

# T-Mobile

T-MOBILE SITE NUMBER: DN06164A  
T-MOBILE SITE NAME: SPRINT RETAIN SITE DN14XC248  
T-MOBILE PROJECT: SPRINT RETAIN

BUSINESS UNIT #: 877034  
SITE ADDRESS: LUCKY FOUR RANCH, WEST HWY 24  
GREEN MOUNTAIN FALLS, CO 80819  
COUNTY: EL PASO  
SITE TYPE: MONOPOLE  
TOWER HEIGHT: 60'-2"

T-Mobile

4830 PAN AMERICAN FREEWAY, SUITE A  
ALBUQUERQUE, NM 87109

CROWN  
CASTLE  
2055 S. STEARMAN DRIVE  
CHANDLER, AZ 85286

RAMAKER  
employee-owned  
(608) 643-4100 www.ramaker.com  
PROJECT #: 52470

T-MOBILE SITE NUMBER:  
DN06164A

BU #: 877034  
USWW UTE PASS

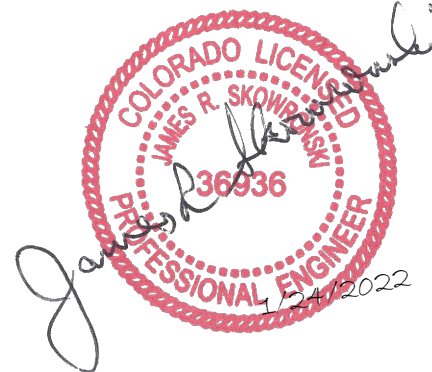
LUCKY FOUR RANCH, WEST  
HWY 24  
GREEN MOUNTAIN FALLS,  
CO 80819

EXISTING 60'-2" MONOPOLE

#### ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	08/17/2021	MDP	FINAL	JF
1	08/30/2021	AMW	REVISIONS	JF
2	01/24/2021	AMW	JDX UPDATE	JF

I hereby certify that this plan, specification, or report was prepared  
by me or under my direct supervision and that I am a duly Licensed  
Professional Engineer under the laws of the State of Colorado.



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:

2

## SITE INFORMATION

CROWN CASTLE USA INC.  
SITE NAME: USWW UTE PASS  
SITE ADDRESS: LUCKY FOUR RANCH, WEST HWY 24  
GREEN MOUNTAIN FALLS, CO 80819  
COUNTY: EL PASO  
MAP/PARCEL #: 83092-00-031  
AREA OF CONSTRUCTION: EXISTING  
PARCEL SIZE: 16.24 ACRES  
LOT AREA COVERAGE: 0.00022  
TOTAL GROSS BUILDING  
SQUARE FOOTAGE: 156 SQ. FT  
LATITUDE: 38.93850600  
LONGITUDE: -105.00784700  
LAT/LONG TYPE: NAD83  
GROUND ELEVATION: 7,987'  
CURRENT ZONING: R-T: RESIDENTIAL-TOPOGRAPHIC  
JURISDICTION: EL PASO COUNTY  
OCCUPANCY CLASSIFICATION: U  
TYPE OF CONSTRUCTION: IIB  
A.D.A. COMPLIANCE: FACILITY IS UNMANNED AND NOT FOR  
HUMAN HABITATION  
PROPERTY OWNER: GWYN DEAN SMISCHNY TRUST  
825 5TH ST SE  
PELICAN RAPIDS, MN 56572  
(218) 863-8674  
ZACH.PHILLIPS@CROWNCastle.COM  
TOWER OWNER: CROWN CASTLE  
2000 CORPORATE DRIVE  
CANONSBURG, PA 15317  
CARRIER/APPLICANT: ZACH PHILLIPS - CROWN CASTLE  
1842 SW LOBELIA ST.  
PORTLAND, OR 97219  
(503) 708-9200  
ZACH.PHILLIPS@CROWNCastle.COM  
ELECTRIC PROVIDER: ----  
TELCO PROVIDER: ----

## PROJECT TEAM

A&E FIRM: CROWN CASTLE USA INC.  
2000 CORPORATE DRIVE  
CANONSBURG, PA 15317  
CROWN.AE.APPROVAL@CROWNCastle.COM  
PLAN PREPARER: RAMAKER - JASON FRAZIER  
855 COMMUNITY DRIVE  
SAUK CITY, WI 53583  
JFRAZIER@RAMAKER.COM  
CROWN CASTLE  
USA INC. DISTRICT  
CONTACTS: 2055 S. STEARMAN DRIVE  
CHANDLER, AZ 85286  
BRYCE NORTHCUTT - PROJECT MANAGER  
----  
JUSTIN LOPEZ - CONSTRUCTION MANAGER  
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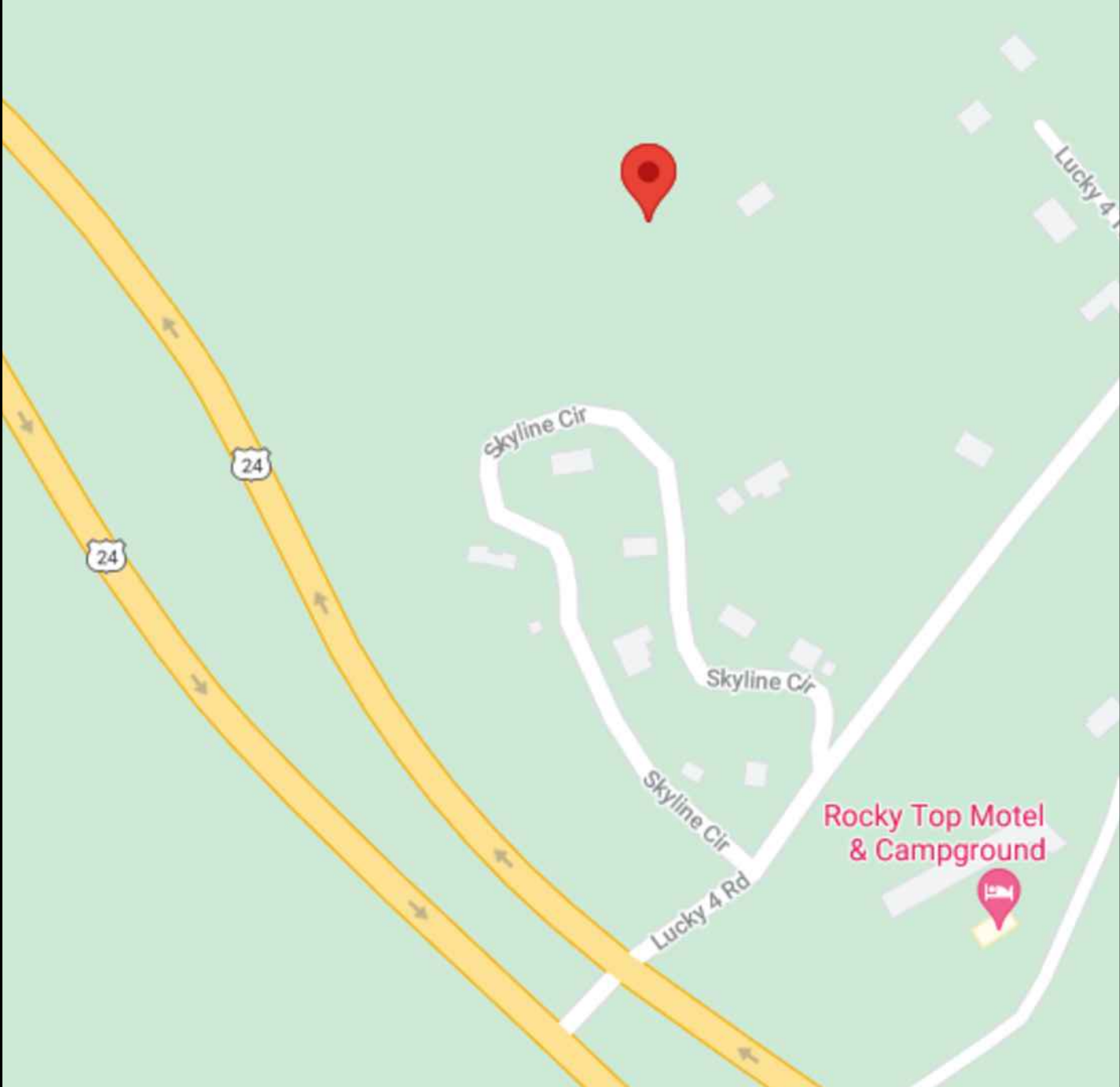
PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE  
CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

## DRAWING INDEX

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T-2	GENERAL NOTES
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C-1.2	EXISTING SITE PLAN
C-1.3	FINAL EQUIPMENT PLAN
C-2	EXISTING & FINAL ELEVATIONS
C-3	EXISTING & FINAL ANTENNA PLANS
C-4	FINAL EQUIPMENT SCHEDULE
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C-6	EQUIPMENT SPECS
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C-7.2	EQUIPMENT SPECS
E-1	ELECTRIC SITE PLAN & ONE LINE DIAGRAM
G-1	GROUNDING DETAILS
ATTACHED	PLUMBING DIAGRAM

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR  
22X34. 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.

## LOCATION MAP



NO SCALE

## SITE PHOTO



## PROJECT DESCRIPTION

THE PURPOSE OF THIS PROJECT IS TO ENHANCE BROADBAND CONNECTIVITY AND CAPACITY TO THE  
EXISTING ELIGIBLE WIRELESS FACILITY.

#### TOWER SCOPE OF WORK:

- MOUNT SWAP TO MC-PM12M-AP4 w/ MT-195-12HD,  
PVS-050B-U
- REMOVE (2) ANTENNAS
- REMOVE (4) RRHs
- INSTALL (6) ANTENNAS
- INSTALL (6) RRHs
- INSTALL (2) BREAKOUT PENDANTS
- INSTALL (1) HYBRID CABLE (1-7/16")
- INSTALL (2) HYBRID CABLES (1-1/2")

#### GROUND SCOPE OF WORK:

- REPLACE 100A PPC WITH 200A PPC
- INSTALL (1) POWER CABINET
- INSTALL (1) BATTERY CABINET
- INSTALL (1) 200A PPC
- INSTALL (2) JUNCTION BOXES
- INSTALL (3) ABIA
- INSTALL (3) ABIC
- INSTALL (6) ABIL
- INSTALL (2) AMIA
- INSTALL (2) ASIB
- INSTALL (2) ASIK
- INSTALL (1) FSMF
- INSTALL (1) CSR IXRe V2 (GEN2)
- INSTALL ICE BRIDGE

## PROPERTY LEGAL DESCRIPTION

W2NW4NW4 SEC 9-13-68 EX THAT PT BK 1425-506,BK 1462-617 BK 1462-619, BK 6510-531, BK 6583-1455, TOG WITH  
TH PT SW4NW4NW4 SEC 9-13-68 DESC AS FOLS:FROM SW COR OF NW4 RUN NLY 1735.6 FT ON W LN OF SD NW4,  
TH ANG R 90<00° E 290.6 FT FOR POB, TH S 34<57° E 405.8 FT, TH N 55<04° E 150.6 FT, TH N 43<03° W 409.3 FT, TH S  
55<28° W 93.0 FT TO POB

## APPLICABLE CODES/REFERENCE DOCUMENTS

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	2015 IBC
MECHANICAL	2015 IMC
ELECTRICAL	2020 NEC

#### REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	BY OTHERS
DATED:	
MOUNT ANALYSIS:	BY OTHERS
DATED:	
RFDS REVISION:	1
DATED:	05/07/2021
ORDER ID:	568701
REVISION:	0
PCD APPLICATION:	PPR-21-070
DATED:	11/17/2021



CALL COLORADO ONE CALL  
(800) 922-1987  
CALL 3 WORKING DAYS  
BEFORE YOU DIG!





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." 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.

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-POTENTIAL 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).

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:  
CONTRACTOR: GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION  
CARRIER: T-MOBILE  
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 ELECTRICAL WORK 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. VERIFY 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 TO 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/IEEC 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/IEEC 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 "T-MOBILE".
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
277/480V, 3Ø	GROUND	GREEN
	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
DC VOLTAGE	NEUTRAL	GREY
	GROUND	GREEN
	POS (+)	RED**
	NEG (-)	BLACK**

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

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

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

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CROWN CASTLE

2055 S. STEARMAN DRIVE  
CHANDLER, AZ 85286

RAMAKER

employee-owned

(608) 643-4100 www.ramaker.com

PROJECT #: 52470

T-MOBILE SITE NUMBER:  
DN06164A

BU #: 877034  
USWW UTE PASS

LUCKY FOUR RANCH, WEST  
HWY 24  
GREEN MOUNTAIN FALLS,  
CO 80819

EXISTING 60'-2" MONOPOLE

ISSUED FOR:				
REV	DATE	DRWN	DESCRIPTION	DES./QA
0	08/17/2021	MDP	FINAL	JF
1	08/30/2021	AMW	REVISIONS	JF
2	01/24/2021	AMW	JDX UPDATE	JF

36636

PROFESSIONAL ENGINEER

2022

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SHEET NUMBER:  
T-2

REVISION:  
2





SITE PLAN DISCLAIMER:

PROPERTY LINES AND STRUCTURES HAVE BEEN DIGITIZED FROM BING MAPS. CROWN CASTLE USA INC. HAS NOT COMPLETED A SITE SURVEY AND THEREFORE MAKES NO CLAIMS AS TO THE ACCURACY OF INFORMATION DEPICTED ON THIS SHEET.

