	PLAN LEGEND								
•	EQUIPMENT CONNECTION BOY								
9	JUNCTION OR CONNECTION BOX								
LC	STARTER OR LIGHTING CONTACTOR								
	DISCONNECT SWITCH								
МН	MANHOLE								
НН	HANDHOLE								
(#)	KEYED NOTE. NUMBER MATCHES NOTE NUMBER								
\$	TOGGLE SWITCH, WALL MOUNTED, SINGLE POLE SINGLE THROW. MOUNTED 54 IN. AFF. UNLESS OTHERWISE NOTED.								
<b>\$</b> <sub>4</sub>	TOGGLE SWITCH, WALL MOUNTED, FOUR WAY. MOUNTED 54 IN. AFF. UNLESS OTHERWISE NOTED.								
\$ <sub>M</sub>	SWITCH MOTOR RATED WITH TERMINAL OVERLOADS								
<b>♦</b> os	OCCUPANCY SENSOR								
	TERMINAL BOARD								
<b>T</b>	TELEPHONE OUTLET, PRIVATE. MOUNTED 12 IN.								
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	AFF. DATA OUTLET, SURFACED MOUNTED								
#	MOTOR LOAD, NUMBER INDICATES HORSEPOWER								
	POLE								
	TRANSFORMER , DRY TYPE, KVA RATING MAY BE DISPLAYED NEXT TO SYMBOL								
Ψ	ANTENNA								
###	HOMERUN, LETTERS INDICATE PANELBOARD, NUMBERS INDICATE CIRCUIT NUMBER IN PANELBOARD								
— E — 3	CONDUIT CAPPED FOR FUTURE USE								
<b>—</b>	CONDUIT GOING DOWN								
— E —O	CONDUIT GOING UP								
	CONDUIT ABOVE GROUND								
—— E ——	CONDUIT RUN UNDERGROUND OR CONCEALED								
	CONDUIT RUN BELOW CONCRETE								
1	LIQUID TIGHT FLEXIBLE CONDUIT SURFACE MOUNT								
<u> </u>	120V RECEPTACLE FLUSH MOUNTED								
<u></u>	120V RECEPTACLE SURFACE MOUNTED								
<b>O</b>	120V QUAD RECEPTACLE FLUSH MOUNTED								
Ю	120V QUAD RECEPTACLE SURFACE MOUNTED								
€	208V RECEPTACLE FLUSH MOUNTED								
Ю	208V RECEPTACLE SURFACE MOUNTED								
	WELDING OUTLET								
①	THERMOSTAT								
	PANELBOARD FLUSH MOUNTED								
<u></u>	PANELBOARD SURFACE MOUNTED								
<u>→ </u>	NORTH ARROW								
TS	TORQUE SWITCH								
SV	SOLENOID SWITCH								
LS	LIMIT SWITCH								
AS	AMMETER SWITCH								
	LVOLTMETER CAUTOLI								
VS	VOLTMETER SWITCH								
VS PS	PRESSURE SWITCH								

GROUNDING LEGEND							
0	A=GROUNDING RECEPTACLE; B=GROUND TEST WELL						
—— в ——	BARE COPPER GROUNDING CONDUCTOR						
	GROUNDING CONNECTION						
<u></u>	COPPER CLAD GROUND ROD						

	ONE-LINE AND CONTRO	OL SCHEMATIC LE	-GEND
I	GROUND CONNECTION	WYE WYE	
<u></u>	NORMALLY OPEN RELAY OR CONTACTOR		WYE TRANSFORMER CONNECTION
<del></del>	CONTACTS  NORMALLY CLOSED RELAY OR CONTACTOR CONTACTS	DELTA	DELTA TRANSFORMER CONNECTION
	CONDUCTOR CONNECTION	DELIA	DELTA THANSI ORIVIER CONNECTION
ا الاستادات الاستادات	CIRCUIT BREAKER, MOLDED CASE, TRIP CURRENT AND QUANTITY OF POLES (P) SHOWN NEXT TO SYMBOL	<b>→</b> CT ###:#	CURRENT TRANSFORMER WITH RATIO SHOWN
\frac{1}{TEXT}	DISCONNECT SWITCH NON-FUSED, LOAD BREAK. CONTINUOUS CURRENT RATING, QUANTITY OF	AIT	ANALYTICAL TRANSMITTER
· ·	POLES (P) SHOWN NEXT TO SYMBOL	FS	FLOW OR FLOAT SWITCH
\begin{align*} \ \ \ \ \ \ \ \ TEXT \end{align*}	DISCONNECT SWITCHED FUSED, LOAD BREAK.	LT	LEVEL TRANSMITTER
	CONTINUOUS CURRENT RATING, QUANTITY OF POLES (P), AND FUSE RATING SHOWN NEXT TO	PT	PRESSURE TRANSMITTER
	SYMBOL	(SV)	SOLENOID VALVE
TEXT	FUSE. RATING SHOWN NEXT TO SYMBOL	MOV	MOTOR OPERATED VALVE
<del>\</del>	MOTOR STARTER THERMAL OVERLOAD PROTECTOR	ETM	ELAPSED TIME METER
(CR##)	CONTACTOR OR RELAY COIL. LETTERS AND NUMBERS MATCH CONTACTS CONTROLLED	TD 0-10 MIN.	TIME DELAY RELAY. TIMES OUT AFTER ENERGIZATION. ADJUSTABLE TIME DELAY TIME INDICATED NEXT TO SYMBOL.
-0	LIMIT SWITCH NORMALLY CLOSED	0-10 MIN.	TIME DELAY RELAY. TIMES OUT AFTER
-0,0-	LIMIT SWITCH NORMALLY OPEN	TD TOD	DE-ENERGIZATION. ADJUSTABLE TIME DELAY TIME INDICATED NEXT TO SYMBOL.
∳	MOTOR OPERATED VALVE GEARED LIMIT SWITCH	XXX###	CONDUIT TAG
<u>~</u> T~	PRESSURE SWITCH NORMALLY CLOSED OPEN ON INCREASING PRESSURE	<b>1</b>	PILOT LIGHT. R=RED, B=BLUE, G-GREEN, A=AMBER, Y=YELLOW
-\$-	PRESSURE SWITCH NORMALLY OPEN CLOSES ON INCREASING PRESSURE  LEVEL SWITCH NORMALLY CLOSED OPEN ON INCREASING LEVEL	480V ————————————————————————————————————	CONTROL POWER TRANSFORMER. PRIMARY AND SECONDARY VOLTAGE INDICATED
-00-	LEVEL SWITCH NORMALLY OPEN CLOSES ON INCREASING LEVEL	PT ———	CPT = CONTROLS POWER/INSTRUMENT TRANSFORMER
	FLOW SWITCH NORMALLY CLOSED OPENS WITH FLOW FLOW SWITCH NORMALLY OPEN CLOSES ON PRESENCE OF FLOW	15 KVA $\stackrel{480V}{\bigcap}$ 120/240V	PT = POWER TRANSFORMER. VOLTAGE AND KVA RATING AS SHOWN
<b>2</b>	SPACEHEATER	TV	TELEVISION CAMERA
· ·	DUACE FAILURE DEL AV	TQ	TORQUE SWITCH
(PFR)	PHASE FAILURE RELAY	A	AMMETER
STOP	MAINTAINED CONTACT START/STOP PUSHBUTTON	V	VOLTMETER
START 3		⊸ <sup>LA</sup> ⊶	LIGHTING ARRESTOR
OFF HAND AUTO	MAINTAINED CONTACT HAND-OFF-AUTO SELECTOR SWITCH	CAP - (	SURGE CAPACITOR
AUTO HAND		b MCB	MOTOR STARTER FVNR = FULL VOLTAGE NON-REVERSING
-مـلـە-	NORMALLY CLOSED MOMENTARY CONTACT PUSHBUTTON	MCP SIZE 1 T FVNR	FVR = FULL VOLTAGE REVERSING MCP = MOTOR CIRCUIT PROTECTOR RVNR = REDUCED VOLTAGE NON-REVERSING
	NORMALLY OPEN MOMENTARY CONTACT PUSHBUTTON	ξ	RVSS = REDUCED VOLTAGE SOFT START SIZE = NEMA STARTER SIZE

	LIGHTING FIX	T	URE LEGEND				
o "A" ·	LED STRIP LIGHT; LETTER IN OR BESIDE FIXTURE IDENTIFIES IN FIXTURE SCHEDULE			POLE MOUNTED LED LUMINAIRE. SEE SCHEDULE OR NOTES FOR FIXTURE TYPE. ORIENT FIXTURE FOR CUT-OFF TOWARDS AREA TO BE LIT. ORIEN			
o "A"	LED STRIP LIGHT WITH BATTERY BACKUP; LETTER IN OR BESIDE FIXTURE IDENTIFIES IN FIXTURE SCHEDULE		<b>←</b> "D"	HOUSE SHIELD TOWARDS BUILDING. SEE DETAIL FOR POLE BASE. PROVIDE POLE CASE GROUND ROD.			
7	LED FIXTURE, SURFACE OR SUSPENDED, CEILING MOUNTED		"E"	EMERGENCY LED LIGHT FIXTURE, SELF CONTAINED, BATTERY OPERATED			
<u></u> ?	LED FIXTURE, STANCHION MOUNTED		√7 "D"	PAR LAMP HOLDER. NUMBER OF TRIANGLES			
<b>⊢</b> ?	LED FIXTURE, WALL MOUNTED			INDICATE NUMBER OF FIXTURES.			
"X"	LED LIGHTED EXIT SIGN; LETTER IN OR BESIDE FIXTURE IDENTIFIES IN FIXTURE SCHEDULE		\ "D"	POLE MOUNTED FLOOR LIGHT. NUMBER OF TRIANGLES INDICATE NUMBER OF FIXTURES.			
•──(] "D"	REMOTE EMERGENCY LIGHTS			ARROW DENOTES FLOODING AND DIRECTION POLE FOLDS DOWN.			

	ABBRE	/IATIONS	
1/C	ONE CONDUCTOR	MCC	MOTOR CONTROL CENTER
3/C	THREE CONDUCTOR	MFR	MANUFACTURER
Α	AMPERES OR TRIP AMPERES	MIN.	MINIMUM
AC	ALTERNATING CURRENT	MPR	MOTOR PROTECTION RELAY
A/C	AIR CONDITIONING	MTD	MOUNTED
AFF	ABOVE FINISHED FLOOR	MTG	MOUNTING
AFG	ABOVE FINISHED GRADE	MRCT	MULTI-RATIO CURRENT TRANSFORI
AIC	SYMMETRICAL AMPERES	MV	MERCURY VAPOR
	INTERRUPTING CAPACITY	N.C.	NORMALLY CLOSED
BLDG	BUILDING	NEC	NATIONAL ELECTRICAL CODE
BKR	BREAKER	NEMA	NATIONAL ELECTRICAL
С	CONDUIT		MANUFACTURER'S ASSOCIATION
CAP	CAPACITOR	NEUT.	NEUTRAL
CKT	CIRCUIT	N.O.	NORMALLY OPEN
CONT'D	CONTINUED	N.T.S.	NOT TO SCALE
CPT	CONTROL POWER TRANSFORMER	ОС	ON CENTER
CT	CURRENT TRANSFORMER	ОН	OVERHEAD
CU	COPPER	Р	POLE
DBL	DOUBLE	PC	PHOTOCELL
DISC SW.	DISCONNECT SWITCH	PH	PHASE
DC	DIRECT CURRENT	PNL	PANEL
EMER.	EMERGENCY	PRI	PRIMARY
EMT	ELECTRICAL METALLIC TUBING	PVC	POLYVINYL CHLORIDE
ENCL.	ENCLOSURE	REQ'D	REQUIRED
EP	EXPLOSION PROOF	SCH	SCHEDULE
EQUIP.	EQUIPMENT	SEC	SECONDARY
FS	FLOAT SWITCH	S/N	SOLID NEUTRAL
G	GROUND WIRE	SPACE	SPACE(S) ONLY - NO BREAKER OR
GALV.	GALVANIZED	OI NOL	DEVICE
GEN	GENERATOR	SPARE	SPARE BREAKER OR DEVICE
GFI	GROUND FAULT INTERRUPTER CIRCUIT	SPECS	SPECIFICATIONS
GND		S.D. BARE	
	GROUND CALVANIZED		SOFT DRAWN BARE
HDG	HOT DIPPED GALVANIZED	SS HDWE	STAINLESS STEEL HARDWARE
HPS	HIGH PRESSURE SODIUM	SWBD	SWITCHBOARD
HT	HEIGHT	SWGR	SWITCHGEAR
HZ	HERTZ	TB	TERMINAL BLOCK
INST.	INSTRUMENT	TYP.	TYPICAL
KV	KILOVOLTS	UL	UNDERWRITERS LABORATORIES
KVA	KILOVOLTS AMPERES	V	VOLTS
KWH	KILOWATT HOURS	VA	VOLT AMPERES
LA	LIGHTNING ARRESTOR	W	WATTS
LPR	LIGHTING PROTECTION RELAY	W/	WITH
L-L	LINE TO LINE	W/O	WITHOUT
L-N	LINE TO NEUTRAL	WP	WEATHERPROOF
		XFMR	TRANSFORMER

## LEGEND & GENERAL NOTES:

1. BRANCH CIRCUIT NUMBERS MAY BE SHOWN NEXT TO SYMBOLS IN MULTI-WIRE CIRCUITS.

- 2. SYMBOL SIZE DOES NOT IMPLY EQUIPMENT SIZE UNLESS OTHERWISE NOTED.
- 3. LOWER CASE LETTERS NEXT TO SYMBOLS INDICATE FIXTURE(S) CONTROLLED BY THE SWITCH DISPLAYING THE SAME LETTER.
- 4. THIS IS A STANDARD LEGEND LIST ALL SYMBOLS MAY NOT BE USED.
- INSTALLATION SHALL BE PER LATEST VERSION OF NATIONAL ELECTRICAL CODE, AND ALL APPLICABLE LOCAL CODES. ORDINANCES. NOT ALL CODE AND STANDARD REQUIREMENTS MAY BE SHOWN ON PLANS. CONTRACTOR SHALL ADHERE TO CODES AND STANDARDS REGARDLESS OF BEING SHOWN ON PLANS OR SPECIFICATIONS IN DETAILED FASHION.

