

### CONTROL CABLES CONDUIT SCHEDULE

# OF CABLES	ESTIMATED CONDUIT SIZE
1	1/2"
2	3/4"
3	1"
5	1 1/4"
7	1 1/2"
13	2"
18	2 1/2"
29	3"
38	3 1/2"

NOTE:  
 ABOVE CONDUIT SIZES DEPEND ON ACTUAL CABLES INSTALLED. VERIFY CABLE SIZES & ADJUST CONDUIT AS REQUIRED. RUN ALL CONTROL CABLES IN SEPARATE CONDUIT FROM POWER CIRCUITS. ALSO RUN SHIELDED & LAN LAN CABLES IN SEPARATE CONDUIT FROM OTHER CONTROLS. CONTRACTOR CAN SIZE CONDUIT FOR ACTUAL CABLE SIZE, PER N.E.C. FILL TABLE WITH 25% SPARE CAPACITY. SUBMIT CALCULATIONS.

### GENERAL NOTES

- ALL ELECTRICAL WORK SHALL COMPLY WITH THE LATEST EDITION OF THE NATIONAL ELECTRICAL CODE (NEC) & THE AMERICANS WITH DISABILITIES ACT (ADA).
- REFER TO RELATED CIVIL, MECHANICAL AND STRUCTURAL DRAWINGS FOR RELATED INFORMATION.
- REFER TO THE SPECIFICATIONS FOR DATA NOT ON THE DRAWINGS.
- ALL MOUNTING HEIGHTS TO CENTERLINE OF ITEM UNLESS OTHERWISE NOTED. VERIFY ALL OUTLET LOCATIONS ON THE JOB PRIOR TO ROUGH-IN.
- CONDUIT RUN W/CONDUCTORS AS INDICATED & GROUND WIRE SIZED PER N.E.C. 250.122. CONDUIT SIZE AS REQUIRED.
- WHEN INCREASED CONDUCTOR SIZES ARE SHOWN ON THE PLANS, THE LARGER CONDUCTOR SIZE SHALL BE USED THROUGHOUT THE LENGTH OF THE CIRCUIT, INCLUDING NEUTRAL AND GROUND.
- BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. A MAXIMUM OF THREE CIRCUITS (MAXIMUM OF THREE PHASE CONDUCTORS) MAY BE GROUPED IN A SINGLE CONDUIT. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH. SEE SPECIFICATION SECTION "LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES" FOR ADDITIONAL INFORMATION.

### SYMBOL LIST

SYMBOL	DESCRIPTION	MOUNTING
	LIGHT FIXTURE & FIXTURE LETTER	WALL
	STRIP LIGHT FIXTURE & FIXTURE LETTER	CEILING
	GROUND FAULT DUPLEX RECEPTACLE	18" AFF
	SWITCHES (1-POLE, 2-POLE, 3-WAY, 4-WAY)	46" AFF
	JUNCTION BOX	
	BRANCH CIRCUIT PANEL & PANEL DESIG.	72" TO TOP
	ELECTRICAL DISTRIBUTION EQUIPMENT	
	FEEDER DESIGNATION	
	CONDUIT HOME RUN, 1 CIRCUIT. 2#10 & 1#10 GRD. GEN. NOTE 5 & 6	CEIL./WALL
	CONDUIT RUN 2#12 & 1#12 GRD.- 1/2"C.	CEIL./WALL
	CONDUIT RUN 2#12 & 1#12 GRD.- 3/4"C.	EARTH/FLOOR
	CONDUIT HOME RUN, 1 CIRCUIT. 2#12 & 1#12 GRD. 1/2"C.	CEIL./WALL
	CONDUIT RUN PARTIAL CIRCUIT. 2#12 & 1#12 GRD. 1/2"C.	CEIL./WALL
	CONDUIT HOME RUN, 2 CIRCUITS PHASE CONDUCTORS (#12 UON) NEUTRAL CONDUCTOR (#12 UON) SWITCH LEGS (#12 UON) GROUND CONDUCTOR (#12 UON)	CEIL./WALL
	DISCRETE CONTROL CABLE (# OF PAIRS)	CEIL./WALL
	ANALOG CONTROL CABLE (# OF SHIELDED PAIRS)	CEIL./WALL
	SEAL-OFF	
	MAN DOWN PUSHBUTTON	
	FLOW ELEMENT	
	LIMIT SWITCH	
	PHOTOCELL	
	SOLENOID VALVE	
	PRESSURE TRANSMITTER	
	FLOAT SWITCH	
	PRESSURE ELEMENT	
	CURRENT SENSOR	
	MOTOR	
	DISCONNECT SWITCH	
	MOTOR STARTER	
	DUPLEX RECEPTACLE	18" AFF

