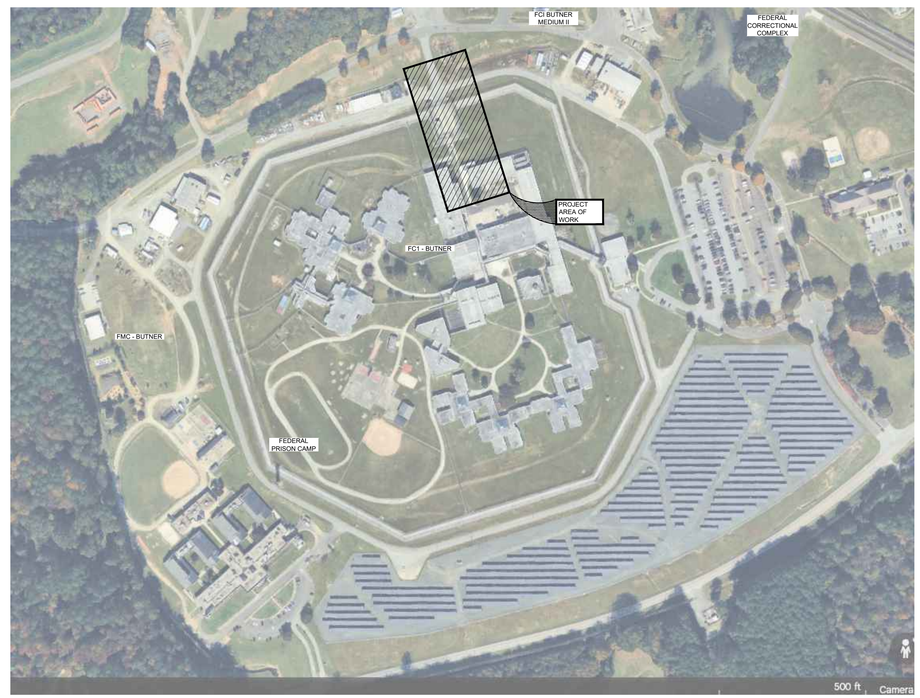
BUTNER OPTICAL - MEDIUM II
2 OLD 75 HWY
BUTNER, NORTH CAROLINA 27509

SV0187 - ELECTRICAL SERVICE UPGRADE
FEDERAL PRISON INDUSTRIES - UNICOR
CONTRACT #1450044255/15UBUT26P00000144

CONSTRUCTION DOCUMENTS - FOR BID
2026-05-07



D R A W I N G I N D E X

G000 = TITLE SHEET & OVERALL PLAN
E001 = SYMBOLS AND ABBREVIATION
E002 = ELECTRICAL RISER DIAGRAM
E100 = PARTIAL SITE PLAN
E101 = FLOOR PLAN - ELECTRICAL
E102 = PARTIAL FLOOR PLAN - ELECTRICAL
E201 - ELECTRICAL RISER DIAGRAMS
E202 - PANEL SCHEDULES

ENGINEER

ELECTRICAL
MARRERO, COUVILLION & ASSOCIATES, L.L.C.
3525 HESSMER AVENUE, SUITE 304
METAIRIE, LOUISIANA 70002

MCA Engineering & Construction
BATON ROUGE - NEW ORLEANS

JOB NO: DOJ25002
BG: 801
PROJECT MANAGER: KIMBALL SCHLAFLY
DATE: 12/22/2025

US DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF PRISONS
UNICOR, FPI
ELECTRICAL SERVICE UPGRADE
BUTNER, NORTH CAROLINA

U.S. DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF PRISONS
BUTNER, NORTH CAROLINA

STAMP:
STATE OF LOUISIANA
M. KIMBALL SCHLAFLY
REG. No. 27699
REGISTERED
PROFESSIONAL ENGINEER
ELECTRICAL ENGINEERING
05/07/26

REV	DESCRIPTION	DATE	BY

DESIGN: DB
DRAWN: GEM
CHECK: KS
SCALE: NOTED
DATE: 05/07/2026

DWG TITLE: COVER SHEET

DWG No. G000

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	SAFETY DISCONNECT SWITCH
	MAGNETIC STARTER
	COMBINATION STARTER/DISCONNECT
X	MOTOR, NUMBER INDICATES HORSEPOWER
J	JUNCTION BOX
	GROUND CONNECTION PER 2017 NEC ARTICLE 250
	DISTRIBUTION PANELBOARD. SEE RISER DIAGRAM AND PANEL SCHEDULE FOR SIZE AND TYPE
T	TRANSFORMER, SEE RISER DIAGRAM FOR VOLTAGE AND KVA
	EMERGENCY STOP MUSHROOM TYPE PUSH BUTTON
G	GENERATOR EMERGENCY STOP BUTTON
ST	EMERGENCY MAIN BREAKER SHUNT TRIP
	GROUND ROD, 3/4" X 10' COPPER
	GROUND WELL, SEE GROUNDING
	GROUNDING TEE CONNECTOR
	LIGHTING PROTECTION AIR TERMINAL
S	TOGGLE SWITCH, SINGLE POLE
PB	IN GROUND JUNCTION BOX, HEAVY TRAFFIC COVER
S	EXISTING MV SWITCH
T	EXISTING TRANSFORMER
	TRANSFORMER
T/S	TEMPERATURE SWITCH
P-PS	CABLE TAG. SEE CONDUIT & CABLE LISTS
GFCI WP	DUPLEX RECEPTACLE, 120V, 20AMP. GFCI INDICATES GROUND FAULT CIRCUIT INTERRUPTER TYPE. WP INDICATES WEATHERPROOF WHILE IN USE ENCLOSURE.
	QUADRUPLEX RECEPTACLE, 120V, 20AMP.
GFCI WP	208 VOLT RECEPTACLE, GFCI PROTECTED, WEATHERPROOF WHILE IN USE.
OC	OCCUPANCY SENSOR
CR	CARD READER
C	SECURITY CAMERA
H	FIRE ALARM HEAT DETECTOR, CEILING MOUNTED
S	FIRE ALARM SMOKE DETECTOR - CEILING MOUNTED
P	FIRE ALARM PULL STATION
	WALL-MOUNTED SPEAKER/STROBE
	CIRCUIT BREAKER WITH THERMAL OVERLOAD
	CIRCUIT BREAKER WITH MAGNETIC OVERLOAD
6	EXISTING PAD MOUNTED TRANSFORMER
	EXISTING ELECTRICAL MAN HOLE

*NOTE: NOT ALL SYMBOLS ARE USED.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	TRANSFORMER - IRON CORE
	TRANSFORMER - DUAL VOLTAGE
	TRANSFORMER - CURRENT
	PUSHBUTTON - NORMALLY OPEN
	PUSHBUTTON - NORMALLY CLOSED
	PUSHBUTTON - MUSHROOM HEAD
	PUSHBUTTON - NORMALLY OPEN & NORMALLY CLOSED
K L X00 00X	3-POSITION SELECTOR SWITCH
M	STARTER RELAY COIL
C	CONTROL RELAY COIL
	OPERATING CONTACTS - NORMALLY OPEN
	OPERATING CONTACTS - NORMALLY CLOSED
	THERMAL OVERLOAD
OL	SOLID STATE OVERLOAD
V	PILOT LIGHT - NON PUSH TO TEST
B	PILOT LIGHT - PUSH TO TEST
	LIMIT SWITCH - NORMALLY OPEN
	LIMIT SWITCH - NORMALLY CLOSED
	FLOW SWITCH - NORMALLY OPEN
	FLOW SWITCH - NORMALLY CLOSED
	LIQUID LEVEL SWITCH - NORMALLY OPEN
	LIQUID LEVEL SWITCH - NORMALLY CLOSED
	TEMPERATURE SWITCH - NORMALLY OPEN
	TEMPERATURE SWITCH - NORMALLY CLOSED
	MOTOR SPACE HEATER
	FUSE
	3 PHASE MOTOR
	TERMINAL BLOCK
	GROUND
	CONNECTED
	WIRING - NOT CONNECTED

*NOTE: NOT ALL SYMBOLS ARE USED.

