



QC Development

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Storrs, CT 06268

860-670-9068

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March 29, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT2280
497 Ekonk Hill Road, Voluntown, CT 06384
N 41.60648333
W 71.85101944

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 165-foot level of the existing 180-foot Self Support Tower at 497 Ekonk Hill Road, Voluntown, CT. The tower is owned by SBA and the property is owned by Thomas and Patricia Sweet. AT&T now intends to replace three (3) Powerwave and (3) KMW antennas with (3) CCI HPA-65R-BU8AA and (3) Kathrein 800-10966 antennas. AT&T will also swap (3) Ericsson RRUS-11 Remote Radio Units for (3) Ericsson 4449-B5/B12s and add (3) Ericsson 8843-B25/B66. The Antennas and RRUs will be installed at the 165-foot level of the tower.

AT&T's use of this facility was approved by the Siting Council on February 22, 2006. This approval included no condition(s) that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Tracey Hanson, First Selectman of the Town of Voluntown, and the Voluntown Zoning Official as well as

the property owner and tower owner.

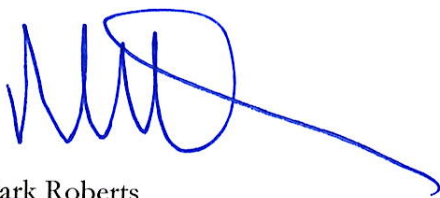
The planned modifications to the facility fall squarely within those activities explicitly provided for in R.C.S.A. § 16-50j-72(b)(2).

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

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

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

Sincerely,



Mark Roberts
QC Development
Consultant for AT&T

Attachments

Cc: Tracey Hanson - Elected Official
Peter Zvingilas – Building Inspector & ZEO
Thomas & Patricia Sweet – Property Owners
SBA - Tower Owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm ²)	Freq. Band (MHz ^{**})	Limit S (mW/cm ²)	%MPE
Other Carriers*							1.90%
AT&T GSM	1	283	165	0.0040	880	0.5867	0.07%
AT&T UMTS	2	565	165	0.0161	880	0.5867	0.27%
AT&T UMTS	4	525	165	0.0299	1900	1.0000	0.30%
AT&T LTE	1	1615	165	0.0230	734	0.4893	0.47%
AT&T LTE	2	875	165	0.0249	1900	1.0000	0.25%
Site Total							3.26%

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

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

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm ²)	Freq. Band (MHz ^{**})	Limit S (mW/cm ²)	%MPE
Other Carriers*							1.90%
AT&T UMTS	1	565	165	0.0080	850	0.5667	0.14%
AT&T LTE	1	2951	165	0.0840	700	0.4667	1.80%
AT&T LTE	1	1000	165	0.0142	850	0.5667	0.25%
AT&T 5G	1	1000	165	0.0142	850	0.5667	0.25%
AT&T LTE	2	3664	165	0.1042	1900	1.0000	1.04%
AT&T LTE	1	3837	165	0.0546	2100	1.0000	0.55%
Site Total							5.93%

*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 SELF SUPPORT TOWER: • PROPOSED NEW 12' HD V-BOOM SECTOR MOUNT BY SABRE INDUSTRIES PART# C10857001C WITH 2" STD. (2.38" O.D.) STEEL PIPE BRACE SECURED TO PROPOSED MOUNT AND EXISTING TOWER (OR APPROVED EQUAL) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: (800-10966) (TYP. OF 1 PER SECTOR, TOTAL OF 3) • NEW AT&T ANTENNAS: (HPA-65R-BU8AA) (TYP. OF 1 PER SECTOR, TOTAL OF 3) • NEW AT&T RRUS: B25/B66A 8843 (2100/1900) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: B5/B12 4449 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T SURGE ARRESTOR: DC6-48-60-18-8C (TOTAL OF 1) WITH (2) DC POWER & (1) FIBER CABLE. ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • SWAP DUS FOR RBS 6630. • ADD RBS 6630 FOR 5G. • ADD (1) XMU. • PROPOSED AT&T DIPLEXERS (DBCT108F1V92-1) (TYP. OF 1 PER SECTOR, TOTAL OF 3) • PROPOSED AT&T RRUS B14 4478 (700) (TOTAL OF 2) (ALPHA AND GAMMA SHARE). • INSTALL (8) (TSXDC-4310FM) SURGE ARRESTORS. SITE ADDRESS: 111 STONE HILL ROAD VOLUNTOWN, CT 06384 LATITUDE: 41.606488 N, 41° 36' 23.36" N LONGITUDE: 71.851011 W, 71° 51' 03.64" W TYPE OF SITE: SELF SUPPORT TOWER / INDOOR EQUIPMENT STRUCTURE HEIGHT: 180'-0"± RAD CENTER: 165'-0"± CURRENT USE: TELECOMMUNICATIONS FACILITY PROPOSED USE: TELECOMMUNICATIONS FACILITY			 SITE NUMBER: CT2280 SITE NAME: VOLUNTOWN STONE HILL ROAD FA CODE: 10113181 PACE ID: MRCTB035219, MRCTB035262, MRCTB035083, MRCTB035258 PROJECT: LTE 2C_3C_4C_5C 2019 UPGRADE																																
DRAWING INDEX <table><tr><th>SHEET NO.</th><th>DESCRIPTION</th><th>REV.</th></tr><tr><td>T-1</td><td>TITLE SHEET</td><td>1</td></tr><tr><td>GN-1</td><td>GENERAL NOTES</td><td>1</td></tr><tr><td>A-1</td><td>COMPOUND & EQUIPMENT PLANS</td><td>1</td></tr><tr><td>A-2</td><td>ANTENNA LAYOUTS & ELEVATION</td><td>1</td></tr><tr><td>A-3</td><td>DETAILS</td><td>1</td></tr><tr><td>RF-1</td><td>RF PLUMBING DIAGRAM</td><td>1</td></tr><tr><td>G-1</td><td>GROUNDING DETAILS</td><td>1</td></tr></table>			SHEET NO.	DESCRIPTION	REV.	T-1	TITLE SHEET	1	GN-1	GENERAL NOTES	1	A-1	COMPOUND & EQUIPMENT PLANS	1	A-2	ANTENNA LAYOUTS & ELEVATION	1	A-3	DETAILS	1	RF-1	RF PLUMBING DIAGRAM	1	G-1	GROUNDING DETAILS	1	VICINITY MAP DIRECTIONS TO SITE: START OUT GOING NORTHEAST ON ENTERPRISE DR TOWARD CAPITOL BLVD. 0.4 MI TURN LEFT ONTO CAPITOL BLVD. 0.2 MI TURN LEFT ONTO WEST ST. 0.2 MI TAKE RAMP LEFT FOR I-91 N. 4.5 MI AT EXIT 25, TAKE RAMP RIGHT FOR CT-3 NORTH TOWARD GLASTONBUR. 2.4 MI TAKE RAMP RIGHT FOR CT-2 EAST TOWARD NORWICH. 31.9 MI KEEP STRAIGHT ONTO CT-2 E / CT-32 S. 0.8 MI AT EXIT 28N, TAKE RAMP RIGHT FOR I-395 NORTH TOWARD PROVIDENCE. 8.2 MI TAKE RAMP RIGHT. 0.6 MI BEAR RIGHT ONTO CT-138 / VOLUNTOWN RD. 6.0 MI KEEP STRAIGHT ONTO CT-49 / CT-138 / CT-165 / BEACH POND RD. 0.4 MI TURN LEFT ONTO CT-49 / EKONK HILL RD. 2.4 MI TURN LEFT ONTO STONE HILL RD. 0.3 MI ARRIVE AT 111 STONE HILL RD, VOLUNTOWN, CT 06384. 		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.						
SHEET NO.	DESCRIPTION	REV.																																	
T-1	TITLE SHEET	1																																	
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SBA SITE #: CT10024			72 HOURS CALL BEFORE YOU DIG CALL TOLL FREE 1-800-922-4455 OR CALL 811 UNDERGROUND SERVICE ALERT																																
 45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845 TEL: (978) 557-5553 FAX: (978) 336-5586		 12 INDUSTRIAL WAY SALEM, NH 03079		SITE NUMBER: CT2280 SITE NAME: VOLUNTOWN STONE HILL ROAD SBA SITE #: CT10024 111 STONE HILL ROAD VOLUNTOWN, CT 06384 NEW LONDON COUNTY		 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067		<table><tr><td>1</td><td>02/26/19</td><td>ISSUED FOR CONSTRUCTION</td><td>AM</td><td>AT</td><td>DJC</td></tr><tr><td>A</td><td>01/29/19</td><td>ISSUED FOR REVIEW</td><td>AM</td><td>AT</td><td>DJC</td></tr><tr><td>NO.</td><td>DATE</td><td>REVISIONS</td><td>BY</td><td>CHK</td><td>APP'D</td></tr><tr><td colspan="2">SCALE: AS SHOWN</td><td>DESIGNED BY: AT</td><td colspan="2">DRAWN BY: AM</td><td></td></tr></table>		1	02/26/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC	A	01/29/19	ISSUED FOR REVIEW	AM	AT	DJC	NO.	DATE	REVISIONS	BY	CHK	APP'D	SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: AM			AT&T TITLE SHEET (LTE 2C_3C_4C_5C) DRAWING NUMBER CT2280 T-1 1	
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SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: AM																																

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) 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 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

1. FOR THE PURPOSE OF THE 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 ($F_y = 36$ ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E ($F_y = 36$ ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
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.

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		



111 STONE HILL ROAD
VOLUNTOWN, CT 06384
NEW LONDON COUNTY



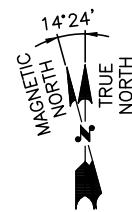
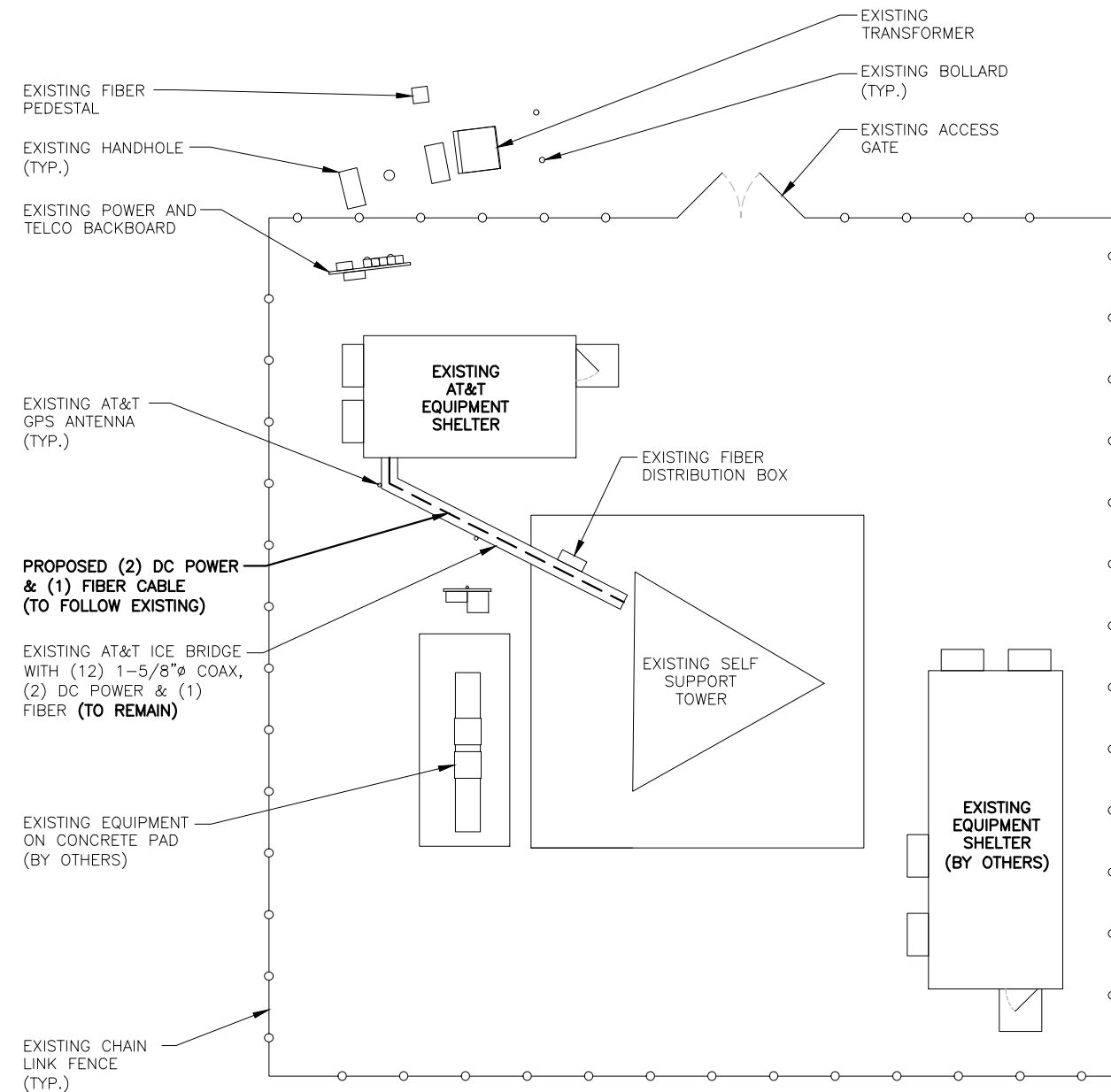
				AT&T	
1	02/26/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	01/29/19	ISSUED FOR REVIEW	AM	AT	DJC
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: AM		
					
			GENERAL NOTES (LTE 2C_3C_4C_5C)		
			SITE NUMBER		DRAWING NUMBER
			CT2280		GN-1

NOTE:
ROTATION OF MOUNTS OR INSTALLATION OF MOUNT MODS MUST NOT ADVERSELY AFFECT, OBSTRUCT, BEND OR PINCH EXISTING SAFETY CABLE IN ANY WAY. GC, C/O AT&T, WILL PURCHASE AND INSTALL CABLE RE-ROUTING BRACKETS AS REQUIRED.

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

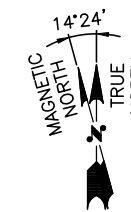
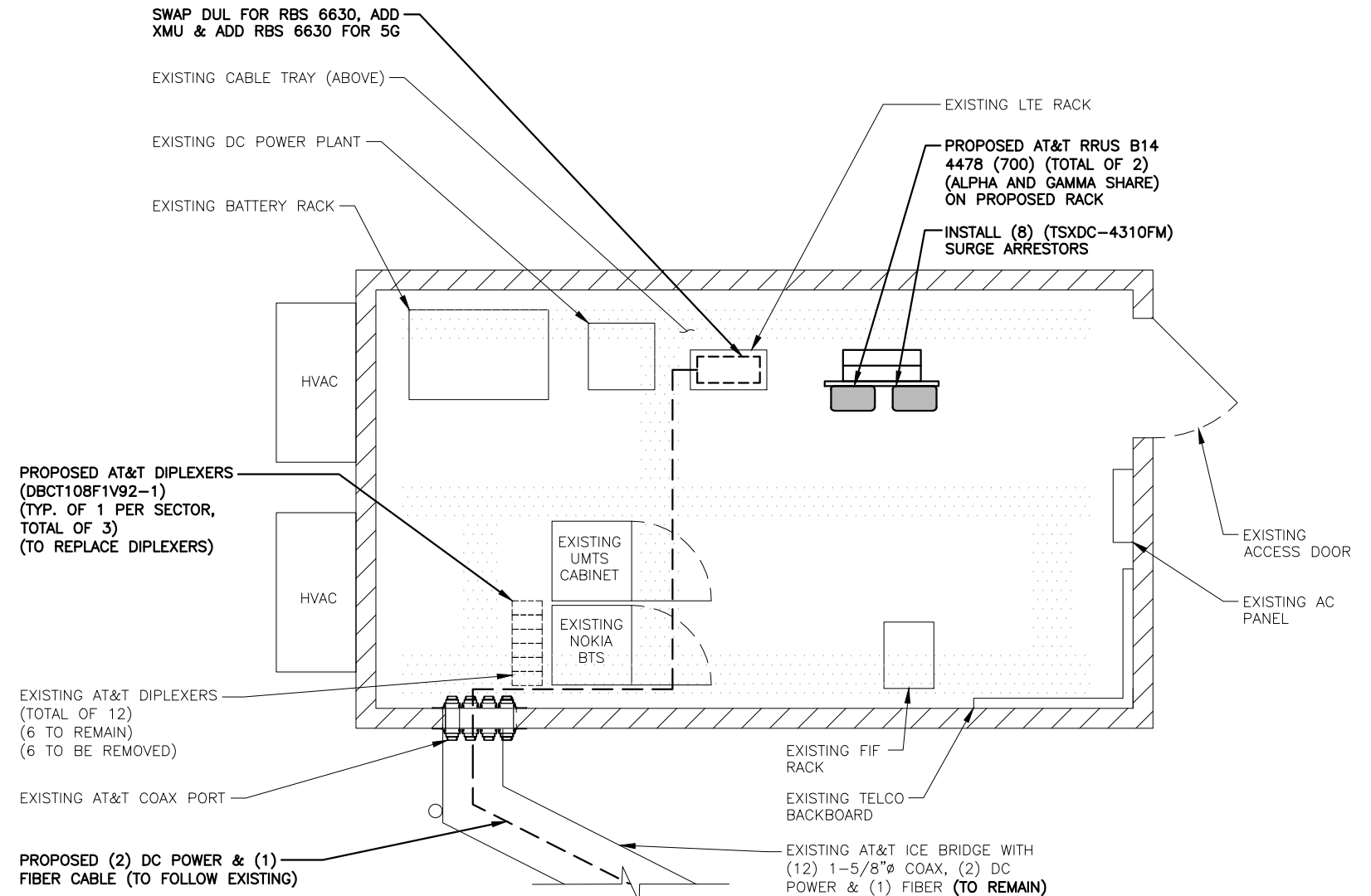
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: FEBRUARY 13, 2019 (REV.1)



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

1
A-1



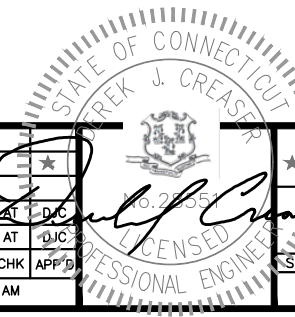
EQUIPMENT PLAN
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

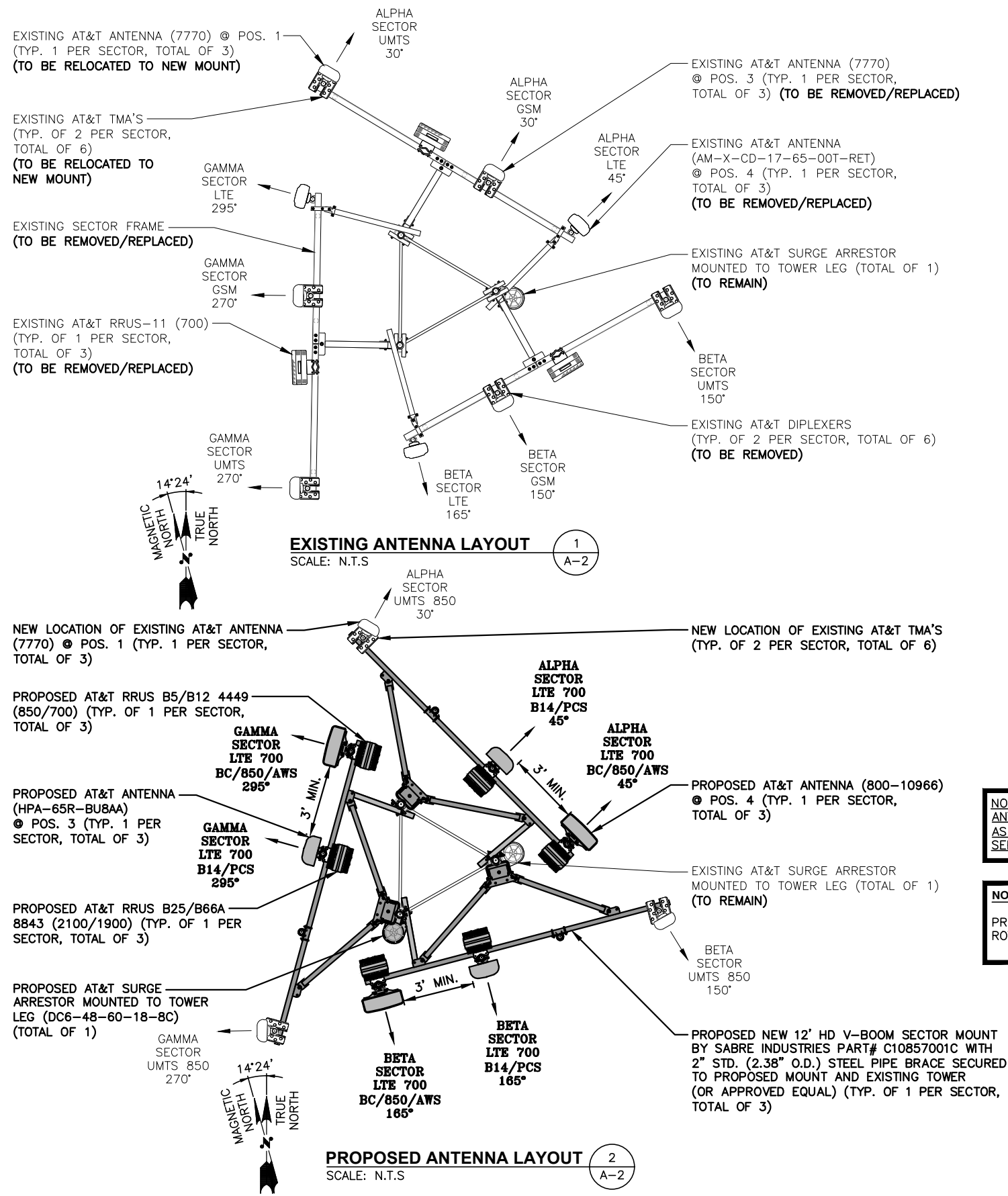
2
A-1



NO.	DATE	REVISIONS	BY	CHK	APP'D
1	02/26/19	ISSUED FOR CONSTRUCTION	AM	AT	EDC
A	01/29/19	ISSUED FOR REVIEW	AM	AT	DJC

SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: AM





TOP OF EXISTING SELF SUPPORT TOWER
ELEV. 180'-0"± (A.G.L.)

CL OF PROPOSED & EXISTING AT&T ANTENNAS
ELEV. 165'-0"± (A.G.L.)

PROPOSED AT&T RRUS B5/B12 4449 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T ANTENNA (800-10966) @ POS. 4 (TYP. 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T SURGE ARRESTOR MOUNTED TO TOWER LEG (DC6-48-60-18-8C) (TOTAL OF 1)

EXISTING ANTENNAS (BY OTHERS) (TYP.)

PROPOSED AT&T ANTENNA (HPA-65R-BUBAA) @ POS. 3 (TYP. 1 PER SECTOR, TOTAL OF 3)

NEW LOCATION OF EXISTING AT&T ANTENNA (7770) @ POS. 1 (TYP. 1 PER SECTOR, TOTAL OF 3)

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

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

PROPOSED NEW 12' HD V-BOOM SECTOR MOUNT BY SABRE INDUSTRIES PART# C10857001C WITH 2" STD. (2.38" O.D.) STEEL PIPE BRACE SECURED TO PROPOSED MOUNT AND EXISTING TOWER (OR APPROVED EQUAL) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

PROPOSED AT&T RRUS B25/B66A 8843 (2100/1900) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

NOTE:

ROTATION OF MOUNTS OR INSTALLATION OF MOUNT MODS MUST NOT ADVERSELY AFFECT, OBSTRUCT, BEND OR PINCH EXISTING SAFETY CABLE IN ANY WAY. GC, C/O AT&T, WILL PURCHASE AND INSTALL CABLE RE-ROUTING BRACKETS AS REQUIRED.

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: FEBRUARY 13, 2019 (REV.1)

NOTE:

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

NOTE:
ANTENNAS AND MOUNTS TO BE ADJUSTED AS REQUIRED TO ACHIEVE A 3'-0" MINIMUM SEPARATION BETWEEN LTE ANTENNAS

NOTE:

PROPOSED ANTENNA MOUNT TO BE ROTATED TO MATCH LTE AZIMUTHS

NOTE:

EXISTING GROUND EQUIPMENT NOT SHOWN FOR CLARITY

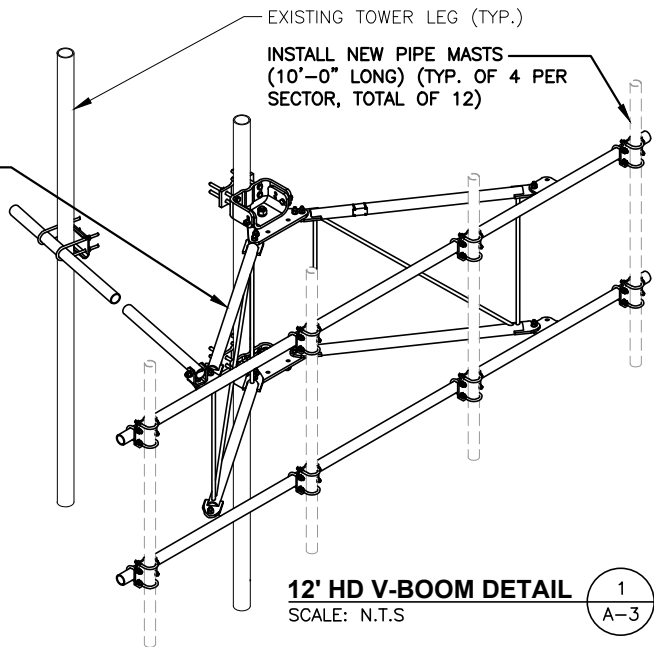
GROUND LEVEL
ELEV. 0'-0"± (A.G.L.)

