-0.175	0.50	No
		x	-0.175	7.50	No
	10	x	-0.173	0.50	No
		x	-0.173	7.50	No
	11	x	-0.086	1.00	No
		x	-0.058	5.00	No
	12	x	-0.063	0.50	No
		x	-0.063	5.00	No
		x	-0.046	4.00	No
W120	14	x	-0.048	1.00	No
	9	2	-0.227	0.50	No
		2	-0.227	7.50	No
	10	2	-0.225	0.50	No
		2	-0.225	7.50	No
	11	2	-0.081	1.00	No
		2	-0.061	5.00	No
	12	2	-0.076	0.50	No
		2	-0.076	5.00	No
		2	-0.038	4.00	No
W150	14	2	-0.048	1.00	No
	9	2	-0.332	0.50	No
		2	-0.332	7.50	No
	10	2	-0.328	0.50	No
		2	-0.328	7.50	No
	11	2	-0.054	1.00	No
		2	-0.067	5.00	No

	12	2	-0.104	0.50	No
		2	-0.104	5.00	No
		2	-0.023	4.00	No
Di	14	2	-0.048	1.00	No
	9	y	-0.203	0.50	No
		y	-0.203	7.50	No
	10	y	-0.20	0.50	No
		y	-0.20	7.50	No
	11	y	-0.055	1.00	No
		y	-0.048	1.00	No
		y	-0.049	5.00	No
	12	y	-0.066	0.50	No
		y	-0.066	5.00	No
		y	-0.056	4.00	No
WI0	14	y	-0.048	1.00	No
	9	z	-0.069	0.50	No
		z	-0.069	7.50	No
	10	z	-0.068	0.50	No
		z	-0.068	7.50	No
	11	z	-0.013	1.00	No
		z	-0.013	1.00	No
		z	-0.016	5.00	No
	12	z	-0.025	0.50	No
		z	-0.025	5.00	No
		z	-0.006	4.00	No
WI30	14	z	-0.011	1.00	No
	9	3	-0.06	0.50	No
		3	-0.06	7.50	No
	10	3	-0.059	0.50	No
		3	-0.059	7.50	No
	11	3	-0.012	1.00	No
		3	-0.015	5.00	No
	12	3	-0.022	0.50	No
		3	-0.022	5.00	No
		3	-0.007	4.00	No
WI60	14	3	-0.011	1.00	No
	9	3	-0.044	0.50	No
		3	-0.044	7.50	No
	10	3	-0.044	0.50	No
		3	-0.044	7.50	No
	11	3	-0.018	1.00	No
		3	-0.014	5.00	No
	12	3	-0.018	0.50	No
		3	-0.018	5.00	No
		3	-0.01	4.00	No
WI90	14	3	-0.011	1.00	No
	9	x	-0.036	0.50	No
		x	-0.036	7.50	No
	10	x	-0.036	0.50	No
		x	-0.036	7.50	No
	11	x	-0.019	1.00	No
		x	-0.014	5.00	No
	12	x	-0.016	0.50	No
		x	-0.016	5.00	No
		x	-0.012	4.00	No
WI120	14	x	-0.011	1.00	No
	9	2	-0.044	0.50	No
		2	-0.044	7.50	No
	10	2	-0.044	0.50	No
		2	-0.044	7.50	No

	11	2	-0.018	1.00	No
		2	-0.014	5.00	No
	12	2	-0.018	0.50	No
		2	-0.018	5.00	No
		2	-0.01	4.00	No
	14	2	-0.011	1.00	No
WL150	9	2	-0.06	0.50	No
		2	-0.06	7.50	No
	10	2	-0.059	0.50	No
		2	-0.059	7.50	No
	11	2	-0.012	1.00	No
		2	-0.015	5.00	No
	12	2	-0.022	0.50	No
		2	-0.022	5.00	No
		2	-0.007	4.00	No
	14	2	-0.011	1.00	No
WLO	9	z	-0.021	0.50	No
		z	-0.021	7.50	No
	10	z	-0.021	0.50	No
		z	-0.021	7.50	No
	11	z	-0.003	1.00	No
		z	-0.003	1.00	No
		z	-0.004	5.00	No
	12	z	-0.007	0.50	No
		z	-0.007	5.00	No
		z	-0.001	4.00	No
	14	z	-0.003	1.00	No
WL30	9	3	-0.018	0.50	No
		3	-0.018	7.50	No
	10	3	-0.018	0.50	No
		3	-0.018	7.50	No
	11	3	-0.003	1.00	No
		3	-0.004	5.00	No
	12	3	-0.006	0.50	No
		3	-0.006	5.00	No
		3	-0.001	4.00	No
	14	3	-0.003	1.00	No
WL60	9	3	-0.013	0.50	No
		3	-0.013	7.50	No
	10	3	-0.012	0.50	No
		3	-0.012	7.50	No
	11	3	-0.004	1.00	No
		3	-0.003	5.00	No
	12	3	-0.005	0.50	No
		3	-0.005	5.00	No
		3	-0.002	4.00	No
	14	3	-0.003	1.00	No
WL90	9	x	-0.01	0.50	No
		x	-0.01	7.50	No
	10	x	-0.01	0.50	No
		x	-0.01	7.50	No
	11	x	-0.005	1.00	No
		x	-0.003	5.00	No
	12	x	-0.004	0.50	No
		x	-0.004	5.00	No
		x	-0.002	4.00	No
	14	x	-0.003	1.00	No
WL120	9	2	-0.013	0.50	No
		2	-0.013	7.50	No
	10	2	-0.012	0.50	No

		2	-0.012	7.50	No
	11	2	-0.004	1.00	No
		2	-0.003	5.00	No
	12	2	-0.005	0.50	No
		2	-0.005	5.00	No
		2	-0.002	4.00	No
	14	2	-0.003	1.00	No
WL150	9	2	-0.018	0.50	No
		2	-0.018	7.50	No
	10	2	-0.018	0.50	No
		2	-0.018	7.50	No
	11	2	-0.003	1.00	No
		2	-0.004	5.00	No
	12	2	-0.006	0.50	No
		2	-0.006	5.00	No
		2	-0.001	4.00	No
	14	2	-0.003	1.00	No

### Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00

### Earthquake (Dynamic analysis only)

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



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## Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

- LC1=1.2D+Wo
- LC2=1.2D+W30
- LC3=1.2D+W60
- LC4=1.2D+W90
- LC5=1.2D+W120
- LC6=1.2D+W150
- LC7=1.2D-Wo
- LC8=1.2D-W30
- LC9=1.2D-W60
- LC10=1.2D-W90
- LC11=1.2D-W120
- LC12=1.2D-W150
- LC13=0.9D+Wo
- LC14=0.9D+W30
- LC15=0.9D+W60
- LC16=0.9D+W90
- LC17=0.9D+W120
- LC18=0.9D+W150
- LC19=0.9D-Wo
- LC20=0.9D-W30
- LC21=0.9D-W60
- LC22=0.9D-W90
- LC23=0.9D-W120
- LC24=0.9D-W150
- LC25=1.2D+Di+W10
- LC26=1.2D+Di+W130
- LC27=1.2D+Di+W160
- LC28=1.2D+Di+W190
- LC29=1.2D+Di+W120
- LC30=1.2D+Di+W150
- LC31=1.2D+Di-W10
- LC32=1.2D+Di-W130
- LC33=1.2D+Di-W160
- LC34=1.2D+Di-W190
- LC35=1.2D+Di-W120
- LC36=1.2D+Di-W150
- LC38=1.2D+1.5LL1
- LC39=1.2D+1.5LL2
- LC40=1.2D+1.5LL3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<i>HSS_SQR 4X4X1_4</i>	<b>4</b>	LC6 at 0.00%	<b>0.68</b>	<b>OK</b>	
	<i>PIPE 2x0.154</i>	<b>9</b>	LC1 at 50.00%	<b>1.02</b>	<b>N.G.</b>	
		<b>10</b>	LC1 at 50.00%	<b>1.01</b>	<b>N.G.</b>	
		<b>11</b>	LC1 at 46.88%	0.18	OK	
		<b>12</b>	LC7 at 46.88%	0.21	OK	
		<b>14</b>	LC7 at 81.25%	0.08	OK	
	<i>PIPE 3x0.216</i>	<b>1</b>	LC1 at 48.96%	<b>1.18</b>	<b>N.G.</b>	







