Memorandum
Department of Planning

To: Planning and Public Works Committee

From: Isaak Simmers, Planner

Date: January 18, 2024

RE: **FSP 59-2023 AMEREN (14490 Conway Rd):** A request for a new Facilities Siting Permit to install a new wireless telecommunications monopole located at the Union Electric Company site south of Conway Road and north of North Outer 40 Road (Ward 2).

Summary

Cellective Solutions, LLC, on behalf of Ameren, has submitted a Facilities Siting Permit (FSP) application to install a new wireless telecommunications monopole located at an existing Union Electric Company site just south of Conway Road and north of North Outer 40 Road.

The proposed installation consists of a new monopole tower and accompanying infrastructure and security measures. Equipment and antennas will be mounted on the pole, and the total height of the pole with antennas will be one hundred sixty-five (165) feet. Per Unified Development Code requirements, wireless support structures shall not exceed one hundred (100) feet in height unless necessary to provide reasonable service and reasonable collocation. The applicant has ensured the height was necessary to provide better coverage in the Chesterfield area along HWY 64. They provided the following calculations: For Conway site-only coverage with a 165' tower, they cover 158 sq miles at -110 dBm RSRP coverage. With a 100' tower, they cover 106 square miles at -110 dBm RSRP coverage. That is an additional 52 square miles, or a 49% increase in coverage.

The applicant has sufficiently demonstrated that the support structure is designed with a failure point that permits a yard setback less than 110% of the tower height and therefore, the City shall consider said request; see the Missouri Certified Engineer fall letter by Sabre Industries.

Please find additional information regarding the proposed installation attached to this report.

Attachment A

Figure 1: Subject Site

Ameren

LETTER OF AUTHORIZATION

Ameren – Conway: 14490 Conway Road, Chesterfield, MO 63017 [19R630057]

To Whom It May Concern:

This letter hereby authorizes Cellective Solutions, LLC to act as Ameren's non-exclusive agent for the sole purpose of filing and consummating any land-use or building permit application(s) necessary to obtain approval of the applicable jurisdiction for Ameren's new wireless communications facility.

Signature: Erika L Eckert

Print Name: Erika L Eckert, Agent

Date: 4-25-2023

December 18, 2023

Mr. Brian Theby
AMEREN SERVICES
1901 Chouteau Ave
St. Louis, MO 63103

RE: Proposed 165' Monopole for Conway, MO (Sabre #23-5137-JAC)

Dear Mr. Theby,

Upon receipt of order, we propose to design and supply the above-referenced monopole for a Basic Wind Speed of 120 mph without ice and 40 mph with 2" ice, Risk Category II, Exposure Category C, and Topographic Category 1, in accordance with the Telecommunications Industry Association Standard ANSI/TIA-222-H, "Structural Standard for Antenna-Supporting Structures and Antennas and Small Wind Turbine Support Structures".

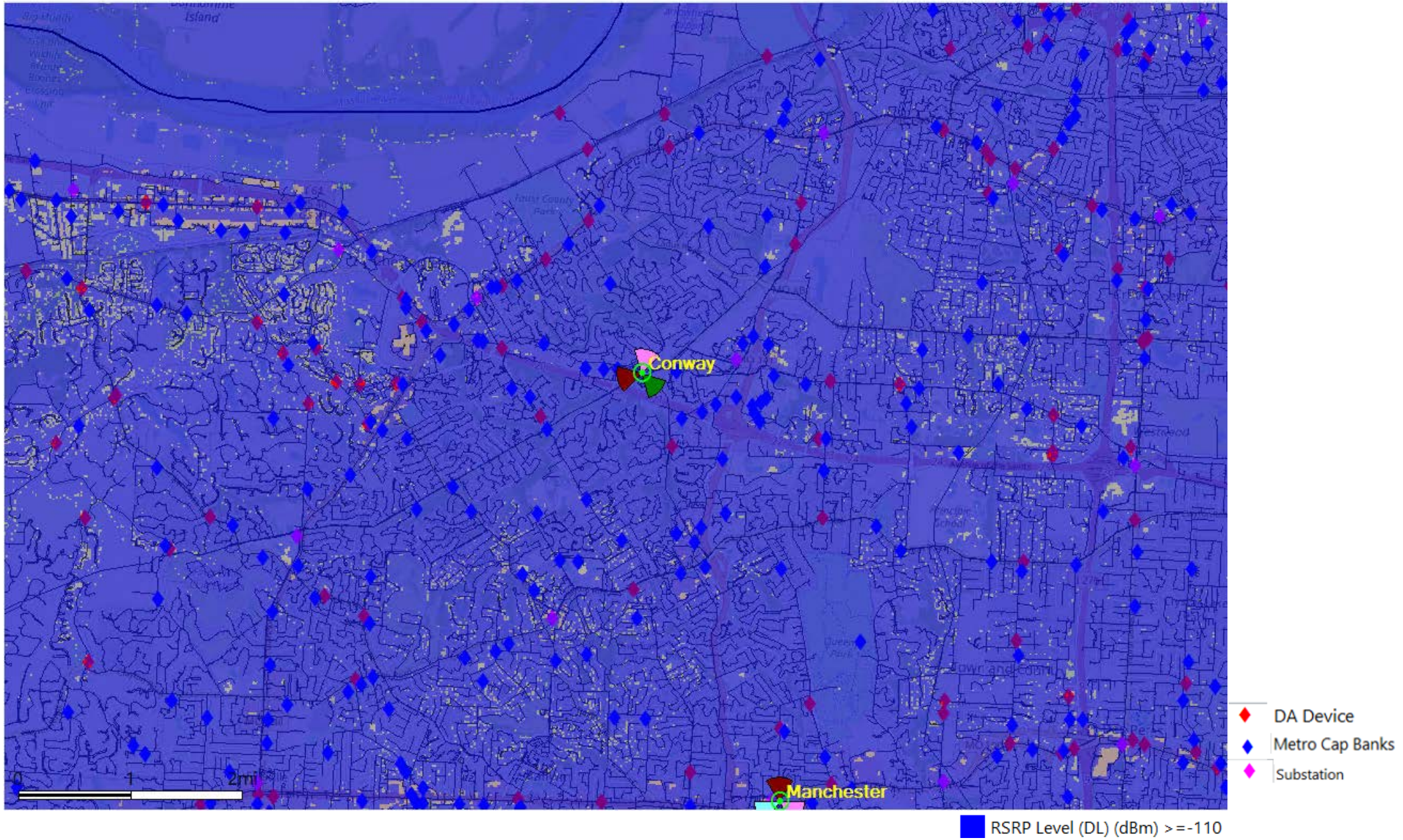
When designed according to this standard, the wind pressures and steel strength capacities include several safety factors. Therefore, it is highly unlikely that the monopole will fail structurally in a wind event where the design wind speed is exceeded within the range of the built-in safety factors.

Should the wind speed increase beyond the capacity of the built-in safety factors, to the point of failure of one or more structural elements, the most likely location of the failure would be within the monopole shaft, above the base plate. Assuming that the wind pressure profile is similar to that used to design the monopole, the monopole will buckle at the location of the highest combined stress ratio within the monopole shaft. This is likely to result in the portion of the monopole above leaning over and remaining in a permanently deformed condition. *Please note that this letter only applies to the above-referenced monopole designed and manufactured by Sabre Industries.* This would effectively result in a fall radius less than the 165' monopole height.

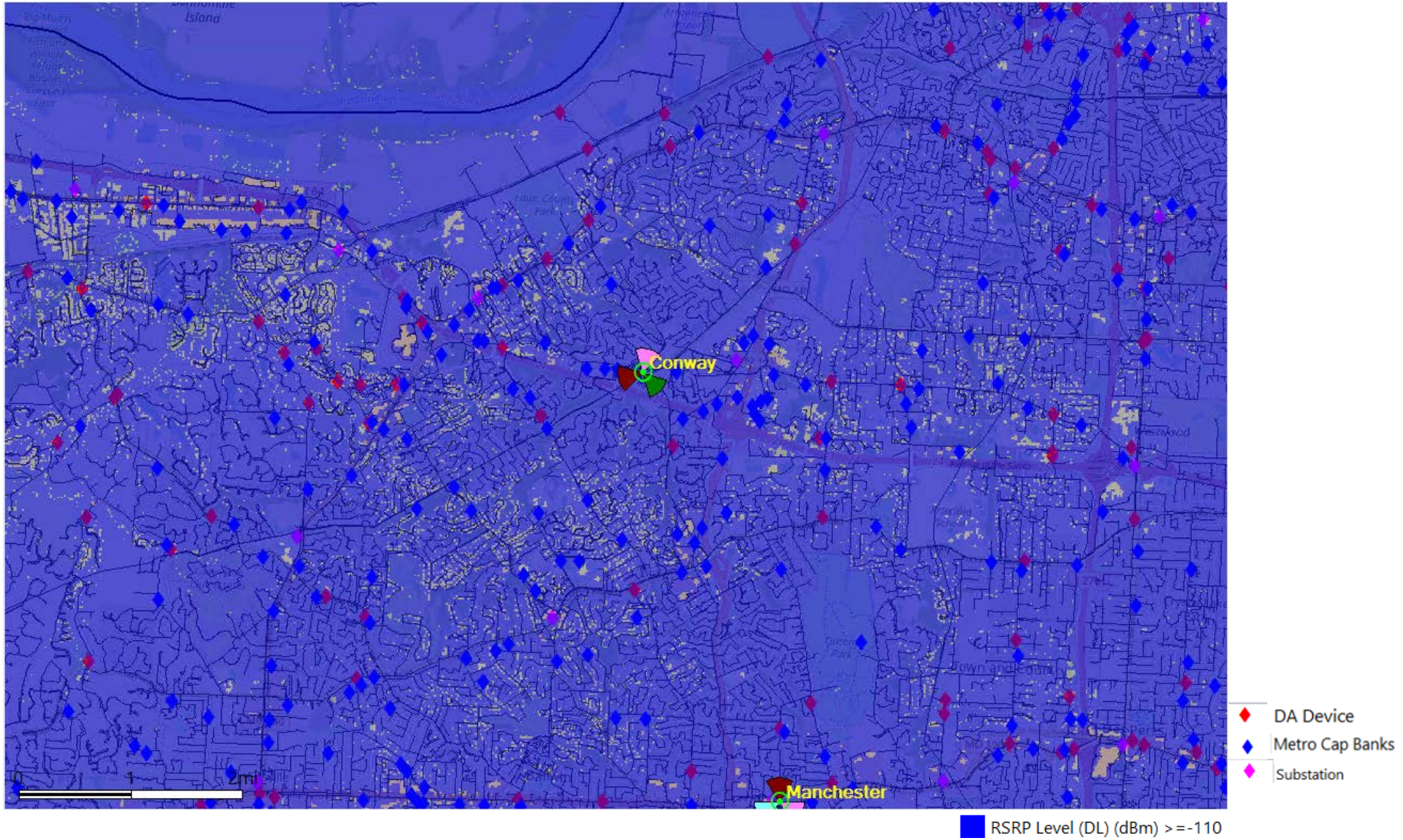
Sincerely,

Amy R. Herbst, P.E.
Senior Design Engineer

Ameren PLTE Coverage with Conway Site (165’ RAD)



Ameren PLTE Coverage with Conway Site (100’ RAD)



Mail Processing Center
Federal Aviation Administration
Southwest Regional Office
Obstruction Evaluation Group
10101 Hillwood Parkway
Fort Worth, TX 76177

Aeronautical Study No.
2023-ACE-6505-OE

Issued Date: 09/25/2023

Richard Hamilton
Ameren
1901 Chouteau
St. Louis, MO 63103

**** DETERMINATION OF NO HAZARD TO AIR NAVIGATION ****

The Federal Aviation Administration has conducted an aeronautical study under the provisions of 49 U.S.C., Section 44718 and if applicable Title 14 of the Code of Federal Regulations, part 77, concerning:

Structure:	Monopole Ameren Conway
Location:	Chesterfield, MO
Latitude:	38-38-55.06N NAD 83
Longitude:	90-31-32.18W
Heights:	500 feet site elevation (SE)
	165 feet above ground level (AGL)
	665 feet above mean sea level (AMSL)

This aeronautical study revealed that the structure does not exceed obstruction standards and would not be a hazard to air navigation provided the following condition(s), if any, is(are) met:

See attachment for additional condition(s) or information.
Based on this evaluation, marking and lighting are not necessary for aviation safety. However, if marking/ lighting are accomplished on a voluntary basis, we recommend it be installed in accordance with FAA Advisory circular 70/7460-1 M.

This determination expires on 03/25/2025 unless:

(a) the construction is started (not necessarily completed) and FAA Form 7460-2, Notice of Actual Construction or Alteration, is received by this office.
(b) extended, revised, or terminated by the issuing office.
(c) the construction is subject to the licensing authority of the Federal Communications Commission (FCC) and an application for a construction permit has been filed, as required by the FCC, within 6 months of the date of this determination. In such case, the determination expires on the date prescribed by the FCC for completion of construction, or the date the FCC denies the application.

NOTE: REQUEST FOR EXTENSION OF THE EFFECTIVE PERIOD OF THIS DETERMINATION MUST BE E-FILED AT LEAST 15 DAYS PRIOR TO THE EXPIRATION DATE. AFTER RE-EVALUATION OF CURRENT OPERATIONS IN THE AREA OF THE STRUCTURE TO DETERMINE THAT NO

Sam Page
County Executive

John D. Bales, C.M.
Director of Aviation

SPIRIT Of St. Louis Airport
SINCE 1964
Business Aviation Center of the U.S.

October 3, 2023

Cellective Solutions, LLC
Attn.: Susan Storie
340 Marshall Road
Valley Park, MO 63088

RE: Ameren Towers

Dear Ms. Storie,

The Airport has reviewed the following pole locations and heights and found that they do not meet the criteria for requiring notice and review by the FAA according to the Obstruction Evaluation / Airport Airspace Analysis (OE/AAA):

Chesterfield – 14490 Conway Road, Chesterfield, MO 63017 – 165' monopole
Wildwood – 18824 St. Albans Road, Pacific, MO 63069 – 199' monopole

Please contact me if you need anything else.

Sincerely,

SPIRIT OF ST. LOUIS AIRPORT

Digitally signed by Justin Ryder
Date: 2023.10.03 15:26:32-05'00'

Justin Ryder
Airport Engineer

CC John D. Bales, CM, Director of Aviation
David Schubert, Deputy Director of Aviation
File

RECEIVED
JAN 10 2024
City of Chesterfield-Department of Planning

CONWAY
MONOPOLE
14490 CONWAY RD
CHESTERFIELD, MO 63017

SITE INFORMATION

SITE NAME:
CONWAY

SITE ADDRESS:
14490 CONWAY RD
CHESTERFIELD, MO 63017

COUNTY:
ST. LOUIS

LATITUDE (NAD83):
38° 38' 55.06" N
38.648628°

LONGITUDE (NAD83):
90° 31' 32.18" W
-90.525606°

AMSL:
500'±

PROPERTY OWNER:
AMEREN
1901 CHOUTEAU AVENUE
ST. LOUIS, MO 63103

STRUCTURE TYPE:
MONOPOLE

POWER COMPANY:
AMEREN
(877) 426-3736

PROJECT MANAGER:
KRISTIN CLARK
314.518.4906
KCLARK2@AMEREN.COM

CONTACT ENGINEER:
ASHLEE LEE
(858) 225-8260
LEEAM@BV.COM

PERMITTING CONTACT:
CELLECTIVE SOLUTIONS
(314) 989-9810

APPLICABLE CODES

ALL WORK SHALL COMPLY WITH THE FOLLOWING APPLICABLE CODES:

2015 INTERNATIONAL BUILDING CODE OR ADOPTED CODE
2017 NATIONAL ELECTRIC CODE OR ADOPTED CODE
TIA/EIA-222-H OR ADOPTED CODE

IN THE EVENT OF CONFLICT, THE MOST RESTRICTIVE CODE SHALL PREVAIL

GENERAL NOTES

THE FACILITY IS UNMANNED AND NOT FOR HUMAN HABITATION. A TECHNICIAN WILL VISIT THE SITE AS REQUIRED FOR ROUTINE MAINTENANCE. THE PROJECT WILL NOT RESULT IN ANY SIGNIFICANT DISTURBANCE OR EFFECT ON DRAINAGE. NO SANITARY SEWER SERVICE, POTABLE WATER, OR TRASH DISPOSAL IS REQUIRED AND NO COMMERCIAL SIGNAGE IS PROPOSED.

