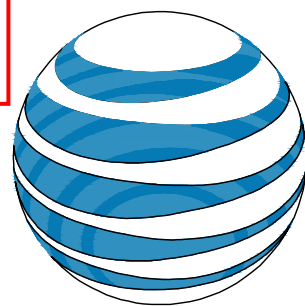


NOTICE TO CONTRACTOR
 All construction shall comply with current NC Building Codes and applicable local ordinances for permit acquisition and verification.

APPROVED
 Licensed building site engineer
 Permit holder responsible for
 full compliance with the code

12/09/2020



at&t
 mobility corp.

PER THE PROVIDED SELF-SUPPORT STRUCTURAL ANALYSIS DRAWN BY AMERICAN TOWER CORPORATION, DATED 07/10/2020; SMW ENGINEERING CANNOT SEE ANY CONFLICTS BETWEEN THE TOWER DESIGN 251' AND THE PROPOSED LOCATION OF THE MOUNTS 245'.

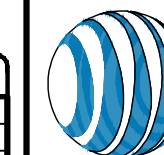
FA NUMBER: 12682206
 PACE NUMBER: MRCAR033595
 PROJECT TRACKING #: 2301ADHFYP
 SITE NAME: 368-712
 AMERICAN TOWER: OLD STAGE NC (280851)

1808 OAK GROVE CHURCH ROAD
 ANGIER, NC 27501
 HARNETT COUNTY



SMW # 20-0570.1

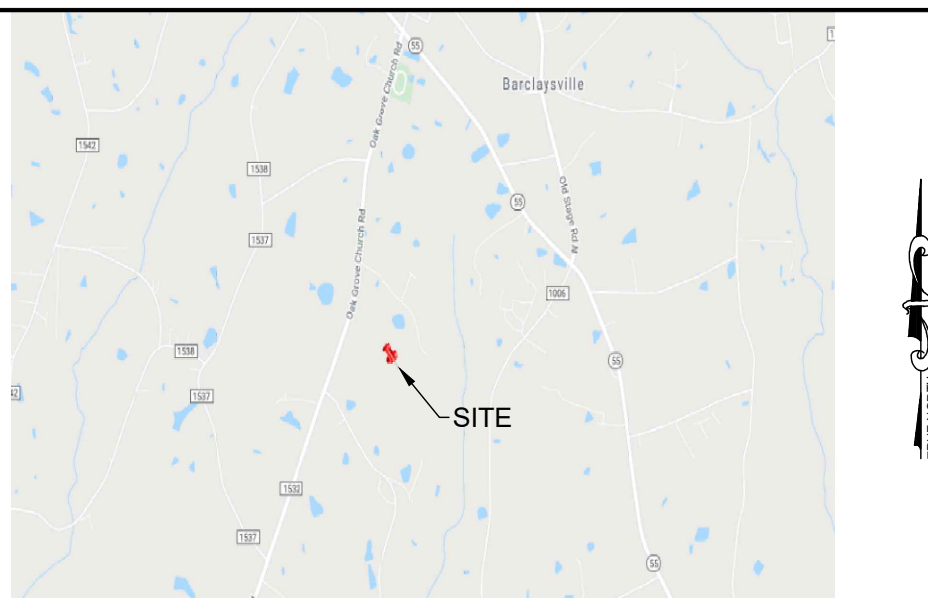
at&t
 mobility corp.



SITE INFORMATION

SITE ADDRESS: 1808 OAK GROVE CHURCH ROAD ANGIER, NC 27501
 RFDS USID #: 142592
 RFDS ID #: 4001668
 RFDS DATE: 06/17/2020
 LATITUDE (NAD 83): 35.4517500° (N 35° 27' 06.3000")
 LONGITUDE (NAD 83): -78.7096640° (W -78° 42' 34.7904")
 GROUND ELEVATION: 255' (AMSL)
 JURISDICTION: HARNETT COUNTY
 JURISDICTION CONTACT: NAME: JAY SIKES
 PHONE: (919) 961-1747
 ZONING: N/A
 TOWER OWNER: AMERICAN TOWER
 ADDRESS: 5000 VALLEYSTONE DRIVE CARY, NC 27519
 TOWER OWNER SITE NAME: OLD STAGE NC (280851)
 STRUCTURE TYPE: SELF-SUPPORT
 STRUCTURE HEIGHT: 251' (AGL) (OVERALL HEIGHT)
 POWER SUPPLIER: POWER COMPANY: DUKE ENERGY
 CONTACT NAME: NOT PROVIDED
 PHONE NUMBER: NOT PROVIDED
 REF #: N/A
 TELCO SUPPLIER: TELCO COMPANY: CENTURYLINK
 CONTACT NAME: NOT PROVIDED
 PHONE NUMBER: NOT PROVIDED
 REF #: N/A
 GAS SUPPLIER: GAS COMPANY: NOT PROVIDED
 CONTACT NAME: NOT PROVIDED
 PHONE NUMBER: NOT PROVIDED
 REF #: N/A

VICINITY MAP



DIRECTIONS

FROM RALEIGH, NORTH CAROLINA:
 FOLLOW US-401 S AND OLD STAGE RD TO BENSON RD IN BLACK RIVER (21.5 MI). TAKE GUY RD TO OAK GROVE CHURCH RD (3.0 MI). CONTINUE ONTO OAK GROVE CHURCH RD (1.0 MI). TURN LEFT ONTO HOMESTEAD LN (0.5 MI).

CODE COMPLIANCE

ALL WORK AND MATERIALS SHALL BE PERFORMED AND 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 THE LATEST EDITIONS OF THE FOLLOWING CODES.

- 2018 ΝΧ ΒΥΛΙΑΙΝΓ' ΧΟΔΕ
- 2017 ΝΑΤΙΟΝΑΛ ΕΛΕΧΤΡΙΧΑΑ ΧΟΔΕ
- 2017 ΝΦΗΑ 70, ΛΙΦΕ ΣΑΦΕΤΨ ΧΟΔΕ
- 2012 ΙΦΧ
- ΑΜΕΡΙΧΑΝ ΧΟΝΧΡΕΤΕ ΙΝΣΤΙΤΥΤΕ
- ΑΜΕΡΙΧΑΝ ΙΝΣΤΙΤΥΤΕ ΟΦ ΣΤΕΕΛ ΧΟΝΣΤΡΥΧΤΙΟΝ
- ΜΑΝΥΛΑ ΟΦ ΣΤΕΕΛ ΧΟΝΣΤΡΥΧΤΙΟΝ 13TH ΕΔΙΤΙΟΝ
- ΑΝΣΙ/ΤΙΑ-222-Γ
- ΤΙΑ 607
- ΙΝΣΤΙΤΥΤΕ ΦΟΡ ΕΛΕΧΤΡΙΧΑΑ & ΕΛΕΧΤΡΟΝΙΧΣ ΕΝΓΙΝΕΕΡ 81
- ΙΕΕΕ Χ2 ΝΑΤΙΟΝΑΛ ΕΛΕΧΤΡΙΧ ΣΑΦΕΤΨ ΧΟΔΕ ΛΑΤΕΣΤ ΕΔΙΤΙΟΝ
- ΤΕΛΕΧΟΡΑΙΑ ΓΡ-1275
- ΑΝΣΙ/Τ 311

DRAWING INDEX

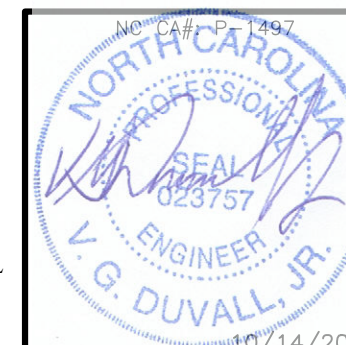
T-1	TITLE SHEET
B-1 & B-2	BUILDING CODE APPENDIX B
Z-1	EXISTING SITE PLAN
C-1	COMPOUND PLAN
C-2	TOWER ELEVATION
S-1 TO S-1.4	AT&T EQUIPMENT
S-2	EQUIPMENT SPECIFICATIONS
S-3	CONSTRUCTION DETAILS - AT&T CONSTRUCTION
A-1	ANTENNA PLAN & SCHEDULE
A-2	RRH, ANTENNA AND EQUIPMENT SPECS (ERICSSON)
E-1	UTILITY PLAN
E-2	ELECTRICAL PANEL SCHEDULE, DIAGRAM AND NOTES
E-2.1	HANDHOLE DETAIL
E-3	DC/FIBER SYSTEM DIAGRAM
E-4	DC WIRING DIAGRAM
G-1	GROUNDING PLAN
G-2	GROUNDING DETAILS & NOTES
G-3	GROUNDING DETAILS

DRAWING SCALE

THESE DRAWINGS ARE SCALED TO FULL SIZE AT 22"X34" AND HALF SIZE AT 11"X17". CONTRACTOR SHALL VERIFY ALL PLANS AND EXISTING DIMENSIONS AND CONDITIONS ON THE JOB SITE AND SHALL IMMEDIATELY NOTIFY THE DESIGNER / ENGINEER IN WRITING OF ANY DISCREPANCIES BEFORE PROCEEDING WITH THE WORK OR MATERIAL ORDERS OR BE RESPONSIBLE FOR THE SAME. CONTRACTOR SHALL USE BEST MANAGEMENT PRACTICE TO PREVENT STORM WATER POLLUTION DURING CONSTRUCTION.

SCOPE OF WORK

- THIS PROJECT CONSISTS OF:
- ΙΝΣΤΑΛΛΑΤΙΟΝ ΟΦ ΥΠΗΛΙΠΕΣ ΤΟ ΣΙΤΕ (ΙΦ ΡΕΘΥΡΠΕΛ)
 - ΙΝΣΤΑΛΛΑΤΙΟΝ ΟΦ ΕΘΥΠΗΜΕΝΤ ΦΟΡ ΑΤ&Τ ΥΝΜΑΝΝΕΑ ΤΕΛΕΧΟΜΜΥΝΙΧΑΤΙΟΝΣ ΦΑΧΙΑΙΤΨ



NORTH CAROLINA ONE-CALL
 STATE WIDE CALL: 811
 CALL BEFORE YOU DIG

PROJECT TEAM

APPLICANT: HIGH PERFORMANCE SERVICES, LLC
 3001 MILLS STREET
 LAFAYETTE, LA 70507
 ALLYSON POE
 772-713-6229

A&E FIRM: SMW ENGINEERING GROUP N.C., PLLC
 158 BUSINESS CENTER DRIVE
 BIRMINGHAM, AL
 PHONE #: 205-252-6985

ENGINEER: V.G. DUVALL, JR., PE
 158 BUSINESS CENTER DRIVE
 BIRMINGHAM, AL 35244

#	DATE	DESCRIPTION:
0	09/10/20	ISSUED FOR CLIENT REVIEW
1	09/14/20	REV. PER CLIENT COMMENTS
2	10/06/20	REV. PER CLIENT COMMENTS
3	10/14/20	ISSUED FOR CONSTRUCTION

368-712
**TITLE SHEET &
 PROJECT INFORMATION**

DESIGNED: VGD
 DRAWN: JCM
 CHECKED: MAW
 LAST REVISION BY: JCM

JOB #: 12682206

T-1

10/14/2020

**2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
(EXCEPT 1 AND 2-FAMILY DWELLINGS AND TOWNHOUSES)**
(Reproduce the following data on the building plans sheet 1 or 2)

Name of Project: **368-712**
 Address: **1808 OAK GROVE CHURCH ROAD** Zip Code **27501**
 Owner/Authorized Agent: **AMERICAN TOWER** Phone # (N/A) E-Mail N/A
 Owned By: City/County Private State
 Code Enforcement Jurisdiction: City ANGIER County HARRETT State

CONTACT:

DESIGNER	FIRM	NAME	LICENSE #	TELEPHONE #	E-MAIL
Architectural	SMW ENGINEERING GRP., NC, PLLC	V.G. DUVALL, JR., PE	02787	(318) 920-7211	vgd@smweng.com
Civil	SMW ENGINEERING GRP., NC, PLLC	V.G. DUVALL, JR., PE	02787	(318) 920-7211	vgd@smweng.com
Electrical	SMW ENGINEERING GRP., NC, PLLC	V.G. DUVALL, JR., PE	02787	(318) 920-7211	vgd@smweng.com
Fire Alarm					
Plumbing					
Mechanical					
Sprinkler-Standpipe					
Structural					
Retaining Walls >5' High					
Other					

2018 NC BUILDING CODE: New Building Addition Renovation
 1st Time Interior Completion
 Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements
 Phased Construction - Shell/Core - Contact the local inspection jurisdiction for possible additional procedures and requirements

2018 NC EXISTING BUILDING CODE: EXISTING: Prescriptive Repair Chapter 14
 Alteration: Level I Level II Level III
 Historic Property Change of Use

CONSTRUCTED: (date) _____ **CURRENT OCCUPANCY(S)** (Ch. 3): _____
RENOVATED: (date) _____ **PROPOSED OCCUPANCY(S)** (Ch. 3): _____
OCCUPANCY CATEGORY (Table 1604.5): **Current:** I II III IV
Proposed: I II III IV

BASIC BUILDING DATA
Construction Type: I-A II-A III-A IV V-A
 I-B II-B III-B V-B
 (check all that apply)
Sprinklers: No Partial Yes NFPA 13 NFPA 13R NFPA 13D
Standpipes: No Yes Class I II III Wet Dry
Fire District: No Yes **Flood Hazard Area:** No Yes
Special Inspections Required: No Yes (Contact the local inspection jurisdiction for additional procedures and requirements.)

2018 NC Administrative Code and Policies

FLOOR	Gross Building Area Table		SUB-TOTAL
	EXISTING (SQ FT)	NEW (SQ FT)	
3 rd Floor	N/A		
2 nd Floor	N/A		
Mezzanine	N/A		
1 st Floor	N/A		
Basement	N/A		
TOTAL	N/A		

ALLOWABLE AREA
Primary Occupancy Classification(s): Select one Select one Select one Select one Select one
 Assembly A-1 A-2 A-3 A-4 A-5
 Business
 Educational
 Factory F-1 Moderate F-2 Low
 Hazardous H-1 Detonate H-2 Deflagrate H-3 Combust H-4 Health H-5 HPM
 Institutional I-1 Condition I-2 I-3 Condition I-4 I-5
 Mercantile
 Residential R-1 R-2 R-3 R-4
 Storage S-1 Moderate S-2 Low High-piled
 Parking Garage Open Enclosed Repair Garage
 Utility and Miscellaneous

Accessory Occupancy Classification(s):
Incidental Uses (Table 509): _____
Special Uses (Chapter 4 – List Code Sections): _____
Special Provisions: (Chapter 5 – List Code Sections): _____
Mixed Occupancy: No Yes Separation: _____ Hr. Exception: _____

Non-Separated Use (508.3) - The required type of construction for the building shall be determined by applying the height and area limitations for each of the applicable occupancies to the entire building. The most restrictive type of construction, so determined, shall apply to the entire building.
 Separated Use (508.4) - See below for area calculations for each story, the area of the occupancy shall be such that the sum of the ratios of the actual floor area of each use divided by the allowable floor area for each use shall not exceed 1.

$$\frac{\text{Actual Area of Occupancy A}}{\text{Allowable Area of Occupancy A}} + \frac{\text{Actual Area of Occupancy B}}{\text{Allowable Area of Occupancy B}} \leq 1$$

N/A + N/A + = N/A ≤ 1.00

2018 NC Administrative Code and Policies

STORY NO.	DESCRIPTION AND USE	(A) BLDG AREA PER STORY (ACTUAL)	(B) TABLE 506.2 ¹ AREA	(C) AREA FOR FRONTAGE INCREASE ^{2,3}	(D) ALLOWABLE AREA PER STORY OR UNLIMITED ^{2,3}
N/A					
N/A					
N/A					

¹ Frontage area increases from Section 506.2 are computed thus:
 a. Perimeter which fronts a public way or open space having 20 feet minimum width = N/A (F)
 b. Total Building Perimeter = N/A (P)
 c. Ratio (F/P) = N/A (F/P)
 d. W = Minimum width of public way = N/A (W)
 e. Percent of frontage increase $I_f = 100(F/P - 0.25) \times W/30 = \underline{N/A}$ (%)
² Unlimited area applicable under conditions of Section 507.
³ Maximum Building Area = total number of stories in the building x D (maximum 3 stories) (506.2).
⁴ The maximum area of open parking garages must comply with Table 406.5.4. The maximum area of air traffic control towers must comply with Table 412.3.1.
⁵ Frontage increase is based on the unsprinklered area value in Table 506.2.

ALLOWABLE HEIGHT

	ALLOWABLE	SHOWN ON PLANS	CODE REFERENCE
Building Height in Feet (Table 504.3)	N/A		
Building Height in Stories (Table 504.4)	N/A		

¹ Provide code reference if the "Shown on Plans" quantity is not based on Table 504.3 or 504.4.

2018 NC Administrative Code and Policies

PERCENTAGE OF WALL OPENING CALCULATIONS

FIRE SEPARATION DISTANCE (FEET) FROM PROPERTY LINES	DEGREE OF OPENINGS PROTECTION (TABLE 705.8)	ALLOWABLE AREA (%)	ACTUAL SHOWN ON PLANS (%)
N/A			
N/A			
N/A			

LIFE SAFETY SYSTEM REQUIREMENTS
 Emergency Lighting: No Yes
 Exit Signs: No Yes
 Fire Alarm: No Yes
 Smoke Detection Systems: No Yes Partial _____
 Panic Hardware: No Yes

LIFE SAFETY PLAN REQUIREMENTS
 Life Safety Plan Sheet #: N/A

- Fire and/or smoke rated wall locations (Chapter 7)
- Assumed and real property line locations (if not on the site plan)
- Exterior wall opening area with respect to distance to assumed property lines (705.8)
- Occupancy Use for each area as it relates to occupant load calculation (Table 1004.1.2)
- Occupant loads for each area
- Exit access travel distances (1017)
- Common path of travel distances (Tables 1006.2.1 & 1006.3.2(1))
- Dead end lengths (1020.4)
- Clear exit widths for each exit door
- Maximum calculated occupant load capacity each exit door can accommodate based on egress width (1005.3)
- Actual occupant load for each exit door
- A separate schematic plan indicating where fire rated floor/ceiling and/or roof structure is provided for purposes of occupancy separation
- Location of doors with panic hardware (1010.1.10)
- Location of doors with delayed egress locks and the amount of delay (1010.1.9.7)
- Location of doors with electromagnetic egress locks (1010.1.9.9)
- Location of doors equipped with hold-open devices
- Location of emergency escape windows (1030)
- The square footage of each fire area (202)
- The square footage of each smoke compartment for Occupancy Classification I-2 (407.5)
- Note any code exceptions or table notes that may have been utilized regarding the items above

ACCESSIBLE DWELLING UNITS
(SECTION 1107)

TOTAL UNITS	ACCESSIBLE UNITS REQUIRED	ACCESSIBLE UNITS PROVIDED	TYPE A UNITS REQUIRED	TYPE A UNITS PROVIDED	TYPE B UNITS REQUIRED	TYPE B UNITS PROVIDED	TOTAL ACCESSIBLE UNITS PROVIDED
0							
N/A							

ACCESSIBLE PARKING
(SECTION 1106)

LOT OR PARKING AREA	TOTAL # OF PARKING SPACES REQUIRED	TOTAL # OF PARKING SPACES PROVIDED	# OF ACCESSIBLE SPACES PROVIDED			TOTAL # ACCESSIBLE PROVIDED
			REGULAR WITH 5' ACCESS AISLE	132" ACCESS AISLE	8' ACCESS AISLE	
N/A						
TOTAL						

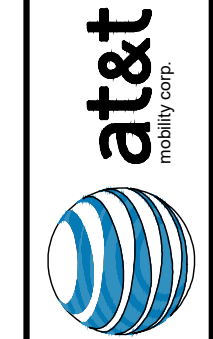
PLUMBING FIXTURE REQUIREMENTS
(TABLE 2902.1)

USE	SPACE	WATERCLOSETS			URINALS	LAVATORIES			SHOWERS	DRINKING FOUNTAINS	
		MALE	FEMALE	UNISEX		MALE	FEMALE	UNISEX		TUBS	REGULAR
EXIST'G	N/A										
NEW											
REQ'D											

SPECIAL APPROVALS
Special approval: (Local Jurisdiction, Department of Insurance, OSC, DPI, DHHS, etc., describe below)
N/A



SMW # 20-0570.1



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368-712
BUILDING CODES

DESIGNED: VGD
 DRAWN: JCM
 CHECKED: MAW
 LAST REVISION BY: JCM

JOB #: 12682206
B-1

2018 NC Administrative Code and Policies

2018 NC Administrative Code and Policies

2018 NC Administrative Code and Policies

10/14/2020

ENERGY REQUIREMENTS:
The following data shall be considered minimum and any special attribute required to meet the energy code shall also be provided. Each Designer shall furnish the required portions of the project information for the plan data sheet. If performance method, state the annual energy cost for the standard reference design vs annual energy cost for the proposed design.