ELECTRICAL LEGEND

SYMBOL	DESCRIPTION
	CONCEALED OR NEW CONDUIT
	EXPOSED OR EXISTING CONDUIT
OH OH OH	OVERHEAD NEW
OHE OHE	OVERHEAD EXISTING
UE UE UE	UNDERGROUND EXISTING
U U U	UNDERGROUND NEW CONDUIT
	DUCTBANK
G G G	GROUNDING

3#8 & 1#10G, 1"C	THREE SIZE 8 CONDUCTORS & ONE SIZE 10 EQUIPMENT GROUND ROUTED IN 1" CONDUIT
XX: PANEL	XX = CIRCUIT NUMBER, PANEL = PANEL NAME BEING CIRCUITED TO. PROVIDE BRANCH WIRING BETWEEN DEVICES AND PANELBOARD AS REQUIRED FOR FULL FUNCTIONALITY.

*NOTE: NOT ALL SYMBOLS ARE USED.

GENERAL SYMBOLS

SYMBOL	DESCRIPTION
X / XX	SECTION LETTER / INDICATES DRAWING SHEET ON WHICH SECTION IS SHOWN
1	DRAWING NOTE
1	EQUIPMENT TAG
	POINT OF CONNECTION
1	DRAWING REVISION NUMBER
	DRAWING REVISION CLOUD

*NOTE: NOT ALL SYMBOLS ARE USED.

ELECTRICAL ABBREVIATIONS

ABBREVIATION	DESCRIPTION
A	AMPERE
ABC	ABOVE COUNTER
AC	ALTERNATING CURRENT
AF	AMPERE FUSE
AFC	ABOVE FINISHED COUNTER
AFF	ABOVE FINISHED FLOOR
AHU	AIR HANDLING UNIT
KAIC	AMPS INTERRUPTING CAPACITY x1000
AT	AMPERE TRIP
ANN	ANNUNCIATOR
APPROX	APPROXIMATE
AS	AS REQUIRED
ATS	AUTOMATIC TRANSFER SWITCH
AWG	AMERICAN WIRE GAUGE
BLDG	BUILDING
BSMT	BASEMENT
C	CONDUIT
CAB	CABINET
CB	CIRCUIT BREAKER
CKT	CIRCUIT
CLG	CEILING
CL	CENTER LINE
CT	CURRENT TRANSFORMER
CPT	CONTROL POWER TRANSFORMER
CU	CONDENSING UNIT
DISC	DISCONNECT
DN	DOWN
DWG	DRAWING
EA	EACH
EF	EXHAUST FAN
EQPT	EQUIPMENT
EXTG	EXISTING
FA	FIRE ALARM
FACP	FIRE ALARM CONTROL PANEL
FCU	FAN COIL UNIT
FLA	FULL LOAD AMPS
FLR	FLOOR
GFI	GROUND FAULT INTERRUPTER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER
GND	GROUND
GRS	GALVANIZED RIGID STEEL CONDUIT
HT	HEIGHT
HTR	HEATER
HP	HORSE POWER
HW	HOT WATER
HWC	HOT WATER CIRCULATING
INCAND	INCANDESCENT
JB	JUNCTION BOX
KV	KILOVOLT
KVA	KILOVOLT-AMPERE
KW	KILOWATT
LTG	LIGHTING
MAX	MAXIMUM
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCM	CIRCULAR MILS, THOUSANDS
MECH	MECHANICAL
MFR	MANUFACTURER
MGAP	MEDICAL GAS ALARM PANEL
MLO	MAIN LUGS ONLY
MTD	MOUNTED
MTG	MOUNTING
NEC	NATIONAL ELECTRICAL CODE
NTS	NOT TO SCALE
PNL	PANEL
PH	PHASE
P	POLE
RECP	RECEPTACLE
REQD	REQUIRED
RVSS	REDUCED VOLTAGE SOLID STATE STARTER
SCR	SILICONE CONTROLLED RECTIFIER
SN	SOLID NEUTRAL
SPKR	SPEAKER
SPEC	SPECIFICATION
SSRVS	SOLID STATE REDUCED VOLTAGE STARTER
SWBD	SWITCHBOARD
SWGR	SWITCHGEAR
TEL	TELEPHONE
TTB	TELEPHONE TERMINAL BOARD
TV	TELEVISION
TVSS	TRANSIENT VOLT. SURGE SUPPRESSOR
TYP	TYPICAL
UC	UNDER COUNTER
UON	UNLESS OTHERWISE NOTED
V	VOLT
VA	VOLT AMPERE
W	WATT
WH	WATER HEATER
WP	WEATHER-PROOF
W/	WITH
W/O	WITHOUT
XFMR	TRANSFORMER
XFR	TRANSFER

*NOTE: NOT ALL ABBEVIATIONS ARE USED.

GENERAL ELECTRICAL NOTES

WORK PERFORMED SHALL AT A MINIMUM BE IN ACCORDANCE WITH THE LATEST APPLICABLE EDITION ADOPTED BY THE AUTHORITY HAVING JURISDICTION OF THE STANDARDS LISTED BELOW.

- NATIONAL ELECTRICAL CODE - NFPA 70 2020
- DUKE ENERGY - CUSTOMER INSTALLATION STANDARDS FOR ELECTRICAL SERVICE
- NORTH CAROLINA STATE BUILDING CODE 2018
- APPLICABLE STATE AND LOCAL CODES/ORDINANCES
- IPCEA - INSULATED POWER CABLE ENGINEERS' ASSOCIATION
- NECA 1 - STANDARD PRACTICE OF GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION

A. ALL ELECTRICAL WORK SHALL BE IN FULL COMPLIANCE WITH THE CURRENT VERSION OF THE NATIONAL ELECTRICAL CODE. WORKMANSHIP SHALL BE OF THE HIGHEST QUALITY. ANY WORK DEEMED SUBSTANDARD BY THE OWNER OR THE ENGINEER SHALL BE REDONE AT THE CONTRACTOR'S EXPENSE.

B. ELECTRICAL PLANS SHOW GENERAL WORK TO BE PERFORMED BY CONTRACTOR AND HAVE BEEN PREPARED TO ASSIST THE CONTRACTOR IN PREPARING PROPOSED COST FOR FOR THE PROJECT. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO VISIT THE JOBSITE AND BECOME FAMILIAR WITH EXISTING CONDITIONS WHICH MAY AFFECT CONTRACTOR'S WORK AND FINAL BID PRICE.

C. CONTRACTOR SHALL OBTAIN NECESSARY PERMITS, PAY LEGAL FEES AND CHARGES, AND COMPLY WITH APPLICABLE BUILDING AND SAFETY LAWS, ORDINANCES AND REGULATIONS, INCLUDING THE REQUIREMENTS OF THE NATIONAL ELECTRICAL CODE.

D. ITEMS OF MATERIALS, WORK, OR EQUIPMENT NOT MENTIONED, BUT NORMALLY NECESSARY FOR THE PROPER EXECUTION OF THIS WORK, SHALL BE PROVIDED AT NO ADDITIONAL COST TO THE OWNER.

E. ALL MATERIALS AND EQUIPMENT SHALL BE NEW AND PROVIDED IN ACCORDANCE WITH DRAWING AND SPECIFICATIONS. SUBMITTALS SHALL BE PROVIDED AND REVIEWED PRIOR TO ORDERING.

F. PROVIDE GROUNDING IN ACCORDANCE WITH THE NATIONAL ELECTRICAL CODE, ARTICLE 250, AND LOCAL ORDINANCES. CONTRACTOR SHALL BE RESPONSIBLE FOR ALL GROUNDING OF EQUIPMENT HOUSINGS, SWITCHGEAR, CONDUITS, CABLE TERMINATIONS, ETC. PROVIDED AS PART OF THIS PROJECT.

G. ALL LOCATIONS, CONDUIT SIZES, CABLES, ETC. SHOWN ARE BASED ON EXISTING DRAWINGS AND SITE OBSERVATION. CONTRACTOR SHALL VERIFY ALL LOCATIONS, CONDUIT SIZES AND CABLES UTILIZED PRIOR TO CONSTRUCTION.

H. DRAWINGS ARE DIAGRAMMATICAL. ALL ELECTRICAL EQUIPMENT LOCATIONS ARE APPROXIMATE ONLY. FOR ALL MEASUREMENTS USE FIELD SURVEYED MEASUREMENTS. DRAWINGS DO NOT INDICATE EVERY REQUIRED FITTING, ELBOW, TRANSITION, JUNCTION BOX OR SIMILAR ITEMS THAT ARE REQUIRED FOR A COMPLETE INSTALLATION. CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS FOR A COMPLETE INSTALLATION.

