



Crown Castle
3 Corporate Park Drive, Suite 101
Clifton Park, NY 12065

August 5, 2016

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

RE: Notice of Exempt Modification for AT&T/ LTE 3C Crown Site BU: 842875
AT&T Site ID: CT5139
99 Day Hill Road, Windsor, CT 06095
Latitude: 42° 52' 16.1" / Longitude: -72° 40' 16.0"

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 168-foot level of the existing 168-foot monopole at 99 Day Hill Road in Windsor, CT. The tower is owned by Crown Castle. The property is owned by the Town of Windsor. AT&T now intends to replace six (3) antennas with two (2) new CCI antennas and one (1) CCI antenna. These antennas would be installed at the 168-foot level of the tower. AT&T also intends to replace three (3) RRU-11s with three (3) RRU32s.

This facility was approved by the Planning and Zoning Commission of the Town of Windsor in Special Use Application #292A on November 30, 2000. This approval included waivers regarding tower height and no conditional statements.

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.S.C.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Donald S. Trinks, Mayor for the Town of Windsor, and the tower, and property owner.

1. The proposed modifications will not result in an increase in the height of the existing tower.
2. The proposed modifications will not require the extension of the site boundary.
3. The proposed modification will not increase noise levels at the facility by six decibels or more, or to levels that exceed state and local criteria.
4. The operation of the replacement antennas will not increase radio frequency emissions at the facility to a level at or above the Federal Communication Commission safety standard.

Melanie A. Bachman

August 5, 2016

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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-reference telecommunications facility constitutes an exempt modification under R.C.S.A. § 16-50j-72(b)(2). Please send approval/rejection letter to Attn: Jeffrey Barbadora.

Sincerely,

Jeffrey Barbadora
Real Estate Specialist
12 Gill Street, Suite 5800, Woburn, MA 01801
781-729-0053
Jeff.Barbadora@crowncastle.com

Attachments:

Tab 1: Exhibit-1: Compound plan and elevation depicting the planned changes

Tab 2: Exhibit-2: Structural Modification Report

Tab 3: Exhibit-3: General Power Density Table Report (RF Emissions Analysis Report)

cc: The Honorable Donald S. Trinks, Mayor, Town of Windsor
Town of Windsor
275 Broad Street
Windsor, CT 06095

Town of Windsor
275 Broad St.
Attn: Accounts Receivable
Windsor, CT 06095

I, Anita M. Mips, Chairperson of the Windsor Town Planning and Zoning Commission, hereby certify that on October 10, 2000 the Planning and Zoning Commission of the Town of Windsor granted approval of Special Use Application #292A for a Wireless Telecommunications Tower with a monopole height of 170 feet plus 20-foot Town public service whip antennas for a total height of 190 feet, under Zoning Regulations Sections 12.2 & 2.2.19E(1).

This approval also includes the following waivers in accordance with Zoning Regulations Section 12.1:

- 1) a waiver of the height requirement for 15 feet; and
- 2) a waiver of the fall zone distance requirement for 151 feet in relation to the distance of the tower from Day Hill Road, 380 feet being required, 229 feet being proposed.

Said Special Use was granted for the property located at: 99 Day Hill Road

The owner of record of said parcel is: Town of Windsor

Dated at Windsor, Connecticut, this 30th day of November, 2000

Anita M. Mips Chairperson

Public Act #75-317

Received for Record this _____ day of _____, 2000

Attest: Town Clerk

RECEIVED FOR RECORD
WINDSOR TOWN CLERK

00 NOV 30 PM 12: 58

VOL 1249 PG 156

BY Kathleen H. Quinn
TOWN CLERK

Property Cards

Address Search : [Clear Search](#)

Your search returned multiple addresses

Additional addresses:

[99 DAY HILL RD](#)

99 Day Hill Rd

Property Owner:
Windsor Town Of

Property Co-Owner:
Public Works Garage

Mailing Address:
275 Broad Street
Windsor, CT
06095

File Code:
9310

Map:
42

Block:
108

Lot:
1

Census Tract:
4735.01

Property Type:
Municipal MDL-96

Land Area (Acres):
11.76

Zone:
NZ



[Click to Enlarge](#)

Construction Details

Year Built:
1982

Building Style:
Garage/Office

Stories:
1

Living Area:
0 Sq/Ft

Building ID:
3417

Grade:
Average

Exterior Wall:
Pre-Finsh Metl

Total Rooms:

Bedrooms:

Bathrooms:

Half Baths:

Heating Type:
Hot Air-No Duc

Heating Fuel:
Gas

AC Type:
None

Valuation

Assessed Land Value:
\$536,830

Assessed Building Value:
\$1,076,250

Total Assessed Value:
\$1,613,080

Appraised Land Value:
\$766,900

Appraised Building Value:
\$1,537,500

Total Appraised Value:
\$2,304,400

Last Sale

Last Sale Date:
Friday, November 4th, 1977

Last Sale Price:
\$0

Qualified Sale:

Book/Page:
334/0257

Prior Owners

Sale Date	Owner Name	Sale Price	Book / Page

Parcel Sketch



Sub Area Detail

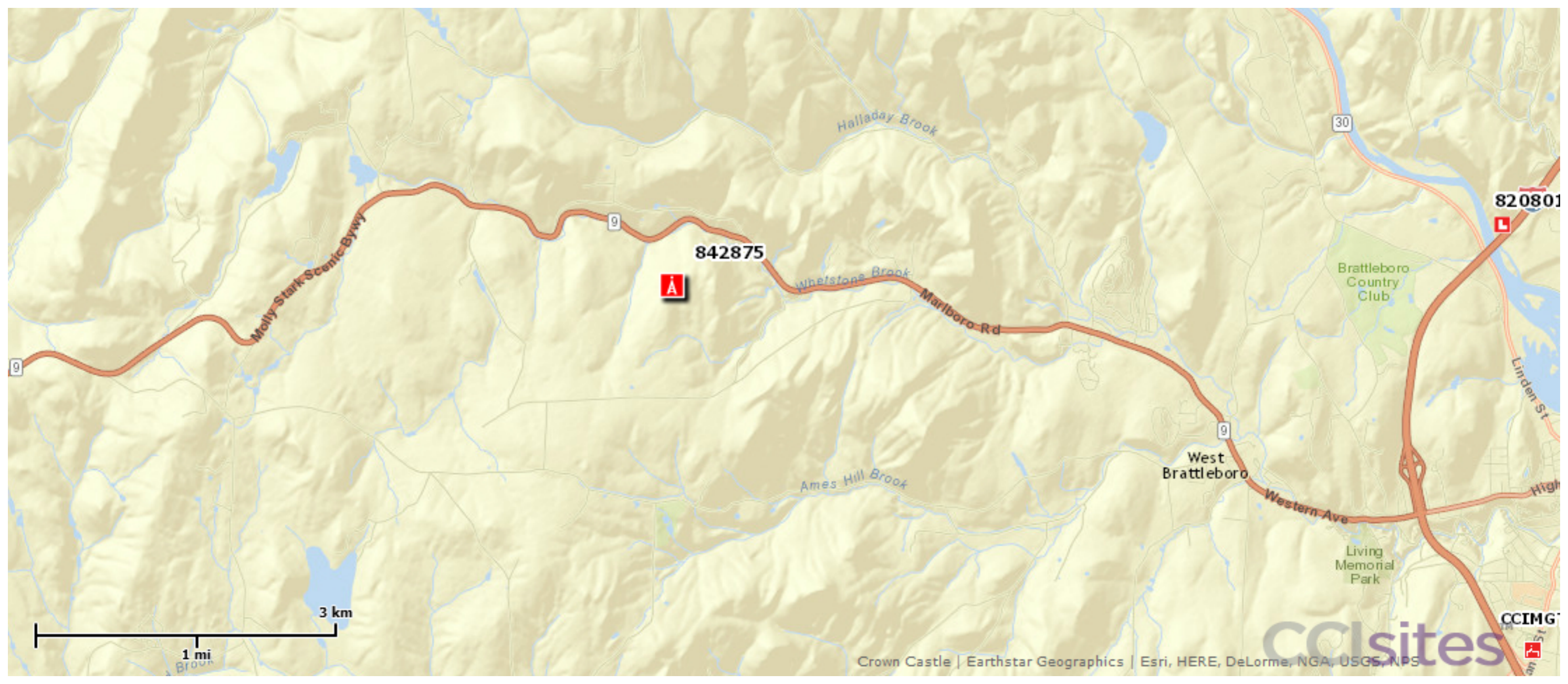
Code	Gross Area (Sq Ft)	Living Area (Sq Ft)
BAS	36300	36300

Outbuildings & Extra Features

Code	Description	Appraised Value	Assessed Value
PAV1	PAVING-ASPHALT	\$16500.00	\$11550.00
FGR1	GARAGE-AVE	\$51300.00	\$35910.00
CNP2	GOOD QUALITY	\$38900.00	\$27230.00
SHD1	SHED FRAME	\$80000.00	\$56000.00

- | | | |
|------------------------------------|---------------------------------------|--|
| AOF Office Area | APT Apartment | BAS First Floor |
| CAN Canopy | CDN Canopy (Det) | CLP Loading Platform (Finished) |
| EAF Attic (Expan)(Finished) | EAU Attic (Expan)(Unfinished) | FAT Attic (Finished) |
| FBM Basement (Finished) | FCB Cabana (Encl)(Finished) | FCP Carport (Framed) |
| FDC Carport (Det)(Framed) | FDS Porch (Scr)(Det)(Finished) | FDU Utility (Det)(Finished) |

FEP Porch (Encl)(Finished)	FGR Garage (Framed)	FHS Half-Story (Finished)
FLL Lower Level (Finished)	FOP Porch (Open)(Finished)	FSP Porch (Screen)(Finished)
FST Utility (Finished)	FUS Upper-Story (Finished)	PTO Patio
SDA Store Display Area	SFB Base (Semi-Finished)	SPA Service Prod Area
TQS Three-Qtr Story	UAT Attic (Unfinished)	UBM Basement (Unfinished)
UCB Cabana (Encl)(Unfinished)	UDS Porch (Scrn)(Dedt)(Unfinished)	UDU Utility (Det)(Unfinished)
UEP Porch (Encl)(Unfinished)	UHS Half-Story (Unfinished)	ULP Loading Platform (Unfinished)
UOP Porch (Open)(Unfinished)	USP Porch (Scrn)(Unfinished)	UST Utility (Strg)(Unfinished)
UUS Upper-Story (Unfinished)	WDK Wood Deck	



842875



Molly Stark Scenic Byway

Whetstone Brook

Marlboro Rd

Ames Hill Brook

West Brattleboro

Western Ave

Brattleboro Country Club

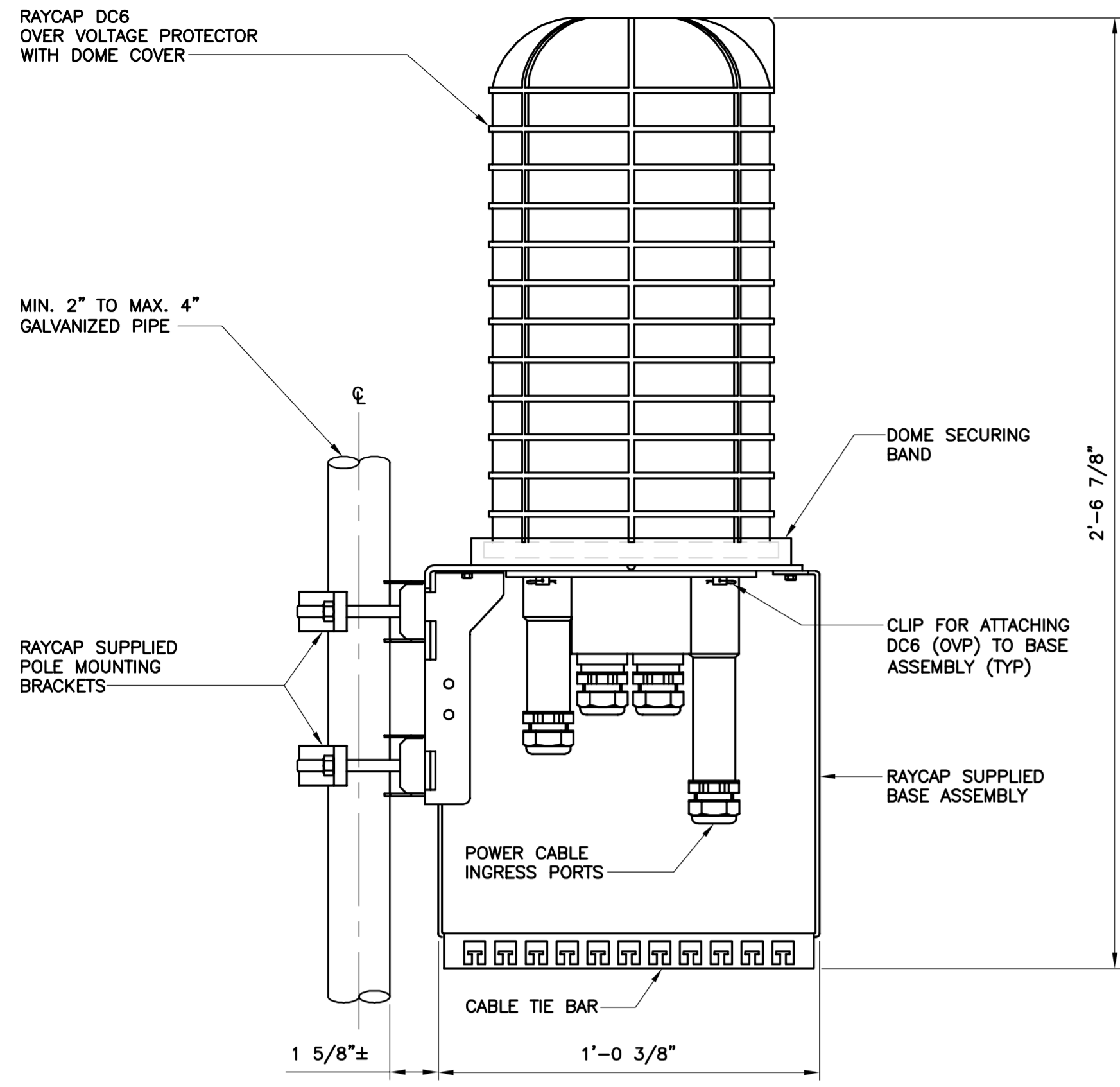
Living Memorial Park

30

820801

CCINGT





ELEVATION

- NOTES:
- RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE.

1 RAYCAP DC6 MOUNTING DETAIL
SCALE: 3" = 1'-0"

NOTES AND SPECIFICATIONS

DESIGN BASIS

- GOVERNING CODE: 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT STATE BUILDING CODE AND 2009 AMENDMENTS.
- DESIGN CRITERIA:
 - WIND LOAD: PER EIA/TIA 222 F-96 (ANTENNA MOUNTS): 80 MPH (FASTEST MILE), EQUIVALENT TO 100 MPH (3 SECOND GUST).
 - BUILDING CLASSIFICATION: II (BASED ON IBC TABLE 1604.5)
 - BASIC WIND SPEED (OTHER STRUCTURE): 95 MPH (3 SECOND GUST) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-02) PER 2003 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMENDMENT.
 - SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-02 MINIMUM DESIGN LOADS FOR BUILDINGS AND OTHER STRUCTURES.

GENERAL NOTES:

- ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
- DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
- BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
- DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
- THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
- ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES, SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
- AS THE WORK PROGRESSES, THE CONTRACTOR SHALL NOTIFY THE OWNER OF ANY CONDITIONS WHICH ARE IN CONFLICT OR OTHERWISE NOT CONSISTENT WITH THE CONSTRUCTION DOCUMENTS AND SHALL NOT PROCEED WITH SUCH WORK UNTIL THE CONFLICT IS SATISFACTORILY RESOLVED.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE SAFETY CODES AND REGULATIONS DURING ALL PHASES OF CONSTRUCTION. THE CONTRACTOR IS SOLELY RESPONSIBLE FOR PROVIDING AND MAINTAINING ADEQUATE SHORING, BRACING, AND BARRICADES AS MAY BE REQUIRED FOR THE PROTECTION OF EXISTING PROPERTY, CONSTRUCTION WORKERS, AND FOR PUBLIC SAFETY.
- THE CONTRACTOR IS SOLELY RESPONSIBLE TO DETERMINE CONSTRUCTION PROCEDURE AND SEQUENCE, AND TO ENSURE THE SAFETY OF THE EXISTING STRUCTURES AND ITS COMPONENT PARTS DURING CONSTRUCTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, BRACING, UNDERPINNING, ETC. THAT MAY BE NECESSARY. MAINTAIN EXISTING SITE OPERATIONS, COORDINATE WORK WITH NORTHEAST UTILITIES
- THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
- ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
- SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
- NO DRILLING WELDING OR TAPING ON CL&P OWNED EQUIPMENT.
- REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

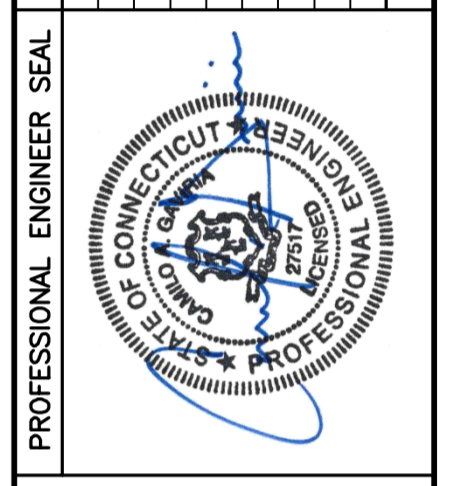
STRUCTURAL STEEL

- ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)
 - STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
 - STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
 - STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
 - STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
 - PIPE---ASTM A53 (FY = 35 KSI)
 - CONNECTION BOLTS---ASTM A325-N
 - U-BOLTS---ASTM A36
 - ANCHOR RODS---ASTM F 1554
 - WELDING ELECTRODE---ASTM E 70XX
- CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING: SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE, SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.
- STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
- PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
- FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
- INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
- AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
- ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
- ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
- THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED, DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER REVIEW.
- CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
- STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
- LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
- SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
- MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
- FABRICATE BEAMS WITH MILL CAMBER UP.
- LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN.
- COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
- INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
- FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

PAINT NOTES

- PAINTING SCHEDULE:**
- ANTENNA PANELS:**
 - SHERWIN WILLIAMS POLANE-B
 - COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.
 - COAXIAL CABLES:**
 - ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH)
 - TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH)
 - COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.
- EXAMINATION AND PREPARATION:**
- DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
 - VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
 - TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
 - PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
 - CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
 - IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
 - ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
 - FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
 - GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
 - ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
 - COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.
- CLEANING:**
- COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.
- APPLICATION:**
- APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
 - DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
 - APPLY EACH COAT TO UNIFORM FINISH.
 - APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
 - SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
 - VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
 - ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.
- COMPLETED WORK:**
- SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.
 - MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION	JTD	DATE	REV.
DRAWN BY/CHKD BY/DESCRIPTION	WJW	06/23/16	0



CENTEK engineering
Centek on Solutions™
(203) 498-0380
(203) 498-3387 Fax
622 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
WINDSORDAY HILL
CT5139
99 DAY HILL ROAD
WINDSOR, CT 06095

DATE: 06/20/16
SCALE: AS NOTED
JOB NO. 16002.16

NOTES AND SPECIFICATIONS

AT&T ANTENNAS
EL. ±168' AGL

T/EXISTING MONOPOLE
EL. ±168' AGL

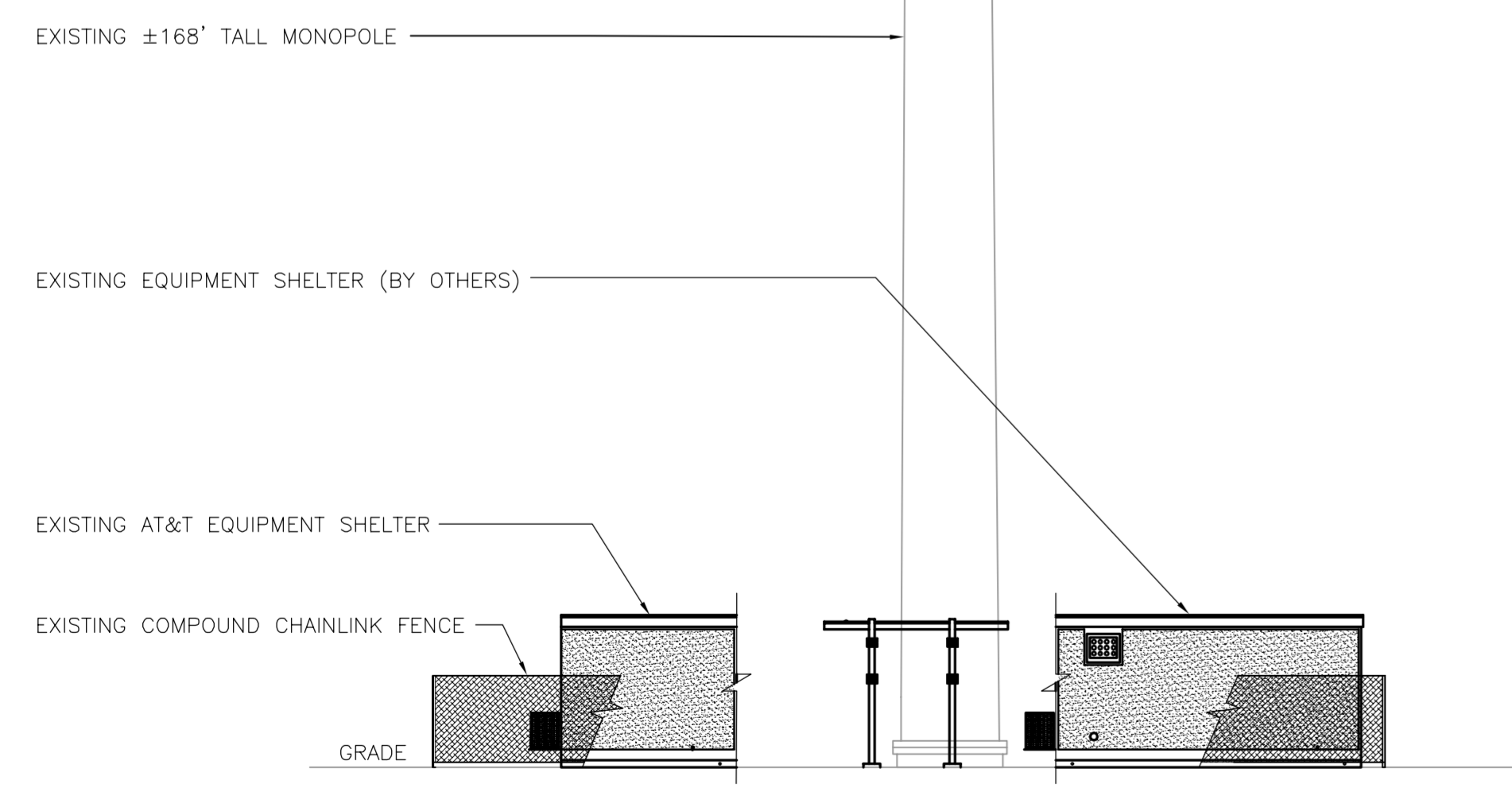
TOWER STRUCTURAL NOTES:

- TOWER STRUCTURAL ANALYSIS SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF CONNECTICUT TO BE PROVIDED PRIOR TO INSTALLATION OF THE ADDITIONAL TOWER LOADING DEPICTED HEREIN.
- ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE, INC. AND FINAL AT&T RF DATA SHEET.

