

July 18, 2018

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

Regarding: Notice of Exempt Modification – Swap of 3 Antennas and Addition of 3

radios

Property Address: 75 Wells Road, Wethersfield, CT (the "Property")

Applicant: AT&T Mobility ("AT&T", Site # CT1074)

Dear Ms. Bachman:

AT&T currently maintains a wireless telecommunications facility on an existing 101 foot 6 Inch monopole tower ("tower") at the above-referenced address, latitude 41.705825, longitude -72.6634161. AT&T's facility consists of nine (9) wireless telecommunications antennas at 106 feet. The tower is controlled and owned by Frontier Communications. Assessor's information is attached hereto.

AT&T desires to modify its existing telecommunications facility by swapping (3) antennas for newer models and adding (3) remote radios. The centerline height of said antennas is and will remain at 106 feet.

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 Town Manager of the Town of Wethersfield, The Building Director of the Town of Wethersfield and the Director of Planning and Economic Development of the Town of Wethersfield. A copy of this letter is also being sent to Frontier Communications, the owner of the structure that AT&T is located.

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).

- 1. The planned modifications will not result in an increase in the height of the existing structure. AT&T's antennas and associated lines will be installed at 106 foot level of the 101 foot 6 Inch Monopole 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.
- 3. The proposed modification will not increase the noise level at the facility by six decibel or more, or to levels that exceed state and local criteria.



- 4. The operation of the modified facility will not increase radio frequency (RF) emissions at the facility to a level at or above the Federal Communications Commission (FCC) safety standard. An RF emissions calculation is attached.
- 5. The proposed modifications will not cause a change or alteration in the physical or environmental characteristics of the site.
- 6. The tower and its foundation can support AT&T's proposed modifications. (Please see attached structural analysis completed by Malouf Engineering Intl., Inc. dated June 29, 2018).

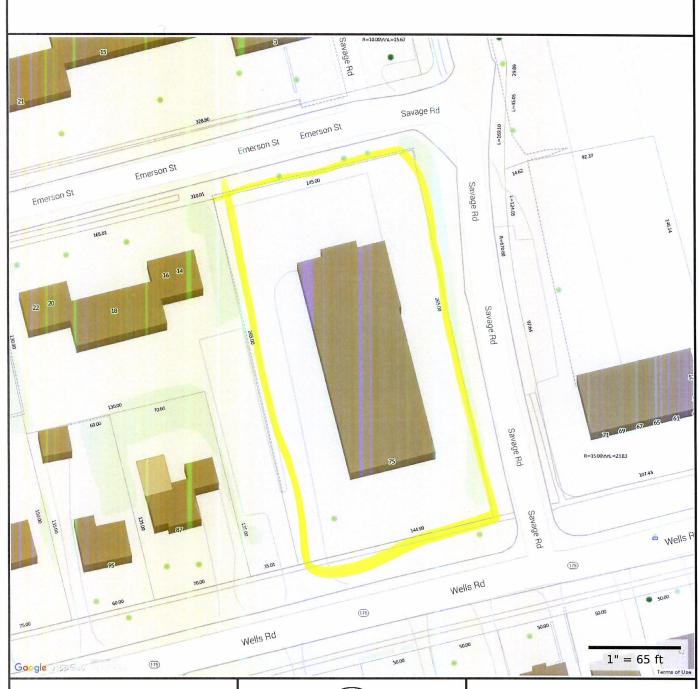
For the foregoing reasons AT&T respectfully requests that the proposed addition of radios be allowed within the exempt modifications under R.C.S.A. § 16-50j-72(b)(2).

Sincerely,

Nicole Caplan Site Acquisition Specialist Empire Telecom

CC: Kathy Bagley, Interim Town Manager, Town of Wethersfield Steve Lattarulo, Chief Building Official, Town of Wethersfield Peter Gillespie, Director of Planning and Economic Development, Town of Wethersfield Frontier Communications, c/o Kelley Stewart

Phone 978-284-3906 Email: ncaplan@empiretelecomm.com





MAP FOR REFERENCE ONLY NOT A LEGAL DOCUMENT

Town of Wethersfield, CT makes no claims and no warranties, expressed or implied, concerning the validity or accuracy of the GIS data presented on this map.



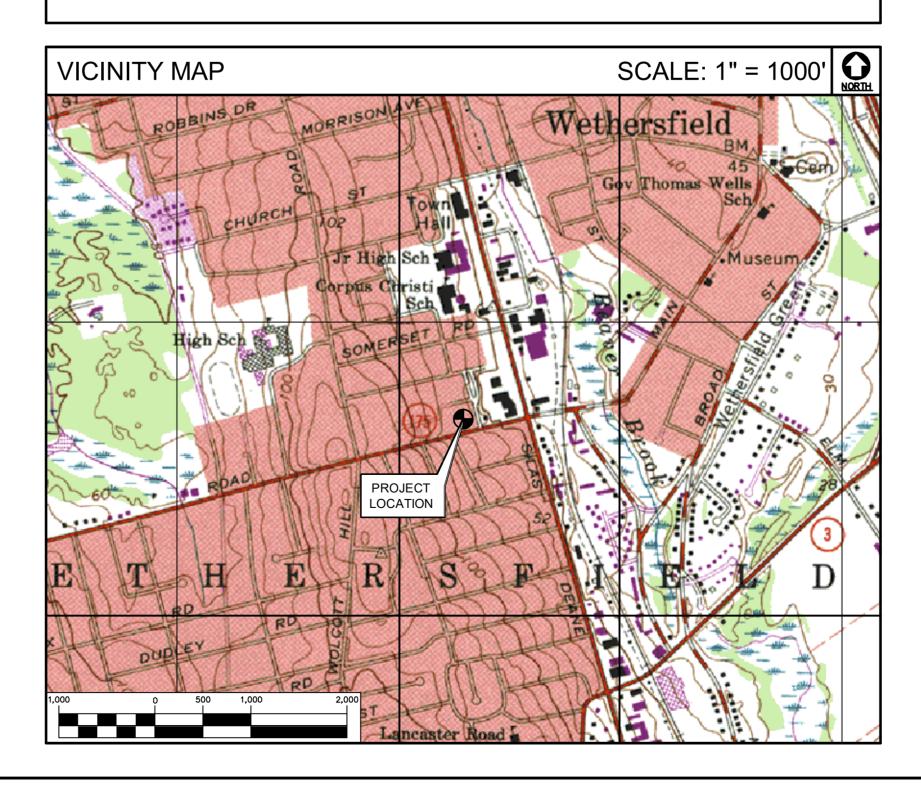
WIRELESS COMMUNICATIONS FACILITY CT1074 - LTE 4C AWS WETHERSFIELD 75 WELLS ROAD WETHERSFIELD, CT 06109

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 500 ENTERPRISE DRIVE TO: 75 WELLS ROAD WETHERSFIELD, CONNECTICUT ROCKY HILL, CONNECTICUT HEAD NORTHEAST ON ENTERPRISE DR TOWARD CAPITAL BLVD 0.36 MI 0.27 MI TURN LEFT ONTO CAPITAL BLVD TURN LEFT ONTO WEST ST 0.16 MI TURN LEFT TO MERGE ONTO I-91 N TOWARD HARTFORD 2.69 MI TAKE THE CT-99 EXIT, EXIT 24, TOWARD WETHERSFIELD/ROCKY HILL. 0.23 MI MERGE ONTO SILAS DEANE HWY/CT-99 TOWARD WETHERSFIELD. 1.87 MI TURN LEFT ONTO WELLS RD/CT-175. 0.11 MI 3. 75 WELLS RD, WETHERSFIELD, CT 06109-3050, 75 WELLS RD IS ON THE RIGHT.



PROJECT SUMMARY

- THE PROPOSED SCOPE OF WORK CONSISTS OF A MODIFICATION TO
 THE EXISTING UNMANNED TELECOMMUNICATIONS FACILITY INCLUDING
 THE FOLLOWING:
- A. AT ANTENNA SECTORS
- REMOVE (3) EXISTING ANTENNAS
- . INSTALL (3) NEW HEY_DOOT ANTENNA
- RELOCATE (6) EXISTING ANTENNAS AND ASSOCIATED RRU'S AND TMA'S TO POSITIONS PER RFDS
- INSTALL (6) SWIVEL RRU MOUNTS TO ACCOMMODATE EXISTING AND ADDITIONAL RRUS
- B. WORK WITHTIN EXISTING AT&T EQUIPMENT ROOM:
- INSTALL (1) ADDITIONAL XMU UNIT WITHIN EXISTING LTE EQUIPMENT RACK

PROJECT INFORMATION

AT&T SITE NUMBER: CT1074

AT&T SITE NAME: WETHERSFIELD

SITE ADDRESS: 75 WELLS ROAD WETHERSFIELD, CT 06109

LESSEE/APPLICANT: AT&T MOBILITY
500 ENTERPRISE DRIVE, SUITE 3A
ROCKY HILL, CT 06067

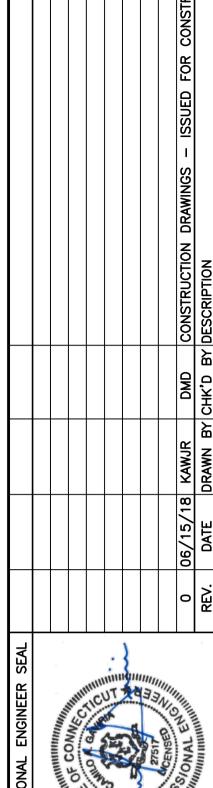
AT&T PACE ID NUMBERS: MRCTB026770
AT&T FA LOCATION CODE: 10035051

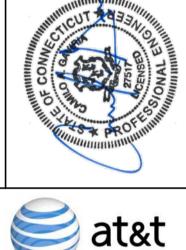
ENGINEER: CENTEK ENGINEERING, INC.
63–2 NORTH BRANFORD RD.
BRANFORD, CT 06405

PROJECT COORDINATES: LATITUDE: 41°-42'-21.07" N
LONGITUDE: 72°-39'-48.26" W
GROUND ELEVATION: ±74' AMSL

SITE COORDINATES AND GROUND ELEVATION REFERENCED FROM GOOGLE EARTH.

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C-1	PLANS AND ELEVATION	0
C-2	LTE 4C AWS ANTENNA LAYOUT PLANS	0
C-3	DETAILS	0
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E-2	LTE WIRING DIAGRAM	0
E-3	TYPICAL ELECTRICAL DETAILS	0







Centered on Solutions::
(203) 488-0580
(203) 488-8587 Fax
63-2 North Branford Road
Branford, CT 06405

SS COMMUNICATIONS FACILITY

THERSFIELD

74 - LTE 4C AWS

75 WELLS ROAD

DATE: 04/02/18

SCALE: AS NOTED

JOB NO. 18000.17

TITLE SHEET

T-1

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): 95-105 MPH (3 SECOND GUST)
- RISK CATEGORY: II (BASED ON IBC APPENDIX N)
- NOMINAL DESIGN SPEED (TOWER): 97 MPH (Vasd) (EXPOSURE C/IMPORTANCE FACTOR 1.0 BASED ON ASCE 7-10) PER 2012 INTERNATIONAL BUILDING CODE (IBC) AS MODIFIED BY THE 2016 CONNECTICUT STATE BUILDING CODE.
- SEISMIC LOAD (DOES NOT CONTROL): PER ASCE 7-10 MINIMUM DESIGN LOADS FOR BUILDING AND OTHER STRUCTURES.

GENERAL NOTES:

- 1. ALL CONSTRUCTION SHALL BE IN COMPLIANCE WITH THE GOVERNING BUILDING
- DRAWINGS INDICATE THE MINIMUM STANDARDS, BUT IF ANY WORK SHOULD BE INDICATED TO BE SUBSTANDARD TO ANY ORDINANCES, LAWS, CODES, RULES, OR REGULATIONS BEARING ON THE WORK, THE CONTRACTOR SHALL INCLUDE IN HIS WORK AND SHALL EXECUTE THE WORK CORRECTLY IN ACCORDANCE WITH SUCH ORDINANCES, LAWS, CODES, RULES OR REGULATIONS WITH NO INCREASE IN COSTS.
- 3. BEFORE BEGINNING THE WORK, THE CONTRACTOR IS RESPONSIBLE FOR MAKING SUCH INVESTIGATIONS CONCERNING PHYSICAL CONDITIONS (SURFACE AND SUBSURFACE) AT OR CONTIGUOUS TO THE SITE WHICH MAY AFFECT PERFORMANCE AND COST OF THE WORK.
- 4. DIMENSIONS AND DETAILS SHALL BE CHECKED AGAINST EXISTING FIELD CONDITIONS.
- THE CONTRACTOR SHALL VERIFY AND COORDINATE THE SIZE AND LOCATION OF ALL OPENINGS, SLEEVES AND ANCHOR BOLTS AS REQUIRED BY ALL TRADES.
- 6. ALL DIMENSIONS, ELEVATIONS, AND OTHER REFERENCES TO EXISTING STRUCTURES. SURFACE, AND SUBSURFACE CONDITIONS ARE APPROXIMATE. NO GUARANTEE IS MADE FOR THE ACCURACY OR COMPLETENESS OF THE INFORMATION SHOWN. THE CONTRACTOR SHALL VERIFY AND COORDINATE ALL DIMENSIONS, ELEVATIONS, ANGLES WITH EXISTING CONDITIONS AND WITH ARCHITECTURAL AND SITE DRAWINGS BEFORE PROCEEDING WITH ANY WORK.
- 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
- 10. THE STRUCTURE IS DESIGNED TO BE SELF-SUPPORTING AND STABLE AFTER FOUNDATION REMEDIATION WORK IS COMPLETE. IT IS THE CONTRACTOR'S SOLE RESPONSIBILITY TO DETERMINE ERECTION PROCEDURE AND SEQUENCE AND TO ENSURE THE SAFETY OF THE STRUCTURE AND ITS COMPONENT PARTS DURING ERECTION. THIS INCLUDES THE ADDITION OF WHATEVER SHORING, TEMPORARY BRACING, GUYS OR TIEDOWNS, WHICH MIGHT BE NECESSARY.
- 11. ALL DAMAGE CAUSED TO ANY EXISTING STRUCTURE SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL REPAIRS REQUIRED FOR EXISTING STRUCTURES IF DAMAGED DURING CONSTRUCTION ACTIVITIES.
- 12. SHOP DRAWINGS, CONCRETE MIX DESIGNS, TEST REPORTS, AND OTHER SUBMITTALS PERTAINING TO STRUCTURAL WORK SHALL BE FORWARDED TO THE OWNER FOR REVIEW BEFORE FABRICATION AND/OR INSTALLATION IS MADE. SHOP DRAWINGS SHALL INCLUDE ERECTION DRAWINGS AND COMPLETE DETAILS OF CONNECTIONS AS WELL AS MANUFACTURER'S SPECIFICATION DATA WHERE APPROPRIATE. SHOP DRAWINGS SHALL BE CHECKED BY THE CONTRACTOR AND BEAR THE CHECKER'S INITIALS BEFORE BEING SUBMITTED FOR REVIEW.
- NO DRILLING WELDING OR TAPING ON EVERSOURCE OWNED EQUIPMENT.
- 14. REFER TO DRAWING T1 FOR ADDITIONAL NOTES AND REQUIREMENTS.

STRUCTURAL STEEL

- 1. ALL STRUCTURAL STEEL IS DESIGNED BY ALLOWABLE STRESS DESIGN (ASD)
- 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)
- D. 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
- APPROVAL. DRAWINGS MUST BEAR THE CHECKER'S INITIALS BEFORE SUBMITTING TO
- SIZE AND TYPE OF FASTENERS AND ACCESSORIES. INCLUDE ERECTION DRAWINGS, ELEVATIONS AND DETAILS.

THE ENGINEER FOR REVIEW. SHOP DRAWINGS SHALL INCLUDE THE FOLLOWING:

SECTION PROFILES, SIZES, CONNECTION ATTACHMENTS, REINFORCING, ANCHORAGE,

- WITH THE LATEST PROVISIONS OF AISC MANUAL OF STEEL CONSTRUCTION. 4. PROVIDE ALL PLATES, CLIP ANGLES, CLOSURE PIECES, STRAP ANCHORS,
- 5. FIT AND SHOP ASSEMBLE FABRICATIONS IN THE LARGEST PRACTICAL SECTIONS FOR

MISCELLANEOUS PIECES AND HOLES REQUIRED TO COMPLETE THE STRUCTURE.

- DELIVERY TO SITE.
- 6. INSTALL FABRICATIONS PLUMB AND LEVEL, ACCURATELY FITTED, AND FREE FROM DISTORTIONS OR DEFECTS.
- 7. AFTER ERECTION OF STRUCTURES, TOUCHUP ALL WELDS, ABRASIONS AND NON-GALVANIZED SURFACES WITH A 95% ORGANIC ZINC RICH PAINT IN ACCORDANCE WITH ASTM 780.
- 8. ALL STEEL MATERIAL (EXPOSED TO WEATHER) SHALL BE GALVANIZED AFTER FABRICATION IN ACCORDANCE WITH ASTM A123 "ZINC (HOT DIPPED GALVANIZED) COATINGS" ON IRONS AND STEEL PRODUCTS.
- 9. ALL BOLTS, ANCHORS AND MISCELLANEOUS HARDWARE SHALL BE GALVANIZED IN ACCORDANCE WITH ASTM A153 "ZINC COATING (HOT-DIP) ON IRON AND STEEL HARDWARE".
- 10. THE ENGINEER SHALL BE NOTIFIED OF ANY INCORRECTLY FABRICATED. DAMAGED OR OTHERWISE MISFITTING OR NON CONFORMING MATERIALS OR CONDITIONS TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH ACTION SHALL REQUIRE ENGINEER
- 11. CONNECTION ANGLES SHALL HAVE A MINIMUM THICKNESS OF 1/4 INCHES.
- 12. STRUCTURAL CONNECTION BOLTS SHALL CONFORM TO ASTM A325. ALL BOLTS SHALL BE 3/4" DIAMETER MINIMUM AND SHALL HAVE A MINIMUM OF TWO BOLTS, UNLESS OTHERWISE ON THE DRAWINGS.
- 13. LOCK WASHER ARE NOT PERMITTED FOR A325 STEEL ASSEMBLIES.

PERFORMED BY AN INDEPENDENT TESTING LABORATORY.

- 14. SHOP CONNECTIONS SHALL BE WELDED OR HIGH STRENGTH BOLTED.
- 15. MILL BEARING ENDS OF COLUMNS, STIFFENERS, AND OTHER BEARING SURFACES TO TRANSFER LOAD OVER ENTIRE CROSS SECTION.
- 16. FABRICATE BEAMS WITH MILL CAMBER UP.
- 17. LEVEL AND PLUMB INDIVIDUAL MEMBERS OF THE STRUCTURE TO AN ACCURACY OF 1:500, BUT NOT TO EXCEED 1/4" IN THE FULL HEIGHT OF THE COLUMN
- 18. COMMENCEMENT OF STRUCTURAL STEEL WORK WITHOUT NOTIFYING THE ENGINEER OF ANY DISCREPANCIES WILL BE CONSIDERED ACCEPTANCE OF PRECEDING WORK.
- 20. FOUR COPIES OF ALL INSPECTION TEST REPORTS SHALL BE SUBMITTED TO THE ENGINEER WITHIN TEN (10) WORKING DAYS OF THE DATE OF INSPECTION.

(E) RUUS-32 (1), (E) RRUS-32 B2 (1) | FEEDER AND DC POWER

PAINT NOTES

PAINTING SCHEDULE:

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

EXAMINATION AND PREPARATION:

SURFACE TO DRY.

- 2. CONTRACTOR TO REVIEW ALL SHOP DRAWINGS AND SUBMIT COPY TO ENGINEER FOR 1. DO NOT APPLY PAINT IN SNOW, RAIN, FOG OR MIST OR WHEN RELATIVE HUMIDITY EXCEEDS 85%. DO NOT APPLY PAINT TO DAMP OR WET SURFACES.
 - 2. VERIFY THAT SUBSTRATE CONDITIONS ARE READY TO RECEIVE WORK. EXAMINE SURFACE SCHEDULED TO BE FINISHED PRIOR TO COMMENCEMENT OF WORK. REPORT ANY CONDITION THAT MAY POTENTIALLY AFFECT PROPER APPLICATION.
- 3. STRUCTURAL STEEL SHALL BE DETAILED, FABRICATED AND ERECTED IN ACCORDANCE 3. TEST SHOP APPLIED PRIMER FOR COMPATIBILITY WITH SUBSEQUENT COVER MATERIALS.
 - 4. PERFORM PREPARATION AND CLEANING PROCEDURE IN STRICT ACCORDANCE WITH COATING MANUFACTURER'S INSTRUCTIONS FOR EACH SUBSTRATE CONDITION.
 - 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
 - ALUMINUM SURFACE SCHEDULED FOR PAINT FINISH: REMOVE SURFACE CONTAMINATION BY STEAM OR HIGH-PRESSURE WATER. REMOVE OXIDATION WITH ACID ETCH AND SOLVENT WASHING. APPLY ETCHING PRIMER IMMEDIATELY FOLLOWING
 - 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.
 - 10. ANTENNA PANELS: REMOVE ALL OIL, DUST, GREASE, DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION. PANELS MUST BE WIPED WITH METHYL ETHYL KETONE (MEK).
 - 11. COAXIAL CABLES: REMOVE ALL OIL, DUST, GREASE. DIRT, AND OTHER FOREIGN MATERIAL TO ENSURE ADEQUATE ADHESION.

CLEANING:

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.
- 2. DO NOT APPLY FINISHES TO SURFACES THAT ARE NOT DRY.
- APPLY EACH COAT TO UNIFORM FINISH.
- 19. INSPECTION AND TESTING OF ALL WELDING AND HIGH STRENGTH BOLTING SHALL BE 4. APPLY EACH COAT OF PAINT SLIGHTLY DARKER THAN PRECEDING COAT UNLESS OTHERWISE APPROVED.
 - 5. SAND METAL LIGHTLY BETWEEN COATS TO ACHIEVE REQUIRED FINISH.
 - 6. VACUUM CLEAN SURFACES FREE OF LOOSE PARTICLES. USE TACK CLOTH JUST PRIOR TO APPLYING NEXT COAT.
 - 7. ALLOW APPLIED COAT TO DRY BEFORE NEXT COAT IS APPLIED.

