



May 11, 2018

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

Regarding: Notice of Exempt Modification – Equipment Upgrades  
Property Address: 148 Roberts Street; East Hartford, CT 06118; aka 148 Main Street;  
now 148 Roberts Street – Rear //  
AT&T Site: CT2419 // FA# 10552892

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 130-foot monopole tower at the above-referenced address, latitude 41.77334167, longitude -72.61361111. Said monopole is owned and operated by American Tower Corporation and the ground is owned by CARO LLC. The existing equipment shelter is 16' x 11.5' totaling 184 square feet.

AT&T desires to modify its existing telecommunications facility by adding (2) DC Squids with associated cabling, swapping (3) Remote Radio Units (RRUs) for a newer model, and adding (9) RRUs to the existing installation (for an installed total of (18) RRUs). There are no changes to the panel antennas and the centerline height of the existing antenna installation is and will remain at 90 feet. The Structural Analysis completed on January 26, 2018 by American Tower includes (3) more RRUs than will be installed due to AT&T maintaining leased allowances for additional equipment that will not be installed at this time.

Please accept this application as notification pursuant to R.C.S.A. §16-50j-73, for construction that constitutes an exempt modification pursuant to R.C.S.A. §16-50j-72 (b)(2). In accordance with R.C.S.A. §16-50j-73, a copy of this letter is being sent to The Mayor of East Hartford, the Town Planner, the Director of Inspections and Permits, to tower owner / operator, American Tower Corp., and to ground owner, CARO LLC, via notice to American Tower Land Management. A copy is also being sent to the adjacent property owner, Greater Hartford Transit District's counsel, Rosemary G. Ayers.

The planned modifications to AT&T's facility fall squarely within those activities explicitly provided for in R.C.S.A. §16-50j-72 (b)(2). Specifically:

1. The planned modification will not result in an increase in the height of the existing structure. The equipment to be added will be installed at the existing height of 90 feet on the 130-foot tower.
2. The proposed modifications will not involve any changes to ground-mounted equipment, and therefore will not require an extension of the site boundary.

May 11, 2018

Page 2 of 2

3. The proposed modifications will not involve any changes to ground-mounted equipment, and therefore will not require an extension of the site boundary.
4. The proposed modification will not increase the noise level at the facility by six decibels or more, or to levels that exceed state and local criteria.
5. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above Federal Communications Commission (FCC) safety standard. An RF emissions calculation (enclosed) for AT&T's modified facility is herein provided.
6. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
7. The existing structure and its foundation can support AT&T's proposed modifications (please see enclosed structural analysis completed by American Tower dated January 26, 2018).

For the foregoing reasons, AT&T respectfully requests that the proposed installation be allowed within the exempt modifications under R.C.S.A. §16-50j-72 (b)(2).

Sincerely,

*Kristen White*

Kristen White  
Site Acquisition Specialist

Enclosures: Exhibit 1 – Property Card and GIS Map  
Exhibit 2 – Construction Drawings  
Exhibit 3 – RF Emissions Analysis Report Evaluation  
Exhibit 4 – Structural Analysis

cc:

Mayor Marcia A. Leclerc  
740 Main Street  
East Hartford, CT 06108

Mr. Greg Grew, Director of Inspections and Permits  
740 Main Street - 1st Floor  
East Hartford, CT 06108

Mr. Jeffrey Cormier, Town Planner  
740 Main Street  
East Hartford, CT 06108

Mr. Shawn Dunn, APM (tower owner /  
American Tower Corp. operator)  
10 Presidential Way  
Woburn, MA 01801

CARO LLC (ground owner)  
c/o American Tower Land Management  
10 Presidential Way  
Woburn, MA 01801

Rosemary G. Ayers, Esq.  
Day Pitney LLP  
242 Trumbull St.  
Hartford, CT 06103-1212

# Exhibit 1

Property Location: 148 ROBERTS ST REAR

MAP ID: 35//18A//

Bldg Name:

State Use: 202

Vision ID: 50278

Account #17166

Bldg #: 1 of 1

Sec #: 1 of 1 Card 1 of 1

Print Date: 11/23/2015 09:52

CURRENT OWNER		TOPO	UTILITIES	STRT/ROAD	LOCATION	CURRENT ASSESSMENT				6043 EAST HARTFORD, CT  <b>VISION</b>	
CARO LLC ATTN LAND MANAGEMENT 10 PRESIDENTIAL WAY						Description	Code	Appraised Value	Assessed Value		
WOBURN, MA 01810 Additional Owners:		<b>SUPPLEMENTAL DATA</b>				VAC CM LN	5-2	126,750	88,730		
		Other ID: 17166 Homeowner Cr Census 5105 VCS 4403 # Units Class GIS ID:				Locn Suffix Zoning Res Area Non Res Area Lot Size 1.07 ASSOC PID#		VAC OUTBL	5-5	3,970	2,780
						<b>Total</b>		130,720	91,510		

RECORD OF OWNERSHIP		BK-VOL/PAGE	SALE DATE	q/u	w/i	SALE PRICE	V.C.	PREVIOUS ASSESSMENTS (HISTORY)								
CARO LLC		3560/ 154	09/28/2015	U	V		0 B03	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value	Yr.	Code	Assessed Value
DOUBLE E PROPERTIES OF MIDDLETOWN LLC		3442/ 174	12/30/2013	U	V		0 B03	2014	5-2	88,730	2013	5-2	88,730			
DOUBLE E PROPERTIES OF EAST HARTFORD LL		3205/ 125	10/07/2010	U	V		0 B03	2014	5-5	2,780	2013	5-5	2,780			
						<b>Total:</b>		91,510	<b>Total:</b>	91,510	<b>Total:</b>	91,510	<b>Total:</b>			

EXEMPTIONS				OTHER ASSESSMENTS				APPRAISED VALUE SUMMARY				
Year	Type	Description	Amount	Code	Description	Number	Amount	Comm. Int.	This signature acknowledges a visit by a Data Collector or Assessor			
<b>Total:</b>												

ASSESSING NEIGHBORHOOD				
NBHD/ SUB	NBHD Name	Street Index Name	Tracing	Batch
0001/A				

NOTES									
LEASED TO CL&P FOR COMMUNICATIONS TOWER REFER TO VOL 3393/PG 337, 2013.									

BUILDING PERMIT RECORD									VISIT/CHANGE HISTORY					
Permit ID	Issue Date	Type	Description	Amount	Insp. Date	% Comp.	Date Comp.	Comments	Date	Type	IS	ID	Cd.	Purpose/Result

LAND LINE VALUATION SECTION																		
B #	Use Code	Use Description	Zone	D	Front	Depth	Units	Unit Price	I. Factor	S.A.	C. Factor	ST. Idx	Adj.	Notes- Adj	Special Pricing	S Adj Fact	Adj. Unit Price	Land Value
1	202	Comm w/ OB			32		1.07 AC	125,000.00	0.9477	C		1.00	2000	1.00		1.00		126,750
<b>Total Card Land Units: 1.07 AC Parcel Total Land Area: 1.07 AC Total Land Value: 126,750</b>																		

Property Location: 148 ROBERTS ST REAR

MAP ID: 35/18A/1

Bldg Name:

State Use: 202

Vision ID: 50278

Account #17166

Bldg #: 1 of 1 Sec #: 1 of 1 Card 1 of 1

Print Date: 11/23/2015 09:52

CONSTRUCTION DETAIL				CONSTRUCTION DETAIL (CONTINUED)									
Element	Cd.	Ch.	Description	Element	Cd.	Ch.	Description						
Model	00		Vacant										
<b>MIXED USE</b>													
	<b>Code</b>		<b>Description</b>				<b>Percentage</b>						
	202		Comm w/ OB				100						
<b>COST/MARKET VALUATION</b>													
	Adj. Base Rate:						0.00						
	Replace Cost						0						
	AYB												
	EYB						0						
	Dep Code												
	Remodel Rating												
	Year Remodeled												
	Dep %												
	Functional Obslnc												
	External Obslnc												
	Cost Trend Factor						1						
	Status												
	% Complete												
	Overall % Cond												
	Apprais Val												
	Dep % Ovr						0						
	Dep Ovr Comment												
	Misc Imp Ovr						0						
	Misc Imp Ovr Comment												
	Cost to Cure Ovr						0						
	Cost to Cure Ovr Comment												
<b>OB-OUTBUILDING &amp; YARD ITEMS(L) / XT-BUILDING EXTRA FEATURES(B)</b>													
Code	Description	Sub	Sub Descript	L/B	Units	Unit Price	Yr	Gde	Dp Rt	Cnd	%Cnd	Apr Value	
FN1	Fence-C/L			L	260	19.10	Null	C	0		80	3,970	
<b>BUILDING SUB-AREA SUMMARY SECTION</b>													
Code	Description	Living Area	Gross Area	Eff. Area	Unit Cost	Undeprec. Value							
<b>Ttl. Gross Liv/Lease Area:</b>					0	0	0						

No Photo On Record



\*2014010016563\*

GENERAL DATA REAL ESTATE TOWN OF EAST HARTFORD

AS OF 11/23/2015

BILL NO:	2014-01-0016563	CURRENT OWNER:	CARO LLC
UNIQUE ID:	00017166	ORIGINAL OWNER:	DOUBLE E PROPERTIES OF MIDDLETOWN LLC
LINK#		C/O:	
FILE#		ADDRESS:	685 MATSON HILL RD
BANK:		ADDRESS2:	
ESCROW:		CITY ST ZIP:	SOUTH GLASTONBURY CT 06073
VOL/PAGE:	3442-174	COUNTRY:	
LIEN VOL/PAGE:		PROP LOC.:	148 ROBERTS ST REAR
DISTRICT:		EXR PROP LOC:	
		M/B/L:	35 18A
PROP ASSESSED:	91,510	ELD CODE:	0
EXEMPTIONS:		EXMPT CHANGE:	
COC CHANGE:			
NET VALUE:	91,510		
MILL RATE:	45.8600		

\*\*\* BILLED \*\*\*

	CITY	TOTALS
INST1:	2,098.33	2,098.33
INST2:	2,098.33	2,098.33
INST3:	0.00	0.00
INST4:	0.00	0.00
ADJS:	0.00	0.00
TOT TAX:	4,196.66	4,196.66
TOTAL PAID:	4,165.18	4,165.18

\*\*\* PAYMENTS \*\*\*

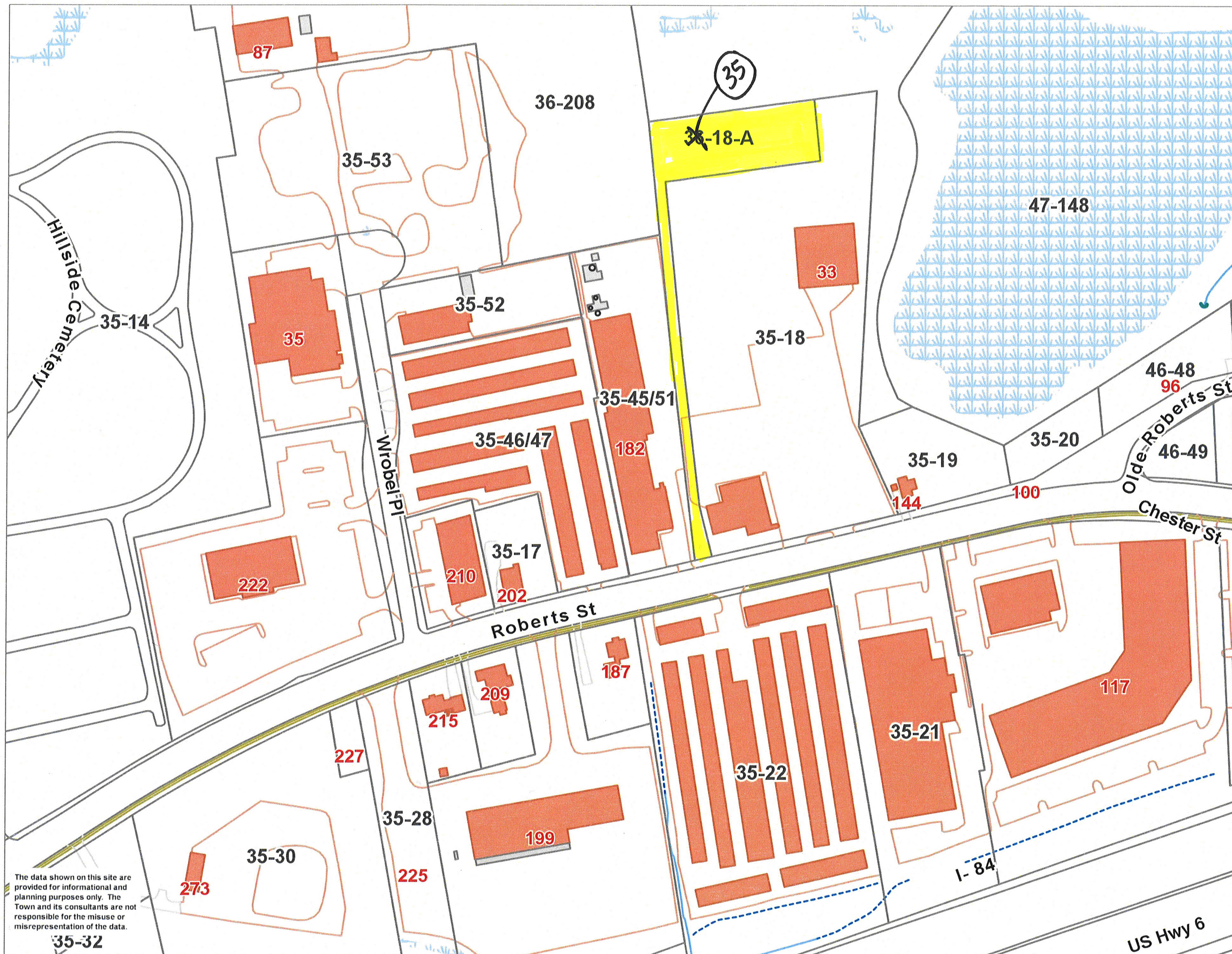
TYPE	CYCLE	DATE	ADJ	TERM/BATCH/SEQ	INST	AMOUNT	INTEREST	LIENS	FEES	TOTALS
Pmt	3	09/02/2015 P		51/251/25	T	4,165.18	31.48	0.00	0.00	4,196.66
Pmt	2	08/26/2015 P		51/242/20	T	0.00	62.95	0.00	0.00	62.95
TOTAL PAYMENTS:						4,165.18	94.43	0.00	0.00	4,259.61

TOTAL BALANCE DUE AS OF 11/23/2015

	CITY
INT DUE:	0.00
LIEN DUE:	0.00
FEES DUE:	0.00
TAX DUE NOW:	0.00
TOT DUE NOW:	0.00
BALANCE DUE:	31.48

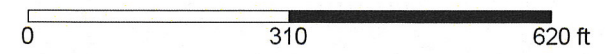
\*\*\* FLAGS \*\*\*

Circuit Breaker Amount:	0	Benefit Year:	0
Invalid Address Flag	No		



- Town Boundary
- Schools
- Buildings
  - Building
  - Cement
  - Deck
  - Foundation
  - Greenhouse
  - Tank
- Parcels
- Paved Features
  - Driveway
  - Road Edge
  - Parking Lot
  - Sidewalk
  - Trail
  - Tunnel
  - Unpaved
- Water Features Arc
  - Perennial Stream
  - Draining Ditch
  - Culvert
  - Spillway
  - Headwall
  - Dam
  - Directional Flow Arrow
- Water Features Poly
  - Open Water
  - Swamp
  - Pier
- CT Highways
  - Interstate
  - US Highway
  - State Highway
- Abutting Town Labels
- Abutting Towns
- Streets


The data shown on this site are provided for informational and planning purposes only. The Town and its consultants are not responsible for the misuse or misrepresentation of the data.



Printed on 02/15/2017 at 11:09 AM







41°46'24.0"N 72°36'49.0"W

41.773342, -72.613611

# Exhibit 2



# WIRELESS COMMUNICATIONS FACILITY

## CT2419 - LTE 3C/4C/5C/4T4R RETROFIT/FirstNet

### EAST HARTFORD CT

#### 148 ROBERTS STREET

#### EAST HARTFORD, CT 06118

### GENERAL NOTES

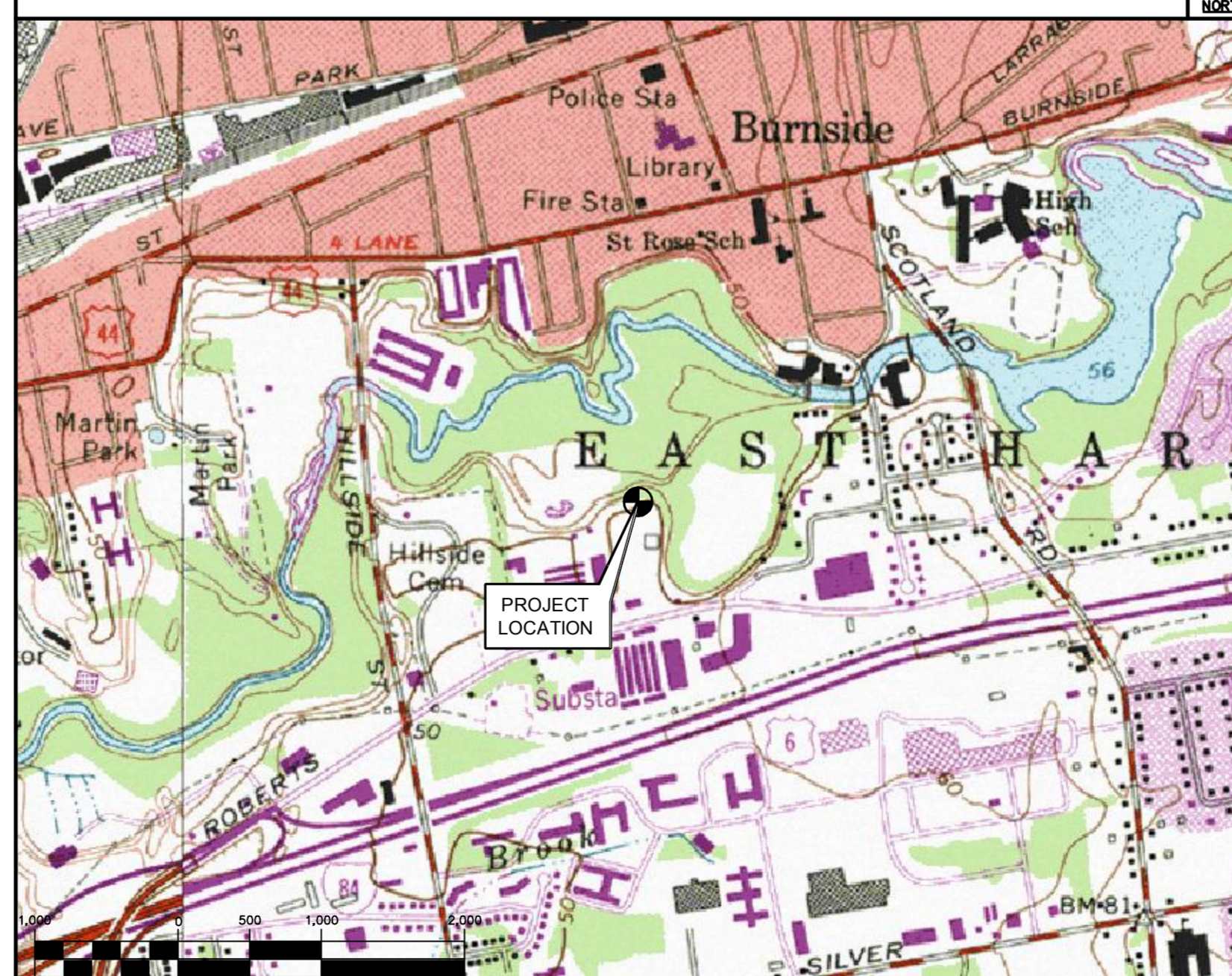
1. ALL WORK SHALL BE IN ACCORDANCE WITH THE 2012 INTERNATIONAL BUILDING CODE AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE, INCLUDING THE TIA-222 REVISION "G" STRUCTURAL STANDARDS FOR STEEL ANTENNA TOWERS AND SUPPORTING STRUCTURES, 2016 CONNECTICUT FIRE SAFETY CODE AND, NATIONAL ELECTRICAL 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:	148 ROBERTS STREET EAST HARTFORD, CONNECTICUT
	1. TURN LEFT ONTO CAPITAL BLVD.		0.36 MI
	2. TURN LEFT ONTO WEST ST.		0.27 MI
	3. MERGE ONTO I-91 N VIA THE RAMP ON THE LEFT TOWARD HARTFORD.		0.16 MI
	4. MERGE ONTO CT-15 N/WILBUR CROSS HWY N VIA EXIT 29 TOWARD I-84 E/E HARTFORD/BOSTON.		7.79 MI
	5. TAKE THE SILVER LANE EXIT, EXIT 91.		1.30 MI
	6. KEEP LEFT TO TAKE THE SILVER LANE RAMP.		0.18 MI
	7. MERGE ONTO SILVER LN.		0.10 MI
	8. TURN LEFT ONTO ROBERTS ST.		0.50 MI
	9. 148 ROBERTS ST, EAST HARTFORD, CT 06108-3637, 148 ROBERTS ST IS ON THE LEFT.		1.02 MI

### VICINITY MAP

SCALE: 1" = 1000'



### PROJECT SUMMARY

1. THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING THE FOLLOWING:
  - A. **AT ANTENNA SECTORS:**
    - INSTALL (2) DC SQUID ARRESTORS (DC6-48-60-0-8F).
    - REMOVE RRUS-12+A2 AND REPLACE WITH RRUS-32 B2 AT POS. 4. (TOTAL OF 3)
    - INSTALL RRUS-32 AT POS. 2. (TOTAL OF 3)
    - INSTALL B14-4478 AT POS. 3. (TOTAL OF 3)
    - INSTALL RRUS-32 B66 AT POS. 3. (TOTAL OF 3)
  - B. **AT THE EQUIPMENT SHELTER**
    - IN LTE RACK, REPLACE DUS WITH 5216. ADD 2ND XMU

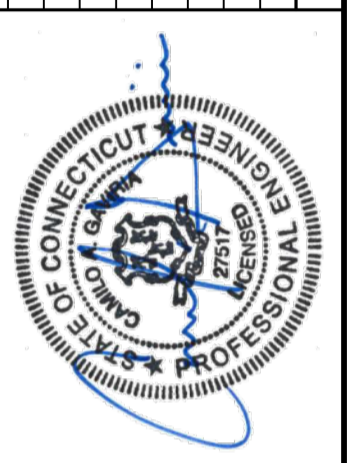
### PROJECT INFORMATION

AT&T SITE NUMBER:	CT2419
AT&T SITE NAME:	EAST HARTFORD
SITE ADDRESS:	148 ROBERTS STREET EAST HARTFORD, CT 06118
LESSEE/APPLICANT:	AT&T MOBILITY 500 ENTERPRISE DRIVE, SUITE 3A ROCKY HILL, CT 06067
AT&T PACE ID NUMBER:	PAGE JOB 1 - MRCTB025727 PAGE JOB 2 - MRCTB025730 PAGE JOB 3 - MRCTB025716
AT&T FA LOCATION CODE:	10552892
ENGINEER:	CEN TEK ENGINEERING, INC. 63-2 NORTH BRANFORD RD. BRANFORD, CT 06405
PROJECT COORDINATES:	LATITUDE: 41°-46'-24.01" N LONGITUDE: 72°-36'-48.38" W GROUND ELEVATION: ±49' 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 ANTENNA SCHEDULE	0
C-1	PLANS AND ELEVATION	0
C-2	ANTENNA CONFIGURATION DETAILS	0
C-3	DETAILS	0
E-1	SCHEMATIC DIAGRAM AND NOTES	0
E-2	WIRING DIAGRAM	0
E-3	TYPICAL ELECTRICAL DETAILS	0

PROFESSIONAL ENGINEER SEAL



**CEN TEK** engineering  
 Centek on Solutions  
 (203) 488-0360  
 (203) 488-8387 Fax  
 63-2 North Branford Road  
 Branford, CT 06405  
 www.CentekEng.com

**AT&T MOBILITY**  
 WIRELESS COMMUNICATIONS FACILITY  
**EAST HARTFORD**  
**CT2419 - LTE 3C/4C/5C/4T4R RETROFIT/FirstNet**  
**148 ROBERTS STREET**  
**EAST HARTFORD, CT 06118**

DATE: 03/20/18  
SCALE: AS NOTED  
JOB NO. 17004.65

TITLE SHEET

T-1

Sheet No. 1 of 8

REV.	DATE	TJR	DND	CONSTRUCTION DRAWINGS	ISSUED FOR CONSTRUCTION
0	05/10/18				

**NOTES AND SPECIFICATIONS**

**DESIGN BASIS:**

- GOVERNING CODE: 2012 INTERNATIONAL BUILDING (IBC) AS MODIFIED BY THE 2016 CT STATE BUILDING CODE AND AMENDMENTS.
- DESIGN CRITERIA:
    - WIND LOAD: PER TIA 222 G (ANTENNA MOUNTS): 90-110 MPH (3 SECOND GUST)
    - RISK CATEGORY: II (BASED ON IBC TABLE 1604.5)
    - NOMINAL DESIGN SPEED (OTHER STRUCTURE): 93 MPH (V<sub>asd</sub>) (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:**

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

**STRUCTURAL STEEL**

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

**PAINT NOTES**

**PAINTING SCHEDULE:**

- ANTENNA PANELS:**
    - SHERWIN WILLIAMS POLANE-B
    - COLOR TO BE MATCHED WITH EXISTING TOWER STRUCTURE.
  - COAXIAL CABLES:**
    - ONE COAT OF DTM BONDING PRIMER (2-5 MILS. DRY FINISH)
    - TWO COATS OF DTM ACRYLIC PRIMER/FINISH (2.5-5 MILS. DRY FINISH)
    - COLOR TO BE FIELD MATCHED WITH EXISTING STRUCTURE.
- EXAMINATION AND PREPARATION:**
- DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
  - VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
  - TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
  - PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
  - CORRECT DEFECTS AND CLEAN SURFACES WHICH AFFECT WORK OF THIS SECTION. REMOVE EXISTING COATINGS THAT EXHIBIT LOOSE SURFACE DEFECTS.
  - IMPERVIOUS SURFACE: REMOVE MILDEW BY SCRUBBING WITH SOLUTION OF TRI-SODIUM PHOSPHATE AND BLEACH. RINSE WITH CLEAN WATER AND ALLOW SURFACE TO DRY.
  - ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH AIC ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING CLEANING.
  - FERROUS METALS: CLEAN UNGALVANIZED FERROUS METAL SURFACES THAT HAVE NOT BEEN SHOP COATED; REMOVE OIL, GREASE, DIRT, LOOSE MILL SCALE, AND OTHER FOREIGN SUBSTANCES. USE SOLVENT OR MECHANICAL CLEANING METHODS THAT COMPLY WITH THE STEEL STRUCTURES PAINTING COUNCIL'S (SSPC) RECOMMENDATIONS. TOUCH UP BARE AREAS AND SHOP APPLIED PRIME COATS THAT HAVE BEEN DAMAGED. WIRE BRUSH, CLEAN WITH SOLVENTS RECOMMENDED BY PAINT MANUFACTURER, AND TOUCH UP WITH THE SAME PRIMER AS THE SHOP COAT.
  - GALVANIZED SURFACES: CLEAN GALVANIZED SURFACES WITH NON-PETROLEUM-BASED SOLVENTS SO SURFACE IS FREE OF OIL AND SURFACE CONTAMINANTS. REMOVE PRETREATMENT FROM GALVANIZED SHEET METAL FABRICATED FROM COIL STOCK BY MECHANICAL METHODS.
  - ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
  - COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

**CLEANING:**

- COLLECT WASTE MATERIAL, WHICH MAY CONSTITUTE A FIRE HAZARD, PLACE IN CLOSED METAL CONTAINERS AND REMOVE DAILY FROM SITE.
- APPLICATION:**
- APPLY PRODUCTS IN ACCORDANCE WITH MANUFACTURER'S INSTRUCTIONS.
  - DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
  - APPLY EACH COAT TO UNIFORM FINISH.
  - APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
  - SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
  - VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
  - ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

**COMPLETED WORK:**

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

**PROPOSED ANTENNA AND APPURTENANCE SCHEDULE**

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L x W x D)	ANTENNA Ø HEIGHT	AZIMUTH	TMA/DIPLEXER/TRIPLEXER (QTY)	(E/P) RRU (QTY)	FEEDER	(E/P) RAYCAP (QTY)
A1	EXISTING	UMTS 850	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	110'		(E) RRUS-11 (1)	FIBER AND DC POWER	(E) RAYCAP DC6-48-60-18-8F (2)
A2	EXISTING	LTE WCS	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	110'		(P) RRUS-32 (1)	FIBER AND DC POWER	
A3	PROPOSED	LTE 700 B14/AWS	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	110'		(P) B14-4478 (1), (P) RRUS-32 B66 (1)	FIBER AND DC POWER	
A4	EXISTING	LTE 700 BC/PCS	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	110'		(E) RRUS-11 (1), (P) RRUS-32 B2 (1)	FIBER AND DC POWER	(P) RAYCAP DC6-48-60-0-8F (2)
B1	EXISTING	UMTS 850	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	220'		(E) RRUS-11 (1)	FIBER AND DC POWER	
B2	EXISTING	LTE WCS	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	220'		(P) RRUS-32 (1)	FIBER AND DC POWER	
B3	PROPOSED	LTE 700 B14/AWS	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	220'		(P) B14-4478 (1), (P) RRUS-32 B66 (1)	FIBER AND DC POWER	
B4	EXISTING	LTE 700 BC/PCS	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	220'		(E) RRUS-11 (1), (P) RRUS-32 B2 (1)	FIBER AND DC POWER	
C1	EXISTING	UMTS 850	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	340'		(E) RRUS-11 (1)	FIBER AND DC POWER	
C2	EXISTING	LTE WCS	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	340'		(P) RRUS-32 (1)	FIBER AND DC POWER	
C3	PROPOSED	LTE 700 B14/AWS	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	340'		(P) B14-4478 (1), (P) RRUS-32 B66 (1)	FIBER AND DC POWER	
C4	EXISTING	LTE 700 BC/PCS	CCI (HPA-65R-BUU-HB)	92.4 x 14.8 x 7.4	90'	340'		(E) RRUS-11 (1), (P) RRUS-32 B2 (1)	FIBER AND DC POWER	

RRU	SIZE (INCHES) (L x W x D)
RRUS-11	19.7 x 17 x 7.2
RRUS-32	27.2 x 12.1 x 7
RRUS-32 B2	27.2 x 12.1 x 7
RRUS-32 B66	27.2 x 12.1 x 7
B14-4478	14.9 x 13.1 x 7.3

PROFESSIONAL ENGINEER SEAL



**CENITEK** engineering  
 Centred on Solutions®  
 (203) 488-0360  
 (203) 488-8387 Fax  
 632 North Branford Road  
 Branford, CT 06405  
 www.CenitekEng.com