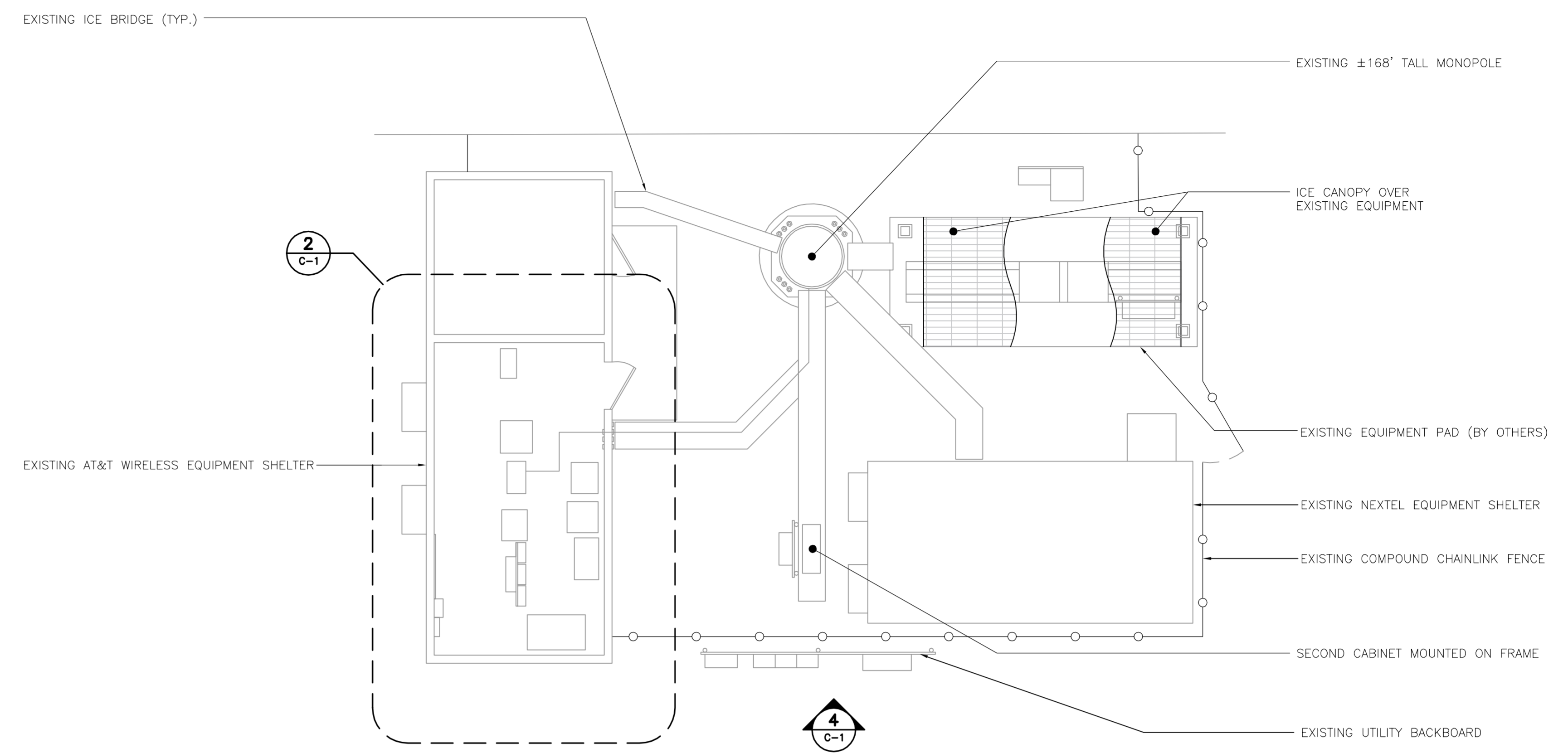
NOTES:

- OTHER CARRIER EQUIPMENT NOT SHOWN FOR CLARITY
- A.G.L. = ABOVE GRADE LEVEL

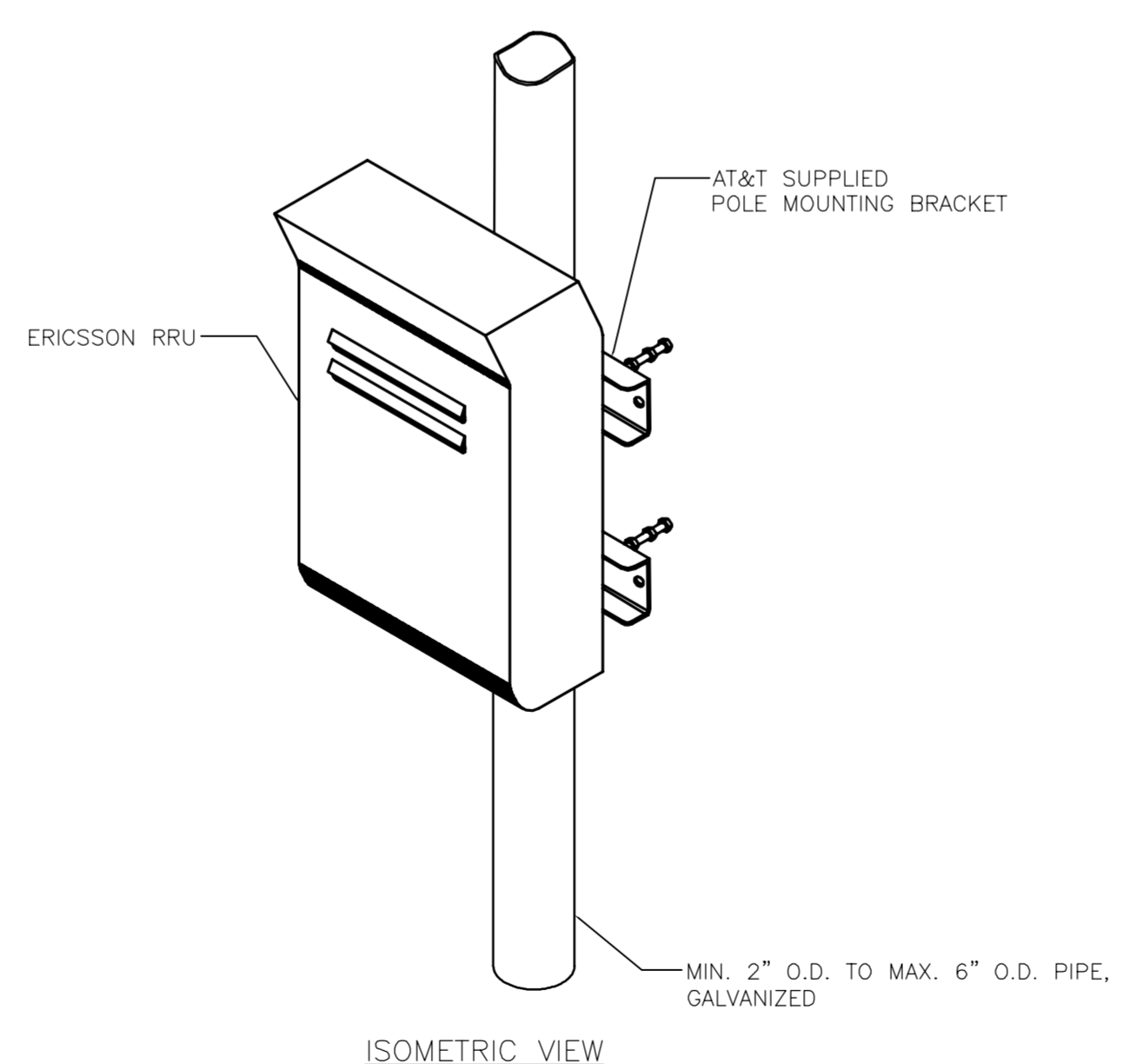
NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY.



4 EQUIPMENT LAYOUT PLAN
SCALE: 1" = 10'



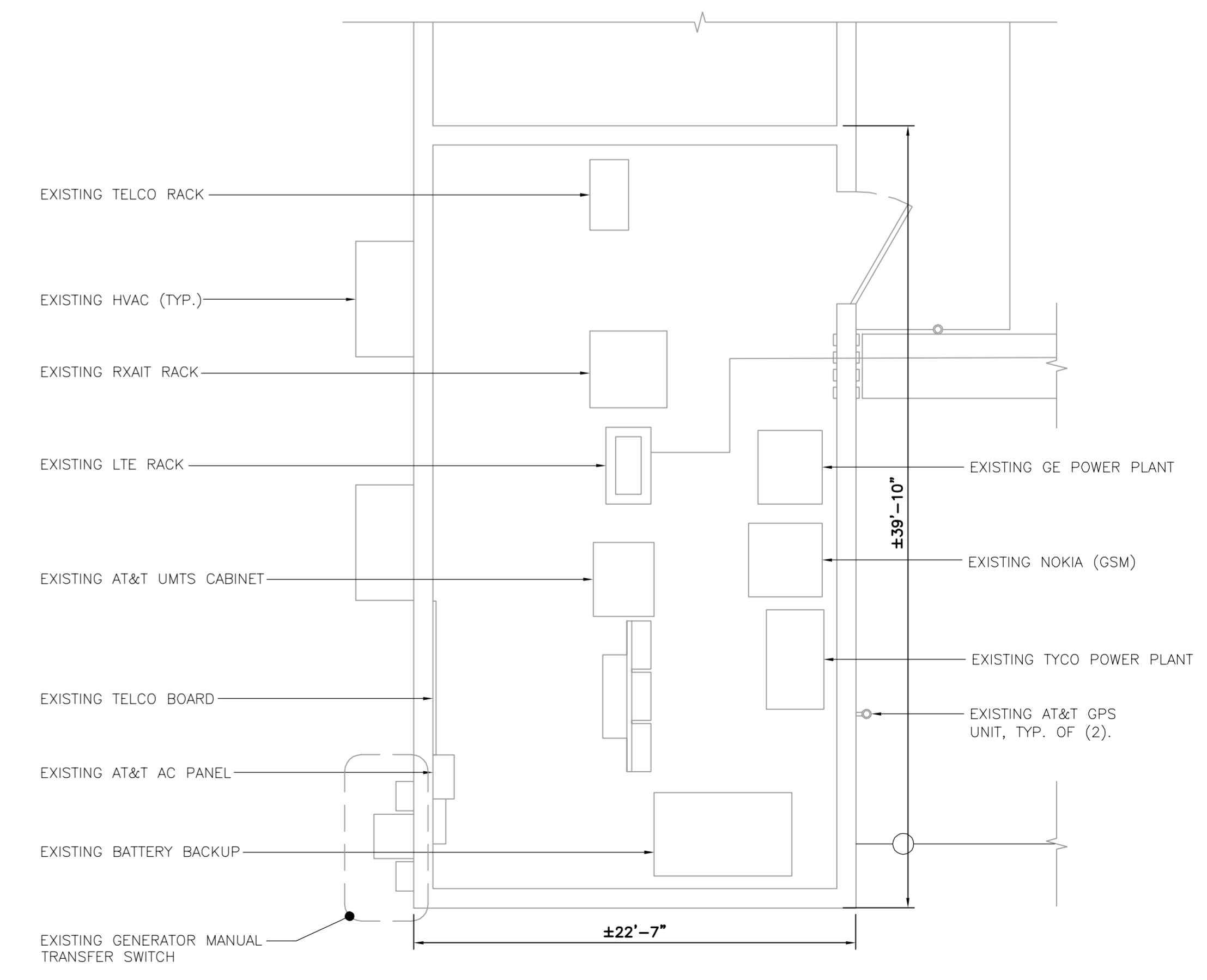
1 COMPOUND PLAN
SCALE: 3/16" = 1'-0"



NOTES:

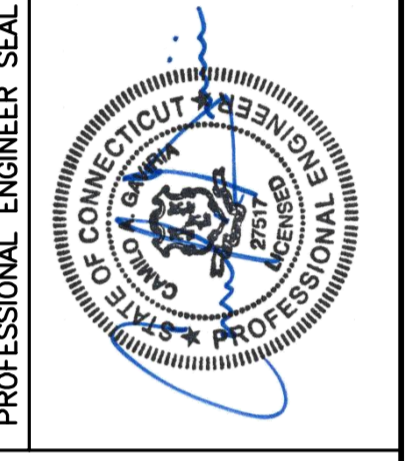
- AT&T SHALL SUPPLY RRU, AND RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE-MOUNTING BRACKET. CONTRACTOR SHALL INSTALL RRU AND MAKE CABLE TERMINATIONS.
- NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

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



2 EQUIPMENT LAYOUT PLAN
SCALE: 3/16" = 1'-0"

CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION	JTD
DRAWN BY/CHKD BY/DESCRIPTION	WJW
DATE	06/23/16
REV.	0



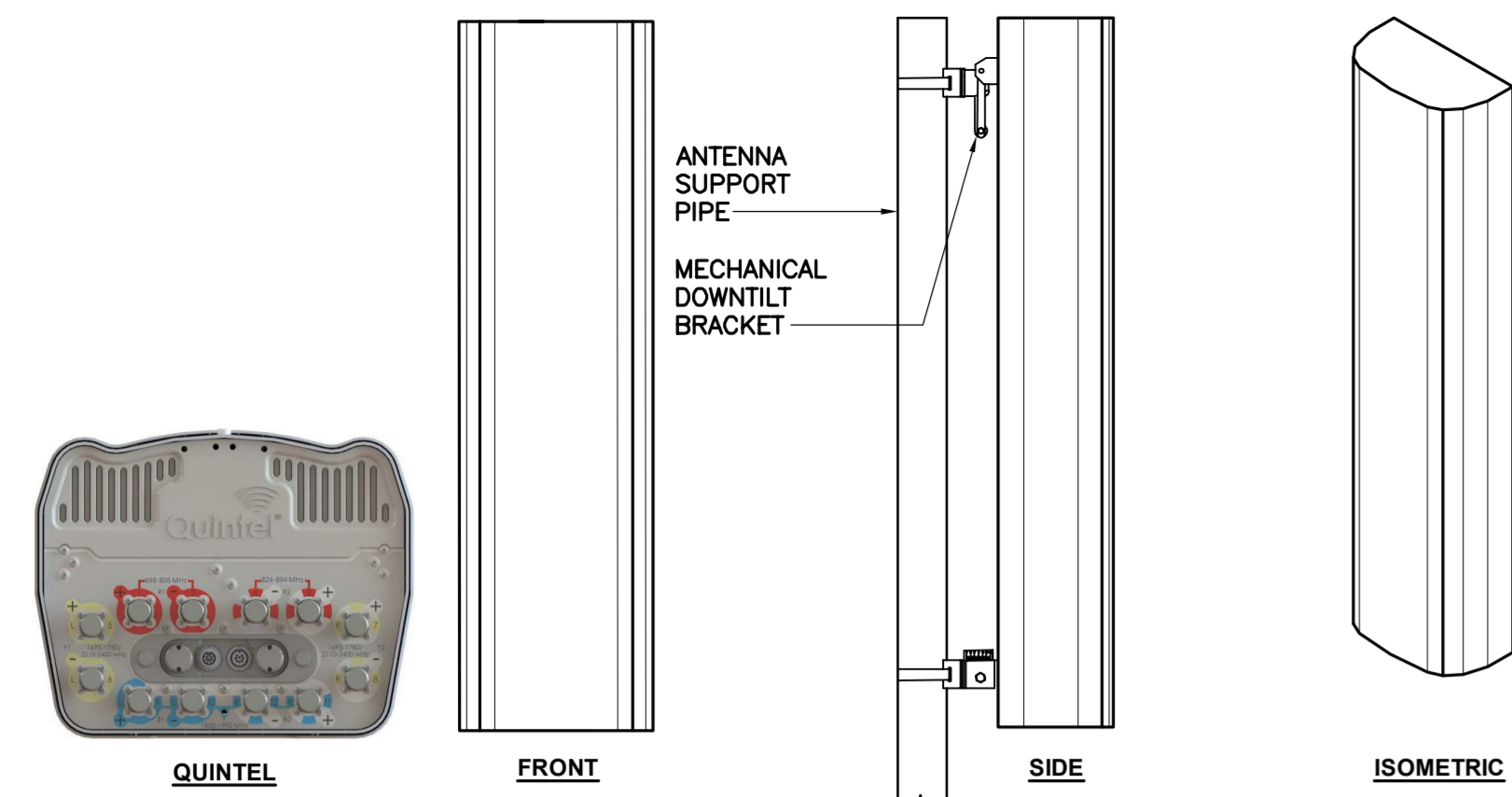
CEN TEK engineering
Centered on Solutions™
(203) 498-0390
(203) 498-3397 Fax
652 North Branford Road
Branford, CT 06405
www.CenTekEng.com

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
WINDSORDAY HILL
CT5139
99 DAY HILL ROAD
WINDSOR, CT 06095

DATE: 06/20/16
SCALE: AS NOTED
JOB NO. 16002.16

PLANS, ELEVATION AND DETAILS

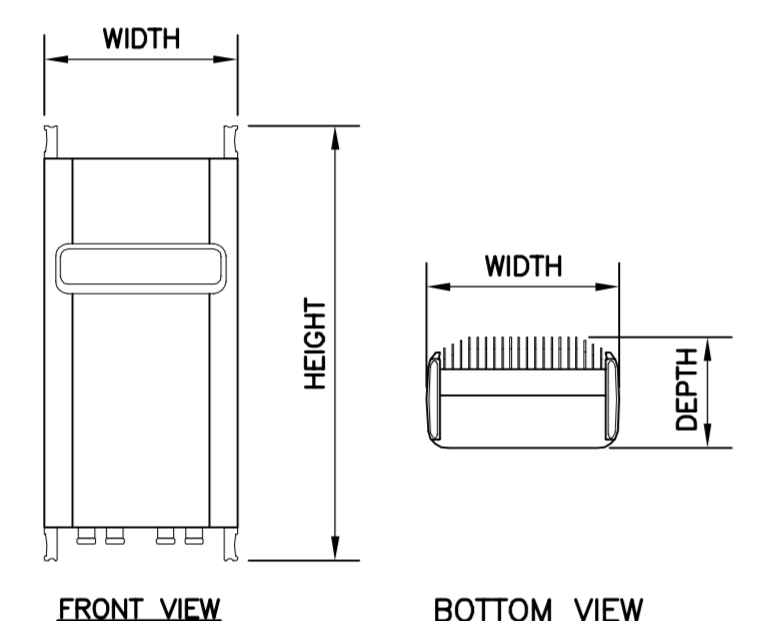
C-1
Sheet No. 3 of 5



ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: TPA-65R-LCUUUU-H8	96.0"H x 14.4"W x 8.6"D	75-LBS
MAKE: QUINTEL MODEL: QS66512-2	92.0"H x 12.0"W x 9.6"D	111-LBS

6 PROPOSED ANTENNA DETAIL
C-2

- SCALE: NTS
- NOTES:
- INSTALL ANTENNA TO EXISTING PIPE MAST USING MANUFACTURERS SUPPLIED BRACKETS AND MOUNTING HARDWARE
 - SET MECHANICAL DOWNTILT TO VALUE SPECIFIED IN LATEST RFDS

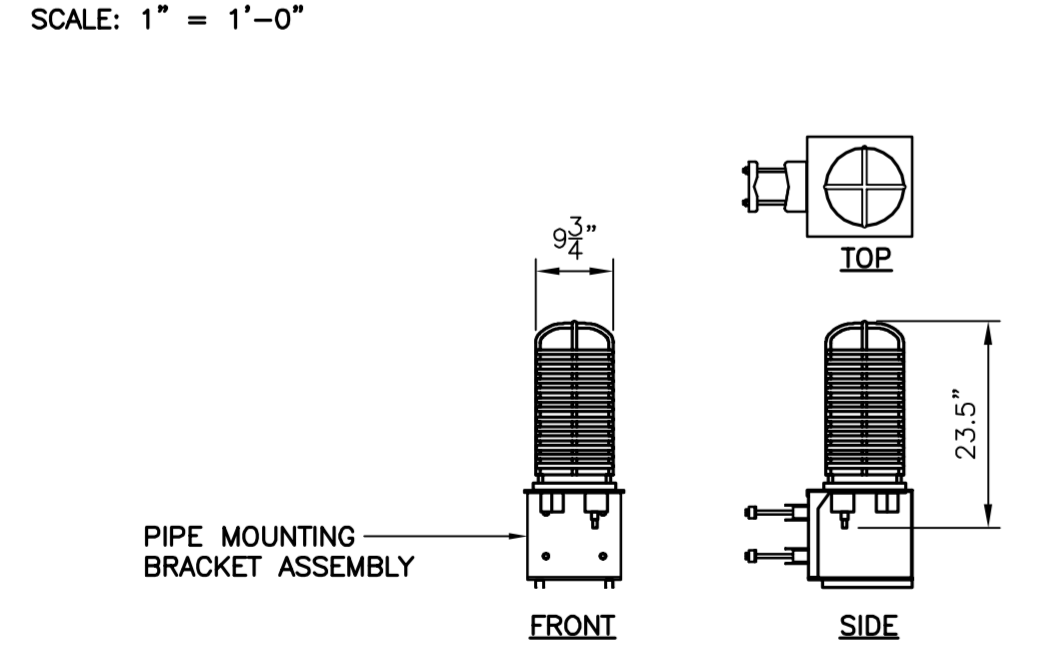


RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRU32	27.17"H x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

NOTES:

- CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.

7 ERICSSON RRU 32 B2 DETAIL
C-2



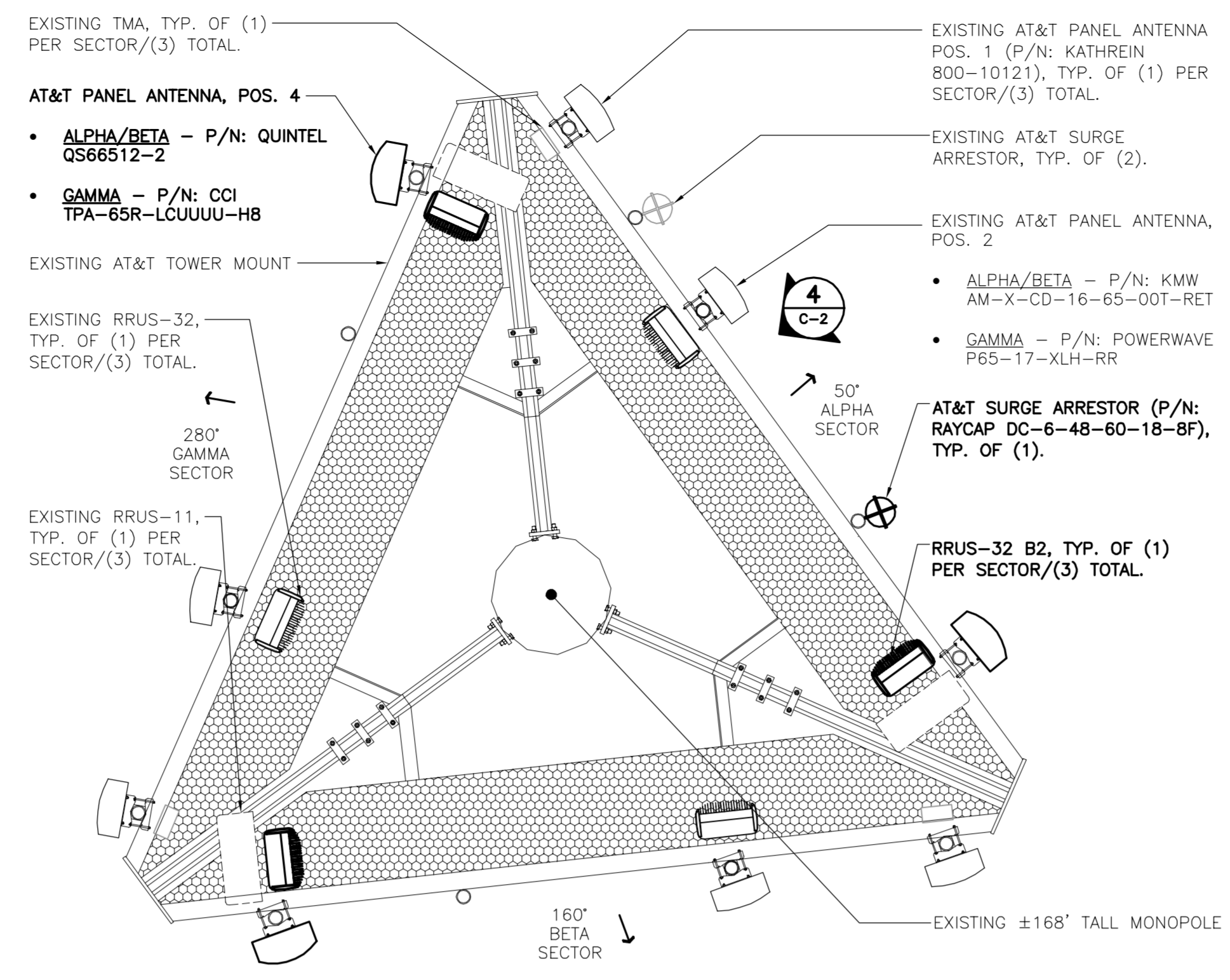
SURGE ARRESTOR			
ARRESTOR MAKE/MODEL	QTY REQUIRED	ARRESTOR LOCATION	WEIGHT
MAKE: RAYCAP (SQUID) MODEL: DC6-48-60-18-8F	(1) PER SITE	TOWER, ADJACENT TO AT&T ANTENNAS AND RRU'S.	20 LBS. (WITHOUT MOUNT)

NOTES:

- CONTRACTOR TO COORDINATE FINAL SURGE ARRESTOR MODEL SELECTION(S) WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.
- CONTRACTOR TO INSTALL ARRESTOR IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.

