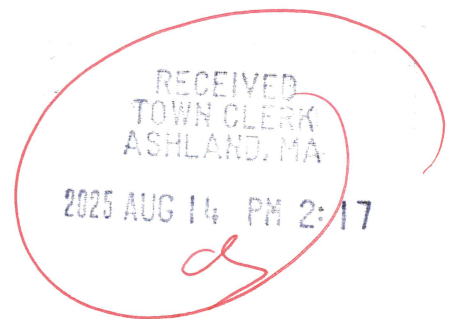


THE COMPOUND AUDIT WAS COMPLETED ON 02/07/2024. THE CONSTRUCTION DRAWING REFLECTS CONDITIONS AT TIME OF AUDIT.

T Mobile



T-MOBILE SITE NUMBER: 4BN0510A
T-MOBILE SITE NAME: BN510/OREGON CLUB
T-MOBILE PROJECT: ANCHOR
T-MOBILE TEMPLATE: RAN-TEMPLATE-67G5C998G6160

BUSINESS UNIT #: 822710
SITE ADDRESS: 117 OREGON RD
 ASHLAND, MA 01721
COUNTY: MIDDLESEX
SITE TYPE: CONCEALMENT FLAGPOLE
TOWER HEIGHT: 75'-0"

T Mobile



T-MOBILE SITE NUMBER:
4BN0510A

BU #: 822710
CROWN CASTLE SITE NAME:
BN510/OREGON CLUB

 117 OREGON RD
 ASHLAND, MA 01721

EXISTING 75'-0"
CONCEALMENT FLAGPOLE

SITE INFORMATION	
CROWN CASTLE USA INC. SITE NAME: BU NUMBER:	BN510/OREGON CLUB 822710
TOWER OWNER:	CROWN CASTLE 2000 CORPORATE DRIVE CANONSBURG, PA 15317
CARRIER/APPLICANT:	T-MOBILE 15 COMMERCE WAY NORTON, MA 02766
SITE ADDRESS:	117 OREGON RD ASHLAND, MA 01721 MIDDLESEX
LATITUDE: LONGITUDE: LAT/LONG TYPE: GROUND ELEVATION:	42° 17' 05.30" / 42.284798° -71° 29' 26.60" / -71.490710° NAD83 308'+/- AMSL
AREA OF CONSTRUCTION: CURRENT ZONING: MAP/PARCEL #:	EXISTING RESIDENTIAL A (RA) 014/001.0-0038-0000.0
OCCUPANCY CLASSIFICATION: TYPE OF CONSTRUCTION: A.D.A. COMPLIANCE:	U IIB FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION
PROPERTY OWNER:	BRIASCO JOHN J TR JOHN BRIASCO RLTY TR 105 OREGON RD ASHLAND, MA 01721
JURISDICTION:	TOWN OF ASHLAND 101 MAIN STREET, 2ND FLOOR ASHLAND, MA 01721
ELECTRIC PROVIDER:	NSTAR (800) 572-9337
TELCO PROVIDER:	COMCAST (800) 934-6489

DRAWING INDEX	
SHEET #	SHEET DESCRIPTION
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T-2	GENERAL NOTES
C-1.1	COMPOUND PLAN
C-1.2	EXISTING EQUIPMENT PLAN
C-1.3	FINAL EQUIPMENT PLAN
C-2	TOWER ELEVATIONS
C-3	ANTENNA PLANS
C-4	FINAL EQUIPMENT SCHEDULE
C-5	TOWER EQUIPMENT DETAILS & SPECIFICATIONS
C-5.1	TOWER EQUIPMENT DETAILS & SPECIFICATIONS
C-6.1	ENCLOSURE CLEARANCES
C-6.2	SITE SUPPORT CABINET SPECIFICATIONS
C-6.3	BATTERY CABINET SPECIFICATIONS
C-6.4	GROUND EQUIPMENT DETAILS
E-1	PANEL SCHEDULES & ONE-LINE DIAGRAM
E-2	ELECTRICAL DETAILS
G-1	TYPICAL GROUNDING SCHEMATIC
G-2	GROUNDING DETAILS
G-3	GROUNDING DETAILS
ATTACHED	RFDS
ATTACHED	MOUNT SPECIFICATION

PROJECT DESCRIPTION

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

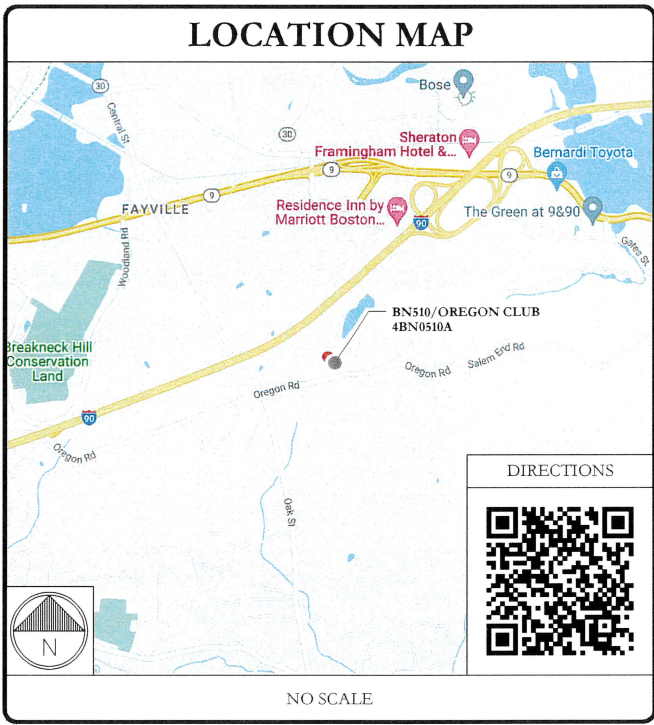
TOWER SCOPE OF WORK:

- REMOVE (6) RFS - APX16DWV-16DWV-S-E-A20 ANTENNAS
- REMOVE (6) ERICSSON - KRY 112 89/1 TMA's
- REMOVE (6) ERICSSON - KRY 112 114/1 TMA's
- REUSE (12) COAX CABLES
- INSTALL (2) COMMSCOPE - MTC3713 COLLAR MOUNTS
- INSTALL (3) COMMSCOPE - VV-65B-R1 ANTENNAS 71'-0" LEVEL
- INSTALL (3) COMMSCOPE - ATSBT-TOP-MF-4G BIAS Ts AT 71'-0" LEVEL
- INSTALL (3) COMMSCOPE - FVV-65B-R3 ANTENNAS 61'-0" LEVEL
- INSTALL (3) COMMSCOPE - ATSBT-TOP-MF-4G BIAS Ts AT 61'-0" LEVEL
- INSTALL (6) ANDREW - LDF5-50A CABLES

GROUND SCOPE OF WORK:

- REMOVE (1) RBS 3106 CABINET
- REMOVE (1) RBS 6102 CABINET
- REMOVE (1) RBS 2106 CABINET
- REMOVE (1) BB 5216, (1) DUG20, (2) DUW30, (6) RUS01 B2 RADIOS AND (6) RUS01 B4 RADIOS
- INSTALL (1) ERICSSON - 6160 AC V2 CABINET
- INSTALL (1) ERICSSON - B160 BATTERY CABINET
- INSTALL (1) PURCELL (AAV) CABINET
- INSTALL (1) H-FRAME W/ (1) SLACK BOX
- INSTALL (2) RP 6651 AND (1) CSR IXRE V2 (GEN2)
- INSTALL (3) ERICSSON - 4460 B25+B66 RADIOS
- INSTALL (3) ERICSSON - 4480 B71+B85 RADIOS
- INSTALL (2) ERICSSON - 8863 B41 RADIOS
- INSTALL (3) MICRODATA - QUAD (8.4) B66/B25 + B41 DIPLEXER - MI-54844 DIPLEXERS
- INSTALL 6'-0" LONG UNISTRUT KIT
- INSTALL LED FLOOD LIGHT W/ TIMER
- INSTALL (2) 6/24 4AWG HYBRID TRUNKS (FROM RADIO TO CABINET)

EXISTING T-MOBILE ELECTRIC SERVICE:
 METER AND DISCONNECT: 200A 120/240V~3PH
 PPC: NORTHERN TECHNOLOGIES 200A 120/240V~3PH, FAULT CURRENT RATING 10kA, 200A GENERATOR PLUG, 200A MAXIMUM BRANCH CIRCUIT SIZE & 24 AC BREAKER POSITIONS.



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	2021 IBC / 10TH ED MA BUILDING CODE (780 CMR)
MECHANICAL	2021 IMC / 10TH ED MA BUILDING CODE (780 CMR)
ELECTRICAL	2023 NEC /MA ELECTRICAL CODE (527 CMR 12.00)

REFERENCE DOCUMENTS:

STRUCTURAL ANALYSIS:	CROWN CASTLE
DATED:	7/31/25
RFDS REVISION:	10
DATED:	03/04/25
ORDER ID:	657779
REVISION:	6

INSTALLER NOTE:
 TOWER DOES NOT HAVE CLIMBING FACILITIES - MANLIFT REQUIRED FOR ELEVATED WORK

PROJECT TEAM

A&E FIRM: B+T GROUP
 1717 S. BOULDER AVE.
 TULSA, OK 74119
 BRAYDEN SHIELDS
 BRAYDEN.SHIELDS@BTGRP.COM

CROWN CASTLE USA INC. DISTRICT CONTACTS:
 12 GILL STREET, SUITE 5800
 WOBURN, MA 01801
 TRICIA PELON - PROJECT MANAGER
 TRICIA.PELON@CROWNCastle.COM
 ISRAEL CAREY - CONSTRUCTION MANAGER
 ISRAEL.CAREY@CROWNCastle.COM
 DANIEL ANDERSON - AES
 DANIEL.ANDERSON@CROWNCastle.COM

PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE CROWN NOC AT (800) 788-7011 & CROWN CONSTRUCTION MANAGER.

ALL DRAWINGS CONTAINED HEREIN ARE FORMATTED FOR FULL 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.

CALL MASSACHUSETTS ONE CALL (888) 344-7233 CALL 3 WORKING DAYS BEFORE YOU DIG!

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
1	5/28/25	YX	CONSTRUCTION	LR
2	7/11/25	YX	CONSTRUCTION	TDG
3	7/29/25	YX	CORRECTION	TDG
4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR

B&T ENGINEERING, INC.

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: 5

T-MOBILE - NATIONAL - ANCHOR

CROWN CASTLE USA INC. SITE ACTIVITY REQUIREMENTS:

- 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.
- "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.
- 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.
- 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).
- 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.
- 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.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- THE CONTRACTOR SHALL CONTACT UTILITY LOCATING SERVICES PRIOR TO THE START OF CONSTRUCTION.
- 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.
- ALL SITE WORK SHALL BE AS INDICATED ON THE STAMPED CONSTRUCTION DRAWINGS AND PROJECT SPECIFICATIONS, LATEST APPROVED REVISION.
- 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.
- 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.
- 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.
- THE SITE SHALL BE GRADED TO CAUSE SURFACE WATER TO FLOW AWAY FROM THE CARRIER'S EQUIPMENT AND TOWER AREAS.
- THE SUB GRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.
- 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:

- 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.
- 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.
- 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.
- METAL CONDUIT AND TRAY SHALL BE GROUNDING AND MADE ELECTRICALLY CONTINUOUS WITH LISTED BONDING FITTINGS OR BY BONDING ACROSS THE DISCONTINUITY WITH #6 COPPER WIRE UL APPROVED GROUNDING TYPE CONDUIT CLAMPS.
- 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.
- 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.
- 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.
- ALL EXTERIOR GROUND CONDUCTORS BETWEEN EQUIPMENT/GROUND BARS AND THE GROUND RING SHALL BE #2 SOLID TINNED COPPER UNLESS OTHERWISE INDICATED.
- ALUMINUM CONDUCTOR OR COPPER CLAD STEEL CONDUCTOR SHALL NOT BE USED FOR GROUNDING CONNECTIONS.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- EXOTHERMIC WELDS SHALL BE USED FOR ALL GROUNDING CONNECTIONS BELOW GRADE.
- ALL GROUND CONNECTIONS ABOVE GRADE (INTERIOR AND EXTERIOR) SHALL BE FORMED USING HIGH PRESS CRIMPS.
- COMPRESSION GROUND CONNECTIONS MAY BE REPLACED BY EXOTHERMIC WELDED CONNECTIONS.
- ICE BRIDGE BONDING CONDUCTORS SHALL BE EXOTHERMICALLY BONDED OR BOLTED TO THE BRIDGE AND THE TOWER GROUND BAR.
- APPROVED ANTIOXIDANT COATINGS (I.E. CONDUCTIVE GEL OR PASTE) SHALL BE USED ON ALL COMPRESSION AND BOLTED GROUND CONNECTIONS.
- ALL EXTERIOR GROUND CONNECTIONS SHALL BE COATED WITH A CORROSION RESISTANT MATERIAL.
- MISCELLANEOUS ELECTRICAL AND NON-ELECTRICAL METAL BOXES, FRAMES AND SUPPORTS SHALL BE BONDED TO THE GROUND RING, IN ACCORDANCE WITH THE NEC.
- BOND ALL METALLIC OBJECTS WITHIN 6 FT OF MAIN GROUND RING WITH (1) #2 BARE SOLID TINNED COPPER GROUND CONDUCTOR.
- 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.
- USE OF 90° BENDS IN THE PROTECTION GROUNDING CONDUCTORS SHALL BE AVOIDED WHEN 45° BENDS CAN BE ADEQUATELY SUPPORTED.
- ALL GROUNDINGS 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 GROUT. (ADD TRANSITIONING GROUND STANDARD DETAIL AS WELL.)
- 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:

- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- UNLESS NOTED OTHERWISE, THE WORK SHALL INCLUDE FURNISHING MATERIALS, EQUIPMENT, APPURTENANCES AND LABOR NECESSARY TO COMPLETE ALL INSTALLATIONS AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL INSTALL ALL EQUIPMENT AND MATERIALS IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS UNLESS SPECIFICALLY STATED OTHERWISE.
- 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.
- 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.
- 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.
- 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.
- CONTRACTOR SHALL LEAVE PREMISES IN CLEAN CONDITION. TRASH AND DEBRIS SHOULD BE REMOVED FROM SITE ON A DAILY BASIS.

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

- 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.
- UNLESS NOTED OTHERWISE, SOIL BEARING PRESSURE USED FOR DESIGN OF SLABS AND FOUNDATIONS IS ASSUMED TO BE 1000 psf.
- 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° AT TIME OF PLACEMENT.
- 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.
- ALL STEEL REINFORCING SHALL CONFORM TO ASTM A615. ALL WELDED WIRE FABRIC (WFF) 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
- 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"
- 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:

- ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
- CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
- WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
- ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.
- ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.
- 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.
- 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.
- 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).
- PANEL BOARDS (ID NUMBERS) SHALL BE CLEARLY LABELED WITH PLASTIC LABELS.
- ALL THE WIRING SHALL BE CUT FLUSH WITH APPROVED CUTTING TOOL TO REMOVE SHARP EDGES.
- 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.
- 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.
- POWER AND CONTROL WIRING IN FLEXIBLE CORD SHALL BE MULTI-CONDUCTOR, TYPE SOOW CORD (#14 OR LARGER) UNLESS OTHERWISE SPECIFIED.
- 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.
- 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).
- RACEWAY AND CABLE TRAY SHALL BE LISTED OR LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND NEC.
- ELECTRICAL METALLIC TUBING (EMT), INTERMEDIATE METAL CONDUIT (IMC), OR RIGID METAL CONDUIT (RMC) SHALL BE USED FOR EXPOSED INDOOR LOCATIONS.
- ELECTRICAL METALLIC TUBING (EMT) OR METAL-CLAD CABLE (MC) SHALL BE USED FOR CONCEALED INDOOR LOCATIONS.
- 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.
- LIQUID-TIGHT FLEXIBLE METALLIC CONDUIT (LIQUID-TITE FLEX) SHALL BE USED INDOORS AND OUTDOORS, WHERE VIBRATION OCCURS OR FLEXIBILITY IS NEEDED.
- CONDUIT AND TUBING FITTINGS SHALL BE THREADED OR COMPRESSION-TYPE AND APPROVED FOR THE LOCATION USED. SET SCREW FITTINGS ARE NOT ACCEPTABLE.
- CABINETS, BOXES AND WIRE WAYS SHALL BE LABELED FOR ELECTRICAL USE IN ACCORDANCE WITH NEMA, UL, ANSI/IEEE AND THE NEC.
- WIREWAYS SHALL BE METAL WITH AN ENAMEL FINISH AND INCLUDE A HINGED COVER, DESIGNED TO SWING OPEN DOWNWARDS (WIREMOLD SPECIMATE WIREWAY).
- SLOTTED WIRING DUCT SHALL BE PVC AND INCLUDE COVER (PANDUIT TYPE E OR EQUAL).
- 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.
- 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.
- 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.
- 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.
- 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.
- 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.
- INSTALL LAMICOID LABEL ON THE METER CENTER TO SHOW "T-MOBILE".
- 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	A PHASE	BROWN
	B PHASE	ORANGE OR PURPLE
	C PHASE	YELLOW
	NEUTRAL	GREY
DC VOLTAGE	GROUND	GREEN
	POS (+)	RED**
	NEG (-)	BLACK**

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

* 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
- REBS RADIO BASE STATION
- RET REMOTE ELECTRIC TILT
- RFDS RADIO FREQUENCY DATA SHEET
- RRR 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



T-MOBILE SITE NUMBER:
4BN0510A

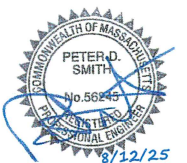
BU #: 822710
CROWN CASTLE SITE
NAME:
BN510/OREGON CLUB

117 OREGON RD
ASHLAND, MA 01721

EXISTING 75'-0"
CONCEALMENT FLAGPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
1	5/28/25	YX	CONSTRUCTION	LR
2	7/11/25	YX	CONSTRUCTION	TDG
3	7/29/25	YX	CORRECTION	TDG
4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



B&T ENGINEERING, INC.