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## 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
1	-1.50	0.00	0.00	0
3	0.00	0.75	2.60	0
4	0.00	-0.75	2.60	0
6	6.00	0.00	2.80	0
7	-6.00	0.00	2.80	0
16	-5.50	3.00	3.00	0
17	5.50	4.00	3.00	0
18	-1.8333	3.00	3.00	0
19	1.8333	4.00	3.00	0
20	-5.50	-3.00	3.00	0
21	5.50	-4.00	3.00	0
22	-1.8333	-3.00	3.00	0
23	1.8333	-4.00	3.00	0
27	-0.0996	2.50	2.0273	0

### Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1

## Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	6	7		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
2	3	4		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
4	1	2		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
9	17	21		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
10	19	23		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
11	18	22		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
12	16	20		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
14	27	28		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

## Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
9	315.00	0	0.00	0.00	0.00
10	315.00	0	0.00	0.00	0.00
11	315.00	0	0.00	0.00	0.00
12	315.00	0	0.00	0.00	0.00
14	315.00	0	0.00	0.00	0.00

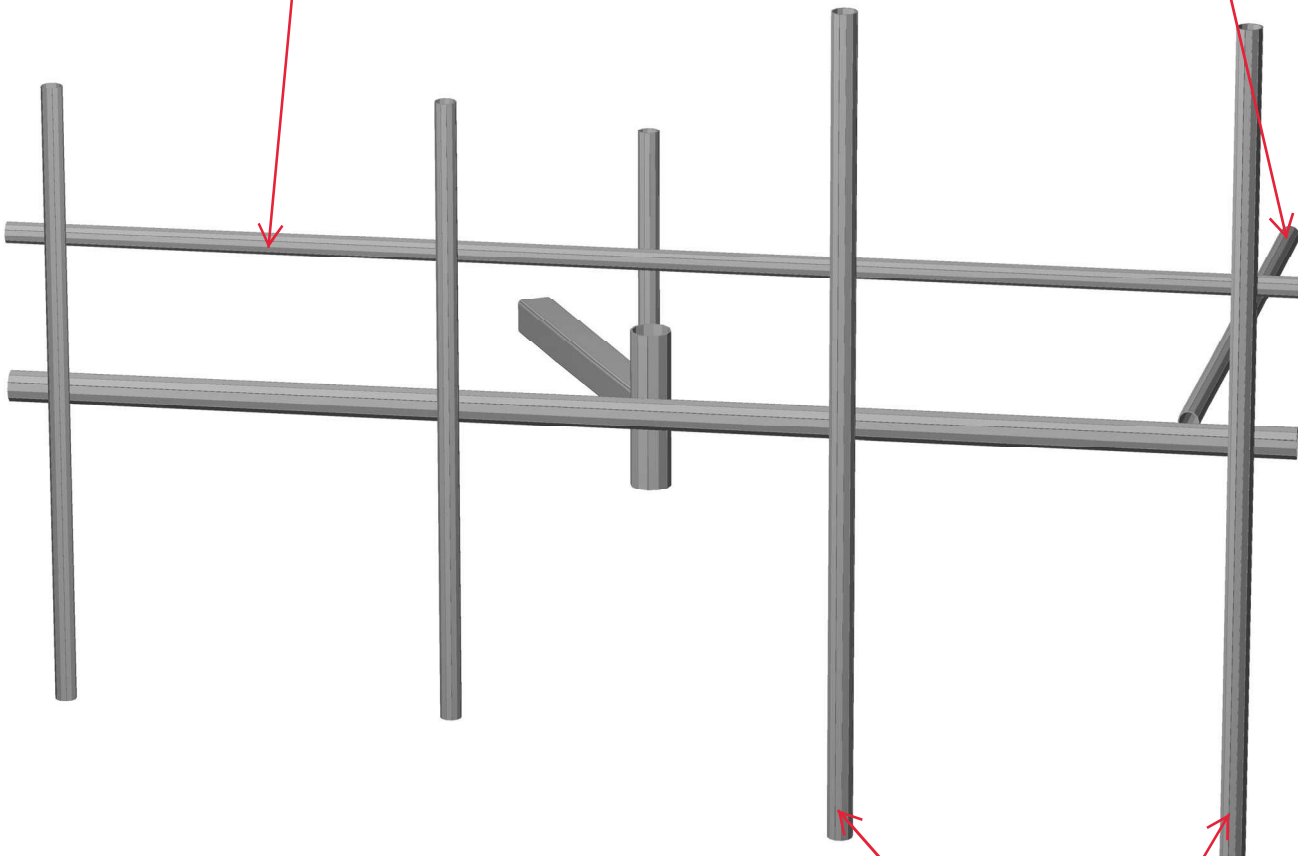


**HUDSON**  
Design Group LLC

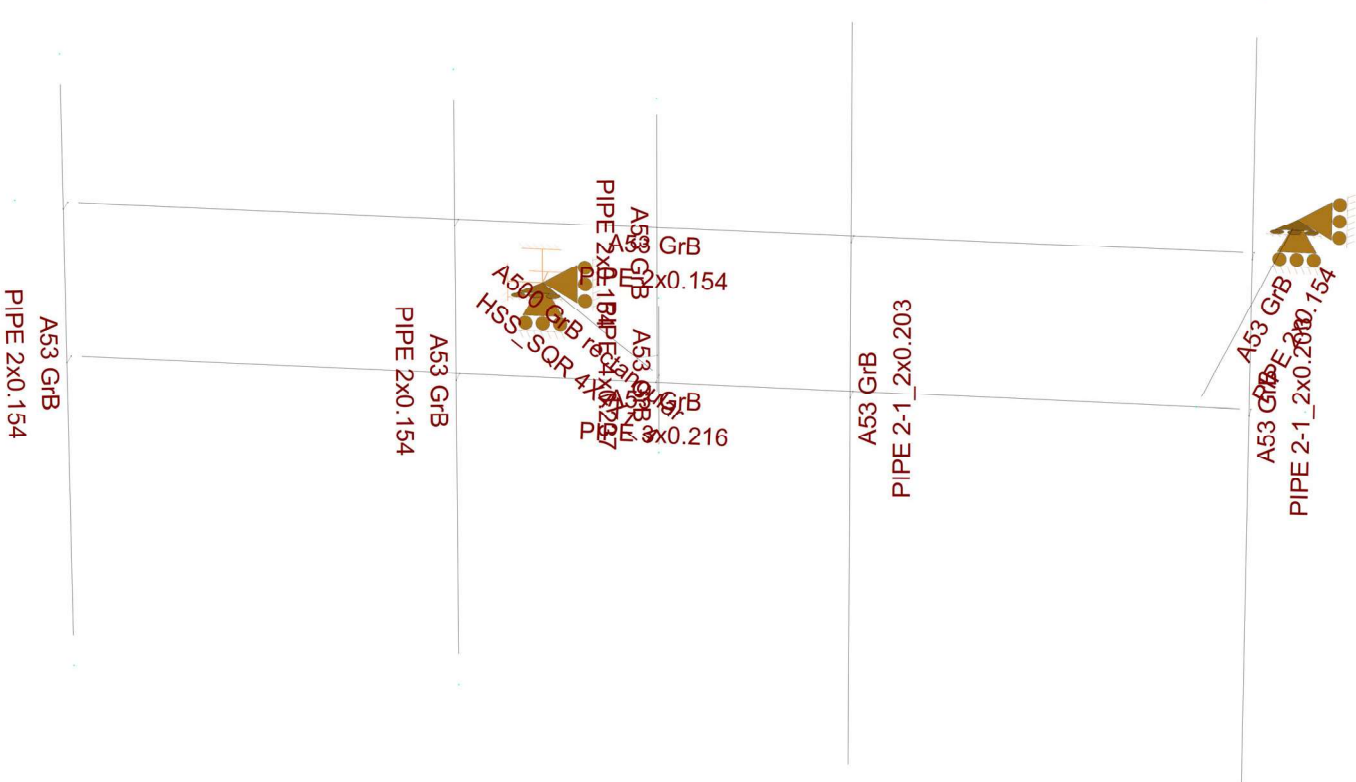
**Mount Calculations  
(Modified Conditions)**

