



5RA0183A

162 MATTIE RIDGELL LANE LILLINGTON, NC 27546

POWER HARDENING SBA#: NC14882-A



2105 WATER RIDGE PARKWAY, SUITE 400
CHARLOTTE, NC 28217

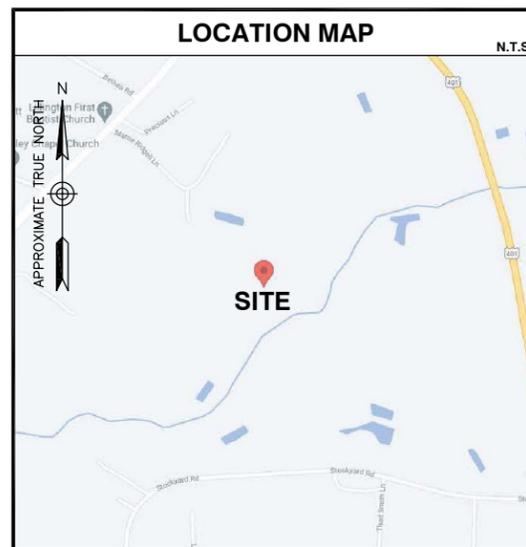
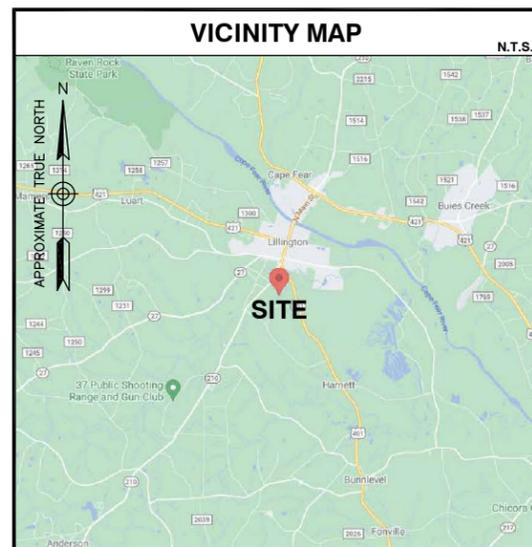
5RA0183A



Dewberry Engineers Inc.
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
FAX: 919.881.9923
NCBELS # F-0929

SITE INFORMATION	
SITE LOCATION	
162 MATTIE RIDGELL LANE LILLINGTON, NC 27546	
LATITUDE (NAD83):	35° 22' 47.23" N
LONGITUDE (NAD83):	78° 49' 12.09" W
PROPERTY INFORMATION	
PARCEL ID:	100559 0090
PIN:	0559-33-7908.000
JURISDICTION:	HARNETT COUNTY
ZONING CLASS:	RA-20R
COUNTY:	HARNETT
PROPERTY OWNER	
ADAMS STEVE & ADAMS GAYLE P.O. BOX 794 ANGIER, NC 27501	
TOWER OWNER	
SBA COMMUNICATIONS CORPORATION 8051 CONGRESS AVENUE BOCA RATON, FL 33487	
OCCUPANCY TYPE:	
UNMANNED AND NOT FOR HUMAN HABITATION	

PROJECT TEAM	
APPLICANT	
T-MOBILE 2105 WATER RIDGE PARKWAY SUITE 400 CHARLOTTE, NC 28217 ALEX KRASNOV (919) 306-1512	
SITE ACQUISITION:	
DEWBERRY ENGINEERS INC. DOUGLAS FULCHER (919) 425-7611	
ENGINEERING	
DEWBERRY ENGINEERS INC. MATTHEW SELKIRK, PE (804) 205-3361	
CONSTRUCTION MANAGEMENT:	
DEWBERRY DESIGN-BUILDERS INC. JESSICA ROBBINS, PE (919) 636-6303	
POWER PROVIDER:	
DUKE ENERGY (800) 653-5307	



DIRECTIONS:
FROM RALEIGH, NC, TAKE I-440 W/US-1 S TOWARD SANFORD. TAKE THE NC-55 EXIT, EXIT 95, TOWARD FUQUAY-VARINA/APEX/HOLLY SPRINGS. TURN LEFT ONTO E WILLIAMS ST/NC-55. NC-55 BECOMES NC-55 BYP. STAY STRAIGHT TO GO ONTO GB ALFORD HWY/NC-55 BYP. GB ALFORD HWY BECOMES BROAD ST/NC-55. TURN RIGHT ONTO N ENNIS ST/NC-55. TURN RIGHT ONTO N MAIN ST/US-401 S/NC-42. TURN RIGHT ONTO N MAIN ST/US-421 N/US-401 S/NC-27/NC-210. TURN RIGHT ONTO S MAIN ST/NC-210. TAKE THE 3RD LEFT ONTO MATTIE RIDGELL LN. SITE ACCESS ROAD IS ON THE RIGHT.

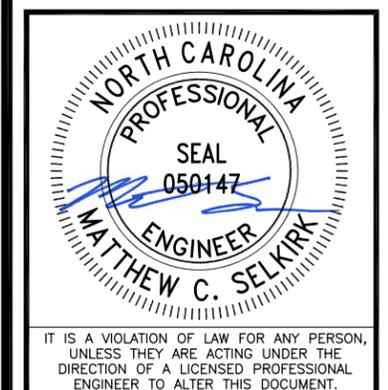
APPLICABLE CODES	
ALL WORK SHALL BE PERFORMED AND MATERIALS INSTALLED IN ACCORDANCE WITH THE FOLLOWING CODES AS ADOPTED BY THE LOCAL GOVERNING AUTHORITIES. NOTHING IN THESE PLANS IS TO BE CONSTRUED TO PERMIT WORK NOT CONFORMING TO THESE CODES.	
<ol style="list-style-type: none"> 2018 NORTH CAROLINA BUILDING CODE 2018 NORTH CAROLINA ENERGY CONSERVATION CODE 2018 NORTH CAROLINA FIRE PREVENTION CODE 2018 NORTH CAROLINA FUEL GAS CODE 2018 NORTH CAROLINA MECHANICAL CODE 2021 LIFE SAFETY CODE (NFPA 101) 2017 NATIONAL ELECTRICAL CODE (NFPA 70) NFPA 780 - LIGHTNING PROTECTION CODE TIA-EIA-222-G. ANSI/TIA 607-B-COMMERCIAL BUILDING GROUNDING & BONDING REQUIREMENTS FOR TELECOMMUNICATIONS LOCAL BUILDING CODE. CITY/COUNTY ORDINANCES. 	

PROJECT SCOPE	
THE INSTALLATION OF A 48KW AC DIESEL GENERATOR ON EXISTING CONCRETE PAD WITH ASSOCIATED CABLES/CONDUITS.	

SHEET INDEX	
SHEET NO.	DESCRIPTION
T-1	TITLE SHEET
B-1	BUILDING CODE SUMMARY
C-1	GENERAL NOTES
C-2	OVERALL SITE PLAN
C-3	EQUIPMENT LAYOUT
C-4	EQUIPMENT DETAILS
C-5	CONSTRUCTION DETAILS
E-1	ELECTRICAL & GROUNDING PLAN
E-2	ELECTRICAL & GROUNDING DETAILS

CONSTRUCTION DRAWINGS		
REV	DATE	ISSUED FOR
A	09/08/21	REVIEW
0	09/23/21	CONSTRUCTION

DRAWN BY:	XH
REVIEWED BY:	KFM
CHECKED BY:	MCS
JOB NUMBER:	50142737



SITE ADDRESS	162 MATTIE RIDGELL LANE LILLINGTON, NC 27546
SHEET TITLE	TITLE SHEET
SHEET NUMBER	T-1

APPROVALS	
THE FOLLOWING PARTIES HEREBY APPROVE AND ACCEPT THESE DOCUMENTS AND AUTHORIZE THE CONTRACTOR TO PROCEED WITH THE CONSTRUCTION DESCRIBED HEREIN. ALL DOCUMENTS ARE SUBJECT TO BE REVIEWED BY THE LOCAL BUILDING DEPARTMENT AND MAY IMPOSE CHANGES OR MODIFICATIONS.	
T-MOBILE:	DATE:
OWNER:	DATE:
MUNICIPAL:	DATE:

CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE ENGINEERS IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK.

THIS DOCUMENT WAS DEVELOPED TO REFLECT A SPECIFIC SITE AND ITS SITE CONDITIONS AND IS NOT TO BE USED FOR ANOTHER SITE OR WHEN OTHER CONDITIONS PERTAIN. REUSE OF THIS DOCUMENT IS AT THE SOLE RISK OF THE USER.



