QC Development
PO Box 916
Storrs, CT 06268
860-670-9068
Mark.Roberts@QCDevelopment.net

June 28, 2019

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

Notice of Exempt Modification – New Cingular Wireless PCS, LLC (AT&T) – CT1050
82 Tyrone Rd, Pomfret, CT 06258
N 41.89023056
W 71.95561111

Dear Ms. Bachman:

AT&T currently maintains six (6) antennas at the 154-foot level of the existing 154-foot Monopole at 82 Tyrone Road, Pomfret, CT. The tower is owned by Crown Castle and the property is owned by The Pomfret School. AT&T now intends to remove one (1) Andrew antenna and two (2) KMW antennas and replace them with three (3) Kathrein 800-10966 and three (3) Andrew NNHH-65C-R4 antennas. AT&T will also swap six (6) Ericsson RRUS-11 for (3) Ericsson 4449-B5/B12s and (3) Ericsson 8843 B2/B66 Remote Radio Units (RRU) and add three (3) Ericsson RRUS-32 RRUs. The new antennas and RRUs will also be installed at the 154-foot level of the tower.

This facility was approved by the Siting Council in Docket # 142 on June 20, 1991. This approval included no condition(s) that could feasibly be violated by this modification, including total facility height or mounting restrictions. This modification therefore complies with the aforementioned approval.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.C.S.A. § 16-50j-73, a copy of this letter is being sent to Maureen A.

Nicholson, First Selectman for the Town of Pomfret, and the Pomfret Zoning Enforcement Officer as well as the property and tower owner.

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

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

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

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

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

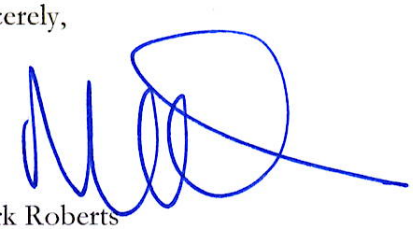
5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.

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

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

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

Sincerely,



Mark Roberts
QC Development
Consultant for AT&T

Attachments

Cc: Maureen A. Nicholson - Elected Official
Ryan Brais – Zoning Enforcement Office
Pomfret School Inc. – Property Owner
Crown Castle - Tower Owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0%
AT&T GSM	1	283	152	0.0048	880	0.5867	0.08%
AT&T UMTS	2	565	152	0.0191	880	0.5867	0.32%
AT&T UMTS	4	525	152	0.0354	1900	1.0000	0.35%
AT&T LTE	1	1771	154	0.0291	734	0.4893	0.59%
AT&T LTE	2	875	152	0.0295	1900	1.0000	0.30%
Site Total							1.65%

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

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

Proposed Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm^2)	Freq. Band (MHz**)	Limit S (mW /cm^2)	%MPE
Other Carriers*							0%
AT&T LTE	1	1476	154	0.0242	700	0.4667	0.52%
AT&T LTE	1	1000	154	0.0164	850	0.5667	0.29%
AT&T 5G	1	1000	154	0.0164	850	0.5667	0.29%
AT&T LTE	2	3664	154	0.1203	1900	1.0000	1.20%
AT&T LTE	1	3837	154	0.0630	2100	1.0000	0.63%
AT&T LTE	1	1285	154	0.0211	2300	1.0000	0.21%
Site Total							3.14%

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

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

PROJECT INFORMATION

SCOPE OF WORK:	ITEMS TO BE MOUNTED ON THE EXISTING MONOPOLE: • INSTALL NEW MOUNTING PLATFORM, SITEPRO1 PART# RMQP-12-H5. • INSTALL NEW HANDRAIL KIT SITEPRO 1 PART # HRK12-3HD (OR APPROVED EQUAL). • INSTALL NEW 2" STD. (2.38" O.D.) STEEL PIPE MAST, SECURED TO THE PROPOSED MOUNT (TYP. OF 4 PER SECTOR, TOTAL OF 12). • NEW AT&T ANTENNAS: (NNHH-65C-R4) MOUNTED @ POSITION 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T ANTENNAS: (800-10966) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: B5/B12 4449 (700/850) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: B2/B66A 8843 (1900/AWS) MOUNTED @ POSITION 4 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW AT&T RRUS: 32 (WCS) MOUNTED @ POSITION 3 (TYP. OF 1 PER SECTOR, TOTAL OF 3). • NEW DC6-48-60-18-8C SQUID WITH (1) DC/FIBER SQUID & (1) DC SQUID (TO FOLLOW EXISTING ROUTE) ITEMS TO BE MOUNTED AT EQUIPMENT LOCATION: • UPGRADE DUL TO 5216. • ADD (2) XMU. • ADD RBS 6630 FOR 5G.
SITE ADDRESS:	82 TYRONE ROAD POMFRET, CT 06258
LATITUDE:	41.890241° N 41° 53' 24.87" N
LONGITUDE:	71.955611° W 72° 57' 20.19" W
TYPE OF SITE:	MONOPOLE / INDOOR EQUIPMENT
TOWER HEIGHT:	154'-0"±
RAD CENTER:	154'-0"±
CURRENT USE:	TELECOMMUNICATIONS FACILITY
PROPOSED USE:	TELECOMMUNICATIONS FACILITY

SITE NUMBER: CT1050

SITE NAME: POMFRET-TYRONE RD

FA CODE: 10035021

PACE ID: MRCTB008300, MRCTB027239, MRCTB038296, MRCTB038299, MRCTB038302

PROJECT: LTE 3C_4C_5C & ANTENNA MODIFICATIONS 2018 UPGRADE

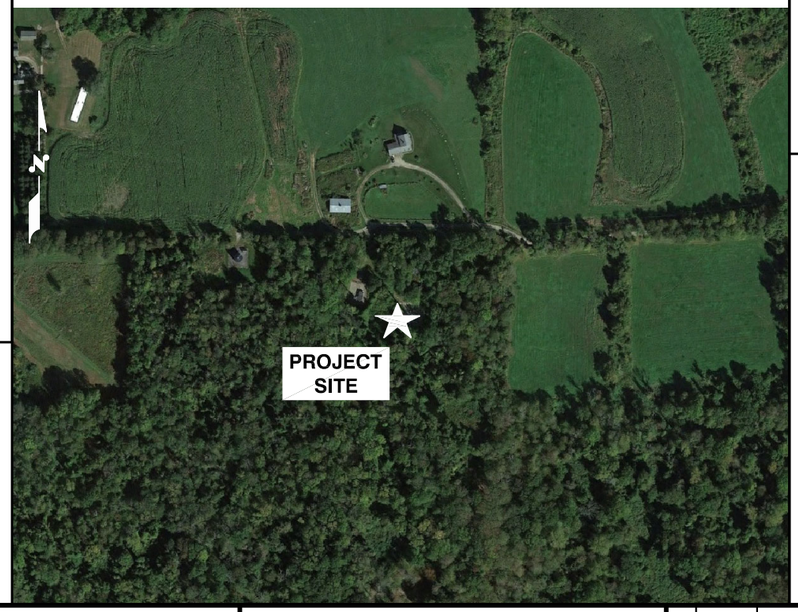
DRAWING INDEX

CCI SITE #: 841292
CCI SITE NAME: POMFRET-TYRONE RD

VICINITY MAP

DIRECTIONS TO SITE:

I -84 EAST TO I-384 EAST TO RT 44 EAST TO POMFRET. TAKE RIGHT ON TO RT 44 AT INTERSECTION WITH RT 169 (BLINKING LIGHT) AND CONTINUE EAST. TYRONE ROAD WILL BE ON YOUR RIGHT. TAKE RIGHT ONO TYRONE RD.. FOLLOW TO MAILBOX FOR 82 TYRONE RD SITE IS AT TOP OF DRIVEWAY ON LEFT, WE ARE THE ONLY CARRIER ON THIS TOWER. GROUND LEVEL SHELTER. GATE COMBO IS 0043



GENERAL NOTES

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

72 HOURS

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

UNDERGROUND SERVICE ALERT

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1050
SITE NAME: POMFRET-TYRONE RD
CCI SITE NUMBER: 841292

82 TYRONE ROAD
POMFRET, CT 06258
WINDHAM COUNTY

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

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A	02/06/18	ISSUED FOR REVIEW	TB	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TB

STATE OF CONNECTICUT · DEREK J. CREASEY · No. 29057 · LICENSED PROFESSIONAL ENGINEER

AT&T

TITLE SHEET
(LTE 3C_4C_5C & ANTENNA MODIFICATIONS)

SITE NUMBER	DRAWING NUMBER	REV
CT1050	T-1	2

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) FOR NEW GROUND ELECTRODE SYSTEMS. THE SUBCONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
4. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
5. EACH BTS CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, 6 AWG STRANDED COPPER OR LARGER FOR INDOOR BTS 2 AWG STRANDED COPPER FOR OUTDOOR BTS.
6. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
7. APPROVED ANTIOXIDANT COATINGS (I.E., CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
8. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO GROUND BAR.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. MISCELLANEOUS ELECTRICAL AND NON–ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
11. METAL CONDUIT SHALL BE MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH 6 AWS 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. TOUCHUP ALL SCRATCHES AND OTHER MARKS IN THE FIELD AFTER STEEL IS ERECTED USING A COMPATIBLE ZINC RICH PAINT.
16. CONSTRUCTION SHALL COMPLY WITH LTE 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 2012 WITH 2016 CT BUILDING CODE AMENDMENTS
   ELECTRICAL CODE: REFER TO ELECTRICAL DRAWINGS
   LIGHTENING CODE: REFER TO ELECTRICAL DRAWINGS

   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–G, STRUCTURAL STANDARDS FOR STEEL

   EQUIPMENT AND ANTENNA SUPPORTING STRUCTURES; REFER TO ELECTRICAL DRAWINGS FOR SPECIFIC ELECTRICAL STANDARDS.

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

ABBREVIATIONS

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

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1050
SITE NAME: POMFRET-TYRONE RD
CCI SITE NUMBER: 841292

82 TYRONE ROAD
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at&t
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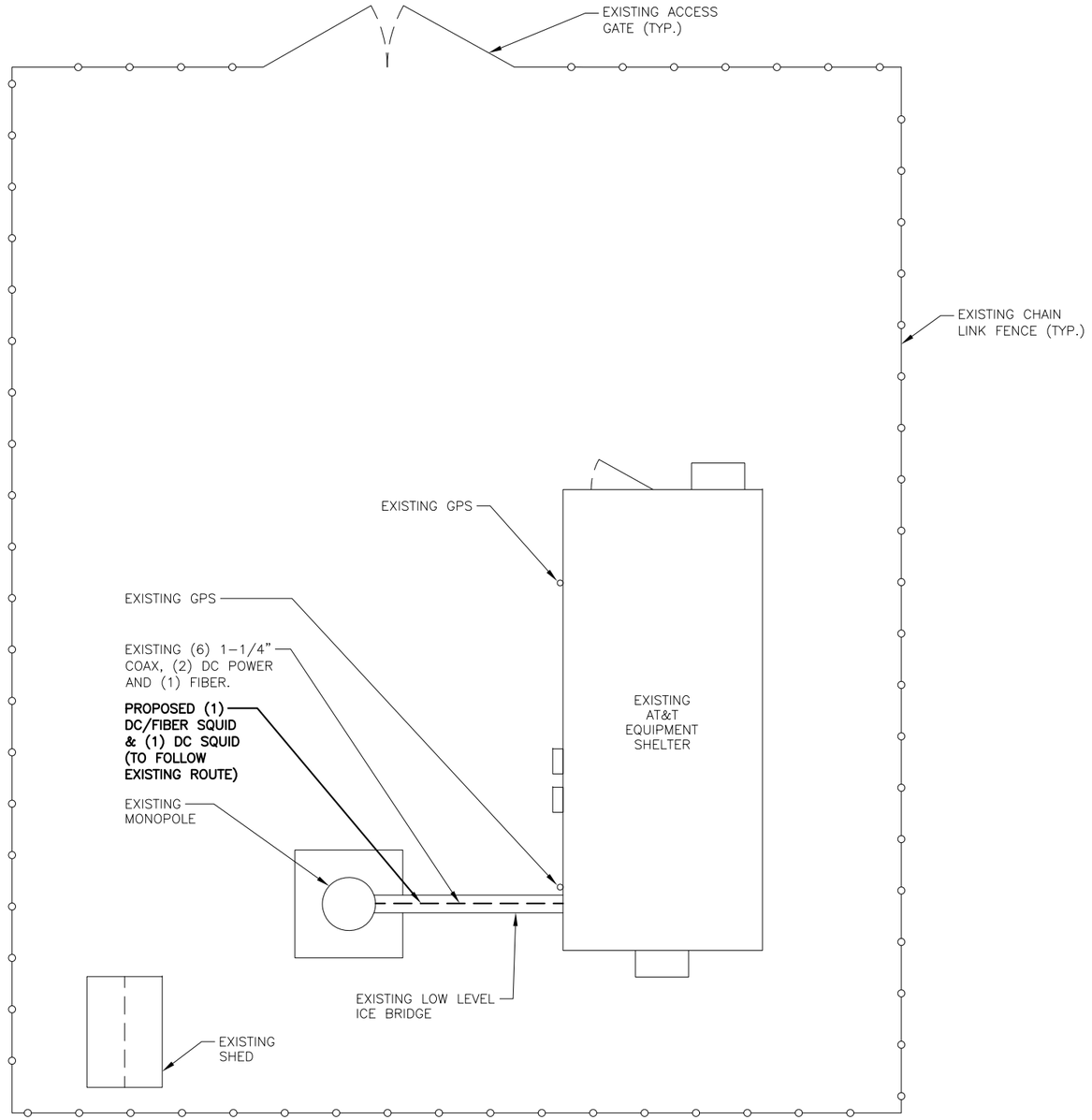
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TB

STATE OF CONNECTICUT DEREK J. CREASER No. 28551 LICENSED PROFESSIONAL ENGINEER

AT&T

GENERAL NOTES
(LTE 3C_4C_5C & ANTENNA MODIFICATIONS)

SITE NUMBER	DRAWING NUMBER	REV
CT1050	GN–1	2



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

0 2'-0" 4'-0" 8'-0" 12'-0"

NOTE:

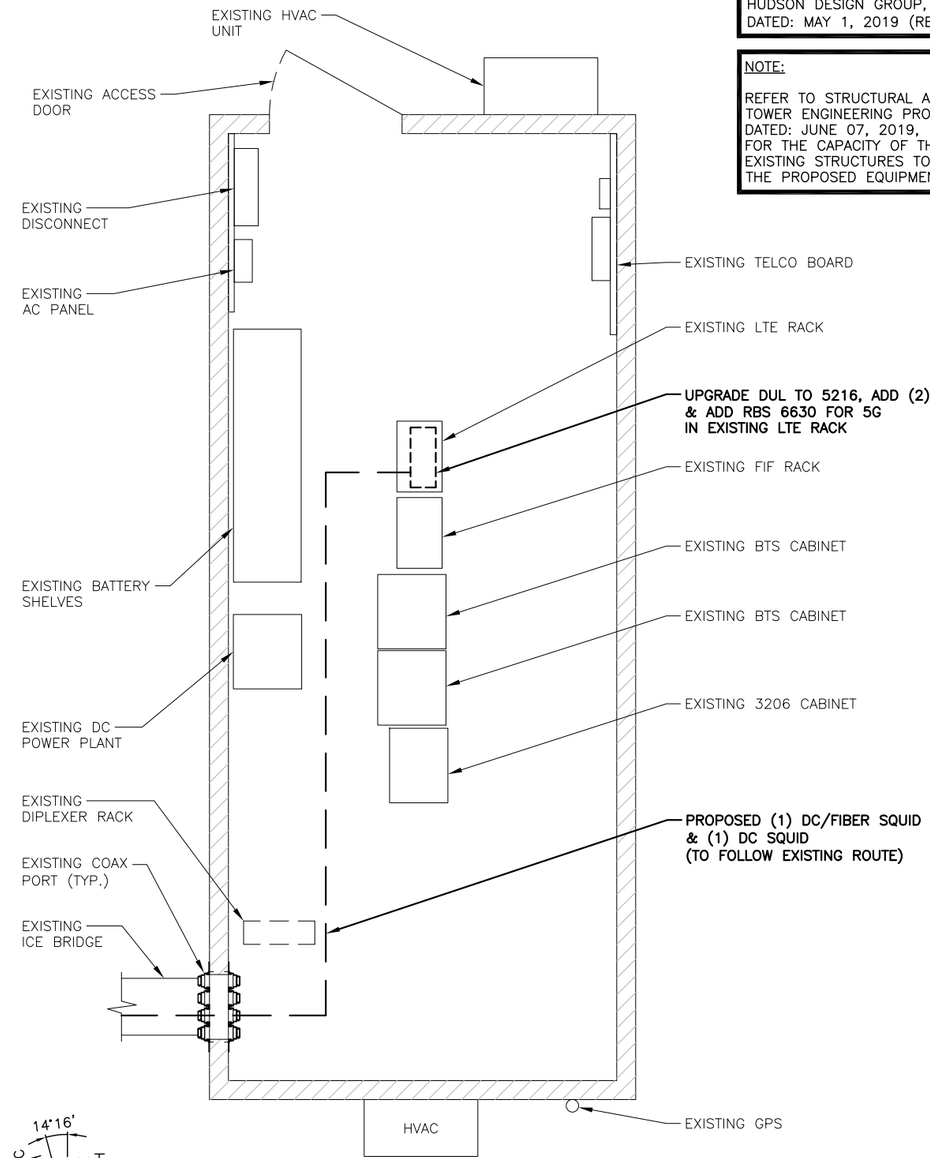
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: MAY 1, 2019 (REV.3)

NOTE:

REFER TO STRUCTURAL ANALYSIS BY:
TOWER ENGINEERING PROFESSIONALS
DATED: JUNE 07, 2019,
FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT.



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

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

HUDSON Design Group LLC
45 BEECHWOOD DRIVE
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TB

STATE OF CONNECTICUT
DEREK J. CREASEY
No. 28554
LICENSED PROFESSIONAL ENGINEER

AT&T

COMPOUND & EQUIPMENT PLAN
(LTE 3C_4C_5C & ANTENNA MODIFICATIONS)

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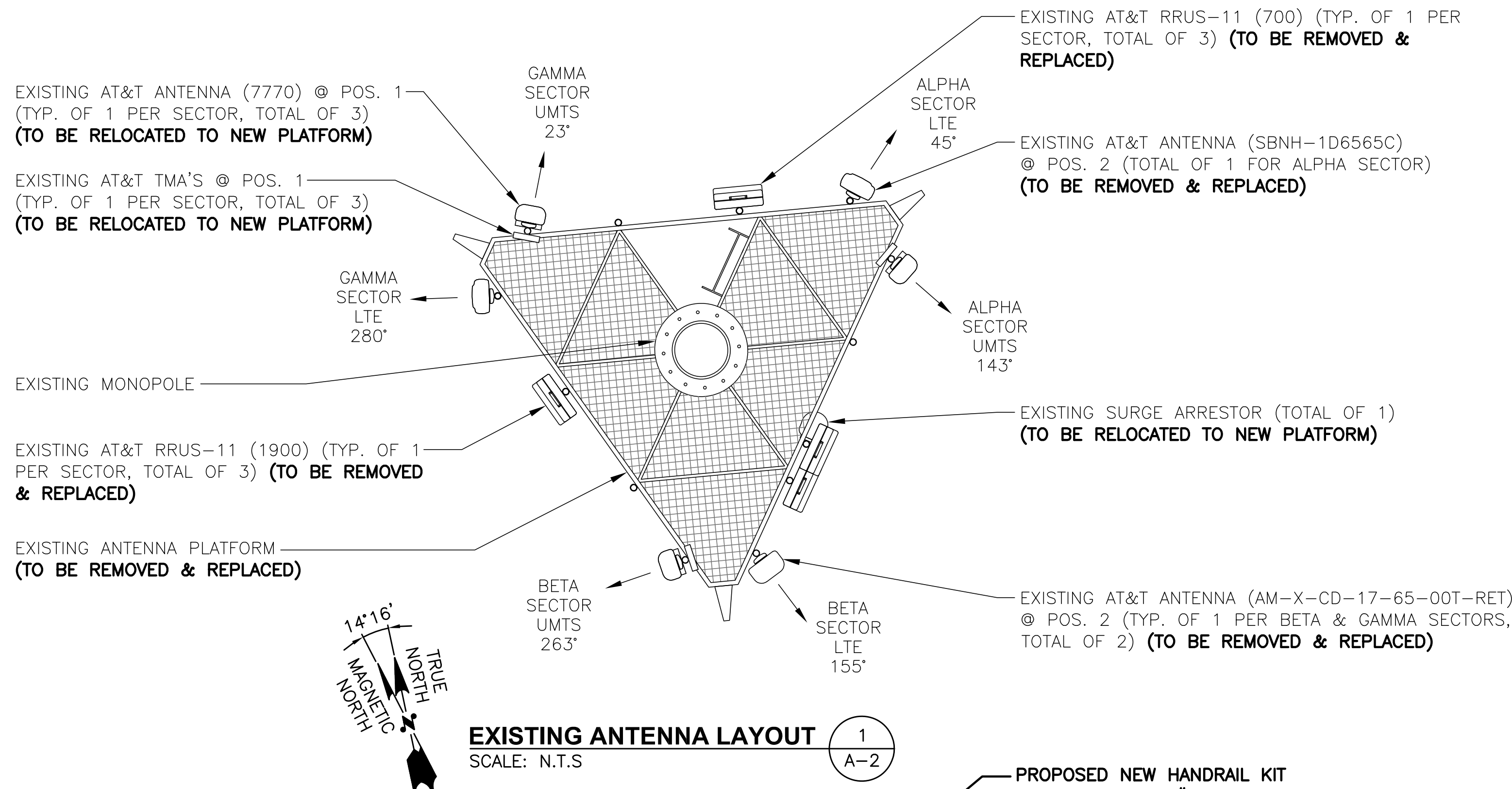
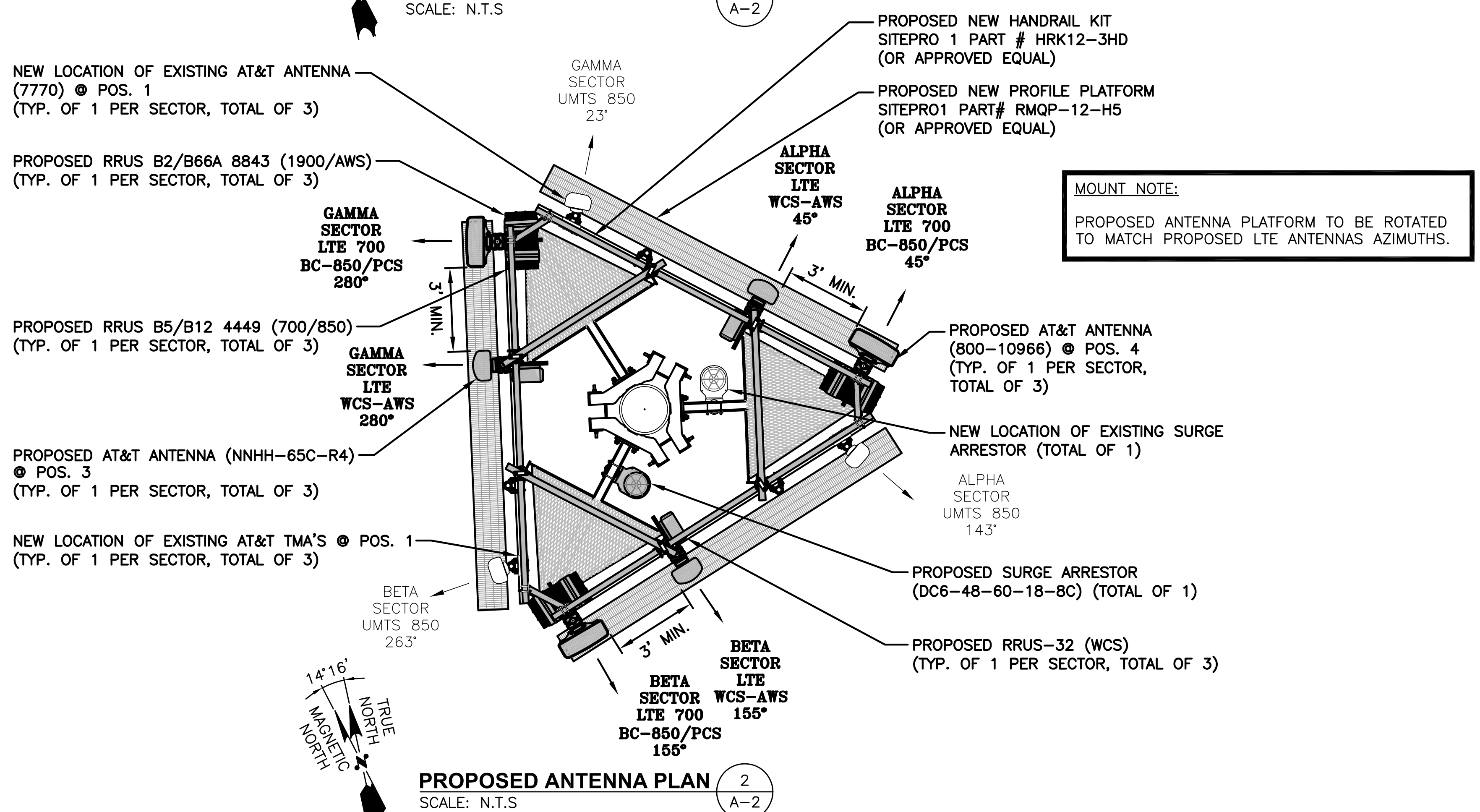


EXISTING ANTENNA LAYOUT (1 / A-2)
SCALE: N.T.S



MOUNT NOTE:

PROPOSED ANTENNA PLATFORM TO BE ROTATED TO MATCH PROPOSED LTE ANTENNAS AZIMUTHS.

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

NOTE:

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

NOTE:

AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: MAY 1, 2019 (REV.3)

NOTE:

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

SAI
12 INDUSTRIAL WAY SALEM, NH 03079

SITE NUMBER: CT1050
SITE NAME: POMFRET-TYRONE RD
CCI SITE NUMBER: 841292
82 TYRONE ROAD
POMFRET, CT 06258
WINDHAM COUNTY

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	06/21/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
1	04/02/18	ISSUED FOR CONSTRUCTION	EB	AT	DJC
B	03/22/18	ISSUED FOR PERMITTING	MR	AT	DJC
A	02/06/18	ISSUED FOR REVIEW	TB	AT	DJC

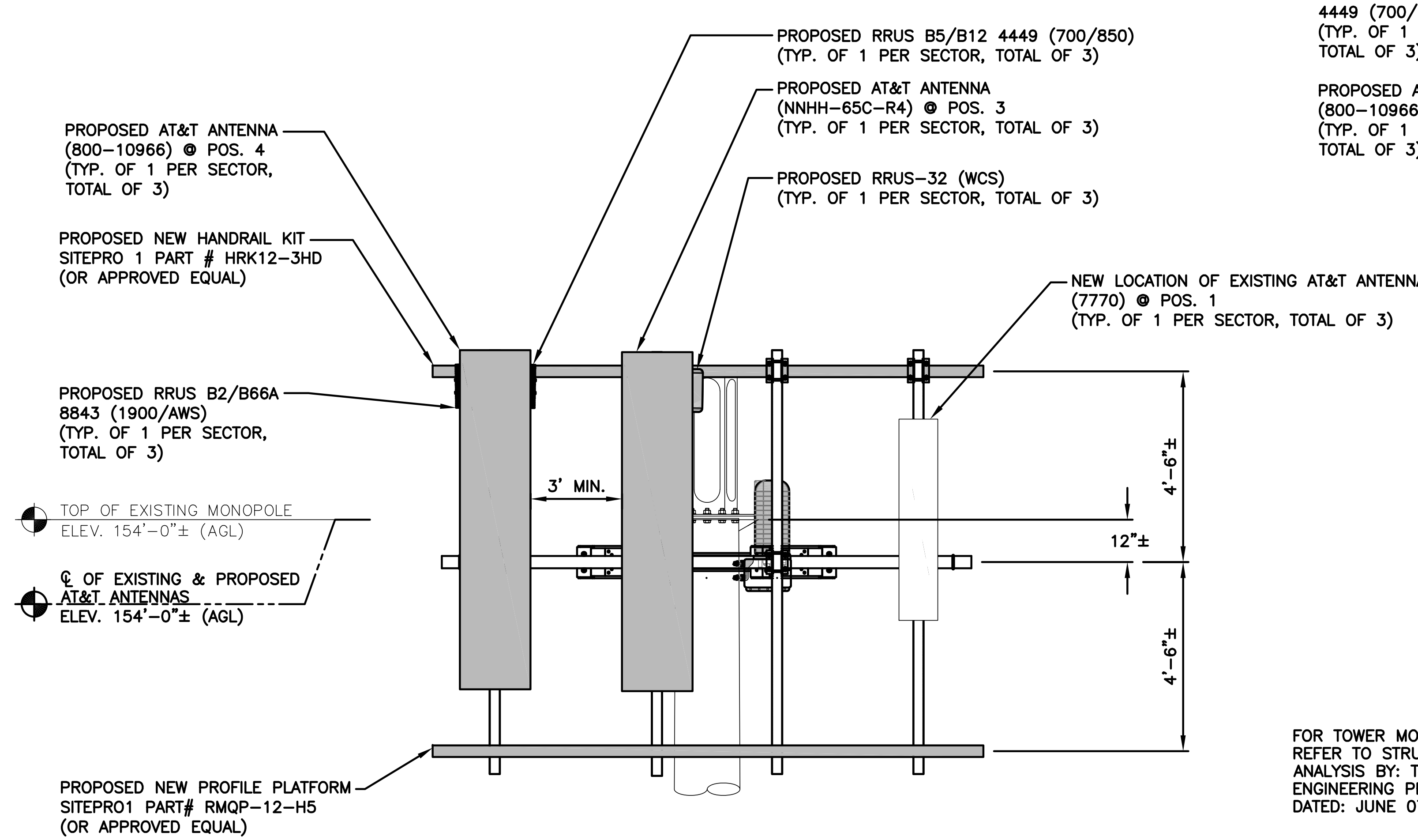
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TB

STATE OF CONNECTICUT · DEREK J. CREASER · No. 2[illegible] · LICENSED PROFESSIONAL ENGINEER

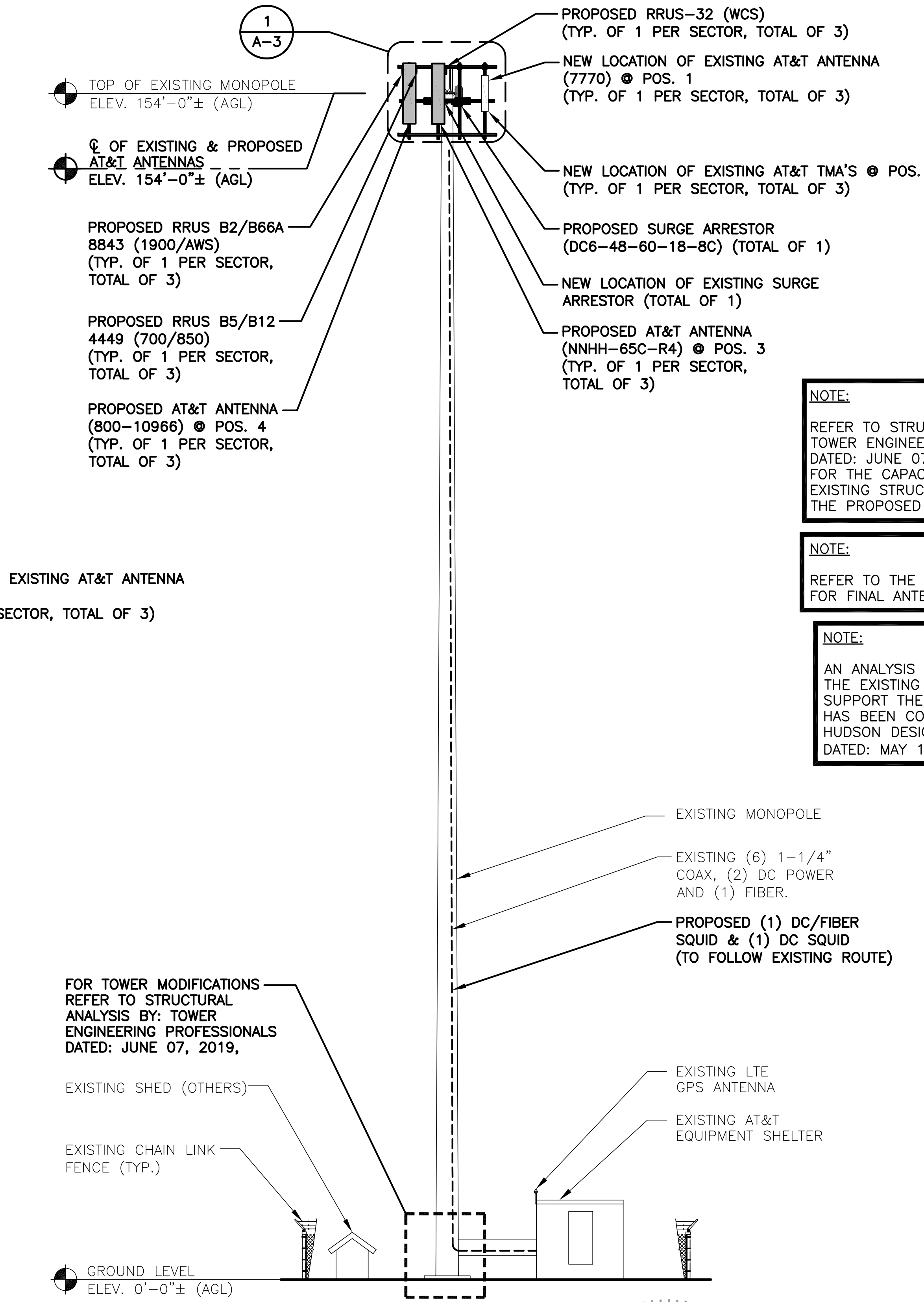
AT&T

ANTENNA LAYOUTS
(LTE 3C_4C_5C & ANTENNA MODIFICATIONS)

SITE NUMBER	DRAWING NUMBER	REV
CT1050	A-2	2



PROPOSED ELEVATION (1 / A-3)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"
0 1'-0" 2'-0" 4'-0" 6'-0"



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ELEVATION (2 / A-3)
22x34 SCALE: 1"=10'
11x17 SCALE: 1"=20'
0 5' 10' 20' 30'

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ELEVATION
(LTE 3C_4C_5C & ANTENNA MODIFICATIONS)

SITE NUMBER	DRAWING NUMBER	REV
CT1050	A-3	2

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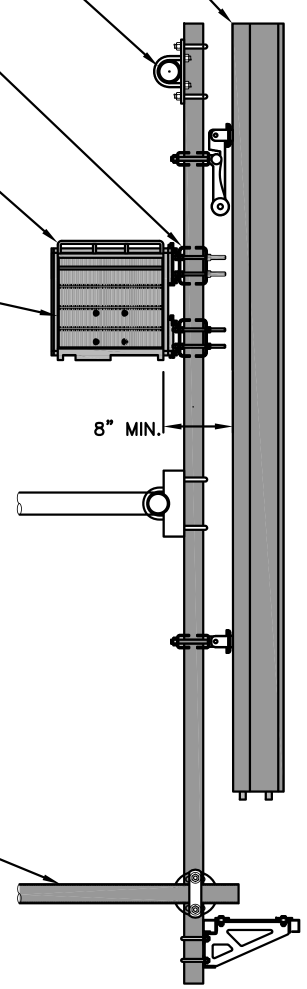
ANTENNA SCHEDULE

SECTOR	EXISTING/ PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA ℄ HEIGHT	AZIMUTH	TMA/ DIPLEXER	RRU	SIZE (INCHES) (L x W x D)	FEEDER	RAYCAP
A1	EXISTING	UMTS 850	7770	55X11X5	±154'	143°	(1)(E)(G) DBC2055F1V1-2 (1)(E) DTMABP7819VG12A	--	--	(2) 1-1/4 COAX (LENGTH 190'±)	(E) (1) RAYCAP DC6-48-60-18-8C
A2	–	–	–	–	–	–	--	--	--	--	
A3	PROPOSED	LTE WCS-AWS	NNHH-65C-R4	96X19.6X7.8	±154'	45°	--	(P)(1) RRUS-32 (WCS)	27.2x12.1x7.0	--	
A4	PROPOSED	LTE 700 BC-850/PCS	800-10966	96X20X6.9	±154'	45°	--	(P)(1) B2/B66 8843 (1900/AWS) (P)(1) B5/B12 4449 (700/850)	14.9x13.2x10.9 14.9x13.2x10.4	--	
B1	EXISTING	UMTS 850	7770	55X11X5	±154'	263°	(1)(E)(G) DBC2055F1V1-2 (1)(E) DTMABP7819VG12A	--	--	(2) 1-1/4 COAX (LENGTH 190'±)	(P) (1) RAYCAP DC6-48-60-18-8C
B2	–	–	–	–	–	–	--	--	--	--	
B3	PROPOSED	LTE WCS-AWS	NNHH-65C-R4	96X19.6X7.8	±154'	155°	--	(P)(1) RRUS-32 (WCS)	27.2x12.1x7.0	--	
B4	PROPOSED	LTE 700 BC-850/PCS	800-10966	96X20X6.9	±154'	155°	--	(P)(1) B2/B66 8843 (1900/AWS) (P)(1) B5/B12 4449 (700/850)	14.9x13.2x10.9 14.9x13.2x10.4	--	
C1	EXISTING	UMTS 850	7770	55X11X5	±154'	23°	(1)(E)(G) DBC2055F1V1-2 (1)(E) DTMABP7819VG12A	--	--	(2) 1-1/4 COAX (LENGTH 190'±)	SHARED
C2	–	–	–	–	–	–	--	--	--	--	
C3	PROPOSED	LTE WCS-AWS	NNHH-65C-R4	96X19.6X7.8	±154'	280°	--	(P)(1) RRUS-32 (WCS)	27.2x12.1x7.0	--	
C4	PROPOSED	LTE 700 BC-850/PCS	800-10966	96X20X6.9	±154'	280°	--	(P)(1) B2/B66 8843 (1900/AWS) (P)(1) B5/B12 4449 (700/850)	14.9x13.2x10.9 14.9x13.2x10.4	--	

FINAL ANTENNA CONFIGURATION (1 / A-4)
SCALE: N.T.S



PROPOSED ANTENNA & RRU MOUNTING DETAIL (2 / A-4)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

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

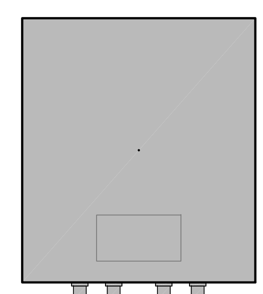
RRU CHART

QUANTITY	MODEL	L	W	D
3(P)	RRUS-32 (WCS)	27.2"	12.1"	7.0"
3(P)	B2/B66 8843 (1900/AWS)	14.9"	13.2"	10.9"
3(P)	B5/B12 4449 (700/850)	14.9"	13.2"	10.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS

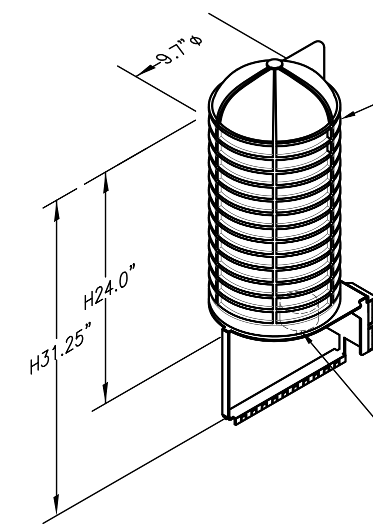
NOTE:

SEE RFDS FOR RRH FREQUENCY AND MODEL NUMBER



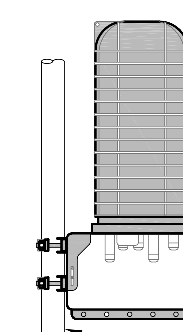
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

PROPOSED RRUS DETAIL (3 / A-4)
SCALE: N.T.S



NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

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



PROPOSED SURGE ARRESTOR MOUNTING DETAIL (5 / A-4)
SCALE: N.T.S

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STATE OF CONNECTICUT DEREK J. CREASER No. 28551 LICENSED PROFESSIONAL ENGINEER

AT&T

DETAILS
(LTE 3C_4C_5C & ANTENNA MODIFICATIONS)

SITE NUMBER	DRAWING NUMBER	REV
CT1050	A-4	2

STRUCTURAL NOTES:

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

SPECIAL INSPECTIONS (REFERENCE IBC CHAPTER 17):

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

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

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

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

SPECIAL INSPECTION CHECKLIST	
BEFORE CONSTRUCTION	
CONSTRUCTION/INSTALLATION INSPECTIONS AND TESTING REQUIRED (COMPLETED BY ENGINEER OF RECORD)	REPORT ITEM
N/A	ENGINEER OF RECORD APPROVED SHOP DRAWINGS [1]
N/A	MATERIAL SPECIFICATIONS REPORT [2]
N/A	FABRICATOR NDE INSPECTION
N/A	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:	

NOTES:

1. REQUIRED FOR ANY NEW SHOP FABRICATED FRP OR STEEL.
2. PROVIDED BY MANUFACTURER, REQUIRED IF HIGH STRENGTH BOLTS OR STEEL.
3. PROVIDED BY GENERAL CONTRACTOR; PROOF OF MATERIALS.
4. HIGH WIND ZONE INSPECTION CATB 120MPH OR CAT C,D 110MPH INSPECT FRAMING OF WALLS, ANCHORING, FASTENING SCHEDULE.
5. ADHESIVE FOR REBAR AND ANCHORS SHALL HAVE BEEN TESTED IN ACCORDANCE WITH ACI 355.4 AND ICC-ES AC308 FOR CRACKED CONCRETE AND SEISMIC APPLICATIONS. DESIGN ADHESIVE BOND STRENGTH HAS BEEN BASED ON ACI 355.4 TEMPERATURE CATEGORY B WITH INSTALLATIONS INTO DRY HOLES DRILLED USING A CARBIDE BIT INTO CRACKED CONCRETE THAT HAS CURED FOR AT LEAST 21 DAYS. ADHESIVE ANCHORS REQUIRING CERTIFIED INSTALLATIONS SHALL BE INSTALLED BY A CERTIFIED ADHESIVE ANCHOR INSTALLER PER ACI 318-11 D.9.2.2. INSTALLATIONS REQUIRING CERTIFIED INSTALLERS SHALL BE INSPECTED PER ACI 318-11 D.8.2.4.
6. AS REQUIRED; FOR ANY FIELD CHANGES TO THE ITEMS IN THIS TABLE.

NOTES:

1. ALL CONNECTIONS TO BE SHOP WELDED & FIELD BOLTED USING 3/4"ø A325-X BOLTS, UNLESS OTHERWISE NOTIFIED.
2. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED BEFORE ORDERING MATERIAL.
3. SHOP DRAWING ENGINEER REVIEW & APPROVAL REQUIRED PRIOR TO STEEL FABRICATION.
4. VERIFICATION OF EXISTING ROOF CONSTRUCTION IS REQUIRED PRIOR TO THE INSTALLATION OF THE ROOF PLATFORM. ENGINEER OF RECORD IS TO APPROVE EXISTING CONDITIONS IN ORDER TO MOVE FORWARD.
5. CENTERLINE OF PROPOSED STEEL PLATFORM SUPPORT COLUMNS TO BE CENTRALLY LOCATED OVER THE EXISTING BUILDING COLUMNS.
6. EXISTING BRICK MASONRY COLUMNS/BEARING TO BE REPAIRED/REPLACED AT ALL PROPOSED PLATFORM SUPPORT POINTS. ENGINEER OF RECORD TO REVIEW AND APPROVE.

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STATE OF CONNECTICUT
DEREK J. CREASEY
No. 28357
LICENSED PROFESSIONAL ENGINEER

AT&T

STRUCTURAL NOTES
(LTE 3C_4C_5C & ANTENNA MODIFICATIONS)

SITE NUMBER	DRAWING NUMBER	REV
CT1050	SN-1	2

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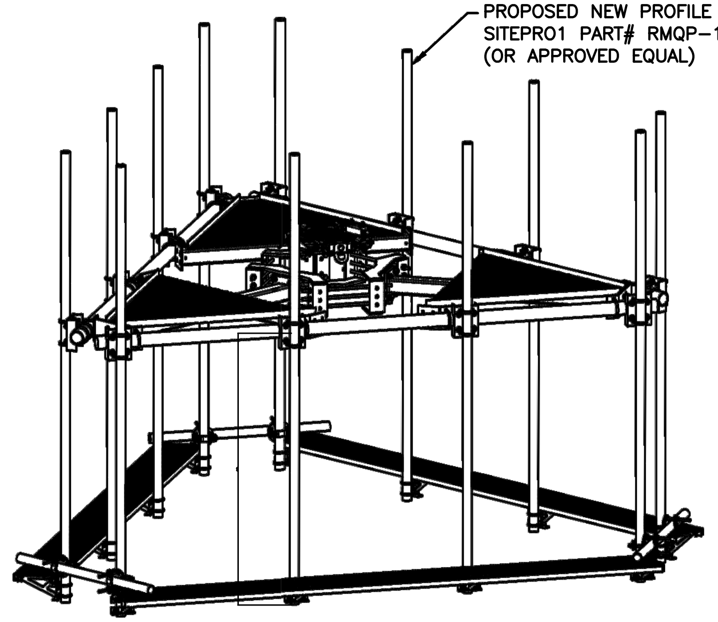
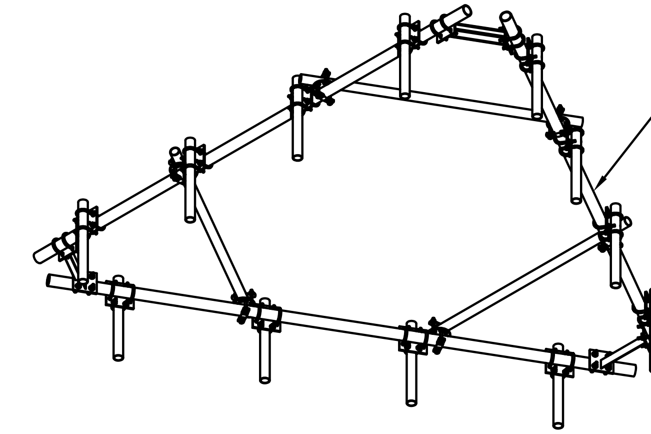
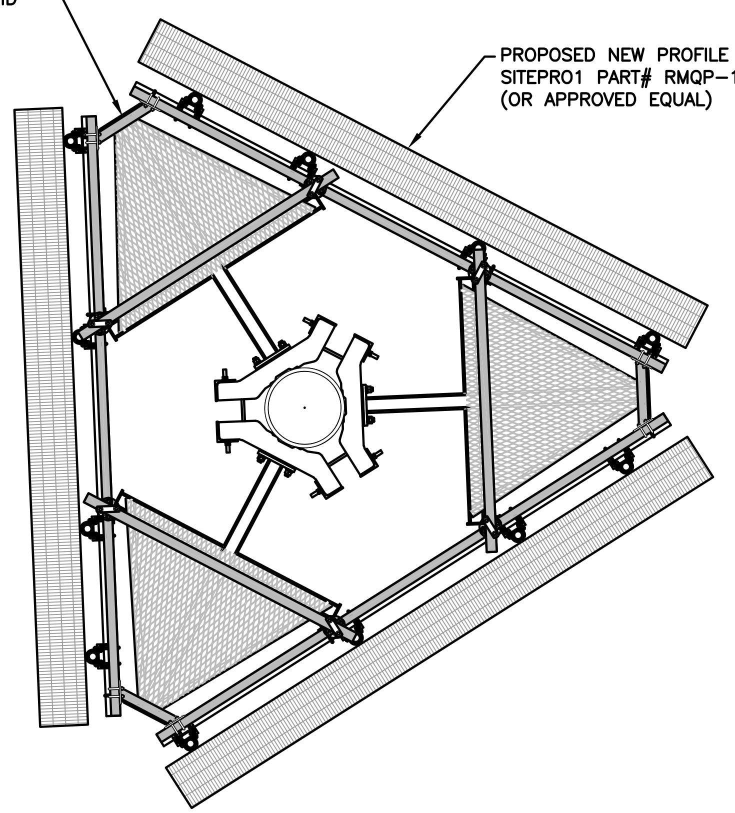


PROPOSED LOW PROFILE PLATFORM RMQP-12-H5 (1 / S-1)
SCALE: N.T.S

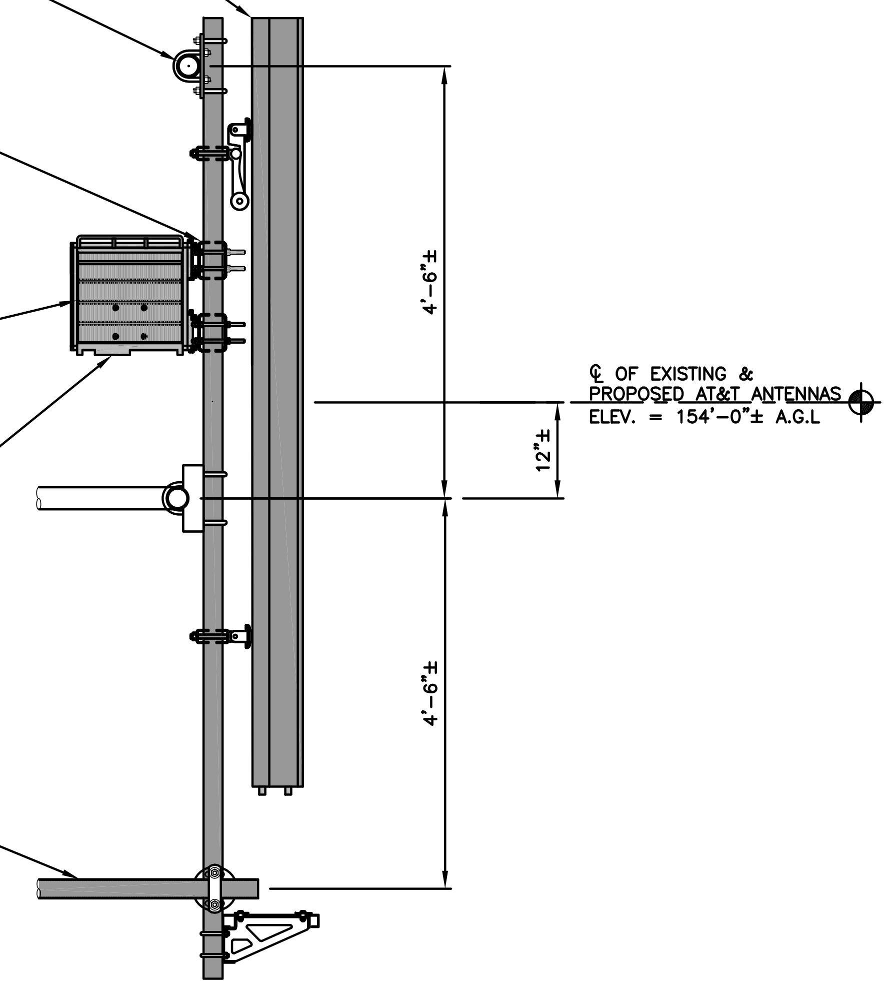


PROPOSED HANDRAIL KIT (2 / S-1)
SCALE: N.T.S



PLATFORM REINFORCEMENT PLAN (3 / S-1)
22x34 SCALE: 1/2"=1'-0"
11x17 SCALE: 1/4"=1'-0"

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



PLATFORM REINFORCEMENT PLAN (4 / S-1)
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"

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

NO.	DATE	REVISIONS	BY	CHK	APP'D
2	06/21/19	ISSUED FOR CONSTRUCTION	AM	AT	DJC
1	04/02/18	ISSUED FOR CONSTRUCTION	EB	AT	DJC
B	03/22/18	ISSUED FOR PERMITTING	MR	AT	DJC
A	02/06/18	ISSUED FOR REVIEW	TB	AT	DJC

SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TB

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

SAI
12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT1050
SITE NAME: POMFRET-TYRONE RD
CCI SITE NUMBER: 841292

82 TYRONE ROAD
POMFRET, CT 06258
WINDHAM COUNTY

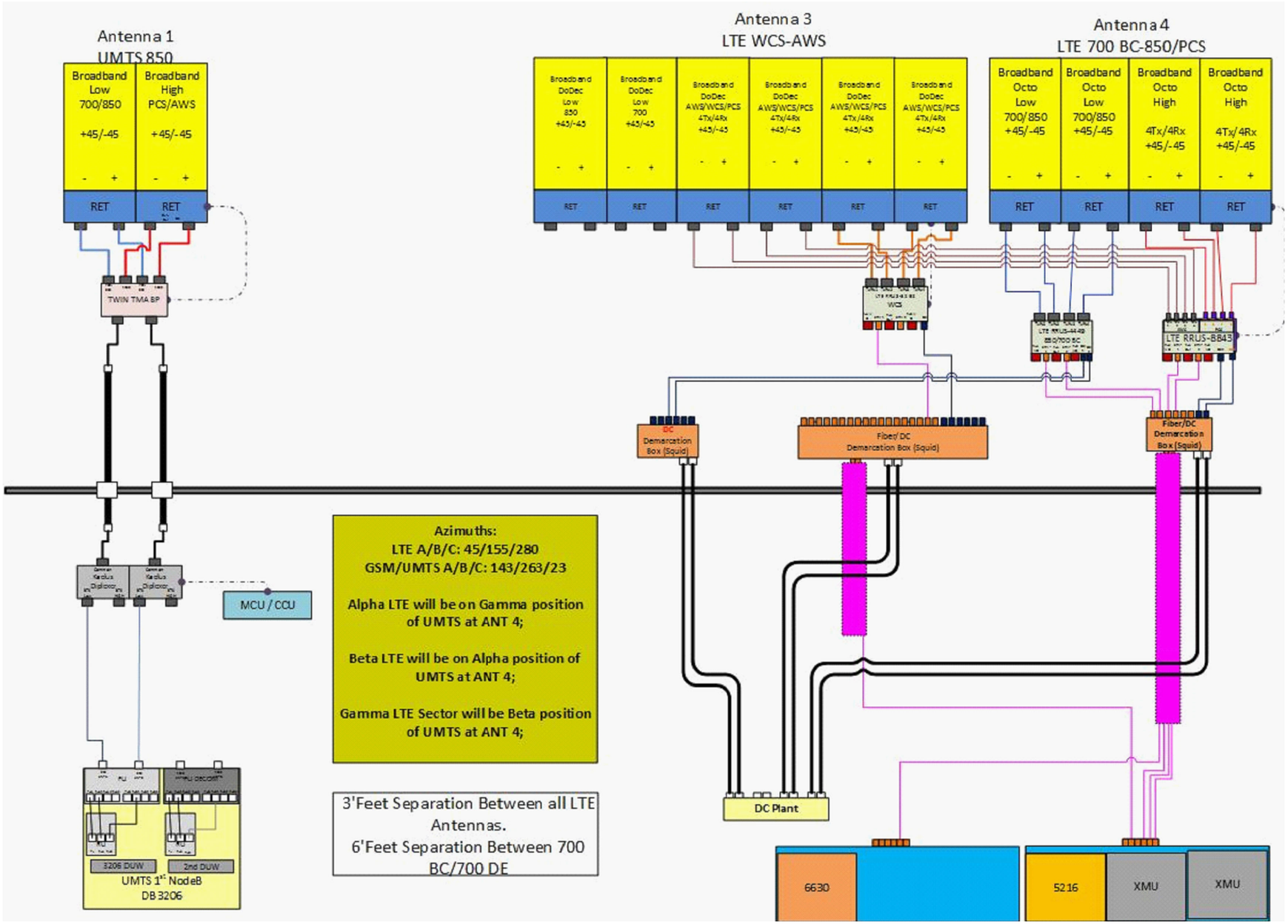
at&t
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

STATE OF CONNECTICUT
DEREK J. CREASER
No. 28551
LICENSED PROFESSIONAL ENGINEER

AT&T

MOUNT MODIFICATION DESIGN
(LTE 3C_4C_5C & ANTENNA MODIFICATIONS)

SITE NUMBER	DRAWING NUMBER	REV
CT1050	S-1	2



RF PLUMBING DIAGRAM (1 / RF–1)
SCALE: N.T.S

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

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

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

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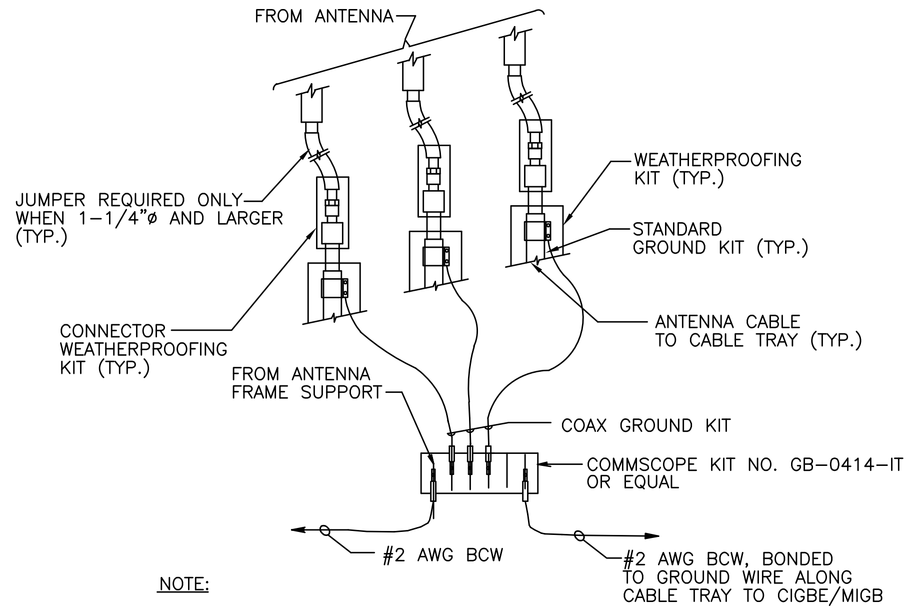
SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TB

STATE OF CONNECTICUT — DEREK J. CREASEY — No. 28554 — LICENSED PROFESSIONAL ENGINEER

AT&T

RF PLUMBING DIAGRAM
(LTE 3C_4C_5C & ANTENNA MODIFICATIONS)

SITE NUMBER	DRAWING NUMBER	REV
CT1050	RF–1	2

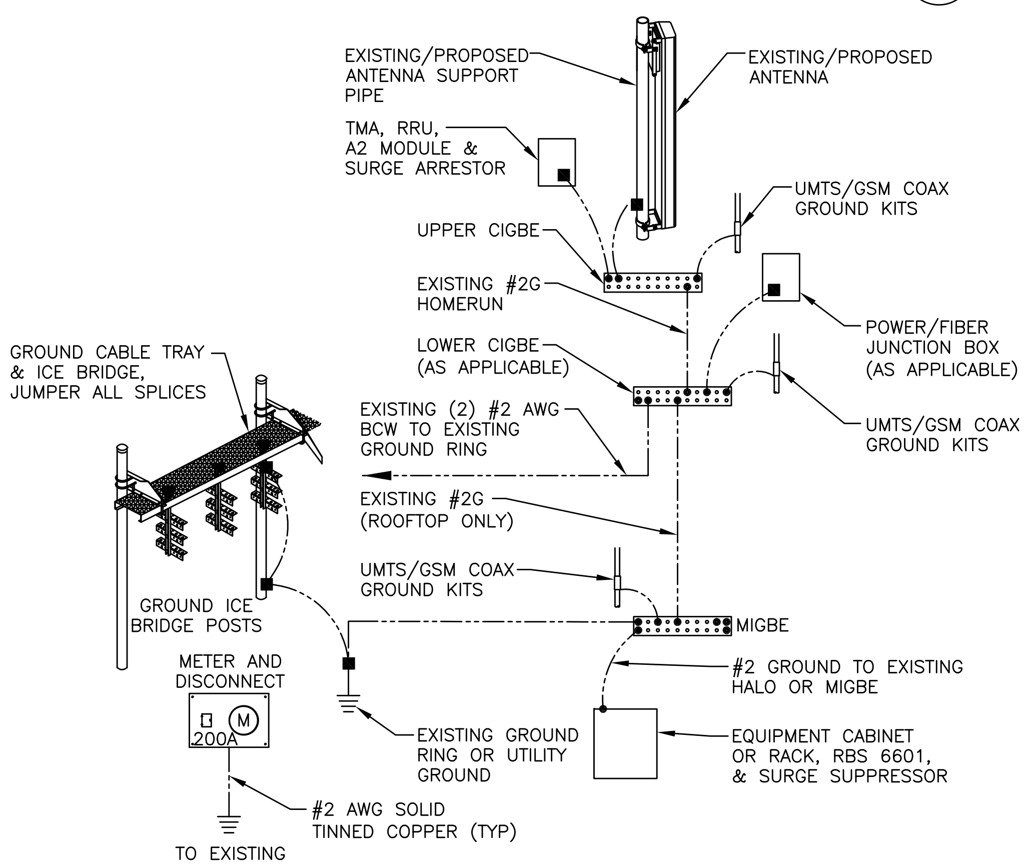


NOTE:

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

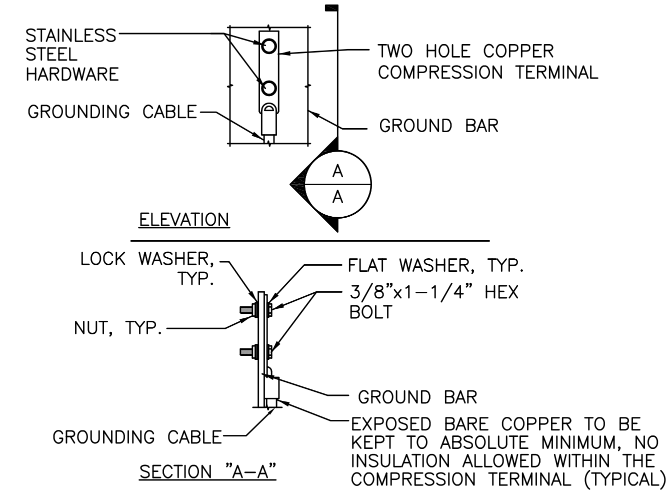
GROUND WIRE TO GROUND BAR CONNECTION DETAIL (1 / G-1)

SCALE: N.T.S



GROUNDING RISER DIAGRAM (2 / G-1)

SCALE: N.T.S



NOTE:

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

TYPICAL GROUND BAR CONNECTION DETAIL (3 / G-1)

SCALE: N.T.S

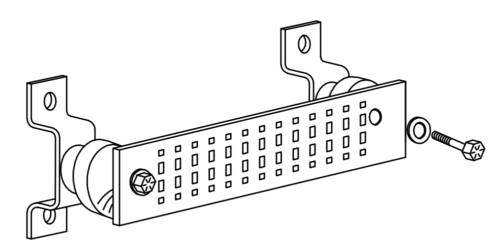
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

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

SECTION "A" - SURGE ABSORBERS

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



GROUND BAR - DETAIL (4 / G-1)

SCALE: N.T.S

HUDSON Design Group LLC
45 BEECHWOOD DRIVE NORTH ANDOVER, MA 01845
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SAI
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SCALE: AS SHOWN | DESIGNED BY: AT | DRAWN BY: TB

AT&T

GROUNDING DETAILS
(LTE 3C_4C_5C & ANTENNA MODIFICATIONS)

SITE NUMBER	DRAWING NUMBER	REV
CT1050	G-1	2

Date: **June 7, 2019**

Charles Trask
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277

Tower Engineering Professionals
326 Tryon Road
Raleigh, NC 27603
(919) 661-6351

Subject: Structural Modification Analysis Report

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT1050
	Carrier Site Name:	Pomfret Tyrone Rd
Crown Castle Designation:	**Crown Castle BU Number:**	841292
	Crown Castle Site Name:	Pomfret-Tyrone Rd
	Crown Castle JDE Job Number:	477477
	Crown Castle Work Order Number:	1722162
	Crown Castle Order Number:	420670 Rev. 3
Engineering Firm Designation:	**TEP Project Number:**	131599.247059
Site Data:	**82 Tyrone Road, Pomfret, Windham County, CT 06258**	
	Latitude *41° 53' 24.90"*, Longitude *-71° 57' 20.20"*	
	150 Foot - Monopole Tower	

Dear Charles Trask,

Tower Engineering Professionals is pleased to submit this **"Structural Modification Analysis Report"** to determine the structural integrity of the above-mentioned tower.

The purpose of the analysis is to determine acceptability of the tower stress level. Based on our analysis we have determined the tower stress level for the structure and foundation, under the following load case, to be:

LC4: Modified Structure w/ Proposed Equipment Configuration **Sufficient Capacity**

This analysis utilizes an ultimate 3-second gust wind speed of 130 mph as required by the 2018 Connecticut State Building Code. Applicable Standard references and design criteria are listed in Section 2 - Analysis Criteria.

Structural analysis prepared by: Riley Eaton, P.E. / JLW

Respectfully submitted by:

Graham M. Andres, P.E.

Electronic Copy

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 150-ft monopole tower designed by ITT Meyer. The tower has been modified per reinforcement drawings prepared by GPD in January of 2013. All information provided to TEP was assumed to be accurate and complete.

2) ANALYSIS CRITERIA

TIA-222 Revision:	TIA-222-H
Risk Category:	II
Wind Speed:	130 mph
Exposure Category:	C
Topographic Factor:	1.0
Ice Thickness:	1.50 in
Wind Speed with Ice:	50 mph
Service Wind Speed:	60 mph

Table 1 - Proposed Equipment Configuration

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
152.0	152.0	3	CCI Antennas	DTMABP7819VG12A	6 2 6	1-1/4 3/8 3/4
		3	Commscope	NNH4-65C-R6 w/ Mount Pipe		
		3	Ericsson	RRUS 32		
		3	Ericsson	RRUS 4449 B5/B12		
		3	Ericsson	RRUS 8843 B2/B66A		
		3	Kathrein	80010966 w/ Mount Pipe		
		6	Powerwave Technologies	7020.00		
		3	Powerwave Technologies	7770.00 w/ Mount Pipe		
		1	Raycap	DC6-48-60-0-8C-EV		
		1	Raycap	DC6-48-60-18-8C		
		1	Raycap	DC6-48-60-18-8F		
		1	SitePro1	RMQP-12-H5		
		1	SitePro1	HRK12-3D		

Table 2 - Other Considered Equipment

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
104.0	104.0	1	Sinclair	SRL-210C-2	1	3/8

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
Geotechnical Report	GPD Group	5121526	CCISites
Foundation Mapping Report	FDH	5403014	CCISites
Tower Manufacturer Drawings	ITT Meyer, Inc.	131599	TEP
Tower Mapping Report	GPD Group & Northeast Towers	5342387	CCISites
Tower Reinforcement Drawings	GPD Group	5340765	CCISites
Post-Modification Inspection	Hudson Design Group, LLC	5403264	CCISites
Tower Structural Analysis Report	Tower Engineering Professionals	8289603	CCISites

3.1) Analysis Method

tnxTower (version 8.0.5.0), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

tnxTower was used to determine the loads on the modified structure. Additional calculations were performed to determine the stresses in the pole and in the reinforcing elements. These calculations are presented in Appendix C.

3.2) Assumptions

1) The tower and foundation were built and maintained in accordance with the manufacturer's specification.
2) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2, and the referenced drawings.
3) All tower components are in sufficient condition to carry their full design capacity.
4) Serviceability with respect to antenna twist, tilt, roll, or lateral translation, is not checked and is left to the carrier or tower owner to ensure conformance.
5) All antenna mounts and mounting hardware are structurally sufficient to carry the full design capacity requirements of appurtenance wind area and weight as provided by the original manufacturer specifications. It is the carrier's responsibility to ensure compliance to the structural limitations of the existing and/or proposed antenna mounts. TEP did not perform a site visit to verify the size, condition or capacity of the antenna mounts and did not analyze antennas supporting mounts as part of this structural analysis report.
6) When applicable, the effective projected area (EPA) of appurtenances was determined by computation fluid dynamics (CFD) testing performed by Crown Castle. TEP assumes the means and methods used to determine the EPA's yields results that follow the intent of TIA-222-H and are accurate and complete.
7) Based on the tower mapping completed by GPD Group & Northeast Towers (CCI Doc ID 5342387), the monopole was determined to be a 150-ft Type B Mast designed by ITT Meyer, Inc., with the 1/4" top pole section wall thickness option. TEP assumed the pole geometry according to this mast design type.
8) The foundation steel reinforcement was assumed to be the minimum required per ACI 318.
9) The following material grades were assumed:
   a) Flange plate: ASTM A36
   b) Concrete compressive strength: f'c = 3 ksi
   c) Foundation flexural reinforcement: fy = 60 ksi

This analysis may be affected if any assumptions are not valid or have been made in error. Tower Engineering Professionals should be notified to determine the effect on the structural integrity of the tower.

