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

July 18, 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: 876352**
AT&T Site ID: CTL01053
94 East High Street, East Hampton, CT 06424
Latitude: 41° 35' 14.2"/ Longitude: -72° 29' 19.6"

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 93-foot level of the existing 117.5-foot monopole tower at 94 East High Street in East Hampton, CT. The tower is owned by Crown Castle. The property is owned by Paul and Sandy's Too Inc. AT&T now intends to\ install three (3) RRU11's.

The Town of East Hampton could not confirm the original date and conditions of zoning.

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 Ms. Patience Anderson, Chairperson, Town Council for the Town of East Hampton, as well as the property owner, and Crown Castle is the tower 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.

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: Ms. Patience Anderson, Chairperson
Town of East Hampton Town Council
20 East High Street
East Hampton, CT 06424

Paul and Sandy's Too Inc.
93 East High Street
East Hampton, CT 06424

94 EAST HIGH ST #CELL

Location	94 EAST HIGH ST #CELL	**Mblu**	26/ 85/ 16/ /
Acct#	R07038	**Owner**	PAULS + SANDYS TOO INC
Assessment	$249,480	**Appraisal**	$356,400
PID	5476	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$156,400	$200,000	$356,400
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$109,480	$140,000	$249,480

Owner of Record

Owner	PAULS + SANDYS TOO INC	**Sale Price**	$0
Co-Owner		**Certificate**	
Address	93 EAST HIGH ST EAST HAMPTON, CT 06424	**Book & Page**	344/ 096
		Sale Date	01/28/2002
		Instrument	29

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
PAULS + SANDYS TOO INC	$0		344/ 096	29	01/28/2002

Building Information

Building 1 : Section 1

Year Built:
Living Area: 0
Replacement Cost: $0
Building Percent Good:
Replacement Cost Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Outbuildings
Model	

Building Photo

Grade:	
Story Height	
Foundation	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
# Extra Fixtures	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplace	
Fin Basement	
Fin Bsmt Qual	
Bsmt. Garages	
Gas Fireplace	

(http://images.vgsi.com/photos/EastHamptonCTPhotos//default.j

Building Layout

Building Layout

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

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	202
Description	Commercial Land & OB
Zone	C
Neighborhood	COM
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1
Frontage	
Depth	
Assessed Value	$140,000
Appraised Value	$200,000

Outbuildings

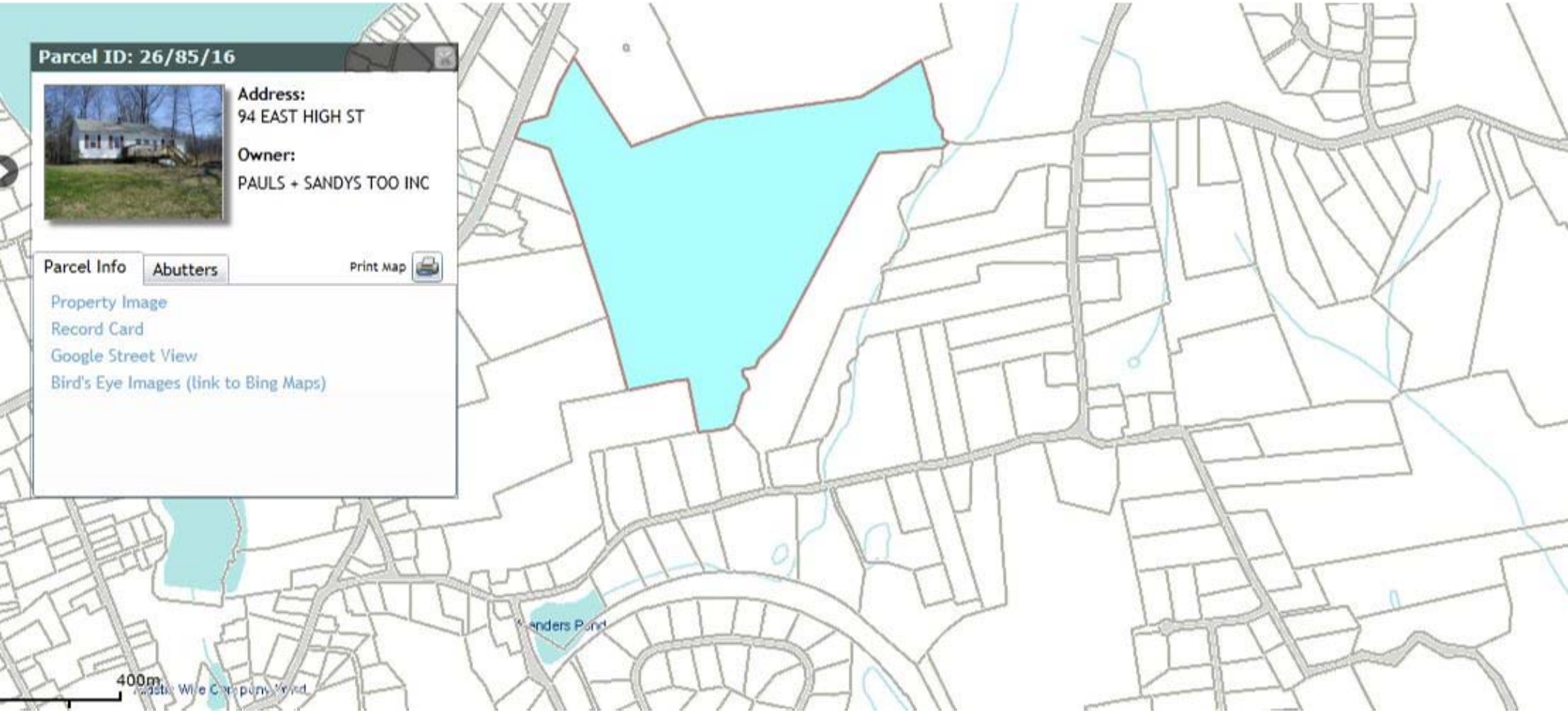
Outbuildings	Legend

Code	Description	Sub Code	Sub Description	Size	Value	Bldg #
BLD	Building			360 SF	$54,000	1
SHD1	Shed	FR	Frame	120 S.F.	$2,400	1
CEL	Cell Tower			1 UNITS	$100,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$156,400	$200,000	$356,400
2012	$156,400	$200,000	$356,400
2011	$156,400	$200,000	$356,400

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2014	$109,480	$140,000	$249,480
2012	$109,480	$140,000	$249,480
2011	$109,480	$140,000	$249,480


Parcel ID: 26/85/16
Address:
94 EAST HIGH ST
Owner:
PAULS + SANDYS TOO INC
Parcel Info
Abutters
Print Map
Property Image
Record Card
Google Street View
Bird's Eye Images (link to Bing Maps)
400m

WIRELESS COMMUNICATIONS FACILITY
CT1053 - LTE 2C
CROWN CASTLE, INC. SITE NO: 876352
EAST HAMPTON
94 EAST HIGH STREET
EAST HAMPTON, CT 06424

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2003 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2005 CONNECTICUT SUPPLEMENT AND 2009 AMENDMENTS, INCLUDING THE TIA/EIA-222 REVISION "F" "STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES." 2005 CONNECTICUT FIRE SAFETY CODE AND 2009 AMENDMENTS, NATIONAL ELECTRICAL CODE AND LOCAL CODES.
2. THE COMPOUND, TOWER, PRIMARY GROUND RING, ELECTRICAL SERVICE TO THE METER BANK AND TELEPHONE SERVICE TO THE DEMARCATION POINT ARE PROVIDED BY SITE OWNER. AS BUILT FIELD CONDITIONS REGARDING THESE ITEMS SHALL BE CONFIRMED BY THE CONTRACTOR. SHOULD ANY FIELD CONDITIONS PRECLUDE COMPLIANCE WITH THE DRAWINGS, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE ENGINEER AND SHALL NOT PROCEED WITH ANY AFFECTED WORK.
3. CONTRACTOR SHALL REVIEW ALL DRAWINGS AND SPECIFICATIONS IN THE CONTRACT DOCUMENT SET. CONTRACTOR SHALL COORDINATE ALL WORK SHOWN IN THE SET OF DRAWINGS. THE CONTRACTOR SHALL PROVIDE A COMPLETE SET OF DRAWINGS TO ALL SUBCONTRACTORS AND ALL RELATED PARTIES. THE SUBCONTRACTORS SHALL EXAMINE ALL THE DRAWINGS AND SPECIFICATIONS FOR THE INFORMATION THAT AFFECTS THEIR WORK.
4. CONTRACTOR SHALL PROVIDE A COMPLETE BUILD-OUT WITH ALL FINISHES, STRUCTURAL, MECHANICAL, AND ELECTRICAL COMPONENTS AND PROVIDE ALL ITEMS AS SHOWN OR INDICATED ON THE DRAWINGS OR IN THE WRITTEN SPECIFICATIONS.
5. CONTRACTOR SHALL FURNISH ALL MATERIAL, LABOR AND EQUIPMENT TO COMPLETE THE WORK AND FURNISH A COMPLETED JOB ALL IN ACCORDANCE WITH LOCAL AND STATE GOVERNING AUTHORITIES AND OTHER AUTHORITIES HAVING LAWFUL JURISDICTION OVER THE WORK.
6. CONTRACTOR SHALL SECURE AND PAY FOR ALL PERMITS AND ALL INSPECTIONS REQUIRED AND SHALL ALSO PAY FEES REQUIRED FOR THE GENERAL CONSTRUCTION, PLUMBING, ELECTRICAL AND HVAC. PERMITS SHALL BE PAID FOR BY THE RESPECTIVE SUBCONTRACTORS.
7. CONTRACTOR SHALL MAINTAIN A CURRENT SET OF DRAWINGS AND SPECIFICATIONS ON SITE AT ALL TIMES AND INSURE DISTRIBUTION OF NEW DRAWINGS TO SUBCONTRACTORS AND OTHER RELEVANT PARTIES AS SOON AS THEY ARE MADE AVAILABLE. ALL OLD DRAWINGS SHALL BE MARKED VOID AND REMOVED FROM THE CONTRACT AREA. THE CONTRACTOR SHALL FURNISH AN 'AS-BUILT' SET OF DRAWINGS TO OWNER UPON COMPLETION OF PROJECT.
8. LOCATION OF EQUIPMENT, AND WORK SUPPLIED BY OTHERS THAT IS DIAGRAMMATICALLY INDICATED ON THE DRAWINGS SHALL BE DETERMINED BY THE CONTRACTOR. THE CONTRACTOR SHALL DETERMINE LOCATIONS AND DIMENSIONS SUBJECT TO STRUCTURAL CONDITIONS AND WORK OF THE SUBCONTRACTORS.
9. 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 BUILDING'S/PROPERTY'S OPERATIONS, COORDINATE WORK WITH BUILDING/PROPERTY OWNER.
10. 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.
11. ALL UTILITY WORK SHALL BE IN ACCORDANCE WITH LOCAL UTILITY COMPANY REQUIREMENTS AND SPECIFICATIONS.
12. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUBCONTRACTORS FOR ANY CONDITION PER MFR.'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
13. ANY AND ALL ERRORS, DISCREPANCIES, AND 'MISSED" ITEMS ARE TO BE BROUGHT TO THE ATTENTION OF THE AT&T CONSTRUCTION MANAGER DURING THE BIDDING PROCESS BY THE CONTRACTOR. ALL THESE ITEMS ARE TO BE INCLUDED IN THE BID. NO 'EXTRA' WILL BE ALLOWED FOR MISSED ITEMS.
14. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL ON-SITE SAFETY FROM THE TIME THE JOB IS AWARDED UNTIL ALL WORK IS COMPLETE AND ACCEPTED BY THE OWNER.
15. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO THE CONSTRUCTION MANAGER FOR REVIEW.
16. THE CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS, ELEVATIONS, ANGLES, AND EXISTING CONDITIONS AT THE SITE, PRIOR TO FABRICATION AND/OR INSTALLATION OF ANY WORK IN THE CONTRACT AREA.
17. COORDINATION, LAYOUT, FURNISHING AND INSTALLATION OF CONDUIT AND ALL APPURTENANCES REQUIRED FOR PROPER INSTALLATION OF ELECTRICAL AND TELECOMMUNICATION SERVICE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
18. ALL EQUIPMENT AND PRODUCTS PURCHASED ARE TO BE REVIEWED BY CONTRACTOR AND ALL APPLICABLE SUB-CONTRACTORS FOR ANY CONDITION PER THE MANUFACTURER'S RECOMMENDATIONS. CONTRACTOR TO SUPPLY THESE ITEMS AT NO COST TO OWNER OR CONSTRUCTION MANAGER.
19. 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.
20. THE CONTRACTOR SHALL CONTACT "CALL BEFORE YOU DIG" AT LEAST 48 HOURS PRIOR TO ANY EXCAVATIONS AT 1-800-922-4455. ALL UTILITIES SHALL BE IDENTIFIED AND CLEARLY MARKED PRIOR TO ANY EXCAVATION WORK. CONTRACTOR SHALL MAINTAIN AND PROTECT MARKED UTILITIES THROUGHOUT PROJECT COMPLETION.
21. CONTRACTOR SHALL COMPLY WITH OWNERS ENVIRONMENTAL ENGINEER ON ALL METHODS AND PROVISIONS FOR ALL EXCAVATION ACTIVITIES INCLUDING SOIL DISPOSAL. ALL BACKFILL MATERIALS TO BE PROVIDED BY THE CONTRACTOR.

SITE DIRECTIONS

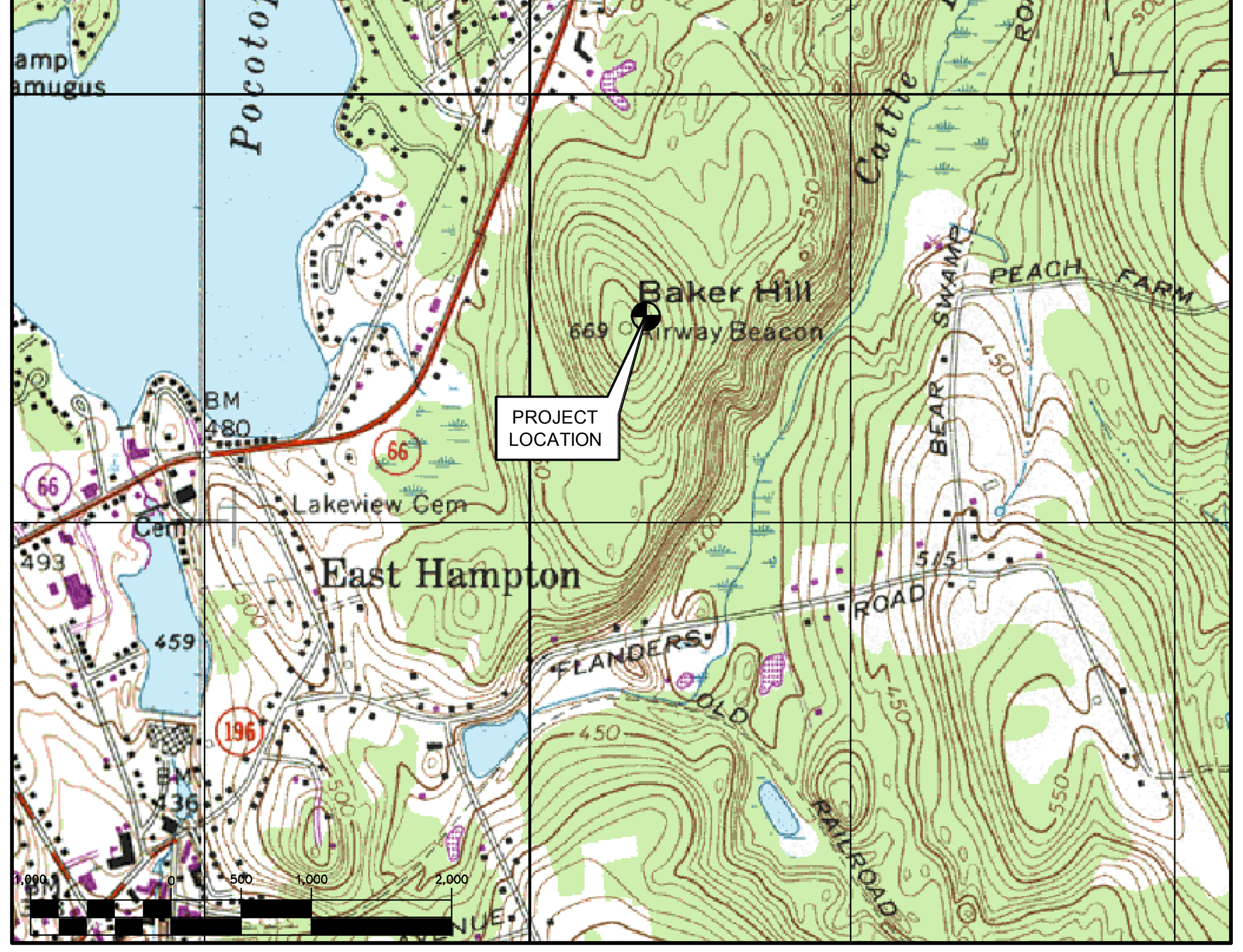
FROM: 500 ENTERPRISE DRIVE, ROCKY HILL, CONNECTICUT
TO: 94 EAST HIGH STREET, EAST HAMPTON, CT

1.	HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD	0.31 MI
2.	TURN LEFT ONTO CAPITAL BLVD	0.27 MI
3.	TURN LEFT ONTO WEST ST	0.30 MI
4.	TURN LEFT TO MERGE ONTO I-91 S TOWARD NEW HAVEN	1.41 MI
5.	TAKE EXIT 22S ONTO CT-9S	5.55 MI
6.	TURN RIGHT ONTO CT-17/ST JOHNS SQ	0.18 MI
7.	TURN RIGHT ONTO CT-66/MAIN ST	0.94 MI
8.	TURN RIGHT ONTO MARLBOROUGH ST. CONTINUE TO FOLLOW CT-66	8.95 MI
9.	94 EAST HIGH ST IS ON THE RIGHT	

VICINITY MAP

SCALE: 1" = 1000'

NORTH



PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:

A. INSTALL (3) NEW RRUS-11 BEHIND EXISTING POSITION 4 ANTENNA.

PROJECT INFORMATION

AT&T SITE NUMBER:	CT1053
AT&T SITE NAME:	EAST HAMPTON
SITE ADDRESS:	CROWN CASTLE, INC. SITE NO: 876352 94 EAST HIGH STREET EAST HAMPTON, CT 06424
LESSEE/APPLICANT:	NEW CINGULAR WIRELESS PCS, LLC 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT. 06405
PROJECT COORDINATES:	LATITUDE: 41°-35'-14.26" N LONGITUDE: 72°-29'-19.54" W GROUND ELEVATION: ±669' AMSL GROUND ELEVATION REFERENCED FROM GOOGLE EARTH. COORDINATES REFERENCED FROM RFD DOCUMENTS.

SHEET INDEX

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	06/07/16	JTD	CAG	CONSTRUCTION DOCUMENTS – ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

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

AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
EAST HAMPTON
SITE NUMBER: CT1053
94 EAST HIGH STREET
EAST HAMPTON, CT 06424

DATE: 05/11/16
SCALE: AS NOTED
JOB NO. 16071.04

TITLE SHEET

T-1

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2003 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2005 CT STATE BUILDING CODE AND 2009 AMENDMENTS.

1. DESIGN CRITERIA:

- WIND LOAD: PER EIA/TIA 222 F-96 (ANTENNA MOUNTS): 85 MPH (FASTEST MILE), EQUIVALENT TO 100 MPH (3 SECOND GUST)
- BUILDING CLASSIFICATION: II (BASED ON IBC TABLE 1604.5)
- BASIC WIND SPEED (OTHER STRUCTURE): 105 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 AMMENDMENT.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-02 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING CODE.
2. 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.
3. 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.
4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
5. THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
6. 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.
7. 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.
8. 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.
9. 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
10. 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.
11. 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.
12. 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.
13. NO DRILLING WELDING OR TAPING ON CL&P OWNED EQUIPMENT.
14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)

   A. STRUCTURAL STEEL (W SHAPES)---ASTM A992 (FY = 50 KSI)
   B. STRUCTURAL STEEL (OTHER SHAPES)---ASTM A36 (FY = 36 KSI)
   C. STRUCTURAL HSS (RECTANGULAR SHAPES)---ASTM A500 GRADE B, (FY = 46 KSI)
   D. STRUCTURAL HSS (ROUND SHAPES)---ASTM A500 GRADE B, (FY = 42 KSI)
   E. PIPE---ASTM A53 (FY = 35 KSI)
   F. CONNECTION BOLTS---ASTM A325-N
   G. U-BOLTS---ASTM A36
   H. ANCHOR RODS---ASTM F 1554
   I. WELDING ELECTRODE---ASTM E 70XX

2. 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.
3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION.
4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS, MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.
5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR DELIVERY TO SITE.
6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
8. 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.
9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
10. 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.
11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
12. 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.
13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.
14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
16. FABRICATE BEAMS WITH MILL CAMBER UP.
17. 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.
18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE PERFORMED BY AN INDEPENDENT TESTING LABORATORY.
20. 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:

1. ANTENNA PANELS:
   A. SHERWIN WILLIAMS POLANE-B
   B. COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.
2. COAXIAL CABLES:
   A. ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH)
   B. TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH)
   C. COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.