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

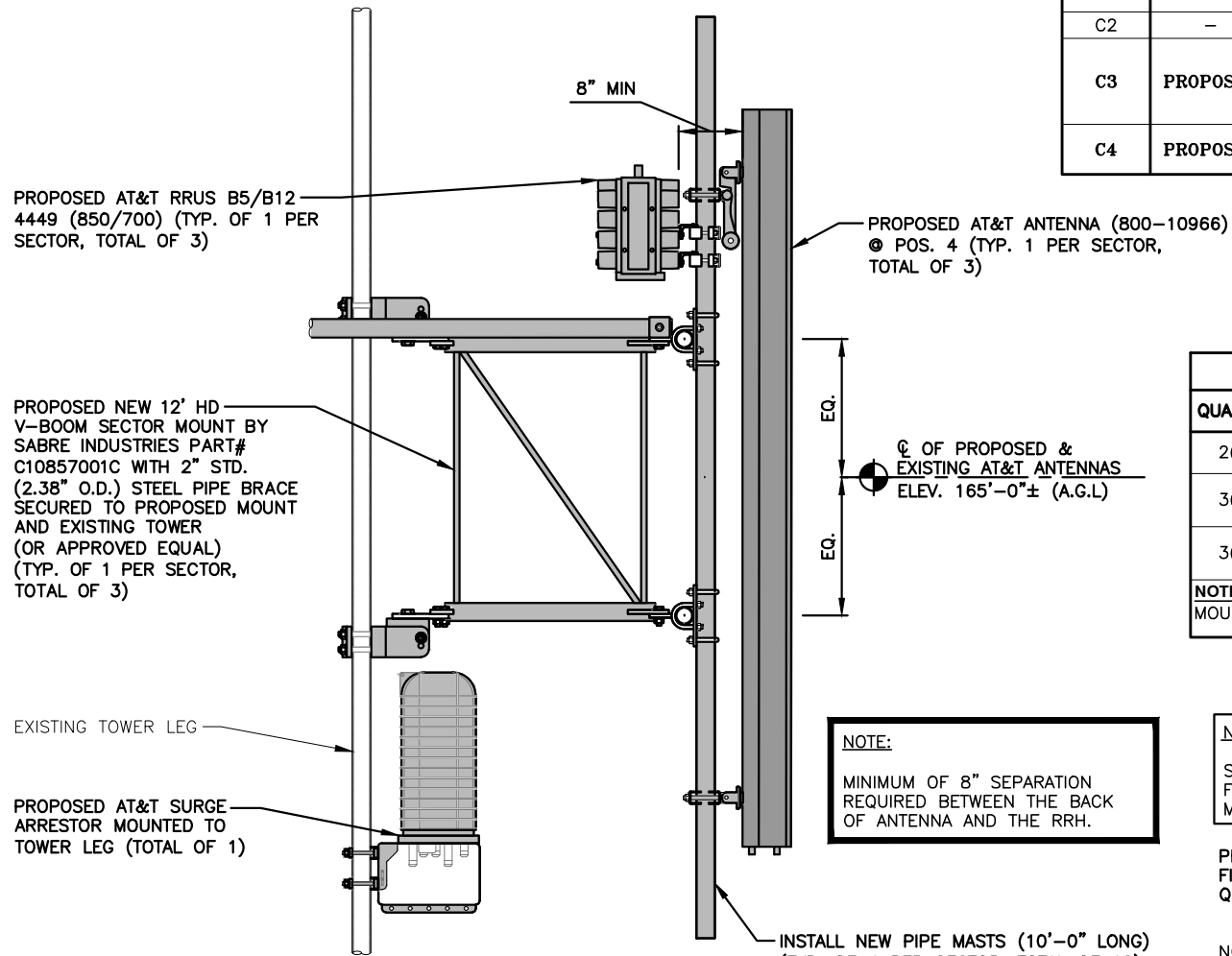
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

PROPOSED NEW 12' HD V-BOOM SECTOR MOUNT BY SABRE INDUSTRIES PART# C10857001C WITH 2" STD. (2.38" O.D.) STEEL PIPE BRACE SECURED TO PROPOSED MOUNT AND EXISTING TOWER (OR APPROVED EQUAL) (TYP. OF 1 PER SECTOR, TOTAL OF 3)

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: FEBRUARY 13, 2019 (REV.1)



12' HD V-BOOM DETAIL
SCALE: N.T.S.



PROPOSED LTE ANTENNA, SURGE ARRESTOR & RRH MOUNTING DETAIL

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

0 0'-6" 1'-0" 2'-0" 3'-0"

RRU CHART

QUANTITY	MODEL	L	W	D
2(P)	B14 4478 (700)	18.1"	13.4"	8.3"
3(P)	B25/B66A 8843 (2100/1900)	14.9"	13.2"	10.9"
3(P)	B5/B12 4449 (700/850)	18.0"	13.2"	9.5"

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

SCALE: N.T.S.

ANTENNA SCHEDULE

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA CL HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	M
A1	EXISTING	UMTS 850	7770	55X11X5	±165'	30°	(2)(G) POWERWAVE LGP 13519 (2) POWERWAVE LGP 21401	--	--	(2) 1-5/8" (220'±)	(E) (1) RAYCAP DC6-48-60-18-8C
A2	--	--	--	--	--	--	--	--	--	--	
A3	PROPOSED	LTE 700 B14/PCS	HPA-65R-BU8AA	96X11.7X7.6	±165'	45°	(P)(1)(G) DBCT108F1V92-1	(P)(1)(G) B14 4478 (700) (P)(1) B25/B66A 8843 (2100/1900)	18.1X13.4X8.26 14.9X13.2X10.9	(2) 1-5/8" (220'±)	
A4	PROPOSED	LTE 700 BC/850/AWS	800-10966	96X20X6.9	±165'	45°	--	(P)(1) B5/B12 4449 (850/700)	18X13.2X9.5	--	
B1	EXISTING	UMTS 850	7770	55X11X5	±165'	150°	(2)(G) POWERWAVE LGP 13519 (2) POWERWAVE LGP 21401	--	--	(2) 1-5/8" (220'±)	(P) (1) RAYCAP DC6-48-60-18-8C
B2	--	--	--	--	--	--	--	--	--	--	
B3	PROPOSED	LTE 700 B14/PCS	HPA-65R-BU8AA	96X11.7X7.6	±165'	165°	(P)(1)(G) DBCT108F1V92-1	(P)(1)(G) B14 4478 (700) (P)(1) B25/B66A 8843 (2100/1900)	18.1X13.4X8.26 14.9X13.2X10.9	(2) 1-5/8" (220'±)	
B4	PROPOSED	LTE 700 BC/850/AWS	800-10966	96X20X6.9	±165'	165°	--	(P)(1) B5/B12 4449 (850/700)	18X13.2X9.5	--	
C1	EXISTING	UMTS 850	7770	55X11X5	±165'	270°	(2)(G) POWERWAVE LGP 13519 (2) POWERWAVE LGP 21401	--	--	(2) 1-5/8" (220'±)	SHARED
C2	--	--	--	--	--	--	--	--	--	--	
C3	PROPOSED	LTE 700 B14/PCS	HPA-65R-BU8AA	96X11.7X7.6	±165'	295°	(P)(1)(G) DBCT108F1V92-1	(P)(1) B25/B66A 8843 (2100/1900)	14.9X13.2X10.9	(2) 1-5/8" (220'±)	
C4	PROPOSED	LTE 700 BC/850/AWS	800-10966	96X20X6.9	±165'	295°	--	(P)(1) B5/B12 4449 (850/700)	18X13.2X9.5	--	

FINAL ANTENNA SCHEDULE

SCALE: N.T.S.

PROPOSED RACK

PROPOSED AT&T RRUS B14 4478 (700) (TOTAL OF 2) (ALPHA AND GAMMA SHARE)

PROPOSED P1000 HORIZONTAL UNISTRUT (TYP.)

PROPOSED 5/8" HILTI KWIK BOLT - T2 NEW RACK ONLY (TYP.)

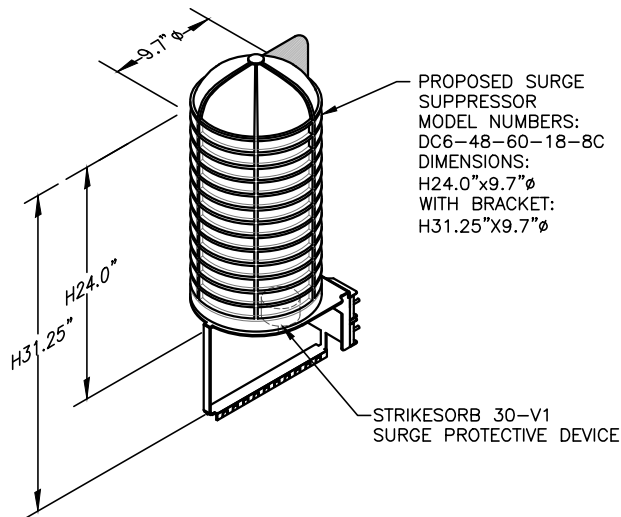
EXISTING EQUIPMENT ROOM

PROPOSED RRUS MOUNTING DETAIL ON NEW RACK

SCALE: N.T.S.

NOTE:

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



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

DC SURGE SUPPRESSOR DETAIL

SCALE: N.T.S.

HDG 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: CT2280
SITE NAME: VOLUNTOWN STONE HILL ROAD
SBA SITE #: CT10024

111 STONE HILL ROAD
VOLUNTOWN, CT 06384
NEW LONDON COUNTY

at&t

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
1	02/26/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
A	01/29/19	ISSUED FOR REVIEW	AM	AT	DJC

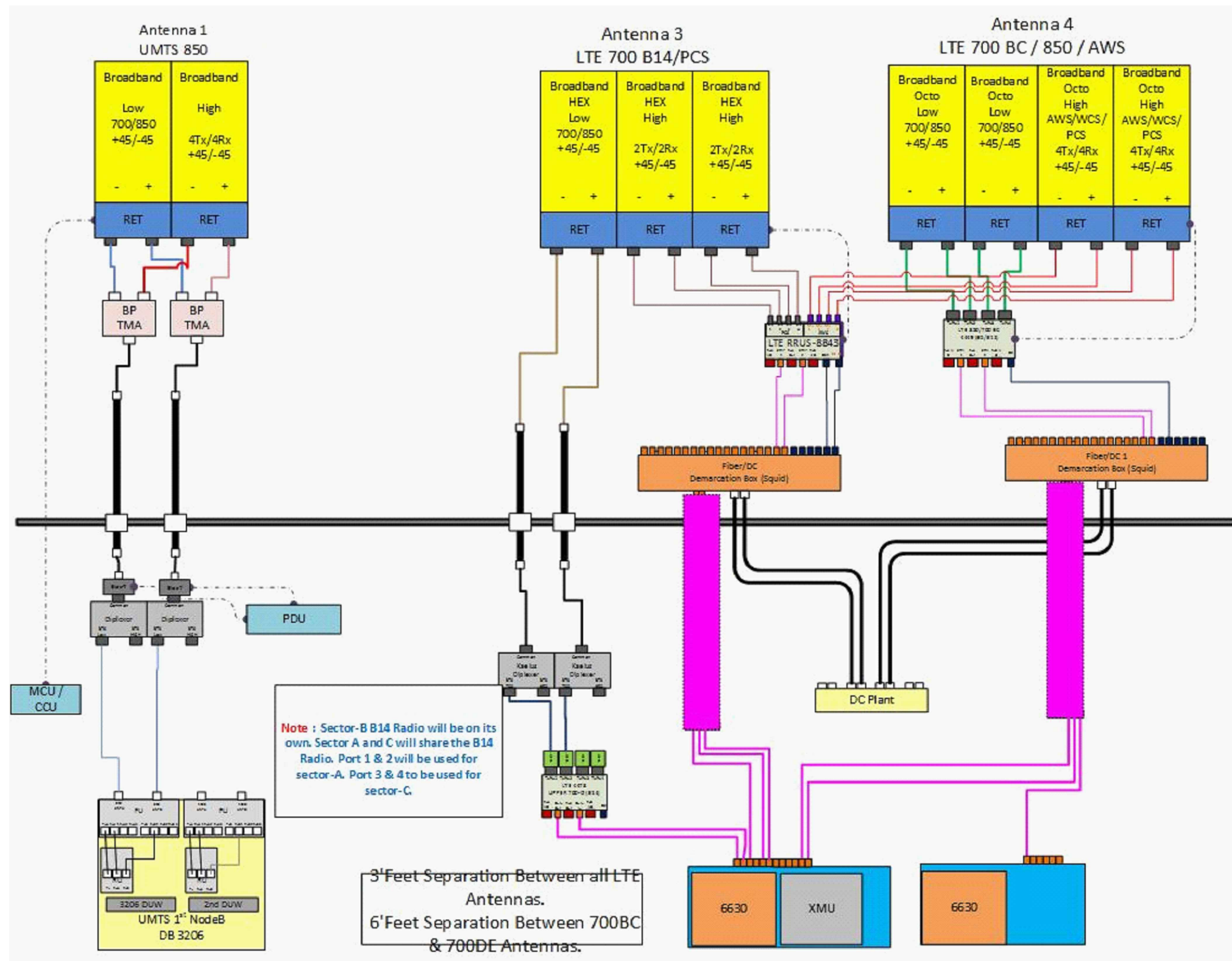
SCALE: AS SHOWN DESIGNED BY: AT DRAWN BY: AM

STATE OF CONNECTICUT
REGISTERED PROFESSIONAL ENGINEER
16,235
Paul J. Criss

AT&T

DETAILS
(LTE 2C_3C_4C_5C)

SITE NUMBER: CT2280 DRAWING NUMBER: A-3 REV: 1

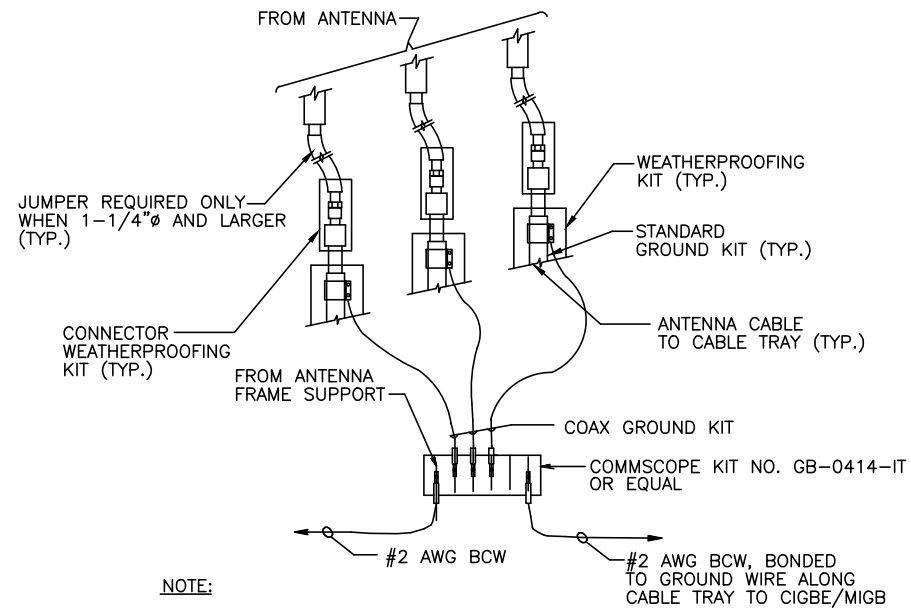


RF PLUMBING DIAGRAM
SCALE: N.T.S

1
RF-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.

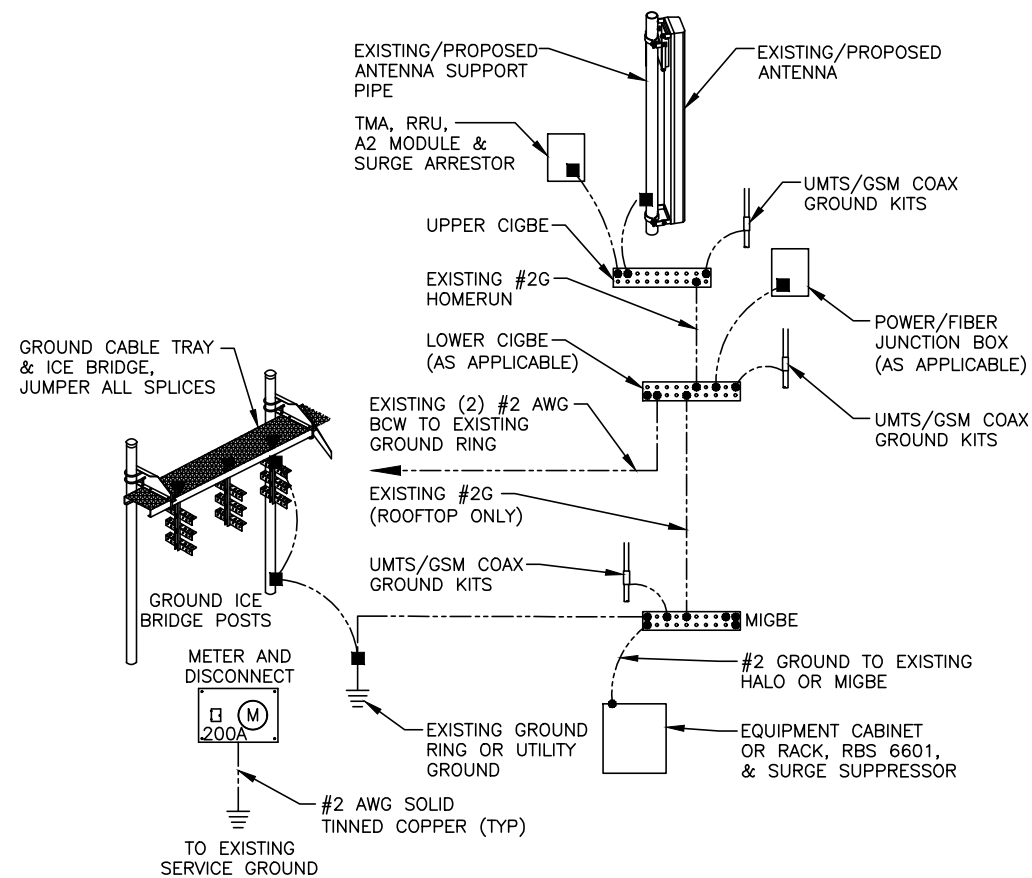


NOTE:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE.

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

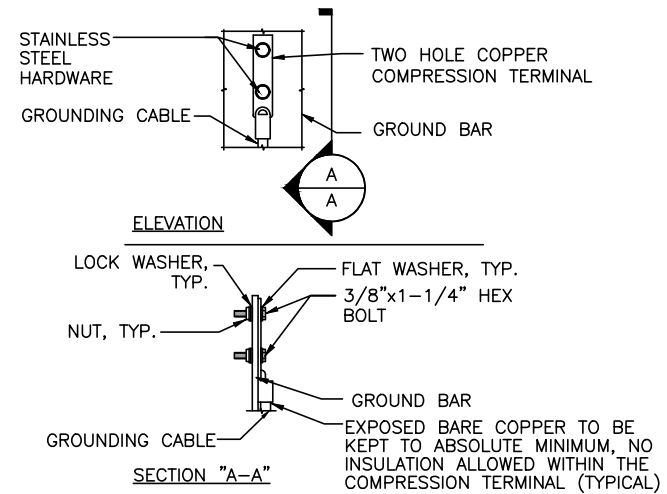
1
G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2
G-1



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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3
G-1

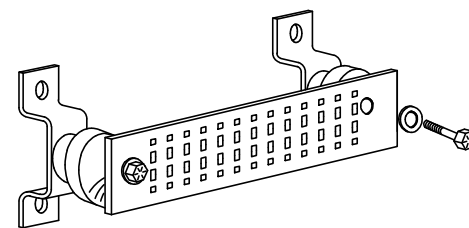
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

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

SECTION "A" - SURGE ABSORBERS

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



GROUND BAR - DETAIL

SCALE: N.T.S

4
G-1



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

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F + 561.995.7626

sbsite.com

Structural Analysis Report

Client: AT&T

Client Site ID / Name: CT2280 / VOLUNTOWN STONE HILL ROAD
ApplID : 106739, v1

SBA Site ID / Name: CT10024-A / Voluntown

180' Self Supporting Tower

111 Stone Hill Road
Voluntown, CT 06384
Lat: 41°36'23.08", Long: -71°51'4.08"

Project number: CT10024-ATT-031519

Analysis Results

Tower	82.1%	Pass
Foundation	69.8%	Pass

Change in tower stress due to mount modification / replacement	N/A
--	-----

Prepared by:

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Reviewed by:

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Director of Engineering
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March 20, 2019

Prepared in compliance with:

- ANSI/TIA-222-G Structural Standard for Antennas and Antenna Supporting Structures
- 2015 International Building Code (IBC)

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Executive Summary

The enclosed structural analysis was performed for AT&T to verify the structural capacity of the 180' Self Supporting Tower located at 111 Stone Hill Road, Voluntown, CT 06384 to support the proposed antenna, transmission lines and mounting equipment in addition to those currently installed. The following documents were used to determine the geotechnical characteristics, foundation data, tower geometry and member sizes/type:

Table 1 List of Documents Used

Item	Document
Tower design/drawings	Rohn Industries Inc , Job #: 42895AE002 , Dated: 4/24/2001
Foundation drawings	Rohn Industries Inc , Job #: 42895AE002 , Dated: 4/24/2001
Geotechnical report	Dr. Clarence Welti, P.E. , Project # N/A, Dated: 3/5/2001
Latest SA	Allpro , Project # 18-3608 , Dated: 5/25/2018

The analysis was performed in accordance with the following requirements:

Table 2 Code Related Data

Jurisdiction (State/County/City)	Connecticut / New London / Voluntown
Governing Codes	ANSI/TIA-222-G , 2015 IBC
Base Wind Speed	105 mph (Ultimate Wind Speed: 136 mph 3-sec gust)
Wind Speed with Ice	50 mph
Ice Thickness	0.75 in
Structural Class	II
Exposure Category	C
Topographic Category	1
Crest Height	0 ft

"This structural analysis is based upon the tower being classified as a 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."

The SBA Communications Corporation verifies that the 180' Self Supporting Tower located at 111 Stone Hill Road, Voluntown, CT 06384 is **sufficient** to support the proposed loadings for AT&T in addition to those currently existing based on standards set forth in governing building codes and dependent on AT&T satisfying all Installation Requirements provided herein. The analysis performed assumes the site information provided is accurate and the tower/foundation has been properly designed, manufactured, installed and maintained. Additional details regarding the assumptions and limitations are provided within the Assumptions and Limitations section of this report.

Assumptions

This analysis was completed based on the following assumptions:

- Tower has been properly maintained
- Tower erection was in accordance to manufacturer drawings
- Leg flanges have been properly designed by manufacturer to not be a limiting reaction
- Welds have been properly designed and installed by manufacturer to not be a limiting reaction
- Foundation was constructed in accordance to manufacturer drawings
- Foundation does not have structural damage
- Bolts have been properly tightened according to manufacturer specifications
- Appurtenance, mount and transmission line sizes and weights are best estimates using the tnxTower database and manufacturer information

Limitations

The computer generated analysis performed by the tnxTower software is limited to theoretical capacities of the towers structural members and does not account for any missing or damaged members or connections. The tower and foundation are assumed to have been properly designed, fabricated, installed and maintained, barring any conflicting findings from the most recent inspection. All leg flanges, welds and bolts are assumed to be designed by the manufacturer in such a way that these are not limiting reactions.

SBA Communications Corporation has used its due diligence to verify the information provided to perform this analysis. It is unreasonable to perform a more detailed inspection of a tower and its components. This report is not a condition assessment of the tower or foundation.

Installation Requirements

This analysis was performed under the assumption that AT&T will place the proposed equipment and feed lines at a height of 165' and in accordance with the coax layout shown. RRUs are to be installed on existing mounts behind tenant's antennas unless otherwise noted. No equipment is to be installed directly in the climbing path. All equipment is to be installed per mount manufacturer specifications. In case site conditions do not allow for the required installation parameters to be met AT&T must notify SBA Communications Corporation engineers for approval of an alternative placement.

Appurtenance Loading

Existing Loading:

The existing antenna and feed line information was obtained from the Site Summary and/or previous Structural Analysis. SBA Communications Corporation uses due diligence to ensure reasonably accurate information has been recorded. The existing loadings are shown in Table 3.