COMPLETED WORK:

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

SECTOR	EXISTING/PROPOSED	BAND	ANTENNA	SIZE (INCHES) (L × W × D)	ANTENNA & HEIGHT	AZIMUTH	TMA/DIPLEXER/TRIPLEXER (QTY)	(E/P) RRU (QTY)	FEEDER	(E/P) RAYCAP (QTY)
A1	EXISTING	UMTS 850/1900	7770	55X11X5	±103.5'	48°	(2) POWERWAVE / LGP 21401(DUAL BAND - 850 BYPASS)/(2) POWERWAVE / LGP 21901		(2) 1-5/8"ø COAX	
A2	PROPOSED	LTE 700/AWS	HPA-65R-BUU-H6	72X14.8X9	±103.5'	20°		(E) RRUS-11 (1), (P) RRUS-32 B66 (1)	FEEDER AND DC POWER	(E) RAYCAP DC6-48-60-18-8C (1)
A4	EXISTING	GSM 850/LTE 1900/WCS/1900	QS66512-2	72X12X9.6	±103.5'	20°	(4) CCI TRIPLEXER TPX-070821	(E) RUUS-32 (1), (E) RRUS-32 B2 (1)	FEEDER AND DC POWER	(E) RAYCAP DC6-48-60-18-8C (1)
B1	EXISTING	UMTS 850/1900	7770	55X11X5	±103.5'	268°	(2) POWERWAVE / LGP 21401(DUAL BAND - 850 BYPASS)/(2) POWERWAVE / LGP 21901		(2) 1-5/8"ø COAX	
B2	PROPOSED	LTE 700/AWS	HPA-65R-BUU-H6	72X14.8X9	±103.5'	148°		(E) RRUS-11 (1), (P) RRUS-32 B66 (1)	FEEDER AND DC POWER	
B4	EXISTING	GSM 850/LTE 1900/WCS/1900	QS66512-2	72X12X9.6	±103.5'	148*	(4) CCI TRIPLEXER TPX-070821	(E) RUUS-32 (1), (E) RRUS-32 B2 (1)	FEEDER AND DC POWER	
C1	EXISTING	UMTS 850/1900	7770	55X11X5	±103.5'	20°	(2) POWERWAVE / LGP 21401(DUAL BAND - 850 BYPASS)/(2) POWERWAVE / LGP 21901		(2) 1-5/8"ø COAX	
C2	PROPOSED	LTE 700/AWS	HPA-65R-BUU-H6	72X14.8X9	±103.5'	268°		(E) RRUS-11 (1), (P) RRUS-32 B66 (1)	FEEDER AND DC POWER]

C4

EXISTING

GSM 850/LTE 1900/WCS/1900

QS66512-2

72X12X9.6

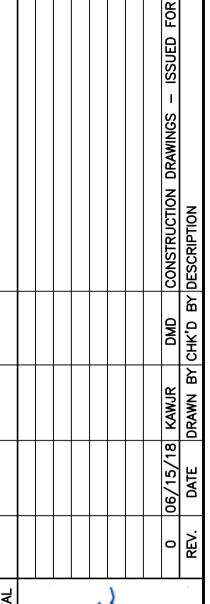
±103.5'

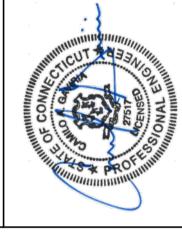
268°

ANTENNA SCHEDULE

(4) CCI TRIPLEXER TPX-070821

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





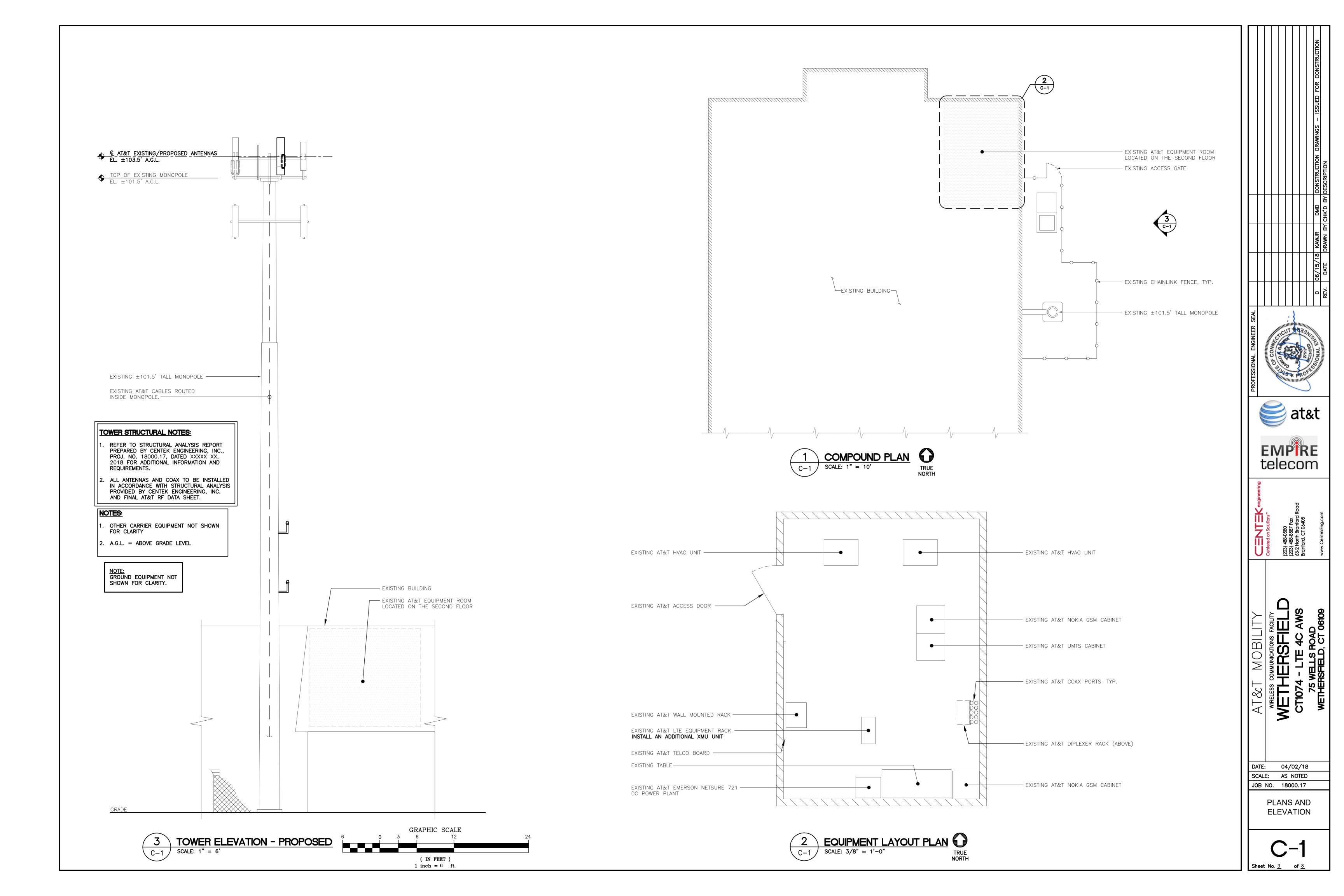


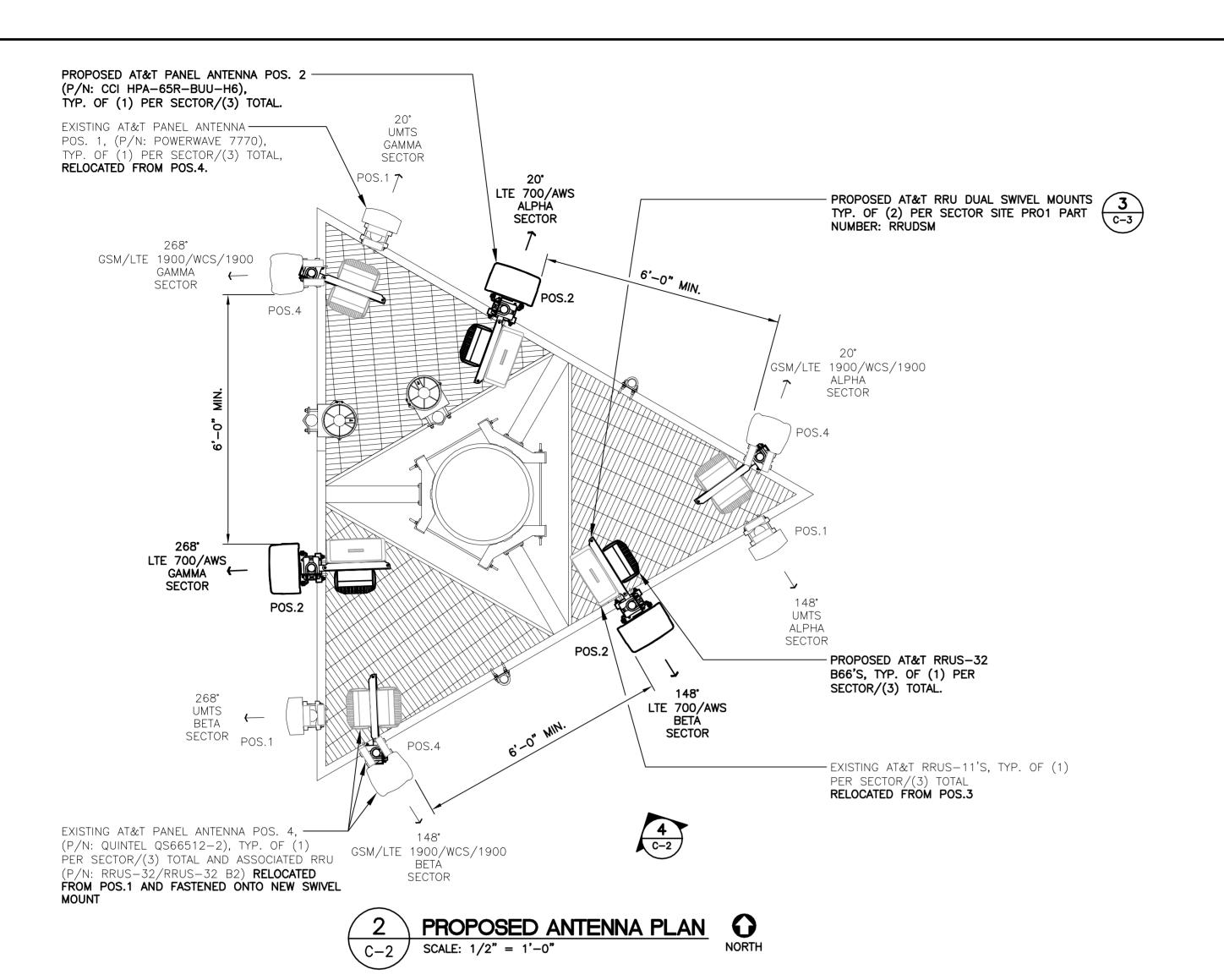


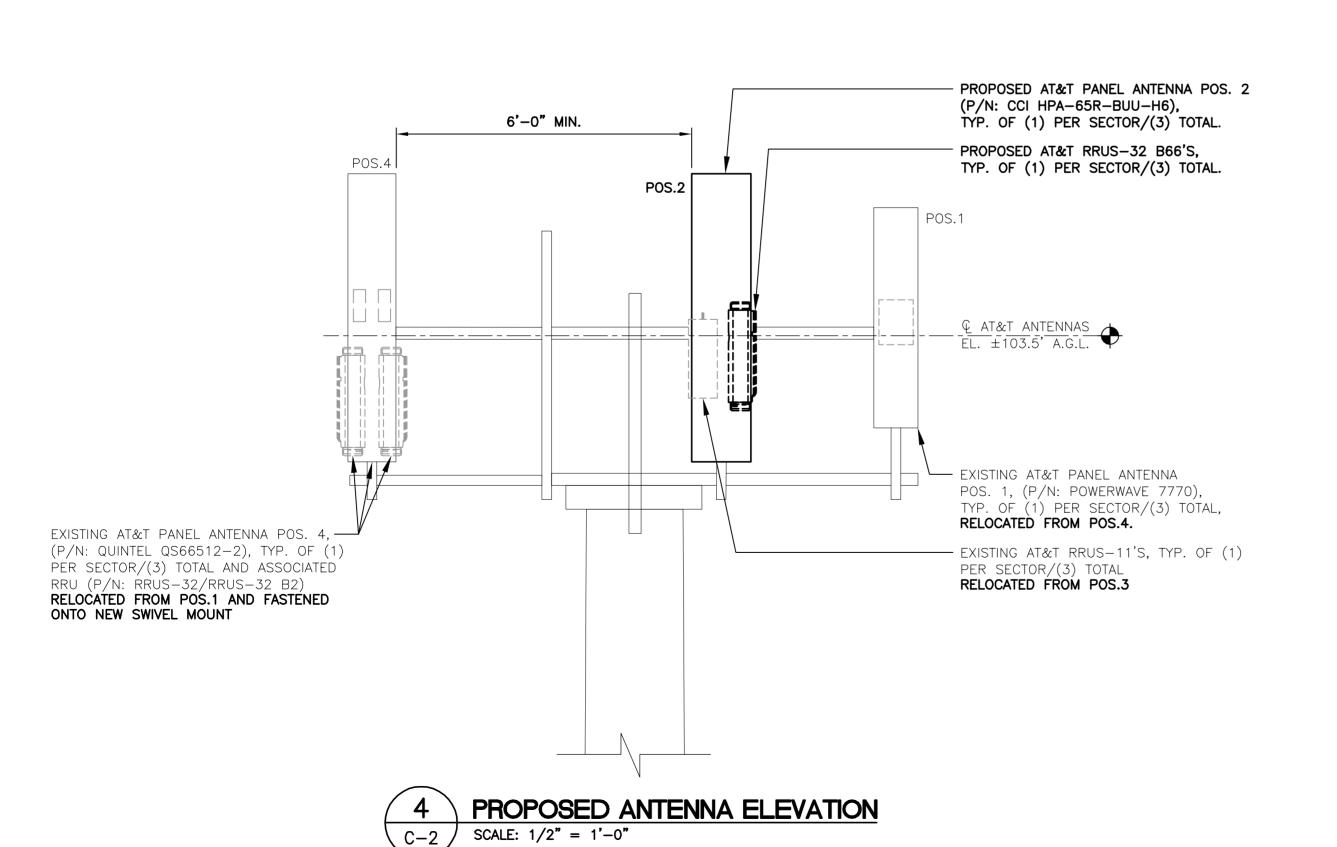
04/02/18 SCALE: AS NOTED JOB NO. 18000.17 NOTES, **SPECIFICATIONS** AND ANTENNA

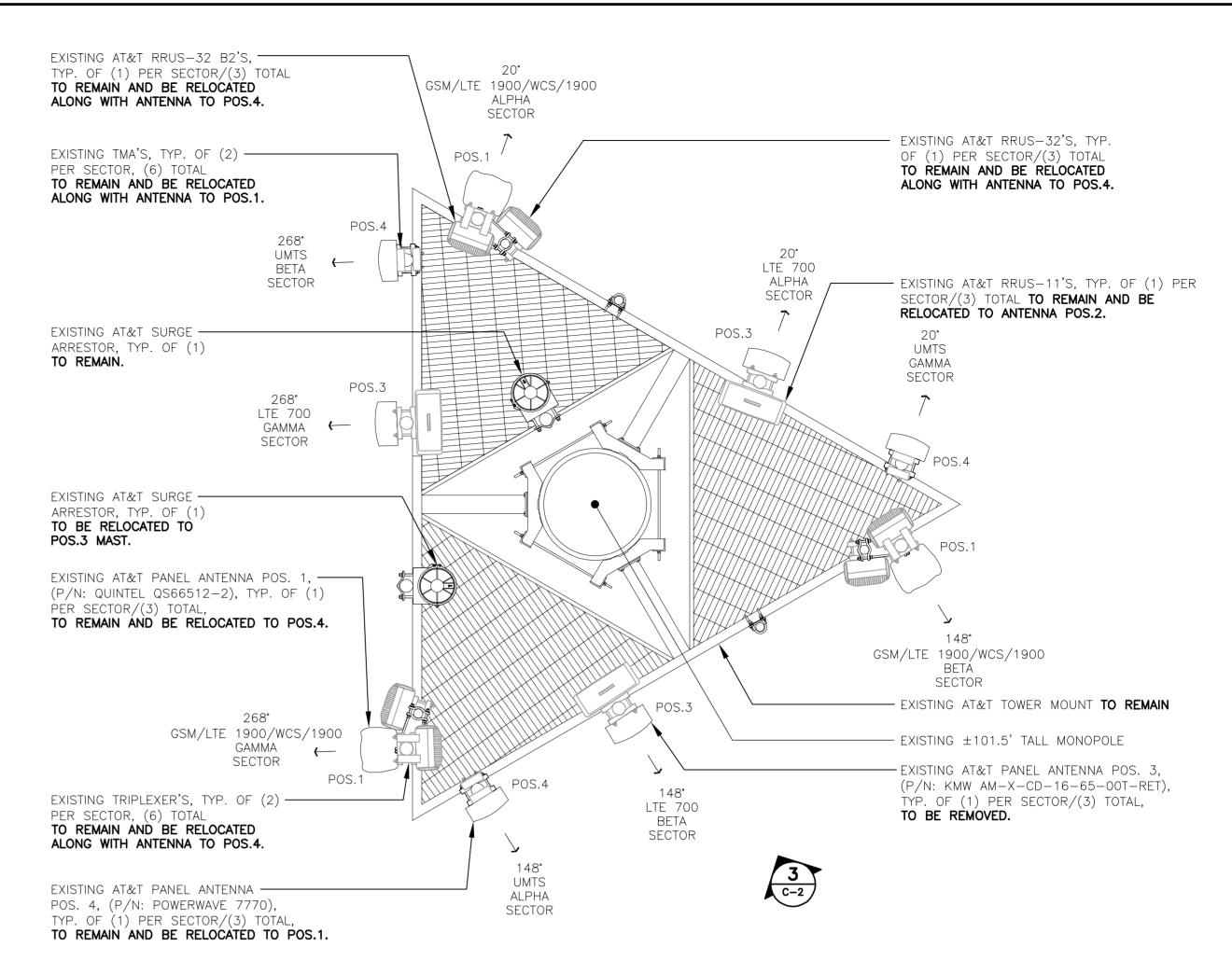


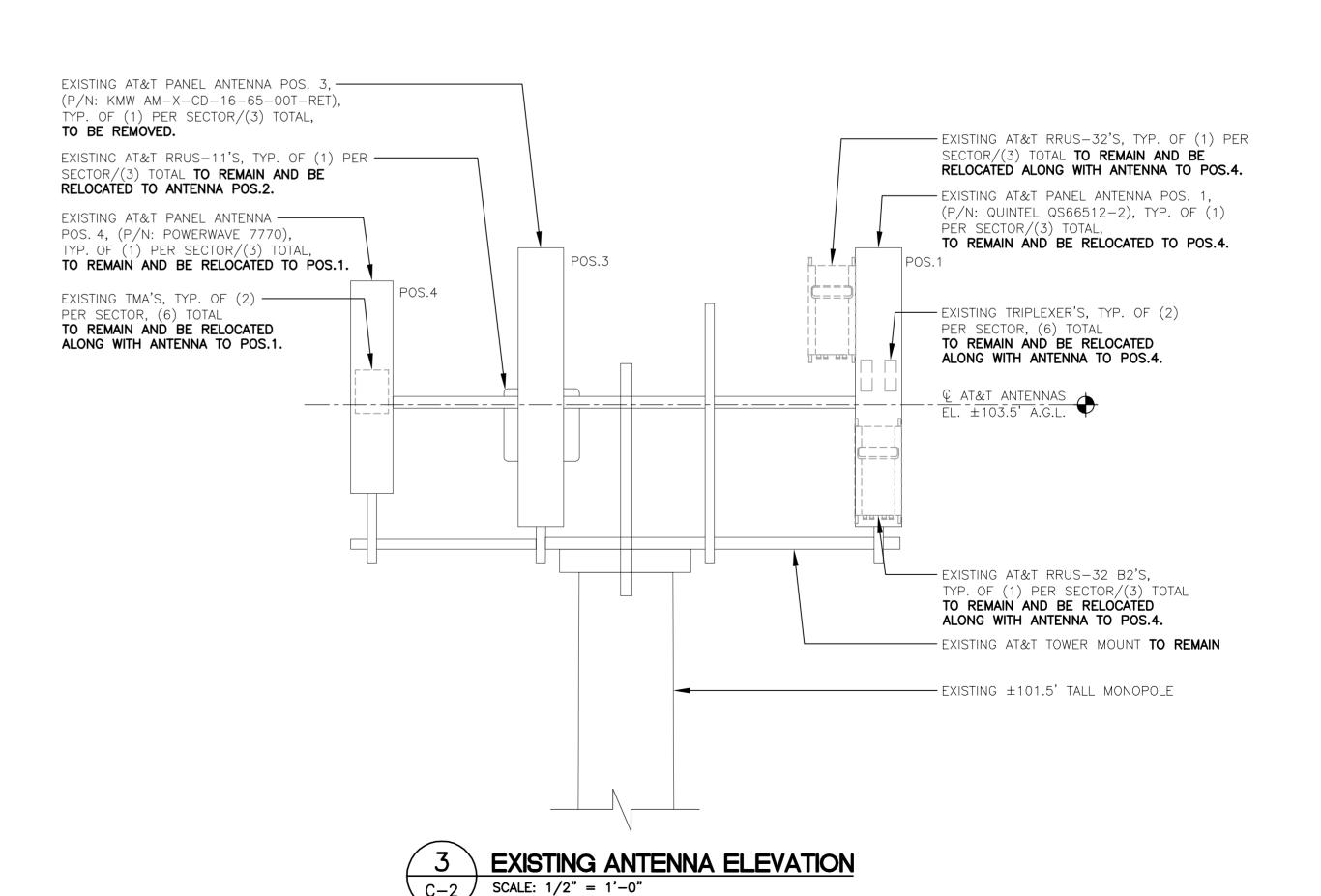
SCHEDULE





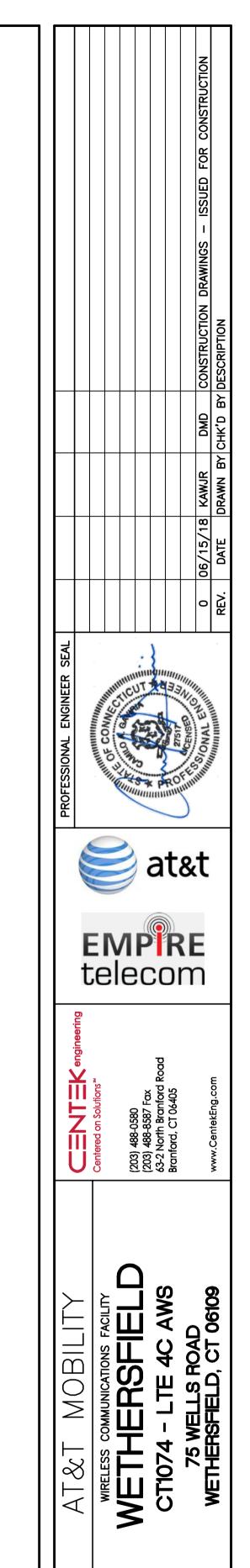






EXISTING ANTENNA PLAN

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



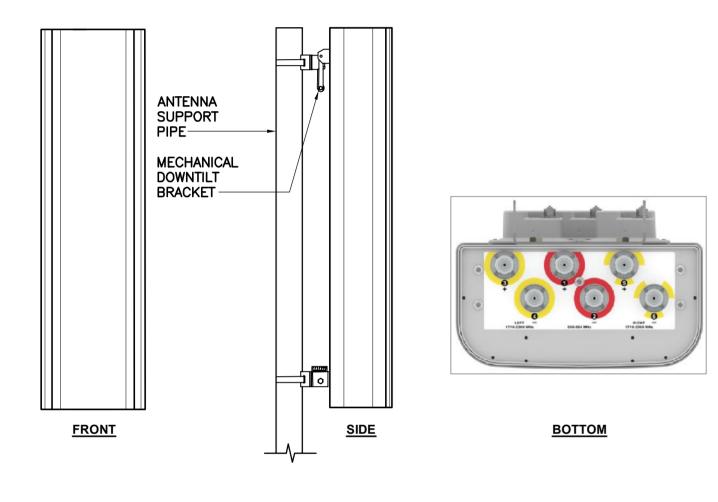
04/02/18

LTE 4C AWS

ANTENNA LAYOUT PLANS

SCALE: AS NOTED

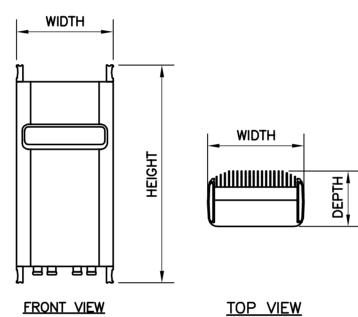
JOB NO. 18000.17



	ALPHA/BETA/GAMMA ANTENNA					
EQUIPME	NT	DIMENSIONS	WEIGHT			
MAKE: MODEL:	CCI HPA-65R-BUU-H6	72"L x 14.8"W x 9"D	51 LBS.			