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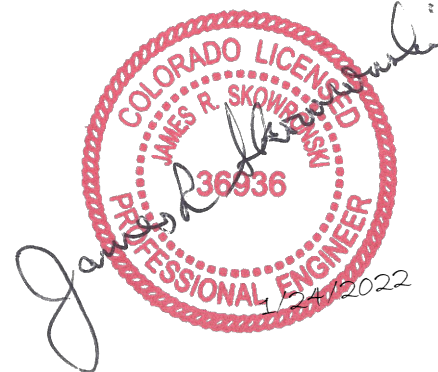
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APN: 83092-00-031  
ZONING: R-T: RESIDENTIAL-TOPOGRAPHIC  
PCD APPLICATION: PPR-21-070

1 OVERALL SITE PLAN  
SCALE: 1" = 80'-0" (FULL SIZE)  
1" = 160'-0" (11x17)

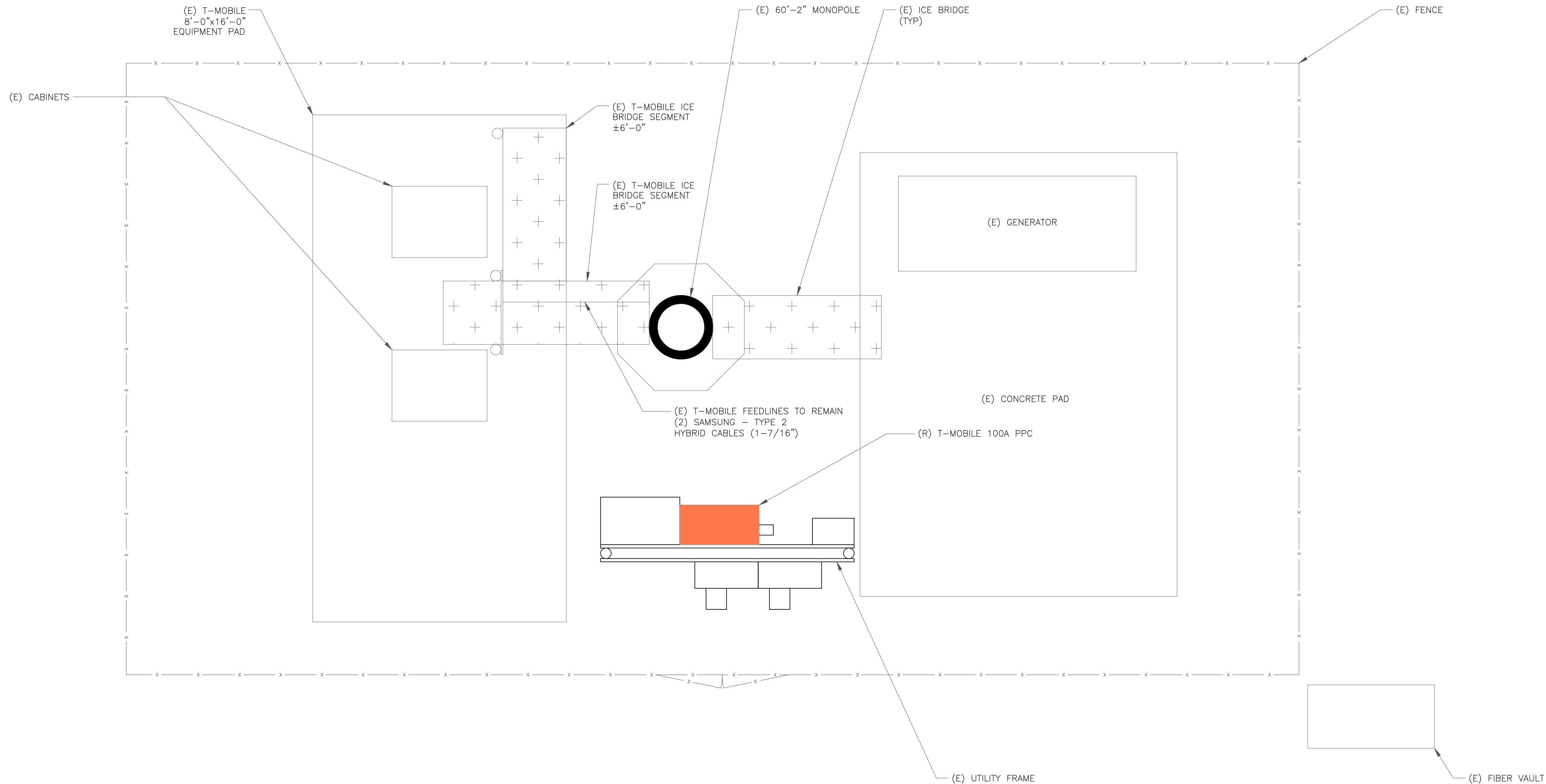


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C-1.1

REVISION:

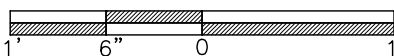
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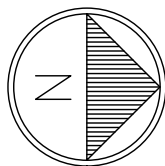


PCD APPLICATION: PPR-21-070

1

EXISTING SITE PLAN

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



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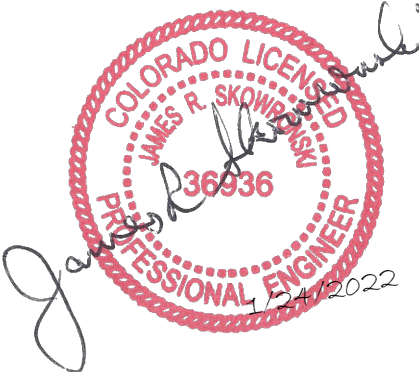
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AMIAS ARE TO BE INSTALLED INTERNALLY IN THE 600A SSC CABINET. IF NO 600A SSC CABINET IS ON SITE, AMIAS ARE TO BE SUBSTITUTED WITH AMOBs. CONTRACTOR SHALL BE RESPONSIBLE FOR IDENTIFYING APPROPRIATE LOCATION WITHIN T-MOBILE LEASE AREA FOR AMOB MOUNTING AND PROVIDE TO CONSTRUCTION MANAGER. AMOB LOCATIONS MUST BE APPROVED BY CONSTRUCTION MANAGER PRIOR TO INSTALLATION.

- REPLACE 100A PPC WITH 200A PPC
- INSTALL (1) POWER CABINET
- INSTALL (1) BATTERY CABINET
- INSTALL (2) JUNCTION BOXES
- INSTALL (3) ABIA
- INSTALL (3) ABIC
- INSTALL (6) ABIL
- INSTALL (2) AMIA
- INSTALL (2) ASIB
- INSTALL (2) ASIK
- INSTALL (1) FSMF

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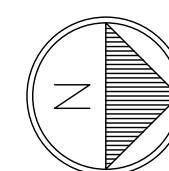
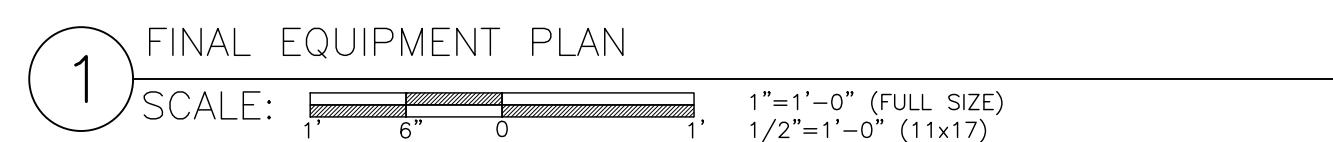
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2	01/24/2021	AMW	JDX UPDATE	JF

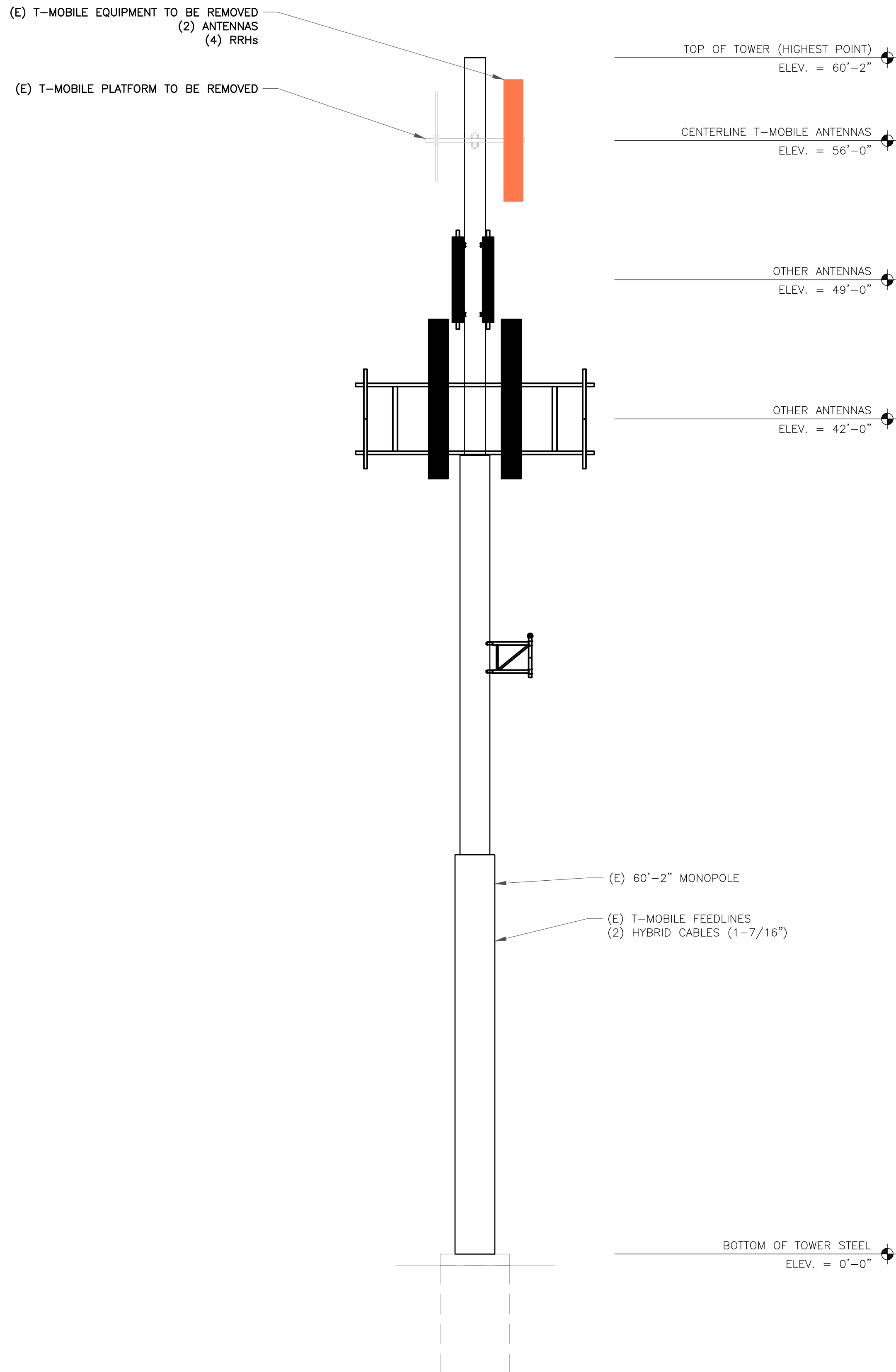
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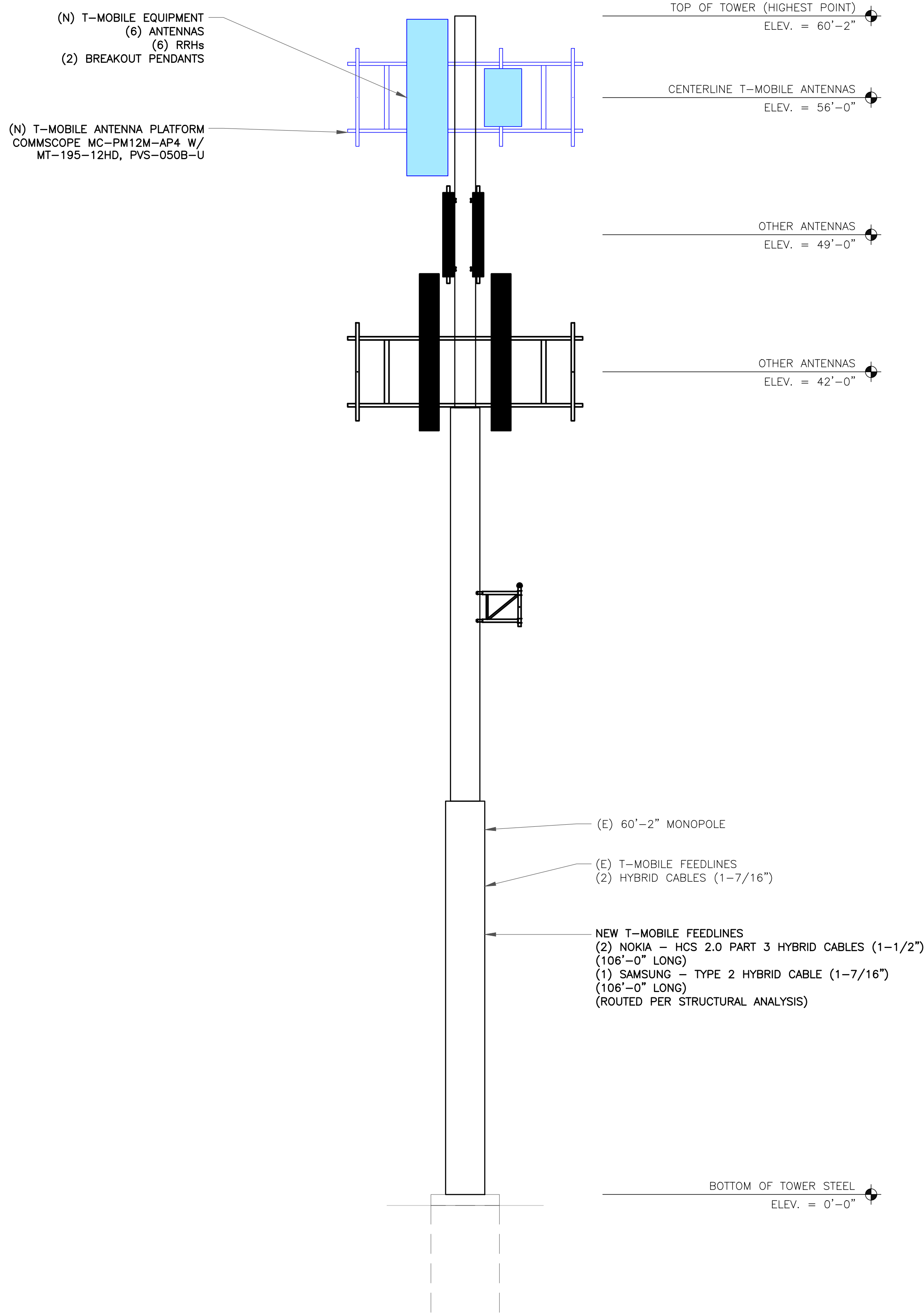
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1 EXISTING ELEVATION  
SCALE: NOT TO SCALE



