



January 27, 2022

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

Re: Notice of Exempt Modification New Cingular Wireless PCS LLC ("AT&T") Site CT5513  
11 Francis J. Clarke Circle, Bethel, CT 06801 (the "Property")  
Latitude: 41.3600919 N Longitude: 73.4249989 W

Dear Ms. Bachman:

AT&T currently maintains (6) antennas at the 127' level on the existing 155' monopole ("Tower") at 11 Francis J. Clarke Circle, in Bethel, CT. The Tower is owned by SBA Towers, LLC ("SBA") and property is owned by the Estate of Costa Stergue. AT&T intends to modify its facility by replacing (3) antennas with (3) HPA65R-BU6A antennas & adding (3) DMP65R-BU6DA antennas and replacing (6) RRUs with (3) 4449 B5/B12 & (3) 8843 B2/B66A RRUs. The height of AT&T's existing and proposed antennas & RRUs is 127'.

This modification includes B2, B5, and B12 hardware that is both 4G (LTE) and 5G NR capable through remote software configuration and either or both services may be turned on or off at various times.

The SBA facility received a special permit/site plan approval from the Bethel Planning and Zoning Commission on April 13, 1999, a revised site plan approval was received on November 14, 2000, and the original site plan approval was reinstated on April 9, 2002. AT&T received CT Siting Council approval under EM-SBA-009-020809 on September 5, 2002. These approvals contained no conditions that could feasibly be violated by this modification, including facility height or mounting restrictions. AT&T's modification complies with the above-mentioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with R.C.S.A §16-50j-73, a copy of this letter is being sent to Hon. Matthew Knickerbocker, First Selectman, Town of Bethel, Ms. Beth Cavagna, Director Land Use/ Town Planner, Town of Bethel, the Estate of Costa Stergue, the property owner and SBA, the tower owner.

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

1. The proposed modifications will not result in an increase in the height of the new 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 new 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:

Hon. Matthew Knickerbocker, First Selectman, Town of Bethel, elected official  
Ms. Beth Cavagna, Director Land Use/Town Planner, Town of Bethel  
The Estate of Costa Sterguez, property owner  
SBA Towers, LLC, 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*							14.62%
AT&T	2	414	127	0.0203	850	0.5667	0.36%
AT&T	2	656	127	0.0322	1900	1.0000	0.32%
AT&T	2	1117	127	0.0549	700	0.4667	1.18%
AT&T	2	1942	127	0.0954	1900	1.0000	0.95%
Site Total							17.43%

\*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 new Structure

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*							14.62%
AT&T	1	414	127	0.0102	850	0.5667	0.18%
AT&T	2	1476	127	0.0725	700	0.4667	1.55%
AT&T	1	1476	127	0.0363	700	0.4667	0.78%
AT&T	1	1476	127	0.0363	850	0.5667	0.64%
AT&T	2	2421	127	0.1189	1900	1.0000	1.19%
Site Total							18.96%

\*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

**PROJECT INFORMATION**

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

- NEW AT&T ANTENNAS: HPA65R-BU6A (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: DMP65R-BU6DA (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/B66A (PCS/AWS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T BACK-TO-BACK MOUNTS (TYP. OF 1 PER SECTOR, TOTAL OF 3)
- NEW AT&T (6) Y-CABLES
- NEW AT&T (1) 18 PAIR FIBER TRUNK
- PROPOSED MOUNT MODS (SEE S-1 SHEET).

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:

- ADD (1) XMU.
- ADD 2ND 6630 FOR 5G.
- ADD (1) IDLe.
- NEW AT&T RRUS: 4478 B14 (700) (TYP. OF 1 PER ALPHA & BETA SECTOR, TOTAL OF 2).

ITEMS TO BE REMOVED:

- EXISTING AT&T ANTENNAS: P65-16-XLH-RR (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRUS-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRUS-12 B2 (PCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T DIPLEXERS: LGP21901 (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T (1) 12 PAIR FIBER TRUNK

ITEMS TO REMAIN:

(3) ANTENNAS, (6) TMA'S (1) SURGE ARRESTOR, (12) COAX CABLES, (2) DC POWER & (1) FIBER.

SITE ADDRESS: 11 FRANCIS J CLARKE CIRCLE  
BETHEL, CT 06801

LATITUDE: 41.3600919° N, 41° 21' 36.33" N

LONGITUDE: 73.4249989° W, 73° 28' 29.99" W

TYPE OF SITE: MONOPOLE / INDOOR EQUIPMENT

STRUCTURE HEIGHT: 155'-0"±

RAD CENTER: 127'-0"±

CURRENT USE: TELECOMMUNICATIONS FACILITY

PROPOSED USE: TELECOMMUNICATIONS FACILITY



**SITE NUMBER: CT5513**

**SITE NAME: BETHEL**

**FA CODE: 10070932**

**PACE ID: MRCTB056950, MRCTB056993, MRCTB056939, MRCTB057064, MRCTB057070**

**PROJECT: LTE\_3C-4C-5G NR UPGRADE**

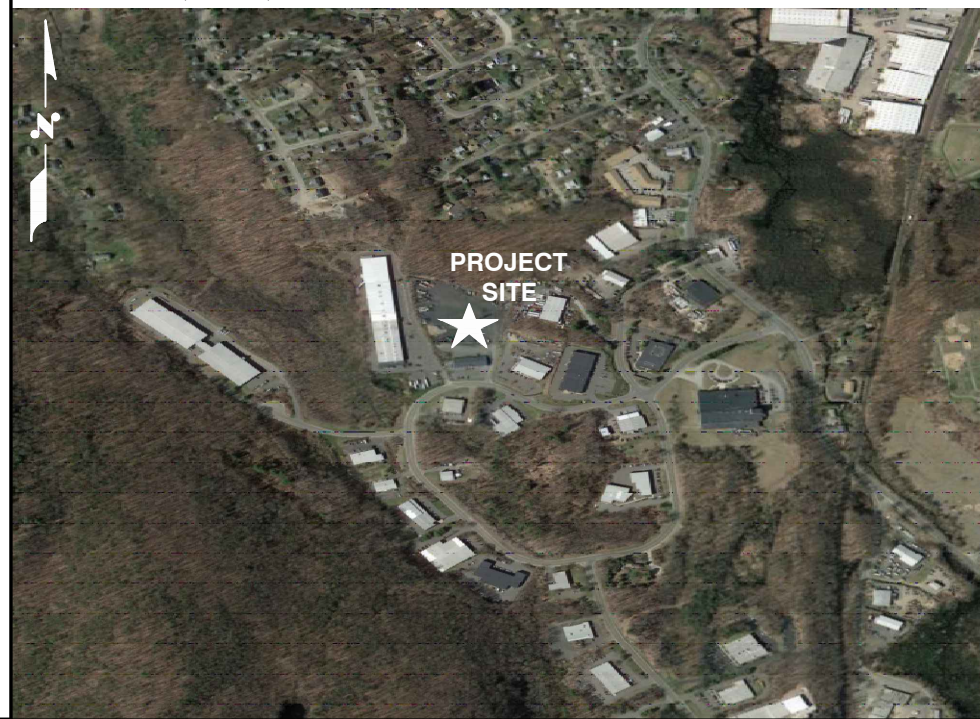
**DRAWING INDEX**

SHEET NO.	DESCRIPTION	REV.
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RF-1	RF PLUMBING DIAGRAM	1

**VICINITY MAP**

**DIRECTIONS TO SITE:**

DEPART ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI. TURN LEFT ONTO CAPITOL BLVD. 0.2 MI. TURN LEFT ONTO WEST ST. 0.3 MI. TAKE RAMP LEFT FOR I-91 SOUTH. 9.1 MI. AT EXIT 18, TAKE RAMP RIGHT FOR I-691 WEST TOWARD MERIDEN/WATERBURY. 7.9 MI. AT EXIT 1, TAKE RAMP LEFT FOR I-84 WEST TOWARD WATERBURY/DANBURY. 32.1 MI. AT EXIT 8, TAKE RAMP RIGHT FOR US-6 WEST TOWARD NEWTOWN RD/BETHEL. 0.4 MI. KEEP STRAIGHT ONTO NEWTOWN RD. 1.5 MI. BEAR LEFT ONTO TRIANGLE ST. 0.7 MI. BEAR LEFT ONTO LEE MAC AVE. 0.2 MI. TURN RIGHT ONTO SHELTER ROCK RD. 475 FT. TURN LEFT ONTO CT-53/SOUTH ST PASS MOBIL IN 1.2 MI. 2.2 MI. TURN RIGHT ONTO 2ND LN. 0.2 MI. TURN RIGHT ONTO FRANCIS J CLARKE CIRCLE. 0.2 MI. ARRIVE AT 11 FRANCIS J CLARKE CIRCLE, BETHEL, CT.



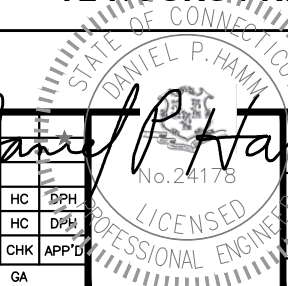
**GENERAL NOTES**

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

**UNDERGROUND SERVICE ALERT**



**WWW.DIGSAFE.COM**  
**72 HOURS PRIOR**



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

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

**SITE NUMBER: CT5513**  
**SITE NAME: BETHEL**

11 FRANCIS J CLARKE CIRCLE  
BETHEL, CT 06801  
FAIRFIELD COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	01/25/22	ISSUED FOR CONSTRUCTION	HC	HC	DPH
A	12/03/21	ISSUED FOR REVIEW	GA	HC	DPH

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

*Daniel P. Hamm*

AT&T

TITLE SHEET  
LTE\_3C-4C-5G NR UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5513	T-1	1

**GROUNDING NOTES**

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

**GENERAL NOTES**

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

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

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

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

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

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

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

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

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

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

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

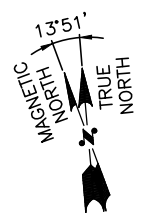
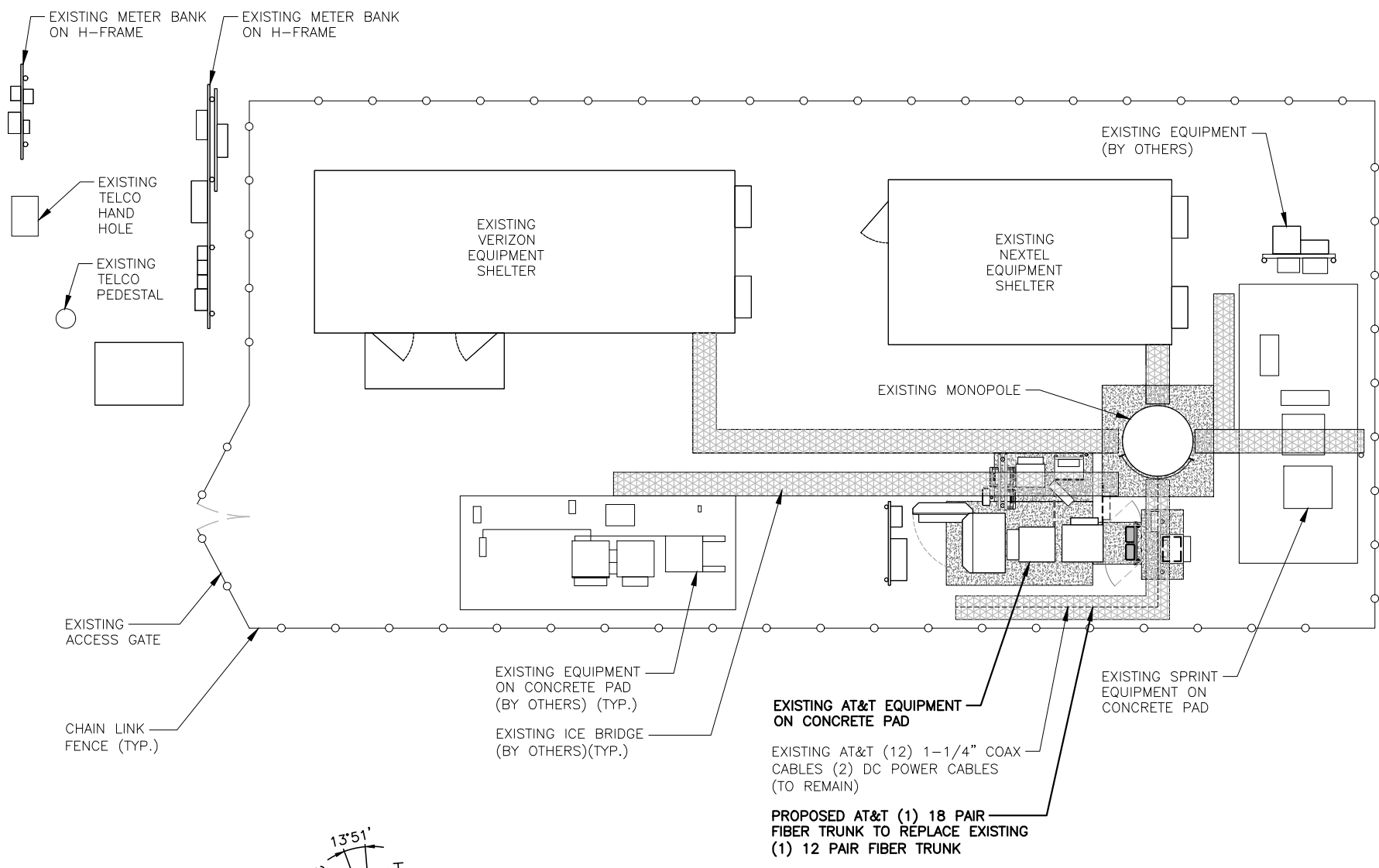
**SITE NUMBER: CT5513  
 SITE NAME: BETHEL**  
 11 FRANCIS J CLARKE CIRCLE  
 BETHEL, CT 06801  
 FAIRFIELD COUNTY

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

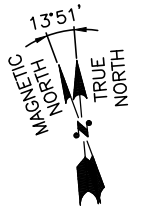
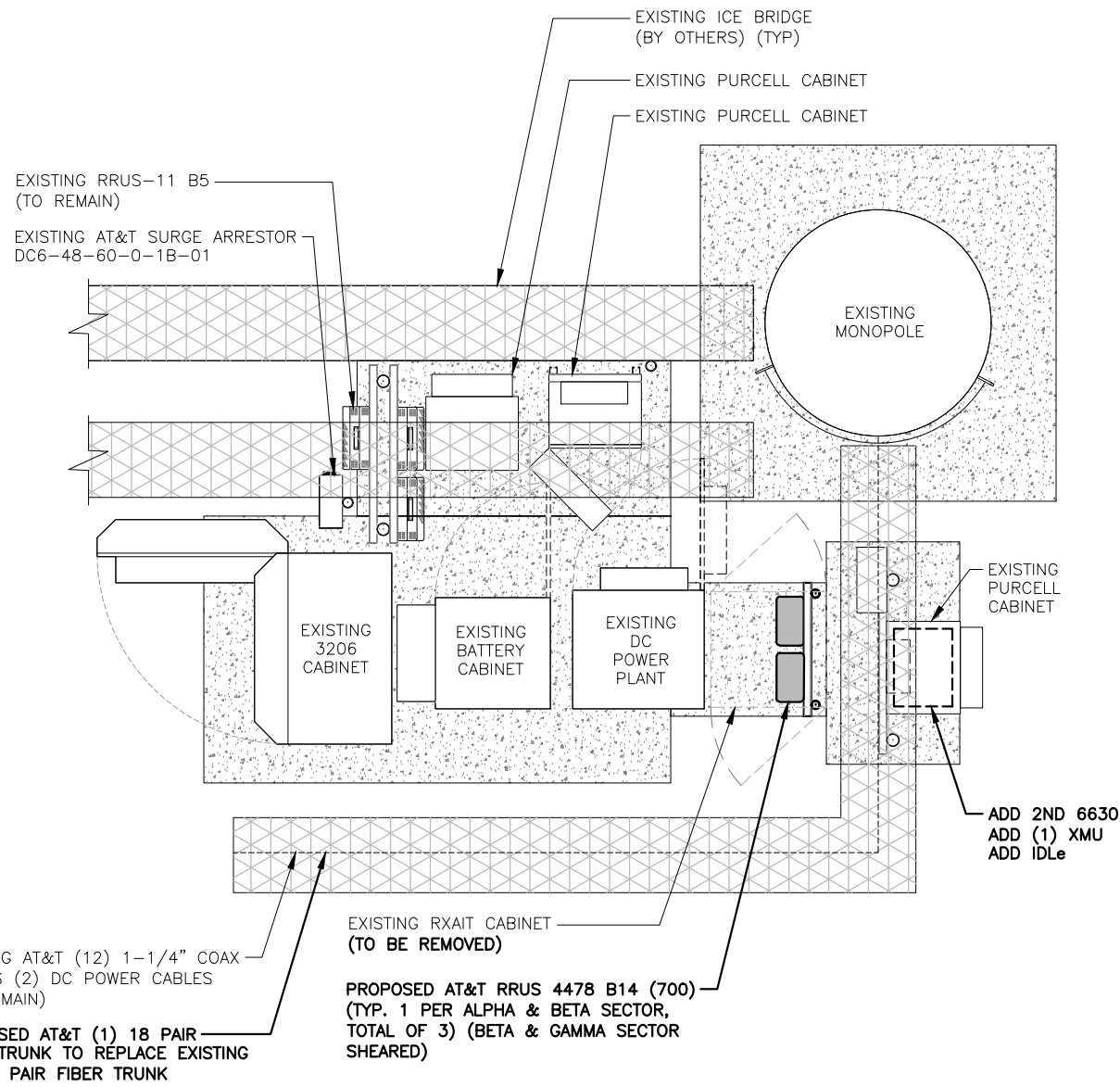
				AT&T	
				GENERAL NOTES	
				LTE_3C-4C-5G NR UPGRADE	
NO.		DATE		REVISIONS	
SCALE: AS SHOWN		DESIGNED BY: HC		DRAWN BY: GA	
SITE NUMBER		DRAWING NUMBER		REV	
CT5513		GN-1		1	

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

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

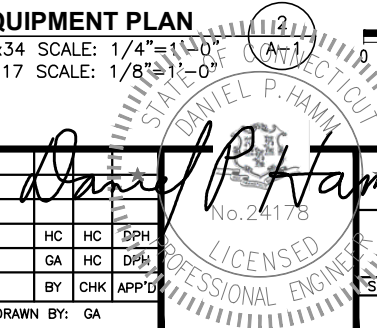


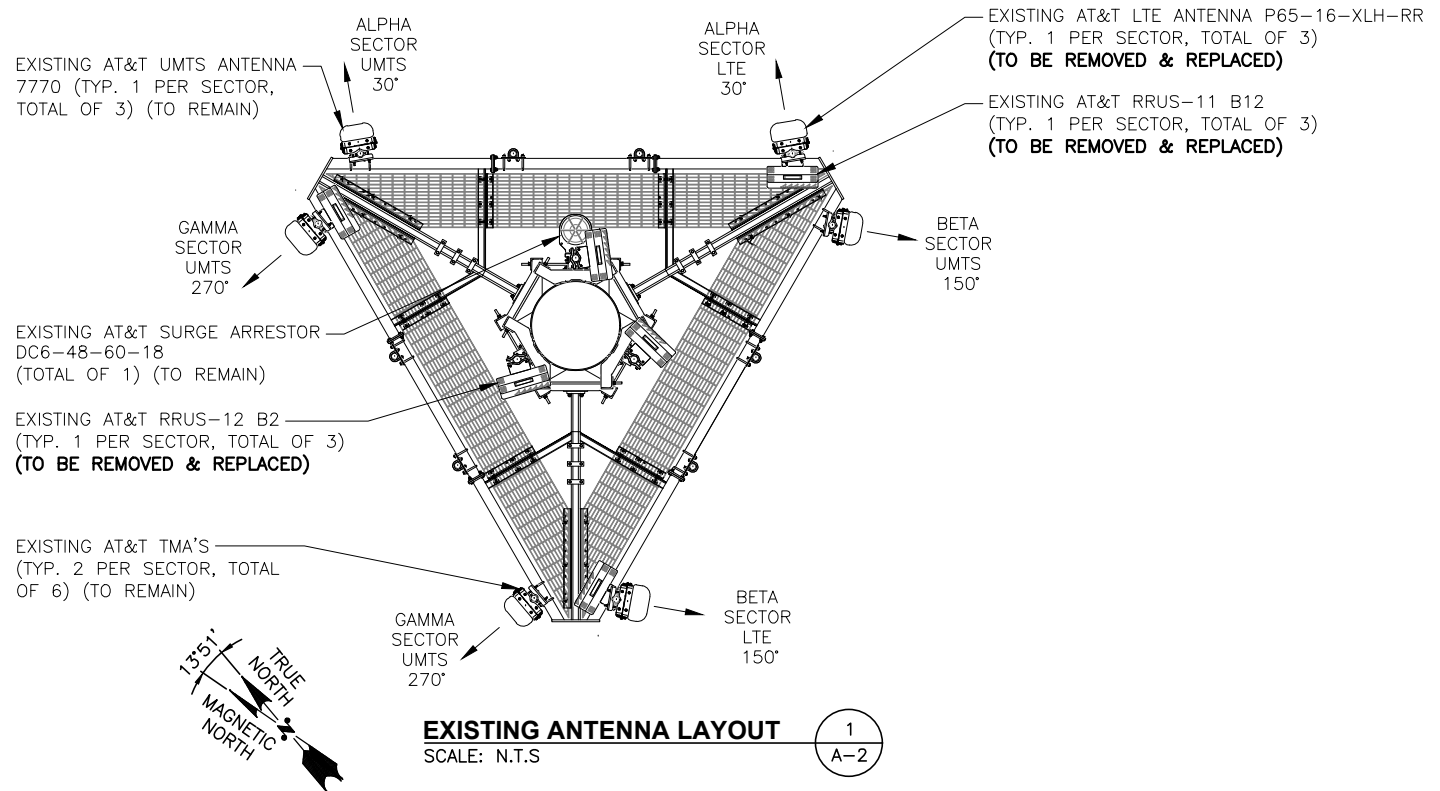
**COMPOUND PLAN**  
22x34 SCALE: 3/16"=1'-0"  
11x17 SCALE: 3/32"=1'-0"



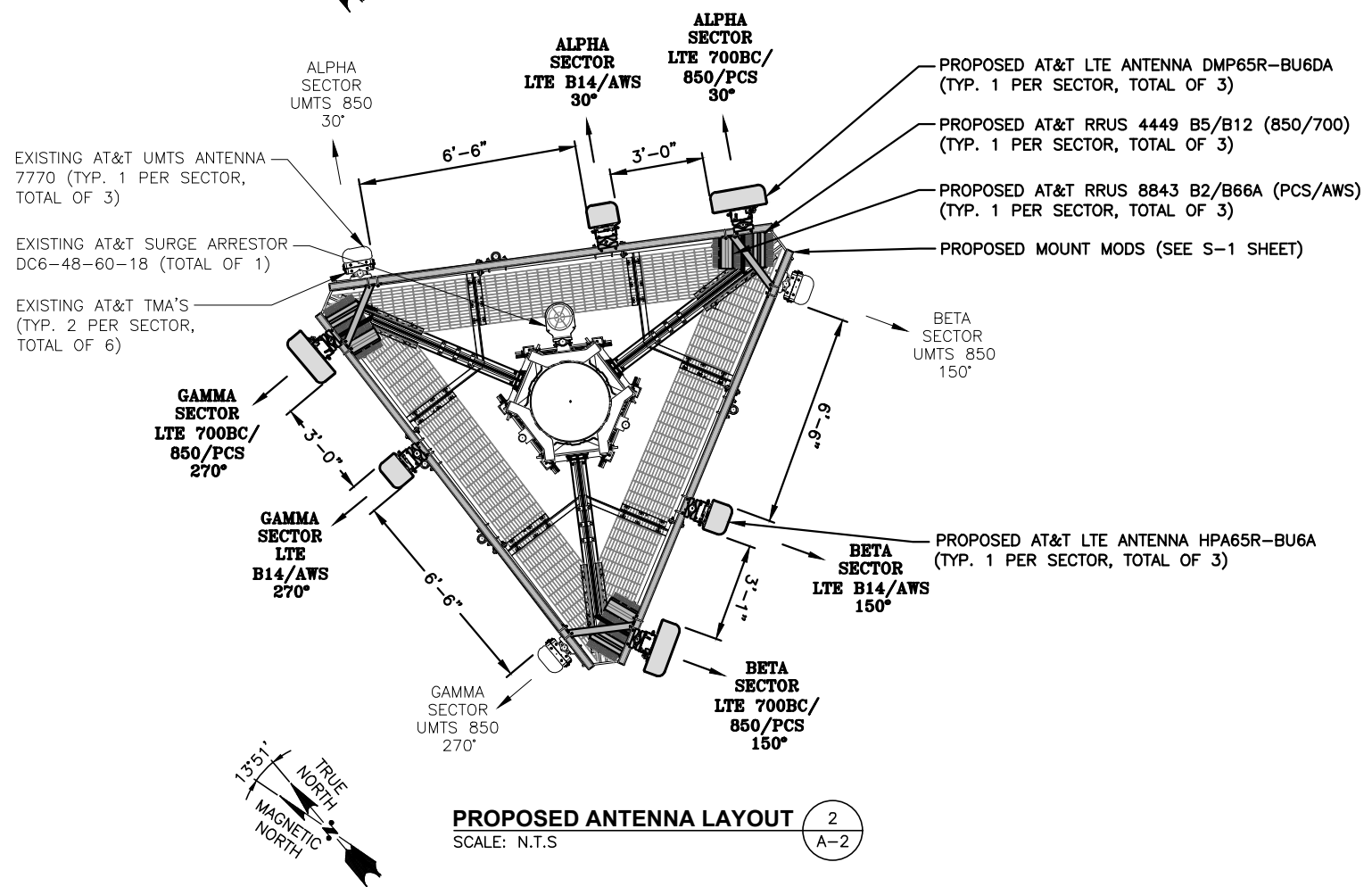
**EQUIPMENT PLAN**  
22x34 SCALE: 1/4"=1'-0"  
11x17 SCALE: 1/8"=1'-0"

1	01/25/22	ISSUED FOR CONSTRUCTION	HC	HC	DPH
A	12/03/21	ISSUED FOR REVIEW	GA	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN			DESIGNED BY: HC	DRAWN BY: GA	

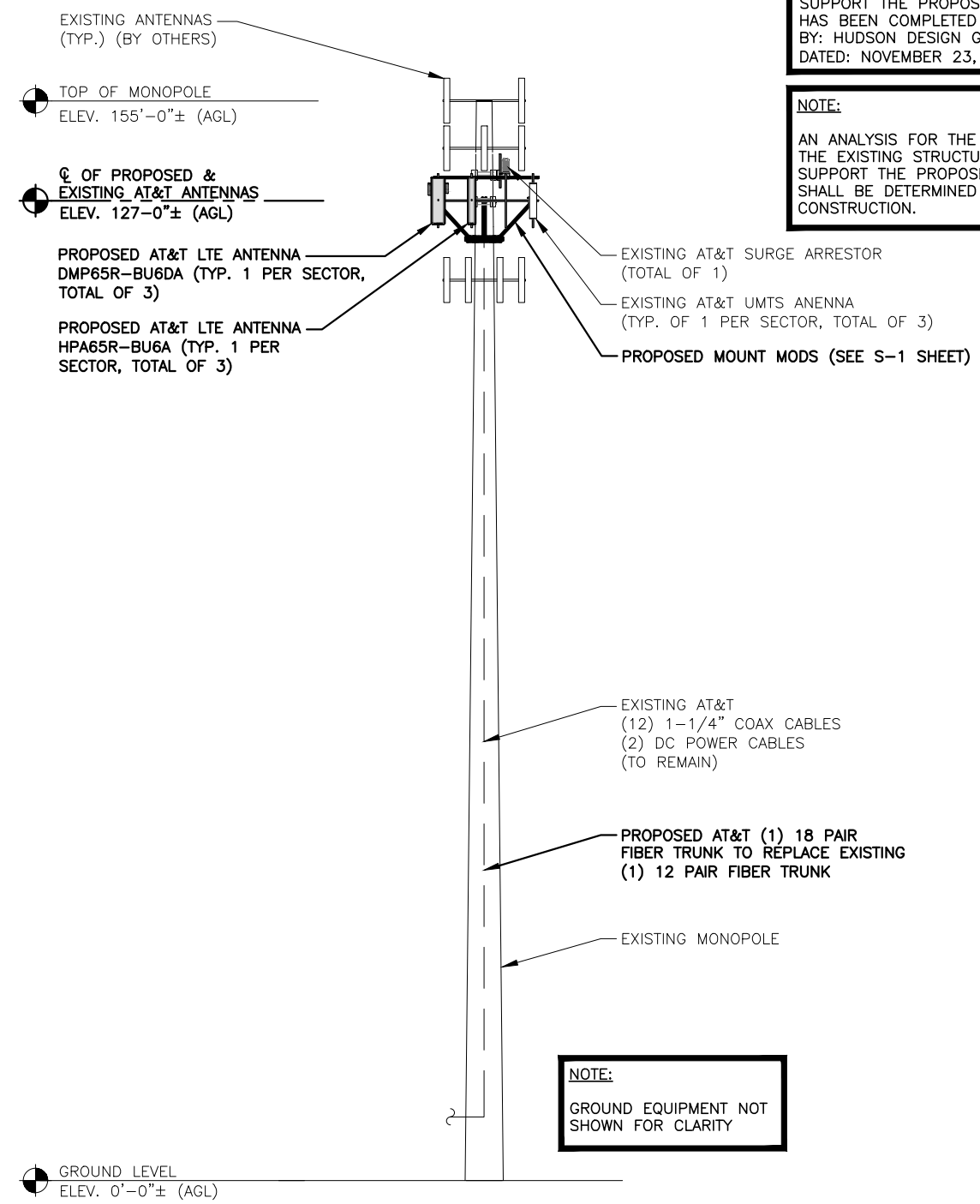




**EXISTING ANTENNA LAYOUT** 1  
SCALE: N.T.S. A-2



**PROPOSED ANTENNA LAYOUT** 2  
SCALE: N.T.S. A-2



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

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

**NOTE:**  
AN ANALYSIS FOR THE CAPACITY OF EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: NOVEMBER 23, 2021 (Rev.1)

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

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

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

**SITE NUMBER: CT5513**  
**SITE NAME: BETHEL**  
11 FRANCIS J CLARKE CIRCLE  
BETHEL, CT 06801  
FAIRFIELD COUNTY

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

1	01/25/22	ISSUED FOR CONSTRUCTION	HC	HC	DPH
A	12/03/21	ISSUED FOR REVIEW	GA	HC	DPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: GA		

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

**AT&T**

**ANTENNA LAYOUTS & ELEVATION**  
**LTE\_3C-4C-5G NR UPGRADE**

SITE NUMBER	DRAWING NUMBER	REV
CT5513	A-2	1

**ANTENNA SCHEDULE**

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA Q. HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	7770	55X11X5	127-0"±	30°	(2)(E) LGP21401	-	-	(2)1-1/4 COAX	(E) (1) RAYCAP DC6-48-60-18
A2	-	-	-	-	-	-	-	-	-	-	
A3	PROPOSED	LTE B14/AWS	HPA65R-BU6A	71X11.7X7.6	127-0"±	30°	-	(1)(P)(G) 4478 B14 (700)	18.1"x13.4"x8.3"	(2)1-1/4 COAX	
A4	PROPOSED	LTE 700BC/ 850/PCS	DMP65R-BU6DA	71.2X20.7X7.7	127-0"±	30°	-	(1)(P)4449 B5/B12 (850/700) (1)(P)8843 B2/B66A (PCS/AWS)	17.9"x13.2"x10.4" 14.9"x13.2"x10.9"	(2) DC POWER & (P)(1) FIBER LINE	
B1	EXISTING	UMTS 850	7770	55X11X5	127-0"±	150°	(2)(E) LGP21401	-	-	(2)1-1/4 COAX	1
B2	-	-	-	-	-	-	-	-	-	-	
B3	PROPOSED	LTE B14/AWS	HPA65R-BU6A	71X11.7X7.6	127-0"±	150°	-	(1)(P)(G) 4478 B14 (700)	18.1"x13.4"x8.3"	(2)1-1/4 COAX	
B4	PROPOSED	LTE 700BC/ 850/PCS	DMP65R-BU6DA	71.2X20.7X7.7	127-0"±	150°	-	(1)(P)4449 B5/B12 (850/700) (1)(P)8843 B2/B66A (PCS/AWS)	17.9"x13.2"x10.4" 14.9"x13.2"x10.9"	-	
C1	EXISTING	UMTS 850	7770	55X11X5	127-0"±	270°	(2)(E) LGP21401	-	-	(2)1-1/4 COAX	1
C2	-	-	-	-	-	-	-	-	-	-	
C3	PROPOSED	LTE B14/AWS	HPA65R-BU6A	71X11.7X7.6	127-0"±	270°	-	-	-	(2)1-1/4 COAX	
C4	PROPOSED	LTE 700BC/ 850/PCS	DMP65R-BU6DA	71.2X20.7X7.7	127-0"±	270°	-	(1)(P)4449 B5/B12 (850/700) (1)(P)8843 B2/B66A (PCS/AWS)	17.9"x13.2"x10.4" 14.9"x13.2"x10.9"	-	

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

**NOTE:**  
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**FINAL ANTENNA SCHEDULE** 1  
SCALE: N.T.S. A-3

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

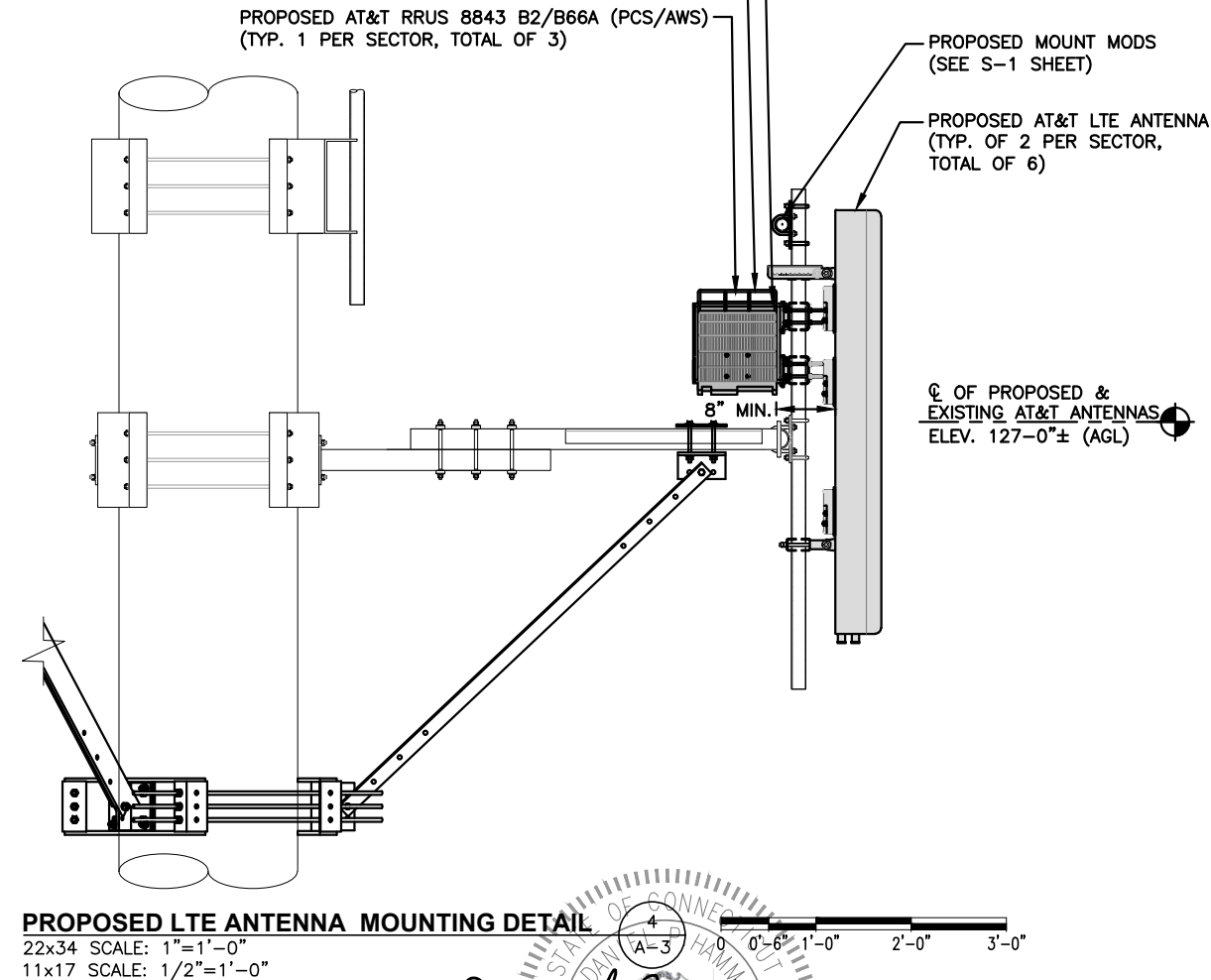
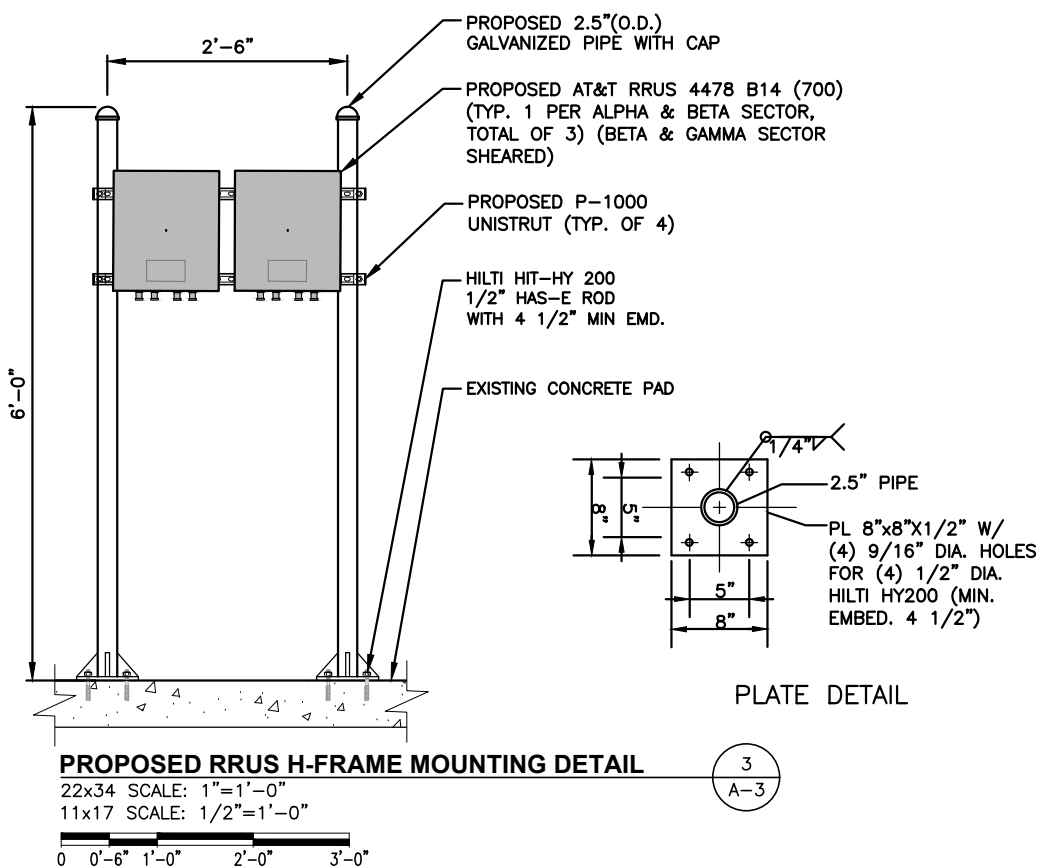
**NOTE:**  
MOUNT PER MANUFACTURER'S SPECIFICATIONS

**NOTE:**  
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER

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

**NOTE:**  
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

**PROPOSED RRUS DETAIL** 2  
SCALE: N.T.S. A-3



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



**STRUCTURAL NOTES:**

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

**SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):**

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

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

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

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

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



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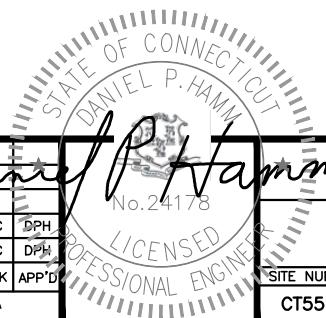
**SITE NUMBER: CT5513**  
**SITE NAME: BETHEL**

11 FRANCIS J CLARKE CIRCLE  
BETHEL, CT 06801  
FAIRFIELD COUNTY



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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	01/25/22	ISSUED FOR CONSTRUCTION	HC	HC	DPH
A	12/03/21	ISSUED FOR REVIEW	GA	HC	DPH
SCALE: AS SHOWN		DESIGNED BY: HC	DRAWN BY: GA		