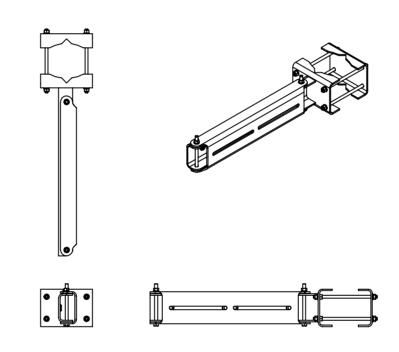
PROPOSED ANTENNA DETAIL

C-3 SCALE: 1/2" = 1'-0"



	TROW TIEW	OF VILW					
RRU (REMOTE RADIO UNIT)							
EQUIPMENT	DIMENSIONS	WEIGHT	CLEARANCES				
MAKE: ERICSSON MODEL: RRUS-32 B2 B66	27.17"H x 12.05"W x 7.01"D	52.91 LBS.	ABOVE: 16" MIN. BELOW: 12" MIN. FRONT: 36" MIN.				
NOTES: 1. CONTRACTOR TO COORDINATE FINAL EQUIPMENT MODEL SELECTION WITH AT&T							

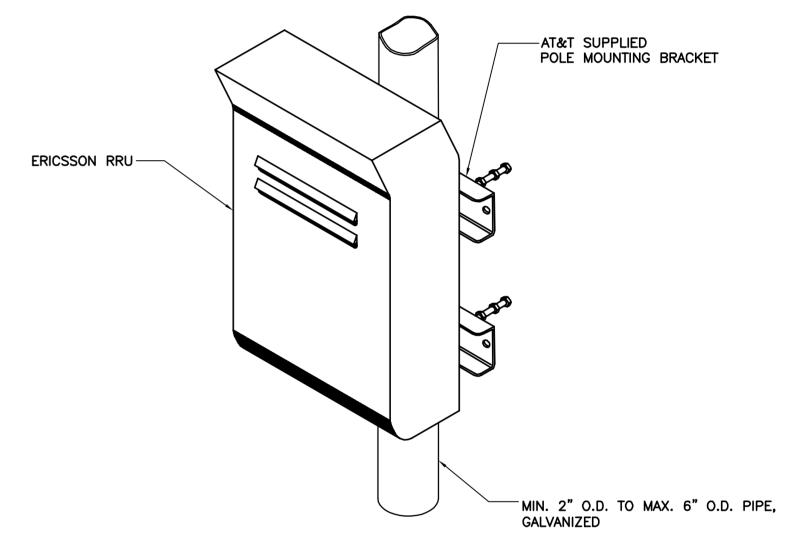




RRU DUAL SWIVEL MOUNT						
EQUIPMENT		DIMENSIONS	WEIGHT			
MAKE: PART NO.:	SITE PRO 1 RRUDSM	27.75"L x 6.5"W x 4.7"D	39.4 LBS.			

3 RRH DUAL SWIVEL MOUNT DETAIL

NOT TO SCALE

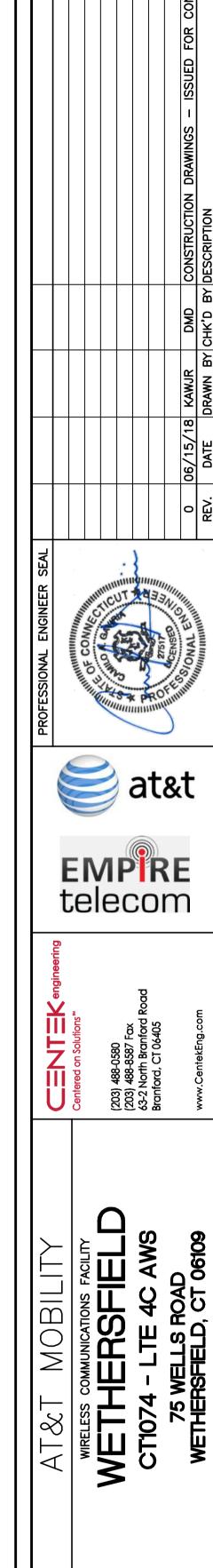


ISOMETRIC VIEW

 AT&T SHALL SUPPLY RRU, AND RRU POLE—MOUNTING BRACKET. CONTRACTOR SHALL SUPPLY POLE/PIPE AND INSTALL ALL MOUNTING HARDWARE INCLUDING ERICSSON RRU POLE—MOUNTING BRACKET. CONTRACTOR SHALL INSTALLS RRU AND MAKES CABLE TERMINATIONS.

2. NO PAINTING OF THE RRU OR SOLAR SHIELD IS ALLOWED.



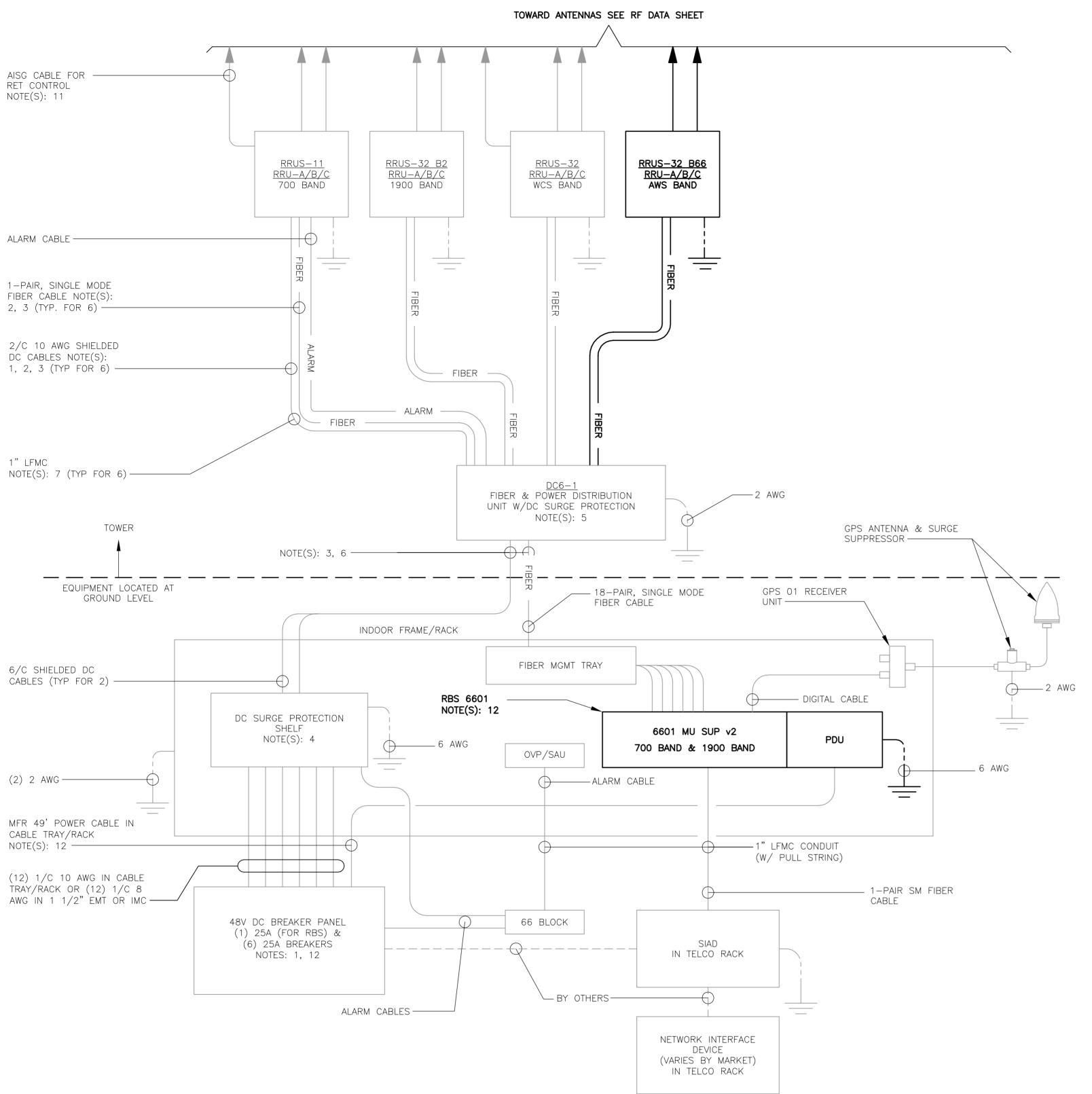


DATE: 04/02/18

SCALE: AS NOTED

JOB NO. 18000.17

DETAILS



LTE SCHEMATIC DIAGRAM

NOT TO SCALE

LTE SCHEMATIC DIAGRAM NOTES:

- 1. BREAKERS TO BE TAGGED AND LOCKED OUT. A 20A (MIN.) OR 30A (MAX.) BREAKER FOR RRUS MAY BE SUBSTITUTED FOR THE
- RECOMMENDED 25A BREAKER. SIZE 12 CONDUCTORS MAY BE USED ONLY WITH 20A BREAKERS. LEAVE COILED AND PROTECTED UNTIL TERMINATED.
- 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
- 8. SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX® OR KS24194™, COPPER, UL LISTED RHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER). UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS I (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL BE COPPER, CLASS B STRANDING WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY/ 75°C WET INSTALLATION.
- 9. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY/75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
- 10. FIBER OPTIC CABLES SHALL BE INSTALLED IN FLEXIBLE CONDUIT AS SCOPED BY MARKET.
- 11. RET CONTROL FROM THE RRU IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
- 12. RBS 6601 VARIANT 2 REQUIRES A 25A BREAKER AND 10 AWG (MIN.) CONDUCTORS. REPLACE EXISTING 15A OR 20A BREAKERS AND 12 AWG CONDUCTORS WHEN UPGRADING AN EXISTING RBS 6601 VARIANT 1.

ELECTRICAL NOTES

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

TELEPHONE NUMBER.

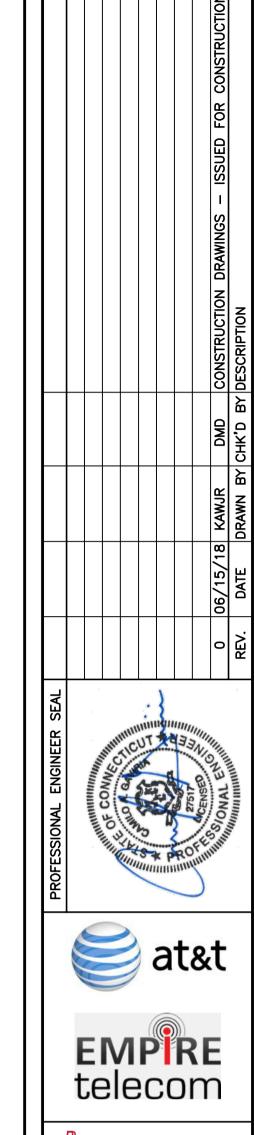
A. CONTRACTOR SHALL RETAIN THE SERVICES OF A LOCAL INDEPENDENT ELECTRICAL TESTING FIRM (WITH MINIMUM 5 YEARS COMMERCIAL EXPERIENCE IN THE ELECTRICAL TESTING INDUSTRY) AS SPECIFIED BY OWNER TO PERFORM:

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
- 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
- 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.



WIKELESS COMMUNICATIONS FACILITY

THE STIPS AND

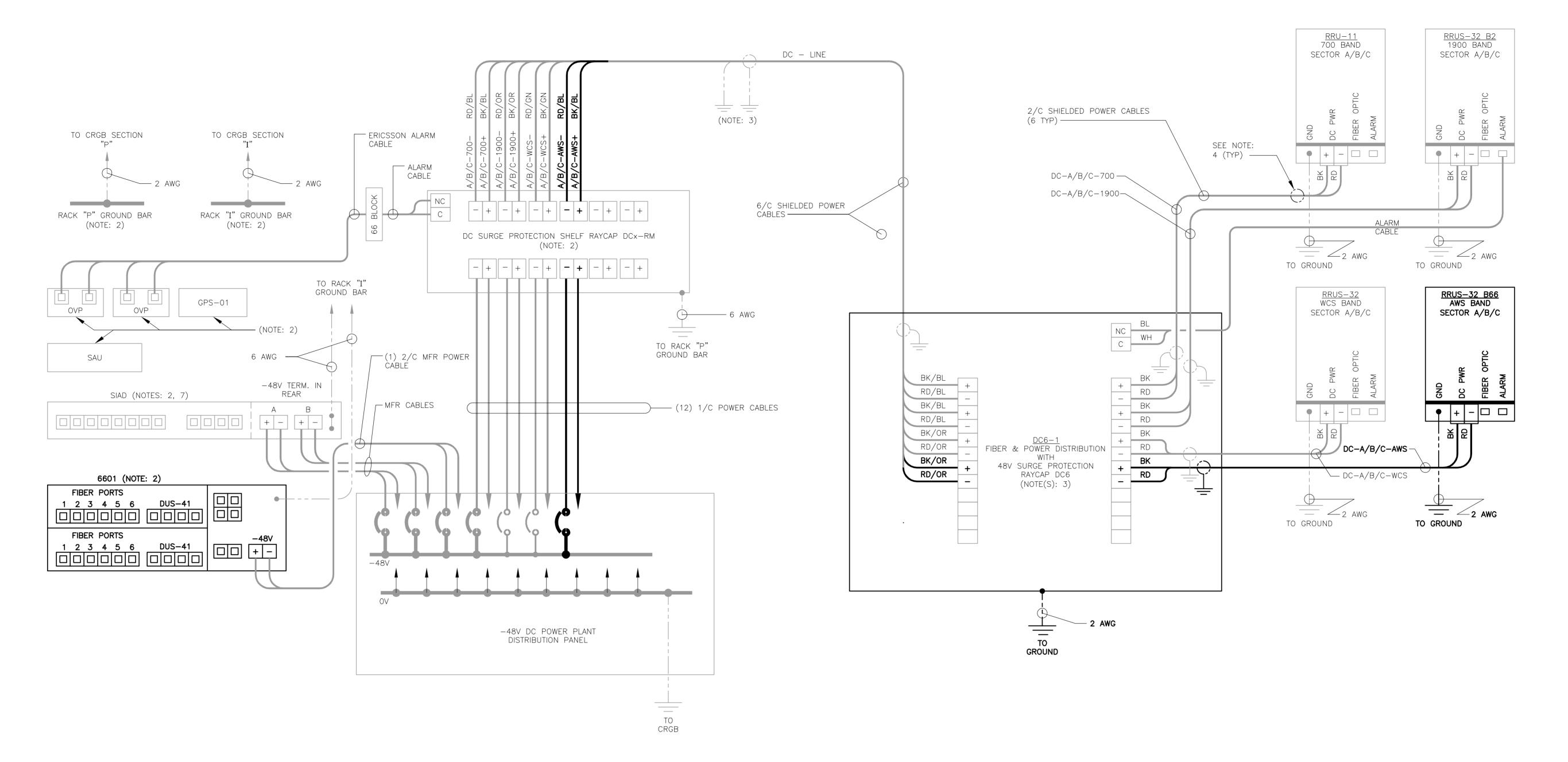
TO WELLS ROAD

METHERSFIELD, CT 06109

04/02/18 SCALE: AS NOTED

JOB NO. 18000.17

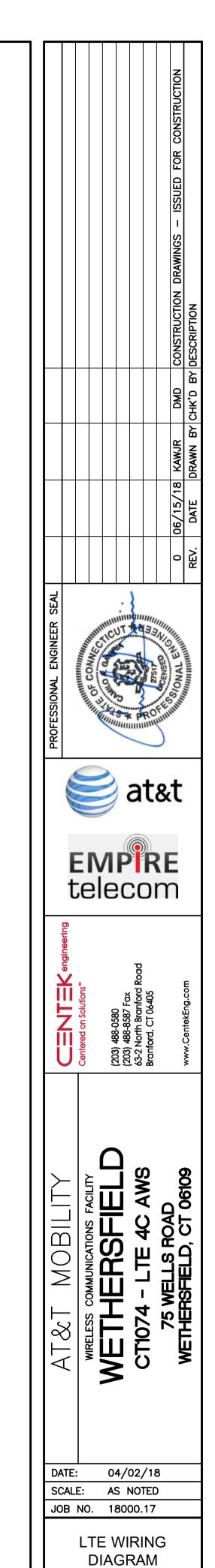
LTE SCHEMATIC DIAGRAM **AND NOTES**

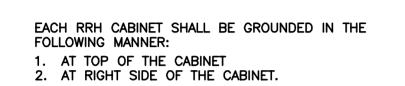


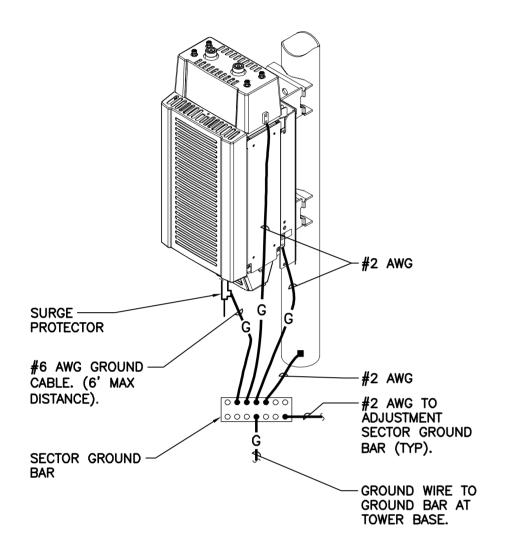


LTE WIRING DIAGRAM NOTES:

- 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.





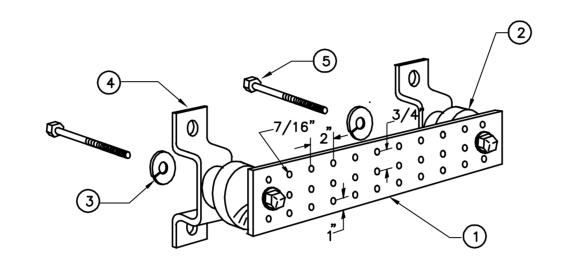




Antenna 4 LTE 700 BC / AWS

HEX HEX Low High

Antenna 1 UMTS 850/1900



LEGEND

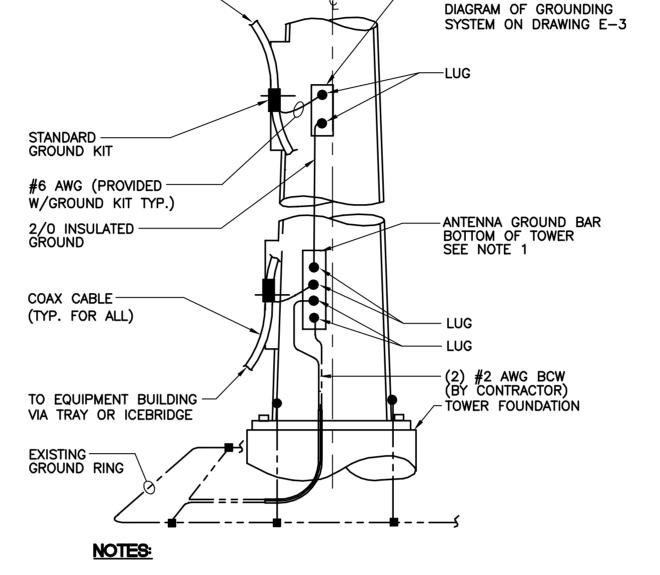
Antenna 4 LTE PCS/WCS

Broadband Broadband 12 port 12 port AWS/WCS AWS/WCS

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

Broadband Broadband
12 port 12 port
PCS PCS





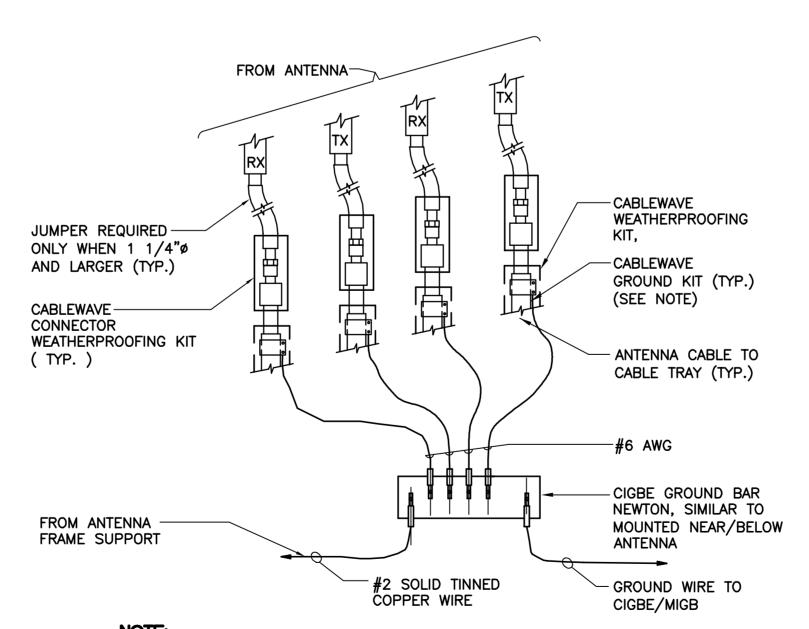
TO ANTENNA

ANTENNA GROUND BAR TOP

OF TOWER SEE SCHEMATIC

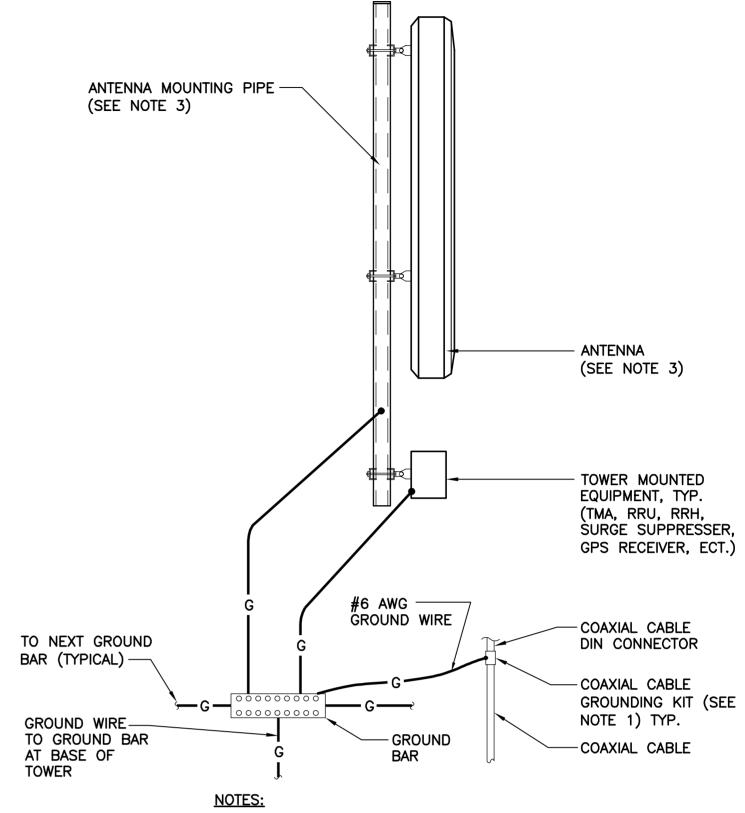
- NUMBER OF GROUND BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, LOCATION AND CONNECTION ORIENTATION. PROVIDE AS REQUIRED.
- 2. A SEPARATE GROUND BAR TO BE USED FOR GPS ANTENNA IF REQUIRED.