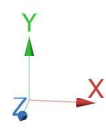
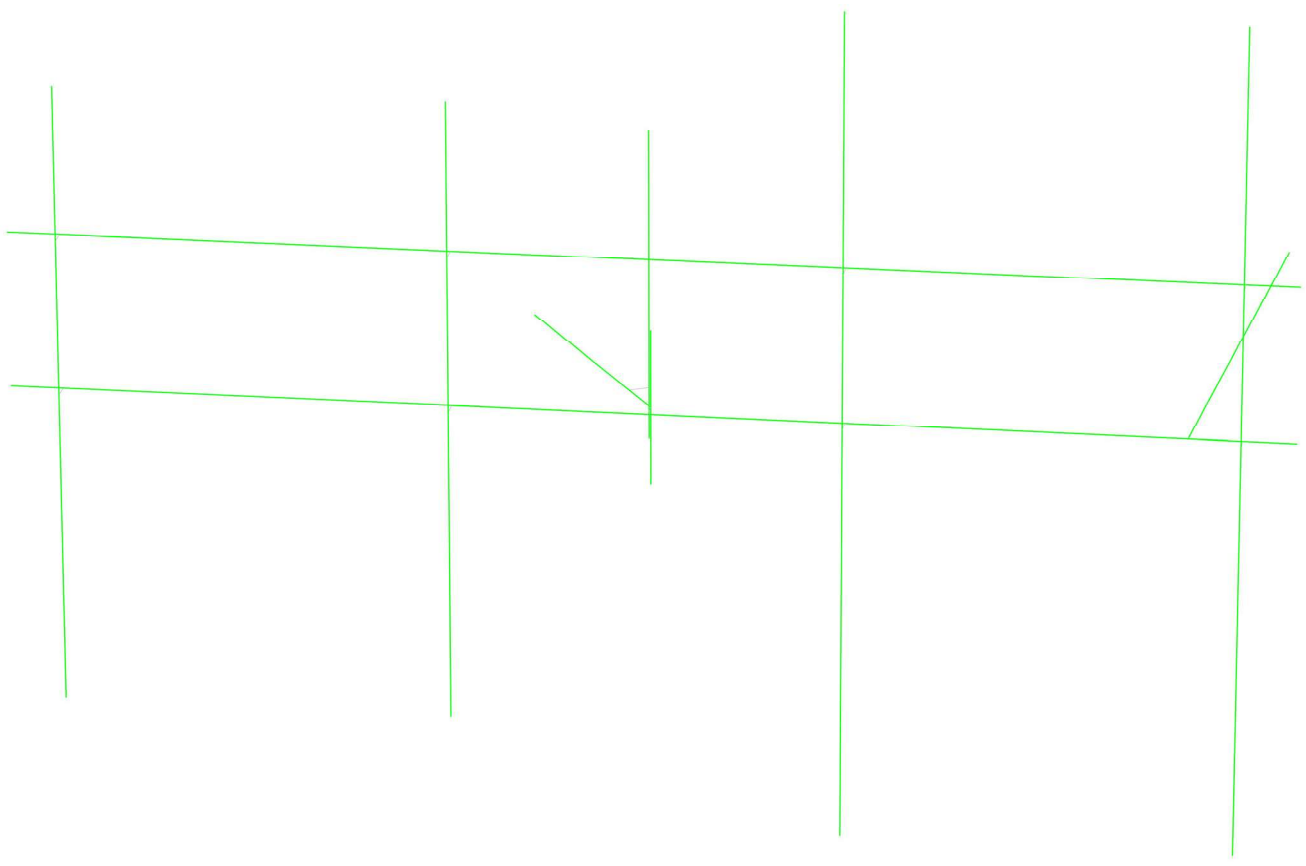
Install new 2" std. (2.38" O.D.) horizontal pipe secured to new and existing antenna pipes (typ. of 1 per sector, total of 3).

Install new 2" std. (2.38" O.D.) pipe brace secured to the mount and mount standoff (typ. of 1 per sector, total of 3).

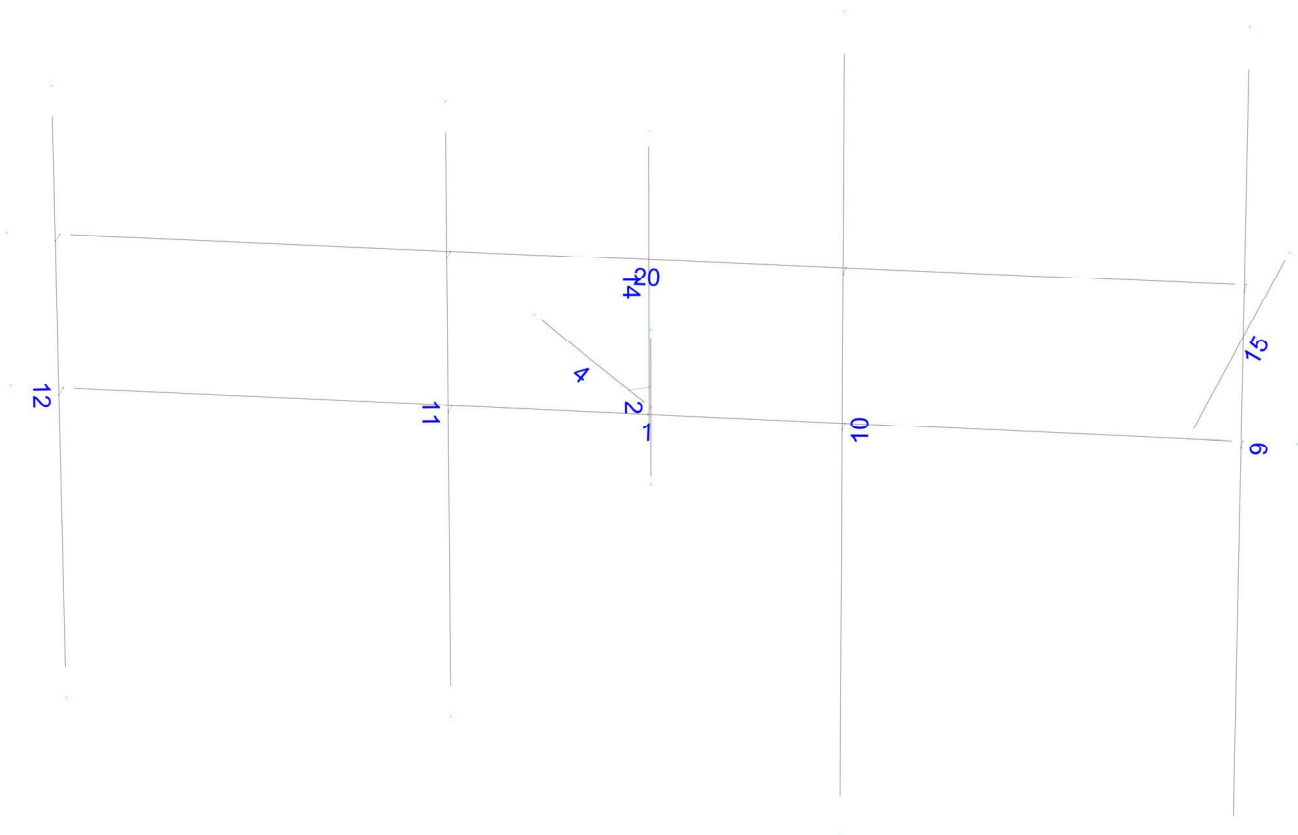


Remove existing antenna pipes and install new 2-1/2" std. (2.88" O.D.) antenna pipes behind new OPA65R-BU8DA and DMP65R-BU8DA Antennas (typ. of 2 per sector, total of 6).