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-2

REVISION:
5

T Mobile

CROWN CASTLE

B+T GRP
 1717 S. BOULDER
 SUITE 300
 TULSA, OK 74119
 PH: (918) 587-4630
 www.btgrp.com

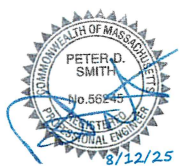
T-MOBILE SITE NUMBER:
4BN0510A

BU #: **822710**
 CROWN CASTLE SITE
 NAME:
BN510/OREGON CLUB

117 OREGON RD
 ASHLAND, MA 01721
 EXISTING 75'-0"
 CONCEALMENT FLAGPOLE

ISSUED FOR:

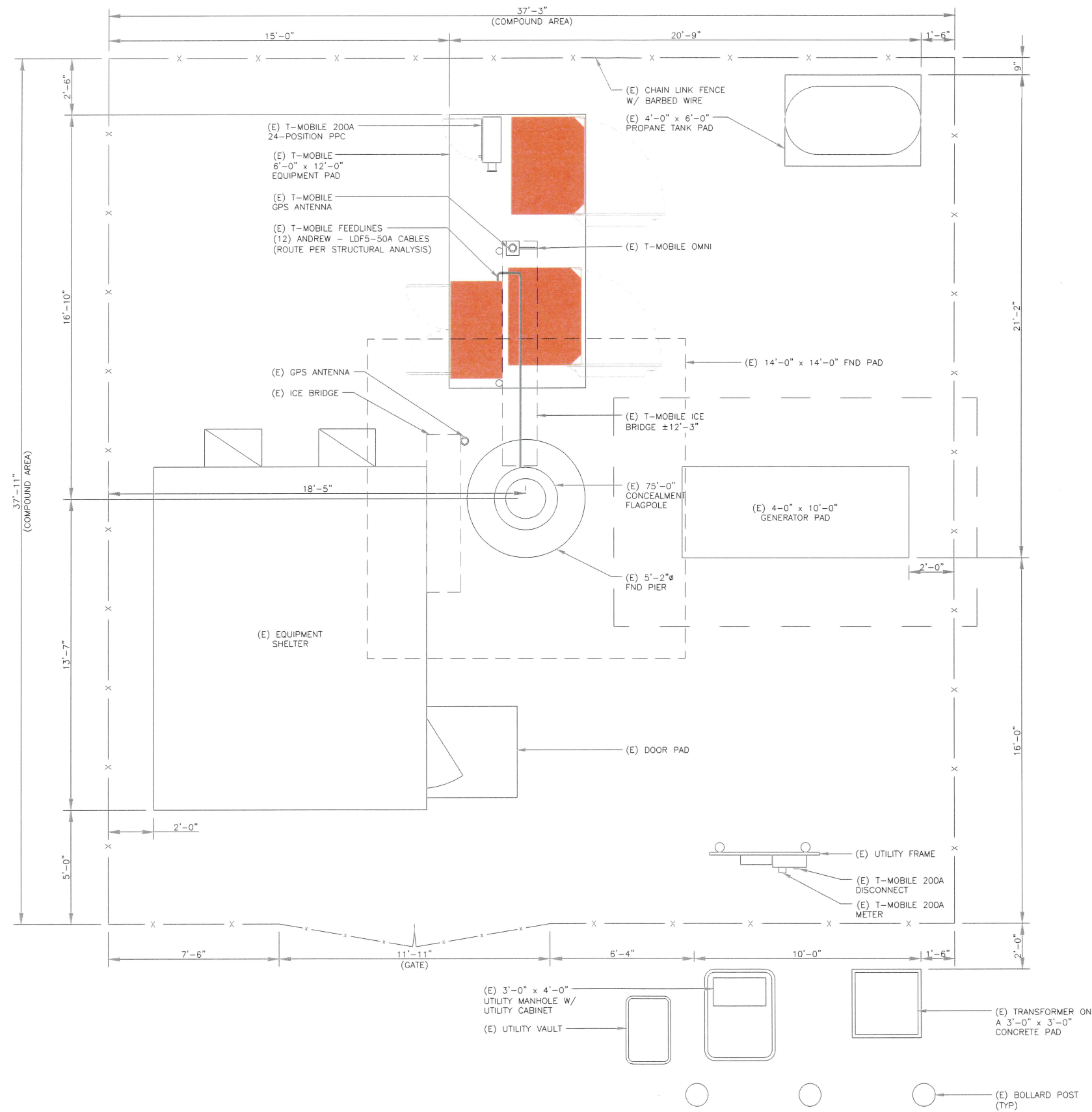
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2	7/11/25	YX	CONSTRUCTION	TDG
3	7/29/25	YX	CORRECTION	TDG
4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



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SHEET NUMBER: **C-1.1** REVISION: **5**



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



T Mobile

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 TULSA, OK 74119
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4BN0510A

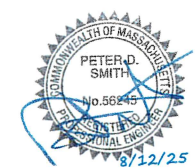
BU #: **822710**
 CROWN CASTLE SITE
 NAME:
BN510/OREGON CLUB

117 OREGON RD
 ASHLAND, MA 01721

EXISTING 75'-0"
 CONCEALMENT FLAGPOLE

ISSUED FOR:

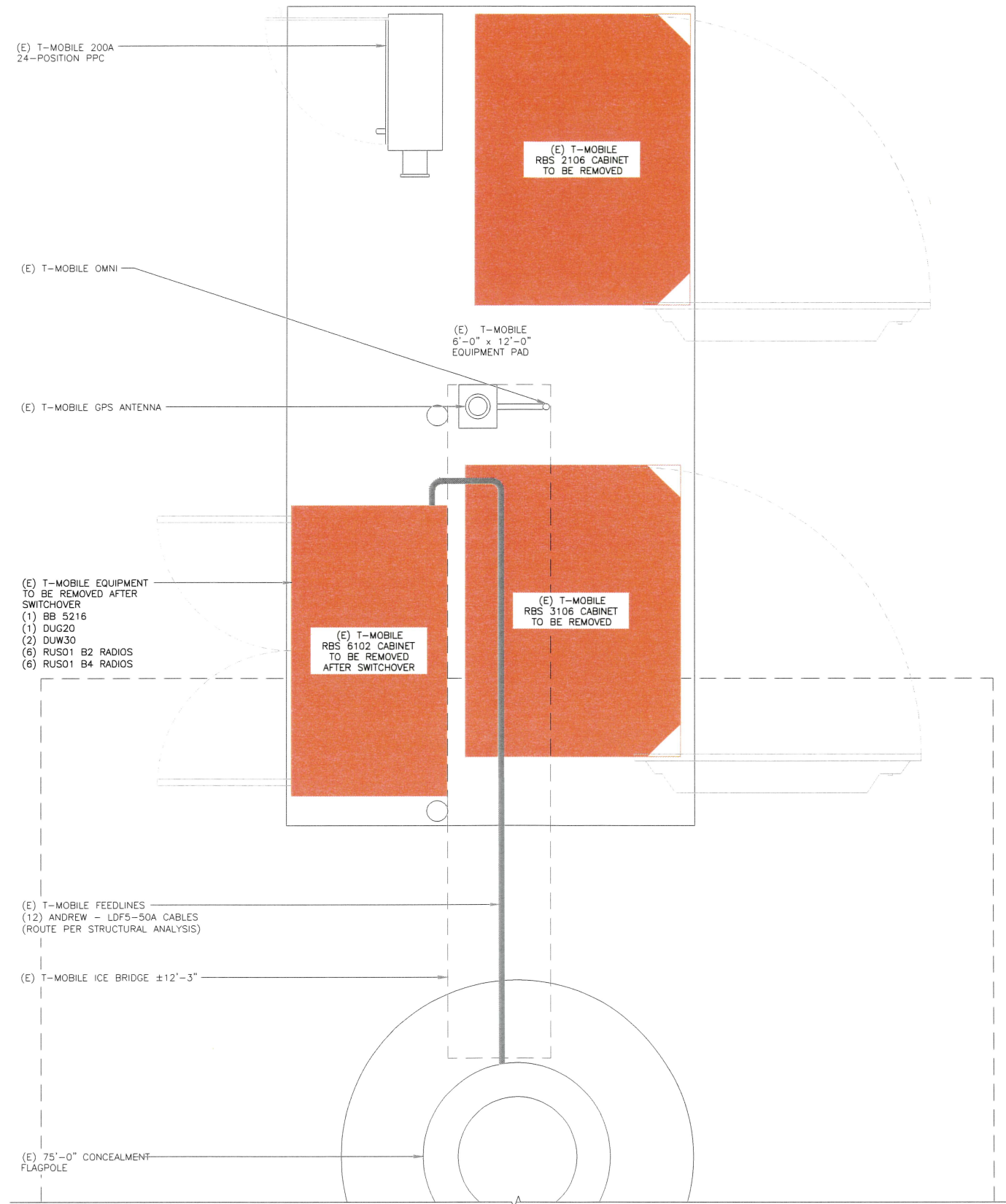
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2	7/11/25	YX	CONSTRUCTION	TDG
3	7/29/25	YX	CORRECTION	TDG
4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



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SHEET NUMBER: **C-1.2** REVISION: **5**



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

T-MOBILE - ORIGINAL - 11/14/2018

T-Mobile

CROWN CASTLE

B+T GRP
 1717 S. BOULDER
 SUITE 300
 TULSA, OK 74119
 PH: (918) 587-4630
 www.btgrp.com

T-MOBILE SITE NUMBER:
4BN0510A

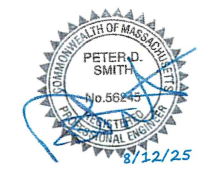
BU #: **822710**
 CROWN CASTLE SITE
 NAME:
BN510/OREGON CLUB

117 OREGON RD
 ASHLAND, MA 01721

EXISTING 75'-0"
 CONCEALMENT FLAGPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
1	5/28/25	YX	CONSTRUCTION	LR
2	7/11/25	YX	CONSTRUCTION	TDG
3	7/29/25	YX	CORRECTION	TDG
4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR

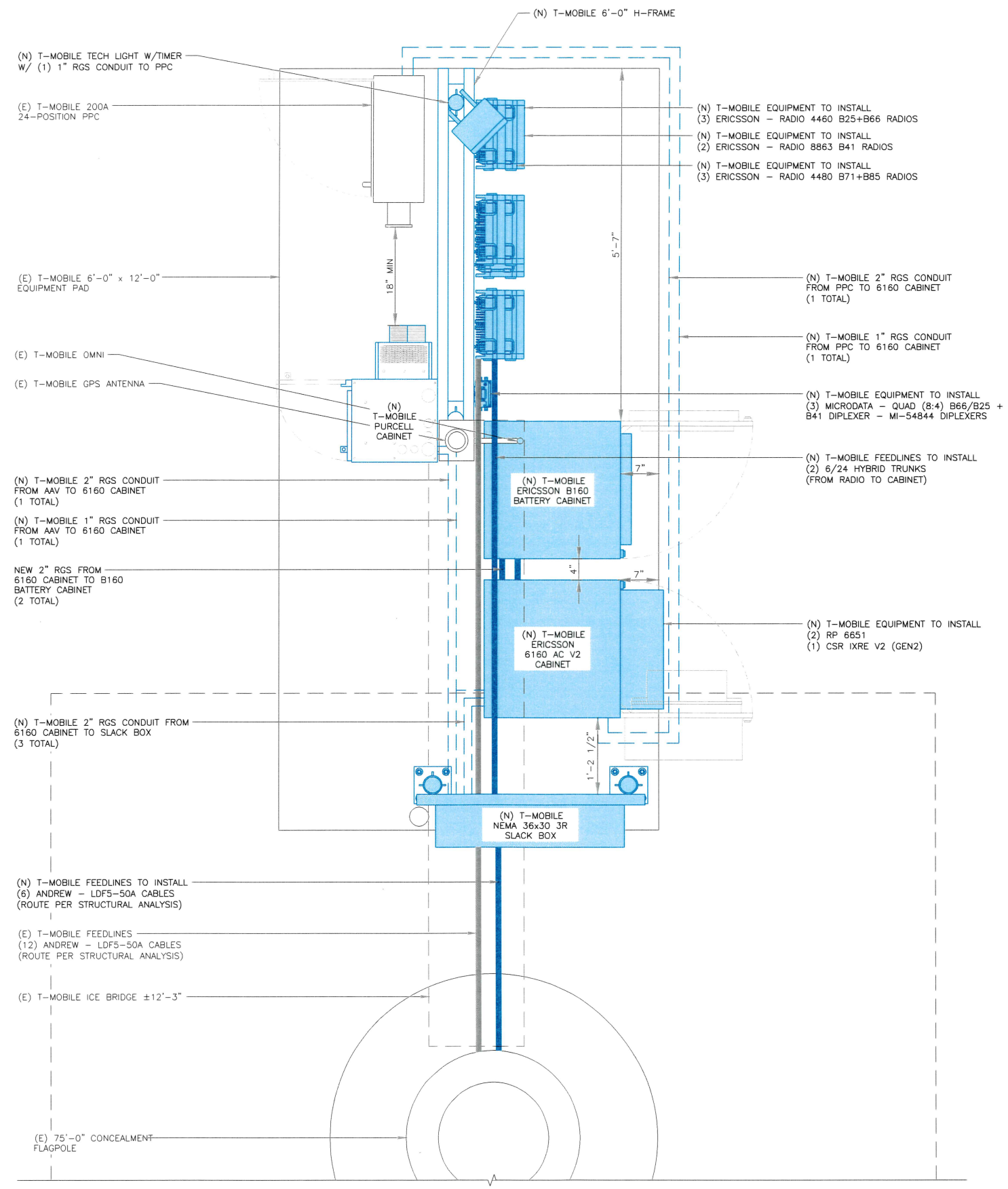


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SHEET NUMBER:
C-1.3

REVISION:
5



CONDUITS TO BE INSTALLED BETWEEN CABINETS:

PPC TO 6160: (1) 2" RGS
 (1) 1" RGS

AAV TO 6160: (1) 2" RGS
 (1) 1" RGS

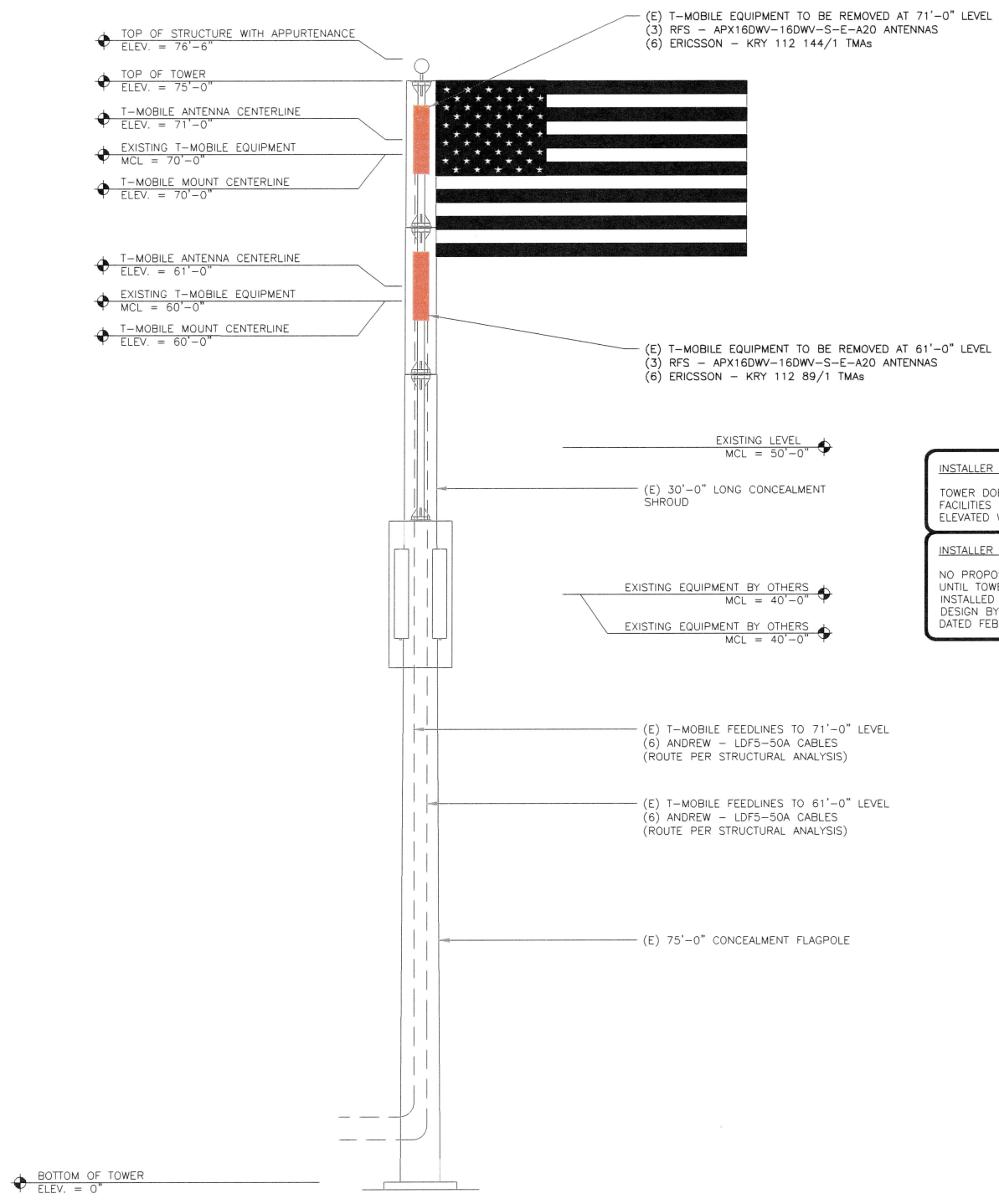
6160 TO SLACK BOX: (3) 2" RGS
 6160 TO B160: (2) 2" RGS

