March 22, 2024

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

Re: Notice of Exempt Modification New Cingular Wireless PCS LLC ("AT&T") Site CT5058
289 Danbury Road (aka 287 Danbury Road), Wilton, CT 06897 (the "Property")
Latitude: 41-11-42.53 N Longitude: 73-25-51.64 W

Dear Ms. Bachman:

AT&T currently maintains (6) antennas at the 128' level on the existing 131' electronic transmission tower #2998 ("Tower"), at 289 Danbury Road (aka 287 Danbury Rd), Wilton, CT. The property is owned by Triple D Properties LLC and the Tower is owned by Connecticut Light & Power ("Eversource"). AT&T intends to modify its Facility removing the (6) antennas and replacing them with (3) TPA65R-BU6DA-K & (3) NNHHS4-65A-R5 antennas at the 128' level of the Tower. AT&T also intends on removing (12) tower mounted amplifiers ("TMAs") and replacing them with (6) TMABPD7823VG12A & (6) TMAT192123B68-31 TMAs and adding (6) STX61742Q-43 Triplexers at the 128' level on the Tower. The height of AT&Ts existing & proposed antennas & TMAs is 128' level on the Tower. Various equipment changes are proposed at ground level.

This modification may include B2, B5, B17, B14, B29, B30, B66 & n77 hardware that is 4G(LTE) and/or 5GNR capable through remote software configuration and either or both services may be turned on or off at various times.

The AT&T Facility was approved by the CT Siting Council ("Council") in Petition 455 on May 10, 2000. A zoning permit was issued by the town of Wilton on May 30, 2000. AT&Ts modification complies with the above-mentioned approvals.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies ("R.C.S.A") §16-50j-73 for construction that constitutes an exempt modification pursuant to R.C.S.A §16-50j-72(b)(2). In accordance with to R.C.S.A §16-50j-73, a copy of this letter is being sent to the Hon. Toni Boucher, First Selectman, Town of Wilton, Mr. Michael Wrinn, Director of Planning & Land Use Management/Town Planner, Town of Wilton, Triple D Properties LLC, the property owner and Eversource, the tower owner.

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

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

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

3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.

4. The operation of the modified facility will not increase radio frequency emissions at the facility to a level at or above the Federal Communications Commission safety standard.

5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

6. The existing structure and foundation can support the proposed loading.

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

Sincerely,

Hollis M. Redding

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

Enclosures

Cc: Hon. Toni Boucher, First Selectman, Town of Wilton
Mr. Michael Wrinn, Director of Planning & Land Use Management/Town Planner, Town of Wilton
Triple D Properties LLC, the property owner
Connecticut Light & Power, ("Eversource"), the tower owner

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

Calculated Radio Frequency Emissions Report

CT5058

289 Danbury Road, Wilton, CT 06897

January 26, 2024

Table of Contents

1. Introduction 2
2. FCC Guidelines for Evaluating RF Radiation Exposure Limits 2
3. RF Exposure Prediction Methods 3
4. Antenna Inventory 4
5. Calculation Results 5
6. Conclusion 7
7. Statement of Certification 7

Attachment A: References 8
Attachment B: FCC Limits for Maximum Permissible Exposure (MPE) 9
Attachment C: AT&T Mobility Antenna Model Data Sheets and Electrical Patterns 11

List of Figures

Figure 1: Graph of General Population % MPE vs. Distance 5
Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE) 10

List of Tables

Table 1: Proposed Antenna Inventory 4
Table 2: Maximum Percent of General Population Exposure Values 6
Table 3: FCC Limits for Maximum Permissible Exposure 9

1. Introduction

The purpose of this report is to investigate compliance with applicable FCC regulations for the proposed modification of AT&T antenna arrays to be mounted at 128' AGL on an utility pole located at 289 Danbury Road in Wilton, CT. The coordinates of the tower are 41° 11' 41.97" N, 73° 25' 53.03" W.

AT&T is proposing the following:

1) Install six (6) multi-band antennas (two (2) per sector) to support its commercial LTE network and the FirstNet National Public Safety Broadband Network ("NPSBN").

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

2. FCC Guidelines for Evaluating RF Radiation Exposure Limits

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

The FCC general population/uncontrolled limits set the maximum exposure to which most people may be subjected. General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

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

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

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

[1] As referenced to AT&T's Radio Frequency Design Sheet, dated 02/13/2023

3. RF Exposure Prediction Methods

The emission field calculation results displayed in the following figures were generated using the following formula as outlined in FCC bulletin OET 65:

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

Where:

EIRP = Effective Isotropic Radiated Power

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

H = Horizontal Distance from antenna in meters

V = Vertical Distance from radiation center of antenna in meters

Off Beam Loss is determined by the selected antenna patterns

GRF = Ground Reflection Factor of 1.6

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

4. Antenna Inventory

Table 1 below outlines AT&T's proposed antenna configuration for the site. The associated data sheets and antenna patterns for these specific antenna models are included in Attachments C.

Operator	Sector / Call Sign	TX Freq (MHz)	Power at Antenna (Watts)	Ant Gain (dBi)	Power EIRP (Watts)	Antenna Model	Beam Width	Mech. Tilt	Length (ft)	Antenna Centerline Height (ft)
	Alpha / 0°	739	160	15.0	5060	TPA65R-BU6DA-K	62	0	5.9	128
		850	40	15.3	5422		57			
		2100	240	18.3	16226		63			
		763	160	13.6	3665	NNHHS4-65A-R5	59	0	4.9	128
		1900	160	17.4	8793		60			
		3700	54	16.6	14627		70			
	Beta / 120°	739	160	15.0	5060	TPA65R-BU6DA-K	62	0	5.9	128
		850	40	15.3	5422		57			
		2100	240	18.3	16226		63			
		763	160	13.6	3665	NNHHS4-65A-R5	59	0	4.9	128
		1900	160	17.4	8793		60			
		3700	54	16.6	14627		70			
	Gamma / 240°	739	160	15.0	5060	TPA65R-BU6DA-K	62	0	5.9	128
		850	40	15.3	5422		57			
		2100	240	18.3	16226		63			
		763	160	13.6	3665	NNHHS4-65A-R5	59	0	4.9	128
		1900	160	17.4	8793		60			
		3700	54	16.6	14627		70			

Table 1: Proposed Antenna Inventory[2][3]

[2] AT&T's Radio Frequency Design Sheet, dated 02/13/2023

[3] Transmit power assumes 0 dB of cable loss.

5. Calculation Results

The calculated power density results are shown in Figure 1 below. For completeness, the calculations for this analysis range from 0 feet horizontal distance (directly below the antennas) to a value of 3,000 feet horizontal distance from the site. In addition to the other worst-case scenario considerations that were previously mentioned, the power density calculations to each horizontal distance point away from the antennas was completed using a local maximum off beam antenna gain (within ± 5 degrees of the true mathematical angle) to incorporate a realistic worst-case scenario.

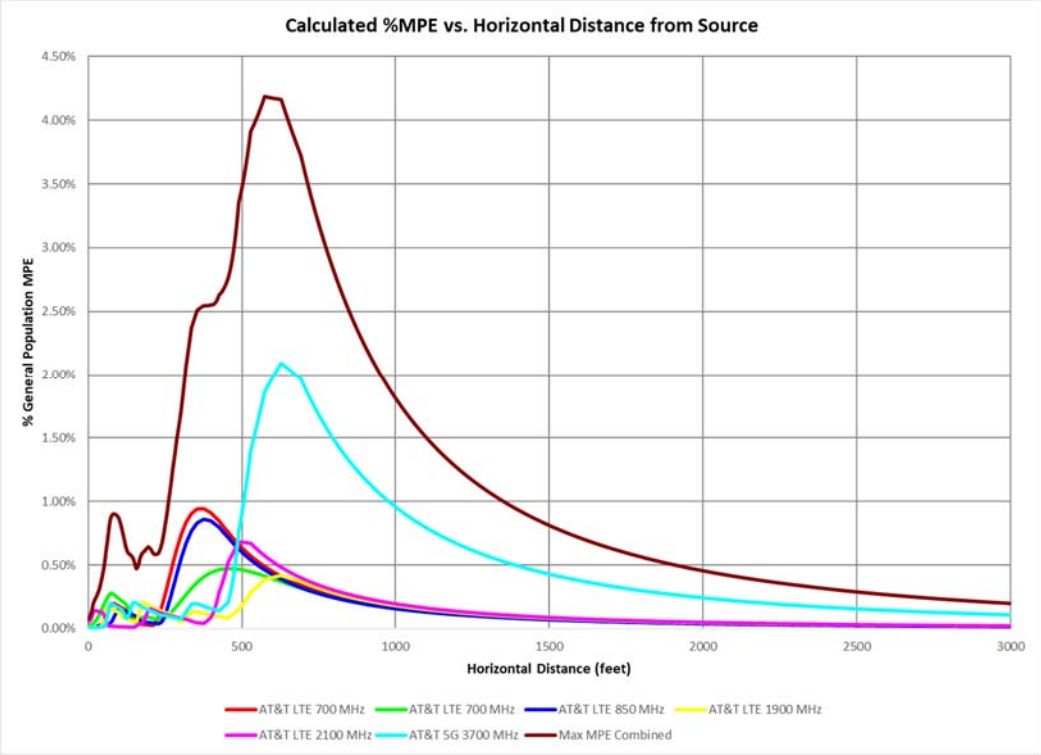


Figure 1: Graph of General Population % MPE vs. Distance

The highest percent of MPE (4.19% of the General Population limit) is calculated to occur at a horizontal distance of 574 feet from antennas. Please note that the percent of MPE calculations close to the site take into account off beam loss, which is determined from the vertical pattern of the antennas used. Therefore, RF power density levels may increase as the distance from the site increases. At distances of approximately 1500 feet and beyond, one would now be in the main beam of the antenna pattern and off beam loss is no longer considered. Beyond this point, RF levels become calculated solely on distance from the site and the percent of MPE decreases significantly as distance from the site increases.

Table 2 below lists percent of MPE values as well as the associated parameters that were included in the calculations. The highest percent of MPE value was calculated to occur at a horizontal distance of 574 feet from the site (reference Figure 1).

As stated in Section 3, all calculations assume that the antennas are operating at 100 percent capacity, that all antenna channels are transmitting simultaneously, and that the radio transmitters are operating at full power. Obstructions (trees, buildings etc.) that would normally attenuate the signal are not taken into account. In addition, a six-foot height offset was considered in this analysis to account for average human height. As a result, the predicted signal levels are significantly higher than the actual signal levels will be from the final configuration. The results presented in Figure 1 and Table 2 assume level ground elevation from the base of the tower out to the horizontal distances calculated.

Carrier	Number of Transmitters	Power out of Base Station Per Transmitter (Watts)	Antenna Height (Feet)	Distance to the Base of Antennas (Feet)	Power Density (mW/cm^2)	Limit (mW/cm^2)	% MPE
AT&T 5G 3700 MHz	1	320.0	128.0	574	0.018631	1.000	1.86%
AT&T LTE 1900 MHz	4	40.0	128.0	574	0.003856	1.000	0.39%
AT&T LTE 2100 MHz	4	40.0	128.0	574	0.005729	1.000	0.57%
AT&T LTE 700 MHz	4	40.0	128.0	574	0.002281	0.467	0.49%
AT&T LTE 700 MHz	4	40.0	128.0	574	0.001933	0.467	0.41%
AT&T LTE 850 MHz	4	40.0	128.0	574	0.002619	0.567	0.46%
						Total	**4.19%**

Table 2: Maximum Percent of General Population Exposure Values

6. Conclusion

The above analysis verifies that RF exposure levels from the site with AT&T's proposed antenna configuration will be well below the maximum permissible levels as outlined by the FCC in the OET Bulletin 65 Ed. 97-01. Using the conservative calculation methods and parameters detailed above, the maximum cumulative percent of MPE in consideration of all transmitters is calculated to be **4.19% of the FCC limit (General Population/Uncontrolled)**. This maximum cumulative percent of MPE value is calculated to occur 574 feet away from the site.

7. Statement of Certification

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

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

January 26, 2024
Date

Attachment A: References

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

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

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

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

(A) Limits for Occupational/Controlled Exposure[4]

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

(B) Limits for General Population/Uncontrolled Exposure[5]

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

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

Table 3: FCC Limits for Maximum Permissible Exposure

[4] Occupational/controlled limits apply in situations in which persons are exposed as a consequence of their employment provided those persons are fully aware of the potential for exposure and can exercise control over their exposure. Limits for occupational/controlled exposure also apply in situations when an individual is transient through a location where occupational/controlled limits apply provided he or she is made aware of the potential for exposure.

[5] General population/uncontrolled exposures apply in situations in which the general public may be exposed, or in which persons that are exposed as a consequence of their employment may not be fully aware of the potential for exposure or cannot exercise control over their exposure.

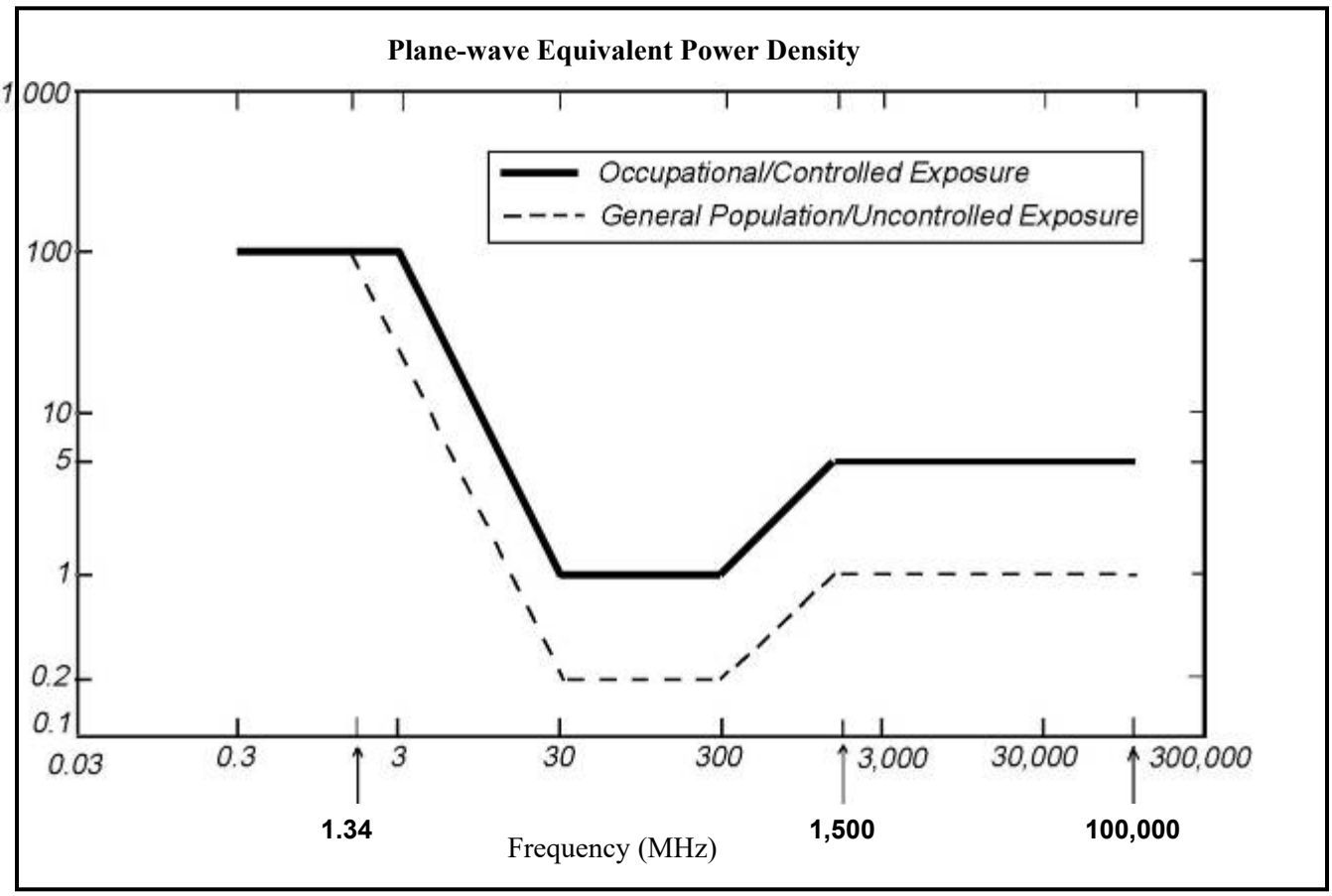
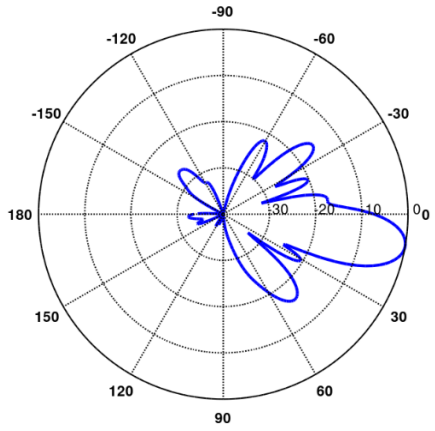


Figure 2: Graph of FCC Limits for Maximum Permissible Exposure (MPE)

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

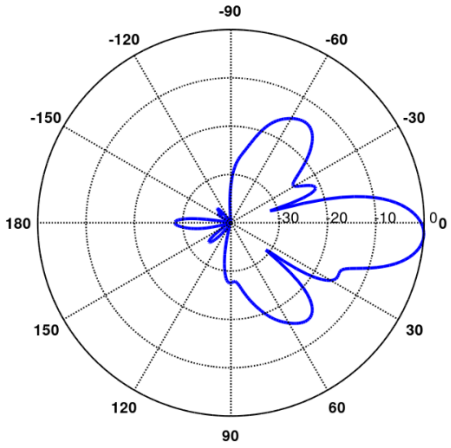
739 MHz

Manufacturer:	CCI
Model #:	TPA65R-BU6DA-K
Frequency Band:	698-806 MHz
Gain:	15.0 dBi
Vertical Beamwidth:	12.9°
Horizontal Beamwidth:	62°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	71.1” x 25.5” x 7.6”



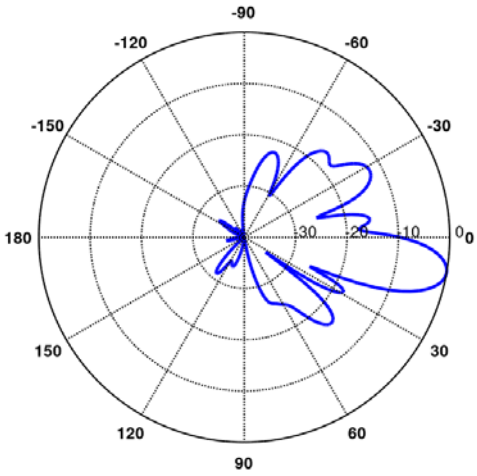
763 MHz

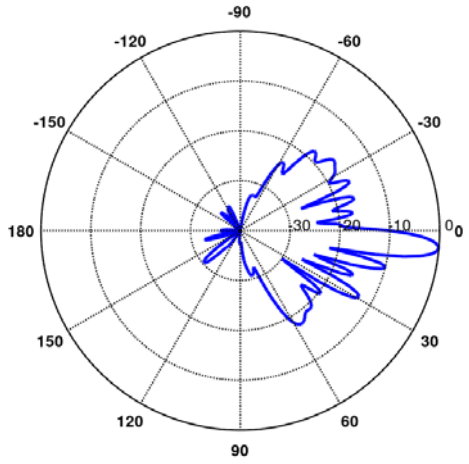
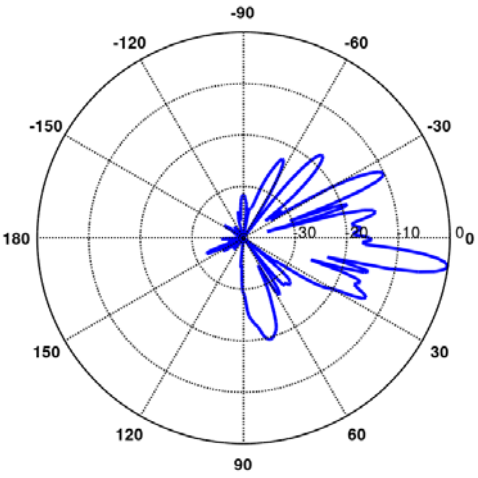
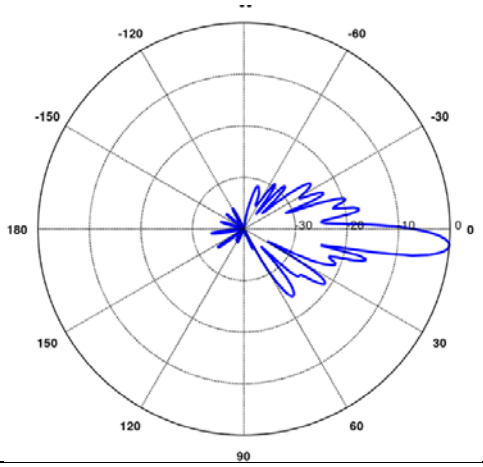
Manufacturer:	Commscope
Model #:	NNHHS4-65A-R5
Frequency Band:	698-806 MHz
Gain:	13.6 dBi
Vertical Beamwidth:	17.1°
Horizontal Beamwidth:	59°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	59.0” x 19.6” x 7.7”



850 MHz

Manufacturer:	CCI
Model #:	TPA65R-BU6DA-K
Frequency Band:	824-896 MHz
Gain:	15.3 dBi
Vertical Beamwidth:	12.9°
Horizontal Beamwidth:	62°
Polarization:	Dual Linear 45°
Dimensions (L x W x D):	71.1” x 25.5” x 7.6”



1900 MHz Manufacturer: Commscope Model #: NNHHS4-65A-R5 Frequency Band: 1850-1990 MHz Gain: 17.4 dBi Vertical Beamwidth: 5.8° Horizontal Beamwidth: 60° Polarization: Dual Linear 45° Dimensions (L x W x D): 59.0” x 19.6” x 7.7”	
2100 MHz Manufacturer: CCI Model #: TPA65R-BU6DA-K Frequency Band: 1920-2180 MHz Gain: 18.3 dBi Vertical Beamwidth: 4.7° Horizontal Beamwidth: 63° Polarization: Dual Linear 45° Dimensions (L x W x D): 71.1” x 25.5” x 7.6”	
3700 MHz Manufacturer: Commscope Model #: NNHHS4-65A-R5 Frequency Band: 3400-3800 MHz Gain: 16.6 dBi Vertical Beamwidth: 5.8° Horizontal Beamwidth: 70° Polarization: Dual Linear 45° Dimensions (L x W x D): 59.0” x 19.6” x 7.7”	

PROJECT INFORMATION

SCOPE OF WORK:

ITEMS TO BE MOUNTED ON THE EXISTING TRANSMISSION TOWER:
- NEW AT&T ANTENNAS: TPA65R-BU6DA-K (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T ANTENNAS: NNHHS4-65A-R5 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T TMAS (TMABPD7823VG12A) (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- NEW AT&T TMAS (TMAT192123B68-31) (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- PROPOSED NEW MOUNT SITE PRO 1, P/N RMV5-296. (TOTAL OF 2)
- NEW AT&T TRIPLEXERS (STX61742Q-43) (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- INSTALL (3) 1/2" CALIBRATION COAX.

ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION:
- ADD (1) 6651 + XCEDE CABLES.
- ADD (1) OUTDOOR DC12.
- INSTALL (4) RECTIFIERS.
- NEW AT&T RRUS: B5/B12 4449 (850/700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B14 4478 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: B2/B66A 8843 (AWS/PCS) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T RRUS: 8863 N77 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- NEW AT&T SBTs/BIAS-Ts: K SBT 782-11055 (TYP. OF 4 PER SECTOR, TOTAL OF 12).
- NEW SURGE ARRESTOR: TSXDC-4310FM (TYP. OF 24 PER SECTOR, TOTAL OF 72).
- NEW AT&T TRIPLEXERS (STX61742Q-43) (TYP. OF 2 PER SECTOR, TOTAL OF 6).

ITEMS TO BE REMOVED:
- EXISTING AT&T ANTENNAS: OPA-65R-LCUU-H6 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T ANTENNAS: QS66512-2 (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRU-11 B12 (700) (TYP. OF 1 PER SECTOR, TOTAL OF 3).
- EXISTING AT&T RRUS: RRU-12 B2 (1900) (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T PENTAPLEXERS (5PX-0726 (TOTAL OF 24).
- EXISTING AT&T TMAS (TMA2093F00V1-1) (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T TMAS (TMA2117F00V1-1) (TYP. OF 2 PER SECTOR, TOTAL OF 6).
- EXISTING AT&T SURGE ARRESTORS (APTDC-BDFDM-DBM) (TYP. OF 8 PER SECTOR, TOTAL OF 24).

ITEMS TO REMAIN:
- (24) 1-5/8" COAX LINE

SITE ADDRESS:	289 DANBURY ROAD WILTON, CT 06897
LATITUDE:	41.1949919° N, 41° 11' 41.97" N
LONGITUDE:	73.4313989° W, 73° 25' 53.03" W
TYPE OF SITE:	TRANSMISSION TOWER / OUTDOOR EQUIPMENT
STRUCTURE HEIGHT:	131'-0"±
RAD CENTER:	128'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

DRAWING INDEX

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

SITE NUMBER: CTL05058

SITE NAME: WILTON

FA CODE: 10071324

EVERSOUCE STRUCTURE NUMBER: 2998

PACE ID: MRCTB054226, MRCTB055884, MRCTB056543, MRCTB055512, MRCTB055772, MRCTB054527

PROJECT: LTE 3C_5G NR 1SR CBAND_5G NR SOFTWARE UPGRADE_4TX4RX SOFTWARE RETROFIT_5G NR RADIO_5G 1DR-1 UPGRADE

VICINITY MAP

DIRECTIONS TO SITE:

HEAD SOUTH TOWARDS ENTERPRISE DR, TURN LEFT ONTO ENTERPRISE DR, TURN LEFT ONTO CAPITAL BLVD. TURN LEFT ONTO STATE HWY 411, TURN LEFT TO MERGE ONTO I-91 S, TAKE EXIT 17 TO MERGE ONTO CT-15 S. TAKE EXIT 41 TOWARDS STATE HWY 33/WESTPORT/WILTON. TURN LEFT ONTO CT-33 N/STATE HWY 33 N/WILTON RD. DESTINATION ON THE LEFT.

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.
5. NOTE TO GENERAL CONTRACTOR: (PRIOR TO CONSTRUCTION COMPLETION)

   TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.

72 HOURS

CALL BEFORE YOU DIG

CALL TOLL FREE 1-800-922-4455

OR CALL 811

UNDERGROUND SERVICE ALERT

TEP NORTHEAST
TEP OPCO, LLC.
45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05058
SITE NAME: WILTON

289 DANBURY ROAD
WILTON, CT 06897
FAIRFIELD COUNTY

AT&T
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

NO.	DATE	REVISIONS	BY	CHK	APP'D
3	03/13/24	ISSUED FOR CONSTRUCTION	TR	HC	DPH
2	01/24/24	ISSUED FOR CONSTRUCTION	TR	HC	DPH
1	04/11/23	ISSUED FOR CONSTRUCTION	YH	HC	DPH
0	04/06/23	ISSUED FOR REVIEW	MR	HC	DPH
A	09/02/22	ISSUED FOR REVIEW	MR	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: MR

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

AT&T

TITLE SHEET

LTE_3C_5G NR 1SR CBAND_5G NR SOFTWARE UPGRADE_4TX4RX SOFTWARE RETROFIT_5G NR RADIO_5G 1DR-1 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05058	T-1	3

GROUNDING NOTES

1. THE SUBCONTRACTOR SHALL REVIEW AND INSPECT THE EXISTING FACILITY GROUNDING SYSTEM AND LIGHTNING PROTECTION SYSTEM (AS DESIGNED AND INSTALLED) FOR STRICT COMPLIANCE WITH THE NEC (AS ADOPTED BY THE AHJ), THE SITE-SPECIFIC (UL, LPI, OR NFPA) LIGHTING PROTECTION CODE, AND GENERAL COMPLIANCE WITH TELCORDIA AND TIA GROUNDING STANDARDS. THE SUBCONTRACTOR SHALL REPORT ANY VIOLATIONS OR ADVERSE FINDINGS TO THE CONTRACTOR FOR RESOLUTION.

2. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION, AND AC POWER GES'S) SHALL BE BONDED TOGETHER, AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.

3. THE SUBCONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTIAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81 STANDARDS) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.

4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.

5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS AND #2 AWG STRANDED COPPER FOR OUTDOOR BTS.

6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.

7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.

8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.

9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.

10. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.

11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 AWG COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.

12. ALL NEW STRUCTURES WITH A FOUNDATION AND/OR FOOTING HAVING 20 FT. OR MORE OF 1/2 IN. OR GREATER ELECTRICALLY CONDUCTIVE REINFORCING STEEL MUST HAVE IT BONDED TO THE GROUND RING USING AN EXOTHERMIC WELD CONNECTION USING #2 AWG SOLID BARE TINNED COPPER GROUND WIRE, PER NEC 250.50

GENERAL NOTES

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR – SAI
   SUBCONTRACTOR – GENERAL CONTRACTOR (CONSTRUCTION)
   OWNER – AT&T MOBILITY

2. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING SUBCONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CONTRACTOR.

3. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS, AND ORDINANCES. SUBCONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS, AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.

4. DRAWINGS PROVIDED HERE ARE NOT TO BE SCALED AND ARE INTENDED TO SHOW OUTLINE ONLY.

5. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES, AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.

6. "KITTING LIST" SUPPLIED WITH THE BID PACKAGE IDENTIFIES ITEMS THAT WILL BE SUPPLIED BY CONTRACTOR. ITEMS NOT INCLUDED IN THE BILL OF MATERIALS AND KITTING LIST SHALL BE SUPPLIED BY THE SUBCONTRACTOR.

7. THE SUBCONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.

8. IF THE SPECIFIED EQUIPMENT CANNOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE SUBCONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION SPACE FOR APPROVAL BY THE CONTRACTOR.

9. SUBCONTRACTOR SHALL DETERMINE ACTUAL ROUTING OF CONDUIT, POWER AND T1 CABLES, GROUNDING CABLES AS SHOWN ON THE POWER, GROUNDING AND TELCO PLAN DRAWING. SUBCONTRACTOR SHALL UTILIZE EXISTING TRAYS AND/OR SHALL ADD NEW TRAYS AS NECESSARY. SUBCONTRACTOR SHALL CONFIRM THE ACTUAL ROUTING WITH THE CONTRACTOR.

10. THE SUBCONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT SUBCONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.

11. SUBCONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.

12. SUBCONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION.

13. ALL CONCRETE REPAIR WORK SHALL BE DONE IN ACCORDANCE WITH AMERICAN CONCRETE INSTITUTE (ACI) 301.

14. ANY NEW CONCRETE NEEDED FOR THE CONSTRUCTION SHALL BE AIR-ENTRAINED AND SHALL HAVE 4000 PSI STRENGTH AT 28 DAYS. ALL CONCRETE WORK SHALL BE DONE IN ACCORDANCE WITH ACI 318 CODE REQUIREMENTS.

15. ALL STRUCTURAL STEEL WORK SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH AISC SPECIFICATIONS. ALL STRUCTURAL STEEL SHALL BE ASTM A36 (Fy = 36 ksi) UNLESS OTHERWISE NOTED. PIPES SHALL BE ASTM A53 TYPE E (Fy = 36 ksi). ALL STEEL EXPOSED TO WEATHER SHALL BE HOT DIPPED GALVANIZED. TOUCH UP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.

16. CONSTRUCTION SHALL COMPLY WITH SPECIFICATIONS AND "GENERAL CONSTRUCTION SERVICES FOR CONSTRUCTION OF AT&T SITES."

17. SUBCONTRACTOR SHALL VERIFY ALL EXISTING DIMENSIONS AND CONDITIONS PRIOR TO COMMENCING ANY WORK. ALL DIMENSIONS OF EXISTING CONSTRUCTION SHOWN ON THE DRAWINGS MUST BE VERIFIED. SUBCONTRACTOR SHALL NOTIFY THE CONTRACTOR OF ANY DISCREPANCIES PRIOR TO ORDERING MATERIAL OR PROCEEDING WITH CONSTRUCTION.

18. THE EXISTING CELL SITE IS IN FULL COMMERCIAL OPERATION. ANY CONSTRUCTION WORK BY SUBCONTRACTOR SHALL NOT DISRUPT THE EXISTING NORMAL OPERATION. ANY WORK ON EXISTING EQUIPMENT MUST BE COORDINATED WITH CONTRACTOR. ALSO, WORK SHOULD BE SCHEDULED FOR AN APPROPRIATE MAINTENANCE WINDOW USUALLY IN LOW TRAFFIC PERIODS AFTER MIDNIGHT.

19. SINCE THE CELL SITE IS ACTIVE, ALL SAFETY PRECAUTIONS MUST BE TAKEN WHEN WORKING AROUND HIGH LEVELS OF ELECTROMAGNETIC RADIATION. EQUIPMENT SHOULD BE SHUTDOWN PRIOR TO PERFORMING ANY WORK THAT COULD EXPOSE THE WORKERS TO DANGER. PERSONAL RF EXPOSURE MONITORS ARE ADVISED TO BE WORN TO ALERT OF ANY DANGEROUS EXPOSURE LEVELS.

20. **APPLICABLE BUILDING CODES:**
    SUBCONTRACTOR'S WORK SHALL COMPLY WITH ALL APPLICABLE NATIONAL, STATE, AND LOCAL CODES AS ADOPTED BY THE LOCAL AUTHORITY HAVING JURISDICTION (AHJ) FOR THE LOCATION. THE EDITION OF THE AHJ ADOPTED CODES AND STANDARDS IN EFFECT ON THE DATE OF CONTRACT AWARD SHALL GOVERN THE DESIGN.

    BUILDING CODE: IBC 2021 WITH 2022 CT STATE BUILDING CODE AMENDMENTS
    ELECTRICAL CODE: 2020 NATIONAL ELECTRICAL CODE (NFPA 70-2020)

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

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

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

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

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

ABBREVIATIONS

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

TEP NORTHEAST
TEP OPCO, LLC.
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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: MR

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

AT&T

GENERAL NOTES

SITE NUMBER: CTL05058 | DRAWING NUMBER: GN-1 | REV: 3

NOTE:

REFER TO STRUCTURAL ANALYSIS
BY: CENTEK ENGINEERING
DATED: FEBRUARY 22, 2023 (REV.3)
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE:

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

NOTE:

REFER TO MOUNT ANALYSIS
BY: TEP NORTHEAST (TEP OPCO, LLC)
DATED: APRIL 06, 2023 (REV.2)
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

NOTE TO GENERAL CONTRACTOR:
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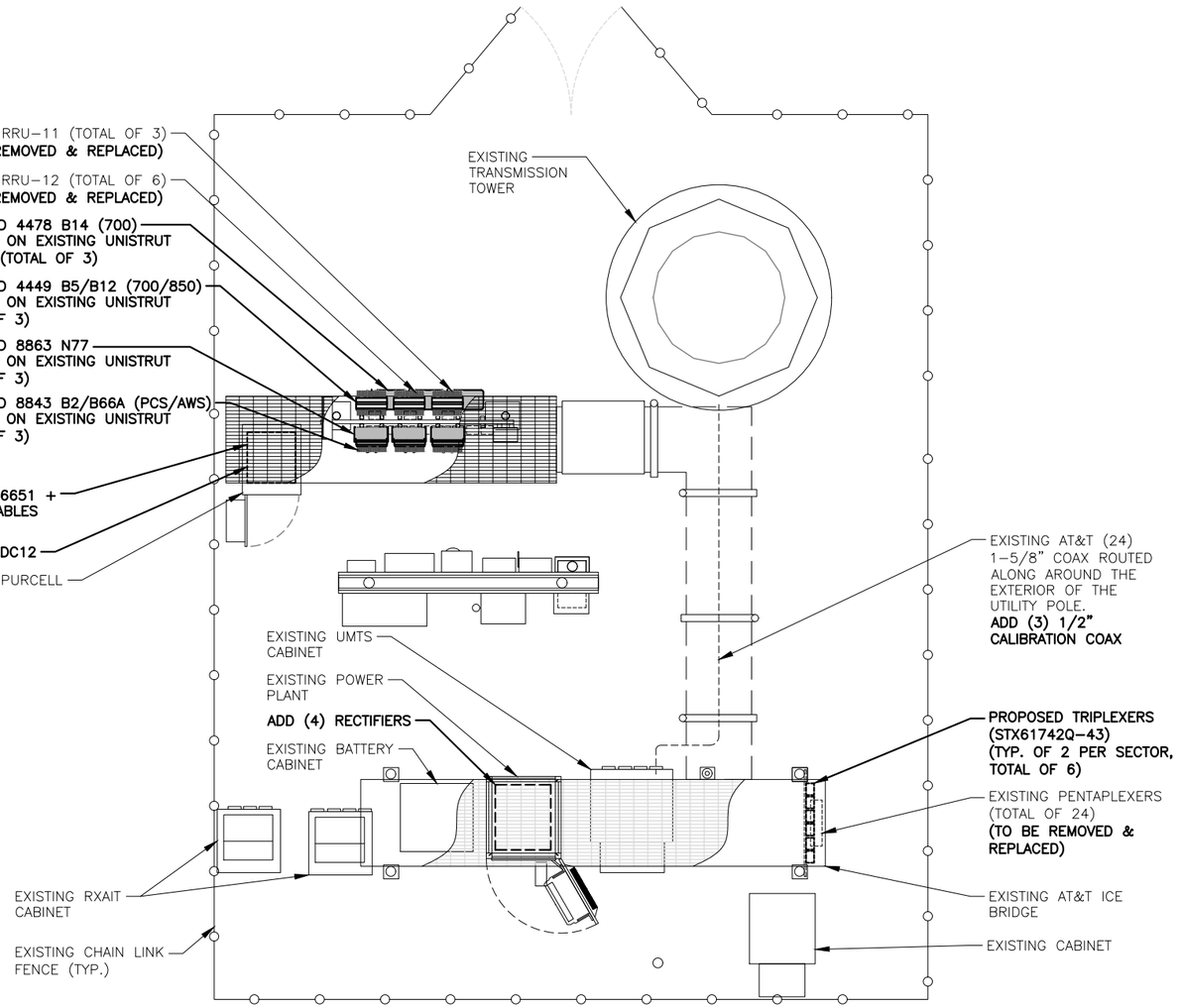
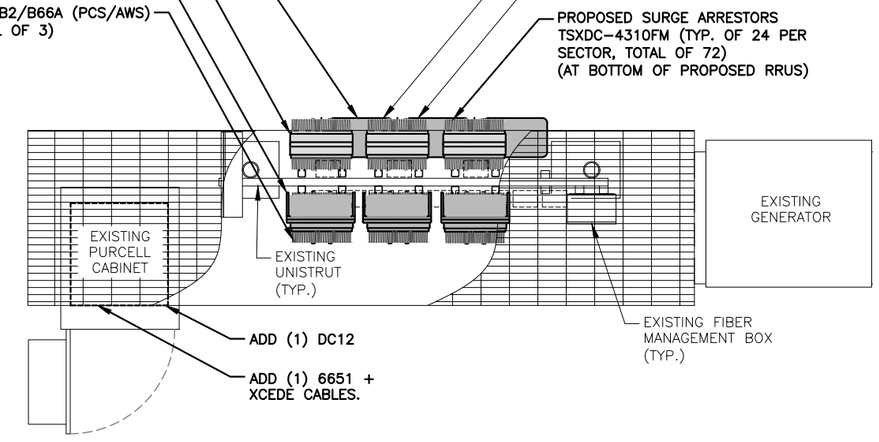
TEP NORTHEAST (TEP OPCO, LLC.) TO PERFORM POST/CLIMB AND INSPECTION TO CONFIRM PROPOSED INSTALLATION COMPLIES WITH THE RECORD STAMPED DRAWINGS AND STRUCTURAL REPORTS PRIOR TO SUBMITTING FCCA (FINAL CONSTRUCTION CONTROL AFFIDAVIT). GC IS RESPONSIBLE FOR COORDINATING INSPECTIONS WITH TEP NORTHEAST (TEP OPCO, LLC.) PRIOR TO CONSTRUCTION BEING COMPLETED.





COMPOUND PLAN (1 / A-1)
22x34 SCALE: 3/8"=1'-0"
11x17 SCALE: 3/16"=1'-0"

0 1'-4" 2'-8" 5'-4" 8'-0"

EQUIPMENT PLAN (2 / A-1)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 1'-4" 2'-8" 4'-0"

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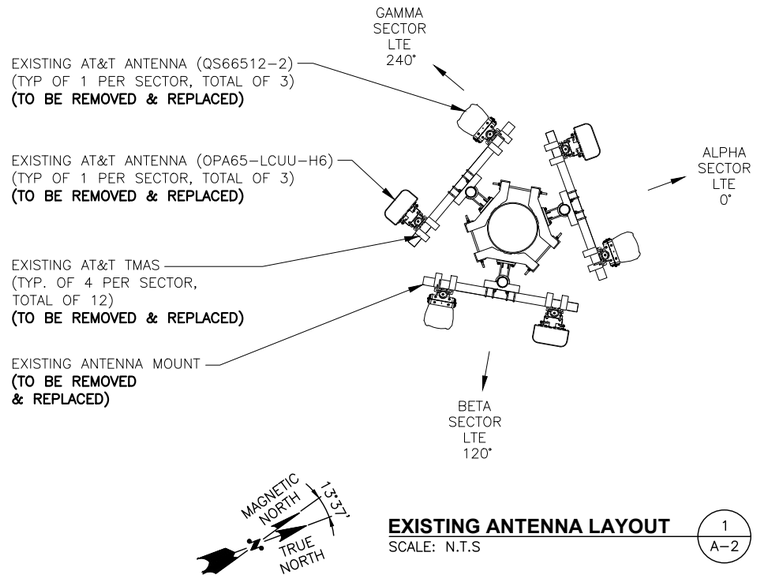
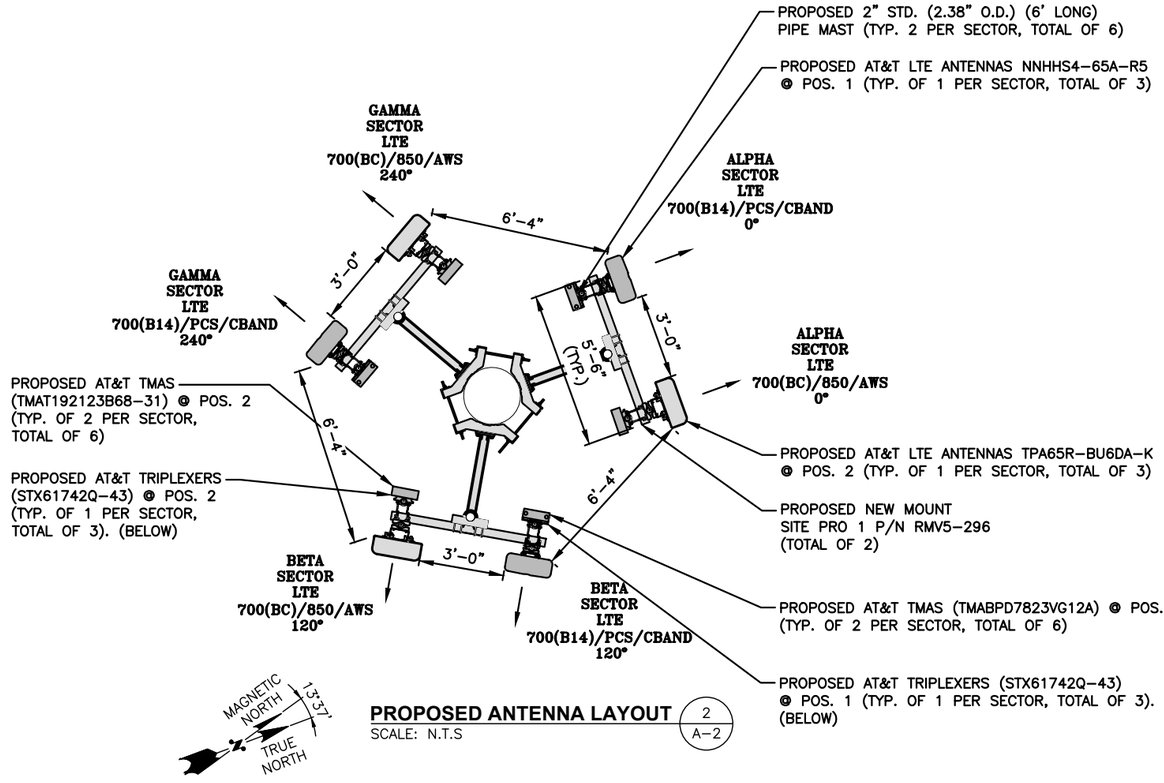
AT&T

COMPOUND & EQUIPMENT PLANS
NR_3C_66-NR TSR CBAND_5G NR SOFTWARE UPGRADE_4TX4RX SOFTWARE RETROFIT_5G NR RADIO_5G 1DR-1 UPGRADE

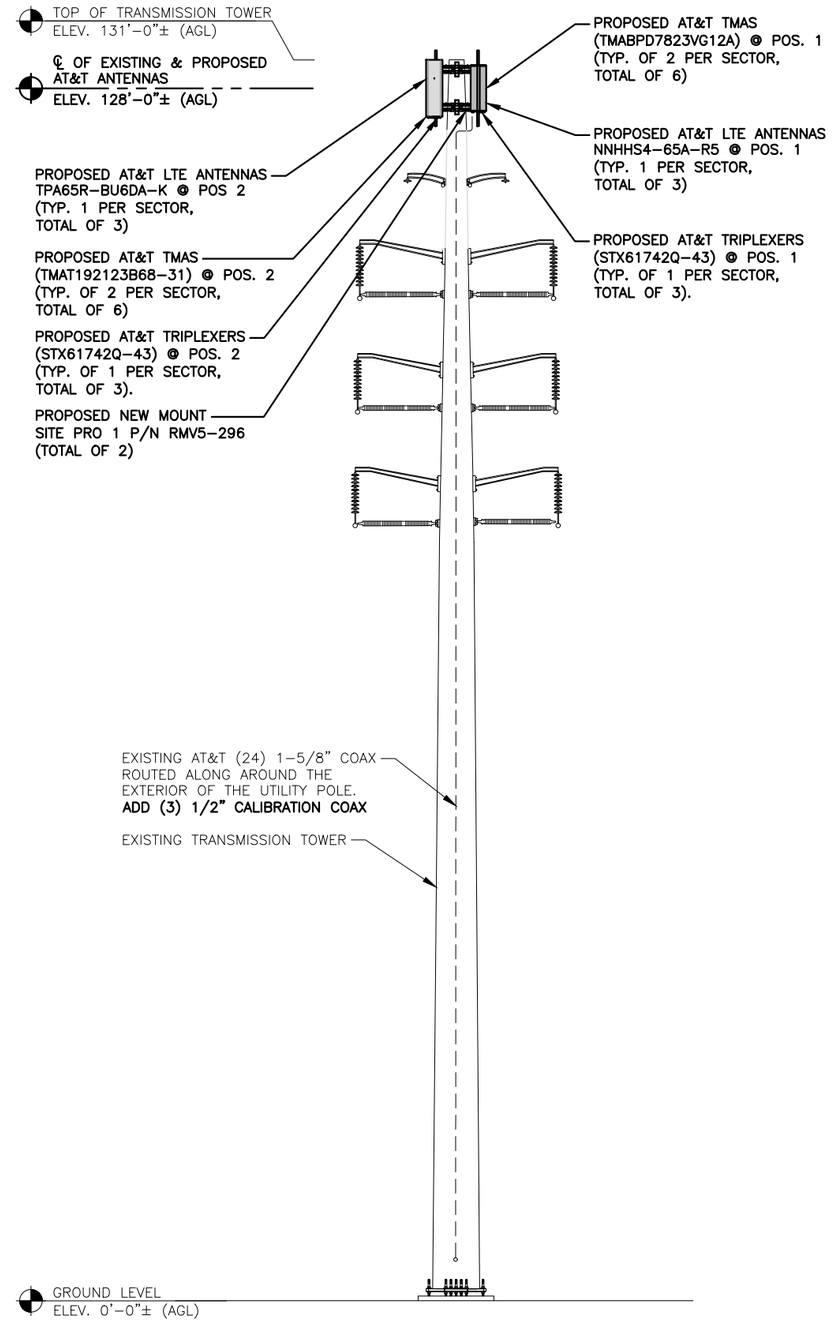
SITE NUMBER	DRAWING NUMBER	REV
CTL05058	A-1	3



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



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



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

0 5'-4" 10'-8" 16'-0" 21'-4" 32'-0"

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

NOTE:
REFER TO MOUNT ANALYSIS
BY: TEP NORTHEAST (TEP OPCO, LLC)
DATED: APRIL 06, 2023 (REV.2)
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.