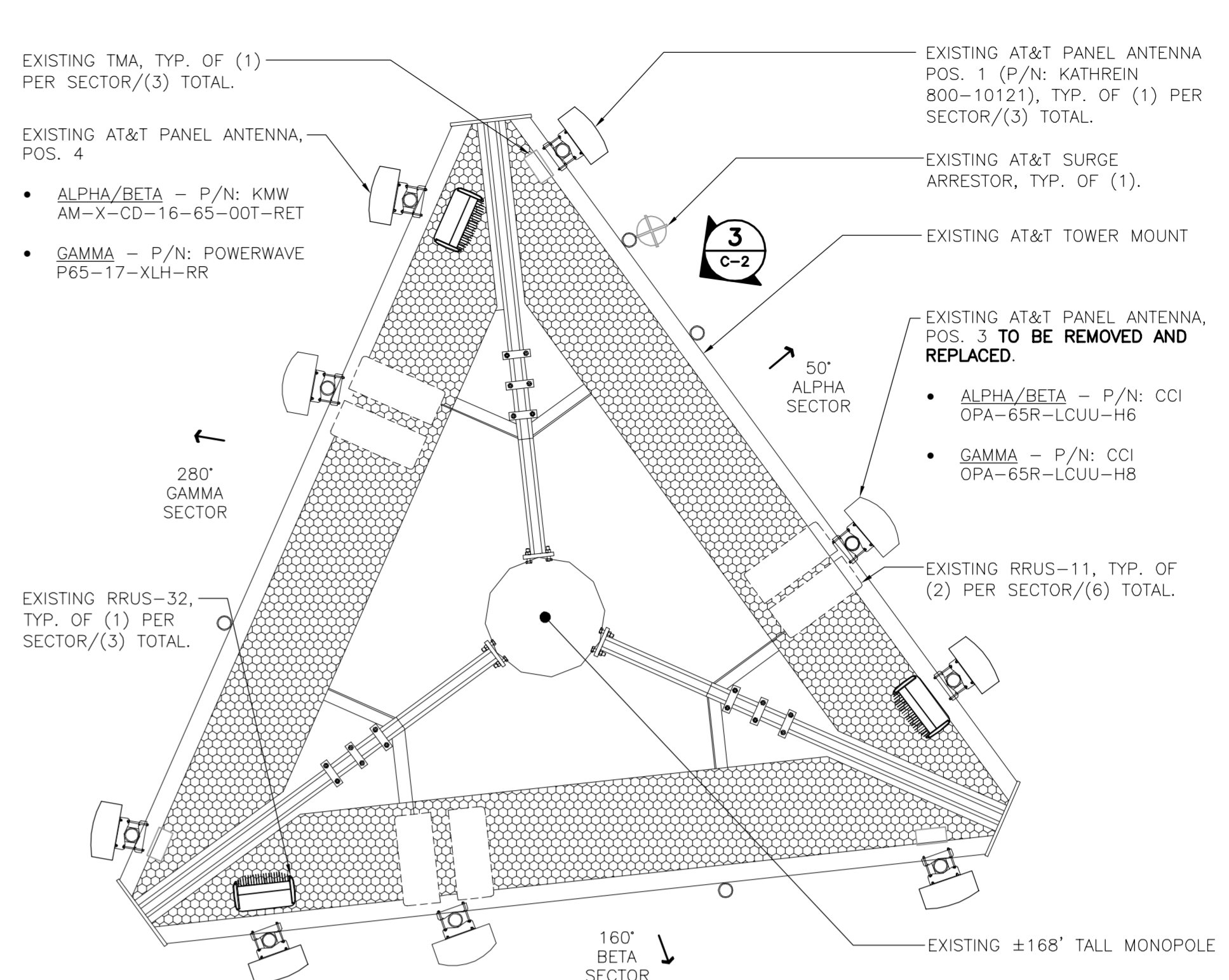
5 SURGE ARRESTOR DETAIL
C-2

SCALE: NTS



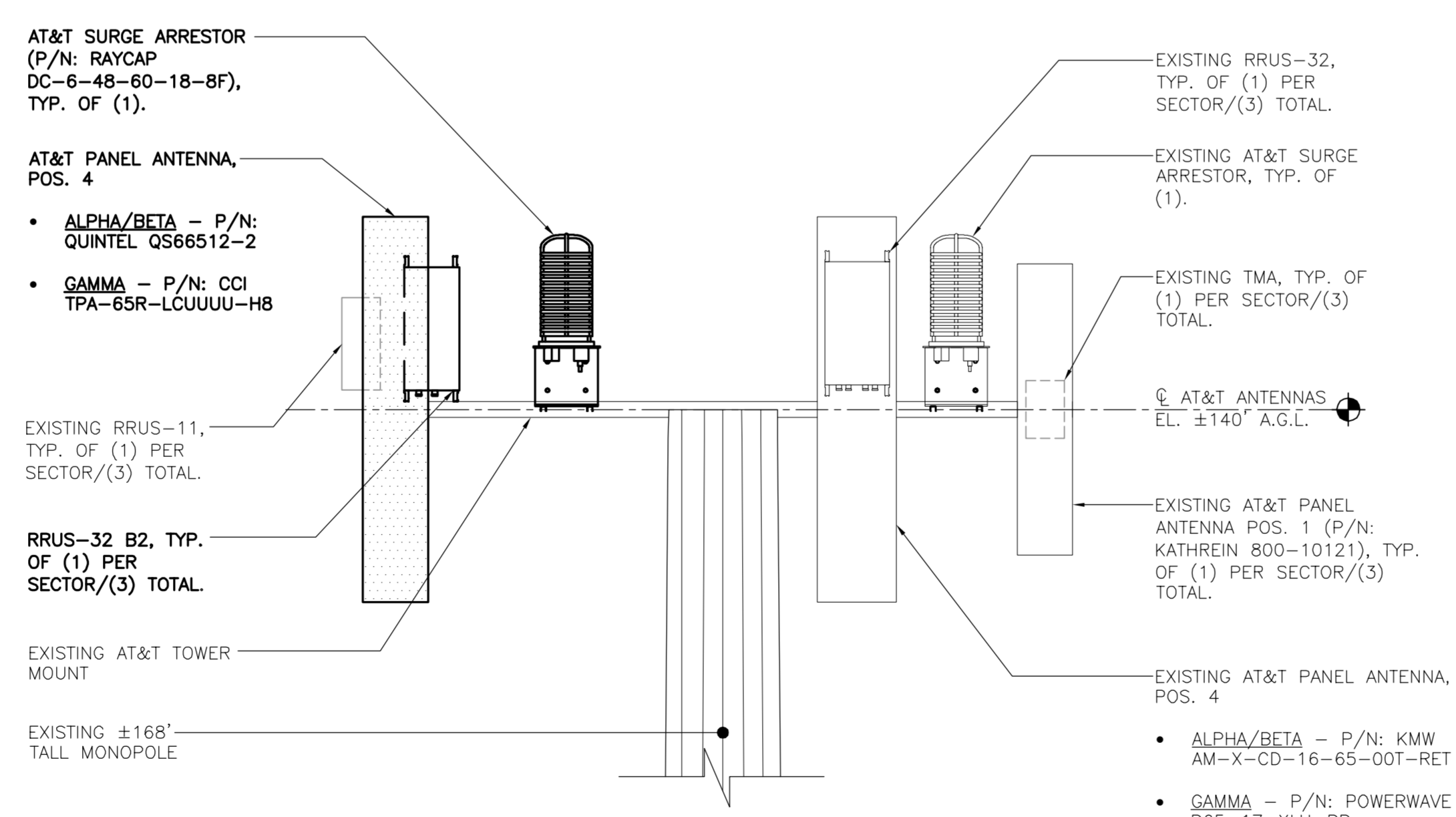
2 PROPOSED ANTENNA PLAN
C-2

SCALE: 1/2" = 1'-0" NORTH



1 EXISTING ANTENNA PLAN
C-2

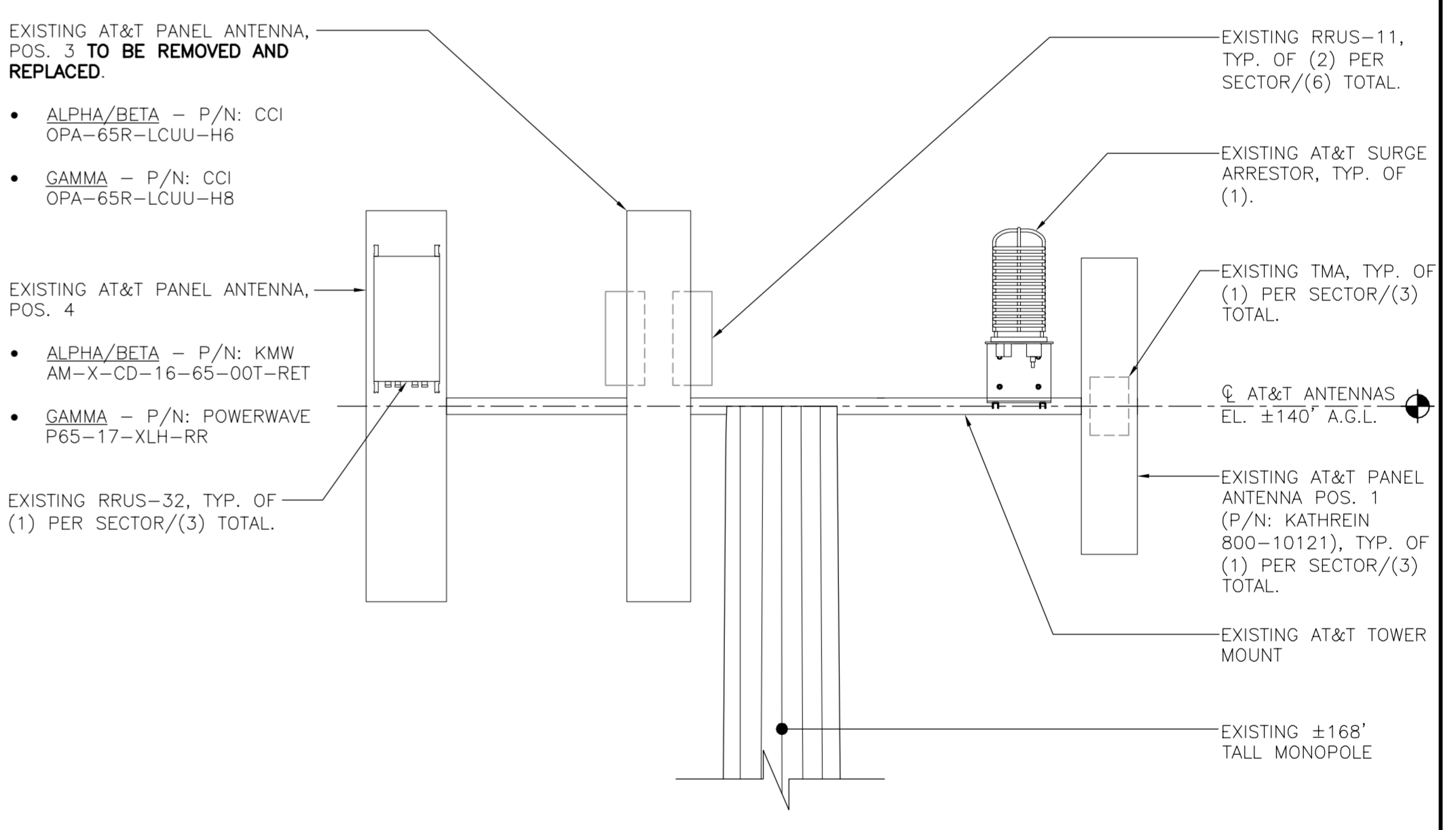
SCALE: 1/2" = 1'-0" NORTH



4 PROPOSED ANTENNA PLAN
C-2

SCALE: 1/2" = 1'-0" NORTH

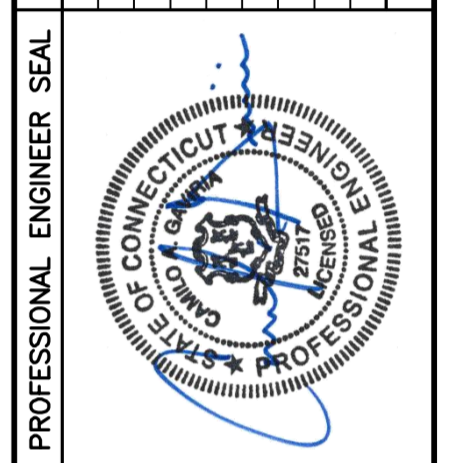
- NOTES:
- PROVIDE MOUNTING PIPES, CROSSOVERS & ASSOCIATED HARDWARE TO COMPLETE THE PROPOSED UPGRADE.
 - REFER TO CROWN CASTLE, INC. STRUCTURAL REPORT AND FINAL AT&T RF DATA SHEET PRIOR TO INSTALLATION OF TOWER MOUNTED LTE RELATED ANTENNAS, CABLES AND RELATED EQUIPMENT
 - COORDINATE ANTENNA CENTERLINE ELEVATION, RRU/SURGE ARRESTOR MOUNTING ELEVATION, ATTACHMENT HARDWARE WITH CROWN CASTLE, INC.



3 EXISTING ANTENNA PLAN
C-2

SCALE: 1/2" = 1'-0" NORTH

REV.	DATE	BY	DESCRIPTION
0	05/23/16	WJW	DRAWN BY/CHKD BY
		JTD	CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION



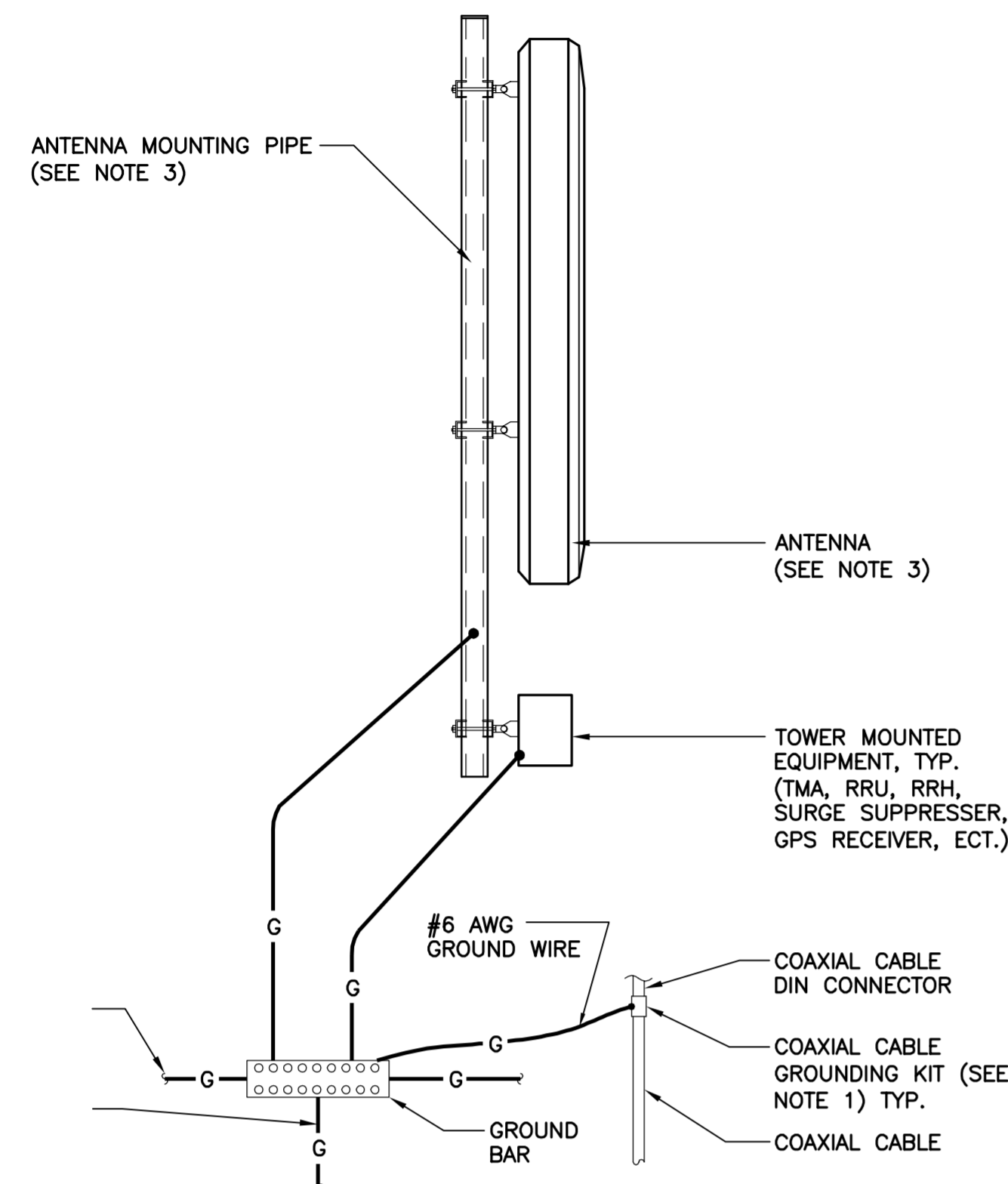
CENTEK engineering
Central on Solutions
(203) 488-0380
(203) 488-3887 Fax
622 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
WINDSORDAY HILL
CT5139
99 DAY HILL ROAD
WINDSOR, CT 06095

DATE: 06/20/16
SCALE: AS NOTED
JOB NO. 16002.16

LTE 2C
EQUIPMENT
DETAILS

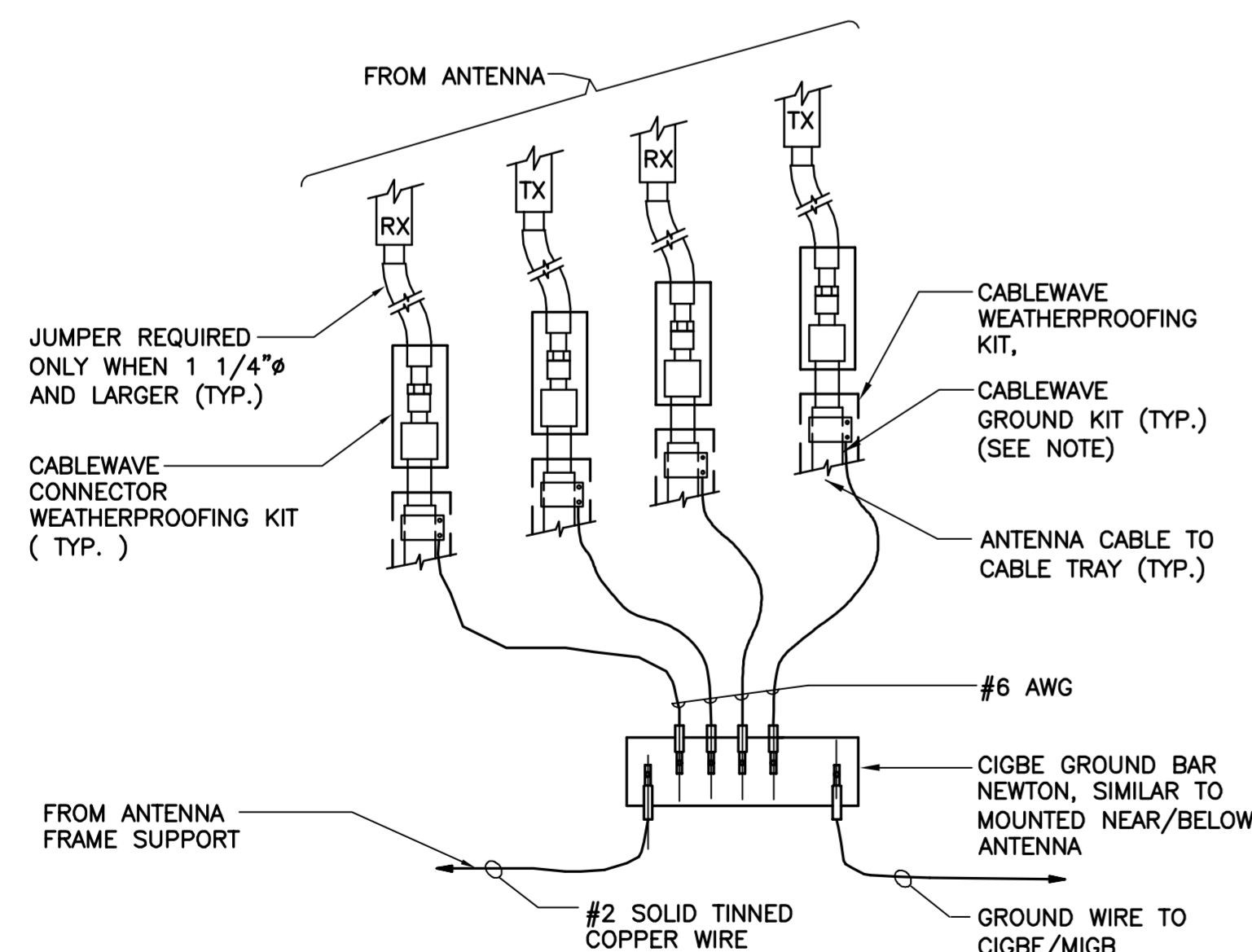
C-2
Sheet No. 4 of 5



NOTES:

1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
3. DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

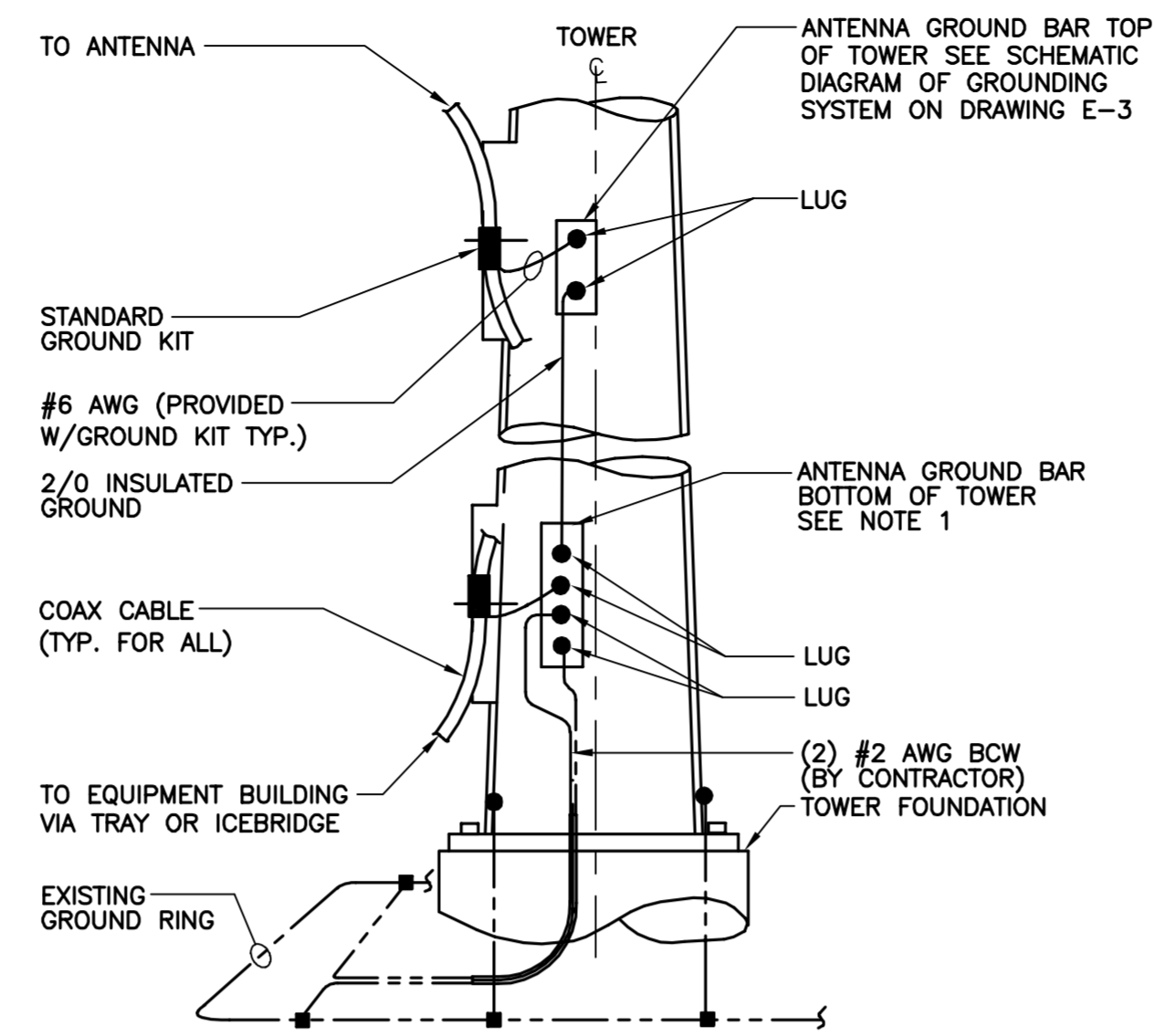
2 TYPICAL ANTENNA GROUNDING DETAIL
E-1 NOT TO SCALE