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

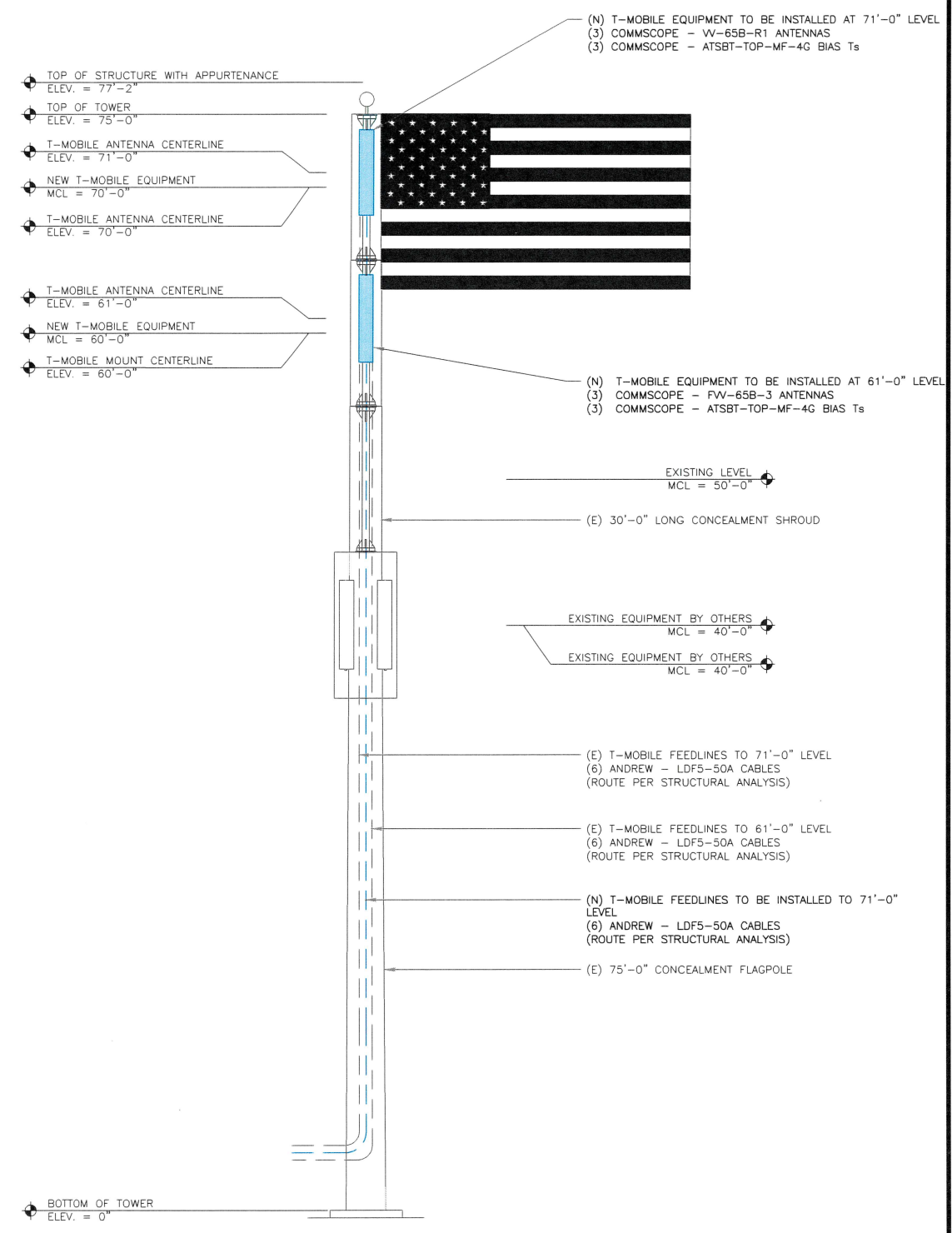
T-MOBILE 4BN0510A_V1_25.ANC (10.0)

T-MOBILE NATIONAL WIRE CENTER

T-MOBILE EQUIPMENT
ANTENNA CL: 71'-0" & 61'-0"



1 EXISTING TOWER ELEVATION
SCALE: 3/16"=1'-0" (FULL SIZE)
3/32"=1'-0" (11x17)



2 FINAL TOWER ELEVATION
SCALE: 3/16"=1'-0" (FULL SIZE)
3/32"=1'-0" (11x17)

INSTALLER NOTE:
TOWER DOES NOT HAVE CLIMBING FACILITIES - MANLIFT REQUIRED FOR ELEVATED WORK.

INSTALLER NOTE:
NO PROPOSED LOADING TO BE ADDED UNTIL TOWER MODIFICATIONS ARE INSTALLED PER TOWER MODIFICATION DESIGN BY PAUL J. FORD & COMPANY DATED FEBRUARY 6, 2024.



T-MOBILE SITE NUMBER:
4BN0510A

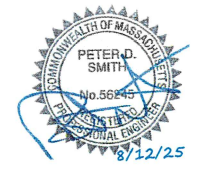
BU #: **822710**
CROWN CASTLE SITE NAME:
BN510/OREGON CLUB

117 OREGON RD
ASHLAND, MA 01721

EXISTING 75'-0"
CONCEALMENT FLAGPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
1	5/28/25	YX	CONSTRUCTION	LR
2	7/11/25	YX	CONSTRUCTION	TDG
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4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



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SHEET NUMBER: **C-2** REVISION: **5**

T-MOBILE SITE NUMBER:
4BN0510A

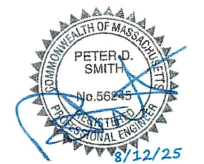
BU #: **822710**
 CROWN CASTLE SITE
 NAME:
BN510/OREGON CLUB

117 OREGON RD
 ASHLAND, MA 01721

EXISTING 75'-0"
 CONCEALMENT FLAGPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
1	5/28/25	YX	CONSTRUCTION	LR
2	7/11/25	YX	CONSTRUCTION	TDG
3	7/29/25	YX	CORRECTION	TDG
4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



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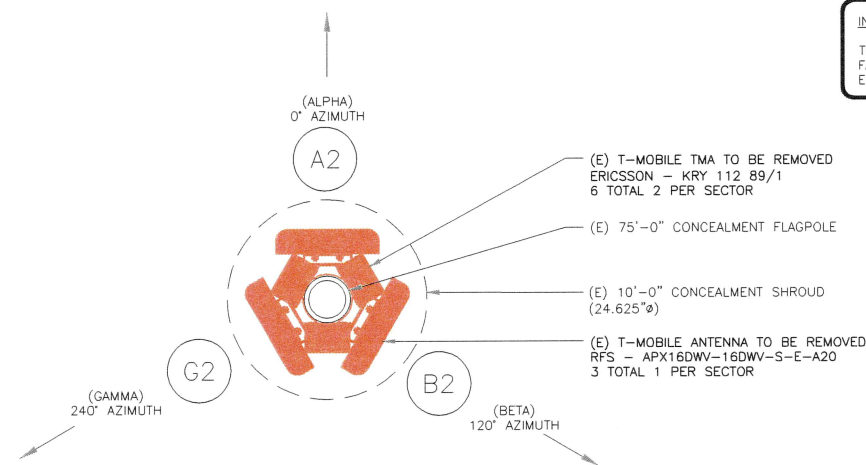
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REVISION:

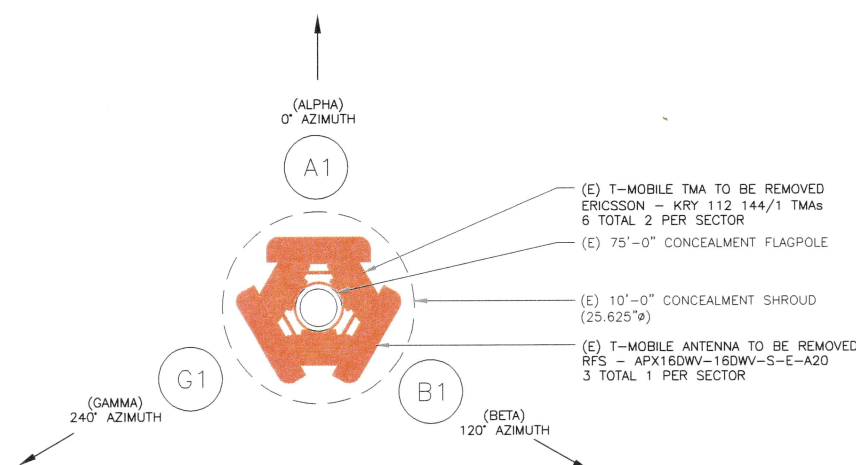
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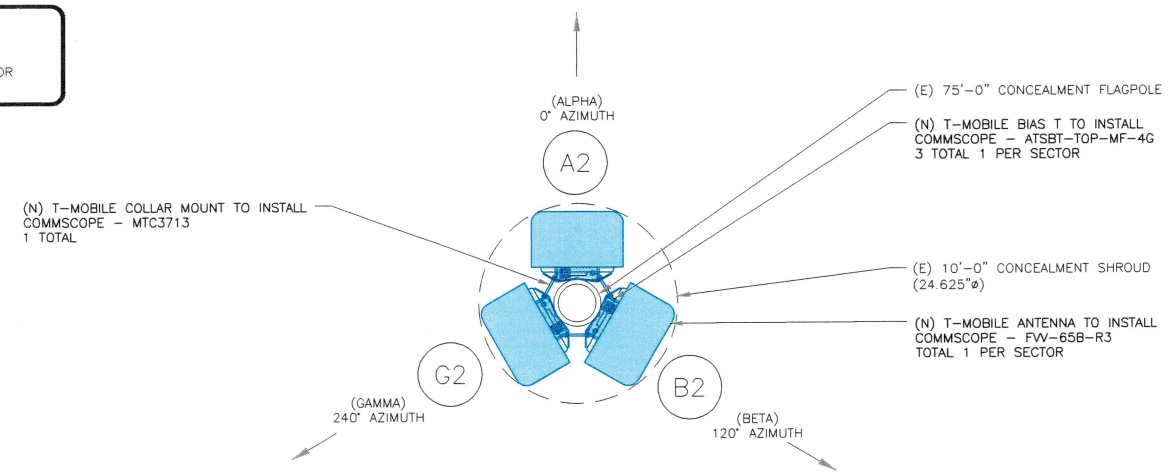
TOWER DOES NOT HAVE CLIMBING
 FACILITIES - MANLIFT REQUIRED FOR
 ELEVATED WORK.



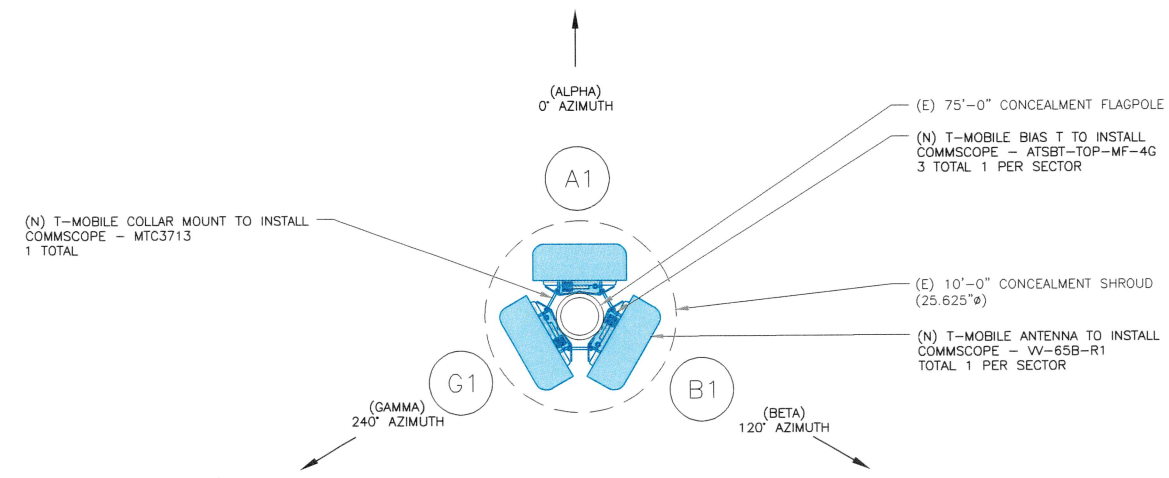
1 EXISTING ANTENNA PLAN @ 61'-0"
 SCALE: 1"=1'-0" (FULL SIZE)
 1/2"=1'-0" (11x17)



3 EXISTING ANTENNA PLAN @ 71'-0"
 SCALE: 1"=1'-0" (FULL SIZE)
 1/2"=1'-0" (11x17)



2 FINAL ANTENNA PLAN @ 61'-0"
 SCALE: 1"=1'-0" (FULL SIZE)
 1/2"=1'-0" (11x17)



4 FINAL ANTENNA PLAN @ 71'-0"
 SCALE: 1"=1'-0" (FULL SIZE)
 1/2"=1'-0" (11x17)



FINAL EQUIPMENT SCHEDULE AT 70'-0" LEVEL
(VERIFY WITH CURRENT RFDS)

POSITION	ANTENNA				RADIO			DIPLEXER		BIAS T		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	N1900/N2500/ L2100/L1900	(N) COMMMSCOPE - W-65B-R1	0°	71'-0"	1	(N) ERICSSON - RADIO 4460 B25+B66	GROUND	1	(N)	GROUND	1	(N)	-	-	2	(E) COAX	7/8"	121'-0"
					1	(N) ERICSSON - RADIO 8863 B41	GROUND								1	(N) COAX	7/8"	121'-0"
B1	N1900/N2500/ L2100/L1900	(N) COMMMSCOPE - W-65B-R1	120°	71'-0"	1	(N) ERICSSON - RADIO 4460 B25+B66	GROUND	1	(N)	GROUND	1	(N)	-	-	2	(E) COAX	7/8"	121'-0"
					-	-	-								1	(N) COAX	7/8"	121'-0"
G1	N1900/N2500/ L2100/L1900	(N) COMMMSCOPE - W-65B-R1	240°	71'-0"	1	(N) ERICSSON - RADIO 4460 B25+B66	GROUND	1	(N)	GROUND	1	(N)	-	-	2	(E) COAX	7/8"	121'-0"
					1	(N) ERICSSON - RADIO 8863 B41	GROUND								2	(N) COAX	7/8"	121'-0"

FINAL EQUIPMENT SCHEDULE AT 60'-0" LEVEL
(VERIFY WITH CURRENT RFDS)

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
A2	L700/ N600/L600	(N) COMMMSCOPE - FW-65B-R3	0°	61'-0"	1	(N) ERICSSON - RADIO 4480 B71+B85	GROUND	1	(N)	GROUND	1	(N)	-	-	2	(E) COAX	7/8"	121'-0"
					1	(N) ERICSSON - RADIO 4480 B71+B85	GROUND								1	(N) HYBRID (GROUND)	6/24	33'-0"
B2	L700/ N600/L600	(N) COMMMSCOPE - FW-65B-R3	120°	61'-0"	1	(N) ERICSSON - RADIO 4480 B71+B85	GROUND	1	(N)	GROUND	1	(N)	-	-	2	(E) COAX	7/8"	121'-0"
					1	(N) ERICSSON - RADIO 4480 B71+B85	GROUND								1	(N) HYBRID (GROUND)	6/24	33'-0"
G2	L700/ N600/L600	(N) COMMMSCOPE - FW-65B-R3	240°	61'-0"	1	(N) ERICSSON - RADIO 4480 B71+B85	GROUND	1	(N)	GROUND	1	(N)	-	-	2	(E) COAX	7/8"	121'-0"

T-MOBILE SITE NUMBER:
4BN0510A

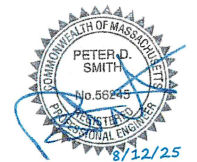
BU #: **822710**
CROWN CASTLE SITE
NAME:
BN510/OREGON CLUB

117 OREGON RD
ASHLAND, MA 01721

EXISTING 75'-0"
CONCEALMENT FLAGPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES./QA
1	5/28/25	YX	CONSTRUCTION	LR
2	7/11/25	YX	CONSTRUCTION	TDG
3	7/29/25	YX	CORRECTION	TDG
4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