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

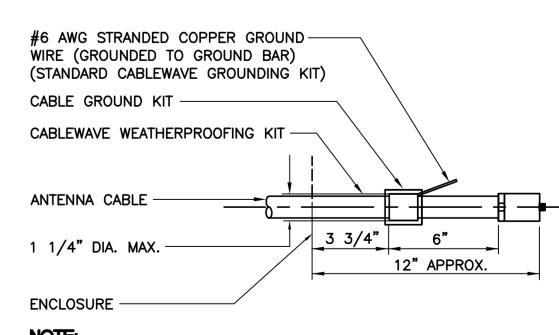




- 1. BOND COAXIAL CABLE GROUND KITS TO EACH OWNER'S GROUND BAR ALONG ENTIRE COAX RUN FROM ANTENNA TO SHELTER.
- 2. BOND ALL EQUIPMENT TO GROUND PER NEC AND MANUFACTURERS SPECIFICATIONS.
- DETAIL IS TYPICAL FOR ALL ANTENNA SECTORS, INCLUDING GPS ANTENNA.

1 TYPICAL ANTENNA GROUNDING DETAIL

NOT TO SCALE



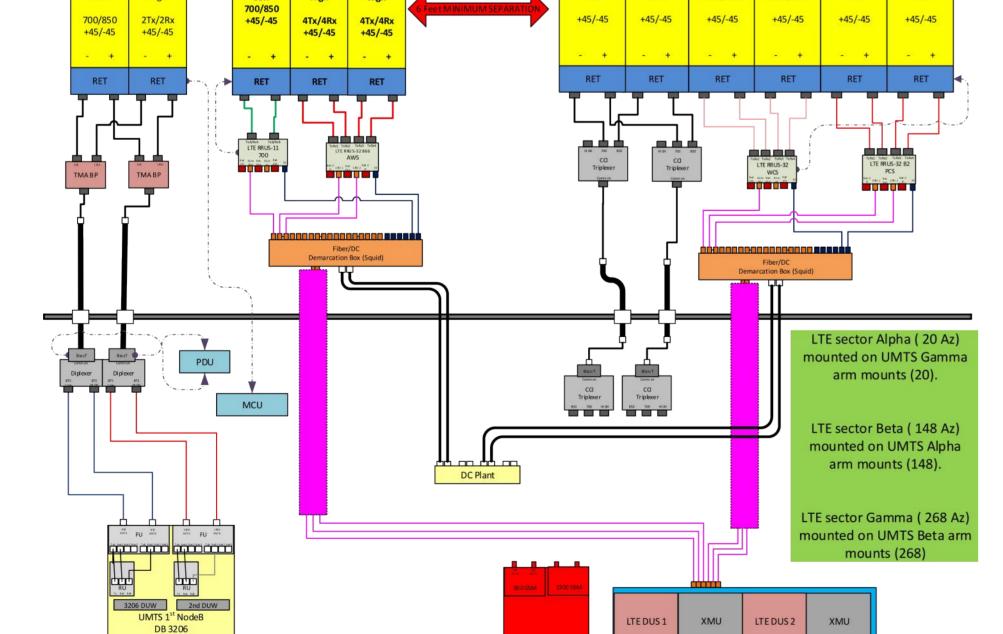
NOIE

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

5 ANTENNA CABLE GROUNDING DETAIL

NOT TO SCALE







Rigorous Structural Analysis Report



AT&T - Wethersfield Site #CT1074 / FA #10035051

Owner: Frontier Communications - Wethersfield CO Site Wethersfield, Connecticut

June 29, 2018

MEI PROJECT ID: CT04861M-18V0



17950 Preston Road, Suite 720 Dallas, Texas 75252 Tel. 972 -783-2578 Fax 972-783-2583 **www.maloufengineering.com**





June 29, 2018

Ms. Nicole Caplan Empire Telecom Billerica, MA 01862

RIGOROUS STRUCTURAL ANALYSIS

Structure/Make/Model:	101 ft Monopole			Not Known / 18-Sided			
Client/Site Name/#:	Empire T	Empire Telecom / AT&T		Wethersfield #CT1074 / FA #10035051			
Owner/Site Name/#:	Frontier	Frontier Communications			Wethersfield CO		
MEI Project ID:	CT04861A	CT04861M-18V0					
Location:		75 Wells Rd Wethersfield, CT 06109		Hartford (FCC #120	•		
	LAT	41-42-21.2 N		LON	72-39-48.0 W		

EXECUTIVE SUMMARY:

Malouf Engineering Int'l (MEI), as requested, has performed a rigorous structural analysis of the above-mentioned structure to assess the impact of the changed condition as noted in Table 1.

Based on the stress analysis performed, the existing structure is in conformance with the Int'l Building Code (IBC) / ANSI/TIA-222-G Standard for the loading considered under the criteria listed and referenced in the report sections – tower rated at 91.7% - Foundation.

The installation of the proposed changed condition as noted in Table 1 is structurally acceptable. Please refer to Appendix 1 for Schematic Lines Layout.

MEI appreciates the opportunity of providing our continuing professional services to you. If you have any questions or need further assistance on this or other projects please contact us.

Respectfully submitted,

MALOUF ENGINEERING INT'L, INC.

Analysis performed by:

Luan Nguyen, PE Sr. Project Engineer Reviewed & Approved by:

E. Mark Malouf, PE Connecticut #17715

972-783-2578 ext. 106

mmalouf@maloufengineering.com

6/29/2018

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1. INTRODUCTION & SCOPE

A rigorous structural analysis was performed by Malouf Engineering Int'l (MEI), as requested and authorized by Ms. Nicole Caplan, Empire Telecom, on behalf of AT&T, to determine the acceptance of the proposed changed conditions in conformance with the IBC / ANSI/TIA-222-G Standard, "Structural Standard for Antenna Supporting Structures and Antennas".

The scope of this independent analysis is to determine the overall stability and the adequacy of structural members, foundations, and member connections, as available and stated. This analysis considers the structure to have been properly installed and maintained with no structural defects. Installation procedures and related loading are not within the scope of this analysis and should be performed and evaluated by a competent person of the erection contractor.

The different report sections detail the applicable information used in this evaluation, relating to the tower data, the appurtenances configuration and the wind and ice loading considered.

2. SOURCE OF DATA

The following information has been used in this evaluation as source data that accurately represent the existing structure and the related appurtenances:

	Source	Information	Reference	
STRUCTURE				
Tower	MEI Records	ID CT04861M-17V0 Dated 06/28/2017		
Foundation	MEI Records	Previous Structural Analysis	ID CT04861M-17V0 Dated 06/28/2017	
Material Grade	Not available from supplie type-refer to Appendix	d documents-Assumed bas	ed on typical towers of this	
CURRENT APPURTENANCES				
	MEI Records	Previous Structural Analysis	ID CT04861M-17V0 Dated 06/28/2017	
CHANGED CONDITION				
	Frontier Communications Frontier PDQ Dated 06/11/2018 Ms. Elissa McOmber			
	Empire Telecom Ms. Nicole Caplan	AT&T RF Data Sheet	Dated 10/25/2017	

Background Information:

Based on available information, the following is known regarding this structure:

DESIGNER / FABRICATOR	Not Known / 18-Sided
ORIGINAL DESIGN CRITERIA	TIA/EIA 222-Unknown
PRIOR STRUCTURAL MODIFICATIONS	As per GPD Group base plate and anchor rod modifications Job #2009264.50 dated 06/12/2009; pole shaft modifications by others as per B+T mapping report dated 07/17/2014 – considered properly installed.



ANALYSIS CRITERIA 3.

The structural analysis performed used the following criteria:

CODE / STANDARD	2016 CT Building	2016 CT Building Code / 2012 Int'l Building Code / ANSI/TIA-222-G-2 Standard			
LOADING CASES	Full Wind:	129 Mph ultimate gust [equiv. 100 Mph (3-sec gust)] w/No Radial Ice**			
	Iced Case:	Iced Case: 40 Mph + 1.25" Radial Ice			
	Service: 60 Mph				
	Seismic: $S_s = 0.181 / S_1 = 0.064 / Site Class: D - Stiff Soil$				
STRUCTURE CRITERIA	Risk Category (Structural Class): 2				
	Exposure Cate	Exposure Category: 'B' - Topographic Category: 1			

Appurtenances Configuration

The following appurtenances configuration is denoted by the <u>summation of Tables 1 & 2</u>:

Table 1: **Tenant with Changed Condition Appurtenances Configuration**

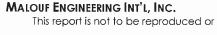
Elev (ff)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
103.5	AT&T	3	HPA-65R-BUU-H6 Panel Antennas	[Existing Mounts]		[Existing Lines]
		3	RRUS-32 B66 Boxes			
			Current Appurtenance	ces to Remain		
		3	QS66512-3 Panel Antennas		12	1-5/8"
		3	7770.00 Panels Panel Antennas		2	5/8" Fiber
103.5	AT&T	3	RRUS-11 Boxes	Top Platform w/ Rails (& Ladder)	4	3/4" DC Power
		3	RRUS-32 Boxes		1	ATCB-B01-xxx
		3	RRUS-32 B2 Boxes			Homerun
		2	Raycap DC6 (Squid) Suppressors			Cable-(I/E)
		6	LGP21401 TMA'S			
		6	TPX-070821 Triplexers			
			Current Appurtenances	to Be Removed		
103.5	AT&T	3	AM-X-CD-16-65-00T-RET Panel Ants.			

Table 2: Remaining Tenants Current and Reserved/Future Appurtenances

Elev (ff)	Tenant	Ants Qty	Appurtenance Model / Description	Mount Description	Lines Qty	Line size & Location
101		1	5' Lightning Rod		1	1/2" - (I)
		1	Beacon/Strobe			
95	T-Mobile	3	AIR21 Panel Antennas	(3) 12.5 ft. L.P. T-Arm Mounts	6	7/8"
		3	Ericsson KRC 118 057/1 Panel	(SitePro1 RMV12-3XX)	1	1-5/8" Hybrid
			Antennas]		Fiber-(I)
		3	RRUS-11 B12 Boxes			
46.5		1	GPS Antenna	18" ±. Standoff Arm Mount	1	3/8"-(E)
37		1	GPS Antenna	18" ± Standoff Arm Mount	1	3/8"-(E)

Notes:

- 1. **As per 2012 IBC for ultimate 3-sec gust wind speed converted to nominal 3-sec gust wind speed as per Sect. 1609.3.1 as required to be used in ANSI/TIA-222-G Standard per exception 5 of Sect. 1609.1.1.
- All elevations are measured from tower base.
 Please note appurtenances not listed above are to be removed/not present as per data supplied.
- 4. (1) = Internal; (E) = External; (FZ) = Within Face Zone; (OFZ) = Outside Face Zone as per TIA-222-G.
- 5. The above appurtenances represent MEI's understanding of the appurtenances configuration. If different than above, the analysis is invalid. Please contact MEI if any discrepancies are found.



4. ANALYSIS PROCEDURE

The subject structure is analyzed for feasibility of the installation of the proposed changed condition previously noted. The data records furnished were reviewed and a computer stress analysis was performed in accordance with the TIA-222 Standard provisions and with the agreed scope of work terms and the results of this analysis are reported.

Analysis Program

The computer program used to model the structure is a rigorous Finite Element Analysis program, tnxTower (ver. 8.02), a commercially available program by Tower Numerics Inc. The latticed structures members are modeled using beam/truss and cable members and the pole members using tubular beam elements. The structural parameters and geometry of the members are included in the model. The dead and temperature loads and the wind loads are internally calculated by the program for the different wind directions and then applied as external loads on the structure. Any applicable exemptions, as per Section 15.6 of the TIA-222-G Standard for existing structures originally designed in accordance with a previous revision of the TIA-222 Standard, have been taken.

Assumptions

This engineering study is based on the theoretical capacity of the members and is not a condition assessment of the structure. This analysis is based on information supplied, and therefore, its results are based on and as accurate as that supplied data. MEI has made no independent determination, nor is it required to, of its accuracy. The following assumptions were made for this structural stress analysis:

- This existing tower is assumed, for the purpose of this analysis, to have been properly maintained and to be in good condition with no structural defects and with no deterioration to its member capacities ('asnew' condition).
- The tower member sizes and configuration are considered accurate as supplied. The material grade is as per data supplied and/or as assumed and as stated.
- The appurtenances configuration is as supplied and/or as stated in the report. It is assumed to be complete and accurate. All antennas, mounts, coax and waveguides are assumed to be properly installed and supported as per manufacturer requirements.
- Some assumptions are made regarding antennas and mounts sizes and their projected areas based on best interpretation of data supplied and of best knowledge of antenna type & industry practice.
- Mounts/Platforms are considered adequate to support the loading. No actual analysis of the platform/mount itself is performed, with the analysis being limited to analyzing the structure.
- The soil parameters are as per data supplied or as assumed and stated in the calculations. Refer to the Appendix. If no data is available, the foundation system is assumed to support the structure with its new reactions.
- All welds and connections are assumed to develop at least the member capacity, unless determined
 otherwise and explicitly stated in this report.
- All prior structural modifications, if any, are assumed to be as per data supplied/available, and to have been properly installed and to be fully effective.

If any of the above assumptions are not valid or have been made in error, this analysis results may be invalided, MEI should be contacted to review any contradictory information to determine its effect.



5. ANALYSIS RESULTS

The results of the structural stress analysis based on data available and with the previous listed criteria, indicated the following:

Note: The Wind loading controls over the Seismic loading as per TIA Section 2.7.

Table 3: Stress Analysis Results

Component Type	Maximum Stress Ratio	Controlling Elev. (ft) / Component	Pass/Fail	Comment
POLE	78.6%	88 - 61.25	Pass	
BASE PLATE	84.8%	Bending	Pass	
ANCHOR RODS	52%	Tension	Pass	
FOUNDATION	91.7%	Moment	Pass	

Table 4: Serviceability Requirements

	Maximum Value	TIA Requirement (10dB)	Pass/Fail	Comment
Twist/Sway	1.7536 Deg.	4 Deg. from Vert. or Horiz. Axis	Pass	
HORIZONTAL DISPLACEMENT	18.670 ln./ 1.54% of Ht.	3.0% of Height	Pass	

Notes:

- 1. The Maximum Stress Ratio is the percentage that the maximum load in the member is relative to the allowable load as determined by Code requirements.
- 2. Refer to the Appendix 1 for more details on the member loads.
- 3. A maximum stress ratio between 100% and 105% may be considered as Acceptable according to industry standard practice.



FINDINGS & RECOMMENDATIONS

- Based on the rigorous stress analysis results, the subject structure is **rated at 91.7%** of its support capacity (controlling component: Foundation) with the proposed changed condition considered. Please refer to Table 3 and to Appendix 1 for more details of the analysis results.
- Based on the stress analysis performed, the existing structure is in conformance with the IBC / ANSI/TIA 222-G Standard for the loading considered under the criteria listed and referenced in the report sections.
- The installation of the proposed changed condition as noted in Table 1 is structurally acceptable. Please refer to Appendix 1 for Schematic Lines Layout.
- This structure is near its support capacity for the appurtenances and loading criteria considered. Therefore, no changes to the configuration considered should be made without performing a new proper evaluation.

Rigging and temporary supports required for the erection/modification shall be determined, documented, furnished and installed by the erector/contractor accounting for the loads imposed on the structure due to the proposed construction method.



7. REPORT DISCLAIMER

The engineering services rendered by **M**alouf **E**ngineering **I**nternational, Inc. ('MEI') in connection with this Structural Analysis are limited to a computer analysis of the tower structure, size and capacity of its members. MEI does not analyze the fabrication, including welding and connection capacities, except as included in this Report.

The analysis performed and the conclusions contained herein are based on the assumption that the tower has been properly installed and maintained, including, but not limited to the following:

- 1. Proper alignment and plumbness.
- 2. Correct guy tensions, as applicable.
- 3. Correct bolt tightness or slip jacking of sleeved connections.
- 4. No significant deterioration or damage to any structural component.

Furthermore, the information and conclusions contained in this Report were determined by application of the current "state-of-the-art" engineering and analysis procedures and formulae. MALOUF ENGINEERING INTERNATIONAL, INC. assumes no obligation to revise any of the information or conclusions contained in this Report in the event that such engineering and analysis procedures and formulae are hereafter modified or revised. In addition, under no circumstances will MALOUF ENGINEERING INTERNATIONAL, INC. have any obligation or responsibility whatsoever for or on account of consequential or incidental damages sustained by any person, firm or organization as a result of any information or conclusions contained in the Report, and the maximum liability of MALOUF ENGINEERING INTERNATIONAL, INC., if any, pursuant to this Report shall be limited to the total funds actually received by MALOUF ENGINEERING INTERNATIONAL, INC. for preparation of this Report.

Customer has requested Malouf Engineering International, Inc. to prepare and submit to Customer an engineering analysis with respect to the Subject Tower and has further requested Malouf Engineering International, Inc. to make appropriate recommendations regarding suggested structural modifications and changes to the Subject Tower. In making such request of Malouf Engineering International, Inc., Customer has informed Malouf Engineering International, Inc. that Customer will make a determination as to whether or not to implement any of the changes or modifications which may be suggested by Malouf Engineering International, Inc. and that Customer will have any such changes or modifications made by riggers, erectors and other subcontractors of Customer's choice. Malouf Engineering International, Inc. shall have the right to rely upon the accuracy of the information supplied by the customer and shall not be held responsible for the Customer's misrepresentation or omission of relevant fact whether intentional or otherwise.

Customer hereby agrees and acknowledges that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability whatsoever to Customer or to others for any work or services performed by any persons other than MALOUF ENGINEERING INTERNATIONAL, INC. in connection with the implementation of services including but not limited to any services rendered for Customer or for others by riggers, erectors or other subcontractors. Customer acknowledges and agrees that any riggers, erectors or subcontractors retained or employed by Customer shall be solely responsible to Customer and to others for the quality of work performed by them and that MALOUF ENGINEERING INTERNATIONAL, INC. shall have no liability or responsibility whatsoever as a result of any negligence or breach of contract by any such rigger, erector or subcontractor and that Customer and rigger, erector, or subcontractor will provide MALOUF ENGINEERING INTERNATIONAL, INC. with a Certificate of Insurance naming MALOUF ENGINEERING INTERNATIONAL, INC. as additional insured.