4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 P:(210) 681.2951 F: (210) 523.711 TIONS, L NOTES ELECTRIC/ LEGENDS, A DATE 08/28/2025 PROJECT NO. 04024-003 DRAWN BY CSM CHECKED BY EWB - 0 W 4 D 0 V 0

CUDEENGINEERS.COM

BURRER
ENGINEERING
17217 N. Eldridge, Tomball, TX 77377
Tel: 832-761-5220
TBPE No. F-2042
email: info@burrereng.co

E0.01

INTERIM REVIEW ONLY

Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:

C. Saad Mahmoud, P.E.

Engineer of Record
127648

TBPE License No.
August 28, 2025

Date
Burrer Engineering
TBPE No. F-20420

CUDE ENGINEERS TBPELS No. 10048500

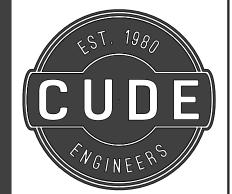
PLAT NO. 22-118XXXX

- INSTALLATION SHALL BE PER LATEST VERSION OF NATIONAL ELECTRICAL CODE AND ALL APPLICABLE LOCAL CODES/ORDINANCES. NOT ALL CODE AND STANDARD REQUIREMENTS MAY BE SHOWN ON PLANS. CONTRACTOR SHALL ADHERE TO CODES AND STANDARDS REGARDLESS OF BEING SHOWN ON PLANS OR SPECIFICATIONS IN DETAILED FASHION.
- 2. THE NOTES CONTAINED ON THIS SHEET ARE PROVIDED FOR THE CONVENIENCE OF THE CONTRACTOR WHEN WORKING IN THE FIELD.
- 3. ALL EQUIPMENT, WIRING, ETC. SHALL BE INSTALLED AND GROUNDED IN ACCORDANCE WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE, LOCAL CODES, AND INDUSTRY STANDARDS (I.E. UL, NEMA, IEEE, ANSI, ETC.) THE DRAWING NOTES AND DETAILS SHALL BE COMPLIED WITH, IN ADDITION TO THE REQUIREMENTS IN THE SPECIFICATIONS.
- 4. ALL RACEWAY INSTALLATIONS SHALL BE INSTALLED IN A MANNER TO PREVENT CONFLICTS WITH EQUIPMENT AND STRUCTURAL CONDITIONS. ALL EXPOSED RACEWAY SHALL BE INSTALLED PARALLEL TO BEAMS, CEILINGS, FLOORS AND WALLS.
- 5. CONDUITS SHALL BE TERMINATED IN A NEAT AND WORKMANLIKE MANNER STRICTLY IN ACCORDANCE WITH THE CONSTRUCTION DOCUMENTS AND THE NATIONAL ELECTRICAL CODE.
- 6. CONDUITS TERMINATED INTO ENCLOSURES SHALL BE PERPENDICULAR TO THE WALLS OF THE ENCLOSURE. THE USE OF SHORT SEAL TIGHT ELBOW FITTINGS FOR SUCH TERMINATIONS WILL NOT BE PERMITTED.
- 7. ALL RACEWAY INSTALLATIONS, CROSSING EXPANSION JOINTS OR TRANSITIONS FROM BELOW GRADE TO EXPOSED ABOVE GRADE, SHALL HAVE EXPANSION OR EXPANSION/DEFLECTION TYPE FITTINGS AS SPECIFIED FOR THE APPLICATION. CONTRACTOR SHALL COORDINATE WITH VENDORS AND MANUFACTURER'S AS REQUIRED.
- 8. NO CONDUIT SMALLER THAN 1 IN., NOR WIRE SMALLER THAN NO. 12 AWG CU, SHALL BE PERMITTED UNLESS SPECIFICALLY NOTED.
- 9. ALL UNDERGROUND SINGLE CONDUITS, AND DUCTBANKS WITH MULTIPLE CONDUITS, SHALL BE RIGID PVC SCHEDULE 80 CONDUIT. THE CONTRACTOR SHALL FIELD VERIFY THE ROUTING OF ALL EXISTING UNDERGROUND UTILITIES. CONTRACTOR MAY UTILIZE MEDIUM WALL REINFORCED THERMOSETTING RESIN (MW-RTRC) IN LIEU OF PVC SCH 80.
- 10. ALL CHANGES OF DIRECTION GREATER THAN 20 DEGREES IN UNDERGROUND SINGLE, OR DUCTBANKS OF MULTIPLE CONDUITS, SHALL BE ACCOMPLISHED USING PVC LONG RADIUS BENDS. STANDARD RADIUS BENDS OF PVC CONDUIT GREATER THAN 20 DEGREES, OR THE USE OF FLEXIBLE CONDUIT OF ANY TYPE. WILL NOT BE PERMITTED.
- 11. LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT SHALL BE USED FOR THE PRIMARY AND SECONDARY OF TRANSFORMERS, GENERATOR TERMINATIONS, AND OTHER EQUIPMENT WHERE VIBRATION IS PRESENT. USE IN OTHER LOCATIONS IS NOT PERMITTED EXCEPT FOR CONNECTIONS TO INSTRUMENTATION TRANSMITTERS WHERE MULTIPLE PENETRATIONS ARE REQUIRED.
- 12. LIQUID TIGHT FLEXIBLE ALUMINUM CONDUIT SHALL HAVE A MAXIMUM LENGTH NOT GREATER THAN THAT OF A FACTORY MANUFACTURED LONG BEND RADIUS ELBOW OF CONDUIT TRADE SIZE USED. THE MAXIMUM BENDING RADIUS SHALL NOT BE LASS THAN THAT SHOWN IN NEC CHAPTER 9, TABLE

- 13. THE WIRING DIAGRAMS, BLOCK DIAGRAMS, QUANTITIES, SIZE OF WIRES, AND CONDUIT REPRESENT A SUGGESTED ARRANGEMENT BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. MODIFICATIONS ACCEPTABLE TO THE ENGINEER MAY BE MADE BY THE CONTRACTOR TO ACCOMMODATE EQUIPMENT APPROVED.
- 14. ALL MODIFICATIONS SHALL BE SUBMITTED TO THE ENGINEER FOR APPROVAL. THE BASIC SEQUENCE AND METHOD OF CONTROL SHALL BE MAINTAINED AS INDICATED ON THE DRAWINGS AND/OR SPECIFIED.
- 15. ALL JUNCTION BOXES AND TERMINATION BOXES SHALL BE NEMA 4X STAINLESS STEEL.
- 16. WHERE RACEWAYS ENTER JUNCTION BOXES OR CONTROL PANELS CONTAINING ELECTRICAL OR INSTRUMENTATION EQUIPMENT, ALL ENTRANCES SHALL BE SEALED WITH LIQUID TIGHT SEALANT. TOP PENETRATIONS ARE NOT ACCEPTABLE.
- 17. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT ENCLOSURE LOCATIONS, OR TERMINAL BOX LOCATIONS ARE APPROXIMATE. THE EXACT LOCATIONS SHALL BE COORDINATED WITH AND APPROVED BY OWNER/ENGINEER DURING CONSTRUCTION AT NO ADDITIONAL COST TO OWNER.
- 8. ALL EQUIPMENT AND ELECTRICAL EQUIPMENT DIMENSIONS ARE APPROXIMATE. ALL EQUIPMENT AND ELECTRICAL ENCLOSURES SHALL BE VERIFIED WITH EQUIPMENT SUPPLIERS. ALLOW FOR LOCATION CHANGES UP TO 40 FEET FOR ALL EQUIPMENT. INCLUDE IN BID PRICE. THE EXACT LOCATIONS OF ALL ELECTRICAL EQUIPMENT AND ROUTING OF ALL CABLES/CONDUITS SHALL BE COORDINATED WITH, AND APPROVED, BY THE OWNER/ENGINEER DURING CONSTRUCTION.
- 19. ULTIMATE ROUTING PATH IS ULTIMATE RESPONSIBILITY OF CONTRACTOR.
- 20. ALL SLOTTED CHANNEL, STRUT, WASHERS, SCREWS, NUTS, CONDUIT CLAMPS, ALL THREAD SPRING NUTS, AND MISCELLANEOUS MOUNTING HARDWARE SHALL BE 316 S.S.
- 21. LIGHTING FIXTURES SHALL BE MOUNTED ACCORDING TO THE MOUNTING HEIGHT GIVEN ON THE DRAWINGS. THE MOUNTING HEIGHT SHALL BE MEASURED FROM THE BOTTOM OF THE LIGHTING FIXTURE TO FINISHED FLOOR.
- 22. ALL CONDUITS AND WIRES SHOWN ON THE CONSTRUCTION DRAWINGS SHALL BE PROVIDED AND INSTALLED BY THE CONTRACTOR. GROUPING OF CONDUIT AND WIRE MAY BE MODIFIED IF APPROVED BY OWNER AND ENGINEER.
- 23. ALL CONDULETS SHALL HAVE 316 S.S. CLAMP COVERS WITH 316 S.S. CLAMPS AND SCREWS. SCREW DOWN COVERS ARE UNACCEPTABLE.
- 24. ALL BARE COPPER GROUNDING CONDUCTORS SHALL BE TINNED. ALL GROUND RODS SHALL BE COPPER CLAD STEEL 3/4 IN. BY 10 FT. LONG. ALL EXPOSED COPPER GROUND CABLES SHALL BE GREEN INSULATED CONDUCTORS. PROVIDE XHHW-2 INSULATION.
- 25. WHERE NOTES ON THE DRAWINGS INDICATED THAT THE CONTRACTOR SHALL FIELD-VERIFY, THE INTENT IS FOR THE CONTRACTOR TO INVESTIGATE TO THE EXTEND NECESSARY TO PROVIDE THE WORK AND MATERIALS PRIOR TO BIDDING AND INCLUDE ALL COSTS IN THE BID PRICE.
- 26. SHOULD THE CONTRACTOR NOT INVESTIGATE PER REQUIREMENTS, CONTRACT PRICE SHALL NOT BE INCREASED. ALL REQUIRED CHANGES ARE SOLE RESPONSIBILITY OF CONTRACTOR AT NO ADDITIONAL COST TO OWNER.

- 27. DIAGRAMS, SCHEMATICS, AND DETAILS ARE SHOWN ONLY TO ILLUSTRATE FUNCTIONAL RELATIONSHIPS BETWEEN COMPONENTS OF THE SYSTEM. CONTRACTOR SHALL SUBMIT EQUIPMENT, PRODUCT DATA, AND SHOP DRAWINGS INDICATING ACTUAL INSTALLATION METHODS AND EQUIPMENT TO BE INSTALLED. EQUIPMENT SHALL NOT BE INSTALLED UNTIL THE ENGINEER OF RECORD HAS REVIEWED SUBMITTAL AND TAKEN NO EXCEPTION OR GIVEN A CONDITIONAL ACCEPTANCE.
- 28. HANDLE, STORE, AND PROTECT EQUIPMENT AND MATERIALS TO PREVENT DAMAGE BEFORE AND DURING INSTALLATION IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATION. REPLACE DAMAGED OR DEFECTIVE ITEMS.
- 29. COORDINATE WORK WITH ALL OTHER TRADES. MAINTAIN CLEARANCES AND ADVISE OTHER TRADES OF CLEARANCE REQUIREMENTS FOR OPERATION, REPAIR, REMOVAL, AND TESTING OF EQUIPMENT.
- 30. DRAWINGS SHALL NOT BE SCALED FOR CONSTRUCTION INSTALLATION DIMENSIONS. EACH TRADE IS RESPONSIBLE FOR FIELD VERIFICATION OF DIMENSIONS AND SHALL PERFORM FIELD MEASUREMENTS PRIOR TO FABRICATION AND/OR PURCHASE OF ANY CABLES, EQUIPMENT AND MATERIAL. REPORT ANY ROUTING DISCREPANCIES IN WRITING TO ENGINEER OF RECORD.
- 31. ELECTRICAL CONTRACTOR SHALL HAVE A MASTER ELECTRICIAN ON STAFF, AND LICENSED FOR THE STATE IN WHICH THIS PROJECT IS LOCATED. AN ELECTRICIAN MUST BE PRESENT AT ALL TIMES DURING THE INSTALLATION AND ENERGIZING OF THE SYSTEM.
- 32. ALL MATERIALS AND DEVICES SHALL BE UL LISTED.
- 33. PROVIDE EQUIPMENT IDENTIFICATION LABELS FOR ALL MAJOR PIECES OF EQUIPMENT INCLUDING CABINETS, ENCLOSURES, MANHOLES AND PULLBOXES, UNLESS UNITS ARE SPECIFIED WITH THEIR OWN IDENTIFICATION WITHIN PLANS. SECURE ALL NAMEPLATE TO EQUIPMENT USING 316 SS SELF-TAPPING SCREWS. PROVIDE A NAMEPLATE SCHEDULE FOR ENGINEER AND REVIEW PRIOR TO FABRICATION. REFER TO SPECIFICATIONS FOR ADDITIONAL DETAIL.
- 34. ALL ABOVE GROUND CONDUIT INCLUDING ALL UNDERGROUND RISERS AND VERTICAL BENDS SHALL BE ALUMINUM.
- 35. CONTRACTOR IS ADVISED TO READ ALL ELECTRICAL RELATED SPECIFICATION SECTIONS PRIOR TO BIDDING AND CONSTRUCTION. SEE SPECIFICATIONS FOR LIST OF PRE-QUALIFIED ELECTRICAL CONTRACTORS AND PANEL FABRICATORS.
- 36. CIVIL, STRUCTURAL, ARCHITECTURAL, AND MECHANICAL PLANS MAY CONTAIN CRITICAL INFORMATION RELEVANT TO ELECTRICAL WORK AND SHOULD BE REVIEWED PRIOR TO BIDDING AND CONSTRUCTION.
- 37. CONDUIT RUNS INSTALLED BELOW-GRADE IN EARTH SHALL BE SCH 80 PVC. USE MANUFACTURER'S APPROVED CEMENT FOR JOINING COUPLINGS AND ADAPTERS. PNEUMATICALLY TAMP BACKFILL IN SIX INCHES (6 IN.) TO EIGHT INCHES (8 IN.) BELOW FINISHED GRADE. INSTALL CONTINUOUS RUN OF "BURIED ELECTRIC" MARKING TAPE AND COMPLETE BACKFILL TO FINISHED GRADE.