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1 FINAL EQUIPMENT SCHEDULE
SCALE: NOT TO SCALE

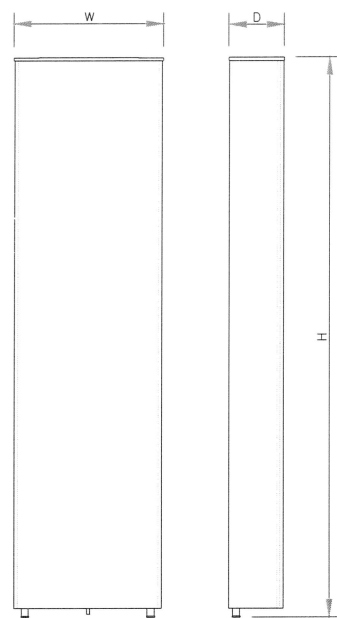
SHEET NUMBER:

C-4

REVISION:

5

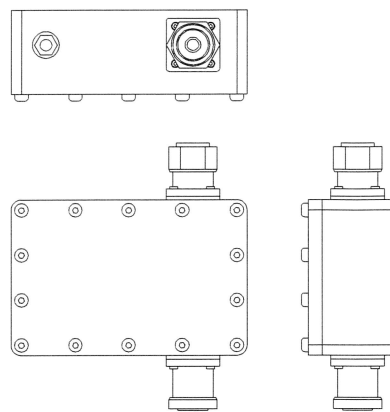
T-MOBILE - ASHLEIGH M. - ENGINEER



ANTENNA SPECS

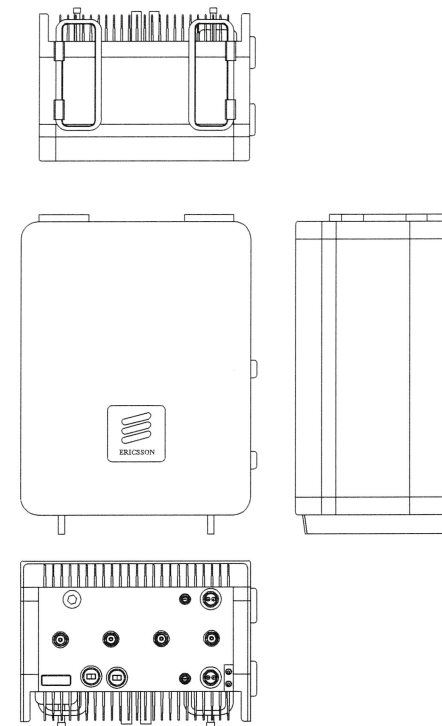
MANUFACTURER	COMMSCOPE
MODEL #	VV-65B-R1
WIDTH	12.0"
DEPTH	4.65"
HEIGHT	70.35"
WEIGHT	28.0 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE



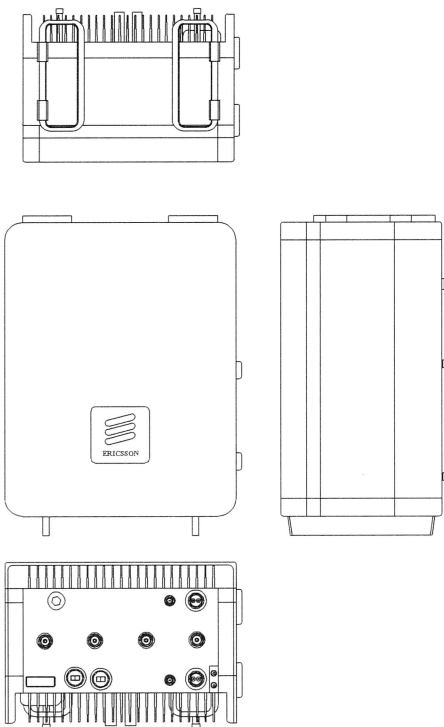
COMMSCOPE - SMART BIAS-T - ATSBT-TOP-MF-4G
WEIGHT: 1.7 LBS
SIZE (HxWxD): 3.7x5.63x2.0 IN.

2 BIAS-T SPECS
SCALE: NOT TO SCALE



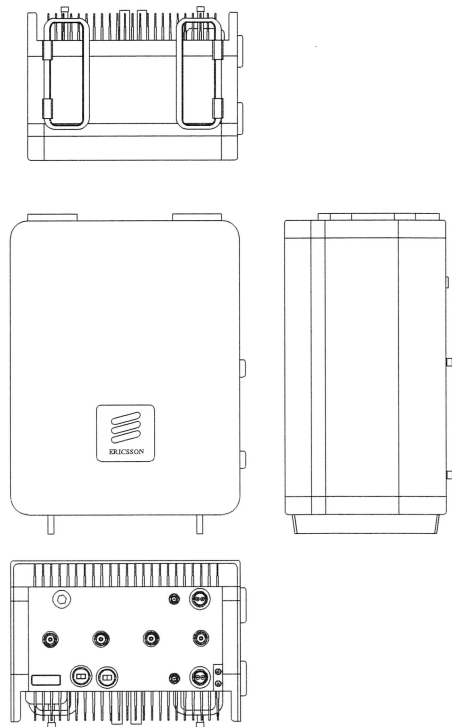
ERICSSON - RADIO 4460 B25+B66
WEIGHT: 109 LBS
SIZE (HxWxD): 19.6x15.7x12.1 IN.

3 RADIO SPECS
SCALE: NOT TO SCALE



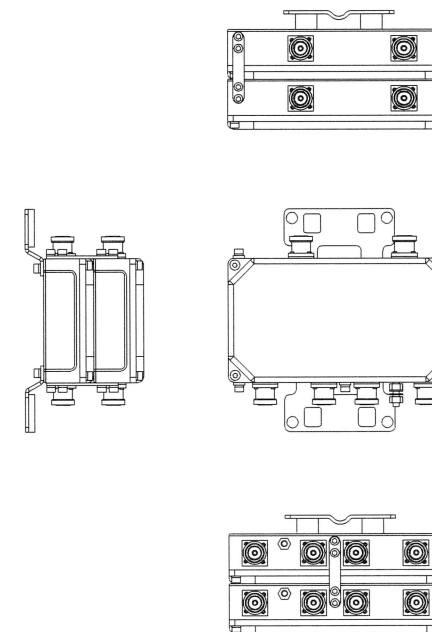
ERICSSON - RADIO 4480 B71+B85
WEIGHT: 81 LBS
SIZE (HxWxD): 22.0x15.7x7.5 IN.

4 RADIO SPECS
SCALE: NOT TO SCALE



ERICSSON - RADIO 8863 B41
WEIGHT: 52.93 LBS
SIZE (HxWxD): 18.82x14.76x5.71IN.

5 RADIO SPECS
SCALE: NOT TO SCALE



MICRODATA - MI-54844
WEIGHT: 11.02 LBS
SIZE (HxWxD): 4.33x9.41x4.65IN.

6 DIPLEXER SPECS
SCALE: NOT TO SCALE

T Mobile

CROWN CASTLE

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
4BN0510A

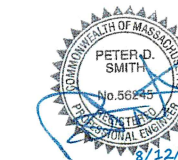
BU #: 822710
CROWN CASTLE SITE
NAME:
BN510/OREGON CLUB

117 OREGON RD
ASHLAND, MA 01721

EXISTING 75'-0"
CONCEALMENT FLAGPOLE

ISSUED FOR:

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2	7/11/25	YX	CONSTRUCTION	TDG
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4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



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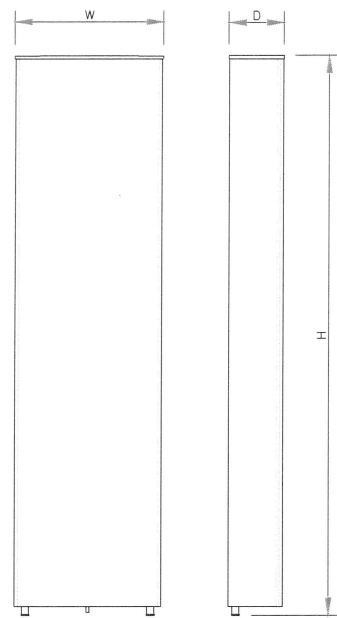
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SHEET NUMBER:

C-5

REVISION:

5



ANTENNA SPECS	
MANUFACTURER	COMMSCOPE
MODEL #	FVW-65B-R3
WIDTH	11.81"
DEPTH	7.13"
HEIGHT	71.97"
WEIGHT	43.21 LBS

1 ANTENNA SPECS
SCALE: NOT TO SCALE

2 NOT USED
SCALE: NOT TO SCALE

3 NOT USED
SCALE: NOT TO SCALE

T Mobile

CROWN CASTLE

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
4BN0510A

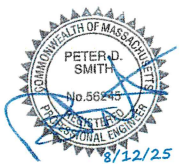
BU #: **822710**
CROWN CASTLE SITE
NAME:
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117 OREGON RD
ASHLAND, MA 01721

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CONCEALMENT FLAGPOLE

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3	7/29/25	YX	CORRECTION	TDG
4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



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TO ALTER THIS DOCUMENT.

4 NOT USED
SCALE: NOT TO SCALE

5 NOT USED
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

SHEET NUMBER: **C-5.1** REVISION: **5**

T-MOBILE SITE NUMBER:
4BN0510A

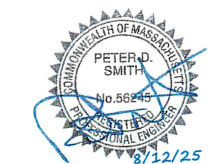
BU #: **822710**
CROWN CASTLE SITE
NAME:
BN510/OREGON CLUB

117 OREGON RD
ASHLAND, MA 01721

EXISTING 75'-0"
CONCEALMENT FLAGPOLE

ISSUED FOR:

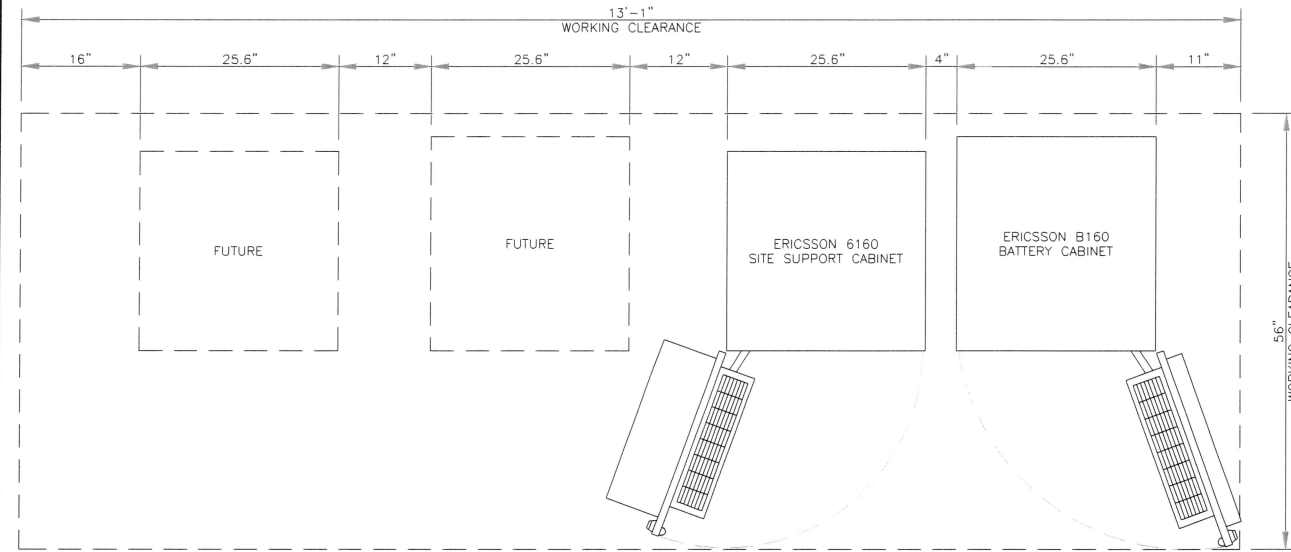
REV	DATE	DRWN	DESCRIPTION	DES./QA
1	5/28/25	YX	CONSTRUCTION	LR
2	7/11/25	YX	CONSTRUCTION	TDG
3	7/29/25	YX	CORRECTION	TDG
4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



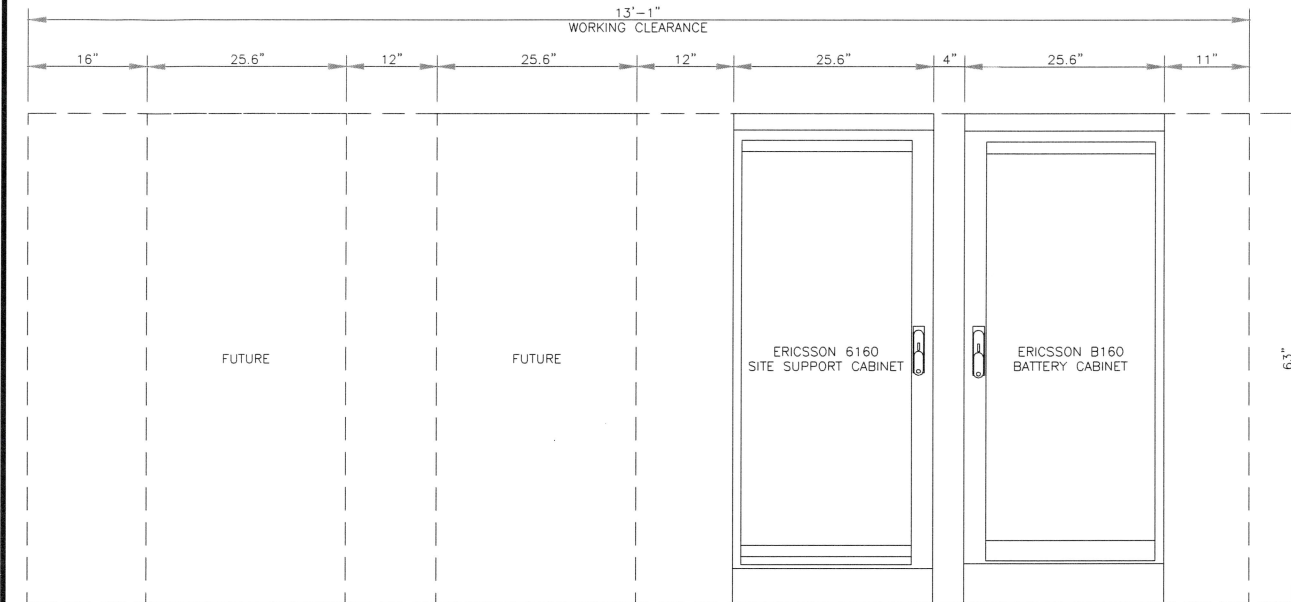
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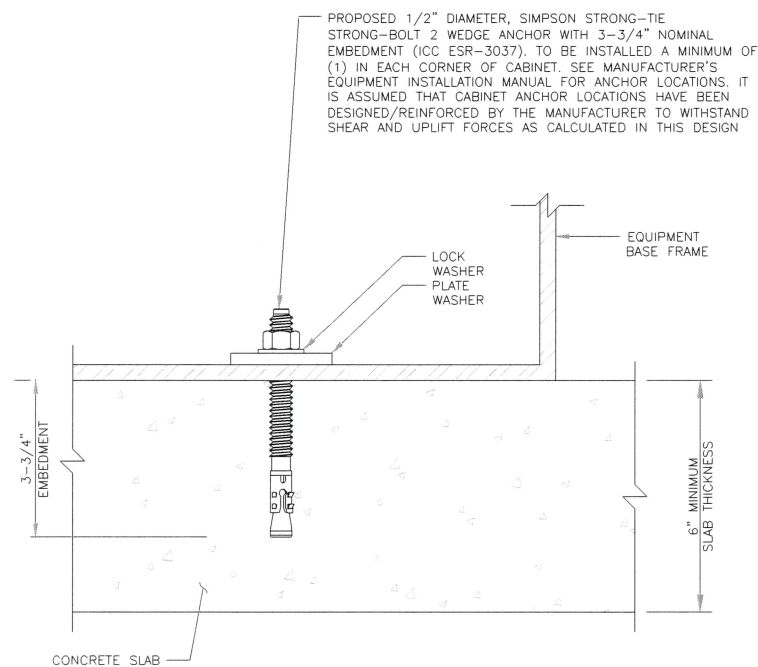
SHEET NUMBER: **C-6.1** REVISION: **5**



1 PLAN VIEW WORKING CLEARANCE 6160 & B160 LAYOUT
SCALE: NOT TO SCALE

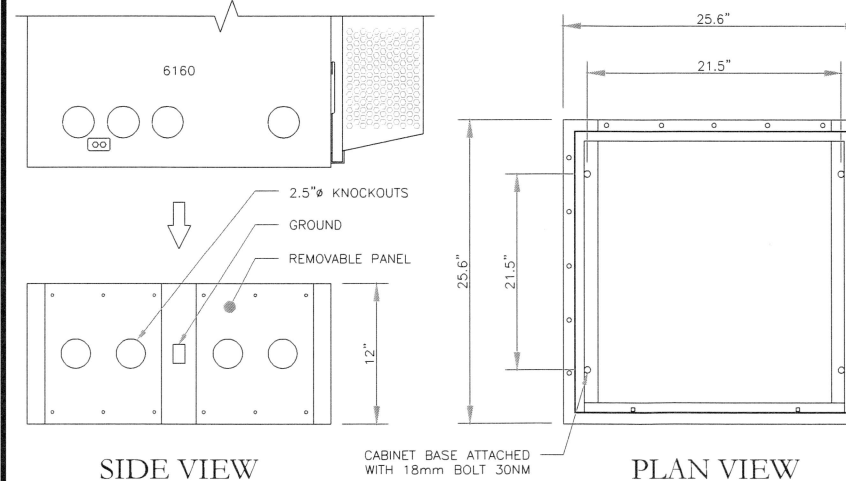


2 ELEVATION VIEW WORKING CLEARANCE 6160 & B160 LAYOUT
SCALE: NOT TO SCALE



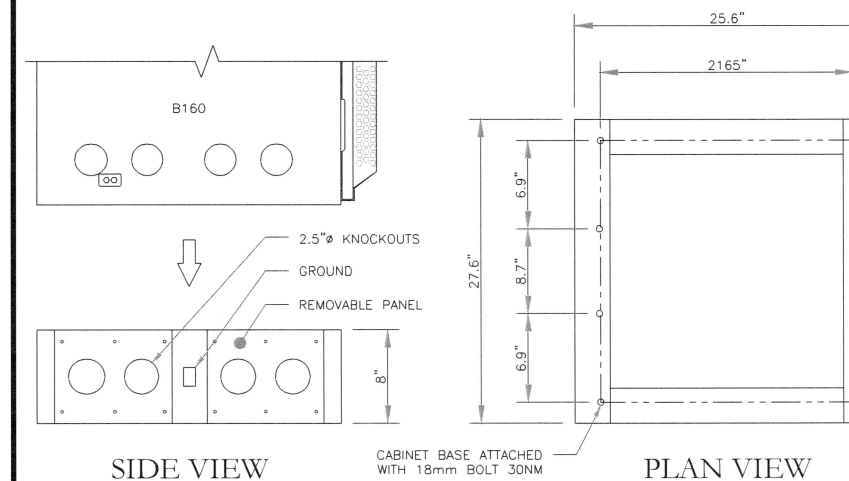
3 TYPICAL ANCHOR BOLT DETAIL
SCALE: NOT TO SCALE

MANUFACTURER:	ERICSSON
MODEL:	6160 12" BASE FRAME (SXX 125 5009/1)
DIMENSIONS (HxWxD):	12"x25.6"x25.6"
T-MOBILE SKU#	T.B.D.