APPENDIX 1 - ANALYSIS PRINTOUT & GRAPHICS



101.0 ft 88.0 ft 61.3 ft 56.3 ft 51.8 ft 46.3 ft 40.0 ft 35.0 ft 30.0 ft 6 25.0 ft ALL REACTIONS ARE FACTORED 9 20.0 ft AXIAL 53 K 15.0 ft SHEAR 12 TORQUE 0 kip-ft 10.0 ft AXIAL 5 20 K 5.0 ft SHEAR/ 4 15 K 0.0 ft TORQUE 0 kip-ft REACTIONS - 100 mph WIND Section

DESIGNED APPURTENANCE LOADING

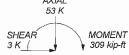
TYPE	ELEVATION	TYPE	ELEVATION
QS66512-3 w/ Pipe Mount (ATI / E)	103.5	Raycap DC6 (Squid) Suppressor (ATI /	103.5
QS66512-3 w/ Pipe Mount (ATI / E)	103.5	E)	
QS66512-3 w/ Pipe Mount (ATI / E)	103.5	RRUS-32 B66 (ATI / P)	103.5
7770.00 Panels w/ Pipe Mount (ATI /	103.5	RRUS-32 B66 (ATI / P)	103.5
E)		RRUS-32 B66 (ATI / P)	103.5
7770.00 Panels w/ Pipe Mount (ATI / E)	103.5	Top Platform w/ Rails (Ladder) (ATT / E)	103.5
7770.00 Panels w/ Pipe Mount (ATI /	103.5	5' Lightning Rod (E)	101
E)		Beacon/Strobe (E)	101
HPA-65R-BUU-H6 w/ Pipe Mounts	103.5	AIR21 w/ pipe Mount (T-Mobile / E)	95
(ATI/P)	400 5	AIR21 w/ pipe Mount (T-Mobile / E)	95
HPA-65R-BUU-H6 w/ Pipe Mounts (ATI / P)	103.5	AIR21 w/ pipe Mount (T-Mobile / E)	95
HPA-65R-BUU-H6 w/ Pipe Mounts (ATI / P)	103.5	Ericsson KRC 118 057/1 w/ pipe Mount (T-Mobile / E)	95
RRUS-11 (ATT) (ATI / E)	103.5	Ericsson KRC 118 057/1 w/ pipe Mount (T-Mobile / E)	95
RRUS-11 (ATT) (ATI / E)	103.5	Ericsson KRC 118 057/1 w/ pipe Mount	95
RRUS-11 (ATT) (ATI / E)	103.5	(T-Mobile / E)	93
RRUS-32 B2 (ATI / E)	103.5	RRUS-11 B12 (T-Mobile / E)	95
RRUS-32 B2 (AT <u>I</u> / E)	103.5	RRUS-11 B12 (T-Mobile / E)	95
RRUS-32 B2 (ATI / E)	103.5	RRUS-11 B12 (T-Mobile / E)	95
RRUS-32 (ATI/E)	103.5	12.5 ft. L.P. T-Arm Mount (SitePro1	95
RRUS-32 (ATI / E)	103.5	RMV12-3XX) (T-Mobile / È)	
RRUS-32 (ATI / E)	103.5	12.5 ft, L.P. T-Arm Mount (SitePro1	95
(2) LGP21401 TMA'S (ATI / E)	103.5	RMV12-3XX) (T-Mobile / E)	
(2) LGP21401 TMA'S (ATI / E)	103.5	12.5 ft. L.P. T-Arm Mount (SitePro1 RMV12-3XX) (T-Mobile / E)	95
(2) LGP21401 TMA'S (ATI / E)	103.5		40.5
(2) TPX-070821 Triplexer (ATI / E)	103.5	GPS (E)	46.5
(2) TPX-070821 Triplexer (ATI / E)	103.5	18" Approx. Standoff Arm (E)	46.5
(2) TPX-070821 Triplexer (ATI / E)	103.5	GPS (E)	37
Raycap DC6 (Squid) Suppressor (ATI / E)	103.5	18" Approx. Standoff Arm (E)	37

MATERIAL STRENGTH

GRADE	Fy	Fu	GRADE	Fy	Fu	-
A572-65	65 ksi	80 ksi	A572-60	60 ksi	75 ksi	ı

TOWER DESIGN NOTES

- 1. Tower is located in Hartford County, Connecticut.
- 2. Tower designed for Exposure B to the TIA-222-G Standard.
- 3. Tower designed for a 100 mph basic wind in accordance with the TIA-222-G Standard.
- 4. Tower is also designed for a 40 mph basic wind with 1.25 in ice. Ice is considered to increase in thickness with height.
- 5. Deflections are based upon a 60 mph wind.6. Tower Structure Class II.
- 7. Topographic Category 1 with Crest Height of 0.00 ft 8. TOWER RATING: 84.8%



40 mph WIND - 1.2500 in ICE

MOMENT 1131 kip-ft

MALOUF ENGINEERING INT'L. INC. ALOUF ENGINEERING INTO 17950 PRESTON RD. SUITE 720

DALLAS, TEXAS - 75252 Phone: (972) 783-2578 FAX: (972) 783-2583

^{bi} 101 ft. MNP. / Wethersfield Site #CT1074 / FA #10035051

Project: CT04861M-18V0 ^{Client.} Empire Telecom / AT&T ^{Drawn by:} HLopez ^{App'd:} Date: 06/29/18 Scale: NTS Code: TIA-222-G Dwg No. E-1 cts\18files\MNP\CT04861M-18V0\CT04861M-18V0.eri

maloufengineering.com

No.	QTY.	DESCRIPTION	ELEV.	TENANT
1	1	1/2	101'	E (Lighting)
2	12	1 5/8	101'	AT&T / E
3	2	5/8" Fiber Cable	101'	AT&T / E
4	2	3/4" DC Power Cable	101'	AT&T / E
5	2	3/4" DC Power Cable	101'	AT&T / E
6	1	ATCB-B01-xxx Homerun Cable (Ext.)	62'-101'	AT&T / E
7	1	ATCB-B01-xxx Homerun Cable (Int.)	62'	AT&T / E
8	1	1 5/8 (Hybrid-Fiber)	95'	T-Mobile / E
9	6	7/8	95'	T-Mobile / E
10	1	3/8 (Shielded)	46'	E
11	1	3/8 (Shielded)	37'	E

CONTACT MEI IF LINE LAYOUT IS DIFFERENT FROM WHAT IS SHOWN BELOW.

LEGEND:

E = EXISTING#X

P = PROPOSED F = FUTURE

#X R = REMOVE

TO RELOCATE

#3 #6-#7 #5 Tightly Strapped to Pole (Internal Preferred) 18 NOTE: NO NEW LINES TO BE SIDED ADDED FOR THIS ANALYSIS 28.000" @ BASE #10, #11 #8

101

PLAN: SCHEMATIC Tx-LINE LAYOUT

SCALE: NOT TO SCALE

NOTES:

- TX LINE LAYOUT IS SCHEMATIC ONLY, BASED UPON MEI RECORDS. NO RECENT SITE PHOTOS PROVIDED.
- 2. NEW BRACKET SUPPORT SPECIFICATION BY OTHERS.

JUN 29, 2018



17950 PRESTON ROAD SUITE 720 DALLAS, TEXAS 75252-5635 972-783-2578 (fax: 2583) www.maloufengineering.com

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101 ft. MNP. / Wethersfield Site #CT1074 / FA #10035051

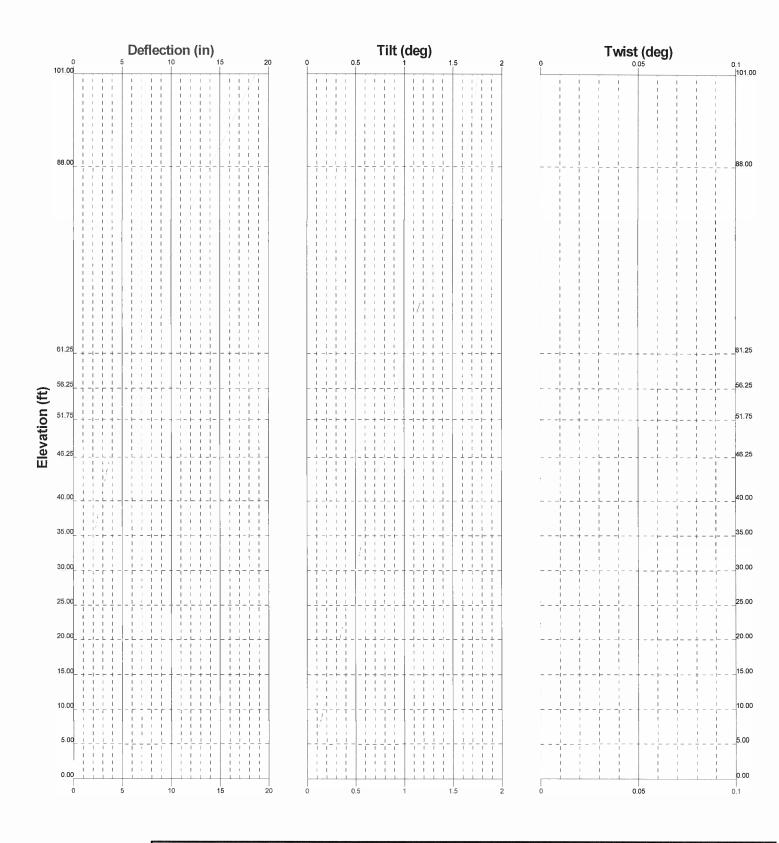
MONOPOLE TXLINE LAYOUT

MEI PROJECT ID CT04861M-18V0

SHEET NUMBER REV.

L01

0





MALOUF ENGINEERING INT'L. INC. 17950 PRESTON RD. SUITE 720

DALLAS, TEXAS - 75252 Phone: (972) 783-2578 FAX: (972) 783-2583

Job: 101 ft. MNP. / Wethe	#CT1074 / FA #10035051	
Project: CT04861M-18V0		
Client: Empire Telecom / AT&T	Drawn by: HLopez	App'd:
Code: TIA-222-G		Scale: NTS
Path: C:\MEIProjects\18files\MNP\CT04861M-1	8V0\CT04861M-18V0.eri	Dwg No. E-5

4T	Job	Page
tnxTower	101 ft. MNP. / Wethersfield Site #CT1074 / FA #1003505	1 1 of 5
MALOUF ENGINEERING INT'L. INC. 17950 PRESTON RD. SUITE 720	Project CT04861M-18V0	Date 15:40:01 06/29/18
DALLAS, TEXAS - 75252 Phone: (972) 783-2578 F4Y: (972) 783-2583	Client Empire Telecom / AT&T	Designed by HLopez

Tower Input Data

The tower is a monopole.

This tower is designed using the TIA-222-G standard.

The following design criteria apply:

Tower is located in Hartford County, Connecticut.

Basic wind speed of 100 mph.

Structure Class II.

Exposure Category B.

Topographic Category 1.

Crest Height 0.00 ft.

Nominal ice thickness of 1.2500 in.

Ice thickness is considered to increase with height.

Ice density of 56 pcf.

A wind speed of 40 mph is used in combination with ice.

Temperature drop of 50 °F.

Deflections calculated using a wind speed of 60 mph.

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

Pressures are calculated at each section.

Stress ratio used in pole design is 1.

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

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Јоь 101 ft. MNP. / Wethersfield Site #CT1074 / FA #10035051	Page 2 of 5
Project CT04861M-18V0	Date 15:40:01 06/29/18
Client Empire Telecom / AT&T	Designed by HLopez

Feed Line/Linear Appurtenances - Entered As Round Or Flat

Description	Placement ft	Total N umber
3/4" DC Power Cable	101.00 - 0.00	2
(AT&T / E)		
ATCB-B01-xxx Homerun Cable	101.00 - 62.00	1
(AT&T / E)		
3/8 (Shielded)	46.50 - 0.00	1
(E)		
3/8 (Shielded)	37.00 - 0.00	1
(E)		

Feed Line/Linear Appurtenances - Entered As Area

Description	Placement ft	Total Number
Safety Line 3/8	101.00 - 0.00	1
(E)		
Step Bolts	101.00 - 0.00	1
(E)		
1/2	101.00 - 0.00	1
(E (Lighting))		
1 5/8	101.00 - 0.00	12
(AT&T/E)		_
5/8" Fiber Cable	101.00 - 0.00	2
(AT&T / E)		_
3/4" DC Power Cable	101.00 - 0.00	2
(AT&T / E) ATCB-B01-xxx Homerun Cable	(2.00 0.00	1
(AT&T / E)	62.00 - 0.00	1
1 5/8 (Hybrid-Fiber)	95.00 - 0.00	1
(T-Mobile / E)	93.00 - 0.00	1
7/8	95.00 - 0.00	6
(T-Mobile / E)	75.00 - 0.00	O
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Јов 101 ft. MNP. / Wethersfield Site #CT1074 / FA #10035051	Page 3 of 5
Project CT04861M-18V0	Date 15:40:01 06/29/18
Client Empire Telecom / AT&T	Designed by HLopez

Discrete Tower Loads

Description	Face or	Placement	Description	Face or	Placemen
	Leg	ft		Leg	ft
5' Lightning Rod	A	101.00	(AT&T / E)		
(E)			Raycap DC6 (Squid)	Α	103.50
Beacon/Strobe	В	101.00	Suppressor		
(E) QS66512-3 w/ Pipe Mount		103,50	(AT&T / E)	D	102.50
(AT&T / E)	Α	103.30	Raycap DC6 (Squid) Suppressor	В	103.50
QS66512-3 w/ Pipe Mount	В	103.50	(AT&T / E)		
(AT&T/E)		103.50	RRUS-32 B66	Α	103.50
QS66512-3 w/ Pipe Mount	C	103.50	(AT&T / P)		
(AT&T / E)			RRUS-32 B66	В	103.50
7770.00 Panels w/ Pipe	Α	103.50	(AT&T / P)		
Mount			RRUS-32 B66	C	103.50
(AT&T / E)	_		(AT&T / P)		
7770.00 Panels w/ Pipe	В	103.50	Top Platform w/ Rails (&	Α	103.50
Mount			Ladder)		
(AT&T / E)	C	102.50	(AT&T/E)		05.00
7770.00 Panels w/ Pipe Mount	C	103.50	AIR21 w/ pipe Mount (T-Mobile / E)	Α	95.00
(AT&T/E)			AIR21 w/ pipe Mount	В	95.00
HPA-65R-BUU-H6 w/ Pipe	Α	103.50	(T-Mobile / E)	5	75.00
Mounts			AIR21 w/ pipe Mount	C	95.00
(AT&T / P)			(T-Mobile / E)		
HPA-65R-BUU-H6 w/ Pipe	В	103.50	Ericsson KRC 118 057/1 w/	Α	95.00
Mounts			pipe Mount		
(AT&T / P)			(T-Mobile / E)		
HPA-65R-BUU-H6 w/ Pipe	C	103.50	Ericsson KRC 118 057/1 w/	В	95.00
Mounts			pipe Mount		
(AT&T / P)		102.50	(T-Mobile / E) Ericsson KRC 118 057/1 w/	C	05.00
RRUS-11 (AT&T) (AT&T / E)	A	103.50	pipe Mount	С	95.00
RRUS-11 (AT&T)	В	103,50	(T-Mobile / E)		
(AT&T / E)	D	105,50	RRUS-11 B12	Α	95.00
RRUS-11 (AT&T)	C	103.50	(T-Mobile / E)	7.1	75.00
(AT&T / E)	-		RRUS-11 B12	В	95.00
RRUS-32 B2	Α	103.50	(T-Mobile / E)		
(AT&T / E)			RRUS-11 B12	C	95.00
RRUS-32 B2	В	103.50	(T-Mobile / E)		
(AT&T / E)	_		12.5 ft. L.P. T-Arm Mount	Α	95.00
RRUS-32 B2	C	103.50	(SitePro1 RMV12-3XX)		
(AT&T / E)	٨	103.50	(T-Mobile / E)	В	95.00
RRUS-32 (AT&T / E)	Α	103.30	12.5 ft. L.P. T-Arm Mount (SitePro1 RMV12-3XX)	В	93.00
RRUS-32	В	103.50	(T-Mobile / E)		
(AT&T / E)	5	100.00	12.5 ft. L.P. T-Arm Mount	C	95.00
RRUS-32	C	103.50	(SitePro1 RMV12-3XX)	_	. 5.55
(AT&T / E)			(T-Mobile / E)		
(2) LGP21401 TMA'S	Α	103.50	GPS	Α	46.50
(AT&T/E)			(E)		
(2) LGP21401 TMA'S	В	103.50	18" Approx. Standoff Arm	Α	46.50
(AT&T / E)			(E)		
(2) LGP21401 TMA'S	C	103.50	GPS	Α	37.00
(AT&T / E)		102.50	(E)		27.00
(2) TPX-070821 Triplexer	A	103.50	18" Approx. Standoff Arm	Α	37.00
(AT&T / E) (2) TPX-070821 Triplexer	R	103.50	(E)		
(2) 1PX-070821 Triplexer (AT&T / E)	В	103.30			
(2) TPX-070821 Triplexer	С	103.50			

MALOUF ENGINEERING INT'L. INC.

17950 PRESTON RD. SUITE 720 DALLAS, TEXAS - 75252 Phone: (972) 783-2578 FAX: (972) 783-2583

Job 101 ft. MN	NP. / Wethersfield Site #CT1074 / FA #10035051	Page 4 of 5
Project	CT04861M-18V0	Date 15:40:01 06/29/18
Client	Empire Telecom / AT&T	Designed by HLopez

Maximum Tower Deflections - Service Wind

Section	Elevation	Horz.	Gov.	Tilt	Twist
No.		Deflection	Load		
	ft	in	Comb.	0	٥
L1	101 - 88	18,670	40	1.7536	0.0010
L2	90.25 - 61.25	14.817	40	1.6466	0.0007
L3	61.25 - 56.25	6.503	40	1.0151	0.0003
L4	56.25 - 51.75	5.487	40	0.9256	0.0003
L5	51.75 - 46.25	4.653	40	0.8427	0.0003
L6	49 - 40	4.183	40	0.7907	0.0003
L7	40 - 35	2.798	40	0.6648	0.0003
L8	35 - 30	2.144	40	0.5834	0.0002
L9	30 - 25	1.576	40	0.5011	0.0002
L10	25 - 20	1.095	40	0.4182	0.0001
L11	20 - 15	0.701	40	0.3348	0.0001
L12	15 - 10	0.394	40	0.2511	0.0001
L13	10 - 5	0.175	40	0.1673	0.0001
L14	5 - 0	0.044	40	0.0836	0.0000

Critical Deflections and Radius of Curvature - Service Wind

Elevation	Appurtenance	Gov.	Deflection	Tilt	Twist	Radius of
		Load				Curvature
ſŧ		Comb.	in	0	0	ft
103.50	QS66512-3 w/ Pipe Mount	40	18.670	1.7536	0.0011	7739
101.00	5' Lightning Rod	40	18.670	1.7536	0.0011	7739
95.00	AIR21 w/ pipe Mount	40	16.495	1.7029	0.0009	6450
46.50	GPS	40	3.774	0.7515	0.0003	4165
37.00	GPS	40	2.395	0.6171	0.0002	3474

Base Plate Design Data

Plate	Number	Anchor Bolt	Actual	Actual	Actual	Actual	Controlling	Critical
Thickness	of Anchor	Size	Allowable	Allowable	Allowable	Allowable	Condition	Ratio
	Bolts		Ratio	Ratio	Ratio	Ratio		
			Bolt	Concrete	Plate	Stiffener		
			Tension	Stress	Stress	Stress		
			K	ksi	ksi	ksi		
in		in						
3.7000	8	1.7500	111.87	2.612	38.159		Plate	0.85
			216.48	4.080	45.000			
			0.52	0.64	0.85			

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Job	Page
101 ft. MNP. / Wethersfield Site #CT1074 / FA #10035051	5 of 5
Project CT04861M-18V0	Date 15:40:01 06/29/18
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Section Capacity Table

Section	Elevation	Component	Size	Critical	P	øP _{allow}	%	Pass
No.	fi	Туре		Element	K	K	Capacity	Fail
L1	101 - 88	Pole	TP16.36x14.64x0.1875	1	-6.04	701.90	39.8	Pass
L2	88 - 61.25	Pole	TP19.7689x15.6873x0.25	2	-8.87	1150.70	78.6	Pass
L3	61.25 - 56.25	Pole	TP20.4726x19.7689x0.250*	3	-9.56	1717.72	58.7	Pass
L4	56.25 - 51.75	Pole	TP21.1059x20.4726x0.250*	4	-10.19	1754.20	62.2	Pass
L5	51.75 - 46.25	Pole	TP21.88x21.1059x0.250*	5	-10.58	1764.42	64.6	Pass
L6	46.25 - 40	Pole	TP22.28x20.725x0.3125*	6	-12.46	2370.46	56.8	Pass
L7	40 - 35	Pole	TP22.995x22.28x0.3125*	7	-13.41	2419.54	59.3	Pass
L8	35 - 30	Pole	TP23.71x22.995x0.3125*	8	-14.35	2466.74	61.8	Pass
L9	30 - 25	Pole	TP24.425x23.71x0.3125*	9	-15.31	2517.17	64.0	Pass
L10	25 - 20	Pole	TP25.14x24.425x0.3125*	10	-16.30	2566.02	66.2	Pass
LII	20 - 15	Pole	TP25.855x25.14x0.3125*	11	-17.30	2613.31	68.3	Pass
L12	15 - 10	Pole	TP26.57x25.855x0.3125*	12	-18.32	2664.61	70.1	Pass
L13	10 - 5	Pole	TP27.285x26.57x0.3125*	13	-19.37	2714.66	71.9	Pass
L14	5 - 0	Pole	TP28x27.285x0.3125*	14	-20.44	2763.46	73.7	Pass
							Summary	
						Pole (L2)	78.6	Pass
						Base Plate	84.8	Pass
						RATING =	84.8	Pass

*Modified w/ MP304 & MP303 Channels

Program Version 8.0.2.1 - 5/2/2018 File:C:/MEIProjects/18files/MNP/CT04861M-18V0/CT04861M-18V0.eri

APPENDIX 2 - SOURCE / CHANGED CONDITION



Tower / Radio Information - Call Sign information needs to be tied to a specific antenna(s). Adjust letters as needed.