PROJECT DESCRIPTION

GROUND SCOPE OF WORK:

- INSTALL (1) PROPOSED MONOPOLE TOWER
- INSTALL (1) PROPOSED FENCE
- INSTALL (1) PROPOSED ICE BRIDGE
- INSTALL (1) PROPOSED GRAVEL ACCESS ROAD
- INSTALL (1) PROPOSED DOUBLE SWING GATE
- INSTALL (1) PROPOSED ELEVATED EQUIPMENT PLATFORM
- INSTALL (1) PROPOSED OUTDOOR NETWORK CABINET
- INSTALL (1) PROPOSED NOKIA ROUTER IN PROPOSED OUTDOOR NETWORK CABINET
- INSTALL (1) PROPOSED GPS UNIT
- INSTALL (1) PROPOSED 200A, 120/240VAC SERVICE, (1) 200A, 120/240VAC DISCONNECT,(1) METER, (1) 200A, 120/240V AC PANEL

TOWER SCOPE OF WORK:

- INSTALL (1) PROPOSED ANTENNA PLATFORM MOUNT
- INSTALL (6) PROPOSED LTE ANTENNAS
- INSTALL (3) PROPOSED 900 MHZ LTE RRHS
- INSTALL (1) PROPOSED SURGE SUPPRESSION UNIT (OVP)
- INSTALL (1) PROPOSED HYBRID CABLE

ZONING INFORMATION

JURISDICTION:	CITY OF CHESTERFIELD
ZONING CLASS:	NU - NON-URBAN DISTRICT
APN:	19R630057

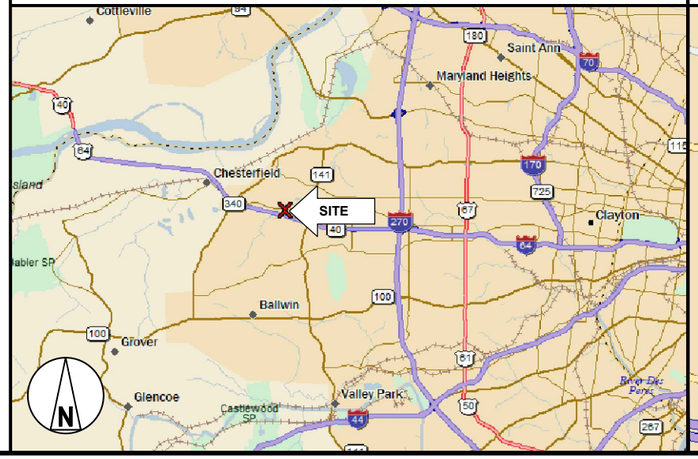
DO NOT SCALE DRAWINGS

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

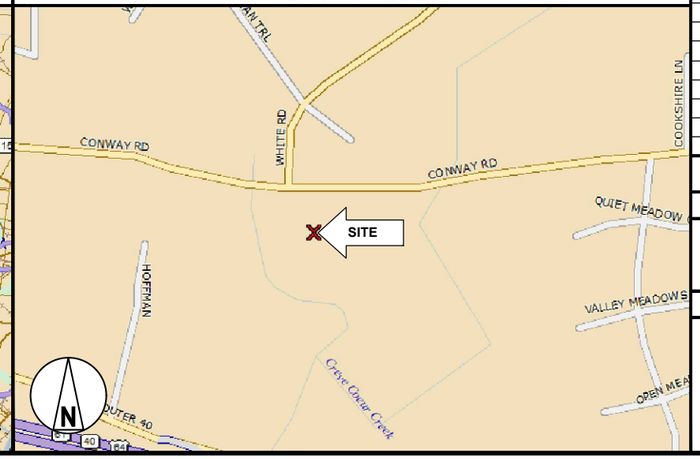
FLOOD HAZARD AREA NOTE

THIS SITE IS LOCATED IN FLOOD ZONE "X". NO BASE FLOOD ELEVATION. AREA DETERMINED TO BE OUTSIDE 500-YEAR FLOOD PLAIN.

AREA MAP



LOCATION MAP



DRAWING INDEX

SHEET NO:	SHEET TITLE	REV NO:
T-1	TITLE SHEET & PROJECT DATA	3
LS-1	LAND SURVEY	3
Z-1	ZONING INFORMATION	3
C-1	SITE PLAN AND ENLARGED SITE PLAN	3
C-2	ELEVATION, ANTENNA LAYOUT AND SCHEDULE	3
C-3	EQUIPMENT PLATFORM AND H-FRAME DETAILS	3
C-4	EQUIPMENT DETAILS	3
C-5	EQUIPMENT DETAILS	3
C-6	EQUIPMENT DETAILS	3
E-1	ELECTRICAL AC ONE-LINE & SCHEDULE	3
G-1	GROUNDING PLANS AND NOTES	3
G-2	GROUNDING DETAILS	3
G-3	GROUNDING DETAILS	3
RF-1	RF SIGNAGE DETAILS	3
RF-2	RF SIGNAGE DETAILS	3
RF-3	RF PLUMBING DIAGRAM	3
GN-1	LEGEND AND ABBREVIATIONS	3
GN-2	GENERAL NOTES	3
GN-3	GENERAL NOTES	3
GN-4	GENERAL NOTES	3
BOM	BILL OF MATERIAL	3

11"x17" PLOT WILL BE HALF SCALE UNLESS NOTED

ENGINEER OF RECORD

JOSHUA R. TURNER
PE # 2018021265
BLACK & VEATCH CORPORATION

CALL BEFORE YOU DIG

UNDERGROUND SERVICE ALERT
UTILITY NOTIFICATION CENTER OF MISSOURI
811 OR 1-800-344-7483

3 WORKING DAYS UTILITY NOTIFICATION PRIOR TO CONSTRUCTION

Ameren
1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH
16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

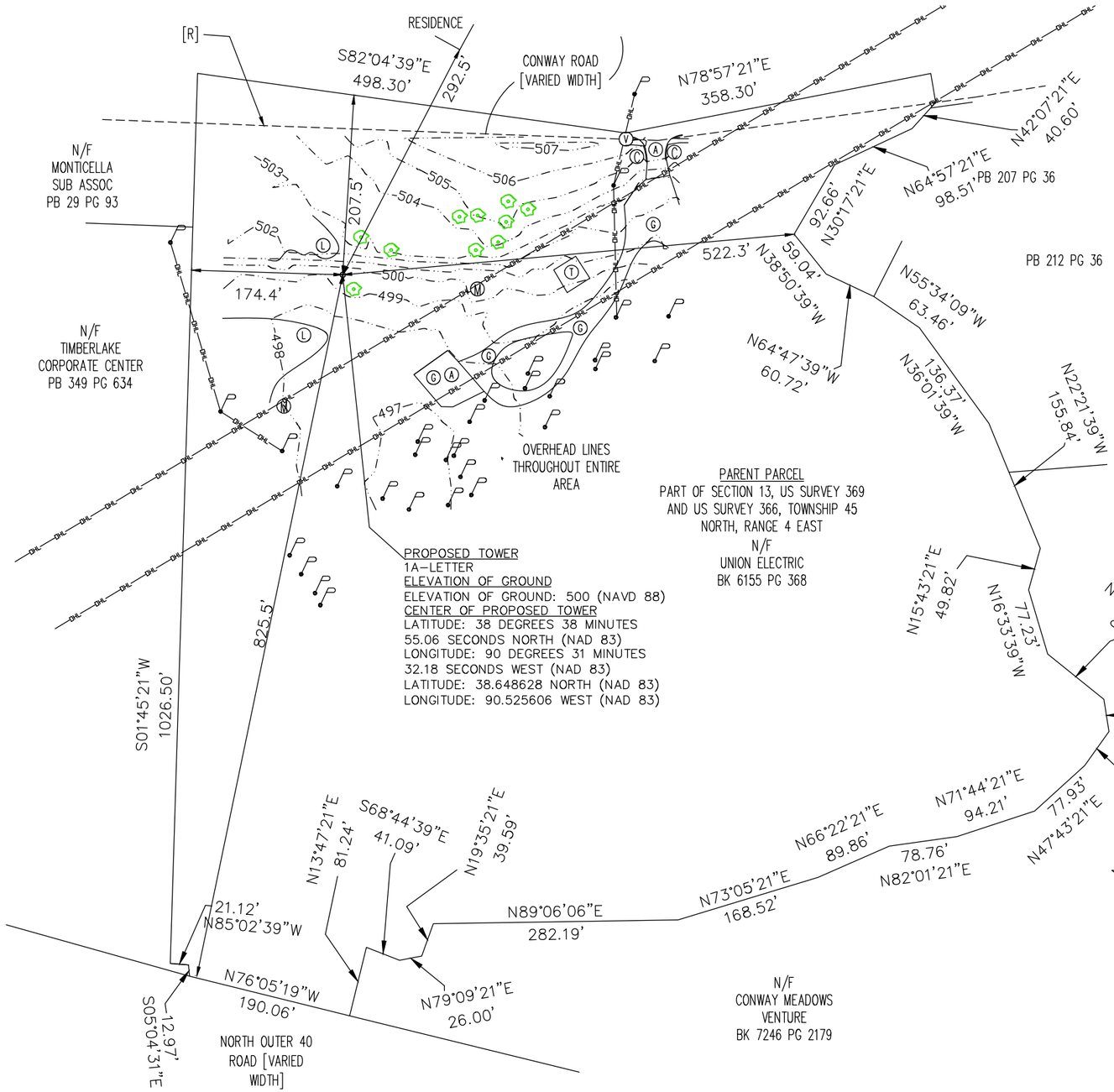
REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE
TITLE SHEET & PROJECT DATA

SHEET NUMBER
T-1



LEGEND	
OVERHEAD UTILITY LINE	-OHL-OHL-OHL-
UTILITY POLE	
C	CULVERT
M	MANHOLE
V	VAULT
T	UTILITY TOWER
A	ASPH
G	GRAV
	TREE
L	TREE LINE

0′ 120′

SCALE: 1"=120′

[R]= APPROXIMATE LOCATION OF CONWAY ROAD RIGHT OF WAY, NO INFORMATION PROVIDED ON RIGHT OF WAY LOCATION IN PARENT PARCEL, APPROXIMATE LINE SHOWN FROM THE EXTENSIONS OF RIGHT OF WAY LINES OF ADJOINING PROPERTIES

NOTES:
- THE PURPOSE OF THIS SURVEY IS TO SHOW THE LOCATION OF A PROPOSED TOWER.
-BASIS OF BEARING: PLAT BOOK 349 PAGE 634.
-UTILITIES SHOWN BASED ON ABOVEGROUND OBSERVATIONS, THIS IS NOT A COMPLETE INVENTORY OF UTILITIES IN THE AREA. NO UNDERGROUND UTILITIES SHOWN.
- THIS SURVEY DOES NOT CONSTITUTE A TITLE SEARCH BY SURVEYOR. NO TITLE COMMITMENT WAS PROVIDED THAT MAY SHOW ADDITIONAL EASEMENTS, SETBACKS OR EXCEPTIONS NOT SHOWN ON THE RECORD PLAT.

SURVEY
SITE: CONWAY

MINNICK SURVEYING, LLC
LC-2009001156
3520 HAMPTON AVE.
ST. LOUIS, MO 63139
(314) 721-9500
MINNICKSURVEYING.COM

SITE ADDRESS:
14490 CONWAY ROAD,
CHESTERFIELD, MO 63017
ST. LOUIS COUNTY

PROJECT NUMBER 9906

THIS MEDIA SHOULD NOT BE CONSIDERED A CERTIFIED DOCUMENT

PRELIMINARY, NOT FOR CONSTRUCTION, RECORDING PURPOSES OR IMPLEMENTATION

JARED MINNICK
LAND SURVEYOR
PLS-2007017968

11/21/23

Ameren
1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH
16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

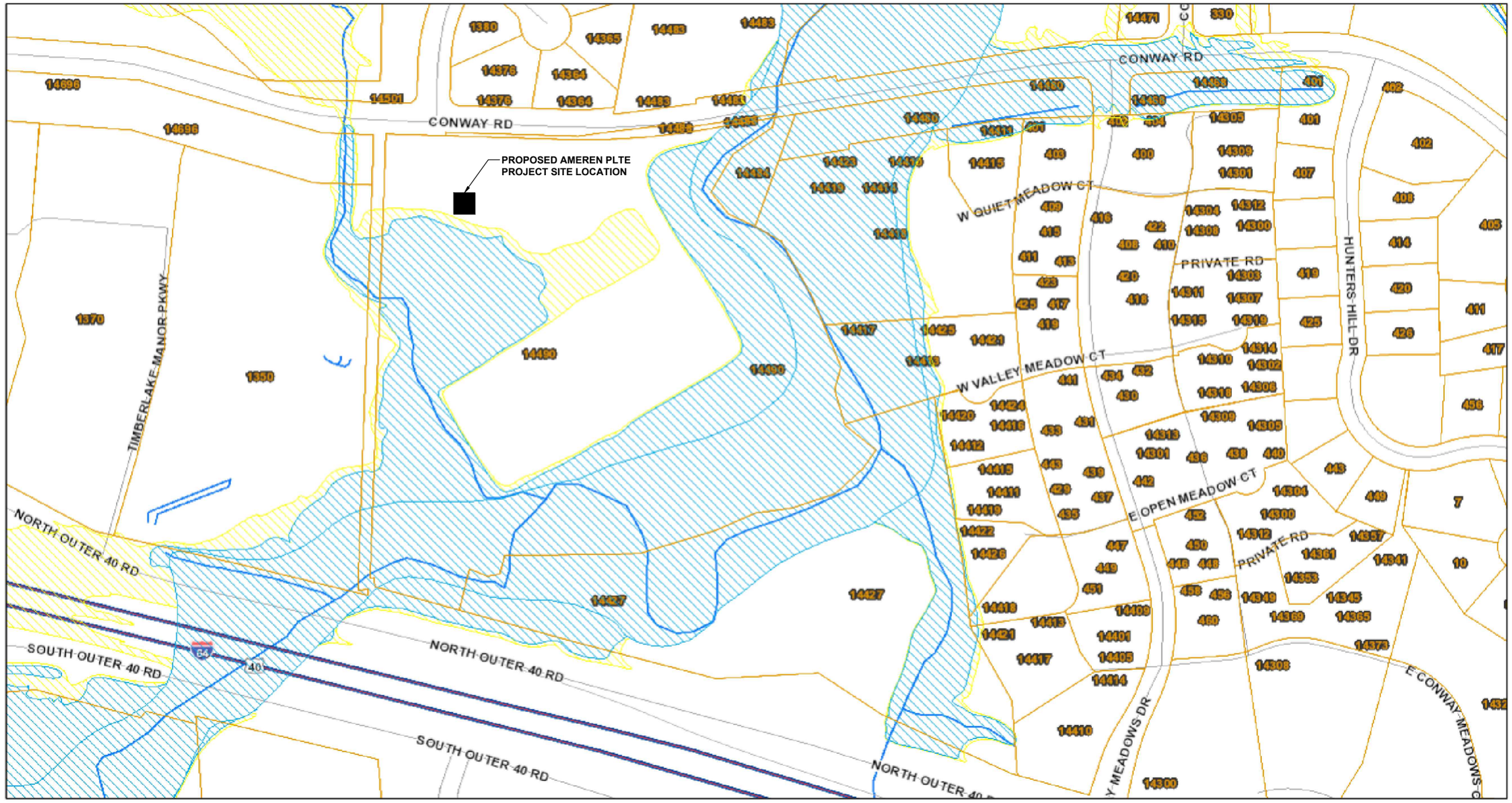
IT IS A VIOLATION OF LAW FOR ANY PERSON, UNLESS THEY ARE ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER, TO ALTER THIS DOCUMENT.

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE
LAND SURVEY

SHEET NUMBER
LS-1

St. Louis County Map



10/12/2023, 12:14:53 PM

Other Flood Areas (0.2% Annual Chance)

Special Flood Hazard Areas (1% Annual Chance)

1:2,400

0 0.03 0.06 0.12 mi

0 0.05 0.1 0.19 km

FEMA FLOOD MAP (FOR REFERENCE ONLY)

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/21/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE

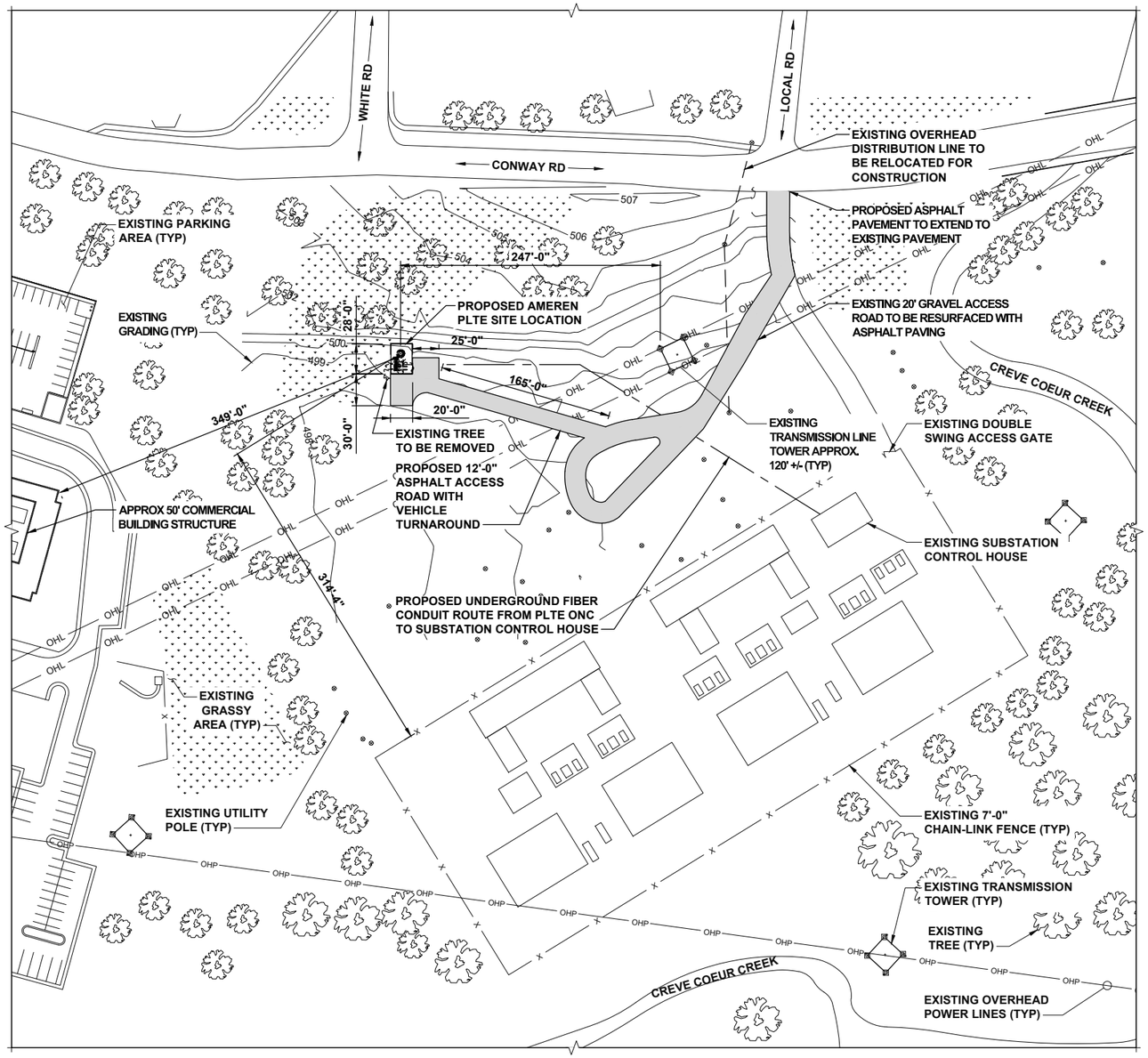
ZONING INFORMATION

SHEET NUMBER

Z-1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. NO SIGNAGE IS REQUIRED OR PROPOSED WITH THIS PROJECT.