CUDEENGINEERS.COM



4122 Pond Hill Road, Suite 10 San Antonio, Texas 78231 P:(210) 681.2951 F: (210) 523.7112

SANILARY SEWE
IMPROVEMENTS
ELECTRICAL
SENERAL NOTE:

DATE 08/28/2025 PROJECT NO. 04024-003

> CSM CHECKED BY

> > EWB

DRAWN BY

INTERIM REVIEW ONLY

Not to be used for construction, bidding,

-10.0 +10.0 -10

Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:

C. Saad Mahmoud, P.E.

Engineer of Record
127648

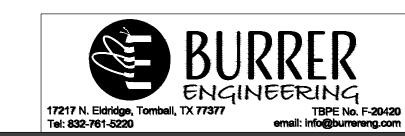
TBPE License No.

August 28, 2025

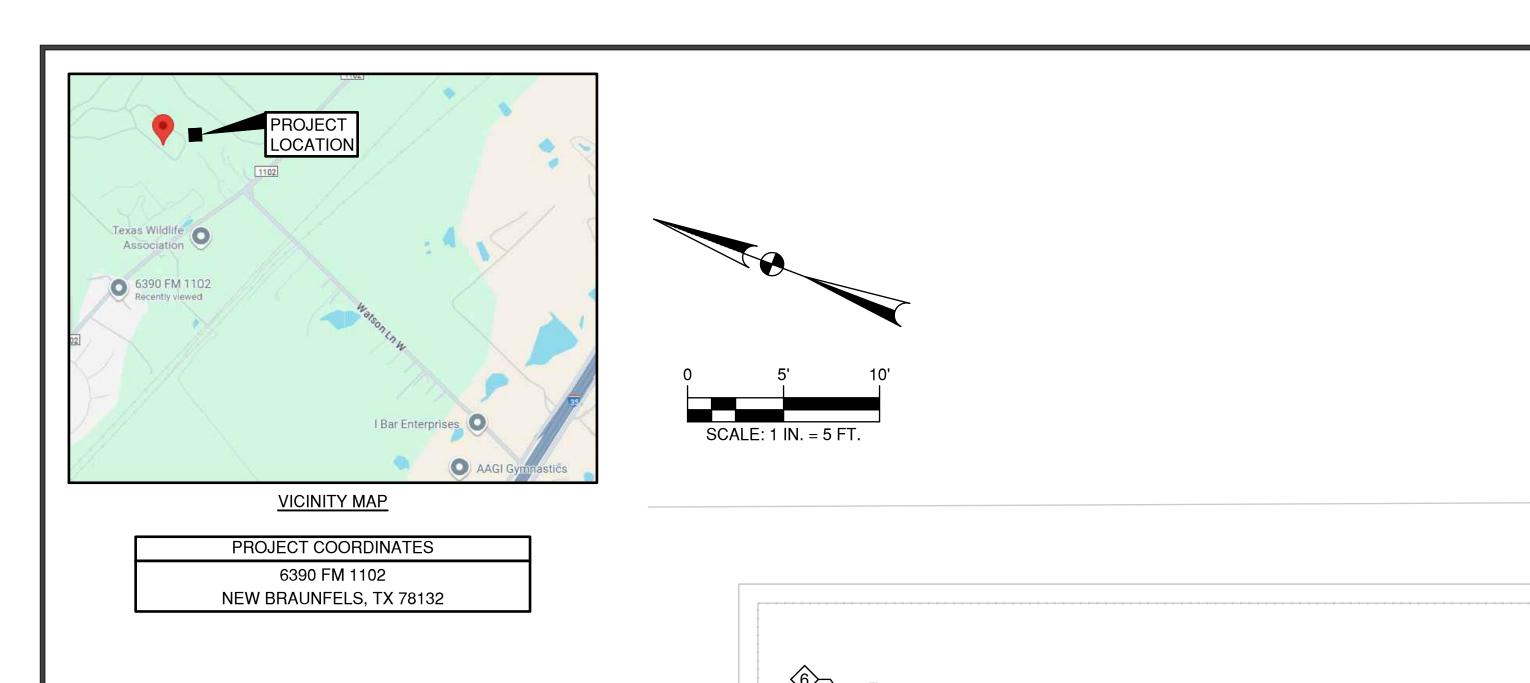
Burrer Engineering
TBPE No. F-20420

CUDE ENGINEERS TBPELS No. 10048500

PLAT NO. 22-118XXXX



REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION



SER010

SERVICE PROVIDER

PRIMARY 📯

(BY OTHERS)

 $\circ$ 

KEYED NOTES: (#)

1. PAD-MOUNTED SERVICE TRANSFORMER (RE: NOTE 1) 6. AREA LIGHT.

8. HANDHOLE.

9. BOLLARDS (TYPICAL).

7. STANDBY DIESEL GENERATOR

- 2. METER (RE: NOTE 1)
- MAIN BREAKER (RE: NOTE 1)

(LTG010)

LP010

LP011

(FLT010)

(XDCR010)

LP020

LP021

SER011

(LTG010)-

**ELECTRICAL SITE PLAN** 

SCALE: 1 IN. = 5 FT.

(GEN010) (GEN011)

GEN012 (GEN013)

0

 $\bigcirc$ 

(TYPICAL)

SS CABLE HOLDER -

(TYPICAL)

- 4. AUTOMATIC TRANSFER SWITCH.
- 5. LIFT PUMP CONTROL CABINET.

## **GENERAL NOTES:**

- 1. COORDINATE FINAL LOCATION OF SERVICE TRANSFORMER, METER, AND SERVICE DISCONNECT WITH SERVICE PROVIDER (NEW BRAUNFELS UTILITIES (NBU). REFER TO NBU ELECTRICAL SPECIFICATION DRAWING: METERING ASSEMBLY UNDERGROUND SERVICE ON RACK 100AMP - 200 AMP FOR INSTALLATION REQUIREMENTS.
- 2. CONTRACTOR SHALL BE RESPONSIBLE FOR FIELD SELECTING OPTIMUM ROUTING OF CONDUITS.
- 3. ALL ELECTRICAL EQUIPMENT CONCRETE FOUNDATIONS ARE TO BE INSTALLED ABOVE FINISHED GRADE. ADDITIONAL ELEVATION DUE TO FLOOD PLANE REQUIREMENTS ARE NOT SHOWN.
- 4. PROVIDE GROUND CONNECTION AT SERVICE, PANELS, METALLIC EQUIPMENT AT RACK, PIPING, AND ALL METALLIC PARTS WITHIN PROJECT SITE.
- 5. REFER TO CONDUIT SCHEDULE FOR FULL CONDUIT AND CABLE REQUIREMENTS.
- 6. CONDUITS SHALL NOT BE INSTALLED UNDERNEATH CONCRETE STRUCTURES, MEANS OF EGRESS, OR WALKWAYS, ROUTE AROUND EQUIPMENT AND AVOID CONFLICT WITH OTHER UNDERGROUND EQUIPMENT. ROUTE DUCTBANK 24 INCHES BELOW UTILITY LINES.
- 7. EQUIPMENT SHALL NOT BE INSTALLED WITHIN ELECTRICAL EASEMENTS. WHERE EASEMENT CONFLICT EXISTS, CONTACT ENGINEER PRIOR TO INSTALLATION. CONTRACTOR IS RESPONSIBLE FOR VERIFICATION OF ANY AND ALL EASEMENTS.
- 8. DO NOT INSTALL CONCRETE FOR EQUIPMENT OR DUCTBANK OVER WATER OR SEWER LINES. FIELD VERIFY AND MARK ALL UNDERGROUND LINES.
- EQUIPMENT SHOWN MAY NOT BE TO SCALE. REFER TO ALL PLAN SHEETS AND ELECTRICAL DETAILS FOR ADDITIONAL INFORMATION. REFER TO DRAWINGS FROM OTHER DISCIPLINES FOR SITE DIMENSIONS. SUBMIT DIMENSIONED LAYOUT PLANS FOR ALL WORK. DO NOT START INSTALLATION UNTIL ALL SUBMITTALS ARE REVIEWED BY ENGINEER.
- 10. ALL EQUIPMENT WORKING SPACE SHALL BE PER NEC. PROVIDE ADEQUATE WORKING SPACE FOR ALL ELECTRICAL EQUIPMENT.
- 11. FIELD VERIFY ALL UNDERGROUND UTILITIES, PIPING, CONDUITS, AND OBSTRUCTIONS PRIOR TO EXCAVATING. REPAIR ANY DAMAGE TO EXISTING OBSTRUCTIONS TO ORIGINAL CONDITION.
- 12. REFER TO CIVIL AND/OR STRUCTURAL PLANS FOR ADDITIONAL MODIFICATIONS.
- 11. COORDINATE INSTALLATION OF PUMP STATION CONDUITS WITH LOCATION OF GUIDE RAILS FOR CABLE CLEARANCE.
- 12. PROVIDE HEAVY DUTY SS KELLUM GRIPS FOR PUMP CABLES. FLOATS. INSTALL FLOATS CLEAR OF INTAKE. PROVIDE STILLING WELL AS NEEDED.
- 13. CABLE HOLDER SHOWN FOR CLARITY. FIELD LOCATE.
- 14. COORDINATE INSTALLATION OF CONDUITS WITH LOCATIONS OF GUIDE RAILS FOR CABLE CLEARANCE.
- 15. SEAL ALL CONDUITS FROM WET WELL INTO TERMINAL BOX TO PREVENT CORROSIVE GAS DAMAGE.

**CUDEENGINEERS.COM** 

122 Pond Hill Road, Suite 10 San Antonio, Texas 78231 P:(210) 681.2951 F: (210) 523.711

> LAN LECTRICA DUPLEX

DATE 08/28/2025 PROJECT NO. 04024-003

CSM CHECKED BY

DRAWN BY

EWB

- 71 W 4 W 60 K 0

INTERIM REVIEW ONLY Not to be used for construction, bidding permit or regulatory approval purposes.Thi document is released for the purpose of interim review under the authority of:

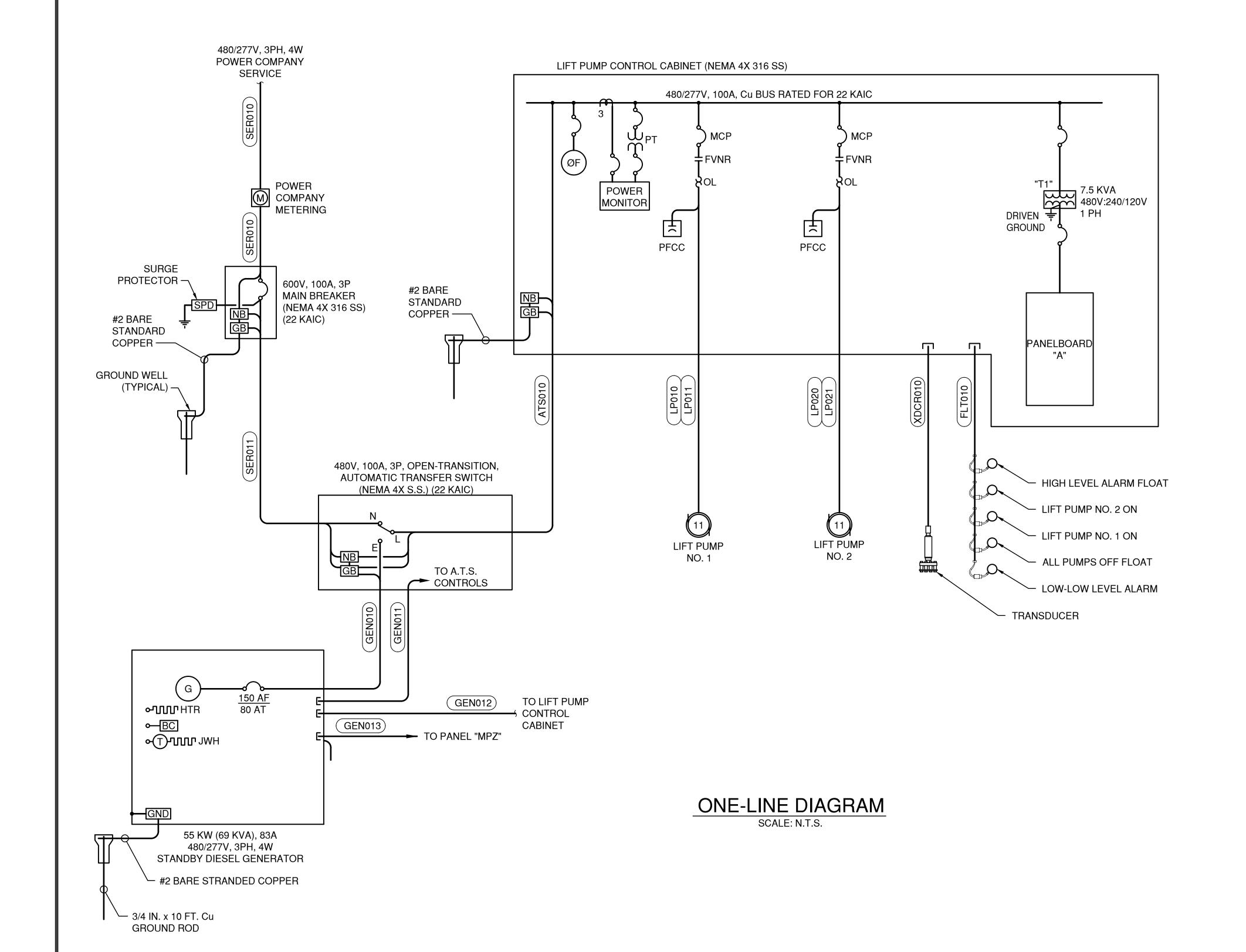
> C. Saad Mahmoud, P.E. 127648 August 28, 2025 Burrer Engineering TBPE No. F-20420

CUDE ENGINEERS TBPELS No. 10048500

> PLAT NO. 22-118XXXX

17217 N. Eldridge, Tomball, TX 7737

Tel: 832-761-5220



- 1. PROVIDE ALL REQUIRED ALARM AND DEVICE POWER CONDUCTORS FOR LOCAL PANELS INSTALLED NEAR MOTORS AND EQUIPMENT. SEE ONE-LINE DIAGRAM AND EQUIPMENT SPECIFICATIONS FOR REQUIREMENTS. CONDUCTORS MAY BE ROUTED IN POWER CONDUITS WHERE INSULATION RATING IS 600 VOLTS AND WHERE CONDUIT AREA/SPACE IS PER NEC, OR SEPARATE 1 INCH CONDUIT SHALL BE PROVIDED.
- 2. REFER TO CONDUIT/CABLE SCHEDULE FOR ADDITIONAL DETAILS.
- 3. NEUTRAL BONDING PER NATIONAL ELECTRICAL CODE ARTICLE 250.
- 4. COORDINATE ALL CONNECTIONS TO GENERATOR WITH MANUFACTURER.
- 5. ALL SERVICE AND MOTOR FEEDER CONDUCTORS TO BE XHHW-2. 600V RATED.
- 6. PROVIDE CSBE SEALS ON ALL CONDUITS TO AND FROM WET WELL.
- 7. ALL ENCLOSURES SHALL BE NEMA 4X 316 SS UNLESS NOTED OTHERWISE.
- 8. ALL EQUIPMENT SHALL BE UL LISTED.

