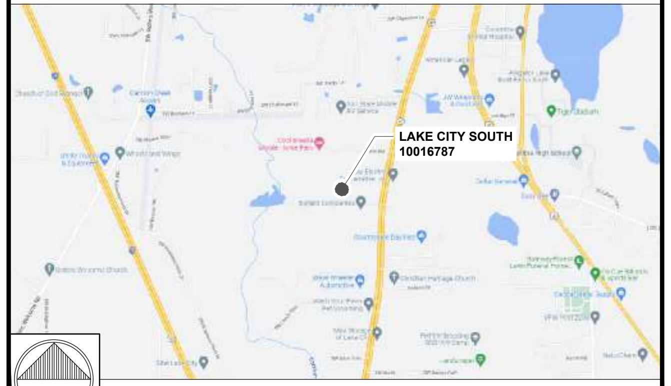
AT&T

Columbia County Building Department
Plans Reviewed for Code Compliance
State of Florida

LAKE CITY SOUTH
FA# 10152021
CROWN CASTLE BU# 870081
CROWN CASTLE APPLICATION# 623798
267 SW CRYSTAL GLN
LAKE CITY, FL 32025
TOWER UPGRADE - 5G NR RADIO
AT&T PACE JOB#: MRTFL026500/MRTFL026881/ MRTFL025629/MRTFL025802/MRTFL026300

LOCATION MAP



NO SCALE

APPROVALS

APPROVALS	DATE
PROPERTY OWNER:	
RF ENGINEER:	
CONSTRUCTION:	
SITE ACQUISITION:	
ZONING:	
NETWORK:	
OPERATIONS:	
CONTRACTOR:	

DESIGN CRITERIA

ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE CURRENT EDITIONS OF THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES:

CODE TYPE	CODE
BUILDING	2020 FLORIDA BUILDING CODE 7TH EDITION/2018 IBC
MECHANICAL	2020 FLORIDA BUILDING CODE 7TH EDITION/2018 IMC
ELECTRICAL	2020 FLORIDA BUILDING CODE 7TH EDITION/2017 NEC

SITE DESIGN CRITERIA:

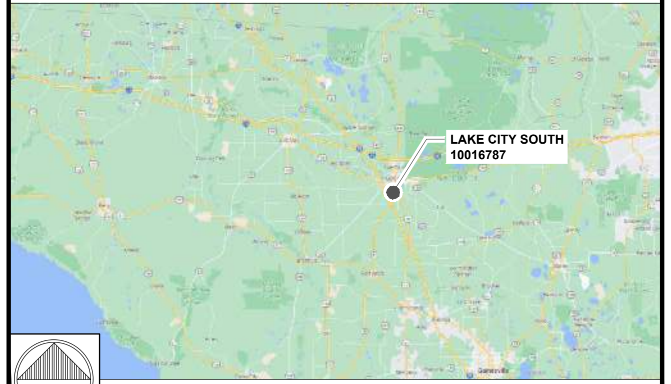
APPLICABLE CODES: TIA-222-H / ASCE 7-16
WIND SPEED: V = 118 MPH (ULTIMATE 3 SECOND GUST)
EXPOSURE CATEGORY: C
RISK CATEGORY: II
TOPOGRAPHIC CATEGORY: 1
SERVICE WIND SPEED: 60 MPH

DRAWING INDEX

SHEET #	SHEET DESCRIPTION
T-1	TITLE SHEET
T-2	GENERAL NOTES
	ARCHITECTURAL / CIVIL PLANS
C-1	SITE PLAN
C-2	TOWER ELEVATION AND ANTENNA PLANS
C-3	FINAL EQUIPMENT SCHEDULE
C-4	TOWER EQUIPMENT SPECIFICATIONS
	ELECTRICAL PLANS
DC-1	DC WIRING DIAGRAM
ATTACHED	PROPOSED STANDOFF MOUNT PIPE SPECIFICATIONS

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR HALF SIZE. CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.

VICINITY MAP



NO SCALE

PROJECT SUMMARY

AT&T SITE NAME:	LAKE CITY SOUTH
FA NUMBER:	10152021
PROPERTY PARCEL:	184S1708461000
COUNTY:	COLUMBIA
JURISDICTION:	COLUMBIA COUNTY
LATITUDE:	30° 8' 43.70" (30.145472°)
LONGITUDE:	-82° 39' 10.90" (82.653028°)
PROJECT INITIATIVE:	5G NR RADIO
STRUCTURAL TYPE:	GUYED TOWER
STRUCTURAL HEIGHT:	350'-0"
ANTENNA RAD CENTER:	203'-0"

CONSTRUCTIONS NOTES

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR BE RESPONSIBLE FOR SAME.
CONTRACTOR SHALL CONTACT AT&T IMPLEMENTATION PM OR SITE FE FOR ACCESS REQUIREMENTS.

TOWER SCOPE OF WORK:
- REMOVE (3) ANTENNAS
- REMOVE (3) TMAs
- REMOVE (3) PDUs
- REMOVE (2) DC6 SURGE SUPPRESSORS
- INSTALL (3) STANDOFF MOUNTS
- INSTALL (6) ANTENNAS
- INSTALL (3) RAYCAP MOUNT PIPES
- INSTALL (2) DC9 SURGE SUPPRESSORS
- INSTALL (2) DC TRUNKS 6AWG

GROUND SCOPE OF WORK:
- REMOVE (6) DIPLEXERS

THE DC ELECTRICAL DESIGN HAS BEEN PERFORMED BY THE CARRIER. THE CARRIER IS SOLELY RESPONSIBLE FOR THE DC ELECTRICAL DESIGN AS THAT DESIGN IS BASED UPON PROPRIETARY INFORMATION AND CALCULATIONS. IF THE DC ELECTRICAL DESIGNS ARE CONTAINED IN OR ATTACHED TO THIS DRAWING, THEY ARE FOR REFERENCE ONLY.

FLOOD INSURANCE RATE MAP (FIRM) INFORMATION

COMMUNITY #	PANEL #	SUFFIX	PANEL DATE (EFF/REV)	ZONE	BASE FLOOD ELEVATION OR FLOOD DEPTH
12023C	0294	D	11/02/2018	X	N/A

DRIVING DIRECTIONS

DEPART AT&T CORPORATE OFFICE AT 12150 RESEARCH PARKWAY, ORLANDO, FL 32826.

HEAD WEST TOWARD W OAK RIDGE RD. TURN RIGHT TOWARD W OAK RIDGE RD. TURN LEFT TOWARD W OAK RIDGE RD. TURN RIGHT TOWARD W OAK RIDGE RD. TURN RIGHT ONTO W OAK RIDGE RD. USE THE LEFT 2 LANES TO TURN LEFT ONTO US-441 N/US-92 E/HWY 17 N/S ORANGE BLOSSOM TRAIL/S ORANGE BLOSSOM TRL. TURN LEFT TO MERGE WITH I-4 W. MERGE WITH I-4 W. TAKE THE MIAMI EXIT. MERGE WITH I-75 N. TAKE EXIT 423 FOR FL-47 N TOWARD LAKE CITY. TURN RIGHT ONTO FL-47 N. TURN LEFT ONTO SW CRYSTAL GLN.

PROJECT REFERENCES

THESE PLANS WERE COMPLETED PER AT&T PRIORITY DOCUMENTS BELOW. CONTRACTOR SHALL REQUEST CURRENT RFDS & WORKBOOK FROM CONSTRUCTION MANAGER PRIOR TO CONSTRUCTION.

<u>REFERENCE DOCUMENTS:</u>

STRUCTURAL ANALYSIS: TOWER ENGINEERING PROFESSIONALS
DATED: 12/01/2022

MOUNT ANALYSIS: TOWER ENGINEERING PROFESSIONALS
DATED: 11/17/2022

RFDS ID: 5042290
RFDS REVISION: 2
DATED: 10/18/2022

ORDER ID: 623798
REVISION: 0

CONTACTS

CARRIER/APPLICANT: AT&T MOBILITY CORPORATION
12150 RESEARCH PARKWAY
ORLANDO, FL 32826

CROWN CASTLE USA INC. DISTRICT CONTACTS:
4511 N. HIMES AVENUE, SUITE 210
TAMPA, FL 33614

KELLI WALSH - PROJECT MANAGER
KELLI.WALSH@CROWNCASTLE.COM

NITSA CRENSHAW - A&E SPECIALIST
NITSA.CRENSHAW@CROWNCASTLE.COM

A&E FIRM: TOWER ENGINEERING PROFESSIONALS
326 TRYON ROAD
RALEIGH, NC 27603
JOSEPH CRESS - PROGRAM MANAGER
JCRESS@TEPGROUP.NET

PROJECT INFORMATION

1. THIS IS AN UNMANNED FACILITY AND WILL BE USED FOR THE TRANSMISSION OF RADIO SIGNALS FOR THE PURPOSE OF PROVIDING PUBLIC CELLULAR SERVICE.
2. AT&T CERTIFIES THAT THIS EQUIPMENT FACILITY WILL BE SERVICED ONLY BY AT&T EMPLOYEES AND SUBCONTRACTORS AND THE WORK ASSOCIATED WITH ANY EQUIPMENT CANNOT BE PERFORMED BY HANDICAPPED PERSONS. THIS FACILITY WILL BE FREQUENTED ONLY BY SERVICE PERSONNEL FOR REPAIR PURPOSES ONLY.
3. NO POTABLE WATER SUPPLY IS TO BE PROVIDED AT THIS LOCATION.
4. NO WASTEWATER WILL BE GENERATED AT THIS LOCATION.
5. NO SOLID WASTE WILL BE GENERATED AT THIS LOCATION.
6. FLOODPLAIN SERVICES HAVE NOT BEEN PERFORMED FOR THIS PROJECT. WHERE APPLICABLE, AT&Ts GROUND EQUIPMENT IS ASSUMED TO BE BUILT IN COMPLIANCE WITH LOCAL AND NATIONAL FLOODPLAIN REQUIREMENTS.

AT&T
12150 RESEARCH PARKWAY
ORLANDO, FL 32826

CROWN CASTLE
4511 N. HIMES AVENUE, SUITE 210
TAMPA, FL 33614

TOWER ENGINEERING PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

FL COA #31011 TEP JOB #:145283.716232

BU #: 870081
LAKE CITY (SR 47 & US 41)

267 SW CRYSTAL GLN
LAKE CITY, FL 32025

EXISTING 350'-0" GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/09/22	ORG	PRELIMINARY	MCR
0	1/31/23	JW	CONSTRUCTION	NH

JOSHUA H. CARDEN
LICENSE No 83511

Digitally signed by Joshua H Carden
DN: c=US, o=TEP OPCO LLC, ou=A01410D00000171564BF780000005F0, cn=Joshua H Carden
Date: 2023.01.31 11:15:23 -05'00'

This item has been digitally signed and sealed by JOSHUA H. CARDEN using a Digital Signature and date. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