GENERAL CONSTRUCTION NOTES:

- ALL WORK SHALL CONFORM TO ALL CURRENT APPLICABLE FEDERAL, STATE, AND LOCAL CODES, INCLUDING ANSI/EIA/TIA-222, AND COMPLY WITH T-MOBILE SPECIFICATIONS.
- CONTRACTOR SHALL CONTACT "NORTH CAROLINA 811" (800-632-4949) FOR IDENTIFICATION OF UNDERGROUND UTILITIES PRIOR TO START OF CONSTRUCTION.
- CONTRACTOR IS RESPONSIBLE FOR COORDINATING ALL REQUIRED INSPECTIONS.
- ALL DIMENSIONS TO, OF, AND ON EXISTING BUILDINGS, DRAINAGE STRUCTURES, AND SITE IMPROVEMENTS SHALL BE VERIFIED IN FIELD BY CONTRACTOR WITH ALL DISCREPANCIES REPORTED TO THE ENGINEER.
- DO NOT CHANGE SIZE OR SPACING OF STRUCTURAL ELEMENTS.
- DETAILS SHOWN ARE TYPICAL; SIMILAR DETAILS APPLY TO SIMILAR CONDITIONS UNLESS OTHERWISE NOTED.
- THESE DRAWINGS DO NOT INCLUDE NECESSARY COMPONENTS FOR CONSTRUCTION SAFETY WHICH IS THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- CONTRACTOR SHALL BRACE STRUCTURES UNTIL ALL STRUCTURAL ELEMENTS NEEDED FOR STABILITY ARE INSTALLED. THESE ELEMENTS ARE AS FOLLOWS: LATERAL BRACING, ANCHOR BOLTS, ETC.
- CONTRACTOR SHALL DETERMINE EXACT LOCATION OF EXISTING UTILITIES, GROUNDS DRAINS, DRAIN PIPES, ETC. BEFORE COMMENCING WORK.
- INCORRECTLY FABRICATED, DAMAGED, OR OTHERWISE MISFITTING OR NONCONFORMING MATERIALS OR CONDITIONS SHALL BE REPORTED TO THE OWNER PRIOR TO REMEDIAL OR CORRECTIVE ACTION. ANY SUCH REMEDIAL ACTION SHALL REQUIRE WRITTEN APPROVAL BY THE OWNER'S REPRESENTATIVE PRIOR TO PROCEEDING.
- EACH CONTRACTOR SHALL COOPERATE WITH THE OWNER'S REPRESENTATIVE, AND COORDINATE HIS WORK WITH THE WORK OF OTHERS.
- CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED BY CONSTRUCTION OF THIS PROJECT TO MATCH EXISTING PRE-CONSTRUCTION CONDITIONS TO THE SATISFACTION OF THE T-MOBILE CONSTRUCTION MANAGER.
- ALL CABLE/CONDUIT ENTRY/EXIT PORTS SHALL BE WEATHERPROOFED DURING INSTALLATION USING A SILICONE SEALANT.
- WHERE EXISTING CONDITIONS DO NOT MATCH THOSE SHOWN IN THIS PLAN SET, CONTRACTOR WILL NOTIFY ENGINEER, T-MOBILE PROJECT CONSTRUCTION MANAGER, AND LANDLORD IMMEDIATELY.
- CONTRACTOR SHALL ENSURE ALL SUBCONTRACTORS ARE PROVIDED WITH A CURRENT SET OF DRAWINGS AND SPECIFICATIONS FOR THIS PROJECT.
- CONTRACTOR SHALL REMOVE ALL RUBBISH AND DEBRIS FROM THE SITE AT THE END OF EACH DAY.
- CONTRACTOR SHALL COORDINATE WORK SCHEDULE WITH LANDLORD AND TAKE PRECAUTIONS TO MINIMIZE IMPACT AND DISRUPTION OF OTHER OCCUPANTS OF THE FACILITY.
- CONTRACTOR SHALL FURNISH T-MOBILE WITH THREE AS-BUILT SETS OF DRAWINGS UPON COMPLETION OF WORK.
- PRIOR TO SUBMISSION OF BID, CONTRACTOR WILL COORDINATE WITH T-MOBILE PROJECT MANAGER TO DETERMINE IF ANY PERMITS WILL BE OBTAINED BY T-MOBILE. ALL REQUIRED PERMITS NOT OBTAINED BY T-MOBILE MUST BE OBTAINED, AND PAID FOR, BY THE CONTRACTOR.
- CONTRACTOR SHALL INSTALL ALL SITE SIGNAGE IN ACCORDANCE WITH T-MOBILE SPECIFICATIONS AND REQUIREMENTS.
- CONTRACTOR SHALL SUBMIT ALL SHOP DRAWINGS TO ENGINEER FOR REVIEW AND APPROVAL PRIOR TO FABRICATION.
- UNLESS OTHERWISE NOTED T-MOBILE SHALL PROVIDE ALL REQUIRED MATERIAL FOR CONTRACTOR TO INSTALL.
- PRIOR TO SUBMISSION OF BID, CONTRACTOR SHALL VERIFY ALL EQUIPMENT TO BE PROVIDED BY T-MOBILE FOR INSTALLATION BY CONTRACTOR.
- ALL EQUIPMENT SHALL BE INSTALLED ACCORDING TO MANUFACTURER'S SPECIFICATIONS AND LOCATED ACCORDING TO T-MOBILE SPECIFICATIONS, AND AS SHOWN IN THESE PLANS.
- THE CONTRACTOR SHALL SUPERVISE AND DIRECT THE PROJECT DESCRIBED HEREIN. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL THE CONSTRUCTION MEANS, METHODS, TECHNIQUES, SEQUENCES AND PROCEDURES AND FOR COORDINATING ALL PORTIONS OF THE WORK UNDER THE CONTRACT.
- CONTRACTOR SHALL NOTIFY DEWBERRY 48 HOURS IN ADVANCE OF POURING CONCRETE, OR BACKFILLING TRENCHES, SEALING ROOF AND WALL PENETRATIONS & POST DOWNS, FINISHING NEW WALLS OR FINAL ELECTRICAL CONNECTIONS FOR ENGINEER REVIEW.
- CONTRACTOR SHALL BE RESPONSIBLE FOR SITE SAFETY INCLUDING COMPLIANCE WITH ALL APPLICABLE OSHA STANDARDS AND RECOMMENDATIONS AND SHALL PROVIDE ALL NECESSARY SAFETY DEVICES INCLUDING PPE AND PPM AND CONSTRUCTION DEVICES SUCH AS WELDING AND FIRE PREVENTION, TEMPORARY SHORING, SCAFFOLDING, TRENCH BOXES/SLOPING, BARRIERS, ETC.
- UPON COMPLETION OF THE CO-LOCATOR INSTALLATION, A RECORD DRAWING SHALL BE PROVIDED TO LOCAL JURISDICTION FOR REVIEW AND APPROVAL.

GENERAL ELECTRICAL NOTES

- ALL ELECTRICAL WORK SHALL BE DONE IN ACCORDANCE WITH ALL GOVERNING STATE, COUNTY AND LOCAL CODES, O.S.H.A., NEC, T-MOBILE SPECIFICATIONS, AND THE SPECIFICATIONS DETAILED IN THESE PLANS.
- SUBMITTAL OF BID INDICATES CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
- CONTRACTOR SHALL PERFORM ALL VERIFICATION, OBSERVATION, TESTS, AND EXAMINATION WORK PRIOR TO THE ORDERING OF THE ELECTRICAL EQUIPMENT AND THE ACTUAL CONSTRUCTION. CONTRACTOR SHALL ISSUE A WRITTEN NOTICE OF ALL FINDINGS TO THE PROJECT MANAGER LISTING ALL MALFUNCTIONS, FAULTY EQUIPMENT, AND DISCREPANCIES.
- THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE. CONTRACTOR SHALL ENSURE THAT ACCESS TO EQUIPMENT IS MAINTAINED IN ACCORDANCE WITH MANUFACTURER SPECIFICATIONS AND ALL APPLICABLE CODES.
- EACH CONDUCTOR OF EVERY SYSTEM SHALL BE PERMANENTLY TAGGED IN EACH PANELBOARD, PULLBOX, J-BOX, SWITCH BOX, ETC., IN COMPLIANCE WITH OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION (OSHA)
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION, CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR A COMPLETE AND PROPERLY OPERATIVE SYSTEM, ENERGIZED THROUGHOUT AND AS INDICATED ON DRAWINGS, AS SPECIFIED HEREIN AND/OR AS OTHERWISE REQUIRED.
- ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND IN PERFECT CONDITION WHEN INSTALLED AND SHALL BE OF THE BEST GRADE AND OF THE SAME MANUFACTURER THROUGHOUT FOR EACH CLASS OR GROUP OF EQUIPMENT. MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORY AND SHALL BEAR THE INSPECTION LABEL "J" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA, IEEE, AND NFPA.
- ALL CONDUIT INSTALLED MAY BE SURFACE MOUNTED UNLESS OTHERWISE NOTED.
- COMPLETE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE BY OWNER. ANY WORK, MATERIAL OR EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
- ALL "CONDUIT ONLY" (C.O.) INSTALLATIONS SHALL HAVE A 1/4" PULL WIRE OR ROPE.
- CONTRACTOR SHALL PROVIDE T-MOBILE PROJECT MANAGER WITH ONE SET OF COMPLETE ELECTRICAL "AS INSTALLED" DRAWINGS AT THE COMPLETION OF THE JOB, SHOWING ACTUAL DIMENSIONS, ROUTINGS, AND CIRCUITS.
- ALL BROCHURES, OPERATING MANUALS, CATALOGS, SHOP DRAWINGS, ETC. SHALL BE TURNED OVER TO OWNER AT JOB COMPLETION.
- POWER WIRE AND CABLE CONDUCTORS SHALL BE COPPER #12 AWG MINIMUM UNLESS SPECIFICALLY NOTED OTHERWISE ON DRAWINGS. CONDUCTORS #10 AWG AND SMALLER SHALL BE SOLID.
- ALL CONDUCTORS LARGER THAN #10 AWG SHALL BE STRANDED COPPER WITH THWN 600V INSULATION, UNLESS NOTED OTHERWISE.
- ALL MATING SURFACES OF GROUND CONNECTIONS SHALL BE CLEANED SMOOTH AND COATED WITH ANTIOXIDANT PRIOR TO ATTACHMENT.
- ALL GROUND CONNECTIONS BELOW GRADE MUST BE EXOTHERMICALLY WELDED (CAD WELD OR APPROVED EQUAL)
- ALL EXTERIOR GROUNDING CONDUCTORS SHALL BE # 2 AWG SOLID TINNED BARE COPPER WIRE UNLESS NOTED OTHERWISE.
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM SHORT CIRCUIT CURRENT TO WHICH THEY MAY BE SUBJECTED, AND A MINIMUM OF 10,000 A.I.C. COORDINATE SHORT CIRCUIT REQUIREMENTS WITH UTILITY COMPANY.
- CONTRACTOR SHALL PATCH, REPAIR, AND PAINT ANY AREA THAT HAS BEEN DAMAGED IN THE COURSE OF THE ELECTRICAL WORK.
- IN DRILLING HOLES INTO CONCRETE WHETHER FOR FASTENING OR ANCHORING PURPOSES, OR PENETRATIONS THROUGH THE FLOOR FOR CONDUIT RUNS, PIPE RUNS, ETC., IT MUST BE CLEARLY UNDERSTOOD THAT TENDONS AND/OR REINFORCING STEEL WILL NOT BE DRILLED INTO, CUT OR DAMAGED UNDER ANY CIRCUMSTANCES.
- LOCATION OF TENDONS AND/OR REINFORCING STEEL ARE NOT DEFINITELY KNOWN AND, THEREFORE, MUST BE SEARCHED FOR BY APPROPRIATE METHODS AND EQUIPMENT VIA X-RAY OR OTHER DEVICES THAT CAN ACCURATELY LOCATE THE REINFORCING AND/OR STEEL TENDONS.
- PENETRATIONS IN FIRE RATED WALLS SHALL BE SEALED IN ACCORDANCE WITH ALL APPLICABLE CODES.
- ALL MATERIALS SHALL BE U.L. LISTED.

