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

February 21, 2017

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: 826313**
AT&T Site ID: CT5253
50 Clinton Avenue, Norwich, CT 06360
Latitude: 41° 33' 19.804" / Longitude: -72° 6' 37.08"

Dear Ms. Bachman:

AT&T currently maintains nine (9) antennas at the 125-foot level of the existing 150-foot monopole at 50 Clinton Avenue in Norwich, CT. The tower is owned by Crown Castle. The property is owned by the City of Norwich. AT&T intends to replace three (3) antennas with three (3) new antennas and three (3) RRUs with new models. AT&T also intends to install twelve (12) tower mounted switches and three (3) BiasTs.

A request for original zoning documents was sent to the City of Norwich but has not been answered.

Please accept this letter as notification pursuant to Regulations of Connecticut State Agencies § 16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. § 16-50j-72(b)(2). In accordance with R.S.C.A. § 16-50j-73, a copy of this letter is being sent to The Honorable Deb Hinchey, Mayor, City of Norwich as well as the property owner, and 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: The Honorable Deb Hinchey, Mayor
City of Norwich
100 Broadway
Norwich, CT 06360

Planning & Neighborhood Services
City of Noriwch
100 Broadway
Norwich, CT 06360

50 CLINTON AVE

Location	50 CLINTON AVE	**Mblu**	58/ 2/ 39/ /
Acct#	7125530001	**Owner**	NORWICH CITY OF-PW GARAGE+OFFICE
Assessment	$1,032,900	**Appraisal**	$1,475,400
PID	12548	**Building Count**	2

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$1,125,600	$349,800	$1,475,400
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$788,000	$244,900	$1,032,900

Parcel Addreses

Additional Addresses			
Line Number	**Address**	**City, State Zip**	**Type**
1	50 CLINTON AVE		Primary

Owner of Record

Owner NORWICH CITY OF-PW GARAGE+OFFICE
Address 100 BROADWAY
NORWICH, CT 06360

Sale Price $0
Certificate
Book & Page 0707/0248
Sale Date 02/19/1986

Ownership History

Ownership History				
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Sale Date**
NORWICH CITY OF-PW GARAGE+OFFICE	$0		0707/0248	02/19/1986
SOUTHERN NEW ENGLAND TELEPHONE			0282/0176	03/01/1956

Building Information

Building 1 : Section 1

Year Built: 1957
Living Area: 35040
Replacement Cost: $1,063,044

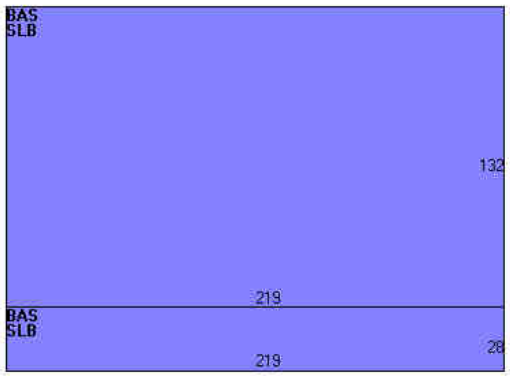
Building Photo

Building Percent Good: 71
Replacement Cost Less Depreciation: $754,800

Building Attributes	
Field	**Description**
STYLE	Warehouse
MODEL	Commercial
Grade	C+
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Flat
Roof Cover	T&G/Rubber
Interior Wall 1	Minim/Masonry
Interior Wall 2	Drywall/Sheet
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Forced Air-Duc
AC Type	None
Bldg Use	MUNICIPAL MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	9030
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	AVERAGE
Ceiling/Wall	NONE
Rooms/Prtns	AVERAGE
Wall Height	12
% Comn Wall	0

(http://images.vgsi.com/photos/NorwichCTPhotos//\00\01\90/64.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	35040	35040
SLB	Slab	35040	0
		70080	35040

Building 2 : Section 1

Year Built: 1996
Living Area: 3528
Replacement Cost: $131,287
Building Percent Good: 89
Replacement Cost Less Depreciation: $116,800

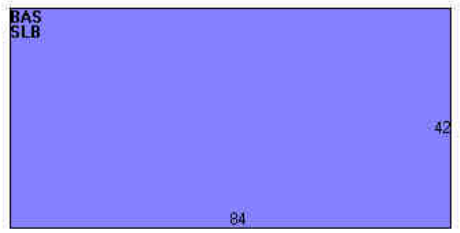
Building Attributes : Bldg 2 of 2	
Field	**Description**
STYLE	Pre-Eng Mfg

Building Photo

MODEL	Commercial
Grade	C+
Stories:	1
Occupancy	1
Exterior Wall 1	Pre-finsh Metl
Exterior Wall 2	
Roof Structure	Gable/Hip
Roof Cover	Metal/Tin
Interior Wall 1	Minim/Masonry
Interior Wall 2	
Interior Floor 1	Concr-Finished
Interior Floor 2	
Heating Fuel	Gas
Heating Type	Hot Air-no Duc
AC Type	None
Bldg Use	MUNICIPAL MDL-96
Total Rooms	
Total Bedrms	00
Total Baths	0
1st Floor Use:	9030
Heat/AC	NONE
Frame Type	STEEL
Baths/Plumbing	LIGHT
Ceiling/Wall	NONE
Rooms/Prtns	LIGHT
Wall Height	16
% Comn Wall	

(http://images.vgsi.com/photos/NorwichCTPhotos//\00\01\14/09.jpg)

Building Layout



Building Sub-Areas (sq ft)			Legend
Code	**Description**	**Gross Area**	**Living Area**
BAS	First Floor	3528	3528
SLB	Slab	3528	0
		7056	3528

Extra Features

Extra Features	Legend
No Data for Extra Features	

Land

Land Use

Use Code	9030
Description	MUNICIPAL MDL-96
Zone	GC/NC
Neighborhood	C070
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	5.36
Frontage	0
Depth	0
Assessed Value	$244,900
Appraised Value	$349,800

Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
PAV1	Paving Asphalt			80000 S.F.	$105,000	1
SHD4	Shed Comm. Wd.			5538 S.F.	$83,100	1
SHD4	Shed Comm. Wd.			3215 S.F.	$48,200	1
FN3	Fence Chain 6'			300 L.F.	$2,700	1
CNP2	Canopy Gas Sta.			600 S.F.	$15,000	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$1,125,600	$349,800	$1,475,400
2012	$1,706,000	$450,000	$2,156,000
2011	$1,706,000	$450,000	$2,156,000

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$788,000	$244,900	$1,032,900
2012	$1,194,000	$315,000	$1,509,000
2011	$1,194,000	$315,000	$1,509,000

50 CLINTON AVE CELL

Location	50 CLINTON AVE CELL	**Mblu**	58/ 2/ 39/ CELL/
Acct#	0580020039	**Owner**	T-MOBILE USA TOWER LLC
Assessment	$163,500	**Appraisal**	$233,500
PID	112076	**Building Count**	1

Current Value

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$83,500	$150,000	$233,500
Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2013	$58,500	$105,000	$163,500

Parcel Addreses

Additional Addresses
No Additional Addresses available for this parcel

Owner of Record

Owner T-MOBILE USA TOWER LLC
Address 12920 S.E. 38TH STREET
BELLEVUE, WA 98006

Sale Price $0
Certificate
Book & Page 2842/ 299
Sale Date 07/29/2013
Instrument 06

Ownership History

Ownership History					
Owner	**Sale Price**	**Certificate**	**Book & Page**	**Instrument**	**Sale Date**
T-MOBILE USA TOWER LLC			2842/ 299	06	07/29/2013

Building Information

Building 1 : Section 1

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

Building Photo

Replacement Cost
Less Depreciation: $0

Building Attributes	
Field	**Description**
Style	Vacant
Model	
Grade:	
Stories:	
Occupancy	
Exterior Wall 1	
Exterior Wall 2	
Roof Structure:	
Roof Cover	
Interior Wall 1	
Interior Wall 2	
Interior Flr 1	
Interior Flr 2	
Heat Fuel	
Heat Type:	
AC Type:	
Total Bedrooms:	
Total Bthrms:	
Total Half Baths:	
Total Xtra Fixtrs:	
Total Rooms:	
Bath Style:	
Kitchen Style:	
Fireplace (s)	
Whirlpool	
park	

(http://images.vgsi.com/photos/NorwichCTPhotos//default.jpg)

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	431V
Description	TEL REL TW M00
Zone	GC
Neighborhood	
Alt Land Appr	No
Category	

Land Line Valuation

Size (Acres)	1
Frontage	
Depth	
Assessed Value	$105,000
Appraised Value	$150,000

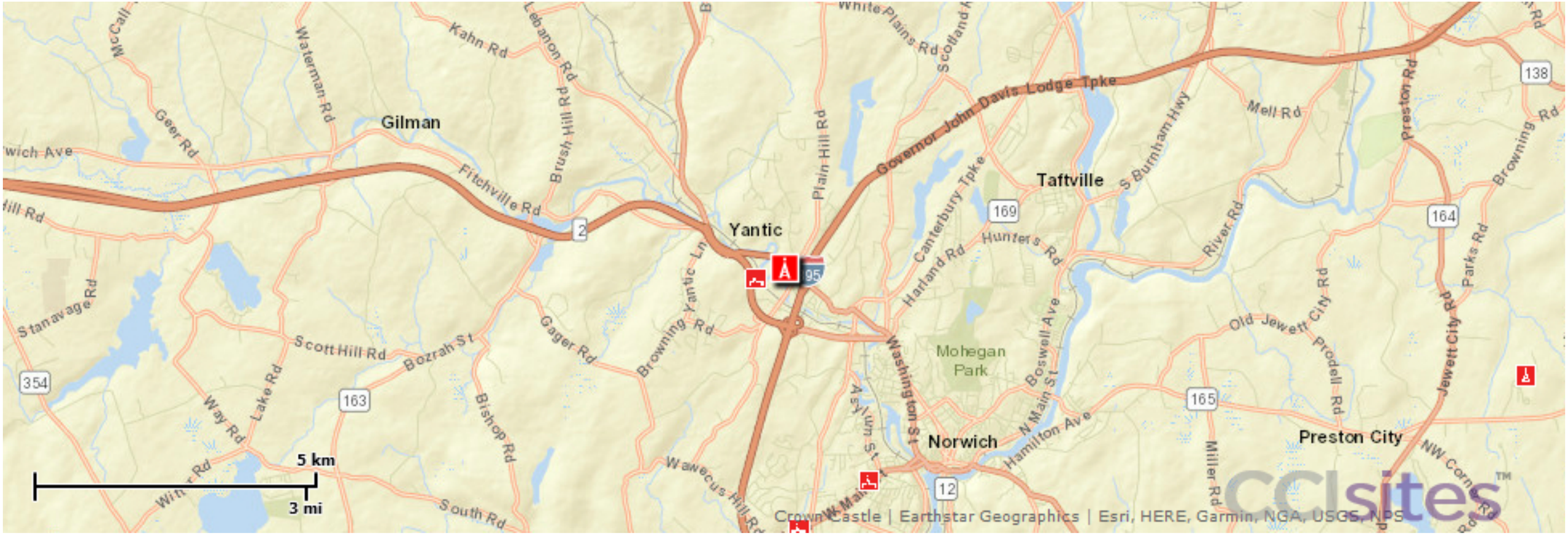
Outbuildings

Outbuildings						Legend
Code	**Description**	**Sub Code**	**Sub Description**	**Size**	**Value**	**Bldg #**
TWR	CELL TOWER			150 UNITS	$83,500	1

Valuation History

Appraisal			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$83,500	$150,000	$233,500

Assessment			
Valuation Year	**Improvements**	**Land**	**Total**
2015	$58,500	$105,000	$163,500


Gilman
Yantic
Taftville
Norwich
Preston City
Mohegan Park
Fitchville Rd
Governor John Davis Lodge Tpke
Canterbury Tpke
Harland Rd
Hunters Rd
Plain Hill Rd
Brush Hill Rd
Lebanon Rd
Kahn Rd
Waterman Rd
Geer Rd
Gager Rd
Browning Yantic Ln
Browning Rd
Scott Hill Rd
Bozrah St
Bishop Rd
Lake Rd
Way Rd
South Rd
Stanavage Rd
Washington St
Asylum St
N Main St
Boswell Ave
Hamilton Ave
Old Jewett City Rd
Prodell Rd
Jewett City Rd
Parks Rd
Browning Rd
River Rd
Mell Rd
S Burnham Hwy
Preston Rd
Miller Rd
NW Corner Rd
Wawecus Hill Rd
White Plains Rd
2
95
354
163
169
164
165
12
138
5 km
3 mi
Crown Castle | Earthstar Geographics | Esri, HERE, Garmin, NGA, USGS, NPS
cclsites

WIRELESS COMMUNICATIONS FACILITY
CT5352 - LTE 2C
NORWICH WEST
CROWN CASTLE SITE NO.: 826313
50 CLINTON AVENUE
NORWICH, CT 06360

GENERAL NOTES

1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE, INCLUDING THE TIA-222 REVISION "G" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2016 CONNECTICUT FIRE SAFETY CODE AND, 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

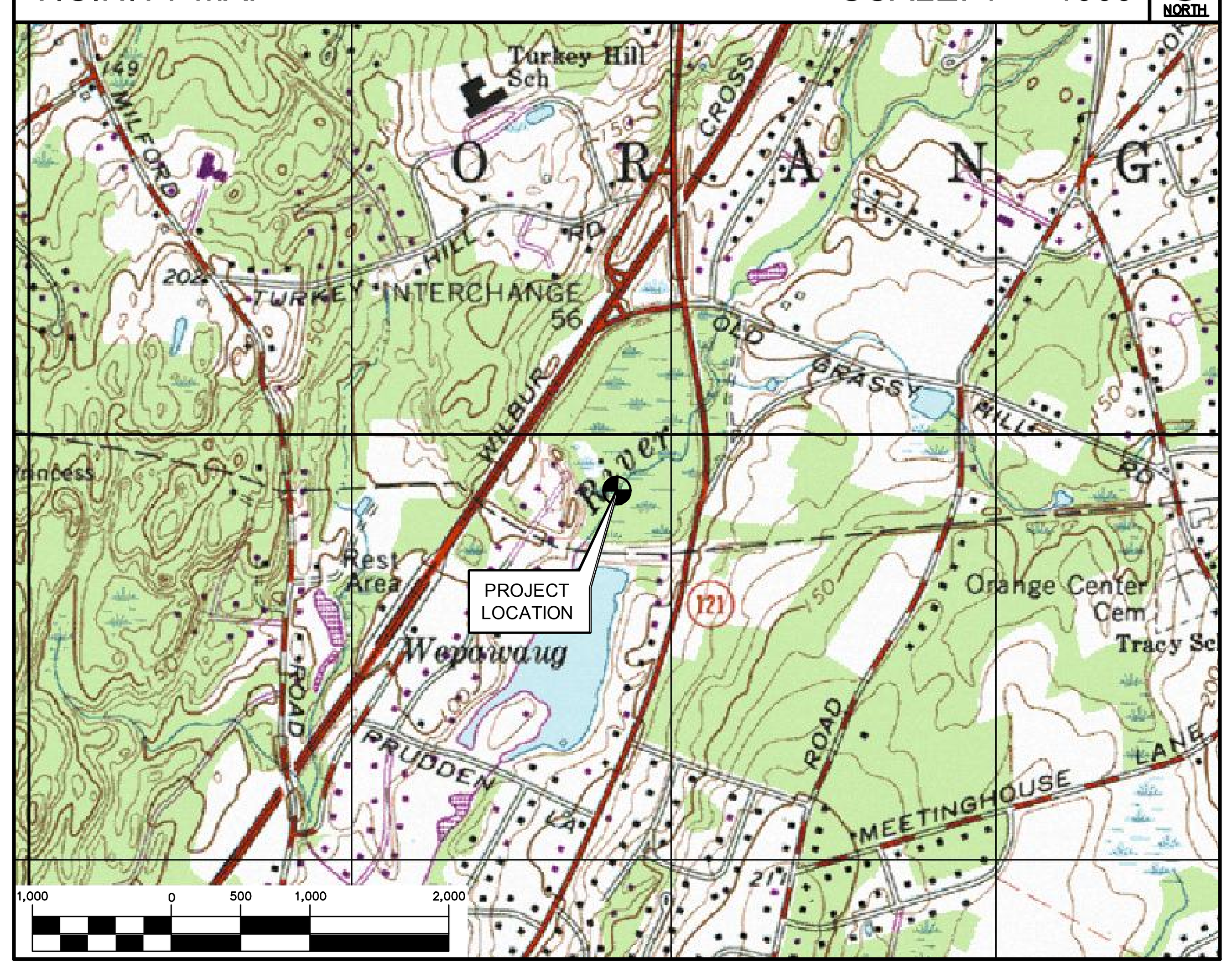
TO: 50 CLINTON AVENUE
NORWICH, CONNECTICUT