EXAMINATION AND PREPARATION:

1. 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.
2. 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.
3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
5. CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
6. IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
7. 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.
8. 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.
9. 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.
10. 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).
11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

CLEANING:

1. COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.

APPLICATION:

1. APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
3. APPLY EACH COAT TO UNIFORM FINISH.
4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

COMPLETED WORK:

1. SAMPLES: PREPARE 24" X 24" SAMPLE AREA FOR REVIEW.
2. MATCH APPROVED SAMPLES FOR COLOR, TEXTURE AND COVERAGE. REMOVE REFINISH OR REPAINT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

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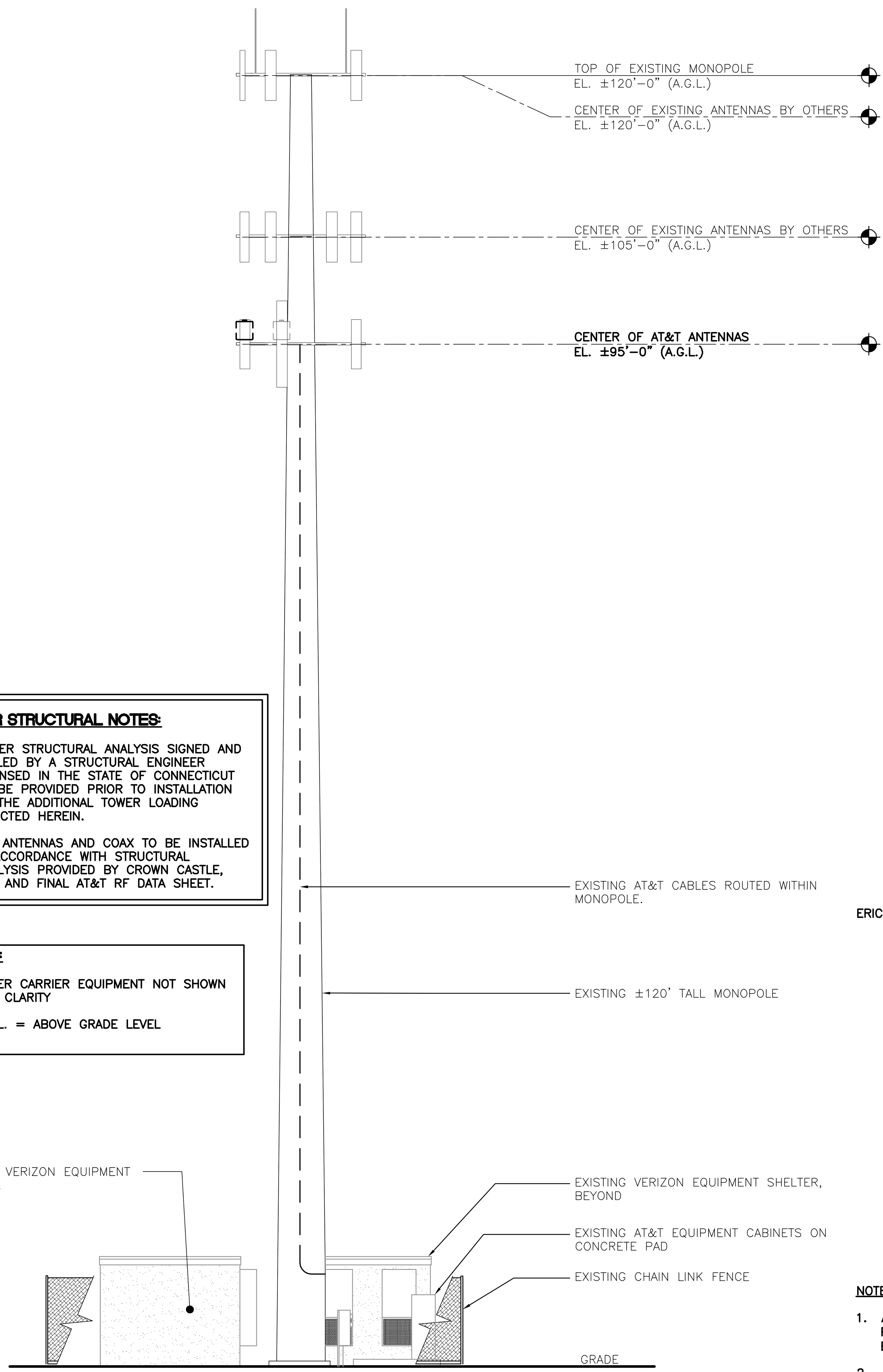
SCALE: AS NOTED
JOB NO. 16071.04

NOTES AND SPECIFICATIONS

N-1

Sheet No. 2 of 7



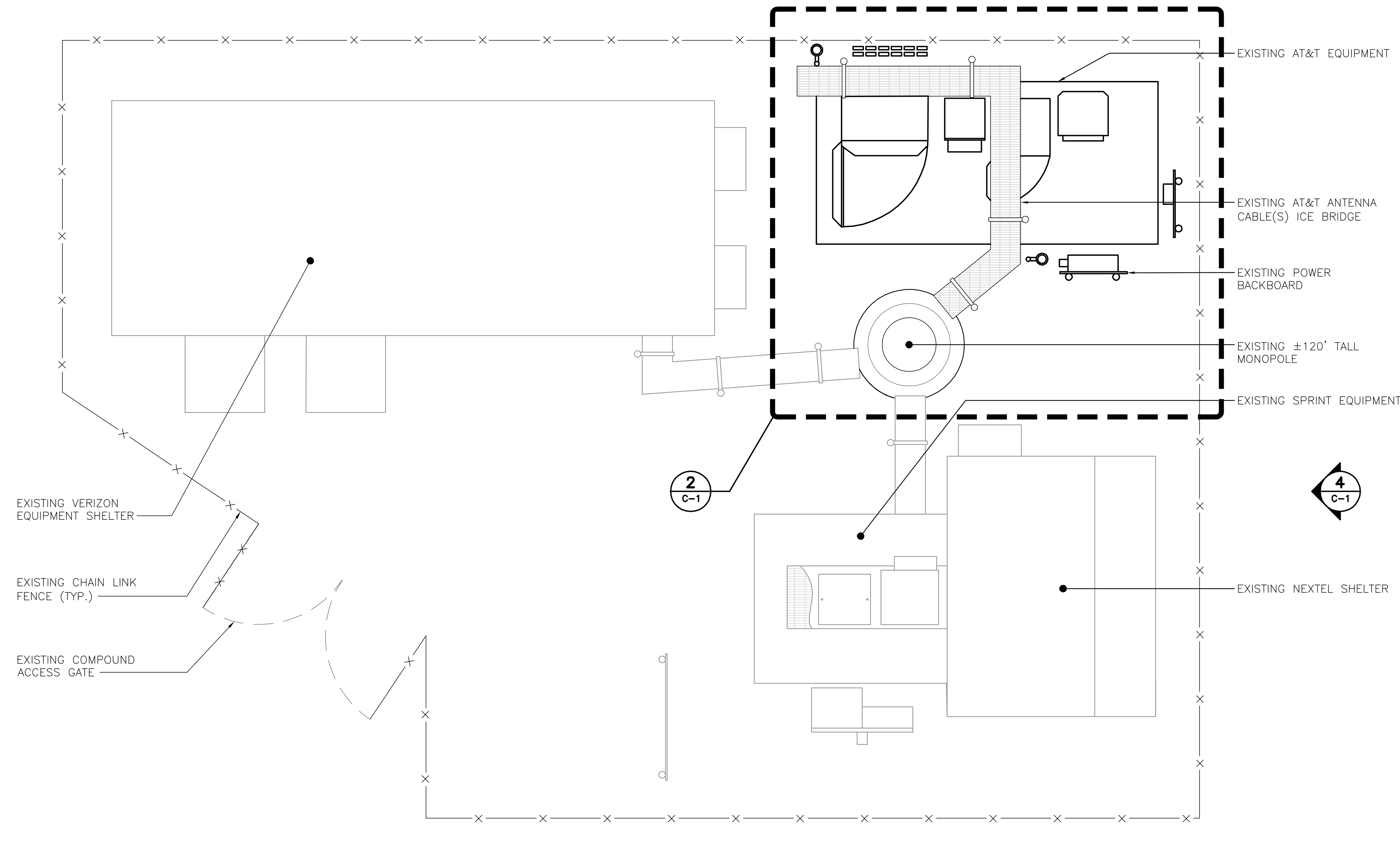
TOWER STRUCTURAL NOTES:

1. 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.
2. ALL ANTENNAS AND COAX TO BE INSTALLED IN ACCORDANCE WITH STRUCTURAL ANALYSIS PROVIDED BY CROWN CASTLE, INC. AND FINAL AT&T RF DATA SHEET.

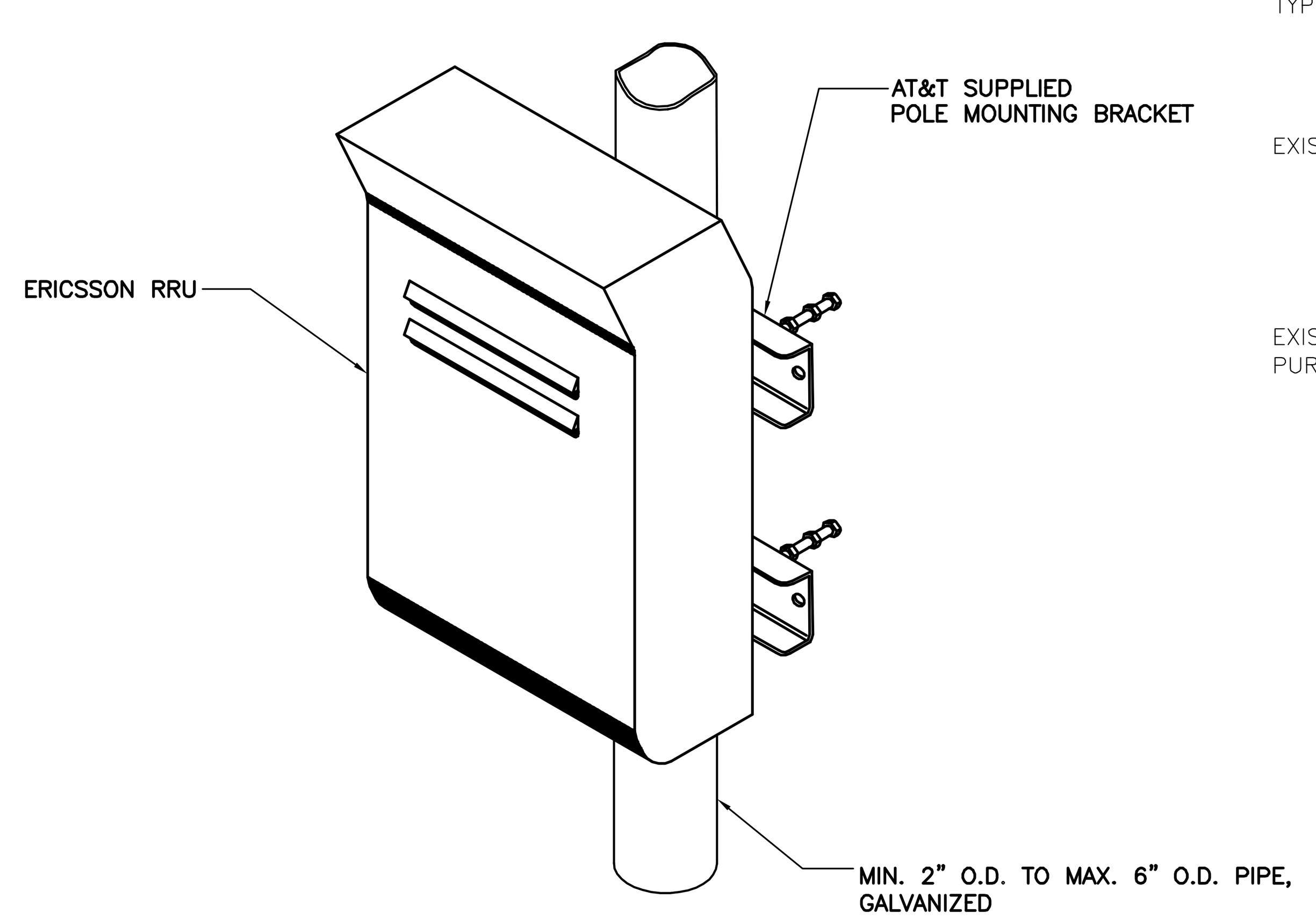
NOTES:

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

4 / C-1 **SOUTHEAST ELEVATION**
SCALE: 1/8" = 1'-0"



1 / C-1 **COMPOUND PLAN**
SCALE: 1/4" = 1'-0"
NORTH

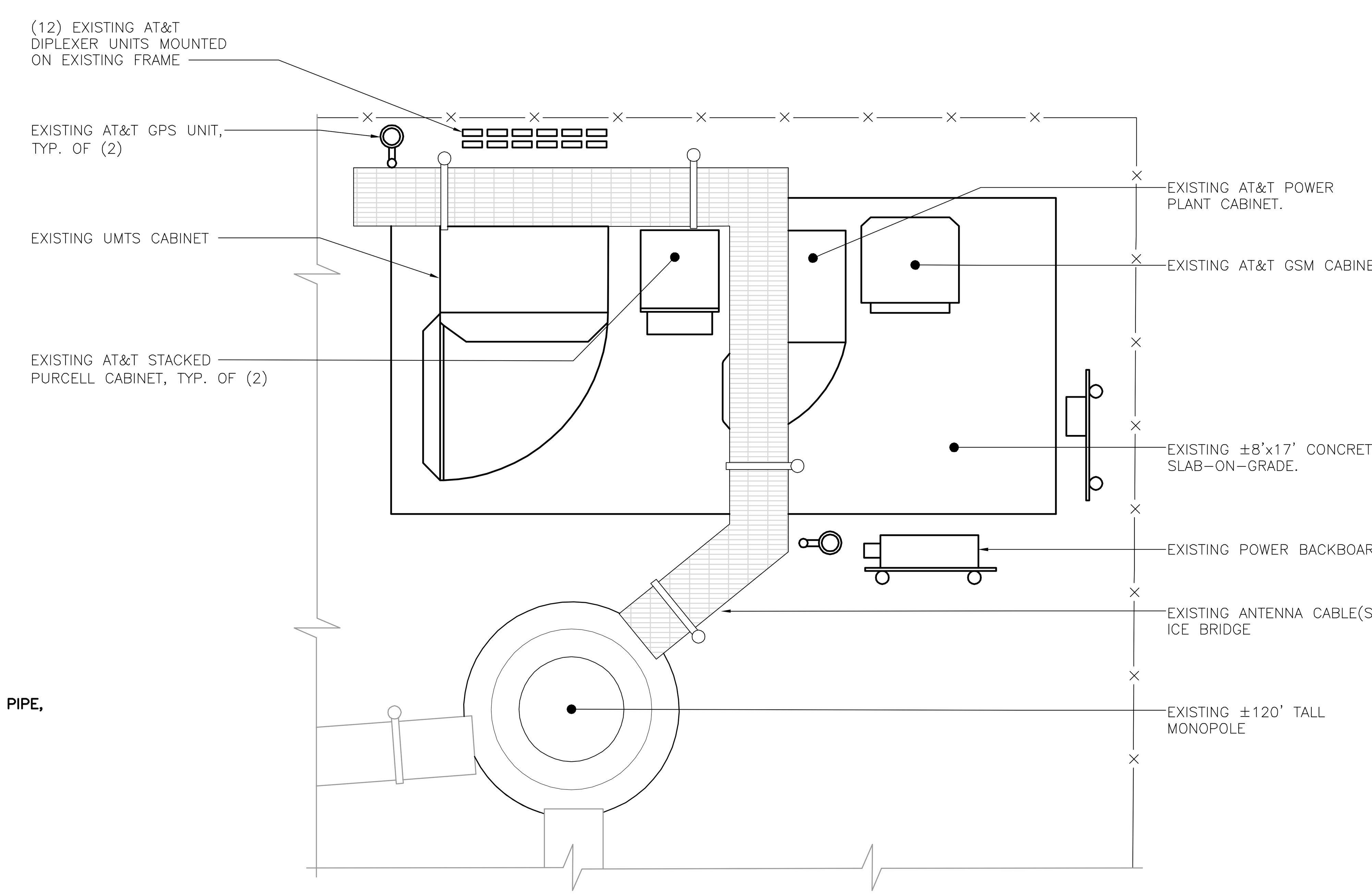


ISOMETRIC VIEW

NOTES:

1. 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 INSTALLS RRU AND MAKES CABLE TERMINATIONS.
2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.