2 FINAL ELEVATION  
SCALE: NOT TO SCALE

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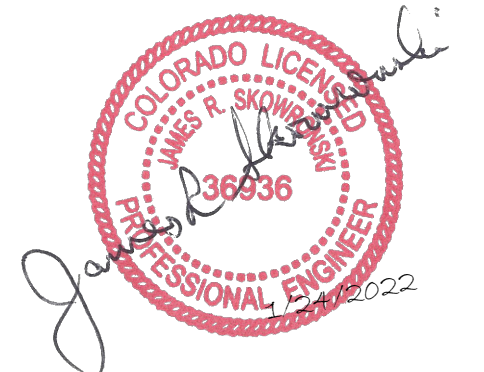
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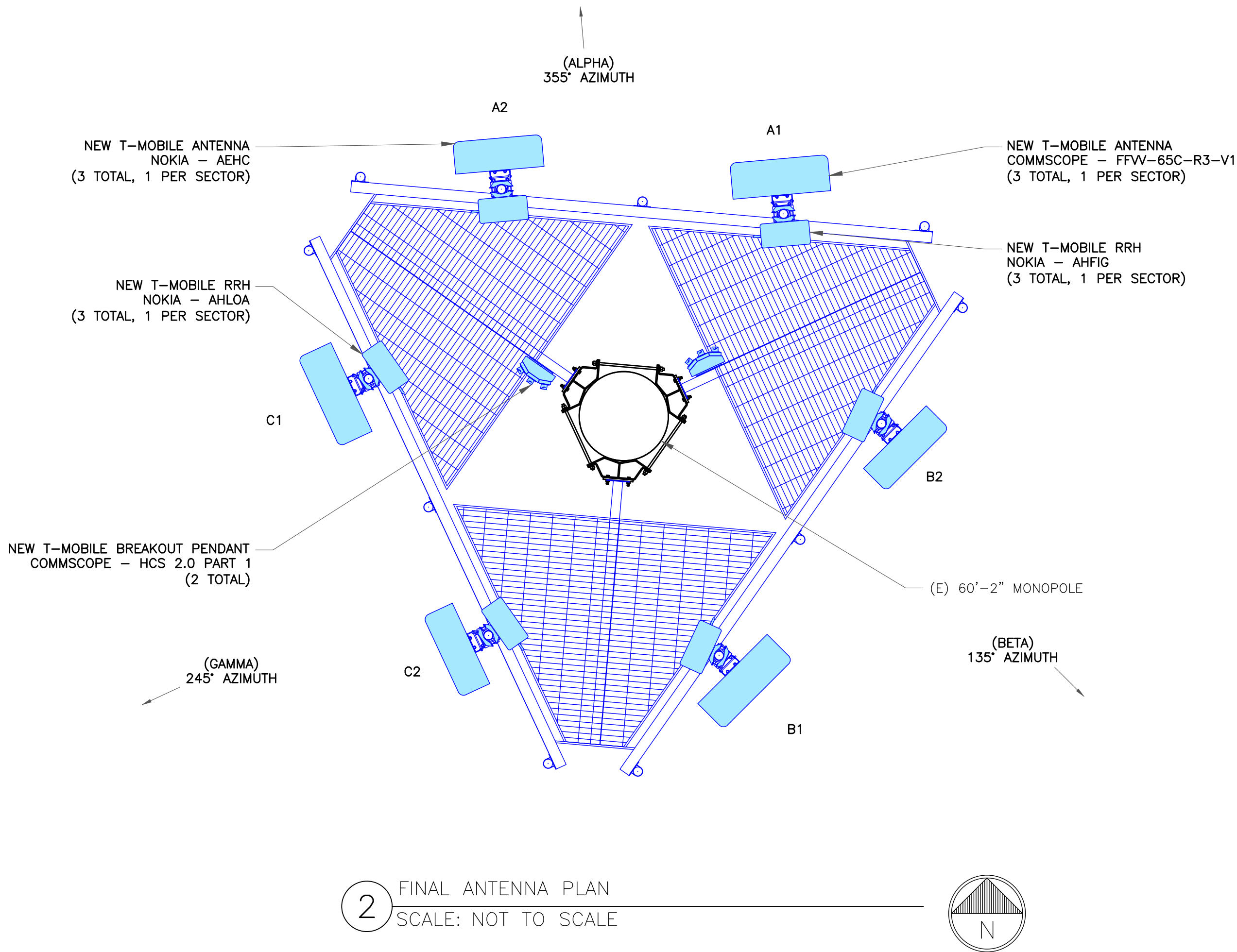
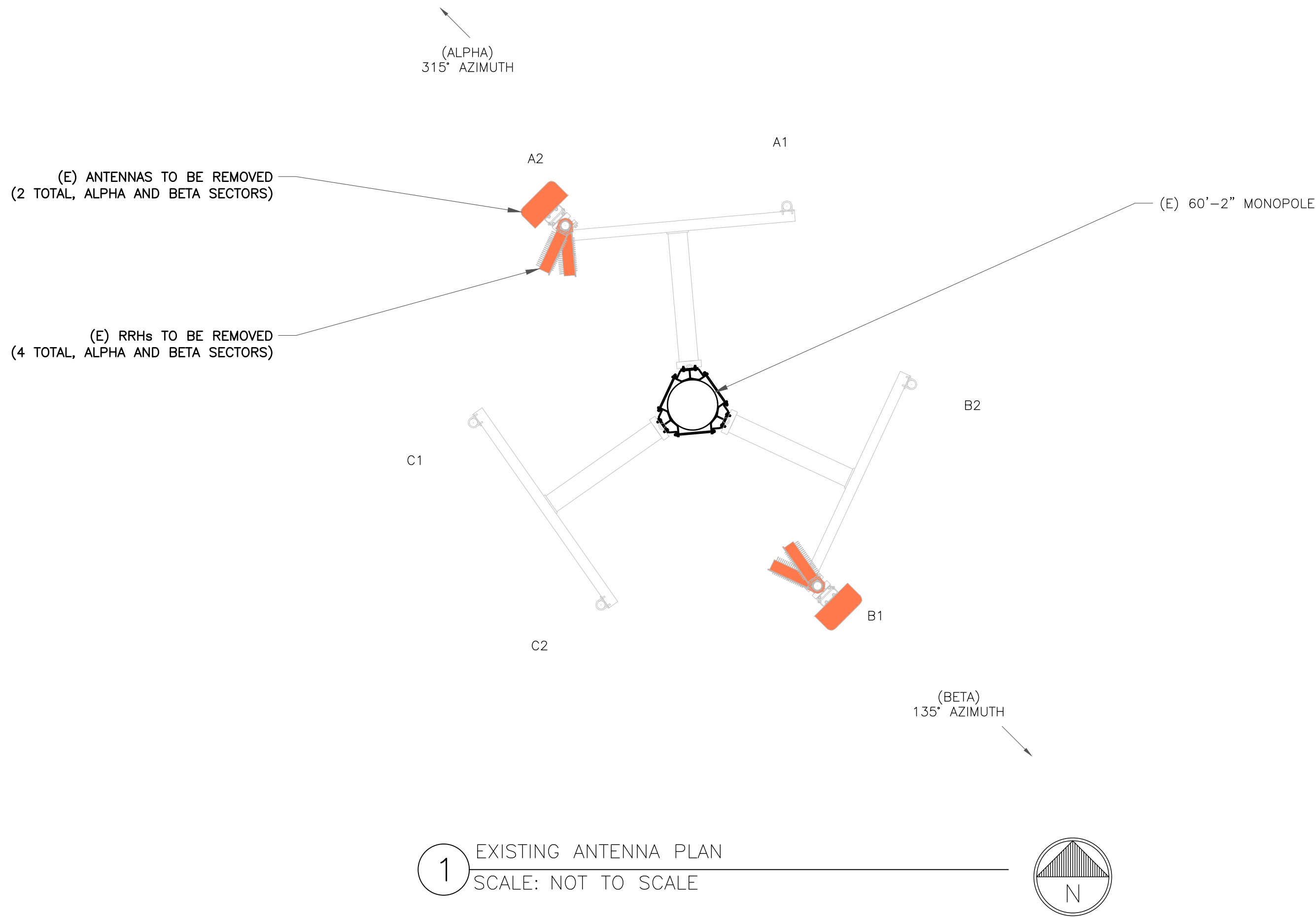
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**"LOOK UP" - CROWN CASTLE USA INC. SAFETY CLIMB REQUIREMENT:**

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.

- NOTES:**
- REFERENCE C-4 FOR FINAL EQUIPMENT SCHEDULE.
  - REFERENCE C-5 FOR NEW EQUIPMENT SPECIFICATIONS.
  - CONTRACTOR TO VERIFY ALL ANTENNA TIP HEIGHTS DO NOT EXCEED BEACON BASE HEIGHT.

- TOWER SCOPE OF WORK:**
- REMOVE (2) ANTENNAS
  - REMOVE (4) RRHs
  - INSTALL (6) ANTENNAS
  - INSTALL (6) RRHs
  - INSTALL (2) BREAKOUT PENDANTS
  - INSTALL (1) HYBRID CABLE (1-7/16")
  - INSTALL (2) HYBRID CABLES (1-1/2")

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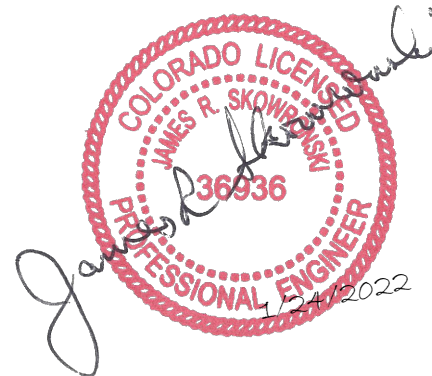
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FINAL EQUIPMENT SCHEDULE (VERIFY WITH CURRENT RFDS)																		
ALPHA																		
POSITION	ANTENNA				RADIO			DIPLEXER			TMA		SURGE PROTECTION		CABLES			
	TECH.	STATUS/MANUFACTURER MODEL	AZIMUTH	RAD CENTER	QTY.	STATUS/MODEL	LOCATION	QTY.	STATUS	LOCATION	QTY.	STATUS	QTY.	STATUS/MODEL	QTY.	STATUS/TYPE	SIZE	LENGTH
A1	L2500, N2500	(N) NOKIA AEHC	355°	56'–0"	1	(N) AHL0A	TOWER	–	–	–	–	–	–	–	1	(E) HYBRID	1–7/16"	106'–0"
A2	L600, N600, L700, L1900, N1900, G1900, L2100, N2100	(N) COMMSCOPE FFV–65C–R3–V1	355°	56'–0"	1	(N) AHFIG	TOWER	–	–	–	–	–	1	(N) HCS 2.0 PART 1	1	(N) HYBRID	1–1/2"	106'–0"
–	–	–	–	–	–	–	–	–	–	–	–	–	1	(N) HCS 2.0 PART 1	1	(N) HYBRID	1–1/2"	106'–0"
–	–	–	–	–	–	–	–	–	–	–	–	–	1	(N) COMMSCOPE HCS 2.0	1	(N) PENDANT	–	–
–	–	–	–	–	–	–	–	–	–	–	–	–	1	(N) COMMSCOPE HCS 2.0	1	(N) PENDANT	–	–
BETA																		
B1	L2500, N2500	(N) NOKIA AEHC	135°	56'–0"	1	(N) AHL0A	TOWER	–	–	–	–	–	–	–	1	(E) HYBRID	1–7/16"	106'–0"
B2	L600, N600, L700, L1900, N1900, G1900, L2100, N2100	(N) COMMSCOPE FFV–65C–R3–V1	135°	56'–0"	1	(N) AHFIG	TOWER	–	–	–	–	–	–	–	–	–	–	–
GAMMA																		
C1	L2500, N2500	(N) NOKIA AEHC	245°	56'–0"	1	(N) AHL0A	TOWER	–	–	–	–	–	–	–	1	(N) HYBRID	1–7/16"	106'–0"
C2	L600, N600, L700, L1900, N1900, G1900, L2100, N2100	(N) COMMSCOPE FFV–65C–R3–V1	245°	56'–0"	1	(N) AHFIG	TOWER	–	–	–	–	–	–	–	–	–	–	–
															0	(E) UNUSED	–	–
NOTE: (E) – EXISTING (N) – NEW																		

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4830 PAN AMERICAN FREEWAY, SUITE A  
ALBUQUERQUE, NM 87109

CROWN CASTLE

2055 S. STEARMAN DRIVE  
CHANDLER, AZ 85286

RAMAKER

employee-owned

(608) 643-4100    www.ramaker.com

PROJECT #: 52470

T-MOBILE SITE NUMBER:  
DN06164A

BU #: 877034  
USWW UTE PASS

LUCKY FOUR RANCH, WEST  
HWY 24  
GREEN MOUNTAIN FALLS,  
CO 80819

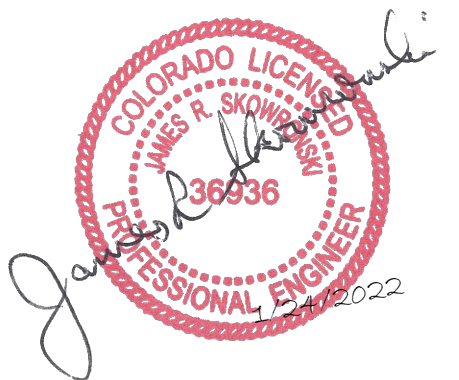
EXISTING 60'-2" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	08/17/2021	MDP	FINAL	JF
1	08/30/2021	AMW	REVISIONS	JF
2	01/24/2021	AMW	JDX UPDATE	JF