### ELECTRICAL SHEET INDEX

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E5.1	ENLARGED ELECTRICAL PLAN

### ONE-LINE SYMBOLS LEGEND

SYMBOL	DESCRIPTION
	CIRCUIT BREAKER
	VARIABLE FREQUENCY DRIVE
	MOTOR
	NON-MOTOR LOAD
	METER
	PANEL
	TRANSFORMER
	AUTOMATIC TRANSFER SWITCH 50,000 A.I.C.

### ABBREVIATION LIST

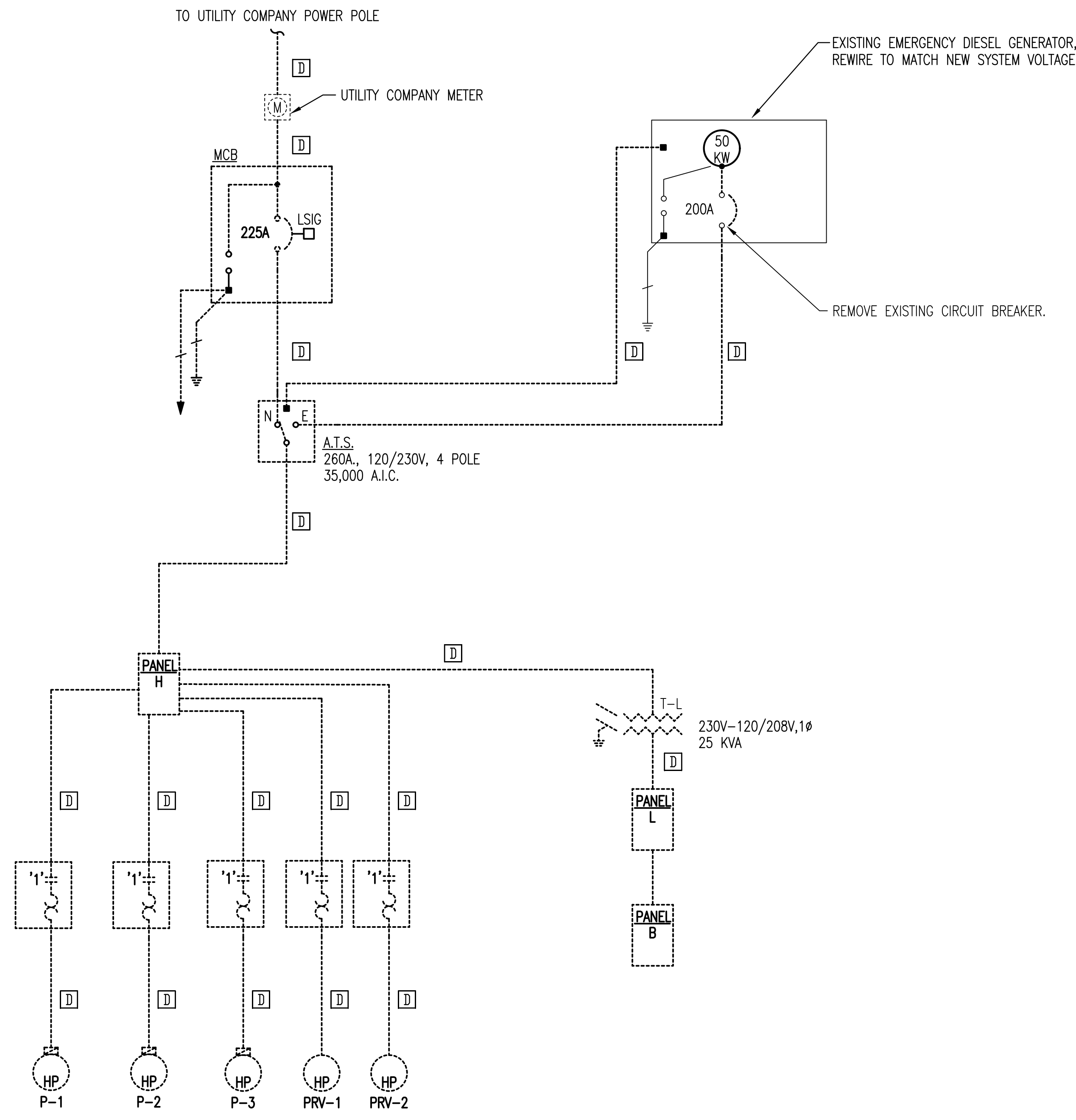
ABBREVIATION	DESCRIPTION
A	AMPS
A.I.C.	AMPS INTERRUPTING CAPACITY
A.T.S.	AUTOMATIC TRANSFER SWITCH
AF	AMP FRAME
AFF	ABOVE FINISHED FLOOR
AT	AMP TRIP
E	EMERGENCY POWER
GEN	GENERATOR
HP	HORSE POWER
KW	KILOWATT
N	NORMAL POWER
PH	PHASE
SPD	SURGE PROTECTION DEVICE
V	VOLTAGE
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE
XFMR	TRANSFORMER
WP	WEATHERPROOF
AFG	ABOVE FINISHED GRADE
UON	UNLESS OTHERWISE NOTED