NOTE:

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

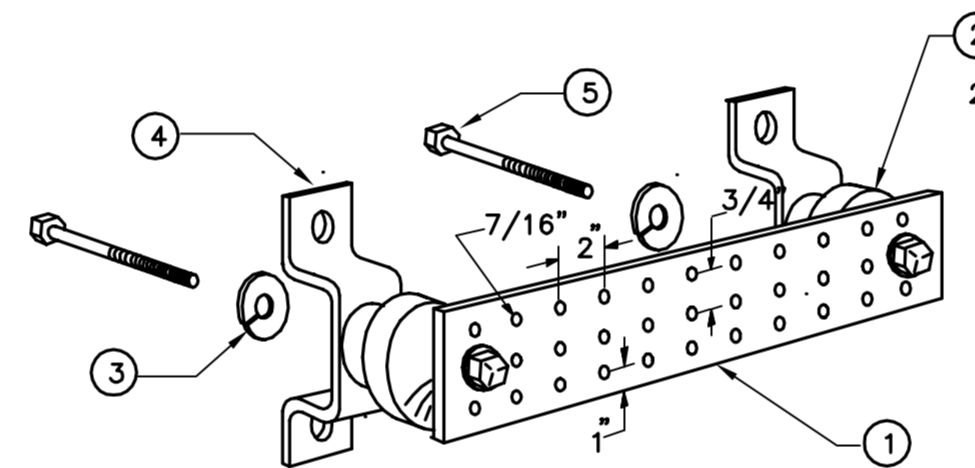
5 CONNECTION OF GROUND WIRES TO GROUND BAR
E-1 NOT TO SCALE



NOTES:

1. NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.

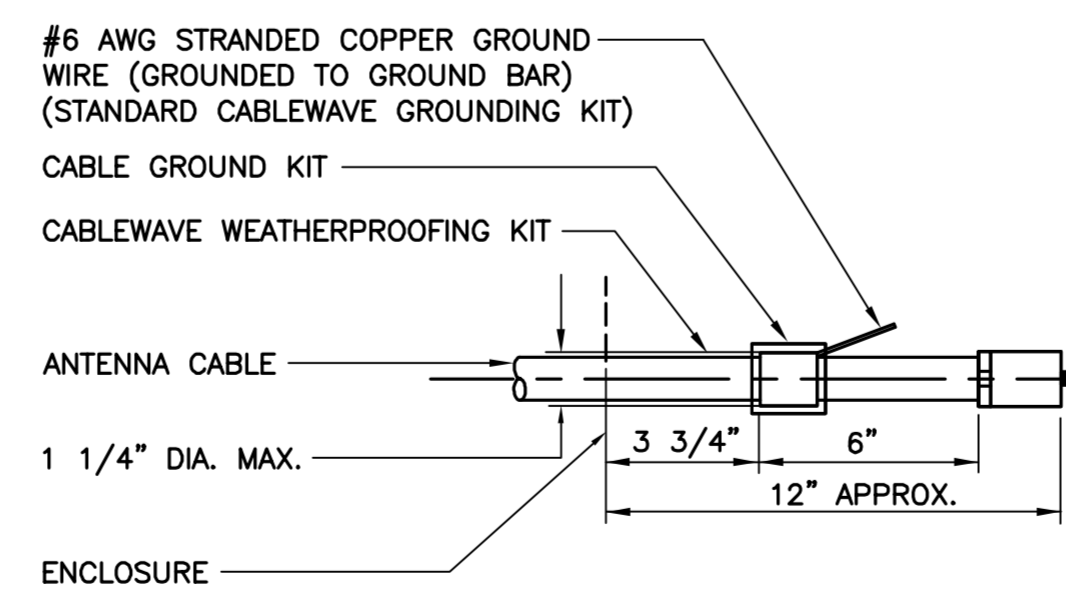
1 ANTENNA CABLE GROUNDING - MONOPOLE
E-1 NOT TO SCALE



LEGEND

1. TINNED COPPER GROUND BAR, 1/4"x 4"x 20", NEWTON INSTRUMENT CO. HOLE CENTERS TO MATCH NEMA DOUBLE LUG .
2. INSULATORS, NEWTON INSTRUMENT CAT. NO. 2. 3061-4.
3. 3. 5/8" LOCK WASHERS, NEWTON INSTRUMENT CO. CAT. NO. 3015-8.
4. WALL MOUNTING BRACKET, NEWTON INSTRUMENT CO. CAT. NO. A-6056.
5. STAINLESS STEEL SECURITY SCREWS.

3 GROUND BAR DETAIL
E-1 NOT TO SCALE



NOTE:

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

4 ANTENNA CABLE GROUNDING DETAIL
E-1 NOT TO SCALE

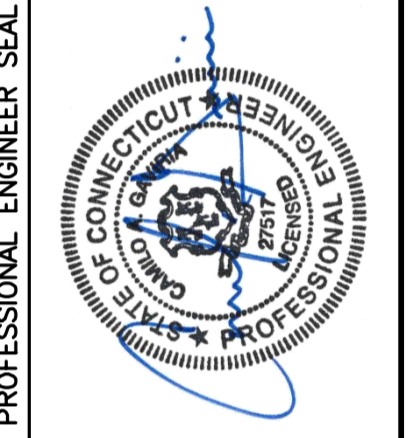
ELECTRICAL NOTES

1. PRIOR TO START OF CONSTRUCTION CONTRACTOR SHALL COORDINATE WITH OWNER FOR ALL CONSTRUCTION STANDARDS AND SPECIFICATIONS, AND ALL MANUFACTURER DOCUMENTATION FOR ALL EQUIPMENT TO BE INSTALLED.
2. INSTALL ALL EQUIPMENT IN ACCORDANCE WITH LOCAL BUILDING CODE, NATIONAL ELECTRIC CODE, OWNER AND MANUFACTURER'S SPECIFICATIONS.
3. CONNECT ALL NEW EQUIPMENT TO EXISTING TELCO AS REQUIRED BY MANUFACTURER.
4. MAINTAIN ALL CLEARANCES REQUIRED BY NEC AND EQUIPMENT MANUFACTURER.
5. PRIOR TO INSTALLATION CONTRACTOR SHALL MEASURE EXISTING ELECTRICAL LOAD AND VERIFY EXISTING AVAILABLE CAPACITY FOR PROPOSED INSTALLATION. IF INADEQUATE CAPACITY IS AVAILABLE, CONTRACTOR SHALL COORDINATE WITH LOCAL ELECTRIC UTILITY COMPANY TO UPGRADE EXISTING ELECTRIC SERVICE.
6. CONTRACTOR SHALL INSPECT EXISTING GROUNDING AND LIGHTNING PROTECTION SYSTEM AND ENSURE THAT IT IS IN COMPLIANCE WITH NEC, AND SITE OWNER'S SPECIFICATIONS. THE RESULTS OF THIS INSPECTION SHALL BE PRESENTED TO OWNERS REPRESENTATIVE, AND ANY DEFICIENCIES SHALL BE CORRECTED.
7. ALL TRANSMISSION TOWER SITES CONTAIN AN EXTENSIVE BURIED GROUNDING SYSTEM. ALL GROUNDING WORK MUST BE COORDINATED WITH, AND APPROVED BY, THE TOWER OWNER'S SITE REPRESENTATIVE. ALL OF THE TOWER OWNER'S SPECIFICATIONS MUST BE STRICTLY FOLLOWED.
8. PROVIDE AND INSTALL GROUND KITS FOR ALL NEW COAXIAL CABLES AND BOND TO EXISTING OWNERS GROUNDING SYSTEM PER OWNERS SPECIFICATIONS AND NEC.
9. ALL CONDUCTORS SHALL BE TYPE THWN (INT. APPLICATION) AND XHHW (EXT. APPLICATION), 75 DEGREE C, 600 VOLT INSULATION, SOFT ANNEALED STRANDED COPPER. #10 AWG AND SMALLER SHALL BE SPLICED USING ACCEPTABLE SOLDERLESS PRESSURE CONNECTORS. #8 AWG AND LARGER SHALL BE SPLICED USING COMPRESSION SPLIT-BOLT TYPE CONNECTORS. #12 AWG SHALL BE THE MINIMUM SIZE CONDUCTOR FOR LINE VOLTAGE BRANCH CIRCUITS. REFER TO PANEL SCHEDULE FOR BRANCH CIRCUIT CONDUCTOR SIZE(S). CONDUCTORS SHALL BE COLOR CODED FOR CONSISTENT PHASE IDENTIFICATION.
10. MINIMUM BENDING RADIUS FOR CONDUCTORS SHALL BE 12 TIMES THE LARGEST DIAMETER OF BRANCH CIRCUIT CONDUCTOR.
11. THE ENTIRE ELECTRICAL INSTALLATION SHALL BE MADE IN STRICT ACCORDANCE WITH ALL LOCAL, STATE AND NATIONAL CODES AND REGULATIONS WHICH MAY APPLY AND NOTHING IN THE DRAWINGS OR SPECIFICATIONS SHALL BE INTERPRETED AS AN INFRINGEMENT OF SUCH CODES OR REGULATIONS.
12. THE ELECTRICAL CONTRACTOR IS TO BE RESPONSIBLE FOR THE COMPLETE INSTALLATION AND COORDINATION OF THE ENTIRE ELECTRICAL SERVICE. ALL ACTIVITIES TO BE COORDINATED THROUGH OWNER'S REPRESENTATIVE, DESIGN ENGINEER AND OTHER AUTHORITIES HAVING JURISDICTION OF TRADES.
13. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND PAY ALL FEES AS MAY BE REQUIRED FOR THE ELECTRICAL WORK AND FOR SCHEDULING OF ALL INSPECTIONS AS MAY BE REQUIRED BY THE LOCAL AUTHORITY.
14. THE CONTRACTOR SHALL BE RESPONSIBLE FOR COORDINATION WITH THE SITE AND/OR BUILDING OWNER FOR NEW AND/OR DEMOLITION WORK INVOLVED.
15. THE CONTRACTOR SHALL GUARANTEE ALL NEW WORK FOR A PERIOD OF ONE YEAR FROM THE ACCEPTANCE DATE BY THE OWNER. THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING WARRANTIES FROM ALL EQUIPMENT MANUFACTURERS FOR SUBMISSION TO THE OWNER.
16. DRAWINGS INDICATE GENERAL ARRANGEMENT OF WORK INCLUDED IN CONTRACT. CONTRACTOR SHALL WITHOUT EXTRA CHARGE, MAKE MODIFICATIONS TO THE LAYOUT OF THE WORK TO PREVENT CONFLICT WITH WORK OF OTHER TRADES AND FOR THE PROPER INSTALLATION OF WORK. CHECK ALL DRAWINGS AND VISIT JOB SITE TO VERIFY SPACE AND TYPE OF EXISTING CONDITIONS IN WHICH WORK WILL BE DONE, PRIOR TO SUBMITTAL OF BID.
17. ALL NON-CURRENT CARRYING PARTS OF THE ELECTRICAL AND TELEPHONE CONDUIT SYSTEMS SHALL BE MECHANICALLY AND ELECTRICALLY CONNECTED TO PROVIDE AN INDEPENDENT RETURN PATH TO THE EQUIPMENT GROUNDING SOURCES.
18. GROUNDING SYSTEM WILL BE IN ACCORDANCE WITH THE LATEST ACCEPTABLE EDITION OF THE NATIONAL ELECTRICAL CODE AND REQUIREMENTS PER LOCAL INSPECTOR HAVING JURISDICTION.
19. EACH EQUIPMENT GROUND CONDUCTOR SHALL BE SIZED IN ACCORDANCE WITH THE N.E.C. ARTICLE 250-122. (MIN. #12 AWG).
20. CONTRACTOR SHALL PROVIDE A CELLULAR GROUNDING SYSTEM WITH THE MAXIMUM AC RESISTANCE TO GROUND OF 5 OHM BETWEEN ANY POINT ON THE GROUNDING SYSTEM AS MEASURED BY 3-POINT GROUNDING TEST. (REFER TO SECTION 16960).

TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM

- A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:
 - TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR GROUNDING SYSTEM. THE TESTING FIRM SHALL INCLUDE THE FOLLOWING INFORMATION WITH THE REPORT:
 - TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
 - CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
 - GRAPHICAL DESCRIPTION OF TESTING METHOD ACTUALLY IMPLEMENTED.
- B. TESTING SHALL BE PERFORMED IN THE PRESENCE AND TO THE SATISFACTION OF OWNERS CONSTRUCTION REPRESENTATIVE. TESTING DATA SHALL BE INITIALED AND DATED BY THE CONSTRUCTION AND INCLUDED WITH THE WRITTEN REPORT/ANALYSIS.
- C. THE CONTRACTOR SHALL FORWARD SIX (6) COPIES OF THE INDEPENDENT ELECTRICAL TESTING FIRM REPORT/ANALYSIS TO ENGINEER A MINIMUM OF TEN (10) WORKING DAYS PRIOR TO THE JOB TURNOVER.
- D. CONTRACTOR TO PROVIDE A MINIMUM OF ONE (1) WEEK NOTICE TO OWNER AND ENGINEER FOR ALL TESTS REQUIRING WITNESSING.

CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION	JTD	DATE	REV.
DRAWN BY/CHKD BY/DESCRIPTION	WJW	06/23/16	0



CENTEK engineering
Centek on Solutions
(203) 498-0380
(203) 498-3897 Fax
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Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
WINDSORDAY HILL
CT5139
99 DAY HILL ROAD
WINDSOR, CT 06095

DATE: 06/20/16
SCALE: AS NOTED
JOB NO. 16002.16

TYPICAL ELECTRICAL DETAILS & NOTES

Date: **May 31, 2016**

Sean Dempsey
Crown Castle
3530 Toringdon Way, Suite 300
Charlotte, NC 28277
(704) 405-6565



SSOE Group
1001 Madison Avenue
Toledo, OH 43604
(419) 255-3830
lsamson-akpan@ssoe.com

Subject: **Structural Analysis Report**

Carrier Designation: **AT&T Mobility Co-Locate**
Carrier Site Number: CTL05139
Carrier Site Name: Windsorday Hill

Crown Castle Designation: **Crown Castle BU Number:** 842875
Crown Castle Site Name: Windsorday Hill
Crown Castle JDE Job Number: 377510
Crown Castle Work Order Number: 1240333
Crown Castle Application Number: 345072 Rev. 4

Engineering Firm Designation: **SSOE Group Project Number:** 016-00010-00 BC 1664

Site Data: **99 Day Hill Road, Windsor, CT 06095, Hartford County**
Latitude 41° 52' 16.1", Longitude -72° 40' 16.0"
168 Foot – Summit Monopole Tower

Dear Mr. Sean Dempsey,

SSOE Group is pleased to submit this “**Structural Analysis Report**” to determine the structural integrity of the above mentioned tower. This analysis has been performed in accordance with the Crown Castle Structural ‘Statement of Work’ and the terms of Crown Castle Purchase Order Number 906975, in accordance with application 345072, revision 4.

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

LC5: Existing + Proposed Equipment

Sufficient Capacity

Note: See Table I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the TIA/EIA-222-F standard and 2005 CT State Building Code with 2009 amendment based upon a wind speed of 80 mph fastest mile.

We at SSOE Group appreciate the opportunity of providing our continuing professional services to you and Crown Castle. If you have any questions or need further assistance on this or any other projects please give us a call.

Structural analysis prepared by: LaTasha Samson-Akpan, EI

Respectfully submitted by:

Barry W. Burgess, PE
Section Manager



making clients successful by saving them time, trouble, and money



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tnxTower Output

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1) INTRODUCTION

The existing 168' monopole has eighteen sides and is evenly tapered from 57.64" (flat-flat) at the base to 24.00" (flat-flat) at the top. It has four major sections, connected with slip joints. The structure is galvanized and has no tower lighting.

The tower was originally designed for AT&T/Bechtel by Summit Manufacturing, LLC of Hazleton, Pennsylvania for an 80 mph wind speed with 0.5" radial ice in accordance with TIA/EIA-222-F 1996.

2) ANALYSIS CRITERIA

The structural analysis was performed for this tower in accordance with the requirements of TIA/EIA-222-F Structural Standards for Steel Antenna Towers and Antenna Supporting Structures using a fastest mile wind speed of 80 mph with no ice, 28 mph with 1" ice thickness and 50 mph under service loads.

Table 1 – Proposed Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
168.0	168.0	3	CCI Antennas	OPA-65R-LCUU-H6 w/ Mount Pipe	2 1	3/4 3/8	1
		2	Quintel Technology	QS66512-2 w/ Mount Pipe			
		1	CCI Antennas	TPA-65R-LCUUUU-H8 w/ Mount Pipe			
		3	CCI Antennas	DTMABP7819VG12A			
		6	CCI Antennas	TPX-070821			
		3	Ericsson	RRUS 32 B30			
		3	Ericsson	RRUS 32			
		1	Raycap	DC6-48-60-18-8F			

Notes:

- 1) See Appendix B for the proposed coax layout.

Table 2 – Existing and Reserved Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
168.0	174.0	1	Kathrein	OG-4	1	7/8	1
	169.0	2	KMW Communications	AM-X-CD-16-65-00T-RET w/ Mount Pipe	12 2 1	1-5/8 3/4 3/8	
		1	Powerwave Technologies	P65-17-XLH-RR w/ Mount Pipe			
	168.0	3	Kathrein	800 10121 w/ Mount Pipe			
		6	Powerwave Technologies	LGP21401			
		6	Ericsson	RBS 6601			
		3	Ericsson	RRUS-11 1900MHz			
		3	Kathrein	800 10121 w/ Mount Pipe			
		3	Ericsson	RRUS 11-700			
		1	Raycap	DC6-48-60-18-8F			
	1		Platform Mount [LP 1201-1]				

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)	Note
159.0	164.0	3	Andrew	VHLP2.5-11	6	5/16	
		3	Dragonwave	Horizon Compact			
	160.0	3	Kathrein	840 10054 w/ Mount Pipe			
		3	Samsung Telecom	URAS-FLEXIBLE			
	159.0	1		Platform Mount [LP 1201-1]			
	156.0	1	Andrew	VHLP2.5-11			
1		Dragonwave	Horizon Compact				
145.0	147.0	1	Radiowaves	HP3-10	2	3/8	
	145.0	1		Pipe Mount [PM 602-1]			
	143.0	1	Radiowaves	HP3-11			
135.0	144.0	2	Decibel	ASP 705K	2 1	7/8 1/4	
	140.0	1	Motorola	PTP400 w/ Mount Pipe			
	135.0	2		Side Arm Mount [SO 702-1]			
130.0	131.0	3	Alcatel Lucent	1900MHz RRH	3	1-1/4	
		3	RFS celwave	APXV9ERR18-C-A20 w/ Mount Pipe			
	130.0	1		Platform Mount [LP 1201-1]			
		1		Side Arm Mount [SO 102-3]			
129.0	3	Alcatel Lucent	800MHz 2X50W RRH W/FILTER				
120.0	120.0	3	Kathrein	742 213 w/ Mount Pipe	6	1-5/8	
79.0	79.0	2	GPS	GPS_A			
		2		Side Arm Mount [SO 202-1]			
52.0	52.0	1	PCTEL	GPS-TMG-HR-26NCM	1	1/2	
		1		Side Arm Mount [SO 701-1]			

Notes:

- Existing equipment to be removed; not considered in this analysis.

Table 3 – Design Antenna and Cable Information

Mounting Level (ft)	Center Line Elevation (ft)	Number of Antennas	Antenna Manufacturer	Antenna Model	Number of Feed Lines	Feed Line Size (in)
168.0	168.0	12	Allgon	7184.14	-	-
		1	Generic	14-FT Low-Profile Platform		
163.0	163.0	12	Swedcom	ALP-9212-N	-	-
		1	Generic	14-FT Low-Profile Platform		
148.0	148.0	12	Swedcom	ALP-9212-N	-	-
		1	Generic	14-FT Low-Profile Platform		
133.0	133.0	12	Swedcom	ALP-9212-N	-	-
		1	Generic	14-FT Low-Profile Platform		
118.0	118.0	12	Swedcom	ALP-9212-N	-	-
		1	Generic	14-FT Low-Profile Platform		
103.0	103.0	12	Swedcom	ALP-9212-N	-	-
		1	Generic	14-FT Low-Profile Platform		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Original Tower Drawings	Summit Manufacturing, LLC Job #: 12007, dated 11/9/00	Doc ID#: 4589719	Crown DMZ
Foundation Drawings	Summit Manufacturing, LLC Job #: 12007, dated 11/9/00	Doc ID#: 4529456	Crown DMZ
Geotechnical Report	Northeast Electrical Testing, Inc. Project #: 1010981, dated 6/22/01	Doc ID#: 4529457	Crown DMZ

3.1) Analysis Method

tnxTower (version 7.0.5.1), a commercially available analysis software package, was used to create a three-dimensional model of the tower and calculate member stresses for various loading cases. Selected output from the analysis is included in Appendix A.

3.2) Assumptions

- 1) The tower and foundation were constructed in accordance with their original design and maintained per the manufacturer’s specifications, are in good condition, and the tower is twist free and plumb.
- 2) All member connections are assumed to have been designed to meet or exceed the load carrying capacity of the connected member unless otherwise specified in this report.
- 3) All equipment model numbers, quantities, and centerline elevations are as provided in the CCI CAD package, dated 10/16/15 with any adjustments as noted below.

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

4) ANALYSIS RESULTS

Table 5 – Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	168 - 119.25	Pole	TP34.288x24x0.25	1	-12.80	1367.12	59.9	Pass
L2	119.25 - 78.5	Pole	TP42.387x32.8911x0.2813	2	-19.25	1902.63	85.9	Pass
L3	78.5 - 38.75	Pole	TP50.213x40.7166x0.375	3	-28.73	3002.24	77.3	Pass
L4	38.75 - 0	Pole	TP57.64x48.1441x0.375	4	-41.30	3516.64	85.5	Pass
							Summary	
						Pole (L2)	85.9	Pass
						Rating =	85.9	Pass

Table 6 – Tower Component Stresses vs. Capacity – LC5

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods		81.4%	Pass
1	Base Plate		63.2%	Pass
1	Foundation (Structural)		73.0%	Pass
1	Foundation (Soil Interaction)		36.4%	Pass

Structure Rating (max from all components) =	85.9%
---	--------------

Notes:

- 1) See additional documentation in "Appendix C – Additional Calculations" for calculations supporting the % capacity consumed.

4.1) Recommendations

The existing tower and its foundations are sufficient for the proposed loads and do not require modifications.

