



QC Development

PO Box 916

Storrs, CT 06268

860-670-9068

Mark.Roberts@QCDevelopment.net

March 22, 2018

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) – CT5873
220 Winthrop Road, Deep River, CT 06417
N 41-21-54
W 72-28-37

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 150-foot level of the existing 180-foot Monopole at 220 Winthrop Road, Deep River, CT. The tower is owned by SBA and the property is owned by the Town of Deep River. AT&T now intends to remove three (3) Powerwave antennas and replace them with two (2) CCI and (1) Andrew antennas. AT&T also intends to add (3) Ericsson RRUS-32 B2 Remote Radio Units (RRU). The replacement antennas and new RRUs would be installed at the 150-foot level.

This facility was built on Town Property and as such was exempt from Local Land Use approvals. Therefore, there are no original conditions of approval that would apply to this modification.

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 Angus McDonald, Jr., First Selectman of the Town of Deep River, and the Deep River Land Use Department, as well as the property owner and the 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: Angus McDonald, Jr. - as Elected Official & Property Owner
Cathie Jefferson – Zoning Enforcement Officer
SBA - Tower Owner (via e-mail)

Power Density

Existing Loading on Tower

Carrier	# of Channels	ERP/Ch (W)	Antenna Centerline Height (ft)	Power Density (mW/cm ²)	Freq. Band (MHz ^{**})	Limit S (mW/cm ²)	%MPE
Other Carriers*							2.37%
AT&T GSM	1	283	150	0.0049	880	0.5867	0.08%
AT&T GSM	4	525	150	0.0364	1900	1.0000	0.32%
AT&T UMTS	2	565	150	0.0196	880	0.5867	0.33%
AT&T UMTS	2	875	150	0.0303	1900	1.0000	0.30%
AT&T LTE	1	1313	150	0.0228	734	0.4893	0.47%
Site Total							3.92%

*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*							2.37%
AT&T UMTS	1	565	150	0.0196	880	0.5867	0.33%
AT&T UMTS	1	875	150	0.0303	1900	1.0000	0.30%
AT&T LTE	1	249	150	0.0043	734	0.4893	0.09%
AT&T LTE	2	3664	150	0.1271	1900	1.0000	1.27%
Site Total							4.05%

*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 MONOPOLE:

- NEW AT&T RRUS: (3) RRUS-32 B2 (PCS).
- NEW JUMPER CABLES: COAX JUMPER (1) PER SECTOR FROM EACH RRU (TOTAL OF 3)
- NEW FIBER JUMPERS: FIBER JUMPERS (2) FROM THE SQUID TO EACH RRU (TOTAL OF 6)
- NEW ANTENNA: (2) HPA-65R-BUU-H6 (ALPHA AND GAMMA) AND (1) SBNHH-1D65A (BETA) (TOTAL OF 3)
- INSTALL NEW HANDRAIL KIT.

ITEMS TO REMAIN:

- (6) ANTENNAS, (3) RRU'S, (1) SURGE ARRESTOR, (2) DC POWER CABLES, (1) FIBER RUN, AND (12) COAX.

SITE ADDRESS: 220 WINTHROP ROAD
DEEP RIVER, CT 06417

LATITUDE: 41.3658811° N 41° 21' 57.17" N
LONGITUDE: 72.4748989° W 72° 28' 29.63" W

TYPE OF SITE: MONOPOLE / OUTDOOR EQUIPMENT

TOWER HEIGHT: 180'-0"±
RAD CENTER: 150'-0"±

JURISDICTION: NATIONAL, STATE & LOCAL CODES OR ORDINANCES

CURRENT USE: TELECOMMUNICATIONS FACILITY
PROPOSED USE: TELECOMMUNICATIONS FACILITY



SITE NUMBER: CT5873

SITE NAME: DEEP RIVER CENTRAL

PROJECT: LTE 2C 2018 UPGRADE

DRAWING INDEX

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

VICINITY MAP

DIRECTIONS TO SITE:
I-95 NORTH TO EXIT 64 TURN LEFT ONTO ROUTE 145 FOLLOW THIS TO ROUTE 80 AND TURN RIGHT ONTO 80 EAST. PROCEED TO DEEP RIVER TRANSFER STATION AND MAKE LEFT. CONTINUE TO YOUR LEFT AROUND RED BARN. AT END OF ROAD BEHIND RED BUILDING IS A DIRT ROAD ON YOUR LEFT. TOWER STRAIGHT AHEAD. OUR EQUIPMENT BEHIND TOWER.



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



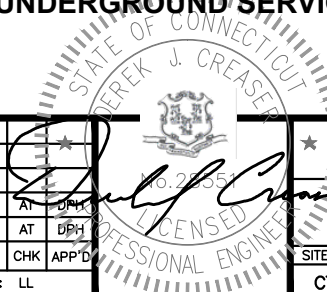
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220 WINTHROP ROAD
DEEP RIVER, CT 06417
MIDDLESEX COUNTY



NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	LL
A	02/20/18	ISSUED FOR REVIEW	TB	AT	LL

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



AT&T

TITLE SHEET
LTE 2C 2018 UPGRADE

SITE NUMBER	DRAWING NUMBER	REV
CT5873	T-1	B

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) LIGHTNING 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		

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

12 INDUSTRIAL WAY
SALEM, NH 03079

SITE NUMBER: CT5873
SITE NAME: DEEP RIVER CENTRAL

 220 WINTHROP ROAD
 DEEP RIVER, CT 06417
 MIDDLESEX COUNTY

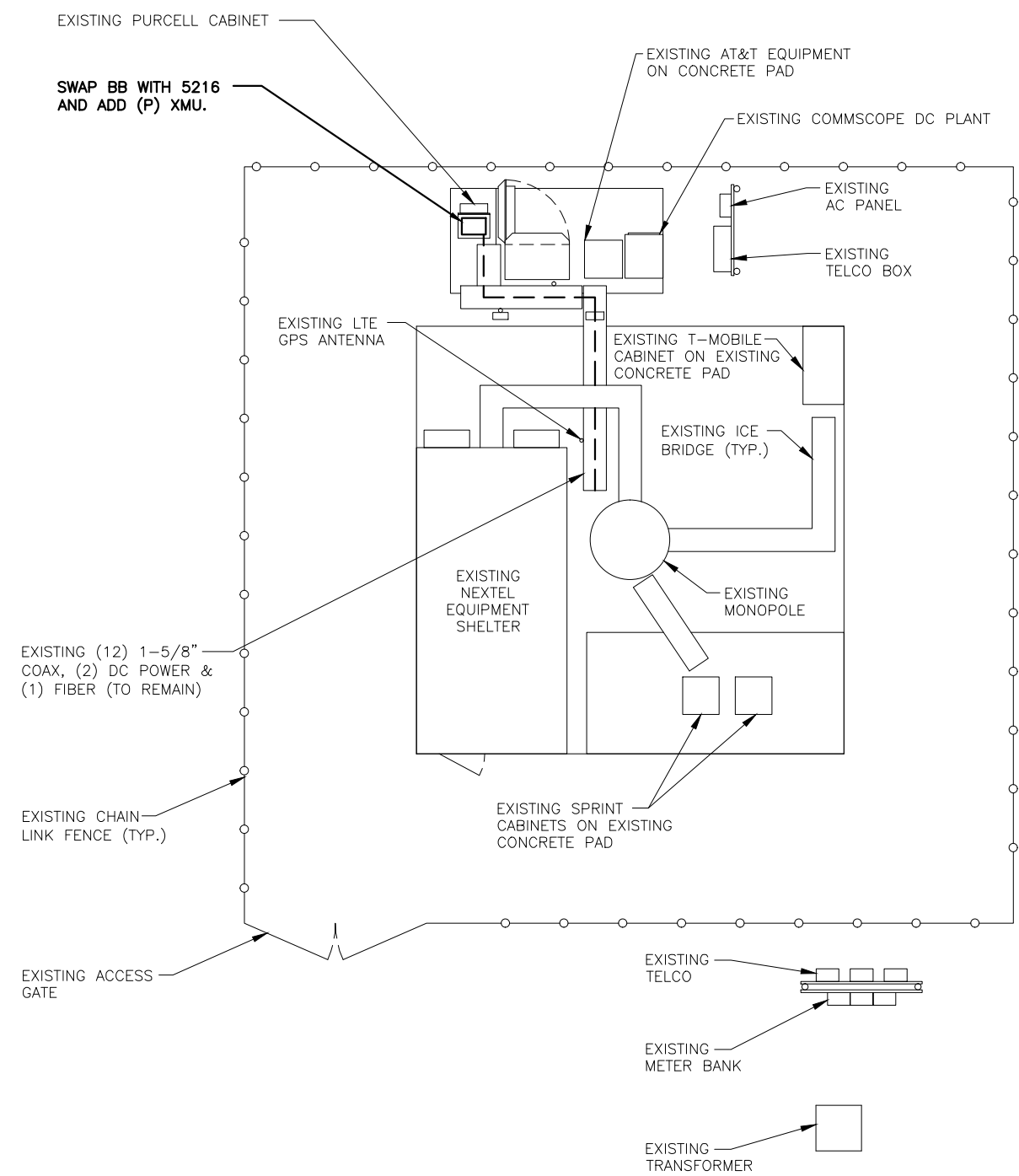
550 COCHITUATE ROAD
FRAMINGHAM, MA 01701

				AT&T	
				GENERAL NOTES LTE 2C 2018 UPGRADE	
NO.		DATE		REVISIONS	
SCALE: AS SHOWN		DESIGNED BY: AT		DRAWN BY: LL	
SITE NUMBER		DRAWING NUMBER		REV	
CT5873		GN-1		B	

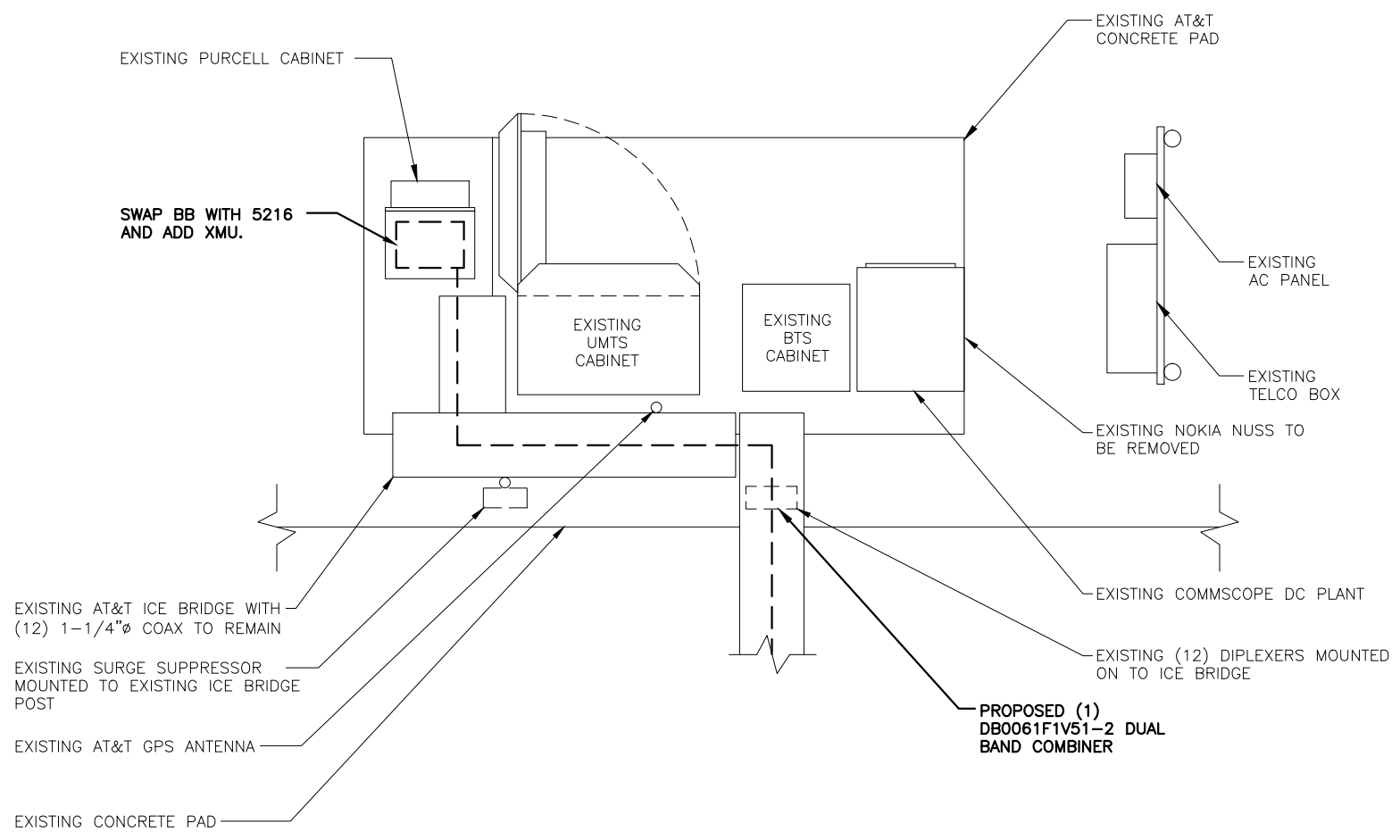
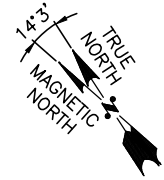
NOTE:
REFER TO THE FINAL RF DATA SHEET FOR FINAL ANTENNA SETTINGS.

NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING **ANTENNA MOUNT** TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY:
HUDSON DESIGN GROUP, LLC.
DATED: FEBRUARY 8, 2018

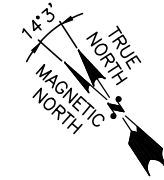
NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING STRUCTURES TO SUPPORT THE PROPOSED EQUIPMENT SHALL BE DETERMINED PRIOR TO CONSTRUCTION.



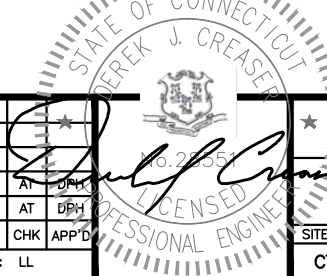
COMPOUND PLAN
22x34 SCALE: 3/16"=1'-0"
11x17 SCALE: 3/32"=1'-0"



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



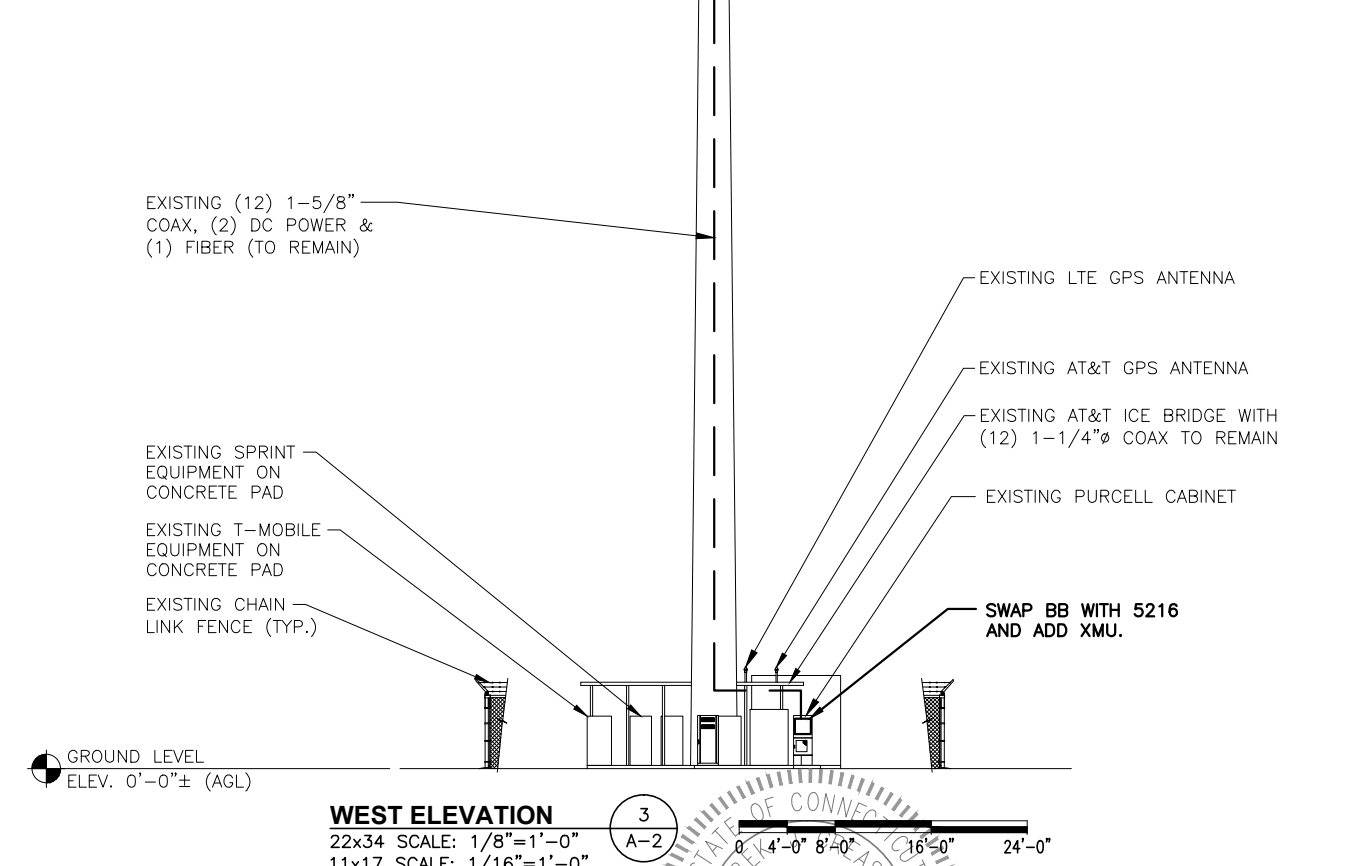
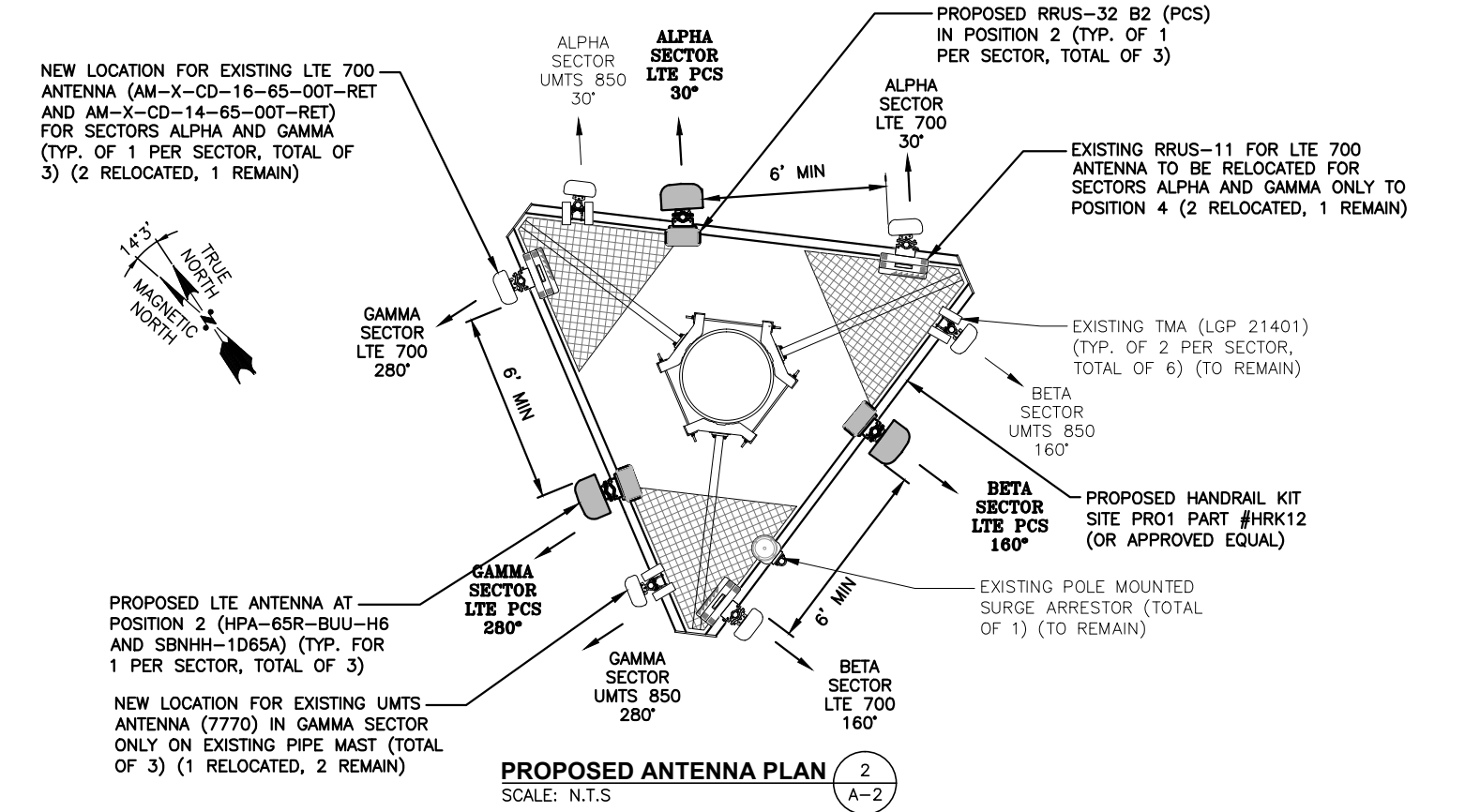
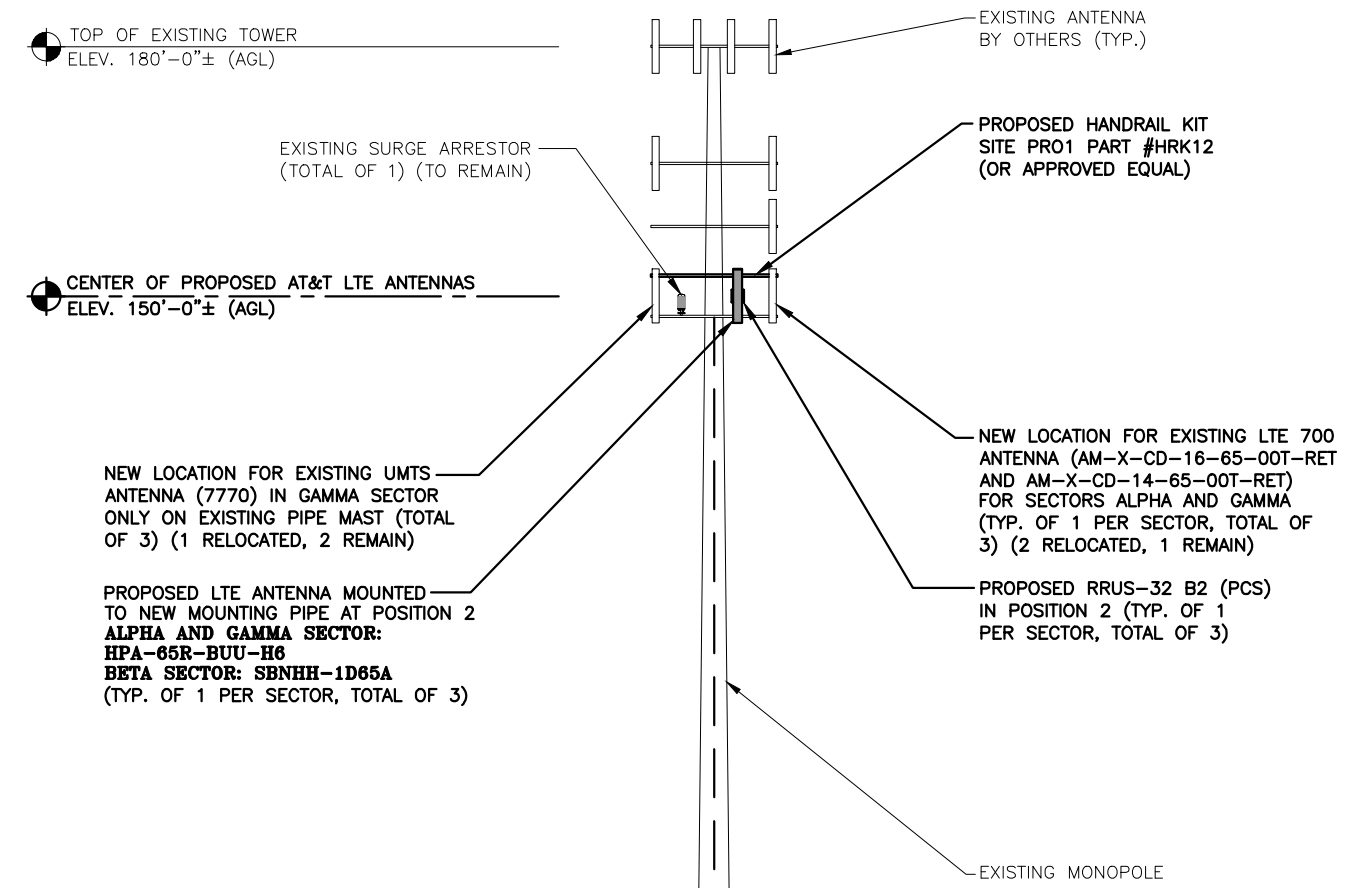
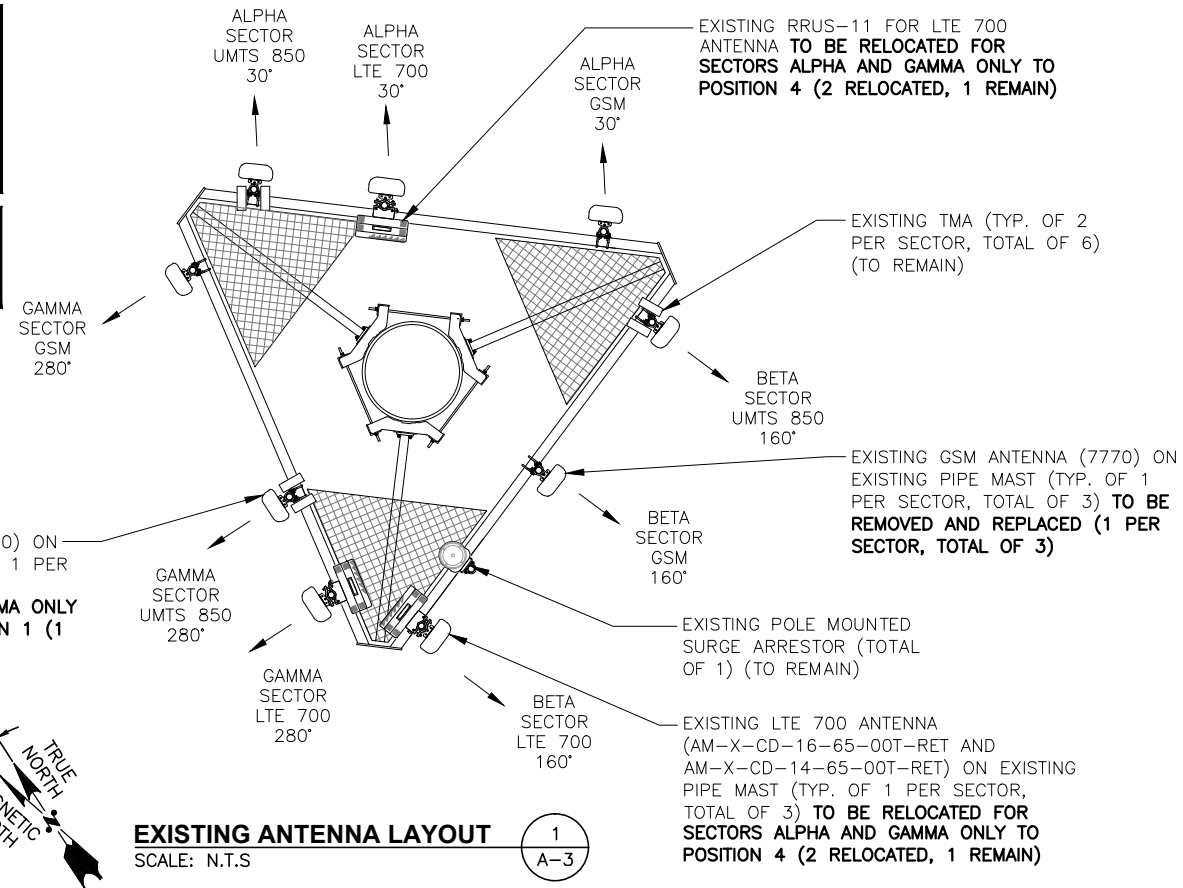
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	OPH
A	02/20/18	ISSUED FOR REVIEW	TB	AT	OPH
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SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: LL		