January 31, 2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

SHEET NUMBER: T-1

REVISION: 0

AT&T_FLORIDA_ANTENNA AMENDMENT_05.19.2022_V2

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED- NO WORK SHALL COMMENCE PRIOR TO CROWN CASTLE USA INC. WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN CASTLE USA INC. NOC AT 800-788-7011 & THE CROWN CASTLE USA INC. CONSTRUCTION MANAGER.
2. "LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:
   THE INTEGRITY OF THE SAFETY CLIMB AND ALL COMPONENTS OF THE CLIMBING FACILITY SHALL BE CONSIDERED DURING ALL STAGES OF DESIGN, INSTALLATION, AND INSPECTION. TOWER MODIFICATION, MOUNT REINFORCEMENTS, AND/OR EQUIPMENT INSTALLATIONS SHALL NOT COMPROMISE THE INTEGRITY OR FUNCTIONAL USE OF THE SAFETY CLIMB OR ANY COMPONENTS OF THE CLIMBING FACILITY ON THE STRUCTURE. THIS SHALL INCLUDE, BUT NOT BE LIMITED TO: PINCHING OF THE WIRE ROPE, BENDING OF THE WIRE ROPE FROM ITS SUPPORTS, DIRECT CONTACT OR CLOSE PROXIMITY TO THE WIRE ROPE WHICH MAY CAUSE FRICTIONAL WEAR, IMPACT TO THE ANCHORAGE POINTS IN ANY WAY, OR TO IMPEDE/BLOCK ITS INTENDED USE. ANY COMPROMISED SAFETY CLIMB, INCLUDING EXISTING CONDITIONS MUST BE TAGGED OUT AND REPORTED TO YOUR CROWN CASTLE USA INC. POC OR CALL THE NOC TO GENERATE A SAFETY CLIMB MAINTENANCE AND CONTRACTOR NOTICE TICKET.
3. PRIOR TO THE START OF CONSTRUCTION, ALL REQUIRED JURISDICTIONAL PERMITS SHALL BE OBTAINED. THIS INCLUDES, BUT IS NOT LIMITED TO, BUILDING, ELECTRICAL, MECHANICAL, FIRE, FLOOD ZONE, ENVIRONMENTAL, AND ZONING. AFTER ONSITE ACTIVITIES AND CONSTRUCTION ARE COMPLETED, ALL REQUIRED PERMITS SHALL BE SATISFIED AND CLOSED OUT ACCORDING TO LOCAL JURISDICTIONAL REQUIREMENTS.
4. ALL CONSTRUCTION MEANS AND METHODS; INCLUDING BUT NOT LIMITED TO, ERECTION PLANS, RIGGING PLANS, CLIMBING PLANS, AND RESCUE PLANS SHALL BE THE RESPONSIBILITY OF THE GENERAL CONTRACTOR RESPONSIBLE FOR THE EXECUTION OF THE WORK CONTAINED HEREIN, AND SHALL MEET ANSI/ASSE A10.48 (LATEST EDITION); FEDERAL, STATE, AND LOCAL REGULATIONS; AND ANY APPLICABLE INDUSTRY CONSENSUS STANDARDS RELATED TO THE CONSTRUCTION ACTIVITIES BEING PERFORMED. ALL RIGGING PLANS SHALL ADHERE TO ANSI/ASSE A10.48 (LATEST EDITION) AND CROWN CASTLE USA INC. STANDARD CED-STD-10253, INCLUDING THE REQUIRED INVOLVEMENT OF A QUALIFIED ENGINEER FOR CLASS IV CONSTRUCTION, TO CERTIFY THE SUPPORTING STRUCTURE(S) IN ACCORDANCE WITH ANSI/TIA-322 (LATEST EDITION).
5. ALL SITE WORK TO COMPLY WITH QAS-STD-10068 "INSTALLATION STANDARDS FOR CONSTRUCTION ACTIVITIES ON CROWN CASTLE USA INC. TOWER SITE," CED-STD-10294 "STANDARD FOR INSTALLATION OF MOUNTS AND APPURTENANCES," AND LATEST VERSION OF ANSI/TIA-1019-A-2012 "STANDARD FOR INSTALLATION, ALTERATION, AND MAINTENANCE OF ANTENNA SUPPORTING STRUCTURES AND ANTENNAS."
6. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY CROWN CASTLE USA INC. PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
9. THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
10. ALL EXISTING ACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES WHERE ENCOUNTERED IN THE WORK, SHALL BE PROTECTED AT ALL TIMES AND WHERE REQUIRED FOR THE PROPER EXECUTION OF THE WORK, SHALL BE RELOCATED AS DIRECTED BY CONTRACTOR. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR DRILLING PIERS AROUND OR NEAR UTILITIES. CONTRACTOR SHALL PROVIDE SAFETY TRAINING FOR THE WORKING CREW. THIS WILL INCLUDE BUT NOT BE LIMITED TO A) FALL PROTECTION B) CONFINED SPACE C) ELECTRICAL SAFETY D) TRENCHING AND EXCAVATION E) CONSTRUCTION SAFETY PROCEDURES.
11. ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
12. CONTRACTOR SHALL KEEP THE SITE FREE FROM ACCUMULATING WASTE MATERIAL, DEBRIS, AND TRASH AT THE COMPLETION OF THE WORK. IF NECESSARY, RUBBISH, STUMPS, DEBRIS, STICKS, STONES AND OTHER REFUSE SHALL BE REMOVED FROM THE SITE AND DISPOSED OF LEGALLY.
13. ALL EXISTING INACTIVE SEWER, WATER, GAS, ELECTRIC AND OTHER UTILITIES, WHICH INTERFERE WITH THE EXECUTION OF THE WORK, SHALL BE REMOVED AND/OR CAPPED, PLUGGED OR OTHERWISE DISCONTINUED AT POINTS WHICH WILL NOT INTERFERE WITH THE EXECUTION OF THE WORK, SUBJECT TO THE APPROVAL OF CONTRACTOR, TOWER OWNER, CROWN CASTLE USA INC., AND/OR LOCAL UTILITIES.
14. THE CONTRACTOR SHALL PROVIDE SITE SIGNAGE IN ACCORDANCE WITH THE TECHNICAL SPECIFICATION FOR SITE SIGNAGE REQUIRED BY LOCAL JURISDICTION AND SIGNAGE REQUIRED ON INDIVIDUAL PIECES OF EQUIPMENT, ROOMS, AND SHELTERS.
15. THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
16. THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
17. THE AREAS OF THE OWNERS PROPERTY DISTURBED BY THE WORK AND NOT COVERED BY THE TOWER, EQUIPMENT OR DRIVEWAY, SHALL BE GRADED TO A UNIFORM SLOPE, AND STABILIZED TO PREVENT EROSION AS SPECIFIED ON THE CONSTRUCTION DRAWINGS AND/OR PROJECT SPECIFICATIONS.
18. CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES, IF REQUIRED DURING CONSTRUCTION, SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL.
19. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF OWNER.
20. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
21. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
22. NO FILL OR EMBANKMENT MATERIAL SHALL BE PLACED ON FROZEN GROUND. FROZEN MATERIALS, SNOW OR ICE SHALL NOT BE PLACED IN ANY FILL OR EMBANKMENT.

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:
   CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION
   CARRIER: AT&T
   TOWER OWNER: CROWN CASTLE USA INC.
2. THESE DRAWINGS HAVE BEEN PREPARED USING STANDARDS OF PROFESSIONAL CARE AND COMPLETENESS NORMALLY EXERCISED UNDER SIMILAR CIRCUMSTANCES BY REPUTABLE ENGINEERS IN THIS OR SIMILAR LOCALITIES. IT IS ASSUMED THAT THE WORK DEPICTED WILL BE PERFORMED BY AN EXPERIENCED CONTRACTOR AND/OR WORKPEOPLE WHO HAVE A WORKING KNOWLEDGE OF THE APPLICABLE CODE STANDARDS AND REQUIREMENTS AND OF INDUSTRY ACCEPTED STANDARD GOOD PRACTICE. AS NOT EVERY CONDITION OR ELEMENT IS (OR CAN BE) EXPLICITLY SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL USE INDUSTRY ACCEPTED STANDARD GOOD PRACTICE FOR MISCELLANEOUS WORK NOT EXPLICITLY SHOWN.
3. THESE DRAWINGS REPRESENT THE FINISHED STRUCTURE. THEY DO NOT INDICATE THE MEANS OR METHODS OF CONSTRUCTION. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES, AND PROCEDURES. THE CONTRACTOR SHALL PROVIDE ALL MEASURES NECESSARY FOR PROTECTION OF LIFE AND PROPERTY DURING CONSTRUCTION. SUCH MEASURES SHALL INCLUDE, BUT NOT BE LIMITED TO, BRACING, FORMWORK, SHORING, ETC. SITE VISITS BY THE ENGINEER OR HIS REPRESENTATIVE WILL NOT INCLUDE INSPECTION OF THESE ITEMS AND IS FOR STRUCTURAL OBSERVATION OF THE FINISHED STRUCTURE ONLY.
4. NOTES AND DETAILS IN THE CONSTRUCTION DRAWINGS SHALL TAKE PRECEDENCE OVER GENERAL NOTES AND TYPICAL DETAILS. WHERE NO DETAILS ARE SHOWN, CONSTRUCTION SHALL CONFORM TO SIMILAR WORK ON THE PROJECT, AND/OR AS PROVIDED FOR IN THE CONTRACT DOCUMENTS. WHERE DISCREPANCIES OCCUR BETWEEN PLANS, DETAILS, GENERAL NOTES, AND SPECIFICATIONS, THE GREATER, MORE STRICT REQUIREMENTS, SHALL GOVERN. IF FURTHER CLARIFICATION IS REQUIRED CONTACT THE ENGINEER OF RECORD.
5. SUBSTANTIAL EFFORT HAS BEEN MADE TO PROVIDE ACCURATE DIMENSIONS AND MEASUREMENTS ON THE DRAWINGS TO ASSIST IN THE FABRICATION AND/OR PLACEMENT OF CONSTRUCTION ELEMENTS BUT IT IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR TO FIELD VERIFY THE DIMENSIONS, MEASUREMENTS, AND/OR CLEARANCES SHOWN IN THE CONSTRUCTION DRAWINGS PRIOR TO FABRICATION OR CUTTING OF ANY NEW OR EXISTING CONSTRUCTION ELEMENTS. IF IT IS DETERMINED THAT THERE ARE DISCREPANCIES AND/OR CONFLICTS WITH THE CONSTRUCTION DRAWINGS THE ENGINEER OF RECORD IS TO BE NOTIFIED AS SOON AS POSSIBLE.
6. PRIOR TO THE SUBMISSION OF BIDS, THE BIDDING CONTRACTOR SHALL VISIT THE CELL SITE TO FAMILIARIZE WITH THE EXISTING CONDITIONS AND TO CONFIRM THAT THE WORK CAN BE ACCOMPLISHED AS SHOWN ON THE CONSTRUCTION DRAWINGS. ANY DISCREPANCY FOUND SHALL BE BROUGHT TO THE ATTENTION OF CROWN CASTLE.
7. ALL MATERIALS FURNISHED AND INSTALLED SHALL BE IN STRICT ACCORDANCE WITH ALL APPLICABLE CODES, REGULATIONS AND ORDINANCES. CONTRACTOR SHALL ISSUE ALL APPROPRIATE NOTICES AND COMPLY WITH ALL LAWS, ORDINANCES, RULES, REGULATIONS AND LAWFUL ORDERS OF ANY PUBLIC AUTHORITY REGARDING THE PERFORMANCE OF THE WORK. ALL WORK CARRIED OUT SHALL COMPLY WITH ALL APPLICABLE MUNICIPAL AND UTILITY COMPANY SPECIFICATIONS AND LOCAL JURISDICTIONAL CODES, ORDINANCES AND APPLICABLE REGULATIONS.
8. UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
9. THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
10. IF THE SPECIFIED EQUIPMENT CAN NOT BE INSTALLED AS SHOWN ON THESE DRAWINGS, THE CONTRACTOR SHALL PROPOSE AN ALTERNATIVE INSTALLATION FOR APPROVAL BY THE CARRIER AND CROWN CASTLE PRIOR TO PROCEEDING WITH ANY SUCH CHANGE OF INSTALLATION.
11. CONTRACTOR IS TO PERFORM A SITE INVESTIGATION AND IS TO DETERMINE THE BEST ROUTING OF ALL CONDUITS FOR POWER, AND TELCO AND FOR GROUNDING CABLES AS SHOWN IN THE POWER, TELCO, AND GROUNDING PLAN DRAWINGS.
12. THE CONTRACTOR SHALL PROTECT EXISTING IMPROVEMENTS, PAVEMENTS, CURBS, LANDSCAPING AND STRUCTURES. ANY DAMAGED PART SHALL BE REPAIRED AT CONTRACTOR'S EXPENSE TO THE SATISFACTION OF CROWN CASTLE USA INC.
13. CONTRACTOR SHALL LEGALLY AND PROPERLY DISPOSE OF ALL SCRAP MATERIALS SUCH AS COAXIAL CABLES AND OTHER ITEMS REMOVED FROM THE EXISTING FACILITY. ANTENNAS REMOVED SHALL BE RETURNED TO THE OWNER'S DESIGNATED LOCATION.
14. CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