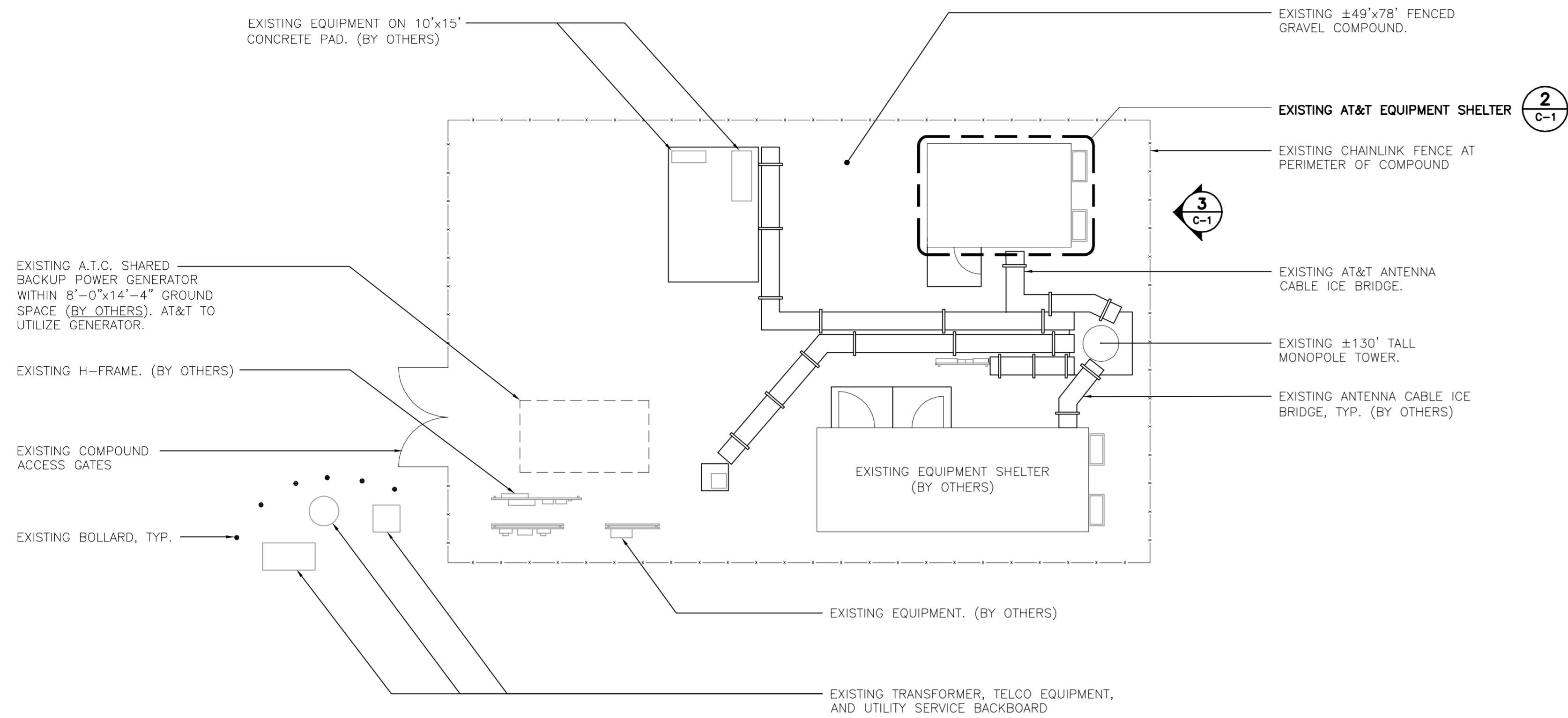
**AT&T MOBILITY**  
 WIRELESS COMMUNICATIONS FACILITY  
**EAST HARTFORD**  
 CT2419 - LTE 9C/4C/5C/4T4R RETROFIT/FireNet  
 148 ROBERTS STREET  
 EAST HARTFORD, CT 06118

DATE: 03/20/18  
 SCALE: AS NOTED  
 JOB NO. 17004.65

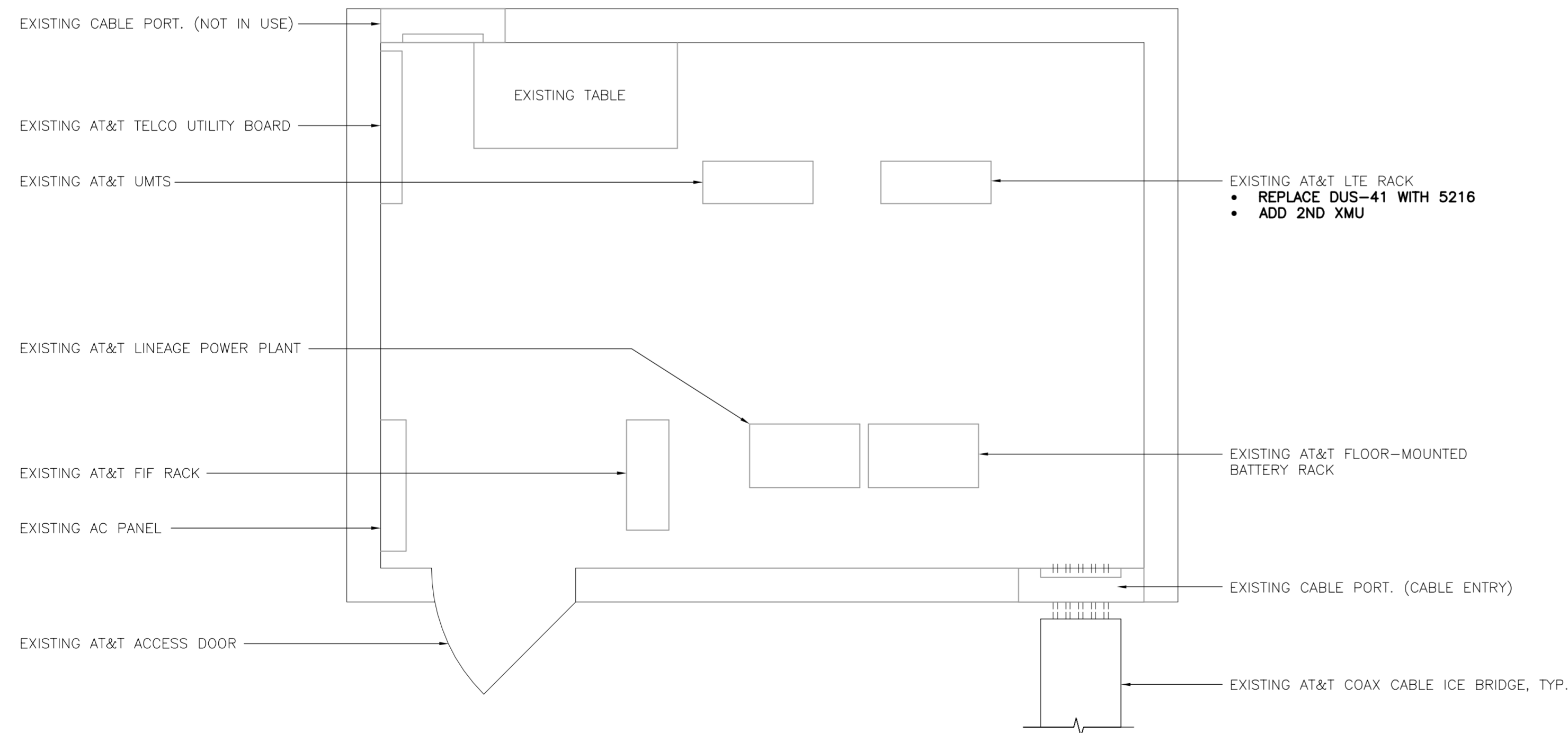
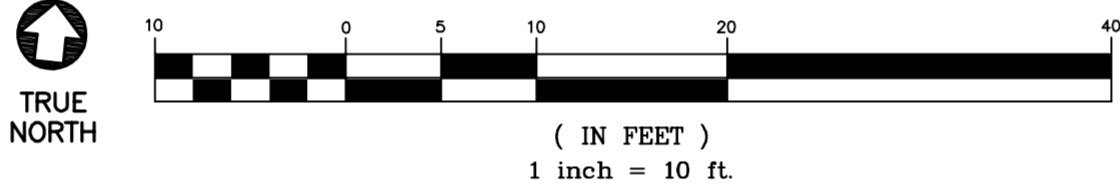
NOTES,  
 SPECIFICATIONS  
 AND ANTENNA  
 SCHEDULE

**N-1**  
 Sheet No. 2 of 8

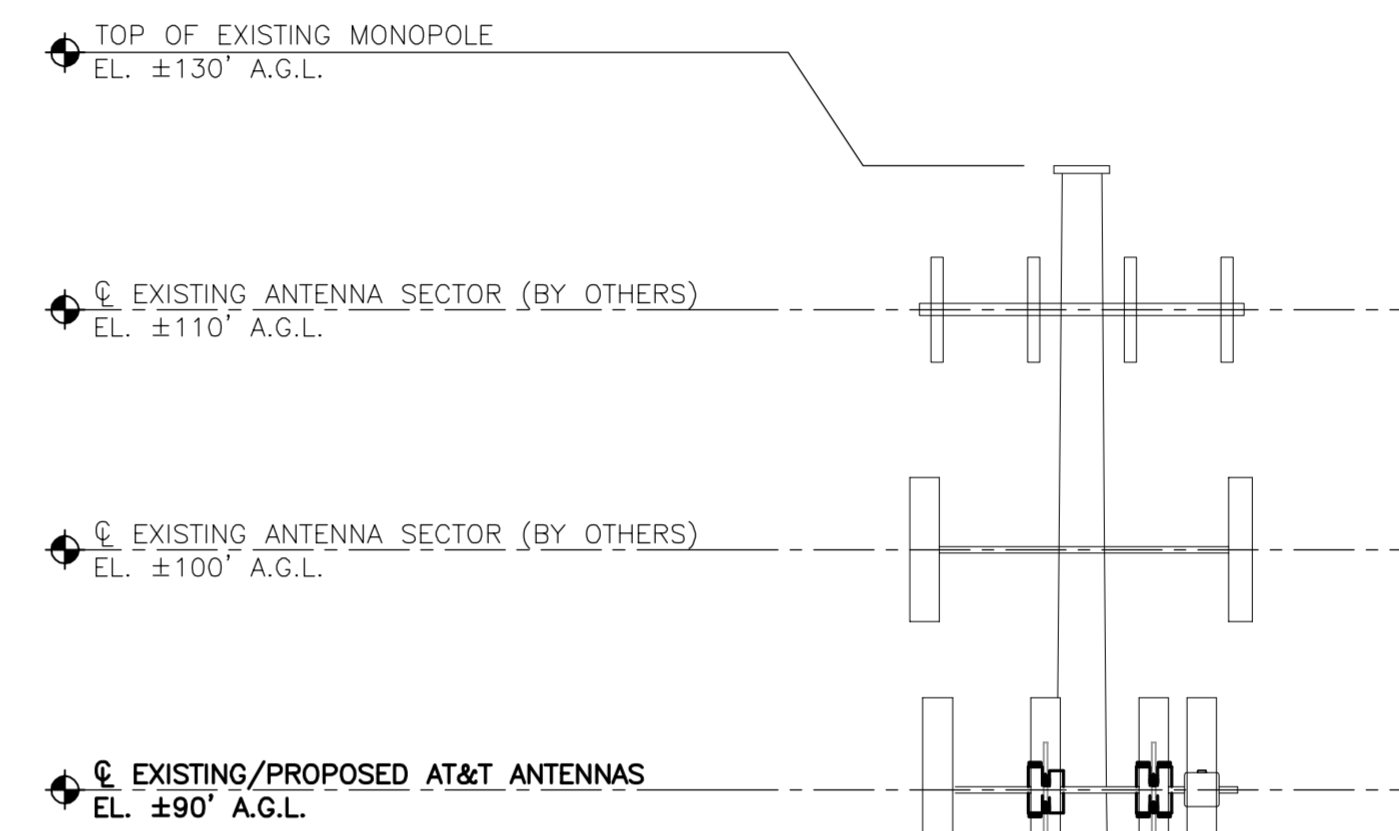
CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION  
 DMD  
 DRAWN BY:CHK'D BY:  
 TJR  
 DATE: 05/10/18  
 REV. 0



**1 COMPOUND PLAN**  
C-1 SCALE: 1" = 10'

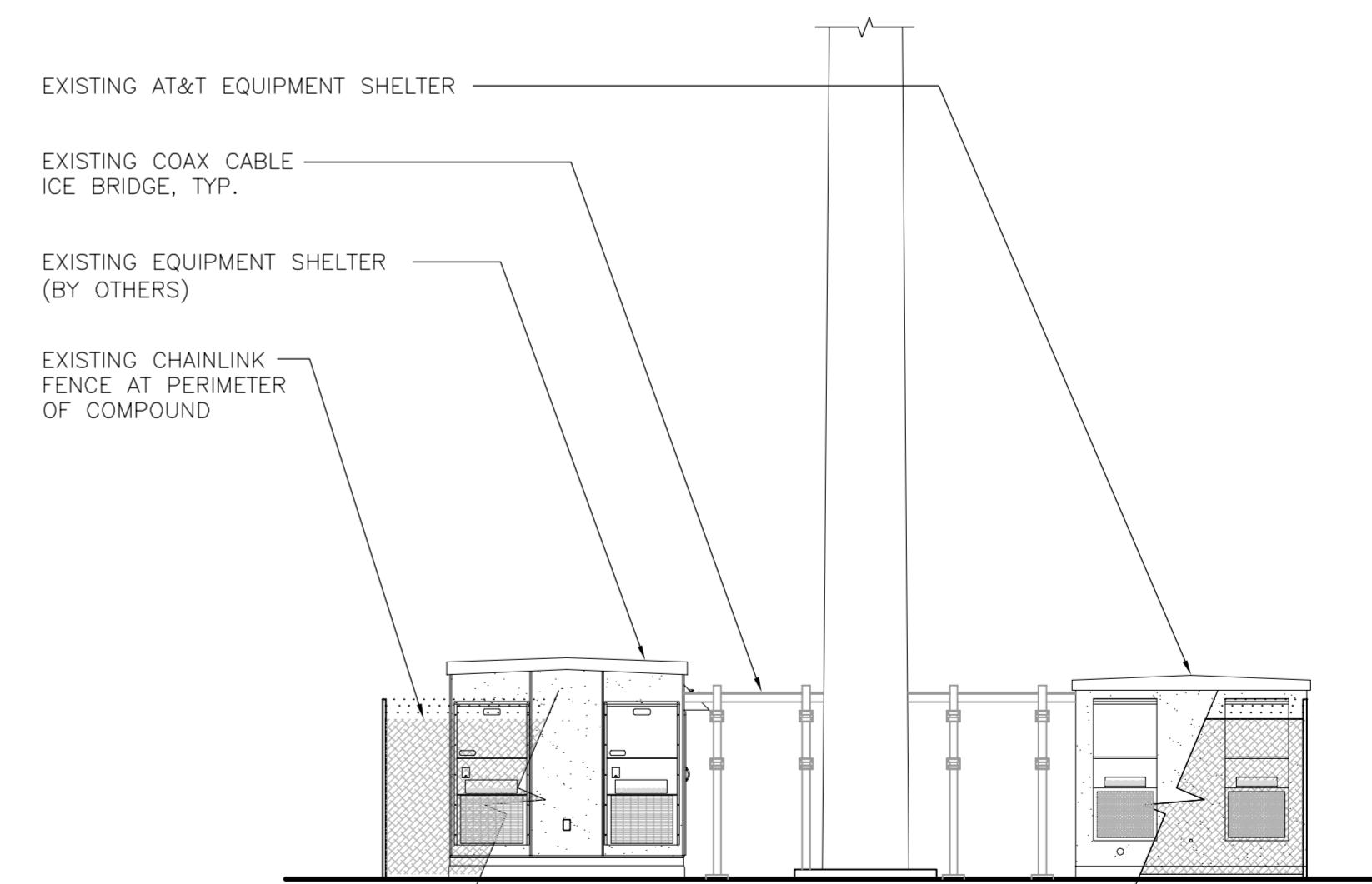


**2 EXISTING EQUIPMENT LAYOUT PLAN**  
C-1 SCALE: 1" = 4'



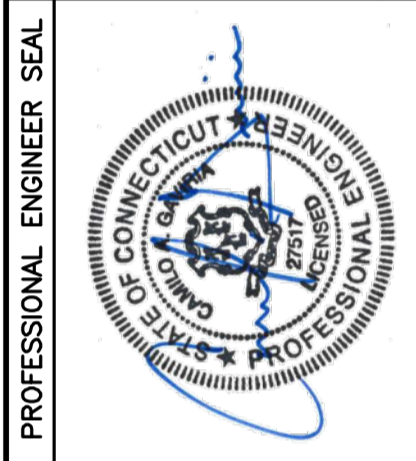
EXISTING ±130' TALL MONOPOLE

NOTE:  
SOME ANTENNA EQUIPMENT (BY OTHERS)  
NOT SHOWN FOR CLARITY.



**3 PARTIAL EAST ELEVATION - PROPOSED**  
C-1 SCALE: 1/8" = 1'-0"

REV.	DATE	TJR	DND	CONSTRUCTION DRAWINGS	-	ISSUED FOR CONSTRUCTION
0	05/10/18					



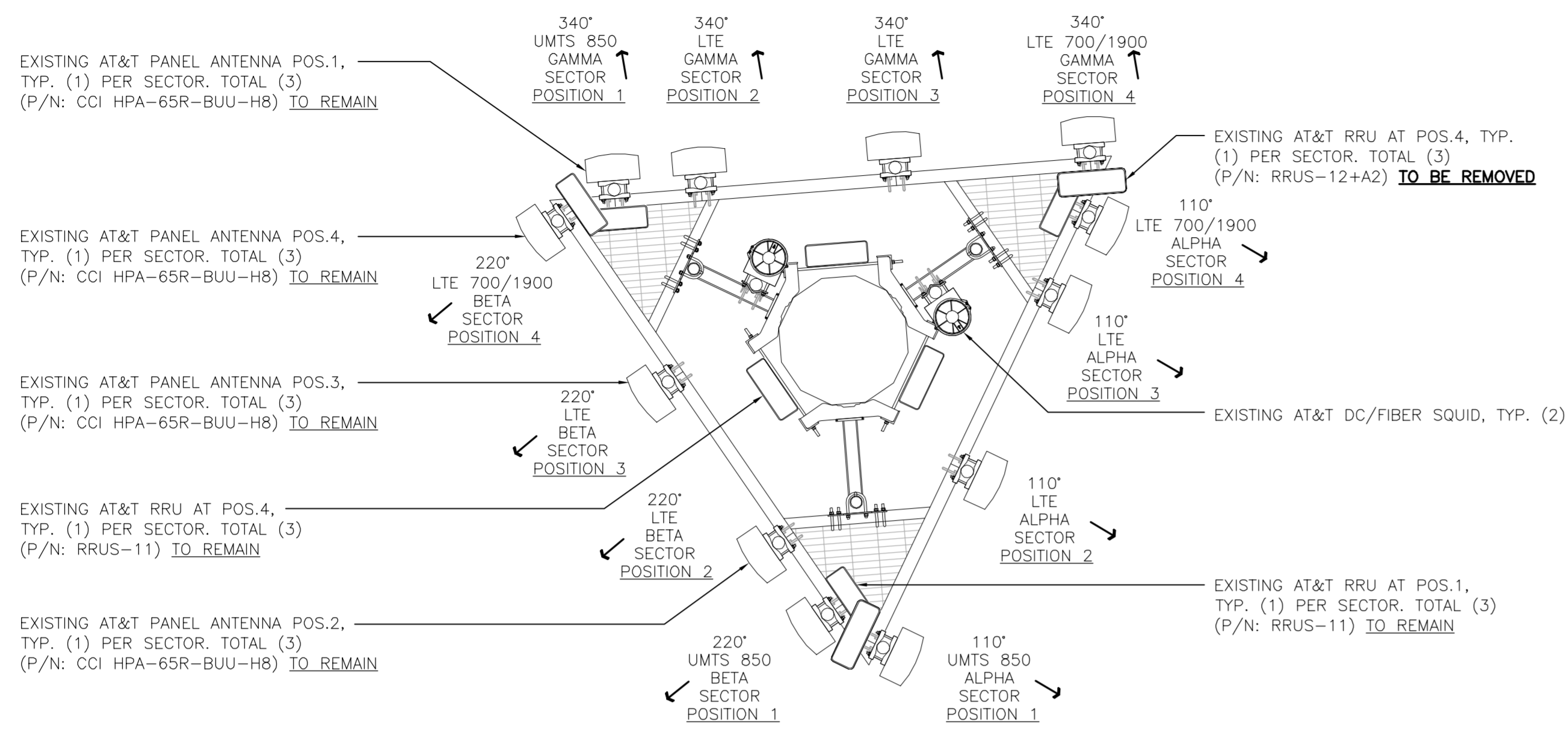
**CENITEK** engineering  
Centered on Solutions™  
(203) 488-0360  
(203) 488-8387 Fax  
63-2 North Branford Road  
Branford, CT 06405  
www.CenitekEng.com

**AT&T MOBILITY**  
WIRELESS COMMUNICATIONS FACILITY  
**EAST HARTFORD**  
CT2419 - LTE 9C/4C/5C/4T4R RETROFIT/FireNet  
148 ROBERTS STREET  
EAST HARTFORD, CT 06118

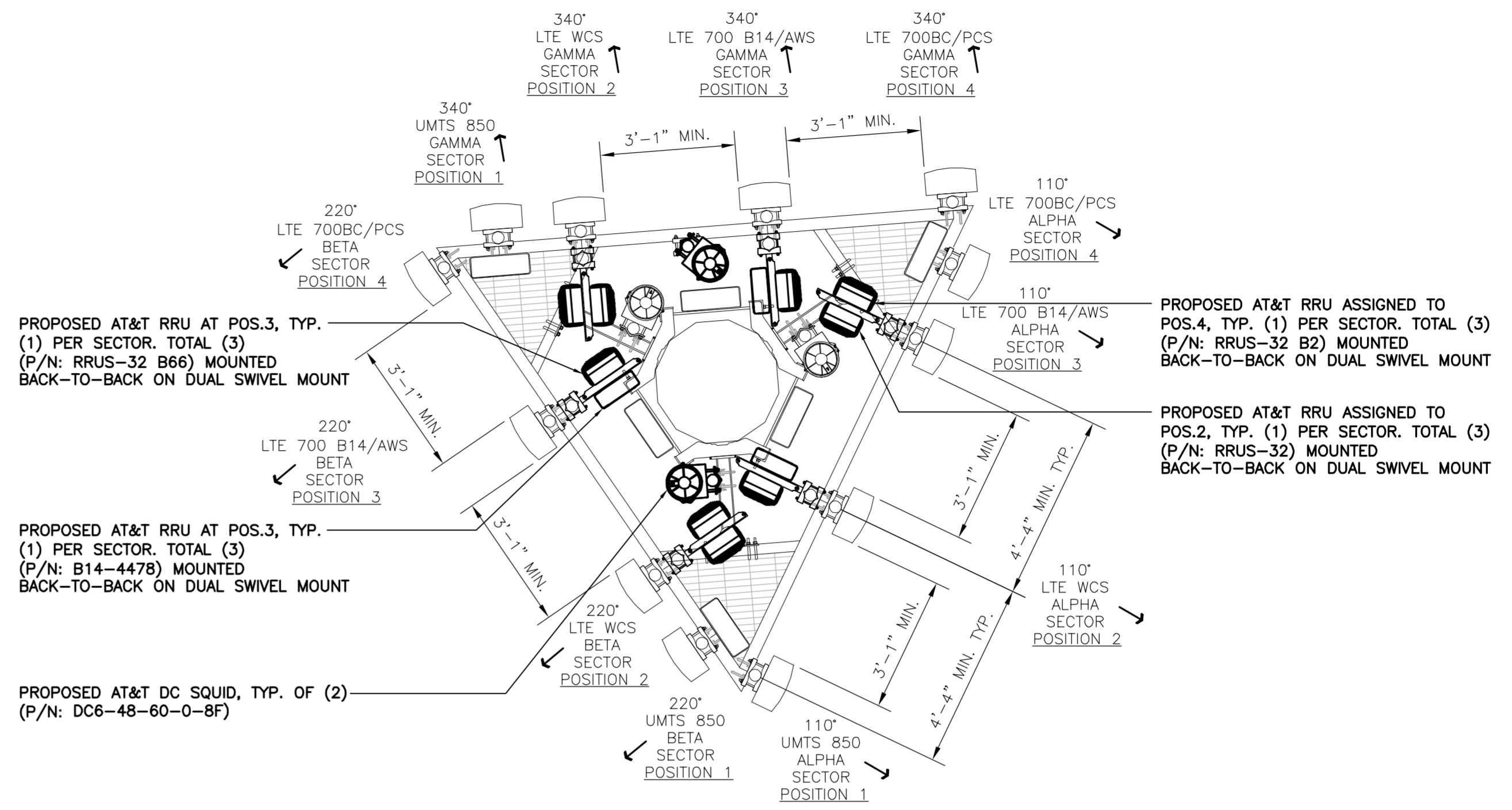
DATE: 03/20/18  
SCALE: AS NOTED  
JOB NO. 17004.65

PLANS AND ELEVATION

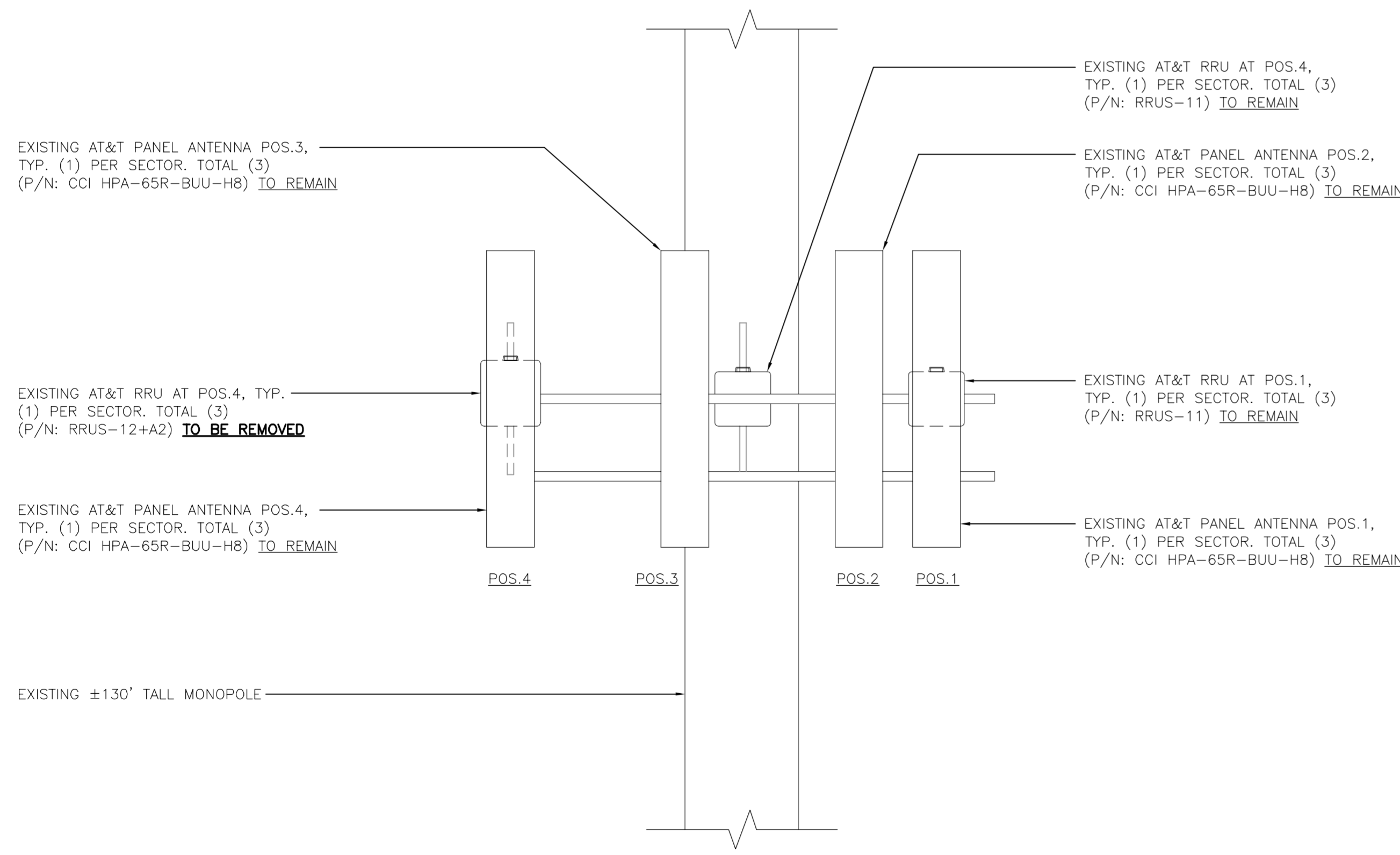
**C-1**  
Sheet No. 3 of 8



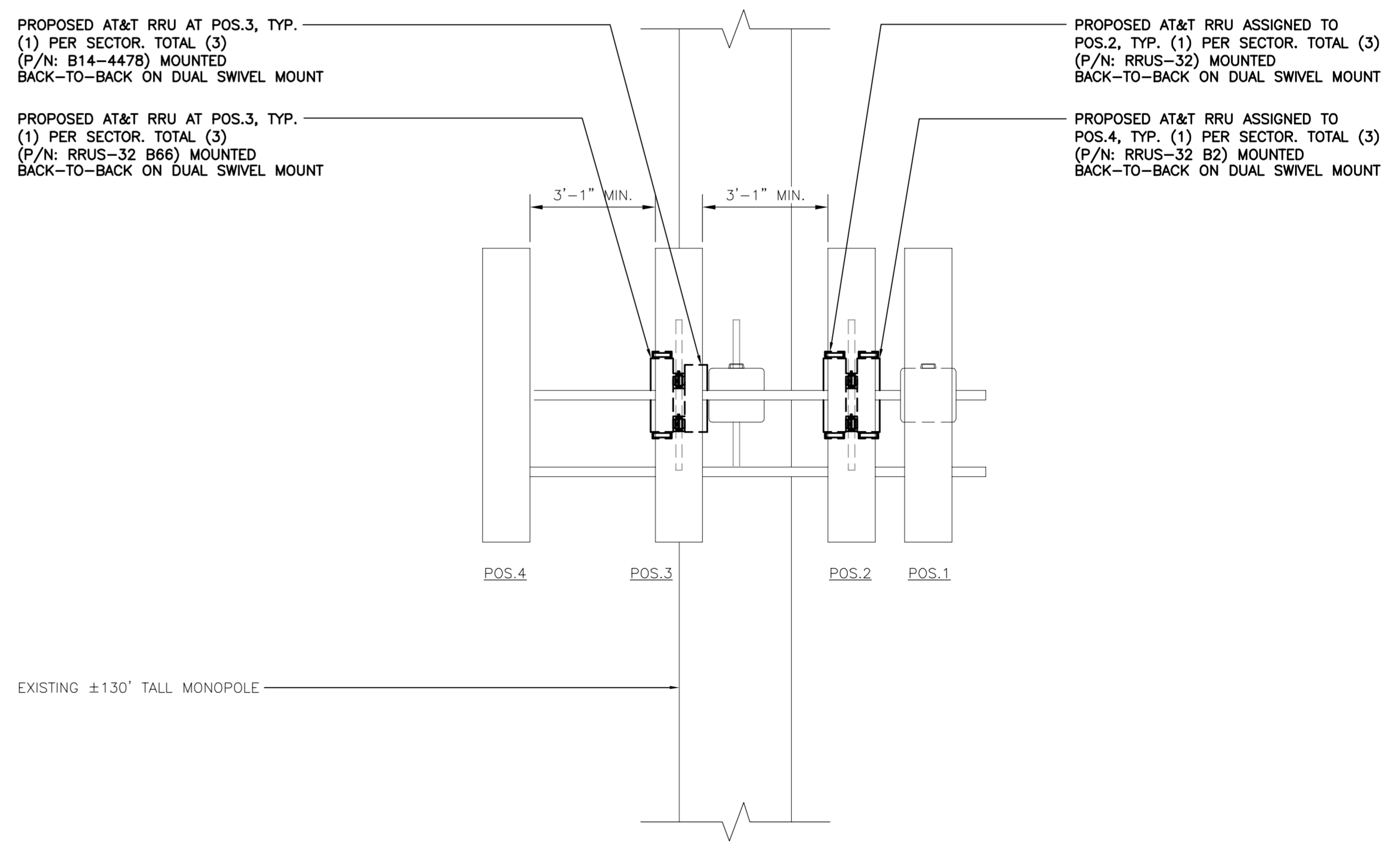
**1 EXISTING ANTENNA PLAN**  
 C-2 SCALE: 3/8" = 1'-0" TRUE NORTH



**2 PROPOSED ANTENNA PLAN**  
 C-2 SCALE: 3/8" = 1'-0" TRUE NORTH



**1A EXISTING ANTENNA ELEVATION**  
 C-2 SCALE: 3/8" = 1'-0"



**2A PROPOSED ANTENNA ELEVATION**  
 C-2 SCALE: 3/8" = 1'-0"

CONSTRUCTION DRAWINGS	ISSUED FOR CONSTRUCTION
DND	BY/CHK'D
TJR	DATE
0	05/10/18
REV.	