Table 3 Existing Appurtenances

Mount Elev. (ft)	CL Elev. (ft)	Carrier	Type	Qty	Manufacturer	Model	Qty	Feed Line Size	Mount Type Qty
175	175	Sprint Nextel	Panel	3	RFS	APXVTM14-C-I20	4	1-1/4" Fiber	(3) Sector Frames
			Panel	3	Commscope	NNVV-65B-R4			
			RRU	3	ALU	1900 Mhz RRU			
			RRU	6	ALU	800 Mhz RRU			
			RRU	3	ALU	TD-RRH8x20-25 RRU			
165	165	AT&T	Panel	9	Powerwave	7770	12 2 1	1-5/8" 3/4" DC 1/2" Fiber	(3) Sector Frames
			Panel	3	Powerwave	P65-17-XLH-RR			
			TMA	6	Powerwave	21401 TMA			
			Diplexer	6	Powerwave	LGP21903 Diplexer			
			RRU	6	Ericsson	RRUS-11			
			Other	1	Raycap	DC6-48-60-18-8F			
153	153	Verizon	Panel	3	Antel	BXA-70063-6CF-EDIN-4	10 2	1-5/8" 1-5/8" Hybrid	(3) Sector Frames
			Panel	6	Commscope	JAHH-65B-R3B			
			RRH	3	Alcatel Lucent	RRH 2X90 AWS			
			RRH	3	Alcatel Lucent	RRH 2X60 700			
			RRH	3	Nokia	RRH 4X40 850			
			Other	2	RFS	DB-T1-6Z-8AB-0Z			

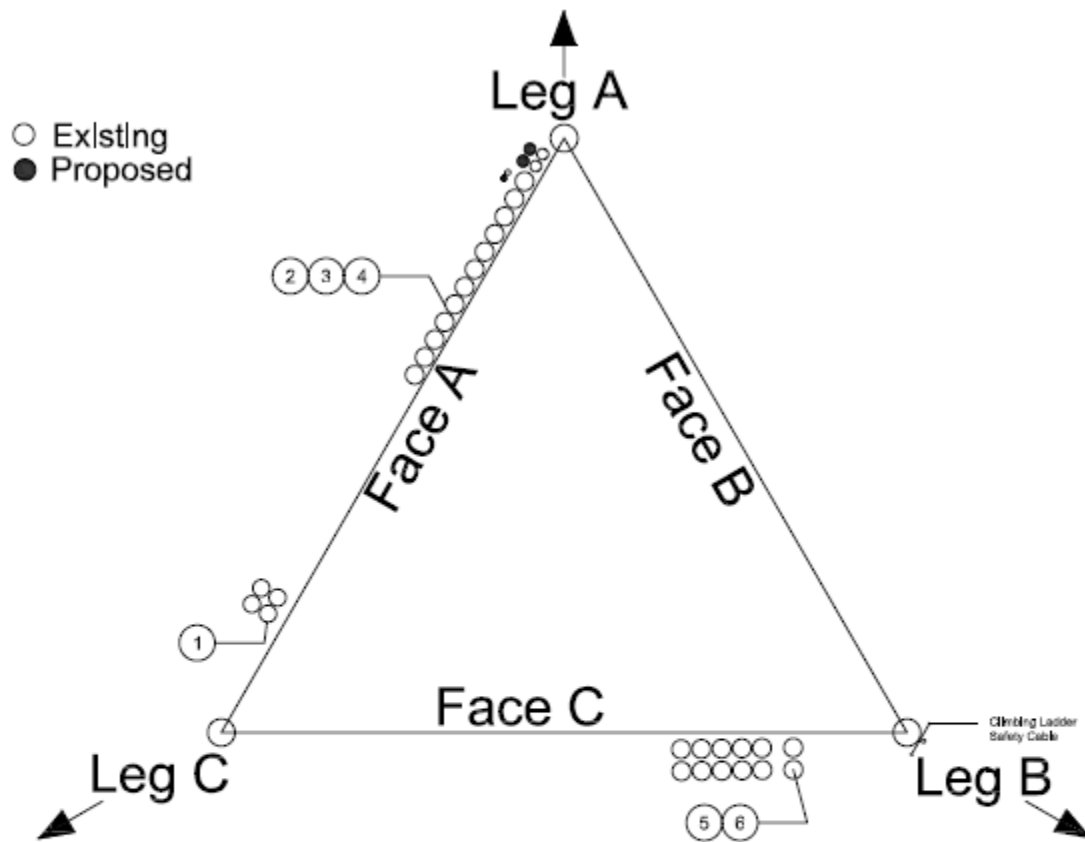
Proposed Loading:

Information pertaining to proposed antennas and transmission lines were based upon the APP ID 106739, v1 from AT&T and is listed in Table 4.

Table 4 Proposed Appurtenances

Mount Elev. (ft)	CL Elev. (ft)	Carrier	Type	Qty	Manufacturer	Model	Qty	Feed Line Size	Mount Type Qty
165	165	AT&T	Panel	3	Powerwave	7770	12 4 2	1-5/8" 3/4" DC 1/2" Fiber	(3) Sector Mounts [Sabre C10857001C]
			Panel	3	CCI	HPA-65R-BU8AA			
			TMA	6	Powerwave	21401			
			Diplexer	3	Powerwave	LGP21903			
			RRU	3	Ericsson	RRUS 8843 B2 B66A			
			Other	1	Raycap	DC6-48-60-18-8F			
			Panel	3	Kathrein Scala	800 10966			
			Diplexer	3	Kaelus	DBCT108F1V92-1			
			RRU	3	Ericsson	4449 B5/B12			
			Other	1	Raycap	DC6-48-60-18-8C			

Coax Layout



CT10024-A					
#	CARRIER	SIZE	QTY.	ELEVATION	NOTES
1	Sprint Nextel	1-1/4"	4	175'	Fiber
2	AT&T	1-5/8"	12	165'	
3	AT&T	3/4"	4	165'	DC Power [2 Proposed]
4	AT&T	1/2"	2	165'	Fiber [1 Proposed]
5	Verizon	1-5/8"	10	153'	
6	Verizon	1-5/8"	2	153'	Hybrid

Results

Tower

The results of the structural analysis performed with the tnxTower software are shown below. Table 5 shows the most critical member elements and the percentage of the force in the member with respect to the member capacity. Capacities of up to 105% are considered acceptable. The foundation reactions obtained from tnxTower are shown in Table 6 and Table 7. These reactions are used for the analysis of the foundation systems. Additional information for the tower analysis is provided within the Appendix.

Table 5 Tower Analysis Summary

Structural Component	% capacity	Analysis Result
Leg	75.2	Pass
Diagonal	82.1	Pass
Top girt	9.5	Pass
Anchor Bolt	70.8	Pass
Bolt	82.1	Pass
Tower	82.1	Pass

Table 6 Tower Base Reactions

Axial (kips)	51
Shear (kips)	59
Moment (kip-ft)	6186

Table 7 Tower leg Reactions

Uplift (kips)	312
Compression (kips)	355
Shear (kips)	37

Foundation System

The results of the foundation based on the geotechnical report and foundation mapping or design drawings are shown below in Table 8. Additional information for the foundation analysis is provided within the Appendix.

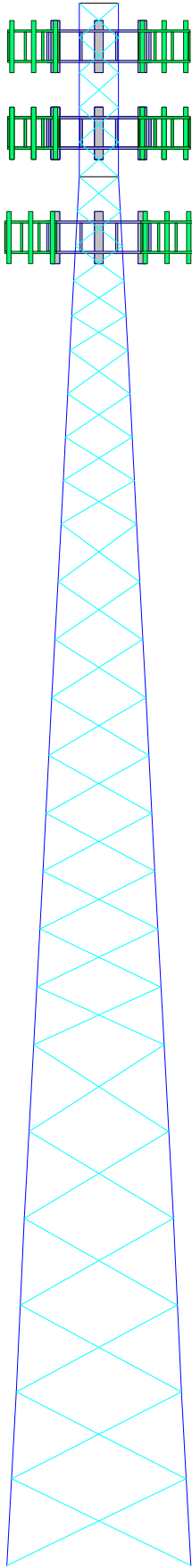
Table 8 Foundation Analysis Summary

Structural Component	% capacity	Analysis Result
Foundation	69.8	Pass

Appendix

Section	T9	T8	T7	T6	T5	T4	T3	T2	T1
Legs	ROHN 8 EH	ROHN 8 EH	ROHN 8 EHS	ROHN 6 EH	ROHN 6 EHS	ROHN 5 EH	ROHN 4 EH	ROHN 3 EH	ROHN 2.5 STD
Leg Grade					A572-50				
Diagonals	L4x4x1/4		L3 1/2x3 1/2x1/4	L3x3x1/4		L2 1/2x2 1/2x1/4		L2x2x1/4	
Diagonal Grade				N.A.					
Top Girts									L2x2x1/4
Face Width (ft)	21.12	19.04	17.08	14.92	12.91	10.78	8.68	6.63	4.58
# Panels @ (ft)		6 @ 10				9 @ 6.6667		4 @ 5	10 @ 4
Weight (K)	24.5	4.6	4.5	3.2	2.6	2.2	1.7	1.4	1.0

180.0 ft
160.0 ft
140.0 ft
120.0 ft
100.0 ft
80.0 ft
60.0 ft
40.0 ft
20.0 ft
0.0 ft



ALL REACTIONS
ARE FACTORED

MAX. CORNER REACTIONS AT BASE:
DOWN: 355 K
SHEAR: 37 K

UPLIFT: -312 K
SHEAR: 33 K

AXIAL
124 K
SHEAR
14 K
MOMENT
1498 kip-ft
TORQUE 5 kip-ft
50 mph WIND - 0.750 in ICE

AXIAL
51 K
SHEAR
59 K
MOMENT
6186 kip-ft
TORQUE 30 kip-ft
REACTIONS - 105 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVTM14-C-120 (Sprint Nextel)	175	DBCT108F1V92-1 (10.7x6.8x3.5) (ATI)	165
APXVTM14-C-120 (Sprint Nextel)	175	DBCT108F1V92-1 (10.7x6.8x3.5) (ATI)	165
APXVTM14-C-120 (Sprint Nextel)	175	RRUS 8843 B2 B66A (14.9x13.2x10.9) (ATI)	165
NNVV-65B-R4 Antenna (Sprint Nextel)	175	RRUS 8843 B2 B66A (14.9x13.2x10.9) (ATI)	165
NNVV-65B-R4 Antenna (Sprint Nextel)	175	RRUS 8843 B2 B66A (14.9x13.2x10.9) (ATI)	165
NNVV-65B-R4 Antenna (Sprint Nextel)	175	4449 B5/B12 (17.9x13.19x9.44) (ATI)	165
1900 MHz RRH (Sprint Nextel)	175	4449 B5/B12 (17.9x13.19x9.44) (ATI)	165
1900 MHz RRH (Sprint Nextel)	175	4449 B5/B12 (17.9x13.19x9.44) (ATI)	165
1900 MHz RRH (Sprint Nextel)	175	DC6-48-60-18-8F (24x11x18.5) (ATI)	165
(2) 800 MHz RRH (Sprint Nextel)	175	DC6-48-60-18-8C (23.5x9.7x9.7) (ATI)	165
(2) 800 MHz RRH (Sprint Nextel)	175	Sector Mounts (Sabre C10857001C) (ATI)	165
(2) 800 MHz RRH (Sprint Nextel)	175	Sector Mounts (Sabre C10857001C) (ATI)	165
TD-RRH8x20-25 (Sprint Nextel)	175	Sector Mounts (Sabre C10857001C) (ATI)	165
TD-RRH8x20-25 (Sprint Nextel)	175	Antel BXA-70063-6CF-EDIN-4 (Verizon)	153
TD-RRH8x20-25 (Sprint Nextel)	175	Antel BXA-70063-6CF-EDIN-4 (Verizon)	153
(3) Sector Frames (Sprint Nextel)	175	Antel BXA-70063-6CF-EDIN-4 (Verizon)	153
7770 w/mount pipe (ATI)	165	(2) Commscope JAHH-65B-R3B (Verizon)	153
7770 w/mount pipe (ATI)	165	(2) Commscope JAHH-65B-R3B (Verizon)	153
7770 w/mount pipe (ATI)	165	(2) Commscope JAHH-65B-R3B (Verizon)	153
HPA-65R-BU8AA w/mount pipe (ATI)	165	ALU RRH 2X90 AWS (Verizon)	153
HPA-65R-BU8AA w/mount pipe (ATI)	165	ALU RRH 2X90 AWS (Verizon)	153
HPA-65R-BU8AA w/mount pipe (ATI)	165	ALU RRH 2X90 AWS (Verizon)	153
800 10966 w/mount pipe (ATI)	165	ALU RRH 2X60 700 (Verizon)	153
800 10966 w/mount pipe (ATI)	165	ALU RRH 2X60 700 (Verizon)	153
800 10966 w/mount pipe (ATI)	165	ALU RRH 2X60 700 (Verizon)	153
(2) 21401 TMA (14x9x2.7) (ATI)	165	Nokia RRH 4X40 850 (Verizon)	153
(2) 21401 TMA (14x9x2.7) (ATI)	165	Nokia RRH 4X40 850 (Verizon)	153
(2) 21401 TMA (14x9x2.7) (ATI)	165	Nokia RRH 4X40 850 (Verizon)	153
LGP21903 (6.3x4.4x3) (ATI)	165	DB-T1-6Z-8AB-0Z (Verizon)	153
LGP21903 (6.3x4.4x3) (ATI)	165	DB-T1-6Z-8AB-0Z (Verizon)	153
LGP21903 (6.3x4.4x3) (ATI)	165	(3) Sector Frames (Verizon)	153
DBCT108F1V92-1 (10.7x6.8x3.5) (ATI)	165		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-50	50 ksi	65 ksi	A36	36 ksi	58 ksi

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 105 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 82.1%

SBA Communications Corporation

8051 Congress Avenue
Boca Raton, FL 33487
Phone:
FAX:

Job: CT10024-A, Voluntown

Project: CT10024-ATT-031519	Drawn by: AHagos	App'd:
Client: AT&T (Application #: 106739, v1)	Date: 03/20/19	Scale: NTS
Code: TIA-222-G	Path:	Dwg No. E-1

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	Client AT&T (Application #: 106739, v1)	Designed by AHagos

Tower Input Data

The main tower is a 3x free standing tower with an overall height of 180.000 ft above the ground line.

The base of the tower is set at an elevation of 0.000 ft above the ground line.

The face width of the tower is 4.580 ft at the top and 21.120 ft at the base.

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

The following design criteria apply:

Tower is located in New London County, Connecticut.

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

Basic wind speed of 105 mph.

Structure Class II.

Exposure Category C.

Topographic Category 1.

Crest Height 0.000 ft.

Nominal ice thickness of 0.750 in.

Ice thickness is considered to increase with height.

Ice density of 56.000 pcf.

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

Temperature drop of 50.000 °F.

Deflections calculated using a wind speed of 60 mph.

Pressures are calculated at each section.

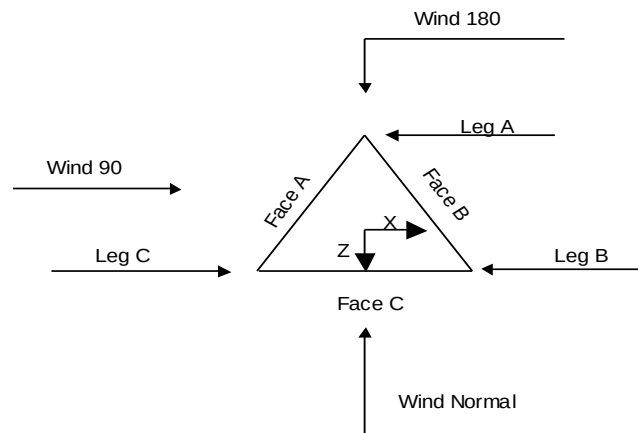
Stress ratio used in tower member design is 1.

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

Options

Consider Moments - Legs	Distribute Leg Loads As Uniform	Use ASCE 10 X-Brace Ly Rules
Consider Moments - Horizontals	Assume Legs Pinned	Calculate Redundant Bracing Forces
Consider Moments - Diagonals	√ Assume Rigid Index Plate	Ignore Redundant Members in FEA
Use Moment Magnification	√ Use Clear Spans For Wind Area	SR Leg Bolts Resist Compression
√ Use Code Stress Ratios	√ Use Clear Spans For KL/r	All Leg Panels Have Same Allowable
√ Use Code Safety Factors - Guys	√ Retension Guys To Initial Tension	Offset Girt At Foundation
Escalate Ice	√ Bypass Mast Stability Checks	√ Consider Feed Line Torque
Always Use Max Kz	√ Use Azimuth Dish Coefficients	√ Include Angle Block Shear Check
Use Special Wind Profile	√ Project Wind Area of Appurt.	Use TIA-222-G Bracing Resist. Exemption
√ Include Bolts In Member Capacity	√ Autocalc Torque Arm Areas	Use TIA-222-G Tension Splice Exemption
Leg Bolts Are At Top Of Section	Add IBC .6D+W Combination	Poles
Secondary Horizontal Braces Leg	Sort Capacity Reports By Component	Include Shear-Torsion Interaction
Use Diamond Inner Bracing (4 Sided)	Triangulate Diamond Inner Bracing	Always Use Sub-Critical Flow
SR Members Have Cut Ends	Treat Feed Line Bundles As Cylinder	Use Top Mounted Sockets
SR Members Are Concentric	Ignore KL/ry For 60 Deg. Angle Legs	Pole Without Linear Attachments
		Pole With Shroud Or No Appurtenances
		Outside and Inside Corner Radii Are
		Known

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Triangular Tower

Tower Section Geometry

Tower Section	Tower Elevation	Assembly Database	Description	Section Width	Number of Sections	Section Length
	ft			ft		ft
T1	180.000-160.000			4.580	1	20.000
T2	160.000-140.000			4.580	1	20.000
T3	140.000-120.000			6.630	1	20.000
T4	120.000-100.000			8.680	1	20.000
T5	100.000-80.000			10.780	1	20.000
T6	80.000-60.000			12.910	1	20.000
T7	60.000-40.000			14.920	1	20.000
T8	40.000-20.000			17.090	1	20.000
T9	20.000-0.000			19.040	1	20.000

Tower Section Geometry (cont'd)

Tower Section	Tower Elevation	Diagonal Spacing	Bracing Type	Has K Brace End Panels	Has Horizontals	Top Girt Offset	Bottom Girt Offset
	ft	ft				in	in
T1	180.000-160.000	4.000	X Brace	No	No	0.000	0.000
T2	160.000-140.000	4.000	X Brace	No	No	0.000	0.000

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<i>Tower Section</i>	<i>Tower Elevation</i>	<i>Diagonal Spacing</i>	<i>Bracing Type</i>	<i>Has K Brace End Panels</i>	<i>Has Horizontals</i>	<i>Top Girt Offset</i>	<i>Bottom Girt Offset</i>
	<i>ft</i>	<i>ft</i>				<i>in</i>	<i>in</i>
T3	140.000-120.000	5.000	X Brace	No	No	0.000	0.000
T4	120.000-100.000	6.667	X Brace	No	No	0.000	0.000
T5	100.000-80.000	6.667	X Brace	No	No	0.000	0.000
T6	80.000-60.000	6.667	X Brace	No	No	0.000	0.000
T7	60.000-40.000	10.000	X Brace	No	No	0.000	0.000
T8	40.000-20.000	10.000	X Brace	No	No	0.000	0.000
T9	20.000-0.000	10.000	X Brace	No	No	0.000	0.000

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Leg Type</i>	<i>Leg Size</i>	<i>Leg Grade</i>	<i>Diagonal Type</i>	<i>Diagonal Size</i>	<i>Diagonal Grade</i>
<i>ft</i>						
T1 180.000-160.000	Pipe	ROHN 2.5 STD	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T2 160.000-140.000	Pipe	ROHN 3 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T3 140.000-120.000	Pipe	ROHN 4 EH	A572-50 (50 ksi)	Equal Angle	L2x2x1/4	A36 (36 ksi)
T4 120.000-100.000	Pipe	ROHN 5 EH	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T5 100.000-80.000	Pipe	ROHN 6 EHS	A572-50 (50 ksi)	Equal Angle	L2 1/2x2 1/2x1/4	A36 (36 ksi)
T6 80.000-60.000	Pipe	ROHN 6 EH	A572-50 (50 ksi)	Equal Angle	L3x3x1/4	A36 (36 ksi)
T7 60.000-40.000	Pipe	ROHN 8 EHS	A572-50 (50 ksi)	Equal Angle	L3 1/2x3 1/2x1/4	A36 (36 ksi)
T8 40.000-20.000	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)
T9 20.000-0.000	Pipe	ROHN 8 EH	A572-50 (50 ksi)	Equal Angle	L4x4x1/4	A36 (36 ksi)

Tower Section Geometry (cont'd)

<i>Tower Elevation</i>	<i>Top Girt Type</i>	<i>Top Girt Size</i>	<i>Top Girt Grade</i>	<i>Bottom Girt Type</i>	<i>Bottom Girt Size</i>	<i>Bottom Girt Grade</i>
<i>ft</i>						
T1 180.000-160.000	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)
T2 160.000-140.000	Equal Angle	L2x2x1/4	A36 (36 ksi)	Solid Round		A36 (36 ksi)

Tower Section Geometry (cont'd)

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Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
ft	ft ²	in							
T1 180.000-160.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T2 160.000-140.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T3 140.000-120.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T4 120.000-100.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T5 100.000-80.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T6 80.000-60.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T7 60.000-40.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T8 40.000-20.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000
T9 20.000-0.000	0.000	0.000	A36 (36 ksi)	1	1	1.05	36.000	36.000	36.000

Tower Section Geometry (cont'd)

Tower Elevation	Calc K Single Angles	Calc K Solid Rounds	K Factors ¹							
			Legs	X Brace Diags	K Brace Diags	Single Diags	Girts	Horiz.	Sec. Horiz.	Inner Brace
				X Y	X Y	X Y	X Y	X Y	X Y	X Y
T1 180.000-160.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T2 160.000-140.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T3 140.000-120.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T4 120.000-100.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T5 100.000-80.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T6 80.000-60.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T7 60.000-40.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T8 40.000-20.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1
T9 20.000-0.000	Yes	Yes	1	1 1	1 1	1 1	1 1	1 1	1 1	1 1

¹Note: K factors are applied to member segment lengths. K-braces without inner supporting members will have the K factor in the out-of-plane direction applied to the overall length.