3 / C-1 **TYPICAL RRUS MOUNTING DETAILS**
SCALE: NTS



2 / C-1 **EQUIPMENT LAYOUT PLAN**
SCALE: 3/8" = 1'-0"
NORTH

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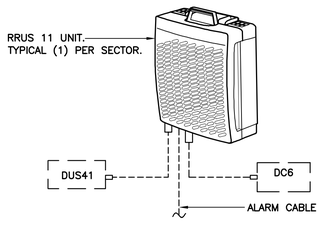
PLANS, ELEVATION AND DETAILS

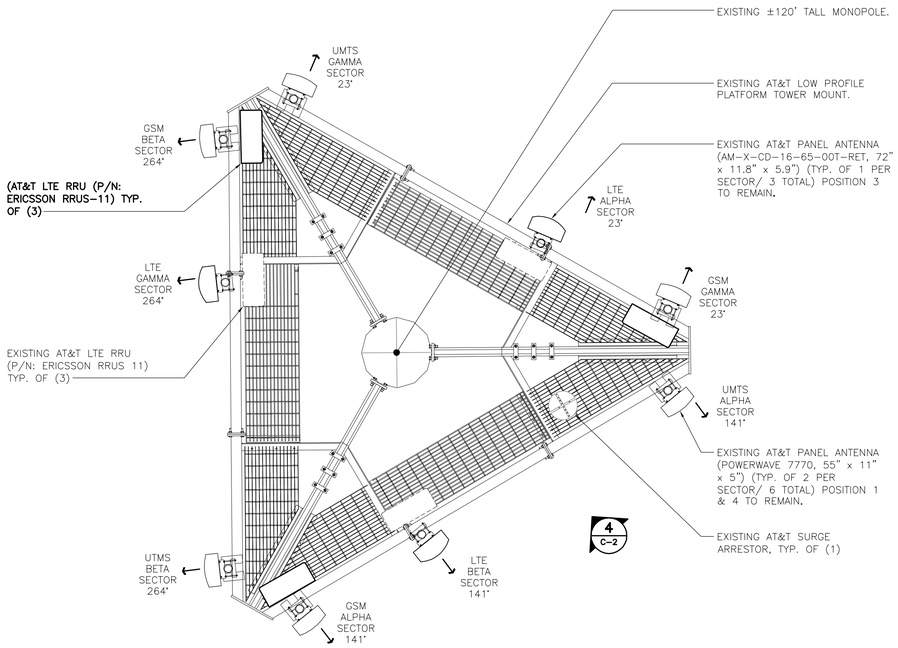
C-1



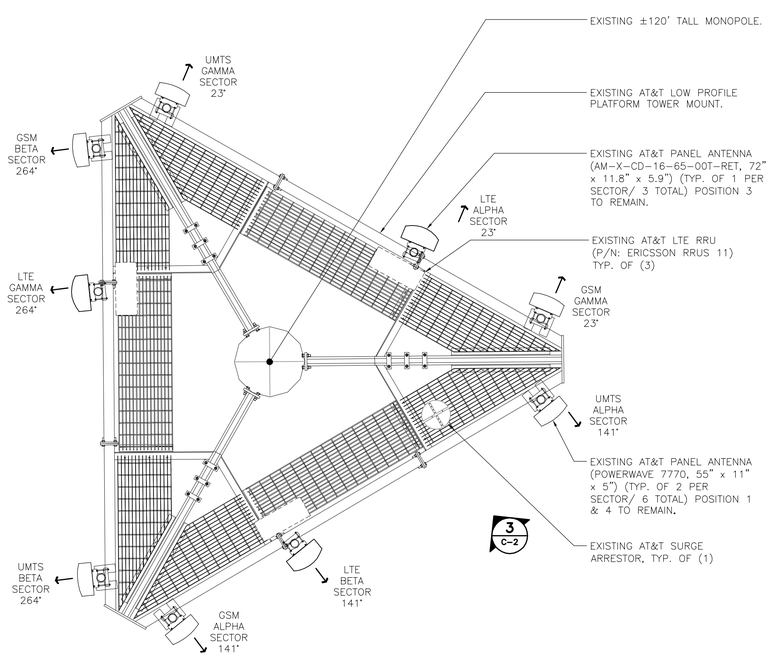
RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS 11	17.8"L x 17.3"W x 7.2"D	50 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

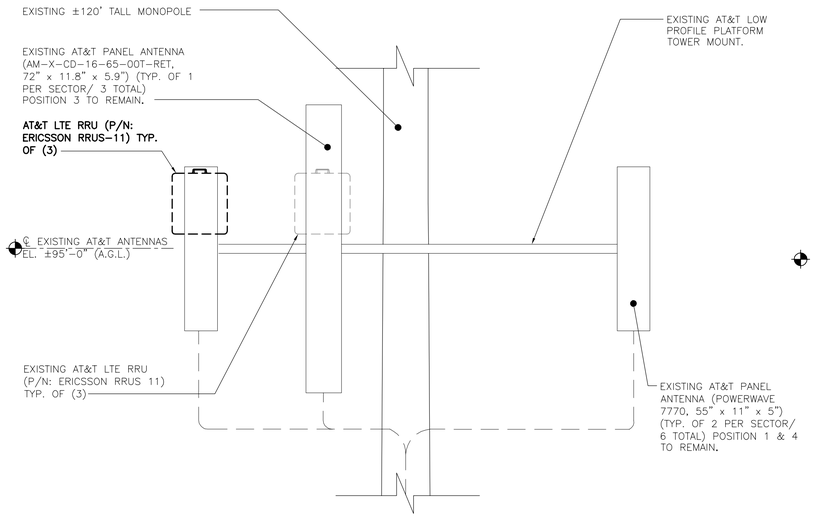
5 / C-2 **ERICSSON RRUS 11 DETAIL**
SCALE: 1" = 1'-0"



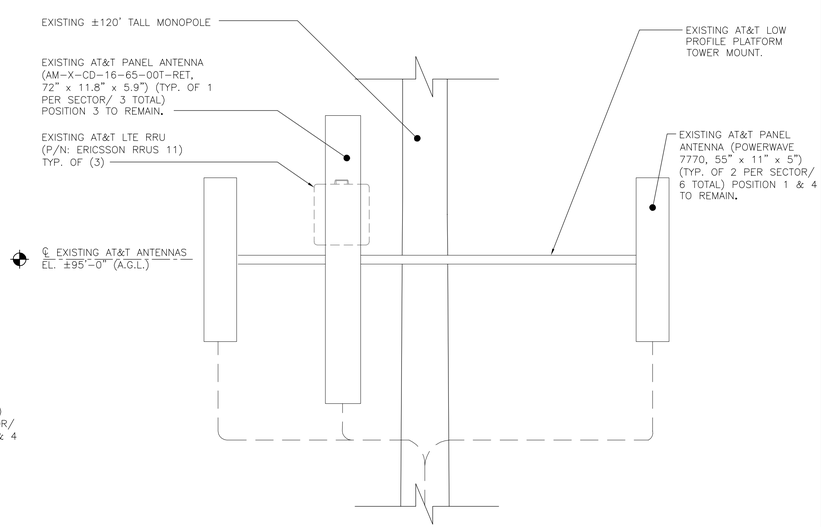
2 / C-2 **PROPOSED ANTENNA PLAN**
SCALE: 1/2" = 1'-0"



1 / C-2 **EXISTING ANTENNA PLAN**
SCALE: 1/2" = 1'-0"



4 / C-2 **PROPOSED ANTENNA PLAN**
SCALE: 1/2" = 1'-0"



3 / C-2 **EXISTING ANTENNA PLAN**
SCALE: 1/2" = 1'-0"

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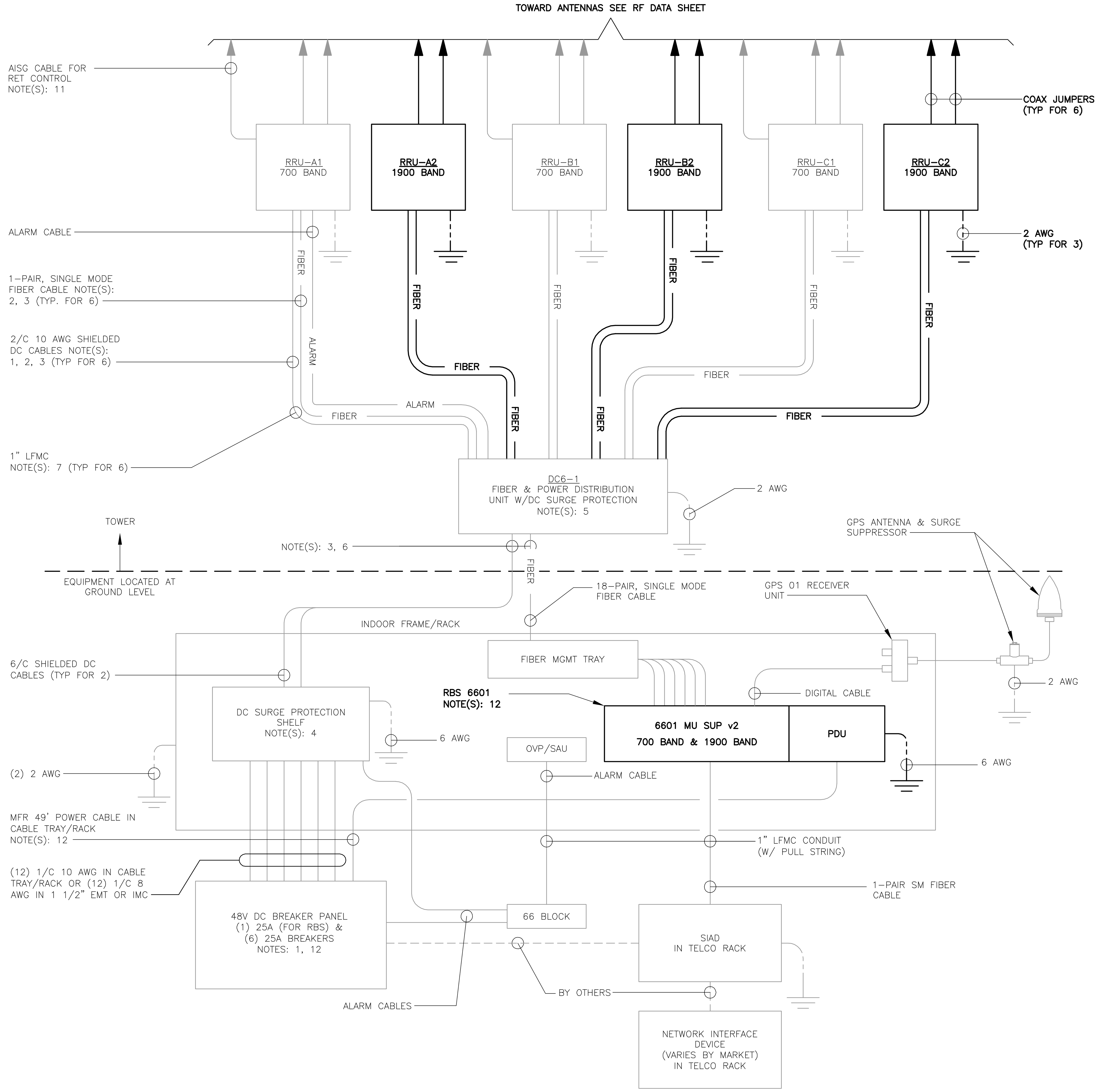
LTE 2C EQUIPMENT DETAILS

C-2

Sheet No. 4 of 7



1 E–1 LTE SCHEMATIC DIAGRAM

NOT TO SCALE

LTE SCHEMATIC DIAGRAM NOTES:

1. BREAKERS TO BE TAGGED AND LOCKED OUT. A 20A (MIN.) OR 30A (MAX.) BREAKER FOR RRUs MAY BE SUBSTITUTED FOR THE RECOMMENDED 25A BREAKER. SIZE 12 CONDUCTORS MAY BE USED ONLY WITH 20A BREAKERS.
2. LEAVE COILED AND PROTECTED UNTIL TERMINATED.
3. DC AND FIBER CABLE SHALL BE ROUTED WITH THE EXISTING COAX CABLE.
4. DC SURGE PROTECTION SHELF SHALL BE RAYCAP DCx–48–60–RM.
5. FIBER & DC DISTRIBUTION BOX W/DC SURGE PROTECTION SHALL BE RAYCAP DC6–48–60–18–8F.
6. SUPPORT FIBER & DC POWER CABLES WITH SNAP–IN HANGERS SPACED NO GREATER THAN 3 FEET APART ON TOWER. SUPPORT FIBER AND DC POWER CABLES INSIDE MONOPOLE WITH CABLE HOISTING GRIPS AT 250 FT MAXIMUM INTERVALS. DRESS CABLES TO PREVENT CONTACT WITH ENTRANCE AND EXIT OPENINGS.
7. CONDUIT TO BE USED ON A TOWER IF THE RRU IS MORE THAN 10' FROM THE DISTRIBUTION UNITS. MAX CABLE LENGTH IS 16 FEET.
8. SINGLE–CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX® OR KS24194™, COPPER, UL LISTED RHH NON–HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS I (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR –48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI–CONDUCTOR DC POWER CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/ 75°C WET INSTALLATION.
9. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
10. FIBER OPTIC CABLES SHALL BE INSTALLED IN FLEXIBLE CONDUIT AS SCOPED BY MARKET.
11. RET CONTROL FROM THE RRU IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
12. RBS 6601 VARIANT 2 REQUIRES A 25A BREAKER AND 10 AWG (MIN.) CONDUCTORS. REPLACE EXISTING 15A OR 20A BREAKERS AND 12 AWG CONDUCTORS WHEN UPGRADING AN EXISTING RBS 6601 VARIANT 1.

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:

   1. TESTING PROCEDURE INCLUDING THE MAKE AND MODEL OF TEST EQUIPMENT.
   2. CERTIFICATION OF TESTING EQUIPMENT CALIBRATION WITHIN SIX (6) MONTHS OF DATE OF TESTING. INCLUDE CERTIFICATION LAB ADDRESS AND TELEPHONE NUMBER.
   3. 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.

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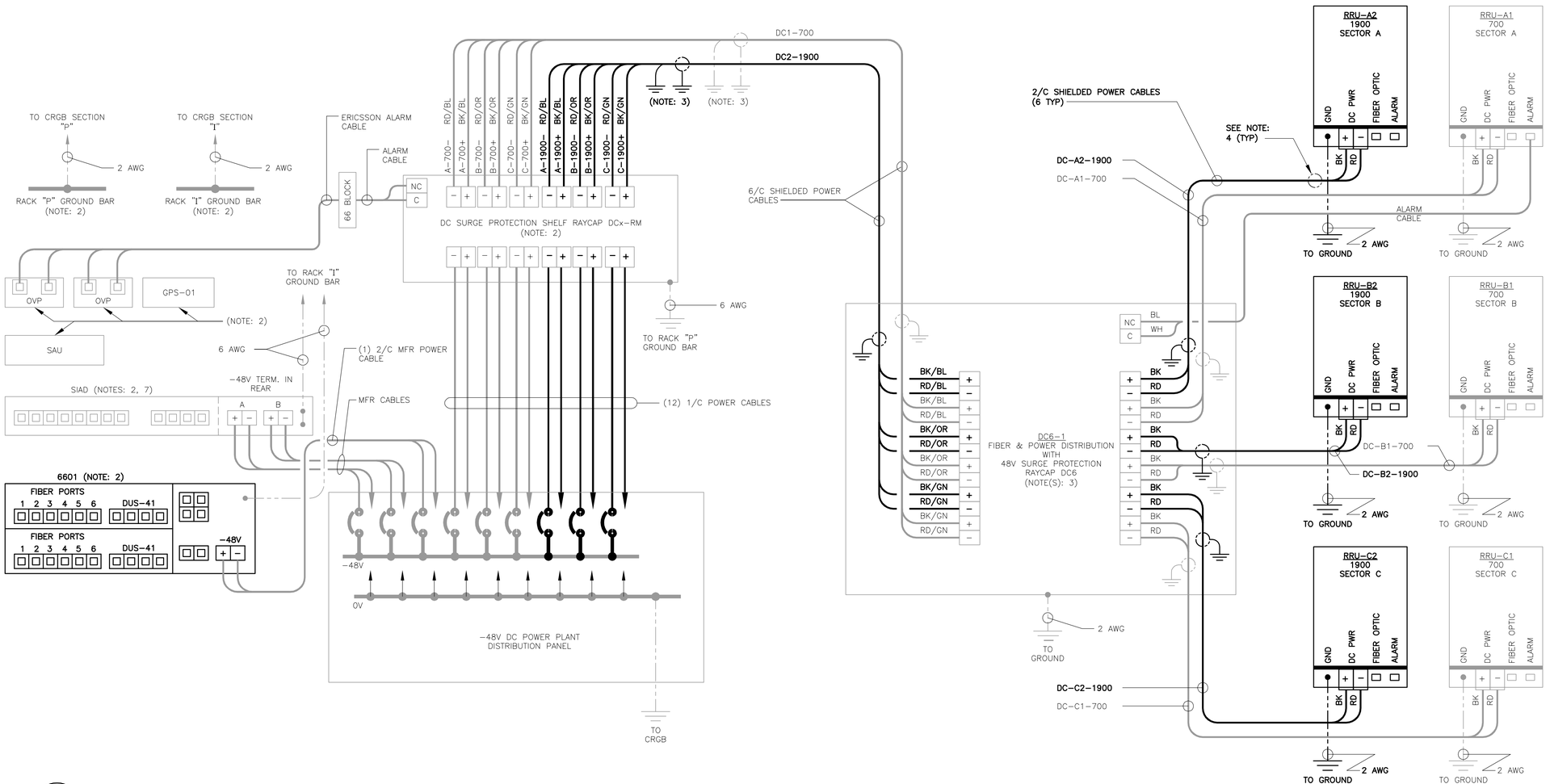
LTE SCHEMATIC DIAGRAM AND NOTES

E–1



1/E-2 LTE WIRING DIAGRAM

NOT TO SCALE

LTE WIRING DIAGRAM NOTES:

1. LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-1900+". CABLE AND WIRE LABELS SHOWN ARE REPRESENTATIVE AND MAY BE MODIFIED AS DIRECTED BY AT&T.
2. INSTALL ON BASEBAND EQUIPMENT RACK.
3. THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE SHALL BE CONNECTED TO THE "P" GROUND BAR ON THE RACK. WHEN A SHIELDED CABLE IS USED, THE DRAIN WIRE ALSO SHALL BE CONNECTED TO THE "P" GROUND BAR.
4. CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRU AND DC POWER PLANT.
5. SEE LTE SCHEMATIC DIAGRAM DETAIL 1/E-1 FOR BREAKER RATING.

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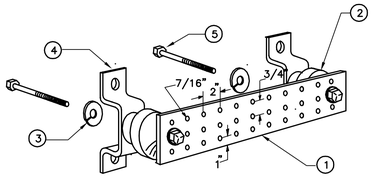
LTE WIRING DIAGRAM

E-2

Sheet No. 6 of 7

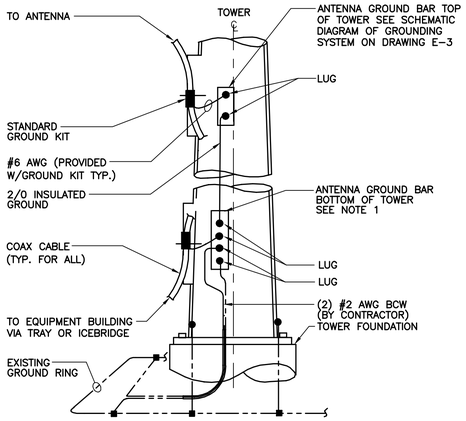


LEGEND

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. 4. CAT NO. A-6056.
5. STAINLESS STEEL SECURITY SCREWS.

3 GROUND BAR DETAIL
E-3

NOT TO SCALE

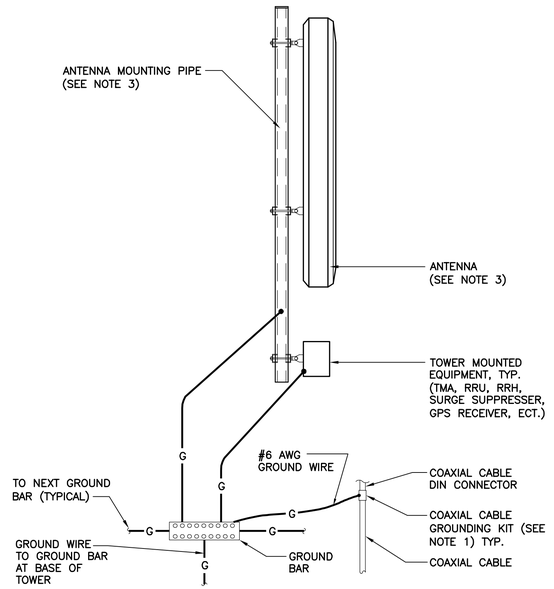


NOTES:

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.

2 ANTENNA CABLE GROUNDING - TOWER
E-3

NOT TO SCALE

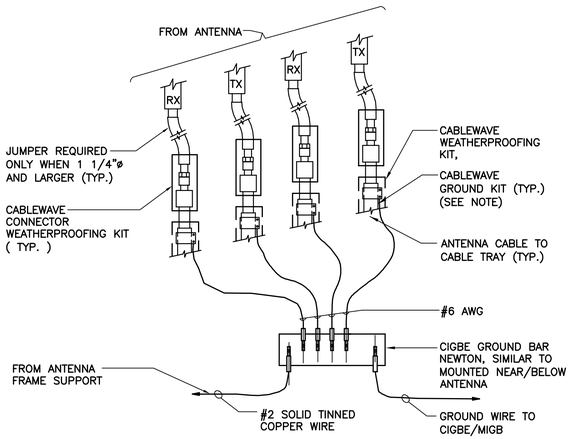


NOTES:

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.

1 TYPICAL ANTENNA GROUNDING DETAIL
E-3

NOT TO SCALE

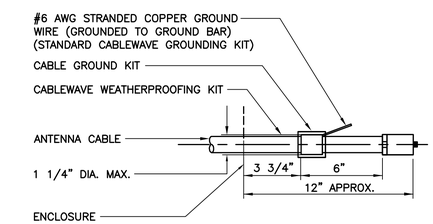


NOTE:

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-3

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-3

NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D	DESCRIPTION
0	06/07/16	JTD	CAG	CONSTRUCTION DOCUMENTS - ISSUED FOR CONSTRUCTION

PROFESSIONAL ENGINEER SEAL

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63-2 North Branford Road
Branford, CT 06405
www.CentekEng.com

AT&T MOBILITY

WIRELESS COMMUNICATIONS FACILITY

EAST HAMPTON

SITE NUMBER: CT1053

94 EAST HIGH STREET

EAST HAMPTON, CT 06424

DATE: 05/11/16

SCALE: AS NOTED

JOB NO. 16071.04

TYPICAL ELECTRICAL DETAILS

E-3

Sheet No. 7 of 7

May 10, 2016

Charles Trask
Crown Castle
3530 Toringdon Way Suite 300
Charlotte, NC 28277
(980) 209-8228

B+T Group
1717 S. Boulder, Suite 300
Tulsa, OK 74119
(918) 587-4630
btwo@btgrp.com

Subject:	**Structural Analysis Report**	
Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CTL01053
	Carrier Site Name:	East Hampton East
Crown Castle Designation:	**Crown Castle BU Number:**	876352
	Crown Castle Site Name:	Richard Wall
	Crown Castle JDE Job Number:	375557
	Crown Castle Work Order Number:	1230683
	Crown Castle Application Number:	344087 Rev. 0
Engineering Firm Designation:	**B+T Group Project Number:**	92595.005.01
Site Data:	**94 East Hight Street, East Hampton, Middlesex County, CT** **Latitude *41° 35' 14.2"*, Longitude *-72° 29' 19.6"*** **117.5 Foot - Monopole Tower**	

Dear Charles Trask,

B+T 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 899758, in accordance with application 344087, revision 0.