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NOTE:
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STATE OF CONNECTICUT — DANIEL J. HAMM — No. 24178 — LICENSED PROFESSIONAL ENGINEER

AT&T

ANTENNA LAYOUTS & ELEVATION

SITE NUMBER	DRAWING NUMBER	REV
CTL05058	A-2	3

ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	ANTENNA TIP HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	PROPOSED	LTE 700(B14)/PCS/CBAND	NNHHS4-65A-R5	59X19.6X7.8	128'-0"±	130'-6"	0°	(P)(T)(2) TMAS (TMABPD7823VG12A) (P)(T)(1) STX61742Q-43 (P)(G)(1) STX61742Q-43	(P)(G)(1) 4478 B14 (700) (P)(G)(1) RRUS-8863 N77	18.1"X13.4"X8.3" 14.9"X13.2"X10.9"	(4)1-5/8 COAX (P)(1) 1/2" CALIBRATION COAX	1
A2	PROPOSED	LTE 700(BC)/850/AWS	TPA65R-BU6DA-K	71X20X7.7	128'-0"±	131'-0"	0°	(P)(T)(2) TMAS (TMAT192123B68-31) (P)(T)(1) STX61742Q-43 (P)(G)(1) STX61742Q-43	(P)(G)(1) 4449 B5/B12 (850/700) (P)(G)(1) 8843 B2/B66A (PCS/AWS)	17.9"X13.2"X10.4" 14.9"X13.2"X10.9"	(4)1-5/8 COAX	
A3	–	–	–	–	–	–	–	–	–	–	–	
A4	–	–	–	–	–	–	–	–	–	–	–	
B1	PROPOSED	LTE 700(B14)/PCS/CBAND	NNHHS4-65A-R5	59X19.6X7.8	128'-0"±	130'-6"	120°	(P)(T)(2) TMAS (TMABPD7823VG12A) (P)(T)(1) STX61742Q-43 (P)(G)(1) STX61742Q-43	(P)(G)(1) 4478 B14 (700) (P)(G)(1) RRUS-8863 N77	18.1"X13.4"X8.3" 14.9"X13.2"X10.9"	(4)1-5/8 COAX (P)(1) 1/2" CALIBRATION COAX	1
B2	PROPOSED	LTE 700(BC)/850/AWS	TPA65R-BU6DA-K	71X20X7.7	128'-0"±	131'-0"	120°	(P)(T)(2) TMAS (TMAT192123B68-31) (P)(T)(1) STX61742Q-43 (P)(G)(1) STX61742Q-43	(P)(G)(1) 4449 B5/B12 (850/700) (P)(G)(1) 8843 B2/B66A (PCS/AWS)	17.9"X13.2"X10.4" 14.9"X13.2"X10.9"	(4)1-5/8 COAX	
B3	–	–	–	–	–	–	–	–	–	–	–	
B4	–	–	–	–	–	–	–	–	–	–	–	
C1	PROPOSED	LTE 700(B14)/PCS/CBAND	NNHHS4-65A-R5	59X19.6X7.8	128'-0"±	130'-6"	240°	(P)(T)(2) TMAS (TMABPD7823VG12A) (P)(T)(1) STX61742Q-43 (P)(G)(1) STX61742Q-43	(P)(G)(1) 4478 B14 (700) (P)(G)(1) RRUS-8863 N77	18.1"X13.4"X8.3" 14.9"X13.2"X10.9"	(4)1-5/8 COAX (P)(1) 1/2" CALIBRATION COAX	1
C2	PROPOSED	LTE 700(BC)/850/AWS	TPA65R-BU6DA-K	71X20X7.7	128'-0"±	131'-0"	240°	(P)(T)(2) TMAS (TMAT192123B68-31) (P)(T)(1) STX61742Q-43 (P)(G)(1) STX61742Q-43	(P)(G)(1) 4449 B5/B12 (850/700) (P)(G)(1) 8843 B2/B66A (PCS/AWS)	17.9"X13.2"X10.4" 14.9"X13.2"X10.9"	(4)1-5/8 COAX	
C3	–	–	–	–	–	–	–	–	–	–	–	
C4	–	–	–	–	–	–	–	–	–	–	–	

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

NOTE:
REFER TO MOUNT ANALYSIS
BY: TEP NORTHEAST (TEP OPCO, LLC)
DATED: APRIL 06, 2023 (REV.2)
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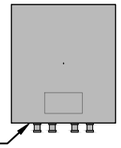
FINAL ANTENNA SCHEDULE (1 / A-3)
SCALE: N.T.S

RRU CHART		
QUANTITY	MODEL	SIZE (L x W x D)
P(G)(3)	4449 (850/700)	17.9"x13.2"x10.4"
P(G)(3)	8843 (PCS/AWS)	14.9"x13.2"x10.9"
P(G)(3)	4478 B14 (700)	18.1"x13.4"x8.3"
P(G)(3)	8863 N77	14.9"x13.2"x10.9"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

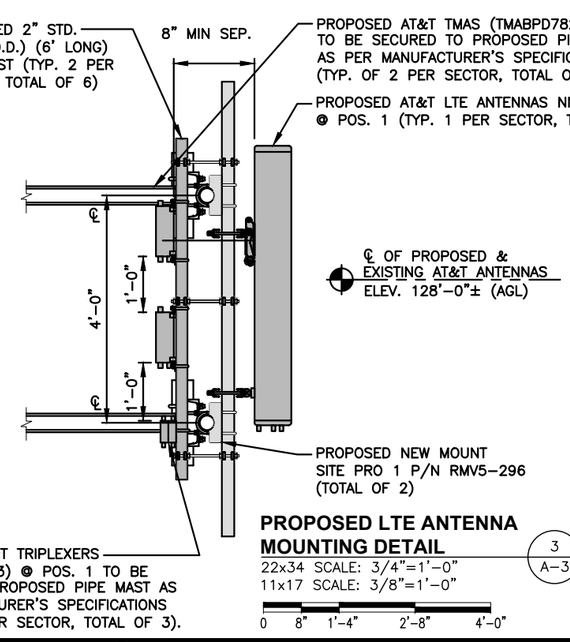
NOTE:
SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



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

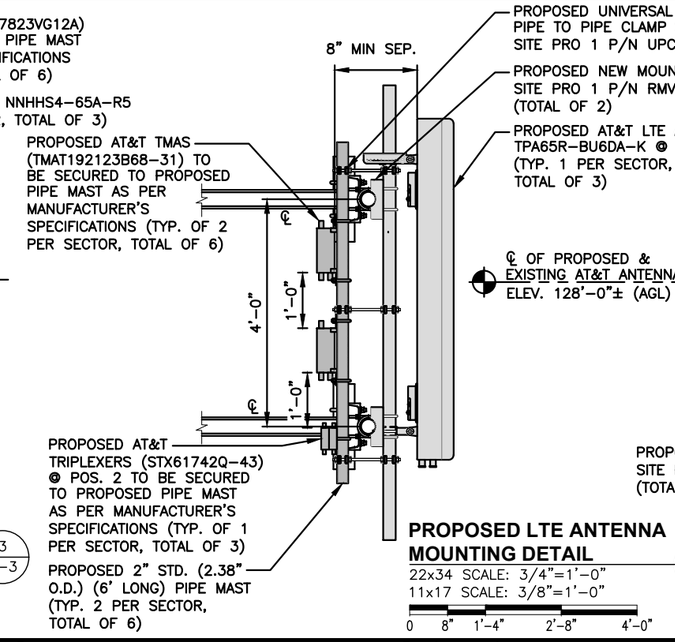
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (2 / A-3)
SCALE: N.T.S



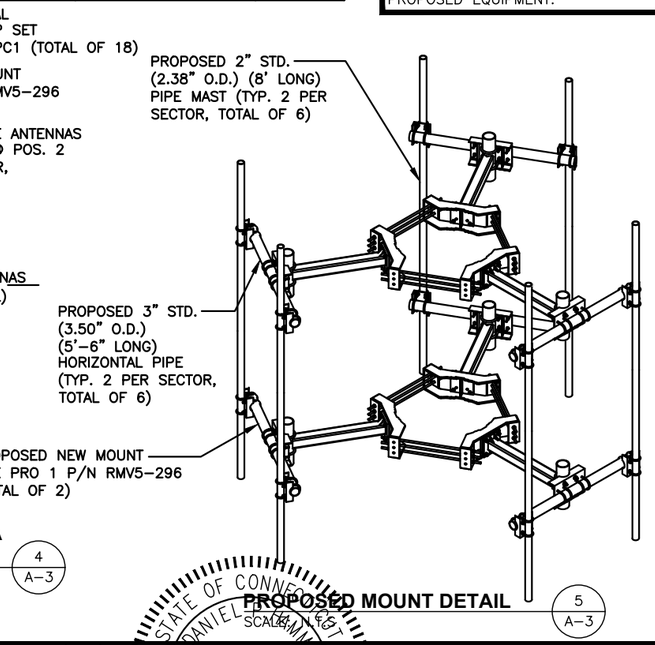
PROPOSED LTE ANTENNA MOUNTING DETAIL (3 / A-3)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED LTE ANTENNA MOUNTING DETAIL (4 / A-3)
22x34 SCALE: 3/4"=1'-0"
11x17 SCALE: 3/8"=1'-0"

0 8" 1'-4" 2'-8" 4'-0"



PROPOSED MOUNT DETAIL (5 / A-3)
SCALE: N.T.S

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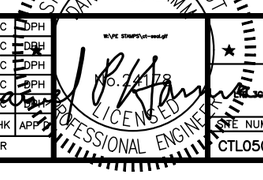
SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: MR



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DETAILS

NSB_3G_5G NR TSR CBAND_5G NR SOFTWARE UPGRADE_4T4RX SOFTWARE RETROFIT_5G NR RADIO_5G 1DR-1 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05058	A-3	3

STRUCTURAL NOTES:

1. DESIGN REQUIREMENTS ARE PER STATE BUILDING CODE AND APPLICABLE SUPPLEMENTS, INTERNATIONAL BUILDING CODE, EIA/TIA-222-H STRUCTURAL STANDARDS FOR STEEL ANTENNA, TOWERS AND ANTENNA SUPPORTING STRUCTURES.
2. CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS IN THE FIELD PRIOR TO FABRICATION AND ERECTION OF ANY MATERIAL. ANY UNUSUAL CONDITIONS SHALL BE REPORTED TO THE ATTENTION OF THE CONSTRUCTION MANAGER AND ENGINEER OF RECORD.
3. DESIGN AND CONSTRUCTION OF STRUCTURAL STEEL SHALL CONFORM TO THE AMERICAN INSTITUTE OF STEEL CONSTRUCTION "SPECIFICATION FOR THE DESIGN, FABRICATION AND ERECTION OF STRUCTURAL STEEL FOR BUILDINGS".
4. STRUCTURAL STEEL SHALL CONFORM TO ASTM A992 (Fy=50 ksi), MISCELLANEOUS STEEL SHALL CONFORM TO ASTM A36 UNLESS OTHERWISE INDICATED.
5. STEEL PIPE SHALL CONFORM TO ASTM A500 "COLD-FORMED WELDED & SEAMLESS CARBON STEEL STRUCTURAL TUBING", GRADE B, OR ASTM A53 PIPE STEEL BLACK AND HOT-DIPPED ZINC-COATED WELDED AND SEAMLESS TYPE E OR S, GRADE B. PIPE SIZES INDICATED ARE NOMINAL. ACTUAL OUTSIDE DIAMETER IS LARGER.
6. STRUCTURAL CONNECTION BOLTS SHALL BE HIGH STRENGTH BOLTS (BEARING TYPE) AND CONFORM TO ASTM A325 TYPE-X "HIGH STRENGTH BOLTS FOR STRUCTURAL JOINTS, INCLUDING SUITABLE NUTS AND PLAIN HARDENED WASHERS". ALL BOLTS SHALL BE 3/4" DIA UON.
7. ALL STEEL MATERIALS SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT-DIP GALVANIZED) COATINGS ON IRON AND STEEL PRODUCTS", UNLESS OTHERWISE NOTED.
8. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC-COATING (HOT-DIP) ON IRON AND STEEL HARDWARE", UNLESS OTHERWISE NOTED.
9. FIELD WELDS, DRILL HOLES, SAW CUTS AND ALL DAMAGED GALVANIZED SURFACES SHALL BE REPAIRED WITH AN ORGANIC ZINC REPAIR PAINT COMPLYING WITH REQUIREMENTS OF ASTM A780. GALVANIZING REPAIR PAINT SHALL HAVE 65 PERCENT ZINC BY WEIGHT, ZIRP BY DUNCAN GALVANIZING, GALVA BRIGHT PREMIUM BY CROWN OR EQUAL. THICKNESS OF APPLIED GALVANIZING REPAIR PAINT SHALL BE NOT NOT LESS THAN 4 COATS (ALLOW TIME TO DRY BETWEEN COATS) WITH A RESULTING COATING THICKNESS REQUIRED BY ASTM A123 OR A153 AS APPLICABLE.
10. CONTRACTOR SHALL COMPLY WITH AWS CODE FOR PROCEDURES, APPEARANCE AND QUALITY OF WELDS, AND FOR METHODS USED IN CORRECTING WELDING. ALL WELDERS AND WELDING PROCESSES SHALL BE QUALIFIED IN ACCORDANCE WITH AWS "STANDARD QUALIFICATION PROCEDURES". ALL WELDING SHALL BE DONE USING E70XX ELECTRODES AND WELDING SHALL CONFORM TO AISC AND D1.1. WHERE FILLET WELD SIZES ARE NOT SHOWN, PROVIDE THE MINIMUM SIZE PER TABLE J2.4 IN THE AISC "STEEL CONSTRUCTION MANUAL". 14TH EDITION.
11. INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON-CONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE CONSTRUCTION MANAGER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE CONSTRUCTION MANAGER APPROVAL.
12. UNISTRUT SHALL BE FORMED STEEL CHANNEL STRUT FRAMING AS MANUFACTURED BY UNISTRUT CORP., WAYNE, MI OR EQUAL. STRUT MEMBERS SHALL BE 1 5/8"x1 5/8"x12GA, UNLESS OTHERWISE NOTED, AND SHALL BE HOT-DIP GALVANIZED AFTER FABRICATION.
13. EPOXY ANCHOR ASSEMBLY SHALL CONSIST OF STAINLESS STEEL ANCHOR ROD WITH NUTS & WASHERS. AN INTERNALLY THREADED INSERT, A SCREEN TUBE AND A EPOXY ADHESIVE. THE ANCHORING SYSTEM SHALL BE THE HILTI-HIT HY-270 AND OR HY-200 SYSTEMS (AS SPECIFIED IN DWG.) OR ENGINEERS APPROVED EQUAL.
14. EXPANSION BOLTS SHALL CONFORM TO FEDERAL SPECIFICATION FF-S-325, GROUP II, TYPE 4, CLASS I, HILTI KWIK BOLT III OR APPROVED EQUAL. INSTALLATION SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
15. LUMBER SHALL COMPLY WITH THE REQUIREMENTS OF THE AMERICAN INSTITUTE OF TIMBER CONSTRUCTION AND THE NATIONAL FOREST PRODUCTS ASSOCIATION'S NATIONAL DESIGN SPECIFICATION FOR WOOD CONSTRUCTION. ALL LUMBER SHALL BE PRESSURE TREATED AND SHALL BE STRUCTURAL GRADE NO. 2 OR BETTER.
16. WHERE ROOF PENETRATIONS ARE REQUIRED, THE CONTRACTOR SHALL CONTACT AND COORDINATE RELATED WORK WITH THE BUILDING OWNER AND THE EXISTING ROOF INSTALLER. WORK SHALL BE PERFORMED IN SUCH A MANNER AS TO NOT VOID THE EXISTING ROOF WARRANTY. ROOF SHALL BE WATERTIGHT.
17. ALL FIBERGLASS MEMBERS USED ARE AS MANUFACTURED BY STRONGWELL COMPANY OF BRISTOL, VA 24203. ALL DESIGN CRITERIA FOR THESE MEMBERS IS BASED ON INFORMATION PROVIDED IN THE DESIGN MANUAL. ALL REQUIREMENTS PUBLISHED IN SAID MANUAL MUST BE STRICTLY ADHERED TO.
18. NO MATERIALS TO BE ORDERED AND NO WORK TO BE COMPLETED UNTIL SHOP DRAWINGS HAVE BEEN REVIEWED AND APPROVED IN WRITING.
19. SUBCONTRACTOR SHALL FIREPROOF ALL STEEL TO PRE-EXISTING CONDITIONS.

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

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

TEP NORTHEAST
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45 BEECHWOOD DRIVE, NORTH ANDOVER, MA 01845
TEL: (978) 557-5553

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CTL05058
SITE NAME: WILTON

289 DANBURY ROAD
WILTON, CT 06897
FAIRFIELD COUNTY

AT&T
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

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0	04/06/23	ISSUED FOR REVIEW	MR	HC	DPH
A	09/02/22	ISSUED FOR REVIEW	MR	HC	DPH

SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: MR

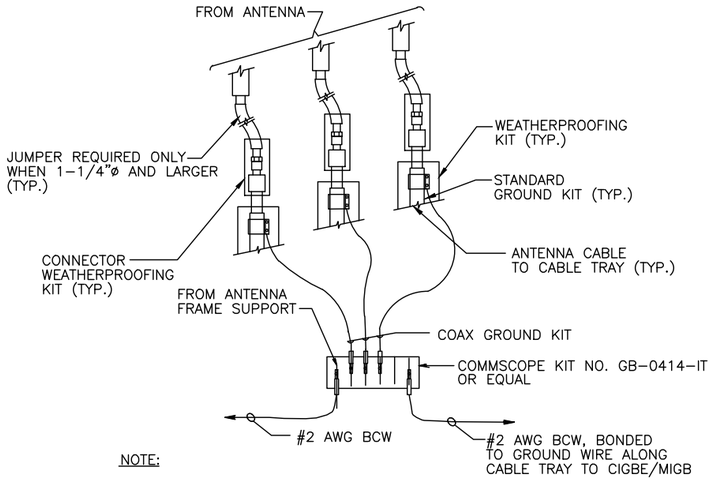
STATE OF CONNECTICUT · DANIEL P. HAMM · No. 24178 · LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES

NR_3C_8C NR 1SR CBAND_5G NR SOFTWARE UPGRADE_4TX4RX SOFTWARE RETROFIT_5G NR RADIO_5G 1DR-1 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05058	SN-1	3



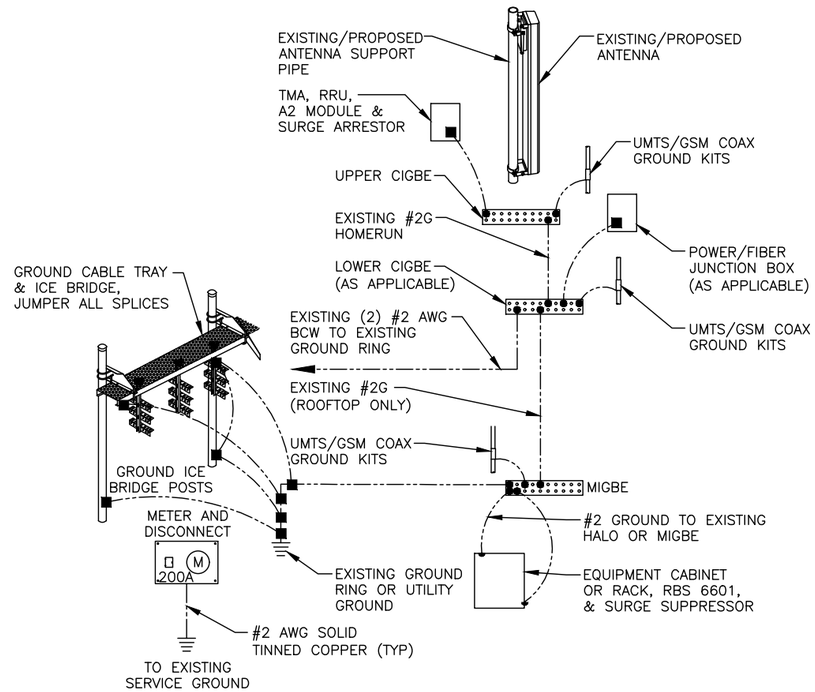
NOTE:

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

GROUND WIRE TO GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

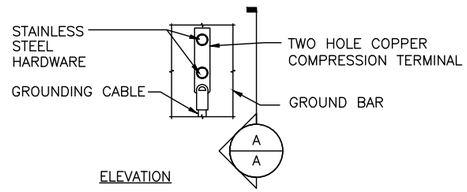
1 / G-1



GROUNDING RISER DIAGRAM

SCALE: N.T.S

2 / G-1



NOTES:

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

TYPICAL GROUND BAR CONNECTION DETAIL

SCALE: N.T.S

3 / G-1

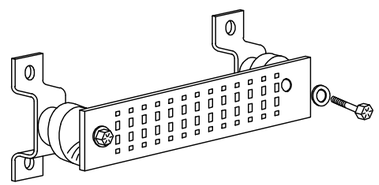
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" – SURGE PRODUCERS

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

SECTION "A" – SURGE ABSORBERS

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



GROUND BAR - DETAIL (AS REQUIRED)

SCALE: N.T.S

4 / G-1

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: MR

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

AT&T

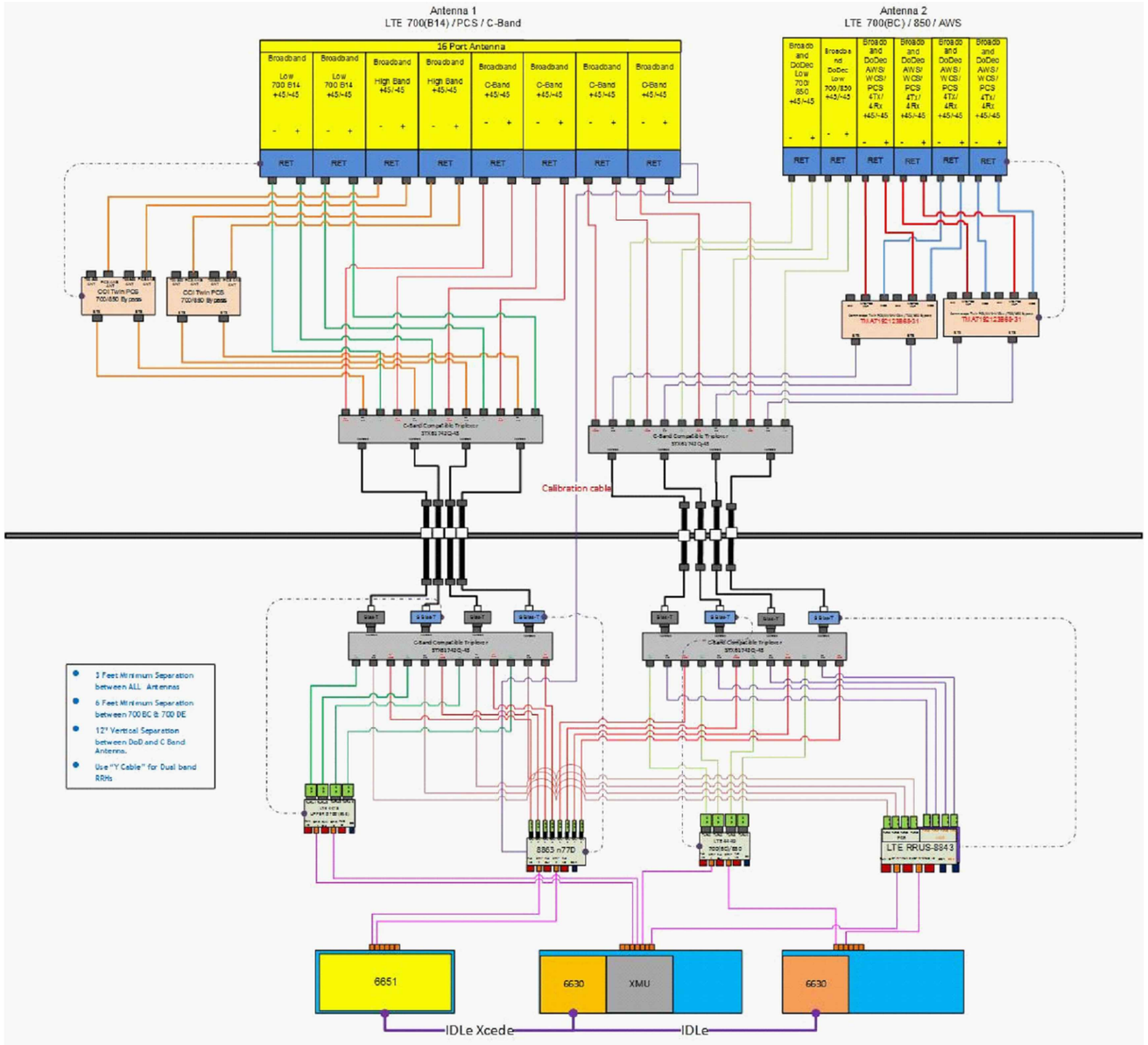
GROUNDING DETAILS

NR_3G_5G NR TSR CBAND_5G NR SOFTWARE UPGRADE_4TX4RX SOFTWARE RETROFIT_5G NR RADIO_5G 1DR-1 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05058	G-1	3

NOTE:

REV: 5
DATED: 02/15/2024
RFDS ID: 4860590



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.
3. RFDS USED FOR REFERENCE.

NOTE:

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

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SCALE: AS SHOWN | DESIGNED BY: HC | DRAWN BY: MR

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RF PLUMBING DIAGRAM
LTE 3C_5G NR 1SR CBAND_5G NR SOFTWARE UPGRADE_4TX4RX SOFTWARE RETROFIT_5G NR RADIO_5G 1DR–1 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CTL05058	RF–1	3

CENTEK engineering

Centered on Solutions℠

Structural Analysis of Utility Pole

AT&T Site Ref: CT5058

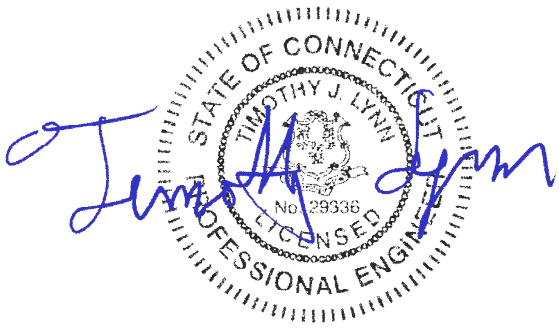
Eversource Structure No. 2998
131' Tall Electric Transmission Pole

289 Danbury Road
Wilton, CT

CENTEK Project No. 22021.09

~~Date: November 4, 2022~~
Rev 3: February 22, 2023

Max Stress Ratio = 87.2%



Prepared for:
AT&T Mobility
500 Enterprise Drive, Suite 3A
Rocky Hill, CT 06067

Table of Contents

SECTION 1 - REPORT

- INTRODUCTION
- PRIMARY ASSUMPTIONS USED IN THE ANALYSIS
- ANALYSIS
- DESIGN BASIS
- RESULTS
- CONCLUSION

SECTION 2 - CONDITIONS & SOFTWARE

- STANDARD ENGINEERING CONDITIONS
- GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAMS
  - PLS POLE

SECTION 3 - DESIGN CRITERIA

- CRITERIA FOR DESIGN OF PCS FACILITIES ON OR EXTENDING ABOVE METAL ELECTRIC TRANSMISSON TOWERS
- DESIGN CRITERIA TABLE
- SHAPE FACTOR CRITERIA
- WIRE LOADS SHEET

SECTION 4 - DRAWINGS

- SK-1 - POLE ELEVATION
- SK-2 FEEDLINE PLAN

SECTION 5 - NECS LOAD CALCULATIONS

- EQUIPMENT AND COAX LOADS

SECTION 6 - UTILITY TOWER ANALYSIS

- PLS REPORT
- ANCHOR BOLT ANALYSIS

SECTION 7 - REFERENCE MATERIAL

- RF DATA SHEET
- EQUIPMENT CUT SHEETS

Introduction

The purpose of this report is to analyze the 131' utility pole located in Wilton, CT for the proposed antenna and equipment upgrade by AT&T.

The loads consist of the following:

- AT&T (Existing to Remain):
  Coax Cables: Twenty-four (24) 1-5/8" ∅ coax cables mounted to the outside of the pole as indicated in Section 4 of this report.
- **AT&T (Existing to Remove):**
  Antennas: Three (3) CCI OPA-65R-LCUU-H8 panel antennas, three (3) Quintel QS66512-2 panel antennas, six (6) TMA2093F00V1-1 TMAs and six (6) TMA2117F00V1-1 TMAs mounted on t-arms to the utility pole with a RAD center elevation of 128-ft above grade.
- **AT&T (Proposed):**
  Antennas: Three (3) Commscope NNHHS4-65A-R5 panel antennas, three (3) CCI TPA65R-BU6D panel antennas, six (6) CCI TMABPD7823VG12A TMAs, six (6) Commscope TMAT192123B68-31 TMAs and six (6) Commscope STX61742Q-43 Triplexers mounted on two (2) Monopole Triple T-Arms (SitePro p/n RMV5-296) to the utility pole with a RAD center elevation of 128-ft above grade.
  Cables: Three (3) 1/2" ∅ calibration cables mounted to the outside of the pole as indicated in Section 4 of this report.

Primary assumptions used in the analysis

- Design steel stresses are defined by AISC-LRFD 14th edition for design of the antenna Mast and antenna supporting elements.
- ASCE Manual No. 48-11, "Design of Steel Transmission Pole Structures", defines allowable steel stresses for evaluation of the utility pole.
- All utility pole members are adequately protected to prevent corrosion of steel members.
- All proposed antenna mounts are modeled as listed above.
- Pipe mast will be properly installed and maintained.
- No residual stresses exist due to incorrect pole erection.
- All bolts are appropriately tightened providing the necessary connection continuity.
- All welds conform to the requirements of AWS D1.1.
- Pipe mast and utility pole will be in plumb condition.
- Utility pole was properly installed and maintained and all members were properly designed, detailed, fabricated, and installed and have been properly maintained since erection.
- Any deviation from the analyzed loading will require a new analysis for verification of structural adequacy.

Analysis

Structural analysis of the utility pole was independently completed using the current version of PLSPole computer program licensed to CENTEK Engineering, Inc.

NESC prescribed loads for the proposed wireless equipment were calculated to analyze the utility tower. Section 5 of this report details these loads.

Design Basis

Our analysis was performed in accordance with ASCE 48-11, "Design of Steel Transmission Pole Structures", NESC C2-2017 and Eversource Design Criteria.

- UTILITY POLE ANALYSIS

  The purpose of this analysis is to determine the adequacy of the existing utility pole to support the proposed antenna loads. The loading and design requirements were analyzed in accordance with the Eversource Design Criteria Table, NESC C2-2017 ~ Construction Grade B, and ASCE Manual No. 48-11.

  Load cases considered:

  Load Case 1: NESC Heavy Wind
  Wind Pressure..... 4.0 psf
  Radial Ice Thickness..... 0.5"
  Vertical Overload Capacity Factor..... 1.50
  Wind Overload Capacity Factor..... 2.50
  Wire Tension Overload Capacity Factor..... 1.65

  Load Case 2: NESC Extreme Wind
  Wind Speed..... 110 mph (1)
  Radial Ice Thickness..... 0"

  Load Case 3: NESC Extreme Ice w/ Wind
  Wind Pressure..... 6.4 psf
  Radial Ice Thickness..... 0.75"
  Vertical Overload Capacity Factor..... 1.0
  Wind Overload Capacity Factor..... 1.0

  Note 1: NESC C2-2017, Section25, Rule 250C: Extreme Wind Loading, 1.25 x Gust Response Factor (wind speed: 3-second gust)

R e s u l t s

- UTILITY POLE

This analysis finds that the subject utility pole is adequate to support the proposed antenna mast and related appurtenances. The pole stresses meet the requirements set forth by the ASCE Manual No. 48-11, "Design of Steel Transmission Pole Structures", for the applied NESC Heavy and Hi-Wind load cases. The detailed analysis results are provided in Section 6 of this report. The analysis results are summarized as follows:

A maximum usage of **77.11%** occurs in the utility pole base plate under the **NESC Extreme** loading condition.

POLE SECTION:

The utility pole was found to be within allowable limits.

Tower Section	Elevation	Stress Ratio (% of capacity)	Result
Section 4	0.00' -52.50' (AGL)	74.08%	**PASS**

BASE PLATE:

The base plate was found to be within allowable limits from the PLS output.

Tower Component	Design Limit	Stress Ratio (percentage of capacity)	Result
Base Plate	Bending	77.11%	**PASS**

- FOUNDATION AND ANCHORS

The base of the tower is connected to the foundation by means of (16) 2.25"∅, ASTM A615-75 anchor bolts embedded into the concrete foundation structure. Review of the foundation consisted of a comparison of the base reactions obtained from the proposed tower analysis and the original foundation design.

BASE REACTIONS:

From PLS-Pole analysis of utility pole based on NESC/NU prescribed loads.

Load Case	Shear	Axial	Moment
NESC Heavy Wind	24.57 kips	82.62 kips	2189.26 ft-kips
NESC Extreme Wind	46.78 kips	43.47 kips	3978.04 ft-kips
NESC Extreme Ice w/ Wind	16.47 kips	69.30 kips	1472.78 ft-kips

Note 1 – 10% increase to be applied to tower base reactions for foundation verification per OTRM 051

ANCHOR BOLTS:

The anchor bolts were found to be within allowable limits.

Tower Component	Design Limit	Stress Ratio (% of capacity)	Result
RP - Anchor Bolts	Tension	65.71%	**PASS**

FOUNDATION:

Force	Original Design Loading	Proposed Loading	Result
Moment	5,016 ft-kips	4,376 ft-kips	**PASS**

Note 1: Taken from Sabre design drawing 16-9864-11 dated 4/27/16.

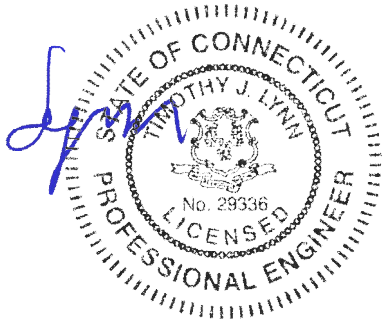
Conclusion

This analysis shows that the subject utility pole **is adequate** to support the proposed equipment upgrade.

The analysis is based, in part on the information provided to this office by Eversource and AT&T. If the existing conditions are different than the information in this report, CENTEK engineering, Inc. must be contacted for resolution of any potential issues.

Please feel free to call with any questions or comments.

Respectfully Submitted by:



Timothy J. Lynn, PE
Structural Engineer

STANDARD CONDITIONS FOR FURNISHING OF PROFESSIONAL ENGINEERING SERVICES ON EXISTING STRUCTURES

All engineering services are performed on the basis that the information used is current and correct. This information may consist of, but is not necessarily limited to:

- Information supplied by the client regarding the structure itself, its foundations, the soil conditions, the antenna and feed line loading on the structure and its components, or other relevant information.

- Information from the field and/or drawings in the possession of CENTEK engineering, Inc. or generated by field inspections or measurements of the structure.

- It is the responsibility of the client to ensure that the information provided to CENTEK engineering, Inc. and used in the performance of our engineering services is correct and complete. In the absence of information to the contrary, we assume that all structures were constructed in accordance with the drawings and specifications and are in an un-corroded condition and have not deteriorated. It is therefore assumed that its capacity has not significantly changed from the “as new” condition.

- All services will be performed to the codes specified by the client, and we do not imply to meet any other codes or requirements unless explicitly agreed in writing. If wind and ice loads or other relevant parameters are to be different from the minimum values recommended by the codes, the client shall specify the exact requirement. In the absence of information to the contrary, all work will be performed in accordance with the latest revision of ANSI/ASCE10 & ANSI/EIA-222.

- All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. CENTEK engineering, Inc. is not responsible for the conclusions, opinions and recommendations made by others based on the information we supply.

GENERAL DESCRIPTION OF STRUCTURAL ANALYSIS PROGRAM ~ PLS-POLE

PLS-POLE provides all of the capabilities a structural engineer requires to design transmission, substation or communications structures. It does so using a simple easy to use graphical interface that rests upon our time tested finite element engine. Regardless of whether you want to model a simple wood pole or a guyed steel X-Frame; PLS-POLE can handle the job simply, reliably and efficiently.

Modeling Features:

- Structures are made of standard reusable components that are available in libraries. You can easily create your own libraries or get them from a manufacturer
- Structure models are built interactively using interactive menus and graphical commands
- Automatic generation of underlying finite element model of structure
- Steel poles can have circular, 4, 6, 8, 12, 16, or 18-sided, regular, elliptical or user input cross sections (flat-to-flat or tip-to-tip orientations)
- Steel and concrete poles can be selected from standard sizes available from manufacturers
- Automatic pole class selection
- Cross brace position optimizer
- Capability to specify pole ground line rotations
- Capability to model foundation displacements
- Can optionally model foundation stiffness
- Guys are easily handled (modeled as exact cable elements in nonlinear analysis)
- Powerful graphics module (members color-coded by stress usage)
- Graphical selection of joints and components allows graphical editing and checking
- Poles can be shown as lines, wire frames or can be rendered as 3-d polygon surfaces

Analysis Features:

- Automatic distribution of loads in 2-part suspension insulators (v-strings, horizontal vees, etc.)
- Design checks for ASCE, ANSI/TIA/EIA 222 (Revisions F and G) or other requirements
- Automatic calculation of dead and wind loads
- Automated loading on structure (wind, ice and drag coefficients) according to:
    - ASCE 74-1991
    - NESC 2002
    - NESC 2007
    - IEC 60826:2003
    - EN50341-1:2001 (CENELEC)
    - EN50341-3-9:2001 (UK NNA)
    - EN50341-3-17:2001 (Portugal NNA)
    - ESAA C(b)1-2003 (Australia)
    - TPNZ (New Zealand)
    - REE (Spain)
    - EIA/TIA 222-F
    - ANSI/TIA 222-G
    - CSA S37-01
- Automated microwave antenna loading as per EIA/TIA 222-F and ANSI/TIA 222-G
- Detects buckling by nonlinear analysis

Results Features:

- Detects buckling by nonlinear analysis
- Easy to interpret text, spreadsheet and graphics design summaries
- Automatic determination of allowable wind and weight spans
- Automatic determination of interaction diagrams between allowable wind and weight spans
- Automatic tracking of part numbers and costs

Criteria for Design of PCS Facilities On or Extending Above Metal Electric Transmission Towers & Analysis of Transmission Towers Supporting PCS Masts (1)

Introduction

This criteria is the result from an evaluation of the methods and loadings specified by the separate standards, which are used in designing telecommunications towers and electric transmission towers. That evaluation is detailed elsewhere, but in summary; the methods and loadings are significantly different. This criteria specifies the manner in which the appropriate standard is used to design PCS facilities including masts and brackets (hereafter referred to as "masts"), and to evaluate the electric transmission towers to support PCS masts. The intent is to achieve an equivalent level of safety and security under the extreme design conditions expected in Connecticut and Massachusetts.

ANSI Standard TIA-222 covering the design of telecommunications structures specifies a limit state design approach. This approach applies the loads from extreme weather loading conditions, and designs the structure so that the design strength exceeds the required strength.

ANSI Standard C2-2017 (National Electrical Safety Code) covering the design of electric transmission metal structures is based upon an ultimate strength/yield stress design approach. This approach applies a multiplier (overload capacity factor) to the loads possible from extreme weather loading conditions, and designs the structure so that it does not exceed its ultimate strength (yield stress).

Each standard defines the details of how loads are to be calculated differently. Most of the NU effort in "unifying" both codes was to establish what level of strength each approach would provide, and then increasing the appropriate elements of each to achieve a similar level of security under extreme weather loadings.

Two extreme weather conditions are considered. The first is an extreme wind condition (hurricane) based upon a 50-year recurrence (2% annual probability). The second is a winter condition combining wind and ice loadings.

The following sections describe the design criteria for any PCS mast extending above the top of an electric transmission tower, and the analysis criteria for evaluating the loads on the transmission tower from such a mast from the lower portions of such a mast, and loads on the pre-existing electric lower portions of such a mast, and loads on the pre-existing electric transmission tower and the conductors it supports.

Note 1: Prepared from documentation provide from Northeast Utilities.

P C S M a s t

The PCS facility (mast, external cable/trays, including the initial and any planned future support platforms, antennas, etc. extending the full height above the top level of the electric transmission structure) shall be designed in accordance with the provisions of TIA 222-G:

E L E C T R I C T R A N S M I S S I O N T O W E R

The electric transmission tower shall be analyzed using yield stress theory in accordance with the attached table titled “Eversource Design Criteria”. This specifies uniform loadings (different from the TIA loadings) on the each of the following components of the installed facility:

- PCS mast for its total height above ground level, including the initial and planned future support platforms, antennas, etc. above the top of an electric transmission structure.
- Conductors are related devices and hardware.
- Electric transmission structure. The loads from the PCS facility and from the electric conductors shall be applied to the structure at conductor and PCS mast attachment points, where those load transfer to the tower.

The uniform loadings and factors specified for the above components in the table are based upon the National Electrical Safety Code 2017 Edition Extreme Wind (Rule 250C), Combined Ice and Wind (Rule 250B-Heavy) and Extreme Ice w/ Wind (Rule 250D) Loadings. These provide equivalent loadings compared to TIA and its loads and factors with the exceptions noted above. (Note that the NESC does not require the projected wind surfaces of structures and equipment to be increased by the ice covering.)

In the event that the electric transmission tower is not sufficient to support the additional loadings of the PCS mast, reinforcement will be necessary to upgrade the strength of the overstressed members.

Attachment A
Eversource Design Criteria

		Attachment A ES Design Criteria	Basic Wind Speed	Pressure	Height Factor	Gust Factor	Load or Stress Factor	Force Coef. - Shape Factor
			V (MPH)	Q (PSF)	Kz	Gh		
Ice Condition	TIA/EIA	Antenna Mount	TIA	TIA (0.75Wi)	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Heavy	Tower/Pole Analysis with antennas extending above top of Tower/Pole (Yield Stress)	-----	4	1	1	2.5	1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole (on two faces)	-----	4	1	1	2.5	1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by ES					
High Wind Condition	TIA/EIA	Antenna Mount	85	TIA	TIA	TIA	TIA, Section 3.1.1.1 disallowed for connection design	TIA
	NESC Extreme Wind	Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Apply a 1.25 x Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250C: Extreme Wind Loading Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by ES					
NESC Extreme Ice with Wind Condition*		Tower/Pole Analysis with antennas extending above top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load 1.25 x Gust Response Factor Apply a 1.25 x Gust Response Factor to all telecommunication equipment projected above top of tower/pole and apply a 1.0 x Gust Response Factor to the tower/pole structure					1.6 Flat Surfaces 1.3 Round Surfaces
		Tower/Pole Analysis with antennas below top of Tower/Pole	For wind speed use OTRM 060 Map 1, Rule 250D: Extreme Ice with Wind Loading 4 PSF Wind Load Height above ground is based on overall height to top of tower/pole					1.6 Flat Surfaces 1.3 Round Surfaces
		Conductors:	Conductor Loads Provided by ES					
		*Only for structures installed after 2007						

determined from NESC applied loading conditions (not TIA Loads) on the structure and mount as specified below, and shall include the wireless communication mast and antenna loads per NESC criteria)

The strength reduction factor obtained from the field investigation shall be applied to the members or connections that are showing signs of deterioration from their original condition With the written approval of Eversource Transmission Line Engineering on a case by case the existing structures may be analyzed initially using the current NESC code, then it is permitted to use the original design code with the original conductor load should the existing tower fail the current NESC code.

The structure shall be analyzed using yield stress theory in accordance with Attachment A, "Eversource Design Criteria." This specifies uniform loadings (different from the TIA loadings) on each of the following components of the installed facility:

a) Wireless communication mast for its total height above ground level, including the initial and any planned future equipment (Support Platforms, Antennas, TMA's etc.) above the top of an electric transmission structure.

b) Conductors and related devices and hardware (wire loads will be provided by Eversource).

c) Electric Transmission Structure

i) The loads from the wireless communication equipment components based on NESC and Eversource Criteria in Attachment A, and from the electric conductors shall be applied to the structure at conductor and wireless communication mast attachment points, where those loads transfer to the tower. ii)

ii) Shape Factor Multiplier:

NESC Structure Shape	Cd
Polyround (for polygonal steel poles)	1.3
Flat	1.6
Open Lattice	3.2
Pole with Coaxial Cable	See Below Table

iii) When Coaxial Cables are mounted alongside the pole structure, the shape multiplier shall be:

Mount Type	Cable Cd	Pole Cd
Coaxial Cables on outside periphery (One layer)	1.45	1.45
Coaxial Cables mounted on stand offs	1.6	1.6

d) The uniform loadings and factors specified for the above components in Attachment A, "Eversource Design Criteria" are based upon the National Electric Safety Code 2007 Edition Extreme Wind (Rule 250C) and Combined Ice and Wind (Rule 250B-Heavy) Loadings. These provide equivalent loadings compared to the TIA and its loads and factors with the exceptions noted above.

EVERSOURCE

Wire Loads

Project Name	Redding-To-Norwalk Reliability Project
Work Order	
Structure #	Type A5 (2998)
Line #	1682 115kV Line
Prepared By	POWER Engineers
Date	3/6/2015
Checked By	
Date	

Structure Data

Structure Height (AGL)		Load Zone	Central CT
# of Circuits	2	Insulation Type	Suspension (Concrete Foundation
Insulator Weight	250	Broken Wire Side	Back
Broken Wire Side	Left	Structure Type	Double Circuit Steel Pole

Wire Data

Circuit #	Left	Right
Shield Wire	0.646 OPGW 48	0.646 OPGW 48
Conductor	FALCON/ACSS	FALCON/ACSS
# of Conductors	1	1

Line Geometry

	Circuit 1			Circuit 2		
	Ahead	Back	Total	Ahead	Back	Total
Wind Span	300	300	600	300	300	600
Weight Span	400	300	700	400	300	700
Minimum Line Angle	0	0	0	0	0	0
Maximum Line Angle	1	1	2	1	1	2

Wire Tensions

	Left Circuit		Right Circuit		
	Ahead	Back	Ahead	Back	
NESC Rule 250B	14000	14000	14000	14000	Conductor
NESC Rule 250C	13000	13000	13000	13000	
NESC Rule 250D	15600	15600	15600	15600	
60°F, No wind or ice	9900	9900	9900	9900	
NESC Rule 250B	5500	5500	5500	5500	Shield Wire
NESC Rule 250C	4900	4900	4900	4900	
NESC Rule 250D	6800	6700	6800	6700	
60°F, No wind or ice	2900	2900	2900	2900	

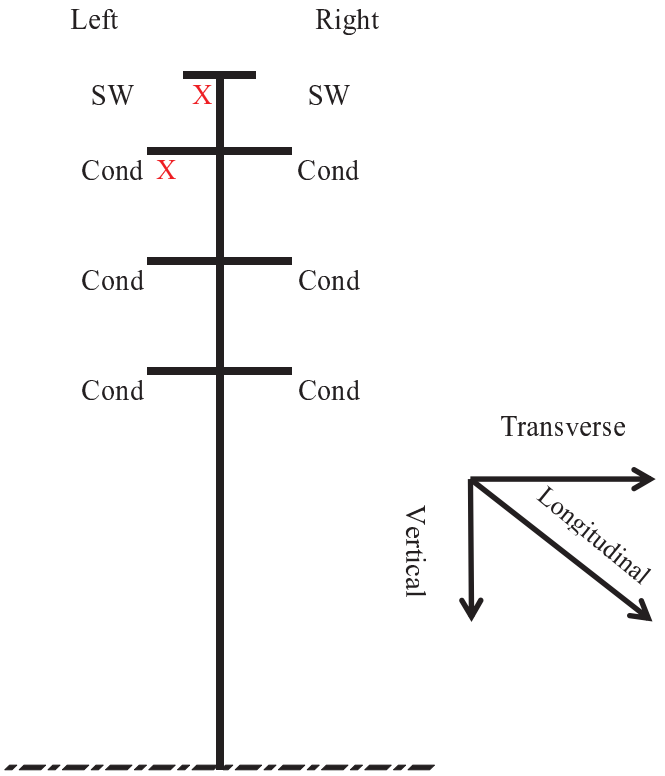
All Loads include Overload Factors but not Pole Shape Factors

Load Case	Description
1	NESC Rule 250B; 0°F, ½" of ice, 4 psf wind
2	NESC Rule 250C; (Extreme Wind Loading)
3	NESC Rule 250C; Extreme Wind Longtitudinal On The Pole Only
4	NESC Rule 250D; 15°F 1" of ice, 4 psf or NU Ice Case; 32°F 1" Ice
5	NESC Rule 250B with no OLFs (Service Load)
6	60°F, No wind or Ice (Deflection)
7a	NESC Rule 250B/261C Broken Wire Case (Broken SW and Borken Conductor)
7b	NESC Rule 250B/261C Broken Wire Case (Broken SW or Broken Phase)

EVERSOURCE

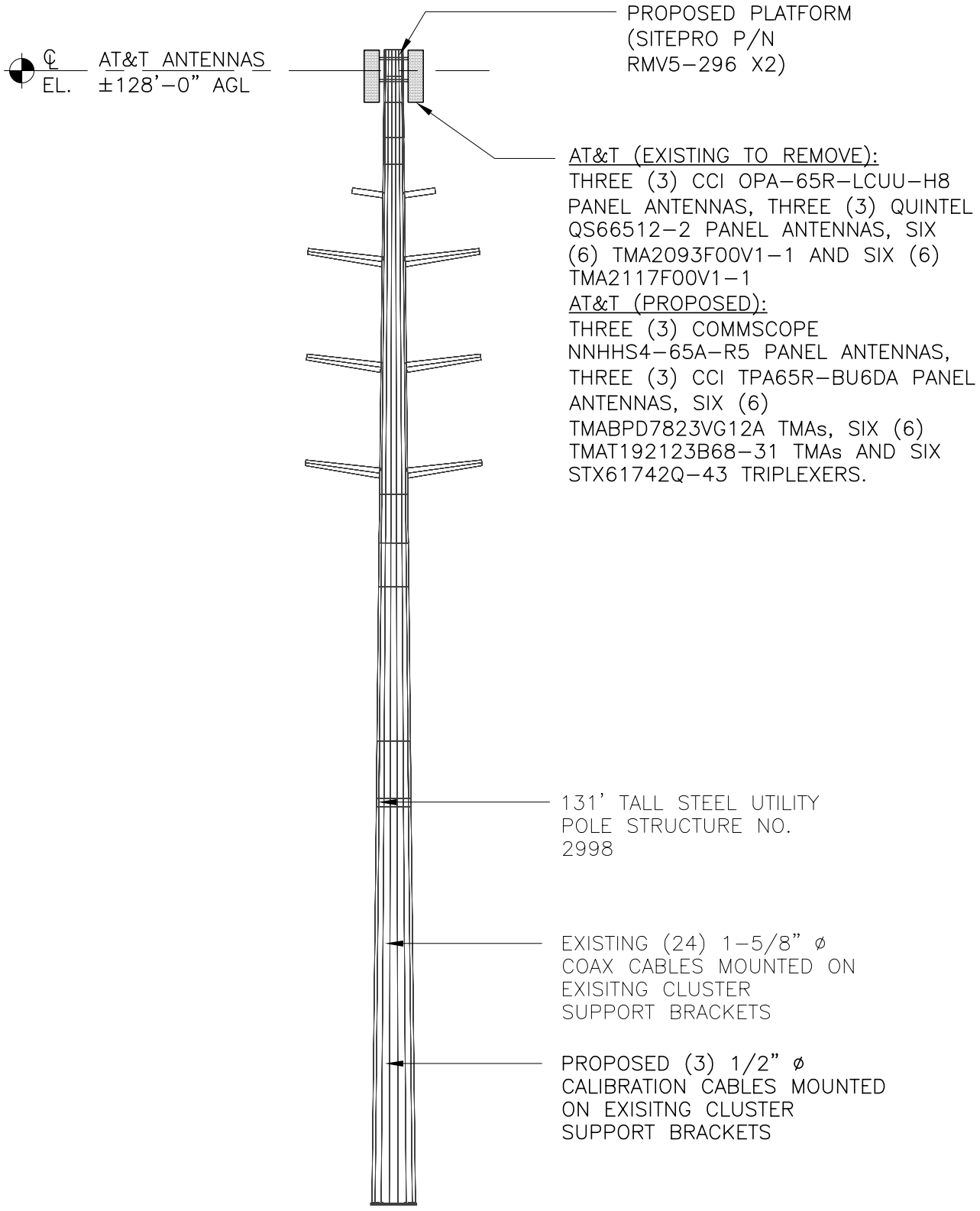
Wire Loads
Load Tree

Project Number
Redding-To-Norwalk Re
Structure Number
Type A5 (2998)
Line Number
1682 115kV Line



Double Circuit Steel Pole Configuration
X Denotes Broken Wire Location. This attachment receives case 7 loads. All others receive Case 1 Loads for Case 7

	Left Circuit				Right Circuit			
Conductor	Case	Vertical	Transverse	Longitudina	Case	Vertical	Transverse	Longitudina
	1	4229.0595	1910.0341	0	1	4229.0595	1910.0341	0
	2	1928.98	3071.2626	0	2	1928.98	3071.2626	0
	3	1928.98	345.55765	0	3	1928.98	345.55765	0
	4	4145.166	1293.5151	0	4	4145.166	1293.5151	0
	5	2819.373	1037.6674	0	5	2819.373	1037.6674	0
	6	1928.98	345.55765	0	6	1928.98	345.55765	0
	7a	2363.034	955.01706	15400	7a	2363.034	955.01706	15400
	7b	2363.034	955.01706	15400	7b	2363.034	955.01706	15400
Shield Wire	Case	Vertical	Transverse	Longitudina	Case	Vertical	Transverse	Longitudina
	1	1227.2526	1034.1741	0	1	1227.2526	1034.1741	0
	2	319.2	1140.0336	0	2	319.2	1140.0336	0
	3	319.2	101.22396	0	3	319.2	101.22396	0
	4	1752.5368	764.80749	100	4	1752.5368	764.80749	100
	5	818.1684	521.17647	0	5	818.1684	521.17647	0
	6	319.2	101.22396	0	6	319.2	101.22396	0
	7a	701.2872	517.08706	6050	7a	701.2872	517.08706	6050
	7b	701.2872	517.08706	6050	7b	701.2872	517.08706	6050



1
SK-1

TOWER ELEVATION

SCALE: NOT TO SCALE

REVISIONS		
00	11/4/22	ISSUED FOR REVIEW
03	2/22/23	CONSTRUCTION

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CT5058
STRUCTURE 2998

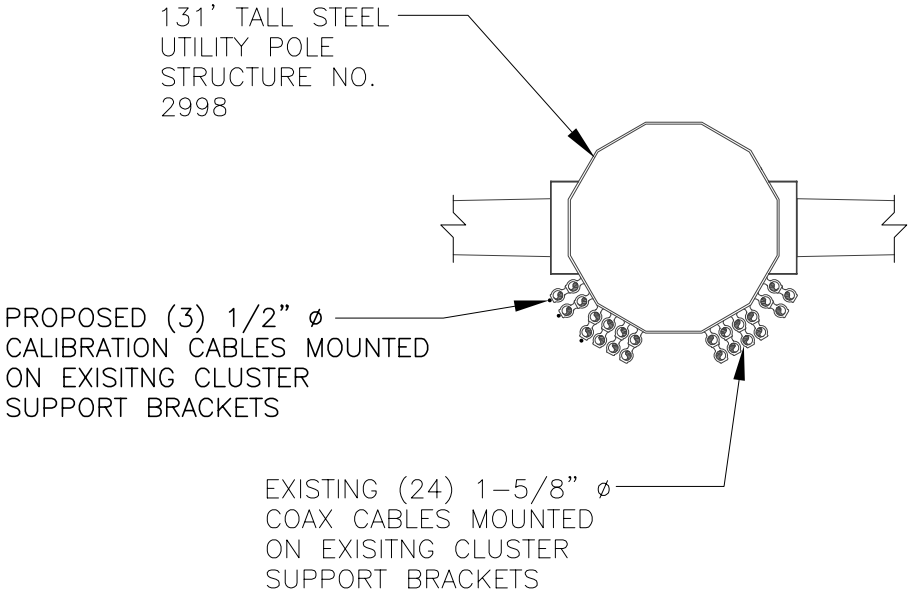
298 DANBURY ROAD
WILTON, CT

PROJECT NO:	22021.09
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	11/4/22

TOWER ELEVATION

SK-1

DWG. 1 OF 1



1 / SK-2 COAX CABLE PLAN

SCALE: NOT TO SCALE

REVISIONS		
00	11/4/22	ISSUED FOR REVIEW
03	2/22/23	CONSTRUCTION

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CT5058
STRUCTURE 2998

298 DANBURY ROAD
WILTON, CT

PROJECT NO:	22021.09
DRAWN BY:	TJL
CHECKED BY:	CFC
SCALE:	AS NOTED
DATE:	11/4/22

FEELINE PLAN

SK-2

DWG. 2 OF 1

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Subject: Loads - Structure #2998

Location: Wilton, CT

Rev. 3: 2/22/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22021.09

Basic Components

Heavy Wind Pressure =	p := 4.00	psf	(User Input NESC 2017 Figure 250-1 & Table 250-1)
Basic Windspeed =	V := 110	mph	(User Input NESC 2017 Figure 250-2(e))
Radial Ice Thickness =	Ir := 0.50	in	(User Input)
Radial Ice Density =	Id := 56.0	pcf	(User Input)

Factors for Extreme Wind Calculation

Elevation of Top of Mast Above Grade =	TME := 131	ft	(User Input)
Multiplier Gust Response Factor =	m := 1.00		(User Input - Only for NESC Extreme wind case)
NESC Factor =	kv := 1.43		(User Input from NESC 2017 Table 250-3 equation)
Importance Factor =	I := 1.0		(User Input from NESC 2017 Section 250.C.2)

Velocity Pressure Coefficient = $Kz := 2.01 \cdot \left(\frac{TME}{900}\right)^{\frac{2}{9.5}} = 1.34$ (NESC 2017 Table 250-2)

Exposure Factor = $Es := 0.346 \left[\frac{33}{(0.67 \cdot TME)}\right]^{\frac{1}{7}} = 0.301$ (NESC 2017 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TME}{220}\right)} = 0.817$ (NESC 2017 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.848$ (NESC 2017 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 35.2$ psf (NESC 2017 Section 250.C.2)

NESC Extreme Ice w/ Wind Components

Heavy Wind Pressure =	$p_{ex} := 6.4$	psf	(User Input NESC 2017 Figure 250-3 & Table 250-4)
Radial Ice Thickness =	$Ir_{ex} := 0.75$	in	(User Input NESC 2017 Figure 250-3)

Shape Factors

Shape Factor for Round Members =	$Cd_R := 1.3$	(User Input)
Shape Factor for Flat Members =	$Cd_F := 1.6$	(User Input)
Shape Factor for Open Lattice =	$Cd_{OL} := 3.2$	(User Input)
Shape Factor for Coax Cables Attached to Outside of Pole =	$Cd_{coax} := 1.6$	(User Input)

Overload Factors

Overload Factors for Wind Loads:

NESC Heavy Loading =	**2.5**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis

Overload Factors for Vertical Loads:

NESC Heavy Loading =	**1.5**	(User Input)	Apply in Risa-3D Analysis
NESC Extreme Loading =	**1.0**	(User Input)	Apply in Risa-3D Analysis

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Subject: Loads - Structure #2998

Location: Wilton, CT

Rev. 3: 2/22/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22021.09

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Commscope NNHHS4-65A-R5		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 59.016$	in	(User Input)
Antenna Width =	$W_{ant} := 19.606$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.756$	in	(User Input)
Antenna Weight =	$WT_{ant} := 75$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant1} := WT_{ant} \cdot N_{ant} = 225$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 8974$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 1854$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 60$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant1} := W_{ICEant} \cdot N_{ant} = 180$ lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 2848$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 92$ lbs

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant1} := W_{ICE.exant} \cdot N_{ant} = 277$ lbs

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir)}{144} = 8.6$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 25.8$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant1} := p \cdot Cd_F \cdot A_{ICEant} = 165$ lbs

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 8$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 24.1$ sf

Total Antenna Wind Force = $F_{ant1} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1358$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := \frac{(L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex})}{144} = 8.9$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 26.6$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant1} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 272$ lbs

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Subject: Loads - Structure #2998

Location: Wilton, CT

Rev. 3: 2/22/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22021.09

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	CCI TPA65-BU6D		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 71.2$	in	(User Input)
Antenna Width =	$W_{ant} := 20.7$	in	(User Input)
Antenna Thickness =	$T_{ant} := 7.7$	in	(User Input)
Antenna Weight =	$WT_{ant} := 70$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 3$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant2} := WT_{ant} \cdot N_{ant} = 210$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 11349$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 2282$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 74$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant2} := W_{ICEant} \cdot N_{ant} = 222$ lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 3500$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 113$ lbs

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant2} := W_{ICE.exant} \cdot N_{ant} = 340$ lbs

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir)}{144} = 10.9$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 32.6$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant2} := p \cdot Cd_F \cdot A_{ICEant} = 209$ lbs

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 10.2$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 30.7$ sf

Total Antenna Wind Force = $F_{ant2} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 1729$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := \frac{(L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex})}{144} = 11.2$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 33.6$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant2} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 344$ lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	TMABPDB7823VG12A		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 14.25$	in	(User Input)
Antenna Width =	$W_{ant} := 11.024$	in	(User Input)
Antenna Thickness =	$T_{ant} := 4.11$	in	(User Input)
Antenna Weight =	$WT_{ant} := 25$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 6$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant3} := WT_{ant} \cdot N_{ant} = 150$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 646$ cu in

Volume of Ice on Each Antenna = $V_{ice} := (L_{ant} + 2 \cdot Ir)(W_{ant} + 2 \cdot Ir)(T_{ant} + 2 \cdot Ir) - V_{ant} = 291$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 9$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant3} := W_{ICEant} \cdot N_{ant} = 57$ lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := (L_{ant} + 2 \cdot Ir_{ex})(W_{ant} + 2 \cdot Ir_{ex})(T_{ant} + 2 \cdot Ir_{ex}) - V_{ant} = 461$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 15$ lbs

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant3} := W_{ICE.exant} \cdot N_{ant} = 90$ lbs

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{(L_{ant} + 2 \cdot Ir) \cdot (W_{ant} + 2 \cdot Ir)}{144} = 1.3$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 7.6$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant3} := p \cdot Cd_F \cdot A_{ICEant} = 49$ lbs

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 1.1$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 6.5$ sf

Total Antenna Wind Force = $F_{ant3} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 369$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := \frac{(L_{ant} + 2 \cdot Ir_{ex}) \cdot (W_{ant} + 2 \cdot Ir_{ex})}{144} = 1.4$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 8.2$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant3} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 84$ lbs