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Tower Section Geometry (cont'd)

Tower Elevation ft	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U	Net Width Deduct in	U
T1 180.000-160.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T2 160.000-140.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T3 140.000-120.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T4 120.000-100.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T5 100.000-80.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T6 80.000-60.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T7 60.000-40.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T8 40.000-20.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75
T9 20.000-0.000	0.000	1	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75	0.000	0.75

Tower Section Geometry (cont'd)

Tower Elevation ft	Leg Connection Type	Leg		Diagonal		Top Girt		Bottom Girt		Mid Girt		Long Horizontal		Short Horizontal	
		Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.	Bolt Size in	No.
T1 180.000-160.000	Flange	0.750	4	0.625	1	0.625	1	0.625	0	0.625	0	0.625	0	0.625	0
T2 160.000-140.000	Flange	0.875	4	0.625	1	0.625	1	0.000	0	0.625	0	0.625	0	0.625	0
T3 140.000-120.000	Flange	1.000	4	0.625	1	0.625	0	0.000	0	0.625	0	0.625	0	0.625	0
T4 120.000-100.000	Flange	1.000	6	0.625	1	0.625	0	0.000	0	0.625	0	0.625	0	0.625	0
T5 100.000-80.000	Flange	1.000	6	0.625	1	0.625	0	0.000	0	0.625	0	0.625	0	0.625	0
T6 80.000-60.000	Flange	1.000	8	0.750	1	0.625	0	0.625	0	0.625	0	0.625	0	0.625	0
T7 60.000-40.000	Flange	1.000	8	0.750	1	0.625	0	0.625	0	0.625	0	0.625	0	0.625	0
T8 40.000-20.000	Flange	1.000	8	0.750	1	0.625	0	0.625	0	0.625	0	0.625	0	0.625	0
T9 20.000-0.000	Flange	1.250	0	0.750	1	0.625	0	0.625	0	0.625	0	0.625	0	0.625	0

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Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	# Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf

Safety Line 3/8 (Other)	C	No	No	Ar (CaAa)	180.000 - 0.000	0.000	-0.5	1	1	0.500	0.375		0.000

1 1/4 (Sprint Nextel)	A	No	No	Ar (CaAa)	175.000 - 7.000	0.000	-0.4	4	2	0.500	1.550		0.001
Feedline Ladder (Af) 1.5" (Sprint Nextel)	A	No	No	Af (CaAa)	175.000 - 0.000	0.000	-0.4	1	1	0.500	2.500		0.006

Feedline Ladder (Af) (AT&T) 1-5/8"	A	No	No	Af (CaAa)	165.000 - 0.000	0.000	0.25	1	1	0.500	3.000		0.008
(AT&T) 3/4" DC Power (AT&T) 1/2 (AT&T)	A	No	No	Ar (CaAa)	165.000 - 7.000	0.000	0.25	12	12	0.500	1.980		0.001
	A	No	No	Ar (CaAa)	165.000 - 7.000	0.000	0.35	4	2	0.500	0.865		0.000
	A	No	No	Ar (CaAa)	165.000 - 7.000	2.000	0.25	2	2	0.500	0.580		0.000

1 5/8" (Verizon)	C	No	No	Ar (CaAa)	153.000 - 7.000	0.000	-0.2	10	5	0.500	1.980		0.001
1 5/8" Hybrid (Verizon)	C	No	No	Ar (CaAa)	153.000 - 7.000	0.000	-0.05	2	1	0.500	1.980		0.001
Feedline Ladder (Af) 1.5" (Verizon)	C	No	No	Af (CaAa)	153.000 - 0.000	0.000	-0.2	1	1	0.500	1.500		0.004

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	CAAA ft ² /ft	Weight klf

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Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	180.000-160.000	A	0.000	0.000	32.240	0.000	0.220
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.750	0.000	0.004
T2	160.000-140.000	A	0.000	0.000	87.493	0.000	0.552
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	34.888	0.000	0.221
T3	140.000-120.000	A	0.000	0.000	87.493	0.000	0.552
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	53.270	0.000	0.338
T4	120.000-100.000	A	0.000	0.000	87.493	0.000	0.552
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	53.270	0.000	0.338
T5	100.000-80.000	A	0.000	0.000	87.493	0.000	0.552
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	53.270	0.000	0.338
T6	80.000-60.000	A	0.000	0.000	87.493	0.000	0.552
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	53.270	0.000	0.338
T7	60.000-40.000	A	0.000	0.000	87.493	0.000	0.552
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	53.270	0.000	0.338
T8	40.000-20.000	A	0.000	0.000	87.493	0.000	0.552
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	53.270	0.000	0.338
T9	20.000-0.000	A	0.000	0.000	63.287	0.000	0.457
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	36.638	0.000	0.251

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T1	180.000-160.000	A	1.767	0.000	0.000	64.758	0.000	0.983
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	7.819	0.000	0.097
T2	160.000-140.000	A	1.745	0.000	0.000	177.010	0.000	2.650
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	59.350	0.000	1.060
T3	140.000-120.000	A	1.720	0.000	0.000	176.145	0.000	2.617
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	86.607	0.000	1.559
T4	120.000-100.000	A	1.692	0.000	0.000	175.150	0.000	2.579
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	85.989	0.000	1.535
T5	100.000-80.000	A	1.658	0.000	0.000	173.976	0.000	2.534
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	85.261	0.000	1.508
T6	80.000-60.000	A	1.617	0.000	0.000	172.540	0.000	2.480
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	84.369	0.000	1.474

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Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
T7	60.000-40.000	A	1.564	0.000	0.000	170.674	0.000	2.410
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	83.210	0.000	1.432
T8	40.000-20.000	A	1.486	0.000	0.000	167.959	0.000	2.310
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	81.524	0.000	1.371
T9	20.000-0.000	A	1.331	0.000	0.000	115.818	0.000	1.574
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	56.557	0.000	0.906

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
T1	180.000-160.000	-3.063	-2.339	-2.542	-1.010
T2	160.000-140.000	-2.173	-6.506	-2.619	-4.531
T3	140.000-120.000	-1.360	-6.936	-2.206	-4.469
T4	120.000-100.000	-1.507	-8.162	-2.528	-5.416
T5	100.000-80.000	-1.654	-9.344	-2.773	-6.216
T6	80.000-60.000	-1.668	-9.829	-2.915	-6.843
T7	60.000-40.000	-1.824	-10.909	-3.207	-7.797
T8	40.000-20.000	-1.839	-11.306	-3.279	-8.409
T9	20.000-0.000	-1.624	-8.789	-2.498	-6.208

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T1	2	Safety Line 3/8	160.00 - 180.00	0.6000	0.5117
T1	4	1 1/4	160.00 - 175.00	0.6000	0.5117
T1	5	Feedline Ladder (Af) 1.5"	160.00 - 175.00	0.6000	0.5117
T1	7	Feedline Ladder (Af)	160.00 - 165.00	0.6000	0.5117
T1	8	1-5/8"	160.00 - 165.00	0.6000	0.5117
T1	9	3/4" DC Power	160.00 - 165.00	0.6000	0.5117
T1	10	1/2	160.00 - 165.00	0.6000	0.5117
T2	2	Safety Line 3/8	140.00 - 160.00	0.6000	0.5535
T2	4	1 1/4	140.00 - 160.00	0.6000	0.5535

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<i>Tower Section</i>	<i>Feed Line Record No.</i>	<i>Description</i>	<i>Feed Line Segment Elev.</i>	<i>K_a No Ice</i>	<i>K_a Ice</i>
T2	5	Feedline Ladder (Af) 1.5"	140.00 - 160.00	0.6000	0.5535
T2	7	Feedline Ladder (Af)	140.00 - 160.00	0.6000	0.5535
T2	8	1-5/8"	140.00 - 160.00	0.6000	0.5535
T2	9	3/4" DC Power	140.00 - 160.00	0.6000	0.5535
T2	10	1/2	140.00 - 160.00	0.6000	0.5535
T2	12	1 5/8"	140.00 - 153.00	0.6000	0.5535
T2	13	1 5/8" Hybrid	140.00 - 153.00	0.6000	0.5535
T2	14	Feedline Ladder (Af) 1.5"	140.00 - 153.00	0.6000	0.5535
T3	2	Safety Line 3/8	120.00 - 140.00	0.6000	0.6000
T3	4	1 1/4	120.00 - 140.00	0.6000	0.6000
T3	5	Feedline Ladder (Af) 1.5"	120.00 - 140.00	0.6000	0.6000
T3	7	Feedline Ladder (Af)	120.00 - 140.00	0.6000	0.6000
T3	8	1-5/8"	120.00 - 140.00	0.6000	0.6000
T3	9	3/4" DC Power	120.00 - 140.00	0.6000	0.6000
T3	10	1/2	120.00 - 140.00	0.6000	0.6000
T3	12	1 5/8"	120.00 - 140.00	0.6000	0.6000
T3	13	1 5/8" Hybrid	120.00 - 140.00	0.6000	0.6000
T3	14	Feedline Ladder (Af) 1.5"	120.00 - 140.00	0.6000	0.6000
T4	2	Safety Line 3/8	100.00 - 120.00	0.6000	0.6000
T4	4	1 1/4	100.00 - 120.00	0.6000	0.6000
T4	5	Feedline Ladder (Af) 1.5"	100.00 - 120.00	0.6000	0.6000
T4	7	Feedline Ladder (Af)	100.00 - 120.00	0.6000	0.6000
T4	8	1-5/8"	100.00 - 120.00	0.6000	0.6000
T4	9	3/4" DC Power	100.00 - 120.00	0.6000	0.6000
T4	10	1/2	100.00 - 120.00	0.6000	0.6000
T4	12	1 5/8"	100.00 - 120.00	0.6000	0.6000
T4	13	1 5/8" Hybrid	100.00 - 120.00	0.6000	0.6000
T4	14	Feedline Ladder (Af) 1.5"	100.00 - 120.00	0.6000	0.6000
T5	2	Safety Line 3/8	80.00 - 100.00	0.6000	0.6000
T5	4	1 1/4	80.00 - 100.00	0.6000	0.6000

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Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K _a No Ice	K _a Ice
T5	5	Feedline Ladder (Af) 1.5"	80.00 - 100.00	0.6000	0.6000
T5	7	Feedline Ladder (Af)	80.00 - 100.00	0.6000	0.6000
T5	8	1-5/8"	80.00 - 100.00	0.6000	0.6000
T5	9	3/4" DC Power	80.00 - 100.00	0.6000	0.6000
T5	10	1/2	80.00 - 100.00	0.6000	0.6000
T5	12	1 5/8"	80.00 - 100.00	0.6000	0.6000
T5	13	1 5/8" Hybrid	80.00 - 100.00	0.6000	0.6000
T5	14	Feedline Ladder (Af) 1.5"	80.00 - 100.00	0.6000	0.6000
T6	2	Safety Line 3/8	60.00 - 80.00	0.6000	0.6000
T6	4	1 1/4	60.00 - 80.00	0.6000	0.6000
T6	5	Feedline Ladder (Af) 1.5"	60.00 - 80.00	0.6000	0.6000
T6	7	Feedline Ladder (Af)	60.00 - 80.00	0.6000	0.6000
T6	8	1-5/8"	60.00 - 80.00	0.6000	0.6000
T6	9	3/4" DC Power	60.00 - 80.00	0.6000	0.6000
T6	10	1/2	60.00 - 80.00	0.6000	0.6000
T6	12	1 5/8"	60.00 - 80.00	0.6000	0.6000
T6	13	1 5/8" Hybrid	60.00 - 80.00	0.6000	0.6000
T6	14	Feedline Ladder (Af) 1.5"	60.00 - 80.00	0.6000	0.6000
T7	2	Safety Line 3/8	40.00 - 60.00	0.6000	0.6000
T7	4	1 1/4	40.00 - 60.00	0.6000	0.6000
T7	5	Feedline Ladder (Af) 1.5"	40.00 - 60.00	0.6000	0.6000
T7	7	Feedline Ladder (Af)	40.00 - 60.00	0.6000	0.6000
T7	8	1-5/8"	40.00 - 60.00	0.6000	0.6000
T7	9	3/4" DC Power	40.00 - 60.00	0.6000	0.6000
T7	10	1/2	40.00 - 60.00	0.6000	0.6000
T7	12	1 5/8"	40.00 - 60.00	0.6000	0.6000
T7	13	1 5/8" Hybrid	40.00 - 60.00	0.6000	0.6000
T7	14	Feedline Ladder (Af) 1.5"	40.00 - 60.00	0.6000	0.6000
T8	2	Safety Line 3/8	20.00 - 40.00	0.6000	0.6000
T8	4	1 1/4	20.00 - 40.00	0.6000	0.6000
T8	5	Feedline Ladder (Af) 1.5"	20.00 - 40.00	0.6000	0.6000
T8	7	Feedline Ladder (Af)	20.00 - 40.00	0.6000	0.6000
T8	8	1-5/8"	20.00 - 40.00	0.6000	0.6000
T8	9	3/4" DC Power	20.00 - 40.00	0.6000	0.6000
T8	10	1/2	20.00 - 40.00	0.6000	0.6000
T8	12	1 5/8"	20.00 - 40.00	0.6000	0.6000
T8	13	1 5/8" Hybrid	20.00 - 40.00	0.6000	0.6000
T8	14	Feedline Ladder (Af) 1.5"	20.00 - 40.00	0.6000	0.6000
T9	2	Safety Line 3/8	0.00 - 20.00	0.6000	0.6000
T9	4	1 1/4	7.00 - 20.00	0.6000	0.6000
T9	5	Feedline Ladder (Af) 1.5"	0.00 - 20.00	0.6000	0.6000
T9	7	Feedline Ladder (Af)	0.00 - 20.00	0.6000	0.6000
T9	8	1-5/8"	7.00 - 20.00	0.6000	0.6000
T9	9	3/4" DC Power	7.00 - 20.00	0.6000	0.6000
T9	10	1/2	7.00 - 20.00	0.6000	0.6000
T9	12	1 5/8"	7.00 - 20.00	0.6000	0.6000
T9	13	1 5/8" Hybrid	7.00 - 20.00	0.6000	0.6000
T9	14	Feedline Ladder (Af) 1.5"	0.00 - 20.00	0.6000	0.6000

Discrete Tower Loads

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K

APXVTM14-C-I20 (Sprint Nextel)	A	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	6.897 7.348 7.807	3.607 3.967 4.333	0.056 0.096 0.140
APXVTM14-C-I20 (Sprint Nextel)	B	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	6.897 7.348 7.807	3.607 3.967 4.333	0.056 0.096 0.140
APXVTM14-C-I20 (Sprint Nextel)	C	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	6.897 7.348 7.807	3.607 3.967 4.333	0.056 0.096 0.140
NNVV-65B-R4 Antenna (Sprint Nextel)	A	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	13.720 14.318 14.925	5.750 6.207 6.671	0.085 0.157 0.236
NNVV-65B-R4 Antenna (Sprint Nextel)	B	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	13.720 14.318 14.925	5.750 6.207 6.671	0.085 0.157 0.236
NNVV-65B-R4 Antenna (Sprint Nextel)	C	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	13.720 14.318 14.925	5.750 6.207 6.671	0.085 0.157 0.236
1900 MHz RRH (Sprint Nextel)	A	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	2.698 2.936 3.183	2.771 3.011 3.260	0.050 0.074 0.101
1900 MHz RRH (Sprint Nextel)	B	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	2.698 2.936 3.183	2.771 3.011 3.260	0.050 0.074 0.101
1900 MHz RRH (Sprint Nextel)	C	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	2.698 2.936 3.183	2.771 3.011 3.260	0.050 0.074 0.101
(2) 800 MHz RRH (Sprint Nextel)	A	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	2.401 2.613 2.833	1.995 2.192 2.399	0.050 0.071 0.094
(2) 800 MHz RRH (Sprint Nextel)	B	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	2.401 2.613 2.833	1.995 2.192 2.399	0.050 0.071 0.094
(2) 800 MHz RRH (Sprint Nextel)	C	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	2.401 2.613 2.833	1.995 2.192 2.399	0.050 0.071 0.094
TD-RRH8x20-25 (Sprint Nextel)	A	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	4.322 4.604 4.895	1.408 1.613 1.828	0.066 0.090 0.117
TD-RRH8x20-25 (Sprint Nextel)	B	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	4.322 4.604 4.895	1.408 1.613 1.828	0.066 0.090 0.117
TD-RRH8x20-25 (Sprint Nextel)	C	From Leg	3.000 0.000 0.000	0.000	175.000	No Ice 1/2" Ice 1" Ice	4.322 4.604 4.895	1.408 1.613 1.828	0.066 0.090 0.117
(3) Sector Frames (Sprint Nextel)	C	None		0.000	175.000	No Ice 1/2" Ice 1" Ice	43.570 61.820 80.070	43.570 61.820 80.070	1.880 2.700 3.520

7770 w/mount pipe (AT&T)	A	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	6.320 7.032 7.686	4.828 6.001 7.026	0.064 0.118 0.179

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
7770 w/mount pipe (AT&T)	B	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	6.320 7.032 7.686	4.828 6.001 7.026	0.064 0.118 0.179
7770 w/mount pipe (AT&T)	C	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	6.320 7.032 7.686	4.828 6.001 7.026	0.064 0.118 0.179
HPA-65R-BU8AA w/mount pipe (AT&T)	A	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	11.233 11.848 12.471	9.944 11.365 12.639	0.083 0.171 0.269
HPA-65R-BU8AA w/mount pipe (AT&T)	B	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	11.233 11.848 12.471	9.944 11.365 12.639	0.083 0.171 0.269
HPA-65R-BU8AA w/mount pipe (AT&T)	C	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	11.233 11.848 12.471	9.944 11.365 12.639	0.083 0.171 0.269
800 10966 w/mount pipe (AT&T)	A	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	17.363 17.991 18.626	9.400 10.817 12.087	0.144 0.257 0.381
800 10966 w/mount pipe (AT&T)	B	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	17.363 17.991 18.626	9.400 10.817 12.087	0.144 0.257 0.381
800 10966 w/mount pipe (AT&T)	C	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	17.363 17.991 18.626	9.400 10.817 12.087	0.144 0.257 0.381
(2) 21401 TMA (14x9x2.7) (AT&T)	A	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	1.050 1.181 1.320	0.346 0.440 0.540	0.019 0.026 0.035
(2) 21401 TMA (14x9x2.7) (AT&T)	B	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	1.050 1.181 1.320	0.346 0.440 0.540	0.019 0.026 0.035
(2) 21401 TMA (14x9x2.7) (AT&T)	C	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	1.050 1.181 1.320	0.346 0.440 0.540	0.019 0.026 0.035
LGP21903 (6.3x4.4x3) (AT&T)	A	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	0.231 0.294 0.365	0.158 0.213 0.276	0.006 0.008 0.011
LGP21903 (6.3x4.4x3) (AT&T)	B	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	0.231 0.294 0.365	0.158 0.213 0.276	0.006 0.008 0.011
LGP21903 (6.3x4.4x3) (AT&T)	C	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	0.231 0.294 0.365	0.158 0.213 0.276	0.006 0.008 0.011
DBCT108F1V92-1 (10.7x6.8x3.5) (AT&T)	A	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	0.606 0.707 0.816	0.319 0.398 0.485	0.014 0.019 0.026
DBCT108F1V92-1 (10.7x6.8x3.5) (AT&T)	B	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	0.606 0.707 0.816	0.319 0.398 0.485	0.014 0.019 0.026
DBCT108F1V92-1 (10.7x6.8x3.5) (AT&T)	C	From Leg	3.000 0.000 0.000	0.000	165.000	No Ice 1/2" Ice 1" Ice	0.606 0.707 0.816	0.319 0.398 0.485	0.014 0.019 0.026
RRUS 8843 B2 B66A (14.9x13.2x10.9)	A	From Leg	3.000 0.000	0.000	165.000	No Ice 1/2" Ice	1.639 1.799	1.353 1.500	0.072 0.090

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft	C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K	
(AT&T)			0.000			1" Ice	1.966	1.655	0.110
RRUS 8843 B2 B66A	B	From Leg	3.000	0.000	165.000	No Ice	1.639	1.353	0.072
(14.9x13.2x10.9)			0.000			1/2" Ice	1.799	1.500	0.090
(AT&T)			0.000			1" Ice	1.966	1.655	0.110
RRUS 8843 B2 B66A	C	From Leg	3.000	0.000	165.000	No Ice	1.639	1.353	0.072
(14.9x13.2x10.9)			0.000			1/2" Ice	1.799	1.500	0.090
(AT&T)			0.000			1" Ice	1.966	1.655	0.110
4449 B5/B12	A	From Leg	3.000	0.000	165.000	No Ice	1.968	1.408	0.071
(17.9x13.19x9.44)			0.000			1/2" Ice	2.144	1.564	0.090
(AT&T)			0.000			1" Ice	2.328	1.727	0.111
4449 B5/B12	B	From Leg	3.000	0.000	165.000	No Ice	1.968	1.408	0.071
(17.9x13.19x9.44)			0.000			1/2" Ice	2.144	1.564	0.090
(AT&T)			0.000			1" Ice	2.328	1.727	0.111
4449 B5/B12	C	From Leg	3.000	0.000	165.000	No Ice	1.968	1.408	0.071
(17.9x13.19x9.44)			0.000			1/2" Ice	2.144	1.564	0.090
(AT&T)			0.000			1" Ice	2.328	1.727	0.111
DC6-48-60-18-8F	A	From Leg	3.000	0.000	165.000	No Ice	2.200	3.700	0.033
(24x11x18.5)			0.000			1/2" Ice	2.398	3.940	0.064
(AT&T)			0.000			1" Ice	2.604	4.187	0.099
DC6-48-60-18-8C	B	From Leg	3.000	0.000	165.000	No Ice	1.900	1.900	0.020
(23.5x9.7x9.7)			0.000			1/2" Ice	2.088	2.088	0.039
(AT&T)			0.000			1" Ice	2.283	2.283	0.061
Sector Mounts (Sabre	A	From Leg	2.000	0.000	165.000	No Ice	9.120	9.120	1.554
C10857001C)			0.000			1/2" Ice	10.032	10.032	1.709
(AT&T)			0.000			1" Ice	10.944	10.944	1.865
Sector Mounts (Sabre	B	From Leg	2.000	0.000	165.000	No Ice	9.120	9.120	1.554
C10857001C)			0.000			1/2" Ice	10.032	10.032	1.709
(AT&T)			0.000			1" Ice	10.944	10.944	1.865
Sector Mounts (Sabre	C	From Leg	2.000	0.000	165.000	No Ice	9.120	9.120	1.554
C10857001C)			0.000			1/2" Ice	10.032	10.032	1.709
(AT&T)			0.000			1" Ice	10.944	10.944	1.865

Antel BXA-70063-6CF- EDIN-4	A	From Leg	3.000	0.000	153.000	No Ice	7.731	4.158	0.017
(Verizon)			0.000			1/2" Ice	8.777	4.887	0.038
			0.000			1" Ice	9.823	5.616	0.058
Antel BXA-70063-6CF- EDIN-4	B	From Leg	3.000	0.000	153.000	No Ice	7.731	4.158	0.017
(Verizon)			0.000			1/2" Ice	8.777	4.887	0.038
			0.000			1" Ice	9.823	5.616	0.058
Antel BXA-70063-6CF- EDIN-4	C	From Leg	3.000	0.000	153.000	No Ice	7.731	4.158	0.017
(Verizon)			0.000			1/2" Ice	8.777	4.887	0.038
			0.000			1" Ice	9.823	5.616	0.058
(2) Commscope JAHH-65B- R3B	A	From Leg	3.000	0.000	153.000	No Ice	9.660	5.983	0.063
(Verizon)			0.000			1/2" Ice	10.383	6.544	0.115
			0.000			1" Ice	11.106	7.105	0.166
(2) Commscope JAHH-65B- R3B	B	From Leg	3.000	0.000	153.000	No Ice	9.660	5.983	0.063
(Verizon)			0.000			1/2" Ice	10.383	6.544	0.115
			0.000			1" Ice	11.106	7.105	0.166
(2) Commscope JAHH-65B- R3B	C	From Leg	3.000	0.000	153.000	No Ice	9.660	5.983	0.063
(Verizon)			0.000			1/2" Ice	10.383	6.544	0.115
			0.000			1" Ice	11.106	7.105	0.166
ALU RRH 2X90 AWS	A	From Leg	3.000	0.000	153.000	No Ice	2.540	2.540	0.057
(Verizon)			0.000			1/2" Ice	3.234	3.234	0.140
			0.000			1" Ice	3.928	3.928	0.223

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Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C _A A _A Front ft ²	C _A A _A Side ft ²	Weight K
ALU RRH 2X90 AWS (Verizon)	B	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	2.540 3.234 3.928	2.540 3.234 3.928	0.057 0.140 0.223
ALU RRH 2X90 AWS (Verizon)	C	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	2.540 3.234 3.928	2.540 3.234 3.928	0.057 0.140 0.223
ALU RRH 2X60 700 (Verizon)	A	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	1.880 2.466 3.052	1.880 2.466 3.052	0.035 0.104 0.173
ALU RRH 2X60 700 (Verizon)	B	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	1.880 2.466 3.052	1.880 2.466 3.052	0.035 0.104 0.173
ALU RRH 2X60 700 (Verizon)	C	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	1.880 2.466 3.052	1.880 2.466 3.052	0.035 0.104 0.173
Nokia RRH 4X40 850 (Verizon)	A	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	2.200 2.765 3.330	2.200 2.765 3.330	0.055 0.105 0.155
Nokia RRH 4X40 850 (Verizon)	B	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	2.200 2.765 3.330	2.200 2.765 3.330	0.055 0.105 0.155
Nokia RRH 4X40 850 (Verizon)	C	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	2.200 2.765 3.330	2.200 2.765 3.330	0.055 0.105 0.155
DB-T1-6Z-8AB-0Z (Verizon)	B	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	5.600 5.915 6.240	2.333 2.558 2.791	0.044 0.080 0.120
DB-T1-6Z-8AB-0Z (Verizon)	C	From Leg	3.000 0.000 0.000	0.000	153.000	No Ice 1/2" Ice 1" Ice	5.600 5.915 6.240	2.333 2.558 2.791	0.044 0.080 0.120
(3) Sector Frames (Verizon)	C	None		0.000	153.000	No Ice 1/2" Ice 1" Ice	33.500 40.500 47.500	23.960 31.100 38.240	1.098 1.599 2.100

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice

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Comb. No.	Description
9	0.9 Dead+1.6 Wind 90 deg - No Ice
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T1	180 - 160	Leg	Max Tension	23	20.642	0.494	0.307
			Max. Compression	10	-27.886	0.034	0.017
			Max. Mx	8	-0.228	0.831	0.010
			Max. My	2	0.734	0.027	-0.823
			Max. Vy	20	-1.453	0.684	-0.032
			Max. Vx	2	-1.399	-0.021	0.657
		Diagonal	Max Tension	25	5.476	0.000	0.000

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T2	160 - 140	Top Girt	Max. Compression	10	-5.737	0.000	0.000
			Max. Mx	10	4.054	0.043	0.004
			Max. My	4	2.024	0.005	0.006
			Max. Vy	27	-0.029	0.038	-0.001
			Max. Vx	4	0.002	0.002	0.006
			Max Tension	22	0.566	0.000	0.000
			Max. Compression	11	-0.520	0.000	0.000
			Max. Mx	26	0.041	-0.037	0.000
			Max. Vy	26	0.032	0.000	0.000
			Max Tension	23	72.927	-0.246	-0.005
		Leg	Max. Compression	10	-84.379	0.206	0.005
			Max. Mx	10	-61.195	0.695	-0.010
			Max. My	4	-4.412	-0.040	0.799
			Max. Vy	6	1.348	-0.662	-0.008
			Max. Vx	12	1.205	0.006	-0.401
			Max Tension	25	5.962	0.000	0.000
			Max. Compression	12	-6.074	0.000	0.000
			Max. Mx	10	5.255	0.041	-0.002
			Max. My	16	-5.796	-0.020	-0.006
			Max. Vy	35	-0.030	0.031	-0.003
			Max. Vx	4	-0.002	0.000	0.000
T3	140 - 120	Top Girt	Max Tension	22	0.867	0.000	0.000
			Max. Compression	11	-0.780	0.000	0.000
			Max. Mx	26	0.101	-0.036	0.000
			Max. My	26	0.096	0.000	0.001
			Max. Vy	26	-0.032	0.000	0.000
			Max. Vx	26	-0.001	0.000	0.000
		Leg	Max Tension	23	116.549	-0.366	-0.004
			Max. Compression	10	-130.981	0.599	0.012
			Max. Mx	11	-129.328	0.600	0.012
			Max. My	20	-6.824	-0.007	-0.635
			Max. Vy	10	-0.097	0.437	0.006
			Max. Vx	20	0.136	-0.007	-0.635
		Diagonal	Max Tension	12	5.884	0.000	0.000
			Max. Compression	12	-5.880	0.000	0.000
			Max. Mx	31	1.272	0.041	0.005
			Max. My	36	-0.791	0.033	-0.005
			Max. Vy	37	0.037	0.039	-0.005
			Max. Vx	36	0.002	0.000	0.000
T4	120 - 100	Leg	Max Tension	23	151.882	-0.645	-0.010
			Max. Compression	10	-169.632	0.789	0.009
			Max. Mx	11	-167.692	0.792	0.009
			Max. My	20	-8.015	-0.010	-0.840
			Max. Vy	11	-0.098	0.792	0.009
			Max. Vx	20	0.135	-0.010	-0.840
		Diagonal	Max Tension	12	6.464	0.000	0.000
			Max. Compression	12	-6.510	0.000	0.000
			Max. Mx	31	1.389	0.074	0.009
			Max. My	36	-1.060	0.056	-0.010
			Max. Vy	37	0.054	0.073	-0.009
			Max. Vx	36	0.003	0.000	0.000
T5	100 - 80	Leg	Max Tension	23	185.009	-0.909	-0.004
			Max. Compression	10	-206.595	1.047	0.015
			Max. Mx	10	-182.297	1.066	0.007
			Max. My	20	-9.367	-0.002	-1.083
			Max. Vy	11	-0.128	1.065	0.007
			Max. Vx	20	0.128	0.003	-0.934