PROFESSIONAL ENGINEER SEAL

at&t  
 EMPIRE telecom

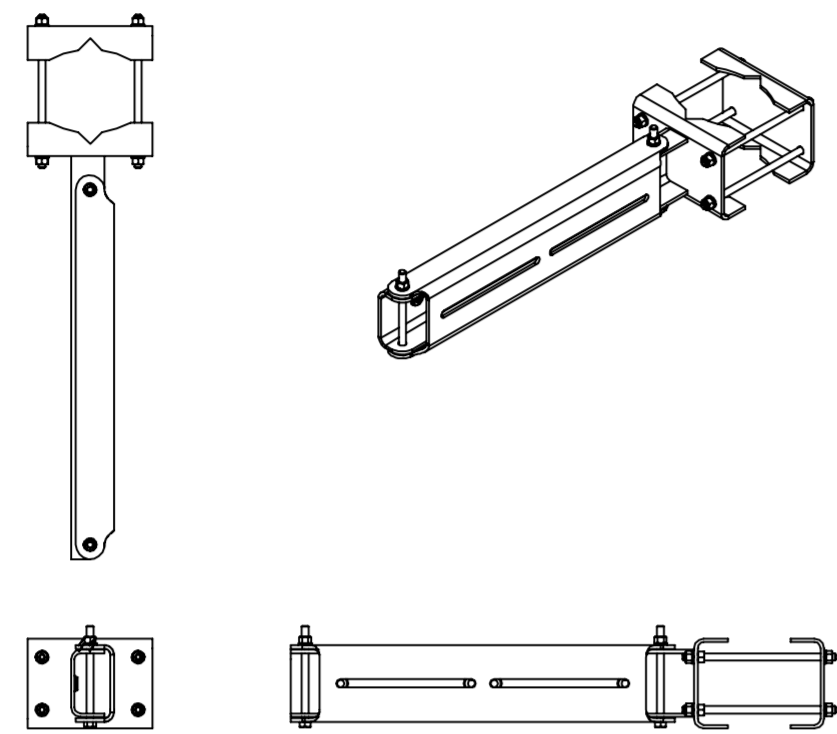
CENTEK engineering  
 Centered on Solutions™  
 (203) 488-0360  
 (203) 488-8387 Fax  
 632 North Branford Road  
 Branford, CT 06405  
 www.CentekEng.com

AT&T MOBILITY  
 WIRELESS COMMUNICATIONS FACILITY  
**EAST HARTFORD**  
 CT2419 - LTE 9C/4C/5C/4T4R RETROFIT/FireNet  
 148 ROBERTS STREET  
 EAST HARTFORD, CT 06118

DATE: 03/20/18  
 SCALE: AS NOTED  
 JOB NO. 17004.65

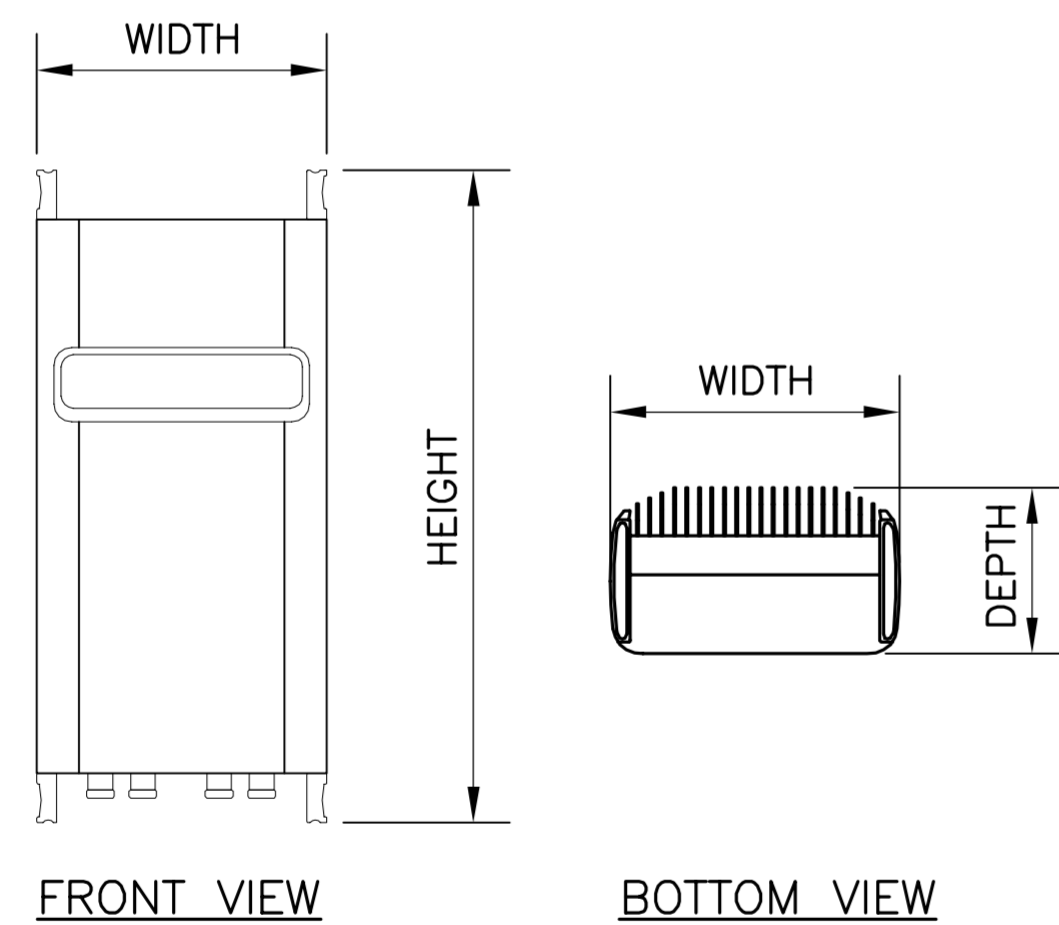
ANTENNA CONFIGURATION DETAILS

**C-2**  
 Sheet No. 4 of 8



RRU DUAL SWIVEL MOUNT			
EQUIPMENT	DIMENSIONS	WEIGHT	
MAKE: SITE PRO 1 PART NO.: RRUDSM	27.75"L x 6.5"W x 4.7"D	39.4 LBS.	

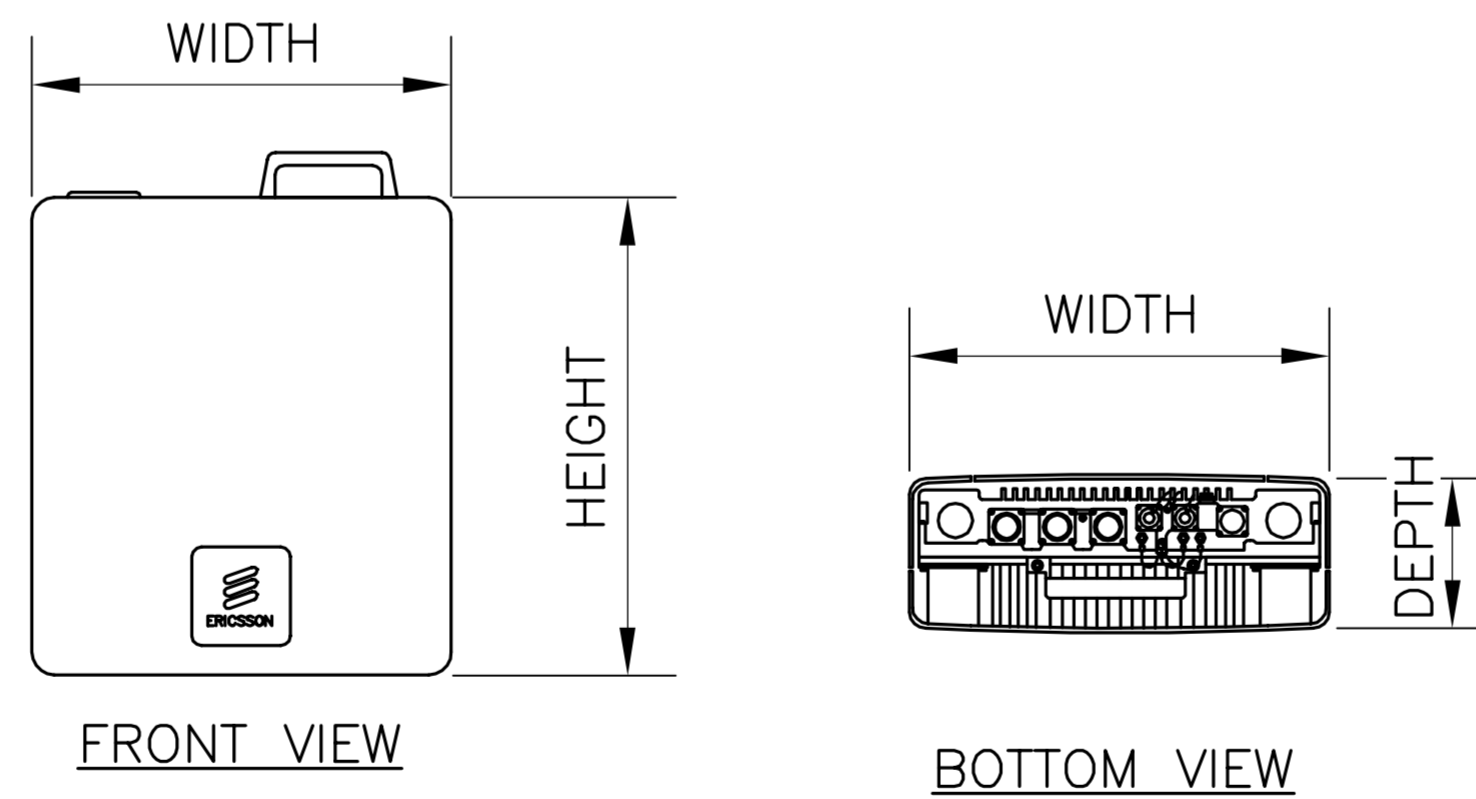
**1 RRH DUAL SWIVEL MOUNT DETAIL**  
C-3 NOT TO SCALE



RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: RRU 32	27.17"L x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.
MAKE: ERICSSON MODEL: RRU 32 B2	27.17"L x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.
MAKE: ERICSSON MODEL: RRU 32 B66	27.17"L 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.

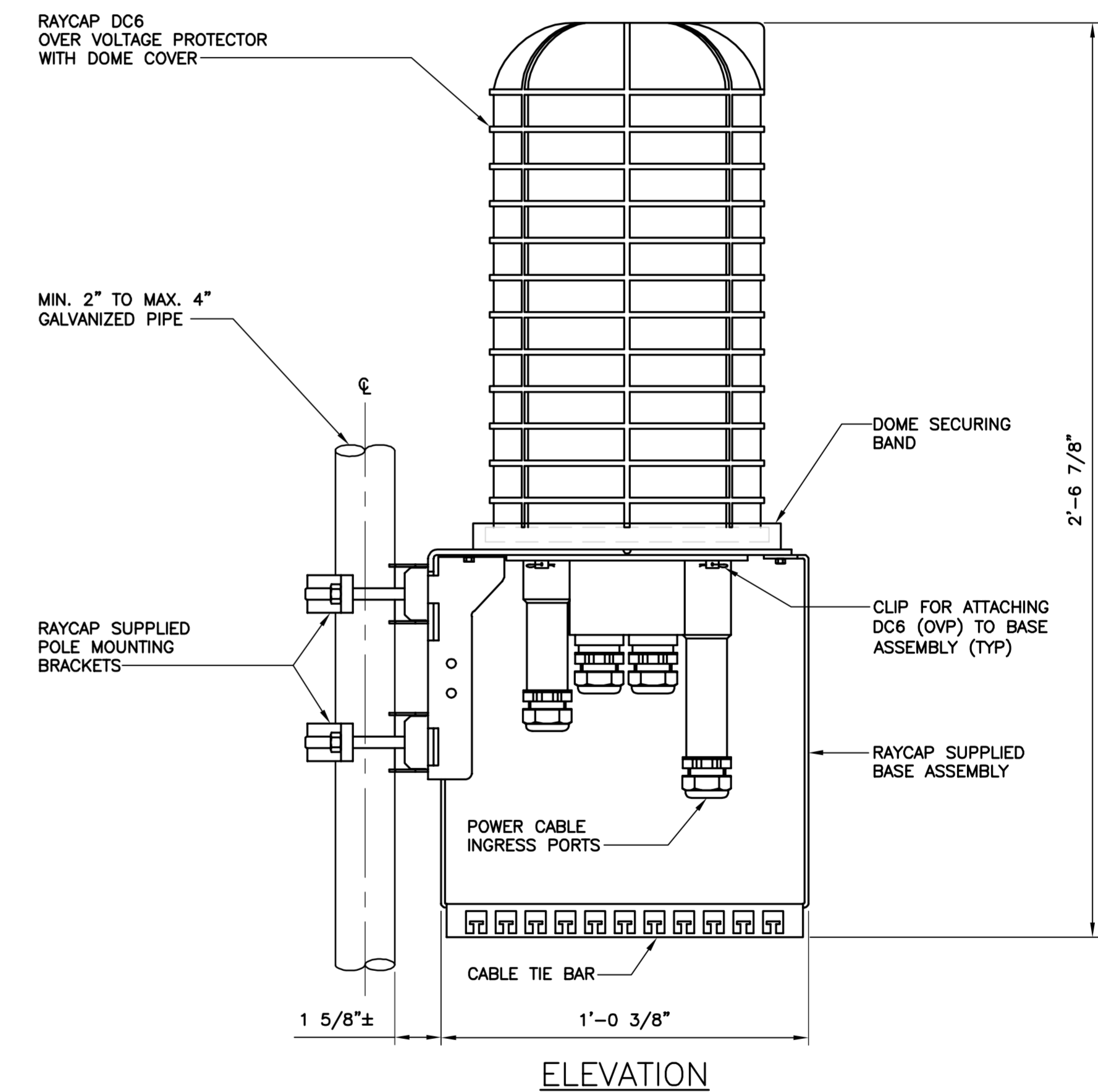
**2 ERICSSON RRU 32 DETAIL**  
C-3 NOT TO SCALE



RRU (REMOTE RADIO UNIT)			
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES
MAKE: ERICSSON MODEL: B14 4478	14.9"L x 13.1"W x 7.3"D	60 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.

**3 ERICSSON B14 4478 DETAIL**  
C-3 NOT TO SCALE



SITE TYPE	ARRESTOR MAKE/MODEL	QTY REQUIRED	ARRESTOR LOCATION	WEIGHT
	MAKE: RAYCAP (SQUID) MODEL: DC6-48-60-0-8F	(1) PER SITE	TOWER, ADJACENT TO AT&T ANTENNAS AND RRUs.	20 LBS. (WITHOUT MOUNT)

NOTES:  
1. CONTRACTOR TO COORDINATE FINAL SURGE ARRESTOR MODEL SELECTION(S) WITH AT&T CONSTRUCTION MANAGER PRIOR TO ORDERING.  
2. CONTRACTOR TO INSTALL ARRESTOR IN CONFORMANCE WITH MANUFACTURERS RECOMMENDATIONS.  
3. RAYCAP VIA AT&T SUPPLIES THE DC6 OVER VOLTAGE PROTECTOR AND PIPE MOUNTING BRACKETS. SUBCONTRACTOR SHALL SUPPLY THE PIPE.

**4 TYPICAL DC SQUID DETAIL**  
C-3 NOT TO SCALE



**CENITEK** engineering  
Centered on Solutions™  
(203) 488-0360  
(203) 488-8387 Fax  
63.2 North Branford Road  
Branford, CT 06405  
www.CenitekEng.com

**AT&T MOBILITY**  
WIRELESS COMMUNICATIONS FACILITY  
**EAST HARTFORD**  
CT2419 - LTE 9C/4C/5C/4T4R RETROFIT/FireNet  
148 ROBERTS STREET  
EAST HARTFORD, CT 06118

DATE: 03/20/18  
SCALE: AS NOTED  
JOB NO. 17004.65

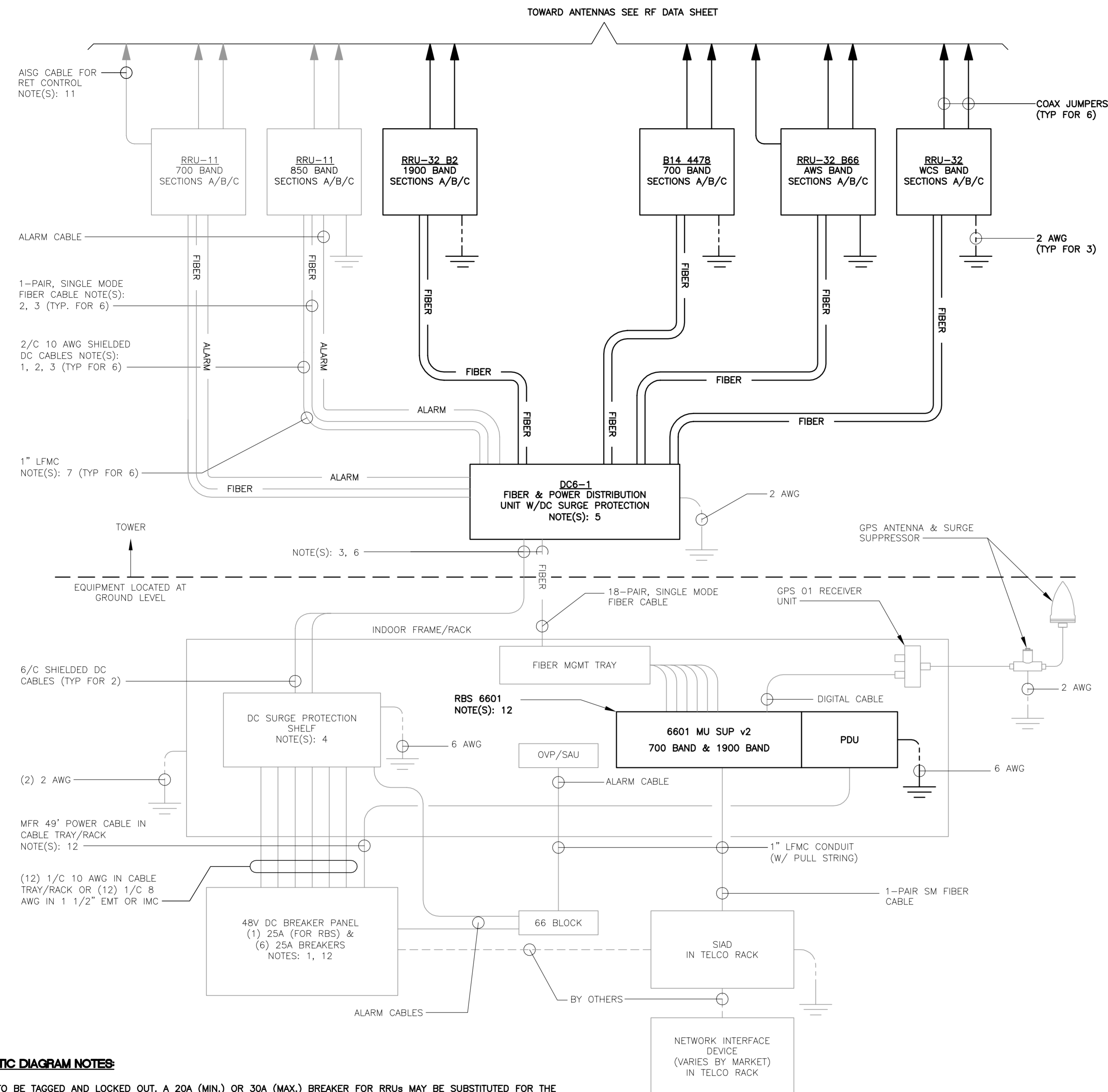
DETAILS

**C-3**  
Sheet No. 5 of 8

## 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).

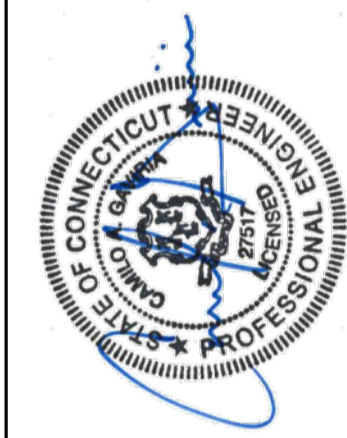
- TESTS BY INDEPENDENT ELECTRICAL TESTING FIRM**
- A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:
    - TEST 1: RESISTANCE TO GROUND TEST ON THE CELLULAR 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.



### 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 8 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.

REV.	DATE	DRAWN BY	CHK'D BY	DESCRIPTION
0	05/10/18	TJR	DMD	CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION



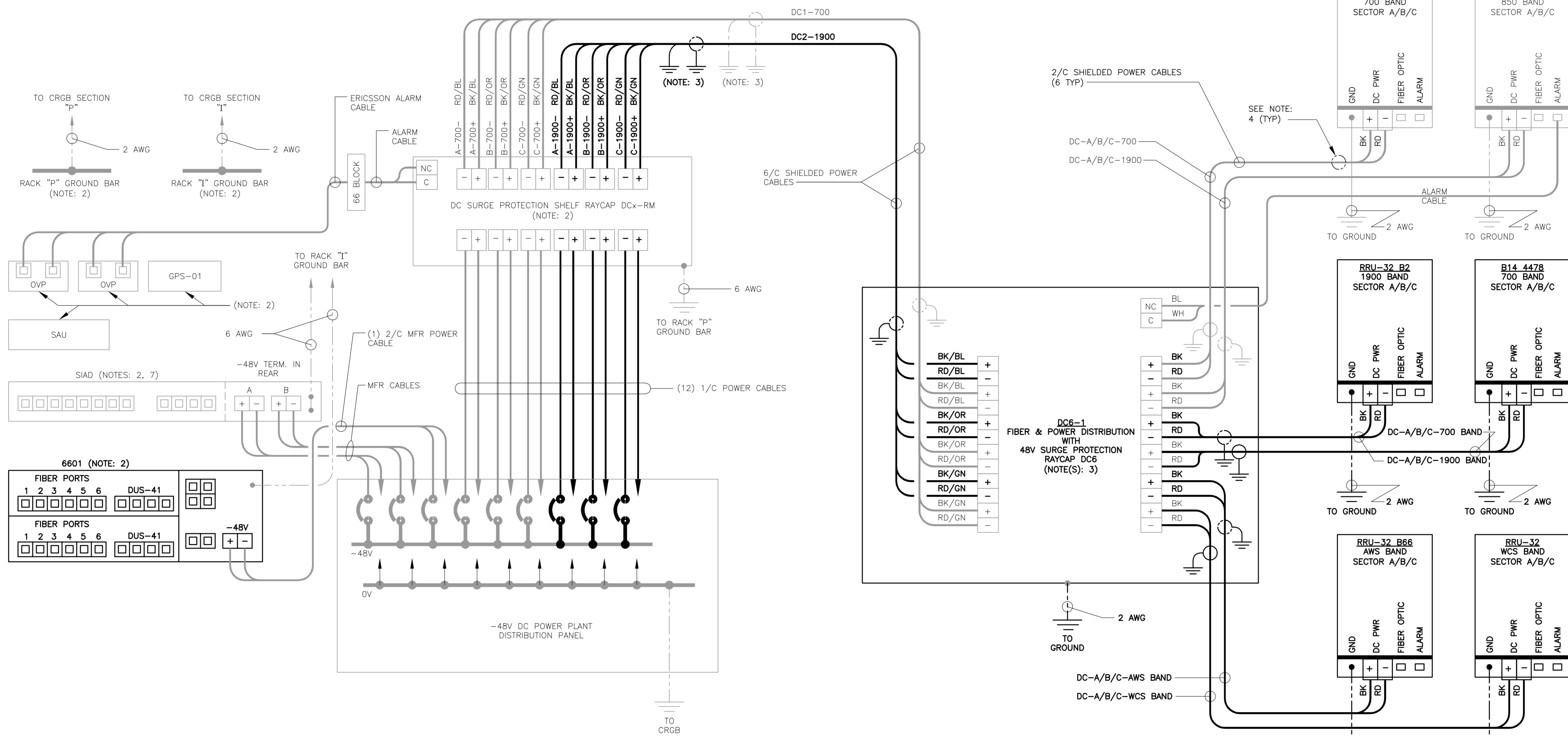
**CENTEX** engineering  
Centered on Solutions®  
 (203) 488-0360  
 (203) 488-8387 Fax  
 63-2 North Branford Road  
 Branford, CT 06405  
 www.CentexEng.com

**AT&T MOBILITY**  
 WIRELESS COMMUNICATIONS FACILITY  
**EAST HARTFORD**  
 CT2419 - LTE 3C/4C/5C/4T/4R RETROFIT/FireNet  
 148 ROBERTS STREET  
 EAST HARTFORD, CT 06118

DATE: 03/20/18  
 SCALE: AS NOTED  
 JOB NO. 17004.65

SCHEMATIC  
DIAGRAM  
AND NOTES





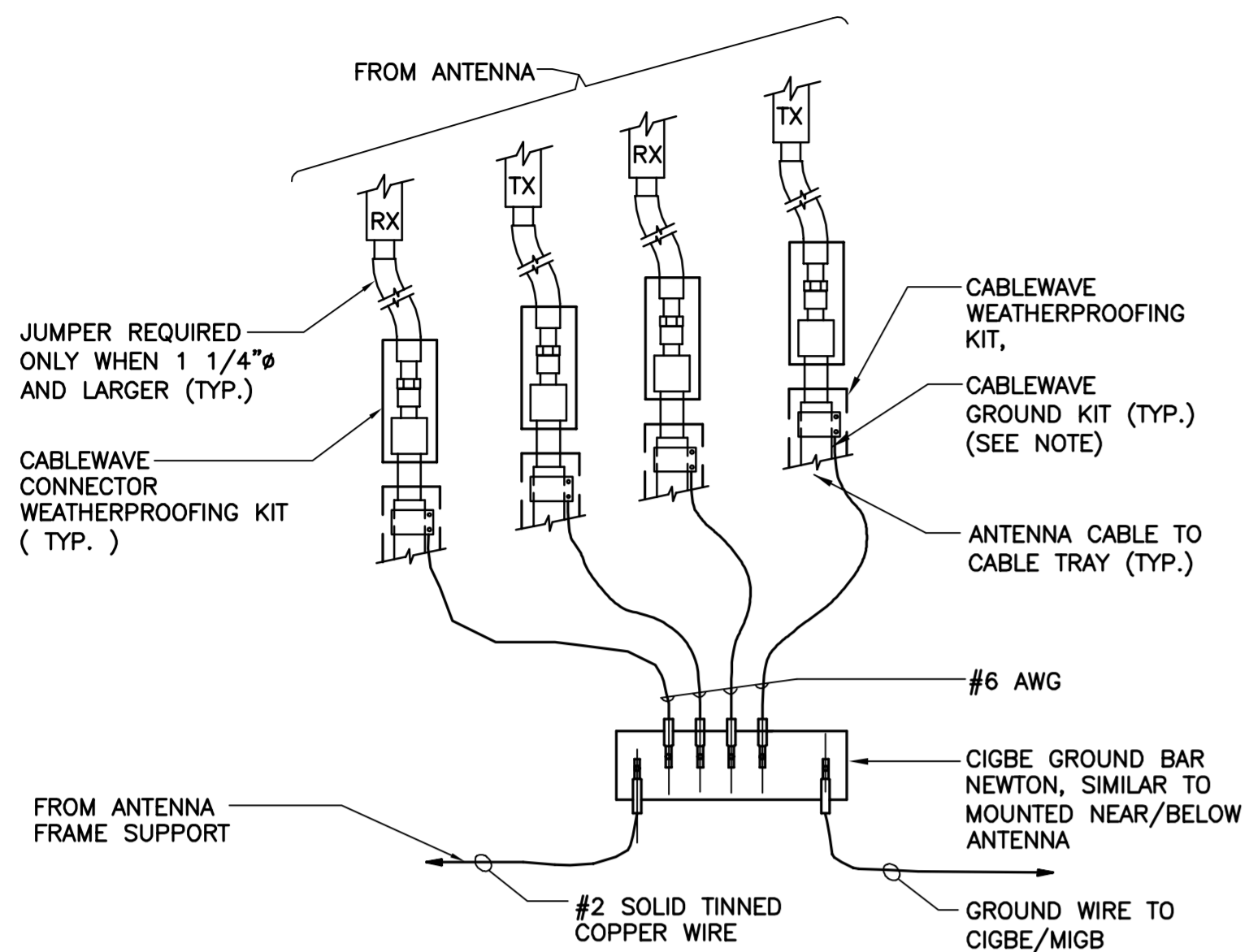
**LTE WIRING DIAGRAM NOTES:**

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.

**1** WIRING DIAGRAM  
E-2 NOT TO SCALE

PROFESSIONAL ENGINEER SEAL	
at&t	
EMPIRE telecom	
CENTEX engineering Centered on Solutions™	(203) 488-0360 (203) 488-8387 Fax 63.2 North Branford Road Branford, CT 06405 www.CentexEng.com
AT&T MOBILITY WIRELESS COMMUNICATIONS FACILITY <b>EAST HARTFORD</b> CT2419 - LTE 9C/4C/5C/4T4R RETROFIT/FireNet 148 ROBERTS STREET EAST HARTFORD, CT 06118	
DATE: 03/20/18	
SCALE: AS NOTED	
JOB NO. 17004.65	
WIRING DIAGRAM	
<b>E-2</b>	
Sheet No. 7 of 8	

REV. 0 05/10/18 TJR DATE DMD CONSTRUCTION DRAWINGS - ISSUED FOR CONSTRUCTION DRAWN BY/CHK'D BY/DESCRIPTION

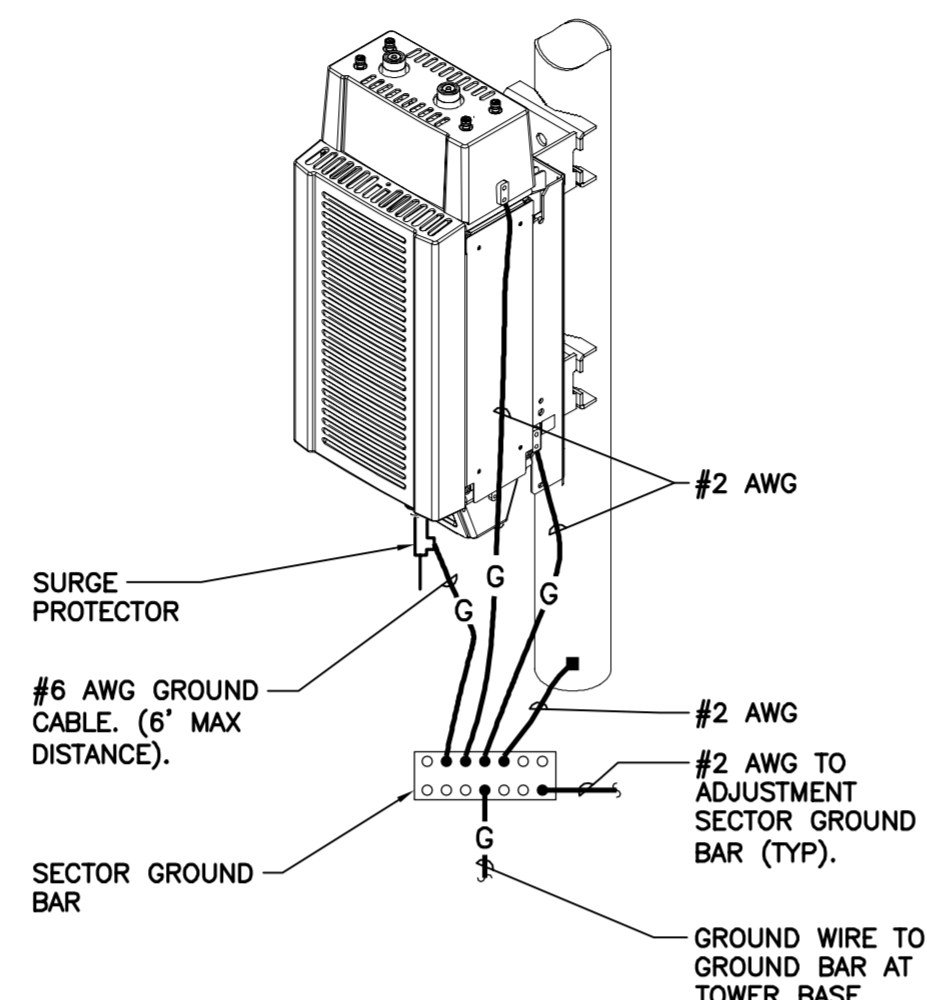


**NOTE:**

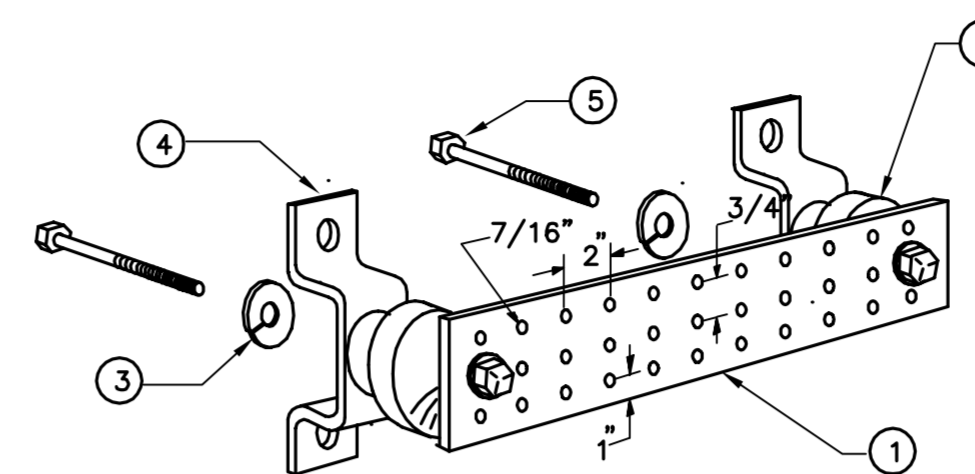
- DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO CIGBE

**1 CONNECTION OF GROUND WIRES TO GROUND BAR**  
E-3 NOT TO SCALE

EACH RRH CABINET SHALL BE GROUNDED IN THE FOLLOWING MANNER:  
1. AT TOP OF THE CABINET  
2. AT RIGHT SIDE OF THE CABINET.