ELECTRICAL LOAD ANALYSIS										
LOAD	AMPS									
LOAD			PHA PHB PH							
LIFT PUMP NO. 1	11 HP	10 KVA	15	15	15					
LIFT PUMP NO. 2	11 HP	10 KVA	15	15	15					
TRANSFORMER "T1"		7.5 KVA	16	-	16					
25% OF LARGEST MOTOR		2 KVA	3	3	3					
TOTAL LOAD		34 KVA	49	33	49					
SERVICE AMPACITY @ 480/277V, 3PH, 4W		75 KVA	100	100	100					
SPARE AMPACITY			51	67	51					
GENERATOR LOAD			45	45	45					
GENERATOR AMPACITY		69 KVA	83	83	83					
GENERATOR SPARE		_	38	38	38					

USE 22 KAIC RATED DEVICES AND BRACING

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

CUDEENGINEERS.COM

CUDEENGINEERS.COM

CUDENGINEERS.COM

4122 Pond Hill Road, Suite 10 San Antonio, Texas 78231 P:(210) 681.2951 F: (210) 523.7112

OVEMENTS
ONE-LINE DIAGRAM

LIFT STATION

TRICAL - DUPLE

Ö

DATE

08/28/2025

PROJECT NO.

04024-003

DRAWN BY

CSM

CHECKED BY

EWB

INTERIM REVIEW ONLY

Not to be used for construction, bidding, permit or regulatory approval purposes.This

document is released for the purposes. This document is released for the purpose of interim review under the authority of:

C. Saad Mahmoud, P.E.

Engineer of Record
127648

TEPE LICENSE No.

August 28, 2025

August 28, 2025

Date
Burrer Engineering
TBPE No. F-20420

CUDE ENGINEERS TBPELS No. 10048500

> PLAT NO. 22-118XXXX



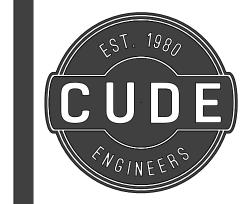
E2.01

	CABLE AND CONDUIT SCHEDULE										
CABLE/CONDUIT TAG	G CONDUIT QUANTITY	CONDUIT SIZE	FROM	ТО	CONDUCTOR (EACH CONDUIT)	CABLE TYPE	DESCRIPTION				
ATS010	1	2 IN.	AUTOMATIC TRANSFER SWITCH	CONTROL CABINET	3-#1 + #6 GND	XHHW-2	DUPLEX LIFT STATION POWER				
FLT010	1	1 & 1/2 IN.	CONTROL CABINET	WET WELL HANDHOLE	(5) MANUFACTURER'S CABLE	-	DUPLEX LIFT STATION FLOAT CONTROL				
GEN010	1	2 IN.	EMERGENCY GENERATOR	AUTOMATIC TRANSFER SWITCH	3-#1 + #6 GND	XHHW-2	EMERGENCY POWER				
GEN011	1	1 IN.	EMERGENCY GENERATOR	AUTOMATIC TRANSFER SWITCH	4-#12 + #12 GND	THWN-2	ATS CONTROLS				
GEN012	1	1 & 1/2 IN.	EMERGENCY GENERATOR	CONTROL CABINET	4-#12 + #12 GND	THWN-2	GENERATOR ALARM SIGNALS				
GEN013	1	1 IN.	PANELBOARD 'A'	EMERGENCY GENERATOR	12-#10 + #12 GND	THWN-2	GENERATOR DEVICES (HEATER, BATTERY CHARGER, LIGHTS, RECEPTACLE)				
LP010	1	1 & 1/2 IN.	CONTROL CABINET	LIFT PUMP NO. 1	3-#8 + #8 GND	THWN-2	LIFT PUMP NO. 1 POWER				
LP011	1	1 IN.	CONTROL CABINET	LIFT PUMP NO. 1	6-#12 + #12 GND	THWN-2	LIFT PUMP NO. 1 CONTROLS				
LP020	1	1 & 1/2 IN.	CONTROL CABINET	LIFT PUMP NO. 2	3-#8 + #8 GND	THWN-2	LIFT PUMP NO. 2 POWER				
LP021	1	1 IN.	CONTROL CABINET	LIFT PUMP NO. 2	6-#12 + #12 GND	THWN-2	LIFT PUMP NO. 2 CONTROLS				
LTG010	1	1 IN.	PANEL LVP	AREA LIGHTS	2-#10 + #10 GND	THWN-2	AREA LIGHT				
REC010	1	1 IN.	PANEL LVP	WET WELL CONVENIENCE RECEPTACLE	2-#12 + #12 GND	THWN-2	WET WELL CONVENIENCE RECEPTACLE				
SER010	1	3 IN.	SERVICE UNDERGROUND	XFMR (BY SERVICE PROVIDER)	MULE TAPE	-	UTILITY PRIMARY (PROVIDED BY UTILITY)				
SER011	1	3 IN.	XFMR (BY SERVICE PROVIDER)	MAIN BREAKER (VIA TRANSOCKET METER FURNISHED BY SERVICE PROVIDER)	3-#1 + #6 GND	XHHW-2	UTILITY SECONDARY (COORDINATE FINAL CONNECTION WITH SERVICE PROVIDER)				
SER012	1	3 IN.	MAIN BREAKER	AUTOMATIC TRANSFER SWITCH	3-#1 + #6 GND	XHHW-2	UTILITY SERVICE LATERAL				
XDCR010	1	1 IN.	CONTROL CABINET	LEVEL TRANSDUCER	(1) MANUFACTURER'S CABLE		ANALOG LEVEL TRANSDUCER				

	LUMINAIRE FIXTURE SCHEDULE												
SYMBOL	YMBOL DESCRIPTION VOLTAGE LUMENS WATTAGE MOUNTING MANUFACTURER LUMINAIRE CATALOG NUMBER POLE DATA												
AL1	ALARM LIGHT	-	-	-	PANEL	EDWARDS	125LEDFR120A-125GRD	PER DETAIL OR APPROVED EQUAL					
В	STRIP LIGHT - NEMA 4X	MVOLT	4000	42	CEILING	LITHONIA	CSVT-L48-5000LM-MVOLT-40K-80CRI	CIRCUIT CONTROLLED BY EXTERNAL PHOTOCELL					
F	AREA LIGHT	MVOLT	7200	51	POLE	LITHONIA	DSX1 LED-P1-40K-70CRI-T3M-MVOLT-SPA-HS-EGSR-DDBXD	PROVIDE POLE: SSS-12-4C-DM19AS-FBCSTL2PC-DDBXD CIRCUIT CONTROLLED BY EXTERNAL PHOTOCELL					

PANEL PANELBO  SERVICE VOLTAGE 120/240V  MAIN BREAKER SIZE 40A	NE SH	HASE BUS RATING 60A EUTRAL BUS RATING 60A HORT CIRCUIT RATING 22 KAIC DOCATION SERVICE RACK				WIRE SIZE <u>#8</u> NEU WIRE SIZE <u>#8</u> PHASE <u>1</u> MOUNTING <u>RACK</u>					■ SOLID NEUTRAL & GROUND □ ISOLATED GROUND BUS □ 200% NEUTRAL NOTE: ADJ. CKTS. TO BAL. PNL.		
		BREA	KER	VA/W	ATTS	СКТ	СКТ	VA/W	/ATTS	BREA	KER		
CKT. DESCRIPTION	WIRE	POLE	AMP	Α	В	NO.	NO.	Α	В	POLE	AMP	WIRE	CKT. DESCRIPTION
JACKET WATER HEATER	10	1	20	1500		1	2	180		1	20	12	CONV. RECEP
OIL PAN HEATER	10	1	20		250	3	4		42	1	20	12	CANOPY LIGH
GENERATOR LIGHTS	12	1	20	180		5	6	153		1	20	12	AREA LIGHT
GENERATOR CONTROLLER	12	1	20		500	7	8		300	1	20		LEVEL TRANSMITTE
GENERATOR CONV. RECEPT.	12	1	20	180		9	10	500		1	20		DUPLEX PUMP STATIC CONTROL
GENERATOR BATTERY CHARGER	12	1	20		1200	11	12		300	1	20		AUTODIALE
SPARE	12	1	20	-		13	14	-		1	20		SPAF
SPARE	12	1	20		-	15	16		-	1	20		SPAF
SPARE	12	1	20	-		17	18	-		1	20		SPAF
TOTAL PHASE A: <u>2693</u> VOLT-AMPS TOTAL PHASE B: <u>2592</u> VOLT-AMPS		TOTAL PHASE A CURRENT: <u>22</u> AMPS TOTAL PHASE B CURRENT: <u>22</u> AMPS				TOTAL C					DNNECTED LOAD: <u>5285</u> VA		

CUDEENGINEERS.COM



4122 Pond Hill Road, Suite 101 San Antonio, Texas 78231 P:(210) 681.2951 F: (210) 523.7112

SANITARY SEWER
IMPROVEMENTS
TRICAL SCHEDULES

DATE 08/28/2025 PROJECT NO. 04024-003

CSM CHECKED BY

DRAWN BY

EWB

λ - 2.ω 4.ω ω ν ω - 2.ω 4.ω ω ν ω

INTERIM REVIEW ONLY

Not to be used for construction, bidding permit or regulatory approval purposes. The

Not to be used for construction, bidding, permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:

C. Saad Mahmoud, P.E.

Engineer of Record
127648

TEPEL Loense No.

August 28, 2025

Engineer of Record
127648

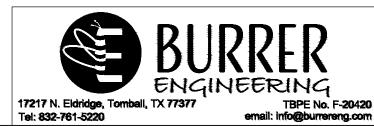
TEPE License No.
August 28, 2025

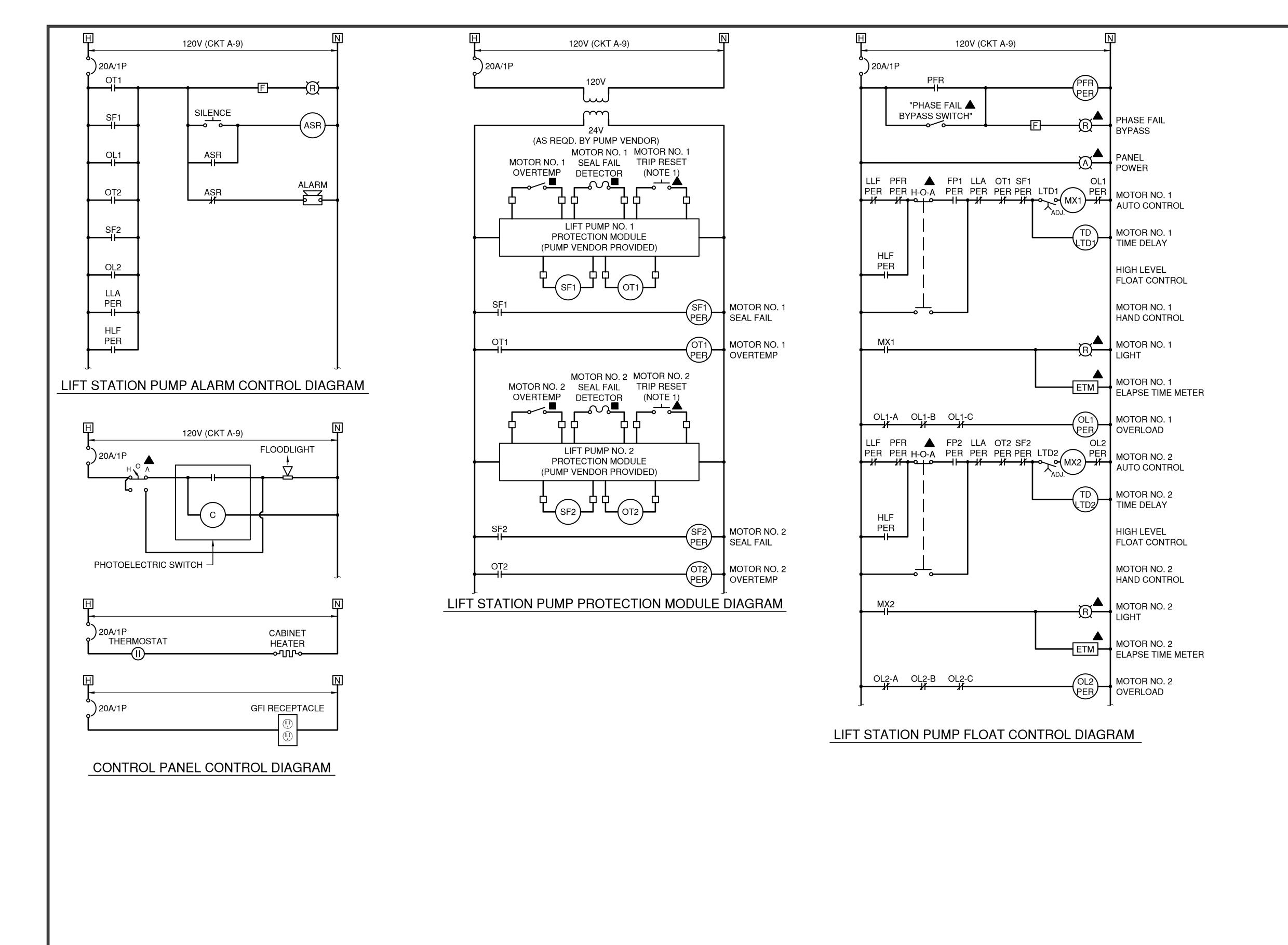
Date
Burrer Engineering
TBPE No. F-20420

CUDE ENGINEERS

TBPELS No. 10048500

PLAT NO. 22-118XXXX





1. PROVIDE SINGLE ALARM RESET SWITCH FOR ALL DEVICES INCLUDING PUMP PROTECTION MODULES, OVERLOADS, AND ALARMS. MOUNT TO INNER DOOR OF CONTROL PANEL.