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)[1,2]

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP15.25x14.5x0.25	Pole	45.7%	Pass
145 - 143.5	Pole	TP15.475x15.25x0.25	Pole	54.5%	Pass
143.5 - 143.25	Pole + Reinf.	TP15.513x15.475x0.5625	Pole	28.3%	Pass
143.25 - 138.25	Pole + Reinf.	TP16.263x15.513x0.5375	Pole	43.2%	Pass
138.25 - 133.25	Pole + Reinf.	TP17.013x16.263x0.525	Pole	56.9%	Pass
133.25 - 129.25	Pole + Reinf.	TP17.613x17.013x0.5125	Pole	67.1%	Pass
129.25 - 129	Pole + Reinf.	TP17.65x17.613x0.925	Reinf. 6 Bolt-Shaft Bearing	51.1%	Pass
129 - 124	Pole + Reinf.	TP18.4x17.65x0.875	Reinf. 6 Compression	58.9%	Pass
124 - 119	Pole + Reinf.	TP19.15x18.4x0.8375	Reinf. 6 Compression	67.8%	Pass
119 - 115	Pole + Reinf.	TP19.75x19.15x0.825	Reinf. 6 Compression	74.7%	Pass
115 - 114.75	Pole + Reinf.	TP19.788x19.75x1	Reinf. 6 Compression	68.4%	Pass
114.75 - 111.25	Pole + Reinf.	TP20.313x19.788x0.975	Reinf. 6 Bolt-Shaft Bearing	76.1%	Pass
111.25 - 111	Pole + Reinf.	TP20.35x20.313x0.6	Pole	93.2%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
111 - 110.75	Pole + Reinf.	TP20.388x20.35x1.15	Reinf. 15 Tension Rupture	66.1%	Pass
110.75 - 110	Pole + Reinf.	TP20.5x20.387x1.15	Reinf. 15 Tension Rupture	67.0%	Pass
110 - 109	Pole + Reinf.	TP20.651x20.5x1.125	Reinf. 15 Tension Rupture	68.5%	Pass
109 - 108.75	Pole + Reinf.	TP20.689x20.651x0.6625	Reinf. 13 Tension Rupture	77.3%	Pass
108.75 - 108.25	Pole + Reinf.	TP20.765x20.689x0.6625	Reinf. 13 Tension Rupture	78.1%	Pass
108.25 - 108	Pole + Reinf.	TP20.803x20.765x1.075	Reinf. 5 Tension Rupture	55.1%	Pass
108 - 106.42	Pole + Reinf.	TP21.041x20.803x1.075	Reinf. 5 Tension Rupture	56.8%	Pass
106.42 - 106.17	Pole + Reinf.	TP21.079x21.041x0.775	Reinf. 5 Tension Rupture	77.6%	Pass
106.17 - 101.75	Pole + Reinf.	TP21.748x21.079x0.75	Reinf. 5 Tension Rupture	83.7%	Pass
101.75 - 101.5	Pole + Reinf.	TP21.786x21.748x1.2	Reinf. 12 Tension Rupture	54.9%	Pass
101.5 - 101.25	Pole + Reinf.	TP21.823x21.786x1	Reinf. 12 Tension Rupture	58.2%	Pass
101.25 - 96.25	Pole + Reinf.	TP22.58x21.823x0.975	Reinf. 12 Tension Rupture	63.2%	Pass
96.25 - 91.15	Pole + Reinf.	TP23.351x22.58x1.025	Reinf. 5 Tension Rupture	62.5%	Pass
91.15 - 90.92	Pole + Reinf.	TP23.386x23.351x1.025	Reinf. 5 Tension Rupture	62.7%	Pass
90.92 - 90.25	Pole + Reinf.	TP23.487x23.386x1.025	Reinf. 5 Tension Rupture	63.3%	Pass
90.25 - 90	Pole + Reinf.	TP23.525x23.487x1.025	Reinf. 4 Tension Rupture	63.6%	Pass
90 - 85	Pole + Reinf.	TP24.281x23.525x0.9875	Reinf. 4 Tension Rupture	67.9%	Pass
85 - 80	Pole + Reinf.	TP25.038x24.281x0.95	Reinf. 4 Tension Rupture	72.2%	Pass
80 - 75	Pole + Reinf.	TP25.794x25.038x0.925	Reinf. 4 Tension Rupture	76.3%	Pass
75 - 73.26	Pole + Reinf.	TP26.55x25.794x0.925	Reinf. 4 Tension Rupture	77.8%	Pass
73.26 - 69	Pole + Reinf.	TP26.2x25.557x1.0625	Reinf. 11 Tension Rupture	66.3%	Pass
69 - 64	Pole + Reinf.	TP26.955x26.2x1.0375	Reinf. 11 Tension Rupture	69.4%	Pass
64 - 59	Pole + Reinf.	TP27.71x26.955x1.0125	Reinf. 11 Tension Rupture	72.5%	Pass
59 - 56.5	Pole + Reinf.	TP28.088x27.71x1	Reinf. 11 Tension Rupture	74.0%	Pass
56.5 - 56.25	Pole + Reinf.	TP28.126x28.088x1	Reinf. 2 Tension Rupture	74.2%	Pass
56.25 - 55.33	Pole + Reinf.	TP28.265x28.126x0.9875	Reinf. 2 Tension Rupture	74.7%	Pass
55.33 - 55.08	Pole + Reinf.	TP28.302x28.265x1.1125	Reinf. 2 Tension Rupture	67.9%	Pass
55.08 - 50.08	Pole + Reinf.	TP29.058x28.302x1.0875	Reinf. 2 Tension Rupture	70.7%	Pass
50.08 - 45.08	Pole + Reinf.	TP29.813x29.058x1.0625	Reinf. 2 Tension Rupture	73.4%	Pass
45.08 - 40.08	Pole + Reinf.	TP30.568x29.813x1.0375	Reinf. 2 Tension Rupture	76.0%	Pass
40.08 - 35.08	Pole + Reinf.	TP31.323x30.568x1.0125	Reinf. 2 Tension Rupture	78.5%	Pass
35.08 - 33.93	Pole + Reinf.	TP32.09x31.323x1.0125	Reinf. 2 Tension Rupture	79.1%	Pass
33.93 - 28.93	Pole + Reinf.	TP31.627x30.871x1.075	Reinf. 2 Tension Rupture	78.6%	Pass
28.93 - 28.75	Pole + Reinf.	TP31.654x31.627x1.075	Reinf. 2 Tension Rupture	78.7%	Pass
28.75 - 28.5	Pole + Reinf.	TP31.692x31.654x1.075	Reinf. 1 Tension Rupture	78.8%	Pass
28.5 - 23.5	Pole + Reinf.	TP32.448x31.692x1.05	Reinf. 1 Tension Rupture	81.0%	Pass
23.5 - 19.25	Pole + Reinf.	TP33.09x32.448x1.025	Reinf. 1 Tension Rupture	82.8%	Pass
19.25 - 19	Pole + Reinf.	TP33.128x33.09x1.225	Reinf. 1 Tension Rupture	69.7%	Pass
19 - 16.75	Pole + Reinf.	TP33.468x33.128x1.225	Reinf. 1 Tension Rupture	70.5%	Pass
16.75 - 16.5	Pole + Reinf.	TP33.506x33.468x0.775	Reinf. 1 Tension Rupture	92.9%	Pass
16.5 - 11.5	Pole + Reinf.	TP34.262x33.506x0.775	Reinf. 1 Tension Rupture	94.9%	Pass
11.5 - 7	Pole + Reinf.	TP34.942x34.262x0.75	Reinf. 1 Tension Rupture	96.7%	Pass
7 - 6.75	Pole + Reinf.	TP34.98x34.942x1.425	Reinf. 1 Tension Rupture	59.3%	Pass
6.75 - 6.5	Pole + Reinf.	TP35.018x34.98x1.175	Reinf. 1 Tension Rupture	74.2%	Pass

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
6.5 - 2.75	Pole + Reinf.	TP35.584x35.018x1.175	Reinf. 1 Tension Rupture	75.7%	Pass
2.75 - 2.5	Pole + Reinf.	TP35.622x35.584x0.8875	Reinf. 7 Compression	93.4%	Pass
2.5 - 0	Pole + Reinf.	TP36x35.622x0.875	Reinf. 7 Compression	94.3%	Pass
				Summary	
			Pole	93.2%	Pass
			Reinforcement	96.7%	Pass
			Overall	**96.7%**	**Pass**

Table 5 - Tower Component Stresses vs. Capacity – LC4

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1,2	Flange Connection	110.0	71.2	Pass
1,2	Anchor Rods	-	83.2	Pass
1,2	Base Plate	-	68.8	Pass
1,2	Base Foundation Soil Interaction	-	72.3	Pass
1,2	Base Foundation Structural	-	44.4	Pass

Structure Rating (max from all components) =	**96.7%**

Notes:
1) See additional documentation in “Appendix C - Additional Calculations” for calculations supporting the % capacity listed.
2) Rating per TIA-222-H Section 15.5

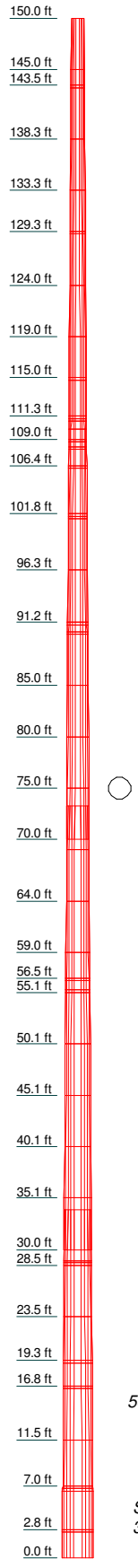
4.1) Recommendations

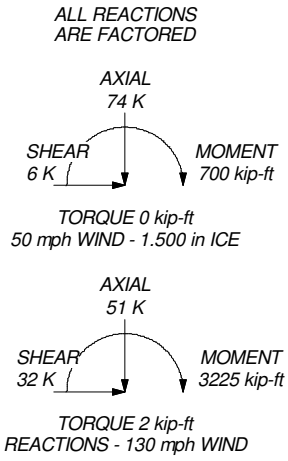
1) If the load differs from that described in Tables 1 and 2 of this report, the referenced drawings, or the provisions of this analysis are found to be invalid, another structural analysis should be performed.
2) The modifications depicted in “Appendix D – Structural Design Drawings” shall be installed and, upon completion, inspected. The tower and its foundation have sufficient capacity to carry the proposed load configuration once the proposed modifications are installed.

APPENDIX A

TNXTOWER OUTPUT

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	5.00	12	0.250		14.500	15.250	A36	0.2
2	2.50	12	0.250		15.012	15.512	A36	0.1
3	5.00	12	0.375		15.512	16.262	A36	0.3
4	5.00	12	0.537		15.512	16.262	A36	0.5
5	5.00	12	0.525		16.262	17.012	A36	0.5
6	5.00	12	0.512		17.012	17.613	A36	0.4
7	2.50	12	0.512		17.012	17.613	A36	0.2
8	5.00	12	0.875		17.637	18.407	A36	0.8
9	5.00	12	0.838		18.400	19.150	A36	0.8
10	2.50	12	0.825		19.150	19.750	A36	0.3
11	2.50	12	0.800		19.750	20.350	A36	0.3
12	5.00	12	0.950		20.350	21.350	A36	0.6
13	2.50	12	0.938		21.350	21.850	A36	0.3
14	2.50	12	0.925		21.850	22.350	A36	0.3
15	2.50	12	0.912		22.350	22.850	A36	0.3
16	2.50	12	0.900		22.850	23.350	A36	0.3
17	2.50	12	0.887		23.350	23.850	A36	0.3
18	2.50	12	0.875		23.850	24.350	A36	0.3
19	2.50	12	0.862		24.350	24.850	A36	0.3
20	2.50	12	0.850		24.850	25.350	A36	0.3
21	2.50	12	0.838		25.350	25.850	A36	0.3
22	5.00	12	1.750		25.850	27.000	A36	0.7
23	2.50	12	0.825		27.000	27.500	A36	0.3
24	2.50	12	0.812		27.500	28.000	A36	0.3
25	5.00	12	0.975		28.000	29.000	A36	1.0
26	5.10	12	1.025		29.000	30.020	A36	1.1
27	2.50	12	1.013		30.020	30.520	A36	0.5
28	2.50	12	1.000		30.520	31.020	A36	0.5
29	2.50	12	0.988		31.020	31.520	A36	0.5
30	5.00	12	0.988		31.520	32.520	A36	1.1
31	5.00	12	0.950		32.520	33.520	A36	1.1
32	5.00	12	0.925		33.520	34.520	A36	1.1
33	4.26	12	0.925	3.26	34.520	35.370	A36	1.1
34	2.50	12	1.063		35.370	35.870	A572-65	0.6
35	5.00	12	1.038		35.870	36.870	A572-65	1.3
36	5.00	12	1.013		36.870	37.870	A572-65	1.3
37	2.50	12	1.000		37.870	38.370	A572-65	0.7
38	2.50	12	0.988		38.370	38.870	A572-65	0.7
39	2.50	12	0.975		38.870	39.370	A572-65	0.7
40	2.50	12	0.963		39.370	39.870	A572-65	0.7
41	5.00	12	1.087		39.870	40.870	A572-65	1.5
42	5.00	12	1.063		40.870	41.870	A572-65	1.5
43	5.00	12	1.038		41.870	42.870	A572-65	1.5
44	5.00	12	1.013		42.870	43.870	A572-65	1.5
45	5.00	12	1.013	3.93	43.870	44.870	A572-65	1.5
46	2.50	12	1.000		44.870	45.370	A572-65	0.7
47	2.50	12	0.988		45.370	45.870	A572-65	0.7
48	2.50	12	0.975		45.870	46.370	A572-65	0.7
49	5.00	12	1.050		46.370	47.370	A572-65	1.6
50	4.25	12	1.025		47.370	48.220	A572-65	1.4
51	2.50	12	1.013		48.220	48.720	A572-65	0.8
52	2.50	12	1.000		48.720	49.220	A572-65	0.8
53	2.50	12	0.988		49.220	49.720	A572-65	0.8
54	5.00	12	0.775		49.720	50.720	A572-65	1.8
55	4.50	12	0.750		50.720	51.620	A572-65	1.7
56	2.50	12	0.738		51.620	52.120	A572-65	0.9
57	2.50	12	0.725		52.120	52.620	A572-65	0.9
58	2.50	12	0.713		52.620	53.120	A572-65	0.9
59	2.50	12	0.700		53.120	53.620	A572-65	0.9
60	2.50	12	0.688		53.620	54.120	A572-65	0.9
61	2.50	12	0.675		54.120	54.620	A572-65	0.9
62	2.50	12	0.663		54.620	55.120	A572-65	0.8
63	2.50	12	0.650		55.120	55.620	A572-65	0.8
64	2.50	12	0.638		55.620	56.120	A572-65	0.8
65	2.50	12	0.625		56.120	56.620	A572-65	0.8
66	2.50	12	0.613		56.620	57.120	A572-65	0.8
67	2.50	12	0.600		57.120	57.620	A572-65	0.8
68	2.50	12	0.588		57.620	58.120	A572-65	0.8
69	2.50	12	0.575		58.120	58.620	A572-65	0.8
70	2.50	12	0.563		58.620	59.120	A572-65	0.8
71	2.50	12	0.550		59.120	59.620	A572-65	0.8
72	2.50	12	0.538		59.620	60.120	A572-65	0.8
73	2.50	12	0.525		60.120	60.620	A572-65	0.8
74	2.50	12	0.513		60.620	61.120	A572-65	0.8
75	2.50	12	0.500		61.120	61.620	A572-65	0.8
76	2.50	12	0.488		61.620	62.120	A572-65	0.8
77	2.50	12	0.475		62.120	62.620	A572-65	0.8
78	2.50	12	0.463		62.620	63.120	A572-65	0.8
79	2.50	12	0.450		63.120	63.620	A572-65	0.8
80	2.50	12	0.438		63.620	64.120	A572-65	0.8
81	2.50	12	0.425		64.120	64.620	A572-65	0.8
82	2.50	12	0.413		64.620	65.120	A572-65	0.8
83	2.50	12	0.400		65.120	65.620	A572-65	0.8
84	2.50	12	0.388		65.620	66.120	A572-65	0.8
85	2.50	12	0.375		66.120	66.620	A572-65	0.8
86	2.50	12	0.363		66.620	67.120	A572-65	0.8
87	2.50	12	0.350		67.120	67.620	A572-65	0.8
88	2.50	12	0.338		67.620	68.120	A572-65	0.8
89	2.50	12	0.325		68.120	68.620	A572-65	0.8
90	2.50	12	0.313		68.620	69.120	A572-65	0.8
91	2.50	12	0.300		69.120	69.620	A572-65	0.8
92	2.50	12	0.288		69.620	70.120	A572-65	0.8
93	2.50	12	0.275		70.120	70.620	A572-65	0.8
94	2.50	12	0.263		70.620	71.120	A572-65	0.8
95	2.50	12	0.250		71.120	71.620	A572-65	0.8
96	2.50	12	0.238		71.620	72.120	A572-65	0.8
97	2.50	12	0.225		72.120	72.620	A572-65	0.8
98	2.50	12	0.213		72.620	73.120	A572-65	0.8
99	2.50	12	0.200		73.120	73.620	A572-65	0.8
100	2.50	12	0.188		73.620	74.120	A572-65	0.8
101	2.50	12	0.175		74.120	74.620	A572-65	0.8
102	2.50	12	0.163		74.620	75.120	A572-65	0.8
103	2.50	12	0.150		75.120	75.620	A572-65	0.8
104	2.50	12	0.138		75.620	76.120	A572-65	0.8
105	2.50	12	0.125		76.120	76.620	A572-65	0.8
106	2.50	12	0.113		76.620	77.120	A572-65	0.8
107	2.50	12	0.100		77.120	77.620	A572-65	0.8
108	2.50	12	0.088		77.620	78.120	A572-65	0.8
109	2.50	12	0.075		78.120	78.620	A572-65	0.8
110	2.50	12	0.063		78.620	79.120	A572-65	0.8
111	2.50	12	0.050		79.120	79.620	A572-65	0.8
112	2.50	12	0.038		79.620	80.120	A572-65	0.8
113	2.50	12	0.025		80.120	80.620	A572-65	0.8
114	2.50	12	0.013		80.620	81.120	A572-65	0.8
115	2.50	12	0.000		81.120	81.620	A572-65	0.8





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
7770.00 w/ Mount Pipe	152	DC6-48-60-18-8C	152
7770.00 w/ Mount Pipe	152	DC6-48-60-18-8F	152
7770.00 w/ Mount Pipe	152	DC6-48-60-0-8C-EV	152
NNH4-65C-R6 w/ Mount Pipe	152	Platform Mount [LP 303-1]	152
NNH4-65C-R6 w/ Mount Pipe	152	Miscellaneous [NA 507-1]	152
NNH4-65C-R6 w/ Mount Pipe	152	(4) 2.4" Dia x 12-ft Pipe	152
80010966 w/ Mount Pipe	152	(4) 2.4" Dia x 12-ft Pipe	152
80010966 w/ Mount Pipe	152	(4) 2.4" Dia x 12-ft Pipe	152
80010966 w/ Mount Pipe	152	L2x2x1/4" (12')	152
DTMABP7819VG12A	152	L2x2x1/4" (12')	152
DTMABP7819VG12A	152	L2x2x1/4" (12')	152
DTMABP7819VG12A	152	(2) 6" x 3" Diameter Sidelight	150
(2) 7020.00	152	Top Hat 14" Dia x 34" Tall (Flat)	150
(2) 7020.00	152	110-ft Bridge Stiffener	110
(2) 7020.00	152	110-ft Bridge Stiffener	110
RRUS 4449 B5/B12	152	110-ft Bridge Stiffener	110
RRUS 4449 B5/B12	152	110-ft Bridge Stiffener	110
RRUS 4449 B5/B12	152	2.4" Dia. x 10-ft Mount Pipe	104
RRUS 8843 B2/B66A	152	SRL210-2	104
RRUS 8843 B2/B66A	152	8" x 8" x 4" TMA	104
RRUS 8843 B2/B66A	152	(2) 2.4" Dia x 3-ft Mount Pipe (Horizontal)	104
RRUS 32	152		
RRUS 32	152	(2) Unistrut 1-5/8"x1-5/8"x60"	104
RRUS 32	152		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A36	36 ksi	58 ksi	A572-65	65 ksi	80 ksi

TOWER DESIGN NOTES

1. Tower is located in Windham County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-H Standard.
3. Tower designed for a 130 mph basic wind in accordance with the TIA-222-H Standard.
4. Tower is also designed for a 50 mph basic wind with 1.50 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Risk Category II.
7. Topographic Category 1 with Crest Height of 0.00 ft

Tower Engineering Professionals

Tower Engineering Professionals
326 Tryon Road
Raleigh, N.C.
Phone: (919) 661-6351
FAX: (919) 661-6350

Job: ***Pomfret-Tyrone Rd (BU 841292)***			
Project: ***TEP No. 131599.247059***			
Client: Crown Castle	Drawn by: RKE	App'd:	
Code: TIA-222-H	Date: 06/07/19	Scale: NTS	
Path: C:\Users\reaton\Desktop\Jobs\Pomfret-Tyrone 2\final\841292_1722162_LC4 (CC).eri		Dwg No. E-1	

Tower Input Data

The tower is a monopole.
This tower is designed using the TIA-222-H standard.
The following design criteria apply:

Tower is located in Windham County, Connecticut.
Tower base elevation above sea level: 682.00 ft.
Basic wind speed of 130 mph.
Risk Category II.
Exposure Category C.
Simplified Topographic Factor Procedure for wind speed-up calculations is used.
Topographic Category: 1.
Crest Height: 0.00 ft.
Nominal ice thickness of 1.500 in.
Ice thickness is considered to increase with height.
Ice density of 56 pcf.
A wind speed of 50 mph is used in combination with ice.
Temperature drop of 50 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.05.
Tower analysis based on target reliabilities in accordance with Annex S.
Load Modification Factors used: $K_{es}(F_w) = 0.95$, $K_{es}(t_i) = 0.85$.
Local bending stresses due to climbing loads, feed line supports, and appurtenance mounts are not considered.

Options

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

Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	150.00-145.00	5.00	0.000	12	14.500	15.250	0.250	1.000	A36 (36 ksi)
L2	145.00-143.50	1.50	0.000	12	15.250	15.475	0.250	1.000	A36 (36 ksi)
L3	143.50-143.25	0.25	0.000	12	15.475	15.512	0.563	2.250	A36 (36 ksi)
L4	143.25-138.25	5.00	0.000	12	15.512	16.262	0.537	2.150	A36 (36 ksi)
L5	138.25-133.25	5.00	0.000	12	16.262	17.012	0.525	2.100	A36 (36 ksi)
L6	133.25-129.25	4.00	0.000	12	17.012	17.613	0.512	2.050	A36 (36 ksi)
L7	129.25-129.00	0.25	0.000	12	17.613	17.650	0.925	3.700	A36 (36 ksi)
L8	129.00-124.00	5.00	0.000	12	17.650	18.400	0.875	3.500	A36 (36 ksi)
L9	124.00-119.00	5.00	0.000	12	18.400	19.150	0.838	3.350	A36 (36 ksi)
L10	119.00-115.00	4.00	0.000	12	19.150	19.750	0.825	3.300	A36 (36 ksi)
L11	115.00-114.75	0.25	0.000	12	19.750	19.788	1.000	4.000	A36 (36 ksi)
L12	114.75-111.25	3.50	0.000	12	19.788	20.313	0.975	3.900	A36 (36 ksi)
L13	111.25-111.00	0.25	0.000	12	20.313	20.350	0.600	2.400	A36 (36 ksi)
L14	111.00-110.75	0.25	0.000	12	20.350	20.387	1.150	4.600	A36 (36 ksi)
L15	110.75-110.00	0.75	0.000	12	20.387	20.500	1.150	4.600	A572-65 (65 ksi)
L16	110.00-109.00	1.00	0.000	12	20.500	20.651	1.125	4.500	A572-65 (65 ksi)
L17	109.00-108.75	0.25	0.000	12	20.651	20.689	0.662	2.650	A572-65 (65 ksi)
L18	108.75-108.25	0.50	0.000	12	20.689	20.765	0.662	2.650	A572-65 (65 ksi)
L19	108.25-108.00	0.25	0.000	12	20.765	20.802	1.075	4.300	A572-65 (65 ksi)
L20	108.00-106.42	1.58	0.000	12	20.802	21.041	1.075	4.300	A572-65 (65 ksi)
L21	106.42-106.17	0.25	0.000	12	21.041	21.079	0.775	3.100	A572-65 (65 ksi)
L22	106.17-101.75	4.42	0.000	12	21.079	21.748	0.750	3.000	A572-65 (65 ksi)
L23	101.75-101.50	0.25	0.000	12	21.748	21.786	1.200	4.800	A572-65 (65 ksi)
L24	101.50-101.25	0.25	0.000	12	21.786	21.823	1.000	4.000	A572-65 (65 ksi)
L25	101.25-96.25	5.00	0.000	12	21.823	22.580	0.975	3.900	A572-65 (65 ksi)
L26	96.25-91.15	5.10	0.000	12	22.580	23.351	1.025	4.100	A572-65 (65 ksi)
L27	91.15-90.92	0.23	0.000	12	23.351	23.386	1.025	4.100	A572-65 (65 ksi)
L28	90.92-90.25	0.67	0.000	12	23.386	23.487	1.025	4.100	A572-65 (65 ksi)
L29	90.25-90.00	0.25	0.000	12	23.487	23.525	1.025	4.100	A572-65 (65 ksi)
L30	90.00-85.00	5.00	0.000	12	23.525	24.281	0.988	3.950	A572-65 (65 ksi)

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L31	85.00-80.00	5.00	0.000	12	24.281	25.038	0.950	3.800	A572-65 (65 ksi)
L32	80.00-75.00	5.00	0.000	12	25.038	25.794	0.925	3.700	A572-65 (65 ksi)
L33	75.00-70.00	5.00	3.260	12	25.794	26.550	0.925	3.700	A572-65 (65 ksi)
L34	70.00-69.00	4.26	0.000	12	25.557	26.200	1.063	4.250	A572-65 (65 ksi)
L35	69.00-64.00	5.00	0.000	12	26.200	26.955	1.038	4.150	A572-65 (65 ksi)
L36	64.00-59.00	5.00	0.000	12	26.955	27.710	1.013	4.050	A572-65 (65 ksi)
L37	59.00-56.50	2.50	0.000	12	27.710	28.088	1.000	4.000	A572-65 (65 ksi)
L38	56.50-56.25	0.25	0.000	12	28.088	28.126	1.000	4.000	A572-65 (65 ksi)
L39	56.25-55.33	0.92	0.000	12	28.126	28.265	0.988	3.950	A572-65 (65 ksi)
L40	55.33-55.08	0.25	0.000	12	28.265	28.302	1.113	4.450	A572-65 (65 ksi)
L41	55.08-50.08	5.00	0.000	12	28.302	29.058	1.087	4.350	A572-65 (65 ksi)
L42	50.08-45.08	5.00	0.000	12	29.058	29.813	1.063	4.250	A572-65 (65 ksi)
L43	45.08-40.08	5.00	0.000	12	29.813	30.568	1.038	4.150	A572-65 (65 ksi)
L44	40.08-35.08	5.00	0.000	12	30.568	31.323	1.013	4.050	A572-65 (65 ksi)
L45	35.08-30.00	5.08	3.930	12	31.323	32.090	1.013	4.050	A572-65 (65 ksi)
L46	30.00-28.93	5.00	0.000	12	30.871	31.627	1.075	4.300	A572-65 (65 ksi)
L47	28.93-28.75	0.18	0.000	12	31.627	31.654	1.075	4.300	A572-65 (65 ksi)
L48	28.75-28.50	0.25	0.000	12	31.654	31.692	1.075	4.300	A572-65 (65 ksi)
L49	28.50-23.50	5.00	0.000	12	31.692	32.448	1.050	4.200	A572-65 (65 ksi)
L50	23.50-19.25	4.25	0.000	12	32.448	33.090	1.025	4.100	A572-65 (65 ksi)
L51	19.25-19.00	0.25	0.000	12	33.090	33.128	1.225	4.900	A572-65 (65 ksi)
L52	19.00-16.75	2.25	0.000	12	33.128	33.468	1.225	4.900	A572-65 (65 ksi)
L53	16.75-16.50	0.25	0.000	12	33.468	33.506	0.775	3.100	A572-65 (65 ksi)
L54	16.50-11.50	5.00	0.000	12	33.506	34.262	0.775	3.100	A572-65 (65 ksi)
L55	11.50-7.00	4.50	0.000	12	34.262	34.942	0.750	3.000	A572-65 (65 ksi)
L56	7.00-6.75	0.25	0.000	12	34.942	34.980	1.425	5.700	A572-65 (65 ksi)
L57	6.75-6.50	0.25	0.000	12	34.980	35.018	1.175	4.700	A572-65 (65 ksi)
L58	6.50-2.75	3.75	0.000	12	35.018	35.584	1.175	4.700	A572-65 (65 ksi)
L59	2.75-2.50	0.25	0.000	12	35.584	35.622	0.887	3.550	A572-65 (65 ksi)
L60	2.50-0.00	2.50		12	35.622	36.000	0.875	3.500	A572-65 (65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	14.923	11.471	297.322	5.101	7.511	39.585	602.454	5.646	3.216	12.864
	15.700	12.075	346.781	5.370	7.900	43.899	702.673	5.943	3.417	13.668
L2	15.700	12.075	346.781	5.370	7.900	43.899	702.673	5.943	3.417	13.668
	15.933	12.256	362.622	5.451	8.016	45.237	734.770	6.032	3.477	13.909
L3	15.822	27.010	766.683	5.339	8.016	95.643	1553.507	13.294	2.640	4.693
	15.861	27.078	772.481	5.352	8.035	96.134	1565.256	13.327	2.650	4.711
L4	15.870	25.918	741.858	5.361	8.035	92.323	1503.205	12.756	2.717	5.055
	16.647	27.216	858.998	5.630	8.424	101.971	1740.563	13.395	2.918	5.429
L5	16.651	26.604	841.024	5.634	8.424	99.837	1704.143	13.094	2.951	5.622
	17.427	27.872	967.087	5.903	8.812	109.741	1959.580	13.718	3.152	6.004
L6	17.432	27.229	946.210	5.907	8.812	107.372	1917.278	13.401	3.186	6.216
	18.053	28.219	1053.232	6.122	9.123	115.445	2134.133	13.889	3.347	6.53
L7	17.907	49.704	1766.678	5.974	9.123	193.645	3579.769	24.463	2.241	2.423
	17.946	49.815	1778.615	5.988	9.143	194.539	3603.956	24.518	2.251	2.434
L8	17.964	47.264	1697.608	6.005	9.143	185.679	3439.814	23.262	2.385	2.726
	18.740	49.377	1935.637	6.274	9.531	203.084	3922.126	24.302	2.586	2.956
L9	18.754	47.362	1864.600	6.287	9.531	195.631	3778.185	23.310	2.687	3.208
	19.530	49.384	2113.828	6.556	9.920	213.094	4283.188	24.305	2.888	3.448
L10	19.535	48.680	2086.545	6.560	9.920	210.344	4227.906	23.959	2.921	3.541
	20.156	50.274	2298.283	6.775	10.230	224.650	4656.944	24.743	3.082	3.736
L11	20.094	60.375	2709.229	6.712	10.230	264.819	5489.631	29.715	2.613	2.613
	20.133	60.496	2725.516	6.726	10.250	265.906	5522.635	29.774	2.623	2.623
L12	20.142	59.062	2668.001	6.735	10.250	260.295	5406.093	29.068	2.690	2.759
	20.685	60.710	2897.660	6.923	10.522	275.394	5871.445	29.880	2.831	2.903
L13	20.817	38.085	1888.940	7.057	10.522	179.525	3827.505	18.744	3.836	6.393
	20.856	38.157	1899.741	7.071	10.541	180.219	3849.390	18.780	3.846	6.41
L14	20.662	71.098	3345.364	6.874	10.541	317.358	6778.614	34.992	2.372	2.062
	20.701	71.236	3365.004	6.887	10.561	318.634	6818.410	35.060	2.382	2.071
L15	20.700	71.233	3364.512	6.887	10.560	318.602	6817.413	35.059	2.382	2.071
	20.817	71.653	3424.385	6.927	10.619	322.477	6938.732	35.265	2.412	2.097
L16	20.826	70.186	3362.943	6.936	10.619	316.691	6814.234	34.543	2.479	2.204
	20.983	70.734	3442.317	6.990	10.697	321.792	6975.068	34.813	2.520	2.24
L17	21.146	42.641	2174.626	7.156	10.697	203.286	4406.382	20.987	3.759	5.674
	21.185	42.722	2186.991	7.170	10.717	204.069	4431.436	21.026	3.769	5.689
L18	21.185	42.722	2186.991	7.170	10.717	204.069	4431.436	21.026	3.769	5.689
	21.263	42.883	2211.860	7.197	10.756	205.638	4481.828	21.106	3.789	5.72
L19	21.118	68.156	3372.615	7.049	10.756	313.553	6833.832	33.544	2.684	2.497
	21.157	68.287	3392.083	7.062	10.776	314.790	6873.279	33.609	2.694	2.506
L20	21.157	68.287	3392.083	7.062	10.776	314.790	6873.279	33.609	2.694	2.506
	21.405	69.114	3516.855	7.148	10.899	322.663	7126.102	34.016	2.758	2.566
L21	21.510	50.575	2651.418	7.255	10.899	243.261	5372.491	24.891	3.562	4.596
	21.549	50.669	2666.286	7.269	10.919	244.186	5402.619	24.938	3.572	4.609
L22	21.558	49.095	2589.820	7.278	10.919	237.183	5247.677	24.163	3.639	4.852
	22.250	50.710	2853.811	7.517	11.265	253.326	5782.595	24.958	3.818	5.091
L23	22.092	79.397	4278.779	7.356	11.265	379.817	8669.966	39.077	2.612	2.177
	22.131	79.543	4302.444	7.370	11.285	381.255	8717.918	39.149	2.623	2.185
L24	22.201	66.930	3690.890	7.441	11.285	327.063	7478.743	32.941	3.159	3.159
	22.241	67.051	3711.070	7.455	11.305	328.281	7519.633	33.001	3.169	3.169
L25	22.249	65.454	3631.341	7.464	11.305	321.228	7358.080	32.214	3.236	3.319
	23.032	67.828	4041.014	7.734	11.696	345.496	8188.191	33.383	3.438	3.527
L26	23.015	71.141	4218.819	7.717	11.696	360.698	8548.471	35.014	3.304	3.224
	23.813	73.687	4688.156	7.993	12.096	387.584	9499.476	36.267	3.511	3.425
L27	23.813	73.687	4688.156	7.993	12.096	387.584	9499.476	36.267	3.511	3.425
	23.849	73.802	4710.105	8.005	12.114	388.819	9543.950	36.323	3.520	3.435
L28	23.849	73.802	4710.105	8.005	12.114	388.819	9543.950	36.323	3.520	3.435

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
	23.954	74.136	4774.433	8.041	12.166	392.429	9674.296	36.488	3.548	3.461
L29	23.954	74.136	4774.433	8.041	12.166	392.429	9674.296	36.488	3.548	3.461
	23.993	74.261	4798.586	8.055	12.186	393.780	9723.235	36.549	3.558	3.471
L30	24.007	71.664	4646.181	8.068	12.186	381.274	9414.423	35.271	3.658	3.705
	24.789	74.068	5129.761	8.339	12.578	407.846	10394.287	36.454	3.861	3.91
L31	24.803	71.370	4958.833	8.353	12.578	394.256	10047.939	35.126	3.961	4.17
	25.586	73.684	5456.832	8.623	12.969	420.746	11057.022	36.265	4.164	4.383
L32	25.594	71.819	5329.792	8.632	12.969	410.951	10799.604	35.347	4.231	4.574
	26.377	74.072	5847.166	8.903	13.361	437.624	11847.944	36.456	4.434	4.793
L33	26.377	74.072	5847.166	8.903	13.361	437.624	11847.944	36.456	4.434	4.793
	27.160	76.324	6396.983	9.174	13.753	465.137	12962.021	37.564	4.636	5.012
L34	26.593	83.802	6417.598	8.769	13.238	484.768	13003.793	41.245	4.002	3.766
	26.750	86.003	6936.666	8.999	13.572	511.111	14055.565	42.328	4.174	3.929
L35	26.759	84.063	6793.679	9.008	13.572	500.575	13765.836	41.373	4.241	4.088
	27.540	86.585	7423.818	9.279	13.963	531.683	15042.668	42.615	4.444	4.283
L36	27.549	84.580	7265.916	9.288	13.963	520.374	14722.716	41.628	4.511	4.455
	28.331	87.042	7919.008	9.558	14.354	551.693	16046.057	42.839	4.713	4.655
L37	28.335	86.008	7832.233	9.562	14.354	545.648	15870.228	42.330	4.746	4.746
	28.726	87.223	8169.071	9.698	14.550	561.464	16552.753	42.929	4.848	4.848
L38	28.726	87.223	8169.071	9.698	14.550	561.464	16552.753	42.929	4.848	4.848
	28.765	87.345	8203.276	9.711	14.569	563.058	16622.062	42.989	4.858	4.858
L39	28.770	86.293	8111.940	9.715	14.569	556.789	16436.989	42.471	4.891	4.953
	28.913	86.735	8237.168	9.765	14.641	562.605	16690.736	42.688	4.928	4.991
L40	28.869	97.266	9152.855	9.720	14.641	625.148	18546.165	47.871	4.593	4.129
	28.908	97.401	9191.089	9.734	14.661	626.922	18623.637	47.938	4.604	4.138
L41	28.917	95.300	9009.353	9.743	14.661	614.525	18255.391	46.904	4.671	4.295
	29.699	97.944	9780.261	10.013	15.052	649.773	19817.460	48.205	4.873	4.481
L42	29.708	95.778	9581.072	10.022	15.052	636.540	19413.850	47.139	4.940	4.649
	30.490	98.361	10377.446	10.293	15.443	671.986	21027.518	48.410	5.142	4.84
L43	30.498	96.131	10159.728	10.301	15.443	657.888	20586.363	47.313	5.209	5.021
	31.280	98.653	10980.710	10.572	15.834	693.486	22249.895	48.554	5.412	5.216
L44	31.289	96.357	10743.354	10.581	15.834	678.495	21768.948	47.424	5.479	5.411
	32.071	98.819	11588.003	10.851	16.225	714.197	23480.436	48.636	5.681	5.611
L45	32.071	98.819	11588.003	10.851	16.225	714.197	23480.436	48.636	5.681	5.611
	32.865	101.320	12490.364	11.126	16.623	751.408	25308.863	49.867	5.887	5.814
L46	32.196	103.141	11688.153	10.667	15.991	730.901	23683.366	50.763	5.393	5.016
	32.364	105.757	12600.263	10.938	16.383	769.110	25531.549	52.050	5.595	5.205
L47	32.364	105.757	12600.263	10.938	16.383	769.110	25531.549	52.050	5.595	5.205
	32.392	105.851	12633.955	10.947	16.397	770.504	25599.818	52.097	5.602	5.212
L48	32.392	105.851	12633.955	10.947	16.397	770.504	25599.818	52.097	5.602	5.212
	32.431	105.982	12680.849	10.961	16.417	772.442	25694.837	52.161	5.613	5.221
L49	32.440	103.601	12416.311	10.970	16.417	756.328	25158.811	50.989	5.680	5.409
	33.222	106.157	13357.848	11.240	16.808	794.729	27066.621	52.247	5.882	5.602
L50	33.231	103.712	13070.976	11.249	16.808	777.661	26485.342	51.044	5.949	5.804
	33.896	105.832	13889.113	11.479	17.141	810.295	28143.108	52.087	6.121	5.972
L51	33.826	125.693	16290.517	11.408	17.141	950.394	33009.003	61.862	5.585	4.559
	33.865	125.842	16348.540	11.421	17.160	952.691	33126.573	61.936	5.595	4.568
L52	33.865	125.842	16348.540	11.421	17.160	952.691	33126.573	61.936	5.595	4.568
	34.217	127.183	16876.957	11.543	17.337	973.490	34197.291	62.596	5.686	4.642
L53	34.375	81.586	11130.575	11.704	17.337	642.029	22553.563	40.154	6.892	8.894
	34.415	81.680	11169.215	11.718	17.356	643.532	22631.857	40.201	6.903	8.907
L54	34.415	81.680	11169.215	11.718	17.356	643.532	22631.857	40.201	6.903	8.907
	35.197	83.566	11960.896	11.988	17.748	673.944	24236.017	41.129	7.105	9.168
L55	35.206	80.931	11601.004	11.997	17.748	653.666	23506.780	39.832	7.172	9.563
	35.910	82.574	12321.819	12.241	18.100	680.766	24967.345	40.640	7.354	9.806
L56	35.672	153.793	22052.117	11.999	18.100	1218.354	44683.567	75.692	5.545	3.892
	35.711	153.966	22126.786	12.013	18.120	1221.158	44834.868	75.777	5.556	3.899
L57	35.799	127.900	18655.741	12.102	18.120	1029.594	37801.590	62.949	6.226	5.298
	35.838	128.043	18718.372	12.116	18.139	1031.936	37928.497	63.019	6.236	5.307
L58	35.838	128.043	18718.372	12.116	18.139	1031.936	37928.497	63.019	6.236	5.307
	36.425	130.188	19674.725	12.319	18.433	1067.382	39866.327	64.074	6.388	5.436
L59	36.527	99.155	15236.314	12.421	18.433	826.592	30872.902	48.801	7.158	8.065

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L60	36.566	99.263	15286.148	12.435	18.452	828.416	30973.881	48.854	7.168	8.077
	36.570	97.900	15087.127	12.439	18.452	817.630	30570.610	48.183	7.202	8.231
	36.961	98.965	15584.715	12.575	18.648	835.731	31578.858	48.707	7.303	8.346

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 150.00-145.00				1	1	1			
L2 145.00-143.50				1	1	1			
L3 143.50-143.25				1	1	1.07782			
L4 143.25-138.25				1	1	1.09455			
L5 138.25-133.25				1	1	1.09044			
L6 133.25-129.25				1	1	1.09415			
L7 129.25-129.00				1	1	0.921958			
L8 129.00-124.00				1	1	0.942377			
L9 124.00-119.00				1	1	0.954458			
L10 119.00-115.00				1	1	0.947168			
L11 115.00-114.75				1	1	0.880747			
L12 114.75-111.25				1	1	0.884599			
L13 111.25-111.00				1	1	1.01457			
L14 111.00-110.75				1	1	0.543864			
L15 110.75-110.00				1	1	0.541966			
L16 110.00-109.00				1	1	0.55073			
L17 109.00-108.75				1	1	0.912551			
L18 108.75-108.25				1	1	0.910538			
L19 108.25-108.00				1	1	0.865552			
L20 108.00-106.42				1	1	0.857975			
L21 106.42-106.17				1	1	0.948549			
L22 106.17-101.75				1	1	0.958407			
L23 101.75-101.50				1	1	0.863178			
L24 101.50-101.25				1	1	0.856416			
L25 101.25-96.25				1	1	0.855588			
L26 96.25-91.15				1	1	0.863934			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L27 91.15-90.92				1	1	0.86297			
L28 90.92-90.25				1	1	0.860177			
L29 90.25-90.00				1	1	0.859141			
L30 90.00-85.00				1	1	0.869598			
L31 85.00-80.00				1	1	0.8824			
L32 80.00-75.00				1	1	0.885998			
L33 75.00-70.00				1	1	0.87955			
L34 70.00-69.00				1	1	0.885104			
L35 69.00-64.00				1	1	0.887925			
L36 64.00-59.00				1	1	0.891993			
L37 59.00-56.50				1	1	0.894494			
L38 56.50-56.25				1	1	0.893684			
L39 56.25-55.33				1	1	0.901584			
L40 55.33-55.08				1	1	0.880352			
L41 55.08-50.08				1	1	0.88323			
L42 50.08-45.08				1	1	0.887207			
L43 45.08-40.08				1	1	0.892286			
L44 40.08-35.08				1	1	0.898475			
L45 35.08-30.00				1	1	0.895114			
L46 30.00-28.93				1	1	0.90131			
L47 28.93-28.75				1	1	0.900819			
L48 28.75-28.50				1	1	0.900138			
L49 28.50-23.50				1	1	0.90725			
L50 23.50-19.25				1	1	0.917364			
L51 19.25-19.00				1	1	1.02054			
L52 19.00-16.75				1	1	1.013			
L53 16.75-16.50				1	1	1.31736			
L54 16.50-11.50				1	1	1.29855			
L55 11.50-7.00				1	1	1.32411			
L56 7.00-6.75				1	1	0.918566			
L57 6.75-6.50				1	1	0.772494			

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L58 6.50-2.75				1	1	0.765026			
L59 2.75-2.50				1	1	0.751608			
L60 2.50-0.00				1	1	0.758483			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
misc										
Safety Line 3/8	A	No	Surface Ar (CaAa)	150.00 - 0.00	1	1	0.500 0.500	0.375		0.220
Existing Mods										
PL 1.25x5	A	No	Surface Af (CaAa)	30.75 - 0.00	1	1	-0.250 -0.250	5.000	10.000	0.000
PL 1.25x5	A	No	Surface Af (CaAa)	30.75 - 0.00	1	1	0.500 0.500	5.000	10.000	0.000
PL 1.25x5	B	No	Surface Af (CaAa)	30.75 - 0.00	1	1	0.250 0.250	5.000	10.000	0.000
PL 1.25x5	C	No	Surface Af (CaAa)	30.75 - 0.00	1	1	0.000 0.000	5.000	10.000	0.000
*										
PL 1.25x5	A	No	Surface Af (CaAa)	58.50 - 30.75	1	1	-0.250 -0.250	5.000	10.000	0.000
PL 1.25x5	A	No	Surface Af (CaAa)	58.50 - 30.75	1	1	0.500 0.500	5.000	10.000	0.000
PL 1.25x5	B	No	Surface Af (CaAa)	58.50 - 30.75	1	1	0.250 0.250	5.000	10.000	0.000
PL 1.25x5	C	No	Surface Af (CaAa)	58.50 - 30.75	1	1	0.000 0.000	5.000	10.000	0.000
*										
PL 1.25x5	A	No	Surface Af (CaAa)	74.25 - 58.50	1	1	-0.250 -0.250	5.000	10.000	0.000
PL 1.25x5	A	No	Surface Af (CaAa)	74.25 - 58.50	1	1	0.500 0.500	5.000	10.000	0.000
PL 1.25x5	B	No	Surface Af (CaAa)	74.25 - 58.50	1	1	0.250 0.250	5.000	10.000	0.000
PL 1.25x5	C	No	Surface Af (CaAa)	74.25 - 58.50	1	1	0.000 0.000	5.000	10.000	0.000
*										
PL 1.25x4	A	No	Surface Af (CaAa)	90.00 - 74.25	1	1	-0.250 -0.250	4.000	8.000	0.000
PL 1.25x4	A	No	Surface Af (CaAa)	90.00 - 74.25	1	1	0.500 0.500	4.000	8.000	0.000
PL 1.25x4	B	No	Surface Af (CaAa)	90.00 - 74.25	1	1	0.250 0.250	4.000	8.000	0.000
PL 1.25x4	C	No	Surface Af (CaAa)	90.00 - 74.25	1	1	0.000 0.000	4.000	8.000	0.000
*										
PL 1.25x4	A	No	Surface Af (CaAa)	109.75 - 90.00	1	1	-0.250 -0.250	4.000	8.000	0.000
PL 1.25x4	A	No	Surface Af (CaAa)	109.75 - 90.00	1	1	0.500 0.500	4.000	8.000	0.000
PL 1.25x4	B	No	Surface Af	109.75 -	1	1	0.250	4.000	8.000	0.000

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
			(CaAa)	90.00			0.250			
PL 1.25x4	C	No	Surface Af (CaAa)	109.75 - 90.00	1	1	0.000 0.000	4.000	8.000	0.000
*										
PL 1.25" x 3"	A	No	Surface Af (CaAa)	130.25 - 110.25	1	1	-0.250 -0.250	3.000	8.500	0.000
PL 1.25" x 3"	A	No	Surface Af (CaAa)	130.25 - 110.25	1	1	0.500 0.500	3.000	6.000	0.000
PL 1.25" x 3"	B	No	Surface Af (CaAa)	130.25 - 110.25	1	1	0.250 0.250	3.000	6.000	0.000
PL 1.25" x 3"	C	No	Surface Af (CaAa)	130.25 - 110.25	1	1	0.000 0.000	3.000	6.000	0.000
Proposed Mods										
(Area) CCI-65FP-085125 (H)	A	No	Surface Af (CaAa)	23.00 - 0.00	1	1	-0.250 -0.250	8.500	19.500	0.000
(Area) CCI-65FP-085125 (H)	A	No	Surface Af (CaAa)	23.00 - 0.00	1	1	0.500 0.500	8.500	19.500	0.000
(Area) CCI-65FP-085125 (H)	B	No	Surface Af (CaAa)	23.00 - 0.00	1	1	0.250 0.250	8.500	19.500	0.000
(Area) CCI-65FP-085125 (H)	C	No	Surface Af (CaAa)	23.00 - 0.00	1	1	0.000 0.000	8.500	19.500	0.000
*										
(Area) CCI-65FP-085125 (H)	B	No	Surface Af (CaAa)	23.00 - 13.00	1	1	0.000 0.000	8.500	17.000	0.000
(Area) CCI-65FP-085125 (H)	C	No	Surface Af (CaAa)	23.00 - 13.00	1	1	0.500 0.500	8.500	17.000	0.000
*										
(Area) CCI-65FP-065125 (H)	A	No	Surface Af (CaAa)	58.08 - 23.00	1	1	-0.250 -0.250	6.500	15.500	0.000
(Area) CCI-65FP-065125 (H)	A	No	Surface Af (CaAa)	58.08 - 23.00	1	1	0.500 0.500	6.500	15.500	0.000
(Area) CCI-65FP-065125 (H)	B	No	Surface Af (CaAa)	58.08 - 23.00	1	1	0.250 0.250	6.500	15.500	0.000
(Area) CCI-65FP-065125 (H)	C	No	Surface Af (CaAa)	58.08 - 23.00	1	1	0.000 0.000	6.500	15.500	0.000
*										
(Area) CCI-65FP-050125 (H)	A	No	Surface Af (CaAa)	93.17 - 58.08	1	1	-0.250 -0.250	5.000	12.500	0.000
(Area) CCI-65FP-050125 (H)	A	No	Surface Af (CaAa)	93.17 - 58.08	1	1	0.500 0.500	5.000	12.500	0.000
(Area) CCI-65FP-050125 (H)	B	No	Surface Af (CaAa)	93.17 - 58.08	1	1	0.250 0.250	5.000	12.500	0.000
(Area) CCI-65FP-050125 (H)	C	No	Surface Af (CaAa)	93.17 - 58.08	1	1	0.000 0.000	5.000	12.500	0.000
*										
(Area) CCI-65FP-040125 (H)	A	No	Surface Af (CaAa)	103.25 - 93.25	1	1	-0.250 -0.250	4.000	10.500	0.000
(Area) CCI-65FP-040125 (H)	A	No	Surface Af (CaAa)	103.25 - 93.25	1	1	0.500 0.500	4.000	10.500	0.000
(Area) CCI-65FP-040125 (H)	B	No	Surface Af (CaAa)	103.25 - 93.25	1	1	0.250 0.250	4.000	10.500	0.000
(Area) CCI-65FP-040125 (H)	C	No	Surface Af (CaAa)	103.25 - 93.25	1	1	0.000 0.000	4.000	10.500	0.000
*										
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	103.25 - 99.25	1	1	-0.250 -0.250	4.500	9.000	0.000
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	103.25 - 99.25	1	1	0.500 0.500	4.500	9.000	0.000
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	109.25 - 103.25	1	1	-0.250 -0.250	4.500	11.500	0.000

Description	Sector	Exclude From Torque Calculation	Component Type	Placement ft	Total Number	Number Per Row	Start/End Position	Width or Diameter in	Perimeter in	Weight plf
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	109.25 - 103.25	1	1	0.500 0.500	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	B	No	Surface Af (CaAa)	109.25 - 104.17	1	1	0.250 0.250	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H) *	C	No	Surface Af (CaAa)	109.25 - 104.17	1	1	0.000 0.000	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	109.25 - 106.25	1	1	-0.250 -0.250	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	109.25 - 106.25	1	1	0.500 0.500	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	B	No	Surface Af (CaAa)	109.25 - 106.25	1	1	0.250 0.250	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H) *	C	No	Surface Af (CaAa)	109.25 - 106.25	1	1	0.000 0.000	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	110.75 - 109.25	1	1	-0.250 -0.250	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	110.75 - 109.25	1	1	0.500 0.500	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	B	No	Surface Af (CaAa)	110.75 - 109.25	1	1	0.250 0.250	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H) *	C	No	Surface Af (CaAa)	110.75 - 109.25	1	1	0.000 0.000	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	113.25 - 110.75	1	1	-0.250 -0.250	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	113.25 - 110.75	1	1	0.500 0.500	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	B	No	Surface Af (CaAa)	113.25 - 110.75	1	1	0.250 0.250	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H) *	C	No	Surface Af (CaAa)	113.25 - 110.75	1	1	0.000 0.000	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H) *	A	No	Surface Af (CaAa)	117.25 - 110.75	1	1	-0.250 -0.250	4.500	9.000	0.000
(Area) CCI-65FP-045125 (H)	A	No	Surface Af (CaAa)	145.75 - 110.75	1	1	0.500 0.500	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	B	No	Surface Af (CaAa)	145.75 - 110.75	1	1	0.250 0.250	4.500	11.500	0.000
(Area) CCI-65FP-045125 (H)	C	No	Surface Af (CaAa)	145.75 - 110.75	1	1	0.000 0.000	4.500	11.500	0.000

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
150/104 LDF6-50A(1-1/4")	C	No	No	Inside Pole	150.00 - 0.00	6	No Ice	0.00	0.660
							1/2" Ice	0.00	0.660
							1" Ice	0.00	0.660
							2" Ice	0.00	0.660
WR-VG86ST-BRD(3/4)	C	No	No	Inside Pole	150.00 - 0.00	6	No Ice	0.00	0.590
							1/2" Ice	0.00	0.590

Description	Face or Leg	Allow Shield	Exclude From Torque Calculation	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight plf
							1" Ice	0.00	0.590
							2" Ice	0.00	0.590
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	150.00 - 0.00	2	No Ice	0.00	0.057
							1/2" Ice	0.00	0.057
							1" Ice	0.00	0.057
							2" Ice	0.00	0.057
FB-L98B-034-XXX(3/8)	C	No	No	Inside Pole	104.00 - 0.00	1	No Ice	0.00	0.057
							1/2" Ice	0.00	0.057
							1" Ice	0.00	0.057
							2" Ice	0.00	0.057

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.00-145.00	A	0.000	0.000	0.750	0.000	0.00
		B	0.000	0.000	0.563	0.000	0.00
		C	0.000	0.000	0.563	0.000	0.04
L2	145.00-143.50	A	0.000	0.000	1.181	0.000	0.00
		B	0.000	0.000	1.125	0.000	0.00
		C	0.000	0.000	1.125	0.000	0.01
L3	143.50-143.25	A	0.000	0.000	0.197	0.000	0.00
		B	0.000	0.000	0.188	0.000	0.00
		C	0.000	0.000	0.188	0.000	0.00
L4	143.25-138.25	A	0.000	0.000	3.938	0.000	0.00
		B	0.000	0.000	3.750	0.000	0.00
		C	0.000	0.000	3.750	0.000	0.04
L5	138.25-133.25	A	0.000	0.000	3.938	0.000	0.00
		B	0.000	0.000	3.750	0.000	0.00
		C	0.000	0.000	3.750	0.000	0.04
L6	133.25-129.25	A	0.000	0.000	4.150	0.000	0.00
		B	0.000	0.000	3.500	0.000	0.00
		C	0.000	0.000	3.500	0.000	0.03
L7	129.25-129.00	A	0.000	0.000	0.447	0.000	0.00
		B	0.000	0.000	0.313	0.000	0.00
		C	0.000	0.000	0.313	0.000	0.00
L8	129.00-124.00	A	0.000	0.000	8.938	0.000	0.00
		B	0.000	0.000	6.250	0.000	0.00
		C	0.000	0.000	6.250	0.000	0.04
L9	124.00-119.00	A	0.000	0.000	8.938	0.000	0.00
		B	0.000	0.000	6.250	0.000	0.00
		C	0.000	0.000	6.250	0.000	0.04
L10	119.00-115.00	A	0.000	0.000	8.622	0.000	0.00
		B	0.000	0.000	5.000	0.000	0.00
		C	0.000	0.000	5.000	0.000	0.03
L11	115.00-114.75	A	0.000	0.000	0.610	0.000	0.00
		B	0.000	0.000	0.313	0.000	0.00
		C	0.000	0.000	0.313	0.000	0.00
L12	114.75-111.25	A	0.000	0.000	10.607	0.000	0.00
		B	0.000	0.000	5.406	0.000	0.00
		C	0.000	0.000	5.406	0.000	0.03
L13	111.25-111.00	A	0.000	0.000	0.868	0.000	0.00
		B	0.000	0.000	0.441	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C	0.000	0.000	0.441	0.000	0.00
L14	111.00-110.75	A	0.000	0.000	0.868	0.000	0.00
		B	0.000	0.000	0.441	0.000	0.00
		C	0.000	0.000	0.441	0.000	0.00
L15	110.75-110.00	A	0.000	0.000	1.237	0.000	0.00
		B	0.000	0.000	0.604	0.000	0.00
		C	0.000	0.000	0.604	0.000	0.01
L16	110.00-109.00	A	0.000	0.000	2.328	0.000	0.00
		B	0.000	0.000	1.138	0.000	0.00
		C	0.000	0.000	1.138	0.000	0.01
L17	109.00-108.75	A	0.000	0.000	0.925	0.000	0.00
		B	0.000	0.000	0.450	0.000	0.00
		C	0.000	0.000	0.450	0.000	0.00
L18	108.75-108.25	A	0.000	0.000	1.849	0.000	0.00
		B	0.000	0.000	0.901	0.000	0.00
		C	0.000	0.000	0.901	0.000	0.00
L19	108.25-108.00	A	0.000	0.000	0.925	0.000	0.00
		B	0.000	0.000	0.450	0.000	0.00
		C	0.000	0.000	0.450	0.000	0.00
L20	108.00-106.42	A	0.000	0.000	5.844	0.000	0.00
		B	0.000	0.000	2.846	0.000	0.00
		C	0.000	0.000	2.846	0.000	0.01
L21	106.42-106.17	A	0.000	0.000	0.839	0.000	0.00
		B	0.000	0.000	0.408	0.000	0.00
		C	0.000	0.000	0.408	0.000	0.00
L22	106.17-101.75	A	0.000	0.000	13.452	0.000	0.00
		B	0.000	0.000	5.148	0.000	0.00
		C	0.000	0.000	5.148	0.000	0.03
L23	101.75-101.50	A	0.000	0.000	0.961	0.000	0.00
		B	0.000	0.000	0.333	0.000	0.00
		C	0.000	0.000	0.333	0.000	0.00
L24	101.50-101.25	A	0.000	0.000	0.961	0.000	0.00
		B	0.000	0.000	0.333	0.000	0.00
		C	0.000	0.000	0.333	0.000	0.00
L25	101.25-96.25	A	0.000	0.000	15.804	0.000	0.00
		B	0.000	0.000	6.667	0.000	0.00
		C	0.000	0.000	6.667	0.000	0.04
L26	96.25-91.15	A	0.000	0.000	14.358	0.000	0.00
		B	0.000	0.000	7.083	0.000	0.00
		C	0.000	0.000	7.083	0.000	0.04
L27	91.15-90.92	A	0.000	0.000	0.699	0.000	0.00
		B	0.000	0.000	0.345	0.000	0.00
		C	0.000	0.000	0.345	0.000	0.00
L28	90.92-90.25	A	0.000	0.000	2.035	0.000	0.00
		B	0.000	0.000	1.005	0.000	0.00
		C	0.000	0.000	1.005	0.000	0.01
L29	90.25-90.00	A	0.000	0.000	0.759	0.000	0.00
		B	0.000	0.000	0.375	0.000	0.00
		C	0.000	0.000	0.375	0.000	0.00
L30	90.00-85.00	A	0.000	0.000	15.188	0.000	0.00
		B	0.000	0.000	7.500	0.000	0.00
		C	0.000	0.000	7.500	0.000	0.04
L31	85.00-80.00	A	0.000	0.000	15.188	0.000	0.00
		B	0.000	0.000	7.500	0.000	0.00
		C	0.000	0.000	7.500	0.000	0.04
L32	80.00-75.00	A	0.000	0.000	15.188	0.000	0.00
		B	0.000	0.000	7.500	0.000	0.00
		C	0.000	0.000	7.500	0.000	0.04
L33	75.00-70.00	A	0.000	0.000	16.604	0.000	0.00
		B	0.000	0.000	8.208	0.000	0.00
		C	0.000	0.000	8.208	0.000	0.04

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L34	70.00-69.00	A	0.000	0.000	3.371	0.000	0.00
		B	0.000	0.000	1.667	0.000	0.00
		C	0.000	0.000	1.667	0.000	0.01
L35	69.00-64.00	A	0.000	0.000	16.854	0.000	0.00
		B	0.000	0.000	8.333	0.000	0.00
		C	0.000	0.000	8.333	0.000	0.04
L36	64.00-59.00	A	0.000	0.000	16.854	0.000	0.00
		B	0.000	0.000	8.333	0.000	0.00
		C	0.000	0.000	8.333	0.000	0.04
L37	59.00-56.50	A	0.000	0.000	9.217	0.000	0.00
		B	0.000	0.000	4.562	0.000	0.00
		C	0.000	0.000	4.562	0.000	0.02
L38	56.50-56.25	A	0.000	0.000	0.968	0.000	0.00
		B	0.000	0.000	0.479	0.000	0.00
		C	0.000	0.000	0.479	0.000	0.00
L39	56.25-55.33	A	0.000	0.000	3.561	0.000	0.00
		B	0.000	0.000	1.763	0.000	0.00
		C	0.000	0.000	1.763	0.000	0.01
L40	55.33-55.08	A	0.000	0.000	0.968	0.000	0.00
		B	0.000	0.000	0.479	0.000	0.00
		C	0.000	0.000	0.479	0.000	0.00
L41	55.08-50.08	A	0.000	0.000	19.354	0.000	0.00
		B	0.000	0.000	9.583	0.000	0.00
		C	0.000	0.000	9.583	0.000	0.04
L42	50.08-45.08	A	0.000	0.000	19.354	0.000	0.00
		B	0.000	0.000	9.583	0.000	0.00
		C	0.000	0.000	9.583	0.000	0.04
L43	45.08-40.08	A	0.000	0.000	19.354	0.000	0.00
		B	0.000	0.000	9.583	0.000	0.00
		C	0.000	0.000	9.583	0.000	0.04
L44	40.08-35.08	A	0.000	0.000	19.354	0.000	0.00
		B	0.000	0.000	9.583	0.000	0.00
		C	0.000	0.000	9.583	0.000	0.04
L45	35.08-30.00	A	0.000	0.000	19.664	0.000	0.00
		B	0.000	0.000	9.737	0.000	0.00
		C	0.000	0.000	9.737	0.000	0.04
L46	30.00-28.93	A	0.000	0.000	4.142	0.000	0.00
		B	0.000	0.000	2.051	0.000	0.00
		C	0.000	0.000	2.051	0.000	0.01
L47	28.93-28.75	A	0.000	0.000	0.697	0.000	0.00
		B	0.000	0.000	0.345	0.000	0.00
		C	0.000	0.000	0.345	0.000	0.00
L48	28.75-28.50	A	0.000	0.000	0.968	0.000	0.00
		B	0.000	0.000	0.479	0.000	0.00
		C	0.000	0.000	0.479	0.000	0.00
L49	28.50-23.50	A	0.000	0.000	19.354	0.000	0.00
		B	0.000	0.000	9.583	0.000	0.00
		C	0.000	0.000	9.583	0.000	0.04
L50	23.50-19.25	A	0.000	0.000	18.951	0.000	0.00
		B	0.000	0.000	13.745	0.000	0.00
		C	0.000	0.000	13.745	0.000	0.03
L51	19.25-19.00	A	0.000	0.000	1.134	0.000	0.00
		B	0.000	0.000	0.852	0.000	0.00
		C	0.000	0.000	0.852	0.000	0.00
L52	19.00-16.75	A	0.000	0.000	10.209	0.000	0.00
		B	0.000	0.000	7.672	0.000	0.00
		C	0.000	0.000	7.672	0.000	0.02
L53	16.75-16.50	A	0.000	0.000	1.134	0.000	0.00
		B	0.000	0.000	0.852	0.000	0.00
		C	0.000	0.000	0.852	0.000	0.00
L54	16.50-11.50	A	0.000	0.000	22.688	0.000	0.00

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B	0.000	0.000	15.309	0.000	0.00
		C	0.000	0.000	15.309	0.000	0.04
L55	11.50-7.00	A	0.000	0.000	20.419	0.000	0.00
		B	0.000	0.000	10.125	0.000	0.00
		C	0.000	0.000	10.125	0.000	0.03
L56	7.00-6.75	A	0.000	0.000	1.134	0.000	0.00
		B	0.000	0.000	0.563	0.000	0.00
		C	0.000	0.000	0.563	0.000	0.00
L57	6.75-6.50	A	0.000	0.000	1.134	0.000	0.00
		B	0.000	0.000	0.563	0.000	0.00
		C	0.000	0.000	0.563	0.000	0.00
L58	6.50-2.75	A	0.000	0.000	17.016	0.000	0.00
		B	0.000	0.000	8.438	0.000	0.00
		C	0.000	0.000	8.438	0.000	0.03
L59	2.75-2.50	A	0.000	0.000	1.134	0.000	0.00
		B	0.000	0.000	0.563	0.000	0.00
		C	0.000	0.000	0.563	0.000	0.00
L60	2.50-0.00	A	0.000	0.000	11.344	0.000	0.00
		B	0.000	0.000	5.625	0.000	0.00
		C	0.000	0.000	5.625	0.000	0.02

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	150.00-145.00	A	1.481	0.000	0.000	2.453	0.000	0.03
		B		0.000	0.000	0.785	0.000	0.01
		C		0.000	0.000	0.785	0.000	0.05
L2	145.00-143.50	A	1.478	0.000	0.000	2.068	0.000	0.02
		B		0.000	0.000	1.568	0.000	0.01
		C		0.000	0.000	1.568	0.000	0.03
L3	143.50-143.25	A	1.477	0.000	0.000	0.345	0.000	0.00
		B		0.000	0.000	0.261	0.000	0.00
		C		0.000	0.000	0.261	0.000	0.00
L4	143.25-138.25	A	1.474	0.000	0.000	6.886	0.000	0.07
		B		0.000	0.000	5.224	0.000	0.05
		C		0.000	0.000	5.224	0.000	0.09
L5	138.25-133.25	A	1.469	0.000	0.000	6.875	0.000	0.07
		B		0.000	0.000	5.219	0.000	0.05
		C		0.000	0.000	5.219	0.000	0.09
L6	133.25-129.25	A	1.464	0.000	0.000	7.077	0.000	0.07
		B		0.000	0.000	4.964	0.000	0.05
		C		0.000	0.000	4.964	0.000	0.08
L7	129.25-129.00	A	1.461	0.000	0.000	0.739	0.000	0.01
		B		0.000	0.000	0.459	0.000	0.00
		C		0.000	0.000	0.459	0.000	0.01
L8	129.00-124.00	A	1.458	0.000	0.000	14.771	0.000	0.14
		B		0.000	0.000	9.167	0.000	0.08
		C		0.000	0.000	9.167	0.000	0.12
L9	124.00-119.00	A	1.452	0.000	0.000	14.747	0.000	0.14
		B		0.000	0.000	9.155	0.000	0.08
		C		0.000	0.000	9.155	0.000	0.12
L10	119.00-115.00	A	1.447	0.000	0.000	13.596	0.000	0.13
		B		0.000	0.000	7.315	0.000	0.06
		C		0.000	0.000	7.315	0.000	0.09
L11	115.00-114.75	A	1.444	0.000	0.000	0.937	0.000	0.01
		B		0.000	0.000	0.457	0.000	0.00

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		C		0.000	0.000	0.457	0.000	0.01
L12	114.75-111.25	A	1.442	0.000	0.000	15.785	0.000	0.16
		B		0.000	0.000	7.728	0.000	0.07
		C		0.000	0.000	7.728	0.000	0.10
L13	111.25-111.00	A	1.440	0.000	0.000	1.270	0.000	0.01
		B		0.000	0.000	0.623	0.000	0.01
		C		0.000	0.000	0.623	0.000	0.01
L14	111.00-110.75	A	1.439	0.000	0.000	1.270	0.000	0.01
		B		0.000	0.000	0.623	0.000	0.01
		C		0.000	0.000	0.623	0.000	0.01
L15	110.75-110.00	A	1.439	0.000	0.000	1.974	0.000	0.02
		B		0.000	0.000	0.865	0.000	0.01
		C		0.000	0.000	0.865	0.000	0.02
L16	110.00-109.00	A	1.437	0.000	0.000	3.434	0.000	0.04
		B		0.000	0.000	1.547	0.000	0.02
		C		0.000	0.000	1.547	0.000	0.03
L17	109.00-108.75	A	1.437	0.000	0.000	1.294	0.000	0.01
		B		0.000	0.000	0.599	0.000	0.01
		C		0.000	0.000	0.599	0.000	0.01
L18	108.75-108.25	A	1.436	0.000	0.000	2.587	0.000	0.03
		B		0.000	0.000	1.198	0.000	0.01
		C		0.000	0.000	1.198	0.000	0.02
L19	108.25-108.00	A	1.436	0.000	0.000	1.293	0.000	0.01
		B		0.000	0.000	0.599	0.000	0.01
		C		0.000	0.000	0.599	0.000	0.01
L20	108.00-106.42	A	1.434	0.000	0.000	8.172	0.000	0.09
		B		0.000	0.000	3.785	0.000	0.04
		C		0.000	0.000	3.785	0.000	0.05
L21	106.42-106.17	A	1.433	0.000	0.000	1.183	0.000	0.01
		B		0.000	0.000	0.544	0.000	0.01
		C		0.000	0.000	0.544	0.000	0.01
L22	106.17-101.75	A	1.430	0.000	0.000	19.177	0.000	0.19
		B		0.000	0.000	7.007	0.000	0.07
		C		0.000	0.000	7.007	0.000	0.10
L23	101.75-101.50	A	1.427	0.000	0.000	1.347	0.000	0.01
		B		0.000	0.000	0.452	0.000	0.00
		C		0.000	0.000	0.452	0.000	0.01
L24	101.50-101.25	A	1.426	0.000	0.000	1.347	0.000	0.01
		B		0.000	0.000	0.452	0.000	0.00
		C		0.000	0.000	0.452	0.000	0.01
L25	101.25-96.25	A	1.423	0.000	0.000	22.581	0.000	0.21
		B		0.000	0.000	9.037	0.000	0.08
		C		0.000	0.000	9.037	0.000	0.12
L26	96.25-91.15	A	1.415	0.000	0.000	20.965	0.000	0.18
		B		0.000	0.000	9.665	0.000	0.08
		C		0.000	0.000	9.665	0.000	0.12
L27	91.15-90.92	A	1.411	0.000	0.000	1.023	0.000	0.01
		B		0.000	0.000	0.475	0.000	0.00
		C		0.000	0.000	0.475	0.000	0.01
L28	90.92-90.25	A	1.410	0.000	0.000	2.980	0.000	0.03
		B		0.000	0.000	1.383	0.000	0.01
		C		0.000	0.000	1.383	0.000	0.02
L29	90.25-90.00	A	1.410	0.000	0.000	1.112	0.000	0.01
		B		0.000	0.000	0.516	0.000	0.00
		C		0.000	0.000	0.516	0.000	0.01
L30	90.00-85.00	A	1.406	0.000	0.000	22.215	0.000	0.19
		B		0.000	0.000	10.311	0.000	0.09
		C		0.000	0.000	10.311	0.000	0.12
L31	85.00-80.00	A	1.397	0.000	0.000	22.174	0.000	0.19
		B		0.000	0.000	10.295	0.000	0.08
		C		0.000	0.000	10.295	0.000	0.12

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L32	80.00-75.00	A	1.389	0.000	0.000	22.131	0.000	0.18
		B		0.000	0.000	10.277	0.000	0.08
		C		0.000	0.000	10.277	0.000	0.12
L33	75.00-70.00	A	1.379	0.000	0.000	23.489	0.000	0.19
		B		0.000	0.000	10.961	0.000	0.09
		C		0.000	0.000	10.961	0.000	0.13
L34	70.00-69.00	A	1.374	0.000	0.000	4.748	0.000	0.04
		B		0.000	0.000	2.217	0.000	0.02
		C		0.000	0.000	2.217	0.000	0.03
L35	69.00-64.00	A	1.368	0.000	0.000	23.681	0.000	0.19
		B		0.000	0.000	11.063	0.000	0.09
		C		0.000	0.000	11.063	0.000	0.13
L36	64.00-59.00	A	1.357	0.000	0.000	23.631	0.000	0.19
		B		0.000	0.000	11.043	0.000	0.09
		C		0.000	0.000	11.043	0.000	0.12
L37	59.00-56.50	A	1.348	0.000	0.000	12.588	0.000	0.10
		B		0.000	0.000	5.910	0.000	0.05
		C		0.000	0.000	5.910	0.000	0.06
L38	56.50-56.25	A	1.345	0.000	0.000	1.304	0.000	0.01
		B		0.000	0.000	0.614	0.000	0.00
		C		0.000	0.000	0.614	0.000	0.01
L39	56.25-55.33	A	1.344	0.000	0.000	4.797	0.000	0.04
		B		0.000	0.000	2.258	0.000	0.02
		C		0.000	0.000	2.258	0.000	0.02
L40	55.33-55.08	A	1.342	0.000	0.000	1.303	0.000	0.01
		B		0.000	0.000	0.613	0.000	0.00
		C		0.000	0.000	0.613	0.000	0.01
L41	55.08-50.08	A	1.336	0.000	0.000	26.033	0.000	0.20
		B		0.000	0.000	12.255	0.000	0.09
		C		0.000	0.000	12.255	0.000	0.13
L42	50.08-45.08	A	1.322	0.000	0.000	25.967	0.000	0.20
		B		0.000	0.000	12.228	0.000	0.09
		C		0.000	0.000	12.228	0.000	0.13
L43	45.08-40.08	A	1.308	0.000	0.000	25.894	0.000	0.19
		B		0.000	0.000	12.199	0.000	0.09
		C		0.000	0.000	12.199	0.000	0.13
L44	40.08-35.08	A	1.292	0.000	0.000	25.812	0.000	0.19
		B		0.000	0.000	12.167	0.000	0.09
		C		0.000	0.000	12.167	0.000	0.13
L45	35.08-30.00	A	1.273	0.000	0.000	26.132	0.000	0.19
		B		0.000	0.000	12.324	0.000	0.09
		C		0.000	0.000	12.324	0.000	0.13
L46	30.00-28.93	A	1.261	0.000	0.000	5.504	0.000	0.04
		B		0.000	0.000	2.596	0.000	0.02
		C		0.000	0.000	2.596	0.000	0.03
L47	28.93-28.75	A	1.258	0.000	0.000	0.923	0.000	0.01
		B		0.000	0.000	0.436	0.000	0.00
		C		0.000	0.000	0.436	0.000	0.00
L48	28.75-28.50	A	1.257	0.000	0.000	1.282	0.000	0.01
		B		0.000	0.000	0.605	0.000	0.00
		C		0.000	0.000	0.605	0.000	0.01
L49	28.50-23.50	A	1.245	0.000	0.000	25.579	0.000	0.18
		B		0.000	0.000	12.073	0.000	0.08
		C		0.000	0.000	12.073	0.000	0.12
L50	23.50-19.25	A	1.221	0.000	0.000	24.139	0.000	0.17
		B		0.000	0.000	16.315	0.000	0.12
		C		0.000	0.000	16.315	0.000	0.15
L51	19.25-19.00	A	1.207	0.000	0.000	1.436	0.000	0.01
		B		0.000	0.000	1.006	0.000	0.01
		C		0.000	0.000	1.006	0.000	0.01
L52	19.00-16.75	A	1.199	0.000	0.000	12.907	0.000	0.09

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
		B		0.000	0.000	9.043	0.000	0.06
		C		0.000	0.000	9.043	0.000	0.08
L53	16.75-16.50	A	1.191	0.000	0.000	1.432	0.000	0.01
		B		0.000	0.000	1.004	0.000	0.01
		C		0.000	0.000	1.004	0.000	0.01
L54	16.50-11.50	A	1.170	0.000	0.000	28.538	0.000	0.19
		B		0.000	0.000	18.092	0.000	0.12
		C		0.000	0.000	18.092	0.000	0.16
L55	11.50-7.00	A	1.123	0.000	0.000	25.471	0.000	0.16
		B		0.000	0.000	12.146	0.000	0.07
		C		0.000	0.000	12.146	0.000	0.11
L56	7.00-6.75	A	1.090	0.000	0.000	1.407	0.000	0.01
		B		0.000	0.000	0.671	0.000	0.00
		C		0.000	0.000	0.671	0.000	0.01
L57	6.75-6.50	A	1.086	0.000	0.000	1.406	0.000	0.01
		B		0.000	0.000	0.671	0.000	0.00
		C		0.000	0.000	0.671	0.000	0.01
L58	6.50-2.75	A	1.047	0.000	0.000	20.943	0.000	0.12
		B		0.000	0.000	10.009	0.000	0.06
		C		0.000	0.000	10.009	0.000	0.09
L59	2.75-2.50	A	0.990	0.000	0.000	1.382	0.000	0.01
		B		0.000	0.000	0.661	0.000	0.00
		C		0.000	0.000	0.661	0.000	0.01
L60	2.50-0.00	A	0.919	0.000	0.000	13.641	0.000	0.07
		B		0.000	0.000	6.544	0.000	0.03
		C		0.000	0.000	6.544	0.000	0.05

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	150.00-145.00	1.121	0.089	0.943	-0.740
L2	145.00-143.50	3.066	0.661	3.098	0.259
L3	143.50-143.25	3.089	0.666	3.122	0.261
L4	143.25-138.25	3.133	0.677	3.175	0.266
L5	138.25-133.25	3.216	0.696	3.276	0.277
L6	133.25-129.25	3.136	0.869	3.185	0.522
L7	129.25-129.00	2.868	1.189	2.882	0.973
L8	129.00-124.00	2.913	1.208	2.933	0.990
L9	124.00-119.00	2.997	1.244	3.030	1.024
L10	119.00-115.00	2.371	1.472	2.496	1.239
L11	115.00-114.75	1.906	1.629	2.087	1.387
L12	114.75-111.25	1.991	1.753	2.148	1.540
L13	111.25-111.00	2.044	1.829	2.191	1.635
L14	111.00-110.75	2.051	1.836	2.197	1.640
L15	110.75-110.00	1.483	1.450	1.551	1.137
L16	110.00-109.00	1.714	1.651	1.757	1.377
L17	109.00-108.75	1.919	1.862	1.951	1.670
L18	108.75-108.25	1.923	1.866	1.956	1.674
L19	108.25-108.00	1.930	1.873	1.962	1.680
L20	108.00-106.42	1.940	1.883	1.973	1.689
L21	106.42-106.17	1.906	1.844	1.943	1.635
L22	106.17-101.75	1.617	1.325	1.671	1.096
L23	101.75-101.50	1.642	1.244	1.693	1.046
L24	101.50-101.25	1.643	1.245	1.694	1.047
L25	101.25-96.25	1.805	1.600	1.857	1.374

Section	Elevation	CP_X	CP_Z	CP_X Ice	CP_Z Ice
	ft	in	in	in	in
L26	96.25-91.15	1.982	1.928	2.044	1.693
L27	91.15-90.92	2.049	1.997	2.118	1.784
L28	90.92-90.25	2.054	2.001	2.123	1.789
L29	90.25-90.00	2.058	2.006	2.128	1.793
L30	90.00-85.00	2.083	2.030	2.156	1.818
L31	85.00-80.00	2.131	2.076	2.210	1.864
L32	80.00-75.00	2.177	2.122	2.262	1.910
L33	75.00-70.00	2.281	2.228	2.354	2.012
L34	70.00-69.00	2.288	2.235	2.357	2.019
L35	69.00-64.00	2.316	2.263	2.389	2.049
L36	64.00-59.00	2.364	2.310	2.442	2.096
L37	59.00-56.50	2.459	2.408	2.524	2.192
L38	56.50-56.25	2.504	2.454	2.562	2.238
L39	56.25-55.33	2.509	2.460	2.568	2.243
L40	55.33-55.08	2.516	2.466	2.575	2.250
L41	55.08-50.08	2.542	2.492	2.604	2.276
L42	50.08-45.08	2.591	2.540	2.657	2.325
L43	45.08-40.08	2.640	2.588	2.710	2.374
L44	40.08-35.08	2.688	2.635	2.762	2.422
L45	35.08-30.00	2.736	2.681	2.814	2.471
L46	30.00-28.93	2.726	2.672	2.804	2.462
L47	28.93-28.75	2.732	2.678	2.809	2.470
L48	28.75-28.50	2.734	2.680	2.812	2.472
L49	28.50-23.50	2.759	2.704	2.838	2.497
L50	23.50-19.25	1.891	1.431	2.001	1.341
L51	19.25-19.00	1.817	1.314	1.928	1.231
L52	19.00-16.75	1.825	1.320	1.936	1.238
L53	16.75-16.50	1.831	1.324	1.943	1.243
L54	16.50-11.50	2.152	1.762	2.252	1.653
L55	11.50-7.00	3.043	2.992	3.103	2.798
L56	7.00-6.75	3.071	3.020	3.131	2.830
L57	6.75-6.50	3.072	3.020	3.131	2.831
L58	6.50-2.75	3.091	3.039	3.150	2.856
L59	2.75-2.50	3.108	3.056	3.166	2.882
L60	2.50-0.00	3.122	3.069	3.177	2.905

Note: For pole sections, center of pressure calculations do not consider feed line shielding.