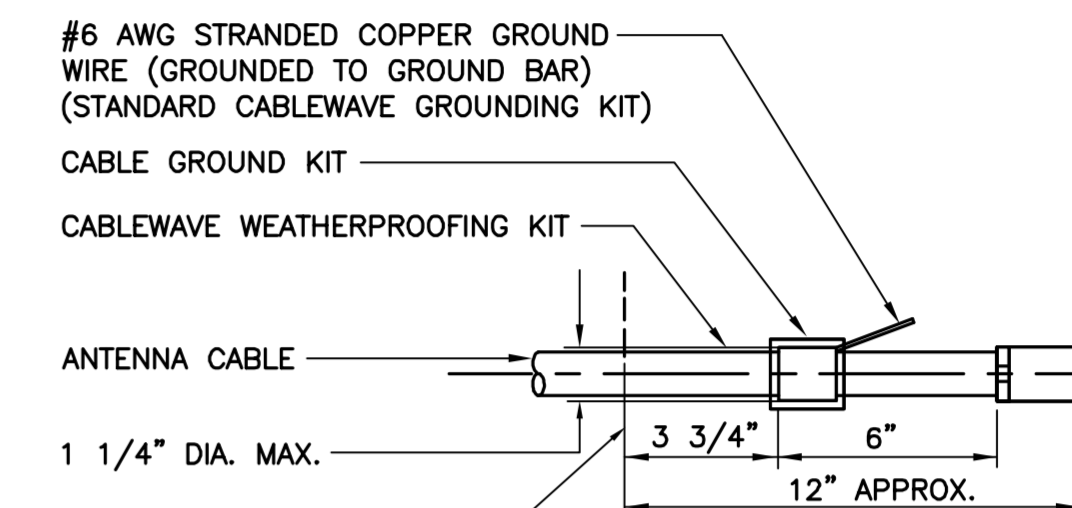
**2 RRU POLE MOUNT GROUNING**  
E-3 NOT TO SCALE



**LEGEND**

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

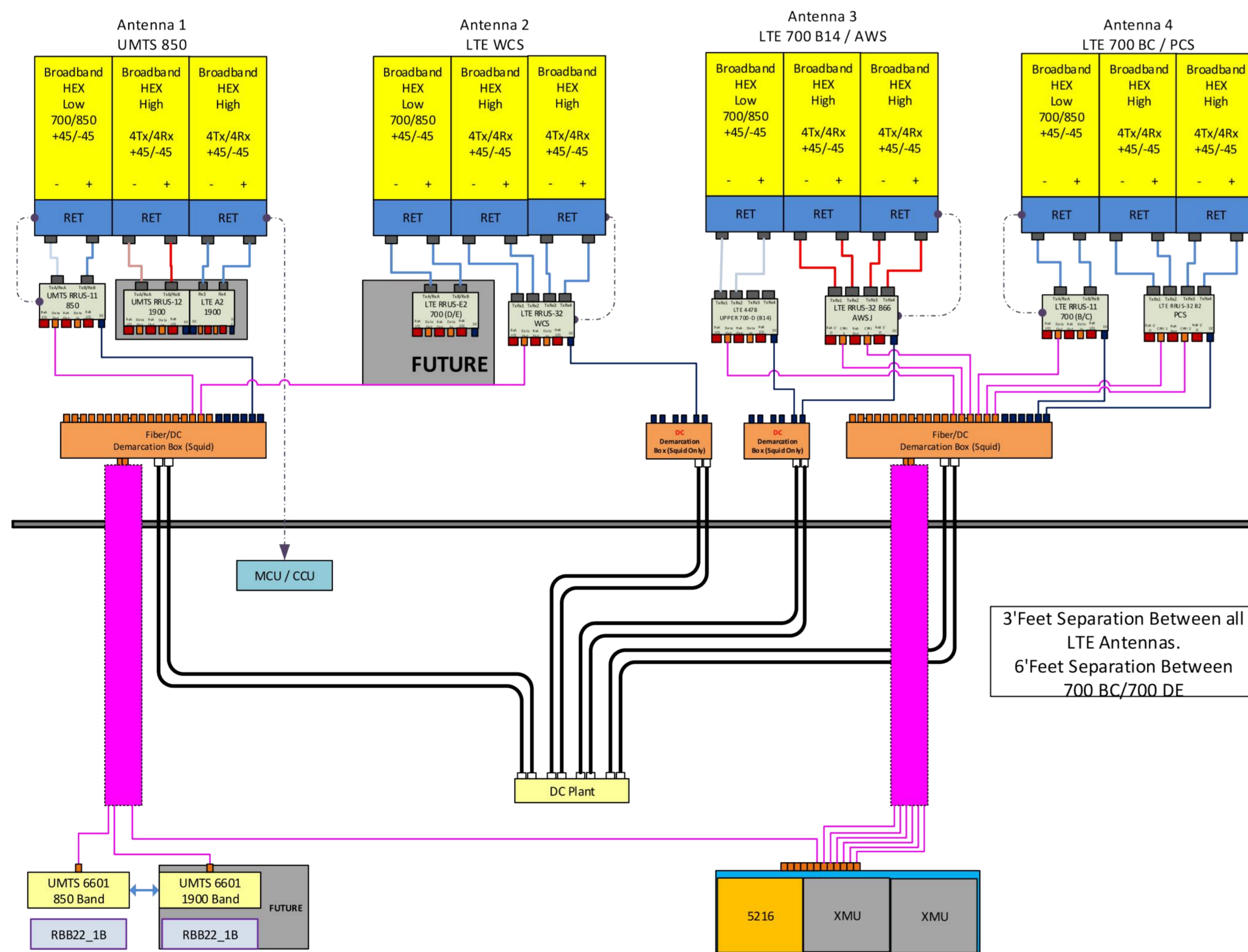
**3 GROUND BAR DETAIL**  
E-3 NOT TO SCALE



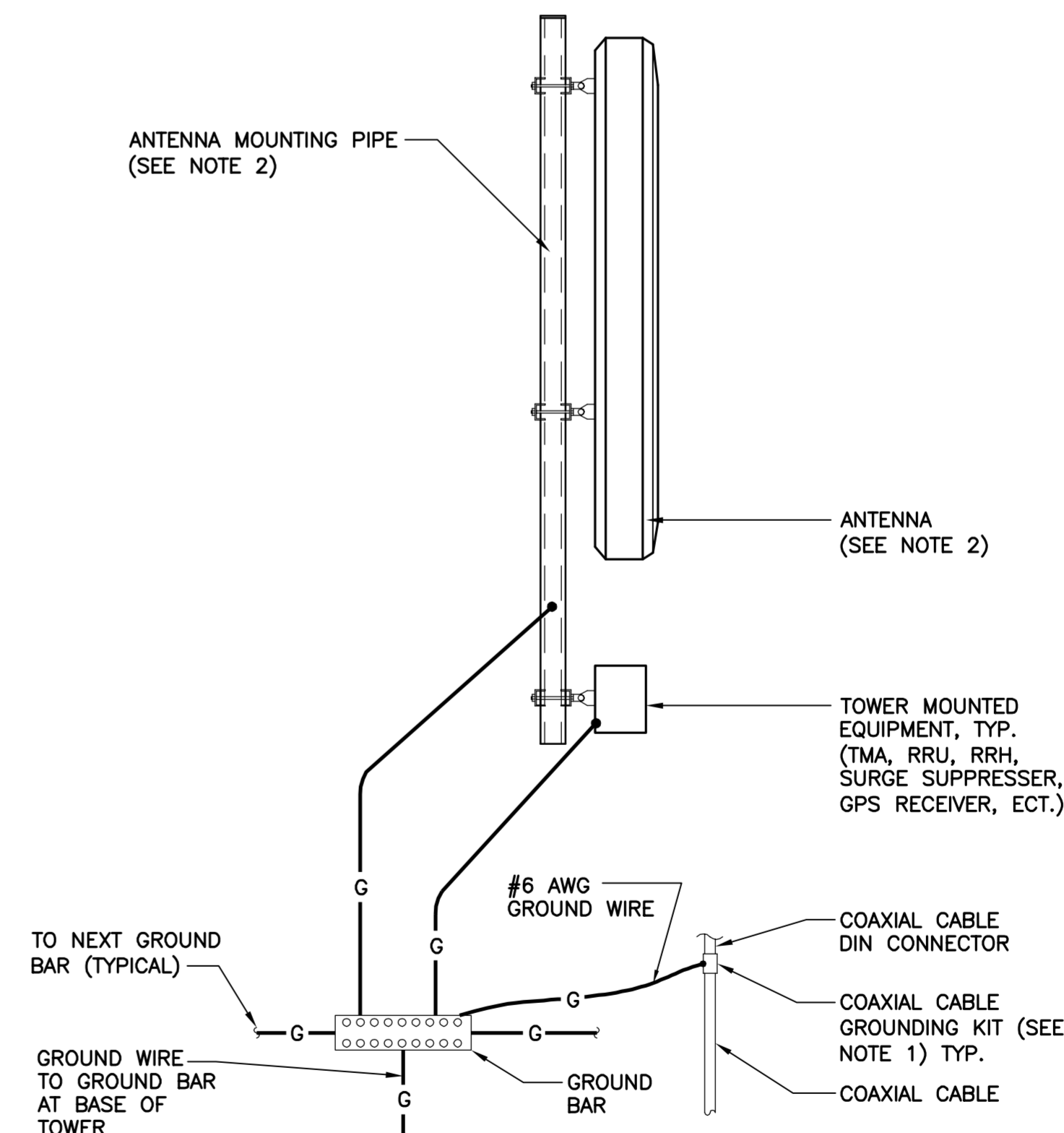
**NOTE:**

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

**4 ANTENNA CABLE GROUNING DETAIL**  
E-3 NOT TO SCALE



**5 RF PLUMBING DIAGRAM**  
E-3 NOT TO SCALE

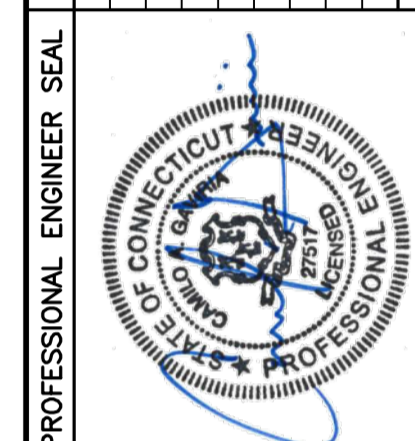


**NOTES:**

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

**6 TYPICAL ANTENNA GROUNING DETAIL**  
E-3 NOT TO SCALE

REV.	DATE	TJR	DMD	CONSTRUCTION DRAWINGS	ISSUED FOR CONSTRUCTION
0	05/10/18				



**CENTEX** engineering  
Centered on Solutions™  
(203) 488-0360  
(203) 488-8387 Fax  
63-2 North Branford Road  
Branford, CT 06405  
www.CentexEng.com

**AT&T MOBILITY**  
WIRELESS COMMUNICATIONS FACILITY  
**EAST HARTFORD**  
CT2419 - LTE 9C/4C/5C/4T4R RETROFIT/FireNet  
148 ROBERTS STREET  
EAST HARTFORD, CT 06118

DATE: 03/20/18  
SCALE: AS NOTED  
JOB NO. 17004.65

TYPICAL ELECTRICAL DETAILS

**E-3**  
Sheet No. 8 of 8

# Exhibit 3



# Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT2419

FA#: 10552892

East Hartford\_148 Roberts

148 Roberts Street

East Hartford, CT 06118

**March 27, 2018**

**Centerline Communications Project Number: 950006-110**

Site Compliance Summary	
Compliance Status:	<b>COMPLIANT</b>
Site total MPE% of FCC general population allowable limit:	<b>28.17 %</b>



March 27, 2018

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

### Emissions Analysis for Site: **CT2419 – East Hartford\_148 Roberts**

Centerline Communications, LLC (“Centerline”) was directed to analyze the proposed AT&T facility located at **148 Roberts Street, East Hartford, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

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

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

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



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

Additional details can be found in FCC OET 65.



## CALCULATIONS

Calculations were performed for the proposed AT&T Wireless antenna facility located at **148 Roberts Street, East Hartford, 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
LTE	2300 MHz (WCS)	4	30
LTE	700 MHz (Band 14)	4	40
LTE	2100 MHz (AWS)	4	30
LTE	700 MHz	2	40
LTE	1900 MHz (PCS)	4	40

*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, 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) frequency bands. This is based on feedback from the carrier with regards to anticipated antenna selection. Maximum gain values for all antennas are listed in the Inventory and Power Data table below. The maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was used for all calculations. This value is a very conservative estimate as gain reductions for these particular antennas are typically much higher in this direction.

Sector	Antenna Number	Antenna Make / Model	Antenna Centerline (ft)
A	1	CCI HPA-65R-BUU-H8	90
A	2	CCI HPA-65R-BUU-H8	90
A	3	CCI HPA-65R-BUU-H8	90
A	4	CCI HPA-65R-BUU-H8	90
B	1	CCI HPA-65R-BUU-H8	90
B	2	CCI HPA-65R-BUU-H8	90
B	3	CCI HPA-65R-BUU-H8	90
B	4	CCI HPA-65R-BUU-H8	90
C	1	CCI HPA-65R-BUU-H8	90
C	2	CCI HPA-65R-BUU-H8	90
C	3	CCI HPA-65R-BUU-H8	90
C	4	CCI HPA-65R-BUU-H8	90

*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	CCI HPA-65R-BUU-H8	850 MHz	14.05	2	60	1,524.58	1.37
Antenna A2	CCI HPA-65R-BUU-H8	2300 MHz (WCS)	15.5	4	120	4,307.06	2.19
Antenna A3	CCI HPA-65R-BUU-H8	700 MHz / 2100 MHz (AWS)	13.15 / 15.25	8	280	7,324.19	5.65
Antenna A4	CCI HPA-65R-BUU-H8	700 MHz / 1900 MHz (PCS)	13.15 / 14.95	6	240	6,654.03	4.35
Sector A Composite MPE%							<b>13.57</b>
Antenna B1	CCI HPA-65R-BUU-H8	850 MHz	14.05	2	60	1,524.58	1.37
Antenna B2	CCI HPA-65R-BUU-H8	2300 MHz (WCS)	15.5	4	120	4,307.06	2.19
Antenna B3	CCI HPA-65R-BUU-H8	700 MHz / 2100 MHz (AWS)	13.15 / 15.25	8	280	7,324.19	5.65
Antenna B4	CCI HPA-65R-BUU-H8	700 MHz / 1900 MHz (PCS)	13.15 / 14.95	6	240	6,654.03	4.35
Sector B Composite MPE%							<b>13.57</b>
Antenna C1	CCI HPA-65R-BUU-H8	850 MHz	14.05	2	60	1,524.58	1.37
Antenna C2	CCI HPA-65R-BUU-H8	2300 MHz (WCS)	15.5	4	120	4,307.06	2.19
Antenna C3	CCI HPA-65R-BUU-H8	700 MHz / 2100 MHz (AWS)	13.15 / 15.25	8	280	7,324.19	5.65
Antenna C4	CCI HPA-65R-BUU-H8	700 MHz / 1900 MHz (PCS)	13.15 / 14.95	6	240	6,654.03	4.35
Sector C Composite MPE%							<b>13.57</b>

*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.

<b>Site Composite MPE%</b>	
<b>Carrier</b>	<b>MPE%</b>
AT&T – Max Sector Value	<b>13.57 %</b>
T-Mobile	6.66 %
Verizon Wireless	6.69 %
Clearwire	0.12 %
Sprint	1.13 %
<b>Site Total MPE %:</b>	<b>28.17 %</b>

*Table 4: All Carrier MPE Contributions*

AT&T Sector A Total:	13.57 %
AT&T Sector B Total:	13.57 %
AT&T Sector C Total:	13.57 %
<b>Site Total:</b>	<b>28.17 %</b>

*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 Max Power Values (Per Sector)	# Channels	Watts ERP (Per Channel)	Height (feet)	Total Power Density ( $\mu\text{W}/\text{cm}^2$ )	Frequency (MHz)	Allowable MPE ( $\mu\text{W}/\text{cm}^2$ )	Calculated % MPE
AT&T 850 MHz UMTS (Antenna 1)	2	762.29	90	7.77	850 MHz	567	1.37%
AT&T 2300 MHz (WCS) LTE (Antenna 2)	4	1,076.77	90	21.94	2300 MHz (WCS)	1000	2.19%
AT&T 700 MHz LTE - Band 14 (Antenna 3)	4	826.15	90	16.84	700 MHz	467	3.61%
AT&T 2100 MHz (AWS) LTE (Antenna 3)	4	1,004.90	90	20.48	2100 MHz (AWS)	1000	2.05%
AT&T 700 MHz LTE (Antenna 4)	2	826.15	90	8.42	700 MHz	467	1.80%
AT&T 1900 MHz (PCS) LTE (Antenna 4)	4	1,250.43	90	25.48	1900 MHz (PCS)	1000	2.55%
						<b>Total:</b>	<b>13.57%</b>

*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:	13.57 %
Sector B:	13.57 %
Sector C:	13.57 %
AT&T Maximum Total (per sector):	13.57 %
Site Total:	28.17 %
Site Compliance Status:	<b>COMPLIANT</b>

The anticipated composite MPE value for this site assuming all carriers present is **28.17 %** 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.

A handwritten signature in black ink, appearing to read 'Scott Heffernan', is positioned above the printed name.

Scott Heffernan  
RF Engineering Director  
**Centerline Communications, LLC**  
95 Ryan Drive, Suite 1  
Raynham, MA 02767

# Exhibit 4



**AMERICAN TOWER®**  
CORPORATION

---

## Structural Analysis Report

**Structure** : 130 ft Monopole  
**ATC Site Name** : East Hartford, CT  
**ATC Site Number** : 370626  
**Engineering Number** : OAA722890\_C3\_01  
**Proposed Carrier** : AT&T Mobility  
**Carrier Site Name** : CT2419 East Hartford Roberts St.  
**Carrier Site Number** : CT2419  
**Site Location** : 148 Roberts St.  
East Hartford, CT 06108-0000  
41.773300,-72.613400  
**County** : Hartford  
**Date** : January 26, 2018  
**Max Usage** : 70%  
**Result** : Pass

Prepared By:  
Garret D. Heath  
Structural Engineer I

Reviewed By:

**COA: PEC.0001553**



**Table of Contents**

Introduction .....	1
Supporting Documents .....	1
Analysis .....	1
Conclusion.....	1
Existing and Reserved Equipment.....	2
Equipment to be Removed.....	2
Proposed Equipment .....	3
Structure Usages .....	3
Foundations .....	3
Deflection and Sway .....	3
Standard Conditions .....	4
Calculations .....	Attached



## Introduction

The purpose of this report is to summarize results of a structural analysis performed on the 130 ft monopole to reflect the change in loading by AT&T Mobility.

## Supporting Documents

<b>Tower Drawings</b>	Glen Martin Engineering Drawing #MP1400800-0001, dated August 20, 2003
<b>Foundation Drawing</b>	Glen Martin Engineering Drawing #GME-03309, dated August 26, 2003
<b>Geotechnical Report</b>	Geotechnical Engineering Project Name: The Marcus Group, dated April 25, 2003

## Analysis

The tower was analyzed using American Tower Corporation's tower analysis software. This program considers an elastic three-dimensional model and second-order effects per ANSI/TIA-222.

<b>Basic Wind Speed:</b>	97 mph (3-Second Gust, Vasd) / 125 mph (3-second Gust, Vult)
<b>Basic Wind Speed w/ Ice:</b>	50 mph (3-Second Gust) w/ 1" radial ice concurrent
<b>Code:</b>	ANSI/TIA-222-G / 2012 IBC / 2016 Connecticut State Building Code
<b>Structure Class:</b>	II
<b>Exposure Category:</b>	B
<b>Topographic Category:</b>	1
<b>Crest Height:</b>	0 ft
<b>Spectral Response:</b>	$S_s = 0.18, S_1 = 0.06$
<b>Site Class:</b>	D - Stiff Soil

## Conclusion

Based on the analysis results, the structure meets the requirements per the applicable codes listed above. The tower and foundation can support the equipment as described in this report.

If you have any questions or require additional information, please contact American Tower via email at [Engineering@americantower.com](mailto:Engineering@americantower.com). Please include the American Tower site name, site number, and engineering number in the subject line for any questions.





**Existing and Reserved Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
128.0	129.0	3	DragonWave Horizon Compact	Side Arms	(2) 2" Conduit (3) 1/2" Coax (3) 1 5/8" Fiber (3) 5/8" Coax (1) 1 1/4" Hybriflex	Clearwire
		3	DragonWave A-ANT-18G-2-C			
		3	KMW ETCR-654L12H6			
	128.0	6	Alcatel-Lucent RRH2x50-08			
		3	Alcatel-Lucent 1900MHz 4x45 RRH			
		3	Alcatel-Lucent TD-RRH8x20-25 w/ Solar Shield			
118.0	118.0	3	Nokia AirScale RRH 4T4R B5 160W AHCA	Platform w/ Handrails	(6) 1 5/8" Coax (2) 1 5/8" Fiber	Verizon
		3	Alcatel-Lucent RRH2x60 700			
		3	Alcatel-Lucent PCS B25 RRH2x60/4x30			
		3	Alcatel-Lucent RRH4X45-B66 w/ Solar Shield			
		3	Andrew DB844G65ZAXY			
		2	RFS DB-T1-6Z-8AB-0Z			
		3	Antel BXA-70063-6CF-EDIN-X			
		6	Commscope JAHH-65B-R3B			
109.0	109.0	9	48" x 12" Panel	Low Profile Platform	(9) 1 5/8" Coax	Sprint Nextel
98.0	98.0	3	Ericsson AIR 21, 1.3M, B2A B4P	T-Arms	(12) 7/8" Coax (2) 1 5/8" Hybriflex	Metro PCS
		3	Ericsson AIR-32 B2A/B66Aa			
90.0	90.0	2	Raycap DC6-48-60-18-8F	Platform w/ Handrails	(3) 1/2" Coax	AT&T Mobility
		3	Ericsson RRUS-32 (77 lbs)			
		6	Ericsson RRUS-11			
		12	CCI HPA-65R-BUU-H8			
70.0	70.0	1	2' Std. Dish	Leg	(1) 1 5/8" Coax	Sprint Nextel
50.0	50.0	1	GPS	Side Arm	(1) 1/2" Coax	

**Equipment to be Removed**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
90.0	90.0	2	Raycap DC6-48-60-18-8F	-	(3) 1/2" Coax (8) 0.76" 8 AWG 6 (2) 0.35" Fiber	AT&T Mobility
		9	Ericsson RRUS 12 w/ Solar Shield			
		6	Ericsson RRUS A2 Module			
		3	Ericsson RRUS-32			
		3	Ericsson RRUS-11			
		12	CCI HPA-65R-BUU-H8			



**Proposed Equipment**

Elevation <sup>1</sup> (ft)		Qty	Antenna	Mount Type	Lines	Carrier
Mount	RAD					
90.0	90.0	2	Raycap DC6-48-60-0-8F	Platform w/ Handrails	(8) 0.78" 8 AWG 6 (2) 0.39" Fiber Trunk	AT&T Mobility
		3	Ericsson RRUS 4478 B14			
		3	Ericsson RRUS 32 B2			
		3	Ericsson RRUS 32 B66			
		3	Ericsson RRUS E2 B29			

<sup>1</sup>Mount elevation is defined as height above bottom of steel structure to the bottom of mount, RAD elevation is defined as center of antenna above ground level (AGL).

Install proposed coax inside the pole shaft.

**Structure Usages**

Structural Component	Controlling Usage	Pass/Fail
Anchor Bolts	47%	Pass
Shaft	64%	Pass
Base Plate	47%	Pass
Flanges	17%	Pass

**Foundations**

Reaction Component	Analysis Reactions	% of Usage
Moment (Kips-Ft)	2,472.5	63%
Axial (Kips)	41.1	70%
Shear (Kips)	26.8	19%

The structure base reactions resulting from this analysis were found to be acceptable through analysis based on geotechnical and foundation information, therefore no modification or reinforcement of the foundation will be required.

**Deflection and Sway\***

Antenna Elevation (ft)	Antenna	Carrier	Deflection (ft)	Sway (Rotation) (°)
90.0	Raycap DC6-48-60-0-8F	AT&T Mobility	0.688	0.883
	Ericsson RRUS 4478 B14			
	Ericsson RRUS 32 B2			
	Ericsson RRUS 32 B66			
	Ericsson RRUS E2 B29			
70.0	2' Std. Dish	Sprint Nextel	0.411	0.697

\*Deflection and Sway was evaluated considering a design wind speed of 60 mph (3-Second Gust) per ANSI/TIA-222-G



## **Standard Conditions**

All engineering services performed by A.T. Engineering Service, PLLC are prepared on the basis that the information used is current and correct. This information may consist of, but is not limited to the following:

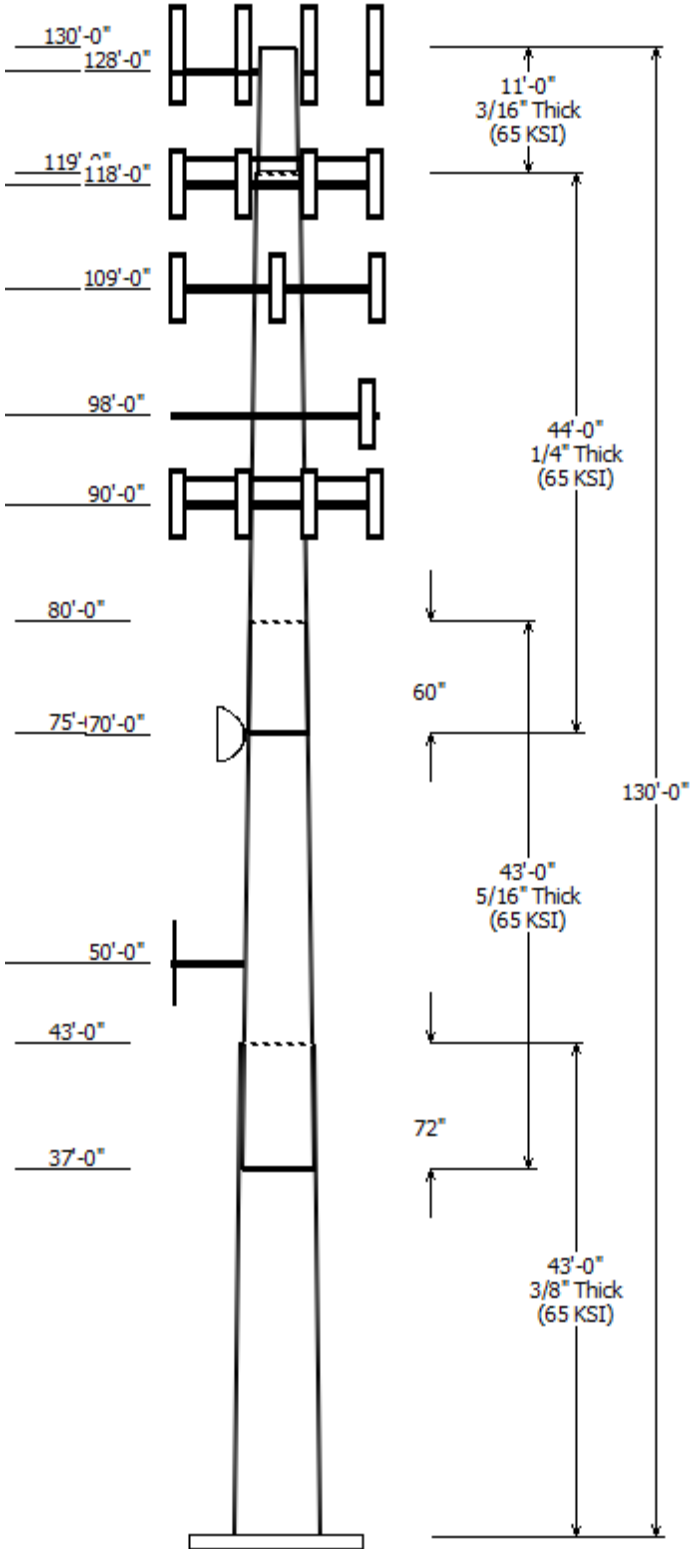
- Information supplied by the client regarding antenna, mounts and feed line loading
- Information from drawings, design and analysis documents, and field notes in the possession of A.T. Engineering Service, PLLC

It is the responsibility of the client to ensure that the information provided to A.T. Engineering Service, PLLC and used in the performance of our engineering services is correct and complete.

All assets of American Tower Corporation, its affiliates and subsidiaries (collectively "American Tower") are inspected at regular intervals. Based upon these inspections and in the absence of information to the contrary, American Tower assumes that all structures were constructed in accordance with the drawings and specifications.

Unless explicitly agreed by both the client and A.T. Engineering Service, PLLC, all services will be performed in accordance with the current revision of ANSI/TIA-222.

All services are performed, results obtained, and recommendations made in accordance with generally accepted engineering principles and practices. A.T. Engineering Service, PLLC is not responsible for the conclusions, opinions and recommendations made by others based on the information supplied herein.