1. ALL CONCRETE WORK SHALL BE IN ACCORDANCE WITH THE ACI 301, ACI 318, ACI 336, ASTM A184, ASTM A185 AND THE DESIGN AND CONSTRUCTION SPECIFICATION FOR CAST-IN-PLACE CONCRETE.
2. UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
3. ALL CONCRETE SHALL HAVE A MINIMUM COMPRESSIVE STRENGTH (f'c) OF 3000 psi AT 28 DAYS, UNLESS NOTED OTHERWISE. NO MORE THAN 90 MINUTES SHALL ELAPSE FROM BATCH TIME TO TIME OF PLACEMENT UNLESS APPROVED BY THE ENGINEER OF RECORD. TEMPERATURE OF CONCRETE SHALL NOT EXCEED 90°f AT TIME OF PLACEMENT.
4. CONCRETE EXPOSED TO FREEZE-THAW CYCLES SHALL CONTAIN AIR ENTRAINING ADMIXTURES. AMOUNT OF AIR ENTRAINMENT TO BE BASED ON SIZE OF AGGREGATE AND F3 CLASS EXPOSURE (VERY SEVERE). CEMENT USED TO BE TYPE II PORTLAND CEMENT WITH A MAXIMUM WATER-TO-CEMENT RATIO (W/C) OF 0.45.
5. ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WWF) SHALL CONFORM TO ASTM A185. ALL SPLICES SHALL BE CLASS "B" TENSION SPLICES, UNLESS NOTED OTHERWISE. ALL HOOKS SHALL BE STANDARD 90 DEGREE HOOKS, UNLESS NOTED OTHERWISE. YIELD STRENGTH (Fy) OF STANDARD DEFORMED BARS ARE AS FOLLOWS:
   #4 BARS AND SMALLER... 40 ksi
   #5 BARS AND LARGER... 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH...................... 3"
   CONCRETE EXPOSED TO EARTH OR WEATHER:
      #6 BARS AND LARGER..2"
      #5 BARS AND SMALLER.. 1-1/2"
   CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
      SLAB AND WALLS.. 3/4"
      BEAMS AND COLUMNS.. 1-1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
   - 4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
   - 4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERYIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.
5. EACH END OF EVERY POWER PHASE CONDUCTOR, GROUNDING CONDUCTOR, AND TELCO CONDUCTOR OR CABLE SHALL BE LABELED WITH COLOR-CODED INSULATION OR ELECTRICAL TAPE (3M BRAND, 1/2" PLASTIC ELECTRICAL TAPE WITH UV PROTECTION, OR EQUAL). THE IDENTIFICATION METHOD SHALL CONFORM WITH NEC AND OSHA.
6. ALL ELECTRICAL COMPONENTS SHALL BE CLEARLY LABELED WITH LAMICOID TAGS SHOWING THEIR RATED VOLTAGE, PHASE CONFIGURATION, WIRE CONFIGURATION, POWER OR AMPACITY RATING AND BRANCH CIRCUIT ID NUMBERS (i.e. PANEL BOARD AND CIRCUIT ID'S).
7. PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
8. ALL TIE WRAPS SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
9. ALL POWER AND EQUIPMENT GROUND WIRING IN TUBING OR CONDUIT SHALL BE SINGLE COPPER CONDUCTOR (#14 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
10. SUPPLEMENTAL EQUIPMENT GROUND WIRING LOCATED INDOORS SHALL BE SINGLE COPPER CONDUCTOR (#6 OR LARGER) WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
11. POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
12. POWER AND CONTROL WIRING FOR USE IN CABLE TRAY SHALL BE MULTI-CONDUCTOR, TYPE TC CABLE (#14 OR LARGER), WITH TYPE THHW, THWN, THWN-2, XHHW, XHHW-2, THW, THW-2, RHW, OR RHW-2 INSULATION UNLESS OTHERWISE SPECIFIED.
13. ALL POWER AND GROUNDING CONNECTIONS SHALL BE CRIMP-STYLE, COMPRESSION WIRE LUGS AND WIRE NUTS BY THOMAS AND BETTS (OR EQUAL). LUGS AND WIRE NUTS SHALL BE RATED FOR OPERATION NOT LESS THAN 75° C (90° C IF AVAILABLE).
14. RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
15. ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
16. ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
17. UNDERGROUND CONDUIT SHALL BE SCHEDULE 40 PVC ON STRAIGHTS AND SCHEDULE 80 PVC UNDER ALL TRAFFIC EASEMENTS AND ALL ELBOWS/90s. ABOVE GRADE CONDUIT TO BE SCH 80 PVC OR IMC/RMC CONDUIT. EMT IS ALLOWED AT STUB UP LOCATIONS AND INDOORS ONLY.
18. LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
19. CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
20. CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
21. WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECMATE WIREWAY).
22. SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
23. CONDUITS SHALL BE FASTENED SECURELY IN PLACE WITH APPROVED NON-PERFORATED STRAPS AND HANGERS. EXPLOSIVE DEVICES (i.e. POWDER-ACTUATED) FOR ATTACHING HANGERS TO STRUCTURE WILL NOT BE PERMITTED. CLOSELY FOLLOW THE LINES OF THE STRUCTURE, MAINTAIN CLOSE PROXIMITY TO THE STRUCTURE AND KEEP CONDUITS IN TIGHT ENVELOPES. CHANGES IN DIRECTION TO ROUTE AROUND OBSTACLES SHALL BE MADE WITH CONDUIT OUTLET BODIES. CONDUIT SHALL BE INSTALLED IN A NEAT AND WORKMANLIKE MANNER. PARALLEL AND PERPENDICULAR TO STRUCTURE WALL AND CEILING LINES. ALL CONDUIT SHALL BE FISHED TO CLEAR OBSTRUCTIONS. ENDS OF CONDUITS SHALL BE TEMPORARILY CAPPED FLUSH TO FINISH GRADE TO PREVENT CONCRETE, PLASTER OR DIRT FROM ENTERING. CONDUITS SHALL BE RIGIDLY CLAMPED TO BOXES BY GALVANIZED MALLEABLE IRON BUSHING ON INSIDE AND GALVANIZED MALLEABLE IRON LOCKNUT ON OUTSIDE AND INSIDE.
24. EQUIPMENT CABINETS, TERMINAL BOXES, JUNCTION BOXES AND PULL BOXES SHALL BE GALVANIZED OR EPOXY-COATED SHEET STEEL. SHALL MEET OR EXCEED UL 50 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND NEMA 3R (OR BETTER) FOR EXTERIOR LOCATIONS.
25. METAL RECEPTACLE, SWITCH AND DEVICE BOXES SHALL BE GALVANIZED, EPOXY-COATED OR NON-CORRODING; SHALL MEET OR EXCEED UL 514A AND NEMA OS 1 AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
26. NONMETALLIC RECEPTACLE, SWITCH AND DEVICE BOXES SHALL MEET OR EXCEED NEMA OS 2 (NEWEST REVISION) AND BE RATED NEMA 1 (OR BETTER) FOR INTERIOR LOCATIONS AND WEATHER PROTECTED (WP OR BETTER) FOR EXTERIOR LOCATIONS.
27. THE CONTRACTOR SHALL NOTIFY AND OBTAIN NECESSARY AUTHORIZATION FROM THE CARRIER AND/OR CROWN CASTLE USA INC. BEFORE COMMENCING WORK ON THE AC POWER DISTRIBUTION PANELS.
28. THE CONTRACTOR SHALL PROVIDE NECESSARY TAGGING ON THE BREAKERS, CABLES AND DISTRIBUTION PANELS IN ACCORDANCE WITH THE APPLICABLE CODES AND STANDARDS TO SAFEGUARD LIFE AND PROPERTY.
29. INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "AT&T".
30. ALL EMPTY/SPARE CONDUITS THAT ARE INSTALLED ARE TO HAVE A METERED MULE TAPE PULL CORD INSTALLED.

CONDUCTOR COLOR CODE

SYSTEM	CONDUCTOR	COLOR
120/240V, 1Ø	A PHASE	BLACK
	B PHASE	RED
	NEUTRAL	WHITE
	GROUND	GREEN
120/208V, 3Ø	A PHASE	BLACK
	B PHASE	RED
	C PHASE	BLUE
	NEUTRAL	WHITE
	GROUND	GREEN
277/480V, 3Ø	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
	GROUND	GREEN
DC VOLTAGE	POS (+)	RED**
	NEG (-)	BLACK**

* SEE NEC 210.5(C)(1) AND (2)
** POLARITY MARKED AT TERMINATION

APWA UNIFORM COLOR CODE:

WHITE	PROPOSED EXCAVATION
PINK	TEMPORARY SURVEY MARKINGS
RED	ELECTRIC POWER LINES, CABLES, CONDUIT, AND LIGHTING CABLES
YELLOW	GAS, OIL, STEAM, PETROLEUM, OR GASEOUS MATERIALS
ORANGE	COMMUNICATION, ALARM OR SIGNAL LINES, CABLES, OR CONDUIT AND TRAFFIC LOOPS
BLUE	POTABLE WATER
PURPLE	RECLAIMED WATER, IRRIGATION, AND SLURRY LINES
GREEN	SEWERS AND DRAIN LINES

GREENFIELD GROUNDING NOTES:

1. ALL GROUND ELECTRODE SYSTEMS (INCLUDING TELECOMMUNICATION, RADIO, LIGHTNING PROTECTION AND AC POWER GES'S) SHALL BE BONDED TOGETHER AT OR BELOW GRADE, BY TWO OR MORE COPPER BONDING CONDUCTORS IN ACCORDANCE WITH THE NEC.
2. THE CONTRACTOR SHALL PERFORM IEEE FALL-OF-POTENTAL RESISTANCE TO EARTH TESTING (PER IEEE 1100 AND 81) FOR GROUND ELECTRODE SYSTEMS, THE CONTRACTOR SHALL FURNISH AND INSTALL SUPPLEMENTAL GROUND ELECTRODES AS NEEDED TO ACHIEVE A TEST RESULT OF 5 OHMS OR LESS.
3. THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SEQUENCING GROUNDING AND UNDERGROUND CONDUIT INSTALLATION AS TO PREVENT ANY LOSS OF CONTINUITY IN THE GROUNDING SYSTEM OR DAMAGE TO THE CONDUIT AND PROVIDE TESTING RESULTS.
4. METAL CONDUIT AND TRAY SHALL BE GROUNDED AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
5. METAL RACEWAY SHALL NOT BE USED AS THE NEC REQUIRED EQUIPMENT GROUND CONDUCTOR. STRANDED COPPER CONDUCTORS WITH GREEN INSULATION, SIZED IN ACCORDANCE WITH THE NEC, SHALL BE FURNISHED AND INSTALLED WITH THE POWER CIRCUITS TO BTS EQUIPMENT.
6. EACH CABINET FRAME SHALL BE DIRECTLY CONNECTED TO THE MASTER GROUND BAR WITH GREEN INSULATED SUPPLEMENTAL EQUIPMENT GROUND WIRES, #6 STRANDED COPPER OR LARGER FOR INDOOR BTS; #2 BARE SOLID TINNED COPPER FOR OUTDOOR BTS.
7. CONNECTIONS TO THE GROUND BUS SHALL NOT BE DOUBLED UP OR STACKED BACK TO BACK CONNECTIONS ON OPPOSITE SIDE OF THE GROUND BUS ARE PERMITTED.
8. ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
9. ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
10. USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
11. EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
12. ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
13. COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELD CONNECTIONS.
14. ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
15. APPROVED ANTIOXIDANT COATINGS (i.e. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
16. ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
17. MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
18. BOND ALL METALLIC OBJECTS WITHIN 6 ft OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
19. GROUND CONDUCTORS USED FOR THE FACILITY GROUNDING AND LIGHTNING PROTECTION SYSTEMS SHALL NOT BE ROUTED THROUGH METALLIC OBJECTS THAT FORM A RING AROUND THE CONDUCTOR, SUCH AS METALLIC CONDUITS, METAL SUPPORT CLIPS OR SLEEVES THROUGH WALLS OR FLOORS. WHEN IT IS REQUIRED TO BE HOUSED IN CONDUIT TO MEET CODE REQUIREMENTS OR LOCAL CONDITIONS, NON-METALLIC MATERIAL SUCH AS PVC CONDUIT SHALL BE USED. WHERE USE OF METAL CONDUIT IS UNAVOIDABLE (i.e., NONMETALLIC CONDUIT PROHIBITED BY LOCAL CODE) THE GROUND CONDUCTOR SHALL BE BONDED TO EACH END OF THE METAL CONDUIT.
20. ALL GROUNDS THAT TRANSITION FROM BELOW GRADE TO ABOVE GRADE MUST BE #2 BARE SOLID TINNED COPPER IN 3/4" NON-METALLIC, FLEXIBLE CONDUIT FROM 24" BELOW GRADE TO WITHIN 3" TO 6" OF CAD-WELD TERMINATION POINT. THE EXPOSED END OF THE CONDUIT MUST BE SEALED WITH SILICONE CAULK. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL).
21. BUILDINGS WHERE THE MAIN GROUNDING CONDUCTORS ARE REQUIRED TO BE ROUTED TO GRADE, THE CONTRACTOR SHALL ROUTE TWO GROUNDING CONDUCTORS FROM THE ROOFTOP, TOWERS, AND WATER TOWERS GROUNDING RING, TO THE EXISTING GROUNDING SYSTEM, THE GROUNDING CONDUCTORS SHALL NOT BE SMALLER THAN 2/0 COPPER. ROOFTOP GROUNDING RING SHALL BE BONDED TO THE EXISTING GROUNDING SYSTEM, THE BUILDING STEEL COLUMNS, LIGHTNING PROTECTION SYSTEM, AND BUILDING MAIN WATER LINE (FERROUS OR NONFERROUS METAL PIPING ONLY).