1.	HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD	0.36 MI
2.	TURN LEFT ONTO CAPITAL BLVD	0.27 MI
3.	TURN LEFT ONTO WEST ST	0.16 MI
4.	TURN LEFT TO MERGE ONTO I-91 N TOWARD HARTFORD	4.44 MI
5.	MERGE ONTO CT-3 N via EXIT 25 TOWARD GLASTONBURY	2.34 MI
6.	MERGE ONTO CT-2 E TOWARD NORWICH	20.08 MI
7.	KEEP LEFT TO TAKE CT-2 E TOWARD NORWICH	11.28 MI
8.	TAKE EXIT 27 TOWARD YANTIC	0.26 MI
9.	TURN LEFT ONTO CT-32/STATE HIGHWAY 32	0.03 MI
10.	STAY STRAIGHT TO GO ONTO W TOWN ST.	0.58 MI
11.	TURN RIGHT ONTO CLINTON AVE	0.22 MI

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. REMOVE AND REPLACE EXISTING LTE ANTENNA FOR PROPOSED LTE HEXPORT ANTENNA, (1) PER SECTOR.
   B. INSTALL (3) NEW RRUS-32 B2'S ON EXISTING TOWER MOUNT

PROJECT INFORMATION

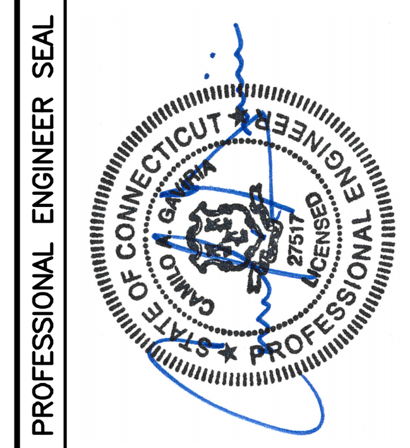
AT&T SITE NUMBER:	CT5352
AT&T SITE NAME:	NORWICH WEST
SITE ADDRESS:	CROWN CASTLE SITE NO.: 826313 50 CLINTON AVENUE NORWICH, CT 06360
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
ENGINEER:	CENTEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-33'-19.81" N LONGITUDE: 72°-06'-37.09" W GROUND ELEVATION: ±105' AMSL SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

SHEET INDEX

SHT. NO.	DESCRIPTION	REV.
T-1	TITLE SHEET	0
N-1	NOTES, SPECIFICATIONS AND DETAILS	0
C-1	PLANS AND ELEVATION	0
C-2	LTE 2C EQUIPMENT DETAILS	0
E-1	LTE SCHEMATIC DIAGRAM AND NOTES	0
E-2	LTE WIRING DIAGRAM	0
E-3	TYPICAL ELECTRICAL DETAILS	0

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	01/24/17	KAWJR	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

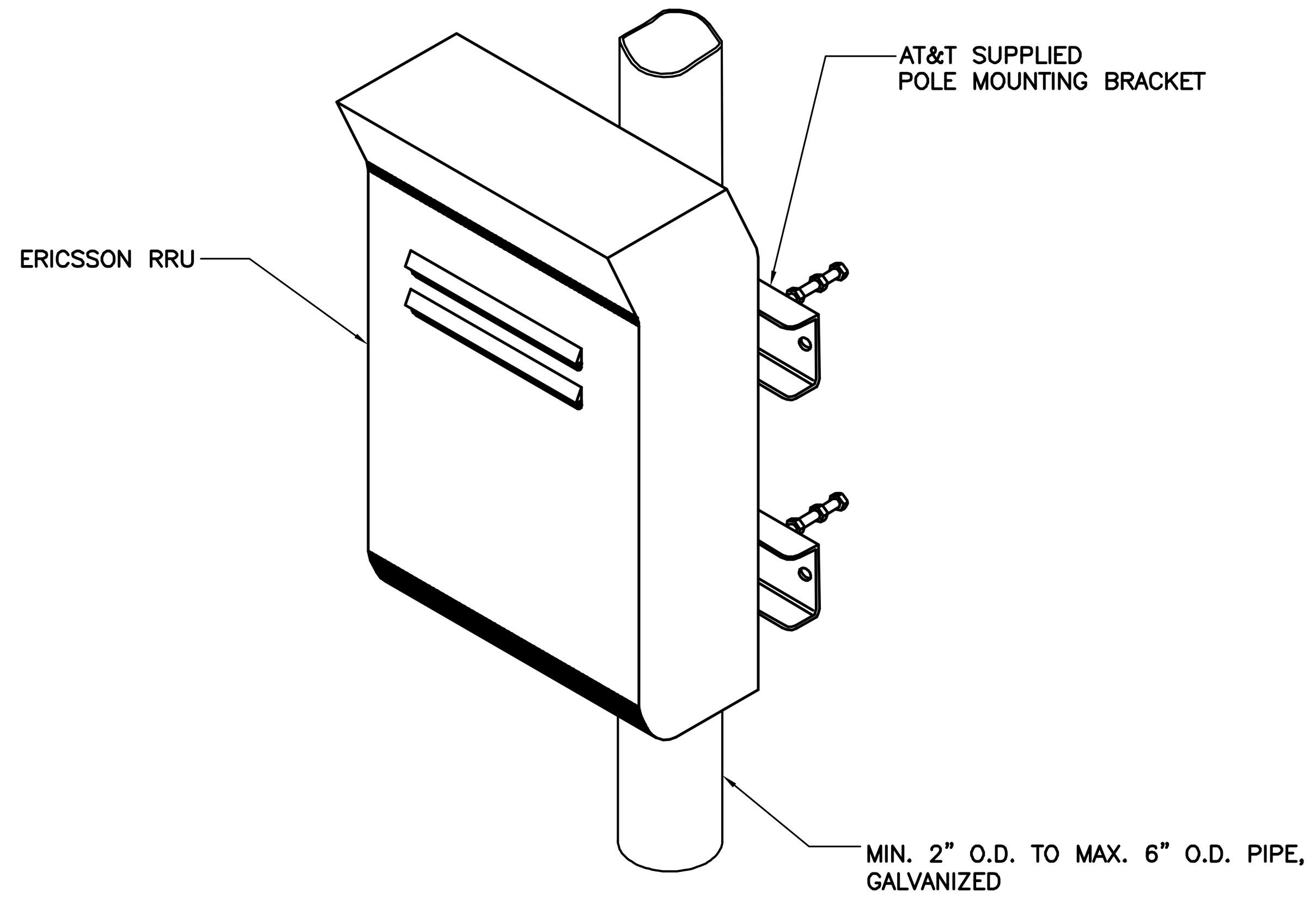
AT&T MOBILITY
WIRELESS COMMUNICATIONS FACILITY
NORWICH WEST
CT5352 - LTE 2C
50 CLINTON AVENUE
NORWICH, CT 06360

DATE: 01/19/17
SCALE: AS NOTED
JOB NO. 17004.02

TITLE SHEET

T-1

Sheet No. 1 of 7



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.

1 / N-1 **TYPICAL RRUS MOUNTING DETAILS**

SCALE: NTS

NOTES AND SPECIFICATIONS

DESIGN BASIS:

GOVERNING CODE: 2012 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2016 CT STATE BUILDING CODE AND AMENDMENTS.

1. DESIGN CRITERIA:

- WIND LOAD: PER TIA 222 G (ANTENNA MOUNTS): 105-120 MPH (3 SECOND GUST)
- RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
- NOMINAL DESIGN SPEED (OTHER STRUCTURE): 105 MPH (Vasd) (EXPOSURE B/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10) PER 2012 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 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 EVERSOURCE 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 REPAIRT WORK NOT IN COMPLIANCE WITH SPECIFIED REQUIREMENTS.

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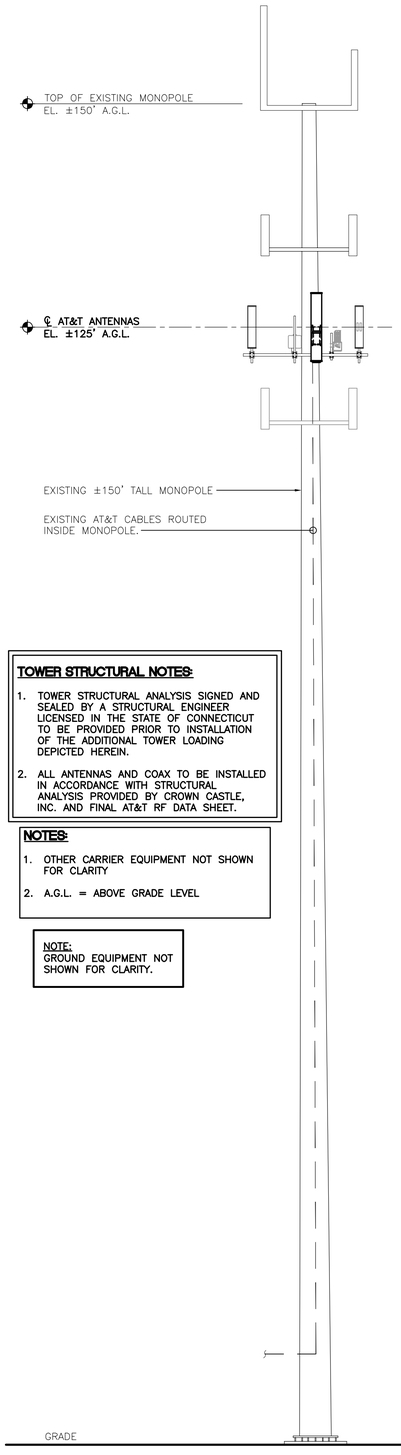
NOTES, SPECIFICATIONS AND DETAILS

N-1



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.

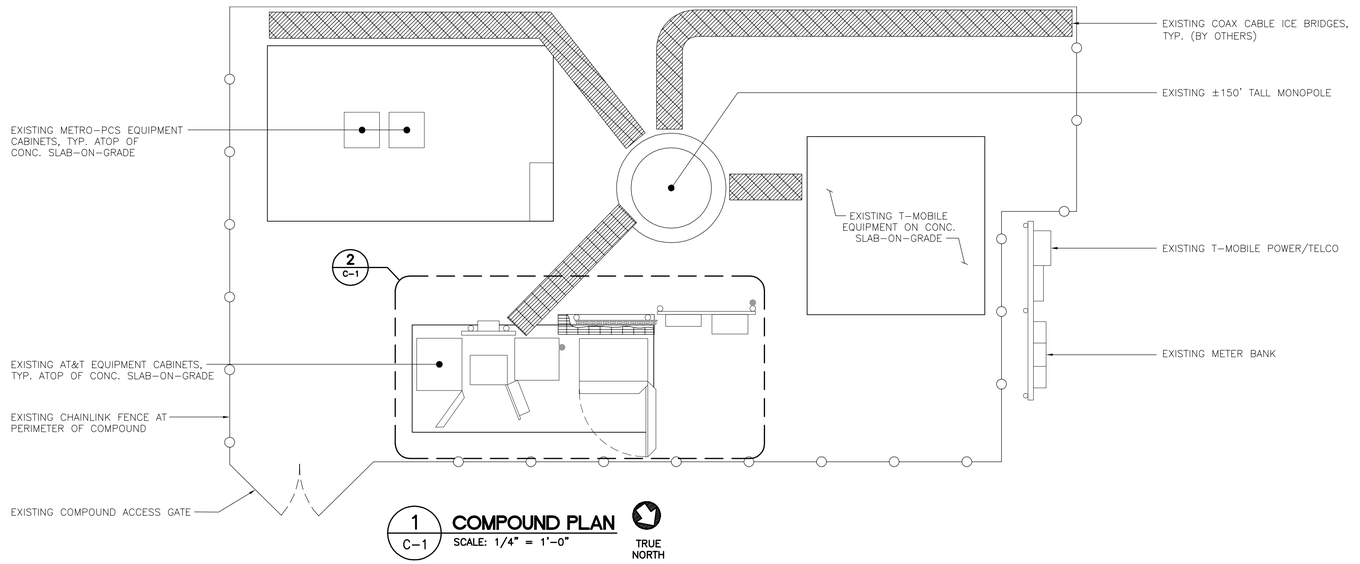
NOTES:

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

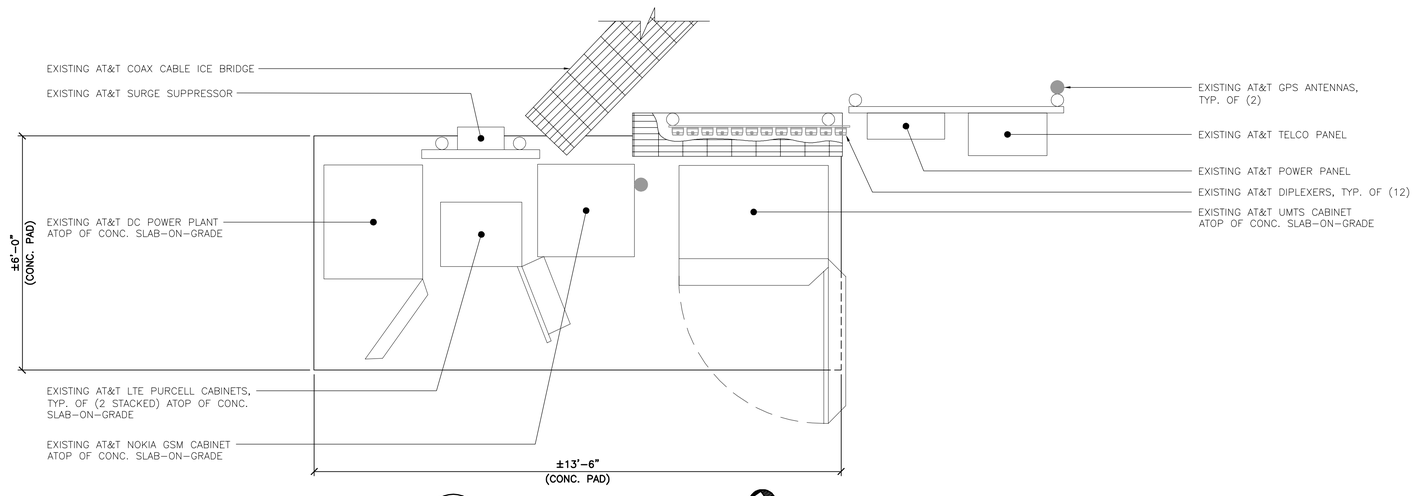
NOTE:
GROUND EQUIPMENT NOT SHOWN FOR CLARITY.