	No. _____ Revision _____ By _____ Date _____	
	LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE ELECTRICAL LEAD SHEET GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136	
		PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com
Designed by RWW Drawn by JBG	Job No. 35-160316-1-0042 Date JUNE 2017	Sht. E0.1

**GENERAL ONE-LINE DIAGRAM NOTES:**

- UNLESS OTHERWISE NOTED, ALL CIRCUIT BREAKERS AND/OR SWITCHES ARE THREE POLE.
- ALL ELECTRICAL EQUIPMENT AND WIRING SHOWN IN A LIGHT LINE, IS EXISTING TO REMAIN.
- ALL ELECTRICAL EQUIPMENT AND WIRING SHOWN IN A DARK LINE, IS NEW WORK UNDER THIS CONTRACT.
- ALL ELECTRICAL EQUIPMENT AND WIRING SHOWN IN A DARK DASHED LINE, IS TO BE REMOVED UNDER THIS CONTRACT.

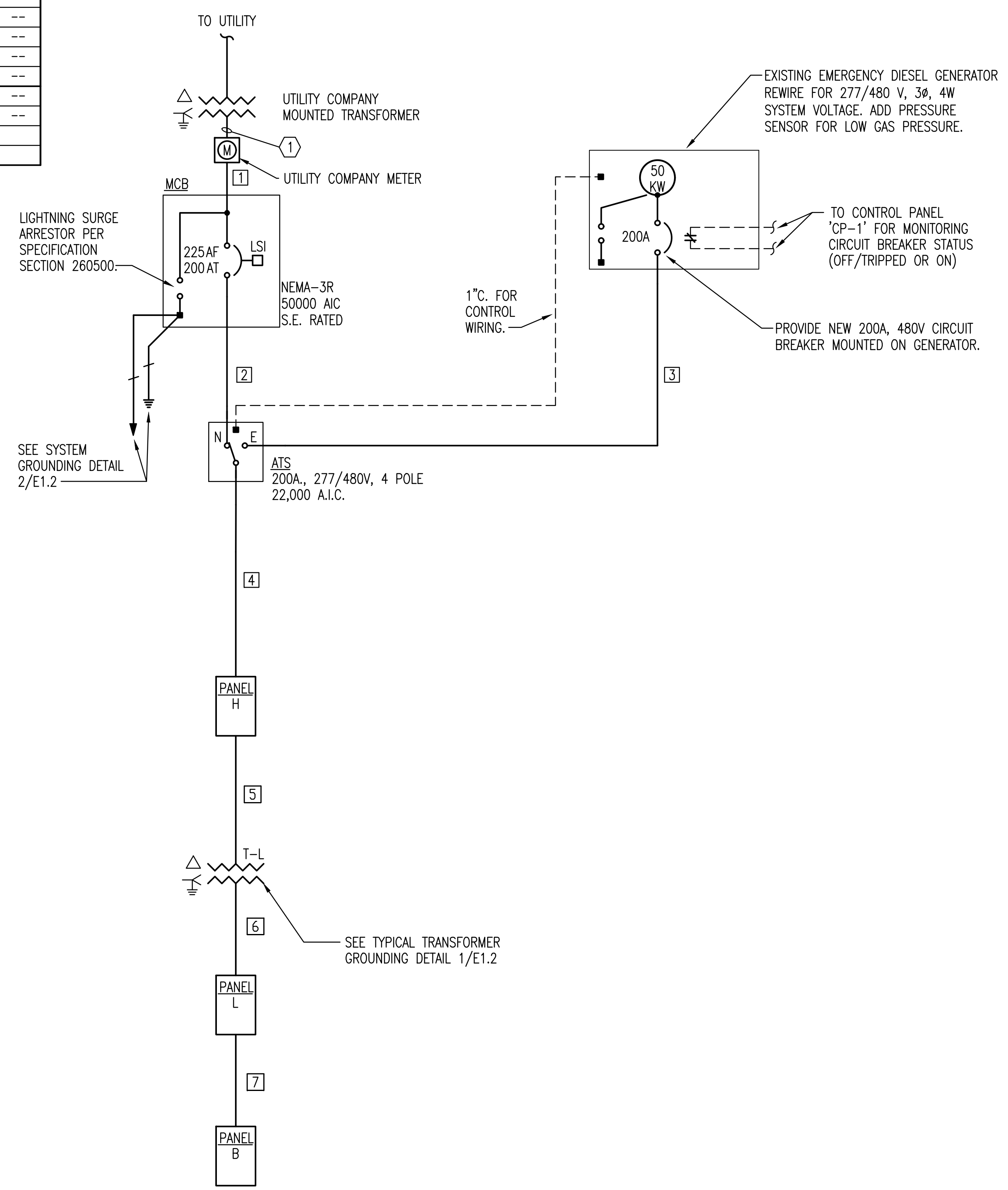
DESIG.	EQUIPMENT SERVED	CONDUCTORS			GROUND SIZE PER SET	ISOLATED GROUND SIZE	CONDUIT SIZE PER SET	SPARE CONDUIT
		SETS	NO.	SIZE				
1	MAIN CKT BKR:MCB	1	4	#3/0 AWG CU	#6	--	3"C.	--
2	AUTO. TRANSFER SW.:ATS	1	4	#3/0 AWG CU	#6	--	3"C.	--
3	AUTO. TRANSFER SW.:ATS	1	4	#1 AWG CU	#8	--	2"C.	--
4	PANELBOARD:H	1	4	#3/0 AWG CU	#6	--	2"C.	--
5	TRANSFORMER:T-L	1	3	#4 AWG CU	#8	--	1-1/4"C.	--
6	PANELBOARD:L	1	4	#1/0 AWG CU	#6	--	2"C.	--
7	PANELBOARD:B	1	4	#4 AWG CU	#10	--	1-1/4"C.	--
D	EXISTING TO BE REMOVED							
00	SEE PROCESS CONNECTION SCHEDULE							