5) DISCLAIMER OF WARRANTIES

SSOE Group has not performed a site visit to the tower to verify member sizes or antenna/coax loading. SSOE Group shall be contacted immediately if the existing conditions are not as represented on the tower elevation contained in this report in order to evaluate the significance of the discrepancy. SSOE Group has not performed a condition assessment of the tower foundation. This report does not replace a full tower inspection

The engineering services rendered by SSOE Group in connection with this structural analysis are limited to an analysis of the tower structure and theoretical capacity of its main structural members. Miscellaneous items such as antenna mounts, etc., have not been designed or detailed as part of our work. We recommend that material of suitable size and strength be purchased from a reputable tower manufacturer.

SSOE Group makes no warranties, expressed and/or implied, in connection with this report and disclaims any liability arising from material, fabrication, and erection of this tower. SSOE Group will not be responsible whatsoever for, or on account of, consequential or incidental damages sustained by any person, firm, or organization as a result of any data contained in this report. The maximum liability of SSOE Group pursuant to this report will be limited to the total fee received for preparation of this report.

APPENDIX A
TNXTOWER OUTPUT

DESIGNED APPURTENANCE LOADING

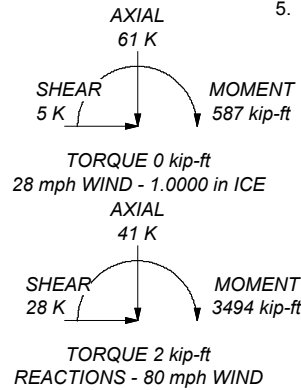
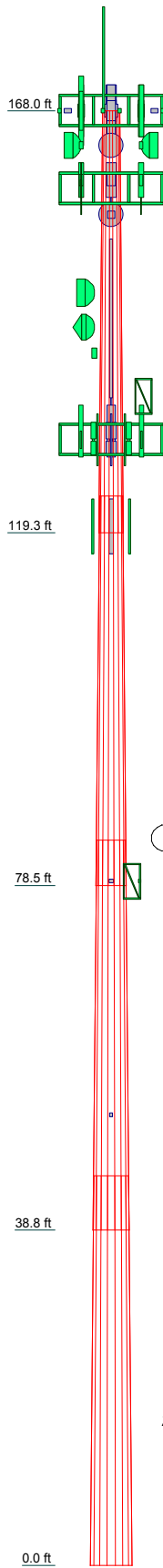
TYPE	ELEVATION	TYPE	ELEVATION
800 10121 w/ Mount Pipe	168	6' x 2" mount pipe	159
DTMABP7819VG12A	168	6' x 2" mount pipe	159
OPA-65R-LCUU-H6 w/ Mount Pipe	168	6' x 2" mount pipe	159
(2) TPX-070821	168	Platform Mount [LP 1201-1]	159
RRUS 32 B30	168	VHLP2.5-11	159
QS66512-2 w/ Mount Pipe	168	VHLP2.5-11	159
RRUS 11-700	168	VHLP2.5-11	159
RRUS 32	168	VHLP2.5-11	159
800 10121 w/ Mount Pipe	168	Pipe Mount [PM 602-1]	145
DTMABP7819VG12A	168	HP3-10	145
OPA-65R-LCUU-H6 w/ Mount Pipe	168	HP3-11	145
RRUS 32 B30	168	Side Arm Mount [SO 702-1]	135
(2) TPX-070821	168	6' x 2" mount pipe	135
QS66512-2 w/ Mount Pipe	168	PTP400 w/ Mount Pipe	135
RRUS 11-700	168	ASP 705K	135
RRUS 32	168	ASP 705K	135
800 10121 w/ Mount Pipe	168	6' x 2" mount pipe	135
DC6-48-60-18-8F	168	Side Arm Mount [SO 702-1]	135
DTMABP7819VG12A	168	800MHz 2X50W RRH W/FILTER	130
OG-4	168	1900MHz RRH	130
OPA-65R-LCUU-H6 w/ Mount Pipe	168	800MHz 2X50W RRH W/FILTER	130
DC6-48-60-18-8F	168	1900MHz RRH	130
(2) TPX-070821	168	800MHz 2X50W RRH W/FILTER	130
RRUS 32 B30	168	1900MHz RRH	130
TPA-65R-LCUUUU-H8 w/ Mount Pipe	168	6' x 2" mount pipe	130
RRUS 11-700	168	6' x 2" mount pipe	130
RRUS 32	168	6' x 2" mount pipe	130
4" x 2' Mount Pipe	168	Platform Mount [LP 1201-1]	130
4" x 2' Mount Pipe	168	Side Arm Mount [SO 102-3]	130
4" x 2' Mount Pipe	168	APXV9ERR18-C-A20 w/ Mount Pipe	130
Platform Mount [LP 1201-1]	168	APXV9ERR18-C-A20 w/ Mount Pipe	130
Horizon Compact	159	APXV9ERR18-C-A20 w/ Mount Pipe	130
840 10054 w/ Mount Pipe	159	(2) 4" x 2' Mount Pipe	130
URAS-FLEXIBLE	159	(2) 4" x 2' Mount Pipe	130
Horizon Compact	159	(2) 4" x 2' Mount Pipe	130
840 10054 w/ Mount Pipe	159	742 213 w/ Mount Pipe	120
URAS-FLEXIBLE	159	742 213 w/ Mount Pipe	120
Horizon Compact	159	742 213 w/ Mount Pipe	120
840 10054 w/ Mount Pipe	159	Side Arm Mount [SO 202-1]	79
URAS-FLEXIBLE	159	GPS_A	79
Horizon Compact	159	GPS_A	79
(3) 4" x 2' Mount Pipe	159	Side Arm Mount [SO 202-1]	79
(3) 4" x 2' Mount Pipe	159	Side Arm Mount [SO 701-1]	52
(3) 4" x 2' Mount Pipe	159	GPS-TMG-HR-26NCM	52

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A607-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in Hartford County, Connecticut.
2. Tower designed for a 80 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 28 mph basic wind with 1.00 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 85.9%



SSOE™ **SSOE Group**

1001 Madison Ave.
Toledo, OH 43604

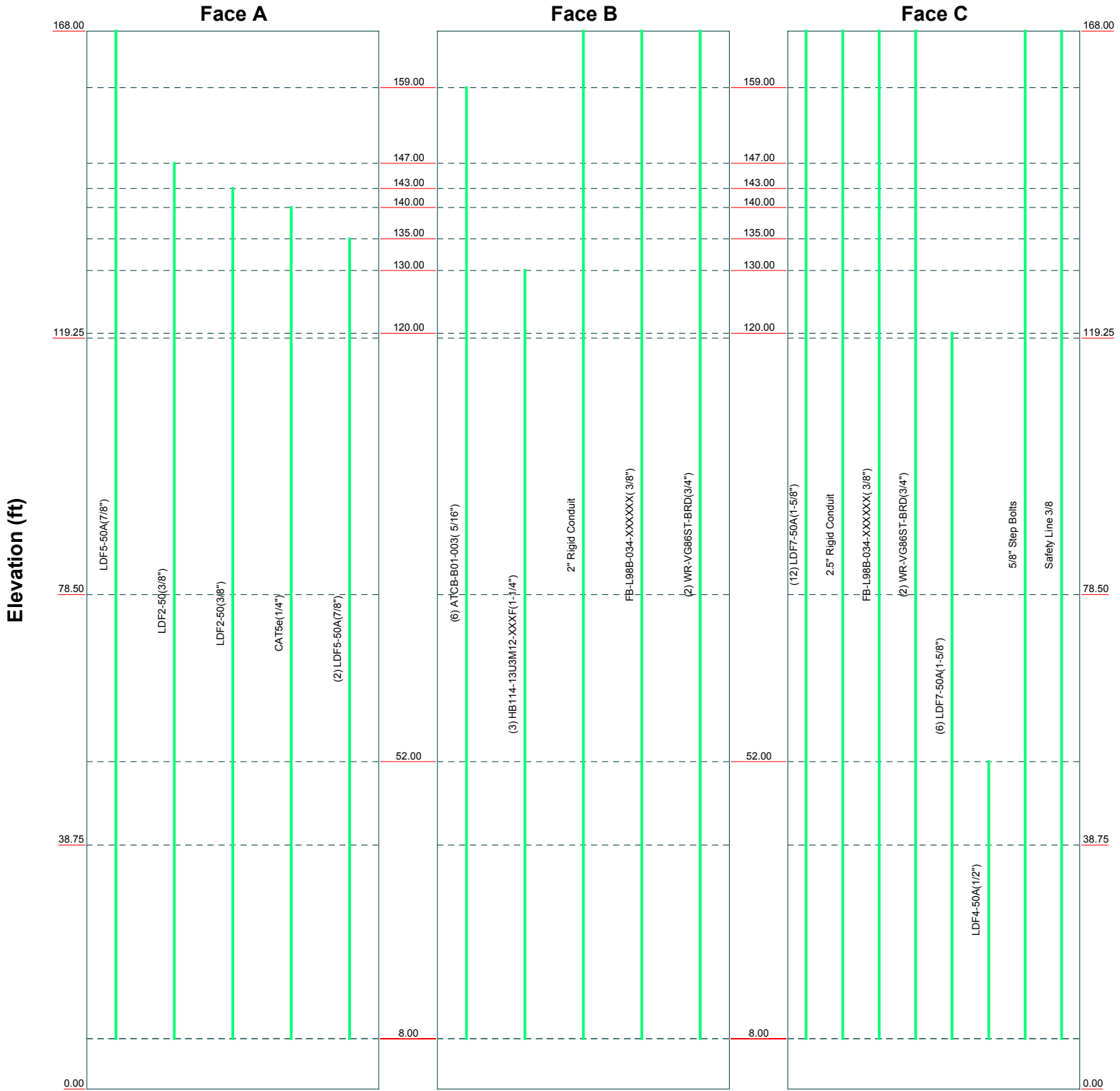
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Job: BU 842875		
Project: 016-00010-00		
Client: CCI	Drawn by: 15423	App'd:
Code: TIA/EIA-222-F	Date: 05/31/16	Scale: NTS
Path: C:\Users\15423\Desktop\SA615 May 2016\19 BU 842875 SSI\Working\tnx\942975.dwg		Dwg No. E-1

Feed Line Distribution Chart

0' - 168'

— Round
 — Flat
 — App In Face
 — App Out Face
 — Truss Leg



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	Project: 016-00010-00		
	Client: CCI	Drawn by: 15423	App'd:
	Code: TIA/EIA-222-F	Date: 05/31/16	Scale: NTS
	Path:	Dwg No. E-7	

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	Client	CCI	Designed by	15423

Tower Input Data

There is a pole section.

This tower is designed using the TIA/EIA-222-F standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Basic wind speed of 80 mph.

Nominal ice thickness of 1.0000 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 28 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 50 mph.

A non-linear (P-delta) analysis was used.

Pressures are calculated at each section.

Stress ratio used in pole design is 1.333.

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

Options

<ul style="list-style-type: none"> Consider Moments - Legs Consider Moments - Horizontals Consider Moments - Diagonals Use Moment Magnification √ Use Code Stress Ratios √ Use Code Safety Factors - Guys √ Escalate Ice Always Use Max Kz Use Special Wind Profile Include Bolts In Member Capacity Leg Bolts Are At Top Of Section Secondary Horizontal Braces Leg Use Diamond Inner Bracing (4 Sided) SR Members Have Cut Ends SR Members Are Concentric 	<ul style="list-style-type: none"> Distribute Leg Loads As Uniform Assume Legs Pinned √ Assume Rigid Index Plate √ Use Clear Spans For Wind Area Use Clear Spans For KL/r Retension Guys To Initial Tension √ Bypass Mast Stability Checks √ Use Azimuth Dish Coefficients √ Project Wind Area of Appurt. Autocalc Torque Arm Areas Add IBC .6D+W Combination Sort Capacity Reports By Component Triangulate Diamond Inner Bracing Treat Feed Line Bundles As Cylinder 	<ul style="list-style-type: none"> Use ASCE 10 X-Brace Ly Rules Calculate Redundant Bracing Forces Ignore Redundant Members in FEA SR Leg Bolts Resist Compression All Leg Panels Have Same Allowable Offset Girt At Foundation √ Consider Feed Line Torque Include Angle Block Shear Check Use TIA-222-G Bracing Resist. Exemption Use TIA-222-G Tension Splice Exemption <li style="text-align: center;">Poles √ Include Shear-Torsion Interaction Always Use Sub-Critical Flow Use Top Mounted Sockets
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Tapered Pole Section Geometry

Section	Elevation ft	Section Length ft	Splice Length ft	Number of Sides	Top Diameter in	Bottom Diameter in	Wall Thickness in	Bend Radius in	Pole Grade
L1	168.00-119.25	48.75	4.25	18	24.0000	34.2880	0.2500	1.0000	A607-65 (65 ksi)
L2	119.25-78.50	45.00	5.25	18	32.8911	42.3870	0.2813	1.1250	A607-65 (65 ksi)
L3	78.50-38.75	45.00	6.25	18	40.7166	50.2130	0.3750	1.5000	A607-65 (65 ksi)
L4	38.75-0.00	45.00		18	48.1441	57.6400	0.3750	1.5000	A607-65 (65 ksi)

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	Client CCI	Designed by 15423

Tapered Pole Properties

Section	Tip Dia. in	Area in ²	I in ⁴	r in	C in	I/C in ³	J in ⁴	I/Q in ²	w in	w/t
L1	24.3702	18.8456	1342.9976	8.4313	12.1920	110.1540	2687.7623	9.4246	3.7840	15.136
	34.8169	27.0092	3953.4521	12.0835	17.4183	226.9711	7912.1063	13.5071	5.5947	22.379
L2	34.3092	29.1104	3910.9585	11.5765	16.7087	234.0675	7827.0631	14.5580	5.2938	18.823
	43.0409	37.5873	8419.0120	14.9475	21.5326	390.9892	16849.1019	18.7972	6.9651	24.765
L3	42.4698	48.0166	9872.7114	14.3213	20.6841	477.3102	19758.4135	24.0129	6.5061	17.35
	50.9876	59.3197	18614.7607	17.6925	25.5082	729.7558	37254.0152	29.6655	8.1775	21.807
L4	50.2260	56.8571	16391.3897	16.9580	24.4572	670.2076	32804.3475	28.4340	7.8134	20.836
	58.5292	68.1597	28238.6178	20.3291	29.2811	964.3968	56514.3927	34.0863	9.4846	25.292

Tower Elevation	Gusset Area (per face)	Gusset Thickness	Gusset Grade	Adjust. Factor A _f	Adjust. Factor A _r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals	Double Angle Stitch Bolt Spacing Horizontals	Double Angle Stitch Bolt Spacing Redundants
ft	ft ²	in					in	in	in
L1 168.00-119.25				1	1	1			
L2 119.25-78.50				1	1	1			
L3 78.50-38.75				1	1	1			
L4 38.75-0.00				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	C _{AA}	Weight	
								ft ² /ft	plf	
LDF5-50A(7/8")	A	No	Inside Pole	168.00 - 8.00	0.0000	0	1	No Ice	0.00	0.33
								1/2" Ice	0.00	0.33
								1" Ice	0.00	0.33
								2" Ice	0.00	0.33
								4" Ice	0.00	0.33
LDF2-50(3/8")	A	No	Inside Pole	147.00 - 8.00	0.0000	0	1	No Ice	0.00	0.08
								1/2" Ice	0.00	0.08
								1" Ice	0.00	0.08
								2" Ice	0.00	0.08
								4" Ice	0.00	0.08
LDF2-50(3/8")	A	No	Inside Pole	143.00 - 8.00	0.0000	0	1	No Ice	0.00	0.08
								1/2" Ice	0.00	0.08
								1" Ice	0.00	0.08
								2" Ice	0.00	0.08
								4" Ice	0.00	0.08
CAT5e(1/4")	A	No	Inside Pole	140.00 - 8.00	0.0000	0	1	No Ice	0.00	0.04
								1/2" Ice	0.00	0.04
								1" Ice	0.00	0.04
								2" Ice	0.00	0.04
								4" Ice	0.00	0.04
LDF5-50A(7/8")	A	No	Inside Pole	135.00 - 8.00	0.0000	0	2	No Ice	0.00	0.33
								1/2" Ice	0.00	0.33
								1" Ice	0.00	0.33
								2" Ice	0.00	0.33
								4" Ice	0.00	0.33
ATCB-B01-00	B	No	Inside Pole	159.00 - 8.00	0.0000	0	6	No Ice	0.00	0.07

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	C _A A _A ft ² /ft	Weight plf
3(5/16")								1/2" Ice 0.00	0.07
								1" Ice 0.00	0.07
								2" Ice 0.00	0.07
								4" Ice 0.00	0.07
HB114-13U3 M12-XXXXF(1 -1/4")	B	No	Inside Pole	130.00 - 8.00	0.0000	0	3	No Ice 0.00	0.99
								1/2" Ice 0.00	0.99
								1" Ice 0.00	0.99
								2" Ice 0.00	0.99
								4" Ice 0.00	0.99
2" Rigid Conduit	B	No	Inside Pole	168.00 - 8.00	0.0000	0	1	No Ice 0.00	2.80
								1/2" Ice 0.00	2.80
								1" Ice 0.00	2.80
								2" Ice 0.00	2.80
								4" Ice 0.00	2.80
FB-L98B-034- XXXXXX(3/8")	B	No	Inside Pole	168.00 - 8.00	0.0000	0	1	No Ice 0.00	0.05
								1/2" Ice 0.00	0.05
								1" Ice 0.00	0.05
								2" Ice 0.00	0.05
								4" Ice 0.00	0.05
WR-VG86ST- BRD(3/4")	B	No	Inside Pole	168.00 - 8.00	0.0000	0	2	No Ice 0.00	0.58
								1/2" Ice 0.00	0.58
								1" Ice 0.00	0.58
								2" Ice 0.00	0.58
								4" Ice 0.00	0.58
LDF7-50A(1- 5/8")	C	No	Inside Pole	168.00 - 8.00	0.0000	0	12	No Ice 0.00	0.82
								1/2" Ice 0.00	0.82
								1" Ice 0.00	0.82
								2" Ice 0.00	0.82
								4" Ice 0.00	0.82
2.5" Rigid Conduit	C	No	Inside Pole	168.00 - 8.00	0.0000	0	1	No Ice 0.00	3.00
								1/2" Ice 0.00	3.00
								1" Ice 0.00	3.00
								2" Ice 0.00	3.00
								4" Ice 0.00	3.00
FB-L98B-034- XXXXXX(3/8")	C	No	Inside Pole	168.00 - 8.00	0.0000	0	1	No Ice 0.00	0.05
								1/2" Ice 0.00	0.05
								1" Ice 0.00	0.05
								2" Ice 0.00	0.05
								4" Ice 0.00	0.05
WR-VG86ST- BRD(3/4")	C	No	Inside Pole	168.00 - 8.00	0.0000	0	2	No Ice 0.00	0.58
								1/2" Ice 0.00	0.58
								1" Ice 0.00	0.58
								2" Ice 0.00	0.58
								4" Ice 0.00	0.58
LDF7-50A(1- 5/8")	C	No	Inside Pole	120.00 - 8.00	0.0000	0	6	No Ice 0.00	0.82
								1/2" Ice 0.00	0.82
								1" Ice 0.00	0.82
								2" Ice 0.00	0.82
								4" Ice 0.00	0.82
LDF4-50A(1/ 2")	C	No	CaAa (Out Of Face)	52.00 - 8.00	0.0000	0	1	No Ice 0.06	0.15
								1/2" Ice 0.16	0.84
								1" Ice 0.26	2.14
								2" Ice 0.46	6.58
								4" Ice 0.86	22.78
5/8" Step Bolts	C	No	CaAa (Out Of Face)	168.00 - 8.00	0.0000	0.15	1	No Ice 0.04	1.00
								1/2" Ice 0.14	1.56
								1" Ice 0.24	2.73
								2" Ice 0.44	6.91
								4" Ice 0.84	22.58
Safety Line 3/8	C	No	CaAa (Out Of Face)	168.00 - 8.00	0.0000	0.15	1	No Ice 0.04	0.22
								1/2" Ice 0.14	0.75

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Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#	C _A A _A ft ² /ft	Weight plf
							1" Ice	0.24	1.28
							2" Ice	0.44	2.34
							4" Ice	0.84	4.46

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	168.00-119.25	A	0.000	0.000	0.000	0.000	0.03
		B	0.000	0.000	0.000	0.000	0.25
		C	0.000	0.000	0.000	3.859	0.75
L2	119.25-78.50	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.30
		C	0.000	0.000	0.000	3.226	0.82
L3	78.50-38.75	A	0.000	0.000	0.000	0.000	0.05
		B	0.000	0.000	0.000	0.000	0.30
		C	0.000	0.000	0.000	3.982	0.80
L4	38.75-0.00	A	0.000	0.000	0.000	0.000	0.04
		B	0.000	0.000	0.000	0.000	0.23
		C	0.000	0.000	0.000	4.372	0.63

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A _R ft ²	A _F ft ²	C _A A _A In Face ft ²	C _A A _A Out Face ft ²	Weight K
L1	168.00-119.25	A	1.192	0.000	0.000	0.000	0.000	0.03
		B		0.000	0.000	0.000	0.000	0.25
		C		0.000	0.000	0.000	27.101	0.93
L2	119.25-78.50	A	1.140	0.000	0.000	0.000	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.30
		C		0.000	0.000	0.000	22.654	0.98
L3	78.50-38.75	A	1.071	0.000	0.000	0.000	0.000	0.05
		B		0.000	0.000	0.000	0.000	0.30
		C		0.000	0.000	0.000	25.131	0.98
L4	38.75-0.00	A	1.000	0.000	0.000	0.000	0.000	0.04
		B		0.000	0.000	0.000	0.000	0.23
		C		0.000	0.000	0.000	24.134	0.79

Feed Line Center of Pressure

Section	Elevation ft	CP _X in	CP _Z in	CP _X Ice in	CP _Z Ice in
L1	168.00-119.25	-0.1295	0.0747	-0.7163	0.4135
L2	119.25-78.50	-0.1304	0.0753	-0.7585	0.4379
L3	78.50-38.75	-0.1585	0.0915	-0.8543	0.4932
L4	38.75-0.00	-0.1642	0.0948	-0.8061	0.4654