			'			l					l					1				ı	ı									
Coax / Waveguide / Cable	Feedline Information	Commscope	1 5/8"	170.	12 (E.)		Fiber	5/8"	170.	2(E)		DC Trunks	3/4"	170,	4 (E.)		ACT-B01-XXX	3/8'	170.	1(E)										
Coax	Fe	Type	Size	Length	# of runs		Type	Size.	Length	# of runs		Type	Size	Length	# of runs		Type	Size	Length	# of runs										
KNLG442	CW-PCS	5M00G7W	1965-1970	632 per sector	55	1885-1890		WPTF536	CW-PCS	5M00G7W	1982 5-1990	632 per sector	55	1902 5-1910		WPWV366	WZ 700 MHz	5M00W7D	740-746	501 per sector	57	710-716								
B Call Sign	Radio Service	Emission Designator	Transmit Frequency	Output Power (watts)	Transmitter ERP (dBm)	Receive Frequency		B Call Sign	Radio Service	Emission Designator	Transmit Frequency	Output Power (watts)	Transmitter ERP (dBm)	Receive Frequency		A Call Sign	Radio Service	Emission Designator	Transmit Frequency	Output Power (watts)	Transmitter ERP (dBm)	Receive Frequency	Call Sign	Radio Service	Emission Designator	Transmit Frequency	Output Power (watts)	Transmitter ERP (dBm)	Receive Frequency	
KNKA239	כר	5M00G7W	880-890, 891.5-894	316 per sector	55	835-845, 846 5-849		WPSL626	CW-PCS	5M00G7W	1930-1935	632 per sector	55	1850-1855		KNLG441	CW-PCS	SMOOG7W	1945-1950	632 per sector	55	1865-1870	WQJU451	WY 700 MHz	5M00W7D	734-740	501 per sector	57	704-710	hatron data (PCN)
B Call Sign	Radio Service	Emission Designator	Transmit Frequency	Output Power (wafts)	Transmitter ERP (dBm)	Receive Frequency		B Call Sign	Radio Service	Emission Designator	Transmit Frequency	Output Power (watts)	Transmitter ERP (dBm)	Receive Frequency		B Call Sign	Radio Service	Emission Designator	Transmit Frequency	Output Power (watts)	Transmitter ERP (dBm)	Receive Frequency	A Call Sign	Radio Service	Emission Designator	Transmit Frequency	Output Power (watts)	Transmitter ERP (dBm)	Receive Frequency	Please attach frequency coordination data (PCN)

	Antenna & Ancillary Equipment Information	uipment Information	Chec	Check one				Heights - A	bove Ground	Level (feet)	Heights - Above Ground Level (feet) Notes; (moluding removals, see
@	@ Make	Model	Existing	Proposed	Proposed Size / Dimensions	Weight	Azimuth	RAD Center	RAD Center Attachment	Tip	shields, etc.)
A	KMW	AM-X-CD-16-65-00T-RET	×		72" x 12" x 6"	49 lbs.	20	103'	100.	106'	To be Removed
A	A KMW	AM-X-CD-16-65-00T-RET	×		72"×12"×6"	49 lbs.	148	103'	100,	106'	To be Removed
٧	A KMW	AM-X-CD-16-65-00T-RET	×		72" x 12" x 6"	49 lbs.	268	103'	100,	106'	To be Removed
В	B Powerwave	7770	×		55" x 11" x 5"	35 lbs.	148	103'	100,	105'	
В	B Powerwave	7770	×		55" x 11" x 5"	35 lbs.	268	103'	100.	105'	
В	B Powerwave	7770	×		55" x 11" x 5"	35 lbs.	20	103	100.	105	
В	B Quintel	QS66512-3	×		72" x 12" x 10"	105 lbs.	20	103'	100.	106'	
В	B Quintel	QS66512-3	×		72" x 12" x 10"	105 lbs.	148	103	100,	106	
В	Quintel	QS66512-3	×		72" x 12" x 10"	105 lbs.	268	103'	100,	106	
	Powerwave	LGP21401	×		6"×8"×2"	7.7 lbs. ea			103		6 TMAs total, 2 per sector
	Ericsson	RRUS-11	×		17"×17"×6"	50 lbs. ea	20, 148, 268		103.		3 Radio Heads, 1 per sector
	Raycap	Squid	×		8.3" x 26"	25 lbs.			103,		1 Fber and DC Junction Box
	Raycap	Squid	×		8.3" x 26"	25 lbs.			103		1 Fiber and DC Junction Box
	Ericsson	RRUS-32	×		27.2" x 12.1" x 7.0"	53 lbs ea	20, 148, 268		103,		3 Radio Heads, 1 per sector
	IOO	TPX-070821	×		6" x 10" x 2"	7.5 lbs ea	20, 148, 268		103		6 Triplexers, 2 per sector
	Ericsson	RRUS-32 B2	×		27.2" x 12.1" x 7.0"	53 lbs ea	20, 148, 268		103		3 Radio Heads, 1 per sector
	GPS antennas		×								
	ioo	HPA-65R-BUU-H6		×	72" x 14.8" x 9"	51 lbs ea	20	103	100.	106	
	ccı	HPA-65R-BUU-H6		×	72" x 14.8" x 9"	51 lbs ea	148	103'	100.	106'	
	CCI	HPA-65R-BUU-H6		×	72" x 14.8" x 9"	51 lbs ea	268	103	1001	106'	
	Ericsson	RRUS-32 B66		×	27.2" x 12.1" x 7.0"	53 lbs ea	20, 148, 268		103"		3 Radio Heads, 1 per sector

Control Cont	The Politic County	and strine owers	in and Minha Hissain	Minhai Hissain	H ENG:	RFDS PROGRAM TYPE: 2018 LTE Next Carrier	8 LTE Next Carric
	KFDS NAME: CILO10/4	DAIE WZWO!	COC COL COL CALL MANAGEMENT COC COL COL COL COL COL COL COL COL COL	1000001- B	in	REDS TECHNOLOGY: LTE	QQ.
Coloration Col	ISSUE: Bronz Standard	Approved (Tries res	OF DECICA EMAIL - mh705-00-1		EMAII	STATE/STATUS: Fina	I/RF Approval
Control Cont	REVISION: Preiminary	NI MANAGER, JEST DESCOULD	Design management			RFDS ID: 2043	2920
Control Cont	**************************************			GSM FREQU	IENCY:		Updated By: mh
				UMTS FREQU	JENISY: 850, 1900		Date Updated: 10/
Section 2 - Location deat Paris deat	LE STATE OF THE ST			LTE FREGU	JENGY, 700, 1900, AWS, WCS		
Total Colors Tota				J-PLAN JC	3B # 1; NER-RCTB-17-06970	IPLAN PRD GRP SUB GRP #1: LTE	Next Carrier L1
1-14-10-00-014 1-14	INITIATIVE PROJECT:			I-PLAN JC	DB#2:	IPLAN PRD GRP SUB GRP #2:	
				I-PLAN JC	OB#3:	IPLAN PRD GRP SUB GRP #3:	
Section 1				I-PLAN JC	DB#4:	IPLAN PRD GRP SUB GRP #4:	
				DU NALIAN JO	08#6:	IPLAN PRD GRP SUB GRP #5:	
Section 2 - LOCATION NEORMAN Control 1994 C				JE NEJEN JO	OB#6:	IPLAN PRD GRP SUB GRP #6:	
Particular Par				DO THE THE STATE OF THE STATE O	DB#7;	IPLAN PRD GRP SUB GRP #7:	
Section 2 - LOCATION INFORMATION Interest Section 2 - LOCATION INFORMATION Interest Section 3 - LOCATION I				T-LAN JC	08#8:	IPLAN PRO GRP SUB GRP #8:	
Participation Participatio			Section 2 - LOCATION INFO	RMATION			E .
Participation Participatio	USID: 59365	FALOCATION CODE: 10035061	LOCATION NAME: WETHERSF		TN # 1: 2051A0EDNV	PACE JOB #1: MRC	CTB026770
Control Entrol	REGION: NORTHEAST	MARKET GLUSTER: NEW ENGLAND	MARKET: CONNECTION		TN#2:	PACE JOB #2:	
Charge Cooked C	ADDRESS: 75 WELLS ROAD	CITY, WETHERSFIELD	STATE: CT	ORACLEP	TN#3:	PACE JOB #3:	
Continue Continue	ZIP CODE: 06109	COUNTY: HARTFORD	LONG (DEC. DEQ.); -72.6634161	ORACLE P	TN#4:	PACE JOB #4:	
Automatication on originating participation originate in the property of the	LATITUDE (D-M-S): 414 42m 20 97s	LONGITUDE (D.M.S): -72d -39m -48 29796s	LAT (DEC. DEG.) 41.7058250	ORACLE P	TN#5:	PACE JOB #5:	
This course declore See 3000 9774 MPTO SSM 1 DRV1 25500 2 DNP/1 25500 3 MTCS 17600 1 MPT 25500 2 DNP/1 25500 3 MTCS 17600 1 MPT 25500 2 DNP/1 25500 3 MTCS 17600 1 MPT 25500 2 DNP/1 25500 2 MTCS 17600 1 MPT 25500 2 MTCS 17600 1 MTCS 17600	11074 - WETHERSFIELD I-91 NO	DRTH TO EXIT 24 (RT. 99) FOLLOW NORTH FOR APPROX, 3 MILES. TURN LEFT ON	NTO WELLS ROAD, (RT. 175) CENTRAL OFFICE ON LEFT. SITE ON 2ND		TN#6:	PACE JOB #6:	
Code of Control of Code of C		877-477-1811 USE : FA CODE GEO LOC; 5 6 4 3 0 0 8 7.T-1 INFO GSM 1 DHXV 23860	309 2 DHPV 238610 3 HCGS 726655 UMTS 1 HCGS 731611 2 HCGS 73161		TN#7:	PACE JOB #7:	
Section 3 - LICENSE COVERACE/FILING INFORMATION Section 4 - TOWERNESS Seaton 1 Seaton 2 Seaton 3 S	EQUIPMENT LOCATION:			ORACLE P	TN#8:	PACE JOB #8:	
Automotive decoration Auto				BORDER CELL WITH CONTOUR CO	OORD:	SEARCH RING NAME:	
Part				AM STUDY REQ'E) (Y/N): No	SEARCH_RING_ID:	
COSS ALOSS Section 3 - LICENSE COVERAGE/FILING INFORMATION PARENT MAREGIAN; INDOCESSA INTO TABLE MARE TO TABLE MARE				FREQ C	OORD:		MSA / RSA:
Cocca LOSS Section 3 - LICENSE COVERAGE/FILING INFORMATION PARENT NAMEGIANTS MODE TOWN SENCE MARKET LOCKTOWN 200 MHE Band: LOCKTOWN 20				SIOSAO	TRICT: CT-North	LAC(GSM): 0500	5
REDSTRICT MODITION				OPS	ZONE: NE_CT_N_HRFR_S_CS	LAC(UMTS): 0598	98
Section 3 - LICENSE COVERAGE/FILING INFORMATION PARENT NAME(LANTS) MIDDLETOWN GSM, MTGO-Bic-1 MMEP				REDIS	TRICT: NPO Triage	BSC(GSM); BCI	10
Section 3 - LICENSE COVERAGE/FILING INFORMATION POSTALOSS PO				RF	ZONE: Hotseat	MME POOL ING TEN	IWC I NICKBRUB
Section 3 - LICENSE COVERAGE/FILING INFORMATION Cosa extraout Needed				PARENT NAME	UMTS): MIDDLETOWN RNC06		
COSA LOSS COSA LOSS COSA LOSS COSA LOSS COSA LOSS							
CGSA CALL SIGNES CGSA SCOPECAND UPDATED: CGSA CALL SIGNES CG	AND THE PROPERTY OF THE PARTY O				Z KNLB312, KNLB312, KNLB312		
COGEST SCOREGARD	- MINOR FILING NEEDED (Yestang):: No	CGSA EXT AGMT NEEDED:	PCS POPS REDUCED:	140 4300			
Section 4 - TOWER/REGULATORY INFORMATION ARRUPTURE TYPE MONOPOLE HEGHT OVERALL IN) 107 00 STRUCTURE HEIGHT (II), 107 00 INHARVRED LIGHT	L- MAJOR FILING NEEDED (Yes/No): Yes	GGSA SCORECARD UPDATED:					
GROUND ELEVATION (III) STRUCTURE TYPE: MONOPOLE HEIGHT OVERALL (III) 107 00 FCC ASR NUMBER: 120438 STRUCTURE HEIGHT (III) 107 00 STRUCTURE HEIGHT (IIII) 107 00 STRUCTURE HEIGHT (IIII) 107 00 STRUCTURE HEIGHT (IIII) 1			Section 4 - TOWER/REGULATOR	/ INFORMATION			ANTER
HEIGHT OVERALL MIT, 107 00 FCC ASR NUMBER, 1200438 STRUCTURE HEIGHT (11) 107 00 FCC ASR NUMBER, 1200438 STRUCTURE HEIGHT (11) 107 00 FCC ASR NUMBER, 1200438 FCC	STRUCTURE AT&T OWNED?. Yes	GROUND ELEVATION (III):	STRUCTURE TYPE: MONOPOLE		Elland		The state of
STRUCTURE HEIGHT (11), 107 00	ADDITIONAL REGULATORY?: Yes	HEIGHT OVERALL (III): 107.00	FCC ASR NUMBER: 1200438	MARKET LOCATION 850 MMs	: Band:		
	SUB-LEASE RIGHTS?: Yes	STRUCTURE HEIGHT (ft): 107 00		MARKET LOCATION 1900 MHz	: Band:		
MARKET LOCATION WCS Bland:	LIGHTING TYPE: VOLUNTARY RED LIGHT			MARKET LOCATION AWS	Band:		X S
				MARKET LOCATION WCS	Bend:		

						STREET, STREET									
3HT from BACK OF ANTERNA as otherwise specified)	ANTENNA POSITION 1	4	ANTENNA POSITION 2	ø	ANTENNA POSITION 3		ANTENNA POSITION 4		ANTENNA POSITION 5	TION 5	ANTENNA	ANTENNA POSITION 6		ANTENNA POSITION 7	7 NOL
嵐	0777	AM:X-CD-16-65-00T-RET	00T-RET			QS66512-2									
ANTENNAVENDOR	Powerwave	KMW				Quintel									
ANTENNA SIZE (N x W x D) 55X11X5	55X11X5	72X11.8X5.9				72X12X9.6			/						
ANTENNA WEIGHT 35	35	48.5				111							+		
MAGNETIC DECLINATION	148	20				20									
RADIATION CENTER (feet) 103.5	103.5	103.5				103.5									
ANTENNA TIP HEIGHT 105.5	105.5	106.5				106.5									
	0	0				0									
FEEDER AMOUNT	2					Fiber + 2 coax							-		
PARATION from ANTENNA ABOVE (TIP to TIP)															
PARATION from ANTENNA BELOW (TIP to TIP)															
NTAL SEPARATION from CLOSEST EFT (CENTERLINE to CENTERLINE)															
NTAL SEPARATION from CLOSEST															
VTAL SEPARATION from ANOTHER NNA (which antenna # (# of inches)															
Antenna RET Motor (QTY/MODEL)	2 Powerwave / 7020 (DB)	0 (DB)	Built-in RET				Built-in RET								
SURGE ARRESTOR (QTY/MODEL)		-	DC/Fiber Squid			е .	DC/Fiber Squid (1) + Polyphaser 1000860 (2)	uid (1) + 1000860 (2)							
DIPLEXER (QTYMODEL)	2 Powerwave /LGP 21901	21901				4	CCI TRIPLEXER TPX-	хея трх-							
DUPLEXER (QTY/MODEL)															
RET CONTROL UNIT (QTY/MODEL)	1 Powerwave / 7020 (DB)	0 (DB)	RRH Controlled				RRH Controlled	lled							
DC BEOCK (W. LIMODEL)		21401													
I MA/LNA (G I Y/MODEL)	2 (Dual Band - 850 Bypass)	Bypass)													
NJECTORS FOR TMA (QTY/MODEL)	POLYPHASER 1000860	000860													
PDU FOR TMAS (QTY/MODEL)	Bypass TMA)	OCO CINE	+												
FILTER (QTY/MODEL)															
FIBER TRUNK (QTY/MODEL)															
DC TRUNK (QTY/MODEL)															
REPEATER (QTY/MODEL)													+		
RRH - 700 band (QTY/MODEL)		-	RRUS-11												
RRH - 1900 band (QTY/MODEL)						-	RRUS-32 B2	2							
RRH - AWS band (QTY/MODEL)															
RRH - WCS band (QTY/MODEL)						-	RRUS-32								
al RRH #1 - any band (QTY/MODEL)		,													
al RRH #2 - any band (QTYMODEL)						-									
ditional Component 2 (QTY/MODEL)															
ditional Component 3 (QTY/MODEL)							-								
Local Market Note 1													.5		
Local Market Note 2															
Local Market Note 3															
C FIELDS PORT NUMBER	USEID (CSSng) USEID (Atoli)	II) ATOLL TXID	ATOLL CELL ID	TXRX TECHNOLOGY/FREQ	ANTENNA ATOLL	ANTENNA ELECTRICAL GAIN AZIMUTH	RRH LOCATION L ELECTRICAL (Top/Bottom/TILT integrated/No	ION FEEDERS dino TYPE	FEEDER R LENGTH M	RXAIT KIT TRIPLEXER MODULE? O'LLC (QTY)	TRIPLEXER SCPA	SCPAMCPA HATCHPLAT E POWER (Watts)	AT ERP (Watts)	Antenna CABLE RET Name NUMBER	E CABLE ID ER (GSSNG)
PORT1		CTV10741	CTV10741	UMTS 850	7770.00.850.08	148	8 None	Commscope 1-5/8	170.043535				298.54	-	-
SITION 1 PORT 3		CTU10747	CTU10747	UMTS 1900	7770.00.1900.06	148	6 None	Commscope 1-5/8 (1900)	170.043535				337.29	5	
					TOO SO SO SO										
SITION 2		CTL01074 7A 1	CTL01074_7A_1	LTE 700	AM-X-CD-16-65-001 - 15.6	20	3 TOP	CIBED	150	_		_	1175 7005	,	_

	4842,058	1285 2866 8	4842.058			
			CTL01074_9A_2 CT			
	FIBER 0	FIBER 0				
	TOP	TOP				
	ω.	2	œ			
50	50	50				
	QS66512- 2_1930MHz_07DT	QS66512- 2_2355MHz_02DT	CTLO1074_8A_2 CTLO1074_8A_2 LTE 1900 CS68617 159 20 8 TOP FIBER 0 4642.089			
Deco CSM 850	LTE 1900	LTEWCS				
	CTL01074_9A_1	CTL01074_3A_1	CTL01074_9A_2	CTLONO74_9A_2 CT		
	CTL01074_9A_1 CTL01074_9A_1	CTL01074_3A_1 CTL01074_3A_1	CTL01074_9A_2	-		
				LTE 1800 22,1930.MH-, 0707 15.9 20 8 TOP FIBER		
				СТL01074_9.A_2 CTL01074_9.A_2 LTE1900 GS66512 15.9 20 8 TOP		
PORT 1	PORT 5	PORT 7	PORT 8			

ITENNA POSITION is 3HT from BACK OF ANTENNA 485 offinitylise specified)	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA	ANTENNA POSITION 4		ANTENNA POSITION 5	ON 5	L	ANTENNA POSITION 6		ANTEN	ANTENNA POSITION 7	
ANTENNA MAKE - MODEL 7770		AM:X-CD-16-65-001-RET	XOT-RET			QS66512-2	12-2										
ANTENNA VENDOR Powerwave	overva.	KMW				Ouintel											
ANTENNA SIZE (H x W x D) 55X11X5	11X5	72X11.8X5.9				72X12X9.6	9.6)										
ANTENNA WEIGHT 35		48.5				111											
AZIMUTH 268		148				148											
MAGNETIC DECLINATION						-											
RADIATION CENTER (feet) 103.5	ري د	1035				103.5											
MECHANICAL DOMNTH TO	<u>ئ</u>	1065				106.5			+								
						Fiber	Fiber + 2 coax										
PARATION from ANTENNA ABOVE																	
PARATION from ANTENNA BELOW																	
NTAL SEPARATION from CLOSEST EFT (CENTERLINE)																	
NTAL SEPARATION from CLOSEST 3HT (CENTERLINE to CENTERLINE)																	
VTAL SEPARATION from ANOTHER NNA (which antenna # /# of inches)																	
Antenna RET Motor (QTY/MODEL) 2	Powerwave / 7020 (DB)	0 (DB)	Built-in RÉT					Built-in RET									
SURGE ARRESTOR (QTY/MODEL)						2		Polyphaser 1000850	9				+	+		1	
DIPLEXER (QTY/MODEL) 2	Powerwave /LGP 21901	21901				4		CCI TRIPLEXER TPX- 670821	-X-d								
DUPLEXER (QTY/MODEL)																	
RET CONTROL UNIT (QTY/MODEL)			RRH Controlled					RRH Controlled									
Canada Maria	Powerwave / LGP 21401	21401															
z (Zamone) (Zamone) z	(Dual Band - 850	Bypass)															
PDILEOR TWAS (OTYMODEL)	POLYPHASER 1000860	nggnon															
FILTER (QTY/MODEL)																	
SQUID (QTY/MODEL)													+	+			
FIBER TRUNK (QTY/MODEL)																	
REPEATER (QTY/MODEL)																	
RRH - 700 band (QTY/MODEL)		-	RRUS-11														
RRH - 850 band (QTYMODEL)				+		-		RRUS-32 R2									
RRH - AWS band (QTY/MODEL)																	
RRH - WCS band (QTY/MODEL)						-		RRUS-32									
ial RRH #1 - any band (QTY/MODEL)						+			+				+	+			
ial RRH #2 - any band (QTY/MODEL)													+				
ditional Component 1 (QTY/MODEL)			-														
ditional Component 3 (QTY/MODEL)																	
Local Market Note 1												į					
Local Market Note 2																	
Local Market Note 3																	
C.PIELDS PORT NUMBER	USEID (CSSng) USEID (Afoil)	אוו) אנסרר דאום	ATOLL CELL ID	TXRX TECHNOLOGYFREG	ANTENNA	ANTENNA ELECT	ELECTRICAL ELECTRICAL AZIMUTH TILT	RRH LOCATION AL (Top/Bottom/ Integrated/No	FEEDERS	FEEDER RX LENGTH MC (feet)	RXAIT KIT TRIPLEXER MODULE? or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPAMCPA EI	HATCHPLAT ERP E POWER (Watts)	Antenna RET Name	CABLE	CABLE ID (CSSNG)
PORT 1		CTV10742	CTV10742	UMTS 850	7770.00.850.06 13.5	5 268	9	None	Commscope 1-5/8 (850)	170.043535				298.54		6	
STION 1		CTU10748	CTU10748	UMTS 1900	7770.00.1900.04 15.5	268	4	None	Commscope 1-5/8 (1900)	170.043535				337.29		10	
SITION 2 PORT 1		CTL01074_7B_1	CTL01074_7B_1	LTE 700	AM-X-CD-16-65-00T- RET_725MHz_09DT	148	o,	TOP	FIBER	150				1475.7065	10	11	
											_			_	_	_	

	16	16	16
	4842.058	1285 2866	4842.058
	0	0	0
	FIBER	FIBER	FIBER
	TOP	TOP	TOP
5	so.	- 73	Lý.
	148	148	148
	15.6	16.8	15.6
	QS66512- 2_1930MHz_05DT	QS66512. 2_2355MHz_02DT	QS66512- 2_1930MHz_05DT
	LTE 1900	LTE WCS	LTE 1900
E	CTL01074_9B_1 CTL01074_9B_1	CTL01074_3B_1 CTL01074_3B_1	CTL01074_9B_2 CTL01074_9B_2
	CTL01074_9B_1	CTL01074_3B_1	CTL01074_9B_2
	PORT 5	PORT 7	PORT 8