- CONDUIT:
 - RIGID CONDUIT SHALL BE U.L. LABEL GALVANIZED ZINC COATED WITH ZINC INTERIOR AND SHALL BE USED WHEN INSTALLED IN OR UNDER CONCRETE SLABS, IN CONTACT WITH THE EARTH, UNDER PUBLIC ROADWAYS, IN MASONRY WALLS OR EXPOSED ON BUILDING EXTERIOR. RIGID CONDUIT IN CONTACT WITH EARTH SHALL BE 1/2 LAPPED WRAPPED WITH HUNTS WRAP PROCESS NO. 3.
 - ELECTRICAL METALLIC TUBING SHALL HAVE U.L. LABEL. FITTINGS SHALL BE GLAND RING COMPRESSION TYPE. EMT SHALL BE USED ONLY FOR INTERIOR RUNS.
 - FLEXIBLE METALLIC CONDUIT SHALL HAVE U.L. LISTED LABEL AND MAY BE USED WHERE PERMITTED BY CODE. FITTINGS SHALL BE "JAKE" OR "SQUEEZE" TYPE, SEAL TIGHT FLEXIBLE CONDUIT. ALL CONDUIT SHALL HAVE FULL SIZE GROUND WIRE.
 - CONDUIT RUNS MAY BE SURFACE MOUNTED IN CEILINGS OR WALLS UNLESS INDICATED OTHERWISE. CONDUIT SHALL RUN PARALLEL OR AT RIGHT ANGLES TO CEILING, FLOOR OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH ENGINEER PRIOR TO INSTALLING.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS.
- CONTRACTOR SHALL COORDINATE THE ELECTRICAL SERVICE WITH LANDLORD AND LOCAL UTILITY.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED AS REQUIRED BY NEC AND ALL APPLICABLE CODES.
- GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE OWNER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE. CONTRACTOR SHALL SUBMIT TO THE PROJECT MANAGER ALL TEST REPORTS AND ONE COMPLETE SET OF PRINTS SHOWING "INSTALLED WORK".
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION.
- ALL EXPOSED GROUND WIRES ROUTED ALONG THE SIDE OF EQUIPMENT SHELTERS OR ROUTED OVER CONCRETE FOUNDATIONS OR OTHER EXISTING STRUCTURES SHALL BE INSTALLED IN PROPERLY ANCHORED 3/4" (MIN.) PVC CONDUIT.
- CONTRACTOR SHALL NOT DISTURB EXISTING GROUNDING SYSTEM. ANY DAMAGE SHALL BE REPAIRED IMMEDIATELY AT NO ADDITIONAL COST.
- ALL ELEMENTS OF CABLE BRIDGE AND T-MOBILE UTILITY BACKBOARD MUST BE BONDED AND JUMPERED TO GROUNDED COMPONENTS OF THESE SYSTEMS.
- ALL INTERIOR CABLES AND WIRING SHALL BE NEATLY ROUTED IN OVERHEAD LADDER RACK AND FASTENED TO LADDER RACK WITH PLASTIC CABLE TIES.
- ALL GROUNDING CONDUCTORS SHALL BE ROUTED DOWNWARDS FROM POINT OF ORIGIN TO TERMINATION POINT (GROUND BAR, GROUND RING, ETC).
- GROUNDING CONDUCTORS SHALL NOT REVERSE DIRECTION (EXCEPT HALO & BURIED GROUND RINGS). OTHER EXCEPTIONS NEED TO BE APPROVED BY T-MOBILE CONSTRUCTION MANAGER PRIOR TO INSTALLATION.
- GROUNDING CONDUCTORS SHALL HAVE A MINIMUM BENDING RADIUS OF 8".
- ALL CONNECTIONS TO GROUND PLATES SHALL BE CAD WELDED TO THE CENTER OF THE PLATE. ALL DETAILS SHOWING CONNECTIONS TO GROUND RODS ARE ALSO VALID FOR SIMILAR CONNECTIONS TO GROUND PLATES.

GENERAL GROUNDING NOTES

- ALL DOWN CONDUCTORS AND THE GROUND RING CONDUCTOR SHALL BE #2 AWG, SOLID, BARE, TINNED COPPER, UNLESS OTHERWISE NOTED. ALL CONNECTIONS TO GROUND RING SHALL BE EXOTHERMICALLY WELDED. CONDUCTOR SHALL BE AT A MINIMUM DEPTH BELOW GRADE OF 18 INCHES OR TO LEDGE. MINIMUM BEND RADIUS SHALL BE 8 INCHES. CONDUCTOR SHALL BE AT LEAST 24 INCHES FROM ANY FOUNDATION, UNLESS OTHERWISE NOTED.
- GROUND RODS SHALL BE 5/8" DIAMETER COPPER CLAD, HARGER, T&B, ERICO, OR EQUIVALENT. TOP OF ROD SHALL BE A MINIMUM OF 18" BELOW GRADE. IF LEDGE IS ENCOUNTERED, INSTALL GROUND ROD AT AN ANGLE. ELECTRICAL METER GROUND ROD EXCEPTED.
- WHERE MECHANICAL CONNECTIONS ARE SPECIFIED, BOLTED, COMPRESSION-TYPE, CLAMPS OR SPLIT-BOLT TYPE CONNECTORS SHALL BE USED.
- GRIND OFF GALVANIZING IN AFFECTED AREA. EXOTHERMICALLY WELD #2 CONDUCTOR AT 6" ABOVE GRADE OR FOUNDATION, WHICHEVER IS HIGHER. COLD-GALV AFTER. EXOTHERMICALLY WELD OTHER END TO GROUND RING.
- INSTALL GROUNDING KITS AT ANTENNA CENTERLINE, AND TOWER EXIT POINTS. GROUND COAX LINES. EXOTHERMICALLY WELD #2 DOWN CONDUCTOR TO PLATES, RUN DOWN TOWER, AND TIE INTO GROUNDING SYSTEM.
- ALL GROUNDING WORK SHALL COMPLY WITH T-MOBILE CONSTRUCTION CONTRACT STANDARDS. FOLLOWING COMPLETION OF WORK, GROUND SYSTEM MUST BE TESTED AND SHALL HAVE A RESISTANCE OF 5 OHMS OR LESS SUBMIT AN INDEPENDENT "FALL POTENTIAL" TESTING REPORT.
- ALL GROUNDING CONDUCTORS ON EXTERIOR WALL OF SHELTER SHALL BE INSTALLED IN 3/4" SCH 40 PVC CONDUIT TO 12" BELOW GRADE. ATTACH PVC WITH GALVANIZED "C" CLAMPS.
- CONTRACTOR SHALL HAND-DIG IN AREAS AROUND EXISTING UTILITIES.
- NOTIFY CONSTRUCTION ENGINEER IF THERE ARE ANY DIFFICULTIES INSTALLING GROUNDING SYSTEM DUE TO SITE SOIL CONDITIONS.
- GROUNDING RING IS SHOWN AS SCHEMATIC ONLY. IT IS DESIGNED WITHOUT BENEFIT OF RESISTIVITY TESTING AND DOES NOT NECESSARILY REPRESENT A GROUNDING SYSTEM TO MEET ANY SPECIFIC GROUND RESISTANCE.
- PRIOR TO POURING CONCRETE, ALL REBAR LOCATED NEAR THE BOTTOM OF THE FOUNDATION SHALL BE BONDED TOGETHER TO FORM A SINGLE GROUNDING ELECTRODE, BY STEEL TIES OF OTHER EFFECTIVE MEANS APPROVED BY NEC 2011 AND STRUCTURAL ENGINEER, AND BONDED TO THE GROUND RING AS DETAILED IN THESE PLANS. (INSPECTION MAY BE REQUIRED PRIOR TO POURING CONCRETE AND MUST BE COORDINATED BY CONTRACTOR.)
- IN ACCORDANCE WITH NEC 2011 REQUIREMENTS, ALL GROUNDING ELECTRODES PRESENT ON SITE SHALL BE BONDED TOGETHER (REFERENCE 2011 NEC ARTICLE 250.50).
- CAULK AND SEAL ALL NON-FACILITY SHELTER PENETRATIONS.