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Subject: Loads - Structure #2998

Location: Wilton, CT

Rev. 3: 2/22/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22021.09

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Commscope TMAT192123B68-31		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 11.142$	in	(User Input)
Antenna Width =	$W_{ant} := 9.37$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3.819$	in	(User Input)
Antenna Weight =	$WT_{ant} := 21$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 6$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant4} := WT_{ant} \cdot N_{ant} = 126$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 399$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 208$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 7$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant4} := W_{ICEant} \cdot N_{ant} = 40$ lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := \left(L_{ant} + 2 \cdot Ir_{ex}\right)\left(W_{ant} + 2 \cdot Ir_{ex}\right)\left(T_{ant} + 2 \cdot Ir_{ex}\right) - V_{ant} = 332$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 11$ lbs

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant4} := W_{ICE.exant} \cdot N_{ant} = 65$ lbs

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 0.9$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 5.2$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant4} := p \cdot Cd_F \cdot A_{ICEant} = 34$ lbs

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.7$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 4.4$ sf

Total Antenna Wind Force = $F_{ant4} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 245$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := \frac{\left(L_{ant} + 2 \cdot Ir_{ex}\right) \cdot \left(W_{ant} + 2 \cdot Ir_{ex}\right)}{144} = 1$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 5.7$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant4} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 59$ lbs

Development of Wind & Ice Load on Antennas

Antenna Data:

Antenna Model =	Commscope STX61742Q-43		
Antenna Shape =	Flat		(User Input)
Antenna Height =	$L_{ant} := 4.646$	in	(User Input)
Antenna Width =	$W_{ant} := 8.976$	in	(User Input)
Antenna Thickness =	$T_{ant} := 3.346$	in	(User Input)
Antenna Weight =	$WT_{ant} := 11$	lbs	(User Input)
Number of Antennas =	$N_{ant} := 6$		(User Input)

Gravity Load (without ice)

Weight of All Antennas = $Wt_{ant5} := WT_{ant} \cdot N_{ant} = 66$ lbs

Gravity Load (ice only)

Volume of Each Antenna = $V_{ant} := L_{ant} \cdot W_{ant} \cdot T_{ant} = 140$ cu in

Volume of Ice on Each Antenna = $V_{ice} := \left(L_{ant} + 2 \cdot Ir\right)\left(W_{ant} + 2 \cdot Ir\right)\left(T_{ant} + 2 \cdot Ir\right) - V_{ant} = 105$ cu in

Weight of Ice on Each Antenna = $W_{ICEant} := \frac{V_{ice}}{1728} \cdot Id = 3$ lbs

Weight of Ice on All Antennas = $Wt_{ice.ant5} := W_{ICEant} \cdot N_{ant} = 20$ lbs

Gravity Load (Extreme ice only)

Volume of Extreme Ice on Each Antenna = $V_{ice.ex} := \left(L_{ant} + 2 \cdot Ir_{ex}\right)\left(W_{ant} + 2 \cdot Ir_{ex}\right)\left(T_{ant} + 2 \cdot Ir_{ex}\right) - V_{ant} = 172$ cu in

Weight of Extreme Ice on Each Antenna = $W_{ICE.exant} := \frac{V_{ice.ex}}{1728} \cdot Id = 6$ lbs

Weight of Extreme Ice on All Antennas = $Wt_{ice.ex.ant5} := W_{ICE.exant} \cdot N_{ant} = 34$ lbs

Wind Load (NESC Heavy)

Surface Area for One Antenna w/ Ice = $SA_{ICEant} := \frac{\left(L_{ant} + 2 \cdot Ir\right) \cdot \left(W_{ant} + 2 \cdot Ir\right)}{144} = 0.4$ sf

Antenna Projected Surface Area w/ Ice = $A_{ICEant} := SA_{ICEant} \cdot N_{ant} = 2.3$ sf

Total Antenna Wind Force w/ Ice = $Fi_{ant5} := p \cdot Cd_F \cdot A_{ICEant} = 15$ lbs

Wind Load (NESC Extreme)

Surface Area for One Antenna = $SA_{ant} := \frac{L_{ant} \cdot W_{ant}}{144} = 0.3$ sf

Antenna Projected Surface Area = $A_{ant} := SA_{ant} \cdot N_{ant} = 1.7$ sf

Total Antenna Wind Force = $F_{ant5} := qz \cdot Cd_F \cdot A_{ant} \cdot m = 98$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Surface Area for One Antenna w/ Extreme Ice = $SA_{ICE.exant} := \frac{\left(L_{ant} + 2 \cdot Ir_{ex}\right) \cdot \left(W_{ant} + 2 \cdot Ir_{ex}\right)}{144} = 0.4$ sf

Antenna Projected Surface Area w/ Extreme Ice = $A_{ICE.exant} := SA_{ICE.exant} \cdot N_{ant} = 2.7$ sf

Total Antenna Wind Force w/ Extreme Ice = $Fi_{ex.ant5} := p_{ex} \cdot Cd_F \cdot A_{ICE.exant} \cdot m = 27$ lbs

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Subject: Loads - Structure #2998

Location: Wilton, CT

Rev. 3: 2/22/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22021.09

Development of Wind & Ice Load on Antenna Mounts

Mount Data:

Mount Type:	RMV5-296 (x2)		
Mount Shape =	Flat		
Mount Projected Surface Area =	$CdAa := 21$	sf	(User Input)
Mount Projected Surface Area w/ Ice =	$CdAa_{ice} := 25$	sf	(User Input)
Mount Projected Surface Area w/ Extreme Ice =	$CdAa_{ice.ex} := 29$	sf	(User Input)
Mount Weight =	$WT_{mnt} := 1675$	lbs	(User Input)
Mount Weight w/ Ice =	$WT_{mnt.ice} := 2000$	lbs	(User Input)
Mount Weight w/ Extreme Ice =	$WT_{mnt.ice.ex} := 2200$	lbs	(User Input)

Gravity Loads (without ice)

Weight of All Mounts = $Wt_{mnt1} := WT_{mnt} = 1675$ lbs

Gravity Load (ice only)

Weight of Ice on All Mounts = $Wt_{ice.mnt1} := \left(WT_{mnt.ice} - WT_{mnt}\right) = 325$ lbs

Gravity Load (extreme ice only)

Weight of Ice on All Mounts = $Wt_{ice.ex.mnt1} := \left(WT_{mnt.ice.ex} - WT_{mnt}\right) = 525$ lbs

Wind Load (NESC Heavy)

Total Mount Wind Force w/ Ice = $Fi_{mnt1} := p \cdot CdAa_{ice} = 100$ lbs

Wind Load (NESC Extreme)

Total Mount Wind Force = $F_{mnt1} := qz \cdot CdAa \cdot m = 739$ lbs

Wind Load (NESC Extreme Ice w/ Wind)

Total Mount Wind Force w/ Extreme Ice = $Fi_{ex.mnt1} := p_{ex} \cdot CdAa_{ice.ex} = 186$ lbs

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Subject:	Loads - Structure #2998
Location:	Wilton, CT
Rev. 3: 2/22/23	Prepared by: T.J.L Checked by: C.F.C. Job No. 22021.09

Total Equipment Loads:

NESC Heavy Wind Vertical =

$$Wt_{tot} := \left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{ant4} + Wt_{ant5} + Wt_{mnt1}\right) = 2452$$

$$Wt_{ice.tot} := \left(Wt_{ice.ant1} + Wt_{ice.ant2} + Wt_{ice.ant3} + Wt_{ice.ant4} + Wt_{ice.ant5} + Wt_{ice.mnt1}\right) = 845$$

$$\left(Wt_{tot} + Wt_{ice.tot}\right)\cdot 1.5 = 4945$$

NESC Heavy Wind Trasnsverse = $\left(Fi_{ant1} + Fi_{ant2} + Fi_{ant3} + Fi_{ant4} + Fi_{ant5} + Fi_{mnt1}\right)\cdot 2.5 = 1428$

NESC Extreme Wind Vertical = $\left(Wt_{ant1} + Wt_{ant2} + Wt_{ant3} + Wt_{ant4} + Wt_{ant5} + Wt_{mnt1}\right) = 2452$

NESC Extreme Wind Trasnsverse = $\left(F_{ant1} + F_{ant2} + F_{ant3} + F_{ant4} + F_{ant5} + F_{mnt1}\right) = 4537$

NESC Extreme Ice w/Wind Vertical =

$$Wt_{ice.ex.tot} := \left(Wt_{ice.ex.ant1} + Wt_{ice.ex.ant2} + Wt_{ice.ex.ant3} + Wt_{ice.ex.ant4} + Wt_{ice.ex.ant5} + Wt_{ice.ex.mnt1}\right) = 1330$$

$$\left(Wt_{tot} + Wt_{ice.ex.tot}\right) = 3782$$

NESC Extreme Ice w/Wind Trasnsverse = $\left(Fi_{ex.ant1} + Fi_{ex.ant2} + Fi_{ex.ant3} + Fi_{ex.ant4} + Fi_{ex.ant5} + Fi_{ex.mnt1}\right) = 973$

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Subject: Coax Cable on Pole #2998

Location: Wilton, CT

Rev. 3: 2/22/23

Prepared by: T.J.L Checked by: C.F.C.
Job No. 22021.09

Coax Cable on CL&P Pole

Coaxial Cable Span $Coax_{Span} := 10ft$ *(User Input)*

Heavy Wind Pressure = $p := 4 \cdot psf$ *(User Input)*

Radial Ice Thickness = $Ir := 0.5 \cdot in$ *(User Input)*

Radial Ice Density = $Id := 56 \cdot pcf$ *(User Input)*

Extreme Ice w/ Wind Pressure = $p_{ex} := 6.4 \cdot psf$ *(User Input)*

Extreme Radial Ice Thickness = $Ir_{ex} := 0.75 \cdot in$ *(User Input)*

Basic Windspeed = $V := 110$ mph (User Input NESC 2017 Figure 250-2(e))

Height to Top of Coax Above Grade = $TC := 128$ ft (User Input)

NESC Factor = $kv := 1.43$ (User Input from NESC 2017 Table 250-3 equation)

Importance Factor = $I := 1.0$ (User Input from NESC 2017 Section 250.C.2)

Velocity Pressure Coefficient = $Kz := 2.01 \cdot \left(\frac{0.67TC}{900}\right)^{\frac{2}{9.5}} = 1.225$ (NESC 2017 Table 250-2)

Exposure Factor = $Es := 0.346\left[\frac{33}{(0.67 \cdot TC)}\right]^{\frac{1}{7}} = 0.302$ (NESC 2017 Table 250-3)

Response Term = $Bs := \frac{1}{\left(1 + 0.375 \cdot \frac{TC}{220}\right)} = 0.821$ (NESC 2017 Table 250-3)

Gust Response Factor = $Grf := \frac{\left[1 + \left(2.7 \cdot Es \cdot Bs^{\frac{1}{2}}\right)\right]}{kv^2} = 0.85$ (NESC 2017 Table 250-3)

Wind Pressure = $qz := 0.00256 \cdot Kz \cdot V^2 \cdot Grf \cdot I = 32.3$ psf (NESC 2017 Section 250.C.2)

Diameter of Coax Cable = $D_{coax} := 1.98 \cdot in$ *(User Input)*

Weight of Coax Cable = $W_{coax} := 1.04 \cdot plf$ *(User Input)*

Number of Coax Cables = $N_{coax} := 27$ *(User Input - (24) Coax & (3) 1/2" Calibration Cables - Larger Size Cable Conservatively used for all cables)*

Number of Projected Coax Cables = $NP_{coax} := 6$ *(User Input - Conservative Assumption)*

Shape Factor = $Cd_{coax} := 1.6$ *(User Input)*

Overload Factor for NESC Heavy Wind Transverse Load = $OF_{HWT} := 2.5$ *(User Input)*

Overload Factor for NESC Heavy Wind Vertical Load = $OF_{HWV} := 1.5$ *(User Input)*

Overload Factor for NESC Extreme Wind Transverse Load = $OF_{EWT} := 1.0$ *(User Input)*

Overload Factor for NESC Extreme Wind Vertical Load = $OF_{EWV} := 1.0$ *(User Input)*

Overload Factor for NESC Extreme Ice w/ Wind Transverse Load = $OF_{EIT} := 1.0$ *(User Input)*

Overload Factor for NESC Extreme Ice w/ Wind Vertical Load = $OF_{EIV} := 1.0$ *(User Input)*

Wind Area without Ice = $A := \left(NP_{coax} \cdot D_{coax}\right) = 11.88 \cdot in$

Wind Area with Ice = $A_{ice} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir\right) = 12.88 \cdot in$

Wind Area with Extreme Ice = $A_{ice.ex} := \left(NP_{coax} \cdot D_{coax} + 2 \cdot Ir_{ex}\right) = 13.38 \cdot in$

Ice Area per Liner Ft = $Ai_{coax} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir\right)^2 - D_{coax}^2\right] = 0.027\,ft^2$

Weight of Ice on All Coax Cables = $W_{ice} := Ai_{coax} \cdot Id \cdot N_{coax} = 40.904 \cdot plf$

Extreme Ice Area per Liner Ft = $Ai_{coax.ex} := \frac{\pi}{4} \cdot \left[\left(D_{coax} + 2 \cdot Ir_{ex}\right)^2 - D_{coax}^2\right] = 0.045\,ft^2$

Weight of Extreme Ice on All Coax Cables = $W_{ice.ex} := Ai_{coax.ex} \cdot Id \cdot N_{coax} = 67.54 \cdot plf$

Heavy Wind Vertical Load =

$$Heavy\_WInd_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice}\right) \cdot Coax_{Span} \cdot OF_{HWV}\right]}$$

Heavy Wind Transverse Load =

$$Heavy\_Wind_{Trans} := \overrightarrow{\left(p \cdot A_{ice} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{HWT}\right)}$$

$Heavy\_WInd_{Vert} = 1035\,lb$ $Heavy\_Wind_{Trans} = 172\,lb$

Extreme Wind Vertical Load =

$$Extreme\_Wind_{Vert} := \overrightarrow{\left(N_{coax} \cdot W_{coax} \cdot Coax_{Span} \cdot OF_{EWV}\right)}$$

Extreme Wind Transverse Load =

$$Extreme\_Wind_{Trans} := \overrightarrow{\left[\left(qz \cdot psf \cdot A \cdot Cd_{coax}\right) \cdot Coax_{Span} \cdot OF_{EWT}\right]}$$

$Extreme\_Wind_{Vert} = 281\,lb$ $Extreme\_Wind_{Trans} = 511\,lb$

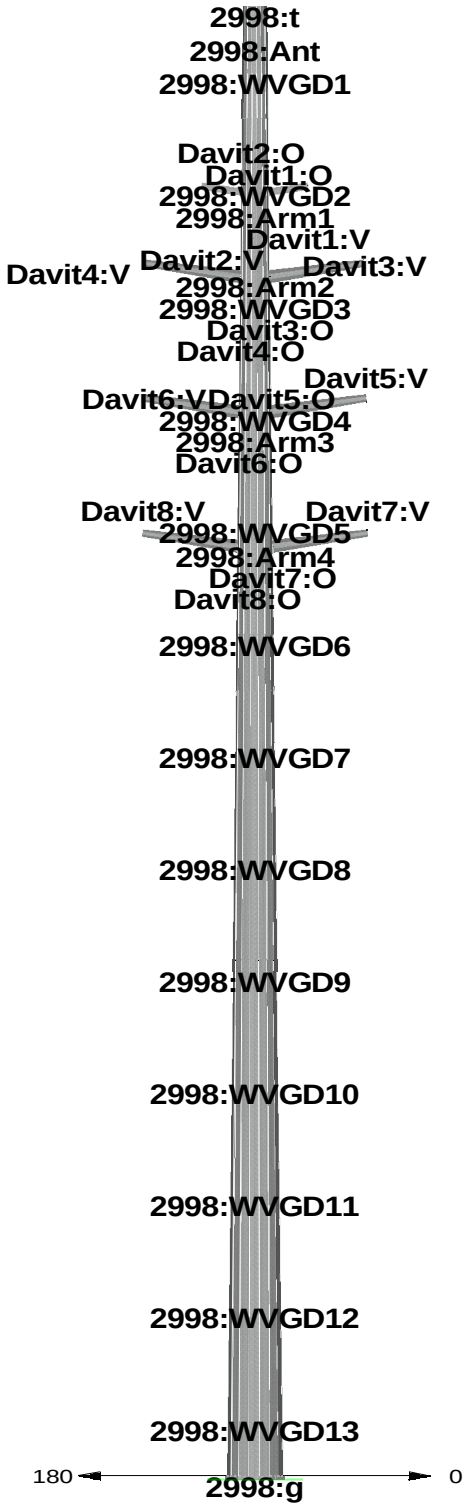
Extreme Ice w/ Wind Vertical Load =

$$Extreme\_Ice_{Vert} := \overrightarrow{\left[\left(N_{coax} \cdot W_{coax} + W_{ice.ex}\right) \cdot Coax_{Span} \cdot OF_{EIV}\right]}$$

Extreme Ice w/ Wind Transverse Load =

$$Extreme\_Ice_{Trans} := \overrightarrow{\left(p_{ex} \cdot A_{ice.ex} \cdot Cd_{coax} \cdot Coax_{Span} \cdot OF_{EIT}\right)}$$

$Extreme\_Ice_{Vert} = 956\,lb$ $Extreme\_Ice_{Trans} = 114\,lb$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2998:Ant
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Davit2:O
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Davit4:V
Davit3:V
2998:Arm2
2998:WVGD3
Davit3:O
Davit4:O
Davit5:V
Davit6:V
Davit5:O
2998:WVGD4
2998:Arm3
Davit6:O
Davit8:V
Davit7:V
2998:WVGD5
2998:Arm4
Davit7:O
Davit8:O
2998:WVGD6
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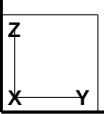
Z
X
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10 (ft)

Project Name : 22021.09 - Wilton, CT
Project Notes: Structure # 2998/ AT&T - CT5058
Project File : J:\Jobs\2202100.WI\09_CT5058\05_Structural\Tower Analysis\Backup Documentation\Rev (3)\Calcs\PLS-Pole\cl&p structure # 2998.pol
Date run : 2:45:30 PM Wednesday, February 22, 2023
by : PLS-POLE Version 16.81
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Successfully performed nonlinear analysis

The model has 0 warnings.

Loads from file: J:\Jobs\2202100.WI\09_CT5058\05_Structural\Tower Analysis\Backup Documentation\Rev (3)\Calcs\PLS-Pole\cl&p #2998.lca

*** Analysis Results:

Maximum element usage is 77.11% for Base Plate "2998" in load case "NESC Extreme Wind"
Maximum insulator usage is 6.45% for Clamp "Clamp9" in load case "NESC Extreme Wind"

Foundation Design Forces For All Load Cases:

Note: loads are factored.

Load Case	Foundation Description	Axial Force (kips)	Shear Force (kips)	Bending Moment (ft-k)	Foundation Usage %
NESC Heavy Wind	2998:g	82.62	24.57	2189.26	0.00
NESC Extreme Wind	2998:g	43.47	46.78	3978.04	0.00
NESC Extreme Ice w/ Wind	2998:g	69.30	16.47	1472.78	0.00

Summary of Joint Support Reactions For All Load Cases:

Load Case	Joint Label	Long. Force (kips)	Tran. Force (kips)	Vert. Force (kips)	Shear Force (kips)	Tran. Moment (ft-k)	Long. Moment (ft-k)	Bending Moment (ft-k)	Vert. Moment (ft-k)	Found. Usage %
NESC Heavy Wind	2998:g	-0.20	-24.57	-82.62	24.57	2189.23	-11.63	2189.26	-0.00	0.00
NESC Extreme Wind	2998:g	-0.30	-46.78	-43.47	46.78	3977.93	-29.47	3978.04	-0.00	0.00
NESC Extreme Ice w/ Wind	2998:g	-0.08	-16.47	-69.30	16.47	1472.77	-4.63	1472.78	-0.00	0.00

Summary of Tip Deflections For All Load Cases:

Note: positive tip load results in positive deflection

Load Case	Joint Label	Long. Defl. (in)	Tran. Defl. (in)	Vert. Defl. (in)	Resultant Defl. (in)	Long. Rot. (deg)	Tran. Rot. (deg)	Twist (deg)
NESC Heavy Wind	2998:t	0.15	35.56	-0.57	35.56	0.01	-2.14	0.00
NESC Extreme Wind	2998:t	0.46	64.31	-1.73	64.33	0.03	-3.93	0.00
NESC Extreme Ice w/ Wind	2998:t	0.06	23.99	-0.28	23.99	0.00	-1.44	0.00

Tubes Summary:

Pole Label	Tube Num.	Weight (lbs)	Load Case	Maximum Usage %	Resultant Moment (ft-k)
2998	1	537	NESC Extreme Wind	2.97	15.40

2998	2	4481	NESC Extreme Wind	51.11	774.41
2998	3	4972	NESC Extreme Wind	64.35	1766.45
2998	4	11089	NESC Extreme Wind	74.08	3978.04

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress

Summary of Steel Pole Usages:

Steel Pole Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
2998	74.08	NESC Extreme Wind	2.5	35	22544.0

Summary of Tubular Davit Usages:

Tubular Davit Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
Davit1	9.18	NESC Extreme Ice w/ Wind	114.8	1	93.2
Davit2	8.22	NESC Extreme Ice w/ Wind	114.8	1	93.2
Davit3	14.65	NESC Heavy Wind	107.2	1	320.5
Davit4	13.02	NESC Heavy Wind	107.2	1	320.5
Davit5	14.66	NESC Heavy Wind	95.2	1	320.5
Davit6	13.04	NESC Heavy Wind	95.2	1	320.5
Davit7	14.67	NESC Heavy Wind	83.2	1	320.5
Davit8	13.06	NESC Heavy Wind	83.2	1	320.5

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy Wind	44.53	2998	Base Plate
NESC Extreme Wind	77.11	2998	Base Plate
NESC Extreme Ice w/ Wind	30.39	2998	Base Plate

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Height AGL (ft)	Segment Number
NESC Heavy Wind	42.06	2998	2.5	35
NESC Extreme Wind	74.08	2998	2.5	35
NESC Extreme Ice w/ Wind	28.59	2998	2.5	35

Summary of Base Plate Usages by Load Case:

Load Case	Pole Label	Bend Line #	Length (in)	Vertical Load (kips)	X Moment (ft-k)	Y Moment (ft-k)	Bending Stress (ksi)	Bolt Moment Sum (ft-k)	# Bolts Acting On Bend Line	Max Bolt Load For Bend Line (kips)	Minimum Plate Thickness (in)	Usage %
NESC Heavy Wind	2998	11	29.000	81.150	2189.232	-11.626	22.265	67.818	4	91.632	1.835	44.53
NESC Extreme Wind	2998	11	29.000	42.002	3977.931	-29.474	38.554	117.436	4	160.093	2.415	77.11
NESC Extreme Ice w/ Wind	2998	11	29.000	67.834	1472.772	-4.628	15.197	46.289	4	62.401	1.516	30.39

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Tubular Davit Usage %	Davit Label	Height AGL (ft)	Segment Number
NESC Heavy Wind	14.67	Davit7	83.2	1
NESC Extreme Wind	7.67	Davit7	83.2	1
NESC Extreme Ice w/ Wind	13.93	Davit7	83.2	1

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
Clamp1	Clamp	2.39	NESC Extreme Ice w/ Wind	0.0
Clamp2	Clamp	2.39	NESC Extreme Ice w/ Wind	0.0
Clamp3	Clamp	5.80	NESC Heavy Wind	0.0
Clamp4	Clamp	5.80	NESC Heavy Wind	0.0
Clamp5	Clamp	5.80	NESC Heavy Wind	0.0
Clamp6	Clamp	5.80	NESC Heavy Wind	0.0
Clamp7	Clamp	5.80	NESC Heavy Wind	0.0
Clamp8	Clamp	5.80	NESC Heavy Wind	0.0
Clamp9	Clamp	6.45	NESC Extreme Wind	0.0
Clamp10	Clamp	1.31	NESC Heavy Wind	0.0
Clamp11	Clamp	1.31	NESC Heavy Wind	0.0
Clamp12	Clamp	1.31	NESC Heavy Wind	0.0
Clamp13	Clamp	1.31	NESC Heavy Wind	0.0
Clamp14	Clamp	1.31	NESC Heavy Wind	0.0
Clamp15	Clamp	1.31	NESC Heavy Wind	0.0
Clamp16	Clamp	1.31	NESC Heavy Wind	0.0
Clamp17	Clamp	1.31	NESC Heavy Wind	0.0
Clamp18	Clamp	1.31	NESC Heavy Wind	0.0
Clamp19	Clamp	1.31	NESC Heavy Wind	0.0
Clamp20	Clamp	1.31	NESC Heavy Wind	0.0
Clamp21	Clamp	1.31	NESC Heavy Wind	0.0
Clamp22	Clamp	1.31	NESC Heavy Wind	0.0

*** Weight of structure (lbs):
Weight of Tubular Davit Arms: 2109.5
Weight of Steel Poles: 22544.0
Total: 24653.6

*** End of Report

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**************************************************************************
*                                                                        *
*                              PLS-POLE                                  *
*                   POLE AND FRAME ANALYSIS AND DESIGN                   *
*               Copyright Power Line Systems 1999-2021                   *
*                                                                        *
**************************************************************************

Project Name : 22021.09 - Wilton, CT
Project Notes: Structure # 2998/ AT&T - CT5058
Project File : J:\Jobs\2202100.WI\09_CT5058\05_Structural\Tower Analysis\Backup Documentation\Rev (3)\Calcs\PLS-Pole\cl&p structure # 2998.pol
Date run     : 2:45:29 PM Wednesday, February 22, 2023
by           : PLS-POLE Version 16.81
Licensed to  : Centek Engineering Inc

Successfully performed nonlinear analysis

The model has 0 warnings.
```

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Modeling options:
  Offset Arms from Pole/Mast:   Yes
  Offset Braces from Pole/Mast: Yes
  Offset Guys from Pole/Mast:   Yes
  Offset Posts from Pole/Mast:  Yes
  Offset Strains from Pole/Mast:  Yes
  Use Alternate Convergence Process: No
  Steel poles and tubular arms checked with ASCE/SEI 48-05


Default Modulus of Elasticity for Steel = 29000.00 (ksi)
Default Weight Density for Steel = 490.00 (lbs/ft^3)
```

Steel Pole Properties:

Steel Pole Property	Stock Length Number	Default Embedded	Base Plate	Shape	Tip Diameter	Base Diameter	Taper	Default Drag	Tubes Modulus of Elasticity	Weight Density	Shape At	Strength Check	Distance From	Ultimate Trans.	Ultimate Texture

Label	Length (ft)	Long. Length (ft)			Coef. (in)	Override (in)	Override (in/ft)			Override (ksi)	Override (lbs/ft^3)	Base	Type	Tip (ft)	Load (kips)	Load (kips)
Strct2998	2998	131.00	0	Yes	16F	25.25	59.56	0	1.6	4 tubes	0	0	Calculated	0.000	0.0000	0.0000 Galvanized Steel

Steel Tubes Properties:

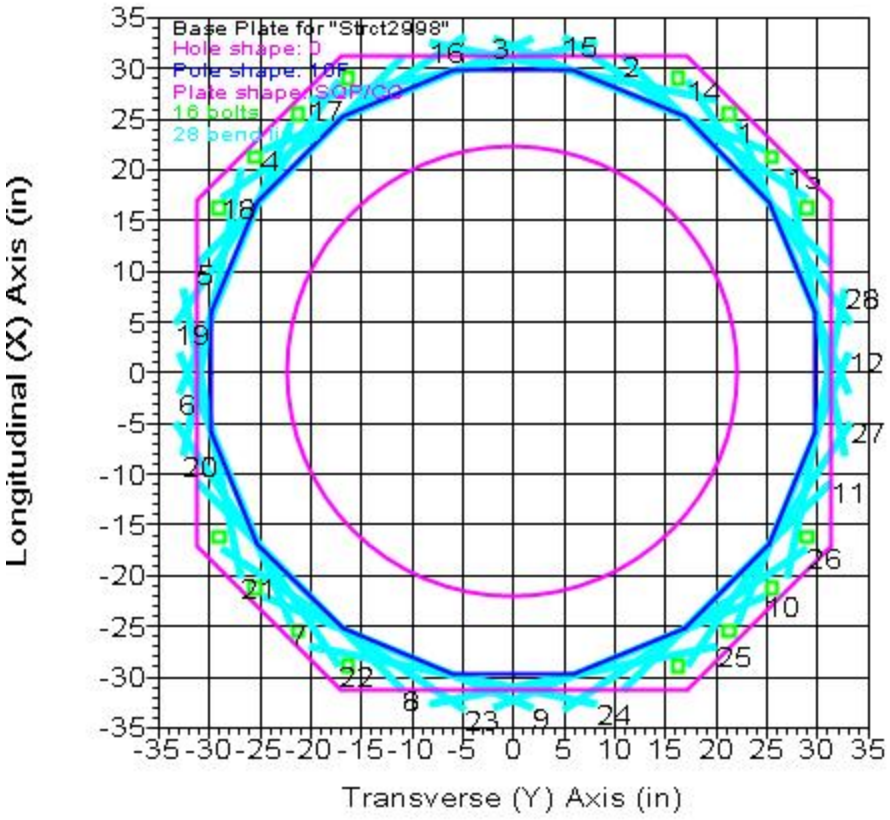
Pole Property	Tube No.	Length (ft)	Thickness (in)	Lap Length (ft)	Lap Factor	Lap Gap or Butt Offset (in)	Yield Stress (ksi)	Moment Cap. Override (ft-k)	Tube Weight (lbs)	Center of Gravity (ft)	Calculated Taper (in/ft)	Tube Top Diameter (in)	Tube Bot. Diameter (in)	1.5x Lap Length (ft)	Actual Diam. Overlap (ft)
Strct2998	1	10	0.1875	4.000	0.000	0.000	65.000	0.000	537	5.09	0.27338	25.25	27.98	3.451	4.000
Strct2998	2	50	0.25	5.500	0.000	0.000	65.000	0.000	4481	26.72	0.27338	26.52	40.18	4.961	5.500
Strct2998	3	34.5	0.3125	6.500	0.000	0.000	65.000	0.000	4972	17.89	0.27338	38.18	47.61	5.873	6.500
Strct2998	4	52.5	0.375	0.000	0.000	0.000	65.000	0.000	11089	27.46	0.27338	45.21	59.56	0.000	0.000

Base Plate Properties:

Pole Property	Plate Diam. (in)	Plate Shape	Plate Thick. (in)	Plate Weight (lbs)	Bend Line Length Override (in)	Hole Diam. (in)	Hole Shape	Steel Density (lbs/ft^3)	Steel Yield Stress (ksi)	Bolt Diam. (in)	Bolt Pattern Diam. (in)	Num. Of Bolts	Bolt Cage X Inertia (in^4)	Bolt Cage Y Inertia (in^4)
Strct2998	62.625	SQP/CC	2.750	1466	29.000	44.750	0	490.00	50.000	2.250	66.375	16	35098.41	35098.41

Base Plate Bolt Coordinates for Property "Strct2998":

Bolt X Coord.	Bolt Y Coord.	Bolt Angle (deg)
0.4896	0.8738	0
0.6403	0.7684	0
0.7684	0.6403	0
0.8738	0.4896	0



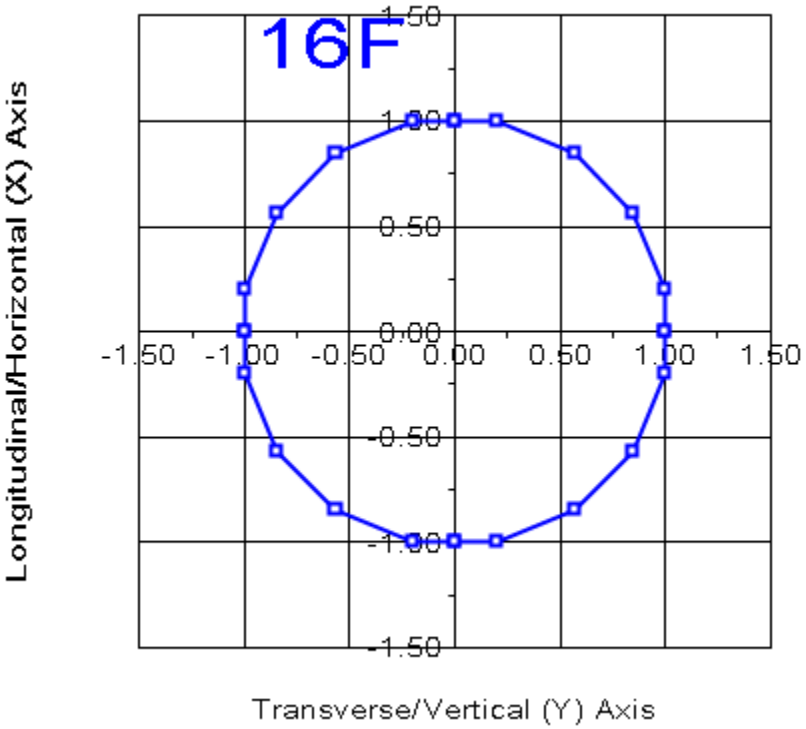
Steel Pole Connectivity:

Pole Label	Tip Joint	Base Joint	X of Base (ft)	Y of Base (ft)	Z of Base (ft)	Inclin. About X (deg)	Inclin. About Y (deg)	Property Set	Attach. Labels	Base Connect	Embed % Override	Embed C. Override (ft)
2998			0	0	0	0	0	Strct2998	18 labels		0.00	0

Relative Attachment Labels for Steel Pole "2998":

Joint Label	Distance From Origin/Top Joint (ft)	Global Z of Attach (ft)
2998:Arm1	16.50	0.00
2998:Arm2	24.08	0.00
2998:Arm3	36.08	0.00
2998:Arm4	48.08	0.00
2998:Ant	0.00	128.00

2998:WVGD1	0.00	125.00
2998:WVGD2	0.00	115.00
2998:WVGD3	0.00	105.00
2998:WVGD4	0.00	95.00
2998:WVGD5	0.00	85.00
2998:WVGD6	0.00	75.00
2998:WVGD7	0.00	65.00
2998:WVGD8	0.00	55.00
2998:WVGD9	0.00	45.00
2998:WVGD10	0.00	35.00
2998:WVGD11	0.00	25.00
2998:WVGD12	0.00	15.00
2998:WVGD13	0.00	5.00



Pole Steel Properties:

Warning: Capacities and usages printed in splices are listed for the inner tube except at the splice top which uses the outer tube. ??

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Outer Diam. (in)	Area (in^2)	T-Moment Inertia (in^4)	L-Moment Inertia (in^4)	D/t	W/t Max.	Fy (ksi)	Fa Min. (ksi)	T-Moment Capacity (ft-k)	L-Moment Capacity (ft-k)
2998	2998:t	2998:t Ori	0.00	25.25	14.96	1189.77	1189.77	0.00	24.8	65.00	65.00	510.46	510.46
2998	2998:Ant	2998:Ant End	3.00	26.07	15.44	1310.43	1310.43	0.00	25.7	65.00	65.00	544.54	544.54

2998	2998:Ant	2998:Ant	Ori	3.00	26.07	15.44	1310.43	1310.43	0.00	25.7	65.00	65.00	544.54	544.54
2998	2998:WVGD1	2998:WVGD1	End	6.00	26.89	15.93	1438.98	1438.98	0.00	26.5	65.00	65.00	579.73	579.73
2998	2998:WVGD1	2998:WVGD1	Ori	6.00	26.89	15.93	1438.98	1438.98	0.00	26.5	65.00	65.00	579.73	579.73
2998	#2998:0	SpliceB	End	10.00	27.61	21.77	2063.62	2063.62	0.00	20.0	65.00	65.00	809.74	809.74
2998	#2998:0	SpliceB	Ori	10.00	27.61	21.77	2063.62	2063.62	0.00	20.0	65.00	65.00	809.74	809.74
2998	#2998:1	Tube 2	End	13.00	28.43	22.42	2254.81	2254.81	0.00	20.6	65.00	65.00	859.23	859.23
2998	#2998:1	Tube 2	Ori	13.00	28.43	22.42	2254.81	2254.81	0.00	20.6	65.00	65.00	859.23	859.23
2998	2998:WVGD2	2998:WVGD2	End	16.00	29.25	23.07	2457.46	2457.46	0.00	21.3	65.00	65.00	910.20	910.20
2998	2998:WVGD2	2998:WVGD2	Ori	16.00	29.25	23.07	2457.46	2457.46	0.00	21.3	65.00	65.00	910.20	910.20
2998	2998:Arm1	2998:Arm1	End	16.50	29.39	23.18	2492.38	2492.38	0.00	21.4	65.00	65.00	918.84	918.84
2998	2998:Arm1	2998:Arm1	Ori	16.50	29.39	23.18	2492.38	2492.38	0.00	21.4	65.00	65.00	918.84	918.84
2998	#2998:2	Tube 2	End	20.29	30.42	24.01	2767.94	2767.94	0.00	22.2	65.00	65.00	985.66	985.66
2998	#2998:2	Tube 2	Ori	20.29	30.42	24.01	2767.94	2767.94	0.00	22.2	65.00	65.00	985.66	985.66
2998	2998:Arm2	2998:Arm2	End	24.08	31.46	24.83	3063.10	3063.10	0.00	23.0	65.00	65.00	1054.83	1054.83
2998	2998:Arm2	2998:Arm2	Ori	24.08	31.46	24.83	3063.10	3063.10	0.00	23.0	65.00	65.00	1054.83	1054.83
2998	2998:WVGD3	2998:WVGD3	End	26.00	31.98	25.25	3220.01	3220.01	0.00	23.5	65.00	65.00	1090.69	1090.69
2998	2998:WVGD3	2998:WVGD3	Ori	26.00	31.98	25.25	3220.01	3220.01	0.00	23.5	65.00	65.00	1090.69	1090.69
2998	#2998:3	Tube 2	End	31.00	33.35	26.34	3654.28	3654.28	0.00	24.6	65.00	65.00	1187.06	1187.06
2998	#2998:3	Tube 2	Ori	31.00	33.35	26.34	3654.28	3654.28	0.00	24.6	65.00	65.00	1187.06	1187.06
2998	2998:WVGD4	2998:WVGD4	End	36.00	34.72	27.42	4125.94	4125.94	0.00	25.6	65.00	65.00	1287.50	1287.50
2998	2998:WVGD4	2998:WVGD4	Ori	36.00	34.72	27.42	4125.94	4125.94	0.00	25.6	65.00	65.00	1287.50	1287.50
2998	2998:Arm3	2998:Arm3	End	36.08	34.74	27.44	4134.09	4134.09	0.00	25.7	65.00	65.00	1289.20	1289.20
2998	2998:Arm3	2998:Arm3	Ori	36.08	34.74	27.44	4134.09	4134.09	0.00	25.7	65.00	65.00	1289.20	1289.20
2998	#2998:4	Tube 2	End	41.04	36.09	28.52	4640.94	4640.94	0.00	26.7	65.00	65.04	1393.85	1393.85
2998	#2998:4	Tube 2	Ori	41.04	36.09	28.52	4640.94	4640.94	0.00	26.7	65.00	65.04	1393.85	1393.85
2998	2998:WVGD5	2998:WVGD5	End	46.00	37.45	29.60	5187.60	5187.60	0.00	27.8	65.00	63.94	1476.25	1476.25
2998	2998:WVGD5	2998:WVGD5	Ori	46.00	37.45	29.60	5187.60	5187.60	0.00	27.8	65.00	63.94	1476.25	1476.25
2998	2998:Arm4	2998:Arm4	End	48.08	38.02	30.05	5429.49	5429.49	0.00	28.3	65.00	63.48	1510.95	1510.95
2998	2998:Arm4	2998:Arm4	Ori	48.08	38.02	30.05	5429.49	5429.49	0.00	28.3	65.00	63.48	1510.95	1510.95
2998	#2998:5	SpliceT	End	50.50	38.68	30.58	5719.45	5719.45	0.00	28.8	65.00	62.95	1551.24	1551.24
2998	#2998:5	SpliceT	Ori	50.50	38.68	30.58	5719.45	5719.45	0.00	28.8	65.00	62.95	1551.24	1551.24
2998	#2998:6	Splice	End	53.25	38.93	38.41	7255.63	7255.63	0.00	22.8	65.00	65.00	2018.95	2018.95
2998	#2998:6	Splice	Ori	53.25	38.93	38.41	7255.63	7255.63	0.00	22.8	65.00	65.00	2018.95	2018.95
2998	2998:WVGD6	2998:WVGD6	End	56.00	39.68	39.16	7687.63	7687.63	0.00	23.3	65.00	65.00	2098.64	2098.64
2998	2998:WVGD6	2998:WVGD6	Ori	56.00	39.68	39.16	7687.64	7687.64	0.00	23.3	65.00	65.00	2098.64	2098.64
2998	#2998:7	Tube 3	End	61.00	41.05	40.52	8516.41	8516.41	0.00	24.1	65.00	65.00	2247.47	2247.47
2998	#2998:7	Tube 3	Ori	61.00	41.05	40.52	8516.41	8516.41	0.00	24.1	65.00	65.00	2247.47	2247.47
2998	2998:WVGD7	2998:WVGD7	End	66.00	42.42	41.88	9402.71	9402.71	0.00	25.0	65.00	65.00	2401.40	2401.40
2998	2998:WVGD7	2998:WVGD7	Ori	66.00	42.42	41.88	9402.71	9402.71	0.00	25.0	65.00	65.00	2401.40	2401.40
2998	#2998:8	Tube 3	End	71.00	43.78	43.24	10348.46	10348.46	0.00	25.9	65.00	65.00	2560.43	2560.43
2998	#2998:8	Tube 3	Ori	71.00	43.78	43.24	10348.46	10348.46	0.00	25.9	65.00	65.00	2560.43	2560.43
2998	2998:WVGD8	2998:WVGD8	End	76.00	45.15	44.59	11355.59	11355.59	0.00	26.8	65.00	65.02	2725.50	2725.50
2998	2998:WVGD8	2998:WVGD8	Ori	76.00	45.15	44.59	11355.59	11355.59	0.00	26.8	65.00	65.02	2725.50	2725.50
2998	#2998:9	SpliceT	End	78.50	45.84	45.27	11882.78	11882.78	0.00	27.2	65.00	64.58	2790.34	2790.34
2998	#2998:9	SpliceT	Ori	78.50	45.84	45.27	11882.78	11882.78	0.00	27.2	65.00	64.58	2790.34	2790.34
2998	#2998:10	Splice	End	81.75	46.10	54.57	14449.30	14449.30	0.00	22.5	65.00	65.00	3395.63	3395.63
2998	#2998:10	Splice	Ori	81.75	46.10	54.57	14449.31	14449.31	0.00	22.5	65.00	65.00	3395.63	3395.63
2998	#2998:11	SpliceB	End	85.00	46.99	55.63	15308.05	15308.05	0.00	22.9	65.00	65.00	3529.41	3529.41
2998	#2998:11	SpliceB	Ori	85.00	46.99	55.63	15308.06	15308.06	0.00	22.9	65.00	65.00	3529.41	3529.41
2998	2998:WVGD9	2998:WVGD9	End	86.00	47.26	55.96	15578.97	15578.97	0.00	23.1	65.00	65.00	3571.10	3571.10
2998	2998:WVGD9	2998:WVGD9	Ori	86.00	47.26	55.96	15578.97	15578.97	0.00	23.1	65.00	65.00	3571.10	3571.10
2998	#2998:12	Tube 4	End	91.00	48.63	57.59	16981.58	16981.58	0.00	23.8	65.00	65.00	3783.19	3783.19
2998	#2998:12	Tube 4	Ori	91.00	48.63	57.59	16981.58	16981.58	0.00	23.8	65.00	65.00	3783.19	3783.19
2998	2998:WVGD10	2998:WVGD10	End	96.00	49.99	59.22	18465.95	18465.95	0.00	24.5	65.00	65.00	4001.41	4001.41
2998	2998:WVGD10	2998:WVGD10	Ori	96.00	49.99	59.22	18465.95	18465.95	0.00	24.5	65.00	65.00	4001.41	4001.41
2998	#2998:13	Tube 4	End	101.00	51.36	60.85	20034.39	20034.39	0.00	25.3	65.00	65.00	4225.74	4225.74
2998	#2998:13	Tube 4	Ori	101.00	51.36	60.85	20034.39	20034.39	0.00	25.3	65.00	65.00	4225.74	4225.74
2998	2998:WVGD11	2998:WVGD11	End	106.00	52.73	62.48	21689.23	21689.23	0.00	26.0	65.00	65.00	4456.19	4456.19
2998	2998:WVGD11	2998:WVGD11	Ori	106.00	52.73	62.48	21689.23	21689.23	0.00	26.0	65.00	65.00	4456.19	4456.19

2998	#2998:14	Tube 4 End	111.00	54.09	64.11	23432.77	23432.77	0.00	26.7	65.00	65.07	4697.78	4697.78
2998	#2998:14	Tube 4 Ori	111.00	54.09	64.11	23432.77	23432.77	0.00	26.7	65.00	65.07	4697.78	4697.78
2998	2998:WVGD12	2998:WVGD12 End	116.00	55.46	65.74	25267.33	25267.33	0.00	27.4	65.00	64.33	4884.59	4884.59
2998	2998:WVGD12	2998:WVGD12 Ori	116.00	55.46	65.74	25267.33	25267.33	0.00	27.4	65.00	64.33	4884.59	4884.59
2998	#2998:15	Tube 4 End	121.00	56.83	67.38	27195.23	27195.23	0.00	28.2	65.00	63.59	5071.87	5071.87
2998	#2998:15	Tube 4 Ori	121.00	56.83	67.38	27195.23	27195.23	0.00	28.2	65.00	63.59	5071.87	5071.87
2998	2998:WVGD13	2998:WVGD13 End	126.00	58.20	69.01	29218.79	29218.79	0.00	28.9	65.00	62.85	5259.41	5259.41
2998	2998:WVGD13	2998:WVGD13 Ori	126.00	58.20	69.01	29218.79	29218.79	0.00	28.9	65.00	62.85	5259.41	5259.41
2998	2998:g	2998:g End	131.00	59.56	70.64	31340.32	31340.32	0.00	29.6	65.00	62.11	5446.99	5446.99

Tubular Davit Properties:

Davit Property Label	Stock Number	Steel Shape	Thickness or Depth (in)	Base Diameter or Depth (in)	Tip Diameter or Depth (in)	Taper (in/ft)	Drag Coef.	Modulus of Elasticity (ksi)	Geometry	Strength Check Type	Vertical Capacity (lbs)	Tension Capacity (lbs)	Compres. Capacity (lbs)	Long. Capacity (lbs)	Yield Stress (ksi)	Weight Density Override (lbs/ft^3)	Steel Texture Shape At End
ARM A	7005	4F	0.25	8	8	0	1.6	29000	1 point	Calculated	0	0	0	0	46	0	
ARM B	601515	8F	0.3125	14	8	0	1.3	29000	1 point	Calculated	0	0	0	0	65	0	

Intermediate Joints for Davit Property "ARM A":

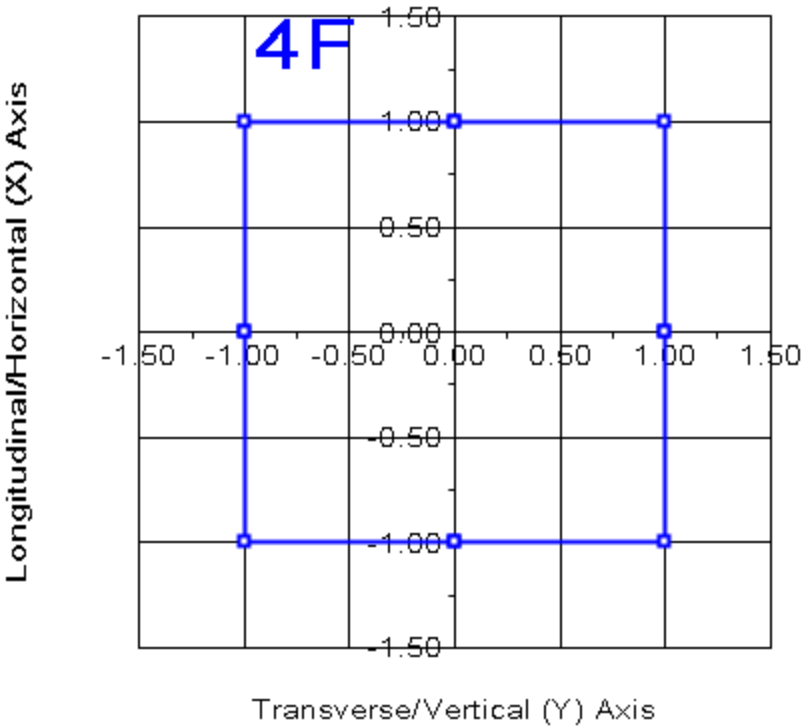
Joint Label	Horz. Offset (ft)	Vert. Offset (ft)
V	3.5	-0.5

Intermediate Joints for Davit Property "ARM B":

Joint Label	Horz. Offset (ft)	Vert. Offset (ft)
V	8.43	-1.17

Tubular Davit Arm Connectivity:

Davit Label	Attach Label	Davit Property Set	Azimuth (deg)
Davit1	2998:Arm1	ARM A	0
Davit2	2998:Arm1	ARM A	-180
Davit3	2998:Arm2	ARM B	0
Davit4	2998:Arm2	ARM B	-180
Davit5	2998:Arm3	ARM B	0
Davit6	2998:Arm3	ARM B	-180
Davit7	2998:Arm4	ARM B	0
Davit8	2998:Arm4	ARM B	-180


4F
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1.00
0.50
0.00
-0.50
-1.00
-1.50
-1.50
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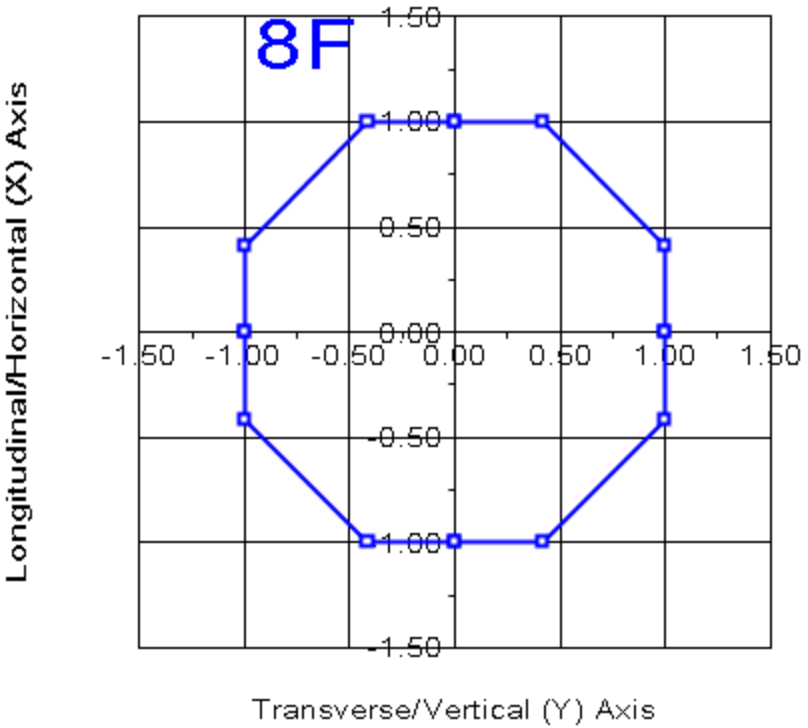
0.00
0.50
1.00
1.50
Longitudinal/Horizontal (X) Axis
Transverse/Vertical (Y) Axis



Tubular Davit Arm Steel Properties:

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Outer Diam. (in)	Area (in^2)	V-Moment Inertia (in^4)	H-Moment Inertia (in^4)	D/t	W/t Max.	Fy (ksi)	Fa Min. (ksi)	V-Moment Capacity (ft-k)	H-Moment Capacity (ft-k)
Davit1	Davit1:O	Origin	0.00	8.00	7.75	77.66	77.66	0.00	22.0	46.00	46.00	74.43	74.43
Davit1	Davit1:V	End	3.54	8.00	7.75	77.66	77.66	0.00	22.0	46.00	46.00	74.43	74.43
Davit2	Davit2:O	Origin	0.00	8.00	7.75	77.66	77.66	0.00	22.0	46.00	46.00	74.43	74.43
Davit2	Davit2:V	End	3.54	8.00	7.75	77.66	77.66	0.00	22.0	46.00	46.00	74.43	74.43
Davit3	Davit3:O	Origin	0.00	14.00	14.17	351.09	351.09	0.00	14.4	65.00	65.00	271.68	271.68
Davit3	#Davit3:0	End	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit3	#Davit3:0	Origin	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit3	Davit3:V	End	8.51	8.00	7.96	62.27	62.27	0.00	6.5	65.00	65.00	84.33	84.33
Davit4	Davit4:O	Origin	0.00	14.00	14.17	351.09	351.09	0.00	14.4	65.00	65.00	271.68	271.68
Davit4	#Davit4:0	End	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit4	#Davit4:0	Origin	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit4	Davit4:V	End	8.51	8.00	7.96	62.27	62.27	0.00	6.5	65.00	65.00	84.33	84.33
Davit5	Davit5:O	Origin	0.00	14.00	14.17	351.09	351.09	0.00	14.4	65.00	65.00	271.68	271.68

Davit5	#Davit5:0	End	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit5	#Davit5:0	Origin	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit5	Davit5:V	End	8.51	8.00	7.96	62.27	62.27	0.00	6.5	65.00	65.00	84.33	84.33
Davit6	Davit6:O	Origin	0.00	14.00	14.17	351.09	351.09	0.00	14.4	65.00	65.00	271.68	271.68
Davit6	#Davit6:0	End	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit6	#Davit6:0	Origin	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit6	Davit6:V	End	8.51	8.00	7.96	62.27	62.27	0.00	6.5	65.00	65.00	84.33	84.33
Davit7	Davit7:O	Origin	0.00	14.00	14.17	351.09	351.09	0.00	14.4	65.00	65.00	271.68	271.68
Davit7	#Davit7:0	End	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit7	#Davit7:0	Origin	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit7	Davit7:V	End	8.51	8.00	7.96	62.27	62.27	0.00	6.5	65.00	65.00	84.33	84.33
Davit8	Davit8:O	Origin	0.00	14.00	14.17	351.09	351.09	0.00	14.4	65.00	65.00	271.68	271.68
Davit8	#Davit8:0	End	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit8	#Davit8:0	Origin	4.26	11.00	11.07	167.19	167.19	0.00	10.4	65.00	65.00	164.66	164.66
Davit8	Davit8:V	End	8.51	8.00	7.96	62.27	62.27	0.00	6.5	65.00	65.00	84.33	84.33

*** Insulator Data

Clamp Properties:

Label	Stock Number	Holding Capacity (lbs)	Hardware Capacity (lbs)	Notes
clamp	clamp1	8e+04	0	

Clamp Insulator Connectivity:

Clamp Label	Structure And Tip Attach	Property Set	Min. Required Vertical Load (uplift) (lbs)
Clamp1	Davit1:V	clamp	No Limit
Clamp2	Davit2:V	clamp	No Limit
Clamp3	Davit3:V	clamp	No Limit
Clamp4	Davit4:V	clamp	No Limit
Clamp5	Davit5:V	clamp	No Limit
Clamp6	Davit6:V	clamp	No Limit
Clamp7	Davit7:V	clamp	No Limit
Clamp8	Davit8:V	clamp	No Limit
Clamp9	2998:Ant	clamp	No Limit
Clamp10	2998:WVGD1	clamp	No Limit
Clamp11	2998:WVGD2	clamp	No Limit
Clamp12	2998:WVGD3	clamp	No Limit
Clamp13	2998:WVGD4	clamp	No Limit
Clamp14	2998:WVGD5	clamp	No Limit
Clamp15	2998:WVGD6	clamp	No Limit
Clamp16	2998:WVGD7	clamp	No Limit
Clamp17	2998:WVGD8	clamp	No Limit
Clamp18	2998:WVGD9	clamp	No Limit
Clamp19	2998:WVGD10	clamp	No Limit
Clamp20	2998:WVGD11	clamp	No Limit
Clamp21	2998:WVGD12	clamp	No Limit
Clamp22	2998:WVGD13	clamp	No Limit

Material List Options:
Show Parts: YES
Decompose Assemblies: NO
Show Assemblies: YES

Material List

Stock Number	Item Description	Quantity	Unit of Measure
7005	Tubular Davit property: 7005	2.00	Each
601515	Tubular Davit property: ARM2	6.00	Each
clamp1	Clamp property: clamp	22.00	Each
2998	Steel Pole property: Strct2998	1.00	Each

*** Loads Data

Loads from file: J:\Jobs\2202100.WI\09_CT5058\05_Structural\Tower Analysis\Backup Documentation\Rev (3)\Calcs\PLS-Pole\cl&p #2998.lca

Insulator dead and wind loads are already included in the point loads printed below.