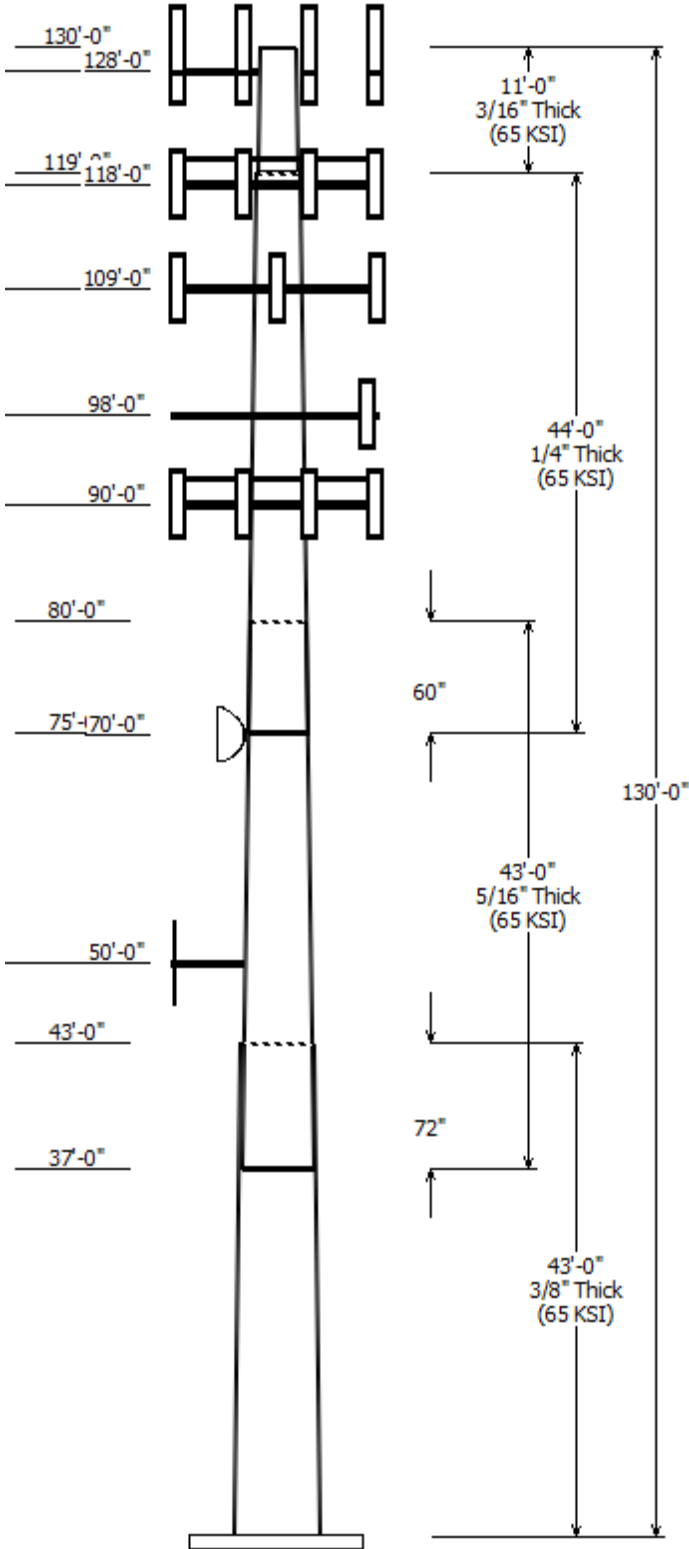


Job Information	
Pole : 370626	Code: ANSI/TIA-222-G
Location : East Hartford, CT	
Description : 130 ft. Monopole	
Client : AT&T MOBILITY	Struct Class : II
Shape : 16 Sides	Exposure : B
Height : 130.00 (ft)	Topo : 1
Base Elev (ft): 0.00	
Taper: 0.23319in/ft)	

Sections Properties							
Shaft Section	Length (ft)	Diameter (in)		Thick (in)	Joint Type	Overlap Length (in)	Steel Grade
		Across Flats Top	Across Flats Bottom				
1	43.000	39.16	49.19	0.375		0.000	16 Sides 65
2	43.000	31.16	41.18	0.313	Slip Joint	72.000	16 Sides 65
3	44.000	22.56	32.82	0.250	Slip Joint	60.000	16 Sides 65
4	11.000	20.00	22.56	0.188	Butt Joint	0.000	16 Sides 65

Discrete Appurtenance			
Attach Elev (ft)	Force Elev (ft)	Qty	Description
128.000	129.000	3	KMW ETCR-654L12H6
128.000	128.000	3	Alcatel-Lucent TD-RRH8x20-25
128.000	128.000	3	Alcatel-Lucent 1900 MHz 4x45
128.000	128.000	6	Alcatel-Lucent RRH2x50-08
128.000	129.000	3	DragonWave A-ANT-18G-2-C
128.000	129.000	3	DragonWave Horizon Compact
128.000	128.000	1	Side Arms
118.000	118.000	6	Commscope JAHH-65B-R3B
118.000	118.000	3	Nokia AirScale RRH 4T4R B5 160
118.000	118.000	1	Round Platform w/ Handrails
118.000	118.000	3	Antel BXA-70063-6CF-EDIN-X
118.000	118.000	2	RFS DB-T1-6Z-8AB-0Z
118.000	118.000	3	Andrew DB844G65ZAXY
118.000	118.000	3	Alcatel-Lucent RRH4X45-B66
118.000	118.000	3	Alcatel-Lucent PCS B25
118.000	118.000	3	Alcatel-Lucent RRH2x60 700
109.000	109.000	1	Round Low Profile Platform
109.000	109.000	9	48" x 12" Panel
98.000	98.000	3	Round T-Arm
98.000	98.000	3	Ericsson AIR-32 B2A/B66Aa
98.000	98.000	3	Ericsson AIR 21, 1.3M, B2A B4P
90.000	90.000	3	Ericsson RRUS E2 B29
90.000	90.000	3	Ericsson RRUS 32 B66
90.000	90.000	3	Ericsson RRUS 32 B2
90.000	90.000	3	Ericsson RRUS 4478 B14
90.000	90.000	2	Raycap DC6-48-60-0-8F
90.000	90.000	1	Round Platform w/ Handrails
90.000	90.000	12	CCI HPA-65R-BUU-H8
90.000	90.000	6	Ericsson RRUS-11
90.000	90.000	3	Ericsson RRUS-32 (77 lbs)
90.000	90.000	2	Raycap DC6-48-60-18-8F
70.000	70.000	1	2' Std. Dish
50.000	50.000	1	GPS
50.000	50.000	1	Flat Side Arm

Linear Appurtenance			
Elev (ft)	From To		Exposed To Wind
	From	To	
0.000	50.000	1/2" Coax	No
0.000	70.000	1 5/8" Coax	No
0.000	90.000	0.39" (10mm)	No



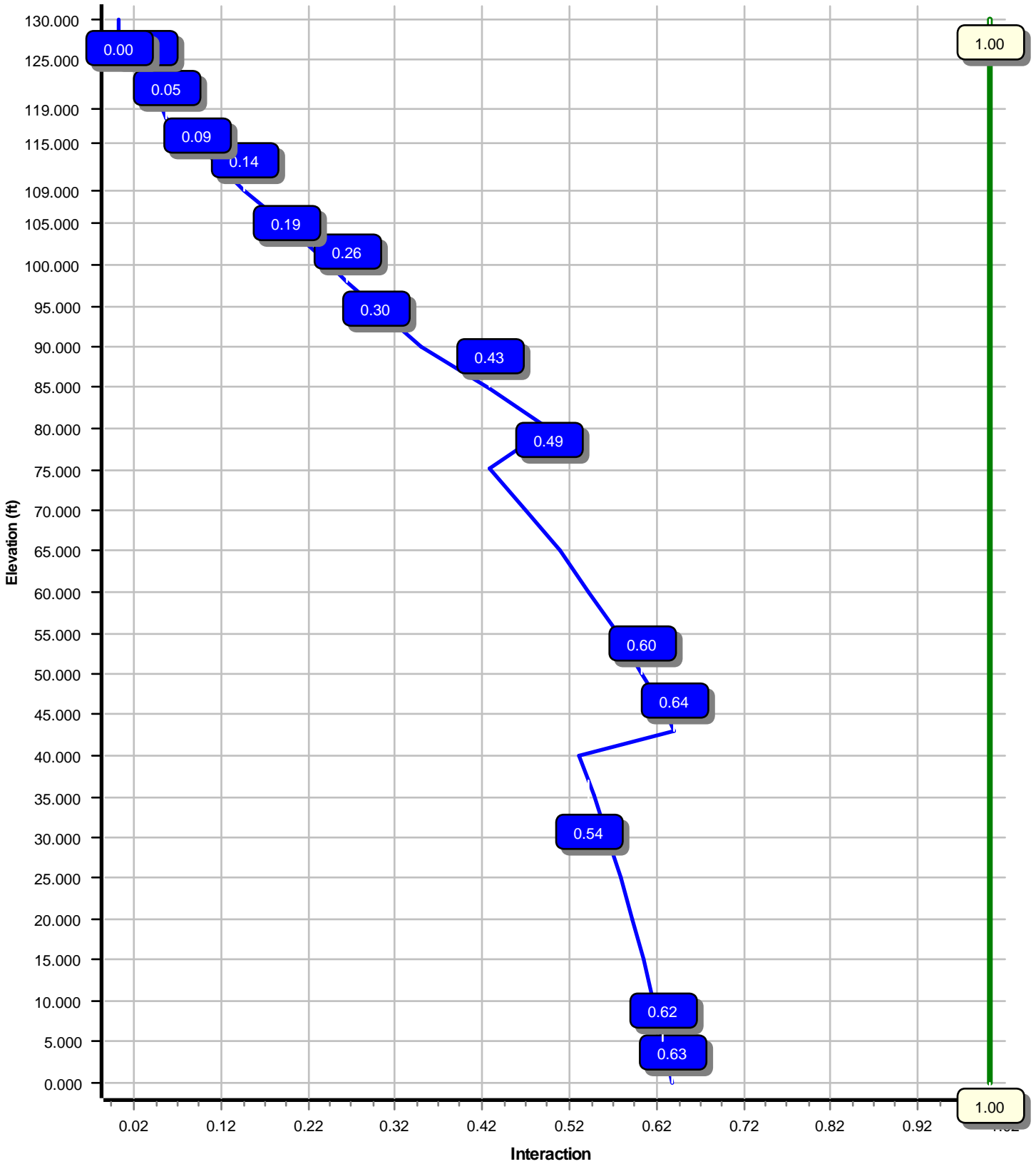
0.000	90.000	0.78" (19.7mm) 8	No
0.000	90.000	1/2" Coax	No
0.000	98.000	1 5/8" Hybriflex	Yes
0.000	98.000	1 5/8" Hybriflex	Yes
0.000	98.000	7/8" Coax	No
0.000	98.000	7/8" Coax	Yes
0.000	109.0	1 5/8" Coax	No
0.000	118.0	1 5/8" Coax	Yes
0.000	118.0	1 5/8" Fiber	Yes
0.000	128.0	1 1/4" Hybriflex	No
0.000	128.0	1 5/8" Fiber	No
0.000	128.0	1/2" Coax	No
0.000	128.0	2" Conduit	No
0.000	128.0	5/8" Coax	No

Load Cases	
1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2Sds) * DL + E	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Lateral
(0.9 - 0.2Sds) * DL + E	Seismic (Reduced DL) Equivalent Modal
1.0D + 1.0W	Serviceability 60 mph

Reactions			
Load Case	Moment (kip-ft)	Shear (kip)	Axial (kip)
1.2D + 1.6W	2472.54	26.81	40.42
0.9D + 1.6W	2372.57	25.84	30.31
1.2D + 1.0Di + 1.0Wi	660.94	6.84	83.37
(1.2 + 0.2Sds) * DL + E ELFM	115.01	1.12	40.29
(1.2 + 0.2Sds) * DL + E EMAM	128.21	1.25	40.29
(0.9 - 0.2Sds) * DL + E ELFM	113.54	1.12	28.03
(0.9 - 0.2Sds) * DL + E EMAM	126.42	1.25	28.03
1.0D + 1.0W	569.76	6.18	33.72

Dish Deflections			
Load Case	Attach Elev (ft)	Deflection (in)	Rotation (deg)
1.0D + 1.0W	70.00	4.936	0.697

Load Case : 1.2D + 1.6W  
Max Ratio 63.85% at 43.0 ft



Site Number: 370626

Code: ANSI/TIA-222-G

© 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:14:47 PM

Customer: AT&T MOBILITY

Analysis Parameters

Location :	HARTFORD County, CT	Height (ft) :	130
Code :	ANSI/TIA-222-G	Base Diameter (in) :	49.19
Shape :	16 Sides	Top Diameter (in) :	20.00
Pole Type :	Taper	Taper (in/ft) :	0.233
Pole Manufacturer :	Glen Martin	Rotation (deg) :	0.00

Ice & Wind Parameters

Structure Class:	II	Design Wind Speed Without Ice:	97 mph
Exposure Category:	B	Design Wind Speed With Ice:	50 mph
Topographic Category:	1	Operational Wind Speed:	60 mph
Crest Height:	0 ft	Design Ice Thickness:	1.00 in

Seismic Parameters

Analysis Method:	Equivalent Modal Analysis & Equivalent Lateral Force Methods		
Site Class:	D - Stiff Soil		
Period Based on Rayleigh Method (sec):	2.06		
T <sub>L</sub> (sec):	6	p:	1
S <sub>s</sub> :	0.180	S <sub>1</sub> :	0.064
F <sub>a</sub> :	1.600	F <sub>v</sub> :	2.400
S <sub>ds</sub> :	0.192	S <sub>d1</sub> :	0.102
		C <sub>s</sub> :	0.033
		C <sub>s</sub> Max:	0.033
		C <sub>s</sub> Min:	0.030

Load Cases

1.2D + 1.6W	97 mph with No Ice
0.9D + 1.6W	97 mph with No Ice (Reduced DL)
1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice
(1.2 + 0.2S <sub>ds</sub> ) * DL + E ELFM	Seismic Equivalent Lateral Forces Method
(1.2 + 0.2S <sub>ds</sub> ) * DL + E EMAM	Seismic Equivalent Modal Analysis Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + E ELFM	Seismic (Reduced DL) Equivalent Lateral Forces Method
(0.9 - 0.2S <sub>ds</sub> ) * DL + E EMAM	Seismic (Reduced DL) Equivalent Modal Analysis Method
1.0D + 1.0W	Serviceability 60 mph

Site Number: 370626

Code: ANSI/TIA-222-G

© 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:14:47 PM

Customer: AT&T MOBILITY

**Shaft Section Properties**

Sect Info	Length (ft)	Thick (in)	Fy (ksi)	Joint Type	Joint Len (in)	Weight (lb)	Bottom						Top						
							Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Dia (in)	Elev (ft)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	Taper (in/ft)
1-16	43.000	0.3750	65		0.00	7,667	49.19	0.00	58.39	17579.1	24.10	131.17	39.16	43.00	46.40	8819.0	18.78	104.43	0.233192
2-16	43.000	0.3125	65	Slip	72.00	5,231	41.18	37.00	40.75	8600.2	24.23	131.80	31.16	80.00	30.75	3696.6	17.84	99.71	0.233192
3-16	44.000	0.2500	65	Slip	60.00	3,277	32.82	75.00	25.98	3482.7	24.13	131.30	22.56	119.00	17.80	1119.5	15.96	90.26	0.233192
4-16	11.000	0.1875	65	Butt	0.00	472	22.56	119.00	13.38	846.7	21.95	120.35	20.00	130.00	11.85	587.7	19.23	106.67	0.233192
Shaft Weight						16,647													

**Discrete Appurtenance Properties**

Attach Elev (ft)	Description	Qty	Distance From Face (ft)	Vert Ecc (ft)	Weight (lb)	No Ice EPAa (sf)	Orientation Factor
128.00	Alcatel-Lucent 1900 MHz 4x45 R	3	0.000	0.000	60.00	2.320	0.67
128.00	Alcatel-Lucent RRH2x50-08	6	0.000	0.000	52.90	1.700	0.50
128.00	Alcatel-Lucent TD-RRH8x20-25 w	3	0.000	0.000	70.00	4.050	0.67
128.00	DragonWave A-ANT-18G-2-C	3	0.000	1.000	27.10	4.690	1.00
128.00	DragonWave Horizon Compact	3	0.000	1.000	11.50	0.840	0.50
128.00	KMW ETCR-654L12H6	3	0.000	1.000	84.90	15.710	0.61
128.00	Side Arms	1	0.000	0.000	560.00	8.500	1.00
118.00	Alcatel-Lucent PCS B25 RRH2x60	3	0.000	0.000	55.00	2.200	0.67
118.00	Alcatel-Lucent RRH2x60 700	3	0.000	0.000	56.70	2.150	0.67
118.00	Alcatel-Lucent RRH4X45-B66 w/	3	0.000	0.000	64.00	2.660	0.67
118.00	Andrew DB844G65ZAXY	3	0.000	0.000	12.00	4.340	0.75
118.00	Antel BXA-70063-6CF-EDIN-X	3	0.000	0.000	17.00	7.570	0.66
118.00	Commscope JAHH-65B-R3B	6	0.000	0.000	60.60	9.110	0.69
118.00	Nokia AirScale RRH 4T4R B5 160	3	0.000	0.000	35.30	1.290	0.50
118.00	RFS DB-T1-6Z-8AB-0Z	2	0.000	0.000	44.00	4.800	0.67
118.00	Round Platform w/ Handrails	1	0.000	0.000	2000.00	27.200	1.00
109.00	48" x 12" Panel	9	0.000	0.000	30.00	5.070	0.78
109.00	Round Low Profile Platform	1	0.000	0.000	1500.00	21.700	1.00
98.00	Ericsson AIR 21, 1.3M, B2A B4P	3	0.000	0.000	91.50	6.040	0.85
98.00	Ericsson AIR-32 B2A/B66Aa	3	0.000	0.000	132.20	6.510	0.86
98.00	Round T-Arm	3	0.000	0.000	250.00	9.700	0.67
90.00	CCI HPA-65R-BUU-H8	12	0.000	0.000	68.00	12.980	0.79
90.00	Ericsson RRUS 32 B2	3	0.000	0.000	53.00	2.740	0.67
90.00	Ericsson RRUS 32 B66	3	0.000	0.000	53.00	2.740	0.67
90.00	Ericsson RRUS 4478 B14	3	0.000	0.000	59.40	2.020	0.67
90.00	Ericsson RRUS E2 B29	3	0.000	0.000	60.00	3.150	0.67
90.00	Ericsson RRUS-11	6	0.000	0.000	55.00	3.790	0.67
90.00	Ericsson RRUS-32 (77 lbs)	3	0.000	0.000	77.00	3.310	0.67
90.00	Raycap DC6-48-60-0-8F	2	0.000	0.000	32.80	1.190	1.00
90.00	Raycap DC6-48-60-18-8F	2	0.000	0.000	20.00	1.110	1.00
90.00	Round Platform w/ Handrails	1	0.000	0.000	2000.00	27.200	1.00
70.00	2' Std. Dish	1	0.000	0.000	14.00	5.230	1.00
50.00	Flat Side Arm	1	0.000	0.000	150.00	6.300	1.00
50.00	GPS	1	0.000	0.000	10.00	1.000	1.00
Totals	Num Loadings:34	109			12333.40		

**Linear Appurtenance Properties**

Elev From (ft)	Elev To (ft)	Qty	Description	Coax Diameter (in)	Coax Weight (lb/ft)	Projected Width Flat (in)	Exposed To Wind	Carrier	
0.00	128.00	1	1 1/4" Hybriflex Cable	1.54	1.00	N	0.00	N	Clearwire
0.00	128.00	3	1 5/8" Fiber	1.63	1.61	N	0.00	N	Clearwire
0.00	128.00	3	1/2" Coax	0.63	0.15	N	0.00	N	Clearwire



---

---

Site Number: 370626

Code: ANSI/TIA-222-G

© 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:14:47 PM

Customer: AT&T MOBILITY

---

---

0.00	128.00	2	2" Conduit	2.38	3.65	N	0.00	N	Clearwire
0.00	128.00	3	5/8" Coax	0.87	0.15	N	0.00	N	Clearwire
0.00	118.00	6	1 5/8" Coax	1.98	0.82	N	3.96	Y	Verizon
0.00	118.00	2	1 5/8" Fiber	1.63	1.61	N	0.00	Y	Verizon
0.00	109.00	9	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
0.00	98.00	1	1 5/8" Hybriflex	1.98	1.30	N	0.00	Y	Metro PCS
0.00	98.00	1	1 5/8" Hybriflex	1.98	1.30	N	0.00	Y	Metro PCS
0.00	98.00	6	7/8" Coax	1.09	0.33	N	0.00	N	Metro PCS
0.00	98.00	6	7/8" Coax	1.09	0.33	N	1.09	Y	Metro PCS
0.00	90.00	2	0.39" (10mm) Fiber	0.39	0.06	N	0.00	N	AT&T Mobility
0.00	90.00	8	0.78" (19.7mm) 8	0.78	0.59	N	0.00	N	AT&T Mobility
0.00	90.00	3	1/2" Coax	0.63	0.15	N	0.00	N	AT&T Mobility
0.00	70.00	1	1 5/8" Coax	1.98	0.82	N	0.00	N	Sprint Nextel
0.00	50.00	1	1/2" Coax	0.63	0.15	N	0.00	N	Sprint Nextel

Segment Properties (Max Len : 5. ft)

Seg Top Elev (ft)	Description	Thick (in)	Flat Dia (in)	Area (in <sup>2</sup> )	Ix (in <sup>4</sup> )	W/t Ratio	D/t Ratio	F'y (ksi)	S (in <sup>3</sup> )	Z (in <sup>3</sup> )	Weight (lb)
0.00		0.3750	49.190	58.395	17,579.1	24.10	131.17	75.3	701.0	0.0	0.0
5.00		0.3750	48.024	57.000	16,349.3	23.48	128.06	76.0	667.8	0.0	981.7
10.00		0.3750	46.858	55.605	15,178.2	22.87	124.95	76.7	635.4	0.0	957.9
15.00		0.3750	45.692	54.211	14,064.5	22.25	121.85	77.4	603.8	0.0	934.2
20.00		0.3750	44.526	52.816	13,006.6	21.63	118.74	78.1	573.0	0.0	910.5
25.00		0.3750	43.360	51.421	12,003.1	21.01	115.63	78.8	543.0	0.0	886.7
30.00		0.3750	42.194	50.026	11,052.6	20.39	112.52	79.5	513.8	0.0	863.0
35.00		0.3750	41.028	48.631	10,153.7	19.77	109.41	80.2	485.4	0.0	839.3
37.00	Bot - Section 2	0.3750	40.562	48.074	9,808.2	19.53	108.17	80.5	474.3	0.0	329.1
40.00		0.3750	39.862	47.237	9,304.8	19.16	106.30	80.9	457.9	0.0	898.9
43.00	Top - Section 1	0.3125	39.788	39.352	7,746.9	23.34	127.32	76.2	381.9	0.0	883.2
45.00		0.3125	39.321	38.887	7,475.6	23.04	125.83	76.5	372.9	0.0	266.2
50.00		0.3125	38.155	37.725	6,825.1	22.30	122.10	77.3	350.9	0.0	651.7
55.00		0.3125	36.989	36.562	6,213.5	21.56	118.37	78.2	329.5	0.0	632.0
60.00		0.3125	35.823	35.400	5,639.5	20.81	114.64	79.0	308.8	0.0	612.2
65.00		0.3125	34.657	34.238	5,102.1	20.07	110.90	79.9	288.8	0.0	592.4
70.00		0.3125	33.492	33.075	4,599.9	19.33	107.17	80.7	269.4	0.0	572.6
75.00	Bot - Section 3	0.3125	32.326	31.913	4,131.8	18.59	103.44	81.5	250.7	0.0	552.9
80.00	Top - Section 2	0.2500	31.660	25.049	3,122.0	23.20	126.64	76.3	193.4	0.0	967.2
85.00		0.2500	30.494	24.119	2,787.1	22.27	121.97	77.4	179.3	0.0	418.3
90.00		0.2500	29.328	23.189	2,477.0	21.35	117.31	78.4	165.7	0.0	402.5
95.00		0.2500	28.162	22.260	2,190.8	20.42	112.65	79.5	152.6	0.0	386.6
98.00		0.2500	27.462	21.702	2,030.2	19.86	109.85	80.1	145.0	0.0	224.4
100.0		0.2500	26.996	21.330	1,927.6	19.49	107.98	80.5	140.1	0.0	146.4
105.0		0.2500	25.830	20.400	1,686.3	18.56	103.32	81.6	128.1	0.0	355.0
109.0		0.2500	24.897	19.656	1,508.5	17.82	99.59	82.4	118.8	0.0	272.6
110.0		0.2500	24.664	19.470	1,466.1	17.63	98.66	82.6	116.6	0.0	66.6
115.0		0.2500	23.498	18.540	1,265.9	16.71	93.99	82.6	105.7	0.0	323.4
118.0		0.2500	22.798	17.982	1,155.0	16.15	91.19	82.6	99.4	0.0	186.4
119.0	Top - Section 3	0.2500	22.565	17.796	1,119.5	15.96	90.26	82.6	97.3	0.0	60.9
119.0	Bot - Section 4	0.1875	22.565	13.385	846.7	21.95	120.35	77.7	73.6	0.0	
120.0		0.1875	22.332	13.245	820.5	21.70	119.10	78.0	72.1	0.0	45.3
125.0		0.1875	21.166	12.548	697.6	20.47	112.89	79.4	64.7	0.0	219.4
128.0		0.1875	20.466	12.129	630.1	19.72	109.15	80.3	60.4	0.0	126.0
130.0		0.1875	20.000	11.850	587.7	19.23	106.67	80.8	57.6	0.0	81.6
											16,646.8

<b>Load Case:</b> 1.2D + 1.6W	97 mph with No Ice	23 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.20		
Wind Load Factor :1.60		

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		219.5	0.0					0.0	0.0	219.5	0.0	0.0	0.0
5.00		435.4	1,178.0					0.0	254.2	435.4	1,432.2	0.0	0.0
10.00		428.1	1,149.5					0.0	254.2	428.1	1,403.7	0.0	0.0
15.00		420.8	1,121.0					0.0	254.2	420.8	1,375.3	0.0	0.0
20.00		413.4	1,092.6					0.0	254.2	413.4	1,346.8	0.0	0.0
25.00		406.1	1,064.1					0.0	254.2	406.1	1,318.3	0.0	0.0
30.00		403.5	1,035.6					0.0	254.2	403.5	1,289.8	0.0	0.0
35.00		284.5	1,007.1					0.0	254.2	284.5	1,261.4	0.0	0.0
37.00	Bot - Section 2	208.7	394.9					0.0	101.7	208.7	496.6	0.0	0.0
40.00		254.3	1,078.7					0.0	152.5	254.3	1,231.2	0.0	0.0
43.00	Top - Section 1	213.1	1,059.9					0.0	152.5	213.1	1,212.4	0.0	0.0
45.00		300.5	319.5					0.0	101.7	300.5	421.2	0.0	0.0
50.00	Appurtenance(s)	432.2	782.1	238.3	0.0	0.0	192.0	0.0	254.2	670.6	1,228.3	0.0	0.0
55.00		435.5	758.3					0.0	253.3	435.5	1,011.7	0.0	0.0
60.00		437.5	734.6					0.0	253.3	437.5	987.9	0.0	0.0
65.00		438.5	710.9					0.0	253.3	438.5	964.2	0.0	0.0
70.00	Appurtenance(s)	438.6	687.2	188.0	0.0	0.0	16.8	0.0	253.3	626.5	957.3	0.0	0.0
75.00	Bot - Section 3	441.2	663.4					0.0	248.4	441.2	911.8	0.0	0.0
80.00	Top - Section 2	441.8	1,160.6					0.0	248.4	441.8	1,409.0	0.0	0.0
85.00		438.2	501.9					0.0	248.4	438.2	750.3	0.0	0.0
90.00	Appurtenance(s)	435.4	482.9	6,001.8	0.0	0.0	4,990.6	0.0	248.4	6,437.2	5,721.9	0.0	0.0
95.00		346.2	464.0					0.0	216.7	346.2	680.6	0.0	0.0
98.00	Appurtenance(s)	206.9	269.3	1,597.9	0.0	0.0	1,705.3	0.0	130.0	1,804.8	2,104.6	0.0	0.0
100.00		270.1	175.7					0.0	70.9	270.1	246.6	0.0	0.0
105.00		344.5	426.0					0.0	177.3	344.5	603.3	0.0	0.0
109.00	Appurtenance(s)	189.8	327.1	2,046.6	0.0	0.0	2,124.0	0.0	141.8	2,236.5	2,593.0	0.0	0.0
110.00		224.7	79.9					0.0	26.6	224.7	106.5	0.0	0.0
115.00		297.6	388.0					0.0	133.0	297.6	521.0	0.0	0.0
118.00	Appurtenance(s)	140.9	223.7	3,792.7	0.0	0.0	3,805.9	0.0	79.8	3,933.6	4,109.4	0.0	0.0
119.00	Top - Section 3	60.1	73.0					0.0	16.8	60.1	89.9	0.0	0.0
120.00		176.1	54.4					0.0	16.8	176.1	71.2	0.0	0.0
125.00		230.8	263.3					0.0	84.2	230.8	347.5	0.0	0.0
128.00	Appurtenance(s)	139.9	151.1	2,484.1	0.0	1,509.4	1,965.5	0.0	50.5	2,624.0	2,167.1	0.0	0.0
130.00		55.2	97.9					0.0	0.0	55.2	97.9	0.0	0.0
								<b>Totals:</b>		26,959.3	40,469.8	0.00	0.00

Site Number: 370626

Code: ANSI/TIA-222-G

© 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:14:51 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.6W

97 mph with No Ice

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.20

Wind Load Factor :1.60

Calculated Forces

Seg	Pu	Vu	Tu	Mu	Mu	Resultant	phi	phi	phi	phi	Total		
Elev	FY (-)	FX (-)	MY	MZ	MX	Moment	Pn	Vn	Tn	Mn	Deflect	Rotation	Ratio
(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(deg)	
0.00	-40.42	-26.81	0.00	-2,472.54	0.00	2,472.54	3,957.37	1,978.68	7,974.52	3,958.89	0.00	0.00	0.635
5.00	-38.90	-26.51	0.00	-2,338.50	0.00	2,338.50	3,898.74	1,949.37	7,667.30	3,806.37	0.10	-0.19	0.625
10.00	-37.41	-26.20	0.00	-2,205.98	0.00	2,205.98	3,838.36	1,919.18	7,362.40	3,655.00	0.42	-0.39	0.613
15.00	-35.95	-25.89	0.00	-2,074.98	0.00	2,074.98	3,776.22	1,888.11	7,060.07	3,504.92	0.93	-0.59	0.602
20.00	-34.51	-25.59	0.00	-1,945.51	0.00	1,945.51	3,712.32	1,856.16	6,760.57	3,356.23	1.66	-0.80	0.589
25.00	-33.11	-25.28	0.00	-1,817.58	0.00	1,817.58	3,646.67	1,823.34	6,464.15	3,209.08	2.61	-1.00	0.576
30.00	-31.74	-24.97	0.00	-1,691.18	0.00	1,691.18	3,579.26	1,789.63	6,171.08	3,063.58	3.77	-1.21	0.561
35.00	-30.42	-24.73	0.00	-1,566.34	0.00	1,566.34	3,510.10	1,755.05	5,881.60	2,919.87	5.15	-1.42	0.545
37.00	-29.88	-24.57	0.00	-1,516.87	0.00	1,516.87	3,481.94	1,740.97	5,766.87	2,862.92	5.76	-1.51	0.539
40.00	-28.60	-24.34	0.00	-1,443.17	0.00	1,443.17	3,439.17	1,719.59	5,595.97	2,778.07	6.75	-1.63	0.528
43.00	-27.35	-24.15	0.00	-1,370.14	0.00	1,370.14	2,697.55	1,348.77	4,394.78	2,181.75	7.82	-1.76	0.638
45.00	-26.87	-23.91	0.00	-1,321.85	0.00	1,321.85	2,677.43	1,338.72	4,310.07	2,139.70	8.58	-1.85	0.628
50.00	-25.57	-23.31	0.00	-1,202.29	0.00	1,202.29	2,625.91	1,312.96	4,099.79	2,035.31	10.65	-2.09	0.601
55.00	-24.48	-22.93	0.00	-1,085.77	0.00	1,085.77	2,572.64	1,286.32	3,891.84	1,932.08	12.97	-2.33	0.572
60.00	-23.42	-22.55	0.00	-971.11	0.00	971.11	2,517.61	1,258.80	3,686.50	1,830.13	15.53	-2.56	0.540
65.00	-22.39	-22.15	0.00	-858.37	0.00	858.37	2,460.82	1,230.41	3,484.00	1,729.60	18.34	-2.80	0.506
70.00	-21.39	-21.56	0.00	-747.60	0.00	747.60	2,402.27	1,201.14	3,284.61	1,630.62	21.39	-3.02	0.468
75.00	-20.42	-21.15	0.00	-639.79	0.00	639.79	2,341.97	1,170.99	3,088.58	1,533.30	24.67	-3.23	0.426
80.00	-18.97	-20.69	0.00	-534.06	0.00	534.06	1,720.57	860.28	2,230.28	1,107.20	28.17	-3.44	0.494
85.00	-18.18	-20.27	0.00	-430.62	0.00	430.62	1,679.48	839.74	2,095.57	1,040.33	31.87	-3.62	0.425
90.00	-12.85	-13.51	0.00	-329.29	0.00	329.29	1,636.64	818.32	1,962.74	974.39	35.76	-3.82	0.346
95.00	-12.16	-13.15	0.00	-261.74	0.00	261.74	1,592.04	796.02	1,832.05	909.51	39.85	-3.99	0.296
98.00	-10.18	-11.21	0.00	-222.31	0.00	222.31	1,564.44	782.22	1,754.76	871.14	42.38	-4.08	0.262
100.00	-9.93	-10.94	0.00	-199.89	0.00	199.89	1,545.69	772.84	1,703.74	845.81	44.11	-4.14	0.243
105.00	-9.34	-10.57	0.00	-145.18	0.00	145.18	1,497.58	748.79	1,578.09	783.43	48.51	-4.27	0.192
109.00	-6.91	-8.15	0.00	-102.90	0.00	102.90	1,457.82	728.91	1,479.63	734.55	52.12	-4.35	0.145
110.00	-6.82	-7.92	0.00	-94.75	0.00	94.75	1,446.53	723.26	1,454.14	721.90	53.03	-4.37	0.136
115.00	-6.31	-7.59	0.00	-55.13	0.00	55.13	1,377.44	688.72	1,317.89	654.26	57.64	-4.44	0.089
118.00	-2.52	-3.35	0.00	-32.35	0.00	32.35	1,335.99	668.00	1,239.36	615.27	60.44	-4.47	0.054
119.00	-2.43	-3.29	0.00	-29.00	0.00	29.00	1,322.18	661.09	1,213.72	602.54	61.38	-4.48	0.050
119.00	-2.43	-3.29	0.00	-29.00	0.00	29.00	936.41	468.21	864.42	429.14	61.38	-4.48	0.070
120.00	-2.38	-3.11	0.00	-25.71	0.00	25.71	929.99	465.00	849.47	421.71	62.32	-4.49	0.064
125.00	-2.05	-2.85	0.00	-10.18	0.00	10.18	896.83	448.41	775.69	385.08	67.03	-4.52	0.029
128.00	-0.09	-0.06	0.00	-0.13	0.00	0.13	876.09	438.04	732.26	363.52	69.86	-4.52	0.000
130.00	0.00	-0.06	0.00	0.00	0.00	0.00	861.91	430.96	703.69	349.34	71.76	-4.52	0.000

<b>Load Case:</b> 0.9D + 1.6W	97 mph with No Ice (Reduced DL)	23 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :0.90		
Wind Load Factor :1.60		