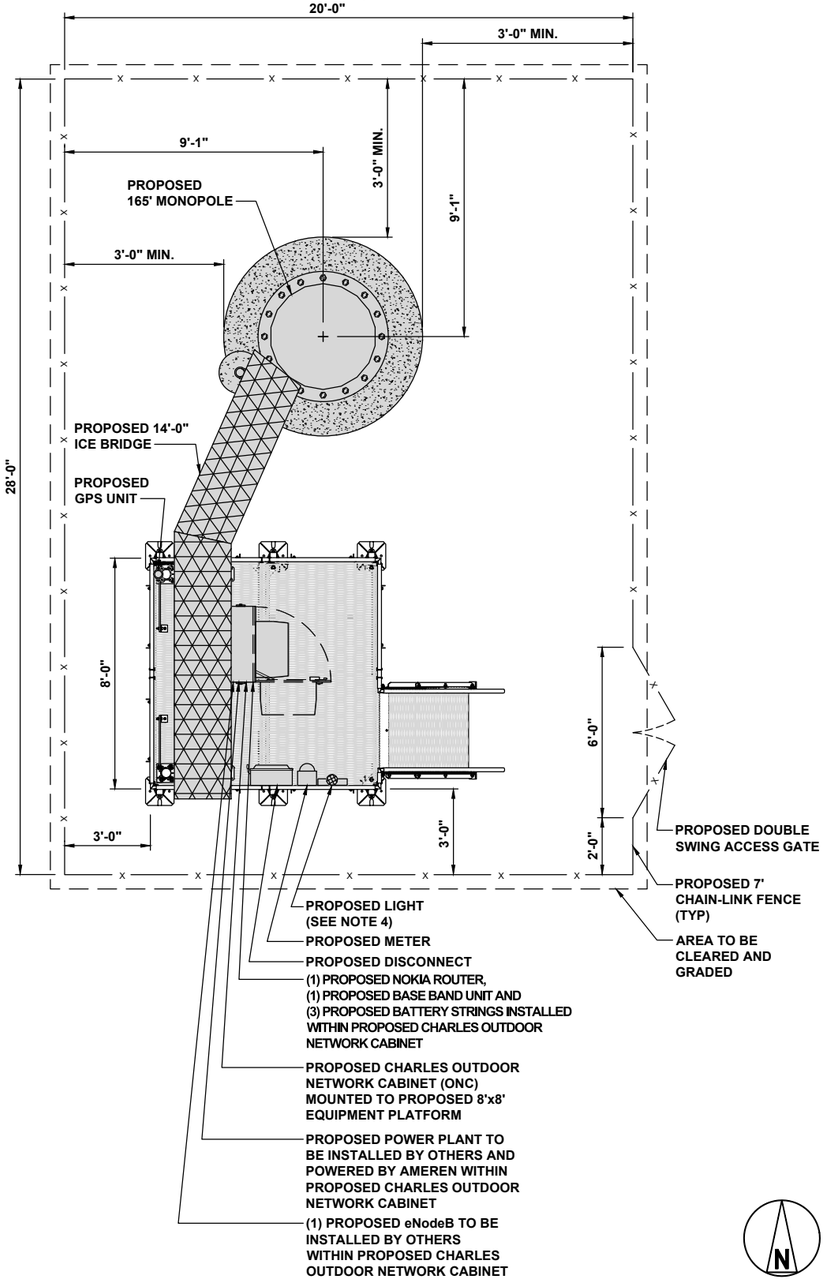
SITE PLAN

64' 32' 0 64' 128'
1/64"=1'-0"

1

NOTES

1. CONTRACTOR SHALL FIELD VERIFY ALL DIMENSIONS.
2. CONTRACTOR SHALL MAINTAIN A 10'-0" MINIMUM SEPARATION BETWEEN THE PROPOSED GPS UNIT, TRANSMITTING ANTENNAS AND EXISTING GPS UNITS.
3. ANTENNAS AND MOUNTS OMITTED FOR CLARITY.
4. THERE IS NO PROPOSED TOWER OR CONTINUOUS EQUIPMENT COMPOUND LIGHTING. SINGLE LIGHT TO BE INSTALLED WITH MECHANICAL TIMER AND IS USED FOR MAINTNENACE PURPOSES ONLY.



ENLARGED SITE PLAN

6' 4' 2' 0 5' 10'
3/16"=1'-0"

2

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE

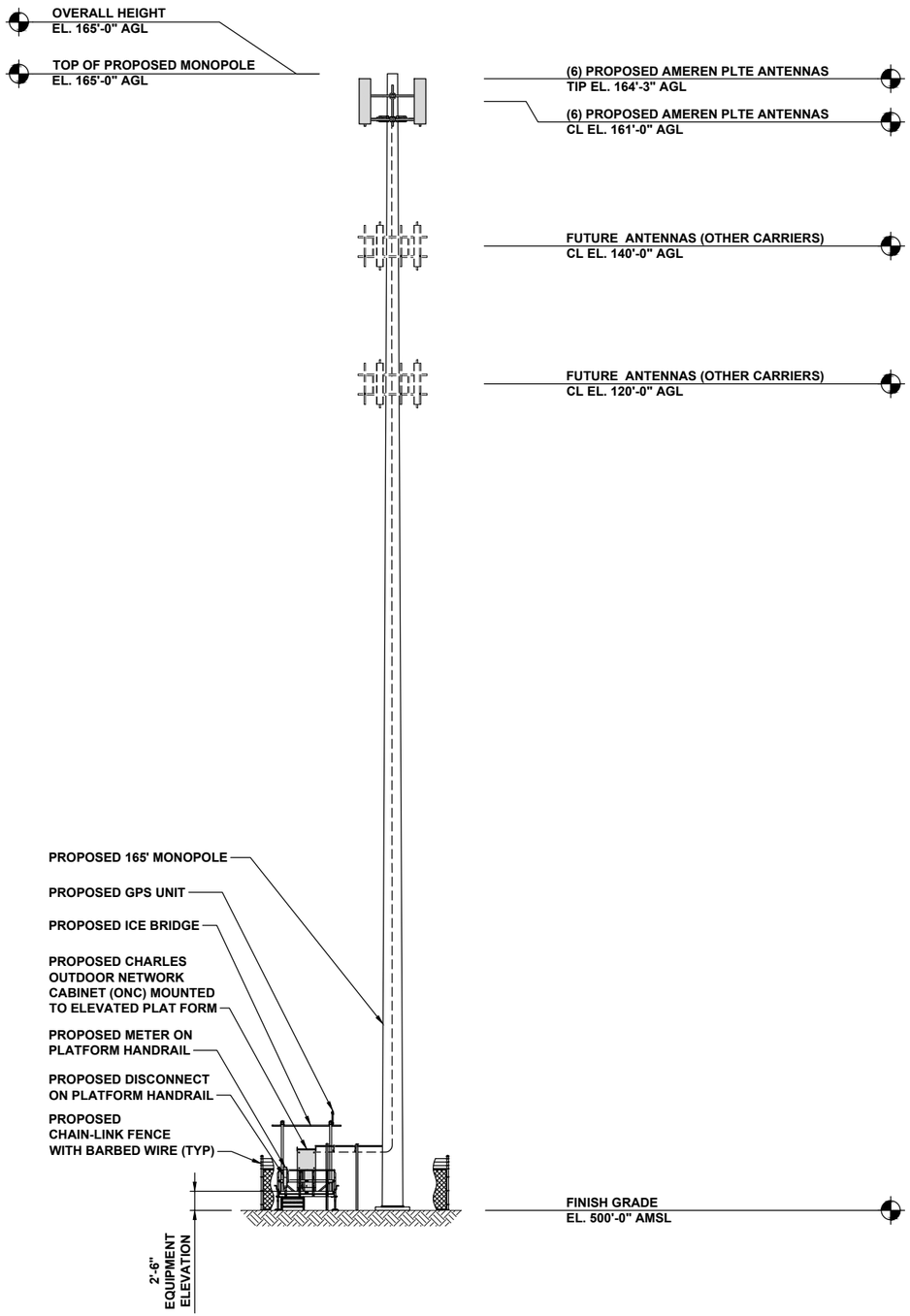
SITE PLAN AND ENLARGED SITE PLAN

SHEET NUMBER

C-1

NOTE:

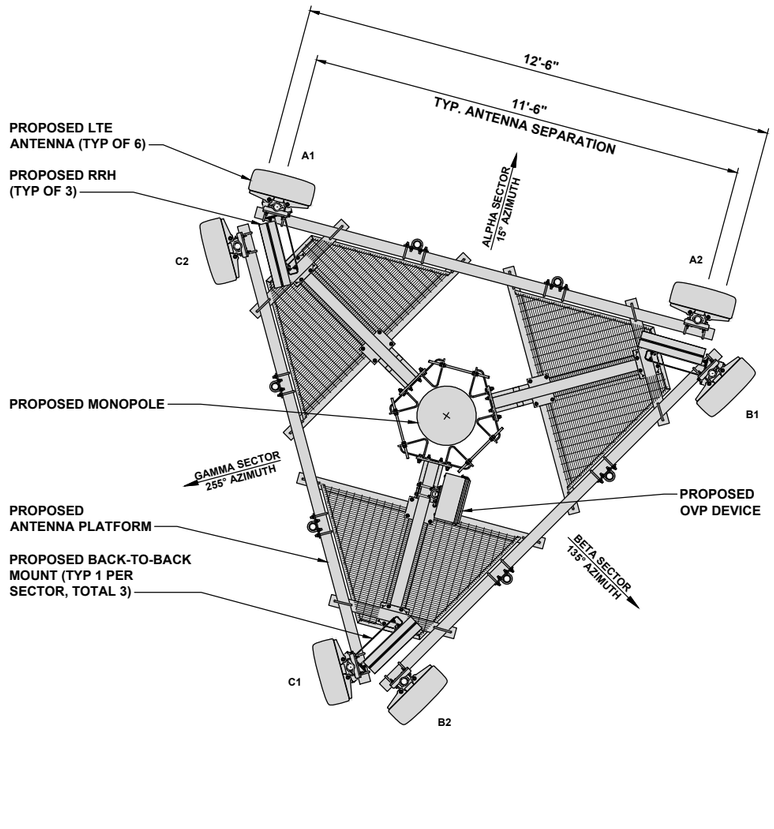
1. TOP OF PIER FOUNDATION TO BE 6" EXPOSED ABOVE GROUND ELEVATION ASML OR AS OTHERWISE INDICATED BY TOWER MANUFACTURER PER STRUCTURE FOUNDATION DESIGN.



PROPOSED EAST ELEVATION

12' 8' 4' 0 10' 20'
3/32"=1'-0"

1



ANTENNA LAYOUT

12" 6" 0 1' 2' 3' 4' 5'
1/2"=1'-0"

2

SECTOR	POSITION	ANTENNA						TRANSMISSION CABLE
		EXISTING OR PROPOSED	MANUFACTURER - MODEL NUMBER	TECHNOLOGY	SIZE (HxWxD)	AZIMUTH	RAD CENTER	FEED LINE TYPE AND LENGTH
ALPHA	A1	PROPOSED	KATHREIN 80010901	LTE	78.7" x 20"x6.9"	15°	161'-0"	(1) 6AWG HIGH-CAPACITY HYBRID CABLE (200' LONG)
	A2	PROPOSED	KATHREIN 80010901	LTE	78.7" x 20"x6.9"	15°	161'-0"	
BETA	B1	PROPOSED	KATHREIN 80010901	LTE	78.7" x 20"x6.9"	135°	161'-0"	
	B2	PROPOSED	KATHREIN 80010901	LTE	78.7" x 20"x6.9"	135°	161'-0"	
GAMMA	C1	PROPOSED	KATHREIN 80010901	LTE	78.7" x 20"x6.9"	255°	161'-0"	
	C2	PROPOSED	KATHREIN 80010901	LTE	78.7" x 20"x6.9"	255°	161'-0"	

SECTOR	POSITION	RRH	
		MANUFACTURER - MODEL NUMBER	TECHNOLOGY
ALPHA	A1	ERICSSON - 2212-B8	LTE 900
BETA	B1	ERICSSON - 2212-B8	LTE 900
GAMMA	C1	ERICSSON - 2212-B8	LTE 900

NOTES

1. CONTRACTOR TO REFER TO FINAL CONSTRUCTION RFDS FOR ALL RF DETAILS.
2. ANTENNA AND RRH MODELS MAY CHANGE DUE TO EQUIPMENT AVAILABILITY. ALL EQUIPMENT CHANGES MUST BE APPROVED AND REMAIN IN COMPLIANCE WITH THE PROPOSED DESIGN AND STRUCTURAL ANALYSES.

ANTENNA SCHEDULE

NO SCALE

3

Ameren
1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH
16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

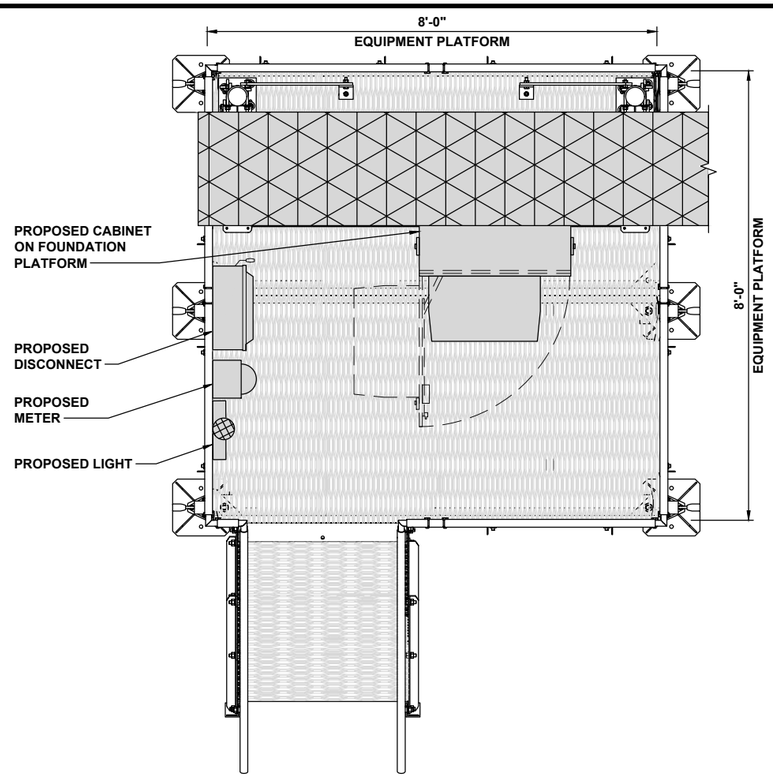
REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE
ELEVATION, ANTENNA LAYOUT AND SCHEDULE

SHEET NUMBER
C-2

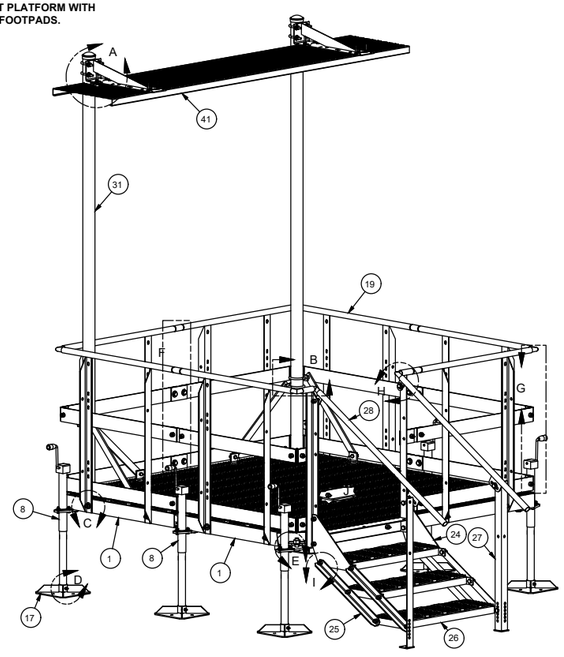


PLATFORM EQUIPMENT PLAN

NO SCALE | 1

MEP88-8JH32S3I

8'x8' MODULAR EQUIPMENT PLATFORM WITH JACK LEG AND FOOTPADS.