**1 ELECTRICAL DEMOLITION ONE-LINE DIAGRAM**  
NO SCALE

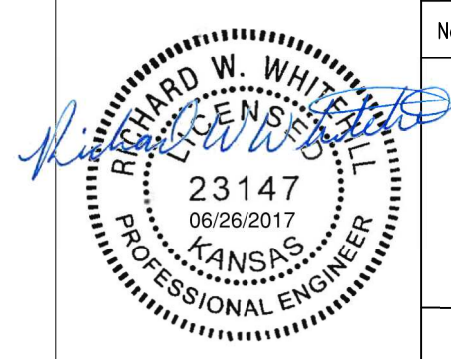
**KEYED NOTES:**

- ① CONTRACTOR TO PROVIDE 3" SCHEDULE 40 PVC CONDUIT AND PULL ROPE. WESTAR TO PROVIDE AND INSTALL SERVICE CONDUCTORS.



**2 ELECTRICAL ONE-LINE DIAGRAM**  
NO SCALE

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 U:\Wichita-Civil\2016\160316\001\Elec\Drawings\160316-001-E0.2 ELECTRICAL ONE-LINE DIAGRAM



No.	Revision	By	Date
LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>ELECTRICAL ONE-LINE DIAGRAM</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136			
PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com			
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Drawn by	JBG	Date	JUNE 2017
			Sht. E0.2