3 / C-1 **TOWER ELEVATION**
SCALE: 1/8" = 1'-0"

GRAPHIC SCALE
8 0 4 8 16 32
(IN FEET)
1 inch = 8 ft.



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



2 / C-1 **EQUIPMENT LAYOUT PLAN**
SCALE: NONE
TRUE NORTH

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PLANS AND ELEVATION

C-1

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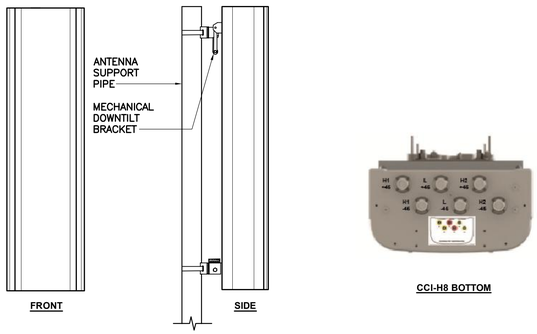
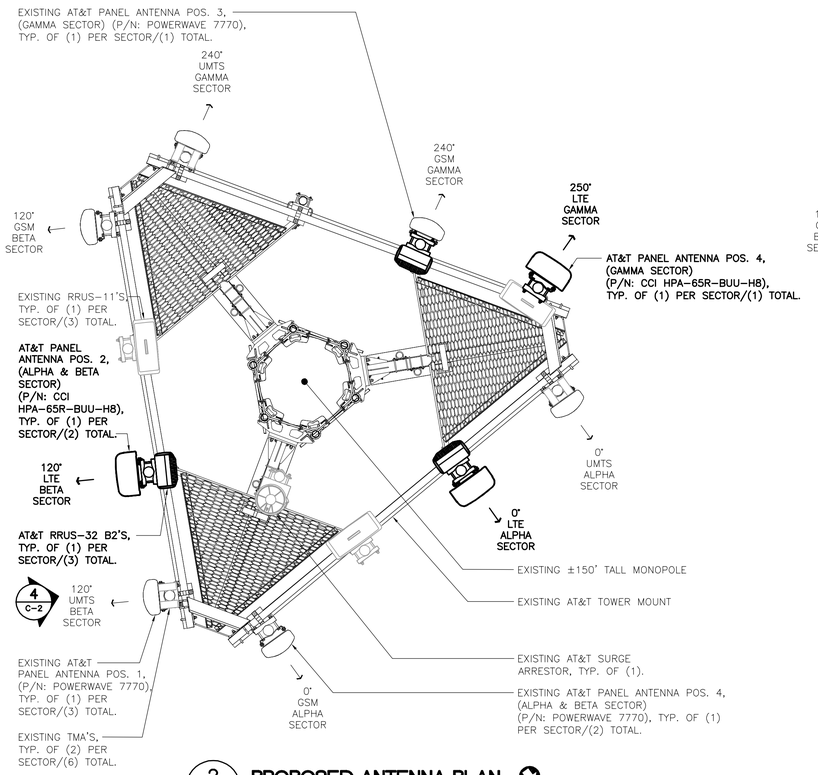


CCI-H8 BOTTOM

ALPHA/BETA/GAMMA ANTENNA		
EQUIPMENT	DIMENSIONS	WEIGHT
MAKE: CCI MODEL: HPA-65R-BUU-H8	92.4"L x 14.8"W x 7.4"D	68 LBS.

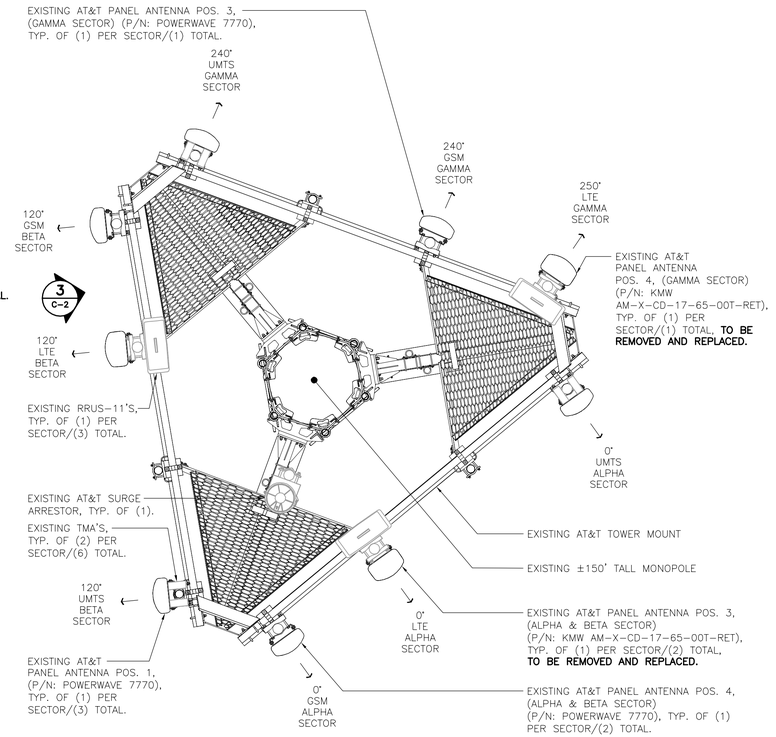
5 / C-2 PROPOSED ANTENNA DETAIL

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



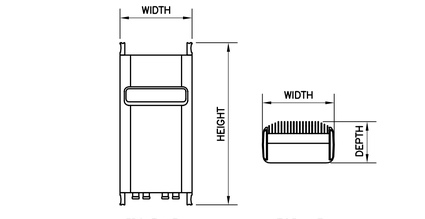
2 / C-2 PROPOSED ANTENNA PLAN

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



1 / C-2 EXISTING ANTENNA PLAN

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

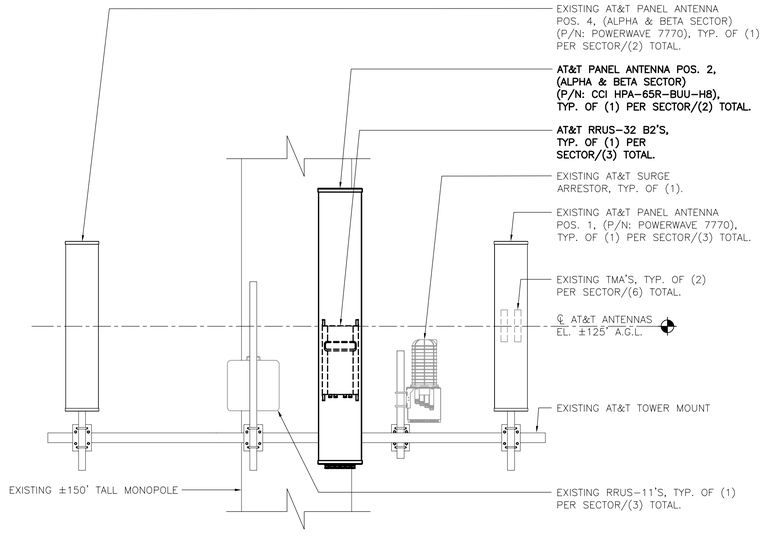


RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRUS-32 B2	27.17"H x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.

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

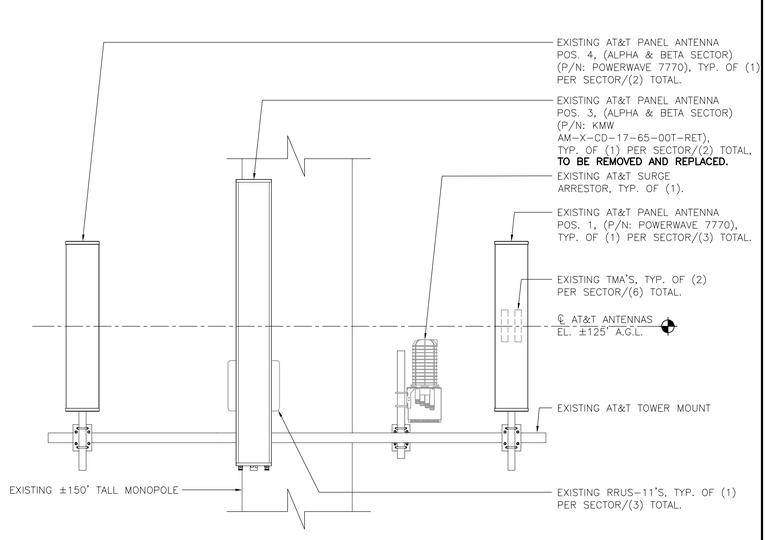
6 / C-2 ERICSSON RRUS 32 B2 DETAIL

SCALE: 1" = 1'-0"



4 / C-2 PROPOSED ANTENNA ELEVATION

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



3 / C-2 EXISTING ANTENNA ELEVATION

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

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LTE 2C EQUIPMENT DETAILS

C-2

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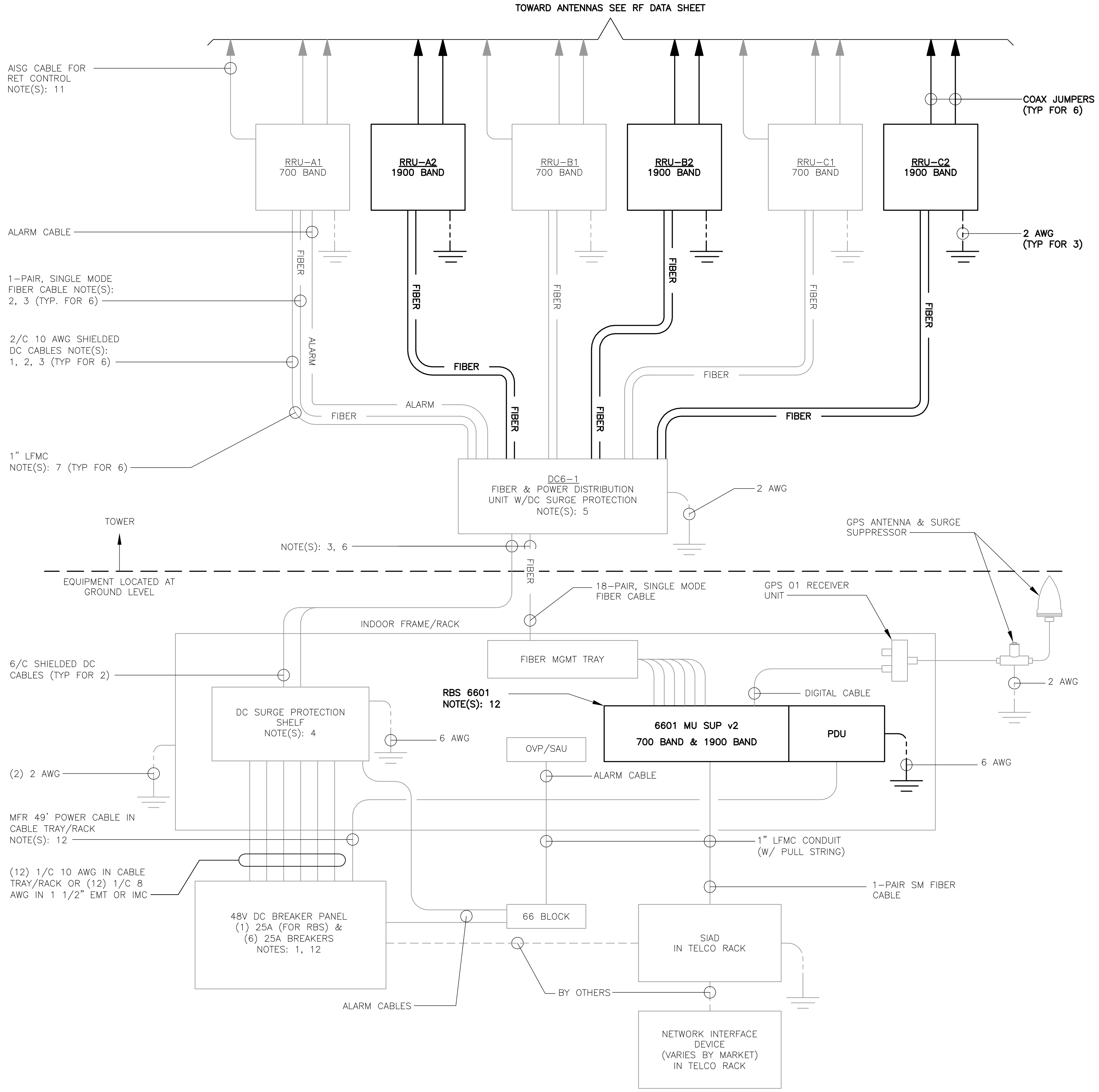

1 / E-1 LTE SCHEMATIC DIAGRAM

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.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	01/24/17	KAM/JR	CAG	CONSTRUCTION DOCUMENTS – ISSUED FOR CONSTRUCTION

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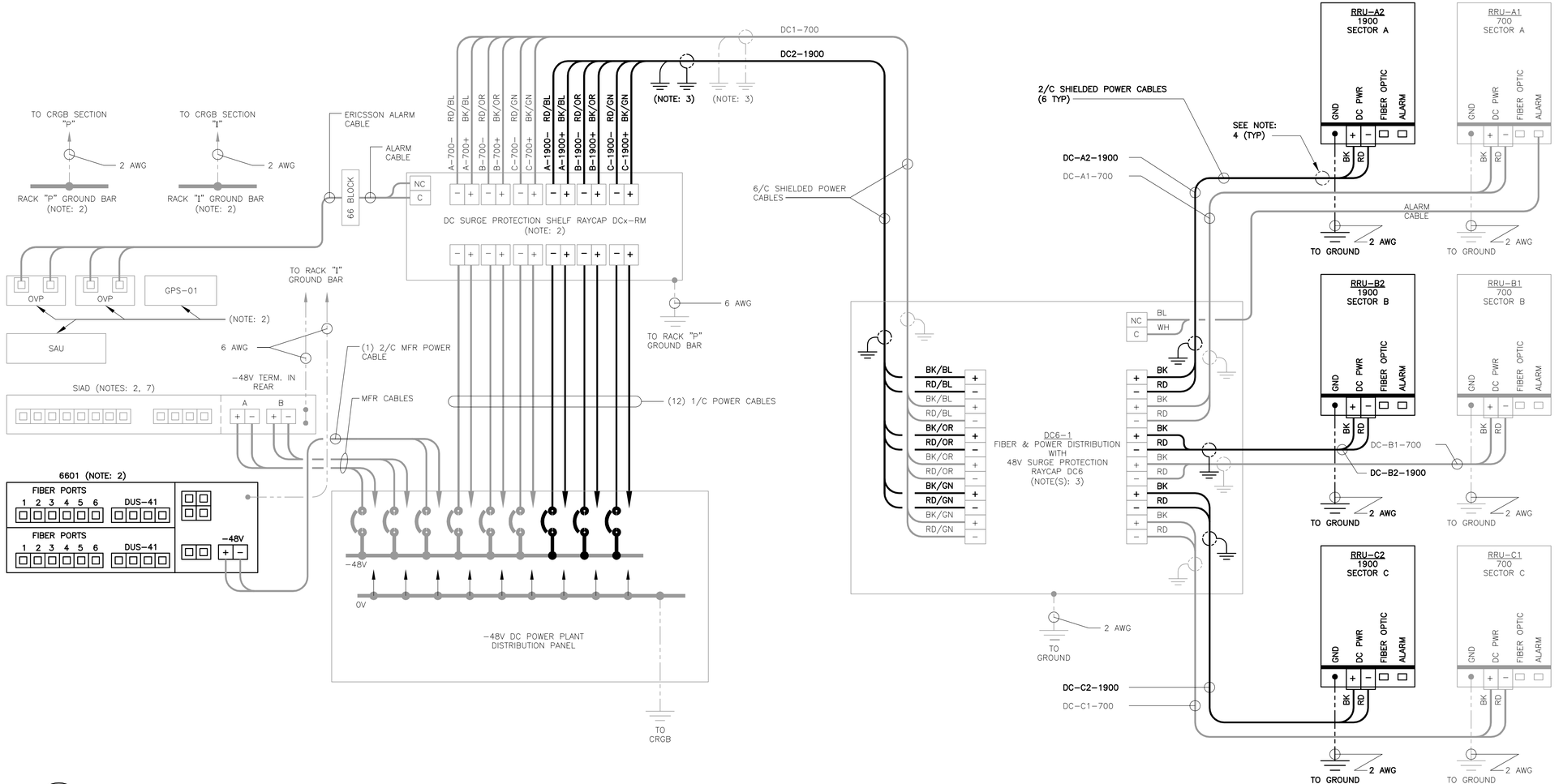
NORWICH WEST
CT5352 - LTE 2C
50 CLINTON AVENUE
NORWICH, CT 06360