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L1	3	Safety Line 3/8	145.00 - 150.00	1.0000	1.0000
L1	87	(Area) CCI-65FP-045125 (H)	145.00 - 145.75	1.0000	1.0000
L1	88	(Area) CCI-65FP-045125 (H)	145.00 - 145.75	1.0000	1.0000
L1	89	(Area) CCI-65FP-045125 (H)	145.00 - 145.75	1.0000	1.0000
L2	3	Safety Line 3/8	143.50 - 145.00	1.0000	1.0000
L2	87	(Area) CCI-65FP-045125 (H)	143.50 - 145.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L2	88	(Area) CCI-65FP-045125 (H)	143.50 - 145.00	1.0000	1.0000
L2	89	(Area) CCI-65FP-045125 (H)	143.50 - 145.00	1.0000	1.0000
L3	3	Safety Line 3/8	143.25 - 143.50	1.0000	1.0000
L3	87	(Area) CCI-65FP-045125 (H)	143.25 - 143.50	1.0000	1.0000
L3	88	(Area) CCI-65FP-045125 (H)	143.25 - 143.50	1.0000	1.0000
L3	89	(Area) CCI-65FP-045125 (H)	143.25 - 143.50	1.0000	1.0000
L4	3	Safety Line 3/8	138.25 - 143.25	1.0000	1.0000
L4	87	(Area) CCI-65FP-045125 (H)	138.25 - 143.25	1.0000	1.0000
L4	88	(Area) CCI-65FP-045125 (H)	138.25 - 143.25	1.0000	1.0000
L4	89	(Area) CCI-65FP-045125 (H)	138.25 - 143.25	1.0000	1.0000
L5	3	Safety Line 3/8	133.25 - 138.25	1.0000	1.0000
L5	87	(Area) CCI-65FP-045125 (H)	133.25 - 138.25	1.0000	1.0000
L5	88	(Area) CCI-65FP-045125 (H)	133.25 - 138.25	1.0000	1.0000
L5	89	(Area) CCI-65FP-045125 (H)	133.25 - 138.25	1.0000	1.0000
L6	3	Safety Line 3/8	129.25 - 133.25	1.0000	1.0000
L6	35	PL 1.25" x 3"	129.25 - 130.25	1.0000	1.0000
L6	36	PL 1.25" x 3"	129.25 - 130.25	1.0000	1.0000
L6	37	PL 1.25" x 3"	129.25 - 130.25	1.0000	1.0000
L6	38	PL 1.25" x 3"	129.25 - 130.25	1.0000	1.0000
L6	87	(Area) CCI-65FP-045125 (H)	129.25 - 133.25	1.0000	1.0000
L6	88	(Area) CCI-65FP-045125 (H)	129.25 - 133.25	1.0000	1.0000
L6	89	(Area) CCI-65FP-045125 (H)	129.25 - 133.25	1.0000	1.0000
L7	3	Safety Line 3/8	129.00 - 129.25	1.0000	1.0000
L7	35	PL 1.25" x 3"	129.00 - 129.25	1.0000	1.0000
L7	36	PL 1.25" x 3"	129.00 - 129.25	1.0000	1.0000
L7	37	PL 1.25" x 3"	129.00 - 129.25	1.0000	1.0000
L7	38	PL 1.25" x 3"	129.00 - 129.25	1.0000	1.0000
L7	87	(Area) CCI-65FP-045125 (H)	129.00 - 129.25	1.0000	1.0000
L7	88	(Area) CCI-65FP-045125 (H)	129.00 - 129.25	1.0000	1.0000
L7	89	(Area) CCI-65FP-045125 (H)	129.00 - 129.25	1.0000	1.0000
L8	3	Safety Line 3/8	124.00 - 129.00	1.0000	1.0000

Tower Section	*Feed Line Record No.*	*Description*	*Feed Line Segment Elev.*	*K_a No Ice*	*K_a Ice*
L8	35	PL 1.25" x 3"	124.00 - 129.00	1.0000	1.0000
L8	36	PL 1.25" x 3"	124.00 - 129.00	1.0000	1.0000
L8	37	PL 1.25" x 3"	124.00 - 129.00	1.0000	1.0000
L8	38	PL 1.25" x 3"	124.00 - 129.00	1.0000	1.0000
L8	87	(Area) CCI-65FP-045125 (H)	124.00 - 129.00	1.0000	1.0000
L8	88	(Area) CCI-65FP-045125 (H)	124.00 - 129.00	1.0000	1.0000
L8	89	(Area) CCI-65FP-045125 (H)	124.00 - 129.00	1.0000	1.0000
L9	3	Safety Line 3/8	119.00 - 124.00	1.0000	1.0000
L9	35	PL 1.25" x 3"	119.00 - 124.00	1.0000	1.0000
L9	36	PL 1.25" x 3"	119.00 - 124.00	1.0000	1.0000
L9	37	PL 1.25" x 3"	119.00 - 124.00	1.0000	1.0000
L9	38	PL 1.25" x 3"	119.00 - 124.00	1.0000	1.0000
L9	87	(Area) CCI-65FP-045125 (H)	119.00 - 124.00	1.0000	1.0000
L9	88	(Area) CCI-65FP-045125 (H)	119.00 - 124.00	1.0000	1.0000
L9	89	(Area) CCI-65FP-045125 (H)	119.00 - 124.00	1.0000	1.0000
L10	3	Safety Line 3/8	115.00 - 119.00	1.0000	1.0000
L10	35	PL 1.25" x 3"	115.00 - 119.00	1.0000	1.0000
L10	36	PL 1.25" x 3"	115.00 - 119.00	1.0000	1.0000
L10	37	PL 1.25" x 3"	115.00 - 119.00	1.0000	1.0000
L10	38	PL 1.25" x 3"	115.00 - 119.00	1.0000	1.0000
L10	85	(Area) CCI-65FP-045125 (H)	115.00 - 117.25	1.0000	1.0000
L10	87	(Area) CCI-65FP-045125 (H)	115.00 - 119.00	1.0000	1.0000
L10	88	(Area) CCI-65FP-045125 (H)	115.00 - 119.00	1.0000	1.0000
L10	89	(Area) CCI-65FP-045125 (H)	115.00 - 119.00	1.0000	1.0000
L11	3	Safety Line 3/8	114.75 - 115.00	1.0000	1.0000
L11	35	PL 1.25" x 3"	114.75 - 115.00	1.0000	1.0000
L11	36	PL 1.25" x 3"	114.75 - 115.00	1.0000	1.0000
L11	37	PL 1.25" x 3"	114.75 - 115.00	1.0000	1.0000
L11	38	PL 1.25" x 3"	114.75 - 115.00	1.0000	1.0000
L11	85	(Area) CCI-65FP-045125 (H)	114.75 - 115.00	1.0000	1.0000
L11	87	(Area) CCI-65FP-045125 (H)	114.75 - 115.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L11	88	(Area) CCI-65FP-045125 (H)	114.75 - 115.00	1.0000	1.0000
L11	89	(Area) CCI-65FP-045125 (H)	114.75 - 115.00	1.0000	1.0000
L12	3	Safety Line 3/8	111.25 - 114.75	1.0000	1.0000
L12	35	PL 1.25" x 3"	111.25 - 114.75	1.0000	1.0000
L12	36	PL 1.25" x 3"	111.25 - 114.75	1.0000	1.0000
L12	37	PL 1.25" x 3"	111.25 - 114.75	1.0000	1.0000
L12	38	PL 1.25" x 3"	111.25 - 114.75	1.0000	1.0000
L12	80	(Area) CCI-65FP-045125 (H)	111.25 - 113.25	1.0000	1.0000
L12	81	(Area) CCI-65FP-045125 (H)	111.25 - 113.25	1.0000	1.0000
L12	82	(Area) CCI-65FP-045125 (H)	111.25 - 113.25	1.0000	1.0000
L12	83	(Area) CCI-65FP-045125 (H)	111.25 - 113.25	1.0000	1.0000
L12	85	(Area) CCI-65FP-045125 (H)	111.25 - 114.75	1.0000	1.0000
L12	87	(Area) CCI-65FP-045125 (H)	111.25 - 114.75	1.0000	1.0000
L12	88	(Area) CCI-65FP-045125 (H)	111.25 - 114.75	1.0000	1.0000
L12	89	(Area) CCI-65FP-045125 (H)	111.25 - 114.75	1.0000	1.0000
L13	3	Safety Line 3/8	111.00 - 111.25	1.0000	1.0000
L13	35	PL 1.25" x 3"	111.00 - 111.25	1.0000	1.0000
L13	36	PL 1.25" x 3"	111.00 - 111.25	1.0000	1.0000
L13	37	PL 1.25" x 3"	111.00 - 111.25	1.0000	1.0000
L13	38	PL 1.25" x 3"	111.00 - 111.25	1.0000	1.0000
L13	80	(Area) CCI-65FP-045125 (H)	111.00 - 111.25	1.0000	1.0000
L13	81	(Area) CCI-65FP-045125 (H)	111.00 - 111.25	1.0000	1.0000
L13	82	(Area) CCI-65FP-045125 (H)	111.00 - 111.25	1.0000	1.0000
L13	83	(Area) CCI-65FP-045125 (H)	111.00 - 111.25	1.0000	1.0000
L13	85	(Area) CCI-65FP-045125 (H)	111.00 - 111.25	1.0000	1.0000
L13	87	(Area) CCI-65FP-045125 (H)	111.00 - 111.25	1.0000	1.0000
L13	88	(Area) CCI-65FP-045125 (H)	111.00 - 111.25	1.0000	1.0000
L13	89	(Area) CCI-65FP-045125 (H)	111.00 - 111.25	1.0000	1.0000
L14	3	Safety Line 3/8	110.75 - 111.00	1.0000	1.0000
L14	35	PL 1.25" x 3"	110.75 - 111.00	1.0000	1.0000
L14	36	PL 1.25" x 3"	110.75 - 111.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L14	37	PL 1.25" x 3"	110.75 - 111.00	1.0000	1.0000
L14	38	PL 1.25" x 3"	110.75 - 111.00	1.0000	1.0000
L14	80	(Area) CCI-65FP-045125 (H)	110.75 - 111.00	1.0000	1.0000
L14	81	(Area) CCI-65FP-045125 (H)	110.75 - 111.00	1.0000	1.0000
L14	82	(Area) CCI-65FP-045125 (H)	110.75 - 111.00	1.0000	1.0000
L14	83	(Area) CCI-65FP-045125 (H)	110.75 - 111.00	1.0000	1.0000
L14	85	(Area) CCI-65FP-045125 (H)	110.75 - 111.00	1.0000	1.0000
L14	87	(Area) CCI-65FP-045125 (H)	110.75 - 111.00	1.0000	1.0000
L14	88	(Area) CCI-65FP-045125 (H)	110.75 - 111.00	1.0000	1.0000
L14	89	(Area) CCI-65FP-045125 (H)	110.75 - 111.00	1.0000	1.0000
L15	3	Safety Line 3/8	110.00 - 110.75	1.0000	1.0000
L15	35	PL 1.25" x 3"	110.25 - 110.75	1.0000	1.0000
L15	36	PL 1.25" x 3"	110.25 - 110.75	1.0000	1.0000
L15	37	PL 1.25" x 3"	110.25 - 110.75	1.0000	1.0000
L15	38	PL 1.25" x 3"	110.25 - 110.75	1.0000	1.0000
L15	75	(Area) CCI-65FP-045125 (H)	110.00 - 110.75	1.0000	1.0000
L15	76	(Area) CCI-65FP-045125 (H)	110.00 - 110.75	1.0000	1.0000
L15	77	(Area) CCI-65FP-045125 (H)	110.00 - 110.75	1.0000	1.0000
L15	78	(Area) CCI-65FP-045125 (H)	110.00 - 110.75	1.0000	1.0000
L16	3	Safety Line 3/8	109.00 - 110.00	1.0000	1.0000
L16	30	PL 1.25x4	109.00 - 109.75	1.0000	1.0000
L16	31	PL 1.25x4	109.00 - 109.75	1.0000	1.0000
L16	32	PL 1.25x4	109.00 - 109.75	1.0000	1.0000
L16	33	PL 1.25x4	109.00 - 109.75	1.0000	1.0000
L16	65	(Area) CCI-65FP-045125 (H)	109.00 - 109.25	1.0000	1.0000
L16	66	(Area) CCI-65FP-045125 (H)	109.00 - 109.25	1.0000	1.0000
L16	67	(Area) CCI-65FP-045125 (H)	109.00 - 109.25	1.0000	1.0000
L16	68	(Area) CCI-65FP-045125 (H)	109.00 - 109.25	1.0000	1.0000
L16	70	(Area) CCI-65FP-045125 (H)	109.00 - 109.25	1.0000	1.0000
L16	71	(Area) CCI-65FP-045125 (H)	109.00 - 109.25	1.0000	1.0000
L16	72	(Area) CCI-65FP-045125 (H)	109.00 - 109.25	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L16	73	(Area) CCI-65FP-045125 (H)	109.00 - 109.25	1.0000	1.0000
L16	75	(Area) CCI-65FP-045125 (H)	109.25 - 110.00	1.0000	1.0000
L16	76	(Area) CCI-65FP-045125 (H)	109.25 - 110.00	1.0000	1.0000
L16	77	(Area) CCI-65FP-045125 (H)	109.25 - 110.00	1.0000	1.0000
L16	78	(Area) CCI-65FP-045125 (H)	109.25 - 110.00	1.0000	1.0000
L17	3	Safety Line 3/8	108.75 - 109.00	1.0000	1.0000
L17	30	PL 1.25x4	108.75 - 109.00	1.0000	1.0000
L17	31	PL 1.25x4	108.75 - 109.00	1.0000	1.0000
L17	32	PL 1.25x4	108.75 - 109.00	1.0000	1.0000
L17	33	PL 1.25x4	108.75 - 109.00	1.0000	1.0000
L17	65	(Area) CCI-65FP-045125 (H)	108.75 - 109.00	1.0000	1.0000
L17	66	(Area) CCI-65FP-045125 (H)	108.75 - 109.00	1.0000	1.0000
L17	67	(Area) CCI-65FP-045125 (H)	108.75 - 109.00	1.0000	1.0000
L17	68	(Area) CCI-65FP-045125 (H)	108.75 - 109.00	1.0000	1.0000
L17	70	(Area) CCI-65FP-045125 (H)	108.75 - 109.00	1.0000	1.0000
L17	71	(Area) CCI-65FP-045125 (H)	108.75 - 109.00	1.0000	1.0000
L17	72	(Area) CCI-65FP-045125 (H)	108.75 - 109.00	1.0000	1.0000
L17	73	(Area) CCI-65FP-045125 (H)	108.75 - 109.00	1.0000	1.0000
L18	3	Safety Line 3/8	108.25 - 108.75	1.0000	1.0000
L18	30	PL 1.25x4	108.25 - 108.75	1.0000	1.0000
L18	31	PL 1.25x4	108.25 - 108.75	1.0000	1.0000
L18	32	PL 1.25x4	108.25 - 108.75	1.0000	1.0000
L18	33	PL 1.25x4	108.25 - 108.75	1.0000	1.0000
L18	65	(Area) CCI-65FP-045125 (H)	108.25 - 108.75	1.0000	1.0000
L18	66	(Area) CCI-65FP-045125 (H)	108.25 - 108.75	1.0000	1.0000
L18	67	(Area) CCI-65FP-045125 (H)	108.25 - 108.75	1.0000	1.0000
L18	68	(Area) CCI-65FP-045125 (H)	108.25 - 108.75	1.0000	1.0000
L18	70	(Area) CCI-65FP-045125 (H)	108.25 - 108.75	1.0000	1.0000
L18	71	(Area) CCI-65FP-045125 (H)	108.25 - 108.75	1.0000	1.0000
L18	72	(Area) CCI-65FP-045125 (H)	108.25 - 108.75	1.0000	1.0000
L18	73	(Area) CCI-65FP-045125 (H)	108.25 - 108.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L19	3	Safety Line 3/8	108.00 - 108.25	1.0000	1.0000
L19	30	PL 1.25x4	108.00 - 108.25	1.0000	1.0000
L19	31	PL 1.25x4	108.00 - 108.25	1.0000	1.0000
L19	32	PL 1.25x4	108.00 - 108.25	1.0000	1.0000
L19	33	PL 1.25x4	108.00 - 108.25	1.0000	1.0000
L19	65	(Area) CCI-65FP-045125 (H)	108.00 - 108.25	1.0000	1.0000
L19	66	(Area) CCI-65FP-045125 (H)	108.00 - 108.25	1.0000	1.0000
L19	67	(Area) CCI-65FP-045125 (H)	108.00 - 108.25	1.0000	1.0000
L19	68	(Area) CCI-65FP-045125 (H)	108.00 - 108.25	1.0000	1.0000
L19	70	(Area) CCI-65FP-045125 (H)	108.00 - 108.25	1.0000	1.0000
L19	71	(Area) CCI-65FP-045125 (H)	108.00 - 108.25	1.0000	1.0000
L19	72	(Area) CCI-65FP-045125 (H)	108.00 - 108.25	1.0000	1.0000
L19	73	(Area) CCI-65FP-045125 (H)	108.00 - 108.25	1.0000	1.0000
L20	3	Safety Line 3/8	106.42 - 108.00	1.0000	1.0000
L20	30	PL 1.25x4	106.42 - 108.00	1.0000	1.0000
L20	31	PL 1.25x4	106.42 - 108.00	1.0000	1.0000
L20	32	PL 1.25x4	106.42 - 108.00	1.0000	1.0000
L20	33	PL 1.25x4	106.42 - 108.00	1.0000	1.0000
L20	65	(Area) CCI-65FP-045125 (H)	106.42 - 108.00	1.0000	1.0000
L20	66	(Area) CCI-65FP-045125 (H)	106.42 - 108.00	1.0000	1.0000
L20	67	(Area) CCI-65FP-045125 (H)	106.42 - 108.00	1.0000	1.0000
L20	68	(Area) CCI-65FP-045125 (H)	106.42 - 108.00	1.0000	1.0000
L20	70	(Area) CCI-65FP-045125 (H)	106.42 - 108.00	1.0000	1.0000
L20	71	(Area) CCI-65FP-045125 (H)	106.42 - 108.00	1.0000	1.0000
L20	72	(Area) CCI-65FP-045125 (H)	106.42 - 108.00	1.0000	1.0000
L20	73	(Area) CCI-65FP-045125 (H)	106.42 - 108.00	1.0000	1.0000
L21	3	Safety Line 3/8	106.17 - 106.42	1.0000	1.0000
L21	30	PL 1.25x4	106.17 - 106.42	1.0000	1.0000
L21	31	PL 1.25x4	106.17 - 106.42	1.0000	1.0000
L21	32	PL 1.25x4	106.17 - 106.42	1.0000	1.0000
L21	33	PL 1.25x4	106.17 - 106.42	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L21	65	(Area) CCI-65FP-045125 (H)	106.17 - 106.42	1.0000	1.0000
L21	66	(Area) CCI-65FP-045125 (H)	106.17 - 106.42	1.0000	1.0000
L21	67	(Area) CCI-65FP-045125 (H)	106.17 - 106.42	1.0000	1.0000
L21	68	(Area) CCI-65FP-045125 (H)	106.17 - 106.42	1.0000	1.0000
L21	70	(Area) CCI-65FP-045125 (H)	106.25 - 106.42	1.0000	1.0000
L21	71	(Area) CCI-65FP-045125 (H)	106.25 - 106.42	1.0000	1.0000
L21	72	(Area) CCI-65FP-045125 (H)	106.25 - 106.42	1.0000	1.0000
L21	73	(Area) CCI-65FP-045125 (H)	106.25 - 106.42	1.0000	1.0000
L22	3	Safety Line 3/8	101.75 - 106.17	1.0000	1.0000
L22	30	PL 1.25x4	101.75 - 106.17	1.0000	1.0000
L22	31	PL 1.25x4	101.75 - 106.17	1.0000	1.0000
L22	32	PL 1.25x4	101.75 - 106.17	1.0000	1.0000
L22	33	PL 1.25x4	101.75 - 106.17	1.0000	1.0000
L22	58	(Area) CCI-65FP-040125 (H)	101.75 - 103.25	1.0000	1.0000
L22	59	(Area) CCI-65FP-040125 (H)	101.75 - 103.25	1.0000	1.0000
L22	60	(Area) CCI-65FP-040125 (H)	101.75 - 103.25	1.0000	1.0000
L22	61	(Area) CCI-65FP-040125 (H)	101.75 - 103.25	1.0000	1.0000
L22	63	(Area) CCI-65FP-045125 (H)	101.75 - 103.25	1.0000	1.0000
L22	64	(Area) CCI-65FP-045125 (H)	101.75 - 103.25	1.0000	1.0000
L22	65	(Area) CCI-65FP-045125 (H)	103.25 - 106.17	1.0000	1.0000
L22	66	(Area) CCI-65FP-045125 (H)	103.25 - 106.17	1.0000	1.0000
L22	67	(Area) CCI-65FP-045125 (H)	104.17 - 106.17	1.0000	1.0000
L22	68	(Area) CCI-65FP-045125 (H)	104.17 - 106.17	1.0000	1.0000
L23	3	Safety Line 3/8	101.50 - 101.75	1.0000	1.0000
L23	30	PL 1.25x4	101.50 - 101.75	1.0000	1.0000
L23	31	PL 1.25x4	101.50 - 101.75	1.0000	1.0000
L23	32	PL 1.25x4	101.50 - 101.75	1.0000	1.0000
L23	33	PL 1.25x4	101.50 - 101.75	1.0000	1.0000
L23	58	(Area) CCI-65FP-040125 (H)	101.50 - 101.75	1.0000	1.0000
L23	59	(Area) CCI-65FP-040125 (H)	101.50 - 101.75	1.0000	1.0000
L23	60	(Area) CCI-65FP-040125 (H)	101.50 - 101.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L23	61	(Area) CCI-65FP-040125 (H)	101.50 - 101.75	1.0000	1.0000
L23	63	(Area) CCI-65FP-045125 (H)	101.50 - 101.75	1.0000	1.0000
L23	64	(Area) CCI-65FP-045125 (H)	101.50 - 101.75	1.0000	1.0000
L24	3	Safety Line 3/8	101.25 - 101.50	1.0000	1.0000
L24	30	PL 1.25x4	101.25 - 101.50	1.0000	1.0000
L24	31	PL 1.25x4	101.25 - 101.50	1.0000	1.0000
L24	32	PL 1.25x4	101.25 - 101.50	1.0000	1.0000
L24	33	PL 1.25x4	101.25 - 101.50	1.0000	1.0000
L24	58	(Area) CCI-65FP-040125 (H)	101.25 - 101.50	1.0000	1.0000
L24	59	(Area) CCI-65FP-040125 (H)	101.25 - 101.50	1.0000	1.0000
L24	60	(Area) CCI-65FP-040125 (H)	101.25 - 101.50	1.0000	1.0000
L24	61	(Area) CCI-65FP-040125 (H)	101.25 - 101.50	1.0000	1.0000
L24	63	(Area) CCI-65FP-045125 (H)	101.25 - 101.50	1.0000	1.0000
L24	64	(Area) CCI-65FP-045125 (H)	101.25 - 101.50	1.0000	1.0000
L25	3	Safety Line 3/8	96.25 - 101.25	1.0000	1.0000
L25	30	PL 1.25x4	96.25 - 101.25	1.0000	1.0000
L25	31	PL 1.25x4	96.25 - 101.25	1.0000	1.0000
L25	32	PL 1.25x4	96.25 - 101.25	1.0000	1.0000
L25	33	PL 1.25x4	96.25 - 101.25	1.0000	1.0000
L25	58	(Area) CCI-65FP-040125 (H)	96.25 - 101.25	1.0000	1.0000
L25	59	(Area) CCI-65FP-040125 (H)	96.25 - 101.25	1.0000	1.0000
L25	60	(Area) CCI-65FP-040125 (H)	96.25 - 101.25	1.0000	1.0000
L25	61	(Area) CCI-65FP-040125 (H)	96.25 - 101.25	1.0000	1.0000
L25	63	(Area) CCI-65FP-045125 (H)	99.25 - 101.25	1.0000	1.0000
L25	64	(Area) CCI-65FP-045125 (H)	99.25 - 101.25	1.0000	1.0000
L26	3	Safety Line 3/8	91.15 - 96.25	1.0000	1.0000
L26	30	PL 1.25x4	91.15 - 96.25	1.0000	1.0000
L26	31	PL 1.25x4	91.15 - 96.25	1.0000	1.0000
L26	32	PL 1.25x4	91.15 - 96.25	1.0000	1.0000
L26	33	PL 1.25x4	91.15 - 96.25	1.0000	1.0000
L26	53	(Area) CCI-65FP-050125 (H)	91.15 - 93.17	1.0000	1.0000
L26	54	(Area) CCI-65FP-050125 (H)	91.15 - 93.17	1.0000	1.0000
L26	55	(Area) CCI-65FP-050125 (H)	91.15 - 93.17	1.0000	1.0000
L26	56	(Area) CCI-65FP-050125 (H)	91.15 - 93.17	1.0000	1.0000
L26	58	(Area) CCI-65FP-040125 (H)	93.25 - 96.25	1.0000	1.0000
L26	59	(Area) CCI-65FP-040125 (H)	93.25 - 96.25	1.0000	1.0000
L26	60	(Area) CCI-65FP-040125 (H)	93.25 - 96.25	1.0000	1.0000
L26	61	(Area) CCI-65FP-040125 (H)	93.25 - 96.25	1.0000	1.0000
L27	3	Safety Line 3/8	90.92 - 91.15	1.0000	1.0000
L27	30	PL 1.25x4	90.92 - 91.15	1.0000	1.0000
L27	31	PL 1.25x4	90.92 - 91.15	1.0000	1.0000
L27	32	PL 1.25x4	90.92 - 91.15	1.0000	1.0000
L27	33	PL 1.25x4	90.92 - 91.15	1.0000	1.0000
L27	53	(Area) CCI-65FP-050125 (H)	90.92 - 91.15	1.0000	1.0000
L27	54	(Area) CCI-65FP-050125 (H)	90.92 - 91.15	1.0000	1.0000
L27	55	(Area) CCI-65FP-050125 (H)	90.92 - 91.15	1.0000	1.0000
L27	56	(Area) CCI-65FP-050125 (H)	90.92 - 91.15	1.0000	1.0000
L28	3	Safety Line 3/8	90.25 - 90.92	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L28	30	PL 1.25x4	90.25 - 90.92	1.0000	1.0000
L28	31	PL 1.25x4	90.25 - 90.92	1.0000	1.0000
L28	32	PL 1.25x4	90.25 - 90.92	1.0000	1.0000
L28	33	PL 1.25x4	90.25 - 90.92	1.0000	1.0000
L28	53	(Area) CCI-65FP-050125 (H)	90.25 - 90.92	1.0000	1.0000
L28	54	(Area) CCI-65FP-050125 (H)	90.25 - 90.92	1.0000	1.0000
L28	55	(Area) CCI-65FP-050125 (H)	90.25 - 90.92	1.0000	1.0000
L28	56	(Area) CCI-65FP-050125 (H)	90.25 - 90.92	1.0000	1.0000
L29	3	Safety Line 3/8	90.00 - 90.25	1.0000	1.0000
L29	30	PL 1.25x4	90.00 - 90.25	1.0000	1.0000
L29	31	PL 1.25x4	90.00 - 90.25	1.0000	1.0000
L29	32	PL 1.25x4	90.00 - 90.25	1.0000	1.0000
L29	33	PL 1.25x4	90.00 - 90.25	1.0000	1.0000
L29	53	(Area) CCI-65FP-050125 (H)	90.00 - 90.25	1.0000	1.0000
L29	54	(Area) CCI-65FP-050125 (H)	90.00 - 90.25	1.0000	1.0000
L29	55	(Area) CCI-65FP-050125 (H)	90.00 - 90.25	1.0000	1.0000
L29	56	(Area) CCI-65FP-050125 (H)	90.00 - 90.25	1.0000	1.0000
L30	3	Safety Line 3/8	85.00 - 90.00	1.0000	1.0000
L30	25	PL 1.25x4	85.00 - 90.00	1.0000	1.0000
L30	26	PL 1.25x4	85.00 - 90.00	1.0000	1.0000
L30	27	PL 1.25x4	85.00 - 90.00	1.0000	1.0000
L30	28	PL 1.25x4	85.00 - 90.00	1.0000	1.0000
L30	53	(Area) CCI-65FP-050125 (H)	85.00 - 90.00	1.0000	1.0000
L30	54	(Area) CCI-65FP-050125 (H)	85.00 - 90.00	1.0000	1.0000
L30	55	(Area) CCI-65FP-050125 (H)	85.00 - 90.00	1.0000	1.0000
L30	56	(Area) CCI-65FP-050125 (H)	85.00 - 90.00	1.0000	1.0000
L31	3	Safety Line 3/8	80.00 - 85.00	1.0000	1.0000
L31	25	PL 1.25x4	80.00 - 85.00	1.0000	1.0000
L31	26	PL 1.25x4	80.00 - 85.00	1.0000	1.0000
L31	27	PL 1.25x4	80.00 - 85.00	1.0000	1.0000
L31	28	PL 1.25x4	80.00 - 85.00	1.0000	1.0000
L31	53	(Area) CCI-65FP-050125 (H)	80.00 - 85.00	1.0000	1.0000
L31	54	(Area) CCI-65FP-050125 (H)	80.00 - 85.00	1.0000	1.0000
L31	55	(Area) CCI-65FP-050125 (H)	80.00 - 85.00	1.0000	1.0000
L31	56	(Area) CCI-65FP-050125 (H)	80.00 - 85.00	1.0000	1.0000
L32	3	Safety Line 3/8	75.00 - 80.00	1.0000	1.0000
L32	25	PL 1.25x4	75.00 - 80.00	1.0000	1.0000
L32	26	PL 1.25x4	75.00 - 80.00	1.0000	1.0000
L32	27	PL 1.25x4	75.00 - 80.00	1.0000	1.0000
L32	28	PL 1.25x4	75.00 - 80.00	1.0000	1.0000
L32	53	(Area) CCI-65FP-050125 (H)	75.00 - 80.00	1.0000	1.0000
L32	54	(Area) CCI-65FP-050125 (H)	75.00 - 80.00	1.0000	1.0000
L32	55	(Area) CCI-65FP-050125 (H)	75.00 - 80.00	1.0000	1.0000
L32	56	(Area) CCI-65FP-050125 (H)	75.00 - 80.00	1.0000	1.0000
L33	3	Safety Line 3/8	70.00 - 75.00	1.0000	1.0000
L33	20	PL 1.25x5	70.00 - 74.25	1.0000	1.0000
L33	21	PL 1.25x5	70.00 - 74.25	1.0000	1.0000
L33	22	PL 1.25x5	70.00 - 74.25	1.0000	1.0000
L33	23	PL 1.25x5	70.00 - 74.25	1.0000	1.0000
L33	25	PL 1.25x4	74.25 - 75.00	1.0000	1.0000
L33	26	PL 1.25x4	74.25 - 75.00	1.0000	1.0000
L33	27	PL 1.25x4	74.25 - 75.00	1.0000	1.0000
L33	28	PL 1.25x4	74.25 - 75.00	1.0000	1.0000
L33	53	(Area) CCI-65FP-050125 (H)	70.00 - 75.00	1.0000	1.0000
L33	54	(Area) CCI-65FP-050125 (H)	70.00 - 75.00	1.0000	1.0000
L33	55	(Area) CCI-65FP-050125 (H)	70.00 - 75.00	1.0000	1.0000
L33	56	(Area) CCI-65FP-050125 (H)	70.00 - 75.00	1.0000	1.0000
L35	3	Safety Line 3/8	64.00 - 69.00	1.0000	1.0000
L35	20	PL 1.25x5	64.00 - 69.00	1.0000	1.0000
L35	21	PL 1.25x5	64.00 - 69.00	1.0000	1.0000
L35	22	PL 1.25x5	64.00 - 69.00	1.0000	1.0000
L35	23	PL 1.25x5	64.00 - 69.00	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L35	53	(Area) CCI-65FP-050125 (H)	64.00 - 69.00	1.0000	1.0000
L35	54	(Area) CCI-65FP-050125 (H)	64.00 - 69.00	1.0000	1.0000
L35	55	(Area) CCI-65FP-050125 (H)	64.00 - 69.00	1.0000	1.0000
L35	56	(Area) CCI-65FP-050125 (H)	64.00 - 69.00	1.0000	1.0000
L36	3	Safety Line 3/8	59.00 - 64.00	1.0000	1.0000
L36	20	PL 1.25x5	59.00 - 64.00	1.0000	1.0000
L36	21	PL 1.25x5	59.00 - 64.00	1.0000	1.0000
L36	22	PL 1.25x5	59.00 - 64.00	1.0000	1.0000
L36	23	PL 1.25x5	59.00 - 64.00	1.0000	1.0000
L36	53	(Area) CCI-65FP-050125 (H)	59.00 - 64.00	1.0000	1.0000
L36	54	(Area) CCI-65FP-050125 (H)	59.00 - 64.00	1.0000	1.0000
L36	55	(Area) CCI-65FP-050125 (H)	59.00 - 64.00	1.0000	1.0000
L36	56	(Area) CCI-65FP-050125 (H)	59.00 - 64.00	1.0000	1.0000
L37	3	Safety Line 3/8	56.50 - 59.00	1.0000	1.0000
L37	15	PL 1.25x5	56.50 - 58.50	1.0000	1.0000
L37	16	PL 1.25x5	56.50 - 58.50	1.0000	1.0000
L37	17	PL 1.25x5	56.50 - 58.50	1.0000	1.0000
L37	18	PL 1.25x5	56.50 - 58.50	1.0000	1.0000
L37	20	PL 1.25x5	58.50 - 59.00	1.0000	1.0000
L37	21	PL 1.25x5	58.50 - 59.00	1.0000	1.0000
L37	22	PL 1.25x5	58.50 - 59.00	1.0000	1.0000
L37	23	PL 1.25x5	58.50 - 59.00	1.0000	1.0000
L37	48	(Area) CCI-65FP-065125 (H)	56.50 - 58.08	1.0000	1.0000
L37	49	(Area) CCI-65FP-065125 (H)	56.50 - 58.08	1.0000	1.0000
L37	50	(Area) CCI-65FP-065125 (H)	56.50 - 58.08	1.0000	1.0000
L37	51	(Area) CCI-65FP-065125 (H)	56.50 - 58.08	1.0000	1.0000
L37	53	(Area) CCI-65FP-050125 (H)	58.08 - 59.00	1.0000	1.0000
L37	54	(Area) CCI-65FP-050125 (H)	58.08 - 59.00	1.0000	1.0000
L37	55	(Area) CCI-65FP-050125 (H)	58.08 - 59.00	1.0000	1.0000
L37	56	(Area) CCI-65FP-050125 (H)	58.08 - 59.00	1.0000	1.0000
L38	3	Safety Line 3/8	56.25 - 56.50	1.0000	1.0000
L38	15	PL 1.25x5	56.25 - 56.50	1.0000	1.0000
L38	16	PL 1.25x5	56.25 - 56.50	1.0000	1.0000
L38	17	PL 1.25x5	56.25 - 56.50	1.0000	1.0000
L38	18	PL 1.25x5	56.25 - 56.50	1.0000	1.0000
L38	48	(Area) CCI-65FP-065125 (H)	56.25 - 56.50	1.0000	1.0000
L38	49	(Area) CCI-65FP-065125 (H)	56.25 - 56.50	1.0000	1.0000
L38	50	(Area) CCI-65FP-065125 (H)	56.25 - 56.50	1.0000	1.0000
L38	51	(Area) CCI-65FP-065125 (H)	56.25 - 56.50	1.0000	1.0000
L39	3	Safety Line 3/8	55.33 - 56.25	1.0000	1.0000
L39	15	PL 1.25x5	55.33 - 56.25	1.0000	1.0000
L39	16	PL 1.25x5	55.33 - 56.25	1.0000	1.0000
L39	17	PL 1.25x5	55.33 - 56.25	1.0000	1.0000
L39	18	PL 1.25x5	55.33 - 56.25	1.0000	1.0000
L39	48	(Area) CCI-65FP-065125 (H)	55.33 - 56.25	1.0000	1.0000
L39	49	(Area) CCI-65FP-065125 (H)	55.33 - 56.25	1.0000	1.0000
L39	50	(Area) CCI-65FP-065125 (H)	55.33 - 56.25	1.0000	1.0000
L39	51	(Area) CCI-65FP-065125 (H)	55.33 - 56.25	1.0000	1.0000
L40	3	Safety Line 3/8	55.08 - 55.33	1.0000	1.0000
L40	15	PL 1.25x5	55.08 - 55.33	1.0000	1.0000
L40	16	PL 1.25x5	55.08 - 55.33	1.0000	1.0000
L40	17	PL 1.25x5	55.08 - 55.33	1.0000	1.0000
L40	18	PL 1.25x5	55.08 - 55.33	1.0000	1.0000
L40	48	(Area) CCI-65FP-065125 (H)	55.08 - 55.33	1.0000	1.0000
L40	49	(Area) CCI-65FP-065125 (H)	55.08 - 55.33	1.0000	1.0000
L40	50	(Area) CCI-65FP-065125 (H)	55.08 - 55.33	1.0000	1.0000
L40	51	(Area) CCI-65FP-065125 (H)	55.08 - 55.33	1.0000	1.0000
L41	3	Safety Line 3/8	50.08 - 55.08	1.0000	1.0000
L41	15	PL 1.25x5	50.08 - 55.08	1.0000	1.0000
L41	16	PL 1.25x5	50.08 - 55.08	1.0000	1.0000
L41	17	PL 1.25x5	50.08 - 55.08	1.0000	1.0000
L41	18	PL 1.25x5	50.08 - 55.08	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L41	48	(Area) CCI-65FP-065125 (H)	50.08 - 55.08	1.0000	1.0000
L41	49	(Area) CCI-65FP-065125 (H)	50.08 - 55.08	1.0000	1.0000
L41	50	(Area) CCI-65FP-065125 (H)	50.08 - 55.08	1.0000	1.0000
L41	51	(Area) CCI-65FP-065125 (H)	50.08 - 55.08	1.0000	1.0000
L42	3	Safety Line 3/8	45.08 - 50.08	1.0000	1.0000
L42	15	PL 1.25x5	45.08 - 50.08	1.0000	1.0000
L42	16	PL 1.25x5	45.08 - 50.08	1.0000	1.0000
L42	17	PL 1.25x5	45.08 - 50.08	1.0000	1.0000
L42	18	PL 1.25x5	45.08 - 50.08	1.0000	1.0000
L42	48	(Area) CCI-65FP-065125 (H)	45.08 - 50.08	1.0000	1.0000
L42	49	(Area) CCI-65FP-065125 (H)	45.08 - 50.08	1.0000	1.0000
L42	50	(Area) CCI-65FP-065125 (H)	45.08 - 50.08	1.0000	1.0000
L42	51	(Area) CCI-65FP-065125 (H)	45.08 - 50.08	1.0000	1.0000
L43	3	Safety Line 3/8	40.08 - 45.08	1.0000	1.0000
L43	15	PL 1.25x5	40.08 - 45.08	1.0000	1.0000
L43	16	PL 1.25x5	40.08 - 45.08	1.0000	1.0000
L43	17	PL 1.25x5	40.08 - 45.08	1.0000	1.0000
L43	18	PL 1.25x5	40.08 - 45.08	1.0000	1.0000
L43	48	(Area) CCI-65FP-065125 (H)	40.08 - 45.08	1.0000	1.0000
L43	49	(Area) CCI-65FP-065125 (H)	40.08 - 45.08	1.0000	1.0000
L43	50	(Area) CCI-65FP-065125 (H)	40.08 - 45.08	1.0000	1.0000
L43	51	(Area) CCI-65FP-065125 (H)	40.08 - 45.08	1.0000	1.0000
L44	3	Safety Line 3/8	35.08 - 40.08	1.0000	1.0000
L44	15	PL 1.25x5	35.08 - 40.08	1.0000	1.0000
L44	16	PL 1.25x5	35.08 - 40.08	1.0000	1.0000
L44	17	PL 1.25x5	35.08 - 40.08	1.0000	1.0000
L44	18	PL 1.25x5	35.08 - 40.08	1.0000	1.0000
L44	48	(Area) CCI-65FP-065125 (H)	35.08 - 40.08	1.0000	1.0000
L44	49	(Area) CCI-65FP-065125 (H)	35.08 - 40.08	1.0000	1.0000
L44	50	(Area) CCI-65FP-065125 (H)	35.08 - 40.08	1.0000	1.0000
L44	51	(Area) CCI-65FP-065125 (H)	35.08 - 40.08	1.0000	1.0000
L45	3	Safety Line 3/8	30.00 - 35.08	1.0000	1.0000
L45	10	PL 1.25x5	30.00 - 30.75	1.0000	1.0000
L45	11	PL 1.25x5	30.00 - 30.75	1.0000	1.0000
L45	12	PL 1.25x5	30.00 - 30.75	1.0000	1.0000
L45	13	PL 1.25x5	30.00 - 30.75	1.0000	1.0000
L45	15	PL 1.25x5	30.75 - 35.08	1.0000	1.0000
L45	16	PL 1.25x5	30.75 - 35.08	1.0000	1.0000
L45	17	PL 1.25x5	30.75 - 35.08	1.0000	1.0000
L45	18	PL 1.25x5	30.75 - 35.08	1.0000	1.0000
L45	48	(Area) CCI-65FP-065125 (H)	30.00 - 35.08	1.0000	1.0000
L45	49	(Area) CCI-65FP-065125 (H)	30.00 - 35.08	1.0000	1.0000
L45	50	(Area) CCI-65FP-065125 (H)	30.00 - 35.08	1.0000	1.0000
L45	51	(Area) CCI-65FP-065125 (H)	30.00 - 35.08	1.0000	1.0000
L47	3	Safety Line 3/8	28.75 - 28.93	1.0000	1.0000
L47	10	PL 1.25x5	28.75 - 28.93	1.0000	1.0000
L47	11	PL 1.25x5	28.75 - 28.93	1.0000	1.0000
L47	12	PL 1.25x5	28.75 - 28.93	1.0000	1.0000
L47	13	PL 1.25x5	28.75 - 28.93	1.0000	1.0000
L47	48	(Area) CCI-65FP-065125 (H)	28.75 - 28.93	1.0000	1.0000
L47	49	(Area) CCI-65FP-065125 (H)	28.75 - 28.93	1.0000	1.0000
L47	50	(Area) CCI-65FP-065125 (H)	28.75 - 28.93	1.0000	1.0000
L47	51	(Area) CCI-65FP-065125 (H)	28.75 - 28.93	1.0000	1.0000
L48	3	Safety Line 3/8	28.50 - 28.75	1.0000	1.0000
L48	10	PL 1.25x5	28.50 - 28.75	1.0000	1.0000
L48	11	PL 1.25x5	28.50 - 28.75	1.0000	1.0000
L48	12	PL 1.25x5	28.50 - 28.75	1.0000	1.0000
L48	13	PL 1.25x5	28.50 - 28.75	1.0000	1.0000
L48	48	(Area) CCI-65FP-065125 (H)	28.50 - 28.75	1.0000	1.0000
L48	49	(Area) CCI-65FP-065125 (H)	28.50 - 28.75	1.0000	1.0000
L48	50	(Area) CCI-65FP-065125 (H)	28.50 - 28.75	1.0000	1.0000
L48	51	(Area) CCI-65FP-065125 (H)	28.50 - 28.75	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L49	3	Safety Line 3/8	23.50 - 28.50	1.0000	1.0000
L49	10	PL 1.25x5	23.50 - 28.50	1.0000	1.0000
L49	11	PL 1.25x5	23.50 - 28.50	1.0000	1.0000
L49	12	PL 1.25x5	23.50 - 28.50	1.0000	1.0000
L49	13	PL 1.25x5	23.50 - 28.50	1.0000	1.0000
L49	48	(Area) CCI-65FP-065125 (H)	23.50 - 28.50	1.0000	1.0000
L49	49	(Area) CCI-65FP-065125 (H)	23.50 - 28.50	1.0000	1.0000
L49	50	(Area) CCI-65FP-065125 (H)	23.50 - 28.50	1.0000	1.0000
L49	51	(Area) CCI-65FP-065125 (H)	23.50 - 28.50	1.0000	1.0000
L50	3	Safety Line 3/8	19.25 - 23.50	1.0000	1.0000
L50	10	PL 1.25x5	19.25 - 23.50	1.0000	1.0000
L50	11	PL 1.25x5	19.25 - 23.50	1.0000	1.0000
L50	12	PL 1.25x5	19.25 - 23.50	1.0000	1.0000
L50	13	PL 1.25x5	19.25 - 23.50	1.0000	1.0000
L50	40	(Area) CCI-65FP-085125 (H)	19.25 - 23.00	1.0000	1.0000
L50	41	(Area) CCI-65FP-085125 (H)	19.25 - 23.00	1.0000	1.0000
L50	42	(Area) CCI-65FP-085125 (H)	19.25 - 23.00	1.0000	1.0000
L50	43	(Area) CCI-65FP-085125 (H)	19.25 - 23.00	1.0000	1.0000
L50	45	(Area) CCI-65FP-085125 (H)	19.25 - 23.00	1.0000	1.0000
L50	46	(Area) CCI-65FP-085125 (H)	19.25 - 23.00	1.0000	1.0000
L50	48	(Area) CCI-65FP-065125 (H)	23.00 - 23.50	1.0000	1.0000
L50	49	(Area) CCI-65FP-065125 (H)	23.00 - 23.50	1.0000	1.0000
L50	50	(Area) CCI-65FP-065125 (H)	23.00 - 23.50	1.0000	1.0000
L50	51	(Area) CCI-65FP-065125 (H)	23.00 - 23.50	1.0000	1.0000
L51	3	Safety Line 3/8	19.00 - 19.25	1.0000	1.0000
L51	10	PL 1.25x5	19.00 - 19.25	1.0000	1.0000
L51	11	PL 1.25x5	19.00 - 19.25	1.0000	1.0000
L51	12	PL 1.25x5	19.00 - 19.25	1.0000	1.0000
L51	13	PL 1.25x5	19.00 - 19.25	1.0000	1.0000
L51	40	(Area) CCI-65FP-085125 (H)	19.00 - 19.25	1.0000	1.0000
L51	41	(Area) CCI-65FP-085125 (H)	19.00 - 19.25	1.0000	1.0000
L51	42	(Area) CCI-65FP-085125 (H)	19.00 - 19.25	1.0000	1.0000
L51	43	(Area) CCI-65FP-085125 (H)	19.00 - 19.25	1.0000	1.0000
L51	45	(Area) CCI-65FP-085125 (H)	19.00 - 19.25	1.0000	1.0000
L51	46	(Area) CCI-65FP-085125 (H)	19.00 - 19.25	1.0000	1.0000
L52	3	Safety Line 3/8	16.75 - 19.00	1.0000	1.0000
L52	10	PL 1.25x5	16.75 - 19.00	1.0000	1.0000
L52	11	PL 1.25x5	16.75 - 19.00	1.0000	1.0000
L52	12	PL 1.25x5	16.75 - 19.00	1.0000	1.0000
L52	13	PL 1.25x5	16.75 - 19.00	1.0000	1.0000
L52	40	(Area) CCI-65FP-085125 (H)	16.75 - 19.00	1.0000	1.0000
L52	41	(Area) CCI-65FP-085125 (H)	16.75 - 19.00	1.0000	1.0000
L52	42	(Area) CCI-65FP-085125 (H)	16.75 - 19.00	1.0000	1.0000
L52	43	(Area) CCI-65FP-085125 (H)	16.75 - 19.00	1.0000	1.0000
L52	45	(Area) CCI-65FP-085125 (H)	16.75 - 19.00	1.0000	1.0000
L52	46	(Area) CCI-65FP-085125 (H)	16.75 - 19.00	1.0000	1.0000
L53	3	Safety Line 3/8	16.50 - 16.75	1.0000	1.0000
L53	10	PL 1.25x5	16.50 - 16.75	1.0000	1.0000
L53	11	PL 1.25x5	16.50 - 16.75	1.0000	1.0000
L53	12	PL 1.25x5	16.50 - 16.75	1.0000	1.0000
L53	13	PL 1.25x5	16.50 - 16.75	1.0000	1.0000
L53	40	(Area) CCI-65FP-085125 (H)	16.50 - 16.75	1.0000	1.0000
L53	41	(Area) CCI-65FP-085125 (H)	16.50 - 16.75	1.0000	1.0000
L53	42	(Area) CCI-65FP-085125 (H)	16.50 - 16.75	1.0000	1.0000
L53	43	(Area) CCI-65FP-085125 (H)	16.50 - 16.75	1.0000	1.0000
L53	45	(Area) CCI-65FP-085125 (H)	16.50 - 16.75	1.0000	1.0000
L53	46	(Area) CCI-65FP-085125 (H)	16.50 - 16.75	1.0000	1.0000
L54	3	Safety Line 3/8	11.50 - 16.50	1.0000	1.0000
L54	10	PL 1.25x5	11.50 - 16.50	1.0000	1.0000
L54	11	PL 1.25x5	11.50 - 16.50	1.0000	1.0000
L54	12	PL 1.25x5	11.50 - 16.50	1.0000	1.0000
L54	13	PL 1.25x5	11.50 - 16.50	1.0000	1.0000

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice
L54	40	(Area) CCI-65FP-085125 (H)	11.50 - 16.50	1.0000	1.0000
L54	41	(Area) CCI-65FP-085125 (H)	11.50 - 16.50	1.0000	1.0000
L54	42	(Area) CCI-65FP-085125 (H)	11.50 - 16.50	1.0000	1.0000
L54	43	(Area) CCI-65FP-085125 (H)	11.50 - 16.50	1.0000	1.0000
L54	45	(Area) CCI-65FP-085125 (H)	13.00 - 16.50	1.0000	1.0000
L54	46	(Area) CCI-65FP-085125 (H)	13.00 - 16.50	1.0000	1.0000
L55	3	Safety Line 3/8	7.00 - 11.50	1.0000	1.0000
L55	10	PL 1.25x5	7.00 - 11.50	1.0000	1.0000
L55	11	PL 1.25x5	7.00 - 11.50	1.0000	1.0000
L55	12	PL 1.25x5	7.00 - 11.50	1.0000	1.0000
L55	13	PL 1.25x5	7.00 - 11.50	1.0000	1.0000
L55	40	(Area) CCI-65FP-085125 (H)	7.00 - 11.50	1.0000	1.0000
L55	41	(Area) CCI-65FP-085125 (H)	7.00 - 11.50	1.0000	1.0000
L55	42	(Area) CCI-65FP-085125 (H)	7.00 - 11.50	1.0000	1.0000
L55	43	(Area) CCI-65FP-085125 (H)	7.00 - 11.50	1.0000	1.0000
L56	3	Safety Line 3/8	6.75 - 7.00	1.0000	1.0000
L56	10	PL 1.25x5	6.75 - 7.00	1.0000	1.0000
L56	11	PL 1.25x5	6.75 - 7.00	1.0000	1.0000
L56	12	PL 1.25x5	6.75 - 7.00	1.0000	1.0000
L56	13	PL 1.25x5	6.75 - 7.00	1.0000	1.0000
L56	40	(Area) CCI-65FP-085125 (H)	6.75 - 7.00	1.0000	1.0000
L56	41	(Area) CCI-65FP-085125 (H)	6.75 - 7.00	1.0000	1.0000
L56	42	(Area) CCI-65FP-085125 (H)	6.75 - 7.00	1.0000	1.0000
L56	43	(Area) CCI-65FP-085125 (H)	6.75 - 7.00	1.0000	1.0000
L57	3	Safety Line 3/8	6.50 - 6.75	1.0000	1.0000
L57	10	PL 1.25x5	6.50 - 6.75	1.0000	1.0000
L57	11	PL 1.25x5	6.50 - 6.75	1.0000	1.0000
L57	12	PL 1.25x5	6.50 - 6.75	1.0000	1.0000
L57	13	PL 1.25x5	6.50 - 6.75	1.0000	1.0000
L57	40	(Area) CCI-65FP-085125 (H)	6.50 - 6.75	1.0000	1.0000
L57	41	(Area) CCI-65FP-085125 (H)	6.50 - 6.75	1.0000	1.0000
L57	42	(Area) CCI-65FP-085125 (H)	6.50 - 6.75	1.0000	1.0000
L57	43	(Area) CCI-65FP-085125 (H)	6.50 - 6.75	1.0000	1.0000
L58	3	Safety Line 3/8	2.75 - 6.50	1.0000	1.0000
L58	10	PL 1.25x5	2.75 - 6.50	1.0000	1.0000
L58	11	PL 1.25x5	2.75 - 6.50	1.0000	1.0000
L58	12	PL 1.25x5	2.75 - 6.50	1.0000	1.0000
L58	13	PL 1.25x5	2.75 - 6.50	1.0000	1.0000
L58	40	(Area) CCI-65FP-085125 (H)	2.75 - 6.50	1.0000	1.0000
L58	41	(Area) CCI-65FP-085125 (H)	2.75 - 6.50	1.0000	1.0000
L58	42	(Area) CCI-65FP-085125 (H)	2.75 - 6.50	1.0000	1.0000
L58	43	(Area) CCI-65FP-085125 (H)	2.75 - 6.50	1.0000	1.0000
L59	3	Safety Line 3/8	2.50 - 2.75	1.0000	1.0000
L59	10	PL 1.25x5	2.50 - 2.75	1.0000	1.0000
L59	11	PL 1.25x5	2.50 - 2.75	1.0000	1.0000
L59	12	PL 1.25x5	2.50 - 2.75	1.0000	1.0000
L59	13	PL 1.25x5	2.50 - 2.75	1.0000	1.0000
L59	40	(Area) CCI-65FP-085125 (H)	2.50 - 2.75	1.0000	1.0000
L59	41	(Area) CCI-65FP-085125 (H)	2.50 - 2.75	1.0000	1.0000
L59	42	(Area) CCI-65FP-085125 (H)	2.50 - 2.75	1.0000	1.0000
L59	43	(Area) CCI-65FP-085125 (H)	2.50 - 2.75	1.0000	1.0000
L60	3	Safety Line 3/8	0.00 - 2.50	1.0000	1.0000
L60	10	PL 1.25x5	0.00 - 2.50	1.0000	1.0000
L60	11	PL 1.25x5	0.00 - 2.50	1.0000	1.0000
L60	12	PL 1.25x5	0.00 - 2.50	1.0000	1.0000
L60	13	PL 1.25x5	0.00 - 2.50	1.0000	1.0000
L60	40	(Area) CCI-65FP-085125 (H)	0.00 - 2.50	1.0000	1.0000
L60	41	(Area) CCI-65FP-085125 (H)	0.00 - 2.50	1.0000	1.0000
L60	42	(Area) CCI-65FP-085125 (H)	0.00 - 2.50	1.0000	1.0000
L60	43	(Area) CCI-65FP-085125 (H)	0.00 - 2.50	1.0000	1.0000

Discrete Tower Loads

Description	*Face or Leg*	*Offset Type*	*Offsets: Horz Lateral Vert* *ft* *ft* *ft*	*Azimuth Adjustment* °	*Placement* *ft*		*C_AA_A Front* *ft^2*	*C_AA_A Side* *ft^2*	*Weight* *K*
***									
Top Hat 14" Dia x 34" Tall (Flat)	C	None		0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.63 4.94 5.27 5.94	4.63 4.94 5.27 5.94	0.15 0.19 0.24 0.34
(2) 6" x 3" Diameter Sidelight	C	From Centroid-Leg	4.00 -2.000 4.000	0.000	150.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.09 0.14 0.19 0.34	0.09 0.14 0.19 0.34	0.01 0.01 0.01 0.02
152									
7770.00 w/ Mount Pipe	A	From Centroid-Leg	4.00 -6.000 0.000	23.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	B	From Centroid-Leg	4.00 -6.000 0.000	23.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
7770.00 w/ Mount Pipe	C	From Centroid-Leg	4.00 -6.000 0.000	23.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	5.75 6.18 6.61 7.49	4.25 5.01 5.71 7.16	0.06 0.10 0.16 0.29
NNH4-65C-R6 w/ Mount Pipe	A	From Centroid-Leg	4.00 -2.000 0.000	45.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.68 10.27 10.87 12.10	5.17 5.71 6.26 7.40	0.13 0.24 0.37 0.66
NNH4-65C-R6 w/ Mount Pipe	B	From Centroid-Leg	4.00 -2.000 0.000	35.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.68 10.27 10.87 12.10	5.17 5.71 6.26 7.40	0.13 0.24 0.37 0.66
NNH4-65C-R6 w/ Mount Pipe	C	From Centroid-Leg	4.00 -2.000 0.000	40.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	9.68 10.27 10.87 12.10	5.17 5.71 6.26 7.40	0.13 0.24 0.37 0.66
80010966 w/ Mount Pipe	A	From Centroid-Leg	4.00 6.000 0.000	45.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	17.60 18.33 19.07 20.49	9.64 11.15 12.70 15.03	0.15 0.26 0.39 0.68
80010966 w/ Mount Pipe	B	From Centroid-Leg	4.00 6.000 0.000	35.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	17.60 18.33 19.07 20.49	9.64 11.15 12.70 15.03	0.15 0.26 0.39 0.68
80010966 w/ Mount Pipe	C	From Centroid-Leg	4.00 6.000 0.000	45.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	17.60 18.33 19.07 20.49	9.64 11.15 12.70 15.03	0.15 0.26 0.39 0.68
DTMABP7819VG12A	A	From Centroid-Leg	4.00 -6.000 0.000	23.000	152.00	No Ice 1/2" Ice 1" Ice	0.98 1.10 1.23	0.34 0.42 0.51	0.02 0.03 0.04

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	1.52	0.71	0.06
DTMABP7819VG12A	B	From Centroid-Leg	4.00 -6.000 0.000	23.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.98 1.10 1.23 1.52	0.34 0.42 0.51 0.71	0.02 0.03 0.04 0.06
DTMABP7819VG12A	C	From Centroid-Leg	4.00 -6.000 0.000	23.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.98 1.10 1.23 1.52	0.34 0.42 0.51 0.71	0.02 0.03 0.04 0.06
(2) 7020.00	A	From Centroid-Leg	4.00 -6.000 0.000	23.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.10 0.15 0.20 0.33	0.17 0.24 0.31 0.48	0.00 0.01 0.01 0.02
(2) 7020.00	B	From Centroid-Leg	4.00 -6.000 0.000	23.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.10 0.15 0.20 0.33	0.17 0.24 0.31 0.48	0.00 0.01 0.01 0.02
(2) 7020.00	C	From Centroid-Leg	4.00 -6.000 0.000	23.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.10 0.15 0.20 0.33	0.17 0.24 0.31 0.48	0.00 0.01 0.01 0.02
RRUS 4449 B5/B12	A	From Centroid-Leg	4.00 -2.000 0.000	45.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	B	From Centroid-Leg	4.00 6.000 0.000	35.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 4449 B5/B12	C	From Centroid-Leg	4.00 -2.000 0.000	40.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.97 2.14 2.33 2.72	1.41 1.56 1.73 2.07	0.07 0.09 0.11 0.16
RRUS 8843 B2/B66A	A	From Centroid-Leg	4.00 -2.000 0.000	45.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
RRUS 8843 B2/B66A	B	From Centroid-Leg	4.00 -2.000 0.000	35.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
RRUS 8843 B2/B66A	C	From Centroid-Leg	4.00 6.000 0.000	45.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 1.80 1.97 2.32	1.35 1.50 1.65 1.99	0.07 0.09 0.11 0.16
RRUS 32	A	From Centroid-Leg	4.00 6.000 0.000	45.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.08 3.32 3.81	1.78 1.97 2.17 2.58	0.06 0.08 0.10 0.16
RRUS 32	B	From Centroid-Leg	4.00 6.000 0.000	35.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.08 3.32 3.81	1.78 1.97 2.17 2.58	0.06 0.08 0.10 0.16
RRUS 32	C	From Centroid-Leg	4.00 6.000 0.000	40.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 3.08 3.32 3.81	1.78 1.97 2.17 2.58	0.06 0.08 0.10 0.16