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:

LC7: Existing + Reserved + Proposed Equipment ***Sufficient Capacity**
Note: See Table 1 and Table 2 for the proposed and existing/reserved loading, respectively.
***The structure has sufficient capacity once the loading changes described in the recommendation section of this report are completed.**

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 85 mph fastest mile.

All equipment proposed in this report shall be installed in accordance with the attached drawings for the determined available structural capacity to be effective.

We at *B+T 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.

Respectfully submitted by:
B+T Engineering, Inc.

Brandon Sevier, E.I.
Project Engineer

Chad E. Tuttle, P.E.
Engineer of Record
COA: PEC.0001564 Expires: 02/10/2017

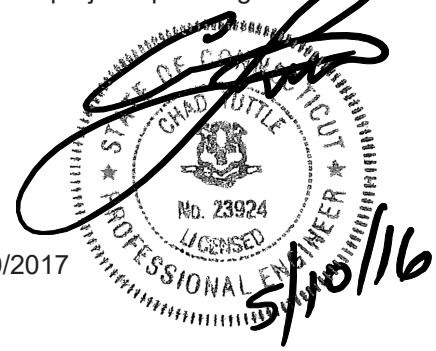


TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 117.5 ft. Monopole tower designed by Engineered Endeavors, Inc. in May of 1999. The tower was originally designed for a wind speed of 89.25 mph per TIA/EIA-222-F. This tower has been modified by Semaan Engineering in April of 2005 and B+T Group in September 2012 and those modifications are incorporated in this analysis.

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 85 mph with no ice, 37.6 mph with 0.75 inch 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
91.0	93.0	3	Ericsson	RRUS 11	--	--	--

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
117.0	130.0	1	Decibel	DB264-A	2 3 1 1 1	7/8 1-1/4 5/8 3/8 1/2	1
		1	Decibel	DB420-A			
	126.0	1	Decibel	ASP-2011			
	119.0	1	Gabriel	GHF3W-23			
		3	Alcatel Lucent	TD-RRH8x20-25			
		3	Rfs Celwave	APXVSPP18-C-A20			
		3	Rfs Celwave	APXVTM14-C-120			
	117.0	1	--	Platform Mount [LP 712-1]			
115.0	118.0	3	Alcatel Lucent	800MHz 2X50W RRH W/Filter	--	--	1
		3	Alcatel Lucent	PCS 1900MHz 4x45W-65MHz			
	115.0	1	--	Side Arm Mount [SO 102-3]			
105.0	108.0	3	Alcatel Lucent	RRH2X60-AWS	2	1-5/8	2
		3	Alcatel Lucent	RRH2X60-PCS			
		6	Andrew	HBXX-6517DS-A2M			
		6	Andrew	LNX-6514DS-A1M			
		1	Rfs Celwave	DB-B1-6C-12AB-0Z			
	105.0	6	Rfs Celwave	FD9R6004/2C-3L	12	1-1/4	1
		1	--	Platform Mount [LP 1201-1]			
91.0	93.0	3	Ericsson	RRUS 11	12 3 2 1	1-5/8 1-1/4 3/4 3/8	1
		3	Kmw Comm.	AM-X-CD-16-65-00T-RET			
		6	Powerwave Tech.	7770.00			
		1	Raycap	DC6-48-60-18-8F			
	91.0	6	Powerwave Tech.	LGP 17201			
		6	Powerwave Tech.	LGP21903			
		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
75.0	76.0	1	Lucent	KS24019-L112A	1	1/2	1
	75.0	1	--	Side Arm Mount [SO 701-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment

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)
117.5	117.5	12	Decibel	DB 980	--	--
		1	Generic	Low Profile Platform		
105	105	12	Swedcom	ALP 9212	--	--
		1	Generic	Low Profile Platform		
95	95	12	Swedcom	ALP 9212	--	--
		1	Generic	Low Profile Platform		

3) ANALYSIS PROCEDURE

Table 4 - Documents Provided

Document	Remarks	Reference	Source
Online Application	AT&T Mobility Co Locate, Rev# 0	344087	CCI Sites
Tower Manufacturer Drawing	EEI, Job No. 5069	2122777	CCI Sites
Tower Modification Drawing	Semaan Engineering Solutions, Date: 04/08/2005	2055770	CCI Sites
Post Modification Inspection	TEP, Date: 10/31/2005	1956331	CCI Sites
Tower Modification Drawing	B+T Group, Date: 09/18/2012	3250765	CCI Sites
Post Modification Inspection	B+T Group, Date: 11/02/2012	3404046	CCI Sites
Foundation Drawing	EEI, Job No. 5069	2122776	CCI Sites
Geotech Report	Clough, Harbour & Associates LLP, Project No. 7472.07.03	1532964	CCI Sites
Antenna Configuration	Crown CAD Package	Date: 05/03/2016	CCI Sites

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) Tower and structures were built in accordance with the manufacturer's specifications.
2) The tower and structures have been maintained in accordance with the manufacturer's specification.
3) The configuration of antennas, transmission cables, mounts and other appurtenances are as specified in Tables 1 and 2 and the referenced drawings.
4) When applicable, transmission cables are considered as structural components for calculating wind loads as allowed by TIA/EIA-222-F.
5) Mount areas and weights are assumed based on photographs provided.

This analysis may be affected if any assumptions are not valid or have been made in error. B+T 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	117.5 - 86.29	Pole	TP22.9x15x0.188	1	-9.171	675.938	95.6	Pass
L2	86.29 - 42.627	Pole	TP33.46x21.66x0.313	2	-15.378	1647.855	99.2	Pass
L3	42.627 - 29.083	Pole	TP36.222x31.644x0.398	3	-19.420	1979.758	99.8	Pass
L4	29.083 - 0	Pole	TP43.5x36.222x0.411	4	-22.594	2281.683	95.6	Pass
							Summary	
						Pole (L3)	99.8	Pass
						RATING =	99.8	Pass

Table 6 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	Base	81.1	Pass
1	Base Plate	Base	93.1	Pass
1	Base Foundation (Structure)	Base	98.3	Pass
1	Base Foundation (Soil Interaction)	Base	70.4	Pass

Structure Rating (max from all components) =	99.8%

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

4.1) Recommendations

The tower and foundation have sufficient capacity to carry the existing, reserved, and proposed loading. In order for the results of this analysis to be considered valid the loading modification listed below must be completed.

Loading Changes:

1.) The (3) RRH2x60-AWS and (3) RRH2x60-PCS at 105' to be installed behind the proposed antennas to shield front wind area.

2.) The (3) proposed RRUS 11 at 91' to be installed behind the existing antennas to shield front wind area.

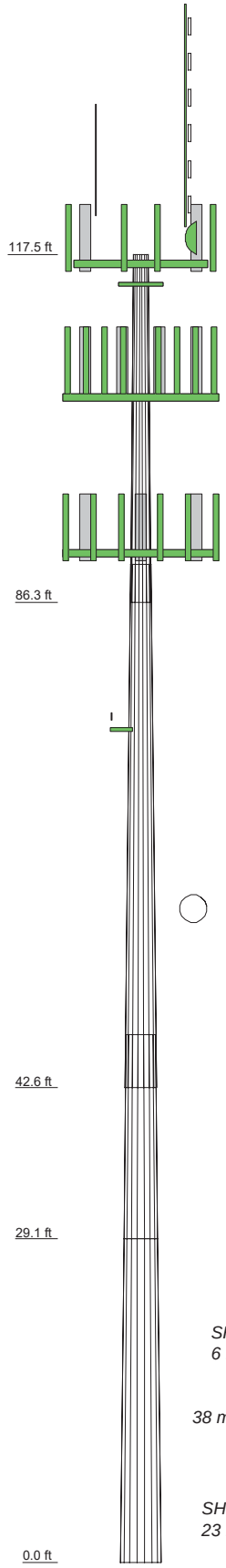
No structural modifications are required at this time, provided that the above listed changes are implemented.

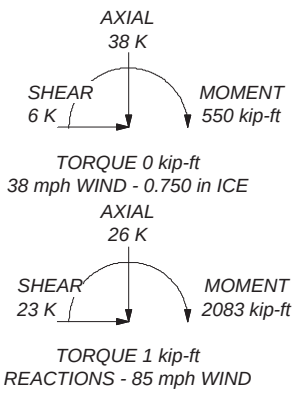
APPENDIX A

TNXTOWER OUTPUT

Section	1	2	3	4
Length (ft)	31.210	47.080	18.294	29.083
Number of Sides	18	18	18	18
Thickness (in)	0.188	0.313	0.398	0.411
Socket Length (ft)	3.417	4.750		
Top Dia (in)	15.000	21.660	31.644	36.222
Bot Dia (in)	22.900	33.460	36.222	43.500
Grade	A572-65	A572-65	A572-65	54.690296ksi / 55.370413ksi
Weight (K)	1.2	4.3	2.6	5.0

Total Weight (K) 13.1





DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
APXVSPP18-C-A20 w/ Mount Pipe (E)	117	(2) HBXX-6517DS-A2M w/ Mount Pipe (R)	105
APXVSPP18-C-A20 w/ Mount Pipe (E)	117	RRH2X60-PCS (R)	105
APXVSPP18-C-A20 w/ Mount Pipe (E)	117	RRH2X60-PCS (R)	105
APXVTM14-C-120 w/ Mount Pipe (E)	117	RRH2X60-PCS (R)	105
APXVTM14-C-120 w/ Mount Pipe (E)	117	RRH2X60-AWS (R)	105
APXVTM14-C-120 w/ Mount Pipe (E)	117	RRH2X60-AWS (R)	105
TD-RRH8x20-25 (E(Partially Shielded))	117	RRH2X60-AWS (R)	105
TD-RRH8x20-25 (E(Partially Shielded))	117	DB-B1-6C-12AB-0Z (R)	105
TD-RRH8x20-25 (E(Partially Shielded))	117	Platform Mount [LP 1201-1] (E-Per Photo)	105
DB420-A (E)	117	(2) FD9R6004/2C-3L (E)	105
DB264-A (E)	117	(2) 7770.00 w/ Mount Pipe (E)	91
ASP-2011 (E)	117	(2) 7770.00 w/ Mount Pipe (E)	91
(2) 5' x 2" Pipe Mount (E-Per Photo)	117	AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	91
(2) 5' x 2" Pipe Mount (E-Per Photo)	117	AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	91
(2) 5' x 2" Pipe Mount (E-Per Photo)	117	AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	91
Platform Mount [LP 712-1] (E)	117	(2) LGP21903 (E(Shielded))	91
GHF3W-23 (E)	117	(2) LGP21903 (E(Shielded))	91
PCS 1900MHz 4x45W-65MHz (E)	115	(2) LGP21903 (E(Shielded))	91
PCS 1900MHz 4x45W-65MHz (E)	115	DC6-48-60-18-8F (E)	91
800MHz 2X50W RRH W/FILTER (E-Offset/Photo)	115	RRUS 11 (E)	91
800MHz 2X50W RRH W/FILTER (E)	115	RRUS 11 (E)	91
800MHz 2X50W RRH W/FILTER (E)	115	RRUS 11 (E)	91
3' x 2" Pipe Mount (E-For TME/Photo)	115	LGP 17201 (E(Shielded))	91
3' x 2" Pipe Mount (E-For TME/Photo)	115	LGP 17201 (E(Shielded))	91
3' x 2" Pipe Mount (E-For TME/Photo)	115	LGP 17201 (E(Shielded))	91
Side Arm Mount [SO 102-3] (E)	115	LGP 17201 (E)	91
PCS 1900MHz 4x45W-65MHz (E-Offset/Photo)	115	LGP 17201 (E)	91
(2) FD9R6004/2C-3L (E)	105	LGP 17201 (E)	91
(2) FD9R6004/2C-3L (E)	105	RRUS 11 (P)	91
(2) LNX-6514DS-A1M w/ Mount Pipe (R)	105	RRUS 11 (P)	91
(2) LNX-6514DS-A1M w/ Mount Pipe (R)	105	RRUS 11 (P)	91
(2) LNX-6514DS-A1M w/ Mount Pipe (R)	105	5' x 2" Pipe Mount (E-For TME)	91
(2) HBXX-6517DS-A2M w/ Mount Pipe (R)	105	5' x 2" Pipe Mount (E-For TME)	91
(2) HBXX-6517DS-A2M w/ Mount Pipe (R)	105	5' x 2" Pipe Mount (E-For TME)	91
		Platform Mount [LP 1201-1] (E)	91
		(2) 7770.00 w/ Mount Pipe (E)	91
		Side Arm Mount [SO 701-1] (E)	75
		KS24019-L112A (E)	75

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi	55.370413ksi	55 ksi	70 ksi
54.690296ksi	55 ksi	70 ksi			

TOWER DESIGN NOTES

1. Tower is located in Middlesex County, Connecticut.
2. Tower designed for a 85 mph basic wind in accordance with the TIA/EIA-222-F Standard.
3. Tower is also designed for a 38 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
4. Deflections are based upon a 50 mph wind.
5. TOWER RATING: 99.8%

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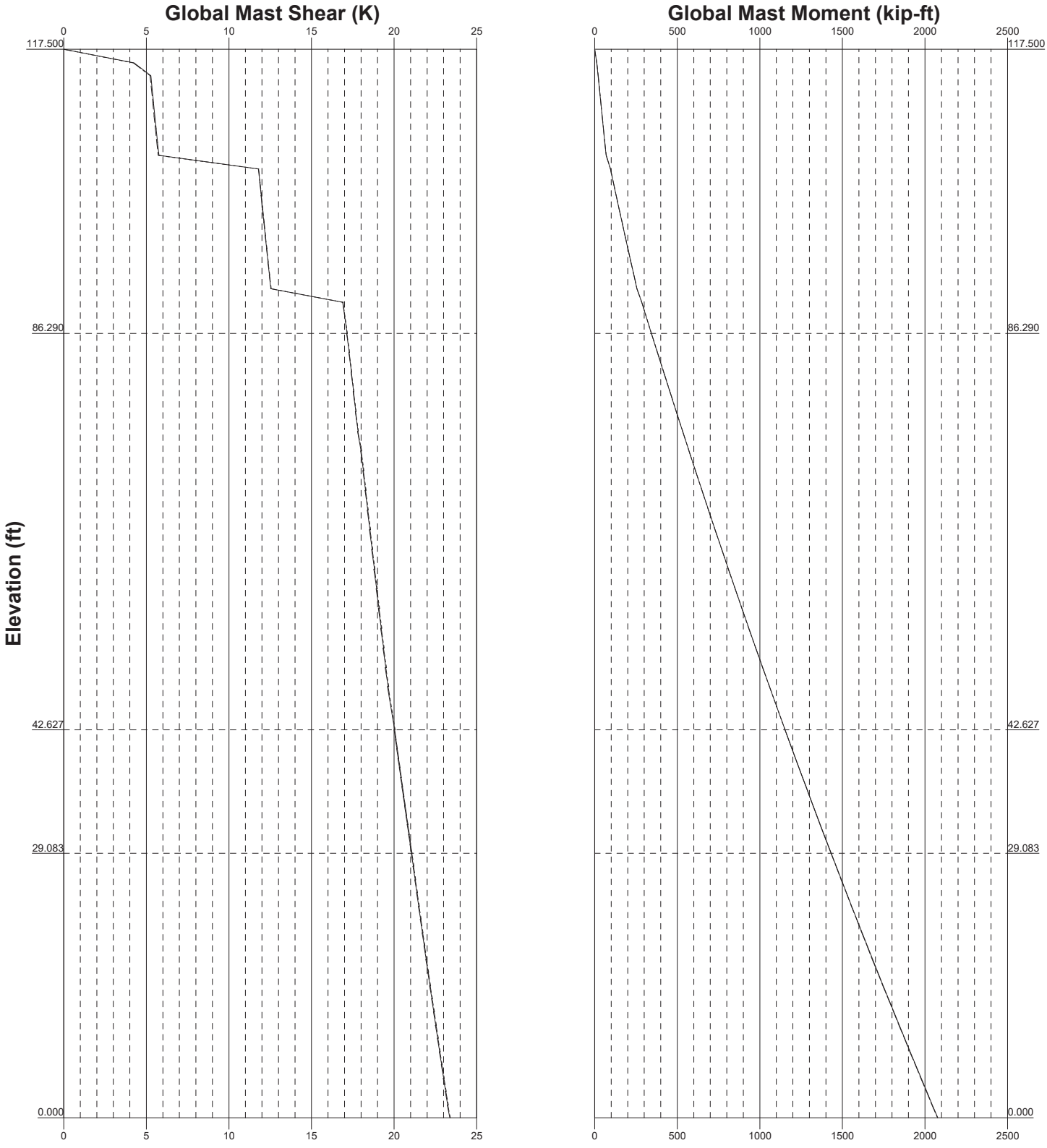
Tulsa, OK 74119
Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 92595.005.01 - Richard Wall, CT (BU #876352			
Project:			
Client: Crown Castle	Drawn by: bsevier	App'd:	
Code: TIA/EIA-222-F	Date: 05/10/16	Scale: NTS	
Path: S:\Projects\Crown Castle\92000\92595_876352_Richard Wall\Engineering\tnxTower\92595_005_01_RICHARD WALL_CT_ASeri		Dwg No. E-1	

TIA/EIA-222-F - 85 mph/38 mph 0.750 in Ice

Maximum Values

Vx Vz Mx Mz



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Job: 92595.005.01 - Richard Wall, CT (BU #876352			
Project:			
Client: Crown Castle	Drawn by: bsevier	App'd:	
Code: TIA/EIA-222-F	Date: 05/10/16	Scale: NTS	
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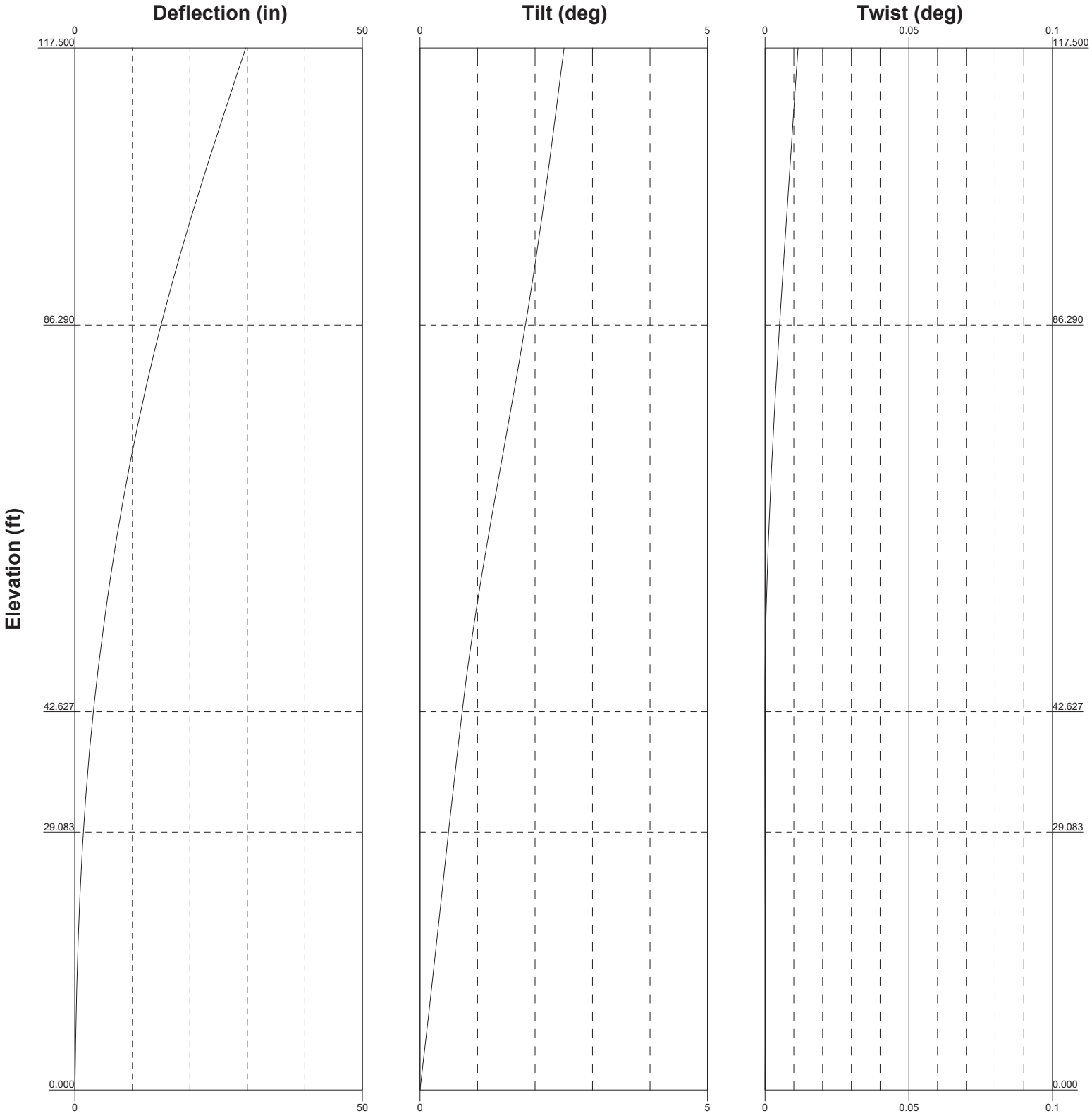
TIA/EIA-222-F - Service - 50 mph