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Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
			ft	ft	°	ft	ft ²	ft ²	K
800 10121 w/ Mount Pipe	A	From Centroid-Le g	4.00	0.0000	168.00	No Ice	5.69	4.60	0.07
			0.00	0.0000		1/2" Ice	6.18	5.34	0.11
			0.00	0.0000		1" Ice	6.67	6.04	0.17
			0.00	0.0000		2" Ice	7.69	7.51	0.30
			0.00	0.0000		4" Ice	9.84	10.82	0.67
DTMABP7819VG12A	A	From Centroid-Le g	4.00	0.0000	168.00	No Ice	1.14	0.39	0.02
			0.00	0.0000		1/2" Ice	1.28	0.49	0.03
			0.00	0.0000		1" Ice	1.44	0.59	0.04
			0.00	0.0000		2" Ice	1.77	0.83	0.06
			0.00	0.0000		4" Ice	2.54	1.41	0.14
OPA-65R-LCUU-H6 w/ Mount Pipe	A	From Centroid-Le g	4.00	0.0000	168.00	No Ice	10.60	7.18	0.10
			0.00	0.0000		1/2" Ice	11.27	8.36	0.18
			0.00	0.0000		1" Ice	11.91	9.26	0.26
			0.00	0.0000		2" Ice	13.21	11.09	0.46
			0.00	0.0000		4" Ice	15.93	15.15	1.00
(2) TPX-070821	A	From Centroid-Le g	4.00	0.0000	168.00	No Ice	0.55	0.12	0.01
			0.00	0.0000		1/2" Ice	0.65	0.17	0.01
			0.00	0.0000		1" Ice	0.76	0.24	0.02
			0.00	0.0000		2" Ice	1.02	0.39	0.03
			0.00	0.0000		4" Ice	1.63	0.80	0.08
RRUS 32 B30	A	From Centroid-Le g	4.00	0.0000	168.00	No Ice	3.87	2.76	0.08
			0.00	0.0000		1/2" Ice	4.15	3.02	0.10
			0.00	0.0000		1" Ice	4.44	3.29	0.14
			0.00	0.0000		2" Ice	5.06	3.85	0.21
			0.00	0.0000		4" Ice	6.38	5.08	0.41
QS66512-2 w/ Mount Pipe	A	From Centroid-Le g	4.00	0.0000	168.00	No Ice	8.64	8.46	0.14
			0.00	0.0000		1/2" Ice	9.29	9.66	0.21
			0.00	0.0000		1" Ice	9.91	10.62	0.30
			0.00	0.0000		2" Ice	11.18	12.61	0.49
			0.00	0.0000		4" Ice	13.83	16.81	1.03
RRUS 11-700	A	From Centroid-Le g	4.00	0.0000	168.00	No Ice	2.94	1.25	0.06
			0.00	0.0000		1/2" Ice	3.17	1.41	0.07
			0.00	0.0000		1" Ice	3.41	1.59	0.10
			0.00	0.0000		2" Ice	3.91	1.96	0.15
			0.00	0.0000		4" Ice	5.02	2.82	0.30
RRUS 32	A	From Centroid-Le g	4.00	0.0000	168.00	No Ice	3.33	1.98	0.06
			0.00	0.0000		1/2" Ice	3.60	2.21	0.08
			0.00	0.0000		1" Ice	3.87	2.45	0.10
			0.00	0.0000		2" Ice	4.44	2.96	0.16
			0.00	0.0000		4" Ice	5.68	4.07	0.34
800 10121 w/ Mount Pipe	B	From Centroid-Le g	4.00	0.0000	168.00	No Ice	5.69	4.60	0.07
			0.00	0.0000		1/2" Ice	6.18	5.34	0.11
			0.00	0.0000		1" Ice	6.67	6.04	0.17
			0.00	0.0000		2" Ice	7.69	7.51	0.30
			0.00	0.0000		4" Ice	9.84	10.82	0.67
DTMABP7819VG12A	B	From Centroid-Le g	4.00	0.0000	168.00	No Ice	1.14	0.39	0.02
			0.00	0.0000		1/2" Ice	1.28	0.49	0.03
			0.00	0.0000		1" Ice	1.44	0.59	0.04
			0.00	0.0000		2" Ice	1.77	0.83	0.06
			0.00	0.0000		4" Ice	2.54	1.41	0.14
OPA-65R-LCUU-H6 w/	B	From	4.00	0.0000	168.00	No Ice	10.60	7.18	0.10

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight			
			Horz Lateral	Vert						°	ft	ft ²
Mount Pipe		Centroid-Le g	0.00	0.00					1/2" Ice	11.27	8.36	0.18
									1" Ice	11.91	9.26	0.26
									2" Ice	13.21	11.09	0.46
									4" Ice	15.93	15.15	1.00
RRUS 32 B30	B	From Centroid-Le g	4.00	0.0000	168.00				No Ice	3.87	2.76	0.08
									1/2" Ice	4.15	3.02	0.10
									1" Ice	4.44	3.29	0.14
									2" Ice	5.06	3.85	0.21
(2) TPX-070821	B	From Centroid-Le g	4.00	0.0000	168.00				4" Ice	6.38	5.08	0.41
									No Ice	0.55	0.12	0.01
									1/2" Ice	0.65	0.17	0.01
									1" Ice	0.76	0.24	0.02
QS66512-2 w/ Mount Pipe	B	From Centroid-Le g	4.00	0.0000	168.00				2" Ice	1.02	0.39	0.03
									4" Ice	1.63	0.80	0.08
									No Ice	8.64	8.46	0.14
									1/2" Ice	9.29	9.66	0.21
RRUS 11-700	B	From Centroid-Le g	4.00	0.0000	168.00				1" Ice	9.91	10.62	0.30
									2" Ice	11.18	12.61	0.49
									4" Ice	13.83	16.81	1.03
									No Ice	2.94	1.25	0.06
RRUS 32	B	From Centroid-Le g	4.00	0.0000	168.00				1/2" Ice	3.17	1.41	0.07
									1" Ice	3.41	1.59	0.10
									2" Ice	3.91	1.96	0.15
									4" Ice	5.02	2.82	0.30
800 10121 w/ Mount Pipe	C	From Centroid-Le g	4.00	0.0000	168.00				No Ice	3.33	1.98	0.06
									1/2" Ice	3.60	2.21	0.08
									1" Ice	3.87	2.45	0.10
									2" Ice	4.44	2.96	0.16
DC6-48-60-18-8F	C	From Centroid-Le g	4.00	0.0000	168.00				4" Ice	5.68	4.07	0.34
									No Ice	5.69	4.60	0.07
									1/2" Ice	6.18	5.34	0.11
									1" Ice	6.67	6.04	0.17
DTMABP7819VG12A	C	From Centroid-Le g	4.00	0.0000	168.00				2" Ice	7.69	7.51	0.30
									4" Ice	9.84	10.82	0.67
									No Ice	2.22	2.22	0.02
									1/2" Ice	2.44	2.44	0.04
OG-4	C	From Leg	0.00	0.0000	168.00				1" Ice	2.66	2.66	0.06
									2" Ice	3.15	3.15	0.12
									4" Ice	4.21	4.21	0.27
									No Ice	1.14	0.39	0.02
OPA-65R-LCUU-H6 w/ Mount Pipe	C	From Centroid-Le g	4.00	0.0000	168.00				1/2" Ice	1.28	0.49	0.03
									1" Ice	1.44	0.59	0.04
									2" Ice	1.77	0.83	0.06
									4" Ice	2.54	1.41	0.14
DC6-48-60-18-8F	C	From Centroid-Le g	4.00	0.0000	168.00				No Ice	6.00	6.00	0.02
									1/2" Ice	7.14	7.14	0.06
									1" Ice	7.86	7.86	0.11
									2" Ice	9.34	9.34	0.23
DC6-48-60-18-8F	C	From Centroid-Le g	4.00	0.0000	168.00				4" Ice	12.41	12.41	0.58
									No Ice	10.60	7.18	0.10
									1/2" Ice	11.27	8.36	0.18
									1" Ice	11.91	9.26	0.26

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight	
			Horz Lateral	Vert						°
(2) TPX-070821	C	From Centroid-Le g	4.00	0.00	0.0000	168.00	2" Ice	3.15	3.15	0.12
							4" Ice	4.21	4.21	0.27
							No Ice	0.55	0.12	0.01
							1/2" Ice	0.65	0.17	0.01
							1" Ice	0.76	0.24	0.02
							2" Ice	1.02	0.39	0.03
RRUS 32 B30	C	From Centroid-Le g	4.00	0.00	0.0000	168.00	4" Ice	1.63	0.80	0.08
							No Ice	3.87	2.76	0.08
							1/2" Ice	4.15	3.02	0.10
							1" Ice	4.44	3.29	0.14
							2" Ice	5.06	3.85	0.21
							4" Ice	6.38	5.08	0.41
TPA-65R-LCUUUU-H8 w/ Mount Pipe	C	From Centroid-Le g	4.00	0.00	0.0000	168.00	No Ice	13.68	10.96	0.11
							1/2" Ice	14.50	12.49	0.22
							1" Ice	15.33	14.04	0.33
							2" Ice	16.94	16.39	0.59
							4" Ice	20.27	21.28	1.30
							No Ice	2.94	1.25	0.06
RRUS 11-700	C	From Centroid-Le g	4.00	0.00	0.0000	168.00	1/2" Ice	3.17	1.41	0.07
							1" Ice	3.41	1.59	0.10
							2" Ice	3.91	1.96	0.15
							4" Ice	5.02	2.82	0.30
							No Ice	3.33	1.98	0.06
							1/2" Ice	3.60	2.21	0.08
RRUS 32	C	From Centroid-Le g	4.00	0.00	0.0000	168.00	1" Ice	3.87	2.45	0.10
							2" Ice	4.44	2.96	0.16
							4" Ice	5.68	4.07	0.34
							No Ice	0.53	0.53	0.02
							1/2" Ice	0.69	0.69	0.03
							1" Ice	0.87	0.87	0.03
4" x 2' Mount Pipe	A	From Centroid-Le g	4.00	0.00	0.0000	168.00	2" Ice	1.24	1.24	0.06
							4" Ice	2.13	2.13	0.13
							No Ice	0.53	0.53	0.02
							1/2" Ice	0.69	0.69	0.03
							1" Ice	0.87	0.87	0.03
							2" Ice	1.24	1.24	0.06
4" x 2' Mount Pipe	B	From Centroid-Le g	4.00	0.00	0.0000	168.00	4" Ice	2.13	2.13	0.13
							No Ice	0.53	0.53	0.02
							1/2" Ice	0.69	0.69	0.03
							1" Ice	0.87	0.87	0.03
							2" Ice	1.24	1.24	0.06
							4" Ice	2.13	2.13	0.13
4" x 2' Mount Pipe	C	From Centroid-Le g	4.00	0.00	0.0000	168.00	No Ice	0.53	0.53	0.02
							1/2" Ice	0.69	0.69	0.03
							1" Ice	0.87	0.87	0.03
							2" Ice	1.24	1.24	0.06
							4" Ice	2.13	2.13	0.13
							No Ice	23.10	23.10	2.10
Platform Mount [LP 1201-1]	C	None		0.0000	168.00	1/2" Ice	26.80	26.80	2.50	
						1" Ice	30.50	30.50	2.90	
						2" Ice	37.90	37.90	3.70	
						4" Ice	52.70	52.70	5.30	
						No Ice	0.84	0.43	0.01	
						1/2" Ice	0.97	0.52	0.02	
Horizon Compact	A	From Centroid-Le g	4.00	-3.00	0.0000	159.00	1" Ice	1.10	0.63	0.03
							2" Ice	1.39	0.86	0.05
							4" Ice	2.08	1.43	0.12
							No Ice	6.21	3.38	0.05
							1/2" Ice	6.61	3.93	0.09
							1" Ice	7.02	4.50	0.14
840 10054 w/ Mount Pipe	A	From Centroid-Le g	4.00	1.00	0.0000	159.00	2" Ice	7.87	5.73	0.26
							4" Ice	9.66	8.64	0.60

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
URAS-FLEXIBLE	A	From Centroid-Leg	4.00	0.0000	159.00	No Ice	1.80	0.78	0.03
			0.00			1/2" Ice	1.99	0.92	0.04
			1.00			1" Ice	2.18	1.07	0.06
						2" Ice	2.59	1.39	0.09
						4" Ice	3.51	2.14	0.20
Horizon Compact	A	From Centroid-Leg	4.00	0.0000	159.00	No Ice	0.84	0.43	0.01
			0.00			1/2" Ice	0.97	0.52	0.02
			5.00			1" Ice	1.10	0.63	0.03
						2" Ice	1.39	0.86	0.05
						4" Ice	2.08	1.43	0.12
840 10054 w/ Mount Pipe	B	From Centroid-Leg	4.00	0.0000	159.00	No Ice	6.21	3.38	0.05
			0.00			1/2" Ice	6.61	3.93	0.09
			1.00			1" Ice	7.02	4.50	0.14
						2" Ice	7.87	5.73	0.26
						4" Ice	9.66	8.64	0.60
URAS-FLEXIBLE	B	From Centroid-Leg	4.00	0.0000	159.00	No Ice	1.80	0.78	0.03
			0.00			1/2" Ice	1.99	0.92	0.04
			1.00			1" Ice	2.18	1.07	0.06
						2" Ice	2.59	1.39	0.09
						4" Ice	3.51	2.14	0.20
Horizon Compact	B	From Centroid-Leg	4.00	0.0000	159.00	No Ice	0.84	0.43	0.01
			0.00			1/2" Ice	0.97	0.52	0.02
			5.00			1" Ice	1.10	0.63	0.03
						2" Ice	1.39	0.86	0.05
						4" Ice	2.08	1.43	0.12
840 10054 w/ Mount Pipe	C	From Centroid-Leg	4.00	0.0000	159.00	No Ice	6.21	3.38	0.05
			0.00			1/2" Ice	6.61	3.93	0.09
			1.00			1" Ice	7.02	4.50	0.14
						2" Ice	7.87	5.73	0.26
						4" Ice	9.66	8.64	0.60
URAS-FLEXIBLE	C	From Centroid-Leg	4.00	0.0000	159.00	No Ice	1.80	0.78	0.03
			0.00			1/2" Ice	1.99	0.92	0.04
			1.00			1" Ice	2.18	1.07	0.06
						2" Ice	2.59	1.39	0.09
						4" Ice	3.51	2.14	0.20
Horizon Compact	C	From Centroid-Leg	4.00	0.0000	159.00	No Ice	0.84	0.43	0.01
			0.00			1/2" Ice	0.97	0.52	0.02
			5.00			1" Ice	1.10	0.63	0.03
						2" Ice	1.39	0.86	0.05
						4" Ice	2.08	1.43	0.12
(3) 4" x 2' Mount Pipe	A	From Centroid-Leg	4.00	0.0000	159.00	No Ice	0.53	0.53	0.02
			0.00			1/2" Ice	0.69	0.69	0.03
			0.00			1" Ice	0.87	0.87	0.03
						2" Ice	1.24	1.24	0.06
						4" Ice	2.13	2.13	0.13
(3) 4" x 2' Mount Pipe	B	From Centroid-Leg	4.00	0.0000	159.00	No Ice	0.53	0.53	0.02
			0.00			1/2" Ice	0.69	0.69	0.03
			0.00			1" Ice	0.87	0.87	0.03
						2" Ice	1.24	1.24	0.06
						4" Ice	2.13	2.13	0.13
(3) 4" x 2' Mount Pipe	C	From Centroid-Leg	4.00	0.0000	159.00	No Ice	0.53	0.53	0.02
			0.00			1/2" Ice	0.69	0.69	0.03
			0.00			1" Ice	0.87	0.87	0.03
						2" Ice	1.24	1.24	0.06
						4" Ice	2.13	2.13	0.13
6' x 2" mount pipe	A	From Centroid-Leg	4.00	0.0000	159.00	No Ice	1.44	1.44	0.02
			0.00			1/2" Ice	1.93	1.93	0.03

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
		g	0.00						
6' x 2" mount pipe	B	From Centroid-Le g	4.00	0.0000	159.00	1" Ice	2.30	2.30	0.05
			0.00			2" Ice	3.07	3.07	0.09
			0.00			4" Ice	4.71	4.71	0.23
			0.00			No Ice	1.44	1.44	0.02
			0.00			1/2" Ice	1.93	1.93	0.03
			0.00			1" Ice	2.30	2.30	0.05
			0.00			2" Ice	3.07	3.07	0.09
6' x 2" mount pipe	C	From Centroid-Le g	4.00	0.0000	159.00	4" Ice	4.71	4.71	0.23
			0.00			No Ice	1.44	1.44	0.02
			0.00			1/2" Ice	1.93	1.93	0.03
			0.00			1" Ice	2.30	2.30	0.05
			0.00			2" Ice	3.07	3.07	0.09
			0.00			4" Ice	4.71	4.71	0.23
			0.00			No Ice	23.10	23.10	2.10
Platform Mount [LP 1201-1]	C	None	0.00	0.0000	159.00	1/2" Ice	26.80	26.80	2.50
			0.00			1" Ice	30.50	30.50	2.90
			0.00			2" Ice	37.90	37.90	3.70
			0.00			4" Ice	52.70	52.70	5.30
			0.00			No Ice	5.25	1.58	0.09
			0.00			1/2" Ice	6.50	1.95	0.12
			0.00			1" Ice	7.75	2.32	0.14
Pipe Mount [PM 602-1]	C	From Leg	0.50	0.0000	145.00	2" Ice	10.25	3.06	0.19
			0.00			4" Ice	15.25	4.54	0.29
			0.00			No Ice	2.22	0.92	0.02
			0.00			1/2" Ice	2.48	1.18	0.04
			0.00			1" Ice	2.75	1.48	0.06
			0.00			2" Ice	3.35	2.15	0.11
			0.00			4" Ice	4.72	3.74	0.28
PTP400 w/ Mount Pipe	C	From Leg	1.00	0.0000	135.00	No Ice	5.50	5.50	0.02
			0.00			1/2" Ice	7.37	7.37	0.06
			5.00			1" Ice	9.25	9.25	0.11
			0.00			2" Ice	13.07	13.07	0.25
			0.00			4" Ice	19.25	19.25	0.67
			0.00			No Ice	5.50	5.50	0.02
			0.00			1/2" Ice	7.37	7.37	0.06
ASP 705K	A	From Leg	6.00	0.0000	135.00	1" Ice	9.25	9.25	0.11
			0.00			2" Ice	13.07	13.07	0.25
			9.00			4" Ice	19.25	19.25	0.67
			0.00			No Ice	5.50	5.50	0.02
			0.00			1/2" Ice	7.37	7.37	0.06
			0.00			1" Ice	9.25	9.25	0.11
			0.00			2" Ice	13.07	13.07	0.25
ASP 705K	B	From Leg	6.00	0.0000	135.00	4" Ice	19.25	19.25	0.67
			0.00			No Ice	5.50	5.50	0.02
			9.00			1/2" Ice	7.37	7.37	0.06
			0.00			1" Ice	9.25	9.25	0.11
			0.00			2" Ice	13.07	13.07	0.25
			0.00			4" Ice	19.25	19.25	0.67
			0.00			No Ice	1.44	1.44	0.02
6' x 2" mount pipe	A	From Leg	6.00	0.0000	135.00	1/2" Ice	1.93	1.93	0.03
			0.00			1" Ice	2.30	2.30	0.05
			0.00			2" Ice	3.07	3.07	0.09
			0.00			4" Ice	4.71	4.71	0.23
			0.00			No Ice	1.44	1.44	0.02
			0.00			1/2" Ice	1.93	1.93	0.03
			0.00			1" Ice	2.30	2.30	0.05
6' x 2" mount pipe	B	From Leg	6.00	0.0000	135.00	2" Ice	3.07	3.07	0.09
			0.00			4" Ice	4.71	4.71	0.23
			0.00			No Ice	1.44	1.44	0.02
			0.00			1/2" Ice	1.93	1.93	0.03
			0.00			1" Ice	2.30	2.30	0.05
			0.00			2" Ice	3.07	3.07	0.09
			0.00			4" Ice	4.71	4.71	0.23
Side Arm Mount [SO 702-1]	A	From Leg	3.00	0.0000	135.00	No Ice	1.00	1.43	0.03
			0.00			1/2" Ice	1.25	2.05	0.04
			0.00			1" Ice	1.50	2.67	0.05
			0.00			2" Ice	2.00	3.91	0.07
			0.00			4" Ice	3.00	6.39	0.12
			0.00			No Ice	1.00	1.43	0.03
			0.00			1/2" Ice	1.25	2.05	0.04
Side Arm Mount [SO 702-1]	B	From Leg	3.00	0.0000	135.00	1" Ice	1.50	2.67	0.05
			0.00			2" Ice	2.00	3.91	0.07
			0.00			No Ice	1.00	1.43	0.03
			0.00			1/2" Ice	1.25	2.05	0.04

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
APXV9ERR18-C-A20 w/ Mount Pipe	A	From Centroid-Le g	4.00	0.0000	130.00	4" Ice	3.00	6.39	0.12
			0.00			No Ice	8.26	7.23	0.08
			1.00			1/2" Ice	8.81	8.19	0.15
						1" Ice	9.36	9.02	0.23
						2" Ice	10.50	10.74	0.41
APXV9ERR18-C-A20 w/ Mount Pipe	B	From Centroid-Le g	4.00	0.0000	130.00	4" Ice	12.88	14.65	0.90
			0.00			No Ice	8.26	7.23	0.08
			1.00			1/2" Ice	8.81	8.19	0.15
						1" Ice	9.36	9.02	0.23
						2" Ice	10.50	10.74	0.41
APXV9ERR18-C-A20 w/ Mount Pipe	C	From Centroid-Le g	4.00	0.0000	130.00	4" Ice	12.88	14.65	0.90
			0.00			No Ice	8.26	7.23	0.08
			1.00			1/2" Ice	8.81	8.19	0.15
						1" Ice	9.36	9.02	0.23
						2" Ice	10.50	10.74	0.41
(2) 4" x 2' Mount Pipe	A	From Centroid-Le g	4.00	0.0000	130.00	4" Ice	12.88	14.65	0.90
			0.00			No Ice	0.53	0.53	0.02
			0.00			1/2" Ice	0.69	0.69	0.03
						1" Ice	0.87	0.87	0.03
						2" Ice	1.24	1.24	0.06
(2) 4" x 2' Mount Pipe	B	From Centroid-Le g	4.00	0.0000	130.00	4" Ice	2.13	2.13	0.13
			0.00			No Ice	0.53	0.53	0.02
			0.00			1/2" Ice	0.69	0.69	0.03
						1" Ice	0.87	0.87	0.03
						2" Ice	1.24	1.24	0.06
(2) 4" x 2' Mount Pipe	C	From Centroid-Le g	4.00	0.0000	130.00	4" Ice	2.13	2.13	0.13
			0.00			No Ice	0.53	0.53	0.02
			0.00			1/2" Ice	0.69	0.69	0.03
						1" Ice	0.87	0.87	0.03
						2" Ice	1.24	1.24	0.06
800MHz 2X50W RRH W/FILTER	A	From Leg	1.00	0.0000	130.00	4" Ice	2.13	2.13	0.13
			0.00			No Ice	2.40	2.25	0.06
			-1.00			1/2" Ice	2.61	2.46	0.09
						1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
1900MHz RRH	A	From Leg	1.00	0.0000	130.00	4" Ice	4.34	4.15	0.34
			0.00			No Ice	2.91	3.80	0.04
			1.00			1/2" Ice	3.14	4.06	0.08
						1" Ice	3.39	4.34	0.11
						2" Ice	3.91	4.91	0.19
800MHz 2X50W RRH W/FILTER	B	From Leg	1.00	0.0000	130.00	4" Ice	5.05	6.15	0.41
			0.00			No Ice	2.40	2.25	0.06
			-1.00			1/2" Ice	2.61	2.46	0.09
						1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
1900MHz RRH	B	From Leg	1.00	0.0000	130.00	4" Ice	4.34	4.15	0.34
			0.00			No Ice	2.91	3.80	0.04
			1.00			1/2" Ice	3.14	4.06	0.08
						1" Ice	3.39	4.34	0.11
						2" Ice	3.91	4.91	0.19
800MHz 2X50W RRH W/FILTER	C	From Leg	1.00	0.0000	130.00	4" Ice	5.05	6.15	0.41
			0.00			No Ice	2.40	2.25	0.06
			-1.00			1/2" Ice	2.61	2.46	0.09
						1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17
1900MHz RRH	C	From Leg	1.00	0.0000	130.00	4" Ice	4.34	4.15	0.34
			0.00			No Ice	2.91	3.80	0.04
			-1.00			1/2" Ice	2.61	2.46	0.09
						1" Ice	2.83	2.68	0.11
						2" Ice	3.30	3.13	0.17