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COLORADO LICENSE  
JAMES R. SKOWM  
36636  
PROFESSIONAL ENGINEER  
08/2022



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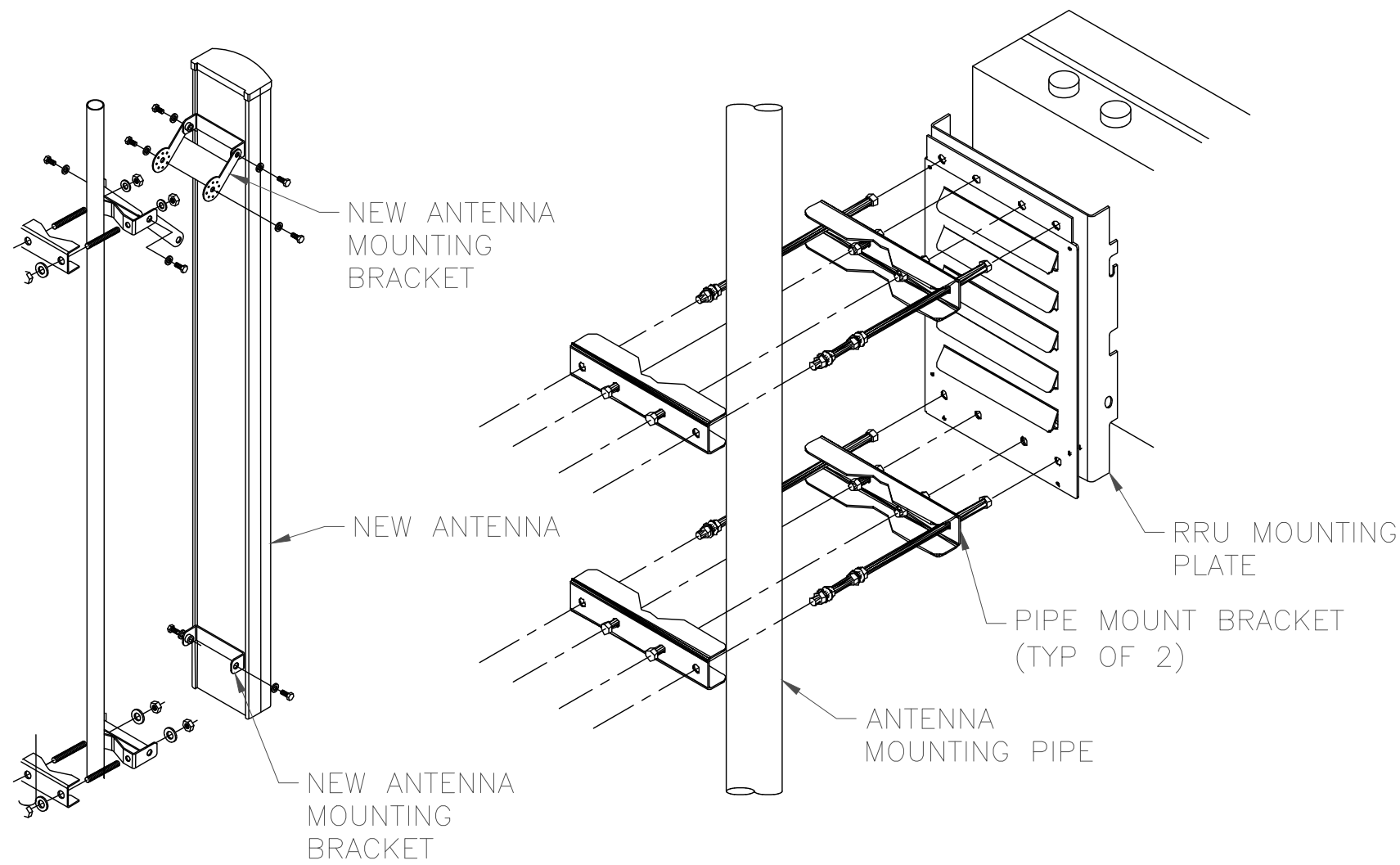
SHEET NUMBER:  
C-4

REVISION:  
2



INSTALLER NOTES:

1. COMPLY WITH MANUFACTURERS INSTRUCTIONS TO ENSURE THAT ALL RRUs RECEIVE ELECTRICAL POWER WITHIN 24 HOURS OF BEING REMOVED FROM THE MANUFACTURER'S PACKAGING.
2. DO NOT OPEN RRU PACKAGES IN THE RAIN.
3. ALL PIPES, BRACKETS AND MISCELLANEOUS HARDWARE TO BE GALVANIZED UNLESS NOTED OTHERWISE.



NOTE:  
ALL PIPES BRACKETS AND MISCELLANEOUS  
HARDWARE TO BE GALVANIZED UNLESS  
NOTED OTHERWISE

1 ANTENNA WITH RRH MOUNTING DETAIL  
SCALE: NOT TO SCALE



COMMSCOPE ANTENNA  
MODEL NUMBER: FFV-65C-R3-V1  
DIMENSIONS: 95.90" (HEIGHT) X 25.20" (WIDTH) X 9.30" (DEPTH)  
WEIGHT: 124.60 LBS.

2 COMMSCOPE ANTENNA  
SCALE: NOT TO SCALE



NOKIA ANTENNA  
MODEL NUMBER: AEHC  
DIMENSIONS: 35.43" (HEIGHT) X 22.83" (WIDTH) X 8.26" (DEPTH)  
WEIGHT: 99.20 LBS.

3 NOKIA AEHC ANTENNA  
SCALE: NOT TO SCALE



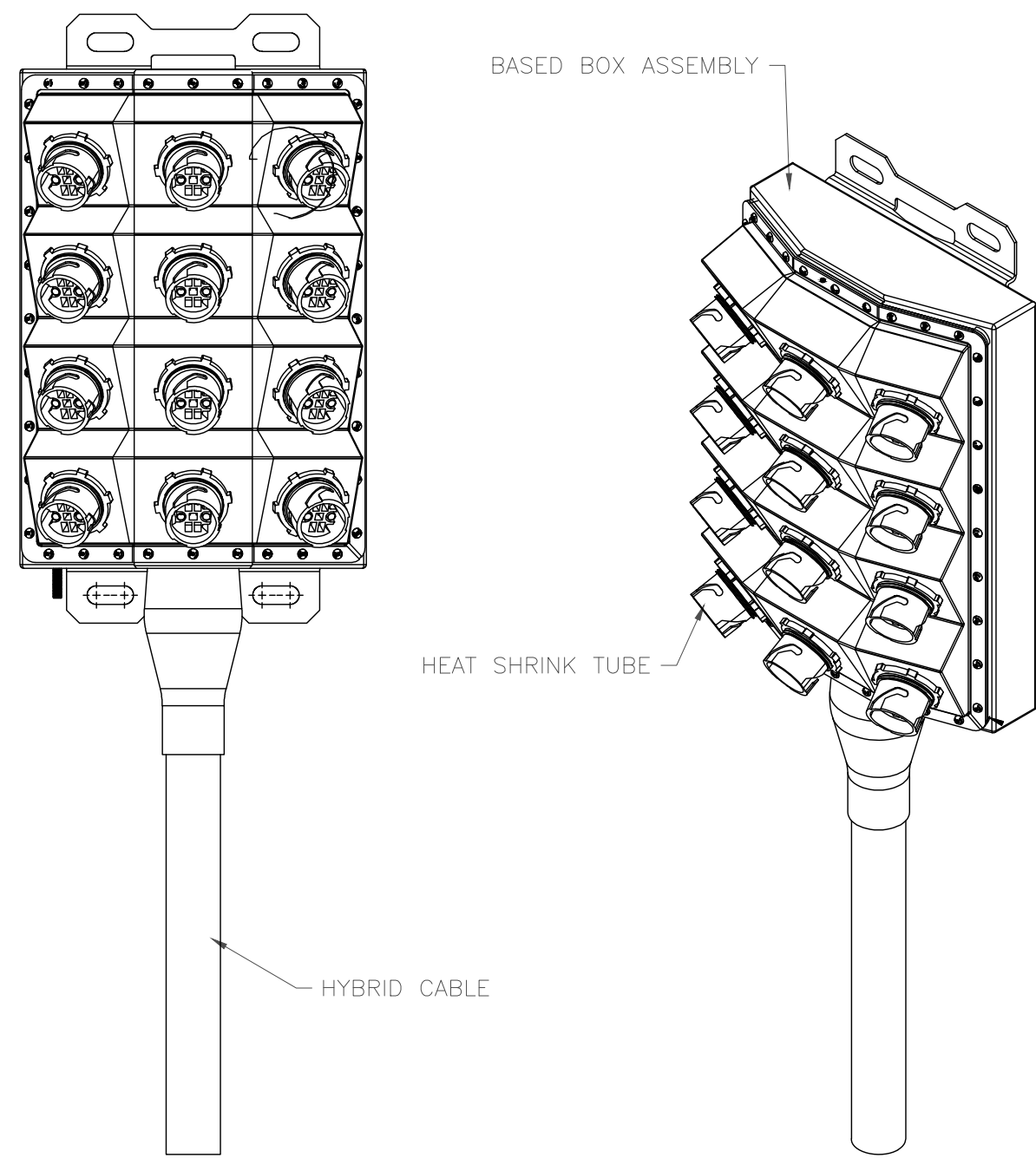
NOKIA RRH  
MODEL NUMBER: AHLOA  
DIMENSIONS: 26.60" (HEIGHT) X 12.90" (WIDTH) X 8.10" (DEPTH)  
WEIGHT: 83.80 LBS.

4 NOKIA RRH  
SCALE: NOT TO SCALE



NOKIA RRH  
MODEL NUMBER: AHFIG  
DIMENSIONS: 28.74" (HEIGHT) X 12.87" (WIDTH) X 5.59" (DEPTH)  
WEIGHT: 70.55 LBS.

5 NOKIA RRH  
SCALE: NOT TO SCALE



COMMSCOPE JUNCTION BOX  
MODEL NUMBER: HCS 2.0 PART 1  
DIMENSIONS: 14.00" (HEIGHT) X 16.00" (WIDTH) X 8.00" (DEPTH)  
WEIGHT: 23.5 LBS.

6 COMMSCOPE HCS 2.0 PART 1  
SCALE: NOT TO SCALE

T-Mobile

4830 PAN AMERICAN FREEWAY, SUITE A  
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CROWN  
CASTLE

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employee-owned  
(608) 643-4100 www.ramaker.com  
PROJECT #: 52470

T-MOBILE SITE NUMBER:  
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BU #: 877034  
USWW UTE PASS

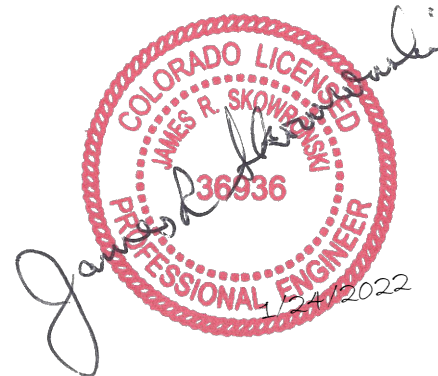
LUCKY FOUR RANCH, WEST  
HWY 24  
GREEN MOUNTAIN FALLS,  
CO 80819

EXISTING 60'-2" MONOPOLE

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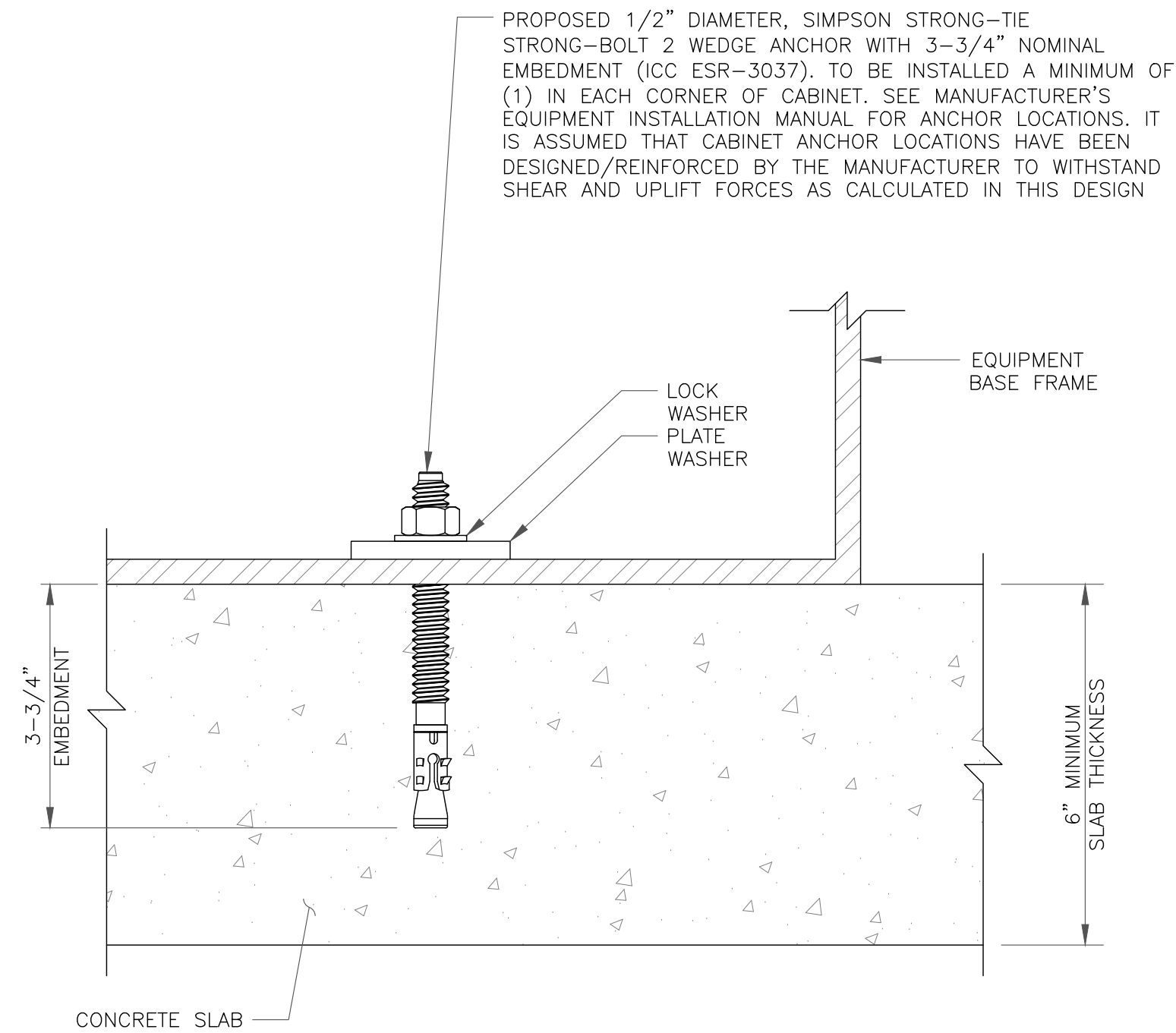
SHEET NUMBER:

C-5

REVISION:

2





1 CABINET ANCHOR DETAIL  
SCALE: NOT TO SCALE

2 NOT USED  
SCALE: NOT TO SCALE

3 NOT USED  
SCALE: NOT TO SCALE

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JAMES R. SKIDMORE  
36936  
PROFESSIONAL ENGINEER  
01/2022

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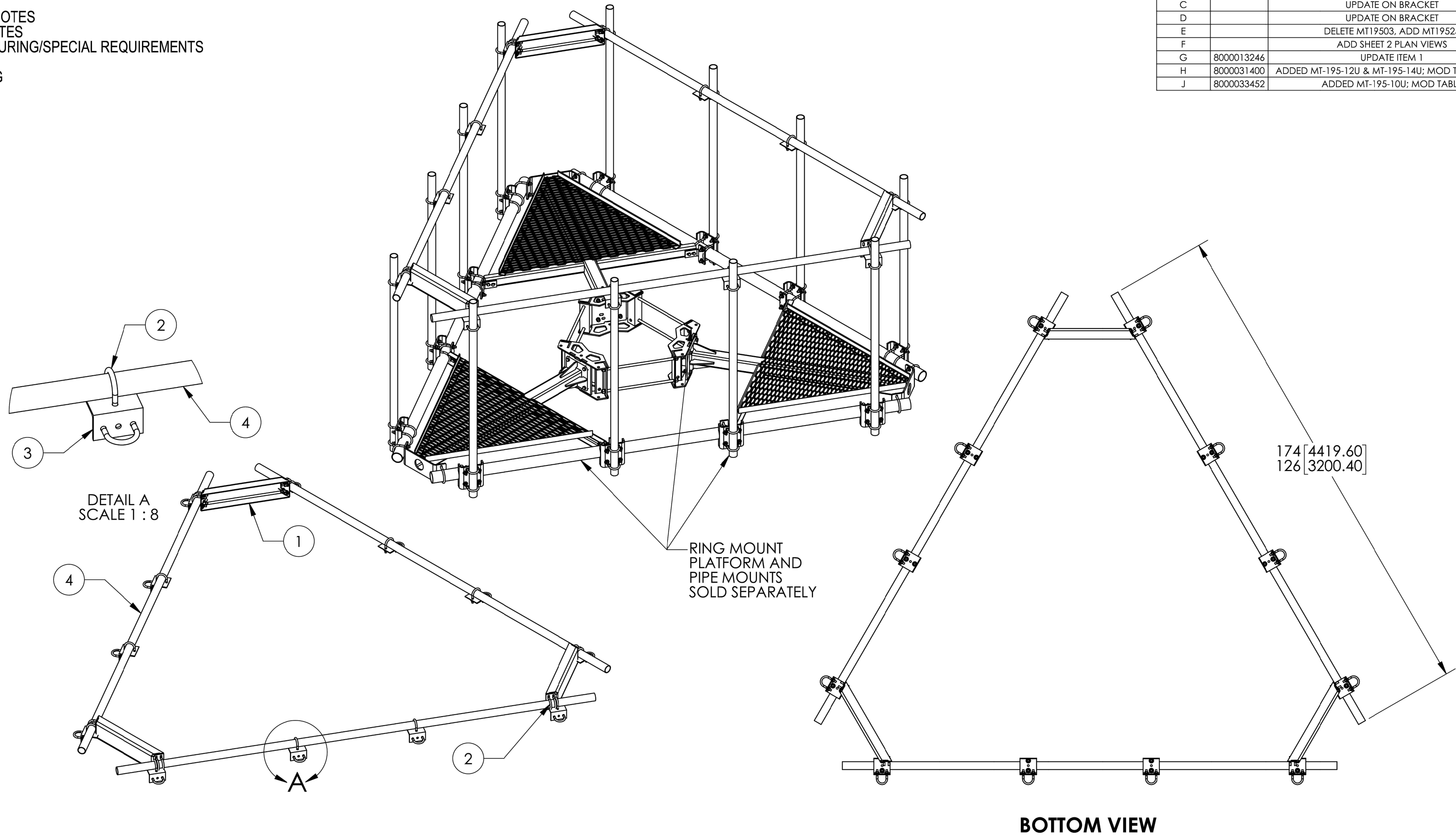
REVISION:

2



- NOTES:
- 1.0 GENERAL NOTES
  - 2.0 DESIGN NOTES
  - 3.0 MANUFACTURING/SPECIAL REQUIREMENTS
  - 4.0 TEST
  - 5.0 PACKAGING

REVISIONS				
REV.	ZONE	DESCRIPTION	BY	DATE
C		UPDATE ON BRACKET	DI	01/19/05
D		UPDATE ON BRACKET	AG	04/27/05
E		DELETE MT19503, ADD MT19525	MSM	05/16/12
F		ADD SHEET 2 PLAN VIEWS	MSM	05/08/14
G	8000013246	UPDATE ITEM 1	CEB	3/28/2016
H	8000031400	ADDED MT-195-12U & MT-195-14U; MOD TABLE & SH 2	RJC	09/24/18
J	8000033452	ADDED MT-195-10U; MOD TABLE	RJC	01/14/19

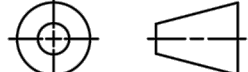


MT-195-12 SHOWN

ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT	NOTE NO.
1	MT19525	CORNER WELDMENT FOR MT-195	3	16.89 LBS	
2	GUB-4240	1/2" X 2-1/2" X 4" GALV U-BOLT	36	0.56 LBS	
3	XA2020.01	ANTENNA MOUNT ANGLE	12	2.65 LBS	
4	MT-651-150	PIPE, 2-3/8"OD X 150" GALV	3	36.01 LBS	

PART NUMBER	PIPE	DESCRIPTION	HARDWARE KIT	WEIGHT
MT-195-12	MT-651-150	TOP MOUNT KIT, 12' PLATFORM	MT195HK	240.29 LBS
MT-195-14	MT-537-174	TOP MOUNT KIT, 14' PLATFORM	MT195HK	255.73 LBS
MT-195-10U	MT-537	TOP MOUNT KIT, 10' PLATFORM W/ XA-U	MT195UHK	222.54 LBS
MT-195-12U	MT-651-150	TOP MOUNT KIT, 12' PLATFORM W/ XA-U	MT195UHK	244.66 LBS
MT-195-14U	MT-537-174	TOP MOUNT KIT, 14' PLATFORM W/ XA-U	MT195UHK	260.10 LBS

DENSITY	lbs/in³
MASS	lbs
VOLUME	in³
SURFACE AREA	in²
HEIGHT	
LENGTH	
WIDTH	

COMMSCOPE, INC. OF NORTH CAROLINA									
TOLERANCES					SAP MATERIAL MASTER				
1 PLACE .X ± .25					3 PLACE .XXX ± 0.06				
2 PLACE .XX ± 0.12					ANGLES ± 2°				
FINISH GALV A123					MATERIAL A1011, A500				
UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES INTERPRET PER ANSI Y 14.5M-1984		NAME	DATE	TOP MOUNT KIT SERIES					
	CE	DI	01/09/05						
	RW	BCAMPBELLCON	01/15/2019						
	RV								
	AD	RD1048	01/15/2019						
	RE	RD1048	01/28/2019	SCALE	DOCUMENT NO.				
	ECN 008000033452			1:25	MT-195-SERIES				
	SIZE	WORK AREA 24		MODEL			DRAWING		
C		VERSION	STATUS	REVISION	VERSION	STATUS	REVISION		
		02	RE	J	04	RE			

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CASTLE

2055 S. STEARMAN DRIVE  
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RAMAKER

employee-owned  
(608) 643-4100 www.ramaker.com  
PROJECT #: 52470

T-MOBILE SITE NUMBER:  
DN06164A

BU #: 877034  
USWW UTE PASS

LUCKY FOUR RANCH, WEST  
HWY 24  
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CO 80819

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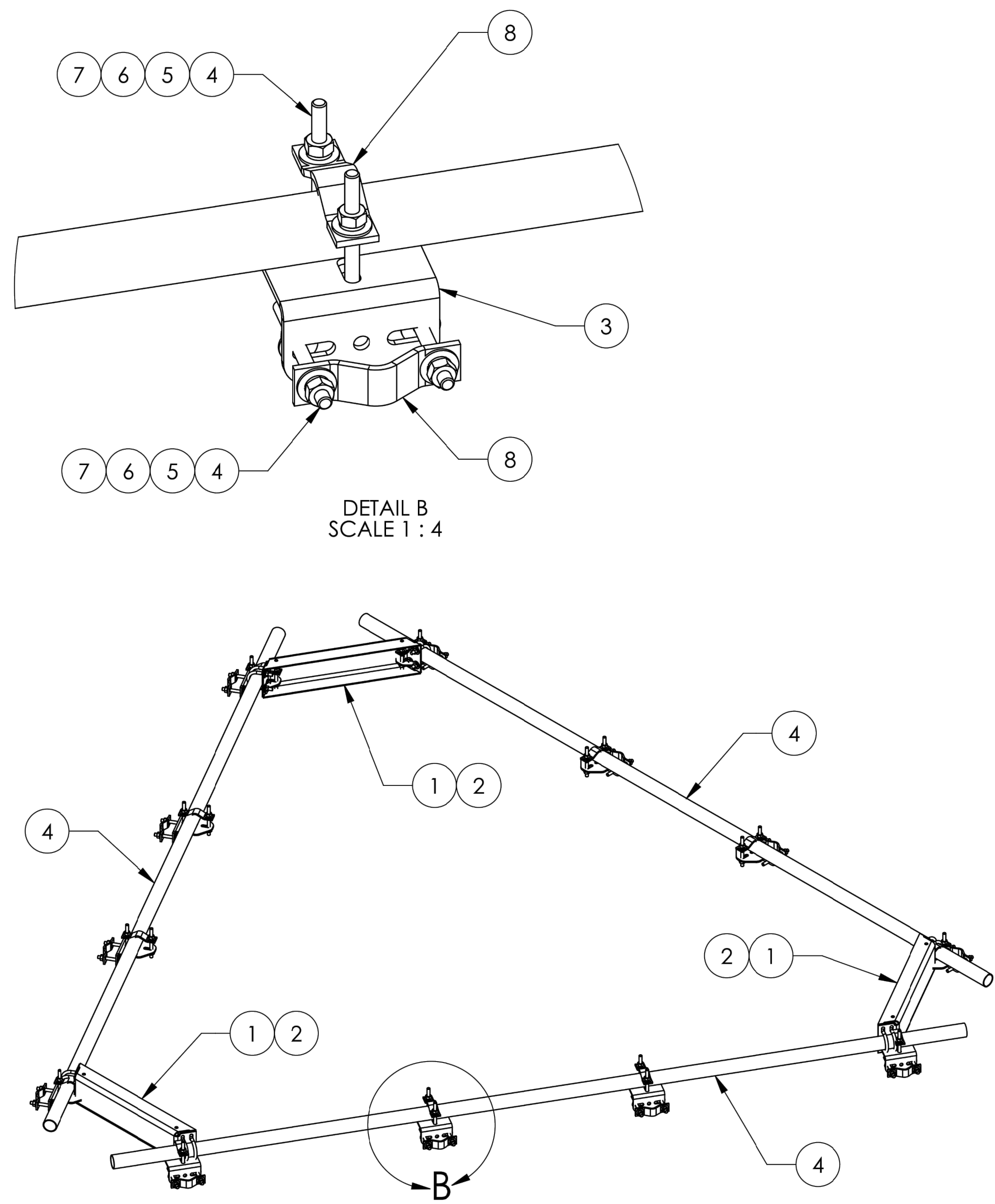
C-7.1

REVISION:

2

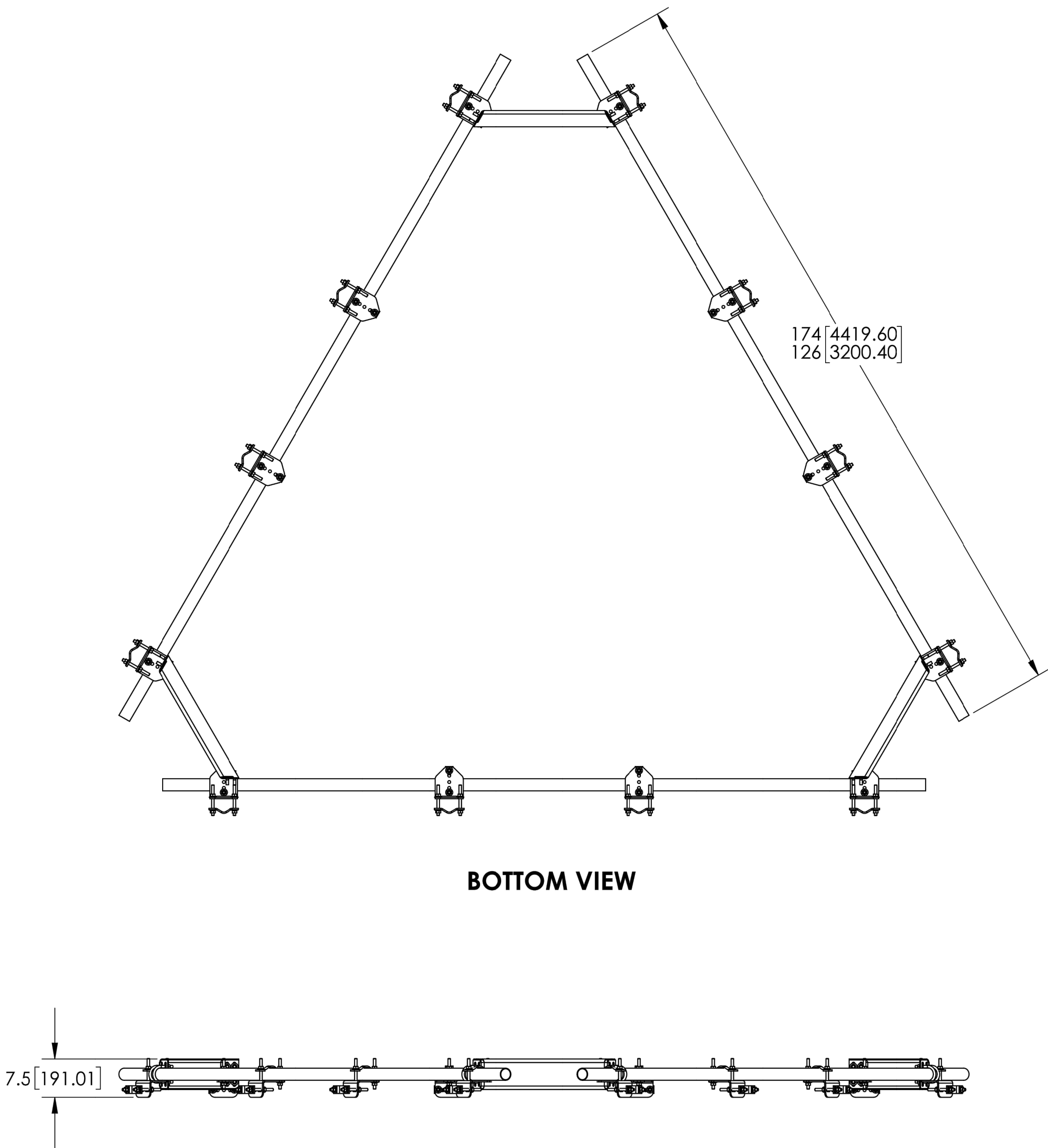


NOTES:



MT-195-12U SHOWN

ITEM	PART NO.	DESCRIPTION	QTY.	WEIGHT	NOTE NO.
1	MT19525	CORNER WELDMENT FOR MT-195	3	16.89 LBS	
2	GUB-4240	1/2" X 2-1/2" X 4" GALV U-BOLT	12	0.56 LBS	
3	XAU01	ANGLE, CROSSOVER, 1.9-3.5" X 1.9-3.5" OD	12	2.98 LBS	
4	MT-379-6	1/2" X 6" GALV THREADED ROD	48	0.33 LBS	
5	GWF-04	1/2" GALV FLAT WASHER	96	0.03 LBS	
6	GWL-04	1/2" GALV LOCK WASHER	96	0.01 LBS	
7	GN-04A	1/2" GALV HEX NUT (A194 2H)	96	0.07 LBS	
8	ACP10	1.5" - 3.5" O.D. CLAMP HALF	24	0.61 LBS	
9	MT-651-150	PIPE, 2-3/8"OD X 150" GALV	3	36.01 LBS	



COMMScope, INC. OF NORTH CAROLINA				
TITLE				
TOP MOUNT KIT SERIES				
SIZE	SCALE	DOCUMENT NO.		
C	1:20	MT-195-SERIES		
		DRAWING		
		VERSION	STATUS	REVISION
		04	RE	
				SHEET 2 OF 2

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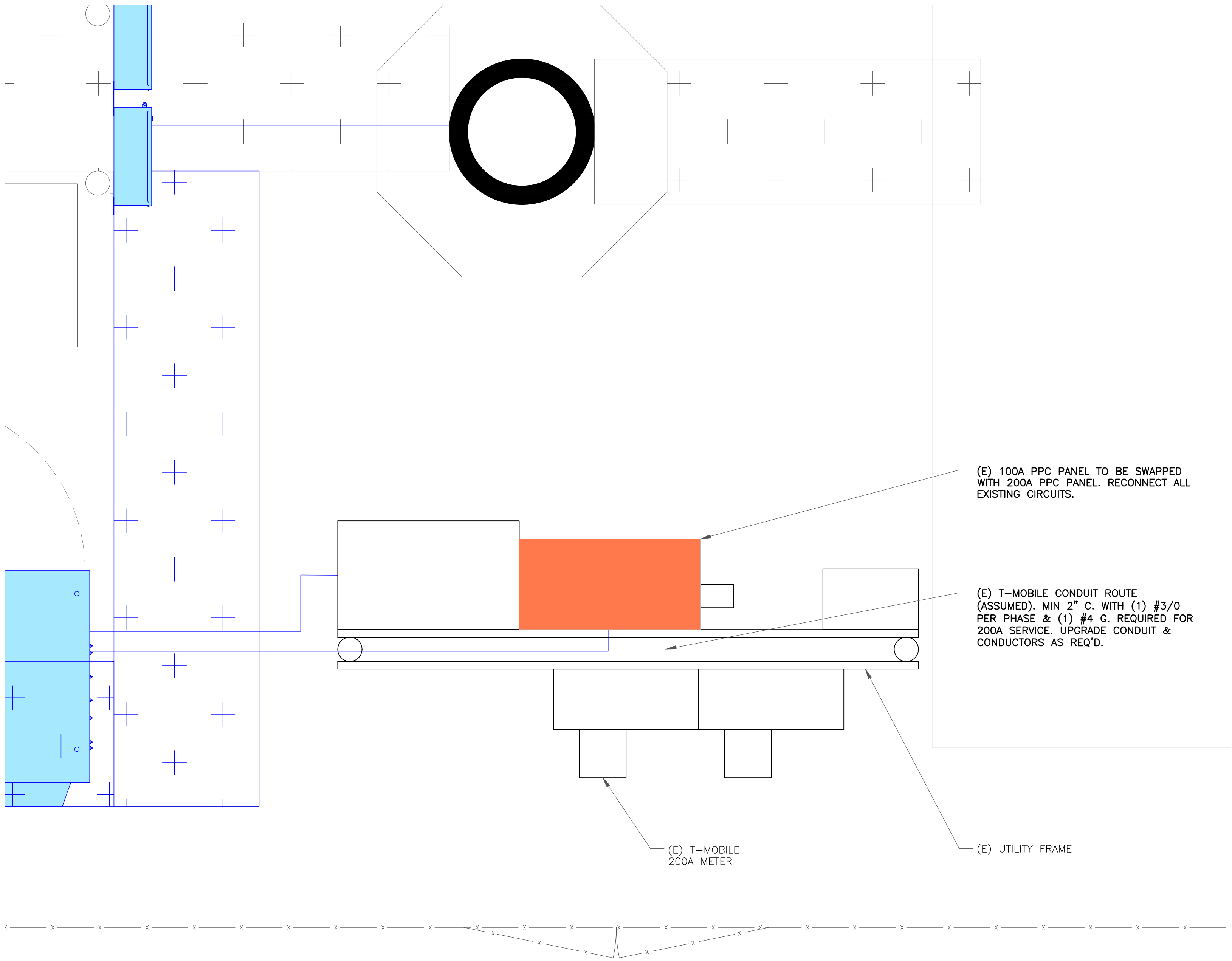
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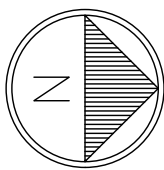
REVISION:

2



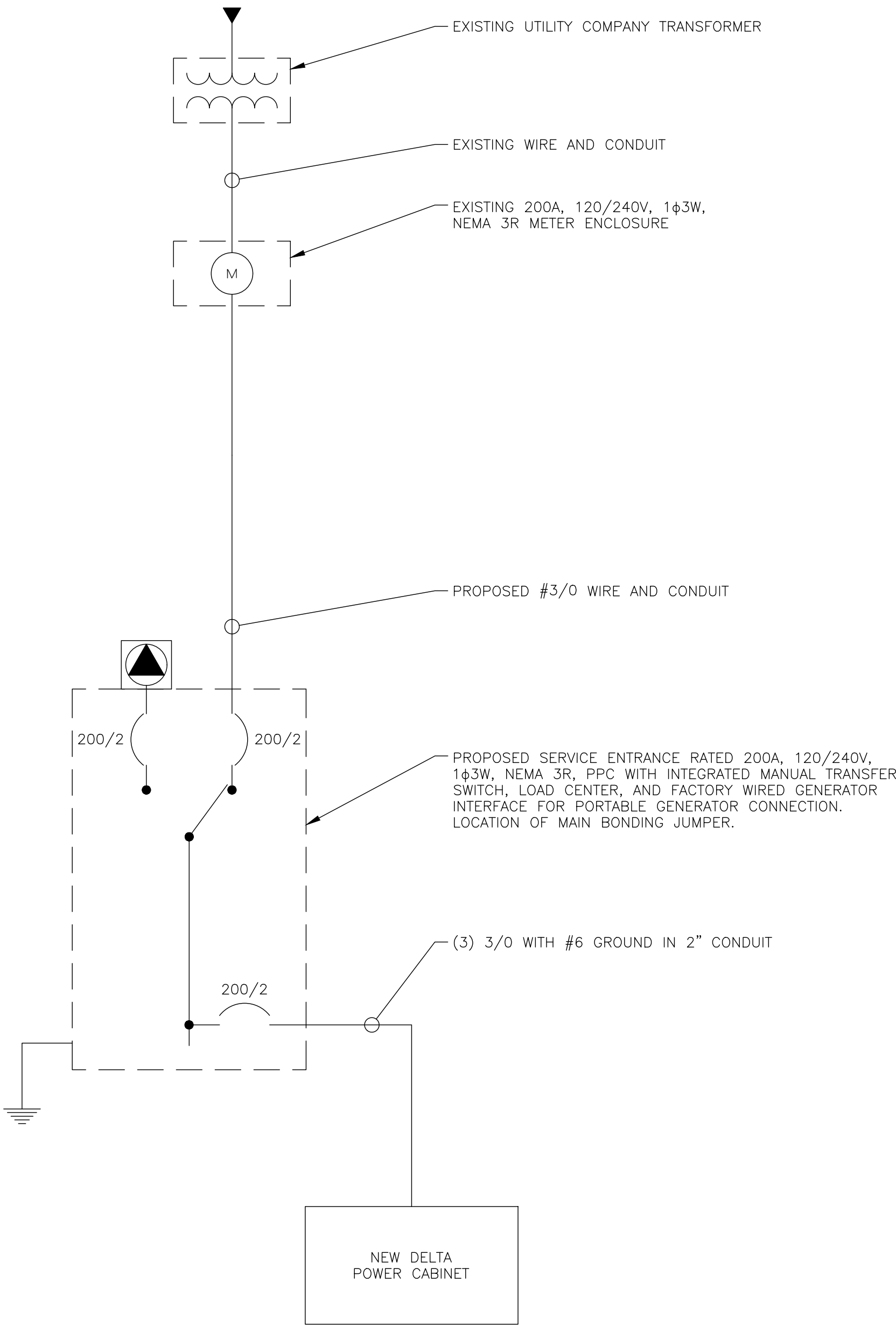


1 OVERALL SITE PLAN  
SCALE: 1"=1'-0" (FULL SIZE)  
1/2"=1'-0" (11x17)



NOTES:

- ALL NEW CONDUCTORS TO BE INSTALLED SHALL BE COPPER. ALL CONDUCTORS SHALL BE THHW, THWN, THWN-2, XHHW, OR XHHW-2 UNLESS NOTED OTHERWISE.
- CONTRACTOR IS TO FIELD VERIFY ALL EXISTING ITEMS SHOWN ON THE ELECTRICAL ONE-LINE DIAGRAM AND NOTIFY THE ENGINEER OF ANY DISCREPANCIES.
- ALL GROUNDING AND BONDING PER THE NEC.