NOTE:
AN ANALYSIS FOR THE CAPACITY OF THE EXISTING ANTENNA MOUNT TO SUPPORT THE PROPOSED LOADING HAS BEEN COMPLETED BY: HUDSON DESIGN GROUP, LLC. DATED: FEBRUARY 8, 2018

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

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12 INDUSTRIAL WAY
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at&t
550 COCHITUATE ROAD
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AT&T
ANTENNA LAYOUTS & ELEVATION
LTE 2C 2018 UPGRADE

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

SITE NUMBER	DRAWING NUMBER	REV
CT5873	A-2	B

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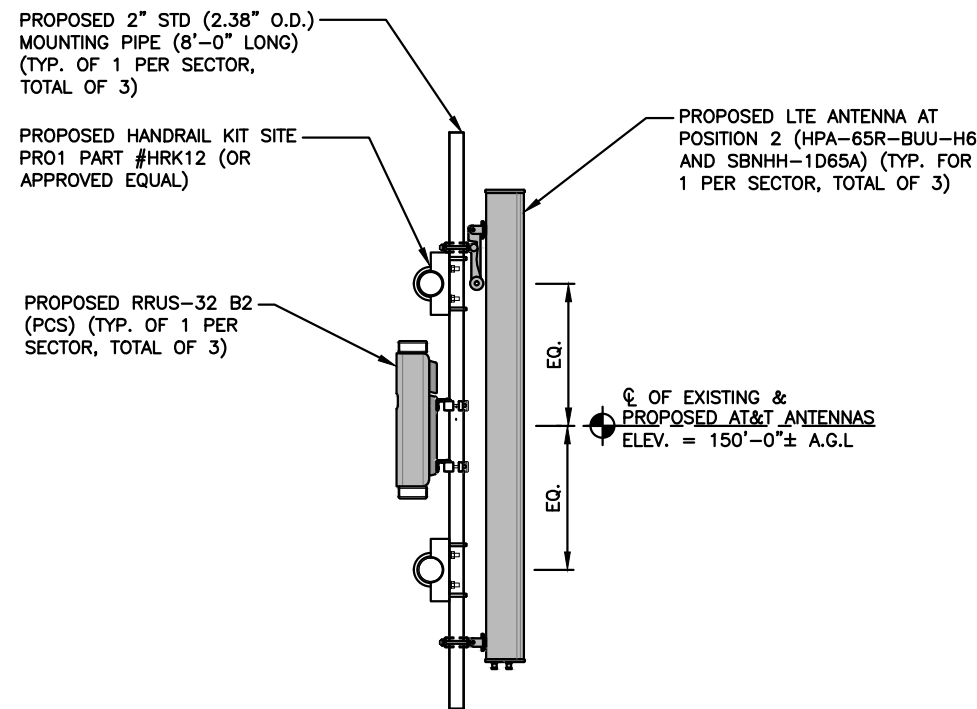
***COAX JUMPER NOTE:**
COAX JUMPERS (1) PER SECTOR, FROM EACH RRU (TOTAL OF 3).

****FIBER JUMPER NOTE:**
FIBER JUMPERS (2) PER SECTOR, FROM THE SQUID TO EACH RRU (TOTAL OF 6).

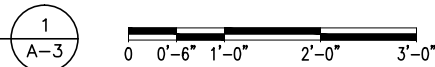
FINAL ANTENNA SCHEDULE													
SECTOR	BAND	ANTENNA	SIZE (INCHES) (L X W X D)	RAD CENTER	AZIMUTH	TMA'S	RRU'S	SIZE (INCHES) (L X W X D)	COAX JUMPERS	FIBER JUMPERS	COAX		
ALPHA	UMTS 850	EXISTING	7770	55X11X5	150'-0"±	30°	EXISTING	LGP 21401	-	-	-	-	(2) 1-5/8"
	LTE PCS	PROPOSED	HPA-65R-BUU-H6	72X14.8X9	150'-0"±	30°	-	-	EXISTING	RRUS-32 B2 (PCS)	27.2X12.1X7.0	1*	2** (2) 1-5/8"
	-	-	-	-	-	-	-	-	-	-	-	-	-
BETA	UMTS 850	EXISTING	7770	55X11X5	150'-0"±	160°	EXISTING	LGP 21401	-	-	-	-	(2) 1-5/8"
	LTE PCS	PROPOSED	SBNHH-ID65A	55X11.9X7.1	150'-0"±	160°	-	-	EXISTING	RRUS-32 B2 (PCS)	27.2X12.1X7.0	1*	2** (2) 1-5/8"
	-	-	-	-	-	-	-	-	-	-	-	-	-
GAMMA	UMTS 850	EXISTING	7770	55X11X5	150'-0"±	280°	EXISTING	LGP 21401	-	-	-	-	(2) 1-5/8"
	LTE PCS	PROPOSED	HPA-65R-BUU-H6	72X14.8X9	150'-0"±	280°	-	-	EXISTING	RRUS-32 B2 (PCS)	27.2X12.1X7.0	1*	2** (2) 1-5/8"
	-	-	-	-	-	-	-	-	-	-	-	-	-
ALPHA	LTE 700 BC	EXISTING	AM-X-CD-16-65-00T-RET	72X11.8X5.9	150'-0"±	30°	-	-	EXISTING	RRUS-11 (700)	-	-	-
	BETA	EXISTING	AM-X-CD-16-65-00T-RET	72X11.8X5.9	150'-0"±	160°	-	-	EXISTING	RRUS-11 (700)	-	-	-
	GAMMA	EXISTING	AM-X-CD-16-65-00T-RET	72X11.8X5.9	150'-0"±	280°	-	-	EXISTING	RRUS-11 (700)	-	-	-

FINAL ANTENNA CONFIGURATION
SCALE: N.T.S.

4
A-3

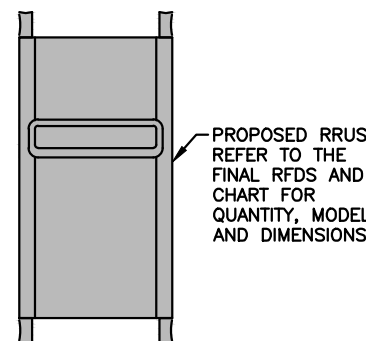


PROPOSED ANTENNA & RRU MOUNTING DETAIL
22x34 SCALE: 1"=1'-0"
11x17 SCALE: 1/2"=1'-0"



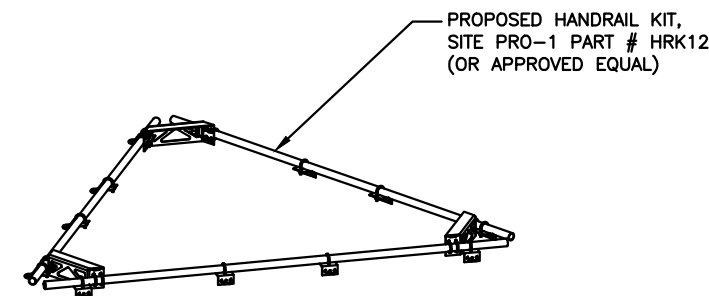
RRU CHART				
QUANTITY	MODEL	L	W	D
3(E)	RRUS-11	19.7"	17.0"	7.2"
-	RRUS-12	20.4"	18.5"	7.5"
3(P)	RRUS-32	27.2"	12.1"	7.0"
-	RRUS-E2	20.4"	18.5"	7.5"
-	LTE-A2	16.4"	15.2"	3.4"

NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS



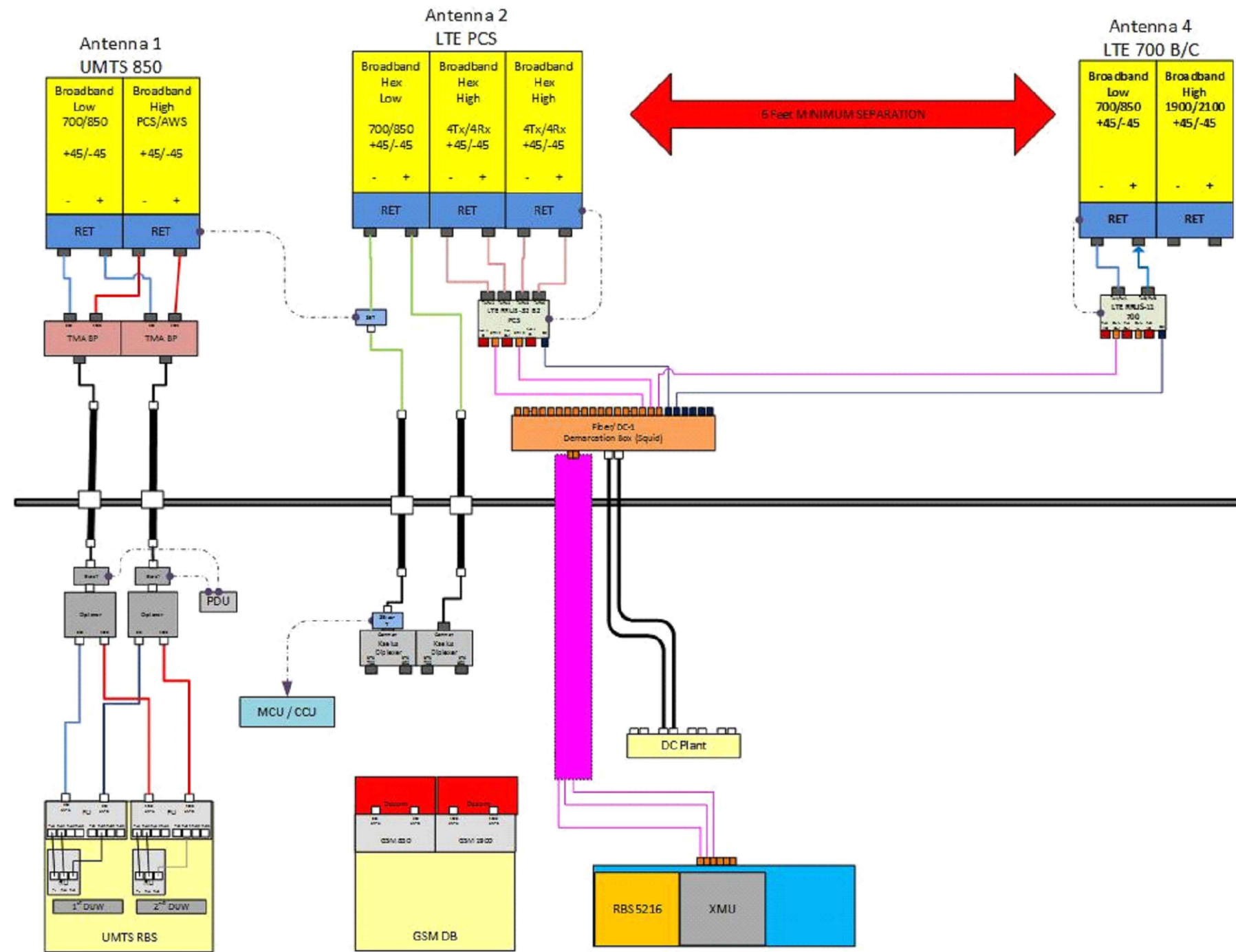
NOTE:
MOUNT PER MANUFACTURER'S SPECIFICATIONS.

RRUS DETAIL
SCALE: N.T.S.



PROPOSED HANDRAIL KIT
SCALE: N.T.S.

3
A-3



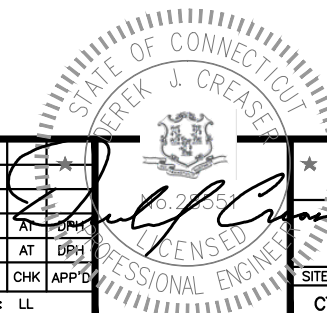
RF PLUMBING DIAGRAM
SCALE: N.T.S.

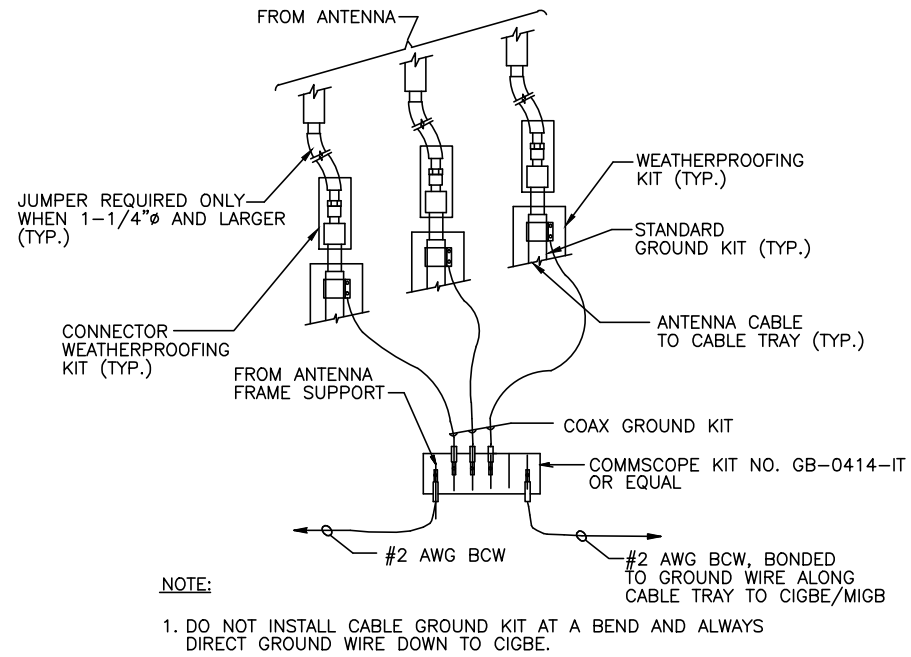
1
RF-1

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

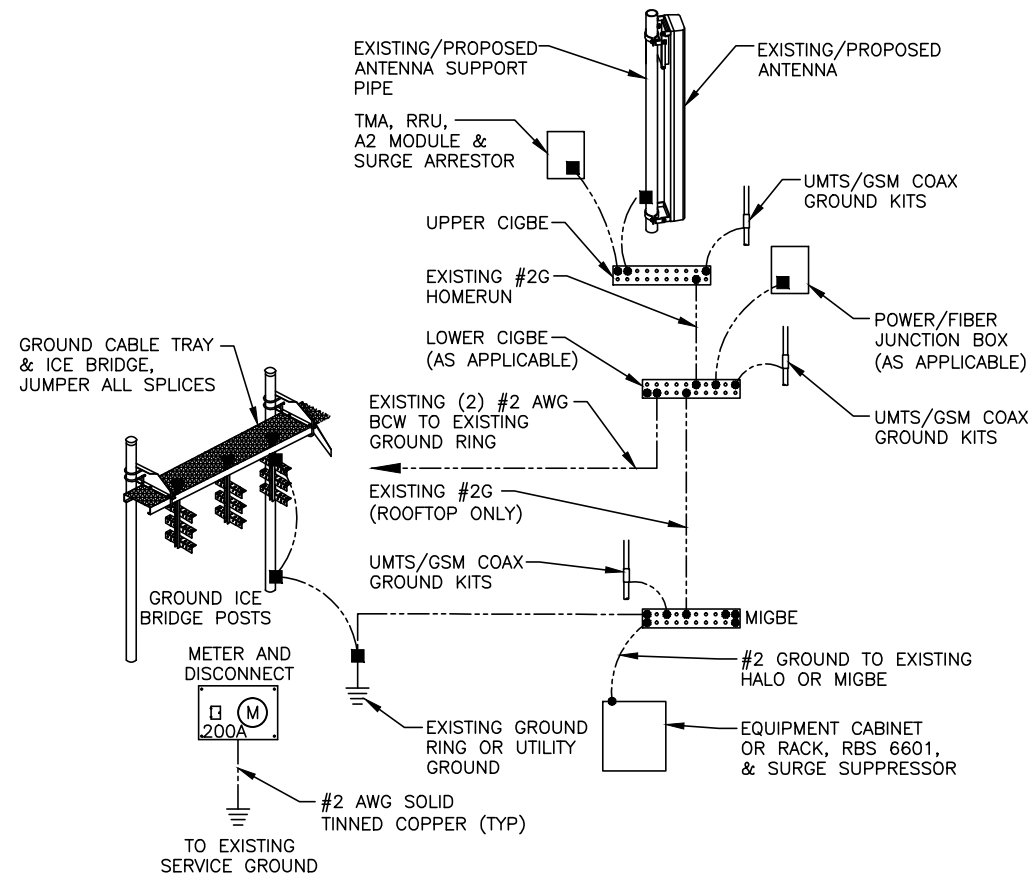
NOTE:
1. CONTRACTOR TO CONFIRM ALL PARTS.
2. INSTALL ALL EQUIPMENT TO MANUFACTURER'S RECOMMENDATIONS

B	03/07/18	ISSUED FOR PERMITTING	MR	AT	OPH
A	02/20/18	ISSUED FOR REVIEW	TB	AT	OPH
NO.	DATE	REVISIONS	BY	CHK	APP'D
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: LL		

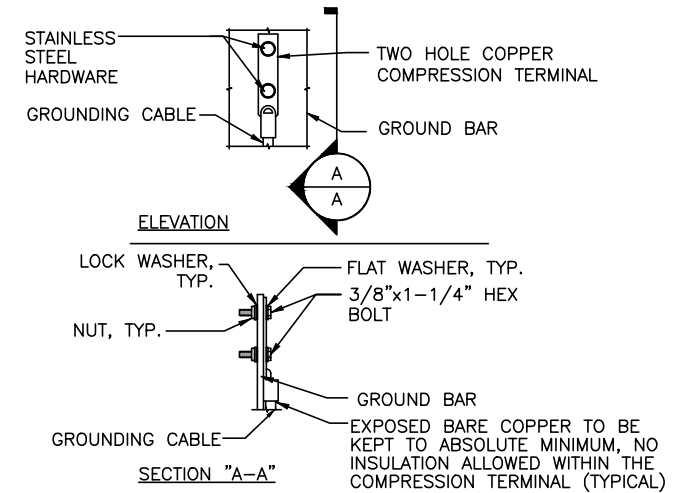




GROUND WIRE TO GROUND BAR CONNECTION DETAIL 1
SCALE: N.T.S. G-1



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



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

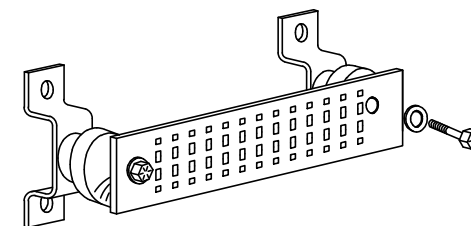
EACH GROUND CONDUCTOR TERMINATING ON ANY GROUND BAR SHALL HAVE AN IDENTIFICATION TAG ATTACHED AT EACH END THAT WILL IDENTIFY ITS ORIGIN AND DESTINATION.

SECTION "P" - SURGE PRODUCERS

- CABLE ENTRY PORTS (HATCH PLATES) (#2)
- 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.

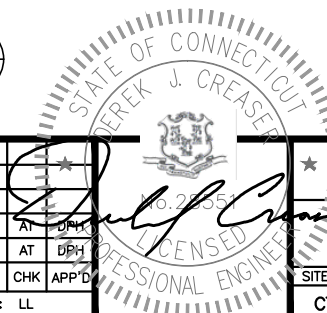
SECTION "A" - SURGE ABSORBERS

- 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
SCALE: N.T.S. G-1

NO.	DATE	REVISIONS	BY	CHK	APP'D
B	03/07/18	ISSUED FOR PERMITTING	MR	AT	LL
A	02/20/18	ISSUED FOR REVIEW	TB	AT	LL
SCALE: AS SHOWN		DESIGNED BY: AT	DRAWN BY: LL		



AT&T		
GROUNDING DETAILS LTE 2C 2018 UPGRADE		
SITE NUMBER	DRAWING NUMBER	REV
CT5873	G-1	B



Tower Engineering Solutions

Phone (972) 483-0607, Fax (972) 975-9615
8445 Freeport Parkway, Suite 375, Irving, Texas 75063

Structural Analysis Report

Existing 180 ft Valmont Monopole

Customer Name: SBA Communications Corp

Customer Site Number: CT46130-A

Customer Site Name: Deep River-winthrop Rd

Carrier Name: AT&T

Carrier Site ID / Name: CT5873 / Deep River Central

Site Location: 220 Winthrop Rd

Deep River, Connecticut

Middlesex County

Latitude: 41.365872

Longitude: -72.474849

Analysis Result:

Max Structural Usage: 93.0% [Pass]

Max Foundation Usage: 84.0% [Pass]

Report Prepared By: Mariana Franco





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Analysis Result:

Max Structural Usage: 93.0% [Pass]

Max Foundation Usage: 84.0% [Pass]

Report Prepared By: Mariana Franco

Introduction

The purpose of this report is to summarize the analysis results on the 180 ft Valmont Monopole to support the proposed antennas and transmission lines in addition to those currently installed. Any modification listed under Sources of Information was assumed completed and was included in this analysis.

Sources of Information

Tower Drawings	Original structural design report & permit drawings prepared by Valmont. Dated 10-27-2000. Order No 17593-98. CT750 Deep River Site. Project No F082. Previous structural report prepared by FDH Engineering, Inc. Dated 11-04-2013. Project No 13SFRX1400. Previous Structural Analysis by TES Project#: 41965 Dated: 10/30/2017
Foundation Drawing	Original foundation drawings prepared by Valmont Industries, Inc. Dated 08-11-1998. Project No 2633. Order No 17593-98. Drawing No 2633-F.
Geotechnical Report	Geotechnical report prepared by TECTONIC Engineering Consultants, P.C. Dated 07-13-1998. Work Order No 1170.C750.
Modification Drawings	N/A

Analysis Criteria

The rigorous analysis was performed in accordance with the requirements and stipulations of the ANSI/TIA/EIA 222-G. In accordance with this standard, the structure was analyzed using **TESPoles**, a proprietary analysis software. The program considers the structure as an elastic 3-D model with second-order effects and temperature effects incorporated in the analysis. The analysis was performed using multiple wind directions.

Wind Speed Used in the Analysis:	Ultimate Design Wind Speed $V_{ult} = 130.0$ mph (3-Sec. Gust)/ Nominal Design Wind Speed $V_{asd} = 101.0$ mph (3-Sec. Gust)
Wind Speed with Ice:	50 mph (3-Sec. Gust) with 3/4" radial ice concurrent
Operational Wind Speed:	60 mph + 0" Radial ice
Standard/Codes:	ANSI/TIA/EIA 222-G / 2012 IBC / 2016 Connecticut State Building Code
Exposure Category:	C
Structure Class:	II
Topographic Category:	1
Crest Height:	0 ft
Seismic Parameters:	$S_s = 0.17g$, $S_1 = 0.06g$

This structural analysis is based upon the tower being classified as a Structure Class II; however, if a different classification is required subsequent to the date hereof, the tower classification will be changed to meet such requirement and a new structural analysis will be run.