PARTS LIST

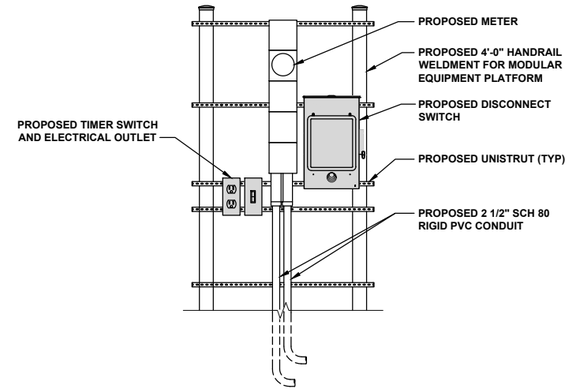
ITEM	QTY	PART NO.	PART DESCRIPTION	LENGTH	UNIT WT.	NET WT.
1	2	X-MEP48	4' X 8' WELDED EQUIPMENT RACK BASE		377.38	754.75
2	8	G58312	5/8" x 3-1/2" HDG HEX BOLT GR5		0.40	3.20
3	68	G58134	5/8" x 1-3/4" HDG BOLT	1 3/4 in	0.27	18.28
4	66	G58FW	5/8" HDG USS FLATWASHER	1/8 in	0.07	4.65
5	80	G58LW	5/8" HDG LOCKWASHER		0.03	2.09
6	80	G58NUT	5/8" HDG HEAVY 2H HEX NUT		0.13	10.39
7	6	X-MJCP	MJACK CONNECTION PLATE	5 3/8 in	5.49	32.97
8	6	X-JACK	5,000 LB. SIDE CRANK JACK		13.37	80.20
9	6	G103	1" X 3" HEX BOLT (HDG.)	3 in	1.07	6.44
10	6	G1LW	1" LOCK WASHER		0.09	0.57
11	6	G1NUT	1" HDG HEAVY HEX NUT		0.47	2.82
12	18	G38112	3/8" x 1-1/2" HDG HEX BOLT GR5		0.07	1.28
13	14	G3803	3/8" x 3" HDG HEX BOLT GR5		0.12	1.70
14	52	G38FW	3/8" HDG USS FLATWASHER		0.01	0.61
15	32	G38LW	3/8" HDG LOCKWASHER		0.01	0.21
16	32	G38NUT	3/8" HDG HEAVY 2H HEX NUT		0.03	1.08
17	6	X-MJFP	MODULAR JACK FOOTPAD		14.35	86.08
18	1	X-MAW	MODULAR EQUIPMENT PLATFORM ACCESS WELDMENT		53.54	53.54
19	7	X-MRAIL4	4' HANDRAIL WELDMENT FOR MODULAR EQUIPMENT PLATFORM		60.49	423.40
20	4	X-MTRS	MODULAR TOP RAIL STRAIGHT SPLICE		1.88	7.51
21	8	X-MKPS	MODULAR KICKER PLATE STRAIGHT SPLICE	6 5/16 in	1.86	14.87
22	6	X-MTRC	MODULAR TOP RAIL CORNER SPLICE		1.25	7.52
23	8	X-MKPC	MODULAR KICKER PLATE CORNER SPLICE	4 in	1.66	13.25
24	1	X-MSWS	WELDED STEP FOR 1 LEVEL MODULAR STEP		52.77	52.77
25	4	X-MS3A	SIDE ANGLE FOR THREE STAIR ASSEMBLY	28 1/2 in	6.06	24.24
26	2	X-MSTEP	STAIR WELDMENT FOR MODULAR EQUIPMENT PLATFORM		37.92	75.85
27	2	X-MSHUP	HANDRAIL WELDMENT		12.25	24.49
28	2	X-MSH3	MODULAR HANDRAIL FOR THREE STAIRS		13.19	26.39
29	4	X-MSHSP	HANDRAIL SPACER PIPE	1 in	0.10	0.40
30	4	A58234	5/8" x 2-3/4" HDG A325 HEX BOLT	2 3/4 in	0.36	1.42
31	2	X-MPOST	SUPPORT POST FOR EQUIPMENT PLATFORM ICE BRIDGE KITS		92.99	185.98
32	4	G1203	1/2" x 3" HDG HEX BOLT GR5 FULL THREAD	3 in	0.22	0.87
33	16	G12FW	1/2" HDG USS FLATWASHER	3/32 in	0.03	0.55
34	24	G12LW	1/2" HDG LOCKWASHER	1/8 in	0.01	0.33
35	28	G12NUT	1/2" HDG HEAVY 2H HEX NUT		0.07	2.01
36	2	HHD24	24" UNIVERSAL CANTILEVER		14.10	28.20
37	2	PC312	3-1/2" FENCE POST CAP		0.59	1.17
38	2	X-MPBP	BACKING PLATE FOR X-MPOST	8 in	8.48	16.95
39	4	SPLICE	SPLICE FOR GRIP STRUT	7 3/8 in	0.53	2.12
40	8	X-UB1358	1/2" X 3-5/8" X 5-1/2" X 3" GALV U-BOLT		0.77	6.18
41	1	GRS24	24" X 10' GRIP SPAN BRIDGE CHANNEL		67.98	67.98
42	4	SCP	CLAMP HALF, 1/2" x 5-3/4"		1.29	5.17
43	4	SHCM-T	CHAIN MOUNT TIGHTENER BRACKET	3 in	1.84	7.36
45	4	X-232698	TRPD-HD SUPPORT PLATE - SITE PRO 1	29 1/2 in	8.72	34.89
46	4	G1202	1/2" x 2" HDG HEX BOLT GR5	2 in	0.18	0.70
47	4	X-124312	1/2" X 2" X 2" ANGLE SPACER; WITH 9/16" HOLE	2 in	0.53	2.13
					TOTAL WT.	# 2095.55

PLATFORM DETAIL

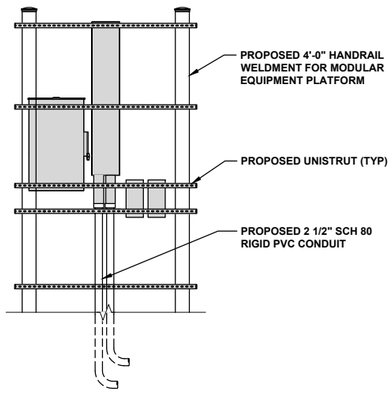
NO SCALE | 2

NOTES

1. CONTRACTOR TO BURY PLATFORM FEET WITH A MINIMUM OF 2" OF FILL PER EXISTING SITE SURFACE
2. EQUIPMENT CABINET OMITTED FOR CLARITY



FRONT ELEVATION



BACK ELEVATION

EQUIPMENT ELEVATION

NO SCALE | 3

Ameren
1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH
16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/21/2023

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

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE

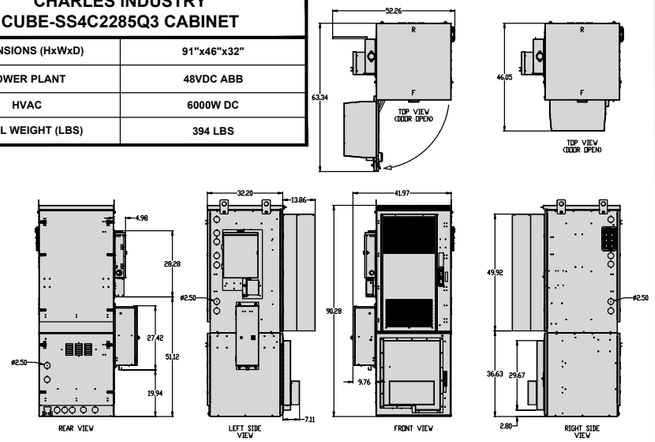
EQUIPMENT PLATFORM AND H-FRAME DETAILS

SHEET NUMBER

C-3

CHARLES INDUSTRY CUBE-SS4C2285Q3 CABINET

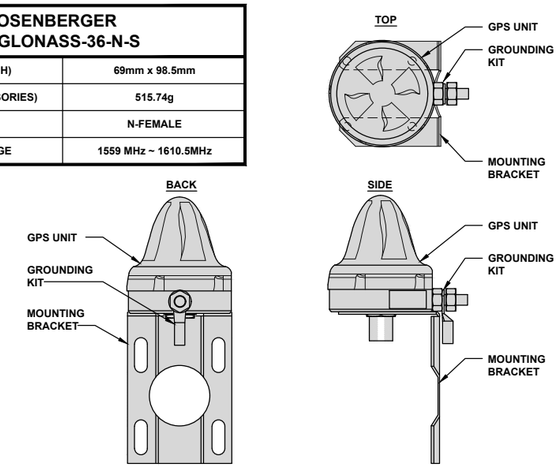
DIMENSIONS (HxWxD)	91"x46"x32"
POWER PLANT	48VDC ABB
HVAC	6000W DC
TOTAL WEIGHT (LBS)	394 LBS



NO SCALE | 1

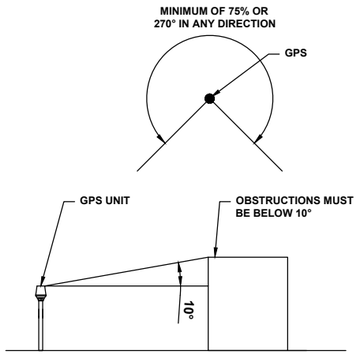
ROSENBERGER GPSGLONASS-36-N-S

DIMENSION (DIA x H)	69mm x 98.5mm
WEIGHT (WITH ACCESSORIES)	515.74g
CONNECTOR	N-FEMALE
FREQUENCY RANGE	1559 MHz ~ 1610.5MHz



GPS ANTENNA DETAIL

NO SCALE | 2



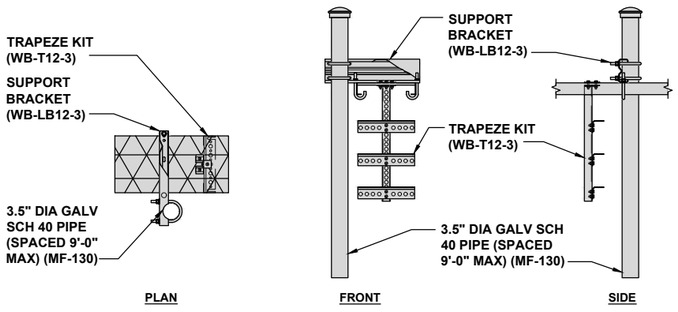
GPS MINIMUM SKY VIEW REQUIREMENTS

NO SCALE | 3

COMMSCOPE WB-K110-B WAVEGUIDE BRIDGE KIT

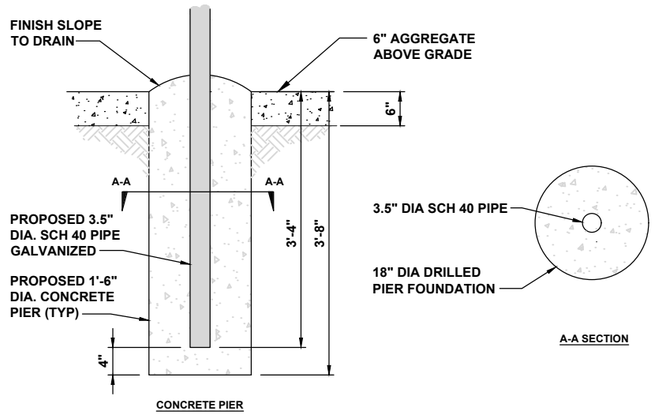
DIMENSIONS (HxL):	160"x10"
WEIGHT/ VOLUME:	325.0 LBS
CABLE RUN (QTY):	12

INCLUDED PRODUCTS:	WB-T12-3 TRAPEZE KIT, 3 RUNGS
	WB-LB12-3 SUPPORT BRACKET
	MF-130 DIRECT BURIAL PIPE COLUMN, 13'-4"
	WB-CY110 SAFETY GRATED WAVEGUIDE BRIDGE CHANNEL, 12" X 10'



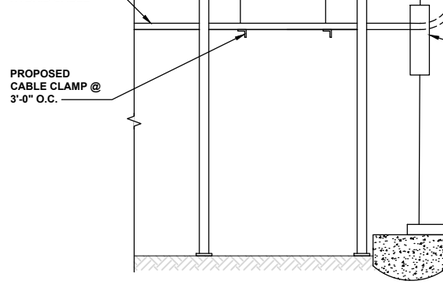
ICE BRIDGE DETAIL

NO SCALE | 4



TYPICAL ICE BRIDGE CONCRETE PIER DETAIL

NO SCALE | 5

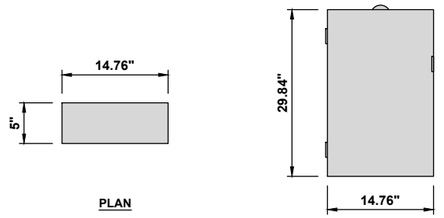


HYBRID CABLE RUN

NO SCALE | 6

SCHNEIDER ELECTRIC QO1816M200FTRB LOAD CENTER

DIMENSIONS (HxWxD):	29.84"x14.76"x5"
WEIGHT:	32.1 LBS
RATED CURRENT:	200A
NUMBER OF PHASES:	1 PHASE

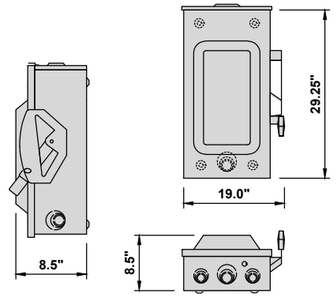


AC LOAD CENTER

NO SCALE | 7

SCHNEIDER ELECTRIC D224NRB DISCONNECT

VOLTAGE RATING:	240VAC
AMPERAGE RATING:	200A
ENCLOSURE:	FUSIBLE
WEIGHT:	53.51 LBS
DIMENSIONS (HxWxD):	29.25"x19.0"x8.5"

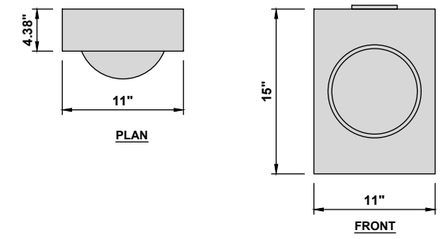


AC DISCONNECT

NO SCALE | 8

SCHNEIDER ELECTRIC URTRS213B

RATED CURRENT:	200A
NUMBER OF PHASES:	1 PHASE
DIMENSIONS (HxWxD):	15"x11"x4.38"
WEIGHT:	13.12 LBS



METER SOCKET DETAIL

NO SCALE | 9

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

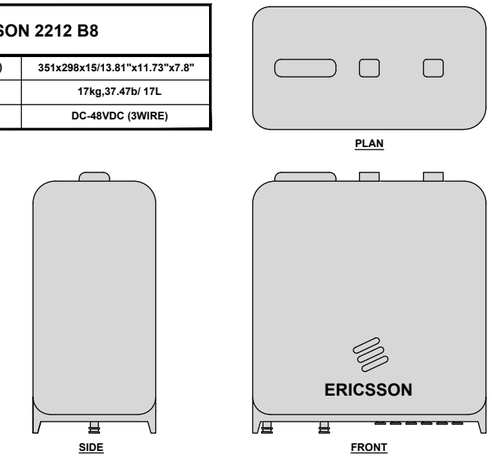
AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
C-4

ERICSSON 2212 B8

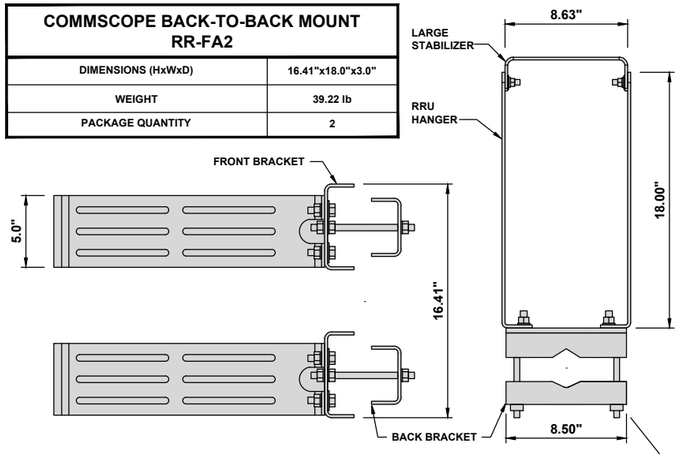
DIMENSIONS (HxWxD) (MM/IN)	351x298x15/13.81"x11.73"x7.8"
WEIGHT(KG,LB)/ VOLUME	17kg,37.47b/ 17L
POWER SUPPLY	DC-48VDC (3WIRE)



REMOTE RADIO HEAD DETAIL | NO SCALE | 1

COMMSCOPE BACK-TO-BACK MOUNT RR-FA2

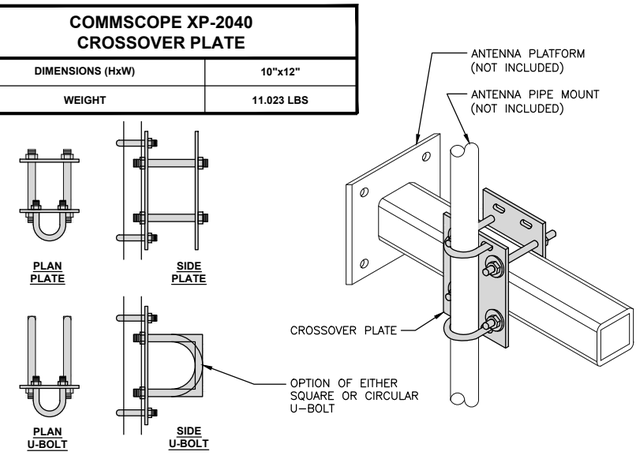
DIMENSIONS (HxWxD)	16.41"x18.0"x3.0"
WEIGHT	39.22 lb
PACKAGE QUANTITY	2



REMOTE RADIO MOUNT DETAIL | NO SCALE | 2

COMMSCOPE XP-2040 CROSSOVER PLATE

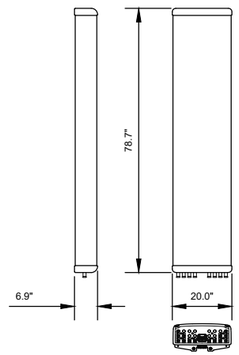
DIMENSIONS (HxW)	10"x12"
WEIGHT	11.023 LBS



RRH/OVP MOUNT DETAIL | NO SCALE | 3

ERICSSON KATHREIN 80010901 SPECS

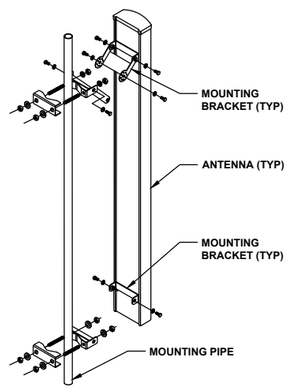
DIMENSIONS (HxWxD) (MM/IN)	1999x508x175mm 78.7"x20.0"x6.9"
TOTAL WEIGHT	111.9 lbs.