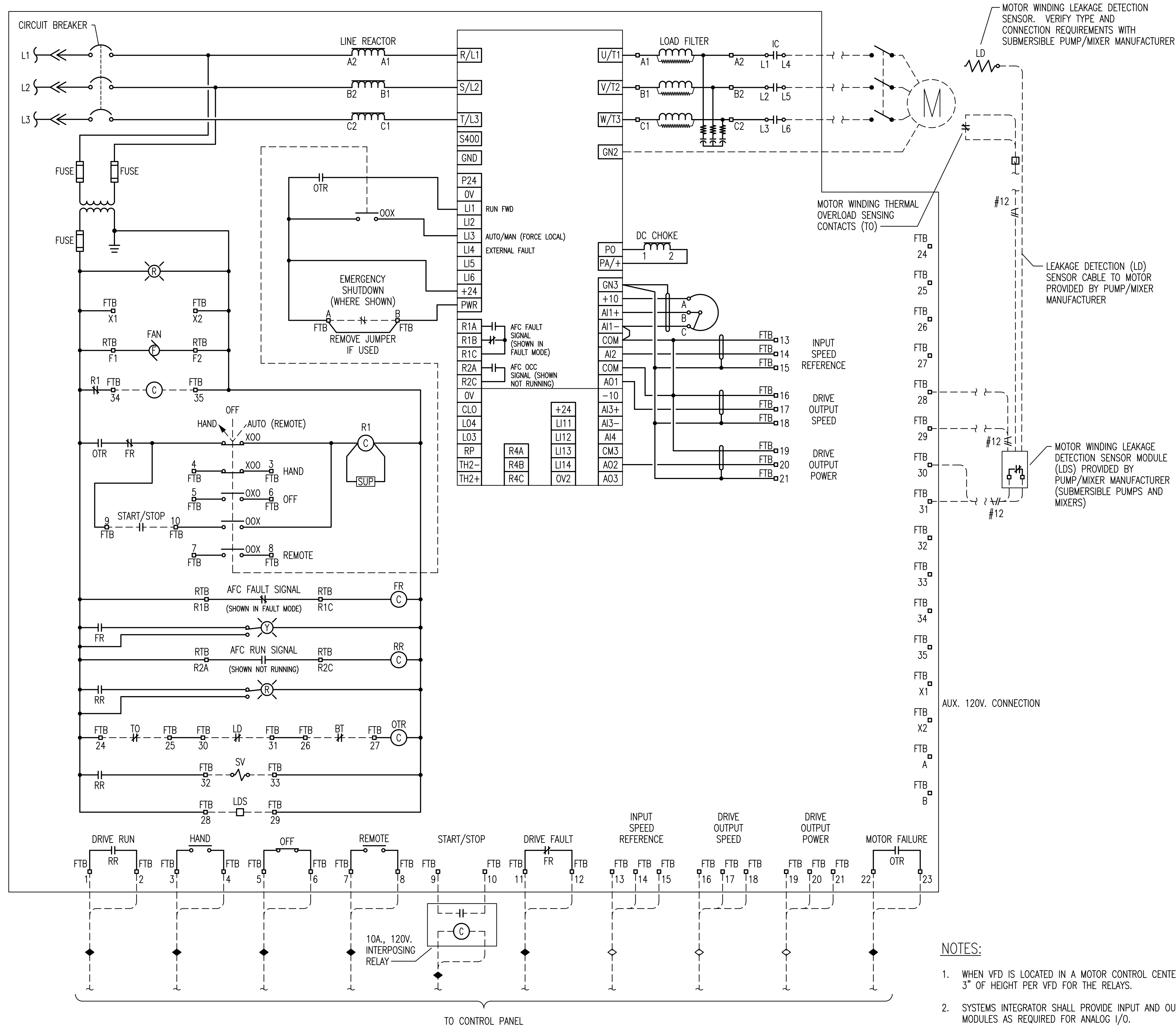
# CONTROL PANEL CP

LOCATION:  
LIFT STATION

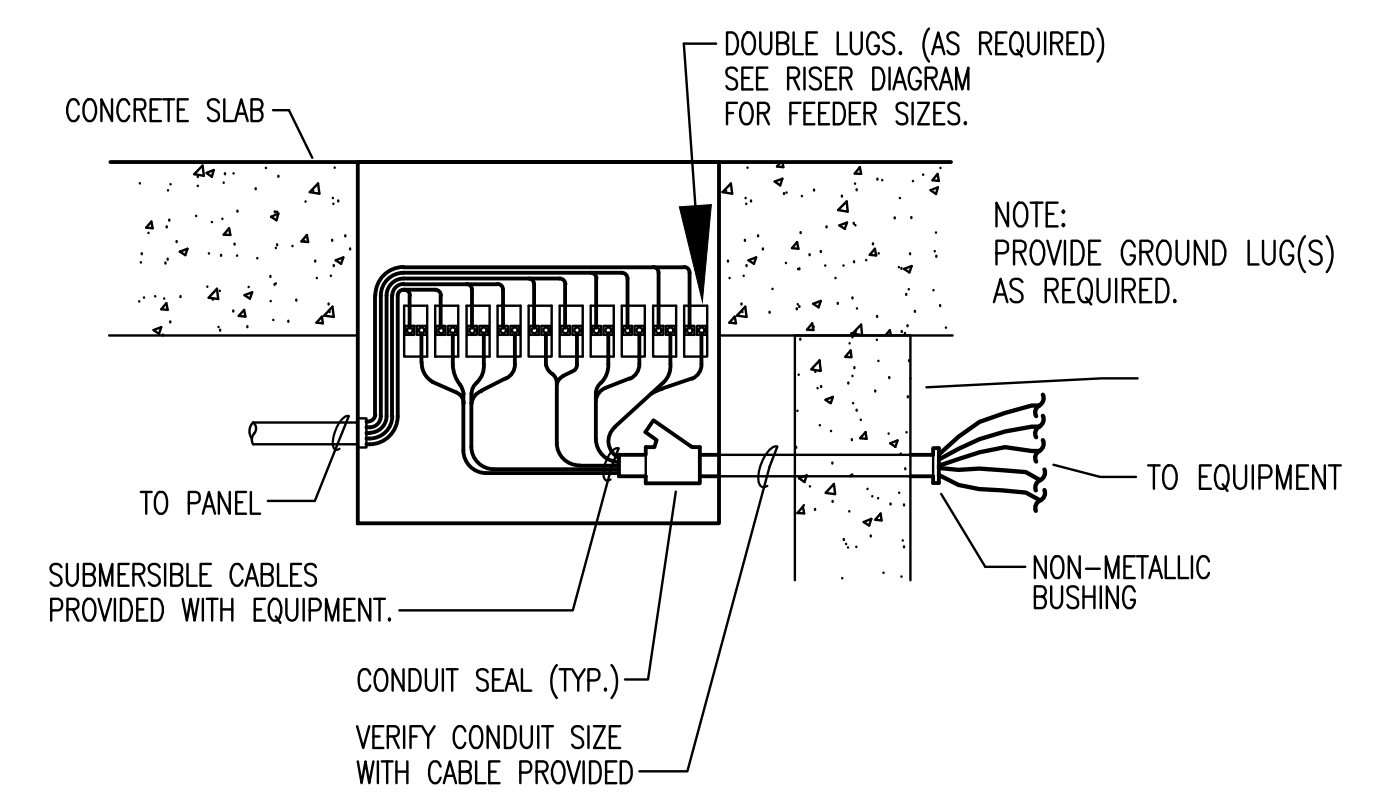
CIRCUIT NO.	EQUIPMENT SERVED/ MARK	CONNECT				DESCRIPTION/FUNCTION	CONDUCTORS IN CABLE	DISCRETE	ANALOG	DIGITAL	INPUT	OUTPUT	REMARKS
		DEVICE	CTL.	P.NL	STARTER								
1	VFD-1	-	-	-	X	DRIVE RUN INDICATION	2	X	-	-	X	-	
2		-	-	-	X	DRIVE HAND INDICATION	2	X	-	-	X	-	
3		-	-	-	X	DRIVE OFF INDICATION	2	X	-	-	X	-	
4		-	-	-	X	DRIVE REMOTE INDICATION	2	X	-	-	X	-	
5		-	-	-	X	DRIVE START/STOP R.C.	2	X	-	-	-	X	
6		-	-	-	X	DRIVE FAULT	2	X	-	-	X	-	
7		-	-	-	X	DRIVE SPEED REFERENCE	TSPR	-	X	-	-	X	
8		-	-	-	X	DRIVE OUTPUT SPEED	TSPR	-	X	-	-	X	
9		-	-	-	X	DRIVE OUTPUT POWER	TSPR	-	X	-	-	X	
10		-	-	-	X	MOTOR FAILURE	2	X	-	-	X	-	
11	VFD-2	-	-	-	X	DRIVE RUN INDICATION	2	X	-	-	X	-	
12		-	-	-	X	DRIVE HAND INDICATION	2	X	-	-	X	-	
13		-	-	-	X	DRIVE OFF INDICATION	2	X	-	-	X	-	
14		-	-	-	X	DRIVE REMOTE INDICATION	2	X	-	-	X	-	