I. CONTRACTOR SHALL VERIFY EXACT DIMENSIONS OF EQUIPMENT AND FOUNDATIONS WITHIN THE PROJECT SCOPE AND SHALL BE RESPONSIBLE FOR THEIR CORRECTNESS PRIOR TO BIDDING.

J. CONTRACTOR SHALL PROVIDE PERMANENT ENGRAVED LABELS FOR SWITCHGEAR PROVIDED AS PART OF THIS PROJECT. LABELING SHALL BE A MINIMUM OF 1" ENGRAVED BLACK LETTERS ON WHITE BACKGROUND. LABELS SHALL BE CONSTRUCTED OF MINIMUM 2" WIDE BY LENGTH REQUIRED LAMINATED PLASTIC SECURELY FASTENED TO DEVICE WITH AN ADHESIVE BACK. REFER TO SPECIFICATIONS. COORDINATE ALL LABELING WITH OWNER PRIOR TO PROCUREMENT OF LABELS.

K. CONTRACTOR SHALL BE ADVISED THAT THERE ARE EXISTING UNDERGROUND UTILITIES THROUGHOUT THE ENTIRE SITE. CONTRACTOR SHALL LOCATE ANY EXISTING UNDERGROUND UTILITIES, AND OTHER OBSTRUCTIONS PRIOR TO START OF WORK AND TAKE STEPS TO PROTECT SAME. ANY EXISTING UNDERGROUND UTILITIES DAMAGED DURING CONSTRUCTION SHALL BE REPAIRED OR REPLACED AT NO ADDITIONAL COST TO THE CLIENT.

L. SYMBOLS SHOWN ARE TYPICAL , LOCATIONS ARE APPROXIMATE AND ARE NOT INTENDED TO LIMIT THE AMOUNT OF ELECTRICAL WORK. COORDINATE NOTES/DRAWINGS FOR COMPLETION OF DESIGN INTENT.

M. MAINTAIN CODE REQUIRED MINIMUM CLEARANCES AROUND ELECTRICAL EQUIPMENT FOR WORKING SPACE, DEDICATED SPACE ACCESSIBILITY, AND AS OTHERWISE REQUIRED FOR MAINTENANCE AND OPERATIONS.

N. CONTRACTOR SHALL REVIEW SPACING OF EXISTING DISTRIBUTION EQUIPMENT, FEEDERS, ELBOW CONNECTORS, GROUNDING, ETC. PRIOR TO BID. EXISTING SPACE IS LIMITED AND THIS INFORMATION SHALL BE TAKEN INTO ACCOUNT PRIOR TO BIDDING.

O. CONTRACTOR SHALL PROVIDE APPROPRIATE SIGNAGE (IE. "DANGER HIGH VOLTAGE") AS REQUIRED FOR THIS PROJECT.

P. AS USED ON THESE DOCUMENTS, THE WORD "PROVIDE" SHALL MEAN TO FURNISH AND INSTALL THE ITEM OR EQUIPMENT AND MAKE FINAL CONNECTIONS AS REQUIRED.

Q. CONTRACTOR SHALL VISIT THE SITE OF THE PROPOSED WORK TO UNDERSTAND THE COMPLEXITY, RESTRICTIONS, AND ALL THE REQUIREMENTS TO PERFORM THE WORK OF THESE DOCUMENTS IN SAID FACILITY. NO ADDITIONAL COMPENSATION SHALL BE ALLOWED TO THE SUCCESSFUL BIDDER FOR FAILURE TO BE SO INFORMED.

R. THE FACILITY SHALL REMAIN IN OPERATION AT ALL TIMES DURING WORKING HOURS M-F 7:30 - 5:30. ANY WORK REQUIRING DISRUPTION OF POWER TO EQUIPMENT OR FACILITY SHALL BE PERFORMED AFTER HOURS OR ON WEEKENDS.

S. MOST WORK WILL OCCUR INSIDE THE SECURITY ZONE. CONTRACTOR SHALL FOLLOW ALL REQUIREMENTS OF UNICOR AND THE BUREAU OF PRISONS FOR PERFORMING WORK WITHIN THE SECURITY ZONE AND DELIVERY OF MATERIALS AND TOOLS IN THE SECURITY ZONE.

MCA Engineering & Construction
BATON ROUGE - NEW ORLEANS

JOB NO: DOJ25002
BG: 801
PROJECT MANAGER: KIMBALL SCHLAFLY
DATE: 12/22/2025

US DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF PRISONS
UNICOR, FPI
ELECTRICAL SERVICE UPGRADE
BUTNER, NORTH CAROLINA

U.S. DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF PRISONS
BUTNER, NORTH CAROLINA

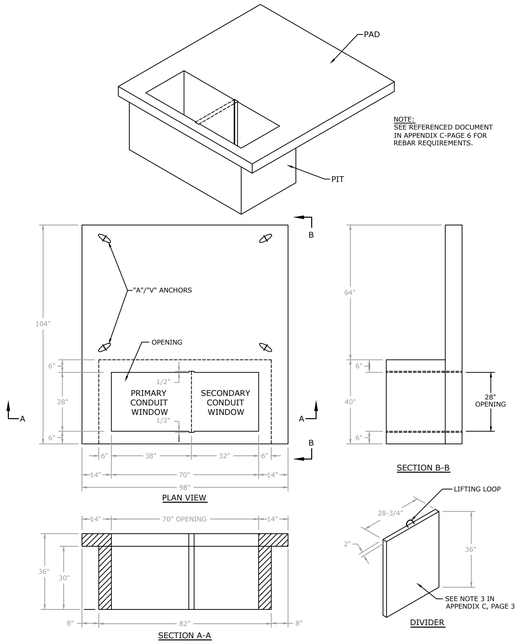
STAMP:
STATE OF LOUISIANA
M. KIMBALL SCHLAFLY
REG. No. 27699
REGISTERED
PROFESSIONAL ENGINEER
05-07-26

REV	DESCRIPTION	DATE	BY

DESIGN
DRAWN
CHECK
SCALE NOTED
DATE 05/07/2026

DWG TITLE:
ELECTRICAL
SYMBOL LEGEND & GEN. NOTES

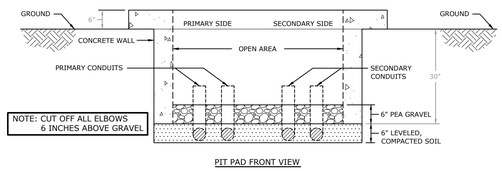
DWG No. E001



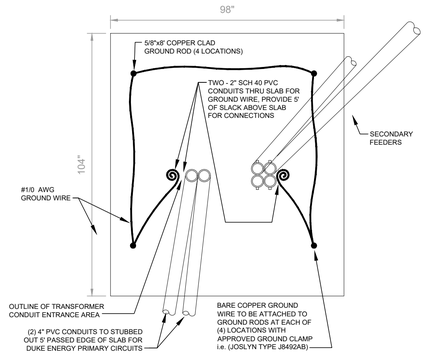
2 LARGE PIT PAD FOR 3 PHASE TRANSFORMER
SCALE: NONE

NOTES:

1. THIS STANDARD APPLIES TO DUKE ENERGY CAROLINAS AND THE NON-COASTAL REGIONS OF DUKE ENERGY PROGRESS.
2. CUSTOMER TO PROVIDE AND INSTALL TRANSFORMER PAD PER REFERENCED DOCUMENT IN APPENDIX C - PAGE 6.
3. FOR PIT PAD INSTALLATIONS ONLY, MECKLENBURG COUNTY, NC REQUIRES A 2" THICK CONCRETE DIVIDER TO BE INSTALLED BETWEEN THE PRIMARY AND SECONDARY COMPARTMENTS OF THE PAD.
4. THE COMPANY RESERVES THE RIGHT TO REFUSE SERVICE TO NEW INSTALLATIONS THAT DO NOT MEET DUKE ENERGY REQUIREMENTS.
5. PROTECTIVE POLES ARE REQUIRED WHEN TRANSFORMERS ARE EXPOSED TO VEHICLE TRAFFIC. SEE FIGURE 61 FOR PROTECTIVE POLE DETAILS.
6. THERE SHALL BE MINIMUM CLEARANCES OF 10' IN FRONT OF THE TRANSFORMER AND 3' ON ALL OTHER SIDES OF THE TRANSFORMER. SEE FIGURES 52 AND 53 FOR MORE DETAILS ON CLEARANCES.
7. TRANSFORMER MUST BE LOCATED IN AN AREA THAT ALLOWS SAFE ACCESS BY DUKE ENERGY CONSTRUCTION AND MAINTENANCE EQUIPMENT IN WET OR DRY WEATHER.
8. CONSIDER FROST ACTION, DRAINAGE, AND LOCAL SOIL CONDITIONS WHEN PREPARING SITE FOR PAD. SOIL UNDERNEATH PADS SHALL BE LEVELED AND COMPACTED. SOIL SHALL ALSO BE FREE OF ROOTS AND OTHER ORGANIC MATERIALS TO PREVENT SETTLING AND EROSION. SOD MAY BE REQUIRED AROUND PAD TO PREVENT SOIL EROSION.
9. ALL CONDUITS IN A PIT PAD SHALL BE CUT 6" ABOVE THE GRAVEL BED IN THE PIT. SEE FIGURE BELOW.
10. CUSTOMER SHALL INSTALL THE CONDUIT FOR THE PRIMARY CONDUCTORS AS CLOSE TO THE CENTER OF THE PRIMARY AREA AS PRACTICAL. THE SECONDARY CONDUITS SHALL BE INSTALLED TO THE RIGHT INSIDE THE SECONDARY AREA. SEE APPENDIX C, PAGE 6 FOR PAD INSTALLATION DETAILS AND SPECIFICATIONS.
11. OTHER UTILITIES SHALL NOT BE INSTALLED UNDER TRANSFORMER PAD.
12. PRECAST PAD SUPPLIERS ARE REQUIRED TO PROVIDE THE PADS AND PITS WITH RECESSED "A/V" ANCHORS, TO BE USED FOR LIFTING.
13. IF THE PAD-MOUNTED TRANSFORMER WILL ALSO BE USED TO PROVIDE TEMPORARY SERVICE, AN ADDITIONAL CONDUIT(S) SHOULD BE INSTALLED AND EXTENDED JUST BEYOND THE WALL OF THE PIT PAD, PRIOR TO THE TRANSFORMER BEING SET.



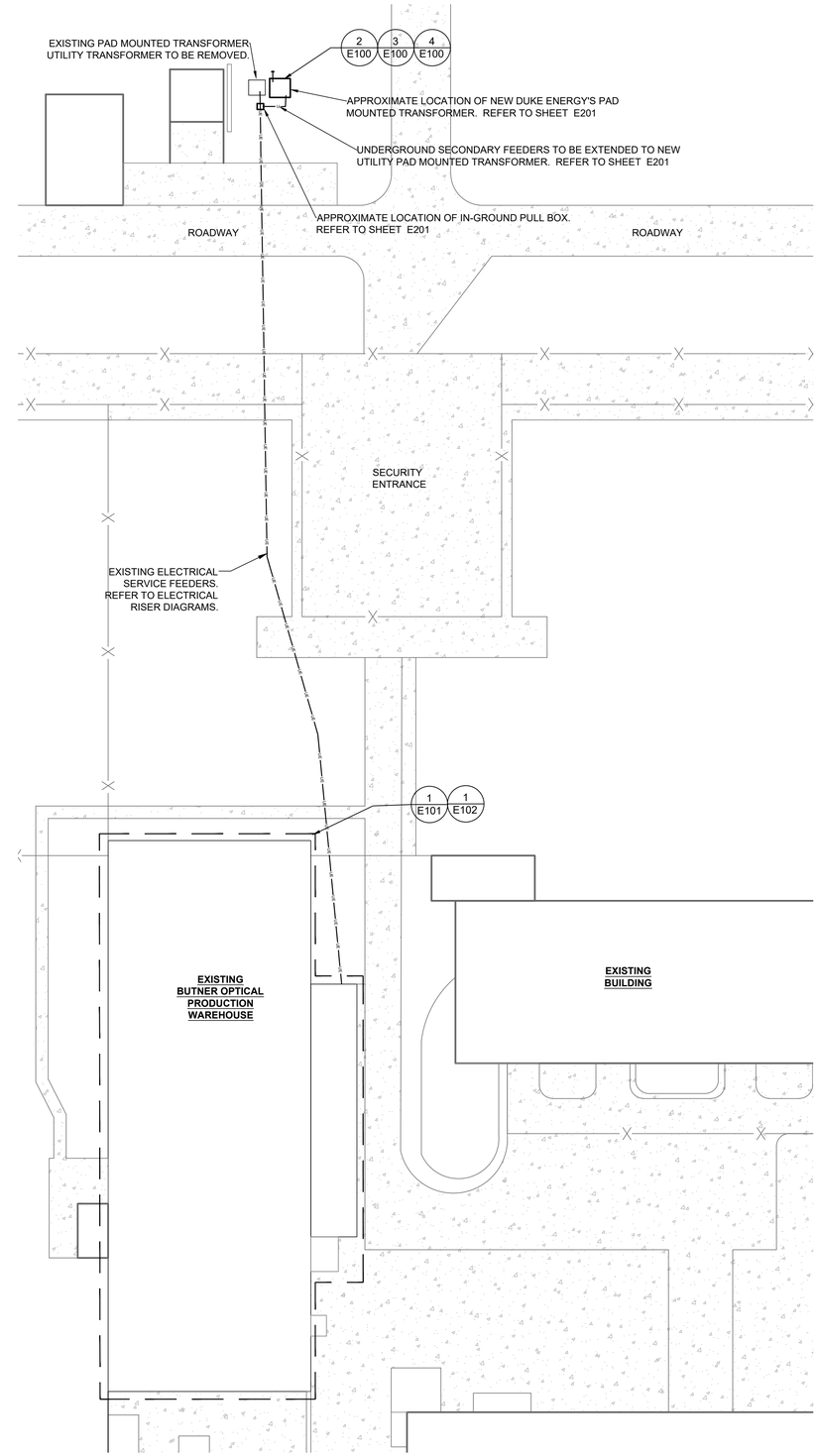
3 PIT PAD INFORMATION FOR 3 PHASE TRANSFORMER
SCALE: NONE



NOTES:

1. THIS DETAIL APPLIES ONLY TO ELECTRICAL REQUIREMENTS.
2. COORDINATE DUKE ENERGY REQUIREMENTS AND INSTALLATION REQUIREMENTS PRIOR TO INSTALLATION.
3. REFER TO SITE PLAN THIS SHEET AND FEEDER DIAGRAM SHEET E201 FOR SPECIFIC DETAILS.

4 TRANSFORMER PAD GROUNDING DETAIL
SCALE: NONE



1 PARTIAL SITE PLAN
SCALE: 1" = 30'-0"

0' 10' 20' 30' 60'

GENERAL NOTES:

1. CONTRACTOR SHALL COORDINATE INSTALLATION OF NEW UTILITY SERVICE AND THE UPGRADE OF INTERIOR ELECTRICAL DISTRIBUTION EQUIPMENT SO THAT THERE IS MINIMAL INTERRUPTION OF POWER TO BUILDING.
2. WITH REGARD TO DUKE ENERGY STANDARDS HEREIN CONTRACTOR SHALL PROVIDE ALL EQUIPMENT AND INSTALLATION IN LIEU OF CUSTOMER.