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DC6-48-60-18-8C	A	From Centroid-Leg	4.00 6.000 0.000	45.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.14 1.79 2.00 2.45	1.14 1.79 2.00 2.45	0.03 0.05 0.07 0.13
DC6-48-60-18-8F	B	From Centroid-Leg	4.00 -2.000 0.000	35.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.21 1.89 2.11 2.57	1.21 1.89 2.11 2.57	0.03 0.05 0.08 0.14
DC6-48-60-0-8C-EV	C	From Centroid-Leg	4.00 -2.000 0.000	40.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.74 2.96 3.20 3.68	4.78 5.06 5.35 5.95	0.03 0.06 0.10 0.20
Platform Mount [LP 303-1]	C	None		0.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	14.66 18.87 23.08 31.50	14.66 18.87 23.08 31.50	1.25 1.48 1.71 2.18
Miscellaneous [NA 507-1]	C	None		0.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.80 6.70 8.60 12.40	4.80 6.70 8.60 12.40	0.25 0.29 0.34 0.44
(4) 2.4" Dia x 12-ft Pipe	A	From Centroid-Leg	4.00 0.000 0.000	0.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 4.08 5.33 7.61	2.86 4.08 5.33 7.61	0.04 0.06 0.09 0.17
(4) 2.4" Dia x 12-ft Pipe	B	From Centroid-Leg	4.00 0.000 0.000	0.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 4.08 5.33 7.61	2.86 4.08 5.33 7.61	0.04 0.06 0.09 0.17
(4) 2.4" Dia x 12-ft Pipe	C	From Centroid-Leg	4.00 0.000 0.000	0.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.86 4.08 5.33 7.61	2.86 4.08 5.33 7.61	0.04 0.06 0.09 0.17
L2x2x1/4" (12')	A	From Centroid-Leg	4.00 0.000 -6.000	0.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.00 5.36 6.73 9.51	4.00 5.36 6.73 9.51	0.04 0.06 0.10 0.19
L2x2x1/4" (12')	B	From Centroid-Leg	4.00 0.000 -6.000	0.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.00 5.36 6.73 9.51	4.00 5.36 6.73 9.51	0.04 0.06 0.10 0.19
L2x2x1/4" (12')	C	From Centroid-Leg	4.00 0.000 -6.000	0.000	152.00	No Ice 1/2" Ice 1" Ice 2" Ice	4.00 5.36 6.73 9.51	4.00 5.36 6.73 9.51	0.04 0.06 0.10 0.19
104 SRL210-2	C	From Leg	3.00 0.000 0.000	0.000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.64 2.64 3.64 5.64	1.64 2.64 3.64 5.64	0.02 0.03 0.04 0.07
8" x 8" x 4" TMA	C	From Leg	0.50 0.000 0.000	0.000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.53 0.63 0.73 0.95	0.27 0.34 0.41 0.59	0.01 0.01 0.02 0.04
(2) 2.4" Dia x 3-ft Mount Pipe (Horizontal)	C	From Leg	1.50 0.000 0.000	0.000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice	0.05 0.08 0.12 0.21	0.58 0.77 0.97 1.39	0.01 0.02 0.02 0.05

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) Unistrut 1-5/8"x1-5/8"x60"	C	From Leg	0.50 0.000 0.000	0.000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.35 1.93 2.34 3.09	1.35 1.93 2.34 3.09	0.01 0.02 0.03 0.07
2.4" Dia. x 10-ft Mount Pipe	C	From Leg	0.50 0.000 0.000	0.000	104.00	No Ice 1/2" Ice 1" Ice 2" Ice	2.38 3.40 4.45 5.91	2.38 3.40 4.45 5.91	0.04 0.05 0.08 0.15
***									
110-ft Bridge Stiffener	A	From Leg	0.50 0.000 0.000	0.000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.08 1.97 2.86 4.65	2.38 4.00 5.63 8.88	0.09 0.10 0.11 0.13
110-ft Bridge Stiffener	B	From Face	0.50 0.000 0.000	0.000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.08 1.97 2.86 4.65	2.38 4.00 5.63 8.88	0.09 0.10 0.11 0.13
110-ft Bridge Stiffener	B	From Leg	0.50 0.000 0.000	0.000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.08 1.97 2.86 4.65	2.38 4.00 5.63 8.88	0.09 0.10 0.11 0.13
110-ft Bridge Stiffener	C	From Leg	0.50 0.000 0.000	0.000	110.00	No Ice 1/2" Ice 1" Ice 2" Ice	1.08 1.97 2.86 4.65	2.38 4.00 5.63 8.88	0.09 0.10 0.11 0.13
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Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.0 Wind 0 deg - No Ice
3	0.9 Dead+1.0 Wind 0 deg - No Ice
4	1.2 Dead+1.0 Wind 30 deg - No Ice
5	0.9 Dead+1.0 Wind 30 deg - No Ice
6	1.2 Dead+1.0 Wind 60 deg - No Ice
7	0.9 Dead+1.0 Wind 60 deg - No Ice
8	1.2 Dead+1.0 Wind 90 deg - No Ice
9	0.9 Dead+1.0 Wind 90 deg - No Ice
10	1.2 Dead+1.0 Wind 120 deg - No Ice
11	0.9 Dead+1.0 Wind 120 deg - No Ice
12	1.2 Dead+1.0 Wind 150 deg - No Ice
13	0.9 Dead+1.0 Wind 150 deg - No Ice
14	1.2 Dead+1.0 Wind 180 deg - No Ice
15	0.9 Dead+1.0 Wind 180 deg - No Ice
16	1.2 Dead+1.0 Wind 210 deg - No Ice
17	0.9 Dead+1.0 Wind 210 deg - No Ice
18	1.2 Dead+1.0 Wind 240 deg - No Ice

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

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	150 - 145	Pole	Max Tension	26	0.00	-0.00	-0.00
			Max. Compression	26	-11.50	0.57	-0.36
			Max. Mx	20	-3.75	70.27	0.42
			Max. My	14	-3.77	-0.15	-69.21
			Max. Vy	20	-10.90	70.27	0.42
			Max. Vx	14	10.79	-0.15	-69.21
			Max. Torque	24			1.44
L2	145 - 143.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.69	0.57	-0.35
			Max. Mx	20	-3.83	86.72	0.52
			Max. My	14	-3.85	-0.25	-85.50
			Max. Vy	20	-11.04	86.72	0.52
			Max. Vx	14	10.94	-0.25	-85.50
			Max. Torque	24			1.44
L3	143.5 - 143.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-11.74	0.57	-0.35
			Max. Mx	20	-3.87	89.49	0.53
			Max. My	14	-3.89	-0.26	-88.24
			Max. Vy	20	-11.06	89.49	0.53
			Max. Vx	14	10.96	-0.26	-88.24
			Max. Torque	24			1.44

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L4	143.25 - 138.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-12.70	0.56	-0.33
			Max. Mx	20	-4.48	146.14	0.85
			Max. My	14	-4.50	-0.57	-144.39
			Max. Vy	20	-11.60	146.14	0.85
			Max. Vx	14	11.50	-0.57	-144.39
			Max. Torque	24			1.44
L5	138.25 - 133.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-13.68	0.56	-0.31
			Max. Mx	20	-5.13	205.51	1.18
			Max. My	14	-5.14	-0.88	-203.24
			Max. Vy	20	-12.15	205.51	1.18
			Max. Vx	14	12.05	-0.88	-203.24
			Max. Torque	24			1.44
L6	133.25 - 129.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-14.51	0.56	-0.29
			Max. Mx	20	-5.66	254.99	1.44
			Max. My	14	-5.68	-1.14	-252.31
			Max. Vy	20	-12.60	254.99	1.44
			Max. Vx	14	12.50	-1.14	-252.31
			Max. Torque	24			1.44
L7	129.25 - 129	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-14.58	0.56	-0.29
			Max. Mx	20	-5.72	258.14	1.46
			Max. My	14	-5.73	-1.15	-255.44
			Max. Vy	20	-12.63	258.14	1.46
			Max. Vx	14	12.52	-1.15	-255.44
			Max. Torque	24			1.44
L8	129 - 124	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-16.04	0.57	-0.26
			Max. Mx	20	-6.67	322.84	1.78
			Max. My	14	-6.69	-1.47	-319.62
			Max. Vy	20	-13.26	322.84	1.78
			Max. Vx	14	13.15	-1.47	-319.62
			Max. Torque	24			1.44
L9	124 - 119	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-17.51	0.59	-0.22
			Max. Mx	20	-7.65	390.69	2.11
			Max. My	14	-7.67	-1.79	-386.96
			Max. Vy	20	-13.89	390.69	2.11
			Max. Vx	14	13.79	-1.79	-386.96
			Max. Torque	24			1.44
L10	119 - 115	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.72	0.61	-0.19
			Max. Mx	20	-8.45	447.27	2.38
			Max. My	14	-8.47	-2.05	-443.13
			Max. Vy	20	-14.40	447.27	2.38
			Max. Vx	14	14.30	-2.05	-443.13
			Max. Torque	24			1.44
L11	115 - 114.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-18.80	0.62	-0.18
			Max. Mx	20	-8.52	450.87	2.40
			Max. My	14	-8.53	-2.07	-446.71
			Max. Vy	20	-14.44	450.87	2.40
			Max. Vx	14	14.33	-2.07	-446.71
			Max. Torque	24			1.44
L12	114.75 - 111.25	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-20.04	0.66	-0.14
			Max. Mx	20	-9.28	502.47	2.63
			Max. My	14	-9.29	-2.29	-498.00
			Max. Vy	20	-15.06	502.47	2.63
			Max. Vx	14	14.99	-2.29	-498.00
			Max. Torque	24			1.44
L13	111.25 - 111	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.11	0.67	-0.14
			Max. Mx	20	-9.33	506.24	2.65
			Max. My	14	-9.34	-2.31	-501.75
			Max. Vy	20	-15.10	506.24	2.65
			Max. Vx	14	15.04	-2.31	-501.75
			Max. Torque	24			1.44
L14	111 - 110.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.19	0.67	-0.14
			Max. Mx	20	-9.37	510.02	2.67
			Max. My	14	-9.38	-2.32	-505.52
			Max. Vy	20	-15.15	510.02	2.67
			Max. Vx	14	15.09	-2.32	-505.52
			Max. Torque	24			1.44
L15	110.75 - 110	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-20.39	0.68	-0.13
			Max. Mx	20	-9.49	521.42	2.72
			Max. My	14	-9.50	-2.37	-516.87
			Max. Vy	20	-15.24	521.42	2.72
			Max. Vx	14	15.18	-2.37	-516.87
			Max. Torque	24			1.44
L16	110 - 109	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.20	0.54	-0.03
			Max. Mx	20	-10.03	536.94	2.87
			Max. My	14	-10.04	-2.57	-532.41
			Max. Vy	20	-15.73	536.94	2.87
			Max. Vx	14	15.70	-2.57	-532.41
			Max. Torque	24			1.30
L17	109 - 108.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.27	0.54	-0.03
			Max. Mx	20	-10.08	540.88	2.89
			Max. My	14	-10.08	-2.59	-536.34
			Max. Vy	20	-15.77	540.88	2.89
			Max. Vx	14	15.75	-2.59	-536.34
			Max. Torque	24			1.28
L18	108.75 - 108.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.43	0.55	-0.02
			Max. Mx	20	-10.16	548.79	2.94
			Max. My	14	-10.16	-2.64	-544.24
			Max. Vy	20	-15.87	548.79	2.94
			Max. Vx	14	15.85	-2.64	-544.24
			Max. Torque	24			1.28
L19	108.25 - 108	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-21.53	0.55	-0.02
			Max. Mx	20	-10.22	552.76	2.96
			Max. My	14	-10.22	-2.66	-548.21
			Max. Vy	20	-15.92	552.76	2.96
			Max. Vx	14	15.90	-2.66	-548.21
			Max. Torque	24			1.28
L20	108 - 106.42	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.16	0.58	0.01
			Max. Mx	20	-10.60	578.16	3.11
			Max. My	14	-10.60	-2.80	-573.61
			Max. Vy	20	-16.24	578.16	3.11

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vx	14	16.25	-2.80	-573.61
			Max. Torque	24			1.28
L21	106.42 - 106.17	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-22.25	0.58	0.01
			Max. Mx	20	-10.66	582.22	3.13
			Max. My	14	-10.66	-2.82	-577.68
			Max. Vy	20	-16.28	582.22	3.13
			Max. Vx	14	16.30	-2.82	-577.68
			Max. Torque	24			1.28
L22	106.17 - 101.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.03	1.29	-0.29
			Max. Mx	20	-11.67	656.58	3.50
			Max. My	14	-11.67	-3.11	-652.10
			Max. Vy	20	-17.27	656.58	3.50
			Max. Vx	14	17.32	-3.11	-652.10
			Max. Torque	24			2.19
L23	101.75 - 101.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.13	1.30	-0.29
			Max. Mx	20	-11.75	660.90	3.52
			Max. My	14	-11.75	-3.14	-656.44
			Max. Vy	20	-17.30	660.90	3.52
			Max. Vx	14	17.36	-3.14	-656.44
			Max. Torque	24			2.19
L24	101.5 - 101.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-24.22	1.30	-0.28
			Max. Mx	20	-11.81	665.23	3.55
			Max. My	14	-11.81	-3.17	-660.78
			Max. Vy	20	-17.33	665.23	3.55
			Max. Vx	14	17.39	-3.17	-660.78
			Max. Torque	24			2.19
L25	101.25 - 96.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-26.01	1.38	-0.21
			Max. Mx	20	-13.04	753.56	4.11
			Max. My	14	-13.03	-3.72	-749.45
			Max. Vy	20	-18.01	753.56	4.11
			Max. Vx	14	18.09	-3.72	-749.45
			Max. Torque	24			2.19
L26	96.25 - 91.15	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-27.94	1.43	-0.16
			Max. Mx	20	-14.41	847.18	4.67
			Max. My	14	-14.41	-4.27	-843.46
			Max. Vy	20	-18.72	847.18	4.67
			Max. Vx	14	18.79	-4.27	-843.46
			Max. Torque	24			2.18
L27	91.15 - 90.92	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.02	1.43	-0.16
			Max. Mx	20	-14.48	851.49	4.70
			Max. My	14	-14.48	-4.30	-847.79
			Max. Vy	20	-18.75	851.49	4.70
			Max. Vx	14	18.82	-4.30	-847.79
			Max. Torque	24			2.18
L28	90.92 - 90.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-28.28	1.44	-0.16
			Max. Mx	20	-14.66	864.08	4.77
			Max. My	14	-14.66	-4.37	-860.43
			Max. Vy	20	-18.84	864.08	4.77
			Max. Vx	14	18.92	-4.37	-860.43
			Max. Torque	24			2.18
L29	90.25 - 90	Pole	Max Tension	1	0.00	0.00	0.00

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Compression	26	-28.38	1.44	-0.15
			Max. Mx	20	-14.74	868.79	4.80
			Max. My	14	-14.73	-4.40	-865.16
			Max. Vy	20	-18.87	868.79	4.80
			Max. Vx	14	18.95	-4.40	-865.16
			Max. Torque	24			2.18
L30	90 - 85	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-30.30	1.49	-0.10
			Max. Mx	20	-16.10	964.88	5.36
			Max. My	14	-16.10	-4.95	-961.63
			Max. Vy	20	-19.57	964.88	5.36
			Max. Vx	14	19.65	-4.95	-961.63
			Max. Torque	24			2.18
L31	85 - 80	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-32.23	1.53	-0.05
			Max. Mx	20	-17.50	1064.44	5.92
			Max. My	14	-17.49	-5.50	-1061.57
			Max. Vy	20	-20.27	1064.44	5.92
			Max. Vx	14	20.34	-5.50	-1061.57
			Max. Torque	24			2.18
L32	80 - 75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.18	1.58	0.01
			Max. Mx	20	-18.91	1167.44	6.48
			Max. My	14	-18.91	-6.06	-1164.95
			Max. Vy	20	-20.95	1167.44	6.48
			Max. Vx	14	21.03	-6.06	-1164.95
			Max. Torque	24			2.18
L33	75 - 70	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-34.87	1.60	0.03
			Max. Mx	20	-19.41	1204.09	6.67
			Max. My	14	-19.40	-6.25	-1201.73
			Max. Vy	20	-21.20	1204.09	6.67
			Max. Vx	14	21.28	-6.25	-1201.73
			Max. Torque	24			2.18
L34	70 - 69	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-37.78	1.65	0.08
			Max. Mx	20	-21.66	1295.84	7.15
			Max. My	14	-21.65	-6.72	-1293.81
			Max. Vy	20	-21.88	1295.84	7.15
			Max. Vx	14	21.96	-6.72	-1293.81
			Max. Torque	24			2.18
L35	69 - 64	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-39.97	1.70	0.13
			Max. Mx	20	-23.31	1406.89	7.71
			Max. My	14	-23.31	-7.28	-1405.25
			Max. Vy	20	-22.57	1406.89	7.71
			Max. Vx	14	22.64	-7.28	-1405.25
			Max. Torque	24			2.18
L36	64 - 59	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-42.19	1.75	0.19
			Max. Mx	20	-24.99	1521.35	8.27
			Max. My	14	-24.99	-7.83	-1520.09
			Max. Vy	20	-23.24	1521.35	8.27
			Max. Vx	14	23.32	-7.83	-1520.09
			Max. Torque	24			2.18
L37	59 - 56.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.31	1.78	0.23
			Max. Mx	20	-25.84	1579.85	8.55
			Max. My	14	-25.83	-8.11	-1578.78
			Max. Vy	20	-23.58	1579.85	8.55
			Max. Vx	14	23.66	-8.11	-1578.78

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Torque	24			2.17
L38	56.5 - 56.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.43	1.79	0.23
			Max. Mx	20	-25.94	1585.74	8.58
			Max. My	14	-25.93	-8.14	-1584.69
			Max. Vy	20	-23.61	1585.74	8.58
			Max. Vx	14	23.68	-8.14	-1584.69
			Max. Torque	24			2.17
L39	56.25 - 55.33	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.85	1.80	0.24
			Max. Mx	20	-26.24	1607.51	8.68
			Max. My	14	-26.24	-8.24	-1606.53
			Max. Vy	20	-23.74	1607.51	8.68
			Max. Vx	14	23.81	-8.24	-1606.53
			Max. Torque	24			2.17
L40	55.33 - 55.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-43.97	1.80	0.24
			Max. Mx	20	-26.34	1613.45	8.71
			Max. My	14	-26.34	-8.27	-1612.49
			Max. Vy	20	-23.76	1613.45	8.71
			Max. Vx	14	23.84	-8.27	-1612.49
			Max. Torque	24			2.17
L41	55.08 - 50.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-46.39	1.86	0.31
			Max. Mx	20	-28.20	1733.95	9.27
			Max. My	14	-28.19	-8.82	-1733.38
			Max. Vy	20	-24.46	1733.95	9.27
			Max. Vx	14	24.53	-8.82	-1733.38
			Max. Torque	24			2.17
L42	50.08 - 45.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-48.83	1.92	0.38
			Max. Mx	20	-30.08	1857.83	9.83
			Max. My	14	-30.08	-9.38	-1857.65
			Max. Vy	20	-25.12	1857.83	9.83
			Max. Vx	14	25.20	-9.38	-1857.65
			Max. Torque	24			2.17
L43	45.08 - 40.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-51.28	1.98	0.44
			Max. Mx	20	-31.99	1985.02	10.39
			Max. My	14	-31.98	-9.93	-1985.22
			Max. Vy	20	-25.78	1985.02	10.39
			Max. Vx	14	25.85	-9.93	-1985.22
			Max. Torque	24			2.17
L44	40.08 - 35.08	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-53.75	2.04	0.51
			Max. Mx	20	-33.92	2115.40	10.94
			Max. My	14	-33.91	-10.48	-2115.99
			Max. Vy	20	-26.41	2115.40	10.94
			Max. Vx	14	26.49	-10.48	-2115.99
			Max. Torque	24			2.17
L45	35.08 - 30	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-54.32	2.05	0.53
			Max. Mx	20	-34.36	2145.83	11.07
			Max. My	14	-34.36	-10.61	-2146.51
			Max. Vy	20	-26.55	2145.83	11.07
			Max. Vx	14	26.63	-10.61	-2146.51
			Max. Torque	24			2.17
L46	30 - 28.93	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.56	2.11	0.60
			Max. Mx	20	-37.83	2280.35	11.63
			Max. My	14	-37.82	-11.16	-2281.42

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Vy	20	-27.26	2280.35	11.63
			Max. Vx	14	27.34	-11.16	-2281.42
			Max. Torque	24			2.17
L47	28.93 - 28.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.65	2.12	0.60
			Max. Mx	20	-37.91	2285.26	11.65
			Max. My	14	-37.91	-11.18	-2286.34
			Max. Vy	20	-27.27	2285.26	11.65
			Max. Vx	14	27.35	-11.18	-2286.34
			Max. Torque	24			2.17
L48	28.75 - 28.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-58.78	2.12	0.60
			Max. Mx	20	-38.02	2292.08	11.67
			Max. My	14	-38.01	-11.21	-2293.17
			Max. Vy	20	-27.30	2292.08	11.67
			Max. Vx	14	27.38	-11.21	-2293.17
			Max. Torque	24			2.17
L49	28.5 - 23.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-61.38	2.18	0.67
			Max. Mx	20	-40.11	2429.94	12.23
			Max. My	14	-40.10	-11.75	-2431.43
			Max. Vy	20	-27.87	2429.94	12.23
			Max. Vx	14	27.95	-11.75	-2431.43
			Max. Torque	24			2.17
L50	23.5 - 19.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.71	2.24	0.70
			Max. Mx	20	-41.91	2549.37	12.69
			Max. My	14	-41.91	-12.22	-2551.19
			Max. Vy	20	-28.37	2549.37	12.69
			Max. Vx	14	28.45	-12.22	-2551.19
			Max. Torque	24			2.17
L51	19.25 - 19	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-63.88	2.24	0.71
			Max. Mx	20	-42.06	2556.46	12.72
			Max. My	14	-42.06	-12.25	-2558.30
			Max. Vy	20	-28.38	2556.46	12.72
			Max. Vx	14	28.46	-12.25	-2558.30
			Max. Torque	24			2.17
L52	19 - 16.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.41	2.28	0.72
			Max. Mx	20	-43.29	2620.62	12.97
			Max. My	14	-43.29	-12.49	-2622.62
			Max. Vy	20	-28.67	2620.62	12.97
			Max. Vx	14	28.74	-12.49	-2622.62
			Max. Torque	24			2.17
L53	16.75 - 16.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-65.55	2.28	0.73
			Max. Mx	20	-43.42	2627.78	12.99
			Max. My	14	-43.42	-12.52	-2629.81
			Max. Vy	20	-28.68	2627.78	12.99
			Max. Vx	14	28.76	-12.52	-2629.81
			Max. Torque	24			2.17
L54	16.5 - 11.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-68.48	2.35	0.77
			Max. Mx	20	-45.80	2772.30	13.54
			Max. My	14	-45.80	-13.06	-2774.72
			Max. Vy	20	-29.16	2772.30	13.54
			Max. Vx	14	29.24	-13.06	-2774.72
			Max. Torque	24			2.17
L55	11.5 - 7	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.04	2.40	0.84

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. Mx	20	-47.98	2904.25	14.02
			Max. My	14	-47.98	-13.54	-2907.01
			Max. Vy	20	-29.54	2904.25	14.02
			Max. Vx	14	29.61	-13.54	-2907.01
			Max. Torque	24			2.17
L56	7 - 6.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.22	2.41	0.84
			Max. Mx	20	-48.15	2911.63	14.05
			Max. My	14	-48.15	-13.57	-2914.41
			Max. Vy	20	-29.54	2911.63	14.05
			Max. Vx	14	29.61	-13.57	-2914.41
			Max. Torque	24			2.17
L57	6.75 - 6.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-71.35	2.41	0.84
			Max. Mx	20	-48.26	2919.01	14.08
			Max. My	14	-48.26	-13.60	-2921.81
			Max. Vy	20	-29.56	2919.01	14.08
			Max. Vx	14	29.64	-13.60	-2921.81
			Max. Torque	24			2.17
L58	6.5 - 2.75	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.31	2.45	0.89
			Max. Mx	20	-49.88	3030.55	14.48
			Max. My	14	-49.88	-13.99	-3033.64
			Max. Vy	20	-29.95	3030.55	14.48
			Max. Vx	14	30.03	-13.99	-3033.64
			Max. Torque	24			2.17
L59	2.75 - 2.5	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-73.42	2.45	0.89
			Max. Mx	20	-49.97	3038.04	14.50
			Max. My	14	-49.97	-14.02	-3041.14
			Max. Vy	20	-29.96	3038.04	14.50
			Max. Vx	14	30.04	-14.02	-3041.14
			Max. Torque	24			2.17
L60	2.5 - 0	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	26	-74.44	2.48	0.92
			Max. Mx	20	-50.82	3113.20	14.77
			Max. My	14	-50.82	-14.29	-3116.49
			Max. Vy	20	-30.20	3113.20	14.77
			Max. Vx	14	30.28	-14.29	-3116.49
			Max. Torque	24			2.17

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	37	74.44	5.29	3.07
	Max. H_x	20	50.84	30.17	0.11
	Max. H_z	2	50.84	0.11	30.21
	Max. M_x	2	3112.33	0.11	30.21
	Max. M_z	8	3093.24	-30.06	-0.11
	Max. Torsion	24	2.17	15.97	27.51
	Min. Vert	25	38.13	15.97	27.51
	Min. H_x	8	50.84	-30.06	-0.11
	Min. H_z	15	38.13	-0.11	-30.25
	Min. M_x	14	-3116.49	-0.11	-30.25
	Min. M_z	20	-3113.20	30.17	0.11

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
	Min. Torsion	12	-2.15	-15.89	-27.38

Tower Mast Reaction Summary

Load Combination	Vertical K	$Shear_x$ K	$Shear_z$ K	Overturning Moment, M_x kip-ft	Overturning Moment, M_z kip-ft	Torque kip-ft
Dead Only	42.36	0.00	0.00	0.10	0.48	-0.00
1.2 Dead+1.0 Wind 0 deg - No Ice	50.84	-0.11	-30.21	-3112.33	15.50	-1.88
0.9 Dead+1.0 Wind 0 deg - No Ice	38.13	-0.11	-30.21	-3071.55	15.13	-1.87
1.2 Dead+1.0 Wind 30 deg - No Ice	50.84	15.74	-27.32	-2743.98	-1580.45	-1.26
0.9 Dead+1.0 Wind 30 deg - No Ice	38.13	15.74	-27.32	-2708.37	-1560.06	-1.25
1.2 Dead+1.0 Wind 60 deg - No Ice	50.84	27.37	-15.71	-1575.56	-2752.72	-0.20
0.9 Dead+1.0 Wind 60 deg - No Ice	38.13	27.37	-15.71	-1555.14	-2717.08	-0.20
1.2 Dead+1.0 Wind 90 deg - No Ice	50.84	30.06	0.11	15.02	-3093.24	1.00
0.9 Dead+1.0 Wind 90 deg - No Ice	38.13	30.06	0.11	14.77	-3052.82	0.99
1.2 Dead+1.0 Wind 120 deg - No Ice	50.84	27.50	15.91	1603.37	-2770.66	1.76
0.9 Dead+1.0 Wind 120 deg - No Ice	38.13	27.50	15.91	1582.49	-2734.77	1.75
1.2 Dead+1.0 Wind 150 deg - No Ice	50.84	15.89	27.38	2760.75	-1607.18	2.15
0.9 Dead+1.0 Wind 150 deg - No Ice	38.13	15.89	27.38	2724.83	-1586.41	2.14
1.2 Dead+1.0 Wind 180 deg - No Ice	50.84	0.11	30.25	3116.49	-14.29	1.87
0.9 Dead+1.0 Wind 180 deg - No Ice	38.13	0.11	30.25	3075.59	-14.24	1.86
1.2 Dead+1.0 Wind 210 deg - No Ice	50.84	-15.85	27.51	2770.35	1596.74	1.27
0.9 Dead+1.0 Wind 210 deg - No Ice	38.13	-15.85	27.51	2734.30	1575.82	1.25
1.2 Dead+1.0 Wind 240 deg - No Ice	50.84	-27.56	15.82	1590.90	2780.05	0.22
0.9 Dead+1.0 Wind 240 deg - No Ice	38.13	-27.56	15.82	1570.20	2743.72	0.21
1.2 Dead+1.0 Wind 270 deg - No Ice	50.84	-30.17	-0.11	-14.77	3113.20	-0.96
0.9 Dead+1.0 Wind 270 deg - No Ice	38.13	-30.17	-0.11	-14.59	3072.16	-0.96
1.2 Dead+1.0 Wind 300 deg - No Ice	50.84	-27.63	-15.99	-1614.42	2791.44	-1.77
0.9 Dead+1.0 Wind 300 deg - No Ice	38.13	-27.63	-15.99	-1593.44	2754.95	-1.76
1.2 Dead+1.0 Wind 330 deg - No Ice	50.84	-15.97	-27.51	-2780.06	1619.69	-2.17
0.9 Dead+1.0 Wind 330 deg - No Ice	38.13	-15.97	-27.51	-2743.92	1598.43	-2.15
1.2 Dead+1.0 Ice+1.0 Temp	74.44	-0.00	-0.00	-0.92	2.48	-0.00

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	74.44	-0.02	-5.89	-685.98	5.59	-0.34
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	74.44	3.01	-5.24	-596.72	-339.49	-0.22
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	74.44	5.24	-3.01	-343.23	-592.89	-0.01
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	74.44	5.89	0.02	1.97	-681.69	0.22
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	74.44	5.26	3.05	346.69	-596.37	0.36
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	74.44	3.04	5.26	598.04	-344.76	0.42
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	74.44	0.02	5.90	684.72	-0.28	0.34
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	74.44	-3.03	5.27	599.52	347.53	0.22
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	74.44	-5.27	3.03	344.03	602.94	0.01
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	74.44	-5.89	-0.02	-3.90	688.11	-0.22
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	74.44	-5.29	-3.07	-350.71	605.28	-0.36
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	74.44	-3.06	-5.28	-603.57	352.15	-0.42
Dead+Wind 0 deg - Service	42.36	-0.02	-6.06	-620.21	3.49	-0.38
Dead+Wind 30 deg - Service	42.36	3.16	-5.48	-546.84	-314.61	-0.26
Dead+Wind 60 deg - Service	42.36	5.49	-3.15	-313.95	-548.27	-0.04
Dead+Wind 90 deg - Service	42.36	6.03	0.02	3.08	-616.08	0.20
Dead+Wind 120 deg - Service	42.36	5.52	3.19	319.68	-551.87	0.36
Dead+Wind 150 deg - Service	42.36	3.19	5.49	550.38	-319.95	0.44
Dead+Wind 180 deg - Service	42.36	0.02	6.07	621.21	-2.45	0.38
Dead+Wind 210 deg - Service	42.36	-3.18	5.52	552.29	318.67	0.26
Dead+Wind 240 deg - Service	42.36	-5.53	3.17	317.20	554.54	0.04
Dead+Wind 270 deg - Service	42.36	-6.05	-0.02	-2.85	620.87	-0.20
Dead+Wind 300 deg - Service	42.36	-5.54	-3.21	-321.72	556.83	-0.36
Dead+Wind 330 deg - Service	42.36	-3.20	-5.52	-554.07	323.25	-0.44

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.00	-42.36	0.00	0.00	42.36	0.00	0.000%
2	-0.11	-50.84	-30.21	0.11	50.84	30.21	0.000%
3	-0.11	-38.13	-30.21	0.11	38.13	30.21	0.000%
4	15.74	-50.84	-27.32	-15.74	50.84	27.32	0.000%
5	15.74	-38.13	-27.32	-15.74	38.13	27.32	0.000%
6	27.37	-50.84	-15.71	-27.37	50.84	15.71	0.000%
7	27.37	-38.13	-15.71	-27.37	38.13	15.71	0.000%
8	30.06	-50.84	0.11	-30.06	50.84	-0.11	0.000%
9	30.06	-38.13	0.11	-30.06	38.13	-0.11	0.000%
10	27.50	-50.84	15.91	-27.50	50.84	-15.91	0.000%
11	27.50	-38.13	15.91	-27.50	38.13	-15.91	0.000%
12	15.89	-50.84	27.38	-15.89	50.84	-27.38	0.000%
13	15.89	-38.13	27.38	-15.89	38.13	-27.38	0.000%
14	0.11	-50.84	30.25	-0.11	50.84	-30.25	0.000%
15	0.11	-38.13	30.25	-0.11	38.13	-30.25	0.000%
16	-15.85	-50.84	27.51	15.85	50.84	-27.51	0.000%

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX K	PY K	PZ K	PX K	PY K	PZ K	% Error
17	-15.85	-38.13	27.51	15.85	38.13	-27.51	0.000%
18	-27.56	-50.84	15.82	27.56	50.84	-15.82	0.000%
19	-27.56	-38.13	15.82	27.56	38.13	-15.82	0.000%
20	-30.17	-50.84	-0.11	30.17	50.84	0.11	0.000%
21	-30.17	-38.13	-0.11	30.17	38.13	0.11	0.000%
22	-27.63	-50.84	-15.99	27.63	50.84	15.99	0.000%
23	-27.63	-38.13	-15.99	27.63	38.13	15.99	0.000%
24	-15.97	-50.84	-27.51	15.97	50.84	27.51	0.000%
25	-15.97	-38.13	-27.51	15.97	38.13	27.51	0.000%
26	0.00	-74.44	0.00	0.00	74.44	0.00	0.000%
27	-0.02	-74.44	-5.89	0.02	74.44	5.89	0.000%
28	3.01	-74.44	-5.24	-3.01	74.44	5.24	0.000%
29	5.24	-74.44	-3.01	-5.24	74.44	3.01	0.000%
30	5.89	-74.44	0.02	-5.89	74.44	-0.02	0.000%
31	5.26	-74.44	3.05	-5.26	74.44	-3.05	0.000%
32	3.04	-74.44	5.26	-3.04	74.44	-5.26	0.000%
33	0.02	-74.44	5.90	-0.02	74.44	-5.90	0.000%
34	-3.03	-74.44	5.27	3.03	74.44	-5.27	0.000%
35	-5.27	-74.44	3.03	5.27	74.44	-3.03	0.000%
36	-5.89	-74.44	-0.02	5.89	74.44	0.02	0.000%
37	-5.29	-74.44	-3.07	5.29	74.44	3.07	0.000%
38	-3.06	-74.44	-5.28	3.06	74.44	5.28	0.000%
39	-0.02	-42.36	-6.06	0.02	42.36	6.06	0.000%
40	3.16	-42.36	-5.48	-3.16	42.36	5.48	0.000%
41	5.49	-42.36	-3.15	-5.49	42.36	3.15	0.000%
42	6.03	-42.36	0.02	-6.03	42.36	-0.02	0.000%
43	5.52	-42.36	3.19	-5.52	42.36	-3.19	0.000%
44	3.19	-42.36	5.49	-3.19	42.36	-5.49	0.000%
45	0.02	-42.36	6.07	-0.02	42.36	-6.07	0.000%
46	-3.18	-42.36	5.52	3.18	42.36	-5.52	0.000%
47	-5.53	-42.36	3.17	5.53	42.36	-3.17	0.000%
48	-6.05	-42.36	-0.02	6.05	42.36	0.02	0.000%
49	-5.54	-42.36	-3.21	5.54	42.36	3.21	0.000%
50	-3.20	-42.36	-5.52	3.20	42.36	5.52	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	6	0.00000001	0.00019543
3	Yes	6	0.00000001	0.00006336
4	Yes	7	0.00000001	0.00015677
5	Yes	6	0.00000001	0.00090364
6	Yes	7	0.00000001	0.00016099
7	Yes	6	0.00000001	0.00092909
8	Yes	6	0.00000001	0.00012175
9	Yes	6	0.00000001	0.00003961
10	Yes	7	0.00000001	0.00016764
11	Yes	6	0.00000001	0.00096710
12	Yes	7	0.00000001	0.00015683
13	Yes	6	0.00000001	0.00090124
14	Yes	6	0.00000001	0.00010860
15	Yes	5	0.00000001	0.00090698
16	Yes	7	0.00000001	0.00016595
17	Yes	6	0.00000001	0.00095680

18	Yes	7	0.00000001	0.00016187
19	Yes	6	0.00000001	0.00093168
20	Yes	5	0.00000001	0.00063159
21	Yes	5	0.00000001	0.00029122
22	Yes	7	0.00000001	0.00015949
23	Yes	6	0.00000001	0.00091497
24	Yes	7	0.00000001	0.00017023
25	Yes	6	0.00000001	0.00098103
26	Yes	4	0.00000001	0.00029747
27	Yes	7	0.00000001	0.00012547
28	Yes	7	0.00000001	0.00016971
29	Yes	7	0.00000001	0.00017081
30	Yes	7	0.00000001	0.00012448
31	Yes	7	0.00000001	0.00017470
32	Yes	7	0.00000001	0.00017146
33	Yes	7	0.00000001	0.00012537
34	Yes	7	0.00000001	0.00017587
35	Yes	7	0.00000001	0.00017469
36	Yes	7	0.00000001	0.00012597
37	Yes	7	0.00000001	0.00017579
38	Yes	7	0.00000001	0.00017917
39	Yes	5	0.00000001	0.00014033
40	Yes	5	0.00000001	0.00058090
41	Yes	5	0.00000001	0.00062667
42	Yes	5	0.00000001	0.00008210
43	Yes	5	0.00000001	0.00070768
44	Yes	5	0.00000001	0.00058478
45	Yes	5	0.00000001	0.00012678
46	Yes	5	0.00000001	0.00068799
47	Yes	5	0.00000001	0.00063655
48	Yes	5	0.00000001	0.00006935
49	Yes	5	0.00000001	0.00061223
50	Yes	5	0.00000001	0.00074134

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 145	25.219	49	1.582	0.007
L2	145 - 143.5	23.580	49	1.543	0.005
L3	143.5 - 143.25	23.098	49	1.524	0.005
L4	143.25 - 138.25	23.018	49	1.523	0.005
L5	138.25 - 133.25	21.445	49	1.480	0.004
L6	133.25 - 129.25	19.923	49	1.425	0.004
L7	129.25 - 129	18.751	49	1.372	0.003
L8	129 - 124	18.680	49	1.370	0.003
L9	124 - 119	17.269	49	1.324	0.003
L10	119 - 115	15.910	49	1.272	0.003
L11	115 - 114.75	14.863	49	1.228	0.003
L12	114.75 - 111.25	14.799	49	1.226	0.003
L13	111.25 - 111	13.913	49	1.191	0.002
L14	111 - 110.75	13.851	49	1.187	0.002
L15	110.75 - 110	13.789	49	1.185	0.002
L16	110 - 109	13.603	49	1.178	0.002
L17	109 - 108.75	13.357	49	1.170	0.002
L18	108.75 - 108.25	13.296	49	1.166	0.002
L19	108.25 - 108	13.174	49	1.159	0.002
L20	108 - 106.42	13.114	49	1.157	0.002
L21	106.42 - 106.17	12.734	49	1.142	0.002

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L22	106.17 - 101.75	12.674	49	1.139	0.002
L23	101.75 - 101.5	11.646	49	1.081	0.002
L24	101.5 - 101.25	11.590	49	1.079	0.002
L25	101.25 - 96.25	11.533	49	1.076	0.002
L26	96.25 - 91.15	10.435	49	1.023	0.002
L27	91.15 - 90.92	9.370	49	0.970	0.002
L28	90.92 - 90.25	9.324	49	0.968	0.002
L29	90.25 - 90	9.188	49	0.961	0.002
L30	90 - 85	9.138	49	0.958	0.002
L31	85 - 80	8.163	49	0.904	0.001
L32	80 - 75	7.246	49	0.848	0.001
L33	75 - 70	6.389	49	0.790	0.001
L34	73.26 - 69	6.105	49	0.770	0.001
L35	69 - 64	5.429	49	0.741	0.001
L36	64 - 59	4.682	49	0.686	0.001
L37	59 - 56.5	3.992	49	0.630	0.001
L38	56.5 - 56.25	3.670	49	0.602	0.001
L39	56.25 - 55.33	3.638	49	0.599	0.001
L40	55.33 - 55.08	3.524	49	0.589	0.001
L41	55.08 - 50.08	3.493	49	0.586	0.001
L42	50.08 - 45.08	2.906	49	0.535	0.001
L43	45.08 - 40.08	2.374	49	0.482	0.001
L44	40.08 - 35.08	1.896	49	0.430	0.000
L45	35.08 - 30	1.474	49	0.376	0.000
L46	33.93 - 28.93	1.385	49	0.364	0.000
L47	28.93 - 28.75	1.018	49	0.332	0.000
L48	28.75 - 28.5	1.006	49	0.330	0.000
L49	28.5 - 23.5	0.989	49	0.327	0.000
L50	23.5 - 19.25	0.674	49	0.274	0.000
L51	19.25 - 19	0.451	49	0.228	0.000
L52	19 - 16.75	0.439	49	0.226	0.000
L53	16.75 - 16.5	0.337	49	0.205	0.000
L54	16.5 - 11.5	0.327	49	0.202	0.000
L55	11.5 - 7	0.151	49	0.133	0.000
L56	7 - 6.75	0.055	49	0.071	0.000
L57	6.75 - 6.5	0.052	49	0.069	0.000
L58	6.5 - 2.75	0.048	49	0.066	0.000
L59	2.75 - 2.5	0.009	49	0.032	0.000
L60	2.5 - 0	0.008	49	0.029	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.00	7770.00 w/ Mount Pipe	49	25.219	1.582	0.007	5959
150.00	Top Hat 14" Dia x 34" Tall (Flat)	49	25.219	1.582	0.007	5959
110.00	110-ft Bridge Stiffener	49	13.603	1.178	0.002	5625
104.00	SRL210-2	49	12.163	1.108	0.002	4698

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	150 - 145	126.094	22	7.913	0.035
L2	145 - 143.5	117.933	22	7.724	0.027
L3	143.5 - 143.25	115.533	22	7.631	0.025
L4	143.25 - 138.25	115.136	22	7.623	0.025
L5	138.25 - 133.25	107.295	22	7.414	0.021
L6	133.25 - 129.25	99.707	22	7.137	0.019
L7	129.25 - 129	93.862	22	6.873	0.016
L8	129 - 124	93.504	22	6.863	0.016
L9	124 - 119	86.464	22	6.634	0.015
L10	119 - 115	79.675	22	6.376	0.014
L11	115 - 114.75	74.443	22	6.156	0.013
L12	114.75 - 111.25	74.122	22	6.144	0.013
L13	111.25 - 111	69.695	22	5.972	0.012
L14	111 - 110.75	69.384	22	5.953	0.012
L15	110.75 - 110	69.074	22	5.942	0.012
L16	110 - 109	68.146	22	5.909	0.012
L17	109 - 108.75	66.917	22	5.865	0.012
L18	108.75 - 108.25	66.611	22	5.847	0.011
L19	108.25 - 108	66.003	22	5.811	0.011
L20	108 - 106.42	65.699	22	5.800	0.011
L21	106.42 - 106.17	63.798	22	5.726	0.011
L22	106.17 - 101.75	63.499	22	5.711	0.011
L23	101.75 - 101.5	58.360	22	5.421	0.010
L24	101.5 - 101.25	58.078	22	5.410	0.010
L25	101.25 - 96.25	57.795	22	5.397	0.010
L26	96.25 - 91.15	52.297	22	5.130	0.009
L27	91.15 - 90.92	46.970	22	4.866	0.008
L28	90.92 - 90.25	46.736	22	4.854	0.008
L29	90.25 - 90	46.059	22	4.819	0.008
L30	90 - 85	45.807	22	4.806	0.008
L31	85 - 80	40.926	22	4.535	0.007
L32	80 - 75	36.332	22	4.253	0.006
L33	75 - 70	32.036	22	3.964	0.005
L34	73.26 - 69	30.611	22	3.864	0.005
L35	69 - 64	27.224	22	3.718	0.005
L36	64 - 59	23.479	22	3.442	0.004
L37	59 - 56.5	20.024	22	3.162	0.004
L38	56.5 - 56.25	18.407	22	3.021	0.004
L39	56.25 - 55.33	18.249	22	3.007	0.004
L40	55.33 - 55.08	17.675	22	2.956	0.003
L41	55.08 - 50.08	17.521	22	2.943	0.003
L42	50.08 - 45.08	14.577	22	2.683	0.003
L43	45.08 - 40.08	11.906	22	2.421	0.003
L44	40.08 - 35.08	9.511	22	2.156	0.002
L45	35.08 - 30	7.395	22	1.887	0.002
L46	33.93 - 28.93	6.948	22	1.826	0.002
L47	28.93 - 28.75	5.108	22	1.665	0.002
L48	28.75 - 28.5	5.046	22	1.655	0.002
L49	28.5 - 23.5	4.959	22	1.642	0.002
L50	23.5 - 19.25	3.381	22	1.374	0.001
L51	19.25 - 19	2.261	22	1.143	0.001
L52	19 - 16.75	2.201	22	1.132	0.001
L53	16.75 - 16.5	1.692	22	1.029	0.001
L54	16.5 - 11.5	1.639	22	1.012	0.001
L55	11.5 - 7	0.759	22	0.669	0.001
L56	7 - 6.75	0.277	22	0.355	0.000
L57	6.75 - 6.5	0.259	22	0.345	0.000
L58	6.5 - 2.75	0.241	22	0.333	0.000
L59	2.75 - 2.5	0.047	22	0.162	0.000
L60	2.5 - 0	0.039	22	0.148	0.000

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
152.00	7770.00 w/ Mount Pipe	22	126.094	7.913	0.035	1260
150.00	Top Hat 14" Dia x 34" Tall (Flat)	22	126.094	7.913	0.035	1260
110.00	110-ft Bridge Stiffener	22	68.146	5.909	0.012	1153
104.00	SRL210-2	22	60.943	5.557	0.011	960

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L1	150 - 145 (1)	TP15.25x14.5x0.25	5.00	0.00	0.0	12.075	-3.72	391.23	0.010
L2	145 - 143.5 (2)	TP15.475x15.25x0.25	1.50	0.00	0.0	12.256	-3.80	397.10	0.010
L3	143.5 - 143.25 (3)	TP15.513x15.475x0.563	0.25	0.00	0.0	27.078	-3.84	877.33	0.004
L4	143.25 - 138.25 (4)	TP16.263x15.513x0.538	5.00	0.00	0.0	27.216	-4.44	881.80	0.005
L5	138.25 - 133.25 (5)	TP17.013x16.263x0.525	5.00	0.00	0.0	27.872	-5.08	903.06	0.006
L6	133.25 - 129.25 (6)	TP17.613x17.013x0.513	4.00	0.00	0.0	28.219	-5.61	914.30	0.006
L7	129.25 - 129 (7)	TP17.65x17.613x0.925	0.25	0.00	0.0	49.815	-5.66	1614.02	0.004
L8	129 - 124 (8)	TP18.4x17.65x0.875	5.00	0.00	0.0	49.377	-6.61	1599.80	0.004
L9	124 - 119 (9)	TP19.15x18.4x0.838	5.00	0.00	0.0	49.384	-7.58	1600.05	0.005
L10	119 - 115 (10)	TP19.75x19.15x0.825	4.00	0.00	0.0	50.274	-8.38	1628.89	0.005
L11	115 - 114.75 (11)	TP19.788x19.75x1	0.25	0.00	0.0	60.496	-8.44	1960.06	0.004
L12	114.75 - 111.25 (12)	TP20.313x19.788x0.975	3.50	0.00	0.0	60.710	-9.22	1967.01	0.005
L13	111.25 - 111 (13)	TP20.35x20.313x0.6	0.25	0.00	0.0	38.157	-9.27	1236.29	0.007
L14	111 - 110.75 (14)	TP20.388x20.35x1.15	0.25	0.00	0.0	71.237	-9.31	2308.06	0.004
L15	110.75 - 110 (15)	TP20.5x20.387x1.15	0.75	0.00	0.0	71.653	-9.43	4191.70	0.002
L16	110 - 109 (16)	TP20.651x20.5x1.125	1.00	0.00	0.0	70.734	-9.97	4137.93	0.002
L17	109 - 108.75 (17)	TP20.689x20.651x0.663	0.25	0.00	0.0	42.722	-10.01	2499.22	0.004
L18	108.75 - 108.25 (18)	TP20.765x20.689x0.663	0.50	0.00	0.0	42.883	-10.10	2508.66	0.004
L19	108.25 - 108 (19)	TP20.803x20.765x1.075	0.25	0.00	0.0	68.287	-10.16	3994.77	0.003
L20	108 - 106.42 (20)	TP21.041x20.803x1.075	1.58	0.00	0.0	69.114	-10.54	4043.17	0.003
L21	106.42 - 106.17 (21)	TP21.079x21.041x0.775	0.25	0.00	0.0	50.669	-10.60	2964.16	0.004

Section No.	Elevation ft	Size	L ft	L_u ft	Kl/r	A in^2	P_u K	ϕP_n K	Ratio $\frac{P_u}{\phi P_n}$
L22	106.17 - 101.75 (22)	TP21.748x21.079x0.75	4.42	0.00	0.0	50.710	-11.61	2966.52	0.004
L23	101.75 - 101.5 (23)	TP21.786x21.748x1.2	0.25	0.00	0.0	79.543	-11.69	4653.26	0.003
L24	101.5 - 101.25 (24)	TP21.823x21.786x1	0.25	0.00	0.0	67.051	-11.75	3922.51	0.003
L25	101.25 - 96.25 (25)	TP22.58x21.823x0.975	5.00	0.00	0.0	67.828	-12.97	3967.93	0.003
L26	96.25 - 91.15 (26)	TP23.351x22.58x1.025	5.10	0.00	0.0	73.687	-14.34	4310.70	0.003
L27	91.15 - 90.92 (27)	TP23.386x23.351x1.025	0.23	0.00	0.0	73.802	-14.41	4317.42	0.003
L28	90.92 - 90.25 (28)	TP23.487x23.386x1.025	0.67	0.00	0.0	74.136	-14.59	4336.98	0.003
L29	90.25 - 90 (29)	TP23.525x23.487x1.025	0.25	0.00	0.0	74.261	-14.66	4344.28	0.003
L30	90 - 85 (30)	TP24.281x23.525x0.988	5.00	0.00	0.0	74.068	-16.03	4333.00	0.004
L31	85 - 80 (31)	TP25.038x24.281x0.95	5.00	0.00	0.0	73.684	-17.42	4310.49	0.004
L32	80 - 75 (32)	TP25.794x25.038x0.925	5.00	0.00	0.0	74.072	-18.83	4333.19	0.004
L33	75 - 70 (33)	TP26.55x25.794x0.925	5.00	0.00	0.0	74.855	-19.33	4379.04	0.004
L34	70 - 69 (34)	TP26.2x25.557x1.063	4.26	0.00	0.0	86.003	-21.58	5031.15	0.004
L35	69 - 64 (35)	TP26.955x26.2x1.038	5.00	0.00	0.0	86.585	-23.23	5065.23	0.005
L36	64 - 59 (36)	TP27.71x26.955x1.013	5.00	0.00	0.0	87.042	-24.91	5091.96	0.005
L37	59 - 56.5 (37)	TP28.088x27.71x1	2.50	0.00	0.0	87.223	-25.76	5102.57	0.005
L38	56.5 - 56.25 (38)	TP28.126x28.088x1	0.25	0.00	0.0	87.345	-25.85	5109.68	0.005
L39	56.25 - 55.33 (39)	TP28.265x28.126x0.988	0.92	0.00	0.0	86.735	-26.16	5073.98	0.005
L40	55.33 - 55.08 (40)	TP28.302x28.265x1.113	0.25	0.00	0.0	97.401	-26.26	5697.97	0.005
L41	55.08 - 50.08 (41)	TP29.058x28.302x1.088	5.00	0.00	0.0	97.944	-28.12	5729.73	0.005
L42	50.08 - 45.08 (42)	TP29.813x29.058x1.063	5.00	0.00	0.0	98.361	-30.00	5754.14	0.005
L43	45.08 - 40.08 (43)	TP30.568x29.813x1.038	5.00	0.00	0.0	98.653	-31.91	5771.21	0.006
L44	40.08 - 35.08 (44)	TP31.323x30.568x1.013	5.00	0.00	0.0	98.819	-33.85	5780.93	0.006
L45	35.08 - 30 (45)	TP32.09x31.323x1.013	5.08	0.00	0.0	99.385	-34.30	5814.05	0.006
L46	30 - 28.93 (46)	TP31.627x30.871x1.075	5.00	0.00	0.0	105.757	-37.76	6186.76	0.006
L47	28.93 - 28.75 (47)	TP31.654x31.627x1.075	0.18	0.00	0.0	105.851	-37.85	6192.27	0.006
L48	28.75 - 28.5 (48)	TP31.692x31.654x1.075	0.25	0.00	0.0	105.982	-37.95	6199.92	0.006
L49	28.5 - 23.5 (49)	TP32.448x31.692x1.05	5.00	0.00	0.0	106.157	-40.05	6210.16	0.006
L50	23.5 - 19.25 (50)	TP33.09x32.448x1.025	4.25	0.00	0.0	105.832	-41.86	6191.16	0.007
L51	19.25 - 19 (51)	TP33.128x33.09x1.225	0.25	0.00	0.0	125.842	-42.01	7361.76	0.006
L52	19 - 16.75 (52)	TP33.468x33.128x1.225	2.25	0.00	0.0	127.183	-43.25	7440.23	0.006
L53	16.75 - 16.5 (53)	TP33.506x33.468x0.775	0.25	0.00	0.0	81.680	-43.37	4778.30	0.009
L54	16.5 - 11.5 (54)	TP34.262x33.506x0.775	5.00	0.00	0.0	83.566	-45.77	4888.63	0.009
L55	11.5 - 7 (55)	TP34.942x34.262x0.75	4.50	0.00	0.0	82.574	-47.96	4830.55	0.010
L56	7 - 6.75 (56)	TP34.98x34.942x1.425	0.25	0.00	0.0	153.966	-48.13	9007.01	0.005
L57	6.75 - 6.5 (57)	TP35.018x34.98x1.175	0.25	0.00	0.0	128.043	-48.24	7490.53	0.006
L58	6.5 - 2.75 (58)	TP35.584x35.018x1.175	3.75	0.00	0.0	130.188	-49.87	7615.98	0.007
L59	2.75 - 2.5 (59)	TP35.622x35.584x0.888	0.25	0.00	0.0	99.263	-49.97	5806.88	0.009
L60	2.5 - 0 (60)	TP36x35.622x0.875	2.50	0.00	0.0	98.965	-50.82	5789.43	0.009

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	150 - 145 (1)	TP15.25x14.5x0.25	70.42	149.35	0.472	0.00	149.35	0.000
L2	145 - 143.5 (2)	TP15.475x15.25x0.25	86.93	153.90	0.565	0.00	153.90	0.000
L3	143.5 - 143.25 (3)	TP15.513x15.475x0.563	89.71	327.05	0.274	0.00	327.05	0.000
L4	143.25 - 138.25 (4)	TP16.263x15.513x0.538	146.73	346.90	0.423	0.00	346.90	0.000
L5	138.25 - 133.25 (5)	TP17.013x16.263x0.525	206.67	373.34	0.554	0.00	373.34	0.000
L6	133.25 - 129.25 (6)	TP17.613x17.013x0.513	256.77	392.74	0.654	0.00	392.74	0.000
L7	129.25 - 129 (7)	TP17.65x17.613x0.925	259.96	661.82	0.393	0.00	661.82	0.000
L8	129 - 124 (8)	TP18.4x17.65x0.875	325.70	690.89	0.471	0.00	690.89	0.000
L9	124 - 119 (9)	TP19.15x18.4x0.838	394.94	724.95	0.545	0.00	724.95	0.000
L10	119 - 115 (10)	TP19.75x19.15x0.825	452.86	764.26	0.593	0.00	764.26	0.000
L11	115 - 114.75 (11)	TP19.788x19.75x1	456.55	904.61	0.505	0.00	904.61	0.000
L12	114.75 - 111.25 (12)	TP20.313x19.788x0.975	509.29	936.89	0.544	0.00	936.89	0.000
L13	111.25 - 111 (13)	TP20.35x20.313x0.6	513.13	613.10	0.837	0.00	613.10	0.000
L14	111 - 110.75 (14)	TP20.388x20.35x1.15	516.98	1083.99	0.477	0.00	1083.99	0.000
L15	110.75 - 110 (15)	TP20.5x20.387x1.15	528.58	1980.82	0.267	0.00	1980.82	0.000
L16	110 - 109 (16)	TP20.651x20.5x1.125	544.45	1976.61	0.275	0.00	1976.61	0.000
L17	109 - 108.75 (17)	TP20.689x20.651x0.663	548.45	1253.49	0.438	0.00	1253.49	0.000
L18	108.75 - 108.25 (18)	TP20.765x20.689x0.663	556.50	1263.13	0.441	0.00	1263.13	0.000
L19	108.25 - 108 (19)	TP20.803x20.765x1.075	560.53	1933.60	0.290	0.00	1933.60	0.000
L20	108 - 106.42 (20)	TP21.041x20.803x1.075	586.27	1981.96	0.296	0.00	1981.96	0.000
L21	106.42 - 106.17 (21)	TP21.079x21.041x0.775	590.37	1499.92	0.394	0.00	1499.92	0.000
L22	106.17 - 101.75 (22)	TP21.748x21.079x0.75	665.57	1556.06	0.428	0.00	1556.06	0.000
L23	101.75 - 101.5 (23)	TP21.786x21.748x1.2	669.95	2341.86	0.286	0.00	2341.86	0.000
L24	101.5 - 101.25 (24)	TP21.823x21.786x1	674.34	2016.47	0.334	0.00	2016.47	0.000
L25	101.25 - 96.25 (25)	TP22.58x21.823x0.975	764.13	2122.21	0.360	0.00	2122.21	0.000
L26	96.25 - 91.15 (26)	TP23.351x22.58x1.025	859.59	2380.73	0.361	0.00	2380.73	0.000
L27	91.15 - 90.92 (27)	TP23.386x23.351x1.025	863.98	2388.32	0.362	0.00	2388.32	0.000
L28	90.92 - 90.25 (28)	TP23.487x23.386x1.025	876.85	2410.49	0.364	0.00	2410.49	0.000
L29	90.25 - 90 (29)	TP23.525x23.487x1.025	881.67	2418.79	0.365	0.00	2418.79	0.000
L30	90 - 85 (30)	TP24.281x23.525x0.988	980.01	2505.19	0.391	0.00	2505.19	0.000
L31	85 - 80 (31)	TP25.038x24.281x0.95	1082.18	2584.43	0.419	0.00	2584.43	0.000
L32	80 - 75 (32)	TP25.794x25.038x0.925	1188.16	2688.11	0.442	0.00	2688.11	0.000
L33	75 - 70 (33)	TP26.55x25.794x0.925	1225.93	2746.33	0.446	0.00	2746.33	0.000
L34	70 - 69 (34)	TP26.2x25.557x1.063	1320.63	3139.50	0.421	0.00	3139.50	0.000
L35	69 - 64 (35)	TP26.955x26.2x1.038	1435.52	3265.86	0.440	0.00	3265.86	0.000

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L36	64 - 59 (36)	TP27.71x26.955x1.013	1554.18	3388.78	0.459	0.00	3388.78	0.000
L37	59 - 56.5 (37)	TP28.088x27.71x1	1614.93	3448.79	0.468	0.00	3448.79	0.000
L38	56.5 - 56.25 (38)	TP28.126x28.088x1	1621.05	3458.58	0.469	0.00	3458.58	0.000
L39	56.25 - 55.33 (39)	TP28.265x28.126x0.988	1643.68	3455.80	0.476	0.00	3455.80	0.000
L40	55.33 - 55.08 (40)	TP28.302x28.265x1.113	1649.84	3850.87	0.428	0.00	3850.87	0.000
L41	55.08 - 50.08 (41)	TP29.058x28.302x1.088	1775.28	3991.23	0.445	0.00	3991.23	0.000
L42	50.08 - 45.08 (42)	TP29.813x29.058x1.063	1904.49	4127.68	0.461	0.00	4127.68	0.000
L43	45.08 - 40.08 (43)	TP30.568x29.813x1.038	2037.41	4259.73	0.478	0.00	4259.73	0.000
L44	40.08 - 35.08 (44)	TP31.323x30.568x1.013	2173.91	4386.95	0.496	0.00	4386.95	0.000
L45	35.08 - 30 (45)	TP32.09x31.323x1.013	2205.80	4438.19	0.497	0.00	4438.19	0.000
L46	30 - 28.93 (46)	TP31.627x30.871x1.075	2346.90	4724.26	0.497	0.00	4724.26	0.000
L47	28.93 - 28.75 (47)	TP31.654x31.627x1.075	2352.05	4732.82	0.497	0.00	4732.82	0.000
L48	28.75 - 28.5 (48)	TP31.692x31.654x1.075	2359.21	4744.73	0.497	0.00	4744.73	0.000
L49	28.5 - 23.5 (49)	TP32.448x31.692x1.05	2504.05	4881.63	0.513	0.00	4881.63	0.000
L50	23.5 - 19.25 (50)	TP33.09x32.448x1.025	2629.68	4977.23	0.528	0.00	4977.23	0.000
L51	19.25 - 19 (51)	TP33.128x33.09x1.225	2637.14	5851.90	0.451	0.00	5851.90	0.000
L52	19 - 16.75 (52)	TP33.468x33.128x1.225	2704.69	5979.66	0.452	0.00	5979.66	0.000
L53	16.75 - 16.5 (53)	TP33.506x33.468x0.775	2712.23	3952.89	0.686	0.00	3952.89	0.000
L54	16.5 - 11.5 (54)	TP34.262x33.506x0.775	2864.56	4139.70	0.692	0.00	4139.70	0.000
L55	11.5 - 7 (55)	TP34.942x34.262x0.75	3003.81	4181.61	0.718	0.00	4181.61	0.000
L56	7 - 6.75 (56)	TP34.98x34.942x1.425	3011.60	7500.97	0.401	0.00	7500.97	0.000
L57	6.75 - 6.5 (57)	TP35.018x34.98x1.175	3019.41	6338.67	0.476	0.00	6338.67	0.000
L58	6.5 - 2.75 (58)	TP35.584x35.018x1.175	3137.27	6556.40	0.479	0.00	6556.40	0.000
L59	2.75 - 2.5 (59)	TP35.622x35.584x0.888	3145.18	5088.54	0.618	0.00	5088.54	0.000
L60	2.5 - 0 (60)	TP36x35.622x0.875	3224.68	5133.48	0.628	0.00	5133.48	0.000

Pole Shear Design Data

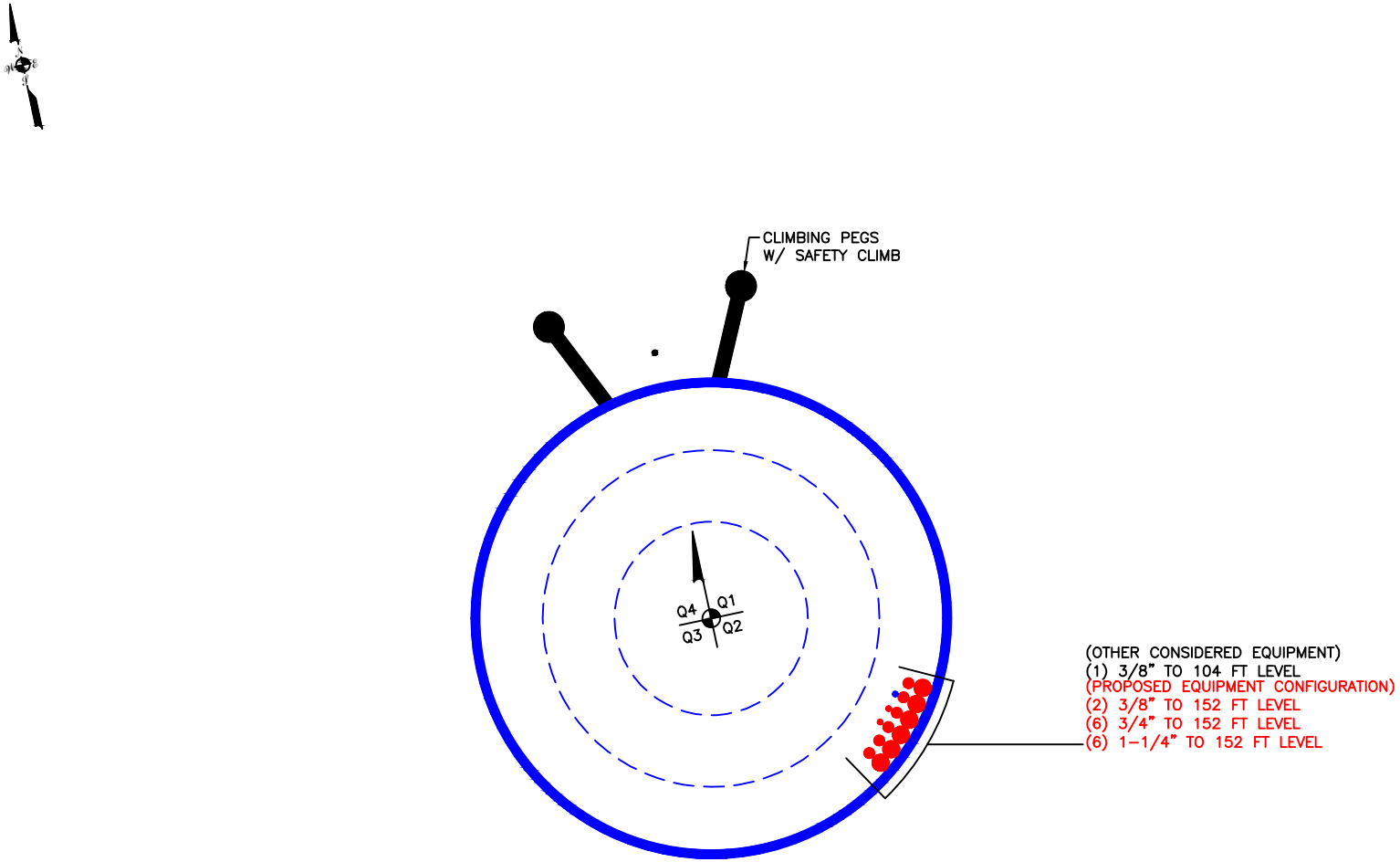
Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	150 - 145 (1)	TP15.25x14.5x0.25	10.93	117.37	0.093	1.14	154.86	0.007
L2	145 - 143.5 (2)	TP15.475x15.25x0.25	11.09	119.13	0.093	1.14	159.54	0.007
L3	143.5 - 143.25 (3)	TP15.513x15.475x0.563	11.12	263.20	0.042	1.14	346.12	0.003
L4	143.25 - 138.25 (4)	TP16.263x15.513x0.538	11.70	264.54	0.044	1.14	365.92	0.003
L5	138.25 - 133.25 (5)	TP17.013x16.263x0.525	12.28	270.92	0.045	1.14	392.91	0.003
L6	133.25 - 129.25 (6)	TP17.613x17.013x0.513	12.77	274.29	0.047	1.14	412.58	0.003
L7	129.25 - 129 (7)	TP17.65x17.613x0.925	12.80	484.21	0.026	1.14	712.35	0.002
L8	129 - 124 (8)	TP18.4x17.65x0.875	13.50	479.94	0.028	1.14	739.85	0.002
L9	124 - 119 (9)	TP19.15x18.4x0.838	14.20	480.01	0.030	1.14	773.22	0.001

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L10	119 - 115 (10)	TP19.75x19.15x0.825	14.77	488.67	0.030	1.13	813.48	0.001
L11	115 - 114.75 (11)	TP19.788x19.75x1	14.80	588.02	0.025	1.13	971.76	0.001
L12	114.75 - 111.25 (12)	TP20.313x19.788x0.975	15.34	590.10	0.026	1.13	1003.75	0.001
L13	111.25 - 111 (13)	TP20.35x20.313x0.6	15.38	370.89	0.041	1.13	644.33	0.002
L14	111 - 110.75 (14)	TP20.388x20.35x1.15	15.41	692.42	0.022	1.13	1171.70	0.001
L15	110.75 - 110 (15)	TP20.5x20.387x1.15	15.52	1257.51	0.012	1.13	2140.39	0.001
L16	110 - 109 (16)	TP20.651x20.5x1.125	16.02	1241.38	0.013	1.00	2132.18	0.000
L17	109 - 108.75 (17)	TP20.689x20.651x0.663	16.05	749.76	0.021	1.00	1320.78	0.001
L18	108.75 - 108.25 (18)	TP20.765x20.689x0.663	16.13	752.60	0.021	1.00	1330.78	0.001
L19	108.25 - 108 (19)	TP20.803x20.765x1.075	16.16	1198.43	0.013	1.00	2079.63	0.000
L20	108 - 106.42 (20)	TP21.041x20.803x1.075	16.42	1212.95	0.014	1.00	2130.32	0.000
L21	106.42 - 106.17 (21)	TP21.079x21.041x0.775	16.45	889.25	0.019	1.00	1588.22	0.001
L22	106.17 - 101.75 (22)	TP21.748x21.079x0.75	17.52	889.96	0.020	1.78	1643.78	0.001
L23	101.75 - 101.5 (23)	TP21.786x21.748x1.2	17.55	1395.98	0.013	1.78	2527.80	0.001
L24	101.5 - 101.25 (24)	TP21.823x21.786x1	17.59	1176.75	0.015	1.78	2155.45	0.001
L25	101.25 - 96.25 (25)	TP22.58x21.823x0.975	18.34	1190.38	0.015	1.78	2262.22	0.001
L26	96.25 - 91.15 (26)	TP23.351x22.58x1.025	19.11	1293.21	0.015	1.78	2539.69	0.001
L27	91.15 - 90.92 (27)	TP23.386x23.351x1.025	19.14	1295.22	0.015	1.78	2547.61	0.001
L28	90.92 - 90.25 (28)	TP23.487x23.386x1.025	19.25	1301.09	0.015	1.78	2570.76	0.001
L29	90.25 - 90 (29)	TP23.525x23.487x1.025	19.29	1303.28	0.015	1.78	2579.42	0.001
L30	90 - 85 (30)	TP24.281x23.525x0.988	20.06	1299.90	0.015	1.78	2663.47	0.001
L31	85 - 80 (31)	TP25.038x24.281x0.95	20.83	1293.15	0.016	1.78	2739.93	0.001
L32	80 - 75 (32)	TP25.794x25.038x0.925	21.59	1299.96	0.017	1.78	2843.69	0.001
L33	75 - 70 (33)	TP26.55x25.794x0.925	21.86	1313.71	0.017	1.78	2904.20	0.001
L34	70 - 69 (34)	TP26.2x25.557x1.063	22.61	1509.35	0.015	1.78	3337.45	0.001
L35	69 - 64 (35)	TP26.955x26.2x1.038	23.37	1519.57	0.015	1.77	3464.33	0.001
L36	64 - 59 (36)	TP27.71x26.955x1.013	24.12	1527.59	0.016	1.77	3587.43	0.000
L37	59 - 56.5 (37)	TP28.088x27.71x1	24.50	1530.77	0.016	1.77	3647.43	0.000
L38	56.5 - 56.25 (38)	TP28.126x28.088x1	24.53	1532.90	0.016	1.77	3657.60	0.000
L39	56.25 - 55.33 (39)	TP28.265x28.126x0.988	24.68	1522.19	0.016	1.77	3652.32	0.000
L40	55.33 - 55.08 (40)	TP28.302x28.265x1.113	24.71	1709.39	0.014	1.77	4088.37	0.000
L41	55.08 - 50.08 (41)	TP29.058x28.302x1.088	25.48	1718.92	0.015	1.77	4229.10	0.000
L42	50.08 - 45.08 (42)	TP29.813x29.058x1.063	26.23	1726.24	0.015	1.77	4365.57	0.000
L43	45.08 - 40.08 (43)	TP30.568x29.813x1.038	26.96	1731.36	0.016	1.77	4497.32	0.000
L44	40.08 - 35.08 (44)	TP31.323x30.568x1.013	27.67	1734.28	0.016	1.77	4623.91	0.000
L45	35.08 - 30 (45)	TP32.09x31.323x1.013	27.83	1744.21	0.016	1.77	4677.05	0.000

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L46	30 - 28.93 (46)	TP31.627x30.871x1.075	28.62	1856.03	0.015	1.77	4988.01	0.000
L47	28.93 - 28.75 (47)	TP31.654x31.627x1.075	28.62	1857.68	0.015	1.77	4996.90	0.000
L48	28.75 - 28.5 (48)	TP31.692x31.654x1.075	28.66	1859.98	0.015	1.77	5009.26	0.000
L49	28.5 - 23.5 (49)	TP32.448x31.692x1.05	29.30	1863.05	0.016	1.77	5145.48	0.000
L50	23.5 - 19.25 (50)	TP33.09x32.448x1.025	29.86	1857.35	0.016	1.77	5238.77	0.000
L51	19.25 - 19 (51)	TP33.128x33.09x1.225	29.88	2208.53	0.014	1.77	6197.78	0.000
L52	19 - 16.75 (52)	TP33.468x33.128x1.225	30.19	2232.07	0.014	1.77	6330.62	0.000
L53	16.75 - 16.5 (53)	TP33.506x33.468x0.775	30.20	1433.49	0.021	1.77	4127.18	0.000
L54	16.5 - 11.5 (54)	TP34.262x33.506x0.775	30.76	1466.59	0.021	1.77	4319.98	0.000
L55	11.5 - 7 (55)	TP34.942x34.262x0.75	31.19	1449.17	0.022	1.77	4358.55	0.000
L56	7 - 6.75 (56)	TP34.98x34.942x1.425	31.19	2702.10	0.012	1.77	7975.46	0.000
L57	6.75 - 6.5 (57)	TP35.018x34.98x1.175	31.22	2247.16	0.014	1.77	6689.54	0.000
L58	6.5 - 2.75 (58)	TP35.584x35.018x1.175	31.67	2284.79	0.014	1.77	6915.50	0.000
L59	2.75 - 2.5 (59)	TP35.622x35.584x0.888	31.67	1742.06	0.018	1.77	5322.63	0.000
L60	2.5 - 0 (60)	TP36x35.622x0.875	31.95	1736.83	0.018	1.77	5366.28	0.000

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT: 841292 TOWER ID: C_BASELEVEL

APPENDIX C

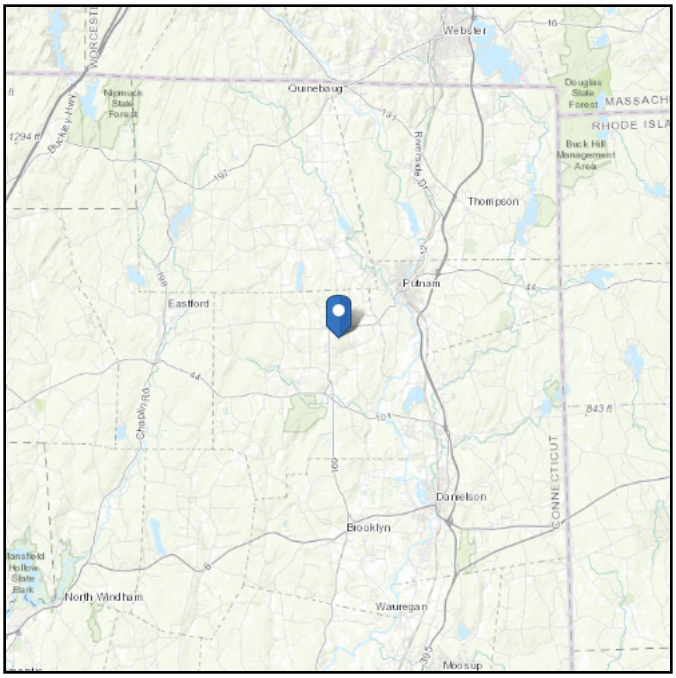
ADDITIONAL CALCULATIONS

ASCE 7 Hazards Report

Address:
No Address at This Location

Standard: ASCE/SEI 7-10
Risk Category: II
Soil Class: D - Stiff Soil

Elevation: 681.63 ft (NAVD 88)
Latitude: 41.89025
Longitude: -71.955611



Wind

Results:

Wind Speed:	128 Vmph	(Vult = 130 mph per jurisdiction)
10-year MRI	78 Vmph	
25-year MRI	88 Vmph	
50-year MRI	96 Vmph	
100-year MRI	104 Vmph	

Data Source: ASCE/SEI 7-10, Fig. 26.5-1A and Figs. CC-1–CC-4, incorporating errata of March 12, 2014

Date Accessed: Tue Mar 05 2019

Value provided is 3-second gust wind speeds at 33 ft above ground for Exposure C Category, based on linear interpolation between contours. Wind speeds are interpolated in accordance with the 7-10 Standard. Wind speeds correspond to approximately a 7% probability of exceedance in 50 years (annual exceedance probability = 0.00143, MRI = 700 years).