4 ERICSSON 6160 PLINTH DETAIL
SCALE: NOT TO SCALE

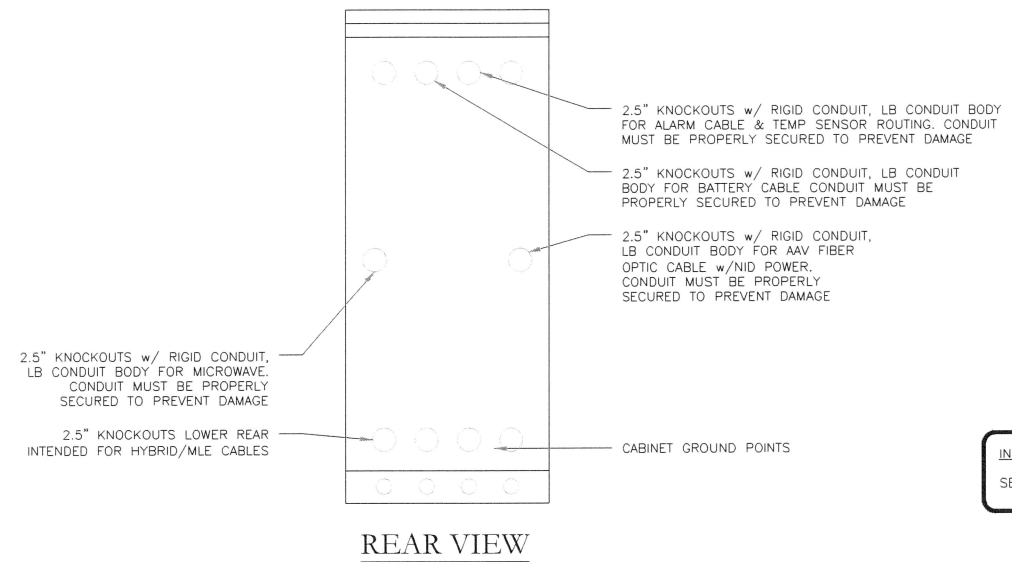
MANUFACTURER:	ERICSSON
MODEL:	B160 BASE FRAME (SKU 125 5010/1)
DIMENSIONS (HxWxD):	8"x27.5"x25.6"
T-MOBILE SKU#	T.B.D.



5 ERICSSON B160 PLINTH DETAIL
SCALE: NOT TO SCALE

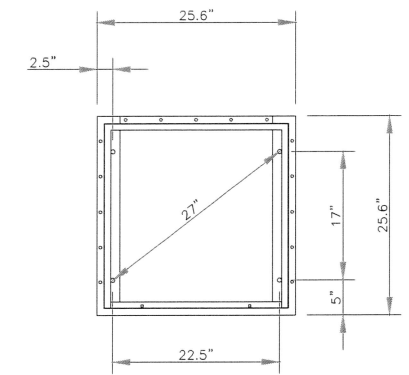
MANUFACTURER:	ERICSSON
MODEL:	(UT6160_ENCL_AC) V2 CABINET
DIMENSIONS (HxWxD):	63.25"x26.0"x34.0"
WEIGHT:	320 LBS
SKU #:	T.B.D.

NOTE:
CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING
GROUNDING NOTE:
CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED.

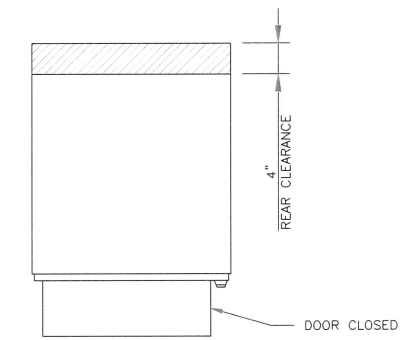


REAR VIEW

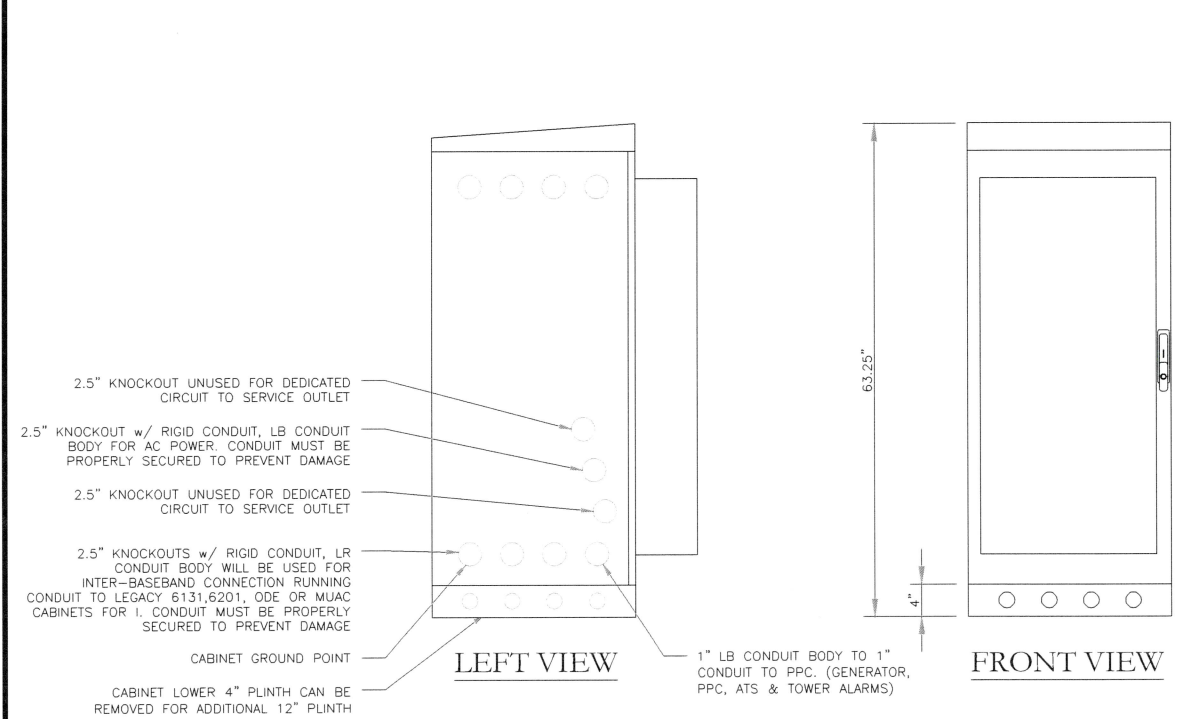
INSTALLER NOTE:
SEE PLINTH ON SHEET C-6.1.



BOLT DOWN PATTERN

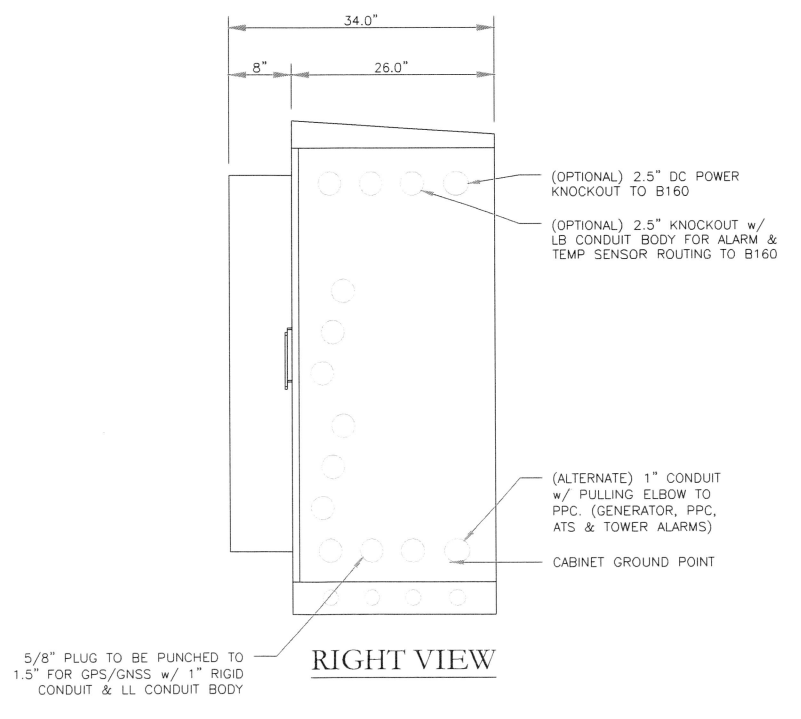


PLAN VIEW

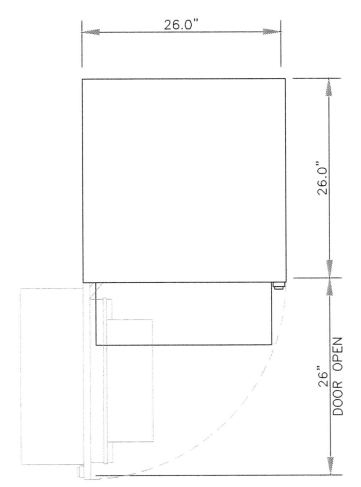


LEFT VIEW

FRONT VIEW



RIGHT VIEW



DOOR SWING



T-MOBILE SITE NUMBER:
4BN0510A

BU #: **822710**

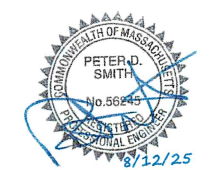
CROWN CASTLE SITE NAME:
BN510/OREGON CLUB

117 OREGON RD
ASHLAND, MA 01721

EXISTING 75'-0"
CONCEALMENT FLAGPOLE

ISSUED FOR:

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4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



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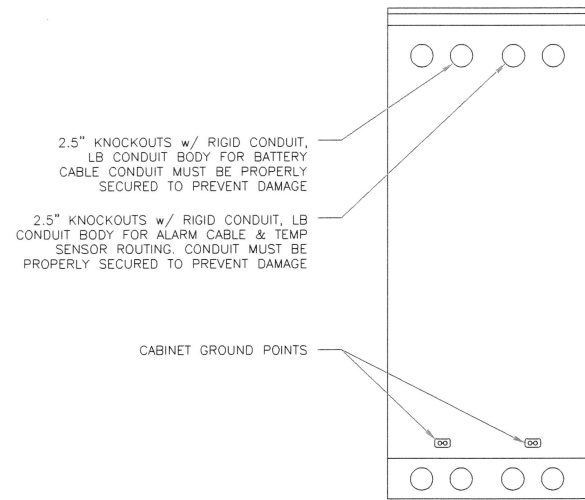
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SHEET NUMBER: C-6.2	REVISION: 5
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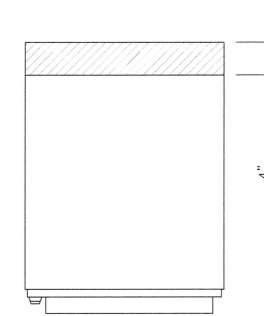
T-MOBILE - NATIONAL - ANCHORAGE

MANUFACTURER:	ERICSSON
MODEL:	B160 BATTERY CABINET
DIMENSIONS (HxWxD):	63"x25.6"x29.5"
WEIGHT:	295 LBS
SKU #:	T.B.D.

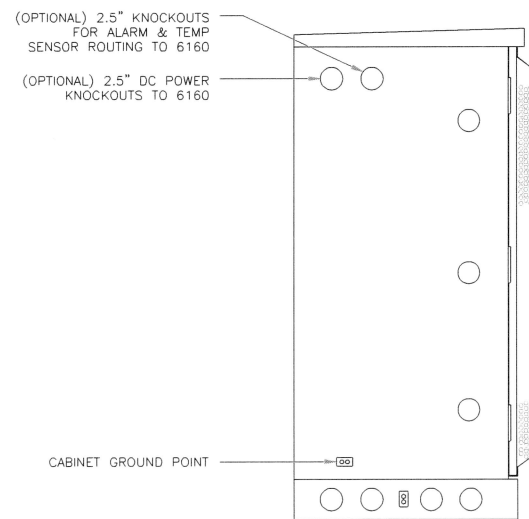
NOTE:
 CORRECT KNOCKOUT TOOL REQUIRED FOR PUNCHING KNOCKOUTS. DO NOT DRILL THROUGH KNOCKOUTS
 CONDUIT MUST BE PROPERLY SECURED TO PREVENT DAMAGE TO CABINETS AND OR CABLING
 GROUNDING NOTE:
 CABINET GROUNDING TO USE A SINGLE, #2 BTCW CONDUCTOR, W/ 2-HOLE, 1" C-C, LONG BARREL, WINDOW LUG, IN 3/4" LFNC TO GROUND RING. PLINTH GROUNDING IS NOT REQUIRED.



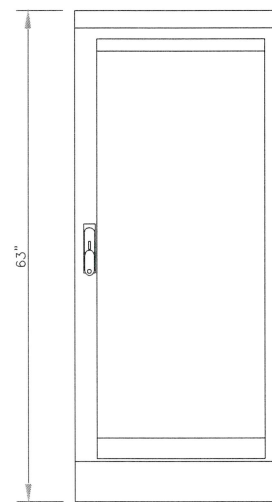
REAR VIEW



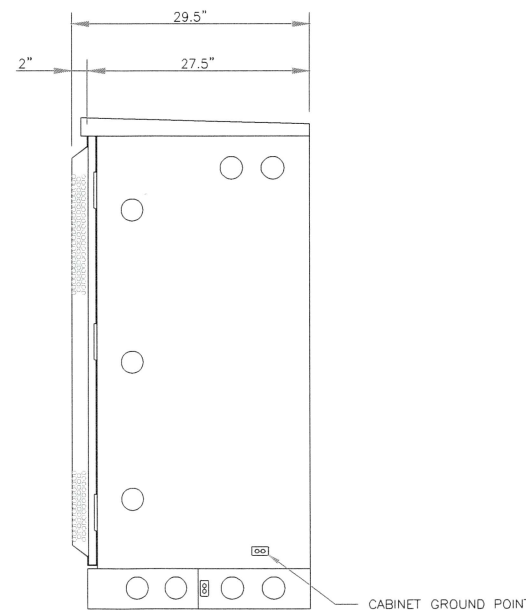
PLAN VIEW



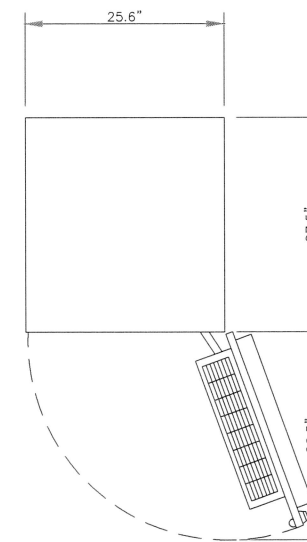
LEFT VIEW



FRONT VIEW



RIGHT VIEW



DOOR SWING

T-Mobile

CROWN CASTLE

B+T GRP
 1717 S. BOULDER
 SUITE 300
 TULSA, OK 74119
 PH: (918) 587-4630
 www.btgrp.com

T-MOBILE SITE NUMBER:
4BN0510A

BU #: **822710**
 CROWN CASTLE SITE
 NAME:
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4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