MCA
Engineering & Construction
BATON ROUGE - NEW ORLEANS

JOB NO:	DOJ25002
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PROJECT MANAGER:	KIMBALL SCHLAFLY
DATE:	12/22/2025

US DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF PRISONS

UNICOR, FPI
ELECTRICAL SERVICE UPGRADE
BUTNER, NORTH CAROLINA

U.S. DEPARTMENT OF JUSTICE
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STAMP:

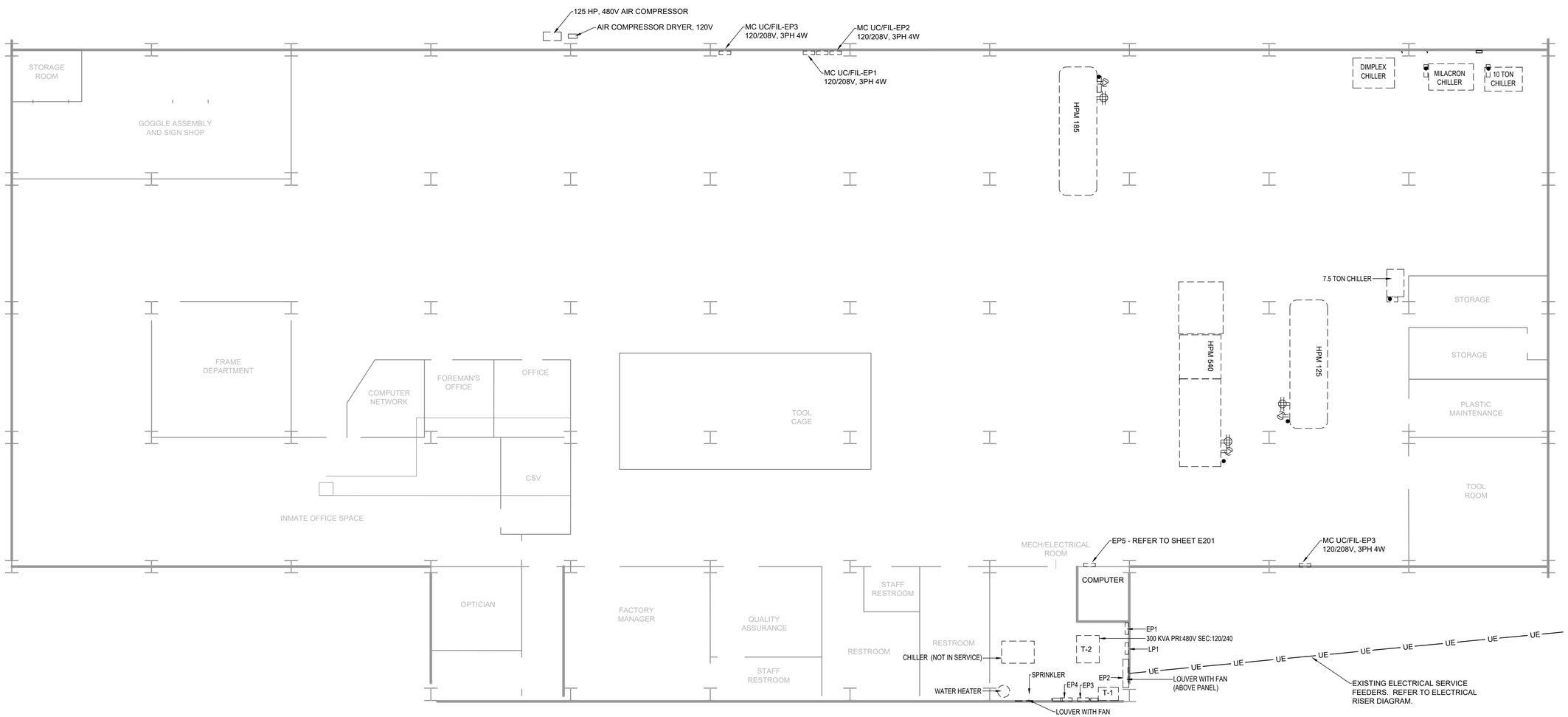
STATE OF LOUISIANA
M. KIMBALL SCHLAFLY
REG. No. 27699
REGISTERED
PROFESSIONAL ENGINEER
IN
ELECTRICAL ENGINEERING
05/07/26

REV	DESCRIPTION	DATE	BY

DESIGN	DB
DRAWN	GEM
CHECK	KS
SCALE	NOTED
DATE	05/07/2026

DWG TITLE:
PARTIAL SITE PLAN

DWG No. E100



1 FLOOR PLAN - ELECTRICAL (EXISTING)
SCALE: 1/8' = 1'-0"

MCA Engineering & Construction
BATON ROUGE - NEW ORLEANS

JOB NO: DOJ25002
BG: 801
PROJECT MANAGER: KIMBALL SCHLAFLY
DATE: 12/22/2025

US DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF PRISONS

UNICOR, FPI
ELECTRICAL SERVICE UPGRADE
BUTNER, NORTH CAROLINA

U.S. DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF PRISONS
BUTNER, NORTH CAROLINA

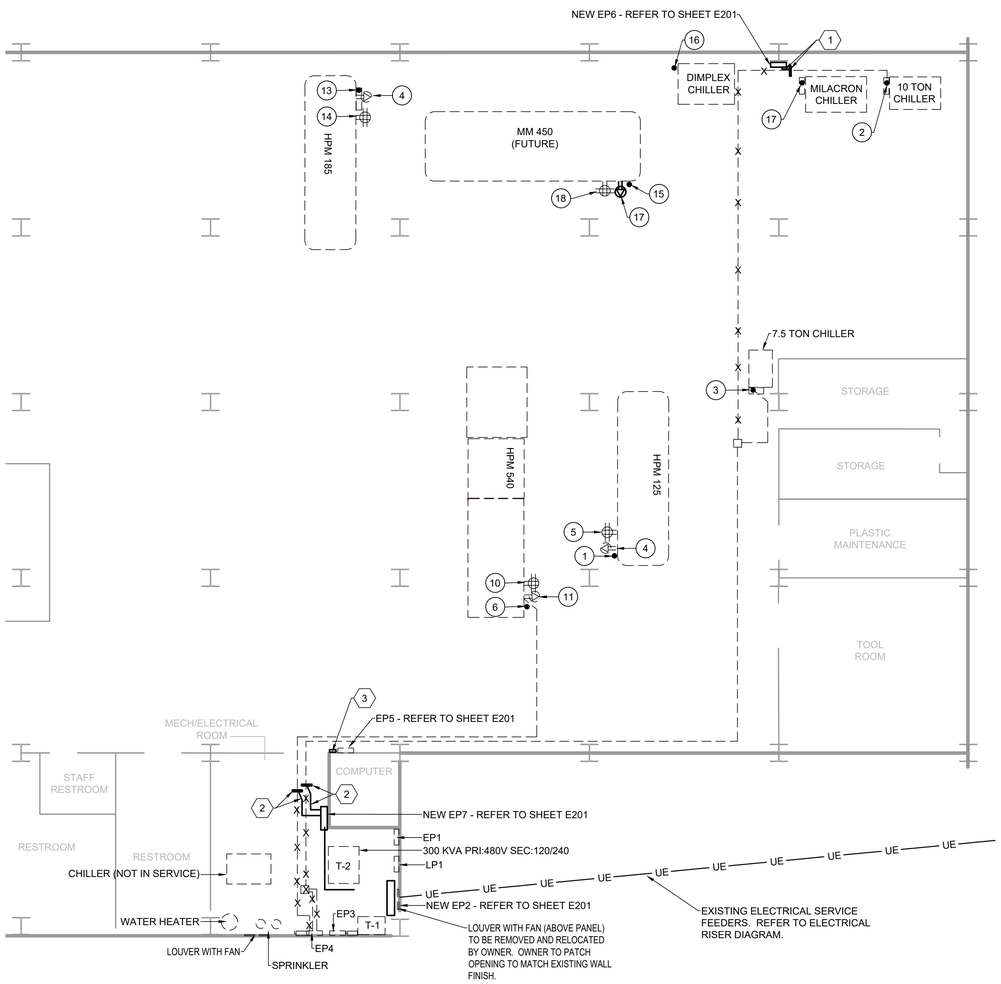
STAMP:
STATE OF LOUISIANA
M. KIMBALL SCHLAFLY
REG. No. 27699
REGISTERED
PROFESSIONAL ENGINEER
IN
CIVIL ENGINEERING
25-07-26

REV	DESCRIPTION	DATE	BY

DESIGN: DB
DRAWN: GEM
CHECK: KS
SCALE: NOTED
DATE: 05/07/2026

DWG TITLE:
SHOP BUILDING LAYOUT

DWG No. E101



1 PARTIAL FLOOR PLAN - ELECTRICAL
SCALE: 1/8' = 1'-0"

LEGEND:

-X— —X- "X" INDICATES EXISTING TO BE REMOVED

— — — — LIGHT LINES INDICATES EXISTING

——— DARK LINES INDICATES NEW

KEY NOTES:

1. INTERCEPT EXISTING CIRCUIT AND EXTEND TO DESIGNATED CIRCUIT BREAKER. REMOVE EXISTING CONDUIT/JUNCTION BOXES AS SHOWN. REMOVE WIRING BACK TO SOURCE (PANELBOARD EP4). MARK EXISTING CIRCUIT BREAKER IN PANEL EP4 AS SPARE.
2. INTERCEPT EXISTING CIRCUIT AND EXTEND TO DESIGNATED CIRCUIT BREAKER IN PANEL EP7. REMOVE EXISTING CONDUIT/JUNCTION BOXES/WIRING AS SHOWN. MARK EXISTING CIRCUIT BREAKER IN PANEL EP4 AS SPARE.
3. QUALITY METER REMOTE DISPLAY. COORDINATE EXACT LOCATION WITH OWNER'S REPRESENTATIVE IN THE FIELD PRIOR TO INSTALLATION. PROVIDE CONNECTIONS TO POWER METER IN PANEL EP2 AS REQUIRED.