Maximum Values



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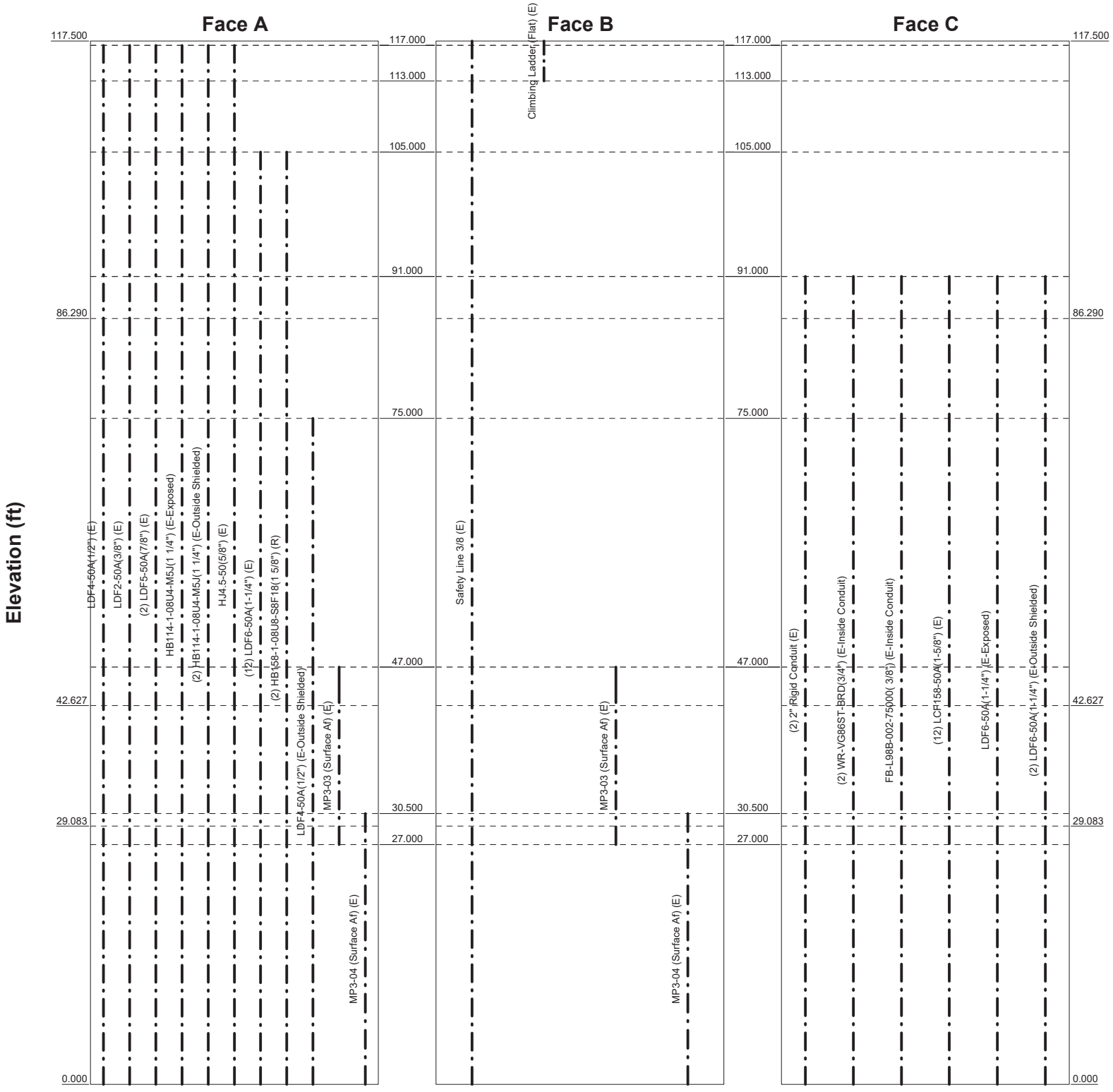
Job: 92595.005.01 - Richard Wall, CT (BU #876352		
Project:		
Client: Crown Castle	Drawn by: bsevier	App'd:
Code: TIA/EIA-222-F	Date: 05/10/16	Scale: NTS
Path: S:\Projects\Crown Castle\92000\92595_876352_Richard Wall\Engineering\tnxTower\92595_005_01_RICHARD WALL_CT_ASeri		Dwg No. E-5

Feed Line Distribution Chart
0' - 117'6"

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



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Phone: (918) 587-4630
FAX: (918) 295-0265

Job: 92595.005.01 - Richard Wall, CT (BU #876352		
Project:		
Client: Crown Castle	Drawn by: bsevier	App'd:
Code: TIA/EIA-222-F	Date: 05/10/16	Scale: NTS
Path: S:\Projects\Crown Castle\92000\92595_876352_Richard Wall\Engineering\tnxTower\92595_005_01_RICHARD WALL_CT_ASeri		Dwg No. E-7

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 Middlesex County, Connecticut.
Basic wind speed of 85 mph.
Nominal ice thickness of 0.750 in.
Ice thickness is considered to increase with height.
Ice density of 56.000 pcf.
A wind speed of 38 mph is used in combination with ice.
Temperature drop of 50.000 °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

	Consider Moments - Legs		Distribute Leg Loads As Uniform		Use ASCE 10 X-Brace Ly Rules
	Consider Moments - Horizontals		Assume Legs Pinned		Calculate Redundant Bracing Forces
	Consider Moments - Diagonals	√	Assume Rigid Index Plate		Ignore Redundant Members in FEA
	Use Moment Magnification	√	Use Clear Spans For Wind Area		SR Leg Bolts Resist Compression
√	Use Code Stress Ratios		Use Clear Spans For KL/r		All Leg Panels Have Same Allowable
√	Use Code Safety Factors - Guys		Retension Guys To Initial Tension		Offset Girt At Foundation
√	Escalate Ice	√	Bypass Mast Stability Checks	√	Consider Feed Line Torque
	Always Use Max Kz	√	Use Azimuth Dish Coefficients		Include Angle Block Shear Check
	Use Special Wind Profile	√	Project Wind Area of Appurt.		Use TIA-222-G Bracing Resist. Exemption
	Include Bolts In Member Capacity		Autocalc Torque Arm Areas		Use TIA-222-G Tension Splice Exemption
	Leg Bolts Are At Top Of Section		Add IBC .6D+W Combination		Poles
	Secondary Horizontal Braces Leg		Sort Capacity Reports By Component	√	Include Shear-Torsion Interaction
	Use Diamond Inner Bracing (4 Sided)		Triangulate Diamond Inner Bracing		Always Use Sub-Critical Flow
	SR Members Have Cut Ends		Treat Feed Line Bundles As Cylinder		Use Top Mounted Sockets
	SR Members Are Concentric				

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	117.500-86.290	31.210	3.417	18	15.000	22.900	0.188	0.750	A572-65 (65 ksi)
L2	86.290-42.627	47.080	4.750	18	21.660	33.460	0.313	1.250	A572-65 (65 ksi)
L3	42.627-29.083	18.294	0.000	18	31.644	36.222	0.398	1.592	54.690296ksi (55 ksi)
L4	29.083-0.000	29.083		18	36.222	43.500	0.411	1.646	55.370413ksi (55 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	15.231	8.815	244.360	5.258	7.620	32.068	489.042	4.408	2.310	12.32
	23.253	13.517	880.928	8.063	11.633	75.725	1763.015	6.760	3.700	19.735
L2	22.864	21.174	1219.102	7.578	11.003	110.794	2439.808	10.589	3.262	10.439
	33.976	32.878	4564.012	11.767	16.998	268.508	9134.028	16.442	5.339	17.085
L3	33.340	39.477	4869.464	11.092	16.075	302.914	9745.335	19.742	4.869	12.232
	36.781	45.261	7338.586	12.718	18.401	398.816	14686.828	22.635	5.675	14.256
L4	36.781	46.770	7577.623	12.713	18.401	411.806	15165.217	23.389	5.651	13.733
	44.171	56.275	13199.994	15.296	22.098	597.339	26417.357	28.143	6.932	16.846

Tower Elevation ft	Gusset Area (per face) ft^2	Gusset Thickness in	Gusset Grade	Adjust. Factor A_f	Adjust. Factor A_r	Weight Mult.	Double Angle Stitch Bolt Spacing Diagonals in	Double Angle Stitch Bolt Spacing Horizontals in	Double Angle Stitch Bolt Spacing Redundants in
L1 117.500-86.290				1	1	1			
L2 86.290-42.627				1	1	1			
L3 42.627-29.083				1	1	0.981084			
L4 29.083-0.000				1	1	0.98208			

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number	Number Per Row	Clear Spacing in	Width or Diameter in	Perimeter in	Weight klf
d										

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_A ft^2/ft	Weight klf
LDF4-50A(1/2") (E)	A	No	Inside Pole	117.000 - 0.000	0.000	0	1	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000
LDF2-50A(3/8") (E)	A	No	Inside Pole	117.000 - 0.000	0.000	0	1	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.000 0.000 0.000 0.000 0.000	0.000 0.000 0.000 0.000 0.000
LDF5-50A(7/8") (E)	A	No	Inside Pole	117.000 - 0.000	0.000	0	2	No Ice 1/2" Ice 1" Ice	0.000 0.000 0.000	0.000 0.000 0.000

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight klf
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
** Sprint **										
HB114-1-08U4-M5J(1 1/4") (E-Exposed)	A	No	CaAa (Out Of Face)	117.000 - 0.000	0.000	0	1	No Ice	0.154	0.001
								1/2" Ice	0.254	0.002
								1" Ice	0.354	0.004
								2" Ice	0.554	0.010
								4" Ice	0.954	0.028
HB114-1-08U4-M5J(1 1/4") (E-Outside Shielded)	A	No	CaAa (Out Of Face)	117.000 - 0.000	0.000	0	2	No Ice	0.000	0.001
								1/2" Ice	0.000	0.002
								1" Ice	0.000	0.004
								2" Ice	0.000	0.010
								4" Ice	0.000	0.028
HJ4.5-50(5/8") (E)	A	No	Inside Pole	117.000 - 0.000	0.000	0	1	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
d										
LDF6-50A(1-1/4") (E)	A	No	Inside Pole	105.000 - 0.000	0.000	0	12	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
HB158-1-08U8-S8F18(1 5/8") (R)	A	No	Inside Pole	105.000 - 0.000	0.000	0	2	No Ice	0.000	0.002
								1/2" Ice	0.000	0.002
								1" Ice	0.000	0.002
								2" Ice	0.000	0.002
								4" Ice	0.000	0.002
d										
2" Rigid Conduit (E)	C	No	Inside Pole	91.000 - 0.000	0.000	0	2	No Ice	0.000	0.003
								1/2" Ice	0.000	0.003
								1" Ice	0.000	0.003
								2" Ice	0.000	0.003
								4" Ice	0.000	0.003
WR-VG86ST-BRD(3/4") (E-Inside Conduit)	C	No	Inside Pole	91.000 - 0.000	0.000	0	2	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
FB-L98B-002-75000(3/8") (E-Inside Conduit)	C	No	Inside Pole	91.000 - 0.000	0.000	0	1	No Ice	0.000	0.000
								1/2" Ice	0.000	0.000
								1" Ice	0.000	0.000
								2" Ice	0.000	0.000
								4" Ice	0.000	0.000
LCF158-50A(1-5/8") (E)	C	No	Inside Pole	91.000 - 0.000	0.000	0	12	No Ice	0.000	0.001
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.001
								2" Ice	0.000	0.001
								4" Ice	0.000	0.001
LDF6-50A(1-1/4") (E-Exposed)	C	No	CaAa (Out Of Face)	91.000 - 0.000	0.000	0	1	No Ice	0.155	0.001
								1/2" Ice	0.255	0.002
								1" Ice	0.355	0.004
								2" Ice	0.555	0.009
								4" Ice	0.955	0.028
LDF6-50A(1-1/4") (E-Outside Shielded)	C	No	CaAa (Out Of Face)	91.000 - 0.000	0.000	0	2	No Ice	0.000	0.001
								1/2" Ice	0.000	0.002
								1" Ice	0.000	0.004
								2" Ice	0.000	0.009
								4" Ice	0.000	0.028
d										

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Face Offset in	Lateral Offset (Frac FW)	#		C_AA_A ft^2/ft	Weight klf
LDF4-50A(1/2") (E-Outside Shielded)	A	No	CaAa (Out Of Face)	75.000 - 0.000	0.000	0	1	No Ice	0.000	0.000
								1/2" Ice	0.000	0.001
								1" Ice	0.000	0.002
								2" Ice	0.000	0.007
								4" Ice	0.000	0.023
d										
Safety Line 3/8 (E)	B	No	CaAa (Out Of Face)	117.500 - 0.000	0.000	0	1	No Ice	0.037	0.000
								1/2" Ice	0.137	0.001
								1" Ice	0.238	0.001
								2" Ice	0.437	0.002
								4" Ice	0.838	0.004
d										
Climbing Ladder (Flat) (E)	B	No	CaAa (Out Of Face)	117.500 - 113.000	36.000	0	1	No Ice	0.584	0.005
								1/2" Ice	1.030	0.007
								1" Ice	1.476	0.009
								2" Ice	2.368	0.013
								4" Ice	4.152	0.021
d										
MP3-03 (Surface Af) (E)	A	No	CaAa (Out Of Face)	47.000 - 27.000	0.000	0	1	No Ice	0.262	0.000
								1/2" Ice	0.345	0.000
								1" Ice	0.428	0.000
								2" Ice	0.595	0.000
								4" Ice	0.928	0.000
MP3-03 (Surface Af) (E)	B	No	CaAa (Out Of Face)	47.000 - 27.000	0.000	0	1	No Ice	0.262	0.000
								1/2" Ice	0.345	0.000
								1" Ice	0.428	0.000
								2" Ice	0.595	0.000
								4" Ice	0.928	0.000
d										
MP3-04 (Surface Af) (E)	A	No	CaAa (Out Of Face)	30.500 - 0.000	0.000	0	1	No Ice	0.268	0.000
								1/2" Ice	0.352	0.000
								1" Ice	0.435	0.000
								2" Ice	0.602	0.000
								4" Ice	0.935	0.000
MP3-04 (Surface Af) (E)	B	No	CaAa (Out Of Face)	30.500 - 0.000	0.000	0	1	No Ice	0.268	0.000
								1/2" Ice	0.352	0.000
								1" Ice	0.435	0.000
								2" Ice	0.602	0.000
								4" Ice	0.935	0.000
d										

Feed Line/Linear Appurtenances Section Areas

Tower Section	Tower Elevation ft	Face	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	117.500-86.290	A	0.000	0.000	0.000	4.729	0.351
		B	0.000	0.000	0.000	3.798	0.029
		C	0.000	0.000	0.000	0.730	0.087
L2	86.290-42.627	A	0.000	0.000	0.000	7.868	0.697
		B	0.000	0.000	0.000	2.782	0.010
		C	0.000	0.000	0.000	6.768	0.804
L3	42.627-29.083	A	0.000	0.000	0.000	6.010	0.217
		B	0.000	0.000	0.000	4.432	0.003
		C	0.000	0.000	0.000	2.099	0.249
L4	29.083-0.000	A	0.000	0.000	0.000	12.828	0.465
		B	0.000	0.000	0.000	9.440	0.006
		C	0.000	0.000	0.000	4.508	0.535

Feed Line/Linear Appurtenances Section Areas - With Ice

Tower Section	Tower Elevation ft	Face or Leg	Ice Thickness in	A_R ft^2	A_F ft^2	C_AA_A In Face ft^2	C_AA_A Out Face ft^2	Weight K
L1	117.500-86.290	A	0.858	0.000	0.000	0.000	9.997	0.588
		B		0.000	0.000	0.000	12.595	0.073
		C		0.000	0.000	0.000	1.538	0.123
L2	86.290-42.627	A	0.811	0.000	0.000	0.000	15.984	1.087
		B		0.000	0.000	0.000	10.897	0.049
		C		0.000	0.000	0.000	14.258	1.142
L3	42.627-29.083	A	0.757	0.000	0.000	0.000	10.231	0.335
		B		0.000	0.000	0.000	8.653	0.015
		C		0.000	0.000	0.000	4.297	0.347
L4	29.083-0.000	A	0.750	0.000	0.000	0.000	21.086	0.694
		B		0.000	0.000	0.000	17.698	0.030
		C		0.000	0.000	0.000	8.870	0.726

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	117.500-86.290	0.087	-0.107	0.256	-0.102
L2	86.290-42.627	-0.096	-0.094	-0.062	-0.084
L3	42.627-29.083	0.170	-0.231	0.256	-0.254
L4	29.083-0.000	0.171	-0.235	0.256	-0.262

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
d									
APXVSPP18-C-A20 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.151 0.227 0.406 0.909
APXVSPP18-C-A20 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	8.498 9.149 9.767 11.031 13.679	6.946 8.127 9.021 10.844 14.851	0.083 0.151 0.227 0.406 0.909
APXVSPP18-C-A20 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice	8.498 9.149 9.767 11.031	6.946 8.127 9.021 10.844	0.083 0.151 0.227 0.406

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						4" Ice	13.679	14.851	0.909
APXVTM14-C-120 w/ Mount Pipe (E)	A	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.134 7.662 8.183 9.256 11.526	4.959 5.754 6.472 8.010 11.412	0.077 0.131 0.193 0.338 0.752
APXVTM14-C-120 w/ Mount Pipe (E)	B	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.134 7.662 8.183 9.256 11.526	4.959 5.754 6.472 8.010 11.412	0.077 0.131 0.193 0.338 0.752
APXVTM14-C-120 w/ Mount Pipe (E)	C	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.134 7.662 8.183 9.256 11.526	4.959 5.754 6.472 8.010 11.412	0.077 0.131 0.193 0.338 0.752
TD-RRH8x20-25 (E(Partially Shielded))	A	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.000 1.330 1.660 2.320 3.640	1.703 1.920 2.145 2.622 3.680	0.070 0.097 0.128 0.201 0.397
TD-RRH8x20-25 (E(Partially Shielded))	B	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.000 1.330 1.660 2.320 3.640	1.703 1.920 2.145 2.622 3.680	0.070 0.097 0.128 0.201 0.397
TD-RRH8x20-25 (E(Partially Shielded))	C	From Leg	4.000 0.000 2.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.000 1.330 1.660 2.320 3.640	1.703 1.920 2.145 2.622 3.680	0.070 0.097 0.128 0.201 0.397
East Hampton CT									
DB420-A (E)	A	From Leg	4.000 0.000 13.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.330 5.994 8.658 13.986 24.642	3.330 5.994 8.658 13.986 24.642	0.034 0.044 0.054 0.075 0.116
DB264-A (E)	B	From Leg	4.000 0.000 13.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	3.160 5.688 8.216 13.272 23.384	3.160 5.688 8.216 13.272 23.384	0.036 0.047 0.058 0.079 0.122
ASP-2011 (E)	C	From Leg	4.000 0.000 9.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.063 1.931 2.817 4.224 6.421	1.063 1.931 2.817 4.224 6.421	0.004 0.013 0.028 0.074 0.240
(2) 5' x 2" Pipe Mount (E-Per Photo)	A	From Leg	4.000 0.000 0.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.000 1.393 1.703 2.351 3.778	1.000 1.393 1.703 2.351 3.778	0.029 0.037 0.048 0.082 0.196
(2) 5' x 2" Pipe Mount (E-Per Photo)	B	From Leg	4.000 0.000 0.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.000 1.393 1.703 2.351 3.778	1.000 1.393 1.703 2.351 3.778	0.029 0.037 0.048 0.082 0.196