ABBREVIATIONS:

ANT	ANTENNA
(E)	EXISTING
FIF	FACILITY INTERFACE FRAME
GEN	GENERATOR
GPS	GLOBAL POSITIONING SYSTEM
GSM	GLOBAL SYSTEM FOR MOBILE
LTE	LONG TERM EVOLUTION
MGB	MASTER GROUND BAR
MW	MICROWAVE
(N)	NEW
NEC	NATIONAL ELECTRIC CODE
(P)	PROPOSED
PP	POWER PLANT
QTY	QUANTITY
RECT	RECTIFIER
RBS	RADIO BASE STATION
RET	REMOTE ELECTRIC TILT
RFDS	RADIO FREQUENCY DATA SHEET
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
SIAD	SMART INTEGRATED DEVICE
TMA	TOWER MOUNTED AMPLIFIER
TYP	TYPICAL
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
W.P.	WORK POINT

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TOWER ENGINEERING PROFESSIONALS

326 TRYON RD
RALEIGH, NC 27603
(919) 661-6351

FL COA #31011
TEP JOB #:145283.716232

BU #: 870081
LAKE CITY (SR 47 & US 41)

267 SW CRYSTAL GLN
LAKE CITY, FL 32025

EXISTING 350'-0" GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/09/22	ORG	PRELIMINARY	MCR
0	1/31/23	JW	CONSTRUCTION	NH

JOSHUA H. CARDEN
LICENSE No 83511
STATE OF FLORIDA PROFESSIONAL ENGINEER

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January 31, 2023

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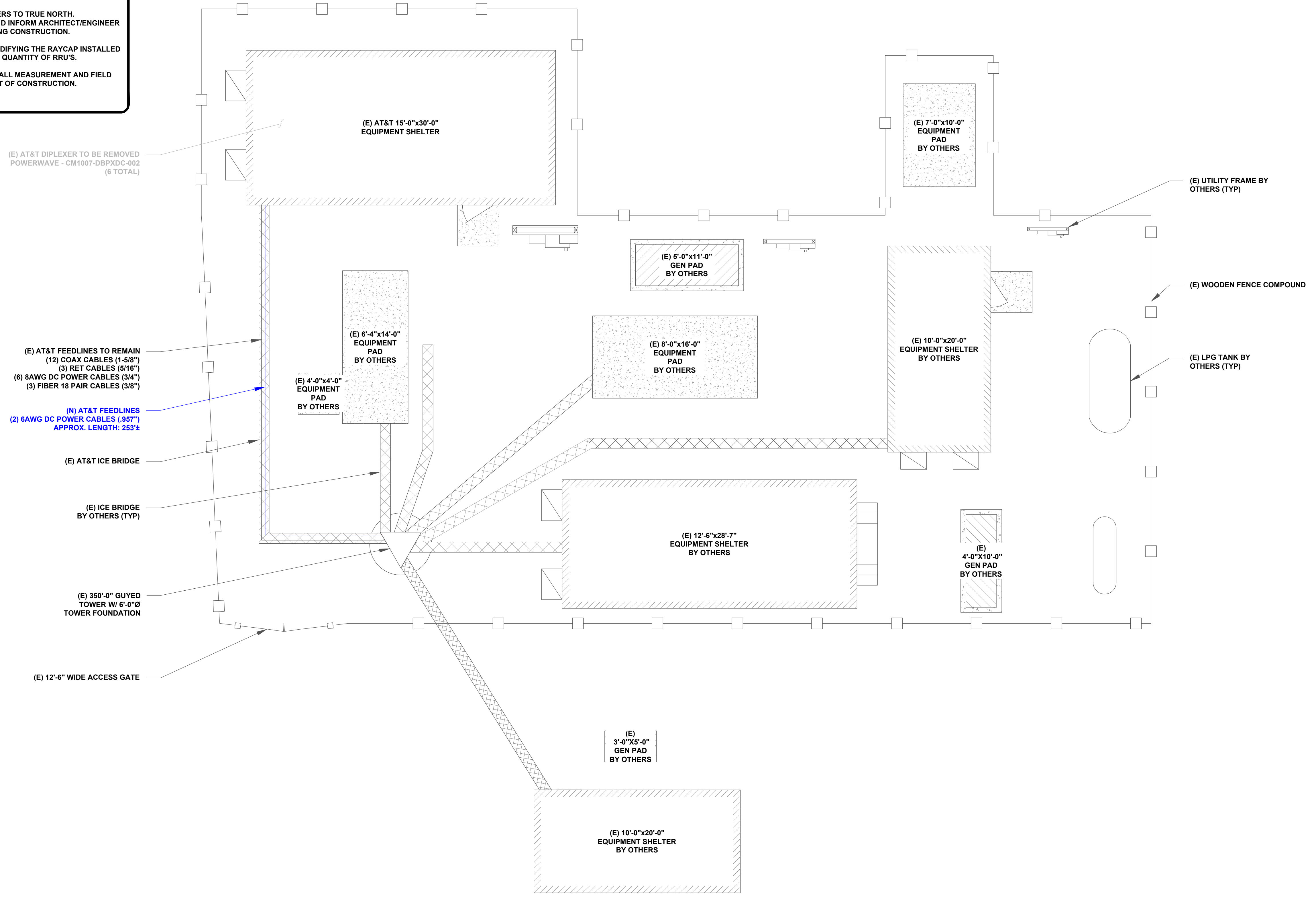
SHEET NUMBER: **T-2**
REVISION: **0**

NOTES:

1. CONTRACTOR TO FILL ANY EXISTING GRAVEL AREAS THAT ARE DISTURBED DURING THE COURSE OF CONSTRUCTION, GRAVEL TO MATCH EXISTING.
2. THE CONTRACTOR TO ENSURE THAT NO DAMAGE OR DEBRIS OCCURS ON THE ADJACENT PROPERTIES.
3. THE CONTRACTOR SHALL SEED ALL DISTURBED AREAS WITH LOW MAINTENANCE NATIVE GRASS AND COVER WITH APPROVED STRAW.
4. CONTRACTOR SHALL PROVIDE ALL REQUIRED EROSION CONTROL TECHNIQUES AND BEST MANAGEMENT PRACTICES PER LOCAL AND STATE REQUIREMENTS AS APPLICABLE.
5. NORTH ARROW SHOWN ON PLANS REFERS TO TRUE NORTH. CONTRACTOR SHALL VERIFY NORTH AND INFORM ARCHITECT/ENGINEER OF ANY DISCREPANCY BEFORE STARTING CONSTRUCTION.
6. CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE RAYCAP INSTALLED TO THE TOWER TO ACCOMMODATE THE QUANTITY OF RRU'S.
7. THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENT AND FIELD CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION.

THE DC ELECTRICAL DESIGN HAS BEEN PERFORMED BY CARRIER. CARRIER IS SOLELY RESPONSIBLE FOR THE DC ELECTRICAL DESIGNS AS THAT DESIGN IS BASED UPON PROPRIETARY INFORMATION AND CALCULATIONS. IF INCLUDED, DC ELECTRICAL DESIGNS ARE CONTAINED OR ATTACHED TO THIS DRAWING FOR REFERENCE ONLY.



1 SITE PLAN

SCALE: 4' 2' 0 4'

3/16"=1'-0" (FULL SIZE)
3/32"=1'-0" (11x17)

N

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No 83511

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SHEET NUMBER: C-1

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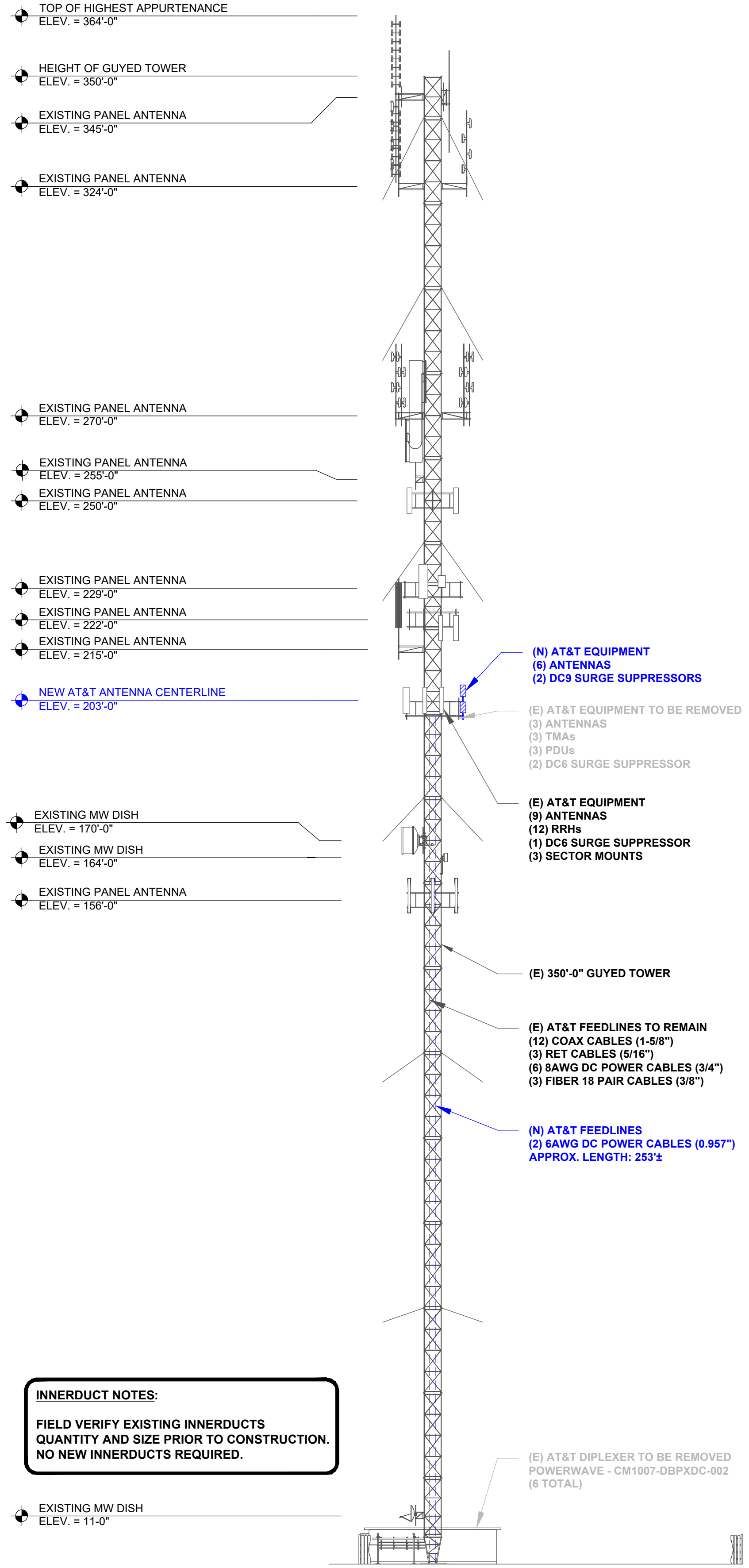


INNERDUCT NOTES:

FIELD VERIFY EXISTING INNERDUCTS QUANTITY AND SIZE PRIOR TO CONSTRUCTION. NO NEW INNERDUCTS REQUIRED.