**Applied Segment Forces Summary**

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		218.3	0.0					0.0	0.0	218.3	0.0	0.0	0.0
5.00		431.4	883.5					0.0	190.7	431.4	1,074.2	0.0	0.0
10.00		420.9	862.1					0.0	190.7	420.9	1,052.8	0.0	0.0
15.00		410.4	840.8					0.0	190.7	410.4	1,031.4	0.0	0.0
20.00		400.0	819.4					0.0	190.7	400.0	1,010.1	0.0	0.0
25.00		389.5	798.1					0.0	190.7	389.5	988.7	0.0	0.0
30.00		383.5	776.7					0.0	190.7	383.5	967.4	0.0	0.0
35.00		268.6	755.3					0.0	190.7	268.6	946.0	0.0	0.0
37.00	Bot - Section 2	195.5	296.2					0.0	76.3	195.5	372.4	0.0	0.0
40.00		237.0	809.0					0.0	114.4	237.0	923.4	0.0	0.0
43.00	Top - Section 1	198.1	794.9					0.0	114.4	198.1	909.3	0.0	0.0
45.00		277.9	239.6					0.0	76.3	277.9	315.9	0.0	0.0
50.00	Appurtenance(s)	396.7	586.6	238.3	0.0	0.0	144.0	0.0	190.7	635.1	921.2	0.0	0.0
55.00		395.2	568.8					0.0	190.0	395.2	758.7	0.0	0.0
60.00		392.4	551.0					0.0	190.0	392.4	741.0	0.0	0.0
65.00		388.5	533.2					0.0	190.0	388.5	723.2	0.0	0.0
70.00	Appurtenance(s)	383.4	515.4	188.0	0.0	0.0	12.6	0.0	190.0	571.4	718.0	0.0	0.0
75.00	Bot - Section 3	380.4	497.6					0.0	186.3	380.4	683.9	0.0	0.0
80.00	Top - Section 2	376.6	870.5					0.0	186.3	376.6	1,056.8	0.0	0.0
85.00		369.1	376.4					0.0	186.3	369.1	562.7	0.0	0.0
90.00	Appurtenance(s)	360.8	362.2	6,001.8	0.0	0.0	3,742.9	0.0	186.3	6,362.6	4,291.4	0.0	0.0
95.00		283.0	348.0					0.0	162.5	283.0	510.5	0.0	0.0
98.00	Appurtenance(s)	173.6	201.9	1,597.9	0.0	0.0	1,279.0	0.0	97.5	1,771.5	1,578.4	0.0	0.0
100.00		237.5	131.8					0.0	53.2	237.5	185.0	0.0	0.0
105.00		299.8	319.5					0.0	133.0	299.8	452.5	0.0	0.0
109.00	Appurtenance(s)	163.4	245.3	2,046.6	0.0	0.0	1,593.0	0.0	106.4	2,210.1	1,944.7	0.0	0.0
110.00		190.2	59.9					0.0	20.0	190.2	79.9	0.0	0.0
115.00		249.9	291.0					0.0	99.8	249.9	390.8	0.0	0.0
118.00	Appurtenance(s)	122.2	167.8	3,792.7	0.0	0.0	2,854.4	0.0	59.9	3,914.9	3,082.1	0.0	0.0
119.00	Top - Section 3	60.1	54.8					0.0	12.6	60.1	67.4	0.0	0.0
120.00		176.1	40.8					0.0	12.6	176.1	53.4	0.0	0.0
125.00		230.8	197.5					0.0	63.1	230.8	260.6	0.0	0.0
128.00	Appurtenance(s)	139.9	113.4	2,484.1	0.0	1,509.4	1,474.1	0.0	37.9	2,624.0	1,625.4	0.0	0.0
130.00		55.2	73.4					0.0	0.0	55.2	73.4	0.0	0.0
<b>Totals:</b>									26,005.5	30,352.4	0.00	0.00	

Load Case: 0.9D + 1.6W

97 mph with No Ice (Reduced DL)

23 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :0.90

Wind Load Factor :1.60

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-30.31	-25.84	0.00	-2,372.57	0.00	2,372.57	3,957.37	1,978.68	7,974.52	3,958.89	0.00	0.00	0.607
5.00	-29.15	-25.50	0.00	-2,243.38	0.00	2,243.38	3,898.74	1,949.37	7,667.30	3,806.37	0.10	-0.19	0.597
10.00	-28.02	-25.17	0.00	-2,115.89	0.00	2,115.89	3,838.36	1,919.18	7,362.40	3,655.00	0.40	-0.38	0.586
15.00	-26.91	-24.84	0.00	-1,990.05	0.00	1,990.05	3,776.22	1,888.11	7,060.07	3,504.92	0.90	-0.57	0.575
20.00	-25.82	-24.52	0.00	-1,865.85	0.00	1,865.85	3,712.32	1,856.16	6,760.57	3,356.23	1.60	-0.76	0.563
25.00	-24.75	-24.20	0.00	-1,743.27	0.00	1,743.27	3,646.67	1,823.34	6,464.15	3,209.08	2.50	-0.96	0.550
30.00	-23.71	-23.88	0.00	-1,622.28	0.00	1,622.28	3,579.26	1,789.63	6,171.08	3,063.58	3.62	-1.16	0.536
35.00	-22.71	-23.65	0.00	-1,502.89	0.00	1,502.89	3,510.10	1,755.05	5,881.60	2,919.87	4.94	-1.36	0.521
37.00	-22.30	-23.48	0.00	-1,455.60	0.00	1,455.60	3,481.94	1,740.97	5,766.87	2,862.92	5.53	-1.44	0.515
40.00	-21.33	-23.27	0.00	-1,385.15	0.00	1,385.15	3,439.17	1,719.59	5,595.97	2,778.07	6.48	-1.57	0.505
43.00	-20.39	-23.08	0.00	-1,315.35	0.00	1,315.35	2,697.55	1,348.77	4,394.78	2,181.75	7.50	-1.69	0.611
45.00	-20.02	-22.85	0.00	-1,269.19	0.00	1,269.19	2,677.43	1,338.72	4,310.07	2,139.70	8.23	-1.78	0.601
50.00	-19.03	-22.26	0.00	-1,154.95	0.00	1,154.95	2,625.91	1,312.96	4,099.79	2,035.31	10.21	-2.01	0.575
55.00	-18.20	-21.91	0.00	-1,043.66	0.00	1,043.66	2,572.64	1,286.32	3,891.84	1,932.08	12.44	-2.24	0.548
60.00	-17.39	-21.55	0.00	-934.12	0.00	934.12	2,517.61	1,258.80	3,686.50	1,830.13	14.90	-2.46	0.518
65.00	-16.60	-21.20	0.00	-826.35	0.00	826.35	2,460.82	1,230.41	3,484.00	1,729.60	17.60	-2.68	0.485
70.00	-15.84	-20.65	0.00	-720.36	0.00	720.36	2,402.27	1,201.14	3,284.61	1,630.62	20.53	-2.90	0.449
75.00	-15.10	-20.29	0.00	-617.11	0.00	617.11	2,341.97	1,170.99	3,088.58	1,533.30	23.68	-3.11	0.409
80.00	-14.00	-19.90	0.00	-515.67	0.00	515.67	1,720.57	860.28	2,230.28	1,107.20	27.03	-3.30	0.474
85.00	-13.40	-19.54	0.00	-416.18	0.00	416.18	1,679.48	839.74	2,095.57	1,040.33	30.59	-3.48	0.409
90.00	-9.48	-12.95	0.00	-318.48	0.00	318.48	1,636.64	818.32	1,962.74	974.39	34.34	-3.67	0.333
95.00	-8.96	-12.65	0.00	-253.73	0.00	253.73	1,592.04	796.02	1,832.05	909.51	38.27	-3.83	0.285
98.00	-7.49	-10.79	0.00	-215.76	0.00	215.76	1,564.44	782.22	1,754.76	871.14	40.70	-3.92	0.253
100.00	-7.30	-10.55	0.00	-194.18	0.00	194.18	1,545.69	772.84	1,703.74	845.81	42.36	-3.98	0.234
105.00	-6.86	-10.23	0.00	-141.42	0.00	141.42	1,497.58	748.79	1,578.09	783.43	46.59	-4.10	0.185
109.00	-5.07	-7.89	0.00	-100.48	0.00	100.48	1,457.82	728.91	1,479.63	734.55	50.07	-4.19	0.140
110.00	-5.00	-7.70	0.00	-92.59	0.00	92.59	1,446.53	723.26	1,454.14	721.90	50.95	-4.20	0.132
115.00	-4.62	-7.43	0.00	-54.08	0.00	54.08	1,377.44	688.72	1,317.89	654.26	55.39	-4.28	0.086
118.00	-1.84	-3.29	0.00	-31.80	0.00	31.80	1,335.99	668.00	1,239.36	615.27	58.08	-4.30	0.053
119.00	-1.77	-3.23	0.00	-28.51	0.00	28.51	1,322.18	661.09	1,213.72	602.54	58.98	-4.31	0.049
119.00	-1.77	-3.23	0.00	-28.51	0.00	28.51	936.41	468.21	864.42	429.14	58.98	-4.31	0.068
120.00	-1.73	-3.05	0.00	-25.28	0.00	25.28	929.99	465.00	849.47	421.71	59.89	-4.32	0.062
125.00	-1.49	-2.80	0.00	-10.03	0.00	10.03	896.83	448.41	775.69	385.08	64.42	-4.35	0.028
128.00	-0.07	-0.06	0.00	-0.12	0.00	0.12	876.09	438.04	732.26	363.52	67.16	-4.36	0.000
130.00	0.00	-0.06	0.00	0.00	0.00	0.00	861.91	430.96	703.69	349.34	68.98	-4.36	0.000

<b>Load Case:</b> 1.2D + 1.0Di + 1.0Wi	50 mph with 1.00 in Radial Ice	23 Iterations
Gust Response Factor :1.10	Ice Dead Load Factor :1.00	Wind Importance Factor :1.00
Dead Load Factor :1.20		Ice Importance Factor :1.00
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		61.6	0.0					0.0	0.0	61.6	0.0	0.0	0.0
5.00		122.3	1,662.1					0.0	499.5	122.3	2,161.6	0.0	0.0
10.00		120.1	1,679.0					0.0	535.3	120.1	2,214.3	0.0	0.0
15.00		117.7	1,665.9					0.0	554.1	117.7	2,220.0	0.0	0.0
20.00		115.2	1,643.0					0.0	567.3	115.2	2,210.3	0.0	0.0
25.00		112.6	1,614.9					0.0	577.6	112.6	2,192.5	0.0	0.0
30.00		111.3	1,583.6					0.0	586.1	111.3	2,169.7	0.0	0.0
35.00		78.2	1,550.0					0.0	593.4	78.2	2,143.4	0.0	0.0
37.00	Bot - Section 2	57.0	612.0					0.0	239.2	57.0	851.2	0.0	0.0
40.00		69.2	1,406.0					0.0	360.6	69.2	1,766.7	0.0	0.0
43.00	Top - Section 1	57.9	1,384.4					0.0	362.7	57.9	1,747.1	0.0	0.0
45.00		81.5	534.7					0.0	242.9	81.5	777.6	0.0	0.0
50.00	Appurtenance(s)	116.7	1,309.3	55.6	0.0	0.0	247.9	0.0	610.7	172.3	2,167.9	0.0	0.0
55.00		116.7	1,275.7					0.0	614.6	116.7	1,890.2	0.0	0.0
60.00		116.4	1,241.3					0.0	618.9	116.4	1,860.3	0.0	0.0
65.00		115.7	1,206.4					0.0	623.0	115.7	1,829.3	0.0	0.0
70.00	Appurtenance(s)	114.7	1,170.8	42.6	0.0	0.0	69.2	0.0	626.8	157.4	1,866.9	0.0	0.0
75.00	Bot - Section 3	114.3	1,134.8					0.0	625.4	114.3	1,760.3	0.0	0.0
80.00	Top - Section 2	113.6	1,626.2					0.0	628.8	113.6	2,255.0	0.0	0.0
85.00		111.9	954.4					0.0	632.0	111.9	1,586.4	0.0	0.0
90.00	Appurtenance(s)	110.0	922.0	1,385.3	0.0	0.0	13,980.8	0.0	635.0	1,495.4	15,537.8	0.0	0.0
95.00		86.7	889.3					0.0	606.2	86.7	1,495.5	0.0	0.0
98.00	Appurtenance(s)	53.4	519.7	408.9	0.0	0.0	3,728.4	0.0	365.0	462.3	4,613.1	0.0	0.0
100.00		73.5	340.5					0.0	152.7	73.5	493.2	0.0	0.0
105.00		93.2	823.0					0.0	382.5	93.2	1,205.6	0.0	0.0
109.00	Appurtenance(s)	51.0	635.6	557.0	0.0	0.0	4,405.4	0.0	306.9	608.0	5,348.0	0.0	0.0
110.00		59.8	156.5					0.0	68.0	59.8	224.5	0.0	0.0
115.00		78.8	755.7					0.0	340.6	78.8	1,096.4	0.0	0.0
118.00	Appurtenance(s)	38.7	439.1	966.5	0.0	0.0	9,787.0	0.0	204.9	1,005.2	10,431.1	0.0	0.0
119.00	Top - Section 3	19.1	144.3					0.0	16.8	19.1	161.2	0.0	0.0
120.00		56.4	125.0					0.0	16.8	56.4	141.9	0.0	0.0
125.00		74.2	600.8					0.0	84.2	74.2	685.0	0.0	0.0
128.00	Appurtenance(s)	45.3	348.3	565.2	0.0	306.0	5,647.4	0.0	50.5	610.5	6,046.2	0.0	0.0
130.00		17.9	226.9					0.0	0.0	17.9	226.9	0.0	0.0
								Totals:		6,864.04	83,376.9	0.00	0.00

Site Number: 370626

Code: ANSI/TIA-222-G

© 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:15:00 PM

Customer: AT&T MOBILITY

Load Case: 1.2D + 1.0Di + 1.0Wi

50 mph with 1.00 in Radial Ice

23 Iterations

Gust Response Factor :1.10

Ice Dead Load Factor :1.00

Wind Importance Factor :1.00

Dead Load Factor :1.20

Ice Importance Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg	Pu	Vu	Tu	Mu	Mu	Resultant	phi	phi	phi	phi	Total		
Elev	FY (-)	FX (-)	MY	MZ	MX	Moment	Pn	Vn	Tn	Mn	Deflect	Rotation	Ratio
(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(deg)	
0.00	-83.37	-6.84	0.00	-660.94	0.00	660.94	3,957.37	1,978.68	7,974.52	3,958.89	0.00	0.00	0.188
5.00	-81.21	-6.79	0.00	-626.73	0.00	626.73	3,898.74	1,949.37	7,667.30	3,806.37	0.03	-0.05	0.185
10.00	-78.99	-6.74	0.00	-592.77	0.00	592.77	3,838.36	1,919.18	7,362.40	3,655.00	0.11	-0.11	0.183
15.00	-76.76	-6.69	0.00	-559.06	0.00	559.06	3,776.22	1,888.11	7,060.07	3,504.92	0.25	-0.16	0.180
20.00	-74.54	-6.64	0.00	-525.60	0.00	525.60	3,712.32	1,856.16	6,760.57	3,356.23	0.45	-0.21	0.177
25.00	-72.34	-6.59	0.00	-492.39	0.00	492.39	3,646.67	1,823.34	6,464.15	3,209.08	0.70	-0.27	0.173
30.00	-70.17	-6.54	0.00	-459.43	0.00	459.43	3,579.26	1,789.63	6,171.08	3,063.58	1.01	-0.33	0.170
35.00	-68.02	-6.49	0.00	-426.74	0.00	426.74	3,510.10	1,755.05	5,881.60	2,919.87	1.39	-0.38	0.166
37.00	-67.17	-6.47	0.00	-413.75	0.00	413.75	3,481.94	1,740.97	5,766.87	2,862.92	1.55	-0.41	0.164
40.00	-65.40	-6.42	0.00	-394.36	0.00	394.36	3,439.17	1,719.59	5,595.97	2,778.07	1.82	-0.44	0.161
43.00	-63.65	-6.38	0.00	-375.09	0.00	375.09	2,697.55	1,348.77	4,394.78	2,181.75	2.11	-0.48	0.196
45.00	-62.87	-6.35	0.00	-362.32	0.00	362.32	2,677.43	1,338.72	4,310.07	2,139.70	2.31	-0.50	0.193
50.00	-60.69	-6.22	0.00	-330.59	0.00	330.59	2,625.91	1,312.96	4,099.79	2,035.31	2.87	-0.57	0.186
55.00	-58.80	-6.15	0.00	-299.47	0.00	299.47	2,572.64	1,286.32	3,891.84	1,932.08	3.50	-0.63	0.178
60.00	-56.93	-6.08	0.00	-268.70	0.00	268.70	2,517.61	1,258.80	3,686.50	1,830.13	4.20	-0.70	0.169
65.00	-55.10	-6.00	0.00	-238.30	0.00	238.30	2,460.82	1,230.41	3,484.00	1,729.60	4.96	-0.76	0.160
70.00	-53.23	-5.88	0.00	-208.29	0.00	208.29	2,402.27	1,201.14	3,284.61	1,630.62	5.80	-0.82	0.150
75.00	-51.46	-5.79	0.00	-178.92	0.00	178.92	2,341.97	1,170.99	3,088.58	1,533.30	6.69	-0.88	0.139
80.00	-49.20	-5.68	0.00	-149.98	0.00	149.98	1,720.57	860.28	2,230.28	1,107.20	7.65	-0.94	0.164
85.00	-47.61	-5.59	0.00	-121.56	0.00	121.56	1,679.48	839.74	2,095.57	1,040.33	8.66	-0.99	0.145
90.00	-32.10	-3.85	0.00	-93.61	0.00	93.61	1,636.64	818.32	1,962.74	974.39	9.73	-1.05	0.116
95.00	-30.61	-3.75	0.00	-74.37	0.00	74.37	1,592.04	796.02	1,832.05	909.51	10.85	-1.10	0.101
98.00	-26.00	-3.21	0.00	-63.12	0.00	63.12	1,564.44	782.22	1,754.76	871.14	11.55	-1.12	0.089
100.00	-25.51	-3.14	0.00	-56.70	0.00	56.70	1,545.69	772.84	1,703.74	845.81	12.03	-1.14	0.084
105.00	-24.30	-3.03	0.00	-41.00	0.00	41.00	1,497.58	748.79	1,578.09	783.43	13.24	-1.18	0.069
109.00	-18.97	-2.32	0.00	-28.86	0.00	28.86	1,457.82	728.91	1,479.63	734.55	14.23	-1.20	0.052
110.00	-18.74	-2.26	0.00	-26.54	0.00	26.54	1,446.53	723.26	1,454.14	721.90	14.49	-1.20	0.050
115.00	-17.65	-2.16	0.00	-15.24	0.00	15.24	1,377.44	688.72	1,317.89	654.26	15.76	-1.22	0.036
118.00	-7.24	-0.93	0.00	-8.76	0.00	8.76	1,335.99	668.00	1,239.36	615.27	16.53	-1.23	0.020
119.00	-7.08	-0.91	0.00	-7.82	0.00	7.82	1,322.18	661.09	1,213.72	602.54	16.79	-1.23	0.018
119.00	-7.08	-0.91	0.00	-7.82	0.00	7.82	936.41	468.21	864.42	429.14	16.79	-1.23	0.026
120.00	-6.94	-0.85	0.00	-6.91	0.00	6.91	929.99	465.00	849.47	421.71	17.05	-1.24	0.024
125.00	-6.26	-0.76	0.00	-2.65	0.00	2.65	896.83	448.41	775.69	385.08	18.35	-1.24	0.014
128.00	-0.23	-0.02	0.00	-0.05	0.00	0.05	876.09	438.04	732.26	363.52	19.13	-1.25	0.000
130.00	0.00	-0.02	0.00	0.00	0.00	0.00	861.91	430.96	703.69	349.34	19.65	-1.25	0.000



<b>Load Case:</b> 1.0D + 1.0W	Serviceability 60 mph	22 Iterations
Gust Response Factor :1.10		Wind Importance Factor :1.00
Dead Load Factor :1.00		
Wind Load Factor :1.00		

Applied Segment Forces Summary

Seg Elev (ft)	Description	Shaft Forces		Discrete Forces			Linear Forces		Sum of Forces				
		Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Torsion MY (lb-ft)	Moment MZ (lb-ft)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Wind FX (lb)	Dead Load (lb)	Torsion MY (lb-ft)	Moment MZ (lb)
0.00		52.2	0.0					0.0	0.0	52.2	0.0	0.0	0.0
5.00		103.2	981.7					0.0	211.9	103.2	1,193.5	0.0	0.0
10.00		100.7	957.9					0.0	211.9	100.7	1,169.8	0.0	0.0
15.00		98.1	934.2					0.0	211.9	98.1	1,146.0	0.0	0.0
20.00		95.6	910.5					0.0	211.9	95.6	1,122.3	0.0	0.0
25.00		93.1	886.7					0.0	211.9	93.1	1,098.6	0.0	0.0
30.00		91.7	863.0					0.0	211.9	91.7	1,074.9	0.0	0.0
35.00		64.2	839.3					0.0	211.9	64.2	1,051.1	0.0	0.0
37.00	Bot - Section 2	46.8	329.1					0.0	84.7	46.8	413.8	0.0	0.0
40.00		56.7	898.9					0.0	127.1	56.7	1,026.0	0.0	0.0
43.00	Top - Section 1	47.4	883.2					0.0	127.1	47.4	1,010.3	0.0	0.0
45.00		66.5	266.2					0.0	84.7	66.5	351.0	0.0	0.0
50.00	Appurtenance(s)	94.9	651.7	57.0	0.0	0.0	160.0	0.0	211.9	151.9	1,023.6	0.0	0.0
55.00		94.5	632.0					0.0	211.1	94.5	843.1	0.0	0.0
60.00		93.8	612.2					0.0	211.1	93.8	823.3	0.0	0.0
65.00		92.9	592.4					0.0	211.1	92.9	803.5	0.0	0.0
70.00	Appurtenance(s)	91.7	572.6	45.0	0.0	0.0	14.0	0.0	211.1	136.6	797.7	0.0	0.0
75.00	Bot - Section 3	91.0	552.9					0.0	207.0	91.0	759.9	0.0	0.0
80.00	Top - Section 2	90.1	967.2					0.0	207.0	90.1	1,174.2	0.0	0.0
85.00		88.3	418.3					0.0	207.0	88.3	625.3	0.0	0.0
90.00	Appurtenance(s)	86.3	402.5	1,435.2	0.0	0.0	4,158.8	0.0	207.0	1,521.5	4,768.3	0.0	0.0
95.00		67.7	386.6					0.0	180.6	67.7	567.2	0.0	0.0
98.00	Appurtenance(s)	41.5	224.4	382.1	0.0	0.0	1,421.1	0.0	108.3	423.6	1,753.8	0.0	0.0
100.00		56.8	146.4					0.0	59.1	56.8	205.5	0.0	0.0
105.00		71.7	355.0					0.0	147.8	71.7	502.7	0.0	0.0
109.00	Appurtenance(s)	39.1	272.6	489.4	0.0	0.0	1,770.0	0.0	118.2	528.5	2,160.8	0.0	0.0
110.00		45.5	66.6					0.0	22.2	45.5	88.7	0.0	0.0
115.00		59.8	323.4					0.0	110.9	59.8	434.2	0.0	0.0
118.00	Appurtenance(s)	29.2	186.4	907.0	0.0	0.0	3,171.6	0.0	66.5	936.2	3,424.5	0.0	0.0
119.00	Top - Section 3	14.4	60.9					0.0	14.0	14.4	74.9	0.0	0.0
120.00		42.1	45.3					0.0	14.0	42.1	59.3	0.0	0.0
125.00		55.2	219.4					0.0	70.1	55.2	289.6	0.0	0.0
128.00	Appurtenance(s)	33.5	126.0	594.0	0.0	360.9	1,637.9	0.0	42.1	627.5	1,805.9	0.0	0.0
130.00		13.2	81.6					0.0	0.0	13.2	81.6	0.0	0.0
								<b>Totals:</b>		6,218.77	33,724.8	0.00	0.00

Site Number: 370626

Code: ANSI/TIA-222-G

© 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:15:05 PM

Customer: AT&T MOBILITY

Load Case: 1.0D + 1.0W

Serviceability 60 mph

22 Iterations

Gust Response Factor :1.10

Wind Importance Factor :1.00

Dead Load Factor :1.00

Wind Load Factor :1.00

Calculated Forces

Seg	Pu	Vu	Tu	Mu	Mu	Resultant	phi	phi	phi	phi	Total		
Elev	FY (-)	FX (-)	MY	MZ	MX	Moment	Pn	Vn	Tn	Mn	Deflect	Rotation	Ratio
(ft)	(kips)	(kips)	(ft-kips)	(ft-kips)	(ft-kips)	(ft-kips)	(kips)	(kips)	(ft-kips)	(ft-kips)	(in)	(deg)	
0.00	-33.72	-6.18	0.00	-569.76	0.00	569.76	3,957.37	1,978.68	7,974.52	3,958.89	0.00	0.00	0.152
5.00	-32.52	-6.10	0.00	-538.86	0.00	538.86	3,898.74	1,949.37	7,667.30	3,806.37	0.02	-0.04	0.150
10.00	-31.35	-6.02	0.00	-508.35	0.00	508.35	3,838.36	1,919.18	7,362.40	3,655.00	0.10	-0.09	0.147
15.00	-30.20	-5.95	0.00	-478.23	0.00	478.23	3,776.22	1,888.11	7,060.07	3,504.92	0.22	-0.14	0.144
20.00	-29.07	-5.87	0.00	-448.49	0.00	448.49	3,712.32	1,856.16	6,760.57	3,356.23	0.38	-0.18	0.141
25.00	-27.97	-5.80	0.00	-419.12	0.00	419.12	3,646.67	1,823.34	6,464.15	3,209.08	0.60	-0.23	0.138
30.00	-26.89	-5.73	0.00	-390.12	0.00	390.12	3,579.26	1,789.63	6,171.08	3,063.58	0.87	-0.28	0.135
35.00	-25.84	-5.67	0.00	-361.49	0.00	361.49	3,510.10	1,755.05	5,881.60	2,919.87	1.19	-0.33	0.131
37.00	-25.42	-5.63	0.00	-350.15	0.00	350.15	3,481.94	1,740.97	5,766.87	2,862.92	1.33	-0.35	0.130
40.00	-24.39	-5.58	0.00	-333.25	0.00	333.25	3,439.17	1,719.59	5,595.97	2,778.07	1.56	-0.38	0.127
43.00	-23.38	-5.54	0.00	-316.50	0.00	316.50	2,697.55	1,348.77	4,394.78	2,181.75	1.80	-0.41	0.154
45.00	-23.02	-5.49	0.00	-305.42	0.00	305.42	2,677.43	1,338.72	4,310.07	2,139.70	1.98	-0.43	0.151
50.00	-22.00	-5.35	0.00	-278.00	0.00	278.00	2,625.91	1,312.96	4,099.79	2,035.31	2.45	-0.48	0.145
55.00	-21.15	-5.26	0.00	-251.26	0.00	251.26	2,572.64	1,286.32	3,891.84	1,932.08	2.99	-0.54	0.138
60.00	-20.32	-5.18	0.00	-224.94	0.00	224.94	2,517.61	1,258.80	3,686.50	1,830.13	3.58	-0.59	0.131
65.00	-19.52	-5.10	0.00	-199.03	0.00	199.03	2,460.82	1,230.41	3,484.00	1,729.60	4.23	-0.65	0.123
70.00	-18.72	-4.97	0.00	-173.54	0.00	173.54	2,402.27	1,201.14	3,284.61	1,630.62	4.94	-0.70	0.114
75.00	-17.95	-4.88	0.00	-148.70	0.00	148.70	2,341.97	1,170.99	3,088.58	1,533.30	5.69	-0.75	0.105
80.00	-16.78	-4.79	0.00	-124.28	0.00	124.28	1,720.57	860.28	2,230.28	1,107.20	6.50	-0.79	0.122
85.00	-16.15	-4.71	0.00	-100.32	0.00	100.32	1,679.48	839.74	2,095.57	1,040.33	7.36	-0.84	0.106
90.00	-11.40	-3.12	0.00	-76.79	0.00	76.79	1,636.64	818.32	1,962.74	974.39	8.26	-0.88	0.086
95.00	-10.83	-3.05	0.00	-61.18	0.00	61.18	1,592.04	796.02	1,832.05	909.51	9.21	-0.92	0.074
98.00	-9.09	-2.60	0.00	-52.03	0.00	52.03	1,564.44	782.22	1,754.76	871.14	9.79	-0.94	0.066
100.00	-8.88	-2.54	0.00	-46.83	0.00	46.83	1,545.69	772.84	1,703.74	845.81	10.19	-0.96	0.061
105.00	-8.38	-2.47	0.00	-34.10	0.00	34.10	1,497.58	748.79	1,578.09	783.43	11.21	-0.99	0.049
109.00	-6.23	-1.90	0.00	-24.23	0.00	24.23	1,457.82	728.91	1,479.63	734.55	12.05	-1.01	0.037
110.00	-6.14	-1.86	0.00	-22.33	0.00	22.33	1,446.53	723.26	1,454.14	721.90	12.26	-1.01	0.035
115.00	-5.70	-1.79	0.00	-13.04	0.00	13.04	1,377.44	688.72	1,317.89	654.26	13.33	-1.03	0.024
118.00	-2.30	-0.79	0.00	-7.66	0.00	7.66	1,335.99	668.00	1,239.36	615.27	13.98	-1.04	0.014
119.00	-2.22	-0.78	0.00	-6.87	0.00	6.87	1,322.18	661.09	1,213.72	602.54	14.20	-1.04	0.013
119.00	-2.22	-0.78	0.00	-6.87	0.00	6.87	936.41	468.21	864.42	429.14	14.20	-1.04	0.018
120.00	-2.16	-0.74	0.00	-6.09	0.00	6.09	929.99	465.00	849.47	421.71	14.41	-1.04	0.017
125.00	-1.88	-0.68	0.00	-2.42	0.00	2.42	896.83	448.41	775.69	385.08	15.51	-1.05	0.008
128.00	-0.08	-0.01	0.00	-0.03	0.00	0.03	876.09	438.04	732.26	363.52	16.17	-1.05	0.000
130.00	0.00	-0.01	0.00	0.00	0.00	0.00	861.91	430.96	703.69	349.34	16.61	-1.05	0.000

### Equivalent Lateral Forces Method Analysis

(Based on ASCE7-10 Chapters 11, 12, 15)

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.18
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Long-Period Transition Period ( $T_L$ ):	6
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.19
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Seismic Response Coefficient ( $C_s$ ):	0.03
Upper Limit $C_s$	0.03
Lower Limit $C_s$	0.03
Period based on Rayleigh Method (sec):	2.06
Redundancy Factor ( $\rho$ ):	1.00
Seismic Force Distribution Exponent (k):	1.78
Total Unfactored Dead Load:	33.72 k
Seismic Base Shear (E):	1.12 k

#### Load Case (1.2 + 0.2Sds) \* DL + E ELFM      Seismic Equivalent Lateral Forces Method

Segment	Height Above Base (ft)	Weight (lb)	$W_z$ (lb-ft)	$C_{vx}$	Horizontal Force (lb)	Vertical Force (lb)
33	129.00	82	468	0.006	6	101
32	126.50	168	931	0.011	13	208
31	122.50	290	1,515	0.019	21	359
30	119.50	59	297	0.004	4	73
29	118.50	75	369	0.005	5	93
28	116.50	253	1,210	0.015	17	313
27	112.50	434	1,952	0.024	27	538
26	109.50	89	380	0.005	5	110
25	107.00	391	1,607	0.020	22	484
24	102.50	503	1,915	0.024	26	623
23	99.00	206	736	0.009	10	255
22	96.50	333	1,138	0.014	16	412
21	92.50	567	1,800	0.022	25	702
20	87.50	609	1,752	0.022	24	755
19	82.50	625	1,618	0.020	22	774
18	77.50	1,174	2,719	0.033	37	1,454
17	72.50	760	1,562	0.019	21	941
16	67.50	784	1,419	0.017	20	971
15	62.50	804	1,268	0.016	17	995
14	57.50	823	1,120	0.014	15	1,020
13	52.50	843	976	0.012	13	1,044
12	47.50	864	836	0.010	12	1,069
11	44.00	351	297	0.004	4	435