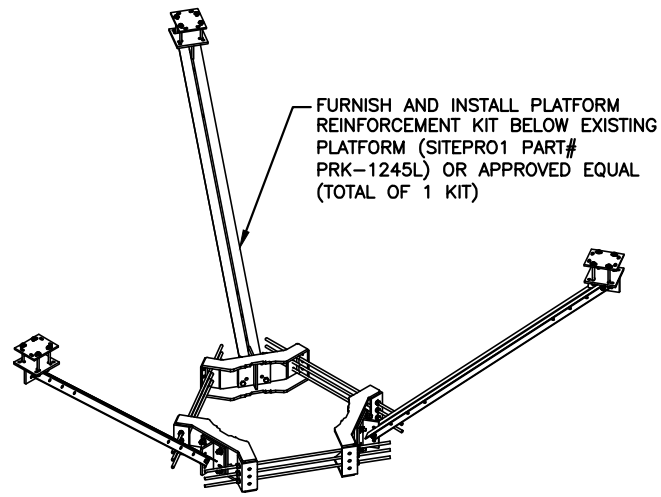


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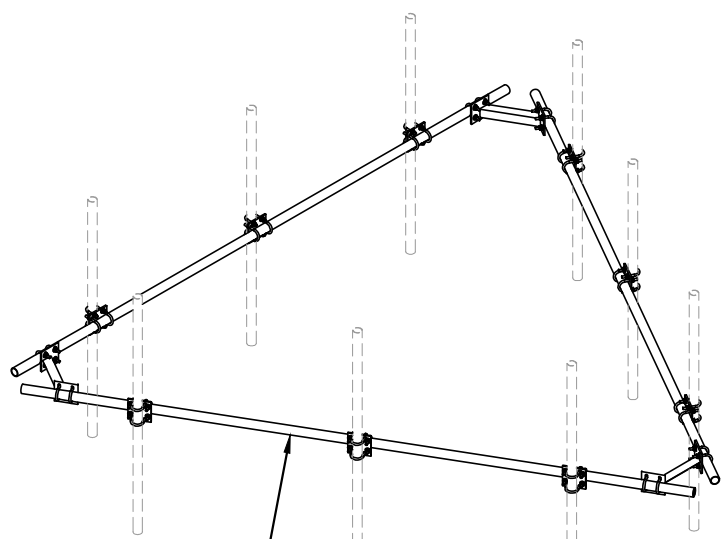
STRUCTURAL NOTES  
LTE\_3C-4C-5G NR UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5513	SN-1	1



FURNISH AND INSTALL PLATFORM REINFORCEMENT KIT BELOW EXISTING PLATFORM (SITEPRO1 PART# PRK-1245L) OR APPROVED EQUAL (TOTAL OF 1 KIT)

**PLATFORM REINFORCEMENT KIT DETAIL** 3  
SCALE: N.T.S. S-1



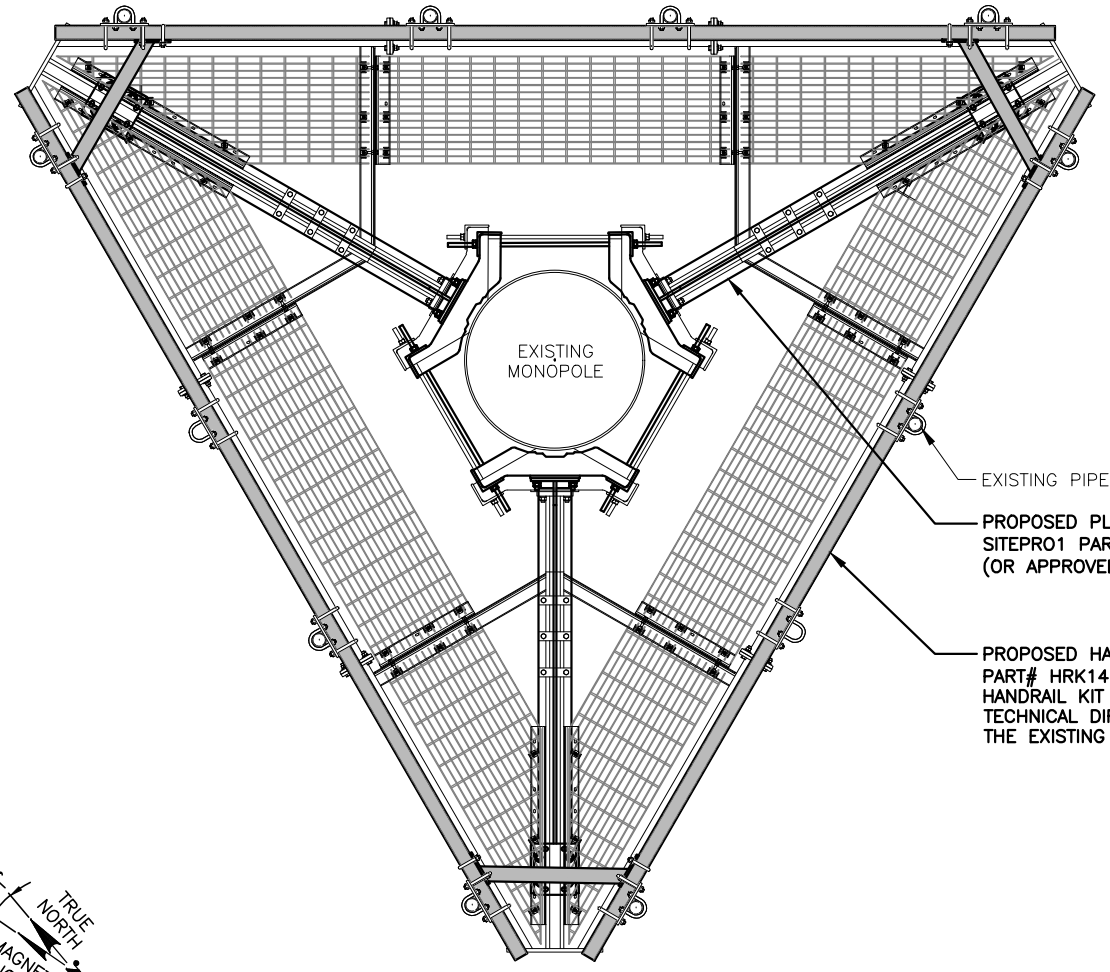
FURNISH AND INSTALL NEW HANDRAIL KIT (SITEPRO1 PART# HRK14)

**HANDRAIL KIT DETAIL** 4  
SCALE: N.T.S. S-1

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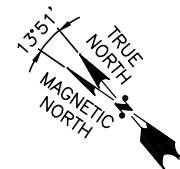


EXISTING MONOPOLE

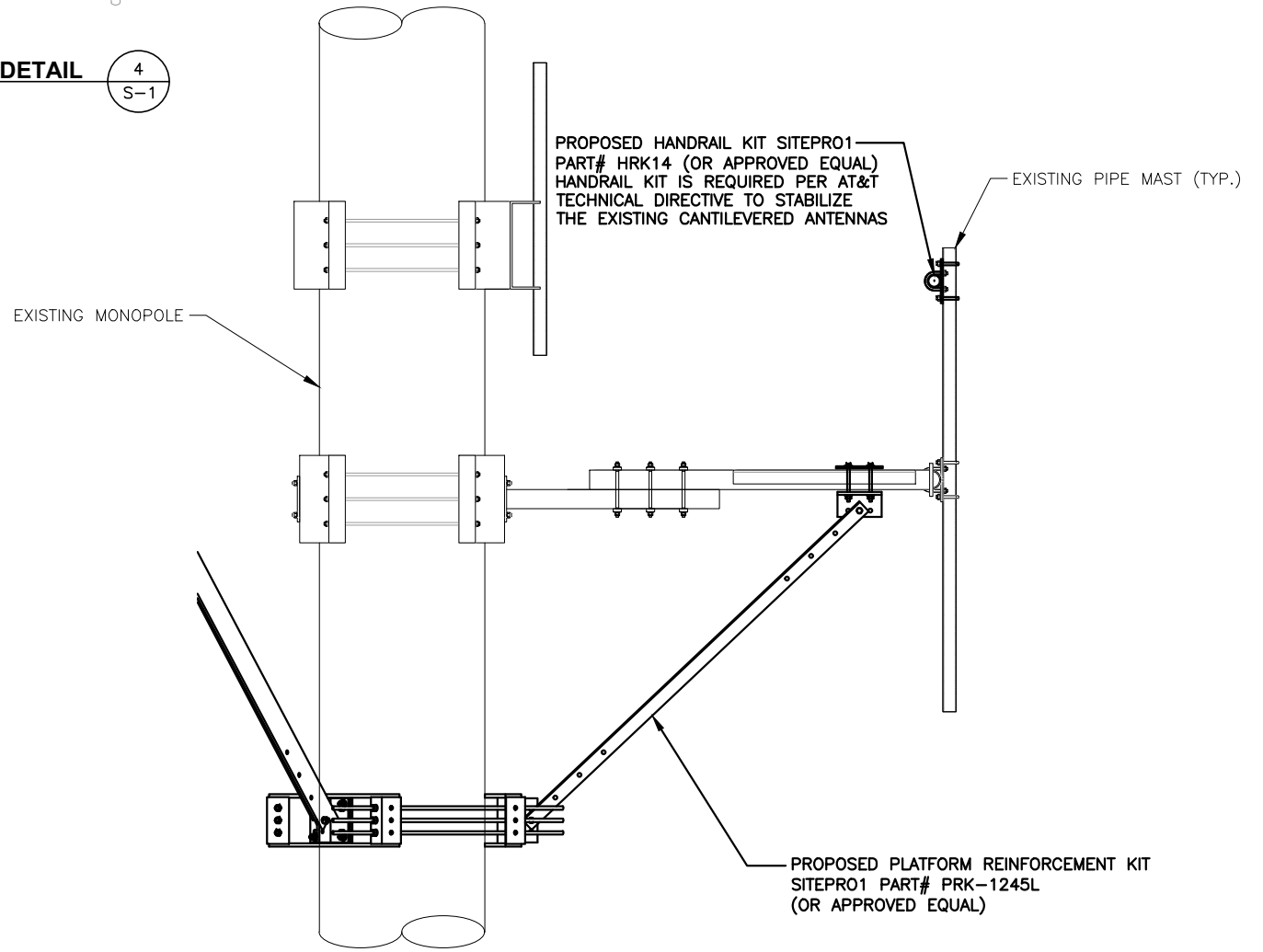
EXISTING PIPE MAST (TYP.)

PROPOSED PLATFORM REINFORCEMENT KIT SITEPRO1 PART# PRK-1245L (OR APPROVED EQUAL)

PROPOSED HANDRAIL KIT SITEPRO1 PART# HRK14 (OR APPROVED EQUAL) HANDRAIL KIT IS REQUIRED PER AT&T TECHNICAL DIRECTIVE TO STABILIZE THE EXISTING CANTILEVERED ANTENNAS



**PROPOSED MOUNT MODIFICATIONS PLAN** 1  
22x34 SCALE: 3/4"=1'-0"  
11x17 SCALE: 3/8"=1'-0"  
S-1



EXISTING MONOPOLE

PROPOSED HANDRAIL KIT SITEPRO1 PART# HRK14 (OR APPROVED EQUAL) HANDRAIL KIT IS REQUIRED PER AT&T TECHNICAL DIRECTIVE TO STABILIZE THE EXISTING CANTILEVERED ANTENNAS

EXISTING PIPE MAST (TYP.)

PROPOSED PLATFORM REINFORCEMENT KIT SITEPRO1 PART# PRK-1245L (OR APPROVED EQUAL)

**PROPOSED MOUNT MODIFICATIONS DETAIL** 2  
22x34 SCALE: 3/4"=1'-0"  
11x17 SCALE: 3/8"=1'-0"  
S-1

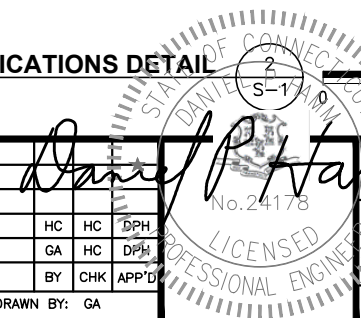
**HGD HUDSON Design Group LLC**  
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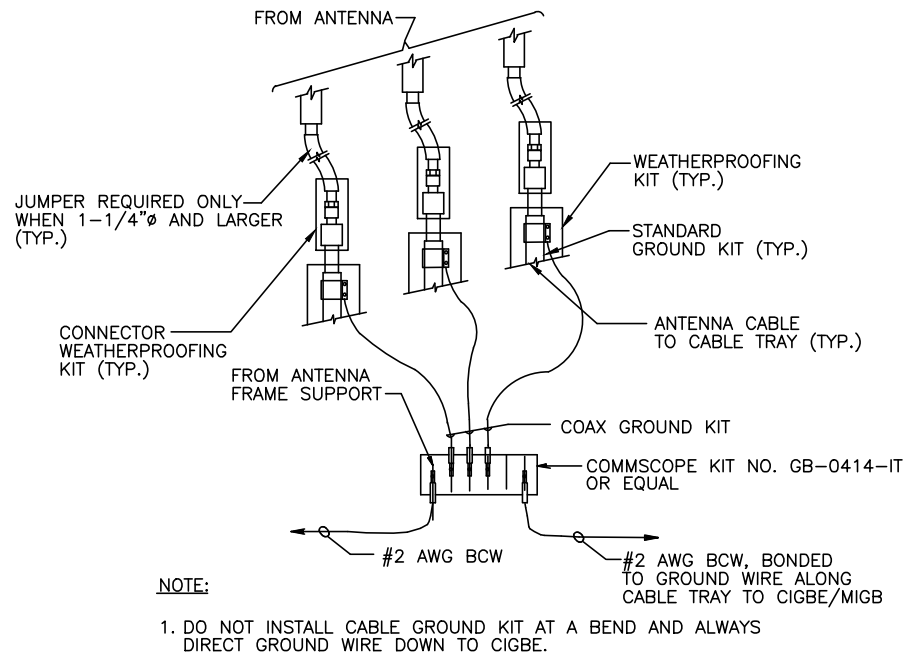
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SCALE: AS SHOWN			DESIGNED BY: HC	DRAWN BY: GA	



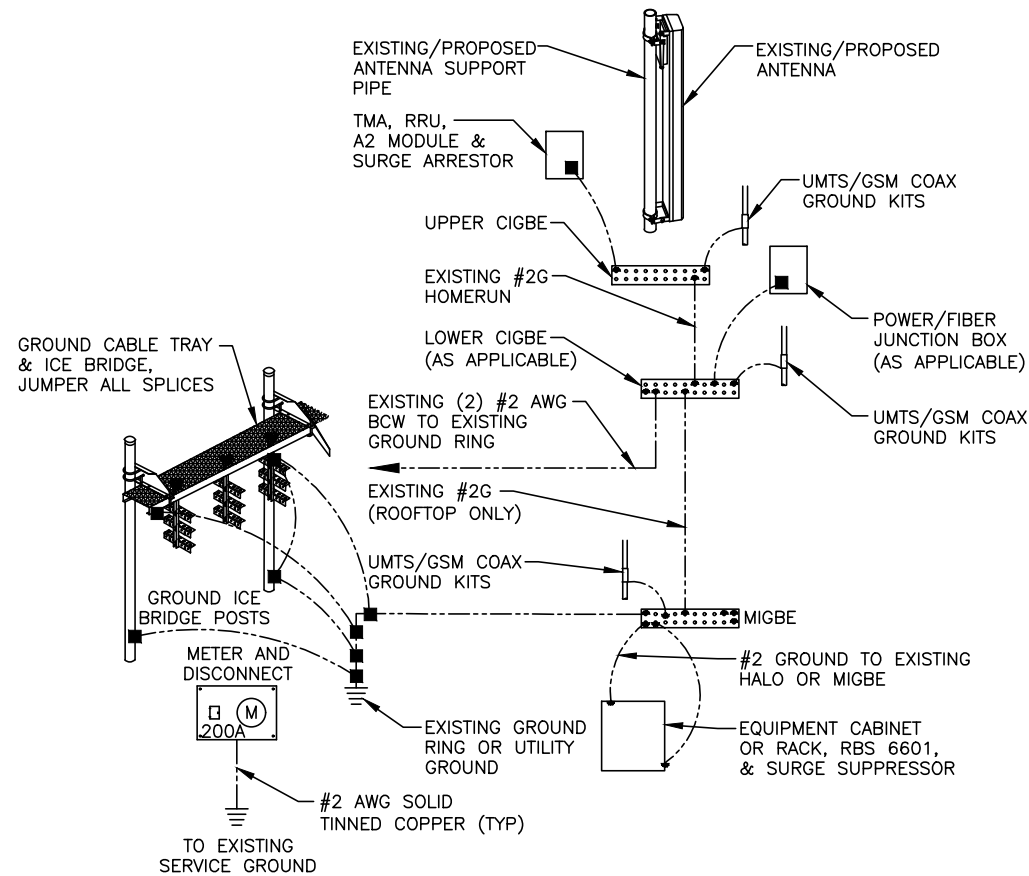
AT&T

MOUNT MODIFICATION DESIGN  
LTE\_3C-4C-5G NR UPGRADE

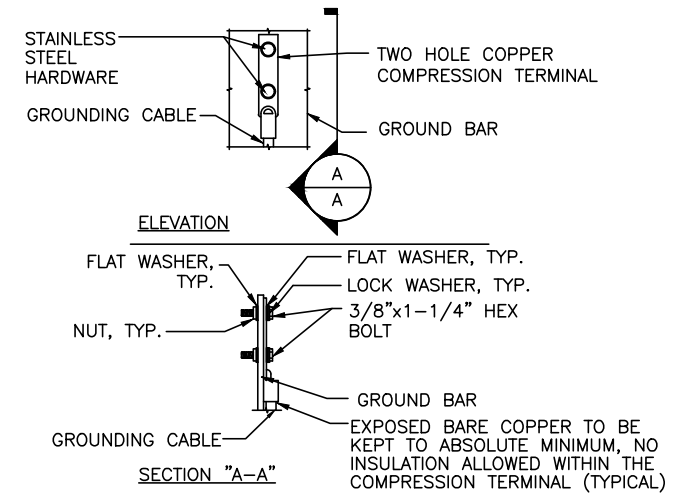
SITE NUMBER	DRAWING NUMBER	REV
CT5513	S-1	1



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



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



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

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

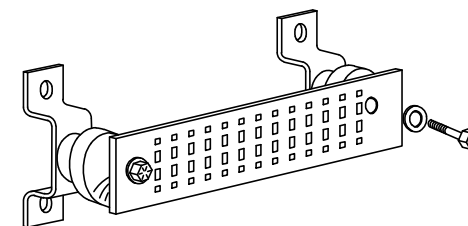
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

**SECTION "P" - SURGE PRODUCERS**

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

**SECTION "A" - SURGE ABSORBERS**

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



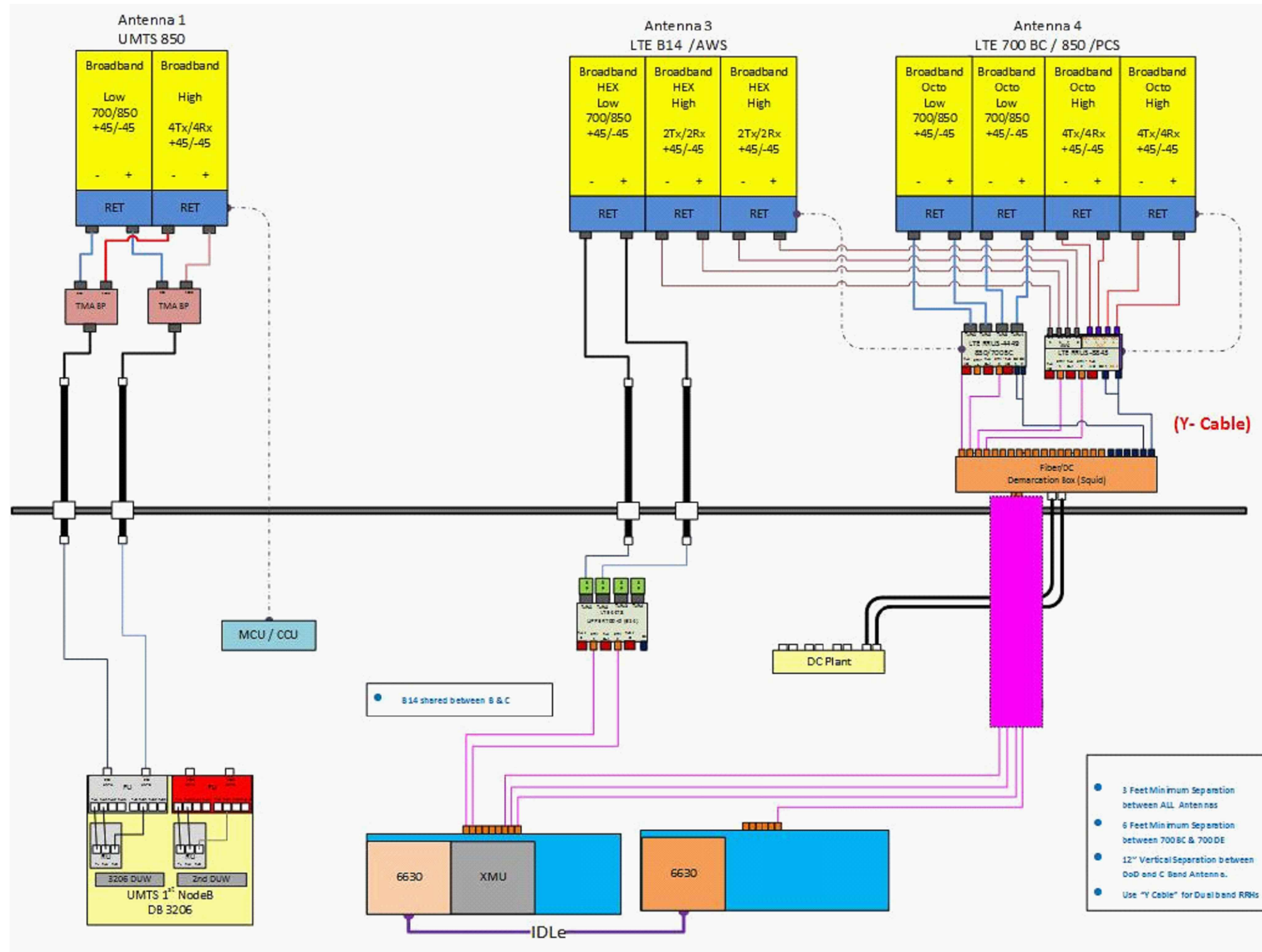
**GROUND BAR - DETAIL (AS REQUIRED)** (4)  
SCALE: N.T.S. (G-1)

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STATE OF CONNECTICUT

AT&T	
GROUNDING DETAILS	
LTE_3C-4C-5G NR UPGRADE	
SITE NUMBER	DRAWING NUMBER
CT5513	G-1
	1



**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.

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

1	01/25/22	ISSUED FOR CONSTRUCTION	HC	HC	DPH
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<b>AT&amp;T</b>		
RF PLUMBING DIAGRAM LTE_3C-4C-5G NR UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
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**Tower Engineering Solutions**

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

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## Structural Analysis Report

Existing 155 ft SUMMIT Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT00248-S

Customer Site Name: North Bethel

Carrier Name: AT&T (App#: 177031-1)

Carrier Site ID / Name: CT5513 / Bethel-Francis J Clarke Circe

Site Location: 11 Francis J. Clarke Circle

Bethel, Connecticut

Fairfield County

Latitude: 41.360522

Longitude: -73.424474

### Analysis Result:

Max Structural Usage: 70.9% [Pass]

Max Foundation Usage: 80% [Pass]

Additional Usage Caused by New Mount/Mount Modification: +0.71%

Report Prepared By: Suvash Chapain





**Tower Engineering Solutions**

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

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## **Structural Analysis Report**

**Existing 155 ft SUMMIT Monopole**

**Customer Name: SBA Communications Corp**

**Customer Site Number: CT00248-S**

**Customer Site Name: North Bethel**

**Carrier Name: AT&T (App#: 177031-1)**

**Carrier Site ID / Name: CT5513 / Bethel-Francis J Clarke Circe**

**Site Location: 11 Francis J. Clarke Circle**

**Bethel, Connecticut**

**Fairfield County**

**Latitude: 41.360522**

**Longitude: -73.424474**

### **Analysis Result:**

**Max Structural Usage: 70.9% [Pass]**

**Max Foundation Usage: 80% [Pass]**

**Additional Usage Caused by New Mount/Mount Modification: +0.71%**

**Report Prepared By: Suvash Chapain**

## Introduction

The purpose of this report is to summarize the analysis results on the 155 ft SUMMIT 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>	Tower Drawings prepared by Summit Manufacturing LLC., Job # 4071 Dated 10/22/1998
<b>Foundation Drawing</b>	Foundation Design prepared by Paul J. Ford and Company, Job # 29200-1210 Dated 08/17/2000
<b>Geotechnical Report</b>	Geotechnical Report prepared by Jaworski Geotech Inc., Project # C98342G Dated 08/06/1998
<b>Modification Drawings</b>	N/A
<b>Mount Analysis</b>	Hudson design Group Job# 10070932, dated November 23, 2021

## 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 $V_{ult} = 120.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 93.0$ mph (3-Sec. Gust)
<b>Wind Speed with Ice:</b>	50 mph (3-Sec. Gust) with 3/4" 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>	B
<b>Structure Class:</b>	II
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Seismic Parameters:</b>	$S_s = 0.215$ , $S_1 = 0.066$

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	157.0	3	RFS APX16DWV-16DWVS-E-A20 - Panel	Modified Low Profile Platform w/ HRK, Collar Mounts, (1) T-arm kit, & (1) kicker kit.	(2) 1.99" Hybrid - 6x24	T-Mobile Sprint
2		3	RFS APXVAALL24_43-U-NA20 - Panel			
3		3	Ericsson AIR6449 B41 - Panel			
4		4	RFS ACU-A20-N RET			
5		3	Ericsson 4424 B25 RRU			
6		3	Ericsson 4415 B66A RRU			
7		3	Ericsson 4449 B71 + B85 RRU			
8	147.0	3	Commscope FFV-65B-R2 - Panel	Platform w/ HRK [ Commscope MC-PK8-DSH]	(1) 1.75" Hybrid*	Dish Wireless
9		3	Fujitsu TA08025-B605 - RRU			
10		3	Fujitsu TA08025-B604 - RRU			
11		1	Raycap RDIDC-9181-PF-48 - OVP			
12	137.0	6	JMA - MX06FIT665-02 - Panel	Low Profile Platform	(6) 1 5/8" (1) 12x24 - 1 5/8" Hybrid	Verizon
13		3	Samsung - 64T64R - Panel			
14		3	Samsung - B5/B13 RRH-BR04C			
15		3	Samsung - B2/B66A RRH-BR049			
16		1	Commscope - RCMDC-6627-PF-48			
17		2	Antel - LPA-80080/4CF - Panel			
18		2	Antel - LPA-80080-6CF - Panel			
19		2	Antel - LPA-80063/6CF_5 - Panel			
-	127.0	3	RRU 11	Low Profile Platform	(9) 1 1/4" (1) 1/2" Fiber (2) 3/4" DC	AT&T
-		3	Powerwave - P65-16-XLH-RR - Panel			
-		3	Ericsson - RRUS 12 - RRU			
20		6	Kathrein - 860 10025 - RET			
21		1	Raycap - DC6-48-60-18-8F - SP			
22		3	Powerwave - 7770 - Panel			
23		6	Powerwave - LGP21401 - TMA			
24	117.0	3	Ericsson - Air 21 B4A/B2P - Panel	(3) T-Arms (Valmont P/N RMV12-3xx)	(12) 1 5/8" <sup>1</sup> (1) 1 5/8" Hybrid <sup>2</sup>	T-Mobile
25		3	Ericsson - Air 21 B2A/B4P - Panel			

Note: AT&T loading includes FirstNET equipment

1. The (12) 1 5/8" Coax and are considered double stacked running outside of the pole shaft
2. The (1) 1 5/8" Hybrid is considered running outside of the pole shaft

\*Considered running outside of the pole shaft.



## 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
1	127.0	3	Cci HPA65R-BU6A- Panel	(1) Low Profile Platform with modifications (1) Handrail Kit SitePro1 HRK14 (3) Platform Reinforcement SitePro1 PRK-1245L	(9) 1 1/4" (1) 1/2" Fiber (2) 3/4" DC	AT&T
2		3	Cci DMP65R-BU6DA- Panel			
3		3	Powerwave 7770-Panel			
4		6	Powerwave 21401 TMA			
5		6	Kathrein 860 10025 RET			
6		3	Ericsson RRUS 4449 B5/B12			
7		3	Ericsson RRUS 8843 B2 B66A			
8		1	Raycap DC6-48-60-18-8F			

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>70.9%</b>	<b>52.8%</b>	<b>64.1%</b>
Pass/Fail	<b>Pass</b>	<b>Pass</b>	<b>Pass</b>

## **Foundations**

	Moment (Kip-Ft)	Shear (Kips)	Axial (Kips)
Analysis Reactions	3472.4	28.9	47.9

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

### **Operational Condition (Rigidity):**

Operational characteristics of the tower are found to be within the limits prescribed by TIA-222 for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.6272 degrees under the operational wind speed as specified in the Analysis Criteria.

### **Conclusions**

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

## Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The structural analysis was performance based upon the evidence available at the time of this report. All information provided by the client is considered to be accurate.
3. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the ANSI/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
4. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
5. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
6. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

# Usage Diagram - Max Ratio 70.94% at 123.3ft

**Structure:** CT00248-S-SBA  
**Site Name:** North Bethel  
**Height:** 155.00 (ft)  
**Base Elev:** 0.000 (ft)

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

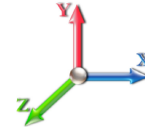
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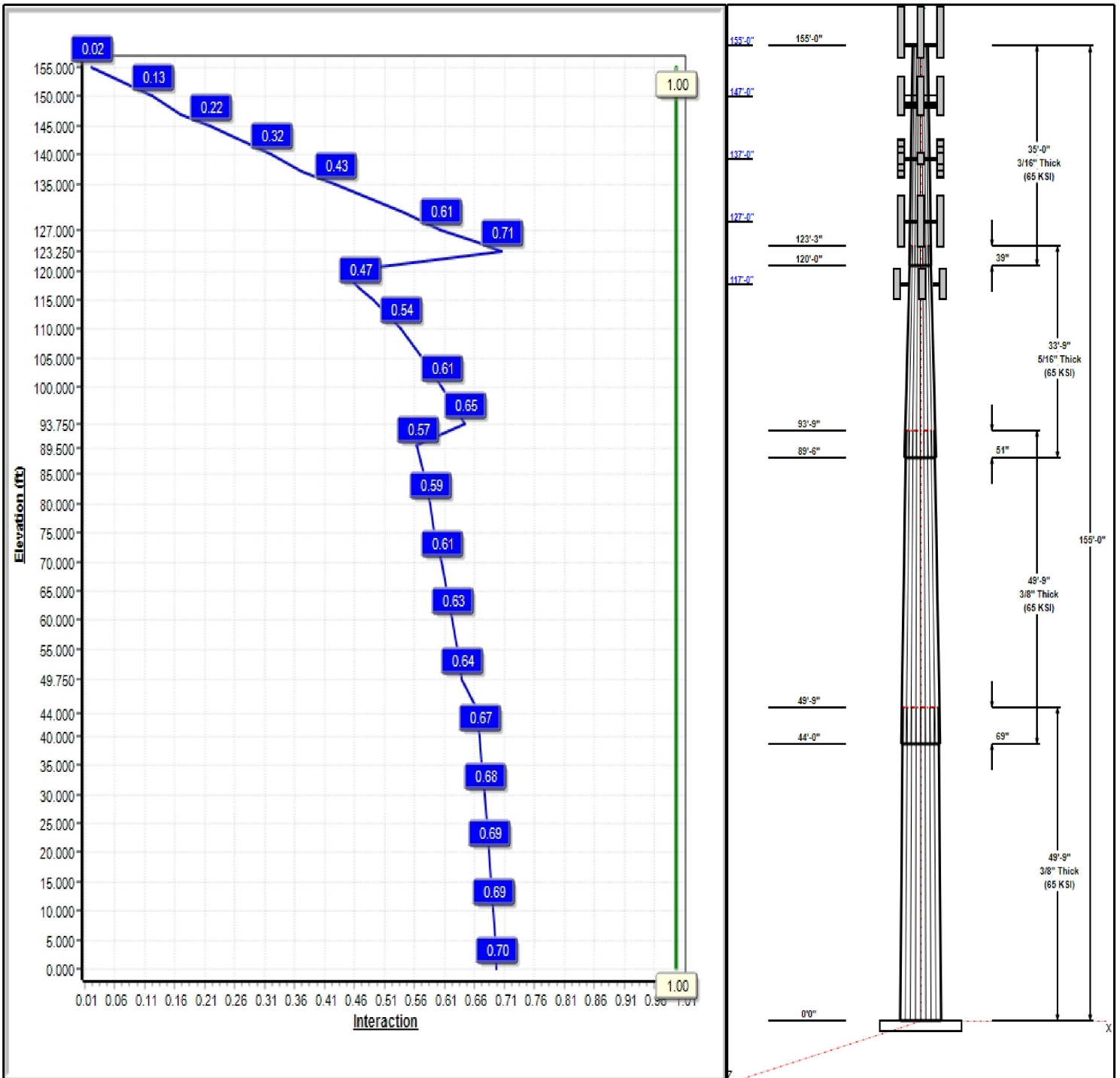
**Dead Load Factor:** 1.20  
**Wind Load Factor:** 1.60

**Load Case : 1.2D + 1.6W 93 mph Wind**



**Iterations:** 25

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## Structure: CT00248-S-SBA

**Type:** Tapered  
**Site Name:** North Bethel  
**Height:** 155.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.27148

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### Shaft Properties

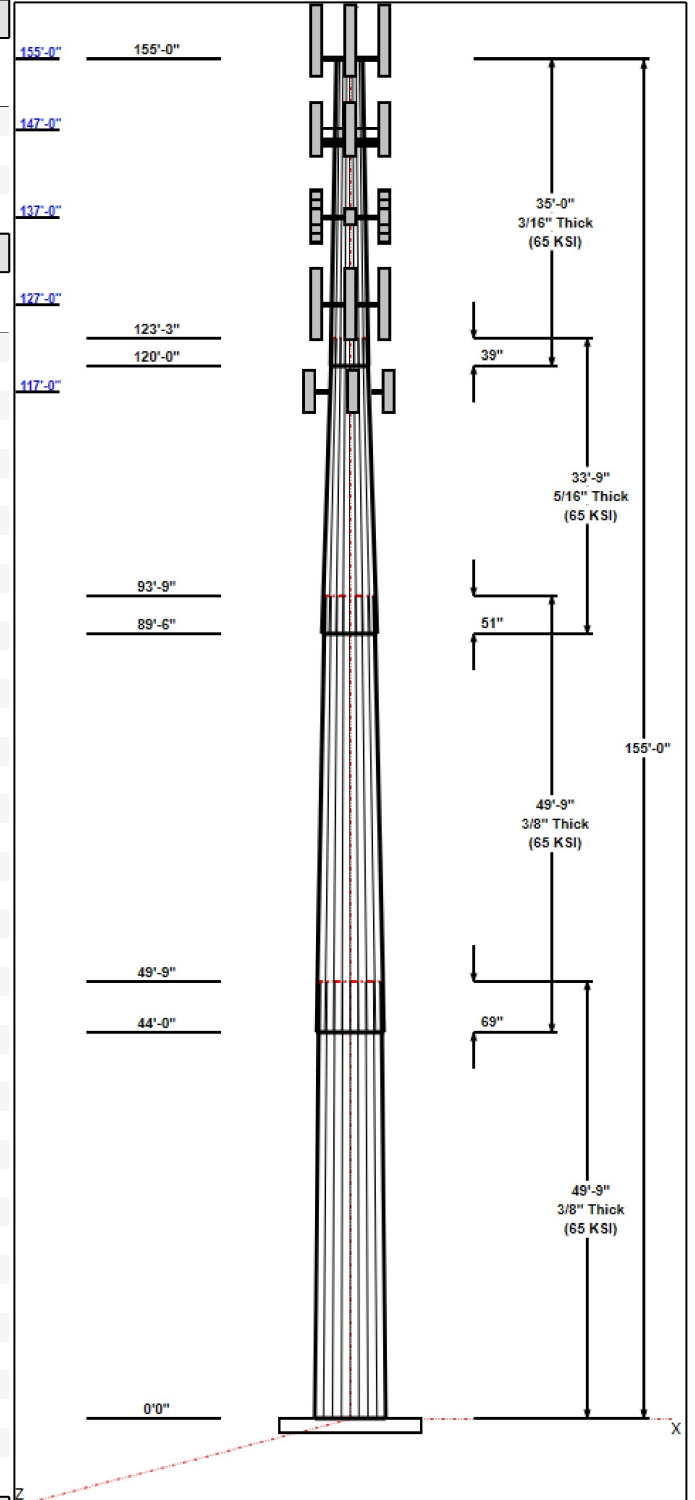
Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	49.75	43.32	56.83	0.375		0.27148	65
2	49.75	32.13	45.63	0.375	Slip	0.27148	65
3	33.75	24.74	33.91	0.313	Slip	0.27148	65
4	35.00	16.50	26.00	0.188	Slip	0.27148	65

### Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
155.00	157.00	4	ACU-A20-N	T-Mobile Sprint
155.00	155.00	1	Low Profile Platform	T-Mobile Sprint
155.00	157.00	3	RFS	T-Mobile Sprint
155.00	157.00	3	RFS	T-Mobile Sprint
155.00	157.00	3	Ericsson AIR6449 B41	T-Mobile Sprint
155.00	157.00	3	Ericsson 4424 B25 RRU	T-Mobile Sprint
155.00	155.00	1	6' Lightning rod	-
155.00	157.00	3	Ericsson 4415 B66A RRU	T-Mobile Sprint
155.00	157.00	3	Ericsson 4449 B71 + B85	T-Mobile Sprint
155.00	155.00	1	(3) T-Arm Kit	T-Mobile Sprint
155.00	155.00	1	MS-H1242 (Heavy Collar)	T-Mobile Sprint
155.00	155.00	1	MS-KI22-5 (Kickers w/o)	T-Mobile Sprint
147.00	147.00	3	FFV-65C-R3-V1	Dish Wireless
147.00	147.00	1	MC-PK8-DSH	Dish Wireless
147.00	147.00	3	TA08025-B604	Dish Wireless
147.00	147.00	3	TA08025-B605	Dish Wireless
147.00	147.00	1	RDIDC-9181-PF-48	Dish Wireless
137.00	137.00	2	LPA-80080/4CF	Verizon
137.00	137.00	2	LPA-80080-6CF-EDIN	Verizon
137.00	137.00	2	LPA-80063/6CF	Verizon
137.00	137.00	1	Low Profile Platform	Verizon
137.00	137.00	6	JMA - MX06FIT665-02	Verizon
137.00	137.00	3	Samsung - 64T64R	Verizon
137.00	137.00	3	Samsung - B5/B13	Verizon
137.00	137.00	3	Samsung - B2/B66A	Verizon
137.00	137.00	1	Commscope -	Verizon
127.00	127.00	1	HRK14	AT&T
127.00	127.00	1	(3) PRK-1245	AT&T
127.00	127.00	3	HPA65R-BU6A	AT&T
127.00	127.00	3	DMP65R-BU6DA	AT&T
127.00	127.00	3	4449	AT&T
127.00	127.00	3	8843	AT&T
127.00	127.00	6	21401 TMA	AT&T
127.00	127.00	1	DC6-48-60-18-8F	AT&T
127.00	127.00	3	7770	AT&T
127.00	127.00	6	860 10025	AT&T
127.00	127.00	1	Low Profile Platform	AT&T
117.00	117.00	3	T-Arms	T-Mobile
117.00	117.00	3	Air 21 B4A/B2P	T-Mobile
117.00	117.00	3	Ericsson - Air 21 B2A/B4P	T-Mobile

### Linear Appurtenances

Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
0.00	155.00	Inside	1.99" Hybrid - 6x24	T-Mobile Sprint
0.00	147.00	Outside	1.75" Hybrid	Dish Wireless



**Structure: CT00248-S-SBA**

**Type:** Tapered  
**Site Name:** North Bethel  
**Height:** 155.00 (ft)  
**Base Elev:** 0.00 (ft)

**Base Shape:** 18 Sided  
**Taper:** 0.27148

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0.00	137.00	Inside	1 5/8" Coax	Verizon
0.00	137.00	Inside	12x24 - 1 5/8" Hybrid	Verizon
0.00	127.00	Inside	1 1/4" Coax	AT&T
0.00	127.00	Inside	1/2" Fiber	AT&T
0.00	127.00	Inside	3/4" DC	AT&T
0.00	117.00	Outside	1 5/8" Coax	T-Mobile
0.00	117.00	Outside	1 5/8" Hybrid	T-Mobile

**Anchor Bolts**

Qty	Specifications	Grade (ksi)	Arrangement
20	2.25" 18J	75.0	Cluster

**Base Plate**

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	64.0	50.0	Clipped

**Reactions**

Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 93 mph Wind	3472.4	28.9	48.0
0.9D + 1.6W 93 mph Wind	3423.0	28.8	36.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1072.1	8.8	81.7
1.2D + 1.0E	347.4	2.7	48.0
0.9D + 1.0E	342.0	2.7	36.0
1.0D + 1.0W 60 mph Wind	896.4	7.5	40.0