Existing Antennas, Mounts and Transmission Lines

The table below summarizes the antennas, mounts and transmission lines that were considered in the analysis as existing on the tower.

Items	Elevation (ft.)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
1	178.0	6	Amphenol BXA-70063-6CF_2 - Panel	Platform w/ Hand Rails	(2) 1 5/8"	Verizon
2		6	Amphenol BXA-171063-12CF_2 - Panel			
3		3	RRH_2x40 AWS			
4		3	RRH_2x40 07-U			
5		1	RFS DB-B1-6C-8AB-OZ			
6	166.0	3	KMW ETCR-654L12H6 - Panel	Platform w/ Hand Rails (Handrail Kit & V-Brace Kit)	(4) 1-1/4" Hybrid	Sprint Nextel
7		3	ALU 1900 Mhz			
8		6	ALU 800 Mhz			
9		3	ALU TD-RRH8x20-25			
10	158.0	6	EMS RR90-17-02DP - Panel	(3) T-Arms	(6) 1 5/8"	T-Mobile
11		6	Stella Dooradus TMA's			
-	150.0	2	KMW AM-X-CD-16-65-00T - Panel	Low Profile Platform	(12) 1 1/4"; [(1) 10 mm & (2) 19.7 mm inside (1) 3" Innerduct]	AT&T
-		1	Powerwave 7770 - Panel			
-		3	KMW AM-X-CD-14-65-00T - Panel			
-		6	Powerwave LGP21401 TMA's			
-		6	Ericsson RRUS-11			
-		1	Raycap DC6-48-60-18-8F			

Proposed Carrier’s Final Configuration of Antennas, Mounts and Transmission Lines

Information pertaining to the proposed carrier’s final configuration of antennas and transmission lines was provided by SBA Communications Corp. The proposed antennas and lines are listed below.

Items	Elevation (ft)	Qty.	Antenna Descriptions	Mount Type & Qty.	Transmission Lines	Owner
14	150.0	2	Cci HPA-65R-BUU-H6- Panel	Low Profile Platform	(12) 1 1/4"; [(1) 10 mm Fiber & (2) 19.7 mm DC inside (1) 3" Innerduct]	AT&T
15		1	Commscope SBNHH-1D65A- Panel			
16		3	Ericsson RRUS-32- RRU			
17		2	KMW AM-X-CD-16-65-00T-RET w/ Mount- Panel			
18		3	Powerwave 7770 - Panel			
19		1	KMW AM-X-CD-14-65-00T- Panel			
20		6	Powerwave LGP21401 TMA			
21		3	Ericsson RRUS-11- RRU			
22		1	Raycap DC6-48-60-18-8F Surge			

All transmission lines are considered running inside of the pole shafts.

Analysis Results

The results of the structural analysis, performed for the wind and ice loading and antenna equipment as defined above, are summarized as the following:

	Pole shafts	Anchor Bolts	Base Plate
Max. Usage:	93.0%	80.7%	59.0%
Pass/Fail	Pass	Pass	Pass

Foundations

	Moment (Kip-Ft)	Shear (Kips)
Original Design Reactions	5076.0	41.7
Analysis Reactions	5915.4	50.2
Factored Reactions*	6852.6	56.3
% of Design Reactions	86.3%	89.1%

* Per section 15.5.1 of the TIA-222-G standard, factored reactions were obtained by multiplying a 1.35 factor to the original design reactions.

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

Operational Condition (Rigidity):

Operational characteristics of the tower are found to be within the limits prescribed by ANSI/TIA/EIA 222-G for the installed antennas. The maximum twist/sway at the elevation of the proposed equipment is 1.6458 degrees under the operational wind speed as specified in the Analysis Criteria.

Conclusions

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

Standard Conditions

1. This analysis was performed based on the information supplied to **(TES) Tower Engineering Solutions, LLC**. Verification of the information provided was not included in the Scope of Work for **TES**. The accuracy of the analysis is dependent on the accuracy of the information provided.
2. The analysis is based on the presumption that the tower members and components along with any existing reinforcement items have been correctly and properly designed, manufactured, installed and maintained.
3. All the existing structural members were assumed to be in good condition with no physical damage or deterioration associated with corrosion.
4. An initial tension of 10% of the break strength on all the existing guy wires was assumed in all the structural analyses of guyed towers unless different values were provided by the client. **TES** cannot take responsibility for the deviations in the analysis results because of differences in the initial tension forces of the existing guy wires.
5. Secondary component or connection secondary components, welds and bolts are assumed to be able to carry their intended original design loads. **TES** cannot take responsibility for verification of the adequacy on the connections, bolts and welds present in the structure.
6. The analyses will be performed based on the codes as specified by the client or based on the best knowledge of the engineering staff of **TES**. In the absence of information to the contrary, all work will be performed in accordance with the latest relevant revision of ANSI/TIA-222. If wind speed and/or ice loads are different from the minimum values recommended by the EIA/TIA-222 standard or other codes, **TES** should be notified in writing and the applicable minimum values provided by the client.
7. The configuration of the existing mounts, antennas, coax and other appurtenances were supplied by the customer for the current structural analysis. **TES** has not visited the tower site to verify the adequacy of the information provided. If there is any discrepancy found in the report regarding the existing conditions, **TES** should be notified immediately to evaluate the effect of the discrepancy on the analysis results.
8. The client will assume responsibility for rework associated with the differences in initially provided information, including tower and foundation information, existing and/or proposed equipment and transmission lines.
9. If a feasibility analysis was performed, final acceptance of changed conditions shall be based upon a rigorous structural analysis.

Usage Diagram - Max Ratio 93.03% at 0.0ft

Structure: CT46130-A-SBA
Site Name: Deep River-winthrop Rd
Height: 180.00 (ft)
Base Elev: 0.000 (ft)

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

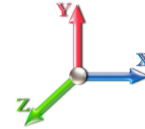
1/31/2018



Page: 1

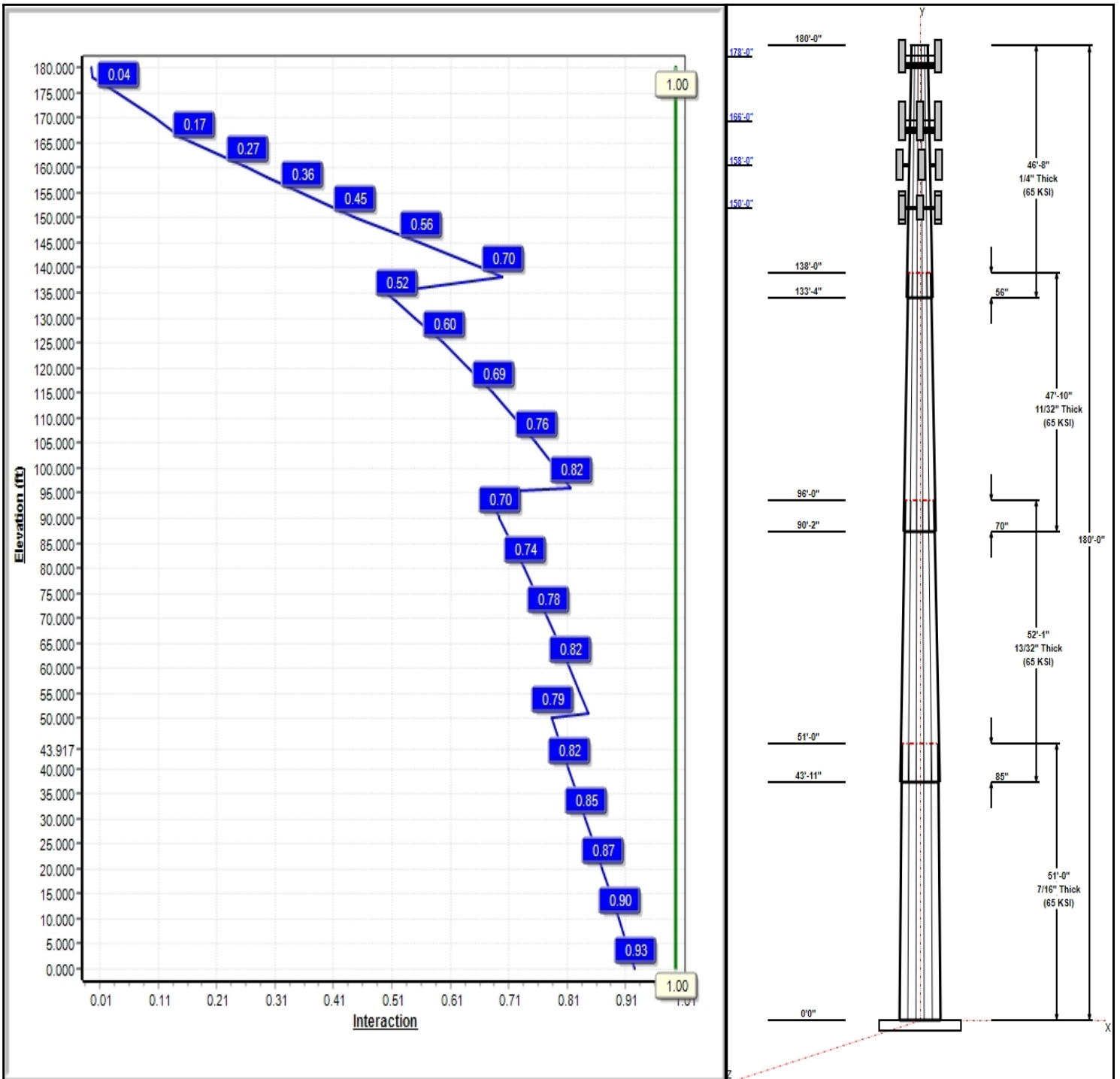
Dead Load Factor: 1.20
Wind Load Factor: 1.60

Load Case : 1.2D + 1.6W 101 mph Wind



Iterations: 26

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Structure: CT46130-A-SBA

Type: Tapered
Site Name: Deep River-winthrop Rd
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 12 Sided
Taper: 0.24800

1/31/2018

Page: 2



Shaft Properties

Seq	Length (ft)	Top (in)	Bottom (in)	Thick (in)	Joint Type	Taper	Grade (ksi)
1	51.00	49.35	62.00	0.438		0.24800	65
2	52.08	39.00	51.92	0.406	Slip	0.24800	65
3	47.83	29.28	41.14	0.344	Slip	0.24800	65
4	46.67	19.36	30.93	0.250	Slip	0.24800	65

Discrete Appurtenances

Attach Elev (ft)	Force Elev (ft)	Qty	Description	Carrier
178.00	178.00	6	Amphenol	Verizon
178.00	178.00	6	Amphenol	Verizon
178.00	178.00	3	RRH_2x40 AWS	Verizon
178.00	178.00	3	RRH_2x40 07-U	Verizon
178.00	178.00	1	RFS DB-B1-6C-8AB-OZ	Verizon
178.00	178.00	1	Platform w/ Hand Rails	Verizon
166.00	166.00	3	KMW ETCR-654L12H6	Sprint Nextel
166.00	166.00	3	ALU 1900 Mhz	Sprint Nextel
166.00	166.00	6	ALU 800 Mhz	Sprint Nextel
166.00	166.00	3	ALU TD-RRH8x20-25	Sprint Nextel
166.00	166.00	1	Platform w/ Hand Rails	Sprint Nextel
158.00	158.00	6	EMS RR90-17-02DP	T-Mobile
158.00	158.00	6	Stella Dooradus TMA's	T-Mobile
158.00	158.00	3	T-Arms	T-Mobile
150.00	150.00	2	Cci HPA-65R-BUU-H6	AT&T
150.00	150.00	1	SBNHH-1D65A	AT&T
150.00	150.00	3	RRUS-32	AT&T
150.00	150.00	2	KMW AM-X-CD-16-65-00T	AT&T
150.00	150.00	3	Powerwave 7770	AT&T
150.00	150.00	1	KMW AM-X-CD-14-65-00T	AT&T
150.00	150.00	6	Powerwave LGP21401	AT&T
150.00	150.00	3	Ericsson RRUS-11	AT&T
150.00	150.00	1	Raycap DC6-48-60-18-8F	AT&T
150.00	150.00	1	Low Profile Platform	AT&T

Linear Appurtenances

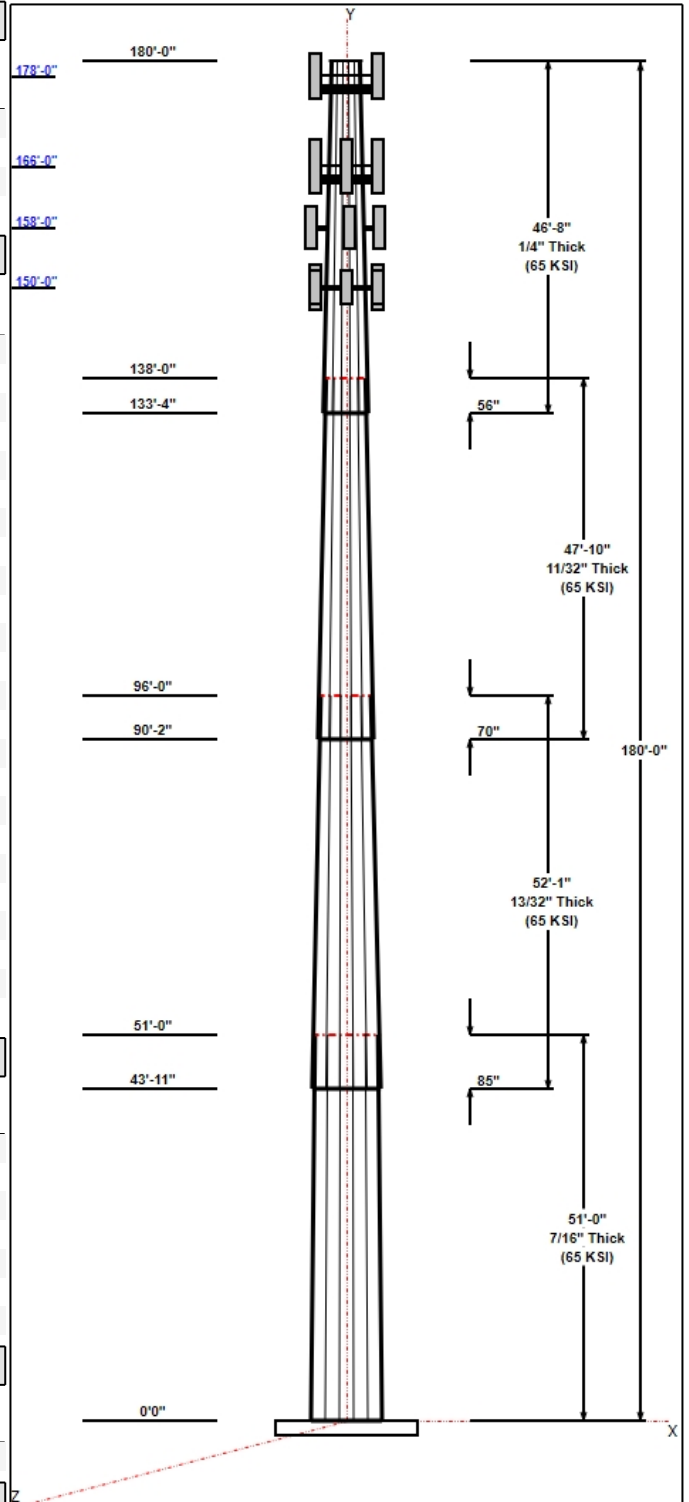
Elev From (ft)	Elev To (ft)	Placement	Description	Carrier
3.00	178.00	Inside	1 5/8" Coax	Verizon
3.00	166.00	Inside	1-1/4" Fiber	Sprint Nextel
3.00	158.00	Inside	1 5/8" Coax	T-Mobile
3.00	150.00	Inside	1 1/4" Coax	AT&T
3.00	150.00	Inside	10 mm Fiber	AT&T
3.00	150.00	Inside	19.7 mm DC	AT&T
3.00	150.00	Inside	3" Innerduct	AT&T

Anchor Bolts

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

Base Plate

Thickness (in)	Specifications (in)	Grade (ksi)	Geometry
2.7500	76.7	60.0	Polygon



Structure: CT46130-A-SBA

Type: Tapered
Site Name: Deep River-winthrop Rd
Height: 180.00 (ft)
Base Elev: 0.00 (ft)

Base Shape: 12 Sided
Taper: 0.24800

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Reactions

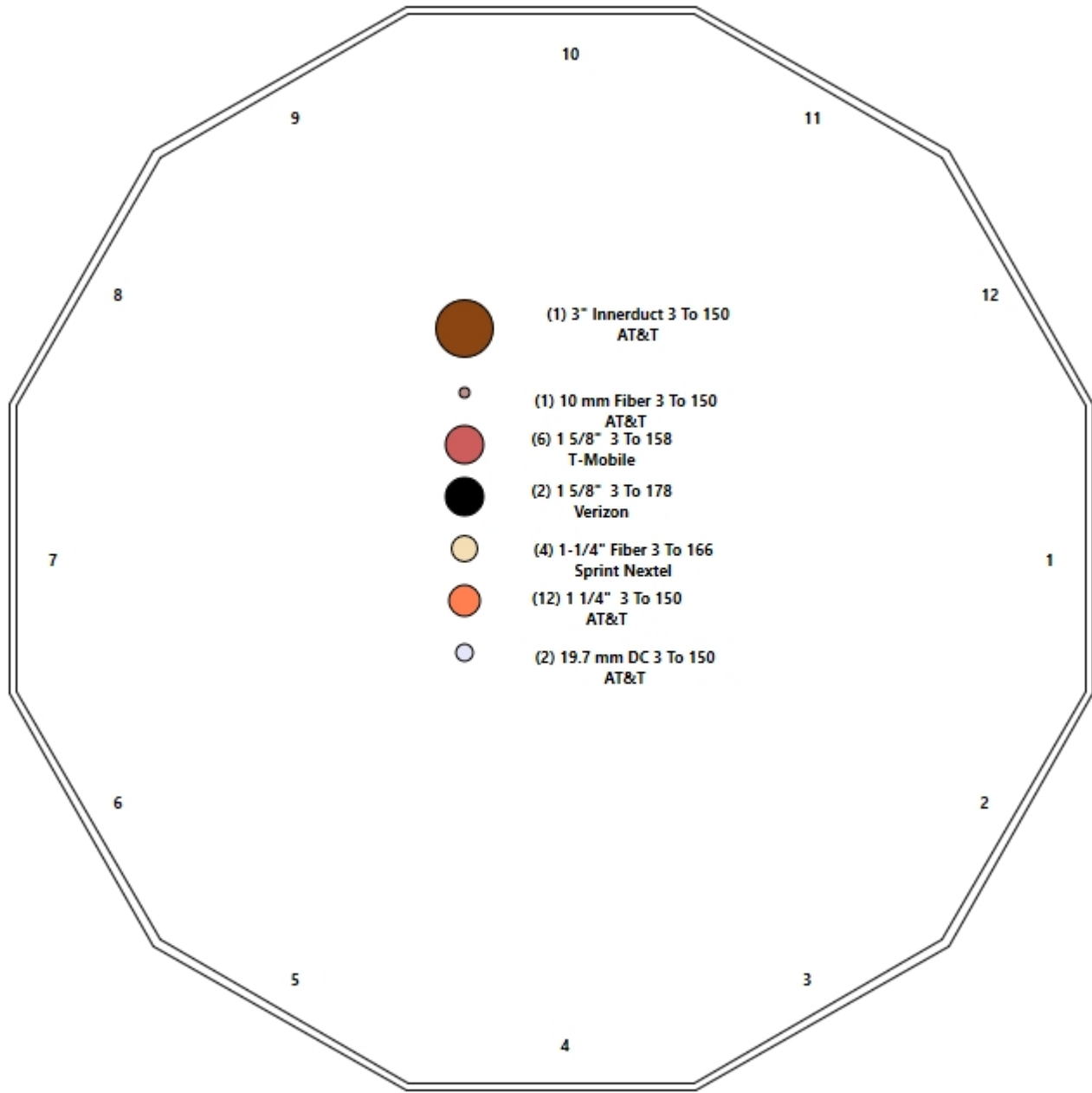
Load Case	Moment (FT-Kips)	Shear (Kips)	Axial (Kips)
1.2D + 1.6W 101 mph Wind	5915.4	50.2	54.7
0.9D + 1.6W 101 mph Wind	5852.7	50.2	41.0
1.2D + 1.0Di + 1.0Wi 50 mph Wind	1292.2	10.3	81.5
1.2D + 1.0E	198.4	1.5	54.8
0.9D + 1.0E	196.0	1.5	41.1
1.0D + 1.0W 60 mph Wind	1298.4	11.1	45.6

Structure: CT46130-A-SBA - Coax Line Placement

Type: Monopole
Site Name: Deep River-winthrop Rd
Height: 180.00 (ft)

1/31/2018

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Shaft Properties

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Sec. No.	Shape	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Overlap (in)	Weight (lb)
1	12	51.000	0.4375	65		0.00	13,505
2	12	52.083	0.4063	65	Slip	85.00	10,446
3	12	47.833	0.3438	65	Slip	70.00	6,281
4	12	46.667	0.2500	65	Slip	56.00	3,183
Total Shaft Weight:							33,414

Bottom

Top

Sec. No.	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (sqin)	Ix (in^4)	W/t Ratio	D/t Ratio	Taper
1	62.00	0.00	86.73	41953.54	35.83	141.71	49.35	51.00	68.91	21044.2	28.08	112.8	0.248000
2	51.92	43.92	67.39	22826.23	32.10	127.81	39.00	96.00	50.49	9601.48	23.58	96.01	0.248000
3	41.14	90.17	45.15	9591.86	29.92	119.68	29.28	138.00	32.02	3421.62	20.68	85.17	0.248000
4	30.93	133.3	24.70	2968.17	31.01	123.73	19.36	180.00	15.38	717.07	18.61	77.44	0.248000

Load Summary

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Discrete Appurtenances

No.	Elev (ft)	Description	Qty	No Ice			Ice			Hor. Ecc. (ft)	Vert Ecc (ft)
				Weight (lb)	CaAa (sf)	CaAa Factor	Weight (lb)	CaAa (sf)	CaAa Factor		
1	178.00	Amphenol BXA-70063-6CF_2	6	17.00	7.57	0.78	167.86	10.382	0.78	0.00	0.00
2	178.00	Amphenol BXA-171063-12CF_2	6	15.00	4.80	0.88	112.48	7.210	0.88	0.00	0.00
3	178.00	RRH_2x40 AWS	3	44.00	2.16	0.67	105.77	3.226	0.67	0.00	0.00
4	178.00	RRH_2x40 07-U	3	52.40	2.83	0.67	114.10	4.345	0.67	0.00	0.00
5	178.00	RFS DB-B1-6C-8AB-OZ	1	21.40	4.80	0.67	142.06	5.754	0.67	0.00	0.00
6	178.00	Platform w/ Hand Rails	1	2000.00	40.00	1.00	4130.41	61.304	1.00	0.00	0.00
7	166.00	KMW ETCR-654L12H6	3	84.90	15.71	0.69	411.49	17.407	0.69	0.00	0.00
8	166.00	ALU 1900 Mhz	3	60.00	2.38	0.67	210.38	3.260	0.67	0.00	0.00
9	166.00	ALU 800 Mhz	6	53.00	2.13	0.67	127.71	3.118	0.67	0.00	0.00
10	166.00	ALU TD-RRH8x20-25	3	70.00	4.05	0.67	181.82	4.872	0.67	0.00	0.00
11	166.00	Platform w/ Hand Rails (Handrail &	1	2000.00	40.00	1.00	4115.59	61.156	1.00	0.00	0.00
12	158.00	EMS RR90-17-02DP	6	13.50	7.34	0.71	173.25	8.565	0.71	0.00	0.00
13	158.00	Stella Dooradus TMA's	6	12.80	0.71	0.60	30.43	1.458	0.60	0.00	0.00
14	158.00	T-Arms	3	350.00	8.00	0.75	595.60	15.017	0.75	0.00	0.00
15	150.00	Cci HPA-65R-BUU-H6	2	51.00	9.66	0.85	299.10	11.026	0.85	0.00	0.00
16	150.00	SBNHH-1D65A	1	33.50	5.88	0.83	191.86	6.960	0.83	0.00	0.00
17	150.00	RRUS-32	3	77.00	3.87	0.67	190.59	4.106	0.67	0.00	0.00
18	150.00	KMW AM-X-CD-16-65-00T	2	48.50	8.02	0.79	210.78	10.814	0.79	0.00	0.00
19	150.00	Powerwave 7770	3	35.00	5.51	0.77	170.17	6.565	0.77	0.00	0.00
20	150.00	KMW AM-X-CD-14-65-00T	1	36.40	7.05	0.78	147.93	9.693	0.78	0.00	0.00
21	150.00	Powerwave LGP21401 TMA's	6	14.10	1.22	1.00	39.10	2.010	1.00	0.00	0.00
22	150.00	Ericsson RRUS-11	3	50.70	2.52	0.67	131.23	3.171	0.67	0.00	0.00
23	150.00	Raycap DC6-48-60-18-8F	1	31.80	1.81	0.67	93.62	2.672	0.67	0.00	0.00
24	150.00	Low Profile Platform	1	1500.00	22.00	1.00	2808.91	39.662	1.00	0.00	0.00
Totals:			74	9,046.50			22,888.59				