Site is in a hurricane-prone region as defined in ASCE/SEI 7-10 Section 26.2. Glazed openings need not be protected against wind-borne debris.

Mountainous terrain, gorges, ocean promontories, and special wind regions should be examined for unusual wind conditions.

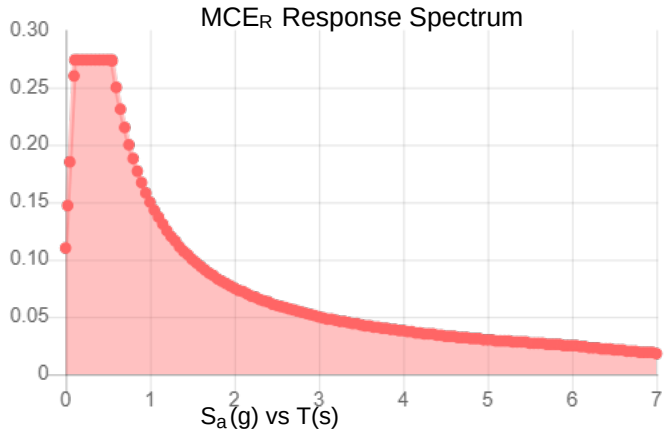
Seismic

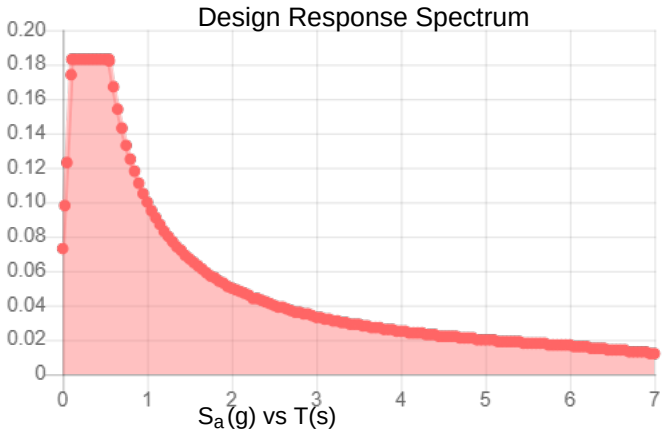
Site Soil Class: D - Stiff Soil

Results:

S_S :	0.172	S_{DS} :	0.183
S_1 :	0.063	S_{D1} :	0.1
F_a :	1.6	T_L :	6
F_v :	2.4	PGA :	0.085
S_{MS} :	0.274	PGA_M :	0.136
S_{M1} :	0.15	F_{PGA} :	1.6
		I_e :	1

Seismic Design Category B





Data Accessed: Tue Mar 05 2019

Date Source: USGS Seismic Design Maps based on ASCE/SEI 7-10, incorporating Supplement 1 and errata of March 31, 2013, and ASCE/SEI 7-10 Table 1.5-2. Additional data for site-specific ground motion procedures in accordance with ASCE/SEI 7-10 Ch. 21 are available from USGS.

Ice

Results:

Ice Thickness:	0.75 in.
Concurrent Temperature:	15 F
Gust Speed:	50 mph
Data Source:	Standard ASCE/SEI 7-10, Figs. 10-2 through 10-8
Date Accessed:	Tue Mar 05 2019

Ice thicknesses on structures in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

Values provided are equivalent radial ice thicknesses due to freezing rain with concurrent 3-second gust speeds, for a 50-year mean recurrence interval, and temperatures concurrent with ice thicknesses due to freezing rain. Thicknesses for ice accretions caused by other sources shall be obtained from local meteorological studies. Ice thicknesses in exposed locations at elevations higher than the surrounding terrain and in valleys and gorges may exceed the mapped values.

CCIpole

per TIA-222- H

Site BU: 841292

Work Order: 1722162

Pole Geometry

	Pole Height Above Base (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Bend Radius (in)	Pole Material
1	150	40	0	12	14.5	20.5	0.25	Auto	A36
2	110	40	3.26	12	20.50	26.55	0.25	Auto	A572-65
3	73.26	43.26	3.93	12	25.56	32.09	0.3125	Auto	A572-65
4	33.93	33.93	0	12	30.87	36	0.375	Auto	A572-65

Reinforcement Configuration

	Bottom Effective Elevation (ft)	Top Effective Elevation (ft)	Type	Model	Number	1	2	3	4	5	6	7	8	9	10	11	12
1	2.75	28.75	plate	x 1.25" (65 ksi) Plate -	4		0			0			0			0	
2	28.75	56.5	plate	00" x 1.25" (65 ksi) Pla	4	0			0			0			0		
3	56.5	72.25	plate	00" x 1.25" (65 ksi) Pla	4		0			0			0			0	
4	72.25	90.25	plate	00" x 1.25" (65 ksi) Pla	4	0			0			0			0		
5	90.25	108.25	plate	00" x 1.25" (65 ksi) Pla	4		0			0			0			0	
6	111.25	129.25	plate	x 1.25" (65 ksi) Plate -	4		0			0			0			0	
7	0	7	plate	1.00" x 8.00" (65 ksi) -	4		0			0			0			0	
8	6.75	19.25	plate	CCI-SFP-085125	4	0					0	0					0
9	16.75	19.25	plate	CCI-SFP-085125	2			0						0			
10	19.25	55.33	plate	CCI-SFP-065125	4			0			0			0			0
11	55.33	91.17	plate	CCI-SFP-050125	4			0			0			0			0
12	91.17	101.75	plate	CCI-SFP-040125	4			0			0			0			0
13	101.5	109	plate	CCI-CFP-045125	2	0									0		
14	106.42	109	plate	CCI-CFP-045125	2						0			0			
15	109	111	plate	CCI-CFP-045125-SH	4	0					0			0	0		
16	111	115	plate	CCI-CFP-045125	1										0		
17	111	143.5	plate	CCI-CFP-045125	3	0					0			0			
18																	

Reinforcement Details

	B (in)	H (in)	Gross Area (in^2)	Pole Face to Centroid (in)	Bottom Termination Length (in)	Top Termination Length (in)	L_u (in)	Net Area (in^2)	Bolt Hole Size (in)	Reinforcement Material
1	5	1.25	6.25	0.625	n/a	24.000	18.000	4.688	1.1875	A572-65
2	5	1.25	6.25	0.625	24.000	24.000	18.000	4.688	1.1875	A572-65
3	5	1.25	6.25	0.625	24.000	24.000	18.000	4.688	1.1875	A572-65
4	4	1.25	5	0.625	18.000	18.000	18.000	3.438	1.1875	A572-65
5	4	1.25	5	0.625	18.000	18.000	18.000	3.438	1.1875	A572-65
6	3	1.25	3.75	0.625	12.000	12.000	18.000	2.188	1.1875	A572-65
7	1	8	8	5.25	n/a	n/a	1.000	8.000	0.0000	A572-65
8	8.5	1.25	10.625	0.625	45.000	45.000	17.000	9.063	1.1875	A572-65
9	8.5	1.25	10.625	0.625	45.000	45.000	17.000	9.063	1.1875	A572-65
10	6.5	1.25	8.125	0.625	33.000	33.000	19.000	6.563	1.1875	A572-65
11	5	1.25	6.25	0.625	24.000	24.000	23.000	4.688	1.1875	A572-65
12	4	1.25	5	0.625	18.000	18.000	27.000	3.438	1.1875	A572-65
13	4.5	1.25	5.625	0.625	27.000	27.000	24.000	4.063	1.1875	A572-65
14	4.5	1.25	5.625	0.625	27.000	27.000	24.000	4.063	1.1875	A572-65
15	4.5	1.25	5.625	5.125	27.000	27.000	24.000	4.063	1.1875	A572-65
16	4.5	1.25	5.625	0.625	27.000	27.000	24.000	4.063	1.1875	A572-65
17	4.5	1.25	5.625	0.625	27.000	27.000	24.000	4.063	1.1875	A572-65

TNX Geometry Input

Increment (ft): 5

	Section Height (ft)	Section Length (ft)	Lap Splice Length (ft)	Number of Sides	Top Diameter (in)	Bottom Diameter (in)	Wall Thickness (in)	Tapered Pole Grade	Weight Multiplier
1	150 - 145	5		12	14.500	15.250	0.25	A36	1.000
2	145 - 143.5	1.5		12	15.250	15.475	0.25	A36	1.000
3	143.5 - 143.25	0.25		12	15.475	15.513	0.5625	A36	1.078
4	143.25 - 138.25	5		12	15.513	16.263	0.5375	A36	1.095
5	138.25 - 133.25	5		12	16.263	17.013	0.525	A36	1.090
6	133.25 - 129.25	4		12	17.013	17.613	0.5125	A36	1.094
7	129.25 - 129	0.25		12	17.613	17.650	0.925	A36	0.922
8	129 - 124	5		12	17.650	18.400	0.875	A36	0.942
9	124 - 119	5		12	18.400	19.150	0.8375	A36	0.954
10	119 - 115	4		12	19.150	19.750	0.825	A36	0.947
11	115 - 114.75	0.25		12	19.750	19.788	1	A36	0.881
12	114.75 - 111.25	3.5		12	19.788	20.313	0.975	A36	0.885
13	111.25 - 111	0.25		12	20.313	20.350	0.6	A36	1.015
14	111 - 110.75	0.25		12	20.350	20.388	1.15	A36	0.544
15	110.75 - 110	0.75	0	12	20.387	20.500	1.15	A572-65	0.542
16	110 - 109	1		12	20.500	20.651	1.125	A572-65	0.551
17	109 - 108.75	0.25		12	20.651	20.689	0.6625	A572-65	0.913
18	108.75 - 108.25	0.5		12	20.689	20.765	0.6625	A572-65	0.911
19	108.25 - 108	0.25		12	20.765	20.803	1.075	A572-65	0.866
20	108 - 106.42	1.58		12	20.803	21.041	1.075	A572-65	0.858
21	106.42 - 106.17	0.25		12	21.041	21.079	0.775	A572-65	0.949
22	106.17 - 101.75	4.42		12	21.079	21.748	0.75	A572-65	0.958
23	101.75 - 101.5	0.25		12	21.748	21.786	1.2	A572-65	0.863
24	101.5 - 101.25	0.25		12	21.786	21.823	1	A572-65	0.856
25	101.25 - 96.25	5		12	21.823	22.580	0.975	A572-65	0.856
26	96.25 - 91.15	5.1		12	22.580	23.351	1.025	A572-65	0.864
27	91.15 - 90.92	0.23		12	23.351	23.386	1.025	A572-65	0.863
28	90.92 - 90.25	0.67		12	23.386	23.487	1.025	A572-65	0.860
29	90.25 - 90	0.25		12	23.487	23.525	1.025	A572-65	0.859
30	90 - 85	5		12	23.525	24.281	0.9875	A572-65	0.870
31	85 - 80	5		12	24.281	25.038	0.95	A572-65	0.882
32	80 - 75	5		12	25.038	25.794	0.925	A572-65	0.886
33	75 - 73.26	5	3.26	12	25.794	26.550	0.925	A572-65	0.880
34	73.26 - 69	4.26		12	25.557	26.200	1.0625	A572-65	0.885
35	69 - 64	5		12	26.200	26.955	1.0375	A572-65	0.888
36	64 - 59	5		12	26.955	27.710	1.0125	A572-65	0.892
37	59 - 56.5	2.5		12	27.710	28.088	1	A572-65	0.894
38	56.5 - 56.25	0.25		12	28.088	28.126	1	A572-65	0.894
39	56.25 - 55.33	0.92		12	28.126	28.265	0.9875	A572-65	0.902
40	55.33 - 55.08	0.25		12	28.265	28.302	1.1125	A572-65	0.880
41	55.08 - 50.08	5		12	28.302	29.058	1.0875	A572-65	0.883
42	50.08 - 45.08	5		12	29.058	29.813	1.0625	A572-65	0.887
43	45.08 - 40.08	5		12	29.813	30.568	1.0375	A572-65	0.892
44	40.08 - 35.08	5		12	30.568	31.323	1.0125	A572-65	0.898
45	35.08 - 33.93	5.08	3.93	12	31.323	32.090	1.0125	A572-65	0.895
46	33.93 - 28.93	5		12	30.871	31.627	1.075	A572-65	0.901
47	28.93 - 28.75	0.18		12	31.627	31.654	1.075	A572-65	0.901
48	28.75 - 28.5	0.25		12	31.654	31.692	1.075	A572-65	0.900
49	28.5 - 23.5	5		12	31.692	32.448	1.05	A572-65	0.907
50	23.5 - 19.25	4.25		12	32.448	33.090	1.025	A572-65	0.917
51	19.25 - 19	0.25		12	33.090	33.128	1.225	A572-65	1.021
52	19 - 16.75	2.25		12	33.128	33.468	1.225	A572-65	1.013
53	16.75 - 16.5	0.25		12	33.468	33.506	0.775	A572-65	1.317
54	16.5 - 11.5	5		12	33.506	34.262	0.775	A572-65	1.299
55	11.5 - 7	4.5		12	34.262	34.942	0.75	A572-65	1.324
56	7 - 6.75	0.25		12	34.942	34.980	1.425	A572-65	0.919
57	6.75 - 6.5	0.25		12	34.980	35.018	1.175	A572-65	0.772
58	6.5 - 2.75	3.75		12	35.018	35.584	1.175	A572-65	0.765
59	2.75 - 2.5	0.25		12	35.584	35.622	0.8875	A572-65	0.752
60	2.5 - 0	2.5		12	35.622	36.000	0.875	A572-65	0.758

TNX Section Forces

	Increment (ft): 5	TNX Output		
	Section Height (ft)	P_u (K)	M_{ux} (kip-ft)	V_u (K)
1	150 - 145	3.72	70.42	10.93
2	145 - 143.5	3.80	86.93	11.09
3	143.5 - 143.25	3.84	89.71	11.12
4	143.25 - 138.25	4.44	146.73	11.70
5	138.25 - 133.25	5.08	206.67	12.28
6	133.25 - 129.25	5.61	256.77	12.77
7	129.25 - 129	5.66	259.96	12.80
8	129 - 124	6.61	325.70	13.50
9	124 - 119	7.58	394.94	14.20
10	119 - 115	8.38	452.86	14.77
11	115 - 114.75	8.44	456.55	14.80
12	114.75 - 111.25	9.22	509.29	15.34
13	111.25 - 111	9.27	513.13	15.38
14	111 - 110.75	9.31	516.98	15.41
15	110.75 - 110	9.43	528.58	15.52
16	110 - 109	9.97	544.45	16.02
17	109 - 108.75	10.01	548.45	16.05
18	108.75 - 108.25	10.10	556.50	16.13
19	108.25 - 108	10.16	560.53	16.16
20	108 - 106.42	10.54	586.27	16.42
21	106.42 - 106.17	10.60	590.37	16.45
22	106.17 - 101.75	11.61	665.57	17.52
23	101.75 - 101.5	11.69	669.95	17.55
24	101.5 - 101.25	11.75	674.34	17.59
25	101.25 - 96.25	12.97	764.13	18.34
26	96.25 - 91.15	14.34	859.59	19.11
27	91.15 - 90.92	14.41	863.99	19.14
28	90.92 - 90.25	14.59	876.85	19.25
29	90.25 - 90	14.66	881.66	19.29
30	90 - 85	16.03	980.00	20.06
31	85 - 80	17.42	1082.18	20.83
32	80 - 75	18.83	1188.16	21.58
33	75 - 73.26	19.33	1225.93	21.86
34	73.26 - 69	21.58	1320.63	22.61
35	69 - 64	23.23	1435.51	23.37
36	64 - 59	24.91	1554.18	24.12
37	59 - 56.5	25.76	1614.92	24.50
38	56.5 - 56.25	25.85	1621.05	24.53
39	56.25 - 55.33	26.16	1643.67	24.68
40	55.33 - 55.08	26.26	1649.85	24.71
41	55.08 - 50.08	28.12	1775.27	25.48
42	50.08 - 45.08	30.00	1904.49	26.23
43	45.08 - 40.08	31.91	2037.41	26.96
44	40.08 - 35.08	33.85	2173.91	27.67
45	35.08 - 33.93	34.30	2205.80	27.83
46	33.93 - 28.93	37.76	2346.90	28.62
47	28.93 - 28.75	37.85	2352.05	28.62
48	28.75 - 28.5	37.95	2359.21	28.66
49	28.5 - 23.5	40.05	2504.05	29.30
50	23.5 - 19.25	41.86	2629.68	29.86
51	19.25 - 19	42.01	2637.14	29.88
52	19 - 16.75	43.25	2704.69	30.19
53	16.75 - 16.5	43.37	2712.23	30.20
54	16.5 - 11.5	45.77	2864.56	30.76
55	11.5 - 7	47.96	3003.81	31.19
56	7 - 6.75	48.13	3011.60	31.19
57	6.75 - 6.5	48.24	3019.40	31.22
58	6.5 - 2.75	49.87	3137.27	31.67
59	2.75 - 2.5	49.97	3145.18	31.67
60	2.5 - 0	50.82	3224.67	31.95

Analysis Results

Elevation (ft)	Component Type	Size	Critical Element	% Capacity	Pass / Fail
150 - 145	Pole	TP15.25x14.5x0.25	Pole	45.7%	Pass
145 - 143.5	Pole	TP15.475x15.25x0.25	Pole	54.5%	Pass
143.5 - 143.25	Pole + Reinf.	TP15.513x15.475x0.5625	Pole	28.3%	Pass
143.25 - 138.25	Pole + Reinf.	TP16.263x15.513x0.5375	Pole	43.2%	Pass
138.25 - 133.25	Pole + Reinf.	TP17.013x16.263x0.525	Pole	56.9%	Pass
133.25 - 129.25	Pole + Reinf.	TP17.613x17.013x0.5125	Pole	67.1%	Pass
129.25 - 129	Pole + Reinf.	TP17.65x17.613x0.925	Reinf. 6 Bolt-Shaft Bearing	51.1%	Pass
129 - 124	Pole + Reinf.	TP18.4x17.65x0.875	Reinf. 6 Compression	58.9%	Pass
124 - 119	Pole + Reinf.	TP19.15x18.4x0.8375	Reinf. 6 Compression	67.8%	Pass
119 - 115	Pole + Reinf.	TP19.75x19.15x0.825	Reinf. 6 Compression	74.7%	Pass
115 - 114.75	Pole + Reinf.	TP19.788x19.75x1	Reinf. 6 Compression	68.4%	Pass
114.75 - 111.25	Pole + Reinf.	TP20.313x19.788x0.975	Reinf. 6 Bolt-Shaft Bearing	76.1%	Pass
111.25 - 111	Pole + Reinf.	TP20.35x20.313x0.6	Pole	93.2%	Pass
111 - 110.75	Pole + Reinf.	TP20.388x20.35x1.15	Reinf. 15 Tension Rupture	66.1%	Pass
110.75 - 110	Pole + Reinf.	TP20.5x20.387x1.15	Reinf. 15 Tension Rupture	67.0%	Pass
110 - 109	Pole + Reinf.	TP20.651x20.5x1.125	Reinf. 15 Tension Rupture	68.5%	Pass
109 - 108.75	Pole + Reinf.	TP20.689x20.651x0.6625	Reinf. 13 Tension Rupture	77.3%	Pass
108.75 - 108.25	Pole + Reinf.	TP20.765x20.689x0.6625	Reinf. 13 Tension Rupture	78.1%	Pass
108.25 - 108	Pole + Reinf.	TP20.803x20.765x1.075	Reinf. 5 Tension Rupture	55.1%	Pass
108 - 106.42	Pole + Reinf.	TP21.041x20.803x1.075	Reinf. 5 Tension Rupture	56.8%	Pass
106.42 - 106.17	Pole + Reinf.	TP21.079x21.041x0.775	Reinf. 5 Tension Rupture	77.6%	Pass
106.17 - 101.75	Pole + Reinf.	TP21.748x21.079x0.75	Reinf. 5 Tension Rupture	83.7%	Pass
101.75 - 101.5	Pole + Reinf.	TP21.786x21.748x1.2	Reinf. 12 Tension Rupture	54.9%	Pass
101.5 - 101.25	Pole + Reinf.	TP21.823x21.786x1	Reinf. 12 Tension Rupture	58.2%	Pass
101.25 - 96.25	Pole + Reinf.	TP22.58x21.823x0.975	Reinf. 12 Tension Rupture	63.2%	Pass
96.25 - 91.15	Pole + Reinf.	TP23.351x22.58x1.025	Reinf. 5 Tension Rupture	62.5%	Pass
91.15 - 90.92	Pole + Reinf.	TP23.386x23.351x1.025	Reinf. 5 Tension Rupture	62.7%	Pass
90.92 - 90.25	Pole + Reinf.	TP23.487x23.386x1.025	Reinf. 5 Tension Rupture	63.3%	Pass
90.25 - 90	Pole + Reinf.	TP23.525x23.487x1.025	Reinf. 4 Tension Rupture	63.6%	Pass
90 - 85	Pole + Reinf.	TP24.281x23.525x0.9875	Reinf. 4 Tension Rupture	67.9%	Pass
85 - 80	Pole + Reinf.	TP25.038x24.281x0.95	Reinf. 4 Tension Rupture	72.2%	Pass
80 - 75	Pole + Reinf.	TP25.794x25.038x0.925	Reinf. 4 Tension Rupture	76.3%	Pass
75 - 73.26	Pole + Reinf.	TP26.55x25.794x0.925	Reinf. 4 Tension Rupture	77.8%	Pass
73.26 - 69	Pole + Reinf.	TP26.2x25.557x1.0625	Reinf. 11 Tension Rupture	66.3%	Pass
69 - 64	Pole + Reinf.	TP26.955x26.2x1.0375	Reinf. 11 Tension Rupture	69.4%	Pass
64 - 59	Pole + Reinf.	TP27.71x26.955x1.0125	Reinf. 11 Tension Rupture	72.5%	Pass
59 - 56.5	Pole + Reinf.	TP28.088x27.71x1	Reinf. 11 Tension Rupture	74.0%	Pass
56.5 - 56.25	Pole + Reinf.	TP28.126x28.088x1	Reinf. 2 Tension Rupture	74.2%	Pass
56.25 - 55.33	Pole + Reinf.	TP28.265x28.126x0.9875	Reinf. 2 Tension Rupture	74.7%	Pass
55.33 - 55.08	Pole + Reinf.	TP28.302x28.265x1.1125	Reinf. 2 Tension Rupture	67.9%	Pass
55.08 - 50.08	Pole + Reinf.	TP29.058x28.302x1.0875	Reinf. 2 Tension Rupture	70.7%	Pass
50.08 - 45.08	Pole + Reinf.	TP29.813x29.058x1.0625	Reinf. 2 Tension Rupture	73.4%	Pass
45.08 - 40.08	Pole + Reinf.	TP30.568x29.813x1.0375	Reinf. 2 Tension Rupture	76.0%	Pass
40.08 - 35.08	Pole + Reinf.	TP31.323x30.568x1.0125	Reinf. 2 Tension Rupture	78.5%	Pass
35.08 - 33.93	Pole + Reinf.	TP32.09x31.323x1.0125	Reinf. 2 Tension Rupture	79.1%	Pass
33.93 - 28.93	Pole + Reinf.	TP31.627x30.871x1.075	Reinf. 2 Tension Rupture	78.6%	Pass
28.93 - 28.75	Pole + Reinf.	TP31.654x31.627x1.075	Reinf. 2 Tension Rupture	78.7%	Pass
28.75 - 28.5	Pole + Reinf.	TP31.692x31.654x1.075	Reinf. 1 Tension Rupture	78.8%	Pass
28.5 - 23.5	Pole + Reinf.	TP32.448x31.692x1.05	Reinf. 1 Tension Rupture	81.0%	Pass
23.5 - 19.25	Pole + Reinf.	TP33.09x32.448x1.025	Reinf. 1 Tension Rupture	82.8%	Pass
19.25 - 19	Pole + Reinf.	TP33.128x33.09x1.225	Reinf. 1 Tension Rupture	69.7%	Pass
19 - 16.75	Pole + Reinf.	TP33.468x33.128x1.225	Reinf. 1 Tension Rupture	70.5%	Pass
16.75 - 16.5	Pole + Reinf.	TP33.506x33.468x0.775	Reinf. 1 Tension Rupture	92.9%	Pass
16.5 - 11.5	Pole + Reinf.	TP34.262x33.506x0.775	Reinf. 1 Tension Rupture	94.9%	Pass
11.5 - 7	Pole + Reinf.	TP34.942x34.262x0.75	Reinf. 1 Tension Rupture	96.7%	Pass
7 - 6.75	Pole + Reinf.	TP34.98x34.942x1.425	Reinf. 1 Tension Rupture	59.3%	Pass
6.75 - 6.5	Pole + Reinf.	TP35.018x34.98x1.175	Reinf. 1 Tension Rupture	74.2%	Pass
6.5 - 2.75	Pole + Reinf.	TP35.584x35.018x1.175	Reinf. 1 Tension Rupture	75.7%	Pass
2.75 - 2.5	Pole + Reinf.	TP35.622x35.584x0.8875	Reinf. 7 Compression	93.4%	Pass
2.5 - 0	Pole + Reinf.	TP36x35.622x0.875	Reinf. 7 Compression	94.3%	Pass
				Summary	
			Pole	93.2%	Pass
			Reinforcement	96.7%	Pass
			Overall	96.7%	Pass

Additional Calculations

Section Elevation (ft)	Moment of Inertia (in^4)			Area (in^2)			% Capacity*																
	Pole	Reinf.	Total	Pole	Reinf.	Total	Pole	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15	R16	R17
150 - 145	347	n/a	347	12.06	n/a	12.06	45.7%																	
145 - 143.5	363	n/a	363	12.24	n/a	12.24	54.5%																	
143.5 - 143.25	372	407	779	12.27	16.88	29.14	28.3%																	22.4%
143.25 - 138.25	429	443	872	12.87	16.88	29.75	43.2%																	34.1%
138.25 - 133.25	492	480	972	13.47	16.88	30.35	56.9%																	44.9%
133.25 - 129.25	546	511	1057	13.96	16.88	30.83	67.1%																	53.0%
129.25 - 129	543	1226	1769	13.99	31.88	45.86	39.1%						51.1%											34.0%
129 - 124	617	1323	1940	14.59	31.88	46.46	46.5%						58.9%											40.4%
124 - 119	696	1424	2120	15.19	31.88	47.07	53.7%						67.8%											46.5%
119 - 115	764	1540	2304	15.68	31.88	47.55	57.9%						74.7%											51.3%
115 - 114.75	793	1987	2781	15.71	37.50	53.21	53.2%						68.4%										39.8%	47.0%
114.75 - 111.25	859	2087	2945	16.13	37.50	53.63	57.4%						76.1%										43.1%	50.8%
111.25 - 111	915	1062	1977	16.16	22.50	38.66	93.2%																59.4%	74.2%
111 - 110.75	880	2524	3405	16.19	22.50	38.69	52.1%															66.1%		
110.75 - 110	895	2543	3438	16.28	22.50	38.78	29.5%															67.0%		
110 - 109	915	2568	3483	16.40	22.50	38.90	30.2%															68.5%		
109 - 108.75	899	1305	2204	16.43	22.50	38.93	46.1%													77.3%	77.3%			
108.75 - 108.25	909	1314	2223	16.49	22.50	38.99	46.5%													78.1%	78.1%			
108.25 - 108	915	2521	3435	16.52	42.50	59.02	30.0%					55.1%								49.0%	49.0%			
108 - 106.42	947	2575	3522	16.71	42.50	59.21	31.1%					56.8%								50.5%	50.5%			
106.42 - 106.17	985	1757	2743	16.74	31.25	47.99	42.5%					77.6%								54.9%				
106.17 - 101.75	1082	1864	2946	17.28	31.25	48.53	46.4%					83.7%								59.5%				
101.75 - 101.5	1056	3296	4352	17.31	51.25	68.56	29.8%					54.9%							54.9%	42.8%				
101.5 - 101.25	1033	2691	3724	17.34	40.00	57.34	31.5%					58.2%							58.2%					
101.25 - 96.25	1146	2869	4014	17.95	40.00	57.95	34.6%					63.2%							63.2%					
96.25 - 91.15	1268	3447	4715	18.57	45.00	63.57	34.7%					62.5%						57.4%						
91.15 - 90.92	1274	3456	4730	18.60	45.00	63.60	34.8%					62.7%						57.5%						
90.92 - 90.25	1291	3484	4775	18.68	45.00	63.68	35.2%					63.3%						58.1%						
90.25 - 90	1297	3495	4792	18.71	45.00	63.71	35.3%				63.6%							58.3%						
90 - 85	1428	3709	5137	19.32	45.00	64.32	38.3%				67.9%							62.3%						
85 - 80	1567	3929	5496	19.93	45.00	64.93	41.2%				72.2%							66.2%						
80 - 75	1715	4156	5871	20.53	45.00	65.53	44.1%				76.3%							70.0%						
75 - 73.26	1768	4237	6005	20.74	45.00	65.74	45.1%				77.8%							71.3%						
73.26 - 69	2231	4765	6996	26.01	50.00	76.01	38.9%			66.3%								66.3%						
69 - 64	2432	5027	7460	26.77	50.00	76.77	41.2%			69.4%								69.4%						
64 - 59	2645	5297	7942	27.53	50.00	77.53	43.4%			72.5%								72.5%						
59 - 56.5	2756	5435	8191	27.91	50.00	77.91	44.6%			74.0%								74.0%						
56.5 - 56.25	2767	5449	8216	27.95	50.00	77.95	44.7%		74.2%									74.2%						
56.25 - 55.33	2809	5500	8309	28.09	50.00	78.09	45.1%		74.7%									74.7%						
55.33 - 55.08	2820	6364	9184	28.12	57.50	85.62	41.0%		67.9%								63.1%							
55.08 - 50.08	3055	6689	9744	28.88	57.50	86.38	43.1%		70.7%								65.7%							
50.08 - 45.08	3302	7022	10324	29.64	57.50	87.14	45.2%		73.4%								68.2%							
45.08 - 40.08	3562	7363	10925	30.40	57.50	87.90	47.3%		76.0%								70.6%							
40.08 - 35.08	3835	7713	11548	31.16	57.50	88.66	49.3%		78.5%								73.0%							
35.08 - 33.93	3900	7794	11694	31.33	57.50	88.83	49.8%		79.1%								73.5%							
33.93 - 28.93	4711	7856	12567	37.68	57.50	95.18	46.6%		78.6%								73.0%							
28.93 - 28.75	4723	7869	12592	37.72	57.50	95.22	46.7%		78.7%								73.1%							
28.75 - 28.5	4740	7887	12627	37.76	57.50	95.26	46.8%	78.8%									73.2%							
28.5 - 23.5	5092	8249	13341	38.67	57.50	96.17	48.5%	81.0%									75.3%							
23.5 - 19.25	5404	8563	13967	39.45	57.50	96.95	49.9%	82.8%									76.9%							
19.25 - 19	5423	10978	16401	39.49	88.75	128.24	43.9%	69.7%							54.9%	63.9%								
19 - 16.75	5593	11191	16784	39.90	88.75	128.65	44.6%	70.5%							53.5%	64.6%								
16.75 - 16.5	5613	5632	11244	39.95	67.50	107.45	64.8%	92.9%							58.2%									
16.5 - 11.5	6006	5868	11874	40.86	67.50	108.36	66.7%	94.9%							59.6%									
11.5 - 7	6375	6085	12460	41.68	67.50	109.18	68.5%	96.7%							60.9%									
7 - 6.75	6395	15782	22177	41.73	99.50	141.23	40.0%	59.3%						57.3%	43.1%									
6.75 - 6.5	6416	12512	18929	41.77	57.00	98.77	45.7%	74.2%						71.8%										
6.5 - 2.75	6737	12849	19586	42.45	57.00	99.45	46.9%	75.7%						73.0%										
2.75 - 2.5	6758	8596	15354	42.50	32.00	74.50	60.1%							93.4%										
2.5 - 0	6978	8736	15714	42.96	32.00	74.96	61.0%							94.3%										

Note: Section capacity checked in 5 degree increments.
Rating per TIA-222-H Section 15.5.

Monopole Flange Plate Connection

Elevation = 110 ft.

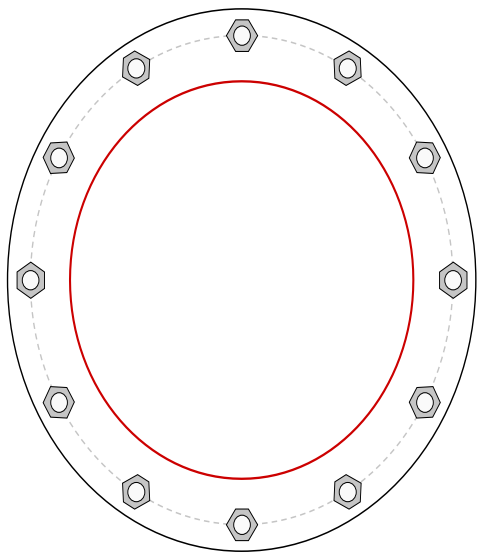
BU #	841292
Site Name	Pomfret-Tyrone Rd
Order #	420670 Rev. 3

TIA-222 Revision	H

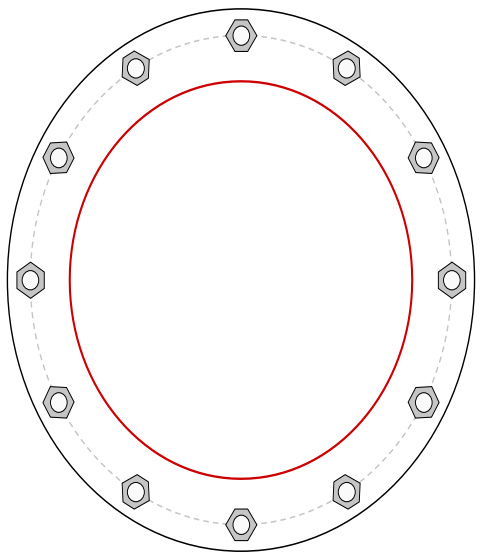
Applied Loads	
Moment (kip-ft)	147.97
Axial Force (kips)	3.95
Shear Force (kips)	6.51

**TIA-222-H Section 15.5 Applied*

Top Plate - External



Bottom Plate - External



Connection Properties

Bolt Data

(12) 1" ø bolts (A325 N; Fy=92 ksi, Fu=120 ksi) on 25.25" BC

Top Plate Data

28" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Top Stiffener Data

N/A

Top Pole Data

20.5" x 0.25" 12-sided pole (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Plate Data

28" OD x 1" Plate (A36; Fy=36 ksi, Fu=58 ksi)

Bottom Stiffener Data

N/A

Bottom Pole Data

20.5" x 0.25" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Bolt Capacity

Max Load (kips)	23.10	
Allowable (kips)	54.53	
Stress Rating:	**40.3%**	**Pass**

Top Plate Capacity

Max Stress (ksi):	24.23	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**71.2%**	**Pass**
Tension Side Stress Rating:	**32.6%**	**Pass**

Bottom Plate Capacity

Max Stress (ksi):	24.23	(Flexural)
Allowable Stress (ksi):	32.40	
Stress Rating:	**71.2%**	**Pass**
Tension Side Stress Rating:	**32.6%**	**Pass**

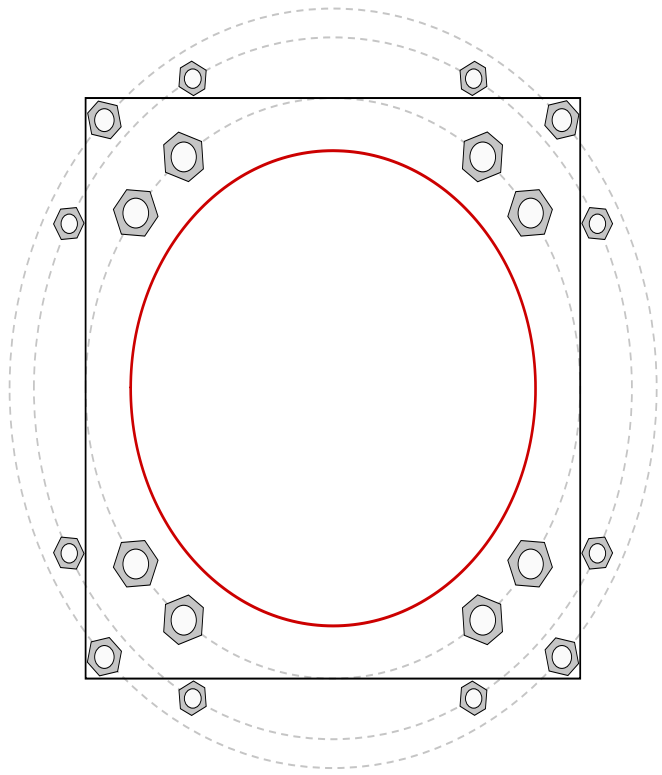
Monopole Base Plate Connection

Site Info	
BU #	841292
Site Name	Pomfret-Tyrone Rd
Order #	420670 Rev. 3

Analysis Considerations	
TIA-222 Revision	H
Grout Considered:	No
l_{ar} (in)	2.25

Applied Loads	
Moment (kip-ft)	3225.00
Axial Force (kips)	51.00
Shear Force (kips)	32.00

**TIA-222-H Section 15.5 Applied*



Connection Properties

Anchor Rod Data

GROUP 1: (8) 2-1/4" ø bolts (A615-75 N; Fy=75 ksi, Fu=100 ksi) on 44" BC
Anchor Spacing: 6 in
GROUP 2: (4) 1-1/2" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 53.17" BC
GROUP 3: (4) 1-1/2" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 53.17" BC
GROUP 4: (4) 1-3/4" ø bolts (A193 Gr. B7 N; Fy=105 ksi, Fu=125 ksi) on 57.5" BC

Base Plate Data

44" OD x 2.5" Plate (A572-60; Fy=60 ksi, Fu=75 ksi)

Stiffener Data

N/A

Pole Data

36" x 0.375" 12-sided pole (A572-65; Fy=65 ksi, Fu=80 ksi)

Analysis Results

Anchor Rod Summary *(units of kips, kip-in)*

GROUP 1:		
Pu_c = 212.29	ϕPn_c = 243.75	**Stress Rating**
Vu = 4	ϕVn = 73.13	**83.2%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 2:		
Pu_c = 107.97	ϕPn_c = 148.05	**Stress Rating**
Vu = 0	ϕVn = 44.42	**69.5%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 3:		
Pu_c = 107.97	ϕPn_c = 148.05	**Stress Rating**
Vu = 0	ϕVn = 44.42	**69.5%**
Mu = n/a	ϕMn = n/a	**Pass**
GROUP 4:		
Pu_c = 157.43	ϕPn_c = 199.5	**Stress Rating**
Vu = 0	ϕVn = 59.85	**75.2%**
Mu = n/a	ϕMn = n/a	**Pass**

Base Plate Summary

Max Stress (ksi):	38.99	(Flexural)
Allowable Stress (ksi):	54	
Stress Rating:	**68.8%**	**Pass**

TOWER ENGINEERING PROFESSIONALS

JOB:	Pomfret-Tyrone Rd (BU 841292); TEP No. 131599.247059		
SHEET NUMBER:	1	OF	1
CALCULATED BY:	RKE	DATE	6/7/2019
CHECKED BY:	JLW	DATE	6/7/2019

Pad and Pier Foundation for Monopole - TIA-222-H - Perpendicular to Wind Direction

(For pads of unequal side dimensions and eccentric tower location)

q_a, ALLOWABLE SOIL PRESS. (ksf)	6.00
NET or GROSS	NET
SAFETY FACTOR IN q_a	2
SOIL DENSITY (pcf)	64

$\varphi^* q_n$ = 9.00 ksf

F'c (ksi)	3
Fy (ksi)	60

Base Reactions LC1: 1.2D + 1.6W

M , MOMENT (k-ft)	3225.0
P_t, TOTAL DOWNLOAD (k)	51.0
H, HORIZONTAL SHEAR (k)	32.0
Tower Eccentricity , e_{LT} (ft)	2.0
Tower Eccentricity , e_{BT} (ft)	3.0

Base Reaction LC 2: 0.9D + 1.6W

M (k-ft)	3225.0
P_t (k)	38.3
H (k)	32.0

Try:	L (ft.)	B (ft.)	t (ft.)	Depth to top of pad (ft.)	Pier dia./width (ft.)	Pier Height, h (cu.ft.)	Pier Shape
	26.0	24.0	3.0	5.0	11.5	5.5	Round

W_m, Weight of Mat (k) =	164.0
W_p, Weight of Pier (k) =	85.7
W_s, Weight of Soil (k) =	166.4

Concrete Vol. (cu ft) 90.49

CHECK BEARING PRESSURE for LC1: 1.2D + 1.6W

$P = P_t + Wf + Ws$ =	550.3 k
e_L =	6.77 ft
L/4 =	6.50 ft
L' =	12.46 ft
e_B =	6.98 ft
B/4 =	6.00 ft
B' =	10.46 ft
Orthogonal: q_{max} =	1.59 ksf
Diag. Axis: q_{max} =	1.86 ksf

***Capacity:** 19.7%

CHECK BEARING STABILITY FOR LC2: 0.9D +1.6W

90° Axis	$M_{\varphi qn}$* =	4608.7 k-ft
	$M_{ot}/M_{\varphi qn}$ =	0.76
Diag. Axis	$M_{\varphi qn}$ =	5298.6 k-ft
	$M_{ot}/M_{\varphi qn}$ =	0.66

***Capacity:** 72.3%

* $M_{\varphi qn}$ is the overturning moment at which $q_{max} = \varphi q_n$

CHECK OVERTURNING: LC2 CONTROLS

$M_{st}=(P_t+0.9W_p)*(B/2-e_{BT})+(0.9W_{m+s}*B/2)$ =	4607.0 k-ft
$M_{ot} = M+H*(t+h)$ =	3497.0 k-ft
M_{ot}/M_{st} =	0.76

***Capacity:** 72.3%

JOB:	Pomfret-Tyrone Rd (BU 841292); TEP No. 131599.247059			
SHEET NUMBER:	2	OF	2	
CALCULATED BY:	RKE	DATE	6/7/2019	
CHECKED BY:	JLW	DATE	6/7/2019	

CHECK BEAM SHEAR

Vu =	239.8 k	
φV_c =	823.5 k	
Vu_{max} =	70.1 k	(Dowel force from bearing pressure)
φVn =	317.6 k	(Dowel shear-friction strength)

***Capacity:** **27.7%**

CALCULATE REINFORCING REQUIRED

F'c = 3.0 ksi Fy = 60.0 ksi

Temp & Shrinkage reinforcing, $A_{s,t}$ = 0.78 in^2/ft (ACI 318 Sec. 10.5.4)

BOTTOM REINFORCING

Bar Size = 7

Bar Spacing, c-c: 9.1

d = 32.13 in.

Mu= 633.2 in-k/ft Mu= 1266.4 k-ft

φM_n= 2904.4 k-ft

φMn=0.9*As*Fy*d(1-0.59*As*Fy/(b*d*F'c))

Solution: As,req = 0.37 in^2/ft

Check, As = 0.79 in^2/ft

***Capacity:** **44.4%**

TOP REINFORCING

Bar Size = 7

Bar Spacing, c-c: 9.1

d= 32.13 in.

Mu= 447.2 in-k/ft Mu= 968.9 k-ft

φM_n= 2904.4 k-ft

φMn=0.9*As*Fy*d(1-0.59*As*Fy/(b*d*F'c))

Solution: As,req = 0.26 in^2/ft

Check, As = 0.79 in^2/ft

***Capacity:** **31.3%**

*Rating per TIA-H

TOWER ENGINEERING PROFESSIONALS

	PASS		Pomfret-Tyrone Rd (BU 841292)
Results Summary:	LC1		TEP #: 131599.247059
Soil Interaction:	N/A	N/A	Analysis: RKE 6/7/2019
Drilled Caisson Tool - Input	Foundation Structural: 38.4%		Check: JLW 6/7/2019

Code Revisions: TIA-222-H ACI 318-11

Tower Type: Monopole

	LC1	LC2	
Moment:	3,225.00		kip-ft
Axial (download):	51.00		kip
Shear:	32.00		kip
Axial (uplift):			kip

Shaft Information

Diameter:	11.50	ft
Projection:	0.00	ft
Caisson Length:	5.50	ft
f'c:	3.000	ksi
Max εc:	0.003	in/in

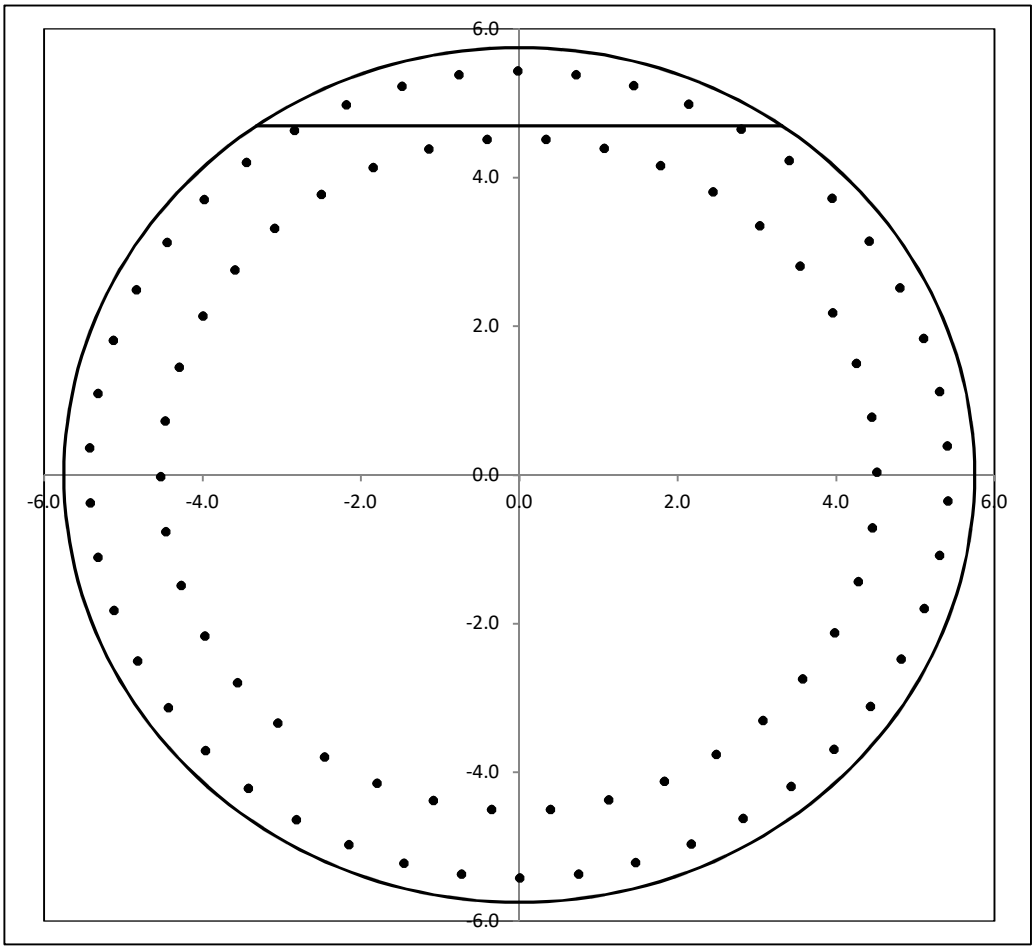
Cage 1 Reinforcement

Tie Bar Size:	4	*(fy = 60.0 ksi)*
Clear Cover to Tie:	3.00	*in (Cage Ø = 130.25in)*
Tie Bar Spacing:	6.00	in
Vertical Bar Size:	6	
Vertical Bar Quantity:	46	*(ρ =0.135%)*
fy:	60.0	ksi
E:	29,000	ksi

Cage 2 Reinforcement

Cage Diameter:	108.50	in
Offset Angle:	0.0	degrees
Vertical Bar Size:	6	
Vertical Bar Qty:	38	*(ρ =0.112%)*
Cage 2 resists compression?	Yes	
Effective Cage Depth:	6	ft
fy:	60	ksi
E:	29,000	ksi

Reinforcement Capacity



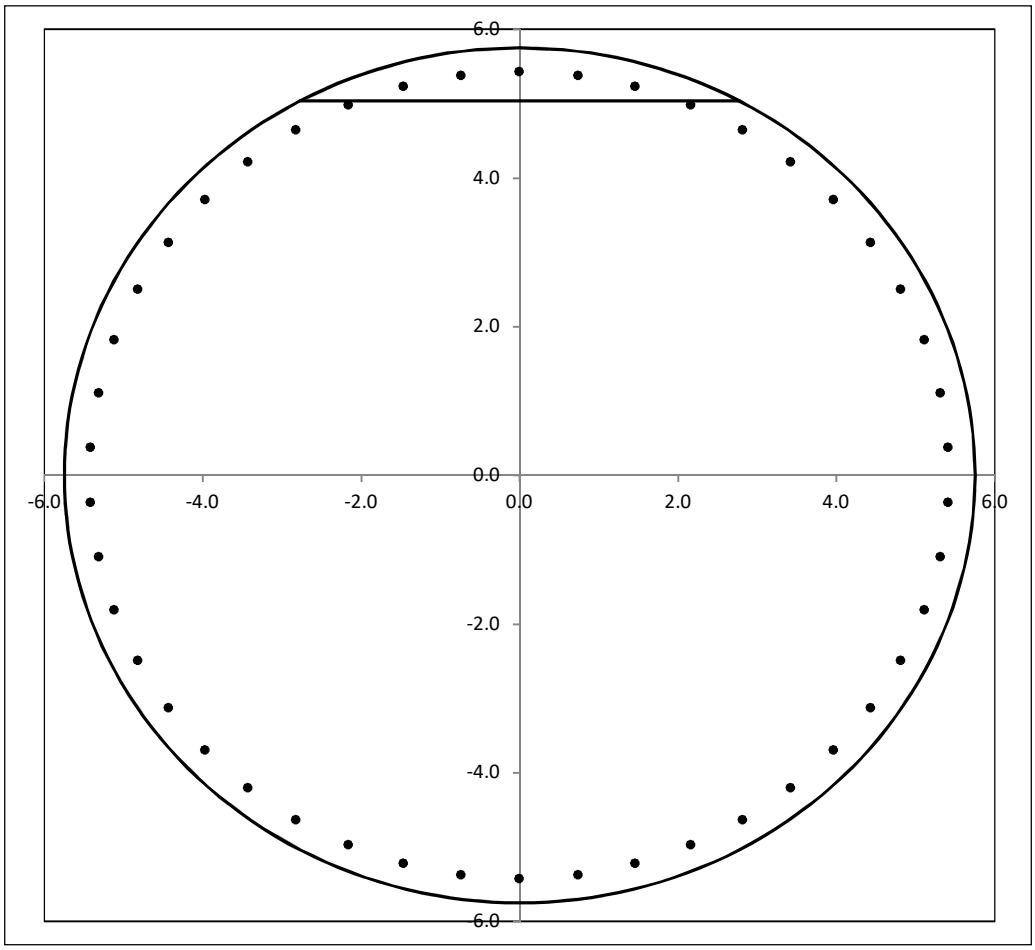
LC1

Vu =	41.6	kip
Vc =	1641.3	kip
fy,tie = 60.0	**Vs =**	535.9	kip
ϕVn =	1632.9	kip
Capacity =	**2.5%**	**PASS**

LC1

Mu =	3225.0	kip-ft
ϕMn =	8003.3	kip-ft
Capacity =	**40.3%**	**PASS**

Reinforcement Capacity, continued



	LC1	
Mu =	0.0	kip-ft
ϕMn =	4665.4	kip-ft
Capacity =	**0.0%**	**PASS**

APPENDIX D

STRUCTURAL DESIGN DRAWINGS

STRUCTURAL DESIGN DRAWINGS

SITE NAME:

POMFRET-TYRONE RD

CROWN CASTLE BU NUMBER:

841292

SITE ADDRESS:

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)
N 41°53'24.90", W 71°57'20.20"

HOT WORK INCLUDED

NA	BASE GRINDING ONLY
X	BASE WELDING (AND GRINDING)
NA	AERIAL GRINDING ONLY
X	AERIAL WELDING (AND GRINDING)

MODIFICATION PROVISIONS

THE MODIFICATIONS DEPICTED ON THESE DRAWINGS ARE BASED ON THE RECOMMENDATIONS OUTLINED IN THE STRUCTURAL MODIFICATION ANALYSIS REPORT COMPLETED BY TEP, JOB NO.: 131599.247059 DATED JUNE 07, 2019 (REV 0).

ATTENTION ALL CONTRACTORS, ANYTIME YOU ACCESS A CROWN SITE FOR ANY REASON YOU ARE TO CALL THE CROWN NOC UPON ARRIVAL AND DEPARTURE, DAILY AT 800-788-7011.

QUALIFIED ENGINEERING SERVICES ARE AVAILABLE FROM TEP TO ASSIST CONTRACTORS IN CLASS IV RIGGING PLAN REVIEWS. FOR REQUESTED QUALIFIED ENGINEERING SERVICES, CONTACT TEP FOR QUOTE AT RIGGING@TEPGROUP.NET

SAFETY CLIMB: 'LOOK UP'

LOOK UP!

THE INTEGRITY OF THE WIRE ROPE SAFETY CLIMB SYSTEM SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER REINFORCEMENTS AND EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF ANY WIRE ROPE SAFETY CLIMB ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, OR IMPACT TO THE ANCHORAGE POINTS IN ANY WAY. ANY COMPROMISED SAFETY CLIMB MUST BE REPORTED TO YOUR CROWN POC FOR RESOLUTION, INCLUDING EXISTING CONDITIONS.

INDEX OF SHEETS

PROJECT INFORMATION

TOWER HEIGHT:	150-FT
TOWER MANUFACTURER:	ITT MEYER, INC.
	TEP DOCUMENT: 131599
WORK ORDER NO.:	1722162
ORDER NO.:	420670 REV. 3
DESIGN BUILDING CODE:	2018 CONNECTICUT STATE BUILDING CODE
DESIGN STANDARD:	TIA-222-H

PROJECT TEAM

CCI MODIFICATION PROJECT MANAGER:

NAME	CROWN CASTLE
CONTACT	DAN VADNEY
PHONE	(518) 373-3510
EMAIL	DAN.VADNEY@CROWNCASTLE.COM

ENGINEERING FIRM PROJECT MANAGER:

NAME	TOWER ENGINEERING PROFESSIONALS, INC.
CONTACT	RILEY EATON, P.E.
PHONE	(919) 661-6351
EMAIL	CMRP@TEPGROUP.NET

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PLANS PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603
OFFICE: (919) 661-6351
www.tepgroup.net

SEAL:

STATE OF CONNECTICUT · GRAHAM M. ANDRES · 29538 · LICENSED PROFESSIONAL ENGINEER

Electronic Copy

June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

TITLE SHEET

SHEET NUMBER: **T-1**

REVISION: **0**

TEP#: 131599.247059

MI CHECKLIST

REQUIRED	REPORT ITEM	APPLICABLE CROWN DOC #	BRIEF DESCRIPTION
		PRE-CONSTRUCTION	
X	MI CHECKLIST DRAWING	CED-SOW-10007	THIS CHECKLIST SHALL BE INCLUDED IN THE MI REPORT.
X	EOR APPROVED SHOP DRAWINGS	CED-SOW-10007	ONCE THE PRE-MODIFICATION MAPPING IS COMPLETE AND PRIOR TO FABRICATION, THE CONTRACTOR SHALL PROVIDE DETAILED ASSEMBLY DRAWINGS AND/OR SHOP DRAWINGS. THESE ARE TO INCLUDE, BUT ARE NOT LIMITED TO, A VISUAL LAYOUT OF NEW REINFORCEMENT, EXISTING REINFORCEMENT CONFIGURATION, PORTHOLES, MOUNTS, STEP PEGS, SAFETY CLIMBS AND ANY OTHER MISCELLANEOUS ITEMS WHICH MAY AFFECT SUCCESSFUL INSTALLATION OF MODIFICATIONS ON THE TOWER. THESE DRAWINGS SHALL BE SUBMITTED TO THE EOR FOR APPROVAL. APPROVED ASSEMBLY/SHOP DRAWINGS SHALL BE SUBMITTED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATION INSPECTION	CED-SOW-10007	A LETTER FROM THE FABRICATOR, STATING THAT THE WORK WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THE CONTRACT DOCUMENTS, SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	FABRICATOR CERTIFIED WELD INSPECTION	CED-SOW-10007 CED-STD-10069	A CWI SHALL INSPECT ALL WELDING PERFORMED ON STRUCTURAL MEMBERS DURING FABRICATION. A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	MATERIAL TEST REPORTS (MTR)	CED-SOW-10007	MATERIAL TEST REPORTS SHALL BE PROVIDED FOR MATERIAL USED AS REQUIRED PER SECTION 9.2.5 OF CED-SOW-10007. MTRS SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	FABRICATOR NDE INSPECTION REPORT	CED-SOW-10066 CED-STD-10069	CRITICAL SHOP WELDS THAT REQUIRE TESTING ARE NOTED ON THESE CONTRACT DRAWINGS. A CERTIFIED NDT INSPECTOR SHALL PERFORM NON-DESTRUCTIVE EXAMINATION AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	NDE OF MONOPOLE BASE PLATE	ENG-SOW-10033	A NDE OF THE POLE TO BASE PLATE CONNECTION IS REQUIRED AND A WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	PACKING SLIPS	CED-SOW-10007	THE MATERIAL SHIPPING LIST SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
ADDITIONAL TESTING AND INSPECTIONS:			
NA			
		CONSTRUCTION	
X	FOUNDATION INSPECTIONS	CED-SOW-10144	A VISUAL OBSERVATION OF THE EXCAVATION AND REBAR SHALL BE PERFORMED BEFORE PLACING THE CONCRETE. A VISUAL OBSERVATION OF THE REBAR SHALL BE PERFORMED BEFORE PLACING THE EPOXY. A SEALED WRITTEN REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
X	CONCRETE COMP. STRENGTH AND SLUMP TESTS	CED-SOW-10144	THE CONCRETE MIX DESIGN, SLUMP TEST, AND COMPRESSIVE STRENGTH TESTS SHALL BE PROVIDED AS PART OF THE FOUNDATION REPORT.
X	EARTHWORK	CED-SOW-10144	FOUNDATION SUB-GRADES SHALL BE INSPECTED AND APPROVED BY AN APPROVED FOUNDATION INSPECTOR AND RESULTS INCLUDED AS PART OF THE FOUNDATION REPORT.
NA	MICROPILE/ROCK ANCHOR	CED-SOW-10144	MICROPILES/ROCK ANCHORS SHALL BE INSPECTED BY THE FOUNDATION INSPECTION VENDOR AND SHALL BE INCLUDED AS PART OF THE FOUNDATION INSPECTION REPORT, ADDITIONAL TESTING AND/OR INSPECTION REQUIREMENTS ARE NOTED IN THESE CONTRACT DOCUMENTS.
X	POST INSTALLED ANCHOR ROD VERIFICATION	CED-SOW-10007	POST INSTALLED ANCHOR ROD VERIFICATION SHALL BE PERFORMED IN ACCORDANCE WITH CROWN REQUIREMENTS AND A REPORT SHALL BE PROVIDED TO THE MI INSPECTOR FOR INCLUSION IN THE MI REPORT.
NA	BASE PLATE GROUT VERIFICATION	ENG-STD-10323	THE GENERAL CONTRACTOR SHALL PROVIDE DOCUMENTATION TO THE MI INSPECTOR THAT CERTIFIES THAT THE GROUT WAS REMOVED AND/OR INSTALLED IN ACCORDANCE WITH CROWN REQUIREMENTS FOR INCLUSION IN THE MI REPORT.
X	FIELD CERTIFIED WELD INSPECTION	CED-SOW-10066 CED-STD-10069	A CROWN APPROVED CERTIFIED WELD INSPECTOR SHALL INSPECT AND TEST FIELD WELDS, FOLLOWING ALL PROCEDURES SPECIFIED IN CROWN STANDARD DOCUMENTS APPLICABLE TO WELD INSPECTIONS. A REPORT SHALL BE PROVIDED. NDE OF FIELD WELDS SHALL BE PERFORMED AS REQUIRED BY CROWN STANDARDS AND CONTRACT DOCUMENTS. THE NDE REPORT SHALL BE INCLUDED IN THE CWI REPORT.
X	ON SITE COLD GALVANIZING VERIFICATION	ENG-STD-10149 ENG-BUL-10149	THE GENERAL CONTRACTOR SHALL PROVIDE WRITTEN AND PHOTOGRAPHIC DOCUMENTATION TO THE MI INSPECTOR VERIFYING THAT ANY ON-SITE COLD GALVANIZING WAS APPLIED PER MANUFACTURER SPECIFICATIONS AND APPLICABLE STANDARDS.
NA	TENSION TWIST AND PLUMB	CED-PRC-10182 CED-STD-10261	THE GENERAL CONTRACTOR SHALL PROVIDE A REPORT IN ACCORDANCE WITH APPLICABLE STANDARDS DOCUMENTING TENSION TWIST AND PLUMB.
X	GC AS-BUILT DOCUMENTS	CED-SOW-10007	THE GENERAL CONTRACTOR SHALL SUBMIT A LEGIBLE COPY OF THE ORIGINAL DESIGN DRAWINGS EITHER STATING "INSTALLED AS DESIGNED" OR NOTING ANY CHANGES THAT WERE REQUIRED AND APPROVED BY THE ENGINEER OF RECORD. EOR/RFI FORMS APPROVING ALL CHANGES SHALL BE SUBMITTED WHEN THE EOR IS SPECIFYING ADDITIONAL INSPECTIONS DESCRIPTION AND APPLICABLE STANDARDS SHALL BE APPLIED.
ADDITIONAL TESTING AND INSPECTIONS:			
NA			
		POST-CONSTRUCTION	
X	CONSTRUCTION COMPLIANCE LETTER	CED-SOW-10007	A LETTER FROM THE GENERAL CONTRACTOR STATING THAT THE WORKMANSHIP WAS PERFORMED IN ACCORDANCE WITH INDUSTRY STANDARDS AND THESE CONTRACT DRAWINGS, INCLUDING LISTING ADDITIONAL PARTIES TO THE MODIFICATION PROCESS.
X	POST INSTALLED ANCHOR ROD PULL TESTS	CED-PRC-10119	POST-INSTALLED ANCHOR RODS SHALL BE TESTED BY A CROWN APPROVED PULL TEST INSPECTOR AND A REPORT SHALL BE PROVIDED INDICATING TESTING RESULTS.
X	PHOTOGRAPHS	CED-SOW-10007	PHOTOGRAPHS SHALL BE SUBMITTED TO THE MI. PHOTOS SHALL DOCUMENT ALL PHASES OF THE CONSTRUCTION. THE PHOTOS SHALL BE ORGANIZED IN A MANNER THAT EASILY IDENTIFIES THE EXACT LOCATION OF THE PHOTO.
NA	BOLT INSTALLATION AND VERIFICATION REPORT	CED-SOW-10007	THE MI INSPECTOR SHALL VERIFY THE INSTALLATION AND TIGHTNESS 10% OF ALL NON PRE-TENSIONED BOLTS INSTALLED AS PART OF THE MODIFICATION. THE MI INSPECTOR SHALL LOOSEN THE NUT AND VERIFY THE BOLT HOLE SIZE AND CONDITION. THE MI REPORT SHALL CONTAIN THE COMPLETED BOLT INSTALLATION VERIFICATION REPORT, INCLUDING THE SUPPORTING PHOTOGRAPHS.
X	PUNCHLIST DEVELOPMENT AND CORRECTION DOCUMENTATION	CED-PRC-10283 CED-FRM-10285	FINAL PUNCHLIST INDICATING ALL NONCONFORMANCE(S) IDENTIFIED AND THE FINAL RESOLUTION AND APPROVAL.
X	MI INSPECTOR REDLINE OR RECORD DRAWING(S)	CED-SOW-10007	THE MI INSPECTOR SHALL OBSERVE AND REPORT ANY DISCREPANCIES BETWEEN THE CONTRACTOR'S REDLINE DRAWING AND THE ACTUAL COMPLETED INSTALLATION.
ADDITIONAL TESTING AND INSPECTIONS:			
NA			

NOTE: X DENOTES A DOCUMENT NEEDED FOR THE PMI REPORT
NA DENOTES A DOCUMENT THAT IS NOT REQUIRED FOR THE PMI REPORT

MODIFICATION INSPECTION NOTES:

GENERAL

THE MI IS AN ON-SITE VISUAL AND HANDS-ON INSPECTION OF TOWER MODIFICATIONS INCLUDING A REVIEW OF CONSTRUCTION REPORTS AND ADDITIONAL PERTINENT DOCUMENTATION PROVIDED BY THE GENERAL CONTRACTOR (GC), AS WELL AS ANY INSPECTION DOCUMENTS PROVIDED BY 3RD PARTY INSPECTORS. THE MI IS TO ENSURE THE INSTALLATION WAS CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS, NAMELY THE MODIFICATION DRAWINGS; IN ACCORDANCE WITH APPLICABLE CROWN STANDARDS; AND AS DESIGNED BY THE ENGINEER OF RECORD (EOR).