- 2. REFER TO ABBREVIATION PAGE FOR SYMBOL LEGEND.
- 3. CONTRACTOR TO INSTALL ALL SAFETY AND ACCESSORIES REQUIRED BY PUMP VENDOR.
- 4. COORDINATE TIME DELAY RELAY SETTINGS SO THAT ONLY ONE PUMP WILL BE IN START MODE AT ONE TIME START AT 30 SECOND INTERVALS.
- 5. ALL INDICATING LIGHTS TO BE LED PUSH TO TEST OIL TIGHT TYPE.
- 6. ALL SWITCHES, INDICATING LIGHTS, AND PUSH BUTTONS TO BE MOUNTED ON INNER SWING PANEL.
- 7. ALL CONTROLS FOR EQUIPMENT INSIDE WET WELL ARE TO BE INTRINSICALLY SAFE.
- 8. PROVIDE SUBMITTAL WITH ALARM WIRING DIAGRAM FOR ENGINEERS REVIEW.
- 9. MAINTAIN MINIMUM SEPARATION REQUIRED UNDER NEC ARTICLE 504 BETWEEN INTRINSICALLY SAFE CONTROL WIRING AND NON-INTRINSICALLY SAFE MOTOR FEEDER WIRING.
- 10. ONLY QUALIFIED PANEL MANUFACTURERS WITH OVER 5 YEARS OF EXPERIENCE BUILDING PANELS SHALL BE ALLOWED TO BUILD PANEL.
- 11. COORDINATE WITH PUMP MANUFACTURER FOR PUMP PROTECTION MODULE PROVIDE AND INSTALL MODULE SEAL FAIL AND OVERTEMP.
- 12. WHERE ADDITIONAL CONTACTS ARE REQUIRED, PROVIDE ADDITIONAL CONTACT BLOCK OR ADDITIONAL RELAYS WITH COILS WIRED IN PARALLEL.
- 13. PROVIDE CIRCUIT FUSES RECOMMENDED BY MANUFACTURER.
- 14. COORDINATE ALL NORMALLY CLOSED AND NORMALLY OPEN CONTACTS.

CUDE

**CUDEENGINEERS.COM** 

4122 Pond Hill Road, Suite 10 San Antonio, Texas 78231 P:(210) 681.2951 F: (210) 523.7112

> IMPROVEMENTS RICAL CONTROL DIAGRAMS D. 1 - DUPLEX LIFT STATION

DATE 08/28/2025 PROJECT NO. 04024-003

ELE SHEET

DRAWN BY CSM

CHECKED BY

EWB

γ - 0.ω 4.ω ω ν α

INTERIM REVIEW ONLY

Not to be used for construction, bidding, permit or regulatory approval purposes.This

document is released for the purpose of interim review under the authority of:

C. Saad Mahmoud, P.E.

Engineer of Record
127648
TBPE License No.
August 28, 2025

Burrer Engineering
TBPE No. F-20420

TBPELS No. 10048500

PLAT NO. 22-118XXXX

BURRER
ENGINEERING

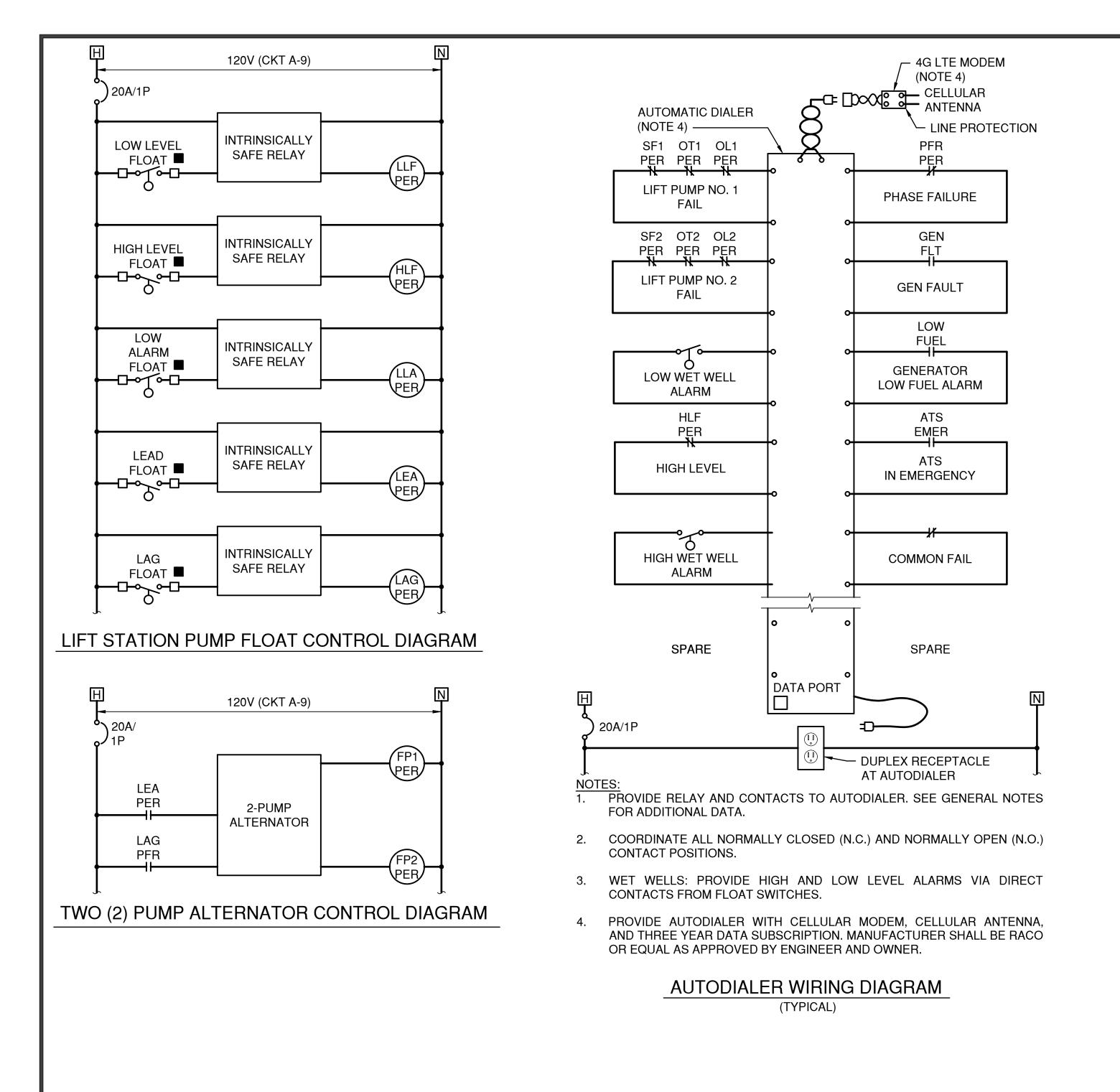
17217 N. Eldridge, Tomball, TX 77377

Tal: 922 761 5220

Tal: 922 761 5220

Tal: 922 761 5220

E4.01



1. PROVIDE SINGLE ALARM RESET SWITCH FOR ALL DEVICES INCLUDING PUMP PROTECTION MODULES, OVERLOADS, AND ALARMS. MOUNT TO INNER DOOR OF CONTROL PANEL.

- 2. REFER TO ABBREVIATION PAGE FOR SYMBOL LEGEND.
- 3. CONTRACTOR TO INSTALL ALL SAFETY AND ACCESSORIES REQUIRED BY PUMP VENDOR.
- 4. COORDINATE TIME DELAY RELAY SETTINGS SO THAT ONLY ONE PUMP WILL BE IN START MODE AT ONE TIME START AT 30 SECOND INTERVALS.
- 5. ALL INDICATING LIGHTS TO BE LED PUSH TO TEST OIL TIGHT TYPE.
- 6. ALL SWITCHES, INDICATING LIGHTS, AND PUSH BUTTONS TO BE MOUNTED ON INNER SWING PANEL.
- 7. ALL CONTROLS FOR EQUIPMENT INSIDE WET WELL ARE TO BE INTRINSICALLY SAFE.
- 8. PROVIDE SUBMITTAL WITH ALARM WIRING DIAGRAM FOR ENGINEERS REVIEW.
- MAINTAIN MINIMUM SEPARATION REQUIRED UNDER NEC ARTICLE 504 BETWEEN INTRINSICALLY SAFE CONTROL WIRING AND NON-INTRINSICALLY SAFE MOTOR FEEDER WIRING.
- 10. ONLY QUALIFIED PANEL MANUFACTURERS WITH OVER 5 YEARS OF EXPERIENCE BUILDING PANELS SHALL BE ALLOWED TO BUILD PANEL.
- 11. COORDINATE WITH PUMP MANUFACTURER FOR PUMP PROTECTION MODULE PROVIDE AND INSTALL MODULE SEAL FAIL AND OVERTEMP.
- 12. WHERE ADDITIONAL CONTACTS ARE REQUIRED, PROVIDE ADDITIONAL CONTACT BLOCK OR ADDITIONAL RELAYS WITH COILS WIRED IN PARALLEL.
- 13. PROVIDE CIRCUIT FUSES RECOMMENDED BY MANUFACTURER.
- 14. COORDINATE ALL NORMALLY CLOSED AND NORMALLY OPEN CONTACTS.

CUDE

**CUDEENGINEERS.COM** 

4122 Pond Hill Road, Suite 10 San Antonio, Texas 78231 P:(210) 681.2951 F: (210) 523.7112

ONTROL DIAGRAMS
DUPLEX LIFT STATION

ELECTR SHEET NO.

 $A \triangleleft A$ 

DATE 08/28/2025 PROJECT NO. 04024-003

DRAWN BY

CHECKED BY

EWB

INTERIM REVIEW ONLY

Not to be used for construction, bidding,

←: 01:W: 4: 10:00: N:00

permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:

C. Saad Mahmoud, P.E.

Engineer of Record
127648

TRIPPE Lippine No.

August 28, 2025

Date
Burrer Engineering
TBPE No. F-20420

CUDE ENGINEERS TBPELS No. 10048500

PLAT NO. 22-118XXXX



REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

ALUMINUM RME

THE GROUNDING SYSTEM SHALL BE TESTED BY AN APPROVED TESTING FIRM THE ENSURE THE RESISTANCE TO GROUND IS

NO GREATER THAN 5 OHMS. CONTRACTOR TO SUBMIT

EXTEND INTO EACH PANEL AND GROUND TO GROUND BUS.

LIFT STATION ELECTRICAL RACK GROUNDING DETAIL

N.T.S.

GROUND CABLE BURIED MIN 18" BELOW GRADE

BELOW GRADE CONNECTIONS

GROUND TESTING REPORT TO OWNER'S REPRESENTATIVE

3/4"ØX10' COPPER CLAD GROUNDROD. EXOTHERMICALLY WELD TO

#4/0 SOFT DRAWN BARE COPPER CABLE BURIED MIN 18" BELOW GRADE (TYP ALL BELOW GRADE CABLE). EXOTHERMICALLY WELD ALL

REFER TO GROUNDING SYSTEM TEST WELL INSTALLATION DETAIL.

- CONTINUE TO GENERATOR PAD

AND SERVICE ENTRANCE RACK

LIFT PUMP

CONTROL CABINET

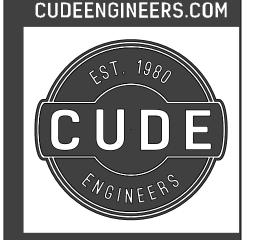
NOTES:

**KEYED NOTES:** 

2. UNLESS OTHERWISE NOTED, ALL NUTS, BOLTS, SCREWS, WASHERS, ETC. SHALL BE TYPE 316 STAINLESS STEEL.

**AUTOMATIC TRANSFER SWITCH** 

- UNLESS OTHERWISE INDICATED, ALL DEVICES WITHOUT FURTHER DESIGNATION ARE LOCATED AT THE CONTROL PANEL.
- ALL ENCLOSURES, HARDWARE, STRAPS, AND ANCHORS TO BE
- HARDWARE, ANCHORS, AND HINGED PIN SHALL BE 316 SS. PROVIDE WP SWITCH AND WP GFI RECEPTACLE OUTLET WITH "IN-USE" COVER.