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## Load data

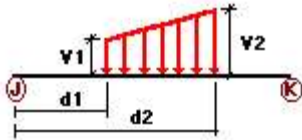
### GLOSSARY

Comb : Indicates if load condition is a load combination

### Load Conditions

Condition	Description	Comb.	Category																																																			
D	Dead Load	No	DL																																																			
Wo	Wind Load (NO ICE)	No	WIND																																																			
W30	WL 30deg	No	WIND																																																			
W60	WL 60deg	No	WIND																																																			
W90	WL 90deg	No	WIND																																																			
W120	WL 120deg	No	WIND																																																			
W150	WL 150deg	No </tr <tr> <td>Di</td> <td>Ice Load</td> <td>No</td> <td>LL</td> </tr> <tr> <td>WI0</td> <td>WL ICE 0deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI30</td> <td>WL ICE 30deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI60</td> <td>WL ICE 60deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI90</td> <td>WL ICE 90deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI120</td> <td>WL ICE 120deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WI150</td> <td>WL ICE 150deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL0</td> <td>WL 30 mph 0deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL30</td> <td>WL 30 mph 30deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL60</td> <td>WL 30 mph 60deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL90</td> <td>WL 30 mph 90deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL120</td> <td>WL 30 mph 120deg</td> <td>No</td> <td>WIND</td> </tr> <tr> <td>WL150</td> <td>WL 30 mph 150deg</td> <td>No</td> <td>WIND</td> </tr>	Di	Ice Load	No	LL	WI0	WL ICE 0deg	No	WIND	WI30	WL ICE 30deg	No	WIND	WI60	WL ICE 60deg	No	WIND	WI90	WL ICE 90deg	No	WIND	WI120	WL ICE 120deg	No	WIND	WI150	WL ICE 150deg	No	WIND	WL0	WL 30 mph 0deg	No	WIND	WL30	WL 30 mph 30deg	No	WIND	WL60	WL 30 mph 60deg	No	WIND	WL90	WL 30 mph 90deg	No	WIND	WL120	WL 30 mph 120deg	No	WIND	WL150	WL 30 mph 150deg	No	WIND
Di	Ice Load	No	LL																																																			
WI0	WL ICE 0deg	No	WIND																																																			
WI30	WL ICE 30deg	No	WIND																																																			
WI60	WL ICE 60deg	No	WIND																																																			
WI90	WL ICE 90deg	No	WIND																																																			
WI120	WL ICE 120deg	No	WIND																																																			
WI150	WL ICE 150deg	No	WIND																																																			
WL0	WL 30 mph 0deg	No	WIND																																																			
WL30	WL 30 mph 30deg	No	WIND																																																			
WL60	WL 30 mph 60deg	No	WIND																																																			
WL90	WL 30 mph 90deg	No	WIND																																																			
WL120	WL 30 mph 120deg	No	WIND																																																			
WL150	WL 30 mph 150deg	No	WIND																																																			

### Distributed force on members

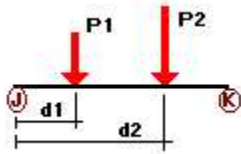


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	1	z	-0.015	0.00	0.00	No	0.00	No
	2	z	-0.019	0.00	0.00	No	0.00	No
	4	z	-0.018	0.00	0.00	No	0.00	No
	11	z	-0.01	0.00	0.00	No	0.00	No
	14	z	-0.01	0.00	0.00	No	0.00	No
	15	z	-0.01	0.00	0.00	No	0.00	No
	20	z	-0.01	0.00	0.00	No	0.00	No
W30	1	z	-0.015	0.00	0.00	No	0.00	No

	2	z	-0.019	0.00	0.00	No	0.00	No
	4	z	-0.018	0.00	0.00	No	0.00	No
	11	z	-0.01	0.00	0.00	No	0.00	No
	14	z	-0.01	0.00	0.00	No	0.00	No
	15	z	-0.01	0.00	0.00	No	0.00	No
W60	20	z	-0.01	0.00	0.00	No	0.00	No
	1	x	-0.015	0.00	0.00	No	0.00	No
	2	x	-0.019	0.00	0.00	No	0.00	No
	4	x	-0.018	0.00	0.00	No	0.00	No
	9	x	-0.012	0.00	0.00	No	0.00	No
	10	x	-0.012	0.00	0.00	No	0.00	No
	11	x	-0.01	0.00	0.00	No	0.00	No
	12	x	-0.01	0.00	0.00	No	0.00	No
	14	x	-0.01	0.00	0.00	No	0.00	No
	15	x	-0.01	0.00	0.00	No	0.00	No
W90	20	x	-0.01	0.00	0.00	No	0.00	No
	2	x	-0.019	0.00	0.00	No	0.00	No
	4	x	-0.018	0.00	0.00	No	0.00	No
	9	x	-0.012	0.00	0.00	No	0.00	No
	10	x	-0.012	0.00	0.00	No	0.00	No
	11	x	-0.01	0.00	0.00	No	0.00	No
	12	x	-0.01	0.00	0.00	No	0.00	No
	14	x	-0.01	0.00	0.00	No	0.00	No
	15	x	-0.01	0.00	0.00	No	0.00	No
W120	1	x	-0.015	0.00	0.00	No	0.00	No
	2	x	-0.019	0.00	0.00	No	0.00	No
	4	x	-0.018	0.00	0.00	No	0.00	No
	9	x	-0.012	0.00	0.00	No	0.00	No
	10	x	-0.012	0.00	0.00	No	0.00	No
	11	x	-0.01	0.00	0.00	No	0.00	No
	12	x	-0.01	0.00	0.00	No	0.00	No
	14	x	-0.01	0.00	0.00	No	0.00	No
	15	x	-0.01	0.00	0.00	No	0.00	No
W150	20	x	-0.01	0.00	0.00	No	0.00	No
	1	z	0.015	0.00	0.00	No	0.00	No
	2	z	0.019	0.00	0.00	No	0.00	No
	4	z	0.018	0.00	0.00	No	0.00	No
	11	z	0.01	0.00	0.00	No	0.00	No
	14	z	0.01	0.00	0.00	No	0.00	No
	15	z	0.01	0.00	0.00	No	0.00	No
	20	z	0.01	0.00	0.00	No	0.00	No
Di	1	y	-0.011	0.00	0.00	No	0.00	No
	2	y	-0.013	0.00	0.00	No	0.00	No
	4	y	-0.016	0.00	0.00	No	0.00	No
	9	y	-0.01	0.00	0.00	No	0.00	No
	10	y	-0.01	0.00	0.00	No	0.00	No
	11	y	-0.009	0.00	0.00	No	0.00	No
	12	y	-0.009	0.00	0.00	No	0.00	No
	14	y	-0.009	0.00	0.00	No	0.00	No
	15	y	-0.009	0.00	0.00	No	0.00	No
	20	y	-0.009	0.00	0.00	No	0.00	No

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### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%	
D	9	y	-0.039	0.50	No	
		y	-0.039	7.50	No	
	10	y	-0.048	0.50	No	
		y	-0.048	7.50	No	
	11	y	-0.06	1.00	No	
		y	-0.073	1.00	No	
	12	y	-0.072	5.00	No	
		y	-0.018	0.50	No	
		y	-0.018	5.00	No	
		y	-0.038	4.00	No	
	14	y	-0.033	1.00	No	
		y	-0.033	1.00	No	
	Wo	9	z	-0.385	0.50	No
			z	-0.385	7.50	No
10		z	-0.38	0.50	No	
		z	-0.38	7.50	No	
11		z	-0.053	1.00	No	
		z	-0.055	1.00	No	
12		z	-0.07	5.00	No	
		z	-0.118	0.50	No	
		z	-0.118	5.00	No	
		z	-0.015	4.00	No	
14		z	-0.048	1.00	No	
		z	-0.048	1.00	No	
W30		9	3	-0.332	0.50	No
			3	-0.332	7.50	No
	10	3	-0.328	0.50	No	
		3	-0.328	7.50	No	
	11	3	-0.054	1.00	No	
		3	-0.067	5.00	No	
	12	3	-0.104	0.50	No	
		3	-0.104	5.00	No	
		3	-0.023	4.00	No	
		3	-0.023	4.00	No	
	14	3	-0.048	1.00	No	
		3	-0.048	1.00	No	
	W60	9	3	-0.227	0.50	No
			3	-0.227	7.50	No
10		3	-0.225	0.50	No	
		3	-0.225	7.50	No	
11		3	-0.081	1.00	No	
		3	-0.061	5.00	No	
12		3	-0.076	0.50	No	
		3	-0.076	5.00	No	
		3	-0.038	4.00	No	
		3	-0.038	4.00	No	
14		3	-0.048	1.00	No	
		3	-0.048	1.00	No	
W90		9	x	-0.175	0.50	No
			x	-0.175	7.50	No
	10	x	-0.173	0.50	No	
		x	-0.173	7.50	No	
	11	x	-0.086	1.00	No	
		x	-0.058	5.00	No	
	12	x	-0.063	0.50	No	
		x	-0.063	5.00	No	
		x	-0.046	4.00	No	
		x	-0.046	4.00	No	
	14	x	-0.048	1.00	No	
		x	-0.048	1.00	No	
	W120	9	2	-0.227	0.50	No
			2	-0.227	7.50	No