DATE: 01/19/17
SCALE: AS NOTED
JOB NO. 17004.02

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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CHARLES A. GENTILE 21547 REGISTERED PROFESSIONAL ENGINEER STATE OF CONNECTICUT

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NORWICH, CT 06360

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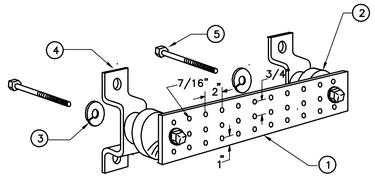
LTE WIRING DIAGRAM

E-2

Sheet No. 6 of 7

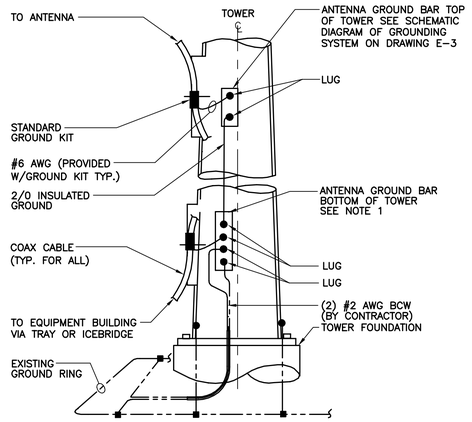


LEGEND

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 E-3 GROUND BAR DETAIL

NOT TO SCALE

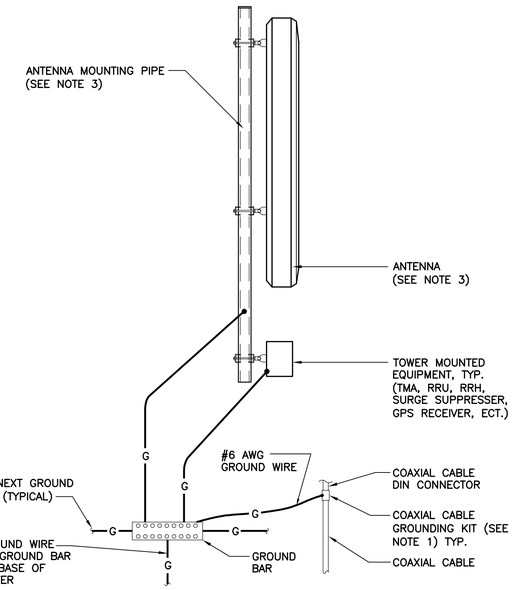


NOTES:

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 E-3 ANTENNA CABLE GROUNDING - TOWER

NOT TO SCALE

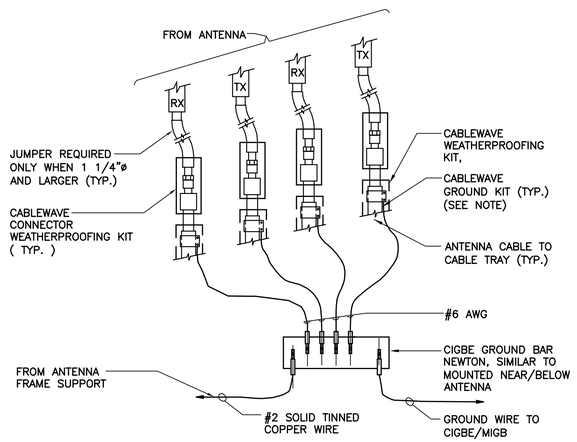


NOTES:

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 E-3 TYPICAL ANTENNA GROUNDING DETAIL

NOT TO SCALE

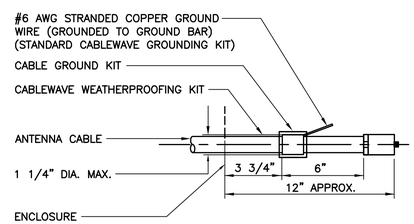


NOTE:

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

5 E-3 CONNECTION OF GROUND WIRES TO GROUND BAR

NOT TO SCALE



NOTE:

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

4 E-3 ANTENNA CABLE GROUNDING DETAIL

NOT TO SCALE

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
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TYPICAL ELECTRICAL DETAILS

E-3

Sheet No. 7 of 7

PJF PAUL J. FORD & COMPANY | 50 years 1965 - 2015

Date: **February 09, 2017**

Charles Trask
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Charlotte, NC 28277
980.209.8228

Paul J Ford and Company
250 E. Broad Street Suite 600
Columbus, OH 43215
jsmith@pjfweb.com
614.221.6679

Subject: **Structural Analysis Report**

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT5352
	Carrier Site Name:	Norwich CT
Crown Castle Designation:	**Crown Castle BU Number:**	826313
	Crown Castle Site Name:	NORWICH
	Crown Castle JDE Job Number:	418186
	Crown Castle Work Order Number:	1358836
	Crown Castle Application Number:	376120 Rev. 0
Engineering Firm Designation:	**Paul J Ford and Company Project Number:**	37517-0691.001.7805
Site Data:	**50 Clinton Avenue, Norwich, New London County, CT** **Latitude *41° 33' 19.804"*, Longitude *-72° 6' 37.08"*** **149.083 Foot - Monopole Tower**	

Dear Charles Trask,

Paul J Ford and Company 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 999439, in accordance with application 376120, 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 I and Table II for the proposed and existing/reserved loading, respectively.

This analysis has been performed in accordance with the 2016 Connecticut Building Code based upon an ultimate 3-second gust wind speed of 135 mph converted to a nominal 3-second gust wind speed of 105 mph per section 1609.3.1 as required for use in the ANSI/TIA-222-G-2005 Standard, "Structural Standard for Antenna Supporting Structures and Antennas", with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

We at *Paul J Ford and Company* 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:

Jared Smith, .EI.
Structural Designer JWM

STATE OF CONNECTICUT ★ JUSTIN T. KLINE ★ No. 30301 LICENSED PROFESSIONAL ENGINEER

2.9.17

tnxTower Report - version 7.0.5.1

PAUL J. FORD & COMPANY

Date: **February 09, 2017**

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Subject: **Structural Analysis Report**

Carrier Designation:	***AT&T Mobility* Co-Locate**	
	Carrier Site Number:	CT5352
	Carrier Site Name:	Norwich CT
Crown Castle Designation:	**Crown Castle BU Number:**	826313
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Structural Designer

TABLE OF CONTENTS

1) INTRODUCTION

This tower is a 149.083 ft Monopole tower designed by PIROD MANUFACTURES INC. in October of 2000. The tower was originally designed for a wind speed of 85 mph per TIA/EIA-222-F.

2) ANALYSIS CRITERIA

This analysis has been performed in accordance with the 2016 Connecticut Building Code based upon an ultimate 3-second gust wind speed of 135 mph converted to a nominal 3-second gust wind speed of 105 mph per section 1609.3.1 as required for use in the ANSI/TIA-222-G-2005 Standard, “Structural Standard for Antenna Supporting Structures and Antennas”, with ANSI/TIA-222-G-1-2007 and ANSI/TIA-222-G-2-2009 Addenda per Exception #5 of Section 1609.1.1. Risk Category II, Exposure Category C and Topographic Category 1 with a maximum Topographic Factor, Kzt, of 1.0 were used in this analysis.

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
125.0	125.0	3	cci antennas	HPA-65R-BUU-H8 w/ Mount Pipe	-	-	-
		3	ericsson	RRUS 32 B2			
		3	powerwave technologies	1001983			
		12	powerwave technologies	7020.00			

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
149.0	154.0	2	decibel	DB809T6E-XC	2	7/8	1
	149.0	2	tower mounts	Side Arm Mount [SO 702-1]			
137.0	137.0	3	ems wireless	RR90-17-02DP w/ Mount Pipe	12	1-5/8	1
		6	ericsson	KRY 112 71			
		3	rfs celwave	APX16DWV-16DWVS-C-A20 w/ Mount Pipe			
		1	tower mounts	Platform Mount [LP 303-1]			
125.0	125.0	3	powerwave technologies	P65-17-XLH-RR w/ Mount Pipe	-	-	3
		3	ericsson	RRUS-11			
		3	ericsson	RRUS-11	1 2 12	3/8 7/16 1-1/4	1
		6	powerwave technologies	7770.00 w/ Mount Pipe			
		6	powerwave technologies	LGP21401			
		6	powerwave technologies	LGP21901			
		1	raycap	DC6-48-60-18-8F			
		1	tower mounts	Platform Mount [LP 303-1]			
115.0	117.0	3	kathrein	800 10504 w/ Mount Pipe	6	1-5/8	1
		3	kathrein	860 10025			
	115.0	1	tower mounts	T-Arm Mount [TA 602-3]			
60.0	60.0	2	alcatel lucent	RRH2X60-AWS BAND 4	1	1-5/8	2
		2	andrew	HBX-6513DS-A1M w/ Mount Pipe			
		1	raycap	RRFDC-3315-PF-48			
		1	tower mounts	Platform Mount [LP 401-1]			

Notes:
1) Existing Equipment
2) Reserved Equipment
3) Equipment To Be Removed

3) ANALYSIS PROCEDURE

Table 3 - Documents Provided

Document	Remarks	Reference	Source
4-GEOTECHNICAL REPORTS	GEI Consultants, Inc., 00337, 9/20/2000	3503439	CCISITES
4-TOWER FOUNDATION DRAWINGS/DESIGN/SPECS	PiROD Inc., 151460-B, 10/16/2000	3876096	CCISITES
4-TOWER MANUFACTURER DRAWINGS	PiROD Inc., 151460-B, 10/16/2000	3503440	CCISITES
4-POST-MODIFICATION INSPECTION	FDH< 15BAKH1800, 3/26/2015	5612299	CCISITES

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) For existing modifications: monopole was modified in conformance with the referenced modification drawings.
5) In accordance with discussions with CCI Corporate Engineering: Based on the assumption that the monopole manufacturer (ROHN/PiRod) has designed the flange plates at splices to adequately develop the full capacity of the unreinforced shaft section using unpublished and/or proprietary methodologies, we are assuming that if our analysis shows that both the existing shaft and the existing flange bolts are at a usage capacity of 105% or less, then the existing flange plates are at a usage capacity of 105% or less and no additional analysis of the flange plate is required.

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

4) ANALYSIS RESULTS

Table 4 - Section Capacity (Summary)

Section No.	Elevation (ft)	Component Type	Size	Critical Element	P (K)	SF*P_allow (K)	% Capacity	Pass / Fail
L1	149.083 - 133.083	Pole	TP26x12.75x0.25	1	-2.645	1375.630	2.8	Pass
L2	133.083 - 98.5	Pole	TP34.063x23.084x0.313	2	-11.206	2378.180	22.5	Pass
L3	98.5 - 64.833	Pole	TP41.75x32.315x0.375	3	-18.477	3491.290	31.2	Pass
L4	64.833 - 32	Pole	TP49.063x39.826x0.375	4	-29.467	3911.060	42.0	Pass
L5	32 - 0	Pole	TP56.125x46.958x0.375	5	-41.642	4329.080	52.2	Pass
							Summary	
						Pole (L5)	52.2	Pass
						Rating =	52.2	Pass

Table 5 - Tower Component Stresses vs. Capacity – LC7

Notes	Component	Elevation (ft)	% Capacity	Pass / Fail
1	Anchor Rods	0	55.6	Pass
1,2	Base Plate	0	52.2	Pass
1	Base Foundation Steel	0	65.2	Pass
1	Base Foundation Soil Interaction	0	14.1	Pass

Structure Rating (max from all components) =	65.2%

Notes:
1) See additional documentation in “Appendix C – Additional Calculations” for calculations supporting the % capacity consumed.
2) See Assumption #5

APPENDIX A

TNXTOWER OUTPUT

Tower Input Data

There is a pole section.
This tower is designed using the TIA-222-G standard.
The following design criteria apply:

Tower is located in New London County, Connecticut.
ASCE 7-10 Wind Data is used (wind speeds converted to nominal values).
Basic wind speed of 105 mph.
Structure Class II.
Exposure Category C.
Topographic Category 1.
Crest Height 0.000 ft.
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 50 mph is used in combination with ice.
Temperature drop of 50.000 °F.
Deflections calculated using a wind speed of 60 mph.
A non-linear (P-delta) analysis was used.
Pressures are calculated at each section.
Stress ratio used in pole design is 1.
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	149.083-133.083	16.000	2.917	18	12.750	26.000	0.250	1.000	A572-65 (65 ksi)
L2	133.083-98.500	37.500	3.833	18	23.084	34.063	0.313	1.250	A572-65 (65 ksi)
L3	98.500-64.833	37.500	4.667	18	32.315	41.750	0.375	1.500	A572-65 (65 ksi)
L4	64.833-32.000	37.500	5.500	18	39.826	49.063	0.375	1.500	A572-65 (65 ksi)
L5	32.000-0.000	37.500		18	46.958	56.125	0.375	1.500	A572-65

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
									(65 ksi)

Tapered Pole Properties

Section	Tip Dia. in	Area in^2	I in^4	r in	C in	I/C in^3	J in^4	It/Q in^2	w in	w/t
L1	12.947	9.919	195.801	4.438	6.477	30.230	391.859	4.960	1.804	7.216
	26.401	20.433	1711.654	9.141	13.208	129.592	3425.561	10.218	4.136	16.544
L2	24.308	22.587	1479.755	8.084	11.727	126.185	2961.457	11.296	3.513	11.241
	34.588	33.476	4817.433	11.981	17.304	278.404	9641.206	16.741	5.445	17.424
L3	33.793	38.017	4900.001	11.339	16.416	298.485	9806.450	19.012	5.028	13.407
	42.394	49.247	10650.982	14.688	21.209	502.192	21315.979	24.628	6.688	17.835
L4	41.607	46.956	9233.027	14.005	20.232	456.368	18478.203	23.483	6.349	16.932
	49.819	57.950	17355.138	17.284	24.924	696.329	34733.112	28.981	7.975	21.267
L5	49.047	55.445	15200.298	16.537	23.855	637.207	30420.597	27.728	7.605	20.279
	56.991	66.356	26056.151	19.791	28.511	913.882	52146.587	33.185	9.218	24.581