Existing building envelope complies with code: No Yes (The remainder of this section is not applicable)

Exempt Building: No Yes (Provide code or statutory reference): _____

Climate Zone: 3A 4A 5A

Method of Compliance: Energy Code Performance Prescriptive
ASHRAE 90.1 Performance Prescriptive
(If "Other" specify source here) _____

THERMAL ENVELOPE (Prescriptive method only) N/A

Roof/ceiling Assembly (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Skylights in each assembly: _____
U-Value of skylight: _____
total square footage of skylights in each assembly: _____

Exterior Walls (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Openings (windows or doors with glazing)
U-Value of assembly: _____
Solar heat gain coefficient: _____
projection factor: _____
Door R-Values: _____

Walls below grade (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors over unconditioned space (each assembly)
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____

Floors slab on grade
Description of assembly: _____
U-Value of total assembly: _____
R-Value of insulation: _____
Horizontal/vertical requirement:
slab heated: _____

2018 NC Administrative Code and Policies

**2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
MECHANICAL DESIGN
(PROVIDE ON THE MECHANICAL SHEETS IF APPLICABLE)**

MECHANICAL SUMMARY N/A

MECHANICAL SYSTEMS, SERVICE SYSTEMS AND EQUIPMENT

Thermal Zone
winter dry bulb: _____
summer dry bulb: _____

Interior design conditions
winter dry bulb: _____
summer dry bulb: _____
relative humidity: _____

Building heating load: _____

Building cooling load: _____

Mechanical Spacing Conditioning System
Unitary
description of unit: _____
heating efficiency: _____
cooling efficiency: _____
size category of unit: _____
Boiler
Size category. If oversized, state reason: _____
Chiller
Size category. If oversized, state reason: _____

List equipment efficiencies: _____

2018 NC Administrative Code and Policies

**2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
STRUCTURAL DESIGN
(PROVIDE ON THE STRUCTURAL SHEETS IF APPLICABLE)**

DESIGN LOADS:

Importance Factors: Snow (I_s) N/A
Seismic (I_e) 1.00

Live Loads: Roof N/A psf
Mezzanine N/A psf
Floor N/A psf

Ground Snow Load: N/A psf

Wind Load: Basic Wind Speed 90 mph (ASCE-7)
Exposure Category C

SEISMIC DESIGN CATEGORY: A B C D

Provide the following Seismic Design Parameters:
Risk Category (Table 1604.5) I II III IV
Spectral Response Acceleration S_s 0.329 %g S₁ 0.108 %g

Site Classification (ASCE 7) A B C D E F

Data Source: Field Test Presumptive Historical Data

Basic structural system
 Bearing Wall Telecommunication Tower (steel pole)
 Building Frame Dual w/Intermediate R/C or Special Steel
 Moment Frame Inverted Pendulum

Analysis Procedure: Simplified Equivalent Lateral Force Dynamic
Architectural, Mechanical, Components anchored? Yes No

LATERAL DESIGN CONTROL: Earthquake Wind

SOIL BEARING CAPACITIES:
Field Test (provide copy of test report) N/A psf
Presumptive Bearing capacity 2500 psf
Pile size, type, and capacity N/A

2018 NC Administrative Code and Policies

**2018 APPENDIX B
BUILDING CODE SUMMARY FOR ALL COMMERCIAL PROJECTS
ELECTRICAL DESIGN
(PROVIDE ON THE ELECTRICAL SHEETS IF APPLICABLE)**

ELECTRICAL SUMMARY N/A

ELECTRICAL SYSTEM AND EQUIPMENT

Method of Compliance: Energy Code Performance Prescriptive
ASHRAE 90.1 Performance Prescriptive

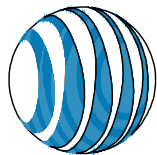
Lighting schedule (each fixture type)
lamp type required in fixture
number of lamps in fixture
ballast type used in the fixture
number of ballasts in fixture
total wattage per fixture
total interior wattage specified vs. allowed (whole building or space by space)
total exterior wattage specified vs. allowed

Additional Efficiency Package Options
(When using the 2018 NCECC; not required for ASHRAE 90.1)
 C406.2 More Efficient HVAC Equipment Performance
 C406.3 Reduced Lighting Power Density
 C406.4 Enhanced Digital Lighting Controls
 C406.5 On-Site Renewable Energy
 C406.6 Dedicated Outdoor Air System
 C406.7 Reduced Energy Use in Service Water Heating

2018 NC Administrative Code and Policies



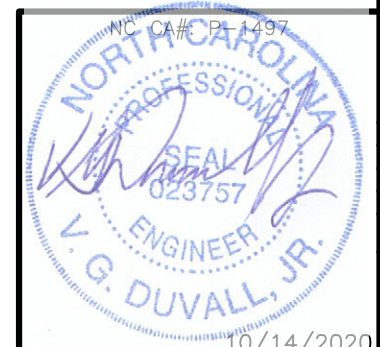
SMW # 20-0570.1



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368-712

BUILDING CODES

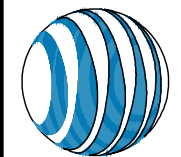


DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM

JOB #: 12682206

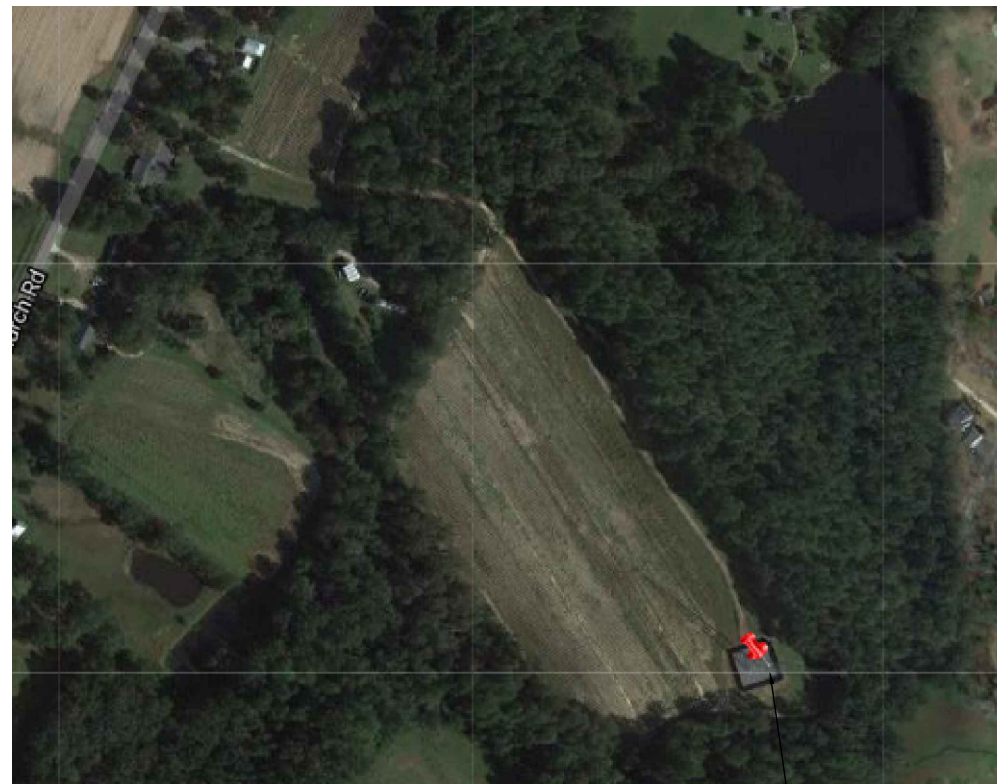
B-2

10/14/2020



DRAWING NOTES
THESE DRAWINGS AND/OR THE ACCOMPANYING SPECIFICATION AS INSTRUMENTS OF SERVICE, ARE THE EXCLUSIVE PROPERTY OF LESSOR/SITE OWNER AND THEIR USE AND PUBLICATION SHALL BE RESTRICTED TO THE ORIGINAL SITE FOR WHICH THEY ARE PREPARED. REUSE, REPRODUCTION OR PUBLICATION BY ANY METHOD, IN WHOLE OR IN PART, IS PROHIBITED EXCEPT BY WRITTEN PERMISSION FROM LESSOR/SITE OWNER. TITLE TO THESE PLANS AND/OR SPECIFICATIONS SHALL REMAIN WITH LESSOR/SITE OWNER WITHOUT PREJUDICE AND VISUAL CONTACT WITH THEM SHALL CONSTITUTE PRIMA FACIE EVIDENCE OF ACCEPTANCE OF THESE RESTRICTIONS.

ALL MEASUREMENTS AND LOCATIONS USED IN THIS SITE DESIGN ARE APPROXIMATE AND LESSOR/SITE OWNER MAKES NO REPRESENTATIONS OR WARRANTIES AS TO UNDERGROUND FEATURES, INCLUDING BUT NOT LIMITED TO UTILITIES, ROCK FORMATIONS, ETC. THIS SITE DESIGN SHALL NOT BE USED FOR CONSTRUCTION PURPOSES AND LESSEE SHOULD CONTACT AND UTILIZE A UTILITY LOCATOR SERVICE PRIOR TO COMMENCING CONSTRUCTION TO AVOID SERVICE DISRUPTION TO OTHER USERS AND INJURY OR DEATH.



2 OVERVIEW
SCALE: NOT TO SCALE



EXISTING GRAVEL TURNAROUND (10'x30') (TYP X2)

EXISTING 16' GATE

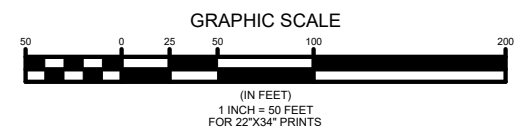
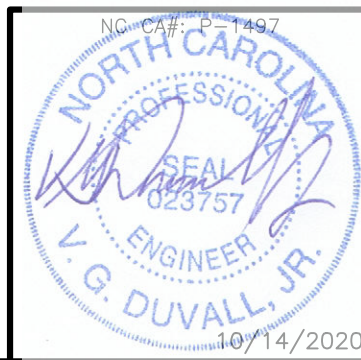
EXISTING 80'x80' WOODEN FENCE

EXISTING TOWER OWNER 100'x100' LEASE AREA.

EXISTING 16' GRAVEL ROAD (1905 LF±)

25' SELF-SUPPORT TOWER W/ 7' LIGHTNING ROD (258' OVERALL HEIGHT) PROPOSED AT&T RAD CENTER 245'

LEGEND	
	PROPERTY LINE - SUBJECT PARCEL
	EXISTING SETBACK LINE
	PROPOSED LEASE AREA
	PROPOSED EASEMENT
	PROPOSED FENCE LINE
	EXISTING ROAD
	EXISTING OVERHEAD UTILITIES
	EXISTING BUILDING



1 SITE PLAN
SCALE: 1" = 50' (FOR 22"x34" PRINTS)

SUBJECT PROPERTY IS LOCATED IN PANEL #3720068000J, DATED 10/03/2006 AND IN FLOOD ZONE "X" AND IS NOT IN A SPECIAL FLOOD HAZARD ZONE.

#	DATE	DESCRIPTION:
0	09/10/20	ISSUED FOR CLIENT REVIEW
1	09/14/20	REV. PER CLIENT COMMENTS
2	10/06/20	REV. PER CLIENT COMMENTS
3	10/14/20	ISSUED FOR CONSTRUCTION

368-712
SITE PLAN

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM

JOB #: 12682206

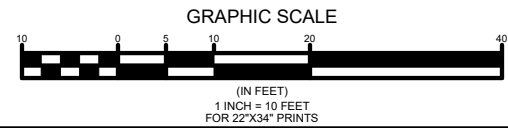
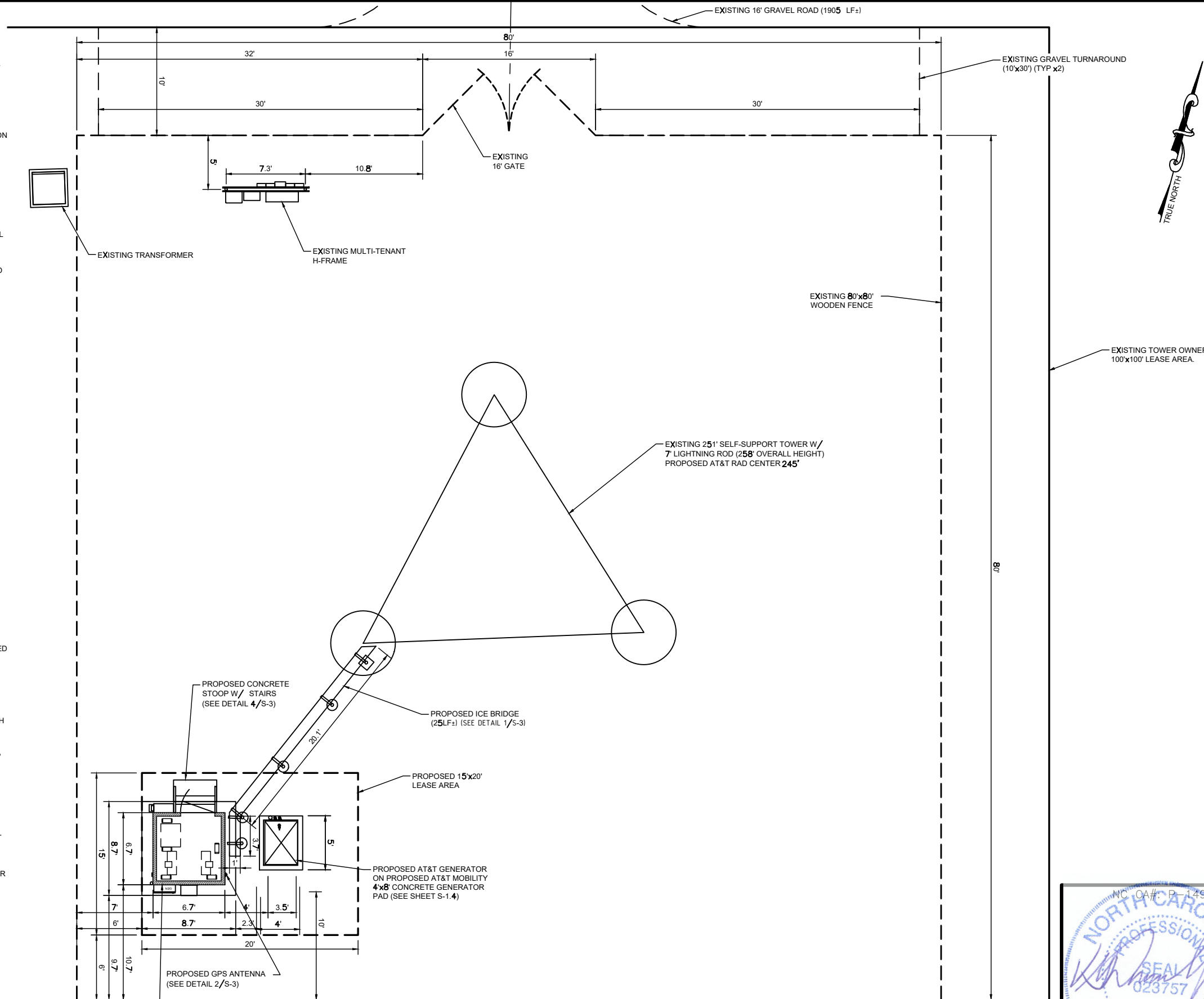
Z-1

GENERAL NOTES

- ALL SITE WORK SHALL BE AS INDICATED ON THE DRAWINGS.
- THE CONTRACTOR SHALL COMPLY WITH ALL APPLICABLE CODES ORDINANCES, LAWS AND REGULATIONS OF ALL MUNICIPALITIES, UTILITIES COMPANY OR OTHER PUBLIC AUTHORITIES.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR OBTAINING ALL PERMITS AND INSPECTIONS THAT MAY BE REQUIRED BY ANY FEDERAL, STATE, COUNTY OR MUNICIPAL AUTHORITIES.
- THE CONTRACTOR SHALL NOTIFY THE UNITI CONSTRUCTION MANAGER, IN WRITING, OF ANY CONFLICTS, ERRORS OR OMISSIONS PRIOR TO THE SUBMISSION OF BIDS OR PERFORMANCE OF WORK. MINOR OMISSIONS OR ERRORS IN THE BID DOCUMENTS SHALL NOT RELIEVE THE CONTRACTOR FROM RESPONSIBILITY FOR THE OVERALL INTENT OF THESE DRAWINGS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR PROTECTING ALL EXISTING SITE IMPROVEMENTS PRIOR TO COMMENCING CONSTRUCTION. THE CONTRACTOR SHALL REPAIR ANY DAMAGE CAUSED AS A RESULT OF CONSTRUCTION OF THIS FACILITY.
- THE SCOPE OF WORK FOR THIS PROJECT SHALL INCLUDE PROVIDING ALL MATERIALS, EQUIPMENT AND LABOR REQUIRED TO COMPLETE THIS PROJECT. ALL EQUIPMENT SHALL BE INSTALLED IN ACCORDANCE WITH THE MANUFACTURER'S RECOMMENDATIONS.
- THE CONTRACTOR SHALL VISIT THE PROJECT SITE PRIOR TO SUBMITTING A BID TO VERIFY THAT THE PROJECT CAN BE CONSTRUCTED IN ACCORDANCE WITH THE CONTRACT DOCUMENTS.
- CONTRACTOR SHALL MAKE A UTILITY "ONE CALL" TO LOCATE ALL UTILITIES AND NOTIFY UNDERGROUND FACILITIES PROTECTIVE ORGANIZATION AT 811 PRIOR TO EXCAVATION AT SITE.
- ANY UNDERGROUND UTILITIES OR STRUCTURES THAT EXIST BENEATH THE PROJECT AREA, CONTRACTOR MUST LOCATE IT AND CONTACT THE APPLICANT & THE OWNER'S REPRESENTATIVE.
- NO SIGNIFICANT NOISE, SMOKE, DUST, OR ODOR WILL RESULT FROM THIS FACILITY.
- THE FACILITY IS UNMANNED AND NOT INTENDED FOR HUMAN HABITATION (NO HANDICAP ACCESS REQUIRED).
- THE FACILITY IS UNMANNED AND DOES NOT REQUIRE POTABLE WATER OR SANITARY SERVICE.
- POWER TO THE FACILITY WILL BE MONITORED BY A SEPARATE METER.
- THERE ARE NO COMMERCIAL SIGNS PROPOSED FOR THIS INSTALLATION.
- 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.
- THE SUBGRADE SHALL BE COMPACTED AND BROUGHT TO A SMOOTH UNIFORM GRADE PRIOR TO FINISHED SURFACE APPLICATION.
MAXIMUM SOIL LIFTS:
JUMPING JACK - 3"
CROWS FOOT TRENCH ROLLER - 6"
HOE OPERATED VIBRATORY PLATE - 8"
WHEELED VIBRATORY SOIL COMPACTOR - 12"
*LIFT HEIGHTS MAY NEED TO BE ADJUSTED DEPENDING ON SOIL TYPES AND MOISTURE CONTENT.
- 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 UTILITY OWNER. EXTREME CAUTION SHOULD BE USED BY THE CONTRACTOR WHEN EXCAVATING OR PIER DRILLING AROUND OR NEAR UTILITIES.
- THE AREAS DISTURBED DUE TO CONSTRUCTION ACTIVITY SHALL BE GRADED AND RESTORED PER CODE/LANDLORD REQUIREMENTS (REFER TO GRADING PLAN).
- CONTRACTOR SHALL MINIMIZE DISTURBANCE TO EXISTING SITE DURING CONSTRUCTION. EROSION CONTROL MEASURES SHALL BE IN CONFORMANCE WITH THE LOCAL GUIDELINES FOR EROSION AND SEDIMENT CONTROL, AND COORDINATED WITH THE MUNICIPALITY.
- UTILITY WARNING TAPE SHALL BE PLACED ABOVE ALL NEW CONDUITS AT MAX 18" DEPTH BELOW GRADE.
- THE CONTRACTOR RESPONSIBILITIES:
 - ALL WORK IN THE AT&T LEASED AREA EXCEPT POWER AND TELCO CONDUIT FROM MULTI-GANG METER RACK AND TELCO DEMARC WHICH SHALL BE INSTALLED BY BUILD-TO-SUIT VENDOR.
 - INSTALLATION OF WAVEGUIDE SUPPORT FROM AT&T LEASED AREA TO TOWER BASE.
 - POWER AND FIBER LINES FROM AT&T GROUND EQUIPMENT TO ANTENNA MOUNT LOCATION ON TOWER.
 - AT&T ANTENNAS, RRU's AND APPURTENANT AT&T EQUIPMENT ON ANTENNA MOUNTING PLATFORM AT RAD CENTER IN ACCORDANCE WITH AT&T RFDS.
 - CONSTRUCTION OF ACCESS ROAD, COMPOUND, TOWER FOUNDATION, TOWER OFFLOAD & SET, FENCING, H-FRAME, MULTI-METER LOAD CENTER, TELCO BOX, POWER/FIBER CONDUIT, GROUNDING AND OTHER ACTIVITIES.

CONTRACTOR SHALL CLEAR LEASE AREA OF ALL TREES, SHRUBS, ROCKS, SURFACE SOIL AND DEBRIS. EXCAVATE INTO SLOPES AND/OR ADD FILL DIRT WITH REQUIRED COMPACTION TO LEVEL THE COMPOUND. SITE SHALL BE GRADED TO ALLOW NATURAL DRAINAGE FROM THE COMPOUND. CONTRACTOR WILL GRADE THE AREA AROUND COMPOUND TO PREVENT SOIL EROSION AND ADHERE TO ALL LOCAL, STATE AND FEDERAL REGULATIONS. RETAINING WALLS AND RIP-RAP ARE OUT OF SCOPE AND WILL REQUIRE A CHANGE ORDER UNLESS INCLUDED IN THE CONSTRUCTION PLANS OR ADDED TO SCOPE DURING BID WALKS.