ANTENNA DETAIL | NO SCALE | 4

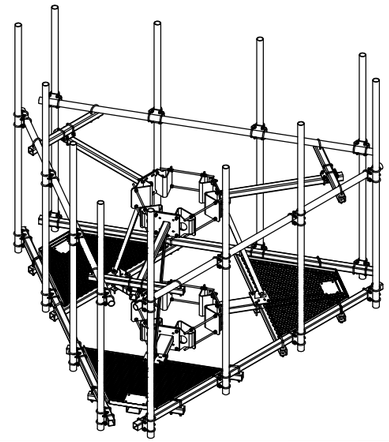
M04 MOUNTING BRACKET

WIDTH	5" (135mm)
DEPTH	2" (51mm)
HEIGHT	8" (213mm)
TOTAL WEIGHT (WITH BRACKETS)	1.5 LBS (15.50 Kg)
HOUSING MATERIAL	ASA/ABS/ALUMINUM
RADOME COLOR	LIGHT GRAY
CONNECTOR	1X8-PIN DAISY CHAIN



ANTENNA MOUNTING DETAIL | NO SCALE | 5

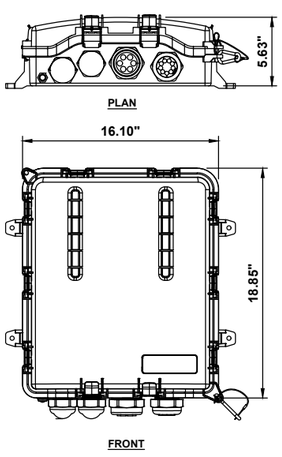
SABRE PLATFORM C10-855-721C



ANTENNA PLATFORM DETAIL | NO SCALE | 6

RAYCAP RCKDC-6140-PF-48 DC SURGE PROTECTION (OVP)

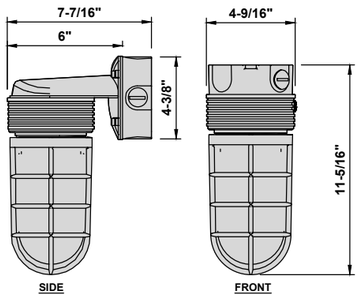
DIMENSIONS (HxWxD)	20.5"x18.9"x7.02"
TOTAL WEIGHT	19.95 LBS



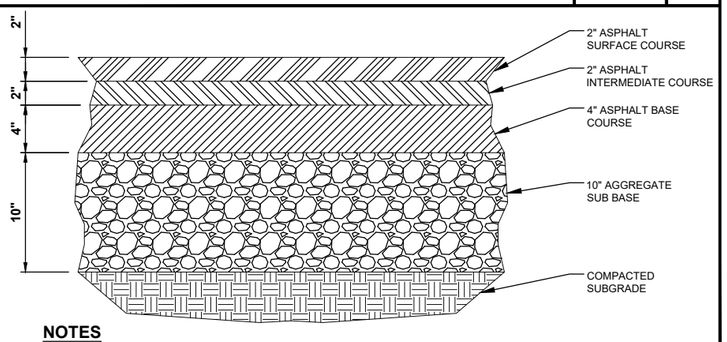
SURGE SUPPRESSION DETAIL (OVP) | NO SCALE | 7

OLVTWM LED VAPORTIGHT

OPTICS	4000K CCT LEDS
VOLTAGE	MVOLT (120V-277V)
OPERATION TEMPERATURE	-40 C TO 40 C



WORK LIGHT DETAIL | NO SCALE | 8



NOTES

1. ALL COMPACTION SHALL BE TO 95% OR GREATER PER ASTM D698
2. WITH APPROVAL OF AMEREN CIVIL ENGINEERING, CONTRACTOR HAS OPTION TO INSTALL SURFACE MIXTURE TO FULL DEPTH OF ASPHALT LAYERS IN LIEU OF ASPHALT INTERMEDIATE AND BASE LAYER. LIFT THICKNESS SHALL NOT EXCEED 2" FOR THESE APPLICATIONS.
3. ASPHALT PAVEMENT DESIGN IN ACCORDANCE WITH MAPA ASPHALT PARKING LOT DESIGN GUIDE.
   - 30 YEAR DESIGN LIFE
   - SUBGRADE STRENGTH = WEAK, CBR 3
   - HEAVY TRAFFIC

TYPICAL ASPHALT DRIVE SURFACING DETAIL | NO SCALE | 9

Ameren
1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH
16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

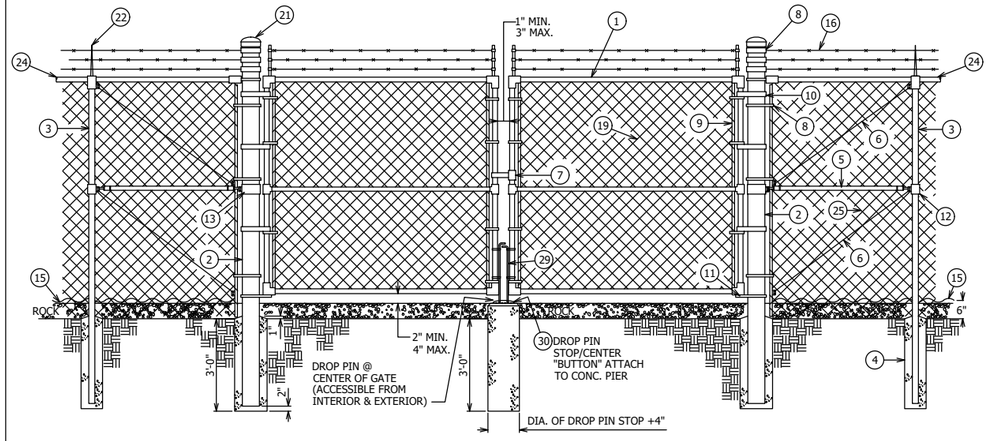
REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/21/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

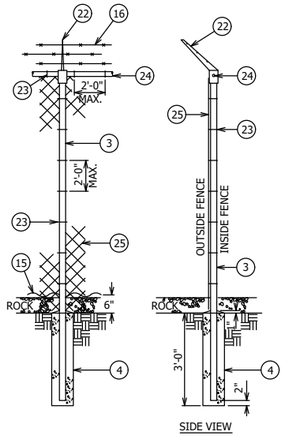
SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
C-5



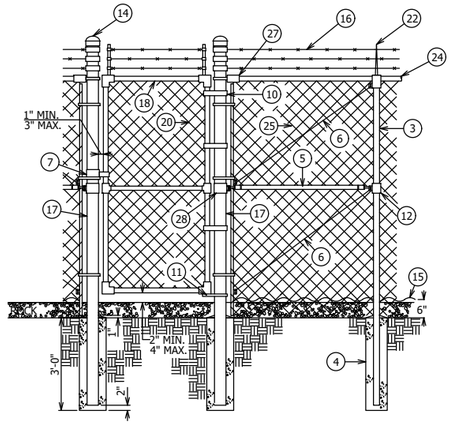
TYPICAL DRIVE GATE SECTION

NOT TO SCALE



TYPICAL LINE POST SECTION

NOT TO SCALE

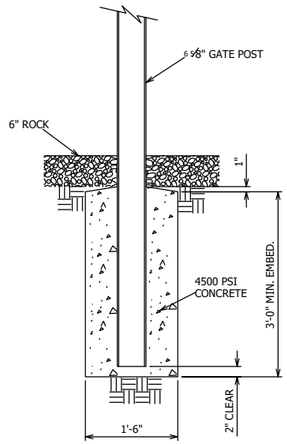


TYPICAL MAN GATE SECTION

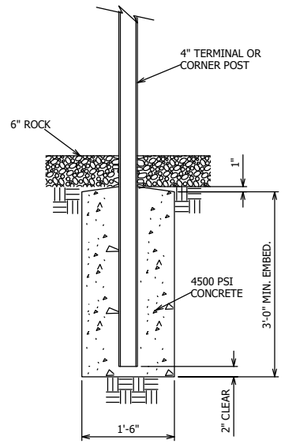
NOT TO SCALE

NOTES:
1. CHAIN LINK FABRIC BOTTOM TO BE FLUSH WITH TOP OF CURB IN LOCATIONS OF FENCING ON CURB.
2. CONTRACTOR SHALL REVIEW AMEREN CONSTRUCTION SPECIFICATION NO. 02831 GENERAL REQUIREMENTS FOR SUBSTATION FENCES AND GATES.
3. INSTALL GATE STOPS FOR DRIVE GATES SWINGING OUTWARD AT EACH GATE LOCATION.
4. CONCRETE MIX DESIGN AND STEEL REINFORCEMENT SHALL BE PER AMEREN STANDARD NO. 03001 GENERAL REQUIREMENTS FOR CONCRETE.
5. AGGREGATE SHALL BE COMPACTED TO 95% MAXIMUM DRY DENSITY AS DETERMINED FROM THE MODIFIED PROCTOR COMPACTION TEST (ASTM D 1557).
6. REFER TO AMEREN SUBSTATION DESIGN STANDARD 16C FOR GROUNDING INSTALLATION REQUIREMENTS.

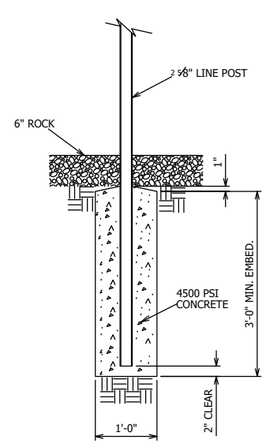
ITEM DESCRIPTION:
1. GATE ASSEMBLED PIPE FRAME, FABRIC, LATCH & FITTINGS
2. GATE POST 6 5/8" O.D. PIPE
3. LINE POST 2 3/8" O.D. PIPE
4. 4500 psi. CONCRETE
5. BRACE RAIL (LENGTH AS REQUIRED)
6. TRUSS ROD W/TRUSS TIGHTENER
7. LATCH FOR GATE FRAMES
8. BAND FOR TENSION BAR, BARBED WIRE, TRUSS ROD
9. TENSION BARS
10. TOP GATE HINGE
11. BOTTOM GATE HINGE
12. BAND W/2 ATTACHMENTS FOR BRACE RAIL & TRUSS
13. BAND FOR BRACE 6 5/8" O.D. PIPE
14. TERMINAL POST CAP
15. TENSION WIRE
16. BARBED WIRE
17. TERMINAL & GATE POST 4" O.D. PIPE
18. GATE FRAME (AS REQUIRED)
19. DRIVE GATE FENCE FABRIC (AS REQUIRED)
20. FENCE FABRIC (AS REQUIRED) (HEIGHT VARIES)
21. GATE POST CAP
22. EXTENSION ARMS
23. FABRIC TIES
24. TOP RAIL
25. 84" FENCE FABRIC
26. RAIL BAND
27. SOCKET FITTING
28. BAND FOR BRACE 4" O.D. PIPE
29. DROP PIN
30. BUTTON FOR DROP PIN



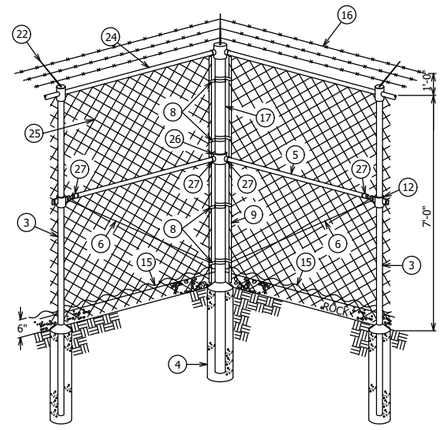
DETAIL GATE POST FOUNDATION



DETAIL TERMINAL OR CORNER POST FOUNDATION



DETAIL LINE POST FOUNDATION



TYPICAL CORNER SECTION

NOT TO SCALE

REFERENCE DRAWINGS:
PROPERTY DRIVEWAY, SURFACING AND FENCE PLAN_____

AMEREN DESIGN STANDARD
Distribution Design
This document is a design group standard.
Do not revise without consent of the
Supervising Engineer.
Approved By:
Judson Fraley 09/16/2020
Supervising Engineer Date:
Distribution Civil Design
Daniel Schuette 09/16/2020
Approving Engineer Date:
Distribution Civil Design

REV	DATE	DRF	DESCRIPTION	ENG	R/W	APPD
000	09/14/2011	JRM	FIRST ISSUE		NOT	
001	03/26/2015	JRD	REVISED GAP DIM. OF GATES		NOT	
002	01/22/2020	NST	REVISED PSI FOR CONCRETE, EMBED DIST. & ADDED TITLE BLOCK	DRS	DRS	JLF
003	01/30/2020	NST	REVISED DRIVE GATE TO INCLUDE DROP PIN	DRS	DRS	JLF
004	09/16/2020	NST	REVISED TO INCLUDE FOUNDATIONS	DRS	DRS	JFL
----	----					

PROPERTY
FENCE DETAILS
WITH PIER FOUNDATIONS

STANDARD | LOC

DFR: JRM | DATE: 09/14/2011 | SCALE: NONE | SUB CLASS: 0401
ENG:
RVW: NOT
APPD:
DRAWING NUMBER: STND-C-000004-001
REV: 004

STND-C-000004-001
24 x 36 (ANSI-D)

Ameren
1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH
16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO: 409336.0035.2030
DRAWN BY: JKR
CHECKED BY: AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/21/2023

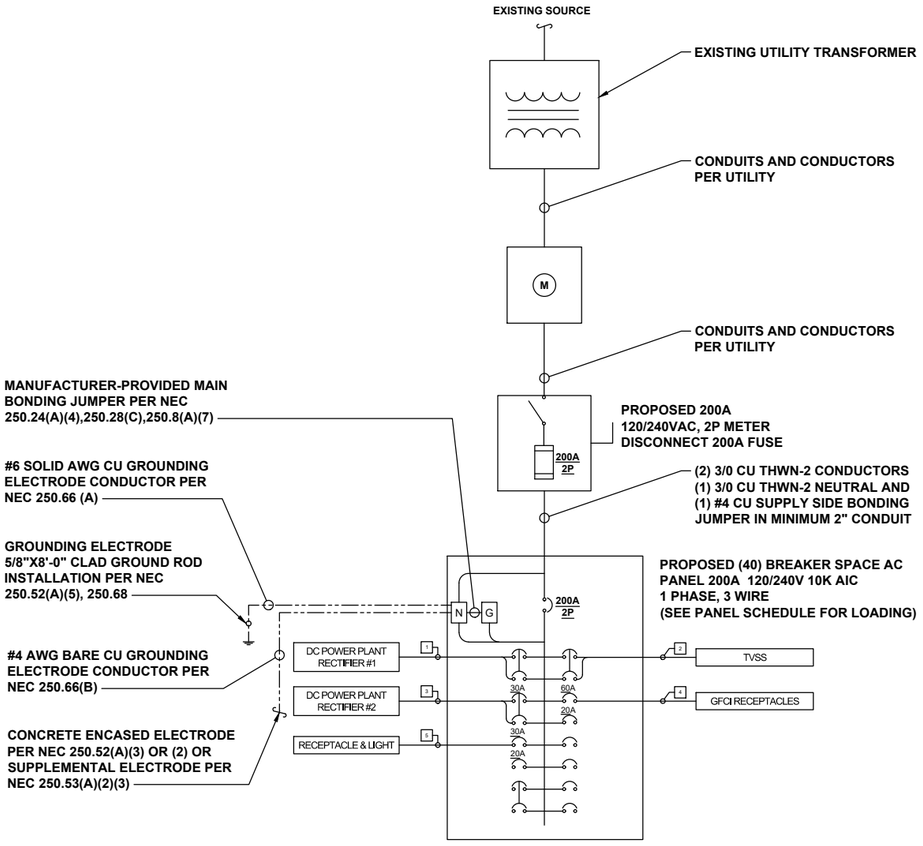
AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE
EQUIPMENT DETAILS

SHEET NUMBER
C-6

NOTE

CIRCUIT WIRED BY CABINET MANUFACTURER.



ELECTRICAL ONE-LINE DIAGRAM — NO SCALE — 1

NO	FROM	TO	CONFIGURATION
1	AC LOAD CENTER	DC POWER PLANT RECTIFIER #1	(2) #10 CU THHN/THWN-2, (1) #10 CU EGC
2	AC LOAD CENTER	TVSS	(2) #4 CU THHN/THWN-2, (1) #10 CU EGC
3	AC LOAD CENTER	DC POWER PLANT RECTIFIER #2	(2) #10 CU THHN/THWN-2, (1) #10 CU EGC
4	AC LOAD CENTER	GFCI RECEPTACLE	(2) #12 CU THHN/THWN-2 CONDUCTORS (2) #12 CU THHN/THWN-2 NEUTRAL AND (1) #12 CU EGC IN MINIMUM 3/4" C
5	AC LOAD CENTER	RECEPTACLE & LIGHT	(2) #12 CU THHN/THWN-2 CONDUCTORS (2) #12 CU THHN/THWN-2 NEUTRAL AND (1) #12 CU EGC IN MINIMUM 3/4" C

AC CIRCUIT SCHEDULE — NO SCALE — 2

NOT USED — NO SCALE — 3

Site Name:	14490 CONWAY RD					MODEL NUMBER:	PROPOSED AC LOAD CENTER										
SITE NUMBER:	AMEREN CONWAY					PHASE:	1				WIRE:	3					
VOLTAGE:	240 /120	Volts AC				BUSS RATING:	200	AMPS			AIC RATING	22K					
MAIN BREAKER:	200 AMPS																
MOUNT:	SURFACE																
ENCLOSURE TYPE:	NEMA 3R																
PANEL STATUS:	PROPOSED																

CKT	LOAD DESCRIPTION	BREAKER AMPS	BREAKER POLES	BREAKER STATUS	SERVICE LOAD VA	Demand Factor	USAGE FACTOR	PHASE A VA	PHASE B VA	USAGE FACTOR	Demand Factor	SERVICE LOAD VA	BREAKER STATUS	BREAKER POLES	BREAKER AMPS	LOAD DESCRIPTION	CKT
1	DC POWER PLANT RECTIFIER #1	30	2	NEW	2880	1.00	1.25	3600		1.25	1.00	0	NEW	2	60	TVSS	2
3					2880	1.00	1.25		3600	1.25	1.00	0					4
5	DC POWER PLANT RECTIFIER #2	30	2	NEW	2880	1.00	1.25	3825		1.25	1.00	180	NEW	1	20	GFI RECEPTACLE	6
7					2880	1.00	1.25		3600								8
9	RECEPTACLE & LIGHT	20	1	NEW	1920	1.00	1.25	2400									10
11									0								12
13								0									14
15									0								16
17								0									18
19									0								20
21								0									22
23									0								24
25								0									26
27									0								28
29								0									30
31									0								32
33								0									34
35									0								36
37								0									38
39									0								40
								PHASE A	PHASE B								
								9825	7200	VA							
									TOTAL	KVA	17.03						
										AMPS	70.94						