Linear Appurtenances

Bottom Elev. (ft)	Top Elev. (ft)	Description	Exposed Width	Exposed
3.00	178.00	(2) 1 5/8" Coax	0.00	Inside
3.00	166.00	(4) 1-1/4" Fiber	0.00	Inside
3.00	158.00	(6) 1 5/8" Coax	0.00	Inside
3.00	150.00	(12) 1 1/4" Coax	0.00	Inside
3.00	150.00	(1) 10 mm Fiber	0.00	Inside
3.00	150.00	(2) 19.7 mm DC	0.00	Inside
3.00	150.00	(1) 3" Innerduct	0.00	Inside

Shaft Section Properties

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Increment Length: 5 (ft)

Elev (ft)	Description	Thick (in)	Dia (in)	Area (in ²)	Ix (in ⁴)	W/t Ratio	D/t Ratio	Fpy (ksi)	S (in ³)	Weight (lb)
0.00		0.4375	62.000	86.726	41953.5	35.83	141.71	65.6	1307.	0.0
5.00		0.4375	60.760	84.979	39469.2	35.07	138.88	66.5	1254.	1460.7
10.00		0.4375	59.520	83.232	37084.8	34.31	136.05	67.3	1203.	1431.0
15.00		0.4375	58.280	81.486	34798.5	33.55	133.21	68.1	1153.	1401.2
20.00		0.4375	57.040	79.739	32608.2	32.79	130.38	69.0	1104.	1371.5
25.00		0.4375	55.800	77.992	30511.7	32.03	127.54	69.8	1056.	1341.8
30.00		0.4375	54.560	76.245	28507.1	31.27	124.71	70.6	1009.	1312.1
35.00		0.4375	53.320	74.498	26592.3	30.51	121.87	71.4	963.5	1282.4
40.00		0.4375	52.080	72.751	24765.2	29.75	119.04	72.3	918.6	1252.6
43.92	Bot - Section 2	0.4375	51.109	71.383	23393.9	29.16	116.82	72.9	884.3	960.5
45.00		0.4375	50.840	71.005	23023.8	28.99	116.21	73.1	874.9	510.2
50.00		0.4375	49.600	69.258	21365.9	28.23	113.37	73.9	832.2	2320.0
51.00	Top - Section 1	0.4063	50.165	65.090	20569.8	30.94	123.48	0.0	0.0	457.1
55.00		0.4063	49.173	63.792	19363.9	30.29	121.04	71.7	760.8	877.1
60.00		0.4063	47.933	62.170	17924.0	29.47	117.99	72.6	722.4	1071.6
65.00		0.4063	46.693	60.548	16557.4	28.65	114.94	73.5	685.0	1044.0
70.00		0.4063	45.453	58.926	15262.0	27.84	111.88	74.4	648.7	1016.4
75.00		0.4063	44.213	57.304	14036.0	27.02	108.83	75.2	613.3	988.8
80.00		0.4063	42.973	55.682	12877.5	26.20	105.78	76.1	578.9	961.2
85.00		0.4063	41.733	54.060	11784.6	25.38	102.73	77.0	545.5	933.6
90.00		0.4063	40.493	52.438	10755.3	24.56	99.67	77.9	513.1	906.0
90.17	Bot - Section 3	0.4063	40.451	52.384	10722.0	24.54	99.57	78.0	512.1	29.7
95.00		0.4063	39.253	50.816	9787.7	23.75	96.62	78.8	481.7	1580.4
96.00	Top - Section 2	0.3438	39.692	43.554	8607.2	28.80	115.47	0.0	0.0	321.0
100.00		0.3438	38.700	42.456	7972.5	28.02	112.58	74.2	398.0	585.3
105.00		0.3438	37.460	41.083	7224.0	27.06	108.97	75.2	372.5	710.7
110.00		0.3438	36.220	39.711	6523.9	26.09	105.37	76.3	348.0	687.3
115.00		0.3438	34.980	38.338	5870.5	25.12	101.76	77.3	324.2	664.0
120.00		0.3438	33.740	36.965	5262.3	24.16	98.15	78.4	301.3	640.6
125.00		0.3438	32.500	35.593	4697.7	23.19	94.55	79.4	279.2	617.3
130.00		0.3438	31.260	34.220	4174.9	22.22	90.94	80.5	258.0	593.9
133.33	Bot - Section 4	0.3438	30.433	33.305	3848.9	21.58	88.53	81.2	244.3	383.0
135.00		0.3438	30.020	32.848	3692.4	21.26	87.33	81.5	237.6	326.7
138.00	Top - Section 3	0.2500	29.776	23.768	2644.8	29.77	119.10	0.0	0.0	576.8
140.00		0.2500	29.280	23.369	2513.8	29.24	117.12	72.8	165.9	160.4
145.00		0.2500	28.040	22.371	2205.2	27.91	112.16	74.3	151.9	389.1
150.00		0.2500	26.800	21.373	1923.0	26.58	107.20	75.7	138.6	372.1
155.00		0.2500	25.560	20.375	1665.9	25.25	102.24	77.2	125.9	355.1
158.00		0.2500	24.816	19.776	1523.3	24.45	99.26	78.0	118.6	204.9
160.00		0.2500	24.320	19.376	1432.9	23.92	97.28	78.6	113.8	133.2
165.00		0.2500	23.080	18.378	1222.6	22.59	92.32	80.1	102.3	321.2
166.00		0.2500	22.832	18.179	1183.2	22.33	91.33	80.4	100.1	62.2
170.00		0.2500	21.840	17.380	1034.0	21.26	87.36	81.5	91.5	242.0
175.00		0.2500	20.600	16.382	865.9	19.94	82.40	81.9	81.2	287.2
178.00		0.2500	19.856	15.783	774.4	19.14	79.42	81.9	75.3	164.2
180.00		0.2500	19.360	15.384	717.1	18.61	77.44	81.9	71.6	106.1

33413.9

Wind Loading - Shaft

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	498.08	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	488.12	1.000	0.000	5.00	26.477	26.48	982.7	0.0	1752.8
10.00		1.00	0.85	21.088	23.20	478.16	1.000	0.000	5.00	25.942	25.94	962.8	0.0	1717.2
15.00		1.00	0.85	21.088	23.20	468.19	1.000	0.000	5.00	25.407	25.41	943.0	0.0	1681.5
20.00		1.00	0.90	22.375	24.61	472.01	1.000	0.000	5.00	24.873	24.87	979.5	0.0	1645.8
25.00		1.00	0.95	23.451	25.80	472.72	1.000	0.000	5.00	24.338	24.34	1004.5	0.0	1610.2
30.00		1.00	0.98	24.369	26.81	471.18	1.000	0.000	5.00	23.803	23.80	1020.9	0.0	1574.5
35.00		1.00	1.01	25.172	27.69	468.00	1.000	0.000	5.00	23.268	23.27	1030.8	0.0	1538.8
40.00		1.00	1.04	25.890	28.48	463.59	1.000	0.000	5.00	22.733	22.73	1035.9	0.0	1503.2
43.92	Bot - Section 2	1.00	1.06	26.404	29.04	459.44	1.000	0.000	3.92	17.434	17.43	810.2	0.0	1152.6
45.00		1.00	1.07	26.540	29.19	458.19	1.000	0.000	1.08	4.840	4.84	226.1	0.0	612.3
50.00		1.00	1.09	27.135	29.85	452.00	1.000	0.000	5.00	22.014	22.01	1051.3	0.0	2783.9
51.00	Top - Section 1	1.00	1.10	27.249	29.97	450.68	1.000	0.000	1.00	4.339	4.34	208.1	0.0	548.5
55.00		1.00	1.12	27.685	30.45	452.63	1.000	0.000	4.00	17.140	17.14	835.2	0.0	1052.5
60.00		1.00	1.14	28.197	31.02	445.27	1.000	0.000	5.00	20.944	20.94	1039.4	0.0	1285.9
65.00		1.00	1.16	28.676	31.54	437.42	1.000	0.000	5.00	20.409	20.41	1030.0	0.0	1252.8
70.00		1.00	1.17	29.127	32.04	429.14	1.000	0.000	5.00	19.874	19.87	1018.8	0.0	1219.6
75.00		1.00	1.19	29.553	32.51	420.48	1.000	0.000	5.00	19.339	19.34	1005.9	0.0	1186.5
80.00		1.00	1.21	29.958	32.95	411.47	1.000	0.000	5.00	18.804	18.80	991.5	0.0	1153.4
85.00		1.00	1.22	30.342	33.38	402.15	1.000	0.000	5.00	18.269	18.27	975.6	0.0	1120.3
90.00		1.00	1.24	30.710	33.78	392.56	1.000	0.000	5.00	17.734	17.73	958.5	0.0	1087.2
90.17	Bot - Section 3	1.00	1.24	30.722	33.79	392.24	1.000	0.000	0.17	0.582	0.58	31.5	0.0	35.7
95.00		1.00	1.25	31.061	34.17	382.71	1.000	0.000	4.83	16.904	16.90	924.1	0.0	1896.5
96.00	Top - Section 2	1.00	1.25	31.130	34.24	380.71	1.000	0.000	1.00	3.435	3.44	188.2	0.0	385.2
100.00		1.00	1.27	31.399	34.54	379.37	1.000	0.000	4.00	13.526	13.53	747.5	0.0	702.4
105.00		1.00	1.28	31.723	34.89	369.10	1.000	0.000	5.00	16.426	16.43	917.1	0.0	852.8
110.00		1.00	1.29	32.035	35.24	358.64	1.000	0.000	5.00	15.891	15.89	896.0	0.0	824.8
115.00		1.00	1.30	32.336	35.57	347.98	1.000	0.000	5.00	15.357	15.36	874.0	0.0	796.7
120.00		1.00	1.32	32.627	35.89	337.15	1.000	0.000	5.00	14.822	14.82	851.1	0.0	768.7
125.00		1.00	1.33	32.909	36.20	326.16	1.000	0.000	5.00	14.287	14.29	827.5	0.0	740.7
130.00		1.00	1.34	33.182	36.50	315.01	1.000	0.000	5.00	13.752	13.75	803.1	0.0	712.7
133.33	Bot - Section 4	1.00	1.34	33.359	36.69	307.50	1.000	0.000	3.33	8.871	8.87	520.8	0.0	459.6
135.00		1.00	1.35	33.446	36.79	303.72	1.000	0.000	1.67	4.418	4.42	260.1	0.0	392.1
138.00	Top - Section 3	1.00	1.35	33.601	36.96	296.88	1.000	0.000	3.00	7.803	7.80	461.5	0.0	692.2
140.00		1.00	1.36	33.703	37.07	297.37	1.000	0.000	2.00	5.095	5.09	302.2	0.0	192.5
145.00		1.00	1.37	33.953	37.35	285.83	1.000	0.000	5.00	12.363	12.36	738.8	0.0	466.9
150.00	Appurtenance(s)	1.00	1.38	34.196	37.62	274.17	1.000	0.000	5.00	11.828	11.83	711.9	0.0	446.6
155.00		1.00	1.39	34.433	37.88	262.39	1.000	0.000	5.00	11.293	11.29	684.4	0.0	426.2
158.00	Appurtenance(s)	1.00	1.39	34.573	38.03	255.26	1.000	0.000	3.00	6.519	6.52	396.7	0.0	245.9
160.00		1.00	1.40	34.664	38.13	250.49	1.000	0.000	2.00	4.239	4.24	258.6	0.0	159.9
165.00		1.00	1.41	34.890	38.38	238.49	1.000	0.000	5.00	10.223	10.22	627.8	0.0	385.4
166.00	Appurtenance(s)	1.00	1.41	34.934	38.43	236.08	1.000	0.000	1.00	1.980	1.98	121.8	0.0	74.6
170.00		1.00	1.42	35.110	38.62	226.39	1.000	0.000	4.00	7.708	7.71	476.3	0.0	290.4
175.00		1.00	1.42	35.324	38.86	214.19	1.000	0.000	5.00	9.154	9.15	569.1	0.0	344.7
178.00	Appurtenance(s)	1.00	1.43	35.451	39.00	206.82	1.000	0.000	3.00	5.235	5.24	326.7	0.0	197.0
180.00		1.00	1.43	35.535	39.09	201.89	1.000	0.000	2.00	3.383	3.38	211.6	0.0	127.3

Wind Loading - Shaft

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: 180.00

31,838.8

40,096.7

Discrete Appurtenance Forces

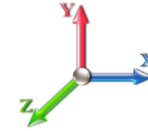
Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	178.00	RRH_2x40 AWS	3	35.451	38.996	0.50	0.75	3.26	158.40	0.000	0.000	203.17	0.00	0.00
2	178.00	Amphenol	6	35.451	38.996	0.58	0.75	26.57	122.40	0.000	0.000	1657.85	0.00	0.00
3	178.00	Amphenol	6	35.451	38.996	0.66	0.75	19.01	108.00	0.000	0.000	1185.98	0.00	0.00
4	178.00	Platform w/ Hand Rails	1	35.451	38.996	1.00	1.00	40.00	2400.00	0.000	0.000	2495.75	0.00	0.00
5	178.00	RRH_2x40 07-U	3	35.451	38.996	0.50	0.75	4.27	188.64	0.000	0.000	266.19	0.00	0.00
6	178.00	RFS DB-B1-6C-8AB-OZ	1	35.451	38.996	0.50	0.75	2.41	25.68	0.000	0.000	150.49	0.00	0.00
7	166.00	Platform w/ Hand Rails	1	34.934	38.427	1.00	1.00	40.00	2400.00	0.000	0.000	2459.35	0.00	0.00
8	166.00	ALU TD-RRH8x20-25	3	34.934	38.427	0.50	0.75	6.11	252.00	0.000	0.000	375.38	0.00	0.00
9	166.00	ALU 800 Mhz	6	34.934	38.427	0.50	0.75	6.42	381.60	0.000	0.000	394.85	0.00	0.00
10	166.00	ALU 1900 Mhz	3	34.934	38.427	0.50	0.75	3.59	216.00	0.000	0.000	220.59	0.00	0.00
11	166.00	KMW ETCR-654L12H6	3	34.934	38.427	0.52	0.75	24.39	305.64	0.000	0.000	1499.58	0.00	0.00
12	158.00	T-Arms	3	34.573	38.030	0.56	0.75	13.50	1260.00	0.000	0.000	821.44	0.00	0.00
13	158.00	Stella Dooradus TMA's	6	34.573	38.030	0.48	0.80	2.04	92.16	0.000	0.000	124.42	0.00	0.00
14	158.00	EMS RR90-17-02DP	6	34.573	38.030	0.57	0.80	25.01	97.20	0.000	0.000	1522.09	0.00	0.00
15	150.00	Powerwave 7770	3	34.196	37.616	0.62	0.80	10.18	126.00	0.000	0.000	612.84	0.00	0.00
16	150.00	Cci HPA-65R-BUU-H6	2	34.196	37.616	0.68	0.80	13.14	122.40	0.000	0.000	790.70	0.00	0.00
17	150.00	SBNHH-1D65A	1	34.196	37.616	0.66	0.80	3.90	40.20	0.000	0.000	234.98	0.00	0.00
18	150.00	RRUS-32	3	34.196	37.616	0.54	0.80	6.22	277.20	0.000	0.000	374.53	0.00	0.00
19	150.00	KMW	2	34.196	37.616	0.63	0.80	10.14	116.40	0.000	0.000	610.12	0.00	0.00
20	150.00	KMW	1	34.196	37.616	0.62	0.80	4.40	43.68	0.000	0.000	264.77	0.00	0.00
21	150.00	Powerwave LGP21401	6	34.196	37.616	0.80	0.80	5.86	101.52	0.000	0.000	352.45	0.00	0.00
22	150.00	Ericsson RRUS-11	3	34.196	37.616	0.54	0.80	4.05	182.52	0.000	0.000	243.88	0.00	0.00
23	150.00	Raycap DC6-48-60-18-8F	1	34.196	37.616	0.54	0.80	0.97	38.16	0.000	0.000	58.39	0.00	0.00
24	150.00	Low Profile Platform	1	34.196	37.616	1.00	1.00	22.00	1800.00	0.000	0.000	1324.09	0.00	0.00
Totals:									10,855.80			18,243.89		

Total Applied Force Summary

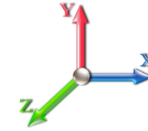
Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.6W 101 mph Wind

Dead Load Factor 1.20
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		982.67	1801.99	0.00	0.00
10.00		962.82	1840.08	0.00	0.00
15.00		942.97	1804.41	0.00	0.00
20.00		979.47	1768.75	0.00	0.00
25.00		1004.50	1733.08	0.00	0.00
30.00		1020.87	1697.42	0.00	0.00
35.00		1030.84	1661.75	0.00	0.00
40.00		1035.86	1626.09	0.00	0.00
43.92		810.18	1248.86	0.00	0.00
45.00		226.08	638.89	0.00	0.00
50.00		1051.33	2906.86	0.00	0.00
51.00		208.07	573.12	0.00	0.00
55.00		835.17	1150.87	0.00	0.00
60.00		1039.38	1408.78	0.00	0.00
65.00		1030.04	1375.67	0.00	0.00
70.00		1018.82	1342.55	0.00	0.00
75.00		1005.90	1309.43	0.00	0.00
80.00		991.46	1276.32	0.00	0.00
85.00		975.63	1243.20	0.00	0.00
90.00		958.53	1210.08	0.00	0.00
90.17		31.47	39.77	0.00	0.00
95.00		924.12	2015.29	0.00	0.00
96.00		188.20	409.82	0.00	0.00
100.00		747.48	800.74	0.00	0.00
105.00		917.12	975.71	0.00	0.00
110.00		895.98	947.68	0.00	0.00
115.00		873.97	919.66	0.00	0.00
120.00		851.12	891.64	0.00	0.00
125.00		827.48	863.62	0.00	0.00
130.00		803.11	835.59	0.00	0.00
133.33		520.82	541.49	0.00	0.00
135.00		260.08	433.04	0.00	0.00
138.00		461.45	765.92	0.00	0.00
140.00		302.22	241.64	0.00	0.00
145.00		738.78	589.85	0.00	0.00
150.00	(23) attachments	5578.63	3417.55	0.00	0.00
155.00		684.39	498.99	0.00	0.00
158.00	(15) attachments	2864.63	1738.97	0.00	0.00
160.00		258.62	174.02	0.00	0.00
165.00		627.77	420.79	0.00	0.00
166.00	(16) attachments	5071.51	3636.95	0.00	0.00
170.00		476.30	300.38	0.00	0.00
175.00		569.09	357.13	0.00	0.00
178.00	(20) attachments	6286.09	3207.62	0.00	0.00
180.00		211.59	127.26	0.00	0.00

Total Applied Force Summary

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	<u>50,082.64</u>	<u>54,769.32</u>	<u>0.00</u>	<u>0.00</u>
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Calculated Forces

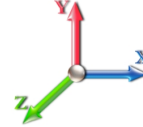
Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 1.2D + 1.6W 101 mph Wind

Iterations 26

Dead Load Factor 1.20
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-54.68	-50.18	0.00	-5915.4	0.00	5915.40	5123.29	2561.65	13030.5	6435.29	0.00	0.000	0.000	0.930
5.00	-52.71	-49.38	0.00	-5664.5	0.00	5664.51	5083.45	2541.72	12666.9	6255.72	0.11	-0.196	0.000	0.916
10.00	-50.70	-48.58	0.00	-5417.6	0.00	5417.64	5041.00	2520.50	12301.0	6075.05	0.42	-0.396	0.000	0.902
15.00	-48.74	-47.80	0.00	-5174.7	0.00	5174.74	4995.94	2497.97	11933.4	5893.46	0.94	-0.599	0.000	0.888
20.00	-46.81	-46.97	0.00	-4935.7	0.00	4935.75	4948.29	2474.14	11564.2	5711.17	1.68	-0.806	0.000	0.874
25.00	-44.92	-46.10	0.00	-4700.9	0.00	4700.92	4898.02	2449.01	11194.1	5528.36	2.64	-1.016	0.000	0.860
30.00	-43.08	-45.21	0.00	-4470.4	0.00	4470.42	4845.16	2422.58	10823.3	5345.24	3.82	-1.230	0.000	0.846
35.00	-41.27	-44.30	0.00	-4244.3	0.00	4244.38	4789.68	2394.84	10452.3	5162.01	5.22	-1.447	0.000	0.831
40.00	-39.52	-43.36	0.00	-4022.8	0.00	4022.89	4731.61	2365.80	10081.4	4978.87	6.86	-1.668	0.000	0.817
43.92	-38.22	-42.58	0.00	-3853.0	0.00	3853.08	4684.30	2342.15	9791.39	4835.60	8.30	-1.846	0.000	0.805
45.00	-37.48	-42.43	0.00	-3806.9	0.00	3806.95	4670.93	2335.46	9711.23	4796.01	8.73	-1.896	0.000	0.802
50.00	-34.51	-41.36	0.00	-3594.8	0.00	3594.81	4607.64	2303.82	9341.95	4613.64	10.84	-2.125	0.000	0.787
51.00	-33.86	-41.20	0.00	-3553.4	0.00	3553.45	4157.28	2078.64	8537.21	4216.21	11.29	-2.172	0.000	0.851
55.00	-32.59	-40.44	0.00	-3388.6	0.00	3388.65	4115.37	2057.69	8281.29	4089.82	13.19	-2.360	0.000	0.837
60.00	-31.06	-39.47	0.00	-3186.4	0.00	3186.45	4060.64	2030.32	7961.67	3931.97	15.79	-2.601	0.000	0.818
65.00	-29.57	-38.51	0.00	-2989.0	0.00	2989.07	4003.30	2001.65	7642.72	3774.45	18.64	-2.847	0.000	0.800
70.00	-28.12	-37.54	0.00	-2796.5	0.00	2796.54	3943.36	1971.68	7324.85	3617.47	21.76	-3.095	0.000	0.781
75.00	-26.71	-36.59	0.00	-2608.8	0.00	2608.82	3880.82	1940.41	7008.46	3461.22	25.13	-3.347	0.000	0.761
80.00	-25.34	-35.63	0.00	-2425.8	0.00	2425.89	3815.67	1907.83	6693.96	3305.90	28.77	-3.602	0.000	0.741
85.00	-24.00	-34.69	0.00	-2247.7	0.00	2247.74	3747.91	1873.96	6381.75	3151.70	32.68	-3.860	0.000	0.720
90.00	-22.78	-33.70	0.00	-2074.3	0.00	2074.31	3677.55	1838.78	6072.22	2998.84	36.86	-4.121	0.000	0.698
90.17	-22.67	-33.72	0.00	-2068.6	0.00	2068.69	3675.16	1837.58	6061.96	2993.77	37.00	-4.130	0.000	0.698
95.00	-20.64	-32.70	0.00	-1905.7	0.00	1905.72	3604.59	1802.30	5765.80	2847.51	41.32	-4.385	0.000	0.675
96.00	-20.17	-32.53	0.00	-1873.0	0.00	1873.02	2873.56	1436.78	4663.81	2303.28	42.24	-4.440	0.000	0.821
100.00	-19.29	-31.81	0.00	-1742.9	0.00	1742.90	2833.34	1416.67	4481.60	2213.29	46.05	-4.654	0.000	0.795
105.00	-18.23	-30.91	0.00	-1583.8	0.00	1583.86	2780.72	1390.36	4254.92	2101.34	51.08	-4.951	0.000	0.761
110.00	-17.21	-30.02	0.00	-1429.3	0.00	1429.32	2725.50	1362.75	4029.81	1990.17	56.42	-5.248	0.000	0.725
115.00	-16.23	-29.15	0.00	-1279.2	0.00	1279.22	2667.67	1333.84	3806.69	1879.98	62.06	-5.543	0.000	0.687
120.00	-15.28	-28.29	0.00	-1133.4	0.00	1133.48	2607.24	1303.62	3585.95	1770.96	68.02	-5.835	0.000	0.646
125.00	-14.38	-27.45	0.00	-992.04	0.00	992.04	2544.20	1272.10	3368.00	1663.33	74.27	-6.123	0.000	0.603
130.00	-13.53	-26.61	0.00	-854.80	0.00	854.80	2478.56	1239.28	3153.24	1557.27	80.82	-6.402	0.000	0.555
133.33	-12.99	-26.07	0.00	-766.08	0.00	766.08	2433.35	1216.68	3012.04	1487.53	85.35	-6.586	0.000	0.521
135.00	-12.53	-25.79	0.00	-722.64	0.00	722.64	2410.32	1205.16	2942.08	1452.98	87.66	-6.678	0.000	0.503
138.00	-11.76	-25.26	0.00	-645.29	0.00	645.29	1545.45	772.73	1882.66	929.77	91.90	-6.836	0.000	0.703
140.00	-11.47	-24.98	0.00	-594.76	0.00	594.76	1531.69	765.84	1834.28	905.88	94.78	-6.939	0.000	0.665
145.00	-10.86	-24.22	0.00	-469.88	0.00	469.88	1495.44	747.72	1713.73	846.35	102.20	-7.241	0.000	0.563
150.00	-8.11	-18.29	0.00	-348.76	0.00	348.76	1456.60	728.30	1594.07	787.25	109.91	-7.505	0.000	0.449
155.00	-7.65	-17.57	0.00	-257.33	0.00	257.33	1415.15	707.58	1475.70	728.79	117.87	-7.729	0.000	0.359
158.00	-6.29	-14.50	0.00	-204.63	0.00	204.63	1389.03	694.52	1405.47	694.11	122.75	-7.847	0.000	0.300
160.00	-6.13	-14.23	0.00	-175.63	0.00	175.63	1371.10	685.55	1359.03	671.17	126.04	-7.918	0.000	0.267
165.00	-5.78	-13.56	0.00	-104.46	0.00	104.46	1324.44	662.22	1244.46	614.59	134.39	-8.057	0.000	0.175
166.00	-2.89	-8.03	0.00	-90.90	0.00	90.90	1314.79	657.40	1221.83	603.42	136.08	-8.080	0.000	0.153
170.00	-2.65	-7.52	0.00	-58.78	0.00	58.78	1275.17	637.59	1132.39	559.24	142.86	-8.152	0.000	0.107
175.00	-2.37	-6.91	0.00	-21.18	0.00	21.18	1207.50	603.75	1010.00	498.80	151.40	-8.207	0.000	0.045
178.00	-0.10	-0.23	0.00	-0.46	0.00	0.46	1163.35	581.68	937.07	462.78	156.54	-8.218	0.000	0.001
180.00	0.00	-0.21	0.00	0.00	0.00	0.00	1133.92	566.96	889.96	439.52	159.97	-8.218	0.000	0.000