PROPOSED AT&T WIC ENCLOSURE ON CONCRETE 8'-8"X8'-8" PAD (SEE SHEET S-1 FOR ENCLOSURE DETAILS) (SEE S-1.3 FOR CONCRETE DETAILS)



1
C-1
COMPOUND PLAN
SCALE: 1" = 10' (FOR 22"X34" PRINTS)



SMW # 20-0570.1

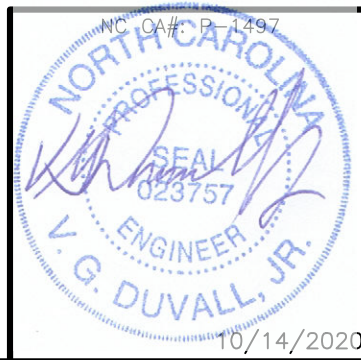


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368-712
COMPOUND PLAN

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM

JOB #: 12682206
C-1



10/14/2020

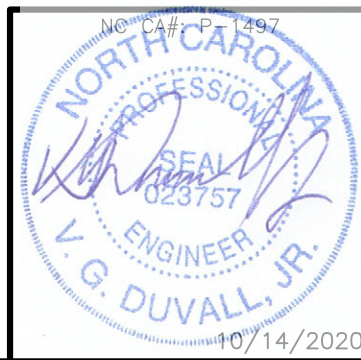
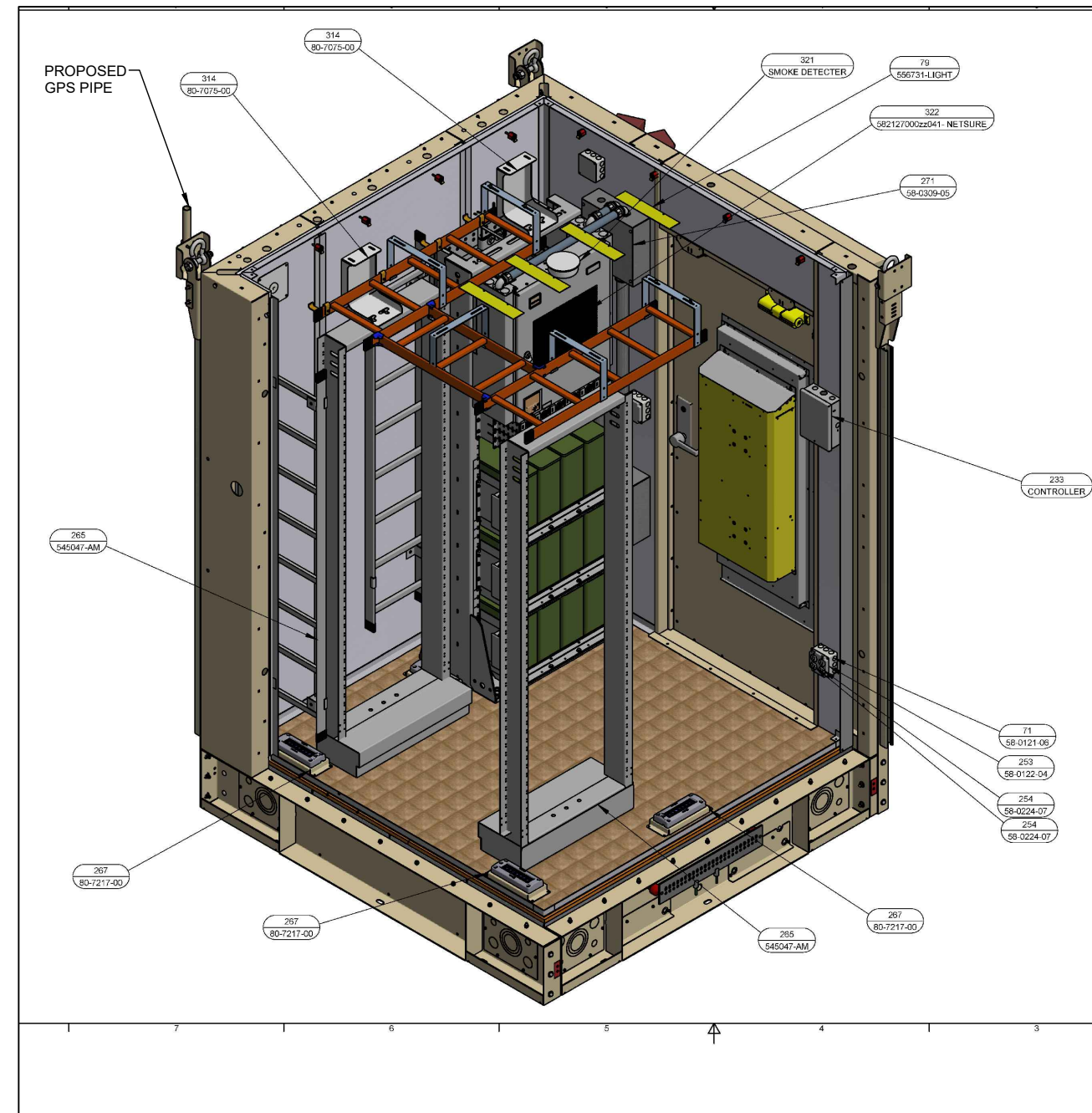
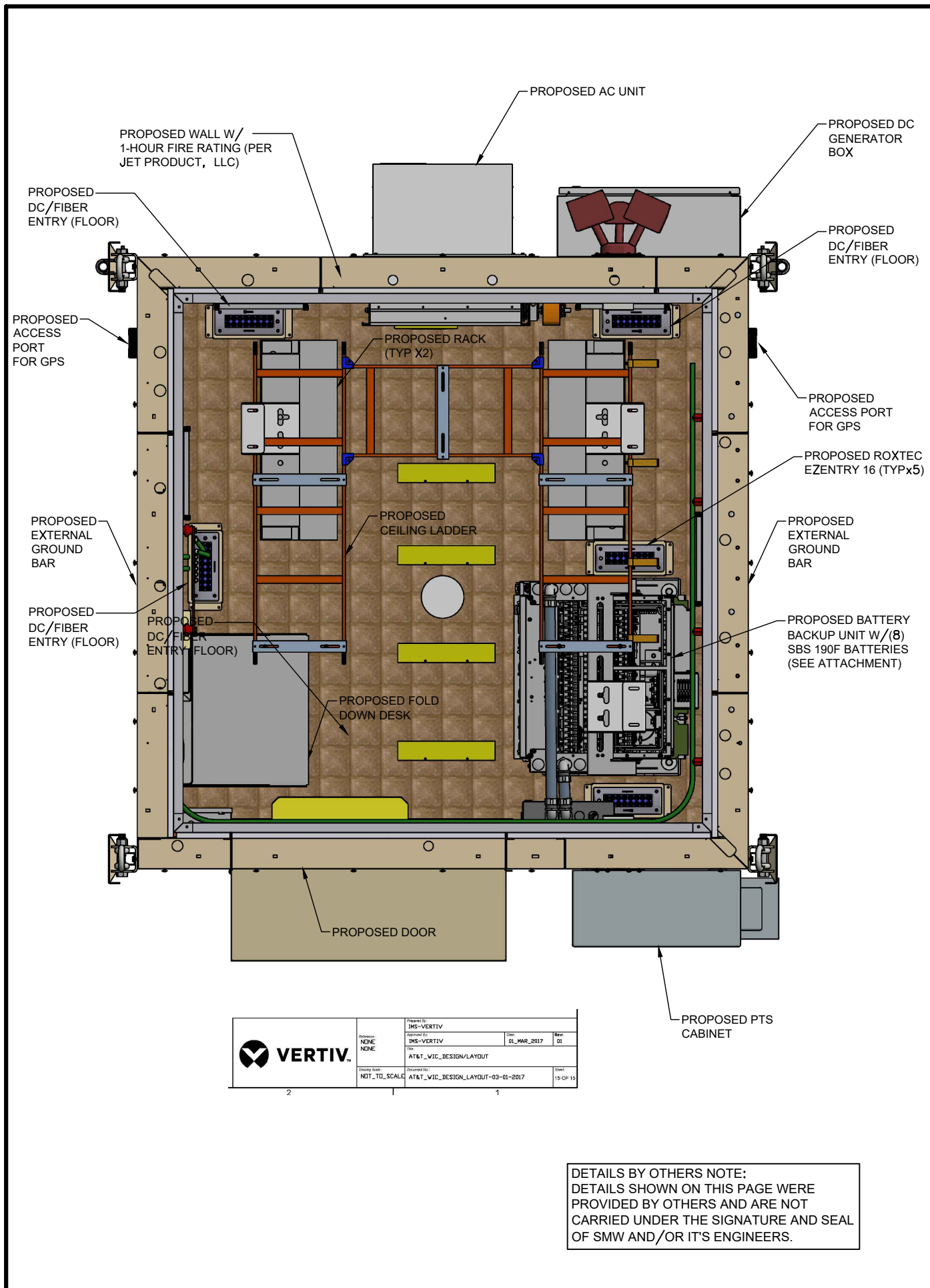


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368-712
AT&T EQUIPMENT

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM
JOB #:	12682206

S-1



10/14/2020



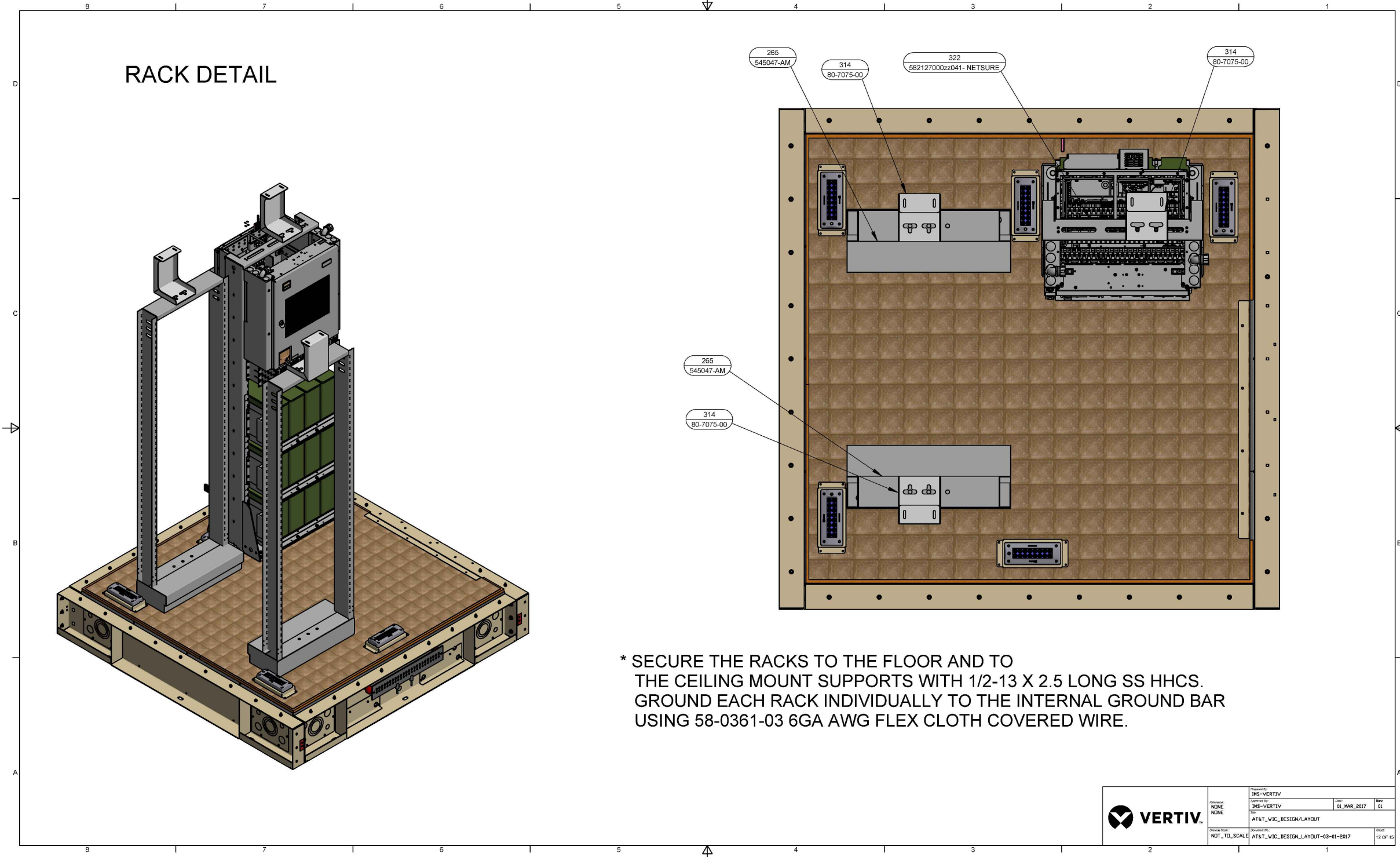
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368-712
AT&T EQUIPMENT

DESIGNED:	VGD
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LAST REVISION BY:	JCM
JOB #:	12682206

S-1.1

RACK DETAIL

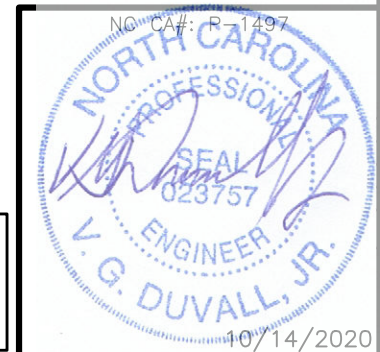


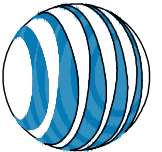
* SECURE THE RACKS TO THE FLOOR AND TO THE CEILING MOUNT SUPPORTS WITH 1/2-13 X 2.5 LONG SS HHCS. GROUND EACH RACK INDIVIDUALLY TO THE INTERNAL GROUND BAR USING 58-0361-03 6GA AWG FLEX CLOTH COVERED WIRE.

VERTIV	Prepared By:	DMS-VERTIV	Date:	01_MAR_2017	Rev:	01	
	Checked By:	DMS-VERTIV	Date:	01_MAR_2017	Rev:	01	
	Drawing Title:	AT&T_WIC_DESIGN/LAYOUT					
	Drawing Scale:	AT&T_WIC_DESIGN_LAYOUT-03-01-2017					12 OF 15

DETAILS BY OTHERS NOTE:
DETAILS SHOWN ON THIS PAGE WERE PROVIDED BY OTHERS AND ARE NOT CARRIED UNDER THE SIGNATURE AND SEAL OF SMW AND/OR IT'S ENGINEERS.

DETAILS PROVIDED BY AT&T FOR THE PURPOSE OF USE IN THESE CONSTRUCTION DRAWINGS. CONTACT AT&T FOR COMPLETE INFORMATION AND GUIDELINES FOR INSTALLATION OF ENCLOSURE AND GENERATOR.





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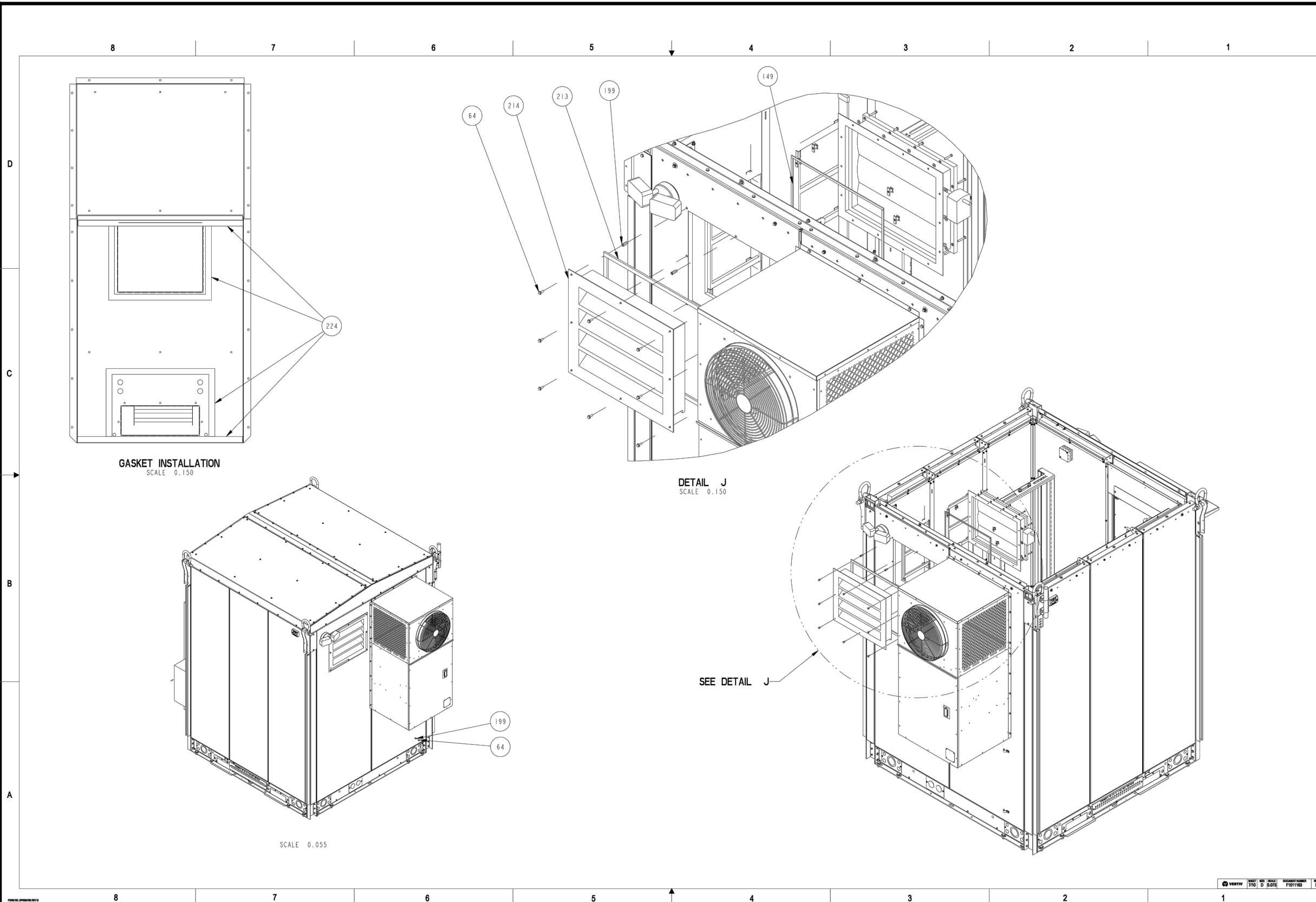
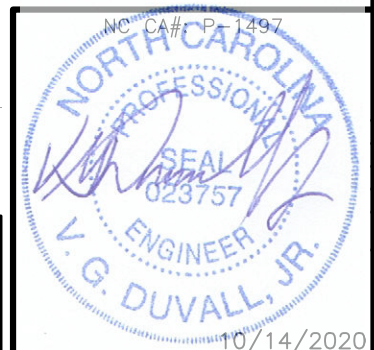
368-712

AT&T EQUIPMENT

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM

JOB #: 12682206

S-1.2



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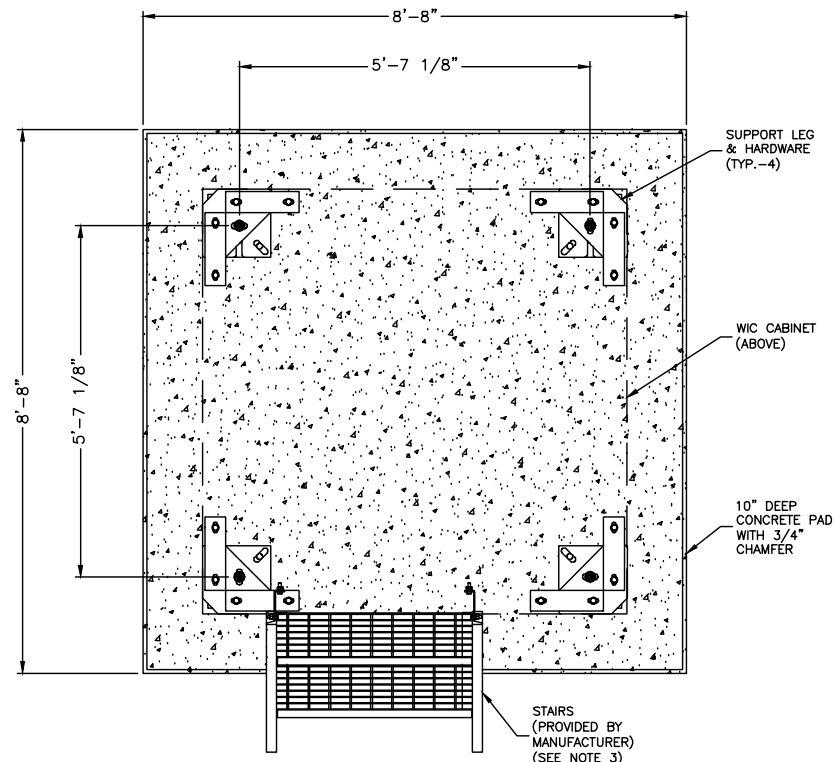
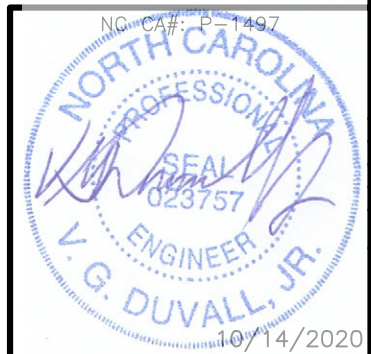
368-712

**AT&T EQUIPMENT -
WIC FOOTING DESIGN**

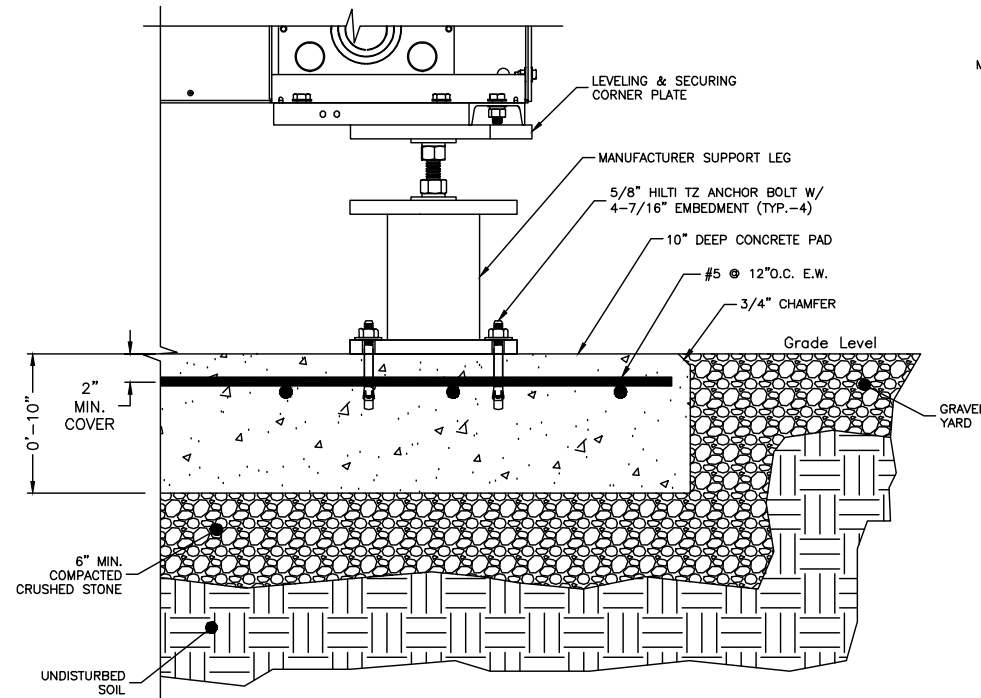
DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM

JOB #: 12682206

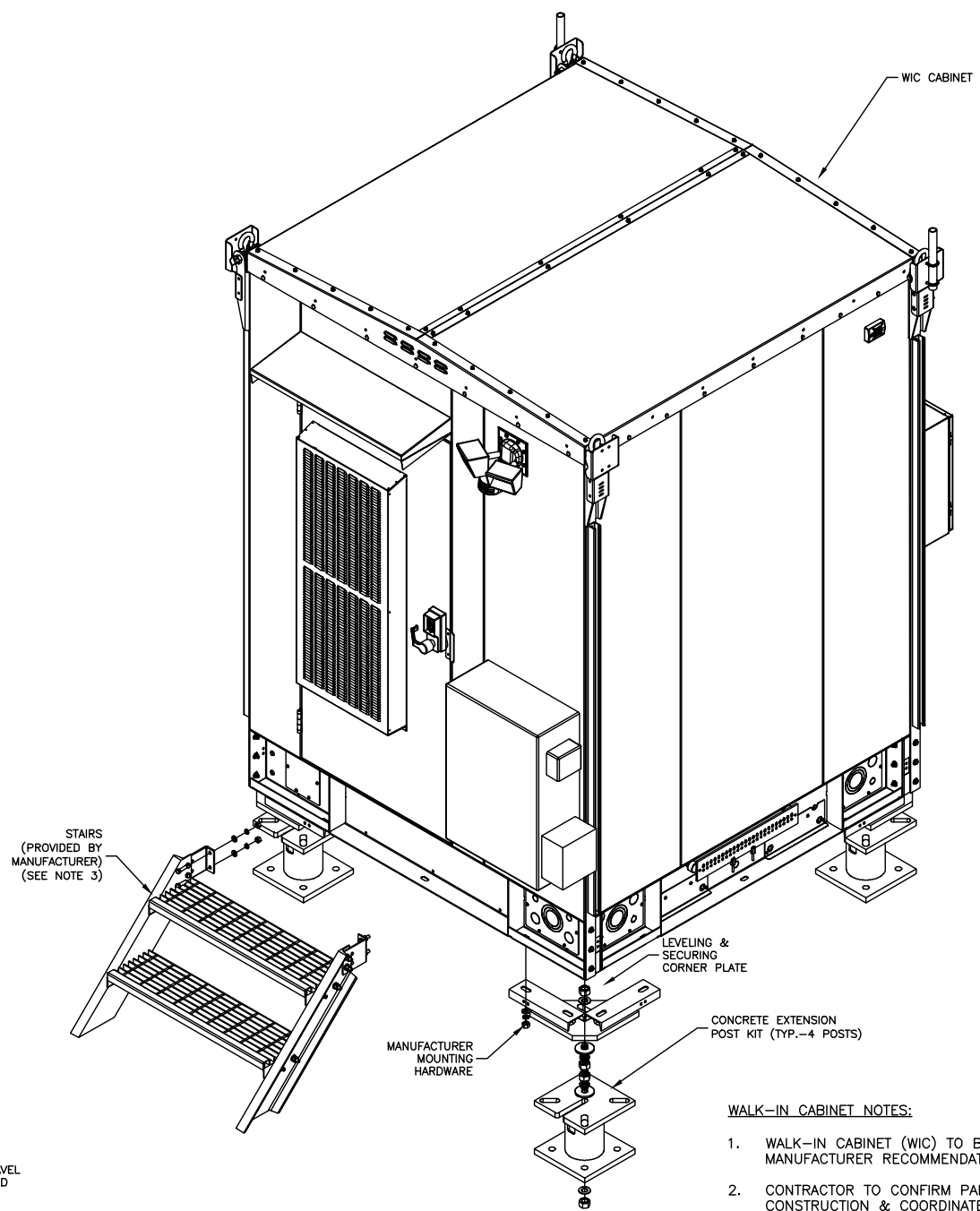
S-1.3



WIC FOUNDATION DETAIL
11'x17' SCALE: 3/8" = 1'-0"



WIC BASE SECTION
11'x17' SCALE: 1" = 1'-0"



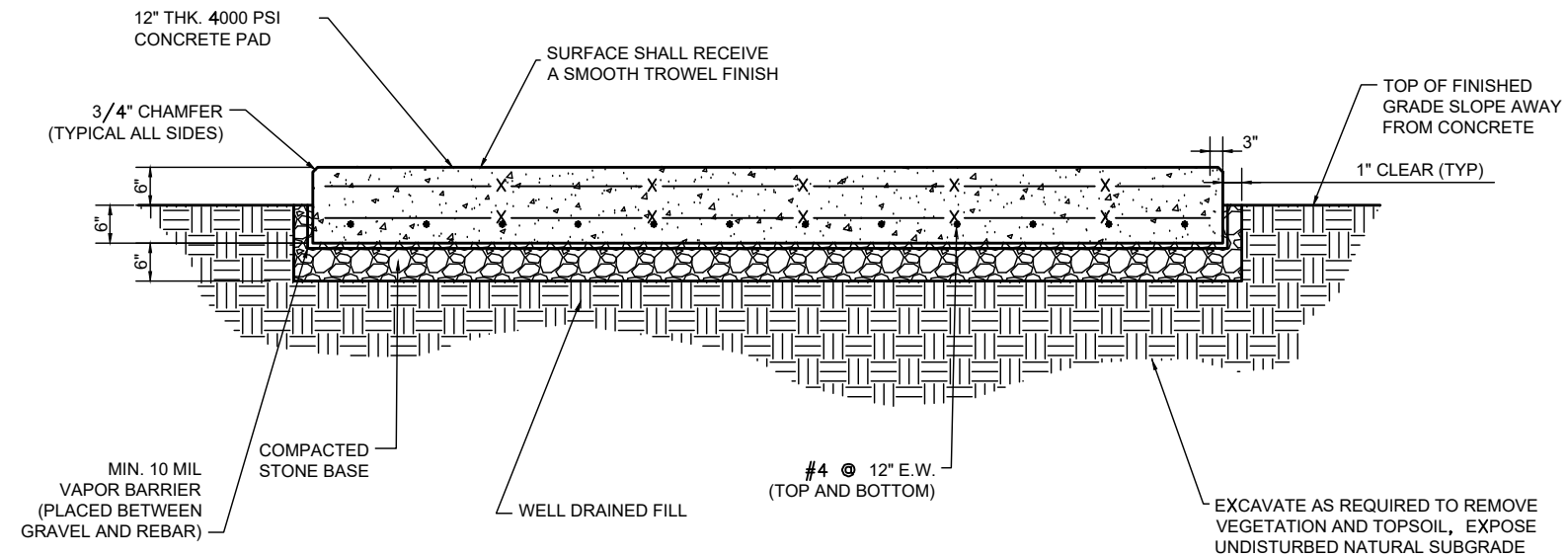
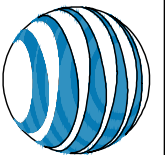
WIC ISOMETRIC
11'x17' SCALE: N.T.S.

DETAILS BY OTHERS NOTE:
DETAILS SHOWN ON THIS PAGE WERE
PROVIDED BY OTHERS AND ARE NOT
CARRIED UNDER THE SIGNATURE AND SEAL
OF SMW AND/OR IT'S ENGINEERS.

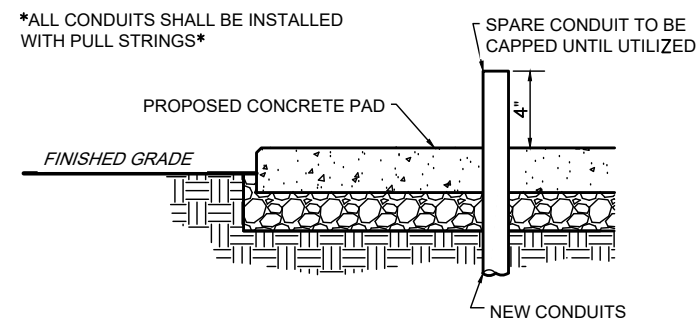
WALK-IN CABINET NOTES:

1. WALK-IN CABINET (WIC) TO BE INSTALLED ACCORDING TO MANUFACTURER RECOMMENDATIONS & SPECIFICATIONS.
2. CONTRACTOR TO CONFIRM PARTS & HARDWARE PRIOR TO CONSTRUCTION & COORDINATE WITH AT&T CM.
3. FOUNDATION TO BE FLUSH WITH EXISTING GRADE. CONTRACTOR SHALL MAINTAIN A MAXIMUM 18" CLEARANCE FROM GRADE TO BOTTOM OF WIC TO ACCOMMODATE STAIRS. VERIFY IN FIELD PRIOR TO POST INSTALLATION.
4. COORDINATE POWER & TELCO CONDUIT STUBUP PLACEMENT WITH ELECTRICAL TRADES. SEE E-1 FOR ADDITIONAL INFORMATION.
5. PROVIDE WORKING HVAC AND ELECTRICAL WORKING SPACE CLEARANCES PER MANUFACTURER RECOMMENDATIONS & CODE REQUIREMENTS.
6. WIC DIMENSIONS: 6'-8"W X 6'-8"L X 9'-6" TALL (NO BASE)
WIC WEIGHT: 5500 LBS (EMPTY) 7500 LBS (FULLY INTEGRATED)
7. CONTRACTOR TO PROVIDE AND INSTALL SPECIFIED CONCRETE ANCHORS.

NO GEOTECHNICAL REPORT HAS BEEN PROVIDED TO SMW ENGINEERING AT THIS TIME. GEO REPORT TO BE PROVIDED AT LATER DATE.



1 CONCRETE GENERATOR PAD DETAIL
S-1.4 SCALE: NOT TO SCALE



2 CONDUIT PENETRATION DETAIL - GENERATOR
S-1.4 SCALE: NOT TO SCALE

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368-712

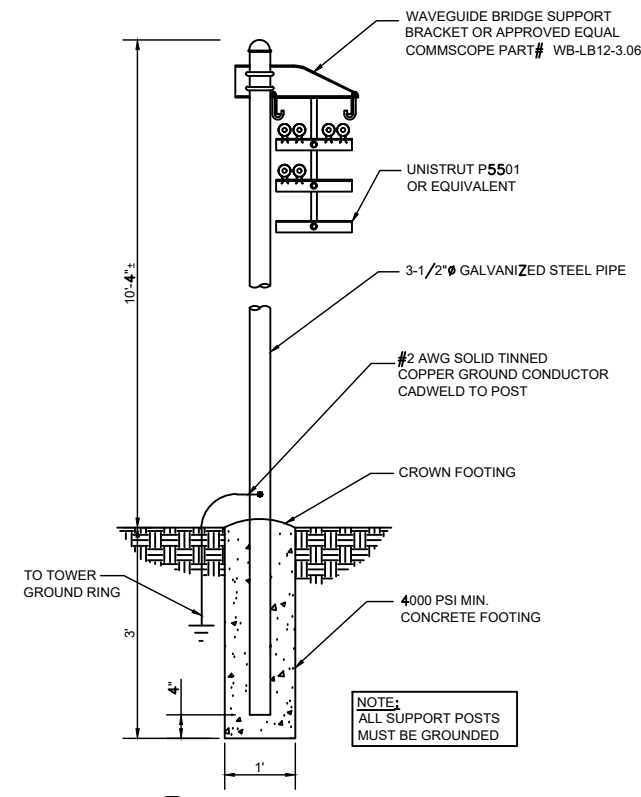
AT&T EQUIPMENT

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM

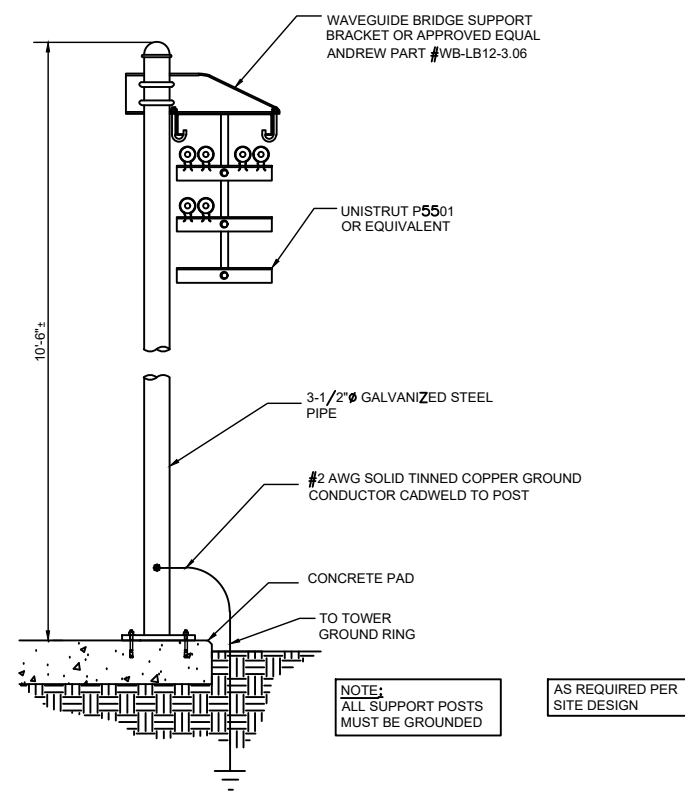
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S-1.4

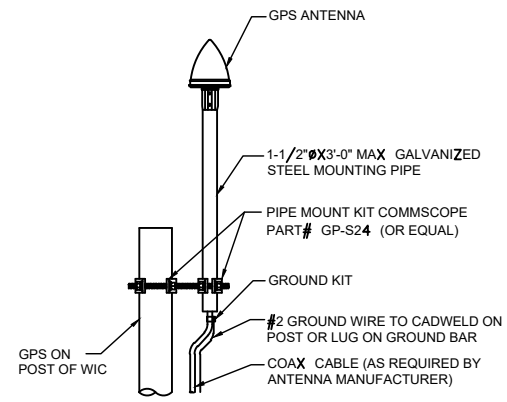




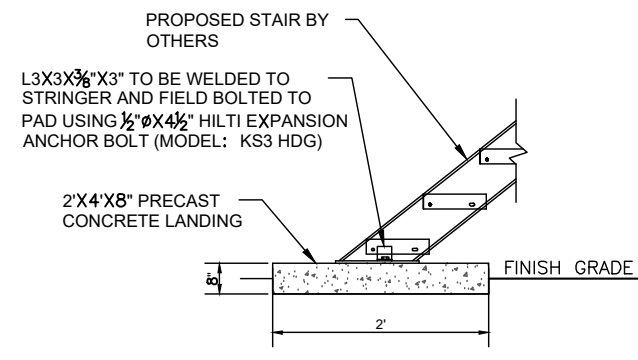
1 CABLE BRIDGE DETAIL
SCALE: NOT TO SCALE



3 CABLE BRIDGE DETAIL - CONCRETE SLAB
SCALE: NOT TO SCALE



2 GPS ANTENNA MOUNTING DETAIL
SCALE: NOT TO SCALE

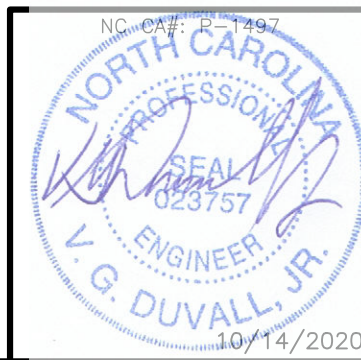


4 STAIR STOOP DETAIL
SCALE: NOT TO SCALE

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3	10/14/20	ISSUED FOR CONSTRUCTION

368-712
AT&T EQUIPMENT

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM
JOB #: 12682206



S-3



#	DATE	DESCRIPTION:
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3	10/14/20	ISSUED FOR CONSTRUCTION

368-712
ANTENNA PLAN & SCHEDULE
SELF-SUPPORT TOWER

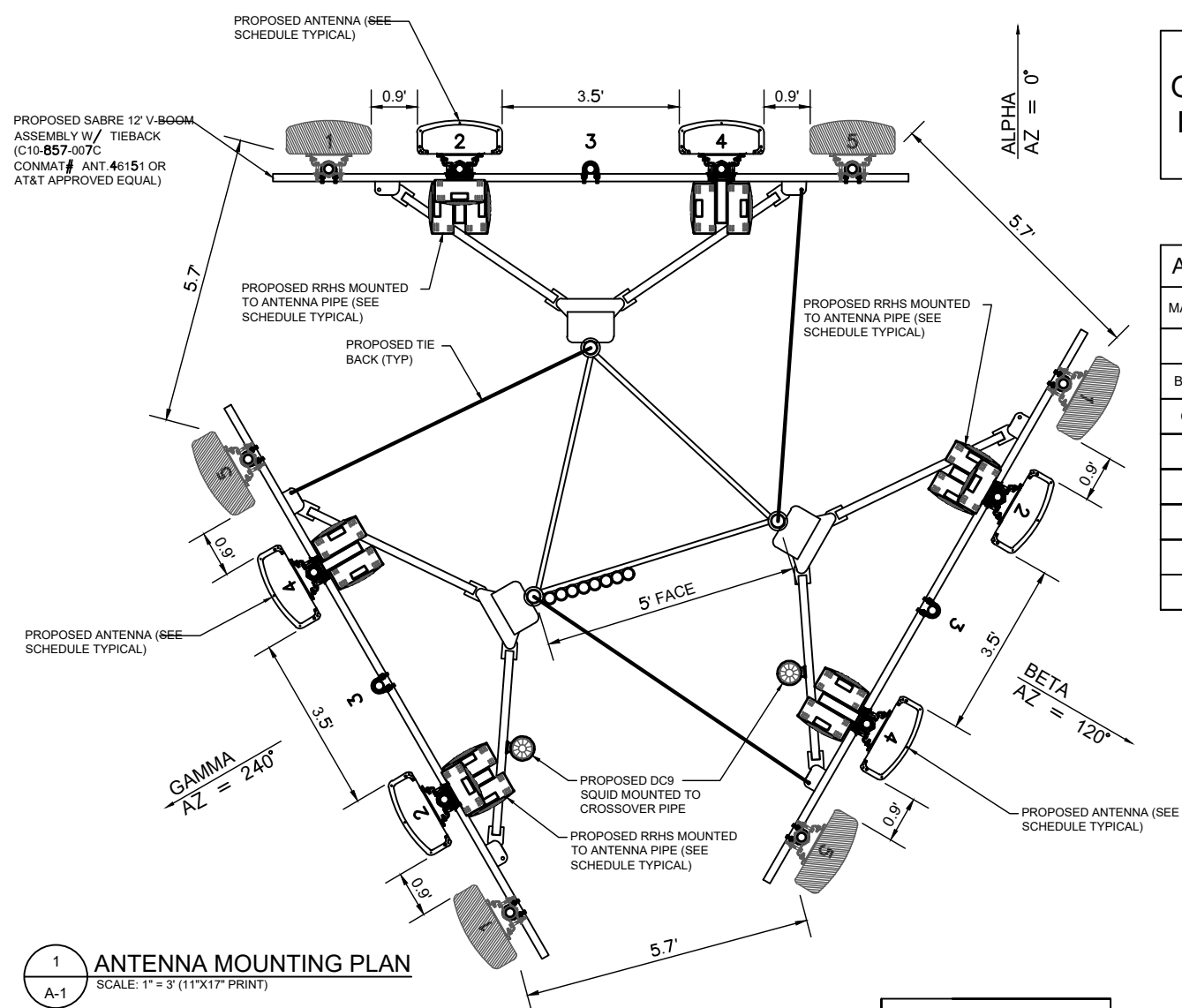
DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM
JOB #:	12682206

A-1

CONTRACTOR TO OBTAIN LATEST RFDS FOR FINAL ANTENNA CONFIGURATION.

APPROVED AT&T MOUNTS

MANUFACTURER	MODEL
ADVANCED TOWER	HEAVY WLL-1-NP CONMAT# ANT.15884
BETTER METAL	BVM-12K-WLL-1 CONMAT# ANT.15893
COMMSCOPE	SFG2CG-12-B CONMAT# ANT.15913
CONNECT-IT WIRELESS	PVFM12-3-B CONMAT# ANT.15921
KENWOOD TELECOM	T1672KT12 CONMAT# ANT.15948
NEWAVE	ATV1-312-3 CONMAT# ANT.15954
SABRE	C10-857-007C CONMAT# ANT.46151
VALMONT	VFA10-HD1T5NP CONMAT# ANT.16006



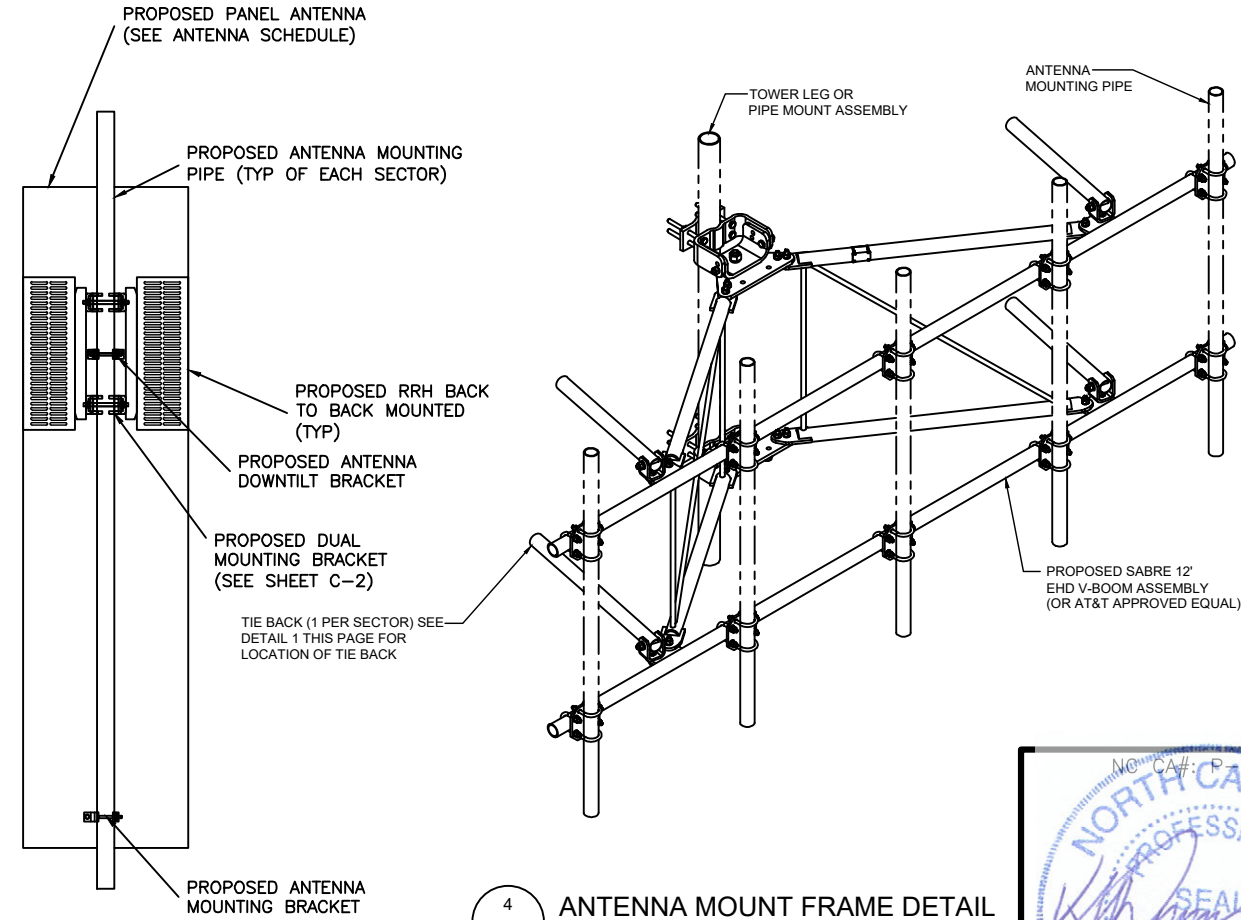
1 ANTENNA MOUNTING PLAN
A-1
SCALE: 1" = 3' (11"x17" PRINT)