ELECTRICAL SYMBOLS

- EXOTHERMIC WELD
- COMPRESSION TYPE CONNECTION
- ▲ LUG CONNECTION/CONNECTION PER MANUFACTURERS SPECIFICATIONS
- ⊘ DISCONNECT SWITCH
- Ⓜ METER
- Ⓢ CIRCUIT BREAKER
- Ⓜ GEN GENERATOR
- Ⓜ GENERATOR RECEPTACLE
- Ⓜ AUTOMATIC TRANSFER SWITCH
- Ⓜ MANUAL TRANSFER SWITCH
- GROUNDING WIRE
- Ⓧ INDICATES CODED NUMBER

ELECTRICAL ABBREVIATIONS

- | | |
|-------|-----------------------------------|
| AWG | AMERICAN WIRE GAUGE |
| BCW | BARE COPPER WIRE |
| BTS | BASE TRANSMISSION SYSTEM |
| CIGBE | COAX ISOLATED GROUND BAR EXTERNAL |
| DIA | DIAMETER |
| DWG | DRAWING |
| EMT | ELECTRICAL METALLIC TUBING |
| GEN | GENERATOR |
| GPS | GLOBAL POSITIONING SYSTEM |
| I | WALKING BEAM INTERLOCK |
| IGR | INTERIOR GROUND RING (HALO) |
| MIGB | MASTER ISOLATED GROUND BAR |
| PPC | POWER PROTECTION CABINET |
| RGS | RIGID GALVANIZED STEEL |
| RWY | RACEWAY |
| SS | STAINLESS STEEL |
| TYP. | TYPICAL |
| AHJ | AUTHORITY HAVING JURISDICTION |
| UNO | UNLESS NOTED OTHERWISE |
| UG | UNDERGROUND |
| UE | UNDERGROUND ELECTRIC |
| UT | UNDERGROUND TELEPHONE |

T-Mobile

2105 WATER RIDGE PARKWAY, SUITE 400
CHARLOTTE, NC 28217

5RA0183A

Dewberry®

Dewberry Engineers Inc.
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
FAX: 919.881.9923
NCBELS # F-0929

CONSTRUCTION DRAWINGS

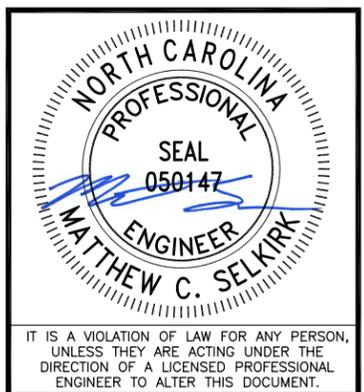
REV	DATE	ISSUED FOR
A	09/08/21	REVIEW
0	09/23/21	CONSTRUCTION

DRAWN BY: XH

REVIEWED BY: KFM

CHECKED BY: MCS

JOB NUMBER: 50142737



SITE ADDRESS

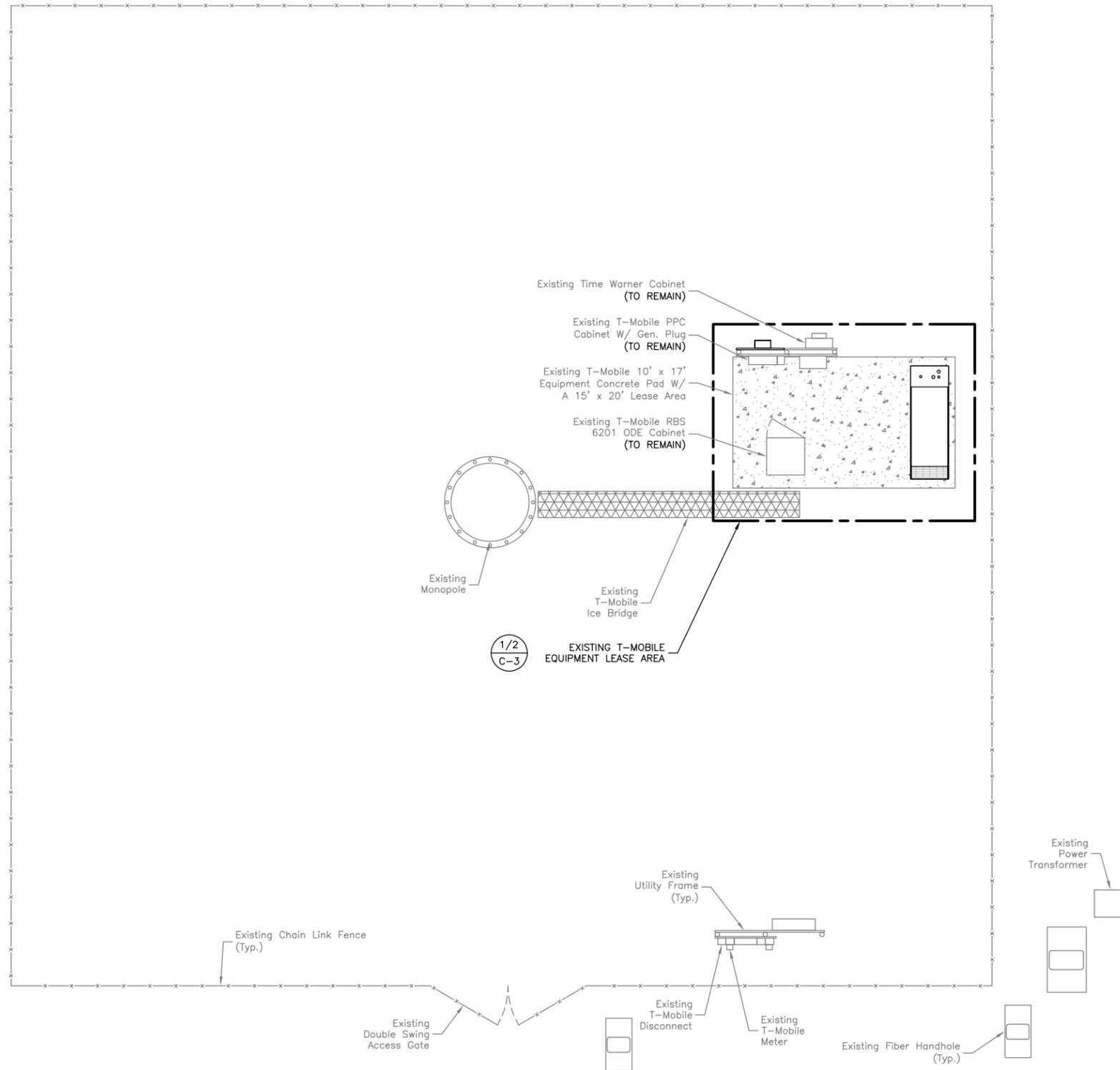
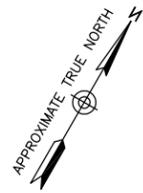
162 MATTIE RIDGELL LANE
LILLINGTON, NC 27546

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

C-1



OVERALL SITE PLAN
 SCALE: 1"=5' FOR 22"x34" PLOT
 1"=10' FOR 11"x17" PLOT

- NOTES:**
- SOME EXISTING INFORMATION NOT SHOWN FOR CLARITY.
 - CONTRACTOR TO VERIFY ALL EXISTING SITE INFORMATION & NOTIFY T-MOBILE & DEWBERRY ENGINEERS OF ANY DISCREPANCIES PRIOR TO START OF CONSTRUCTION.
 - ALL PROPOSED EQUIPMENT SHALL BE INSTALLED PER MANUFACTURERS' RECOMMENDATIONS.

T-Mobile

2105 WATER RIDGE PARKWAY, SUITE 400
 CHARLOTTE, NC 28217

5RA0183A

Dewberry

Dewberry Engineers Inc.
 2610 WYCLIFF ROAD
 SUITE 410
 RALEIGH, NC 27607
 PHONE: 919.881.9939
 FAX: 919.881.9923
 NCBELS # F-0929

CONSTRUCTION DRAWINGS		
REV	DATE	ISSUED FOR
A	09/08/21	REVIEW
0	09/23/21	CONSTRUCTION

DRAWN BY:	XH
REVIEWED BY:	KFM
CHECKED BY:	MCS
JOB NUMBER:	50142737



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.

SITE ADDRESS

162 MATTIE RIDGELL LANE
 LILLINGTON, NC 27546

SHEET TITLE

OVERALL
 SITE PLAN

SHEET NUMBER

C-2

5RA0183A



Dewberry Engineers Inc.
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
FAX: 919.881.9923
NCBELS # F-0929

CONSTRUCTION DRAWINGS

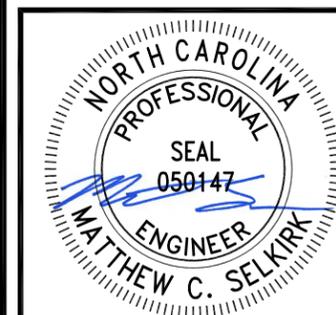
REV	DATE	ISSUED FOR
A	09/08/21	REVIEW
0	09/23/21	CONSTRUCTION

DRAWN BY: XH

REVIEWED BY: KFM

CHECKED BY: MCS

JOB NUMBER: 50142737



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.