NO DOCUMENT, CODE OR POLICY CAN ANTICIPATE EVERY SITUATION THAT MAY ARISE. ACCORDINGLY, THIS CHECKLIST IS INTENDED TO SERVE AS A SOURCE OF GUIDING PRINCIPLES IN ESTABLISHING GUIDELINES FOR MODIFICATION INSPECTION.

THE MI IS TO CONFIRM INSTALLATION CONFIGURATION AND WORKMANSHIP ONLY AND IS NOT A REVIEW OF THE MODIFICATION DESIGN ITSELF. AND THE MI INSPECTOR DOES NOT TAKE OWNERSHIP OF THE MODIFICATION DESIGN. OWNERSHIP OF THE STRUCTURAL MODIFICATION DESIGN EFFECTIVENESS AND INTEGRITY RESIDES WITH THE EOR AT ALL TIMES. THE MI INSPECTOR SHALL INSPECT AND NOTE CONFORMANCE/NONCONFORMANCE AND PROVIDE TO THE CROWN POINT OF CONTACT (CROWN POC) FOR EVALUATION.

ALL MI'S SHALL BE CONDUCTED BY A CROWN APPROVED MI INSPECTOR, WORKING FOR A CROWN APPROVED MI VENDOR. SEE CROWN CED-LST-10173, "APPROVED MI VENDORS".

TO ENSURE THAT THE REQUIREMENTS OF THE MI ARE MET, IT IS VITAL THAT THE GENERAL CONTRACTOR (GC) AND THE MI INSPECTOR BEGIN COMMUNICATING AND COORDINATING AS SOON AS A PURCHASE ORDER (PO) IS RECEIVED. IT IS EXPECTED THAT EACH PARTY WILL BE PROACTIVE IN REACHING OUT TO THE OTHER PARTY. IF CONTACT INFORMATION IS NOT KNOWN THE GC AND/OR INSPECTOR SHALL CONTACT THE CROWN POINT OF CONTACT (CROWN POC).

REFER TO CROWN CED-SOW-10007, "MODIFICATION INSPECTION SOW", FOR FURTHER DETAILS AND REQUIREMENTS.

SERVICE LEVEL COMMITMENT

THE FOLLOWING RECOMMENDATIONS AND SUGGESTIONS ARE OFFERED TO ENHANCE THE EFFICIENCY AND EFFECTIVENESS OF DELIVERING AN MI REPORT:

- THE GC SHALL PROVIDE A MINIMUM OF 5 BUSINESS DAYS NOTICE, PREFERABLY 10, TO THE MI INSPECTOR AS TO WHEN THE SITE WILL BE READY FOR THE MI TO BE CONDUCTED.
- THE GC AND MI INSPECTOR COORDINATE CLOSELY THROUGHOUT THE ENTIRE PROJECT.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE SIMULTANEOUSLY FOR ANY GUY WIRE TENSIONING OR RE-TENSIONING OPERATIONS.
- WHEN POSSIBLE, IT IS PREFERRED TO HAVE THE GC AND MI INSPECTOR ON-SITE DURING THE MI TO HAVE ANY MINOR DEFICIENCIES CORRECTED DURING THE INITIAL MI. THEREFORE, THE GC MAY CHOOSE TO COORDINATE THE MI CAREFULLY TO ENSURE ALL CONSTRUCTION FACILITIES ARE AT THEIR DISPOSAL WHEN THE MI INSPECTOR IS ON SITE.

REQUIRED PHOTOS

BETWEEN THE GC AND THE MI INSPECTOR THE FOLLOWING PHOTOGRAPHS, AT A MINIMUM, ARE TO BE TAKEN AND INCLUDED IN THE MI REPORT:

- PRE-CONSTRUCTION GENERAL SITE CONDITION
- PHOTOGRAPHS DURING THE REINFORCEMENT MODIFICATION CONSTRUCTION / ERECTION AND INSPECTION
  - RAW MATERIALS
  - PHOTOS OF ALL CRITICAL DETAILS
  - FOUNDATION MODIFICATIONS
  - WELD PREPARATION
  - BOLT INSTALLATION
  - FINAL INSTALLED CONDITION
  - SURFACE COATING REPAIR
- POST CONSTRUCTION PHOTOGRAPHS
  - FINAL INFIELD CONDITION

PHOTOS OF ELEVATED MODIFICATIONS TAKEN ONLY FROM THE GROUND SHALL BE CONSIDERED INADEQUATE.

THIS IS NOT A COMPLETE LIST OF REQUIRED PHOTOS, PLEASE REFER TO CROWN DOCUMENT # CED-SOW-10007.

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
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SEAL:

Electronic Copy

June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

MI CHECKLIST AND NOTES

SHEET NUMBER: **N-1**

REVISION: **0**

TEP#: 131599.247059

GENERAL NOTES:

1. The General Contractor (GC) shall reference CED–STD–10159, "Tower Modification Construction Specifications", as a continuation of the following General Notes. The GC shall keep a copy of this document with the Structural Design Drawings (SDD) at all times, and shall ensure that all Contractor personnel are aware of the information enclosed within the General Notes and CED–STD–10159.

2. The Contract Documents are the property of Crown Castle (Crown). They are provided to the GC and its Lower Tier Contractors and material suppliers for the limited purpose of use in completing the Work for this Site, and shall be kept in strict confidence and not disclosed to any third parties. The Contract Documents shall not be used for any other purpose whatsoever without the prior written consent of Crown.

3. Detail drawings, including notes and tables, shall govern over general notes and typical details. Contact the Crown Point of Contact (POC) and Engineer of Record (EOR) for clarification as needed.

4. Do not scale drawings.

5. Any Work performed without a prefabrication mapping is done at the risk of the GC and/or fabricator. All dimensions of existing structural elements are assumed based on the available documentation and are preliminary until field–verified by the GC, unless noted otherwise (UNO). Where discrepancies are found, GC shall contact the Crown POC and EOR through RFI.

6. For this analysis and modification, the tower has been assumed to be in good condition without any structural defects, UNO. If the GC discovers any indication of an existing structural defect, contact the Crown POC and EOR immediately.

7. All construction means and methods, including but not limited to erection plans, rigging plans, climbing plans, and rescue plans, shall be the responsibility of the GC responsible for the execution of the Work contained herein, and shall meet ANSI/ASSE A10.48 (latest edition); federal, state, and local regulations; and any applicable industry consensus standards related to the construction activities being performed. All rigging plans shall adhere to ANSI/ASSE A10.48 (latest edition) and Crown standard CED–STD–10253, "Rigging Program", including the required involvement of a qualified engineer for class IV construction to certify the supporting structure(s) in accordance with the ANSI/TIA–322 (latest edition).

8. The structural integrity of the modification design extends to the complete condition only. The GC must be cognizant that the removal of any structural component of an existing tower has the potential to cause the partial or complete collapse of the structure. All necessary precautions must be taken to ensure structural integrity, including, but not limited to, engineering assessment of construction stresses with installation maximum wind speed and/or temporary bracing and shoring.

9. Aerial and underground utilities and facilities may or may not be shown on the drawings. The GC shall take every precaution to preserve and protect these items, which may include aerial or underground power lines, telephone lines, water lines, sewer lines, cable television facilities, pipelines, structures and other public and private improvements within or adjacent to the work area. The responsibility for determining the actual on–site location of these items shall rest exclusively with the GC.

10. All manufacturer's hardware assembly instructions shall be followed, UNO. Conflicting notes shall be brought to the attention of the EOR and the Crown POC.

11. The GC shall fabricate all required items per the materials specified below, UNO on the detail drawing sheets. If the GC finds for any component that the materials have not been clearly specified, the GC shall submit an RFI to the EOR to confirm the required material.

    All structural elements shall be new and shall conform to the following requirements, UNO:

    Monopoles:

–Structural shapes and plates:	ASTM A572 Grade 65 (FY = 65 KSI)
–Welding electrodes, SMAW:	E80XX
–Welding electrodes, FCAW:	E8XT–XX

    Self–Support and Guyed Towers:

–Structural shapes and plates:	ASTM A572 Grade 50 (FY = 50 KSI)
–Welding electrodes, SMAW:	E70XX
–Welding electrodes, FCAW:	E7XT–XX

    All tower types:

–Steel angle:	ASTM A572 Grade 50 (FY = 50 KSI)
–Solid rod:	ASTM A36 (FY = 36 KSI)
–Pipe/tube (round):	ASTM A500 Grade C (FY = 46 KSI)
–Pipe/tube (square):	ASTM A500 Grade C (FY = 50 KSI)
–Bolts:	ASTM F3125 Grade A325 Type 1
–U–bolts:	ASTM A307 Grade A, OR SAE J429 Grade 2
–Nuts:	ASTM A563 Grade DH
–Washers:	ASTM F436 Type 1
–Guy wires:	ASTM A475 Grade EHS
–Bridge strand:	ASTM A586 Grade 1

12. After fabrication, hot–dip galvanize all steel items, UNO. Galvanize per ASTM A123, ASTM A153/A153M, OR ASTM A653 G90, as applicable. ASTM A490 bolts shall not be hot–dip galvanized, but shall instead be coated with Magni 565 or EOR approved equivalent, per ASTM F2833.

13. Contractor personnel shall not drill holes in any new or existing structural members, other than those drilled holes shown on structural drawings, without the approval of the EOR.

14. For a list of Crown–approved cold galvanizing compounds, refer to ENG–STD–10149, "Tower Protective Coatings Guidelines".

15. All exposed structural steel as the result of this scope of Work including welds (after final inspection of the weld by the CWI), field drilled holes, and shaft interiors (where accessible), shall be cleaned and two (2) coats cold galvanizing shall be applied by brush in accordance with ENG–STD–10149, "Tower Protective Coatings Guidelines". Photo documentation is required to be submitted to the MI Inspector.

16. If removal of existing modifications is required per the modification scope, the GC shall clean and cold galvanize any existing empty bolt holes, UNO. If additional unexpected, oversized, or slotted holes are found, the GC shall contact the EOR and Crown POC for guidance prior to proceeding with the modifications.

17. All Work involving base plate grout scope items or resulting in disturbance of base plate grout shall reference ENG–STD–10323, "Base Plate Grout", and shall follow any Base Plate Grout Removal notes contained herein.

18. All tower grounding affected by the Work shall be repaired or replaced in accordance with OPS–STD–10090, "Tower Grounding", and OPS–BUL–10133, "Grounding Repair Recommendation".

19. If scope of modification requires removal or covering of tower ID tag, the tag must be replaced.

20. Any hardware removed from the existing tower shall be replaced with new hardware of equal size and quality, UNO. No existing fasteners shall be reused.

21. All joints using ASTM A325 or A490 bolts, U–bolts, V–bolts, and threaded rods shall be snug tightened, UNO.

22. A nut locking device shall be installed on all proposed and/or replaced snug tightened ASTM A325 or A490 bolts, U–bolts, V–bolts, and threaded rods.

23. All joints are bearing type connections UNO. If no bolt length is given in the Bill of Materials, the connection may include threads in the shear planes, and the GC is responsible for sizing the length of the bolt.

24. Blind bolts shall be installed per the installation specifications on the corresponding Approved Fastener sheets contained in CED–CAT–10300, "Monopole Standard Drawings and Approved Reinforcement Components".

25. If ASTM A325 or A490 bolts, and/or threaded rods are specified to be pre–tensioned, these shall be installed and tightened to the pretensioned condition according to the requirements of the RCSC Specification for Structural Joints Using ASTM High Strength Bolts.

26. All proposed and/or replaced bolts shall be of sufficient length such that the end of the bolt be at least flush with the face of the nut. It is not permitted for the bolt end to be below the face of the nut after tightening is completed.

PLANS PREPARED FOR:

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PROJECT INFORMATION:

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BU #: 841292

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PLANS PREPARED BY:

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SEAL:

Electronic Copy

June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

GENERAL NOTES

SHEET NUMBER: **N-2**

REVISION: **0**

TEP#: 131599.247059

FOUNDATION NOTES:

GENERAL NOTES:

1. FOUNDATION INSTALLATION SHALL BE SUPERVISED BY PERSONNEL KNOWLEDGEABLE AND EXPERIENCED WITH THE PROPOSED FOUNDATION TYPE. CONSTRUCTION SHALL BE IN ACCORDANCE WITH GENERALLY ACCEPTED PRACTICES AND IN A GOOD WORKMANLIKE MANNER.
2. CONTRACTOR SHALL VERIFY DIMENSIONS WITH ORIGINAL DRAWINGS.
3. FOR FOUNDATION AND ANCHOR TOLERANCES, SEE ORIGINAL DRAWINGS.
4. FOUNDATION DESIGN ASSUMES LEVEL GRADE AT THE SITE.
5. THE FOUNDATION DESIGN IS IN ACCORDANCE WITH GENERALLY ACCEPTED PROFESSIONAL ENGINEERING PRINCIPLES AND PRACTICES WITHIN THE LIMITS OF THE SUBSURFACE DATA PROVIDED.
6. FOUNDATION DESIGN MODIFICATIONS MAY BE REQUIRED IN THE EVENT THE DESIGN PARAMETERS ARE NOT APPLICABLE FOR THE SUBSURFACE CONDITIONS ENCOUNTERED DURING CONSTRUCTION.
7. THE FOUNDATION DESIGN ASSUMES FIELD INSPECTIONS WILL BE PERFORMED TO VERIFY THAT CONSTRUCTION MATERIALS, INSTALLATION METHODS, AND ASSUMED DESIGN PARAMETERS ARE ACCEPTABLE BASED ON THE CONDITIONS AT THE SITE.
8. THE FOUNDATION DESIGN ASSUMES NO CONSTRUCTION JOINTS. HOWEVER, CONSTRUCTION JOINTS SHALL BE PERMITTED UPON APPROVAL BY THE OWNER/ENGINEER.

EXCAVATION:

1. WORK SHALL BE IN ACCORDANCE WITH LOCAL CODES AND SAFETY REGULATIONS. PROCEDURES FOR THE PROTECTION OF EXCAVATIONS, EXISTING CONSTRUCTION, AND UTILITIES SHALL BE ESTABLISHED PRIOR TO BEGINNING WORK.
2. INTIMATE CONTACT BETWEEN THE CONCRETE AND THE SOIL WALLS OF THE DRILLED SHAFT IS ESSENTIAL. THE CONCRETE SHALL BE APPROPRIATELY VIBRATED DURING CONSTRUCTION.
3. THE SIDES OF THE EXCAVATION SHALL BE ROUGH AND FREE OF LOOSE CUTTINGS.
4. LOOSE MATERIAL TO BE REMOVED FROM THE BOTTOM OF EXCAVATION PRIOR TO CONCRETE PLACEMENT.
5. DRILLING FLUID, IF USED, SHALL BE FULLY DISPLACED BY CONCRETE AND SHALL NOT BE DETRIMENTAL TO THE CONCRETE OR SURROUNDING SOIL. CONTAMINATED CONCRETE SHALL BE REMOVED AND REPLACED WITH FRESH CONCRETE.

REINFORCING STEEL:

1. THE REINFORCING STEEL SHALL CONFORM TO THE REQUIREMENTS OF ASTM A-615, GRADE 60. IT SHALL BE DEFORMED AND SPLICES SHALL NOT BE ALLOWED UNLESS OTHERWISE NOTED.
2. WELDING IS PROHIBITED ON REINFORCING STEEL AND EMBEDMENTS.
3. REINFORCING CAGES SHALL BE BRACED TO RETAIN PROPER DIMENSIONS DURING HANDLING AND THROUGHOUT PLACEMENT OF CONCRETE. WHEN TEMPORARY CASING IS UTILIZED, BRACING SHALL BE ADEQUATE TO RESIST FORCES OCCURRING FROM FLOWING CONCRETE DURING CASING EXTRACTION.
4. SPACERS SHALL BE ATTACHED INTERMITTENTLY THROUGHOUT THE ENTIRE LENGTH OF TIEBACK REINFORCING TO INSURE CONCENTRIC PLACEMENT OF CAGES IN EXCAVATIONS.
5. MINIMUM CONCRETE COVER FOR REINFORCEMENT SHALL BE 3" UNLESS OTHERWISE NOTED. APPROVED SPACERS SHALL BE USED TO INSURE A 3" MINIMUM COVER ON REINFORCEMENT.
6. THE CONCRETE COVER FROM THE TOP OF THE FOUNDATION TO THE ENDS OF THE VERTICAL REINFORCEMENT SHALL NOT EXCEED 4" NOR BE LESS THAN 2".
7. THE CONCRETE COVER FROM THE BOTTOM OF THE FOUNDATION TO THE ENDS OF THE VERTICAL REINFORCEMENT SHALL NOT EXCEED 4" NOR BE LESS THAN 3".

CONCRETE:

1. WORK SHALL BE IN ACCORDANCE WITH THE LATEST REVISION OF THE ACI-318, "BUILDING CODE REQUIREMENTS FOR REINFORCED CONCRETE."
2. THE CONCRETE SHALL DEVELOP A MINIMUM COMPRESSIVE STRENGTH OF 4000 PSI IN 28-DAYS.
3. PROPORTIONS OF CONCRETE MATERIALS SHALL BE SUITABLE FOR THE INSTALLATION METHOD UTILIZED AND SHALL RESULT IN DURABLE CONCRETE FOR RESISTANCE TO LOCAL ANTICIPATED AGGRESSIVE ACTIONS. THE DURABILITY REQUIREMENTS OF ACI-318 SHALL BE SATISFIED BASED ON THE CONDITIONS EXPECTED AT THE SITE.
4. CONCRETE SHALL BE PLACED IN A MANNER THAT WILL PREVENT SEGREGATION OF CONCRETE MATERIALS, INFILTRATION OF WATER OR SOIL, AND OTHER OCCURRENCES THAT MAY DECREASE THE STRENGTH OR DURABILITY OF THE FOUNDATION.

CONCRETE (CONTINUED):

5. FREE FALL CONCRETE MAY BE USED PROVIDED FALL IS VERTICAL DOWN WITHOUT HITTING THE SIDES OF THE EXCAVATION, FORMWORK, REINFORCING BARS, FORM TIES, CAGE BRACING, OR OTHER OBSTRUCTIONS. UNDER NO CIRCUMSTANCES SHALL CONCRETE FALL THROUGH WATER.
6. THE MAXIMUM SIZE OF THE AGGREGATE SHALL NOT EXCEED A SIZE SUITABLE FOR THE INSTALLATION METHOD UTILIZED OR 1/3-CLEAR DISTANCE BEHIND OR BETWEEN REINFORCING. THE MAXIMUM SIZE MAY BE INCREASED TO 2/3-CLEAR DISTANCE PROVIDED WORKABILITY AND METHODS OF CONSOLIDATION SUCH AS VIBRATING WILL PREVENT HONEYCOMBS AND VOIDS.
7. A TEMPORARY PROTECTIVE STEEL CASING WILL BE REQUIRED TO KEEP THE SHAFT OPEN DURING CONSTRUCTION AND INSPECTIONS PRIOR TO PLACING CONCRETE. THIS CASING SHOULD BE EXTRACTED AS THE CONCRETE IS PLACED.

FINISHING:

1. THE TOP OF THE FOUNDATION SHALL BE SLOPED TO DRAIN WITH A FLOATED FINISH.
2. THE EXPOSED EDGES OF THE CONCRETE SHALL BE CHAMFERED ¾" x ¾".

COMPACTION NOTES:

1. ALL FILL MATERIALS SHOULD BE TESTED PRIOR TO USE.
2. FILL MATERIAL SHOULD HAVE A UNIT WEIGHT OF AT LEAST 100 PCF WHEN COMPACTED TO 95% OF ITS MAX DRY DENSITY AND WITHIN ±3% POINTS OF OPTIMUM MOISTURE AS DETERMINED BY THE STANDARD PROCTOR METHOD. (ASTM D698). FILL MATERIAL SHOULD NOT CONTAIN MORE THAN 5% BY WEIGHT OF ORGANIC MATTER, WASTE, DEBRIS, OR ANY OTHER DELETERIOUS MATERIAL. FILL MATERIAL SHOULD HAVE A MAXIMUM PARTICLE SIZE OF 3 INCHES AND 20% OR LESS OF THE MATERIAL SHOULD HAVE A PARTICLE SIZE BETWEEN 2 TO 3 INCHES.
3. FILL MATERIAL SHALL BE PLACED IN LOOSE HORIZONTAL LIFTS NO GREATER THAN 8 INCHES. IF SMALL HANDHELD OR WALK-BEHIND COMPACTION EQUIPMENT IS USED, LOOSE LIFTS SHALL NOT EXCEED 4 INCHES.
4. WE RECOMMEND THAT ON-SITE OBSERVATION AND TESTING OF FILL MATERIAL BE PERFORMED TO VERIFY THE NECESSARY COMPACTION IS ACHIEVED.

SURFACE PREPARATION

REQUIREMENTS:

1. SURFACES THAT REQUIRE MECHANICAL SHEAR TRANSFER THROUGH STEEL DOWELS SHALL HAVE ADEQUATE SURFACE PREPARATION PER THE "SELECTING AND SPECIFYING CONCRETE, SURFACE PREPARATION FOR SEALERS, COATINGS, POLYMER OVERLAYS, AND CONCRETE REPAIR" GUIDELINE NO. 310.2R-2013 FROM THE INTERNATIONAL CONCRETE REPAIR INSTITUTE (ICRI).
2. SURFACE SHALL BE ROUGHENED TO A CONCRETE SURFACE PROFILE CSP10 WITH A MINIMUM AMPLITUDE OF 1/4" PER SECTION 6.0 OF THE ICRI GUIDELINES.
3. METHODS FOR SURFACE PREPARATION (CSP10) SHALL BE DETERMINED PER SECTIONS 7 AND 8 OF THE ICRI GUIDELINES. THE APPROPRIATE METHODS INCLUDE HIGH- AND ULTRA-HIGH-PRESSURE WATER JETTING AND HANDHELD CONRETE BREAKER.
4. IN ADDITION, THE EXISTING CONCRETE SURFACE SHALL BE CLEANED BY HAND CHIPPING, SCRAPING, WIRE BRUSHING, AND/OR ABRASIVE BLASTING TO REMOVE ANY LOOSE DETRIMENTAL FOREIGN MATTER PRIOR TO PLACING CONCRETE.
5. THE CONTRACTOR SHOULD AVOID INTRODUCING MICROCRACKING (BRUISING) INTO THE CONCRETE SURFACE DURING THE SURFACE PREPARATION PROCEDURES. REFER TO SECTION 5.0 OF THE ICRI GUIDELINES FOR INFORMATION ON MICROCRACKING (BRUISING). THE RISK FOR INTRODUCING MICROCRACKING VARY DEPENDING ON THE METHOD OF SURFACE PREPARATION. IF USING HANDHELD CONCRETE BREAKERS, THE CONTRACTOR SHALL USE SHARP, FINE-TOOTHED CUTTERS CONTACTING THE SURFACE AT A SHALLOW ANGLE IN ORDER TO REDUCE OR PREVENT THE DEVELOPMENT OF MICROCRACKING (BRUISING).

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REV	DATE	ISSUED FOR:
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DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

PROJECT NOTES

SHEET NUMBER: **N-3**

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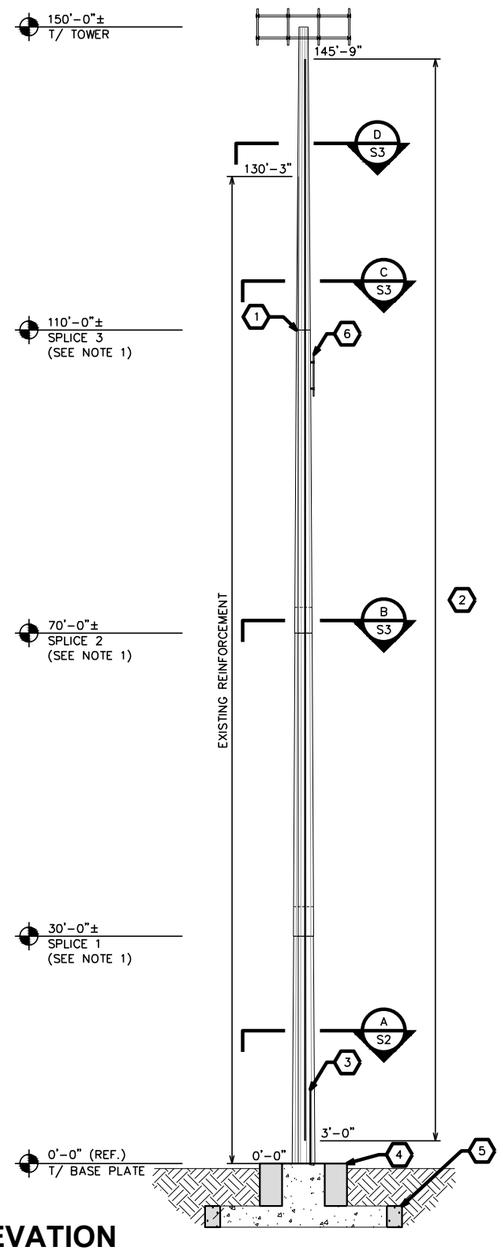
POLE SPECIFICATIONS

SHAFT SECTION	SECTION LENGTH (FT.)	LAP SPLICE (FT.)	POLE SHAPE	OUTER DIAMETER (IN.)		SHAFT THICKNESS (IN.)	POLE GRADE	FLANGE/ BASE PLATE GRADE	BOLT GRADE
				TOP	BOTTOM				
1	40.00	–	12-SIDED	14.500	20.500	0.2500	ASTM A36	ASTM A36	ASTM A325
2	40.00	3.26	12-SIDED	20.500	26.550	0.2500	ASTM A572-65	–	–
3	43.26	3.93	12-SIDED	25.560	32.090	0.3125	ASTM A572-65	–	–
4	33.93	–	12-SIDED	30.870	36.000	0.3750	ASTM A572-65	ASTM A633-60	ASTM A615-75



TOWER ELEVATION

SCALE: 1/16" = 1'-0"

0 16 32

SCALE IN FEET

MODIFICATION SCHEDULE

NO.	MODIFICATION DESCRIPTION	ELEVATION (FT.)	SHEET
1	REMOVE EXISTING KNIFE PLATE REINFORCEMENT (CCI DOC ID# 5340765).	110.00	S-3
2	INSTALL PROPOSED MONOPOLE SHAFT REINFORCEMENT.	3.00 – 145.75	S-2 THROUGH S-7
3	INSTALL PROPOSED ANCHOR BOLT REINFORCEMENT.	0.00	S-2 AND S-8
4	INSTALL PROPOSED PIER COLLAR.	0.00	S-9 THROUGH S-11
5	INSTALL PROPOSED PAD EXTENSION.	0.00	S-9, S-12 AND S-13
6	EXISTING MOUNT TO BE FLOATED OFF POLE TO ACCOMODATE PROPOSED SHAFT REINFORCEMENT. CONTRACTOR TO COORDINATE WITH CROWN CASTLE.	104.00	–
7	REMOVE AND REPLACE STEP PEGS AS NECESSARY TO ACCOMMODATE PROPOSED REINFORCEMENT.	–	–
8	REMOVE AND REPLACE INTERMEDIATE SAFETY CLIMB ATTACHMENTS AS NECESSARY TO ACCOMMODATE PROPOSED REINFORCEMENT.	–	–
9	TEMPORARILY RELOCATE COAX SHROUD TO ACCOMMODATE PROPOSED REINFORCEMENT.	–	–
10	CONTRACTOR SHALL PERFORM A REBAR SCAN TO LOCATE EXISTING REINFORCING BARS PRIOR TO DRILLING TO ENSURE PROPER FIT UP.	–	–
11	CROWN CASTLE WILL CONTRACT WITH A THIRD PARTY VENDOR TO PERFORM THE MODIFICATION INSPECTION. THE CONTRACTOR SHALL COORDINATE THE INSPECTION WITH THE MODIFICATION INSPECTOR AND CROWN CASTLE PROJECT MANAGER. SEE SHEET N-1 FOR DETAILS.	–	–

NOTES:

1. CONTRACTOR SHALL FIELD VERIFY SPLICE ELEVATION PRIOR TO INSTALLATION. CONTACT TOWER OWNER AND ENGINEER OF RECORD IF SPLICE ELEVATIONS DIFFER FROM WHAT IS SHOWN. SHAFT REINFORCEMENT ELEVATIONS ARE DEPENDENT ON SPLICE ELEVATIONS AND MAY NEED TO BE ADJUSTED TO ACCOMMODATE ACTUAL SPLICE ELEVATION.
2. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO PROVIDE THE MODIFICATION INSPECTOR/ ENGINEER OF RECORD WITH A SEALED CERTIFIED WELD INSPECTION REPORT. THIS REPORT SHALL DOCUMENT THE ENTIRE WELDING PROCESS (PRE/DURING/POST) WITH PROPER PHOTOS. WELDING SHALL CONFORM TO AWS D1.1/D1.1M: 2015 "STRUCTURAL WELDING CODE-STEEL", FOR ADDITIONAL NOTES, SEE WELDING NOTES.
3. ANTENNAS AND OTHER APPURTENANCES MAY NEED TO BE TEMPORARILY REMOVED OR MOVED DURING THE INSTALLATION OF THE MODIFICATIONS SHOWN ABOVE.
4. DUE TO THE MODIFICATIONS REQUIRED, CONTINUOUS INSPECTIONS AND MATERIAL TESTING WILL NEED TO BE PERFORMED.
5. CONTRACTOR SHALL ORDER AND INSTALL A NEW TOWER TAG IF THE EXISTING TOWER TAG IS MOVED OR DAMAGED DUE TO THE INSTALLATION OF THE MODIFICATION SHOWN ABOVE.
6. PRIOR TO FABRICATION AND INSTALLATION, CONTRACTOR SHALL FIELD VERIFY ALL LENGTHS AND QUANTITIES GIVEN. LENGTH AND QUANTITIES PROVIDED ARE FOR QUOTING PURPOSES ONLY AND SHALL NOT BE USED FOR FABRICATION.
7. NO DETAILED INFORMATION REGARDING INTERFERENCES WAS PROVIDED. CONTRACTOR SHALL FIELD VERIFY ALL EXISTING CONDITIONS. REPORT ANY AND ALL DISCREPANCIES TO TOWER ENGINEERING PROFESSIONALS, INC. AND CROWN CASTLE CONSTRUCTION MANAGER IMMEDIATELY.

CROWN CASTLE 65KSI FLAT PLATE REINFORCEMENT SCHEDULE

QTY.	PART NO.	FLAT/ ANGLE	ELEV (FT.)		PLATE LENGTH (FT.)	TERMINATION BOLTS		MAX. INTERMEDIATE BOLT SPACING (IN.)	TOTAL BOLT QTY.	TOTAL STEEL WEIGHT (LB.)	TERMINATION DETAIL	
			BOT.	TOP		BOT.	TOP				BOT.	TOP
2	CCI-SFP-08512520	1, 7	3.00	23.00	20.00	15	15	17.00	76	1446.2	2	3A
2	CCI-SFP-08512520	6, 12	3.00	23.00	20.00	15	15	17.00	76	1446.2	2	4
2	CCI-SFP-08512510	3, 9	13.00	23.00	10.00	15	15	17.00	62	723.1	3B	4
4	CCI-SFP-06512535	3, 6, 9, 12	23.08	58.08	35.00	11	11	19.00	160	3870.7	4	4
4	CCI-SFP-05012535	3, 6, 9, 12	58.17	93.17	35.00	8	8	23.00	128	2977.4	4	4
4	CCI-SFP-04012510	3, 6, 9, 12	93.25	103.25	10.00	6	6	27.00	60	680.6	4	5
2	CCI-CFP-04512510	1, 10	99.25	109.25	10.00	9	0	24.00	24	382.8	5	6
2	CCI-CFP-04512506	6, 9	104.17	109.25	5.08	9	0	24.00	20	194.5	3B	6
4	CCI-CFP-04512507	1, 6, 9, 10	106.75	113.25	6.50	9	9	24.00	72	497.7	6	6
1	CCI-CFP-04512507	10	110.75	117.25	6.50	0	9	24.00	11	124.4	6	3A
3	CCI-CFP-04512535	1, 6, 9	110.75	145.75	35.00	0	9	24.00	75	2009.8	6	3A
								TOTALS:	764	14353.4		

CROWN CASTLE 65KSI REINFORCEMENT SPLICE PLATE SCHEDULE

QTY.	PART NO.	FLAT/ ANGLE	ELEV (FT.)		QTY. OF BOLT HOLES PER PLATE	TOTAL BOLT HOLE QTY.	ADDITIONAL BOLT QTY. (SEE FLAT PLATE NOTE 8)	TOTAL STEEL WEIGHT (LB.)	TERMINATION DETAIL
			BOT.	TOP					
4	CCI-SP-065125-11-15	3, 6, 9, 12	19.00	26.08	26	104	–	783.0	4
4	CCI-SP-050125-8-11	3, 6, 9, 12	55.08	60.41	19	76	–	453.4	4
4	CCI-SP-040125-6-8	3, 6, 9, 12	90.92	95.00	14	56	–	277.7	4
					TOTALS:	236	–	1514.1	

FLAT PLATE NOTES:

1. APPROVED FASTENERS MAY BE USED ON THIS PROJECT AS INDICATED IN THE FOLLOWING TABLE:

FORGBOLT	APPROVED
NEXGEN2	APPROVED
AJAX ONESIDE	APPROVED

ORDERING INFORMATION AND INSTALLATION DETAILS FOR APPROVED FASTENERS CAN BE FOUND IN CED-CAT-10300.

2. ALL FLAT PLATE REINFORCEMENT IS TO BE INSTALLED CENTERED ON ITS DESIGNATED FLAT OR AZIMUTH, UNO, WITH A TOLERANCE FROM CENTER OF THE FLAT OR AZIMUTH AS FOLLOWS:

ALLOWABLE FLAT PLATE CENTERING TOLERANCE	1/4"

GC SHALL REDLINE ALL DEVIATIONS FROM CENTER, INCLUDING THOSE WITHIN TOLERANCE.

3. GC SHALL REPLACE ANY STEP BOLTS AND STEP BOLT CLIPS THAT INTERFERE WITH THE INSTALLATION OF FLAT PLATE. REFERENCE CED-CAT-10300 FOR APPROVED OPTIONS. CCI-SB-0100 IS THE DEFAULT OPTION; OTHER OPTIONS MAY BE REQUIRED FOR FIT-UP.
4. FOR PLATES STARTING AT 6', THE BOTTOM OF THE FLAT PLATE SHALL BEGIN AT 6"± 1", FOR SINGLE PLATES OR MULTIPLE PLATES SPLICED TOGETHER, THE BOTTOM OF THE FLAT PLATE RUN SHALL BEGIN AT THE PROPOSED ELEVATION ± 3". FOR MULTIPLE PLATES SPLICED TOGETHER, THE TOP OF THE FLAT PLATE IS TO BE PLACED SUCH THAT THERE IS NO MORE THAN 3" DIFFERENCE BETWEEN THE ACTUAL OVERALL LENGTH OF THE SPAN AND THE PROPOSED OVERALL LENGTH OF THE SPAN, FROM THE BOTTOM OF THE BOTTOM PLATE TO THE TOP OF THE TOP PLATE.
5. SHIMS FOR MONOPOLE REINFORCEMENT MEMBER SHALL BE REQUIRED WHERE GAPS BETWEEN THE POLE SHAFT AND REINFORCING MEMBER EXIST AT FASTENER LOCATIONS. FOR INTERMEDIATE CONNECTIONS, THE MINIMUM SHIM LENGTH AND WIDTH SHALL BE THE WIDTH OF THE REINFORCING MEMBER. FOR TERMINATION CONNECTIONS, A CONTINUOUS SHIM PLATE (PREFERRED) OR EQUIVALENT INDIVIDUAL SHIM PLATES THE WIDTH OF THE REINFORCING MEMBER MAY BE USED. SHIM THICKNESSES SHALL BE NO LESS THAN 1/16". STACKING OF SHIMS IS PERMITTED. FINGER SHIMS AND HORSESHOE SHIMS ARE PERMITTED. SINGLE AND STACKED SHIMS IN BOLT TERMINATION REGIONS SHALL BE NO GREATER THAN A TOTAL OF 1/4" WITHOUT EOR APPROVAL. SINGLE AND STACKED SHIMS AT INTERMEDIATE CONNECTIONS SHALL BE NO GREATER THAN A TOTAL OF 5/8" WITHOUT EOR APPROVAL.
6. SHIM MATERIAL SHALL BE STEEL GRADE A36 OR GREATER IF WELDED, UNO, AND SHALL REQUIRE MTR; IF SHIMS ARE NOT WELDED, THERE IS NO MINIMUM REQUIRED STEEL GRADE.
7. IF UNEXPECTED HOLES ARE FOUND IN A LOCATION WHERE FLAT PLATE IS PROPOSED TO BE INSTALLED, THE GC SHALL NOT PLACE NEW BOLT HOLES WITHIN A CENTER-TO-CENTER DISTANCE OF 3 TIMES THE DIAMETER OF THE LARGER OF THE TWO HOLES, WITHOUT EOR APPROVAL. EXISTING HOLES MAY INCLUDE BUT ARE NOT LIMITED TO EMPTY BOLT HOLES AND JACKING NUTS WITH CENTER HOLES.
8. ADDITIONAL BOLT QUANTITY REFERS TO TOTAL NUMBER OF ADDITIONAL BOLTS WHEN SPLICING INTO EXISTING FLAT PLATE.

BOLT COUNT BY LENGTH	
LENGTH	QUANTITY
SHORT	456
MEDIUM	236
LONG	72
TOTAL	764

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

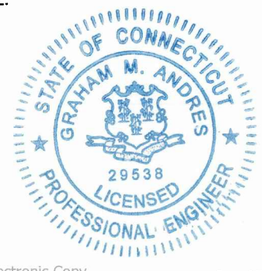
POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)

PLANS PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603
OFFICE: (919) 661-6351
www.tepgroup.net

SEAL:



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June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE CHECKED BY: JLW

SHEET TITLE:

TOWER ELEVATION AND MODIFICATION SCHEDULE

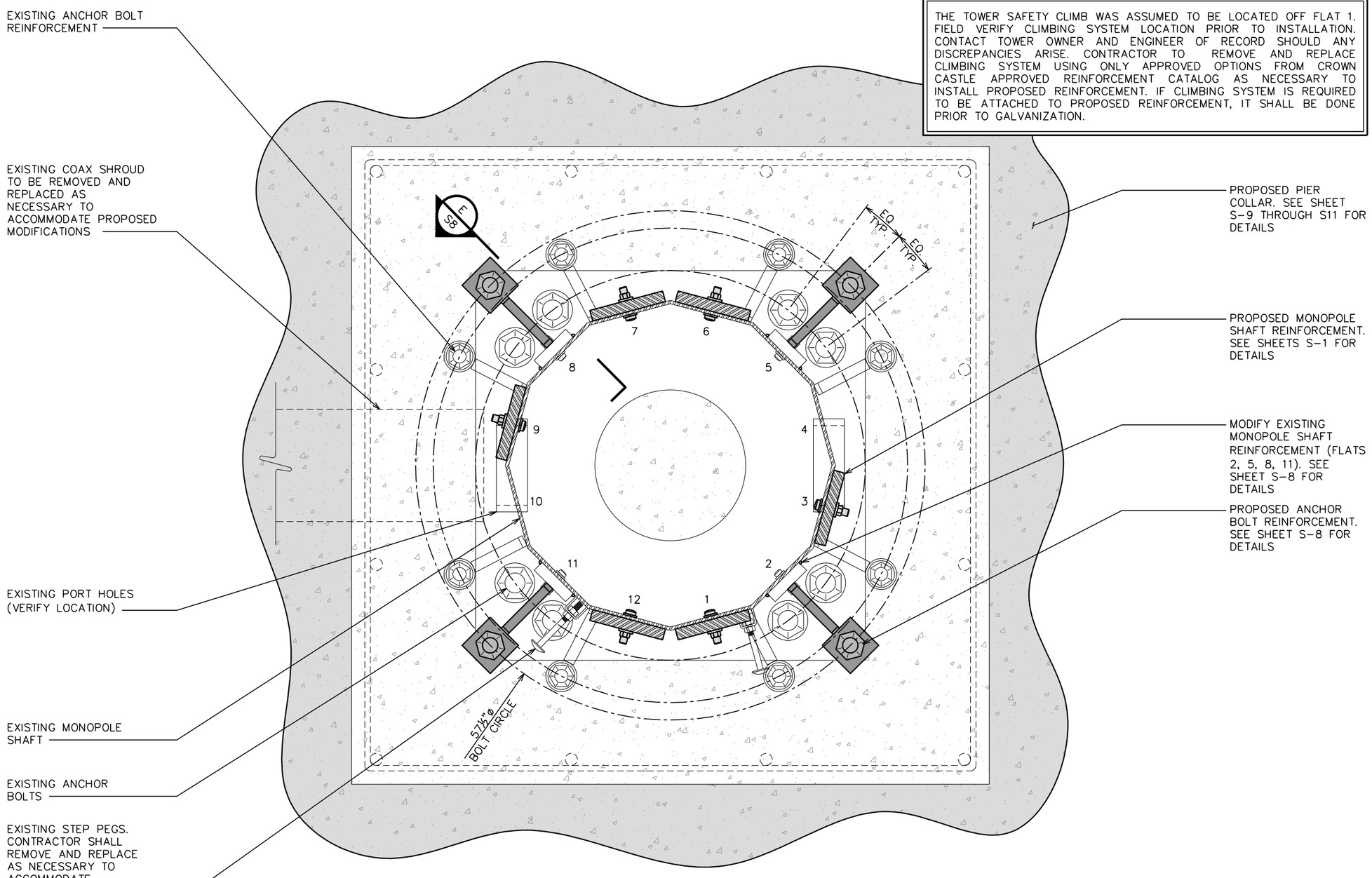
SHEET NUMBER: **S-1**

REVISION: **0**

TEP#: 131599.247059

ATTENTION

THE TOWER SAFETY CLIMB WAS ASSUMED TO BE LOCATED OFF FLAT 1. FIELD VERIFY CLIMBING SYSTEM LOCATION PRIOR TO INSTALLATION. CONTACT TOWER OWNER AND ENGINEER OF RECORD SHOULD ANY DISCREPANCIES ARISE. CONTRACTOR TO REMOVE AND REPLACE CLIMBING SYSTEM USING ONLY APPROVED OPTIONS FROM CROWN CASTLE APPROVED REINFORCEMENT CATALOG AS NECESSARY TO INSTALL PROPOSED REINFORCEMENT. IF CLIMBING SYSTEM IS REQUIRED TO BE ATTACHED TO PROPOSED REINFORCEMENT, IT SHALL BE DONE PRIOR TO GALVANIZATION.



SECTION (A)

SCALE: 1" = 1'-0"

0 1 2

SCALE IN FEET

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)

PLANS PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603
OFFICE: (919) 661-6351
www.tepgroup.net

SEAL:

STATE OF CONNECTICUT · GRAHAM M. ANDRES · 29538 · LICENSED PROFESSIONAL ENGINEER

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June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

BASE SECTION DETAILS

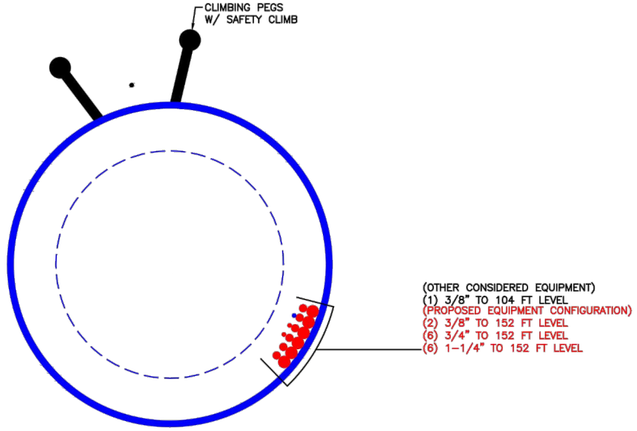
SHEET NUMBER: **S-2**

REVISION: **0**

TEP#: 131599.247059

NOTE:

BASE LEVEL DRAWING PROVIDED BY CROWN CASTLE.

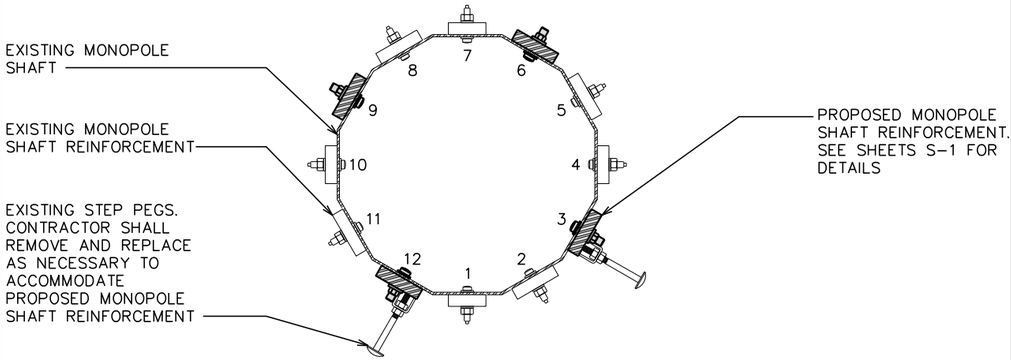


BASE LEVEL DRAWING

SCALE: N.T.S.

ATTENTION

THE TOWER SAFETY CLIMB WAS ASSUMED TO BE LOCATED OFF FLAT 1. FIELD VERIFY CLIMBING SYSTEM LOCATION PRIOR TO INSTALLATION. CONTACT TOWER OWNER AND ENGINEER OF RECORD SHOULD ANY DISCREPANCIES ARISE. CONTRACTOR TO REMOVE AND REPLACE CLIMBING SYSTEM USING ONLY APPROVED OPTIONS FROM CROWN CASTLE APPROVED REINFORCEMENT CATALOG AS NECESSARY TO INSTALL PROPOSED REINFORCEMENT. IF CLIMBING SYSTEM IS REQUIRED TO BE ATTACHED TO PROPOSED REINFORCEMENT, IT SHALL BE DONE PRIOR TO GALVANIZATION.



SECTION (B)

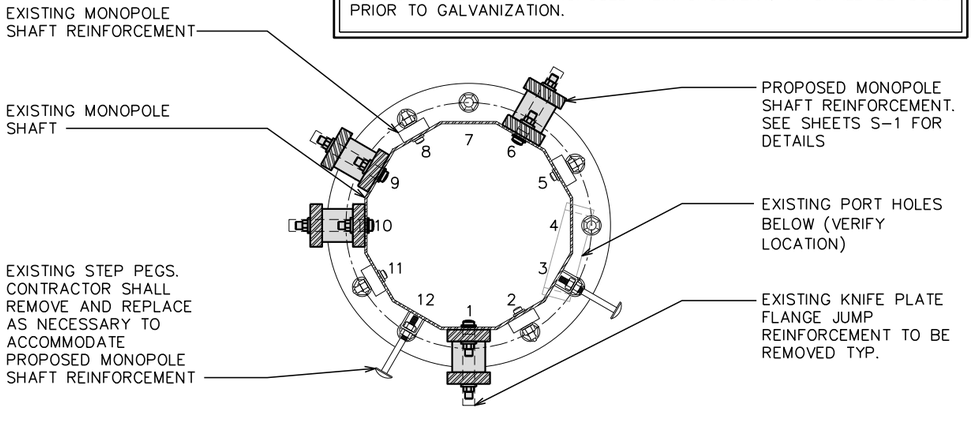
SCALE: 3/4" = 1'-0"

0 1 2

SCALE IN FEET

ATTENTION

THE TOWER SAFETY CLIMB WAS ASSUMED TO BE LOCATED OFF FLAT 1. FIELD VERIFY CLIMBING SYSTEM LOCATION PRIOR TO INSTALLATION. CONTACT TOWER OWNER AND ENGINEER OF RECORD SHOULD ANY DISCREPANCIES ARISE. CONTRACTOR TO REMOVE AND REPLACE CLIMBING SYSTEM USING ONLY APPROVED OPTIONS FROM CROWN CASTLE APPROVED REINFORCEMENT CATALOG AS NECESSARY TO INSTALL PROPOSED REINFORCEMENT. IF CLIMBING SYSTEM IS REQUIRED TO BE ATTACHED TO PROPOSED REINFORCEMENT, IT SHALL BE DONE PRIOR TO GALVANIZATION.



SECTION (C)

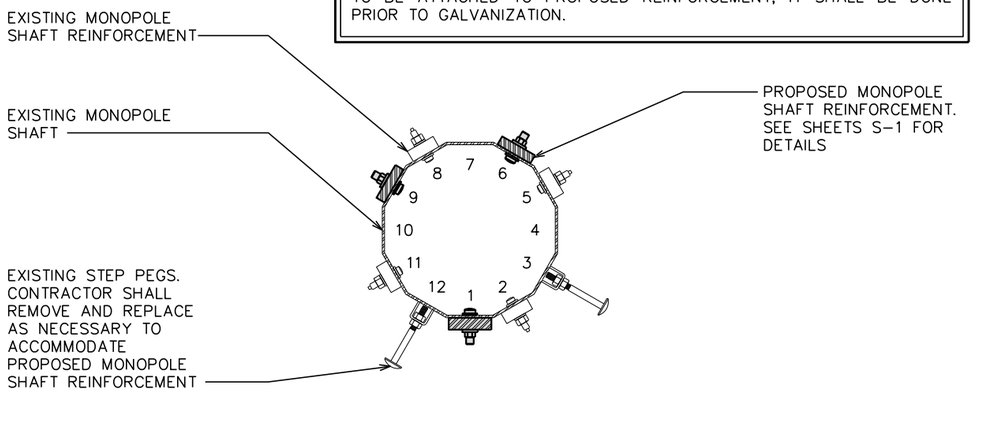
SCALE: 3/4" = 1'-0"

0 1 2

SCALE IN FEET

ATTENTION

THE TOWER SAFETY CLIMB WAS ASSUMED TO BE LOCATED OFF FLAT 1. FIELD VERIFY CLIMBING SYSTEM LOCATION PRIOR TO INSTALLATION. CONTACT TOWER OWNER AND ENGINEER OF RECORD SHOULD ANY DISCREPANCIES ARISE. CONTRACTOR TO REMOVE AND REPLACE CLIMBING SYSTEM USING ONLY APPROVED OPTIONS FROM CROWN CASTLE APPROVED REINFORCEMENT CATALOG AS NECESSARY TO INSTALL PROPOSED REINFORCEMENT. IF CLIMBING SYSTEM IS REQUIRED TO BE ATTACHED TO PROPOSED REINFORCEMENT, IT SHALL BE DONE PRIOR TO GALVANIZATION.



SECTION (D)

SCALE: 3/4" = 1'-0"

0 1 2

SCALE IN FEET

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)

PLANS PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603
OFFICE: (919) 661-6351
www.tepgroup.net

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June 07, 2019

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DRAWN BY: RKE | CHECKED BY: JLW

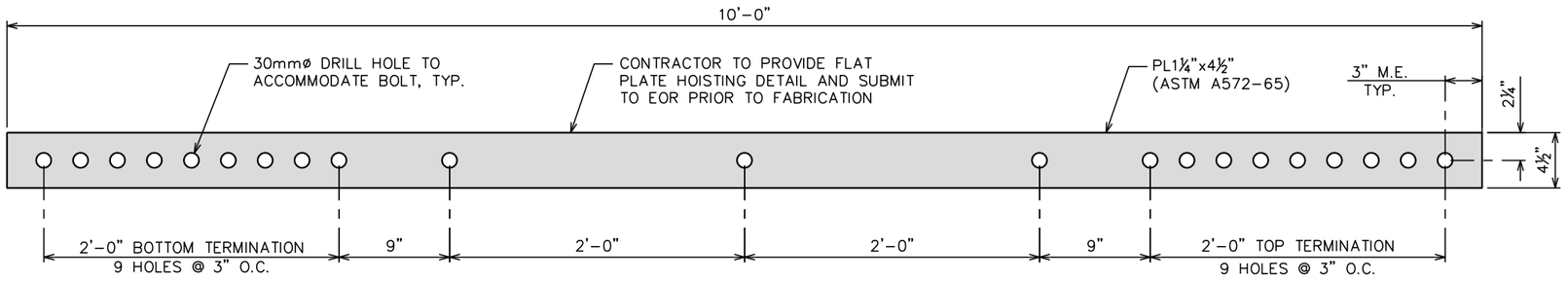
SHEET TITLE:

SECTION DETAILS

SHEET NUMBER: **S-3**

REVISION: **0**

TEP#: 131599.247059



CCI-CFP-04512510

SCALE: 1" = 1'-0"

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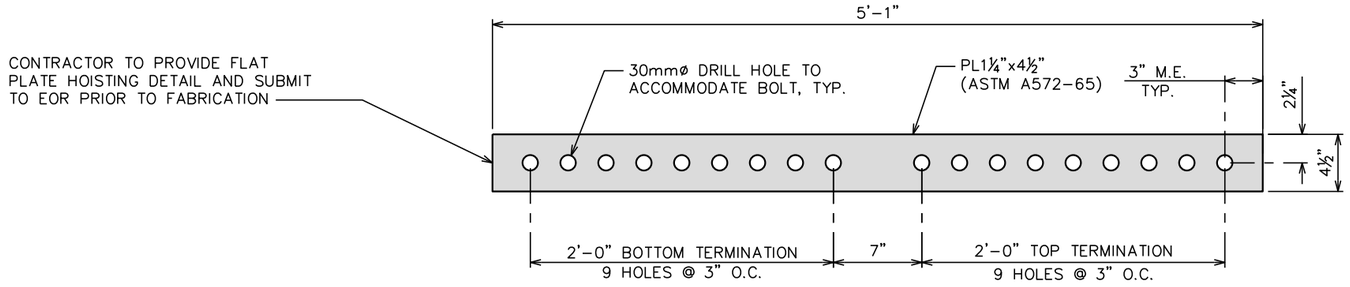
SCALE IN FEET



CCI-CFP-04512506

SCALE: 1" = 1'-0"

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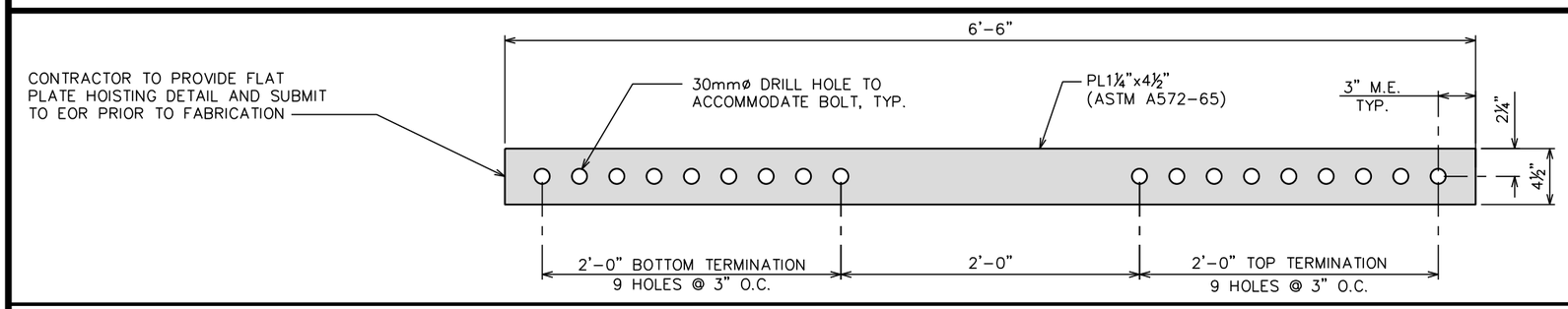
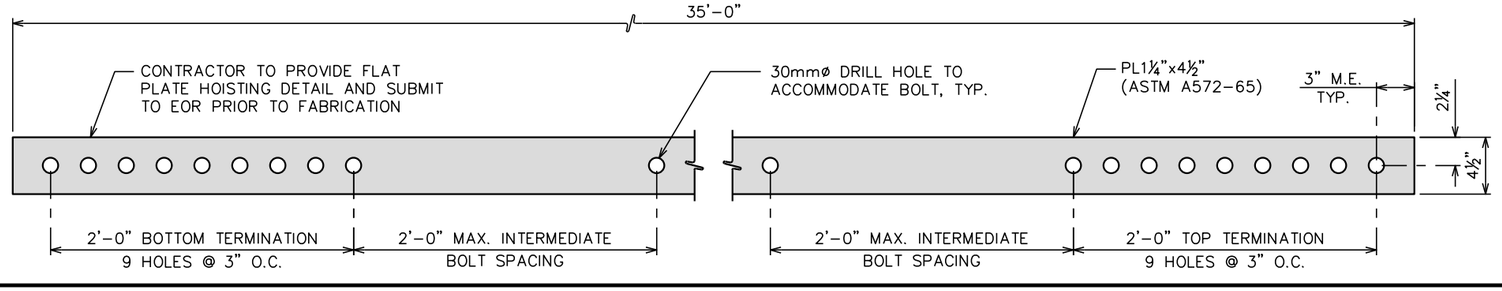
SCALE IN FEET



CCI-CFP-04512507

SCALE: 1" = 1'-0"

0 1 2
SCALE IN FEET



CCI-CFP-04512535

SCALE: 1" = 1'-0"

0 1 2
SCALE IN FEET

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)

PLANS PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
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June 07, 2019

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DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

SHAFT REINFORCEMENT DETAILS

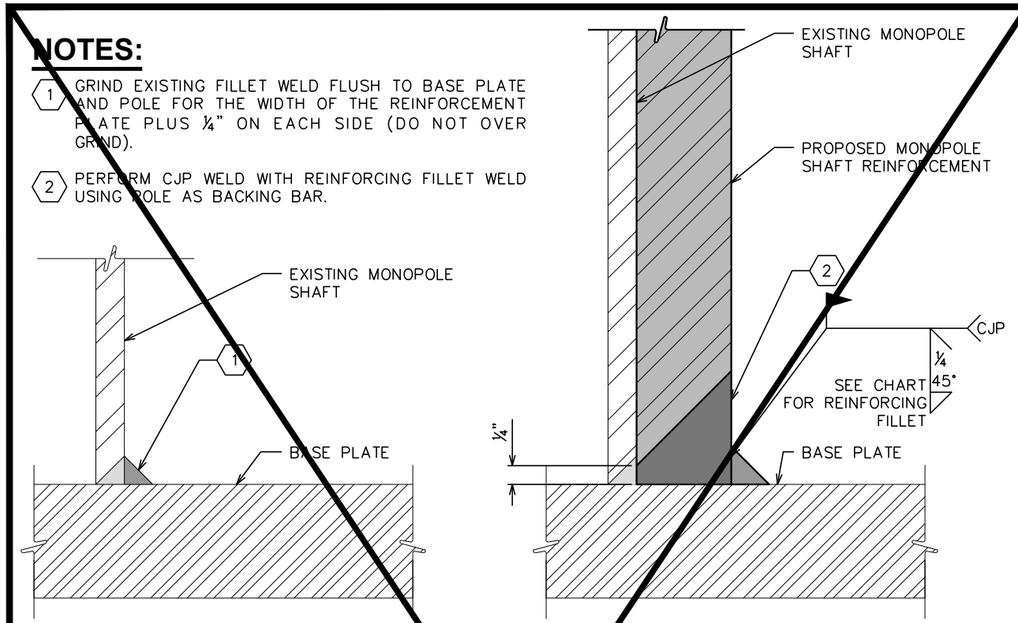
SHEET NUMBER: **S-4**

REVISION: **0**

TEP#: 131599.247059

NOTES:

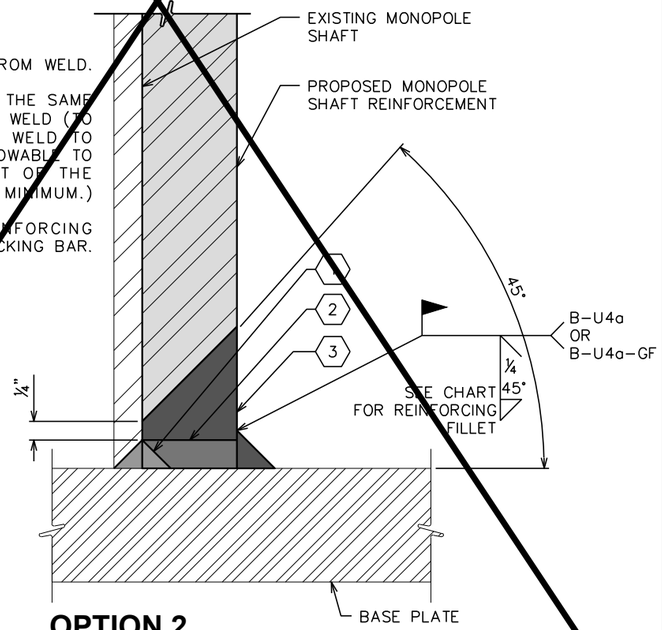
1. GRIND EXISTING FILLET WELD FLUSH TO BASE PLATE AND POLE FOR THE WIDTH OF THE REINFORCEMENT PLATE PLUS ¼" ON EACH SIDE (DO NOT OVER GRIND).
2. PERFORM CJP WELD WITH REINFORCING FILLET WELD USING POLE AS BACKING BAR.



OPTION 1

NOTES:

1. CLEAN EXISTING GALVANIZING FROM WELD.
2. BUILD PLATFORM WITH WELD AT THE SAME HEIGHT OF THE EXISTING FILLET WELD (TO REDUCE THE AMOUNT OF THE WELD TO BUILD THE PLATFORM, IT IS ALLOWABLE TO PARTIALLY GRIND THE HEIGHT OF THE EXISTING FILET WELD TO A ¼" MINIMUM.)
3. PERFORM CJP WELD WITH REINFORCING FILLET WELD USING POLE AS BACKING BAR.



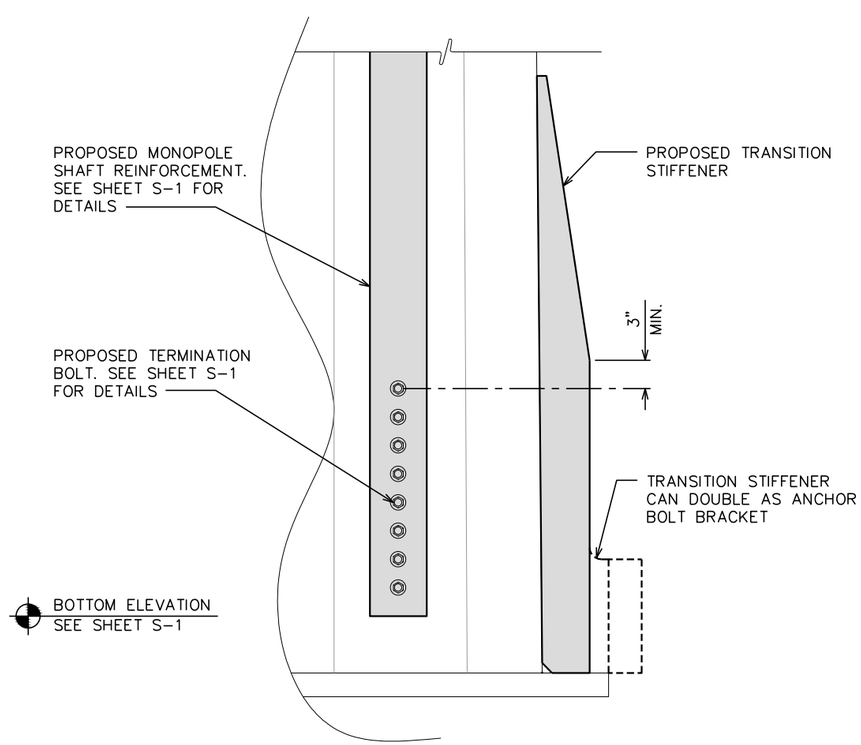
OPTION 2

BASE WELD TERMINATION DETAILS (1)

SCALE: N.T.S.

REINFORCING FILLET SIZE

PART NUMBER	PLATE SIZE	MINIMUM REINFORCING WELD
CCI-WSFP-040075 CCI-WAFP-040075 CCI-WCFP-040075	¾" x 4"	¼"
CCI-WSFP-045100 CCI-WAFP-045100 CCI-WCFP-045100	1" x 4½"	¼"
CCI-WSFP-060100 CCI-WAFP-060100 CCI-WCFP-060100	1" x 6"	⅜"
CCI-WSFP-065125 CCI-WAFP-065125 CCI-WCFP-065125	1¼" x 6½"	½"
CCI-WSFP-085125 CCI-WAFP-085125 CCI-WCFP-085125	1¼" x 8½"	⅝"



TRANSITION STIFFENER TERMINATION DETAILS (2)

SCALE: N.T.S.

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)

PLANS PREPARED BY:

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326 TRYON ROAD
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June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

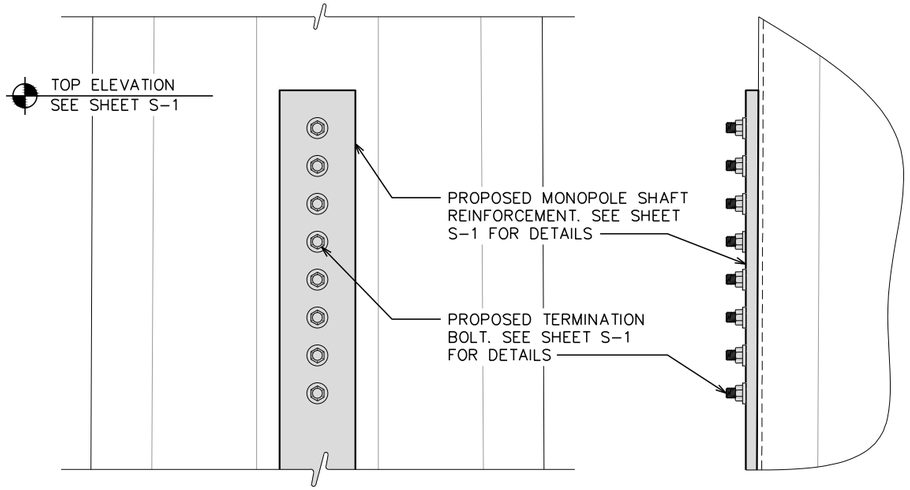
SHEET TITLE:

TYP. SHAFT REINFORCEMENT DETAILS I

SHEET NUMBER: **S-5**

REVISION: **0**

TEP#: 131599.247059



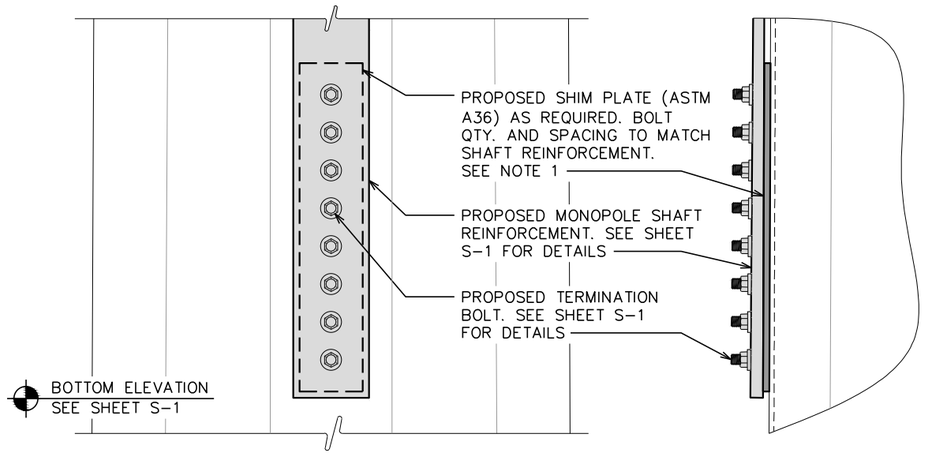
TOP

TOP TERMINATION DETAILS (3A)

SCALE: N.T.S.

NOTE:

1. SHIMS GREATER THAN ¼" IN THICKNESS LOCATED WITHIN THE TERMINATION LENGTH OF THE SHAFT REINFORCEMENT PLATE SHALL BE WELDED TO THE SHAFT REINFORCEMENT PLATE.



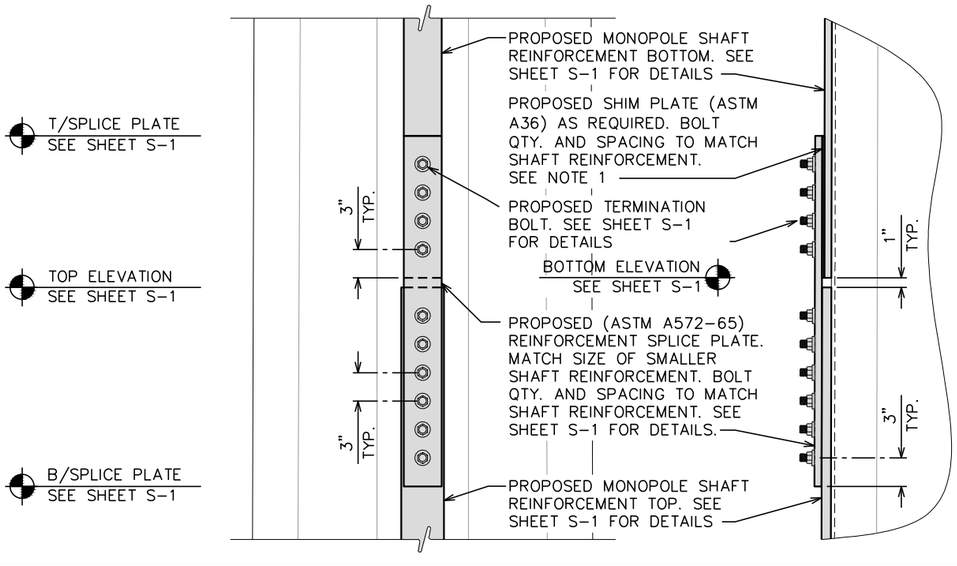
BOTTOM

BOTTOM TERMINATION DETAILS (3B)

SCALE: N.T.S.

NOTE:

1. SHIMS GREATER THAN ¼" IN THICKNESS LOCATED BETWEEN THE SHAFT REINFORCEMENT PLATE AND THE REINFORCEMENT SPLICE PLATE SHALL BE WELDED TO THE SHAFT REINFORCEMENT PLATE.