ANTENNA AND RRH SCHEDULE						
SECTOR	POS	ANTENNA MODEL	TECHNOLOGY	AZIMUTH	ANTENNA HEIGHT	RRH MODEL
ALPHA	1	-	-	-	-	-
	2	COMMSCOPE NNH4-65C-R6-V3	LTE 700/1900/AWS	0°	245'±	(1) 4449 B5/B12, (1) 4415 B25, & (1) 4426 B66
	3	-	-	-	-	-
	4	COMMSCOPE NNH4-65C-R6-V3	LTE 700/WCS	0°	245'±	(1) 4478 B14 & (1) 4415 B30
	5	-	-	-	-	-
BETA	1	-	-	-	-	-
	2	COMMSCOPE NNH4-65C-R6-V3	LTE 700/1900/AWS	120°	245'±	(1) 4449 B5/B12, (1) 4415 B25, & (1) 4426 B66
	3	-	-	-	-	-
	4	COMMSCOPE NNH4-65C-R6-V3	LTE 700/WCS	120°	245'±	(1) 4478 B14 & (1) 4415 B30
	5	-	-	-	-	-
GAMMA	1	-	-	-	-	-
	2	COMMSCOPE NNH4-65C-R6-V3	LTE 700/1900/AWS	240°	245'±	(1) 4449 B5/B12, (1) 4415 B25, & (1) 4426 B66
	3	-	-	-	-	-
	4	COMMSCOPE NNH4-65C-R6-V3	LTE 700/WCS	240°	245'±	(1) 4478 B14 & (1) 4415 B30
	5	-	-	-	-	-

CABLE COUNT	
QUANTITY	CABLE TYPE
2	DC CABLE (.92")
4	DC CABLE (1.159")
2	FIBER TRUNK (.39") (24 PR)
-	2" INNERDUCT

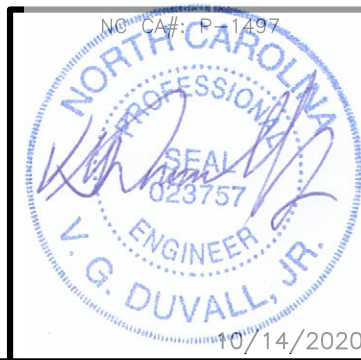
ANTENNA SEPARATION REQUIREMENTS; INSTALLERS TO MAINTAIN:

- 1) A 3' SEPARATION BETWEEN ALL ANTENNAS* ON THE SAME MOUNT (* SEE NOTE 3)
- 2) A 4' SEPARATION IS TO BE MAINTAIN BETWEEN ANTENNAS ON DIFFERENT SECTOR MOUNTS IF ANTENNAS ARE 700 B/C (B12/B17) AND 700 D/E (B29); THEN A 6' SEPARATION WILL BE REQUIRED FOR THESE ANTENNAS. (SEE DETAIL C-4.2)



3 RRH MOUNTING DETAIL
A-1
SCALE: NOT TO SCALE

4 ANTENNA MOUNT FRAME DETAIL
A-1
SCALE: NOT TO SCALE

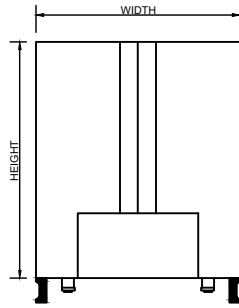


SIZE AND WEIGHT TABLE

RRH	WIDTH	DEPTH	HEIGHT W/O CABLE MANAGEMENT COVER	WEIGHT W/O BRACKET
4415 (B25)	13.2"	5.4"	15"	46 LBS
4426 (B66)	13.2"	5.8"	15"	48.4 LBS
4478	13.2"	7.4"	15"	59.9 LBS

NOTE:
DIMENSIONS DO NOT INCLUDE MOUNTING BRACKET AND SOLAR SHIELD.

1 REMOTE RADIO HEAD (RRH)
SCALE: NOT TO SCALE

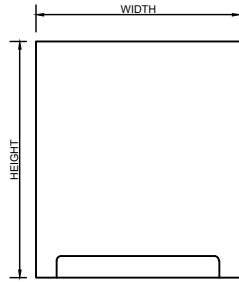


SIZE AND WEIGHT TABLE

RRH	WIDTH	DEPTH	HEIGHT W/O CABLE MANAGEMENT COVER	WEIGHT W/O BRACKET
4449	13.2"	9.4"	17.9"	70.5 LBS
8843	13.2"	10.9"	14.9"	72 LBS

NOTE:
DIMENSIONS DO NOT INCLUDE MOUNTING BRACKET AND SOLAR SHIELD.

2 REMOTE DUAL RADIO HEAD (RRH)
SCALE: NOT TO SCALE

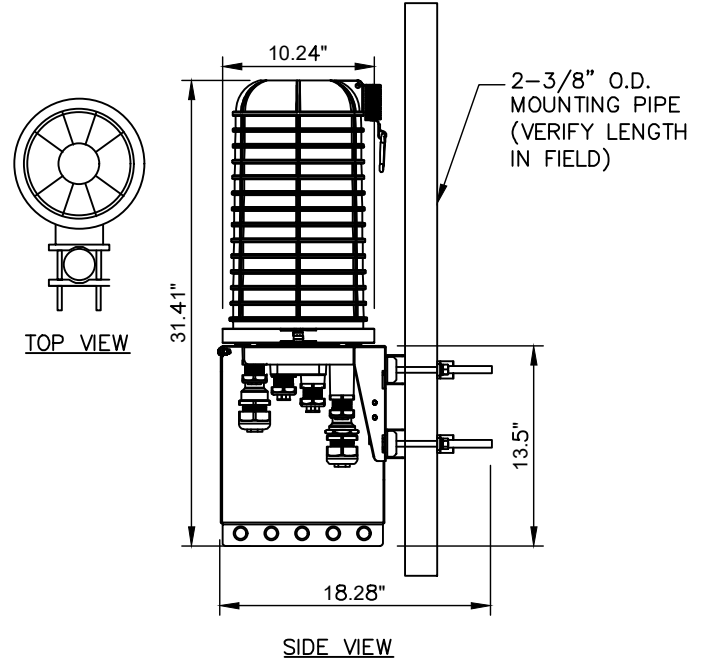
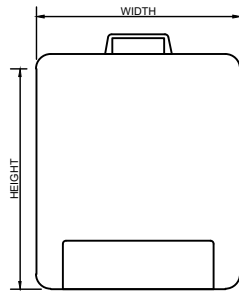


SIZE AND WEIGHT TABLE

RRH	WIDTH	DEPTH	HEIGHT W/O CABLE MANAGEMENT COVER	WEIGHT W/O BRACKET
4415	13.4"	5.9"	16.5"	46 LBS
4478	13.4"	8.26"	18.1"	59.4 LBS

NOTE:
DIMENSIONS DO NOT INCLUDE MOUNTING BRACKET AND SOLAR SHIELD.

3 REMOTE RADIO HEAD (RRH)
SCALE: NOT TO SCALE



4 RAYCAP DC9-48-60-24-8C-EV
SCALE: NOT TO SCALE

CONTRACTOR TO
OBTAIN LATEST RFDS
FOR FINAL ANTENNA
CONFIGURATION.

SMW
ENGINEERING GROUP, N.C., PLLC
158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-220-1504
SMW # 20-0570.1

at&t
mobility corp.

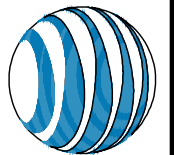
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1	09/14/20	REV. PER CLIENT COMMENTS
2	10/06/20	REV. PER CLIENT COMMENTS
3	10/14/20	ISSUED FOR CONSTRUCTION

368-712
RRH, ANTENNA &
EQUIPMENT SPECS
(ERICSSON)

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM
JOB #:	12682206

A-2

NO. CA#: P-1497



#	DATE	DESCRIPTION:
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3	10/14/20	ISSUED FOR CONSTRUCTION

368-712
UTILITY PLAN

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM

JOB #: 12682206
E-1

ELECTRICAL KEY NOTES

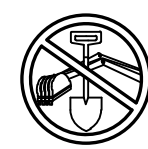
- ① METER PANEL. SEE SHEET E-2 FOR ELECTRICAL ONE-LINE DIAGRAM ELECTRICAL KEY NOTES
- ② 48"x48"x12" TELCO CABINET.
- ③ NOT USED.
- ④ NOT USED.
- ⑤ NOT USED.
- ⑥ PROPOSED ELECTRICAL LOAD CENTER
- ⑦ NOT USED.
- ⑧ NOT USED.
- ⑨ NOT USED.
- ⑩ PROPOSED TRENCH FOR NEW U/G TELCO SERVICES (103±) (1) 4"Ø PVC W/ (3) 1-1/4" INNERDUCTS AND MULE TAPE FROM NEW COMMUNITY UTILITIES RACK TO NEW AT&T EQUIPMENT PAD.
- ⑪ PROPOSED TRENCH FOR NEW U/G ELECTRICAL SERVICE (93±) (1) 2.5"Ø SCH 80 PVC FROM NEW COMMUNITY UTILITIES RACK TO NEW AT&T EQUIPMENT PAD.
- ⑫ PROPOSED TELCO PORT ON FLOOR OF WIC.
- ⑬ PULL BOX REQUIRED WHEN CONDUIT RUNS CONTAIN MORE THAN 360° IN BENDS BETWEEN END TURNUPS.
- ⑭ PROPOSED FIBER HANDHOLE



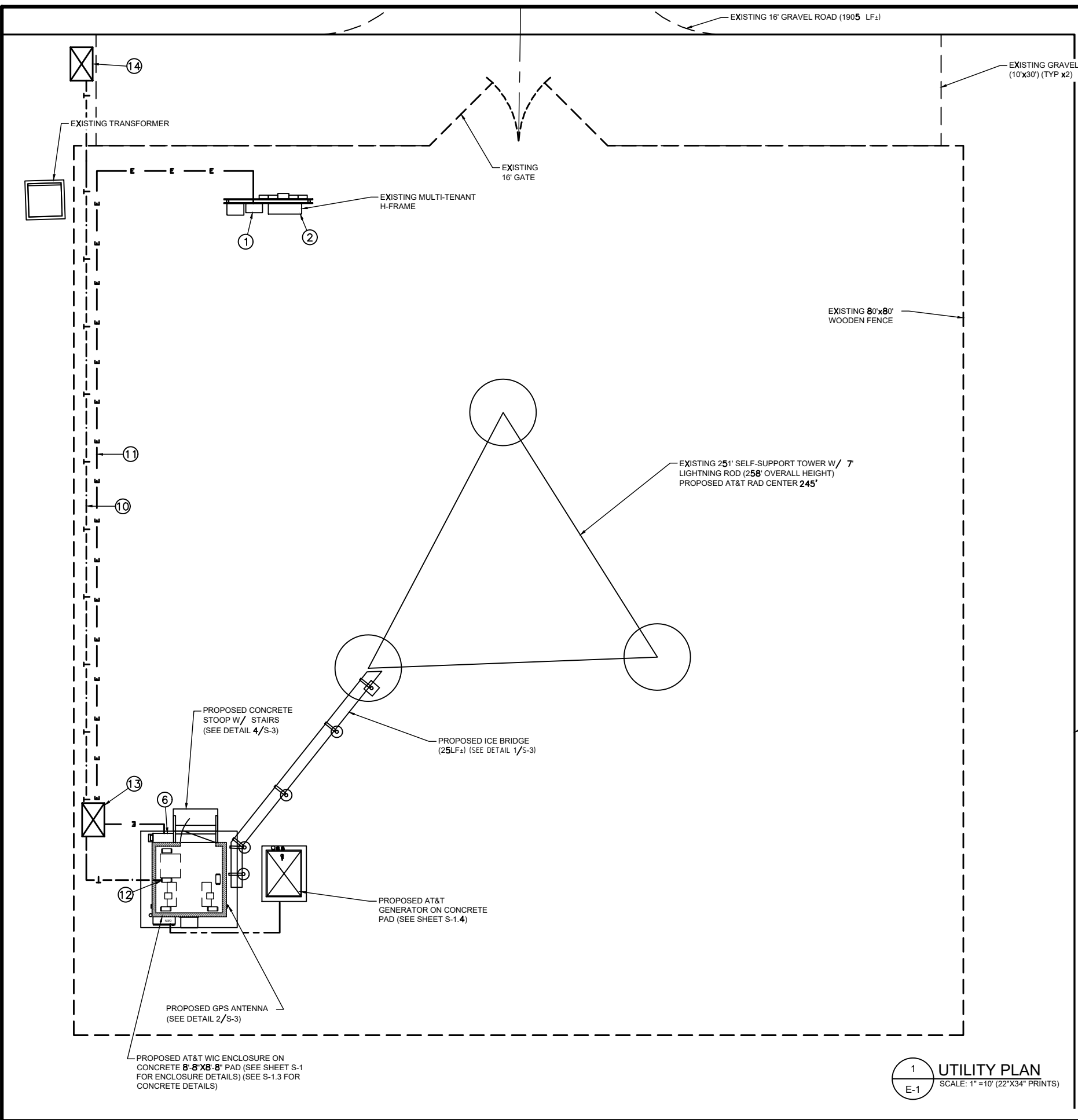
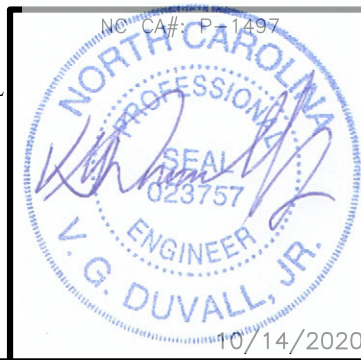
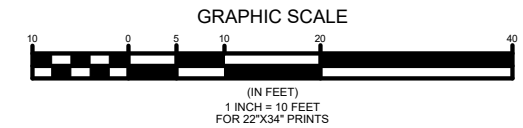
THE ELECTRICAL CONTRACTOR, UPON COMPLETION OF HIS WORK, SHALL PROVIDE AS-BUILT INFORMATION ON EXACT LOCATIONS OF UNDERGROUND SERVICES. INFORMATION SHOULD BE GIVEN TO THE GENERAL CONTRACTOR FOR INCLUSION IN FINAL AS-BUILT SURVEY DOCUMENTS TO BE GIVEN TO AT&T WIRELESS.

PROVIDE PULLSTRING IN ALL EMPTY CONDUITS.

CONTRACTOR SHALL USE SCH 80 PVC UNDER ANY DRIVEWAY OR VEHICLE ACCESS POINTS.



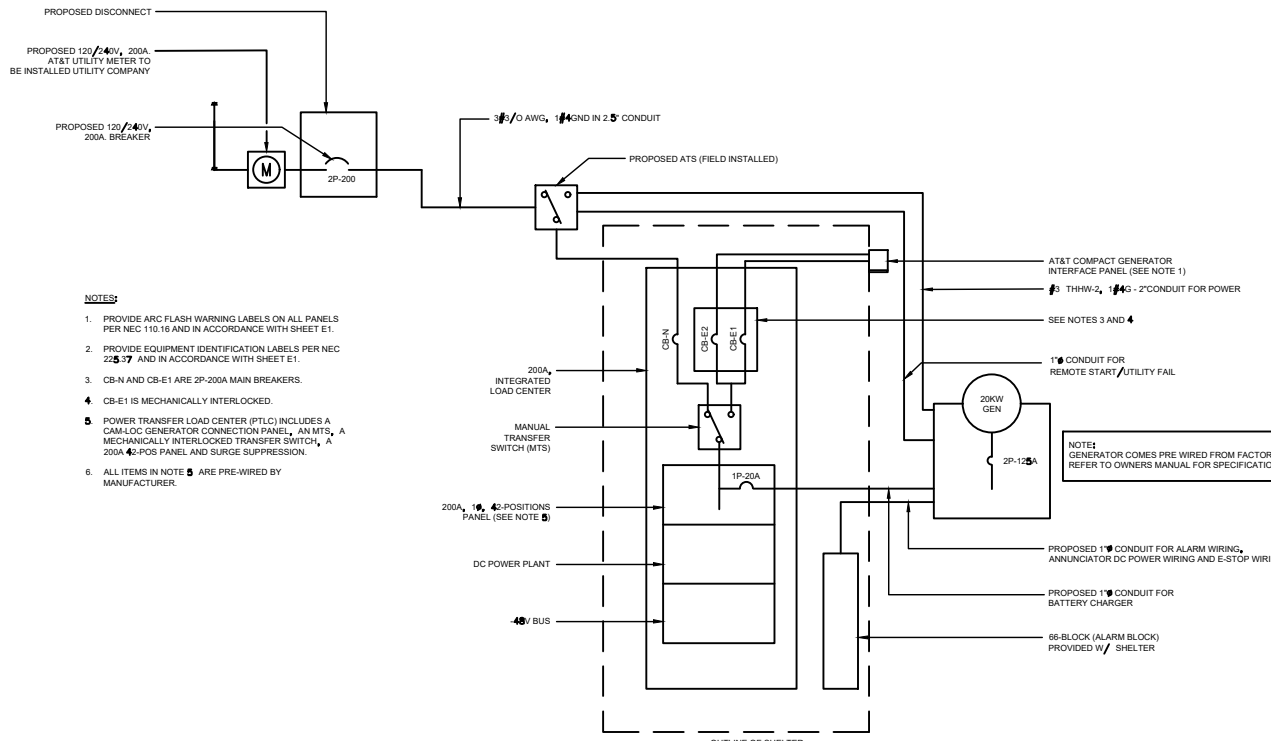
NORTH CAROLINA ONE-CALL
STATE WIDE CALL: 811
CALL BEFORE YOU DIG



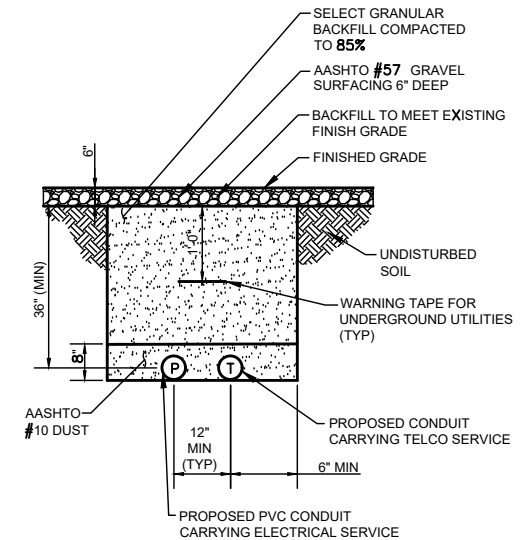
1
E-1
UTILITY PLAN
SCALE: 1"=10' (22"x34" PRINTS)

ELECTRICAL NOTES

- SUBMITTAL OF BID INDICATES THAT THE CONTRACTOR IS COGNIZANT OF ALL JOB SITE CONDITIONS AND WORK TO BE PERFORMED UNDER THIS CONTRACT.
- CONTRACTOR SHALL PERFORM ALL VERIFICATIONS, OBSERVATION TESTS, AND EXAMINATION WORK PRIOR TO ORDERING OF ANY 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.
- VERIFY HEIGHTS WITH PROJECT MANAGER PRIOR TO INSTALLATION.
- THESE PLANS ARE DIAGRAMMATIC ONLY, FOLLOW AS CLOSELY AS POSSIBLE.
- CONTRACTOR SHALL COORDINATE ALL WORK BETWEEN TRADES AND ALL OTHER SCHEDULING AND PROVISIONARY CIRCUMSTANCES SURROUNDING THE PROJECT.
- CONTRACTOR SHALL PROVIDE ALL LABOR, MATERIALS, INSURANCE, EQUIPMENT, INSTALLATION CONSTRUCTION TOOLS, TRANSPORTATION, ETC., FOR COMPLETE AND FUNCTIONALLY OPERATING SYSTEMS ENERGIZED AND READY FOR USE THROUGHOUT 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. ELECTRICAL MATERIALS SHALL BE LISTED AND APPROVED BY UNDERWRITER'S LABORATORIES AND SHALL BEAR THE INSPECTION LABEL "U" WHERE SUBJECT TO SUCH APPROVAL. MATERIALS SHALL MEET WITH APPROVAL OF ALL GOVERNING BODIES HAVING JURISDICTION OVER THE CONSTRUCTION. MATERIALS SHALL BE MANUFACTURED IN ACCORDANCE WITH ALL CURRENT APPLICABLE STANDARDS ESTABLISHED BY ANSI, NEMA AND NBFU. ALL MATERIALS AND EQUIPMENT SHALL BE APPROVED FOR THEIR INTENDED USE AND LOCATION.
- ALL WORK SHALL COMPLY WITH ALL APPLICABLE GOVERNING STATE, COUNTY AND CITY CODES AND OSHA, NFPA, NEC & ASHRAE REQUIREMENTS.
- ENTIRE JOB SHALL BE GUARANTEED FOR A PERIOD OF ONE (1) YEAR AFTER THE DATE OF JOB ACCEPTANCE. ALL WORK, MATERIAL AND EQUIPMENT FOUND TO BE FAULTY DURING THAT PERIOD SHALL BE CORRECTED AT ONCE, UPON WRITTEN NOTIFICATION, AT THE EXPENSE OF THE CONTRACTOR.
- PROPERLY SEAL ALL PENETRATIONS. PROVIDE UL LISTED FIRE-STOPS WHERE PENETRATIONS ARE MADE THROUGH FIRE-RATED ASSEMBLIES. WATER-TIGHT USING SILICONE SEALANT.
- DELIVER ALL BROCHURES, OPERATING MANUALS, CATALOGS AND SHOP DRAWINGS TO THE PROJECT MANAGER AT JOB COMPLETION. PROVIDE MAINTENANCE MANUALS FOR MECHANICAL EQUIPMENT. AFFIX MAINTENANCE LABELS TO MECHANICAL EQUIPMENT.
- ALL CONDUCTORS SHALL BE COPPER. MINIMUM CONDUCTOR SIZE SHALL BE #12 AWG., UNLESS OTHERWISE NOTED. CONDUCTORS SHALL BE TYPE THHW, RATED IN ACCORDANCE WITH NEC 110-14(C).
- ALL CIRCUIT BREAKERS, FUSES AND ELECTRICAL EQUIPMENT SHALL HAVE AN INTERRUPTING RATING NOT LESS THE MAXIMUM INTERRUPTING CURRENT TO WHICH THEY MAY BE SUBJECTED.
- THE ENTIRE ELECTRICAL INSTALLATION SHALL BE GROUNDED IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE; ARTICLES 250 & 810 AND THE UTILITY COMPANY STANDARDS.
- 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.
 - LIQUID-TIGHT FLEXIBLE METAL CONDUIT SHALL BE U.L. LISTED AND SHALL BE USED AT FINAL CONNECTIONS TO MECHANICAL EQUIPMENT & RECTIFIERS AND WHERE PERMITTED BY CODE. ALL CONDUIT IN EXCESS OF SIX FEET IN LENGTH SHALL CONTAIN A FULL-SIZE GROUND CONDUCTOR.
 - CONDUIT RUNS SHALL BE SURFACE MOUNTED ON CEILINGS OR WALLS UNLESS NOTED OTHERWISE. ALL CONDUIT SHALL RUN PARALLEL OR PERPENDICULAR TO WALLS, FLOOR, CEILING, OR BEAMS. VERIFY EXACT ROUTING OF ALL EXPOSED CONDUIT WITH THE PROJECT MANAGER PRIOR TO INSTALLING.
 - PVC CONDUIT MAY BE PROVIDED ONLY WHERE SHOWN, OR IN UNDERGROUND INSTALLATIONS. PROVIDE UV-RESISTANT CONDUIT WHERE EXPOSED TO THE ATMOSPHERE. PROVIDE GROUND CONDUCTOR IN ALL PVC RUNS; EXCEPT WHERE PERMITTED BY CODE TO OMIT.
- ALL ELECTRICAL EQUIPMENT SHALL BE LABELED WITH PERMANENT ENGRAVED PLASTIC LABELS. BACKGROUND SHALL BE BLACK WITH WHITE LETTERS; EXCEPT AS REQUIRED BY CODE TO FOLLOW A DIFFERENT SCHEME.
- UPON COMPLETION OF WORK, CONDUCT CONTINUITY, SHORT CIRCUIT, AND FALL OF POTENTIAL GROUNDING TESTS FOR APPROVAL. SUBMIT TEST REPORTS TO PROJECT MANAGER. GROUNDING SYSTEM RESISTANCE SHALL NOT EXCEED 5 OHMS. IF THE RESISTANCE VALUE IS EXCEEDED, NOTIFY THE PROJECT MANAGER FOR FURTHER INSTRUCTION ON METHODS FOR REDUCING THE RESISTANCE VALUE.
- CLEAN PREMISES OF ALL DEBRIS RESULTING FROM WORK AND LEAVE WORK IN A COMPLETE AND UNDAMAGED CONDITION. LEGALLY DISPOSE OF ALL REMOVED, UNUSED AND EXCESS MATERIAL GENERATED BY THE WORK OF THIS CONTRACT. DELIVER ITEMS INDICATED ON THE DRAWINGS TO THE OWNER IN GOOD CONDITION. OBTAIN SIGNED RECEIPT UPON DELIVERY.
- COORDINATE WITH UTILITY COMPANY FOR CONNECTION OF TEMPORARY AND PERMANENT POWER TO THE SITE. THE TEMPORARY POWER AND ALL HOOKUP COSTS SHALL BE PAID BY THE CONTRACTOR.
- VERIFY ALL EXISTING CIRCUITRY PRIOR TO REMOVAL AND NEW WORK. MAINTAIN POWER TO ALL OTHER AREAS & CIRCUITS NOT SCHEDULED FOR REMOVAL.
- RED LINED AS-BUILT PLANS SHALL BE PROVIDED TO THE CONSTRUCTION MANAGER.