SITE ADDRESS

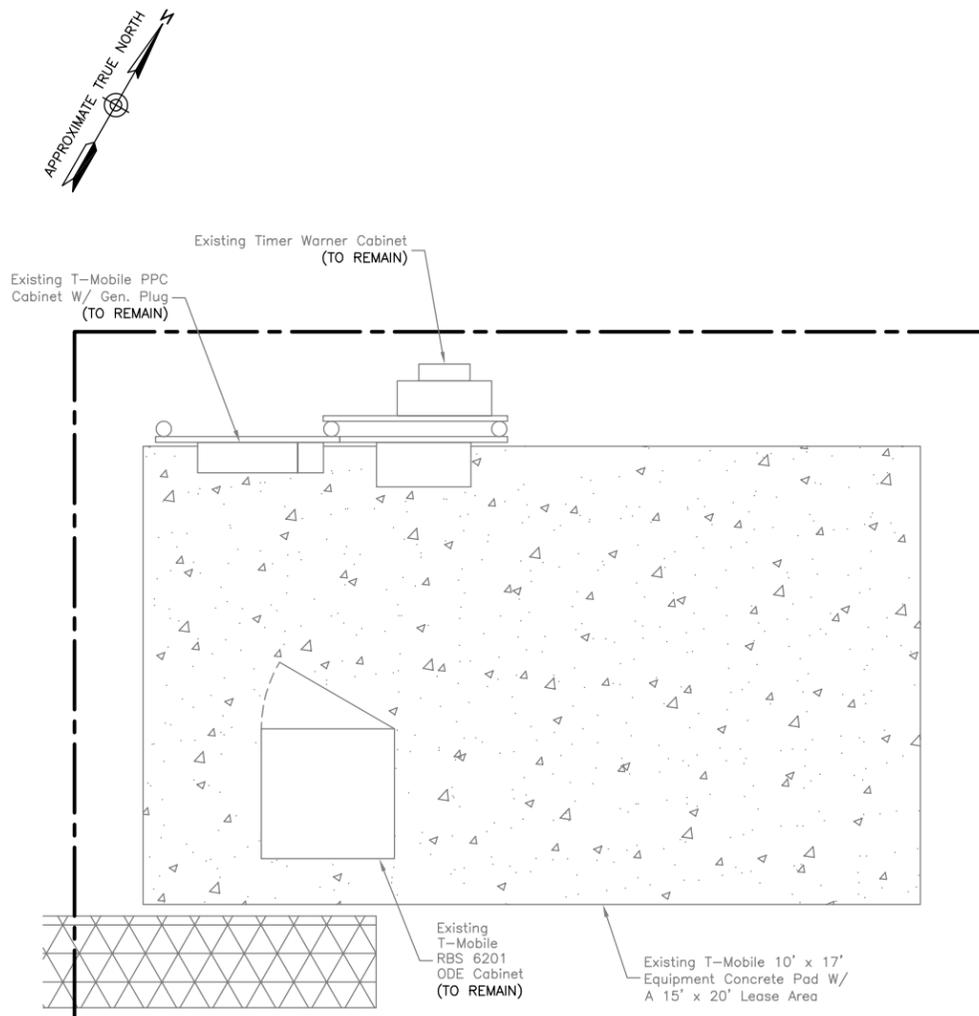
162 MATTIE RIDGELL LANE
LILLINGTON, NC 27546

SHEET TITLE

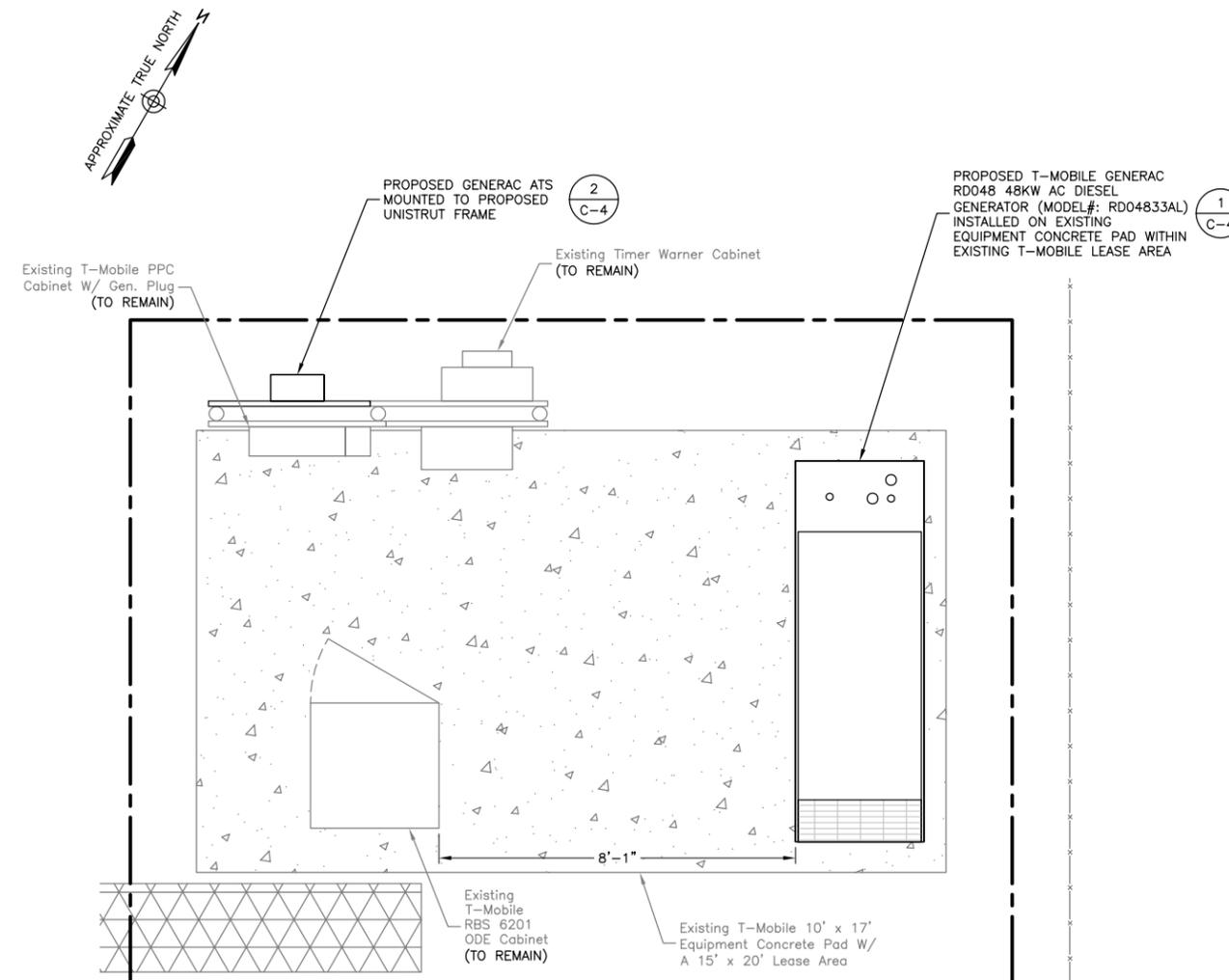
EQUIPMENT LAYOUT

SHEET NUMBER

C-3



EXISTING EQUIPMENT LAYOUT 1
SCALE: 1"=2' FOR 22"x34" PLOT
1"=4' FOR 11"x17" PLOT



PROPOSED EQUIPMENT LAYOUT 2
SCALE: 1"=2' FOR 22"x34" PLOT
1"=4' FOR 11"x17" PLOT

- NOTES:**
- SOME EXISTING INFORMATION NOT SHOWN FOR CLARITY.
 - CONTRACTOR TO VERIFY ALL EXISTING SITE INFORMATION & NOTIFY T-MOBILE & DEWBERRY ENGINEERS OF ANY DISCREPANCIES PRIOR TO START OF CONSTRUCTION.
 - ALL PROPOSED EQUIPMENT SHALL BE INSTALLED PER MANUFACTURERS' RECOMMENDATIONS.

5RA0183A

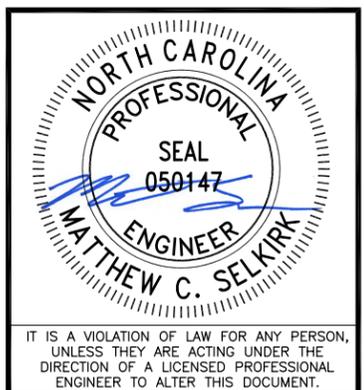


Dewberry Engineers Inc.
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
FAX: 919.881.9923
NCBELS # F-0929

CONSTRUCTION DRAWINGS

REV	DATE	ISSUED FOR
A	09/08/21	REVIEW
0	09/23/21	CONSTRUCTION

DRAWN BY:	XH
REVIEWED BY:	KFM
CHECKED BY:	MCS
JOB NUMBER:	50142737



SITE ADDRESS

162 MATTIE RIDGELL LANE
LILLINGTON, NC 27546

SHEET TITLE

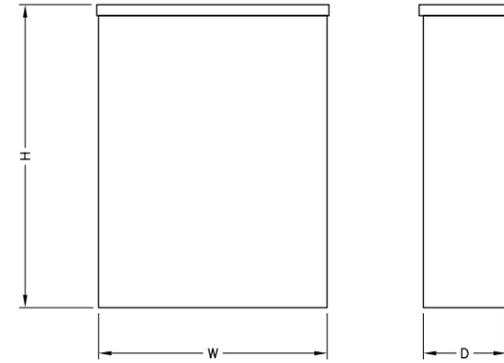
EQUIPMENT
DETAILS

SHEET NUMBER

C-4

AUTOMATIC TRANSFER SWITCH SPECIFICATIONS

MODEL	RXSC200A3	UL RATING	UL/CUL
AMPS	200	LUG RANGE	250 MCM - #6
VOLTAGE	120/240, 1Ø	WEIGHT (LBS)	20.0
LOAD TRANSITION TYPE (AUTOMATIC)	OPEN TRANSITION	DIMENSIONS (IN) (H X W X D)	20.0 X 14.6 X 7.1
ENCLOSURE TYPE	NEMA/UL 3R	WITHSTAND RATING (AMPS)	10,000

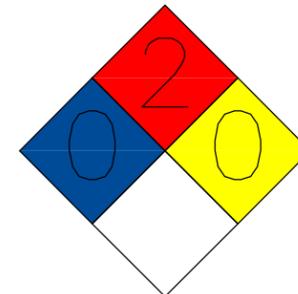


AUTOMATIC TRANSFER SWITCH DETAILS

SCALE: N.T.S.