2 ONE LINE DIAGRAM  
SCALE: NOT TO SCALE

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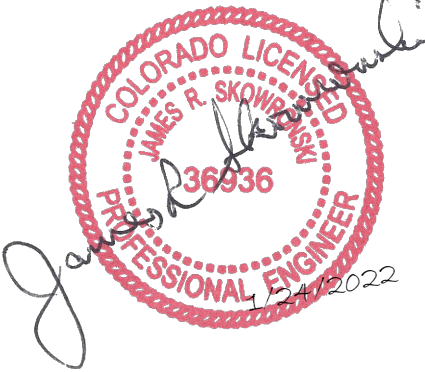
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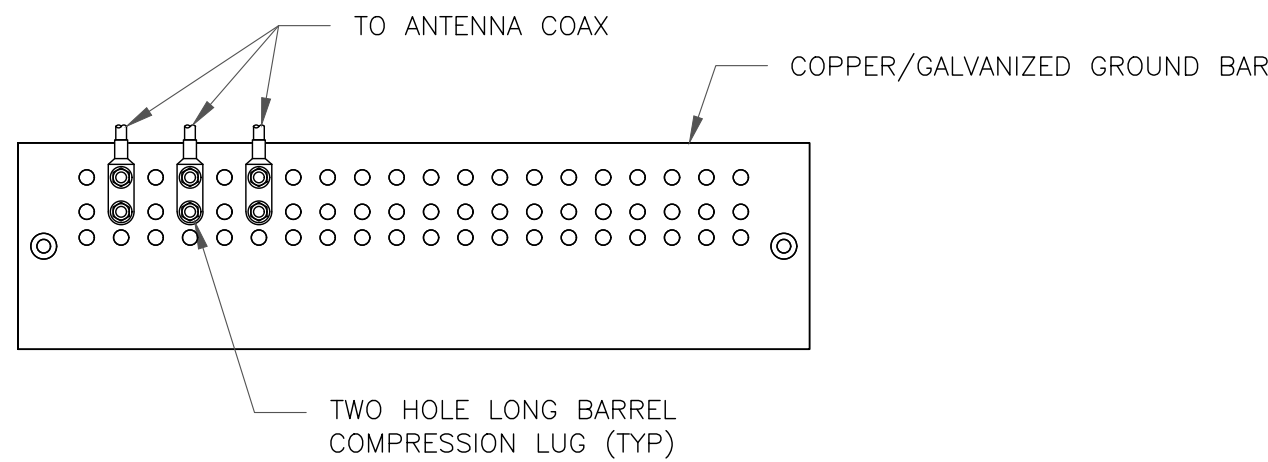
SHEET NUMBER:

E-1

REVISION:

2

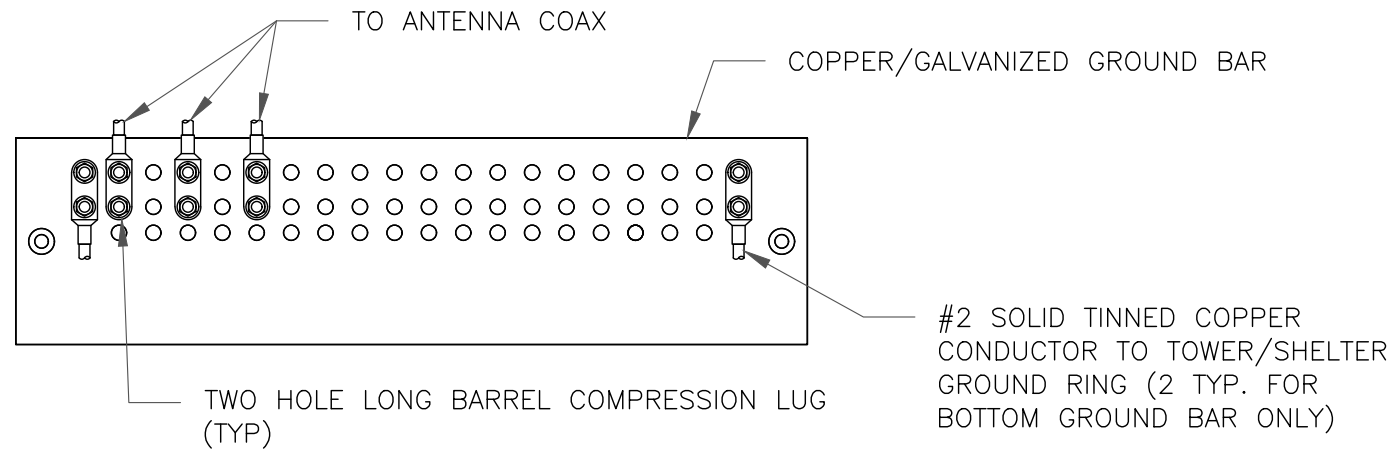




NOTES:

1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL.

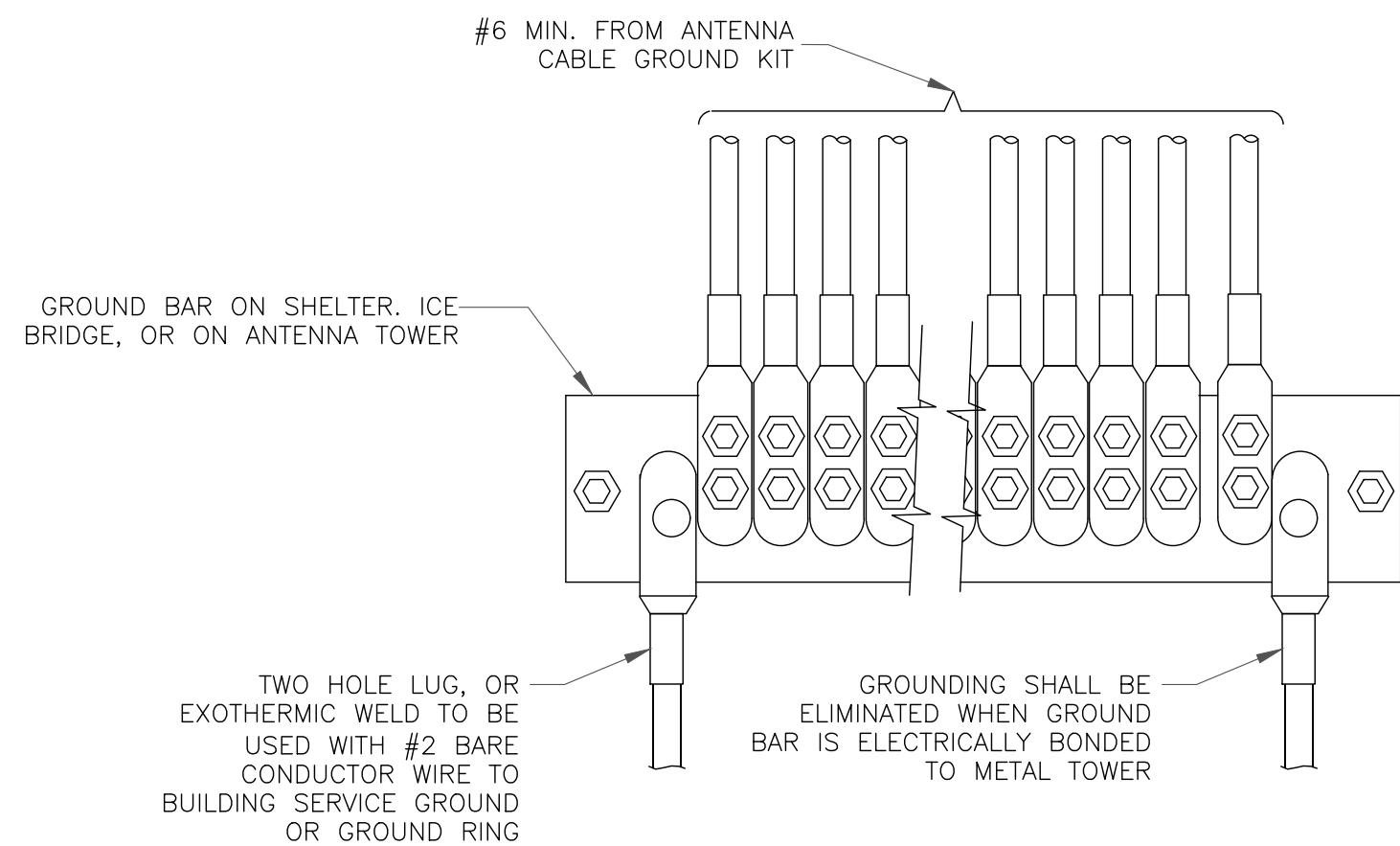
1 ANTENNA GROUND BAR DETAIL  
SCALE: NOT TO SCALE



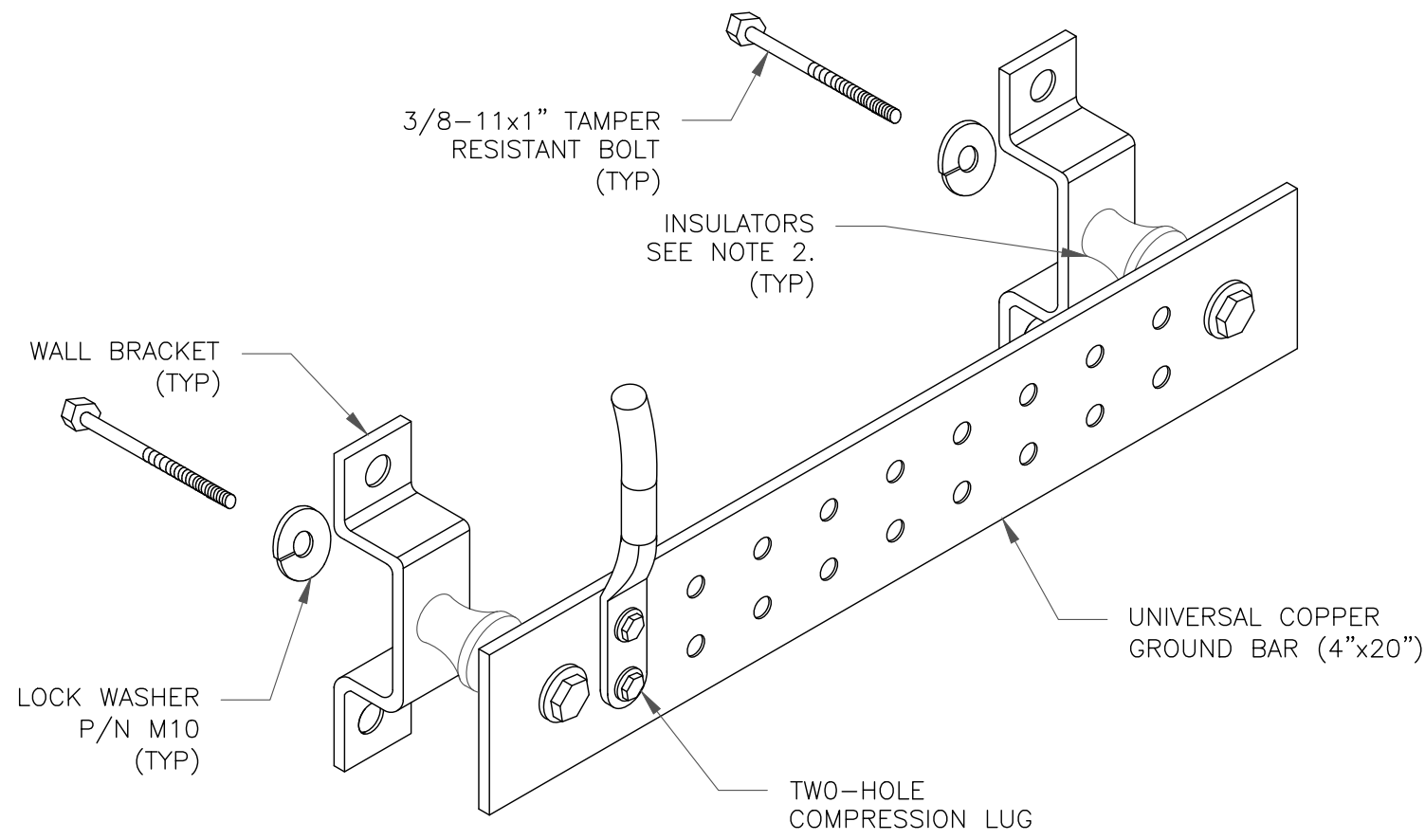
NOTES:

1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

2 TOWER/SHELTER GROUND BAR DETAIL  
SCALE: NOT TO SCALE



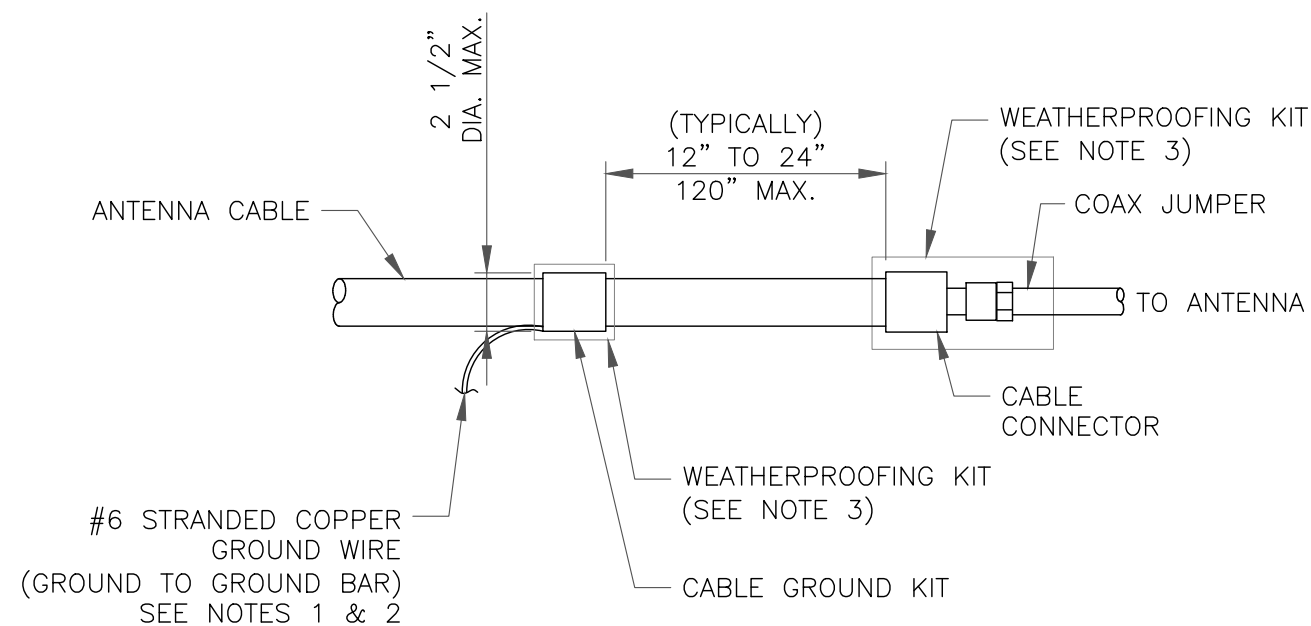
4 GROUNDWIRE INSTALLATION  
SCALE: NOT TO SCALE



NOTES:

1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
2. OMIT INSULATOR WHEN MOUNTING TO TOWER STEEL OR PLATFORM STEEL. USE INSULATORS WHEN ATTACHING TO BUILDING OR SHELTERS.