	10	2	-0.225	0.50	No
		2	-0.225	7.50	No
	11	2	-0.081	1.00	No
		2	-0.061	5.00	No
	12	2	-0.076	0.50	No
		2	-0.076	5.00	No
		2	-0.038	4.00	No
	14	2	-0.048	1.00	No
W150	9	2	-0.332	0.50	No
		2	-0.332	7.50	No
	10	2	-0.328	0.50	No
		2	-0.328	7.50	No
	11	2	-0.054	1.00	No
		2	-0.067	5.00	No
	12	2	-0.104	0.50	No
		2	-0.104	5.00	No
		2	-0.023	4.00	No
	14	2	-0.048	1.00	No
Di	9	y	-0.203	0.50	No
		y	-0.203	7.50	No
	10	y	-0.20	0.50	No
		y	-0.20	7.50	No
	11	y	-0.055	1.00	No
		y	-0.048	1.00	No
		y	-0.049	5.00	No
	12	y	-0.066	0.50	No
		y	-0.066	5.00	No
		y	-0.056	4.00	No
	14	y	-0.048	1.00	No
W10	9	z	-0.069	0.50	No
		z	-0.069	7.50	No
	10	z	-0.068	0.50	No
		z	-0.068	7.50	No
	11	z	-0.013	1.00	No
		z	-0.013	1.00	No
		z	-0.016	5.00	No
	12	z	-0.025	0.50	No
		z	-0.025	5.00	No
		z	-0.006	4.00	No
	14	z	-0.011	1.00	No
W130	9	3	-0.06	0.50	No
		3	-0.06	7.50	No
	10	3	-0.059	0.50	No
		3	-0.059	7.50	No
	11	3	-0.012	1.00	No
		3	-0.015	5.00	No
	12	3	-0.022	0.50	No
		3	-0.022	5.00	No
		3	-0.007	4.00	No
	14	3	-0.011	1.00	No
W160	9	3	-0.044	0.50	No
		3	-0.044	7.50	No
	10	3	-0.044	0.50	No
		3	-0.044	7.50	No
	11	3	-0.018	1.00	No
		3	-0.014	5.00	No
	12	3	-0.018	0.50	No
		3	-0.018	5.00	No
		3	-0.01	4.00	No
	14	3	-0.011	1.00	No

WI90	9	x	-0.036	0.50	No
		x	-0.036	7.50	No
	10	x	-0.036	0.50	No
		x	-0.036	7.50	No
	11	x	-0.019	1.00	No
		x	-0.014	5.00	No
	12	x	-0.016	0.50	No
x		-0.016	5.00	No	
x		-0.012	4.00	No	
x		-0.011	1.00	No	
WI120	9	2	-0.044	0.50	No
		2	-0.044	7.50	No
	10	2	-0.044	0.50	No
		2	-0.044	7.50	No
	11	2	-0.018	1.00	No
		2	-0.014	5.00	No
	12	2	-0.018	0.50	No
		2	-0.018	5.00	No
		2	-0.01	4.00	No
		2	-0.011	1.00	No
WI150	9	2	-0.06	0.50	No
		2	-0.06	7.50	No
	10	2	-0.059	0.50	No
		2	-0.059	7.50	No
	11	2	-0.012	1.00	No
		2	-0.015	5.00	No
	12	2	-0.022	0.50	No
		2	-0.022	5.00	No
2		-0.007	4.00	No	
2		-0.011	1.00	No	
WLO	9	z	-0.021	0.50	No
		z	-0.021	7.50	No
		z	-0.021	0.50	No
	10	z	-0.021	7.50	No
		z	-0.021	1.00	No
		z	-0.003	1.00	No
	12	z	-0.003	5.00	No
		z	-0.004	5.00	No
		z	-0.007	0.50	No
z		-0.007	5.00	No	
z		-0.001	4.00	No	
z		-0.003	1.00	No	
WL30	9	3	-0.018	0.50	No
		3	-0.018	7.50	No
	10	3	-0.018	0.50	No
		3	-0.018	7.50	No
	11	3	-0.003	1.00	No
		3	-0.004	5.00	No
	12	3	-0.006	0.50	No
		3	-0.006	5.00	No
3		-0.001	4.00	No	
3		-0.003	1.00	No	
WL60	9	3	-0.013	0.50	No
		3	-0.013	7.50	No
	10	3	-0.012	0.50	No
		3	-0.012	7.50	No
	11	3	-0.004	1.00	No
		3	-0.003	5.00	No
	12	3	-0.005	0.50	No
		3	-0.005	5.00	No
3		-0.002	4.00	No	
3		-0.002	4.00	No	

	14	3	-0.003	1.00	No
WL90	9	x	-0.01	0.50	No
		x	-0.01	7.50	No
	10	x	-0.01	0.50	No
		x	-0.01	7.50	No
	11	x	-0.005	1.00	No
		x	-0.003	5.00	No
	12	x	-0.004	0.50	No
		x	-0.004	5.00	No
		x	-0.002	4.00	No
WL120	14	x	-0.003	1.00	No
	9	2	-0.013	0.50	No
		2	-0.013	7.50	No
	10	2	-0.012	0.50	No
		2	-0.012	7.50	No
	11	2	-0.004	1.00	No
		2	-0.003	5.00	No
	12	2	-0.005	0.50	No
		2	-0.005	5.00	No
		2	-0.002	4.00	No
WL150	14	2	-0.003	1.00	No
	9	2	-0.018	0.50	No
		2	-0.018	7.50	No
	10	2	-0.018	0.50	No
		2	-0.018	7.50	No
	11	2	-0.003	1.00	No
		2	-0.004	5.00	No
	12	2	-0.006	0.50	No
		2	-0.006	5.00	No
		2	-0.001	4.00	No
	14	2	-0.003	1.00	No

### Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00

**Earthquake (Dynamic analysis only)**

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





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## Steel Code Check

Report: Summary - Group by member

### Load conditions to be included in design :

- LC1=1.2D+Wo
- LC2=1.2D+W30
- LC3=1.2D+W60
- LC4=1.2D+W90
- LC5=1.2D+W120
- LC6=1.2D+W150
- LC7=1.2D-Wo
- LC8=1.2D-W30
- LC9=1.2D-W60
- LC10=1.2D-W90
- LC11=1.2D-W120
- LC12=1.2D-W150
- LC13=0.9D+Wo
- LC14=0.9D+W30
- LC15=0.9D+W60
- LC16=0.9D+W90
- LC17=0.9D+W120
- LC18=0.9D+W150
- LC19=0.9D-Wo
- LC20=0.9D-W30
- LC21=0.9D-W60
- LC22=0.9D-W90
- LC23=0.9D-W120
- LC24=0.9D-W150
- LC25=1.2D+Di+Wi0
- LC26=1.2D+Di+Wi30
- LC27=1.2D+Di+Wi60
- LC28=1.2D+Di+Wi90
- LC29=1.2D+Di+Wi120
- LC30=1.2D+Di+Wi150
- LC31=1.2D+Di-Wi0
- LC32=1.2D+Di-Wi30
- LC33=1.2D+Di-Wi60
- LC34=1.2D+Di-Wi90
- LC35=1.2D+Di-Wi120
- LC36=1.2D+Di-Wi150

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<i>HSS_SQR 4X4X1_4</i>	4	LC30 at 0.00%	0.58	OK	
	<i>PIPE 2-1_2x0.203</i>	9	LC1 at 50.00%	0.53	OK	
		10	LC7 at 50.00%	0.52	OK	
	<i>PIPE 2x0.154</i>	11	LC34 at 47.92%	0.35	OK	
		12	LC34 at 47.92%	0.30	OK	
		14	LC4 at 81.25%	0.08	OK	
		15	LC32 at 0.00%	0.17	OK	
		20	LC30 at 33.75%	0.30	OK	
	<i>PIPE 3x0.216</i>	1	LC32 at 49.11%	0.54	OK	