Loading Method Parameters:

Structure Height Summary (used for calculating wind/ice adjust with height):

Z of ground for wind height adjust	0.00	(ft) and structure Z coordinate that will be put on the centerline ground profile in PLS-CADD.
Ground elevation shift	0.00	(ft)
Z of ground with shift	0.00	(ft)
Z of structure top (highest joint)	131.00	(ft)
Structure height	131.00	(ft)
Structure height above ground	131.00	(ft)

Vector Load Cases:

Load Case Description	Dead Load Factor	Wind Area Factor	Ice Thick. (in)	Ice Density (lbs/ft^3)	Temperature (deg F)	SF for Steel Poles and Towers	SF for Wood Poles	SF for Conc. Tubular	SF for Conc. Arms	SF for Conc. Poles	SF for Guys	SF for Ult. Check	SF for First Crack	SF for Zero Tens.	SF For and Tubular Cables	Point Loads	Wind/Ice Loads	Trans. Wind Pressure (psf)	Longit. Wind Pressure (psf)	Model
NESC Heavy Wind	1.5000	2.5000	0	0.000	0.000	1.00000	0.6500	0.0000	1.0000	0.0000	1.0000	No Limit	1.0000	1.0000	1.0000	22 loads	Wind on All	4	0.000	
NESC Extreme Wind	1.0000	1.0000	0	0.000	0.000	1.00000	0.6500	0.0000	1.0000	0.0000	1.0000	No Limit	1.0000	1.0000	1.0000	22 loads	NESC 2017	31	0.000	
NESC Extreme Ice w/ Wind	1.0000	1.0000	0	0.000	0.000	1.00000	0.6500	0.0000	1.0000	0.0000	1.0000	No Limit	1.0000	1.0000	1.0000	22 loads	Wind on All	6.4	0.000	

Point Loads for Load Case "NESC Heavy Wind":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
Davit1:V	1227	1034	0	Shield Wire
Davit2:V	1227	1034	0	Shield Wire
Davit3:V	4229	1910	0	Conductor
Davit4:V	4229	1910	0	Conductor
Davit5:V	4229	1910	0	Conductor
Davit6:V	4229	1910	0	Conductor
Davit7:V	4229	1910	0	Conductor
Davit8:V	4229	1910	0	Conductor
2998:Ant	4945	1428	0	Antennas
2998:WVGD1	1035	172	0	Coax Cables
2998:WVGD2	1035	172	0	Coax Cables
2998:WVGD3	1035	172	0	Coax Cables
2998:WVGD4	1035	172	0	Coax Cables
2998:WVGD5	1035	172	0	Coax Cables

2998:WVGD6	1035	172	0	Coax Cables
2998:WVGD7	1035	172	0	Coax Cables
2998:WVGD8	1035	172	0	Coax Cables
2998:WVGD9	1035	172	0	Coax Cables
2998:WVGD10	1035	172	0	Coax Cables
2998:WVGD11	1035	172	0	Coax Cables
2998:WVGD12	1035	172	0	Coax Cables
2998:WVGD13	1035	172	0	Coax Cables

Point Loads for Load Case "NESC Extreme Wind":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
Davit1:V	319	1140	0	Shield Wire
Davit2:V	319	1140	0	Shield Wire
Davit3:V	1929	3071	50	Conductor
Davit4:V	1929	3071	50	Conductor
Davit5:V	1929	3071	50	Conductor
Davit6:V	1929	3071	50	Conductor
Davit7:V	1929	3071	50	Conductor
Davit8:V	1929	3071	50	Conductor
2998:Ant	2452	4537	0	Antennas
2998:WVGD1	281	511	0	Coax Cables
2998:WVGD2	281	511	0	Coax Cables
2998:WVGD3	281	511	0	Coax Cables
2998:WVGD4	281	511	0	Coax Cables
2998:WVGD5	281	511	0	Coax Cables
2998:WVGD6	281	511	0	Coax Cables
2998:WVGD7	281	511	0	Coax Cables
2998:WVGD8	281	511	0	Coax Cables
2998:WVGD9	281	511	0	Coax Cables
2998:WVGD10	281	511	0	Coax Cables
2998:WVGD11	281	511	0	Coax Cables
2998:WVGD12	281	511	0	Coax Cables
2998:WVGD13	281	511	0	

Detailed Pole Loading Data for Load Case "NESC Extreme Wind":

Notes: Does not include loads from equipment, arms, guys, braces, etc. or user input loads.
Wind load is calculated for the undeformed shape of a pole.

Pole Label	Top Joint	Bottom Joint	Section Top Z (ft)	Section Bottom Z (ft)	Section Average Elevation (ft)	Outer Diameter (in)	Reynolds Number	Drag Coef.	Adjusted Wind Pressure (psf)	Adjusted Ice Thickness (in)	Pole Vert. Load (lbs)	Pole Wind Load (lbs)	Pole Ice Vertical Load (lbs)	Pole Ice Wind Load (lbs)	Tran. Wind Load (lbs)	Long. Wind Load (lbs)
2998	2998:t	2998:Ant	131.00	128.00	129.50	25.660	2.18e+06	1.000	32.35	0.00	155.17	207.51	0.00	0.00	207.51	0.00
2998	2998:Ant	2998:WVGD1	128.00	125.00	126.50	26.480	2.25e+06	1.000	32.35	0.00	160.16	214.14	0.00	0.00	214.14	0.00
2998	2998:WVGD1		125.00	121.00	123.00	27.250	2.32e+06	1.000	32.35	0.00	511.63	293.82	0.00	0.00	293.82	0.00
2998			121.00	118.00	119.50	28.019	2.39e+06	1.000	32.35	0.00	225.54	226.59	0.00	0.00	226.59	0.00
2998		2998:WVGD2	118.00	115.00	116.50	28.839	2.46e+06	1.000	32.35	0.00	232.20	233.22	0.00	0.00	233.22	0.00
2998	2998:WVGD2	2998:Arm1	115.00	114.50	114.75	29.317	2.5e+06	1.000	32.35	0.00	39.35	39.51	0.00	0.00	39.51	0.00
2998	2998:Arm1		114.50	110.71	112.60	29.904	2.55e+06	1.000	32.35	0.00	304.40	305.63	0.00	0.00	305.63	0.00
2998		2998:Arm2	110.71	106.92	108.81	30.941	2.63e+06	1.000	32.35	0.00	315.04	316.23	0.00	0.00	316.23	0.00
2998	2998:Arm2	2998:WVGD3	106.92	105.00	105.96	31.721	2.7e+06	1.000	32.35	0.00	163.34	163.92	0.00	0.00	163.92	0.00
2998	2998:WVGD3		105.00	100.00	102.50	32.666	2.78e+06	1.000	32.35	0.00	438.82	440.28	0.00	0.00	440.28	0.00
2998		2998:WVGD4	100.00	95.00	97.50	34.033	2.9e+06	1.000	32.35	0.00	457.32	458.70	0.00	0.00	458.70	0.00

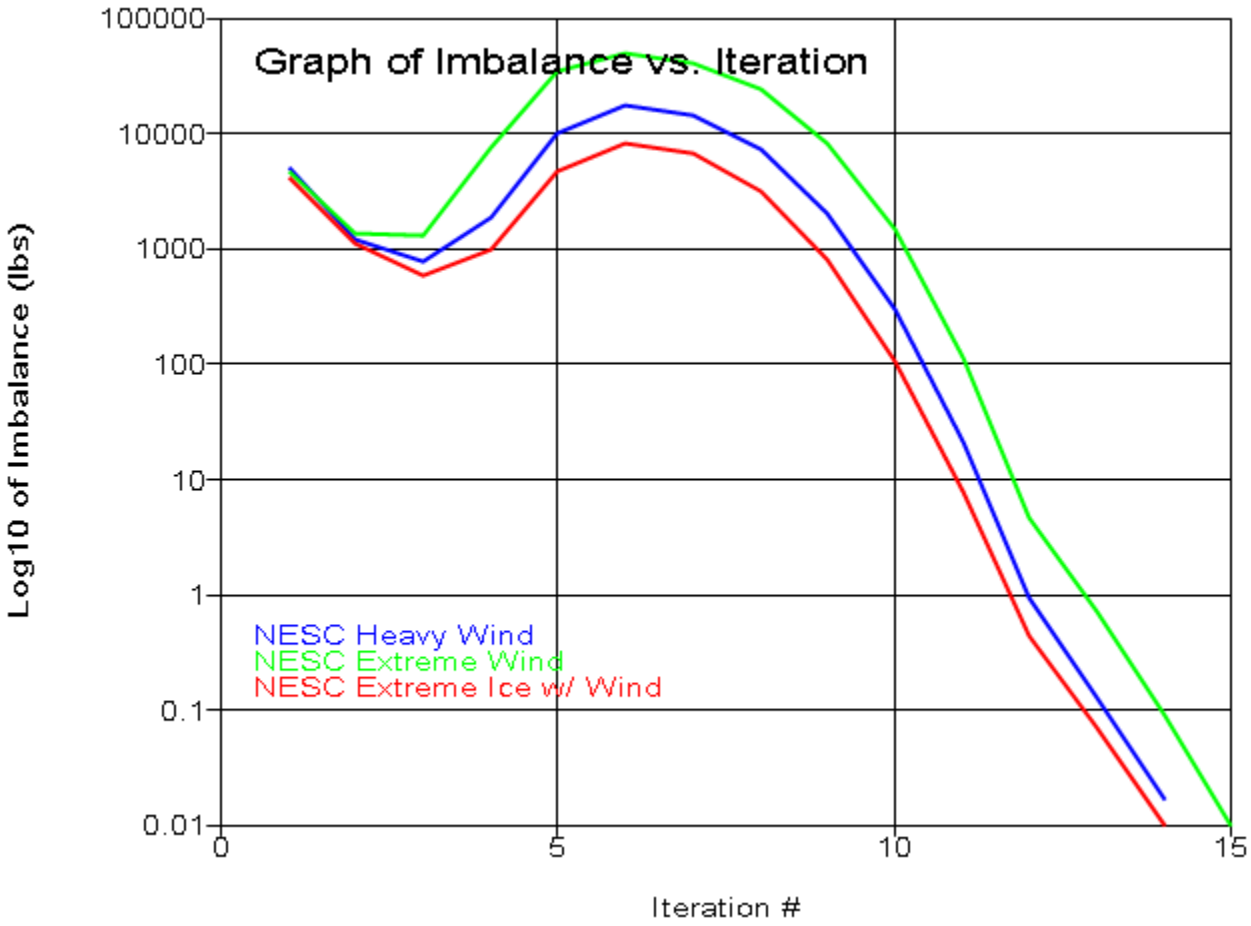
2998	2998:WVGD4	2998:Arm3	95.00	94.92	94.96	34.728	2.96e+06	1.000	32.35	0.00	7.75	7.77	0.00	0.00	7.77	0.00
2998	2998:Arm3		94.92	89.96	92.44	35.417	3.02e+06	1.000	32.35	0.00	472.10	473.40	0.00	0.00	473.40	0.00
2998		2998:WVGD5	89.96	85.00	87.48	36.773	3.13e+06	1.000	32.35	0.00	490.30	491.51	0.00	0.00	491.51	0.00
2998	2998:WVGD5	2998:Arm4	85.00	82.92	83.96	37.735	3.21e+06	1.000	32.35	0.00	211.40	211.88	0.00	0.00	211.88	0.00
2998	2998:Arm4		82.92	80.50	81.71	38.350	3.27e+06	1.000	32.35	0.00	249.32	249.86	0.00	0.00	249.86	0.00
2998			80.50	77.75	79.13	38.806	3.3e+06	1.000	32.35	0.00	644.85	287.67	0.00	0.00	287.67	0.00
2998		2998:WVGD6	77.75	75.00	76.38	39.308	3.35e+06	1.000	32.35	0.00	657.34	291.39	0.00	0.00	291.39	0.00
2998	2998:WVGD6		75.00	70.00	72.50	40.368	3.44e+06	1.000	32.35	0.00	677.78	544.08	0.00	0.00	544.08	0.00
2998		2998:WVGD7	70.00	65.00	67.50	41.734	3.55e+06	1.000	32.35	0.00	700.91	562.50	0.00	0.00	562.50	0.00
2998	2998:WVGD7		65.00	60.00	62.50	43.101	3.67e+06	1.000	32.35	0.00	724.04	580.93	0.00	0.00	580.93	0.00
2998		2998:WVGD8	60.00	55.00	57.50	44.468	3.79e+06	1.000	32.35	0.00	747.17	599.35	0.00	0.00	599.35	0.00
2998	2998:WVGD8		55.00	52.50	53.75	45.493	3.87e+06	1.000	32.35	0.00	382.26	306.58	0.00	0.00	306.58	0.00
2998			52.50	49.25	50.88	45.967	3.91e+06	1.000	32.35	0.00	1103.20	402.71	0.00	0.00	402.71	0.00
2998			49.25	46.00	47.63	46.543	3.96e+06	1.000	32.35	0.00	1124.55	407.75	0.00	0.00	407.75	0.00
2998		2998:WVGD9	46.00	45.00	45.50	47.124	4.01e+06	1.000	32.35	0.00	189.93	127.03	0.00	0.00	127.03	0.00
2998	2998:WVGD9		45.00	40.00	42.50	47.944	4.08e+06	1.000	32.35	0.00	965.91	646.20	0.00	0.00	646.20	0.00
2998		2998:WVGD10	40.00	35.00	37.50	49.311	4.2e+06	1.000	32.35	0.00	993.66	664.62	0.00	0.00	664.62	0.00
2998	2998:WVGD10		35.00	30.00	32.50	50.678	4.32e+06	1.000	32.35	0.00	1021.42	683.04	0.00	0.00	683.04	0.00
2998		2998:WVGD11	30.00	25.00	27.50	52.045	4.43e+06	1.000	32.35	0.00	1049.17	701.47	0.00	0.00	701.47	0.00
2998	2998:WVGD11		25.00	20.00	22.50	53.411	4.55e+06	1.000	32.35	0.00	1076.93	719.89	0.00	0.00	719.89	0.00
2998		2998:WVGD12	20.00	15.00	17.50	54.778	4.66e+06	1.000	32.35	0.00	1104.68	738.31	0.00	0.00	738.31	0.00
2998	2998:WVGD12		15.00	10.00	12.50	56.145	4.78e+06	1.000	32.35	0.00	1132.44	756.74	0.00	0.00	756.74	0.00
2998		2998:WVGD13	10.00	5.00	7.50	57.512	4.9e+06	1.000	32.35	0.00	1160.19	775.16	0.00	0.00	775.16	0.00
2998	2998:WVGD13	2998:g	5.00	0.00	2.50	58.879	5.01e+06	1.000	32.35	0.00	1187.95	793.58	0.00	0.00	793.58	0.00

Point Loads for Load Case "NESC Extreme Ice w/ Wind":

Joint Label	Vertical Load (lbs)	Transverse Load (lbs)	Longitudinal Load (lbs)	Load Comment
Davit1:V	1753	765	0	Shield Wire
Davit2:V	1753	765	0	Shield Wire
Davit3:V	4145	1294	0	Conductor
Davit4:V	4145	1294	0	Conductor
Davit5:V	4145	1294	0	Conductor
Davit6:V	4145	1294	0	Conductor
Davit7:V	4145	1294	0	Conductor
Davit8:V	4145	1294	0	Conductor
2998:Ant	3782	973	0	Antennas
2998:WVGD1	956	114	0	Coax Cables
2998:WVGD2	956	114	0	Coax Cables
2998:WVGD3	956	114	0	Coax Cables
2998:WVGD4	956	114	0	Coax Cables
2998:WVGD5	956	114	0	Coax Cables
2998:WVGD6	956	114	0	Coax Cables
2998:WVGD7	956	114	0	Coax Cables
2998:WVGD8	956	114	0	Coax Cables
2998:WVGD9	956	114	0	Coax Cables
2998:WVGD10	956	114	0	Coax Cables
2998:WVGD11	956	114	0	Coax Cables
2998:WVGD12	956	114	0	Coax Cables
2998:WVGD13	956	114	0	Coax Cables

*** Analysis Results:

Maximum element usage is 77.11% for Base Plate "2998" in load case "NESC Extreme Wind"
Maximum insulator usage is 6.45% for Clamp "Clamp9" in load case "NESC Extreme Wind"



*** Analysis Results for Load Case No. 1 "NESC Heavy Wind" - Number of iterations in SAPS 14

Equilibrium Joint Positions and Rotations for Load Case "NESC Heavy Wind":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
2998:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
2998:t	0.0128	2.963	-0.04771	-2.1382	0.0089	0.0000	0.0128	2.963	131
2998:Ant	0.01233	2.851	-0.04562	-2.1381	0.0089	0.0000	0.01233	2.851	128

2998:WVGD1	0.01187	2.739	-0.0435	-2.1364	0.0089	0.0000	0.01187	2.739	125
2998:WVGD2	0.01033	2.368	-0.03649	-2.1142	0.0088	0.0000	0.01033	2.368	115
2998:Arm1	0.01025	2.349	-0.03614	-2.1126	0.0088	0.0000	0.01025	2.349	114.5
2998:Arm2	0.009102	2.072	-0.03093	-2.0744	0.0086	0.0000	0.009102	2.072	106.9
2998:WVGD3	0.008816	2.003	-0.02963	-2.0600	0.0085	0.0000	0.008816	2.003	105
2998:WVGD4	0.007359	1.652	-0.02315	-1.9516	0.0081	0.0000	0.007359	1.652	94.98
2998:Arm3	0.007347	1.649	-0.0231	-1.9505	0.0081	0.0000	0.007347	1.649	94.89
2998:WVGD5	0.005989	1.324	-0.01735	-1.7884	0.0075	0.0000	0.005989	1.324	84.98
2998:Arm4	0.005718	1.26	-0.01626	-1.7485	0.0074	0.0000	0.005718	1.26	82.9
2998:WVGD6	0.004735	1.029	-0.01251	-1.5918	0.0068	0.0000	0.004735	1.029	74.99
2998:WVGD7	0.003605	0.7682	-0.008673	-1.3815	0.0061	0.0000	0.003605	0.7682	64.99
2998:WVGD8	0.002616	0.5463	-0.00577	-1.1525	0.0052	0.0000	0.002616	0.5463	54.99
2998:WVGD9	0.00178	0.3644	-0.003711	-0.9324	0.0044	0.0000	0.00178	0.3644	45
2998:WVGD10	0.001094	0.2196	-0.002278	-0.7215	0.0035	0.0000	0.001094	0.2196	35
2998:WVGD11	0.0005674	0.1116	-0.001306	-0.5112	0.0025	0.0000	0.0005674	0.1116	25
2998:WVGD12	0.0002084	0.04013	-0.0006591	-0.3035	0.0015	0.0000	0.0002084	0.04013	15
2998:WVGD13	2.44e-05	0.004561	-0.0002002	-0.1000	0.0005	0.0000	2.44e-05	0.004561	5
Davit1:O	0.01024	2.349	-0.08128	-2.1126	0.0088	0.0000	0.01024	3.573	114.4
Davit1:V	0.0103	2.365	-0.212	-2.1446	0.0088	0.0000	0.0103	7.089	114.8
Davit2:O	0.01026	2.35	0.008994	-2.1126	0.0088	0.0000	0.01026	1.126	114.5
Davit2:V	0.01036	2.371	0.1366	-2.0876	0.0088	0.0000	0.01036	-2.353	115.1
Davit3:O	0.009094	2.071	-0.07838	-2.0744	0.0086	0.0000	0.009094	3.382	106.8
Davit3:V	0.009217	2.11	-0.4053	-2.3119	0.0086	0.0000	0.009217	11.85	107.7
Davit4:O	0.00911	2.073	0.01651	-2.0744	0.0086	0.0000	0.00911	0.7621	106.9
Davit4:V	0.009334	2.118	0.3026	-1.8659	0.0086	0.0000	0.009334	-7.623	108.4
Davit5:O	0.007339	1.648	-0.07236	-1.9505	0.0081	0.0000	0.007339	3.095	94.84
Davit5:V	0.007457	1.685	-0.381	-2.1882	0.0081	0.0000	0.007457	11.56	95.71
Davit6:O	0.007355	1.65	0.02617	-1.9505	0.0081	0.0000	0.007355	0.2022	94.94
Davit6:V	0.007564	1.691	0.2941	-1.7418	0.0081	0.0000	0.007564	-8.186	96.38
Davit7:O	0.005711	1.259	-0.0646	-1.7485	0.0074	0.0000	0.005711	2.843	82.85
Davit7:V	0.005823	1.293	-0.3434	-1.9865	0.0074	0.0000	0.005823	11.31	83.74
Davit8:O	0.005725	1.26	0.03208	-1.7485	0.0074	0.0000	0.005725	-0.3238	82.95
Davit8:V	0.005911	1.297	0.2704	-1.5393	0.0074	0.0000	0.005911	-8.717	84.36

Joint Support Reactions for Load Case "NESC Heavy Wind":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
2998:g	-0.20	0.0	-24.57	0.0	0.0	-82.62	0.0	0.0	86.19	0.0	2189.23	0.0	-11.6	0.0	0.0	-0.00	0.0	0.0

Detailed Steel Pole Usages for Load Case "NESC Heavy Wind":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Trans. Mom. (Local Mx) (ft-k)	Long. Mom. (Local My) (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Tran. Shear (kips)	Long. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
2998	2998:t	Origin	0.00	35.56	0.15	-0.57	-0.00	-0.00	0.0	-0.12	0.06	-0.00	-0.01	0.00	0.01	0.00	0.02	0.0	6
2998	2998:Ant	End	3.00	34.21	0.15	-0.55	0.17	-0.00	0.0	-0.12	0.06	-0.00	-0.01	0.02	0.00	0.00	0.03	0.0	2
2998	2998:Ant	Origin	3.00	34.21	0.15	-0.55	0.17	-0.00	0.0	-5.24	1.78	-0.00	-0.34	0.00	0.23	0.00	0.53	0.8	6
2998	2998:WVGD1	End	6.00	32.87	0.14	-0.52	5.51	-0.02	0.0	-5.24	1.78	-0.00	-0.33	0.62	0.04	0.00	0.95	1.5	2
2998	2998:WVGD1	Origin	6.00	32.87	0.14	-0.52	5.51	-0.02	0.0	-6.77	2.13	-0.01	-0.43	0.62	0.05	0.00	1.05	1.6	2
2998	SpliceB	End	10.00	31.08	0.14	-0.49	14.04	-0.05	0.0	-6.77	2.13	-0.01	-0.31	1.13	0.04	0.00	1.44	2.2	2
2998	SpliceB	Origin	10.00	31.08	0.14	-0.49	14.04	-0.05	-0.0	-7.33	2.28	-0.01	-0.34	1.13	0.04	0.00	1.47	2.3	2
2998	Tube 2	End	13.00	29.75	0.13	-0.46	20.89	-0.09	-0.0	-7.33	2.28	-0.01	-0.33	1.58	0.04	0.00	1.91	2.9	2
2998	Tube 2	Origin	13.00	29.75	0.13	-0.46	20.89	-0.09	-0.0	-7.67	2.41	-0.01	-0.34	1.58	0.04	0.00	1.93	3.0	2
2998	2998:WVGD2	End	16.00	28.41	0.12	-0.44	28.11	-0.13	-0.0	-7.67	2.41	-0.01	-0.33	2.01	0.04	0.00	2.34	3.6	2

2998	2998:WVGD2	Origin	16.00	28.41	0.12	-0.44	28.11	-0.13	-0.0	-8.90	2.69	-0.02	-0.39	2.01	0.05	0.00	2.40	3.7	2
2998	2998:Arm1	End	16.50	28.19	0.12	-0.43	29.46	-0.14	-0.0	-8.90	2.69	-0.02	-0.38	2.09	0.05	0.00	2.47	3.8	2
2998	2998:Arm1	Origin	16.50	28.19	0.12	-0.43	30.54	-0.14	0.0	-11.81	4.95	-0.02	-0.51	2.16	0.08	0.00	2.68	4.1	2
2998	Tube 2	End	20.29	26.52	0.12	-0.40	49.32	-0.22	0.0	-11.81	4.95	-0.02	-0.49	3.26	0.08	0.00	3.75	5.8	2
2998	Tube 2	Origin	20.29	26.52	0.12	-0.40	49.32	-0.22	0.0	-12.28	5.12	-0.02	-0.51	3.26	0.08	0.00	3.77	5.8	2
2998	2998:Arm2	End	24.08	24.86	0.11	-0.37	68.73	-0.31	0.0	-12.28	5.12	-0.02	-0.49	4.24	0.08	0.00	4.74	7.3	2
2998	2998:Arm2	Origin	24.08	24.86	0.11	-0.37	73.52	-0.31	0.0	-21.91	9.41	-0.03	-0.88	4.53	0.15	0.00	5.42	8.3	2
2998	2998:WVGD3	End	26.00	24.03	0.11	-0.36	91.55	-0.36	0.0	-21.91	9.41	-0.03	-0.87	5.46	0.15	0.00	6.33	9.7	2
2998	2998:WVGD3	Origin	26.00	24.03	0.11	-0.36	91.55	-0.36	0.0	-23.40	9.77	-0.03	-0.93	5.46	0.15	0.00	6.39	9.8	2
2998	Tube 2	End	31.00	21.90	0.10	-0.32	140.39	-0.53	0.0	-23.40	9.77	-0.03	-0.89	7.69	0.15	0.00	8.59	13.2	2
2998	Tube 2	Origin	31.00	21.90	0.10	-0.32	140.39	-0.53	0.0	-24.08	9.99	-0.04	-0.91	7.69	0.15	0.00	8.61	13.2	2
2998	2998:WVGD4	End	36.00	19.82	0.09	-0.28	190.34	-0.72	0.0	-24.08	9.99	-0.04	-0.88	9.62	0.14	0.00	10.50	16.2	2
2998	2998:WVGD4	Origin	36.00	19.82	0.09	-0.28	190.34	-0.72	0.0	-25.46	10.31	-0.04	-0.93	9.62	0.15	0.00	10.55	16.2	2
2998	2998:Arm3	End	36.08	19.79	0.09	-0.28	191.19	-0.73	0.0	-25.46	10.31	-0.04	-0.93	9.65	0.15	0.00	10.58	16.3	2
2998	2998:Arm3	Origin	36.08	19.79	0.09	-0.28	195.96	-0.73	0.0	-35.11	14.56	-0.05	-1.28	9.89	0.21	0.00	11.17	17.2	2
2998	Tube 2	End	41.04	17.79	0.08	-0.24	268.15	-0.96	0.0	-35.11	14.56	-0.05	-1.23	12.52	0.20	0.00	13.76	21.2	2
2998	Tube 2	Origin	41.04	17.79	0.08	-0.24	268.15	-0.96	0.0	-35.85	14.77	-0.05	-1.26	12.52	0.20	0.00	13.78	21.2	2
2998	2998:WVGD5	End	46.00	15.89	0.07	-0.21	341.40	-1.23	0.0	-35.85	14.77	-0.05	-1.21	14.80	0.20	0.00	16.01	25.0	2
2998	2998:WVGD5	Origin	46.00	15.89	0.07	-0.21	341.40	-1.23	0.0	-37.43	15.13	-0.06	-1.26	14.80	0.20	0.00	16.07	25.1	2
2998	2998:Arm4	End	48.08	15.12	0.07	-0.20	372.91	-1.35	0.0	-37.43	15.13	-0.06	-1.25	15.68	0.20	0.00	16.93	26.7	2
2998	2998:Arm4	Origin	48.08	15.12	0.07	-0.20	377.63	-1.35	0.0	-47.08	19.32	-0.06	-1.57	15.88	0.25	0.00	17.45	27.5	2
2998	SpliceT	End	50.50	14.24	0.06	-0.18	424.34	-1.50	0.0	-47.08	19.32	-0.06	-1.54	17.23	0.25	0.00	18.78	29.8	2
2998	SpliceT	Origin	50.50	14.24	0.06	-0.18	424.34	-1.50	0.0	-47.77	19.43	-0.07	-1.56	17.23	0.25	0.00	18.80	29.9	2
2998	Splice	End	53.25	13.28	0.06	-0.16	477.78	-1.69	0.0	-47.77	19.43	-0.07	-1.24	15.39	0.20	0.00	16.64	25.6	2
2998	Splice	Origin	53.25	13.28	0.06	-0.16	477.78	-1.69	0.0	-48.76	19.56	-0.07	-1.27	15.39	0.20	0.00	16.67	25.6	2
2998	2998:WVGD6	End	56.00	12.34	0.06	-0.15	531.56	-1.88	0.0	-48.76	19.56	-0.07	-1.25	16.48	0.20	0.00	17.72	27.3	2
2998	2998:WVGD6	Origin	56.00	12.34	0.06	-0.15	531.56	-1.88	0.0	-50.82	19.93	-0.08	-1.30	16.48	0.20	0.00	17.78	27.3	2
2998	Tube 3	End	61.00	10.73	0.05	-0.13	631.20	-2.25	0.0	-50.82	19.93	-0.08	-1.25	18.27	0.19	0.00	19.53	30.0	2
2998	Tube 3	Origin	61.00	10.73	0.05	-0.13	631.20	-2.25	0.0	-51.89	20.13	-0.08	-1.28	18.27	0.20	0.00	19.55	30.1	2
2998	2998:WVGD7	End	66.00	9.22	0.04	-0.10	731.86	-2.67	0.0	-51.89	20.13	-0.08	-1.24	19.82	0.19	0.00	21.07	32.4	2
2998	2998:WVGD7	Origin	66.00	9.22	0.04	-0.10	731.86	-2.67	0.0	-54.03	20.54	-0.09	-1.29	19.82	0.19	0.00	21.12	32.5	2
2998	Tube 3	End	71.00	7.83	0.04	-0.09	834.54	-3.11	0.0	-54.03	20.54	-0.09	-1.25	21.20	0.19	0.00	22.45	34.5	2
2998	Tube 3	Origin	71.00	7.83	0.04	-0.09	834.54	-3.11	0.0	-55.17	20.74	-0.10	-1.28	21.20	0.19	0.00	22.48	34.6	2
2998	2998:WVGD8	End	76.00	6.56	0.03	-0.07	938.25	-3.60	0.0	-55.17	20.74	-0.10	-1.24	22.40	0.18	0.00	23.64	36.4	2
2998	2998:WVGD8	Origin	76.00	6.56	0.03	-0.07	938.25	-3.60	0.0	-57.09	21.09	-0.10	-1.28	22.40	0.19	0.00	23.68	36.4	2
2998	SpliceT	End	78.50	5.97	0.03	-0.06	990.98	-3.85	0.0	-57.09	21.09	-0.10	-1.26	22.95	0.18	0.00	24.22	37.5	2
2998	SpliceT	Origin	78.50	5.97	0.03	-0.06	990.98	-3.85	0.0	-58.22	21.22	-0.11	-1.29	22.95	0.19	0.00	24.24	37.5	2
2998	Splice	End	81.75	5.24	0.03	-0.05	1059.95	-4.20	0.0	-58.22	21.22	-0.11	-1.07	20.31	0.15	0.00	21.37	32.9	2
2998	Splice	Origin	81.75	5.24	0.03	-0.05	1059.95	-4.20	0.0	-59.92	21.38	-0.11	-1.10	20.31	0.16	0.00	21.41	32.9	2
2998	SpliceB	End	85.00	4.57	0.02	-0.05	1129.43	-4.56	0.0	-59.92	21.38	-0.11	-1.08	20.82	0.15	0.00	21.90	33.7	2
2998	SpliceB	Origin	85.00	4.57	0.02	-0.05	1129.43	-4.56	0.0	-60.92	21.48	-0.12	-1.10	20.82	0.15	0.00	21.91	33.7	2
2998	2998:WVGD9	End	86.00	4.37	0.02	-0.04	1150.91	-4.68	0.0	-60.92	21.48	-0.12	-1.09	20.97	0.15	0.00	22.06	33.9	2
2998	2998:WVGD9	Origin	86.00	4.37	0.02	-0.04	1150.91	-4.68	0.0	-62.84	21.81	-0.12	-1.12	20.97	0.15	0.00	22.09	34.0	2
2998	Tube 4	End	91.00	3.45	0.02	-0.04	1259.94	-5.28	0.0	-62.84	21.81	-0.12	-1.09	21.67	0.15	0.00	22.76	35.0	2
2998	Tube 4	Origin	91.00	3.45	0.02	-0.04	1259.94	-5.28	0.0	-64.35	22.04	-0.13	-1.12	21.67	0.15	0.00	22.78	35.1	2
2998	2998:WVGD10	End	96.00	2.64	0.01	-0.03	1370.12	-5.92	0.0	-64.35	22.04	-0.13	-1.09	22.28	0.15	0.00	23.36	35.9	2
2998	2998:WVGD10	Origin	96.00	2.64	0.01	-0.03	1370.12	-5.92	0.0	-66.94	22.45	-0.14	-1.13	22.28	0.15	0.00	23.41	36.0	2
2998	Tube 4	End	101.00	1.93	0.01	-0.02	1482.37	-6.60	0.0	-66.94	22.45	-0.14	-1.10	22.82	0.15	0.00	23.92	36.8	2
2998	Tube 4	Origin	101.00	1.93	0.01	-0.02	1482.37	-6.60	0.0	-68.53	22.69	-0.15	-1.13	22.82	0.15	0.00	23.95	36.8	2
2998	2998:WVGD11	End	106.00	1.34	0.01	-0.02	1595.80	-7.33	0.0	-68.53	22.69	-0.15	-1.10	23.30	0.14	0.00	24.40	37.5	2
2998	2998:WVGD11	Origin	106.00	1.34	0.01	-0.02	1595.80	-7.33	0.0	-71.20	23.11	-0.15	-1.14	23.30	0.15	0.00	24.44	37.6	2
2998	Tube 4	End	111.00	0.86	0.00	-0.01	1711.33	-8.10	0.0	-71.20	23.11	-0.15	-1.11	23.73	0.14	0.00	24.84	38.2	2
2998	Tube 4	Origin	111.00	0.86	0.00	-0.01	1711.33	-8.10	0.0	-72.88	23.35	-0.16	-1.14	23.73	0.14	0.00	24.86	38.2	2
2998	2998:WVGD12	End	116.00	0.48	0.00	-0.01	1828.06	-8.91	0.0	-72.88	23.35	-0.16	-1.11	24.10	0.14	0.00	25.21	39.2	2
2998	2998:WVGD12	Origin	116.00	0.48	0.00	-0.01	1828.06	-8.91	0.0	-75.64	23.77	-0.17	-1.15	24.10	0.14	0.00	25.25	39.3	2
2998	Tube 4	End	121.00	0.21	0.00	-0.00	1946.91	-9.77	0.0	-75.64	23.77	-0.17	-1.12	24.43	0.14	0.00	25.56	40.2	2
2998	Tube 4	Origin	121.00	0.21	0.00	-0.00	1946.91	-9.77	0.0	-77.40	24.02	-0.18	-1.15	24.43	0.14	0.00	25.58	40.2	2
2998	2998:WVGD13	End	126.00	0.05	0.00	-0.00	2067.01	-10.67	0.0	-77.40	24.02	-0.18	-1.12	24.73	0.14	0.00	25.85	41.1	2
2998	2998:WVGD13	Origin	126.00	0.05	0.00	-0.00	2067.01	-10.67	0.0	-80.24	24.45	-0.19	-1.16	24.73	0.14	0.00	25.89	41.2	2

2998	2998:g	End	131.00	0.00	0.00	0.00	2189.23	-11.63	0.0	-80.24	24.45	-0.19	-1.14	24.99	0.14	0.00	26.13	42.1	2

Detailed Tubular Davit Arm Usages for Load Case "NESC Heavy Wind":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
Davit1	Davit1:O	Origin	0.00	28.18	0.12	-0.98	-4.94	-0.00	0.0	0.89	1.40	0.00	0.12	3.06	0.28	0.00	3.21	7.0	2
Davit1	Davit1:V	End	3.54	28.38	0.12	-2.54	0.00	0.00	0.0	0.89	1.40	0.00	0.12	0.00	0.41	0.00	0.73	1.6	3
Davit2	Davit2:O	Origin	0.00	28.20	0.12	0.11	-3.86	0.00	0.0	-1.25	1.09	-0.00	-0.16	2.39	0.22	0.00	2.58	5.6	2
Davit2	Davit2:V	End	3.54	28.45	0.12	1.64	-0.00	0.00	0.0	-1.25	1.09	-0.00	-0.16	0.00	0.32	0.00	0.58	1.3	3
Davit3	Davit3:O	Origin	0.00	24.85	0.11	-0.94	-39.32	-0.01	-0.0	1.44	4.74	0.00	0.10	9.41	0.27	0.00	9.52	14.6	2
Davit3	#Davit3:0	End	4.26	25.08	0.11	-2.85	-19.14	-0.00	-0.0	1.44	4.74	0.00	0.13	7.56	0.35	0.00	7.71	11.9	2
Davit3	#Davit3:0	Origin	4.26	25.08	0.11	-2.85	-19.14	-0.00	0.0	1.48	4.50	0.00	0.13	7.56	0.33	0.00	7.71	11.9	2
Davit3	Davit3:V	End	8.51	25.32	0.11	-4.86	0.00	0.00	0.0	1.48	4.50	0.00	0.19	0.00	1.18	0.00	2.05	3.2	4
Davit4	Davit4:O	Origin	0.00	24.87	0.11	0.20	-34.54	0.01	0.0	-2.67	4.17	-0.00	-0.19	8.27	0.24	0.00	8.46	13.0	2
Davit4	#Davit4:0	End	4.26	25.15	0.11	1.96	-16.78	0.00	0.0	-2.67	4.17	-0.00	-0.24	6.62	0.30	0.00	6.89	10.6	2
Davit4	#Davit4:0	Origin	4.26	25.15	0.11	1.96	-16.78	0.00	0.0	-2.62	3.94	-0.00	-0.24	6.62	0.29	0.00	6.88	10.6	2
Davit4	Davit4:V	End	8.51	25.41	0.11	3.63	-0.00	0.00	0.0	-2.62	3.94	-0.00	-0.33	0.00	1.03	0.00	1.82	2.8	4
Davit5	Davit5:O	Origin	0.00	19.78	0.09	-0.87	-39.35	-0.01	-0.0	1.43	4.74	0.00	0.10	9.42	0.27	0.00	9.53	14.7	2
Davit5	#Davit5:0	End	4.26	19.99	0.09	-2.66	-19.16	-0.00	-0.0	1.43	4.74	0.00	0.13	7.56	0.35	0.00	7.72	11.9	2
Davit5	#Davit5:0	Origin	4.26	19.99	0.09	-2.66	-19.16	-0.00	0.0	1.47	4.50	0.00	0.13	7.56	0.33	0.00	7.72	11.9	2
Davit5	Davit5:V	End	8.51	20.22	0.09	-4.57	0.00	0.00	0.0	1.47	4.50	0.00	0.18	0.00	1.18	0.00	2.05	3.2	4
Davit6	Davit6:O	Origin	0.00	19.80	0.09	0.31	-34.59	0.01	0.0	-2.66	4.18	-0.00	-0.19	8.28	0.24	0.00	8.47	13.0	2
Davit6	#Davit6:0	End	4.26	20.05	0.09	1.97	-16.81	0.00	0.0	-2.66	4.18	-0.00	-0.24	6.63	0.30	0.00	6.89	10.6	2
Davit6	#Davit6:0	Origin	4.26	20.05	0.09	1.97	-16.81	0.00	0.0	-2.61	3.95	-0.00	-0.24	6.63	0.29	0.00	6.89	10.6	2
Davit6	Davit6:V	End	8.51	20.30	0.09	3.53	-0.00	0.00	0.0	-2.61	3.95	-0.00	-0.33	0.00	1.04	0.00	1.82	2.8	4
Davit7	Davit7:O	Origin	0.00	15.11	0.07	-0.78	-39.39	-0.01	-0.0	1.42	4.75	0.00	0.10	9.43	0.27	0.00	9.54	14.7	2
Davit7	#Davit7:0	End	4.26	15.30	0.07	-2.39	-19.18	-0.00	-0.0	1.42	4.75	0.00	0.13	7.57	0.35	0.00	7.72	11.9	2
Davit7	#Davit7:0	Origin	4.26	15.30	0.07	-2.39	-19.18	-0.00	0.0	1.45	4.51	0.00	0.13	7.57	0.33	0.00	7.72	11.9	2
Davit7	Davit7:V	End	8.51	15.52	0.07	-4.12	0.00	0.00	0.0	1.45	4.51	0.00	0.18	0.00	1.18	0.00	2.06	3.2	4
Davit8	Davit8:O	Origin	0.00	15.12	0.07	0.38	-34.67	0.01	0.0	-2.64	4.19	-0.00	-0.19	8.30	0.24	0.00	8.49	13.1	2
Davit8	#Davit8:0	End	4.26	15.35	0.07	1.86	-16.84	0.00	0.0	-2.64	4.19	-0.00	-0.24	6.65	0.31	0.00	6.91	10.6	2
Davit8	#Davit8:0	Origin	4.26	15.35	0.07	1.86	-16.84	0.00	0.0	-2.60	3.96	-0.00	-0.23	6.65	0.29	0.00	6.90	10.6	2
Davit8	Davit8:V	End	8.51	15.56	0.07	3.24	-0.00	0.00	0.0	-2.60	3.96	-0.00	-0.33	0.00	1.04	0.00	1.83	2.8	4

Summary of Clamp Capacities and Usages for Load Case "NESC Heavy Wind":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
Clamp1	1.605	80.00	80.00	2.01	0.00	0.00	0.00	2.01
Clamp2	1.605	80.00	80.00	2.01	0.00	0.00	0.00	2.01
Clamp3	4.640	80.00	80.00	5.80	0.00	0.00	0.00	5.80
Clamp4	4.640	80.00	80.00	5.80	0.00	0.00	0.00	5.80
Clamp5	4.640	80.00	80.00	5.80	0.00	0.00	0.00	5.80
Clamp6	4.640	80.00	80.00	5.80	0.00	0.00	0.00	5.80

Clamp7	4.640	80.00	80.00	5.80	0.00	0.00	0.00	5.80
Clamp8	4.640	80.00	80.00	5.80	0.00	0.00	0.00	5.80
Clamp9	5.147	80.00	80.00	6.43	0.00	0.00	0.00	6.43
Clamp10	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp11	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp12	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp13	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp14	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp15	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp16	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp17	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp18	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp19	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp20	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp21	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31
Clamp22	1.049	80.00	80.00	1.31	0.00	0.00	0.00	1.31

*** Analysis Results for Load Case No. 2 "NESC Extreme Wind" - Number of iterations in SAPS 15

Equilibrium Joint Positions and Rotations for Load Case "NESC Extreme Wind":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
2998:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
2998:t	0.03864	5.359	-0.1438	-3.9291	0.0261	0.0002	0.03864	5.359	130.9
2998:Ant	0.03728	5.154	-0.1367	-3.9290	0.0261	0.0002	0.03728	5.154	127.9
2998:WVGD1	0.03591	4.948	-0.1297	-3.9241	0.0261	0.0002	0.03591	4.948	124.9
2998:WVGD2	0.03136	4.268	-0.1065	-3.8635	0.0261	0.0002	0.03136	4.268	114.9
2998:Arm1	0.03113	4.234	-0.1053	-3.8590	0.0261	0.0002	0.03113	4.234	114.4
2998:Arm2	0.02768	3.729	-0.08842	-3.7683	0.0261	0.0002	0.02768	3.729	106.8
2998:WVGD3	0.0268	3.603	-0.08427	-3.7374	0.0260	0.0001	0.0268	3.603	104.9
2998:WVGD4	0.02231	2.968	-0.06395	-3.5204	0.0254	0.0001	0.02231	2.968	94.94
2998:Arm3	0.02227	2.963	-0.0638	-3.5183	0.0253	0.0001	0.02227	2.963	94.85
2998:WVGD5	0.018	2.379	-0.04636	-3.2134	0.0238	0.0000	0.018	2.379	84.95
2998:Arm4	0.01714	2.263	-0.04311	-3.1399	0.0234	0.0000	0.01714	2.263	82.87
2998:WVGD6	0.01403	1.849	-0.03207	-2.8548	0.0215	0.0000	0.01403	1.849	74.97
2998:WVGD7	0.01049	1.382	-0.02096	-2.4775	0.0188	0.0000	0.01049	1.382	64.98
2998:WVGD8	0.007456	0.984	-0.01282	-2.0689	0.0158	0.0000	0.007456	0.984	54.99
2998:WVGD9	0.004967	0.6574	-0.00727	-1.6765	0.0128	0.0000	0.004967	0.6574	44.99
2998:WVGD10	0.002987	0.3968	-0.003674	-1.2999	0.0099	0.0000	0.002987	0.3968	35
2998:WVGD11	0.001514	0.202	-0.001573	-0.9230	0.0070	0.0000	0.001514	0.202	25
2998:WVGD12	0.0005425	0.07277	-0.0005297	-0.5494	0.0041	0.0000	0.0005425	0.07277	15
2998:WVGD13	6.132e-05	0.008294	-0.0001089	-0.1814	0.0013	0.0000	6.132e-05	0.008294	5
Davit1:O	0.03109	4.231	-0.1877	-3.8590	0.0261	0.0002	0.03109	5.456	114.3
Davit1:V	0.03119	4.257	-0.4248	-3.8693	0.0261	0.0002	0.03119	8.981	114.6
Davit2:O	0.03117	4.237	-0.02291	-3.8590	0.0261	0.0002	0.03117	3.012	114.5
Davit2:V	0.03152	4.278	0.2114	-3.8563	0.0261	0.0002	0.03152	-0.446	115.2
Davit3:O	0.02763	3.726	-0.1746	-3.7683	0.0261	0.0002	0.02763	5.037	106.7
Davit3:V	0.02812	3.786	-0.7415	-3.8854	0.0263	-0.0024	0.02812	13.53	107.3
Davit4:O	0.02772	3.732	-0.00227	-3.7683	0.0261	0.0002	0.02772	2.421	106.9
Davit4:V	0.02876	3.826	0.543	-3.6969	0.0266	0.0027	0.02876	-5.915	108.6
Davit5:O	0.02223	2.961	-0.1526	-3.5183	0.0253	0.0001	0.02223	4.408	94.76
Davit5:V	0.02273	3.017	-0.6826	-3.6361	0.0256	-0.0025	0.02273	12.89	95.4
Davit6:O	0.02231	2.966	0.02503	-3.5183	0.0253	0.0001	0.02231	1.519	94.94
Davit6:V	0.0233	3.053	0.5338	-3.4462	0.0259	0.0027	0.0233	-6.825	96.62
Davit7:O	0.0171	2.261	-0.1299	-3.1399	0.0234	0.0000	0.0171	3.845	82.79
Davit7:V	0.01761	2.313	-0.6039	-3.2586	0.0236	-0.0026	0.01761	12.33	83.48
Davit8:O	0.01717	2.266	0.04366	-3.1399	0.0234	0.0000	0.01717	0.6815	82.96
Davit8:V	0.01808	2.341	0.4972	-3.0666	0.0239	0.0026	0.01808	-7.673	84.58

Joint Support Reactions for Load Case "NESC Extreme Wind":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
2998:g	-0.30	0.0	-46.78	0.0	0.0	-43.47	0.0	0.0	63.86	0.0	3977.93	0.0	-29.5	0.0	0.0	-0.00	0.0	0.0

Detailed Steel Pole Usages for Load Case "NESC Extreme Wind":

Element Label	Joint Label	Joint Position	Rel. Dist.	Trans. Defl.	Long. Defl.	Vert. Defl.	Trans. Mom. (Local Mx)	Long. Mom. (Local My)	Tors. Mom.	Axial Force	Tran. Shear	Long. Shear	P/A	M/S.	V/Q.	T/R.	Res.	Max. Usage	At Pt.