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 149.083-133.083				1	1	1			
L2 133.083-98.500				1	1	1			
L3 98.500-64.833				1	1	1			
L4 64.833-32.000				1	1	1			
L5 32.000-0.000				1	1	1			

Feed Line/Linear Appurtenances - Entered As Area

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
LDF5-50A(7/8)	C	No	Inside Pole	149.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
LDF7-50A(1-5/8)	C	No	Inside Pole	137.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
LDF6-50A(1-1/4)	C	No	Inside Pole	125.000 - 0.000	12	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
FB-L98-002-XXX(3/8)	C	No	Inside Pole	125.000 - 0.000	1	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
WR-VG122ST-BRDA(7/16)	C	No	Inside Pole	125.000 - 0.000	2	No Ice	0.000	0.000
						1/2" Ice	0.000	0.000
						1" Ice	0.000	0.000
LDF7-50A(1-5/8)	C	No	Inside Pole	115.000 - 0.000	6	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
3" (Nominal) Conduit	C	No	Inside Pole	125.000 - 0.000	1	No Ice	0.000	0.001
						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001
HB158-1-08U8-	C	No	Inside Pole	60.000 - 0.000	1	No Ice	0.000	0.001

Description	Face or Leg	Allow Shield	Component Type	Placement ft	Total Number		C_AA_A ft^2/ft	Weight klf
S8J18(1-5/8)						1/2" Ice	0.000	0.001
						1" Ice	0.000	0.001

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	149.083-133.083	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.049
L2	133.083-98.500	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.684
L3	98.500-64.833	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.823
L4	64.833-32.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.839
L5	32.000-0.000	A	0.000	0.000	0.000	0.000	0.000
		B	0.000	0.000	0.000	0.000	0.000
		C	0.000	0.000	0.000	0.000	0.824

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	149.083-133.083	A	1.733	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.049
L2	133.083-98.500	A	1.699	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.684
L3	98.500-64.833	A	1.641	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.823
L4	64.833-32.000	A	1.558	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.839
L5	32.000-0.000	A	1.395	0.000	0.000	0.000	0.000	0.000
		B		0.000	0.000	0.000	0.000	0.000
		C		0.000	0.000	0.000	0.000	0.824

Feed Line Center of Pressure

Section	Elevation ft	CP_X in	CP_Z in	CP_X Ice in	CP_Z Ice in
L1	149.083-133.083	0.000	0.000	0.000	0.000
L2	133.083-98.500	0.000	0.000	0.000	0.000
L3	98.500-64.833	0.000	0.000	0.000	0.000
L4	64.833-32.000	0.000	0.000	0.000	0.000
L5	32.000-0.000	0.000	0.000	0.000	0.000

Shielding Factor Ka

Tower Section	Feed Line Record No.	Description	Feed Line Segment Elev.	K_a No Ice	K_a Ice

Discrete Tower Loads

Description	Face or Leg	Offset Type	Offsets: Horz Lateral Vert ft ft ft	Azimuth Adjustment °	Placement ft		C_AA_A Front ft^2	C_AA_A Side ft^2	Weight K
DB809T6E-XC	A	From Leg	4.000 0.000 5.000	0.000	149.000	No Ice 1/2" Ice 1" Ice	3.000 4.033 5.027	3.000 4.033 5.027	0.019 0.041 0.069
DB809T6E-XC	B	From Leg	4.000 0.000 5.000	0.000	149.000	No Ice 1/2" Ice 1" Ice	3.000 4.033 5.027	3.000 4.033 5.027	0.019 0.041 0.069
Side Arm Mount [SO 702-1]	A	None		0.000	149.000	No Ice 1/2" Ice 1" Ice	1.000 1.000 1.000	1.430 2.050 2.670	0.027 0.038 0.049
Side Arm Mount [SO 702-1]	B	None		0.000	149.000	No Ice 1/2" Ice 1" Ice	1.000 1.000 1.000	1.430 2.050 2.670	0.027 0.038 0.049
***									
RR90-17-02DP w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	137.000	No Ice 1/2" Ice 1" Ice	4.593 5.018 5.436	3.319 4.089 4.784	0.034 0.072 0.115
(2) KRY 112 71	A	From Leg	4.000 0.000 0.000	0.000	137.000	No Ice 1/2" Ice 1" Ice	0.583 0.688 0.799	0.398 0.488 0.586	0.013 0.018 0.025
APX16DWV-16DWVS-C-A20 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	137.000	No Ice 1/2" Ice 1" Ice	6.824 7.275 7.719	3.494 4.263 4.960	0.061 0.110 0.165
RR90-17-02DP w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	137.000	No Ice 1/2" Ice 1" Ice	4.593 5.018 5.436	3.319 4.089 4.784	0.034 0.072 0.115
(2) KRY 112 71	B	From Leg	4.000 0.000 0.000	0.000	137.000	No Ice 1/2" Ice 1" Ice	0.583 0.688 0.799	0.398 0.488 0.586	0.013 0.018 0.025
APX16DWV-16DWVS-C-A20 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	137.000	No Ice 1/2" Ice 1" Ice	6.824 7.275 7.719	3.494 4.263 4.960	0.061 0.110 0.165
RR90-17-02DP w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	137.000	No Ice 1/2" Ice 1" Ice	4.593 5.018 5.436	3.319 4.089 4.784	0.034 0.072 0.115
APX16DWV-16DWVS-C-A20 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	137.000	No Ice 1/2" Ice 1" Ice	6.824 7.275 7.719	3.494 4.263 4.960	0.061 0.110 0.165
(2) KRY 112 71	C	From Leg	4.000 0.000 0.000	0.000	137.000	No Ice 1/2" Ice 1" Ice	0.583 0.688 0.799	0.398 0.488 0.586	0.013 0.018 0.025

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
Platform Mount [LP 303-1]	C	None		0.000	137.000	No Ice 1/2" Ice 1" Ice	14.660 18.870 23.080	14.660 18.870 23.080	1.250 1.481 1.713
***									
RRUS-11	A	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.050 0.071 0.095
(2) 7770.00 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	5.792 6.268 6.697	4.513 5.508 6.213	0.086 0.143 0.208
(2) LGP21401	A	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.347 0.442 0.544	0.014 0.021 0.030
(2) LGP21901	A	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	0.231 0.294 0.365	0.158 0.213 0.276	0.006 0.008 0.011
HPA-65R-BUU-H8 w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	13.213 13.899 14.587	9.582 11.052 12.496	0.100 0.196 0.303
RRUS 32 B2	A	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	2.731 2.953 3.182	1.668 1.855 2.049	0.053 0.074 0.098
1001983	A	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	0.052 0.086 0.127	0.176 0.232 0.295	0.004 0.006 0.009
(4) 7020.00	A	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	0.102 0.147 0.199	0.175 0.239 0.311	0.002 0.005 0.009
RRUS-11	B	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.050 0.071 0.095
(2) 7770.00 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	5.792 6.268 6.697	4.513 5.508 6.213	0.086 0.143 0.208
(2) LGP21401	B	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.347 0.442 0.544	0.014 0.021 0.030
(2) LGP21901	B	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	0.231 0.294 0.365	0.158 0.213 0.276	0.006 0.008 0.011
DC6-48-60-18-8F	B	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	0.917 1.458 1.643	0.917 1.458 1.643	0.019 0.037 0.057
HPA-65R-BUU-H8 w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	13.213 13.899 14.587	9.582 11.052 12.496	0.100 0.196 0.303
RRUS 32 B2	B	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	2.731 2.953 3.182	1.668 1.855 2.049	0.053 0.074 0.098

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
1001983	B	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	0.052 0.086 0.127	0.176 0.232 0.295	0.004 0.006 0.009
(4) 7020.00	B	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	0.102 0.147 0.199	0.175 0.239 0.311	0.002 0.005 0.009
RRUS-11	C	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	2.791 2.998 3.213	1.192 1.340 1.496	0.050 0.071 0.095
(2) 7770.00 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	5.792 6.268 6.697	4.513 5.508 6.213	0.086 0.143 0.208
(2) LGP21401	C	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	1.104 1.239 1.381	0.347 0.442 0.544	0.014 0.021 0.030
(2) LGP21901	C	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	0.231 0.294 0.365	0.158 0.213 0.276	0.006 0.008 0.011
HPA-65R-BUU-H8 w/ Mount Pipe	C	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	13.213 13.899 14.587	9.582 11.052 12.496	0.100 0.196 0.303
RRUS 32 B2	C	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	2.731 2.953 3.182	1.668 1.855 2.049	0.053 0.074 0.098
1001983	C	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	0.052 0.086 0.127	0.176 0.232 0.295	0.004 0.006 0.009
(4) 7020.00	C	From Leg	4.000 0.000 0.000	0.000	125.000	No Ice 1/2" Ice 1" Ice	0.102 0.147 0.199	0.175 0.239 0.311	0.002 0.005 0.009
Platform Mount [LP 303-1]	C	None		0.000	125.000	No Ice 1/2" Ice 1" Ice	14.660 18.870 23.080	14.660 18.870 23.080	1.250 1.481 1.713
****									
800 10504 w/ Mount Pipe	A	From Leg	4.000 0.000 2.000	0.000	115.000	No Ice 1/2" Ice 1" Ice	3.589 4.007 4.422	3.178 3.905 4.581	0.038 0.070 0.109
860 10025	A	From Leg	4.000 0.000 2.000	0.000	115.000	No Ice 1/2" Ice 1" Ice	0.137 0.190 0.252	0.116 0.167 0.225	0.001 0.003 0.005
800 10504 w/ Mount Pipe	B	From Leg	4.000 0.000 2.000	0.000	115.000	No Ice 1/2" Ice 1" Ice	3.589 4.007 4.422	3.178 3.905 4.581	0.038 0.070 0.109
860 10025	B	From Leg	4.000 0.000 2.000	0.000	115.000	No Ice 1/2" Ice 1" Ice	0.137 0.190 0.252	0.116 0.167 0.225	0.001 0.003 0.005
800 10504 w/ Mount Pipe	C	From Leg	4.000 0.000 2.000	0.000	115.000	No Ice 1/2" Ice 1" Ice	3.589 4.007 4.422	3.178 3.905 4.581	0.038 0.070 0.109

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
860 10025	C	From Leg	4.000 0.000 2.000	0.000	115.000	No Ice 1/2" Ice 1" Ice	0.137 0.190 0.252	0.116 0.167 0.225	0.001 0.003 0.005
5' x 2' Pipe Mount	A	From Leg	4.000 0.000 0.000	0.000	115.000	No Ice 1/2" Ice 1" Ice	1.000 1.393 1.703	1.000 1.393 1.703	0.029 0.037 0.048
5' x 2' Pipe Mount	B	From Leg	4.000 0.000 0.000	0.000	115.000	No Ice 1/2" Ice 1" Ice	1.000 1.393 1.703	1.000 1.393 1.703	0.029 0.037 0.048
5' x 2' Pipe Mount	C	From Leg	4.000 0.000 0.000	0.000	115.000	No Ice 1/2" Ice 1" Ice	1.000 1.393 1.703	1.000 1.393 1.703	0.029 0.037 0.048
T-Arm Mount [TA 602-3]	A	None		0.000	115.000	No Ice 1/2" Ice 1" Ice	11.590 15.440 19.290	11.590 15.440 19.290	0.774 0.990 1.206
****									
RRH2X60-AWS BAND 4	A	From Leg	4.000 0.000 0.000	0.000	60.000	No Ice 1/2" Ice 1" Ice	3.355 3.612 3.876	2.005 2.237 2.476	0.055 0.078 0.105
HBX-6513DS-A1M w/ Mount Pipe	A	From Leg	4.000 0.000 0.000	0.000	60.000	No Ice 1/2" Ice 1" Ice	1.785 2.032 2.290	1.562 1.944 2.333	0.018 0.038 0.061
RRFDC-3315-PF-48	A	From Leg	4.000 0.000 0.000	0.000	60.000	No Ice 1/2" Ice 1" Ice	3.364 3.597 3.838	2.192 2.395 2.606	0.032 0.061 0.093
RRH2X60-AWS BAND 4	B	From Leg	4.000 0.000 0.000	0.000	60.000	No Ice 1/2" Ice 1" Ice	3.355 3.612 3.876	2.005 2.237 2.476	0.055 0.078 0.105
HBX-6513DS-A1M w/ Mount Pipe	B	From Leg	4.000 0.000 0.000	0.000	60.000	No Ice 1/2" Ice 1" Ice	1.785 2.032 2.290	1.562 1.944 2.333	0.018 0.038 0.061
Platform Mount [LP 401-1]	A	None		0.000	60.000	No Ice 1/2" Ice 1" Ice	24.330 30.220 36.110	24.330 30.220 36.110	1.645 2.030 2.415

Load Combinations

Comb. No.	Description
1	Dead Only
2	1.2 Dead+1.6 Wind 0 deg - No Ice
3	0.9 Dead+1.6 Wind 0 deg - No Ice
4	1.2 Dead+1.6 Wind 30 deg - No Ice
5	0.9 Dead+1.6 Wind 30 deg - No Ice
6	1.2 Dead+1.6 Wind 60 deg - No Ice
7	0.9 Dead+1.6 Wind 60 deg - No Ice
8	1.2 Dead+1.6 Wind 90 deg - No Ice
9	0.9 Dead+1.6 Wind 90 deg - No Ice

Comb. No.	Description
10	1.2 Dead+1.6 Wind 120 deg - No Ice
11	0.9 Dead+1.6 Wind 120 deg - No Ice
12	1.2 Dead+1.6 Wind 150 deg - No Ice
13	0.9 Dead+1.6 Wind 150 deg - No Ice
14	1.2 Dead+1.6 Wind 180 deg - No Ice
15	0.9 Dead+1.6 Wind 180 deg - No Ice
16	1.2 Dead+1.6 Wind 210 deg - No Ice
17	0.9 Dead+1.6 Wind 210 deg - No Ice
18	1.2 Dead+1.6 Wind 240 deg - No Ice
19	0.9 Dead+1.6 Wind 240 deg - No Ice
20	1.2 Dead+1.6 Wind 270 deg - No Ice
21	0.9 Dead+1.6 Wind 270 deg - No Ice
22	1.2 Dead+1.6 Wind 300 deg - No Ice
23	0.9 Dead+1.6 Wind 300 deg - No Ice
24	1.2 Dead+1.6 Wind 330 deg - No Ice
25	0.9 Dead+1.6 Wind 330 deg - No Ice
26	1.2 Dead+1.0 Ice+1.0 Temp
27	1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp
28	1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp
29	1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp
30	1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp
31	1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp
32	1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp
33	1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp
34	1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp
35	1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp
36	1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp
37	1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp
38	1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp
39	Dead+Wind 0 deg - Service
40	Dead+Wind 30 deg - Service
41	Dead+Wind 60 deg - Service
42	Dead+Wind 90 deg - Service
43	Dead+Wind 120 deg - Service
44	Dead+Wind 150 deg - Service
45	Dead+Wind 180 deg - Service
46	Dead+Wind 210 deg - Service
47	Dead+Wind 240 deg - Service
48	Dead+Wind 270 deg - Service
49	Dead+Wind 300 deg - Service
50	Dead+Wind 330 deg - Service