SHT from BACK OF ANTENNA sex officers as profiled?	ANTENNA POSITION 1	4	ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENNA POSITION 4	ION 4	ANTE	ANTENNA POSITION 5		ANTENNA POSITION 6	JON 6	₹	ANTENNA POSITION 7	
ū	0222	Tag Too 88.86 ON MA	VAT. BET			0.566512-2										
ANTENNA VENDOR	Domentano	KMW	NI-NEI			Quintel										
ANTENNA SIZE (H x W xD)	55X11X5	72X11.8X5.9				72X12X9.6										
ANTENNAWEIGHT	. 35	48.5				111										
AZIMUTH	20	268				268										
MAGNETIC DECLINATION																
RADIATION CENTER (feet)	103.5	103.5				103.5										
ANTENNA TIP HEIGHT		106.5				106.5										
MECHANICAL DOWNTILT	0	0				O SHOOT S										
PEEDER AMOUNT	7					27 1901	× PO									
(TP to TIP)																
PARATION from ANTENNA BELOW (TIP to TIP)																
NTAL SEPARATION from CLOSEST EFT (CENTERLINE to CENTERLINE)																
NTAL SEPARATION from CLOSEST 3HT (CENTERLINE to CENTERLINE)																
VTAL SEPARATION from ANOTHER																
Antenna RET Motor (QTY/MODEL)	2 Powerviave / 7020 (DB)	DB)	Built-in RET				Bult-I	Bult-ın RET								
SURGE ARRESTOR (QTY/MODEL)						2	Polyr	Polyphaser 1000860								
DIPLEXER (QTY/MODEL)	Powerwave / LGP 21901	1901				4	CCI T 07/082	CCI TRIPLEXER TPX- 070821								
DUPLEXER (QTY/MODEL)																
RET CONTROL UNIT (QTY/MODEL)			RRHControlled				якн	RRH Controlled								
DC BLOCK (QTY/MODEL)						+										
TMA/LNA (QTY/MODEL)	Powerwave / LGP 21401 (Dual Band - 850 Bypass)	(1401 rpass)														
NJECTORS FOR TMA (QTYMODEL)	2	0980														
PDU FOR TMAS (QTY/MODEL)																
FILTER (QTY/MODEL)																
SQUID (QTY/MODEL)											-					
DC TRUNK (QTY/MODEL)																
REPEATER (QTY/MODEL)																
RRH - 700 band (QTY/MODEL)		-	RRUS-11													
RRH - 850 band (QTY/MODEL)							200	ACT OF STREET		+					+	
RRH - 1900 band (QTY/MODEL)						_		9-32 B2								
RRH - AWS band (QTV/MODEL)						-	RRUS-32	1-32								
al RRH #1 - any band (QTY/MODEL)																
al RRH #2 - any band (QTY/MODEL)																
ditional Component 1 (QTY/MODEL)																
ditional Component 2 (QTY/MODEL)											+					
ditional Component 3 (QTY/MODEL)																
POCOL INGUISE LANGE																
Local Market Note 2	-															
Local Market Note 3																
3 FIELDS PORT NUMBER	USEID (CSSng) USEID (Atoll)	ATOLLTXID	ATOLL CELLID	TXRX TECHNOLOGY/FREQ	ANTENNA	ANTENNA ELECTRICAL GAIN AZIMUTH	ELECTRICAL TR.T	RRH LOCATION (Top/Bottom/ Integrated/No	FEEDERS LENGTH (feet)	RXAIT KIT MODULE?	TRIPLEXER OF LLC OF LLC (QTY) (MODEL)	EXER SCPAMCPA LC MODULE?	HATCHPLAT E POWER (Watts)	ERP Antenna (Watts) RET Name	CABLE NUMBER	CABLE ID (CSSNG)
PORT 1		CTV10743	CTV10743	UNITS 850	7770.00.850.10	50	10 No	None (850)	Commscope 1-5/8 170.043535 (850)	535			298	298.54	17	
SITION 1 PORT 3		CTU10749	CTU10749	UMTS 1900	7770.00.1900.06 15.5	50	ž	Nene (1900)	Commscope 1-5/8 170.043535 (1900)	1535			33;	337.29	18	
		7 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1 75 M2010 ITO	176 200	AM-X-CD-16-65-00T-	368	9 TOP		150				147	1475.7065	6	
SILION 2		1-0/-			RET_725MHz_06DT					+		\parallel				Щ

	24	24	24
	4842 058	1285.2866	4842 058
	0	0	0
	FIBER	FIBER	FIBER
	TOP	TOP	TOP
	9	ın	Ф
	268	268	268
	15.9	16.9	15.9
	OS66512- 2_1930MHz_06DT	QS66512- 2_2355MHz_05DT	QS66512- 2_1930MHz_06DT
	LTE 1900	LTE WCS	LTE 1900
E		TL01074_3C_1	
	CTL01074_9C_1	CTL01074_3C_1	CTL01074_9C_2 CTL01074_9C_2
	U	U	
	PORT 5	PORT 7	PORT 8

	ANTENNA POSITION 1	4	ANTENNA POSITION 2		ANTENNA POSITION 3		AN	ANTENNA POSITION 4	•	ANTENI	ANTENNA POSITION 5		ANTENN	ANTENNA POSITION 6		ANTEN	ANTENNA POSITION 7	
es offierwite specified)																		
Existing Antenna?																		
ANTENNA MAKE - MODEL		HPA-65R-BUU-H6										+						
ANTENNAVENDOR		ō							+			+			1			
ANTENNA SIZE (H × W × D)		72X14.8X9																
ANTENNAWEIGHT		51							+									
AZIMUTH		20							+			+			1			
MAGNETIC DECLINATION		100																
NAUGITON CENTER (reet)		1035										-						
AN IEMMA III DENOIT		680																
FEEDER AMOUNT		- Liber																
PARATION from ANTENNA ABOVE																		
(TIP to TIP) PARATION from ANTENNA BELOW															-			
(TIP to TIP)																		
NTAL SEPARATION from CLOSEST EFT (CENTERLINE to CENTERLINE)																		
NTAL SEPARATION from CLOSEST 3HT (CENTERLINE to CENTERLINE)																		
VTAL SEPARATION from ANOTHER																		
NNA (Watch antenna # / # of inches) Antenna RET Motor (OTY/MODEL)			Built-in RET															
SURGE ARRESTOR (QTY/MODEL)																		
DIPLEXER (QTY/MODEL)																		
DUPLEXER (QTY/MODEL)																		
RET CONTROL UNIT (QTY/MODEL)			RRHControlled															
DC BLOCK (QTY/MODEL)								+	1									
TMA/LNA (QTY/MODEL)								+			-							
DINI FOR TMA (QTY/MODEL)								-										
FILTER (QTY/MODEL)																		
SQUID (QTY/MODEL)																		
FIBER TRUNK (QTY/MODEL)								-							+			
DC TRUNK (QTY/MODEL)																		
REPEATER (QTY/MODEL)									\dagger						+			
RRH - 700 band (QTY/MODEL)																	_	
RRH - 1900 band (OTY/MODEL)																		
RRH - AWS band (QTY/MODEL)		-	RRUS-32 B66															
RRH - WCS band (QTY/MODEL)																		
ial RRH #1 - any band (QTY/MODEL)																		
ial RRH #2 - any band (QTY/MODEL)					+									1				
ditional Component 1 (QTY/MODEL)								-										
ditional Component 2 (QTY/MODEL)																		
	LTE 4C-AWS(J) sow-Replace existing LTE Antenna -Add LTE AWS RRUS -Reuse existing DC Fibor Squid -Add 2nd XMU.	Add LTE AWS RRUS	Reuse existing DC Fiber Squ	uid -Add 2nd XMU.														
Local Market Note 2 LTE sector Alpha (2/	LTE sector Alpha (20 Az) mounted on UNITS Gamma arm mounts (20) 1TE sector Beta (146 Az) mounted on UNITS Alpha arm mounts (146), LTE	arm mounts (20) LTE	sector Beta (148 Az) mount	ed on UMTS Alpha arm m	ounts (148).LTE sector (атта (268 Az)	sector Gamma (268 Az) mounted on UMTS Beta arm mounts (269)	eta am mounts (26	38)									
Local Market Note 3 Baseband Config 2 DUS +2 XMU + IDL2	00S + 2 XMU + IBL2					5.5												
								12	RRH									
C FIELDS PORT NUMBER USEID (CSSng)) USEID (Atoll)	ATOLL TXID	ATOLL CELL ID	TX/RX TECHNOLOGY/FREQ	ANTENNA	GAIN	ELECTRICAL ELE AZIMUTH	ELECTRICAL (Top/Bot TILT Integrate	LOCATION FEEDERS (Top/Bottom/ TYPE Integrated/No ne)	ERS LENGTH	R RXAIT KIT MODULE?	TRIPLEXER or LLC (QTY) (A	Or LLC MODEL)	SCPA/MCPA EPG MODULE? (W	HATCHPLAT ERP E POWER (Watts)	Antenna RET Name	CABLE	CABLE ID (CSSNG)
PORT 1		CTL01074_7A_1	CTL01074_7A_1	LTE 700	HPA-65R-BUU- H6_719MHz_03DT	14 22	20 3	TOP	FIBER	150					1475.7065		ъ	
SITION 2																		

							AND DESCRIPTION OF THE PERSON NAMED IN			CHARLES BOOK OF THE PARTY OF TH								
ITENNA POSITION IS SHT from BACK OF ANTENNA ss otherwise specified)	ANTENNA POSITION 1	DN 1	ANT	ANTENNA POSITION 2		ANTENNA POSITION 3		ANTEN	ANTENNA POSITION 4		ANTENNA POSITION 5	OSITION 5		ANTENNA POSITION 6	9 7	ANTE	ANTENNA POSITION 7	
Existing Antenna?																		
ANTENNA MAKE - MODEL		HP	HPA-65R-BUU-H6															
ANTENNAVENDOR		CCI	7															
ANTENNA SIZE (H x Wx D)		X27	72X14.8X9															
ANTENNAWEIGHT		51																
HTUMIZA		148	8															
MAGNETIC DECLINATION										+								
RADIATION CENTER (feet)		103	103.5				1											
ANTENNA TIP HEIGHT		701	106.5							+								
MECHANICAL DOWNTILT		0			+													
FEEDER AMOUNT		Fiber	ber															
PARATION from ANTENNA ABOVE (TIP to TIP)																		
PARATION from ANTENNA BELOW						-												
NTAL SEPARATION from CLOSEST FET (CENTER) INF to CENTER INE)																		
NTAL SEPARATION from CLOSEST 3HT (CENTERLINE)																		
VTAL SEPARATION from ANOTHER NNA (which antenna # # of inches)																		
Antenna RET Motor (QTY/MODEL)				Built-in RET														
SURGE ARRESTOR (QTY/MODEL)																		
DIPLEXER (QTY/MODEL)																	1	
DUPLEXER (QTY/MODEL)							+											
RET CONTROL UNIT (QTY/MODEL)				RRH Controlled														
DC BLOCK (QTY/MODEL)																		
TMA/LNA (QTY/MODEL)				+														
PDILEDE TMAS (OTYMODEL)				<u> </u>														
FILTER (QTY/MODEL)																		
SQUID (QTY/MODEL)																		
FIBER TRUNK (QTY/MODEL)																		1
DC TRUNK (QTY/MODEL)													-	+				
REPEATER (QTY/MODEL)										-								
RRH - 700 band (QTY/MODEL)									-									
RRH - 850 band (QTY/MODEL)													+	+	+		-	
RRH - 1900 band (QTY/MODEL)																	-	
RRH - AWS band (QTY/MODEL)		-		RRUS-32 B66														
RRH - WCS band (QTY/MODEL)																		
ral KKH #1 - any band (Q I T/MODEL)																		
ditional Component 1 (OTY/MODEL)																		
ditional Component 2 (QTY/MODEL)																		
ditional Component 3 (QTY/MODEL)																		
	LTE 4C-AWS(J) sowReplace existing LTE Antenna -Add LTE AWS RRUS -Reuse existing DC Fiber Squid -Add 2nd XMU	ing LTE Antenna . Add LT	TE AWS RRUS -Re	suse existing DC Fiber Sv	quid -Add 2nd XMU													
Local Market Note 2	LTE socior Alpha (20 Az) mounted on UMTS Gamma arm mounts (20). LTE sector Beta (149 Az) mounted on UMTS Alpha arm mounts (149). LTE	on UMTS Gamma arm m.	nounts (20). LTE se	ctor Beta (148 Az) mour	nted on UMTS Alpha arm	sector	тта (268 А2) то	Gamma (268 Az) mounted on UMTS Beta arm mounts (268)	arm mounts (268)									
Local Market Note 3	Baseband Config 2 DUS + 2 XMU + IDL2	101.2																
G FIELDS PORT NUMBER	USEID (CSSng) U	USEID (Atoff) AT	ATOLL TXID	ATOLL CELL ID TO	TXRX TECHNOLOGY,FREQ	EQ ANTENNA ATOLL	ANTENNA EL	ELECTRICAL ELECTRICAL AZIMUTH TILT	RICAL (Top/Bottom/ I Integrated/No	reedens TYPE	FEEDER LENGTH (feet)	RXAIT KIT TRIPI	TRIPLEXER OF LLC OF LLC (QTY) (MODEL)	SCPA/MCPA MODULE?	HATCHPLAT ERP E POWER (Watts)	P Antenna (tts) RET Name	CABLE	CABLE ID (CSSNG)
1 FROM		СТГОН	CTL01074, 7B, 1	CTL01074_7B_1	LTE 700	HPA-65R-BUU-	13.97 148	6	TOP	FIBER	150				1475 7065	95	11	
SITION 2			T			H6_719MHz_09D1												

ZHINA PUSHTION IS									SECOND CONTRACT PROPERTY OF SECOND CONTRACT PROPERTY PR							
3HT from BACK OF ANTENNA	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3		ANTENN	ANTENNA POSITION 4		ANTENNA POSITION 5	ON 6	ANTI	ANTENNA POSITION 6		ANTE	ANTENNA POSITION 7
Existing Antenna?																
ANTENNA MAKE - MODEL		HPA-65R-BUU-H6	16													
ANTENNAVENDOR		D)														
ANTENNA SIZE (H x W x D)		72X14.8X9														
ANTENNAWEIGHT		51												1		
AZIMUTH		268														
MAGNETIC DECLINATION																
RADIATION CENTER (feet)		103.5														
ANTENNA TIP HEIGHT		106.5														
MECHANICAL DOWNTILT		0														
FEEDER AMOUNT		Fiber														
PARATION from ANTENNA ABOVE																
PARATION from ANTENNA BELOW																
(TIP to TIP)									+							
NTAL SEPARATION from CLOSEST EFT (CENTERLINE to CENTERLINE)																
NTAL SEPARATION from CLOSEST 3HT (CENTERLINE to CENTERLINE)																
VTAL SEPARATION from ANOTHER																
Antonio DET Macos (October)													+			
SUBCE ABBESTOR (OTVINODE)																
DIPLEXER (QTY/MODEL)																
DUPLEXER (QTY/MODEL)																
RET CONTROL UNIT (QTY/MODEL)			RRHControlled													
DC BLOCK (QTY/MODEL)																
TMA/LNA (QTY/MODEL)																
VJECTORS FOR TMA (QTY/MODEL)																
PDU FOR TMAS (QTY/MODEL)																
FILTER (QTV/MODEL)																
FIBER TRUNK (QTY/MODEL)																
DC TRUNK (QTY/MODEL)																
REPEATER (QTY/MODEL)																
RRH - 700 band (QTY/MODEL)																
RRH - 850 band (QTY/MODEL)																
RRH - 1900 band (QTY/MODEL)													-			
RRH - AWS band (QTY/MODEL)		-	RRUS-32 B66													
RRH - WCS band (QTYMODEL)													-			
ial RRH #1 - any band (QTY/MODEL)						\dagger										
ral RRH #2 - any band (QTY/MODEL)																
ditional Component 2 (QTY/MODEL)																
ditional Component 3 (QTY/MODEL)																
Local Market Note 1	Local Market Note 1 LTE 4C-AWS(J) sow-Replace exising LTE Arterna "Add LTE AWS RRUS, Reuse existing DC Fiber Squid, Add 2nd XMU	AntennaAdd LTE AWS RRU:	SReuse existing DC Fiber	Squid Add 2nd XMU												
Local Market Note 2	Local MarketNore 2 LTE sector Apha (20 A2) mounted on UMTS Garrma arm mounts (20), LTE sector Beta (148 A2) mounted on UMTS Alpha arm mounts (148), LTE sector Apha (20 A2) mounted on UMTS Beta arm mounts (268)	S Gamma arm mounts (20), L1	IE sector Beta (148 Az) mo	unted on UMTS Alpha arm r	nounts (148).LTE sector Ga	mma (268 Az) mou	nted on UMTS Beta an	n mounts (268)								
Local Market Note 3 Basebar	Local Market Note 3 Baseband Config 2 DUS + 2 XMU + IDL2															
S FIELDS PORT NUMBER USI	USEID (CSSng) USEID (Aloi!)	toli) ATOLL TXID	ATOLL CELL ID	TXRX TECHNOLOGY/FREQ	SQ ANTENNA ATOLL	ANTENNA EL	ELECTRICAL ELECTRICAL AZIMUTH	RRH LOCATION AL (Top/Bottom/ Integrated/No	FEEDERS	FEEDER RX4 LENGTH MOI	RXAIT KIT TRIPLEXER MODULE? 01 LLC (QTY)	TRIPLEXER or LLG (MODEL)	SCPA/MCPA EF	HATCHPLAT ERP E POWER (Watts)	Antenna S) RET Name	CABLE
TENCA		CTI 04074 7C 1	CTL03074 7C 1	LTE 700	HPA-65R-BUU-	14 08 268	6	TOP TOP	FIBER	051				1475 7065	10	19
SITION 2					\neg						+					
C FOCO																

3HT from BACK OF ANTENNA	ANTENNA POSITION 1		ANTENNA POSITION 2		ANTENNA POSITION 3	ANTEN	ANTENNA POSITION 4		ANTENNA POSITION 5		ANTENNA	ANTENNA POSITION 6		ANTENNA	ANTENNA POSITION 7
	0777	HPA-65R-BUU-H6	-не			QS66512-2							1		
ANTENNA VENDOR Po	Powerwave	5				Quintel							+		
ANTENNA SIZE (H × W × D) 55X11X5	5X11X5	72X14.8X9				72X12X9.6							+		
	148	10 00				20							+		
									1						
RADIATION CENTER (feet) 103.5	33.5	1035				103.5									
ANTENNA TIP HEIGHT 105.5	35.5	1065				106.5							1		
MECHANICAL DOWNTILT 0		0				0							1		
FEEDER AMOUNT 2		Fiber				Fiber + 2 coax									
PARATION from ANTENNA ABOVE (TIP to TIP)															
PARATION from ANTENNA BELOW															
NTAL SEPARATION from CLOSEST															
NTAL SEPARATION from CLOSEST															
VTAL SEPARATION from ANOTHER															
Antenna RET Motor (QTY/MODEL) 2	Powerwave / 7020 (DB)	/ 7020 (DB)	Built-in RET				Built-in RET								
SURGE ARRESTOR (QTY/MODEL)		-	DC/Fiber Squid	pi		8	DC/Fiber Squid (1) + Polyphaser 1000860 (2)	÷							
DIPLEXER (QTY/MODEL) 2	Powerwave / LGP 21901	/LGP 21901				4	CCI TRIPLEXER TPX-	PX-							
DUPLEXER (QTY/MODEL)															
RET CONTROL UNIT (QTY/MODEL) 1	Powerwave / 7020 (DB)	/7020 (DB)	RRH Controlled	pa			RRH Controlled								
DC BLOCK (QTY/MODEL)		1020 21401													
TMA/LNA (QTY/MODEL) 2		(Dual Band - 850 Bypass)													
VJECTORS FOR TMA (QTY/MODEL) 2	POLYPHAS	POLYPHASER 1000860													
PDU FOR TMAS (QTY/MODEL) 1	LGP 12104 i Bypass TMA	LGP 12104 (1900 AND 850 Bypass TMA)													
FILTER (QTY/MODEL)															
SQUID (QTY/MODEL)															
DC TRUNK (QTY/MODEL)															
REPEATER (QTY/MODEL)															
RRH - 700 band (QTY/MODEL)		-	RRUS-11												
RRH - 850 band (QTY/MODEL)															
RRH - 1900 band (QTY/MODEL)		-	RRUS-32 B66			-	RRUS-32 B2								
RRH - WCS band (QTY/MODEL)						-	RRUS-32								
al RRH #1 - any band (QTY/MODEL)															
al RRH #2 - any band (QTY/MODEL)															
ditional Component 1 (QTY/MODEL)															
ditional Component 3 (QTY/MODEL)															
	LTE 4C-AWS(J) sowRoplace existing LTE Antenna -Add LTE AWS RRUSReuse existing DC Fiber Squid -Add 2nd XMU	TE Antenna -Add LTE AWS RR	USReuse existing DC Fibe	r Squid -Add 2nd XMU											
Local Market Note 2	LTE ecclor Alpha (20 A2) mounted on UMTS Gamma arm mounts (20), LTE sector Beta (148 A2) mounted on UMTS Alpha arm mounts (148),LTE	MTS Gamma arm mounts (20).	LTE sector Beta (148 Az) m	ounted on UMTS Alpha arm n		sector Gamma (288 Az) mounted on UMTS Beta arm mounts (269)	m mounts (268)								
Local Market Note 3	Baseband Config 2 DUS + 2 XMU + IDL2														
S FIELDS PORT NUMBER	USEID (CSSng) USEID (Atoli)	(Atoli) ATOLL TXID	ATOLL CELL ID	TXRX TECHNOLOGYFREG	ANTENNA ATOLL	ANTENNA ELECTRICAL ELECTF GAIN AZIMUTH TIL	RRH LOCATION LCCTRICAL (Top/Bottom/ TILT In:egrated/No	FEEDERS	FEEDER RXAIT KIT LENGTH MODULE? (feet)	TRIPLEXER or LLC (QTY)	TRIPLEXER SCPA or LLC MOD (MODEL)	SCPAINCPA HATCHPLAT MODULE? (Matts)	PLAT ERP VER (Watts)	Antenna RET Name	CABLE ID
PORT1	59365.A.850.3G.1	CTV10741	CTV10741	UMTS 850	7770.00.850.08	148 8	Ncne	Commscope 1-5/8 (850)	170.043535				298.54		
SITION 1 PORT 3 5936	59365.A.1900.3G.1	CTU10747	CTU10747	UMTS 1900	7770.00.1900.06 15.5	148 6	Ncne		170.043535				337.29	2	
	A COL A SOCIAL STATES	47 47000 000	6T1 04074 7A 4	007.37.	HPA-65R-BUU-	4									
SITION 2	65.A.700.4G.mp1	200							9			_	1175 7085		