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**PIPE 4x0.237**

**2**

LC9 at 50.00%

**0.00**

**OK**

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## 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
1	-1.50	0.00	0.00	0
3	0.00	0.75	2.60	0
4	0.00	-0.75	2.60	0
6	6.00	0.00	2.80	0
7	-6.00	0.00	2.80	0
16	-5.50	3.00	3.00	0
17	5.50	4.00	3.00	0
18	-1.8333	3.00	3.00	0
19	1.8333	4.00	3.00	0
20	-5.50	-3.00	3.00	0
21	5.50	-4.00	3.00	0
22	-1.8333	-3.00	3.00	0
23	1.8333	-4.00	3.00	0
27	-0.0996	2.50	2.0273	0
28	-0.0996	-0.50	2.0273	0
29	5.00	0.00	2.80	0
30	5.50	0.00	-3.00	0
31	-6.00	1.50	2.80	0
36	6.00	1.50	2.80	0

## Restraints

Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1
30	1	1	1	0	0	0

## Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	6	7		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
2	3	4		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
4	1	2		HSS_SQR 4X4X1_4	A500 GrB rectangular	0.00	0.00	0.00
9	17	21		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
10	19	23		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
11	18	22		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
12	16	20		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
14	27	28		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
15	29	30		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
20	36	31		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

## Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
9	315.00	0	0.00	0.00	0.00
10	315.00	0	0.00	0.00	0.00
11	315.00	0	0.00	0.00	0.00
12	315.00	0	0.00	0.00	0.00
14	315.00	0	0.00	0.00	0.00

## Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
15	0.00	2.00	0.00	0.00	2.00	0.00

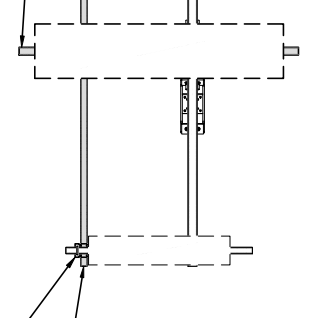


**NOTE:**  
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: APRIL 16, 2020.

**NOTE:**  
FOR STRUCTURAL ANALYSIS BY OTHER ENGINEERING SOLUTIONS, DATED: APRIL 24, 2020. FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

REMOVE EXISTING ANTENNA MOUNT AND MOUNT STANDOFF  
2-1/2" STD. (2.88" O.D.)  
PIPES BEHIND PROPOSED  
LTE ANTENNAS (TYP. OF 2  
PER SECTOR, TOTAL OF 6)



INSTALL NEW 2" STD. (2.38" O.D.)  
HORIZONTAL PIPE SECURED TO NEW  
MOUNT AND MOUNT STANDOFF  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

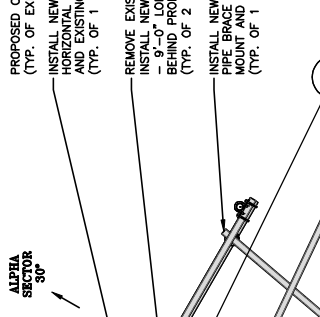
REMOVE EXISTING ANTENNA PIPES AND  
INSTALL NEW 2-1/2" STD. (2.88" O.D.)  
PIPES BEHIND PROPOSED LTE ANTENNAS  
(TYP. OF 2 PER SECTOR, TOTAL OF 6)

INSTALL NEW 2" STD. (2.38" O.D.)  
PIPE BRACE SECURED TO THE EXISTING  
MOUNT AND MOUNT STANDOFF  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED PIPE TO PIPE CLAMP SITE PRO 1  
PART# PUCK (TYP.) (OR APPROVED EQUAL)

PROPOSED CROSSOVER PLATE SITE PRO 1 PART# SCX2-K  
(TYP. OF PROPOSED ANTENNA PIPES)

PROPOSED CROSSOVER PLATE SITE PRO 1 PART# SCX1-K  
(TYP. OF EXISTING ANTENNA PIPES)



REMOVE EXISTING ANTENNA PIPES AND  
INSTALL NEW 2-1/2" STD. (2.88" O.D.)  
ANTENNA PIPES BEHIND PROPOSED  
LTE ANTENNAS (TYP. OF 2 PER SECTOR, TOTAL OF 6)

PROPOSED CROSSOVER PLATE  
SITE PRO 1 PART# SCX2-K  
(TYP. OF PROPOSED ANTENNA PIPES)

PROPOSED PIPE TO PIPE CLAMP SITE PRO 1  
PART# PUCK (TYP.) (OR APPROVED EQUAL)

INSTALL NEW 2" STD. (2.38" O.D.)  
PIPE BRACE SECURED TO THE EXISTING  
MOUNT AND MOUNT STANDOFF  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED CROSSOVER PLATE  
SITE PRO 1 PART# SCX45-K  
(TYP. OF PROPOSED ANTENNA PIPES)



INSTALL NEW 2" STD. (2.38" O.D.)  
HORIZONTAL PIPE SECURED TO NEW  
MOUNT AND MOUNT STANDOFF  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