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
T6	80 - 60	Diagonal	Max Tension	12	6.887	0.000	0.000
			Max. Compression	12	-6.925	0.000	0.000
		Leg	Max. Mx	37	1.269	0.096	-0.012
			Max. My	36	-1.023	0.088	-0.013
			Max. Vy	37	0.064	0.096	-0.012
			Max. Vx	36	0.003	0.000	0.000
			Max Tension	23	217.714	-0.777	-0.001
			Max. Compression	10	-243.851	1.808	0.032
			Max. Mx	10	-243.851	1.808	0.032
			Max. My	20	-11.015	0.009	-1.471
			Max. Vy	11	-0.238	1.806	0.032
			Max. Vx	20	0.224	0.009	-1.471
		Diagonal	Max Tension	12	7.892	0.000	0.000
			Max. Compression	12	-7.888	0.000	0.000
T7	60 - 40	Leg	Max. Mx	37	1.518	0.138	-0.016
			Max. My	36	-0.758	0.118	-0.017
			Max. Vy	37	0.083	0.138	-0.016
			Max. Vx	36	0.004	0.000	0.000
			Max Tension	23	245.094	-1.621	-0.010
			Max. Compression	10	-275.692	1.894	0.027
		Diagonal	Max. Mx	10	-275.692	1.894	0.027
			Max. My	24	-13.066	-0.080	2.401
			Max. Vy	33	0.189	-1.392	-0.011
			Max. Vx	20	0.277	-0.084	-2.399
			Max Tension	12	8.802	0.000	0.000
			Max. Compression	12	-8.825	0.000	0.000
T8	40 - 20	Leg	Max. Mx	37	1.900	0.213	-0.030
			Max. My	36	2.042	0.211	-0.030
			Max. Vy	37	0.105	0.213	-0.030
			Max. Vx	36	0.006	0.000	0.000
			Max Tension	23	275.738	-1.617	-0.011
			Max. Compression	10	-311.792	2.176	0.012
		Diagonal	Max. Mx	37	34.991	-3.682	-0.003
			Max. My	24	-14.602	-0.090	1.930
			Max. Vy	33	0.571	-3.641	-0.006
			Max. Vx	20	-0.281	-0.093	-1.929
			Max Tension	12	10.357	0.000	0.000
			Max. Compression	12	-10.532	0.000	0.000
T9	20 - 0	Leg	Max. Mx	37	1.225	0.275	-0.031
			Max. My	30	3.047	0.248	0.034
			Max. Vy	37	0.124	0.251	-0.034
			Max. Vx	30	-0.006	0.000	0.000
			Max Tension	23	304.894	-1.636	0.000
			Max. Compression	10	-346.779	0.000	-0.000
		Diagonal	Max. Mx	31	-120.343	4.118	0.000
			Max. My	24	-16.807	-0.161	3.481
			Max. Vy	33	-0.748	-3.641	-0.006
			Max. Vx	20	-0.481	-0.164	-3.419
			Max Tension	12	10.345	0.000	0.000
			Max. Compression	10	-10.575	0.000	0.000
		Leg	Max. Mx	37	-0.193	0.339	-0.035
			Max. My	36	4.283	0.226	-0.042
			Max. Vy	37	0.129	0.339	-0.035
			Max. Vx	36	0.007	0.000	0.000

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Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Leg C	Max. Vert	18	327.697	29.069	-17.179
	Max. H _x	18	327.697	29.069	-17.179
	Max. H _z	7	-282.975	-25.338	15.015
	Min. Vert	7	-282.975	-25.338	15.015
	Min. H _x	7	-282.975	-25.338	15.015
	Min. H _z	18	327.697	29.069	-17.179
Leg B	Max. Vert	10	355.240	-31.943	-18.788
	Max. H _x	23	-311.850	28.226	16.648
	Max. H _z	23	-311.850	28.226	16.648
	Min. Vert	23	-311.850	28.226	16.648
	Min. H _x	10	355.240	-31.943	-18.788
	Min. H _z	10	355.240	-31.943	-18.788
Leg A	Max. Vert	2	334.914	-0.164	34.749
	Max. H _x	21	12.881	4.207	1.031
	Max. H _z	2	334.914	-0.164	34.749
	Min. Vert	15	-290.701	0.150	-30.445
	Min. H _x	8	17.175	-4.221	1.374
	Min. H _z	15	-290.701	0.150	-30.445

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	42.788	-0.000	0.000	-0.914	6.700	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	51.345	-0.000	-55.221	-5812.690	8.039	-5.703
0.9 Dead+1.6 Wind 0 deg - No Ice	38.509	-0.000	-55.221	-5812.415	6.030	-5.703
1.2 Dead+1.6 Wind 30 deg - No Ice	51.345	24.430	-42.164	-4543.496	-2628.087	4.239
0.9 Dead+1.6 Wind 30 deg - No Ice	38.509	24.430	-42.164	-4543.222	-2630.097	4.239
1.2 Dead+1.6 Wind 60 deg - No Ice	51.345	43.531	-25.046	-2698.584	-4687.650	-12.405
0.9 Dead+1.6 Wind 60 deg - No Ice	38.509	43.531	-25.046	-2698.309	-4689.660	-12.405
1.2 Dead+1.6 Wind 90 deg - No Ice	51.345	55.613	0.000	-1.097	-5902.497	-29.531
0.9 Dead+1.6 Wind 90 deg - No Ice	38.509	55.613	0.000	-0.823	-5904.507	-29.531
1.2 Dead+1.6 Wind 120 deg - No Ice	51.345	51.221	29.486	3084.709	-5360.240	-11.090
0.9 Dead+1.6 Wind 120 deg - No Ice	38.509	51.221	29.486	3084.983	-5362.249	-11.090
1.2 Dead+1.6 Wind 150 deg - No Ice	51.345	28.857	49.832	5249.904	-3037.199	4.421
0.9 Dead+1.6 Wind 150 deg - No Ice	38.509	28.857	49.832	5250.179	-3039.209	4.421

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
1.2 Dead+1.6 Wind 180 deg - No Ice	51.345	-0.000	51.933	5551.556	8.039	5.703
0.9 Dead+1.6 Wind 180 deg - No Ice	38.509	-0.000	51.933	5551.830	6.030	5.703
1.2 Dead+1.6 Wind 210 deg - No Ice	51.345	-24.430	42.164	4541.302	2644.166	-4.239
0.9 Dead+1.6 Wind 210 deg - No Ice	38.509	-24.430	42.164	4541.576	2642.156	-4.239
1.2 Dead+1.6 Wind 240 deg - No Ice	51.345	-46.378	26.690	2825.859	4927.977	12.405
0.9 Dead+1.6 Wind 240 deg - No Ice	38.509	-46.378	26.690	2826.133	4925.967	12.405
1.2 Dead+1.6 Wind 270 deg - No Ice	51.345	-55.613	0.000	-1.097	5918.576	29.531
0.9 Dead+1.6 Wind 270 deg - No Ice	38.509	-55.613	0.000	-0.823	5916.566	29.531
1.2 Dead+1.6 Wind 300 deg - No Ice	51.345	-48.374	-27.842	-2957.434	5152.070	11.090
0.9 Dead+1.6 Wind 300 deg - No Ice	38.509	-48.374	-27.842	-2957.160	5150.061	11.090
1.2 Dead+1.6 Wind 330 deg - No Ice	51.345	-28.857	-49.832	-5252.099	3053.278	-4.421
0.9 Dead+1.6 Wind 330 deg - No Ice	38.509	-28.857	-49.832	-5251.824	3051.268	-4.421
1.2 Dead+1.0 Ice+1.0 Temp	123.564	-0.000	-0.000	-15.140	24.788	0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	123.564	-0.000	-12.961	-1394.126	24.788	-2.165
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	123.564	6.061	-10.474	-1145.404	-629.881	-0.609
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	123.564	10.713	-6.172	-680.245	-1130.864	-2.329
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	123.564	13.385	-0.000	-15.140	-1401.077	-4.988
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	123.564	12.342	7.112	732.616	-1274.020	-2.871
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	123.564	6.802	11.758	1232.199	-697.474	1.578
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	123.564	-0.000	12.562	1333.729	24.788	2.165
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	123.564	-6.061	10.474	1115.124	679.457	0.609
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	123.564	-11.058	6.371	665.023	1206.521	2.329
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	123.564	-13.385	-0.000	-15.140	1450.653	4.988
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	123.564	-11.996	-6.913	-747.838	1297.514	2.871
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	123.564	-6.802	-11.758	-1262.479	747.050	-1.578
Dead+Wind 0 deg - Service	42.788	-0.000	-11.270	-1186.954	6.700	-1.164
Dead+Wind 30 deg - Service	42.788	4.986	-8.605	-927.935	-531.285	0.865
Dead+Wind 60 deg - Service	42.788	8.884	-5.111	-551.422	-951.604	-2.532
Dead+Wind 90 deg - Service	42.788	11.350	0.000	-0.914	-1199.532	-6.027
Dead+Wind 120 deg - Service	42.788	10.453	6.018	628.842	-1088.868	-2.263
Dead+Wind 150 deg - Service	42.788	5.889	10.170	1070.719	-614.778	0.902
Dead+Wind 180 deg - Service	42.788	-0.000	10.599	1132.280	6.700	1.164
Dead+Wind 210 deg - Service	42.788	-4.986	8.605	926.106	544.685	-0.865

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead+Wind 240 deg - Service	42.788	-9.465	5.447	576.015	1010.768	2.532
Dead+Wind 270 deg - Service	42.788	-11.350	0.000	-0.914	1212.932	6.027
Dead+Wind 300 deg - Service	42.788	-9.872	-5.682	-604.248	1056.502	2.263
Dead+Wind 330 deg - Service	42.788	-5.889	-10.170	-1072.547	628.177	-0.902

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.000	-42.788	0.000	0.000	42.788	0.000	0.000%
2	0.000	-51.345	-55.221	0.000	51.345	55.221	0.000%
3	0.000	-38.509	-55.221	0.000	38.509	55.221	0.000%
4	24.430	-51.345	-42.164	-24.430	51.345	42.164	0.000%
5	24.430	-38.509	-42.164	-24.430	38.509	42.164	0.000%
6	43.531	-51.345	-25.046	-43.531	51.345	25.046	0.000%
7	43.531	-38.509	-25.046	-43.531	38.509	25.046	0.000%
8	55.613	-51.345	0.000	-55.613	51.345	0.000	0.000%
9	55.613	-38.509	0.000	-55.613	38.509	0.000	0.000%
10	51.221	-51.345	29.486	-51.221	51.345	-29.486	0.000%
11	51.221	-38.509	29.486	-51.221	38.509	-29.486	0.000%
12	28.857	-51.345	49.832	-28.857	51.345	-49.832	0.000%
13	28.857	-38.509	49.832	-28.857	38.509	-49.832	0.000%
14	0.000	-51.345	51.933	0.000	51.345	-51.933	0.000%
15	0.000	-38.509	51.933	0.000	38.509	-51.933	0.000%
16	-24.430	-51.345	42.164	24.430	51.345	-42.164	0.000%
17	-24.430	-38.509	42.164	24.430	38.509	-42.164	0.000%
18	-46.378	-51.345	26.690	46.378	51.345	-26.690	0.000%
19	-46.378	-38.509	26.690	46.378	38.509	-26.690	0.000%
20	-55.613	-51.345	0.000	55.613	51.345	0.000	0.000%
21	-55.613	-38.509	0.000	55.613	38.509	0.000	0.000%
22	-48.374	-51.345	-27.842	48.374	51.345	27.842	0.000%
23	-48.374	-38.509	-27.842	48.374	38.509	27.842	0.000%
24	-28.857	-51.345	-49.832	28.857	51.345	49.832	0.000%
25	-28.857	-38.509	-49.832	28.857	38.509	49.832	0.000%
26	0.000	-123.564	0.000	0.000	123.564	0.000	0.000%
27	0.000	-123.564	-12.961	0.000	123.564	12.961	0.000%
28	6.061	-123.564	-10.474	-6.061	123.564	10.474	0.000%
29	10.713	-123.564	-6.172	-10.713	123.564	6.172	0.000%
30	13.385	-123.564	0.000	-13.385	123.564	0.000	0.000%
31	12.342	-123.564	7.112	-12.342	123.564	-7.112	0.000%
32	6.802	-123.564	11.758	-6.802	123.564	-11.758	0.000%
33	0.000	-123.564	12.562	0.000	123.564	-12.562	0.000%
34	-6.061	-123.564	10.474	6.061	123.564	-10.474	0.000%
35	-11.058	-123.564	6.371	11.058	123.564	-6.371	0.000%
36	-13.385	-123.564	0.000	13.385	123.564	0.000	0.000%
37	-11.996	-123.564	-6.913	11.996	123.564	6.913	0.000%
38	-6.802	-123.564	-11.758	6.802	123.564	11.758	0.000%
39	0.000	-42.788	-11.270	0.000	42.788	11.270	0.000%
40	4.986	-42.788	-8.605	-4.986	42.788	8.605	0.000%
41	8.884	-42.788	-5.111	-8.884	42.788	5.111	0.000%
42	11.350	-42.788	0.000	-11.350	42.788	0.000	0.000%
43	10.453	-42.788	6.018	-10.453	42.788	-6.018	0.000%
44	5.889	-42.788	10.170	-5.889	42.788	-10.170	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
45	0.000	-42.788	10.599	0.000	42.788	-10.599	0.000%
46	-4.986	-42.788	8.605	4.986	42.788	-8.605	0.000%
47	-9.465	-42.788	5.447	9.465	42.788	-5.447	0.000%
48	-11.350	-42.788	0.000	11.350	42.788	0.000	0.000%
49	-9.872	-42.788	-5.682	9.872	42.788	5.682	0.000%
50	-5.889	-42.788	-10.170	5.889	42.788	10.170	0.000%

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	4.397	43	0.251	0.020
T2	160 - 140	3.353	43	0.234	0.019
T3	140 - 120	2.434	43	0.190	0.016
T4	120 - 100	1.702	43	0.147	0.013
T5	100 - 80	1.136	43	0.113	0.010
T6	80 - 60	0.705	43	0.082	0.008
T7	60 - 40	0.392	43	0.056	0.005
T8	40 - 20	0.184	43	0.034	0.003
T9	20 - 0	0.057	43	0.017	0.002

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175.000	APXVTM14-C-I20	43	4.130	0.248	0.020	138109
165.000	7770 w/mount pipe	43	3.606	0.241	0.019	46036
153.000	Antel BXA-70063-6CF-EDIN-4	43	3.012	0.221	0.018	29727

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T1	180 - 160	21.640	11	1.236	0.097
T2	160 - 140	16.497	11	1.153	0.093
T3	140 - 120	11.975	11	0.935	0.080
T4	120 - 100	8.371	11	0.725	0.064
T5	100 - 80	5.587	11	0.558	0.051
T6	80 - 60	3.467	11	0.402	0.038
T7	60 - 40	1.929	11	0.276	0.025
T8	40 - 20	0.905	11	0.167	0.016

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Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
T9	20 - 0	0.279	11	0.084	0.008

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
175.000	APXVTM14-C-I20	11	20.328	1.224	0.096	28181
165.000	7770 w/mount pipe	11	17.745	1.186	0.094	9393
153.000	Antel BXA-70063-6CF-EDIN-4	11	14.820	1.088	0.089	6047

Bolt Design Data

Section No.	Elevation ft	Component Type	Bolt Grade	Bolt Size in	Number Of Bolts	Maximum Load per Bolt K	Allowable Load per Bolt K	Ratio Load Allowable	Allowable Ratio	Criteria
T1	180	Leg	A325N	0.750	4	5.160	29.821	0.173 ✓	1	Bolt Tension
		Diagonal	A325N	0.625	1	5.476	9.108	0.601 ✓	1	Member Block Shear
		Top Girt	A325N	0.625	1	0.566	9.108	0.062 ✓	1	Member Block Shear
T2	160	Leg	A325N	0.875	4	18.232	40.589	0.449 ✓	1	Bolt Tension
		Diagonal	A325N	0.625	1	5.962	9.108	0.655 ✓	1	Member Block Shear
		Top Girt	A325N	0.625	1	0.867	9.108	0.095 ✓	1	Member Block Shear
T3	140	Leg	A325N	1.000	4	29.137	53.014	0.550 ✓	1	Bolt Tension
		Diagonal	A325N	0.625	1	5.884	9.108	0.646 ✓	1	Member Block Shear
T4	120	Leg	A325N	1.000	6	25.314	53.014	0.477 ✓	1	Bolt Tension
		Diagonal	A325N	0.625	1	6.464	10.440	0.619 ✓	1	Member Bearing
T5	100	Leg	A325N	1.000	6	30.835	53.014	0.582 ✓	1	Bolt Tension
		Diagonal	A325N	0.625	1	6.887	10.440	0.660 ✓	1	Member Bearing
T6	80	Leg	A325N	1.000	8	27.214	53.014	0.513 ✓	1	Bolt Tension
		Diagonal	A325N	0.750	1	7.892	12.615	0.626 ✓	1	Member Bearing
T7	60	Leg	A325N	1.000	8	30.637	53.014	0.578 ✓	1	Bolt Tension
		Diagonal	A325N	0.750	1	8.802	12.615	0.698 ✓	1	Member Bearing
T8	40	Leg	A325N	1.000	8	34.467	53.014	0.650 ✓	1	Bolt Tension
		Diagonal	A325N	0.750	1	10.357	12.615	0.821 ✓	1	Member Bearing
T9	20	Diagonal	A325N	0.750	1	10.345	12.615	0.820 ✓	1	Member Bearing

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Compression Checks

Leg Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 160	ROHN 2.5 STD	20.000	4.000	50.7 K=1.00	1.704	-27.886	63.560	0.439 ¹ ✓
T2	160 - 140	ROHN 3 EH	20.035	4.007	42.3 K=1.00	3.016	-84.379	119.063	0.709 ¹ ✓
T3	140 - 120	ROHN 4 EH	20.035	5.009	40.7 K=1.00	4.407	-130.981	175.707	0.745 ¹ ✓
T4	120 - 100	ROHN 5 EH	20.037	6.679	43.6 K=1.00	6.112	-169.632	239.377	0.709 ¹ ✓
T5	100 - 80	ROHN 6 EHS	20.038	6.679	36.0 K=1.00	6.713	-206.595	274.759	0.752 ¹ ✓
T6	80 - 60	ROHN 6 EH	20.034	6.678	36.5 K=1.00	8.405	-243.851	343.099	0.711 ¹ ✓
T7	60 - 40	ROHN 8 EHS	20.039	10.020	41.2 K=1.00	9.719	-275.692	386.368	0.714 ¹ ✓
T8	40 - 20	ROHN 8 EH	20.032	10.016	41.8 K=1.00	12.763	-311.792	505.565	0.617 ¹ ✓
T9	20 - 0	ROHN 8 EH	20.036	10.018	41.8 K=1.00	12.763	-346.779	505.537	0.686 ¹ ✓

¹ P_u / φP_n controls

Diagonal Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$
T1	180 - 160	L2x2x1/4	6.081	2.762	93.6 K=1.10	0.938	-5.737	19.169	0.299 ¹ ✓
T2	160 - 140	L2x2x1/4	7.569	3.614	113.2 K=1.02	0.938	-5.596	15.483	0.361 ¹ ✓
T3	140 - 120	L2x2x1/4	9.797	4.710	144.5 K=1.00	0.938	-5.807	10.143	0.573 ¹ ✓
T4	120 - 100	L2 1/2x2 1/2x1/4	12.380	6.003	146.7 K=1.00	1.190	-6.510	12.490	0.521 ¹ ✓
T5	100 - 80	L2 1/2x2 1/2x1/4	14.217	6.877	168.1 K=1.00	1.190	-6.925	9.517	0.728 ¹ ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$ ¹
T6	80 - 60	L3x3x1/4	16.038	7.764	157.4 K=1.00	1.440	-7.888	13.134	0.601 ¹ ✓
T7	60 - 40	L3 1/2x3 1/2x1/4	19.337	9.430	163.1 K=1.00	1.690	-8.825	14.360	0.615 ¹ ✓
T8	40 - 20	L4x4x1/4	21.078	10.272	155.1 K=1.00	1.940	-10.532	18.230	0.578 ¹ ✓
T9	20 - 0	L4x4x1/4	22.901	11.205	169.1 K=1.00	1.940	-10.575	15.322	0.690 ¹ ✓

¹ P_u / φP_n controls

Top Girt Design Data (Compression)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$ ¹
T1	180 - 160	L2x2x1/4	4.580	4.101	125.9 K=1.00	0.938	-0.520	13.201	0.039 ¹ ✓
T2	160 - 140	L2x2x1/4	4.580	4.101	125.9 K=1.00	0.938	-0.780	13.201	0.059 ¹ ✓

¹ P_u / φP_n controls

Tension Checks

Leg Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$ ¹
T1	180 - 160	ROHN 2.5 STD	20.000	4.000	50.7	1.704	20.642	76.682	0.269 ¹ ✓
T2	160 - 140	ROHN 3 EH	20.035	4.007	42.3	3.016	72.927	135.717	0.537 ¹ ✓
T3	140 - 120	ROHN 4 EH	20.035	5.009	40.7	4.407	116.549	198.335	0.588 ¹ ✓
T4	120 - 100	ROHN 5 EH	20.037	6.679	43.6	6.112	151.882	275.039	0.552 ¹ ✓
T5	100 - 80	ROHN 6 EHS	20.038	6.679	36.0	6.713	185.009	302.097	0.612 ¹ ✓
T6	80 - 60	ROHN 6 EH	20.034	6.678	36.5	8.405	217.714	378.222	0.576 ¹ ✓

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Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$ ¹
T7	60 - 40	ROHN 8 EHS	20.039	10.020	41.2	9.719	245.094	437.369	0.560
T8	40 - 20	ROHN 8 EH	20.032	10.016	41.8	12.763	275.738	574.322	0.480
T9	20 - 0	ROHN 8 EH	20.036	10.018	41.8	12.763	304.894	574.322	0.531

¹ P_u / φP_n controls

Diagonal Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$ ¹
T1	180 - 160	L2x2x1/4	6.081	2.762	56.8	0.563	5.476	24.485	0.224
T2	160 - 140	L2x2x1/4	6.887	3.278	66.9	0.563	5.962	24.485	0.244
T3	140 - 120	L2x2x1/4	8.511	4.076	82.7	0.563	5.884	24.485	0.240
T4	120 - 100	L2 1/2x2 1/2x1/4	12.380	6.003	95.5	0.752	6.464	32.707	0.198
T5	100 - 80	L2 1/2x2 1/2x1/4	14.217	6.877	109.2	0.752	6.887	32.707	0.211
T6	80 - 60	L3x3x1/4	16.038	7.764	101.9	0.916	7.892	39.843	0.198
T7	60 - 40	L3 1/2x3 1/2x1/4	19.337	9.430	105.3	1.103	8.802	47.999	0.183
T8	40 - 20	L4x4x1/4	21.078	10.272	99.9	1.291	10.357	56.156	0.184
T9	20 - 0	L4x4x1/4	22.901	11.205	108.9	1.291	10.345	56.156	0.184

¹ P_u / φP_n controls

Top Girt Design Data (Tension)

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	A in ²	P _u K	φP _n K	Ratio $\frac{P_u}{\phi P_n}$ ¹
T1	180 - 160	L2x2x1/4	4.580	4.101	85.5	0.563	0.566	24.485	0.023
T2	160 - 140	L2x2x1/4	4.580	4.101	85.5	0.563	0.867	24.485	0.035