1 FINAL ELEVATION

SCALE: 20' 10' 0 20' 1"=20'-0" (FULL SIZE) 1"=40'-0" (11x17)

NOTES:

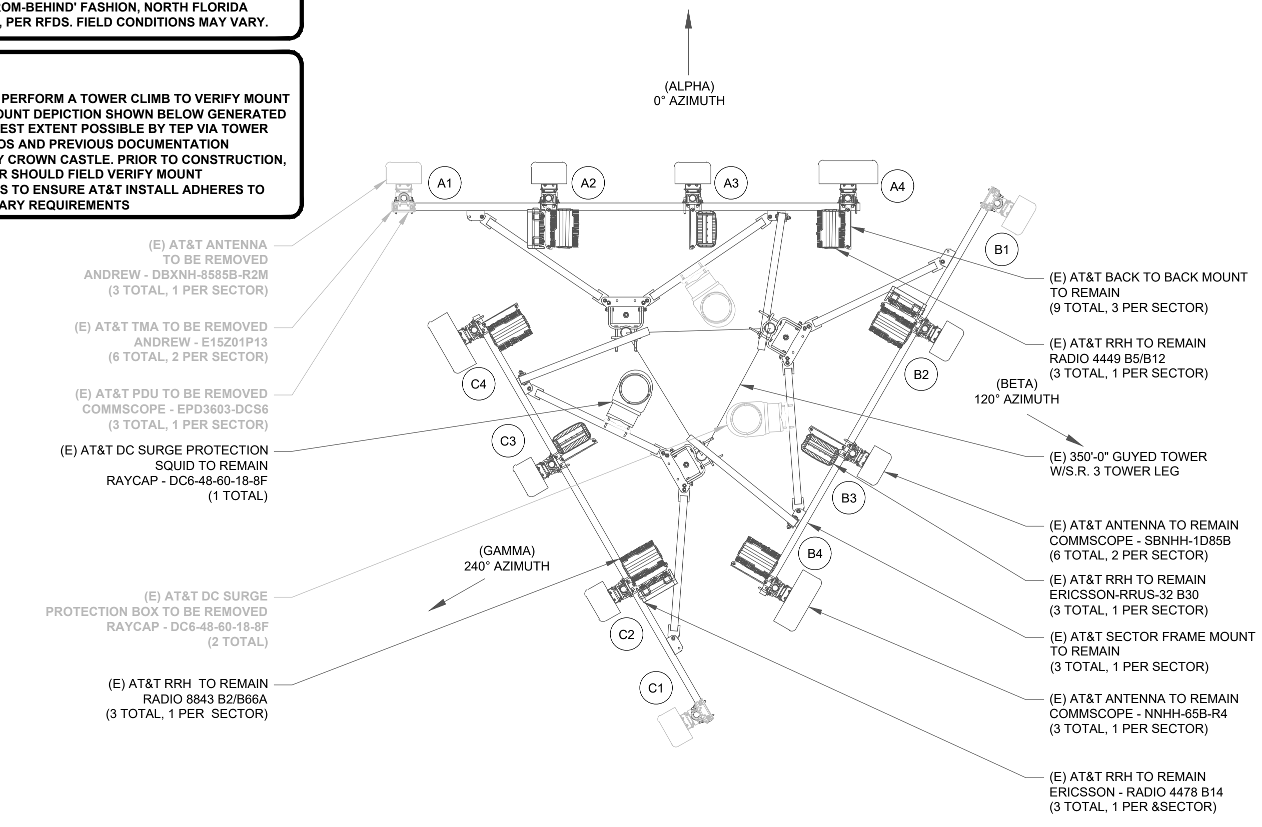
1. A STRUCTURAL ANALYSIS SHALL BE PERFORMED BY THE OWNER'S AGENT TO CERTIFY THAT THE EXISTING/PROPOSED COMMUNICATION STRUCTURE AND COMPONENTS ARE STRUCTURALLY ADEQUATE TO SUPPORT ALL EXISTING AND PROPOSED ANTENNAS, COAXIAL CABLES AND OTHER APPURTENANCES. THE OWNER SHALL FURNISH A CERTIFICATION LETTER SEALED BY A REGISTERED PROFESSIONAL ENGINEER STATING THAT THIS STRUCTURAL ANALYSIS WAS PREPARED IN ACCORDANCE WITH ALL APPLICABLE CODES AND STANDARDS.
2. IF ANY WORK IS PERFORMED AT THIS SITE THAT REQUIRES THE SITE TO BE OFF AIR OR TURNED DOWN, THE SWITCH IS TO BE NOTIFIED 48 HOURS PRIOR TO CONSTRUCTION VIA NCR/CTS.
3. INSTALLATION SHALL BE CONDUCTED BY FIELD CREWS EXPERIENCED IN THE ASSEMBLY AND ERECTION OF RADIO ANTENNAS, TRANSMISSION LINES, AND SUPPORT STRUCTURES. ANTENNA WORK TO BE INSTALLED PER THE REQUIREMENTS OF THE TOWER MANUFACTURE'S SPECIFICATIONS.
4. ANTENNA AND MOUNT DESIGN MUST COMPLY WITH TIA-EIA-222-H AND ALL LOCAL CODES.
5. CONTRACTOR TO PROVIDE THE PROPER COAX JUMPER SUPPORT ATTACHMENTS TO THE TOWER AND ANTENNA MOUNT.
6. CONTRACTOR IS RESPONSIBLE FOR MODIFYING THE RAYCAP INSTALLED TO THE TOWER TO ACCOMMODATE THE QUANTITY OF RRU'S
7. THE CONTRACTOR MUST FIELD VERIFY ALL MEASUREMENT AND FIELD CONDITIONS PRIOR TO COMMENCEMENT OF CONSTRUCTION
8. REFER TO CURRENT RFDS FOR ADDITIONAL INFO.
9. ADJUST ANTENNA MOUNTS AS REQUIRED TO ACHIEVE THE AZIMUTH SPECIFIED AND LIMIT RF SHADOWING.
10. UNLESS NOTED OTHERWISE THE CONTRACTOR MUST PROVIDE ALL MATERIAL NECESSARY
11. CONTRACTOR TO RETURN ALL EXISTING ANTENNAS BEING REMOVED TO AT&T

ANTENNA POSITIONING NOTES:

1. RF ANTENNA POSITIONING SHOWN IN A 'VIEW-FROM-BEHIND' FASHION, NORTH FLORIDA MARKET, PER RFDS. FIELD CONDITIONS MAY VARY.

NOTE:

TEP DID NOT PERFORM A TOWER CLIMB TO VERIFY MOUNT MAKE-UP. MOUNT DEPICTION SHOWN BELOW GENERATED TO THE FULLEST EXTENT POSSIBLE BY TEP VIA TOWER LEVEL PHOTOS AND PREVIOUS DOCUMENTATION PROVIDED BY CROWN CASTLE. PRIOR TO CONSTRUCTION, CONTRACTOR SHOULD FIELD VERIFY MOUNT COMPONENTS TO ENSURE AT&T INSTALL ADHERES TO ALL NECESSARY REQUIREMENTS



2 EXISTING ANTENNA PLAN

SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

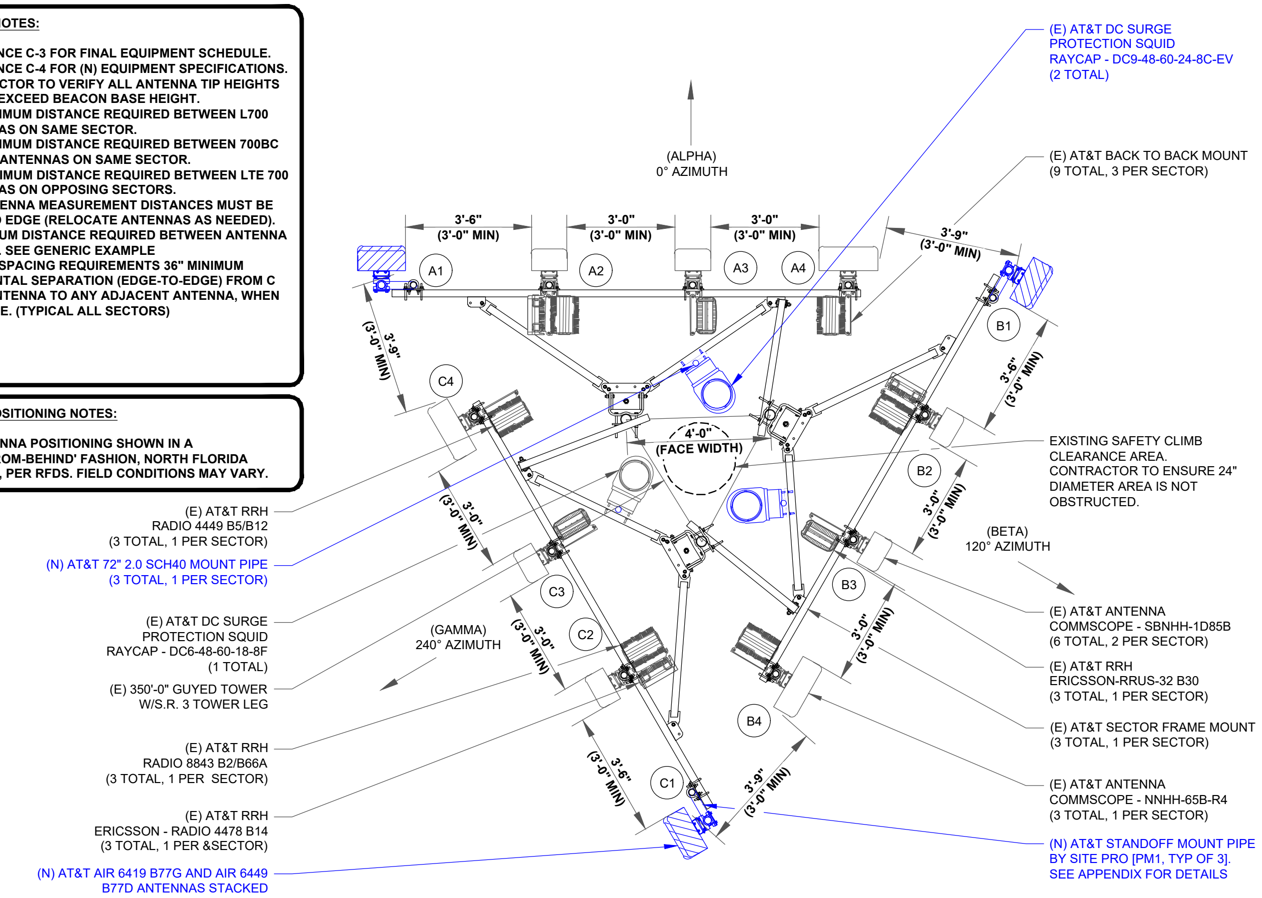
N

INSTALLER NOTES:

1. REFERENCE C-3 FOR FINAL EQUIPMENT SCHEDULE.
2. REFERENCE C-4 FOR (N) EQUIPMENT SPECIFICATIONS.
3. CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.
4. 3'-0" MINIMUM DISTANCE REQUIRED BETWEEN L700 ANTENNAS ON SAME SECTOR.
5. 6'-0" MINIMUM DISTANCE REQUIRED BETWEEN 700BC & 700DE ANTENNAS ON SAME SECTOR.
6. 4'-0" MINIMUM DISTANCE REQUIRED BETWEEN LTE 700 ANTENNAS ON OPPOSING SECTORS.
7. ALL ANTENNA MEASUREMENT DISTANCES MUST BE EDGE TO EDGE (RELOCATE ANTENNAS AS NEEDED).
8. 8" MINIMUM DISTANCE REQUIRED BETWEEN ANTENNA & RADIO. SEE GENERIC EXAMPLE
9. C-BAND SPACING REQUIREMENTS 36" MINIMUM HORIZONTAL SEPARATION (EDGE-TO-EDGE) FROM C BAND ANTENNA TO ANY ADJACENT ANTENNA, WHEN POSSIBLE. (TYPICAL ALL SECTORS)

ANTENNA POSITIONING NOTES:

1. RF ANTENNA POSITIONING SHOWN IN A 'VIEW-FROM-BEHIND' FASHION, NORTH FLORIDA MARKET, PER RFDS. FIELD CONDITIONS MAY VARY.