2

NEPA 704 HAZARD IDENTIFICATION SYSTEM 15" DIAMOND



DIESEL

COMBUSTIBLE

FLAMMABLE

NO SMOKING

HAZARD RATINGS:

- NINE O'CLOCK - HEALTH
- TWELVE O'CLOCK - FLAMMABILITY
- THREE O'CLOCK - INSTABILITY
- SIX O'CLOCK - SPECIAL

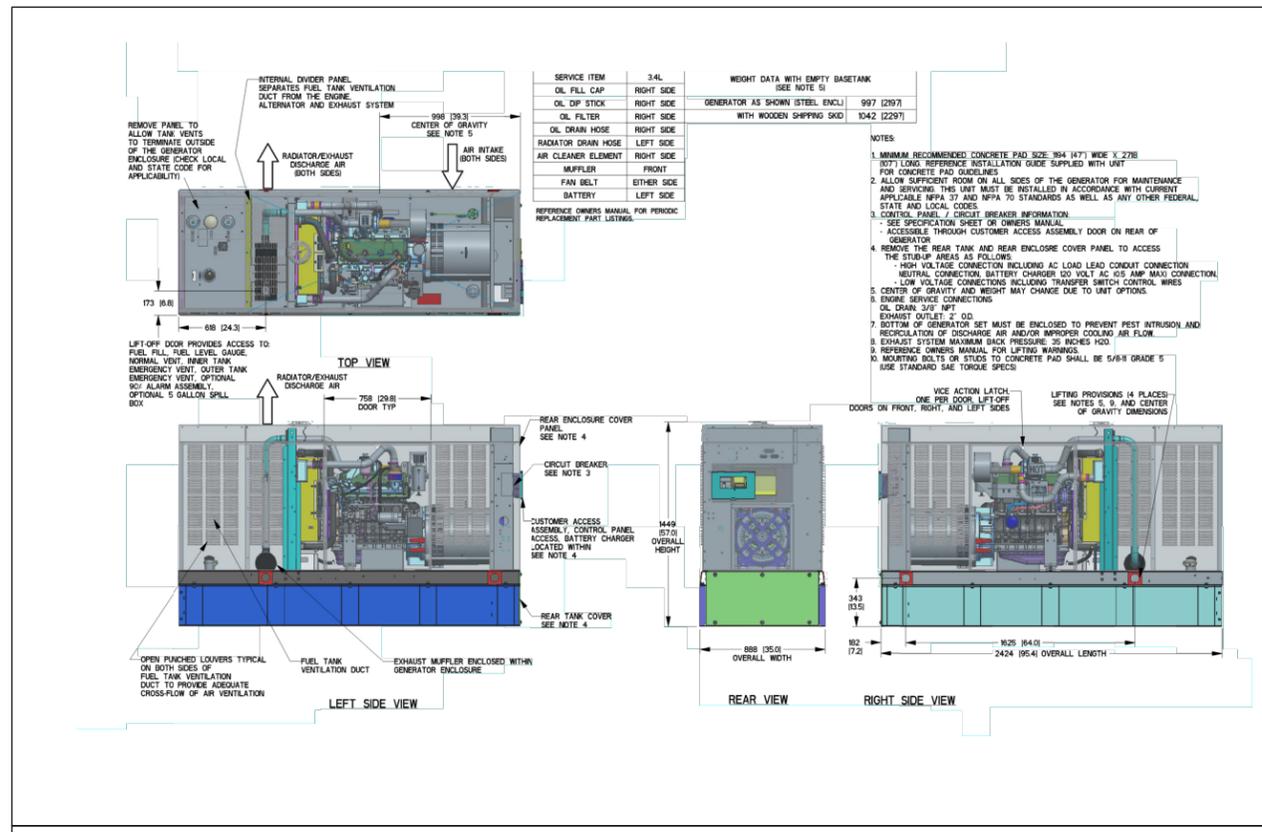
REFERENCES
NEPA 704
UFC 7901.9
IFC 2703.5

FUEL STORAGE SIGNAGE

SCALE: N.T.S.

3

NOTE: THESE SHEETS WERE CREATED BY OTHERS AND ARE FOR REFERENCE ONLY.



GENERATOR DETAILS

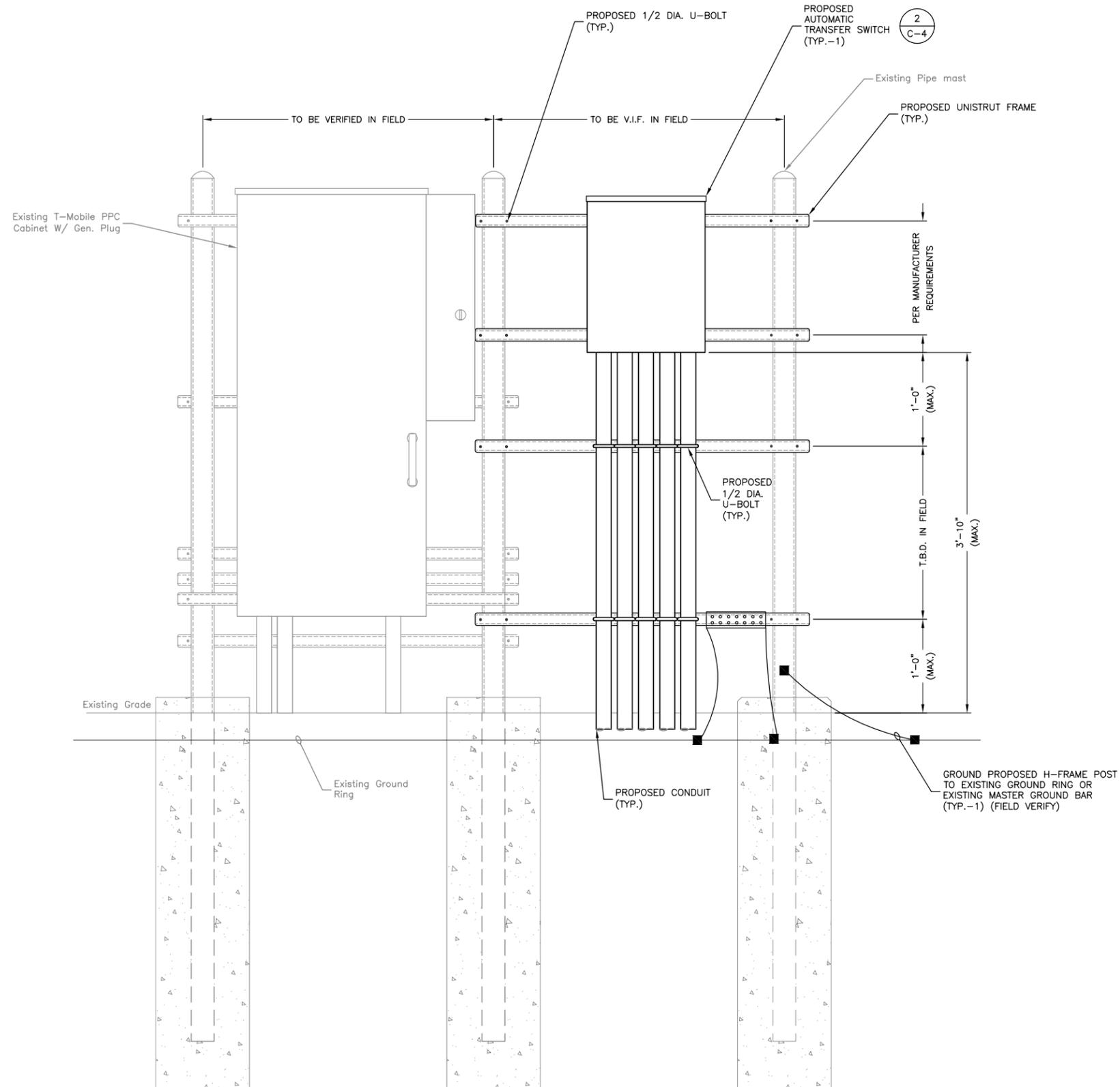
SCALE: N.T.S.

1

FUEL TANK	
TOTAL CAPACITY	233 (68)
USABLE CAPACITY	209 (65)
CAPACITY, LITER (GALLONS)	
DIMENSIONS, MM (INCH)	

THIS TANK IS LISTED TO UL142 AND UL65001

NOTE: STUB-UP AREA FOR HIGH AND LOW VOLTAGE CONNECTIONS, CIRCUIT BREAKER, NEUTRAL AND CUSTOMER CONNECTION OPENING.



ATS MOUNTING DETAIL (TYP.) 1
SCALE: N.T.S.

T-Mobile

2105 WATER RIDGE PARKWAY, SUITE 400
CHARLOTTE, NC 28217

5RA0183A

Dewberry

Dewberry Engineers Inc.
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
FAX: 919.881.9923
NCBELS # F-0929

CONSTRUCTION DRAWINGS		
REV	DATE	ISSUED FOR
A	09/08/21	REVIEW
0	09/23/21	CONSTRUCTION

DRAWN BY:	XH
REVIEWED BY:	KFM
CHECKED BY:	MCS
JOB NUMBER:	50142737



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.