Maximum Member Forces

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
L1	149.083 - 133.083	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-5.777	-0.514	0.296
			Max. Mx	8	-2.645	-17.397	0.030
			Max. My	2	-2.645	-0.052	17.359
			Max. Vy	8	4.043	-17.397	0.030
			Max. Vx	2	-4.043	-0.052	17.359
			Max. Torque	12			0.891
L2	133.083 - 98.5	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-22.768	-0.943	0.056
			Max. Mx	8	-11.206	-350.271	-0.009
			Max. My	14	-11.205	-0.179	-350.090
			Max. Vy	8	14.284	-350.271	-0.009
			Max. Vx	2	-14.285	-0.171	350.081
			Max. Torque	12			1.008
L3	98.5 - 64.833	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-32.833	-0.943	0.056
			Max. Mx	8	-18.477	-882.372	0.004

Section No.	Elevation ft	Component Type	Condition	Gov. Load Comb.	Axial K	Major Axis Moment kip-ft	Minor Axis Moment kip-ft
			Max. My	14	-18.477	-0.216	-882.199
			Max. Vy	8	18.171	-882.372	0.004
			Max. Vx	2	-18.172	-0.196	882.198
			Max. Torque	12			1.007
L4	64.833 - 32	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-48.571	-2.212	1.617
			Max. Mx	8	-29.469	-1567.982	-0.202
			Max. My	2	-29.467	0.036	1569.761
			Max. Vy	8	23.872	-1567.982	-0.202
			Max. Vx	2	-23.957	0.036	1569.761
			Max. Torque	12			2.159
L5	32 - 0	Pole	Max Tension	1	0.000	0.000	0.000
			Max. Compression	26	-64.292	-2.212	1.617
			Max. Mx	8	-41.642	-2541.959	-1.303
			Max. My	2	-41.642	1.136	2546.909
			Max. Vy	8	27.946	-2541.959	-1.303
			Max. Vx	2	-28.030	1.136	2546.909
			Max. Torque	12			2.158

Maximum Reactions

Location	Condition	Gov. Load Comb.	Vertical K	Horizontal, X K	Horizontal, Z K
Pole	Max. Vert	30	64.292	-7.734	-0.004
	Max. H_x	20	41.653	27.929	0.029
	Max. H_z	2	41.653	0.029	28.013
	Max. M_x	2	2546.909	0.029	28.013
	Max. M_z	8	2541.959	-27.929	-0.029
	Max. Torsion	12	2.157	-13.990	-24.274
	Min. Vert	19	31.240	24.172	-13.981
	Min. H_x	8	41.653	-27.929	-0.029
	Min. H_z	14	41.653	-0.029	-28.013
	Min. M_x	14	-2545.948	-0.029	-28.013
	Min. M_z	20	-2540.662	27.929	0.029
	Min. Torsion	24	-2.157	13.990	24.274

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	34.711	0.000	0.000	-0.389	-0.522	0.000
1.2 Dead+1.6 Wind 0 deg - No Ice	41.653	-0.029	-28.013	-2546.909	1.136	1.735
0.9 Dead+1.6 Wind 0 deg - No Ice	31.240	-0.029	-28.013	-2530.349	1.295	1.734
1.2 Dead+1.6 Wind 30 deg - No Ice	41.653	13.939	-24.245	-2204.865	-1269.760	0.847
0.9 Dead+1.6 Wind 30 deg - No Ice	31.240	13.939	-24.245	-2190.510	-1261.391	0.847
1.2 Dead+1.6 Wind 60 deg - No Ice	41.653	24.172	-13.981	-1272.154	-2200.599	-0.268
0.9 Dead+1.6 Wind 60 deg - No Ice	31.240	24.172	-13.981	-1263.818	-2186.218	-0.267
1.2 Dead+1.6 Wind 90 deg - No Ice	41.653	27.929	0.029	1.303	-2541.959	-1.311
0.9 Dead+1.6 Wind 90 deg - No Ice	31.240	27.929	0.029	1.418	-2525.376	-1.310
1.2 Dead+1.6 Wind 120 deg - No Ice	41.653	24.202	14.032	1274.281	-2202.377	-2.002

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
0.9 Dead+1.6 Wind 120 deg - No Ice	31.240	24.202	14.032	1266.178	-2187.989	-2.001
1.2 Dead+1.6 Wind 150 deg - No Ice	41.653	13.990	24.274	2205.685	-1272.842	-2.157
0.9 Dead+1.6 Wind 150 deg - No Ice	31.240	13.990	24.274	2191.568	-1264.462	-2.156
1.2 Dead+1.6 Wind 180 deg - No Ice	41.653	0.029	28.013	2545.948	-2.426	-1.734
0.9 Dead+1.6 Wind 180 deg - No Ice	31.240	0.029	28.013	2529.634	-2.253	-1.734
1.2 Dead+1.6 Wind 210 deg - No Ice	41.653	-13.939	24.245	2203.902	1268.466	-0.846
0.9 Dead+1.6 Wind 210 deg - No Ice	31.240	-13.939	24.245	2189.793	1260.430	-0.846
1.2 Dead+1.6 Wind 240 deg - No Ice	41.653	-24.172	13.981	1271.193	2199.302	0.268
0.9 Dead+1.6 Wind 240 deg - No Ice	31.240	-24.172	13.981	1263.103	2185.254	0.268
1.2 Dead+1.6 Wind 270 deg - No Ice	41.653	-27.929	-0.029	-2.259	2540.662	1.310
0.9 Dead+1.6 Wind 270 deg - No Ice	31.240	-27.929	-0.029	-2.130	2524.412	1.310
1.2 Dead+1.6 Wind 300 deg - No Ice	41.653	-24.202	-14.032	-1275.235	2201.084	2.002
0.9 Dead+1.6 Wind 300 deg - No Ice	31.240	-24.202	-14.032	-1266.888	2187.028	2.001
1.2 Dead+1.6 Wind 330 deg - No Ice	41.653	-13.990	-24.274	-2206.642	1271.552	2.157
0.9 Dead+1.6 Wind 330 deg - No Ice	31.240	-13.990	-24.274	-2192.280	1263.503	2.156
1.2 Dead+1.0 Ice+1.0 Temp	64.292	0.000	0.000	-1.617	-2.212	-0.000
1.2 Dead+1.0 Wind 0 deg+1.0 Ice+1.0 Temp	64.292	-0.004	-7.748	-721.256	-2.110	0.508
1.2 Dead+1.0 Wind 30 deg+1.0 Ice+1.0 Temp	64.292	3.863	-6.708	-624.731	-361.480	0.273
1.2 Dead+1.0 Wind 60 deg+1.0 Ice+1.0 Temp	64.292	6.696	-3.871	-361.265	-624.623	-0.035
1.2 Dead+1.0 Wind 90 deg+1.0 Ice+1.0 Temp	64.292	7.734	0.004	-1.456	-721.030	-0.334
1.2 Dead+1.0 Wind 120 deg+1.0 Ice+1.0 Temp	64.292	6.700	3.878	358.287	-624.870	-0.543
1.2 Dead+1.0 Wind 150 deg+1.0 Ice+1.0 Temp	64.292	3.870	6.712	621.571	-361.908	-0.607
1.2 Dead+1.0 Wind 180 deg+1.0 Ice+1.0 Temp	64.292	0.004	7.748	717.849	-2.605	-0.508
1.2 Dead+1.0 Wind 210 deg+1.0 Ice+1.0 Temp	64.292	-3.863	6.708	621.324	356.764	-0.273
1.2 Dead+1.0 Wind 240 deg+1.0 Ice+1.0 Temp	64.292	-6.696	3.871	357.859	619.906	0.035
1.2 Dead+1.0 Wind 270 deg+1.0 Ice+1.0 Temp	64.292	-7.734	-0.004	-1.950	716.314	0.334
1.2 Dead+1.0 Wind 300 deg+1.0 Ice+1.0 Temp	64.292	-6.700	-3.878	-361.693	620.154	0.543
1.2 Dead+1.0 Wind 330 deg+1.0 Ice+1.0 Temp	64.292	-3.870	-6.712	-624.977	357.192	0.607
Dead+Wind 0 deg - Service	34.711	-0.005	-5.115	-463.556	-0.214	0.317
Dead+Wind 30 deg - Service	34.711	2.545	-4.427	-401.342	-231.369	0.155
Dead+Wind 60 deg - Service	34.711	4.414	-2.553	-231.696	-400.674	-0.049
Dead+Wind 90 deg - Service	34.711	5.100	0.005	-0.074	-462.762	-0.240
Dead+Wind 120 deg - Service	34.711	4.419	2.562	231.461	-400.998	-0.366
Dead+Wind 150 deg - Service	34.711	2.554	4.432	400.869	-231.931	-0.395
Dead+Wind 180 deg - Service	34.711	0.005	5.115	462.758	-0.862	-0.317
Dead+Wind 210 deg - Service	34.711	-2.545	4.427	400.545	230.293	-0.155
Dead+Wind 240 deg - Service	34.711	-4.414	2.553	230.899	399.597	0.049

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 270 deg - Service	34.711	-5.100	-0.005	-0.723	461.686	0.240
Dead+Wind 300 deg - Service	34.711	-4.419	-2.562	-232.258	399.922	0.366
Dead+Wind 330 deg - Service	34.711	-2.554	-4.432	-401.666	230.855	0.395

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	-34.711	0.000	0.000	34.711	0.000	0.000%
2	-0.029	-41.653	-28.013	0.029	41.653	28.013	0.000%
3	-0.029	-31.240	-28.013	0.029	31.240	28.013	0.000%
4	13.939	-41.653	-24.245	-13.939	41.653	24.245	0.000%
5	13.939	-31.240	-24.245	-13.939	31.240	24.245	0.000%
6	24.172	-41.653	-13.981	-24.172	41.653	13.981	0.000%
7	24.172	-31.240	-13.981	-24.172	31.240	13.981	0.000%
8	27.929	-41.653	0.029	-27.929	41.653	-0.029	0.000%
9	27.929	-31.240	0.029	-27.929	31.240	-0.029	0.000%
10	24.202	-41.653	14.032	-24.202	41.653	-14.032	0.000%
11	24.202	-31.240	14.032	-24.202	31.240	-14.032	0.000%
12	13.990	-41.653	24.274	-13.990	41.653	-24.274	0.000%
13	13.990	-31.240	24.274	-13.990	31.240	-24.274	0.000%
14	0.029	-41.653	28.013	-0.029	41.653	-28.013	0.000%
15	0.029	-31.240	28.013	-0.029	31.240	-28.013	0.000%
16	-13.939	-41.653	24.245	13.939	41.653	-24.245	0.000%
17	-13.939	-31.240	24.245	13.939	31.240	-24.245	0.000%
18	-24.172	-41.653	13.981	24.172	41.653	-13.981	0.000%
19	-24.172	-31.240	13.981	24.172	31.240	-13.981	0.000%
20	-27.929	-41.653	-0.029	27.929	41.653	0.029	0.000%
21	-27.929	-31.240	-0.029	27.929	31.240	0.029	0.000%
22	-24.202	-41.653	-14.032	24.202	41.653	14.032	0.000%
23	-24.202	-31.240	-14.032	24.202	31.240	14.032	0.000%
24	-13.990	-41.653	-24.274	13.990	41.653	24.274	0.000%
25	-13.990	-31.240	-24.274	13.990	31.240	24.274	0.000%
26	0.000	-64.292	0.000	0.000	64.292	0.000	0.000%
27	-0.004	-64.292	-7.748	0.004	64.292	7.748	0.000%
28	3.863	-64.292	-6.708	-3.863	64.292	6.708	0.000%
29	6.696	-64.292	-3.871	-6.696	64.292	3.871	0.000%
30	7.734	-64.292	0.004	-7.734	64.292	-0.004	0.000%
31	6.700	-64.292	3.878	-6.700	64.292	-3.878	0.000%
32	3.870	-64.292	6.712	-3.870	64.292	-6.712	0.000%
33	0.004	-64.292	7.748	-0.004	64.292	-7.748	0.000%
34	-3.863	-64.292	6.708	3.863	64.292	-6.708	0.000%
35	-6.696	-64.292	3.871	6.696	64.292	-3.871	0.000%
36	-7.734	-64.292	-0.004	7.734	64.292	0.004	0.000%
37	-6.700	-64.292	-3.878	6.700	64.292	3.878	0.000%
38	-3.870	-64.292	-6.712	3.870	64.292	6.712	0.000%
39	-0.005	-34.711	-5.115	0.005	34.711	5.115	0.000%
40	2.545	-34.711	-4.427	-2.545	34.711	4.427	0.000%
41	4.414	-34.711	-2.553	-4.414	34.711	2.553	0.000%
42	5.100	-34.711	0.005	-5.100	34.711	-0.005	0.000%
43	4.419	-34.711	2.562	-4.419	34.711	-2.562	0.000%
44	2.554	-34.711	4.432	-2.554	34.711	-4.432	0.000%
45	0.005	-34.711	5.115	-0.005	34.711	-5.115	0.000%
46	-2.545	-34.711	4.427	2.545	34.711	-4.427	0.000%
47	-4.414	-34.711	2.553	4.414	34.711	-2.553	0.000%
48	-5.100	-34.711	-0.005	5.100	34.711	0.005	0.000%
49	-4.419	-34.711	-2.562	4.419	34.711	2.562	0.000%
50	-2.554	-34.711	-4.432	2.554	34.711	4.432	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	0.00037009
3	Yes	4	0.00000001	0.00023804
4	Yes	5	0.00000001	0.00011320
5	Yes	5	0.00000001	0.00005280
6	Yes	5	0.00000001	0.00010989
7	Yes	5	0.00000001	0.00005118
8	Yes	4	0.00000001	0.00022903
9	Yes	4	0.00000001	0.00014440
10	Yes	5	0.00000001	0.00010465
11	Yes	5	0.00000001	0.00004861
12	Yes	5	0.00000001	0.00011712
13	Yes	5	0.00000001	0.00005473
14	Yes	4	0.00000001	0.00037733
15	Yes	4	0.00000001	0.00024277
16	Yes	5	0.00000001	0.00010642
17	Yes	5	0.00000001	0.00004951
18	Yes	5	0.00000001	0.00010950
19	Yes	5	0.00000001	0.00005102
20	Yes	4	0.00000001	0.00023602
21	Yes	4	0.00000001	0.00014907
22	Yes	5	0.00000001	0.00011607
23	Yes	5	0.00000001	0.00005423
24	Yes	5	0.00000001	0.00010384
25	Yes	5	0.00000001	0.00004822
26	Yes	4	0.00000001	0.00000001
27	Yes	5	0.00000001	0.00009718
28	Yes	5	0.00000001	0.00010714
29	Yes	5	0.00000001	0.00010694
30	Yes	5	0.00000001	0.00009727
31	Yes	5	0.00000001	0.00010639
32	Yes	5	0.00000001	0.00010687
33	Yes	5	0.00000001	0.00009666
34	Yes	5	0.00000001	0.00010544
35	Yes	5	0.00000001	0.00010550
36	Yes	5	0.00000001	0.00009626
37	Yes	5	0.00000001	0.00010631
38	Yes	5	0.00000001	0.00010596
39	Yes	4	0.00000001	0.00001969
40	Yes	4	0.00000001	0.00003769
41	Yes	4	0.00000001	0.00003444
42	Yes	4	0.00000001	0.00001647
43	Yes	4	0.00000001	0.00003225
44	Yes	4	0.00000001	0.00004221
45	Yes	4	0.00000001	0.00001969
46	Yes	4	0.00000001	0.00003226
47	Yes	4	0.00000001	0.00003403
48	Yes	4	0.00000001	0.00001644
49	Yes	4	0.00000001	0.00004084
50	Yes	4	0.00000001	0.00003232