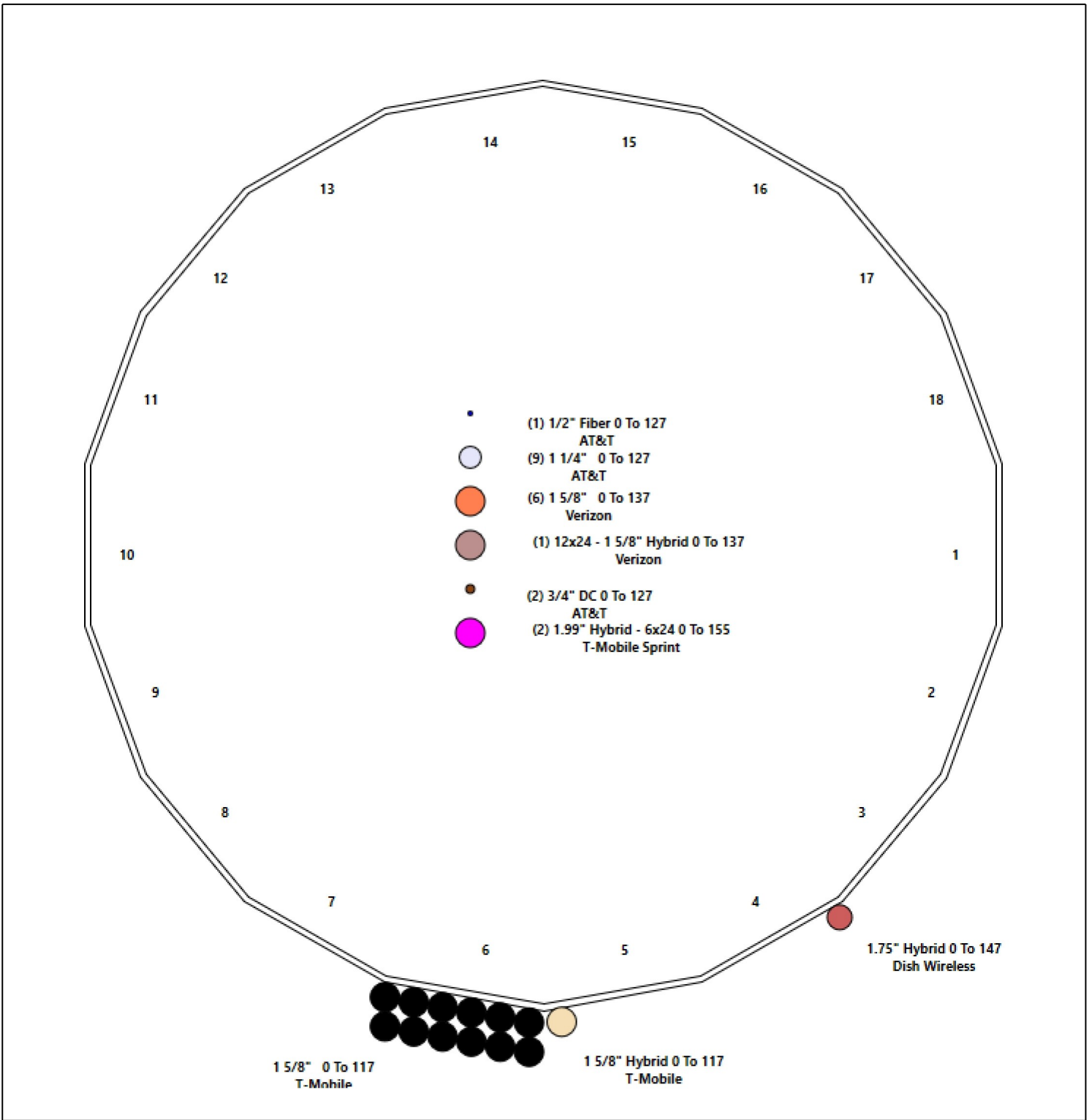
# Structure: CT00248-S-SBA - Coax Line Placement

Type: Monopole  
Site Name: North Bethel  
Height: 155.00 (ft)

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## Shaft Properties

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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	49.750	0.3750	65		0.00	10,014
2	18	49.750	0.3750	65	Slip	69.00	7,759
3	18	33.750	0.3125	65	Slip	51.00	3,305
4	18	35.000	0.1875	65	Slip	39.00	1,493
<b>Total Shaft Weight:</b>							<b>22,571</b>

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper
1	56.83	0.00	67.19	27057.20	25.31	151.55	43.32	49.75	51.12	11913.1	18.96	115.5	0.271484
2	45.63	44.00	53.87	13941.55	20.05	121.69	32.13	93.75	37.79	4814.44	13.70	85.68	0.271484
3	33.91	89.50	33.32	4751.23	17.72	108.50	24.74	123.25	24.23	1827.58	12.55	79.18	0.271484
4	26.00	120.0	15.36	1293.40	23.04	138.68	16.50	155.00	9.71	326.37	14.11	88.00	0.271484

## Load Summary

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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	155.00	ACU-A20-N	4	1.00	0.14	0.50	5.31	0.438	0.50	0.00	2.00
2	155.00	Low Profile Platform	1	1500.00	28.00	1.00	2813.21	50.552	1.00	0.00	0.00
3	155.00	RFS APX16DWV-16DWVS-E-A20	3	40.70	6.46	0.62	178.24	7.578	0.62	0.00	2.00
4	155.00	RFS APXVAALL24_43-U-NA20	3	122.80	20.24	0.70	542.28	22.147	0.70	0.00	2.00
5	155.00	Ericsson AIR6449 B41	3	103.00	5.65	0.71	240.57	6.604	0.71	0.00	2.00
6	155.00	Ericsson 4424 B25 RRU	3	88.00	2.05	0.67	174.74	2.648	0.67	0.00	2.00
7	155.00	6' Lightning rod	1	6.50	0.38	1.00	42.92	1.471	1.00	0.00	0.00
8	155.00	Ericsson 4415 B66A RRU	3	46.30	1.86	0.67	107.33	2.427	0.67	0.00	2.00
9	155.00	Ericsson 4449 B71 + B85 RRU	3	73.20	1.97	0.67	131.13	2.541	0.67	0.00	2.00
10	155.00	(3) T-Arm Kit	1	500.00	16.50	1.00	1095.32	32.679	1.00	0.00	0.00
11	155.00	MS-H1242 (Heavy Collar Mount)	1	150.60	2.50	1.00	361.55	5.126	1.00	0.00	0.00
12	155.00	MS-KI22-5 (Kickers w/o Collar)	1	146.00	5.33	1.00	350.51	10.930	1.00	0.00	0.00
13	147.00	FFVV-65C-R3-V1	3	71.00	12.27	0.73	351.42	13.745	0.73	0.00	0.00
14	147.00	MC-PK8-DSH	1	1727.00	37.59	1.00	3411.43	84.729	1.00	0.00	0.00
15	147.00	TA08025-B604	3	63.90	1.96	0.67	114.43	2.520	0.67	0.00	0.00
16	147.00	TA08025-B605	3	75.00	1.96	0.67	127.20	2.520	0.67	0.00	0.00
17	147.00	RDIDC-9181-PF-48	1	21.90	2.01	1.00	75.04	2.577	1.00	0.00	0.00
18	137.00	LPA-80080/4CF	2	12.00	2.61	0.93	217.55	7.254	0.93	0.00	0.00
19	137.00	LPA-80080-6CF-EDIN	2	21.00	4.33	0.93	187.91	5.693	0.93	0.00	0.00
20	137.00	LPA-80063/6CF	2	27.00	9.60	0.94	312.08	10.940	0.94	0.00	0.00
21	137.00	Low Profile Platform	1	1200.00	28.00	1.00	2237.68	51.244	1.00	0.00	0.00
22	137.00	JMA - MX06FIT665-02	6	45.00	9.55	0.80	269.43	10.899	0.80	0.00	0.00
23	137.00	Samsung - 64T64R	3	95.60	4.79	0.66	199.39	4.726	0.66	0.00	0.00
24	137.00	Samsung - B5/B13 RRH-BR04C	3	70.30	1.87	0.67	138.87	2.438	0.67	0.00	0.00
25	137.00	Samsung - B2/B66A RRH-BR049	3	84.40	1.87	0.67	160.10	2.438	0.67	0.00	0.00
26	137.00	Commscope - RCMDC-6627-PF-48	1	32.00	4.06	1.00	144.90	4.875	1.00	0.00	0.00
27	127.00	HRK14	1	261.72	6.75	1.00	567.19	13.238	1.00	0.00	0.00
28	127.00	(3) PRK-1245	1	464.91	9.50	1.00	784.10	19.284	1.00	0.00	0.00
29	127.00	HPA65R-BU6A	3	54.00	11.23	0.86	315.36	12.865	0.86	0.00	0.00
30	127.00	DMP65R-BU6DA	3	79.40	12.71	0.72	369.08	14.150	0.74	0.00	0.00
31	127.00	4449	3	70.00	1.65	0.67	136.84	2.178	0.67	0.00	0.00
32	127.00	8843	3	75.00	1.65	0.67	148.17	2.178	0.67	0.00	0.00
33	127.00	21401 TMA	6	14.10	1.29	0.67	38.69	2.112	0.67	0.00	0.00
34	127.00	DC6-48-60-18-8F	1	31.80	1.47	1.00	92.60	2.158	1.00	0.00	0.00
35	127.00	7770	3	35.00	5.50	0.75	167.44	6.546	0.75	0.00	0.00
36	127.00	860 10025	6	1.20	0.18	0.67	7.10	0.553	0.67	0.00	0.00
37	127.00	Low Profile Platform	1	1500.00	25.00	1.00	2787.31	44.739	1.00	0.00	0.00
38	117.00	T-Arms	3	350.00	8.00	0.75	588.33	14.810	0.75	0.00	0.00
39	117.00	Air 21 B4A/B2P	3	90.40	6.09	0.86	254.36	7.159	0.86	0.00	0.00
40	117.00	Ericsson - Air 21 B2A/B4P	3	91.50	6.09	0.86	255.46	7.159	0.86	0.00	0.00
<b>Totals:</b>			<b>101</b>	<b>13,366.73</b>			<b>32,213.58</b>				

### Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
0.00	155.00	(2) 1.99" Hybrid - 6x24	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		
0.00	147.00	(1) 1.75" Hybrid		1.75		Outside					
0.00	137.00	(6) 1 5/8" Coax		0.00		Inside					
0.00	137.00	(1) 12x24 - 1 5/8" Hybrid		0.00		Inside					
0.00	127.00	(9) 1 1/4" Coax		0.00		Inside					
0.00	127.00	(1) 1/2" Fiber		0.00		Inside					
0.00	127.00	(2) 3/4" DC		0.00		Inside					
0.00	117.00	(12) 1 5/8" Coax		3.96		Outside					
0.00	117.00	(1) 1 5/8" Hybrid		0.00		Outside					

## Shaft Section Properties

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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		0.3750	56.830	67.193	27057.2	25.31	151.55	71.6	937.7	0.0
5.00		0.3750	55.473	65.578	25152.0	24.67	147.93	72.4	893.1	1129.5
10.00		0.3750	54.115	63.962	23338.5	24.03	144.31	73.1	849.4	1102.0
15.00		0.3750	52.758	62.346	21614.3	23.40	140.69	73.9	806.9	1074.5
20.00		0.3750	51.400	60.731	19977.1	22.76	137.07	74.6	765.5	1047.0
25.00		0.3750	50.043	59.115	18424.8	22.12	133.45	75.4	725.2	1019.5
30.00		0.3750	48.685	57.499	16955.1	21.48	129.83	76.1	685.9	992.0
35.00		0.3750	47.328	55.884	15565.7	20.84	126.21	76.9	647.8	964.5
40.00		0.3750	45.971	54.268	14254.3	20.21	122.59	77.6	610.7	937.1
44.00	Bot - Section 2	0.3750	44.885	52.976	13259.9	19.69	119.69	78.2	581.9	729.9
45.00		0.3750	44.613	52.653	13018.7	19.57	118.97	78.4	574.8	362.5
49.75	Top - Section 1	0.3750	44.074	52.010	12548.2	19.31	117.53	0.0	0.0	1691.7
50.00		0.3750	44.006	51.930	12489.8	19.28	117.35	78.7	559.0	44.2
55.00		0.3750	42.648	50.314	11360.0	18.64	113.73	79.5	524.6	869.8
60.00		0.3750	41.291	48.698	10300.4	18.00	110.11	80.2	491.3	842.3
65.00		0.3750	39.934	47.083	9308.9	17.37	106.49	81.0	459.1	814.8
70.00		0.3750	38.576	45.467	8383.1	16.73	102.87	81.7	428.0	787.3
75.00		0.3750	37.219	43.852	7520.8	16.09	99.25	82.5	398.0	759.8
80.00		0.3750	35.861	42.236	6719.8	15.45	95.63	82.5	369.1	732.3
85.00		0.3750	34.504	40.620	5977.8	14.81	92.01	82.5	341.2	704.9
89.50	Bot - Section 3	0.3750	33.282	39.166	5358.6	14.24	88.75	82.5	317.1	610.9
90.00		0.3750	33.146	39.005	5292.5	14.18	88.39	82.5	314.5	123.1
93.75	Top - Section 2	0.3125	32.753	32.176	4278.3	17.07	104.81	0.0	0.0	907.0
95.00		0.3125	32.414	31.840	4145.5	16.88	103.72	81.5	251.9	136.1
100.00		0.3125	31.057	30.493	3641.5	16.11	99.38	82.4	230.9	530.3
105.00		0.3125	29.699	29.147	3180.1	15.35	95.04	82.5	210.9	507.4
110.00		0.3125	28.342	27.801	2759.5	14.58	90.69	82.5	191.8	484.4
115.00		0.3125	26.984	26.454	2377.7	13.82	86.35	82.5	173.5	461.5
117.00		0.3125	26.441	25.916	2235.4	13.51	84.61	82.5	166.5	178.2
120.00	Bot - Section 4	0.3125	25.627	25.108	2032.8	13.05	82.01	82.5	156.2	260.4
123.25	Top - Section 3	0.1875	25.120	14.837	1165.3	22.21	133.97	0.0	0.0	439.8
125.00		0.1875	24.645	14.554	1099.9	21.77	131.44	75.8	87.9	87.5
127.00		0.1875	24.102	14.231	1028.3	21.25	128.54	76.4	84.0	98.0
130.00		0.1875	23.287	13.747	926.7	20.49	124.20	77.3	78.4	142.8
135.00		0.1875	21.930	12.939	772.8	19.21	116.96	78.8	69.4	227.0
137.00		0.1875	21.387	12.616	716.3	18.70	114.06	79.4	66.0	87.0
140.00		0.1875	20.572	12.131	636.9	17.94	109.72	80.3	61.0	126.3
145.00		0.1875	19.215	11.323	517.9	16.66	102.48	81.8	53.1	199.5
147.00		0.1875	18.672	11.000	474.9	16.15	99.58	82.4	50.1	76.0
150.00		0.1875	17.857	10.515	414.8	15.38	95.24	82.5	45.8	109.8
155.00		0.1875	16.500	9.708	326.4	14.11	88.00	82.5	39.0	172.0

**22570.6**

## Wind Loading - Shaft

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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



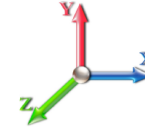
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**Load Case:** 1.2D + 1.6W 93 mph Wind

**Iterations** 25

**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	0.70	14.724	16.20	374.18	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	14.724	16.20	365.24	0.650	0.000	5.00	23.757	15.44	400.2	0.0	1355.4
10.00		1.00	0.70	14.724	16.20	356.30	0.655 *	0.000	5.00	23.183	15.19	393.6	0.0	1322.4
15.00		1.00	0.70	14.724	16.20	347.36	0.660 *	0.000	5.00	22.609	14.93	386.8	0.0	1289.4
20.00		1.00	0.70	14.724	16.20	338.43	0.666 *	0.000	5.00	22.034	14.67	380.0	0.0	1256.4
25.00		1.00	0.70	14.724	16.20	329.49	0.671 *	0.000	5.00	21.460	14.40	373.3	0.0	1223.4
30.00		1.00	0.70	14.736	16.21	320.69	0.677 *	0.000	5.00	20.886	14.14	366.8	0.0	1190.4
35.00		1.00	0.73	15.400	16.94	318.69	0.683 *	0.000	5.00	20.311	13.88	376.2	0.0	1157.5
40.00		1.00	0.76	15.999	17.60	315.51	0.690 *	0.000	5.00	19.737	13.62	383.5	0.0	1124.5
44.00	Bot - Section 2	1.00	0.78	16.441	18.08	312.28	0.696 *	0.000	4.00	15.376	10.71	309.8	0.0	875.8
45.00		1.00	0.79	16.546	18.20	311.39	0.700 *	0.000	1.00	3.850	2.70	78.5	0.0	435.0
49.75	Top - Section 1	1.00	0.81	17.028	18.73	306.75	0.704 *	0.000	4.75	17.974	12.66	379.4	0.0	2030.0
50.00		1.00	0.81	17.052	18.76	311.81	0.704 *	0.000	0.25	0.932	0.66	19.7	0.0	53.1
55.00		1.00	0.83	17.523	19.28	306.33	0.708 *	0.000	5.00	18.331	12.98	400.3	0.0	1043.7
60.00		1.00	0.85	17.964	19.76	300.29	0.716 *	0.000	5.00	17.757	12.72	402.1	0.0	1010.8
65.00		1.00	0.87	18.380	20.22	293.76	0.725 *	0.000	5.00	17.183	12.46	403.0	0.0	977.8
70.00		1.00	0.89	18.773	20.65	286.79	0.734 *	0.000	5.00	16.609	12.20	403.0	0.0	944.8
75.00		1.00	0.91	19.147	21.06	279.44	0.744 *	0.000	5.00	16.034	11.93	402.2	0.0	911.8
80.00		1.00	0.93	19.503	21.45	271.74	0.755 *	0.000	5.00	15.460	11.67	400.7	0.0	878.8
85.00		1.00	0.94	19.844	21.83	263.73	0.767 *	0.000	5.00	14.886	11.41	398.6	0.0	845.8
89.50	Bot - Section 3	1.00	0.96	20.138	22.15	256.28	0.779 *	0.000	4.50	12.906	10.05	356.1	0.0	733.0
90.00		1.00	0.96	20.170	22.19	255.43	0.785 *	0.000	0.50	1.432	1.12	39.9	0.0	147.7
93.75	Top - Section 2	1.00	0.97	20.407	22.45	249.04	0.791 *	0.000	3.75	10.555	8.35	299.9	0.0	1088.4
95.00		1.00	0.97	20.484	22.53	251.73	0.792 *	0.000	1.25	3.446	2.73	98.4	0.0	163.4
100.00		1.00	0.99	20.787	22.87	242.96	0.801 *	0.000	5.00	13.427	10.75	393.2	0.0	636.3
105.00		1.00	1.00	21.079	23.19	233.97	0.816 *	0.000	5.00	12.853	10.49	389.1	0.0	608.8
110.00		1.00	1.02	21.361	23.50	224.76	0.833 *	0.000	5.00	12.278	10.23	384.4	0.0	581.3
115.00		1.00	1.03	21.634	23.80	215.36	1.200 *	0.000	5.00	11.704	14.04	534.8	0.0	553.9
117.00	Appurtenance(s)	1.00	1.03	21.741	23.91	211.55	1.200 *	0.000	2.00	4.521	5.42	207.6	0.0	213.8
120.00	Bot - Section 4	1.00	1.04	21.898	24.09	205.77	0.650	0.000	3.00	6.609	4.30	165.6	0.0	312.5
123.25	Top - Section 3	1.00	1.05	22.066	24.27	199.45	0.650	0.000	3.25	7.030	4.57	177.5	0.0	527.8
125.00		1.00	1.05	22.155	24.37	199.04	0.650	0.000	1.75	3.685	2.39	93.4	0.0	105.0
127.00	Appurtenance(s)	1.00	1.06	22.256	24.48	195.10	0.650	0.000	2.00	4.125	2.68	105.0	0.0	117.5
130.00		1.00	1.07	22.405	24.65	189.14	0.650	0.000	3.00	6.015	3.91	154.2	0.0	171.4
135.00		1.00	1.08	22.648	24.91	179.07	0.650	0.000	5.00	9.565	6.22	247.8	0.0	272.4
137.00	Appurtenance(s)	1.00	1.08	22.743	25.02	175.01	0.650	0.000	2.00	3.665	2.38	95.4	0.0	104.3
140.00		1.00	1.09	22.884	25.17	168.86	0.650	0.000	3.00	5.326	3.46	139.4	0.0	151.6
145.00		1.00	1.10	23.115	25.43	158.51	0.650	0.000	5.00	8.417	5.47	222.6	0.0	239.4
147.00	Appurtenance(s)	1.00	1.10	23.206	25.53	154.34	0.650	0.000	2.00	3.206	2.08	85.1	0.0	91.2
150.00		1.00	1.11	23.340	25.67	148.03	0.650	0.000	3.00	4.637	3.01	123.8	0.0	131.8
155.00	Appurtenance(s)	1.00	1.12	23.560	25.92	137.42	0.650	0.000	5.00	7.268	4.72	195.9	0.0	206.4
								<b>Totals:</b>	<b>155.00</b>			<b>11,166.6</b>		<b>27,084.8</b>

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

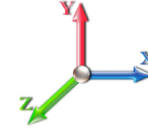
<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 1.2D + 1.6W 93 mph Wind

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



**Iterations** 25

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	155.00	Ericsson 4424 B25 RRU	3	23.646	26.011	0.60	0.90	3.71	316.80	0.000	2.000	154.34	0.00	308.67
2	155.00	ACU-A20-N	4	23.646	26.011	0.45	0.90	0.25	4.80	0.000	2.000	10.49	0.00	20.98
3	155.00	Low Profile Platform	1	23.560	25.916	1.00	1.00	28.00	1800.00	0.000	0.000	1161.02	0.00	0.00
4	155.00	RFS	3	23.646	26.011	0.56	0.90	10.81	146.52	0.000	2.000	450.05	0.00	900.10
5	155.00	RFS	3	23.646	26.011	0.63	0.90	38.25	442.08	0.000	2.000	1592.00	0.00	3184.01
6	155.00	Ericsson AIR6449 B41	3	23.646	26.011	0.64	0.90	10.83	370.80	0.000	2.000	450.76	0.00	901.51
7	155.00	6' Lightning rod	1	23.560	25.916	1.00	1.00	0.38	7.80	0.000	0.000	15.76	0.00	0.00
8	155.00	Ericsson 4449 B71 + B85	3	23.646	26.011	0.60	0.90	3.56	263.52	0.000	2.000	148.31	0.00	296.62
9	155.00	(3) T-Arm Kit	1	23.560	25.916	0.75	0.75	12.38	600.00	0.000	0.000	513.13	0.00	0.00
10	155.00	MS-H1242 (Heavy Collar	1	23.560	25.916	1.00	1.00	2.50	180.72	0.000	0.000	103.66	0.00	0.00
11	155.00	MS-KI22-5 (Kickers w/o	1	23.560	25.916	1.00	1.00	5.33	175.20	0.000	0.000	221.01	0.00	0.00
12	155.00	Ericsson 4415 B66A RRU	3	23.646	26.011	0.60	0.90	3.36	166.68	0.000	2.000	140.03	0.00	280.06
13	147.00	MC-PK8-DSH	1	23.206	25.526	1.00	1.00	37.59	2072.40	0.000	0.000	1535.25	0.00	0.00
14	147.00	FFVV-65C-R3-V1	3	23.206	25.526	0.55	0.75	20.15	255.60	0.000	0.000	823.11	0.00	0.00
15	147.00	TA08025-B605	3	23.206	25.526	0.50	0.75	2.95	270.00	0.000	0.000	120.68	0.00	0.00
16	147.00	TA08025-B604	3	23.206	25.526	0.50	0.75	2.95	230.04	0.000	0.000	120.68	0.00	0.00
17	147.00	RDIDC-9181-PF-48	1	23.206	25.526	0.75	0.75	1.51	26.28	0.000	0.000	61.57	0.00	0.00
18	137.00	Low Profile Platform	1	22.743	25.017	1.00	1.00	28.00	1440.00	0.000	0.000	1120.78	0.00	0.00
19	137.00	LPA-80063/6CF	2	22.743	25.017	0.75	0.80	14.44	64.80	0.000	0.000	577.94	0.00	0.00
20	137.00	LPA-80080-6CF-EDIN	2	22.743	25.017	0.74	0.80	6.44	50.40	0.000	0.000	257.90	0.00	0.00
21	137.00	LPA-80080/4CF	2	22.743	25.017	0.74	0.80	3.88	28.80	0.000	0.000	155.46	0.00	0.00
22	137.00	Samsung - B2/B66A	3	22.743	25.017	0.54	0.80	3.01	303.84	0.000	0.000	120.36	0.00	0.00
23	137.00	Samsung - B5/B13	3	22.743	25.017	0.54	0.80	3.01	253.08	0.000	0.000	120.36	0.00	0.00
24	137.00	Samsung - 64T64R	3	22.743	25.017	0.53	0.80	7.59	344.16	0.000	0.000	303.71	0.00	0.00
25	137.00	JMA - MX06FIT665-02	6	22.743	25.017	0.64	0.80	36.67	324.00	0.000	0.000	1467.91	0.00	0.00
26	137.00	Commscope -	1	22.743	25.017	1.00	1.00	4.06	38.40	0.000	0.000	162.51	0.00	0.00
27	127.00	HRK14	1	22.256	24.482	1.00	1.00	6.75	314.06	0.000	0.000	264.40	0.00	0.00
28	127.00	DC6-48-60-18-8F	1	22.256	24.482	0.80	0.80	1.18	38.16	0.000	0.000	46.06	0.00	0.00
29	127.00	7770	3	22.256	24.482	0.60	0.80	9.90	126.00	0.000	0.000	387.79	0.00	0.00
30	127.00	860 10025	6	22.256	24.482	0.50	0.75	0.54	8.64	0.000	0.000	21.26	0.00	0.00
31	127.00	Low Profile Platform	1	22.256	24.482	1.00	1.00	25.00	1800.00	0.000	0.000	979.26	0.00	0.00
32	127.00	HPA65R-BU6A	3	22.256	24.482	0.65	0.75	21.73	194.40	0.000	0.000	851.18	0.00	0.00
33	127.00	(3) PRK-1245	1	22.256	24.482	1.00	1.00	9.50	557.89	0.000	0.000	372.12	0.00	0.00
34	127.00	DMP65R-BU6DA	3	22.256	24.482	0.54	0.75	20.59	285.84	0.000	0.000	806.53	0.00	0.00
35	127.00	4449	3	22.256	24.482	0.50	0.75	2.49	252.00	0.000	0.000	97.43	0.00	0.00
36	127.00	8843	3	22.256	24.482	0.50	0.75	2.49	270.00	0.000	0.000	97.43	0.00	0.00
37	127.00	21401 TMA	6	22.256	24.482	0.50	0.75	3.89	101.52	0.000	0.000	152.35	0.00	0.00
38	117.00	T-Arms	3	21.741	23.915	0.56	0.75	13.50	1260.00	0.000	0.000	516.55	0.00	0.00
39	117.00	Air 21 B4A/B2P	3	21.741	23.915	0.69	0.80	12.57	325.44	0.000	0.000	480.96	0.00	0.00
40	117.00	Ericsson - Air 21 B2A/B4P	3	21.741	23.915	0.69	0.80	12.57	329.40	0.000	0.000	480.96	0.00	0.00

**Totals:** 16,040.08

17,463.04

## Total Applied Force Summary

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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 93 mph Wind

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



**Iterations** 25

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		400.18	1546.83	0.00	0.00
10.00		393.58	1513.85	0.00	0.00
15.00		386.81	1480.86	0.00	0.00
20.00		380.03	1447.88	0.00	0.00
25.00		373.26	1414.89	0.00	0.00
30.00		366.80	1381.91	0.00	0.00
35.00		376.23	1348.92	0.00	0.00
40.00		383.51	1315.94	0.00	0.00
44.00		309.83	1029.00	0.00	0.00
45.00		78.49	473.25	0.00	0.00
49.75		379.43	2211.92	0.00	0.00
50.00		19.68	62.63	0.00	0.00
55.00		400.31	1235.20	0.00	0.00
60.00		402.13	1202.22	0.00	0.00
65.00		402.98	1169.23	0.00	0.00
70.00		402.97	1136.25	0.00	0.00
75.00		402.18	1103.26	0.00	0.00
80.00		400.70	1070.28	0.00	0.00
85.00		398.57	1037.29	0.00	0.00
89.50		356.12	905.36	0.00	0.00
90.00		39.91	166.84	0.00	0.00
93.75		299.85	1232.01	0.00	0.00
95.00		98.35	211.24	0.00	0.00
100.00		393.24	827.78	0.00	0.00
105.00		389.06	800.29	0.00	0.00
110.00		384.45	772.80	0.00	0.00
115.00		643.47	745.32	0.00	0.00
117.00	(9) attachments	1729.75	2205.27	0.00	0.00
120.00		165.57	378.51	0.00	0.00
123.25		177.45	599.27	0.00	0.00
125.00		93.39	143.51	0.00	0.00
127.00	(31) attachments	4180.83	4110.05	0.00	0.00
130.00		154.17	212.88	0.00	0.00
135.00		247.83	341.60	0.00	0.00
137.00	(23) attachments	4382.30	2979.50	0.00	0.00
140.00		139.43	166.66	0.00	0.00
145.00		222.57	264.58	0.00	0.00
147.00	(11) attachments	2746.38	2955.53	0.00	0.00
150.00		123.80	139.70	0.00	0.00
155.00	(27) attachments	5156.45	4694.56	0.00	5891.95
<b>Totals:</b>		<b>28,782.03</b>	<b>48,034.89</b>	<b>0.00</b>	<b>5,891.95</b>

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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



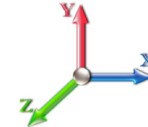
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**Load Case:** 1.2D + 1.6W 93 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.100	0.000	14.724	0.00	11.95
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.100	0.000	14.724	0.00	74.88
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.100	0.000	14.724	0.00	6.60
10.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.103	1.008	14.724	0.00	11.95
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.103	1.008	14.724	0.00	74.88
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.008	14.724	0.00	6.60
15.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.105	1.016	14.724	0.00	11.95
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.105	1.016	14.724	0.00	74.88
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	14.724	0.00	6.60
20.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.108	1.024	14.724	0.00	11.95
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.108	1.024	14.724	0.00	74.88
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.024	14.724	0.00	6.60
25.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.111	1.033	14.724	0.00	11.95
25.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.111	1.033	14.724	0.00	74.88
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.033	14.724	0.00	6.60
30.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.114	1.042	14.736	0.00	11.95
30.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.114	1.042	14.736	0.00	74.88
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	14.736	0.00	6.60
35.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.117	1.051	15.400	0.00	11.95
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.117	1.051	15.400	0.00	74.88
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.051	15.400	0.00	6.60
40.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.121	1.062	15.999	0.00	11.95
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.121	1.062	15.999	0.00	74.88
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.062	15.999	0.00	6.60
44.00	1.75" Hybrid	Yes	4.00	0.000	1.75	0.58	0.00	0.124	1.071	16.441	0.00	9.56
44.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.124	1.071	16.441	0.00	59.90
44.00	1 5/8" Hybrid	Yes	4.00	0.000	0.00	0.00	0.00	0.124	1.071	16.441	0.00	5.28
45.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.126	1.077	16.546	0.00	2.39
45.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.126	1.077	16.546	0.00	14.98
45.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.126	1.077	16.546	0.00	1.32
49.75	1.75" Hybrid	Yes	4.75	0.000	1.75	0.69	0.00	0.128	1.084	17.028	0.00	11.35
49.75	1 5/8" Coax	Yes	4.75	0.000	3.96	1.57	0.00	0.128	1.084	17.028	0.00	71.14
49.75	1 5/8" Hybrid	Yes	4.75	0.000	0.00	0.00	0.00	0.128	1.084	17.028	0.00	6.27
50.00	1.75" Hybrid	Yes	0.25	0.000	1.75	0.04	0.00	0.128	1.083	17.052	0.00	0.60
50.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.08	0.00	0.128	1.083	17.052	0.00	3.74
50.00	1 5/8" Hybrid	Yes	0.25	0.000	0.00	0.00	0.00	0.128	1.083	17.052	0.00	0.33
55.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.130	1.089	17.523	0.00	11.95
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.130	1.089	17.523	0.00	74.88
55.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.130	1.089	17.523	0.00	6.60
60.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.134	1.102	17.964	0.00	11.95
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.134	1.102	17.964	0.00	74.88
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.134	1.102	17.964	0.00	6.60
65.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.138	1.115	18.380	0.00	11.95
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.138	1.115	18.380	0.00	74.88
65.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.138	1.115	18.380	0.00	6.60
70.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.143	1.130	18.773	0.00	11.95
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.143	1.130	18.773	0.00	74.88



## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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



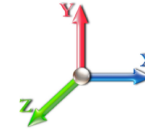
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**Load Case:** 1.2D + 1.6W 93 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
70.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.143	1.130	18.773	0.00	6.60
75.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.148	1.145	19.147	0.00	11.95
75.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.148	1.145	19.147	0.00	74.88
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.148	1.145	19.147	0.00	6.60
80.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.154	1.162	19.503	0.00	11.95
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.154	1.162	19.503	0.00	74.88
80.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.154	1.162	19.503	0.00	6.60
85.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.160	1.179	19.844	0.00	11.95
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.160	1.179	19.844	0.00	74.88
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.160	1.179	19.844	0.00	6.60
89.50	1.75" Hybrid	Yes	4.50	0.000	1.75	0.66	0.00	0.166	1.198	20.138	0.00	10.75
89.50	1 5/8" Coax	Yes	4.50	0.000	3.96	1.48	0.00	0.166	1.198	20.138	0.00	67.39
89.50	1 5/8" Hybrid	Yes	4.50	0.000	0.00	0.00	0.00	0.166	1.198	20.138	0.00	5.94
90.00	1.75" Hybrid	Yes	0.50	0.000	1.75	0.07	0.00	0.169	1.208	20.170	0.00	1.19
90.00	1 5/8" Coax	Yes	0.50	0.000	3.96	0.17	0.00	0.169	1.208	20.170	0.00	7.49
90.00	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.169	1.208	20.170	0.00	0.66
93.75	1.75" Hybrid	Yes	3.75	0.000	1.75	0.55	0.00	0.172	1.217	20.407	0.00	8.96
93.75	1 5/8" Coax	Yes	3.75	0.000	3.96	1.24	0.00	0.172	1.217	20.407	0.00	56.16
93.75	1 5/8" Hybrid	Yes	3.75	0.000	0.00	0.00	0.00	0.172	1.217	20.407	0.00	4.95
95.00	1.75" Hybrid	Yes	1.25	0.000	1.75	0.18	0.00	0.173	1.218	20.484	0.00	2.99
95.00	1 5/8" Coax	Yes	1.25	0.000	3.96	0.41	0.00	0.173	1.218	20.484	0.00	18.72
95.00	1 5/8" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.173	1.218	20.484	0.00	1.65
100.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.177	1.232	20.787	0.00	11.95
100.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.177	1.232	20.787	0.00	74.88
100.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.177	1.232	20.787	0.00	6.60
105.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.185	1.255	21.079	0.00	11.95
105.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.185	1.255	21.079	0.00	74.88
105.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.185	1.255	21.079	0.00	6.60
110.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.194	1.281	21.361	0.00	11.95
110.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.194	1.281	21.361	0.00	74.88
110.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.194	1.281	21.361	0.00	6.60
115.00	1.75" Hybrid	Yes	5.00	1.200	1.75	0.73	0.87	0.203	0.000	21.634	33.32	11.95
115.00	1 5/8" Coax	Yes	5.00	1.200	3.96	1.65	1.98	0.203	0.000	21.634	75.39	74.88
115.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.203	0.000	21.634	0.00	6.60
117.00	1.75" Hybrid	Yes	2.00	1.200	1.75	0.29	0.35	0.211	0.000	21.741	13.39	4.78
117.00	1 5/8" Coax	Yes	2.00	1.200	3.96	0.66	0.79	0.211	0.000	21.741	30.30	29.95
117.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.211	0.000	21.741	0.00	2.64
120.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.066	0.000	21.898	0.00	7.17
123.25	1.75" Hybrid	Yes	3.25	0.000	1.75	0.47	0.00	0.068	0.000	22.066	0.00	7.76
125.00	1.75" Hybrid	Yes	1.75	0.000	1.75	0.26	0.00	0.069	0.000	22.155	0.00	4.18
127.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.29	0.00	0.071	0.000	22.256	0.00	4.78
130.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.073	0.000	22.405	0.00	7.17
135.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.076	0.000	22.648	0.00	11.95
137.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.29	0.00	0.080	0.000	22.743	0.00	4.78
140.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.082	0.000	22.884	0.00	7.17
145.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.087	0.000	23.115	0.00	11.95
147.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.29	0.00	0.091	0.000	23.206	0.00	4.78

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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

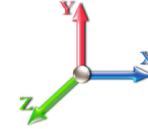


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**Load Case:** 1.2D + 1.6W 93 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
<b>Totals:</b>											<b>152.4</b>	<b>2,257.8</b>







## Total Applied Force Summary

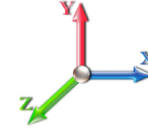
<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 93 mph Wind

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



**Iterations** 25

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		400.18	1160.12	0.00	0.00
10.00		393.58	1135.39	0.00	0.00
15.00		386.81	1110.65	0.00	0.00
20.00		380.03	1085.91	0.00	0.00
25.00		373.26	1061.17	0.00	0.00
30.00		366.80	1036.43	0.00	0.00
35.00		376.23	1011.69	0.00	0.00
40.00		383.51	986.95	0.00	0.00
44.00		309.83	771.75	0.00	0.00
45.00		78.49	354.94	0.00	0.00
49.75		379.43	1658.94	0.00	0.00
50.00		19.68	46.97	0.00	0.00
55.00		400.31	926.40	0.00	0.00
60.00		402.13	901.66	0.00	0.00
65.00		402.98	876.93	0.00	0.00
70.00		402.97	852.19	0.00	0.00
75.00		402.18	827.45	0.00	0.00
80.00		400.70	802.71	0.00	0.00
85.00		398.57	777.97	0.00	0.00
89.50		356.12	679.02	0.00	0.00
90.00		39.91	125.13	0.00	0.00
93.75		299.85	924.01	0.00	0.00
95.00		98.35	158.43	0.00	0.00
100.00		393.24	620.83	0.00	0.00
105.00		389.06	600.22	0.00	0.00
110.00		384.45	579.60	0.00	0.00
115.00		643.47	558.99	0.00	0.00
117.00	(9) attachments	1729.75	1653.95	0.00	0.00
120.00		165.57	283.88	0.00	0.00
123.25		177.45	449.45	0.00	0.00
125.00		93.39	107.63	0.00	0.00
127.00	(31) attachments	4180.83	3082.54	0.00	0.00
130.00		154.17	159.66	0.00	0.00
135.00		247.83	256.20	0.00	0.00
137.00	(23) attachments	4382.30	2234.63	0.00	0.00
140.00		139.43	125.00	0.00	0.00
145.00		222.57	198.43	0.00	0.00
147.00	(11) attachments	2746.38	2216.65	0.00	0.00
150.00		123.80	104.78	0.00	0.00
155.00	(27) attachments	5156.45	3520.92	0.00	5891.95
	<b>Totals:</b>	<b>28,782.03</b>	<b>36,026.17</b>	<b>0.00</b>	<b>5,891.95</b>

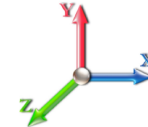
## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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



**Load Case:** 0.9D + 1.6W 93 mph Wind

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



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.100	0.000	14.724	0.00	8.96
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.100	0.000	14.724	0.00	56.16
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.100	0.000	14.724	0.00	4.95
10.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.103	1.008	14.724	0.00	8.96
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.103	1.008	14.724	0.00	56.16
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.008	14.724	0.00	4.95
15.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.105	1.016	14.724	0.00	8.96
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.105	1.016	14.724	0.00	56.16
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	14.724	0.00	4.95
20.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.108	1.024	14.724	0.00	8.96
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.108	1.024	14.724	0.00	56.16
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.024	14.724	0.00	4.95
25.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.111	1.033	14.724	0.00	8.96
25.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.111	1.033	14.724	0.00	56.16
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.033	14.724	0.00	4.95
30.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.114	1.042	14.736	0.00	8.96
30.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.114	1.042	14.736	0.00	56.16
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	14.736	0.00	4.95
35.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.117	1.051	15.400	0.00	8.96
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.117	1.051	15.400	0.00	56.16
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.051	15.400	0.00	4.95
40.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.121	1.062	15.999	0.00	8.96
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.121	1.062	15.999	0.00	56.16
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.062	15.999	0.00	4.95
44.00	1.75" Hybrid	Yes	4.00	0.000	1.75	0.58	0.00	0.124	1.071	16.441	0.00	7.17
44.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.124	1.071	16.441	0.00	44.93
44.00	1 5/8" Hybrid	Yes	4.00	0.000	0.00	0.00	0.00	0.124	1.071	16.441	0.00	3.96
45.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.126	1.077	16.546	0.00	1.79
45.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.126	1.077	16.546	0.00	11.23
45.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.126	1.077	16.546	0.00	0.99
49.75	1.75" Hybrid	Yes	4.75	0.000	1.75	0.69	0.00	0.128	1.084	17.028	0.00	8.51
49.75	1 5/8" Coax	Yes	4.75	0.000	3.96	1.57	0.00	0.128	1.084	17.028	0.00	53.35
49.75	1 5/8" Hybrid	Yes	4.75	0.000	0.00	0.00	0.00	0.128	1.084	17.028	0.00	4.70
50.00	1.75" Hybrid	Yes	0.25	0.000	1.75	0.04	0.00	0.128	1.083	17.052	0.00	0.45
50.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.08	0.00	0.128	1.083	17.052	0.00	2.81
50.00	1 5/8" Hybrid	Yes	0.25	0.000	0.00	0.00	0.00	0.128	1.083	17.052	0.00	0.25
55.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.130	1.089	17.523	0.00	8.96
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.130	1.089	17.523	0.00	56.16
55.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.130	1.089	17.523	0.00	4.95
60.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.134	1.102	17.964	0.00	8.96
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.134	1.102	17.964	0.00	56.16
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.134	1.102	17.964	0.00	4.95
65.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.138	1.115	18.380	0.00	8.96
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.138	1.115	18.380	0.00	56.16
65.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.138	1.115	18.380	0.00	4.95
70.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.143	1.130	18.773	0.00	8.96
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.143	1.130	18.773	0.00	56.16

## Linear Appurtenance Segment Forces (Factored)

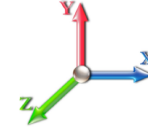
<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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**Load Case:** 0.9D + 1.6W 93 mph Wind