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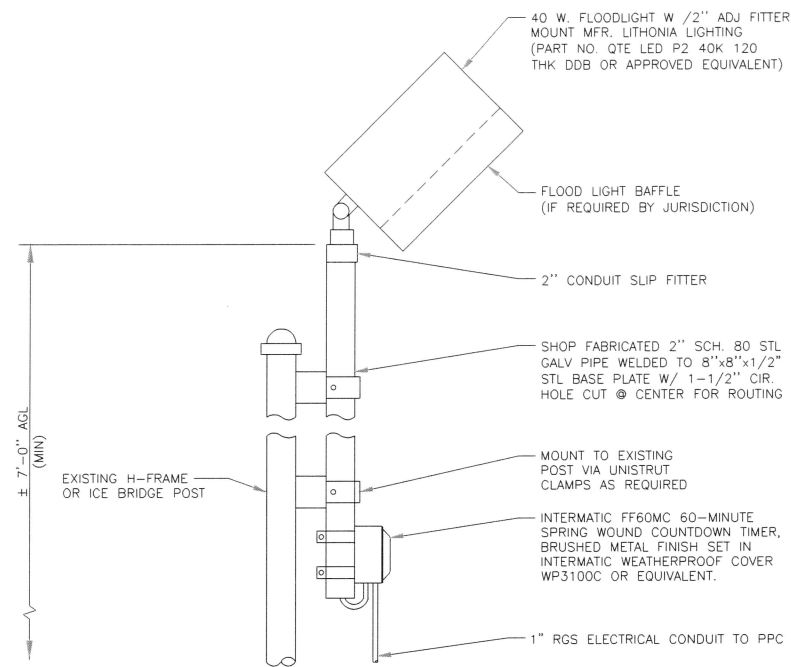
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SHEET NUMBER:
C-6.3

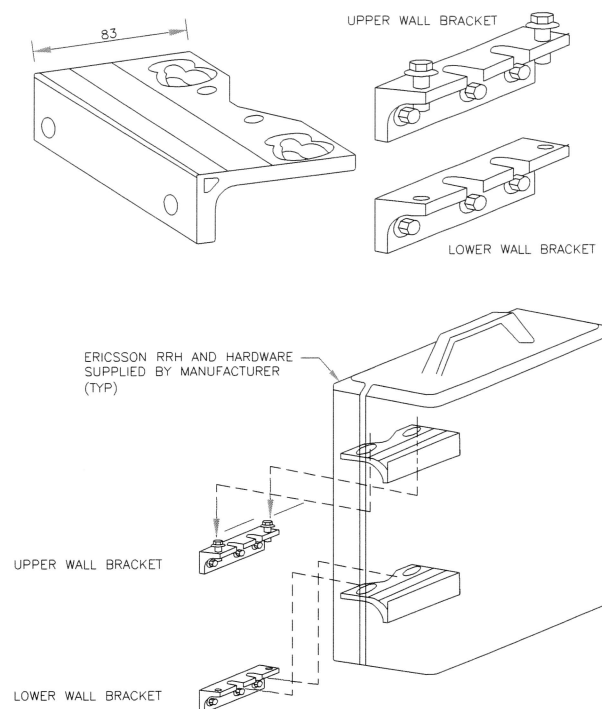
REVISION:
5

1 ERICSSON B160 BATTERY CABINET
 SCALE: 1"=1'-0" (FULL SIZE)
 1/2"=1'-0" (1/1x1/7)

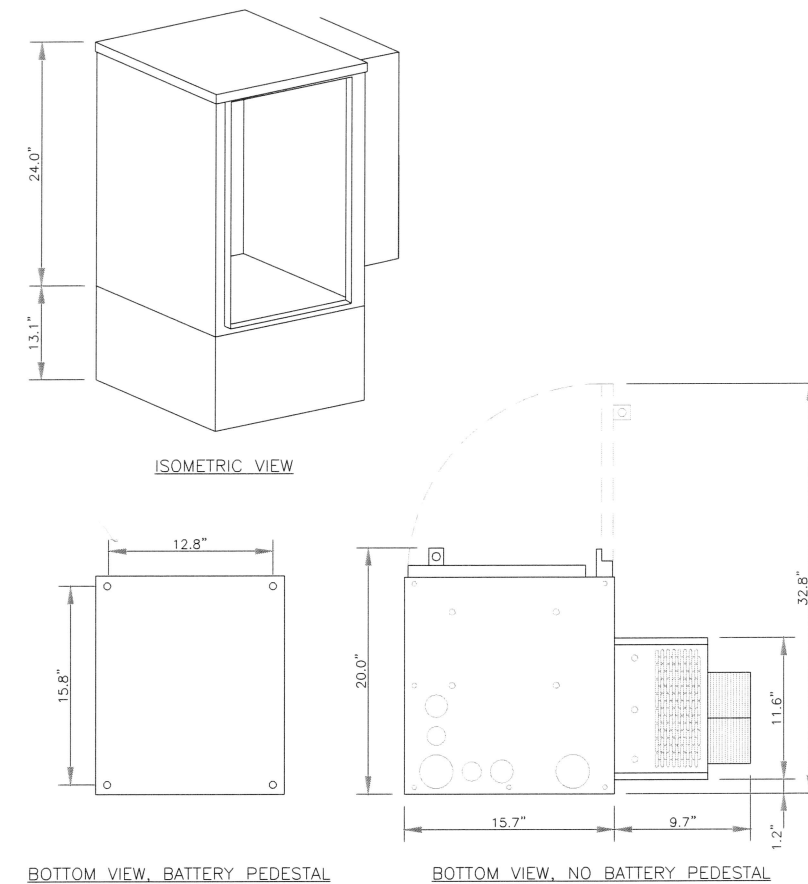
T-MOBILE NATIONAL ANCHOR



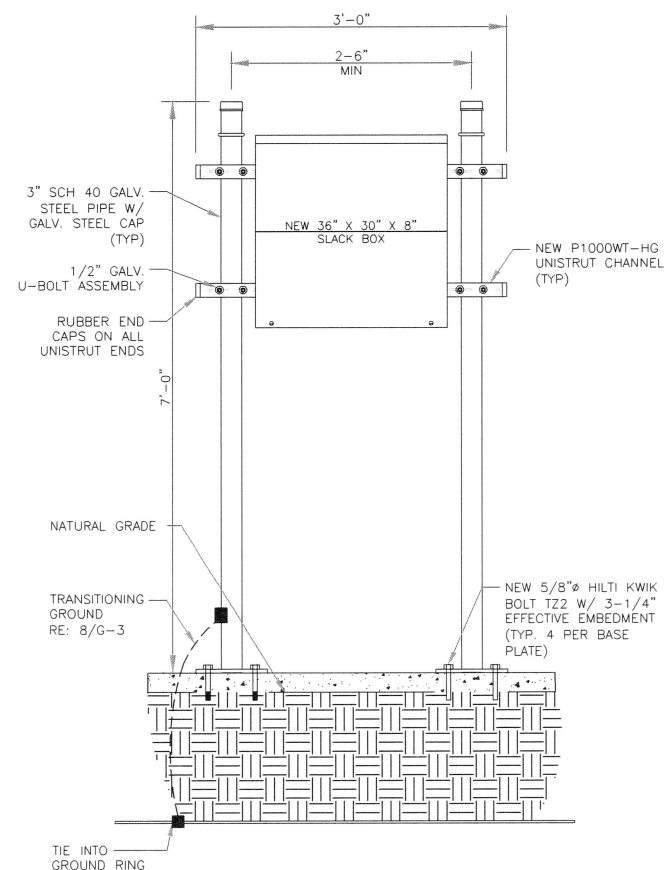
1 FLOOD LIGHT
SCALE: NOT TO SCALE



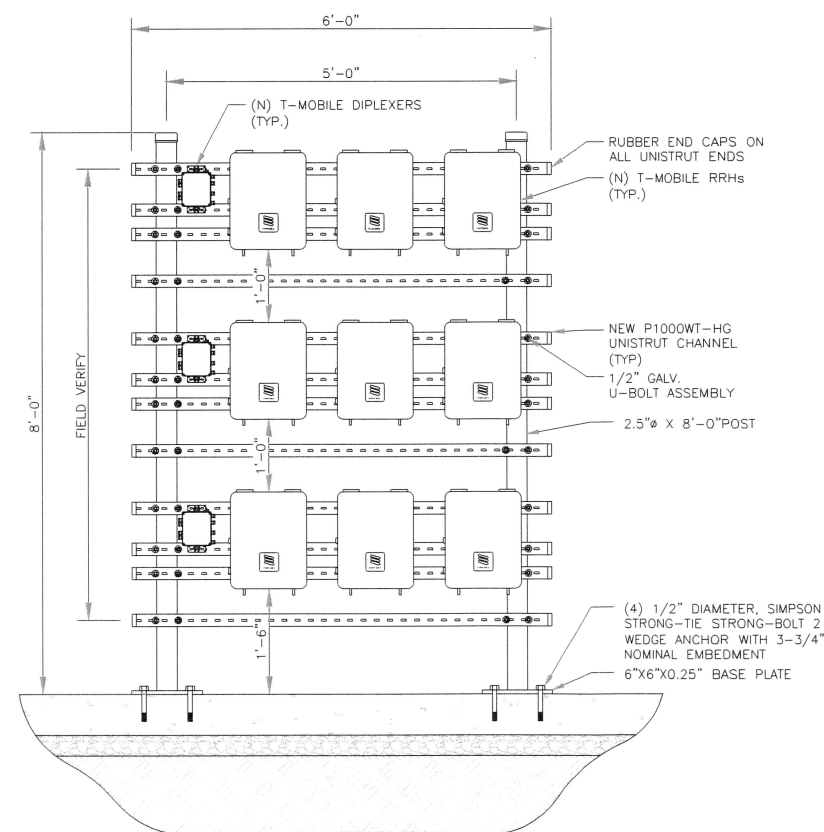
2 ERICSSON - SXK1250247/1 RRH MOUNTING BRACKETS
SCALE: NOT TO SCALE



3 PURCELL - RAC24
SCALE: NOT TO SCALE



4 H-FRAME DETAIL
SCALE: NOT TO SCALE



5 H-FRAME DETAILS
SCALE: NOT TO SCALE

6 NOT USED
SCALE: NOT TO SCALE

T Mobile

CROWN CASTLE

B+T GRP
1717 S. BOULDER
SUITE 300
TULSA, OK 74119
PH: (918) 587-4630
www.btgrp.com

T-MOBILE SITE NUMBER:
4BN0510A

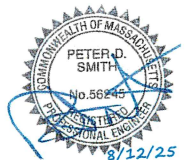
BU #: 822710
CROWN CASTLE SITE
NAME:
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5	8/12/25	YX	CORRECTION	LR



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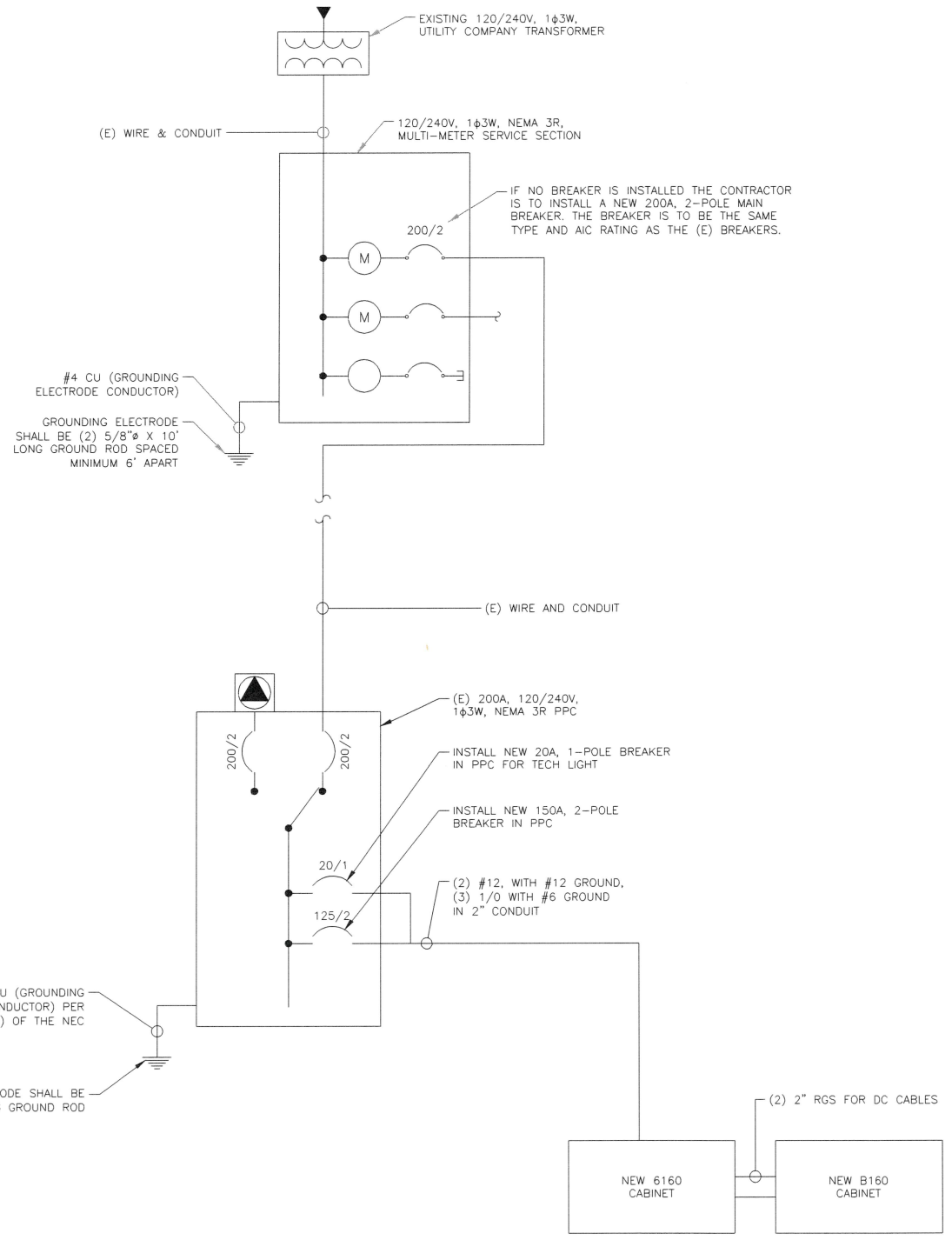
SHEET NUMBER:

C-6.4

REVISION:

5

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



1 ONE-LINE DIAGRAM
SCALE: NOT TO SCALE

- NOTES:**
1. PANEL SCHEDULE PENDING FIELD VERIFICATION.

EXISTING PANEL SCHEDULE

LOAD	POLES	AMPS	BUS		AMPS	POLES	LOAD
			L1	L2			
SURGE	2	60A	1	2	20A	1	TELCO OUTLET
BOOSTER 1	2	30A	3	4	50A	2	BTS 1
			5	6			
UMTS NODE (OFF)	2	80A	7	8	30A	2	STRONGWELL
			9	10			
			11	12	60A	2	RBS 6102
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
			23	24			

RATED VOLTAGE: <input checked="" type="checkbox"/> 120/240 <input type="checkbox"/> _____ 1 PHASE, 3 WIRE	BRANCH POLES: <input type="checkbox"/> 12 <input checked="" type="checkbox"/> 24 <input type="checkbox"/> 30 <input type="checkbox"/> 42	APPROVED MFR'S
RATED AMPS: <input type="checkbox"/> 100 <input checked="" type="checkbox"/> 200 <input type="checkbox"/> 400 <input type="checkbox"/> _____	CABINET: <input type="checkbox"/> SURFACE <input type="checkbox"/> FLUSH	NEMA <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 3R <input type="checkbox"/> 4X
<input type="checkbox"/> MAIN LUGS ONLY <input checked="" type="checkbox"/> MAIN 200 AMPS <input checked="" type="checkbox"/> BREAKER <input type="checkbox"/> FUSED SWITCH	<input checked="" type="checkbox"/> HINGED DOOR	<input checked="" type="checkbox"/> KEYPED DOOR LATCH
<input type="checkbox"/> FUSED <input checked="" type="checkbox"/> CIRCUIT BREAKER <input type="checkbox"/> BRANCH DEVICES	<input type="checkbox"/> _____ TO BE GFCI BREAKERS	<input type="checkbox"/> FULL NEUTRAL BUS <input type="checkbox"/> GROUND BAR

ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL

2 EXISTING PANEL SCHEDULE
SCALE: NOT TO SCALE

FINAL PANEL SCHEDULE

LOAD	POLES	AMPS	BUS		AMPS	POLES	LOAD
			L1	L2			
SURGE	2	60A	1	2	20A	1	TELCO OUTLET
BOOSTER 1	2	30A	3	4	125A	2	6160
			5	6			
UMTS NODE (OFF)	2	80A	7	8	30A	2	STRONGWELL
			9	10			
			11	12	20A	1	TECH LIGHT
			13	14			
			15	16			
			17	18			
			19	20			
			21	22			
			23	24			

RATED VOLTAGE: <input checked="" type="checkbox"/> 120/240 <input type="checkbox"/> _____ 1 PHASE, 3 WIRE	BRANCH POLES: <input type="checkbox"/> 12 <input checked="" type="checkbox"/> 24 <input type="checkbox"/> 30 <input type="checkbox"/> 42	APPROVED MFR'S
RATED AMPS: <input type="checkbox"/> 100 <input checked="" type="checkbox"/> 200 <input type="checkbox"/> 400 <input type="checkbox"/> _____	CABINET: <input type="checkbox"/> SURFACE <input type="checkbox"/> FLUSH	NEMA <input type="checkbox"/> 1 <input checked="" type="checkbox"/> 3R <input type="checkbox"/> 4X
<input type="checkbox"/> MAIN LUGS ONLY <input checked="" type="checkbox"/> MAIN 200 AMPS <input checked="" type="checkbox"/> BREAKER <input type="checkbox"/> FUSED SWITCH	<input checked="" type="checkbox"/> HINGED DOOR	<input checked="" type="checkbox"/> KEYPED DOOR LATCH
<input type="checkbox"/> FUSED <input checked="" type="checkbox"/> CIRCUIT BREAKER <input type="checkbox"/> BRANCH DEVICES	<input type="checkbox"/> _____ TO BE GFCI BREAKERS	<input type="checkbox"/> FULL NEUTRAL BUS <input type="checkbox"/> GROUND BAR

ALL BREAKERS MUST BE RATED TO INTERRUPT A SHORT CIRCUIT ISC OF 10,000 AMPS SYMMETRICAL

REPLACE EXISTING 2P BREAKER IN POSITION 4 AND 6 WITH NEW 2P 150A BREAKER
 REPLACE EXISTING 2P BREAKER IN POSITION 12 WITH NEW 1P 20A BREAKER
 IF 150A BREAKER WILL NOT PROPERLY FIT IN EXISTING PANEL, REPLACE (E) PANEL WITH SQUARE D PANEL Q0130M150PRB (OR APPROVED EQUAL).
 UPGRADE FEEDER WIRES TO MEET AMPACITY IF NEW PANEL IS REQUIRED.
 FINAL PANEL DESIGN AND CALCULATIONS FOR WIRE SIZE WERE BASED OFF OF EXISTING PHOTOS

3 FINAL PANEL SCHEDULE
SCALE: NOT TO SCALE



T-MOBILE SITE NUMBER:
4BN0510A

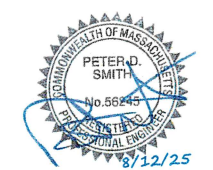
BU #: **822710**
 CROWN CASTLE SITE NAME:
BN510/OREGON CLUB

117 OREGON RD
 ASHLAND, MA 01721

EXISTING 75'-0"
 CONCEALMENT FLAGPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
1	5/28/25	YX	CONSTRUCTION	LR
2	7/11/25	YX	CONSTRUCTION	TDG
3	7/29/25	YX	CORRECTION	TDG
4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



B&T ENGINEERING, INC.