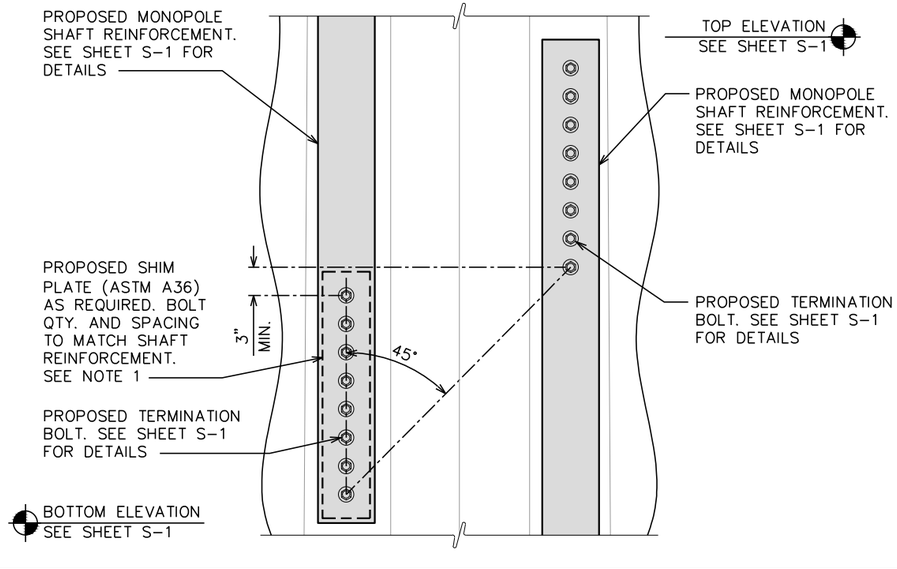


REINFORCEMENT SPLICE DETAILS (4)

SCALE: N.T.S.

NOTE:

1. SHIMS GREATER THAN ¼" IN THICKNESS LOCATED WITHIN THE TERMINATION LENGTH OF THE SHAFT REINFORCEMENT PLATE SHALL BE WELDED TO THE SHAFT REINFORCEMENT PLATE.



OVERLAP SPLICE DETAILS (5)

SCALE: N.T.S.

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

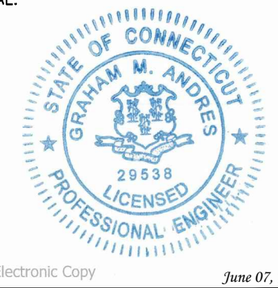
POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)

PLANS PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603
OFFICE: (919) 661-6351
www.tepgroup.net

SEAL:



Electronic Copy

June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

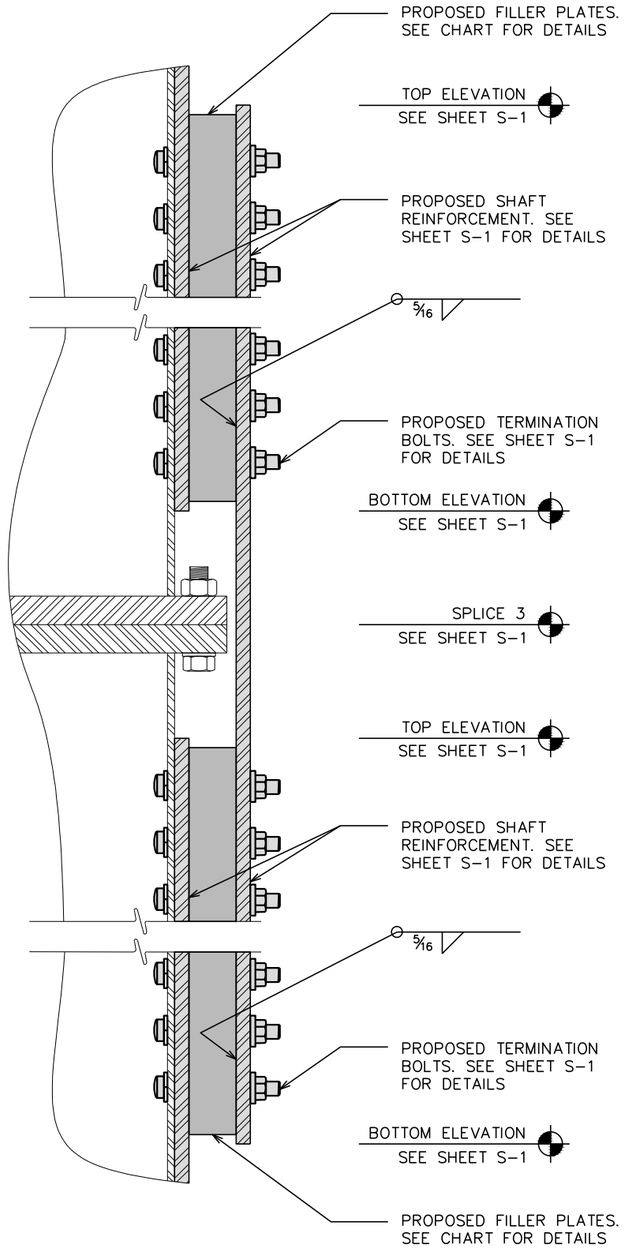
SHEET TITLE:

TYP. SHAFT REINFORCEMENT DETAILS II

SHEET NUMBER: **S-6**

REVISION: **0**

TEP#: 131599.247059



CROWN CASTLE FILLER PLATE SCHEDULE (MIN. F_y = 36 KSI)

QTY.	FILLER PLATE DIMENSIONS (IN.)			FLAT/ANGLE	ELEV (FT.)		QTY. OF BOLT HOLES PER PLATE	STEEL WEIGHT PER PLATE (BLACK), (LB.)	TOTAL BOLT HOLE QTY.	TOTAL STEEL WEIGHT (BLACK), (LB.)
	WIDTH	LENGTH	THICK.		BOT.	TOP				
4	3.50	26.00	3.25	1, 6, 7, 10	106.79	108.96	9	90.3	36	335.5
4	3.50	26.00	3.25	1, 6, 7, 10	111.04	113.21	9	90.3	36	335.5
								TOTALS:	72	671.0

PROPOSED FLANGE JUMP DETAILS

6

SCALE: N.T.S.

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

POMFRET-TYRONE RD
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82 TYRONE ROAD
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June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

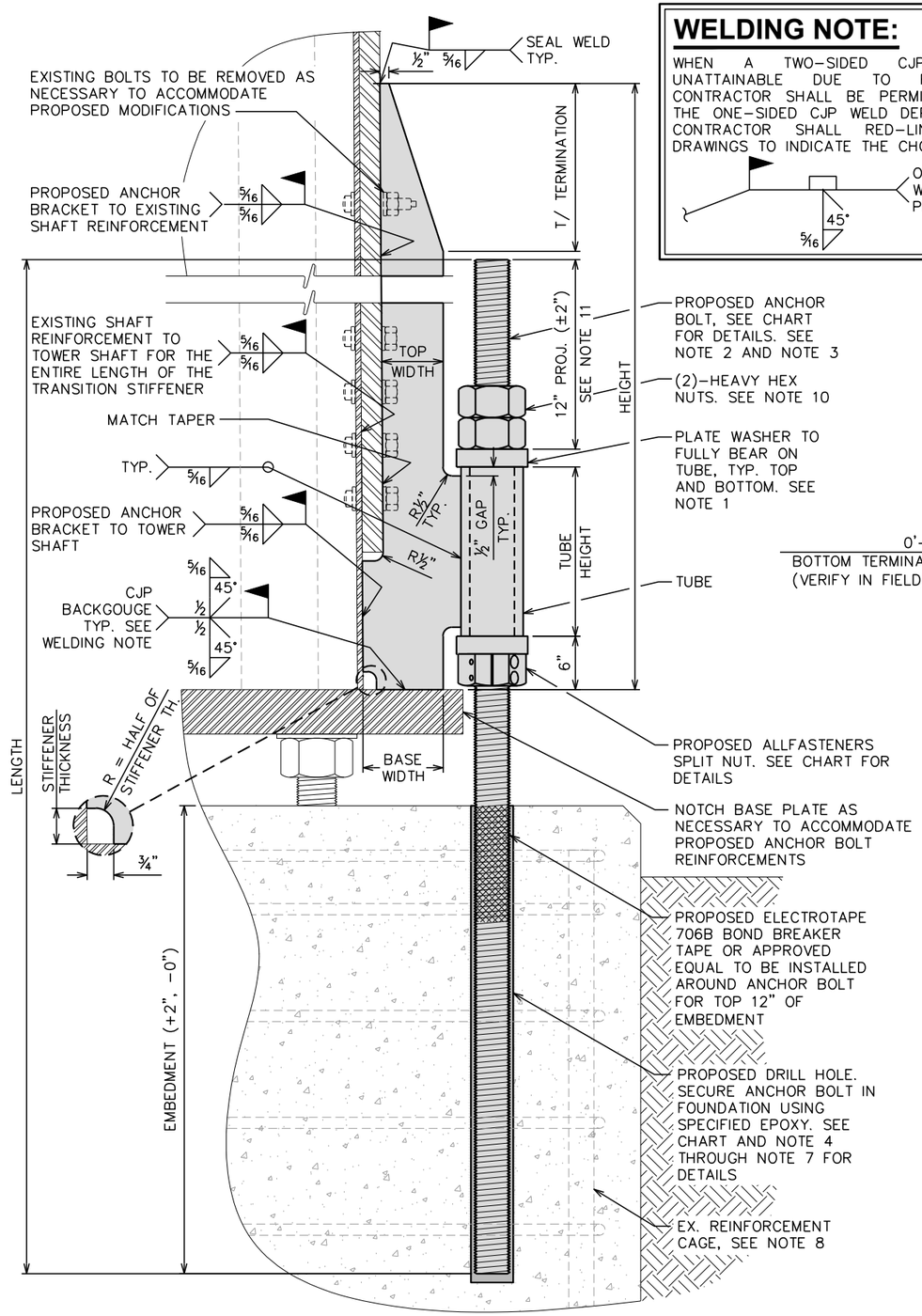
SHEET TITLE:

TYP. SHAFT REINFORCEMENT DETAILS III

SHEET NUMBER: **S-7**

REVISION: **0**

TEP#: 131599.247059



ANCHOR BOLT REINFORCEMENT

SCALE: N.T.S.

E

WELDING NOTE:

WHEN A TWO-SIDED CJP WELD IS UNATTAINABLE DUE TO FIT-UP, THE CONTRACTOR SHALL BE PERMITTED TO USE THE ONE-SIDED CJP WELD DEPICTED BELOW. CONTRACTOR SHALL RED-LINE AS-BUILT DRAWINGS TO INDICATE THE CHOSEN DETAIL.

NOTES

1. PLATE WASHER SHALL FULLY BEAR ON TUBE.
2. REFERENCE CED-CAT-10300 (CURRENT VERSION) FOR ANCHOR ROD DIMENSIONS.
3. RODS SHALL BE GALVANIZED FROM THE TOP OF THE PROJECTION TO 15" BELOW THE SURFACE OF THE CONCRETE, AT A MINIMUM.
4. CORED HOLES SHALL BE MECHANICALLY ROUGHENED USING A CARBIDE HOLE ROUGHENER OR EQUIVALENT. BRUSHING WITH A NYLON OR WIRE BRUSH SHALL BE USED IN THE PROCESS OF HOLE CLEANING, BUT DOES NOT SATISFY THE HOLE ROUGHENING REQUIREMENT.
5. FOLLOW EPOXY MANUFACTURER'S RECOMMENDATIONS FOR HOLE CLEANING.
6. ALL HOLES SHALL BE DRY PRIOR TO PLACING EPOXY.
7. FOLLOW EPOXY MANUFACTURER'S RECOMMENDATIONS REGARDING HANDLING OF THREADED ROD AND EPOXY, AS WELL AS ALL INSTALLATION INSTRUCTIONS AND REQUIREMENTS.
8. TAKE ALL MEASUREMENTS NECESSARY TO AVOID DAMAGING EXISTING REINFORCING BARS DURING CORING OPERATIONS. NOTIFY EOR IMMEDIATELY IF EXISTING REINFORCING BARS ARE ENCOUNTERED AND INTERFERE WITH PLACEMENT OF NEW ANCHORS. MINOR ADJUSTMENT TO PROPOSED LOCATION OF NEW ANCHORS MAY BE REQUIRED. CONTRACTOR MAY BATTER ANCHORS UP TO 1° TOWARD CENTER OF TOWER TO AVOID INTERFERENCES.
9. IF BASE PLATE GROUT REPAIR IS REQUIRED FOR ANCHOR ROD INSTALLATION, SEE ENG-STD-10323: BASE PLATE GROUT, FOR PROCEDURES AND RECOMMENDED MANUFACTURERS. CONTRACTOR SHALL DETERMINE THE QUANTITY REQUIRED.
10. ONCE ALL RESIN AND GROUT HAVE CURED, NEW ANCHOR ROD REINFORCING SHALL BE TARGET TENSIONED TO THE VALUE LISTED IN THE TABLE ON THIS SHEET. SEE CED-PRC-10119: PULL-OUT TESTING POST-INSTALLED ANCHOR RODS, FOR SPECIFICATIONS. AFTER ANCHOR BOLT LOAD TESTING IS COMPLETE, INSTALL FIRST NUT TO SNUG TIGHT PLUS 1/4 TURN BEFORE INSTALLING SECOND NUT.
11. CONTRACTOR SHALL VERIFY THAT A PULL TEST IS ABLE TO BE PERFORMED USING THE ANCHOR ROD PROJECTION SHOWN.
12. WHEN COMPLETED WITH EPOXY INSTALLATION, THE TOP OF THE EPOXY SHALL BE EQUAL TO OR HIGHER THAN THE TOP OF THE FOUNDATION, SUCH THAT WATER IS NOT ABLE TO COLLECT IN THE ANNULAR AREA AROUND THE EXPOSED PORTION OF THE ANCHOR ROD.

ANCHOR BRACKET

DESCRIPTION	MEASUREMENT
HEIGHT	9'-9"
TOP WIDTH	8"
BASE WIDTH	9¼"
T/ TERMINATION	2'-9"
STIFFENER THICKNESS	1"
MATERIAL	ASTM A572-65
TOTAL QUANTITY	4
DESCRIPTION	**MEASUREMENT**
TUBE SIZE	HSS 4x4x½
TUBE MATERIAL	ASTM A500-50
TUBE HEIGHT	1'-6"

ACCESSORIES

DESCRIPTION	MEASUREMENT
ALLFASTENERS SPLIT NUT	2SPN134M
TOTAL QUANTITY	4

ANCHOR BOLT

DESCRIPTION	MEASUREMENT	
PART NO.	CCI-AR-0175	
ANCHOR BOLT DIA.	1¾"	
TOTAL QUANTITY	4	
MATERIAL	ASTM A193 GR. B7	
DRILL HOLE DIAMETER	2"	
TARGET TENSION	111 KIPS	
EPOXY	ALLFASTENERS AF35LVE	HILTI HIT-RE 500 V3
EMBEDMENT	5'-0"	5'-6"
LENGTH	8'-6"	9'-0"

ACCESSORIES

DESCRIPTION	MEASUREMENT
HEAVY HEX NUT	1¾"
MATERIAL	ASTM A563
TOTAL QUANTITY	8
DESCRIPTION	**MEASUREMENT**
PLATE WASHER	PL4½"x4½"x1¼" (1⅞" DIA. HOLE)
MATERIAL	ASTM A572-65
TOTAL QUANTITY	8

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)

PLANS PREPARED BY:

TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603
OFFICE: (919) 661-6351
www.tepgroup.net

SEAL:

Electronic Copy

June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

ANCHOR BOLT REINFORCEMENT DETAILS

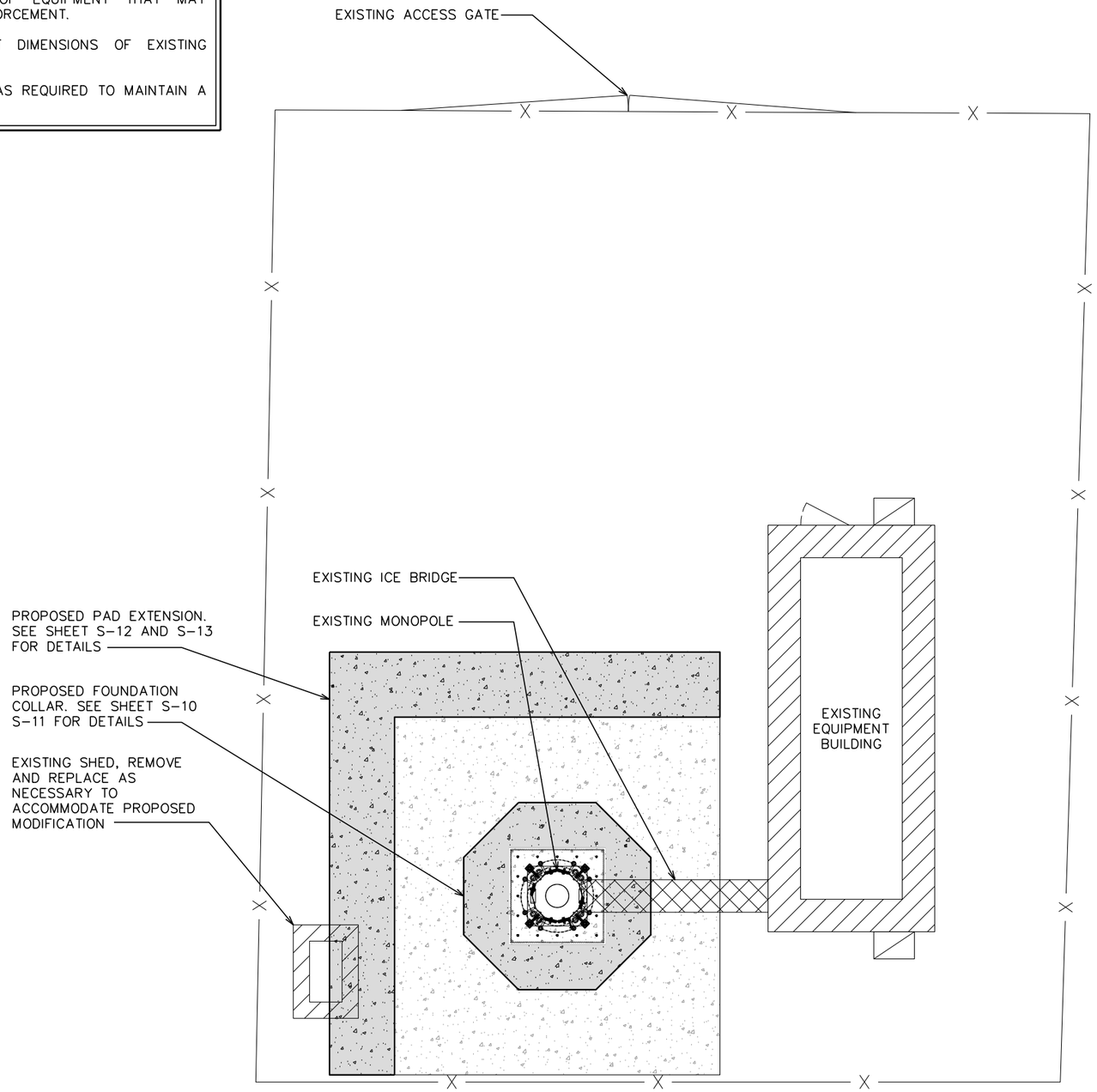
SHEET NUMBER: **S-8**

REVISION: **0**

TEP#: 131599.247059

ATTENTION

1. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING EQUIPMENT PRIOR TO CONSTRUCTION. COORDINATE WITH TOWER OWNER ANY REQUIRED RELOCATION OF EQUIPMENT THAT MAY INTERFERE WITH THE FOUNDATION REINFORCEMENT.
2. CONTRACTOR SHALL VERIFY AS-BUILT DIMENSIONS OF EXISTING FOUNDATION PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL PROVIDE SHORING AS REQUIRED TO MAINTAIN A SAFE WORK ENVIRONMENT.



VERIFY

SITE PLAN

SCALE: 1/8" = 1'-0"

0 8 16

SCALE IN FEET

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

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BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)

PLANS PREPARED BY:

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326 TRYON ROAD
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SEAL:

STATE OF CONNECTICUT
GRAHAM M. ANDRES
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June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE CHECKED BY: JLW

SHEET TITLE:

SITE PLAN

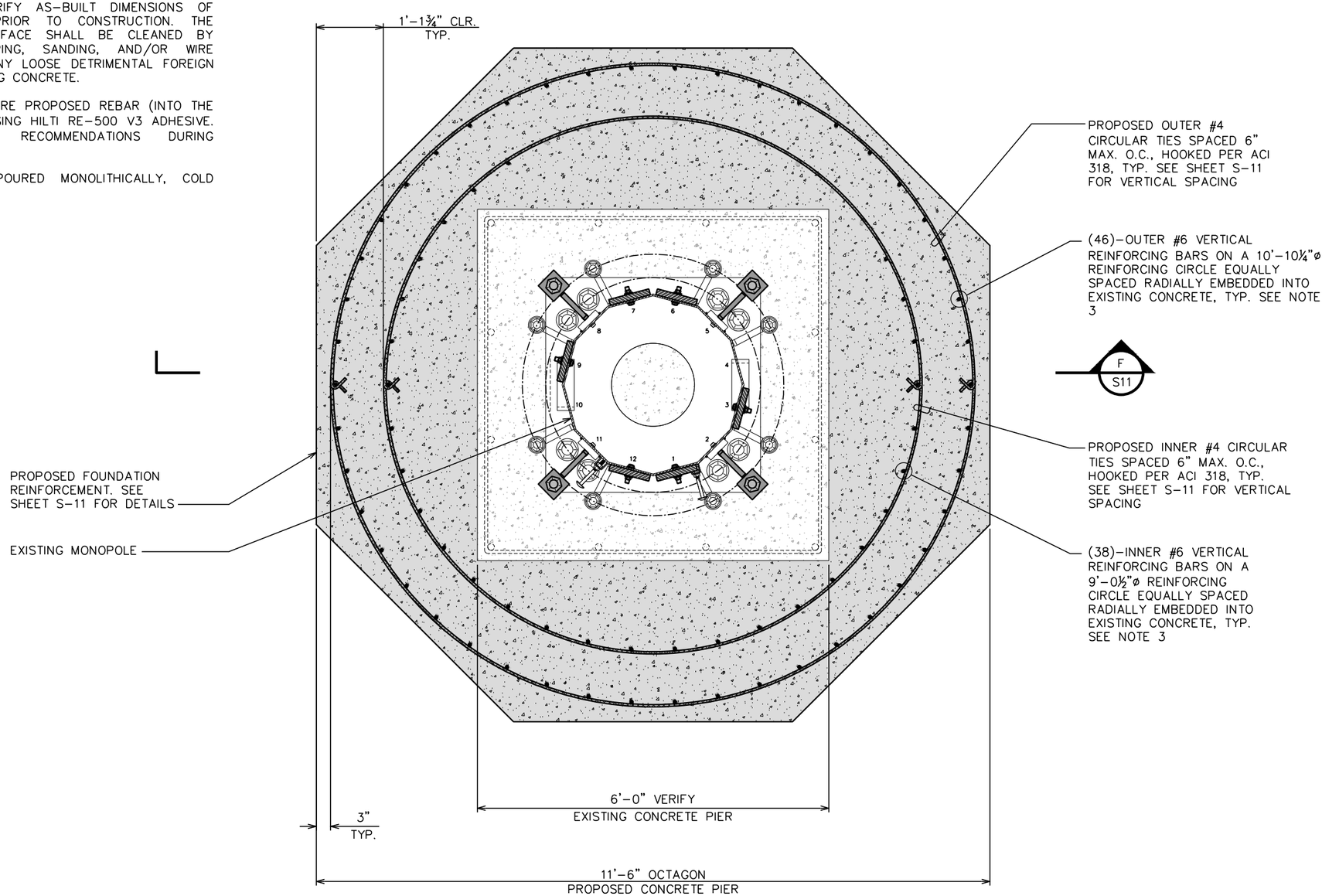
SHEET NUMBER: **S-9**

REVISION: **0**

TEP#: 131599.247059

NOTES:

1. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING EQUIPMENT PRIOR TO CONSTRUCTION. COORDINATE WITH TOWER OWNER ANY REQUIRED RELOCATION OF EQUIPMENT THAT MAY INTERFERE WITH THE FOUNDATION REINFORCEMENT.
2. CONTRACTOR SHALL VERIFY AS-BUILT DIMENSIONS OF EXISTING FOUNDATION PRIOR TO CONSTRUCTION. THE EXISTING CONCRETE SURFACE SHALL BE CLEANED BY HAND CHIPPING, SCRAPING, SANDING, AND/OR WIRE BRUSHING TO REMOVE ANY LOOSE DETRIMENTAL FOREIGN MATTER PRIOR TO PLACING CONCRETE.
3. CONTRACTOR SHALL SECURE PROPOSED REBAR (INTO THE EXISTING FOUNDATION) USING HILTI RE-500 V3 ADHESIVE. FOLLOW THE MFG'S RECOMMENDATIONS DURING INSTALLATION.
4. CONCRETE SHALL BE POURED MONOLITHICALLY, COLD JOINTS NOT ALLOWED.



PIER COLLAR

SCALE: ½" = 1'-0"

0 2 4

SCALE IN FEET

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)

PLANS PREPARED BY:

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June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

FOUNDATION REINFORCEMENT DETAILS I

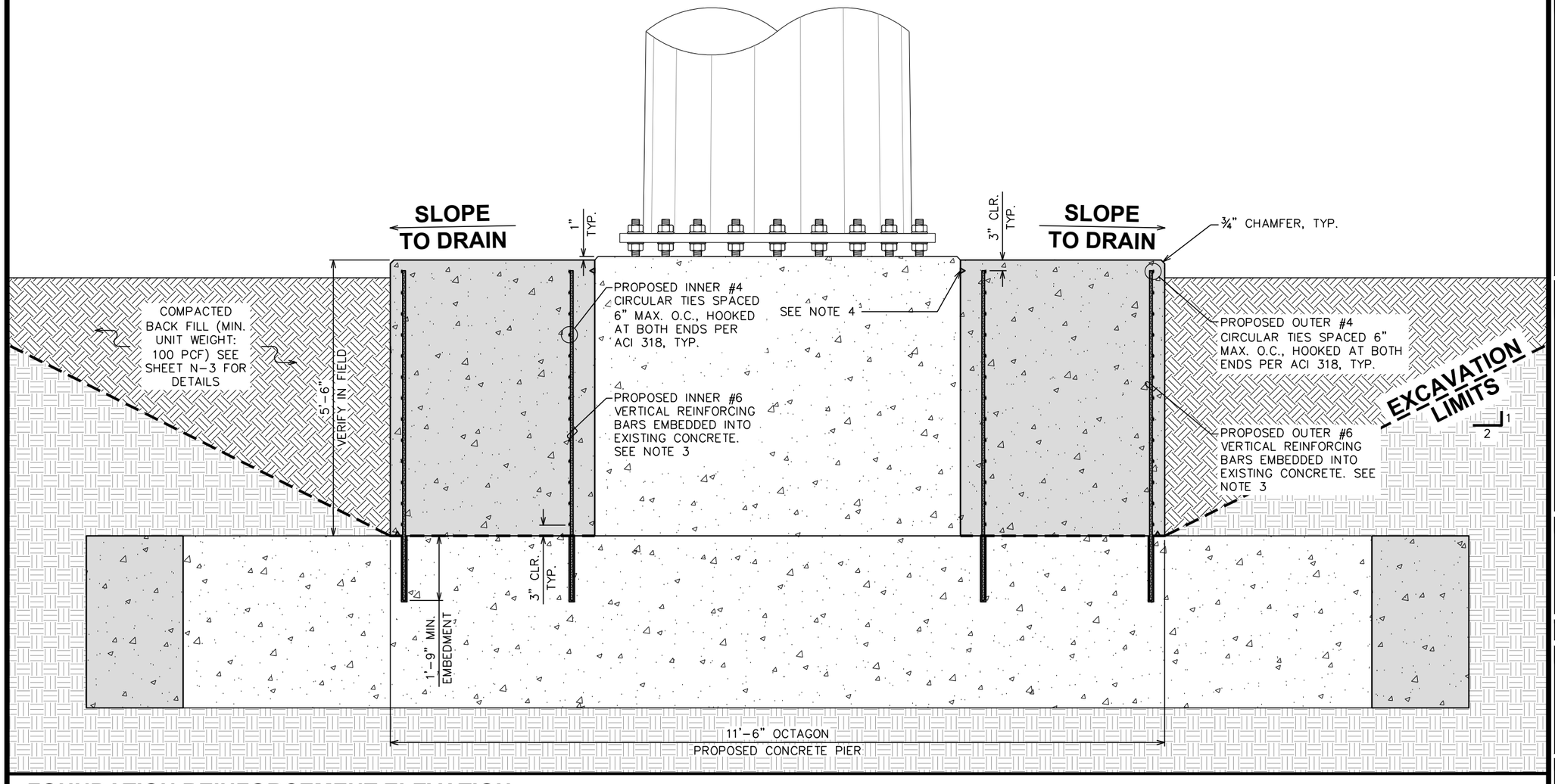
SHEET NUMBER: **S-10**

REVISION: **0**

TEP#: 131599.247059

NOTES:

1. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING EQUIPMENT PRIOR TO CONSTRUCTION. COORDINATE WITH TOWER OWNER ANY REQUIRED RELOCATION OF EQUIPMENT THAT MAY INTERFERE WITH THE FOUNDATION REINFORCEMENT.
2. CONTRACTOR SHALL VERIFY AS-BUILT DIMENSIONS OF EXISTING FOUNDATION PRIOR TO CONSTRUCTION. THE EXISTING CONCRETE SURFACE SHALL BE CLEANED BY HAND CHIPPING, SCRAPING, SANDING, AND/OR WIRE BRUSHING TO REMOVE ANY LOOSE DETRIMENTAL FOREIGN MATTER PRIOR TO PLACING CONCRETE.
3. CONTRACTOR SHALL SECURE PROPOSED REBAR (INTO THE EXISTING FOUNDATION) USING HILTI RE-500 V3 ADHESIVE. FOLLOW THE MFG'S RECOMMENDATIONS DURING INSTALLATION.
4. CONTRACTOR TO USE SIKASWELL S-2 WATERSTOP BY SIKA CORP., OR APPROVED EQUAL. APPLY PER THE MANUFACTURERS' SPECIFICATIONS. CONTACT SIKA CORPORATION AT (800) 933-7452.
5. CONCRETE SHALL BE POURED MONOLITHICALLY, COLD JOINTS NOT ALLOWED.
6. EXISTING TOWER MODIFICATIONS NOT SHOWN FOR CLARITY.



FOUNDATION REINFORCEMENT ELEVATION (F)

SCALE: N.T.S

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
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June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

FOUNDATION REINFORCEMENT DETAILS II

SHEET NUMBER: **S-11**

REVISION: **0**

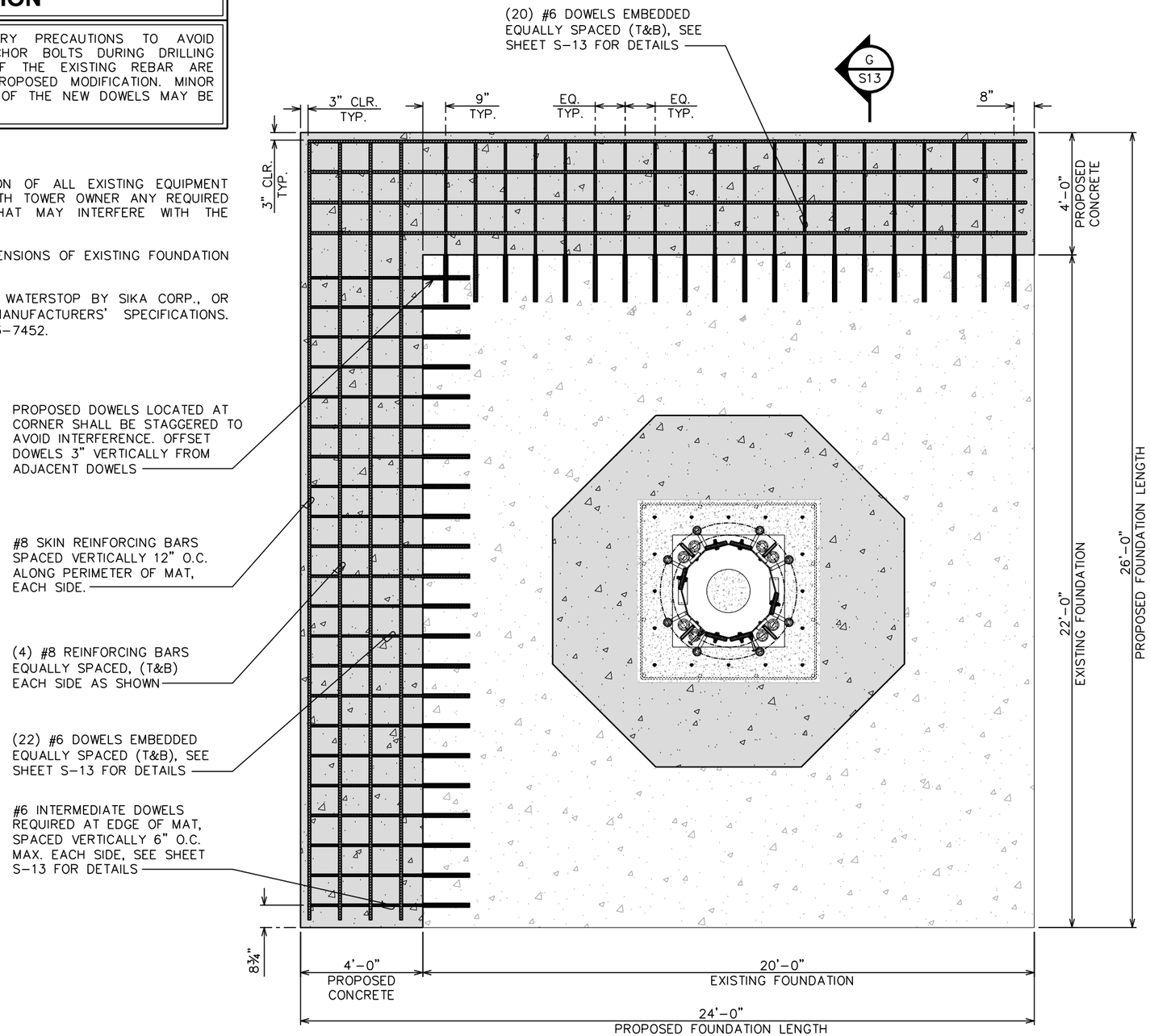
TEP#: 131599.247059

ATTENTION

CONTRACTOR SHALL TAKE ALL NECESSARY PRECAUTIONS TO AVOID DAMAGING THE EXISTING REBAR AND ANCHOR BOLTS DURING DRILLING OPERATIONS. CONTACT TEP IMMEDIATELY IF THE EXISTING REBAR ARE ENCOUNTERED AND INTERFERE WITH THE PROPOSED MODIFICATION. MINOR ADJUSTMENTS TO THE PROPOSED LOCATION OF THE NEW DOWELS MAY BE REQUIRED.

NOTES:

1. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING EQUIPMENT PRIOR TO CONSTRUCTION. COORDINATE WITH TOWER OWNER ANY REQUIRED RELOCATION OF EXISTING EQUIPMENT THAT MAY INTERFERE WITH THE FOUNDATION REINFORCEMENT.
2. CONTRACTOR SHALL VERIFY AS-BUILT DIMENSIONS OF EXISTING FOUNDATION PRIOR TO CONSTRUCTION.
3. CONTRACTOR SHALL USE SIKASWELL S-2 WATERSTOP BY SIKA CORP., OR APPROVED. EQUAL APPLY PER THE MANUFACTURERS' SPECIFICATIONS. CONTACT SIKA CORPORATION AT (800) 933-7452.



FOUNDATION REINFORCEMENT PLAN VIEW

SCALE: ¼" = 1'-0"

0 4 8

SCALE IN FEET

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

POMFRET-TYRONE RD
BU #: 841292

82 TYRONE ROAD
POMFRET, CT 06258
(WINDHAM COUNTY)

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0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

FOUNDATION REINFORCEMENT DETAILS III

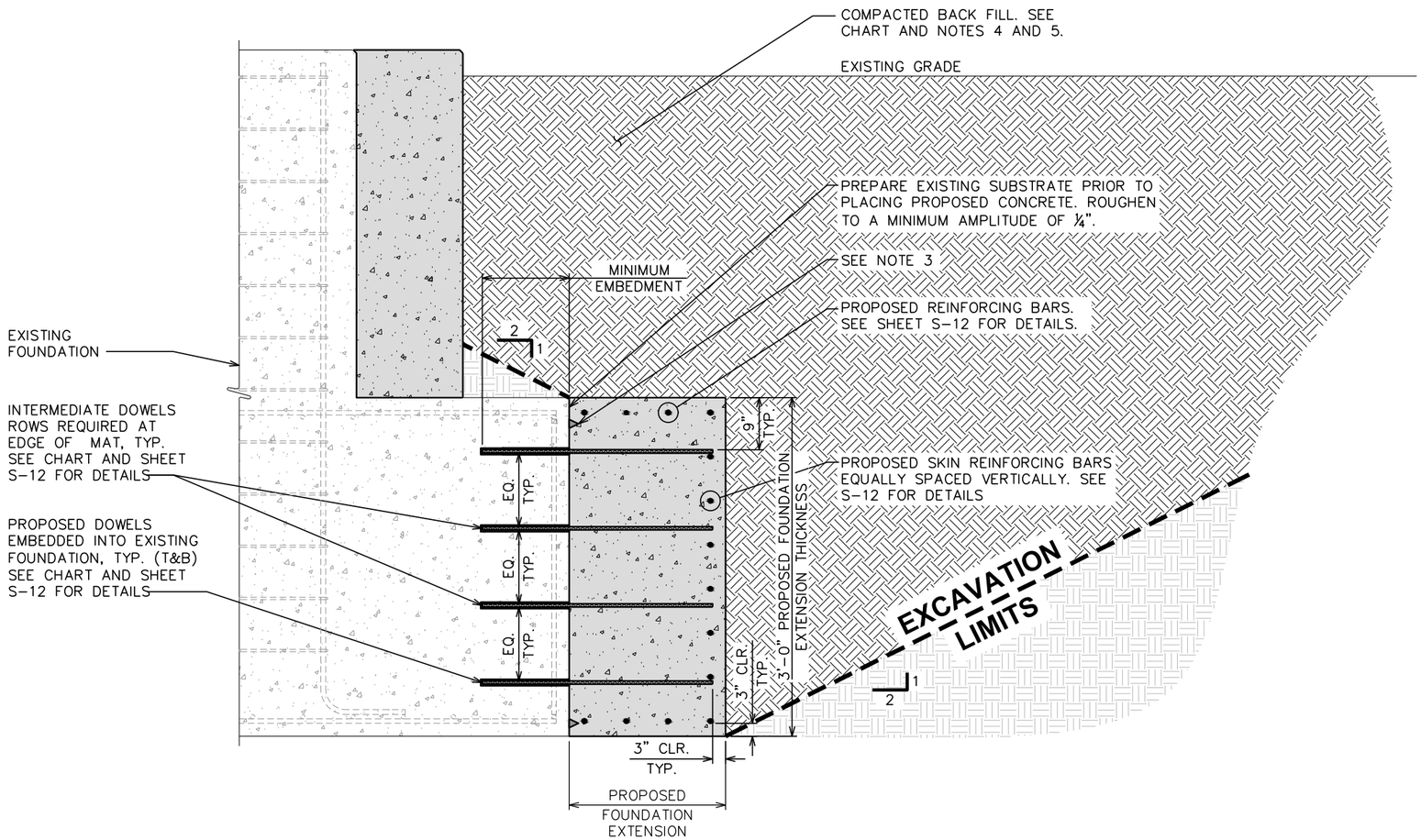
SHEET NUMBER: **S-12**

REVISION: **0**

TEP#: 131599.247059

NOTES:

1. CONTRACTOR SHALL VERIFY THE LOCATION OF ALL EXISTING EQUIPMENT PRIOR TO CONSTRUCTION. COORDINATE WITH TOWER OWNER ANY REQ'D RELOCATION OF EXISTING EQUIPMENT THAT MAY INTERFERE WITH THE FOUNDATION REINFORCEMENT.
2. CONTRACTOR SHALL VERIFY AS-BUILT DIMENSIONS OF EXISTING FOUNDATION PRIOR TO CONSTRUCTION. EXISTING FOUNDATION SHALL BE ROUGHENED TO A MINIMUM AMPLITUDE OF A ¼" PRIOR TO PLACING PROPOSED CONCRETE. IN ADDITION, THE EXISTING CONCRETE SURFACE SHALL BE CLEANED BY HAND CHIPPING, SCRAPING, SANDING, AND/OR WIRE BRUSHING TO REMOVE ANY LOOSE DETRIMENTAL FOREIGN MATTER PRIOR TO PLACING CONCRETE. SEE SHEET N-3 FOR ADDITIONAL DETAILS.
3. CONTRACTOR SHALL USE SIKASWELL S-2 WATERSTOP BY SIKA CORP., OR APPROVED EQUAL. APPLY PER THE MANUFACTURER'S SPECIFICATIONS. CONTACT SIKA CORPORATION AT (800) 933-7452.
4. BACK FILL MATERIALS PLACED ABOVE THE SHALLOW FOUNDATION TO THE DESIGN SUBGRADE ELEVATION SHOULD NOT CONTAIN MORE THAN 5 PERCENT BY WEIGHT OF ORGANIC MATTER, WASTE, DEBRIS OR ANY OTHERWISE DELETERIOUS MATERIALS. TO BE CONSIDERED FOR USE, SEE CHART FOR BACKFILL MATERIAL MAXIMUM DRY DENSITY AND COMPACTED DENSITY AS DETERMINED BY STANDARD PROCTOR (ASTM D 698), A LIQUID LIMIT NO GREATER THAN 40, A PLASTICITY INDEX NO GREATER THAN 20, A MAXIMUM PARTICLE SIZE OF 4 INCHES, AND AND A 20 PERCENT OR LESS OF THE MATERIAL HAVING A PARTICLE SIZE BETWEEN 2 AND 4 INCHES. BECAUSE SMALL HANDHELD OR WALK-BEHIND COMPACTION EQUIPMENT WILL MOST LIKELY BE USED, BACKFILL SHOULD BE PLACED IN THIN HORIZONTAL LIFTS NOT EXCEEDING 6 INCHES (LOOSE).
5. SEE CHART FOR REQUIRED FILL MATERIAL COMPACTED WET DENSITY. FILL PLACEMENT SHOULD BE MONITORED BY A QUALIFIED MATERIALS TECHNICIAN WORKING UNDER THE DIRECTION OF A GEOTECHNICAL ENGINEER. IN ADDITION TO THE VISUAL EVALUATION, A SUFFICIENT AMOUNT OF IN-PLACE FIELD DENSITY TESTS SHOULD BE CONDUCTED TO CONFIRM THE REQUIRED COMPACTION IS BEING ATTAINED. IT IS RECOMMENDED THAT AT LEAST 2 COMPACTION TESTS ARE PERFORMED FOR EVERY VERTICAL FOOT OF FILL PLACED TO VERIFY THAT PROPER MATERIALS AND SUFFICIENT COMPACTION EFFORT ARE BEING UTILIZED.
6. TOWER NOT SHOWN FOR CLARITY.



FOUNDATION REINFORCEMENT ELEVATION VIEW (G)

SCALE: N.T.S.

DOWEL REINFORCMENT

DESCRIPTION	MEASUREMENT
SIZE	#6
LENGTH	5'-5"
MIN. EMBEDMENT	1'-9"
MATERIAL	ASTM A615-60
EPOXY	HILTI HY-200

BACKFILL

DESCRIPTION	MEASUREMENT
MAX. DRY DENSITY	105 PCF
MIN. COMPACTED WET DENSITY	95 PCF

PLANS PREPARED FOR:

CROWN CASTLE

3530 TORINGDON WAY, SUITE 300
CHARLOTTE, NC 28277

PROJECT INFORMATION:

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BU #: 841292

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June 07, 2019

REV	DATE	ISSUED FOR:
0	06-07-19	MODIFICATION DRAWINGS

DRAWN BY: RKE | CHECKED BY: JLW

SHEET TITLE:

FOUNDATION REINFORCEMENT DETAILS IV

SHEET NUMBER: **S-13**

REVISION: **0**

TEP#: 131599.247059

March 30, 2018
April 11, 2018 (Rev.1)
April 10, 2019 (Rev.2)
May 1, 2019 (Rev.3)

SAI Communications
12 Industrial Way
Salem NH, 03079

RE:		
	Site Number:	CT1050 (LTE 3C/4C/5C)
	FA Number:	10035021
	PACE Number:	MRCTB008300
	PTN Number:	2051A0EKJJ
	Site Name:	POMFRET-TYRONE RD.
	Site Address:	82 Tyrone Road Pomfret, CT 06258

To Whom It May Concern:

Hudson Design Group LLC (HDG) has been authorized by SAI Communications to perform a mount analysis on the proposed AT&T antenna mount to determine its capability of supporting the following equipment loading:

- (3) 7770 Antennas (55.0"x11.0"x5.0" – Wt. = 35 lbs. /each)
- (3) DTMABP7819VG12A TMA's (10.6"x11"x3.8" – Wt. = 20 lbs. /each)
- (1) Squid Surge Arrestor (24.0"x9.7" ø – Wt. = 33 lbs. /each)
- **(3) 800-10966 Antennas (96.0"x20.0"x6.9"– Wt. = 115 lbs. /each)**
- **(3) NNHH-65C-R4 Antennas (96.0"x19.6"x7.8"– Wt. = 102 lbs. /each)**
- **(3) 4449 B5/B12 RRH's (14.9"x13.2"x10.4" – Wt. = 73 lbs. /each)**
- **(3) 8843 B2/B66A RRH's (14.9"x13.2"x10.9" – Wt. = 72 lbs. /each)**
- **(3) RRUS-32 RRH's (27.2"x12.1"x7.0" – Wt. = 60 lbs. /each)**
- **(1) Squid Surge Arrestor (24.0"x9.7" ø – Wt. = 33 lbs. /each)**

**Proposed Loading Shown in Bold.*

No original structural design documents or fabrication drawings were available for the existing mount. HDG's sub-consultant, ProVertic LLC, conducted a mapping of the existing AT&T antenna mount on January 2, 2017. Mount fabrication drawings prepared by SitePro1, RMQP-12-H5, dated November 1, 2017 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 2015 with 2018 Connecticut State Building Code, and AT&T Mount Technical Directive – R13.
- HDG considers this mount to be asymmetrical and has applied wind loads in 30 degree increments all around the mount. Per TIA-222-H and Appendix N of the Connecticut State Building Code, the max basic wind speed for this site is equal to 130 mph with a max basic wind speed with ice of 50 mph and a max ice thickness of 1.50 in. An escalated ice thickness of 1.75 in was used for this analysis.
- HDG considers this site to be exposure category C; tower is located near large, flat, open, terrain/grasslands.
- HDG considers this site to be topographic category 1; tower is located on flat terrain or the bottom of a hill or ridge.
- The mount has been analyzed with load combinations consisting of 250 lbs live load using a service wind speed of 30 mph wind on the worst case antenna. Analysis performed on each antenna pipe to determine worst case location; worst case location was antenna position 3.
- The mount has been analyzed with load combinations consisting of a 250 lbs live load in a worst case location on the mount.

Based on our analysis, we have determined that the new SitePro1 RMQP-12-H5 mount **IS CAPABLE** of supporting the proposed antenna installation with the following modification:

- **Install new handrail kit, SitePro1 HRK12-3HD (or approved equal).**

	Member(s)	Controlling Load Case	Stress Ratio	Pass/Fail
Proposed (LTE 3C/4C/5C) Mount Rating	124	LC1	153%	**FAIL**
Modified (LTE 3C/4C/5C) Mount Rating	213	LC1	90%	**PASS**

Reference Documents:

- Mount Mapping Report prepared by ProVertic LLC dated February 21, 2018.
- Fabrication drawings prepared by SitePro1, P/N RMQP-12-H5, dated November 1, 2017.
- Fabrication drawings prepared by SitePro1, P/N HRK12-3HD, dated April 16, 2015.

This determination was based on the following limitations and assumptions:

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

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

Respectfully Submitted,
Hudson Design Group LLC

Michael Cabral
Structural Dept. Head

Daniel P. Hamm, PE
Principal

FIELD PHOTOS:

Note: Existing mount to be removed and replaced

p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 203.208.3919 f: 203.234.6398 a: 110 Washington Avenue, 4th Floor, North Haven CT 06473






p: 978.557.5553 f: 978.336.5586 a: 45 Beechwood Drive, N. Andover, MA 01845
p: 203.208.3919 f: 203.234.6398 a: 110 Washington Avenue, 4th Floor, North Haven CT 06473

HUDSON
Design Group LLC

Wind & Ice
Calculations

Date: 5/1/2019
Project Name: POMFRET-TYRONE RD.
Project No.: CT1050
Designed By: JP **Checked By:** MSC

HUDSON Design Group LLC

2.6.5.2 Velocity Pressure Coeff:

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

z=	152 (ft)
z_g=	900 (ft)
α=	9.5

K_z= 1.382

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

Table 2-4

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

2.6.6.2 Topographic Factor:

Table 2-5

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

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

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

K_{zt}= #DIV/0!

K_h=	#DIV/0!
K_c=	1 (from Table 2-4)
K_t=	0.53 (from Table 2-5)
f=	2 (from Table 2-5)
z=	152
z_s=	680 (Mean elevation of base of structure above sea level)
H=	0 (Ht. of the crest above surrounding terrain)
K_{zt}=	1.00 (from 2.6.6.2.1)
K_e=	0.98 (from 2.6.8)

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

Category= 1

2.6.10 Design Ice Thickness

Max Ice Thickness =	t_i = 1.50 in
Importance Factor =	I= 1.0 (from Table 2-3)
	K_{iz} = 1.17 (from Sec. 2.6.10)

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

t_{iz} = 1.75 in

Date: 5/1/2019
Project Name: POMFRET-TYRONE RD.
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2.6.9 Gust Effect Factor

2.6.9.1 Self Supporting Lattice Structures

G_h = 1.0 Latticed Structures > 600 ft

G_h = 0.85 Latticed Structures 450 ft or less

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

h=	154	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=	1.382 (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=	**55.43**	K_e=	0.98 (from 2.6.8)
$q_{z\,(ice)}$=	**8.20**	K_d=	0.95 (from Table 2-2)
$q_{z\,(30)}$=	**2.95**	V_{max}=	130 mph (Ultimate Wind Speed)
		$V_{max\,(ice)}$=	50 mph
		V_{30}=	30 mph

Table 2-2

Structure Type	Wind Direction Probability Factor, 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: 5/1/2019
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Determine Ca:

Table 2-9

Force Coefficients (Ca) for Appurtenances				
Member Type		Aspect Ratio ≤ 2.5	Aspect Ratio = 7	Aspect Ratio ≥ 25
		Ca	Ca	Ca
Flat		1.2	1.4	2.0
Square/Rectangular HSS		1.2 - 2.8(r_s) ≥ 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 = **1.75** in **Angle = 0 (deg)** **Equivalent Angle = 180 (deg)**

Appurtenances	Height	Width	Depth	Flat Area	Aspect Ratio	Ca	Force (lbs)	Force (lbs) (w/ Ice)	Force (lbs) (30 mph)
7770 Antenna	55.0	11.0	5.0	4.20	5.00	1.31	305	63	16
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	4.90	1.31	946	171	50
800-10966 Antenna	96.0	20.0	6.9	13.33	4.80	1.30	962	173	51
RRUS-32 RRH	27.2	12.1	7.0	2.29	2.25	1.20	152	33	8
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	0.00	1.20	0	7	0
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.43	1.20	72	17	4
4449 B5/B12 RRH (Shielded)	14.9	0.0	13.2	0.00	0.00	1.20	0	4	0
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.20	75	18	4
8843 B2/B66A RRH (Shielded)	14.9	0.0	13.2	0.00	0.00	1.20	0	4	0
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.96	1.20	55	14	3
Surge Arrestor	24.0	9.7	9.7	1.62	2.47	0.70	63	14	3

Date: 5/1/2019
Project Name: POMFRET-TYRONE RD.
Project No.: CT1050
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	30	(deg)	Ice Thickness =	1.75	in.	Equivalent Angle =	210	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Aspect Ratio	Aspect Ratio	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	305	162	270
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	5.20	4.90	12.31	1.31	1.58	946	455	823
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	962	416	826
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	152	92	137
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	82	92	84
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	72	91	76
4449 B5/B12 RRH (Shielded)	14.9	5.2	13.2	0.54	1.37	2.87	1.13	1.22	1.20	36	91	50
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	75	91	79
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	38	91	51
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	55	19	46

WIND LOADS WITH ICE:

7770 Antenna	58.5	14.5	8.5	5.89	3.45	4.04	6.89	1.27	1.39	61	39	56
NNHH-65C-R4 Antenna	99.5	23.1	11.3	15.96	7.80	4.31	8.81	1.28	1.46	168	93	149
800-10966 Antenna	99.5	23.5	10.4	16.23	7.18	4.23	9.57	1.28	1.49	170	87	149
RRUS-32 RRH	30.7	15.6	10.5	3.32	2.24	1.97	2.92	1.20	1.22	33	22	30
RRUS-32 RRH (Shielded)	30.7	7.8	10.5	1.66	2.24	3.94	2.92	1.26	1.22	17	22	19
4449 B5/B12 RRH	18.4	13.9	16.7	1.78	2.13	1.32	1.10	1.20	1.20	17	21	18
4449 B5/B12 RRH (Shielded)	18.4	6.9	16.7	0.89	2.13	2.65	1.10	1.21	1.20	9	21	12
8843 B2/B66A RRH	18.4	14.4	16.7	1.84	2.13	1.28	1.10	1.20	1.20	18	21	19
8843 B2/B66A RRH (Shielded)	18.4	7.2	16.7	0.92	2.13	2.56	1.10	1.20	1.20	9	21	12
DTMABP7819VG12A TMA	14.2	14.6	7.3	1.44	0.72	0.97	1.95	1.20	1.20	14	7	12

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	16	9	14
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	5.20	4.90	12.31	1.31	1.58	50	24	44
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	51	22	44
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	4	5	4
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	4	5	4
4449 B5/B12 RRH (Shielded)	14.9	5.2	13.2	0.54	1.37	2.87	1.13	1.22	1.20	2	5	3
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	4
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	5	3
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	3	1	2

Date: 5/1/2019
Project Name: POMFRET-TYRONE RD.
Project No.: CT1050
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	60	(deg)	Ice Thickness =	1.75	in.	Equivalent Angle =	240	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	305	162	198
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	5.20	4.90	12.31	1.31	1.58	946	455	577
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	962	416	552
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	152	92	107
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	116	92	98
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	72	91	86
4449 B5/B12 RRH (Shielded)	14.9	7.8	13.2	0.81	1.37	1.91	1.13	1.20	1.20	54	91	82
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	75	91	87
8843 B2/B66A RRH (Shielded)	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	56	91	82
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	55	19	28

WIND LOADS WITH ICE:

7770 Antenna	58.5	14.5	8.5	5.89	3.45	4.04	6.89	1.27	1.39	61	39	45
NNHH-65C-R4 Antenna	99.5	23.1	11.3	15.96	7.80	4.31	8.81	1.28	1.46	168	93	112
800-10966 Antenna	99.5	23.5	10.4	16.23	7.18	4.23	9.57	1.28	1.49	170	87	108
RRUS-32 RRH	30.7	15.6	10.5	3.32	2.24	1.97	2.92	1.20	1.22	33	22	25
RRUS-32 RRH (Shielded)	30.7	11.7	10.5	2.49	2.24	2.62	2.92	1.21	1.22	25	22	23
4449 B5/B12 RRH	18.4	13.9	16.7	1.78	2.13	1.32	1.10	1.20	1.20	17	21	20
4449 B5/B12 RRH (Shielded)	18.4	10.4	16.7	1.33	2.13	1.77	1.10	1.20	1.20	13	21	19
8843 B2/B66A RRH	18.4	14.4	16.7	1.84	2.13	1.28	1.10	1.20	1.20	18	21	20
8843 B2/B66A RRH (Shielded)	18.4	10.8	16.7	1.38	2.13	1.70	1.10	1.20	1.20	14	21	19
DTMABP7819VG12A TMA	14.2	14.6	7.3	1.44	0.72	0.97	1.95	1.20	1.20	14	7	9

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	16	9	11
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	5.20	4.90	12.31	1.31	1.58	50	24	31
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	51	22	29
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	4	5	5
4449 B5/B12 RRH (Shielded)	14.9	7.8	13.2	0.81	1.37	1.91	1.13	1.20	1.20	3	5	4
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	5
8843 B2/B66A RRH (Shielded)	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	3	5	4
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	3	1	1

Date: 5/1/2019
Project Name: POMFRET-TYRONE RD.
Project No.: CT1050
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle =	90	(deg)	Ice Thickness =	1.75	in.	Equivalent Angle =	270	(deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	305	162	162
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	5.20	4.90	12.31	1.31	1.58	946	455	455
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	962	416	416
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	152	92	92
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	0.00	3.89	1.20	1.26	0	92	92
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	72	91	91
4449 B5/B12 RRH (Shielded)	14.9	0.0	13.2	0.00	1.37	0.00	1.13	1.20	1.20	0	91	91
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	75	91	91
8843 B2/B66A RRH (Shielded)	14.9	0.0	13.2	0.00	1.37	0.00	1.13	1.20	1.20	0	91	91
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	55	19	19

WIND LOADS WITH ICE:

7770 Antenna	58.5	14.5	8.5	5.89	3.45	4.04	6.89	1.27	1.39	61	39	39
NNHH-65C-R4 Antenna	99.5	23.1	11.3	15.96	7.80	4.31	8.81	1.28	1.46	168	93	93
800-10966 Antenna	99.5	23.5	10.4	16.23	7.18	4.23	9.57	1.28	1.49	170	87	87
RRUS-32 RRH	30.7	15.6	10.5	3.32	2.24	1.97	2.92	1.20	1.22	33	22	22
RRUS-32 RRH (Shielded)	30.7	3.5	10.5	0.75	2.24	8.78	2.92	1.46	1.22	9	22	22
4449 B5/B12 RRH	18.4	13.9	16.7	1.78	2.13	1.32	1.10	1.20	1.20	17	21	21
4449 B5/B12 RRH (Shielded)	18.4	3.5	16.7	0.45	2.13	5.26	1.10	1.32	1.20	5	21	21
8843 B2/B66A RRH	18.4	14.4	16.7	1.84	2.13	1.28	1.10	1.20	1.20	18	21	21
8843 B2/B66A RRH (Shielded)	18.4	3.5	16.7	0.45	2.13	5.26	1.10	1.32	1.20	5	21	21
DTMABP7819VG12A TMA	14.2	14.6	7.3	1.44	0.72	0.97	1.95	1.20	1.20	14	7	7

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	16	9	9
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	5.20	4.90	12.31	1.31	1.58	50	24	24
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	51	22	22
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	5
RRUS-32 RRH (Shielded)	27.2	0.0	7.0	0.00	1.32	0.00	3.89	1.20	1.26	0	5	5
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	4	5	5
4449 B5/B12 RRH (Shielded)	14.9	0.0	13.2	0.00	1.37	0.00	1.13	1.20	1.20	0	5	5
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	5
8843 B2/B66A RRH (Shielded)	14.9	0.0	13.2	0.00	1.37	0.00	1.13	1.20	1.20	0	5	5
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	3	1	1

Date: 5/1/2019
Project Name: POMFRET-TYRONE RD.
Project No.: CT1050
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 120 (deg) | Ice Thickness = 1.75 in. | Equivalent Angle = 300 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	305	162	198
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	5.20	4.90	12.31	1.31	1.58	946	455	577
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	962	416	552
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	152	92	107
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	116	92	98
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	72	91	86
4449 B5/B12 RRH (Shielded)	14.9	7.8	13.2	0.81	1.37	1.91	1.13	1.20	1.20	54	91	82
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	75	91	87
8843 B2/B66A RRH (Shielded)	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	56	91	82
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	55	19	28

WIND LOADS WITH ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	58.5	14.5	8.5	5.89	3.45	4.04	6.89	1.27	1.39	61	39	45
NNHH-65C-R4 Antenna	99.5	23.1	11.3	15.96	7.80	4.31	8.81	1.28	1.46	168	93	112
800-10966 Antenna	99.5	23.5	10.4	16.23	7.18	4.23	9.57	1.28	1.49	170	87	108
RRUS-32 RRH	30.7	15.6	10.5	3.32	2.24	1.97	2.92	1.20	1.22	33	22	25
RRUS-32 RRH (Shielded)	30.7	11.7	10.5	2.49	2.24	2.62	2.92	1.21	1.22	25	22	23
4449 B5/B12 RRH	18.4	13.9	16.7	1.78	2.13	1.32	1.10	1.20	1.20	17	21	20
4449 B5/B12 RRH (Shielded)	18.4	10.4	16.7	1.33	2.13	1.77	1.10	1.20	1.20	13	21	19
8843 B2/B66A RRH	18.4	14.4	16.7	1.84	2.13	1.28	1.10	1.20	1.20	18	21	20
8843 B2/B66A RRH (Shielded)	18.4	10.8	16.7	1.38	2.13	1.70	1.10	1.20	1.20	14	21	19
DTMABP7819VG12A TMA	14.2	14.6	7.3	1.44	0.72	0.97	1.95	1.20	1.20	14	7	9

WIND LOADS AT 30 MPH:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	16	9	11
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	5.20	4.90	12.31	1.31	1.58	50	24	31
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	51	22	29
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	6
RRUS-32 RRH (Shielded)	27.2	9.1	7.0	1.71	1.32	3.00	3.89	1.22	1.26	6	5	5
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	4	5	5
4449 B5/B12 RRH (Shielded)	14.9	7.8	13.2	0.81	1.37	1.91	1.13	1.20	1.20	3	5	4
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	5
8843 B2/B66A RRH (Shielded)	14.9	8.2	13.2	0.85	1.37	1.82	1.13	1.20	1.20	3	5	4
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	3	1	1

Date: 5/1/2019
Project Name: POMFRET-TYRONE RD.
Project No.: CT1050
Designed By: JP Checked By: MSC

HUDSON Design Group LLC

WIND LOADS

Angle = 150 (deg) | Ice Thickness = 1.75 in. | Equivalent Angle = 330 (deg)

WIND LOADS WITH NO ICE:

Appurtenances	Height	Width	Depth	Flat Area (normal)	Flat Area (side)	Ratio (normal)	Ratio (side)	Ca (normal)	Ca (side)	Force (lbs) (normal)	Force (lbs) (side)	Force (lbs) (angle)
7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	305	162	270
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	5.20	4.90	12.31	1.31	1.58	946	455	823
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	962	416	826
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	152	92	137
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	82	92	84
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	72	91	76
4449 B5/B12 RRH (Shielded)	14.9	5.2	13.2	0.54	1.37	2.87	1.13	1.22	1.20	36	91	50
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	75	91	79
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	38	91	51
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	55	19	46

WIND LOADS WITH ICE:

7770 Antenna	58.5	14.5	8.5	5.89	3.45	4.04	6.89	1.27	1.39	61	39	56
NNHH-65C-R4 Antenna	99.5	23.1	11.3	15.96	7.80	4.31	8.81	1.28	1.46	168	93	149
800-10966 Antenna	99.5	23.5	10.4	16.23	7.18	4.23	9.57	1.28	1.49	170	87	149
RRUS-32 RRH	30.7	15.6	10.5	3.32	2.24	1.97	2.92	1.20	1.22	33	22	30
RRUS-32 RRH (Shielded)	30.7	7.8	10.5	1.66	2.24	3.94	2.92	1.26	1.22	17	22	19
4449 B5/B12 RRH	18.4	13.9	16.7	1.78	2.13	1.32	1.10	1.20	1.20	17	21	18
4449 B5/B12 RRH (Shielded)	18.4	6.9	16.7	0.89	2.13	2.65	1.10	1.21	1.20	9	21	12
8843 B2/B66A RRH	18.4	14.4	16.7	1.84	2.13	1.28	1.10	1.20	1.20	18	21	19
8843 B2/B66A RRH (Shielded)	18.4	7.2	16.7	0.92	2.13	2.56	1.10	1.20	1.20	9	21	12
DTMABP7819VG12A TMA	14.2	14.6	7.3	1.44	0.72	0.97	1.95	1.20	1.20	14	7	12

WIND LOADS AT 30 MPH:

7770 Antenna	55.0	11.0	5.0	4.20	1.91	5.00	11.00	1.31	1.53	16	9	14
NNHH-65C-R4 Antenna	96.0	19.6	7.8	13.07	5.20	4.90	12.31	1.31	1.58	50	24	44
800-10966 Antenna	96.0	20.0	6.9	13.33	4.60	4.80	13.91	1.30	1.63	51	22	44
RRUS-32 RRH	27.2	12.1	7.0	2.29	1.32	2.25	3.89	1.20	1.26	8	5	7
RRUS-32 RRH (Shielded)	27.2	6.1	7.0	1.14	1.32	4.50	3.89	1.29	1.26	4	5	4
4449 B5/B12 RRH	14.9	10.4	13.2	1.08	1.37	1.43	1.13	1.20	1.20	4	5	4
4449 B5/B12 RRH (Shielded)	14.9	5.2	13.2	0.54	1.37	2.87	1.13	1.22	1.20	2	5	3
8843 B2/B66A RRH	14.9	10.9	13.2	1.13	1.37	1.37	1.13	1.20	1.20	4	5	4
8843 B2/B66A RRH (Shielded)	14.9	5.5	13.2	0.56	1.37	2.73	1.13	1.21	1.20	2	5	3
DTMABP7819VG12A TMA	10.7	11.1	3.8	0.82	0.28	0.96	2.82	1.20	1.21	3	1	2

Date: 5/1/2019
Project Name: POMFRET-TYRONE RD.
Project No.: CT1050
Designed By: JP **Checked By:** MSC

HUDSON Design Group LLC

ICE WEIGHT CALCULATIONS

Thickness of ice: 1.75 in.
Density of ice: 56 pcf

7770 Antenna

Weight of ice based on total radial SF area:

Height (in):	55.0	
Width (in):	11.0	
Depth (in):	5.0	
Total weight of ice on object:		136 lbs
Weight of object:	35.0 lbs	
Combined weight of ice and object:		171 lbs

NNHH-65C-R4 Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	19.6	
Depth (in):	7.8	
Total weight of ice on object:		391 lbs
Weight of object:	102.0 lbs	
Combined weight of ice and object:		493 lbs

800-10966 Antenna

Weight of ice based on total radial SF area:

Height (in):	96.0	
Width (in):	20.0	
Depth (in):	6.9	
Total weight of ice on object:		392 lbs
Weight of object:	115.0 lbs	
Combined weight of ice and object:		507 lbs

RRUS-32 RRH

Weight of ice based on total radial SF area:

Height (in):	27.2	
Width (in):	12.1	
Depth (in):	7.0	
Total weight of ice on object:		76 lbs
Weight of object:	60.0 lbs	
Combined weight of ice and object:		136 lbs

4449 B5/B12 RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.4	
Total weight of ice on object:		49 lbs
Weight of object:	73.0 lbs	
Combined weight of ice and object:		122 lbs

8843 B2/B66A RRH

Weight of ice based on total radial SF area:

Height (in):	14.9	
Width (in):	13.2	
Depth (in):	10.9	
Total weight of ice on object:		50 lbs
Weight of object:	72.0 lbs	
Combined weight of ice and object:		122 lbs

DTMABP7819VG12A TMA

Weight of ice based on total radial SF area:

Height (in):	10.7	
Width (in):	11.1	
Depth (in):	3.8	
Total weight of ice on object:		26 lbs
Weight of object:	20.0 lbs	
Combined weight of ice and object:		46 lbs

Squid Surge Arrestor

Weight of ice based on total radial SF area:

Depth (in):	24.0	
Diameter(in):	9.7	
Total weight of ice on object:		49 lbs
Weight of object:	33 lbs	
Combined weight of ice and object:		82 lbs

2" pipe

Per foot weight of ice:

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

2-1/2" pipe

Per foot weight of ice:

diameter (in):	2.88	
Per foot weight of ice on object:		10 plf

3" Pipe

Per foot weight of ice:

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

L 2x2 Angles

Weight of ice based on total radial SF area:

Height (in):	2	
Width (in):	2	
Per foot weight of ice on object:		10 plf

HSS 4x4

Weight of ice based on total radial SF area:

Height (in):	4	
Width (in):	4	
Per foot weight of ice on object:		16 plf

PL 6x3/8

Weight of ice based on total radial SF area:

Height (in):	6	
Width (in):	0.375	
Per foot weight of ice on object:		17 plf

HUDSON
Design Group LLC

Mount Calculations
(Proposed Conditions)

Bentley

Current Date: 5/1/2019 12:53 PM
Units system: English
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Bentley