122 Pond Hill Road, Suite 10 San Antonio, Texas 78231 P:(210) 681.2951 F: (210) 523.711

CTRI SHEI

DATE 08/28/2025 PROJECT NO.

DRAWN BY CSM

- 0 0 4 0 0 L

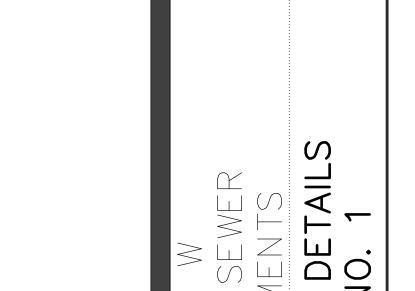
INTERIM REVIEW ONLY Not to be used for construction, bidding

document is released for the purpose of interim review under the authority of: C. Saad Mahmoud, P.E. 127648

August 28, 2025 Burrer Engineering TBPE No. F-20420

CUDE ENGINEERS TBPELS No. 10048500

> PLAT NO. 22-118XXXX



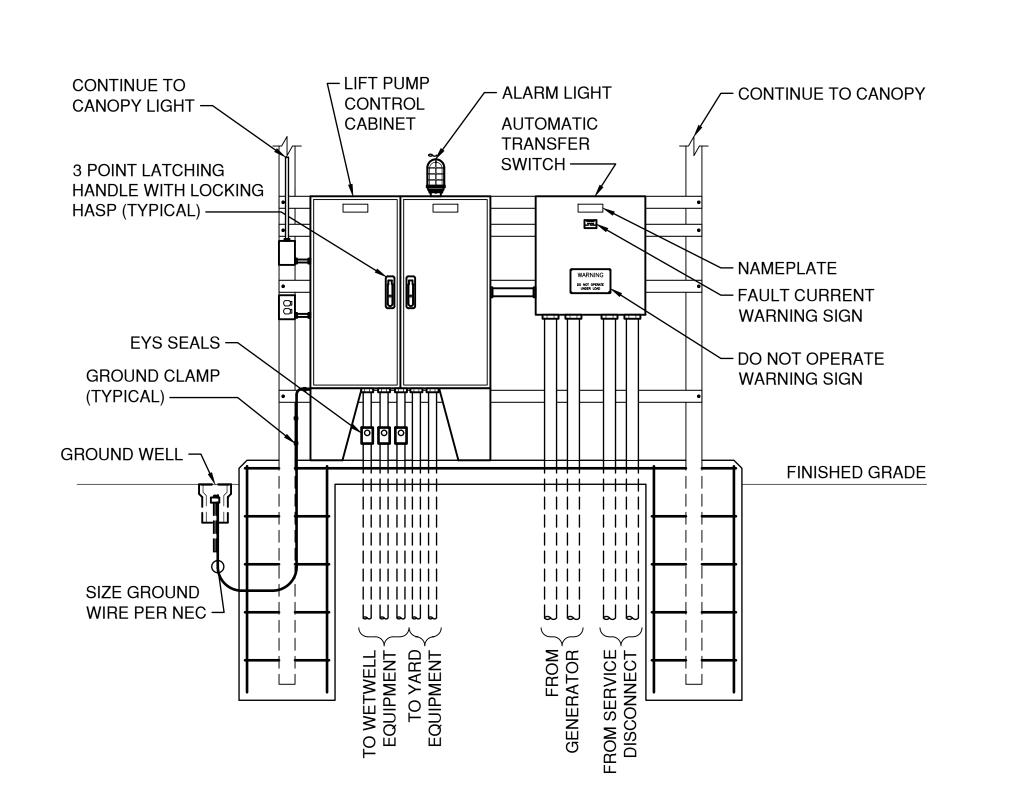
04024-003

CHECKED BY

EWB

permit or regulatory approval purposes. This

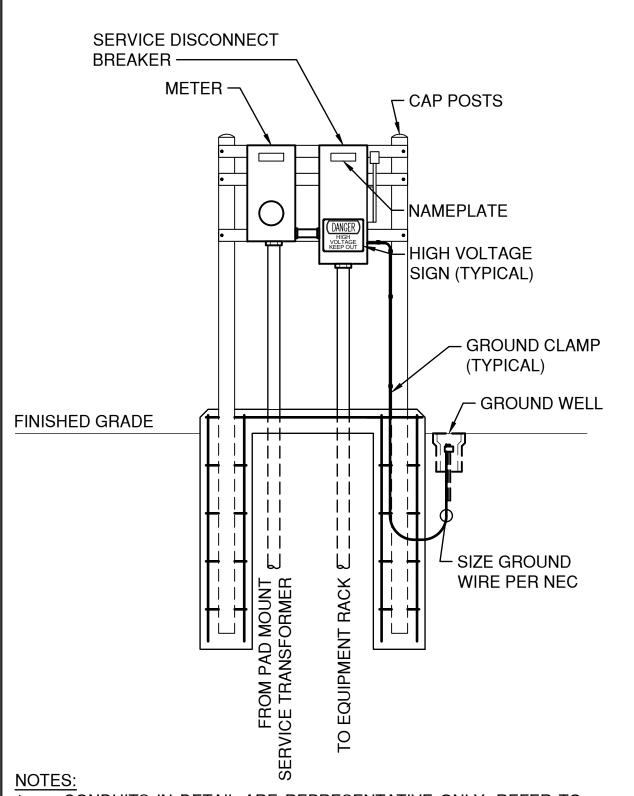




- CONDUITS IN DETAIL ARE REPRESENTATIVE ONLY, REFER TO CONDUIT AND WIRE SCHEDULE FOR QUANTITIES AND
- ALL CONDUITS SERVING DEVICES IN WET WELL SHALL BE PROVIDED WITH EYS SEALS.
- PROVIDE CANOPY PER DETAILS.
- MOUNT ALARM LIGHT AS DIRECTED BY OWNER'S REPRESENTATIVE. ALARM LIGHT TO BE VISIBLE FROM STREET.

# **ELECTRICAL EQUIPMENT RACK INSTALLATION DETAIL**

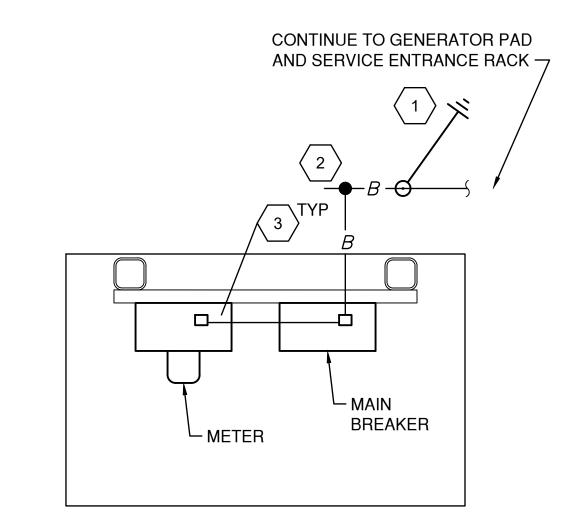
N.T.S.



CONDUITS IN DETAIL ARE REPRESENTATIVE ONLY, REFER TO CONDUIT AND WIRE SCHEDULE FOR QUANTITIES AND SIZES.

REFER TO SERVICE PROVIDER INSTALLATION DETAILS FOR ADDITIONAL RACK AND FOUNDATION INFORMATION.

SERVICE ENTRANCE RACK INSTALLATION DETAIL



NOTES:

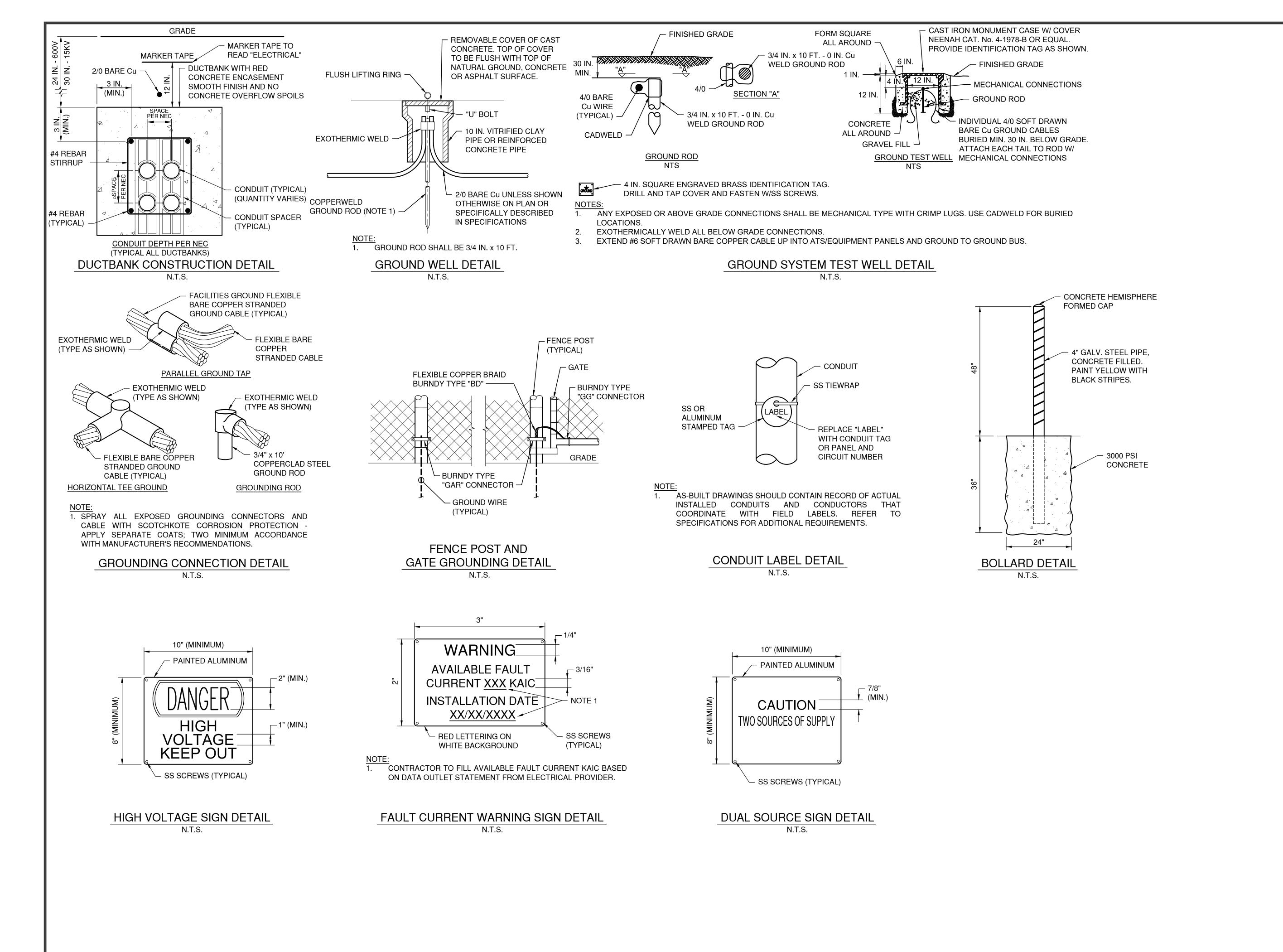
THE GROUNDING SYSTEM SHALL BE TESTED BY AN APPROVED TESTING FIRM THE ENSURE THE RESISTANCE TO GROUND IS NO GREATER THAN 5 OHMS. CONTRACTOR TO SUBMIT GROUND TESTING REPORT TO OWNER'S REPRESENTATIVE.

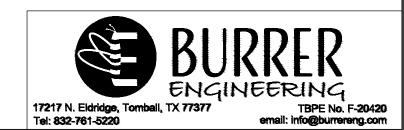
### **KEYED NOTES:**

- 1 3/4" Ø X 10' COPPER CLAD GROUNDROD. REFER TO GROUNDING SYSTEM TEST WELL INSTALLATION DETAIL.
- ( 2 〉 #2 SOFT DRAWN BARE COPPER CABLE BURIED MIN 18" BELOW GRADE (TYP ALL BELOW GRADE CABLE). EXOTHERMICALLY WELD ALL BELOW GRADE CONNECTIONS.
- EXTEND UP SERVICE DISCONNECT AND GROUND TO GROUND BUS.

SERVICE ENTRANCE RACK GROUNDING DETAIL

Tel: 832-761-5220 REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.





REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION

E9.02

**CUDEENGINEERS.COM** 

122 Pond Hill Road, Suite 10

San Antonio, Texas 78231

P:(210) 681.2951 F: (210) 523.711

品品

DATE

PROJECT NO. 04024-003

DRAWN BY CSM

CHECKED BY

EWB

- 0 W 4 0 0 V 0

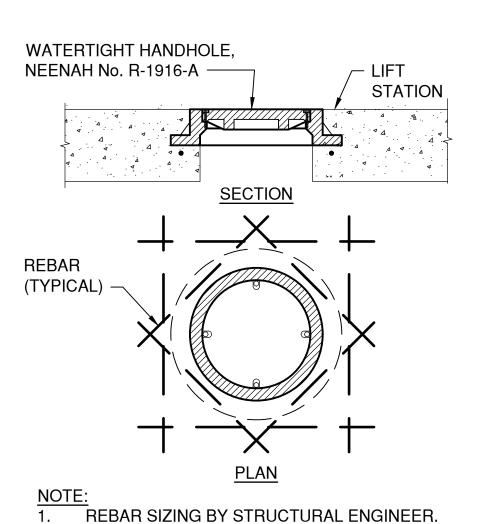
INTERIM REVIEW ONLY Not to be used for construction, bidding

permit or regulatory approval purposes.Thi document is released for the purpose of interim review under the authority of: C. Saad Mahmoud, P.E. Engineer of Record 127648 TBPE License No. August 28, 2025 Burrer Engineering TBPE No. F-20420

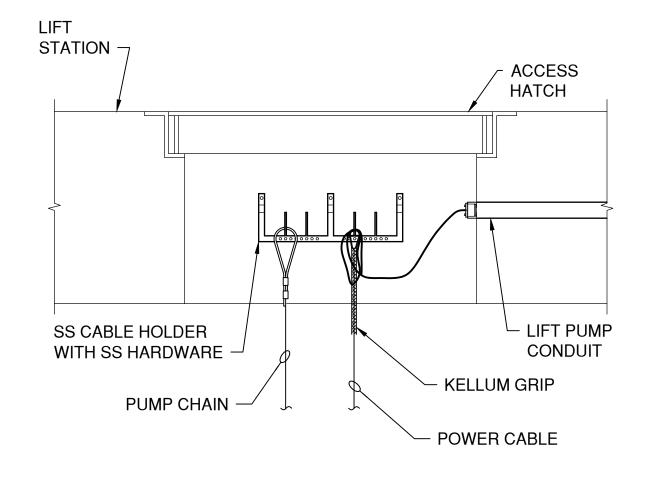
UDE ENGINEERS TBPELS No. 10048500

> PLAT NO. 22-118XXXX

08/28/2025



HANDHOLE DETAIL



WATERPROOFING RIGID GALVANIZED **MEMBRANE** CONDUIT SLEEVE (VERIFY WITH SIZE VARIES PER STRUCTURAL WALL THICKNESS DRAWINGS) SEALING GROMMET CONDUIT AS (TYP.) NOTED ON PLANS MAIN BODY, **PRESSURE** CAST-IN-PLACE CLAMP (TYP.) (TYPICAL) INSIDE OF STRUCTURE DOUBLE ENDED TYPE WITH MEMBRANE

PUMP CABLE INSTALLATION DETAIL

CONDUIT SEALS DETAIL

N.T.S. (TYPICAL)

FOR USE WHERE CONDUIT OUTSIDE THE STRUCTURE IS NOT ENCASED IN CONCRETE **GENERAL NOTES:** 

NOTE 7

MAINTAIN MINIMUM SEPARATION REQUIRED UNDER NEC ARTICLE 504, BETWEEN INTRINSICALLY SAFE CONTROL WIRING AND NON-INTRINSICALLY SAFE MOTOR FEEDER WIRING.

UNLESS OTHERWISE NOTED, ALL NUTS, BOLTS, SCREWS WASHERS, ETC SHALL BE STAINLESS STEEL.

**CUDEENGINEERS.COM** 

122 Pond Hill Road, Suite 10 San Antonio, Texas 78231 P:(210) 681.2951 F: (210) 523.711

DATE 08/28/2025 PROJECT NO. 04024-003

DRAWN BY CSM CHECKED BY

EWB

-: α: ω: 4: ιυ: ω: ν: α

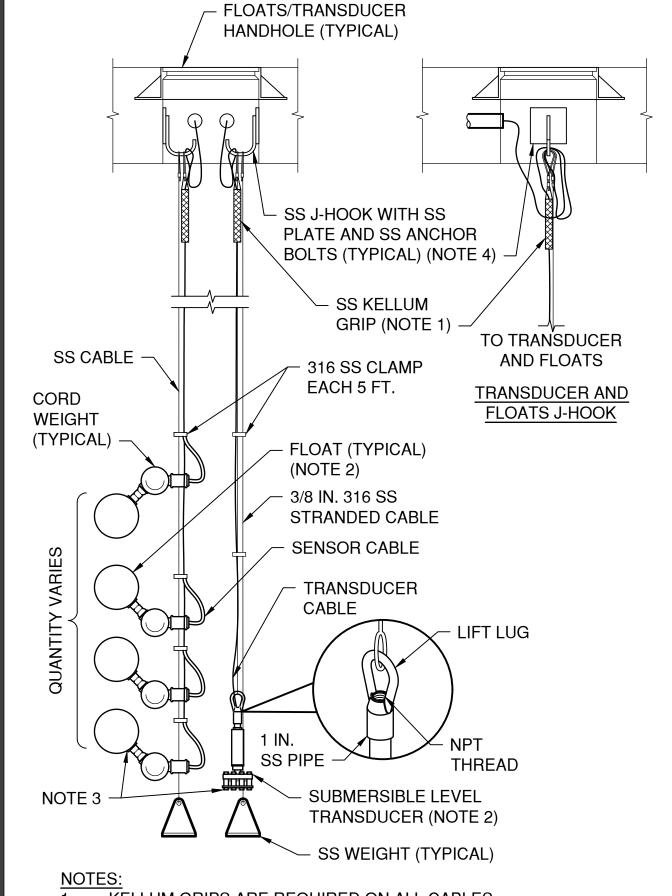
permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of: C. Saad Mahmoud, P.E. Engineer of Record 127648 TBPE License No.

August 28, 2025 Burrer Engineering TBPE No. F-20420

TBPELS No. 10048500

PLAT NO. 22-118XXXX

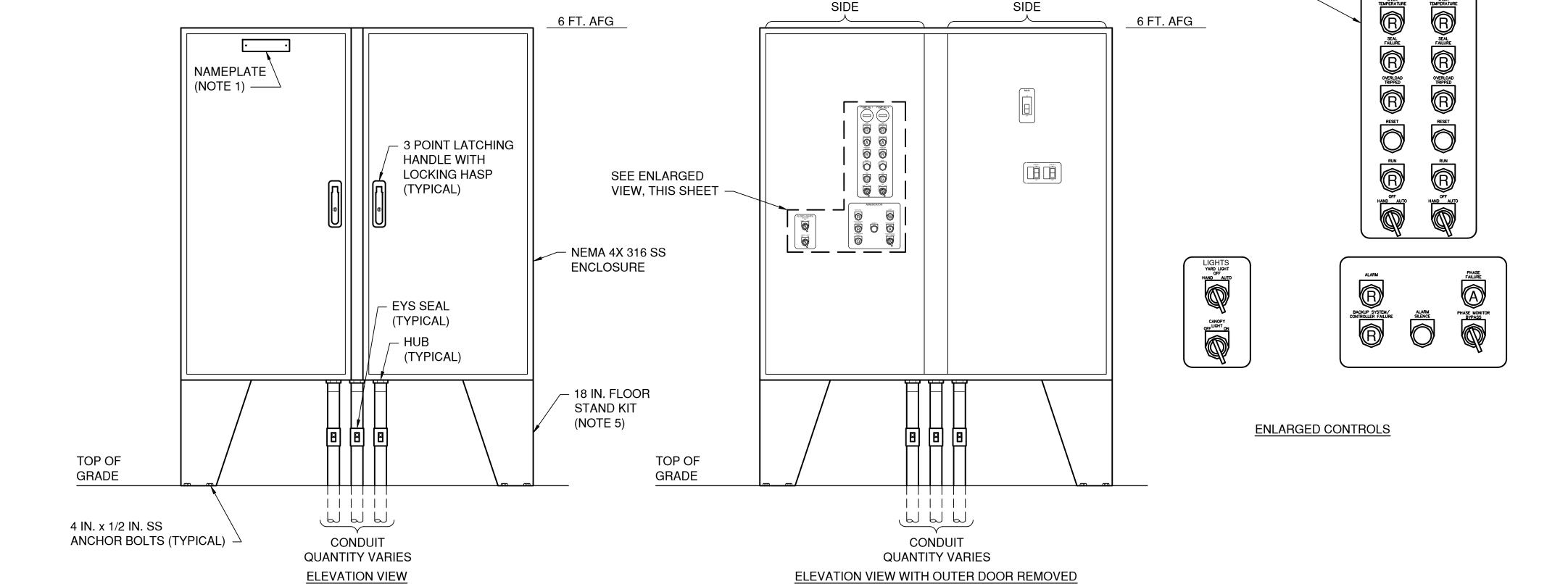
Tel: 832-761-5220



KELLUM GRIPS ARE REQUIRED ON ALL CABLES.

- 2. INSTALL FLOATS AND TRANSDUCER CLEAR OF PUMP INTAKE.
- 3. MEASURE AND RECORD LEVEL OF TRANSDUCER "SENSOR ELEMENT" AND FLOAT SWITCH "TIPPING" LEVELS ABOVE FINISHED FLOOR OF WET WELL. COPY TO ENGINEER AND INCLUDE DATA IN AS-BUILT DRAWINGS AND O&M MANUALS.
- LOCATION SHOWN FOR CLARITY.
- SET LEVEL PER ENGINEER.

FLOATS/TRANSDUCER INSTALLATION DETAIL N.T.S. (TYPICAL)



CONTROL

SIDE

**POWER** 

SIDE

NAMEPLATES SHALL BE MOUNTED TO CONTROL PANEL USING 3. STAINLESS STEEL HARDWARE.

- 2. UNLESS OTHERWISE NOTED, ALL NUTS, BOLTS, SCREWS WASHERS, ETC SHALL BE TYPE 316 STAINLESS STEEL.
- SEAL ALL CONDUITS ENTERING CONTROL PANEL FROM WETWELL WITH 5. CSBE SEALS. ALL OTHER CONTROL PENETRATIONS SHALL USE LIQUID TIGHT RE-ENTERABLE SEALING COMPOUND. 6. ADJUST PILOT DEVICES PER SITE PUMP QUANTITIES.
- BASE OF ENCLOSURE TO BE 18 IN. ABOVE FINISHED GRADE AND NOT LESS THAN 12 IN. ABOVE FLOOD PLAIN ELEVATION.

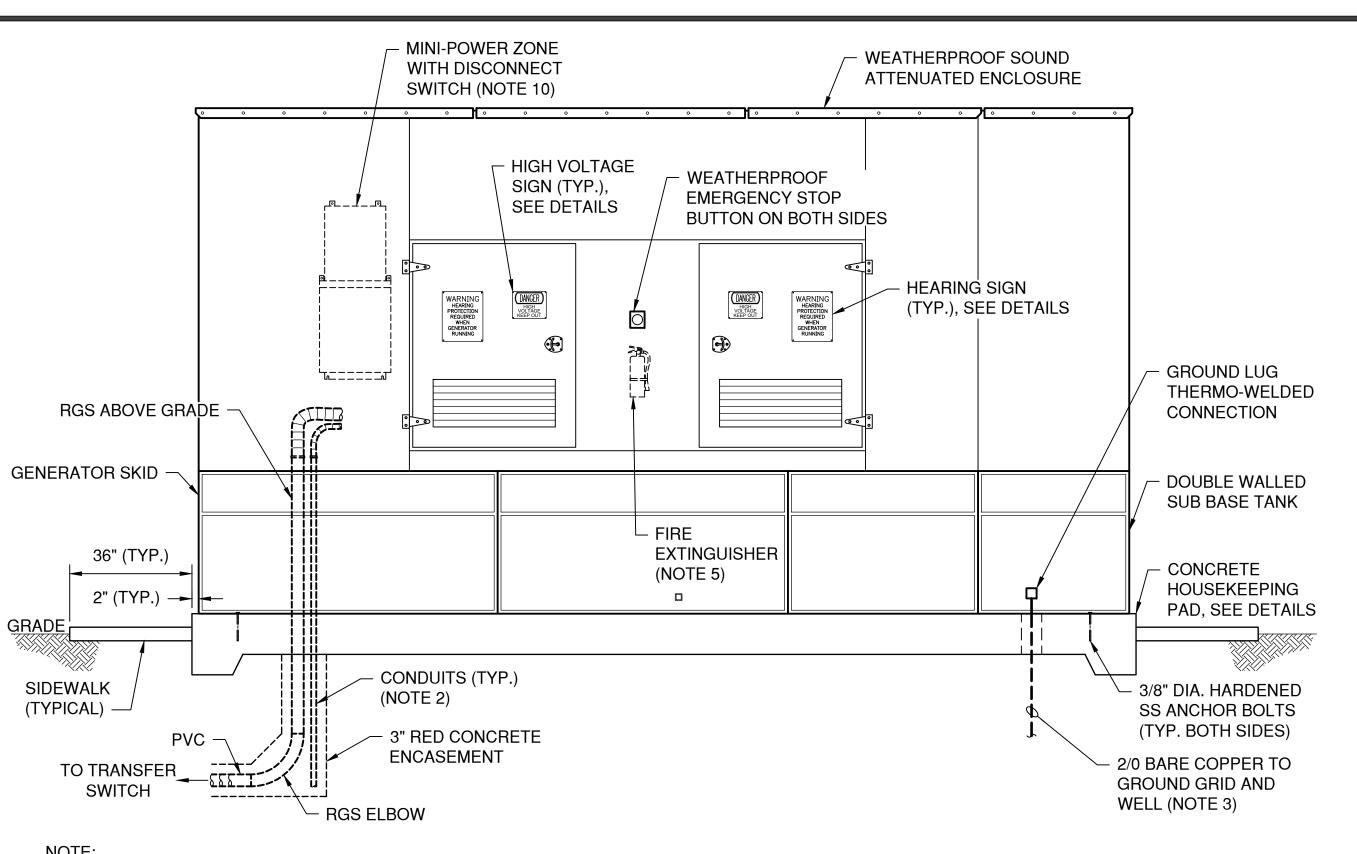
CONTROL CABINET DETAIL N.T.S.

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE SCALE OF THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION.

ARRANGE INNER DOOR DEVICES TO MATCH DETAIL.

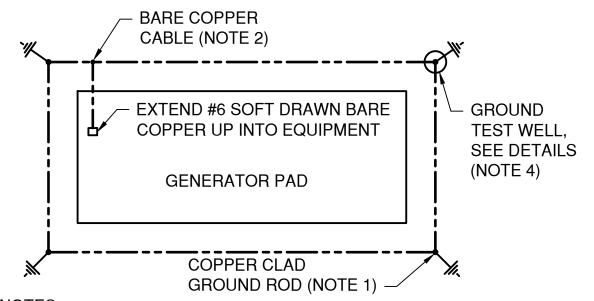
INTERIM REVIEW ONLY Not to be used for construction, bidding,

CUDE ENGINEERS



- PROVIDE UL RATED CLASS B FIRE EXTINGUISHER (PROPLUS MODEL PROPLUS5MP) FOR FUEL TYPE, PER GENERATOR MANUFACTURER'S RECOMMENDATIONS AND FIELD LOCATE.
- SUB-BASE TANK SHALL NOT EXCEED 36" IN HEIGHT, INCREASE LENGTH FOR REQUIRED FUEL CAPACITY.
- 6. ALLOW FOR NEC CLEARANCE IN FRONT OF LOW VOLTAGE PANEL.