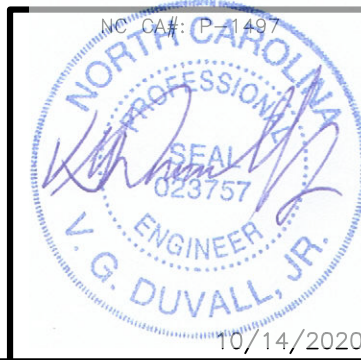


1 ONE-LINE DETAIL - PROPOSED METER AND DISCONNECT
E-2 NTS



2 TYPICAL TRENCH DETAIL
E-2 NTS

INTEGRATED LOAD CENTER																											
LOAD			LOAD PER PHASE (VA)										LOAD														
DESCRIPTION	QTY.	UNIT V.A.	PHASE		WIRE COLOR	LOADS CONTINUOUS	LOADS NON-CONTINUOUS	LOADS SUB-PANEL	WIRE SIZE	GROUNDING WIRE SIZE	TRIP	TRIP	GROUNDING WIRE SIZE	WIRE SIZE	LOADS SUB-PANEL	LOADS NON-CONTINUOUS	WIRE COLOR	LOAD PER PHASE (VA)		UNIT V.A.	QTY.	DESCRIPTION					
			A	B														A	B								
RECTIFIER #1	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			BLK	1400		1400	1	RECTIFIER #5	2				
	1	1400		1400	RED												RED		1400	1400	1		4				
RECTIFIER #2	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			BLK	1400		1400	1	RECTIFIER #6	6				
	1	1400		1400	RED												RED		1400	1400	1		8				
RECTIFIER #3	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			BLK	1400		1400	1	RECTIFIER #7	10				
	1	1400		1400	RED												RED		1400	1400	1		12				
RECTIFIER #4	1	1400	1400		BLK	X			8	(10)	40	40	(10)	8			BLK	1400		1400	1	RECTIFIER #8	14				
	1	1400		1400	RED												RED		1400	1400	1		16				
					BLK												BLK						18				
					RED	X			12	12	20						RED						20				
GFCI RECEPTACLES	2	180	360		BLK	X			12	(12)	20						BLK						22				
OPTIONAL FIBER BOX RECEPTACLE	1	180		180	RED	X			12	12	20						RED						24				
BATTERY CHARGER	1	240	240		BLK	X			12	12	20						BLK						26				
BLOCK HEATER	1	1500		1500	RED	X			12	12	20						RED						28				
OIL HEATER	1	180	180		BLK	X			12	12	20						BLK						30				
SUBTOTAL CONTINUOUS			6,380	7,280																		5,600	5,600	SUBTOTAL CONTINUOUS		TOTAL KVA CONTINUOUS x 1.25	31.075
SUBTOTAL NON-CONTINUOUS			-	-																		-	-	SUBTOTAL NON-CONTINUOUS		TOTAL KVA NON-CONTINUOUS	-
SUBTOTAL SUB-PANEL			-	-																		-	-	SUBTOTAL SUB-PANEL		TOTAL KVA SUB-PANEL	-
PANEL DESIGNATION: ELECTRICAL PANEL (ITEM 2)																				TOTAL KVA		31.075					
MAIN LUGS: N/A	MAIN BREAKER: 200 AMP																	BRANCH BREAKER TYPE: SIEMENS - BL		TOTAL KVA		31.075					
VOLTAGE: 120/240	CYCLE: 60	PHASE: 1	WIRES: 3	MAIN COPPER BUS: 200 AMPS	NEUTRAL: 200 AMPS																TOTAL AMPS		129.48				



SMW # 20-0570.1



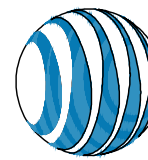
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368-712
ELECTRICAL PANEL SCHEDULE, DIAGRAM & NOTES

DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM

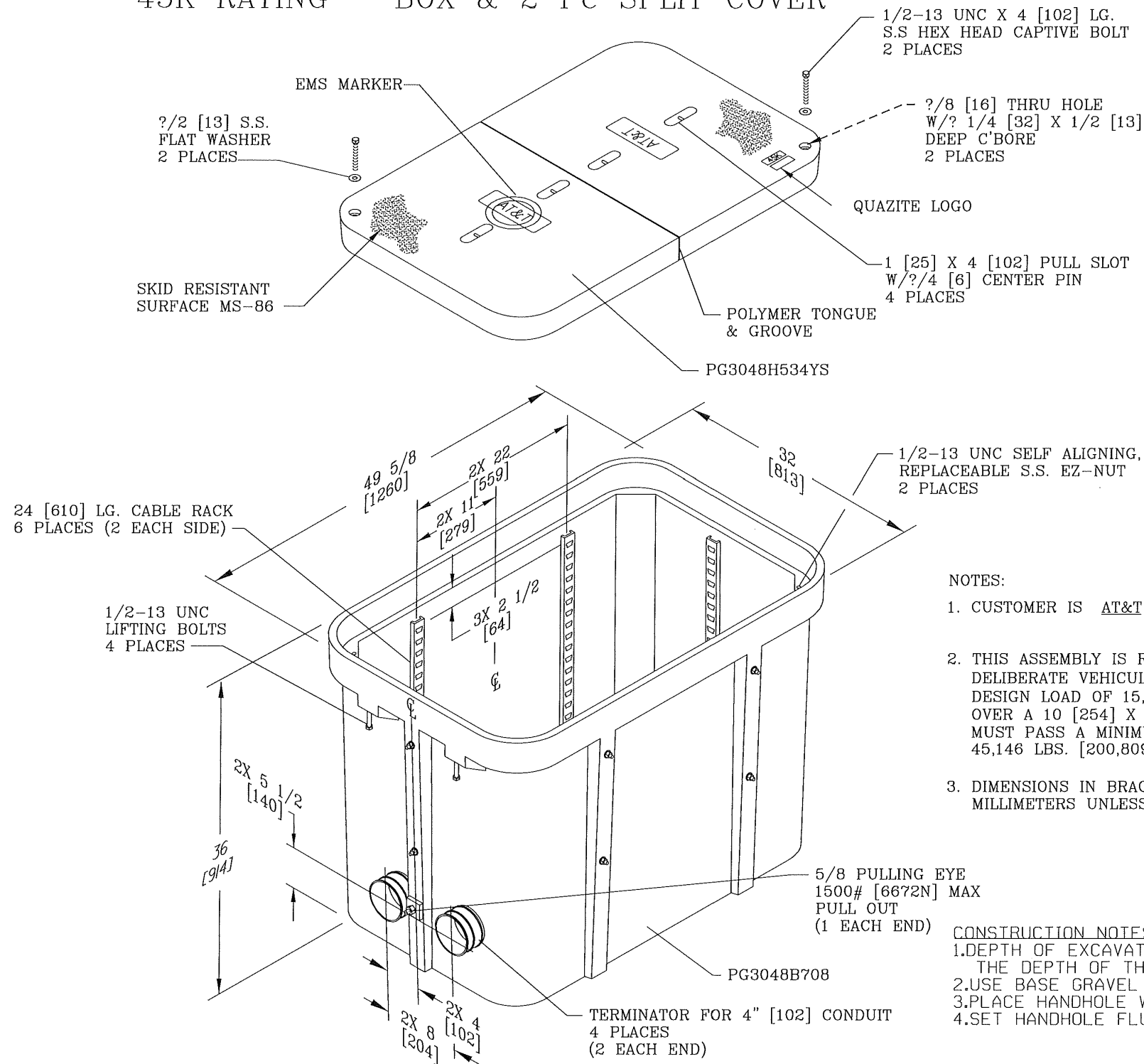
JOB #: 12682206
E-2

10/14/2020



TYPICAL AT&T HANDHOLE DETAIL

HANDHOLE - 30"x48"x36"
45K RATING - BOX & 2 Pc SPLIT COVER



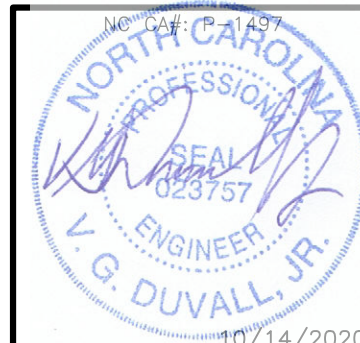
NOTES:

1. CUSTOMER IS AT&T
2. THIS ASSEMBLY IS RATED FOR NON-DELIBERATE VEHICULAR TRAFFIC WITH A DESIGN LOAD OF 15,000 LBS. [66,720 N] OVER A 10 [254] X 20 [508] AREA AND MUST PASS A MINIMUM STATIC TEST LOAD 45,146 LBS. [200,809 N].
3. DIMENSIONS IN BRACKETS ARE IN MILLIMETERS UNLESS NOTED OTHERWISE.

DETAILS BY OTHERS NOTE:
DETAILS SHOWN ON THIS PAGE WERE PROVIDED BY OTHERS AND ARE NOT CARRIED UNDER THE SIGNATURE AND SEAL OF SMW AND/OR IT'S ENGINEERS.

CONSTRUCTION NOTES:

1. DEPTH OF EXCAVATION IS 4" DEEPER THAN THE DEPTH OF THE HANDHOLE.
2. USE BASE GRAVEL NO LARGER THAN 1/2"
3. PLACE HANDHOLE WITH COVER IN PLACE.
4. SET HANDHOLE FLUSH WITH GRADE



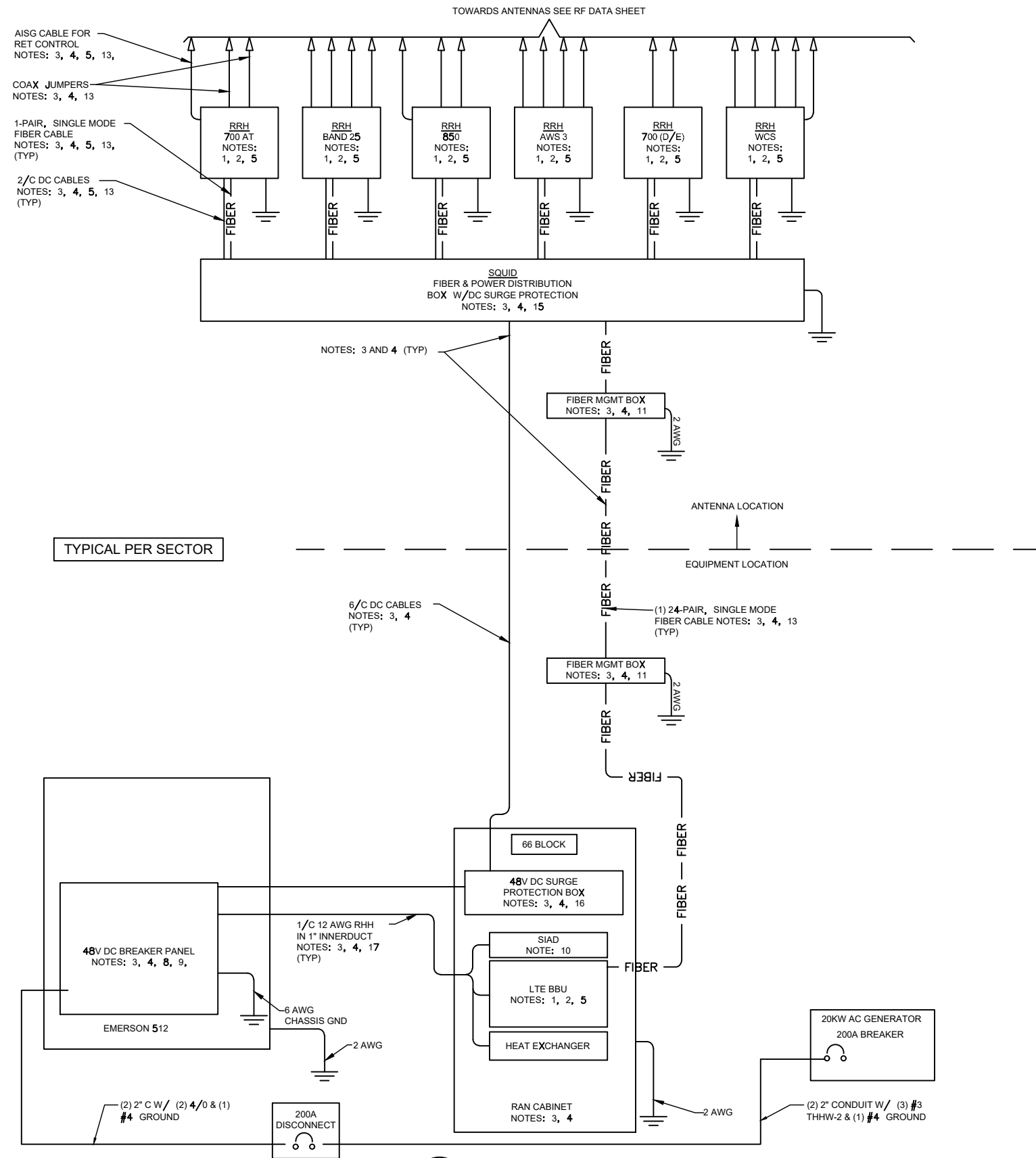
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368-712
HANDHOLE DETAIL

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM
JOB #:	12682206

E-21

10/14/2020



AISG CABLE FOR RET CONTROL
NOTES: 3, 4, 5, 13,

COAX JUMPERS
NOTES: 3, 4, 13

1-PAIR, SINGLE MODE FIBER CABLE
NOTES: 3, 4, 5, 13, (TYP)

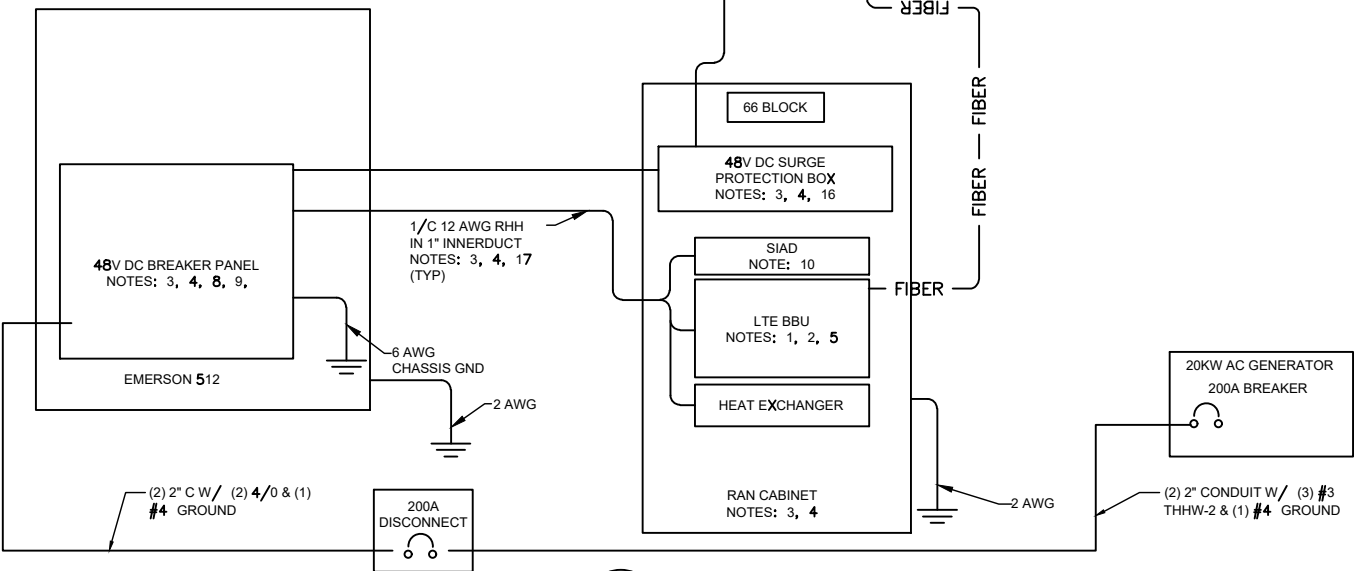
2/C DC CABLES
NOTES: 3, 4, 5, 13 (TYP)

TYPICAL PER SECTOR

NOTES: 3 AND 4 (TYP)

6/C DC CABLES
NOTES: 3, 4 (TYP)

(1) 24-PAIR, SINGLE MODE FIBER CABLE
NOTES: 3, 4, 13 (TYP)



1 DC/FIBER SYSTEM DIAGRAM
E-3 NTS

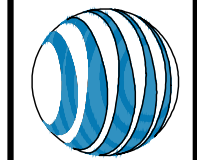
NOTES:

1. FURNISHED BY OEM/AT&T.
2. INSTALLED BY OEM OR AS SCOPED BY MARKET.
3. FURNISHED BY OTHERS
4. INSTALLED BY OTHERS
5. FINAL CONNECTION BY OEM OR AS SCOPED BY MARKET.
6. OPEN END OF CONDUITS TO BE LEFT WEATHERPROOFED UNTIL TERMINATED.
7. DELETED.
8. BREAKERS SPECIFIED SOLD SEPERATELY.
9. BREAKERS TO BE TAGGED AND LOCKED OUT.
10. SIAD IS FURNISHED AND INSTALLED BY OTHERS AND INCLUDES POWER CONNECTIONS AND FIBER TO THE UNIT OR AS SCOPED BY MARKET. INSTALL 10 AWG CHASSIS GROUND, PROVIDE (2) 10A BREAKERS FROM A 24V DC POWER SOURCE OR (2) 5A BREAKERS FROM A 48V DC POWER SOURCE AND CONNECT USING MFR POWER CABLE WITH SPECIAL CONNECTOR.
11. FIBER MANAGEMENT BOX IS J-SOURCE MODEL 12126FM4SEC.
12. LEC TO FURNISH AND INSTALL NETWORK INTERFACE DEVICE.
13. LEAVE COILED AND PROTECTED UNTIL TERMINATED.
14. SEE DETAIL 1408 FOR DC POWER CABLE SIZES.
15. FIBER AND POWER DISTRIBUTION BOX 4/48V SURGE SHALL BE RAYCAP MODEL DC9-48-80-24-8F.
16. POWER DISTRIBUTION W/DC SURGE PROTECTION BOX SHALL BE RAYCAP MODEL DC9-48-60-0-18.
17. SINGLE-CONDUCTOR DC POWER CABLES SHALL BE TELCOFLEX OR KS24194, COPPER, UL LISTED RHH NON-HALOGEN, LOW SMOKE WITH BRAIDED COVER, TYPE TC (1/0 AND LARGER) UNLESS OTHERWISE NOTED, STRANDING SHALL BE CLASS B (TYPE III) FOR CABLES SIZES 14, 12 & 10 AWG AND CLASS 1 (TYPE IV) FOR SIZES 8 AWG AND LARGER. CABLES SHALL BE COLOR CODED RED FOR +24V, BLUE FOR -48V AND GRAY FOR 24V AND 48V RETURN CONDUCTORS. MULTI-CONDUCTOR DC POWER CABLES SHALL COPPER, CLASS B STRANDED WITH FLAME RETARDANT PVC JACKET, TYPE TC, UL LISTED FOR 90°C DRY / 75°C WET INSTALLATION.
18. 10A FUSE FOR HEAT EXCHANGER FURNISHED AND INSTALLED BY OTHERS.
19. DELETED
20. GROUNDING WIRES SHALL BE COPPER, GREEN THHN/THWN UL LISTED FOR 90°C DRY / 75°C WET INSTALLATION. MINIMUM SIZE IS 6 AWG UNLESS NOTED OTHERWISE.
21. RET CONTROL FROM THE RRH IS AN OPTIONAL METHOD OF CONNECTION. REFER TO RF DATA SHEET FOR APPLICABILITY.
22. DELETED.
23. FIBER AND POWER DISTRIBUTION BOX 4/48V SURGE SHALL BE RAYCAP MODEL DC9-48-60-0-1E.
24. FIBER MANAGEMENT BOX IS COMMSCOPE MODEL FB 18188.
25. FIBER AND POWER DISTRIBUTION BOX 4/48V SURGE SHALL BE RAYCAP MODEL DC12-48-60-0-25E.