¹ P_u / φP_n controls

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Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
T1	180 - 160	Leg	ROHN 2.5 STD	2	-27.886	63.560	43.9	Pass
		Diagonal	L2x2x1/4	9	-5.737	19.169	29.9	Pass
		Top Girt	L2x2x1/4	6	-0.520	13.201	60.1 (b) 3.9	Pass
T2	160 - 140	Leg	ROHN 3 EH	38	-84.379	119.063	6.2 (b) 70.9	Pass
		Diagonal	L2x2x1/4	45	-5.596	15.483	36.1	Pass
		Top Girt	L2x2x1/4	42	-0.780	13.201	65.5 (b) 5.9	Pass
T3	140 - 120	Leg	ROHN 4 EH	74	-130.981	175.707	9.5 (b) 74.5	Pass
		Diagonal	L2x2x1/4	78	-5.807	10.143	57.3	Pass
T4	120 - 100	Leg	ROHN 5 EH	101	-169.632	239.377	64.6 (b) 70.9	Pass
		Diagonal	L2 1/2x2 1/2x1/4	105	-6.510	12.490	52.1	Pass
T5	100 - 80	Leg	ROHN 6 EHS	122	-206.595	274.759	61.9 (b) 75.2	Pass
		Diagonal	L2 1/2x2 1/2x1/4	126	-6.925	9.517	72.8	Pass
T6	80 - 60	Leg	ROHN 6 EH	143	-243.851	343.099	71.1	Pass
		Diagonal	L3x3x1/4	147	-7.888	13.134	60.1	Pass
T7	60 - 40	Leg	ROHN 8 EHS	164	-275.692	386.368	62.6 (b) 71.4	Pass
		Diagonal	L3 1/2x3 1/2x1/4	168	-8.825	14.360	61.5	Pass
T8	40 - 20	Leg	ROHN 8 EH	179	-311.792	505.565	69.8 (b) 61.7	Pass
		Diagonal	L4x4x1/4	183	-10.532	18.230	65.0 (b) 57.8	Pass
T9	20 - 0	Leg	ROHN 8 EH	194	-346.779	505.537	82.1 (b) 68.6	Pass
		Diagonal	L4x4x1/4	198	-10.575	15.322	69.0	Pass
							82.0 (b) Summary	
							Leg (T5)	Pass
							Diagonal (T8)	Pass
							Top Girt (T2)	Pass
							Bolt Checks	Pass
							RATING =	82.1
								Pass

Self Support Anchor Bolt Check**Project Information**SBA Project # : **CT10024-ATT-031519**Code : **G****Leg Reaction**Anchor bolt detail type: **D**Uplift/Comp (larger) (kips): **355**Shear (kips) : **37****Strength Reduction Factors**Tension : **0.8**Shear : **0.75**Flexure : **0.9****Bolt Information**Quantity : **10**Diameter (in) : **1**Assumed ungrouted gap (in) : **1**Bolt Fy (ksi) : **105**Bolt Fu (AISC Table 2-6) (ksi): **125**Anchor bolt detail factor: **0.5**# of threads (AISC Table 7-17) : **8****Safety Factors**Factor (Ω) : **2****Bolt Capacity : **70.8%** Pass**

Mat Foundation Analysis - SST

Last revised 6/25/2018

Input

Project Data

SBA Project #	CT10024-ATT-031519
Code (F or G)	G

Load Data

Leg	Uplift (Kips)	312
	Uplift Shear (Kips)	33
	Compression (Kips)	355
	Compression Shear (Kips)	37
Base	Moment (Kip-ft)	6186
	Compression (Kips)	51
	Shear (Kips)	59

Strength reduction factors (Rev G)

Concrete weight	0.9
Bearin / Soil weight	0.75
Compression	0.65
Shear	0.75
Flexure / Tension	0.9

Factor of safety (Rev F)

Soil weight	2
Soil friction	2
Passive Pressure	2
Concrete weight	1.25
Dead weight	1.5

Foundation Data

Pier diameter (ft)	3
Pier height above grade (ft)	0.1
Pad width (ft)	31.5
Pad Thickness (ft)	5.5
Pad bearing depth (ft)	5.5
Tower base width (ft)	21.12
Tower to pad center distance (ft)	0

Reinforcement Data ☐ Use Minimum

Pier reinforcement	size	
	quantity	
Pad Top reinforcement	Size	8
	quantity	32
Bottom reinforcement	Size	8
	quantity	32

Material Data

Concrete strength (psi)	3000
Concrete unit weight (pcf)	150
rebar yield strength (Ksi)	60
clear cover (in)	3

Geotechnical Data

Depth to neglect (ft)	3.5
Water table depth (ft)	2
Soil cone failure angle - δ	30
Coefficient of sliding friction	0.6
Ultimate bearing capacity (ksf)	12

Soil Layers

Layer	From	To	Cohesion	Internal Friction Angle	Moist Soil Unit Weight	Effective Soil Unit Weight	Ultimate Passive Pressure	☒ Net Use Passive pressure and soil wedge for overturning analysis
#	(ft)	(ft)	(ksf)	(deg)	(pcf)	(pcf)	(ksf)	
1	0.0	2.00	0.00	0.00	125	125		
2	2.0	3.50	0.00	0.00	125	63		
3	3.5	5.50	0.00	34.00	125	63		
4	5.5							



Mat Foundation Analysis - SST

Analysis Result

Geotechnical failure checks

% Capacity

1. Compression failure	Applied Compression (ksf)	1.7
	Compression Capacity (ksf)	9.0
Compression failure		
2. Overturning failure	Overturning moment (kips-ft)	6516.4
	Resisting Moment (kips-ft)	9339.7
	Factor of Safety	
Overturning failure		

Check=	18.6%	✓
	Pass	

Check=	69.8%	✓
	Pass	

Pier

3. Compression failure	Applied Compression (kips)	
	Pier Compression Capacity (kips)	
Compression failure		
4. Tension failure	Applied Tension (kips)	
	Pier Tension Capacity (kips)	
Tension failure		
5. Compression + Flexure	Applied Moment (kip-ft)	
	Pier Moment Capacity (kips-ft)	
P+M failure		
6. Tension + Flexure	Applied Moment (kip-ft)	
	Pier Moment Capacity (kips-ft)	
T+M failure		

Pad

7. one way shear	Applied Shear (kips)	186.9
	Pier Shear Capacity (kips)	1941.0
Shear failure		
8. two way shear	Applied Shear (kips)	324.9
	Pad Shear Capacity (kips)	3178.0
Shear failure		
9. Bottom Flexure	Applied Moment (kip-ft)	1524.8
	Pad Moment Capacity (kips-ft)	6980.1
Flexure failure		
10. Top Flexure	Applied Moment (kip-ft)	762.1
	Pad Moment Capacity (kips-ft)	6980.1
Flexure failure		

9.6%	✓
Pass	

10.2%	✓
Pass	

21.8%	✓
Pass	

10.9%	✓
Pass	

Total Foundation		69.8%	✓
		Pass	



January 15, 2019
February 13, 2019 (Rev.1)



SAI Communications
12 Industrial Way
Salem NH, 03079

RE: Site Number: CT2280 (LTE 2C/3C/4C/5C)
 FA Number: 10113181
 PACE Number: MRCTB035262
 PT Number: 2051AOKPJ1
 Site Name: VOLUNTOWN STONE HILL ROAD
 Site Address: 111 Stone Hill Road
 Voluntown, CT 06384

To Whom It May Concern:

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

- (3) 7770 Antennas (55.0"x11.0"x5.0" - Wt. = 35 lbs. /each)
- (6) LGP21401 TMA's (14.4"x9.0"x2.7" – Wt. = 19 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)
- **(3) HPA65R-BU8A Antennas (96.0"x11.7"x7.6" – Wt. = 54 lbs. /each)**
- **(3) 800-10966 Antennas (96.0"x20.0"x6.9"– Wt. = 115 lbs. /each)**
- **(3) B14 4478 RRH's (18.1"x13.4"x8.3"– Wt. = 60 lbs. /each)**
- **(3) B2/B66A 8843 RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(3) B5/B12 4449 RRH's (18.0"x13.2"x9.5" – Wt. = 71 lbs. /each)**
- **(3) DBCT108F1V92-1 Diplexers (10.7"x6.8"x7.2" – Wt. = 29 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" Φ – Wt. = 33 lbs. /each) (Tower Mount)**

**Proposed equipment shown in bold*

HDG's subconsultant, ProVertic LLC, conducted a survey climb and mapping of the existing AT&T antenna mounts on December 6 2018. Fabrication drawings prepared by Sabre Industries Towers and Poles, P/N C10857001C, dated January 20, 2017 were available for the proposed mounts.

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 – R12.
- 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 135 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 1.17 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.
- The mount has been analyzed with load combinations consisting of 250 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.

Based on our evaluation, we have determined that the New Sabre Industries C10857001C mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
New (LTE 2C/3C/4C/5C) Mount Rating	29	LC7	88%	PASS

Reference Documents:

- Mount mapping report prepared by ProVertic LLC.
- Fabrication drawings prepared by Sabre Industries Towers and Poles, P/N C10857001C, dated January 20, 2017

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,
Hudson Design Group LLC



Michael Cabral
Structural Dept. Head

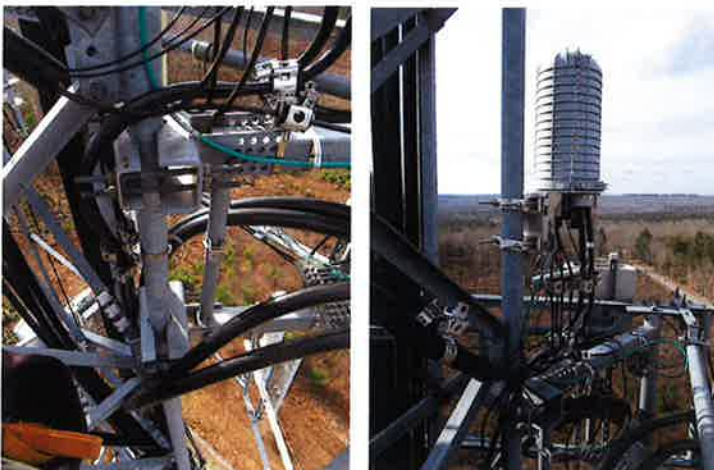


Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

(Existing Mount to be removed)







HUDSON
Design Group LLC

Wind & Ice Calculations

Date: 02/13/2019
 Project Name: VOLUNTOWN STONE HILL ROAD
 Project No.: CT2280
 Designed By: JN Checked By: MSC



2.6.5.2 Velocity Pressure Coeff:

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

$K_z =$ **1.140**
 $z =$ 165 (ft)
 $z_g =$ 1200 (ft)
 $\alpha =$ 7.0

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

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

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

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

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

$$K_h = \text{\#DIV/0!}$$

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

$$\text{Category} = 1$$

$$K_c = 0 \text{ (from Table 2-4)}$$

$$K_t = 0 \text{ (from Table 2-5)}$$

$$f = 0 \text{ (from Table 2-5)}$$

$$z = 165$$

$$z_s = 430 \text{ (Mean elevation of base of structure above sea level)}$$

$$H = 0 \text{ (Ht. of the crest above surrounding terrain)}$$

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

$$K_e = 0.98 \text{ (from 2.6.8)}$$

2.6.10 Design Ice Thickness

Max Ice Thickness =

$$t_i = 1.00 \text{ in}$$

Importance Factor =

$$I = 1.0 \text{ (from Table 2-3)}$$

$$K_{iz} = 1.17 \text{ (from Sec. 2.6.10)}$$

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

$$t_{iz} = 1.17 \text{ in}$$

Date: 02/13/2019
 Project Name: VOLUNTOWN STONE HILL ROAD
 Project No.: CT2280
 Designed By: JN Checked By: MSC



2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

$G_h = 1.0$ Latticed Structures > 600 ft

$G_h = 0.85$ Latticed Structures 450 ft or less

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

$h = 165$ $G_h = 0.85$

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 ($ht. : \text{width ratio} > 5$))

$G_h = 1.35$ $G_h = 1.00$

2.6.11.2 Design Wind Force on Appurtenances

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

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

$K_z = 1.140$ (from 2.6.5.2)
 $K_{zt} = 1.0$ (from 2.6.6.2.1)
 $K_s = 1.0$ (from 2.6.7)
 $K_e = 0.98$ (from 2.6.8)
 $K_d = 0.85$ (from Table 2-2)
 $V_{max} = 135$ mph (Ultimate Wind Speed)
 $V_{max(ice)} = 50$ mph
 $V_{30} = 30$ mph

$q_z = 44.52$

$q_z(ice) = 6.11$

$q_z(30) = 2.20$

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

Date: 02/13/2019
 Project Name: VOLUNTOWN STONE HILL ROAD
 Project No.: CT2280
 Designed By: JN Checked By: MSC



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
	$39 \leq C \leq 78$ (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 = 1.17 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	245	43	12
HPA65R-BU8A Antenna	96.0	11.7	7.6	7.80	8.21	1.44	500	84	25
800-10966 Antenna	96.0	20.0	6.9	13.33	4.80	1.30	773	121	38
B14 4478 RRH	18.1	8.3	13.4	1.04	2.18	1.20	56	11	3
B14 4478 RRH (Shielded)	18.1	4.2	13.4	0.52	4.36	1.28	30	7	1
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.20	60	12	3
B2/B66A 8843 RRH (Shielded)	14.9	5.5	13.2	0.56	2.73	1.21	30	7	2
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.89	1.20	63	12	3
B5/B12 4449 RRH (Shielded)	18.0	4.8	13.2	0.59	3.79	1.26	33	8	2
LGP21401 TMA	14.4	2.7	9.0	0.27	5.33	1.33	16	5	1
DBCT108F1V92-1 Diplexer	10.7	6.8	7.2	0.51	1.57	1.20	27	6	1
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	50	9	2

Date: 02/13/2019
 Project Name: VOLUNTOWN STONE HILL ROAD
 Project No.: CT2280
 Designed By: JN Checked By: MSC



WIND LOADS

Angle = 30 (deg)

Ice Thickness = 1.17 in.

Equivalent Angle = 210 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	245	130	217
HPA65R-BU8A Antenn	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	500	358	465
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	773	334	663
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	56	90	64
B14 4478 RRH (Shilde	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	30	90	45
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	60	73	63
B2/B66A 8843 RRH (Sh	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	30	73	41
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.65	1.89	1.36	1.20	1.20	63	88	70
B5/B12 4449 RRH (Shi	18.0	4.8	13.2	0.59	1.65	3.79	1.36	1.26	1.20	33	88	47
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	16	48	24
DBCT108F1V92-1 Dipl	10.7	6.8	7.2	0.51	0.54	1.57	1.49	1.20	1.20	27	29	27

WIND LOADS WITH ICE:

7770 Antenna	57.3	13.3	7.3	5.32	2.93	4.30	7.80	1.28	1.43	42	26	38
HPA65R-BU8A Antenn	98.3	14.0	9.9	9.60	6.80	7.00	9.89	1.40	1.50	82	62	77
800-10966 Antenna	98.3	22.3	9.2	15.26	6.32	4.40	10.63	1.28	1.52	120	59	104
B14 4478 RRH	20.4	10.6	15.7	1.51	2.24	1.92	1.30	1.20	1.20	11	16	12
B14 4478 RRH (Shilde	20.4	5.3	15.7	0.76	2.24	3.84	1.30	1.26	1.20	6	16	8
B2/B66A 8843 RRH	17.2	13.2	15.5	1.59	1.86	1.30	1.11	1.20	1.20	12	14	12
B2/B66A 8843 RRH (Sh	17.2	6.6	15.5	0.79	1.86	2.60	1.11	1.20	1.20	6	14	8
B5/B12 4449 RRH	20.3	11.8	15.5	1.67	2.20	1.72	1.31	1.20	1.20	12	16	13
B5/B12 4449 RRH (Shi	20.3	5.9	15.5	0.84	2.20	3.43	1.31	1.24	1.20	6	16	9
LGP21401 TMA	16.7	5.0	11.3	0.59	1.32	3.32	1.48	1.24	1.20	4	10	6
DBCT108F1V92-1 Dipl	13.0	9.1	9.5	0.83	0.87	1.43	1.37	1.20	1.20	6	6	6

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	11
HPA65R-BU8A Antenn	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	25	18	23
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	38	16	33
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	4	3
B14 4478 RRH (Shilde	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	1	4	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
B2/B66A 8843 RRH (Sh	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	4	2
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.65	1.89	1.36	1.20	1.20	3	4	3
B5/B12 4449 RRH (Shi	18.0	4.8	13.2	0.59	1.65	3.79	1.36	1.26	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
DBCT108F1V92-1 Dipl	10.7	6.8	7.2	0.51	0.54	1.57	1.49	1.20	1.20	1	1	1

Date: 02/13/2019
 Project Name: VOLUNTOWN STONE HILL ROAD
 Project No.: CT2280
 Designed By: JN Checked By: MSC



WIND LOADS

Angle = 60 (deg)

Ice Thickness = 1.17 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	245	150	159
HPA65R-BU8A Antenn	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	500	358	394
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	773	334	444
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	56	90	81
B14 4478 RRH (Shielde	18.1	6.2	13.4	0.78	1.68	2.91	1.35	1.22	1.20	42	90	78
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	60	73	70
B2/B66A 8843 RRH (Sh	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	45	73	66
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.65	1.89	1.36	1.20	1.20	63	88	82
B5/B12 4449 RRH (Shi	18.0	7.1	13.2	0.89	1.65	2.53	1.36	1.20	1.20	48	88	78
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	16	48	40
DBCT108F1V92-1 Diple	10.7	6.8	7.2	0.51	0.54	1.57	1.49	1.20	1.20	27	29	28

WIND LOADS WITH ICE:

7770 Antenna	57.3	13.3	7.3	5.32	2.93	4.30	7.80	1.28	1.43	42	26	30
HPA65R-BU8A Antenn	98.3	14.0	9.9	9.60	6.80	7.00	9.89	1.40	1.50	82	62	67
800-10966 Antenna	98.3	22.3	9.2	15.26	6.32	4.40	10.63	1.28	1.52	120	59	74
B14 4478 RRH	20.4	10.6	15.7	1.51	2.24	1.92	1.30	1.20	1.20	11	16	15
B14 4478 RRH (Shielde	20.4	8.0	15.7	1.13	2.24	2.56	1.30	1.20	1.20	8	16	14
B2/B66A 8843 RRH	17.2	13.2	15.5	1.59	1.86	1.30	1.11	1.20	1.20	12	14	13
B2/B66A 8843 RRH (Sh	17.2	9.9	15.5	1.19	1.86	1.74	1.11	1.20	1.20	9	14	12
B5/B12 4449 RRH	20.3	11.8	15.5	1.67	2.20	1.72	1.31	1.20	1.20	12	16	15
B5/B12 4449 RRH (Shi	20.3	8.9	15.5	1.26	2.20	2.29	1.31	1.20	1.20	9	16	14
LGP21401 TMA	16.7	5.0	11.3	0.59	1.32	3.32	1.48	1.24	1.20	4	10	8
DBCT108F1V92-1 Diple	13.0	9.1	9.5	0.83	0.87	1.43	1.37	1.20	1.20	6	6	6

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	8
HPA65R-BU8A Antenn	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	25	18	19
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	38	16	22
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	4	4
B14 4478 RRH (Shielde	18.1	6.2	13.4	0.78	1.68	2.91	1.35	1.22	1.20	2	4	4
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
B2/B66A 8843 RRH (Sh	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	2	4	3
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.65	1.89	1.36	1.20	1.20	3	4	4
B5/B12 4449 RRH (Shi	18.0	7.1	13.2	0.89	1.65	2.53	1.36	1.20	1.20	2	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
DBCT108F1V92-1 Diple	10.7	6.8	7.2	0.51	0.54	1.57	1.49	1.20	1.20	1	1	1

Date: 02/13/2019
 Project Name: VOLUNTOWN STONE HILL ROAD
 Project No.: CT2280
 Designed By: JN Checked By: MSC



WIND LOADS

Angle = 90 (deg)

Ice Thickness = 1.17 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) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	245	130	130
HPA65R-BU8A Antenn	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	500	358	358
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	773	334	334
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	56	90	90
B14 4478 RRH (Shielde	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	30	90	90
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	60	73	73
B2/B66A 8843 RRH (Sh	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	30	73	73
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.65	1.89	1.36	1.20	1.20	63	88	88
B5/B12 4449 RRH (Shir	18.0	4.8	13.2	0.59	1.65	3.79	1.36	1.26	1.20	33	88	88
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	16	48	48
DBCT108F1V92-1 Diple	10.7	6.8	7.2	0.51	0.54	1.57	1.49	1.20	1.20	27	29	29

WIND LOADS WITH ICE:

7770 Antenna	57.3	13.3	7.3	5.32	2.93	4.30	7.80	1.28	1.43	42	26	26
HPA65R-BU8A Antenn	98.3	14.0	9.9	9.60	6.80	7.00	9.89	1.40	1.50	82	62	62
800-10966 Antenna	98.3	22.3	9.2	15.26	6.32	4.40	10.63	1.28	1.52	120	59	59
B14 4478 RRH	20.4	10.6	15.7	1.51	2.24	1.92	1.30	1.20	1.20	11	16	16
B14 4478 RRH (Shielde	20.4	6.5	15.7	0.92	2.24	3.15	1.30	1.23	1.20	7	16	16
B2/B66A 8843 RRH	17.2	13.2	15.5	1.59	1.86	1.30	1.11	1.20	1.20	12	14	14
B2/B66A 8843 RRH (Sh	17.2	7.8	15.5	0.93	1.86	2.21	1.11	1.20	1.20	7	14	14
B5/B12 4449 RRH	20.3	11.8	15.5	1.67	2.20	1.72	1.31	1.20	1.20	12	16	16
B5/B12 4449 RRH (Shir	20.3	7.1	15.5	1.00	2.20	2.87	1.31	1.22	1.20	7	16	16
LGP21401 TMA	16.7	5.0	11.3	0.59	1.32	3.32	1.48	1.24	1.20	4	10	10
DBCT108F1V92-1 Diple	13.0	9.1	9.5	0.83	0.87	1.43	1.37	1.20	1.20	6	6	6

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	6
HPA65R-BU8A Antenn	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	25	18	18
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	38	16	16
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	4	4
B14 4478 RRH (Shielde	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	1	4	4
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	4
B2/B66A 8843 RRH (Sh	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	4	4
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.65	1.89	1.36	1.20	1.20	3	4	4
B5/B12 4449 RRH (Shir	18.0	4.8	13.2	0.59	1.65	3.79	1.36	1.26	1.20	2	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
DBCT108F1V92-1 Diple	10.7	6.8	7.2	0.51	0.54	1.57	1.49	1.20	1.20	1	1	1

Date: 02/13/2019
 Project Name: VOLUNTOWN STONE HILL ROAD
 Project No.: CT2280
 Designed By: JN Checked By: MSC



WIND LOADS

Angle = 120 (deg)

Ice Thickness = 1.17 in.

Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	245	150	159
HPA65R-BU8A Antenn	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	500	358	394
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	773	334	444
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	56	90	81
B14 4478 RRH (Shielde	18.1	6.2	13.4	0.78	1.68	2.91	1.35	1.22	1.20	42	90	78
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	60	73	70
B2/B66A 8843 RRH (Sh	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	45	73	66
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.65	1.89	1.36	1.20	1.20	63	88	82
B5/B12 4449 RRH (Shi	18.0	7.1	13.2	0.89	1.65	2.53	1.36	1.20	1.20	48	88	78
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	16	48	40
DBCT108F1V92-1 Diple	10.7	6.8	7.2	0.51	0.54	1.57	1.49	1.20	1.20	27	29	28

WIND LOADS WITH ICE:

7770 Antenna	57.3	13.3	7.3	5.32	2.93	4.30	7.80	1.28	1.43	42	26	30
HPA65R-BU8A Antenn	98.3	14.0	9.9	9.60	6.80	7.00	9.89	1.40	1.50	82	62	67
800-10966 Antenna	98.3	22.3	9.2	15.26	6.32	4.40	10.63	1.28	1.52	120	59	74
B14 4478 RRH	20.4	10.6	15.7	1.51	2.24	1.92	1.30	1.20	1.20	11	16	15
B14 4478 RRH (Shielde	20.4	8.0	15.7	1.13	2.24	2.56	1.30	1.20	1.20	8	16	14
B2/B66A 8843 RRH	17.2	13.2	15.5	1.59	1.86	1.30	1.11	1.20	1.20	12	14	13
B2/B66A 8843 RRH (Sh	17.2	9.9	15.5	1.19	1.86	1.74	1.11	1.20	1.20	9	14	12
B5/B12 4449 RRH	20.3	11.8	15.5	1.67	2.20	1.72	1.31	1.20	1.20	12	16	15
B5/B12 4449 RRH (Shi	20.3	8.9	15.5	1.26	2.20	2.29	1.31	1.20	1.20	9	16	14
LGP21401 TMA	16.7	5.0	11.3	0.59	1.32	3.32	1.48	1.24	1.20	4	10	8
DBCT108F1V92-1 Diple	13.0	9.1	9.5	0.83	0.87	1.43	1.37	1.20	1.20	6	6	6

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	8
HPA65R-BU8A Antenn	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	25	18	19
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	38	16	22
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	4	4
B14 4478 RRH (Shielde	18.1	6.2	13.4	0.78	1.68	2.91	1.35	1.22	1.20	2	4	4
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
B2/B66A 8843 RRH (Sh	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	2	4	3
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.65	1.89	1.36	1.20	1.20	3	4	4
B5/B12 4449 RRH (Shi	18.0	7.1	13.2	0.89	1.65	2.53	1.36	1.20	1.20	2	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
DBCT108F1V92-1 Diple	10.7	6.8	7.2	0.51	0.54	1.57	1.49	1.20	1.20	1	1	1

Date: 02/13/2019
 Project Name: VOLUNTOWN STONE HILL ROAD
 Project No.: CT2280
 Designed By: JN Checked By: MSC



WIND LOADS

Angle = 150 (deg)

Ice Thickness = 1.17 in.

Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	245	130	217
HPA65R-BU8A Antenn	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	500	358	465
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	773	334	663
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	56	90	64
B14 4478 RRH (Shielde	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	30	90	45
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	60	73	63
B2/B66A 8843 RRH (Sh	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	30	73	41
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.65	1.89	1.36	1.20	1.20	63	88	70
B5/B12 4449 RRH (Shi	18.0	4.8	13.2	0.59	1.65	3.79	1.36	1.26	1.20	33	88	47
LGP21401 TMA	14.4	2.7	9.0	0.27	0.90	5.33	1.60	1.33	1.20	16	48	24
DBCT108F1V92-1 Diple	10.7	6.8	7.2	0.51	0.54	1.57	1.49	1.20	1.20	27	29	27

WIND LOADS WITH ICE:

7770 Antenna	57.3	13.3	7.3	5.32	2.93	4.30	7.80	1.28	1.43	42	26	38
HPA65R-BU8A Antenn	98.3	14.0	9.9	9.60	6.80	7.00	9.89	1.40	1.50	82	62	77
800-10966 Antenna	98.3	22.3	9.2	15.26	6.32	4.40	10.63	1.28	1.52	120	59	104
B14 4478 RRH	20.4	10.6	15.7	1.51	2.24	1.92	1.30	1.20	1.20	11	16	12
B14 4478 RRH (Shielde	20.4	5.3	15.7	0.76	2.24	3.84	1.30	1.26	1.20	6	16	8
B2/B66A 8843 RRH	17.2	13.2	15.5	1.59	1.86	1.30	1.11	1.20	1.20	12	14	12
B2/B66A 8843 RRH (Sh	17.2	6.6	15.5	0.79	1.86	2.60	1.11	1.20	1.20	6	14	8
B5/B12 4449 RRH	20.3	11.8	15.5	1.67	2.20	1.72	1.31	1.20	1.20	12	16	13
B5/B12 4449 RRH (Shi	20.3	5.9	15.5	0.84	2.20	3.43	1.31	1.24	1.20	6	16	9
LGP21401 TMA	16.7	5.0	11.3	0.59	1.32	3.32	1.48	1.24	1.20	4	10	6
DBCT108F1V92-1 Diple	13.0	9.1	9.5	0.83	0.87	1.43	1.37	1.20	1.20	6	6	6

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	12	6	11
HPA65R-BU8A Antenn	96.0	11.7	7.6	7.80	5.07	8.21	12.63	1.44	1.59	25	18	23
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	38	16	33
B14 4478 RRH	18.1	8.3	13.4	1.04	1.68	2.18	1.35	1.20	1.20	3	4	3
B14 4478 RRH (Shielde	18.1	4.2	13.4	0.52	1.68	4.36	1.35	1.28	1.20	1	4	2
B2/B66A 8843 RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	3	4	3
B2/B66A 8843 RRH (Sh	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	4	2
B5/B12 4449 RRH	18.0	9.5	13.2	1.19	1.65	1.89	1.36	1.20	1.20	3	4	3
B5/B12 4449 RRH (Shi	18.0	4.8	13.2	0.59	1.65	3.79	1.36	1.26	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
DBCT108F1V92-1 Diple	10.7	6.8	7.2	0.51	0.54	1.57	1.49	1.20	1.20	1	1	1

Date: 02/13/2019
Project Name: VOLUNTOWN STONE HILL ROAD
Project No.: CT2280
Designed By: JN Checked By: MSC



ICE WEIGHT CALCULATIONS

Thickness of ice: 1.17 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: 87 lbs

Weight of object: 35.0 lbs

Combined weight of ice and object: 122 lbs

HPA65R-BU8A Antenna

Weight of ice based on total radial SF area:

Height (in): 96.0
Width (in): 11.7
Depth (in): 7.6

Total weight of ice on object: 173 lbs

Weight of object: 54.0 lbs

Combined weight of ice and object: 227 lbs

800-10966 Antenna

Weight of ice based on total radial SF area:

Height (in): 96.0
Width (in): 20.0
Depth (in): 6.9

Total weight of ice on object: 255 lbs

Weight of object: 115.0 lbs

Combined weight of ice and object: 370 lbs

B14 4478 RRH

Weight of ice based on total radial SF area:

Height (in): 18.1
Width (in): 13.4
Depth (in): 8.3

Total weight of ice on object: 37 lbs

Weight of object: 60.0 lbs

Combined weight of ice and object: 97 lbs

B2/B66A 8843 RRH

Weight of ice based on total radial SF area:

Height (in): 14.9
Width (in): 13.2
Depth (in): 10.9

Total weight of ice on object: 32 lbs

Weight of object: 72.0 lbs

Combined weight of ice and object: 104 lbs

B5/B12 4449 RRH

Weight of ice based on total radial SF area:

Height (in): 18.0
Width (in): 13.2
Depth (in): 9.5

Total weight of ice on object: 37 lbs

Weight of object: 71.0 lbs

Combined weight of ice and object: 108 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

DBCT108F1V92-1 Diplexer

Weight of ice based on total radial SF area:

Height (in): 10.7
Width (in): 6.8
Depth (in): 7.2

Total weight of ice on object: 14 lbs

Weight of object: 29.0 lbs

Combined weight of ice and object: 43 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: 31 lbs

Weight of object: 33 lbs

Combined weight of ice and object: 64 lbs

3/4" Round Bar

Per foot weight of ice:

diameter (in): 0.75

Per foot weight of ice on object: 3 plf

2" pipe

Per foot weight of ice:

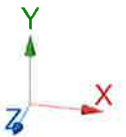
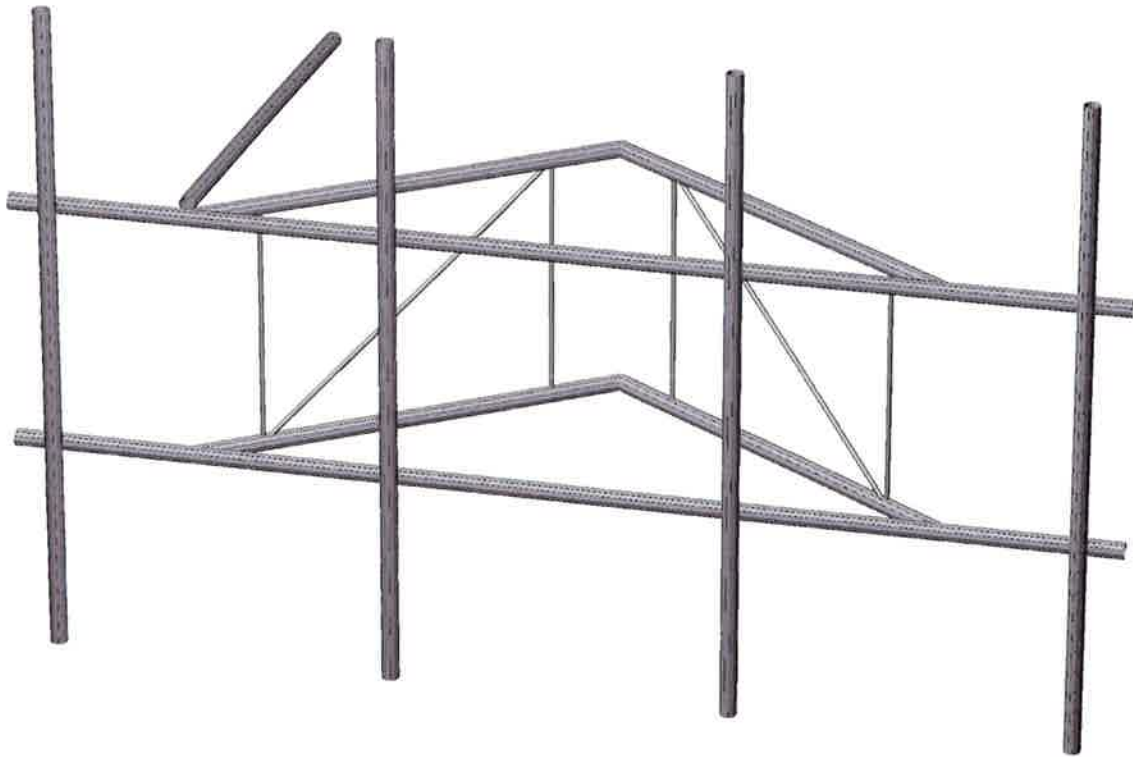
diameter (in): 2.38

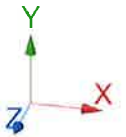
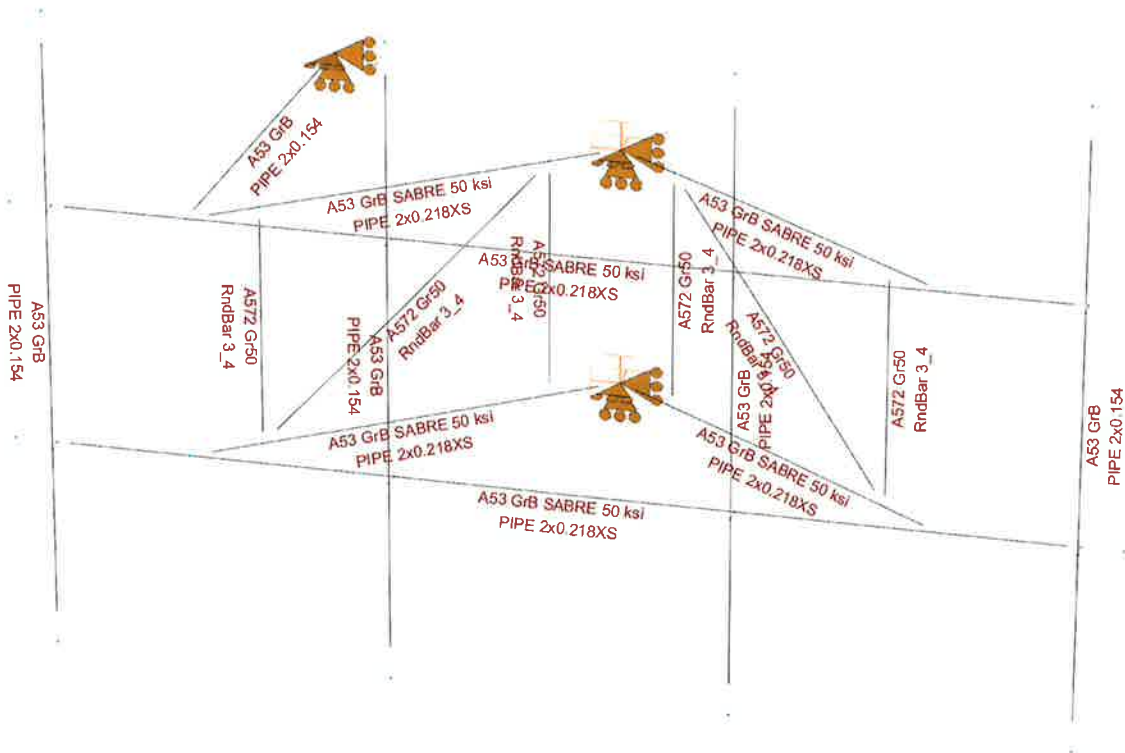
Per foot weight of ice on object: 5 plf



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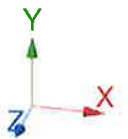
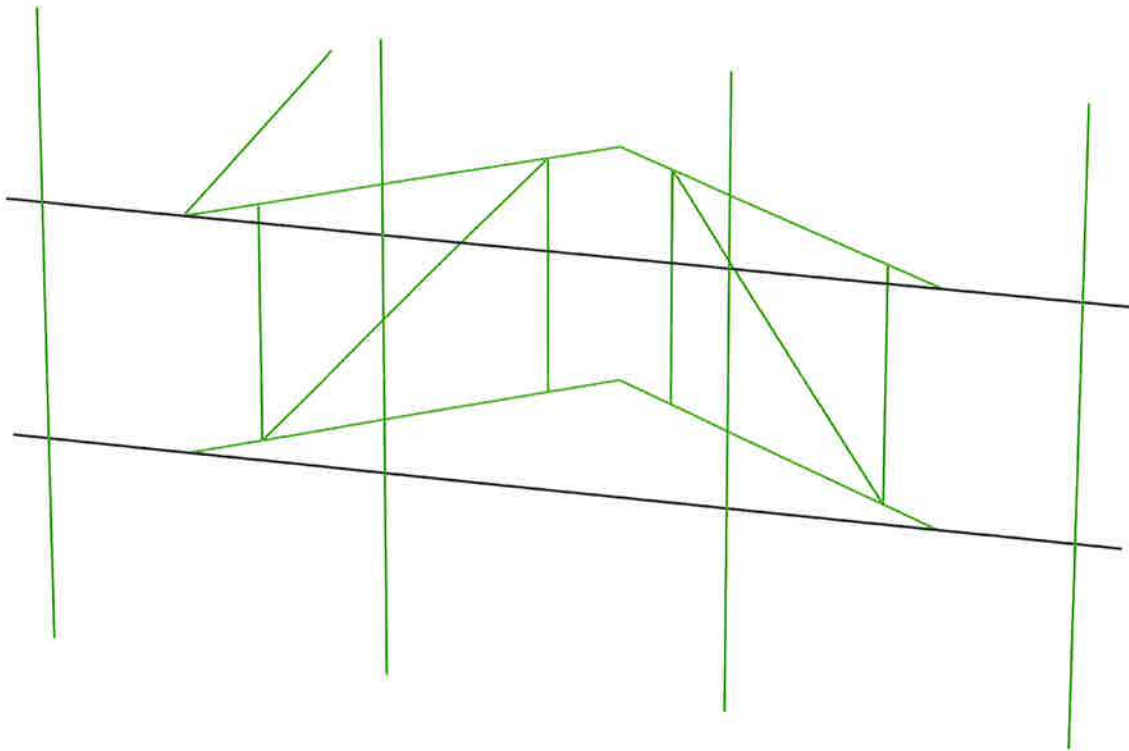
**Mount Calculations
(Proposed Conditions)**

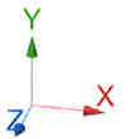
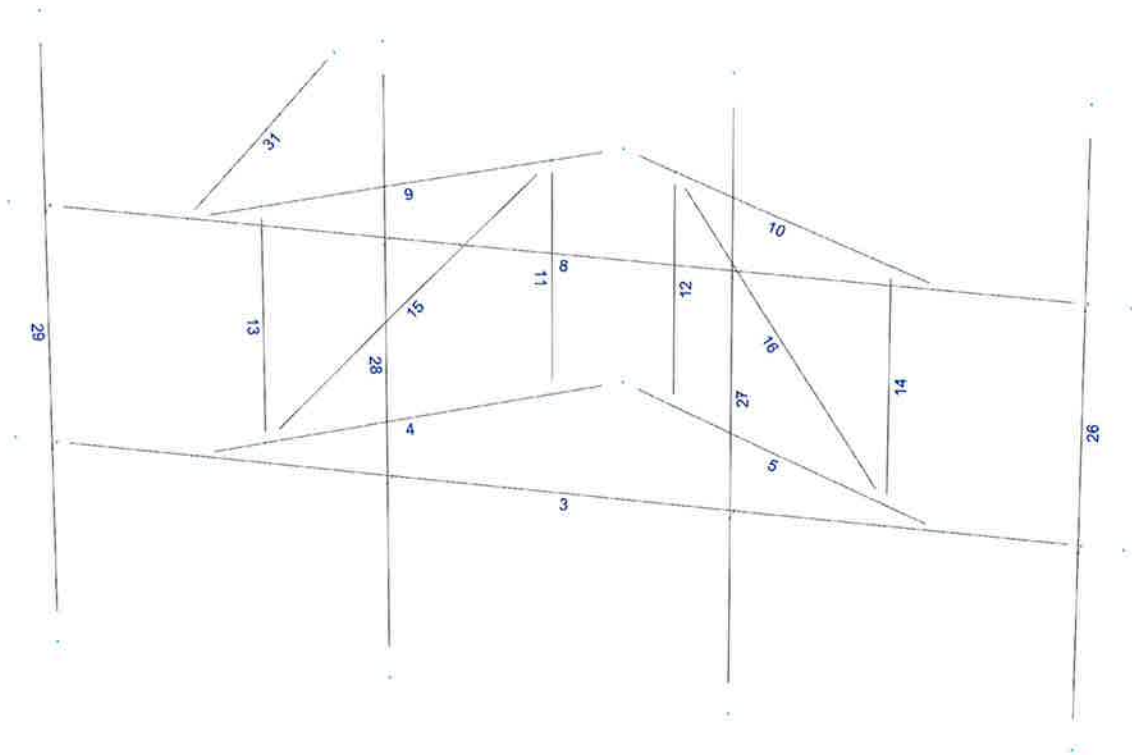




Design status

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





Current Date: 2/13/2019 5:45 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2280\LTE 2C-3C-4C-5C\Rev.1\CT22 (LTE 2C-3C-4C-5C) (Rev.1).etx\

Load data

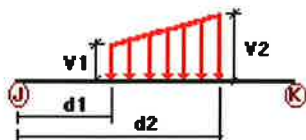
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

Condition	Description	Comb.	Category
D	Dead Load	No	DL
Wo	Wind Load (NO ICE)	No	WIND
W30	WL 30deg	No	WIND
W60	WL 60deg	No	WIND
W90	WL 90deg	No	WIND
W120	WL 120deg	No	WIND
W150	WL 150deg	No	WIND
Di	Ice Load	No	LL
WI0	WL ICE 0deg	No	WIND
WI30	WL ICE 30deg	No	WIND
WI60	WL ICE 60deg	No	WIND
WI90	WL ICE 90deg	No	WIND
WI120	WL ICE 120deg	No	WIND
WI150	WL ICE 150deg	No	WIND
WL0	WL 30 mph 0deg	No	WIND
WL30	WL 30 mph 30deg	No	WIND
WL60	WL 30 mph 60deg	No	WIND
WL90	WL 30 mph 90deg	No	WIND
WL120	WL 30 mph 120deg	No	WIND
WL150	WL 30 mph 150deg	No	WIND
LL1	250 lb Live Load Center of Mount	No	LL
LL2	250 lb Live Load Right End of Mount	No	LL
LL3	250 lb Live Load Left 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

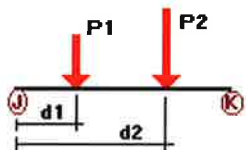
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	3	z	-0.011	0.00	0.00	No	0.00	No
	4	z	-0.011	0.00	0.00	No	0.00	No
	5	z	-0.011	0.00	0.00	No	0.00	No
	8	z	-0.011	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
	11	z	-0.003	0.00	0.00	No	0.00	No
	12	z	-0.003	0.00	0.00	No	0.00	No
	13	z	-0.003	0.00	0.00	No	0.00	No
	14	z	-0.003	0.00	0.00	No	0.00	No
	15	z	-0.003	0.00	0.00	No	0.00	No
	16	z	-0.003	0.00	0.00	No	0.00	No
	27	z	-0.011	0.00	0.00	No	0.00	No
	31	z	-0.011	0.00	0.00	No	0.00	No
W30	3	z	-0.011	0.00	0.00	No	0.00	No
	4	z	-0.011	0.00	0.00	No	0.00	No
	5	z	-0.011	0.00	0.00	No	0.00	No
	8	z	-0.011	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
	11	z	-0.003	0.00	0.00	No	0.00	No
	12	z	-0.003	0.00	0.00	No	0.00	No
	13	z	-0.003	0.00	0.00	No	0.00	No
	14	z	-0.003	0.00	0.00	No	0.00	No
	15	z	-0.003	0.00	0.00	No	0.00	No
	16	z	-0.003	0.00	0.00	No	0.00	No
	27	z	-0.011	0.00	0.00	No	0.00	No
	31	z	-0.011	0.00	0.00	No	0.00	No
W60	3	x	-0.011	0.00	0.00	No	0.00	No
	4	x	-0.011	0.00	0.00	No	0.00	No
	5	x	-0.011	0.00	0.00	No	0.00	No
	8	x	-0.011	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
	11	x	-0.003	0.00	0.00	No	0.00	No
	12	x	-0.003	0.00	0.00	No	0.00	No
	13	x	-0.003	0.00	0.00	No	0.00	No
	14	x	-0.003	0.00	0.00	No	0.00	No
	15	x	-0.003	0.00	0.00	No	0.00	No
	16	x	-0.003	0.00	0.00	No	0.00	No
	26	x	-0.011	0.00	0.00	No	0.00	No
	27	x	-0.011	0.00	0.00	No	0.00	No
	28	x	-0.011	0.00	0.00	No	0.00	No
W90	29	x	-0.011	0.00	0.00	No	0.00	No
	31	x	-0.011	0.00	0.00	No	0.00	No
	4	x	-0.011	0.00	0.00	No	0.00	No
	5	x	-0.011	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
	11	x	-0.003	0.00	0.00	No	0.00	No
	12	x	-0.003	0.00	0.00	No	0.00	No
	13	x	-0.003	0.00	0.00	No	0.00	No
	14	x	-0.003	0.00	0.00	No	0.00	No
	15	x	-0.003	0.00	0.00	No	0.00	No
	16	x	-0.003	0.00	0.00	No	0.00	No
	26	x	-0.011	0.00	0.00	No	0.00	No
	27	x	-0.011	0.00	0.00	No	0.00	No
	28	x	-0.011	0.00	0.00	No	0.00	No
	29	x	-0.011	0.00	0.00	No	0.00	No
	31	x	-0.011	0.00	0.00	No	0.00	No

W120	3	x	-0.011	0.00	0.00	No	0.00	No
	4	x	-0.011	0.00	0.00	No	0.00	No
	5	x	-0.011	0.00	0.00	No	0.00	No
	8	x	-0.011	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
	11	x	-0.003	0.00	0.00	No	0.00	No
	12	x	-0.003	0.00	0.00	No	0.00	No
	13	x	-0.003	0.00	0.00	No	0.00	No
	14	x	-0.003	0.00	0.00	No	0.00	No
	15	x	-0.003	0.00	0.00	No	0.00	No
	16	x	-0.003	0.00	0.00	No	0.00	No
	26	x	-0.011	0.00	0.00	No	0.00	No
	27	x	-0.011	0.00	0.00	No	0.00	No
	28	x	-0.011	0.00	0.00	No	0.00	No
	29	x	-0.011	0.00	0.00	No	0.00	No
	31	x	-0.011	0.00	0.00	No	0.00	No
W150	3	z	0.011	0.00	0.00	No	0.00	No
	4	z	0.011	0.00	0.00	No	0.00	No
	5	z	0.011	0.00	0.00	No	0.00	No
	8	z	0.011	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
	11	z	0.003	0.00	0.00	No	0.00	No
	12	z	0.003	0.00	0.00	No	0.00	No
	13	z	0.003	0.00	0.00	No	0.00	No
	14	z	0.003	0.00	0.00	No	0.00	No
	15	z	0.003	0.00	0.00	No	0.00	No
	16	z	0.003	0.00	0.00	No	0.00	No
	27	z	0.011	0.00	0.00	No	0.00	No
	31	z	0.011	0.00	0.00	No	0.00	No
Di	3	y	-0.005	0.00	0.00	No	0.00	No
	4	y	-0.005	0.00	0.00	No	0.00	No
	5	y	-0.005	0.00	0.00	No	0.00	No
	8	y	-0.005	0.00	0.00	No	0.00	No
	9	y	-0.005	0.00	0.00	No	0.00	No
	10	y	-0.005	0.00	0.00	No	0.00	No
	11	y	-0.003	0.00	0.00	No	0.00	No
	12	y	-0.003	0.00	0.00	No	0.00	No
	13	y	-0.003	0.00	0.00	No	0.00	No
	14	y	-0.003	0.00	0.00	No	0.00	No
	15	y	-0.003	0.00	0.00	No	0.00	No
	16	y	-0.003	0.00	0.00	No	0.00	No
	26	y	-0.005	0.00	0.00	No	0.00	No
	27	y	-0.005	0.00	0.00	No	0.00	No
	28	y	-0.005	0.00	0.00	No	0.00	No
	29	y	-0.005	0.00	0.00	No	0.00	No
	31	y	-0.005	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	26	y	-0.018	2.00	No
		y	-0.018	6.00	No
		y	-0.038	4.50	No
	28	y	-0.027	0.50	No
		y	-0.027	7.50	No
		y	-0.06	1.50	No
		y	-0.072	1.50	No
		y	-0.029	6.50	No
	29	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.071	1.50	No
Wo	26	z	-0.123	2.00	No
		z	-0.123	6.00	No
	28	z	-0.251	0.50	No
		z	-0.251	7.50	No
		z	-0.03	1.50	No
	29	z	-0.03	1.50	No
		z	-0.387	0.50	No
		z	-0.387	7.50	No
		z	-0.033	1.50	No
		z	-0.033	1.50	No
W30	26	3	-0.109	2.00	No
		3	-0.109	6.00	No
		3	-0.024	4.50	No
	28	3	-0.233	0.50	No
		3	-0.233	7.50	No
		3	-0.045	1.50	No
		3	-0.027	6.50	No
		3	-0.027	6.50	No
	29	3	-0.332	0.50	No
		3	-0.332	7.50	No
		3	-0.047	1.50	No
W60	26	3	-0.08	2.00	No
		3	-0.08	6.00	No
		3	-0.04	4.50	No
	28	3	-0.197	0.50	No
		3	-0.197	7.50	No
		3	-0.078	1.50	No
		3	-0.028	6.50	No
		3	-0.028	6.50	No
	29	3	-0.222	0.50	No
		3	-0.222	7.50	No
		3	-0.078	1.50	No
W90	26	x	-0.066	2.00	No
		x	-0.066	6.00	No
		x	-0.048	4.50	No
	28	x	-0.18	0.50	No
		x	-0.18	7.50	No
		x	-0.09	1.50	No
		x	-0.029	6.50	No
		x	-0.029	6.50	No
	29	x	-0.167	0.50	No
		x	-0.167	7.50	No
		x	-0.088	1.50	No
W120	26	2	-0.08	2.00	No
		2	-0.08	6.00	No
		2	-0.04	4.50	No
	28	2	-0.197	0.50	No
		2	-0.197	7.50	No
		2	-0.078	1.50	No
		2	-0.028	6.50	No
		2	-0.028	6.50	No
	29	2	-0.222	0.50	No
		2	-0.222	7.50	No
		2	-0.078	1.50	No