Site Number: 370626

Code: ANSI/TIA-222-G

© 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:15:05 PM

Customer: AT&T MOBILITY

10	41.50	1,010	769	0.009	11	1,251
9	38.50	1,026	683	0.008	9	1,271
8	36.00	414	245	0.003	3	512
7	32.50	1,051	518	0.006	7	1,302
6	27.50	1,075	393	0.005	5	1,331
5	22.50	1,099	281	0.003	4	1,360
4	17.50	1,122	184	0.002	3	1,390
3	12.50	1,146	103	0.001	1	1,419
2	7.50	1,170	42	0.001	1	1,449
1	2.50	1,194	6	0.000	0	1,478
DragonWave Horizon C	128.00	34	195	0.002	3	43
Alcatel-Lucent RRH2x	128.00	317	1,796	0.022	25	393
Alcatel-Lucent 1900	128.00	180	1,018	0.013	14	223
Alcatel-Lucent TD-RR	128.00	210	1,188	0.015	16	260
DragonWave A-ANT-18G	128.00	81	460	0.006	6	101
Side Arms	128.00	560	3,169	0.039	44	694
KMW ETCR-654L12H6	128.00	255	1,441	0.018	20	315
Nokia AirScale RRH 4	118.00	106	518	0.006	7	131
Alcatel-Lucent RRH2x	118.00	170	833	0.010	11	211
Alcatel-Lucent PCS B	118.00	165	808	0.010	11	204
Alcatel-Lucent RRH4X	118.00	192	940	0.012	13	238
Andrew DB844G65ZAXY	118.00	36	176	0.002	2	45
RFS DB-T1-6Z-8AB-0Z	118.00	88	431	0.005	6	109
Antel BXA-70063-6CF-	118.00	51	250	0.003	3	63
Commscope JAHH-65B-R	118.00	364	1,780	0.022	24	450
Round Platform w/ Ha	118.00	2,000	9,790	0.121	135	2,477
48" x 12" Panel	109.00	270	1,148	0.014	16	334
Round Low Profile PI	109.00	1,500	6,375	0.079	88	1,858
Ericsson AIR 21, 1.3	98.00	275	965	0.012	13	340
Ericsson AIR-32 B2A/	98.00	397	1,395	0.017	19	491
Round T-Arm	98.00	750	2,637	0.032	36	929
Raycap DC6-48-60-18-	90.00	40	121	0.001	2	50
Raycap DC6-48-60-0-8	90.00	66	198	0.002	3	81
Ericsson RRUS 4478 B	90.00	178	538	0.007	7	221
Ericsson RRUS 32 B2	90.00	159	480	0.006	7	197
Ericsson RRUS 32 B66	90.00	159	480	0.006	7	197
Ericsson RRUS E2 B29	90.00	180	544	0.007	7	223
Ericsson RRUS-32 (77	90.00	231	698	0.009	10	286
Ericsson RRUS-11	90.00	330	997	0.012	14	409
CCI HPA-65R-BUU-H8	90.00	816	2,466	0.030	34	1,011
Round Platform w/ Ha	90.00	2,000	6,044	0.074	83	2,477
2' Std. Dish	70.00	14	27	0.000	0	17
GPS	50.00	10	11	0.000	0	12
Flat Side Arm	50.00	150	159	0.002	2	186
		33,725	81,187	1.000	1,117	41,765

**Load Case (0.9 - 0.2Sds) \* DL + E ELFM**

**Seismic (Reduced DL) Equivalent Lateral Forces Method**

Segment	Height Above Base (ft)	Weight (lb)	W <sub>z</sub> (lb-ft)	C <sub>vx</sub>	Horizontal Force (lb)	Vertical Force (lb)
33	129.00	82	468	0.006	6	70
32	126.50	168	931	0.011	13	145
31	122.50	290	1,515	0.019	21	249
30	119.50	59	297	0.004	4	51
29	118.50	75	369	0.005	5	65
28	116.50	253	1,210	0.015	17	218
27	112.50	434	1,952	0.024	27	374
26	109.50	89	380	0.005	5	76
25	107.00	391	1,607	0.020	22	337
24	102.50	503	1,915	0.024	26	433

Site Number: 370626

Code: ANSI/TIA-222-G

© 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:15:05 PM

Customer: AT&T MOBILITY

23	99.00	206	736	0.009	10	177
22	96.50	333	1,138	0.014	16	287
21	92.50	567	1,800	0.022	25	489
20	87.50	609	1,752	0.022	24	525
19	82.50	625	1,618	0.020	22	539
18	77.50	1,174	2,719	0.033	37	1,012
17	72.50	760	1,562	0.019	21	655
16	67.50	784	1,419	0.017	20	675
15	62.50	804	1,268	0.016	17	692
14	57.50	823	1,120	0.014	15	709
13	52.50	843	976	0.012	13	726
12	47.50	864	836	0.010	12	744
11	44.00	351	297	0.004	4	302
10	41.50	1,010	769	0.009	11	870
9	38.50	1,026	683	0.008	9	884
8	36.00	414	245	0.003	3	357
7	32.50	1,051	518	0.006	7	906
6	27.50	1,075	393	0.005	5	926
5	22.50	1,099	281	0.003	4	947
4	17.50	1,122	184	0.002	3	967
3	12.50	1,146	103	0.001	1	987
2	7.50	1,170	42	0.001	1	1,008
1	2.50	1,194	6	0.000	0	1,028
DragonWave Horizon C	128.00	34	195	0.002	3	30
Alcatel-Lucent RRH2x	128.00	317	1,796	0.022	25	273
Alcatel-Lucent 1900	128.00	180	1,018	0.013	14	155
Alcatel-Lucent TD-RR	128.00	210	1,188	0.015	16	181
DragonWave A-ANT-18G	128.00	81	460	0.006	6	70
Side Arms	128.00	560	3,169	0.039	44	482
KMW ETCR-654L12H6	128.00	255	1,441	0.018	20	219
Nokia AirScale RRH 4	118.00	106	518	0.006	7	91
Alcatel-Lucent RRH2x	118.00	170	833	0.010	11	147
Alcatel-Lucent PCS B	118.00	165	808	0.010	11	142
Alcatel-Lucent RRH4X	118.00	192	940	0.012	13	165
Andrew DB844G65ZAXY	118.00	36	176	0.002	2	31
RFS DB-T1-6Z-8AB-0Z	118.00	88	431	0.005	6	76
Antel BXA-70063-6CF-	118.00	51	250	0.003	3	44
Commscope JAHH-65B-R	118.00	364	1,780	0.022	24	313
Round Platform w/ Ha	118.00	2,000	9,790	0.121	135	1,723
48" x 12" Panel	109.00	270	1,148	0.014	16	233
Round Low Profile PI	109.00	1,500	6,375	0.079	88	1,292
Ericsson AIR 21, 1.3	98.00	275	965	0.012	13	237
Ericsson AIR-32 B2A/	98.00	397	1,395	0.017	19	342
Round T-Arm	98.00	750	2,637	0.032	36	646
Raycap DC6-48-60-18-	90.00	40	121	0.001	2	34
Raycap DC6-48-60-0-8	90.00	66	198	0.002	3	57
Ericsson RRUS 4478 B	90.00	178	538	0.007	7	154
Ericsson RRUS 32 B2	90.00	159	480	0.006	7	137
Ericsson RRUS 32 B66	90.00	159	480	0.006	7	137
Ericsson RRUS E2 B29	90.00	180	544	0.007	7	155
Ericsson RRUS-32 (77	90.00	231	698	0.009	10	199
Ericsson RRUS-11	90.00	330	997	0.012	14	284
CCI HPA-65R-BUU-H8	90.00	816	2,466	0.030	34	703
Round Platform w/ Ha	90.00	2,000	6,044	0.074	83	1,723
2' Std. Dish	70.00	14	27	0.000	0	12
GPS	50.00	10	11	0.000	0	9
Flat Side Arm	50.00	150	159	0.002	2	129
		33,725	81,187	1.000	1,117	29,057

---

---

Site Number: 370626

Code: ANSI/TIA-222-G © 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:15:05 PM

Customer: AT&T MOBILITY

---

---

Load Case (1.2 + 0.2Sds) \* DL + E ELFM Seismic Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-40.29	-1.12	0.00	-115.01	0.00	115.01	3,957.37	1,978.68	7,974.52	3,958.89	0.00	0.00	0.039
5.00	-38.84	-1.12	0.00	-109.42	0.00	109.42	3,898.74	1,949.37	7,667.30	3,806.37	0.00	-0.01	0.039
10.00	-37.42	-1.13	0.00	-103.79	0.00	103.79	3,838.36	1,919.18	7,362.40	3,655.00	0.02	-0.02	0.038
15.00	-36.03	-1.13	0.00	-98.15	0.00	98.15	3,776.22	1,888.11	7,060.07	3,504.92	0.04	-0.03	0.038
20.00	-34.67	-1.13	0.00	-92.49	0.00	92.49	3,712.32	1,856.16	6,760.57	3,356.23	0.08	-0.04	0.037
25.00	-33.34	-1.13	0.00	-86.82	0.00	86.82	3,646.67	1,823.34	6,464.15	3,209.08	0.12	-0.05	0.036
30.00	-32.03	-1.13	0.00	-81.16	0.00	81.16	3,579.26	1,789.63	6,171.08	3,063.58	0.18	-0.06	0.035
35.00	-31.52	-1.13	0.00	-75.51	0.00	75.51	3,510.10	1,755.05	5,881.60	2,919.87	0.24	-0.07	0.035
37.00	-30.25	-1.12	0.00	-73.25	0.00	73.25	3,481.94	1,740.97	5,766.87	2,862.92	0.27	-0.07	0.034
40.00	-29.00	-1.11	0.00	-69.88	0.00	69.88	3,439.17	1,719.59	5,595.97	2,778.07	0.32	-0.08	0.034
43.00	-28.57	-1.11	0.00	-66.54	0.00	66.54	2,697.55	1,348.77	4,394.78	2,181.75	0.37	-0.08	0.041
45.00	-27.50	-1.10	0.00	-64.32	0.00	64.32	2,677.43	1,338.72	4,310.07	2,139.70	0.41	-0.09	0.040
50.00	-26.25	-1.09	0.00	-58.81	0.00	58.81	2,625.91	1,312.96	4,099.79	2,035.31	0.50	-0.10	0.039
55.00	-25.23	-1.08	0.00	-53.37	0.00	53.37	2,572.64	1,286.32	3,891.84	1,932.08	0.62	-0.11	0.037
60.00	-24.24	-1.06	0.00	-47.98	0.00	47.98	2,517.61	1,258.80	3,686.50	1,830.13	0.74	-0.12	0.036
65.00	-23.27	-1.05	0.00	-42.67	0.00	42.67	2,460.82	1,230.41	3,484.00	1,729.60	0.87	-0.13	0.034
70.00	-22.31	-1.03	0.00	-37.45	0.00	37.45	2,402.27	1,201.14	3,284.61	1,630.62	1.02	-0.15	0.032
75.00	-20.85	-0.99	0.00	-32.32	0.00	32.32	2,341.97	1,170.99	3,088.58	1,533.30	1.18	-0.16	0.030
80.00	-20.08	-0.97	0.00	-27.38	0.00	27.38	1,720.57	860.28	2,230.28	1,107.20	1.35	-0.17	0.036
85.00	-19.33	-0.94	0.00	-22.55	0.00	22.55	1,679.48	839.74	2,095.57	1,040.33	1.53	-0.18	0.033
90.00	-13.47	-0.73	0.00	-17.83	0.00	17.83	1,636.64	818.32	1,962.74	974.39	1.72	-0.19	0.027
95.00	-13.06	-0.71	0.00	-14.18	0.00	14.18	1,592.04	796.02	1,832.05	909.51	1.92	-0.20	0.024
98.00	-11.05	-0.63	0.00	-12.03	0.00	12.03	1,564.44	782.22	1,754.76	871.14	2.05	-0.20	0.021
100.00	-10.42	-0.60	0.00	-10.77	0.00	10.77	1,545.69	772.84	1,703.74	845.81	2.13	-0.20	0.019
105.00	-9.94	-0.58	0.00	-7.76	0.00	7.76	1,497.58	748.79	1,578.09	783.43	2.35	-0.21	0.017
109.00	-7.64	-0.46	0.00	-5.45	0.00	5.45	1,457.82	728.91	1,479.63	734.55	2.53	-0.22	0.013
110.00	-7.10	-0.43	0.00	-4.98	0.00	4.98	1,446.53	723.26	1,454.14	721.90	2.57	-0.22	0.012
115.00	-6.79	-0.42	0.00	-2.81	0.00	2.81	1,377.44	688.72	1,317.89	654.26	2.80	-0.22	0.009
118.00	-2.77	-0.18	0.00	-1.57	0.00	1.57	1,335.99	668.00	1,239.36	615.27	2.94	-0.22	0.005
119.00	-2.70	-0.18	0.00	-1.38	0.00	1.38	1,322.18	661.09	1,213.72	602.54	2.99	-0.22	0.004
119.00	-2.70	-0.18	0.00	-1.38	0.00	1.38	936.41	468.21	864.42	429.14	2.99	-0.22	0.006
120.00	-2.34	-0.16	0.00	-1.20	0.00	1.20	929.99	465.00	849.47	421.71	3.03	-0.22	0.005
125.00	-2.13	-0.14	0.00	-0.43	0.00	0.43	896.83	448.41	775.69	385.08	3.27	-0.22	0.003
128.00	0.00	0.00	0.00	0.00	0.00	0.00	876.09	438.04	732.26	363.52	3.41	-0.22	0.000
130.00	0.00	0.00	0.00	0.00	0.00	0.00	861.91	430.96	703.69	349.34	3.50	-0.22	0.000

Load Case (0.9 - 0.2Sds) \* DL + E ELMF

Seismic (Reduced DL) Equivalent Lateral Forces Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-28.03	-1.12	0.00	-113.54	0.00	113.54	3,957.37	1,978.68	7,974.52	3,958.89	0.00	0.00	0.036
5.00	-27.02	-1.12	0.00	-107.95	0.00	107.95	3,898.74	1,949.37	7,667.30	3,806.37	0.00	-0.01	0.035
10.00	-26.03	-1.12	0.00	-102.34	0.00	102.34	3,838.36	1,919.18	7,362.40	3,655.00	0.02	-0.02	0.035
15.00	-25.07	-1.13	0.00	-96.71	0.00	96.71	3,776.22	1,888.11	7,060.07	3,504.92	0.04	-0.03	0.034
20.00	-24.12	-1.13	0.00	-91.08	0.00	91.08	3,712.32	1,856.16	6,760.57	3,356.23	0.08	-0.04	0.034
25.00	-23.19	-1.12	0.00	-85.46	0.00	85.46	3,646.67	1,823.34	6,464.15	3,209.08	0.12	-0.05	0.033
30.00	-22.29	-1.12	0.00	-79.84	0.00	79.84	3,579.26	1,789.63	6,171.08	3,063.58	0.17	-0.06	0.032
35.00	-21.93	-1.12	0.00	-74.25	0.00	74.25	3,510.10	1,755.05	5,881.60	2,919.87	0.24	-0.07	0.032
37.00	-21.05	-1.11	0.00	-72.01	0.00	72.01	3,481.94	1,740.97	5,766.87	2,862.92	0.27	-0.07	0.031
40.00	-20.18	-1.10	0.00	-68.68	0.00	68.68	3,439.17	1,719.59	5,595.97	2,778.07	0.31	-0.08	0.031
43.00	-19.87	-1.10	0.00	-65.38	0.00	65.38	2,697.55	1,348.77	4,394.78	2,181.75	0.36	-0.08	0.037
45.00	-19.13	-1.09	0.00	-63.19	0.00	63.19	2,677.43	1,338.72	4,310.07	2,139.70	0.40	-0.09	0.037
50.00	-18.26	-1.07	0.00	-57.75	0.00	57.75	2,625.91	1,312.96	4,099.79	2,035.31	0.50	-0.10	0.035
55.00	-17.56	-1.06	0.00	-52.38	0.00	52.38	2,572.64	1,286.32	3,891.84	1,932.08	0.61	-0.11	0.034
60.00	-16.86	-1.05	0.00	-47.08	0.00	47.08	2,517.61	1,258.80	3,686.50	1,830.13	0.73	-0.12	0.032
65.00	-16.19	-1.03	0.00	-41.85	0.00	41.85	2,460.82	1,230.41	3,484.00	1,729.60	0.86	-0.13	0.031
70.00	-15.52	-1.01	0.00	-36.72	0.00	36.72	2,402.27	1,201.14	3,284.61	1,630.62	1.00	-0.14	0.029
75.00	-14.51	-0.97	0.00	-31.68	0.00	31.68	2,341.97	1,170.99	3,088.58	1,533.30	1.16	-0.15	0.027
80.00	-13.97	-0.95	0.00	-26.84	0.00	26.84	1,720.57	860.28	2,230.28	1,107.20	1.33	-0.16	0.032
85.00	-13.44	-0.92	0.00	-22.10	0.00	22.10	1,679.48	839.74	2,095.57	1,040.33	1.50	-0.17	0.029
90.00	-9.37	-0.72	0.00	-17.48	0.00	17.48	1,636.64	818.32	1,962.74	974.39	1.69	-0.18	0.024
95.00	-9.09	-0.70	0.00	-13.90	0.00	13.90	1,592.04	796.02	1,832.05	909.51	1.89	-0.19	0.021
98.00	-7.69	-0.62	0.00	-11.79	0.00	11.79	1,564.44	782.22	1,754.76	871.14	2.01	-0.20	0.018
100.00	-7.25	-0.59	0.00	-10.56	0.00	10.56	1,545.69	772.84	1,703.74	845.81	2.10	-0.20	0.017
105.00	-6.92	-0.57	0.00	-7.61	0.00	7.61	1,497.58	748.79	1,578.09	783.43	2.31	-0.21	0.014
109.00	-5.31	-0.45	0.00	-5.34	0.00	5.34	1,457.82	728.91	1,479.63	734.55	2.48	-0.21	0.011
110.00	-4.94	-0.43	0.00	-4.89	0.00	4.89	1,446.53	723.26	1,454.14	721.90	2.53	-0.21	0.010
115.00	-4.72	-0.41	0.00	-2.76	0.00	2.76	1,377.44	688.72	1,317.89	654.26	2.75	-0.22	0.008
118.00	-1.93	-0.18	0.00	-1.54	0.00	1.54	1,335.99	668.00	1,239.36	615.27	2.89	-0.22	0.004
119.00	-1.88	-0.17	0.00	-1.36	0.00	1.36	1,322.18	661.09	1,213.72	602.54	2.94	-0.22	0.004
119.00	-1.88	-0.17	0.00	-1.36	0.00	1.36	936.41	468.21	864.42	429.14	2.94	-0.22	0.005
120.00	-1.63	-0.15	0.00	-1.18	0.00	1.18	929.99	465.00	849.47	421.71	2.98	-0.22	0.005
125.00	-1.48	-0.14	0.00	-0.42	0.00	0.42	896.83	448.41	775.69	385.08	3.21	-0.22	0.003
128.00	0.00	0.00	0.00	0.00	0.00	0.00	876.09	438.04	732.26	363.52	3.35	-0.22	0.000
130.00	0.00	0.00	0.00	0.00	0.00	0.00	861.91	430.96	703.69	349.34	3.44	-0.22	0.000



### Equivalent Modal Forces Analysis

(Based on ASCE7-10 Chapters 11, 12 & 15 and ANSI/TIA-G, section 2.7)

Spectral Response Acceleration for Short Period ( $S_s$ ):	0.18
Spectral Response Acceleration at 1.0 Second Period ( $S_1$ ):	0.06
Importance Factor ( $I_E$ ):	1.00
Site Coefficient $F_a$ :	1.60
Site Coefficient $F_v$ :	2.40
Response Modification Coefficient (R):	1.50
Design Spectral Response Acceleration at Short Period ( $S_{ds}$ ):	0.19
Design Spectral Response Acceleration at 1.0 Second Period ( $S_{d1}$ ):	0.10
Period Based on Rayleigh Method (sec):	2.06
Redundancy Factor ( $p$ ):	1.00

Load Case (1.2 + 0.2Sds) \* DL + E EMAM      Seismic Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
33	129.00	82	1.861	1.831	1.086	0.350	19	101
32	126.50	168	1.790	1.492	0.959	0.305	34	208
31	122.50	290	1.678	1.041	0.782	0.240	46	359
30	119.50	59	1.597	0.769	0.666	0.196	8	73
29	118.50	75	1.570	0.690	0.631	0.183	9	93
28	116.50	253	1.518	0.546	0.564	0.156	26	313
27	112.50	434	1.415	0.314	0.448	0.109	32	538
26	109.50	89	1.341	0.181	0.373	0.078	5	110
25	107.00	391	1.280	0.094	0.319	0.056	14	484
24	102.50	503	1.175	-0.018	0.237	0.021	7	623
23	99.00	206	1.096	-0.072	0.184	0.000	0	255
22	96.50	333	1.041	-0.097	0.153	-0.011	-2	412
21	92.50	567	0.957	-0.118	0.111	-0.025	-9	702
20	87.50	609	0.856	-0.120	0.071	-0.032	-13	755
19	82.50	625	0.761	-0.104	0.043	-0.030	-13	774
18	77.50	1,174	0.672	-0.078	0.025	-0.021	-16	1,454
17	72.50	760	0.588	-0.049	0.013	-0.006	-3	941
16	67.50	784	0.510	-0.020	0.007	0.010	5	971
15	62.50	804	0.437	0.006	0.006	0.025	13	995
14	57.50	823	0.370	0.027	0.008	0.037	20	1,020
13	52.50	843	0.308	0.043	0.012	0.044	25	1,044
12	47.50	864	0.252	0.055	0.017	0.048	27	1,069
11	44.00	351	0.217	0.061	0.021	0.049	11	435
10	41.50	1,010	0.193	0.064	0.024	0.049	33	1,251
9	38.50	1,026	0.166	0.067	0.028	0.048	33	1,271
8	36.00	414	0.145	0.068	0.031	0.048	13	512
7	32.50	1,051	0.118	0.070	0.035	0.047	33	1,302
6	27.50	1,075	0.085	0.071	0.039	0.045	33	1,331
5	22.50	1,099	0.057	0.071	0.042	0.044	32	1,360
4	17.50	1,122	0.034	0.069	0.041	0.042	31	1,390
3	12.50	1,146	0.017	0.062	0.037	0.038	29	1,419
2	7.50	1,170	0.006	0.048	0.027	0.030	24	1,449
1	2.50	1,194	0.001	0.021	0.011	0.014	11	1,478
DragonWave Horizon C	128.00	34	1.832	1.689	1.034	0.332	8	43

Site Number: 370626

Code: ANSI/TIA-222-G

© 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:15:05 PM

Customer: AT&T MOBILITY

Alcatel-Lucent RRH2x	128.00	317	1.832	1.689	1.034	0.332	70	393
Alcatel-Lucent 1900	128.00	180	1.832	1.689	1.034	0.332	40	223
Alcatel-Lucent TD-RR	128.00	210	1.832	1.689	1.034	0.332	46	260
DragonWave A-ANT-18G	128.00	81	1.832	1.689	1.034	0.332	18	101
Side Arms	128.00	560	1.832	1.689	1.034	0.332	124	694
KMW ETCR-654L12H6	128.00	255	1.832	1.689	1.034	0.332	56	315
Nokia AirScale RRH 4	118.00	106	1.557	0.652	0.613	0.176	12	131
Alcatel-Lucent RRH2x	118.00	170	1.557	0.652	0.613	0.176	20	211
Alcatel-Lucent PCS B	118.00	165	1.557	0.652	0.613	0.176	19	204
Alcatel-Lucent RRH4X	118.00	192	1.557	0.652	0.613	0.176	23	238
Andrew DB844G65ZAXY	118.00	36	1.557	0.652	0.613	0.176	4	45
RFS DB-T1-6Z-8AB-0Z	118.00	88	1.557	0.652	0.613	0.176	10	109
Antel BXA-70063-6CF-	118.00	51	1.557	0.652	0.613	0.176	6	63
Commscope JAHH-65B-	118.00	364	1.557	0.652	0.613	0.176	43	450
Round Platform w/ Ha	118.00	2,000	1.557	0.652	0.613	0.176	235	2,477
48" x 12" Panel	109.00	270	1.329	0.162	0.362	0.074	13	334
Round Low Profile PI	109.00	1,500	1.329	0.162	0.362	0.074	74	1,858
Ericsson AIR 21, 1.3	98.00	275	1.074	-0.083	0.171	-0.005	-1	340
Ericsson AIR-32 B2A/	98.00	397	1.074	-0.083	0.171	-0.005	-1	491
Round T-Arm	98.00	750	1.074	-0.083	0.171	-0.005	-2	929
Raycap DC6-48-60-18-	90.00	40	0.906	-0.122	0.090	-0.030	-1	50
Raycap DC6-48-60-0-8	90.00	66	0.906	-0.122	0.090	-0.030	-1	81
Ericsson RRUS 4478 B	90.00	178	0.906	-0.122	0.090	-0.030	-4	221
Ericsson RRUS 32 B2	90.00	159	0.906	-0.122	0.090	-0.030	-3	197
Ericsson RRUS 32 B66	90.00	159	0.906	-0.122	0.090	-0.030	-3	197
Ericsson RRUS E2 B29	90.00	180	0.906	-0.122	0.090	-0.030	-4	223
Ericsson RRUS-32 (77	90.00	231	0.906	-0.122	0.090	-0.030	-5	286
Ericsson RRUS-11	90.00	330	0.906	-0.122	0.090	-0.030	-7	409
CCI HPA-65R-BUU-H8	90.00	816	0.906	-0.122	0.090	-0.030	-16	1,011
Round Platform w/ Ha	90.00	2,000	0.906	-0.122	0.090	-0.030	-40	2,477
2' Std. Dish	70.00	14	0.548	-0.034	0.010	0.002	0	17
GPS	50.00	10	0.280	0.050	0.014	0.046	0	12
Flat Side Arm	50.00	150	0.280	0.050	0.014	0.046	5	186
		33,725	66.998	23.703	21.981	6.025	1,258	41,765

Load Case (0.9 - 0.2Sds) \* DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Segment	Height Above Base (ft)	Weight (lb)	a	b	c	Saz	Horizontal Force (lb)	Vertical Force (lb)
33	129.00	82	1.861	1.831	1.086	0.350	19	70
32	126.50	168	1.790	1.492	0.959	0.305	34	145
31	122.50	290	1.678	1.041	0.782	0.240	46	249
30	119.50	59	1.597	0.769	0.666	0.196	8	51
29	118.50	75	1.570	0.690	0.631	0.183	9	65
28	116.50	253	1.518	0.546	0.564	0.156	26	218
27	112.50	434	1.415	0.314	0.448	0.109	32	374
26	109.50	89	1.341	0.181	0.373	0.078	5	76
25	107.00	391	1.280	0.094	0.319	0.056	14	337
24	102.50	503	1.175	-0.018	0.237	0.021	7	433
23	99.00	206	1.096	-0.072	0.184	0.000	0	177
22	96.50	333	1.041	-0.097	0.153	-0.011	-2	287
21	92.50	567	0.957	-0.118	0.111	-0.025	-9	489
20	87.50	609	0.856	-0.120	0.071	-0.032	-13	525
19	82.50	625	0.761	-0.104	0.043	-0.030	-13	539
18	77.50	1,174	0.672	-0.078	0.025	-0.021	-16	1,012
17	72.50	760	0.588	-0.049	0.013	-0.006	-3	655
16	67.50	784	0.510	-0.020	0.007	0.010	5	675
15	62.50	804	0.437	0.006	0.006	0.025	13	692
14	57.50	823	0.370	0.027	0.008	0.037	20	709

13	52.50	843	0.308	0.043	0.012	0.044	25	726
12	47.50	864	0.252	0.055	0.017	0.048	27	744
11	44.00	351	0.217	0.061	0.021	0.049	11	302
10	41.50	1,010	0.193	0.064	0.024	0.049	33	870
9	38.50	1,026	0.166	0.067	0.028	0.048	33	884
8	36.00	414	0.145	0.068	0.031	0.048	13	357
7	32.50	1,051	0.118	0.070	0.035	0.047	33	906
6	27.50	1,075	0.085	0.071	0.039	0.045	33	926
5	22.50	1,099	0.057	0.071	0.042	0.044	32	947
4	17.50	1,122	0.034	0.069	0.041	0.042	31	967
3	12.50	1,146	0.017	0.062	0.037	0.038	29	987
2	7.50	1,170	0.006	0.048	0.027	0.030	24	1,008
1	2.50	1,194	0.001	0.021	0.011	0.014	11	1,028
DragonWave Horizon C	128.00	34	1.832	1.689	1.034	0.332	8	30
Alcatel-Lucent RRH2x	128.00	317	1.832	1.689	1.034	0.332	70	273
Alcatel-Lucent 1900	128.00	180	1.832	1.689	1.034	0.332	40	155
Alcatel-Lucent TD-RR	128.00	210	1.832	1.689	1.034	0.332	46	181
DragonWave A-ANT-18G	128.00	81	1.832	1.689	1.034	0.332	18	70
Side Arms	128.00	560	1.832	1.689	1.034	0.332	124	482
KMW ETCR-654L12H6	128.00	255	1.832	1.689	1.034	0.332	56	219
Nokia AirScale RRH 4	118.00	106	1.557	0.652	0.613	0.176	12	91
Alcatel-Lucent RRH2x	118.00	170	1.557	0.652	0.613	0.176	20	147
Alcatel-Lucent PCS B	118.00	165	1.557	0.652	0.613	0.176	19	142
Alcatel-Lucent RRH4X	118.00	192	1.557	0.652	0.613	0.176	23	165
Andrew DB844G65ZAXY	118.00	36	1.557	0.652	0.613	0.176	4	31
RFS DB-T1-6Z-8AB-OZ	118.00	88	1.557	0.652	0.613	0.176	10	76
Antel BXA-70063-6CF-	118.00	51	1.557	0.652	0.613	0.176	6	44
Commscope JAHH-65B-	118.00	364	1.557	0.652	0.613	0.176	43	313
Round Platform w/ Ha	118.00	2,000	1.557	0.652	0.613	0.176	235	1,723
48" x 12" Panel	109.00	270	1.329	0.162	0.362	0.074	13	233
Round Low Profile PI	109.00	1,500	1.329	0.162	0.362	0.074	74	1,292
Ericsson AIR 21, 1.3	98.00	275	1.074	-0.083	0.171	-0.005	-1	237
Ericsson AIR-32 B2A/	98.00	397	1.074	-0.083	0.171	-0.005	-1	342
Round T-Arm	98.00	750	1.074	-0.083	0.171	-0.005	-2	646
Raycap DC6-48-60-18-	90.00	40	0.906	-0.122	0.090	-0.030	-1	34
Raycap DC6-48-60-0-8	90.00	66	0.906	-0.122	0.090	-0.030	-1	57
Ericsson RRUS 4478 B	90.00	178	0.906	-0.122	0.090	-0.030	-4	154
Ericsson RRUS 32 B2	90.00	159	0.906	-0.122	0.090	-0.030	-3	137
Ericsson RRUS 32 B66	90.00	159	0.906	-0.122	0.090	-0.030	-3	137
Ericsson RRUS E2 B29	90.00	180	0.906	-0.122	0.090	-0.030	-4	155
Ericsson RRUS-32 (77	90.00	231	0.906	-0.122	0.090	-0.030	-5	199
Ericsson RRUS-11	90.00	330	0.906	-0.122	0.090	-0.030	-7	284
CCI HPA-65R-BUU-H8	90.00	816	0.906	-0.122	0.090	-0.030	-16	703
Round Platform w/ Ha	90.00	2,000	0.906	-0.122	0.090	-0.030	-40	1,723
2' Std. Dish	70.00	14	0.548	-0.034	0.010	0.002	0	12
GPS	50.00	10	0.280	0.050	0.014	0.046	0	9
Flat Side Arm	50.00	150	0.280	0.050	0.014	0.046	5	129
		33,725	66.998	23.703	21.981	6.025	1,258	29,057