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SHEET NUMBER: **E-1** REVISION: **5**

I:\BUBBLE\SAVED\FINAL_1\ANSI.DWG

T-Mobile

CROWN CASTLE

B+T GRP
 1717 S. BOULDER
 SUITE 300
 TULSA, OK 74119
 PH: (918) 587-4630
 www.btgrp.com

T-MOBILE SITE NUMBER:
4BN0510A

BU #: **822710**
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EXISTING 75'-0"
 CONCEALMENT FLAGPOLE

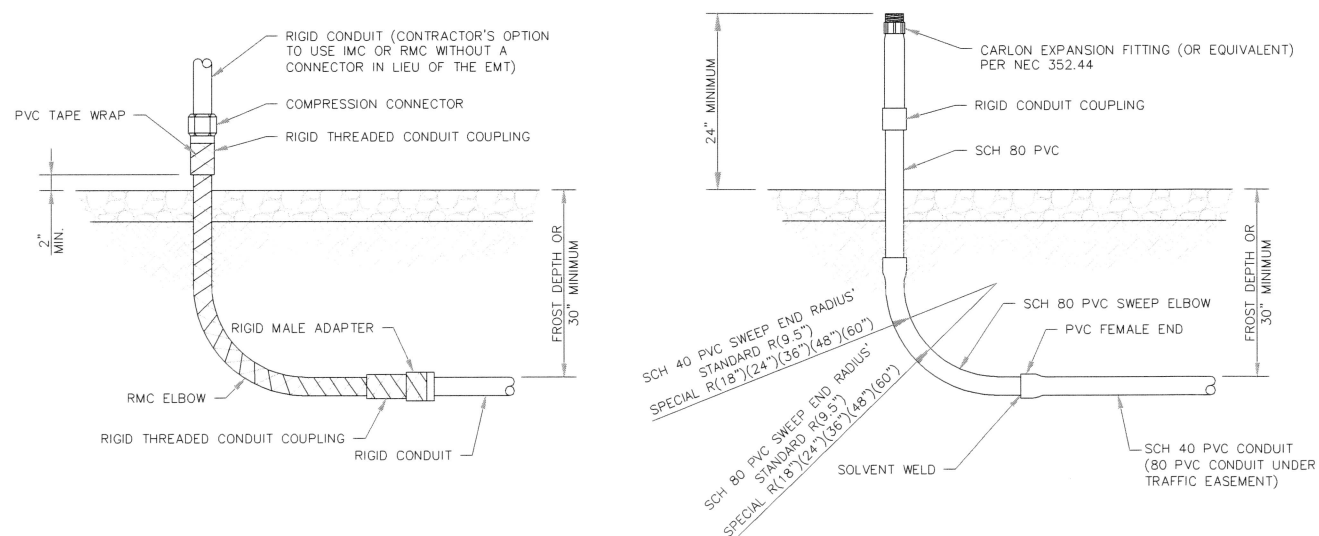
1 NOT USED
 SCALE: NOT TO SCALE

INSTALLER NOTES:

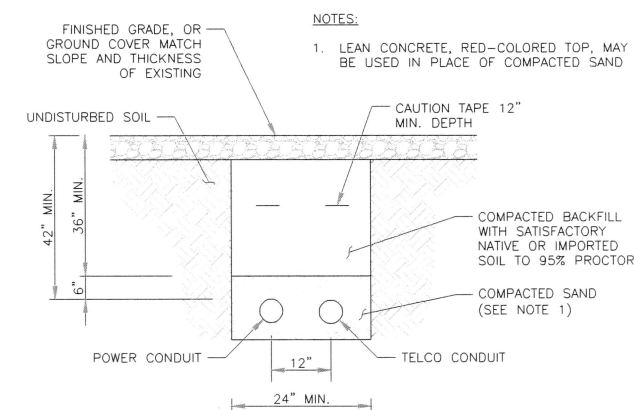
ALL METAL CONDUIT INSTALLED IN DIRECT CONTACT WITH THE EARTH SHALL BE CONSIDERED TO BE INSTALLED IN A SEVERELY CORROSIVE ENVIRONMENT AND IS REQUIRED TO HAVE SUPPLEMENTAL PROTECTION AGAINST CORROSION (NEC ARTICLE 342.10(B) & 344.10(B)(1)). THIS PROTECTION SHALL EITHER BE AN APPROVED MANUFACTURER INSTALLED PROTECTIVE COATING ON THE CONDUIT OR SHALL BE (2) LAYERS OF 10 MIL PVC PIPE WRAP TAPE INSTALLED USING OPPOSING SPIRAL WRAPS. ON VERTICAL PIPE THE OUTSIDE LAYER OF TAPE SHALL BE WRAPPED SO AS TO PROVIDE SHEDDING OF WATER (i.e. TAPE SHOULD WRAP IN AN UPWARD DIRECTION WITH LOWER WRAP BEING BENEATH THE WRAP ABOVE). SPIRAL WRAPS SHALL HAVE A MINIMUM OF 1/4" OVERLAP WITH THE PRECEDING TAPE WRAP. ANY OTHER METHODS OF CORROSION PROTECTION SHALL REQUIRE APPROVAL BY THE ENGINEER OF RECORD PRIOR TO BEING USED.

ISSUED FOR:

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4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



2 CONDUIT STUB UP DETAILS
 SCALE: NOT TO SCALE



3 TRENCH DETAIL
 SCALE: NOT TO SCALE



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SHEET NUMBER:

E-2

REVISION:

5

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 PH: (918) 587-4630
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T-MOBILE SITE NUMBER:
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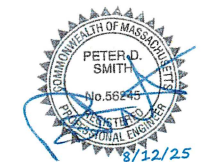
BU #: **822710**
 CROWN CASTLE SITE
 NAME:
BN510/OREGON CLUB

117 OREGON RD
 ASHLAND, MA 01721

EXISTING 75'-0"
 CONCEALMENT FLAGPOLE

ISSUED FOR:

REV	DATE	DRWN	DESCRIPTION	DES/QA
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5	8/12/25	YX	CORRECTION	LR



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SHEET NUMBER:

G-1

REVISION:

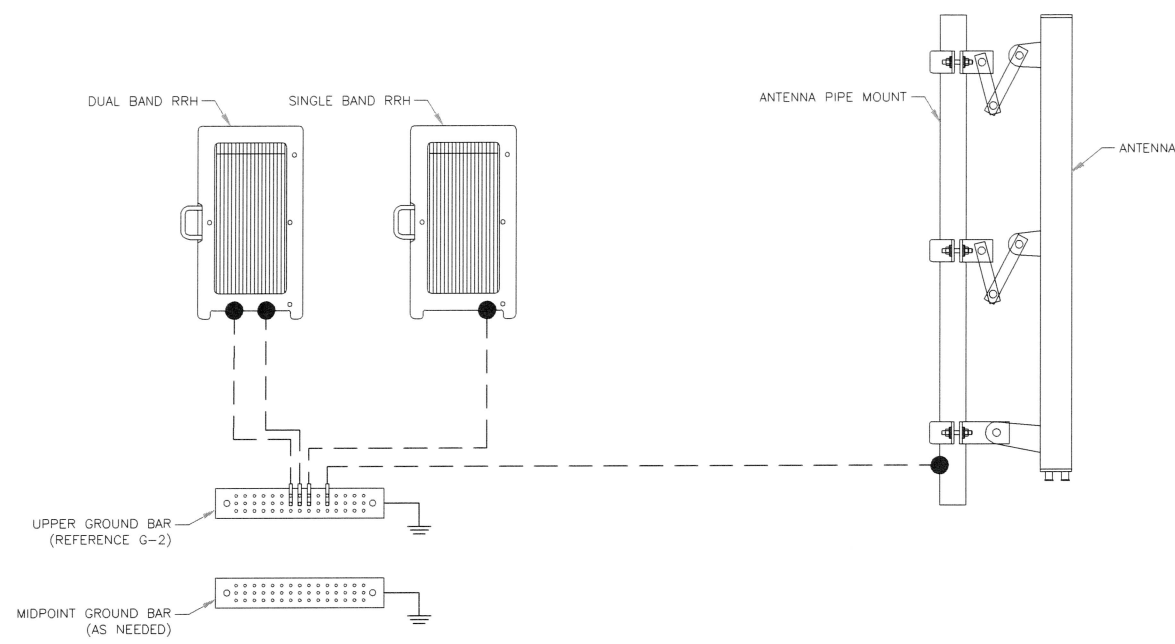
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GROUNDING PLAN LEGEND:

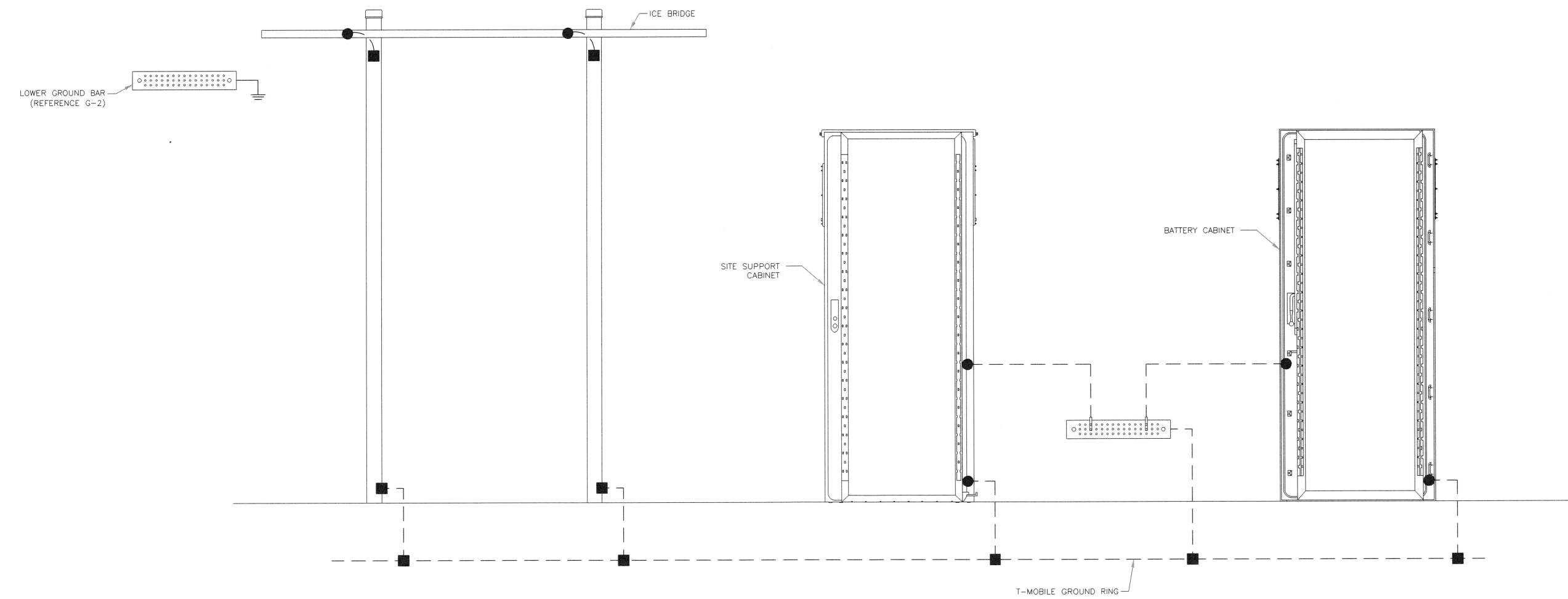
- #6 STRANDED COPPER WITH GREEN INSULATION GROUND WIRE
- #2 STRANDED COPPER WITH GREEN INSULATION GROUND WIRE
- #2 BARE, SOLID, TINNED COPPER GROUND WIRE
- EXOTHERMIC WELD
- MECHANICAL CONNECTION
- COPPER GROUND ROD
- ⊗ GROUND ROD W/ TEST WELL

NOTE:

SEE FINAL EQUIPMENT PLAN FOR NEW EQUIPMENT REQUIRING GROUNDING. CONTRACTOR TO VERIFY EXISTING EQUIPMENT GROUNDING IN FIELD. CONTRACTOR TO VERIFY IN FIELD AND INSTALL ANY MISSING T-MOBILE GROUND BARS ON SITE.

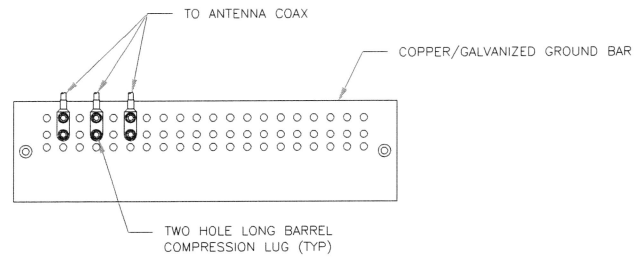


ANTENNA LEVEL
 GROUND LEVEL



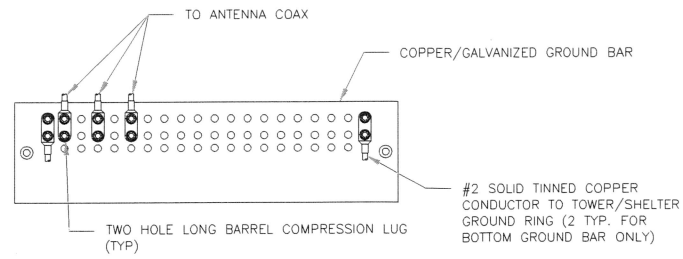
1 TYPICAL FINAL GROUNDING SCHEMATIC
 SCALE: NOT TO SCALE

T-MOBILE NATIONAL WIRE CENTER



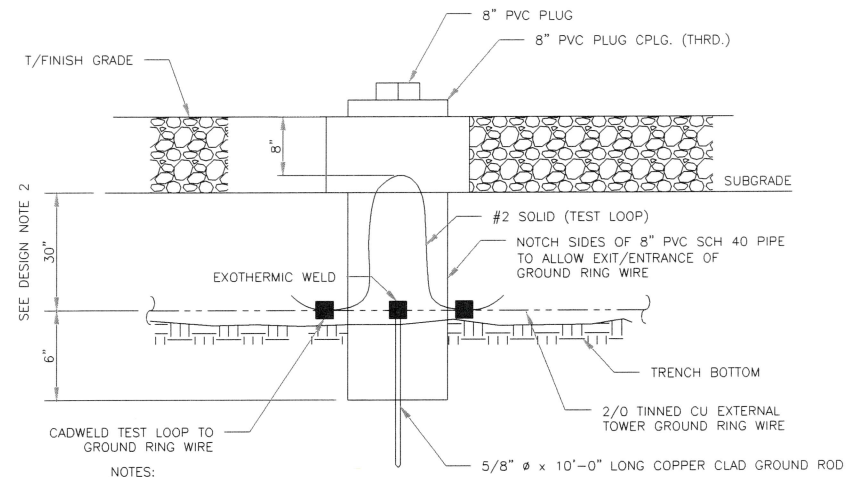
- NOTES:
1. DOUBLING UP "OR STACKING" OF CONNECTIONS IS NOT PERMITTED.
 2. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 3. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO ANTENNA MOUNT STEEL.