SITE ADDRESS

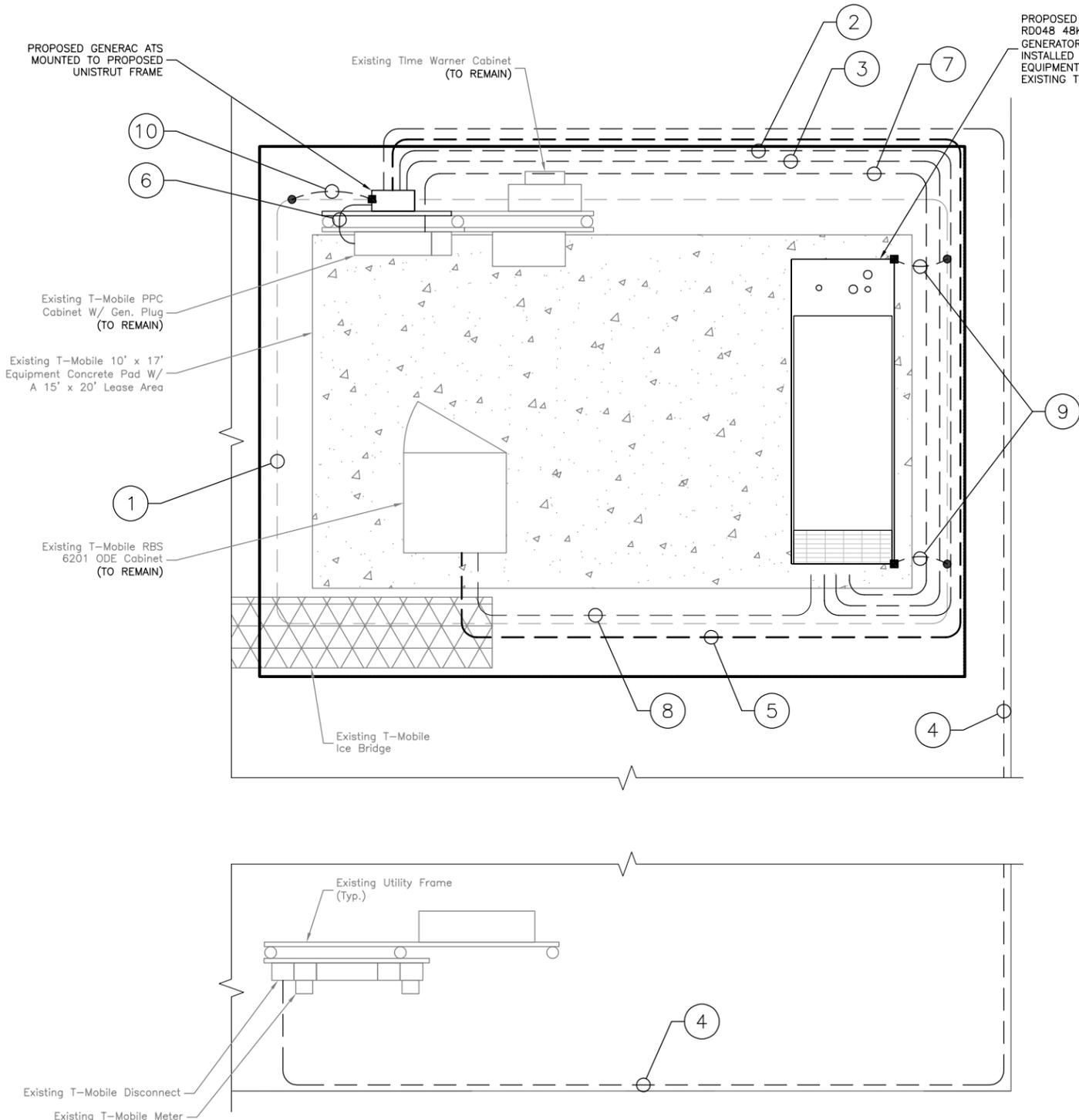
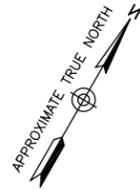
162 MATTIE RIDGELL LANE
LILLINGTON, NC 27546

SHEET TITLE

CONSTRUCTION
DETAILS

SHEET NUMBER

C-5



ANNOTATION NOTES:

- ① EXISTING T-MOBILE EQUIPMENT GROUND RING (FIELD VERIFY EXACT LOCATION)
- ② PROPOSED (1) 2" CONDUIT W/ (3) 3/0 THHN & (1) #4 GROUND FROM PROPOSED GENERATOR TO PROPOSED ATS
- ③ PROPOSED (1) 1" CONDUIT FROM PROPOSED GENERATOR TO PROPOSED ATS FOR CONTROL WIRING
- ④ PROPOSED (1) 2" CONDUIT W/ (3) 3/0 THHN FROM EXISTING DISCONNECT TO PROPOSED ATS
- ⑤ PROPOSED (1) 1" CONDUIT W/ (1) CAT6 CABLE FROM PROPOSED ATS TO EXISTING ALARM BLOCK INSIDE EXISTING T-MOBILE RBS 6201 ODE CABINET
- ⑥ PROPOSED (1) 2" CONDUIT W/ (3) 3/0 THHN & (1) #4 GROUND FROM PROPOSED ATS TO EXISTING AC PANEL
- ⑦ PROPOSED (1) 1" CONDUIT W/ (4) #12 AWG & (2) #12 GROUND FROM EXISTING AC PANEL TO PROPOSED GENERATOR FOR BLOCK HEATER & BATTERY CHARGER
- ⑧ PROPOSED (1) 1" CONDUIT W/ (1) CAT6 CABLE FROM PROPOSED GENERATOR TO EXISTING ALARM BLOCK INSIDE EXISTING T-MOBILE RBS 6201 ODE CABINET
- ⑨ CONNECT PROPOSED GENERATOR TO EXISTING GROUND RING W/ (2) #2 AWG SOLID TINNED COPPER GROUND WIRE
- ⑩ CONNECT PROPOSED ATS TO EXISTING GROUND RING W/ (1) #2 AWG SOLID TINNED COPPER GROUND WIRE

CONDUIT USE TABLE		
CONDUIT TYPE	ABOVE GROUND	BELOW GROUND
PVC	N	Y
RGS	Y	Y
LMFC	Y	N
LFNC	Y (1/2" FOR GROUNDING ONLY)	Y

- INSTALLATION NOTES:**
1. CONDUITS SHALL NOT IMPEDE INGRESS/EGRESS ROUTES.
 2. CONDUITS SHALL NOT BE INSTALLED WITHIN EQUIPMENT WORKER MAINTENANCE AREAS.
 3. CONDUIT BOXES SHALL NOT BE INSTALLED SUCH THAT THEY ARE BELOW OR FLUSH WITH GRADE.
 4. ALL CONDUIT RUNS SHALL BE PROPERTY SUPPORTED AND SECURED.
 5. EMT CONDUIT SHALL ONLY BE PERMITTED FOR INDOOR INSTALLATIONS.
 6. ALL CONDUIT RUNS BENEATH AN ELEVATED PLATFORM SHALL BE SECURED TO THE PLATFORM. CONDUIT RUNS BENEATH AN ELEVATED PLATFORM SHALL NOT BE RUN ALONG GRADE.
 7. CONTRACTOR TO ENSURE FITTINGS ARE OF THE SAME MATERIAL AS THE CONDUIT RUN.
 8. PVC CONDUIT MUST TRANSITION TO RGS OR LFMC 12" BELOW GRADE MINIMUM.

ELECTRICAL SYMBOLS

- EXOTHERMIC WELD
- COMPRESSION TYPE CONNECTION
- ▲ LUG CONNECTION/CONNECTION PER MANUFACTURERS SPECIFICATIONS
- ⊞ DISCONNECT SWITCH
- Ⓜ METER
- ⊞ CIRCUIT BREAKER
- Ⓜ GENERATOR
- Ⓜ GENERATOR RECEPTACLE
- Ⓜ AUTOMATIC TRANSFER SWITCH
- Ⓜ MANUAL TRANSFER SWITCH
- GROUNDING WIRE
- Ⓜ INDICATES CODED NUMBER

ELECTRICAL ABBREVIATIONS

- AWG AMERICAN WIRE GAUGE
- BCW BARE COPPER WIRE
- BTS BASE TRANSMISSION SYSTEM
- CIGBE COAX ISOLATED GROUND BAR EXTERNAL
- DIA DIAMETER
- DWG DRAWING
- EMT ELECTRICAL METALLIC TUBING
- GEN GENERATOR
- GPS GLOBAL POSITIONING SYSTEM
- I WALKING BEAM INTERLOCK
- IGR INTERIOR GROUND RING (HALO)
- MIGB MASTER ISOLATED GROUND BAR
- PPC POWER PROTECTION CABINET
- RGS RIDGID GALVANIZED STEEL RACEWAY
- RWY RACEWAY
- SS STAINLESS STEEL
- TYP. TYPICAL
- AHJ AUTHORITY HAVING JURISDICTION
- UNO UNLESS NOTED OTHERWISE
- UG UNDERGROUND
- UE UNDERGROUND ELECTRIC
- UT UNDERGROUND TELEPHONE

GENERAL NOTES

1. CONTRACTOR SHALL FURNISH AND INSTALL CONDUITS AND POWER CONDUCTORS AS INDICATED FROM PROPOSED GENERATOR TO EXISTING CABINET.
2. CONTRACTOR SHALL REFER TO CABINET SPECIFICATIONS FOR ALARM WIRING TO PROPOSED GENERATOR. INTERIOR ALARMS ARE PRE-WIRED.
3. ALL CONDUITS TO HAVE A PULL-STRING INSTALLED. PLUG AND CAP EACH END OF SPARE/EMPTY CONDUIT.