Wind Loading - Shaft

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	21.088	23.20	498.08	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	21.088	23.20	488.12	1.000	0.000	5.00	26.477	26.48	982.7	0.0	1314.6
10.00		1.00	0.85	21.088	23.20	478.16	1.000	0.000	5.00	25.942	25.94	962.8	0.0	1287.9
15.00		1.00	0.85	21.088	23.20	468.19	1.000	0.000	5.00	25.407	25.41	943.0	0.0	1261.1
20.00		1.00	0.90	22.375	24.61	472.01	1.000	0.000	5.00	24.873	24.87	979.5	0.0	1234.4
25.00		1.00	0.95	23.451	25.80	472.72	1.000	0.000	5.00	24.338	24.34	1004.5	0.0	1207.6
30.00		1.00	0.98	24.369	26.81	471.18	1.000	0.000	5.00	23.803	23.80	1020.9	0.0	1180.9
35.00		1.00	1.01	25.172	27.69	468.00	1.000	0.000	5.00	23.268	23.27	1030.8	0.0	1154.1
40.00		1.00	1.04	25.890	28.48	463.59	1.000	0.000	5.00	22.733	22.73	1035.9	0.0	1127.4
43.92	Bot - Section 2	1.00	1.06	26.404	29.04	459.44	1.000	0.000	3.92	17.434	17.43	810.2	0.0	864.4
45.00		1.00	1.07	26.540	29.19	458.19	1.000	0.000	1.08	4.840	4.84	226.1	0.0	459.2
50.00		1.00	1.09	27.135	29.85	452.00	1.000	0.000	5.00	22.014	22.01	1051.3	0.0	2088.0
51.00	Top - Section 1	1.00	1.10	27.249	29.97	450.68	1.000	0.000	1.00	4.339	4.34	208.1	0.0	411.4
55.00		1.00	1.12	27.685	30.45	452.63	1.000	0.000	4.00	17.140	17.14	835.2	0.0	789.4
60.00		1.00	1.14	28.197	31.02	445.27	1.000	0.000	5.00	20.944	20.94	1039.4	0.0	964.4
65.00		1.00	1.16	28.676	31.54	437.42	1.000	0.000	5.00	20.409	20.41	1030.0	0.0	939.6
70.00		1.00	1.17	29.127	32.04	429.14	1.000	0.000	5.00	19.874	19.87	1018.8	0.0	914.7
75.00		1.00	1.19	29.553	32.51	420.48	1.000	0.000	5.00	19.339	19.34	1005.9	0.0	889.9
80.00		1.00	1.21	29.958	32.95	411.47	1.000	0.000	5.00	18.804	18.80	991.5	0.0	865.0
85.00		1.00	1.22	30.342	33.38	402.15	1.000	0.000	5.00	18.269	18.27	975.6	0.0	840.2
90.00		1.00	1.24	30.710	33.78	392.56	1.000	0.000	5.00	17.734	17.73	958.5	0.0	815.4
90.17	Bot - Section 3	1.00	1.24	30.722	33.79	392.24	1.000	0.000	0.17	0.582	0.58	31.5	0.0	26.8
95.00		1.00	1.25	31.061	34.17	382.71	1.000	0.000	4.83	16.904	16.90	924.1	0.0	1422.4
96.00	Top - Section 2	1.00	1.25	31.130	34.24	380.71	1.000	0.000	1.00	3.435	3.44	188.2	0.0	288.9
100.00		1.00	1.27	31.399	34.54	379.37	1.000	0.000	4.00	13.526	13.53	747.5	0.0	526.8
105.00		1.00	1.28	31.723	34.89	369.10	1.000	0.000	5.00	16.426	16.43	917.1	0.0	639.6
110.00		1.00	1.29	32.035	35.24	358.64	1.000	0.000	5.00	15.891	15.89	896.0	0.0	618.6
115.00		1.00	1.30	32.336	35.57	347.98	1.000	0.000	5.00	15.357	15.36	874.0	0.0	597.6
120.00		1.00	1.32	32.627	35.89	337.15	1.000	0.000	5.00	14.822	14.82	851.1	0.0	576.5
125.00		1.00	1.33	32.909	36.20	326.16	1.000	0.000	5.00	14.287	14.29	827.5	0.0	555.5
130.00		1.00	1.34	33.182	36.50	315.01	1.000	0.000	5.00	13.752	13.75	803.1	0.0	534.5
133.33	Bot - Section 4	1.00	1.34	33.359	36.69	307.50	1.000	0.000	3.33	8.871	8.87	520.8	0.0	344.7
135.00		1.00	1.35	33.446	36.79	303.72	1.000	0.000	1.67	4.418	4.42	260.1	0.0	294.1
138.00	Top - Section 3	1.00	1.35	33.601	36.96	296.88	1.000	0.000	3.00	7.803	7.80	461.5	0.0	519.1
140.00		1.00	1.36	33.703	37.07	297.37	1.000	0.000	2.00	5.095	5.09	302.2	0.0	144.4
145.00		1.00	1.37	33.953	37.35	285.83	1.000	0.000	5.00	12.363	12.36	738.8	0.0	350.2
150.00	Appurtenance(s)	1.00	1.38	34.196	37.62	274.17	1.000	0.000	5.00	11.828	11.83	711.9	0.0	334.9
155.00		1.00	1.39	34.433	37.88	262.39	1.000	0.000	5.00	11.293	11.29	684.4	0.0	319.6
158.00	Appurtenance(s)	1.00	1.39	34.573	38.03	255.26	1.000	0.000	3.00	6.519	6.52	396.7	0.0	184.4
160.00		1.00	1.40	34.664	38.13	250.49	1.000	0.000	2.00	4.239	4.24	258.6	0.0	119.9
165.00		1.00	1.41	34.890	38.38	238.49	1.000	0.000	5.00	10.223	10.22	627.8	0.0	289.1
166.00	Appurtenance(s)	1.00	1.41	34.934	38.43	236.08	1.000	0.000	1.00	1.980	1.98	121.8	0.0	56.0
170.00		1.00	1.42	35.110	38.62	226.39	1.000	0.000	4.00	7.708	7.71	476.3	0.0	217.8
175.00		1.00	1.42	35.324	38.86	214.19	1.000	0.000	5.00	9.154	9.15	569.1	0.0	258.5
178.00	Appurtenance(s)	1.00	1.43	35.451	39.00	206.82	1.000	0.000	3.00	5.235	5.24	326.7	0.0	147.8
180.00		1.00	1.43	35.535	39.09	201.89	1.000	0.000	2.00	3.383	3.38	211.6	0.0	95.4

Wind Loading - Shaft

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: 180.00

31,838.8

30,072.5

Discrete Appurtenance Forces

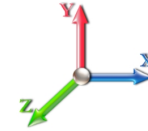
Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	178.00	RRH_2x40 AWS	3	35.451	38.996	0.50	0.75	3.26	118.80	0.000	0.000	203.17	0.00	0.00
2	178.00	Amphenol	6	35.451	38.996	0.58	0.75	26.57	91.80	0.000	0.000	1657.85	0.00	0.00
3	178.00	Amphenol	6	35.451	38.996	0.66	0.75	19.01	81.00	0.000	0.000	1185.98	0.00	0.00
4	178.00	Platform w/ Hand Rails	1	35.451	38.996	1.00	1.00	40.00	1800.00	0.000	0.000	2495.75	0.00	0.00
5	178.00	RRH_2x40 07-U	3	35.451	38.996	0.50	0.75	4.27	141.48	0.000	0.000	266.19	0.00	0.00
6	178.00	RFS DB-B1-6C-8AB-OZ	1	35.451	38.996	0.50	0.75	2.41	19.26	0.000	0.000	150.49	0.00	0.00
7	166.00	Platform w/ Hand Rails	1	34.934	38.427	1.00	1.00	40.00	1800.00	0.000	0.000	2459.35	0.00	0.00
8	166.00	ALU TD-RRH8x20-25	3	34.934	38.427	0.50	0.75	6.11	189.00	0.000	0.000	375.38	0.00	0.00
9	166.00	ALU 800 Mhz	6	34.934	38.427	0.50	0.75	6.42	286.20	0.000	0.000	394.85	0.00	0.00
10	166.00	ALU 1900 Mhz	3	34.934	38.427	0.50	0.75	3.59	162.00	0.000	0.000	220.59	0.00	0.00
11	166.00	KMW ETCR-654L12H6	3	34.934	38.427	0.52	0.75	24.39	229.23	0.000	0.000	1499.58	0.00	0.00
12	158.00	T-Arms	3	34.573	38.030	0.56	0.75	13.50	945.00	0.000	0.000	821.44	0.00	0.00
13	158.00	Stella Dooradus TMA's	6	34.573	38.030	0.48	0.80	2.04	69.12	0.000	0.000	124.42	0.00	0.00
14	158.00	EMS RR90-17-02DP	6	34.573	38.030	0.57	0.80	25.01	72.90	0.000	0.000	1522.09	0.00	0.00
15	150.00	Powerwave 7770	3	34.196	37.616	0.62	0.80	10.18	94.50	0.000	0.000	612.84	0.00	0.00
16	150.00	Cci HPA-65R-BUU-H6	2	34.196	37.616	0.68	0.80	13.14	91.80	0.000	0.000	790.70	0.00	0.00
17	150.00	SBNHH-1D65A	1	34.196	37.616	0.66	0.80	3.90	30.15	0.000	0.000	234.98	0.00	0.00
18	150.00	RRUS-32	3	34.196	37.616	0.54	0.80	6.22	207.90	0.000	0.000	374.53	0.00	0.00
19	150.00	KMW	2	34.196	37.616	0.63	0.80	10.14	87.30	0.000	0.000	610.12	0.00	0.00
20	150.00	KMW	1	34.196	37.616	0.62	0.80	4.40	32.76	0.000	0.000	264.77	0.00	0.00
21	150.00	Powerwave LGP21401	6	34.196	37.616	0.80	0.80	5.86	76.14	0.000	0.000	352.45	0.00	0.00
22	150.00	Ericsson RRUS-11	3	34.196	37.616	0.54	0.80	4.05	136.89	0.000	0.000	243.88	0.00	0.00
23	150.00	Raycap DC6-48-60-18-8F	1	34.196	37.616	0.54	0.80	0.97	28.62	0.000	0.000	58.39	0.00	0.00
24	150.00	Low Profile Platform	1	34.196	37.616	1.00	1.00	22.00	1350.00	0.000	0.000	1324.09	0.00	0.00
Totals:									8,141.85			18,243.89		

Total Applied Force Summary

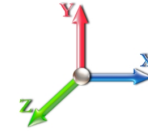
Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.6W 101 mph Wind

Dead Load Factor 0.90
Wind Load Factor 1.60



Iterations 26

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		982.67	1351.49	0.00	0.00
10.00		962.82	1380.06	0.00	0.00
15.00		942.97	1353.31	0.00	0.00
20.00		979.47	1326.56	0.00	0.00
25.00		1004.50	1299.81	0.00	0.00
30.00		1020.87	1273.06	0.00	0.00
35.00		1030.84	1246.32	0.00	0.00
40.00		1035.86	1219.57	0.00	0.00
43.92		810.18	936.64	0.00	0.00
45.00		226.08	479.16	0.00	0.00
50.00		1051.33	2180.15	0.00	0.00
51.00		208.07	429.84	0.00	0.00
55.00		835.17	863.15	0.00	0.00
60.00		1039.38	1056.59	0.00	0.00
65.00		1030.04	1031.75	0.00	0.00
70.00		1018.82	1006.91	0.00	0.00
75.00		1005.90	982.07	0.00	0.00
80.00		991.46	957.24	0.00	0.00
85.00		975.63	932.40	0.00	0.00
90.00		958.53	907.56	0.00	0.00
90.17		31.47	29.82	0.00	0.00
95.00		924.12	1511.46	0.00	0.00
96.00		188.20	307.37	0.00	0.00
100.00		747.48	600.56	0.00	0.00
105.00		917.12	731.78	0.00	0.00
110.00		895.98	710.76	0.00	0.00
115.00		873.97	689.75	0.00	0.00
120.00		851.12	668.73	0.00	0.00
125.00		827.48	647.71	0.00	0.00
130.00		803.11	626.70	0.00	0.00
133.33		520.82	406.12	0.00	0.00
135.00		260.08	324.78	0.00	0.00
138.00		461.45	574.44	0.00	0.00
140.00		302.22	181.23	0.00	0.00
145.00		738.78	442.38	0.00	0.00
150.00	(23) attachments	5578.63	2563.16	0.00	0.00
155.00		684.39	374.24	0.00	0.00
158.00	(15) attachments	2864.63	1304.23	0.00	0.00
160.00		258.62	130.52	0.00	0.00
165.00		627.77	315.59	0.00	0.00
166.00	(16) attachments	5071.51	2727.71	0.00	0.00
170.00		476.30	225.28	0.00	0.00
175.00		569.09	267.85	0.00	0.00
178.00	(20) attachments	6286.09	2405.71	0.00	0.00
180.00		211.59	95.45	0.00	0.00

Total Applied Force Summary

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	<u>50,082.64</u>	<u>41,076.99</u>	<u>0.00</u>	<u>0.00</u>
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Calculated Forces

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II

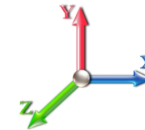


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Load Case: 0.9D + 1.6W 101 mph Wind

Iterations 26

Dead Load Factor 0.90
Wind Load Factor 1.60



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-40.99	-50.15	0.00	-5852.6	0.00	5852.67	5123.29	2561.65	13030.5	6435.29	0.00	0.000	0.000	0.918
5.00	-39.47	-49.30	0.00	-5601.9	0.00	5601.91	5083.45	2541.72	12666.9	6255.72	0.10	-0.194	0.000	0.904
10.00	-37.93	-48.47	0.00	-5355.3	0.00	5355.39	5041.00	2520.50	12301.0	6075.05	0.41	-0.392	0.000	0.889
15.00	-36.41	-47.64	0.00	-5113.0	0.00	5113.06	4995.94	2497.97	11933.4	5893.46	0.93	-0.592	0.000	0.875
20.00	-34.93	-46.77	0.00	-4874.8	0.00	4874.86	4948.29	2474.14	11564.2	5711.17	1.66	-0.797	0.000	0.861
25.00	-33.48	-45.87	0.00	-4641.0	0.00	4641.01	4898.02	2449.01	11194.1	5528.36	2.61	-1.004	0.000	0.847
30.00	-32.06	-44.94	0.00	-4411.6	0.00	4411.67	4845.16	2422.58	10823.3	5345.24	3.78	-1.215	0.000	0.832
35.00	-30.67	-44.00	0.00	-4186.9	0.00	4186.97	4789.68	2394.84	10452.3	5162.01	5.16	-1.430	0.000	0.818
40.00	-29.34	-43.03	0.00	-3966.9	0.00	3966.97	4731.61	2365.80	10081.4	4978.87	6.78	-1.648	0.000	0.803
43.92	-28.34	-42.25	0.00	-3798.4	0.00	3798.43	4684.30	2342.15	9791.39	4835.60	8.20	-1.822	0.000	0.792
45.00	-27.77	-42.07	0.00	-3752.6	0.00	3752.66	4670.93	2335.46	9711.23	4796.01	8.62	-1.872	0.000	0.789
50.00	-25.53	-41.01	0.00	-3542.2	0.00	3542.29	4607.64	2303.82	9341.95	4613.64	10.70	-2.098	0.000	0.774
51.00	-25.02	-40.84	0.00	-3501.2	0.00	3501.29	4157.28	2078.64	8537.21	4216.21	11.15	-2.144	0.000	0.837
55.00	-24.05	-40.06	0.00	-3337.9	0.00	3337.95	4115.37	2057.69	8281.29	4089.82	13.03	-2.329	0.000	0.822
60.00	-22.87	-39.07	0.00	-3137.6	0.00	3137.66	4060.64	2030.32	7961.67	3931.97	15.59	-2.567	0.000	0.804
65.00	-21.73	-38.08	0.00	-2942.3	0.00	2942.32	4003.30	2001.65	7642.72	3774.45	18.41	-2.809	0.000	0.785
70.00	-20.62	-37.10	0.00	-2751.9	0.00	2751.90	3943.36	1971.68	7324.85	3617.47	21.48	-3.053	0.000	0.766
75.00	-19.53	-36.13	0.00	-2566.3	0.00	2566.38	3880.82	1940.41	7008.46	3461.22	24.81	-3.301	0.000	0.747
80.00	-18.48	-35.17	0.00	-2385.7	0.00	2385.73	3815.67	1907.83	6693.96	3305.90	28.40	-3.552	0.000	0.727
85.00	-17.46	-34.21	0.00	-2209.9	0.00	2209.91	3747.91	1873.96	6381.75	3151.70	32.26	-3.806	0.000	0.706
90.00	-16.55	-33.23	0.00	-2038.8	0.00	2038.86	3677.55	1838.78	6072.22	2998.84	36.38	-4.062	0.000	0.685
90.17	-16.44	-33.23	0.00	-2033.3	0.00	2033.32	3675.16	1837.58	6061.96	2993.77	36.52	-4.071	0.000	0.684
95.00	-14.92	-32.24	0.00	-1872.6	0.00	1872.69	3604.59	1802.30	5765.80	2847.51	40.77	-4.322	0.000	0.662
96.00	-14.55	-32.06	0.00	-1840.4	0.00	1840.45	2873.56	1436.78	4663.81	2303.28	41.68	-4.376	0.000	0.805
100.00	-13.87	-31.33	0.00	-1712.2	0.00	1712.20	2833.34	1416.67	4481.60	2213.29	45.43	-4.586	0.000	0.779
105.00	-13.07	-30.43	0.00	-1555.5	0.00	1555.53	2780.72	1390.36	4254.92	2101.34	50.39	-4.878	0.000	0.745
110.00	-12.29	-29.53	0.00	-1403.4	0.00	1403.41	2725.50	1362.75	4029.81	1990.17	55.64	-5.169	0.000	0.710
115.00	-11.54	-28.66	0.00	-1255.7	0.00	1255.74	2667.67	1333.84	3806.69	1879.98	61.21	-5.459	0.000	0.673
120.00	-10.82	-27.80	0.00	-1112.4	0.00	1112.45	2607.24	1303.62	3585.95	1770.96	67.07	-5.746	0.000	0.633
125.00	-10.13	-26.96	0.00	-973.46	0.00	973.46	2544.20	1272.10	3368.00	1663.33	73.23	-6.028	0.000	0.590
130.00	-9.49	-26.13	0.00	-838.66	0.00	838.66	2478.56	1239.28	3153.24	1557.27	79.68	-6.302	0.000	0.543
133.33	-9.08	-25.59	0.00	-751.56	0.00	751.56	2433.35	1216.68	3012.04	1487.53	84.14	-6.483	0.000	0.509
135.00	-8.73	-25.31	0.00	-708.91	0.00	708.91	2410.32	1205.16	2942.08	1452.98	86.41	-6.573	0.000	0.492
138.00	-8.16	-24.81	0.00	-632.97	0.00	632.97	1545.45	772.73	1882.66	929.77	90.58	-6.728	0.000	0.687
140.00	-7.93	-24.51	0.00	-583.36	0.00	583.36	1531.69	765.84	1834.28	905.88	93.42	-6.829	0.000	0.650
145.00	-7.46	-23.76	0.00	-460.79	0.00	460.79	1495.44	747.72	1713.73	846.35	100.72	-7.124	0.000	0.550
150.00	-5.55	-17.93	0.00	-341.98	0.00	341.98	1456.60	728.30	1594.07	787.25	108.30	-7.383	0.000	0.439
155.00	-5.22	-17.22	0.00	-252.34	0.00	252.34	1415.15	707.58	1475.70	728.79	116.14	-7.603	0.000	0.351
158.00	-4.29	-14.21	0.00	-200.69	0.00	200.69	1389.03	694.52	1405.47	694.11	120.94	-7.719	0.000	0.293
160.00	-4.17	-13.94	0.00	-172.27	0.00	172.27	1371.10	685.55	1359.03	671.17	124.18	-7.789	0.000	0.260
165.00	-3.92	-13.28	0.00	-102.55	0.00	102.55	1324.44	662.22	1244.46	614.59	132.39	-7.925	0.000	0.170
166.00	-1.92	-7.89	0.00	-89.27	0.00	89.27	1314.79	657.40	1221.83	603.42	134.05	-7.948	0.000	0.150
170.00	-1.75	-7.38	0.00	-57.72	0.00	57.72	1275.17	637.59	1132.39	559.24	140.72	-8.018	0.000	0.105
175.00	-1.56	-6.78	0.00	-20.80	0.00	20.80	1207.50	603.75	1010.00	498.80	149.12	-8.072	0.000	0.043
178.00	-0.06	-0.22	0.00	-0.45	0.00	0.45	1163.35	581.68	937.07	462.78	154.18	-8.083	0.000	0.001
180.00	0.00	-0.21	0.00	0.00	0.00	0.00	1133.92	566.96	889.96	439.52	157.56	-8.083	0.000	0.000

Wind Loading - Shaft

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II

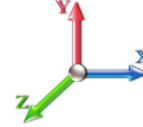


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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 25

Dead Load Factor 1.20
Wind Load Factor 1.00



Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	5.168	5.68	0.00	1.200	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	5.168	5.68	0.00	1.200	1.242	5.00	27.512	33.01	187.7	498.8	2251.7
10.00		1.00	0.85	5.168	5.68	0.00	1.200	1.331	5.00	27.052	32.46	184.5	524.7	2241.8
15.00		1.00	0.85	5.168	5.68	0.00	1.200	1.386	5.00	26.563	31.88	181.2	535.7	2217.2
20.00		1.00	0.90	5.483	6.03	0.00	1.200	1.427	5.00	26.061	31.27	188.6	540.3	2186.1
25.00		1.00	0.95	5.747	6.32	0.00	1.200	1.459	5.00	25.553	30.66	193.9	541.0	2151.2
30.00		1.00	0.98	5.972	6.57	0.00	1.200	1.486	5.00	25.041	30.05	197.4	539.3	2113.8
35.00		1.00	1.01	6.169	6.79	0.00	1.200	1.509	5.00	24.525	29.43	199.7	535.7	2074.6
40.00		1.00	1.04	6.345	6.98	0.00	1.200	1.529	5.00	24.007	28.81	201.1	530.8	2034.0
43.92	Bot - Section 2	1.00	1.06	6.471	7.12	0.00	1.200	1.543	3.92	18.441	22.13	157.5	412.2	1564.8
45.00		1.00	1.07	6.504	7.15	0.00	1.200	1.547	1.08	5.119	6.14	44.0	115.5	727.7
50.00		1.00	1.09	6.650	7.32	0.00	1.200	1.564	5.00	23.317	27.98	204.7	526.3	3310.2
51.00	Top - Section 1	1.00	1.10	6.678	7.35	0.00	1.200	1.567	1.00	4.600	5.52	40.5	105.0	653.5
55.00		1.00	1.12	6.785	7.46	0.00	1.200	1.579	4.00	18.193	21.83	162.9	415.0	1467.5
60.00		1.00	1.14	6.910	7.60	0.00	1.200	1.592	5.00	22.271	26.73	203.1	510.6	1796.5
65.00		1.00	1.16	7.028	7.73	0.00	1.200	1.605	5.00	21.747	26.10	201.7	502.0	1754.7
70.00		1.00	1.17	7.138	7.85	0.00	1.200	1.617	5.00	21.222	25.47	200.0	492.8	1712.5
75.00		1.00	1.19	7.243	7.97	0.00	1.200	1.628	5.00	20.696	24.84	197.9	483.3	1669.8
80.00		1.00	1.21	7.342	8.08	0.00	1.200	1.639	5.00	20.170	24.20	195.5	473.3	1626.7
85.00		1.00	1.22	7.436	8.18	0.00	1.200	1.649	5.00	19.643	23.57	192.8	463.1	1583.3
90.00		1.00	1.24	7.526	8.28	0.00	1.200	1.658	5.00	19.116	22.94	189.9	452.5	1539.6
90.17	Bot - Section 3	1.00	1.24	7.529	8.28	0.00	1.200	1.659	0.17	0.628	0.75	6.2	15.1	50.7
95.00		1.00	1.25	7.612	8.37	0.00	1.200	1.667	4.83	18.247	21.90	183.4	434.1	2330.6
96.00	Top - Section 2	1.00	1.25	7.629	8.39	0.00	1.200	1.669	1.00	3.713	4.46	37.4	89.4	474.6
100.00		1.00	1.27	7.695	8.46	0.00	1.200	1.676	4.00	14.643	17.57	148.7	350.4	1052.8
105.00		1.00	1.28	7.774	8.55	0.00	1.200	1.684	5.00	17.830	21.40	183.0	426.7	1279.5
110.00		1.00	1.29	7.851	8.64	0.00	1.200	1.692	5.00	17.301	20.76	179.3	415.1	1239.9
115.00		1.00	1.30	7.925	8.72	0.00	1.200	1.699	5.00	16.773	20.13	175.5	403.4	1200.2
120.00		1.00	1.32	7.996	8.80	0.00	1.200	1.707	5.00	16.244	19.49	171.5	391.5	1160.2
125.00		1.00	1.33	8.065	8.87	0.00	1.200	1.714	5.00	15.715	18.86	167.3	379.4	1120.1
130.00		1.00	1.34	8.132	8.95	0.00	1.200	1.720	5.00	15.186	18.22	163.0	367.1	1079.8
133.33	Bot - Section 4	1.00	1.34	8.175	8.99	0.00	1.200	1.725	3.33	9.829	11.79	106.1	239.2	698.8
135.00		1.00	1.35	8.197	9.02	0.00	1.200	1.727	1.67	4.898	5.88	53.0	120.1	512.2
138.00	Top - Section 3	1.00	1.35	8.235	9.06	0.00	1.200	1.731	3.00	8.668	10.40	94.2	211.7	903.9
140.00		1.00	1.36	8.260	9.09	0.00	1.200	1.733	2.00	5.673	6.81	61.8	139.1	331.6
145.00		1.00	1.37	8.321	9.15	0.00	1.200	1.739	5.00	13.812	16.57	151.7	335.1	802.0
150.00	Appurtenance(s)	1.00	1.38	8.381	9.22	0.00	1.200	1.745	5.00	13.282	15.94	146.9	322.2	768.8
155.00		1.00	1.39	8.439	9.28	0.00	1.200	1.751	5.00	12.752	15.30	142.0	309.3	735.5
158.00	Appurtenance(s)	1.00	1.39	8.473	9.32	0.00	1.200	1.754	3.00	7.396	8.88	82.7	180.9	426.8
160.00		1.00	1.40	8.495	9.34	0.00	1.200	1.757	2.00	4.825	5.79	54.1	118.5	278.4
165.00		1.00	1.41	8.551	9.41	0.00	1.200	1.762	5.00	11.692	14.03	132.0	283.0	668.4
166.00	Appurtenance(s)	1.00	1.41	8.561	9.42	0.00	1.200	1.763	1.00	2.274	2.73	25.7	56.1	130.7
170.00		1.00	1.42	8.604	9.46	0.00	1.200	1.767	4.00	8.886	10.66	100.9	215.8	506.2
175.00		1.00	1.42	8.657	9.52	0.00	1.200	1.772	5.00	10.631	12.76	121.5	256.3	601.0
178.00	Appurtenance(s)	1.00	1.43	8.688	9.56	0.00	1.200	1.775	3.00	6.123	7.35	70.2	148.9	345.9
180.00		1.00	1.43	8.709	9.58	0.00	1.200	1.777	2.00	3.976	4.77	45.7	97.1	224.4