AC LOAD CENTER SCHEDULE — NO SCALE — 4

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

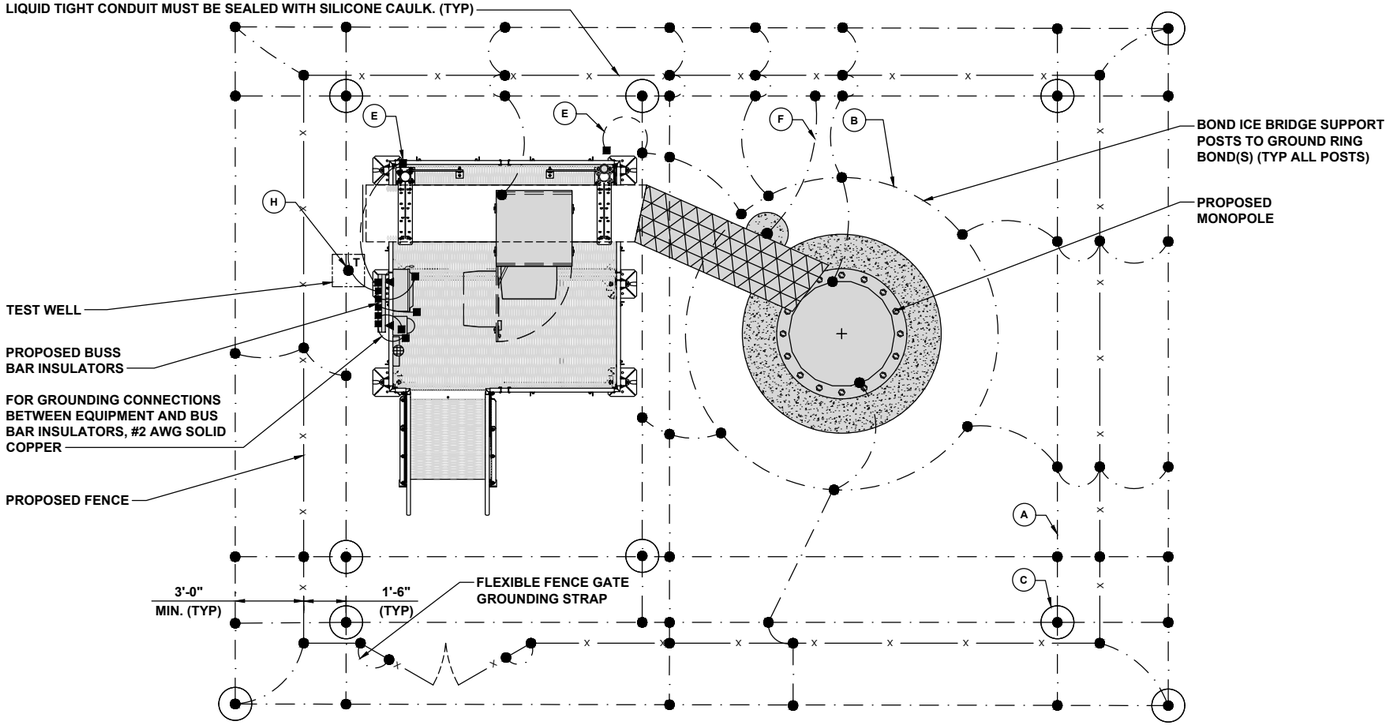
AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE

ELECTRICAL ONE-LINE, FAULT CALCS & PANEL SCHEDULE

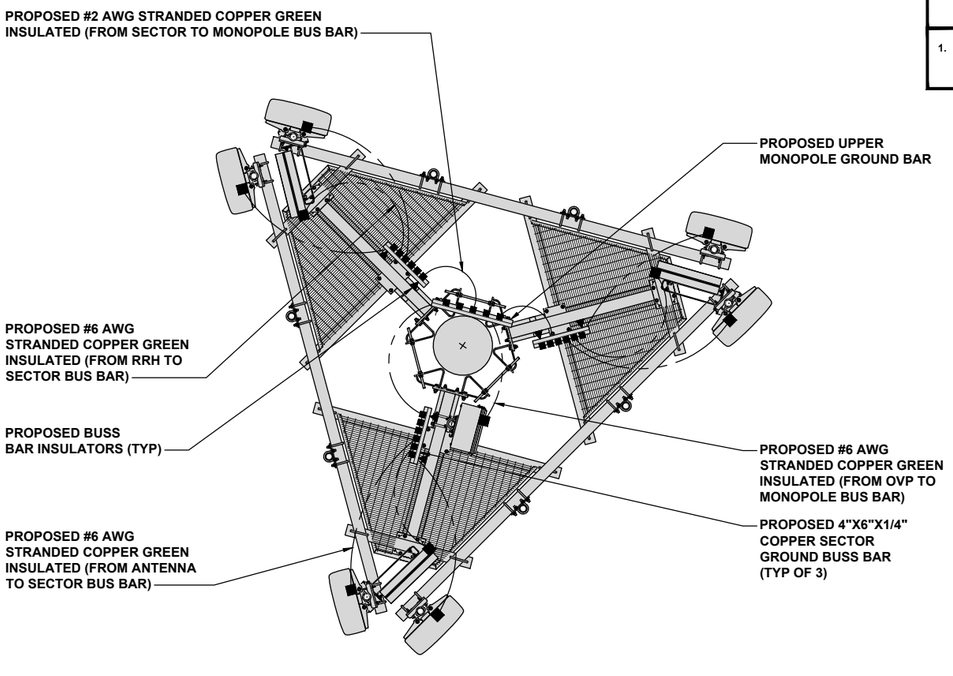
SHEET NUMBER

E-1



TYPICAL EQUIPMENT GROUNDING PLAN

NO SCALE | 1



TYPICAL ANTENNA GROUNDING PLAN

NO SCALE | 2

NOTE

1. ANTENNAS AND OVP SHOWN ARE GENERIC AND NOT REFERENCING TO A SPECIFIC MANUFACTURER. THIS LAYOUT IS FOR REFERENCE ONLY

- EXOTHERMIC CONNECTION
- MECHANICAL CONNECTION
- GROUND BUS BAR
- GROUND ROD
- TEST GROUND ROD WITH INSPECTION SLEEVE
- #6 AWG STRANDED & INSULATED
- 4/0 AWG BARE STRANDED SOLID COPPER
- #2 AWG SOLID COPPER
- BUSS BAR INSULATOR

GROUNDING LEGEND

1. GROUNDING IS SHOWN DIAGRAMMATICALLY ONLY.
2. CONTRACTOR SHALL GROUND ALL EQUIPMENT AS A COMPLETE SYSTEM. GROUNDING SHALL BE IN COMPLIANCE WITH NEC SECTION 250. GROUNDING AND BONDING REQUIREMENTS AND MANUFACTURER'S SPECIFICATIONS.
3. ALL GROUND CONDUCTORS SHALL BE COPPER; NO ALUMINUM CONDUCTORS SHALL BE USED.

GROUNDING KEY NOTES

(A) EXTERIOR GROUND RING: 4/0 AWG SOLID COPPER, BURIED AT A DEPTH OF AT LEAST 30 INCHES BELOW GRADE, OR 6 INCHES BELOW THE FROST LINE AND APPROXIMATELY 36 INCHES FROM THE EXTERIOR PLTE FENCE.

(B) TOWER GROUND RING: THE GROUND RING SYSTEM SHALL BE INSTALLED AROUND AN ANTENNA TOWER'S LEGS, AND/OR GUY ANCHORS. WHERE SEPARATE SYSTEMS HAVE BEEN PROVIDED FOR THE TOWER AND THE BUILDING, AT LEAST TWO BONDS SHALL BE MADE BETWEEN THE TOWER RING GROUND SYSTEM AND THE BUILDING RING GROUND SYSTEM USING MINIMUM 4/0 AWG SOLID COPPER CONDUCTORS.

(C) BOND TO EXTERIOR GROUND RING: 4/0 AWG SOLID COPPER WIRE PRIMARY BONDS SHALL BE PROVIDED AT LEAST AT FOUR POINTS ON THE INTERIOR GROUND RING, LOCATED AT THE CORNERS OF THE PLTE FENCE.

(D) GROUND ROD: UL LISTED COPPER CLAD STEEL. MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG. GROUND RODS SHALL BE DRIVEN TO THE DEPTH OF GROUND RING CONDUCTOR.

(E) FRAME BONDING: THE BONDING POINT FOR TELECOM EQUIPMENT FRAMES SHALL BE THE GROUND BUS THAT IS NOT ISOLATED FROM THE EQUIPMENTS METAL FRAMEWORK.

(F) ICE BRIDGE SUPPORTS: EACH ICE BRIDGE LEG SHALL BE BONDED TO THE GROUND RING WITH 4/0 AWG BARE COPPER CONDUCTOR. PROVIDE EXOTHERMIC WELDS AT BOTH THE ICE BRIDGE LEG AND BURIED GROUND RING.

(G) TOWER TOP COLLECTOR BUSS BAR IS TO BE MECHANICALLY BONDED TO PROPOSED ANTENNA MOUNT COLLAR.

(H) TEST WELL: CONSIST OF GROUND ROD INSTALLED WITH INSPECTION SLEEVE. GROUND RODS TO BE UL LISTED COPPER CLAD STEEL. MINIMUM 5/8" DIAMETER BY EIGHT FEET LONG.

(I) POST CONSTRUCTION TEST REQUIREMENTS FOR SYSTEM RESISTANCE DESIGN OF 5 OHMS OR LESS

GROUNDING KEY NOTES

NO SCALE | 3

Ameren
1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH
16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

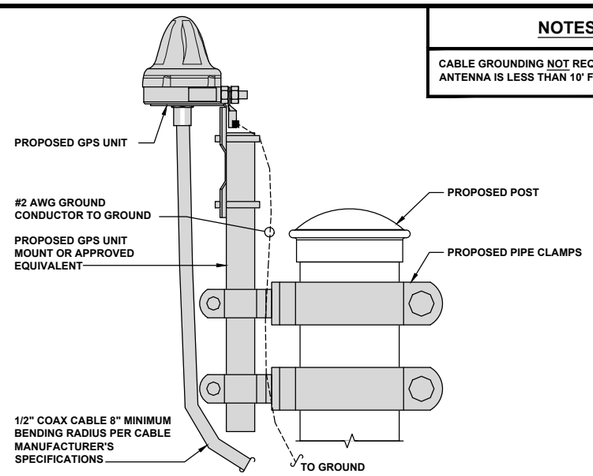
AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE
GROUNDING PLANS AND NOTES

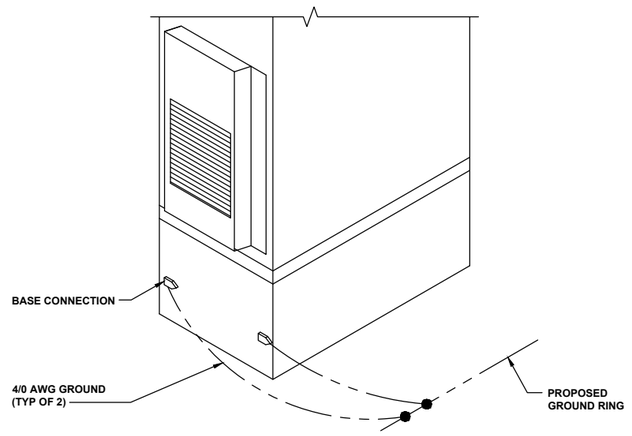
SHEET NUMBER
G-1

NOTES

CABLE GROUNDING NOT REQUIRED WHEN ANTENNA IS LESS THAN 10' FROM CABINET

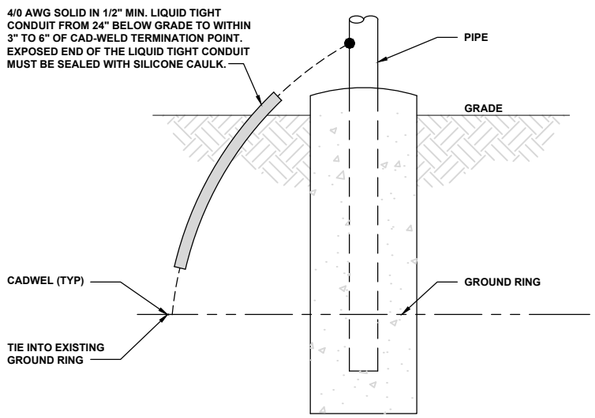


TYPICAL GPS UNIT GROUNDING — NO SCALE — 2

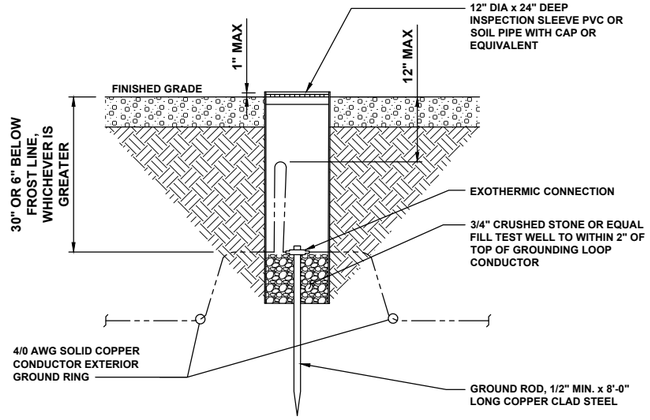


OUTDOOR CABINET GROUNDING — NO SCALE — 3

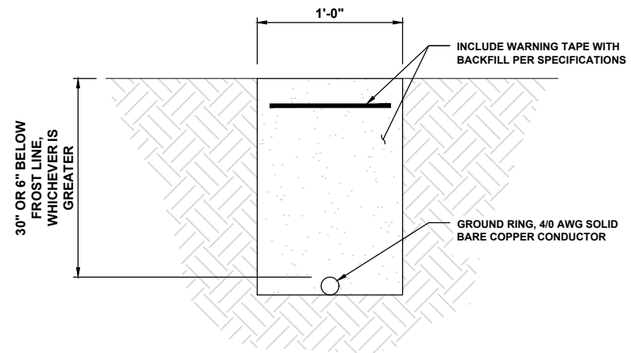
NOT USED — NO SCALE — 1



TRANSITIONING GROUND DETAIL — NO SCALE — 4



TYPICAL TEST GROUND ROD WITH INSPECTION SLEEVE — NO SCALE — 5



TYPICAL GROUND RING TRENCH — NO SCALE — 6

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE

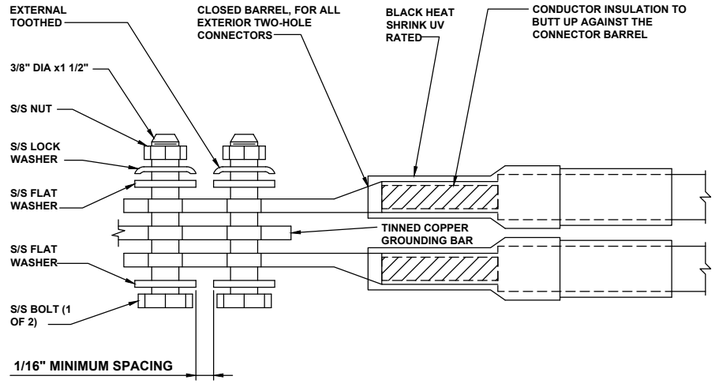
GROUNDING DETAILS

SHEET NUMBER

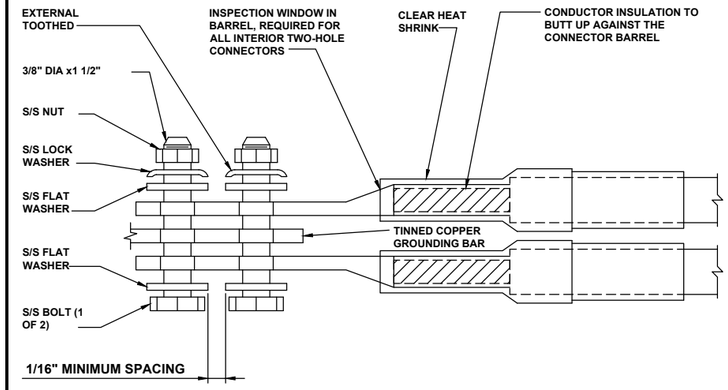
G-2

1. EXOTHERMIC WELD (2) TWO, #4/0 AWG BARE SOLID COPPER CONDUCTORS TO GROUND BAR. ROUTE CONDUCTORS TO BURIED GROUND RING AND PROVIDE PARALLEL EXOTHERMIC WELD.
2. ALL EXTERIOR GROUNDING HARDWARE SHALL BE STAINLESS STEEL 3/8" DIAMETER OR LARGER. ALL HARDWARE 18-8 STAINLESS STEEL INCLUDING LOCK WASHERS, COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
3. FOR GROUND BOND TO STEEL ONLY: COAT ALL SURFACES WITH AN ANTI-OXIDANT COMPOUND BEFORE MATING.
4. DO NOT INSTALL CABLE GROUNDING KIT AT A BEND AND ALWAYS DIRECT GROUND CONDUCTOR DOWN TO GROUNDING BUS.
5. NUT & WASHER SHALL BE PLACED ON THE FRONT SIDE OF THE GROUND BAR AND BOLTED ON THE BACK SIDE.
6. ALL GROUNDING PARTS AND EQUIPMENT TO BE SUPPLIED AND INSTALLED BY CONTRACTOR.
7. THE CONTRACTOR SHALL BE RESPONSIBLE FOR INSTALLING ADDITIONAL GROUND BAR AS REQUIRED.
9. ENSURE THE WIRE INSULATION TERMINATION IS WITHIN 1/8" OF THE BARREL (NO SHINERS).