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



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
70.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.143	1.130	18.773	0.00	4.95
75.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.148	1.145	19.147	0.00	8.96
75.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.148	1.145	19.147	0.00	56.16
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.148	1.145	19.147	0.00	4.95
80.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.154	1.162	19.503	0.00	8.96
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.154	1.162	19.503	0.00	56.16
80.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.154	1.162	19.503	0.00	4.95
85.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.160	1.179	19.844	0.00	8.96
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.160	1.179	19.844	0.00	56.16
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.160	1.179	19.844	0.00	4.95
89.50	1.75" Hybrid	Yes	4.50	0.000	1.75	0.66	0.00	0.166	1.198	20.138	0.00	8.06
89.50	1 5/8" Coax	Yes	4.50	0.000	3.96	1.48	0.00	0.166	1.198	20.138	0.00	50.54
89.50	1 5/8" Hybrid	Yes	4.50	0.000	0.00	0.00	0.00	0.166	1.198	20.138	0.00	4.46
90.00	1.75" Hybrid	Yes	0.50	0.000	1.75	0.07	0.00	0.169	1.208	20.170	0.00	0.90
90.00	1 5/8" Coax	Yes	0.50	0.000	3.96	0.17	0.00	0.169	1.208	20.170	0.00	5.62
90.00	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.169	1.208	20.170	0.00	0.50
93.75	1.75" Hybrid	Yes	3.75	0.000	1.75	0.55	0.00	0.172	1.217	20.407	0.00	6.72
93.75	1 5/8" Coax	Yes	3.75	0.000	3.96	1.24	0.00	0.172	1.217	20.407	0.00	42.12
93.75	1 5/8" Hybrid	Yes	3.75	0.000	0.00	0.00	0.00	0.172	1.217	20.407	0.00	3.71
95.00	1.75" Hybrid	Yes	1.25	0.000	1.75	0.18	0.00	0.173	1.218	20.484	0.00	2.24
95.00	1 5/8" Coax	Yes	1.25	0.000	3.96	0.41	0.00	0.173	1.218	20.484	0.00	14.04
95.00	1 5/8" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.173	1.218	20.484	0.00	1.24
100.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.177	1.232	20.787	0.00	8.96
100.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.177	1.232	20.787	0.00	56.16
100.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.177	1.232	20.787	0.00	4.95
105.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.185	1.255	21.079	0.00	8.96
105.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.185	1.255	21.079	0.00	56.16
105.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.185	1.255	21.079	0.00	4.95
110.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.194	1.281	21.361	0.00	8.96
110.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.194	1.281	21.361	0.00	56.16
110.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.194	1.281	21.361	0.00	4.95
115.00	1.75" Hybrid	Yes	5.00	1.200	1.75	0.73	0.87	0.203	0.000	21.634	33.32	8.96
115.00	1 5/8" Coax	Yes	5.00	1.200	3.96	1.65	1.98	0.203	0.000	21.634	75.39	56.16
115.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.203	0.000	21.634	0.00	4.95
117.00	1.75" Hybrid	Yes	2.00	1.200	1.75	0.29	0.35	0.211	0.000	21.741	13.39	3.58
117.00	1 5/8" Coax	Yes	2.00	1.200	3.96	0.66	0.79	0.211	0.000	21.741	30.30	22.46
117.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.211	0.000	21.741	0.00	1.98
120.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.066	0.000	21.898	0.00	5.38
123.25	1.75" Hybrid	Yes	3.25	0.000	1.75	0.47	0.00	0.068	0.000	22.066	0.00	5.82
125.00	1.75" Hybrid	Yes	1.75	0.000	1.75	0.26	0.00	0.069	0.000	22.155	0.00	3.14
127.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.29	0.00	0.071	0.000	22.256	0.00	3.58
130.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.073	0.000	22.405	0.00	5.38
135.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.076	0.000	22.648	0.00	8.96
137.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.29	0.00	0.080	0.000	22.743	0.00	3.58
140.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.082	0.000	22.884	0.00	5.38
145.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.087	0.000	23.115	0.00	8.96
147.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.29	0.00	0.091	0.000	23.206	0.00	3.58



## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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

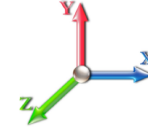


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**Load Case:** 0.9D + 1.6W 93 mph Wind

**Dead Load Factor** 0.90

**Wind Load Factor** 1.60



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
<b>Totals:</b>											<b>152.4</b>	<b>1,693.4</b>

## Calculated Forces

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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



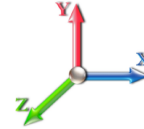
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**Load Case:** 0.9D + 1.6W 93 mph Wind

**Iterations** 25

**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	-35.98	-28.84	0.00	-3423.0	0.00	3423.04	4331.76	2165.88	10060.7	5037.85	0.00	0.000	0.000	0.688
5.00	-34.73	-28.54	0.00	-3278.8	0.00	3278.85	4271.91	2135.96	9681.61	4848.00	0.09	-0.176	0.000	0.685
10.00	-33.51	-28.25	0.00	-3136.1	0.00	3136.13	4209.88	2104.94	9304.37	4659.10	0.38	-0.358	0.000	0.681
15.00	-32.31	-27.97	0.00	-2994.8	0.00	2994.86	4145.67	2072.83	8929.41	4471.34	0.85	-0.544	0.000	0.678
20.00	-31.13	-27.68	0.00	-2855.0	0.00	2855.03	4079.27	2039.64	8557.10	4284.91	1.53	-0.737	0.000	0.674
25.00	-29.98	-27.40	0.00	-2716.6	0.00	2716.64	4010.69	2005.34	8187.79	4099.98	2.40	-0.935	0.000	0.670
30.00	-28.85	-27.12	0.00	-2579.6	0.00	2579.66	3939.93	1969.96	7821.85	3916.74	3.49	-1.140	0.000	0.666
35.00	-27.75	-26.82	0.00	-2444.0	0.00	2444.08	3866.98	1933.49	7459.66	3735.38	4.80	-1.350	0.000	0.662
40.00	-26.68	-26.51	0.00	-2309.9	0.00	2309.98	3791.85	1895.92	7101.59	3556.07	6.33	-1.568	0.000	0.657
44.00	-25.87	-26.22	0.00	-2203.9	0.00	2203.96	3730.17	1865.09	6818.34	3414.24	7.72	-1.748	0.000	0.653
45.00	-25.45	-26.19	0.00	-2177.7	0.00	2177.74	3714.54	1857.27	6747.99	3379.01	8.09	-1.795	0.000	0.652
49.75	-23.76	-25.81	0.00	-2053.3	0.00	2053.31	3683.20	1841.60	6608.77	3309.30	9.99	-2.015	0.000	0.627
50.00	-23.66	-25.84	0.00	-2046.8	0.00	2046.86	3679.23	1839.62	6591.31	3300.56	10.10	-2.027	0.000	0.627
55.00	-22.64	-25.49	0.00	-1917.6	0.00	1917.68	3598.76	1799.38	6244.86	3127.07	12.34	-2.253	0.000	0.620
60.00	-21.66	-25.14	0.00	-1790.2	0.00	1790.22	3516.10	1758.05	5903.79	2956.28	14.82	-2.485	0.000	0.612
65.00	-20.69	-24.79	0.00	-1664.5	0.00	1664.51	3431.27	1715.63	5568.46	2788.37	17.55	-2.723	0.000	0.603
70.00	-19.76	-24.43	0.00	-1540.5	0.00	1540.58	3344.24	1672.12	5239.26	2623.52	20.53	-2.968	0.000	0.593
75.00	-18.85	-24.07	0.00	-1418.4	0.00	1418.43	3255.04	1627.52	4916.54	2461.92	23.78	-3.219	0.000	0.582
80.00	-17.96	-23.70	0.00	-1298.1	0.00	1298.11	3173.93	1568.96	4563.27	2285.03	27.28	-3.476	0.000	0.574
85.00	-17.11	-23.33	0.00	-1179.6	0.00	1179.60	3017.89	1508.95	4219.09	2112.68	31.06	-3.738	0.000	0.564
89.50	-16.40	-22.97	0.00	-1074.6	0.00	1074.62	2909.87	1454.93	3920.86	1963.34	34.70	-3.980	0.000	0.553
90.00	-16.23	-22.95	0.00	-1063.1	0.00	1063.14	2897.86	1448.93	3888.39	1947.09	35.12	-4.008	0.000	0.552
93.75	-15.28	-22.62	0.00	-977.07	0.00	977.07	2354.99	1177.49	3133.69	1569.17	38.35	-4.214	0.000	0.630
95.00	-15.05	-22.56	0.00	-948.79	0.00	948.79	2336.81	1168.40	3076.66	1540.62	39.46	-4.285	0.000	0.623
100.00	-14.34	-22.20	0.00	-835.98	0.00	835.98	2262.72	1131.36	2851.92	1428.08	44.11	-4.591	0.000	0.592
105.00	-13.66	-21.84	0.00	-724.97	0.00	724.97	2165.47	1082.73	2607.63	1305.76	49.08	-4.896	0.000	0.562
110.00	-13.01	-21.47	0.00	-615.80	0.00	615.80	2065.44	1032.72	2371.09	1187.31	54.36	-5.196	0.000	0.525
115.00	-12.44	-20.82	0.00	-508.46	0.00	508.46	1965.41	982.71	2145.79	1074.49	59.96	-5.486	0.000	0.480
117.00	-10.91	-18.97	0.00	-466.82	0.00	466.82	1925.40	962.70	2058.82	1030.94	62.28	-5.602	0.000	0.459
120.00	-10.59	-18.80	0.00	-409.92	0.00	409.92	1865.39	932.69	1931.73	967.30	65.85	-5.770	0.000	0.430
123.25	-10.12	-18.60	0.00	-348.81	0.00	348.81	1005.19	502.59	1030.12	515.83	69.83	-5.942	0.000	0.688
125.00	-9.98	-18.52	0.00	-316.25	0.00	316.25	992.91	496.46	998.01	499.75	72.02	-6.033	0.000	0.644
127.00	-7.32	-14.06	0.00	-279.21	0.00	279.21	978.56	489.28	961.59	481.51	74.58	-6.187	0.000	0.588
130.00	-7.11	-13.92	0.00	-237.03	0.00	237.03	956.38	478.19	907.53	454.44	78.53	-6.401	0.000	0.530
135.00	-6.84	-13.67	0.00	-167.41	0.00	167.41	917.66	458.83	819.21	410.21	85.39	-6.712	0.000	0.416
137.00	-5.11	-9.07	0.00	-140.07	0.00	140.07	901.57	450.78	784.57	392.87	88.22	-6.825	0.000	0.363
140.00	-4.98	-8.93	0.00	-112.86	0.00	112.86	876.76	438.38	733.42	367.25	92.55	-6.975	0.000	0.313
145.00	-4.79	-8.70	0.00	-68.20	0.00	68.20	833.68	416.84	650.52	325.74	99.95	-7.178	0.000	0.216
147.00	-2.93	-5.70	0.00	-50.81	0.00	50.81	815.84	407.92	618.25	309.58	102.97	-7.243	0.000	0.168
150.00	-2.83	-5.57	0.00	-33.72	0.00	33.72	781.24	390.62	565.69	283.26	107.53	-7.319	0.000	0.123
155.00	0.00	-5.16	0.00	-5.89	0.00	5.89	721.23	360.61	481.69	241.20	115.22	-7.387	0.000	0.025

## Wind Loading - Shaft

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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



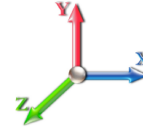
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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 25

**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	0.70	4.256	4.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	4.256	4.68	0.00	1.200	1.242	5.00	24.792	29.75	139.3	441.3	1796.7
10.00		1.00	0.70	4.256	4.68	0.00	1.209 *	1.331	5.00	24.292	29.38	137.5	462.4	1784.8
15.00		1.00	0.70	4.256	4.68	0.00	1.219 *	1.386	5.00	23.764	28.96	135.6	470.2	1759.6
20.00		1.00	0.70	4.256	4.68	0.00	1.229 *	1.427	5.00	23.223	28.53	133.6	472.1	1728.5
25.00		1.00	0.70	4.256	4.68	0.00	1.239 *	1.459	5.00	22.676	28.10	131.5	470.7	1694.1
30.00		1.00	0.70	4.260	4.69	0.00	1.250 *	1.486	5.00	22.124	27.66	129.6	466.9	1657.4
35.00		1.00	0.73	4.451	4.90	0.00	1.262 *	1.509	5.00	21.569	27.21	133.2	461.6	1619.0
40.00		1.00	0.76	4.625	5.09	0.00	1.274 *	1.529	5.00	21.011	26.77	136.2	454.9	1579.4
44.00	Bot - Section 2	1.00	0.78	4.752	5.23	0.00	1.286 *	1.544	4.00	16.405	21.09	110.3	359.1	1235.0
45.00		1.00	0.79	4.783	5.26	0.00	1.292 *	1.547	1.00	4.108	5.31	27.9	90.9	525.9
49.75	Top - Section 1	1.00	0.81	4.922	5.41	0.00	1.300 *	1.563	4.75	19.211	24.98	135.3	424.4	2454.4
50.00		1.00	0.81	4.929	5.42	0.00	1.300 *	1.564	0.25	0.997	1.30	7.0	22.3	75.4
55.00		1.00	0.83	5.065	5.57	0.00	1.307 *	1.579	5.00	19.647	25.68	143.1	437.3	1481.0
60.00		1.00	0.85	5.193	5.71	0.00	1.322 *	1.592	5.00	19.084	25.24	144.1	427.7	1438.4
65.00		1.00	0.87	5.313	5.84	0.00	1.338 *	1.605	5.00	18.520	24.79	144.9	417.6	1395.4
70.00		1.00	0.89	5.426	5.97	0.00	1.356 *	1.617	5.00	17.956	24.34	145.3	407.1	1351.9
75.00		1.00	0.91	5.534	6.09	0.00	1.374 *	1.628	5.00	17.391	23.90	145.5	396.2	1307.9
80.00		1.00	0.93	5.637	6.20	0.00	1.394 *	1.639	5.00	16.826	23.46	145.4	384.9	1263.7
85.00		1.00	0.94	5.736	6.31	0.00	1.415 *	1.649	5.00	16.260	23.01	145.2	373.3	1219.1
89.50	Bot - Section 3	1.00	0.96	5.821	6.40	0.00	1.437 *	1.657	4.50	14.149	20.34	130.2	326.4	1059.4
90.00		1.00	0.96	5.830	6.41	0.00	1.449 *	1.658	0.50	1.570	2.28	14.6	36.8	184.5
93.75	Top - Section 2	1.00	0.97	5.899	6.49	0.00	1.460 *	1.665	3.75	11.596	16.93	109.9	269.2	1357.6
95.00		1.00	0.97	5.921	6.51	0.00	1.461 *	1.667	1.25	3.794	5.54	36.1	89.0	252.3
100.00		1.00	0.99	6.008	6.61	0.00	1.478 *	1.676	5.00	14.824	21.91	144.8	343.5	979.8
105.00		1.00	1.00	6.093	6.70	0.00	1.506 *	1.684	5.00	14.256	21.48	143.9	330.9	939.8
110.00		1.00	1.02	6.174	6.79	0.00	1.538 *	1.692	5.00	13.688	21.05	142.9	318.2	899.5
115.00		1.00	1.03	6.253	6.88	0.00	1.200 *	1.699	5.00	13.120	15.74	108.3	305.2	859.1
117.00	Appurtenance(s)	1.00	1.03	6.284	6.91	0.00	1.200 *	1.702	2.00	5.088	6.11	42.2	120.0	333.8
120.00	Bot - Section 4	1.00	1.04	6.330	6.96	0.00	1.200	1.707	3.00	7.462	8.95	62.3	175.2	487.8
123.25	Top - Section 3	1.00	1.05	6.378	7.02	0.00	1.200	1.711	3.25	7.956	9.55	67.0	186.8	714.6
125.00		1.00	1.05	6.404	7.04	0.00	1.200	1.714	1.75	4.184	5.02	35.4	99.0	204.0
127.00	Appurtenance(s)	1.00	1.06	6.433	7.08	0.00	1.200	1.716	2.00	4.697	5.64	39.9	111.0	228.5
130.00		1.00	1.07	6.476	7.12	0.00	1.200	1.720	3.00	6.875	8.25	58.8	161.6	333.0
135.00		1.00	1.08	6.546	7.20	0.00	1.200	1.727	5.00	11.005	13.21	95.1	255.7	528.1
137.00	Appurtenance(s)	1.00	1.08	6.574	7.23	0.00	1.200	1.729	2.00	4.242	5.09	36.8	100.1	204.4
140.00		1.00	1.09	6.615	7.28	0.00	1.200	1.733	3.00	6.192	7.43	54.1	145.2	296.8
145.00		1.00	1.10	6.681	7.35	0.00	1.200	1.739	5.00	9.866	11.84	87.0	228.1	467.5
147.00	Appurtenance(s)	1.00	1.10	6.708	7.38	0.00	1.200	1.742	2.00	3.786	4.54	33.5	89.0	180.2
150.00		1.00	1.11	6.746	7.42	0.00	1.200	1.745	3.00	5.509	6.61	49.1	128.5	260.2
155.00	Appurtenance(s)	1.00	1.12	6.810	7.49	0.00	1.200	1.751	5.00	8.727	10.47	78.5	200.0	406.4
<b>Totals:</b>								<b>155.00</b>			<b>3,940.9</b>	<b>38,544.8</b>		

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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** 25

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	155.00	Ericsson 4424 B25 RRU	3	6.835	7.518	0.60	0.90	4.79	577.03	0.000	2.000	36.01	0.00	72.03
2	155.00	ACU-A20-N	4	6.835	7.518	0.45	0.90	0.79	16.84	0.000	2.000	5.92	0.00	11.85
3	155.00	Low Profile Platform	1	6.810	7.491	1.00	1.00	50.55	2813.21	0.000	0.000	378.68	0.00	0.00
4	155.00	RFS	3	6.835	7.518	0.56	0.90	12.69	559.14	0.000	2.000	95.38	0.00	190.75
5	155.00	RFS	3	6.835	7.518	0.63	0.90	41.86	1700.52	0.000	2.000	314.70	0.00	629.40
6	155.00	Ericsson AIR6449 B41	3	6.835	7.518	0.64	0.90	12.66	688.41	0.000	2.000	95.18	0.00	190.35
7	155.00	6' Lightning rod	1	6.810	7.491	1.00	1.00	1.47	38.92	0.000	0.000	11.02	0.00	0.00
8	155.00	Ericsson 4449 B71 + B85	3	6.835	7.518	0.60	0.90	4.60	262.12	0.000	2.000	34.56	0.00	69.13
9	155.00	(3) T-Arm Kit	1	6.810	7.491	0.75	0.75	24.51	1045.32	0.000	0.000	183.60	0.00	0.00
10	155.00	MS-H1242 (Heavy Collar	1	6.810	7.491	1.00	1.00	5.13	325.37	0.000	0.000	38.40	0.00	0.00
11	155.00	MS-KI22-5 (Kickers w/o	1	6.810	7.491	1.00	1.00	10.93	315.71	0.000	0.000	81.87	0.00	0.00
12	155.00	Ericsson 4415 B66A RRU	3	6.835	7.518	0.60	0.90	4.39	349.76	0.000	2.000	33.00	0.00	66.01
13	147.00	MC-PK8-DSH	1	6.708	7.378	1.00	1.00	84.73	3383.83	0.000	0.000	625.16	0.00	0.00
14	147.00	FFVV-65C-R3-V1	3	6.708	7.378	0.55	0.75	22.58	1096.86	0.000	0.000	166.57	0.00	0.00
15	147.00	TA08025-B605	3	6.708	7.378	0.50	0.75	3.80	388.80	0.000	0.000	28.03	0.00	0.00
16	147.00	TA08025-B604	3	6.708	7.378	0.50	0.75	3.80	345.32	0.000	0.000	28.03	0.00	0.00
17	147.00	RDIDC-9181-PF-48	1	6.708	7.378	0.75	0.75	1.93	66.72	0.000	0.000	14.26	0.00	0.00
18	137.00	Low Profile Platform	1	6.574	7.231	1.00	1.00	51.24	2177.68	0.000	0.000	370.56	0.00	0.00
19	137.00	LPA-80063/6CF	2	6.574	7.231	0.75	0.80	16.45	634.96	0.000	0.000	118.98	0.00	0.00
20	137.00	LPA-80080-6CF-EDIN	2	6.574	7.231	0.74	0.80	8.47	287.61	0.000	0.000	61.26	0.00	0.00
21	137.00	LPA-80080/4CF	2	6.574	7.231	0.74	0.80	10.79	439.91	0.000	0.000	78.05	0.00	0.00
22	137.00	Samsung - B2/B66A	3	6.574	7.231	0.54	0.80	3.92	530.94	0.000	0.000	28.34	0.00	0.00
23	137.00	Samsung - B5/B13	3	6.574	7.231	0.54	0.80	3.92	458.80	0.000	0.000	28.34	0.00	0.00
24	137.00	Samsung - 64T64R	3	6.574	7.231	0.53	0.80	7.49	655.53	0.000	0.000	54.13	0.00	0.00
25	137.00	JMA - MX06FIT665-02	6	6.574	7.231	0.64	0.80	41.85	1670.57	0.000	0.000	302.66	0.00	0.00
26	137.00	Commscope -	1	6.574	7.231	1.00	1.00	4.87	126.10	0.000	0.000	35.25	0.00	0.00
27	127.00	HRK14	1	6.433	7.076	1.00	1.00	13.24	881.25	0.000	0.000	93.68	0.00	0.00
28	127.00	DC6-48-60-18-8F	1	6.433	7.076	0.80	0.80	1.73	81.26	0.000	0.000	12.22	0.00	0.00
29	127.00	7770	3	6.433	7.076	0.60	0.80	11.78	523.33	0.000	0.000	83.39	0.00	0.00
30	127.00	860 10025	6	6.433	7.076	0.50	0.75	1.67	34.42	0.000	0.000	11.79	0.00	0.00
31	127.00	Low Profile Platform	1	6.433	7.076	1.00	1.00	44.74	2787.31	0.000	0.000	316.59	0.00	0.00
32	127.00	HPA65R-BU6A	3	6.433	7.076	0.66	0.75	25.47	978.47	0.000	0.000	180.26	0.00	0.00
33	127.00	(3) PRK-1245	1	6.433	7.076	1.00	1.00	19.28	781.99	0.000	0.000	136.46	0.00	0.00
34	127.00	DMP65R-BU6DA	3	6.433	7.076	0.55	0.75	23.56	952.99	0.000	0.000	166.72	0.00	0.00
35	127.00	4449	3	6.433	7.076	0.50	0.75	3.28	452.51	0.000	0.000	23.23	0.00	0.00
36	127.00	8843	3	6.433	7.076	0.50	0.75	3.28	489.51	0.000	0.000	23.23	0.00	0.00
37	127.00	21401 TMA	6	6.433	7.076	0.50	0.75	6.37	206.45	0.000	0.000	45.06	0.00	0.00
38	117.00	T-Arms	3	6.284	6.913	0.56	0.75	24.99	1765.00	0.000	0.000	172.75	0.00	0.00
39	117.00	Air 21 B4A/B2P	3	6.284	6.913	0.69	0.80	14.78	817.32	0.000	0.000	102.13	0.00	0.00
40	117.00	Ericsson - Air 21 B2A/B4P	3	6.284	6.913	0.69	0.80	14.78	821.28	0.000	0.000	102.13	0.00	0.00

**Totals:** 32,529.05

4,717.60

## Total Applied Force Summary

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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** 25

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		139.28	2171.85	0.00	0.00
10.00		137.55	2173.69	0.00	0.00
15.00		135.60	2157.15	0.00	0.00
20.00		133.59	2132.52	0.00	0.00
25.00		131.54	2103.21	0.00	0.00
30.00		129.59	2070.82	0.00	0.00
35.00		133.25	2036.20	0.00	0.00
40.00		136.17	1999.90	0.00	0.00
44.00		110.25	1573.28	0.00	0.00
45.00		27.93	610.57	0.00	0.00
49.75		135.26	2859.12	0.00	0.00
50.00		7.02	96.67	0.00	0.00
55.00		143.09	1909.62	0.00	0.00
60.00		144.14	1869.32	0.00	0.00
65.00		144.86	1828.37	0.00	0.00
70.00		145.30	1786.83	0.00	0.00
75.00		145.49	1744.79	0.00	0.00
80.00		145.45	1702.30	0.00	0.00
85.00		145.20	1659.39	0.00	0.00
89.50		130.21	1456.93	0.00	0.00
90.00		14.59	228.67	0.00	0.00
93.75		109.87	1689.81	0.00	0.00
95.00		36.11	363.17	0.00	0.00
100.00		144.79	1424.61	0.00	0.00
105.00		143.93	1385.94	0.00	0.00
110.00		142.94	1347.01	0.00	0.00
115.00		151.32	1307.84	0.00	0.00
117.00	(9) attachments	436.54	3917.14	0.00	0.00
120.00		62.35	572.16	0.00	0.00
123.25		66.99	806.15	0.00	0.00
125.00		35.37	253.29	0.00	0.00
127.00	(31) attachments	1132.50	8454.38	0.00	0.00
130.00		58.77	393.12	0.00	0.00
135.00		95.09	628.58	0.00	0.00
137.00	(23) attachments	1114.39	7226.75	0.00	0.00
140.00		54.07	330.71	0.00	0.00
145.00		87.02	524.27	0.00	0.00
147.00	(11) attachments	895.57	5484.41	0.00	0.00
150.00		49.06	268.16	0.00	0.00
155.00	(27) attachments	1386.78	9111.95	0.00	1229.51
	<b>Totals:</b>	<b>8,718.83</b>	<b>81,660.66</b>	<b>0.00</b>	<b>1,229.51</b>

## Linear Appurtenance Segment Forces (Factored)

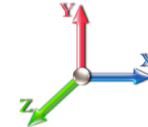
<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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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** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.76	0.00	0.100	0.000	4.256	0.00	31.10
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.69	0.00	0.100	0.000	4.256	0.00	218.70
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.100	0.000	4.256	0.00	27.35
10.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.84	0.00	0.103	1.008	4.256	0.00	33.11
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.76	0.00	0.103	1.008	4.256	0.00	228.34
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.008	4.256	0.00	29.45
15.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.88	0.00	0.105	1.016	4.256	0.00	34.40
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.81	0.00	0.105	1.016	4.256	0.00	234.34
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	4.256	0.00	30.79
20.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.92	0.00	0.108	1.024	4.256	0.00	35.37
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.84	0.00	0.108	1.024	4.256	0.00	238.78
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.024	4.256	0.00	31.80
25.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.94	0.00	0.111	1.033	4.256	0.00	36.15
25.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.87	0.00	0.111	1.033	4.256	0.00	242.32
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.033	4.256	0.00	32.62
30.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.97	0.00	0.114	1.042	4.260	0.00	36.82
30.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.89	0.00	0.114	1.042	4.260	0.00	245.28
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	4.260	0.00	33.31
35.00	1.75" Hybrid	Yes	5.00	0.000	1.75	1.99	0.00	0.117	1.051	4.451	0.00	37.40
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.91	0.00	0.117	1.051	4.451	0.00	247.84
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.051	4.451	0.00	33.91
40.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.00	0.00	0.121	1.062	4.625	0.00	37.91
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.92	0.00	0.121	1.062	4.625	0.00	250.09
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.062	4.625	0.00	34.45
44.00	1.75" Hybrid	Yes	4.00	0.000	1.75	1.61	0.00	0.124	1.071	4.752	0.00	30.63
44.00	1 5/8" Coax	Yes	4.00	0.000	3.96	2.35	0.00	0.124	1.071	4.752	0.00	201.37
44.00	1 5/8" Hybrid	Yes	4.00	0.000	0.00	0.00	0.00	0.124	1.071	4.752	0.00	27.87
45.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.40	0.00	0.126	1.077	4.783	0.00	7.68
45.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.59	0.00	0.126	1.077	4.783	0.00	50.42
45.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.126	1.077	4.783	0.00	6.99
49.75	1.75" Hybrid	Yes	4.75	0.000	1.75	1.93	0.00	0.128	1.084	4.922	0.00	36.84
49.75	1 5/8" Coax	Yes	4.75	0.000	3.96	2.80	0.00	0.128	1.084	4.922	0.00	241.15
49.75	1 5/8" Hybrid	Yes	4.75	0.000	0.00	0.00	0.00	0.128	1.084	4.922	0.00	33.58
50.00	1.75" Hybrid	Yes	0.25	0.000	1.75	0.10	0.00	0.128	1.083	4.929	0.00	1.94
50.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.15	0.00	0.128	1.083	4.929	0.00	12.70
50.00	1 5/8" Hybrid	Yes	0.25	0.000	0.00	0.00	0.00	0.128	1.083	4.929	0.00	1.77
55.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.04	0.00	0.130	1.089	5.065	0.00	39.19
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.97	0.00	0.130	1.089	5.065	0.00	255.60
55.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.130	1.089	5.065	0.00	35.77
60.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.06	0.00	0.134	1.102	5.193	0.00	39.55
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.98	0.00	0.134	1.102	5.193	0.00	257.14
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.134	1.102	5.193	0.00	36.14
65.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.07	0.00	0.138	1.115	5.313	0.00	39.89
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	2.99	0.00	0.138	1.115	5.313	0.00	258.57
65.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.138	1.115	5.313	0.00	36.49
70.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.08	0.00	0.143	1.130	5.426	0.00	40.20
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.00	0.00	0.143	1.130	5.426	0.00	259.91

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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



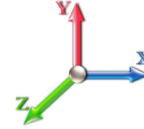
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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Iterations** 25

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
70.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.143	1.130	5.426	0.00	36.82
75.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.09	0.00	0.148	1.145	5.534	0.00	40.50
75.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.01	0.00	0.148	1.145	5.534	0.00	261.17
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.148	1.145	5.534	0.00	37.13
80.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.09	0.00	0.154	1.162	5.637	0.00	40.78
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.02	0.00	0.154	1.162	5.637	0.00	262.35
80.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.154	1.162	5.637	0.00	37.42
85.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.10	0.00	0.160	1.179	5.736	0.00	41.05
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.02	0.00	0.160	1.179	5.736	0.00	263.47
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.160	1.179	5.736	0.00	37.70
89.50	1.75" Hybrid	Yes	4.50	0.000	1.75	1.90	0.00	0.166	1.198	5.821	0.00	37.15
89.50	1 5/8" Coax	Yes	4.50	0.000	3.96	2.73	0.00	0.166	1.198	5.821	0.00	237.99
89.50	1 5/8" Hybrid	Yes	4.50	0.000	0.00	0.00	0.00	0.166	1.198	5.821	0.00	34.15
90.00	1.75" Hybrid	Yes	0.50	0.000	1.75	0.21	0.00	0.169	1.208	5.830	0.00	4.13
90.00	1 5/8" Coax	Yes	0.50	0.000	3.96	0.30	0.00	0.169	1.208	5.830	0.00	26.45
90.00	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.169	1.208	5.830	0.00	3.80
93.75	1.75" Hybrid	Yes	3.75	0.000	1.75	1.59	0.00	0.172	1.217	5.899	0.00	31.12
93.75	1 5/8" Coax	Yes	3.75	0.000	3.96	2.28	0.00	0.172	1.217	5.899	0.00	198.98
93.75	1 5/8" Hybrid	Yes	3.75	0.000	0.00	0.00	0.00	0.172	1.217	5.899	0.00	28.62
95.00	1.75" Hybrid	Yes	1.25	0.000	1.75	0.53	0.00	0.173	1.218	5.921	0.00	10.39
95.00	1 5/8" Coax	Yes	1.25	0.000	3.96	0.76	0.00	0.173	1.218	5.921	0.00	66.39
95.00	1 5/8" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.173	1.218	5.921	0.00	9.55
100.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.13	0.00	0.177	1.232	6.008	0.00	41.79
100.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.05	0.00	0.177	1.232	6.008	0.00	266.52
100.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.177	1.232	6.008	0.00	38.46
105.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.13	0.00	0.185	1.255	6.093	0.00	42.01
105.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.05	0.00	0.185	1.255	6.093	0.00	267.44
105.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.185	1.255	6.093	0.00	38.69
110.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.14	0.00	0.194	1.281	6.174	0.00	42.22
110.00	1 5/8" Coax	Yes	5.00	0.000	3.96	3.06	0.00	0.194	1.281	6.174	0.00	268.33
110.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.194	1.281	6.174	0.00	38.92
115.00	1.75" Hybrid	Yes	5.00	1.200	1.75	2.15	2.57	0.203	0.000	6.253	17.71	42.43
115.00	1 5/8" Coax	Yes	5.00	1.200	3.96	3.07	3.68	0.203	0.000	6.253	25.31	269.18
115.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.203	0.000	6.253	0.00	39.13
117.00	1.75" Hybrid	Yes	2.00	1.200	1.75	0.86	1.03	0.211	0.000	6.284	7.13	17.01
117.00	1 5/8" Coax	Yes	2.00	1.200	3.96	1.23	1.47	0.211	0.000	6.284	10.18	107.81
117.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.211	0.000	6.284	0.00	15.69
120.00	1.75" Hybrid	Yes	3.00	0.000	1.75	1.29	0.00	0.066	0.000	6.330	0.00	25.58
123.25	1.75" Hybrid	Yes	3.25	0.000	1.75	1.40	0.00	0.068	0.000	6.378	0.00	27.79
125.00	1.75" Hybrid	Yes	1.75	0.000	1.75	0.76	0.00	0.069	0.000	6.404	0.00	14.99
127.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.86	0.00	0.071	0.000	6.433	0.00	17.16
130.00	1.75" Hybrid	Yes	3.00	0.000	1.75	1.30	0.00	0.073	0.000	6.476	0.00	25.81
135.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.17	0.00	0.076	0.000	6.546	0.00	43.19
137.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.87	0.00	0.080	0.000	6.574	0.00	17.31
140.00	1.75" Hybrid	Yes	3.00	0.000	1.75	1.30	0.00	0.082	0.000	6.615	0.00	26.02
145.00	1.75" Hybrid	Yes	5.00	0.000	1.75	2.18	0.00	0.087	0.000	6.681	0.00	43.54
147.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.87	0.00	0.091	0.000	6.708	0.00	17.44

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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

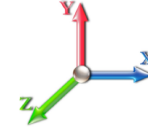


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**Load Case:** 1.2D + 1.0Di + 1.0Wi 50 mph Wind

**Dead Load Factor** 1.20

**Wind Load Factor** 1.00



**Iterations** 25

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
<b>Totals:</b>											<b>60.3</b>	<b>7,934.6</b>



**Calculated Forces**

**Structure:** CT00248-S-SBA      **Code:** EIA/TIA-222-G      12/13/2021  
**Site Name:** North Bethel      **Exposure:** B  
**Height:** 155.00 (ft)      **Crest Height:** 0.00  
**Base Elev:** 0.000 (ft)      **Site Class:** D - Stiff Soil  
**Gh:** 1.1      **Topography:** 1      **Struct Class:** II      Page: 29



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

**Iterations** 25

**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	-81.66	-8.76	0.00	-1072.0	0.00	1072.08	4331.76	2165.88	10060.7	5037.85	0.00	0.000	0.000	0.232
5.00	-79.48	-8.70	0.00	-1028.2	0.00	1028.29	4271.91	2135.96	9681.61	4848.00	0.03	-0.055	0.000	0.231
10.00	-77.29	-8.63	0.00	-984.81	0.00	984.81	4209.88	2104.94	9304.37	4659.10	0.12	-0.112	0.000	0.230
15.00	-75.13	-8.57	0.00	-941.64	0.00	941.64	4145.67	2072.83	8929.41	4471.34	0.27	-0.171	0.000	0.229
20.00	-72.99	-8.51	0.00	-898.79	0.00	898.79	4079.27	2039.64	8557.10	4284.91	0.48	-0.231	0.000	0.228
25.00	-70.88	-8.45	0.00	-856.25	0.00	856.25	4010.69	2005.34	8187.79	4099.98	0.75	-0.294	0.000	0.227
30.00	-68.80	-8.38	0.00	-814.02	0.00	814.02	3939.93	1969.96	7821.85	3916.74	1.10	-0.358	0.000	0.225
35.00	-66.75	-8.31	0.00	-772.11	0.00	772.11	3866.98	1933.49	7459.66	3735.38	1.51	-0.425	0.000	0.224
40.00	-64.74	-8.23	0.00	-730.54	0.00	730.54	3791.85	1895.92	7101.59	3556.07	1.99	-0.494	0.000	0.223
44.00	-63.17	-8.15	0.00	-697.61	0.00	697.61	3730.17	1865.09	6818.34	3414.24	2.43	-0.551	0.000	0.221
45.00	-62.55	-8.16	0.00	-689.46	0.00	689.46	3714.54	1857.27	6747.99	3379.01	2.54	-0.565	0.000	0.221
49.75	-59.69	-8.03	0.00	-650.70	0.00	650.70	3683.20	1841.60	6608.77	3309.30	3.14	-0.635	0.000	0.213
50.00	-59.58	-8.06	0.00	-648.69	0.00	648.69	3679.23	1839.62	6591.31	3300.56	3.18	-0.639	0.000	0.213
55.00	-57.67	-7.97	0.00	-608.37	0.00	608.37	3598.76	1799.38	6244.86	3127.07	3.88	-0.710	0.000	0.211
60.00	-55.79	-7.88	0.00	-568.51	0.00	568.51	3516.10	1758.05	5903.79	2956.28	4.67	-0.784	0.000	0.208
65.00	-53.95	-7.78	0.00	-529.13	0.00	529.13	3431.27	1715.63	5568.46	2788.37	5.53	-0.860	0.000	0.206
70.00	-52.16	-7.68	0.00	-490.24	0.00	490.24	3344.24	1672.12	5239.26	2623.52	6.47	-0.938	0.000	0.202
75.00	-50.41	-7.57	0.00	-451.86	0.00	451.86	3255.04	1627.52	4916.54	2461.92	7.50	-1.018	0.000	0.199
80.00	-48.70	-7.47	0.00	-414.00	0.00	414.00	3137.93	1568.96	4563.27	2285.03	8.61	-1.100	0.000	0.197
85.00	-47.03	-7.35	0.00	-376.67	0.00	376.67	3017.89	1508.95	4219.09	2112.68	9.80	-1.183	0.000	0.194
89.50	-45.57	-7.23	0.00	-343.58	0.00	343.58	2909.87	1454.93	3920.86	1963.34	10.96	-1.260	0.000	0.191
90.00	-45.34	-7.24	0.00	-339.97	0.00	339.97	2897.86	1448.93	3888.39	1947.09	11.09	-1.270	0.000	0.190
93.75	-43.64	-7.12	0.00	-312.83	0.00	312.83	2354.99	1177.49	3133.69	1569.17	12.11	-1.335	0.000	0.218
95.00	-43.27	-7.12	0.00	-303.93	0.00	303.93	2336.81	1168.40	3076.66	1540.62	12.47	-1.358	0.000	0.216
100.00	-41.84	-7.02	0.00	-268.31	0.00	268.31	2262.72	1131.36	2851.92	1428.08	13.94	-1.456	0.000	0.206
105.00	-40.45	-6.90	0.00	-233.24	0.00	233.24	2165.47	1082.73	2607.63	1305.76	15.52	-1.554	0.000	0.197
110.00	-39.09	-6.79	0.00	-198.72	0.00	198.72	2065.44	1032.72	2371.09	1187.31	17.20	-1.651	0.000	0.186
115.00	-37.78	-6.64	0.00	-164.78	0.00	164.78	1965.41	982.71	2145.79	1074.49	18.98	-1.745	0.000	0.173
117.00	-33.88	-6.11	0.00	-151.50	0.00	151.50	1925.40	962.70	2058.82	1030.94	19.72	-1.782	0.000	0.165
120.00	-33.30	-6.06	0.00	-133.16	0.00	133.16	1865.39	932.69	1931.73	967.30	20.86	-1.837	0.000	0.156
123.25	-32.49	-5.99	0.00	-113.46	0.00	113.46	1005.19	502.59	1030.12	515.83	22.13	-1.893	0.000	0.252
125.00	-32.24	-5.97	0.00	-102.97	0.00	102.97	992.91	496.46	998.01	499.75	22.83	-1.922	0.000	0.239
127.00	-23.82	-4.58	0.00	-91.02	0.00	91.02	978.56	489.28	961.59	481.51	23.64	-1.973	0.000	0.213
130.00	-23.42	-4.54	0.00	-77.29	0.00	77.29	956.38	478.19	907.53	454.44	24.90	-2.042	0.000	0.195
135.00	-22.79	-4.45	0.00	-54.58	0.00	54.58	917.66	458.83	819.21	410.21	27.10	-2.144	0.000	0.158
137.00	-15.61	-3.08	0.00	-45.68	0.00	45.68	901.57	450.78	784.57	392.87	28.01	-2.180	0.000	0.134
140.00	-15.28	-3.02	0.00	-36.45	0.00	36.45	876.76	438.38	733.42	367.25	29.39	-2.229	0.000	0.117
145.00	-14.76	-2.93	0.00	-21.33	0.00	21.33	833.68	416.84	650.52	325.74	31.76	-2.294	0.000	0.083
147.00	-9.31	-1.82	0.00	-15.47	0.00	15.47	815.84	407.92	618.25	309.58	32.73	-2.314	0.000	0.061
150.00	-9.05	-1.76	0.00	-10.03	0.00	10.03	781.24	390.62	565.69	283.26	34.19	-2.337	0.000	0.047
155.00	0.00	-1.39	0.00	-1.23	0.00	1.23	721.23	360.61	481.69	241.20	36.65	-2.356	0.000	0.005