			(ft)	(in)	(in)	(in)	(ft-k)	(ft-k)	(ft-k)	(kips)	(kips)	(kips)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	%	
2998	2998:t	Origin	0.00	64.31	0.46	-1.73	-0.00	-0.00	-0.0	-0.08	0.11	-0.00	-0.01	0.00	0.01	0.00	0.03	0.0	6
2998	2998:Ant	End	3.00	61.84	0.45	-1.64	0.33	-0.00	-0.0	-0.08	0.11	-0.00	-0.01	0.04	0.00	0.00	0.04	0.1	2
2998	2998:Ant	Origin	3.00	61.84	0.45	-1.64	0.33	-0.00	-0.0	-2.37	5.02	-0.00	-0.15	0.00	0.66	0.00	1.15	1.8	6
2998	2998:WVGD1	End	6.00	59.38	0.43	-1.56	15.40	-0.00	-0.0	-2.37	5.02	-0.00	-0.15	1.73	0.12	0.00	1.89	2.9	2
2998	2998:WVGD1	Origin	6.00	59.38	0.43	-1.56	15.40	-0.00	-0.0	-2.95	5.83	-0.00	-0.19	1.73	0.14	0.00	1.93	3.0	2
2998	SpliceB	End	10.00	56.10	0.41	-1.44	38.71	-0.01	-0.0	-2.95	5.83	-0.00	-0.14	3.11	0.11	0.00	3.25	5.0	2
2998	SpliceB	Origin	10.00	56.10	0.41	-1.44	38.71	-0.01	-0.0	-3.32	6.11	-0.00	-0.15	3.11	0.11	0.00	3.27	5.0	2
2998	Tube 2	End	13.00	53.65	0.39	-1.36	57.04	-0.02	-0.0	-3.32	6.11	-0.00	-0.15	4.32	0.11	0.00	4.47	6.9	2
2998	Tube 2	Origin	13.00	53.65	0.39	-1.36	57.04	-0.02	-0.0	-3.55	6.35	-0.00	-0.16	4.32	0.11	0.00	4.48	6.9	2
2998	2998:WVGD2	End	16.00	51.21	0.38	-1.28	76.10	-0.02	-0.0	-3.55	6.35	-0.00	-0.15	5.43	0.11	0.00	5.59	8.6	2
2998	2998:WVGD2	Origin	16.00	51.21	0.38	-1.28	76.10	-0.02	-0.0	-3.94	7.03	-0.00	-0.17	5.43	0.12	0.00	5.61	8.6	2
2998	2998:Arm1	End	16.50	50.81	0.37	-1.26	79.62	-0.02	-0.0	-3.94	7.03	-0.00	-0.17	5.63	0.12	0.00	5.81	8.9	2
2998	2998:Arm1	Origin	16.50	50.81	0.37	-1.26	80.79	-0.02	-0.0	-4.77	9.54	-0.00	-0.21	5.72	0.16	0.00	5.93	9.1	2
2998	Tube 2	End	20.29	47.76	0.35	-1.16	116.96	-0.03	-0.0	-4.77	9.54	-0.00	-0.20	7.71	0.16	0.00	7.92	12.2	2
2998	Tube 2	Origin	20.29	47.76	0.35	-1.16	116.96	-0.03	-0.0	-5.09	9.87	-0.00	-0.21	7.71	0.16	0.00	7.93	12.2	2
2998	2998:Arm2	End	24.08	44.75	0.33	-1.06	154.37	-0.04	-0.0	-5.09	9.87	-0.00	-0.21	9.51	0.16	0.00	9.72	15.0	2
2998	2998:Arm2	Origin	24.08	44.75	0.33	-1.06	161.89	-0.16	0.0	-9.41	16.54	-0.10	-0.38	9.98	0.26	0.00	10.37	15.9	2
2998	2998:WVGD3	End	26.00	43.24	0.32	-1.01	193.60	-0.36	0.0	-9.41	16.54	-0.10	-0.37	11.54	0.26	0.00	11.92	18.3	2
2998	2998:WVGD3	Origin	26.00	43.24	0.32	-1.01	193.60	-0.36	0.0	-9.98	17.38	-0.11	-0.40	11.54	0.27	0.00	11.95	18.4	2
2998	Tube 2	End	31.00	39.37	0.29	-0.89	280.50	-0.89	0.0	-9.98	17.38	-0.11	-0.38	15.37	0.26	0.00	15.75	24.2	2
2998	Tube 2	Origin	31.00	39.37	0.29	-0.89	280.50	-0.89	0.0	-10.46	17.84	-0.11	-0.40	15.37	0.27	0.00	15.77	24.3	2
2998	2998:WVGD4	End	36.00	35.62	0.27	-0.77	369.69	-1.41	0.0	-10.46	17.84	-0.11	-0.38	18.68	0.26	0.00	19.06	29.3	2
2998	2998:WVGD4	Origin	36.00	35.62	0.27	-0.77	369.69	-1.41	0.0	-10.96	18.60	-0.11	-0.40	18.68	0.27	0.00	19.08	29.4	2
2998	2998:Arm3	End	36.08	35.56	0.27	-0.77	371.23	-1.42	0.0	-10.96	18.60	-0.11	-0.40	18.73	0.27	0.00	19.14	29.4	2
2998	2998:Arm3	Origin	36.08	35.56	0.27	-0.77	378.73	-1.54	0.0	-15.33	25.25	-0.21	-0.56	19.11	0.36	0.00	19.68	30.3	2
2998	Tube 2	End	41.04	31.97	0.24	-0.66	503.90	-2.57	0.0	-15.33	25.25	-0.21	-0.54	23.54	0.35	0.00	24.08	37.0	2
2998	Tube 2	Origin	41.04	31.97	0.24	-0.66	503.90	-2.57	0.0	-15.88	25.71	-0.21	-0.56	23.54	0.36	0.00	24.10	37.1	2
2998	2998:WVGD5	End	46.00	28.55	0.22	-0.56	631.40	-3.59	0.0	-15.88	25.71	-0.21	-0.54	27.38	0.34	0.00	27.92	43.7	2
2998	2998:WVGD5	Origin	46.00	28.55	0.22	-0.56	631.40	-3.59	0.0	-16.54	26.57	-0.21	-0.56	27.38	0.36	0.00	27.95	43.7	2
2998	2998:Arm4	End	48.08	27.16	0.21	-0.52	686.75	-4.03	0.0	-16.54	26.57	-0.21	-0.55	28.89	0.35	0.00	29.44	46.4	2
2998	2998:Arm4	Origin	48.08	27.16	0.21	-0.52	694.22	-4.14	0.0	-20.95	33.17	-0.31	-0.70	29.20	0.44	0.00	29.91	47.1	2
2998	SpliceT	End	50.50	25.59	0.19	-0.47	774.40	-4.89	0.0	-20.95	33.17	-0.31	-0.69	31.46	0.43	0.00	32.16	51.1	2
2998	SpliceT	Origin	50.50	25.59	0.19	-0.47	774.40	-4.89	0.0	-21.46	33.43	-0.31	-0.70	31.46	0.43	0.00	32.17	51.1	2
2998	Splice	End	53.25	23.86	0.18	-0.43	866.32	-5.74	0.0	-21.46	33.43	-0.31	-0.56	27.93	0.34	0.00	28.49	43.8	2
2998	Splice	Origin	53.25	23.86	0.18	-0.43	866.32	-5.74	0.0	-22.16	33.71	-0.31	-0.58	27.93	0.35	0.00	28.51	43.9	2
2998	2998:WVGD6	End	56.00	22.19	0.17	-0.38	959.04	-6.59	0.0	-22.16	33.71	-0.31	-0.57	29.74	0.34	0.00	30.32	46.6	2
2998	2998:WVGD6	Origin	56.00	22.19	0.17	-0.38	959.04	-6.59	0.0	-23.17	34.63	-0.31	-0.59	29.74	0.35	0.00	30.34	46.7	2
2998	Tube 3	End	61.00	19.29	0.15	-0.31	1132.20	-8.13	0.0	-23.17	34.63	-0.31	-0.57	32.79	0.34	0.00	33.37	51.3	2
2998	Tube 3	Origin	61.00	19.29	0.15	-0.31	1132.20	-8.13	0.0	-23.97	35.14	-0.31	-0.59	32.79	0.34	0.00	33.39	51.4	2
2998	2998:WVGD7	End	66.00	16.58	0.13	-0.25	1307.90	-9.68	0.0	-23.97	35.14	-0.31	-0.57	35.45	0.33	0.00	36.03	55.4	2
2998	2998:WVGD7	Origin	66.00	16.58	0.13	-0.25	1307.90	-9.67	0.0	-25.07	36.18	-0.31	-0.60	35.45	0.34	0.00	36.06	55.5	2
2998	Tube 3	End	71.00	14.09	0.11	-0.20	1488.80	-11.22	0.0	-25.07	36.18	-0.31	-0.58	37.85	0.33	0.00	38.44	59.1	2
2998	Tube 3	Origin	71.00	14.09	0.11	-0.20	1488.80	-11.21	0.0	-25.93	36.71	-0.31	-0.60	37.85	0.34	0.00	38.46	59.2	2
2998	2998:WVGD8	End	76.00	11.81	0.09	-0.15	1672.33	-12.75	0.0	-25.93	36.71	-0.31	-0.58	39.96	0.33	0.00	40.54	62.4	2
2998	2998:WVGD8	Origin	76.00	11.81	0.09	-0.15	1672.33	-12.75	0.0	-26.86	37.63	-0.31	-0.60	39.96	0.33	0.00	40.56	62.4	2
2998	SpliceT	End	78.50	10.75	0.08	-0.13	1766.40	-13.52	0.0	-26.86	37.63	-0.31	-0.59	40.94	0.33	0.00	41.54	64.3	2
2998	SpliceT	Origin	78.50	10.75	0.08	-0.13	1766.40	-13.52	0.0	-27.68	37.95	-0.31	-0.61	40.94	0.33	0.00	41.56	64.4	2
2998	Splice	End	81.75	9.45	0.07	-0.11	1889.74	-14.52	0.0	-27.68	37.95	-0.31	-0.51	36.23	0.28	0.00	36.74	56.5	2
2998	Splice	Origin	81.75	9.45	0.07	-0.11	1889.74	-14.52	0.0	-28.88	38.33	-0.31	-0.53	36.23	0.28	0.00	36.76	56.6	2
2998	SpliceB	End	85.00	8.24	0.06	-0.09	2014.32	-15.51	0.0	-28.88	38.33	-0.31	-0.52	37.15	0.27	0.00	37.68	58.0	2
2998	SpliceB	Origin	85.00	8.24	0.06	-0.09	2014.32	-15.51	0.0	-29.59	38.58	-0.31	-0.53	37.15	0.27	0.00	37.69	58.0	2
2998	2998:WVGD9	End	86.00	7.89	0.06	-0.09	2052.89	-15.82	0.0	-29.59	38.58	-0.31	-0.53	37.42	0.27	0.00	37.96	58.4	2
2998	2998:WVGD9	Origin	86.00	7.89	0.06	-0.09	2052.89	-15.82	0.0	-30.51	39.44	-0.31	-0.55	37.42	0.28	0.00	37.97	58.4	2
2998	Tube 4	End	91.00	6.23	0.05	-0.06	2250.10	-17.35	0.0	-30.51	39.44	-0.31	-0.53	38.72	0.27	0.00	39.25	60.4	2
2998	Tube 4	Origin	91.00	6.23	0.05	-0.06	2250.10	-17.35	0.0	-31.62	40.02	-0.31	-0.55	38.72	0.28	0.00	39.27	60.4	2
2998	2998:WVGD10	End	96.00	4.76	0.04	-0.04	2450.19	-18.88	0.0	-31.62	40.02	-0.31	-0.53	39.86	0.27	0.00	40.40	62.2	2
2998	2998:WVGD10	Origin	96.00	4.76	0.04	-0.04	2450.19	-18.88	0.0	-33.03	41.13	-0.31	-0.56	39.86	0.27	0.00	40.42	62.2	2

2998	Tube 4	End	101.00	3.49	0.03	-0.03	2655.82	-20.40	0.0	-33.03	41.13	-0.31	-0.54	40.91	0.27	0.00	41.46	63.8	2
2998	Tube 4	Origin	101.00	3.49	0.03	-0.03	2655.82	-20.40	0.0	-34.20	41.73	-0.30	-0.56	40.91	0.27	0.00	41.48	63.8	2
2998	2998:WVGD11	End	106.00	2.42	0.02	-0.02	2864.46	-21.93	0.0	-34.20	41.73	-0.30	-0.55	41.85	0.26	0.00	42.40	65.2	2
2998	2998:WVGD11	Origin	106.00	2.42	0.02	-0.02	2864.46	-21.92	0.0	-35.67	42.86	-0.30	-0.57	41.85	0.27	0.00	42.42	65.3	2
2998	Tube 4	End	111.00	1.55	0.01	-0.01	3078.74	-23.44	0.0	-35.67	42.86	-0.30	-0.56	42.71	0.26	0.00	43.27	66.5	2
2998	Tube 4	Origin	111.00	1.55	0.01	-0.01	3078.74	-23.44	0.0	-36.90	43.48	-0.30	-0.58	42.71	0.27	0.00	43.29	66.5	2
2998	2998:WVGD12	End	116.00	0.87	0.01	-0.01	3296.14	-24.96	0.0	-36.90	43.48	-0.30	-0.56	43.48	0.26	0.00	44.04	68.5	2
2998	2998:WVGD12	Origin	116.00	0.87	0.01	-0.01	3296.14	-24.96	0.0	-38.44	44.63	-0.30	-0.58	43.48	0.27	0.00	44.06	68.5	2
2998	Tube 4	End	121.00	0.39	0.00	-0.00	3519.29	-26.47	0.0	-38.44	44.63	-0.30	-0.57	44.19	0.26	0.00	44.76	70.4	2
2998	Tube 4	Origin	121.00	0.39	0.00	-0.00	3519.29	-26.47	0.0	-39.73	45.28	-0.30	-0.59	44.19	0.27	0.00	44.78	70.4	2
2998	2998:WVGD13	End	126.00	0.10	0.00	-0.00	3745.68	-27.97	0.0	-39.73	45.28	-0.30	-0.58	44.83	0.26	0.00	45.41	72.2	2
2998	2998:WVGD13	Origin	126.00	0.10	0.00	-0.00	3745.68	-27.97	0.0	-41.33	46.45	-0.30	-0.60	44.83	0.27	0.00	45.43	72.3	2
2998	2998:g	End	131.00	0.00	0.00	0.00	3977.93	-29.47	0.0	-41.33	46.45	-0.30	-0.59	45.43	0.26	0.00	46.01	74.1	2

Detailed Tubular Davit Arm Usages for Load Case "NESC Extreme Wind":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
Davit1	Davit1:O	Origin	0.00	50.78	0.37	-2.25	-1.59	-0.00	0.0	1.11	0.45	0.00	0.14	0.98	0.09	0.00	1.14	2.5	2
Davit1	Davit1:V	End	3.54	51.08	0.37	-5.10	0.00	0.00	0.0	1.11	0.45	0.00	0.14	0.00	0.13	0.00	0.27	0.6	3
Davit2	Davit2:O	Origin	0.00	50.84	0.37	-0.27	-0.42	0.00	0.0	-1.19	0.12	-0.00	-0.15	0.26	0.02	0.00	0.41	0.9	2
Davit2	Davit2:V	End	3.54	51.34	0.38	2.54	-0.00	0.00	0.0	-1.19	0.12	-0.00	-0.15	0.00	0.04	0.00	0.17	0.4	3
Davit3	Davit3:O	Origin	0.00	44.71	0.33	-2.09	-19.50	-0.43	-0.0	2.91	2.37	0.05	0.21	4.71	0.13	0.00	4.92	7.6	2
Davit3	#Davit3:0	End	4.26	45.07	0.33	-5.47	-9.40	-0.22	-0.0	2.91	2.37	0.05	0.26	3.75	0.17	0.00	4.02	6.2	2
Davit3	#Davit3:0	Origin	4.26	45.07	0.33	-5.47	-9.40	-0.22	0.0	2.92	2.21	0.05	0.26	3.75	0.16	0.00	4.02	6.2	2
Davit3	Davit3:V	End	8.51	45.43	0.34	-8.90	0.00	0.00	0.0	2.92	2.21	0.05	0.37	0.00	0.58	0.00	1.07	1.6	4
Davit4	Davit4:O	Origin	0.00	44.78	0.33	-0.03	-12.00	0.43	0.0	-3.44	1.48	-0.05	-0.24	2.91	0.08	0.00	3.16	4.9	2
Davit4	#Davit4:0	End	4.26	45.35	0.34	3.26	-5.69	0.22	0.0	-3.44	1.48	-0.05	-0.31	2.28	0.11	0.00	2.60	4.0	2
Davit4	#Davit4:0	Origin	4.26	45.35	0.34	3.26	-5.69	0.22	0.0	-3.41	1.34	-0.05	-0.31	2.28	0.10	0.00	2.59	4.0	2
Davit4	Davit4:V	End	8.51	45.91	0.35	6.52	-0.00	0.00	0.0	-3.41	1.34	-0.05	-0.43	0.00	0.35	0.00	0.74	1.1	4
Davit5	Davit5:O	Origin	0.00	35.53	0.27	-1.83	-19.61	-0.43	-0.0	2.90	2.39	0.05	0.20	4.73	0.14	0.00	4.94	7.6	2
Davit5	#Davit5:0	End	4.26	35.87	0.27	-4.98	-9.46	-0.22	-0.0	2.90	2.39	0.05	0.26	3.77	0.17	0.00	4.04	6.2	2
Davit5	#Davit5:0	Origin	4.26	35.87	0.27	-4.98	-9.46	-0.22	0.0	2.91	2.22	0.05	0.26	3.77	0.16	0.00	4.04	6.2	2
Davit5	Davit5:V	End	8.51	36.21	0.27	-8.19	0.00	0.00	0.0	2.91	2.22	0.05	0.37	0.00	0.58	0.00	1.07	1.7	4
Davit6	Davit6:O	Origin	0.00	35.59	0.27	0.30	-12.13	0.43	0.0	-3.44	1.50	-0.05	-0.24	2.95	0.09	0.00	3.19	4.9	2
Davit6	#Davit6:0	End	4.26	36.12	0.27	3.37	-5.75	0.22	0.0	-3.44	1.50	-0.05	-0.31	2.31	0.11	0.00	2.62	4.0	2
Davit6	#Davit6:0	Origin	4.26	36.12	0.27	3.37	-5.75	0.22	0.0	-3.40	1.35	-0.05	-0.31	2.31	0.10	0.00	2.62	4.0	2
Davit6	Davit6:V	End	8.51	36.63	0.28	6.41	-0.00	0.00	0.0	-3.40	1.35	-0.05	-0.43	0.00	0.35	0.00	0.75	1.2	4
Davit7	Davit7:O	Origin	0.00	27.13	0.21	-1.56	-19.77	-0.43	-0.0	2.88	2.41	0.05	0.20	4.77	0.14	0.00	4.98	7.7	2
Davit7	#Davit7:0	End	4.26	27.44	0.21	-4.37	-9.54	-0.22	-0.0	2.88	2.41	0.05	0.26	3.80	0.18	0.00	4.07	6.3	2
Davit7	#Davit7:0	Origin	4.26	27.44	0.21	-4.37	-9.54	-0.22	0.0	2.90	2.24	0.05	0.26	3.80	0.16	0.00	4.07	6.3	2
Davit7	Davit7:V	End	8.51	27.76	0.21	-7.25	0.00	0.00	0.0	2.90	2.24	0.05	0.36	0.00	0.59	0.00	1.08	1.7	4
Davit8	Davit8:O	Origin	0.00	27.19	0.21	0.52	-12.33	0.43	0.0	-3.43	1.52	-0.05	-0.24	2.99	0.09	0.00	3.24	5.0	2
Davit8	#Davit8:0	End	4.26	27.64	0.21	3.26	-5.85	0.22	0.0	-3.43	1.52	-0.05	-0.31	2.34	0.11	0.00	2.66	4.1	2
Davit8	#Davit8:0	Origin	4.26	27.64	0.21	3.26	-5.85	0.22	0.0	-3.40	1.37	-0.05	-0.31	2.34	0.10	0.00	2.66	4.1	2
Davit8	Davit8:V	End	8.51	28.09	0.22	5.97	-0.00	0.00	0.0	-3.40	1.37	-0.05	-0.43	0.00	0.36	0.00	0.76	1.2	4

Summary of Clamp Capacities and Usages for Load Case "NESC Extreme Wind":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
Clamp1	1.184	80.00	80.00	1.48	0.00	0.00	0.00	1.48
Clamp2	1.184	80.00	80.00	1.48	0.00	0.00	0.00	1.48
Clamp3	3.627	80.00	80.00	4.53	0.00	0.00	0.00	4.53
Clamp4	3.627	80.00	80.00	4.53	0.00	0.00	0.00	4.53
Clamp5	3.627	80.00	80.00	4.53	0.00	0.00	0.00	4.53
Clamp6	3.627	80.00	80.00	4.53	0.00	0.00	0.00	4.53
Clamp7	3.627	80.00	80.00	4.53	0.00	0.00	0.00	4.53
Clamp8	3.627	80.00	80.00	4.53	0.00	0.00	0.00	4.53
Clamp9	5.157	80.00	80.00	6.45	0.00	0.00	0.00	6.45
Clamp10	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp11	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp12	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp13	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp14	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp15	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp16	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp17	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp18	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp19	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp20	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp21	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73
Clamp22	0.583	80.00	80.00	0.73	0.00	0.00	0.00	0.73

*** Analysis Results for Load Case No. 3 "NESC Extreme Ice w/ Wind" - Number of iterations in SAPS 14

Equilibrium Joint Positions and Rotations for Load Case "NESC Extreme Ice w/ Wind":

Joint Label	X-Displ (ft)	Y-Displ (ft)	Z-Displ (ft)	X-Rot (deg)	Y-Rot (deg)	Z-Rot (deg)	X-Pos (ft)	Y-Pos (ft)	Z-Pos (ft)
2998:g	0	0	0	0.0000	0.0000	0.0000	0	0	0
2998:t	0.00508	1.999	-0.02367	-1.4433	0.0035	0.0000	0.00508	1.999	131
2998:Ant	0.004896	1.924	-0.02271	-1.4433	0.0035	0.0000	0.004896	1.924	128
2998:WVGD1	0.004712	1.848	-0.02174	-1.4422	0.0035	0.0000	0.004712	1.848	125
2998:WVGD2	0.004101	1.597	-0.0185	-1.4276	0.0035	0.0000	0.004101	1.597	115
2998:Arm1	0.004071	1.585	-0.01834	-1.4266	0.0035	0.0000	0.004071	1.585	114.5
2998:Arm2	0.003615	1.397	-0.01591	-1.4009	0.0034	0.0000	0.003615	1.397	106.9
2998:WVGD3	0.003501	1.351	-0.01528	-1.3912	0.0034	0.0000	0.003501	1.351	105
2998:WVGD4	0.002923	1.114	-0.01219	-1.3176	0.0032	0.0000	0.002923	1.114	94.99
2998:Arm3	0.002918	1.112	-0.01216	-1.3168	0.0032	0.0000	0.002918	1.112	94.9
2998:WVGD5	0.00238	0.8924	-0.009347	-1.2068	0.0030	0.0000	0.00238	0.8924	84.99
2998:Arm4	0.002272	0.8489	-0.008812	-1.1798	0.0029	0.0000	0.002272	0.8489	82.91
2998:WVGD6	0.001882	0.693	-0.006929	-1.0736	0.0027	0.0000	0.001882	0.693	74.99
2998:WVGD7	0.001433	0.5174	-0.004992	-0.9314	0.0024	0.0000	0.001433	0.5174	65
2998:WVGD8	0.00104	0.3679	-0.003483	-0.7766	0.0021	0.0000	0.00104	0.3679	55
2998:WVGD9	0.0007076	0.2454	-0.002378	-0.6281	0.0017	0.0000	0.0007076	0.2454	45
2998:WVGD10	0.0004351	0.1478	-0.00157	-0.4858	0.0014	0.0000	0.0004351	0.1478	35
2998:WVGD11	0.0002257	0.07512	-0.0009747	-0.3441	0.0010	0.0000	0.0002257	0.07512	25
2998:WVGD12	8.294e-05	0.027	-0.0005275	-0.2043	0.0006	0.0000	8.294e-05	0.027	15
2998:WVGD13	9.716e-06	0.003068	-0.000167	-0.0673	0.0002	0.0000	9.716e-06	0.003068	5
Davit1:O	0.004069	1.584	-0.04882	-1.4266	0.0035	0.0000	0.004069	2.809	114.5
Davit1:V	0.004093	1.596	-0.1379	-1.4695	0.0035	0.0000	0.004093	6.32	114.9
Davit2:O	0.004073	1.585	0.01214	-1.4266	0.0035	0.0000	0.004073	0.3608	114.5
Davit2:V	0.004109	1.598	0.09752	-1.3888	0.0035	0.0000	0.004109	-3.126	115.1
Davit3:O	0.003613	1.397	-0.04795	-1.4009	0.0034	0.0000	0.003613	2.708	106.9
Davit3:V	0.003668	1.425	-0.2745	-1.6289	0.0034	0.0000	0.003668	11.17	107.8
Davit4:O	0.003617	1.398	0.01614	-1.4009	0.0034	0.0000	0.003617	0.08708	106.9
Davit4:V	0.0037	1.426	0.2036	-1.1926	0.0034	0.0000	0.0037	-8.315	108.3
Davit5:O	0.002916	1.111	-0.04543	-1.3168	0.0032	0.0000	0.002916	2.559	94.87
Davit5:V	0.002969	1.138	-0.2596	-1.5449	0.0032	0.0000	0.002969	11.02	95.83
Davit6:O	0.002921	1.112	0.0211	-1.3168	0.0032	0.0000	0.002921	-0.3354	94.94
Davit6:V	0.002998	1.138	0.1962	-1.1084	0.0032	0.0000	0.002998	-8.739	96.28
Davit7:O	0.00227	0.8486	-0.04143	-1.1798	0.0029	0.0000	0.00227	2.433	82.88
Davit7:V	0.002319	0.8733	-0.2354	-1.4079	0.0029	0.0000	0.002319	10.89	83.85
Davit8:O	0.002274	0.8493	0.02381	-1.1798	0.0029	0.0000	0.002274	-0.7349	82.94
Davit8:V	0.002343	0.8723	0.1788	-0.9711	0.0029	0.0000	0.002343	-9.142	84.27

Joint Support Reactions for Load Case "NESC Extreme Ice w/ Wind":

Joint Label	X Force (kips)	X Usage %	Y Force (kips)	Y Usage %	H-Shear Usage %	Z Force (kips)	Comp. Uplift Usage %	Result. Usage %	Result. Force (kips)	Result. Usage %	X Moment (ft-k)	X-M. Usage %	Y Moment (ft-k)	Y-M. Usage %	H-Bend-M Usage %	Z Moment (ft-k)	Z-M. Usage %	Max. Usage %
2998:g	-0.08	0.0	-16.47	0.0	0.0	-69.30	0.0	0.0	71.23	0.0	1472.77	0.0	-4.6	0.0	0.0	-0.00	0.0	0.0

Detailed Steel Pole Usages for Load Case "NESC Extreme Ice w/ Wind":

Element Label	Joint Label	Joint Position	Rel. Dist.	Trans. Defl.	Long. Defl.	Vert. Defl.	Trans. Mom. (Local Mx)	Long. Mom. (Local My)	Tors. Mom.	Axial Force	Tran. Shear	Long. Shear	P/A	M/S.	V/Q.	T/R.	Res.	Max. Usage	At Pt.

			(ft)	(in)	(in)	(in)	(ft-k)	(ft-k)	(ft-k)	(kips)	(kips)	(kips)	(ksi)	(ksi)	(ksi)	(ksi)	(ksi)	%	
2998	2998:t	Origin	0.00	23.99	0.06	-0.28	-0.00	-0.00	0.0	-0.08	0.03	-0.00	-0.01	0.00	0.00	0.00	0.01	0.0	6
2998	2998:Ant	End	3.00	23.08	0.06	-0.27	0.10	-0.00	0.0	-0.08	0.03	-0.00	-0.01	0.01	0.00	0.00	0.02	0.0	2
2998	2998:Ant	Origin	3.00	23.08	0.06	-0.27	0.10	-0.00	0.0	-3.99	1.17	-0.00	-0.26	0.00	0.15	0.00	0.37	0.6	6
2998	2998:WVGD1	End	6.00	22.18	0.06	-0.26	3.62	-0.01	0.0	-3.99	1.17	-0.00	-0.25	0.41	0.03	0.00	0.66	1.0	2
2998	2998:WVGD1	Origin	6.00	22.18	0.06	-0.26	3.62	-0.01	0.0	-5.28	1.40	-0.00	-0.33	0.41	0.03	0.00	0.74	1.1	2
2998	SpliceB	End	10.00	20.97	0.05	-0.25	9.22	-0.02	0.0	-5.28	1.40	-0.00	-0.24	0.74	0.03	0.00	0.98	1.5	2
2998	SpliceB	Origin	10.00	20.97	0.05	-0.25	9.22	-0.02	-0.0	-5.65	1.49	-0.00	-0.26	0.74	0.03	0.00	1.00	1.5	2
2998	Tube 2	End	13.00	20.07	0.05	-0.23	13.70	-0.03	-0.0	-5.65	1.49	-0.00	-0.25	1.04	0.03	0.00	1.29	2.0	2
2998	Tube 2	Origin	13.00	20.07	0.05	-0.23	13.70	-0.03	-0.0	-5.88	1.57	-0.01	-0.26	1.04	0.03	0.00	1.30	2.0	2
2998	2998:WVGD2	End	16.00	19.17	0.05	-0.22	18.41	-0.05	-0.0	-5.88	1.57	-0.01	-0.25	1.32	0.03	0.00	1.57	2.4	2
2998	2998:WVGD2	Origin	16.00	19.17	0.05	-0.22	18.41	-0.05	-0.0	-6.97	1.75	-0.01	-0.30	1.32	0.03	0.00	1.62	2.5	2
2998	2998:Arm1	End	16.50	19.02	0.05	-0.22	19.28	-0.05	-0.0	-6.97	1.75	-0.01	-0.30	1.36	0.03	0.00	1.67	2.6	2
2998	2998:Arm1	Origin	16.50	19.02	0.05	-0.22	20.09	-0.06	0.0	-10.79	3.43	-0.01	-0.47	1.42	0.06	0.00	1.89	2.9	2
2998	Tube 2	End	20.29	17.89	0.05	-0.21	33.11	-0.08	0.0	-10.79	3.43	-0.01	-0.45	2.18	0.06	0.00	2.64	4.1	2
2998	Tube 2	Origin	20.29	17.89	0.05	-0.21	33.11	-0.08	0.0	-11.10	3.54	-0.01	-0.46	2.18	0.06	0.00	2.65	4.1	2
2998	2998:Arm2	End	24.08	16.77	0.04	-0.19	46.51	-0.12	0.0	-11.10	3.54	-0.01	-0.45	2.87	0.06	0.00	3.32	5.1	2
2998	2998:Arm2	Origin	24.08	16.77	0.04	-0.19	49.75	-0.12	0.0	-20.21	6.42	-0.01	-0.81	3.07	0.10	0.00	3.88	6.0	2
2998	2998:WVGD3	End	26.00	16.21	0.04	-0.18	62.05	-0.14	0.0	-20.21	6.42	-0.01	-0.80	3.70	0.10	0.00	4.50	6.9	2
2998	2998:WVGD3	Origin	26.00	16.21	0.04	-0.18	62.05	-0.14	0.0	-21.46	6.65	-0.01	-0.85	3.70	0.10	0.00	4.55	7.0	2
2998	Tube 2	End	31.00	14.77	0.04	-0.16	95.32	-0.21	0.0	-21.46	6.65	-0.01	-0.81	5.22	0.10	0.00	6.04	9.3	2
2998	Tube 2	Origin	31.00	14.77	0.04	-0.16	95.32	-0.21	0.0	-21.91	6.79	-0.02	-0.83	5.22	0.10	0.00	6.06	9.3	2
2998	2998:WVGD4	End	36.00	13.36	0.04	-0.15	129.28	-0.29	0.0	-21.91	6.79	-0.02	-0.80	6.53	0.10	0.00	7.33	11.3	2
2998	2998:WVGD4	Origin	36.00	13.36	0.04	-0.15	129.28	-0.29	0.0	-23.10	7.00	-0.02	-0.84	6.53	0.10	0.00	7.37	11.3	2
2998	2998:Arm3	End	36.08	13.34	0.04	-0.15	129.86	-0.29	0.0	-23.10	7.00	-0.02	-0.84	6.55	0.10	0.00	7.39	11.4	2
2998	2998:Arm3	Origin	36.08	13.34	0.04	-0.15	133.08	-0.29	0.0	-32.22	9.86	-0.02	-1.17	6.71	0.14	0.00	7.89	12.1	2
2998	Tube 2	End	41.04	12.00	0.03	-0.13	181.98	-0.38	0.0	-32.22	9.86	-0.02	-1.13	8.50	0.14	0.00	9.63	14.8	2
2998	Tube 2	Origin	41.04	12.00	0.03	-0.13	181.98	-0.38	0.0	-32.71	9.99	-0.02	-1.15	8.50	0.14	0.00	9.65	14.8	2
2998	2998:WVGD5	End	46.00	10.71	0.03	-0.11	231.52	-0.49	0.0	-32.71	9.99	-0.02	-1.10	10.03	0.13	0.00	11.14	17.4	2
2998	2998:WVGD5	Origin	46.00	10.71	0.03	-0.11	231.52	-0.49	0.0	-34.02	10.22	-0.02	-1.15	10.03	0.14	0.00	11.18	17.5	2
2998	2998:Arm4	End	48.08	10.19	0.03	-0.11	252.81	-0.53	0.0	-34.02	10.22	-0.02	-1.13	10.63	0.13	0.00	11.76	18.5	2
2998	2998:Arm4	Origin	48.08	10.19	0.03	-0.11	256.01	-0.53	0.0	-43.13	13.05	-0.02	-1.44	10.76	0.17	0.00	12.20	19.2	2
2998	SpliceT	End	50.50	9.60	0.03	-0.10	287.54	-0.59	0.0	-43.13	13.05	-0.02	-1.41	11.67	0.17	0.00	13.09	20.8	2
2998	SpliceT	Origin	50.50	9.60	0.03	-0.10	287.54	-0.59	0.0	-43.58	13.12	-0.03	-1.43	11.67	0.17	0.00	13.10	20.8	2
2998	Splice	End	53.25	8.95	0.02	-0.09	323.61	-0.67	0.0	-43.58	13.12	-0.03	-1.13	10.42	0.14	0.00	11.56	17.8	2
2998	Splice	Origin	53.25	8.95	0.02	-0.09	323.61	-0.67	0.0	-44.24	13.19	-0.03	-1.15	10.42	0.14	0.00	11.58	17.8	2
2998	2998:WVGD6	End	56.00	8.32	0.02	-0.08	359.89	-0.74	0.0	-44.24	13.19	-0.03	-1.13	11.15	0.13	0.00	12.28	18.9	2
2998	2998:WVGD6	Origin	56.00	8.32	0.02	-0.08	359.89	-0.74	0.0	-45.88	13.43	-0.03	-1.17	11.15	0.14	0.00	12.33	19.0	2
2998	Tube 3	End	61.00	7.23	0.02	-0.07	427.03	-0.89	0.0	-45.88	13.43	-0.03	-1.13	12.36	0.13	0.00	13.49	20.8	2
2998	Tube 3	Origin	61.00	7.23	0.02	-0.07	427.03	-0.89	0.0	-46.58	13.56	-0.03	-1.15	12.36	0.13	0.00	13.51	20.8	2
2998	2998:WVGD7	End	66.00	6.21	0.02	-0.06	494.82	-1.06	0.0	-46.58	13.56	-0.03	-1.11	13.40	0.13	0.00	14.51	22.3	2
2998	2998:WVGD7	Origin	66.00	6.21	0.02	-0.06	494.82	-1.06	0.0	-48.27	13.82	-0.04	-1.15	13.40	0.13	0.00	14.55	22.4	2
2998	Tube 3	End	71.00	5.27	0.01	-0.05	563.91	-1.23	0.0	-48.27	13.82	-0.04	-1.12	14.32	0.13	0.00	15.44	23.8	2
2998	Tube 3	Origin	71.00	5.27	0.01	-0.05	563.91	-1.23	0.0	-49.02	13.95	-0.04	-1.13	14.32	0.13	0.00	15.46	23.8	2
2998	2998:WVGD8	End	76.00	4.41	0.01	-0.04	633.66	-1.43	0.0	-49.02	13.95	-0.04	-1.10	15.12	0.12	0.00	16.22	25.0	2
2998	2998:WVGD8	Origin	76.00	4.41	0.01	-0.04	633.66	-1.43	0.0	-50.55	14.18	-0.04	-1.13	15.12	0.13	0.00	16.26	25.0	2
2998	SpliceT	End	78.50	4.02	0.01	-0.04	669.10	-1.53	0.0	-50.55	14.18	-0.04	-1.12	15.49	0.12	0.00	16.61	25.7	2
2998	SpliceT	Origin	78.50	4.02	0.01	-0.04	669.10	-1.53	0.0	-51.31	14.26	-0.04	-1.13	15.49	0.12	0.00	16.63	25.7	2
2998	Splice	End	81.75	3.53	0.01	-0.03	715.44	-1.67	0.0	-51.31	14.26	-0.04	-0.94	13.70	0.10	0.00	14.64	22.5	2
2998	Splice	Origin	81.75	3.53	0.01	-0.03	715.44	-1.67	0.0	-52.43	14.36	-0.04	-0.96	13.70	0.10	0.00	14.66	22.6	2
2998	SpliceB	End	85.00	3.08	0.01	-0.03	762.10	-1.81	0.0	-52.43	14.36	-0.04	-0.94	14.04	0.10	0.00	14.99	23.1	2
2998	SpliceB	Origin	85.00	3.08	0.01	-0.03	762.10	-1.81	0.0	-53.10	14.42	-0.05	-0.95	14.04	0.10	0.00	15.00	23.1	2
2998	2998:WVGD9	End	86.00	2.94	0.01	-0.03	776.53	-1.86	0.0	-53.10	14.42	-0.05	-0.95	14.14	0.10	0.00	15.09	23.2	2
2998	2998:WVGD9	Origin	86.00	2.94	0.01	-0.03	776.53	-1.86	0.0	-54.64	14.64	-0.05	-0.98	14.14	0.10	0.00	15.12	23.3	2
2998	Tube 4	End	91.00	2.32	0.01	-0.02	849.70	-2.10	0.0	-54.64	14.64	-0.05	-0.95	14.61	0.10	0.00	15.56	23.9	2
2998	Tube 4	Origin	91.00	2.32	0.01	-0.02	849.70	-2.10	0.0	-55.64	14.78	-0.05	-0.97	14.61	0.10	0.00	15.57	24.0	2
2998	2998:WVGD10	End	96.00	1.77	0.01	-0.02	923.62	-2.35	0.0	-55.64	14.78	-0.05	-0.94	15.01	0.10	0.00	15.95	24.5	2
2998	2998:WVGD10	Origin	96.00	1.77	0.01	-0.02	923.62	-2.35	0.0	-57.62	15.06	-0.05	-0.97	15.01	0.10	0.00	15.99	24.6	2

2998	Tube 4	End	101.00	1.30	0.00	-0.01	998.91	-2.62	0.0	-57.62	15.06	-0.05	-0.95	15.37	0.10	0.00	16.32	25.1	2
2998	Tube 4	Origin	101.00	1.30	0.00	-0.01	998.91	-2.62	0.0	-58.68	15.21	-0.06	-0.96	15.37	0.10	0.00	16.34	25.1	2
2998	2998:WVGD11	End	106.00	0.90	0.00	-0.01	1074.96	-2.91	0.0	-58.68	15.21	-0.06	-0.94	15.69	0.10	0.00	16.63	25.6	2
2998	2998:WVGD11	Origin	106.00	0.90	0.00	-0.01	1074.96	-2.91	0.0	-60.71	15.49	-0.06	-0.97	15.69	0.10	0.00	16.66	25.6	2
2998	Tube 4	End	111.00	0.58	0.00	-0.01	1152.41	-3.22	0.0	-60.71	15.49	-0.06	-0.95	15.97	0.10	0.00	16.92	26.0	2
2998	Tube 4	Origin	111.00	0.58	0.00	-0.01	1152.41	-3.22	0.0	-61.82	15.65	-0.06	-0.96	15.97	0.10	0.00	16.94	26.0	2
2998	2998:WVGD12	End	116.00	0.32	0.00	-0.01	1230.67	-3.54	0.0	-61.82	15.65	-0.06	-0.94	16.22	0.09	0.00	17.16	26.7	2
2998	2998:WVGD12	Origin	116.00	0.32	0.00	-0.01	1230.67	-3.54	0.0	-63.92	15.93	-0.07	-0.97	16.22	0.10	0.00	17.19	26.7	2
2998	Tube 4	End	121.00	0.14	0.00	-0.00	1310.33	-3.89	0.0	-63.92	15.93	-0.07	-0.95	16.44	0.09	0.00	17.39	27.3	2
2998	Tube 4	Origin	121.00	0.14	0.00	-0.00	1310.33	-3.89	0.0	-65.08	16.10	-0.07	-0.97	16.44	0.09	0.00	17.41	27.4	2
2998	2998:WVGD13	End	126.00	0.04	0.00	-0.00	1390.83	-4.25	0.0	-65.08	16.10	-0.07	-0.94	16.63	0.09	0.00	17.57	28.0	2
2998	2998:WVGD13	Origin	126.00	0.04	0.00	-0.00	1390.83	-4.25	0.0	-67.23	16.39	-0.08	-0.97	16.63	0.09	0.00	17.61	28.0	2
2998	2998:g	End	131.00	0.00	0.00	0.00	1472.77	-4.63	0.0	-67.23	16.39	-0.08	-0.95	16.80	0.09	0.00	17.76	28.6	2

Detailed Tubular Davit Arm Usages for Load Case "NESC Extreme Ice w/ Wind":

Element Label	Joint Label	Joint Position	Rel. Dist. (ft)	Trans. Defl. (in)	Long. Defl. (in)	Vert. Defl. (in)	Vert. Mom. (ft-k)	Horz. Mom. (ft-k)	Tors. Mom. (ft-k)	Axial Force (kips)	Vert. Shear (kips)	Horz. Shear (kips)	P/A (ksi)	M/S. (ksi)	V/Q. (ksi)	T/R. (ksi)	Res. (ksi)	Max. Usage %	At Pt.
Davit1	Davit1:O	Origin	0.00	19.01	0.05	-0.59	-6.63	-0.00	0.0	0.55	1.88	0.00	0.07	4.10	0.37	0.00	4.22	9.2	2
Davit1	Davit1:V	End	3.54	19.15	0.05	-1.66	0.00	0.00	0.0	0.55	1.88	0.00	0.07	0.00	0.56	0.00	0.97	2.1	3
Davit2	Davit2:O	Origin	0.00	19.02	0.05	0.15	-5.83	0.00	0.0	-1.05	1.65	-0.00	-0.14	3.60	0.33	0.00	3.78	8.2	2
Davit2	Davit2:V	End	3.54	19.18	0.05	1.17	-0.00	0.00	0.0	-1.05	1.65	-0.00	-0.14	0.00	0.49	0.00	0.86	1.9	3
Davit3	Davit3:O	Origin	0.00	16.76	0.04	-0.58	-37.54	-0.00	-0.0	0.80	4.49	0.00	0.06	8.98	0.25	0.00	9.05	13.9	2
Davit3	#Davit3:0	End	4.26	16.93	0.04	-1.88	-18.43	-0.00	-0.0	0.80	4.49	0.00	0.07	7.27	0.33	0.00	7.37	11.3	2
Davit3	#Davit3:0	Origin	4.26	16.93	0.04	-1.88	-18.43	-0.00	0.0	0.82	4.33	0.00	0.07	7.27	0.32	0.00	7.37	11.3	2
Davit3	Davit3:V	End	8.51	17.11	0.04	-3.29	0.00	0.00	0.0	0.82	4.33	0.00	0.10	0.00	1.14	0.00	1.97	3.0	4
Davit4	Davit4:O	Origin	0.00	16.77	0.04	0.19	-34.31	0.00	0.0	-1.98	4.11	-0.00	-0.14	8.21	0.23	0.00	8.36	12.9	2
Davit4	#Davit4:0	End	4.26	16.95	0.04	1.37	-16.83	0.00	0.0	-1.98	4.11	-0.00	-0.18	6.64	0.30	0.00	6.84	10.5	2
Davit4	#Davit4:0	Origin	4.26	16.95	0.04	1.37	-16.83	0.00	0.0	-1.95	3.96	-0.00	-0.18	6.64	0.29	0.00	6.84	10.5	2
Davit4	Davit4:V	End	8.51	17.11	0.04	2.44	-0.00	0.00	0.0	-1.95	3.96	-0.00	-0.24	0.00	1.04	0.00	1.81	2.8	4
Davit5	Davit5:O	Origin	0.00	13.34	0.03	-0.55	-37.55	-0.00	-0.0	0.79	4.49	0.00	0.06	8.99	0.25	0.00	9.05	13.9	2
Davit5	#Davit5:0	End	4.26	13.49	0.04	-1.78	-18.43	-0.00	-0.0	0.79	4.49	0.00	0.07	7.28	0.33	0.00	7.37	11.3	2
Davit5	#Davit5:0	Origin	4.26	13.49	0.04	-1.78	-18.43	-0.00	0.0	0.82	4.33	0.00	0.07	7.28	0.32	0.00	7.37	11.3	2
Davit5	Davit5:V	End	8.51	13.66	0.04	-3.11	0.00	0.00	0.0	0.82	4.33	0.00	0.10	0.00	1.14	0.00	1.97	3.0	4
Davit6	Davit6:O	Origin	0.00	13.34	0.04	0.25	-34.34	0.00	0.0	-1.97	4.11	-0.00	-0.14	8.22	0.23	0.00	8.36	12.9	2
Davit6	#Davit6:0	End	4.26	13.51	0.04	1.35	-16.84	0.00	0.0	-1.97	4.11	-0.00	-0.18	6.65	0.30	0.00	6.85	10.5	2
Davit6	#Davit6:0	Origin	4.26	13.51	0.04	1.35	-16.84	0.00	0.0	-1.94	3.96	-0.00	-0.18	6.65	0.29	0.00	6.84	10.5	2
Davit6	Davit6:V	End	8.51	13.66	0.04	2.35	-0.00	0.00	0.0	-1.94	3.96	-0.00	-0.24	0.00	1.04	0.00	1.81	2.8	4
Davit7	Davit7:O	Origin	0.00	10.18	0.03	-0.50	-37.57	-0.00	-0.0	0.78	4.50	0.00	0.05	8.99	0.25	0.00	9.05	13.9	2
Davit7	#Davit7:0	End	4.26	10.32	0.03	-1.61	-18.44	-0.00	-0.0	0.78	4.50	0.00	0.07	7.28	0.33	0.00	7.37	11.3	2
Davit7	#Davit7:0	Origin	4.26	10.32	0.03	-1.61	-18.44	-0.00	0.0	0.81	4.33	0.00	0.07	7.28	0.32	0.00	7.37	11.3	2
Davit7	Davit7:V	End	8.51	10.48	0.03	-2.82	0.00	0.00	0.0	0.81	4.33	0.00	0.10	0.00	1.14	0.00	1.97	3.0	4
Davit8	Davit8:O	Origin	0.00	10.19	0.03	0.29	-34.38	0.00	0.0	-1.96	4.12	-0.00	-0.14	8.23	0.23	0.00	8.37	12.9	2
Davit8	#Davit8:0	End	4.26	10.34	0.03	1.27	-16.86	0.00	0.0	-1.96	4.12	-0.00	-0.18	6.66	0.30	0.00	6.85	10.5	2
Davit8	#Davit8:0	Origin	4.26	10.34	0.03	1.27	-16.86	0.00	0.0	-1.93	3.96	-0.00	-0.17	6.66	0.29	0.00	6.85	10.5	2
Davit8	Davit8:V	End	8.51	10.47	0.03	2.15	-0.00	0.00	0.0	-1.93	3.96	-0.00	-0.24	0.00	1.04	0.00	1.82	2.8	4

Summary of Clamp Capacities and Usages for Load Case "NESC Extreme Ice w/ Wind":

Clamp Label	Force (kips)	Input Holding Capacity (kips)	Factored Holding Capacity (kips)	Holding Usage %	Input Hardware Capacity (kips)	Factored Hardware Capacity (kips)	Hardware Usage %	Max. Usage %
Clamp1	1.913	80.00	80.00	2.39	0.00	0.00	0.00	2.39
Clamp2	1.913	80.00	80.00	2.39	0.00	0.00	0.00	2.39
Clamp3	4.342	80.00	80.00	5.43	0.00	0.00	0.00	5.43
Clamp4	4.342	80.00	80.00	5.43	0.00	0.00	0.00	5.43
Clamp5	4.342	80.00	80.00	5.43	0.00	0.00	0.00	5.43
Clamp6	4.342	80.00	80.00	5.43	0.00	0.00	0.00	5.43
Clamp7	4.342	80.00	80.00	5.43	0.00	0.00	0.00	5.43
Clamp8	4.342	80.00	80.00	5.43	0.00	0.00	0.00	5.43
Clamp9	3.905	80.00	80.00	4.88	0.00	0.00	0.00	4.88
Clamp10	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp11	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp12	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp13	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp14	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp15	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp16	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp17	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp18	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp19	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp20	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp21	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20
Clamp22	0.963	80.00	80.00	1.20	0.00	0.00	0.00	1.20

*** Overall summary for all load cases - Usage = Maximum Stress / Allowable Stress

Summary of Steel Pole Usages:

Steel Pole Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
2998	74.08	NESC Extreme Wind	2.5	35	22544.0

Base Plate Results by Bend Line:

Pole Label	Load Case	Bend Line #	Start X (ft)	Start Y (ft)	End X (ft)	End Y (ft)	Length (in)	Bending Stress (ksi)	Bolt Mom. Sum (ft-k)	# Bolts Acting	Bolt Max Load (kips)	Min Plate Thickness (in)	Actual Thickness (in)	Usage %
2998	NESC Heavy Wind	1	2.066	1.830	-0.167	2.755	29.000	12.269	37.372	2	91.118	1.362	2.750	24.54
2998	NESC Heavy Wind	2	2.609	0.900	0.900	2.609	29.000	22.046	67.151	4	91.118	1.826	2.750	44.09
2998	NESC Heavy Wind	3	2.755	-0.167	1.830	2.066	29.000	8.233	25.078	2	67.910	1.116	2.750	16.47
2998	NESC Heavy Wind	4	1.830	-2.066	2.755	0.167	29.000	6.929	21.107	2	-58.572	1.024	2.750	13.86
2998	NESC Heavy Wind	5	0.900	-2.609	2.609	-0.900	29.000	19.217	58.535	4	-81.488	1.705	2.750	38.43
2998	NESC Heavy Wind	6	-0.167	-2.755	2.066	-1.830	29.000	10.923	33.270	2	-81.488	1.285	2.750	21.85
2998	NESC Heavy Wind	7	-2.066	-1.830	0.167	-2.755	29.000	10.842	33.025	2	-80.975	1.281	2.750	21.68
2998	NESC Heavy Wind	8	-2.609	-0.900	-0.900	-2.609	29.000	18.998	57.867	4	-80.975	1.695	2.750	38.00
2998	NESC Heavy Wind	9	-2.755	0.167	-1.830	-2.066	29.000	6.806	20.731	2	-57.766	1.015	2.750	13.61
2998	NESC Heavy Wind	10	-1.830	2.066	-2.755	-0.167	29.000	8.356	25.453	2	68.716	1.124	2.750	16.71
2998	NESC Heavy Wind	11	-0.900	2.609	-2.609	0.900	29.000	22.265	67.818	4	91.632	1.835	2.750	44.53
2998	NESC Heavy Wind	12	0.167	2.755	-2.066	1.830	29.000	12.350	37.617	2	91.632	1.367	2.750	24.70
2998	NESC Heavy Wind	13	1.679	2.246	-0.691	2.718	29.000	3.110	9.474	1	91.118	0.686	2.750	6.22
2998	NESC Heavy Wind	14	2.411	1.432	0.401	2.775	29.000	15.490	47.183	3	91.118	1.531	2.750	30.98
2998	NESC Heavy Wind	15	2.775	0.401	1.432	2.411	29.000	12.186	37.118	3	80.629	1.358	2.750	24.37
2998	NESC Heavy Wind	16	2.718	-0.691	2.246	1.679	29.000	1.808	5.508	1	52.970	0.523	2.750	3.62
2998	NESC Heavy Wind	17	2.246	-1.679	2.718	0.691	29.000	1.493	4.548	1	-43.743	0.475	2.750	2.99
2998	NESC Heavy Wind	18	1.432	-2.411	2.775	-0.401	29.000	10.428	31.763	3	-71.157	1.256	2.750	20.86
2998	NESC Heavy Wind	19	0.401	-2.775	2.411	-1.432	29.000	13.697	41.721	3	-81.488	1.439	2.750	27.39
2998	NESC Heavy Wind	20	-0.691	-2.718	1.679	-2.246	29.000	2.782	8.473	1	-81.488	0.649	2.750	5.56
2998	NESC Heavy Wind	21	-1.679	-2.246	0.691	-2.718	29.000	2.764	8.420	1	-80.975	0.647	2.750	5.53
2998	NESC Heavy Wind	22	-2.411	-1.432	-0.401	-2.775	29.000	13.577	41.356	3	-80.975	1.433	2.750	27.15
2998	NESC Heavy Wind	23	-2.775	-0.401	-1.432	-2.411	29.000	10.273	31.290	3	-70.485	1.246	2.750	20.55
2998	NESC Heavy Wind	24	-2.718	0.691	-2.246	-1.679	29.000	1.462	4.453	1	-42.827	0.470	2.750	2.92
2998	NESC Heavy Wind	25	-2.246	1.679	-2.718	-0.691	29.000	1.840	5.603	1	53.887	0.527	2.750	3.68
2998	NESC Heavy Wind	26	-1.432	2.411	-2.775	0.401	29.000	12.341	37.590	3	81.301	1.366	2.750	24.68
2998	NESC Heavy Wind	27	-0.401	2.775	-2.411	1.432	29.000	15.610	47.548	3	91.632	1.537	2.750	31.22
2998	NESC Heavy Wind	28	0.691	2.718	-1.679	2.246	29.000	3.128	9.528	1	91.632	0.688	2.750	6.26
2998	NESC Extreme Wind	1	2.066	1.830	-0.167	2.755	29.000	21.337	64.994	2	158.791	1.796	2.750	42.67
2998	NESC Extreme Wind	2	2.609	0.900	0.900	2.609	29.000	37.999	115.744	4	158.791	2.397	2.750	76.00
2998	NESC Extreme Wind	3	2.755	-0.167	1.830	2.066	29.000	13.988	42.609	2	116.515	1.455	2.750	27.98
2998	NESC Extreme Wind	4	1.830	-2.066	2.755	0.167	29.000	13.562	41.310	2	-113.308	1.432	2.750	27.12
2998	NESC Extreme Wind	5	0.900	-2.609	2.609	-0.900	29.000	36.977	112.631	4	-154.843	2.365	2.750	73.95
2998	NESC Extreme Wind	6	-0.167	-2.755	2.066	-1.830	29.000	20.803	63.366	2	-154.843	1.774	2.750	41.61
2998	NESC Extreme Wind	7	-2.066	-1.830	0.167	-2.755	29.000	20.599	62.744	2	-153.541	1.765	2.750	41.20
2998	NESC Extreme Wind	8	-2.609	-0.900	-0.900	-2.609	29.000	36.421	110.939	4	-153.541	2.347	2.750	72.84
2998	NESC Extreme Wind	9	-2.755	0.167	-1.830	-2.066	29.000	13.250	40.359	2	-111.265	1.416	2.750	26.50
2998	NESC Extreme Wind	10	-1.830	2.066	-2.755	-0.167	29.000	14.301	43.560	2	118.559	1.471	2.750	28.60
2998	NESC Extreme Wind	11	-0.900	2.609	-2.609	0.900	29.000	38.554	117.436	4	160.093	2.415	2.750	77.11
2998	NESC Extreme Wind	12	0.167	2.755	-2.066	1.830	29.000	21.542	65.615	2	160.093	1.805	2.750	43.08
2998	NESC Extreme Wind	13	1.679	2.246	-0.691	2.718	29.000	5.421	16.511	1	158.791	0.905	2.750	10.84

2998	NESC Extreme Wind	14	2.411	1.432	0.401	2.775	29.000	26.860	81.816	3	158.791	2.016	2.750	53.72
2998	NESC Extreme Wind	15	2.775	0.401	1.432	2.411	29.000	20.843	63.489	3	139.675	1.776	2.750	41.69
2998	NESC Extreme Wind	16	2.718	-0.691	2.246	1.679	29.000	3.049	9.288	1	89.329	0.679	2.750	6.10
2998	NESC Extreme Wind	17	2.246	-1.679	2.718	0.691	29.000	2.950	8.984	1	-86.403	0.668	2.750	5.90
2998	NESC Extreme Wind	18	1.432	-2.411	2.775	-0.401	29.000	20.246	61.669	3	-136.127	1.750	2.750	40.49
2998	NESC Extreme Wind	19	0.401	-2.775	2.411	-1.432	29.000	26.174	79.727	3	-154.843	1.990	2.750	52.35
2998	NESC Extreme Wind	20	-0.691	-2.718	1.679	-2.246	29.000	5.286	16.101	1	-154.843	0.894	2.750	10.57
2998	NESC Extreme Wind	21	-1.679	-2.246	0.691	-2.718	29.000	5.241	15.965	1	-153.541	0.890	2.750	10.48
2998	NESC Extreme Wind	22	-2.411	-1.432	-0.401	-2.775	29.000	25.870	78.800	3	-153.541	1.978	2.750	51.74
2998	NESC Extreme Wind	23	-2.775	-0.401	-1.432	-2.411	29.000	19.853	60.473	3	-134.425	1.733	2.750	39.71
2998	NESC Extreme Wind	24	-2.718	0.691	-2.246	-1.679	29.000	2.870	8.743	1	-84.079	0.659	2.750	5.74
2998	NESC Extreme Wind	25	-2.246	1.679	-2.718	-0.691	29.000	3.129	9.530	1	91.653	0.688	2.750	6.26
2998	NESC Extreme Wind	26	-1.432	2.411	-2.775	0.401	29.000	21.236	64.685	3	141.378	1.792	2.750	42.47
2998	NESC Extreme Wind	27	-0.401	2.775	-2.411	1.432	29.000	27.164	82.743	3	160.093	2.027	2.750	54.33
2998	NESC Extreme Wind	28	0.691	2.718	-1.679	2.246	29.000	5.465	16.646	1	160.093	0.909	2.750	10.93
2998	NESC Extreme Ice w/ Wind	1	2.066	1.830	-0.167	2.755	29.000	8.381	25.529	2	62.197	1.126	2.750	16.76
2998	NESC Extreme Ice w/ Wind	2	2.609	0.900	0.900	2.609	29.000	15.110	46.024	4	62.197	1.512	2.750	30.22
2998	NESC Extreme Ice w/ Wind	3	2.755	-0.167	1.830	2.066	29.000	5.672	17.277	2	46.624	0.926	2.750	11.34
2998	NESC Extreme Ice w/ Wind	4	1.830	-2.066	2.755	0.167	29.000	4.528	13.793	2	-38.465	0.828	2.750	9.06
2998	NESC Extreme Ice w/ Wind	5	0.900	-2.609	2.609	-0.900	29.000	12.649	38.529	4	-53.922	1.383	2.750	25.30
2998	NESC Extreme Ice w/ Wind	6	-0.167	-2.755	2.066	-1.830	29.000	7.221	21.994	2	-53.922	1.045	2.750	14.44
2998	NESC Extreme Ice w/ Wind	7	-2.066	-1.830	0.167	-2.755	29.000	7.188	21.896	2	-53.717	1.043	2.750	14.38
2998	NESC Extreme Ice w/ Wind	8	-2.609	-0.900	-0.900	-2.609	29.000	12.562	38.263	4	-53.717	1.378	2.750	25.12
2998	NESC Extreme Ice w/ Wind	9	-2.755	0.167	-1.830	-2.066	29.000	4.479	13.644	2	-38.144	0.823	2.750	8.96
2998	NESC Extreme Ice w/ Wind	10	-1.830	2.066	-2.755	-0.167	29.000	5.721	17.426	2	46.944	0.930	2.750	11.44
2998	NESC Extreme Ice w/ Wind	11	-0.900	2.609	-2.609	0.900	29.000	15.197	46.289	4	62.401	1.516	2.750	30.39
2998	NESC Extreme Ice w/ Wind	12	0.167	2.755	-2.066	1.830	29.000	8.413	25.627	2	62.401	1.128	2.750	16.83
2998	NESC Extreme Ice w/ Wind	13	1.679	2.246	-0.691	2.718	29.000	2.123	6.467	1	62.197	0.567	2.750	4.25
2998	NESC Extreme Ice w/ Wind	14	2.411	1.432	0.401	2.775	29.000	10.593	32.267	3	62.197	1.266	2.750	21.19
2998	NESC Extreme Ice w/ Wind	15	2.775	0.401	1.432	2.411	29.000	8.375	25.511	3	55.162	1.125	2.750	16.75
2998	NESC Extreme Ice w/ Wind	16	2.718	-0.691	2.246	1.679	29.000	1.249	3.804	1	36.588	0.435	2.750	2.50
2998	NESC Extreme Ice w/ Wind	17	2.246	-1.679	2.718	0.691	29.000	0.972	2.961	1	-28.474	0.383	2.750	1.94
2998	NESC Extreme Ice w/ Wind	18	1.432	-2.411	2.775	-0.401	29.000	6.838	20.827	3	-46.950	1.017	2.750	13.68
2998	NESC Extreme Ice w/ Wind	19	0.401	-2.775	2.411	-1.432	29.000	9.042	27.542	3	-53.922	1.169	2.750	18.08
2998	NESC Extreme Ice w/ Wind	20	-0.691	-2.718	1.679	-2.246	29.000	1.841	5.607	1	-53.922	0.528	2.750	3.68
2998	NESC Extreme Ice w/ Wind	21	-1.679	-2.246	0.691	-2.718	29.000	1.834	5.586	1	-53.717	0.527	2.750	3.67
2998	NESC Extreme Ice w/ Wind	22	-2.411	-1.432	-0.401	-2.775	29.000	8.994	27.396	3	-53.717	1.166	2.750	17.99
2998	NESC Extreme Ice w/ Wind	23	-2.775	-0.401	-1.432	-2.411	29.000	6.776	20.640	3	-46.683	1.012	2.750	13.55
2998	NESC Extreme Ice w/ Wind	24	-2.718	0.691	-2.246	-1.679	29.000	0.960	2.923	1	-28.109	0.381	2.750	1.92
2998	NESC Extreme Ice w/ Wind	25	-2.246	1.679	-2.718	-0.691	29.000	1.261	3.842	1	36.953	0.437	2.750	2.52
2998	NESC Extreme Ice w/ Wind	26	-1.432	2.411	-2.775	0.401	29.000	8.437	25.698	3	55.429	1.130	2.750	16.87
2998	NESC Extreme Ice w/ Wind	27	-0.401	2.775	-2.411	1.432	29.000	10.641	32.413	3	62.401	1.269	2.750	21.28
2998	NESC Extreme Ice w/ Wind	28	0.691	2.718	-1.679	2.246	29.000	2.130	6.488	1	62.401	0.568	2.750	4.26