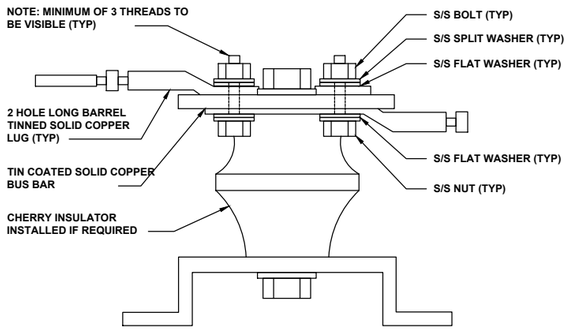
TYPICAL GROUNDING NOTES | NO SCALE | 1



TYPICAL EXTERIOR TWO HOLE LUG | NO SCALE | 2



TYPICAL INTERIOR TWO HOLE LUG | NO SCALE | 3



LUG DETAIL | NO SCALE | 4

NOT USED | NO SCALE | 5

NOT USED | NO SCALE | 6

NOT USED | NO SCALE | 7

NOT USED | NO SCALE | 8

NOT USED | NO SCALE | 9

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

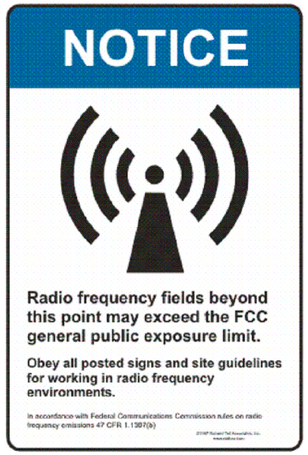
AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE
GROUNDING DETAILS

SHEET NUMBER
G-3

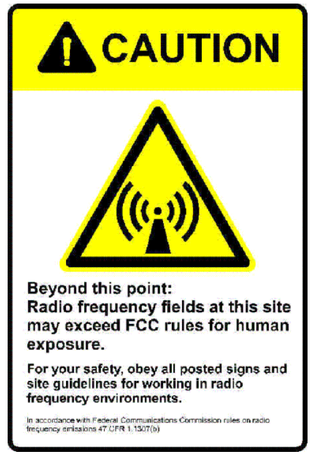
FCC CALL SIGN
NO SCALE

FCC ANTENNA STRUCTURE REGISTRATION
NO SCALE

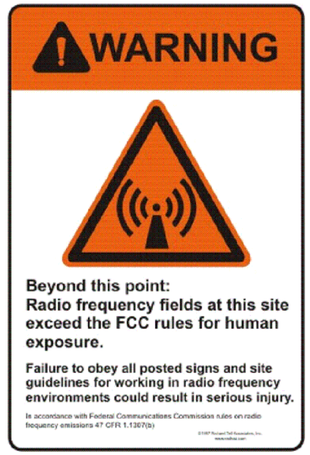


MPE RADIATION SIGN 1
NO SCALE

MPE RADIATION SIGN 2
NO SCALE



MPE RADIATION SIGN 3
NO SCALE



MPE RADIATION SIGN 4
NO SCALE

NO TRESPASSING SIGN
NO SCALE

DCC SIGN
NO SCALE

DISCONNECT SIGN
NO SCALE

NOTES

1. CONTRACTOR SHALL VERIFY ALL REQUIRED SIGNAGE IS POSTED AT ALL SITES PER AMEREN STANDARDS.
2. SIGN SHALL BE POSTED ON EACH SIDE OF THE FENCED COMPOUND.
3. ADDITIONAL E911 ADDRESS SIGNS ARE REQUIRED AT EACH ACCESS ROAD GATE LEADING TO THE COMPOUND AS WELL AS ON THE COMPOUND GATE ITSELF.
4. ALL SIGNS ARE TO BE MOUNTED USING 17 GAUGE ALUMINUM FENCE WIRE UNLESS OTHERWISE NOTED. NOT TO USE PLASTIC TIE WRAPS TO MOUNT EXTERIOR SIGNS.

SITE SIGNAGE GUIDELINES

Sign Type	Tower Sites		
	Entrance Gate	Outdoor Equipment	Tower Base/Access Ladder
FCC Call Sign			
FCC Antenna Structure Registration Sign	X		X
MPE Radiation Sign 1	X		
MPE Radiation Sign 2			X
MPE Radiation Sign 3			
MPE Radiation Sign 4 (if requied by RF levels)			X
No Trespassing Sign	X		
Danger Keep Off		X	X
DCC Sign	X		
Safety disconnect sign		X	

Ameren
1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH
16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE
RF SIGNAGE DETAILS

SHEET NUMBER
RF-1

[SITE NAME] - RADIO FREQUENCY DATA SHEET

TOWER INFO

PROJECT PHASE	LTE Coverage	DATE CREATED	03/01/2023	Created By	Ravi Sirka
PROJECT TYPE	New Site Build	REVISION NUMBER	1.00		

SITE INFORMATION								
CELL SITE NAME	Conway	Switch Name	7705 SAR-A			eNodeB ID	195004	
STREET ADDRESS	14490 Conway Road			DEG	MIN	SEC	Degrees	
CITY	Chesterfield	County	St. Louis	N	38	38	55.11	38.64864
ZIP	63017	State	MO	W	90	31	31.28	-90.52536
FAA Study		FCC ID		Tower Owner	Ameren			

SCOPE OF WORK

LTE	New site build: Add (6) LTE antennas, (3) 900 MHz LTE RRH, (1) BBU
Notes	This is an LTE Coverage Site. Only LTE will be launched and filed for regulatory. Cable lengths to be verified during the construction walk.

PARTS REQUIRED

ALL CABLE LENGTHS ARE ESTIMATES

Site:	Part #	QTY	Alpha	Part #	QTY	Beta	Part #	QTY	Gamma	Part #	QTY	Delta	Part #	QTY
Raycap-OVP	RCKDC-6140-PF-48	1	Antenna LTE	RR-65B-R2	2	Antenna LTE	RR-65B-R2	2	Antenna LTE	RR-65B-R2	2	Antenna LTE		
Raycap-OVP	DC6-48-60-RM-OPT6	1	RRH LTE	2212 B8	1	RRH LTE	2212 B8	1	RRH LTE	2212 B8	1	RRH LTE		
BBU	BB6631	1	Jumper Cable	LDF4-50A @ 20 ft.	2	Jumper Cable	LDF4-50A @ 20 ft.	2	Jumper Cable	LDF4-50A @ 20 ft.	2	Jumper Cable		
Hybrid Cable	For less than 200 ft, use the below 6AWG Cable: 942-997516-F0[HEIGHT + 10% of HEIGHT] For greater than or equal to 200ft, use the below 4AWG Cables: 942-97XXX-F0[HEIGHT + 10% of HEIGHT]	1	Hybrid Tail	HFT412-2S29F-20	1	Hybrid Tail	HFT412-2S29F-20	1	Hybrid Tail	HFT412-2S29F-20	1	Hybrid Tail		
GPS Antenna	GPSGLONASS-36-N-S	1												
Surge Arrestor	GPS+06NFM	1												
Ethernet to Coax Adapter	GRU-04-01	1												

PART TOTALS/ LOCATION

Type	Part #	Location	Quantity	Type	Part #	Location	Quantity	Type	Part #	Location	Quantity
Raycap-OVP	RCKDC-6140-PF-48	Top	1	Antenna LTE	RR-65B-R2	Top	6	GPS Antenna	GPSGLONASS-36-N-S	Bottom	1
Raycap-OVP	DC6-48-60-RM-OPT6	Bottom	1	RRH LTE	2212 B8	Top	3	Surge Arrestor	GPS+06NFM	Bottom	1
BBU	BB6631	Bottom	1	Jumper Cable	LDF4-50A	Top	6	Ethernet to Coax Adapter	GRU-04-01	Bottom	1
CSR	7705 SAR-A	Bottom	1								

ANTENNA CONFIGURATIONS

LTE 900MHz CONFIGURATIONS	ALPHA		BETA		GAMMA		DELTA	
	Existing	Reserved	Existing	Reserved	Existing	Reserved	Existing	Reserved
Antenna Quantity		2		2		2		
Antenna Type		RR-65B-R2		RR-65B-R2		RR-65B-R2		
Antenna 1 Connection Port		1		1		1		
Antenna 2 Connection Port		2		2		2		
Antenna Orientation		15		135		255		
Antenna Centerline (feet AGL)		165		165		165		
Electrical Down-Tilt (Deg.)		2		2		2		
Mechanical Down-Tilt (Deg.)		0		0		0		

Ravi Sirka	03/01/2023	
RF Engineer	*Date*	*Site Acquisition Specialist* *Date*	*Real Estate Specialist* *Date*

PLUMBING DIAGRAM

NO SCALE | 1

Ameren
1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH
16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO: 409336.0035.2030
DRAWN BY: JKR
CHECKED BY: AL

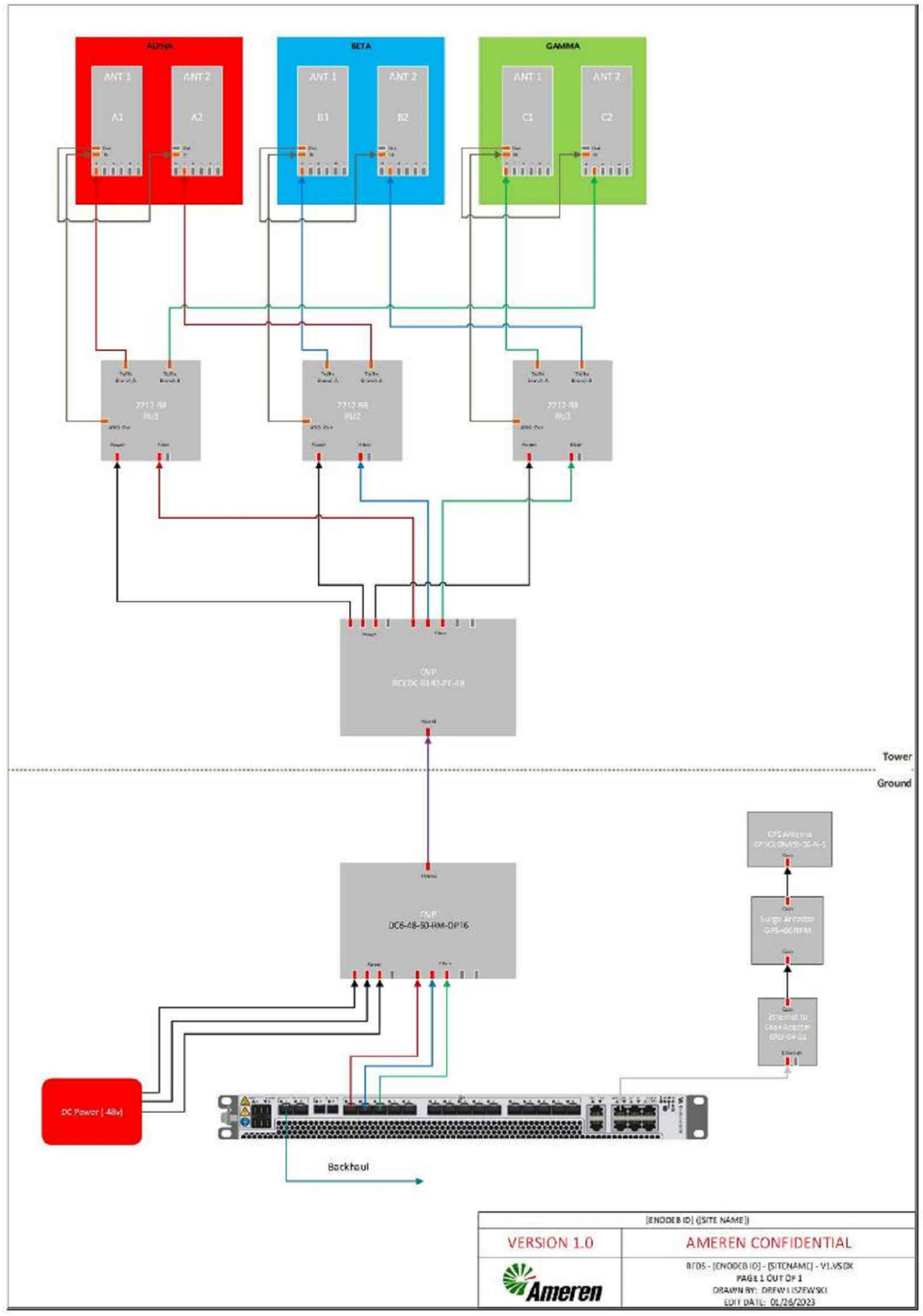
REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE
RF PLUMBING DIAGRAM

SHEET NUMBER
RF-2



PLUMBING DIAGRAM

NO SCALE

1

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE

RF PLUMBING DIAGRAM

SHEET NUMBER

RF-3

LEGEND

EXOTHERMIC CONNECTION

MECHANICAL CONNECTION

BUSS BAR INSULATOR

CHEMICAL ELECTROLYTIC GROUNDING SYSTEM

TEST CHEMICAL ELECTROLYTIC GROUNDING SYSTEM — T

EXOTHERMIC WITH INSPECTION SLEEVE

GROUNDING BAR

GROUND ROD

TEST GROUND ROD WITH INSPECTION SLEEVE — T

SINGLE POLE SWITCH — $

DUPLEX RECEPTACLE

DUPLEX GFCI RECEPTACLE — GFCI

FLUORESCENT LIGHTING FIXTURE (2) TWO LAMPS 48-T8 — F

SMOKE DETECTION (DC) — SD

EMERGENCY LIGHTING (DC)

SECURITY LIGHT W/PHOTOCELL LITHONIA ALXW LED-1-25A400/51K-SR4-120-PE-DDBTXD

CHAIN LINK FENCE — x x x x

WOOD/WROUGHT IRON FENCE

WALL STRUCTURE

LEASE AREA

PROPERTY LINE (PL)

SETBACKS

ICE BRIDGE

CABLE TRAY

WATER LINE — W W W W W

UNDERGROUND POWER — UGP UGP UGP UGP UGP

UNDERGROUND TELCO — UGT UGT UGT UGT UGT

OVERHEAD POWER — OHP OHP OHP OHP

OVERHEAD TELCO — OHT OHT OHT OHT

UNDERGROUND TELCO/POWER — UGT/P UGT/P UGT/P UGT/P

ABOVE GROUND POWER — AGP AGP AGP AGP AGP

ABOVE GROUND TELCO — AGT AGT AGT AGT AGT

ABOVE GROUND TELCO/POWER — AGT/P AGT/P AGT/P AGT/P

WORKPOINT — W.P.

SECTION REFERENCE — XX / X-X

DETAIL REFERENCE — XX / X-X

ABBREVIATIONS

AB	ANCHOR BOLT
ABV	ABOVE
AC	ALTERNATING CURRENT
ADDL	ADDITIONAL
AFF	ABOVE FINISHED FLOOR
AFG	ABOVE FINISHED GRADE
AGL	ABOVE GROUND LEVEL
AIC	AMPERAGE INTERRUPTION CAPACITY
ALUM	ALUMINUM
ALT	ALTERNATE
ANT	ANTENNA
APPROX	APPROXIMATE
ARCH	ARCHITECTURAL
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BATT	BATTERY
BLDG	BUILDING
BLK	BLOCK
BLKG	BLOCKING
BM	BEAM
BTC	BARE TINNED COPPER CONDUCTOR
BOF	BOTTOM OF FOOTING
CAB	CABINET
CANT	CANTILEVERED
CHG	CHARGING
CLG	CEILING
CLR	CLEAR
COL	COLUMN
COMM	COMMON
CONC	CONCRETE
CONSTR	CONSTRUCTION
DBL	DOUBLE
DC	DIRECT CURRENT
DEPT	DEPARTMENT
DF	DOUGLAS FIR
DIA	DIAMETER
DIAG	DIAGONAL
DIM	DIMENSION
DWG	DRAWING
DWL	DOWEL
EA	EACH
EC	ELECTRICAL CONDUCTOR
EL.	ELEVATION
ELEC	ELECTRICAL
EMT	ELECTRICAL METALLIC TUBING
ENG	ENGINEER
EQ	EQUAL
EXP	EXPANSION
EXT	EXTERIOR
EW	EACH WAY
FAB	FABRICATION
FF	FINISH FLOOR
FG	FINISH GRADE
FIF	FACILITY INTERFACE FRAME
FIN	FINISH(ED)
FLR	FLOOR
FDN	FOUNDATION
FOC	FACE OF CONCRETE
FOM	FACE OF MASONRY
FOS	FACE OF STUD
FOW	FACE OF WALL
FS	FINISH SURFACE
FT	FOOT
FTG	FOOTING
GA	GAUGE
GEN	GENERATOR
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GLB	GLUE LAMINATED BEAM
GLV	GALVANIZED
GPS	GLOBAL POSITIONING SYSTEM
GND	GROUND
GSM	GLOBAL SYSTEM FOR MOBILE
HDG	HOT DIPPED GALVANIZED
HDR	HEADER
HGR	HANGER
HVAC	HEAT/VENTILATION/AIR CONDITIONING
HT	HEIGHT
IGR	INTERIOR GROUND RING
IN	INCH
INT	INTERIOR
LB(S)	POUND(S)
LF	LINEAR FEET
LTE	LONG TERM EVOLUTION
MAS	MASONRY
MAX	MAXIMUM
MB	MACHINE BOLT
MECH	MECHANICAL
MFR	MANUFACTURER
MGB	MASTER GROUND BAR
MIN	MINIMUM
MISC	MISCELLANEOUS
MTL	METAL
MTS	MANUAL TRANSFER SWITCH
MW	MICROWAVE
NEC	NATIONAL ELECTRIC CODE
NM	NEWTON METERS
NO.	NUMBER
#	NUMBER
NTS	NOT TO SCALE
OC	ON-CENTER
OSHA	OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
OPNG	OPENING
P/C	PRECAST CONCRETE
PCS	PERSONAL COMMUNICATION SERVICES
PCU	PRIMARY CONTROL UNIT
PRC	PRIMARY RADIO CABINET
PP	POLARIZING PRESERVING
PSF	POUNDS PER SQUARE FOOT
PSI	POUNDS PER SQUARE INCH
PT	PRESSURE TREATED
PWR	POWER CABINET
QTY	QUANTITY
RAD	RADIUS
RECT	RECTIFIER
REF	REFERENCE
REINF	REINFORCEMENT
REQ'D	REQUIRED
RET	REMOTE ELECTRIC TILT
RF	RADIO FREQUENCY
RMC	RIGID METALLIC CONDUIT
RRH	REMOTE RADIO HEAD
RRU	REMOTE RADIO UNIT
RWY	RACEWAY
SCH	SCHEDULE
SHT	SHEET
SIAD	SMART INTEGRATED ACCESS DEVICE
SIM	SIMILAR
SPEC	SPECIFICATION
SQ	SQUARE
SS	STAINLESS STEEL
STD	STANDARD
STL	STEEL
TEMP	TEMPORARY
THK	THICKNESS
TMA	TOWER MOUNTED AMPLIFIER
TN	TOE NAIL
TOA	TOP OF ANTENNA
TOC	TOP OF CURB
TOF	TOP OF FOUNDATION
TOP	TOP OF PLATE (PARAPET)
TOS	TOP OF STEEL
TOW	TOP OF WALL
TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSION
TYP	TYPICAL
UG	UNDERGROUND
UL	UNDERWRITERS LABORATORY
UNO	UNLESS NOTED OTHERWISE
UMTS	UNIVERSAL MOBILE TELECOMMUNICATIONS SYSTEM
UPS	UNITERRUPTIBLE POWER SYSTEM (DC POWER PLANT)
VIF	VERIFIED IN FIELD
W	WIDE
W/	WITH
WD	WOOD
WP	WEATHERPROOF
WT	WEIGHT

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE

LEGEND AND ABBREVIATIONS

SHEET NUMBER

GN-1

SITE ACTIVITY REQUIREMENTS:

1. NOTICE TO PROCEED - NO WORK SHALL COMMENCE PRIOR TO CONTRACTOR RECEIVING A WRITTEN NOTICE TO PROCEED (NTP) AND THE ISSUANCE OF A PURCHASE ORDER. PRIOR TO ACCESSING/ENTERING THE SITE YOU MUST CONTACT THE AMEREN AND TOWER OWNER NOC & THE AMEREN AND TOWER OWNER CONSTRUCTION MANAGER.
2. "LOOK UP" - AMEREN AND TOWER OWNER SAFETY CLIMB REQUIREMENT:

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

GENERAL NOTES:

1. FOR THE PURPOSE OF CONSTRUCTION DRAWING, THE FOLLOWING DEFINITIONS SHALL APPLY:

   CONTRACTOR:GENERAL CONTRACTOR RESPONSIBLE FOR CONSTRUCTION

   CARRIER: AMEREN

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

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-2

CONCRETE, FOUNDATIONS, AND REINFORCING STEEL:

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

   #4 BARS AND SMALLER 40 ksi

   #5 BARS AND LARGER 60 ksi
6. THE FOLLOWING MINIMUM CONCRETE COVER SHALL BE PROVIDED FOR REINFORCING STEEL UNLESS SHOWN OTHERWISE ON DRAWINGS:
   - CONCRETE CAST AGAINST AND PERMANENTLY EXPOSED TO EARTH 3"
   - CONCRETE EXPOSED TO EARTH OR WEATHER:
   - #6 BARS AND LARGER 2"
   - #5 BARS AND SMALLER 1-1/2"
   - CONCRETE NOT EXPOSED TO EARTH OR WEATHER:
   - SLAB AND WALLS 3/4"
   - BEAMS AND COLUMNS 1-1/2"
7. A TOOLED EDGE OR A 3/4" CHAMFER SHALL BE PROVIDED AT ALL EXPOSED EDGES OF CONCRETE, UNLESS NOTED OTHERWISE, IN ACCORDANCE WITH ACI 301 SECTION 4.2.4.