ELECTRICAL & GROUNDING PLAN

SCALE: 1"=2' FOR 22"X34" PLOT
1"=4' FOR 11"X17" PLOT



2105 WATER RIDGE PARKWAY, SUITE 400
CHARLOTTE, NC 28217

5RA0183A



Dewberry Engineers Inc.
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
FAX: 919.881.9923
NCBELS # F-0929

CONSTRUCTION DRAWINGS

REV	DATE	ISSUED FOR
A	09/08/21	REVIEW
0	09/23/21	CONSTRUCTION

DRAWN BY:	XH
REVIEWED BY:	KFM
CHECKED BY:	MCS
JOB NUMBER:	50142737



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.

SITE ADDRESS

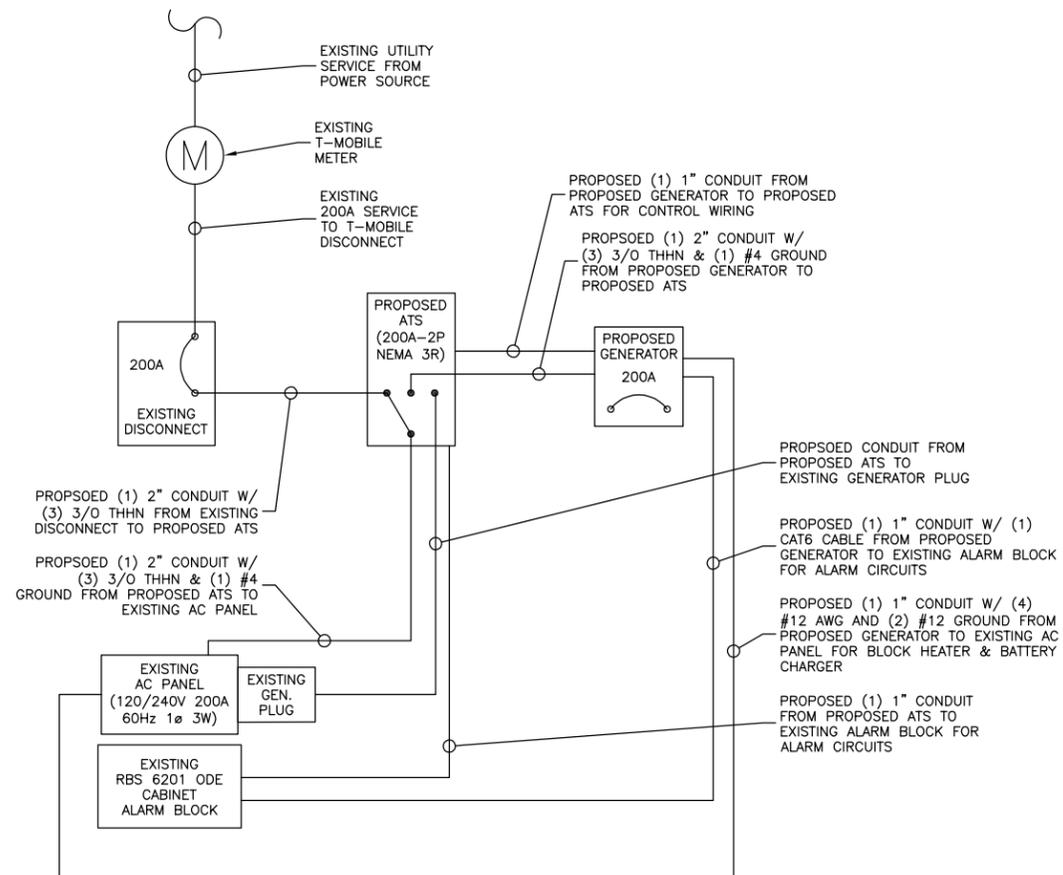
162 MATTIE RIDGELL LANE
LILLINGTON, NC 27546

SHEET TITLE

**ELECTRICAL &
GROUNDING
PLAN**

SHEET NUMBER

E-1

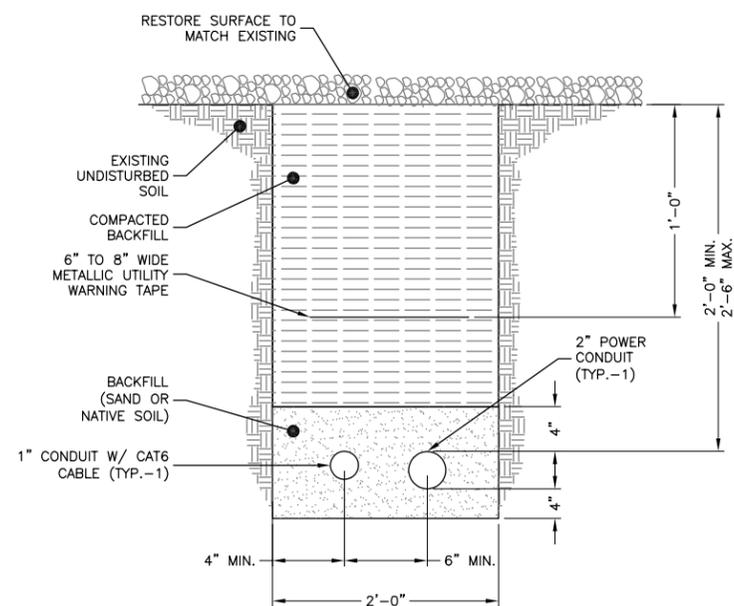


ONE-LINE DIAGRAM 1
SCALE: N.T.S.

AC POWER PANEL
120/240V 200A 1Ø 3W

MAIN BREAKER RATING: 200A		SYSTEM VOLTAGE: 240V			
DESCRIPTION	BREAKER	POS.	POS.	BREAKER	DESCRIPTION
SURGE SUPPRESSOR	60	1	2	20	GFI
		3	4	20	LIGHT
RBS 6201	60	5	6	20	BLOCK HEATER
		7	8	20	BATTERY CHARGER
		9	10		
		11	12		
		13	14		
		15	16		
		17	18		
		19	20		
		21	22		
		23	24		

AC PANEL SCHEDULE 2
SCALE: N.T.S.

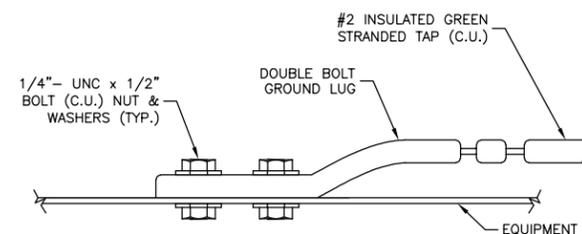


UTILITY TRENCH DETAIL 3
SCALE: N.T.S.

CONDUIT USE TABLE

CONDUIT TYPE	ABOVE GROUND	BELOW GROUND
PVC	N	Y
RGS	Y	Y
LMFC	Y	N
LFNC	Y (1/2" FOR GROUNDING ONLY)	Y

- INSTALLATION NOTES:
- CONDUITS SHALL NOT IMPEDE INGRESS/EGRESS ROUTES.
 - CONDUITS SHALL NOT BE INSTALLED WITHIN EQUIPMENT WORKER MAINTENANCE AREAS.
 - CONDUIT BOXES SHALL NOT BE INSTALLED SUCH THAT THEY ARE BELOW OR FLUSH WITH GRADE.
 - ALL CONDUIT RUNS SHALL BE PROPERLY SUPPORTED AND SECURED.
 - EMT CONDUIT SHALL ONLY BE PERMITTED FOR INDOOR INSTALLATIONS.
 - ALL CONDUIT RUNS BENEATH AN ELEVATED PLATFORM SHALL BE SECURED TO THE PLATFORM. CONDUIT RUNS BENEATH AN ELEVATED PLATFORM SHALL NOT BE RUN ALONG GRADE.
 - CONTRACTOR TO ENSURE FITTINGS ARE OF THE SAME MATERIAL AS THE CONDUIT RUN.
 - PVC CONDUIT MUST TRANSITION TO RGS OR LFMC 12" BELOW GRADE MINIMUM.



CONNECTION TO EQUIPMENT DETAIL 4
SCALE: N.T.S.

5RA0183A



Dewberry Engineers Inc.
2610 WYCLIFF ROAD
SUITE 410
RALEIGH, NC 27607
PHONE: 919.881.9939
FAX: 919.881.9923
NCBELS # F-0929

CONSTRUCTION DRAWINGS

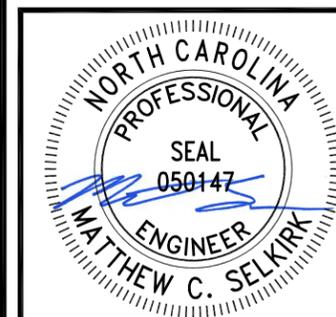
REV	DATE	ISSUED FOR
A	09/08/21	REVIEW
0	09/23/21	CONSTRUCTION

DRAWN BY: XH

REVIEWED BY: KFM

CHECKED BY: MCS

JOB NUMBER: 50142737



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.

SITE ADDRESS

162 MATTIE RIDGELL LANE
LILLINGTON, NC 27546

SHEET TITLE

**ELECTRICAL &
GROUNDING
DETAILS**

SHEET NUMBER