Wind Loading - Shaft

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: 180.00

6,328.5

55,600.1

Discrete Appurtenance Forces

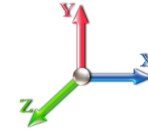
Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)
1	178.00	RRH_2x40 AWS	3	8.688	9.557	0.50	0.75	4.86	291.52	0.000	0.000	46.48	0.00	0.00
2	178.00	Amphenol	6	8.688	9.557	0.58	0.75	36.44	772.53	0.000	0.000	348.25	0.00	0.00
3	178.00	Amphenol	6	8.688	9.557	0.66	0.75	28.55	528.46	0.000	0.000	272.86	0.00	0.00
4	178.00	Platform w/ Hand Rails	1	8.688	9.557	1.00	1.00	61.30	3930.41	0.000	0.000	585.88	0.00	0.00
5	178.00	RRH_2x40 07-U	3	8.688	9.557	0.50	0.75	6.55	321.83	0.000	0.000	62.60	0.00	0.00
6	178.00	RFS DB-B1-6C-8AB-OZ	1	8.688	9.557	0.50	0.75	2.89	116.64	0.000	0.000	27.63	0.00	0.00
7	166.00	Platform w/ Hand Rails	1	8.561	9.418	1.00	1.00	61.16	3915.59	0.000	0.000	575.94	0.00	0.00
8	166.00	ALU TD-RRH8x20-25	3	8.561	9.418	0.50	0.75	7.34	587.47	0.000	0.000	69.17	0.00	0.00
9	166.00	ALU 800 Mhz	6	8.561	9.418	0.50	0.75	9.40	703.28	0.000	0.000	88.54	0.00	0.00
10	166.00	ALU 1900 Mhz	3	8.561	9.418	0.50	0.75	4.91	621.53	0.000	0.000	46.27	0.00	0.00
11	166.00	KMW ETCR-654L12H6	3	8.561	9.418	0.52	0.75	27.02	1285.42	0.000	0.000	254.51	0.00	0.00
12	158.00	T-Arms	3	8.473	9.320	0.56	0.75	25.34	1786.81	0.000	0.000	236.19	0.00	0.00
13	158.00	Stella Dooradus TMA's	6	8.473	9.320	0.48	0.80	4.20	167.95	0.000	0.000	39.13	0.00	0.00
14	158.00	EMS RR90-17-02DP	6	8.473	9.320	0.57	0.80	29.19	1055.68	0.000	0.000	272.06	0.00	0.00
15	150.00	Powerwave 7770	3	8.381	9.219	0.62	0.80	12.13	531.52	0.000	0.000	111.85	0.00	0.00
16	150.00	Cci HPA-65R-BUU-H6	2	8.381	9.219	0.68	0.80	15.00	618.61	0.000	0.000	138.24	0.00	0.00
17	150.00	SBNHH-1D65A	1	8.381	9.219	0.66	0.80	4.62	198.56	0.000	0.000	42.61	0.00	0.00
18	150.00	RRUS-32	3	8.381	9.219	0.54	0.80	6.60	617.97	0.000	0.000	60.87	0.00	0.00
19	150.00	KMW	2	8.381	9.219	0.63	0.80	13.67	347.95	0.000	0.000	126.01	0.00	0.00
20	150.00	KMW	1	8.381	9.219	0.62	0.80	6.05	123.31	0.000	0.000	55.76	0.00	0.00
21	150.00	Powerwave LGP21401	6	8.381	9.219	0.80	0.80	9.65	208.93	0.000	0.000	88.96	0.00	0.00
22	150.00	Ericsson RRUS-11	3	8.381	9.219	0.54	0.80	5.10	424.12	0.000	0.000	47.01	0.00	0.00
23	150.00	Raycap DC6-48-60-18-8F	1	8.381	9.219	0.54	0.80	1.43	82.28	0.000	0.000	13.20	0.00	0.00
24	150.00	Low Profile Platform	1	8.381	9.219	1.00	1.00	39.66	2808.91	0.000	0.000	365.63	0.00	0.00
Totals:									22,047.29			3,975.64		

Total Applied Force Summary

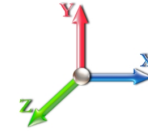
Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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

Dead Load Factor 1.20
Wind Load Factor 1.00



Iterations 25

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		187.68	2300.82	0.00	0.00
10.00		184.54	2364.76	0.00	0.00
15.00		181.20	2340.14	0.00	0.00
20.00		188.64	2309.00	0.00	0.00
25.00		193.86	2274.10	0.00	0.00
30.00		197.40	2236.69	0.00	0.00
35.00		199.71	2197.50	0.00	0.00
40.00		201.07	2156.94	0.00	0.00
43.92		157.52	1661.09	0.00	0.00
45.00		43.95	754.37	0.00	0.00
50.00		204.68	3433.13	0.00	0.00
51.00		40.55	678.08	0.00	0.00
55.00		162.94	1565.88	0.00	0.00
60.00		203.15	1919.42	0.00	0.00
65.00		201.74	1877.63	0.00	0.00
70.00		199.96	1835.37	0.00	0.00
75.00		197.86	1792.69	0.00	0.00
80.00		195.47	1749.64	0.00	0.00
85.00		192.81	1706.25	0.00	0.00
90.00		189.91	1662.56	0.00	0.00
90.17		6.24	54.84	0.00	0.00
95.00		183.35	2449.37	0.00	0.00
96.00		37.39	499.19	0.00	0.00
100.00		148.74	1151.13	0.00	0.00
105.00		182.97	1402.38	0.00	0.00
110.00		179.30	1362.83	0.00	0.00
115.00		175.45	1323.08	0.00	0.00
120.00		171.45	1283.14	0.00	0.00
125.00		167.30	1243.02	0.00	0.00
130.00		163.00	1202.73	0.00	0.00
133.33		106.07	780.74	0.00	0.00
135.00		52.99	553.15	0.00	0.00
138.00		94.22	977.60	0.00	0.00
140.00		61.85	380.75	0.00	0.00
145.00		151.71	924.91	0.00	0.00
150.00	(23) attachments	1197.06	6853.87	0.00	0.00
155.00		142.05	808.28	0.00	0.00
158.00	(15) attachments	630.10	3480.93	0.00	0.00
160.00		54.10	292.51	0.00	0.00
165.00		131.96	703.82	0.00	0.00
166.00	(16) attachments	1060.13	7251.08	0.00	0.00
170.00		100.93	516.16	0.00	0.00
175.00		121.48	613.45	0.00	0.00
178.00	(20) attachments	1413.93	6314.83	0.00	0.00
180.00		45.70	224.39	0.00	0.00

Total Applied Force Summary

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	<u>10,304.15</u>	<u>81,464.22</u>	<u>0.00</u>	<u>0.00</u>
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Calculated Forces

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



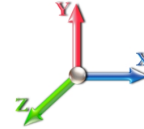
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Load Case: 1.2D + 1.0Di + 1.0Wi 50 mph Wind

Iterations 25

Dead Load Factor 1.20

Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-81.46	-10.33	0.00	-1292.1	0.00	1292.16	5123.29	2561.65	13030.5	6435.29	0.00	0.000	0.000	0.217
5.00	-79.15	-10.21	0.00	-1240.4	0.00	1240.49	5083.45	2541.72	12666.9	6255.72	0.02	-0.043	0.000	0.214
10.00	-76.78	-10.08	0.00	-1189.4	0.00	1189.46	5041.00	2520.50	12301.0	6075.05	0.09	-0.087	0.000	0.211
15.00	-74.43	-9.95	0.00	-1139.0	0.00	1139.07	4995.94	2497.97	11933.4	5893.46	0.21	-0.131	0.000	0.208
20.00	-72.12	-9.81	0.00	-1089.3	0.00	1089.31	4948.29	2474.14	11564.2	5711.17	0.37	-0.177	0.000	0.205
25.00	-69.83	-9.67	0.00	-1040.2	0.00	1040.24	4898.02	2449.01	11194.1	5528.36	0.58	-0.223	0.000	0.202
30.00	-67.59	-9.52	0.00	-991.90	0.00	991.90	4845.16	2422.58	10823.3	5345.24	0.84	-0.271	0.000	0.200
35.00	-65.39	-9.36	0.00	-944.30	0.00	944.30	4789.68	2394.84	10452.3	5162.01	1.15	-0.319	0.000	0.197
40.00	-63.22	-9.20	0.00	-897.48	0.00	897.48	4731.61	2365.80	10081.4	4978.87	1.51	-0.368	0.000	0.194
43.92	-61.56	-9.06	0.00	-861.46	0.00	861.46	4684.30	2342.15	9791.39	4835.60	1.83	-0.408	0.000	0.191
45.00	-60.80	-9.04	0.00	-851.65	0.00	851.65	4670.93	2335.46	9711.23	4796.01	1.92	-0.419	0.000	0.191
50.00	-57.36	-8.84	0.00	-806.44	0.00	806.44	4607.64	2303.82	9341.95	4613.64	2.39	-0.470	0.000	0.187
51.00	-56.68	-8.82	0.00	-797.60	0.00	797.60	4157.28	2078.64	8537.21	4216.21	2.49	-0.481	0.000	0.203
55.00	-55.11	-8.69	0.00	-762.32	0.00	762.32	4115.37	2057.69	8281.29	4089.82	2.91	-0.523	0.000	0.200
60.00	-53.19	-8.52	0.00	-718.87	0.00	718.87	4060.64	2030.32	7961.67	3931.97	3.49	-0.578	0.000	0.196
65.00	-51.30	-8.35	0.00	-676.27	0.00	676.27	4003.30	2001.65	7642.72	3774.45	4.12	-0.633	0.000	0.192
70.00	-49.46	-8.18	0.00	-634.53	0.00	634.53	3943.36	1971.68	7324.85	3617.47	4.81	-0.689	0.000	0.188
75.00	-47.66	-8.00	0.00	-593.65	0.00	593.65	3880.82	1940.41	7008.46	3461.22	5.57	-0.747	0.000	0.184
80.00	-45.91	-7.83	0.00	-553.64	0.00	553.64	3815.67	1907.83	6693.96	3305.90	6.38	-0.805	0.000	0.180
85.00	-44.20	-7.66	0.00	-514.48	0.00	514.48	3747.91	1873.96	6381.75	3151.70	7.25	-0.864	0.000	0.175
90.00	-42.53	-7.47	0.00	-476.18	0.00	476.18	3677.55	1838.78	6072.22	2998.84	8.19	-0.923	0.000	0.170
90.17	-42.47	-7.48	0.00	-474.94	0.00	474.94	3675.16	1837.58	6061.96	2993.77	8.22	-0.926	0.000	0.170
95.00	-40.02	-7.28	0.00	-438.77	0.00	438.77	3604.59	1802.30	5765.80	2847.51	9.19	-0.984	0.000	0.165
96.00	-39.52	-7.26	0.00	-431.49	0.00	431.49	2873.56	1436.78	4663.81	2303.28	9.40	-0.997	0.000	0.201
100.00	-38.37	-7.13	0.00	-402.46	0.00	402.46	2833.34	1416.67	4481.60	2213.29	10.25	-1.046	0.000	0.195
105.00	-36.96	-6.96	0.00	-366.81	0.00	366.81	2780.72	1390.36	4254.92	2101.34	11.39	-1.115	0.000	0.188
110.00	-35.59	-6.80	0.00	-332.00	0.00	332.00	2725.50	1362.75	4029.81	1990.17	12.59	-1.184	0.000	0.180
115.00	-34.26	-6.64	0.00	-298.00	0.00	298.00	2667.67	1333.84	3806.69	1879.98	13.87	-1.252	0.000	0.171
120.00	-32.98	-6.48	0.00	-264.81	0.00	264.81	2607.24	1303.62	3585.95	1770.96	15.22	-1.321	0.000	0.162
125.00	-31.73	-6.32	0.00	-232.43	0.00	232.43	2544.20	1272.10	3368.00	1663.33	16.64	-1.388	0.000	0.152
130.00	-30.53	-6.15	0.00	-200.85	0.00	200.85	2478.56	1239.28	3153.24	1557.27	18.13	-1.453	0.000	0.141
133.33	-29.75	-6.04	0.00	-180.34	0.00	180.34	2433.35	1216.68	3012.04	1487.53	19.16	-1.497	0.000	0.133
135.00	-29.19	-5.99	0.00	-170.27	0.00	170.27	2410.32	1205.16	2942.08	1452.98	19.68	-1.518	0.000	0.129
138.00	-28.21	-5.89	0.00	-152.30	0.00	152.30	1545.45	772.73	1882.66	929.77	20.65	-1.556	0.000	0.182
140.00	-27.83	-5.84	0.00	-140.53	0.00	140.53	1531.69	765.84	1834.28	905.88	21.31	-1.580	0.000	0.173
145.00	-26.90	-5.69	0.00	-111.35	0.00	111.35	1495.44	747.72	1713.73	846.35	23.00	-1.651	0.000	0.150
150.00	-20.08	-4.31	0.00	-82.90	0.00	82.90	1456.60	728.30	1594.07	787.25	24.76	-1.714	0.000	0.119
155.00	-19.28	-4.16	0.00	-61.33	0.00	61.33	1415.15	707.58	1475.70	728.79	26.59	-1.767	0.000	0.098
158.00	-15.82	-3.43	0.00	-48.85	0.00	48.85	1389.03	694.52	1405.47	694.11	27.71	-1.795	0.000	0.082
160.00	-15.52	-3.37	0.00	-42.00	0.00	42.00	1371.10	685.55	1359.03	671.17	28.46	-1.812	0.000	0.074
165.00	-14.82	-3.22	0.00	-25.14	0.00	25.14	1324.44	662.22	1244.46	614.59	30.38	-1.846	0.000	0.052
166.00	-7.61	-1.93	0.00	-21.92	0.00	21.92	1314.79	657.40	1221.83	603.42	30.77	-1.851	0.000	0.042
170.00	-7.10	-1.81	0.00	-14.20	0.00	14.20	1275.17	637.59	1132.39	559.24	32.33	-1.869	0.000	0.031
175.00	-6.49	-1.67	0.00	-5.13	0.00	5.13	1207.50	603.75	1010.00	498.80	34.29	-1.882	0.000	0.016
178.00	-0.22	-0.05	0.00	-0.11	0.00	0.11	1163.35	581.68	937.07	462.78	35.48	-1.884	0.000	0.000
180.00	0.00	-0.05	0.00	0.00	0.00	0.00	1133.92	566.96	889.96	439.52	36.26	-1.884	0.000	0.000

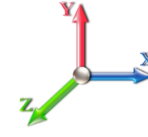
Seismic Segment Forces (Factored)

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E					Iterations 23
Gust Response Factor	1.10			Sds 0.14	Ss 0.17
Dead Load Factor	1.20	Seismic Load Factor	1.00	Sd1 0.07	S1 0.06
Wind Load Factor	0.00	Structure Frequency	0.33	SA 0.02	Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1460.6	0.00	0.03	0.02	18.25	
10.00		1430.9	0.01	0.05	0.03	26.49	
15.00		1401.2	0.01	0.06	0.03	30.45	
20.00		1371.5	0.02	0.07	0.04	32.26	
25.00		1341.8	0.04	0.07	0.04	32.96	
30.00		1312.0	0.05	0.07	0.04	33.12	
35.00		1282.3	0.07	0.07	0.04	33.07	
40.00		1252.6	0.09	0.07	0.04	32.96	
43.92	Bot - Section 2	960.48	0.11	0.07	0.04	25.67	
45.00		510.21	0.12	0.07	0.03	13.70	
50.00		2319.9	0.15	0.07	0.03	63.41	
51.00	Top - Section 1	457.11	0.15	0.07	0.03	12.53	
55.00		877.12	0.18	0.07	0.03	24.27	
60.00		1071.5	0.21	0.06	0.02	29.62	
65.00		1043.9	0.25	0.06	0.02	28.18	
70.00		1016.3	0.29	0.05	0.01	25.80	
75.00		988.76	0.33	0.04	0.01	22.16	
80.00		961.17	0.37	0.03	0.01	17.06	
85.00		933.57	0.42	0.01	0.01	10.49	
90.00		905.97	0.47	-0.01	0.01	2.84	
90.17	Bot - Section 3	29.72	0.47	-0.01	0.01	0.08	
95.00		1580.3	0.53	-0.03	0.01	-9.15	
96.00	Top - Section 2	321.03	0.54	-0.03	0.01	-2.43	
100.00		585.34	0.58	-0.05	0.01	-8.42	
105.00		710.66	0.64	-0.07	0.02	-15.30	
110.00		687.31	0.71	-0.09	0.03	-18.19	
115.00		663.95	0.77	-0.11	0.05	-19.15	
120.00		640.60	0.84	-0.12	0.07	-18.30	
125.00		617.25	0.91	-0.12	0.09	-15.87	
130.00		593.90	0.99	-0.11	0.12	-12.07	
133.33	Bot - Section 4	382.96	1.04	-0.10	0.15	-5.88	
135.00		326.73	1.06	-0.09	0.17	-4.08	
138.00	Top - Section 3	576.81	1.11	-0.06	0.19	-3.81	
140.00		160.40	1.14	-0.04	0.21	-0.35	
145.00		389.11	1.23	0.03	0.27	4.08	
150.00	Appurtenance(s)	2745.5	1.31	0.14	0.35	70.41	
155.00		355.14	1.40	0.29	0.43	15.37	
158.00	Appurtenance(s)	1412.7	1.46	0.40	0.49	77.81	
160.00		133.23	1.49	0.48	0.53	8.45	
165.00		321.18	1.59	0.74	0.65	27.68	
166.00	Appurtenance(s)	3024.9	1.61	0.80	0.68	275.43	
170.00		242.00	1.69	1.07	0.79	27.00	
175.00		287.21	1.79	1.48	0.95	40.10	
178.00	Appurtenance(s)	2666.7	1.85	1.77	1.06	420.72	
180.00		106.05	1.89	1.98	1.14	18.07	

Seismic Segment Forces (Factored)

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: 42,460.4

1,367.5

Total Wind:

50,082.6

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

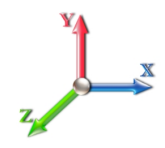
Calculated Forces

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.2D + 1.0E										Iterations 23
Gust Response Factor 1.10					Sds 0.14					Ss 0.17
Dead Load Factor 1.20			Seismic Load Factor 1.00			Sd1 0.07				S1 0.06
Wind Load Factor 0.00			Structure Frequency 0.33			SA 0.02		Seismic Importance Factor 1.00		



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-54.77	-1.50	0.00	-198.37	0.00	198.37	5123.29	2561.65	13030.5	6435.29	0.00	0.00	0.00	0.042
5.00	-52.97	-1.49	0.00	-190.86	0.00	190.86	5083.45	2541.72	12666.9	6255.72	0.00	-0.01	0.041	
10.00	-51.13	-1.47	0.00	-183.40	0.00	183.40	5041.00	2520.50	12301.0	6075.05	0.01	-0.01	0.040	
15.00	-49.32	-1.45	0.00	-176.05	0.00	176.05	4995.94	2497.97	11933.4	5893.46	0.03	-0.02	0.040	
20.00	-47.55	-1.42	0.00	-168.83	0.00	168.83	4948.29	2474.14	11564.2	5711.17	0.06	-0.03	0.039	
25.00	-45.82	-1.39	0.00	-161.74	0.00	161.74	4898.02	2449.01	11194.1	5528.36	0.09	-0.03	0.039	
30.00	-44.12	-1.36	0.00	-154.79	0.00	154.79	4845.16	2422.58	10823.3	5345.24	0.13	-0.04	0.038	
35.00	-42.46	-1.33	0.00	-147.98	0.00	147.98	4789.68	2394.84	10452.3	5162.01	0.18	-0.05	0.038	
40.00	-40.83	-1.30	0.00	-141.32	0.00	141.32	4731.61	2365.80	10081.4	4978.87	0.23	-0.06	0.037	
43.92	-39.59	-1.28	0.00	-136.21	0.00	136.21	4684.30	2342.15	9791.39	4835.60	0.28	-0.06	0.037	
45.00	-38.95	-1.27	0.00	-134.83	0.00	134.83	4670.93	2335.46	9711.23	4796.01	0.30	-0.07	0.036	
50.00	-36.04	-1.20	0.00	-128.49	0.00	128.49	4607.64	2303.82	9341.95	4613.64	0.37	-0.07	0.036	
51.00	-35.47	-1.19	0.00	-127.28	0.00	127.28	4157.28	2078.64	8537.21	4216.21	0.39	-0.08	0.039	
55.00	-34.32	-1.17	0.00	-122.51	0.00	122.51	4115.37	2057.69	8281.29	4089.82	0.45	-0.08	0.038	
60.00	-32.91	-1.15	0.00	-116.65	0.00	116.65	4060.64	2030.32	7961.67	3931.97	0.54	-0.09	0.038	
65.00	-31.53	-1.12	0.00	-110.92	0.00	110.92	4003.30	2001.65	7642.72	3774.45	0.64	-0.10	0.037	
70.00	-30.19	-1.10	0.00	-105.32	0.00	105.32	3943.36	1971.68	7324.85	3617.47	0.75	-0.11	0.037	
75.00	-28.88	-1.08	0.00	-99.83	0.00	99.83	3880.82	1940.41	7008.46	3461.22	0.87	-0.12	0.036	
80.00	-27.60	-1.06	0.00	-94.45	0.00	94.45	3815.67	1907.83	6693.96	3305.90	1.00	-0.13	0.036	
85.00	-26.36	-1.05	0.00	-89.14	0.00	89.14	3747.91	1873.96	6381.75	3151.70	1.14	-0.14	0.035	
90.00	-25.15	-1.05	0.00	-83.87	0.00	83.87	3677.55	1838.78	6072.22	2998.84	1.29	-0.15	0.035	
90.17	-25.11	-1.05	0.00	-83.69	0.00	83.69	3675.16	1837.58	6061.96	2993.77	1.29	-0.15	0.035	
95.00	-23.09	-1.05	0.00	-78.61	0.00	78.61	3604.59	1802.30	5765.80	2847.51	1.45	-0.16	0.034	
96.00	-22.68	-1.05	0.00	-77.56	0.00	77.56	2873.56	1436.78	4663.81	2303.28	1.48	-0.16	0.042	
100.00	-21.88	-1.05	0.00	-73.36	0.00	73.36	2833.34	1416.67	4481.60	2213.29	1.62	-0.17	0.041	
105.00	-20.91	-1.05	0.00	-68.09	0.00	68.09	2780.72	1390.36	4254.92	2101.34	1.81	-0.18	0.040	
110.00	-19.96	-1.06	0.00	-62.83	0.00	62.83	2725.50	1362.75	4029.81	1990.17	2.01	-0.20	0.039	
115.00	-19.04	-1.06	0.00	-57.55	0.00	57.55	2667.67	1333.84	3806.69	1879.98	2.22	-0.21	0.038	
120.00	-18.15	-1.06	0.00	-52.27	0.00	52.27	2607.24	1303.62	3585.95	1770.96	2.45	-0.22	0.036	
125.00	-17.28	-1.06	0.00	-46.98	0.00	46.98	2544.20	1272.10	3368.00	1663.33	2.69	-0.24	0.035	
130.00	-16.45	-1.06	0.00	-41.69	0.00	41.69	2478.56	1239.28	3153.24	1557.27	2.94	-0.25	0.033	
133.33	-15.91	-1.06	0.00	-38.17	0.00	38.17	2433.35	1216.68	3012.04	1487.53	3.12	-0.26	0.032	
135.00	-15.47	-1.06	0.00	-36.40	0.00	36.40	2410.32	1205.16	2942.08	1452.98	3.21	-0.26	0.031	
138.00	-14.71	-1.06	0.00	-33.23	0.00	33.23	1545.45	772.73	1882.66	929.77	3.38	-0.27	0.045	
140.00	-14.46	-1.06	0.00	-31.12	0.00	31.12	1531.69	765.84	1834.28	905.88	3.50	-0.28	0.044	
145.00	-13.87	-1.05	0.00	-25.84	0.00	25.84	1495.44	747.72	1713.73	846.35	3.79	-0.29	0.040	
150.00	-10.46	-0.97	0.00	-20.57	0.00	20.57	1456.60	728.30	1594.07	787.25	4.11	-0.31	0.033	
155.00	-9.96	-0.95	0.00	-15.73	0.00	15.73	1415.15	707.58	1475.70	728.79	4.44	-0.32	0.029	
158.00	-8.22	-0.86	0.00	-12.88	0.00	12.88	1389.03	694.52	1405.47	694.11	4.64	-0.33	0.024	
160.00	-8.05	-0.86	0.00	-11.15	0.00	11.15	1371.10	685.55	1359.03	671.17	4.78	-0.33	0.022	
165.00	-7.62	-0.83	0.00	-6.87	0.00	6.87	1324.44	662.22	1244.46	614.59	5.14	-0.34	0.017	
166.00	-3.99	-0.53	0.00	-6.04	0.00	6.04	1314.79	657.40	1221.83	603.42	5.21	-0.34	0.013	
170.00	-3.69	-0.50	0.00	-3.92	0.00	3.92	1275.17	637.59	1132.39	559.24	5.50	-0.35	0.010	
175.00	-3.33	-0.46	0.00	-1.42	0.00	1.42	1207.50	603.75	1010.00	498.80	5.86	-0.35	0.006	
178.00	-0.13	-0.02	0.00	-0.04	0.00	0.04	1163.35	581.68	937.07	462.78	6.09	-0.35	0.000	
180.00	0.00	-0.02	0.00	0.00	0.00	0.00	1133.92	566.96	889.96	439.52	6.23	-0.35	0.000	