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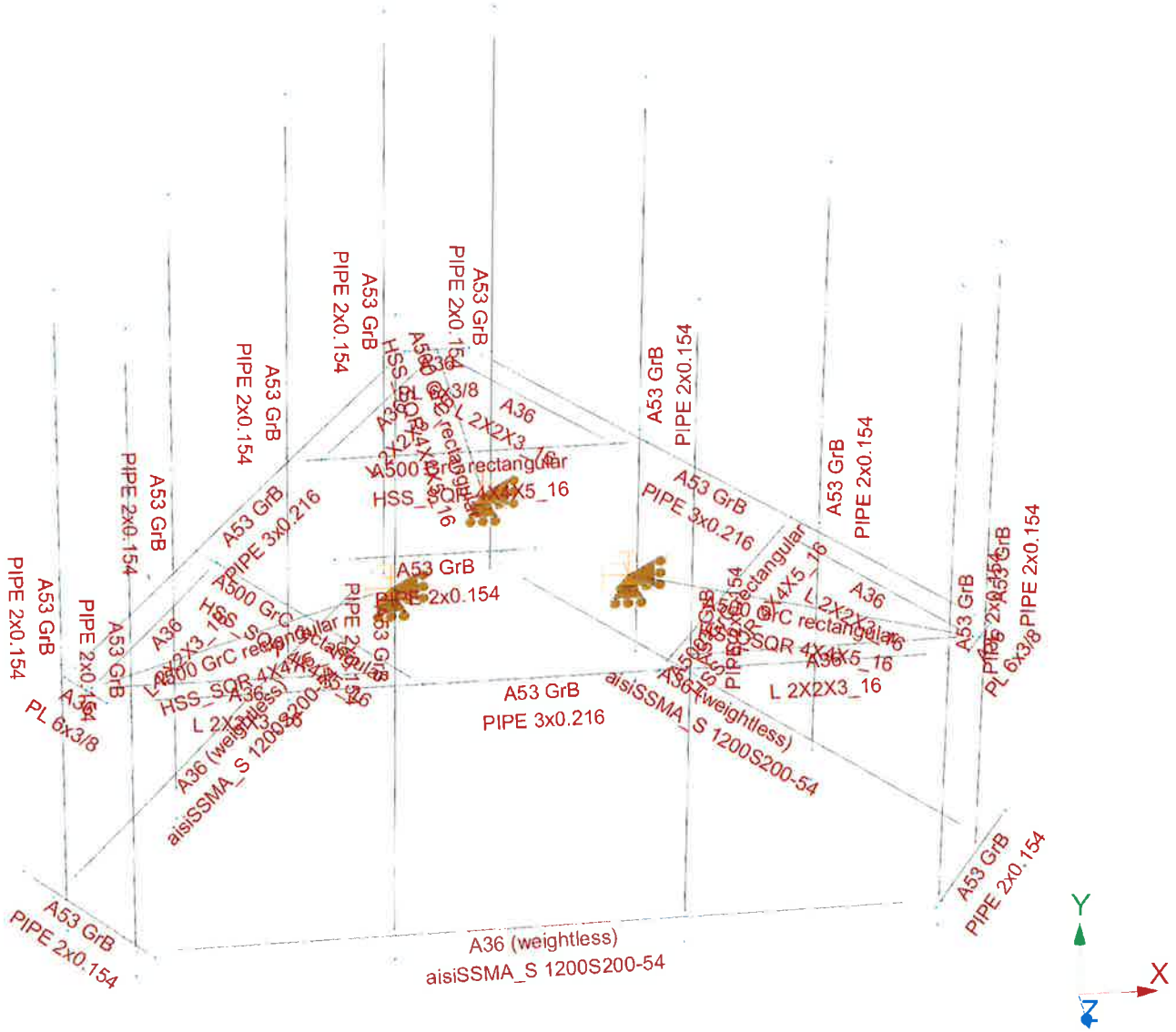

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Units system: English
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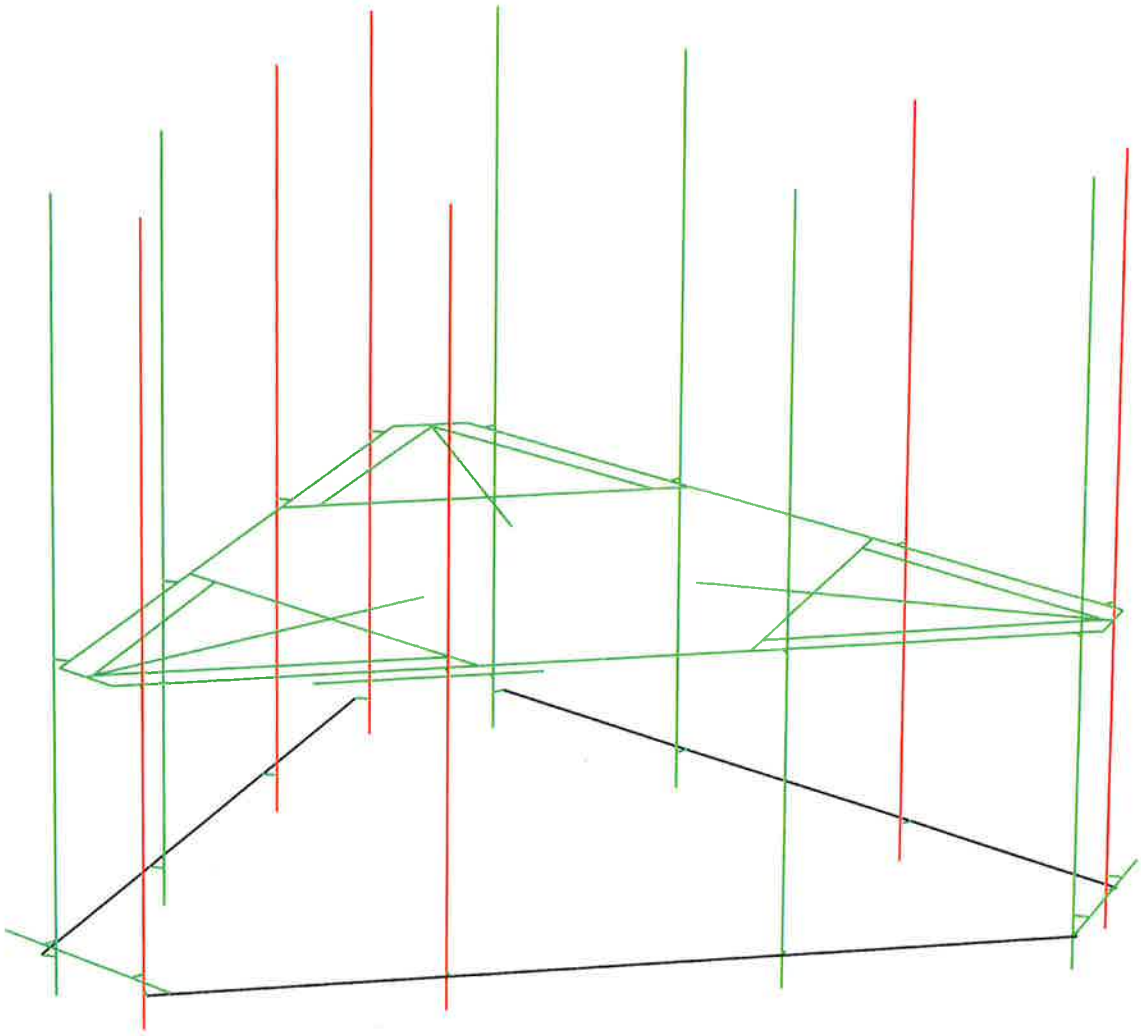
Design status

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



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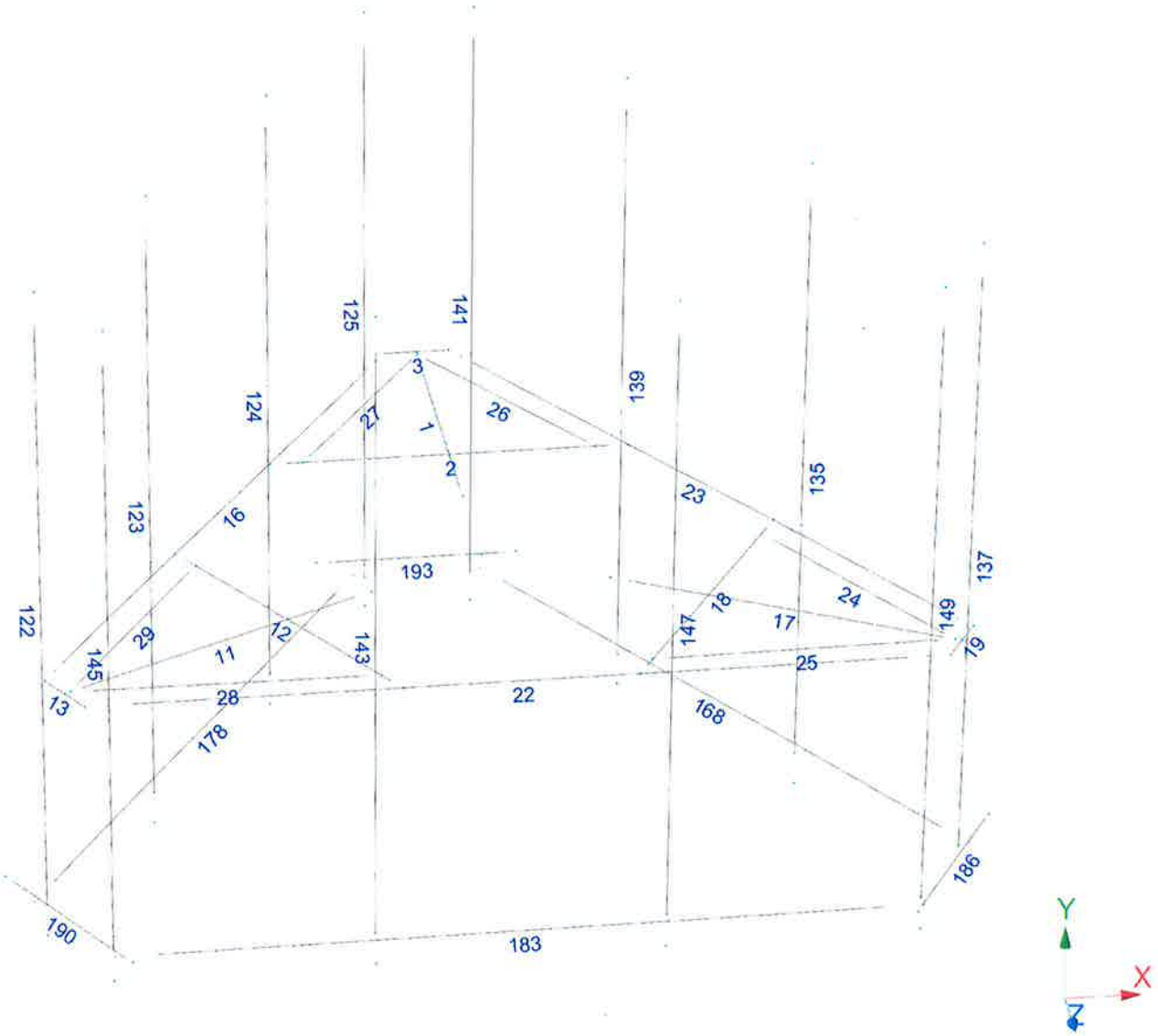

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Load data

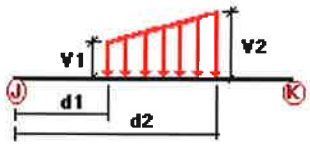
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

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

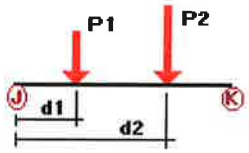
Distributed force on members



Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	1	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	11	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	16	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	17	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	22	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	23	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	168	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	178	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	183	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
W0	16	Z	-0.019	-0.019	0.00	Yes	100.00	Yes
	22	Z	-0.019	-0.019	0.00	Yes	100.00	Yes
	23	Z	-0.019	-0.019	0.00	Yes	100.00	Yes
	122	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	123	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	124	Z	-0.013	-0.013	0.00	Yes	100.00	Yes

	125	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	135	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	137	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	139	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	141	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	147	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	186	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	190	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	193	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
W30	16	X	-0.019	-0.019	0.00	Yes	100.00	Yes
	23	X	-0.019	-0.019	0.00	Yes	100.00	Yes
	122	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	123	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	124	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	125	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	135	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	137	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	139	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	141	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	143	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	145	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	147	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	149	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	186	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	190	X	-0.013	-0.013	0.00	Yes	100.00	Yes
Di	1	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	2	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	11	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	12	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	16	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	17	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	18	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	22	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	23	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	24	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	25	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	26	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	27	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	28	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	29	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	122	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	123	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	124	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	125	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	135	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	137	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	139	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	141	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	143	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	145	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	147	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	149	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	186	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	190	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	193	Y	-0.009	-0.009	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	122	y	-0.018	0.50	No
		y	-0.018	4.50	No
		y	-0.02	1.50	No
	124	y	-0.051	0.50	No
		y	-0.051	7.50	No
		y	-0.06	1.50	No
	125	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.145	1.50	No
	135	y	-0.051	0.50	No
		y	-0.051	7.50	No
		y	-0.06	1.50	No
	137	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.145	1.50	No
	141	y	-0.018	0.50	No
		y	-0.018	4.50	No
		y	-0.02	1.50	No
	143	y	-0.051	0.50	No
		y	-0.051	7.50	No
		y	-0.06	1.50	No
	145	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.145	1.50	No
	149	y	-0.018	0.50	No
		y	-0.018	4.50	No
		y	-0.02	1.50	No
W0	122	z	-0.10	0.50	No
		z	-0.10	4.50	No
		z	-0.028	1.50	No
	124	z	-0.289	0.50	No
		z	-0.289	7.50	No
		z	-0.098	1.50	No
	125	z	-0.277	0.50	No
		z	-0.277	7.50	No
		z	-0.082	1.50	No
	135	z	-0.289	0.50	No
		z	-0.289	7.50	No
		z	-0.098	1.50	No
	137	z	-0.277	0.50	No
		z	-0.277	7.50	No
		z	-0.082	1.50	No
	141	z	-0.10	0.50	No
		z	-0.10	4.50	No
		z	-0.028	1.50	No
	143	z	-0.474	0.50	No
		z	-0.474	7.50	No
	145	z	-0.482	0.50	No
		z	-0.482	7.50	No
	149	z	-0.153	0.50	No
		z	-0.153	4.50	No
W30	122	x	-0.028	0.50	No
		x	-0.028	4.50	No
		x	-0.046	1.50	No

	124	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.084	1.50	No
	125	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.051	1.50	No
	135	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.084	1.50	No
	137	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.051	1.50	No
	141	x	-0.028	0.50	No
		x	-0.028	4.50	No
		x	-0.046	1.50	No
	143	x	-0.228	0.50	No
		x	-0.228	7.50	No
		x	-0.092	1.50	No
	145	x	-0.208	0.50	No
		x	-0.208	7.50	No
		x	-0.091	1.50	No
	149	x	-0.082	0.50	No
		x	-0.082	4.50	No
		x	-0.019	1.50	No
Di	122	y	-0.068	0.50	No
		y	-0.068	4.50	No
		y	-0.026	1.50	No
	124	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.06	1.50	No
	125	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.099	1.50	No
	135	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.06	1.50	No
	137	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.099	1.50	No
	141	y	-0.068	0.50	No
		y	-0.068	4.50	No
		y	-0.026	1.50	No
	143	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.06	1.50	No
	145	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.099	1.50	No
	149	y	-0.068	0.50	No
		y	-0.068	4.50	No
		y	-0.026	1.50	No
Wi0	122	z	-0.023	0.50	No
		z	-0.023	4.50	No
		z	-0.009	1.50	No
	124	z	-0.056	0.50	No
		z	-0.056	7.50	No
		z	-0.023	1.50	No
	125	z	-0.055	0.50	No
		z	-0.055	7.50	No
		z	-0.019	1.50	No

	135	z	-0.056	0.50	No
		z	-0.056	7.50	No
		z	-0.023	1.50	No
	137	z	-0.055	0.50	No
		z	-0.055	7.50	No
		z	-0.019	1.50	No
	141	z	-0.023	0.50	No
		z	-0.023	4.50	No
		z	-0.009	1.50	No
	143	z	-0.086	0.50	No
		z	-0.086	7.50	No
	145	z	-0.087	0.50	No
		z	-0.087	7.50	No
	149	z	-0.032	0.50	No
		z	-0.032	4.50	No
Wi30	122	x	-0.028	0.50	No
		x	-0.028	4.50	No
		x	-0.012	1.50	No
	124	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.019	1.50	No
	125	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.012	1.50	No
	135	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.019	1.50	No
	137	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.012	1.50	No
	141	x	-0.028	0.50	No
		x	-0.028	4.50	No
		x	-0.012	1.50	No
	143	x	-0.047	0.50	No
		x	-0.047	7.50	No
		x	-0.022	1.50	No
	145	x	-0.044	0.50	No
		x	-0.044	7.50	No
		x	-0.021	1.50	No
	149	x	-0.02	0.50	No
		x	-0.02	4.50	No
		x	-0.007	1.50	No
WL0	122	z	-0.006	0.50	No
		z	-0.006	4.50	No
		z	-0.001	1.50	No
	124	z	-0.016	0.50	No
		z	-0.016	7.50	No
		z	-0.005	1.50	No
	125	z	-0.015	0.50	No
		z	-0.015	7.50	No
		z	-0.004	1.50	No
	135	z	-0.016	0.50	No
		z	-0.016	7.50	No
		z	-0.005	1.50	No
	137	z	-0.015	0.50	No
		z	-0.015	7.50	No
		z	-0.004	1.50	No
	141	z	-0.006	0.50	No
		z	-0.006	4.50	No
		z	-0.001	1.50	No

	143	z	-0.026	0.50	No
		z	-0.026	7.50	No
	145	z	-0.026	0.50	No
		z	-0.026	7.50	No
	149	z	-0.009	0.50	No
		z	-0.009	4.50	No
WL30	122	x	-0.008	0.50	No
		x	-0.008	4.50	No
		x	-0.002	1.50	No
	124	x	-0.022	0.50	No
		x	-0.022	7.50	No
		x	-0.004	1.50	No
	125	x	-0.022	0.50	No
		x	-0.022	7.50	No
		x	-0.003	1.50	No
	135	x	-0.022	0.50	No
		x	-0.022	7.50	No
		x	-0.004	1.50	No
	137	x	-0.022	0.50	No
		x	-0.022	7.50	No
		x	-0.003	1.50	No
	141	x	-0.008	0.50	No
		x	-0.008	4.50	No
		x	-0.002	1.50	No
	143	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.005	1.50	No
	145	x	-0.012	0.50	No
		x	-0.012	7.50	No
		x	-0.005	1.50	No
	149	x	-0.005	0.50	No
		x	-0.005	4.50	No
		x	-0.001	1.50	No
LL1	22	y	-0.25	50.00	Yes
LL2	22	y	-0.25	0.00	Yes
LLa1	149	y	-0.25	50.00	Yes
LLa2	147	y	-0.25	50.00	Yes
LLa3	143	y	-0.25	50.00	Yes
LLa4	145	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

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

LLa2	250 lb Live Load Antenna 2	No	0.00	0.00	0.00
LLa3	250 lb Live Load Antenna 3	No	0.00	0.00	0.00
LLa4	250 lb Live Load Antenna 4	No	0.00	0.00	0.00

Earthquake (Dynamic analysis only)

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

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC15=1.2DL+1.5LL1
LC16=1.2DL+1.5LL2
LC17=1.2DL+WL0+1.5LLa1
LC18=1.2DL+WL30+1.5LLa1
LC19=1.2DL-WL0+1.5LLa1
LC20=1.2DL-WL30+1.5LLa1
LC21=1.2DL+WL0+1.5LLa2
LC22=1.2DL+WL30+1.5LLa2
LC23=1.2DL-WL0+1.5LLa2
LC24=1.2DL-WL30+1.5LLa2
LC25=1.2DL+WL0+1.5LLa3
LC26=1.2DL+WL30+1.5LLa3
LC27=1.2DL-WL0+1.5LLa3
LC28=1.2DL-WL30+1.5LLa3
LC29=1.2DL+WL0+1.5LLa4
LC30=1.2DL+WL30+1.5LLa4
LC31=1.2DL-WL0+1.5LLa4
LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	aisiSSMA_S 1200S200-54	**168**	LC12 at 31.25%	**0.71**	**With warnings**	Sec. C5.2
		178	LC9 at 31.25%	0.70	With warnings	Sec. C5.2
		183	LC11 at 68.75%	0.70	With warnings	Sec. C5.2
	HSS_SQR 4X4X5_16	**1**	LC9 at 0.00%	0.38	OK	Eq. H1-1b
		2	LC9 at 50.00%	0.16	OK	Eq. H1-1b
		11	LC10 at 0.00%	0.38	OK	Eq. H1-1b
		12	LC11 at 50.00%	0.16	OK	Eq. H1-1b
		17	LC12 at 0.00%	**0.38**	**OK**	Eq. H1-1b
		18	LC12 at 50.00%	0.16	OK	Eq. H1-1b
	L 2X2X3_16	**24**	LC4 at 0.00%	0.18	OK	Eq. H2-1
		25	LC3 at 0.00%	0.24	OK	Eq. H2-1
		26	LC1 at 0.00%	0.26	OK	Eq. H2-1
		27	LC1 at 0.00%	0.27	OK	Eq. H2-1
		28	LC3 at 0.00%	**0.28**	**OK**	Eq. H2-1
		29	LC2 at 100.00%	0.19	OK	Eq. H2-1

PIPE 2x0.154	**122**	LC1 at 56.25%	0.70	OK	Eq. H1-1b
	123	LC12 at 58.33%	0.33	OK	Eq. H1-1b
	124	LC1 at 56.25%	**1.53**	**N.G.**	Eq. H1-1b
	125	LC1 at 56.25%	1.45	N.G.	Eq. H1-1b
	135	LC1 at 56.25%	1.53	N.G.	Eq. H1-1b
	137	LC1 at 56.25%	1.45	N.G.	Eq. H1-1b
	139	LC11 at 58.33%	0.33	OK	Eq. H1-1b
	141	LC3 at 56.25%	0.70	OK	Eq. H1-1b
	143	LC1 at 56.25%	1.31	N.G.	Eq. H1-1b
	145	LC1 at 56.25%	1.33	N.G.	Eq. H1-1b
	147	LC10 at 58.33%	0.33	OK	Eq. H1-1b
	149	LC1 at 56.25%	0.52	OK	Eq. H1-1b
	186	LC1 at 25.00%	0.12	OK	Eq. H1-1b
	190	LC3 at 25.00%	0.16	OK	Eq. H1-1b
	193	LC10 at 25.00%	0.08	OK	Eq. H1-1b
PIPE 3x0.216	**16**	LC1 at 63.39%	0.30	OK	Eq. H1-1b
	22	LC1 at 33.04%	**0.38**	**OK**	Eq. H3-1
	23	LC3 at 35.71%	0.30	OK	Eq. H1-1b
PL 6x3/8	**3**	LC1 at 46.88%	0.20	OK	Eq. H1-1b
	13	LC3 at 46.88%	**0.29**	**OK**	Eq. H1-1b
	19	LC3 at 100.00%	0.15	OK	Eq. H1-1b

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Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
3	0.00	-1.75	-0.75	0
4	0.00	-1.75	-2.25	0
5	0.00	-1.75	-6.08	0
6	-2.709	-1.75	-2.25	0
7	2.709	-1.75	-2.25	0
8	-0.50	-1.75	-6.08	0
9	0.50	-1.75	-6.08	0
10	2.212	-1.75	-2.25	0
11	-2.212	-1.75	-2.25	0
15	0.00	-1.75	1.25	0
28	-1.7321	-1.75	2.25	0
29	-3.0311	-1.75	3.00	0
30	-6.348	-1.75	4.915	0
31	-1.6766	-1.75	5.3461	0
32	-4.3856	-1.75	0.6539	0
33	-6.098	-1.75	5.348	0
34	-6.598	-1.75	4.482	0
35	-4.1371	-1.75	1.0844	0
36	-1.9251	-1.75	4.9156	0
39	1.7321	-1.75	2.25	0
40	3.0311	-1.75	3.00	0
41	6.348	-1.75	4.915	0

42	4.3856	-1.75	0.6539	0
43	1.6766	-1.75	5.3461	0
44	6.598	-1.75	4.482	0
45	6.098	-1.75	5.348	0
46	1.9251	-1.75	4.9156	0
47	4.1371	-1.75	1.0844	0
375	6.2566	-1.75	4.8622	0
377	0.00	-1.75	-5.9745	0
379	-6.2566	-1.75	4.8622	0
580	-2.679	-6.00	-2.702	0
581	-0.8382	-6.00	-5.8942	0
582	-6.6062	-6.00	4.0962	0
583	-4.762	-6.00	0.9059	0
584	-2.679	4.00	-2.702	0
585	-0.8382	4.00	-5.8942	0
586	-6.6062	4.00	4.0962	0
587	-4.762	4.00	0.9059	0
606	4.762	-6.00	0.9059	0
607	4.762	4.00	0.9059	0
610	6.6062	-6.00	4.0962	0
611	6.6062	4.00	4.0962	0
614	2.679	-6.00	-2.702	0
615	2.679	4.00	-2.702	0
618	0.8382	-6.00	-5.8942	0
619	0.8382	4.00	-5.8942	0
622	-2.083	-6.00	5.5461	0
623	-2.083	4.00	5.5461	0
626	-5.768	-6.00	5.548	0
627	-5.768	4.00	5.548	0
630	2.083	-6.00	5.5461	0
631	2.083	4.00	5.5461	0
634	5.768	-6.00	5.548	0
635	5.768	4.00	5.548	0
700	5.5662	-5.30	6.2975	0
701	7.1544	-5.30	3.5467	0
708	-7.1544	-5.30	3.5467	0
709	-5.5662	-5.30	6.2975	0
714	1.5882	-5.30	-6.0942	0
715	-1.5882	-5.30	-6.0942	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
3	1	1	1	1	1	1
28	1	1	1	1	1	1
39	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	3	5		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
2	7	6		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
3	8	9		PL 6x3/8	A36	0.00	0.00	0.00
11	28	30		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
12	32	31		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
13	33	34		PL 6x3/8	A36	0.00	0.00	0.00
16	34	8		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
17	39	41		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
18	43	42		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
19	44	45		PL 6x3/8	A36	0.00	0.00	0.00
22	33	45		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
23	44	9		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
24	47	375		L 2X2X3_16	A36	0.00	0.00	0.00
25	46	375		L 2X2X3_16	A36	0.00	0.00	0.00
26	10	377		L 2X2X3_16	A36	0.00	0.00	0.00
27	11	377		L 2X2X3_16	A36	0.00	0.00	0.00
28	36	379		L 2X2X3_16	A36	0.00	0.00	0.00
29	379	35		L 2X2X3_16	A36	0.00	0.00	0.00
122	586	582		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
123	587	583		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
124	584	580		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
125	585	581		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
135	607	606		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
137	611	610		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
139	615	614		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
141	619	618		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
143	623	622		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
145	627	626		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
147	631	630		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
149	635	634		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
168	670	654		aisiSSMA_S 1200S200-54	A36 (weightless)	0.00	0.00	0.00
178	686	682		aisiSSMA_S 1200S200-54	A36 (weightless)	0.00	0.00	0.00
183	694	690		aisiSSMA_S 1200S200-54	A36 (weightless)	0.00	0.00	0.00
186	701	700		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
190	709	708		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
193	715	714		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
25	270.00	0	0.00	0.00	0.00
26	270.00	0	0.00	0.00	0.00
122	0.00	2	0.50	0.00	-0.866
123	0.00	2	0.50	0.00	-0.866
124	0.00	2	0.50	0.00	-0.866
125	0.00	2	0.50	0.00	-0.866
135	0.00	2	0.50	0.00	0.866
137	0.00	2	0.50	0.00	0.866
139	0.00	2	0.50	0.00	0.866
141	0.00	2	0.50	0.00	0.866
143	0.00	2	-1.00	0.00	0.00
145	0.00	2	-1.00	0.00	0.00
147	0.00	2	-1.00	0.00	0.00
149	0.00	2	-1.00	0.00	0.00
168	90.00	0	0.00	0.00	0.00

178	90.00	0	0.00	0.00	0.00
183	90.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
168	5.3301	0.00	-0.7679	3.3301	0.00	-4.2321
178	-3.3301	0.00	-4.2321	-5.3301	0.00	-0.7679
183	-2.00	0.00	5.00	2.00	0.00	5.00

HUDSON
Design Group LLC

Mount Calculations
(Modified Conditions)

Bentley

Current Date: 5/1/2019 12:55 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1050\Rev.3\CT1050 (Rev.3) (MOD).etz\

Current Date: 5/1/2019 1:01 PM
Units system: English
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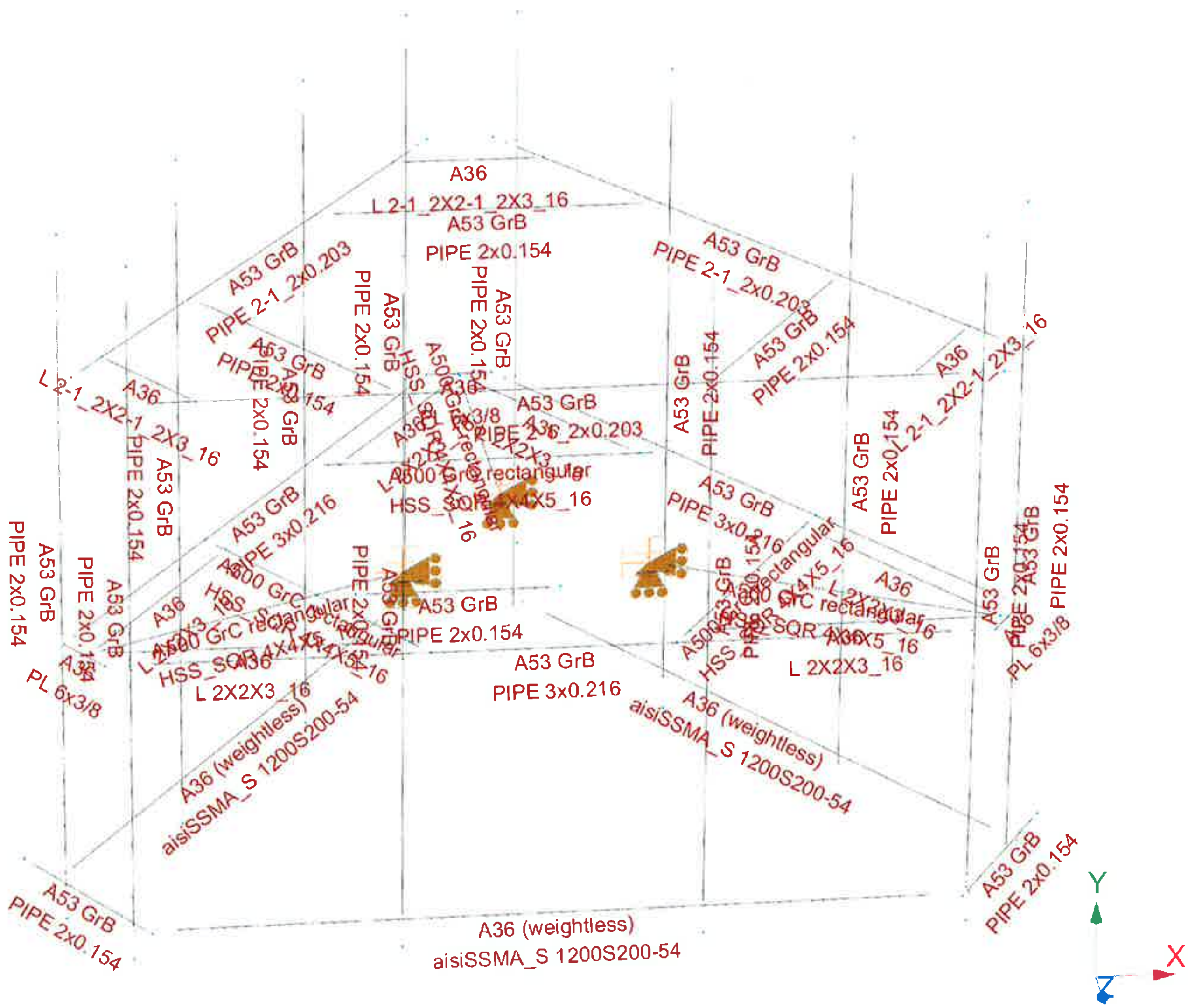

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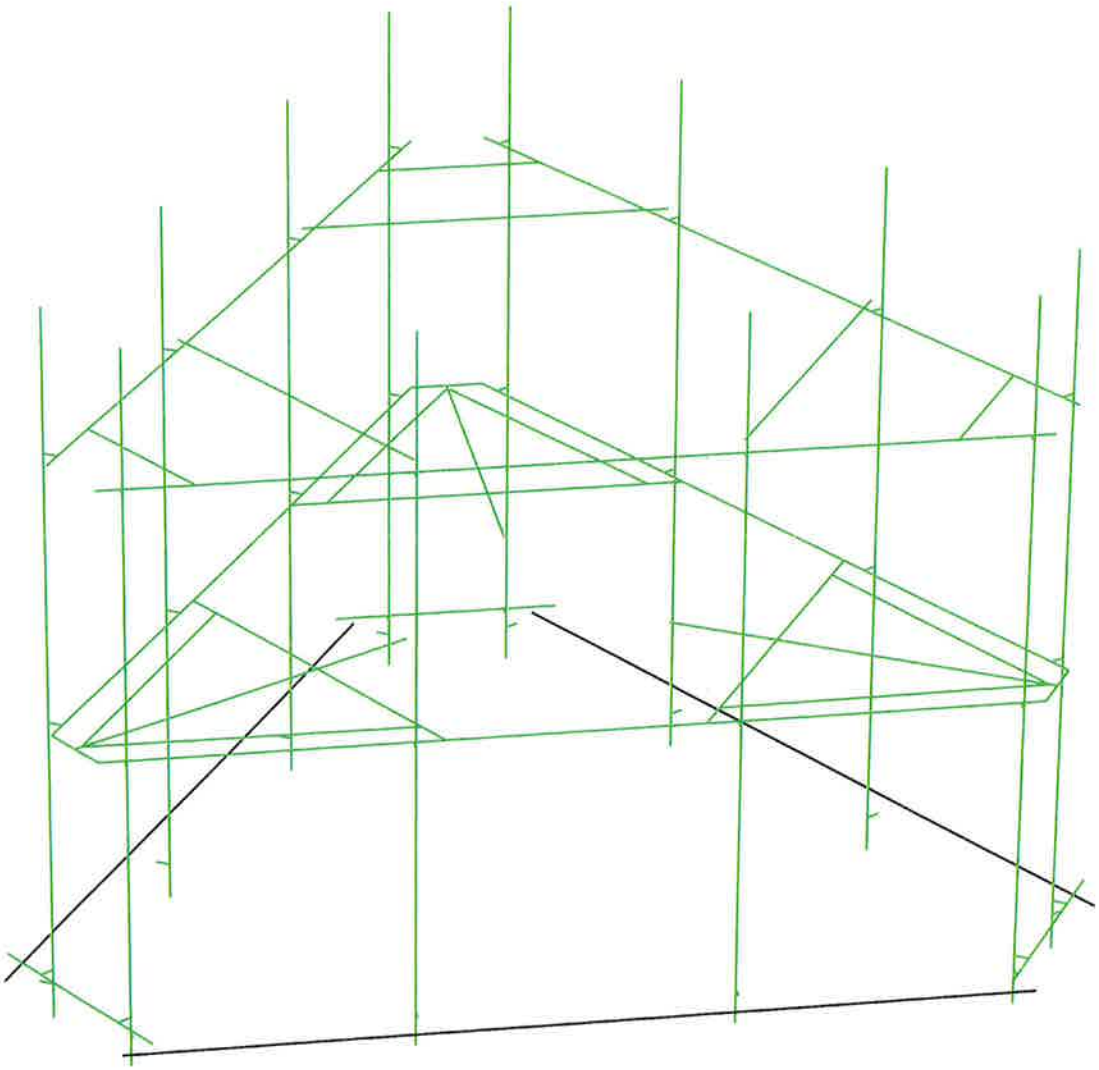
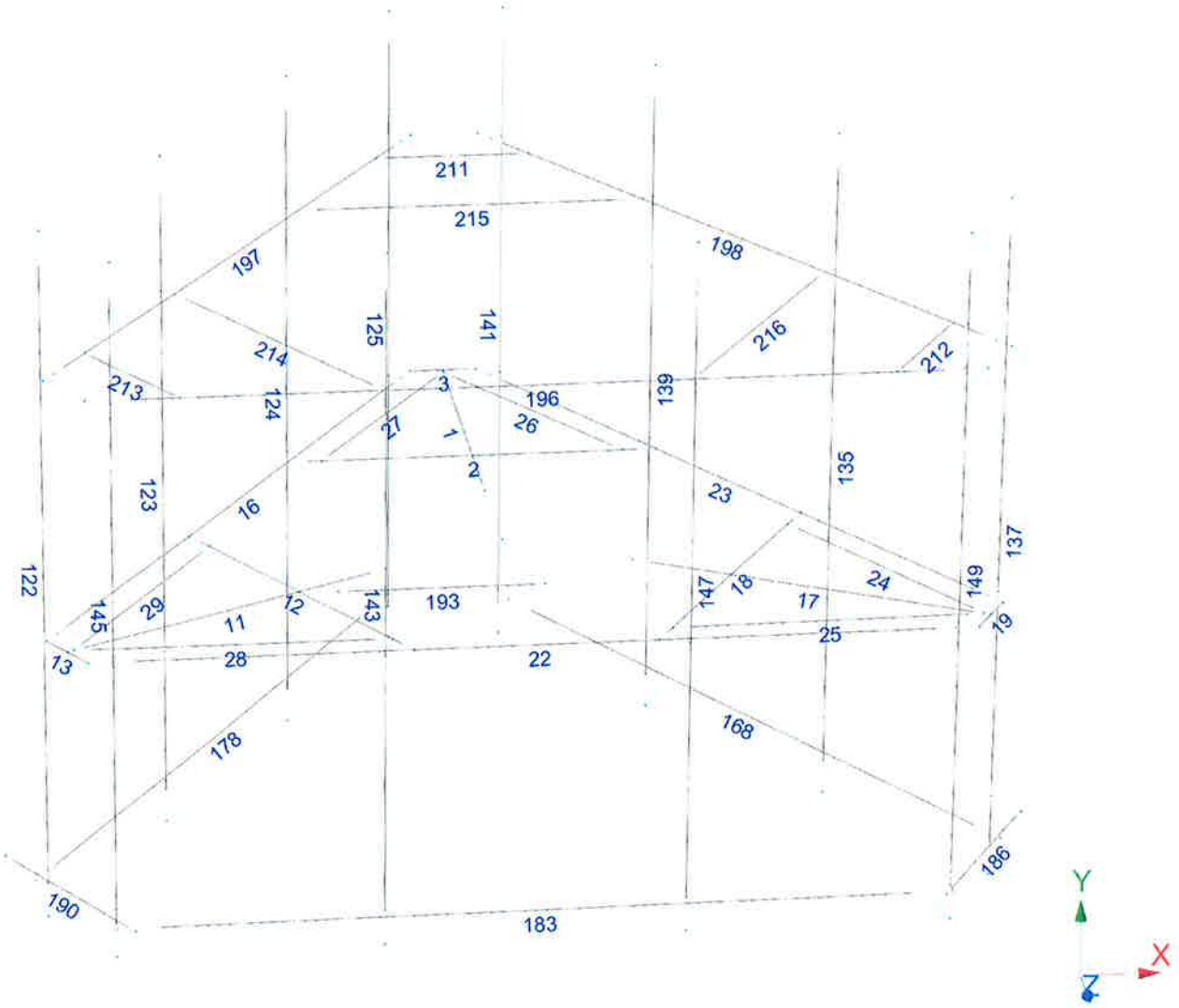
Design status

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

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1
26
2
135
123
16
23
137
122
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11
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Bentley

Current Date: 5/1/2019 1:01 PM
Units system: English
File name: W:\STRUCTURAL DEPARTMENT\ANALYSIS SOFTWARE\RAM Elements\RAM Projects\AT&T\CT\CT1050\Rev.3\CT1050 (Rev.3) (MOD).e

Load data

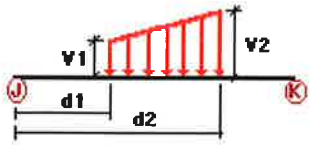
GLOSSARY

Comb : Indicates if load condition is a load combination

Load Conditions

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

Distributed force on members

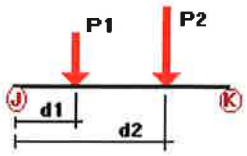


Condition	Member	Dir1	Val1 [Kip/ft]	Val2 [Kip/ft]	Dist1 [ft]	%	Dist2 [ft]	%
DL	1	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	11	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	16	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	17	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	22	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	23	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	168	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	178	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	183	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
W0	16	Z	-0.019	-0.019	0.00	Yes	100.00	Yes
	22	Z	-0.019	-0.019	0.00	Yes	100.00	Yes
	23	Z	-0.019	-0.019	0.00	Yes	100.00	Yes
	122	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	123	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	124	Z	-0.013	-0.013	0.00	Yes	100.00	Yes

	125	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	135	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	137	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	139	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	141	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	147	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	186	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	190	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	193	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	196	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	197	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
	198	Z	-0.013	-0.013	0.00	Yes	100.00	Yes
W30	16	X	-0.019	-0.019	0.00	Yes	100.00	Yes
	23	X	-0.019	-0.019	0.00	Yes	100.00	Yes
	122	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	123	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	124	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	125	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	135	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	137	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	139	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	141	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	143	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	145	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	147	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	149	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	186	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	190	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	197	X	-0.013	-0.013	0.00	Yes	100.00	Yes
	198	X	-0.013	-0.013	0.00	Yes	100.00	Yes
Di	1	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	2	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	11	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	12	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	16	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	17	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	18	Y	-0.016	-0.016	0.00	Yes	100.00	Yes
	22	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	23	Y	-0.011	-0.011	0.00	Yes	100.00	Yes
	24	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	25	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	26	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	27	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	28	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	29	Y	-0.01	-0.01	0.00	Yes	100.00	Yes
	122	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	123	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	124	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	125	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	135	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	137	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	139	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	141	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	143	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	145	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	147	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	149	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	186	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	190	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
	193	Y	-0.009	-0.009	0.00	Yes	100.00	Yes

196	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
197	Y	-0.009	-0.009	0.00	Yes	100.00	Yes
198	Y	-0.009	-0.009	0.00	Yes	100.00	Yes

Concentrated forces on members



Condition	Member	Dir1	Value1 [Kip]	Dist1 [ft]	%
DL	122	y	-0.018	0.50	No
		y	-0.018	4.50	No
		y	-0.02	1.50	No
	124	y	-0.051	0.50	No
		y	-0.051	7.50	No
		y	-0.06	1.50	No
	125	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.145	1.50	No
	135	y	-0.051	0.50	No
		y	-0.051	7.50	No
		y	-0.06	1.50	No
	137	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.145	1.50	No
	141	y	-0.018	0.50	No
		y	-0.018	4.50	No
		y	-0.02	1.50	No
	143	y	-0.051	0.50	No
		y	-0.051	7.50	No
		y	-0.06	1.50	No
	145	y	-0.058	0.50	No
		y	-0.058	7.50	No
		y	-0.145	1.50	No
	149	y	-0.018	0.50	No
		y	-0.018	4.50	No
		y	-0.02	1.50	No
W0	122	z	-0.10	0.50	No
		z	-0.10	4.50	No
		z	-0.028	1.50	No
	124	z	-0.289	0.50	No
		z	-0.289	7.50	No
		z	-0.098	1.50	No
	125	z	-0.277	0.50	No
		z	-0.277	7.50	No
		z	-0.082	1.50	No
	135	z	-0.289	0.50	No
		z	-0.289	7.50	No
		z	-0.098	1.50	No
	137	z	-0.277	0.50	No
		z	-0.277	7.50	No
		z	-0.082	1.50	No

	141	z	-0.10	0.50	No
		z	-0.10	4.50	No
		z	-0.028	1.50	No
	143	z	-0.474	0.50	No
		z	-0.474	7.50	No
	145	z	-0.482	0.50	No
		z	-0.482	7.50	No
	149	z	-0.153	0.50	No
		z	-0.153	4.50	No
W30	122	x	-0.028	0.50	No
		x	-0.028	4.50	No
		x	-0.046	1.50	No
	124	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.084	1.50	No
	125	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.051	1.50	No
	135	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.084	1.50	No
	137	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.051	1.50	No
	141	x	-0.028	0.50	No
		x	-0.028	4.50	No
		x	-0.046	1.50	No
	143	x	-0.228	0.50	No
		x	-0.228	7.50	No
		x	-0.092	1.50	No
	145	x	-0.208	0.50	No
		x	-0.208	7.50	No
		x	-0.091	1.50	No
	149	x	-0.082	0.50	No
		x	-0.082	4.50	No
		x	-0.019	1.50	No
Di	122	y	-0.068	0.50	No
		y	-0.068	4.50	No
		y	-0.026	1.50	No
	124	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.06	1.50	No
	125	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.099	1.50	No
	135	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.06	1.50	No
	137	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.099	1.50	No
	141	y	-0.068	0.50	No
		y	-0.068	4.50	No
		y	-0.026	1.50	No
	143	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.06	1.50	No
	145	y	-0.196	0.50	No
		y	-0.196	7.50	No
		y	-0.099	1.50	No

	149	y	-0.068	0.50	No
		y	-0.068	4.50	No
		y	-0.026	1.50	No
Wi0	122	z	-0.023	0.50	No
		z	-0.023	4.50	No
		z	-0.009	1.50	No
	124	z	-0.056	0.50	No
		z	-0.056	7.50	No
		z	-0.023	1.50	No
	125	z	-0.055	0.50	No
		z	-0.055	7.50	No
		z	-0.019	1.50	No
	135	z	-0.056	0.50	No
		z	-0.056	7.50	No
		z	-0.023	1.50	No
	137	z	-0.055	0.50	No
		z	-0.055	7.50	No
		z	-0.019	1.50	No
	141	z	-0.023	0.50	No
		z	-0.023	4.50	No
		z	-0.009	1.50	No
	143	z	-0.086	0.50	No
		z	-0.086	7.50	No
	145	z	-0.087	0.50	No
		z	-0.087	7.50	No
	149	z	-0.032	0.50	No
		z	-0.032	4.50	No
Wi30	122	x	-0.028	0.50	No
		x	-0.028	4.50	No
		x	-0.012	1.50	No
	124	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.019	1.50	No
	125	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.012	1.50	No
	135	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.019	1.50	No
	137	x	-0.075	0.50	No
		x	-0.075	7.50	No
		x	-0.012	1.50	No
	141	x	-0.028	0.50	No
		x	-0.028	4.50	No
		x	-0.012	1.50	No
	143	x	-0.047	0.50	No
		x	-0.047	7.50	No
		x	-0.022	1.50	No
	145	x	-0.044	0.50	No
		x	-0.044	7.50	No
		x	-0.021	1.50	No
	149	x	-0.02	0.50	No
		x	-0.02	4.50	No
		x	-0.007	1.50	No
WL0	122	z	-0.006	0.50	No
		z	-0.006	4.50	No
		z	-0.001	1.50	No
	124	z	-0.016	0.50	No
		z	-0.016	7.50	No
		z	-0.005	1.50	No

	125	z	-0.015	0.50	No
		z	-0.015	7.50	No
		z	-0.004	1.50	No
	135	z	-0.016	0.50	No
		z	-0.016	7.50	No
		z	-0.005	1.50	No
	137	z	-0.015	0.50	No
		z	-0.015	7.50	No
		z	-0.004	1.50	No
	141	z	-0.006	0.50	No
		z	-0.006	4.50	No
		z	-0.001	1.50	No
	143	z	-0.026	0.50	No
		z	-0.026	7.50	No
	145	z	-0.026	0.50	No
		z	-0.026	7.50	No
	149	z	-0.009	0.50	No
		z	-0.009	4.50	No
WL30	122	x	-0.008	0.50	No
		x	-0.008	4.50	No
		x	-0.002	1.50	No
	124	x	-0.022	0.50	No
		x	-0.022	7.50	No
		x	-0.004	1.50	No
	125	x	-0.022	0.50	No
		x	-0.022	7.50	No
		x	-0.003	1.50	No
	135	x	-0.022	0.50	No
		x	-0.022	7.50	No
		x	-0.004	1.50	No
	137	x	-0.022	0.50	No
		x	-0.022	7.50	No
		x	-0.003	1.50	No
	141	x	-0.008	0.50	No
		x	-0.008	4.50	No
		x	-0.002	1.50	No
	143	x	-0.013	0.50	No
		x	-0.013	7.50	No
		x	-0.005	1.50	No
	145	x	-0.012	0.50	No
		x	-0.012	7.50	No
		x	-0.005	1.50	No
	149	x	-0.005	0.50	No
		x	-0.005	4.50	No
		x	-0.001	1.50	No
LL1	22	y	-0.25	50.00	Yes
	196	y	-0.25	50.00	Yes
LL2	22	y	-0.25	0.00	Yes
	196	y	-0.25	0.00	Yes
LLa1	149	y	-0.25	50.00	Yes
LLa2	147	y	-0.25	50.00	Yes
LLa3	143	y	-0.25	50.00	Yes
LLa4	145	y	-0.25	50.00	Yes

Self weight multipliers for load conditions

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

Earthquake (Dynamic analysis only)

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

Bentley

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Steel Code Check

Report: Summary - Group by member

Load conditions to be included in design :

LC1=1.2DL+W0
LC2=1.2DL+W30
LC3=1.2DL-W0
LC4=1.2DL-W30
LC5=0.9DL+W0
LC6=0.9DL+W30
LC7=0.9DL-W0
LC8=0.9DL-W30
LC9=1.2DL+Di+Wi0
LC10=1.2DL+Di+Wi30
LC11=1.2DL+Di-Wi0
LC12=1.2DL+Di-Wi30
LC13=1.2DL
LC15=1.2DL+1.5LL1
LC16=1.2DL+1.5LL2
LC17=1.2DL+WL0+1.5LLa1
LC18=1.2DL+WL30+1.5LLa1
LC19=1.2DL-WL0+1.5LLa1
LC20=1.2DL-WL30+1.5LLa1
LC21=1.2DL+WL0+1.5LLa2
LC22=1.2DL+WL30+1.5LLa2
LC23=1.2DL-WL0+1.5LLa2
LC24=1.2DL-WL30+1.5LLa2
LC25=1.2DL+WL0+1.5LLa3
LC26=1.2DL+WL30+1.5LLa3
LC27=1.2DL-WL0+1.5LLa3
LC28=1.2DL-WL30+1.5LLa3
LC29=1.2DL+WL0+1.5LLa4
LC30=1.2DL+WL30+1.5LLa4
LC31=1.2DL-WL0+1.5LLa4
LC32=1.2DL-WL30+1.5LLa4

Description	Section	Member	Ctrl Eq.	Ratio	Status	Reference
	aisiSSMA_S 1200S200-54	**168**	LC9 at 68.75%	**0.52**	**With warnings**	Sec. C5.2
		178	LC10 at 68.75%	0.51	With warnings	Sec. C5.2
		183	LC12 at 68.75%	0.51	With warnings	Sec. C5.2
	HSS_SQR 4X4X5_16	**1**	LC1 at 0.00%	**0.35**	**OK**	Eq. H1-1b
		2	LC9 at 50.00%	0.18	OK	Eq. H1-1b
		11	LC10 at 0.00%	0.35	OK	Eq. H1-1b
		12	LC11 at 50.00%	0.17	OK	Eq. H1-1b
		17	LC12 at 0.00%	0.35	OK	Eq. H1-1b
		18	LC12 at 50.00%	0.18	OK	Eq. H1-1b
	L 2-1_2X2-1_2X3_16	**211**	LC4 at 0.00%	0.35	OK	Sec. F1
		212	LC1 at 100.00%	0.53	OK	Sec. F1
		213	LC1 at 0.00%	**0.90**	**OK**	Sec. F1
	L 2X2X3_16	**24**	LC4 at 0.00%	0.17	OK	Eq. H2-1
		25	LC3 at 0.00%	0.20	OK	Eq. H2-1
		26	LC1 at 0.00%	0.26	OK	Eq. H2-1

	27	LC1 at 0.00%	**0.26**	**OK**	Eq. H2-1
	28	LC3 at 0.00%	0.22	OK	Eq. H2-1
	29	LC2 at 100.00%	0.18	OK	Eq. H2-1
PIPE 2-1_2x0.203	**196**	LC3 at 9.82%	0.22	OK	Eq. H1-1b
	197	LC3 at 96.43%	0.26	OK	Eq. H1-1b
	198	LC1 at 66.96%	**0.29**	**OK**	Eq. H1-1b
PIPE 2x0.154	**122**	LC1 at 56.25%	0.60	OK	Eq. H1-1b
	123	LC1 at 20.31%	**0.78**	**OK**	Eq. H1-1b
	124	LC3 at 56.25%	0.74	OK	Eq. H1-1b
	125	LC3 at 56.25%	0.55	OK	Eq. H1-1b
	135	LC1 at 56.25%	0.65	OK	Eq. H1-1b
	137	LC1 at 56.25%	0.49	OK	Eq. H1-1b
	139	LC3 at 56.25%	0.60	OK	Eq. H1-1b
	141	LC3 at 56.25%	0.52	OK	Eq. H1-1b
	143	LC1 at 56.25%	0.46	OK	Eq. H1-1b
	145	LC3 at 57.50%	0.40	OK	Eq. H1-1b
	147	LC2 at 20.31%	0.41	OK	Eq. H1-1b
	149	LC3 at 56.25%	0.40	OK	Eq. H1-1b
	186	LC1 at 75.00%	0.09	OK	Eq. H1-1b
	190	LC1 at 75.00%	0.10	OK	Eq. H1-1b
	193	LC2 at 75.00%	0.05	OK	Eq. H1-1b
	214	LC1 at 100.00%	0.44	OK	Eq. H1-1b
	215	LC4 at 0.00%	0.19	OK	Eq. H1-1b
	216	LC3 at 100.00%	0.29	OK	Eq. H1-1b
PIPE 3x0.216	**16**	LC1 at 63.39%	**0.26**	**OK**	Eq. H1-1b
	22	LC4 at 63.39%	0.21	OK	Eq. H1-1b
	23	LC1 at 63.39%	0.25	OK	Eq. H1-1b
PL 6x3/8	**3**	LC1 at 50.00%	**0.16**	**OK**	Eq. H1-1b
	13	LC3 at 46.88%	0.14	OK	Eq. H1-1b
	19	LC5 at 50.00%	0.15	OK	Eq. H1-1b

Bentley

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Geometry data

GLOSSARY

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

Nodes

Node	X [ft]	Y [ft]	Z [ft]	Rigid Floor
3	0.00	-1.75	-0.75	0
4	0.00	-1.75	-2.25	0
5	0.00	-1.75	-6.08	0
6	-2.709	-1.75	-2.25	0
7	2.709	-1.75	-2.25	0
8	-0.50	-1.75	-6.08	0
9	0.50	-1.75	-6.08	0
10	2.212	-1.75	-2.25	0
11	-2.212	-1.75	-2.25	0
15	0.00	-1.75	1.25	0
28	-1.7321	-1.75	2.25	0
29	-3.0311	-1.75	3.00	0
30	-6.348	-1.75	4.915	0
31	-1.6766	-1.75	5.3461	0
32	-4.3856	-1.75	0.6539	0
33	-6.098	-1.75	5.348	0
34	-6.598	-1.75	4.482	0
35	-4.1371	-1.75	1.0844	0
36	-1.9251	-1.75	4.9156	0
40	3.0311	-1.75	3.00	0
41	6.348	-1.75	4.915	0
42	4.3856	-1.75	0.6539	0

43	1.6766	-1.75	5.3461	0
44	6.598	-1.75	4.482	0
45	6.098	-1.75	5.348	0
46	1.9251	-1.75	4.9156	0
47	4.1371	-1.75	1.0844	0
375	6.2566	-1.75	4.8622	0
377	0.00	-1.75	-5.9745	0
379	-6.2566	-1.75	4.8622	0
580	-2.679	-6.00	-2.702	0
581	-0.8382	-6.00	-5.8942	0
582	-6.6062	-6.00	4.0962	0
583	-4.762	-6.00	0.9059	0
584	-2.679	4.00	-2.702	0
585	-0.8382	4.00	-5.8942	0
586	-6.6062	4.00	4.0962	0
587	-4.762	4.00	0.9059	0
606	4.762	-6.00	0.9059	0
607	4.762	4.00	0.9059	0
610	6.6062	-6.00	4.0962	0
611	6.6062	4.00	4.0962	0
614	2.679	-6.00	-2.702	0
615	2.679	4.00	-2.702	0
618	0.8382	-6.00	-5.8942	0
619	0.8382	4.00	-5.8942	0
622	-2.083	-6.00	5.5461	0
623	-2.083	4.00	5.5461	0
626	-5.768	-6.00	5.548	0
627	-5.768	4.00	5.548	0
630	2.083	-6.00	5.5461	0
631	2.083	4.00	5.5461	0
634	5.768	-6.00	5.548	0
635	5.768	4.00	5.548	0
700	5.5662	-5.30	6.2975	0
701	7.1544	-5.30	3.5467	0
708	-7.1544	-5.30	3.5467	0
709	-5.5662	-5.30	6.2975	0
714	1.5882	-5.30	-6.0942	0
715	-1.5882	-5.30	-6.0942	0
744	-6.098	2.00	5.348	0
745	6.098	2.00	5.348	0
746	-6.598	2.00	4.482	0
747	-0.50	2.00	-6.08	0
748	6.598	2.00	4.482	0
749	0.50	2.00	-6.08	0
752	-1.1252	2.00	-4.9961	0
753	1.1252	2.00	-4.9961	0
756	5.9719	2.00	3.3986	0
757	4.8467	2.00	5.3475	0
760	-4.8467	2.00	5.3475	0
761	-5.9719	2.00	3.3986	0
39	1.7321	-1.75	2.25	0

Restraints

Node	TX	TY	TZ	RX	RY	RZ
3	1	1	1	1	1	1
28	1	1	1	1	1	1
39	1	1	1	1	1	1

Members

Member	NJ	NK	Description	Section	Material	d0 [in]	dL [in]	lg factor
1	3	5		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
2	7	6		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
3	8	9		PL 6x3/8	A36	0.00	0.00	0.00
11	28	30		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
12	32	31		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
13	33	34		PL 6x3/8	A36	0.00	0.00	0.00
16	34	8		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
17	39	41		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
18	43	42		HSS_SQR 4X4X5_16	A500 GrC rectangular	0.00	0.00	0.00
19	44	45		PL 6x3/8	A36	0.00	0.00	0.00
22	33	45		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
23	44	9		PIPE 3x0.216	A53 GrB	0.00	0.00	0.00
24	47	375		L 2X2X3_16	A36	0.00	0.00	0.00
25	46	375		L 2X2X3_16	A36	0.00	0.00	0.00
26	10	377		L 2X2X3_16	A36	0.00	0.00	0.00
27	11	377		L 2X2X3_16	A36	0.00	0.00	0.00
28	36	379		L 2X2X3_16	A36	0.00	0.00	0.00
29	379	35		L 2X2X3_16	A36	0.00	0.00	0.00
122	586	582		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
123	587	583		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
124	584	580		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
125	585	581		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
135	607	606		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
137	611	610		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
139	615	614		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
141	619	618		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
143	623	622		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
145	627	626		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
147	631	630		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
149	635	634		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
168	670	654		aisiSSMA_S 1200S200-54	A36 (weightless)	0.00	0.00	0.00
178	686	682		aisiSSMA_S 1200S200-54	A36 (weightless)	0.00	0.00	0.00
183	694	690		aisiSSMA_S 1200S200-54	A36 (weightless)	0.00	0.00	0.00
186	701	700		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
190	709	708		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
193	715	714		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
196	744	745		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
197	746	747		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
198	748	749		PIPE 2-1_2x0.203	A53 GrB	0.00	0.00	0.00
211	752	753		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
212	756	757		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
213	760	761		L 2-1_2X2-1_2X3_16	A36	0.00	0.00	0.00
214	722	740		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
215	724	730		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00
216	732	738		PIPE 2x0.154	A53 GrB	0.00	0.00	0.00

Orientation of local axes

Member	Rotation [Deg]	Axes23	NX	NY	NZ
25	270.00	0	0.00	0.00	0.00
26	270.00	0	0.00	0.00	0.00
122	0.00	2	0.50	0.00	-0.866
123	0.00	2	0.50	0.00	-0.866
124	0.00	2	0.50	0.00	-0.866
125	0.00	2	0.50	0.00	-0.866
135	0.00	2	0.50	0.00	0.866
137	0.00	2	0.50	0.00	0.866
139	0.00	2	0.50	0.00	0.866
141	0.00	2	0.50	0.00	0.866
143	0.00	2	-1.00	0.00	0.00
145	0.00	2	-1.00	0.00	0.00
147	0.00	2	-1.00	0.00	0.00
149	0.00	2	-1.00	0.00	0.00
168	90.00	0	0.00	0.00	0.00
178	90.00	0	0.00	0.00	0.00
183	90.00	0	0.00	0.00	0.00
211	180.00	0	0.00	0.00	0.00
212	180.00	0	0.00	0.00	0.00
213	180.00	0	0.00	0.00	0.00

Rigid end offsets

Member	DJX [in]	DJY [in]	DJZ [in]	DKX [in]	DKY [in]	DKZ [in]
168	5.3301	0.00	-0.7679	3.3301	0.00	-4.2321
178	-3.3301	0.00	-4.2321	-5.3301	0.00	-0.7679
183	-2.00	0.00	5.00	2.00	0.00	5.00
214	0.00	2.00	0.00	0.00	2.00	0.00
215	0.00	2.00	0.00	0.00	2.00	0.00
216	0.00	2.00	0.00	0.00	2.00	0.00

84 TYRONE RD

Location	84 TYRONE RD	**Mblu**	19/ C/ 001.00/A /
Acct#	P0001998	**Owner**	POMFRET SCHOOL INC
Assessment	$966,100	**Appraisal**	$1,380,100
PID	784	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$1,380,100	$0	$1,380,100

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$966,100	$0	$966,100

Owner of Record

Owner	POMFRET SCHOOL INC	**Sale Price**	$0
Co-Owner	C/O CINGULAR WIRELESS	**Certificate**	
		Book & Page	0051/0282
		Sale Date	02/24/1981

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
POMFRET SCHOOL INC	$0		0051/0282	02/24/1981

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost
Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Full Baths:	
Half Baths:	
Xtra Fixtrs:	
Total Rooms:	
Extra Kitchens	
Whirlpool	
Fireplace	
Xtra Opening	
Blocked FPL	
Gas Fireplace	

Building Photo

(http://images.vgsi.com/photos/PomfretCTPhotos//\00\00\38/08.jpg)

Building Layout

Building Layout

(http://images.vgsi.com/photos/PomfretCTPhotos//Sketches/784

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	4300
Description	TEL TWR MDL-00
Zone	RR
Neighborhood	600
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	0
Frontage	0
Depth	0
Assessed Value	$0
Appraised Value	$0

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
SHD5	Shed-Cell			312 SF	$56,200	1
	CELL TOWER			9	$1,322,500	1
FN4	FENCE-8' CHAIN			260 L.F.	$1,400	1

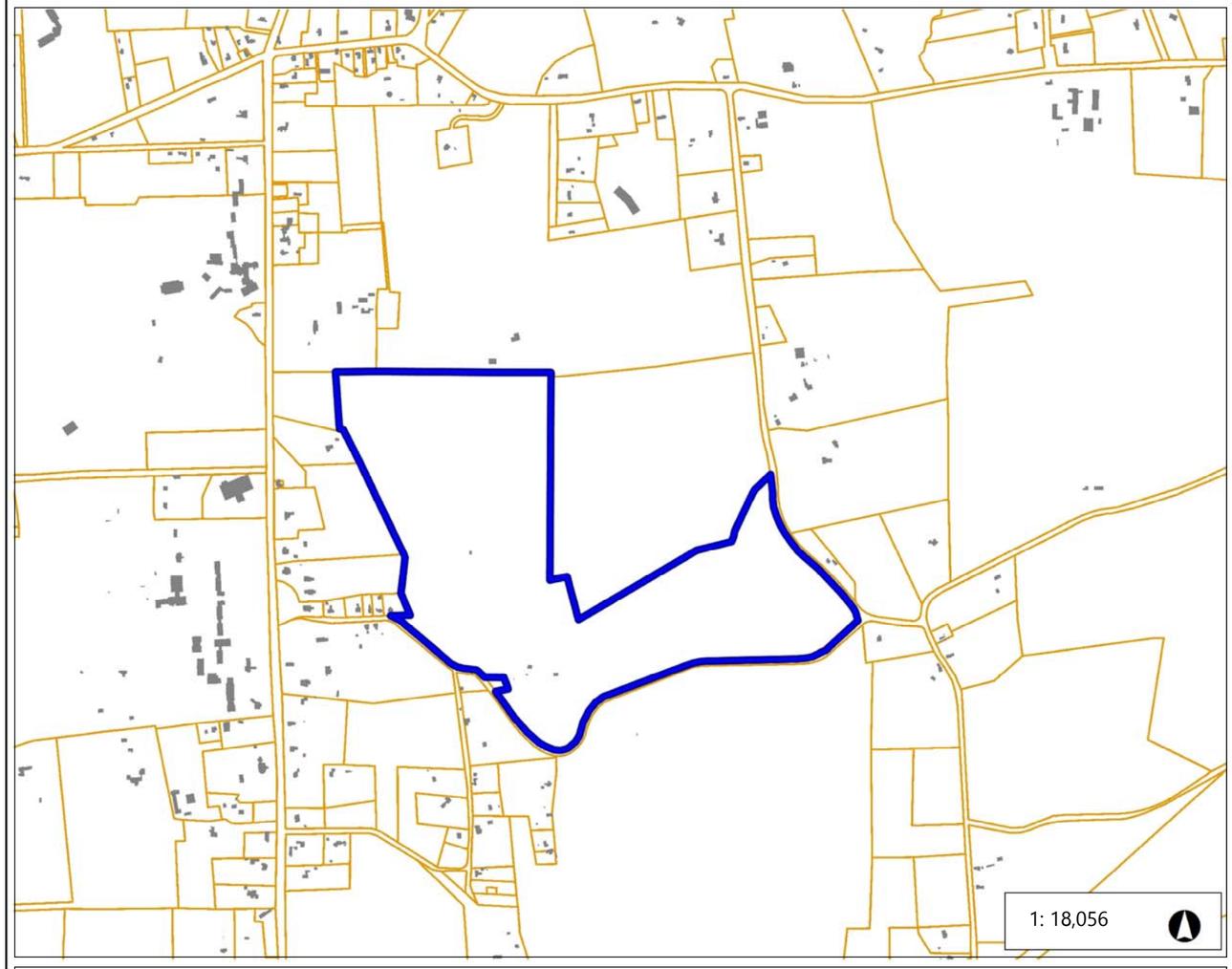
Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$1,380,100	$0	$1,380,100
2017	$1,380,100	$0	$1,380,100
2016	$1,380,100	$0	$1,380,100

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2018	$966,100	$0	$966,100
2017	$966,100	$0	$966,100
2016	$966,100	$0	$966,100

neccog

Neccog GIS Site



Legend

- Town
- Buildings 2012
- Parcels

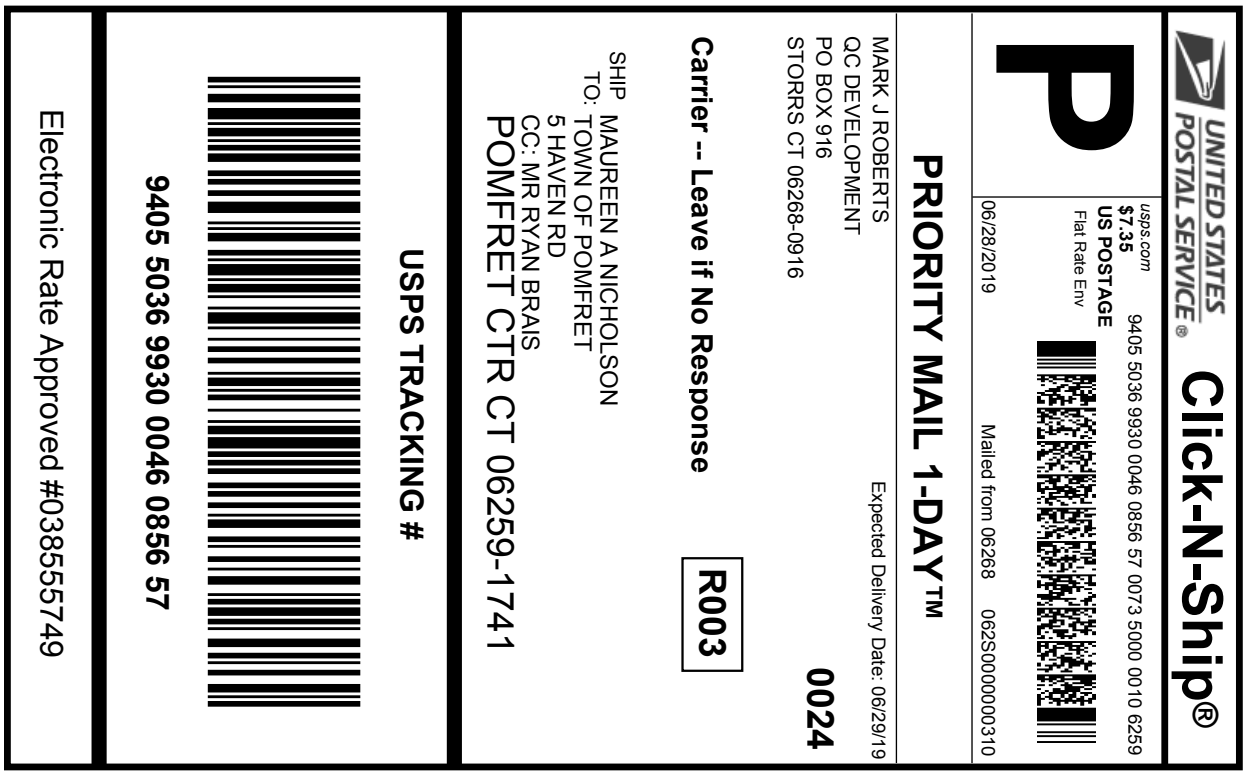
1: 18,056

0.6 0 0.28 0.6 Miles

WGS_1984_Web_Mercator_Auxiliary_Sphere

Notes

84 TYRONE ROAD, POMFRET



Cut on dotted line.

Instructions

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

Click-N-Ship® Label Record

USPS TRACKING # :
9405 5036 9930 0046 0856 57

Trans. #:	467188113
Print Date:	06/28/2019
Ship Date:	06/28/2019
Expected Delivery Date:	06/29/2019

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

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

To: MAUREEN A NICHOLSON
TOWN OF POMFRET
5 HAVEN RD
CC: MR RYAN BRAIS
POMFRET CTR CT 06259-1741

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

Thank you for shipping with the United States Postal Service!
Check the status of your shipment on the USPS Tracking® page at usps.com

DIV. SITE ACQUISITION, LLC
12 INDUSTRIAL WAY
SALEM, NH 03079

BANK OF AMERICA 54-49/114

61120

Pay: **********Six hundred twenty-five dollars and no cents

DATE	CHECK NO.	AMOUNT
January 26, 2018	61120	$********625.00

PAY TO THE ORDER OF

Connecticut Siting Council
10 Franklin Sq
New Britain, CT 06051

⑈061120⑈ ⑆011400495⑆ 00008987?441⑈

SAI
DIV. SITE ACQUISITION, LLC

61120

CONN03 Connecticut Siting Council

DATE	INVOICE NO.	DESCRIPTION	INVOICE AMOUNT	DEDUCTION	BALANCE
1-26-18	CR012618B	CT1050-Exempt Mod Fi	625.00		625.00

CHECK DATE	1-26-18	CHECK NUMBER	61120	TOTALS	625.00		625.00