15		-	-	-	X	DRIVE START/STOP R.C.	2	X	-	-	-	X	
16		-	-	-	X	DRIVE FAULT	2	X	-	-	X	-	
17		-	-	-	X	DRIVE SPEED REFERENCE	TSPR	-	X	-	-	X	
18		-	-	-	X	DRIVE OUTPUT SPEED	TSPR	-	X	-	-	X	
19		-	-	-	X	DRIVE OUTPUT POWER	TSPR	-	X	-	-	X	
20		-	-	-	X	MOTOR FAILURE	2	X	-	-	X	-	
21	VFD-3	-	-	-	X	DRIVE RUN INDICATION	2	X	-	-	X	-	
22		-	-	-	X	DRIVE HAND INDICATION	2	X	-	-	X	-	
23		-	-	-	X	DRIVE OFF INDICATION	2	X	-	-	X	-	
24		-	-	-	X	DRIVE REMOTE INDICATION	2	X	-	-	X	-	
25		-	-	-	X	DRIVE START/STOP R.C.	2	X	-	-	-	X	
26		-	-	-	X	DRIVE FAULT	2	X	-	-	X	-	
27		-	-	-	X	DRIVE SPEED REFERENCE	TSPR	-	X	-	-	X	
28		-	-	-	X	DRIVE OUTPUT SPEED	TSPR	-	X	-	-	X	
29		-	-	-	X	DRIVE OUTPUT POWER	TSPR	-	X	-	-	X	
30		-	-	-	X	MOTOR FAILURE	2	X	-	-	X	-	
31	GENERATOR	-	X	-	-	RUN STATUS	2	X	-	-	X	-	
32		-	X	-	-	FAIL	2	X	-	-	X	-	
33	ATS	-	X	-	-	LOW FUEL PRESSURE	2	X	-	-	X	-	
34		-	X	-	-	NORMAL POSITION	2	X	-	-	X	-	
35	AIP	-	X	-	-	EMERGENCY POSITION	2	X	-	-	X	-	