Calculated Forces

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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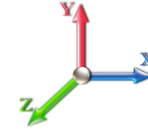
Seismic Segment Forces (Factored)

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E					Iterations 23
Gust Response Factor	1.10	Sds	0.14	Ss	0.17
Dead Load Factor	0.90	Seismic Load Factor	1.00	Sd1	0.07
Wind Load Factor	0.00	Structure Frequency	0.33	SA	0.02
					Seismic Importance Factor 1.00



Top Elev (ft)	Description	Wz (lb)	a	b	c	Lateral Fs (lb)	R: 1.50
0.00		0.00	0.00	0.00	0.00	0.00	
5.00		1460.6	0.00	0.03	0.02	18.25	
10.00		1430.9	0.01	0.05	0.03	26.49	
15.00		1401.2	0.01	0.06	0.03	30.45	
20.00		1371.5	0.02	0.07	0.04	32.26	
25.00		1341.8	0.04	0.07	0.04	32.96	
30.00		1312.0	0.05	0.07	0.04	33.12	
35.00		1282.3	0.07	0.07	0.04	33.07	
40.00		1252.6	0.09	0.07	0.04	32.96	
43.92	Bot - Section 2	960.48	0.11	0.07	0.04	25.67	
45.00		510.21	0.12	0.07	0.03	13.70	
50.00		2319.9	0.15	0.07	0.03	63.41	
51.00	Top - Section 1	457.11	0.15	0.07	0.03	12.53	
55.00		877.12	0.18	0.07	0.03	24.27	
60.00		1071.5	0.21	0.06	0.02	29.62	
65.00		1043.9	0.25	0.06	0.02	28.18	
70.00		1016.3	0.29	0.05	0.01	25.80	
75.00		988.76	0.33	0.04	0.01	22.16	
80.00		961.17	0.37	0.03	0.01	17.06	
85.00		933.57	0.42	0.01	0.01	10.49	
90.00		905.97	0.47	-0.01	0.01	2.84	
90.17	Bot - Section 3	29.72	0.47	-0.01	0.01	0.08	
95.00		1580.3	0.53	-0.03	0.01	-9.15	
96.00	Top - Section 2	321.03	0.54	-0.03	0.01	-2.43	
100.00		585.34	0.58	-0.05	0.01	-8.42	
105.00		710.66	0.64	-0.07	0.02	-15.30	
110.00		687.31	0.71	-0.09	0.03	-18.19	
115.00		663.95	0.77	-0.11	0.05	-19.15	
120.00		640.60	0.84	-0.12	0.07	-18.30	
125.00		617.25	0.91	-0.12	0.09	-15.87	
130.00		593.90	0.99	-0.11	0.12	-12.07	
133.33	Bot - Section 4	382.96	1.04	-0.10	0.15	-5.88	
135.00		326.73	1.06	-0.09	0.17	-4.08	
138.00	Top - Section 3	576.81	1.11	-0.06	0.19	-3.81	
140.00		160.40	1.14	-0.04	0.21	-0.35	
145.00		389.11	1.23	0.03	0.27	4.08	
150.00	Appurtenance(s)	2745.5	1.31	0.14	0.35	70.41	
155.00		355.14	1.40	0.29	0.43	15.37	
158.00	Appurtenance(s)	1412.7	1.46	0.40	0.49	77.81	
160.00		133.23	1.49	0.48	0.53	8.45	
165.00		321.18	1.59	0.74	0.65	27.68	
166.00	Appurtenance(s)	3024.9	1.61	0.80	0.68	275.43	
170.00		242.00	1.69	1.07	0.79	27.00	
175.00		287.21	1.79	1.48	0.95	40.10	
178.00	Appurtenance(s)	2666.7	1.85	1.77	1.06	420.72	
180.00		106.05	1.89	1.98	1.14	18.07	

Seismic Segment Forces (Factored)

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals: 42,460.4

1,367.5

Total Wind: 50,082.6

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

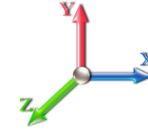
Calculated Forces

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 0.9D + 1.0E										Iterations 23
Gust Response Factor 1.10					Sds 0.14					Ss 0.17
Dead Load Factor 0.90			Seismic Load Factor 1.00			Sd1 0.07				S1 0.06
Wind Load Factor 0.00			Structure Frequency 0.33			SA 0.02		Seismic Importance Factor 1.00		



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-41.08	-1.50	0.00	-196.02	0.00	196.02	5123.29	2561.65	13030.5	6435.29	0.00	0.00	0.00	0.038
5.00	-39.73	-1.49	0.00	-188.51	0.00	188.51	5083.45	2541.72	12666.9	6255.72	0.00	-0.01	-0.01	0.038
10.00	-38.34	-1.47	0.00	-181.07	0.00	181.07	5041.00	2520.50	12301.0	6075.05	0.01	-0.01	-0.01	0.037
15.00	-36.99	-1.44	0.00	-173.74	0.00	173.74	4995.94	2497.97	11933.4	5893.46	0.03	-0.02	-0.02	0.037
20.00	-35.66	-1.41	0.00	-166.54	0.00	166.54	4948.29	2474.14	11564.2	5711.17	0.06	-0.03	-0.03	0.036
25.00	-34.36	-1.38	0.00	-159.48	0.00	159.48	4898.02	2449.01	11194.1	5528.36	0.09	-0.03	-0.03	0.036
30.00	-33.09	-1.35	0.00	-152.57	0.00	152.57	4845.16	2422.58	10823.3	5345.24	0.13	-0.04	-0.04	0.035
35.00	-31.85	-1.32	0.00	-145.81	0.00	145.81	4789.68	2394.84	10452.3	5162.01	0.17	-0.05	-0.05	0.035
40.00	-30.63	-1.29	0.00	-139.20	0.00	139.20	4731.61	2365.80	10081.4	4978.87	0.23	-0.06	-0.06	0.034
43.92	-29.69	-1.27	0.00	-134.14	0.00	134.14	4684.30	2342.15	9791.39	4835.60	0.28	-0.06	-0.06	0.034
45.00	-29.21	-1.26	0.00	-132.76	0.00	132.76	4670.93	2335.46	9711.23	4796.01	0.29	-0.06	-0.06	0.034
50.00	-27.03	-1.19	0.00	-126.49	0.00	126.49	4607.64	2303.82	9341.95	4613.64	0.36	-0.07	-0.07	0.033
51.00	-26.60	-1.18	0.00	-125.29	0.00	125.29	4157.28	2078.64	8537.21	4216.21	0.38	-0.07	-0.07	0.036
55.00	-25.74	-1.16	0.00	-120.57	0.00	120.57	4115.37	2057.69	8281.29	4089.82	0.45	-0.08	-0.08	0.036
60.00	-24.68	-1.13	0.00	-114.78	0.00	114.78	4060.64	2030.32	7961.67	3931.97	0.53	-0.09	-0.09	0.035
65.00	-23.65	-1.11	0.00	-109.12	0.00	109.12	4003.30	2001.65	7642.72	3774.45	0.63	-0.10	-0.10	0.035
70.00	-22.64	-1.08	0.00	-103.59	0.00	103.59	3943.36	1971.68	7324.85	3617.47	0.74	-0.11	-0.11	0.034
75.00	-21.66	-1.06	0.00	-98.18	0.00	98.18	3880.82	1940.41	7008.46	3461.22	0.86	-0.12	-0.12	0.034
80.00	-20.70	-1.05	0.00	-92.88	0.00	92.88	3815.67	1907.83	6693.96	3305.90	0.98	-0.13	-0.13	0.034
85.00	-19.77	-1.04	0.00	-87.65	0.00	87.65	3747.91	1873.96	6381.75	3151.70	1.12	-0.14	-0.14	0.033
90.00	-18.86	-1.03	0.00	-82.47	0.00	82.47	3677.55	1838.78	6072.22	2998.84	1.27	-0.15	-0.15	0.033
90.17	-18.83	-1.03	0.00	-82.30	0.00	82.30	3675.16	1837.58	6061.96	2993.77	1.28	-0.15	-0.15	0.033
95.00	-17.32	-1.03	0.00	-77.30	0.00	77.30	3604.59	1802.30	5765.80	2847.51	1.43	-0.16	-0.16	0.032
96.00	-17.01	-1.03	0.00	-76.27	0.00	76.27	2873.56	1436.78	4663.81	2303.28	1.46	-0.16	-0.16	0.039
100.00	-16.41	-1.03	0.00	-72.13	0.00	72.13	2833.34	1416.67	4481.60	2213.29	1.60	-0.17	-0.17	0.038
105.00	-15.68	-1.04	0.00	-66.96	0.00	66.96	2780.72	1390.36	4254.92	2101.34	1.78	-0.18	-0.18	0.038
110.00	-14.97	-1.04	0.00	-61.78	0.00	61.78	2725.50	1362.75	4029.81	1990.17	1.98	-0.19	-0.19	0.037
115.00	-14.28	-1.04	0.00	-56.60	0.00	56.60	2667.67	1333.84	3806.69	1879.98	2.19	-0.21	-0.21	0.035
120.00	-13.61	-1.04	0.00	-51.41	0.00	51.41	2607.24	1303.62	3585.95	1770.96	2.41	-0.22	-0.22	0.034
125.00	-12.96	-1.04	0.00	-46.22	0.00	46.22	2544.20	1272.10	3368.00	1663.33	2.65	-0.23	-0.23	0.033
130.00	-12.33	-1.04	0.00	-41.02	0.00	41.02	2478.56	1239.28	3153.24	1557.27	2.90	-0.25	-0.25	0.031
133.33	-11.93	-1.04	0.00	-37.56	0.00	37.56	2433.35	1216.68	3012.04	1487.53	3.07	-0.25	-0.25	0.030
135.00	-11.60	-1.04	0.00	-35.83	0.00	35.83	2410.32	1205.16	2942.08	1452.98	3.16	-0.26	-0.26	0.029
138.00	-11.03	-1.04	0.00	-32.72	0.00	32.72	1545.45	772.73	1882.66	929.77	3.33	-0.27	-0.27	0.042
140.00	-10.85	-1.04	0.00	-30.64	0.00	30.64	1531.69	765.84	1834.28	905.88	3.44	-0.27	-0.27	0.041
145.00	-10.40	-1.03	0.00	-25.45	0.00	25.45	1495.44	747.72	1713.73	846.35	3.74	-0.29	-0.29	0.037
150.00	-7.84	-0.95	0.00	-20.28	0.00	20.28	1456.60	728.30	1594.07	787.25	4.05	-0.30	-0.30	0.031
155.00	-7.47	-0.94	0.00	-15.52	0.00	15.52	1415.15	707.58	1475.70	728.79	4.37	-0.32	-0.32	0.027
158.00	-6.16	-0.85	0.00	-12.71	0.00	12.71	1389.03	694.52	1405.47	694.11	4.57	-0.32	-0.32	0.023
160.00	-6.03	-0.84	0.00	-11.00	0.00	11.00	1371.10	685.55	1359.03	671.17	4.71	-0.33	-0.33	0.021
165.00	-5.72	-0.81	0.00	-6.78	0.00	6.78	1324.44	662.22	1244.46	614.59	5.06	-0.34	-0.34	0.015
166.00	-2.99	-0.52	0.00	-5.97	0.00	5.97	1314.79	657.40	1221.83	603.42	5.13	-0.34	-0.34	0.012
170.00	-2.77	-0.50	0.00	-3.88	0.00	3.88	1275.17	637.59	1132.39	559.24	5.41	-0.34	-0.34	0.009
175.00	-2.50	-0.45	0.00	-1.40	0.00	1.40	1207.50	603.75	1010.00	498.80	5.78	-0.35	-0.35	0.005
178.00	-0.10	-0.02	0.00	-0.04	0.00	0.04	1163.35	581.68	937.07	462.78	5.99	-0.35	-0.35	0.000
180.00	0.00	-0.02	0.00	0.00	0.00	0.00	1133.92	566.96	889.96	439.52	6.14	-0.35	-0.35	0.000

Calculated Forces

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



Wind Loading - Shaft

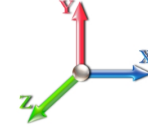
Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Kzt	Kz	qz (psf)	qzGh (psf)	C (mph-ft)	Cf	Ice Thick (in)	Tributary (ft)	Aa (sf)	CfAa (sf)	Wind Force X (lb)	Dead Load Ice (lb)	Tot Dead Load (lb)
0.00		1.00	0.85	7.442	8.19	295.89	1.000	0.000	0.00	0.000	0.00	0.0	0.0	0.0
5.00		1.00	0.85	7.442	8.19	289.97	1.000	0.000	5.00	26.477	26.48	216.7	0.0	1460.7
10.00		1.00	0.85	7.442	8.19	284.05	1.000	0.000	5.00	25.942	25.94	212.4	0.0	1431.0
15.00		1.00	0.85	7.442	8.19	278.13	1.000	0.000	5.00	25.407	25.41	208.0	0.0	1401.2
20.00		1.00	0.90	7.896	8.69	280.40	1.000	0.000	5.00	24.873	24.87	216.0	0.0	1371.5
25.00		1.00	0.95	8.276	9.10	280.83	1.000	0.000	5.00	24.338	24.34	221.6	0.0	1341.8
30.00		1.00	0.98	8.600	9.46	279.91	1.000	0.000	5.00	23.803	23.80	225.2	0.0	1312.1
35.00		1.00	1.01	8.883	9.77	278.02	1.000	0.000	5.00	23.268	23.27	227.4	0.0	1282.4
40.00		1.00	1.04	9.137	10.05	275.40	1.000	0.000	5.00	22.733	22.73	228.5	0.0	1252.6
43.92	Bot - Section 2	1.00	1.06	9.318	10.25	272.93	1.000	0.000	3.92	17.434	17.43	178.7	0.0	960.5
45.00		1.00	1.07	9.366	10.30	272.19	1.000	0.000	1.08	4.840	4.84	49.9	0.0	510.2
50.00		1.00	1.09	9.576	10.53	268.52	1.000	0.000	5.00	22.014	22.01	231.9	0.0	2320.0
51.00	Top - Section 1	1.00	1.10	9.616	10.58	267.73	1.000	0.000	1.00	4.339	4.34	45.9	0.0	457.1
55.00		1.00	1.12	9.770	10.75	268.89	1.000	0.000	4.00	17.140	17.14	184.2	0.0	877.1
60.00		1.00	1.14	9.951	10.95	264.52	1.000	0.000	5.00	20.944	20.94	229.3	0.0	1071.6
65.00		1.00	1.16	10.120	11.13	259.86	1.000	0.000	5.00	20.409	20.41	227.2	0.0	1044.0
70.00		1.00	1.17	10.279	11.31	254.94	1.000	0.000	5.00	19.874	19.87	224.7	0.0	1016.4
75.00		1.00	1.19	10.430	11.47	249.79	1.000	0.000	5.00	19.339	19.34	221.9	0.0	988.8
80.00		1.00	1.21	10.572	11.63	244.44	1.000	0.000	5.00	18.804	18.80	218.7	0.0	961.2
85.00		1.00	1.22	10.708	11.78	238.90	1.000	0.000	5.00	18.269	18.27	215.2	0.0	933.6
90.00		1.00	1.24	10.838	11.92	233.20	1.000	0.000	5.00	17.734	17.73	211.4	0.0	906.0
90.17	Bot - Section 3	1.00	1.24	10.842	11.93	233.01	1.000	0.000	0.17	0.582	0.58	6.9	0.0	29.7
95.00		1.00	1.25	10.962	12.06	227.35	1.000	0.000	4.83	16.904	16.90	203.8	0.0	1580.4
96.00	Top - Section 2	1.00	1.25	10.986	12.08	226.17	1.000	0.000	1.00	3.435	3.44	41.5	0.0	321.0
100.00		1.00	1.27	11.081	12.19	225.37	1.000	0.000	4.00	13.526	13.53	164.9	0.0	585.3
105.00		1.00	1.28	11.195	12.31	219.27	1.000	0.000	5.00	16.426	16.43	202.3	0.0	710.7
110.00		1.00	1.29	11.305	12.44	213.05	1.000	0.000	5.00	15.891	15.89	197.6	0.0	687.3
115.00		1.00	1.30	11.412	12.55	206.72	1.000	0.000	5.00	15.357	15.36	192.8	0.0	664.0
120.00		1.00	1.32	11.514	12.67	200.29	1.000	0.000	5.00	14.822	14.82	187.7	0.0	640.6
125.00		1.00	1.33	11.614	12.78	193.76	1.000	0.000	5.00	14.287	14.29	182.5	0.0	617.3
130.00		1.00	1.34	11.710	12.88	187.14	1.000	0.000	5.00	13.752	13.75	177.1	0.0	593.9
133.33	Bot - Section 4	1.00	1.34	11.773	12.95	182.67	1.000	0.000	3.33	8.871	8.87	114.9	0.0	383.0
135.00		1.00	1.35	11.803	12.98	180.43	1.000	0.000	1.67	4.418	4.42	57.4	0.0	326.7
138.00	Top - Section 3	1.00	1.35	11.858	13.04	176.37	1.000	0.000	3.00	7.803	7.80	101.8	0.0	576.8
140.00		1.00	1.36	11.894	13.08	176.66	1.000	0.000	2.00	5.095	5.09	66.7	0.0	160.4
145.00		1.00	1.37	11.982	13.18	169.80	1.000	0.000	5.00	12.363	12.36	163.0	0.0	389.1
150.00	Appurtenance(s)	1.00	1.38	12.068	13.27	162.87	1.000	0.000	5.00	11.828	11.83	157.0	0.0	372.1
155.00		1.00	1.39	12.152	13.37	155.87	1.000	0.000	5.00	11.293	11.29	151.0	0.0	355.1
158.00	Appurtenance(s)	1.00	1.39	12.201	13.42	151.64	1.000	0.000	3.00	6.519	6.52	87.5	0.0	204.9
160.00		1.00	1.40	12.233	13.46	148.81	1.000	0.000	2.00	4.239	4.24	57.0	0.0	133.2
165.00		1.00	1.41	12.313	13.54	141.68	1.000	0.000	5.00	10.223	10.22	138.5	0.0	321.2
166.00	Appurtenance(s)	1.00	1.41	12.328	13.56	140.25	1.000	0.000	1.00	1.980	1.98	26.9	0.0	62.2
170.00		1.00	1.42	12.390	13.63	134.49	1.000	0.000	4.00	7.708	7.71	105.1	0.0	242.0
175.00		1.00	1.42	12.466	13.71	127.24	1.000	0.000	5.00	9.154	9.15	125.5	0.0	287.2
178.00	Appurtenance(s)	1.00	1.43	12.511	13.76	122.87	1.000	0.000	3.00	5.235	5.24	72.0	0.0	164.2
180.00		1.00	1.43	12.540	13.79	119.94	1.000	0.000	2.00	3.383	3.38	46.7	0.0	106.1

Wind Loading - Shaft

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	180.00	7,022.6	33,413.9
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Discrete Appurtenance Forces

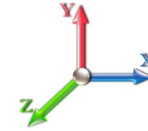
Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 24

No.	Elev (ft)	Description	Qty	qz (psf)	qzGh (psf)	CaAa x Ka	Ka	Total CaAa (sf)	Dead Load (lb)	Horiz Ecc (ft)	Vert Ecc (ft)	Wind FX (lb)	Mom Y (lb-ft)	Mom Z (lb-ft)	
1	178.00	RRH_2x40 AWS	3	12.511	13.762	0.50	0.75	3.26	132.00	0.000	0.000	44.81	0.00	0.00	
2	178.00	Amphenol	6	12.511	13.762	0.58	0.75	26.57	102.00	0.000	0.000	365.67	0.00	0.00	
3	178.00	Amphenol	6	12.511	13.762	0.66	0.75	19.01	90.00	0.000	0.000	261.59	0.00	0.00	
4	178.00	Platform w/ Hand Rails	1	12.511	13.762	1.00	1.00	40.00	2000.00	0.000	0.000	550.48	0.00	0.00	
5	178.00	RRH_2x40 07-U	3	12.511	13.762	0.50	0.75	4.27	157.20	0.000	0.000	58.71	0.00	0.00	
6	178.00	RFS DB-B1-6C-8AB-OZ	1	12.511	13.762	0.50	0.75	2.41	21.40	0.000	0.000	33.19	0.00	0.00	
7	166.00	Platform w/ Hand Rails	1	12.328	13.561	1.00	1.00	40.00	2000.00	0.000	0.000	542.45	0.00	0.00	
8	166.00	ALU TD-RRH8x20-25	3	12.328	13.561	0.50	0.75	6.11	210.00	0.000	0.000	82.80	0.00	0.00	
9	166.00	ALU 800 Mhz	6	12.328	13.561	0.50	0.75	6.42	318.00	0.000	0.000	87.09	0.00	0.00	
10	166.00	ALU 1900 Mhz	3	12.328	13.561	0.50	0.75	3.59	180.00	0.000	0.000	48.66	0.00	0.00	
11	166.00	KMW ETCR-654L12H6	3	12.328	13.561	0.52	0.75	24.39	254.70	0.000	0.000	330.76	0.00	0.00	
12	158.00	T-Arms	3	12.201	13.421	0.56	0.75	13.50	1050.00	0.000	0.000	181.18	0.00	0.00	
13	158.00	Stella Dooradus TMA's	6	12.201	13.421	0.48	0.80	2.04	76.80	0.000	0.000	27.44	0.00	0.00	
14	158.00	EMS RR90-17-02DP	6	12.201	13.421	0.57	0.80	25.01	81.00	0.000	0.000	335.72	0.00	0.00	
15	150.00	Powerwave 7770	3	12.068	13.275	0.62	0.80	10.18	105.00	0.000	0.000	135.17	0.00	0.00	
16	150.00	Cci HPA-65R-BUU-H6	2	12.068	13.275	0.68	0.80	13.14	102.00	0.000	0.000	174.40	0.00	0.00	
17	150.00	SBNHH-1D65A	1	12.068	13.275	0.66	0.80	3.90	33.50	0.000	0.000	51.83	0.00	0.00	
18	150.00	RRUS-32	3	12.068	13.275	0.54	0.80	6.22	231.00	0.000	0.000	82.61	0.00	0.00	
19	150.00	KMW	2	12.068	13.275	0.63	0.80	10.14	97.00	0.000	0.000	134.57	0.00	0.00	
20	150.00	KMW	1	12.068	13.275	0.62	0.80	4.40	36.40	0.000	0.000	58.40	0.00	0.00	
21	150.00	Powerwave LGP21401	6	12.068	13.275	0.80	0.80	5.86	84.60	0.000	0.000	77.74	0.00	0.00	
22	150.00	Ericsson RRUS-11	3	12.068	13.275	0.54	0.80	4.05	152.10	0.000	0.000	53.79	0.00	0.00	
23	150.00	Raycap DC6-48-60-18-8F	1	12.068	13.275	0.54	0.80	0.97	31.80	0.000	0.000	12.88	0.00	0.00	
24	150.00	Low Profile Platform	1	12.068	13.275	1.00	1.00	22.00	1500.00	0.000	0.000	292.05	0.00	0.00	
Totals:									9,046.50						4,023.99

Total Applied Force Summary

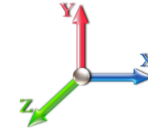
Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Load Case: 1.0D + 1.0W 60 mph Wind