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Description	Face or Leg	Offset Type	Offsets:			Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz	Vert	Lateral					
				0.00			1/2" Ice	3.14	4.06	0.08
				1.00			1" Ice	3.39	4.34	0.11
							2" Ice	3.91	4.91	0.19
							4" Ice	5.05	6.15	0.41
6' x 2" mount pipe	A	From Leg	0.50	0.0000		130.00	No Ice	1.44	1.44	0.02
			0.00				1/2" Ice	1.93	1.93	0.03
			0.00				1" Ice	2.30	2.30	0.05
							2" Ice	3.07	3.07	0.09
							4" Ice	4.71	4.71	0.23
6' x 2" mount pipe	B	From Leg	0.50	0.0000		130.00	No Ice	1.44	1.44	0.02
			0.00				1/2" Ice	1.93	1.93	0.03
			0.00				1" Ice	2.30	2.30	0.05
							2" Ice	3.07	3.07	0.09
							4" Ice	4.71	4.71	0.23
6' x 2" mount pipe	C	From Leg	0.50	0.0000		130.00	No Ice	1.44	1.44	0.02
			0.00				1/2" Ice	1.93	1.93	0.03
			0.00				1" Ice	2.30	2.30	0.05
							2" Ice	3.07	3.07	0.09
							4" Ice	4.71	4.71	0.23
Platform Mount [LP 1201-1]	C	None		0.0000		130.00	No Ice	23.10	23.10	2.10
							1/2" Ice	26.80	26.80	2.50
							1" Ice	30.50	30.50	2.90
							2" Ice	37.90	37.90	3.70
							4" Ice	52.70	52.70	5.30
Side Arm Mount [SO 102-3]	C	None		0.0000		130.00	No Ice	3.00	3.00	0.08
							1/2" Ice	3.48	3.48	0.11
							1" Ice	3.96	3.96	0.14
							2" Ice	4.92	4.92	0.20
							4" Ice	6.84	6.84	0.32
742 213 w/ Mount Pipe	A	From Leg	1.00	0.0000		120.00	No Ice	5.37	4.62	0.05
			0.00				1/2" Ice	5.95	6.00	0.09
			0.00				1" Ice	6.50	6.98	0.15
							2" Ice	7.61	8.85	0.28
							4" Ice	9.93	12.79	0.68
742 213 w/ Mount Pipe	B	From Leg	1.00	0.0000		120.00	No Ice	5.37	4.62	0.05
			0.00				1/2" Ice	5.95	6.00	0.09
			0.00				1" Ice	6.50	6.98	0.15
							2" Ice	7.61	8.85	0.28
							4" Ice	9.93	12.79	0.68
742 213 w/ Mount Pipe	C	From Leg	1.00	0.0000		120.00	No Ice	5.37	4.62	0.05
			0.00				1/2" Ice	5.95	6.00	0.09
			0.00				1" Ice	6.50	6.98	0.15
							2" Ice	7.61	8.85	0.28
							4" Ice	9.93	12.79	0.68
GPS_A	A	From Leg	2.00	0.0000		79.00	No Ice	0.30	0.30	0.00
			0.00				1/2" Ice	0.37	0.37	0.00
			0.00				1" Ice	0.46	0.46	0.01
							2" Ice	0.65	0.65	0.02
							4" Ice	1.15	1.15	0.08
GPS_A	B	From Leg	2.00	0.0000		79.00	No Ice	0.30	0.30	0.00
			0.00				1/2" Ice	0.37	0.37	0.00
			0.00				1" Ice	0.46	0.46	0.01
							2" Ice	0.65	0.65	0.02
							4" Ice	1.15	1.15	0.08
Side Arm Mount [SO 202-1]	A	From Leg	1.00	0.0000		79.00	No Ice	2.96	2.53	0.11
			0.00				1/2" Ice	4.10	3.51	0.13
			0.00				1" Ice	5.24	4.49	0.16

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Description	Face or Leg	Offset Type	Offsets:		Azimuth Adjustment	Placement	C _{AA} Front	C _{AA} Side	Weight
			Horz Lateral	Vert					
Side Arm Mount [SO 202-1]	B	From Leg	1.00	0.0000	79.00	2" Ice	7.52	6.45	0.20
						4" Ice	12.08	10.37	0.30
						No Ice	2.96	2.53	0.11
						1/2" Ice	4.10	3.51	0.13
						1" Ice	5.24	4.49	0.16
GPS-TMG-HR-26NCM	A	From Leg	2.00	0.0000	52.00	2" Ice	7.52	6.45	0.20
						4" Ice	12.08	10.37	0.30
						No Ice	0.16	0.16	0.00
						1/2" Ice	0.21	0.21	0.00
						1" Ice	0.28	0.28	0.01
Side Arm Mount [SO 701-1]	A	From Leg	1.00	0.0000	52.00	2" Ice	0.44	0.44	0.01
						4" Ice	0.86	0.86	0.05
						No Ice	0.85	1.67	0.07
						1/2" Ice	1.14	2.34	0.08
						1" Ice	1.43	3.01	0.09
						2" Ice	2.01	4.35	0.12
						4" Ice	3.17	7.03	0.18

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets:		Azimuth Adjustment	3 dB Beam Width	Elevation	Outside Diameter	Aperture Area	Weight
				Horz Lateral	Vert						
VHLP2.5-11	A	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00	17.0000	159.00	2.92	No Ice	6.68	0.05	
								1/2" Ice	7.07	0.08	
								1" Ice	7.46	0.12	
								2" Ice	8.23	0.19	
								4" Ice	9.78	0.34	
VHLP2.5-11	A	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00	38.0000	159.00	2.92	No Ice	6.68	0.05	
								1/2" Ice	7.07	0.08	
								1" Ice	7.46	0.12	
								2" Ice	8.23	0.19	
								4" Ice	9.78	0.34	
VHLP2.5-11	B	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00	24.0000	159.00	2.92	No Ice	6.68	0.05	
								1/2" Ice	7.07	0.08	
								1" Ice	7.46	0.12	
								2" Ice	8.23	0.19	
								4" Ice	9.78	0.34	
VHLP2.5-11	C	Paraboloid w/Shroud (HP)	From Centroid -Leg	4.00	-40.0000	159.00	2.92	No Ice	6.68	0.05	
								1/2" Ice	7.07	0.08	
								1" Ice	7.46	0.12	
								2" Ice	8.23	0.19	
								4" Ice	9.78	0.34	
HP3-10	C	Paraboloid w/Shroud (HP)	From Leg	1.00	0.0000	145.00	3.17	No Ice	10.03	0.05	
								1/2" Ice	10.56	0.07	
								1" Ice	11.10	0.05	
								2" Ice	12.17	0.05	
								4" Ice	14.31	0.05	
HP3-11	C	Paraboloid	From	1.00	10.0000	145.00	3.00	No Ice	7.07	0.05	

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Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	168 - 119.25	Pole	Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-24.73	0.13	0.59
			Max. Mx	5	-12.81	-536.39	17.65
			Max. My	2	-12.81	-15.76	541.68
			Max. Vy	5	18.03	-536.39	17.65
			Max. Vx	2	-18.01	-15.76	541.68
			Max. Torque	8			-3.42
			Max Tension	1	0.00	0.00	0.00
L2	119.25 - 78.5	Pole	Max. Compression	14	-33.71	0.47	0.39
			Max. Mx	5	-19.24	-1337.00	40.59
			Max. My	2	-19.24	-39.08	1341.23
			Max. Vy	5	21.73	-1337.00	40.59
			Max. Vx	2	-21.70	-39.08	1341.23
			Max. Torque	5			1.88
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-45.79	0.49	0.68
L3	78.5 - 38.75	Pole	Max. Mx	5	-28.71	-2247.04	62.80
			Max. My	2	-28.71	-61.62	2250.35
			Max. Vy	5	25.03	-2247.04	62.80
			Max. Vx	2	-24.98	-61.62	2250.35
			Max. Torque	5			2.16
			Max Tension	1	0.00	0.00	0.00
			Max. Compression	14	-61.29	1.04	0.36
			Max. Mx	5	-41.25	-3441.91	87.52
L4	38.75 - 0	Pole	Max. My	2	-41.25	-86.88	3443.11
			Max. Vy	5	28.02	-3441.91	87.52
			Max. Vx	2	-27.97	-86.88	3443.11
			Max. Torque	5			2.15

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	16	61.29	-2.30	3.94
	Max. H _x	11	41.27	27.89	-0.48
	Max. H _z	2	41.27	-0.55	27.95
	Max. M _x	2	3443.11	-0.55	27.95
	Max. M _z	5	3441.91	-28.00	0.54
	Max. Torsion	5	2.12	-28.00	0.54
	Min. Vert	1	41.27	0.00	0.00
	Min. H _x	5	41.27	-28.00	0.54
	Min. H _z	8	41.27	0.45	-27.87
	Min. M _x	8	-3429.86	0.45	-27.87
	Min. M _z	11	-3426.86	27.89	-0.48
	Min. Torsion	11	-1.95	27.89	-0.48

Tower Mast Reaction Summary

Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead Only	41.27	0.00	0.00	-0.33	0.18	0.00

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Load Combination	Vertical K	Shear _x K	Shear _z K	Overturning Moment, M _x kip-ft	Overturning Moment, M _z kip-ft	Torque kip-ft
Dead+Wind 0 deg - No Ice	41.27	0.55	-27.95	-3443.11	-86.88	-0.75
Dead+Wind 30 deg - No Ice	41.27	14.25	-24.44	-3018.51	-1760.00	-1.18
Dead+Wind 60 deg - No Ice	41.27	24.36	-14.39	-1788.92	-2999.15	-1.70
Dead+Wind 90 deg - No Ice	41.27	28.00	-0.54	-87.52	-3441.91	-2.12
Dead+Wind 120 deg - No Ice	41.27	24.07	13.57	1657.08	-2952.73	-0.96
Dead+Wind 150 deg - No Ice	41.27	13.40	24.09	2963.76	-1623.70	0.78
Dead+Wind 180 deg - No Ice	41.27	-0.45	27.87	3429.86	71.98	1.30
Dead+Wind 210 deg - No Ice	41.27	-14.21	24.31	2999.33	1755.34	1.31
Dead+Wind 240 deg - No Ice	41.27	-24.24	14.41	1791.81	2980.97	1.71
Dead+Wind 270 deg - No Ice	41.27	-27.89	0.48	77.48	3426.86	1.95
Dead+Wind 300 deg - No Ice	41.27	-23.95	-13.67	-1674.84	2935.71	0.97
Dead+Wind 330 deg - No Ice	41.27	-13.48	-24.09	-2965.76	1637.99	-0.34
Dead+Ice+Temp	61.29	0.00	0.00	-0.36	1.04	0.00
Dead+Wind 0 deg+Ice+Temp	61.29	0.08	-4.51	-579.85	-11.79	-0.07
Dead+Wind 30 deg+Ice+Temp	61.29	2.30	-3.94	-507.71	-294.67	-0.16
Dead+Wind 60 deg+Ice+Temp	61.29	3.93	-2.32	-300.18	-503.77	-0.26
Dead+Wind 90 deg+Ice+Temp	61.29	4.52	-0.08	-13.41	-578.59	-0.34
Dead+Wind 120 deg+Ice+Temp	61.29	3.89	2.20	279.73	-496.66	-0.19
Dead+Wind 150 deg+Ice+Temp	61.29	2.18	3.89	498.65	-274.33	0.06
Dead+Wind 180 deg+Ice+Temp	61.29	-0.06	4.50	577.15	11.86	0.15
Dead+Wind 210 deg+Ice+Temp	61.29	-2.29	3.92	504.17	296.22	0.18
Dead+Wind 240 deg+Ice+Temp	61.29	-3.92	2.32	299.85	503.35	0.26
Dead+Wind 270 deg+Ice+Temp	61.29	-4.51	0.07	11.18	578.64	0.32
Dead+Wind 300 deg+Ice+Temp	61.29	-3.87	-2.21	-283.07	496.42	0.19
Dead+Wind 330 deg+Ice+Temp	61.29	-2.19	-3.89	-499.73	278.61	0.00
Dead+Wind 0 deg - Service	41.27	0.22	-10.92	-1346.89	-33.87	-0.30
Dead+Wind 30 deg - Service	41.27	5.57	-9.55	-1180.87	-688.28	-0.47
Dead+Wind 60 deg - Service	41.27	9.52	-5.62	-699.93	-1172.95	-0.67
Dead+Wind 90 deg - Service	41.27	10.94	-0.21	-34.46	-1346.06	-0.84
Dead+Wind 120 deg - Service	41.27	9.40	5.30	647.87	-1154.69	-0.37
Dead+Wind 150 deg - Service	41.27	5.23	9.41	1158.91	-634.90	0.31
Dead+Wind 180 deg - Service	41.27	-0.17	10.89	1341.25	28.28	0.52
Dead+Wind 210 deg - Service	41.27	-5.55	9.50	1172.91	686.69	0.52
Dead+Wind 240 deg - Service	41.27	-9.47	5.63	700.62	1166.06	0.67
Dead+Wind 270 deg - Service	41.27	-10.89	0.19	30.09	1340.40	0.77
Dead+Wind 300 deg - Service	41.27	-9.36	-5.34	-655.24	1148.26	0.38
Dead+Wind 330 deg - Service	41.27	-5.27	-9.41	-1160.13	640.73	-0.14

Solution Summary

Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
1	0.00	-41.27	0.00	0.00	41.27	0.00	0.000%
2	0.55	-41.27	-27.95	-0.55	41.27	27.95	0.000%
3	14.25	-41.27	-24.44	-14.25	41.27	24.44	0.000%
4	24.36	-41.27	-14.39	-24.36	41.27	14.39	0.000%
5	28.00	-41.27	-0.54	-28.00	41.27	0.54	0.000%
6	24.07	-41.27	13.57	-24.07	41.27	-13.57	0.000%
7	13.40	-41.27	24.09	-13.40	41.27	-24.09	0.000%
8	-0.45	-41.27	27.87	0.45	41.27	-27.87	0.000%
9	-14.21	-41.27	24.31	14.21	41.27	-24.31	0.000%
10	-24.24	-41.27	14.41	24.24	41.27	-14.41	0.000%
11	-27.89	-41.27	0.48	27.89	41.27	-0.48	0.000%
12	-23.95	-41.27	-13.67	23.95	41.27	13.67	0.000%
13	-13.48	-41.27	-24.09	13.48	41.27	24.09	0.000%
14	0.00	-61.29	0.00	0.00	61.29	0.00	0.000%
15	0.08	-61.29	-4.51	-0.08	61.29	4.51	0.000%

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Load Comb.	Sum of Applied Forces			Sum of Reactions			% Error
	PX K	PY K	PZ K	PX K	PY K	PZ K	
16	2.30	-61.29	-3.94	-2.30	61.29	3.94	0.000%
17	3.93	-61.29	-2.32	-3.93	61.29	2.32	0.000%
18	4.52	-61.29	-0.08	-4.52	61.29	0.08	0.000%
19	3.89	-61.29	2.20	-3.89	61.29	-2.20	0.000%
20	2.18	-61.29	3.89	-2.18	61.29	-3.89	0.000%
21	-0.06	-61.29	4.50	0.06	61.29	-4.50	0.000%
22	-2.29	-61.29	3.92	2.29	61.29	-3.92	0.000%
23	-3.92	-61.29	2.32	3.92	61.29	-2.32	0.000%
24	-4.51	-61.29	0.07	4.51	61.29	-0.07	0.000%
25	-3.87	-61.29	-2.21	3.87	61.29	2.21	0.000%
26	-2.19	-61.29	-3.89	2.19	61.29	3.89	0.000%
27	0.22	-41.27	-10.92	-0.22	41.27	10.92	0.000%
28	5.57	-41.27	-9.55	-5.57	41.27	9.55	0.000%
29	9.52	-41.27	-5.62	-9.52	41.27	5.62	0.000%
30	10.94	-41.27	-0.21	-10.94	41.27	0.21	0.000%
31	9.40	-41.27	5.30	-9.40	41.27	-5.30	0.000%
32	5.23	-41.27	9.41	-5.23	41.27	-9.41	0.000%
33	-0.17	-41.27	10.89	0.17	41.27	-10.89	0.000%
34	-5.55	-41.27	9.50	5.55	41.27	-9.50	0.000%
35	-9.47	-41.27	5.63	9.47	41.27	-5.63	0.000%
36	-10.89	-41.27	0.19	10.89	41.27	-0.19	0.000%
37	-9.36	-41.27	-5.34	9.36	41.27	5.34	0.000%
38	-5.27	-41.27	-9.41	5.27	41.27	9.41	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.0000001	0.0000001
2	Yes	4	0.0000001	0.00099243
3	Yes	6	0.0000001	0.00005274
4	Yes	6	0.0000001	0.00005566
5	Yes	5	0.0000001	0.00013806
6	Yes	6	0.0000001	0.00004924
7	Yes	5	0.0000001	0.00099789
8	Yes	5	0.0000001	0.00011274
9	Yes	6	0.0000001	0.00005474
10	Yes	6	0.0000001	0.00005260
11	Yes	4	0.0000001	0.00047928
12	Yes	6	0.0000001	0.00005073
13	Yes	6	0.0000001	0.00005038
14	Yes	4	0.0000001	0.00000001
15	Yes	5	0.0000001	0.00021487
16	Yes	5	0.0000001	0.00023724
17	Yes	5	0.0000001	0.00023791
18	Yes	5	0.0000001	0.00021381
19	Yes	5	0.0000001	0.00022733
20	Yes	5	0.0000001	0.00022669
21	Yes	5	0.0000001	0.00021332
22	Yes	5	0.0000001	0.00023645
23	Yes	5	0.0000001	0.00023668
24	Yes	5	0.0000001	0.00021385
25	Yes	5	0.0000001	0.00022942
26	Yes	5	0.0000001	0.00022928
27	Yes	4	0.0000001	0.00015476
28	Yes	5	0.0000001	0.00010748

tnxTower SSOE Group 1001 Madison Ave. Toledo, OH 43604 Phone: (419) 255-3830 FAX: (419) 255-6101	Job	BU 842875	Page	17 of 18
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	Client	CCI	Designed by	15423

29	Yes	5	0.00000001	0.00011877
30	Yes	4	0.00000001	0.00040878
31	Yes	5	0.00000001	0.00009680
32	Yes	5	0.00000001	0.00009347
33	Yes	4	0.00000001	0.00034380
34	Yes	5	0.00000001	0.00011556
35	Yes	5	0.00000001	0.00010699
36	Yes	4	0.00000001	0.00019292
37	Yes	5	0.00000001	0.00010241
38	Yes	5	0.00000001	0.00010151

Compression Checks

Pole Design Data

Section No.	Elevation ft	Size	L ft	L _u ft	Kl/r	F _a ksi	A in ²	Actual P K	Allow. P _a K	Ratio $\frac{P}{P_a}$
L1	168 - 119.25 (1)	TP34.288x24x0.25	48.75	0.00	0.0	39.000	26.2975	-12.76	1025.60	0.012
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.2813	45.00	0.00	0.0	39.000	36.5983	-19.20	1427.33	0.013
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	45.00	0.00	0.0	39.000	57.7498	-28.69	2252.24	0.013
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	45.00	0.00	0.0	38.705	68.1597	-41.25	2638.14	0.016

Pole Bending Design Data

Section No.	Elevation ft	Size	Actual M _x kip-ft	Actual f _{bx} ksi	Allow. F _{bx} ksi	Ratio $\frac{f_{bx}}{F_{bx}}$	Actual M _y kip-ft	Actual f _{by} ksi	Allow. F _{by} ksi	Ratio $\frac{f_{by}}{F_{by}}$
L1	168 - 119.25 (1)	TP34.288x24x0.25	549.25	30.638	39.000	0.786	0.00	0.000	39.000	0.000
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.2813	1363.00	44.132	39.000	1.132	0.00	0.000	39.000	0.000
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	2285.77	39.666	39.000	1.017	0.00	0.000	39.000	0.000
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	3494.14	43.478	38.705	1.123	0.00	0.000	38.705	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V K	Actual f _v ksi	Allow. F _v ksi	Ratio $\frac{f_v}{F_v}$	Actual T kip-ft	Actual f _{vt} ksi	Allow. F _{vt} ksi	Ratio $\frac{f_{vt}}{F_{vt}}$
L1	168 - 119.25 (1)	TP34.288x24x0.25	18.36	0.698	26.000	0.054	1.17	0.032	26.000	0.001
L2	119.25 - 78.5 (2)	TP42.387x32.8911x0.2813	22.06	0.603	26.000	0.046	1.19	0.019	26.000	0.001
L3	78.5 - 38.75 (3)	TP50.213x40.7166x0.375	25.33	0.439	26.000	0.034	1.15	0.010	26.000	0.000
L4	38.75 - 0 (4)	TP57.64x48.1441x0.375	28.31	0.415	26.000	0.032	1.18	0.007	26.000	0.000

tnxTower SSOE Group 1001 Madison Ave. Toledo, OH 43604 Phone: (419) 255-3830 FAX: (419) 255-6101	Job BU 842875	Page 18 of 18
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	Client CCI	Designed by 15423

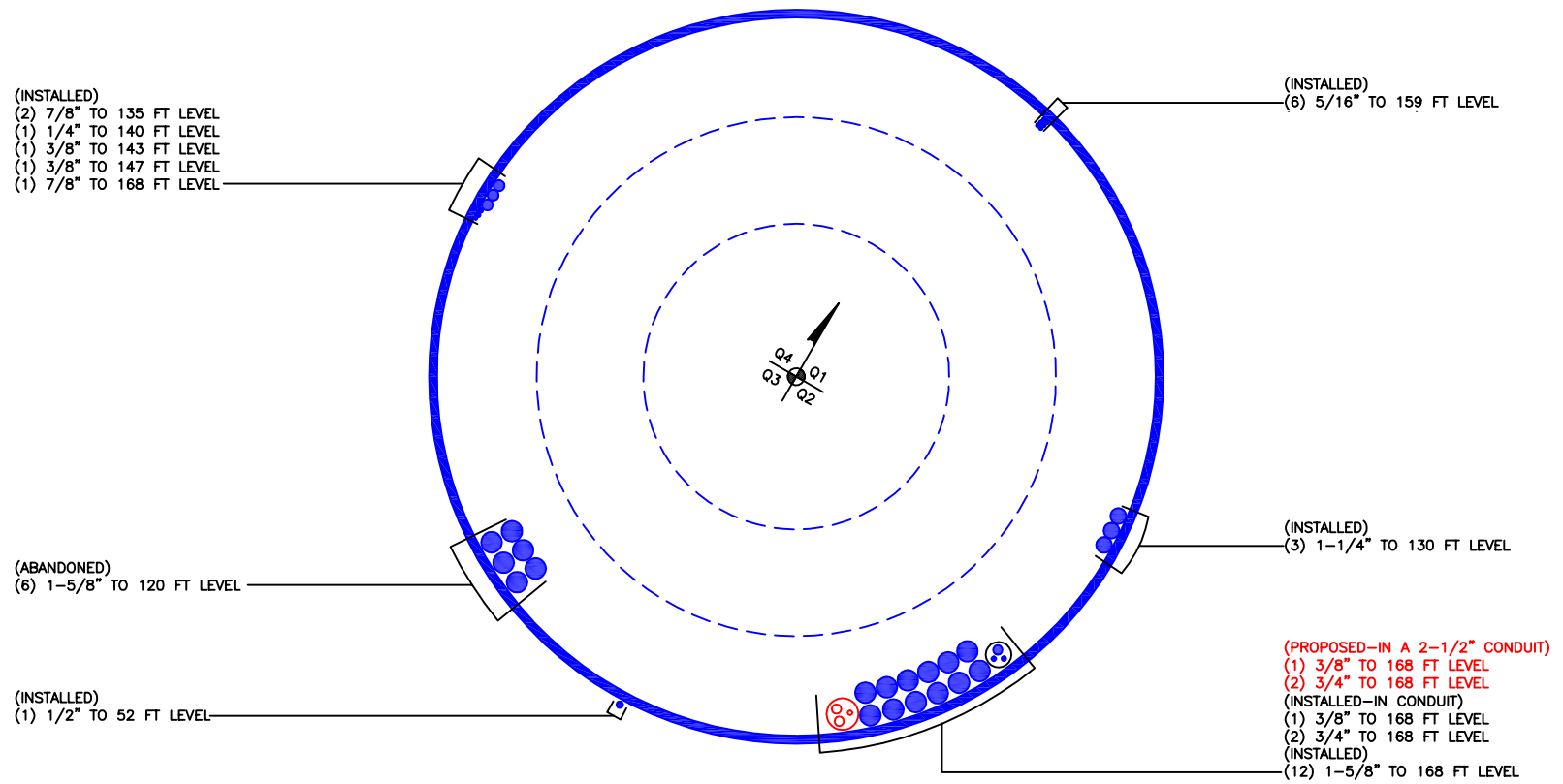
Pole Interaction Design Data

Section No.	Elevation ft	Ratio $\frac{P}{P_a}$	Ratio $\frac{f_{bx}}{F_{bx}}$	Ratio $\frac{f_{by}}{F_{by}}$	Ratio $\frac{f_v}{F_v}$	Ratio $\frac{f_{vt}}{F_{vt}}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	168 - 119.25 (1)	0.012	0.786	0.000	0.054	0.001	0.799 ✓	1.333	H1-3+VT ✓
L2	119.25 - 78.5 (2)	0.013	1.132	0.000	0.046	0.001	1.146 ✓	1.333	H1-3+VT ✓
L3	78.5 - 38.75 (3)	0.013	1.017	0.000	0.034	0.000	1.030 ✓	1.333	H1-3+VT ✓
L4	38.75 - 0 (4)	0.016	1.123	0.000	0.032	0.000	1.139 ✓	1.333	H1-3+VT ✓