36		X	-	-	-	MANDOWN PUSHBUTTON	2	X	-	-	X	-	
37	X	-	-	-	ALARM BYPASS	2	X	-	-	X	-		
38	LS-1	X	-	-	-	INTRUSION ALARM	2	X	-	-	X	-	
39	LE-1	X	-	-	-	PUMP 1 LOW LEVEL INDICATION	2	X	-	-	X	-	
40	LE-2	X	-	-	-	PUMP 1 HIGH LEVEL INDICATION	2	X	-	-	X	-	
41	LE-3	X	-	-	-	PUMP 2 LOW LEVEL INDICATION	2	X	-	-	X	-	
42	LE-4	X	-	-	-	PUMP 2 HIGH LEVEL INDICATION	2	X	-	-	X	-	
43	LE-5	X	-	-	-	PUMP 3 LOW LEVEL INDICATION	2	X	-	-	X	-	
44	LE-6	X	-	-	-	PUMP 3 HIGH LEVEL INDICATION	2	X	-	-	X	-	
45	PT-1	X	-	-	-	PRESSURE TRANSMITTER	TSPR	-	X	-	X	-	
46	PE-1	X	-	-	-	PUMP 1 PRESSURE INDICATION	TSPR	-	X	-	X	-	
47	PE-2	X	-	-	-	PUMP 2 PRESSURE INDICATION	TSPR	-	X	-	X	-	
48	PE-3	X	-	-	-	PUMP 3 PRESSURE INDICATION	TSPR	-	X	-	X	-	
49	PE-4	X	-	-	-	PRESSURE INDICATION	TSPR	-	X	-	X	-	
50	FE-1	X	-	-	-	FLOW ELEMENT	TSPR	-	X	-	X	-	
51	AT-1	X	-	-	-	BUFFER SOLUTION ANALYZER	TSPR	-	X	-	X	-	
52	CS-1	X	-	-	-	CURRENT SENSOR	TSPR	-	X	-	X	-	PROVIDE LOCAL ALARM TO WARN WHEN EXHAUST FAN IS OFF.