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(2) 5' x 2" Pipe Mount (E-Per Photo)	C	From Leg	4.000 0.000 0.000	0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	1.000 1.393 1.703 2.351 3.778	1.000 1.393 1.703 2.351 3.778	0.029 0.037 0.048 0.082 0.196
Platform Mount [LP 712-1] (E)	C	None		0.000	117.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	24.530 29.940 35.350 46.170 67.810	24.530 29.940 35.350 46.170 67.810	1.335 1.646 1.956 2.577 3.820
d									
PCS 1900MHz 4x45W-65MHz (E-Offset/Photo)	A	From Leg	2.000 0.000 3.000	0.000	115.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.709 2.948 3.195 3.716 4.862	2.611 2.847 3.092 3.608 4.744	0.060 0.083 0.110 0.173 0.347
PCS 1900MHz 4x45W-65MHz (E)	B	From Leg	2.000 0.000 3.000	0.000	115.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.709 2.948 3.195 3.716 4.862	2.611 2.847 3.092 3.608 4.744	0.060 0.083 0.110 0.173 0.347
PCS 1900MHz 4x45W-65MHz (E)	C	From Leg	2.000 0.000 3.000	0.000	115.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.709 2.948 3.195 3.716 4.862	2.611 2.847 3.092 3.608 4.744	0.060 0.083 0.110 0.173 0.347
800MHz 2X50W RRH W/FILTER (E-Offset/Photo)	A	From Leg	2.000 0.000 3.000	0.000	115.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.401 2.613 2.833 3.300 4.337	2.254 2.460 2.675 3.132 4.148	0.064 0.086 0.111 0.172 0.338
800MHz 2X50W RRH W/FILTER (E)	B	From Leg	2.000 0.000 3.000	0.000	115.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.401 2.613 2.833 3.300 4.337	2.254 2.460 2.675 3.132 4.148	0.064 0.086 0.111 0.172 0.338
800MHz 2X50W RRH W/FILTER (E)	C	From Leg	2.000 0.000 3.000	0.000	115.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	2.401 2.613 2.833 3.300 4.337	2.254 2.460 2.675 3.132 4.148	0.064 0.086 0.111 0.172 0.338
3' x 2" Pipe Mount (E-For TME/Photo)	A	From Leg	2.000 0.000 0.000	0.000	115.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.583 0.770 0.967 1.417 2.536	0.583 0.770 0.967 1.417 2.536	0.011 0.017 0.024 0.047 0.126
3' x 2" Pipe Mount (E-For TME/Photo)	B	From Leg	2.000 0.000 0.000	0.000	115.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.583 0.770 0.967 1.417 2.536	0.583 0.770 0.967 1.417 2.536	0.011 0.017 0.024 0.047 0.126
3' x 2" Pipe Mount (E-For TME/Photo)	C	From Leg	2.000 0.000 0.000	0.000	115.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	0.583 0.770 0.967 1.417 2.536	0.583 0.770 0.967 1.417 2.536	0.011 0.017 0.024 0.047 0.126
Side Arm Mount [SO 102-3]	C	None		0.000	115.000	No Ice	3.000	3.000	0.081

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft	Offsets: Vert ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)							1/2" Ice	3.480	3.480	0.111
							1" Ice	3.960	3.960	0.141
							2" Ice	4.920	4.920	0.201
							4" Ice	6.840	6.840	0.321
d										
(2) FD9R6004/2C-3L	A	From Leg	4.000		0.000	105.000	No Ice	0.367	0.085	0.003
(E)			0.000				1/2" Ice	0.451	0.136	0.005
			0.000				1" Ice	0.543	0.196	0.009
							2" Ice	0.755	0.343	0.020
							4" Ice	1.281	0.740	0.063
(2) FD9R6004/2C-3L	B	From Leg	4.000		0.000	105.000	No Ice	0.367	0.085	0.003
(E)			0.000				1/2" Ice	0.451	0.136	0.005
			0.000				1" Ice	0.543	0.196	0.009
							2" Ice	0.755	0.343	0.020
							4" Ice	1.281	0.740	0.063
(2) FD9R6004/2C-3L	C	From Leg	4.000		0.000	105.000	No Ice	0.367	0.085	0.003
(E)			0.000				1/2" Ice	0.451	0.136	0.005
			0.000				1" Ice	0.543	0.196	0.009
							2" Ice	0.755	0.343	0.020
							4" Ice	1.281	0.740	0.063
(2) LNX-6514DS-A1M w/	A	From Leg	4.000		0.000	105.000	No Ice	8.648	7.082	0.065
Mount Pipe			0.000				1/2" Ice	9.305	8.273	0.134
(R)			3.000				1" Ice	9.930	9.185	0.211
							2" Ice	11.204	11.023	0.393
							4" Ice	13.872	15.063	0.902
(2) LNX-6514DS-A1M w/	B	From Leg	4.000		0.000	105.000	No Ice	8.648	7.082	0.065
Mount Pipe			0.000				1/2" Ice	9.305	8.273	0.134
(R)			3.000				1" Ice	9.930	9.185	0.211
							2" Ice	11.204	11.023	0.393
							4" Ice	13.872	15.063	0.902
(2) LNX-6514DS-A1M w/	C	From Leg	4.000		0.000	105.000	No Ice	8.648	7.082	0.065
Mount Pipe			0.000				1/2" Ice	9.305	8.273	0.134
(R)			3.000				1" Ice	9.930	9.185	0.211
							2" Ice	11.204	11.023	0.393
							4" Ice	13.872	15.063	0.902
(2) HBXX-6517DS-A2M w/	A	From Leg	4.000		0.000	105.000	No Ice	8.976	6.963	0.067
Mount Pipe			0.000				1/2" Ice	9.647	8.182	0.137
(R)			3.000				1" Ice	10.291	9.144	0.215
							2" Ice	11.595	11.022	0.398
							4" Ice	14.321	15.027	0.914
(2) HBXX-6517DS-A2M w/	B	From Leg	4.000		0.000	105.000	No Ice	8.976	6.963	0.067
Mount Pipe			0.000				1/2" Ice	9.647	8.182	0.137
(R)			3.000				1" Ice	10.291	9.144	0.215
							2" Ice	11.595	11.022	0.398
							4" Ice	14.321	15.027	0.914
(2) HBXX-6517DS-A2M w/	C	From Leg	4.000		0.000	105.000	No Ice	8.976	6.963	0.067
Mount Pipe			0.000				1/2" Ice	9.647	8.182	0.137
(R)			3.000				1" Ice	10.291	9.144	0.215
							2" Ice	11.595	11.022	0.398
							4" Ice	14.321	15.027	0.914
RRH2X60-PCS	A	From Leg	4.000		0.000	105.000	No Ice	0.000	2.011	0.055
(R)			0.000				1/2" Ice	0.000	2.218	0.075
			3.000				1" Ice	0.000	2.435	0.099
							2" Ice	0.000	2.894	0.155
							4" Ice	0.000	3.915	0.313
RRH2X60-PCS	B	From Leg	4.000		0.000	105.000	No Ice	0.000	2.011	0.055
(R)			0.000				1/2" Ice	0.000	2.218	0.075

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
			3.000			1" Ice	0.000	2.435	0.099
						2" Ice	0.000	2.894	0.155
						4" Ice	0.000	3.915	0.313
RRH2X60-PCS	C	From Leg	4.000	0.000	105.000	No Ice	0.000	2.011	0.055
(R)			0.000			1/2" Ice	0.000	2.218	0.075
			3.000			1" Ice	0.000	2.435	0.099
						2" Ice	0.000	2.894	0.155
						4" Ice	0.000	3.915	0.313
RRH2X60-AWS	A	From Leg	4.000	0.000	105.000	No Ice	0.000	1.816	0.060
(R)			0.000			1/2" Ice	0.000	2.075	0.083
			3.000			1" Ice	0.000	2.360	0.109
						2" Ice	0.000	2.957	0.173
						4" Ice	0.000	4.253	0.354
RRH2X60-AWS	B	From Leg	4.000	0.000	105.000	No Ice	0.000	1.816	0.060
(R)			0.000			1/2" Ice	0.000	2.075	0.083
			3.000			1" Ice	0.000	2.360	0.109
						2" Ice	0.000	2.957	0.173
						4" Ice	0.000	4.253	0.354
RRH2X60-AWS	C	From Leg	4.000	0.000	105.000	No Ice	0.000	1.816	0.060
(R)			0.000			1/2" Ice	0.000	2.075	0.083
			3.000			1" Ice	0.000	2.360	0.109
						2" Ice	0.000	2.957	0.173
						4" Ice	0.000	4.253	0.354
DB-B1-6C-12AB-0Z	A	From Leg	4.000	0.000	105.000	No Ice	3.924	2.557	0.021
(R)			0.000			1/2" Ice	4.197	2.794	0.050
			3.000			1" Ice	4.478	3.040	0.082
						2" Ice	5.066	3.557	0.158
						4" Ice	6.347	4.696	0.360
Platform Mount [LP 1201-1]	C	None		0.000	105.000	No Ice	23.100	23.100	2.100
(E-Per Photo)						1/2" Ice	26.800	26.800	2.500
						1" Ice	30.500	30.500	2.900
						2" Ice	37.900	37.900	3.700
						4" Ice	52.700	52.700	5.300
d									
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.000	0.000	91.000	No Ice	6.119	4.254	0.055
(E)			0.000			1/2" Ice	6.626	5.014	0.103
			2.000			1" Ice	7.128	5.711	0.157
						2" Ice	8.164	7.155	0.287
						4" Ice	10.360	10.412	0.665
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.000	0.000	91.000	No Ice	6.119	4.254	0.055
(E)			0.000			1/2" Ice	6.626	5.014	0.103
			2.000			1" Ice	7.128	5.711	0.157
						2" Ice	8.164	7.155	0.287
						4" Ice	10.360	10.412	0.665
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.000	0.000	91.000	No Ice	6.119	4.254	0.055
(E)			0.000			1/2" Ice	6.626	5.014	0.103
			2.000			1" Ice	7.128	5.711	0.157
						2" Ice	8.164	7.155	0.287
						4" Ice	10.360	10.412	0.665
AM-X-CD-16-65-00T-RET	A	From Leg	4.000	0.000	91.000	No Ice	8.498	6.304	0.074
w/ Mount Pipe			0.000			1/2" Ice	9.149	7.479	0.139
(E)			2.000			1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET	B	From Leg	4.000	0.000	91.000	No Ice	8.498	6.304	0.074
w/ Mount Pipe			0.000			1/2" Ice	9.149	7.479	0.139
(E)			2.000			1" Ice	9.767	8.368	0.212

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft Vert ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
AM-X-CD-16-65-00T-RET w/ Mount Pipe (E)	C	From Leg	4.000 0.000 2.000	0.000	91.000	No Ice	8.498	6.304	0.074
						1/2" Ice	9.149	7.479	0.139
						1" Ice	9.767	8.368	0.212
						2" Ice	11.031	10.179	0.385
						4" Ice	13.679	14.024	0.874
(2) LGP21903 (E(Shielded))	A	From Leg	4.000 0.000 0.000	0.000	91.000	No Ice	0.000	0.184	0.011
						1/2" Ice	0.000	0.248	0.013
						1" Ice	0.000	0.322	0.017
						2" Ice	0.000	0.494	0.028
						4" Ice	0.000	0.943	0.072
(2) LGP21903 (E(Shielded))	B	From Leg	4.000 0.000 0.000	0.000	91.000	No Ice	0.000	0.184	0.011
						1/2" Ice	0.000	0.248	0.013
						1" Ice	0.000	0.322	0.017
						2" Ice	0.000	0.494	0.028
						4" Ice	0.000	0.943	0.072
(2) LGP21903 (E(Shielded))	C	From Leg	4.000 0.000 0.000	0.000	91.000	No Ice	0.000	0.184	0.011
						1/2" Ice	0.000	0.248	0.013
						1" Ice	0.000	0.322	0.017
						2" Ice	0.000	0.494	0.028
						4" Ice	0.000	0.943	0.072
DC6-48-60-18-8F (E)	A	From Leg	4.000 0.000 2.000	0.000	91.000	No Ice	1.467	1.467	0.019
						1/2" Ice	1.667	1.667	0.037
						1" Ice	1.878	1.878	0.057
						2" Ice	2.333	2.333	0.105
						4" Ice	3.378	3.378	0.239
RRUS 11 (E)	A	From Leg	4.000 0.000 2.000	0.000	91.000	No Ice	3.249	1.373	0.048
						1/2" Ice	3.491	1.551	0.068
						1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
RRUS 11 (E)	B	From Leg	4.000 0.000 2.000	0.000	91.000	No Ice	3.249	1.373	0.048
						1/2" Ice	3.491	1.551	0.068
						1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
RRUS 11 (E)	C	From Leg	4.000 0.000 2.000	0.000	91.000	No Ice	3.249	1.373	0.048
						1/2" Ice	3.491	1.551	0.068
						1" Ice	3.741	1.738	0.092
						2" Ice	4.268	2.138	0.150
						4" Ice	5.426	3.042	0.310
LGP 17201 (E(Shielded))	A	From Leg	4.000 0.000 0.000	0.000	91.000	No Ice	0.000	0.518	0.031
						1/2" Ice	0.000	0.640	0.042
						1" Ice	0.000	0.770	0.055
						2" Ice	0.000	1.056	0.089
						4" Ice	0.000	1.733	0.193
LGP 17201 (E(Shielded))	B	From Leg	4.000 0.000 0.000	0.000	91.000	No Ice	0.000	0.518	0.031
						1/2" Ice	0.000	0.640	0.042
						1" Ice	0.000	0.770	0.055
						2" Ice	0.000	1.056	0.089
						4" Ice	0.000	1.733	0.193
LGP 17201 (E(Shielded))	C	From Leg	4.000 0.000 0.000	0.000	91.000	No Ice	0.000	0.518	0.031
						1/2" Ice	0.000	0.640	0.042
						1" Ice	0.000	0.770	0.055
						2" Ice	0.000	1.056	0.089
						4" Ice	0.000	1.733	0.193

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
LGP 17201	A	From Leg	4.000	0.000	91.000	No Ice	1.946	0.518	0.031
(E)			0.000			1/2" Ice	2.134	0.640	0.042
			0.000			1" Ice	2.330	0.770	0.055
						2" Ice	2.749	1.056	0.089
						4" Ice	3.690	1.733	0.193
LGP 17201	B	From Leg	4.000	0.000	91.000	No Ice	1.946	0.518	0.031
(E)			0.000			1/2" Ice	2.134	0.640	0.042
			0.000			1" Ice	2.330	0.770	0.055
						2" Ice	2.749	1.056	0.089
						4" Ice	3.690	1.733	0.193
LGP 17201	C	From Leg	4.000	0.000	91.000	No Ice	1.946	0.518	0.031
(E)			0.000			1/2" Ice	2.134	0.640	0.042
			0.000			1" Ice	2.330	0.770	0.055
						2" Ice	2.749	1.056	0.089
						4" Ice	3.690	1.733	0.193
RRUS 11	A	From Leg	4.000	0.000	91.000	No Ice	0.000	1.373	0.048
(P)			0.000			1/2" Ice	0.000	1.551	0.068
			2.000			1" Ice	0.000	1.738	0.092
						2" Ice	0.000	2.138	0.150
						4" Ice	0.000	3.042	0.310
RRUS 11	B	From Leg	4.000	0.000	91.000	No Ice	0.000	1.373	0.048
(P)			0.000			1/2" Ice	0.000	1.551	0.068
			2.000			1" Ice	0.000	1.738	0.092
						2" Ice	0.000	2.138	0.150
						4" Ice	0.000	3.042	0.310
RRUS 11	C	From Leg	4.000	0.000	91.000	No Ice	0.000	1.373	0.048
(P)			0.000			1/2" Ice	0.000	1.551	0.068
			2.000			1" Ice	0.000	1.738	0.092
						2" Ice	0.000	2.138	0.150
						4" Ice	0.000	3.042	0.310
5' x 2" Pipe Mount	A	From Leg	4.000	0.000	91.000	No Ice	1.000	1.000	0.029
(E-For TME)			0.000			1/2" Ice	1.393	1.393	0.037
			0.000			1" Ice	1.703	1.703	0.048
						2" Ice	2.351	2.351	0.082
						4" Ice	3.778	3.778	0.196
5' x 2" Pipe Mount	B	From Leg	4.000	0.000	91.000	No Ice	1.000	1.000	0.029
(E-For TME)			0.000			1/2" Ice	1.393	1.393	0.037
			0.000			1" Ice	1.703	1.703	0.048
						2" Ice	2.351	2.351	0.082
						4" Ice	3.778	3.778	0.196
5' x 2" Pipe Mount	C	From Leg	4.000	0.000	91.000	No Ice	1.000	1.000	0.029
(E-For TME)			0.000			1/2" Ice	1.393	1.393	0.037
			0.000			1" Ice	1.703	1.703	0.048
						2" Ice	2.351	2.351	0.082
						4" Ice	3.778	3.778	0.196
Platform Mount [LP 1201-1]	C	None		0.000	91.000	No Ice	23.100	23.100	2.100
(E)						1/2" Ice	26.800	26.800	2.500
						1" Ice	30.500	30.500	2.900
						2" Ice	37.900	37.900	3.700
						4" Ice	52.700	52.700	5.300
d									
KS24019-L112A	C	From Leg	2.000	0.000	75.000	No Ice	0.156	0.156	0.005
(E)			0.000			1/2" Ice	0.225	0.225	0.007
			1.000			1" Ice	0.302	0.302	0.009
						2" Ice	0.484	0.484	0.018
						4" Ice	0.951	0.951	0.056
Side Arm Mount [SO 701-1]	C	From Leg	1.000	0.000	75.000	No Ice	0.850	1.670	0.065

Description	Face or Leg	Offset Type	Offsets: Horz Lateral ft / Vert ft / ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
(E)			0.000 0.000			1/2" Ice 1" Ice 2" Ice 4" Ice	1.140 1.430 2.010 3.170	2.340 3.010 4.350 7.030	0.079 0.093 0.121 0.177
d									

Dishes

Description	Face or Leg	Dish Type	Offset Type	Offsets: Horz Lateral ft / Vert ft	Azimuth Adjustment °	3 dB Beam Width °	Elevation ft	Outside Diameter ft		Aperture Area ft^2	Weight K
GHF3W-23 (E)	B	Grid	From Leg	4.000 0.000 2.000	0.000		117.000	3.000	No Ice 1/2" Ice 1" Ice 2" Ice 4" Ice	7.070 7.470 7.860 8.660 10.250	0.000 0.040 0.000 0.000 0.000
d											

Load Combinations

Comb. No.	Description
1	Dead Only
2	Dead+Wind 0 deg - No Ice
3	Dead+Wind 30 deg - No Ice
4	Dead+Wind 60 deg - No Ice
5	Dead+Wind 90 deg - No Ice
6	Dead+Wind 120 deg - No Ice
7	Dead+Wind 150 deg - No Ice
8	Dead+Wind 180 deg - No Ice
9	Dead+Wind 210 deg - No Ice
10	Dead+Wind 240 deg - No Ice
11	Dead+Wind 270 deg - No Ice
12	Dead+Wind 300 deg - No Ice
13	Dead+Wind 330 deg - No Ice
14	Dead+Ice+Temp
15	Dead+Wind 0 deg+Ice+Temp
16	Dead+Wind 30 deg+Ice+Temp
17	Dead+Wind 60 deg+Ice+Temp
18	Dead+Wind 90 deg+Ice+Temp
19	Dead+Wind 120 deg+Ice+Temp
20	Dead+Wind 150 deg+Ice+Temp
21	Dead+Wind 180 deg+Ice+Temp
22	Dead+Wind 210 deg+Ice+Temp
23	Dead+Wind 240 deg+Ice+Temp
24	Dead+Wind 270 deg+Ice+Temp