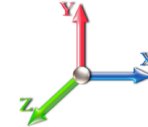
## Seismic Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.23	<b>Ss</b> 0.21
<b>Dead Load Factor</b>	1.20	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.07
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.31	<b>SA</b> 0.03
				<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		1129.4	0.00	0.03	0.02	28.19	
10.00		1101.9	0.01	0.05	0.03	38.85	
15.00		1074.5	0.02	0.06	0.04	43.21	
20.00		1047.0	0.03	0.07	0.04	44.75	
25.00		1019.5	0.05	0.07	0.04	45.06	
30.00		992.03	0.07	0.07	0.04	44.93	
35.00		964.55	0.10	0.07	0.04	44.72	
40.00		937.06	0.13	0.07	0.03	44.50	
44.00	Bot - Section 2	729.86	0.15	0.07	0.03	35.27	
45.00		362.47	0.16	0.07	0.03	17.58	
49.75	Top - Section 1	1691.6	0.19	0.06	0.02	82.82	
50.00		44.21	0.20	0.06	0.02	2.16	
55.00		869.78	0.24	0.06	0.02	41.93	
60.00		842.29	0.28	0.05	0.01	38.13	
65.00		814.81	0.33	0.04	0.01	31.73	
70.00		787.32	0.39	0.02	0.01	22.13	
75.00		759.83	0.44	0.00	0.01	9.45	
80.00		732.34	0.50	-0.02	0.01	-4.80	
85.00		704.86	0.57	-0.04	0.01	-17.97	
89.50	Bot - Section 3	610.87	0.63	-0.06	0.02	-24.15	
90.00		123.08	0.64	-0.07	0.02	-5.02	
93.75	Top - Section 2	907.01	0.69	-0.08	0.03	-44.09	
95.00		136.14	0.71	-0.09	0.03	-6.86	
100.00		530.26	0.79	-0.11	0.05	-28.47	
105.00		507.35	0.87	-0.12	0.08	-25.80	
110.00		484.45	0.95	-0.12	0.11	-20.45	
115.00		461.54	1.04	-0.10	0.15	-12.95	
117.00	Appurtenance(s)	1773.9	1.08	-0.08	0.17	-37.01	
120.00	Bot - Section 4	260.43	1.13	-0.05	0.21	-2.20	
123.25	Top - Section 3	439.82	1.20	0.00	0.25	3.16	
125.00		87.51	1.23	0.03	0.28	1.45	
127.00	Appurtenance(s)	3388.3	1.27	0.08	0.31	95.22	
130.00		142.80	1.33	0.16	0.36	6.72	
135.00		227.01	1.43	0.35	0.47	18.89	
137.00	Appurtenance(s)	2459.8	1.48	0.44	0.52	244.10	
140.00		126.31	1.54	0.61	0.59	15.79	
145.00		199.52	1.65	0.96	0.75	34.47	
147.00	Appurtenance(s)	2454.5	1.70	1.12	0.81	475.08	
150.00		109.82	1.77	1.41	0.93	24.88	
155.00	Appurtenance(s)	3901.1	1.89	1.98	1.14	1117.66	
<b>Totals:</b>		<b>35,937.4</b>				<b>2,423.1</b>	<b>Total Wind: 28,782.0</b>

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

## Calculated Forces

**Structure:** CT00248-S-SBA  
**Site Name:** North Bethel  
**Height:** 155.00 (ft)  
**Base Elev:** 0.000 (ft)  
**Gh:** 1.1

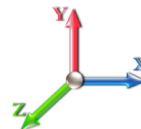
**Topography:** 1

**Code:** EIA/TIA-222-G 12/13/2021  
**Exposure:** B  
**Crest Height:** 0.00  
**Site Class:** D - Stiff Soil  
**Struct Class:** II



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<b>Load Case:</b> 1.2D + 1.0E										<b>Iterations</b>	23	
<b>Gust Response Factor</b>	1.10				<b>Sds</b>	0.23				<b>Ss</b>	0.21	
<b>Dead Load Factor</b>	1.20			<b>Seismic Load Factor</b>	1.00			<b>Sd1</b>	0.11		<b>S1</b>	0.07
<b>Wind Load Factor</b>	0.00			<b>Structure Frequency (f1)</b>	0.31		<b>SA</b>	0.03	<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	-48.03	-2.66	0.00	-347.43	0.00	347.43	4331.76	2165.88	10060.7	5037.85	0.00	0.00	0.00	0.080
5.00	-46.49	-2.65	0.00	-334.14	0.00	334.14	4271.91	2135.96	9681.61	4848.00	0.01	-0.02	0.080	0.080
10.00	-44.97	-2.62	0.00	-320.91	0.00	320.91	4209.88	2104.94	9304.37	4659.10	0.04	-0.04	0.080	0.080
15.00	-43.49	-2.59	0.00	-307.80	0.00	307.80	4145.67	2072.83	8929.41	4471.34	0.09	-0.06	0.079	0.079
20.00	-42.04	-2.56	0.00	-294.84	0.00	294.84	4079.27	2039.64	8557.10	4284.91	0.16	-0.08	0.079	0.079
25.00	-40.63	-2.53	0.00	-282.04	0.00	282.04	4010.69	2005.34	8187.79	4099.98	0.25	-0.10	0.079	0.079
30.00	-39.24	-2.50	0.00	-269.40	0.00	269.40	3939.93	1969.96	7821.85	3916.74	0.36	-0.12	0.079	0.079
35.00	-37.89	-2.46	0.00	-256.93	0.00	256.93	3866.98	1933.49	7459.66	3735.38	0.49	-0.14	0.079	0.079
40.00	-36.58	-2.43	0.00	-244.62	0.00	244.62	3791.85	1895.92	7101.59	3556.07	0.65	-0.16	0.078	0.078
44.00	-35.55	-2.40	0.00	-234.90	0.00	234.90	3730.17	1865.09	6818.34	3414.24	0.79	-0.18	0.078	0.078
45.00	-35.07	-2.39	0.00	-232.51	0.00	232.51	3714.54	1857.27	6747.99	3379.01	0.83	-0.19	0.078	0.078
49.75	-32.86	-2.30	0.00	-221.17	0.00	221.17	3683.20	1841.60	6608.77	3309.30	1.03	-0.21	0.076	0.076
50.00	-32.80	-2.31	0.00	-220.60	0.00	220.60	3679.23	1839.62	6591.31	3300.56	1.04	-0.21	0.076	0.076
55.00	-31.56	-2.28	0.00	-209.06	0.00	209.06	3598.76	1799.38	6244.86	3127.07	1.28	-0.24	0.076	0.076
60.00	-30.36	-2.25	0.00	-197.68	0.00	197.68	3516.10	1758.05	5903.79	2956.28	1.54	-0.26	0.076	0.076
65.00	-29.19	-2.22	0.00	-186.45	0.00	186.45	3431.27	1715.63	5568.46	2788.37	1.82	-0.29	0.075	0.075
70.00	-28.05	-2.21	0.00	-175.34	0.00	175.34	3344.24	1672.12	5239.26	2623.52	2.14	-0.32	0.075	0.075
75.00	-26.95	-2.21	0.00	-164.30	0.00	164.30	3255.04	1627.52	4916.54	2461.92	2.49	-0.34	0.075	0.075
80.00	-25.88	-2.21	0.00	-153.27	0.00	153.27	3137.93	1568.96	4563.27	2285.03	2.86	-0.37	0.075	0.075
85.00	-24.84	-2.22	0.00	-142.21	0.00	142.21	3017.89	1508.95	4219.09	2112.68	3.27	-0.41	0.076	0.076
89.50	-23.93	-2.22	0.00	-132.22	0.00	132.22	2909.87	1454.93	3920.86	1963.34	3.67	-0.43	0.076	0.076
90.00	-23.76	-2.22	0.00	-131.11	0.00	131.11	2897.86	1448.93	3888.39	1947.09	3.71	-0.44	0.076	0.076
93.75	-22.53	-2.22	0.00	-122.77	0.00	122.77	2354.99	1177.49	3133.69	1569.17	4.07	-0.46	0.088	0.088
95.00	-22.32	-2.23	0.00	-120.00	0.00	120.00	2336.81	1168.40	3076.66	1540.62	4.19	-0.47	0.087	0.087
100.00	-21.49	-2.24	0.00	-108.85	0.00	108.85	2262.72	1131.36	2851.92	1428.08	4.71	-0.51	0.086	0.086
105.00	-20.69	-2.24	0.00	-97.67	0.00	97.67	2165.47	1082.73	2607.63	1305.76	5.27	-0.55	0.084	0.084
110.00	-19.91	-2.25	0.00	-86.45	0.00	86.45	2065.44	1032.72	2371.09	1187.31	5.87	-0.59	0.082	0.082
115.00	-19.17	-2.25	0.00	-75.19	0.00	75.19	1965.41	982.71	2145.79	1074.49	6.51	-0.64	0.080	0.080
117.00	-16.96	-2.23	0.00	-70.69	0.00	70.69	1925.40	962.70	2058.82	1030.94	6.78	-0.65	0.077	0.077
120.00	-16.58	-2.24	0.00	-63.98	0.00	63.98	1865.39	932.69	1931.73	967.30	7.20	-0.68	0.075	0.075
123.25	-15.98	-2.23	0.00	-56.71	0.00	56.71	1005.19	502.59	1030.12	515.83	7.67	-0.71	0.126	0.126
125.00	-15.84	-2.24	0.00	-52.80	0.00	52.80	992.91	496.46	998.01	499.75	7.93	-0.72	0.122	0.122
127.00	-11.73	-2.09	0.00	-48.33	0.00	48.33	978.56	489.28	961.59	481.51	8.24	-0.75	0.112	0.112
130.00	-11.51	-2.09	0.00	-42.05	0.00	42.05	956.38	478.19	907.53	454.44	8.72	-0.78	0.105	0.105
135.00	-11.17	-2.08	0.00	-31.58	0.00	31.58	917.66	458.83	819.21	410.21	9.58	-0.84	0.089	0.089
137.00	-8.19	-1.79	0.00	-27.42	0.00	27.42	901.57	450.78	784.57	392.87	9.93	-0.86	0.079	0.079
140.00	-8.03	-1.78	0.00	-22.04	0.00	22.04	876.76	438.38	733.42	367.25	10.48	-0.89	0.069	0.069
145.00	-7.76	-1.74	0.00	-13.14	0.00	13.14	833.68	416.84	650.52	325.74	11.44	-0.93	0.050	0.050
147.00	-4.81	-1.22	0.00	-9.65	0.00	9.65	815.84	407.92	618.25	309.58	11.83	-0.94	0.037	0.037
150.00	-4.68	-1.20	0.00	-5.98	0.00	5.98	781.24	390.62	565.69	283.26	12.43	-0.96	0.027	0.027
155.00	0.00	-1.12	0.00	0.00	0.00	0.00	721.23	360.61	481.69	241.20	13.44	-0.97	0.000	0.000

## Seismic Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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> 23
<b>Gust Response Factor</b>	1.10	<b>Sds</b>	0.23	<b>Ss</b> 0.21
<b>Dead Load Factor</b>	0.90	<b>Seismic Load Factor</b>	1.00	<b>S1</b> 0.07
<b>Wind Load Factor</b>	0.00	<b>Structure Frequency (f1)</b>	0.31	<b>SA</b> 0.03
				<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		1129.4	0.00	0.03	0.02	28.19	
10.00		1101.9	0.01	0.05	0.03	38.85	
15.00		1074.5	0.02	0.06	0.04	43.21	
20.00		1047.0	0.03	0.07	0.04	44.75	
25.00		1019.5	0.05	0.07	0.04	45.06	
30.00		992.03	0.07	0.07	0.04	44.93	
35.00		964.55	0.10	0.07	0.04	44.72	
40.00		937.06	0.13	0.07	0.03	44.50	
44.00	Bot - Section 2	729.86	0.15	0.07	0.03	35.27	
45.00		362.47	0.16	0.07	0.03	17.58	
49.75	Top - Section 1	1691.6	0.19	0.06	0.02	82.82	
50.00		44.21	0.20	0.06	0.02	2.16	
55.00		869.78	0.24	0.06	0.02	41.93	
60.00		842.29	0.28	0.05	0.01	38.13	
65.00		814.81	0.33	0.04	0.01	31.73	
70.00		787.32	0.39	0.02	0.01	22.13	
75.00		759.83	0.44	0.00	0.01	9.45	
80.00		732.34	0.50	-0.02	0.01	-4.80	
85.00		704.86	0.57	-0.04	0.01	-17.97	
89.50	Bot - Section 3	610.87	0.63	-0.06	0.02	-24.15	
90.00		123.08	0.64	-0.07	0.02	-5.02	
93.75	Top - Section 2	907.01	0.69	-0.08	0.03	-44.09	
95.00		136.14	0.71	-0.09	0.03	-6.86	
100.00		530.26	0.79	-0.11	0.05	-28.47	
105.00		507.35	0.87	-0.12	0.08	-25.80	
110.00		484.45	0.95	-0.12	0.11	-20.45	
115.00		461.54	1.04	-0.10	0.15	-12.95	
117.00	Appurtenance(s)	1773.9	1.08	-0.08	0.17	-37.01	
120.00	Bot - Section 4	260.43	1.13	-0.05	0.21	-2.20	
123.25	Top - Section 3	439.82	1.20	0.00	0.25	3.16	
125.00		87.51	1.23	0.03	0.28	1.45	
127.00	Appurtenance(s)	3388.3	1.27	0.08	0.31	95.22	
130.00		142.80	1.33	0.16	0.36	6.72	
135.00		227.01	1.43	0.35	0.47	18.89	
137.00	Appurtenance(s)	2459.8	1.48	0.44	0.52	244.10	
140.00		126.31	1.54	0.61	0.59	15.79	
145.00		199.52	1.65	0.96	0.75	34.47	
147.00	Appurtenance(s)	2454.5	1.70	1.12	0.81	475.08	
150.00		109.82	1.77	1.41	0.93	24.88	
155.00	Appurtenance(s)	3901.1	1.89	1.98	1.14	1117.66	
<b>Totals:</b>		<b>35,937.4</b>				<b>2,423.1</b>	<b>Total Wind: 28,782.0</b>

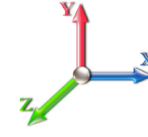
Seismic Base Shear is Less Than 50% of Wind Force - An Analysis is NOT Required

## Calculated Forces

Structure: CT00248-S-SBA	Code: EIA/TIA-222-G	12/13/2021
Site Name: North Bethel	Exposure: B	
Height: 155.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: D - Stiff Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.0E		<b>Iterations</b>	23
<b>Gust Response Factor</b> 1.10	<b>Sds</b> 0.23		<b>Ss</b> 0.21
<b>Dead Load Factor</b> 0.90	<b>Seismic Load Factor</b> 1.00	<b>Sd1</b> 0.11	<b>S1</b> 0.07
<b>Wind Load Factor</b> 0.00	<b>Structure Frequency (f1)</b> 0.31	<b>SA</b> 0.03	<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	-36.03	-2.66	0.00	-341.99	0.00	341.99	4331.76	2165.88	10060.7	5037.85	0.00	0.00	0.00	0.076
5.00	-34.86	-2.64	0.00	-328.70	0.00	328.70	4271.91	2135.96	9681.61	4848.00	0.01	-0.02	0.076	
10.00	-33.73	-2.61	0.00	-315.50	0.00	315.50	4209.88	2104.94	9304.37	4659.10	0.04	-0.04	0.076	
15.00	-32.62	-2.58	0.00	-302.44	0.00	302.44	4145.67	2072.83	8929.41	4471.34	0.09	-0.05	0.076	
20.00	-31.53	-2.54	0.00	-289.54	0.00	289.54	4079.27	2039.64	8557.10	4284.91	0.15	-0.07	0.075	
25.00	-30.47	-2.51	0.00	-276.83	0.00	276.83	4010.69	2005.34	8187.79	4099.98	0.24	-0.09	0.075	
30.00	-29.43	-2.47	0.00	-264.29	0.00	264.29	3939.93	1969.96	7821.85	3916.74	0.35	-0.12	0.075	
35.00	-28.42	-2.44	0.00	-251.93	0.00	251.93	3866.98	1933.49	7459.66	3735.38	0.48	-0.14	0.075	
40.00	-27.43	-2.40	0.00	-239.75	0.00	239.75	3791.85	1895.92	7101.59	3556.07	0.64	-0.16	0.075	
44.00	-26.66	-2.37	0.00	-230.15	0.00	230.15	3730.17	1865.09	6818.34	3414.24	0.78	-0.18	0.075	
45.00	-26.30	-2.35	0.00	-227.78	0.00	227.78	3714.54	1857.27	6747.99	3379.01	0.82	-0.18	0.074	
49.75	-24.64	-2.27	0.00	-216.60	0.00	216.60	3683.20	1841.60	6608.77	3309.30	1.01	-0.21	0.072	
50.00	-24.60	-2.27	0.00	-216.03	0.00	216.03	3679.23	1839.62	6591.31	3300.56	1.02	-0.21	0.072	
55.00	-23.67	-2.24	0.00	-204.66	0.00	204.66	3598.76	1799.38	6244.86	3127.07	1.25	-0.23	0.072	
60.00	-22.77	-2.21	0.00	-193.46	0.00	193.46	3516.10	1758.05	5903.79	2956.28	1.51	-0.26	0.072	
65.00	-21.89	-2.18	0.00	-182.43	0.00	182.43	3431.27	1715.63	5568.46	2788.37	1.79	-0.28	0.072	
70.00	-21.04	-2.17	0.00	-171.52	0.00	171.52	3344.24	1672.12	5239.26	2623.52	2.10	-0.31	0.072	
75.00	-20.21	-2.16	0.00	-160.70	0.00	160.70	3255.04	1627.52	4916.54	2461.92	2.44	-0.34	0.071	
80.00	-19.40	-2.17	0.00	-149.89	0.00	149.89	3137.93	1568.96	4563.27	2285.03	2.81	-0.37	0.072	
85.00	-18.62	-2.17	0.00	-139.06	0.00	139.06	3017.89	1508.95	4219.09	2112.68	3.21	-0.40	0.072	
89.50	-17.95	-2.17	0.00	-129.29	0.00	129.29	2909.87	1454.93	3920.86	1963.34	3.60	-0.43	0.072	
90.00	-17.82	-2.17	0.00	-128.20	0.00	128.20	2897.86	1448.93	3888.39	1947.09	3.64	-0.43	0.072	
93.75	-16.89	-2.17	0.00	-120.05	0.00	120.05	2354.99	1177.49	3133.69	1569.17	3.99	-0.45	0.084	
95.00	-16.74	-2.18	0.00	-117.33	0.00	117.33	2336.81	1168.40	3076.66	1540.62	4.11	-0.46	0.083	
100.00	-16.11	-2.18	0.00	-106.44	0.00	106.44	2262.72	1131.36	2851.92	1428.08	4.62	-0.50	0.082	
105.00	-15.51	-2.19	0.00	-95.53	0.00	95.53	2165.47	1082.73	2607.63	1305.76	5.16	-0.54	0.080	
110.00	-14.93	-2.19	0.00	-84.58	0.00	84.58	2065.44	1032.72	2371.09	1187.31	5.75	-0.58	0.078	
115.00	-14.37	-2.20	0.00	-73.61	0.00	73.61	1965.41	982.71	2145.79	1074.49	6.38	-0.62	0.076	
117.00	-12.72	-2.18	0.00	-69.22	0.00	69.22	1925.40	962.70	2058.82	1030.94	6.65	-0.64	0.074	
120.00	-12.43	-2.18	0.00	-62.67	0.00	62.67	1865.39	932.69	1931.73	967.30	7.06	-0.66	0.071	
123.25	-11.98	-2.18	0.00	-55.57	0.00	55.57	1005.19	502.59	1030.12	515.83	7.52	-0.69	0.120	
125.00	-11.87	-2.18	0.00	-51.76	0.00	51.76	992.91	496.46	998.01	499.75	7.78	-0.71	0.116	
127.00	-8.79	-2.05	0.00	-47.40	0.00	47.40	978.56	489.28	961.59	481.51	8.08	-0.73	0.107	
130.00	-8.63	-2.05	0.00	-41.24	0.00	41.24	956.38	478.19	907.53	454.44	8.55	-0.77	0.100	
135.00	-8.37	-2.03	0.00	-30.98	0.00	30.98	917.66	458.83	819.21	410.21	9.38	-0.82	0.085	
137.00	-6.14	-1.76	0.00	-26.91	0.00	26.91	901.57	450.78	784.57	392.87	9.73	-0.85	0.075	
140.00	-6.01	-1.75	0.00	-21.63	0.00	21.63	876.76	438.38	733.42	367.25	10.27	-0.87	0.066	
145.00	-5.82	-1.71	0.00	-12.90	0.00	12.90	833.68	416.84	650.52	325.74	11.21	-0.91	0.047	
147.00	-3.61	-1.20	0.00	-9.48	0.00	9.48	815.84	407.92	618.25	309.58	11.60	-0.92	0.035	
150.00	-3.50	-1.18	0.00	-5.88	0.00	5.88	781.24	390.62	565.69	283.26	12.18	-0.94	0.025	
155.00	0.00	-1.12	0.00	0.00	0.00	0.00	721.23	360.61	481.69	241.20	13.17	-0.95	0.000	

## Wind Loading - Shaft

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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



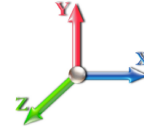
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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Iterations** 24

**Dead Load Factor** 1.00

**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	0.70	6.129	6.74	241.40	0.650	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.70	6.129	6.74	235.64	0.650	0.000	5.00	23.757	15.44	104.1	0.0	1129.5
10.00		1.00	0.70	6.129	6.74	229.87	0.655 *	0.000	5.00	23.183	15.19	102.4	0.0	1102.0
15.00		1.00	0.70	6.129	6.74	224.11	0.660 *	0.000	5.00	22.609	14.93	100.6	0.0	1074.5
20.00		1.00	0.70	6.129	6.74	218.34	0.666 *	0.000	5.00	22.034	14.67	98.9	0.0	1047.0
25.00		1.00	0.70	6.129	6.74	212.57	0.671 *	0.000	5.00	21.460	14.40	97.1	0.0	1019.5
30.00		1.00	0.70	6.134	6.75	206.90	0.677 *	0.000	5.00	20.886	14.14	95.4	0.0	992.0
35.00		1.00	0.73	6.410	7.05	205.60	0.683 *	0.000	5.00	20.311	13.88	97.9	0.0	964.5
40.00		1.00	0.76	6.659	7.33	203.55	0.690 *	0.000	5.00	19.737	13.62	99.8	0.0	937.1
44.00	Bot - Section 2	1.00	0.78	6.843	7.53	201.47	0.696 *	0.000	4.00	15.376	10.71	80.6	0.0	729.9
45.00		1.00	0.79	6.887	7.58	200.90	0.700 *	0.000	1.00	3.850	2.70	20.4	0.0	362.5
49.75	Top - Section 1	1.00	0.81	7.088	7.80	197.91	0.704 *	0.000	4.75	17.974	12.66	98.7	0.0	1691.7
50.00		1.00	0.81	7.098	7.81	201.17	0.704 *	0.000	0.25	0.932	0.66	5.1	0.0	44.2
55.00		1.00	0.83	7.294	8.02	197.63	0.708 *	0.000	5.00	18.331	12.98	104.1	0.0	869.8
60.00		1.00	0.85	7.477	8.22	193.74	0.716 *	0.000	5.00	17.757	12.72	104.6	0.0	842.3
65.00		1.00	0.87	7.650	8.42	189.52	0.725 *	0.000	5.00	17.183	12.46	104.8	0.0	814.8
70.00		1.00	0.89	7.814	8.60	185.03	0.734 *	0.000	5.00	16.609	12.20	104.8	0.0	787.3
75.00		1.00	0.91	7.969	8.77	180.29	0.744 *	0.000	5.00	16.034	11.93	104.6	0.0	759.8
80.00		1.00	0.93	8.118	8.93	175.32	0.755 *	0.000	5.00	15.460	11.67	104.2	0.0	732.3
85.00		1.00	0.94	8.260	9.09	170.15	0.767 *	0.000	5.00	14.886	11.41	103.7	0.0	704.9
89.50	Bot - Section 3	1.00	0.96	8.382	9.22	165.34	0.779 *	0.000	4.50	12.906	10.05	92.6	0.0	610.9
90.00		1.00	0.96	8.396	9.24	164.80	0.785 *	0.000	0.50	1.432	1.12	10.4	0.0	123.1
93.75	Top - Section 2	1.00	0.97	8.494	9.34	160.67	0.791 *	0.000	3.75	10.555	8.35	78.0	0.0	907.0
95.00		1.00	0.97	8.526	9.38	162.40	0.792 *	0.000	1.25	3.446	2.73	25.6	0.0	136.1
100.00		1.00	0.99	8.652	9.52	156.75	0.801 *	0.000	5.00	13.427	10.75	102.3	0.0	530.3
105.00		1.00	1.00	8.774	9.65	150.95	0.816 *	0.000	5.00	12.853	10.49	101.2	0.0	507.4
110.00		1.00	1.02	8.891	9.78	145.01	0.833 *	0.000	5.00	12.278	10.23	100.0	0.0	484.4
115.00		1.00	1.03	9.005	9.91	138.94	1.200 *	0.000	5.00	11.704	14.04	139.1	0.0	461.5
117.00	Appurtenance(s)	1.00	1.03	9.049	9.95	136.48	1.200 *	0.000	2.00	4.521	5.42	54.0	0.0	178.2
120.00	Bot - Section 4	1.00	1.04	9.115	10.03	132.76	0.650	0.000	3.00	6.609	4.30	43.1	0.0	260.4
123.25	Top - Section 3	1.00	1.05	9.185	10.10	128.68	0.650	0.000	3.25	7.030	4.57	46.2	0.0	439.8
125.00		1.00	1.05	9.222	10.14	128.41	0.650	0.000	1.75	3.685	2.39	24.3	0.0	87.5
127.00	Appurtenance(s)	1.00	1.06	9.264	10.19	125.87	0.650	0.000	2.00	4.125	2.68	27.3	0.0	98.0
130.00		1.00	1.07	9.326	10.26	122.02	0.650	0.000	3.00	6.015	3.91	40.1	0.0	142.8
135.00		1.00	1.08	9.427	10.37	115.53	0.650	0.000	5.00	9.565	6.22	64.5	0.0	227.0
137.00	Appurtenance(s)	1.00	1.08	9.466	10.41	112.91	0.650	0.000	2.00	3.665	2.38	24.8	0.0	87.0
140.00		1.00	1.09	9.525	10.48	108.94	0.650	0.000	3.00	5.326	3.46	36.3	0.0	126.3
145.00		1.00	1.10	9.621	10.58	102.27	0.650	0.000	5.00	8.417	5.47	57.9	0.0	199.5
147.00	Appurtenance(s)	1.00	1.10	9.659	10.62	99.57	0.650	0.000	2.00	3.206	2.08	22.1	0.0	76.0
150.00		1.00	1.11	9.715	10.69	95.50	0.650	0.000	3.00	4.637	3.01	32.2	0.0	109.8
155.00	Appurtenance(s)	1.00	1.12	9.806	10.79	88.66	0.650	0.000	5.00	7.268	4.72	51.0	0.0	172.0
<b>Totals:</b>								<b>155.00</b>			<b>2,904.9</b>			<b>22,570.6</b>

\* Cf Adjusted by Linear Load Ra Effect

## Discrete Appurtenance Forces

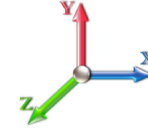
<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

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



**Iterations** 24

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	155.00	Ericsson 4424 B25 RRU	3	9.842	10.827	0.60	0.90	3.71	264.00	0.000	2.000	40.15	0.00	80.30
2	155.00	ACU-A20-N	4	9.842	10.827	0.45	0.90	0.25	4.00	0.000	2.000	2.73	0.00	5.46
3	155.00	Low Profile Platform	1	9.806	10.787	1.00	1.00	28.00	1500.00	0.000	0.000	302.03	0.00	0.00
4	155.00	RFS	3	9.842	10.827	0.56	0.90	10.81	122.10	0.000	2.000	117.08	0.00	234.16
5	155.00	RFS	3	9.842	10.827	0.63	0.90	38.25	368.40	0.000	2.000	414.15	0.00	828.31
6	155.00	Ericsson AIR6449 B41	3	9.842	10.827	0.64	0.90	10.83	309.00	0.000	2.000	117.26	0.00	234.53
7	155.00	6' Lightning rod	1	9.806	10.787	1.00	1.00	0.38	6.50	0.000	0.000	4.10	0.00	0.00
8	155.00	Ericsson 4449 B71 + B85	3	9.842	10.827	0.60	0.90	3.56	219.60	0.000	2.000	38.58	0.00	77.17
9	155.00	(3) T-Arm Kit	1	9.806	10.787	0.75	0.75	12.38	500.00	0.000	0.000	133.49	0.00	0.00
10	155.00	MS-H1242 (Heavy Collar	1	9.806	10.787	1.00	1.00	2.50	150.60	0.000	0.000	26.97	0.00	0.00
11	155.00	MS-KI22-5 (Kickers w/o	1	9.806	10.787	1.00	1.00	5.33	146.00	0.000	0.000	57.49	0.00	0.00
12	155.00	Ericsson 4415 B66A RRU	3	9.842	10.827	0.60	0.90	3.36	138.90	0.000	2.000	36.43	0.00	72.86
13	147.00	MC-PK8-DSH	1	9.659	10.625	1.00	1.00	37.59	1727.00	0.000	0.000	399.39	0.00	0.00
14	147.00	FFVV-65C-R3-V1	3	9.659	10.625	0.55	0.75	20.15	213.00	0.000	0.000	214.13	0.00	0.00
15	147.00	TA08025-B605	3	9.659	10.625	0.50	0.75	2.95	225.00	0.000	0.000	31.39	0.00	0.00
16	147.00	TA08025-B604	3	9.659	10.625	0.50	0.75	2.95	191.70	0.000	0.000	31.39	0.00	0.00
17	147.00	RDIDC-9181-PF-48	1	9.659	10.625	0.75	0.75	1.51	21.90	0.000	0.000	16.02	0.00	0.00
18	137.00	Low Profile Platform	1	9.466	10.413	1.00	1.00	28.00	1200.00	0.000	0.000	291.57	0.00	0.00
19	137.00	LPA-80063/6CF	2	9.466	10.413	0.75	0.80	14.44	54.00	0.000	0.000	150.35	0.00	0.00
20	137.00	LPA-80080-6CF-EDIN	2	9.466	10.413	0.74	0.80	6.44	42.00	0.000	0.000	67.09	0.00	0.00
21	137.00	LPA-80080/4CF	2	9.466	10.413	0.74	0.80	3.88	24.00	0.000	0.000	40.44	0.00	0.00
22	137.00	Samsung - B2/B66A	3	9.466	10.413	0.54	0.80	3.01	253.20	0.000	0.000	31.31	0.00	0.00
23	137.00	Samsung - B5/B13	3	9.466	10.413	0.54	0.80	3.01	210.90	0.000	0.000	31.31	0.00	0.00
24	137.00	Samsung - 64T64R	3	9.466	10.413	0.53	0.80	7.59	286.80	0.000	0.000	79.01	0.00	0.00
25	137.00	JMA - MX06FIT665-02	6	9.466	10.413	0.64	0.80	36.67	270.00	0.000	0.000	381.87	0.00	0.00
26	137.00	Commscope -	1	9.466	10.413	1.00	1.00	4.06	32.00	0.000	0.000	42.28	0.00	0.00
27	127.00	HRK14	1	9.264	10.190	1.00	1.00	6.75	261.72	0.000	0.000	68.78	0.00	0.00
28	127.00	DC6-48-60-18-8F	1	9.264	10.190	0.80	0.80	1.18	31.80	0.000	0.000	11.98	0.00	0.00
29	127.00	7770	3	9.264	10.190	0.60	0.80	9.90	105.00	0.000	0.000	100.88	0.00	0.00
30	127.00	860 10025	6	9.264	10.190	0.50	0.75	0.54	7.20	0.000	0.000	5.53	0.00	0.00
31	127.00	Low Profile Platform	1	9.264	10.190	1.00	1.00	25.00	1500.00	0.000	0.000	254.75	0.00	0.00
32	127.00	HPA65R-BU6A	3	9.264	10.190	0.65	0.75	21.73	162.00	0.000	0.000	221.43	0.00	0.00
33	127.00	(3) PRK-1245	1	9.264	10.190	1.00	1.00	9.50	464.91	0.000	0.000	96.81	0.00	0.00
34	127.00	DMP65R-BU6DA	3	9.264	10.190	0.54	0.75	20.59	238.20	0.000	0.000	209.81	0.00	0.00
35	127.00	4449	3	9.264	10.190	0.50	0.75	2.49	210.00	0.000	0.000	25.35	0.00	0.00
36	127.00	8843	3	9.264	10.190	0.50	0.75	2.49	225.00	0.000	0.000	25.35	0.00	0.00
37	127.00	21401 TMA	6	9.264	10.190	0.50	0.75	3.89	84.60	0.000	0.000	39.63	0.00	0.00
38	117.00	T-Arms	3	9.049	9.954	0.56	0.75	13.50	1050.00	0.000	0.000	134.38	0.00	0.00
39	117.00	Air 21 B4A/B2P	3	9.049	9.954	0.69	0.80	12.57	271.20	0.000	0.000	125.12	0.00	0.00
40	117.00	Ericsson - Air 21 B2A/B4P	3	9.049	9.954	0.69	0.80	12.57	274.50	0.000	0.000	125.12	0.00	0.00

**Totals:** 13,366.73

**4,542.93**

## Total Applied Force Summary

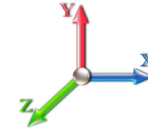
<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (ft)	<b>Crest Height:</b> 0.00	
<b>Base Elev:</b> 0.000 (ft)	<b>Site Class:</b> D - Stiff Soil	
<b>Gh:</b> 1.1	<b>Topography:</b> 1	<b>Struct Class:</b> II



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

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



**Iterations** 24

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		104.10	1289.03	0.00	0.00
10.00		102.39	1261.54	0.00	0.00
15.00		100.63	1234.05	0.00	0.00
20.00		98.86	1206.56	0.00	0.00
25.00		97.10	1179.08	0.00	0.00
30.00		95.42	1151.59	0.00	0.00
35.00		97.88	1124.10	0.00	0.00
40.00		99.77	1096.61	0.00	0.00
44.00		80.60	857.50	0.00	0.00
45.00		20.42	394.38	0.00	0.00
49.75		98.71	1843.27	0.00	0.00
50.00		5.12	52.19	0.00	0.00
55.00		104.14	1029.34	0.00	0.00
60.00		104.61	1001.85	0.00	0.00
65.00		104.83	974.36	0.00	0.00
70.00		104.83	946.87	0.00	0.00
75.00		104.63	919.39	0.00	0.00
80.00		104.24	891.90	0.00	0.00
85.00		103.69	864.41	0.00	0.00
89.50		92.64	754.47	0.00	0.00
90.00		10.38	139.03	0.00	0.00
93.75		78.01	1026.68	0.00	0.00
95.00		25.59	176.03	0.00	0.00
100.00		102.30	689.82	0.00	0.00
105.00		101.21	666.91	0.00	0.00
110.00		100.01	644.00	0.00	0.00
115.00		167.40	621.10	0.00	0.00
117.00	(9) attachments	449.99	1837.72	0.00	0.00
120.00		43.07	315.43	0.00	0.00
123.25		46.16	499.39	0.00	0.00
125.00		24.29	119.59	0.00	0.00
127.00	(31) attachments	1087.62	3425.04	0.00	0.00
130.00		40.11	177.40	0.00	0.00
135.00		64.47	284.67	0.00	0.00
137.00	(23) attachments	1140.04	2482.92	0.00	0.00
140.00		36.27	138.88	0.00	0.00
145.00		57.90	220.48	0.00	0.00
147.00	(11) attachments	714.46	2462.94	0.00	0.00
150.00		32.21	116.42	0.00	0.00
155.00	(27) attachments	1341.43	3912.14	0.00	1532.77
<b>Totals:</b>		<b>7,487.52</b>	<b>40,029.07</b>	<b>0.00</b>	<b>1,532.77</b>



## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
5.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.100	0.000	6.129	0.00	9.96
5.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.100	0.000	6.129	0.00	62.40
5.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.100	0.000	6.129	0.00	5.50
10.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.103	1.008	6.129	0.00	9.96
10.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.103	1.008	6.129	0.00	62.40
10.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.103	1.008	6.129	0.00	5.50
15.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.105	1.016	6.129	0.00	9.96
15.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.105	1.016	6.129	0.00	62.40
15.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.105	1.016	6.129	0.00	5.50
20.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.108	1.024	6.129	0.00	9.96
20.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.108	1.024	6.129	0.00	62.40
20.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.108	1.024	6.129	0.00	5.50
25.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.111	1.033	6.129	0.00	9.96
25.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.111	1.033	6.129	0.00	62.40
25.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.111	1.033	6.129	0.00	5.50
30.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.114	1.042	6.134	0.00	9.96
30.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.114	1.042	6.134	0.00	62.40
30.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.114	1.042	6.134	0.00	5.50
35.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.117	1.051	6.410	0.00	9.96
35.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.117	1.051	6.410	0.00	62.40
35.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.117	1.051	6.410	0.00	5.50
40.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.121	1.062	6.659	0.00	9.96
40.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.121	1.062	6.659	0.00	62.40
40.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.121	1.062	6.659	0.00	5.50
44.00	1.75" Hybrid	Yes	4.00	0.000	1.75	0.58	0.00	0.124	1.071	6.843	0.00	7.96
44.00	1 5/8" Coax	Yes	4.00	0.000	3.96	1.32	0.00	0.124	1.071	6.843	0.00	49.92
44.00	1 5/8" Hybrid	Yes	4.00	0.000	0.00	0.00	0.00	0.124	1.071	6.843	0.00	4.40
45.00	1.75" Hybrid	Yes	1.00	0.000	1.75	0.15	0.00	0.126	1.077	6.887	0.00	1.99
45.00	1 5/8" Coax	Yes	1.00	0.000	3.96	0.33	0.00	0.126	1.077	6.887	0.00	12.48
45.00	1 5/8" Hybrid	Yes	1.00	0.000	0.00	0.00	0.00	0.126	1.077	6.887	0.00	1.10
49.75	1.75" Hybrid	Yes	4.75	0.000	1.75	0.69	0.00	0.128	1.084	7.088	0.00	9.46
49.75	1 5/8" Coax	Yes	4.75	0.000	3.96	1.57	0.00	0.128	1.084	7.088	0.00	59.28
49.75	1 5/8" Hybrid	Yes	4.75	0.000	0.00	0.00	0.00	0.128	1.084	7.088	0.00	5.23
50.00	1.75" Hybrid	Yes	0.25	0.000	1.75	0.04	0.00	0.128	1.083	7.098	0.00	0.50
50.00	1 5/8" Coax	Yes	0.25	0.000	3.96	0.08	0.00	0.128	1.083	7.098	0.00	3.12
50.00	1 5/8" Hybrid	Yes	0.25	0.000	0.00	0.00	0.00	0.128	1.083	7.098	0.00	0.28
55.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.130	1.089	7.294	0.00	9.96
55.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.130	1.089	7.294	0.00	62.40
55.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.130	1.089	7.294	0.00	5.50
60.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.134	1.102	7.477	0.00	9.96
60.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.134	1.102	7.477	0.00	62.40
60.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.134	1.102	7.477	0.00	5.50
65.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.138	1.115	7.650	0.00	9.96
65.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.138	1.115	7.650	0.00	62.40
65.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.138	1.115	7.650	0.00	5.50
70.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.143	1.130	7.814	0.00	9.96
70.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.143	1.130	7.814	0.00	62.40

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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** 24

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
70.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.143	1.130	7.814	0.00	5.50
75.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.148	1.145	7.969	0.00	9.96
75.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.148	1.145	7.969	0.00	62.40
75.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.148	1.145	7.969	0.00	5.50
80.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.154	1.162	8.118	0.00	9.96
80.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.154	1.162	8.118	0.00	62.40
80.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.154	1.162	8.118	0.00	5.50
85.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.160	1.179	8.260	0.00	9.96
85.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.160	1.179	8.260	0.00	62.40
85.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.160	1.179	8.260	0.00	5.50
89.50	1.75" Hybrid	Yes	4.50	0.000	1.75	0.66	0.00	0.166	1.198	8.382	0.00	8.96
89.50	1 5/8" Coax	Yes	4.50	0.000	3.96	1.48	0.00	0.166	1.198	8.382	0.00	56.16
89.50	1 5/8" Hybrid	Yes	4.50	0.000	0.00	0.00	0.00	0.166	1.198	8.382	0.00	4.95
90.00	1.75" Hybrid	Yes	0.50	0.000	1.75	0.07	0.00	0.169	1.208	8.396	0.00	1.00
90.00	1 5/8" Coax	Yes	0.50	0.000	3.96	0.17	0.00	0.169	1.208	8.396	0.00	6.24
90.00	1 5/8" Hybrid	Yes	0.50	0.000	0.00	0.00	0.00	0.169	1.208	8.396	0.00	0.55
93.75	1.75" Hybrid	Yes	3.75	0.000	1.75	0.55	0.00	0.172	1.217	8.494	0.00	7.47
93.75	1 5/8" Coax	Yes	3.75	0.000	3.96	1.24	0.00	0.172	1.217	8.494	0.00	46.80
93.75	1 5/8" Hybrid	Yes	3.75	0.000	0.00	0.00	0.00	0.172	1.217	8.494	0.00	4.13
95.00	1.75" Hybrid	Yes	1.25	0.000	1.75	0.18	0.00	0.173	1.218	8.526	0.00	2.49
95.00	1 5/8" Coax	Yes	1.25	0.000	3.96	0.41	0.00	0.173	1.218	8.526	0.00	15.60
95.00	1 5/8" Hybrid	Yes	1.25	0.000	0.00	0.00	0.00	0.173	1.218	8.526	0.00	1.38
100.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.177	1.232	8.652	0.00	9.96
100.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.177	1.232	8.652	0.00	62.40
100.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.177	1.232	8.652	0.00	5.50
105.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.185	1.255	8.774	0.00	9.96
105.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.185	1.255	8.774	0.00	62.40
105.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.185	1.255	8.774	0.00	5.50
110.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.194	1.281	8.891	0.00	9.96
110.00	1 5/8" Coax	Yes	5.00	0.000	3.96	1.65	0.00	0.194	1.281	8.891	0.00	62.40
110.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.194	1.281	8.891	0.00	5.50
115.00	1.75" Hybrid	Yes	5.00	1.200	1.75	0.73	0.87	0.203	0.000	9.005	8.67	9.96
115.00	1 5/8" Coax	Yes	5.00	1.200	3.96	1.65	1.98	0.203	0.000	9.005	19.61	62.40
115.00	1 5/8" Hybrid	Yes	5.00	0.000	0.00	0.00	0.00	0.203	0.000	9.005	0.00	5.50
117.00	1.75" Hybrid	Yes	2.00	1.200	1.75	0.29	0.35	0.211	0.000	9.049	3.48	3.98
117.00	1 5/8" Coax	Yes	2.00	1.200	3.96	0.66	0.79	0.211	0.000	9.049	7.88	24.96
117.00	1 5/8" Hybrid	Yes	2.00	0.000	0.00	0.00	0.00	0.211	0.000	9.049	0.00	2.20
120.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.066	0.000	9.115	0.00	5.97
123.25	1.75" Hybrid	Yes	3.25	0.000	1.75	0.47	0.00	0.068	0.000	9.185	0.00	6.47
125.00	1.75" Hybrid	Yes	1.75	0.000	1.75	0.26	0.00	0.069	0.000	9.222	0.00	3.48
127.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.29	0.00	0.071	0.000	9.264	0.00	3.98
130.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.073	0.000	9.326	0.00	5.97
135.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.076	0.000	9.427	0.00	9.96
137.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.29	0.00	0.080	0.000	9.466	0.00	3.98
140.00	1.75" Hybrid	Yes	3.00	0.000	1.75	0.44	0.00	0.082	0.000	9.525	0.00	5.97
145.00	1.75" Hybrid	Yes	5.00	0.000	1.75	0.73	0.00	0.087	0.000	9.621	0.00	9.96
147.00	1.75" Hybrid	Yes	2.00	0.000	1.75	0.29	0.00	0.091	0.000	9.659	0.00	3.98