3 FINAL ANTENNA PLAN

SCALE: 2' 1' 0 2' 3/8"=1'-0" (FULL SIZE) 3/16"=1'-0" (11x17)

N

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SHEET NUMBER:
C-2

REVISION:
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FINAL DC/FIBER DEMARCATION BOXES

RAYCAP DC FIBER DEMARCATION			CABLES				NOTES
MOUNTING HEIGHT	MODEL	QTY	MODEL	SIZE	QTY	LENGTH (PER LINE)	**INNERDUCT NOTES:** FIELD VERIFY EXISTING INNERDUCTS QUANTITY AND SIZE PRIOR TO CONSTRUCTION. NO NEW INNERDUCTS REQUIRED.
203'-0"	DC6-48-60-18-8F	1	ROSENBERGER 8 AWG 6 CONDUCTOR SHIELDED POWER CABLE	3/4"	6	253'-0"	
203'-0"	DC9-48-60-24-8C-EV	2	ROSENBERGER 6 AWG 6 CONDUCTOR SHIELDED POWER CABLE	.957"	2	253'-0"	
-	-	-	ROSENBERGER 18 PAIR FIBER TRUNK	3/8"	3	253'-0"	

FINAL EQUIPMENT SCHEDULE
(VERIFY WITH CURRENT RFDS)

SECTOR (POSITION)	ANTENNA									CABLES					RRU			DIPLEXER/TMA			FILTER	
	AZIMUTH	RAD CENTER	MANUFACTURE	MODEL #	QTY	ANTENNA SPECS (HEIGHTxWIDTHxDEPTH)	TECHNOLOGY/BAND	ELEC	MECH	MODEL	SIZE	QTY	LENGTH	COLOR CODE	MODEL	TWR QTY	GND QTY	MODEL	TWR QTY	GND QTY	MODEL	QTY
ALPHA (A1)	0°	205'-0" 201'-0"	ERICSSON	AIR6419 B77G AIR6449 B77D	1 1	31.1"x16.1"x7.30" 30.63"x15.87"x10.55"	5G DOD 5G CBAND	0°	0°	ROSENBERGER FIBER JUMPER (DC9 TO ANTENNA) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO ANTENNA)	3/8" 7/16"	4 2	15'-0" 15'-0"	1 RED 1 RED	-	-	-	-	-	-	-	-
ALPHA (A2)	0°	203'-0"	ANDREW	SBNHH-1D65B	1	72.0"x11.9"x7.1"	LTE 700 LTE 1900	5° 2°	0°	ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	3/8" 7/16" 1/2"	4 3 6	15'-0" 15'-0" 15'-0"	2 RED 2 RED 2 RED	*4478 B14 **8843 B2/B66A	1 1	-	-	-	-	-	-
ALPHA (A3)	0°	203'-0"	ANDREW	SBNHH-1D65B	1	72.0"x11.9"x7.1"	LTE 700 LTE WCS, 5G WCS	5° 2°	0°	ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	3/8" 7/16" 1/2"	1 1 6	15'-0" 15'-0" 15'-0"	3 RED 3 RED 3 RED	RRUS-32 B30	1	-	-	-	-	-	-
ALPHA (A4)	0°	203'-0"	ANDREW	NNHH-65B-R4	1	72.0"x19.6"x7.8"	LTE 700, LTE 850, 5G 850 LTE AWS,5G AWS	5° 3°	0°	ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	3/8" 7/16" 1/2"	2 2 8	15'-0" 15'-0" 15'-0"	4 RED 4 RED 4 RED	4449 B5/B12	1	-	-	-	-	-	-
BETA (B1)	120°	205'-0" 201'-0"	ERICSSON	AIR6419 B77G AIR6449 B77D	1 1	31.1"x16.1"x7.30" 30.63"x15.87"x10.55"	5G DOD 5G CBAND	0°	0°	ROSENBERGER FIBER JUMPER (DC9 TO ANTENNA) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO ANTENNA)	3/8" 7/16"	4 2	15'-0" 15'-0"	1 BLUE 1 BLUE	-	-	-	-	-	-	-	-
BETA (B2)	120°	203'-0"	ANDREW	SBNHH-1D65B	1	72.0"x11.9"x7.1"	LTE 700 LTE 1900	6° 2°	0°	ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	3/8" 7/16" 1/2"	4 3 6	15'-0" 15'-0" 15'-0"	2 BLUE 2 BLUE 2 BLUE	*4478 B14 **8843 B2/B66A	1 1	-	-	-	-	-	-
BETA (B3)	120°	203'-0"	ANDREW	SBNHH-1D65B	1	72.0"x11.9"x7.1"	LTE 700 LTE WCS, 5G WCS	6° 2°	0°	ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	3/8" 7/16" 1/2"	1 1 6	15'-0" 15'-0" 15'-0"	3 BLUE 3 BLUE 3 BLUE	RRUS-32 B30	1	-	-	-	-	-	-
BETA (B4)	120°	203'-0"	ANDREW	NNHH-65B-R4	1	72.0"x19.6"x7.8"	LTE 700, LTE 850, 5G 850 LTE AWS,5G AWS	5° 3°	0°	ROSENBERGER FIBER JUMPER (DC9 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC9 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	3/8" 7/16" 1/2"	2 2 8	15'-0" 15'-0" 15'-0"	4 BLUE 4 BLUE 4 BLUE	4449 B5/B12	1	-	-	-	-	-	-
GAMMA (C1)	240°	205'-0" 201'-0"	ERICSSON	AIR6419 B77G AIR6449 B77D	1 1	31.1"x16.1"x7.30" 30.63"x15.87"x10.55"	5G DOD 5G CBAND	0°	0°	ROSENBERGER FIBER JUMPER (DC9 TO ANTENNA) ROSENBERGER SINGLE PAIR DC CABLE (DC6 TO ANTENNA)	3/8" 7/16"	4 2	15'-0" 15'-0"	1 GREEN 1 GREEN	-	-	-	-	-	-	-	-
GAMMA (C2)	240°	203'-0"	ANDREW	SBNHH-1D65B	1	72.0"x11.9"x7.1"	LTE 700 LTE 1900	6° 2°	0°	ROSENBERGER FIBER JUMPER (DC6 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC6 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	3/8" 7/16" 1/2"	4 3 6	15'-0" 15'-0" 15'-0"	2 GREEN 2 GREEN 2 GREEN	*4478 B14 **8843 B2/B66A	1 1	-	-	-	-	-	-
GAMMA (C3)	240°	203'-0"	ANDREW	SBNHH-1D65B	1	72.0"x11.9"x7.1"	LTE 700 LTE WCS, 5G WCS	6° 2°	0°	ROSENBERGER FIBER JUMPER (DC6 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC6 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	3/8" 7/16" 1/2"	1 1 6	15'-0" 15'-0" 15'-0"	3 GREEN 3 GREEN 3 GREEN	RRUS-32 B30	1	-	-	-	-	-	-
GAMMA (C4)	240°	203'-0"	ANDREW	NNHH-65B-R4	1	72.0"x19.6"x7.8"	LTE 700, LTE 850, 5G 850 LTE AWS,5G AWS	5° 3°	0°	ROSENBERGER FIBER JUMPER (DC6 TO RRU) ROSENBERGER SINGLE PAIR DC CABLE (DC6 TO RRU) 1/2" COAX JUMPER (RRU TO ANTENNA)	3/8" 7/16" 1/2"	2 2 8	15'-0" 15'-0" 15'-0"	4 GREEN 4 GREEN 4 GREEN	4449 B5/B12	1	-	-	-	-	-	-
				TOTAL	15					TOTAL COAX CABLES (1-5/8")		12	253' ±		TOTAL	12	-	TOTAL	-	-	TOTAL	-
										TOTAL FIBER JUMPERS (3/8")		33	15' EA.									
										TOTAL DC JUMPERS (7/16")		24	15' EA.									
										TOTAL RET CABLES (5/16")		3	253' ±									
										TOTAL RET JUMPER CABLES (5/16")		9	15' EA.									
										TOTAL COAX JUMPERS (15') (1/2")		60	15' EA.									

SCHEDULE NOTES:
WHERE APPLICABLE
* - SHARED BETWEEN POS2 AND POS3 (ALL SECTORS)
**- SHARED BETWEEN POS2 AND POS4 (ALL SECTORS)

NOTES:
1. ANTENNA AND COAX INFORMATION PROVIDED FORM THE AT&T PRIORITY RFDS ID. 5042290, VERSION 2.00, DATED 10/18/2022
2. CONTRACTOR TO VERIFY RF INFO WITH CLIENT PRIOR TO CONSTRUCTION.
3. COAX LENGTHS ARE APPROXIMATE AND MUST BE VERIFIED PRIOR TO CONSTRUCTION
4. ALL COAX SHALL BE COLOR CODED AT TOP AN BOTTOM JUMPER AND AT TOP OF TOWER BOTTOM, AND INSIDE SHELTER ON MAIN COAX
5. EACH MAIN COAX SHALL HAVE CORROSION PROOF "ID TAGS" INSTALLED INSIDE THE SHELTER AT THE PORT AND AT THE ANTENNA.
6. QUANTITIES GIVEN ARE TOTAL EXISTING AND PROPOSED.

① FINAL EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE

AT&T
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TOWER
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(919) 661-6351

FL COA #31011
TEP JOB #:145283.716232

BU #: 870081
LAKE CITY (SR 47 & US 41)

267 SW CRYSTAL GLN
LAKE CITY, FL 32025

EXISTING 350'-0" GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/09/22	ORG	PRELIMINARY	MCR
0	1/31/23	JW	CONSTRUCTION	NH

JOSHUA H. CARDEN
LICENSE No 83511

This item has been digitally signed and sealed by JOSHUA H. CARDEN using a Digital Signature and date. Printed copies of this document are not considered signed and sealed and the signature must be verified on any electronic copies.

January 31, 2023

IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

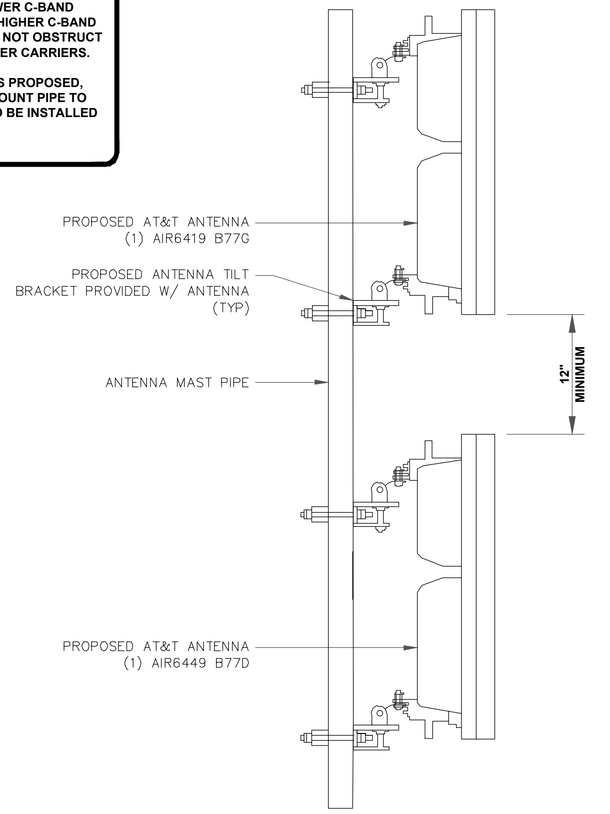
SHEET NUMBER:
C-3

REVISION:
0

AT&T_FLORIDA_ANTENNA AMENDMENT_05.19.2022_V2

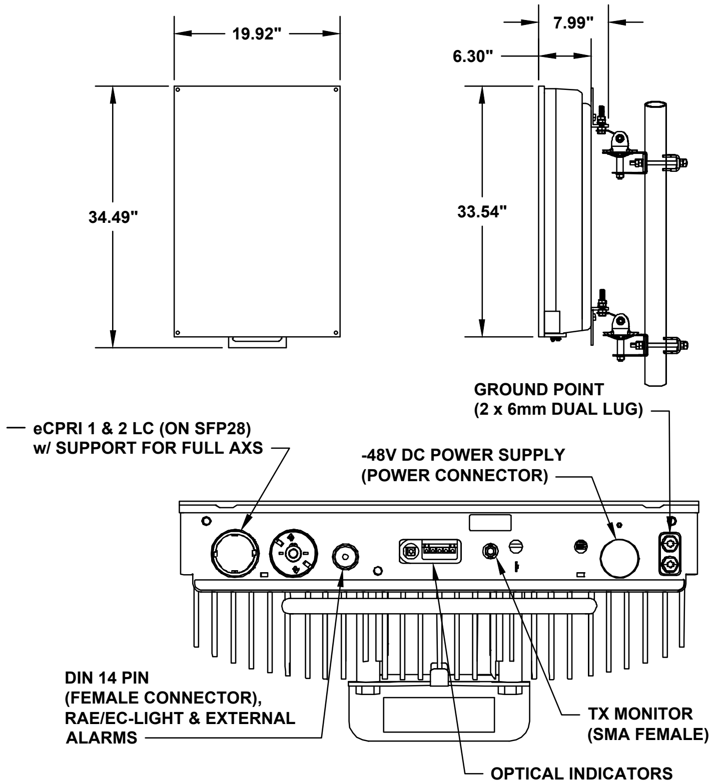
INSTALLER NOTE:

1. CONTRACTOR TO MAKE SURE THAT VERTICAL SEPARATION FROM TIP OF LOWER C-BAND ANTENNA TO BOTTOM OF THE HIGHER C-BAND ANTENNA IS AT LEAST 1 FT DO NOT OBSTRUCT NEARBY ANTENNAS FROM OTHER CARRIERS.
2. IF ONLY (1) AIR6449 ANTENNA IS PROPOSED, INSTALL AT THE TOP OF THE MOUNT PIPE TO ALLOW A FUTURE ANTENNA TO BE INSTALLED BELOW



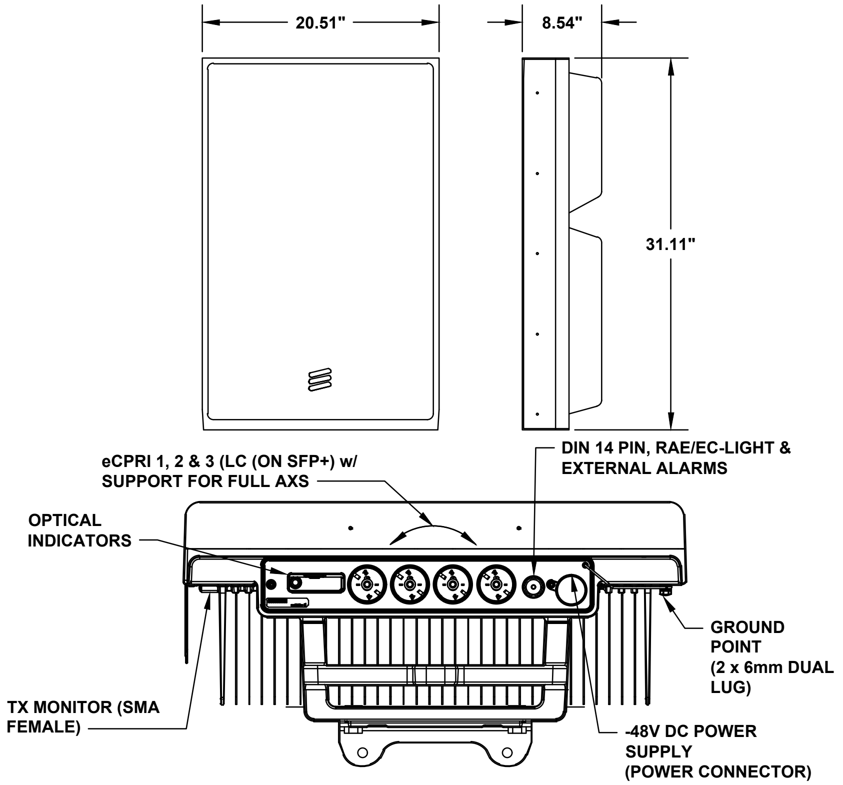
① MOUNTING DETAIL
SCALE: NOT TO SCALE

MANUFACTURER:	ERICSSON
MODEL / PN:	AIR 6419 B77G
DIMENSIONS:	34.49" x 19.92" x 7.99" (H x W x D)
WEIGHT:	68.34 LBS (EXCLUDING MOUNTING KIT)
MOUNT WEIGHT:	13.5 LBS (SXK109 2016/1)



② ERICSSON AIR 6419 B77G
SCALE: NOT TO SCALE

MANUFACTURER:	ERICSSON
MODEL:	AIR 6449 B77D
DIMENSIONS:	31.11" x 20.51" x 8.54" (H x W x D)
WEIGHT:	101.63 LBS (EXCLUDING MOUNTING KIT)
MOUNT WEIGHT:	13.01 LBS (NTB1010063/9)



③ ERICSSON AIR 6449 B77D
SCALE: NOT TO SCALE

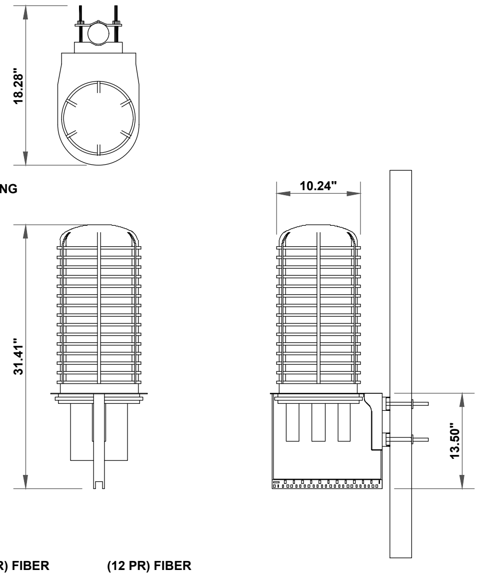
RAYCAP
DC9-48-60-24-8C-EV

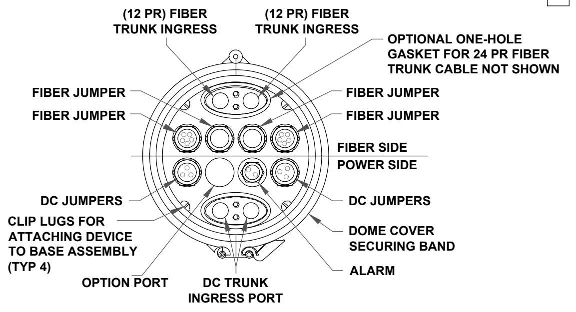
RAYCAP - DC9-48-60-24-8C-EV
SIZE: 10.24x31.40 IN.
WEIGHT: 26.2 LBS
NOMINAL OPERATING VOLTAGE: 48 VDC
VOLTAGE PROTECTION RATING: 330 V
WIND LOADING: 150 MPH SUSTAINED (105.7 LBS)
WIND LOADING: 195 MPH GUST (213.6 LBS)

CONTRACTOR TO USE "THREAD LUBRICANT" ON MOUNTING BOLTS DURING INSTALLATION

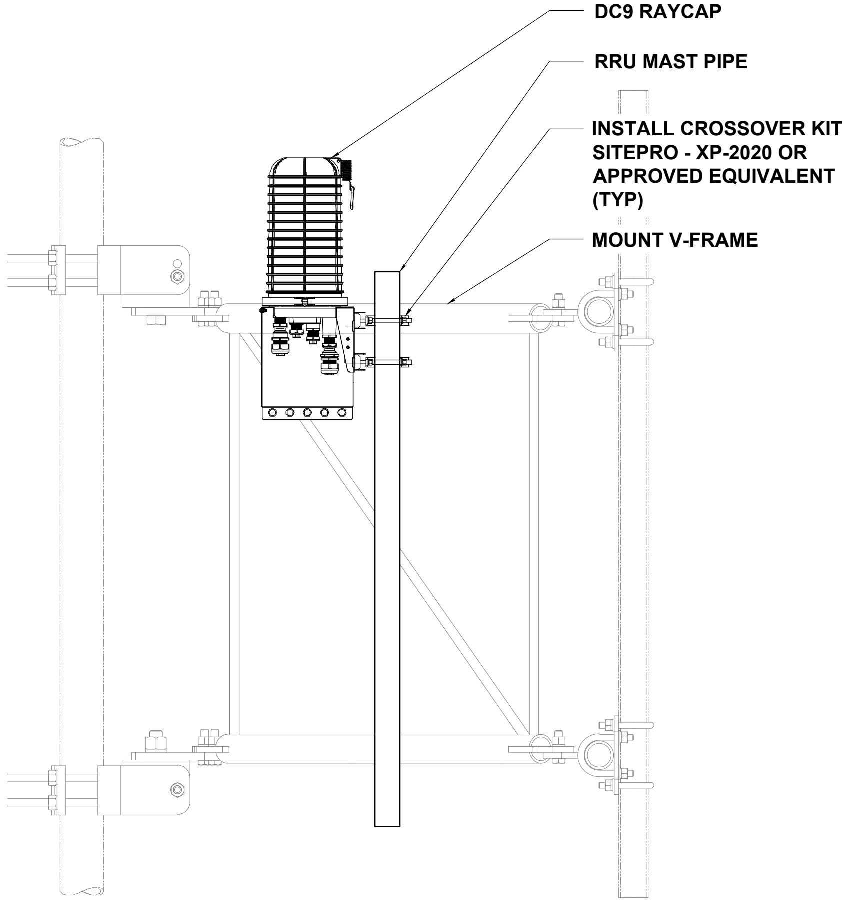
NOTES:

1. REMOVE CABLE SEALING GLAND AND INSTALL M32x1.5 METRIC-TO-1" NPT ADAPTER (COOPER CROUSE-HINES P/N CAP 740 994 OR EQUIVALENT MFR) WHEN CONNECTING CONDUIT TO OVP.





④ RAYCAP DETAIL
SCALE: NOT TO SCALE

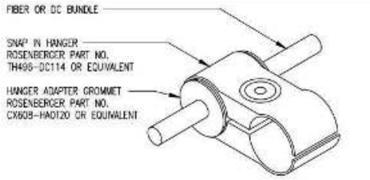


⑤ RAYCAP MOUNTING DETAIL
SCALE: NOT TO SCALE

MISCELLANEOUS MATERIALS SCHEDULE

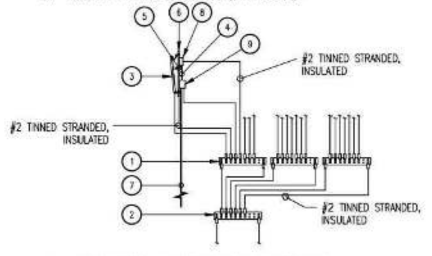
DESCRIPTION	MODEL NUMBER	QUANTITY
SNAP-IN HANGER	TH496-DC114	–
HANGER ADAPTER GROMMET	CX608-HA0711	–
HOISTING GRIP	CX051-HG38PL	–
HOISTING GRIP	CX06-HC12PL	–
GROUNDING KIT	–	–

NOTES:
1. REFER TO JSA DOCUMENTS FOR EXACT CABLE NUMBER AND MANUFACTURER SPECIFICATIONS FOR PROPER GROMMETS AND HANGER TO SUPPORT THE FIBER AND DC CABLE BUNDLES.
2. REFER TO STRUCTURAL ANALYSIS FOR EXACT CABLE ROUTING AND MOUNTING CONFIGURATION.



⑥ HANGER ADAPTER GROMMET
SCALE: NOT TO SCALE

KEYNOTE LEGEND:
1. SECTOR GROUND BAR (TYP).
2. COLLECTOR GROUND BAR.
3. NEW ANTENNA.
4. SINGLE PAIR FIBER & DC POWER.
5. JUMPER CABLE, 1/2" (TYP).
6. PIPE MOUNT.
7. DC POWER & FIBER TO RAYCAP UNIT.
8. REMOTE RADIO HEAD (RRH) (IF APPLICABLE).
9. DC6 RAYCAP SURGE SUPPRESSOR (IF APPLICABLE).