Comb. No.	Description
25	Dead+Wind 300 deg+Ice+Temp
26	Dead+Wind 330 deg+Ice+Temp
27	Dead+Wind 0 deg - Service
28	Dead+Wind 30 deg - Service
29	Dead+Wind 60 deg - Service
30	Dead+Wind 90 deg - Service
31	Dead+Wind 120 deg - Service
32	Dead+Wind 150 deg - Service
33	Dead+Wind 180 deg - Service
34	Dead+Wind 210 deg - Service
35	Dead+Wind 240 deg - Service
36	Dead+Wind 270 deg - Service
37	Dead+Wind 300 deg - Service
38	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Force K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	117.5 - 86.29	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-18.011	-0.169	0.868
			Max. Mx	5	-9.182	-285.193	-0.332
			Max. My	2	-9.180	0.524	285.040
			Max. Vy	11	-16.911	284.920	0.585
			Max. Vx	8	16.926	-0.977	-284.518
			Max. Torque	13			-1.254
L2	86.29 - 42.627	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-25.478	0.351	1.123
			Max. Mx	11	-15.384	1058.512	1.511
			Max. My	2	-15.382	1.975	1059.411
			Max. Vy	11	-19.643	1058.512	1.511
			Max. Vx	8	19.675	-2.530	-1058.968
			Max. Torque	13			-1.256
L3	42.627 - 29.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-30.272	0.530	1.297
			Max. Mx	11	-19.423	1430.624	2.023
			Max. My	2	-19.422	2.650	1432.049
			Max. Vy	11	-21.059	1430.624	2.023
			Max. Vx	8	21.090	-3.310	-1431.561
			Max. Torque	13			-1.111
L4	29.083 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	14	-37.823	0.844	1.610
			Max. Mx	11	-25.953	2075.666	2.836
			Max. My	2	-25.953	3.726	2077.927
			Max. Vy	11	-23.372	2075.666	2.836
			Max. Vx	8	23.403	-4.506	-2077.328
			Max. Torque	13			-1.172

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	25	37.823	5.165	2.994
	Max. H_x	11	25.967	23.358	0.024
	Max. H_z	2	25.967	0.034	23.385
	Max. M_x	2	2077.927	0.034	23.385
	Max. M_z	5	2075.312	-23.357	-0.034
	Max. Torsion	7	1.146	-11.708	-20.291
	Min. Vert	1	25.967	0.000	0.000
	Min. H_x	5	25.967	-23.357	-0.034
	Min. H_z	8	25.967	-0.043	-23.389
	Min. M_x	8	-2077.328	-0.043	-23.389
	Min. M_z	11	-2075.666	23.358	0.024
	Min. Torsion	13	-1.172	11.699	20.296

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	25.967	0.000	0.000	-0.518	0.172	0.000
Dead+Wind 0 deg - No Ice	25.967	-0.034	-23.385	-2077.927	3.726	0.740
Dead+Wind 30 deg - No Ice	25.967	11.637	-20.204	-1794.046	-1033.012	0.091
Dead+Wind 60 deg - No Ice	25.967	20.197	-11.657	-1035.429	-1793.705	-0.362
Dead+Wind 90 deg - No Ice	25.967	23.357	0.034	3.008	-2075.312	-0.782
Dead+Wind 120 deg - No Ice	25.967	20.257	11.742	1043.689	-1800.486	-1.114
Dead+Wind 150 deg - No Ice	25.967	11.708	20.291	1803.079	-1040.618	-1.146
Dead+Wind 180 deg - No Ice	25.967	0.043	23.389	2077.328	-4.506	-0.747
Dead+Wind 210 deg - No Ice	25.967	-11.609	20.220	1794.969	1029.892	-0.086
Dead+Wind 240 deg - No Ice	25.967	-20.189	11.663	1035.101	1793.064	0.374
Dead+Wind 270 deg - No Ice	25.967	-23.358	-0.024	-2.836	2075.666	0.750
Dead+Wind 300 deg - No Ice	25.967	-20.241	-11.732	-1043.602	1798.849	1.108
Dead+Wind 330 deg - No Ice	25.967	-11.699	-20.296	-1804.774	1039.911	1.172
Dead+Ice+Temp	37.823	-0.000	-0.000	-1.610	0.844	-0.000
Dead+Wind 0 deg+Ice+Temp	37.823	-0.094	-5.943	-546.545	12.687	0.217
Dead+Wind 30 deg+Ice+Temp	37.823	2.936	-5.103	-468.078	-267.373	0.120
Dead+Wind 60 deg+Ice+Temp	37.823	5.110	-2.943	-270.727	-466.827	-0.018
Dead+Wind 90 deg+Ice+Temp	37.823	5.914	0.008	-0.880	-540.662	-0.172
Dead+Wind 120 deg+Ice+Temp	37.823	5.135	2.977	271.169	-469.735	-0.359
Dead+Wind 150 deg+Ice+Temp	37.823	2.964	5.138	468.881	-270.589	-0.449
Dead+Wind 180 deg+Ice+Temp	37.823	0.016	5.915	539.595	-0.970	-0.340
Dead+Wind 210 deg+Ice+Temp	37.823	-2.934	5.104	464.813	268.942	-0.119
Dead+Wind 240 deg+Ice+Temp	37.823	-5.174	2.890	260.517	476.660	0.141
Dead+Wind 270 deg+Ice+Temp	37.823	-5.946	-0.060	-9.102	546.480	0.341
Dead+Wind 300 deg+Ice+Temp	37.823	-5.165	-2.994	-276.703	475.240	0.358
Dead+Wind 330 deg+Ice+Temp	37.823	-3.025	-5.139	-472.466	280.102	0.279
Dead+Wind 0 deg - Service	25.967	-0.012	-8.092	-720.642	1.402	0.262
Dead+Wind 30 deg - Service	25.967	4.027	-6.991	-622.230	-357.962	0.031
Dead+Wind 60 deg - Service	25.967	6.988	-4.034	-359.272	-621.644	-0.129
Dead+Wind 90 deg - Service	25.967	8.082	0.012	0.684	-719.265	-0.276
Dead+Wind 120 deg - Service	25.967	7.009	4.063	361.425	-624.009	-0.391
Dead+Wind 150 deg - Service	25.967	4.051	7.021	624.660	-360.610	-0.401
Dead+Wind 180 deg - Service	25.967	0.015	8.093	719.719	-1.452	-0.261

Load Combination	Vertical	$Shear_x$	$Shear_z$	Overturning Moment, M_x	Overturning Moment, M_z	Torque
	K	K	K	kip-ft	kip-ft	kip-ft
Dead+Wind 210 deg - Service	25.967	-4.017	6.997	621.834	357.104	-0.030
Dead+Wind 240 deg - Service	25.967	-6.986	4.036	358.441	621.647	0.129
Dead+Wind 270 deg - Service	25.967	-8.082	-0.008	-1.342	719.613	0.262
Dead+Wind 300 deg - Service	25.967	-7.004	-4.060	-362.113	623.662	0.390
Dead+Wind 330 deg - Service	25.967	-4.048	-7.023	-625.967	360.585	0.414

Solution Summary

	Sum of Applied Forces			Sum of Reactions			
Load Comb.	PX	PY	PZ	PX	PY	PZ	% Error
	K	K	K	K	K	K	
1	0.000	-25.967	0.000	0.000	25.967	0.000	0.000%
2	-0.034	-25.967	-23.385	0.034	25.967	23.385	0.000%
3	11.637	-25.967	-20.204	-11.637	25.967	20.204	0.000%
4	20.197	-25.967	-11.657	-20.197	25.967	11.657	0.000%
5	23.357	-25.967	0.034	-23.357	25.967	-0.034	0.000%
6	20.257	-25.967	11.742	-20.257	25.967	-11.742	0.000%
7	11.708	-25.967	20.291	-11.708	25.967	-20.291	0.000%
8	0.043	-25.967	23.389	-0.043	25.967	-23.389	0.000%
9	-11.609	-25.967	20.220	11.609	25.967	-20.220	0.000%
10	-20.189	-25.967	11.663	20.189	25.967	-11.663	0.000%
11	-23.358	-25.967	-0.024	23.358	25.967	0.024	0.000%
12	-20.241	-25.967	-11.732	20.241	25.967	11.732	0.000%
13	-11.699	-25.967	-20.296	11.699	25.967	20.296	0.000%
14	0.000	-37.823	0.000	0.000	37.823	0.000	0.000%
15	-0.094	-37.823	-5.943	0.094	37.823	5.943	0.000%
16	2.936	-37.823	-5.103	-2.936	37.823	5.103	0.000%
17	5.110	-37.823	-2.943	-5.110	37.823	2.943	0.000%
18	5.914	-37.823	0.008	-5.914	37.823	-0.008	0.000%
19	5.135	-37.823	2.977	-5.135	37.823	-2.977	0.000%
20	2.964	-37.823	5.138	-2.964	37.823	-5.138	0.000%
21	0.016	-37.823	5.915	-0.016	37.823	-5.915	0.000%
22	-2.934	-37.823	5.104	2.934	37.823	-5.104	0.000%
23	-5.174	-37.823	2.890	5.174	37.823	-2.890	0.000%
24	-5.946	-37.823	-0.060	5.946	37.823	0.060	0.000%
25	-5.165	-37.823	-2.993	5.165	37.823	2.994	0.000%
26	-3.025	-37.823	-5.139	3.025	37.823	5.139	0.000%
27	-0.012	-25.967	-8.092	0.012	25.967	8.092	0.000%
28	4.027	-25.967	-6.991	-4.027	25.967	6.991	0.000%
29	6.988	-25.967	-4.034	-6.988	25.967	4.034	0.000%
30	8.082	-25.967	0.012	-8.082	25.967	-0.012	0.000%
31	7.009	-25.967	4.063	-7.009	25.967	-4.063	0.000%
32	4.051	-25.967	7.021	-4.051	25.967	-7.021	0.000%
33	0.015	-25.967	8.093	-0.015	25.967	-8.093	0.000%
34	-4.017	-25.967	6.997	4.017	25.967	-6.997	0.000%
35	-6.986	-25.967	4.036	6.986	25.967	-4.036	0.000%
36	-8.082	-25.967	-0.008	8.082	25.967	0.008	0.000%
37	-7.004	-25.967	-4.060	7.004	25.967	4.060	0.000%
38	-4.048	-25.967	-7.023	4.048	25.967	7.023	0.000%

Non-Linear Convergence Results

Load Combination	Converged?	Number of Cycles	Displacement Tolerance	Force Tolerance
1	Yes	4	0.00000001	0.00000001
2	Yes	4	0.00000001	0.00065148
3	Yes	5	0.00000001	0.00060687
4	Yes	5	0.00000001	0.00060818
5	Yes	4	0.00000001	0.00052415
6	Yes	5	0.00000001	0.00058972
7	Yes	5	0.00000001	0.00063266
8	Yes	4	0.00000001	0.00080442
9	Yes	5	0.00000001	0.00059692
10	Yes	5	0.00000001	0.00059906
11	Yes	4	0.00000001	0.00059750
12	Yes	5	0.00000001	0.00063040
13	Yes	5	0.00000001	0.00058641
14	Yes	4	0.00000001	0.00001298
15	Yes	5	0.00000001	0.00028297
16	Yes	5	0.00000001	0.00031802
17	Yes	5	0.00000001	0.00031826
18	Yes	5	0.00000001	0.00027940
19	Yes	5	0.00000001	0.00031835
20	Yes	5	0.00000001	0.00032189
21	Yes	5	0.00000001	0.00027846
22	Yes	5	0.00000001	0.00031389
23	Yes	5	0.00000001	0.00031711
24	Yes	5	0.00000001	0.00028303
25	Yes	5	0.00000001	0.00032923
26	Yes	5	0.00000001	0.00032584
27	Yes	4	0.00000001	0.00016737
28	Yes	5	0.00000001	0.00005659
29	Yes	5	0.00000001	0.00005678
30	Yes	4	0.00000001	0.00014659
31	Yes	5	0.00000001	0.00005335
32	Yes	5	0.00000001	0.00006136
33	Yes	4	0.00000001	0.00017495
34	Yes	5	0.00000001	0.00005452
35	Yes	5	0.00000001	0.00005486
36	Yes	4	0.00000001	0.00014736
37	Yes	5	0.00000001	0.00006100
38	Yes	5	0.00000001	0.00005302

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	117.5 - 86.29	29.699	38	2.502	0.011
L2	89.707 - 42.627	16.374	38	1.917	0.004
L3	47.377 - 29.083	4.052	38	0.825	0.001
L4	29.083 - 0	1.467	38	0.497	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.000	GHF3W-23	38	29.699	2.502	0.011	9900
117.000	APXVSPP18-C-A20 w/ Mount Pipe	38	29.443	2.492	0.011	9900
115.000	PCS 1900MHz 4x45W-65MHz	38	28.423	2.453	0.010	9900
105.000	(2) FD9R6004/2C-3L	38	23.394	2.256	0.007	3959
91.000	(2) 7770.00 w/ Mount Pipe	38	16.919	1.948	0.004	1896
75.000	KS24019-L112A	38	10.944	1.530	0.002	2034

Maximum Tower Deflections - Design Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	117.5 - 86.29	85.297	13	7.194	0.032
L2	89.707 - 42.627	47.104	13	5.517	0.010
L3	47.377 - 29.083	11.676	13	2.376	0.002
L4	29.083 - 0	4.229	13	1.432	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation ft	Appurtenance	Gov. Load Comb.	Deflection in	Tilt °	Twist °	Radius of Curvature ft
119.000	GHF3W-23	13	85.297	7.194	0.032	3539
117.000	APXVSPP18-C-A20 w/ Mount Pipe	13	84.566	7.166	0.032	3539
115.000	PCS 1900MHz 4x45W-65MHz	13	81.641	7.055	0.030	3539
105.000	(2) FD9R6004/2C-3L	13	67.231	6.488	0.021	1414
91.000	(2) 7770.00 w/ Mount Pipe	13	48.666	5.607	0.011	674
75.000	KS24019-L112A	13	31.510	4.406	0.005	718

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	117.5 - 86.29 (1)	TP22.9x15x0.188	31.210	0.000	0.0	39.000	13.002	-9.171	507.080	0.018
L2	86.29 - 42.627 (2)	TP33.46x21.66x0.313	47.080	0.000	0.0	39.000	31.697	-15.378	1236.200	0.012
L3	42.627 - 29.083 (3)	TP36.222x31.644x0.398	18.294	0.000	0.0	32.814	45.261	-19.420	1485.190	0.013
L4	29.083 - 0 (4)	TP43.5x36.222x0.411	29.083	0.000	0.0	33.222	51.522	-22.594	1711.690	0.013

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	117.5 - 86.29 (1)	TP22.9x15x0.188	286.125	49.019	39.000	1.257	0.000	0.000	39.000	0.000
L2	86.29 - 42.627 (2)	TP33.46x21.66x0.313	1062.342	51.099	39.000	1.310	0.000	0.000	39.000	0.000
L3	42.627 - 29.083 (3)	TP36.222x31.644x0.398	1435.792	43.202	32.814	1.317	0.000	0.000	32.814	0.000
L4	29.083 - 0 (4)	TP43.5x36.222x0.411	1750.975	42.001	33.222	1.264	0.000	0.000	33.222	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	117.5 - 86.29 (1)	TP22.9x15x0.188	16.959	1.304	26.000	0.100	1.254	0.105	26.000	0.004
L2	86.29 - 42.627 (2)	TP33.46x21.66x0.313	19.715	0.622	26.000	0.048	1.088	0.025	26.000	0.001
L3	42.627 - 29.083 (3)	TP36.222x31.644x0.398	21.129	0.467	21.876	0.043	1.111	0.016	21.876	0.001
L4	29.083 - 0 (4)	TP43.5x36.222x0.411	22.364	0.434	22.148	0.039	1.143	0.013	22.148	0.001

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	117.5 - 86.29 (1)	0.018	1.257	0.000	0.100	0.004	1.278 ✔	1.333	H1-3+VT ✔
L2	86.29 - 42.627 (2)	0.012	1.310	0.000	0.048	0.001	1.323 ✔	1.333	H1-3+VT ✔
L3	42.627 - 29.083 (3)	0.013	1.317	0.000	0.043	0.001	1.330 ✔	1.333	H1-3+VT ✔
L4	29.083 - 0 (4)	0.013	1.264	0.000	0.039	0.001	1.278 ✔	1.333	H1-3+VT ✔

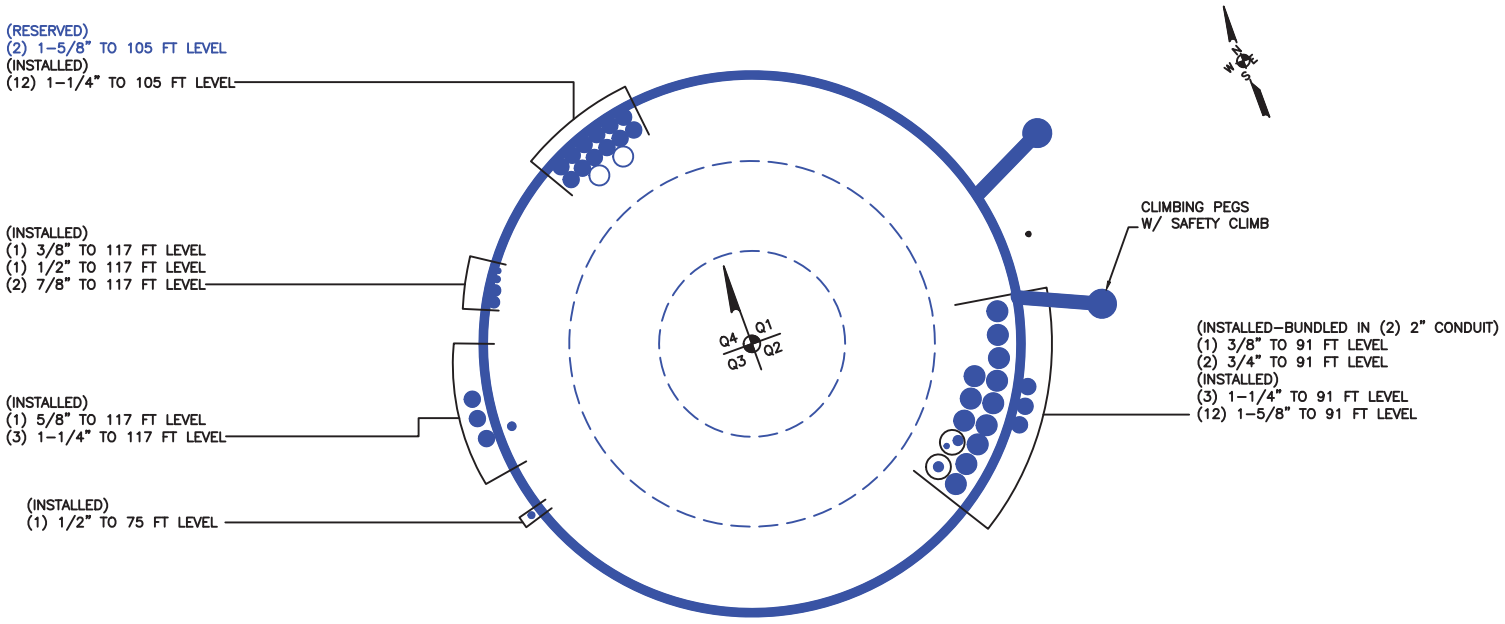
Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	$SF*P_{allow}$ K	% Capacity	Pass Fail
L1	117.5 - 86.29	Pole	TP22.9x15x0.188	1	-9.171	**	**	**
L2	86.29 - 42.627	Pole	TP33.46x21.66x0.313	2	-15.378	**	**	**
L3	42.627 - 29.083	Pole	TP36.222x31.644x0.398	3	-19.420	**	**	**
L4	29.083 - 0	Pole	TP43.5x36.222x0.411	4	-22.594	**	**	**
							Summary	
						Pole (L3)	**	**
						RATING =	**	**

**See Appendix C – Additional Calculations

APPENDIX B

BASE LEVEL DRAWING



BUSINESS UNIT:876352

APPENDIX C

ADDITIONAL CALCULATIONS

Reinforcement 1

Bottom	Top	QTY	Type	Position	Gap	Ten/Comp
0	29.083	3	MP304	F	0	T&C
29.083	45.833	3	MP303	F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C