## Linear Appurtenance Segment Forces (Factored)

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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

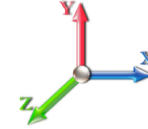


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**Load Case:** 1.0D + 1.0W 60 mph Wind

**Dead Load Factor** 1.00

**Wind Load Factor** 1.00



**Iterations** 24

Top Elev (ft)	Description	Wind Exposed	Length (ft)	Ca	Exposed Width (in)	Area (sqft)	CaAa (sqft)	Ra	Cf Adjust Factor	qz (psf)	F X (lb)	Dead Load (lb)
<b>Totals:</b>											<b>39.6</b>	<b>1,881.5</b>

## Calculated Forces

**Structure:** CT00248-S-SBA **Code:** EIA/TIA-222-G 12/13/2021  
**Site Name:** North Bethel **Exposure:** B  
**Height:** 155.00 (ft) **Crest Height:** 0.00  
**Base Elev:** 0.000 (ft) **Site Class:** D - Stiff Soil  
**Gh:** 1.1 **Topography:** 1 **Struct Class:** II Page: 40



**Load Case:** 1.0D + 1.0W 60 mph Wind **Iterations** 24

**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	-40.03	-7.50	0.00	-896.38	0.00	896.38	4331.76	2165.88	10060.7	5037.85	0.00	0.000	0.000	0.187
5.00	-38.73	-7.43	0.00	-858.86	0.00	858.86	4271.91	2135.96	9681.61	4848.00	0.02	-0.046	0.000	0.186
10.00	-37.46	-7.36	0.00	-821.71	0.00	821.71	4209.88	2104.94	9304.37	4659.10	0.10	-0.094	0.000	0.185
15.00	-36.22	-7.29	0.00	-784.92	0.00	784.92	4145.67	2072.83	8929.41	4471.34	0.22	-0.143	0.000	0.184
20.00	-35.01	-7.22	0.00	-748.49	0.00	748.49	4079.27	2039.64	8557.10	4284.91	0.40	-0.193	0.000	0.183
25.00	-33.83	-7.14	0.00	-712.41	0.00	712.41	4010.69	2005.34	8187.79	4099.98	0.63	-0.245	0.000	0.182
30.00	-32.67	-7.08	0.00	-676.69	0.00	676.69	3939.93	1969.96	7821.85	3916.74	0.92	-0.299	0.000	0.181
35.00	-31.54	-7.00	0.00	-641.31	0.00	641.31	3866.98	1933.49	7459.66	3735.38	1.26	-0.354	0.000	0.180
40.00	-30.43	-6.92	0.00	-606.31	0.00	606.31	3791.85	1895.92	7101.59	3556.07	1.66	-0.411	0.000	0.179
44.00	-29.57	-6.85	0.00	-578.62	0.00	578.62	3730.17	1865.09	6818.34	3414.24	2.02	-0.458	0.000	0.177
45.00	-29.18	-6.84	0.00	-571.77	0.00	571.77	3714.54	1857.27	6747.99	3379.01	2.12	-0.471	0.000	0.177
49.75	-27.33	-6.74	0.00	-539.25	0.00	539.25	3683.20	1841.60	6608.77	3309.30	2.62	-0.528	0.000	0.170
50.00	-27.27	-6.75	0.00	-537.57	0.00	537.57	3679.23	1839.62	6591.31	3300.56	2.65	-0.532	0.000	0.170
55.00	-26.24	-6.67	0.00	-503.80	0.00	503.80	3598.76	1799.38	6244.86	3127.07	3.24	-0.591	0.000	0.168
60.00	-25.23	-6.58	0.00	-470.46	0.00	470.46	3516.10	1758.05	5903.79	2956.28	3.89	-0.652	0.000	0.166
65.00	-24.25	-6.49	0.00	-437.57	0.00	437.57	3431.27	1715.63	5568.46	2788.37	4.60	-0.715	0.000	0.164
70.00	-23.30	-6.40	0.00	-405.12	0.00	405.12	3344.24	1672.12	5239.26	2623.52	5.39	-0.779	0.000	0.161
75.00	-22.37	-6.31	0.00	-373.13	0.00	373.13	3255.04	1627.52	4916.54	2461.92	6.24	-0.845	0.000	0.158
80.00	-21.48	-6.22	0.00	-341.59	0.00	341.59	3137.93	1568.96	4563.27	2285.03	7.16	-0.913	0.000	0.156
85.00	-20.61	-6.12	0.00	-310.52	0.00	310.52	3017.89	1508.95	4219.09	2112.68	8.15	-0.982	0.000	0.154
89.50	-19.85	-6.03	0.00	-282.97	0.00	282.97	2909.87	1454.93	3920.86	1963.34	9.11	-1.045	0.000	0.151
90.00	-19.71	-6.02	0.00	-279.96	0.00	279.96	2897.86	1448.93	3888.39	1947.09	9.22	-1.053	0.000	0.151
93.75	-18.68	-5.94	0.00	-257.37	0.00	257.37	2354.99	1177.49	3133.69	1569.17	10.07	-1.107	0.000	0.172
95.00	-18.50	-5.93	0.00	-249.94	0.00	249.94	2336.81	1168.40	3076.66	1540.62	10.36	-1.125	0.000	0.170
100.00	-17.80	-5.84	0.00	-220.31	0.00	220.31	2262.72	1131.36	2851.92	1428.08	11.58	-1.206	0.000	0.162
105.00	-17.13	-5.74	0.00	-191.13	0.00	191.13	2165.47	1082.73	2607.63	1305.76	12.89	-1.287	0.000	0.154
110.00	-16.48	-5.65	0.00	-162.42	0.00	162.42	2065.44	1032.72	2371.09	1187.31	14.28	-1.366	0.000	0.145
115.00	-15.86	-5.48	0.00	-134.16	0.00	134.16	1965.41	982.71	2145.79	1074.49	15.75	-1.442	0.000	0.133
117.00	-14.03	-5.00	0.00	-123.20	0.00	123.20	1925.40	962.70	2058.82	1030.94	16.36	-1.473	0.000	0.127
120.00	-13.71	-4.96	0.00	-108.21	0.00	108.21	1865.39	932.69	1931.73	967.30	17.30	-1.517	0.000	0.119
123.25	-13.21	-4.90	0.00	-92.10	0.00	92.10	1005.19	502.59	1030.12	515.83	18.35	-1.563	0.000	0.192
125.00	-13.09	-4.88	0.00	-83.52	0.00	83.52	992.91	496.46	998.01	499.75	18.93	-1.587	0.000	0.180
127.00	-9.69	-3.71	0.00	-73.76	0.00	73.76	978.56	489.28	961.59	481.51	19.60	-1.627	0.000	0.163
130.00	-9.51	-3.68	0.00	-62.63	0.00	62.63	956.38	478.19	907.53	454.44	20.64	-1.684	0.000	0.148
135.00	-9.23	-3.61	0.00	-44.26	0.00	44.26	917.66	458.83	819.21	410.21	22.45	-1.766	0.000	0.118
137.00	-6.78	-2.40	0.00	-37.03	0.00	37.03	901.57	450.78	784.57	392.87	23.20	-1.796	0.000	0.102
140.00	-6.64	-2.36	0.00	-29.84	0.00	29.84	876.76	438.38	733.42	367.25	24.34	-1.836	0.000	0.089
145.00	-6.42	-2.30	0.00	-18.02	0.00	18.02	833.68	416.84	650.52	325.74	26.29	-1.889	0.000	0.063
147.00	-3.98	-1.51	0.00	-13.42	0.00	13.42	815.84	407.92	618.25	309.58	27.09	-1.906	0.000	0.048
150.00	-3.86	-1.47	0.00	-8.90	0.00	8.90	781.24	390.62	565.69	283.26	28.29	-1.926	0.000	0.036
155.00	0.00	-1.34	0.00	-1.53	0.00	1.53	721.23	360.61	481.69	241.20	30.32	-1.944	0.000	0.006

## Final Analysis Summary

<b>Structure:</b> CT00248-S-SBA	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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 93 mph Wind	28.9	0.00	47.99	0.00	0.00	3472.43
0.9D + 1.6W 93 mph Wind	28.8	0.00	35.98	0.00	0.00	3423.04
1.2D + 1.0Di + 1.0Wi 50 mph Wind	8.8	0.00	81.66	0.00	0.00	1072.08
1.2D + 1.0E	2.7	0.00	48.03	0.00	0.00	347.43
0.9D + 1.0E	2.7	0.00	36.03	0.00	0.00	341.99
1.0D + 1.0W 60 mph Wind	7.5	0.00	40.03	0.00	0.00	896.38

### Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 93 mph Wind	-14.06	-19.05	0.00	-357.99	0.00	-357.99	1005.19	502.59	1030.12	515.83	123.25	0.709
0.9D + 1.6W 93 mph Wind	-35.98	-28.84	0.00	-3423.0	0.00	-3423.0	4331.76	2165.8	10060.7	5037.85	0.00	0.688
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-32.49	-5.99	0.00	-113.46	0.00	-113.46	1005.19	502.59	1030.12	515.83	123.25	0.252
1.2D + 1.0E	-15.98	-2.23	0.00	-56.71	0.00	-56.71	1005.19	502.59	1030.12	515.83	123.25	0.126
0.9D + 1.0E	-11.98	-2.18	0.00	-55.57	0.00	-55.57	1005.19	502.59	1030.12	515.83	123.25	0.120
1.0D + 1.0W 60 mph Wind	-13.21	-4.90	0.00	-92.10	0.00	-92.10	1005.19	502.59	1030.12	515.83	123.25	0.192

## Base Plate Summary

<b>Structure:</b> CT00248-S-SB	<b>Code:</b> EIA/TIA-222-G	12/13/2021
<b>Site Name:</b> North Bethel	<b>Exposure:</b> B	
<b>Height:</b> 155.00 (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>Page:</b> 42



Reactions	Base Plate	Anchor Bolts
Original Design	<b>Yield (ksi):</b> 50.00	<b>Bolt Circle:</b> 64.00
<b>Moment (kip-ft):</b> 3850.00	<b>Width (in):</b> 64.00	<b>Number Bolts:</b> 20.00
<b>Axial (kip):</b> 38.70	<b>Style:</b> Clipped	<b>Bolt Type:</b> 2.25" 18J
<b>Shear (kip):</b> 32.40	<b>Polygon Sides:</b> 0.00	<b>Bolt Diameter (in):</b> 2.25
Analysis (1.2D + 1.6W)	<b>Clip Length (in):</b> 15.00	<b>Yield (ksi):</b> 75.00
<b>Moment (kip-ft):</b> 3472.43	<b>Effective Len (in):</b> 8.82	<b>Ultimate (ksi):</b> 100.00
<b>Axial (kip):</b> 47.99	<b>Moment (kip-in):</b> 481.46	<b>Arrangement:</b> Clustered
<b>Shear (kip):</b> 28.86	<b>Allow Stress (ksi):</b> 67.50	<b>Cluster Dist (in):</b> 6.00
	<b>Applied Stress (ksi):</b> 43.20	<b>Start Angle (deg):</b> 45.00
	<b>Stress Ratio:</b> 0.64	<b>Compression</b>
		<b>Force (kip):</b> 134.30
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.53
		<b>Tension</b>
		<b>Force (kip):</b> 126.13
		<b>Allowable (kip):</b> 260.00
		<b>Ratio:</b> 0.50



# Monopole Mat Foundation Design

Date

12/13/2021

<b>Customer Name:</b>	AT&T	<b>EIA/TIA Standard:</b>	EIA-222-G
<b>Site Name:</b>		<b>Structure Height (Ft.):</b>	155
<b>Site Number:</b>	CT00248-S-SBA	<b>Engineer Name:</b>	J. Tibbetts
<b>Engr. Number:</b>	120404	<b>Engineer Login ID:</b>	

**Foundation Info Obtained from:**

Drawings/Calculations
Monopole
Analysis

**Structure Type:**

**Analysis or Design?**

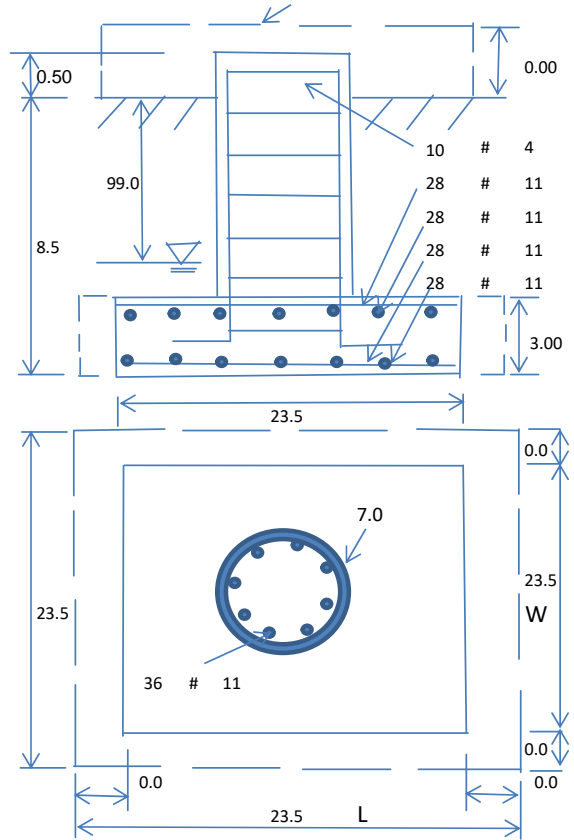
**Base Reactions (Factored):**

Axial Load (Kips):	48.0	Shear Force (Kips):	28.9
Uplift Force (Kips):	0.0	Moment (Kips-ft):	3472.4

Allowable overstress %: 5.0%

**Foundation Geometries:**

		Mods required -Yes/No ?:	No
Diameter of Pier (ft.):	7.0	Depth of Base BG (ft.):	8.5
Pier Height A. G. (ft.):	0.50	Thickness of Pad (ft.):	3.00
Length of Pad (ft.):	23.5	Width of Pad (ft.):	23.5
Final Length of pad (ft)	23.5	Final width of pad (ft):	23.5



**Material Properties and Rebar Info:**

Concrete Strength (psi):	3000	Steel Elastic Modulus:	29000	ksi
Vertical bar yield (ksi)	60	Tie steel yield (ksi):	60	
Vertical Rebar Size #:	11	Tie / Stirrup Size #:	4	
Qty. of Vertical Rebars:	36	Tie Spacing (in):	12.0	
Pad Rebar Yield (Ksi):	60	Pad Steel Rebar Size (#):	11	
Concrete Cover (in.):	4	Unit Weight of Concrete:	150.0	pcf

Rebar at the bottom of the concrete pad:

Qty. of Rebar in Pad (L):	28	Qty. of Rebar in Pad (W):	28
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Rebar at the top of the concrete pad:

Qty. of Rebar in Pad (L):	28	Qty. of Rebar in Pad (W):	28
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Apply 1.35 factor for e/w Per G: 1.35

**Soil Design Parameters:**

Soil Unit Weight (pcf):	100.0	Soil Buoyant Weight:	50.0	Pcf		
Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	5000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	Yes	Reduction factor on the maximum soil bearing pressure:	1.00			

**Foundation Analysis and Design:**

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	2825.71	Total Dry Soil Weight (Kips):	282.57
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	282.57	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	1887.66	Total Dry Concrete Weight (Kips):	283.15
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	283.15	Total Vertical Load on Base (Kips):	613.72

**Check Soil Capacities:**

Calculated Maxium Net Soil Pressure under the base (psf):	2983	< Allowable Factored Soil Bearing (psf):	3750	0.80	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	6546.5	> Design Factored Momont (kips-ft):	3467	0.53	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.89				OK!

Load/  
Capacity  
Ratio

**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

Load/  
Capacity  
Ratio

**(1) Concrete Pier:**

Vertical Steel Rebar Area (sq. in./each):	1.56	Tie / Stirrup Area (sq. in./each):	0.20		
Calculated Moment Capacity (Mn,Kips-Ft):	8832.5	> Design Factored Moment (Mu, Kips-F	3645.8	0.41	OK!
Calculated Shear Capacity (Kips):	589.7	> Design Factored Shear (Kips):	28.9	0.05	OK!
Calculated Tension Capacity (Tn, Kips):	3032.6	> Design Factored Tension (Tu Kips):	0.0	0.00	OK!
Calculated Compression Capacity (Pn, Kips):	7273.9	> Design Factored Axial Load (Pu Kips):	48.0	0.01	OK!
Moment & Axial Strength Combination:	0.41	OK! Check Tie Spacing (Design/Required):		1	OK!
Pier Reinforcement Ratio:	0.010	Reinforcement Ratio is satisfied per ACI			

**(2).Concrete Pad:**

One-Way Design Shear Capacity (L-Direction, Kips):	725.5	> One-Way Factored Shear (L-D. Kips):	227.4	0.31	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	725.5	> One-Way Factored Shear (W-D., Kips)	227.4	0.31	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	648.8	> One-Way Factored Shear (C-C, Kips):	219.8	0.34	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct. ):	0.0049	OK! Lower Steel Pad Reinf. Ratio (W-Direc	0.0049		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	5796.6	> Moment at Bottom ( L-Dir. K-Ft):	1183.0	0.20	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	5796.6	> Moment at Bottom ( W-Dir. K-Ft):	1183.0	0.20	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	8062.5	> Moment at Bottom ( C-C Dir. K-Ft):	1673.1	0.21	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct. ):	0.0049	OK! Upper Steel Reinf. Ratio (W-Dir. ):	0.0049		
Upper Steel Pad Moment Capacity (L-Direc. Kips-ft):	5796.6	> Moment at the top (L-Dir K-Ft):	508.2	0.09	OK!
Upper Steel Pad Moment Capacity (W-Direc. Kips-ft):	5796.6	> Moment at the top (W-Dir K-Ft):	508.2	0.09	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	8062.5	> Moment at the top (C-C Dir. K-Ft):	478.1	0.06	OK!

**(3).Check Punching Shear Capacity due to Moment in the Pier:**

Moment transferred by punching shear:	1389.0	k-ft.	Max. factored shear stress $v_{u,CD}$ :	3.6	Psi
Max. factored shear stress $v_{u,AB}$ :	10.2	Psi	Factored shear Strength $\phi v_n$ :	164.3	Psi
Max. factored shear stress $v_u$ :	10.2	Psi	Check Usage of Punching Shear Capacity:	0.06	OK!



November 16, 2021  
**November 23, 2021(Rev.1)**



SAI Communications  
12 Industrial Way  
Salem NH, 03079

RE:      Site Number:                    CT5513 (LTE 3C/4C/5G)  
            FA Number:                     10070932  
            PACE Number:                    MRCTB056939  
            PT Number:                      2051A11XX1  
            Site Name:                        BETHEL  
            Site Address:                    11 Francis J Clarke Circle  
   Bethel, CT 06801

To Whom It May Concern:

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

- (3) 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"Ø – Wt. = 33 lbs.) (Tower Mounted)
- **(3) HPA65R-BU6A Antennas (71.1"x11.7"x7.6" – Wt. = 51 lbs. /each)**
- **(3) DMP65R-BU6DA Antennas (71.2"x20.7"x7.7" – Wt. = 80 lbs. /each)**
- **(3) B5/B12 4449 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**

*\*Proposed equipment shown in bold*

No original structural design documents or fabrication drawings were available for the existing mount. HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mount on November 3, 2021.

Mount Analysis Methods:

- This analysis was conducted in accordance with EIA/TIA-222-H, Structural Standards for Steel Antenna Towers and Antenna Supporting Structures, the International Building Code 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – 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 120 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.14 in was used for this analysis.
- HDG considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- HDG considers this site to have a spectral response acceleration parameter at short periods,  $S_s$ , of 0.215 and a spectral response acceleration parameter at a period of 1 second,  $S_1$ , of 0.066.
- The mount has been analyzed with load combinations consisting of 500 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 4.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.
- The existing mount 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 mount **IS NOT CAPABLE** of supporting the proposed installation. HDG recommends the following modifications:

- **Proposed handrail kit, SitePro1 P/N HRK14 (or approved equal). Handrail kit is required per AT&T Technical Directive to stabilize the existing cantilevered antennas.**
- **Proposed platform reinforcement kit, SitePro1 P/N PRK-1245L (or approved equal).**

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
<b>Existing (LTE 3C/4C/5G) Mount Rating</b>	20	LC1	105%	<b>FAIL</b>
<b>Modified (LTE 3C/4C/5G) Mount Rating</b>	20	LC1	66%	<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 mount must be tightened and re-plumbed prior to the installation of new appurtenances.
6. HDG performed a localized analysis on the mount itself and not on the supporting tower structure.

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

Respectfully Submitted,  
Hudson Design Group LLC

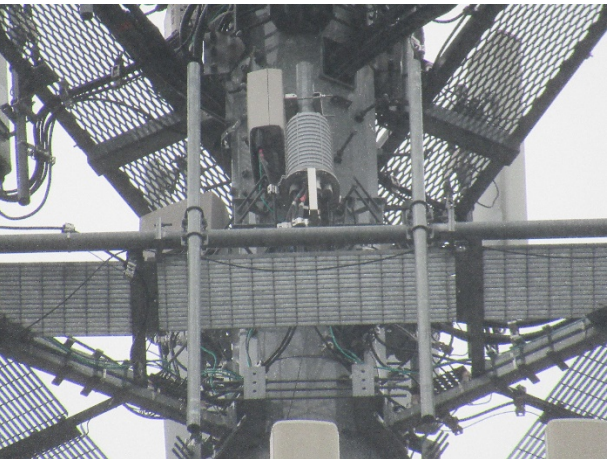


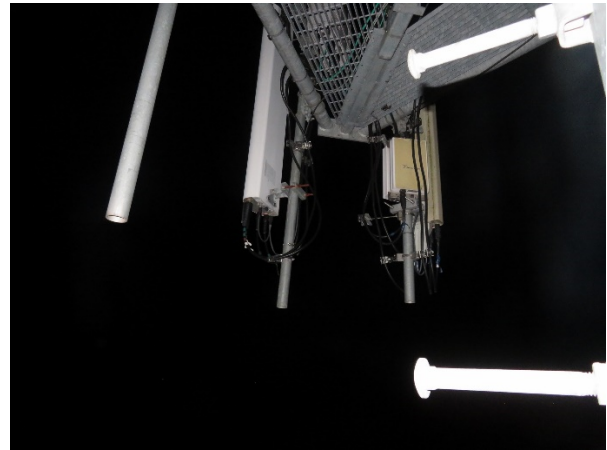
Michael Cabral  
Vice President



Daniel P. Hamm, PE  
Principal

FIELD PHOTOS:







**HUDSON**  
Design Group LLC

**Wind & Ice  
Calculations**

Date: 11/23/2021  
 Project Name: BETHEL  
 Project No.: CT5513  
 Designed By: ID 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

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

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

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

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

Category = **1**

$K_h =$  1  
 $K_c =$  0.9 (from Table 2-4)  
 $K_t =$  0 (from Table 2-5)  
 $f =$  0 (from Table 2-5)  
 $z =$  127  
 $z_s =$  415 (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)  
 $K_e =$  0.99 (from 2.6.8)

**2.6.10 Design Ice Thickness**

Max Ice Thickness =  $t_i =$  1.00 in  
 Importance Factor =  $I =$  1.0 (from Table 2-3)  
 $K_{iz} =$  1.14 (from Sec. 2.6.10)

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

$t_{iz} =$  1.14 in

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**2.6.9 Gust Effect Factor**

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$  Latticed Structures > 600 ft

$G_h = 0.85$  Latticed Structures 450 ft or less

$G_h = 0.85 + 0.15 [h/150 - 3.0]$

$h =$  ht. of structure

$h =$  155

$G_h =$  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>36.50</b>
$q_z (ice) =$	<b>6.34</b>
$q_z (30) =$	<b>2.28</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)
$K_e =$	0.99 (from 2.6.8)
$K_d =$	<b>0.95</b> (from Table 2-2)
$V_{max} =$	120 mph (Ultimate Wind Speed)
$V_{max (ice)} =$	50 mph
$V_{30} =$	30 mph

**Table 2-2**

Structure Type	Wind Direction Probability Factor, $K_d$
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 = **1.14 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	201	44	13
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	6.08	1.36	287	61	18
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.44	1.24	464	92	29
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.36	1.20	72	17	4
B5/B12 4449 RRH (Side)	17.9	9.4	13.2	1.17	1.90	1.20	51	12	3
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.20	60	14	4
B2/B66 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.20	49	12	3
LGP21401 TMA	14.4	2.7	9.0	0.27	5.33	1.33	13	5	1
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.00	1.20	0	2	0
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	41	10	3
2" Pipe	2.4	12.0		0.20	0.20	1.20	9	4	1
3" Pipe	3.5	12.0		0.29	0.29	1.20	13	4	1
2-1/2x2-1/2 Angle	2.5	12.0		0.21	0.21	2.00	15	6	1
HSS 3x3	3.0	12.0		0.25	0.25	1.25	11	4	1
PL 6x5/8	6.0	12.0		0.50	0.50	1.25	23	7	1

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WIND LOADS

Angle = 30 (deg) Ice Thickness = 1.14 in. Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	201	107	178
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	287	203	266
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	464	205	399
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	72	51	67
B5/B12 4449 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	36	72	45
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	60	49	57
B2/B66 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	30	60	37
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	13	39	20
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.90	0.00	1.60	1.20	1.20	0	39	10

WIND LOADS WITH ICE:

7770 Antenna	57.3	13.3	7.3	5.29	2.90	4.31	7.86	1.28	1.43	43	26	39
HPA65R-BU6A Antenna	73.4	14.0	9.9	7.13	5.04	5.25	7.42	1.32	1.41	60	45	56
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.73	5.10	3.20	7.36	1.23	1.41	92	46	80
B5/B12 4449 RRH	20.2	15.5	11.7	2.17	1.64	1.30	1.73	1.20	1.20	17	12	16
B5/B12 4449 RRH (Side)	20.2	7.7	15.5	1.09	2.17	2.61	1.30	1.20	1.20	8	17	10
B2/B66 8843 RRH	17.2	15.5	13.2	1.85	1.57	1.11	1.30	1.20	1.20	14	12	14
B2/B66 8843 RRH (Side)	17.2	7.7	15.5	0.92	1.85	2.22	1.11	1.20	1.20	7	14	9
LGP21401 TMA	16.7	5.0	11.3	0.58	1.31	3.35	1.48	1.24	1.20	5	10	6
LGP21401 TMA (Shielded)	16.7	2.3	11.3	0.27	1.31	7.29	1.48	1.41	1.20	2	10	4

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	13	7	11
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	18	13	17
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	25
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	4
B5/B12 4449 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	2	4	3
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
B2/B66 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	4	2
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	1
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.90	0.00	1.60	1.20	1.20	0	2	1

Date: 11/23/2021  
 Project Name: BETHEL  
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WIND LOADS

Angle = 60 (deg)

Ice Thickness = 1.14 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	201	107	130
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	287	203	224
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	464	205	270
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	72	51	56
B5/B12 4449 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	54	72	67
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	60	49	52
B2/B66 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	45	60	56
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	13	39	33
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.90	0.00	1.60	1.20	1.20	0	39	30

WIND LOADS WITH ICE:

7770 Antenna	57.3	13.3	7.3	5.29	2.90	4.31	7.86	1.28	1.43	43	26	30
HPA65R-BU6A Antenna	73.4	14.0	9.9	7.13	5.04	5.25	7.42	1.32	1.41	60	45	49
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.73	5.10	3.20	7.36	1.23	1.41	92	46	57
B5/B12 4449 RRH	20.2	15.5	11.7	2.17	1.64	1.30	1.73	1.20	1.20	17	12	13
B5/B12 4449 RRH (Side)	20.2	11.6	15.5	1.63	2.17	1.74	1.30	1.20	1.20	12	17	15
B2/B66 8843 RRH	17.2	15.5	13.2	1.85	1.57	1.11	1.30	1.20	1.20	14	12	12
B2/B66 8843 RRH (Side)	17.2	11.6	15.5	1.39	1.85	1.48	1.11	1.20	1.20	11	14	13
LGP21401 TMA	16.7	5.0	11.3	0.58	1.31	3.35	1.48	1.24	1.20	5	10	9
LGP21401 TMA (Shielded)	16.7	2.3	11.3	0.27	1.31	7.29	1.48	1.41	1.20	2	10	8

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	13	7	8
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	18	13	14
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	17
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	4
B5/B12 4449 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	3	4	4
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	3	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.90	0.00	1.60	1.20	1.20	0	2	2

Date: 11/23/2021  
 Project Name: BETHEL  
 Project No.: CT5513  
 Designed By: ID Checked By: MSC



WIND LOADS

Angle = 90 (deg) Ice Thickness = 1.14 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	201	107	107
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	287	203	203
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	464	205	205
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	72	51	51
B5/B12 4449 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	51	72	72
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	60	49	49
B2/B66 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	49	60	60
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	13	39	39
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.90	0.00	1.60	1.20	1.20	0	39	39

WIND LOADS WITH ICE:

7770 Antenna	57.3	13.3	7.3	5.29	2.90	4.31	7.86	1.28	1.43	43	26	26
HPA65R-BU6A Antenna	73.4	14.0	9.9	7.13	5.04	5.25	7.42	1.32	1.41	60	45	45
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.73	5.10	3.20	7.36	1.23	1.41	92	46	46
B5/B12 4449 RRH	20.2	15.5	11.7	2.17	1.64	1.30	1.73	1.20	1.20	17	12	12
B5/B12 4449 RRH (Side)	20.2	11.7	15.5	1.64	2.17	1.73	1.30	1.20	1.20	12	17	17
B2/B66 8843 RRH	17.2	15.5	13.2	1.85	1.57	1.11	1.30	1.20	1.20	14	12	12
B2/B66 8843 RRH (Side)	17.2	13.2	15.5	1.57	1.85	1.30	1.11	1.20	1.20	12	14	14
LGP21401 TMA	16.7	5.0	11.3	0.58	1.31	3.35	1.48	1.24	1.20	5	10	10
LGP21401 TMA (Shielded)	16.7	2.3	11.3	0.27	1.31	7.29	1.48	1.41	1.20	2	10	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	13	7	7
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	18	13	13
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	13
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	3
B5/B12 4449 RRH (Side)	17.9	9.4	13.2	1.17	1.64	1.90	1.36	1.20	1.20	3	4	4
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66 8843 RRH (Side)	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.90	0.00	1.60	1.20	1.20	0	2	2

Date: 11/23/2021  
 Project Name: BETHEL  
 Project No.: CT5513  
 Designed By: ID Checked By: MSC



WIND LOADS

Angle = 120 (deg)      Ice Thickness = 1.14 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	201	107	130
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	287	203	224
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	464	205	270
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	72	51	56
B5/B12 4449 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	54	72	67
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	60	49	52
B2/B66 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	45	60	56
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	13	39	33
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.90	0.00	1.60	1.20	1.20	0	39	30

WIND LOADS WITH ICE:

7770 Antenna	57.3	13.3	7.3	5.29	2.90	4.31	7.86	1.28	1.43	43	26	30
HPA65R-BU6A Antenna	73.4	14.0	9.9	7.13	5.04	5.25	7.42	1.32	1.41	60	45	49
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.73	5.10	3.20	7.36	1.23	1.41	92	46	57
B5/B12 4449 RRH	20.2	15.5	11.7	2.17	1.64	1.30	1.73	1.20	1.20	17	12	13
B5/B12 4449 RRH (Side)	20.2	11.6	15.5	1.63	2.17	1.74	1.30	1.20	1.20	12	17	15
B2/B66 8843 RRH	17.2	15.5	13.2	1.85	1.57	1.11	1.30	1.20	1.20	14	12	12
B2/B66 8843 RRH (Side)	17.2	11.6	15.5	1.39	1.85	1.48	1.11	1.20	1.20	11	14	13
LGP21401 TMA	16.7	5.0	11.3	0.58	1.31	3.35	1.48	1.24	1.20	5	10	9
LGP21401 TMA (Shielded)	16.7	2.3	11.3	0.27	1.31	7.29	1.48	1.41	1.20	2	10	8

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	13	7	8
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	18	13	14
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	17
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	4
B5/B12 4449 RRH (Side)	17.9	9.9	13.2	1.23	1.64	1.81	1.36	1.20	1.20	3	4	4
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	3
B2/B66 8843 RRH (Side)	14.9	9.9	13.2	1.02	1.37	1.51	1.13	1.20	1.20	3	4	4
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	2
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.90	0.00	1.60	1.20	1.20	0	2	2

Date: 11/23/2021  
 Project Name: BETHEL  
 Project No.: CT5513  
 Designed By: ID Checked By: MSC



**WIND LOADS**

Angle = 150 (deg)      Ice Thickness = 1.14 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	201	107	178
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	287	203	266
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	464	205	399
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	72	51	67
B5/B12 4449 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	36	72	45
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	60	49	57
B2/B66 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	30	60	37
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	13	39	20
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.90	0.00	1.60	1.20	1.20	0	39	10

**WIND LOADS WITH ICE:**

7770 Antenna	57.3	13.3	7.3	5.29	2.90	4.31	7.86	1.28	1.43	43	26	39
HPA65R-BU6A Antenna	73.4	14.0	9.9	7.13	5.04	5.25	7.42	1.32	1.41	60	45	56
DMP65R-BU6DA Antenna	73.5	23.0	10.0	11.73	5.10	3.20	7.36	1.23	1.41	92	46	80
B5/B12 4449 RRH	20.2	15.5	11.7	2.17	1.64	1.30	1.73	1.20	1.20	17	12	16
B5/B12 4449 RRH (Side)	20.2	7.7	15.5	1.09	2.17	2.61	1.30	1.20	1.20	8	17	10
B2/B66 8843 RRH	17.2	15.5	13.2	1.85	1.57	1.11	1.30	1.20	1.20	14	12	14
B2/B66 8843 RRH (Side)	17.2	7.7	15.5	0.92	1.85	2.22	1.11	1.20	1.20	7	14	9
LGP21401 TMA	16.7	5.0	11.3	0.58	1.31	3.35	1.48	1.24	1.20	5	10	6
LGP21401 TMA (Shielded)	16.7	2.3	11.3	0.27	1.31	7.29	1.48	1.41	1.20	2	10	4

**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	13	7	11
HPA65R-BU6A Antenna	71.1	11.7	7.6	5.78	3.75	6.08	9.36	1.36	1.48	18	13	17
DMP65R-BU6DA Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	25
B5/B12 4449 RRH	17.9	13.2	9.4	1.64	1.17	1.36	1.90	1.20	1.20	4	3	4
B5/B12 4449 RRH (Side)	17.9	6.6	13.2	0.82	1.64	2.71	1.36	1.21	1.20	2	4	3
B2/B66 8843 RRH	14.9	13.2	10.9	1.37	1.13	1.13	1.37	1.20	1.20	4	3	4
B2/B66 8843 RRH (Side)	14.9	6.6	13.2	0.68	1.37	2.26	1.13	1.20	1.20	2	4	2
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	1	2	1
LGP21401 TMA (Shielded)	14.4	0.0	9.0	0.00	0.90	0.00	1.60	1.20	1.20	0	2	1

Date: 11/23/2021  
Project Name: BETHEL  
Project No.: CT5513

Designed By: ID Checked By: MSC



**HUDSON**  
Design Group LLC

### ICE WEIGHT CALCULATIONS

Thickness of ice: 1.14 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: 84 lbs  
Weight of object: 35.0 lbs  
Combined weight of ice and object: 119 lbs

#### HPA65R-BU6A Antenna

Weight of ice based on total radial SF area:  
Height (in): 71.1  
Width (in): 11.7  
Depth (in): 7.6  
Total weight of ice on object: 125 lbs  
Weight of object: 51.0 lbs  
Combined weight of ice and object: 176 lbs

#### DMP65R-BU6DA Antenna

Weight of ice based on total radial SF area:  
Height (in): 71.2  
Width (in): 20.7  
Depth (in): 7.7  
Total weight of ice on object: 192 lbs  
Weight of object: 80.0 lbs  
Combined weight of ice and object: 272 lbs

#### B2/B66 8843 RRH

Weight of ice based on total radial SF area:  
Height (in): 14.9  
Width (in): 13.2  
Depth (in): 10.9  
Total weight of ice on object: 32 lbs  
Weight of object: 72.0 lbs  
Combined weight of ice and object: 104 lbs

#### B5/B12 4449 RRH

Weight of ice based on total radial SF area:  
Height (in): 17.9  
Width (in): 13.2  
Depth (in): 9.4  
Total weight of ice on object: 36 lbs  
Weight of object: 73.0 lbs  
Combined weight of ice and object: 109 lbs

#### Squid Surge Arrestor

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

#### 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: 18 lbs  
Weight of object: 19.0 lbs  
Combined weight of ice and object: 37 lbs

#### 3" Pipe

Per foot weight of ice:  
diameter (in): 3.5  
Per foot weight of ice on object: 6 plf

#### 2" pipe

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

#### HSS 3x3

Weight of ice based on total radial SF area:  
Height (in): 3  
Width (in): 3  
Per foot weight of ice on object: 7 plf

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

Weight of ice based on total radial SF area:  
Height (in): 2.5  
Width (in): 2.5  
Per foot weight of ice on object: 7 plf

#### PL 6x5/8

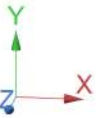
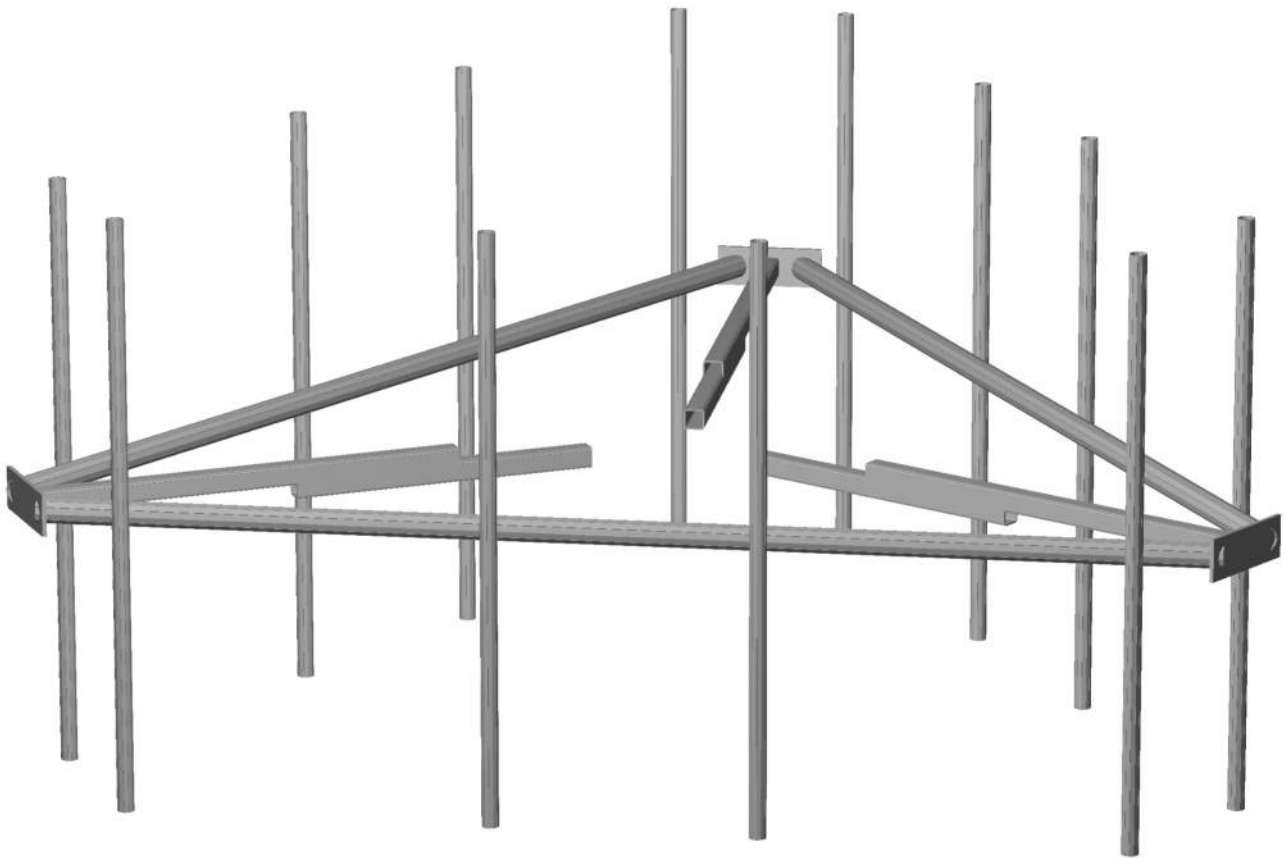
Weight of ice based on total radial SF area:  
Height (in): 6  
Width (in): 0.625  
Per foot weight of ice on object: 10 plf