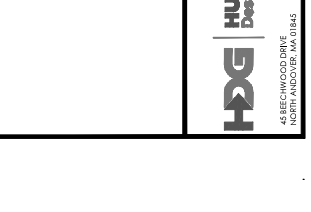
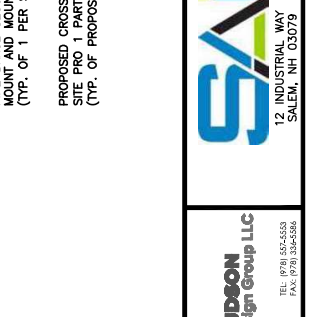
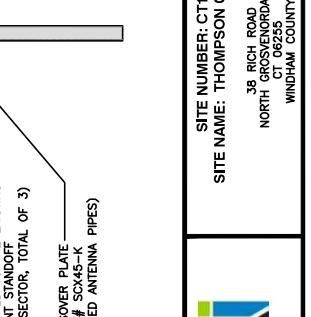
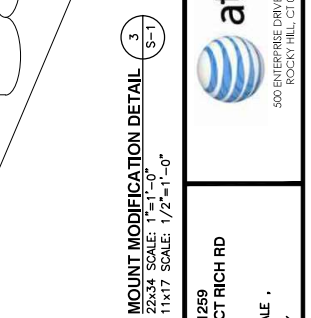
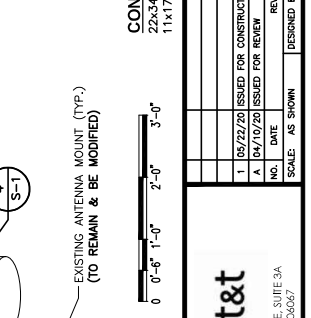
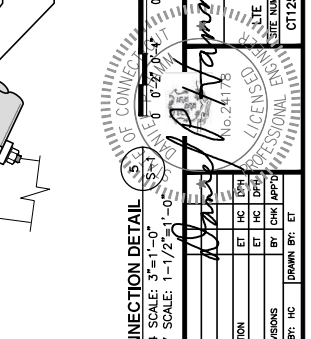
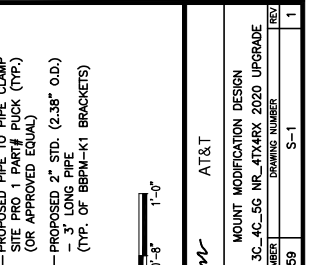
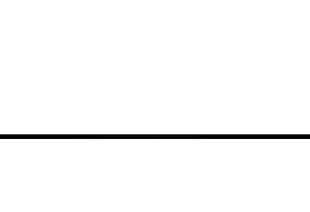
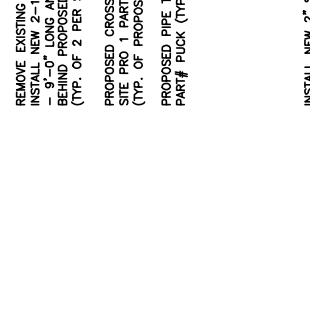
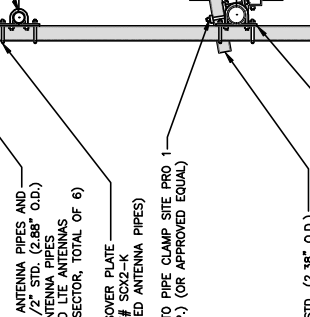
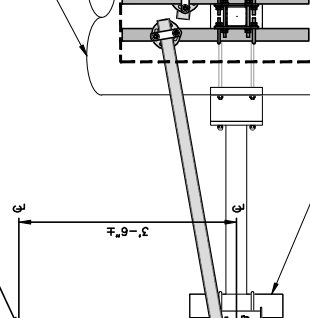
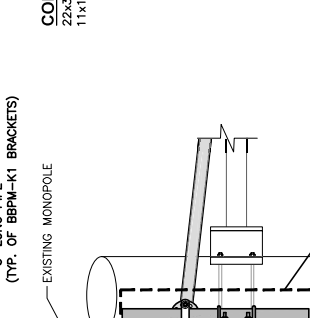
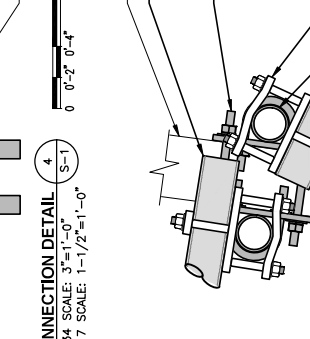
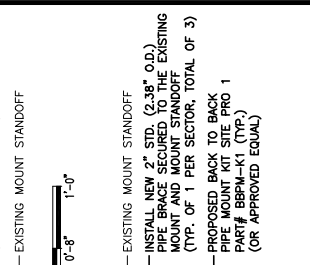
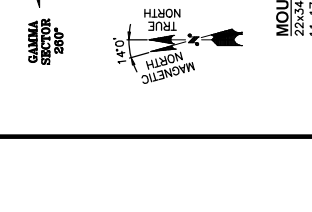
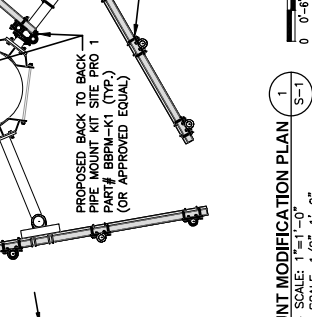
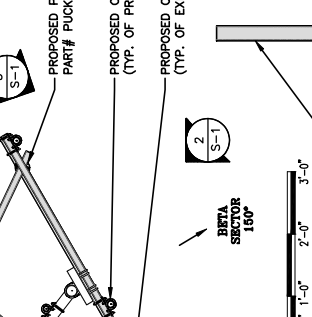
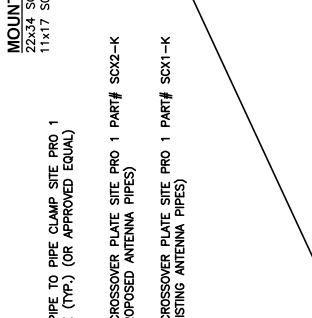
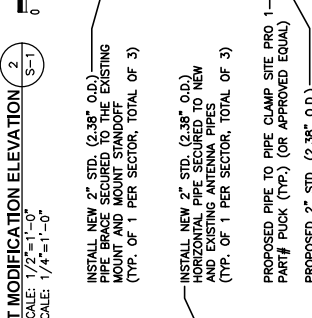
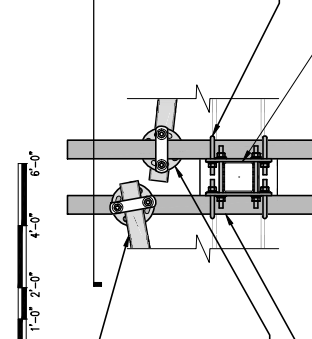
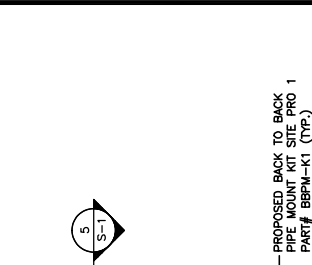
INSTALL NEW 3" STD. (3.38" O.D.)  
HORIZONTAL PIPE SECURED TO NEW  
AND EXISTING ANTENNA PIPES  
(TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED PIPE TO PIPE CLAMP SITE PRO 1  
PART# PUCK (TYP.) (OR APPROVED EQUAL)

PROPOSED 2" STD. (2.38" O.D.)  
- 3' LONG PIPE  
(TYP. OF BBPM-K1 BRACKETS)

EXISTING MONOPOLE

EXISTING ANTENNA MOUNT (TYP.)  
(TO REMAIN & BE MODIFIED)



**MOUNT MODIFICATION DESIGN**

AT&T

1 06/22/20 ISSUED FOR CONSTRUCTION  
2 04/10/20 ISSUED FOR REVIEW

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

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

12 INDUSTRIAL WAY  
SALEM, NH 03079

35 RICH ROAD  
NORTH GROSVENORDALE,  
CT 06255  
WINDHAM COUNTY

SITE NUMBER: CT1259  
SITE NAME: THOMPSON CT RICH RD

45 BEECHWOOD DRIVE  
NORTH ANDOVER, MA 01845

TEL: (978) 455-6550  
FAX: (978) 334-5556

HUDSON Design Group LLC

1 06/22/20 ISSUED FOR CONSTRUCTION  
2 04/10/20 ISSUED FOR REVIEW

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

1 06/22/20 ISSUED FOR CONSTRUCTION  
2 04/10/20 ISSUED FOR REVIEW

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

1 06/22/20 ISSUED FOR CONSTRUCTION  
2 04/10/20 ISSUED FOR REVIEW

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

1 06/22/20 ISSUED FOR CONSTRUCTION  
2 04/10/20 ISSUED FOR REVIEW

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

CURRENT OWNER		TOPO.	UTILITIES	STRT./ROAD	LOCATION	CURRENT ASSESSMENT		
THOMPSON TOWN OF C/O SBA INFRASTRUCTURE LLC TAX DEPT CT11559-A 8051 CONGRESS AVE BOCA RATON, FL 33487 Additional Owners:		1 Level	5 Well 6 Septic	1 Paved	2 Secondary St.	Code 2-5	Appraised Value 136,900	Assessed Value 95,800
SUPPLEMENTAL DATA								
Other ID: SIDE N-42A CENSUS TR 9001 FLOOD PLN NO ACCOUNT # 5976 DV MAP # GIS ID:		DV LOT # SEWER NO BAA CALLBACK! DM Result		ASSOC PID#		Total: 136,900		

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	q/u	w/	SALE PRICE	V.C.
THOMPSON TOWN OF		0789/0277	09/19/2012	U	V	0	25
THOMPSON TOWN OF		0686/0268	11/29/2007	U	V		
Total:		95,800		Total:		95,800	

EXEMPTIONS		Year	Type	Description	Amount	Code	Number	Amount	Comm. Int.
Total:									

OTHER ASSESSMENTS		Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
Total:				95,800		Total: 172,600	

ASSESSING NEIGHBORHOOD		Street Index Name	Batch
Total:			

**NOTES**

V789 P277 MEMO OF ASSIGNMENT  
 10/15 ADDED ACCOUNT SHOULD NOT HAVE  
 BEEN LISTED TO TOWN  
 CELL TOWER AND OB'S TAXABLE  
 8/17 C#15971 CORRECT OUTBUILDINGS  
 DUPLICATE ACCOUNTS

BUILDING PERMIT RECORD		Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments	
Total:											

LAND LINE VALUATION SECTION																
B Use Code #	Use Description	Zone	D	Front	Depth	Units	Unit Price	I. Factor	S.A. Factor	ST. C. Factor	Adj.	Notes- Adj.	S Adj. Fact	Adj.	Unit Price	Land Value
1	3030 COMM LAND					0 SF	0.00	1.00000		1.00	0.00		.00		0.00	0
Total Card Land Units: 0.00 AC Parcel Total Land Area: 0 AC Total Land Value: 0																

**APPRAISED VALUE SUMMARY**

Appraised Bldg. Value (Card) 0  
 Appraised XF (B) Value (Bldg) 0  
 Appraised OB (L) Value (Bldg) 136,900  
 Appraised Land Value (Bldg) 0  
 Special Land Value 0  
 Total Appraised Parcel Value 136,900  
 Valuation Method: C  
 Adjustment: 0  
 Net Total Appraised Parcel Value 136,900

**VISIT/ CHANGE HISTORY**

Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments

**PREVIOUS ASSESSMENTS (HISTORY)**

Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
2018	2-5	95,800	2017	2-5	95,800
Total:		95,800		Total: 172,600	

**VISION**

6140 THOMPSON, CT





### 38 Rich Road



**Property Information**

**Property ID** 104423  
**Location** 38 RICH RD  
**Owner** TOWN OF THOMPSON



**MAP FOR REFERENCE ONLY  
NOT A LEGAL DOCUMENT**

Town of Thompson, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.