#	ITEM DESCRIPTION	VOLTS	PHASE	AMPS	CONDUIT-WIRE	PANEL CIRCUIT NO.	COMMENTS
1	HPM 125	480	3	55	1.25"C-3 #4s & 1#8 GND	EP5:9	EXISTING CIRCUIT
2	10 TON CHILLER	230	3	52	1.25"C, 3#4s & 1#8 GND	EP6: 1,3,5	INTERCEPT EXISTING CIRCUIT ROUTED TO EXISTING PANEL EP4 AND EXTEND TO DESIGNATED CIRCUIT BREAKER IN NEW PANEL EP6
3	7.5 TON CHILLER	230	3	34	1"C, 3 #8s & 1#10 GND	EP7:7,9,11	INTERCEPT EXISTING CIRCUIT ROUTED TO EXISTING PANEL EP4 AND EXTEND TO DESIGNATED CIRCUIT BREAKER IN NEW PANEL EP7.
4	HEATER #2	480	3	19	1"C, 3 #10s & 1#10 GND	EP5:2	EXISTING CIRCUIT
5	MIXER #2	120	1	5	3/4"C, 2#12s & 1#12 GND		EXISTING CIRCUIT
6	HPM HHST 540	480	3	103	2"C, 3 1/0, & 1 #6 GND	EP5:13	EXISTING CIRCUIT
7	MILACRON CHILLER	480	3	42	1"C: 3 #6s & 1 #10 GND	EP5:8	EXISTING CIRCUIT
10	MIXER #1	120	1	5	3/4"C, 2#12s & 1#12 GND		EXISTING CIRCUIT
11	HEATER #1	230	3	29	1"C, 3 #8s & 1#10 GND	EP7: 13, 15, 17	INTERCEPT EXISTING CIRCUIT ROUTED TO EXISTING PANEL EP4 AND EXTEND TO DESIGNATED CIRCUIT BREAKER IN NEW PANEL EP7.
12	HOT RUNNER	230	3	13	1"C, 3 #10s & 1#10 GND	EP6: 8,10,12	FUTURE
13	HPM 185	480	3	60	1.25"C-3 #3s & 1#8 GND	EP5:10	EXISTING CIRCUIT
14	MIXER #3	120	1	5	3/4"C, 2#12s & 1#12 GND	EP6: 26	EXISTING CIRCUIT
15	MM450 MILACRON	480	3	155	2.5"C, 3 4/0, & 1 4 GND	EP5	FUTURE
16	DIMPLEX CHILLER	230	3	53.4	1.25"C-3 #4s & 1#8 GND	EP6: 14,16,18	FUTURE
17	HEATER #3	230	3	34	1"C, 3 #8s & 1#10 GND	EP6: 113,15,17	FUTURE
18	MIXER #4	120	1	33.8	3/4"C, 2#12s & 1#12 GND	EP6: 25	FUTURE
19	HOIST GRINDER	480	3	19	1"C, 3 #10s & 1#10 GND	EP5:6	EXISTING CIRCUIT

MCA Engineering & Construction
BATON ROUGE - NEW ORLEANS

JOB NO: DOJ25002
BG: 801
PROJECT MANAGER: KIMBALL SCHLAFLY
DATE: 12/22/2025

US DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF PRISONS

UNICOR, FPI
ELECTRICAL SERVICE UPGRADE
BUTNER, NORTH CAROLINA

U.S. DEPARTMENT OF JUSTICE
FEDERAL BUREAU OF PRISONS
BUTNER, NORTH CAROLINA

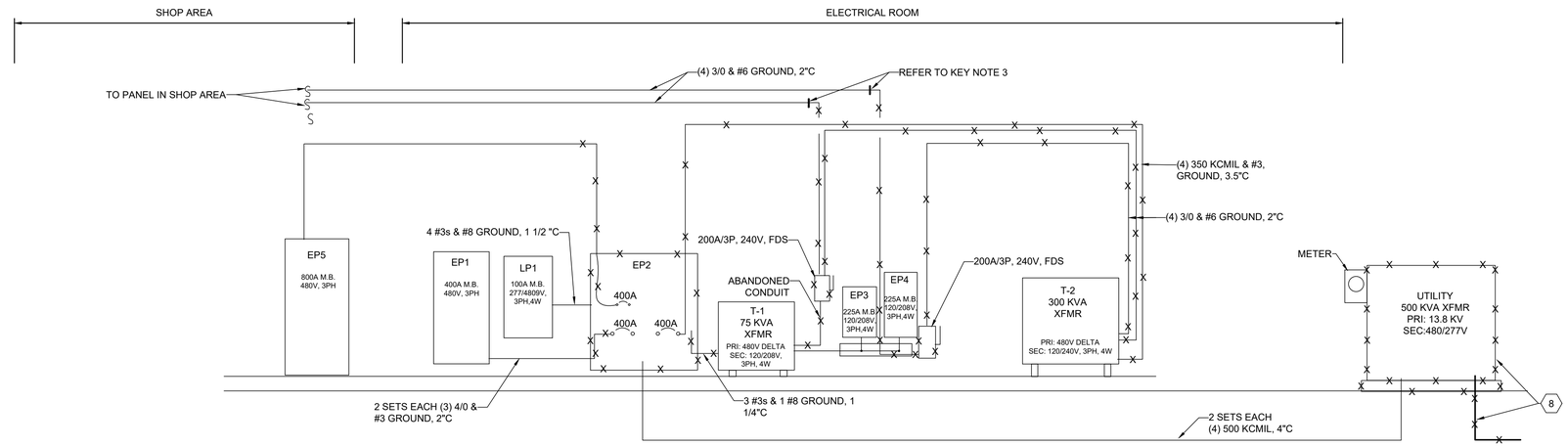
STAMP:
STATE OF LOUISIANA
M. KIMBALL SCHLAFLY
REG. No. 27699
REGISTERED PROFESSIONAL ENGINEER
ELECTRICAL ENGINEERING
05-07-26

REV	DESCRIPTION	DATE	BY

DESIGN: DB
DRAWN: GEM
CHECK: KS
SCALE: NOTED
DATE: 05/07/2026

DWG TITLE: SHOP BUILDING LAYOUT

DWG No. E102



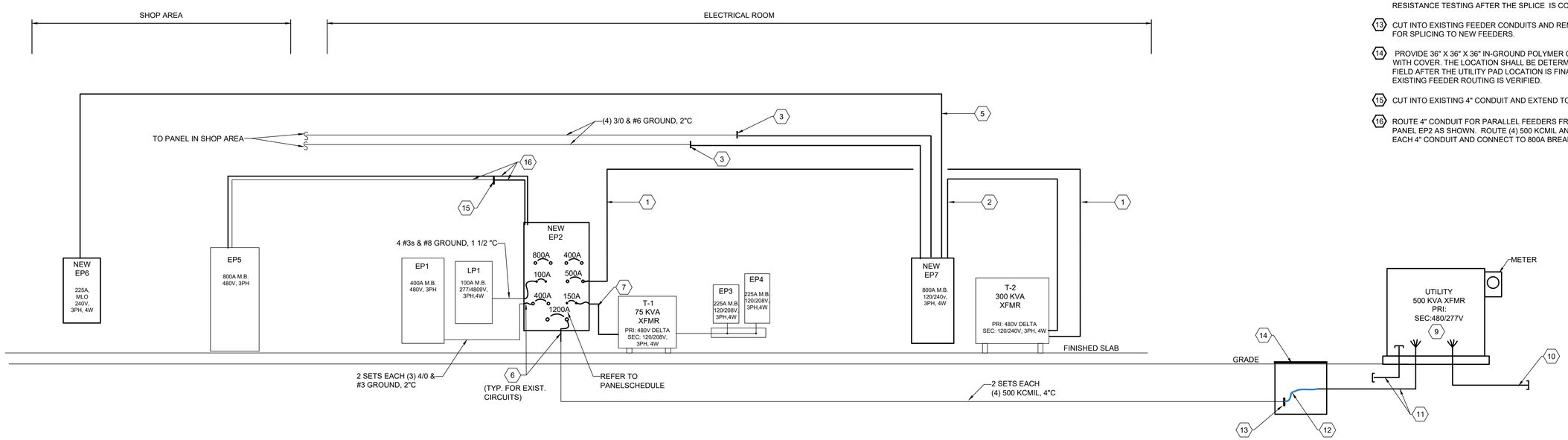
1 PARTIAL ELECTRICAL FEEDER DIAGRAM (EXISTING)
NOT TO SCALE

LEGEND:

"X" INDICATES EXISTING TO BE REMOVED

LIGHT LINES INDICATES EXISTING

DARK LINES INDICATES NEW



2 PARTIAL ELECTRICAL FEEDER DIAGRAM (EXISTING AND NEW)
NTS

GENERAL NOTES:

A. CONTRACTOR SHALL VISIT THE SITE PRIOR TO BIDDING TO UNDERSTAND THE COMPLETE SCOPE /DIFFICULTIES OF THE PROJECT AND INCLUDE ALL COSTS IN THE BID PRICE.

B. CONTRACTOR VERIFY EXISTING WIRE/CONDUIT SIZES FOR EXISTING CIRCUITS/FEEDERS PRIOR TO TO BE EXTENDED PRIOR TO INSTALL AND PURCHASING OF ELECTRICAL ITEMS.

C. CONTRACTOR SHALL VERIFY EXISTING DISTRIBUTION AND WIRING PRIOR TO COMMENCEMENT OF WORK AND ANY DISCREPANCIES SHALL BE BROUGHT TO THE ATTENTION OF THE ENGINEER.

KEY NOTES:

1. PROVIDE 2 SETS EACH (3) 250 KCMIL & 1 #2, 3"C TO 500A/3P BREAKER IN NEW PANEL EP2.
2. PROVIDE 2 SETS EACH (4) 600 KCMIL & 1 1/0 GROUND, 4"C.
3. CUT INTO EXISTING FEEDER AND EXTEND TO NEW PANELBOARD EP7 AS SHOWN. EXTEND AND/OR PROVIDE NEW CONDUIT/WIRING AS NEEDED.
4. NOTE NOT USED.
5. PROVIDE (4) 4/0 & 1 #4 GROUND, 2 1/2"C
6. RECONNECT EXISTING FEEDERS TO CIRCUIT BREAKER IN NEW PANEL EP2.
7. PROVIDE (3) 1/0 & 1 #6 GROUND, 2"C
8. EXISTING TRANSFORMER, TRANSFORMER PAD AND PRIMARY FEEDER TO BE REMOVED. COORDINATE WITH DUKE ENERGY FOR REMOVAL OF TRANSFORMER AND PRIMARY FEEDERS.
9. COORDINATE WITH DUKE ENERGY TO PROVIDE NEW 500 KVA TRANSFORMER. REFER TO DUKE ENERGY'S STANDARDS AND REQUIREMENTS ONLINE AND ON SHEET E100.
10. PROVIDE (2) 4" CONDUITS ROUTED UNDERGROUND 5' PASSED CONCRETE SLAB FOR DUKE ENERGY'S PRIMARY CONDUCTORS. REFER TO DETAILS ON SHEET E100
11. PROVIDE 2 SETS (4) 500 KCMIL, 4"C AND (2) 4" C SPARE STUBBED OUT 2' PAST CONCRETE SLAB AND CAP.
12. SPLICE EXISTING FEEDERS TO NEW FEEDERS. PROVIDE HEAT SHRINK BUTT CONNECTORS IN COMPLIANCE WITH MANUFACTURER'S INSTALLATION REQUIREMENTS. CONTRACTOR SHALL APPLY CONTINUITY AND INSULATION RESISTANCE TESTING AFTER THE SPLICE IS COMPLETE.
13. CUT INTO EXISTING FEEDER CONDUITS AND REMOVING WIRING FOR SPLICING TO NEW FEEDERS.
14. PROVIDE 36" X 36" X 36" IN-GROUND POLYMER CONCRETE BOX WITH COVER. THE LOCATION SHALL BE DETERMINED IN THE FIELD AFTER THE UTILITY PAD LOCATION IS FINALIZED AND EXISTING FEEDER ROUTING IS VERIFIED.
15. CUT INTO EXISTING 4" CONDUIT AND EXTEND TO PANEL EP2.
16. ROUTE 4" CONDUIT FOR PARALLEL FEEDERS FROM EXISTING PANEL EP2 AS SHOWN. ROUTE (4) 500 KCMIL AND (1) 1/0 IN EACH 4" CONDUIT AND CONNECT TO 800A BREAKER.

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BATON ROUGE - NEW ORLEANS

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STATE OF LOUISIANA
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REGISTERED
PROFESSIONAL ENGINEER
ELECTRICAL ENGINEERING
05-07-26

REV	DESCRIPTION	DATE	BY

DESIGN: DB
DRAWN: GEM
CHECK: KS
SCALE: NOTED
DATE: 05/07/2026

DWG TITLE: ELECTRICAL RISER DIAGRAM

DWG No. E201

NAME: EP2

LOCATION: ELECTRICAL ROOM

VOLTAGE (L-L): 480
VOLTAGE (L-N): 277
NUMBER OF PHASES: 3
NEUTRAL BUS: YES
FEED-THRU LUGS: NO

BUS: 1200A
MAIN: 1200AF/1200AT LSIG — ADJUST NOMINAL TO 800A
KAIC: 11
NEMA 1 SURFACE

CKT #	ITEM	AMP RATE	# POLE	LEFT LOADING (VA) A	B	C	RIGHT LOADING (VA) A	B	C	# POLE	AMP RATE	ITEM	CKT #
1	XFMR T-2 (300 KVA) LSI	500	3	42451			9208			3	100	PANEL LP1	2
3					41041			9208					4
5						41041			9208				6
7	PANEL EP1	400	3	49107			114302			3	800	PANEL EP5 LSI	8
9					49107			114302					10
11						49107			114302				12
13	XFMR T-1 (EP4 & EP3)	150	3	20000						3	400	PANEL (FUTURE LAB) LSI	14
15					20000								16
17						20000							18
				111558	110148	110148	123510	123510	123510				

	(VA)	(A)
TOTAL CONNECT LOAD:	702384	
PHASE A:	235068	848
PHASE B:	233658	843
PHASE C:	233658	843
PEAK DEMAND LOAD:	506931	
PHASE A:	169917	613
PHASE B:	168507	608
PHASE C:	168507	608

	LOAD	DVRSTY	DMND
1 LIGHTS PANEL LP1	27624	1.00	27624
2 RECEPT <10KVA	0	0.50	0
RECEPT >10KVA	0	0.50	0
3 AHU BLOWER	0	1.00	0
4 CONDENSER	0	0.00	0
5 HVAC PANEL EP1	147321	1.00	147321
6 EP3 & 4 (EQUIP)	60000	0.60	36000
7 WATER HEAT	0	0.50	0
8 REFRIGERATION	0	0.50	0
9 XFMR T-2	124533	1.00	124533
10 EQUIPMENT	342906	0.50	171453
11 MISC		0.70	0
12 SUBFEED DEM	0	1.00	0

NOTES:
* PROVIDE FINAL TYPEWRITTEN DIRECTORY INSIDE PANEL.
* PROVIDE ENGRAVED PLASTIC LABEL WITH PANEL DESIGNATION ON PANEL COVER.
* PROVIDE INTEGRAL TVSS - 120 KA PROVIDE 3 POLE BREAKER OF SIZE AS REQUIRED.
* PROVIDE GFPE PROTECTION FOR MAIN BREAKER
* PROVIDE (2) 200A/3P PREPARED SPACES
* PANELBOARD WIDTH MAX 44"W
* PROVIDE POWER QUALITY METER. REFER TO SPECIFICATIONS

NOTE:

PROVIDE ADHESIVE TYPE LAMINATED PLACARD ON FRONT OF PANEL TO READ,

"MAIN BREAKER TRIP SETTING SHALL NOT BE ADJUSTED UNTIL ADDITIONAL SECONDARY FEEDERS ARE PROVIDED FROM TRANSFORMER TO PANEL EP2."