Summary of Tubular Davit Usages:

Tubular Davit Label	Maximum Usage %	Load Case	Height AGL (ft)	Segment Number	Weight (lbs)
Davit1	9.18	NESC Extreme Ice w/ Wind	114.8	1	93.2
Davit2	8.22	NESC Extreme Ice w/ Wind	114.8	1	93.2
Davit3	14.65	NESC Heavy Wind	107.2	1	320.5
Davit4	13.02	NESC Heavy Wind	107.2	1	320.5
Davit5	14.66	NESC Heavy Wind	95.2	1	320.5
Davit6	13.04	NESC Heavy Wind	95.2	1	320.5
Davit7	14.67	NESC Heavy Wind	83.2	1	320.5
Davit8	13.06	NESC Heavy Wind	83.2	1	320.5

*** Maximum Stress Summary for Each Load Case

Summary of Maximum Usages by Load Case:

Load Case	Maximum Usage %	Element Label	Element Type
NESC Heavy Wind	44.53	2998	Base Plate
NESC Extreme Wind	77.11	2998	Base Plate
NESC Extreme Ice w/ Wind	30.39	2998	Base Plate

Summary of Steel Pole Usages by Load Case:

Load Case	Maximum Usage %	Steel Pole Label	Height AGL (ft)	Segment Number
NESC Heavy Wind	42.06	2998	2.5	35
NESC Extreme Wind	74.08	2998	2.5	35
NESC Extreme Ice w/ Wind	28.59	2998	2.5	35

Summary of Base Plate Usages by Load Case:

Load Case	Pole Label	Bend Line #	Length (in)	Vertical Load (kips)	X Moment (ft-k)	Y Moment (ft-k)	Bending Stress (ksi)	Bolt Moment Sum (ft-k)	# Bolts Acting On Bend Line	Max Bolt Load For Bend Line (kips)	Minimum Plate Thickness (in)	Usage %
NESC Heavy Wind	2998	11	29.000	81.150	2189.232	-11.626	22.265	67.818	4	91.632	1.835	44.53
NESC Extreme Wind	2998	11	29.000	42.002	3977.931	-29.474	38.554	117.436	4	160.093	2.415	77.11
NESC Extreme Ice w/ Wind	2998	11	29.000	67.834	1472.772	-4.628	15.197	46.289	4	62.401	1.516	30.39

Summary of Tubular Davit Usages by Load Case:

Load Case	Maximum Usage %	Tubular Davit Label	Height AGL (ft)	Segment Number
NESC Heavy Wind	14.67	Davit7	83.2	1
NESC Extreme Wind	7.67	Davit7	83.2	1
NESC Extreme Ice w/ Wind	13.93	Davit7	83.2	1

Summary of Insulator Usages:

Insulator Label	Insulator Type	Maximum Usage %	Load Case	Weight (lbs)
Clamp1	Clamp	2.39	NESC Extreme Ice w/ Wind	0.0
Clamp2	Clamp	2.39	NESC Extreme Ice w/ Wind	0.0
Clamp3	Clamp	5.80	NESC Heavy Wind	0.0
Clamp4	Clamp	5.80	NESC Heavy Wind	0.0
Clamp5	Clamp	5.80	NESC Heavy Wind	0.0
Clamp6	Clamp	5.80	NESC Heavy Wind	0.0
Clamp7	Clamp	5.80	NESC Heavy Wind	0.0
Clamp8	Clamp	5.80	NESC Heavy Wind	0.0
Clamp9	Clamp	6.45	NESC Extreme Wind	0.0
Clamp10	Clamp	1.31	NESC Heavy Wind	0.0
Clamp11	Clamp	1.31	NESC Heavy Wind	0.0

Clamp12	Clamp	1.31	NESC Heavy Wind	0.0
Clamp13	Clamp	1.31	NESC Heavy Wind	0.0
Clamp14	Clamp	1.31	NESC Heavy Wind	0.0
Clamp15	Clamp	1.31	NESC Heavy Wind	0.0
Clamp16	Clamp	1.31	NESC Heavy Wind	0.0
Clamp17	Clamp	1.31	NESC Heavy Wind	0.0
Clamp18	Clamp	1.31	NESC Heavy Wind	0.0
Clamp19	Clamp	1.31	NESC Heavy Wind	0.0
Clamp20	Clamp	1.31	NESC Heavy Wind	0.0
Clamp21	Clamp	1.31	NESC Heavy Wind	0.0
Clamp22	Clamp	1.31	NESC Heavy Wind	0.0

Loads At Insulator Attachments For All Load Cases:

Load Case	Insulator Label	Insulator Type	Structure Attach Label	Structure Attach Load X (kips)	Structure Attach Load Y (kips)	Structure Attach Load Z (kips)	Structure Attach Load Res. (kips)
NESC Heavy Wind	Clamp1	Clamp	Davit1:V	0.000	1.034	1.227	1.605
NESC Heavy Wind	Clamp2	Clamp	Davit2:V	0.000	1.034	1.227	1.605
NESC Heavy Wind	Clamp3	Clamp	Davit3:V	0.000	1.910	4.229	4.640
NESC Heavy Wind	Clamp4	Clamp	Davit4:V	0.000	1.910	4.229	4.640
NESC Heavy Wind	Clamp5	Clamp	Davit5:V	0.000	1.910	4.229	4.640
NESC Heavy Wind	Clamp6	Clamp	Davit6:V	0.000	1.910	4.229	4.640
NESC Heavy Wind	Clamp7	Clamp	Davit7:V	0.000	1.910	4.229	4.640
NESC Heavy Wind	Clamp8	Clamp	Davit8:V	0.000	1.910	4.229	4.640
NESC Heavy Wind	Clamp9	Clamp	2998:Ant	0.000	1.428	4.945	5.147
NESC Heavy Wind	Clamp10	Clamp	2998:WVGD1	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp11	Clamp	2998:WVGD2	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp12	Clamp	2998:WVGD3	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp13	Clamp	2998:WVGD4	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp14	Clamp	2998:WVGD5	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp15	Clamp	2998:WVGD6	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp16	Clamp	2998:WVGD7	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp17	Clamp	2998:WVGD8	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp18	Clamp	2998:WVGD9	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp19	Clamp	2998:WVGD10	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp20	Clamp	2998:WVGD11	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp21	Clamp	2998:WVGD12	0.000	0.172	1.035	1.049
NESC Heavy Wind	Clamp22	Clamp	2998:WVGD13	0.000	0.172	1.035	1.049
NESC Extreme Wind	Clamp1	Clamp	Davit1:V	0.000	1.140	0.319	1.184
NESC Extreme Wind	Clamp2	Clamp	Davit2:V	0.000	1.140	0.319	1.184
NESC Extreme Wind	Clamp3	Clamp	Davit3:V	0.050	3.071	1.929	3.627
NESC Extreme Wind	Clamp4	Clamp	Davit4:V	0.050	3.071	1.929	3.627
NESC Extreme Wind	Clamp5	Clamp	Davit5:V	0.050	3.071	1.929	3.627
NESC Extreme Wind	Clamp6	Clamp	Davit6:V	0.050	3.071	1.929	3.627
NESC Extreme Wind	Clamp7	Clamp	Davit7:V	0.050	3.071	1.929	3.627
NESC Extreme Wind	Clamp8	Clamp	Davit8:V	0.050	3.071	1.929	3.627
NESC Extreme Wind	Clamp9	Clamp	2998:Ant	0.000	4.537	2.452	5.157
NESC Extreme Wind	Clamp10	Clamp	2998:WVGD1	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp11	Clamp	2998:WVGD2	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp12	Clamp	2998:WVGD3	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp13	Clamp	2998:WVGD4	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp14	Clamp	2998:WVGD5	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp15	Clamp	2998:WVGD6	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp16	Clamp	2998:WVGD7	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp17	Clamp	2998:WVGD8	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp18	Clamp	2998:WVGD9	0.000	0.511	0.281	0.583

NESC Extreme Wind	Clamp19	Clamp	2998:WVGD10	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp20	Clamp	2998:WVGD11	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp21	Clamp	2998:WVGD12	0.000	0.511	0.281	0.583
NESC Extreme Wind	Clamp22	Clamp	2998:WVGD13	0.000	0.511	0.281	0.583
NESC Extreme Ice w/ Wind	Clamp1	Clamp	Davit1:V	0.000	0.765	1.753	1.913
NESC Extreme Ice w/ Wind	Clamp2	Clamp	Davit2:V	0.000	0.765	1.753	1.913
NESC Extreme Ice w/ Wind	Clamp3	Clamp	Davit3:V	0.000	1.294	4.145	4.342
NESC Extreme Ice w/ Wind	Clamp4	Clamp	Davit4:V	0.000	1.294	4.145	4.342
NESC Extreme Ice w/ Wind	Clamp5	Clamp	Davit5:V	0.000	1.294	4.145	4.342
NESC Extreme Ice w/ Wind	Clamp6	Clamp	Davit6:V	0.000	1.294	4.145	4.342
NESC Extreme Ice w/ Wind	Clamp7	Clamp	Davit7:V	0.000	1.294	4.145	4.342
NESC Extreme Ice w/ Wind	Clamp8	Clamp	Davit8:V	0.000	1.294	4.145	4.342
NESC Extreme Ice w/ Wind	Clamp9	Clamp	2998:Ant	0.000	0.973	3.782	3.905
NESC Extreme Ice w/ Wind	Clamp10	Clamp	2998:WVGD1	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp11	Clamp	2998:WVGD2	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp12	Clamp	2998:WVGD3	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp13	Clamp	2998:WVGD4	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp14	Clamp	2998:WVGD5	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp15	Clamp	2998:WVGD6	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp16	Clamp	2998:WVGD7	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp17	Clamp	2998:WVGD8	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp18	Clamp	2998:WVGD9	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp19	Clamp	2998:WVGD10	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp20	Clamp	2998:WVGD11	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp21	Clamp	2998:WVGD12	0.000	0.114	0.956	0.963
NESC Extreme Ice w/ Wind	Clamp22	Clamp	2998:WVGD13	0.000	0.114	0.956	0.963

Overturning Moments For User Input Concentrated Loads:

Moments are static equivalents based on central axis of 0,0 (i.e. a single pole).

Load Case	Total Tran. Load (kips)	Total Long. Load (kips)	Total Vert. Load (kips)	Transverse Overturning Moment (ft-k)	Longitudinal Overturning Moment (ft-k)	Torsional Moment (ft-k)
NESC Heavy Wind	17.192	0.000	46.228	1667.101	-0.000	-0.000
NESC Extreme Wind	31.886	0.300	18.317	3045.230	-28.826	-0.000
NESC Extreme Ice w/ Wind	11.749	0.000	44.586	1142.843	-0.000	-0.000

*** Weight of structure (lbs):
    Weight of Tubular Davit Arms: 2109.5
    Weight of Steel Poles: 22544.0
    Total: 24653.6

*** End of Report

CENTEK engineering
Centered on Solutions℠ www.centekeng.com
63-2 North Branford Road P: (203) 488-0580
Branford, CT 06405 F: (203) 488-8587

Subject: Anchor Bolt Analysis CL&P Pole #2998

Location: Wilton, CT

Rev. 3: 2/22/23

Prepared by: T.J.L. Checked by: C.F.C.
Job No. 22021.09

Anchor Bolt Analysis:

Input Data:

Bolt Force:

Maximum Tensile Force = $T_{Max} := 160 \cdot kips$ (User Input from PLS-Pole)

Maximum Shear Force at Base = $V_{base} := 47 \cdot kips$ (User Input from PLS-Pole)

Anchor Bolt Data:

Use AST MA615 Grade 75

Number of Anchor Bolts = $N := 16$ (User Input)

Bolt "Column" Distance = $l := 3.0 \cdot in$ (User Input)

Bolt Ultimate Strength = $F_u := 100 \cdot ksi$ (User Input)

Bolt Yeild Strength= $F_y := 75 \cdot ksi$ (User Input)

Bolt Modulus = $E := 29000 \cdot ksi$ (User Input)

Diameter of Anchor Bolts = $D := 2.25 \cdot in$ (User Input)

Threads per Inch = $n := 4.5$ (User Input)

Anchor Bolt Analysis:

Stress Area of Bolt = $A_s := \frac{\pi}{4} \cdot \left(D - \frac{0.9743 \cdot in}{n}\right)^2 = 3.248 \cdot in^2$

Maximum Shear Force per Bolt = $V_{Max} := \frac{V_{base}}{N} = 2.9 \times 10^3 lbf$

Shear Stress per Bolt = $f_v := \frac{V_{Max}}{A_s} = 904.5\,psi$

Tensile Stress Permitted = $F_t := 0.75 \cdot F_u = 75 \cdot ksi$

Shear Stress Permitted = $F_v := 0.35 F_u = 35 \cdot ksi$

Permitted Axial Tensile Stress in Conjuction with Shear = $F_{tv} := F_t \cdot \sqrt{1 - \left(\frac{f_v}{F_v}\right)^2} = 74.97 \cdot ksi$

Bolt Tension % of Capacity = $\frac{T_{Max}}{F_{tv} \cdot A_s} = 65.71 \cdot \%$

Condition1 = $Condition1 := if\left(\frac{T_{Max}}{F_{tv} \cdot A_s} \le 1.00, "OK", "Overstressed"\right)$

Condition1 = "OK"

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	CT5058	DATE:	12/7/2021	RF DESIGN ENG:	Mohammad Minhaj Hussain	RF PERF ENG:	Folarin Ayo
ISSUE:	RRH Down	Approved? (Y/N):	Yes	RF DESIGN PHONE:	510-493-3024	RF PERF PHONE:	508-271-8354
REVISION:	Final	RF MANAGER:	John Benedetto	RF DESIGN EMAIL:	mh705r@att.com	RF PERF EMAIL:	sm4897@att.com
INITIATIVE PROJECT	C-Band, DoD SOW and Other Multi Carrier SOW					ADDITIONAL WORKFLOW NOTIFICATIONS:	
						RFDS VERSION:	4.00
						UMTS FREQUENCY:	
						LTE FREQUENCY:	700,1900,AWS,WCS
						5G FREQUENCY:	850,1900,AWS,CBAND,DoD
						IPLAN JOB # 1:	ER_-RCTB-21-02590
						IPLAN JOB # 2:	ER_-RCTB-21-04340
						IPLAN JOB # 3:	ER_-RCTB-21-05679
						IPLAN JOB # 4:	ER_-RCTB-21-05681
						IPLAN JOB # 5:	ER_-RCTB-21-04171
						IPLAN JOB # 6:	ER_-RCTB-21-04164
						IPLAN JOB # 7:	ER_-RCTB-21-04580
						IPLAN JOB # 8:	
						IPLAN JOB # 9:	
						IPLAN JOB #10:	
						IPLAN JOB # 11:	
						IPLAN JOB # 12:	
						IPLAN JOB # 13:	
						IPLAN JOB # 14:	
						IPLAN JOB # 15:	
						IPLAN JOB # 16:	

RF PROGRAM TYPE:	2021 5G NR Radio		
RFDS TECHNOLOGY:	5G NR 1SR CBAND		
STATE/STATUS:	Final/Approved		
RFDS ID:	4860590		
Created By:	mh705r	Updated By:	mh705r
Created:	11/15/2021	Updated:	2/9/2023
Estimated SQIN:	9.605	Expiration:	
RER Initiative:		Calculation ID:	20230209125625065O
PRD || SUB GRP #1:	LTE Next Carrier || LTE 3C		
PRD || SUB GRP #2:	Cell Site RF Modifications || 5G NR Software Upgrade		
PRD || SUB GRP #3:	5G NR Radio || 5G NR 1SR CBand		
PRD || SUB GRP #4:	5G NR Radio || 5G NR 1SR CBand		
PRD || SUB GRP #5:	5G NR Radio || 5G NR 1DR-1		
PRD || SUB GRP #6:	5G NR Radio || 5G NR 1DR-1		
PRD || SUB GRP #7:	Antenna Modifications || 4TX4RX Software Retrofit		
PRD || SUB GRP #8:			
PRD || SUB GRP #9:			
PRD || SUB GRP #10:			
PRD || SUB GRP #11:			
PRD || SUB GRP #12:			
PRD || SUB GRP #13:			
PRD || SUB GRP #14:			
PRD || SUB GRP #15:			
PRD || SUB GRP #16:			

Section 2 - LOCATION INFORMATION

USID:	5777	FA LOCATION CODE:	10071324	LOCATION NAME:	WILTON	ORACLE PRJT # 1:	2051A11P9W
REGION:	NORTHEAST	MARKET CLUSTER:	NEW ENGLAND	MARKET:	CONNECTICUT	ORACLE PRJT # 2:	2051A11LNB
ADDRESS:	289 DANBURY ROAD	CITY:	WILTON	STATE:	CT	ORACLE PRJT # 3:	2051A11MFN
ZIP CODE:	06897	COUNTY:	FAIRFIELD	LONG (DEC. DEG.):	-73.4313989	ORACLE PRJT # 4:	2051A11MFP
LATITUDE (D-M-S):	41d 11m 41.97084s	LONGITUDE (D-M-S):	-73d -25m -53.03604s	LAT (DEC. DEG.):	41.1949919	ORACLE PRJT # 5:	2051A11NME
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	CT-058 - WILTON TAKE ROUTE 17 NORTH TO RIDGEWOOD AVE. FOLLOW RIDGEWOOD AVENUE TO THE GARDEN STATE PARKWAY GET ON GOING NORTH. STAY ON THE GARDEN STATE PARKWAY NORTH UNTIL YOU GET TO THE NEW YORK STATE THRUWAY (RT. 87 SOUTH) TOWARDS THE TAPPAN ZEE BRIDGE.					ORACLE PRJT # 6:	2051A11NMA
						ORACLE PRJT # 7:	2051A11M38
						ORACLE PRJT # 8:	
						ORACLE PRJT # 9:	
						ORACLE PRJT # 10:	
						ORACLE PRJT # 11:	
						ORACLE PRJT # 12:	
						ORACLE PRJT # 13:	
						ORACLE PRJT # 14:	
						ORACLE PRJT # 15:	
						ORACLE PRJT # 16:	
						BORDER CELL WITH CONTOUR COORD:	
						AM STUDY REQ'D (Y/N):	No
						FREQ COORD:	
						RF DISTRICT:	TBD
						RF ZONE:	TBD
						PARENT NAME(UMTS):	BRPTCT04CRBR06

PACE JOB #1:	MRCTB054226		
PACE JOB #2:	MRCTB055884		
PACE JOB #3:	MRCTB056543		
PACE JOB #4:	MRCTB056603		
PACE JOB #5:	MRCTB055512		
PACE JOB #6:	MRCTB055772		
PACE JOB #7:	MRCTB054527		
PACE JOB #8:			
PACE JOB #9:			
PACE JOB #10:			
PACE JOB #11:			
PACE JOB #12:			
PACE JOB #13:			
PACE JOB #14:			
PACE JOB #15:			
PACE JOB #16:			
SEARCH RING NAME:			
SEARCH RING ID:			
BTA:		MSA / RSA:	
LAC(UMTS):	05989		
RNC(UMTS):	BRIDGEPORT RNC06 ERICSSON 3820		
MME POOL ID(LTE):	FF01		

Section 3 - LICENSE COVERAGE/FILING INFORMATION

CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:		CGSA CALL SIGNS:	z_KNLB312,z_KNLB312,z_KNLB312
CGSA - MINOR FILING NEEDED (Yes/No):	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:			
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:					

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	Yes	GROUND ELEVATION (ft):		STRUCTURE TYPE:	UTILITY	MARKET LOCATION 700 MHz Band:	
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):	0.00	FCC ASR NUMBER:	NR	MARKET LOCATION 850 MHz Band:	
SUB-LEASE RIGHTS?:	Yes	STRUCTURE HEIGHT (ft):				MARKET LOCATION 1900 MHz Band:	
LIGHTING TYPE:	NOT REQUIRED					MARKET LOCATION AWS Band:	
						MARKET LOCATION WCS Band:	
						MARKET LOCATION Future Band:	

Section 5 - E-911 INFORMATION - existing

		PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A	E-911				INTRADO		0		
SECTOR B					INTRADO		0		
SECTOR C					INTRADO		0		
SECTOR D									
SECTOR E									
SECTOR F									
OMNI									

Section 5 - E-911 INFORMATION - final

		PSAP NAME:	PSAP ID:	E911 PHASE:	MPC SVC PROVIDER:	LMU REQUIRED:	ESRN:	DATE LIVE PH1:	DATE LIVE PH2:
SECTOR A	E-911				INTRADO		0		
SECTOR B					INTRADO		0		
SECTOR C					INTRADO		0		
SECTOR D									
SECTOR E									
SECTOR F									
OMNI									

Section 6/7 - BBU INFORMATION - existing

	BBU 1	BBU 2	BBU 3
BBU ID:	210638	336083	360179
TECHNOLOGY:	UMTS	UMTS	LTE
BBU NAME:	5058	CTU5058	CTL05058
BBU USID:	5777	5777	5777
CELL ID / BCF:	CTV5058	CTV5058	CTL05058
BTA/TID:	321U	321W	321L
4-9 DIGIT SITE ID:	5058	5058	5058
COW OR TOY?:	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL
BASE STATION TYPE:	BASE	OVERLAY	BASE
EQUIPMENT NAME:	WILTON	WILTON	WILTON
DISASTER PRIORITY:	1	3	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):			6601 INDOOR MU
BASEBAND CONFIGURATION :			
MARKET STATE CODE:			CT
NODE B NUMBER:	0	0	5058
SIDEHAUL SWITCH VENDOR:			
SIDEHAUL SWITCH MODEL:			
SIDEHAUL SWITCH NAME:			
SIDEHAUL SWITCH ADDITIONAL CARDS:			
UL-CoMP:			
CSS - CTS COMMON ID:	5058	CTU5058	CTL05058
CSS - SECONDARY FUNCTION ID:			

Section 6/7 - BBU INFORMATION - final

	BBU 1	BBU 2	BBU 3
BBU ID:	360179	0	0
TECHNOLOGY:	LTE	5G	LTE,5G
BBU NAME:	CTL05058	CTCN035058	CTL04058R,CTCN005058
BBU USID:	5777	5777	5777
CELL ID / BCF:	CTL05058	CTCN035058	CTCN005058
BTA/TID:	321L	321L	321L
4-9 DIGIT SITE ID:	5058	14035058	1415058
COW OR TOY?:	No	No	No
CELL SITE TYPE:	SECTORIZED	SECTORIZED	SECTORIZED
SITE TYPE:	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL	MACRO-CONVENTIONAL
BTS LOCATION ID:	INTERNAL	INTERNAL	INTERNAL
BASE STATION TYPE:	BASE	OVERLAY	OVERLAY
EQUIPMENT NAME:	WILTON	CTCN035058 Cband RBS	CTCN005058
DISASTER PRIORITY:	3	3	3
EQUIPMENT VENDOR:	ERICSSON	ERICSSON	ERICSSON
EQUIPMENT TYPE (Model):	BASEBAND 6630	BASEBAND 6648	BASEBAND 6630
BASEBAND CONFIGURATION :	1x6601 / 1x6630 / 1xXMU	xxxxx / 1x6648 / xxxxx	xxxxx / 1x6630 / xxxxx + IDLe
MARKET STATE CODE:	CT	CTC	CT,CTC
NODE B NUMBER:	5058	35058	4058,5058
SIDEHAUL SWITCH VENDOR:			
SIDEHAUL SWITCH MODEL:			
SIDEHAUL SWITCH NAME:			
SIDEHAUL SWITCH ADDITIONAL CARDS:			
UL-CoMP:			
CSS - CTS COMMON ID:	CTL05058		
CSS - SECONDARY FUNCTION ID:			

Section 7b - Radio INFORMATION - existing

Section 7b - Radio INFORMATION - final

Section 8 - RBS/SECTOR ASSOCIATION - existing

	BBU 1	BBU 2	BBU 3
CTS Common ID	5058	CTU5058	CTL05058
Soft Sector IDs	CTV50581	CTU50587	CTL05058_7A_1
	CTV50582	CTU50588	CTL05058_7B_1
	CTV50583	CTU50589	CTL05058_7C_1
		CTV50581	CTL05058_9A_1
		CTV50582	CTL05058_9A_2
		CTV50583	CTL05058_9B_1
			CTL05058_9B_2
			CTL05058_9C_1
			CTL05058_9C_2
			CTV50581
			CTV50582
			CTV50583

Section 8 - RBS/SECTOR ASSOCIATION - final

	BBU 1	BBU 2	BBU 3
CTS Common ID	CTL05058	CTCN035058	CTL04058R,CTCN005058
Soft Sector IDs	CTL05058_7A_1	CTCN035058_N077A_1	CTCN005058_N002A_1
	CTL05058_7A_3_F	CTCN035058_N077A_2	CTCN005058_N002B_1
	CTL05058_7B_1	CTCN035058_N077B_1	CTCN005058_N002C_1
	CTL05058_7B_3_F	CTCN035058_N077B_2	CTCN005058_N005A_1
	CTL05058_7C_1	CTCN035058_N077C_1	CTCN005058_N005B_1
	CTL05058_7C_3_F	CTCN035058_N077C_2	CTCN005058_N005C_1
			CTCN005058_N066A_1
			CTCN005058_N066B_1
			CTCN005058_N066C_1
			CTL04058_2A_2
			CTL04058_2B_2
			CTL04058_2C_2
			CTL04058_9A_1
			CTL04058_9A_2
			CTL04058_9B_1
			CTL04058_9B_2
			CTL04058_9C_1
			CTL04058_9C_2

Section 9 - SOFT SECTOR ID - existing

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)	5777.850.3G.1	5777.1900.3G.2											
SECTOR A SOFT SECTOR ID	CTV50581	CTU50587	CTL05058_7A_1	CTL05058_9A_1	CTL05058_9A_2								
SECTOR B	CTV50582	CTU50588	CTL05058_7B_1	CTL05058_9B_1	CTL05058_9B_2								
SECTOR C	CTV50583	CTU50589	CTL05058_7C_1	CTL05058_9C_1	CTL05058_9C_2								
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 9 - SOFT SECTOR ID - final

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)													
SECTOR A SOFT SECTOR ID			CTL05058_7A_1	CTL04058_9A_1		CTL04058_9A_2	CTL04058_2A_2	CTL05058_7A_3_F	CTCN005058_N005	CTCN005058_N002	CTCN005058_N066	CTCN035058_N077	CTCN035058_N077A_2
SECTOR B			CTL05058_7B_1	CTL04058_9B_1		CTL04058_9B_2	CTL04058_2B_2	CTL05058_7B_3_F	CTCN005058_N005	CTCN005058_N002	CTCN005058_N066	CTCN035058_N077	CTCN035058_N077B_2
SECTOR C			CTL05058_7C_1	CTL04058_9C_1		CTL04058_9C_2	CTL04058_2C_2	CTL05058_7C_3_F	CTCN005058_N005	CTCN005058_N002	CTCN005058_N066	CTCN035058_N077	CTCN035058_N077C_2
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 9 - Cell Number - existing

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)	5777.850.3G.1	5777.1900.3G.2											
SECTOR A CELL NUMBER			15	8	178								
SECTOR B			16	9	179								
SECTOR C			17	10	180								
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 9 - Cell Number - final

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
USEID (excluding Hard Sector)													
SECTOR A CELL NUMBER			15	8		178	192	171	25	26	27	36	37
SECTOR B			16	9		179	193	172	49	50	51	60	61
SECTOR C			17	10		180	194	173	73	74	75	84	85
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 10 - CID/SAC - existing

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
SECTOR A CID/SAC	50581	50587											
SECTOR B	50582	50588											
SECTOR C	50583	50589											
SECTOR D													
SECTOR E													
SECTOR F													
OMNI													

Section 10 - CID/SAC - final

	UMTS 1ST 850	UMTS 1ST 1900	LTE 1ST 700	LTE 1ST 1900	LTE 2ND 1900	LTE 4TH 1900	LTE 4TH AWS	LTE 5TH 700	5G 1ST 850	5G 1ST 1900	5G 1ST AWS	5G 1ST CBAND	5G 2ND CBAND
SECTOR A CID/SAC													
SECTOR B													
SECTOR C													
SECTOR D													
SECTOR E													

SECTOR F													
OMNI													

Section 15A - CURRENT TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	OPA-65R-LCUU-H6		QS66512-2											
ANTENNA VENDOR	CCI Antennas		Quintel											
ANTENNA SIZE (H x W x D)	72X14.8X9		72.0X12.0X9.6											
ANTENNA WEIGHT	50.7		111											
AZIMUTH	0		0											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	128		128											
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT	4		4											
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built-in		Built-in										
SURGE ARRESTOR (QTY/MODEL)	4	APTDC-BDFDM-DBW	4	APTDC-BDFDM-DBW										
DIPLEXER (QTY/MODEL)	4	SPX-0726	4	SPX-0726										
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMA2093F00V1-1	2	TMA2117F00V1-1										
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	RRUS-11 B12										
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)			2	RRUS-12 B2										
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)	1	Powerwave 7070												
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1			CTV50581	CTV50581		UMTS 850	H6_849MHz_02DT	14.27	0	2	BOTTOM	1 5/8 Coax	143						443.61			
	PORT 3			CTU50587	CTU50587		UMTS 1900	H6_1948MHz_02DT	16.85	0	2	BOTTOM	1 5/8 Coax	143						594.29			
	PORT 5			321P50581	321P50581		GSM 1900	H6_1948MHz_02DT	16.85	0	2	BOTTOM	1 5/8 Coax	143						594.29			
ANTENNA POSITION 2	PORT 1			CTL05058_7A_1	CTL05058_7A_1		LTE 700	2_719MHz_03DT	13	0	3	BOTTOM	1 5/8 Coax	143						1475.7065			
	PORT 3			CTL05058_9A_1	CTL05058_9A_1		LTE 1900	2_1948MHz_03DT	16	0	3	BOTTOM	1 5/8 Coax	143						2421.029			
	PORT 4			CTL05058_9A_2	CTL05058_9A_2		LTE 1900	2_1948MHz_03DT	16	0	3	BOTTOM	1 5/8 Coax	143						2421.029			

Section 15B - CURRENT TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	OPA-65R-LCUU-H6		QS66512-2											
ANTENNA VENDOR	CCI Antennas		Quintel											
ANTENNA SIZE (H x W x D)	72X14.8X9		72.0X12.0X9.6											
ANTENNA WEIGHT	50.7		111											
AZIMUTH	120		120											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	128		128											
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT	4		4											
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built-in		Built-in										
SURGE ARRESTOR (QTY/MODEL)	4	APTDC-BDFDM-DBW	4	APTDC-BDFDM-DBW										
DIPLEXER (QTY/MODEL)	4	SPX-0726	4	SPX-0726										
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMA2093F00V1-1	2	TMA2117F00V1-1										
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	RRUS-11 B12										
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)			2	RRUS-12 B2										
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1			CTV50582	CTV50582		UMTS 850	H6_849MHz_02DT	14.27	120	2	BOTTOM	1 5/8 Coax	143						443.61			
	PORT 3			CTU50588	CTU50588		UMTS 1900	H6_1948MHz_02DT	16.85	120	2	BOTTOM	1 5/8 Coax	143						594.29			
	PORT 5			321P50582	321P50582		GSM 1900	H6_1948MHz_02DT	16.85	120	2	BOTTOM	1 5/8 Coax	143						594.29			
ANTENNA POSITION 2	PORT 1			CTL05058_7B_1	CTL05058_7B_1		LTE 700	2_719MHz_03DT	13	120	3	BOTTOM	1 5/8 Coax	143						1475.7065			
	PORT 3			CTL05058_9B_1	CTL05058_9B_1		LTE 1900	2_1948MHz_03DT	16	120	3	BOTTOM	1 5/8 Coax	143						2421.029			
	PORT 4			CTL05058_9B_2	CTL05058_9B_2		LTE 1900	2_1948MHz_03DT	16	120	3	BOTTOM	1 5/8 Coax	143						2421.029			

Section 15C - CURRENT TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	OPA-65R-LCUU-H6		QS66512-2											
ANTENNA VENDOR	CCI Antennas		Quintel											
ANTENNA SIZE (H x W x D)	72X14.8X9		72.0X12.0X9.6											
ANTENNA WEIGHT	50.7		111											
AZIMUTH	240		240											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	128		128											
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT	4		4											
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Built-in		Built-in										
SURGE ARRESTOR (QTY/MODEL)	4	APTDC-BDFDM-DBW	4	APTDC-BDFDM-DBW										
DIPLEXER (QTY/MODEL)	4	SPX-0726	4	SPX-0726										
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMA2093F00V1-1	2	TMA2117F00V1-1										
CURRENT INJECTORS FOR TMA (QTY/MODEL)														
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)			1	RRUS-11 B12										
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)			2	RRUS-12 B2										
RRH - AWS band (QTY/MODEL)														
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)														
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)														
Additional Component 2 (QTY/MODEL)														
Additional Component 3 (QTY/MODEL)														
Local Market Note 1														
Local Market Note 2														
Local Market Note 3														

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1			CTV50583	CTV50583		UMTS 850	H6_849MHz_02DT	14.27	240	2	BOTTOM	1 5/8 Coax	143						443.61			
	PORT 3			CTU50589	CTU50589		UMTS 1900	H6_1948MHz_02DT	16.85	240	2	BOTTOM	1 5/8 Coax	143						594.29			
	PORT 5			321P50583	321P50583		GSM 1900	H6_1948MHz_02DT	16.85	240	2	BOTTOM	1 5/8 Coax	143						594.29			
ANTENNA POSITION 2	PORT 1			CTL05058_7C_1	CTL05058_7C_1		LTE 700	2_719MHz_03DT	13	240	3	BOTTOM	1 5/8 Coax	143						1475.7065			
	PORT 3			CTL05058_9C_1	CTL05058_9C_1		LTE 1900	2_1948MHz_03DT	16	240	3	BOTTOM	1 5/8 Coax	143						2421.029			
	PORT 4			CTL05058_9C_2	CTL05058_9C_2		LTE 1900	2_1948MHz_03DT	16	240	3	BOTTOM	1 5/8 Coax	143						2421.029			

Section 16A - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?														
ANTENNA MAKE - MODEL	NNHHS4-65A-R5		TPA65R-BU6DA-K											
ANTENNA VENDOR	Commscope		CCI											
ANTENNA SIZE (H x W x D)	59X19.6X7.8		71.2X20X7.7											
ANTENNA WEIGHT	72.8		69											
AZIMUTH	0		0											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	128		128											
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Internal		Internal										
SURGE ARRESTOR (QTY/MODEL)	12	TSXDC-4310FM	12	TSXDC-4310FM										
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMABPD7823VG12A	2	TMAT192123B6831										
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	1000860	2	1000860										
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14	1	4449 B5/B12										
RRH - 850 band (QTY/MODEL)				with another band										
RRH - 1900 band (QTY/MODEL)		with another band												
RRH - AWS band (QTY/MODEL)			1	8843 B2/B66A										
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)	1	8863 N77												
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)	2	K SBT 782-11055	2	K SBT 782-11055										
Additional Component 2 (QTY/MODEL)	2	Compatible Tripleser	2	Compatible Tripleser										
Additional Component 3 (QTY/MODEL)	1	Calibration Cable												
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas, Replace/Add RRHs.													
Local Market Note 2														
Local Market Note 3	1x6601 / 1x6630 / 1x0MU03 || xxxxx / 1x6630 Mixed-Mode / xxxxx + //1x6648+IDLe Xcede.													

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1						5G CBAND	R5_3400MHz_04DT	12.15	0	4	Bottom	1 5/8 Coax	143		1	LLC 850					1	
	PORT 2			CTL05058_7A_3_F	CTL05058_7A_3_F		LTE 700	R5_770MHz_04DT	12.15	0	4	Bottom	1 5/8 Coax	143		1	LLC 850					1	
	PORT 3			CTL04058_9A_1	CTL04058_9A_1		LTE 1900	R5_1930MHz_04DT	15.15	0	4	Bottom	1 5/8 Coax	143		1	LLC 850					2	
	PORT 4			CTL04058_9A_2	CTL04058_9A_2		LTE 1900	R5_1930MHz_04DT	15.15	0	4	Bottom	1 5/8 Coax	143		1	LLC 850					2	
	PORT 7			CTCN005058_N002A_1	CTCN005058_N002A_1		5G 1900	R5_1930MHz_04DT	15.15	0	4	Bottom	1 5/8 Coax	143		1	LLC 850					2	
	PORT 8						5G CBAND	R5_3400MHz_04DT	12.15	0	4	Bottom	1 5/8 Coax	143		1	LLC 850					1	
ANTENNA POSITION 2	PORT 1			CTL05058_7A_1	CTL05058_7A_1		LTE 700	K_725MHz_10DT	11.75	0	10	Bottom	1 5/8 Coax	143		1	LLC 850					3	
	PORT 2			CTCN005058_N005A_1	CTCN005058_N005A_1		5G 850	K_850MHz_10DT	11.95	0	10	Bottom	1 5/8 Coax	143		1	LLC 850					3	
	PORT 4			CTL04058_2A_2	CTL04058_2A_2		LTE AWS	K_2170MHz_08DT	17.8	0	8	Bottom	1 5/8 Coax	143		1	LLC 850					4	
	PORT 7			CTCN005058_N066A_1	CTCN005058_N066A_1		5G AWS	K_2170MHz_08DT	17.8	0	8	Bottom	1 5/8 Coax	143		1	LLC 850					4	

Section 16B - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?														
ANTENNA MAKE - MODEL	NNHHS4-65A-R5		TPA65R-BU6DA-K											
ANTENNA VENDOR	Commscope		CCI											
ANTENNA SIZE (H x W x D)	59X19.6X7.8		71.2X20X7.7											
ANTENNA WEIGHT	72.8		69											
AZIMUTH	120		120											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	128		128											
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Internal		Internal										
SURGE ARRESTOR (QTY/MODEL)	12	TSXDC-4310FM	12	TSXDC-4310FM										
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMABPD7823VG12A	2	TMAT192123B6831										
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	1000860	2	1000860										
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14	1	4449 B5/B12										
RRH - 850 band (QTY/MODEL)				with another band										
RRH - 1900 band (QTY/MODEL)		with another band												
RRH - AWS band (QTY/MODEL)			1	8843 B2/B66A										
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)	1	8863 N77												
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)	2	K SBT 782-11055	2	K SBT 782-11055										
Additional Component 2 (QTY/MODEL)	2	Compatible Tripleser	2	Compatible Tripleser										
Additional Component 3 (QTY/MODEL)	1	Calibration Cable												
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas, Replace/Add RRHs.													
Local Market Note 2														
Local Market Note 3	1x6601 / 1x6630 / 1xXMU03 || xxxxx / 1x6630 Mixed-Mode / xxxxx + //1x6648+IDLe Xcede.													

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1						5G CBAND	R5_3400MHz_05DT	12.15	120	5	Bottom	1 5/8 Coax	143		1	LLC 850					9	
	PORT 2			CTL05058_7B_3_F	CTL05058_7B_3_F		LTE 700	R5_770MHz_05DT	12.15	120	5	Bottom	1 5/8 Coax	143		1	LLC 850					9	
	PORT 3			CTL04058_9B_1	CTL04058_9B_1		LTE 1900	R5_1930MHz_05DT	15.25	120	5	Bottom	1 5/8 Coax	143		1	LLC 850					10	
	PORT 4			CTL04058_9B_2	CTL04058_9B_2		LTE 1900	R5_1930MHz_05DT	15.25	120	5	Bottom	1 5/8 Coax	143		1	LLC 850					10	
	PORT 7			CTCN005058_N002B_1	CTCN005058_N002B_1		5G 1900	R5_1930MHz_05DT	15.25	120	5	Bottom	1 5/8 Coax	143		1	LLC 850					10	
	PORT 8						5G CBAND	R5_3400MHz_05DT	12.15	120	5	Bottom	1 5/8 Coax	143		1	LLC 850					9	
ANTENNA POSITION 2	PORT 1			CTL05058_7B_1	CTL05058_7B_1		LTE 700	K_725MHz_10DT	11.75	120	10	Bottom	1 5/8 Coax	143		1	LLC 850					11	
	PORT 2			CTCN005058_N005B_1	CTCN005058_N005B_1		5G 850	K_850MHz_10DT	11.95	120	10	Bottom	1 5/8 Coax	143		1	LLC 850					11	
	PORT 4			CTL04058_2B_2	CTL04058_2B_2		LTE AWS	K_2170MHz_08DT	17.8	120	8	Bottom	1 5/8 Coax	143		1	LLC 850					12	
	PORT 7			CTCN005058_N066B_1	CTCN005058_N066B_1		5G AWS	K_2170MHz_08DT	17.8	120	8	Bottom	1 5/8 Coax	143		1	LLC 850					12	

Section 16C - PLANNED/PROPOSED TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
Existing Antenna?														
ANTENNA MAKE - MODEL	NNHHS4-65A-R5		TPA65R-BU6DA-K											
ANTENNA VENDOR	Commscope		CCI											
ANTENNA SIZE (H x W x D)	59X19.6X7.8		71.2X20X7.7											
ANTENNA WEIGHT	72.8		69											
AZIMUTH	240		240											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	128		128											
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT														
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Internal		Internal										
SURGE ARRESTOR (QTY/MODEL)	12	TSXDC-4310FM	12	TSXDC-4310FM										
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMABPD7823VG12A	2	TMAT192123B6831										
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	1000860	2	1000860										
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14	1	4449 B5/B12										
RRH - 850 band (QTY/MODEL)				with another band										
RRH - 1900 band (QTY/MODEL)		with another band												
RRH - AWS band (QTY/MODEL)			1	8843 B2/B66A										
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)	1	8863 N77												
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)	2	K SBT 782-11055	2	K SBT 782-11055										
Additional Component 2 (QTY/MODEL)	2	Compatible Tripleser	2	Compatible Tripleser										
Additional Component 3 (QTY/MODEL)	1	Calibration Cable												
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas, Replace/Add RRHs.													
Local Market Note 2														
Local Market Note 3	1x6601 / 1x6630 / 1x0MU03 || xxxxx / 1x6630 Mixed-Mode / xxxxx + //1x6648+IDLe Xcede.													

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1						5G CBAND	R5_3400MHz_04DT	12.15	240	4	Bottom	1 5/8 Coax	143		1	LLC 850					17	
	PORT 2			CTL05058_7C_3_F	CTL05058_7C_3_F		LTE 700	R5_770MHz_04DT	12.15	240	4	Bottom	1 5/8 Coax	143		1	LLC 850					17	
	PORT 3			CTL04058_9C_1	CTL04058_9C_1		LTE 1900	R5_1930MHz_04DT	15.15	240	4	Bottom	1 5/8 Coax	143		1	LLC 850					18	
	PORT 4			CTL04058_9C_2	CTL04058_9C_2		LTE 1900	R5_1930MHz_04DT	15.15	240	4	Bottom	1 5/8 Coax	143		1	LLC 850					18	
	PORT 7			CTCN005058_N002C_1	CTCN005058_N002C_1		5G 1900	R5_1930MHz_04DT	15.15	240	4	Bottom	1 5/8 Coax	143		1	LLC 850					18	
	PORT 8						5G CBAND	R5_3400MHz_04DT	12.15	240	4	Bottom	1 5/8 Coax	143		1	LLC 850					17	
ANTENNA POSITION 2	PORT 1			CTL05058_7C_1	CTL05058_7C_1		LTE 700	K_725MHz_10DT	11.75	240	10	Bottom	1 5/8 Coax	143		1	LLC 850					19	
	PORT 2			CTCN005058_N005C_1	CTCN005058_N005C_1		5G 850	K_850MHz_10DT	11.95	240	10	Bottom	1 5/8 Coax	143		1	LLC 850					19	
	PORT 4			CTL04058_2C_2	CTL04058_2C_2		LTE AWS	K_2170MHz_08DT	17.8	240	8	Bottom	1 5/8 Coax	143		1	LLC 850					20	
	PORT 7			CTCN005058_N066C_1	CTCN005058_N066C_1		5G AWS	K_2170MHz_08DT	17.8	240	8	Bottom	1 5/8 Coax	143		1	LLC 850					20	

Section 16.5A - SCOPING TOWER CONFIGURATION - SECTOR A (OR OMNI)

Section 17A - FINAL TOWER CONFIGURATION - SECTOR A (OR OMNI)

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1	ANTENNA POSITION 2	ANTENNA POSITION 3	ANTENNA POSITION 4	ANTENNA POSITION 5	ANTENNA POSITION 6	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	NNHHS4-65A-R5	TPA65R-BU6DA-K					
ANTENNA VENDOR	Commscope	CCI					
ANTENNA SIZE (H x W x D)	59X19.6X7.8	71.2X20X7.7					
ANTENNA WEIGHT	72.8	69					
AZIMUTH	0	0					
MAGNETIC DECLINATION							
RADIATION CENTER (feet)	128	128					
ANTENNA TIP HEIGHT							
MECHANICAL DOWNTILT	0	0					
FEEDER AMOUNT	4	4					
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)							
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)							
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)							
Antenna RET Motor (QTY/MODEL)	Internal	Internal					
SURGE ARRESTOR (QTY/MODEL)	12 TSXDC-4310FM	12 TSXDC-4310FM					
DIPLEXER (QTY/MODEL)							
DUPLEXER (QTY/MODEL)							
Antenna RET CONTROL UNIT (QTY/MODEL)							
DC BLOCK (QTY/MODEL)							
TMA/LNA (QTY/MODEL)	2 TMABPD7823VG12A	2 TMAT192123B6831					
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2 1000860	2 1000860					
PDU FOR TMAS (QTY/MODEL)							
FILTER (QTY/MODEL)							
SQUID (QTY/MODEL)							
FIBER TRUNK (QTY/MODEL)							
DC TRUNK (QTY/MODEL)							
REPEATER (QTY/MODEL)							
RRH - 700 band (QTY/MODEL)	1 4478 B14	1 4449 B5/B12					
RRH - 850 band (QTY/MODEL)		with another band					
RRH - 1900 band (QTY/MODEL)	with another band						
RRH - AWS band (QTY/MODEL)		1 8843 B2/B66A					
RRH - WCS band (QTY/MODEL)							
Additional RRH #1 - any band (QTY/MODEL)	1 8863 N77						
Additional RRH #2 - any band (QTY/MODEL)							
RRH_7B_1 (QTY/MODEL)							
RRH_7B_2 (QTY/MODEL)							
RRH_7B_3 (QTY/MODEL)							
Additional Component 1 (QTY/MODEL)	2 K SBT 782-11055	2 K SBT 782-11055					
Additional Component 2 (QTY/MODEL)	2 Compatible Tripleser	2 Compatible Tripleser					
Additional Component 3 (QTY/MODEL)	1 Calibration Cable						
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas, Replace/Add RRHs.						
Local Market Note 2							
Local Market Note 3	1x6601 / 1x6630 / 1x0MU03 || xxxxx / 1x6630 Mixed-Mode / xxxxx + //1x6648+IDLe Xcede.						

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RX/AIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1	5777.A.CBAND.5G.tmp1		CTCN035058_N077A_1	CTCN035058_N077A_1		5G CBAND			0	4	Bottom	1 5/8 Coax	143		1	LLC 850					1	
	PORT 2	5777.A.700.4G.tmp5		CTL05058_7A_3_F	CTL05058_7A_3_F		LTE 700	R5_770MHz_04DT	12.15	0	4	Bottom	1 5/8 Coax	143		1	LLC 850					1	
	PORT 3	5777.A.1900.4G.tmp1		CTL04058_9A_1	CTL04058_9A_1		LTE 1900	R5_1930MHz_04DT	15.15	0	4	Bottom	1 5/8 Coax	143		1	LLC 850					2	
	PORT 4	5777.A.1900.4G.tmp4		CTL04058_9A_2	CTL04058_9A_2		LTE 1900	R5_1930MHz_04DT	15.15	0	4	Bottom	1 5/8 Coax	143		1	LLC 850					2	
	PORT 7	5777.A.1900.5G.tmp1		CTCN005058_N002A_1	CTCN005058_N002A_1		5G 1900	R5_1930MHz_04DT	15.15	0	4	Bottom	1 5/8 Coax	143		1	LLC 850					2	
	PORT 8	5777.A.CBAND.5G.tmp2		CTCN035058_N077A_2	CTCN035058_N077A_2		5G DoD			0	4	Bottom	1 5/8 Coax	143		1	LLC 850					1	
ANTENNA POSITION 2	PORT 1	5777.A.700.4G.1		CTL05058_7A_1	CTL05058_7A_1		LTE 700	K_725MHz_10DT	11.75	0	10	Bottom	1 5/8 Coax	143		1	LLC 850					3	
	PORT 2	5777.A.850.5G.tmp1		CTCN005058_N005A_1	CTCN005058_N005A_1		5G 850	K_850MHz_10DT	11.95	0	10	Bottom	1 5/8 Coax	143		1	LLC 850					3	
	PORT 4	5777.A.AWS.4G.tmp4		CTL04058_2A_2	CTL04058_2A_2		LTE AWS	K_2170MHz_08DT	17.8	0	8	Bottom	1 5/8 Coax	143		1	LLC 850					4	
	PORT 7	5777.A.AWS.5G.tmp1		CTCN005058_N066A_1	CTCN005058_N066A_1		5G AWS	K_2170MHz_08DT	17.8	0	8	Bottom	1 5/8 Coax	143		1	LLC 850					4	

Section 17B - FINAL TOWER CONFIGURATION - SECTOR B

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	NNHHS4-65A-R5		TPA65R-BU6DA-K											
ANTENNA VENDOR	Commscope		CCI											
ANTENNA SIZE (H x W x D)	59X19.6X7.8		71.2X20X7.7											
ANTENNA WEIGHT	72.8		69											
AZIMUTH	120		120											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	128		128											
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT	4		4											
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Internal		Internal										
SURGE ARRESTOR (QTY/MODEL)	12	TSXDC-4310FM	12	TSXDC-4310FM										
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMABPD7823VG12A	2	TMAT192123B6831										
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	1000860	2	1000860										
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14	1	4449 B5/B12 with another band										
RRH - 850 band (QTY/MODEL)														
RRH - 1900 band (QTY/MODEL)		with another band												
RRH - AWS band (QTY/MODEL)			1	8843 B2/B66A										
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)	1	8863 N77												
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)	2	K SBT 782-11055	2	K SBT 782-11055										
Additional Component 2 (QTY/MODEL)	2	Compatible Triplexer	2	Compatible Triplexer										
Additional Component 3 (QTY/MODEL)	1	Calibration Cable												
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas, Replace/Add RRHs.													
Local Market Note 2														
Local Market Note 3	1x6601 / 1x6630 / 1xXMU03 || xxxx / 1x6630 Mixed-Mode / xxxx + //1x6648+IDLe Xcede.													

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1	5777.B.CBAND.5G.tmp1		CTCN035058_N077B_1	CTCN035058_N077B_1		5G CBAND			120	5	Bottom	1 5/8 Coax	143		1	LLC 850					9	
	PORT 2	5777.B.700.4G.tmp5		CTL05058_7B_3_F	CTL05058_7B_3_F		LTE 700	R5_770MHz_05DT	12.15	120	5	Bottom	1 5/8 Coax	143		1	LLC 850					9	
	PORT 3	5777.B.1900.4G.tmp1		CTL04058_9B_1	CTL04058_9B_1		LTE 1900	R5_1930MHz_05DT	15.25	120	5	Bottom	1 5/8 Coax	143		1	LLC 850					10	
	PORT 4	5777.B.1900.4G.tmp4		CTL04058_9B_2	CTL04058_9B_2		LTE 1900	R5_1930MHz_05DT	15.25	120	5	Bottom	1 5/8 Coax	143		1	LLC 850					10	
	PORT 7	5777.B.1900.5G.tmp1		CTCN005058_N002B_1	CTCN005058_N002B_1		5G 1900	R5_1930MHz_05DT	15.25	120	5	Bottom	1 5/8 Coax	143		1	LLC 850					10	
	PORT 8	5777.B.CBAND.5G.tmp2		CTCN035058_N077B_2	CTCN035058_N077B_2		5G DoD			120	5	Bottom	1 5/8 Coax	143		1	LLC 850					9	
ANTENNA POSITION 2	PORT 1	5777.B.700.4G.1		CTL05058_7B_1	CTL05058_7B_1		LTE 700	K_725MHz_10DT	11.75	120	10	Bottom	1 5/8 Coax	143		1	LLC 850					11	
	PORT 2	5777.B.850.5G.tmp1		CTCN005058_N005B_1	CTCN005058_N005B_1		5G 850	K_850MHz_10DT	11.95	120	10	Bottom	1 5/8 Coax	143		1	LLC 850					11	
	PORT 4	5777.B.AWS.4G.tmp4		CTL04058_2B_2	CTL04058_2B_2		LTE AWS	K_2170MHz_08DT	17.8	120	8	Bottom	1 5/8 Coax	143		1	LLC 850					12	
	PORT 7	5777.B.AWS.5G.tmp1		CTCN005058_N066B_1	CTCN005058_N066B_1		5G AWS	K_2170MHz_08DT	17.8	120	8	Bottom	1 5/8 Coax	143		1	LLC 850					12	

Section 17C - FINAL TOWER CONFIGURATION - SECTOR C

ANTENNA POSITION is LEFT to RIGHT from BACK OF ANTENNA (unless otherwise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA POSITION 6		ANTENNA POSITION 7	
ANTENNA MAKE - MODEL	NNHHS4-65A-R5		TPA65R-BU6DA-K											
ANTENNA VENDOR	Commscope		CCI											
ANTENNA SIZE (H x W x D)	59X19.6X7.8		71.2X20X7.7											
ANTENNA WEIGHT	72.8		69											
AZIMUTH	240		240											
MAGNETIC DECLINATION														
RADIATION CENTER (feet)	128		128											
ANTENNA TIP HEIGHT														
MECHANICAL DOWNTILT	0		0											
FEEDER AMOUNT	4		4											
VERTICAL SEPARATION from ANTENNA ABOVE (TIP to TIP)														
VERTICAL SEPARATION from ANTENNA BELOW (TIP to TIP)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to LEFT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from CLOSEST ANTENNA to RIGHT (CENTERLINE to CENTERLINE)														
HORIZONTAL SEPARATION from ANOTHER ANTENNA (which antenna # / # of inches)														
Antenna RET Motor (QTY/MODEL)		Internal		Internal										
SURGE ARRESTOR (QTY/MODEL)	12	TSXDC-4310FM	12	TSXDC-4310FM										
DIPLEXER (QTY/MODEL)														
DUPLEXER (QTY/MODEL)														
Antenna RET CONTROL UNIT (QTY/MODEL)														
DC BLOCK (QTY/MODEL)														
TMA/LNA (QTY/MODEL)	2	TMABPD7823VG12A	2	TMAT192123B6831										
CURRENT INJECTORS FOR TMA (QTY/MODEL)	2	1000860	2	1000860										
PDU FOR TMAS (QTY/MODEL)														
FILTER (QTY/MODEL)														
SQUID (QTY/MODEL)														
FIBER TRUNK (QTY/MODEL)														
DC TRUNK (QTY/MODEL)														
REPEATER (QTY/MODEL)														
RRH - 700 band (QTY/MODEL)	1	4478 B14	1	4449 B5/B12										
RRH - 850 band (QTY/MODEL)				with another band										
RRH - 1900 band (QTY/MODEL)		with another band												
RRH - AWS band (QTY/MODEL)			1	8843 B2/B66A										
RRH - WCS band (QTY/MODEL)														
Additional RRH #1 - any band (QTY/MODEL)	1	8863 N77												
Additional RRH #2 - any band (QTY/MODEL)														
RRH_7B_1 (QTY/MODEL)														
RRH_7B_2 (QTY/MODEL)														
RRH_7B_3 (QTY/MODEL)														
Additional Component 1 (QTY/MODEL)	2	K SBT 782-11055	2	K SBT 782-11055										
Additional Component 2 (QTY/MODEL)	2	Compatible Triplexer	2	Compatible Triplexer										
Additional Component 3 (QTY/MODEL)	1	Calibration Cable												
Local Market Note 1	-Follow Antenna/RRHs positions as per PDs. -Replace Antennas, Replace/Add RRHs.													
Local Market Note 2														
Local Market Note 3	1x6601 / 1x6630 / 1xXMU03 || xxxx / 1x6630 Mixed-Mode / xxxx + //1x6648+IDLe Xcede.													