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	SF*P _{allow} K	% Capacity	Pass Fail
L1	168 - 119.25	Pole	TP34.288x24x0.25	1	-12.76	1367.12	59.9	Pass
L2	119.25 - 78.5	Pole	TP42.387x32.8911x0.2813	2	-19.20	1902.63	85.9	Pass
L3	78.5 - 38.75	Pole	TP50.213x40.7166x0.375	3	-28.69	3002.24	77.3	Pass
L4	38.75 - 0	Pole	TP57.64x48.1441x0.375	4	-41.25	3516.64	85.5	Pass
Summary							ELC:	Existing/Proposed (LC5)
Pole (L2) Rating =							85.9 85.9	Pass Pass

APPENDIX B
BASE LEVEL DRAWING



APPENDIX C
ADDITIONAL CALCULATIONS

Square, Stiffened / Unstiffened Base Plate, Any Rod Material - Rev. F /G

- Assumptions:** 1) Rod groups at corners. Total # rods divisible by 4. Maximum total # of rods = 48 (12 per Corner).
 2) Rod Spacing = Straight Center-to-Center distance between any (2) adjacent rods (same corner)
 3) Clear space between bottom of leveling nut and top of concrete **not** exceeding $(1) \times (\text{Rod Diameter})$

Site Data

BU#: 842875
 Site Name: WINDSORDAY HILL
 App #: 345072 Rev. 4

Anchor Rod Data

Qty:	16	
Diam:	2.25	in
Rod Material:	A615-J	
Yield, Fy:	75	ksi
Strength, Fu:	100	ksi
Bolt Circle:	65	in
Anchor Spacing:	6	in

Plate Data

W=Side:	63	in
Thick:	3.25	in
Grade:	55	ksi
Clip Distance:	12	in

Stiffener Data (Welding at both sides)

Configuration:	Unstiffened	
Weld Type:		**
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

Pole Data

Diam:	57.64	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round

Stress Increase Factor

ASD ASIF:	1.333	
-----------	-------	--

** Note: for complete joint penetration groove welds the groove depth must be exactly 1/2 the stiffener thickness for calculation purposes

Base Reactions

TIA Revision:	F	
Unfactored Moment, M:	3494	ft-kips
Unfactored Axial, P:	41	kips
Unfactored Shear, V:	28	kips

Anchor Rod Results

TIA F --> Maximum Rod Tension: 158.7 Kips
 Allowable Tension: 195.0 Kips
 Anchor Rod Stress Ratio: 81.4% **Pass**

Base Plate Results

Base Plate Stress: 34.7 ksi
 Allowable PL Bending Stress: 55.0 ksi
 Base Plate Stress Ratio: 63.2% **Pass**

Flexural Check

PL Ref. Data

Yield Line (in):	31.46
Max PL Length:	31.46

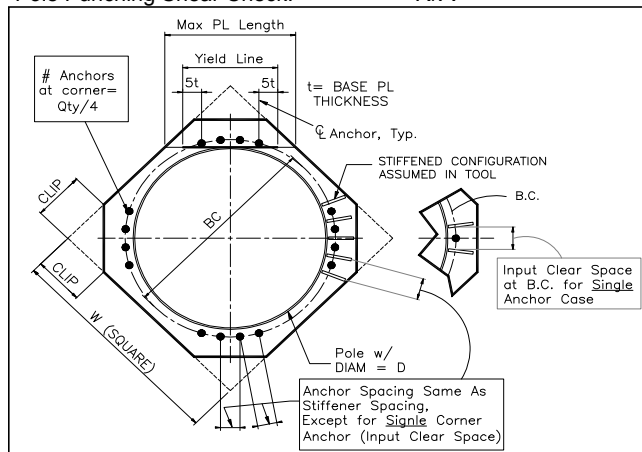
N/A - Unstiffened

Stiffener Results

Horizontal Weld: N/A
 Vertical Weld: N/A
 Plate Flex+Shear, $f_b/F_b + (f_v/F_v)^2$: N/A
 Plate Tension+Shear, $f_t/F_t + (f_v/F_v)^2$: N/A
 Plate Comp. (AISC Bracket): N/A

Pole Results

Pole Punching Shear Check: N/A



Moment Capacity of Drilled Concrete Shaft (Caisson) for TIA Rev F or G

Note: Shaft assumed to have ties, not spiral, transverse reinforcing

Site Data

BU#: 842875
 Site Name: WINDSORDAY HILL
 App #: 345072 Rev. 4

Enter Load Factors Below:		
For M (WL)	1.3	<---- Enter Factor
For P (DL)	1.3	<---- Enter Factor

Pier Properties	
Concrete:	
Pier Diameter =	8.0 ft
Concrete Area =	7238.2 in ²
Reinforcement:	
Clear Cover to Tie=	4.00 in
Horiz. Tie Bar Size=	5
Vert. Cage Diameter =	7.11 ft
Vert. Cage Diameter =	85.34 in
Vertical Bar Size =	11
Bar Diameter =	1.41 in
Bar Area =	1.56 in ²
Number of Bars =	24
As Total=	37.44 in ²
A s/ Aconc, Rho:	0.0052 0.52%

ACI 10.5 , ACI 21.10.4, and IBC 1810.

Min As for Flexural, Tension Controlled, Shafts:

$$(3) * (\text{sqrt}(f_c) / F_y) = 0.0027$$

$$200 / F_y = 0.0033$$

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.52%	OK

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = ($\phi=0.65$) Pn		
Pn per ACI 318 (10-2)	10716.37	kips
at Mu=($\phi=0.65$)Mn=	7467.49	ft-kips
Max Tu, ($\phi=0.9$) Tn =	2021.76	kips
at Mu= $\phi=(0.90)$ Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces		
TIA Revision:	F	
Max. Service Shaft M:	3861.31	ft-kips (* Note)
Max. Service Shaft P:	41	kips
Max Axial Force Type:	Comp.	

(* Note: Max Shaft Superimposed Moment does not necessarily equal to the shaft top reaction moment

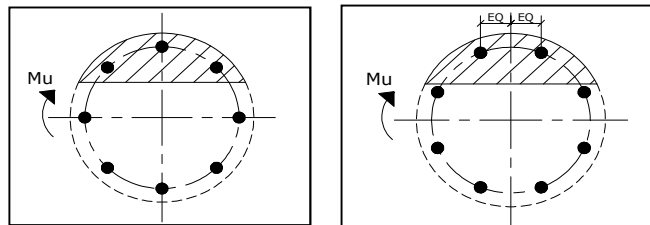
Load Factor	Shaft Factored Loads	
1.30	Mu:	5019.703 ft-kips
1.30	Pu:	53.3 kips

Material Properties	
Concrete Comp. strength, f'c =	3000 psi
Reinforcement yield strength, Fy =	60 ksi
Reinforcing Modulus of Elasticity, E =	29000 ksi
Reinforcement yield strain =	0.00207
Limiting compressive strain =	0.003
ACI 318 Code	
Select Analysis ACI Code=	2002
Seismic Properties	
Seismic Design Category =	B
Seismic Risk =	Low

Solve (Run) <-- Press Upon Completing All Input

Results:

Governing Orientation Case: 2



Case 1

Case 2

Dist. From Edge to Neutral Axis: 14.73 in

Extreme Steel Strain, ϵ_t : 0.0154

$\epsilon_t > 0.0050$, Tension Controlled

Reduction Factor, ϕ : 0.900

Output Note: Negative Pu=Tension

For Axial Compression, ϕ Pn = Pu: 53.30 kips
 Drilled Shaft Moment Capacity, ϕ Mn: 6875.49 ft-kips
 Drilled Shaft Superimposed Mu: 5019.70 ft-kips

(Mu/ ϕ Mn, Drilled Shaft Flexure CSR: 73.0%



Caisson Analysis (F)

842875 - WINDSORDAY HILL

016-00010-00

Moment =	3494.00	k*ft
Axial =	41.00	k
Shear =	28.00	k

Foundation Data		
Diameter =	8	ft
Length =	24.5	ft
Rebar Size =	#11	
# of bars =	24	
Tie Size =	#5	
Clear Cover =	4	in
f'c =	3	ksi

Soil Capacity From Caisson Program Using Additional Safety Factors

Additional Safety Factor from Caisson = 5.5

$$\text{Capacity} = \frac{\text{Safety Factor of 2}}{\text{Additional Safety Factor}} = \frac{2.00}{5.50} = 36.4\% \quad \text{O.K.}$$

SSOE Group

 *
 * CAISSON - Pier Foundations Analysis and Design - Copyright Power Line Systems, Inc. 1993-2011 *
 *

Project Title: BU# 842875 WINDSORDAY HILL
 Project Notes: 016-00010-00

Calculation Method: Full 8CD

***** I N P U T D A T A

Pier Properties

Diameter (ft)	Distance of Top of Pier above Ground (ft)	Concrete Strength (ksi)	Steel Yield Strength (ksi)
8.00	0.50	3.00	60.00

Soil Properties

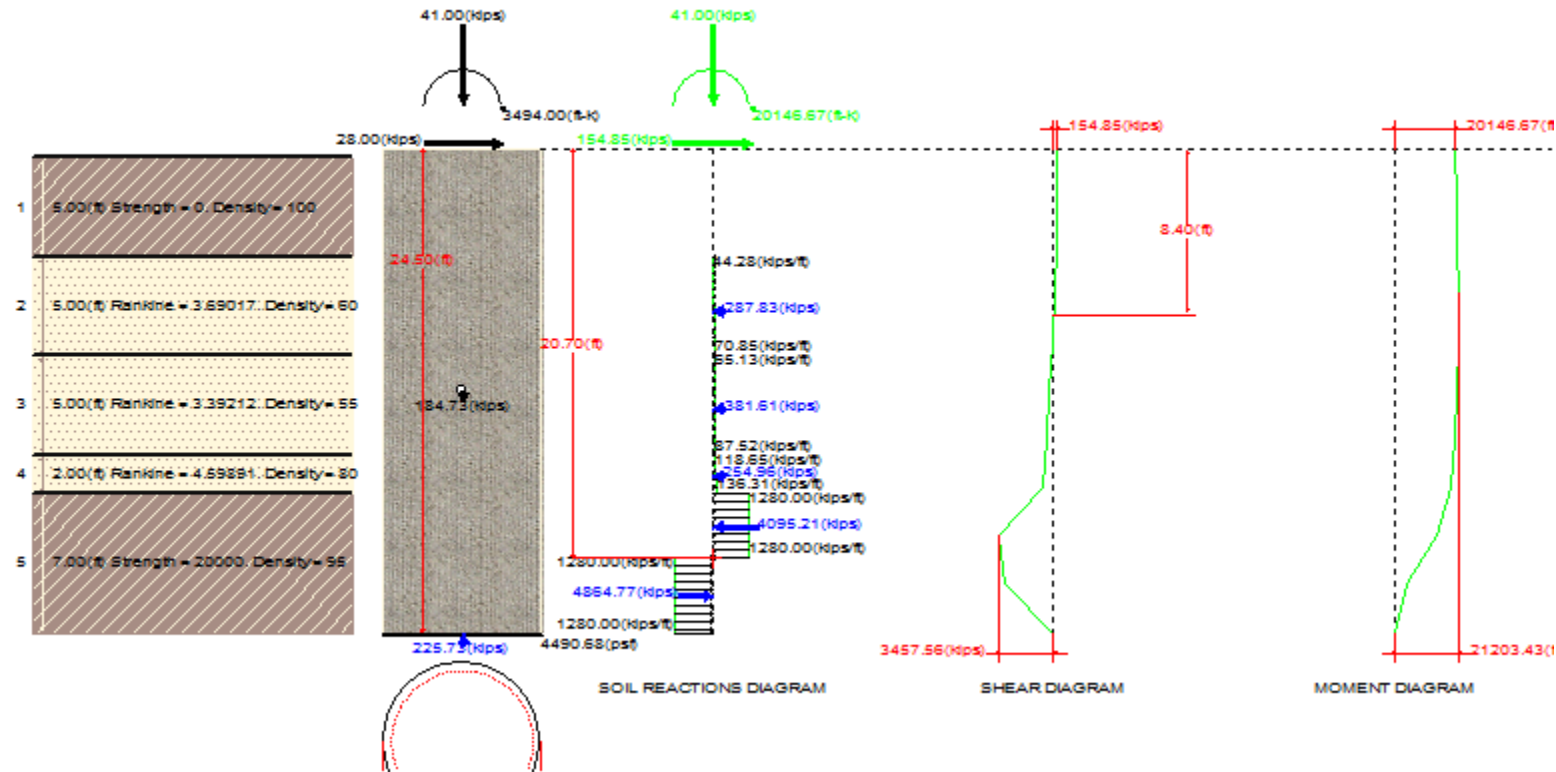
Layer	Type	Thickness (ft)	Depth at Top of Layer (ft)	Density (lbs/ft^3)	CU (psf)	KP	PHI (deg)
1	Clay	5.00	0.00	100.0			
2	Sand	5.00	5.00	60.0		3.690	35.00
3	Sand	5.00	10.00	55.0		3.392	33.00
4	Sand	2.00	15.00	80.0		4.599	40.00
5	Clay	7.00	17.00	95.0	20000.0		

Design (Factored) Loads at Top of Pier

Moment (ft-k)	Axial Load (kips)	Shear Load (kips)	Additional Safety Factor Against Soil Failure
-----	-----	-----	-----

3494.0 41.0 28.00 5.50

***** R E S U L T S



Calculated Pier Properties

Length (ft)	Weight (kips)	Pressure Due To Axial Load (psf)	Pressure Due To Weight (psf)	Total End-Bearing Pressure (psf)
24.500	184.726	815.7	3675.0	4490.7

Ultimate Resisting Forces Along Pier

Type	Distance of Top of Layer to Top of Pier	Thickness	Density	CU	KP	Force	Arm
------	--	-----------	---------	----	----	-------	-----

	(ft)	(ft)	(lbs/ft ³)	(psf)	(kips)	(ft)
Clay	0.50	5.00	100.0		0.00	3.00
Sand	5.50	5.00	60.0		3.690	8.19
Sand	10.50	5.00	55.0		3.392	13.12
Sand	15.50	2.00	80.0		4.599	16.52
Clay	17.50	3.20	95.0	20000.0	4095.21	19.10
Clay	20.70	3.80	95.0	20000.0	-4864.77	22.60

Shear and Moments Along Pier

Distance below Top of Pier (ft)	Shear (with Safety Factor) (kips)	Moment (with Safety Factor) (ft-k)	Shear (without Safety Factor) (kips)	Moment (without Safety Factor) (ft-k)
0.00	154.8	20146.7	28.2	3663.0
2.45	154.8	20526.1	28.2	3732.0
4.90	154.8	20905.4	28.2	3801.0
7.35	63.8	21203.4	11.6	3855.2
9.80	-84.7	21184.4	-15.4	3851.7
12.25	-253.8	20771.9	-46.1	3776.7
14.70	-446.0	19920.1	-81.1	3621.8
17.15	-722.4	18518.8	-131.3	3367.1
19.60	-3457.6	13819.3	-628.6	2512.6
22.05	-3136.0	3841.6	-570.2	698.5
24.50	-0.0	0.0	-0.0	0.0

Reinforcement and Capacity

Total Reinforcement Percent	Reinforcement Area (in ²)	Usable Axial Capacity (kips)	Usable Moment Capacity (ft-k)
0.32	23.16	41.0	4226.4

US Standard Re-Bars (Select one of the following)

Quantity	Name	Area (in ²)	Diameter (in)	Spacing (in)
116	#4	0.20	0.500	2.33
75	#5	0.31	0.625	3.60
53	#6	0.44	0.750	5.10
39	#7	0.60	0.875	6.93

30	#8	0.79	1.000	9.01
24	#9	1.00	1.128	11.26
19	#10	1.27	1.270	14.22
15	#11	1.56	1.410	18.01
11	#14	2.25	1.693	24.56



RADIO FREQUENCY EMISSIONS ANALYSIS REPORT EVALUATION OF HUMAN EXPOSURE POTENTIAL TO NON-IONIZING EMISSIONS

AT&T Existing Facility

Site ID: CT5139

Windsor day Hill
99 Day Hill Road
Windsor, CT 06095

July 9, 2016

EBI Project Number: 6216003138

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	3.69 %



July 9, 2016

AT&T Mobility – New England
Attn: Cameron Syme, RF Manager
550 Cochituate Road
Suite 550 – 13&14
Framingham, MA 06040

Emissions Analysis for Site: **CT5139 – Windsor day Hill**

EBI Consulting was directed to analyze the proposed AT&T facility located at **99 Day Hill Road, Windsor, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01 and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The number of $\mu\text{W}/\text{cm}^2$ calculated at each sample point is called the power density. The exposure limit for power density varies depending upon the frequencies being utilized. Wireless Carriers and Paging Services use different frequency bands each with different exposure limits, therefore it is necessary to report results and limits in terms of percent MPE rather than power density.

All results were compared to the FCC (Federal Communications Commission) radio frequency exposure rules, 47 CFR 1.1307(b)(1) – (b)(3), to determine compliance with the Maximum Permissible Exposure (MPE) limits for General Population/Uncontrolled environments as defined below.

General population/uncontrolled exposure limits apply to situations in which the general public may be exposed or in which persons who are exposed as a consequence of their employment may not be made fully aware of the potential for exposure or cannot exercise control over their exposure. Therefore, members of the general public would always be considered under this category when exposure is not employment related, for example, in the case of a telecommunications tower that exposes persons in a nearby residential area.

Public exposure to radio frequencies is regulated and enforced in units of microwatts per square centimeter ($\mu\text{W}/\text{cm}^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately $467 \mu\text{W}/\text{cm}^2$ and $567 \mu\text{W}/\text{cm}^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is $1000 \mu\text{W}/\text{cm}^2$. Because each carrier will be using different frequency bands, and each frequency band has different exposure limits, it is necessary to report percent of MPE rather than power density.



Occupational/controlled exposure limits apply to situations in which persons are exposed as a consequence of their employment and in which those persons who are exposed have been made fully aware of the potential for exposure and can exercise control over their exposure. Occupational/controlled exposure limits also apply where exposure is of a transient nature as a result of incidental passage through a location where exposure levels may be above general population/uncontrolled limits (see below), as long as the exposed person has been made fully aware of the potential for exposure and can exercise control over his or her exposure by leaving the area or by some other appropriate means.

Additional details can be found in FCC OET 65.

CALCULATIONS

Calculations were done for the proposed AT&T Wireless antenna facility located at **99 Day Hill Road, Windsor, CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

For all calculations, all equipment was calculated using the following assumptions:

- 1) 2 UMTS channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 2) 2 UMTS channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.
- 3) 2 LTE channels (2300 MHz (WCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 4) 2 LTE channels (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.
- 5) 2 LTE channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.



- 6) All radios at the proposed installation were considered to be running at full power and were uncombined in their RF transmissions paths per carrier prescribed configuration. Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. This is rarely the case, and if so, is never continuous.
- 7) For the following calculations the sample point was the top of a 6-foot person standing at the base of the tower. The maximum gain of the antenna per the antenna manufactures supplied specifications minus 10 dB was used in this direction. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 8) The antennas used in this modeling are the **Kathrein 800-10121, CCI OPA-65R-LCUU-H6, CCI OPA-65R-LCUU-H8, Quintel QS66512-2 and the CCI TPA-65R-LCUUUU-H8** for transmission in the 700 MHz, 850 MHz, 1900 MHz (PCS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.
- 9) The antenna mounting height centerlines of the proposed antennas are **168 feet** above ground level (AGL) for **Sector A**, **168 feet** above ground level (AGL) for **Sector B** and **168 feet** above ground level (AGL) for Sector C.
- 10) Emissions values for additional carriers were taken from the Connecticut Siting Council active database. Values in this database are provided by the individual carriers themselves.

All calculations were done with respect to uncontrolled / general public threshold limits.



AT&T Site Inventory and Power Data by Antenna

Sector:	A	Sector:	B	Sector:	C
Antenna #:	1	Antenna #:	1	Antenna #:	1
Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121	Make / Model:	Kathrein 800-10121
Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd	Gain:	11.45 / 14.35 dBd
Height (AGL):	168 feet	Height (AGL):	168 feet	Height (AGL):	168 feet
Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)	Frequency Bands	850 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	2,471.44	ERP (W):	2,471.44	ERP (W):	2,471.44
Antenna A1 MPE%	0.43 %	Antenna B1 MPE%	0.43 %	Antenna C1 MPE%	0.43 %
Antenna #:	2	Antenna #:	2	Antenna #:	2
Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H6	Make / Model:	CCI OPA-65R-LCUU-H8
Gain:	15.45 dBd	Gain:	15.45 dBd	Gain:	15.45 dBd
Height (AGL):	168 feet	Height (AGL):	168 feet	Height (AGL):	168 feet
Frequency Bands	2300 MHz (WCS)	Frequency Bands	2300 MHz (WCS)	Frequency Bands	2300 MHz (WCS)
Channel Count	2	Channel Count	2	Channel Count	2
Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts	Total TX Power(W):	120 Watts
ERP (W):	4,209.02	ERP (W):	4,209.02	ERP (W):	3,751.30
Antenna A2 MPE%	0.58 %	Antenna B2 MPE%	0.58 %	Antenna C2 MPE%	0.51 %
Antenna #:	3	Antenna #:	3	Antenna #:	3
Make / Model:	Quintel QS66512-2	Make / Model:	Quintel QS66512-2	Make / Model:	CCI TPA-65R-LCUUUU-H8
Gain:	10.85 / 13.85 dBd	Gain:	10.85 / 13.85 dBd	Gain:	10.85 / 13.85 dBd
Height (AGL):	168 feet	Height (AGL):	168 feet	Height (AGL):	168 feet
Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)	Frequency Bands	700 MHz / 1900 MHz (PCS)
Channel Count	4	Channel Count	4	Channel Count	4
Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts	Total TX Power(W):	240 Watts
ERP (W):	4,371.36	ERP (W):	4,371.36	ERP (W):	5,212.56
Antenna A3 MPE%	0.83 %	Antenna B3 MPE%	0.83 %	Antenna C3 MPE%	1.08 %

Site Composite MPE%	
Carrier	MPE%
AT&T – Max per sector	2.02 %
Nextel	0.24 %
Sprint	0.06 %
Clearwire	0.08 %
MetroPCS	0.94 %
Bloomfield PD	0.01 %
Municipal Ant. 1	0.17 %
Municipal Ant. 2	0.17 %
Municipal MW 1	0.00 %
Municipal MW 2	0.00 %
Site Total MPE %:	3.69 %

AT&T Sector A Total:	1.83 %
AT&T Sector B Total:	1.83 %
AT&T Sector C Total:	2.02 %
Site Total:	3.69 %

AT&T _ Max Values Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu\text{W}/\text{cm}^2$)	Frequency (MHz)	Allowable MPE ($\mu\text{W}/\text{cm}^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	418.91	168	1.15	850 MHz	567	0.20 %
AT&T 1900 MHz (PCS) UMTS	2	816.81	168	2.24	1900 MHz (PCS)	1000	0.22 %
AT&T 2300 MHz (WCS) LTE	2	1,875.65	168	5.14	2300 MHz (WCS)	1000	0.51 %
AT&T 700 MHz LTE	2	1,183.45	168	3.24	700 MHz	467	0.69 %
AT&T 1900 MHz (PCS) LTE	2	1,422.82	168	3.90	1900 MHz (PCS)	1000	0.39 %
						Total:	2.02 %



Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general public exposure to RF Emissions.

The anticipated maximum composite contributions from the AT&T facility as well as the site composite emissions value with regards to compliance with FCC's allowable limits for general public exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	1.83 %
Sector B:	1.83 %
Sector C:	2.02 %
AT&T Maximum Total (per sector):	2.02 %
Site Total:	3.69 %
Site Compliance Status:	COMPLIANT

The anticipated composite MPE value for this site assuming all carriers present is **3.69 %** of the allowable FCC established general public limit sampled at the ground level. This is based upon values listed in the Connecticut Siting Council database for existing carrier emissions.

FCC guidelines state that if a site is found to be out of compliance (over allowable thresholds), that carriers over a 5% contribution to the composite value will require measures to bring the site into compliance. For this facility, the composite values calculated were well within the allowable 100% threshold standard per the federal government.