W150	26	2	-0.109	2.00	No
		2	-0.109	6.00	No
		2	-0.024	4.50	No
	28	2	-0.233	0.50	No
		2	-0.233	7.50	No
		2	-0.045	1.50	No
	29	2	-0.027	6.50	No
		2	-0.332	0.50	No
		2	-0.332	7.50	No
Di	26	2	-0.047	1.50	No
		y	-0.044	2.00	No
		y	-0.044	6.00	No
	28	y	-0.036	4.50	No
		y	-0.087	0.50	No
		y	-0.087	7.50	No
	29	y	-0.037	1.50	No
		y	-0.032	1.50	No
		y	-0.014	6.50	No
WI0	26	y	-0.128	0.50	No
		y	-0.128	7.50	No
		y	-0.037	1.50	No
	28	z	-0.022	2.00	No
		z	-0.022	6.00	No
		z	-0.043	0.50	No
	29	z	-0.043	7.50	No
		z	-0.007	1.50	No
		z	-0.007	1.50	No
WI30	26	z	-0.061	0.50	No
		z	-0.061	7.50	No
		z	-0.008	1.50	No
	28	3	-0.019	2.00	No
		3	-0.019	6.00	No
		3	-0.006	4.50	No
	29	3	-0.039	0.50	No
		3	-0.039	7.50	No
		3	-0.008	1.50	No
WI60	26	3	-0.006	6.50	No
		3	-0.053	0.50	No
		3	-0.053	7.50	No
	28	3	-0.009	1.50	No
		3	-0.015	2.00	No
		3	-0.015	6.00	No
	29	3	-0.008	4.50	No
		3	-0.034	0.50	No
		3	-0.034	7.50	No
WI90	26	3	-0.014	1.50	No
		3	-0.006	6.50	No
		3	-0.037	0.50	No
	28	3	-0.037	7.50	No
		3	-0.014	1.50	No
		x	-0.013	2.00	No
	29	x	-0.013	6.00	No
		x	-0.01	4.50	No
		x	-0.032	0.50	No
WI130	26	x	-0.032	7.50	No
		x	-0.016	1.50	No
		x	-0.006	6.50	No
	28	x	-0.006	6.50	No
		x	-0.03	0.50	No
		x	-0.03	7.50	No
	29	x	-0.016	1.50	No
		x	-0.016	1.50	No
		x	-0.016	1.50	No

WI120	26	2	-0.015	2.00	No
		2	-0.015	6.00	No
		2	-0.008	4.50	No
	28	2	-0.034	0.50	No
		2	-0.034	7.50	No
		2	-0.014	1.50	No
	29	2	-0.006	6.50	No
		2	-0.037	0.50	No
		2	-0.037	7.50	No
WI150	26	2	-0.014	1.50	No
		2	-0.019	2.00	No
		2	-0.019	6.00	No
	28	2	-0.006	4.50	No
		2	-0.039	0.50	No
		2	-0.039	7.50	No
	29	2	-0.008	1.50	No
		2	-0.006	6.50	No
		2	-0.053	0.50	No
WL0	26	2	-0.053	7.50	No
		2	-0.009	1.50	No
		z	-0.007	2.00	No
	28	z	-0.007	6.00	No
		z	-0.013	0.50	No
		z	-0.013	7.50	No
	29	z	-0.002	1.50	No
		z	-0.002	1.50	No
		z	-0.02	0.50	No
WL30	26	z	-0.02	7.50	No
		z	-0.002	1.50	No
		3	-0.006	2.00	No
	28	3	-0.006	6.00	No
		3	-0.002	4.50	No
		3	-0.012	0.50	No
	29	3	-0.012	7.50	No
		3	-0.003	1.50	No
		3	-0.002	6.50	No
WL60	26	3	-0.017	0.50	No
		3	-0.017	7.50	No
		3	-0.003	1.50	No
	28	3	-0.004	2.00	No
		3	-0.004	6.00	No
		3	-0.002	4.50	No
	29	3	-0.01	0.50	No
		3	-0.01	7.50	No
		3	-0.004	1.50	No
WL90	26	3	-0.002	6.50	No
		3	-0.011	0.50	No
		3	-0.011	7.50	No
	28	x	-0.004	1.50	No
		x	-0.004	2.00	No
		x	-0.004	6.00	No
	29	x	-0.003	4.50	No
		x	-0.009	0.50	No
		x	-0.009	7.50	No
WL120	26	x	-0.005	1.50	No
		x	-0.005	1.50	No
		2	-0.004	2.00	No

		2	-0.004	6.00	No
		2	-0.002	4.50	No
	28	2	-0.01	0.50	No
		2	-0.01	7.50	No
		2	-0.004	1.50	No
		2	-0.002	6.50	No
	29	2	-0.011	0.50	No
		2	-0.011	7.50	No
		2	-0.004	1.50	No
WL150	26	2	-0.006	2.00	No
		2	-0.006	6.00	No
		2	-0.002	4.50	No
	28	2	-0.012	0.50	No
		2	-0.012	7.50	No
		3	-0.003	1.50	No
		2	-0.002	6.50	No
	29	2	-0.017	0.50	No
		2	-0.017	7.50	No
		3	-0.003	1.50	No
LL1	8	y	-0.25	50.00	Yes
LL2	8	y	-0.25	100.00	Yes
LL3	8	y	-0.25	0.00	Yes
LLa1	26	y	-0.25	50.00	Yes
LLa2	28	y	-0.25	50.00	Yes
LLa3	29	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

Condition	Description	Self weight multiplier			
		Comb.	MultX	MultY	MultZ
D	Dead Load	No	0.00	-1.00	0.00
Wo	Wind Load (NO ICE)	No	0.00	0.00	0.00
W30	WL 30deg	No	0.00	0.00	0.00
W60	WL 60deg	No	0.00	0.00	0.00
W90	WL 90deg	No	0.00	0.00	0.00
W120	WL 120deg	No	0.00	0.00	0.00
W150	WL 150deg	No	0.00	0.00	0.00
Di	Ice Load	No	0.00	0.00	0.00
WI0	WL ICE 0deg	No	0.00	0.00	0.00
WI30	WL ICE 30deg	No	0.00	0.00	0.00
WI60	WL ICE 60deg	No	0.00	0.00	0.00
WI90	WL ICE 90deg	No	0.00	0.00	0.00
WI120	WL ICE 120deg	No	0.00	0.00	0.00
WI150	WL ICE 150deg	No	0.00	0.00	0.00
WL0	WL 30 mph 0deg	No	0.00	0.00	0.00
WL30	WL 30 mph 30deg	No	0.00	0.00	0.00
WL60	WL 30 mph 60deg	No	0.00	0.00	0.00
WL90	WL 30 mph 90deg	No	0.00	0.00	0.00
WL120	WL 30 mph 120deg	No	0.00	0.00	0.00
WL150	WL 30 mph 150deg	No	0.00	0.00	0.00
LL1	250 lb Live Load Center of Mount	No	0.00	0.00	0.00
LL2	250 lb Live Load Right End of Mount	No	0.00	0.00	0.00
LL3	250 lb Live Load Left 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

Earthquake (Dynamic analysis only)

Condition	a/g	Ang. [Deg]	Damp. [%]
D	0.00	0.00	0.00
Wo	0.00	0.00	0.00
W30	0.00	0.00	0.00
W60	0.00	0.00	0.00
W90	0.00	0.00	0.00
W120	0.00	0.00	0.00
W150	0.00	0.00	0.00
Di	0.00	0.00	0.00
WI0	0.00	0.00	0.00
WI30	0.00	0.00	0.00
WI60	0.00	0.00	0.00
WI90	0.00	0.00	0.00
WI120	0.00	0.00	0.00
WI150	0.00	0.00	0.00
WL0	0.00	0.00	0.00
WL30	0.00	0.00	0.00
WL60	0.00	0.00	0.00
WL90	0.00	0.00	0.00
WL120	0.00	0.00	0.00
WL150	0.00	0.00	0.00
LL1	0.00	0.00	0.00
LL2	0.00	0.00	0.00
LL3	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

Current Date: 2/13/2019 5:45 PM

Units system: English

File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT2280\LTE 2C-3C-4C-5C\Rev.1\CT22 (LTE 2C-3C-4C-5C) (Rev.1).etx\

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+W10
LC26=1.2D+Di+W130
LC27=1.2D+Di+W160
LC28=1.2D+Di+W190
LC29=1.2D+Di+W120
LC30=1.2D+Di+W150
LC31=1.2D+Di-W10
LC32=1.2D+Di-W130
LC33=1.2D+Di-W160
LC34=1.2D+Di-W190
LC35=1.2D+Di-W120
LC36=1.2D+Di-W150
LC38=1.2D+1.5LL1
LC39=1.2D+1.5LL2
LC40=1.2D+1.5LL3
LC41=1.2D+WL0+1.5LLa1
LC42=1.2D+WL30+1.5LLa1
LC43=1.2D+WL60+1.5LLa1
LC44=1.2D+WL90+1.5LLa1
LC45=1.2D+WL120+1.5LLa1
LC46=1.2D+WL150+1.5LLa1
LC47=1.2D-WL0+1.5LLa1
LC48=1.2D-WL30+1.5LLa1
LC49=1.2D-WL60+1.5LLa1
LC50=1.2D-WL90+1.5LLa1
LC51=1.2D-WL120+1.5LLa1
LC52=1.2D-WL150+1.5LLa1
LC53=1.2D+WL0+1.5LLa2

LC54=1.2D+WL30+1.5LLa2
 LC55=1.2D+WL60+1.5LLa2
 LC56=1.2D+WL90+1.5LLa2
 LC57=1.2D+WL120+1.5LLa2
 LC58=1.2D+WL150+1.5LLa2
 LC59=1.2D-WL0+1.5LLa2
 LC60=1.2D-WL30+1.5LLa2
 LC61=1.2D-WL60+1.5LLa2
 LC62=1.2D-WL90+1.5LLa2
 LC63=1.2D-WL120+1.5LLa2
 LC64=1.2D-WL150+1.5LLa2
 LC65=1.2D+WL0+1.5LLa3
 LC66=1.2D+WL30+1.5LLa3
 LC67=1.2D+WL60+1.5LLa3
 LC68=1.2D+WL90+1.5LLa3
 LC69=1.2D+WL120+1.5LLa3
 LC70=1.2D+WL150+1.5LLa3
 LC71=1.2D-WL0+1.5LLa3
 LC72=1.2D-WL30+1.5LLa3
 LC73=1.2D-WL60+1.5LLa3
 LC74=1.2D-WL90+1.5LLa3
 LC75=1.2D-WL120+1.5LLa3
 LC76=1.2D-WL150+1.5LLa3

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
PIPE 2x0.154		26	LC39 at 31.25%	0.33	OK	Eq. H1-1b
		27	LC3 at 31.25%	0.31	OK	Eq. H1-1b
		28	LC1 at 29.17%	0.59	OK	Eq. H1-1b
		29	LC7 at 68.75%	0.88	OK	Eq. H1-1b
		31	LC15 at 100.00%	0.23	OK	Eq. H1-1b
PIPE 2x0.218XS		3	LC7 at 16.96%	0.50	With warnings	Eq. H1-1b
		4	LC8 at 100.00%	0.24	OK	Eq. H1-1b
		5	LC3 at 100.00%	0.21	OK	Eq. H1-1b
		8	LC1 at 16.07%	0.38	With warnings	Eq. H1-1b
		9	LC31 at 100.00%	0.23	OK	Eq. H1-1b
		10	LC39 at 100.00%	0.13	OK	Eq. H1-1b
RndBar 3_4		11	LC31 at 0.00%	0.40	OK	Eq. H1-1a
		12	LC39 at 100.00%	0.26	OK	Eq. H1-1a
		13	LC36 at 100.00%	0.55	OK	Eq. H1-1a
		14	LC42 at 0.00%	0.31	OK	Eq. H1-1a
		15	LC32 at 0.00%	0.18	OK	Eq. Sec. D2
		16	LC39 at 0.00%	0.11	OK	Eq. Sec. D2

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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	6.50	0.00	0.00	0
3	-6.50	0.00	0.00	0
8	-4.40	0.00	0.00	0
9	4.40	0.00	0.00	0
10	0.00	0.00	-3.00	0
11	-3.6667	0.00	-0.50	0
12	3.6667	0.00	-0.50	0
13	0.7333	0.00	-2.50	0
14	-0.7333	0.00	-2.50	0
16	6.50	3.00	0.00	0
17	-6.50	3.00	0.00	0
22	-4.40	3.00	0.00	0
23	4.40	3.00	0.00	0
24	0.00	3.00	-3.00	0
25	-3.6667	3.00	-0.50	0
26	3.6667	3.00	-0.50	0
27	0.7333	3.00	-2.50	0
28	-0.7333	3.00	-2.50	0
33	-6.00	5.50	0.20	0
34	6.00	5.50	0.20	0
35	-6.00	-2.50	0.20	0

36	6.00	-2.50	0.20	0
42	2.00	5.50	0.20	0
43	2.00	-2.50	0.20	0
48	-2.00	5.50	0.20	0
49	-2.00	-2.50	0.20	0
51	-4.00	3.00	-5.00	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
10	1	1	1	1	1	1
24	1	1	1	1	1	1
51	1	1	1	0	0	0

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	Ig factor
3	3	2		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
4	8	10		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
5	9	10		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
8	17	16		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
9	22	24		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
10	23	24		PIPE 2x0.218XS	A53 GrB SABRE 50...	0.00	0.00	0.00
11	14	28		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
12	27	13		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
13	25	11		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
14	12	26		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
15	28	11		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
16	27	12		RndBar 3_4	A572 Gr50	0.00	0.00	0.00
26	34	36		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
27	42	43		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
28	48	49		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
29	33	35		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
31	22	51		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
26	315.00	0	0.00	0.00	0.00
27	315.00	0	0.00	0.00	0.00
28	315.00	0	0.00	0.00	0.00
29	315.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
31	0.00	2.00	0.00	0.00	2.00	0.00

Hinges

Member	Node-J				Node-K				TOR	AXL	Axial rigidity
	M33	M22	V3	V2	M33	M22	V3	V2			
15	0	0	0	0	0	0	0	0	0	0	Tension only
16	0	0	0	0	0	0	0	0	0	0	Tension only

497 EKONK HILL RD

Location	497 EKONK HILL RD	Mblu	043/ 005-00/ 0497/ /
Acct#	RP-00695	Owner	SWEET THOMAS M & PATRICIA
Assessment	\$198,590	Appraisal	\$350,140
PID	7194	Building Count	1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2018	\$206,860	\$143,280	\$350,140
Assessment			
Valuation Year	Improvements	Land	Total
2018	\$144,810	\$53,780	\$198,590

Owner of Record

Owner	SWEET THOMAS M & PATRICIA	Sale Price	\$0
Co-Owner		Certificate	1
Address	497 EKONK HILL RD VOLUNTOWN, CT 06384	Book & Page	58/ 451
		Sale Date	01/01/1900

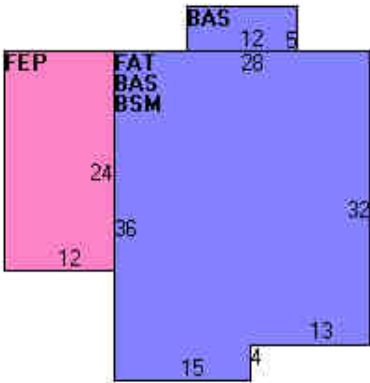
Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
SWEET THOMAS M & PATRICIA	\$0	1	58/ 451	01/01/1900

Building Information

Building 1 : Section 1	
Year Built:	1921
Living Area:	1,207
Replacement Cost:	\$135,916
Building Percent Good:	69
Replacement Cost Less Depreciation:	\$93,780
Building Attributes	
Field	Description
Style	Cape
Model	Residential
Grade:	C
Stories	1
Occupancy	1
Exterior Wall 1	Vinyl Siding
Exterior Wall 2	
Roof Structure	Gable
Roof Cover	Asphalt
Interior Wall 1	Drywall
Building Photo	
 Building Photo (http://images.vgsi.com/photos/VoluntownCTPhotos//\00\00\02\70.jpg)	
Building Layout	

Interior Wall 2	
Interior Flr 1	Hardwood
Interior Flr 2	
Heat Fuel	Gas
Heat Type:	Hot Water
AC Type:	None
Total Bedrooms:	3 Bedrooms
Total Bthrms:	1
Total Half Baths:	0
Extra Fixtures	0
Total Rooms:	5
Bath Style:	Average
Kitchen Style:	Average
Fireplaces	0
Xtra Openings	
Gas Fireplaces	
Blocked FPL	
SF Fin Bsmt	
Fin Bsmt Qual	
Bsmt Gar	0
Jac/Whlpl	
Woodstove:	
Pellet Stove	
Res Elevator	



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	1,016	1,016
FAT	Finished Attic	956	191
BSM	Basement	956	0
FEP	Finished Enclosed Porch	288	0
		3,216	1,207

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use		Land Line Valuation	
Use Code	1010	Size (Acres)	28.00
Description	Single Family	Frontage	
Zone	RD	Depth	
Neighborhood	50	Assessed Value	\$53,780
Alt Land Appr Category	No	Appraised Value	\$143,280

Outbuildings

Outbuildings						Legend
Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
BRN8	Pole Barn			2016 S.F.	\$18,140	1
FGR1	Garage - Ave			576 S.F.	\$7,200	1
SHD1	Shed			168 S.F.	\$1,340	1
BRN8	Pole Barn			4800 S.F.	\$86,400	1

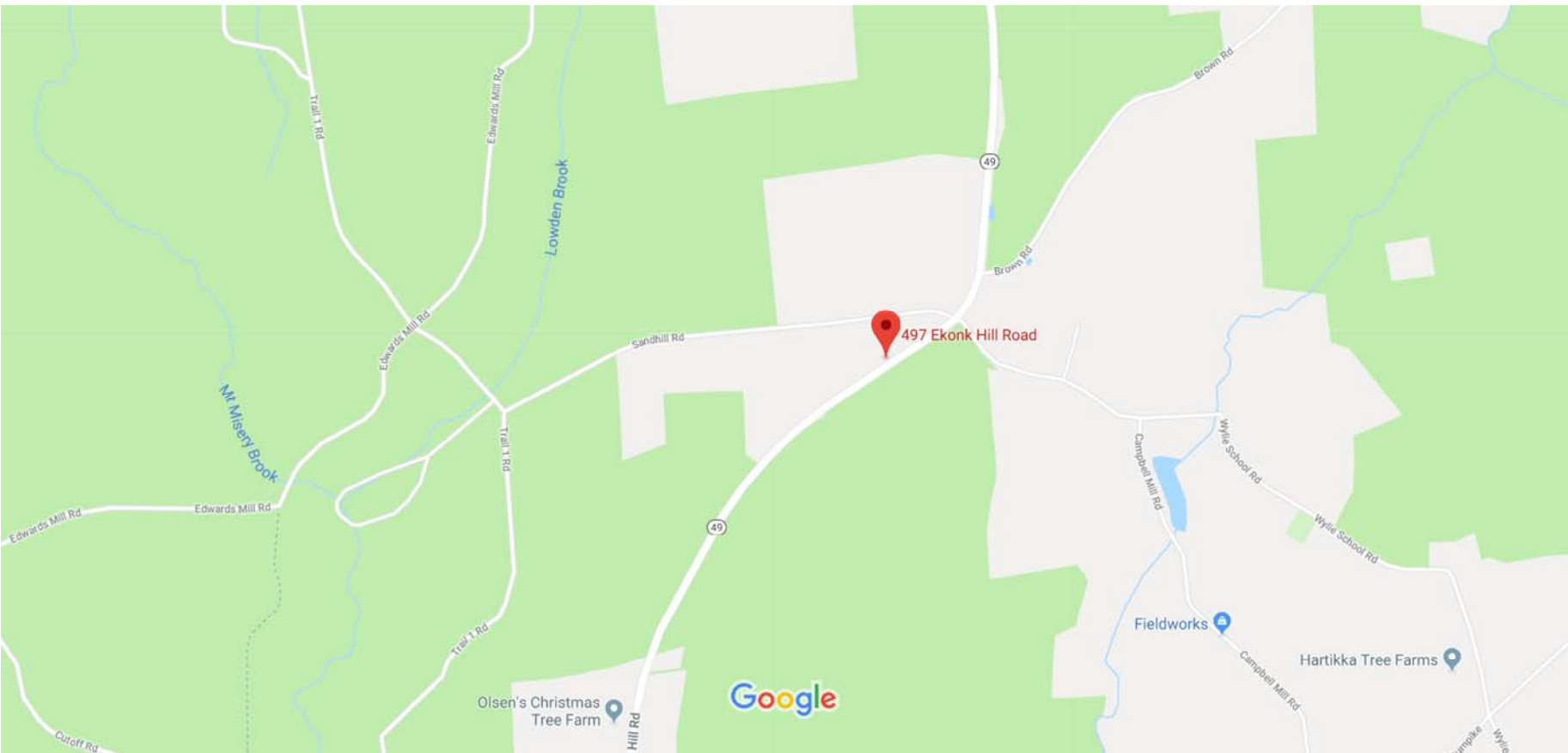
Valuation History

Appraisal			
Valuation Year	Improvements	Land	Total
2017	\$206,860	\$143,280	\$350,140

2016	\$212,750	\$143,280	\$356,030
2015	\$138,540	\$143,280	\$281,820

Assessment			
Valuation Year	Improvements	Land	Total
2017	\$144,810	\$53,780	\$198,590
2016	\$148,930	\$53,780	\$202,710
2015	\$96,980	\$53,780	\$150,760

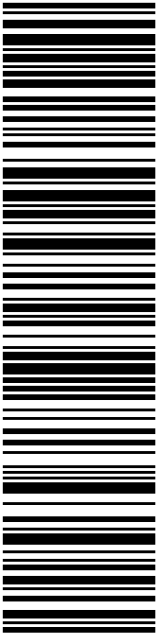
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 UNITED STATES POSTAL SERVICE®		Click-N-Ship®	
P		usps.com US POSTAGE Flat Rate Env	
03/30/2019		Mailed from 06268 062S0000000101	
PRIORITY MAIL 1-DAY™		9405 5036 9930 0461 9274 88 0073 5000 0010 6384	
MARK J ROBERTS QC DEVELOPMENT PO BOX 916 STORRS CT 06268-0916		0024 Expected Delivery Date: 04/01/19	
Carrier -- Leave if No Response		R003	
SHIP TO: THE HONORABLE TRACEY HANSON TO: TOWN OF VOLUNTOWN 115 MAIN ST CC: PETER ZVINGILAS, ZEO VOLUNTOWN CT 06384-1820			
USPS TRACKING #			
			
9405 5036 9930 0461 9274 88			
Electronic Rate Approved #038555749			



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0461 9274 88

Trans. #: 460340674
Print Date: 03/29/2019
Ship Date: 03/30/2019
Expected Delivery Date: 04/01/2019

Priority Mail® Postage: **\$7.35**
Total: **\$7.35**

From: MARK J ROBERTS
QC DEVELOPMENT
PO BOX 916
STORRS CT 06268-0916

To: THE HONORABLE TRACEY HANSON
TOWN OF VOLUNTOWN
115 MAIN ST
CC: PETER ZVINGILAS, ZEO
VOLUNTOWN CT 06384-1820

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



Thank you for shipping with the United States Postal Service!
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 UNITED STATES POSTAL SERVICE®		Click-N-Ship®	
P		usps.com US POSTAGE Flat Rate Env	
03/30/2019		Mailed from 06268 062S0000000101	
PRIORITY MAIL 1-DAY™		USPS TRACKING # 9405 5036 9930 0461 9274 95	
MARK J ROBERTS QC DEVELOPMENT PO BOX 916 STORRS CT 06268-0916		0024	
Carrier -- Leave if No Response		R001	
SHIP TO: THOMAS & PATRICIA SWEET 497 EKONK HILL RD VOLUNTOWN CT 06384-1312		USPS TRACKING # 9405 5036 9930 0461 9274 95	
Electronic Rate Approved #038555749			

Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0461 9274 95

Trans. #: 460340674
 Print Date: 03/29/2019
 Ship Date: 03/30/2019
 Expected Delivery Date: 04/01/2019

Priority Mail® Postage: **\$7.35**
 Total: **\$7.35**

From: MARK J ROBERTS
 QC DEVELOPMENT
 PO BOX 916
 STORRS CT 06268-0916

To: THOMAS & PATRICIA SWEET
 497 EKONK HILL RD
 VOLUNTOWN CT 06384-1312

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



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