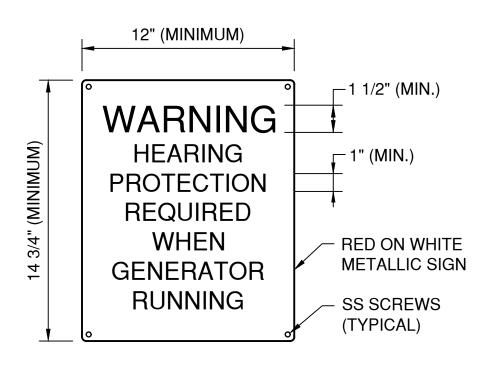
# SOUND ATTENUATED GENERATOR ENCLOSURE DETAIL



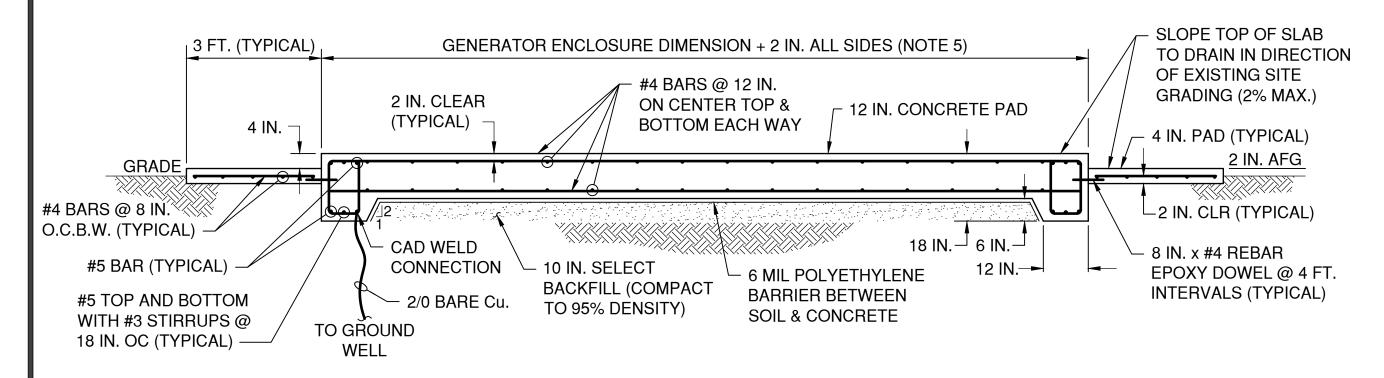
1. 3/4" x 10' COPPER CLAD GROUND ROD. EXOTHERMICALLY WELD TO GROUND CABLE BURIED MIN. 18" BELOW GRADE. REFER TO GROUND ROD INSTALLATION DETAIL.

- 2. #4/0 SOFT DRAWN BARE COPPER CABLE BURIED MIN. 18" BELOW GRADE (TYP. ALL BELOW GRADE CABLE) EXOTHERMICALLY WELD ALL BELOW GRADE CONNECTIONS.
- 3. PROVIDE GROUND TEST WELL AT CORNER OF THE GENERATOR NEAREST GENERATOR CONTROL PANEL REFER TO GROUND TEST WELL INSTALLATION DETAIL.

## TYPICAL GENERATOR **ELECTRICAL GROUNDING DETAIL** N.T.S.



**HEARING WARNING SIGN DETAIL** 



NOTES: COMPACT EARTH FILL TO MINIMUM DRY DENSITY OF 95% OF MAXIMUM IN ACCORDANCE WITH ASTM D698-78 TO ENSURE THAT LOCALIZED WEAK AND COMPRESSIBLE ZONES ARE NOT PRESENT.

COORDINATE FUEL LINES AND CONDUIT STUB-UP LOCATIONS

WITH GENERATOR MANUFACTURER DRAWINGS PROVIDED BY

DO NOT ROUTE GROUND CONDUCTORS ACROSS TOP OF SLAB

INSIDE OR OUTSIDE ENCLOSURE. INSTALL IN SCHEDULE 80 PVC

PROVIDE BOX OF OSHA APPROVED EARPLUGS FOR NOISE

REDUCTION WHEN SERVICING GENERATOR. MOUNT BOX INSIDE

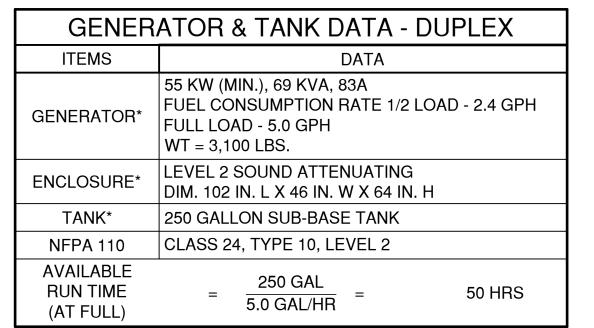
PROCURING CONTRACTOR.

WELL PUMP CONTROL PANEL.

SLEEVE IN SLAB.

- ALL CONCRETE SHALL HAVE 4000 PSI @ 28 DAYS. REINFORCED STEEL SHALL BE GRADE 60.
- PLACE ALL REINFORCING STEEL 2 IN. CLEAR FROM FACE OF CONCRETE.
- GROUND ALL REBAR PER NEC 250-50.
- COORDINATE GENERATOR ENCLOSURE DIMENSIONS AND ADJUST SLAB SIZE ACCORDINGLY PRIOR TO CONSTRUCTION.

## **GENERATOR PAD DETAIL**



\* VERIFY EQUIPMENT PARAMETERS WITH THE SPECIFIC

MANUFACTURER

**GENERAL NOTES** 

- 1. CONDUCTING GENERATOR TESTS, SET MOTOR STARTER TIME DELAY RELAYS IN THE ORDER OF MOTOR SIZE SMALLEST TO LARGEST, WITH FIRST SETTING AT 10 SECONDS AND EACH CONSECUTIVE TIME DELAY AT 10 SECOND GREATER INCREMENTS. I.E. P1 TD = 10 SEC; P2 TD = 20 SEC, P3 TD = 30 SEC. ETC. THESE SETTINGS SHOULD NEVER BE CHANGED TO ASSURE PROPER LOAD SEQUENCING ON GENERATOR. RECORD SETTINGS AND INCLUDE IN RECORD-BUILT.
- 2. PROVIDE DGC2020 DIGITAL CONTROLLER, OR APPROVED EQUAL, WITH RJ-45 COMMUNICATION TO ETHERNET SWITCH.
- 3. SUB-BASE TANK SHALL NOT EXCEED 36" HEIGHT
- 4. VERIFY EQUIPMENT PARAMETERS WITH THE SPECIFIC MANUFACTURER PRIOR TO SUBMITTAL.
- 5. CONTRACTOR SHALL CALCULATE DISTANCE TO NEAREST RESIDENT PROPERTY. PROVIDE MANUFACTURER TEST REPORT INDICATING GENERATOR MEETS REQUIREMENTS WITH SUBMITTAL.
- 6. TESTING FIRM THE ENSURE THE RESISTANCE TO GROUND IS NO GREATER THAN 5 OHMS. CONTRACTOR TO SUBMIT GROUND TESTING REPORT TO OWNER'S REPRESENTATIVE.
- 7. THE GENERATOR SHALL BE RUN FOR ROUTINE TESTING AND MAINTENANCE ONLY BETWEEN 8:00 AM AND 10:00 PM. THE GENERATOR SHALL RUN ONLY BETWEEN 10:01 PM AND 7:59 AM DURING AN EMERGENCY.

**CUDEENGINEERS.COM** 

122 Pond Hill Road, Suite 10 San Antonio, Texas 78231

:(210) 681.2951 F: (210) 523.711

 $\overline{\forall}$  $\bigcirc$ A III ER/ Z U

DATE 08/28/2025 PROJECT NO. 04024-003 DRAWN BY CSM

CHECKED BY EWB

INTERIM REVIEW ONLY Not to be used for construction, bidding permit or regulatory approval purposes.Thi

- 0 M 4 D 0 V

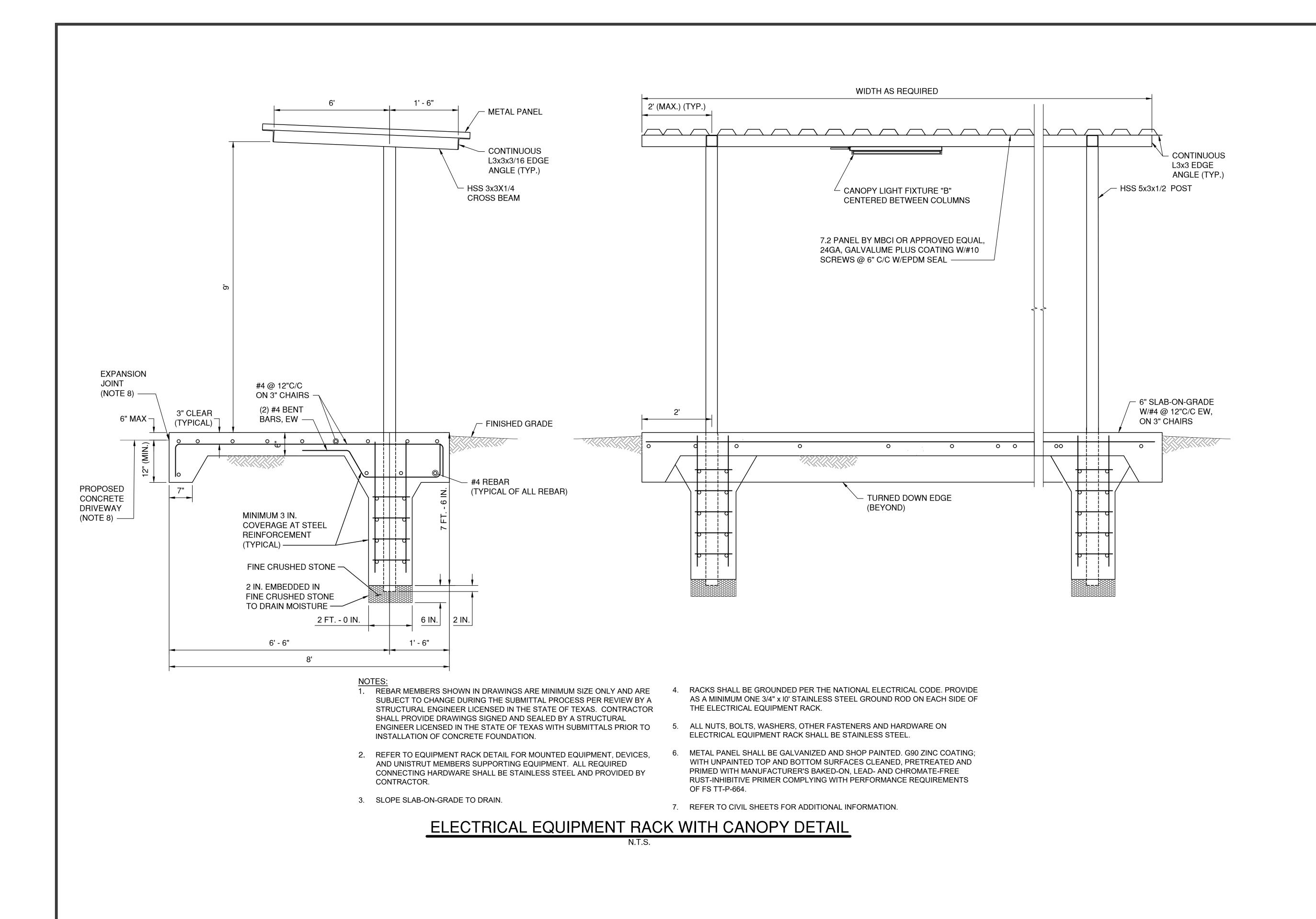
document is released for the purpose of interim review under the authority of: C. Saad Mahmoud, P.E. 127648 August 28, 2025

Burrer Engineering TBPE No. F-20420 CUDE ENGINEERS TBPELS No. 10048500

PLAT NO. 22-118XXXX

17217 N. Eldridge, Tomball, TX 7737 Tel: 832-761-5220

REPRODUCTION OF THE ORIGINAL SIGNED AND SEALED PLAN AND/OR ELECTRONIC MEDIA MAY HAVE BEEN INADVERTENTLY ALTERED. CONTRACTOR IS RESPONSIBLE FOR VERIFYING THE DOCUMENT AND CONTACTING CUDE ENGINEERS TO VERIFY DISCREPANCIES PRIOR TO CONSTRUCTION



CUDEENGINEERS.COM

CUDEENGINEERS.COM

CUDE

1122 Pond Hill Road, Suite 10 San Antonio, Texas 78231 P:(210) 681.2951 F: (210) 523.7112

SANITARY SEWER
IMPROVEMENTS

CANOPY DETAILS

DATE 08/28/2025 PROJECT NO. 04024-003

> DRAWN BY CSM

CHECKED BY
EWB

SNOISIA

INTERIM REVIEW ONLY

Not to be used for construction, bidding,

- 0 n 4 n o r o

permit or regulatory approval purposes. This document is released for the purpose of interim review under the authority of:

C. Saad Mahmoud, P.E.

Engineer of Record
127648

TBPE License No.

Engineer of Record
127648
TBPE License No.
August 28, 2025
Date
Burrer Engineering
TBPE No. F-20420

CUDE ENGINEERS
TBPELS No. 10048500

PLAT NO. 22-118XXXX