158 BUSINESS CENTER DRIVE
BIRMINGHAM, AL 35244
TEL: 205-252-6985 FAX: 205-220-1504

SMW # 20-0570.1



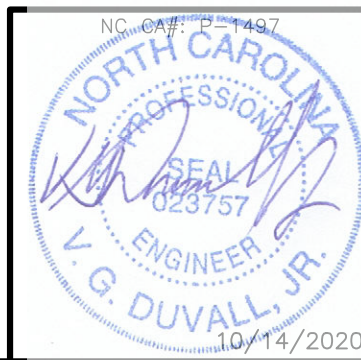
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368-712

DC/FIBER SYSTEM DIAGRAM

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM
JOB #:	12682206

E-3





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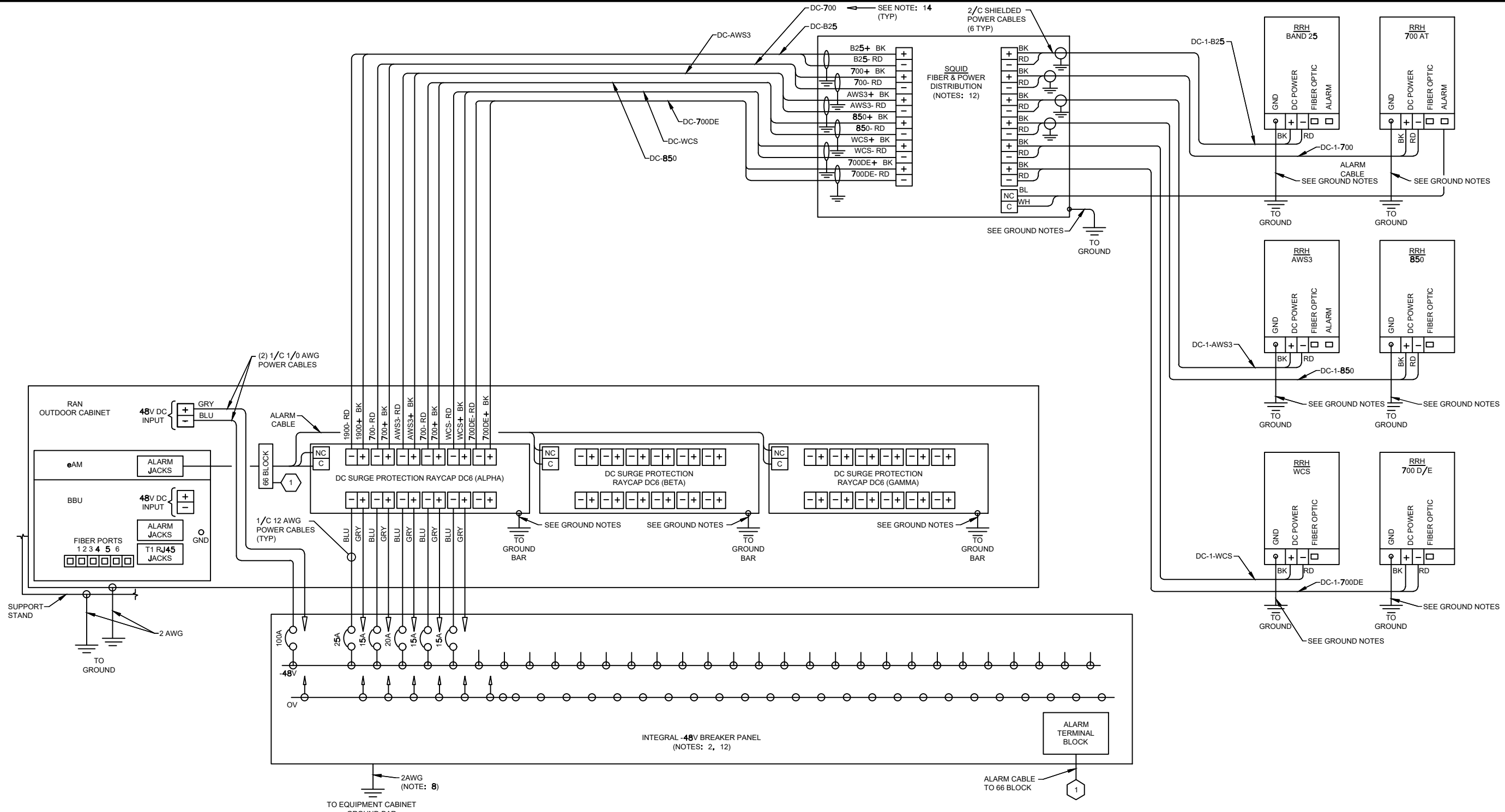
368-712

DC WIRING DIAGRAM

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM
JOB #:	12682206

E-4

10/14/2020



- NOTES**
- LABEL THE DC POWER CABLES AT BOTH ENDS OF EVERY WIRE AND IN ANY PULL BOX IF USED. LABEL SHALL BE DURABLE, SELF ADHESIVE, WRAPPED LONGITUDINALLY ALONG THE CABLE AND STATE THE SECTOR, FREQUENCY BAND AND POLARITY; I.E. "A-AWS+".
 - INSTALL ON IN AUXILIARY EQUIPMENT CABINET.
 - CABLE TERMINALS FOR +24V INPUT FEED A, FEED B AND REFERENCE GROUND SHALL BE 2-HOLE; 3/8" ON 1" CENTER.
 - INSTALL CABLE TERMINALS FOR FEED A AND FEED B RETURN BACK-TO-BACK ON OPPOSITE SIDES OF PAD USING 1-HOLE 3/8" TERMINALS.
 - CABLE TERMINALS FOR CHASSIS GROUND SHALL BE 2-HOLE, 1/4" ON 5/8" CENTER.
 - WHEN DISTRIBUTION BOX IS NOT USED, INSTALL 3 RUNS OF (2) 2/C CABLES IN CONDUIT, 1 EACH FROM DC SURGE SHELF TO DC6s.
 - A JUNCTION BOX IS REQUIRED WHEN FIBER OPTIC CABLES ARE INSTALLED IN CONDUIT AS SCOPED BY MARKET.
 - CONVERTER REFERENCE GROUND IS NOT REQUIRED WHEN CONVERTER AND 24V DC POWER PLANT ARE ON THE SAME RACK OR ENCLOSURE.
 - THE BARE GROUND WIRE OF EACH MULTI-CONDUCTOR CABLE AND DRAIN WIRE WHEN A SHIELDED CABLE IS USED, SHALL BE CONNECTED TO THE EQUIPMENT CABINET GROUND BAR.
 - SEE ALARM BLOCK ASSIGNMENT DETAIL FOR ALARM CABLE CONNECTIONS.
 - PROVIDE A JUNCTION BOX, AS SCOPED BY MARKET, TO COIL EXCESS DC POWER AND OPTICAL FIBER CABLES (FIBER CALES NOT SHOWN FOR CLARITY)
 - NOTED EQUIPMENT MAY BE COMMON TO LTE AND UMTS SYSTEMS.
 - CABLE GROUND WIRE AND SHIELD DRAIN WIRE TO BE LEFT UN-TERMINATED AT RRH.
 - WHEN AN RRH IS USED INSTEAD OF AN AWS RRH CABLE, LABELS SHOULD REFLECT CORRECT FREQUENCY BAND.

- GROUND NOTES:**
- #2 SOLID TINNED FOR ALL GROUND LEVEL GROUND WIRES
 - #2 COPPER TINNED GREEN JACKETED UV RATED GROUND WIRE FOR ALL TOWER APPLICATIONS
 - #2 COPPER TINNED GREEN JACKETED UV RATED GROUND WIRE IS USED IN ALL OUTSIDE APPLICATIONS WHERE #2 SOLID IS NOT SPEC'D OUT.

1 DC WIRING DIAGRAM
E-4 NTS

TYPICAL PER SECTOR



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368-712

GROUNDING PLAN

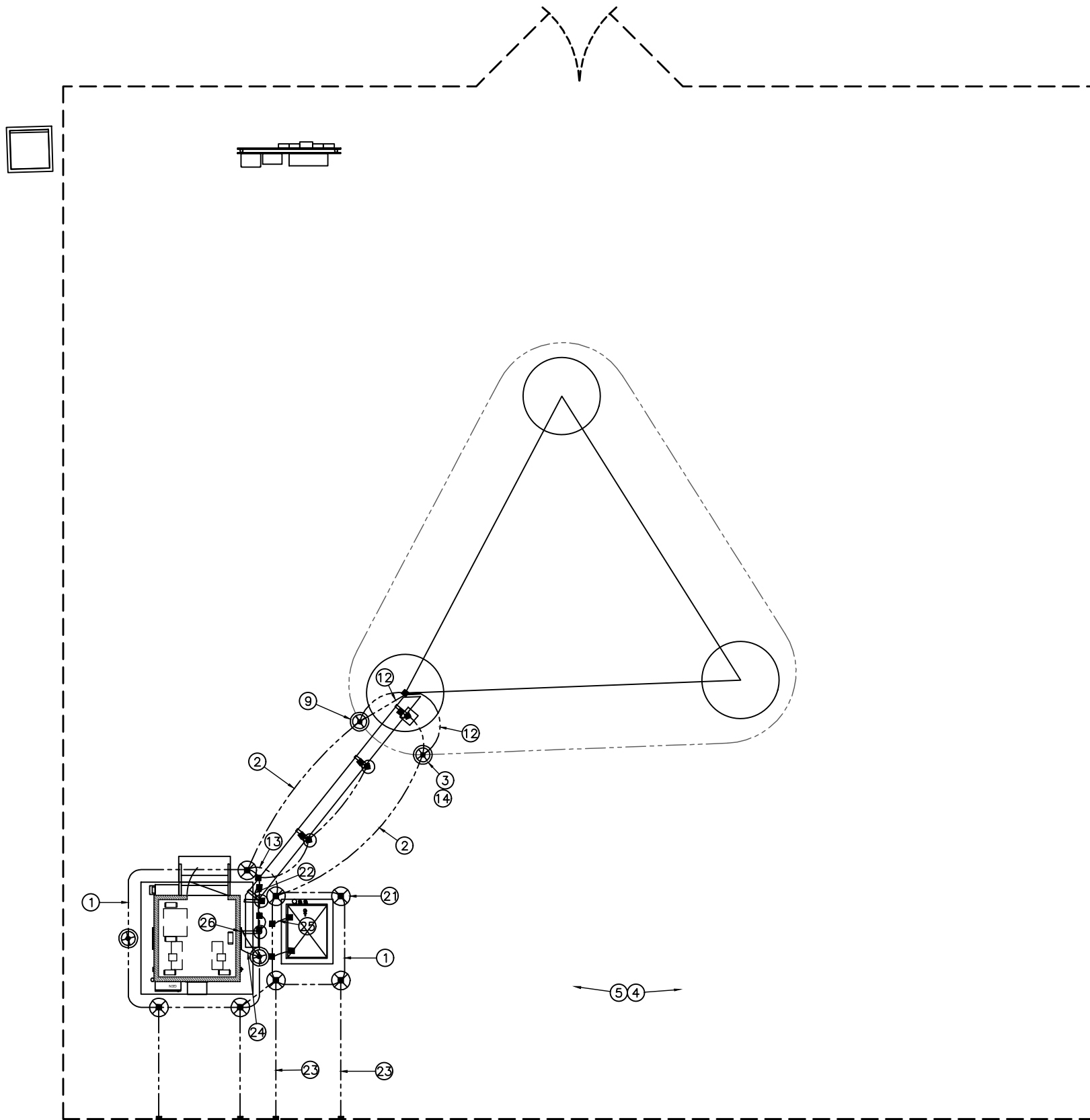
DESIGNED: VGD
DRAWN: JCM
CHECKED: MAW
LAST REVISION BY: JCM

JOB #: 12682206

G-1

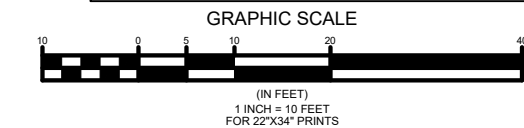
GROUNDING NOTES

- BURIED GROUND RING FOR GENERATOR AND WIC SHALL BE #2 AWG, SOLID, TINNED COPPER CONDUCTOR INSTALLED 30" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED. AN ANTI-OXIDE COMPOUND SHALL BE APPLIED TO ALL EXTERIOR, ABOVE GRADE GROUND CONNECTIONS.
 - BURIED GROUND RING SHALL BE #2 AWG, SOLID, TINNED COPPER CONDUCTOR INSTALLED 18" BELOW FINISHED GRADE UNLESS OTHERWISE NOTED. AN ANTI-OXIDE COMPOUND SHALL BE APPLIED TO ALL EXTERIOR, ABOVE GRADE GROUND CONNECTIONS.
 - INSPECTION GROUND RODS SHALL BE 5/8" DIA. X 10' LONG, COPPER CLAD TYPE. TOP OF ROD SHALL BE 18" BELOW FINISHED GRADE, GROUND RODS SHALL BE FURNISHED WITH AN INSPECTION SLEEVE. SEE "GROUND INSPECTION SLEEVE DETAIL" ON SHEET E-3. ALL GROUND RODS SHALL BE DRIVEN STRAIGHT DOWN, PERPENDICULAR TO FINISHED GRADE. SUITABLE PROTECTION SHALL BE PROVIDED ON END OF RODS TO PREVENT MUSHROOMING DURING INSTALLATION.
 - GROUND CONNECTIONS TO TOWER, COMMUNITY H-FRAME, ETC., SHALL BE MADE WITH THE SAME TYPE AND SIZE CONDUCTOR AS THE BURIED GROUND RING CONDUCTOR UNLESS OTHERWISE NOTED.
 - ALL MATERIALS AND LABOR REQUIRED FOR THE GROUNDING SYSTEM AS INDICATED ON THE PLANS AND DETAILS, AND AS DESCRIBED HEREIN AND IN THE SPECIFICATIONS, SHALL BE FURNISHED BY THE CONTRACTOR UNLESS OTHERWISE NOTED.
- #6, #7 AND 8 ARE NOT USED
- EXACT LOCATION OF GROUND RODS AND GROUND CONNECTION POINTS SHALL BE DETERMINED IN FIELD, BUT WILL GENERALLY BE INSTALLED EVERY 10 FEET. ADJUST LOCATIONS INDICATED ON PLANS ACCORDING TO ACTUAL EQUIPMENT AND BUILDING COMPONENT LOCATIONS TO KEEP THE GROUND CONNECTION CABLES AS SHORT AS PRACTICAL. GROUND CONDUCTORS SHALL HAVE 9" MIN. BENDING RADIUS AND 90° MAXIMUM BEND.
 - NOT USED
 - NOT USED
 - CONNECTION TO TOWER EXIT GROUND BAR. INSTALL GROUND CONDUCTOR IN 3/4" P-C CONDUIT FROM GROUND BAR TO 12" ABOVE FINISHED GRADE. GROUND CONDUCTOR CONNECTION TO GROUND BAR SHALL BE MADE USING EXOTHERMIC WELD PROCESS (CADWELD OR EQUAL). SEE TOWER EXIT GROUND BAR DETAIL ON SHEET E-3.
 - ICE BRIDGE GROUND CONNECTION (CADWELD OR EQUAL). ALL METALLIC COMPONENTS ON ICE BRIDGE, INCLUDING EXTERIOR HATCH PLATE AND SUPPORT LEGS, SHALL BE BONDED TOGETHER WITH GROUND CONDUCTORS.
 - FRICITION ACCESS COVERS FOR GROUND INSPECTION SLEEVE SHALL BE BROUGHT FLUSH WITH STONE, FINISHED GRADE, OR CONCRETE (TYPICAL ALL LOCATIONS). SEE "GROUND INSPECTION SLEEVE DETAIL" ON SHEET E-3.
- #15 TO 20 NOT USED
- GROUND RODS SHALL BE 5/8" DIA. X 10' LONG, COPPER CLAD TYPE. TOP OF ROD SHALL BE 18" BELOW FINISHED GRADE.
 - GROUND TO ICE BRIDGE POST
 - GROUND TO FENCE POST TO GENERATOR AND WIC GROUND RING.
 - GROUND WIC BUSS BAR TO GROUND RING PER MANUFACTURERS SPECS.
 - GROUND GENERATOR TO GROUND RING PER MANUFACTURERS SPECS.
 - WIC BUSS BAR

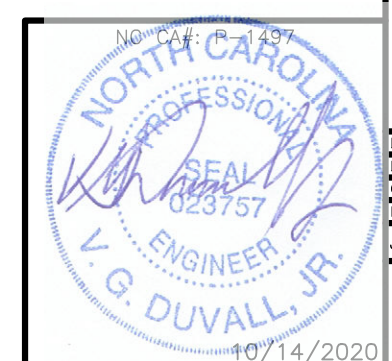


GROUNDING LEGEND

■	EXOTHERMIC WELD CONNECTION
●	COMPRESSION FITTING CONNECTION
○	5/8"X10' COPPER-CLAD STEEL GROUND ROD
⊙	5/8"X10' COPPER-CLAD STEEL GROUND ROD WITH INSPECTION WELL
---	PROPOSED GROUND WIRING
- - -	EXISTING GROUND WIRING
—	TINNED COPPER GROUND BAR
—	1/4"X4"X12" OR 1/4"X4"X20"
—	COLLECTOR GROUND BAR
—	MAIN GROUND BAR



GROUND PLAN
SCALE: 1" = 10' (22"x34" PRINTS)



GROUNDING NOTES:

- GROUNDING SHALL COMPLY WITH ARTICLE 250 OF THE NATIONAL ELECTRICAL CODE.
- ALL GROUNDING DEVICES SHALL BE U.L. APPROVED OR LISTED FOR THEIR INTENDED USE.
- ALL WIRES SHALL BE AWG THHN/THWN COPPER UNLESS NOTED OTHERWISE.
- GROUNDING CONNECTIONS TO GROUND RODS, GROUND RING WIRE, TOWER BASE AND FENCE POSTS SHALL BE EXOTHERMIC ("CADWELDS") UNLESS NOTED OTHERWISE. CLEAN SURFACES TO SHINY METAL. AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTI-OXIDANT COATING.
- GROUNDING CONNECTIONS TO GROUND BARS ARE TO BE TWO-HOLE BRASS MECHANICAL CONNECTORS WITH STAINLESS STEEL HARDWARE (INCLUDING SCREW SET) CLEAN GROUND BAR TO SHINY METAL. AFTER MECHANICAL CONNECTION, TREAT WITH PROTECTIVE ANTI-OXIDANT COATING.
- GROUND COAXIAL CABLE SHIELDS AT BOTH ENDS WITH MANUFACTURER'S GROUNDING KITS.
- ROUTE GROUNDING CONDUCTORS THE SHORTEST AND STRAIGHTEST PATH POSSIBLE. BEND GROUNDING LEADS WITH A MINIMUM 12" RADIUS.
- INSTALL #2 AWG GREEN-INSULATED STRANDED WIRE FOR ABOVE GRADE GROUNDING AND #2 BARE TINNED COPPER WIRE FOR BELOW GRADE GROUNDING UNLESS OTHERWISE NOTED.
- REFER TO GROUNDING PLAN FOR GROUND BAR LOCATIONS. GROUNDING CONNECTIONS SHALL BE EXOTHERMIC TYPE ("CADWELDS") TO ANTENNA MOUNTS AND GROUND RING. REMAINING GROUNDING CONNECTIONS SHALL BE COMPRESSION FITTINGS. CONNECTIONS TO GROUND BARS SHALL BE MADE WITH TWO-HOLE LUGS.
- THE GROUND ELECTRODE SYSTEM SHALL CONSIST OF DRIVEN GROUND RODS POSITION ACCORDING TO GROUNDING PLAN. THE GROUND RODS SHALL BE 5/8"x10'-0" COPPER CLAD STEEL INTERCONNECTED WITH #2 BARE TINNED COPPER WIRE BURIED 36" BELOW GRADE. BURY GROUND RODS A MAXIMUM OF 15' APART, AND A MINIMUM OF 8' APART.
- IF ROCK IS ENCOUNTERED GROUND RODS SHALL BE PLACED AT AN OBLIQUE ANGLE NOT TO EXCEED 45°.
- EXOTHERMIC WELDS SHALL BE MADE IN ACCORDANCE WITH ERICO PRODUCTS BULLETIN A-AT.
- CONSTRUCTION OF GROUND RING AND CONNECTIONS TO EXISTING GROUND RING SYSTEM SHALL BE DOCUMENTED WITH PHOTOGRAPHS PRIOR TO BACKFILLING SITE. PROVIDE PHOTOS TO THE VERIZON WIRELESS CONSTRUCTION MANAGER.
- ALL GROUND LEADS EXCEPT THOSE TO THE EQUIPMENT ARE TO BE #2 BARE TINNED COPPER WIRE. ALL EXTERIOR GROUND BARS TINNED COPPER.
- PRIOR TO INSTALLING LUGS ON GROUND WIRES, APPLY THOMAS & BETTS KOPR-SHIELD (TM OF JET LUBE INC.) PRIOR TO BOLTING GROUND WIRE LUGS TO GROUND BARS, APPLY KOPR-SHIELD OR EQUAL.
- ENGAGE AN INDEPENDENT ELECTRICAL TESTING FIRM TO TEST AND VERIFY THAT IMPEDANCE DOES NOT EXCEED FIVE OHMS TO GROUND BY MEANS OF "FALL OF POTENTIAL TEST". TEST SHALL BE WITNESSED BY A METROPCS REPRESENTATIVE, AND RECORDED ON THE "GROUND RESISTANCE TEST" FORM.
- WHERE BARE COPPER GROUND WIRES ARE ROUTED FROM ANY CONNECTION ABOVE GRADE TO GROUND RING, INSTALL WIRE IN 3/4" PVC SLEEVE, FROM 1' BELOW GRADE AND SEAL TOP WITH SILICONE MATERIAL.
- PREPARE ALL BONDING SURFACES FOR GROUNDING CONNECTIONS BY REMOVING ALL PAINT AND CORROSION DOWN TO SHINY METAL. FOLLOWING CONNECTION, APPLY APPROPRIATE ANTI-OXIDIZATION PAINT.
- ANY SITE WHERE THE EQUIPMENT (BTS, CABLE BRIDGE, PPC, GENERATOR, ETC.) IS LOCATED WITHIN 6 FEET OF METAL FENCING, THE GROUND RING SHALL BE BONDED TO THE NEAREST FENCE POST USING (3) RUNS OF #2 BARE TINNED COPPER WIRE.