PORT SPECIFIC FIELDS	PORT NUMBER	USEID (CSSng)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX?	TECHNOLOGY / FREQUENCY	ANTENNA ATOLL	ANTENNA GAIN	ELECTRICAL AZIMUTH	ELECTRICAL TILT	RRH LOCATION (Top/Bottom/ Integrated/None)	FEEDERS TYPE	FEEDER LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPA/MCPA MODULE?	HATCHPLATE POWER (Watts)	ERP (Watts)	Antenna RET Name	CABLE NUMBER	CABLE ID(cssng)
ANTENNA POSITION 1	PORT 1	5777.C.CBAND.5G.tmp1		CTCN035058_N077C_1	CTCN035058_N077C_1		5G CBAND			240	4	Bottom	1 5/8 Coax	143		1	LLC 850					17	
	PORT 2	5777.C.700.4G.tmp5		CTL05058_7C_3_F	CTL05058_7C_3_F		LTE 700	R5_770MHz_04DT	12.15	240	4	Bottom	1 5/8 Coax	143		1	LLC 850					17	
	PORT 3	5777.C.1900.4G.tmp1		CTL04058_9C_1	CTL04058_9C_1		LTE 1900	R5_1930MHz_04DT	15.15	240	4	Bottom	1 5/8 Coax	143		1	LLC 850					18	
	PORT 4	5777.C.1900.4G.tmp4		CTL04058_9C_2	CTL04058_9C_2		LTE 1900	R5_1930MHz_04DT	15.15	240	4	Bottom	1 5/8 Coax	143		1	LLC 850					18	
	PORT 7	5777.C.1900.5G.tmp1		CTCN005058_N002C_1	CTCN005058_N002C_1		5G 1900	R5_1930MHz_04DT	15.15	240	4	Bottom	1 5/8 Coax	143		1	LLC 850					18	
	PORT 8	5777.C.CBAND.5G.tmp2		CTCN035058_N077C_2	CTCN035058_N077C_2		5G DoD			240	4	Bottom	1 5/8 Coax	143		1	LLC 850					17	
ANTENNA POSITION 2	PORT 1	5777.C.700.4G.1		CTL05058_7C_1	CTL05058_7C_1		LTE 700	K_725MHz_10DT	11.75	240	10	Bottom	1 5/8 Coax	143		1	LLC 850					19	
	PORT 2	5777.C.850.5G.tmp1		CTCN005058_N005C_1	CTCN005058_N005C_1		5G 850	K_850MHz_10DT	11.95	240	10	Bottom	1 5/8 Coax	143		1	LLC 850					19	
	PORT 4	5777.C.AWS.4G.tmp4		CTL04058_2C_2	CTL04058_2C_2		LTE AWS	K_2170MHz_08DT	17.8	240	8	Bottom	1 5/8 Coax	143		1	LLC 850					20	
	PORT 7	5777.C.AWS.5G.tmp1		CTCN005058_N066C_1	CTCN005058_N066C_1		5G AWS	K_2170MHz_08DT	17.8	240	8	Bottom	1 5/8 Coax	143		1	LLC 850					20	

NNHHS4-65A-R5

16-port sector antenna, 4x 698-896 MHz and 4x 1695-2360 MHz, 65° HPBW, and 8 x 3400-4000 MHz, 90° HPBW, 5 x RETs

- Multi-band FDD antenna featuring C-Band 8T8R functionality
- The C-band RET is factory set to AISG2. All other RET are assigned to AISG1
- Feature the same dimensions as existing 8 and 12-port FDD capable antennas
- New endcap designs provide improved wind loading performance

General Specifications

Antenna Type	Sector- and beamforming
Band	Multiband
Calibration Connector Interface	4.3-10 Female
Calibration Connector Quantity	1
Color	Light gray
Grounding Type	RF connector inner conductor and body grounded to reflector and mounting bracket
Performance Note	Outdoor usage
Radome Material	Fiberglass, UV resistant
Reflector Material	Aluminum
RF Connector Interface	4.3-10 Female
RF Connector Location	Bottom
RF Connector Quantity, high band	8
RF Connector Quantity, mid band	4
RF Connector Quantity, low band	4
RF Connector Quantity, total	16

Remote Electrical Tilt (RET) Information

RET Hardware	CommRET v2
RET Interface	8-pin DIN Female | 8-pin DIN Male
RET Interface, quantity	2 female | 2 male
Input Voltage	10–30 Vdc
Internal RET	High band (1) | Low band (2) | Mid band (2)
Power Consumption, active state, maximum	8 W

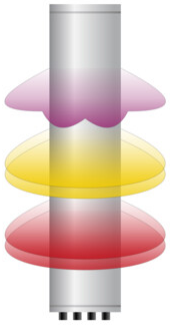
NNHHS4-65A-R5

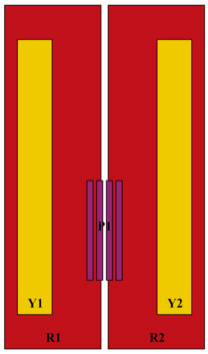
Power Consumption, idle state, maximum	1 W
Protocol	3GPP/AISG 2.0

Dimensions

Width	498 mm | 19.606 in
Depth	197 mm | 7.756 in
Length	1499 mm | 59.016 in
Net Weight, without mounting kit	33 kg | 72.752 lb
TDD Column Spacing	41 mm | 1.614 in

Array Layout





Array ID	Frequency (MHz)	RF Connector	RET (MRET)	AISG No.	AISG RET UID
R1	694-896	1 - 2	1	AISG1	CPxxxxxxxxxxxxMM.1
R2	694-896	3 - 4	2	AISG1	CPxxxxxxxxxxxxMM.2
Y1	1695-2360	5 - 6	3	AISG1	CPxxxxxxxxxxxxMM.3
Y2	1695-2360	7 - 8	4	AISG1	CPxxxxxxxxxxxxMM.4
P1	3400-4000	9 - 16	5	AISG2	CPxxxxxxxxxxxxMM.1

(Sizes of colored boxes are not true depictions of array sizes)

Port Configuration

Antennas

MultiPort Series

DATA SHEET

Multi-Band Twelve-Port Antenna

TPA65R-BU6D

- Six foot (1.8 m) multiband, twelve port antenna with a 65° azimuth beamwidth covering 698-896 MHz and 1695-2400 MHz frequencies
- Eight high band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz in a single antenna enclosure
- Innovative Low and High Band Array configuration allows for 4T4R (4x4 MIMO) on Low Band and Dual 4T4R (4x4 MIMO) High Band Arrays, using full length arrays (non stacked), all in a 20.7" (525 mm) width enclosure, an Industry First
- Full Spectrum Compliance for WCS and AWS-3 frequencies and Band 14 Operations
- Array configuration allows for 4T4R (4X4 MIMO) on Low Band, essential for Band 14 Operations
- LTE Optimized FBR and SPR performance, providing for an efficient use of valuable radio capacity
- LTE Optimized Boresight and Sector XPD and USL performance, essential for LTE Performance
- Exceeds minimum PIM performance requirements
- Equipped with new 4.3-10 connector, which is 40% smaller than traditional 7/16 DIN connector
- Ordering options for External RET Controllers (Type 1) or Internally Integrated RET Controllers (Type 17)

Overview

The CCI 12-Port multiband array is a twelve port antenna, with eight wide band ports covering 1695-2400 MHz and four low band ports covering 698-896 MHz. The antenna provides the capability to deploy Dual 4×4 Multiple-input Multiple-output (MIMO) in the high band and 4X4 Multiple-input Multiple-output (MIMO) across low band ports. The CCI 12-Port allows independent tilt control between the low band ports and high band ports and independent tilt control between left and right antenna arrays.

In this three RET configuration, the 1st RET is dedicated for the four Low Band ports. The 2nd RET is dedicated for the four Left High Band ports and the 3th RET is dedicated for the four Right High Band ports. This RET arrangement allows for complete flexibility in coverage control between left and right antenna arrays.

CCI antennas are designed and produced to ISO 9001 certification standards for reliability and quality in our state-of-the-art manufacturing facilities.

Applications

- Dual 4×4 MIMO for the High Band and 4X4 MIMO Low Band ports
- Ready for Network Standardization on 4.3-10 DIN connectors
- With CCI's multiband antennas, wireless providers can connect multiple platforms to a single antenna, reducing tower load, lease expense, deployment time and installation costs

SPECIFICATIONS

Multi-Band Twelve-Port Antenna

TPA65R-BU6D

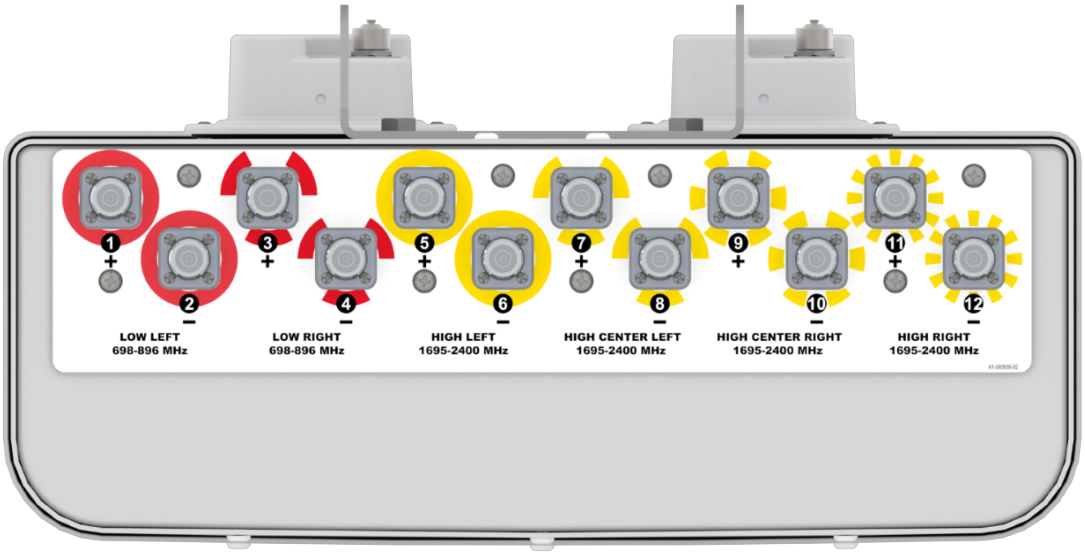
Mechanical

Dimensions (LxWxD)	71.2x20.7x7.7 in (1808x525x197 mm)
Survival Wind Speed	> 150 mph (> 241 kph)
Front Wind Load	325 lbs (1446 N) @ 100 mph (161 kph)
Side Wind Load	144 lbs (642 N) @ 100 mph (161 kph)
Equivalent Flat Plate Area	12.7 ft^2 (1.2 m^2)
Weight *	68.3 lbs (31.0 kg)
Packaging Dimensions (LxWxD)	81.4x25.2x13.9 in (2067x641x354 mm)
Packaged Weight ~	116.8 lbs (53.0 kg)
Connector	12 x 4.3-10 female
Mounting Pole	2 to 5 in (5 to 12 cm)

** Weight excludes mounting*

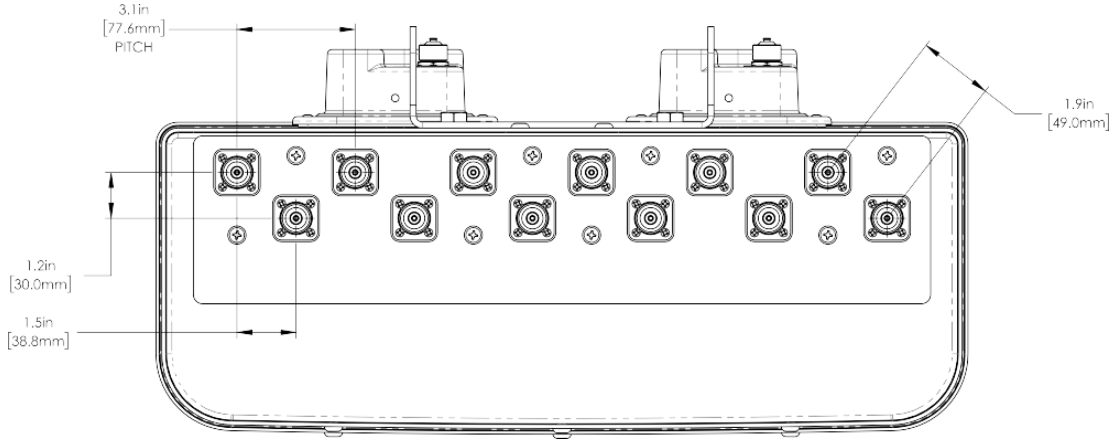
Bottom View

TPA65R-BU6DA



Connector Spacing

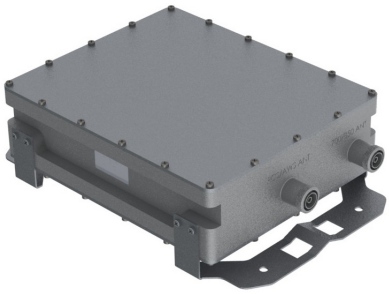
TPA65R-BU6DA



Triple Band (AWS/PCS/WCS) Twin TMA with 700/850 Bypass

Tel: 201-342-3338 Fax: 201-342-3339 www.cciproducts.com

General Information



CCI's Triple Band TMA with 700/850 bypass contains two triple band TMA's in a single housing. The TMA's are fully duplexed and share a single LNA for all three bands. The bypass path provides excellent isolation to the TMA path. Separate antenna ports for the bypass path and TMA path are combined onto a single BTS port. Low noise high linearity amplifiers improve the uplink sensitivity and the receive performance of base stations. The TMA is fully compliant with the latest AISG 2.0 specification. The TMA supports CDMA, EDGE/GSM, UMTS and LTE BTS equipment. The TMA is ideally suited for sites upgraded to quad-band using the existing infrastructure. The TMA allows the sharing of feeder lines for both AWS and PCS bands thus reducing tower loading, leasing, and installation costs. The input and output connectors are located inline for ease of installation in space constrained areas such as uni-pole structures and stealth antennas.

Model TMABPDB7823VG12A

Contents:

General Info and Technical Description	1
Elect & Mech. Specs	2
Block Diagram & Outline Drawing	3

Features:

- Small lightweight unit
- Triple Band (AWS/PCS/WCS) Twin TMA with 700/850 Bypass
- Independent Gain Control
- High linearity
- Lightning protected
- Fail-safe bypass mode
- High reliability

Technical Description

The TMA system is an outdoor quad band tower mount unit which provides low noise amplification of PCS, AWS, and WCS uplink signals combined with 700/850 bypassed signals from separate antenna ports to a common BTS port. The tower mount unit consists of 14 band-pass filters, two redundant low noise amplifiers (LNA) with bypass failure circuitry, two bias tees, AISG control circuitry, and lightning protection circuitry all housed in an IP68 enclosure suited to long life masthead mounting. The AWS, PCS and WCS paths are dual duplexed to separate the low power uplink signals from the high power down link signals at the BTS and antenna ports. The AWS, PCS, and WCS uplink signals are amplified with a dedicated ultra-low noise PHEMT LNA with adjustable gain control. The unit provides protection against lightning strikes via a multistage surge protection circuit. DC power and AISG 2.0 control is provided via the BTS feeder cable. The unit operates in current window alarm (CWA) mode until a valid AISG message is detected, at which point it automatically switches to AISG mode. Once in AISG mode, the unit can only switch back to CWA mode with the receipt of an AISG CCI vendor defined command. In CWA mode, the unit requires 12VDC at each BTS port and follows typical current window convention. In AISG mode, the unit will accept 10-30 VDC from either BTS port. In AISG mode, the unit does not require an AISG 2.0 compatible site control unit (SCU) and may also be powered by a standard power distribution unit (PDU).

An optional Site Control Unit (SCU) is available to power up to 32 AISG modules per sector and to provide the monitoring and alarm functions for the system. The SCU is housed in a single (1U) 1.75" x 19" rack and contains dual redundant power supplies capable of being "hot swapped" that provide a regulated DC supply voltage on the RF coax for the tower mount amplifiers.

CCI Triple Band (AWS/PCS/WCS) Twin TMA with 700/850 Bypass Typical Specifications

Description	Typical Specifications			
Electrical Specifications	**700/850**	**PCS**	**AWS**	**WCS**
Receive Frequency Range	-	1850 – 1910 MHz	1710 – 1755 MHz	2305 – 2320 MHz
Transmit Frequency Range	-	1930 – 1990 MHz	2110 – 2155 MHz	2345 – 2360 MHz
Bypass Frequency Range	698 - 894 MHz	-	-	-
Amplifier Gain	-	6 to 12 dB Adjustable in 0.25 dB steps via AISG	6 to 12 dB Adjustable in 0.25 dB steps via AISG	6 to 12 dB Adjustable in 0.25 dB steps via AISG
Gain Variation	-	±1.0 dB	±1.0 dB	±1.0 dB
System Noise Figure	-	1.4 dB Typ.	1.3 dB Typ.	1.3 dB Typ.
Input Third Order Intercept Point	-	+12 dBm Min at Max. Gain		
Input / Output Return Loss	18 dB Min all ports, 12 dB Min. Bypass Mode			
Insertion Loss	0.25 dB Typ.			
Transmit Passband	-	0.5 dB Typical	0.4 dB Typical	0.4 dB Typical
Bypass Mode, (PCS/AWS/WCS) Rx Passband	-	2.5 dB Typ.	2.5 dB Typ.	2.5 dB Typ.
Filter Characteristics				
Continuous Average Power	200 Watts max			
Peak Envelope Power	2 KW max			
Intermodulation Performance				
IMD at ANT port in Rx Band	< -112 dBm (-155 dBc) [2 tones at +43 dBm]			
Operating Voltage	+10V to +30V DC provided via coax or AISG			
Power Consumption	<2.0 Watts			
Mechanical Specifications				
Connectors	DIN 7-16 female x 2; AISG x 1			
Dimensions (Body Only)	10.63” (H) x 11.024” (W) x 3.72” (D); (290.60 (H) x 280.00 (W) x 95.0 (D) mm)			
Dimensions (with Conn. & Bracket)	14.25” (H) x 11.024” (W) x 4.11” (D); (362.00 (H) x 280.00 (W) x 104.40 (D) mm)			
Weight	23.1 Lbs. (10.5 Kg) - with Brackets; 22 Lbs. (10 Kg) - without brackets			
Mounting	Pole/Wall Mounting Bracket			
Environmental Specifications				
Operating Temperature	-40˚ C to +65˚C			
Lightning Protection	8/20us, ±2KA max, 10 strikes each, IEC61000-4-5			
Enclosure	IP68			
MTBF	>500,000 hours			

All specifications are subject to change. The latest specifications are available at www.cciproducts.com

TMAT192123B68-31 | E14R00P33

Tower Mounted Amplifier,Twin Configuration PCS/AWS 1–4 WCS, 617–894 MHz bypass 4.3-10

- New Triple-band TMA for PCS, AWS 1-4 and WCS in a compact twin form factor
- Low frequency bypass of 617-894 MHz covers Band 14 public safety operating frequencies
- Significantly reduces complexity of tower top architectures
- Also available in a quad configuration to support 4 x 4 requirements
- New 4.3-10 connectors for improved PIM performance and size reduction
- Support DC/AISG antenna Auto-forward

Product Classification

Product Type	1-BTS:3-ANT (Triplex) | Tower mounted amplifier

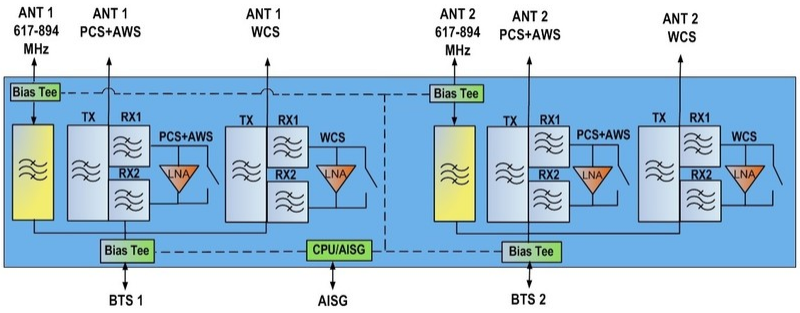
General Specifications

Color	Gray
Modularity	2-Twin
Mounting	Pole | Wall
Mounting Pipe Hardware	Band clamps (2)
RF Connector Interface	4.3-10 Female

Dimensions

Height	238 mm | 9.37 in
Width	283 mm | 11.142 in
Depth	97 mm | 3.819 in
Ground Screw Diameter	6 mm | 0.236 in
Mounting Pipe Diameter Range	40–160 mm

Block Diagram



Material Specifications

Finish	Painted

Environmental Specifications

Operating Temperature	-40 °C to +65 °C (-40 °F to +149 °F)
Relative Humidity	Up to 100%
Corrosion Test Method	IEC 60068-2-11, 30 days
Ingress Protection Test Method	IEC 60529:2001, IP67

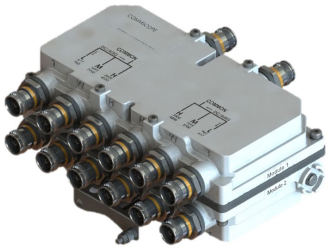
Packaging and Weights

Included	Mounting hardware
Mounting Hardware Weight	1 kg | 2.205 lb
Weight, without mounting hardware	9.4 kg | 20.723 lb

* Footnotes

License Band, Band Pass	License Bands that are to be passed through with no amplification
License Band, LNA	License Bands that have RxUplink amplification

STX617420-43 | E14F10P64



Compact Quad Triplexer 617-960/1695-2700/3400- 4200 MHz, 4.3-10 connectors

- New Combining Solution to introduce 5G, 3.5GHz band
- BTS-to-feeder and feeder-to-antenna application
- New 4.3-10 connectors for improved PIM performance and size reduction
- dc/AISG pass-through on low frequency ports
- Suitable for space limited applications like Metro Cell, Lamp Pole, Concealment Solution and Macro Site
- Ideal for small cell applications

Product Classification

Product Type	Triplexer

General Specifications

Color	Gray
Common Port Label	COMM
Modularity	4-Quad
Mounting	Pole | Wall
Mounting Pipe Hardware	Band clamps (2)
RF Connector Interface	4.3-10 Female
RF Connector Interface Body Style	Long neck

Dimensions

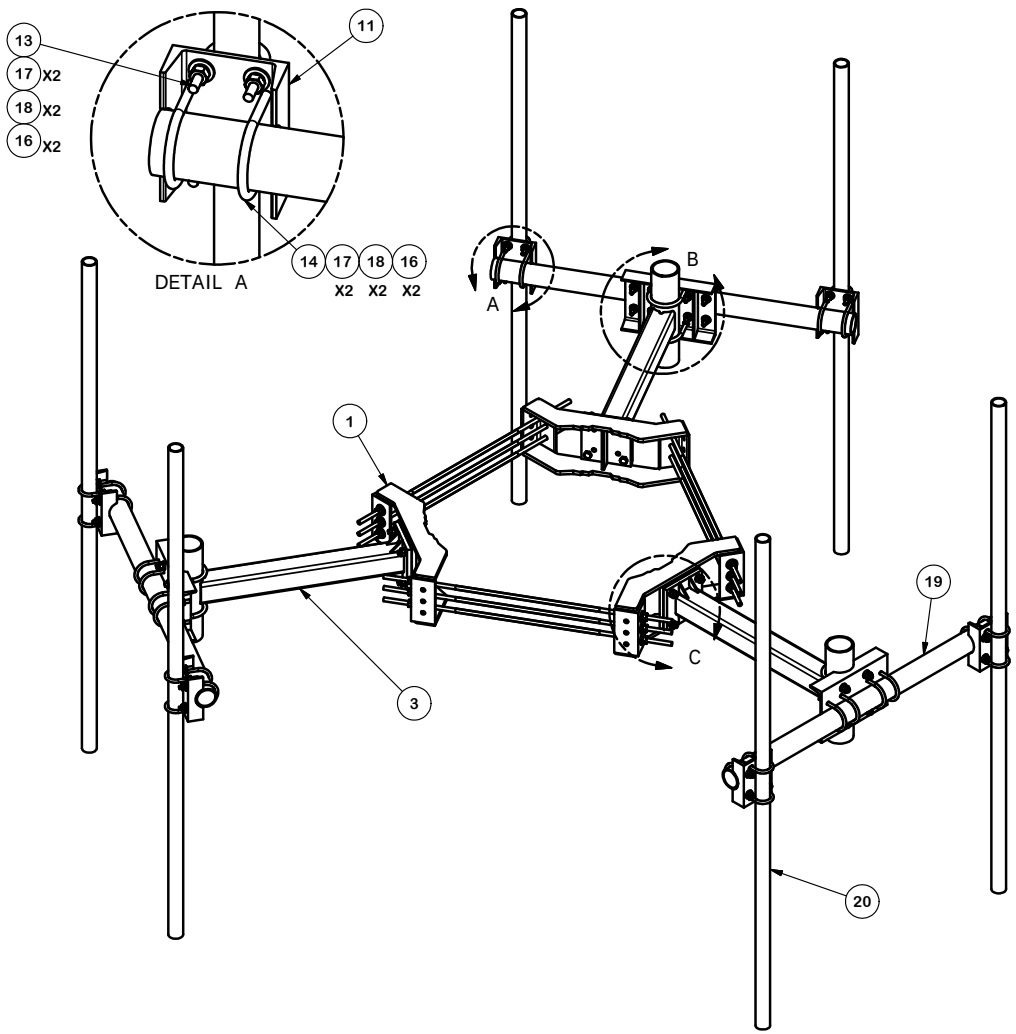
Height	118 mm | 4.646 in
Width	228 mm | 8.976 in
Depth	85 mm | 3.346 in
Ground Screw Diameter	5 mm | 0.197 in
Mounting Pipe Diameter Range	42.6–122 mm

Outline Drawing

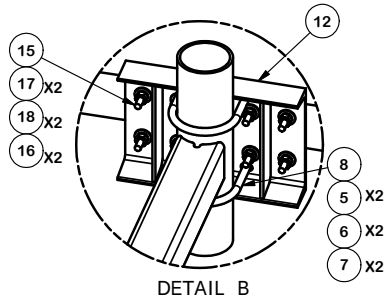
Operating Temperature	-40 °C to +65 °C (-40 °F to +149 °F)
Relative Humidity	Up to 100%
Corrosion Test Method	IEC 60068-2-11, 30 days
Ingress Protection Test Method	IEC 60529:2001, IP67

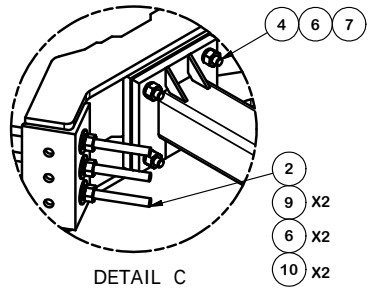
Packaging and Weights

Included	Mounting hardware
Mounting Hardware Weight	0.2 kg | 0.441 lb
Volume	2.3 L
Weight, with mounting hardware	4.85 kg | 10.692 lb
Weight, without mounting hardware	4.65 kg | 10.251 lb



PARTS LIST						
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	3	X-LWRM	RING MOUNT WELDMENT		68.81	206.42
2	9	G58R-24	5/8" x 24" THREADED ROD (HDG.)		0.40	3.59
2	9	G58R-48	5/8" X 48" GALV THREADED ROD		4.39	39.52
3	3	X-SV197-36	SUPPORT ARM WELDMENT - 36"		67.29	201.88
4	12	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2.75	0.36	4.27
5	12	A58FW	5/8" HDG A325 FLATWASHER		0.03	0.41
6	42	G58LW	5/8" HDG LOCKWASHER		0.03	1.10
7	24	A58NUT	5/8" HDG A325 HEX NUT		0.13	3.12
8	6	X-UB5458	5/8" X 4-5/8" X 7" X 3" U-BOLT (HDG.)		0.26	1.54
9	18	G58FW	5/8" HDG USS FLATWASHER		0.07	1.27
10	18	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	2.34
11	6	X-SP219	SMALL SUPPORT CROSS PLATE	8.250 in	8.61	51.66
12	3	X-SP216	LARGE SUPPORT CROSS PLATE		20.83	62.48
13	12	X-UB1212	1/2" X 2-1/2" X 4-1/2" X 2" U-BOLT (HDG.)		0.26	3.08
14	12	X-UB1306	1/2" X 3-5/8" X 6" X 3" U-BOLT (HDG.)		0.26	3.08
15	12	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" U-BOLT (HDG.)		0.26	3.08
16	66	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	4.73
17	66	G12FW	1/2" HDG USS FLATWASHER		0.03	2.25
18	66	G12LW	1/2" HDG LOCKWASHER		0.01	0.92
19	3	P360	3-1/2" X 60" SCH 40 GALVANIZED PIPE		37.97	113.90
20	6	A	B	C	D	





2-3/8" MOUNTING PIPES					
"ASSEMBLY NO."	PART NO. "A"	PART DESCRIPTION "B"	LENGTH "C"	UNIT WT. "D"	TOTAL WT.
RMV5-263	P263	2-3/8" O.D. SCH. 40 PIPE	63"	19.22	860.71
RMV5-272	P272	2-3/8" O.D. SCH. 40 PIPE	72"	23.07	883.81
RMV5-284	P284	2-3/8" O.D. SCH. 40 PIPE	84"	26.91	906.85
RMV5-296	P296	2-3/8" O.D. SCH. 40 PIPE	96"	30.76	929.95
RMV5-2126	P2126	2-3/8" O.D. SCH. 40 PIPE	126"	40.75	989.89

REVISION HISTORY				
REV	DESCRIPTION OF REVISIONS	CPD	BY	DATE
A	REMOVE FLATWASHERS FROM ARM TO CLAMP RING CONNECTION		CEK	11/4/11

TOLERANCE NOTES

TOLERANCES ON DIMENSIONS, UNLESS OTHERWISE NOTED ARE:
SAWED, SHEARED AND GAS CUT EDGES *(± 0.030")*
DRILLED AND GAS CUT HOLES *(± 0.030")* - NO CONING OF HOLES
LASER CUT EDGES AND HOLES *(± 0.010")* - NO CONING OF HOLES
BENDS ARE ± 1/2 DEGREE
ALL OTHER MACHINING *(± 0.030")*
ALL OTHER ASSEMBLY *(± 0.060")*

DESCRIPTION: MONOPOLE TRIPLE T-ARM FOR 6 ANTENNAS

SITE PRO 1 — A valmont COMPANY

Engineering Support Team: 1-888-753-7446

Locations:
New York, NY
Atlanta, GA
Los Angeles, CA
Plymouth, IN
Salem, OR
Dallas, TX

CPD NO.	DRAWN BY	ENG. APPROVAL	PART NO.
4543	CEK 4/15/2011		SEE "ASSEMBLY NO."

CLASS	SUB	DRAWING USAGE	CHECKED BY	DWG. NO.
81	01	CUSTOMER	BMC 4/28/2011	RMV5-2XX

August 31, 2022
September 6, 2022 (Rev. 1)
April 6, 2023 (Rev. 2)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:	Site Number:	CT5058
	FA Number:	10071324
	PACE Number:	MRCTB056543
	PT Number:	2051A11MFN
	TEP Project Number	350613
	Site Name:	WILTON
	Site Address:	289 Danbury Road Wilton, CT 06897

To Whom It May Concern:

TEP Northeast (TEP NE) has been authorized by SAI Communications to perform a mount analysis on the proposed AT&T antenna/RRH mounts to determine their capability of supporting the following loading:

- **(3) NNHHS4-65A-R5 Antennas (59.0"x19.6"x7.8" – Wt. = 73 lbs. /each)**
- **(3) TPA65R-BU6DA-K Antennas (71.2"x20.7"x7.7" – Wt. = 69 lbs. /each)**
- **(3) 4478 B14 RRH's (18.1"x13.4"x8.3" – Wt. = 60 lbs. /each) (Ground)**
- **(3) 8863 N77 RRH's (16.1"x14.4"x6.4" – Wt. = 85 lbs. /each) (Ground)**
- **(3) 4449 B5/B12 RRH's (17.9"x13.2"x9.4" – Wt. = 73 lbs. /each) (Ground)**
- **(3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each) (Ground)**
- **(6) TMABPD7823VG12A TMA's (10.7"x11.1"x3.8" – Wt. = 25 lbs. /each)**
- **(6) TMAT192123B68-31 TMA's (11.1"x9.4"x3.8" – Wt. = 21 lbs. /each)**
- **(6) STX61742Q-43 Triplexers (4.7"x9.0"x3.4" – Wt. = 11 lbs. /each)**

*Proposed equipment shown in bold.

Mount fabrication drawings prepared by SitePro1 P/N RMV5-296, dated May 24, 2018, were used to perform this analysis.

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 2021 with 2022 Connecticut State Building Code, and AT&T Mount Technical Directive – R22.
- TEP NE considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 130 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.0 in. An escalated ice thickness of 1.32 in was used for this analysis.
- TEP NE considers this site to be exposure category B; tower is located in an urban/suburban or wooded area with numerous closely spaced obstructions.
- TEP NE considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- TEP NE considers this site to have a spectral response acceleration parameter at short periods, S_S, of 0.231 and a spectral response acceleration parameter at a period of 1 second, S_1, of 0.068.
- AT&T policy forbids walking on or suspending below T-arm mounts. This analysis does not include live load conditions for this mount.
- The proposed mounts will be secured to the existing utility pole with ring mounts. TEP NE considers the threaded rods as the governing connection members.

Based on our evaluation, we have determined that the Proposed SitePro1 RMV5-296 mounts **ARE CAPABLE** of supporting the proposed installation.

	Component	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed Mount Rating	9	LC1	22%	**PASS**

Reference Documents:

- Mount fabrication drawings prepared by SitePro1 P/N RMV5-296, dated May 24, 2018.

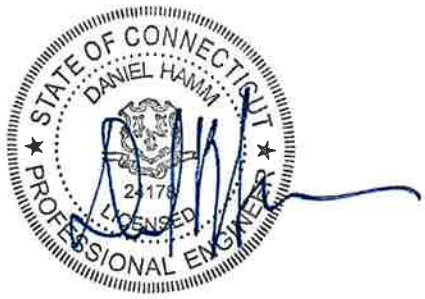
This determination was based on the following limitations and assumptions:

1. TEP NE is not responsible for any modifications completed prior to and hereafter which TEP NE was not directly involved.
2. All structural members and their connections are assumed to be in good condition and are free from defects with no deterioration to its member capacities.
3. All antennas, coax cables and waveguide cables are assumed to be properly installed and supported as per the manufacturer's requirements.
4. The proposed mounts will be 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. TEP NE performed a localized analysis on the mount itself and not on the supporting tower structure.

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

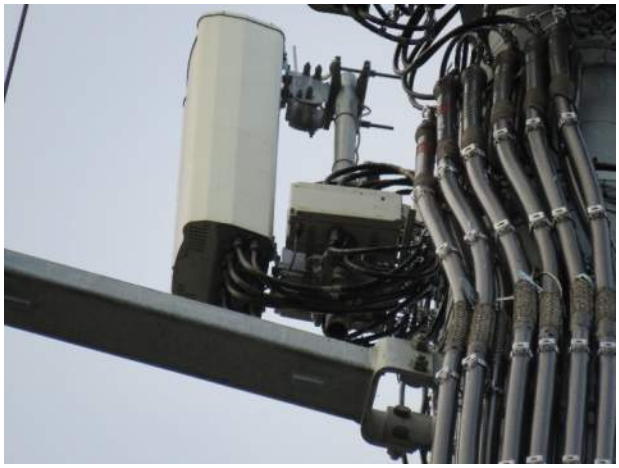
Respectfully Submitted,
Hudson Design Group LLC

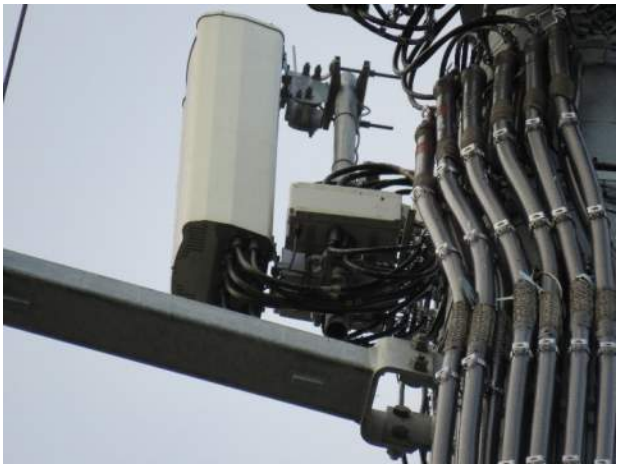
Michael Cabral
Vice President

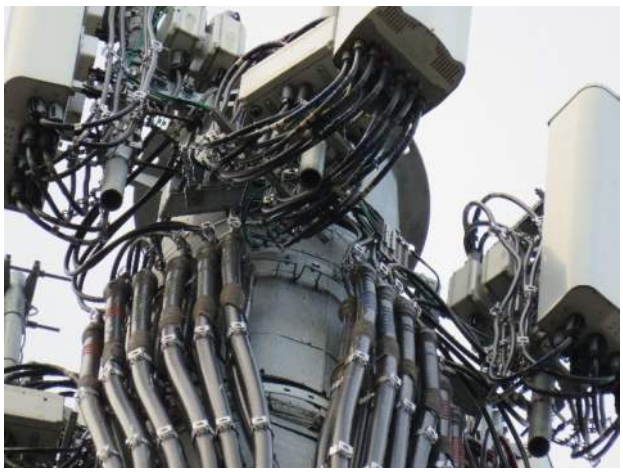


Daniel P. Hamm, PE
Principal

FIELD PHOTOS:
*Note: Existing mounts to be removed.







Wind & Ice
Calculations

Date: 4/6/2023
Project Name: WILTON
Project No.: CT5058
Designed By: LBW **Checked By:** MSC

2.6.5.2 Velocity Pressure Coeff:

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

		z=	128 (ft)
		z_g=	1200 (ft)
K_z=	**1.060**	α=	7.0

Kzmin ≤ Kz ≤ 2.01

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

$K_{zt} = [1+(K_c\ K_t/K_h)]^2$ $K_h = e^{(f*z/H)}$

K_{zt}=	**1**	K_h=	1
		K_c=	1.0 (from Table 2-4)
(If Category 1 then K_{zt} =1.0)		K_t=	0 (from Table 2-5)
		f=	0 (from Table 2-5)
Category=	1	z=	128
		z_s=	170 (Mean elevation of base of structure above sea level)
		H=	0 (Ht. of the crest above surrounding terrain)
		K_{zt}=	1.00 (from 2.6.6.2.1)
		K_e=	0.99 (from 2.6.8)

2.6.10 Design Ice Thickness

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

$t_{iz} = t_i * I * K_{iz} * (K_{zt})^{0.35}$ t_{iz} = 1.32 in

Date: 4/6/2023
Project Name: WILTON
Project No.: CT5058
Designed By: LBW Checked By: MSC

2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

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

h=	131	G_h=	0.85

2.6.9.2 Guyed Masts G_h= 0.85

2.6.9.3 Pole Structures G_h= 1.1

2.6.9 Appurtenances G_h= 1.0

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

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

2.6.11.2 Design Wind Force on Appurtenances

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

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

		K_z=	1.060	(from 2.6.5.2)
		K_{zt}=	1.0	(from 2.6.6.2.1)
		K_s=	1.0	(from 2.6.7)
q_z=	**36.91**	K_e=	0.99	(from 2.6.8)
$q_{z\ (ice)}$=	**6.41**	K_d=	0.95	(from Table 2-2)
$q_{z\ (30)}$=	**2.31**	V_{max}=	120	mph (Ultimate Wind Speed)
		$V_{max\ (ice)}$=	50	mph
		V_{30}=	30	mph

Table 2-2

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

Date: 4/6/2023
Project Name: WILTON
Project No.: CT5058
Designed By: LBW 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) ≥ 0.85	1.4 - 4.0(r_s) ≥ 0.90	2.0 - 6.0(r_s) ≥ 1.25
Round	**C < 39** (Subcritical)	0.7	0.8	1.2
	39 ≤ C ≤ 78 (Transitional)	$4.14/(C^{0.485})$	$3.66/(C^{0.415})$	$46.8/(C^{1.0})$
	C > 78 (Supercritical)	0.5	0.6	0.6
Aspect Ratio is the overall length/width ratio in the plane normal to the wind direction. (Aspect ratio is independent of the spacing between support points of a linear appurtenance, Note: Linear interpolation may be used for aspect ratios other than those shown.				

Ice Thickness = **1.32** **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)**
NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.01	1.22	**362**	**75**	**23**
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.44	1.24	**469**	**95**	**29**
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	2.82	1.21	**13**	**5**	**1**
TMABPD7823VG12A TMA (Shielded)	10.7	0.0	11.1	0.00	0.00	1.20	**0**	**2**	**0**
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	2.92	1.22	**13**	**5**	**1**
TMAT192123B68-31 TMA (Shielded)	11.1	0.0	9.4	0.00	0.00	1.20	**0**	**2**	**0**
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.52	1.20	**13**	**5**	**1**
2" Pipe	2.4	12.0		0.20	0.20	1.20	**9**		
3" Pipe	3.5	12.0		0.29	0.29	1.20	**13**		
4" Pipe	4.5	12.0		0.38	0.38	1.20	**17**		
4x4 HSS	4.0	12.0		0.33	0.33	1.25	**15**		

Date: 4/6/2023
Project Name: WILTON
Project No.: CT5058
Designed By: LBW Checked By: MSC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.32	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.20	3.01	7.56	1.22	1.42	362	167	314
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	469	207	404
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	13	37	19
TMABPD7823VG12A TMA (Shielde	10.7	0.0	11.1	0.00	0.82	0.00	0.96	1.20	1.20	0	37	9
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	13	32	18
TMAT192123B68-31 TMA (Shielded	11.1	0.0	9.4	0.00	0.72	0.00	1.18	1.20	1.20	0	32	8
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.11	0.52	1.38	1.20	1.20	13	5	11

WIND LOADS WITH ICE:

NNHHS4-65A-R5 Antenna	61.6	22.2	10.4	9.52	4.47	2.77	5.91	1.21	1.35	74	39	65
TPA65R-BU6DA-K Antenna	73.8	23.3	10.3	11.96	5.30	3.16	7.14	1.23	1.40	94	48	83
TMABPD7823VG12A TMA	13.3	6.4	13.7	0.60	1.27	2.07	0.97	1.20	1.20	5	10	6
TMABPD7823VG12A TMA (Shielde	13.3	2.6	13.7	0.24	1.27	5.06	0.97	1.31	1.20	2	10	4
TMAT192123B68-31 TMA	13.7	6.4	12.0	0.61	1.15	2.13	1.14	1.20	1.20	5	9	6
TMAT192123B68-31 TMA (Shielded	13.7	2.6	12.0	0.25	1.15	5.21	1.14	1.32	1.20	2	9	4
STX61742Q-43 Triplexer	7.3	11.6	6.0	0.59	0.31	0.63	1.22	1.20	1.20	5	2	4

WIND LOADS AT 30 MPH:

NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.20	3.01	7.56	1.22	1.42	23	10	20
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	25
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	1	2	1
TMABPD7823VG12A TMA (Shielde	10.7	0.0	11.1	0.00	0.82	0.00	0.96	1.20	1.20	0	2	1
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	1	2	1
TMAT192123B68-31 TMA (Shielded	11.1	0.0	9.4	0.00	0.72	0.00	1.18	1.20	1.20	0	2	1
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.11	0.52	1.38	1.20	1.20	1	0	1

Date: 4/6/2023
Project Name: WILTON
Project No.: CT5058
Designed By: LBW Checked By: MSC

WIND LOADS

Angle = 60 (deg) | Ice Thickness = 1.32 in. | Equivalent Angle = 240 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.20	3.01	7.56	1.22	1.42	362	167	216
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	469	207	273
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	13	37	31
TMABPD7823VG12A TMA (Shielded	10.7	0.0	11.1	0.00	0.82	0.00	0.96	1.20	1.20	0	37	27
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	13	32	27
TMAT192123B68-31 TMA (Shielded	11.1	0.0	9.4	0.00	0.72	0.00	1.18	1.20	1.20	0	32	24
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.11	0.52	1.38	1.20	1.20	13	5	7

WIND LOADS WITH ICE:

NNHHS4-65A-R5 Antenna	61.6	22.2	10.4	9.52	4.47	2.77	5.91	1.21	1.35	74	39	47
TPA65R-BU6DA-K Antenna	73.8	23.3	10.3	11.96	5.30	3.16	7.14	1.23	1.40	94	48	59
TMABPD7823VG12A TMA	13.3	6.4	13.7	0.60	1.27	2.07	0.97	1.20	1.20	5	10	8
TMABPD7823VG12A TMA (Shielded	13.3	2.6	13.7	0.24	1.27	5.06	0.97	1.31	1.20	2	10	8
TMAT192123B68-31 TMA	13.7	6.4	12.0	0.61	1.15	2.13	1.14	1.20	1.20	5	9	8
TMAT192123B68-31 TMA (Shielded	13.7	2.6	12.0	0.25	1.15	5.21	1.14	1.32	1.20	2	9	7
STX61742Q-43 Triplexer	7.3	11.6	6.0	0.59	0.31	0.63	1.22	1.20	1.20	5	2	3

WIND LOADS AT 30 MPH:

NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.20	3.01	7.56	1.22	1.42	23	10	14
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	17
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	1	2	2
TMABPD7823VG12A TMA (Shielded	10.7	0.0	11.1	0.00	0.82	0.00	0.96	1.20	1.20	0	2	2
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	1	2	2
TMAT192123B68-31 TMA (Shielded	11.1	0.0	9.4	0.00	0.72	0.00	1.18	1.20	1.20	0	2	2
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.11	0.52	1.38	1.20	1.20	1	0	0

Date: 4/6/2023
Project Name: WILTON
Project No.: CT5058
Designed By: LBW Checked By: MSC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.32	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.20	3.01	7.56	1.22	1.42	362	167	167
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	469	207	207
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	13	37	37
TMABPD7823VG12A TMA (Shielded	10.7	0.0	11.1	0.00	0.82	0.00	0.96	1.20	1.20	0	37	37
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	13	32	32
TMAT192123B68-31 TMA (Shielded	11.1	0.0	9.4	0.00	0.72	0.00	1.18	1.20	1.20	0	32	32
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.11	0.52	1.38	1.20	1.20	13	5	5

WIND LOADS WITH ICE:

NNHHS4-65A-R5 Antenna	61.6	22.2	10.4	9.52	4.47	2.77	5.91	1.21	1.35	74	39	39
TPA65R-BU6DA-K Antenna	73.8	23.3	10.3	11.96	5.30	3.16	7.14	1.23	1.40	94	48	48
TMABPD7823VG12A TMA	13.3	6.4	13.7	0.60	1.27	2.07	0.97	1.20	1.20	5	10	10
TMABPD7823VG12A TMA (Shielded	13.3	2.6	13.7	0.24	1.27	5.06	0.97	1.31	1.20	2	10	10
TMAT192123B68-31 TMA	13.7	6.4	12.0	0.61	1.15	2.13	1.14	1.20	1.20	5	9	9
TMAT192123B68-31 TMA (Shielded	13.7	2.6	12.0	0.25	1.15	5.21	1.14	1.32	1.20	2	9	9
STX61742Q-43 Triplexer	7.3	11.6	6.0	0.59	0.31	0.63	1.22	1.20	1.20	5	2	2

WIND LOADS AT 30 MPH:

NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.20	3.01	7.56	1.22	1.42	23	10	10
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	13
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	1	2	2
TMABPD7823VG12A TMA (Shielded	10.7	0.0	11.1	0.00	0.82	0.00	0.96	1.20	1.20	0	2	2
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	1	2	2
TMAT192123B68-31 TMA (Shielded	11.1	0.0	9.4	0.00	0.72	0.00	1.18	1.20	1.20	0	2	2
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.11	0.52	1.38	1.20	1.20	1	0	0

Date: 4/6/2023
Project Name: WILTON
Project No.: CT5058
Designed By: LBW Checked By: MSC

WIND LOADS

Angle =	120	(deg)	Ice Thickness =	1.32	in.	Equivalent Angle =	300	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.20	3.01	7.56	1.22	1.42	362	167	216
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	469	207	273
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	13	37	31
TMABPD7823VG12A TMA (Shielded	10.7	0.0	11.1	0.00	0.82	0.00	0.96	1.20	1.20	0	37	27
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	13	32	27
TMAT192123B68-31 TMA (Shielded	11.1	0.0	9.4	0.00	0.72	0.00	1.18	1.20	1.20	0	32	24
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.11	0.52	1.38	1.20	1.20	13	5	7

WIND LOADS WITH ICE:

NNHHS4-65A-R5 Antenna	61.6	22.2	10.4	9.52	4.47	2.77	5.91	1.21	1.35	74	39	47
TPA65R-BU6DA-K Antenna	73.8	23.3	10.3	11.96	5.30	3.16	7.14	1.23	1.40	94	48	59
TMABPD7823VG12A TMA	13.3	6.4	13.7	0.60	1.27	2.07	0.97	1.20	1.20	5	10	8
TMABPD7823VG12A TMA (Shielded	13.3	2.6	13.7	0.24	1.27	5.06	0.97	1.31	1.20	2	10	8
TMAT192123B68-31 TMA	13.7	6.4	12.0	0.61	1.15	2.13	1.14	1.20	1.20	5	9	8
TMAT192123B68-31 TMA (Shielded	13.7	2.6	12.0	0.25	1.15	5.21	1.14	1.32	1.20	2	9	7
STX61742Q-43 Triplexer	7.3	11.6	6.0	0.59	0.31	0.63	1.22	1.20	1.20	5	2	3

WIND LOADS AT 30 MPH:

NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.20	3.01	7.56	1.22	1.42	23	10	14
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	17
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	1	2	2
TMABPD7823VG12A TMA (Shielded	10.7	0.0	11.1	0.00	0.82	0.00	0.96	1.20	1.20	0	2	2
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	1	2	2
TMAT192123B68-31 TMA (Shielded	11.1	0.0	9.4	0.00	0.72	0.00	1.18	1.20	1.20	0	2	2
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.11	0.52	1.38	1.20	1.20	1	0	0

Date: 4/6/2023
Project Name: WILTON
Project No.: CT5058
Designed By: LBW Checked By: MSC

WIND LOADS

Angle =	150	(deg)	Ice Thickness =	1.32	in.	Equivalent Angle =	330	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs)	Force (lbs)	Force (lbs)
NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.20	3.01	7.56	1.22	1.42	362	167	314
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	469	207	404
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	13	37	19
TMABPD7823VG12A TMA (Shielded	10.7	0.0	11.1	0.00	0.82	0.00	0.96	1.20	1.20	0	37	9
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	13	32	18
TMAT192123B68-31 TMA (Shielded	11.1	0.0	9.4	0.00	0.72	0.00	1.18	1.20	1.20	0	32	8
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.11	0.52	1.38	1.20	1.20	13	5	11

WIND LOADS WITH ICE:

NNHHS4-65A-R5 Antenna	61.6	22.2	10.4	9.52	4.47	2.77	5.91	1.21	1.35	74	39	65
TPA65R-BU6DA-K Antenna	73.8	23.3	10.3	11.96	5.30	3.16	7.14	1.23	1.40	94	48	83
TMABPD7823VG12A TMA	13.3	6.4	13.7	0.60	1.27	2.07	0.97	1.20	1.20	5	10	6
TMABPD7823VG12A TMA (Shielded	13.3	2.6	13.7	0.24	1.27	5.06	0.97	1.31	1.20	2	10	4
TMAT192123B68-31 TMA	13.7	6.4	12.0	0.61	1.15	2.13	1.14	1.20	1.20	5	9	6
TMAT192123B68-31 TMA (Shielded	13.7	2.6	12.0	0.25	1.15	5.21	1.14	1.32	1.20	2	9	4
STX61742Q-43 Triplexer	7.3	11.6	6.0	0.59	0.31	0.63	1.22	1.20	1.20	5	2	4

WIND LOADS AT 30 MPH:

NNHHS4-65A-R5 Antenna	59.0	19.6	7.8	8.03	3.20	3.01	7.56	1.22	1.42	23	10	20
TPA65R-BU6DA-K Antenna	71.2	20.7	7.7	10.24	3.81	3.44	9.25	1.24	1.47	29	13	25
TMABPD7823VG12A TMA	10.7	3.8	11.1	0.28	0.82	2.82	0.96	1.21	1.20	1	2	1
TMABPD7823VG12A TMA (Shielded	10.7	0.0	11.1	0.00	0.82	0.00	0.96	1.20	1.20	0	2	1
TMAT192123B68-31 TMA	11.1	3.8	9.4	0.29	0.72	2.92	1.18	1.22	1.20	1	2	1
TMAT192123B68-31 TMA (Shielded	11.1	0.0	9.4	0.00	0.72	0.00	1.18	1.20	1.20	0	2	1
STX61742Q-43 Triplexer	4.7	9.0	3.4	0.29	0.11	0.52	1.38	1.20	1.20	1	0	1

Date: 4/6/2023
Project Name: WILTON
Project No.: CT5058
Designed By: LBW **Checked By:** MSC

ICE WEIGHT CALCULATIONS

Thickness of ice:	1.32	in.
Density of ice:	56	pcf

NNHHS4-65A-R5 Antenna

Weight of ice based on total radial SF area:		
Height (in):	59.0	
Width (in):	19.6	
Depth (in):	7.8	
Total weight of ice on object:	178	lbs
Weight of object:	73.0	lbs
Combined weight of ice and object:	251	lbs

TPA65R-BU6DA-K Antenna

Weight of ice based on total radial SF area:		
Height (in):	71.2	
Width (in):	20.7	
Depth (in):	7.7	
Total weight of ice on object:	224	lbs
Weight of object:	69.0	lbs
Combined weight of ice and object:	293	lbs

TMABPD7823VG12A TMA

Weight of ice based on total radial SF area:		
Height (in):	10.7	
Width (in):	3.8	
Depth (in):	11.1	
Total weight of ice on object:	19	lbs
Weight of object:	25.0	lbs
Combined weight of ice and object:	44	lbs

TMAT192123B68-31 TMA

Weight of ice based on total radial SF area:		
Height (in):	11.1	
Width (in):	3.8	
Depth (in):	9.4	
Total weight of ice on object:	17	lbs
Weight of object:	21.0	lbs
Combined weight of ice and object:	38	lbs

STX61742Q-43 Triplexer

Weight of ice based on total radial SF area:		
Height (in):	4.7	
Width (in):	9.0	
Depth (in):	3.4	
Total weight of ice on object:	7	lbs
Weight of object:	11.0	lbs
Combined weight of ice and object:	18	lbs

2" pipe

Per foot weight of ice:		
diameter (in):	2.38	
Per foot weight of ice on object:	6	plf

3" Pipe

Per foot weight of ice:		
diameter (in):	3.5	
Per foot weight of ice on object:	8	plf