1 ANTENNA SECTOR GROUND BAR DETAIL
SCALE: NOT TO SCALE



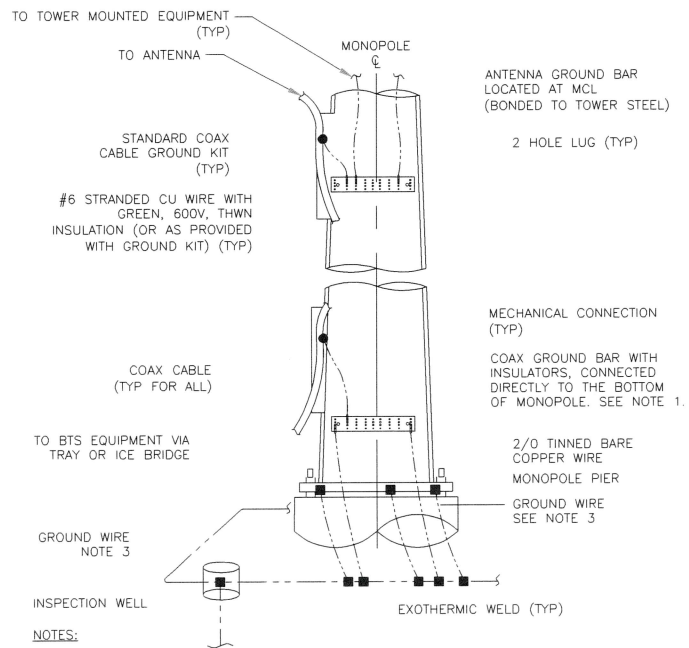
- NOTES:
1. EXTERIOR ANTIOXIDANT JOINT COMPOUND TO BE USED ON ALL EXTERIOR CONNECTIONS.
 2. GROUND BAR SHALL NOT BE ISOLATED FROM TOWER. MOUNT DIRECTLY TO TOWER STEEL (TOWER ONLY).
 3. GROUND BAR SHALL BE ISOLATED FROM BUILDING OR SHELTER.

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



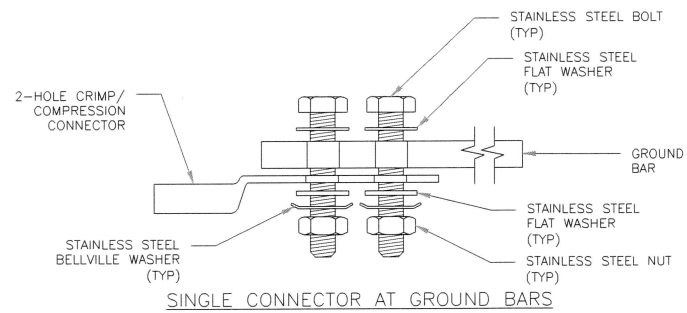
- NOTES:
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
 2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

3 INSPECTION WELL DETAIL
SCALE: NOT TO SCALE

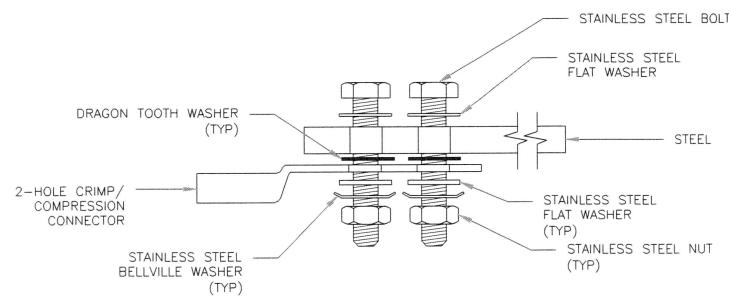


- NOTES:
1. NUMBER OF GROUNDING BARS MAY VARY DEPENDING ON THE TYPE OF TOWER, ANTENNA LOCATIONS AND CONNECTION ORIENTATION. COAXIAL CABLES EXCEEDING 200 FEET ON THE TOWER SHALL HAVE GROUND KITS AT THE MIDPOINT. PROVIDE AS REQUIRED.
 2. ONLY MECHANICAL CONNECTIONS ARE ALLOWED TO BE MADE TO CROWN CASTLE USA INC. TOWERS. ALL MECHANICAL CONNECTIONS SHALL BE TREATED WITH AN ANTI-OXIDANT COATING.
 3. ALL TOWER GROUNDING SYSTEMS SHALL COMPLY WITH THE REQUIREMENTS OF THE RECOGNIZED EDITION OF ANSI/TIA 222 AND NFPA 780.

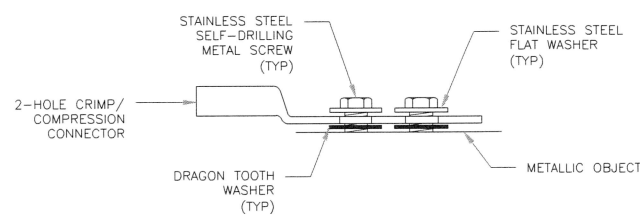
4 TYPICAL ANTENNA CABLE GROUNDING
SCALE: NOT TO SCALE



SINGLE CONNECTOR AT GROUND BARS

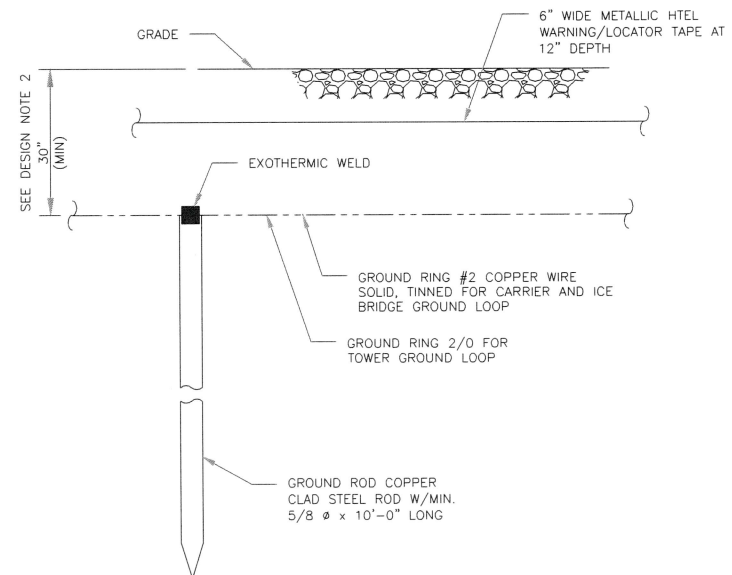


SINGLE CONNECTOR AT STEEL OBJECTS



SINGLE CONNECTOR AT METALLIC/STEEL OBJECTS

5 HARDWARE DETAIL FOR EXTERIOR CONNECTIONS
SCALE: NOT TO SCALE



- NOTES:
1. GROUND ROD SHALL BE DRIVEN VERTICALLY, NOT TO EXCEED 45 DEGREES FROM THE VERTICAL.
 2. GROUND WIRE SHALL BE MIN. 30" BELOW GRADE OR 6" BELOW FROST LINE. (WHICH EVER IS GREATER) AS PER N.E.C. ARTICLE 250-50(D).

6 GROUND ROD DETAIL
SCALE: NOT TO SCALE

T-Mobile

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T-MOBILE SITE NUMBER:
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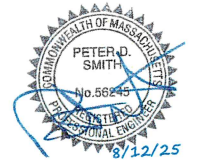
BU #: 822710
CROWN CASTLE SITE
NAME:
BN510/OREGON CLUB

117 OREGON RD
ASHLAND, MA 01721

EXISTING 75'-0"
CONCEALMENT FLAGPOLE

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2	7/11/25	YX	CONSTRUCTION	TDG
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4	8/7/25	YX	CORRECTION	TDG
5	8/12/25	YX	CORRECTION	LR



B&T ENGINEERING, INC.

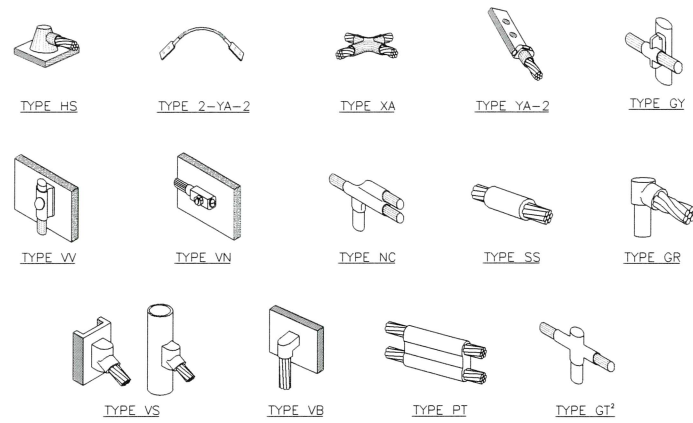
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SHEET NUMBER:

G-2

REVISION:

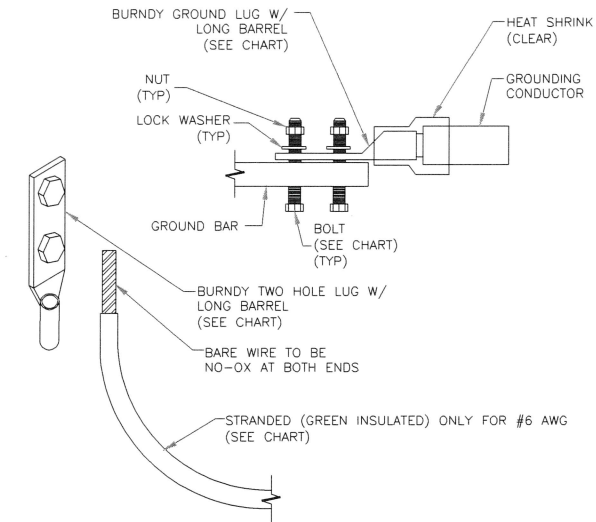
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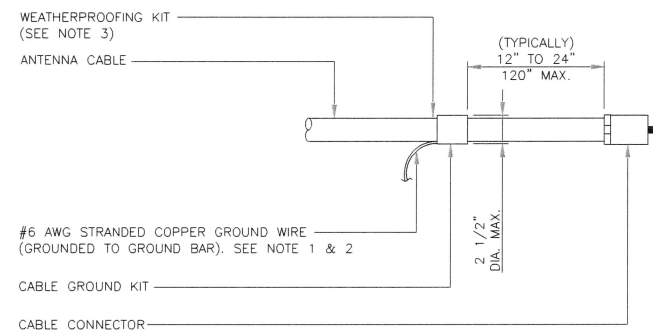
- NOTE:
1. ERICO EXOTHERMIC "MOLD TYPES" SHOWN HERE ARE EXAMPLES. CONSULT WITH CONSTRUCTION MANAGER FOR SPECIFIC MOLDS TO BE USED FOR THIS PROJECT.
 2. MOLD TYPE ONLY TO BE USED BELOW GRADE WHEN CONNECTING GROUND RING TO GROUND ROD.

1 CADWELD GROUNDING CONNECTIONS
SCALE: NOT TO SCALE

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

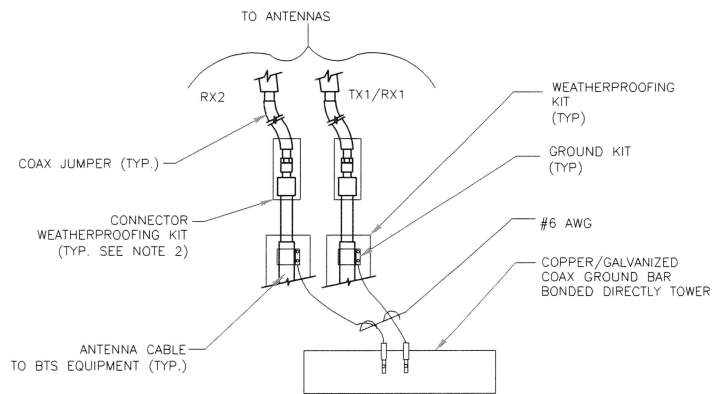


- NOTES:
1. ALL GROUNDING LUGS ARE TO BE INSTALLED PER MANUFACTURER'S SPECIFICATIONS. ALL HARDWARE BOLTS, NUTS, LOCK WASHERS SHALL BE STAINLESS STEEL. ALL HARDWARE ARE TO BE AS FOLLOWS: BOLT, FLAT WASHER, GROUND BAR, GROUND LUG, FLAT WASHER AND NUT.
- 2 MECHANICAL LUG CONNECTION**
SCALE: NOT TO SCALE



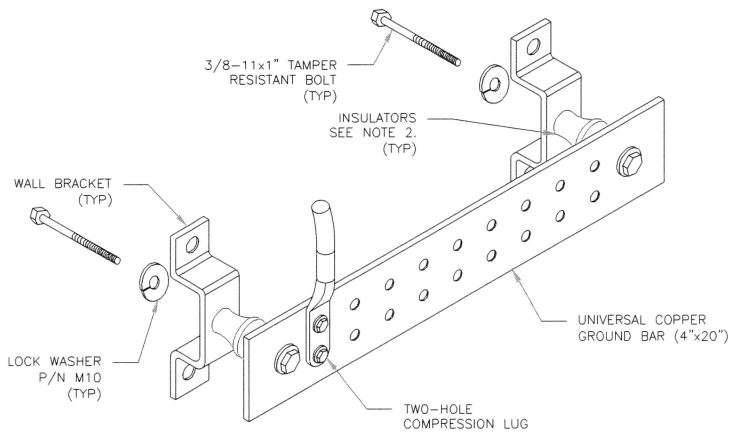
- NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO GROUND BAR.
 2. GROUNDING KIT SHALL BE TYPE AND PART NUMBER AS SUPPLIED OR RECOMMENDED BY CABLE MANUFACTURER.
 3. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT, COLD SHRINK SHALL NOT BE USED.

3 CABLE GROUND KIT CONNECTION
SCALE: NOT TO SCALE



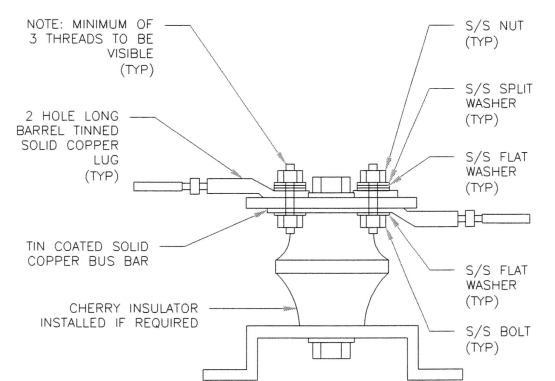
- NOTES:
1. DO NOT INSTALL CABLE GROUND KIT AT A BEND AND ALWAYS DIRECT GROUND WIRE DOWN TO ANTENNA GROUND BAR.
 2. WEATHER PROOFING SHALL BE TWO-PART TAPE KIT. COLD SHRINK SHALL NOT BE USED.

4 GROUND CABLE CONNECTION
SCALE: NOT TO SCALE

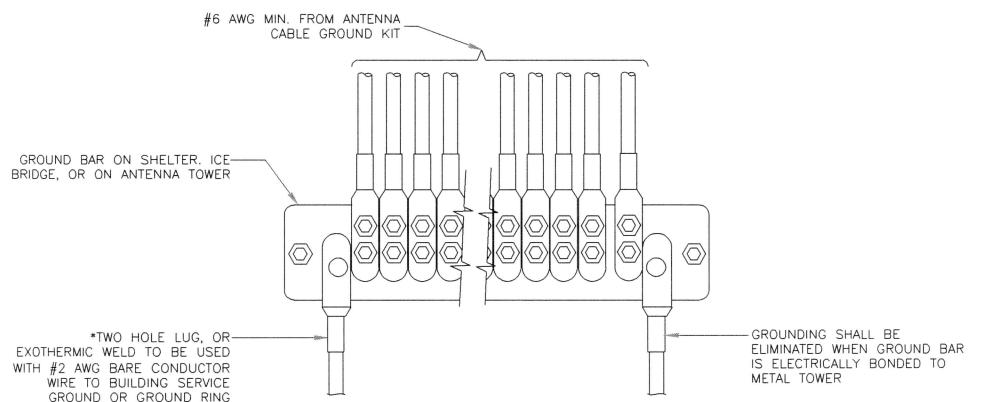


- NOTES:
1. DOWN LEAD (HOME RUN) CONDUCTORS ARE NOT TO BE INSTALLED ON CROWN CASTLE USA INC. TOWER, PER THE GROUNDING DOWN CONDUCTOR POLICY QAS-STD-10091. NO MODIFICATION OR DRILLING TO TOWER STEEL IS ALLOWED IN ANY FORM OR FASHION, CAD-WELDING ON THE TOWER AND/OR IN THE AIR ARE NOT PERMITTED.
 2. OMIT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

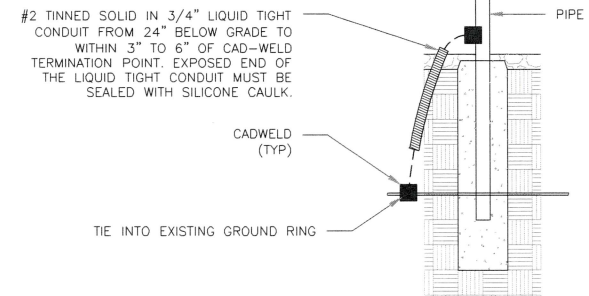
6 GROUND BAR DETAIL
SCALE: NOT TO SCALE



7 LUG DETAIL
SCALE: NOT TO SCALE



5 GROUNDWIRE INSTALLATION
SCALE: NOT TO SCALE



8 TRANSITIONING GROUND DETAIL
SCALE: NOT TO SCALE



T-MOBILE SITE NUMBER:
4BN0510A

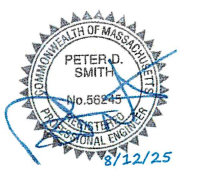
BU #: **822710**
CROWN CASTLE SITE NAME:
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G-3

REVISION:

5