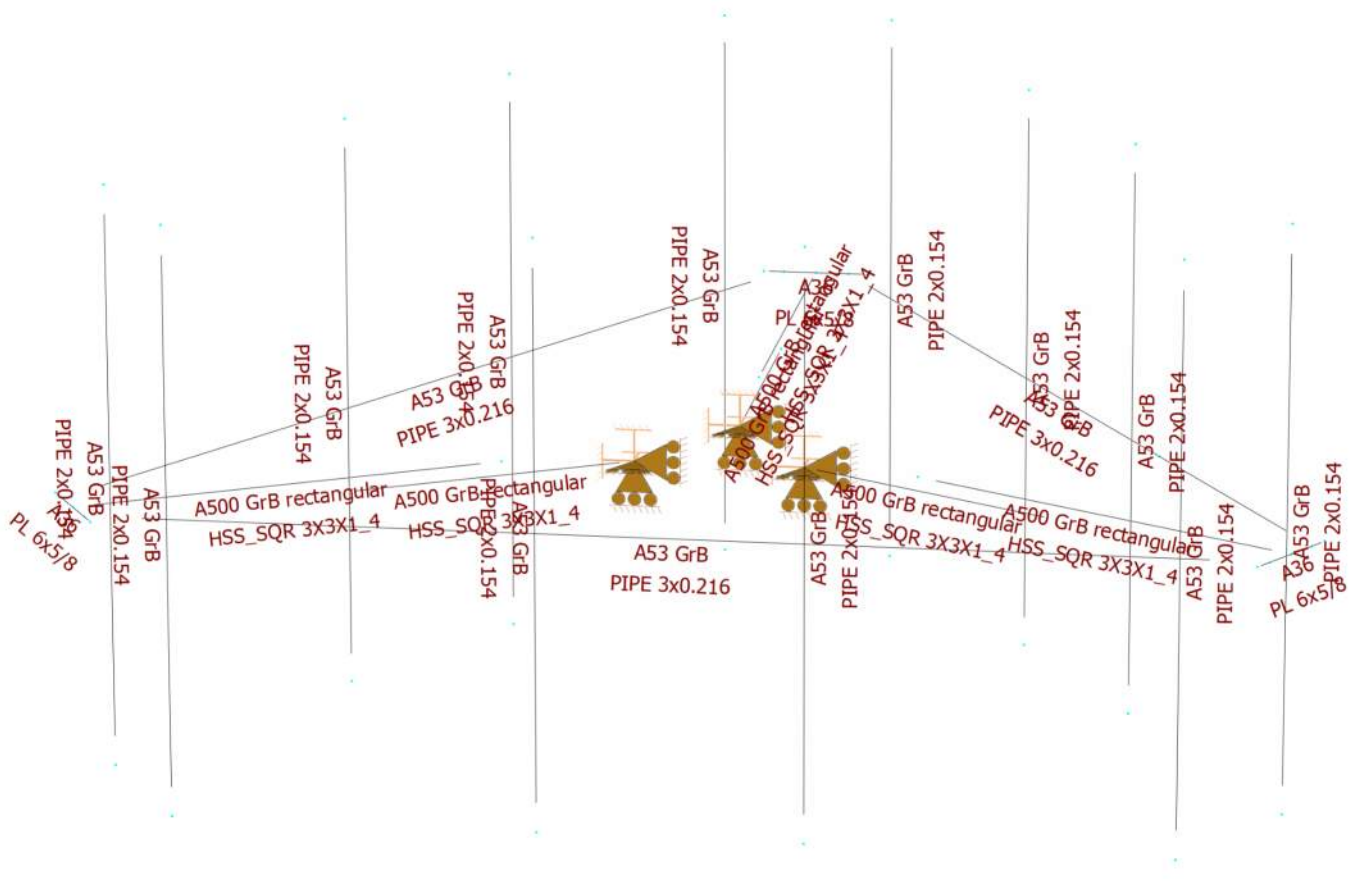


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**Mount Calculations  
(Existing Conditions)**

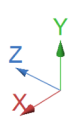
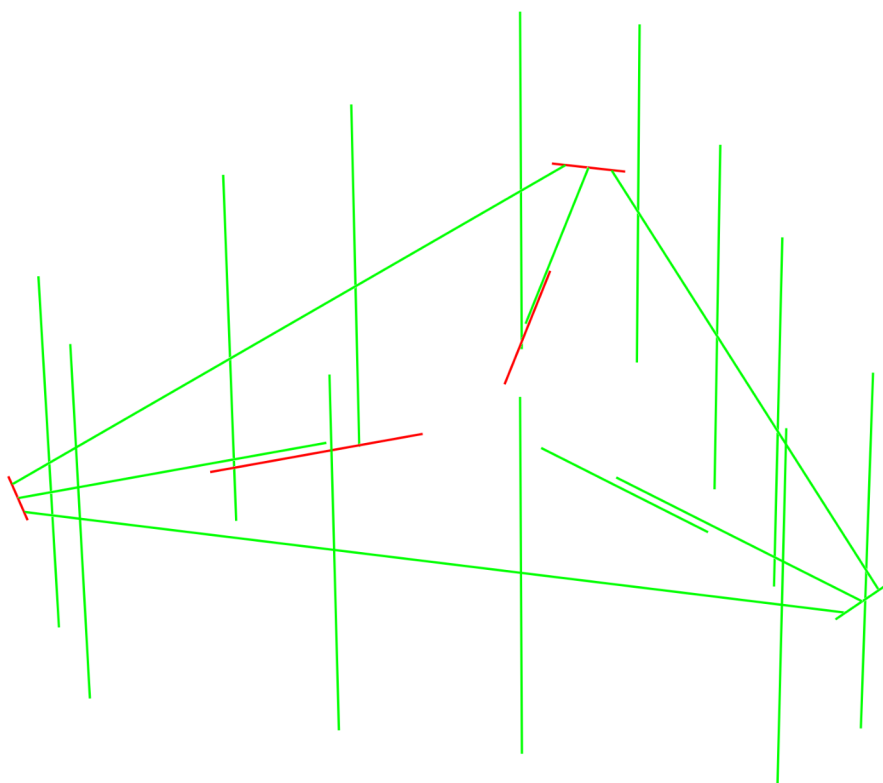


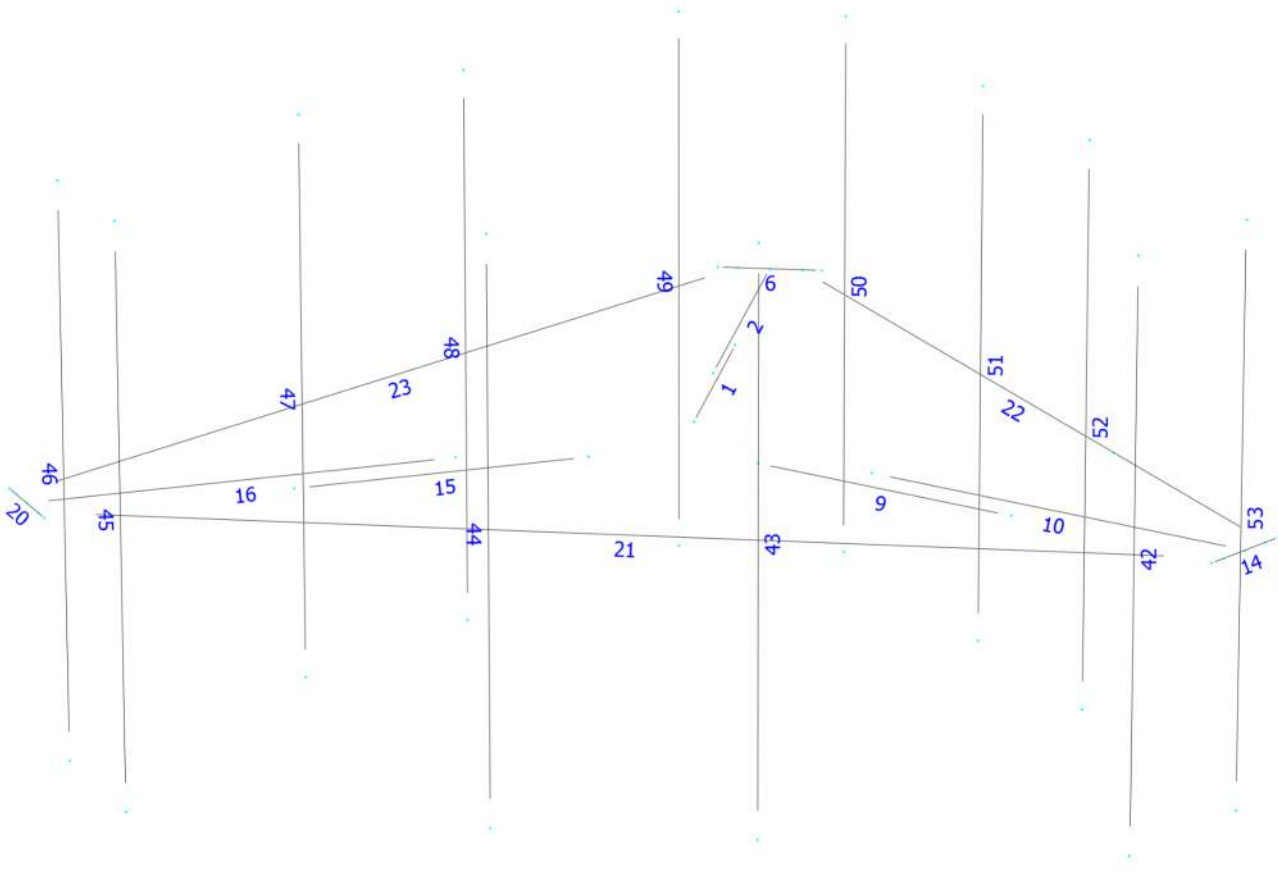




**Design status**

-  Not designed
-  Error on design
-  Design O.K.
-  With warnings





## Load data

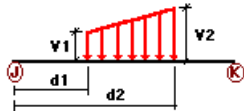
### GLOSSARY

Comb : Indicates if load condition is a load combination

### Load Conditions

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

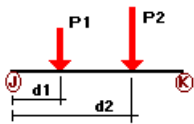
### Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	21	y	-0.01	0.00	0.00	No	0.00	No
	22	y	-0.01	0.00	0.00	No	0.00	No
	23	y	-0.01	0.00	0.00	No	0.00	No
W0	6	z	-0.023	0.00	0.00	No	0.00	No
	9	z	-0.011	0.00	0.00	No	0.00	No
	10	z	-0.011	0.00	0.00	No	0.00	No
	14	z	-0.023	0.00	0.00	No	0.00	No
	15	z	-0.011	0.00	0.00	No	0.00	No
	16	z	-0.011	0.00	0.00	No	0.00	No
	20	z	-0.023	0.00	0.00	No	0.00	No
	21	z	-0.013	0.00	0.00	No	0.00	No
	22	z	-0.013	0.00	0.00	No	0.00	No
	23	z	-0.013	0.00	0.00	No	0.00	No
	43	z	-0.009	0.00	0.00	No	0.00	No
	46	z	-0.009	0.00	0.00	No	0.00	No
	47	z	-0.009	0.00	0.00	No	0.00	No
	48	z	-0.009	0.00	0.00	No	0.00	No
	49	z	-0.009	0.00	0.00	No	0.00	No
	50	z	-0.009	0.00	0.00	No	0.00	No
	51	z	-0.009	0.00	0.00	No	0.00	No
	52	z	-0.009	0.00	0.00	No	0.00	No

W30	53	z	-0.009	0.00	0.00	No	0.00	No	
	1	x	-0.011	0.00	0.00	No	0.00	No	
	2	x	-0.011	0.00	0.00	No	0.00	No	
	6	x	-0.023	0.00	0.00	No	0.00	No	
	9	x	-0.011	0.00	0.00	No	0.00	No	
	10	x	-0.011	0.00	0.00	No	0.00	No	
	14	x	-0.023	0.00	0.00	No	0.00	No	
	15	x	-0.011	0.00	0.00	No	0.00	No	
	16	x	-0.011	0.00	0.00	No	0.00	No	
	20	x	-0.023	0.00	0.00	No	0.00	No	
	22	x	-0.013	0.00	0.00	No	0.00	No	
	23	x	-0.013	0.00	0.00	No	0.00	No	
	42	x	-0.009	0.00	0.00	No	0.00	No	
	43	x	-0.009	0.00	0.00	No	0.00	No	
	44	x	-0.009	0.00	0.00	No	0.00	No	
	45	x	-0.009	0.00	0.00	No	0.00	No	
	46	x	-0.009	0.00	0.00	No	0.00	No	
	47	x	-0.009	0.00	0.00	No	0.00	No	
	48	x	-0.009	0.00	0.00	No	0.00	No	
	49	x	-0.009	0.00	0.00	No	0.00	No	
	50	x	-0.009	0.00	0.00	No	0.00	No	
	51	x	-0.009	0.00	0.00	No	0.00	No	
	52	x	-0.009	0.00	0.00	No	0.00	No	
	53	x	-0.009	0.00	0.00	No	0.00	No	
	Di	1	y	-0.007	0.00	0.00	No	0.00	No
		2	y	-0.007	0.00	0.00	No	0.00	No
		6	y	-0.01	0.00	0.00	No	0.00	No
9		y	-0.007	0.00	0.00	No	0.00	No	
10		y	-0.007	0.00	0.00	No	0.00	No	
14		y	-0.01	0.00	0.00	No	0.00	No	
15		y	-0.007	0.00	0.00	No	0.00	No	
16		y	-0.007	0.00	0.00	No	0.00	No	
20		y	-0.01	0.00	0.00	No	0.00	No	
21		y	-0.006	0.00	0.00	No	0.00	No	
22		y	-0.006	0.00	0.00	No	0.00	No	
23		y	-0.006	0.00	0.00	No	0.00	No	
42		y	-0.005	0.00	0.00	No	0.00	No	
43		y	-0.005	0.00	0.00	No	0.00	No	
44		y	-0.005	0.00	0.00	No	0.00	No	
45		y	-0.005	0.00	0.00	No	0.00	No	
46		y	-0.005	0.00	0.00	No	0.00	No	
47		y	-0.005	0.00	0.00	No	0.00	No	
48		y	-0.005	0.00	0.00	No	0.00	No	
49		y	-0.005	0.00	0.00	No	0.00	No	
50		y	-0.005	0.00	0.00	No	0.00	No	
51		y	-0.005	0.00	0.00	No	0.00	No	
52		y	-0.005	0.00	0.00	No	0.00	No	
53		y	-0.005	0.00	0.00	No	0.00	No	

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	42	y	-0.018	1.75	No
		y	-0.018	6.25	No
		y	-0.038	5.00	No
	44	y	-0.026	1.50	No
		y	-0.026	6.50	No
	45	y	-0.04	1.50	No
		y	-0.04	6.50	No
		y	-0.073	0.50	No
	46	y	-0.072	0.50	No
		y	-0.018	1.75	No
		y	-0.018	6.25	No
	48	y	-0.038	5.00	No
		y	-0.026	1.50	No
	49	y	-0.026	6.50	No
		y	-0.04	1.50	No
	50	y	-0.04	6.50	No
		y	-0.073	0.50	No
		y	-0.072	0.50	No
		y	-0.018	1.75	No
		y	-0.018	6.25	No
	52	y	-0.038	5.00	No
y		-0.026	1.50	No	
y		-0.026	6.50	No	
53	y	-0.04	1.50	No	
	y	-0.04	6.50	No	
W0	42	y	-0.073	0.50	No
		y	-0.072	0.50	No
		z	-0.101	1.75	No
	44	z	-0.101	6.25	No
		z	-0.235	1.50	No
		z	-0.235	6.50	No
	45	z	-0.232	1.50	No
		z	-0.232	6.50	No
		z	-0.051	0.50	No
	46	z	-0.049	0.50	No
		z	-0.066	1.75	No
		z	-0.066	6.25	No
	48	z	-0.03	5.00	No
		z	-0.137	1.50	No
		z	-0.137	6.50	No
	49	z	-0.135	1.50	No
		z	-0.135	6.50	No
	50	z	-0.067	0.50	No
		z	-0.066	1.75	No
		z	-0.066	6.25	No
	52	z	-0.03	5.00	No
z		-0.137	1.50	No	
z		-0.137	6.50	No	
53	z	-0.135	1.50	No	
	z	-0.135	6.50	No	
W30	42	z	-0.067	0.50	No
		x	-0.054	1.75	No
		x	-0.054	6.25	No
	44	x	-0.039	5.00	No
		x	-0.104	1.50	No
	45	x	-0.104	6.50	No
		x	-0.103	1.50	No
		x	-0.103	6.50	No
	46	x	-0.072	0.50	No
		x	-0.089	1.75	No
		x	-0.089	6.25	No
	48	x	-0.01	5.00	No
		x	-0.203	1.50	No
		x	-0.203	6.50	No
	49	x	-0.20	1.50	No
		x	-0.20	6.50	No

		x	-0.045	0.50	No
	50	x	-0.089	1.75	No
		x	-0.089	6.25	No
		x	-0.01	5.00	No
	52	x	-0.203	1.50	No
		x	-0.203	6.50	No
	53	x	-0.20	1.50	No
		x	-0.20	6.50	No
		x	-0.045	0.50	No
Di	42	y	-0.042	1.75	No
		y	-0.042	6.25	No
		y	-0.035	5.00	No
	44	y	-0.062	1.50	No
		y	-0.062	6.50	No
	45	y	-0.096	1.50	No
		y	-0.096	6.50	No
		y	-0.036	0.50	No
		y	-0.032	0.50	No
	46	y	-0.042	1.75	No
		y	-0.042	6.25	No
		y	-0.035	5.00	No
	48	y	-0.062	1.50	No
		y	-0.062	6.50	No
	49	y	-0.096	1.50	No
		y	-0.096	6.50	No
		y	-0.036	0.50	No
		y	-0.032	0.50	No
	50	y	-0.042	1.75	No
		y	-0.042	6.25	No
		y	-0.035	5.00	No
	52	y	-0.062	1.50	No
		y	-0.062	6.50	No
	53	y	-0.096	1.50	No
		y	-0.096	6.50	No
		y	-0.036	0.50	No
Wi0	42	z	-0.022	1.75	No
		z	-0.022	6.25	No
		z	-0.002	5.00	No
	44	z	-0.047	1.50	No
		z	-0.047	6.50	No
	45	z	-0.047	1.50	No
		z	-0.047	6.50	No
		z	-0.012	0.50	No
		z	-0.012	0.50	No
	46	z	-0.016	1.75	No
		z	-0.016	6.25	No
		z	-0.008	5.00	No
	48	z	-0.029	1.50	No
		z	-0.029	6.50	No
	49	z	-0.029	1.50	No
		z	-0.029	6.50	No
		z	-0.015	0.50	No
	50	z	-0.016	1.75	No
		z	-0.016	6.25	No
		z	-0.008	5.00	No
	52	z	-0.029	1.50	No
		z	-0.029	6.50	No
	53	z	-0.029	1.50	No
		z	-0.029	6.50	No
		z	-0.015	0.50	No
Wi30	42	x	-0.014	1.75	No
		x	-0.014	6.25	No
		x	-0.01	5.00	No
	44	x	-0.023	1.50	No
		x	-0.023	6.50	No



	45	x	-0.023	1.50	No
		x	-0.023	6.50	No
		x	-0.017	0.50	No
	46	x	-0.02	1.75	No
		x	-0.02	6.25	No
		x	-0.004	5.00	No
	48	x	-0.041	1.50	No
		x	-0.041	6.50	No
	49	x	-0.041	1.50	No
		x	-0.041	6.50	No
		x	-0.01	0.50	No
	50	x	-0.02	1.75	No
		x	-0.02	6.25	No
		x	-0.004	5.00	No
	52	x	-0.041	1.50	No
		x	-0.041	6.50	No
	53	x	-0.041	1.50	No
		x	-0.041	6.50	No
		x	-0.01	0.50	No
WLO	42	z	-0.007	1.75	No
		z	-0.007	6.25	No
	44	z	-0.015	1.50	No
		z	-0.015	6.50	No
	45	z	-0.015	1.50	No
		z	-0.015	6.50	No
		z	-0.003	0.50	No
		z	-0.003	0.50	No
	46	z	-0.005	1.75	No
		z	-0.005	6.25	No
		z	-0.002	5.00	No
	48	z	-0.009	1.50	No
		z	-0.009	6.50	No
	49	z	-0.009	1.50	No
		z	-0.009	6.50	No
		z	-0.004	0.50	No
	50	z	-0.005	1.75	No
		z	-0.005	6.25	No
		z	-0.002	5.00	No
	52	z	-0.009	1.50	No
		z	-0.009	6.50	No
	53	z	-0.009	1.50	No
		z	-0.009	6.50	No
		z	-0.004	0.50	No
WL30	42	x	-0.004	1.75	No
		x	-0.004	6.25	No
		x	-0.002	5.00	No
	44	x	-0.007	1.50	No
		x	-0.007	6.50	No
	45	x	-0.007	1.50	No
		x	-0.007	6.50	No
		x	-0.004	0.50	No
	46	x	-0.006	1.75	No
		x	-0.006	6.25	No
		x	-0.001	5.00	No
	48	x	-0.013	1.50	No
		x	-0.013	6.50	No
	49	x	-0.013	1.50	No
		x	-0.013	6.50	No
		x	-0.003	0.50	No
	50	x	-0.006	1.75	No
		x	-0.006	6.25	No
		x	-0.001	5.00	No
	52	x	-0.013	1.50	No
		x	-0.013	6.50	No
	53	x	-0.013	1.50	No
		x	-0.013	6.50	No

		x	-0.003	0.50	No
LL1	21	y	-0.25	50.00	Yes
LL2	21	y	-0.25	0.00	No
LLa1	42	y	-0.50	50.00	Yes
LLa2	43	y	-0.50	50.00	Yes
LLa3	44	y	-0.50	50.00	Yes
LLa4	45	y	-0.50	50.00	Yes

### Self weight multipliers for load conditions

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

### Earthquake (Dynamic analysis only)

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



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## Steel Code Check

Report: Summary - Group by member

**Load conditions to be included in design :**

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

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<b>HSS_SQR 3X3X1_4</b>	<b>1</b>	LC10 at 0.00%	0.92	OK	
		<b>2</b>	LC11 at 28.75%	0.46	OK	
		<b>9</b>	LC17 at 0.00%	1.03	N.G.	
		<b>10</b>	LC17 at 28.75%	0.50	OK	
		<b>15</b>	LC28 at 0.00%	1.03	N.G.	
		<b>16</b>	LC31 at 28.75%	0.50	OK	
	<b>PIPE 2x0.154</b>	<b>42</b>	LC3 at 50.00%	0.15	OK	
		<b>43</b>	LC2 at 50.00%	0.03	OK	
		<b>44</b>	LC3 at 50.00%	0.38	OK	
		<b>45</b>	LC3 at 47.92%	0.39	OK	
		<b>46</b>	LC2 at 50.00%	0.17	OK	
		<b>47</b>	LC1 at 50.00%	0.03	OK	
		<b>48</b>	LC2 at 50.00%	0.36	OK	
		<b>49</b>	LC2 at 50.00%	0.35	OK	
		<b>50</b>	LC2 at 50.00%	0.17	OK	
		<b>51</b>	LC3 at 50.00%	0.03	OK	
		<b>52</b>	LC4 at 50.00%	0.36	OK	
		<b>53</b>	LC4 at 50.00%	0.35	OK	
	<b>PIPE 3x0.216</b>	<b>21</b>	LC11 at 0.00%	0.44	OK	
		<b>22</b>	LC12 at 100.00%	0.44	OK	
		<b>23</b>	LC10 at 0.00%	0.44	OK	

**PL 6x5/8**

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<b>6</b>	LC10 at 50.00%	0.90	OK
<b>14</b>	LC2 at 50.00%	<b>1.03</b>	N.G.
<b>20</b>	LC1 at 50.00%	<b>1.05</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
2	0.00	0.00	-1.1667	0
3	0.00	0.1667	-2.8333	0
4	0.00	0.1667	-8.0833	0
5	0.00	0.00	-4.8333	0
10	-0.6667	0.1667	-8.0833	0
11	0.6667	0.1667	-8.0833	0
16	0.4167	0.1667	-8.0833	0
17	-0.4167	0.1667	-8.0833	0
19	1.0104	0.00	0.5833	0
20	2.4537	0.1667	1.4167	0
21	7.0004	0.1667	4.0417	0
22	4.1858	0.00	2.4167	0
25	7.3337	0.1667	3.4643	0
26	6.667	0.1667	4.619	0
31	6.792	0.1667	4.4025	0
32	7.2087	0.1667	3.6808	0
34	-1.0104	0.00	0.5833	0
35	-2.4537	0.1667	1.4167	0
36	-7.0004	0.1667	4.0417	0
37	-4.1858	0.00	2.4167	0
40	-6.667	0.1667	4.619	0
41	-7.3337	0.1667	3.4643	0
46	-7.2087	0.1667	3.6808	0
47	-6.792	0.1667	4.4025	0
59	-5.792	3.6667	4.5692	0
60	-1.542	3.6667	4.5692	0
61	1.542	3.6667	4.5692	0

62	5.792	3.6667	4.5692	0
63	-5.792	-3.3333	4.5692	0
64	-1.542	-3.3333	4.5692	0
65	1.542	-3.3333	4.5692	0
66	5.792	-3.3333	4.5692	0
77	-1.061	3.6667	-7.3006	0
78	-3.186	3.6667	-3.62	0
79	-4.728	3.6667	-0.9491	0
80	-6.853	3.6667	2.7315	0
81	-1.061	-3.3333	-7.3006	0
82	-3.186	-3.3333	-3.62	0
83	-4.728	-3.3333	-0.9491	0
84	-6.853	-3.3333	2.7315	0
89	5.1478	0.1667	0.1112	0
95	6.853	3.6667	2.7315	0
96	4.728	3.6667	-0.9491	0
97	3.186	3.6667	-3.62	0
98	1.061	3.6667	-7.3006	0
99	6.853	-3.3333	2.7315	0
100	4.728	-3.3333	-0.9491	0
101	3.186	-3.3333	-3.62	0
102	1.061	-3.3333	-7.3006	0

## Restraints

Node	TX	TY	TZ	RX	RY	RZ
2	1	1	1	1	1	1
19	1	1	1	1	1	1
34	1	1	1	1	1	1

## Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	2	5		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
2	3	4		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
6	10	11		PL 6x5/8	A36	0.00	0.00	0.00
9	19	22		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
10	20	21		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
14	26	25		PL 6x5/8	A36	0.00	0.00	0.00
15	34	37		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
16	35	36		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
20	41	40		PL 6x5/8	A36	0.00	0.00	0.00
21	47	31		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
22	32	16		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
23	17	46		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
42	62	66		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
43	61	65		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
44	60	64		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
45	59	63		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
46	80	84		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
47	79	83		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
48	78	82		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
49	77	81		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
50	98	102		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
51	97	101		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
52	96	100		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00



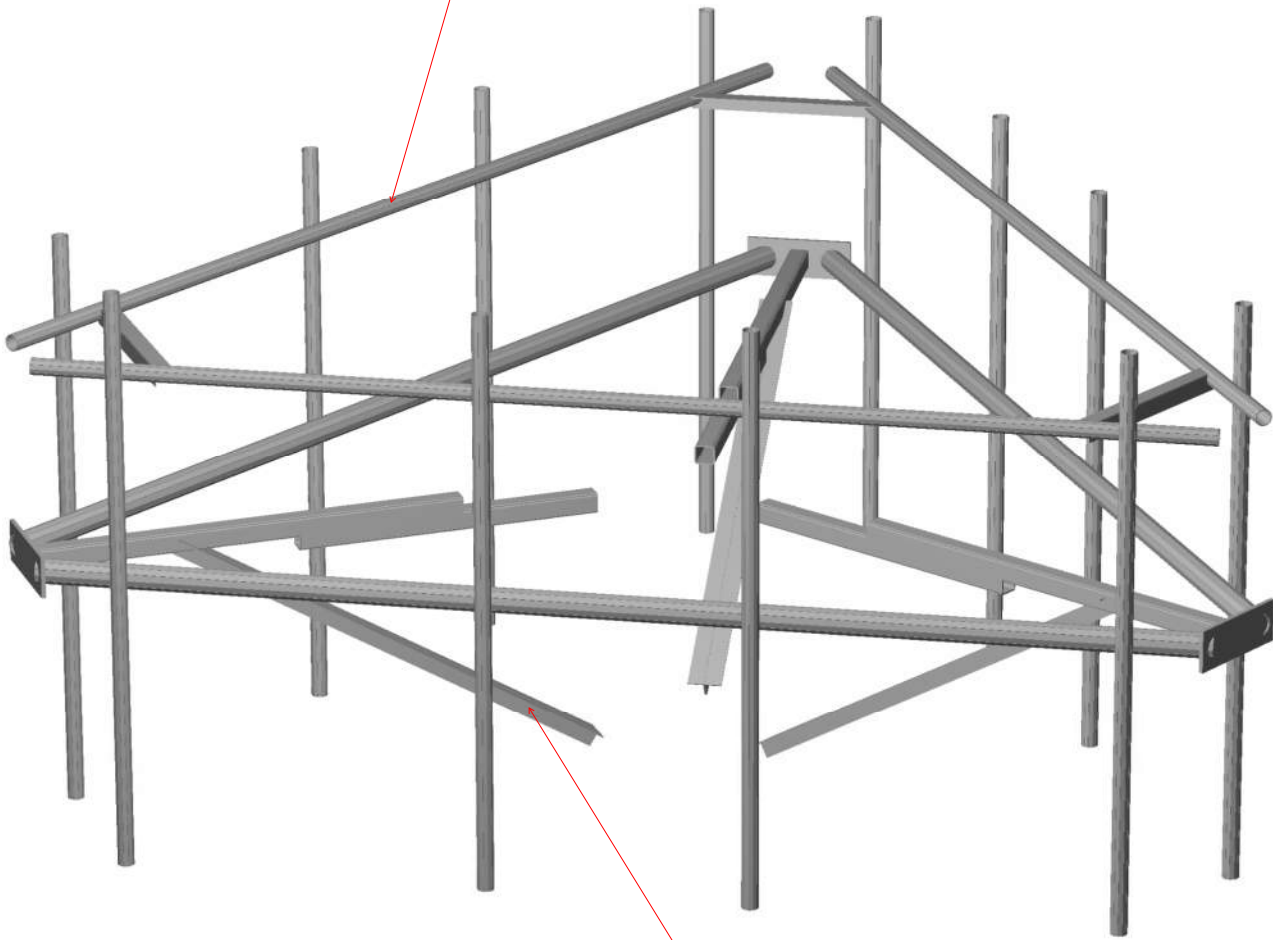


**HUDSON**  
Design Group LLC

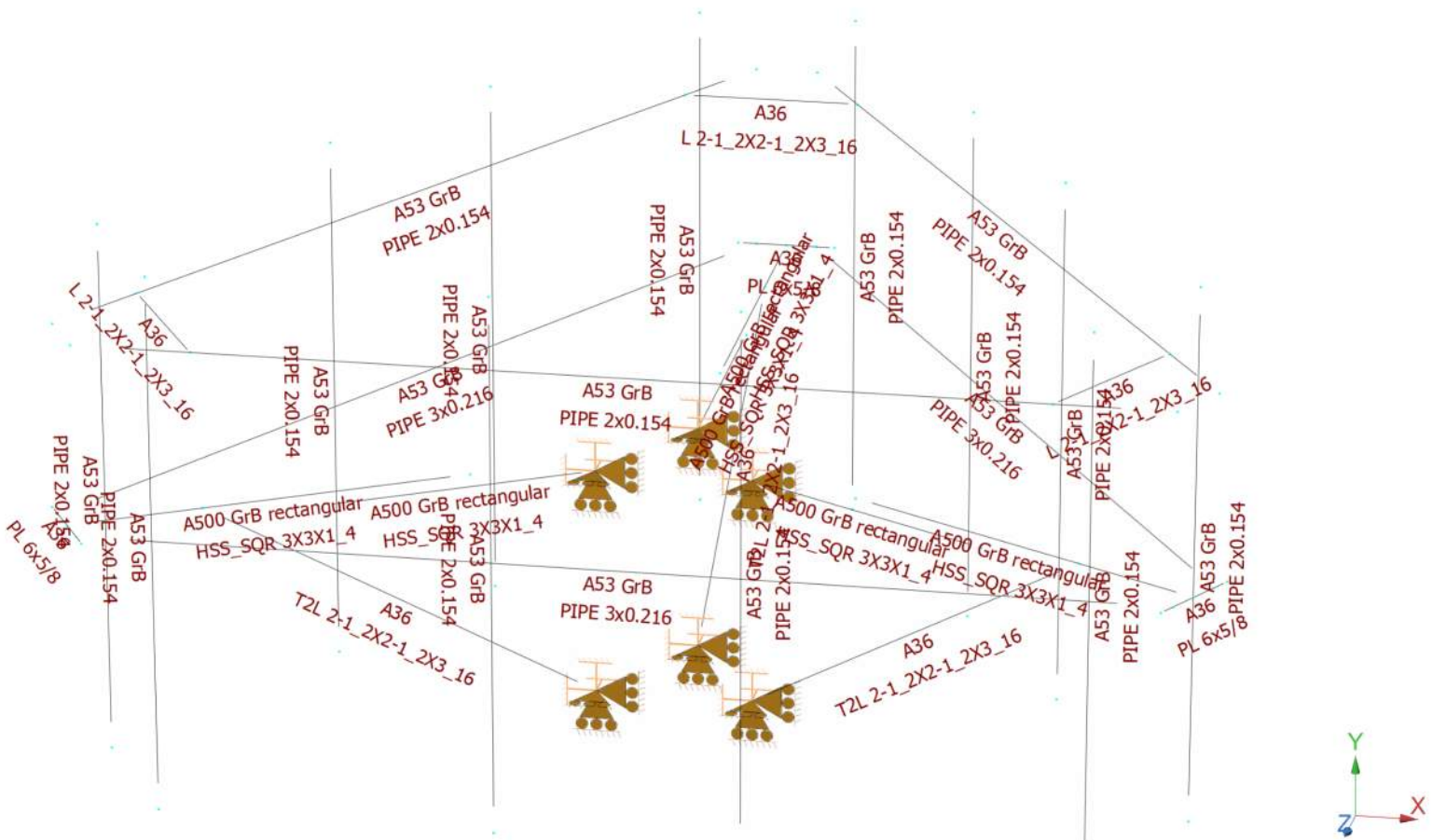
**Mount Calculations  
(Modified Conditions)**



Proposed handrail kit, SitePro1 P/N HRK14 (or approved equal).  
Handrail kit is required per AT&T Technical Directive to stabilize  
the existing cantilevered antennas.

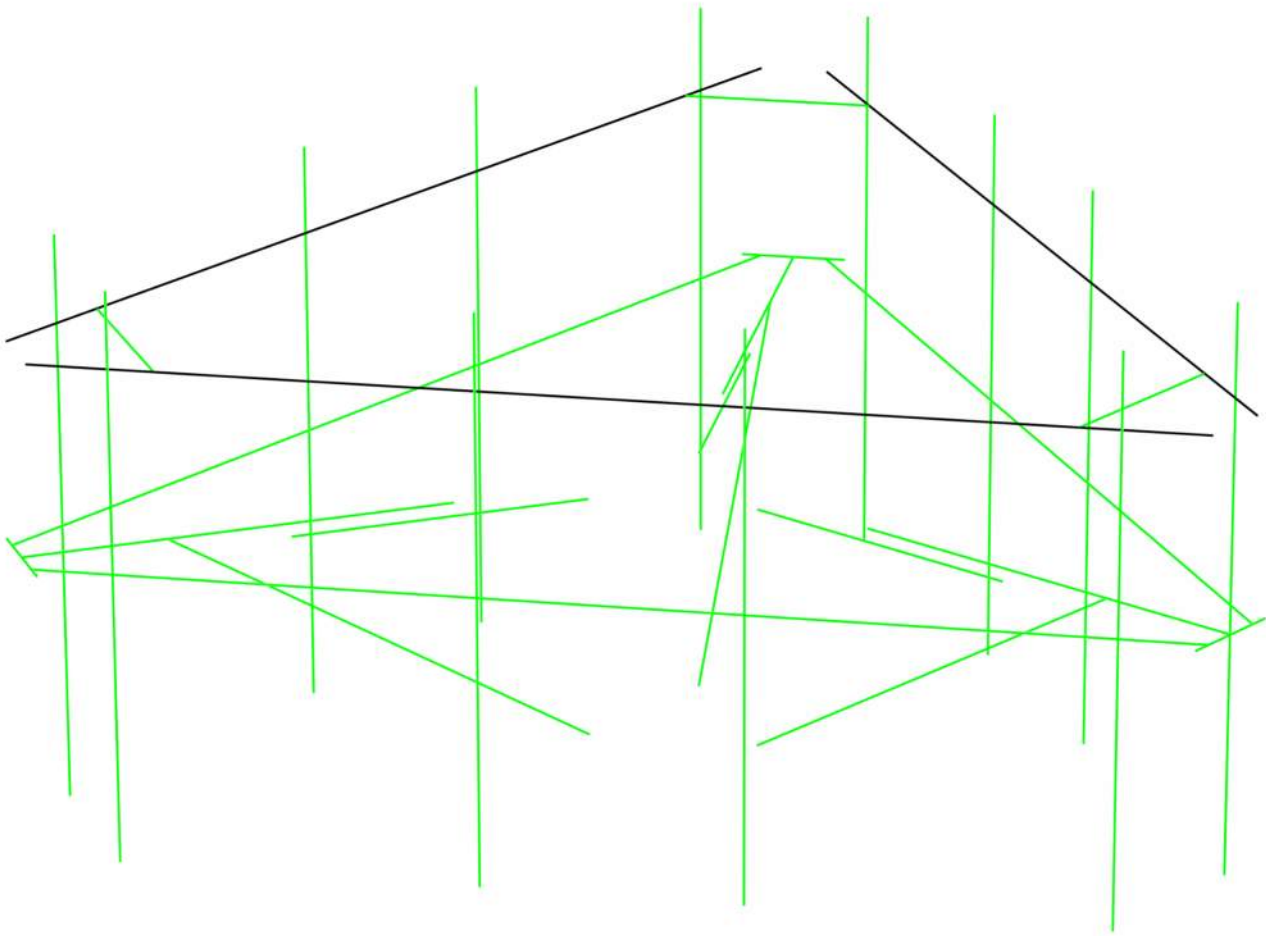


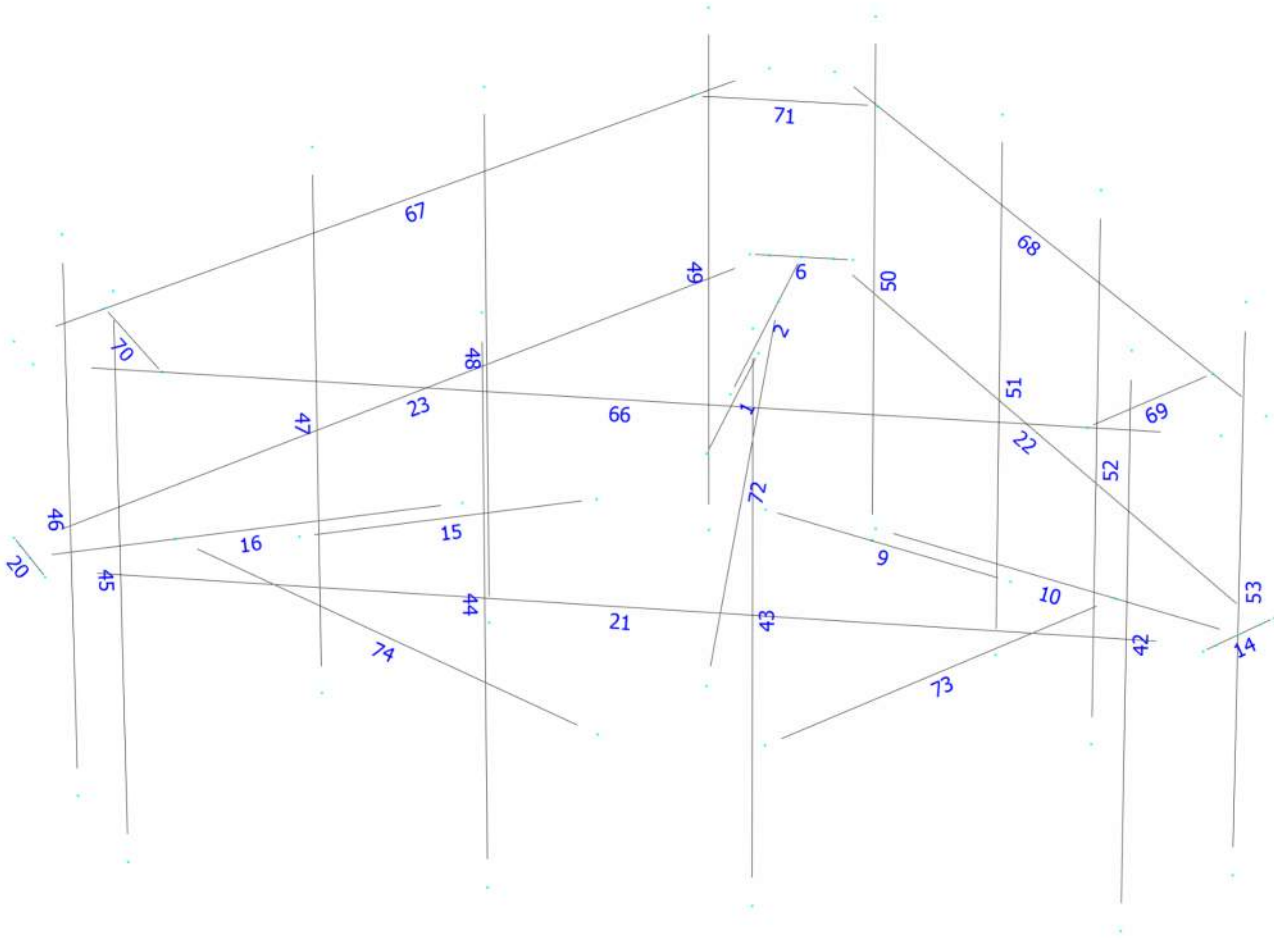
Proposed platform reinforcement kit, SitePro1  
P/N PRK-1245L (or approved equal).