NAME: EP5 (EXIST)

LOCATION: SHOP AREA

VOLTAGE (L-L): 480
VOLTAGE (L-N): 277
NUMBER OF PHASES: 3
NEUTRAL BUS: YES
FEED-THRU LUGS: YES

BUS: 800A
MAIN: 800A
KAIC: 35
NEMA 1 SURFACE

CKT #	ITEM	AMP RATE	# POLE	LEFT LOADING (VA) A	B	C	RIGHT LOADING (VA) A	B	C	# POLE	AMP RATE	ITEM	CKT #
1	SPARE	20	3				2633			3	30	185 TEMP CONTROL	2
1								2633					2
1									2633				2
3	SPARE	20	3							3	30	SPARE	4
3													4
3													4
5	125 H PM TEMP CONTROL	30	3	2633						3	30	HOIST GRINDER	6
5					2633								6
5						2633							6
7	SPARE	20	3				11634			3	60	MILACRON 1ST CHILLER	8
7								11634					8
7									11634				8
9	HPM 125	80	3	15235			16620			3	100	185 TON MACHINE	10
9					15235			16620					10
9						15235			16620				10
11	SPARE	125	3				42935			3	225	NEW BREAKER MM 450 (FUTURE)	12
11								42935					12
11									42935				12
13	HPM 540	225	3	28531						3		PREPARED SPACE	14
13					28531								14
13						28531							14
15	AIR COMPRESSOR	400	3	43212						-	-		0
15					43212					-	-		0
15						43212				-	-		0
0		-	-							-	-		0
0		-	-							-	-		0
0		-	-							-	-		0
				89611	89611	89611	73822	73822	73822				

	(VA)	(A)
TOTAL CONNECT LOAD:	490299	
PHASE A:	163433	590
PHASE B:	163433	590
PHASE C:	163433	590
PEAK DEMAND LOAD:	343209	
PHASE A:	114403	413
PHASE B:	114403	413
PHASE C:	114403	413

	LOAD	DVRSTY	DMND
1 LIGHTS	0	1.00	0
2 RECEPT <10KVA	0	1.00	0
RECEPT >10KVA	0	0.50	0
3 AHU BLOWER	0	1.00	0
4 CONDENSER	0	1.00	0
5 HEAT	0	1.00	0
6 HPU	0	1.00	0
7 WATER HEAT	0	1.00	0
8 REFRIGERATION	0	1.00	0
9 KITCHEN	0	1.00	0
10 EQUIPMENT	490299	0.70	343209
11 MISC	0	1.00	0
12 SUBFEED DEM	0	1.00	0

NOTES:
* PROVIDE FINAL TYPEWRITTEN DIRECTORY INSIDE PANEL.
* PROVIDE ENGRAVED PLASTIC LABEL WITH PANEL DESIGNATION ON PANEL COVER.
*

NAME: EP6

LOCATION: SHOP AREA

VOLTAGE (L-L): 208
VOLTAGE (L-N): 120
NUMBER OF PHASES: 3
NEUTRAL BUS: YES
FEED-THRU LUGS: NO

BUS: 200A
MAIN: MLO
KAIC: 10
NEMA 1 SURFACE

CKT #	ITEM	AMP RATE	# POLE	LEFT LOADING (VA) A	B	C	RIGHT LOADING (VA) A	B	C	# POLE	AMP RATE	ITEM	CKT #
1	10 TON CHILLER	80	3	6258						3		SPACE	2
3					6258								4
5						6258							6
7	SPARE	50	3				1564			3	20	HOT RUNNER	8
9								1564					10
11									1564				12
13	HEATER #3	50	3	4483			7083			3	80	DIMPLEX CHILLER	14
15					4483			7083					16
17						4483			7083				18
19	SPACE		3							3		SPACE	20
21													22
23													24
25	QUAD RECEPT. (MIXER #4)	20	1	1500						1			26
27			1							1			28
29			1							1			30
31													32
33													34
35													36
				12241	10741	10741	8647	8647	8647				

	(VA)	(A)
TOTAL CONNECT LOAD:	59664	
PHASE A:	20888	174
PHASE B:	19388	161
PHASE C:	19388	161
PEAK DEMAND LOAD:	54254	
PHASE A:	19085	159
PHASE B:	17585	146
PHASE C:	17585	146

	LOAD	DVRSTY	DMND
1 LIGHTS	0	1.00	0
2 RECEPT <10KVA	1500	1.00	1500
RECEPT >10KVA	0	1.00	0
3 AHU BLOWER	0	1.00	0
4 CHILLER	40023	0.90	36021
5 HEAT	13449	1.00	13449
6 HPU	0	1.00	0
7 WATER HEAT	0	1.00	0
8 REFRIGERATION	0	1.00	0
9 KITCHEN	0	1.00	0
10 ELEVATOR	0	1.00	0
11 MISC	4692	0.70	3284
12 SUBFEED DEM	0	1.00	0

NOTES:
* PROVIDE FINAL TYPEWRITTEN DIRECTORY INSIDE PANEL.
* PROVIDE ENGRAVED PLASTIC LABEL WITH PANEL DESIGNATION ON PANEL COVER.
* PROVIDE INTEGRAL TVSS - 120 KA

NAME: EP7

LOCATION: ELECTRICAL ROOM

VOLTAGE (L-L): 208
VOLTAGE (L-N): 120
NUMBER OF PHASES: 3
NEUTRAL BUS: YES
FEED-THRU LUGS: NO

BUS: 800A
MAIN: 800A
KAIC: 10
NEMA 1 SURFACE

CKT #	ITEM	AMP RATE	# POLE	LEFT LOADING (VA) A	B	C	RIGHT LOADING (VA) A	B	C	# POLE	AMP RATE	ITEM	CKT #
1	EXISTING SHOP PANEL	200	3	10760			10760			3	200	EXISTING SHOP PANEL	2
3					10760			10760					4
5						10760			10760				6
7	7.5 TON CHILLER	50	3	4902			19085			3	225	NEW PANEL EP6	8
9					4902			17585					10
11						4902			17585				12
13	HEATER #1	50	3	3490						3	60	SPARE	14
15					3490								16
17						3490							18
19													20
21													22
23													24
25													26
27													28
29													30
31													32
33													34
35													36
				19152	19152	19152	29845	28345	28345				

	(VA)	(A)
TOTAL CONNECT LOAD:	143991	
PHASE A:	48997	408
PHASE B:	47497	396
PHASE C:	47497	396
PEAK DEMAND LOAD:	124623	
PHASE A:	42541	354
PHASE B:	41041	342
PHASE C:	41041	342

	LOAD	DVRSTY	DMND
1 LIGHTS	0	1.00	0
2 RECEPT <10KVA	0	1.00	0
RECEPT >10KVA	0	1.00	0
3 AHU BLOWER	0	1.00	0
4 CHILLERS	14706	1.00	14706
5 EXIST.SHOP PNLS	64560	0.70	45192
6 HEATERS	10470	1.00	10470
7 WATER HEAT	0	1.00	0
8 REFRIGERATION	0	1.00	0
9 KITCHEN	0	1.00	0
10 ELEVATOR	0	1.00	0
11 MISC	0	0.70	0
12 SUBFEED DEM	54255	1.00	54255

NOTES:
* PROVIDE FINAL TYPEWRITTEN DIRECTORY INSIDE PANEL.
* PROVIDE ENGRAVED PLASTIC LABEL WITH PANEL DESIGNATION ON PANEL COVER.
* PROVIDE INTEGRAL TVSS - 120 KA

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BATON ROUGE - NEW ORLEANS

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REV	DESCRIPTION	DATE	BY

DESIGN: DB
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SCALE: NOTED
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DWG TITLE: ELECTRICAL RISER DIAGRAM

DWG No. E202