ELECTRICAL INSTALLATION NOTES:

1. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE WITH THE PROJECT SPECIFICATIONS, NEC AND ALL APPLICABLE FEDERAL, STATE, AND LOCAL CODES/ORDINANCES.
2. CONDUIT ROUTINGS ARE SCHEMATIC. CONTRACTOR SHALL INSTALL CONDUITS SO THAT ACCESS TO EQUIPMENT IS NOT BLOCKED AND TRIP HAZARDS ARE ELIMINATED.
3. WIRING, RACEWAY AND SUPPORT METHODS AND MATERIALS SHALL COMPLY WITH THE REQUIREMENTS OF THE NEC.
4. ALL CIRCUITS SHALL BE SEGREGATED AND MAINTAIN MINIMUM CABLE SEPARATION AS REQUIRED BY THE NEC.

4.1. ALL EQUIPMENT SHALL BEAR THE UNDERWRITERS LABORATORIES LABEL OF APPROVAL, AND SHALL CONFORM TO REQUIREMENT OF THE NATIONAL ELECTRICAL CODE.

4.2. ALL OVERCURRENT DEVICES SHALL HAVE AN INTERRUPTING CURRENT RATING THAT SHALL BE GREATER THAN THE SHORT CIRCUIT CURRENT TO WHICH THEY ARE SUBJECTED, 22,000 AIC MINIMUM. VERIFY AVAILABLE SHORT CIRCUIT CURRENT DOES NOT EXCEED THE RATING OF ELECTRICAL EQUIPMENT IN ACCORDANCE WITH ARTICLE 110.24 NEC OR THE MOST CURRENT ADOPTED CODE PRE THE GOVERNING JURISDICTION.

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

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-3

GROUNDING NOTES:

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

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

SHEET TITLE

GENERAL NOTES

SHEET NUMBER

GN-4

Bill of Material (BOM)

Black & Veatch		Date	10/11/2023
858-255-8260			
leeam@bv.com		Site Name	Conway
		Pick up or shipping?	Missouri

Product Category	Manufacture Part #	Description	UOM	QTY
Proposed Tower Structure			EA	Owner Furnish
	165' Monopole	165' Sabre Monopole	EA	1
Outdoor Network Cabinet (ONC)				
	CUBE-SS4C2285Q3	Charles LTE Cabinet Single Bay which includes:	EA	Owner Furnish
		Trilogy Series/Power Plant HE 48VDC Eltek Flatpack2		
		Rostec Hybrid Cable Entry Panel For PM638 Cabinet: 4 Ports		
		CAMLoc		
	Charles 97-002975-A	SAFT Battery Modules	EA	12
	SitePro1 MEP86-8JH32S31	8'X8' Modular Equipment Platform with Jack Leg and Footpads	EA	1
eNodeB				Owner Furnish
	Ericsson 6630	Ericsson 6630 which includes: *(Not all items including licenses listed)*	EA	
Remote Radio Heads				Owner Furnish
	2212 Radio	Ericsson 2212 B8 2T2R, 2x80 Output Power w/ mounting bracket	EA	3
Antenneas				
	Ericsson Kathrein 80010901	4-port sector antenna, 2x 698-960, 65° HPBW	EA	6
Tower Surge Supression (OVP)				Owner Furnish
	RCKDC-6140-PF-48	Overvoltage Protection & Fiber Management Junction Box for RRHs	EA	1
Tower Equipment Mounting Hardware				Owner Furnish
	C10855111C	12' Sabre HD MOVE Platform	EA	1
	C10851301	MOVE 12' Support Rail Tension Bracket Kit	EA	1
	C10112377	Tri Collar Mount 18"-40" Pole Diameter	EA	1
	C10900210	Pipe Antenna Mounting Kit 2-7/8" X 10'-0"	EA	12
Low Inductance Hybrid Trunk Cable - Single Mode 6 x 12				Owner Furnish
	TBD	1.55" dia 6AWG Hybrid Cable	FT	200
1x1 Hybrid Jumpers with Full Axs sleeve installed				
	HFT412-2S29F-20	1 X1 20' RRU 6-OVP Hybrid Tail Cable 2 SMF + 4x12Ga Con Weatherproof Sleeve	EA	3
Fiber Jumpers and Cleaning Tools				
	FJ-2SM-005-3M	3m Ruggedized LC-LC SM Duplex FTTA 2-Fiber Assembly w/ Fan-Outs	EA	6
	FCCT-L	Fiber Connector Cleaning Tool - LC	EA	1
	Commscope .5" Jumpers	20ft - contractor to field verify	EA	1
Commscope Hybrid Cable Installation Accessories				
	FA-R2CT	Nokia RRU Fiber Protection	EA	8
	FA-PCS10	Nokia RRU Power Cable Seal Kit	EA	4
H-Frame and H-Frame Foundation				
	TBD	H-Frame Kit (LxH: 3'x 5') *contractor to verify length	EA	1
	4000 PSI Concrete Pier	H-Frame Pier Foundation (1' dia x 4' depth)	EA	2
Electrical Ground Equipment				
	QO140M200RB	Square D AC Load Center 200Amp, 1 Phase	EA	1
	D224NRB	Square D Electric AC Disconnect, 240VAC, 200A	EA	1
	U9551-RXL-QG-AMS	Milbank Meter Socket, 200A, 1 Phase	EA	1
	OLVTWM	LED Vaporight Work Light	EA	1
	TBD	GPS Coax to ONC Cabinet	FT	15
Ice Bridge and Ice Bridge Foundation				
	WB-K110-B	Commscope Waveguide Bridge Kit (HxL: 160"x10')	EA	2
		WBT12-3 Trapeze Kit, 3 rungs	EA	8
		WB-LB12-3 Support Bracket	EA	3
		MF-130 Direct Burial Pipe Column, 13'-4" (9' maximum spacing)	EA	3
	4000 PSI Concrete Pier	Ice Bridge Concrete Pier Foundation (1.5' dia x 3.5' depth)	EA	3
	C91499	Band-it Steel band	EA	1
	C25499	Band-it Buckle	EA	1
	LST-O	SitePro 1 Standoff Bracket	EA	1
8-PIN Ret Cables (AISG)				
	CXTD-WM8PWF-4M	4 Meter, 8 Pin Male to Female RET Control Cable	EA	8
Grounding Wire				
	MT-585-T	#2 AWG Solid Tinned Copper Ground Wire	FT	150
	MT-586-G	#6 AWG THHN Green Jacket Stranded Ground Wire	FT	200
	Alanwire (Ameren Stock#: 1852024)	4/0, Bare, 19 Strand, CU., Soft Drawn	FT	250
Bus Bars and Grounding Rod				
	294820	Universal Tower/Shelter Buss Bar Attachment Kit	EA	5
	VALMONT MG406UHK	1/4" X 4" X 6" Ground Bar	EA	4
	PANDUIT GB4B0624TPI-1	1/4" X 4" X 20" Ground Bar	EA	3
Lugs (Grounding Materials)				
	22-38U-I	#2 AWG Lug, Two 3/8" Holes, Universal Spacing 3/4" to 1"	EA	25
	62-38-1-I	#6 AWG Lug, Two 3/8" Holes, 1" OC, Long Barrel	EA	12
	31769-1	3/8" x 1" Hardware Kit w/Lock washer & Nut, 10/Pkg	EA = 10/PK	10
GPS				
	GPSPLONASS-36-N-S	GPS Ant, 1559 MHz-1610.5 MHz, N-Female	EA	1
Surge Arrestor & Breakers & Splitters				
	9100-0441	FEED LINE SURGE ARRESTOR GROUNDING KIT	EA	7
	BFD	FEED LINE SURGE ARRESTOR MOUNTING KIT	EA	6
	GPS+06NFM	GPS ANTENNA SURGE ARRESTOR	EA	1
	BFN	GPS ANTENNA SURGE ARRESTOR MOUNTING KIT	EA	1
Uni-Strut				
	PS500EH	10 Ft, 7/8" x 1-5/8" Unistrut, Galvanized, Shallow, Elongated Hole	EA	6
	PS1100-3-1/2"EG	3-1/2" Unistrut Pipe Hanger Power Strut Pipe Hanger	EA	12
Tapes and Weatherproofing				
	TBD	Weatherproofing Boot	EA	6
	35-BLUE3/4X66	Blue, 3/4" x 66' Electrical Tape	EA	2
	35-GREEN3/4X66	Green, 3/4" x 66' Electrical Tape	EA	2
	35-RED3/4X66	Red, 3/4" x 66' Electrical Tape	EA	2
	35-YELLOW3/4X66	Yellow, 3/4" x 66' Electrical Tape	EA	6
Zip ties/Velcro				
	MLT4S-CP	1/8"x14.3" SS Cable Zip Tie 100/Pk	EA = 100/PK	1
	TIE15-100	15" Black Cable Ties, Nylon 100/pkg 120lb Tensile Strength	EA = 100/PK	1
Miscellaneous Materials				

Bill of Material (BOM)

Black & Veatch		Date	10/11/2023
858-255-8260			
leeam@bv.com		Site Name	Conway
		Pick up or shipping?	Missouri

Product Category	Manufacture Part #	Description	UOM	QTY
	CABLETAG	Fiber Tag for Coaxial Cable, 1.25" x 0.75"	EA	75
	POWERTAG	Fiber Tag for Coaxial Cable, 1.25" x 0.75"	EA	75
Cadweld				
	CADWELD-#GTC-162Q	CADWELD CONNECTION TYPE GT MOLD, 4/0 MCM TO 5/8" GROUND ROD	EA	4
	CADWELD-#TAC-2Q2Q	CADWELD CONNECTION TYPE TA MOLD, 4/0 MCM RUN TO 4/0 MCM TAP	EA	7
	CADWELD-#HKH-2Q4	CADWELD CONNECTION TYPE HK MOLD, 4/0 MCM TO PIPE	EA	1
	CADWELD-#LAC-2QEK	CADWELD CONNECTION TYPE LA MOLD, 4/0 MCM TO 1/4"x3" AND WIDER BUSBAR	EA	2
	CADWELD-#90PLUSF20	90 PLUS CADWELD WELDING MATERIAL	EA	10
	CADWELD-#115PLUSF20	115 PLUS CADWELD WELDING MATERIAL	EA	19
	CADWELD-#150PLUSF20	150 PLUS CADWELD WELDING MATERIAL	EA	37
Power Cable				
	Anixter#: 3MR-0604	4/C #6 AWG, 1000V	FT	150
	Ameren Stock#: 1801119	4/C #10 AWG, 1000V	FT	50

Ameren

1901 CHOUTEAU AVE,
ST. LOUIS, MO 63103

BLACK & VEATCH

16305 SWINGLEY RIDGE RD, SUITE 230
CHESTERFIELD, MO 63017
(636) 536-5800

PROJECT NO:	409336.0035.2030
DRAWN BY:	JKR
CHECKED BY:	AL

REV	DATE	DESCRIPTION
3	11/21/23	PER JURISDICTION COMMENTS
2	10/13/23	PER JURISDICTION COMMENTS
1	08/11/23	PER CLIENT COMMENTS
0	06/28/23	ISSUED FOR 100% CDs
B	03/07/23	ISSUED FOR 90% CDs
A	10/17/22	ISSUED FOR 20% CDs

STATE OF MISSOURI
JOSHUA R. TURNER
NUMBER PE-2018021265
PROFESSIONAL ENGINEER
11/27/2023

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

AMEREN PLTE PROJECT
CONWAY
14490 CONWAY RD
CHESTERFIELD, MO 63017
MONOPOLE

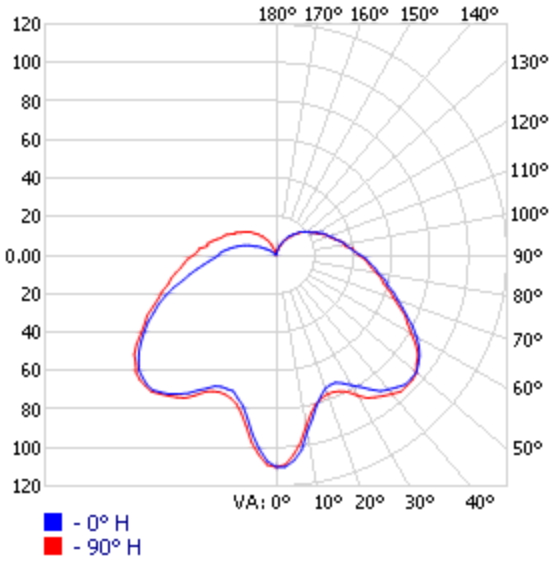
SHEET TITLE
BILL OF MATERIAL

SHEET NUMBER
BOM

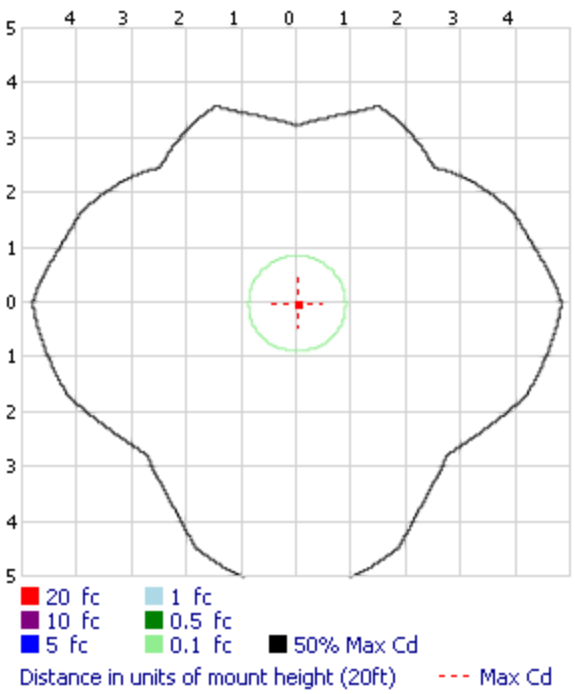
OUTDOOR PHOTOMETRIC REPORT
CATALOG: OLVTWM

Test #:	LTL22009
Test Lab:	ACUITY BRANDS LIGHTING CONYERS LAB
Test Date:	7/3/2012
Catalog:	OLVTWM
Description:	OUTDOOR LED VAPOR TIGHT WALL MOUNT WITH 4000K LEDS WITH CAST ALUMINUM HOUSING
Series:	Vapor Tight LED
Lamp Catalog:	NICHIA 219B SW 40
Lamp:	LED
Lamp Output:	Total luminaire Lumens: 588.2, absolute photometry *
Ballast / Driver:	120
Input Wattage:	15.4
Luminous Opening:	Vertical Cylinder (Dia : 3", H: 6.48")
Max Cd:	110.0 at Horizontal: 0°, Vertical: 0°
Roadway Class:	Type VS

Polar Candela



Isoilluminance



*Test based on absolute photometry where lamp lumens=lumens total.
*Cutoff Classification and efficiency cannot be properly calculated for absolute photometry.

Roadway Summary

Distribution:		Type VS
Max Cd, 90 Deg Vert:		44.0
Max Cd, 80 to <90 Deg:		54.0
	Lumens	% Lamp
Downward Street Side:	232.1	39.5%
Downward House Side:	225.7	38.4%
Downward Total:	457.8	77.8%
Upward Street Side:	70.2	11.9%
Upward House Side:	60.1	10.2%
Upward Total:	130.3	22.2%
Total Lumens:	588.2	100%

LCS Table

BUG Rating	**B0 - U3 - G1**	
Forward Light	Lumens	Lumens %
Low(0-30):	34.4	5.8%
Medium(30-60):	105.2	17.9%
High(60-80):	66.8	11.3%
Very High(80-90):	25.7	4.4%
Back Light		
Low(0-30):	34.1	5.8%
Medium(30-60):	103.5	17.6%
High(60-80):	64.5	11%
Very High(80-90):	23.7	4%
Uplight		
Low(90-100):	39.7	6.8%
High(100-180):	90.6	15.4%
Trapped Light:	0.0	0%

Illuminance at a Distance

	Center Beam	Beam Spread(ft)		Field Spread(ft)	
Height(ft)	Footcandle	Horizontal	Vertical	Horizontal	Vertical
4.00	6.88 fc	38.7	32.5		7.7
8.00	1.72 fc	77.3	65.0		15.5
12.00	0.76 fc	116.0	97.5		23.2
16.00	0.43 fc	154.7	130.0		30.9
20.00	0.28 fc	193.3	162.5		38.6
		Beam Angle		Field Angle	
		156.6°	152.3°	n/a	88.0°