Reinforcement 2

Bottom	Top	QTY	Type	Position	Gap	Ten/Comp
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C

Reinforcement 3

Bottom	Top	QTY	Type	Position	Gap	Ten/Comp
0				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C
				F	0	T&C

Bottom Elevation	Top Elevation	Original Thickness	Original Yield Stress	Original Ultimate Stress	Reinforced Shaft Capacity	Reinf. 1 QTY	Reinf. 1 Type	Rein. 1 Capacity	Reinf. 2 QTY	Reinf. 2 Type	Rein. 2 Capacity	Reinf. 3 QTY	Reinf. 3 Type	Rein. 3 Capacity	Control Stress Ratio	Top Height	Section Length	Lap Splice	# of Sides	Top Diameter	Bottom Diameter	Equivalent Shaft Thickness	Equivalent Shaft Fy	Equivalent Weight Mult.		Bottom Elevation Failure	Top Elevation Failure	Section Failure %
86.2900	117.5000	0.1875	65	80	95.6%										**95.6%**	117.5000	31.2100	3.4170	18	15.0000	22.9000	0.1875	65.0	1.00	1			
42.6270	89.7070	0.3125	65	80	99.2%										**99.2%**	89.7070	47.0800	4.7500	18	21.6601	33.4600	0.3125	65.0	1.00	2			
29.0830	47.3770	0.3125	65	80	82.8%	3	MP303	99.8%							**99.8%**	47.3770	18.2940	0.0000	18	31.6445	36.2223	0.3980	53.3	0.98	3			
0.0000	29.0830	0.3125	65	80	80.4%	3	MP304	95.6%							**95.6%**	29.0830	29.0830	0.0000	18	36.2223	43.5000	0.4115	53.9	0.98	4			
																									5			
																									6			
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Reinforcement Capacity

AeroSolutions LLC
Optimizing Your Tower Infrastructure
5500 Flatirons Parkway, Suite 100
Boulder, CO 80301
720-304-6882

Dimensions and Properties														Compression				Axial				
																		ASD-9			LRFD	
Model	Weight (lb/ft)	Area (in^2)	Moment of Inertia (in^4)	Moment of Inertia (in^4)	Centroid from Mating Edge (in)	Centroid from Bolt Hole Center (in)	Web Thickness (in)	Width (in)	Flange Width (in)	Flange Thickness (in)	Hole Diameter (in)	Yield Stress (ksi)	Ultimate Stress (ksi)	Slender. Ratio Coefficient	Unbraced Length (in)	Slender. Ratio Coefficient	Unbraced Length (in)	Allowable Axial (kip)	Allowable Axial w/ increase (kip)	Governing Axial	Design Axial Strength (kip)	Governing Axial
MP303	9.9	2.92	0.66	6.57	0.59	0	0.30	4.06	1.57	0.64	1.21875	65	80	0.80	18	1.00	18	96.4	128.6	Rupture	**144.7**	Rupture
MP304	14.1	4.13	0.91	11.86	0.61	0	0.43	4.78	1.61	0.84	1.21875	65	80	0.80	18	1.00	18	137.3	183.1	Rupture	**206.0**	Rupture

Rein1

Bottom	Top	Qty	Model	Position	T or T&C
0	29.083	3	MP304	F	T&C
29.083	45.833	3	MP303	F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C

Flats (Used for relative orientation only. Actual flat numbers may vary.)

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
		1						1						1			
				1						1						1	

Rein2

Bottom	Top	Qty	Model	Position	T or T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C

Rein3

Bottom	Top	Qty	Model	Position	T or T&C
0				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C
				F	T&C

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Section	Loads					Pole																		
Section	Elevation (ft)	Moment (ft-kip)	Compression (kip)	Shear (kip)	Torsion (kip-ft)	Number of Sides	OD (in)	Thickness (in)	Yield Strength (ksi)	Flat Width (in)	Area (in^2)	Moment of Inertia (in^4)	Percent of Composite Moment of Inertia	Angle Offset to Pole Flat	Distance to Extreme Fiber (in)	Section Modulus (in^3)	Torsion Constant (in^4)	Polygonal Compact Criterion	Allowable Bending Stress (ksi)	Allowable Bending Moment Strength (ft-kip)	Allowable Axial Stress (ksi)	Allowable Shear Stress (ksi)		
Section	*Elevation*	*Moment*	*Compressio*	*Shear*	*Torsion*	*PoleSides*	*PoleOD*	*PoleT*	*PoleFy*	*PoleW*	*PoleA*	*PoleI*	*PoleIPer*	*PoleCPoint*	*PoleC*	*PoleS*	*PoleJ*	*PoleWTf*	*PoleFb*	*PoleMall*	*PoleFa*	*PoleFv*		
1	117.5	0.3	0.0	0.2	0.0	18	15.0000	0.1875	65	2.31	8.8	244	100%	TRUE	7.60	32	484	100	52.0	139.1	52.0	34.7		
2	89.707	286.2	9.2	17.0	1.3	18	22.0351	0.1875	65	3.55	13.0	783	100%	TRUE	11.17	70	1552	153	52.0	303.7	52.0	34.7		
3	86.29	344.5	9.7	17.2	1.3	18	22.9000	0.5000	65	3.16	35.5	2248	100%	TRUE	11.59	194	4465	51	52.0	840.5	52.0	34.7		
4	47.377	1062.4	15.4	19.7	1.1	18	32.2695	0.3125	65	5.14	31.7	4084	100%	TRUE	16.36	250	8098	133	52.0	1081.6	52.0	34.7		
5	45.833	1092.9	15.8	19.8	1.1	18	32.6565	0.6250	65	4.66	63.4	8219	100%	0	16.33	503	16317	60	52.0	2180.7	52.0	34.7		
6	42.627	1156.9	16.8	20.1	1.1	18	33.4600	0.6250	65	4.80	65.0	8854	87%	0	16.73	529	17576	62	52.0	2292.7	52.0	34.7		
7	29.083	1435.7	19.4	21.1	1.1	18	36.2223	0.3125	65	5.84	35.6	5796	79%	0	18.11	320	11490	151	52.0	1386.4	52.0	34.7		
8	0	2082.9	26.0	23.4	1.2	18	43.5000	0.3125	65	7.12	42.8	10084	76%	0	21.75	464	19985	184	52.0	2008.5	52.0	34.7		

Section	Unreinforced Pole - Rev. F					Reinforced Pole					Rev. F
Section	Bending Stress (ksi)	Axial Stress (ksi)	Shear Stress (ksi)	Torsion Shear Stress (ksi)	**Stress Ratio**	Moment in Pole when Reinforced	Bending Stress (ksi)	Axial Stress (ksi)	Shear Stress (ksi)	Torsion Shear Stress (ksi)	**Reinforced Pole Stress Ratio**
Section	*PoleFbAct*	*PoleFaAct*	*PoleFvAct*	*PoleFvtAct*	***PoleSR***	*PoleMome*	*RPoleFbAc*	*RPoleFaAc*	*RPoleFvAc*	*RPoleFvtAc*	***RPoleSR***
1	0.1	0.00	0.00	0.00	**0.002**	0.3	0.1	0.00	0.00	0.00	**0.002**
2	49.0	0.71	0.00	0.11	**0.956**	286.2	49.0	0.71	0.00	0.01	**0.956**
3	21.3	0.27	0.00	0.04	**0.415**	344.5	21.3	0.27	0.00	0.00	**0.415**
4	51.1	0.49	0.00	0.03	**0.992**	1062.4	51.1	0.49	0.00	0.00	**0.992**
5	26.1	0.25	0.00	0.01	**0.506**	1092.9	26.1	0.25	0.00	0.00	**0.506**
6	26.2	0.26	0.00	0.01	**0.510**	1006.3	22.8	0.26	0.00	0.00	**0.444**
7	53.8	0.55	0.00	0.02	**1.046**	1133.9	42.5	0.55	0.00	0.00	**0.828**
8	53.9	0.61	0.00	0.02	**1.049**	1591.2	41.2	0.61	0.00	0.00	**0.804**
					1.049						**0.992**

Section	Reinforcement 1								Composite							
Section	Qty	**Model**	Position (F-Flat, C-Corner)	Gap Between Pole and Back of Rein. (in)	Tension only or Tension & Comp.	Total Moment of Inertia (in^4)	Axial Force (kip)	**Stress Ratio**	Centroid Offset (in)	Area (in^2)	Moment of Inertia (in^4)	**Controlling Stress Ratio**	**Thickness (in)**	**Weight Multiplier**	**Derated Yield Stress (ksi)**	**% Error in Derated Yield Stress**
Section	*Rein1Qty*	***Rein1Model***	*Rein1Pos*	*Rein1Gap*	*Rein1TC*	*Rein1ITotal*	*Rein1P*	***Rein1SR***	*CompYBar*	*CompA*	*CompI*	***CompSR***	***EPoleT***	***EPoleWM***	***EDPoleFy***	***EDPoleSRCheck***
1									0.000	8.8	244	**0.002**	**0.1875**	**1.00**	**65.0**	**22.4%**
2									0.000	13.0	783	**0.956**	**0.1875**	**1.00**	**65.0**	**0.5%**
3									0.000	35.5	2248	**0.415**	**0.5000**	**1.00**	**65.0**	**0.4%**
4									0.000	31.7	4084	**0.992**	**0.3125**	**1.00**	**65.0**	**0.2%**
5									0.000	63.4	8219	**0.506**	**0.6250**	**1.00**	**65.0**	**1.5%**
6	**3**	**MP303**	**F**	0	T&C	1325	69.0	**0.537**	0.000	73.8	10178	**0.537**	**0.7235**	**0.98**	**53.2**	**2.6%**
7	**3**	**MP303**	**F**	0	T&C	1543	128.3	**0.998**	0.000	44.3	7339	**0.998**	**0.3980**	**0.98**	**53.3**	**2.6%**
8	**3**	**MP304**	**F**	0	T&C	3116	174.9	**0.956**	0.000	55.2	13200	**0.956**	**0.4115**	**0.98**	**53.9**	**2.7%**
								0.998				**0.998**				

Stiffened or Unstiffened, Ungrouted, Circular Base Plate - Any Rod Material

TIA Rev F

Site Data

BU#:	*876352*
Site Name:	*RICHARD WALL*
App #:	*344087 Revision # 0*
Pole Manufacturer:	*Other*

Reactions		
Moment:	2082.9362	ft-kips
Axial:	25.9533	kips
Shear:	23.441739	kips

Anchor Rod Data		
Qty:	12	
Diam:	2.25	in
Rod Material:	A615-J	
Strength (Fu):	100	ksi
Yield (Fy):	75	ksi
Bolt Circle:	52	in

Plate Data		
Diam:	58	in
Thick:	1.75	in
Grade:	60	ksi
Single-Rod B-eff:	11.51	in

Stiffener Data (Welding at both sides)		
Config:	1	*
Weld Type:	Fillet	
Groove Depth:	0.625	<-- Disregard
Groove Angle:		<-- Disregard
Fillet H. Weld:	0.625	in
Fillet V. Weld:	0.375	in
Width:	7	in
Height:	20	in
Thick:	0.75	in
Notch:	0.5	in
Grade:	36	ksi
Weld str.:	70	ksi

Pole Data		
Diam:	43.5	in
Thick:	0.3125	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None

Stress Increase Factor		
ASIF:	1.333	

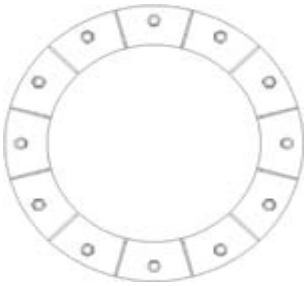
If No stiffeners, Criteria:	AISC ASD	<-Only Applcable to Unstiffened Cases

Anchor Rod Results			Stiffened
Maximum Rod Tension:	158.1	Kips	Service, ASD
Allowable Tension:	195.0	Kips	Fty*ASIF
Anchor Rod Stress Ratio:	81.1%	Pass	

Base Plate Results	Flexural Check		Stiffened
Base Plate Stress:	48.0	ksi	Service, ASD
Allowable Plate Stress:	60.0	ksi	0.75*Fy*ASIF
Base Plate Stress Ratio:	80.1%	Pass	Y.L. Length: N/A, Roark

Stiffener Results		
Horizontal Weld :	69.5%	Pass
Vertical Weld:	42.4%	Pass
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	28.7%	Pass
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	87.1%	Pass
Plate Comp. (AISC Bracket):	93.1%	Pass

Pole Results		
Pole Punching Shear Check:	14.0%	Pass



* 0 = none, 1 = every bolt, 2 = every 2 bolts, 3 = 2 per bolt

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

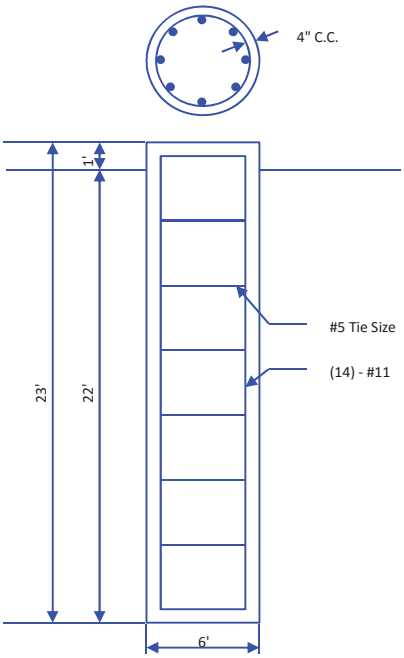
CCI Foundation Tool Suite - Monopole Pier

CCIFTS 1.2.108.14286 - Phase 1-2 Date: 5/10/2016

BU:	876352
Site Name:	Richard Wall, CT
App Number:	344087 Rev. 0
Work Order:	1230683

Monopole Drilled Pier

Input



Criteria		
TIA Revision:	F	
ACI 318 Revision:	2002	
Seismic Category:	B	
Forces		
Compression	26	kips
Shear	23	kips
Moment	2083	k-ft
Swelling Force	0	kips
Foundation Dimensions		
Pier Diameter:	6	ft
Ext. above grade:	1	ft
Depth below grade:	22	ft
Material Properties		
Number of Rebar:	14	
Rebar Size:	11	
Tie Size	5	
Rebar tensile strength:	60	ksi
Concrete Strength:	3000	psi
Ultimate Concrete Strain	0.003	in/in
Clear Cover to Ties:	4	in

Soil Profile: Soil

Layer	Thickness (ft)	From (ft)	To (ft)	Unit Weight (pcf)	Cohesion (psf)	Friction Angle (deg)	Ultimate Uplift Skin Friction (ksf)	Ultimate Comp. Skin Friction (ksf)	Ultimate Bearing Capacity (ksf)	SPT 'N' Counts
1	3.3	0	3.3	120	0	0	0	0	0	
2	3.2	3.3	6.5	120	0	33			0	
3	4.5	6.5	11	120	0	33			0	
4	11	11	22	120	0	33			12	

Analysis Results

Soil Lateral Capacity

Depth to Zero Shear:	5.36	ft
Max Moment, Mu:	2226.93	k-ft
Soil Safety Factor:	2.84	
Safety Factor Req'd:	2	
RATING:	70.4%	

Soil Axial Capacity

Skin Friction (k):	121.62	kips
End Bearing (k):	169.65	kips
Comp. Capacity (k), ϕCn:	291.26	kips
Comp. (k), Cu:	33.80	kips
RATING:	11.6%	

Concrete/Steel Check

Mu (from soil analysis)	2895.01	k-ft
ϕMn	2946.54	k-ft
RATING:	98.3%	
rho provided	0.54	
rho required	0.33	OK
Rebar Spacing	12.35	
Spacing required	22.56	OK
Dev. Length required	16.31	
Dev. Length provided	61.78	OK

Overall Foundation Rating: 98.3%

EBI Consulting
environmental | engineering | due diligence

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

AT&T Existing Facility

Site ID: CT1053

East Hampton
94 East High Street
East Hampton, CT 06424

July 10, 2016

EBI Project Number: 6216003142

Site Compliance Summary	
Compliance Status:	COMPLIANT
Site total MPE% of FCC general public allowable limit:	14.84 %

21 B Street · Burlington, MA 01803 · Tel: (781) 273.2500 · Fax: (781) 273.3311

EBI Consulting
environmental | engineering | due diligence

July 10, 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: **CT1053 – East Hampton**

EBI Consulting was directed to analyze the proposed AT&T facility located at **94 East High Street, East Hampton, 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 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μW/cm2). The number of $\mu W/cm^2$ 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 ($\mu W/cm^2$). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 $\mu W/cm^2$ and 567 $\mu W/cm^2$ respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 $\mu W/cm^2$. 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 **94 East High Street, East Hampton, 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 (700 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 60 Watts per Channel.

4) 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.

5) 2 GSM channels (850 MHz) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

6) 2 GSM channels (1900 MHz (PCS)) were considered for each sector of the proposed installation. These Channels have a transmit power of 30 Watts per Channel.

7) 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.

8) 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.

9) The antennas used in this modeling are the **Powerwave 7770 and the KMW AM-X-CD-16-65-00T-RET** for transmission in the 700 MHz, 850 MHz and 1900 MHz (PCS) 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.

10) The antenna mounting height centerlines of the proposed antennas are **95 feet** above ground level (AGL) for **Sector A**, **95 feet** above ground level (AGL) for **Sector B** and **95 feet** above ground level (AGL) for Sector C.

11) 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:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	**95 feet**	Height (AGL):	**95 feet**	Height (AGL):	**95 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):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A1 MPE%	**1.26 %**	Antenna B1 MPE%	**1.26 %**	Antenna C1 MPE%	**1.26 %**
Antenna #:	**2**	Antenna #:	**2**	Antenna #:	**2**
Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	KMW AM-X-CD-16-65-00T-RET	Make / Model:	KMW AM-X-CD-16-65-00T-RET
Gain:	13.35 / 15.25 / 0 / 0 dBd	Gain:	13.35 / 15.25 / 0 / 0 dBd	Gain:	13.35 / 15.25 / 0 / 0 dBd
Height (AGL):	**95 feet**	Height (AGL):	**95 feet**	Height (AGL):	**95 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):	6,614.85	ERP (W):	6,614.85	ERP (W):	6,614.85
Antenna A2 MPE%	**4.35 %**	Antenna B2 MPE%	**4.35 %**	Antenna C2 MPE%	**4.35 %**
Antenna #:	**3**	Antenna #:	**3**	Antenna #:	**3**
Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770	Make / Model:	Powerwave 7770
Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd	Gain:	11.4 / 13.4 dBd
Height (AGL):	**95 feet**	Height (AGL):	**95 feet**	Height (AGL):	**95 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):	2,140.89	ERP (W):	2,140.89	ERP (W):	2,140.89
Antenna A3 MPE%	**1.26 %**	Antenna B3 MPE%	**1.26 %**	Antenna C3 MPE%	**1.26 %**

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max per sector	**6.86 %**
Town	1.47 %
Sprint	0.97 %
Verizon Wireless	4.88 %
Nextel	0.66 %
Site Total MPE %:	**14.84 %**

AT&T Sector A Total:	6.86 %
AT&T Sector B Total:	6.86 %
AT&T Sector C Total:	6.86 %
Site Total:	14.84 %

AT&T _ Max Values Per Sector	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ($\mu W/cm^2$)	Frequency (MHz)	Allowable MPE ($\mu W/cm^2$)	Calculated % MPE
AT&T 850 MHz UMTS	2	414.12	95	3.76	850 MHz	567	0.66 %
AT&T 1900 MHz (PCS) UMTS	2	656.33	95	5.96	1900 MHz (PCS)	1000	0.60 %
AT&T 700 MHz LTE	2	1,297.63	95	11.78	700 MHz	467	2.52 %
AT&T 1900 MHz (PCS) LTE	2	2,009.79	95	18.24	1900 MHz (PCS)	1000	1.82 %
AT&T 850 MHz GSM	2	414.12	95	3.76	850 MHz	567	0.66 %
AT&T 1900 MHz (PCS) GSM	2	656.33	95	5.96	1900 MHz (PCS)	1000	0.60 %
						Total:	**6.85 %**

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:	6.86 %
Sector B:	6.86 %
Sector C:	6.86 %
AT&T Maximum Total (per sector):	6.86 %
Site Total:	14.84 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **14.84 %** 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.