Design status

- Not designed
- Error on design
- Design O.K.
- With warnings





Current Date: 11/23/2021 4:40 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5513\LTE 3C-4C-5G\Rev.1\CT5513 (LTE 3C-4C-5G)(MODS).retx

## Load data

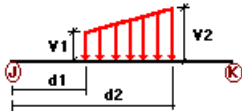
### GLOSSARY

Comb : Indicates if load condition is a load combination

### Load Conditions

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

### Distributed force on members

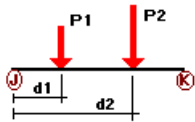


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	21	y	-0.01	0.00	0.00	No	0.00	No
	22	y	-0.01	0.00	0.00	No	0.00	No
	23	y	-0.01	0.00	0.00	No	0.00	No
	66	y	-0.01	0.00	0.00	No	0.00	No
	67	y	-0.01	0.00	0.00	No	0.00	No
	68	y	-0.01	0.00	0.00	No	0.00	No
W0	6	z	-0.023	0.00	0.00	No	0.00	No
	9	z	-0.011	0.00	0.00	No	0.00	No
	10	z	-0.011	0.00	0.00	No	0.00	No
	14	z	-0.023	0.00	0.00	No	0.00	No
	15	z	-0.011	0.00	0.00	No	0.00	No
	16	z	-0.011	0.00	0.00	No	0.00	No
	20	z	-0.023	0.00	0.00	No	0.00	No
	21	z	-0.013	0.00	0.00	No	0.00	No
	22	z	-0.013	0.00	0.00	No	0.00	No
	23	z	-0.013	0.00	0.00	No	0.00	No
	43	z	-0.009	0.00	0.00	No	0.00	No
	46	z	-0.009	0.00	0.00	No	0.00	No
	47	z	-0.009	0.00	0.00	No	0.00	No
48	z	-0.009	0.00	0.00	No	0.00	No	
49	z	-0.009	0.00	0.00	No	0.00	No	

	50	z	-0.009	0.00	0.00	No	0.00	No
	51	z	-0.009	0.00	0.00	No	0.00	No
	52	z	-0.009	0.00	0.00	No	0.00	No
	53	z	-0.009	0.00	0.00	No	0.00	No
	66	z	-0.009	0.00	0.00	No	0.00	No
	67	z	-0.009	0.00	0.00	No	0.00	No
	68	z	-0.009	0.00	0.00	No	0.00	No
	69	z	-0.015	0.00	0.00	No	0.00	No
	70	z	-0.015	0.00	0.00	No	0.00	No
	71	z	-0.015	0.00	0.00	No	0.00	No
	72	z	-0.015	0.00	0.00	No	0.00	No
	73	z	-0.015	0.00	0.00	No	0.00	No
	74	z	-0.015	0.00	0.00	No	0.00	No
W30	1	x	-0.011	0.00	0.00	No	0.00	No
	2	x	-0.011	0.00	0.00	No	0.00	No
	6	x	-0.023	0.00	0.00	No	0.00	No
	9	x	-0.011	0.00	0.00	No	0.00	No
	10	x	-0.011	0.00	0.00	No	0.00	No
	14	x	-0.023	0.00	0.00	No	0.00	No
	15	x	-0.011	0.00	0.00	No	0.00	No
	16	x	-0.011	0.00	0.00	No	0.00	No
	20	x	-0.023	0.00	0.00	No	0.00	No
	22	x	-0.013	0.00	0.00	No	0.00	No
	23	x	-0.013	0.00	0.00	No	0.00	No
	42	x	-0.009	0.00	0.00	No	0.00	No
	43	x	-0.009	0.00	0.00	No	0.00	No
	44	x	-0.009	0.00	0.00	No	0.00	No
	45	x	-0.009	0.00	0.00	No	0.00	No
	46	x	-0.009	0.00	0.00	No	0.00	No
	47	x	-0.009	0.00	0.00	No	0.00	No
	48	x	-0.009	0.00	0.00	No	0.00	No
	49	x	-0.009	0.00	0.00	No	0.00	No
	50	x	-0.009	0.00	0.00	No	0.00	No
	51	x	-0.009	0.00	0.00	No	0.00	No
	52	x	-0.009	0.00	0.00	No	0.00	No
	53	x	-0.009	0.00	0.00	No	0.00	No
	67	x	-0.009	0.00	0.00	No	0.00	No
	68	x	-0.009	0.00	0.00	No	0.00	No
	69	x	-0.015	0.00	0.00	No	0.00	No
	70	x	-0.015	0.00	0.00	No	0.00	No
	71	x	-0.015	0.00	0.00	No	0.00	No
	72	x	-0.015	0.00	0.00	No	0.00	No
	73	x	-0.015	0.00	0.00	No	0.00	No
	74	x	-0.015	0.00	0.00	No	0.00	No
Di	1	y	-0.007	0.00	0.00	No	0.00	No
	2	y	-0.007	0.00	0.00	No	0.00	No
	6	y	-0.01	0.00	0.00	No	0.00	No
	9	y	-0.007	0.00	0.00	No	0.00	No
	10	y	-0.007	0.00	0.00	No	0.00	No
	14	y	-0.01	0.00	0.00	No	0.00	No
	15	y	-0.007	0.00	0.00	No	0.00	No
	16	y	-0.007	0.00	0.00	No	0.00	No
	20	y	-0.01	0.00	0.00	No	0.00	No
	21	y	-0.006	0.00	0.00	No	0.00	No
	22	y	-0.006	0.00	0.00	No	0.00	No
	23	y	-0.006	0.00	0.00	No	0.00	No
	42	y	-0.005	0.00	0.00	No	0.00	No
	43	y	-0.005	0.00	0.00	No	0.00	No
	44	y	-0.005	0.00	0.00	No	0.00	No
	45	y	-0.005	0.00	0.00	No	0.00	No
	46	y	-0.005	0.00	0.00	No	0.00	No
	47	y	-0.005	0.00	0.00	No	0.00	No
	48	y	-0.005	0.00	0.00	No	0.00	No
	49	y	-0.005	0.00	0.00	No	0.00	No
	50	y	-0.005	0.00	0.00	No	0.00	No
	51	y	-0.005	0.00	0.00	No	0.00	No

52	y	-0.005	0.00	0.00	No	0.00	No
53	y	-0.005	0.00	0.00	No	0.00	No
66	y	-0.005	0.00	0.00	No	0.00	No
67	y	-0.005	0.00	0.00	No	0.00	No
68	y	-0.005	0.00	0.00	No	0.00	No
69	y	-0.007	0.00	0.00	No	0.00	No
70	y	-0.007	0.00	0.00	No	0.00	No
71	y	-0.007	0.00	0.00	No	0.00	No
72	y	-0.007	0.00	0.00	No	0.00	No
73	y	-0.007	0.00	0.00	No	0.00	No
74	y	-0.007	0.00	0.00	No	0.00	No

### Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%	
DL	42	y	-0.018	1.75	No	
		y	-0.018	6.25	No	
	44	y	-0.038	5.00	No	
		y	-0.026	1.50	No	
	45	y	-0.026	6.50	No	
		y	-0.04	1.50	No	
	46	y	-0.04	6.50	No	
		y	-0.073	0.50	No	
	48	y	-0.072	0.50	No	
		y	-0.018	1.75	No	
	49	y	-0.018	6.25	No	
		y	-0.038	5.00	No	
	50	y	-0.026	1.50	No	
		y	-0.026	6.50	No	
	52	y	-0.04	1.50	No	
		y	-0.04	6.50	No	
	53	y	-0.073	0.50	No	
		y	-0.072	0.50	No	
	W0	42	z	-0.101	1.75	No
			z	-0.101	6.25	No
		44	z	-0.235	1.50	No
			z	-0.235	6.50	No
		45	z	-0.232	1.50	No
			z	-0.232	6.50	No
46		z	-0.051	0.50	No	
		z	-0.049	0.50	No	
48		z	-0.066	1.75	No	
		z	-0.066	6.25	No	
49		z	-0.03	5.00	No	
		z	-0.137	1.50	No	

		z	-0.135	6.50	No
		z	-0.067	0.50	No
	50	z	-0.066	1.75	No
		z	-0.066	6.25	No
		z	-0.03	5.00	No
	52	z	-0.137	1.50	No
		z	-0.137	6.50	No
	53	z	-0.135	1.50	No
		z	-0.135	6.50	No
		z	-0.067	0.50	No
W30	42	x	-0.054	1.75	No
		x	-0.054	6.25	No
		x	-0.039	5.00	No
	44	x	-0.104	1.50	No
		x	-0.104	6.50	No
	45	x	-0.103	1.50	No
		x	-0.103	6.50	No
		x	-0.072	0.50	No
	46	x	-0.089	1.75	No
		x	-0.089	6.25	No
		x	-0.01	5.00	No
	48	x	-0.203	1.50	No
		x	-0.203	6.50	No
	49	x	-0.20	1.50	No
		x	-0.20	6.50	No
		x	-0.045	0.50	No
	50	x	-0.089	1.75	No
		x	-0.089	6.25	No
		x	-0.01	5.00	No
	52	x	-0.203	1.50	No
		x	-0.203	6.50	No
	53	x	-0.20	1.50	No
		x	-0.20	6.50	No
		x	-0.045	0.50	No
Di	42	y	-0.042	1.75	No
		y	-0.042	6.25	No
		y	-0.035	5.00	No
	44	y	-0.062	1.50	No
		y	-0.062	6.50	No
	45	y	-0.096	1.50	No
		y	-0.096	6.50	No
		y	-0.036	0.50	No
		y	-0.032	0.50	No
	46	y	-0.042	1.75	No
		y	-0.042	6.25	No
		y	-0.035	5.00	No
	48	y	-0.062	1.50	No
		y	-0.062	6.50	No
	49	y	-0.096	1.50	No
		y	-0.096	6.50	No
		y	-0.036	0.50	No
		y	-0.032	0.50	No
	50	y	-0.042	1.75	No
		y	-0.042	6.25	No
		y	-0.035	5.00	No
	52	y	-0.062	1.50	No
		y	-0.062	6.50	No
	53	y	-0.096	1.50	No
		y	-0.096	6.50	No
		y	-0.036	0.50	No
		y	-0.032	0.50	No
Wi0	42	z	-0.022	1.75	No
		z	-0.022	6.25	No
		z	-0.002	5.00	No
	44	z	-0.047	1.50	No
		z	-0.047	6.50	No



	45	z	-0.047	1.50	No
		z	-0.047	6.50	No
		z	-0.012	0.50	No
		z	-0.012	0.50	No
	46	z	-0.016	1.75	No
		z	-0.016	6.25	No
		z	-0.008	5.00	No
	48	z	-0.029	1.50	No
		z	-0.029	6.50	No
	49	z	-0.029	1.50	No
		z	-0.029	6.50	No
		z	-0.015	0.50	No
	50	z	-0.016	1.75	No
		z	-0.016	6.25	No
		z	-0.008	5.00	No
	52	z	-0.029	1.50	No
		z	-0.029	6.50	No
	53	z	-0.029	1.50	No
		z	-0.029	6.50	No
		z	-0.015	0.50	No
Wi30	42	x	-0.014	1.75	No
		x	-0.014	6.25	No
		x	-0.01	5.00	No
	44	x	-0.023	1.50	No
		x	-0.023	6.50	No
	45	x	-0.023	1.50	No
		x	-0.023	6.50	No
		x	-0.017	0.50	No
	46	x	-0.02	1.75	No
		x	-0.02	6.25	No
		x	-0.004	5.00	No
	48	x	-0.041	1.50	No
		x	-0.041	6.50	No
	49	x	-0.041	1.50	No
		x	-0.041	6.50	No
		x	-0.01	0.50	No
	50	x	-0.02	1.75	No
		x	-0.02	6.25	No
		x	-0.004	5.00	No
	52	x	-0.041	1.50	No
		x	-0.041	6.50	No
	53	x	-0.041	1.50	No
		x	-0.041	6.50	No
		x	-0.01	0.50	No
WLO	42	z	-0.007	1.75	No
		z	-0.007	6.25	No
	44	z	-0.015	1.50	No
		z	-0.015	6.50	No
	45	z	-0.015	1.50	No
		z	-0.015	6.50	No
		z	-0.003	0.50	No
		z	-0.003	0.50	No
	46	z	-0.005	1.75	No
		z	-0.005	6.25	No
		z	-0.002	5.00	No
	48	z	-0.009	1.50	No
		z	-0.009	6.50	No
	49	z	-0.009	1.50	No
		z	-0.009	6.50	No
		z	-0.004	0.50	No
	50	z	-0.005	1.75	No
		z	-0.005	6.25	No
		z	-0.002	5.00	No
	52	z	-0.009	1.50	No
		z	-0.009	6.50	No
	53	z	-0.009	1.50	No

		z	-0.009	6.50	No
		z	-0.004	0.50	No
WL30	42	x	-0.004	1.75	No
		x	-0.004	6.25	No
		x	-0.002	5.00	No
	44	x	-0.007	1.50	No
		x	-0.007	6.50	No
	45	x	-0.007	1.50	No
		x	-0.007	6.50	No
		x	-0.004	0.50	No
	46	x	-0.006	1.75	No
		x	-0.006	6.25	No
		x	-0.001	5.00	No
	48	x	-0.013	1.50	No
		x	-0.013	6.50	No
	49	x	-0.013	1.50	No
		x	-0.013	6.50	No
		x	-0.003	0.50	No
	50	x	-0.006	1.75	No
		x	-0.006	6.25	No
		x	-0.001	5.00	No
	52	x	-0.013	1.50	No
		x	-0.013	6.50	No
	53	x	-0.013	1.50	No
		x	-0.013	6.50	No
		x	-0.003	0.50	No
LL1	21	y	-0.25	50.00	Yes
LL2	21	y	-0.25	0.00	No
LLa1	42	y	-0.50	50.00	Yes
LLa2	43	y	-0.50	50.00	Yes
LLa3	44	y	-0.50	50.00	Yes
LLa4	45	y	-0.50	50.00	Yes

### Self weight multipliers for load conditions

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

Current Date: 11/23/2021 4:40 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5513\LTE 3C-4C-5G\Rev.1\CT5513 (LTE 3C-4C-5G)(MODS).retx

## Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

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

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	<b>HSS_SQR 3X3X1_4</b>	<b>1</b>	LC2 at 0.00%	0.24	OK	
		<b>2</b>	LC2 at 100.00%	0.25	OK	
		<b>9</b>	LC3 at 0.00%	0.13	OK	
		<b>10</b>	LC16 at 66.25%	<b>0.26</b>	<b>OK</b>	
		<b>15</b>	LC3 at 0.00%	0.20	OK	
		<b>16</b>	LC28 at 66.25%	0.26	OK	
	<b>L 2-1_2X2-1_2X3_16</b>	<b>69</b>	LC2 at 50.00%	0.02	OK	
		<b>70</b>	LC4 at 50.00%	0.02	OK	
		<b>71</b>	LC3 at 50.00%	<b>0.02</b>	<b>OK</b>	
	<b>PIPE 2x0.154</b>	<b>42</b>	LC4 at 47.92%	0.36	OK	
		<b>43</b>	LC26 at 47.92%	0.18	OK	
		<b>44</b>	LC1 at 50.00%	0.38	OK	
		<b>45</b>	LC3 at 47.92%	<b>0.42</b>	<b>OK</b>	
		<b>46</b>	LC3 at 47.92%	0.35	OK	
		<b>47</b>	LC3 at 14.58%	0.15	OK	
		<b>48</b>	LC2 at 50.00%	0.36	OK	
		<b>49</b>	LC4 at 47.92%	0.40	OK	
		<b>50</b>	LC1 at 47.92%	0.31	OK	
		<b>51</b>	LC1 at 47.92%	0.16	OK	
		<b>52</b>	LC2 at 50.00%	0.36	OK	
		<b>53</b>	LC4 at 47.92%	0.41	OK	

	<b>66</b>	LC26 at 38.39%	0.33	With warnings
	<b>67</b>	LC4 at 38.39%	0.25	With warnings
	<b>68</b>	LC4 at 38.39%	0.28	With warnings
<hr/>				
<b>PIPE 3x0.216</b>	<b>21</b>	LC3 at 37.50%	<b>0.39</b>	<b>OK</b>
	<b>22</b>	LC4 at 38.75%	0.36	OK
	<b>23</b>	LC2 at 37.50%	0.35	OK
<hr/>				
<b>PL 6x5/8</b>	<b>6</b>	LC4 at 48.44%	0.52	OK
	<b>14</b>	LC2 at 50.00%	0.65	OK
	<b>20</b>	LC1 at 50.00%	<b>0.66</b>	<b>OK</b>
<hr/>				
<b>T2L 2-1_2X2-1_2X3_16</b>	<b>72</b>	LC10 at 100.00%	<b>0.37</b>	<b>OK</b>
	<b>73</b>	LC19 at 100.00%	0.36	OK
	<b>74</b>	LC11 at 100.00%	0.37	OK

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Current Date: 11/15/2021 4:35 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT5513\LTE 3C-4C-5G\CT5513 (LTE 3C-4C-5G)(MODS).retx

## 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
2	0.00	0.00	-1.1667	0
3	0.00	0.1667	-2.8333	0
4	0.00	0.1667	-8.0833	0
5	0.00	0.00	-4.8333	0
10	-0.6667	0.1667	-8.0833	0
11	0.6667	0.1667	-8.0833	0
16	0.4167	0.1667	-8.0833	0
17	-0.4167	0.1667	-8.0833	0
19	1.0104	0.00	0.5833	0
20	2.4537	0.1667	1.4167	0
21	7.0004	0.1667	4.0417	0
22	4.1858	0.00	2.4167	0
25	7.3337	0.1667	3.4643	0
26	6.667	0.1667	4.619	0
31	6.792	0.1667	4.4025	0
32	7.2087	0.1667	3.6808	0
34	-1.0104	0.00	0.5833	0
35	-2.4537	0.1667	1.4167	0
36	-7.0004	0.1667	4.0417	0
37	-4.1858	0.00	2.4167	0
40	-6.667	0.1667	4.619	0
41	-7.3337	0.1667	3.4643	0
46	-7.2087	0.1667	3.6808	0
47	-6.792	0.1667	4.4025	0
59	-5.792	3.6667	4.5692	0
60	-1.542	3.6667	4.5692	0
61	1.542	3.6667	4.5692	0

62	5.792	3.6667	4.5692	0
63	-5.792	-3.3333	4.5692	0
64	-1.542	-3.3333	4.5692	0
65	1.542	-3.3333	4.5692	0
66	5.792	-3.3333	4.5692	0
77	-1.061	3.6667	-7.3006	0
78	-3.186	3.6667	-3.62	0
79	-4.728	3.6667	-0.9491	0
80	-6.853	3.6667	2.7315	0
81	-1.061	-3.3333	-7.3006	0
82	-3.186	-3.3333	-3.62	0
83	-4.728	-3.3333	-0.9491	0
84	-6.853	-3.3333	2.7315	0
95	6.853	3.6667	2.7315	0
96	4.728	3.6667	-0.9491	0
97	3.186	3.6667	-3.62	0
98	1.061	3.6667	-7.3006	0
99	6.853	-3.3333	2.7315	0
100	4.728	-3.3333	-0.9491	0
101	3.186	-3.3333	-3.62	0
102	1.061	-3.3333	-7.3006	0
127	-6.792	2.6667	4.4025	0
128	6.792	2.6667	4.4025	0
129	-0.4167	2.6667	-8.0833	0
130	-7.2087	2.6667	3.6808	0
131	7.2087	2.6667	3.6808	0
132	0.4167	2.6667	-8.0833	0
133	-5.292	2.6667	4.4025	0
134	5.292	2.6667	4.4025	0
135	-1.1667	2.6667	-6.7843	0
136	-6.4587	2.6667	2.3818	0
137	6.4587	2.6667	2.3818	0
138	1.1667	2.6667	-6.7843	0
139	0.00	0.1667	-6.3333	0
140	0.00	-3.00	-1.1667	0
143	5.4848	0.1667	3.1667	0
144	1.0104	-3.00	0.5833	0
145	-5.4848	0.1667	3.1667	0
146	-1.0104	-3.00	0.5833	0

---

## Restraints

Node	TX	TY	TZ	RX	RY	RZ
2	1	1	1	1	1	1
19	1	1	1	1	1	1
34	1	1	1	1	1	1
140	1	1	1	1	1	1
144	1	1	1	1	1	1
146	1	1	1	1	1	1

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## Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
1	2	5		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
2	3	4		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
6	10	11		PL 6x5/8	A36	0.00	0.00	0.00
9	19	22		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
10	20	21		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
14	26	25		PL 6x5/8	A36	0.00	0.00	0.00
15	34	37		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
16	35	36		HSS_SQR 3X3X1_4	A500 GrB rectangular	0.00	0.00	0.00
20	41	40		PL 6x5/8	A36	0.00	0.00	0.00
21	47	31		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
22	32	16		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
23	17	46		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
42	62	66		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
43	61	65		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
44	60	64		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
45	59	63		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
46	80	84		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
47	79	83		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
48	78	82		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
49	77	81		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
50	98	102		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
51	97	101		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
52	96	100		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
53	95	99		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
66	127	128		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
67	129	130		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
68	131	132		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
69	137	134		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
70	133	136		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
71	135	138		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
72	139	140		T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
73	143	144		T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
74	145	146		T2L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00

### Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
42	0.00	2	1.00	0.00	0.00
43	0.00	2	1.00	0.00	0.00
44	0.00	2	1.00	0.00	0.00
45	0.00	2	1.00	0.00	0.00
46	0.00	2	1.00	0.00	0.00
47	0.00	2	1.00	0.00	0.00
48	0.00	2	1.00	0.00	0.00
49	0.00	2	1.00	0.00	0.00
50	0.00	2	1.00	0.00	0.00
51	0.00	2	1.00	0.00	0.00
52	0.00	2	1.00	0.00	0.00
53	0.00	2	1.00	0.00	0.00
69	90.00	0	0.00	0.00	0.00
70	90.00	0	0.00	0.00	0.00
71	90.00	0	0.00	0.00	0.00

### Hinges



Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
69	1	1	0	0	1	1	0	0	0	0	Full
70	1	1	0	0	1	1	0	0	0	0	Full
71	1	1	0	0	1	1	0	0	0	0	Full
72	1	1	0	0	0	0	0	0	0	0	Full
73	1	1	0	0	0	0	0	0	0	0	Full
74	1	1	0	0	0	0	0	0	0	0	Full

# Bethel, CT : Assessor Database

**Property Search:**

<b>Parcel ID:</b>	<b>Alternate ID:</b>	<b>Owner 1 Name:</b>	<b>Street Number:</b>	<b>Street Name:</b>
<input type="text"/>	<input type="text"/>	<input type="text"/>	11	FRANCIS J CLARKE CIRCLE <input type="button" value="v"/>

**Property Detail:**

Parcel ID:	Alternate ID/Map Block Lot:	Card:	Card:	Street Name:	Street Number:	Zoning:	LUC:	Acres:
09 23 150-05	R05677	1	1	FRANCIS J CLARKE CIRCLE	11	IP	WAREHOUSES	5.80

**Owner Information:**

<b>Owner 1 Name:</b>	STERGUE COSTA ESTATE OF
<b>Owner 2 Name:</b>	% PADOVANO MARY S ADMINISTRATOR
<b>Street 1:</b>	28 PARK LANE ROAD
<b>Street 2:</b>	
<b>City:</b>	NEW MILFORD
<b>State:</b>	CT
<b>Zip:</b>	06776
<b>Volume:</b>	1105
<b>Page:</b>	225
<b>Deed Date:</b>	0000-00-00

**Building Information:**

<b>Building Number:</b>	1
<b>Units:</b>	7
<b>Structure Type:</b>	MFG/PROCESSING
<b>Grade:</b>	C
<b>Identical Units:</b>	1
<b>Year Built:</b>	1992

**Valuation:**

<b>Appraised Land:</b>	\$392,800.00
<b>Appraised Land PA490:</b>	\$0.00
<b>Appraised Bldg:</b>	\$1,184,000.00
<b>Appraised Total:</b>	\$1,576,800.00
<b>Total Assessment:</b>	\$1,103,760.00

**Property Images:**

**Picture:**



**Sketch:**

ID	Code	Description	Area
A	VS2	2S	9610
B	044	LIGHT MANUFACTURING	9610*
C	044	LIGHT MANUFACTURING	7378*
D	082	MULTI-USE OFFICE	2232*
E	OD1	OVERHEAD DR-WOOD/MTL	120*
F	OD1	OVERHEAD DR-WOOD/MTL	96*
G	SS1	SPRINKLER SYS WET	19220*
H	OD1	OVERHEAD DR-WOOD/MTL	48*
I	PA1	PAVING ASPHALT PARKING	20000*



**Out-Buildings:**

Code:	Description:	Units:	Year Built:	Size1:	Size2:	Area:	Grade:	Condition:
PA1	PAVING ASPHALT PARKING	1	1992	0	0	20000	C	NORMAL (Comm)

**Building Interior/Exterior Information:**

Floor From:	Floor To:	Area:	Use Type:	Exterior Walls:	Construction Type:	Heating:	A/C:	Plumbing:	Functional Utility:
01	01	9610	LIGHT MANUFACTURING	FRAME	WOOD FRAME/JOIST/BEAM	UNIT HEATERS	NONE	BELOW NORMAL	3
02	02	7378	LIGHT MANUFACTURING	FRAME	WOOD FRAME/JOIST/BEAM	UNIT HEATERS	NONE	BELOW NORMAL	3
02	02	2232	MULTI-USE OFFICE	FRAME	WOOD FRAME/JOIST/BEAM	HOT AIR	CENTRAL	NORMAL	3

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Comments regarding this service should be directed to: [Assessor@betheltownhall.org](mailto:Assessor@betheltownhall.org)



## 11 Francis J. Clark Circle

1/12/2022 2:20:49 PM

Scale: 1"=333'

Scale is approximate

The information depicted on this map is for planning purposes only.  
It is not adequate for legal boundary definition, regulatory  
interpretation, or parcel-level analyses.





# PLANNING & ZONING COMMISSION

Bethel Municipal Center  
1 School Street, Bethel, Connecticut 06801 \*(203) 794-8519

April 16, 1999

Esther McNany  
SBA, Inc./Nextel Communications/Sprint PCS  
125 Shaw Street  
New London, CT 06320

RE: SBA, Inc./Nextel Communications/Sprint PCS

Dear Ms. McNany:


At the April 13, 1999 meeting of the Planning & Zoning Commission it was voted to **APPROVE** your application for a special permit and site plan, 11 Francis J. Clarke Industrial Park, on maps dated C-1 dated 2/17/98 last revised 1/22/99, C-2 dated 2/17/98 last revised 1/22/99, C-3 dated 6/20/98 last revised 4/16/99, and C-4 dated 6/20/98 with the following stipulations:

1. Applicant will submit the approved site plan to the Economic Development Commission for their review prior to applying for a building permit.
2. Any changes to the plan or in the field will require a resubmission the Commission before making any changes.
3. Reason for approval is that it meets the Planning & Zoning regulations.

Work is to commence within (1) one year and completed in (5) five years.

If you have any questions please call. I have also attached a copy of the legal notice for your review.

Sincerely,

  
Denis J. Riordan  
Chairman

DJR: cpc



# PLANNING & ZONING COMMISSION

Bethel Municipal Center  
1 School Street, Bethel, Connecticut 06801 \*(203) 794-8519

November 15, 2000

Esther McNany  
SBA, Inc./ Nextel Communications/Sprint PCS  
125 Shaw Street  
New London, CT 06320

RE: SBA, Inc. - 11 Francis J. Clarke Circle

Dear Ms. McNany,

At the November 14, 2000 meeting of the Planning & Zoning Commission it was voted to approve your revised site plan application for 11 Francis Clarke Circle on maps dated 2/17/98 last revised 11/5/00 with the following stipulations:

- 1) The resolution granting the original approval, dated 4/16/99, including all stipulations must be adhered to.
- 2) Any further changes in the site plan must be submitted to this Commission.

I have attached a copy of the legal notice for your review. Please be advised that work is not to commence until bonds are submitted and maps are signed and filed

Sincerely,

*Denis J. Riordan*  
Denis J. Riordan  
Chairman

SITE # 4276  
FILE TYPE Construction  
SECTION Permits



## PLANNING & ZONING COMMISSION

Bethel Municipal Center  
1 School Street, Bethel, Connecticut 06801 \*(203) 794-8519

April 15, 2002

RTP  
FINAL

Attorney Susan A. Hays  
One State St  
P.O. Box 231277  
Hartford Ct 06123-1277

RE: SBA Telecommunications Tower  
11 Francis J. Clarke Circle

Dear Ms. Hays,

At the April 9, 2002 meeting of the Planning & Zoning Commission it was voted to **APPROVE** your request for reinstatement of the terms and conditions of the original the Site Plan for the proposed SBA, Inc. telecommunications facility and antennas for Sprint and Nextel at 11 Francis J. Clarke Circle with the following stipulations:

1. Except as modified by this approval, improvements shall be constructed as shown on drawings prepared by Gesick & Associates, P.C., Robert J. Grabarek, P.E. (CT Lic # 13441), as follows:
  - a) "SBA, Inc., #4276 Bethel (Costa Property II), 11 Francis J. Clarke Circle, Bethel, Connecticut," Sheet T-1, last revised 1/22/99;
  - b) "Comprehensive Site Plan," Sheet C-1, last revised 1/22/99 (Note: the northerly setback is shown correctly at 212.5 feet, but the arrow is shown only to the 25-foot rear setback line and should be extended to the property line.);
  - c) "Site Plan and Elevations," Sheet C-2, last revised 1/22/99 (added Sprint);
  - d) "Site Details," Sheet C-3, last revised 4/6/99;
  - e) "General Notes and Erosion Control Narrative," Sheet C-4, dated 6/20/98.
2. Applicant shall furnish the Economic Development Commission of the Town of Bethel with a copy of the plans, and shall furnish proof of transmittal to the Planning and Zoning Commission prior to the issuance of any zoning and building permits for the project.
3. Any changes in the approved plan shall require the approval of the Planning and Zoning Commission.
4. It is the applicant's responsibility to secure any and all permits and approvals required by the Connecticut Siting Council.

5. Pursuant to Sec. 118-22 of the Zoning Regulations, "The approval of any site plan shall be void and shall be of no effect unless construction of the proposed buildings or structures is commenced within one (1) year of the effective date of said approval and is substantially completed within (5) years of the effective date of said approval."

Reasons: The reinstated plan is in substantial compliance with Sec. 118-47.3, "Telecommunications towers and antennas," of the Zoning Regulations of the Town of Bethel and was previously approved by the Commission on 11/14/00, and further by Settlement Agreement dated 8/24/00-9/22/00. In granting the reinstatement of the Site Plan for this application, the Commission makes no decision regarding the property owner's right to apply for additional buildings or structures on the site, in accordance with Bethel zoning regulations in effect at the time of the application.

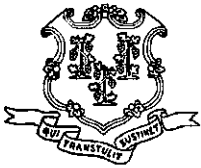
Sincerely,



Michael J. Mannion  
Chairman

MJM: cpc





# STATE OF CONNECTICUT

## CONNECTICUT SITING COUNCIL

Ten Franklin Square, New Britain, CT 06051

Phone: (860) 827-2935 Fax: (860) 827-2950

E-Mail: [siting.council@po.state.ct.us](mailto:siting.council@po.state.ct.us)

Web Site: [www.state.ct.us/csc/index.htm](http://www.state.ct.us/csc/index.htm)

September 11, 2002

Julie M. Donaldson, Esq.  
Hurwitz & Sagarin, LLC  
147 North Broad Street  
P.O. Box 112  
Milford, CT 06460-0112

RE: **EM-SBA-009-020809** - SBA, Inc. notice of intent to modify an existing telecommunications facility located at 11 Francis J. Clarke Circle, Bethel, Connecticut.

Dear Attorney Donaldson:


At a public meeting held on September 5, 2002, the Connecticut Siting Council (Council) acknowledged your notice to modify this existing telecommunications facility, pursuant to Section 16-50j-73 of the Regulations of Connecticut State Agencies.

The proposed modifications are to be implemented as specified here and in your notices dated August 9, 2002, and August 23, 2002. The modifications are in compliance with the exception criteria in Section 16-50j-72 (b) of the Regulations of Connecticut State Agencies as changes to an existing facility site that would not increase tower height, extend the boundaries of the tower site, increase noise levels at the tower site boundary by six decibels, and increase the total radio frequencies electromagnetic radiation power density measured at the tower site boundary to or above the standard adopted by the State Department of Environmental Protection pursuant to General Statutes § 22a-162. This facility has also been carefully modeled to ensure that radio frequency emissions are conservatively below State and federal standards applicable to the frequencies now used on this tower.

This decision is under the exclusive jurisdiction of the Council. Any additional change to this facility will require explicit notice to this agency pursuant to Regulations of Connecticut State Agencies Section 16-50j-73. Such notice shall include all relevant information regarding the proposed change with cumulative worst-case modeling of radio frequency exposure at the closest point of uncontrolled access to the tower base, consistent with Federal Communications Commission, Office of Engineering and Technology, Bulletin 65. Any deviation from this format may result in the Council implementing enforcement proceedings pursuant to General Statutes § 16-50u including, without limitation, imposition of expenses resulting from such failure and of civil penalties in an amount not less than one thousand dollars per day for each day of construction or operation in material violation.

Thank you for your attention and cooperation.

Very truly yours,

  
Mortimer A. Gelston  
Chairman

MAG/laf

c: Honorable Judy Novachek, First Selectman, Town of Bethel  
Betty Brosius, Planning & Zoning Official, Town of Bethel  
Thomas F. Flynn III, Nextel Communications  
Christopher B. Fisher, Esq., Cuddy & Feder & Worby LLP



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:** CToo248-S, North Bethel

**Property Located at:** 11 Francis J. Clarke Circle, Bethel, CT, 06801-2845

---

**THE CITY/COUNTY OF:** Bethel / Fairfield

### **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 Estate of Costa Stergue.

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 Towers, LLC

A handwritten signature in black ink, appearing to read "Jason Silberstein", written in a cursive style.

Jason Silberstein

Executive VP, Site Leasing

Date: 1/20/2022



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usps.com 9405 5036 9930 0148 0433 95 0089 5000 0020 6801  
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**P**

**PRIORITY MAIL 3-DAY™**

HOLLIS M REDDING  
SAI GROUP  
12 INDUSTRIAL WAY  
SALEM NH 03079-2837

Expected Delivery Date: 01/31/22

Ref#: CT5513

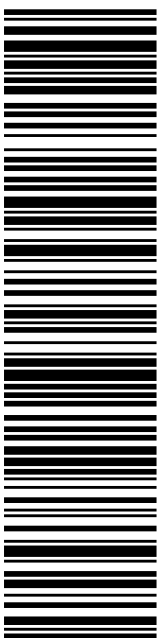
**0006**

**C011**

SHIP

TO: MATT KNICKERBOCKER, 1ST SELECTMAN MS. BETH  
CLIFFORD J. HURGIN MUNICIPAL CNTR/BETHEL  
1 SCHOOL ST  
BETHEL CT 06801-1828

**USPS TRACKING #**



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01/27/2022

Mailed from 03079

**P**

**PRIORITY MAIL 2-DAY™**

HOLLIS M REDDING  
SAI GROUP  
12 INDUSTRIAL WAY  
SALEM NH 03079-2837

Expected Delivery Date: 01/31/22

Ref#: CT5513

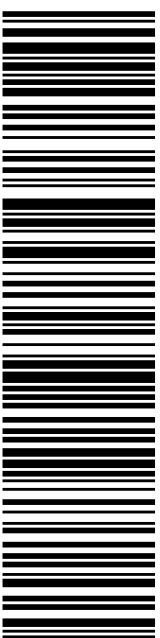
**0006**

**C005**

SHIP

TO: THE ESTATE OF COSTA STERGUE  
C/O MARY S. PADOVANO, ADMINISTRATOR  
28 PARK LANE RD  
NEW MILFORD CT 06776-2908

**USPS TRACKING #**



**9405 5036 9930 0148 0434 01**

Electronic Rate Approved #038555749





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**PRIORITY MAIL 2-DAY™**

HOLLIS M REDDING

Expected Delivery Date: 01/31/22

SAI GROUP

Ref#: CT5513

12 INDUSTRIAL WAY

**0006**

SALEM NH 03079-2837

**C036**

SHIP

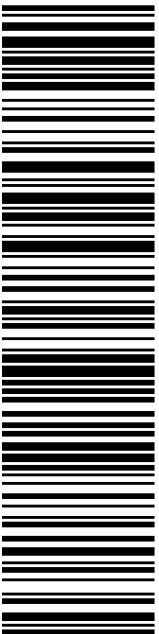
TO:

SBA COMMUNICATIONS CORP

8051 CONGRESS AVE

BOCA RATON FL 33487-1307

USPS TRACKING #



9405 5036 9930 0148 0434 18

Electronic Rate Approved #038555749

Cut on dotted line.



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9405 5036 9930 0148 0434 32 0092 5000 0020 6051

**PRIORITY MAIL 2-DAY™**

HOLLIS M REDDING

Expected Delivery Date: 01/31/22

SAI GROUP

Ref#: CT5513

12 INDUSTRIAL WAY

SALEM NH 03079-2837

**0006**

**C006**

SHIP

TO:

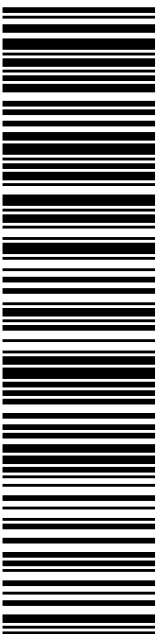
MELANIE BACHMAN EXECUTIVE DIRECTOR

CT SITING COUNCIL

10 FRANKLIN SQ

NEW BRITAIN CT 06051-2655

USPS TRACKING #



9405 5036 9930 0148 0434 32

Electronic Rate Approved #038555749



**From:** auto-reply@usps.com  
**Sent:** Thursday, January 27, 2022 2:27 PM  
**To:** Hollis Redding  
**Subject:** USPS® Expected Delivery by Monday, January 31, 2022 arriving by 9:00pm 9405503699300148043395



Hello **HOLLIS M REDDING**,

Your item was accepted at 2:12 pm on January 27, 2022 in MERIDEN, CT 06450.

Tracking Number: [9405503699300148043395](#)

**Expected Delivery By**

A calendar icon with a dark blue header containing the word "Mon" in white. Below the header, the number "31" is displayed in a large, bold, dark blue font. Underneath "31", the word "Jan" is written in a smaller, dark blue font.

**By 9:00pm**

An icon consisting of a dark blue outline of a mail box with a flag on top, and a circular clock face with a hand pointing to the 9 o'clock position, positioned to the left of the mail box.

[\*\*Tracking & Delivery Options\*\*](#)

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Visit [USPS Tracking®](#) to check the most up-to-date status of your package. Sign up for [Informed Delivery®](#) to digitally preview the address side of your incoming letter-sized mail and manage your packages scheduled to arrive soon! To update how frequently you receive emails from USPS, log in to your [USPS.com](#) account.

**From:** auto-reply@usps.com  
**Sent:** Thursday, January 27, 2022 2:27 PM  
**To:** Hollis Redding  
**Subject:** USPS® Expected Delivery by Friday, January 28, 2022 arriving by 9:00pm  
9405503699300148043401



Hello **HOLLIS M REDDING**,

Your item was accepted at 2:12 pm on January 27, 2022 in MERIDEN, CT 06450.

Tracking Number: [9405503699300148043401](#)

**Expected Delivery By**

A calendar icon with a dark blue header containing the word "Fri" in white. Below the header, the number "28" is displayed in a large, bold, dark blue font, and the word "Jan" is written in a smaller, dark blue font below it.

**By 9:00pm**

An icon representing a mail box with a clock. The mail box is a dark blue outline, and the clock is a dark blue circle with a white face and a dark blue hand.

[\*\*Tracking & Delivery Options\*\*](#)

[\*\*My Account\*\*](#)

Visit [USPS Tracking®](#) to check the most up-to-date status of your package. Sign up for [Informed Delivery®](#) to digitally preview the address side of your incoming letter-sized mail and manage your packages scheduled to arrive soon! To update how frequently you receive emails from USPS, log in to your [USPS.com](#) account.

**From:** auto-reply@usps.com  
**Sent:** Thursday, January 27, 2022 2:27 PM  
**To:** Hollis Redding  
**Subject:** USPS® Expected Delivery by Monday, January 31, 2022 arriving by 9:00pm 9405503699300148043418

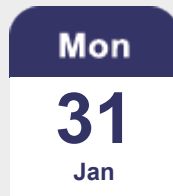


Hello **HOLLIS M REDDING**,

Your item was accepted at 2:12 pm on January 27, 2022 in MERIDEN, CT 06450.

Tracking Number: [9405503699300148043418](#)

**Expected Delivery By**



**By 9:00pm**



**Tracking & Delivery Options**

**My Account**

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