Maximum Tower Deflections - Service Wind

Section No.	Elevation ft	Horz. Deflection in	Gov. Load Comb.	Tilt °	Twist °
L1	149.083 - 133.083	10.445	40	0.556	0.003
L2	136 - 98.5	8.933	40	0.548	0.002
L3	102.333 - 64.833	5.281	39	0.466	0.001
L4	69.5 - 32	2.506	39	0.330	0.001
L5	37.5 - 0	0.754	39	0.181	0.000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
149.000	DB809T6E-XC	40	10.436	0.556	0.003	197585
137.000	RR90-17-02DP w/ Mount Pipe	40	9.048	0.549	0.002	79951
125.000	RRUS-11	40	7.683	0.530	0.001	31726
115.000	800 10504 w/ Mount Pipe	40	6.586	0.506	0.001	20768
60.000	RRH2X60-AWS BAND 4	39	1.874	0.287	0.000	12209

Maximum Tower Deflections - Design Wind

Section No.	Elevation	Horz. Deflection	Gov. Load Comb.	Tilt	Twist
	ft	in		°	°
L1	149.083 - 133.083	57.414	2	3.054	0.018
L2	136 - 98.5	49.107	2	3.011	0.009
L3	102.333 - 64.833	29.034	2	2.561	0.005
L4	69.5 - 32	13.773	2	1.817	0.003
L5	37.5 - 0	4.146	2	0.995	0.001

Critical Deflections and Radius of Curvature - Design Wind

Elevation	Appurtenance	Gov. Load Comb.	Deflection	Tilt	Twist	Radius of Curvature
ft			in	°	°	ft
149.000	DB809T6E-XC	2	57.361	3.054	0.018	37230
137.000	RR90-17-02DP w/ Mount Pipe	2	49.739	3.016	0.010	15031
125.000	RRUS-11	2	42.239	2.916	0.005	5845
115.000	800 10504 w/ Mount Pipe	2	36.207	2.783	0.004	3805
60.000	RRH2X60-AWS BAND 4	2	10.302	1.578	0.002	2223

Compression Checks

Pole Design Data

Section No.	Elevation	Size	L	L_u	Kl/r	A	P_u	ϕP_n	Ratio $\frac{P_u}{\phi P_n}$
	ft		ft	ft		in^2	K	K	
L1	149.083 - 133.083 (1)	TP26x12.75x0.25	16.000	0.000	0.0	18.516	-2.645	1375.630	0.002
L2	133.083 - 98.5 (2)	TP34.063x23.084x0.313	37.500	0.000	0.0	32.363	-11.206	2378.180	0.005
L3	98.5 - 64.833 (3)	TP41.75x32.315x0.375	37.500	0.000	0.0	47.849	-18.477	3491.290	0.005
L4	64.833 - 32 (4)	TP49.063x39.826x0.375	37.500	0.000	0.0	56.338	-29.467	3911.060	0.008
L5	32 - 0 (5)	TP56.125x46.958x0.375	37.500	0.000	0.0	66.356	-41.642	4329.080	0.010

Pole Bending Design Data

Section No.	Elevation ft	Size	M_{ux} kip-ft	ϕM_{nx} kip-ft	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	M_{uy} kip-ft	ϕM_{ny} kip-ft	Ratio $\frac{M_{uy}}{\phi M_{ny}}$
L1	149.083 - 133.083 (1)	TP26x12.75x0.25	17.411	658.207	0.026	0.000	658.207	0.000
L2	133.083 - 98.5 (2)	TP34.063x23.084x0.313	350.271	1592.892	0.220	0.000	1592.892	0.000
L3	98.5 - 64.833 (3)	TP41.75x32.315x0.375	882.375	2881.917	0.306	0.000	2881.917	0.000
L4	64.833 - 32 (4)	TP49.063x39.826x0.375	1569.758	3806.467	0.412	0.000	3806.467	0.000
L5	32 - 0 (5)	TP56.125x46.958x0.375	2546.908	4968.458	0.513	0.000	4968.458	0.000

Pole Shear Design Data

Section No.	Elevation ft	Size	Actual V_u K	ϕV_n K	Ratio $\frac{V_u}{\phi V_n}$	Actual T_u kip-ft	ϕT_n kip-ft	Ratio $\frac{T_u}{\phi T_n}$
L1	149.083 - 133.083 (1)	TP26x12.75x0.25	4.043	687.816	0.006	0.000	1318.025	0.000
L2	133.083 - 98.5 (2)	TP34.063x23.084x0.313	14.284	1189.090	0.012	0.329	3189.683	0.000
L3	98.5 - 64.833 (3)	TP41.75x32.315x0.375	18.171	1745.650	0.010	0.329	5770.883	0.000
L4	64.833 - 32 (4)	TP49.063x39.826x0.375	23.957	1945.270	0.012	1.735	7622.241	0.000
L5	32 - 0 (5)	TP56.125x46.958x0.375	28.030	2164.540	0.013	1.735	9949.083	0.000

Pole Interaction Design Data

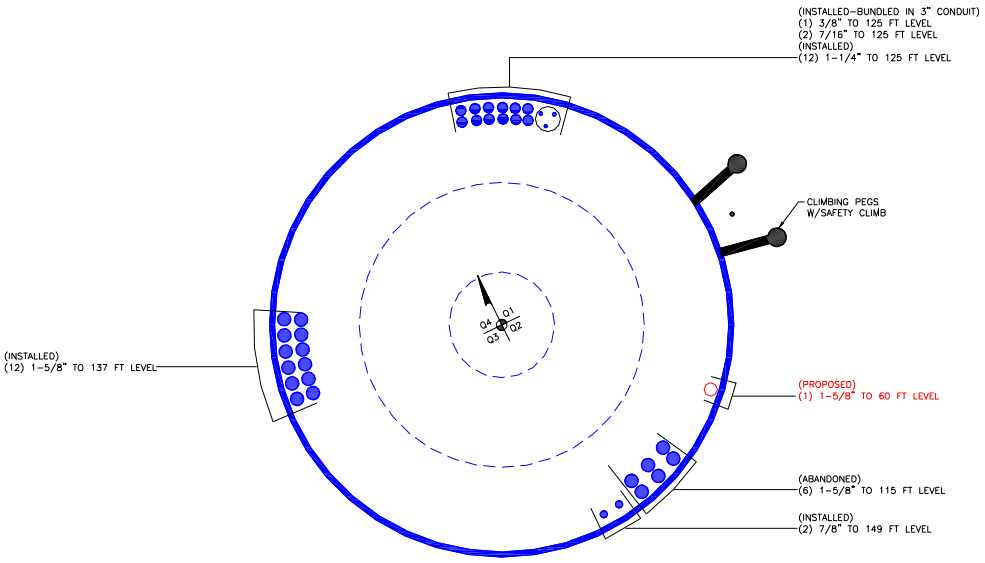
Section No.	Elevation ft	Ratio $\frac{P_u}{\phi P_n}$	Ratio $\frac{M_{ux}}{\phi M_{nx}}$	Ratio $\frac{M_{uy}}{\phi M_{ny}}$	Ratio $\frac{V_u}{\phi V_n}$	Ratio $\frac{T_u}{\phi T_n}$	Comb. Stress Ratio	Allow. Stress Ratio	Criteria
L1	149.083 - 133.083 (1)	0.002	0.026	0.000	0.006	0.000	0.028 ✔	1.000	4.8.2 ✔
L2	133.083 - 98.5 (2)	0.005	0.220	0.000	0.012	0.000	0.225 ✔	1.000	4.8.2 ✔
L3	98.5 - 64.833 (3)	0.005	0.306	0.000	0.010	0.000	0.312 ✔	1.000	4.8.2 ✔
L4	64.833 - 32 (4)	0.008	0.412	0.000	0.012	0.000	0.420 ✔	1.000	4.8.2 ✔
L5	32 - 0 (5)	0.010	0.513	0.000	0.013	0.000	0.522 ✔	1.000	4.8.2 ✔

Section Capacity Table

Section No.	Elevation ft	Component Type	Size	Critical Element	P K	ϕP_{allow} K	% Capacity	Pass Fail
L1	149.083 - 133.083	Pole	TP26x12.75x0.25	1	-2.645	1375.630	2.8	Pass
L2	133.083 - 98.5	Pole	TP34.063x23.084x0.313	2	-11.206	2378.180	22.5	Pass
L3	98.5 - 64.833	Pole	TP41.75x32.315x0.375	3	-18.477	3491.290	31.2	Pass
L4	64.833 - 32	Pole	TP49.063x39.826x0.375	4	-29.467	3911.060	42.0	Pass
L5	32 - 0	Pole	TP56.125x46.958x0.375	5	-41.642	4329.080	52.2	Pass
							Summary	
						Pole (L5)	52.2	Pass
						RATING =	**52.2**	**Pass**

APPENDIX B

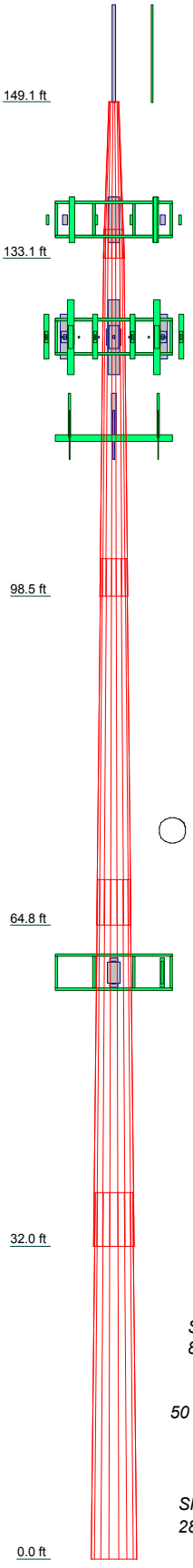
BASE LEVEL DRAWING



APPENDIX C

ADDITIONAL CALCULATIONS

Section	Length (ft)	Number of Sides	Thickness (in)	Socket Length (ft)	Top Dia (in)	Bot Dia (in)	Grade	Weight (K)
1	16.000	18	0.250	2.917	12.750	26.000	A572-65	0.8
2	37.500	18	0.313	3.833	23.084	34.063		3.6
3	37.500	18	0.375	4.667	32.315	41.750		5.6
4	37.500	18	0.375	5.500	39.826	49.063		6.7
5	37.500	18	0.375		46.958	56.125		7.8
								24.4



ALL REACTIONS ARE FACTORED

AXIAL 64 K

SHEAR 8 K — *MOMENT 722 kip-ft*

TORQUE 1 kip-ft
50 mph WIND - 0.750 in ICE

AXIAL 42 K

SHEAR 28 K — *MOMENT 2547 kip-ft*

TORQUE 2 kip-ft
REACTIONS - 105 mph WIND

DESIGNED APPURTENANCE LOADING

TYPE	ELEVATION	TYPE	ELEVATION
DB809T6E-XC	149	HPA-65R-BUU-H8 w/ Mount Pipe	125
DB809T6E-XC	149	RRUS 32 B2	125
Side Arm Mount [SO 702-1]	149	1001983	125
Side Arm Mount [SO 702-1]	149	(4) 7020.00	125
RR90-17-02DP w/ Mount Pipe	137	RRUS-11	125
(2) KRY 112 71	137	(2) 7770.00 w/ Mount Pipe	125
APX16DWV-16DWVS-C-A20 w/ Mount Pipe	137	(2) LGP21401	125
		(2) LGP21901	125
RR90-17-02DP w/ Mount Pipe	137	HPA-65R-BUU-H8 w/ Mount Pipe	125
(2) KRY 112 71	137	RRUS 32 B2	125
APX16DWV-16DWVS-C-A20 w/ Mount Pipe	137	1001983	125
		(4) 7020.00	125
RR90-17-02DP w/ Mount Pipe	137	Platform Mount [LP 303-1]	125
APX16DWV-16DWVS-C-A20 w/ Mount Pipe	137	800 10504 w/ Mount Pipe	115
		860 10025	115
(2) KRY 112 71	137	800 10504 w/ Mount Pipe	115
Platform Mount [LP 303-1]	137	860 10025	115
RRUS-11	125	800 10504 w/ Mount Pipe	115
(2) 7770.00 w/ Mount Pipe	125	860 10025	115
(2) LGP21401	125	5' x 2' Pipe Mount	115
(2) LGP21901	125	5' x 2' Pipe Mount	115
HPA-65R-BUU-H8 w/ Mount Pipe	125	5' x 2' Pipe Mount	115
RRUS 32 B2	125	T-Arm Mount [TA 602-3]	115
1001983	125	RRH2X60-AWS BAND 4	60
(4) 7020.00	125	HBX-6513DS-A1M w/ Mount Pipe	60
RRUS-11	125	RRFDC-3315-PF-48	60
(2) 7770.00 w/ Mount Pipe	125	RRH2X60-AWS BAND 4	60
(2) LGP21401	125	HBX-6513DS-A1M w/ Mount Pipe	60
(2) LGP21901	125	Platform Mount [LP 401-1]	60
DC6-48-60-18-8F	125		

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu
A572-65	65 ksi	80 ksi			

TOWER DESIGN NOTES

1. Tower is located in New London County, Connecticut.
2. Tower designed for Exposure C to the TIA-222-G Standard.
3. Tower designed for a 105 mph basic wind in accordance with the TIA-222-G Standard.
4. Tower is also designed for a 50 mph basic wind with 0.75 in ice. Ice is considered to increase in thickness with height.
5. Deflections are based upon a 60 mph wind.
6. Tower Structure Class II.
7. Topographic Category 1 with Crest Height of 0.000 ft
8. TOWER RATING: 52.2%

Paul J Ford and Company
250 E. Broad Street Suite 600
Coilumbus, OH 43215
Phone: 614.221.6679
FAX: 614.448.4105

Job: ***150' MP. Norwich, CT***			
Project: ***BU 826313 PJF 37517-0691***			
Client: Crown Castle	Drawn by: Jared Smith	App'd:	
Code: TIA-222-G	Date: 02/09/17	Scale: NTS	
Path: G:\TOWER\375_Crown_Castle\2017\37517-0691_826313_Norwich\37517-0691.001.7805_SA_135883\37517-0691.001.7805.eri		Dwg No. E-1	

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

TIA Rev G Assumption: Clear space between bottom of leveling nut and top of concrete **not** exceeding (1)*(Rod Diameter)

Site Data	
BU#:	
Site Name:	
App #:	
Pole Manufacturer:	*Pirod*

Reactions		
Mu:	2547	ft-kips
Axial, Pu:	42	kips
Shear, Vu:	28	kips
Eta Factor, η	0.5	TIA G (Fig. 4-4)

Anchor Rod Data		
Qty:	39	
Diam:	1.25	in
Rod Material:	Other	
Strength (Fu):	125	ksi
Yield (Fy):	105	ksi
Bolt Circle:	61	in

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

Anchor Rod Results

Max Rod (Cu+ Vu/ή):	53.9	Kips
Allowable Axial, Φ*Fu*Anet:	96.9	Kips
Anchor Rod Stress Ratio:	55.6%	**Pass**

Rigid
AISC LRFD
φ*Tn

Plate Data		
Diam:	67	in
Thick:	1.5	in
Grade:	50	ksi
Single-Rod B-eff:	4.57	in

Base Plate Results Flexural Check

Base Plate Stress:	Rohn/Pirod,	OK
Allowable Plate Stress:	45.0	ksi
Base Plate Stress Ratio:	Rohn/Pirod,	OK