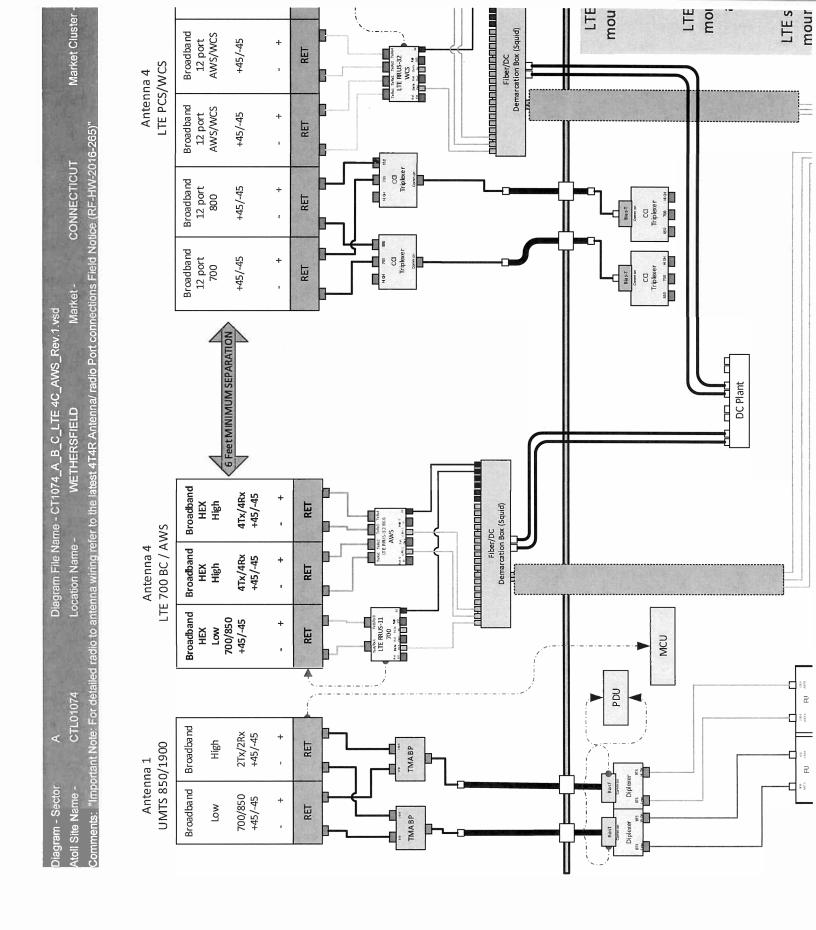
4		80	σ,	80
1475.7065		4842.058	1285,2886	4842.058
150		0	0	0
FIBER		FIBER	FIBER	FIBER
TOP		TOP	ТОР	40T
8_		. 8	5	60
20	30	30	20	20
17 49		15.9	16.8	15.9
HPA-65R-BUU- H6_2360MHz_08DT		QS66512+ 2_1930MHz_07DT	QS66612- 2_2355MH2_02DT	QS66512- 2 1930MHz 07DT
LTE AWS	Deco GSM 850	LTE 1900	LTEWCS	LTE 1900
CTL01074_2A_2 CTL01074_2A_2		CTL01074_9A_1 CTL01074_9A_1	CTL01074_3A_1 CTL01074_3A_1	CTL01074_9A_2 CTL01074_9A_2
CTL01074_2A_2		CTL01074_9A_1	CTL01074_3A_1	CTL01074_9A_2
PORT 3 59365 A.AWS 4G.tmp4		PORT 5 59365.A.1900 4G tmp1	PORT 7 59365 A,WCS 4G tmp1	PORT 8 59365 A 1900.4G.lmp4
PORT 3	PORT 1	PORT 5	PORT 7	PORT 8

SHT from BACK OF ANTENNA	ANTENNA POSITION 1	N.1	AN	ANTENNA POSITION 2		ANTENNA POSITION 3		ANTE	ANTENNA POSITION 4		ANTENNA POSITION 5	TION 5	ANTE	ANTENNA POSITION 6		ANTENN	ANTENNA POSITION 7
therwise specified)	0222		20 00 VOD				80	0.566512.2									
AN LENNA MAKE - MODEL			HPA-65K-BUU-H5				š 8	Quintel									
ANTENNA SIZE (H × W × D)	55X11X5		72X14.8X9				723	72X12X9.6									
ANTENNA WEIGHT			51				111						-				
AZIMUTH 268	268		148				148										
MAGNETIC DECLINATION							1										
RADIATION CENTER (feet)	103.5		103.5				103.5	12 12									
MECHANICAL DOWNTH TO	105.5		cant o				8 0	3									
FEEDER AMOUNT	5		Fiber				- E	Fiber + 2 coax									
PARATION from ANTENNA ABOVE																	
PARATION from ANTENNA BELOW																	
NTAL SEPARATION from CLOSEST EET (CENTED) INE to CENTED INE)																	
NTAL SEPARATION from CLOSEST 341 (CENTERLINE to CENTERLINE)																	
VTAL SEPARATION from ANOTHER NNA (which antenna # / # of inches)																	
Antenna RET Motor (QTY/MODEL)	2	Powervave / 7020 (DB)		Built-in RET					Built-in RET								
SURGE ARRESTOR (QTY/MODEL)					+		2		Polyphaser 1000860	2860				+			
DIPLEXER (QTY/MODEL)	2	Powerwave / LGP 21901					4		070821	H TPX-							
DUPLEXER (QTY/MODEL)										+							
RET CONTROL UNIT (QTY/MODEL)				RRH Controlled					RRH Controlled								
TM&I NA (OTY/MODE)		Powerwave / LGP 21401															
VIECTORS FOR TWA (OTV/MODEL)		(Dual Band - 850 Bypass)												-			
PDU FOR TMAS (QTY/MODEL)																	
FILTER (QTY/MODEL)																	
SQUID (QTY/MODEL)														+			
DC TRUNK (QTY/MODEL)																	
REPEATER (QTY/MODEL)					+												
RRH - 700 band (QTY/MODEL)			-	RRUS-11													
RRH - 1900 band (QTY/MODEL)							-		RRUS-32 B2								
RRH - AWS band (QTY/MODEL)			-	RRUS-32 B66											-		
RRH - WCS band (QTY/MODEL)							-		RRUS-32								
ial RRH #1 - any band (QTY/MODEL)									+								
ditional Component 1 (QTY/MODEL)																	
ditional Component 2 (QTY/MODEL)						/								+	+		
ditional Component 3 (QTY/MODEL)																	
בסבקו שפועבו	LTE 4C-AWS(J) sow:-Replace existing LTE AnternaAdd LTE AWS RRUS -Reuse existing DC Fiber SquidAdd 2nd XMU.	ng LTE Antenna,-Ad	1d LTE AWS RRUS -F	Reuse existing DC Fiber S	quid -Add 2nd XMU												
Local Market Note 2	LTE sector Alpha (20 Az) mounted on UMTS Gamma arm mounts (20). LTE sector Beta (148 Az) mounted on UMTS Alpha arm mounts (149). LTE sector Gamma (268 Az) mounted on UMTS Beta arm mounts (269).	on UMTS Gamma ar	rm mounts (20) LTE	sector Beta (148 Az) mou	nted on UMTS Alpha arm m	ounts (148) LTE sector Gar	тта (268 Аz) то	inted on UMTS Bet.	a arm mounts (268)								
Local Market Note 3	Baseband Config 2 DUS + 2 XMU + IDL2	IDL2															
3 FIELDS PORT NUMBER	n (česud)	USEID (Atoll)	ATOLL TXID	ATOLL CELL ID T	TXRX TECHNOLOGY/FREQ	Q ANTENNA ATOLL	ANTENNA EL GAIN	ELECTRICAL ELECT AZIMUTH TI	RRH 10CATION ELECTRICAL (Top/Bottom/TILT Integrated/No ne)	FEEDERS IN TYPE	FEEDER R3 LENGTH MK	RXAIT KIT TRIPLEXER MODULE? or LLC (QTY)	TRIPLEXER or LLC (MODEL)	SCPAMCPA HATCHPLAT MODULE? (Watts)	HPLAT ERP WER (Watts)	Antenna RET Name	CABLE
PORT 15	59365.B.850.3G.1	5	CTV10742	CTV10742	UMTS 850	7770.00.850.06	13.5 268	9	Nene	Commscope 1-5/8 (850)	170.043535				298.54	o.	
SITION 1 PORT 3 6	PORT 3 59365, B.1900, 3G.1	5	CTU10748	CTU10748	UMTS 1900	7770.00.1900.04	15.5 268	4	None	Commscope 1-5/8 (1900)	170.043535				337.29		0
	PORT1 59365.B.700.4G.1	5	CTL01074_7B_1	CTL01074_7B_1	LTE 700	HPA-65R-BUU- H6_719MHz_09DT	13.97 148	0	ТОР	FIBER	150				1475.7065	-	=
SITION 2																	

	16	16	16
	4842.058	1285.2866	4842.058
	0		
	FIBER	FIBER	FIBER
	TOP	TOP	TOP
	ıs	2	LO.
148	148	148	148
	15.6	16.8	15.6
	OS66512- 2_1930MHz_05DT	QS66512- 2_2355MHz_02DT	QS66512- 2_1930MHz_05DT
Deco GSM 850 m	LTE 1900	LTE WCS	LTE 1900
В	:TL01074_98_1	:TL01074_38_1	:TLD1074_98_2
	CTL01074_98_1 CTL01074_98_1	CTL01074_38_1	CTL01074_9B_2 CTL01074_9B_2
	PORT 5 55365 B 1900 4G 1	PORT 7 59385.B WCS 4G 1	PORT 8 59365 B 1900 4G tmp4
PORT 1	PORT 5	PORT 7	PORT 8

MIN PORTION IS					Well Will many transfer There are no server to the server												
3HT from BACK OF ANTENNA	ANTENNA POSITION 1	SITION 1	AN.	ANTENNA POSITION 2		ANTENNA POSITION 3		ANTEN	ANTENNA POSITION 4		ANTENNA POSITION 5	rion 5	AN AN	ANTENNA POSITION 6		ANTEN	ANTENNA POSITION 7
ANTENNA MAKE - MODEL	7770		HPA-65R-BUU-H6				ő	QS66512-2									
ANTENNAVENDOR	Powerwave		100				ő	Quintel									
	55X11X5		72X14.8X9				7,2	72X12X9.6									
	35		51				#	111									
AZIMUTH AZIMUTH	20		268				25	268									
RADIATION CENTER (feet) 103.5	103.5		103.5				10	103.5									
ANTENNA TIP HEIGHT	105.5		106.5				10	106.5									
MECHANICAL DOWNTILT (0		0				0										
FEEDERAMOUNT	2		Fiber				Œ	Fiber + 2 coax									
PARATION from ANTENNA ABOVE																	
PARATION from ANTENNA BELOW																	
NTAL SEPARATION from CLOSEST																	
NTAL SEPARATION from CLOSEST																	
VIAL SEPARATION from ANOTHER																	
Antenna RET Motor (QTY/MODEL)	2	Powerwave / 7020 (DB)		Built-in RET					Buitt-in RET								
SURGE ARRESTOR (QTY/MODEL)							2		Polyphaser 1000860	60							
	2	Powerwave / LGP 21901					4		CCI TRIPLEXER TPX- 070821	трх-				. *			
DUPLEXER (QTY/MODEL)																	
RET CONTROL UNIT (QTY/MODEL)				RRHControlled	T.				RRH Controlled		+			+			
DC BLOCK (QTY/MODEL)														+			
TMA/LNA (QTY/MODEL) 2		Powerwave / LGP 21401 (Dual Band - 850 Bypass)															
NJECTORS FOR TMA (QTY/MODEL) 2		POLYPHASER 1000860									+			+			
PDU FOR TMAS (QTY/MODEL)				+													
SQUID (QTY/MODEL)																	
FIBER TRUNK (QTY/MODEL)														+			
DC TRUNK (QTY/MODEL)														+			
RRH - 700 hand (OTYMODEL)			-	RRUS-11													
RRH - 850 band (QTY/MODEL)																	
RRH - 1900 band (QTY/MODEL)							-		RRUS-32 B2								
RRH - AWS band (QTY/MODEL)			-	RRUS-32 B66													
RRH - WCS band (QTY/MODEL)									KRUS-32								
at RRH #1 - any band (QTY/MODEL)														-			L
ditional Component 1 (QTY/MODEL)																	
ditional Component 2 (QTY/MODEL)														-			
ditional Component 3 (QTY/MODEL)																	
Local Market Note 1	LTE 4CAWS(J) sowReplace existing LTE Anterna -Add LTE AWS RRUS -Reuse existing DC Floer Squid -Add 2nd XMU	existing LTE AntennaA	Add LTE AWS RRUS -	Reuse existing DC Fiber 5	Squid -Add 2nd XMU												
Local Market Note 2	LTE sector Alpha (20 Az) mounted on UMTS Gamma arm mounts (20). LTE sector Bela (148 Az) mounted on UMTS Alpha arm mounts (148). LTE	nted on UMTS Gamma	arm mounts (20). LTE	sector Beta (148 Az) mor	unted on UMTS Alpha arm m		mma (268 Az) mc	sector Gamma (268 Az) mounted on UMTS Beta arm mounts (269)	ım mounts (268)								
Local Market Note 3	Baseband Config 2 DUS + 2 XMU + IDL2	WU + IDL2															
C FIELDS PORT NUMBER	USEID (CSSng)	USEID (Atoli)	ATOLL TXID	ATOLL GELL ID T	TXRX TECHNOLOGYFREQ	Q ANTENNA ATOLL	ANTENNA EL	ELECTRICAL ELECTRICAL AZIMUTH TILT	RRH LOCATION RICAL (Top/Bottom/ T Integrated/No ne)	FEEDERS	FEEDER R) LENGTH MK	RXAIT KIT TRIPLEXER MODULE? or LLC (QTY)	TRIPLEXER or LLC	SCPANNCPA EF MODULE?	HATCHPLAT E POWER (Watts)	Antenna) RET Name	CABLE CABLE ID NUMBER (CSSNG)
PORT1	59365.C.850.3G.1		CTV10743	CTV10743	UMTS 850	7770.00.850.10	13.5 20	01	None	Commscope 1-5/8 (850)	170.043535				298.54		17
PORT 3 59	PORT 3 59365.C.1900.3G.1	O	CTU10749	CTU10749	UMTS 1900	7770.00.1900.06	15.5 20	9	None	Commscope 1-5/8 (1900)	170.043535				337.29		81
PORT1 59	PORT1 59365.C.700.4G.1		CTL01074_7C_1	CTL01074_7C_1	LTE 700	HPA-65R-BUU- H6 719MHz 06DT	14.08 268	φ 82	ТОР	FIBER	150				1475.7065		19
SITION 2																	

	24	24	24
	4842.058	1285 2866	4842.058
	Q	0,	0
	FIBER	FIBER	FIBER
	ТОР	TOP	TOP
	9	ъ	9
268	268	268	268
	15.9	16.9	15.9
	OS66512- 2_1930MHz_06DT	QS66512- 2_2356MHz_05DT	QS66512- 2_1930MHz_06DT
Deco GSM 850	LTE 1900`	LTE WCS	LTE 1900
Deco			2
	CTL01074_9C	CTL01074_3C	CTL01074_9C
	CTL01074_9C_1 CTL01074_9C_1	CTL01074_3C_1 CTL01074_3C_1	CTL01074_9C_2 CTL01074_9C_2
			X
	PORT 5 59365 C.1900.4G 1	PORT 7 59365 C WCS 4G 1	PORT 8 59365.C.1900.4G tmp4
PORT 1	PORTS	PORT 7	PORT8
	L	\$ NOIN \$	



mounted on UMTS Beta arm LTE sector Gamma (268 Az) mounted on UMTS Gamma mounted on UMTS Alpha LTE sector Alpha (20 Az) LTE sector Beta (148 Az) Broadband 12 port PCS +45/-45 arm mounts (148). arm mounts (20). RET TARG TARG TARG TARG
LTE RRUS-32 B2
PCS Rad V CHII Had CHII O Broadband 12 port +45/-45 + S RET Fiber/DC Demarcation Box (Squid) Broadband 12 port AWS/WCS +45/-45 + RET LTE PCS/WCS Antenna 4 Broadband AWS/WCS 12 port +45/-45 RET CG Triplexer Broadband 12 port +45/-45 + 800 160 700 H-GH RET CCI Triplexer Broadband 12 port CCI Triplexer +45/-45 NSO 700 H.GH 700 CG Triplexer RET Bias-T 6 Feet MINIMUM SEPARATION 8 DC Plant Broadband 4Tx/4Rx +45/-45 HEX Figh Fiber/DC Demarcation Box (Squid) RET LTE 700 BC / AWS Antenna 4 Broadband 4Tx/4Rx +45/-45 A F F RET Broadband TANKA TERNS-11 700 Low 700/850 +45/-45 + RET MCU 2 PDU

Broadband 12 port PCS

Antenna 4

Antenna 4

+45/-45

+

RET

mounted on UMTS Beta arm mounted on UMTS Gamma LTE sector Gamma (268 Az) mounted on UMTS Alpha LTE sector Alpha (20 Az) LTE sector Beta (148 Az) arm mounts (148). arm mounts (20). TERL TARZ TARG TARM
LITE RRUS-32 B2
PCS 20 CR13 Res CR12 D Broadband 12 port +45/-45 + S RET Fiber/DC Demarcation Box (Squid) Broadband 12 port AWS/WCS +45/-45 + RET LTE PCS/WCS 12 port AWS/WCS Broadband +45/-45 + RET Triplexer 8 Broadband 12 port 800 +45/-45 850 700 H.GH RET CO Triplexer Broadband 12 port CC Triplexer +45/-45 850 700 H.GH H GH 700 + 700 CG Triplexer RET Bias-T 6 Feet MINIMUM SEPARATION DC Plant Broadband HEX High 4Tx/4Rx +45/-45 + RET Demarcation Box (Squid) Theat Theat Theat Theat LTE RRUS-32866 O CREET FOR CHEET OF DC LTE 700 BC / AWS Fiber/DC Broadband 4Tx/4Rx +45/-45 High RET Broadband HEX Low 700/850 +45/-45 TANDAR TRANS-11
700 RET MCU

PDU



Radio Frequency Emissions Analysis Report

AT&T Existing Facility

Site ID: CT1074

FA#: 10035051

Wethersfield 75 Wells Road Wethersfield, CT 06109

July 16, 2018

Centerline Communications Project Number: 950006-134

Site Complian	ce Summary
Compliance Status:	COMPLIANT
Site total MPE% of FCC general population allowable limit:	13.51 %



July 16, 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: CT1074 – Wethersfield

Centerline Communications, LLC ("Centerline") was directed to analyze the proposed AT&T facility located at **75 Wells Road, Wethersfield, CT**, for the purpose of determining whether the emissions from the Proposed AT&T Antenna Installation located on this property are within specified federal limits.

All information used in this report was analyzed as a percentage of current Maximum Permissible Exposure (% MPE) as listed in the FCC OET Bulletin 65 Edition 97-01and ANSI/IEEE Std C95.1. The FCC regulates Maximum Permissible Exposure in units of microwatts per square centimeter (μ W/cm2). The number of μ W/cm² 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 (μ W/cm²). The general population exposure limits for the 700 and 850 MHz Bands are approximately 467 μ W/cm² and 567 μ W/cm² respectively. The general population exposure limit for the 1900 MHz (PCS), 2100 MHz (AWS) and 2300 MHz (WCS) bands is 1000 μ W/cm². 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 **75 Wells Road**, **Wethersfield**, **CT**, using the equipment information listed below. All calculations were performed per the specifications under FCC OET 65. Since AT&T is proposing highly focused directional panel antennas, which project most of the emitted energy out toward the horizon, all calculations were performed assuming a lobe representing the maximum gain of the antenna per the antenna manufactures supplied specifications, minus 10 dB, was focused at the base of the tower. For this report the sample point is the top of a 6-foot person standing at the base of the tower.

Per FCC OET Bulletin No. 65 - Edition 97-01 recommendations to achieve the maximum anticipated value at each sample point, all power levels emitting from the proposed antenna installation are increased by a factor of 2.56 to account for possible in-phase reflections from the surrounding environment. All power values expressed and analyzed are maximum power levels expected to be used on all radios.

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

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

Technology	Frequency Band	Channel Count	Transmit Power per Channel (W)
UMTS	850 MHz	2	30
UMTS	1900 MHz (PCS)	2	30
LTE	700 MHz	2	40
LTE	2100 MHz (AWS)	4	30
LTE	1900 MHz (PCS)	4	40
LTE	2300 MHz (WCS)	4	30

Table 1: Channel Data Table



The following antennas listed in *Table 2* were used in the modeling for transmission in the 700 MHz, 850 MHz, 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.

			Antenna
	Antenna		Centerline
Sector	Number	Antenna Make / Model	(ft)
A	1	Powerwave 7770	103.5
A	2	CCI HPA-65R-BUU-H6	103.5
A	3	Quintel QS66512-2	103.5
В	1	Powerwave 7770	103.5
В	2	CCI HPA-65R-BUU-H6	103.5
В	3	Quintel QS66512-2	103.5
С	1	Powerwave 7770	103.5
С	2	CCI HPA-65R-BUU-H6	103.5
C	3	Quintel QS66512-2	103.5

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	Powerwave	850 MHz /			2 2 11 22 (11)		
A1	7770	1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	1.05
Antenna	CCI	700 MHz /					
A2	HPA-65R-BUU-H6	2100 MHz (AWS)	11.95 / 15.05	6	320	8,930.75	3.92
Antenna	Quintel	1900 MHz (PCS) /					
A3	QS66512-2	2300 MHz (WCS)	13.85 / 14.85	8	400	11,214.39	4.24
					Sector A Co	omposite MPE%	9.21
Antenna	Powerwave	850 MHz /					
B1	7770	1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	1.05
Antenna	CCI	700 MHz /					
B2	HPA-65R-BUU-H6	2100 MHz (AWS)	11.95 / 15.05	6	320	8,930.75	3.92
Antenna	Quintel	1900 MHz (PCS) /					
В3	QS66512-2	2300 MHz (WCS)	13.85 / 14.85	8	400	11,214.39	4.24
Sector B Composite MPE%						9.21	
Antenna	Powerwave	850 MHz /					
C1	7770	1900 MHz (PCS)	11.4 / 13.4	4	120	2,140.89	1.05
Antenna	CCI	700 MHz /					
C2	HPA-65R-BUU-H6	2100 MHz (AWS)	11.95 / 15.05	6	320	8,930.75	3.92
Antenna	Quintel	1900 MHz (PCS) /					
C3	QS66512-2	2300 MHz (WCS)	13.85 / 14.85	8	400	11,214.39	4.24
Sector C Composite MPE%					9.21		

Table 3: AT&T Emissions Levels



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

Site Composite MPE%				
Carrier MPE%				
AT&T – Max Sector Value	9.21 %			
T-Mobile	4.30 %			
Site Total MPE %:	13.51 %			

Table 4: All Carrier MPE Contributions

AT&T Sector A Total:	9.21 %
AT&T Sector B Total:	9.21 %
AT&T Sector C Total:	9.21 %
Site Total:	13.51 %

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 (□W/cm²)	Frequency (MHz)	Allowable MPE (□W/cm²)	Calculated % MPE
AT&T 850 MHz UMTS	2	414.12	103.5	3.13	850 MHz	567	0.55%
AT&T 1900 MHz (PCS) UMTS	2	656.33	103.5	4.96	1900 MHz (PCS)	1000	0.50%
AT&T 700 MHz LTE	2	626.70	103.5	4.74	700 MHz	467	1.02%
AT&T 2100 MHz (AWS) LTE	4	1,919.34	103.5	29.03	2100 MHz (AWS)	1000	2.90%
AT&T 1900 MHz (PCS) LTE	4	970.64	103.5	14.68	1900 MHz (PCS)	1000	1.47%
AT&T 2300 MHz (WCS) LTE	4	1,832.95	103.5	27.73	2300 MHz (WCS)	1000	2.77%
						Total:	9.21%

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:	9.21 %		
Sector B:	9.21 %		
Sector C:	9.21 %		
AT&T Maximum Total	9.21 %		
(per sector):	J.21 /0		
Site Total:	13.51 %		
_			
Site Compliance Status:	COMPLIANT		

The anticipated composite MPE value for this site assuming all carriers present is **13.51** % 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.

Scott Heffernan

RF Engineering Director

Centerline Communications, LLC

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