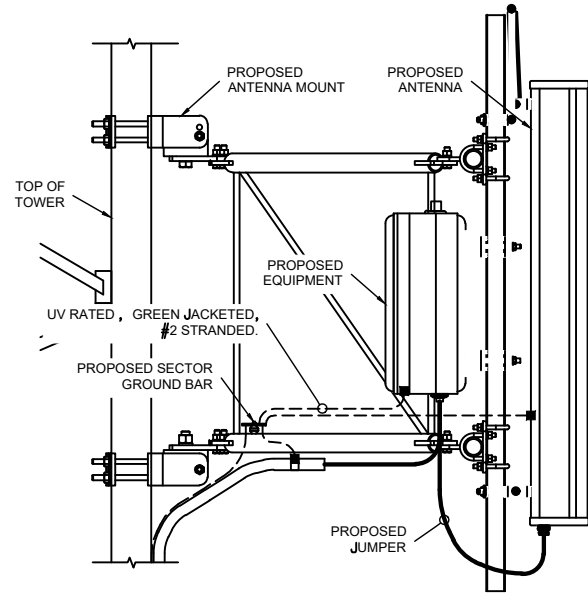
CABLE COLOR CODING NOTES:

- SECTOR ORIENTATION/AZIMUTH WILL VARY FROM REGION AND IS SITE SPECIFIC. REFER TO RF REPORT FOR EACH SITE TO DETERMINE THE ANTENNA LOCATION AND FUNCTION OF EACH TOWER SECTOR FACE.
- THE ANTENNA SYSTEM CABLES SHALL BE LABELED WITH VINYL TAPE EXCEPT IN LOCATIONS WHERE ENVIRONMENTAL CONDITIONS CAUSE PHYSICAL DAMAGE, THEN PHYSICAL TAGS ARE PREFERRED.
- THE STANDARD IS BASED ON EIGHT COLORED TAPES - RED, BLUE, GREEN, YELLOW, ORANGE, BROWN, WHITE & VIOLET. THESE TAPES MUST BE 3/4" WIDE & UV RESISTANT SUCH AS SCOTCH 35 VINYL ELECTRICAL COLOR CODING TAPE AND SHOULD BE READILY AVAILABLE TO THE ELECTRICIAN OR SUBCONTRACTOR ON SITE.
- USING COLOR BANDS ON THE CABLES, MARK ALL RF CABLES BY SECTOR AND NUMBER AS SHOWN ON "CABLE MARKING COLOR CONVENTION TABLE".
- WHEN AN EXISTING COAXIAL LINE THAT IS INTENDED TO BE A SHARED LINE BETWEEN GSM/3G AND IS-136 TDMA IS ENCOUNTERED, THE SUBCONTRACTOR SHALL REMOVE THE EXISTING COLOR CODING SCHEME AND REPLACE IT WITH THE COLOR CODING AND TAGGING STANDARD THAT IS OUTLINED IN THE CURRENT VERSION OF ND-00027. IN THE ABSENCE OF AN EXISTING COLOR CODING TAGGING SCHEME, OR WHEN INSTALLING PROPOSED COAXIAL CABLES, THIS GUIDELINE SHALL BE IMPLEMENTED AT THAT SITE REGARDLESS OF TECHNOLOGY.
- ALL COLOR CODE TAPE SHALL BE 3M-35 AND SHALL BE A MINIMUM OF (3) WRAPS OF TAPE AND SHALL BE NEATLY TRIMMED AND SMOOTHED OUT SO AS TO AVOID UNRAVELING.
- ALL COLOR BANDS INSTALLED AT THE TOP OF TOWER SHALL BE A MINIMUM OF 3" WIDE AND SHALL HAVE A MINIMUM OF 3/4" OF SPACE IN BETWEEN EACH COLOR.
- ALL COLOR CODES SHALL BE INSTALLED AS TO ALIGN NEATLY WITH ONE ANOTHER FROM SIDE TO SIDE.
- IF EXISTING CABLES AT THE SITE ALREADY HAVE A COLOR CODING SCHEME AND THEY ARE NOT INTENDED TO BE REUSED OR SHARED WITH THE GSM TECHNOLOGY, THE EXISTING COLOR CODING SCHEME SHALL REMAIN UNTOUCHED.

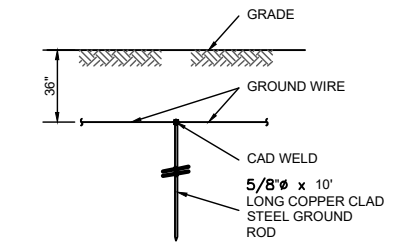
CABLE MARKING TAGS:

WHEN USING THE ALTERNATIVE LABELING METHOD, EACH RF CABLE SHALL BE IDENTIFIED WITH A METAL ID TAG MADE OF STAINLESS STEEL OR BRASS. THE TAG SHALL BE 1-1/2" IN DIAMETER WITH 1/4" STAMPED LETTERS AND NUMBERS INDICATING THE SECTOR, ANTENNA POSITION AND CABLE NUMBER. ID MARKING LOCATIONS SHOULD BE AS PER "CABLE MARKING LOCATIONS TABLE". THE TAG SHOULD BE ATTACHED WITH CORROSION PROOF WIRE AROUND THE CABLE AT THE SAME LOCATION AS DEFINED ABOVE. THE TAG SHOULD BE LABELED AS SHOWN ON THE "GSM AND UMTS LINE TAG" DETAIL.

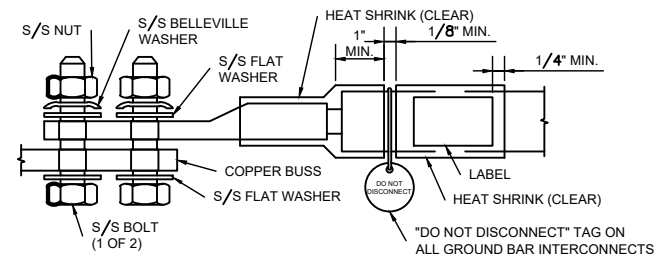
CABLE MARKING LOCATIONS TABLE	
NO.	LOCATIONS
1	EACH JUMPER SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS.
2	EACH MAIN COAX SHALL BE COLOR CODED WITH (1) SET OF 3" WIDE BANDS AT THE TOP JUMPER CONNECTION AND WITH (1) SET OF 3/4" WIDE COLOR BANDS PRIOR TO ENTERING THE BTS OR SHELTER.
3	CABLE ENTRY PORT ON THE INTERIOR OF SHELTER.
4	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.
5	ALL BOTTOM JUMPERS SHALL BE COLOR CODED WITH (1) SET OF 3/4" WIDE BANDS ON EACH END OF THE BOTTOM JUMPER.



2 ANTENNA & CABLE GROUNDING
SCALE: NOT TO SCALE

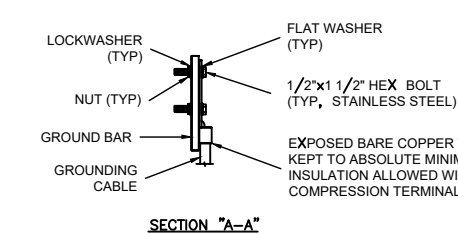
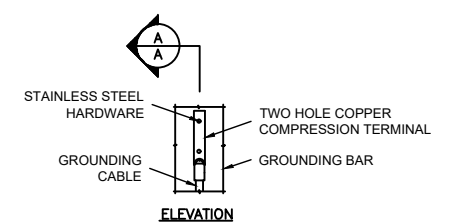


3 GROUNDING ROD DETAIL
SCALE: NOT TO SCALE



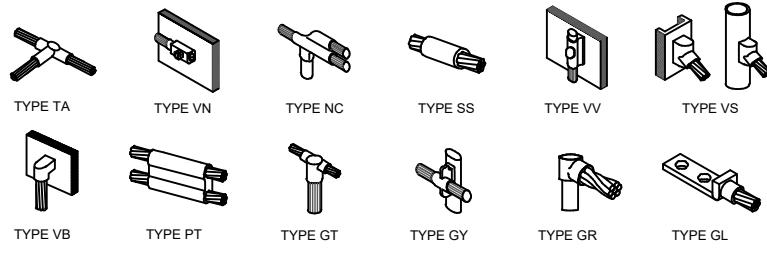
- NOTES:**
- ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING BELLEVILLES. COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND BEFORE MATING.
 - FOR GROUND BOND TO STEEL ONLY: INSERT A DRAGON TOOTH WASHER BETWEEN LUG AND STEEL, COAT ALL SURFACES WITH ANTI-OXIDATION COMPOUND.
 - COAT ALL BARRELS WITH ANTI-OXIDATION COMPOUND BEFORE CRIMPING.

4 GENERAL LUG DETAIL
SCALE: NOT TO SCALE

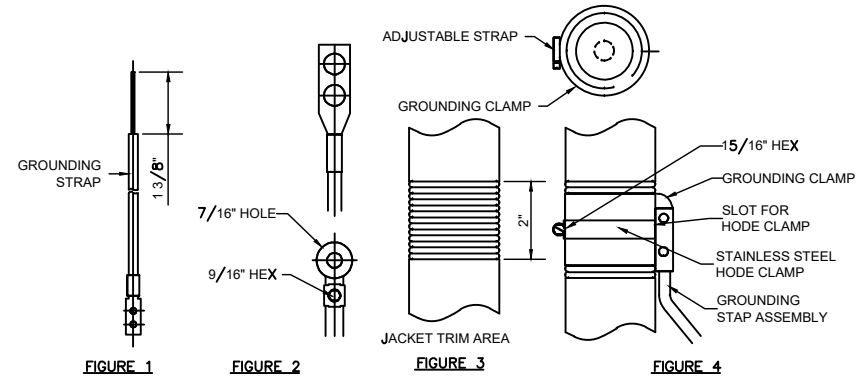


- NOTE:**
- "DOUBLING UP" OR "STACKING" OF CONNECTIONS IS NOT PERMITTED.
 - OXIDE INHIBITING COMPOUND TO BE USED AT ALL LOCATIONS.

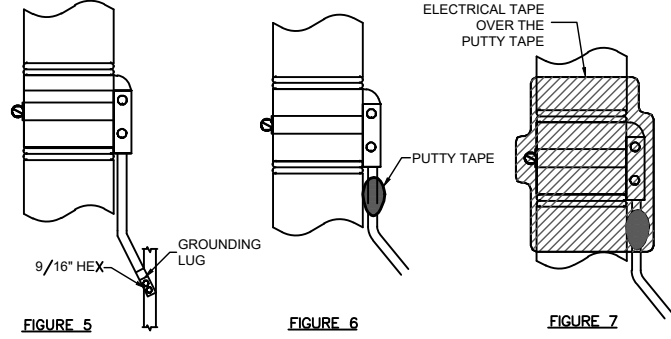
6 TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: NOT TO SCALE



1 CADWELD GROUNDING CONNECTION DETAILS
SCALE: NOT TO SCALE

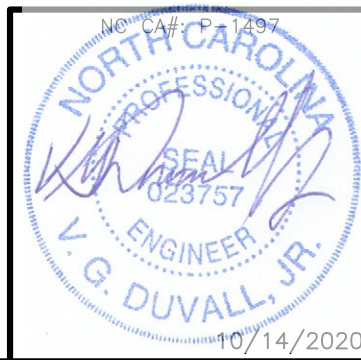


5 GROUNDING STRAP WEATHERPROOFING DETAIL
SCALE: NOT TO SCALE



6 TYPICAL GROUND BAR CONNECTION DETAIL
SCALE: NOT TO SCALE

DETAILS BY OTHERS NOTE:
DETAILS SHOWN ON THIS PAGE WERE PROVIDED BY OTHERS AND ARE NOT CARRIED UNDER THE SIGNATURE AND SEAL OF SMW AND/OR IT'S ENGINEERS.



SMW # 20-0570.1



#	DATE	DESCRIPTION:
0	09/10/20	ISSUED FOR CLIENT REVIEW
1	09/14/20	REV. PER CLIENT COMMENTS
2	10/06/20	REV. PER CLIENT COMMENTS
3	10/14/20	ISSUED FOR CONSTRUCTION

368-712
GROUNDING DETAILS & NOTES (SST & SELF-SUPPORT TOWER)

DESIGNED:	VGD
DRAWN:	JCM
CHECKED:	MAW
LAST REVISION BY:	JCM
JOB #:	12682206

G-2

Section 1 - RFDS GENERAL INFORMATION

RFDS NAME:	ECL02120	DATE:	06/10/2020	RF DESIGN ENG:	SHOHEL CHOWDHURY	RF PERF ENG:		RFDS PROGRAM TYPE:	2020 New Site			
ISSUE:		Approved? (Y/N):	Yes	RF DESIGN PHONE:		RF PERF PHONE:		RFDS TECHNOLOGY:	LTE 5C			
REVISION:		RF MANAGER:	JONES, JERRY O	RF DESIGN EMAIL:	sc3730@att.com	RF PERF EMAIL:		STATE/STATUS:	Preliminary/Approved			
INITIATIVE /PROJECT:						ADDITIONAL WORKFLOW NOTIFICATIONS:		RFDS ID:	4001668			
						RFDS VERSION:	1.00	Created By:	au844f	Updated By:	au844f	
						UMTS FREQUENCY:		Date Created:	6/10/2020 2:46:59 PM	Date Updated:	6/17/2020 12:17:26 PM	
						LTE FREQUENCY:		EXPIRATION DATE:				
						5G FREQUENCY:		ESTIMATED SQIN:		Calculation ID:		
						I-PLAN JOB # 1:	SER-RVWN-18-04951	IPLAN PRD GRP SUB GRP #1:				New Site LTE Only 1C
						I-PLAN JOB # 2:	NER-RVWN-20-03306	IPLAN PRD GRP SUB GRP #2:				LTE Next Carrier LTE 2C
						I-PLAN JOB # 3:	NER-RVWN-20-03307	IPLAN PRD GRP SUB GRP #3:				LTE Next Carrier LTE 3C
						I-PLAN JOB # 4:	NER-RVWN-20-03308	IPLAN PRD GRP SUB GRP #4:				LTE Next Carrier LTE 4C
						I-PLAN JOB # 5:	NER-RVWN-20-03309	IPLAN PRD GRP SUB GRP #5:				LTE Next Carrier LTE 5C
					I-PLAN JOB # 6:		IPLAN PRD GRP SUB GRP #6:					
					I-PLAN JOB # 7:		IPLAN PRD GRP SUB GRP #7:					
					I-PLAN JOB # 8:		IPLAN PRD GRP SUB GRP #8:					

Section 2 - LOCATION INFORMATION

USID:	142592	FA LOCATION CODE:	12682206	LOCATION NAME:	368-712	ORACLE PTN # 1:	2301A0HFYP	PACE JOB # 1:	MRCAR033595	
REGION:	SOUTHEAST	MARKET CLUSTER:	NORTH CAROLINA/SOUTH CAROLINA	MARKET:	RALEIGH	ORACLE PTN # 2:	2301A0W826	PACE JOB # 2:	MRVWN005694	
ADDRESS:	1754 OAK GROVE CHURCH ROAD	CITY:	ANGIER	STATE:	NC	ORACLE PTN # 3:	2301A0W82K	PACE JOB # 3:	MRVWN005668	
ZIP CODE:	27501	COUNTY:	HARNETT	LONG (DEC. DEG.):	-78.7096640	ORACLE PTN # 4:	2301A0W83K	PACE JOB # 4:	MRVWN005681	
LATITUDE (D-M-S):	35d 27m6.3s	LONGITUDE (D-M-S):	-78d -42m-34.7904s	LAT (DEC. DEG.):	35.4517500	ORACLE PTN # 5:	2301A0W848	PACE JOB # 5:	MRVWN005680	
DIRECTIONS, ACCESS AND EQUIPMENT LOCATION:	FROM RALEIGH: US-401S TO NC-42E/NC-55E. TAKE LEFT ONTO NC-42E/NC-55E FOR 9.7 MILES. RIGHT ONTO OAK GROVE CHURCH ROAD FOR 1 MILE. LEFT ONTO HOMESTEAD LANE. TOWER IS APPROXIMATELY 0.4 MILES ON LEFT.					ORACLE PTN # 6:		PACE JOB # 6:		
						ORACLE PTN # 7:		PACE JOB # 7:		
						ORACLE PTN # 8:		PACE JOB # 8:		
						BORDER CELL WITH CONTOUR COORD:		SEARCH RING NAME:		
						AM STUDY REQ'D (Y/N):	No	SEARCH RING ID:		
						FREQ COORD:		BTA:		MSA / RSA:
								LAC(UMTS):		
						RF DISTRICT:	Raleigh			
						RF ZONE:	1	RNC(UMTS):		
								MME POOL ID(LTE):	FF10	
						PARENT NAME(UMTS):				

Section 3 - LICENSE COVERAGE/FILING INFORMATION

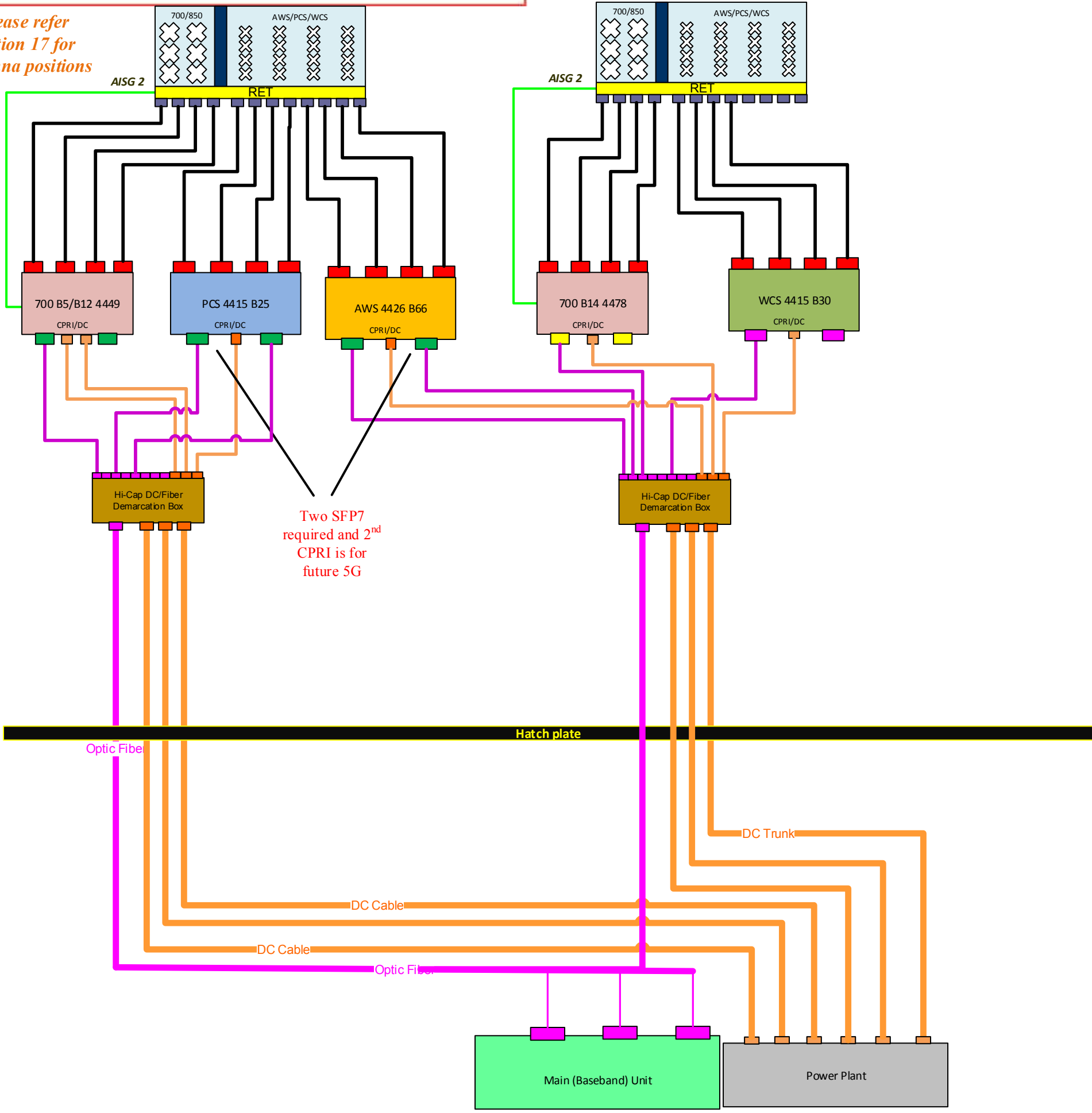
CGSA - NO FILING TRIGGERED (Yes/No):	No	CGSA LOSS:		PCS REDUCED - UPS ZIP:		CGSA CALL SIGNS:
CGSA - MINOR FILING NEEDED (Yes/No):	No	CGSA EXT AGMT NEEDED:		PCS POPS REDUCED:		
CGSA - MAJOR FILING NEEDED (Yes/No):	Yes	CGSA SCORECARD UPDATED:				

Section 4 - TOWER/REGULATORY INFORMATION

STRUCTURE AT&T OWNED?:	No	GROUND ELEVATION (ft):		STRUCTURE TYPE:	SELF SUPPORT	MARKET LOCATION 700 MHz Band:		
ADDITIONAL REGULATORY?:	Yes	HEIGHT OVERALL (ft):	250	FCC ASR NUMBER:	1289615	MARKET LOCATION 850 MHz Band:		
SUB-LEASE RIGHTS?:	No	STRUCTURE HEIGHT (ft):	250.00			MARKET LOCATION 1900 MHz Band:		
LIGHTING TYPE:	DUAL-RED AND MEDIUM INTENSITY						MARKET LOCATION AWS Band:	
						MARKET LOCATION WCS Band:		
						MARKET LOCATION Future Band:		

Important Note:
 For detailed radio to antenna wiring refer to the latest 4T4R Antenna/Radio Port Connections Field Notice (RF-HW-2016-234) and the 4T Wiring Playbook

Please refer section 17 for Antenna positions



Two SFP7 required and 2nd CPRI is for future 5G

WORKFLOW SUMMARY

Date	FROM State / Status	FROM ATTUID	TO State / Status	TO ATTUID	Operation	Comments	PACE Status
06/17/2020	Preliminary In Progress	au844f	Preliminary Submitted for Approval	SH0548	Promote	NSB RFDSs	SER-RVWN-18-04951 FAILURE 06/17/2020 12:13:25 PM NER-RVWN-20-03306 MRVWN005694 SUCCESS 06/17/2020 12:13:25 PM NER-RVWN-20-03307 MRVWN005668 SUCCESS 06/17/2020 12:13:25 PM NER-RVWN-20-03308 MRVWN005681 SUCCESS 06/17/2020 12:13:25 PM NER-RVWN-20-03309 MRVWN005680 SUCCESS 06/17/2020 12:13:25 PM
06/18/2020	Preliminary Submitted for Approval	SH0548	Preliminary Approved	CA130Y	Promote		