Geometry updated April 1, 2018  
Data updated April 1, 2018

**DOCKET NO. 344** - MCF Communications bg, Inc. and } Connecticut  
Omnipoint Communications, Inc. application for a Certificate of }  
Environmental Compatibility and Public Need for the } Siting  
construction, maintenance and operation of a telecommunications }  
facility located at Rich Road, Thompson, Connecticut. } Council

January 10, 2008

### **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 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 MCF Communications bg, Inc. for the construction, maintenance and operation of a wireless telecommunications facility to be located on Rich Road in Thompson, 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 designed and constructed as a monopole no taller than 150 feet above ground level to provide telecommunications services to both public and private entities. Panel antennas to be installed on the tower shall be flush-mounted or attached to the tower using T-arm mounts.
2. The Certificate Holder shall prepare a Development and Management (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 served on the Town of Thompson and all parties and intervenors, as listed in the service list, and submitted to and approved by the Council prior to the commencement of facility construction and shall include:
  - a) a final site plan(s) of site development to include specifications for the tower, tower foundation, antenna mountings, equipment building, access road, and utility line;
  - b) construction plans for site clearing, water drainage, and erosion and sedimentation control consistent with the 2002 Connecticut Guidelines for Soil Erosion and Sediment Control, as amended.

3. The Certificate Holder shall, prior to the commencement of operation, provide the Council worst-case modeling of the 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 ensure a recalculated report of the electromagnetic radio frequency power density be submitted to the Council in the event other carriers locate at this facility or if 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. The Certificate Holder shall provide reasonable space on the tower for no compensation for any Town of Thompson public safety services (police, fire and medical services), provided such use can be accommodated and is compatible with the structural integrity of the tower.
7. Unless otherwise approved by the Council, if the facility authorized herein is not fully constructed and providing wireless services within eighteen months from the date of the mailing of the Council's Findings of Fact, Opinion, and Decision and Order (collectively called "Final Decision"), 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. The time between the filing and resolution of any appeals of the Council's Final Decision shall not be counted in calculating this deadline.
8. Any request for extension of the time period referred to in Condition 7 shall be filed with the Council not later than 60 days prior to the expiration date of this Certificate and shall be served on all parties and intervenors, as listed in the service list, and the Town of Thompson. Any proposed modifications to this Decision and Order shall likewise be so served.
9. If the facility ceases to provide wireless services for a period of one year, 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.
10. The Certificate Holder shall remove any nonfunctioning antenna, and associated antenna mounting equipment, within 60 days of the date the antenna ceased to function.

11. In accordance with Section 16-50j-77 of the Regulations of Connecticut State Agencies, the Certificate Holder shall provide the Council with written notice two weeks prior to the commencement of construction activities. In addition, the Certificate Holder shall provide the Council with written notice of the completion of site construction and the commencement of site operation.

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 Norwich Bulletin and The Thompson Villager.

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 in this proceeding are:

<b>Status Granted</b>	<b>Status Holder (name, address &amp; phone number)</b>	<b>Representative (name, address &amp; phone number)</b>
<b>Applicant</b>	MCF Communications bg, Inc. and Omnipoint Communications, Inc.	Julie Kohler, Esq. Carrie Larson, Esq. Cohen and Wolf, P.C 1115 Broad Street Bridgeport, CT 06604 Tel: 203-368-0211 Fax: 203-394-9901 <a href="mailto:JKohler@cohenandwolf.com">JKohler@cohenandwolf.com</a> <a href="mailto:Clarson@cohenandwolf.com">Clarson@cohenandwolf.com</a>
<b>Intervenor Approved 08/29/07</b>	Cellco Partnership d/b/a Verizon Wireless	Kenneth C. Baldwin, Esq. Robinson & Cole LLP 280 Trumbull Street Hartford, CT 06103-3597 (860) 275-8200



SBA Communications Corporation  
8051 Congress Avenue  
Boca Raton, FL 33487-1307

T + 561.995.7670  
F + 561.995.7626

[sbasite.com](http://sbasite.com)

## LETTER OF AUTHORIZATION

**SBA Site ID:** CT11559-A, Thompson 1, CT

**Property Located at:** 39 Rich Road, North Grosvenordale, CT, 06255

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**THE CITY/COUNTY OF:** North Grosvenordale / Windham

### APPLICATION FOR ZONING/USE/BUILDING PERMIT

This letter authorizes AT&T and its authorized agents to file for all necessary zoning, planning and building permits (local, state and federal) for the purposes of installing, operating and maintaining a telecommunications facility on the existing tower on the property referenced above on behalf of Town of Thompson CT.

All approval conditions that may be granted to AT&T in connection with above referenced facility relating to this specific application are the sole responsibility of AT&T.

SBA Infrastructure, LLC

A handwritten signature in black ink, appearing to read 'Jason Silberstein', is written over a horizontal line.

Jason Silberstein

Executive VP, Site Leasing

Date: 4/23/2020



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Flat Rate Env



06/01/2020

Mailed from 06450 062S0000001311

**P**

**PRIORITY MAIL 1-DAY™**

Expected Delivery Date: 06/02/20

HOLLIS REDDING  
39 WESTVIEW DR  
MERIDEN CT 06450-4723

Ref#: Thompson

**0005**

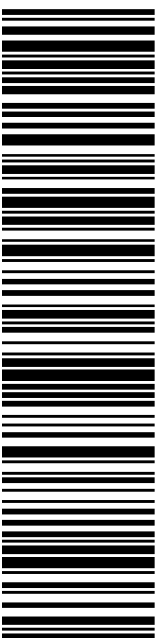
Carrier -- Leave if No Response

**R777**

SHIP

TO: AMY ST ONG  
TOWN OF THOMPSON TOWN HALL  
815 RIVERSIDE DR  
N GROSVENORDL CT 06255

USPS TRACKING #



9405 5036 9930 0398 1002 99

Electronic Rate Approved #038555749



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06/01/2020

Mailed from 06450 062S0000000313

**P**

**PRIORITY MAIL 1-DAY™**

Expected Delivery Date: 06/02/20

HOLLIS REDDING  
39 WESTVIEW DR  
MERIDEN CT 06450-4723

**0005**

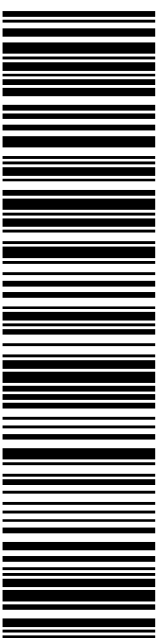
Carrier -- Leave if No Response

**R777**

SHIP

TO: TYRA PENN-GESEK  
TOWN OF THOMPSON TOWN HALL  
815 RIVERSIDE DR  
N GROSVENORDL CT 06255

USPS TRACKING #



9405 5036 9930 0398 1003 29

Electronic Rate Approved #038555749

Cut on dotted line.



## Hollis Redding

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**Subject:** Thompson CT CSC Filing SBA Site CT115559-A Thompson 1 / AT&T Site CT1259  
Thompson CT Rich Rd

Mike-

Attached please find the Exempt Mod filing which will be filed with the CSC on June 1, 2020. Thank you. Hollis

Hollis M. Redding



SAI Communications LLC  
Mobile: 860-834-6964  
[hredding@saigrp.com](mailto:hredding@saigrp.com)