Dead Load Factor 1.00
Wind Load Factor 1.00



Iterations 24

Elev (ft)	Description	Lateral FX (-) (lb)	Axial FY (-) (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)
0.00		0.00	0.00	0.00	0.00
5.00		216.75	1501.66	0.00	0.00
10.00		212.37	1533.40	0.00	0.00
15.00		207.99	1503.68	0.00	0.00
20.00		216.04	1473.96	0.00	0.00
25.00		221.56	1444.24	0.00	0.00
30.00		225.17	1414.52	0.00	0.00
35.00		227.37	1384.79	0.00	0.00
40.00		228.48	1355.07	0.00	0.00
43.92		178.70	1040.72	0.00	0.00
45.00		49.87	532.41	0.00	0.00
50.00		231.89	2422.39	0.00	0.00
51.00		45.89	477.60	0.00	0.00
55.00		184.21	959.06	0.00	0.00
60.00		229.25	1173.99	0.00	0.00
65.00		227.19	1146.39	0.00	0.00
70.00		224.72	1118.79	0.00	0.00
75.00		221.87	1091.19	0.00	0.00
80.00		218.68	1063.60	0.00	0.00
85.00		215.19	1036.00	0.00	0.00
90.00		211.42	1008.40	0.00	0.00
90.17		6.94	33.14	0.00	0.00
95.00		203.83	1679.41	0.00	0.00
96.00		41.51	341.52	0.00	0.00
100.00		164.87	667.28	0.00	0.00
105.00		202.29	813.09	0.00	0.00
110.00		197.62	789.74	0.00	0.00
115.00		192.77	766.38	0.00	0.00
120.00		187.73	743.03	0.00	0.00
125.00		182.52	719.68	0.00	0.00
130.00		177.14	696.33	0.00	0.00
133.33		114.88	451.25	0.00	0.00
135.00		57.36	360.87	0.00	0.00
138.00		101.78	638.27	0.00	0.00
140.00		66.66	201.37	0.00	0.00
145.00		162.95	491.54	0.00	0.00
150.00	(23) attachments	1230.46	2847.96	0.00	0.00
155.00		150.95	415.82	0.00	0.00
158.00	(15) attachments	631.84	1449.14	0.00	0.00
160.00		57.04	145.02	0.00	0.00
165.00		138.47	350.66	0.00	0.00
166.00	(16) attachments	1118.61	3030.79	0.00	0.00
170.00		105.06	250.32	0.00	0.00
175.00		125.52	297.61	0.00	0.00
178.00	(20) attachments	1386.50	2673.01	0.00	0.00
180.00		46.67	106.05	0.00	0.00

Total Applied Force Summary

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Totals:	<u>11,046.56</u>	<u>45,641.10</u>	<u>0.00</u>	<u>0.00</u>
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Calculated Forces

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II

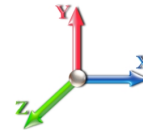


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Load Case: 1.0D + 1.0W 60 mph Wind

Iterations 24

Dead Load Factor 1.00
Wind Load Factor 1.00



Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation Sway (deg)	Rotation Twist (deg)	Stress Ratio
0.00	-45.64	-11.06	0.00	-1298.4	0.00	1298.42	5123.29	2561.65	13030.5	6435.29	0.00	0.000	0.000	0.211
5.00	-44.13	-10.88	0.00	-1243.1	0.00	1243.10	5083.45	2541.72	12666.9	6255.72	0.02	-0.043	0.000	0.207
10.00	-42.59	-10.70	0.00	-1188.7	0.00	1188.71	5041.00	2520.50	12301.0	6075.05	0.09	-0.087	0.000	0.204
15.00	-41.07	-10.52	0.00	-1135.2	0.00	1135.22	4995.94	2497.97	11933.4	5893.46	0.21	-0.131	0.000	0.201
20.00	-39.59	-10.33	0.00	-1082.6	0.00	1082.63	4948.29	2474.14	11564.2	5711.17	0.37	-0.177	0.000	0.198
25.00	-38.14	-10.14	0.00	-1030.9	0.00	1030.97	4898.02	2449.01	11194.1	5528.36	0.58	-0.223	0.000	0.194
30.00	-36.72	-9.93	0.00	-980.30	0.00	980.30	4845.16	2422.58	10823.3	5345.24	0.84	-0.270	0.000	0.191
35.00	-35.33	-9.73	0.00	-930.63	0.00	930.63	4789.68	2394.84	10452.3	5162.01	1.15	-0.317	0.000	0.188
40.00	-33.97	-9.52	0.00	-881.98	0.00	881.98	4731.61	2365.80	10081.4	4978.87	1.50	-0.366	0.000	0.184
43.92	-32.92	-9.35	0.00	-844.70	0.00	844.70	4684.30	2342.15	9791.39	4835.60	1.82	-0.405	0.000	0.182
45.00	-32.39	-9.31	0.00	-834.58	0.00	834.58	4670.93	2335.46	9711.23	4796.01	1.91	-0.416	0.000	0.181
50.00	-29.96	-9.08	0.00	-788.02	0.00	788.02	4607.64	2303.82	9341.95	4613.64	2.38	-0.466	0.000	0.177
51.00	-29.48	-9.04	0.00	-778.95	0.00	778.95	4157.28	2078.64	8537.21	4216.21	2.48	-0.476	0.000	0.192
55.00	-28.51	-8.87	0.00	-742.79	0.00	742.79	4115.37	2057.69	8281.29	4089.82	2.89	-0.518	0.000	0.189
60.00	-27.33	-8.66	0.00	-698.44	0.00	698.44	4060.64	2030.32	7961.67	3931.97	3.46	-0.571	0.000	0.184
65.00	-26.18	-8.44	0.00	-655.16	0.00	655.16	4003.30	2001.65	7642.72	3774.45	4.09	-0.624	0.000	0.180
70.00	-25.06	-8.23	0.00	-612.95	0.00	612.95	3943.36	1971.68	7324.85	3617.47	4.77	-0.679	0.000	0.176
75.00	-23.96	-8.02	0.00	-571.81	0.00	571.81	3880.82	1940.41	7008.46	3461.22	5.51	-0.734	0.000	0.171
80.00	-22.89	-7.81	0.00	-531.74	0.00	531.74	3815.67	1907.83	6693.96	3305.90	6.31	-0.790	0.000	0.167
85.00	-21.85	-7.60	0.00	-492.71	0.00	492.71	3747.91	1873.96	6381.75	3151.70	7.17	-0.846	0.000	0.162
90.00	-20.85	-7.38	0.00	-454.72	0.00	454.72	3677.55	1838.78	6072.22	2998.84	8.09	-0.904	0.000	0.157
90.17	-20.81	-7.38	0.00	-453.49	0.00	453.49	3675.16	1837.58	6061.96	2993.77	8.12	-0.906	0.000	0.157
95.00	-19.13	-7.16	0.00	-417.80	0.00	417.80	3604.59	1802.30	5765.80	2847.51	9.06	-0.961	0.000	0.152
96.00	-18.78	-7.13	0.00	-410.64	0.00	410.64	2873.56	1436.78	4663.81	2303.28	9.27	-0.974	0.000	0.185
100.00	-18.11	-6.97	0.00	-382.13	0.00	382.13	2833.34	1416.67	4481.60	2213.29	10.10	-1.020	0.000	0.179
105.00	-17.30	-6.77	0.00	-347.29	0.00	347.29	2780.72	1390.36	4254.92	2101.34	11.21	-1.086	0.000	0.172
110.00	-16.50	-6.58	0.00	-313.44	0.00	313.44	2725.50	1362.75	4029.81	1990.17	12.38	-1.151	0.000	0.164
115.00	-15.73	-6.39	0.00	-280.56	0.00	280.56	2667.67	1333.84	3806.69	1879.98	13.62	-1.215	0.000	0.155
120.00	-14.99	-6.20	0.00	-248.63	0.00	248.63	2607.24	1303.62	3585.95	1770.96	14.93	-1.279	0.000	0.146
125.00	-14.27	-6.01	0.00	-217.64	0.00	217.64	2544.20	1272.10	3368.00	1663.33	16.30	-1.343	0.000	0.136
130.00	-13.57	-5.83	0.00	-187.57	0.00	187.57	2478.56	1239.28	3153.24	1557.27	17.74	-1.404	0.000	0.126
133.33	-13.12	-5.71	0.00	-168.12	0.00	168.12	2433.35	1216.68	3012.04	1487.53	18.74	-1.444	0.000	0.118
135.00	-12.76	-5.65	0.00	-158.60	0.00	158.60	2410.32	1205.16	2942.08	1452.98	19.24	-1.464	0.000	0.114
138.00	-12.12	-5.54	0.00	-141.64	0.00	141.64	1545.45	772.73	1882.66	929.77	20.17	-1.499	0.000	0.160
140.00	-11.91	-5.48	0.00	-130.56	0.00	130.56	1531.69	765.84	1834.28	905.88	20.81	-1.522	0.000	0.152
145.00	-11.42	-5.32	0.00	-103.16	0.00	103.16	1495.44	747.72	1713.73	846.35	22.44	-1.588	0.000	0.130
150.00	-8.60	-4.01	0.00	-76.59	0.00	76.59	1456.60	728.30	1594.07	787.25	24.13	-1.646	0.000	0.103
155.00	-8.19	-3.86	0.00	-56.52	0.00	56.52	1415.15	707.58	1475.70	728.79	25.88	-1.695	0.000	0.083
158.00	-6.76	-3.18	0.00	-44.96	0.00	44.96	1389.03	694.52	1405.47	694.11	26.96	-1.721	0.000	0.070
160.00	-6.62	-3.12	0.00	-38.59	0.00	38.59	1371.10	685.55	1359.03	671.17	27.68	-1.737	0.000	0.062
165.00	-6.27	-2.98	0.00	-22.97	0.00	22.97	1324.44	662.22	1244.46	614.59	29.52	-1.767	0.000	0.042
166.00	-3.27	-1.77	0.00	-19.99	0.00	19.99	1314.79	657.40	1221.83	603.42	29.89	-1.772	0.000	0.036
170.00	-3.03	-1.65	0.00	-12.93	0.00	12.93	1275.17	637.59	1132.39	559.24	31.38	-1.788	0.000	0.025
175.00	-2.73	-1.52	0.00	-4.66	0.00	4.66	1207.50	603.75	1010.00	498.80	33.26	-1.800	0.000	0.012
178.00	-0.10	-0.05	0.00	-0.10	0.00	0.10	1163.35	581.68	937.07	462.78	34.39	-1.803	0.000	0.000
180.00	0.00	-0.05	0.00	0.00	0.00	0.00	1133.92	566.96	889.96	439.52	35.15	-1.803	0.000	0.000

Final Analysis Summary

Structure: CT46130-A-SBA	Code: EIA/TIA-222-G	1/31/2018	
Site Name: Deep River-winthrop Rd	Exposure: C		
Height: 180.00 (ft)	Crest Height: 0.00		
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil		
Gh: 1.1	Topography: 1	Struct Class: II	Page: 40



Reactions

Load Case	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)
1.2D + 1.6W 101 mph Wind	50.2	0.00	54.68	0.00	0.00	5915.40
0.9D + 1.6W 101 mph Wind	50.2	0.00	40.99	0.00	0.00	5852.67
1.2D + 1.0Di + 1.0Wi 50 mph Wind	10.3	0.00	81.46	0.00	0.00	1292.16
1.2D + 1.0E	1.5	0.00	54.77	0.00	0.00	198.37
0.9D + 1.0E	1.5	0.00	41.08	0.00	0.00	196.02
1.0D + 1.0W 60 mph Wind	11.1	0.00	45.64	0.00	0.00	1298.42

Max Stresses

Load Case	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (-) (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Elev (ft)	Stress Ratio
1.2D + 1.6W 101 mph Wind	-54.68	-50.18	0.00	-5915.4	0.00	-5915.4	5123.29	2561.6	13030.5	6435.29	0.00	0.930
0.9D + 1.6W 101 mph Wind	-40.99	-50.15	0.00	-5852.6	0.00	-5852.6	5123.29	2561.6	13030.5	6435.29	0.00	0.918
1.2D + 1.0Di + 1.0Wi 50 mph Wind	-81.46	-10.33	0.00	-1292.1	0.00	-1292.1	5123.29	2561.6	13030.5	6435.29	0.00	0.217
1.2D + 1.0E	-14.71	-1.06	0.00	-33.23	0.00	-33.23	1545.45	772.73	1882.66	929.77	138.00	0.045
0.9D + 1.0E	-11.03	-1.04	0.00	-32.72	0.00	-32.72	1545.45	772.73	1882.66	929.77	138.00	0.042
1.0D + 1.0W 60 mph Wind	-45.64	-11.06	0.00	-1298.4	0.00	-1298.4	5123.29	2561.6	13030.5	6435.29	0.00	0.211

Base Plate Summary

Structure: CT46130-A-SB	Code: EIA/TIA-222-G	1/31/2018
Site Name: Deep River-winthrop Rd	Exposure: C	
Height: 180.00 (ft)	Crest Height: 0.00	
Base Elev: 0.000 (ft)	Site Class: C - Very Dense Soil	
Gh: 1.1	Topography: 1	Struct Class: II



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Reactions	Base Plate	Anchor Bolts
Original Design	Yield (ksi): 60.00	Bolt Circle: 70.69
Moment (kip-ft): 5076.00	Width (in): 76.69	Number Bolts: 20.00
Axial (kip): 59.10	Style: Polygon	Bolt Type: 2.25" 18J
Shear (kip): 41.70	Polygon Sides: 12.00	Bolt Diameter (in): 2.25
Analysis	Clip Length (in): 0.00	Yield (ksi): 75.00
Moment (kip-ft): 5915.40	Effective Len (in): 14.79	Ultimate (ksi): 100.00
Axial (kip): 81.46	Moment (kip-in): 890.32	Arrangement: Radial
Shear (kip): 50.18	Allow Stress (ksi): 81.00	Cluster Dist (in): 0.00
	Applied Stress (ksi): 0.00	Start Angle (deg): 0.00
Moment Design %: 116.54	Stress Ratio: 0.59	Compression
		Force (kip): 204.91
		Allowable (kip): 260.00
		Ratio: 0.81
		Tension
		Force (kip): 196.76
		Allowable (kip): 260.00
		Ratio: 0.78



Monopole Mat Foundation Design

Date

10/30/2017

Customer Name:	SBA Communcations Corp	EIA/TIA Standard:	EIA-222-G
Site Name:	Deep River-winthrop Rd	Structure Height (Ft.):	180
Site Number:	CT46130-A-SBA	Engineer Name:	W. Velez
Engr. Number:	41965	Engineer Login ID:	

Foundation Info Obtained from:

Drawings/Calculations

Structure Type:

Monopole

Analysis or Design?

Analysis

Base Reactions (Factored):

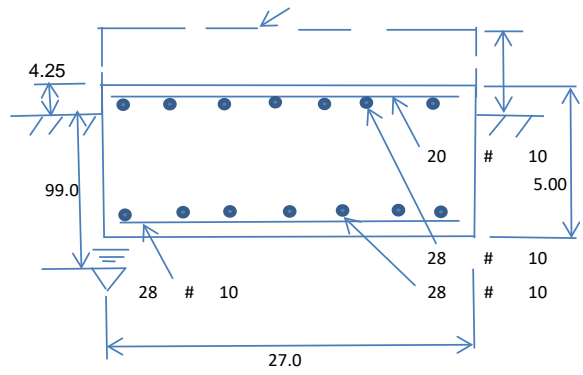
Axial Load (Kips):	54.7	Shear Force (Kips):	50.2
Uplift Force (Kips):	0.0	Moment (Kips-ft):	5915.4

Allowable overstress %: 5.0%

Foundation Geometries:

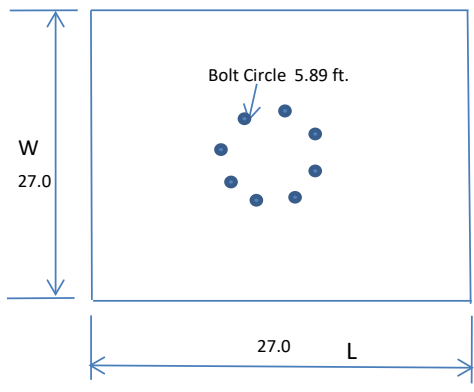
Anchor Bolt Circle (ft.):	5.89	Depth of Base BG (ft.):	0.75	Mods required -Yes/No ?:	No
Thickness of Pad (ft.):	5.00	Length of Pad (ft.):	27	Width of Pad (ft.):	27

Final Length of pad (ft) 27.0 Final width of pad (ft): 27.0



Material Properties and Reabr Info:

Concrete Strength (psi):	4000	Steel Elastic Modulus:	29000	ksi
Pad Rebar Yield (Ksi):	60	Tie Spacing (in):	12.0	
Pad Steel Rebar Size (#):	10	Unit Weight of Concrete:	150.0	pcf
Concrete Cover (in.):	3			
Rebar at the bottom of the concrete pad:				
Qty. of Rebar in Pad (L):	20	Qty. of Rebar in Pad (W):	20	
Rebar at the top of the concrete pad:				
Qty. of Rebar in Pad (L):	28	Qty. of Rebar in Pad (W):	28	



Apply 1.35 factor for e/w Per G: 1.35

Soil Design Parameters:

Water Table B.G.S. (ft):	99.0	Unit Weight of Water:	62.4	pcf	Angle from Top of Pad:	30
Ultimate Bearing Pressure (psf):	120000	Ultimate Skin Friction:	0	Psf	Angle from Bottm of Pad:	25
Consider Friction for O.T.M. (Y/N):	No	Consider Friction for bearing (Y/N):	No		Angle from Bottm of Pad:	25
Consider soil hor. resist. for OTM.:	No	Reduction factor on the maximum soil bearing pressure:	1.00			

Foundation Analysis and Design:

Uplift Strength Reduction Factor:	0.75	Compression Strength Reduction Factor:	0.75
Total Dry Soil Volume (cu. Ft.):	0.00	Total Dry Soil Weight (Kips):	0.00
Total Buoyant Soil Volume (cu. Ft.):	0.00	Total Buoyant Soil Weight (Kips):	0.00
Total Effective Soil Weight (Kips):	0.00	Weight from the Concrete Block at Top (K):	0.00
Total Dry Concrete Volume (cu. Ft.):	3645.00	Total Dry Concrete Weight (Kips):	546.75
Total Buoyant Concrete Volume (cu. Ft.):	0.00	Total Buoyant Concrete Weight (Kips):	0.00
Total Effective Concrete Weight (Kips):	546.75	Total Vertical Load on Base (Kips):	601.43

Check Soil Capacities:

Calculated Maxium Net Soil Pressure under the base (psf):	4199	<	Allowable Factored Soil Bearing (psf):	90000	0.05	OK!
Allowable Foundation Overturning Resistance (kips-ft.):	7381.2	>	Design Factored Momont (kips-ft):	6169	0.84	OK!
Factor of Safety Against Overturning (O. R. Moment/Design Moment):	1.20					OK!

Load/
Capacity
Ratio

Check the capacities of Reinforcing Concrete:

Strength reduction factor (Flexure and axial tension):	0.90	Strength reduction factor (Shear):	0.75
Strength reduction factor (Axial compression):	0.65	Wind Load Factor on Concrete Design:	1.00

Concrete Pad:

One-Way Design Shear Capacity (L-Direction, Kips):	1732.8	>	One-Way Factored Shear (L-D. Kips):	365.1	0.21	OK!
One-Way Design Shear Capacity (W-Direction, Kips):	1732.8	>	One-Way Factored Shear (W-D., Kips)	365.1	0.21	OK!
One-Way Design Shear Capacity (Corner-Corner. Kips):	2040.5	>	One-Way Factored Shear (C-C, Kips):	808.5	0.40	OK!
Lower Steel Pad Reinforcement Ratio (L-Direct.):	0.0014	OK!	Lower Steel Pad Reinf. Ratio (W-Direc	0.0014		
Lower Steel Pad Moment Capacity (L-Direction. Kips-ft):	6364.6	>	Moment at Bottom (L-Direct. K-Ft):	1023.7	0.16	OK!
Lower Steel Pad Moment Capacity (W-Direction. Kips-ft):	6364.6	>	Moment at Bottom (W-Direct. K-Ft):	1023.7	0.16	OK!
Lower Steel Pad Moment Capacity (Corner-Corner,K-ft):	8978.4	>	Moment at Bottom (C-C Dir. K-Ft):	1447.7	0.16	OK!
Upper Steel Pad Reinforcement Ratio (L-Direct.):	0.0019	OK!	Upper Steel Reinf. Ratio (W-Direct.):	0.0019		
Upper Steel Pad Moment Capacity (L-Direction. Kips-ft):	8866.2	>	Moment at the top (L-Dir Kips-Ft):	50.2	0.01	OK!
Upper Steel Pad Moment Capacity (W-Direction. Kips-ft):	8866.2	>	Moment at the top (W-Dir Kips-Ft):	50.2	0.01	OK!
Upper Steel Pad Moment Capacity (Corner-Corner. K-ft):	12494.6	>	Moment at the top (C-C Direc. K-Ft):	839.6	0.07	OK!

220 WINTHROP RD

Location 220 WINTHROP RD

Mblu 33 / / 1A / /

Acct#

Owner TOWN OF DEEP RIVER

Assessment \$239,260

Appraisal \$341,800

PID 546

Building Count 1

Current Value

Appraisal			
Valuation Year	Improvements	Land	Total
2015	\$185,000	\$156,800	\$341,800
Assessment			
Valuation Year	Improvements	Land	Total
2015	\$129,500	\$109,760	\$239,260

Owner of Record

Owner TOWN OF DEEP RIVER

Sale Price \$0

Co-Owner

Certificate

Address 174 MAIN ST

Book & Page 0093/0797

DEEP RIVER, CT 06417

Sale Date 12/27/1977

Ownership History

Ownership History				
Owner	Sale Price	Certificate	Book & Page	Sale Date
TOWN OF DEEP RIVER	\$0		0093/0797	12/27/1977

Building Information

Building 1 : Section 1

Year Built: 1979

Living Area: 247

Building Photo

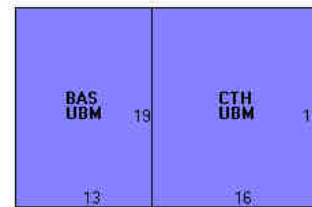
Building Attributes	
Field	Description
STYLE	Commercial
MODEL	Commercial
Stories:	1
Occupancy	1
Exterior Wall 1	Aluminum Sidng
Exterior Wall 2	

Roof Structure	Gambrel
Roof Cover	Asph/F Gls/Cmp
Interior Wall 1	Drywall/Sheet
Interior Wall 2	
Interior Floor 1	Inlaid Sht Gds
Interior Floor 2	
Heating Fuel	Electric
Heating Type	Electr Basebrd
AC Type	None
Bldg Use	MUNICIPAL MDL-94
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	903I
Heat/AC	NONE
Frame Type	WOOD FRAME
Baths/Plumbing	AVERAGE
Ceiling/Wall	CEIL & WALLS
Rooms/Prtns	LIGHT
Wall Height	9
% Comn Wall	0



(<http://images.vgsi.com/photos/DeepRiverCTPhotos//\00\00\72\11.jpg>)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	Description	Gross Area	Living Area
BAS	First Floor	247	247
CTH	Cath Ceiling	304	0
UBM	Basement, Unfinished	551	0
		1,102	247

Extra Features

Extra Features
No Data for Extra Features

Land

Land Use

Use Code 9030
Description MUNICIPAL MDL-94
Neighborhood 0002

Land Line Valuation

Size (Acres) 9.94
Depth
Assessed Value \$109,760
Appraised Value \$156,800

Outbuildings

Outbuildings			Legend
Code	Description	Size	Bldg #
PAV1	PAVING-ASPHALT	30000 S.F.	1
PAV2	PAVING-CONC	1400 S.F.	1
SHD1	SHED FRAME	45 S.F.	1
SHD1	SHED FRAME	100 S.F.	1
FN3	FENCE-6' CHAIN	200 L.F.	1
	COMPACTOR	1	1

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Google Maps 220 Winthrop Rd



Map data ©2018 Google 1000 ft

From: Cathie Jefferson
To: [Mark Roberts](#)
Subject: RE: AT&T Antenna Project @ 220 Winthrop Road, Deep River
Date: Wednesday, March 21, 2018 11:11:21 AM

Mark,

The Town of Deep River has exempted town property from zoning. There was no requirement for AT&T to apply to the Commission for approval.

Cathie S Jefferson
Deep River ZEO
860 526-6030

From: Mark Roberts [mailto:mark.roberts@qcdevelopment.net]
Sent: Wednesday, March 21, 2018 11:06 AM
To: Cathie Jefferson
Subject: AT&T Antenna Project @ 220 Winthrop Road, Deep River


Hello Cathie – per our telephone conversation I am researching the original local land use approvals for the Telecommunications Tower located on Town Property at 220 Winthrop Road.

At your convenience, could you please confirm if the Town has any records of such an approval?

Thank you for your help,

Best Regards,

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



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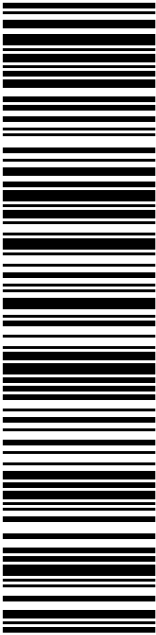
MARK J ROBERTS
 QC DEVELOPMENT
 PO BOX 916
 STORRS CT 06268-0916

0024

C003

SHIP TO: ANGUS MCDONALD JR.
 TOWN OF DEEP RIVER
 174 MAIN ST
 DEEP RIVER CT 06417-2008

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 9405 8036 9930 0610 2363 32**

Trans. #:	430474198	Priority Mail® Postage:	\$6.70
Print Date:	03/21/2018	Insurance Fee	\$0.00
Ship Date:	03/22/2018	Total	\$6.70
Expected Delivery Date:	03/23/2018		
Insured Value:	\$50.00		

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

To: ANGUS MCDONALD JR.
 TOWN OF DEEP RIVER
 174 MAIN ST
 DEEP RIVER CT 06417-2008

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