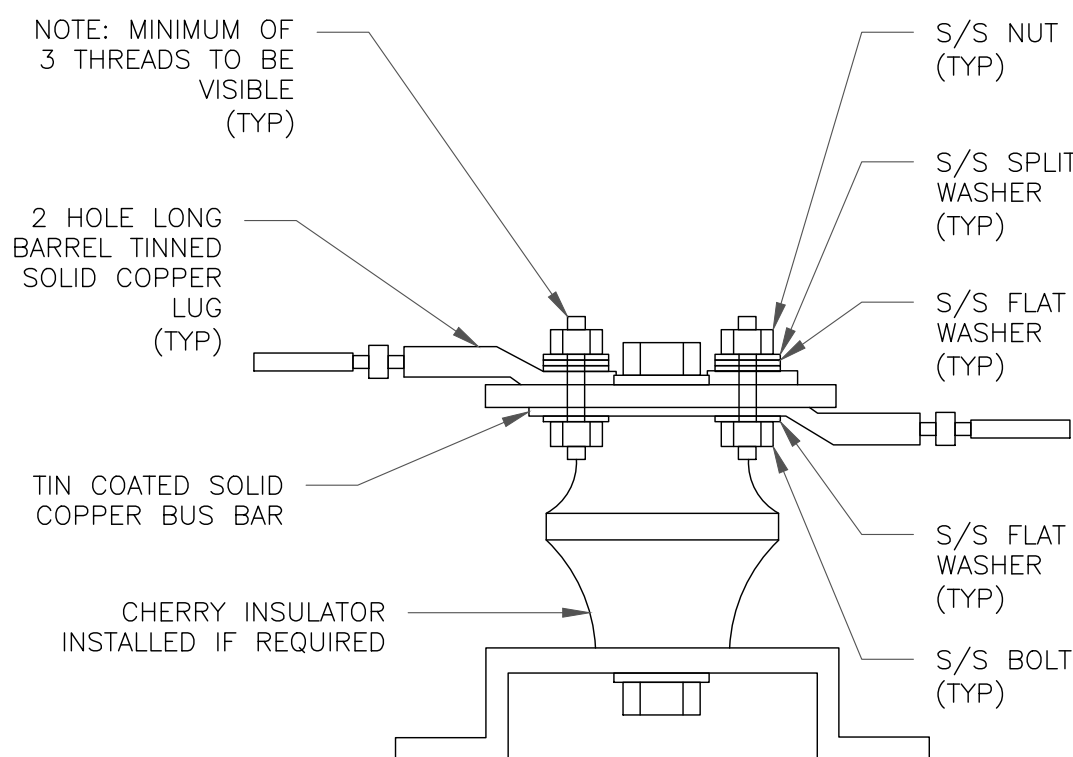
5 GROUND BAR DETAIL  
SCALE: NOT TO SCALE



NOTES:

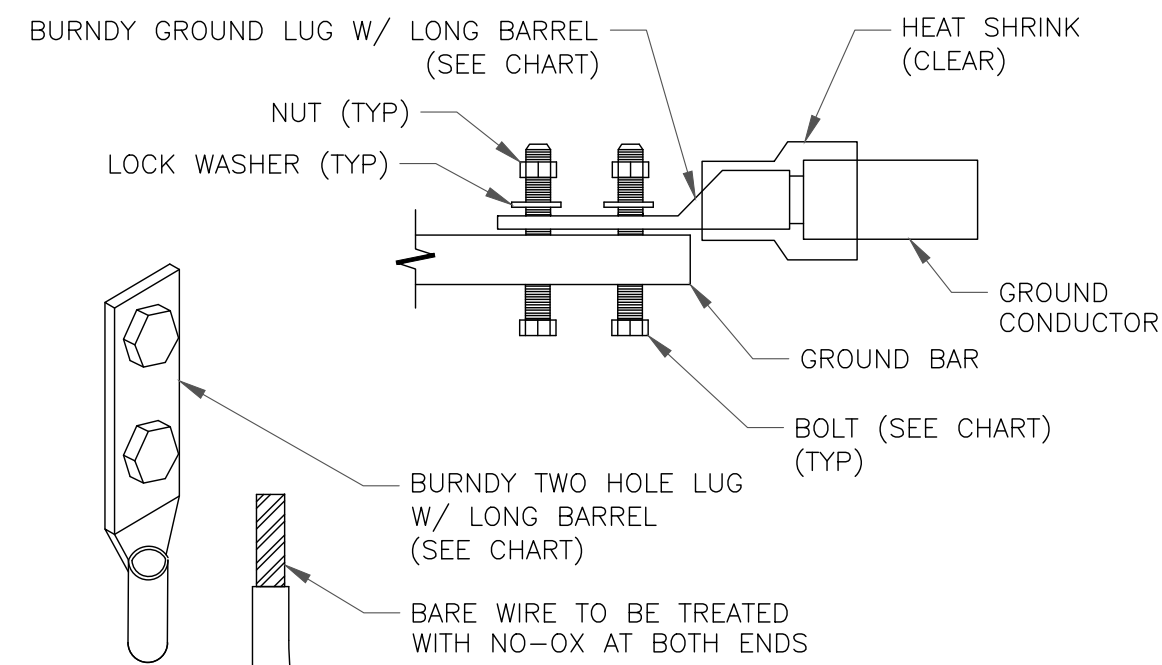
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

6 CABLE GROUND KIT CONNECTION  
SCALE: NOT TO SCALE



7 LUG DETAIL  
SCALE: NOT TO SCALE

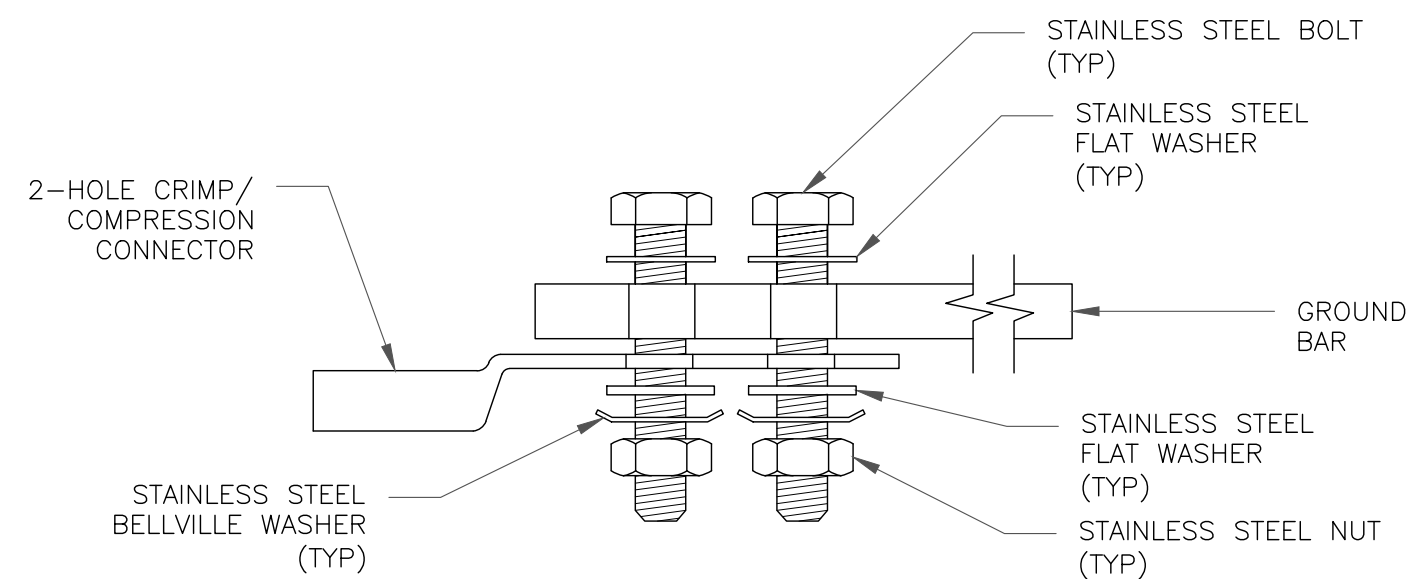
WIRE SIZE	BURNDY LUG	BOLT SIZE
#6 GREEN INSULATED	YA6C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 SOLID TINNED	YA3C-2TC38	3/8" - 16 NC SS 2 BOLT
#2 STRANDED	YA2C-2TC38	3/8" - 16 NC SS 2 BOLT
#2/0 STRANDED	YA26-2TC38	3/8" - 16 NC SS 2 BOLT
#4/0 STRANDED	YA28-2N	1/2" - 16 NC SS 2 BOLT



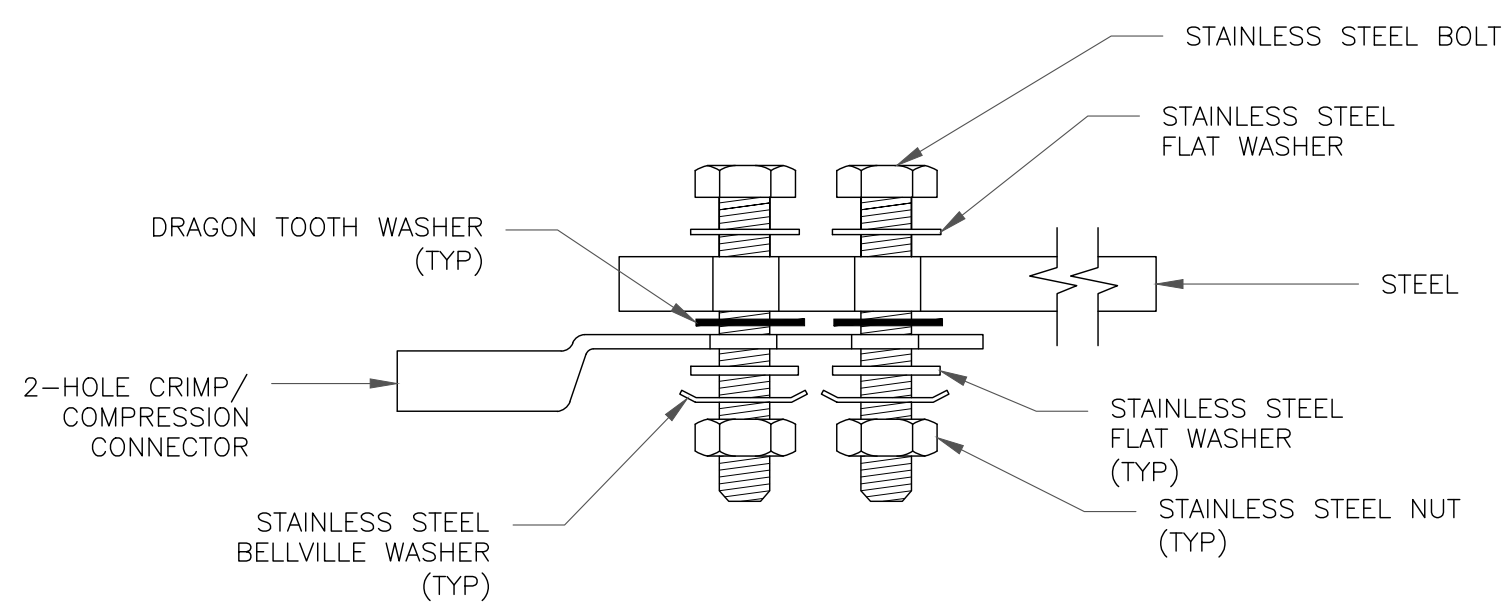
NOTE:

ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.

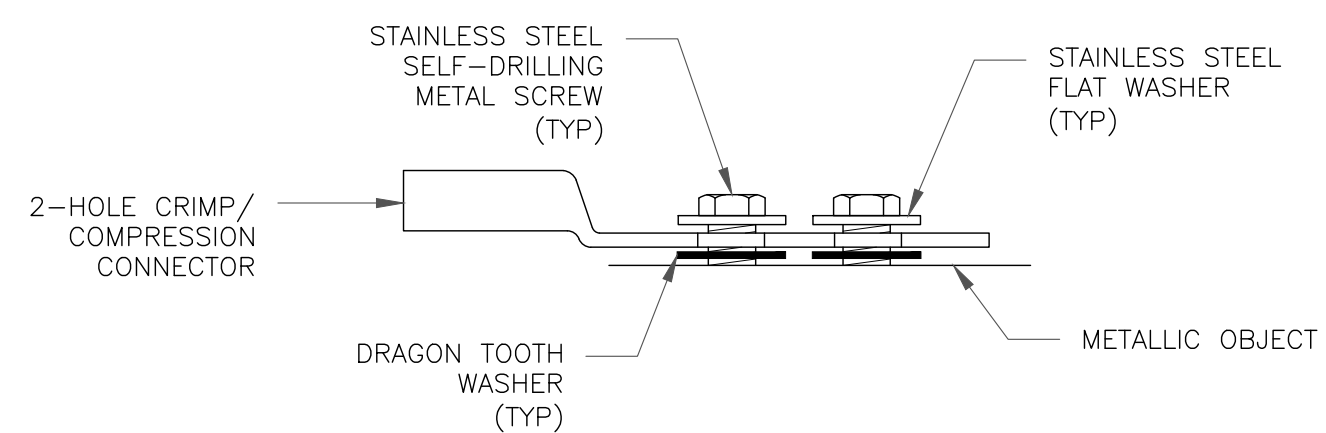
3 MECHANICAL LUG CONNECTION  
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS



SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

8 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS  
SCALE: NOT TO SCALE

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2055 S. STEARMAN DRIVE  
CHANDLER, AZ 85286

**RAMAKER**  
employee-owned  
(608) 643-4100 www.ramaker.com  
PROJECT #: 52470

T-MOBILE SITE NUMBER:  
**DN06164A**

BU #: **877034**  
**USWW UTE PASS**

LUCKY FOUR RANCH, WEST  
HWY 24  
GREEN MOUNTAIN FALLS,  
CO 80819

EXISTING 60'-2" MONOPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
0	08/17/2021	MDP	FINAL	JF
1	08/30/2021	AMW	REVISIONS	JF
2	01/24/2021	AMW	JDX UPDATE	JF

I hereby certify that this plan, specification, or report was prepared by me or under my direct supervision and that I am a duly Licensed Professional Engineer under the laws of the State of Colorado.



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:

**G-1**

REVISION:

**2**



Configuration 56790EZ\_SR\_T

\* For 5G and LTE Airscale BB dimensioning refer to Fiber Port matrices.  
(Alpha, Beta & Gamma)