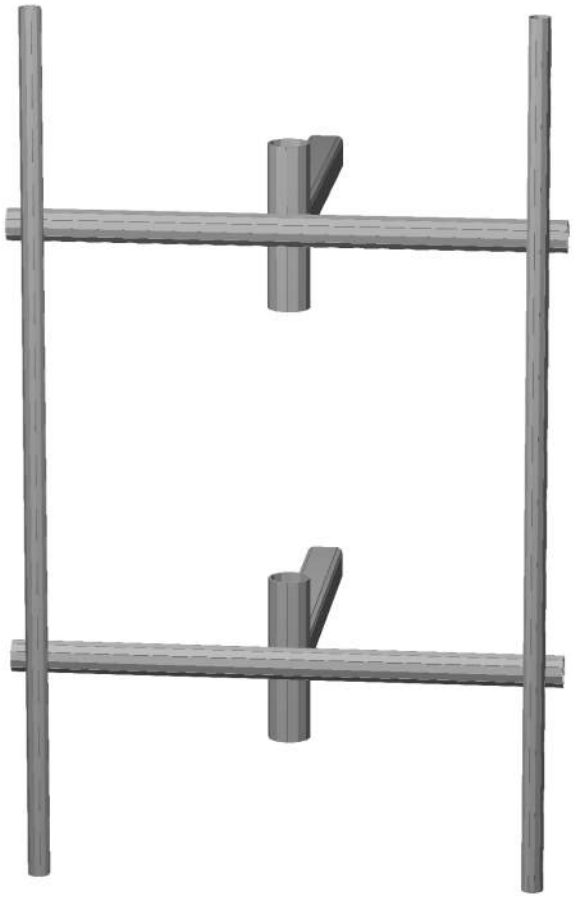
HSS 4x4

Weight of ice based on total radial SF area:		
Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:	11	plf

4" Pipe

Per foot weight of ice:		
diameter (in):	4.5	
Per foot weight of ice on object:	9	plf

Mount Calculations
(Proposed Conditions)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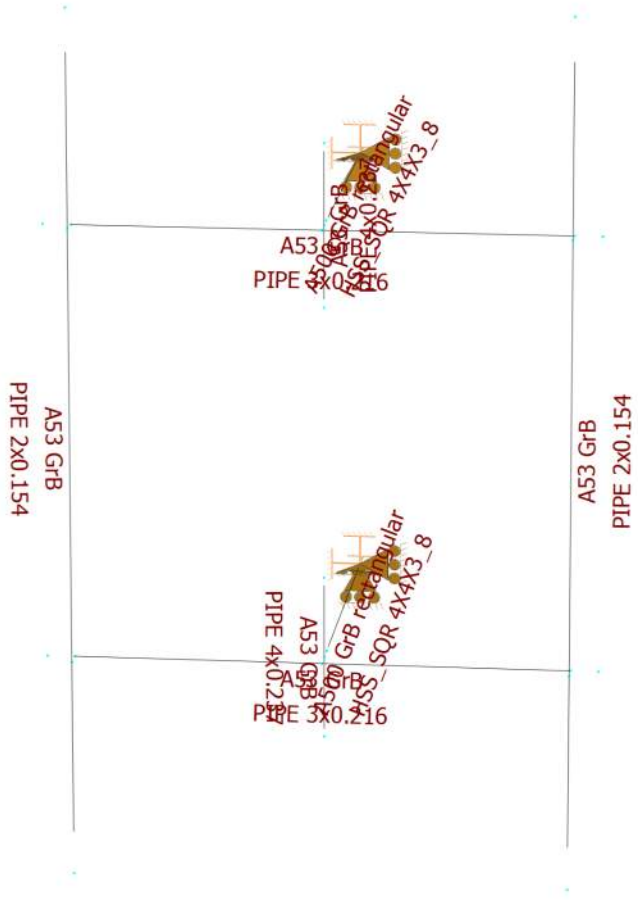
X
Z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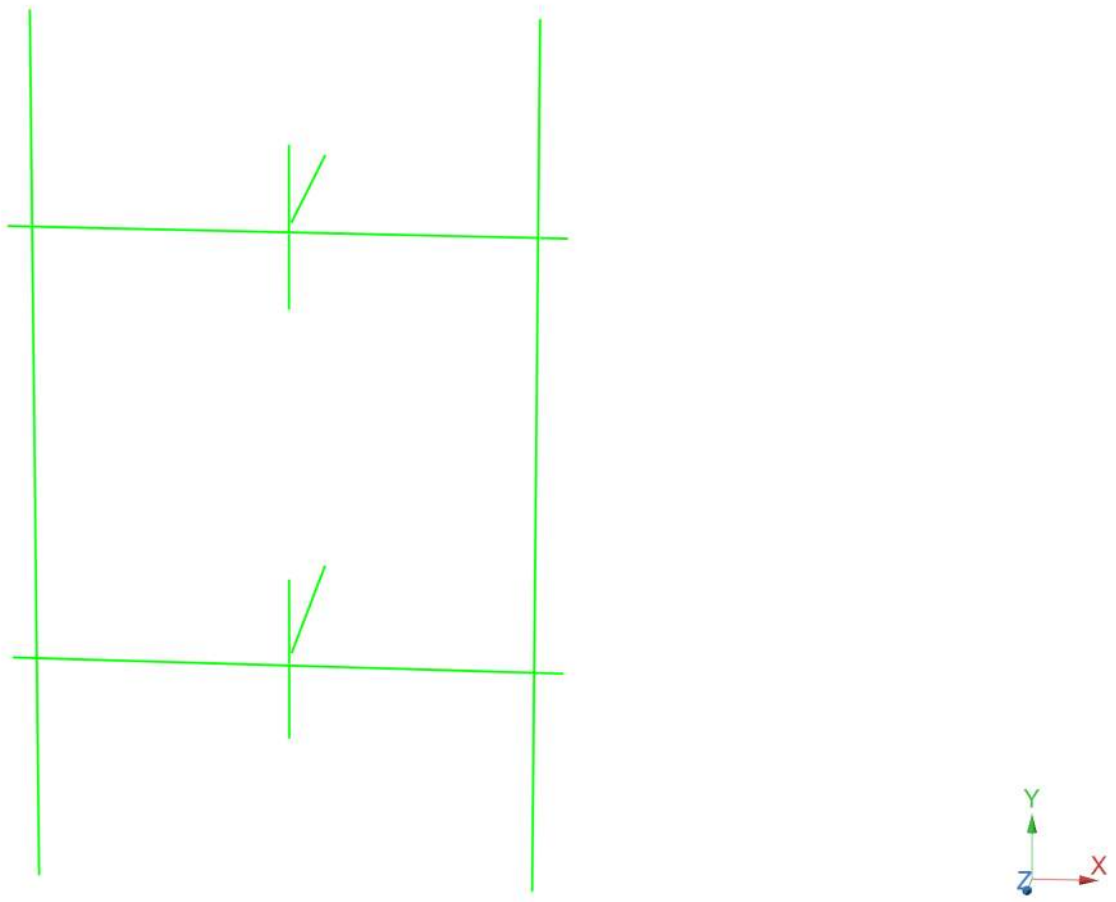
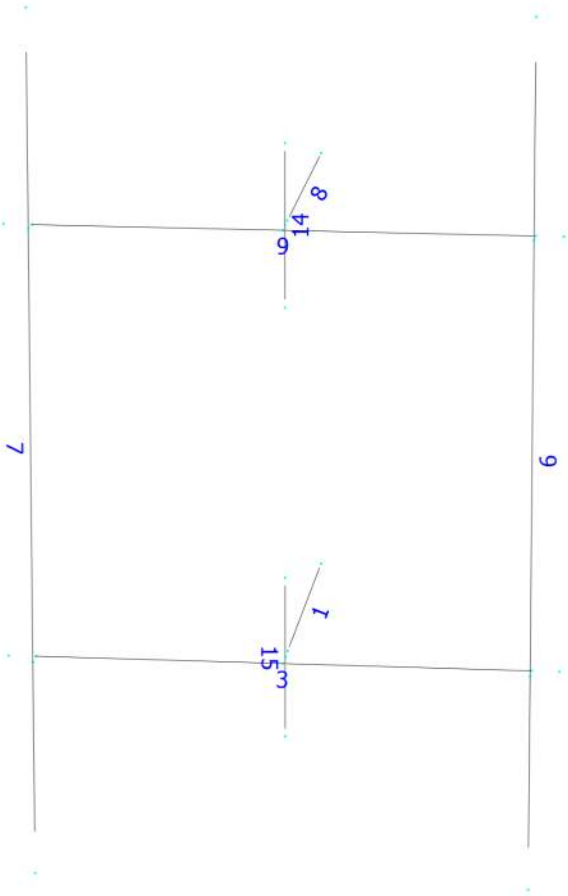
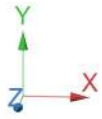
PIPE 2x0.154
A53 GrB
PIPE 2x0.154
Y
X
Z


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


8
14
6
7
9
1
15
3


Y
X
Z

RAM® Elements
CONNECT Edition

Current Date: 8/29/2022 12:13 PM
Units system: English

Load data

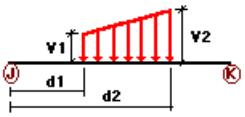
GLOSSARY

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

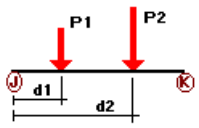
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
Wo	3	z	-0.013	0.00	0.00	No	0.00	No
	9	z	-0.013	0.00	0.00	No	0.00	No
	14	z	-0.019	0.00	0.00	No	0.00	No
	15	z	-0.019	0.00	0.00	No	0.00	No
W30	3	z	-0.015	0.00	0.00	No	0.00	No
	9	z	-0.015	0.00	0.00	No	0.00	No
	14	z	-0.019	0.00	0.00	No	0.00	No
	15	z	-0.019	0.00	0.00	No	0.00	No
W60	1	x	-0.018	0.00	0.00	No	0.00	No
	3	x	-0.015	0.00	0.00	No	0.00	No
	6	x	-0.01	0.00	0.00	No	0.00	No
	7	x	-0.01	0.00	0.00	No	0.00	No
	8	x	-0.018	0.00	0.00	No	0.00	No
	9	x	-0.015	0.00	0.00	No	0.00	No
	14	x	-0.019	0.00	0.00	No	0.00	No
	15	x	-0.019	0.00	0.00	No	0.00	No
W90	1	x	-0.018	0.00	0.00	No	0.00	No

	6	x	-0.01	0.00	0.00	No	0.00	No
	7	x	-0.01	0.00	0.00	No	0.00	No
	8	x	-0.018	0.00	0.00	No	0.00	No
	14	x	-0.019	0.00	0.00	No	0.00	No
	15	x	-0.019	0.00	0.00	No	0.00	No
W120	1	x	-0.018	0.00	0.00	No	0.00	No
	3	x	-0.015	0.00	0.00	No	0.00	No
	6	x	-0.01	0.00	0.00	No	0.00	No
	7	x	-0.01	0.00	0.00	No	0.00	No
	8	x	-0.018	0.00	0.00	No	0.00	No
	9	x	-0.015	0.00	0.00	No	0.00	No
	14	x	-0.019	0.00	0.00	No	0.00	No
	15	x	-0.019	0.00	0.00	No	0.00	No
W150	1	z	0.018	0.00	0.00	No	0.00	No
	3	z	0.015	0.00	0.00	No	0.00	No
	6	z	0.01	0.00	0.00	No	0.00	No
	7	z	0.01	0.00	0.00	No	0.00	No
	8	z	0.018	0.00	0.00	No	0.00	No
	9	z	0.015	0.00	0.00	No	0.00	No
	14	z	0.019	0.00	0.00	No	0.00	No
	15	z	0.019	0.00	0.00	No	0.00	No
Di	1	y	-0.011	0.00	0.00	No	0.00	No
	3	y	-0.008	0.00	0.00	No	0.00	No
	6	y	-0.006	0.00	0.00	No	0.00	No
	7	y	-0.006	0.00	0.00	No	0.00	No
	8	y	-0.011	0.00	0.00	No	0.00	No
	9	y	-0.008	0.00	0.00	No	0.00	No
	14	y	-0.009	0.00	0.00	No	0.00	No
	15	y	-0.009	0.00	0.00	No	0.00	No

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
D	6	y	-0.037	1.50	No
		y	-0.037	6.50	No
		y	-0.025	4.00	No
		y	-0.025	4.00	No
	7	y	-0.035	1.50	No
		y	-0.035	6.50	No
		y	-0.021	4.00	No
		y	-0.021	4.00	No
Wo	6	z	-0.213	1.50	No
		z	-0.213	6.50	No
	7	z	-0.276	1.50	No
		z	-0.276	6.50	No
W30	6	3	-0.185	1.50	No
		3	-0.185	6.50	No
		3	-0.011	4.00	No
	7	3	-0.237	1.50	No
		3	-0.237	6.50	No
		3	-0.009	4.00	No
W60	6	3	-0.127	1.50	No
		3	-0.127	6.50	No
		3	-0.032	4.00	No
	7	3	-0.161	1.50	No
		3	-0.161	6.50	No

		3	-0.028	4.00	No
W90	6	x	-0.099	1.50	No
		x	-0.099	6.50	No
		x	-0.043	4.00	No
	7	x	-0.122	1.50	No
		x	-0.122	6.50	No
		x	-0.038	4.00	No
W120	6	2	-0.127	1.50	No
		2	-0.127	6.50	No
		2	-0.032	4.00	No
	7	2	-0.161	1.50	No
		2	-0.161	6.50	No
		2	-0.028	4.00	No
W150	6	2	-0.185	1.50	No
		2	-0.185	6.50	No
		2	-0.011	4.00	No
	7	2	-0.237	1.50	No
		2	-0.237	6.50	No
		2	-0.009	4.00	No
Di	6	y	-0.089	1.50	No
		y	-0.089	6.50	No
		y	-0.019	4.00	No
		y	-0.019	4.00	No
	7	y	-0.112	1.50	No
		y	-0.112	6.50	No
		y	-0.017	4.00	No
		y	-0.017	4.00	No
WI0	6	z	-0.038	1.50	No
		z	-0.038	6.50	No
		z	-0.002	4.00	No
		z	-0.002	4.00	No
	7	z	-0.048	1.50	No
		z	-0.048	6.50	No
		z	-0.002	4.00	No
		z	-0.002	4.00	No
WI30	6	3	-0.033	1.50	No
		3	-0.033	6.50	No
		3	-0.004	4.00	No
	7	3	-0.042	1.50	No
		3	-0.042	6.50	No
		3	-0.004	4.00	No
WI60	6	3	-0.024	1.50	No
		3	-0.024	6.50	No
		3	-0.008	4.00	No
	7	3	-0.03	1.50	No
		3	-0.03	6.50	No
		3	-0.007	4.00	No
WI90	6	x	-0.02	1.50	No
		x	-0.02	6.50	No
		x	-0.01	4.00	No
	7	x	-0.024	1.50	No
		x	-0.024	6.50	No
		x	-0.009	4.00	No
WI120	6	2	-0.024	1.50	No
		2	-0.024	6.50	No
		2	-0.008	4.00	No
	7	2	-0.03	1.50	No
		2	-0.03	6.50	No
		2	-0.007	4.00	No
WI150	6	2	-0.033	1.50	No
		2	-0.033	6.50	No
		2	-0.004	4.00	No
	7	2	-0.042	1.50	No
		2	-0.042	6.50	No
		2	-0.004	4.00	No
WL0	6	z	-0.012	1.50	No

		z	-0.012	6.50	No
	7	z	-0.015	1.50	No
		z	-0.015	6.50	No
WL30	6	3	-0.01	1.50	No
		3	-0.01	6.50	No
		3	-0.001	4.00	No
	7	3	-0.013	1.50	No
		3	-0.013	6.50	No
		3	-0.001	4.00	No
WL60	6	3	-0.007	1.50	No
		3	-0.007	6.50	No
		3	-0.002	4.00	No
	7	3	-0.009	1.50	No
		3	-0.009	6.50	No
		3	-0.002	4.00	No
WL90	6	x	-0.006	1.50	No
		x	-0.006	6.50	No
		x	-0.002	4.00	No
	7	x	-0.007	1.50	No
		x	-0.007	6.50	No
		x	-0.002	4.00	No
WL120	6	2	-0.007	1.50	No
		2	-0.007	6.50	No
		2	-0.002	4.00	No
	7	2	-0.009	1.50	No
		2	-0.009	6.50	No
		2	-0.002	4.00	No
WL150	6	2	-0.01	1.50	No
		2	-0.01	6.50	No
		2	-0.001	4.00	No
	7	2	-0.013	1.50	No
		2	-0.013	6.50	No
		2	-0.001	4.00	No

Self weight multipliers for load conditions

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

RAM® Elements
CONNECT Edition

Current Date: 8/29/2022 12:14 PM
Units system: English

Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30
LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	HSS_SQR 4X4X3_8	**1**	LC4 at 0.00%	**0.15**	**OK**	Eq. H1-1b
		8	LC10 at 0.00%	0.15	OK	Eq. H1-1b
	PIPE 2x0.154	**6**	LC31 at 25.00%	0.12	OK	Eq. H1-1b
		7	LC7 at 75.00%	**0.16**	**OK**	Eq. H1-1b
	PIPE 3x0.216	**3**	LC7 at 48.44%	0.22	OK	Eq. H1-1b
		9	LC1 at 48.44%	**0.22**	**OK**	Eq. H1-1b
	PIPE 4x0.237	**14**	LC7 at 50.00%	**0.00**	**OK**	Eq. H1-1b
		15	LC11 at 50.00%	0.00	OK	Eq. H1-1b

RAM® Elements
CONNECT Edition

Current Date: 8/29/2022 10:35 AM
Units system: English

Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
1	0.00	-2.00	0.00	0
2	0.00	-2.00	3.00	0
3	2.50	-2.00	3.40	0
4	-2.50	-2.00	3.40	0
5	0.00	-2.00	3.40	0
6	-2.25	-2.00	3.40	0
7	2.25	-2.00	3.40	0
8	-2.25	-2.00	3.60	0
9	2.25	-2.00	3.60	0
10	-2.25	4.00	3.60	0
11	2.25	4.00	3.60	0
12	-2.25	-4.00	3.60	0
13	2.25	-4.00	3.60	0
14	0.00	2.00	0.00	0
15	0.00	2.00	3.00	0
16	2.50	2.00	3.40	0
17	-2.50	2.00	3.40	0
18	0.00	2.00	3.40	0
19	-2.25	2.00	3.40	0
20	2.25	2.00	3.40	0
21	-2.25	2.00	3.60	0
22	2.25	2.00	3.60	0
23	0.00	2.00	3.20	0
24	0.00	-2.00	3.20	0
25	0.00	-1.25	3.20	0
26	0.00	2.75	3.20	0
27	0.00	1.25	3.20	0
28	0.00	-2.75	3.20	0

Restraints

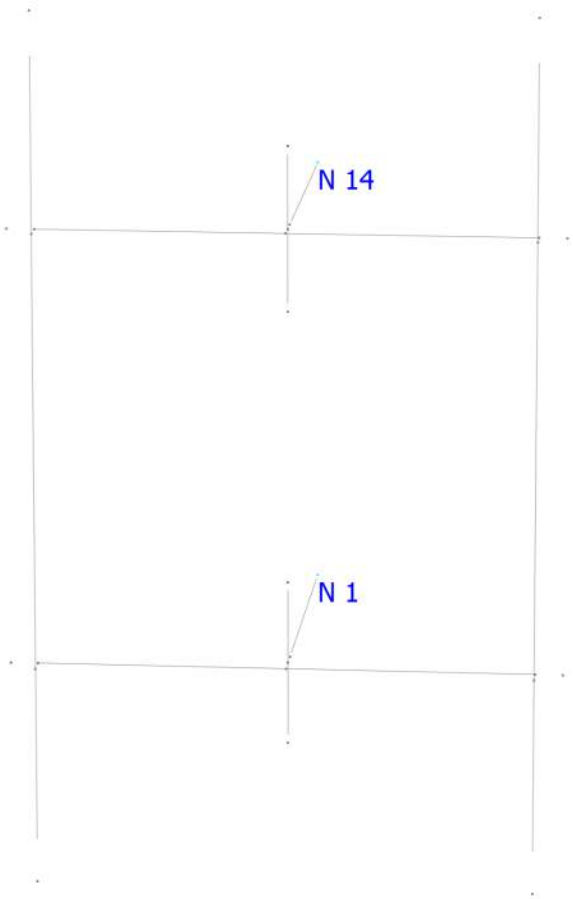
Node	TX	TY	TZ	RX	RY	RZ
1	1	1	1	1	1	1
14	1	1	1	1	1	1

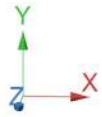
Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	1	2		HSS_SQR 4X4X3_8	A500 GrB rectangular	0.00	0.00	0.00
3	4	3		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
6	11	13		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
7	10	12		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
8	14	15		HSS_SQR 4X4X3_8	A500 GrB rectangular	0.00	0.00	0.00
9	17	16		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
14	26	27		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00
15	25	28		PIPE 4x0.237	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
6	315.00	0	0.00	0.00	0.00
7	315.00	0	0.00	0.00	0.00


N 14
N 1

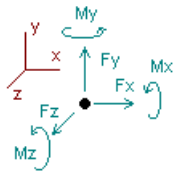

Y
Z
X

RAM® Elements
CONNECT Edition

Current Date: 8/29/2022 12:14 PM
Units system: English

Analysis result

Reactions



Direction of positive forces and moments

Node	Forces [Kip] FX	FY	FZ	Moments [Kip*ft] MX	MY	MZ
Condition **LC1=1.2D+Wo**						
1	0.00511	0.23656	0.62596	-0.73417	0.15815	0.00649
14	-0.00511	0.36006	0.53904	-0.96285	0.12638	0.00547
SUM	0.00000	0.59662	1.16500	-1.69701	0.28453	0.01196
Condition **LC2=1.2D+W30**						
1	0.31062	0.26513	0.45243	-0.79076	1.19762	0.00408
14	0.30033	0.33148	0.36551	-0.90578	1.16544	0.00800
SUM	0.61094	0.59662	0.81794	-1.69654	2.36306	0.01208
Condition **LC3=1.2D+W60**						
1	0.39251	0.27986	0.26831	-0.81663	1.33711	0.00476
14	0.38221	0.31676	0.18141	-0.87941	1.30491	0.00732
SUM	0.77472	0.59662	0.44972	-1.69604	2.64201	0.01208
Condition **LC4=1.2D+W90**						
1	0.42916	0.30029	0.04344	-0.85428	1.41761	0.00471
14	0.41884	0.29632	-0.04344	-0.84115	1.38538	0.00738
SUM	0.84800	0.59662	0.00000	-1.69543	2.80298	0.01209
Condition **LC5=1.2D+W120**						
1	0.39251	0.32055	-0.18143	-0.89137	1.23439	0.00431
14	0.38221	0.27606	-0.26829	-0.80344	1.20226	0.00776
SUM	0.77472	0.59662	-0.44972	-1.69481	2.43664	0.01207
Condition **LC6=1.2D+W150**						
1	0.31062	0.34025	-0.44555	-0.92862	1.03386	0.00345
14	0.30032	0.25637	-0.53239	-0.76548	1.00180	0.00862
SUM	0.61094	0.59662	-0.97794	-1.69410	2.03566	0.01206
Condition **LC7=1.2D-Wo**						
1	0.00512	0.35998	-0.53908	-0.96113	-0.12545	0.00546
14	-0.00512	0.23663	-0.62592	-0.73272	-0.15702	0.00648
SUM	0.00000	0.59662	-1.16500	-1.69385	-0.28248	0.01194

Condition	**LC8=1.2D-W30**					
1	-0.30039	0.33143	-0.36555	-0.90463	-1.16456	0.00787
14	-0.31055	0.26518	-0.45239	-0.78969	-1.19571	0.00395
SUM	-0.61094	0.59662	-0.81794	-1.69432	-2.36027	0.01182
Condition	**LC9=1.2D-W60**					
1	-0.38228	0.31672	-0.18143	-0.87879	-1.30464	0.00719
14	-0.39244	0.27990	-0.26829	-0.81602	-1.33578	0.00462
SUM	-0.77472	0.59662	-0.44972	-1.69481	-2.64042	0.01182
Condition	**LC10=1.2D-W90**					
1	-0.41893	0.29630	0.04344	-0.84117	-1.38616	0.00724
14	-0.42907	0.30032	-0.04344	-0.85426	-1.41726	0.00457
SUM	-0.84800	0.59662	0.00000	-1.69543	-2.80342	0.01181
Condition	**LC11=1.2D-W120**					
1	-0.38229	0.27603	0.26831	-0.80406	-1.20364	0.00764
14	-0.39243	0.32059	0.18141	-0.89198	-1.23485	0.00419
SUM	-0.77472	0.59662	0.44972	-1.69604	-2.43850	0.01183
Condition	**LC12=1.2D-W150**					
1	-0.30039	0.25632	0.53243	-0.76676	-1.00364	0.00850
14	-0.31055	0.34029	0.44551	-0.93000	-1.03491	0.00333
SUM	-0.61094	0.59662	0.97794	-1.69676	-2.03855	0.01183
Condition	**LC13=0.9D+Wo**					
1	0.00383	0.16199	0.61510	-0.52203	0.15418	0.00500
14	-0.00383	0.28547	0.54990	-0.75073	0.13035	0.00397
SUM	0.00000	0.44746	1.16500	-1.27276	0.28453	0.00897
Condition	**LC14=0.9D+W30**					
1	0.30933	0.19056	0.44157	-0.57868	1.19360	0.00257
14	0.30161	0.25690	0.37637	-0.69372	1.16946	0.00649
SUM	0.61094	0.44746	0.81794	-1.27240	2.36306	0.00906
Condition	**LC15=0.9D+W60**					
1	0.39122	0.20529	0.25745	-0.60462	1.33308	0.00325
14	0.38350	0.24217	0.19227	-0.66741	1.30893	0.00581
SUM	0.77472	0.44746	0.44972	-1.27203	2.64201	0.00906
Condition	**LC16=0.9D+W90**					
1	0.42787	0.22572	0.03258	-0.64235	1.41358	0.00320
14	0.42013	0.22174	-0.03258	-0.62922	1.38941	0.00587
SUM	0.84800	0.44746	0.00000	-1.27157	2.80298	0.00907
Condition	**LC17=0.9D+W120**					
1	0.39122	0.24598	-0.19229	-0.67952	1.23037	0.00280
14	0.38350	0.20148	-0.25743	-0.59159	1.20627	0.00625
SUM	0.77472	0.44746	-0.44972	-1.27111	2.43664	0.00905
Condition	**LC18=0.9D+W150**					
1	0.30933	0.26568	-0.45641	-0.71685	1.02985	0.00194
14	0.30161	0.18179	-0.52153	-0.55372	1.00581	0.00711
SUM	0.61094	0.44746	-0.97794	-1.27057	2.03566	0.00905

Condition **LC19=0.9D-Wo**

1	0.00384	0.28541	-0.54994	-0.74939	-0.12940	0.00396
14	-0.00384	0.16205	-0.61506	-0.52099	-0.15308	0.00499
SUM	0.00000	0.44746	-1.16500	-1.27038	-0.28248	0.00895

Condition **LC20=0.9D-W30**

1	-0.30166	0.25686	-0.37640	-0.69283	-1.16846	0.00640
14	-0.30928	0.19060	-0.44154	-0.57791	-1.19182	0.00247
SUM	-0.61094	0.44746	-0.81794	-1.27074	-2.36028	0.00887

Condition **LC21=0.9D-W60**

1	-0.38355	0.24215	-0.19229	-0.66693	-1.30853	0.00572
14	-0.39117	0.20531	-0.25743	-0.60418	-1.33189	0.00315
SUM	-0.77472	0.44746	-0.44972	-1.27111	-2.64042	0.00886

Condition **LC22=0.9D-W90**

1	-0.42020	0.22173	0.03258	-0.62924	-1.39005	0.00576
14	-0.42780	0.22573	-0.03258	-0.64233	-1.41338	0.00309
SUM	-0.84800	0.44746	0.00000	-1.27157	-2.80342	0.00885

Condition **LC23=0.9D-W120**

1	-0.38355	0.20146	0.25745	-0.59205	-1.20754	0.00616
14	-0.39117	0.24600	0.19227	-0.67998	-1.23095	0.00271
SUM	-0.77472	0.44746	0.44972	-1.27203	-2.43850	0.00887

Condition **LC24=0.9D-W150**

1	-0.30166	0.18175	0.52157	-0.55466	-1.00755	0.00702
14	-0.30928	0.26571	0.45637	-0.71791	-1.03100	0.00185
SUM	-0.61094	0.44746	0.97794	-1.27257	-2.03855	0.00888

Condition **LC25=1.2D+Di+Wl0**

1	-0.00980	0.59841	0.18647	-1.76248	-0.00783	-0.01137
14	0.00980	0.61821	-0.00647	-1.79878	0.05285	-0.01153
SUM	0.00000	1.21662	0.18000	-3.56125	0.04502	-0.02290

Condition **LC26=1.2D+Di+Wl30**

1	0.04608	0.60273	0.15233	-1.77103	0.18519	-0.01175
14	0.06565	0.61389	-0.04061	-1.79003	0.24567	-0.01110
SUM	0.11172	1.21662	0.11172	-3.56106	0.43086	-0.02285

Condition **LC27=1.2D+Di+Wl60**

1	0.03370	0.60513	0.13996	-1.77529	0.13504	-0.01161
14	0.05327	0.61149	-0.05298	-1.78570	0.19558	-0.01125
SUM	0.08697	1.21662	0.08697	-3.56099	0.33062	-0.02286

Condition **LC28=1.2D+Di+Wl90**

1	0.04372	0.60861	0.09646	-1.78162	0.16234	-0.01163
14	0.06328	0.60801	-0.09646	-1.77912	0.22284	-0.01122
SUM	0.10700	1.21662	0.00000	-3.56074	0.38518	-0.02285

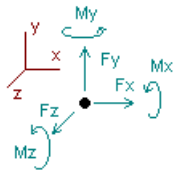
Condition **LC29=1.2D+Di+Wl120**

1	0.03370	0.61209	0.05297	-1.78792	0.11751	-0.01169
14	0.05327	0.60453	-0.13995	-1.77256	0.17806	-0.01117
SUM	0.08697	1.21662	-0.08697	-3.56048	0.29558	-0.02286

Condition **LC30=1.2D+Di+Wl150**						
1	0.04608	0.61469	0.04060	-1.79285	0.15650	-0.01186
14	0.06564	0.60193	-0.15232	-1.76757	0.21702	-0.01099
SUM	0.11172	1.21662	-0.11172	-3.56041	0.37352	-0.02285
Condition **LC31=1.2D+Di-Wl0**						
1	-0.00980	0.61810	0.00646	-1.79841	-0.05285	-0.01154
14	0.00980	0.59852	-0.18646	-1.76180	0.00787	-0.01137
SUM	0.00000	1.21662	-0.18000	-3.56021	-0.04498	-0.02291
Condition **LC32=1.2D+Di-Wl30**						
1	-0.06568	0.61378	0.04060	-1.78986	-0.24586	-0.01115
14	-0.04605	0.60284	-0.15232	-1.77055	-0.18495	-0.01181
SUM	-0.11172	1.21662	-0.11172	-3.56041	-0.43082	-0.02296
Condition **LC33=1.2D+Di-Wl60**						
1	-0.05330	0.61138	0.05297	-1.78560	-0.19573	-0.01129
14	-0.03368	0.60523	-0.13995	-1.77488	-0.13487	-0.01165
SUM	-0.08697	1.21662	-0.08697	-3.56048	-0.33060	-0.02295
Condition **LC34=1.2D+Di-Wl90**						
1	-0.06332	0.60790	0.09646	-1.77928	-0.22305	-0.01128
14	-0.04368	0.60872	-0.09646	-1.78146	-0.16216	-0.01168
SUM	-0.10700	1.21662	0.00000	-3.56073	-0.38522	-0.02296
Condition **LC35=1.2D+Di-Wl120**						
1	-0.05330	0.60442	0.13996	-1.77297	-0.17824	-0.01121
14	-0.03367	0.61219	-0.05298	-1.78802	-0.11739	-0.01173
SUM	-0.08697	1.21662	0.08697	-3.56099	-0.29564	-0.02294
Condition **LC36=1.2D+Di-Wl150**						
1	-0.06568	0.60182	0.15233	-1.76805	-0.21724	-0.01105
14	-0.04605	0.61479	-0.04061	-1.79301	-0.15636	-0.01191
SUM	-0.11172	1.21662	0.11172	-3.56106	-0.37361	-0.02295

Envelope for nodal reactions

Note.- **Ic** is the controlling load condition



Direction of positive forces and moments

Envelope of nodal reactions for :

LC1=1.2D+Wo
LC2=1.2D+W30
LC3=1.2D+W60
LC4=1.2D+W90
LC5=1.2D+W120
LC6=1.2D+W150
LC7=1.2D-Wo
LC8=1.2D-W30

LC9=1.2D-W60
LC10=1.2D-W90
LC11=1.2D-W120
LC12=1.2D-W150
LC13=0.9D+Wo
LC14=0.9D+W30
LC15=0.9D+W60
LC16=0.9D+W90
LC17=0.9D+W120
LC18=0.9D+W150
LC19=0.9D-Wo
LC20=0.9D-W30
LC21=0.9D-W60
LC22=0.9D-W90
LC23=0.9D-W120
LC24=0.9D-W150
LC25=1.2D+Di+WI0
LC26=1.2D+Di+WI30
LC27=1.2D+Di+WI60
LC28=1.2D+Di+WI90
LC29=1.2D+Di+WI120
LC30=1.2D+Di+WI150
LC31=1.2D+Di-WI0
LC32=1.2D+Di-WI30
LC33=1.2D+Di-WI60
LC34=1.2D+Di-WI90
LC35=1.2D+Di-WI120
LC36=1.2D+Di-WI150

		Forces						Moments					
Node		**Fx** [Kip]	**lc**	**Fy** [Kip]	**lc**	**Fz** [Kip]	**lc**	**Mx** [Kip*ft]	**lc**	**My** [Kip*ft]	**lc**	**Mz** [Kip*ft]	**lc**
1	Max	0.429	LC4	0.618	LC31	0.626	LC1	-0.52203	LC13	1.41761	LC4	0.00850	LC12
	Min	-0.420	LC22	0.162	LC13	-0.550	LC19	-1.79841	LC31	-1.39005	LC22	-0.01186	LC30
14	Max	0.420	LC16	0.618	LC25	0.550	LC13	-0.52099	LC19	1.38941	LC16	0.00862	LC6
	Min	-0.429	LC10	0.162	LC19	-0.626	LC7	-1.79878	LC25	-1.41726	LC10	-0.01191	LC36

Date: 4/6/2023
Project Name: WILTON
Project No.: CT5058
Designed By: LBW **Checked By:** MSC

CHECK CONNECTION CAPACITY (Worst Case)

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

Bolt Type = A36 5/8" Threaded Rod

Allowable Tensile Load =

F_{Tall} = 6673 lbs.

Allowable Shear Load =

F_{Vall} = 4004 lbs.

TENSILE FORCES

Reaction **F =** 626 lbs. (See Bentley Output)

SHEAR FORCES

Reactions in X direction: 429 lbs. (See Bentley Output)
Reactions in Y direction: 618 lbs. (See Bentley Output)

Resultant: 752 lbs.

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

Tension Design Load /Bolts =

f_t= 208.67 lbs. < 6673 lbs. **Therefore, OK !**

Shear Design Load / Bolts=

f_v= 250.77 lbs. < 4004 lbs. **Therefore, OK !**

CHECK COMBINED TENSION AND SHEAR

f_t / F_T	+	f_v / F_V	≤	1.0			
0.031	+	0.063	=	0.094	<	1.0	**Therefore, OK !**

Town of Wilton, CT

Property Listing Report

Map Block Lot **73-8-2** | Account **005011**

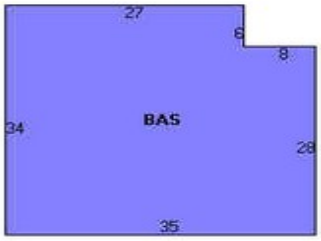
Property Information

Property Location	287 DANBURY RD
Owner	TRIPLE D PROPERTIES LLC
Co-Owner	C/O STANDARD PETROLEUM
Mailing Address	299 BISHOP AVE BRIDGEPORT CT 06610 3056
Land Use	2-1 Commercial
Land Class	C
Zoning Code	GB
Census Tract	
Sub Lot	

Neighborhood	7000
Acreage	0.6
Utilities	Public Water,Public Sewer
Lot Setting/Desc	Level
Survey Map	
Foundation	1

Photo

Sketch



Primary Construction Details

Year Built	2012
Stories	1
Building Style	Gas Mart
Building Use	Commercial
Building Condition	Average
Floors	Vinyl
Total Rooms	

Bedrooms	
Full Bathrooms	
Half Bathrooms	
Bath Style	
Kitchen Style	
Roof Style	Gable/Hip
Roof Cover	Asphalt Shngl.

Exterior Walls	Wood on Sheath
Interior Walls	Drywall
Heating Type	Forced Air
Heating Fuel	Gas
AC Type	Central
Gross Bldg Area	1142
Total Living Area	1142

Report Created On **4/12/2023**

Town of Wilton, CT

Property Listing Report | Map Block Lot **73-8-2** | Account **005011**

Valuation Summary

(Assessed value = 70% of Appraised Value)

Item	Appraised	Assessed
Buildings	266700	186690
Extras	0	0
Outbuildings	92000	64400
Land	1484400	1039080
Total	1843100	1290170

Outbuilding and Extra Items

Type	Description
Canopy Gd Qual	2156 S.F.
Paving Asphaul	5000 S.F.
Paving Comcret	2156 S.F.

Sub Areas

Subarea Type	Gross Area (sq ft)	Living Area (sq ft)
First Floor	1142	1142
Total Area	1142	1142

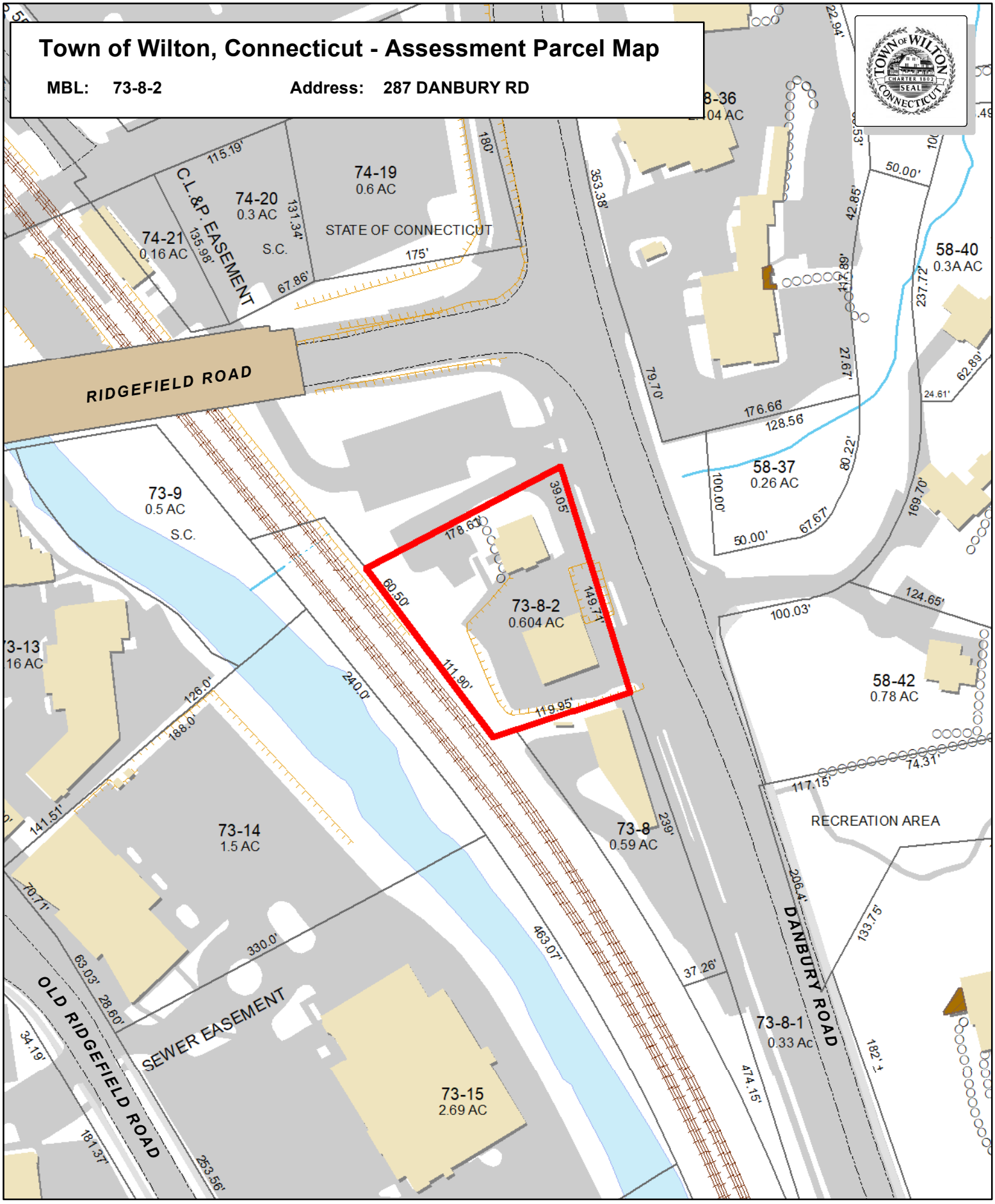
Sales History

Owner of Record	Book/ Page	Sale Date	Sale Price
TRIPLE D PROPERTIES LLC	2331/0229	6/24/2013	0
DEAN PATRICIA G	2160/0275	12/21/2010	900000
GREGORY JOHN R & DEAN PATRICIA G	0630/0322	12/23/1987	0

Report Created On **4/12/2023**

Town of Wilton, Connecticut - Assessment Parcel Map

MBL: 73-8-2 **Address:** 287 DANBURY RD



Approximate Scale:

1 inch = 100 feet

Disclaimer:
This map is for informational purposes only.
All information is subject to verification by any user.
The Town of Wilton and its mapping contractors
assume no legal responsibility for the information contained herein.

Map Grand List Date: Oct 2017

0 50 100 150 Feet

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

May 17, 2000

Christopher B. Fisher, Esq.
Cuddy & Feder & Worby LLP
90 Maple Avenue
White Plains, New York 10601-5196

Re: PETITION NO. 455 - AT&T Wireless PCS petition for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need is required for the modification of an existing Connecticut Light and Power electric transmission facility located at 289 Danbury Road in Wilton, Connecticut.

Dear Attorney Fisher:

At a public meeting held on May 10, 2000, the Connecticut Siting Council (Council) considered and ruled that this proposal would not have a substantial adverse environmental effect, and pursuant to General Statutes § 16-50k would not require a Certificate of Environmental Compatibility and Public Need.

This decision is under the exclusive jurisdiction of the Council and is not applicable to any other modification or construction. All work is to be implemented as specified in the petition, dated April 25, and May 9, 2000.

Enclosed for your information is a copy of the staff report on this project.

Very truly yours,

Mortimer A. Gelston
Chairman

MAG/FOC

Enclosure: Staff Report dated May 10, 2000

C: Honorable Paul F. Hannah, Jr., First Selectman, Town of Wilton
Salvatore Giuliano, NU
Dorian Hill, NU

STATE OF CONNECTICUT

CONNECTICUT SITING COUNCIL

Ten Franklin Square
New Britain, Connecticut 06051
Phone: (860) 827-2935
Fax: (860) 827-2950

Petition No. 455
AT&T Wireless PCS, Inc.
Wilton, Connecticut
Staff Report
May 10, 2000

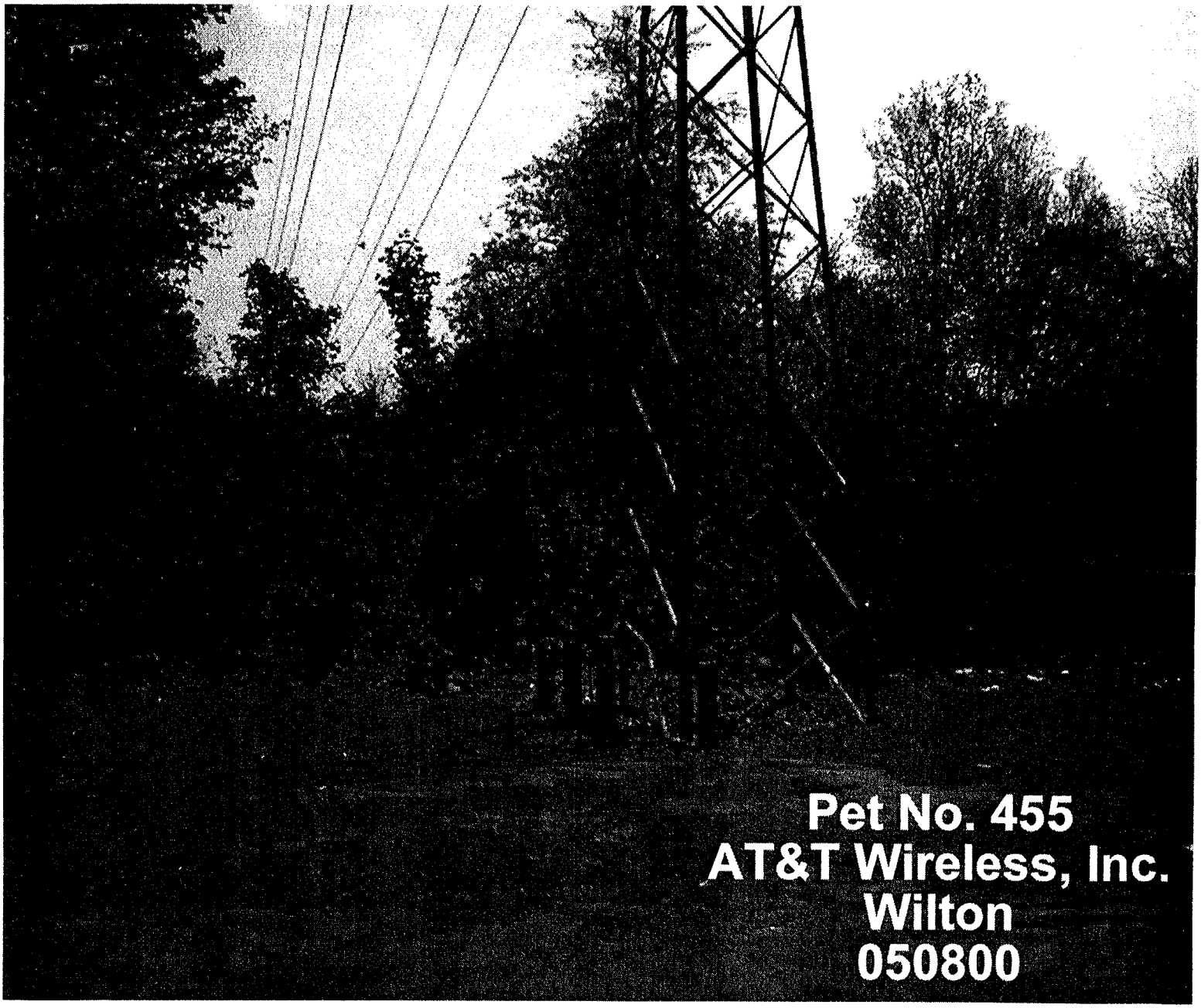
On May 8, 2000, Connecticut Siting Council (Council) member Edward S. Wilensky, and Fred Cunliffe of Council staff met AT&T Wireless PCS (AT&T) representative Michael Austin of Pinnacle Site Development for inspection of a Connecticut Light & Power Company (CL&P) electric transmission line structure (no. 2998) located at 289 Danbury Road (Route 7) Wilton. AT&T, with the agreement of CL&P, proposes to modify the transmission structure for telecommunications use and is petitioning the Council for a declaratory ruling that no Certificate of Environmental Compatibility and Public Need (Certificate) is required for the modification.

AT&T proposes to attach an 8.6-inch diameter pipe extending the existing structure height of 96 feet by 5 feet for a total height of 101 feet. A structural analysis concludes no additional reinforcement is necessary for this proposal. AT&T proposes a low profile antenna cluster mount at the top of the pipe. Also, AT&T would place associated equipment cabinets on a steel frame on concrete piers adjacent to the base of the existing structure within CL&P's right-of-way. The proposed site is adjacent to the Wilton Railroad Station and hidden behind commercial businesses on Route 7. Staff believes no landscaping would be needed.

An existing paved access from Danbury Road would be used by AT&T to access the structure. A 20-foot by 23-foot, 8-foot high chain link fence would surround the equipment and structure. Utilities would be routed underground within the access drive approximately 200 feet from an existing utility pole to the site.

The worst case power density for the telecommunications operations at the site has been calculated to be less than 3.4% of the applicable standard for uncontrolled environments.

AT&T contends that the proposed installation will not cause a substantial adverse environmental effect, and for this reason would not require a Certificate.


Pet No. 455
AT&T Wireless, Inc.
Wilton
050800

PLANNING & ZONING
COMMISSION

ZONING ENFORCEMENT OFFICE
563-0185

TOWN HALL ANNEX
238 Danbury Road
Wilton, Connecticut 06897

ZONING PERMIT

Date 5/25/00 John Gregory & Patricia Dean - Owners

Owner(s) Northeast Utilities - Easement Holder

Address of Property 289 Danbury Road Wilton, CT 06897

Owner's Mailing Address (If different) PO Box 270 Hartford, CT 06140-0270

Telephone Number (Res) _____ (Bus) (800) 722 5584

Agent/Contractor (if applicable) George Forbes Telephone Number (914) 534 3450

Assessor's Map No. 73 Lot No. 8-3 Lot Size .20 +/-Ac Zone GB

Frontage of Lot 30 Ft ± Size of Building orAddition 82.5 SF

Proposed Activity Antennas & Cabinets for Wireless PCS

Front Yard Setback 50'+ * Rear Yard Setback 19 Ft ± * Right Yard Setback 33.5 Ft ± * Left Yard Setback 2.5 Ft ±

Conditions or Commission or Board Approval (if applicable) * existing tower
Per CT Siting Council letter citing Petition No. 455

George Forbes (George Forbes for At&T)
Signature of Applicant

John Kroth
Approved by Zoning Enforcement Officer

30 May 00
Date

Recycled Paper

PLANNING & ZONING
COMMISSION

ZONING ENFORCEMENT OFFICE
563-0185

TOWN HALL ANNEX
238 Danbury Road
Wilton, Connecticut 06897

ZONING COMPLIANCE CERTIFICATE

Zoning Permit Issued: 30 May '00

Having satisfied the requirements of the Zoning Regulations of the Town of Wilton, a Zoning Compliance Certificate for the same is hereby issued to:

Owner: John Gregory & Patricia Dean - Northeast Utilities Easement Holder

Address of property: 289 Danbury Rd, Wilton CT

Owner's mailing address (if different): (N.E.Util.- PoBox 270 Hartford CT 06140-0270

Map #: 73 Lot #: 8-3 Size of Lot: .20 +/-acresZone: GD

Date Issued: 16 April '01

Note: Issued for the construction of additions to exist telecommunications tower & related work, per Siting Council letter citing Petition No 455

John Koster
Zoning Enforcement Officer

EVERSOURCE ENERGY

56 Prospect Street,
Hartford, CT 06103

P.O. Box 270
Hartford, CT 06141-0270
(860) 665-5000

March 20, 2024

Ms. Tarah Nolan
SAI Communications
12 Industrial Way
Salem, NH 03079

RE: AT&T Antenna Site CT5058 Danbury Rd, Wilton CT, Eversource Structure 2998

Dear Ms. Nolan:

Based on our reviews of the site drawings, the structural analysis and foundation review provided by Centek Engineering, along with a third party review performed by Paul J. Ford and Company, we accept the proposed modification.

Please work with Christopher Gelinas of Eversource Real Estate to process the site lease amendment. Please do not hesitate to contact us with questions or concerns. Christopher can be contacted at 860-665-2008, and I can be contacted at (860) 728-4862.

Sincerely,

Masie Hartt

Masie Hartt
Transmission Line Engineering

Ref: 2023-0222 - CT5058 Structural Analysis Rev3 (22021.09)
CT5058_C-BAND_CD Rev3_03.11.24
CT5058 Mount Structural Analysis Rev.2 04062023

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PRIORITY MAIL®

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SAI GROUP
12 INDUSTRIAL WAY
SALEM NH 03079-2837

Expected Delivery Date: 03/25/24
Ref#: CT5058
0003

C019

HON. T. BOUCHER 1ST SELECTMAN M. WRINN
TOWN OF WILTON
238 DANBURY RD
WILTON CT 06897-4008

USPS TRACKING #

9405 5036 9930 0672 1686 49

Electronic Rate Approved #038555749

Cut on dotted line.

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Flat Rate Env

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Click-N-Ship®

03/22/2024 Mailed from 03079 986738272358895

PRIORITY MAIL®

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

Expected Delivery Date: 03/25/24
Ref#: CT5058
0003

C011

TRIPLE D PROPERTIES LLC
C/O STANDARD PETROLEUM
299 BISHOP AVE
BRIDGEPORT CT 06610-3056

USPS TRACKING #

9405 5036 9930 0672 1686 63

Electronic Rate Approved #038555749

UNITED STATES POSTAL SERVICE®

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$9.85
US POSTAGE
Flat Rate Env

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U.S. POSTAGE PAID
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03/22/2024 Mailed from 03079 986738272356817

PRIORITY MAIL®

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

Expected Delivery Date: 03/25/24

0003

C015

CHRIS GELINAS
EVERSOURCE
107 SELDEN ST
BERLIN CT 06037-1616

USPS TRACKING #

9405 5036 9930 0672 1686 94

Electronic Rate Approved #038555749

Cut on dotted line.

UNITED STATES POSTAL SERVICE®

Click-N-Ship®

P

usps.com
$10.15
US POSTAGE
Legal Flat Rt Env

9405 5036 9930 0672 1687 17 0101 5000 0020 6051

U.S. POSTAGE PAID
Click-N-Ship®

03/22/2024 Mailed from 03079 986738272356053

PRIORITY MAIL®

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

Expected Delivery Date: 03/25/24
Ref#: CT5058

0003

C006

MELANIE BACHMAN EXECUTIVE DIRECTOR
CT SITING COUNCIL
10 FRANKLIN SQ
NEW BRITAIN CT 06051-2655

USPS TRACKING #

9405 5036 9930 0672 1687 17

Electronic Rate Approved #038555749

From: auto-reply@usps.com
Sent: Friday, March 22, 2024 8:50 AM
To: Hollis Redding
Subject: USPS® Expected Delivery by Monday, March 25, 2024 arriving by 9:00pm 940550369930067216864 9

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 8:40 am on March 22, 2024 in MERIDEN, CT 06450.

Tracking Number: **9405503699300672168649**

Expected Delivery By

Mon
25
Mar

By 9:00pm

Hollis Redding

Property Owner Copy

From: auto-reply@usps.com
Sent: Friday, March 22, 2024 8:48 AM
To: Hollis Redding
Subject: USPS® Expected Delivery by Monday, March 25, 2024 arriving by 9:00pm 9405503699300672168663

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 8:40 am on March 22, 2024 in MERIDEN, CT 06450.

Tracking Number: **9405503699300672168663**

Expected Delivery By

Mon
25
Mar

By 9:00pm

From: auto-reply@usps.com
Sent: Friday, March 22, 2024 8:48 AM
To: Hollis Redding
Subject: USPS® Expected Delivery by Monday, March 25, 2024 arriving by 9:00pm 9405503699300672168694

Hello **HOLLIS M REDDING**,

USPS is now in possession of your item as of 8:40 am on March 22, 2024 in MERIDEN, CT 06450.

Tracking Number: **9405503699300672168694**

Expected Delivery By

Mon
25
Mar

By 9:00pm