Rigid
AISC LRFD
φ*Fy
Y.L. Length: 23.90

Stiffener Data (Welding at both sides)		
Config:	0	*
Weld Type:		
Groove Depth:		in **
Groove Angle:		degrees
Fillet H. Weld:		<-- Disregard
Fillet V. Weld:		in
Width:		in
Height:		in
Thick:		in
Notch:		in
Grade:		ksi
Weld str.:		ksi

n/a

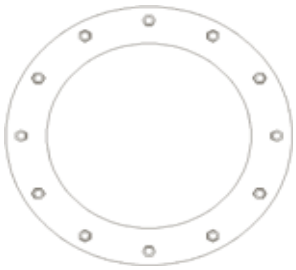
Stiffener Results N/A for Rohn / Pirod

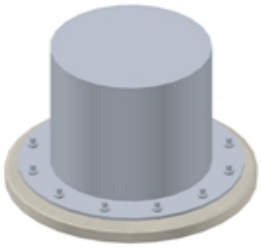
Horizontal Weld :	N/A
Vertical Weld:	N/A
Plate Flex+Shear, fb/Fb+(fv/Fv)^2:	N/A
Plate Tension+Shear, ft/Ft+(fv/Fv)^2:	N/A
Plate Comp. (AISC Bracket):	N/A

Pole Results

Pole Punching Shear Check: N/A

Pole Data		
Diam:	56.125	in
Thick:	0.375	in
Grade:	65	ksi
# of Sides:	18	"0" IF Round
Fu	80	ksi
Reinf. Fillet Weld	0	"0" if None





* 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

PAUL J. FORD & COMPANY
250 E Broad St, Ste 600 • Columbus, OH 43215
Phone 614.221.6679 www.pauljford.com

Job Number: 37517-0691.001
Site Number: BU 826313
Site Name: Site Name

By: JWS
Date: 2/9/2017

DRILLED PIER SOIL AND STEEL ANALYSIS - TIA-222-G

Factored Base Reactions from RISA

	Comp. (+)	Tension (-)	
Moment, Mu =	2547.0		k-ft
Shear, Vu =	28.0		kips
Axial Load, Pu1 =	42.0		kips (from 1.2D + 1.6W)*
Axial Load, Pu2 =	31.5	0.0	kips (from 0.9D + 1.6W)**
OTMu =	2561.0	0.0	k-ft @ Ground

***Axial Load, Pu1 will be used for Soil Compression Analysis.**
****Axial Load, Pu2 will be used for Steel Analysis.**

Safety Factors / Load Factors / Φ Factors

Tower Type =	Monopole DP
ACI Code =	ACI 318-08
Seismic Design Category =	D
Reference Standard =	TIA-222-G
Use 1.3 Load Factor?	No
Load Factor =	1.00

Drilled Pier Parameters

Diameter =	6.5	ft
Height Above Grade =	0.5	ft
Depth Below Grade =	37	ft
fc' =	3	ksi
εc =	0.003	in/in
L / D Ratio =	5.77	
Mat Ftdn. Cap Width =		ft
Mat Ftdn. Cap Length =		ft
Depth Below Grade =		ft

	Safety Factor	Φ Factor
Soil Lateral Resistance =	2.00	0.75
Skin Friction =	2.00	0.75
End Bearing =	2.00	0.75
Concrete Wt. Resist Uplift =	1.25	

Load Combinations Checked per TIA-222-G

1. (0.75) Ult. Skin Friction + (0.75) Ult. End Bearing + (1.2) Effective Soil Wt. - (1.2) Buoyant Conc. Wt. ≥ Comp.
2. (0.75) Ult. Skin Friction + (0.9) Buoyant Conc. Wt. ≥ Uplift

Steel Parameters

Number of Bars =	28	
Rebar Size =	#9	
Rebar Fy =	60	ksi
Rebar MOE =	29000	ksi
Tie Size =	#5	
Side Clear Cover to Ties =	3	in

Soil Parameters

Water Table Depth =	10.00	ft
Depth to Ignore Soil =	3.25	ft
Depth to Full Cohesion =	0	ft
Full Cohesion Starts at?*	Ground	

Above Full Cohesion Lateral Resistance = 4(Cohesion)(Dia)(H)
Below Full Cohesion Lateral Resistance = 8(Cohesion)(Dia)(H)

Direct Embed Pole Shaft Parameters

Dia @ Grade =		in
Dia @ Depth Below Grade =		in
Number of Sides =		
Thickness =		in
Fy =		ksi
Backfill Condition =		

Maximum Capacity Ratios

Maximum Soil Ratio =	110.0%
Maximum Steel Ratio =	105.0%

*Note: The drilled pier foundation was analyzed using the methodology in the software 'PLS-Caisson' (Version 8.10, or newer, by Power Line Systems, Inc.). Per the methods in PLS-Caisson, the soil reactions of cohesive soils are calculated using 8CD independent of the depth of the soil layer. The depth of soil to be ignored at the top of the drilled pier is based the recommendations of the site specific geotechnical report. In the absence of any recommendations, the frost depth at the site or one half of the drilled pier diameter (whichever is greater) shall be ignored.

Define Soil Layers

Note: Cohesion = Undrained Shear Strengh = Unconfined Compressive Strength / 2

Layer	Thickness ft	Unit Weight pcf	Cohesion psf	Friction Angle degrees	Soil Type	Ultimate End Bearing psf	Comp. Ult. Skin Friction psf	Tension Ult. Skin Friction psf	Depth ft
1	7	120		31	Sand				7
2	13	130		36	Sand				20
3	17	125		30	Sand	16000			37
4									
5									
6									
7									
8									
9									
10									
11									
12									

Soil Results: Overturning

Depth to COR =	24.74	ft, from Grade
Bending Moment, Mu =	3253.60	k-ft, from COR
Resisting Moment, ΦMn =	23090.54	k-ft, from COR

MOMENT RATIO = 14.1% OK

Shear, Vu =	28.00	kips
Resisting Shear, ΦVn =	198.71	kips

SHEAR RATIO = 14.1% OK

Soil Results: Uplift

Uplift, Tu =	0.00	kips
Uplift Capacity, ΦTn =	117.67	kips

UPLIFT RATIO = 0.0% OK

Soil Results: Compression

Compression, Cu =	42.00	kips
Comp. Capacity, ΦCn =	359.57	kips

COMPRESSION RATIO = 11.7% OK

Steel Results (ACI 318-08):

Minimum Steel Area =	15.93	sq in
Actual Steel Area =	28.00	sq in
Axial, ΦPn (min) =	-1512.00	kips, Where ΦMn = 0 k-ft
Axial, ΦPn (max) =	7172.58	kips, Where ΦMn = 0 k-ft

Axial Load, Pu =	69.58	kips @ 8.00 ft Below Grade
Moment, Mu =	2742.20	k-ft @ 8.00 ft Below Grade
Moment, ΦMn =	4208.71	k-ft

MOMENT RATIO = 65.2% OK

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

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

Site Data

BU#: *BU 826313*
Site Name: *Site Name*
App #:

Loads Already Factored		
For M (WL)	1	<----Disregard
For P (DL)	1	<----Disregard

Pier Properties

Concrete:

Pier Diameter =	6.5	ft
Concrete Area =	4778.4	in^2

Reinforcement:

Clear Cover to **Tie**=	3.00	in
Horiz. **Tie** Bar Size=	5	
Vert. Cage Diameter =	5.80	ft
Vert. Cage Diameter =	69.62	in
Vertical Bar Size =	9	
Bar Diameter =	1.13	in
Bar Area =	1	in^2
Number of Bars =	28	
As Total=	28	in^2
A s/ Aconc, Rho:	0.0059	0.59%

ACI 10.5 , ACI 21.10.4, and IBC 1810.
Min As for Flexural, Tension Controlled, Shafts:
(3)*(Sqrt(f'c)/Fy: 0.0027
200 / Fy: 0.0033

Minimum Rho Check:

Actual Req'd Min. Rho:	0.33%	Flexural
Provided Rho:	0.59%	**OK**

Ref. Shaft Max Axial Capacities, ϕ Max(Pn or Tn):		
Max Pu = (φ=0.65) Pn.		
Pn per ACI 318 (10-2)	7172.58	kips
at Mu=(ϕ=0.65)Mn=	4057.21	ft-kips
Max Tu, (φ=0.9) Tn =	1512	kips
at Mu=ϕ=(0.90)Mn=	0.00	ft-kips

Maximum Shaft Superimposed Forces

TIA Revision:	G	
Max. Factored Shaft Mu:	2742.2	ft-kips **(* Note)**
Max. Factored Shaft Pu:	69.58	kips
Max Axial Force Type:	Comp.	

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

Load Factor	Shaft Factored Loads		
1.00	Mu:	2742.2	ft-kips
1.00	Pu:	69.58	kips

Material Properties

Concrete Comp. strength, f'c =	3000	psi
Reinforcement yield strength, Fy =	60	ksi
Reinforcing Modulus of Elasticity, E =	29000	ksi
Reinforcement yield strain =	0.00207	
Limiting compressive strain =	0.003	

ACI 318 Code

Select Analysis ACI Code=	2008	

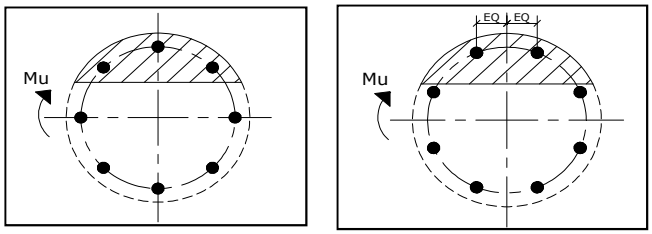
Seismic Properties

Seismic Design Category =	D	
Seismic Risk =	**High**	

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

Results:

Governing Orientation Case: **1**



Case 1 Case 2

Dist. From Edge to Neutral Axis:	**12.87**	in
Extreme Steel Strain, ϵt:	**0.0142**	
	ϵt > 0.0050, Tension Controlled	
Reduction Factor,φ:	**0.900**	

Output Note: Negative Pu=Tension

For Axial Compression, φ Pn = Pu:	69.58	kips
Drilled Shaft Moment Capacity, φMn:	**4208.71**	ft-kips
Drilled Shaft Superimposed Mu:	**2742.20**	ft-kips

(Mu/φMn, Drilled Shaft Flexure CSR:	**65.2%**

Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT5352

Norwich West
50 Clinton Avenue
Norwich, CT 6360

February 16, 2017

Centerline Communications Project Number: 950006-035

Site Compliance Summary	
Compliance Status:	**COMPLIANT**
Site total MPE% of FCC general population allowable limit:	**7.56 %**

February 16, 2017

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

Emissions Analysis for Site: **CT5352 – Norwich West**

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **50 Clinton Avenue, Norwich, 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 population 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 population 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.

Population 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 performed for the proposed AT&T Wireless antenna facility located at **50 Clinton Avenue, Norwich, 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.

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. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

All emissions values for additional carriers were taken from the Connecticut Siting Council (CSC) active MPE database. Values in this database are provided by the individual carriers themselves

For each sector the following channel counts, frequency bands and power levels were utilized as shown in *Table 1*:

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
UMTS	1900 MHz (PCS)	2	30
LTE	700 MHz	2	60
LTE	1900 MHz (PCS)	2	60
GSM	850 MHz	2	30

Table 1: Channel Data Table

The following antennas listed in *Table 2* were used in the modeling 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.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	Powerwave 7770	125
A	2	CCI HPA-65R-BUU-H8	125
A	3	Powerwave 7770	125
B	1	Powerwave 7770	125
B	2	CCI HPA-65R-BUU-H8	125
B	3	Powerwave 7770	125
C	1	Powerwave 7770	125
C	2	CCI HPA-65R-BUU-H8	125
C	3	Powerwave 7770	125

Table 2: Antenna Data

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

RESULTS

Per the calculations completed for the proposed AT&T configurations *Table 3* shows resulting emissions power levels and percentages of the FCC's allowable general population limit.

Antenna ID	Antenna Make / Model	Frequency Bands	Antenna Gain (dBd)	Channel Count	Total TX Power (W)	ERP (W)	MPE %
Antenna A1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.70
Antenna A2	CCI HPA-65R-BUU-H8	700 MHz / 1900 MHz (PCS)	13.15 / 14.95	4	240	6,229.75	2.30
Antenna A3	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.37
						Sector A Composite MPE%	**3.37**
Antenna B1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.70
Antenna B2	CCI HPA-65R-BUU-H8	700 MHz / 1900 MHz (PCS)	13.15 / 14.95	4	240	6,229.75	2.30
Antenna B3	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.37
						Sector B Composite MPE%	**3.37**
Antenna C1	Powerwave 7770	850 MHz / 1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	0.70
Antenna C2	CCI HPA-65R-BUU-H8	700 MHz / 1900 MHz (PCS)	13.15 / 14.95	4	240	6,229.75	2.30
Antenna C3	Powerwave 7770	850 MHz	11.4	2	60	828.23	0.37
						Sector C Composite MPE%	**3.37**

Table 3: AT&T Emissions Levels

The Following table (*table 4*) shows all additional carriers on site and their MPE% as recorded in the CSC active MPE database for this facility along with the newly calculated maximum AT&T MPE contributions per this report. FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. For this site, all three sectors have the same configuration yielding the same results on all three sectors. *Table 5* below shows a summary for each AT&T Sector as well as the composite MPE value for the site.

Site Composite MPE%	
Carrier	**MPE%**
AT&T – Max Sector Value	**3.37 %**
MetroPCS	0.40 %
T-Mobile	2.15 %
Norwich Police	0.09 %
Norwich PWD	0.09 %
Verizon	1.46 %
Site Total MPE %:	**7.56 %**

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	3.37 %
AT&T Sector B Total:	3.37 %
AT&T Sector C Total:	3.37 %
Site Total:	7.56 %

Table 5: Site MPE Summary

FCC OET 65 specifies that for carriers utilizing directional antennas that the highest recorded sector value be used for composite site MPE values due to their greatly reduced emissions contributions in the directions of the adjacent sectors. *Table 6* below details a breakdown by frequency band and technology for the MPE power values for the maximum calculated AT&T sector(s). For this site, all three sectors have the same configuration yielding the same results on all three sectors.

AT&T _ Frequency Band / Technology (All Sectors)	# 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	125	2.10	850 MHz	567	0.37%
AT&T 1900 MHz (PCS) UMTS	2	656.33	125	3.33	1900 MHz (PCS)	1000	0.33%
AT&T 700 MHz LTE	2	1,239.23	125	6.29	700 MHz	467	1.35%
AT&T 1900 MHz (PCS) LTE	2	1,875.65	125	9.52	1900 MHz (PCS)	1000	0.95%
AT&T 850 MHz GSM	2	414.12	125	2.10	850 MHz	567	0.37%
						Total:	3.37%

Table 6: AT&T Maximum Sector MPE Power Values

Summary

All calculations performed for this analysis yielded results that were **within** the allowable limits for general population 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 population exposure to RF Emissions are shown here:

AT&T Sector	Power Density Value (%)
Sector A:	3.37 %
Sector B:	3.37 %
Sector C:	3.37 %
AT&T Maximum Total (per sector):	3.37 %
Site Total:	7.56 %
Site Compliance Status:	**COMPLIANT**

The anticipated composite MPE value for this site assuming all carriers present is **7.56 %** of the allowable FCC established general population 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.

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