Load Case (1.2 + 0.2Sds) \* DL + E EMAM Seismic Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-40.29	-1.25	0.00	-128.21	0.00	128.21	3,957.37	1,978.68	7,974.52	3,958.89	0.00	0.00	0.043
5.00	-38.84	-1.23	0.00	-121.96	0.00	121.96	3,898.74	1,949.37	7,667.30	3,806.37	0.01	-0.01	0.042
10.00	-37.42	-1.21	0.00	-115.80	0.00	115.80	3,838.36	1,919.18	7,362.40	3,655.00	0.02	-0.02	0.041
15.00	-36.03	-1.18	0.00	-109.75	0.00	109.75	3,776.22	1,888.11	7,060.07	3,504.92	0.05	-0.03	0.041
20.00	-34.67	-1.16	0.00	-103.83	0.00	103.83	3,712.32	1,856.16	6,760.57	3,356.23	0.09	-0.04	0.040
25.00	-33.34	-1.13	0.00	-98.03	0.00	98.03	3,646.67	1,823.34	6,464.15	3,209.08	0.14	-0.05	0.040
30.00	-32.03	-1.10	0.00	-92.38	0.00	92.38	3,579.26	1,789.63	6,171.08	3,063.58	0.20	-0.06	0.039
35.00	-31.52	-1.09	0.00	-86.86	0.00	86.86	3,510.10	1,755.05	5,881.60	2,919.87	0.27	-0.08	0.039
37.00	-30.25	-1.06	0.00	-84.67	0.00	84.67	3,481.94	1,740.97	5,766.87	2,862.92	0.30	-0.08	0.038
40.00	-29.00	-1.03	0.00	-81.49	0.00	81.49	3,439.17	1,719.59	5,595.97	2,778.07	0.36	-0.09	0.038
43.00	-28.57	-1.02	0.00	-78.39	0.00	78.39	2,697.55	1,348.77	4,394.78	2,181.75	0.41	-0.10	0.047
45.00	-27.50	-1.00	0.00	-76.35	0.00	76.35	2,677.43	1,338.72	4,310.07	2,139.70	0.46	-0.10	0.046
50.00	-26.25	-0.97	0.00	-71.36	0.00	71.36	2,625.91	1,312.96	4,099.79	2,035.31	0.57	-0.11	0.045
55.00	-25.23	-0.96	0.00	-66.50	0.00	66.50	2,572.64	1,286.32	3,891.84	1,932.08	0.70	-0.13	0.044
60.00	-24.24	-0.95	0.00	-61.72	0.00	61.72	2,517.61	1,258.80	3,686.50	1,830.13	0.84	-0.14	0.043
65.00	-23.27	-0.95	0.00	-56.98	0.00	56.98	2,460.82	1,230.41	3,484.00	1,729.60	1.00	-0.16	0.042
70.00	-22.31	-0.95	0.00	-52.26	0.00	52.26	2,402.27	1,201.14	3,284.61	1,630.62	1.17	-0.17	0.041
75.00	-20.85	-0.97	0.00	-47.50	0.00	47.50	2,341.97	1,170.99	3,088.58	1,533.30	1.36	-0.19	0.040
80.00	-20.08	-0.98	0.00	-42.65	0.00	42.65	1,720.57	860.28	2,230.28	1,107.20	1.57	-0.20	0.050
85.00	-19.32	-1.00	0.00	-37.73	0.00	37.73	1,679.48	839.74	2,095.57	1,040.33	1.79	-0.22	0.048
90.00	-13.47	-1.07	0.00	-32.73	0.00	32.73	1,636.64	818.32	1,962.74	974.39	2.03	-0.24	0.042
95.00	-13.06	-1.08	0.00	-27.36	0.00	27.36	1,592.04	796.02	1,832.05	909.51	2.29	-0.25	0.038
98.00	-11.04	-1.07	0.00	-24.13	0.00	24.13	1,564.44	782.22	1,754.76	871.14	2.45	-0.27	0.035
100.00	-10.42	-1.07	0.00	-21.99	0.00	21.99	1,545.69	772.84	1,703.74	845.81	2.56	-0.27	0.033
105.00	-9.94	-1.05	0.00	-16.66	0.00	16.66	1,497.58	748.79	1,578.09	783.43	2.85	-0.29	0.028
109.00	-7.64	-0.95	0.00	-12.46	0.00	12.46	1,457.82	728.91	1,479.63	734.55	3.10	-0.30	0.022
110.00	-7.10	-0.91	0.00	-11.51	0.00	11.51	1,446.53	723.26	1,454.14	721.90	3.16	-0.30	0.021
115.00	-6.79	-0.89	0.00	-6.94	0.00	6.94	1,377.44	688.72	1,317.89	654.26	3.48	-0.31	0.016
118.00	-2.77	-0.48	0.00	-4.28	0.00	4.28	1,335.99	668.00	1,239.36	615.27	3.67	-0.31	0.009
119.00	-2.69	-0.48	0.00	-3.79	0.00	3.79	1,322.18	661.09	1,213.72	602.54	3.74	-0.31	0.008
119.00	-2.69	-0.48	0.00	-3.79	0.00	3.79	936.41	468.21	864.42	429.14	3.74	-0.31	0.012
120.00	-2.34	-0.43	0.00	-3.32	0.00	3.32	929.99	465.00	849.47	421.71	3.80	-0.31	0.010
125.00	-2.13	-0.39	0.00	-1.18	0.00	1.18	896.83	448.41	775.69	385.08	4.13	-0.32	0.005
128.00	0.00	0.00	0.00	0.00	0.00	0.00	876.09	438.04	732.26	363.52	4.33	-0.32	0.000
130.00	0.00	0.00	0.00	0.00	0.00	0.00	861.91	430.96	703.69	349.34	4.46	-0.32	0.000

Load Case (0.9 - 0.2Sds) \* DL + E EMAM Seismic (Reduced DL) Equivalent Modal Analysis Method

Calculated Forces

Seg Elev (ft)	Pu FY (-) (kips)	Vu FX (-) (kips)	Tu MY (ft-kips)	Mu MZ (ft-kips)	Mu MX (ft-kips)	Resultant Moment (ft-kips)	phi Pn (kips)	phi Vn (kips)	phi Tn (ft-kips)	phi Mn (ft-kips)	Total Deflect (in)	Rotation (deg)	Ratio
0.00	-28.03	-1.25	0.00	-126.42	0.00	126.42	3,957.37	1,978.68	7,974.52	3,958.89	0.00	0.00	0.039
5.00	-27.02	-1.23	0.00	-120.18	0.00	120.18	3,898.74	1,949.37	7,667.30	3,806.37	0.01	-0.01	0.039
10.00	-26.03	-1.20	0.00	-114.03	0.00	114.03	3,838.36	1,919.18	7,362.40	3,655.00	0.02	-0.02	0.038
15.00	-25.07	-1.18	0.00	-108.01	0.00	108.01	3,776.22	1,888.11	7,060.07	3,504.92	0.05	-0.03	0.037
20.00	-24.12	-1.15	0.00	-102.12	0.00	102.12	3,712.32	1,856.16	6,760.57	3,356.23	0.09	-0.04	0.037
25.00	-23.19	-1.12	0.00	-96.37	0.00	96.37	3,646.67	1,823.34	6,464.15	3,209.08	0.13	-0.05	0.036
30.00	-22.29	-1.09	0.00	-90.77	0.00	90.77	3,579.26	1,789.63	6,171.08	3,063.58	0.20	-0.06	0.036
35.00	-21.93	-1.08	0.00	-85.31	0.00	85.31	3,510.10	1,755.05	5,881.60	2,919.87	0.27	-0.07	0.035
37.00	-21.05	-1.05	0.00	-83.15	0.00	83.15	3,481.94	1,740.97	5,766.87	2,862.92	0.30	-0.08	0.035
40.00	-20.18	-1.02	0.00	-80.01	0.00	80.01	3,439.17	1,719.59	5,595.97	2,778.07	0.35	-0.09	0.035
43.00	-19.87	-1.01	0.00	-76.96	0.00	76.96	2,697.55	1,348.77	4,394.78	2,181.75	0.41	-0.09	0.043
45.00	-19.13	-0.98	0.00	-74.94	0.00	74.94	2,677.43	1,338.72	4,310.07	2,139.70	0.45	-0.10	0.042
50.00	-18.26	-0.95	0.00	-70.04	0.00	70.04	2,625.91	1,312.96	4,099.79	2,035.31	0.56	-0.11	0.041
55.00	-17.56	-0.94	0.00	-65.26	0.00	65.26	2,572.64	1,286.32	3,891.84	1,932.08	0.68	-0.13	0.041
60.00	-16.86	-0.93	0.00	-60.57	0.00	60.57	2,517.61	1,258.80	3,686.50	1,830.13	0.82	-0.14	0.040
65.00	-16.19	-0.92	0.00	-55.94	0.00	55.94	2,460.82	1,230.41	3,484.00	1,729.60	0.98	-0.16	0.039
70.00	-15.52	-0.93	0.00	-51.32	0.00	51.32	2,402.27	1,201.14	3,284.61	1,630.62	1.15	-0.17	0.038
75.00	-14.51	-0.95	0.00	-46.67	0.00	46.67	2,341.97	1,170.99	3,088.58	1,533.30	1.34	-0.19	0.037
80.00	-13.97	-0.96	0.00	-41.94	0.00	41.94	1,720.57	860.28	2,230.28	1,107.20	1.54	-0.20	0.046
85.00	-13.44	-0.98	0.00	-37.14	0.00	37.14	1,679.48	839.74	2,095.57	1,040.33	1.76	-0.22	0.044
90.00	-9.37	-1.05	0.00	-32.26	0.00	32.26	1,636.64	818.32	1,962.74	974.39	1.99	-0.23	0.039
95.00	-9.08	-1.06	0.00	-26.98	0.00	26.98	1,592.04	796.02	1,832.05	909.51	2.25	-0.25	0.035
98.00	-7.68	-1.06	0.00	-23.81	0.00	23.81	1,564.44	782.22	1,754.76	871.14	2.41	-0.26	0.032
100.00	-7.25	-1.05	0.00	-21.70	0.00	21.70	1,545.69	772.84	1,703.74	845.81	2.52	-0.27	0.030
105.00	-6.91	-1.03	0.00	-16.45	0.00	16.45	1,497.58	748.79	1,578.09	783.43	2.81	-0.28	0.026
109.00	-5.31	-0.94	0.00	-12.31	0.00	12.31	1,457.82	728.91	1,479.63	734.55	3.05	-0.29	0.020
110.00	-4.94	-0.90	0.00	-11.38	0.00	11.38	1,446.53	723.26	1,454.14	721.90	3.11	-0.29	0.019
115.00	-4.72	-0.88	0.00	-6.86	0.00	6.86	1,377.44	688.72	1,317.89	654.26	3.42	-0.30	0.014
118.00	-1.92	-0.48	0.00	-4.24	0.00	4.24	1,335.99	668.00	1,239.36	615.27	3.61	-0.31	0.008
119.00	-1.87	-0.47	0.00	-3.76	0.00	3.76	1,322.18	661.09	1,213.72	602.54	3.67	-0.31	0.008
119.00	-1.87	-0.47	0.00	-3.76	0.00	3.76	936.41	468.21	864.42	429.14	3.67	-0.31	0.011
120.00	-1.62	-0.42	0.00	-3.29	0.00	3.29	929.99	465.00	849.47	421.71	3.74	-0.31	0.010
125.00	-1.48	-0.39	0.00	-1.17	0.00	1.17	896.83	448.41	775.69	385.08	4.06	-0.31	0.005
128.00	0.00	0.00	0.00	0.00	0.00	0.00	876.09	438.04	732.26	363.52	4.26	-0.31	0.000
130.00	0.00	0.00	0.00	0.00	0.00	0.00	861.91	430.96	703.69	349.34	4.39	-0.31	0.000

Site Number: 370626

Code: ANSI/TIA-222-G

© 2007 - 2018 by ATC IP LLC. All rights reserved.

Site Name: East Hartford, CT

Engineering Number: OAA722890\_C3\_01

1/26/2018 4:15:05 PM

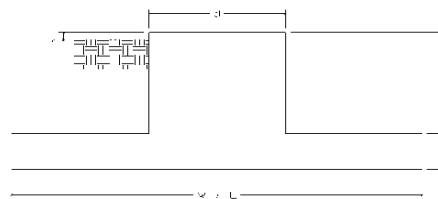
Customer: AT&T MOBILITY

## Analysis Summary

Load Case	Reactions						Max Usage	
	Shear FX (kips)	Shear FZ (kips)	Axial FY (kips)	Moment MX (ft-kips)	Moment MY (ft-kips)	Moment MZ (ft-kips)	Elev (ft)	Interaction Ratio
1.2D + 1.6W	26.81	0.00	40.42	0.00	0.00	2472.54	43.00	0.64
0.9D + 1.6W	25.84	0.00	30.31	0.00	0.00	2372.57	43.00	0.61
1.2D + 1.0Di + 1.0Wi	6.84	0.00	83.37	0.00	0.00	660.94	43.00	0.20
(1.2 + 0.2Sds) * DL + E ELFM	1.12	0.00	40.29	0.00	0.00	115.01	43.00	0.04
(1.2 + 0.2Sds) * DL + E EMAM	1.25	0.00	40.29	0.00	0.00	128.21	80.00	0.05
(0.9 - 0.2Sds) * DL + E ELFM	1.12	0.00	28.03	0.00	0.00	113.54	43.00	0.04
(0.9 - 0.2Sds) * DL + E EMAM	1.25	0.00	28.03	0.00	0.00	126.42	80.00	0.05
1.0D + 1.0W	6.18	0.00	33.72	0.00	0.00	569.76	43.00	0.15

Site Name: East Hartford, CT  
 Site Number: 370626  
 Engineering Number: OAA722890  
 Engineer: Garret.Heath  
 Date: 01/26/18  
 Tower Type: MP

Program Last Updated: 5/13/2014



**Design Loads (Factored) - Analysis per TIA-222-G Standards**

Design / Analysis / Mapping:	Analysis		
Compression/Leg:	40.4 k	Concrete Strength ( $f'_c$ ):	5000 psi
Uplift/Leg:	0.0 k	Pad Tension Steel Depth:	20.00 in
Total Shear:	26.8 k	$\phi_{\text{Shear}}$ :	0.75
Moment:	2472.5 k-ft	$\phi_{\text{Flexure / Tension}}$ :	0.90
Tower + Appurtenance Weight:	41.1 k	$\phi_{\text{Compression}}$ :	0.65
Depth to Base of Foundation (l + t - h):	6.00 ft	$\beta$ :	0.80
Diameter of Pier (d):	7.00 ft	Bottom Pad Rebar Size #:	9
Height of Pier above Ground (h):	1.00	# of Bottom Pad Rebar:	34
Width of Pad (W):	23.00 ft	Pad Bottom Steel Area:	34.00 in <sup>2</sup>
Length of Pad (L):	23.00 ft	Pad Steel $F_y$ :	60000 psi
Thickness of Pad (t):	2.00 ft	Top Pad Rebar Size #:	9
Tower Leg Center to Center:	0.00 ft	# of Top Pad Rebar:	34
Number of Tower Legs:	1.0 (1 if MP or GT)	Pad Top Steel Area:	34.00 in <sup>2</sup>
Tower Center from Mat Center:	0.00 ft	Pier Rebar Size #:	11
Depth Below Ground Surface to Water Table:	3.50 ft	Pier Steel Area (Single Bar):	1.56 in <sup>2</sup>
Unit Weight of Concrete:	150.0 pcf	# of Pier Rebar:	24
Unit Weight of Soil Above Water Table:	125.0 pcf	Pier Steel $F_y$ :	60000 psi
Unit Weight of Water:	62.4 pcf	Pier Cage Diameter:	76.0 in
Unit Weight of Soil Below Water Table:	62.6 pcf	Rebar Strain Limit:	0.008
Friction Angle of Uplift:	15.0 Degrees	Steel Elastic Modulus:	29000 ksi
Ultimate Coefficient of Shear Friction:	0.50	Tie Rebar Size #:	4
Ultimate Compressive Bearing Pressure:	4000.0 psf	Tie Steel Area (Single Bar):	0.20 in <sup>2</sup>
Ultimate Passive Pressure on Pad Face:	0.0 psf	Tie Spacing:	6 in
$\phi_{\text{Soil and Concrete Weight}}$ :	0.9	Tie Steel $F_y$ :	60000 psi
$\phi_{\text{Soil}}$ :	0.75		

**Overturning Moment Usage**

Design OTM:	2660.2 k-ft
OTM Resistance:	4248.3 k-ft
Design OTM / OTM Resistance:	0.63 Result: OK

**Soil Bearing Pressure Usage**

Net Bearing Pressure:	2109 psf
Factored Nominal Bearing Pressure:	3000 psf
Net Bearing Pressure/Factored Nominal Bearing Pressure:	0.70 Result: OK
Load Direction Controlling Design Bearing Pressure:	Diagonal to Pad Edge

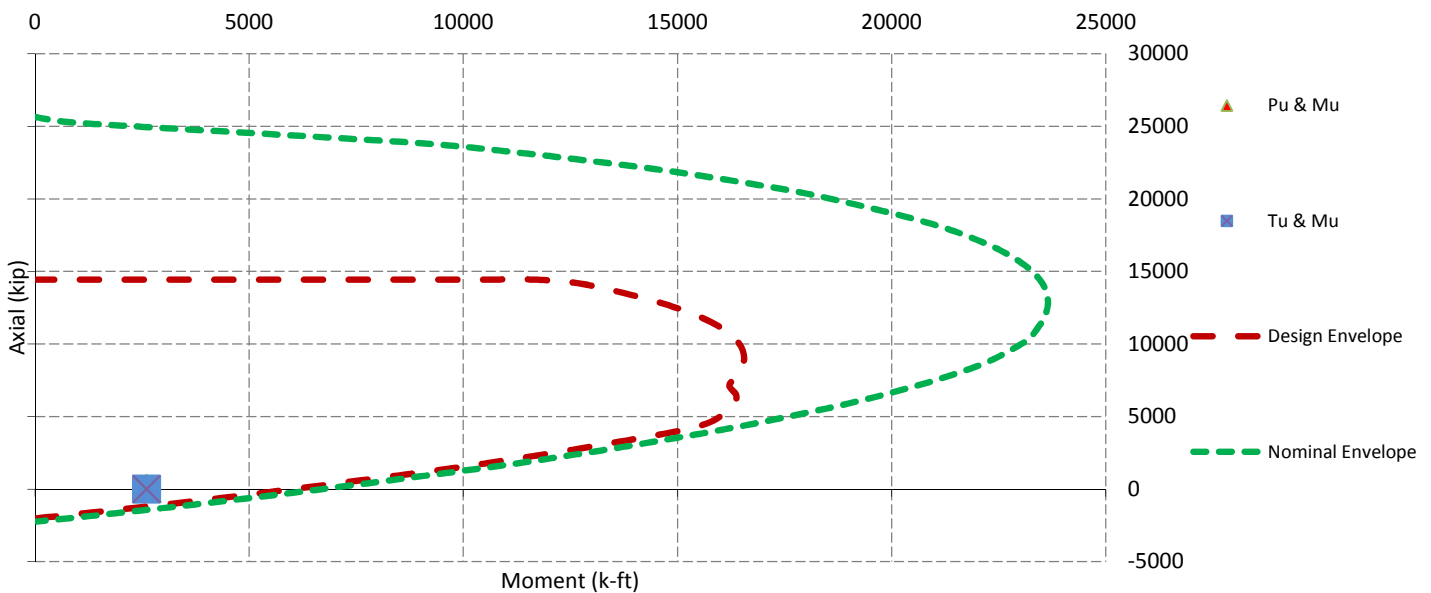
**Sliding Factor of Safety**

Total Factored Sliding Resistance:	144.2 k
Sliding Design / Sliding Resistance:	0.19 Result: OK

## One Way Shear, Flexural Capacity, and Punching Shear

Factored One Way Shear ( $V_u$ ):	168.2 k
One Way Shear Capacity ( $\phi V_c$ ):	585.5 k - ACI11.3.1.1
$V_u / \phi V_c$ :	0.29 Result: OK
Load Direction Controlling Shear Capacity:	Parallel to Pad Edge
Lower Steel Pad Factored Moment ( $M_u$ ):	891.9 k-ft
Lower Steel Pad Moment Capacity ( $\phi M_n$ ):	2946.9 k-ft - ACI10.3
$M_u / \phi M_n$ :	0.30 Result: OK
Load Direction Controlling Flexural Capacity:	Parallel to Pad Edge
Upper Steel Pad Factored Moment ( $M_u$ ):	627.2 k-ft
Upper Steel Pad Moment Capacity ( $\phi M_n$ ):	2946.9 k-ft
$M_u / \phi M_n$ :	0.21 Result: OK
Lower Pad Flexural Reinforcement Ratio:	0.0062 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Upper Pad Flexural Reinforcement Ratio:	0.0062 OK - Minimum Reinforcement Ratio Met - ACI10.5.1
Lower Pad Reinforcement Spacing:	8 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Upper Pad Reinforcement Spacing:	8 in - Pad Reinforcing Spacing OK - ACI7.12.2.2 & 10.5.4
Factored Punching Shear ( $V_u$ ):	0.0 k
Nominal Punching Shear Capacity ( $\phi_c V_n$ ):	1386.2 k - ACI11.12.2.1
$V_u / \phi V_c$ :	0.00 Result: OK
Factored Moment in Pier ( $M_u$ ):	2606.6 k-ft
Pier Moment Capacity ( $\phi M_n$ ):	6269.8 k-ft
$M_u / \phi M_n$ :	0.42 Result: OK
Factored Shear in Pier ( $V_u$ ):	26.8 k
Pier Shear Capacity ( $\phi V_n$ ):	589.9 k
$V_u / \phi V_c$ :	0.05 Result: OK
Pier Shear Reinforcement Ratio:	0.0004 No Ties Necessary for Shear - ACI11.5.6.1
Factored Tension in Pier ( $T_u$ ):	0.0 k
Pier Tension Capacity ( $\phi T_n$ ):	2021.8 k
$T_u / \phi T_n$ :	0.00 Result: OK
Factored Compression in Pier ( $P_u$ ):	40.4 k
Pier Compression Capacity ( $\phi P_n$ ):	12164.6 k - ACI10.3.6.2
$P_u / \phi P_n$ :	0.00 Result: OK
Pier Compression Reinforcement Ratio:	0.007 OK - Reinforcement Ratio Met - ACI10.9.1 & 10.8.4
$M_u / \phi_B M_n + T_u / \phi_T T_n$ :	0.42 Result: OK

Nominal and Design Moment Capacity and Factored Design Loads





Base/Flange Plate	Plate Type	<b>Baseplate</b>
	Pole Diameter	49.19 in
	Pole Thickness	0.375 in
	Plate Diameter	67 in
	Plate Thickness	2.5 in
	Plate Fy	50 ksi
	Weld Length	0.3125 in
	$\phi_s$ Resistance	543.29 k-in
	Applied	235.16 k-in
Stiffeners	#	0

Bolts	#	20
	Bolt Circle (R)adial / (S)quare	57 in R
	Diameter	2.5 in
	Hole Diameter	2.75 in
	Type	A572-55
	Fy	55 ksi
	Fu	70 ksi
	$\phi_s$ Resistance	223.93 k
	Applied	106.05 k
Reinforcement	#	0
	Extra Bolts O	0

Code Rev. **G**      Date 1/26/2018  
 Engineer Garret.Heath  
 Site # 370626  
 Carrier AT&T MOBILITY

Moment 2472.5 k-ft  
 Axial 40.4 k

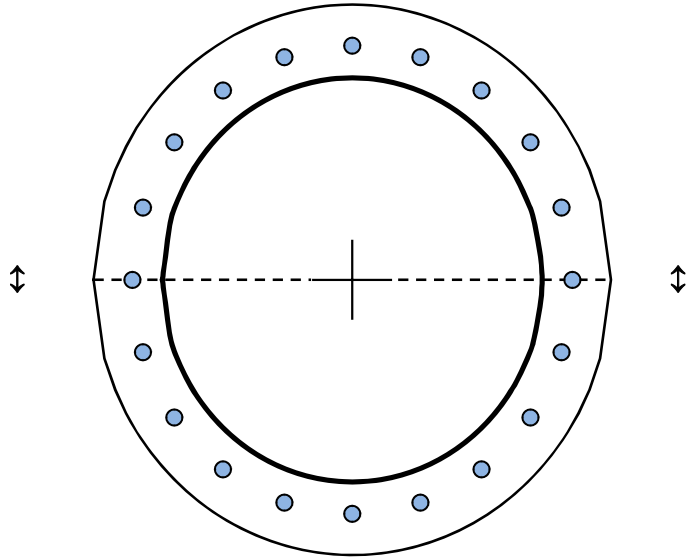


Plate Stress Ratio:  
**0.43** (Pass)

Bolt Stress Ratio:  
**0.47** (Pass)

Base/Flange Plate	Plate Type	<b>Flange @ 119.0 ft</b>
	Pole Diameter	22 in
	Pole Thickness	0.1875 in
	Plate Diameter	31 in
	Plate Thickness	1 in
	Plate Fy	36 ksi
	Weld Length	0.1875 in
	$\phi_s$ Resistance	64.89 k-in
	Applied	10.74 k-in
Stiffeners	#	0

Code Rev. **G**

Date 1/26/2018  
 Engineer Vivian.Chung  
 Site # 370626  
 Carrier CLEARWIRE CORPORATION

Moment 29.0 k-ft  
 Axial 2.4 k

Required Flange Thickness:  
**0.41 in** OK

Bolts	#	<b>8</b>
	Bolt Circle (R)adial / (S)quare	27 in R
	Diameter	1 in
	Hole Diameter	1.125 in
	Type	A325
	Fy	92 ksi
	Fu	120 ksi
	$\phi_s$ Resistance	54.52 k
	Applied	6.14 k
Reinforcement	#	0
	#	0

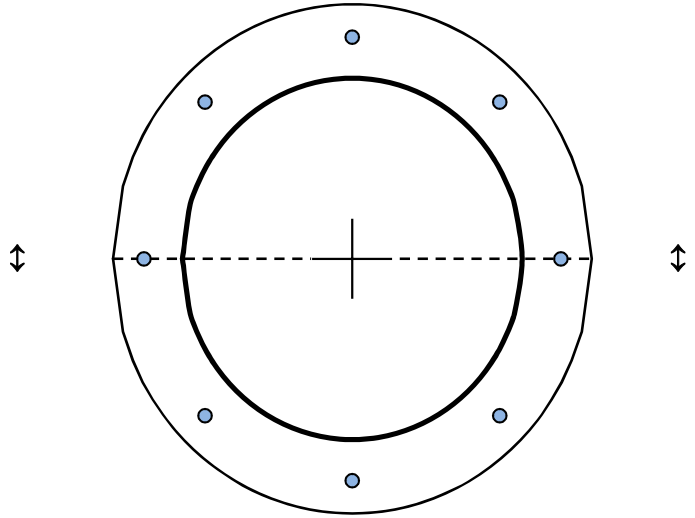


Plate Stress Ratio:  
**0.17** (Pass)

Bolt Stress Ratio:  
**0.11** (Pass)

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Mayor Marcia A. Leclerc**  
**740 Main Street**  
**East Hartford, CT 06108**



9590 9402 3315 7196 6103 87

2. Article Number (Transfer from service label)

7017 0190 0000 5797 8506

PS Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

X

- Agent  
 Addressee

B. Received by (Printed Name)

*Jan Adams*

C. Date of Delivery

5-16-19

D. Is delivery address different from item 1?  Yes  
If YES, enter delivery address below:  No

3. Service Type

- Adult Signature  
 Adult Signature Restricted Delivery  
 Certified Mail®  
 Certified Mail Restricted Delivery  
 Collect on Delivery  
 Collect on Delivery Restricted Delivery  
 Insured Mail  
 Insured Mail Restricted Delivery (over \$500)
- Priority Mail Express®  
 Registered Mail™  
 Registered Mail Restricted Delivery  
 Return Receipt for Merchandise  
 Signature Confirmation™  
 Signature Confirmation Restricted Delivery

Domestic Return Receipt

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Mr. Jeffrey Cormier, Town Planner**  
**740 Main Street**  
**East Hartford, CT 06108**



9590 9402 3315 7196 6103 94

2. Article Number (Transfer from service label)

7017 0190 0000 5797 8513

PS Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

X

- Agent  
 Addressee

B. Received by (Printed Name)

*Jan Adams*

C. Date of Delivery

5-16-19

D. Is delivery address different from item 1?  Yes  
If YES, enter delivery address below:  No

3. Service Type

- Adult Signature  
 Adult Signature Restricted Delivery  
 Certified Mail®  
 Certified Mail Restricted Delivery  
 Collect on Delivery  
 Collect on Delivery Restricted Delivery  
 Insured Mail  
 Insured Mail Restricted Delivery (over \$500)
- Priority Mail Express®  
 Registered Mail™  
 Registered Mail Restricted Delivery  
 Return Receipt for Merchandise  
 Signature Confirmation™  
 Signature Confirmation Restricted Delivery

Domestic Return Receipt

**SENDER: COMPLETE THIS SECTION**

- Complete items 1, 2, and 3.
- Print your name and address on the reverse so that we can return the card to you.
- Attach this card to the back of the mailpiece, or on the front if space permits.

1. Article Addressed to:

**Mr. Greg Grew, Director of Inspections and Permits**  
**740 Main Street - 1st Floor**  
**East Hartford, CT 06108**



9590 9402 3315 7196 6104 31

2. Article Number (Transfer from service label)

7017 0190 0000 5797 8544

PS Form 3811, July 2015 PSN 7530-02-000-9053

**COMPLETE THIS SECTION ON DELIVERY**

A. Signature

X

- Agent  
 Addressee

B. Received by (Printed Name)

*Jan Adams*

C. Date of Delivery

5-16-19

D. Is delivery address different from item 1?  Yes  
If YES, enter delivery address below:  No

3. Service Type

- Adult Signature  
 Adult Signature Restricted Delivery  
 Certified Mail®  
 Certified Mail Restricted Delivery  
 Collect on Delivery  
 Collect on Delivery Restricted Delivery  
 Insured Mail  
 Insured Mail Restricted Delivery (over \$500)
- Priority Mail Express®  
 Registered Mail™  
 Registered Mail Restricted Delivery  
 Return Receipt for Merchandise  
 Signature Confirmation™  
 Signature Confirmation Restricted Delivery

Domestic Return Receipt

# USPS Tracking®

FAQs > (<http://faq.usps.com/?articleId=220900>)

## Track Another Package +

Tracking Number: 70170190000057978537

Remove X

On Time

Expected Delivery on

**WEDNESDAY**

**16** MAY 2018 ⓘ

by **8:00pm** ⓘ

**Delivered**

May 16, 2018 at 11:11 am  
Delivered, To Mail Room  
WOBURN, MA 01801

Get Updates ▾

Text & Email Updates ▾

Tracking History ▾

Product Information ▾

See Less ^

7017 0190 0000 5797 8537

U.S. Postal Service™ CERTIFIED MAIL® RECEIPT Domestic Mail Only	
For delivery information, visit our website at <a href="http://www.usps.com">www.usps.com</a> ®.	
WOBURN, MA 01801	
<b>OFFICIAL USE</b>	
Certified Mail Fee	\$3.45
Extra Services & Fees (check box, add fees as appropriate)	
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$2.26
Total Postage a	\$8.46
Sent To	
Street and Apt. #	
City, State, ZIP+4	
Mr. Shawn Dunn, APM American Tower 10 Presidential Way Woburn, MA 01801	
PS Form 3800, April 2010 Edition	

0862 04  
MAY 14 2018  
05/14/2018  
Postmark Here  
NORTH AMERICA MA 01801

## Track Another Package +

Tracking Number: 70163010000078291230

Remove X

Your item has been delivered to an agent at 9:14 am on May 17, 2018 in HARTFORD, CT 06103.

### ✓ Delivered

May 17, 2018 at 9:14 am  
Delivered, To Agent  
HARTFORD, CT 06103

Get Updates ▾

Text & Email Updates

Tracking History

Product Information ▾

U.S. Postal Service™  
**CERTIFIED MAIL® RECEIPT** CT2419  
Domestic Mail Only

For delivery information, visit our website at [www.usps.com](http://www.usps.com)®.

HARTFORD, CT 06103

Certified Mail Fee	\$3.45
Extra Services & Fees (check box, add fee as appropriate)	\$3.75
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$0.50
Total Postage and Fees	\$6.70

Sent To: Ms. Rosemary G. Ayers, Esq.  
Day Pitney LLP  
242 Trumbull St.  
Hartford, CT 06103-1212

Postmark Here: NORTH BILLERICA, CT 06106, MAY 14 2018

PS Form 3800, 11/15

See Less ^

## Can't find what you're looking for?

Go to our FAQs section to find answers to your tracking questions.

FAQs (<http://faq.usps.com/?articleId=220900>)

# USPS Tracking®

FAQs > (<http://faq.usps.com/?articleId=220900>)

Track Another Package +

Tracking Number: 70170190000057978520

Remove X

On Time

Expected Delivery on

**WEDNESDAY**

**16** MAY 2018 ⓘ

by **8:00pm** ⓘ

 **Delivered**

May 16, 2018 at 11:11 am  
Delivered, To Mail Room  
WOBURN, MA 01801

Get Updates ▾

7017 0190 0000 5797 8520

**U.S. Postal Service™  
CERTIFIED MAIL® RECEIPT**  
Domestic Mail Only

For delivery information, visit our website at [www.usps.com](http://www.usps.com)

WOBURN, MA 01801

0862 04  
MAY 14 2018  
Postmark Here

Certified Mail Fee	\$3.45
Extra Services & Fees (check box, add fee as appropriate)	\$2.75
<input type="checkbox"/> Return Receipt (hardcopy)	\$0.00
<input type="checkbox"/> Return Receipt (electronic)	\$0.00
<input type="checkbox"/> Certified Mail Restricted Delivery	\$0.00
<input type="checkbox"/> Adult Signature Required	\$0.00
<input type="checkbox"/> Adult Signature Restricted Delivery	\$0.00
Postage	\$2.26
Total Postage and	\$8.46

Sent To: CARO LLC c/o American Tower  
Land Management  
10 Presidential Way  
Woburn, MA 01801

Street and Apt. No:  
City, State, ZIP+4®

PS Form 3800, A

Text & Email Updates ▾

Tracking History ▾

Product Information ▾

See Less ^