1. UTILIZE EXISTING AT&T GROUND BARS AND GROUNDING.
2. ADD GROUND BARS IF THERE ARE INSUFFICIENT LUG POSITIONS.
3. REFERENCE AT&T BONDING & GROUNDING PRACTICE TP76416.

⑦ ANTENNA GROUNDING SCHEMATIC
SCALE: NOT TO SCALE

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TOWER
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PROFESSIONALS
326 TRYON RD
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(919) 661-6351
FL COA #31011
TEP JOB #:145283.716232

BU #: 870081
LAKE CITY (SR 47 & US 41)

267 SW CRYSTAL GLN
LAKE CITY, FL 32025

EXISTING 350'-0" GUYED TOWER

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
A	12/09/22	ORG	PRELIMINARY	MCR
0	1/31/23	JW	CONSTRUCTION	NH

JOSHUA H. CARDEN
No 83511

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January 31, 2023

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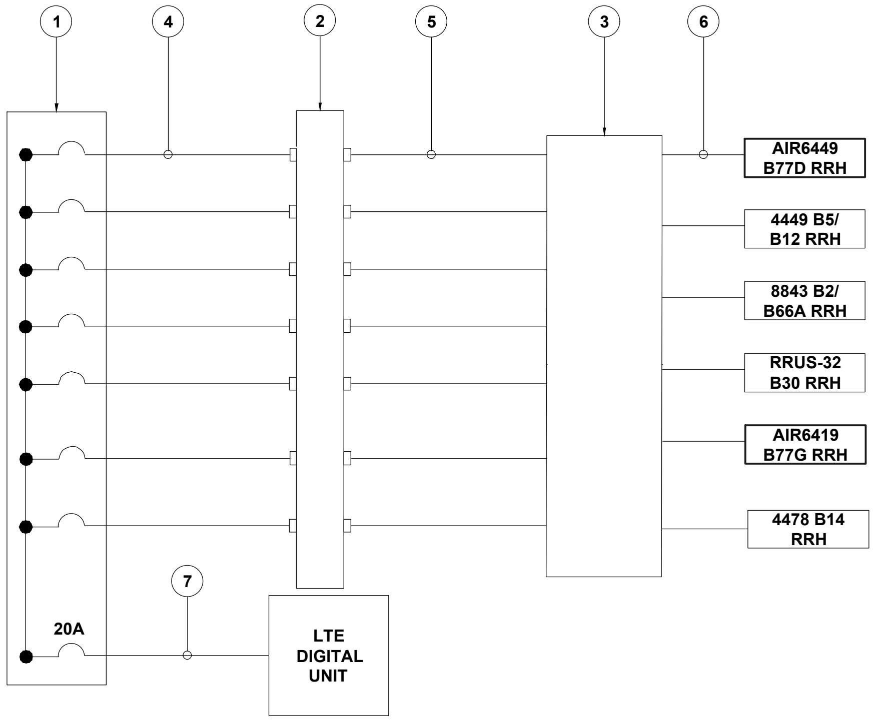
SHEET NUMBER: **C-4**
REVISION: **0**

ERICSSON RRU BREAKER REQUIREMENTS		
ERICSSON RADIO	SIZE BREAKER	TECHNOLOGY
RRUS 32 B66	30 AMP	AWS (2100)
RRUS 32 B30	20 AMP	WCS (2300)
RRUS 32 B2	30 AMP	PCS (1900)
RRUS 11	25 AMP	VARIOUS BANDS (700 [B12] , 850 [B5], 1900 [B2], 2100 [B4])
RRUS12 + A2	25 AMP	VARIOUS BANDS (850 [B5], 1900 [B2], 2100 [B4])
RRU 4415 B25	25 AMP	1900
RRU 4426 B66	30 AMP	2100
RRU 4478 B14	25 AMP	700
RRU 4478 B5	25 AMP	850
RRUS E2 B29	25 AMP	700
RRUS 4449 B5/B12	2x25 AMP	700/850
RRUS 8843 B2/B66	2x30 AMP	1900/2100
RRUS 2203 B5	10 AMP	850
RRUS 2205 B46	10 AMP	5 GHz
AIR6449 N77	50 AMP	
AIR6419 B77	50 AMP	
RRU8863	50 AMP	



KEYNOTE LEGEND:

1. -48V DC POWER PLANT. CONTRACTOR TO VERIFY CORRECT BREAKER SIZE IS INSTALLED FOR EACH RRU PER CHART.
2. (1) RACK MOUNTED RAYCAP DC SURGE PROTECTOR (DC6/DC9).
3. RAYCAP FIBER AND DC DISTRIBUTION UNIT (DC6-48-60-18-8F/DC9-48-60-24-8C-EV) TOWER MOUNTED.
4. #8 AWG SHIELDED CONDUCTORS (WR-VG82ST-BRDA).
5. PROVIDE (2) 6-CONDUCTOR #6 AWG BUNDLES FOR DC POWER FROM RACK MOUNTED RAYCAP SURGE PROTECTION UNIT TO THE RAYCAP FIBER AND DISTRIBUTION UNIT ON TOWER.
6. DC CABLE ROUTED TO RRH UNITS.
7. #12 AWG SHIELDED CONDUCTORS (WR-VG122ST-BRDA).

1 TYPICAL DC RISER DIAGRAM
SCALE: NOT TO SCALE

THE DC ELECTRICAL DESIGN HAS BEEN PERFORMED BY CARRIER. CARRIER IS SOLELY RESPONSIBLE FOR THE DC ELECTRICAL DESIGNS AS THAT DESIGN IS BASED UPON PROPRIETARY INFORMATION AND CALCULATIONS. IF INCLUDED, DC ELECTRICAL DESIGNS ARE CONTAINED OR ATTACHED TO THIS DRAWING FOR REFERENCE ONLY.

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TOWER ENGINEERING PROFESSIONALS

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267 SW CRYSTAL GLN
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EXISTING 350'-0" GUYED TOWER

ISSUED FOR:				
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0	1/31/23	JW	CONSTRUCTION	NH

FOR REFERENCE ONLY

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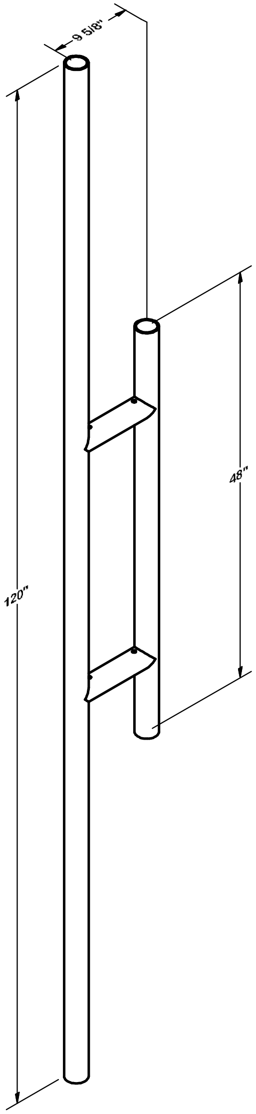
SHEET NUMBER: DC-1
REVISION: 0



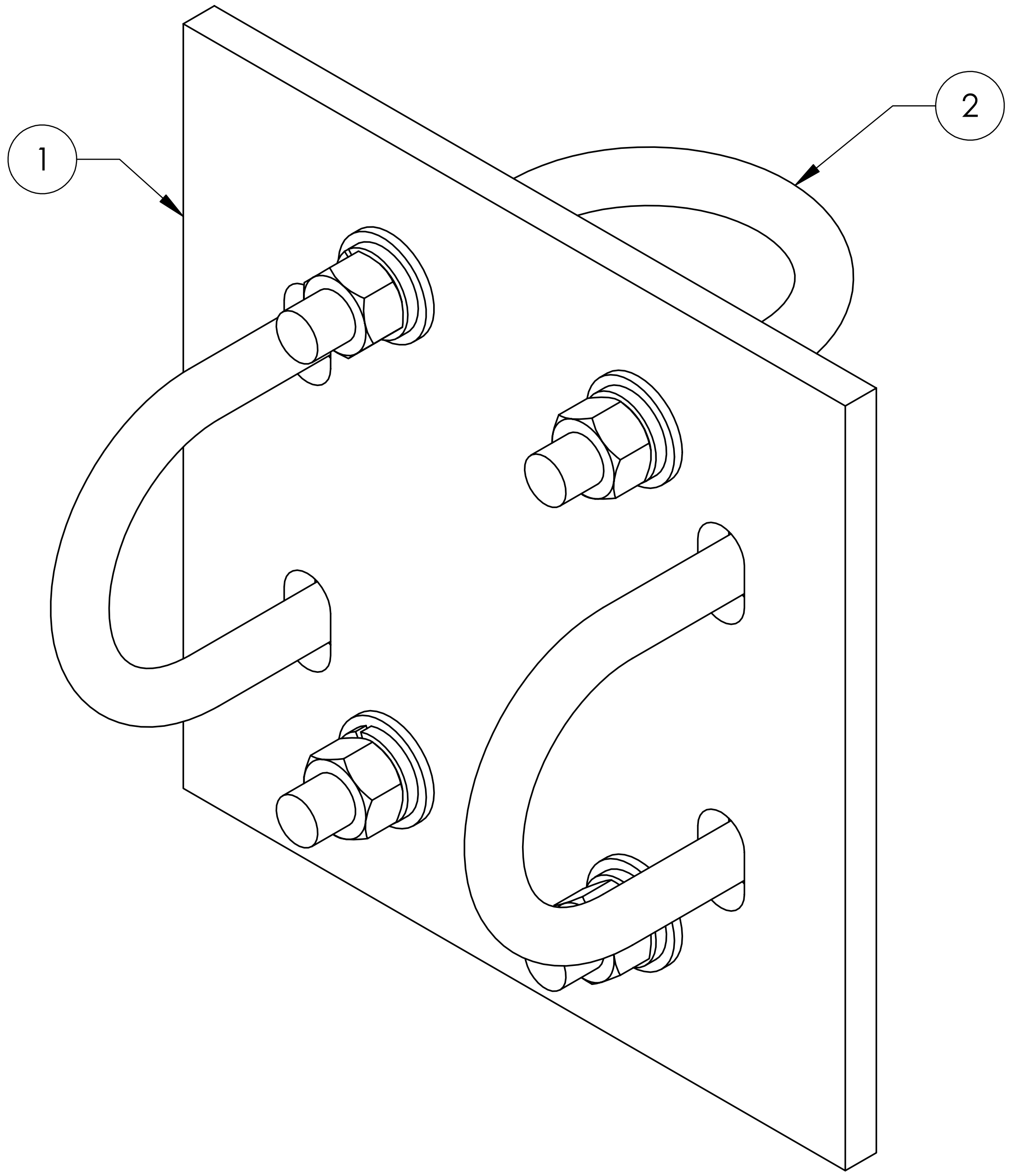
SITE PRO 1

A [illegible] COMPANY

ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT
1	XP2020.01	CROSSOVER PLATE 2-3/8" O.D. TO 2-3/8" O.D.	1	6.34 LBS
2	GUB-4240	1/2" X 2-1/2" X 4" GALV U-BOLT KIT	4	0.57 LBS

REVISIONS

REV.	ZONE	DESCRIPTION	BY	DATE
A		INITIAL RELEASE	MLO	05/24/99
B		REDRAWN AND ADDED BOM	MA	04/19/01
C		REMOVED 1 VIEW	JTS	06/07/01



ALL DIMENSIONS ARE IN INCHES U.O.S.
TOLERANCES UNLESS OTHERWISE SPECIFIED:

.X = ±	.06	ANGLES	± 2°
.XX = ±	.03	FRACTIONS	± 1/ 32
.XXX= ±	.010		

REMOVE BURRS AND BREAK EDGES .005

DO NOT SCALE THIS PRINT

DRAWN BY: ACG	SHEET: 1 of 1	PART NUMBER: XP-2020
CHECKED BY: TP	SCALE: NTS	DESCRIPTION: CROSSOVER PLATE KIT 2.375" O.D. X 2.375" O.D.
DATE: 01/ 07/ 05	MATERIAL: A36	DRAWING TYPE: ASSEMBLY DRAWING
REVISION: C	FINISH: GALV A123 WEIGHT 9.22 LBS	ANDREW ® ORLAND PARK, IL. 60462 U.S.A.