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No.	Revision	By	Date
LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>CONTROL SCHEDULE</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136			
			
 <b>PEC</b> PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com			
Designed by	RWW	Job No.	35-160316-1-0042
Drawn by	JBG	Date	JUNE 2017
			Sht. E0.4



1 VARIABLE FREQUENCY DRIVE WIRING DIAGRAM  
NO SCALE



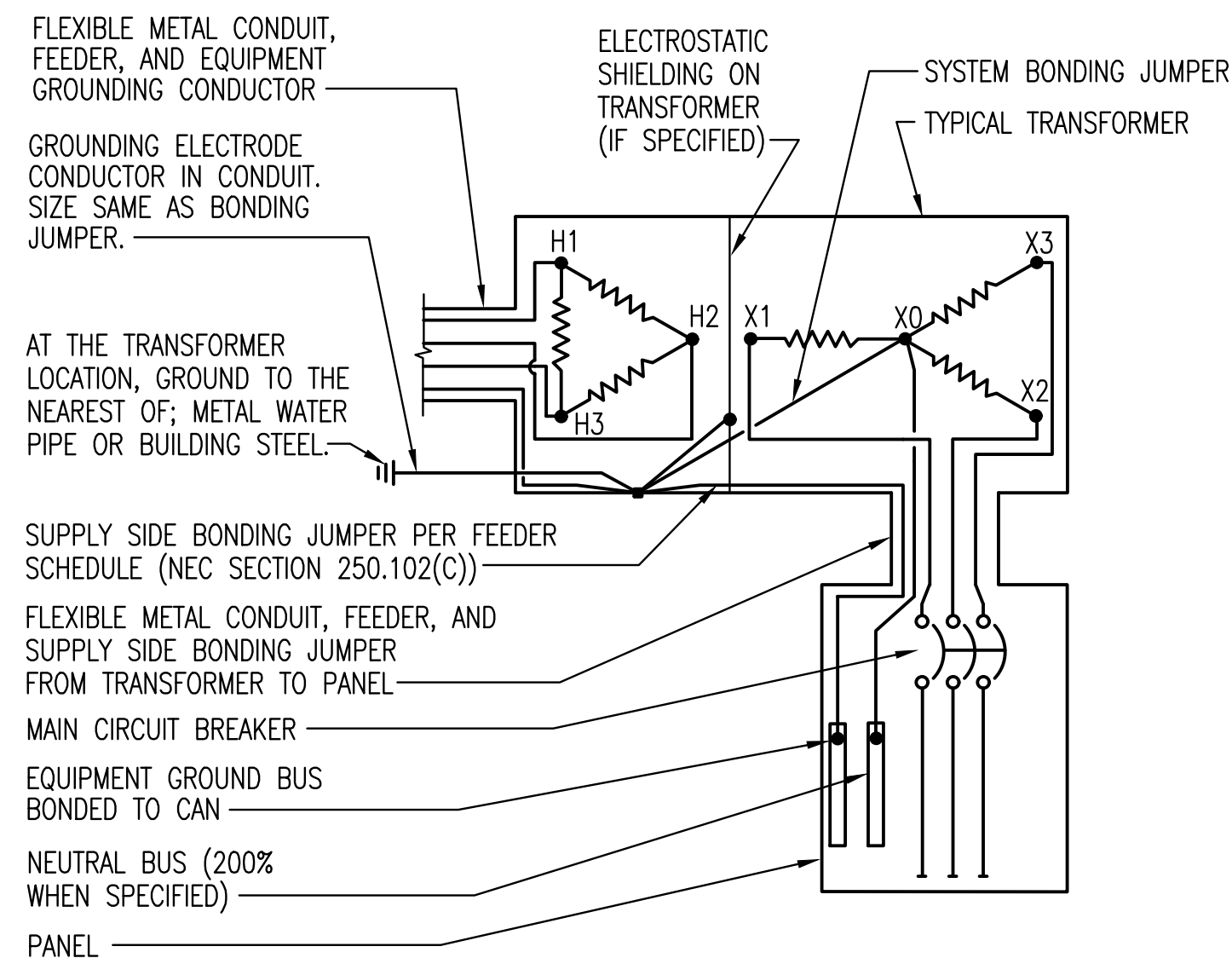
2 CONNECTION JUNCTION BOX DETAIL  
NO SCALE

NOTES:

- WHEN VFD IS LOCATED IN A MOTOR CONTROL CENTER, ALLOW AN ADDITIONAL 3" OF HEIGHT PER VFD FOR THE RELAYS.
- SYSTEMS INTEGRATOR SHALL PROVIDE INPUT AND OUTPUT ISOLATION MODULES AS REQUIRED FOR ANALOG I/O.
- ALL VARIABLE FREQUENCY DRIVES SHOWN IN PROCESS EQUIPMENT CONNECTION SCHEDULES SHALL BE PROVIDED WITH THE RELAYS AND EQUIPMENT AS SHOWN IN THIS DIAGRAM.
- IF MECHANICAL EQUIPMENT IS CONTROLLED BY THE SCADA SYSTEM, ALL VARIABLE FREQUENCY DRIVES SHOWN IN MECHANICAL EQUIPMENT CONNECTION SCHEDULES SHALL BE PROVIDED WITH THE RELAYS AND EQUIPMENT AS SHOWN IN THIS DIAGRAM.

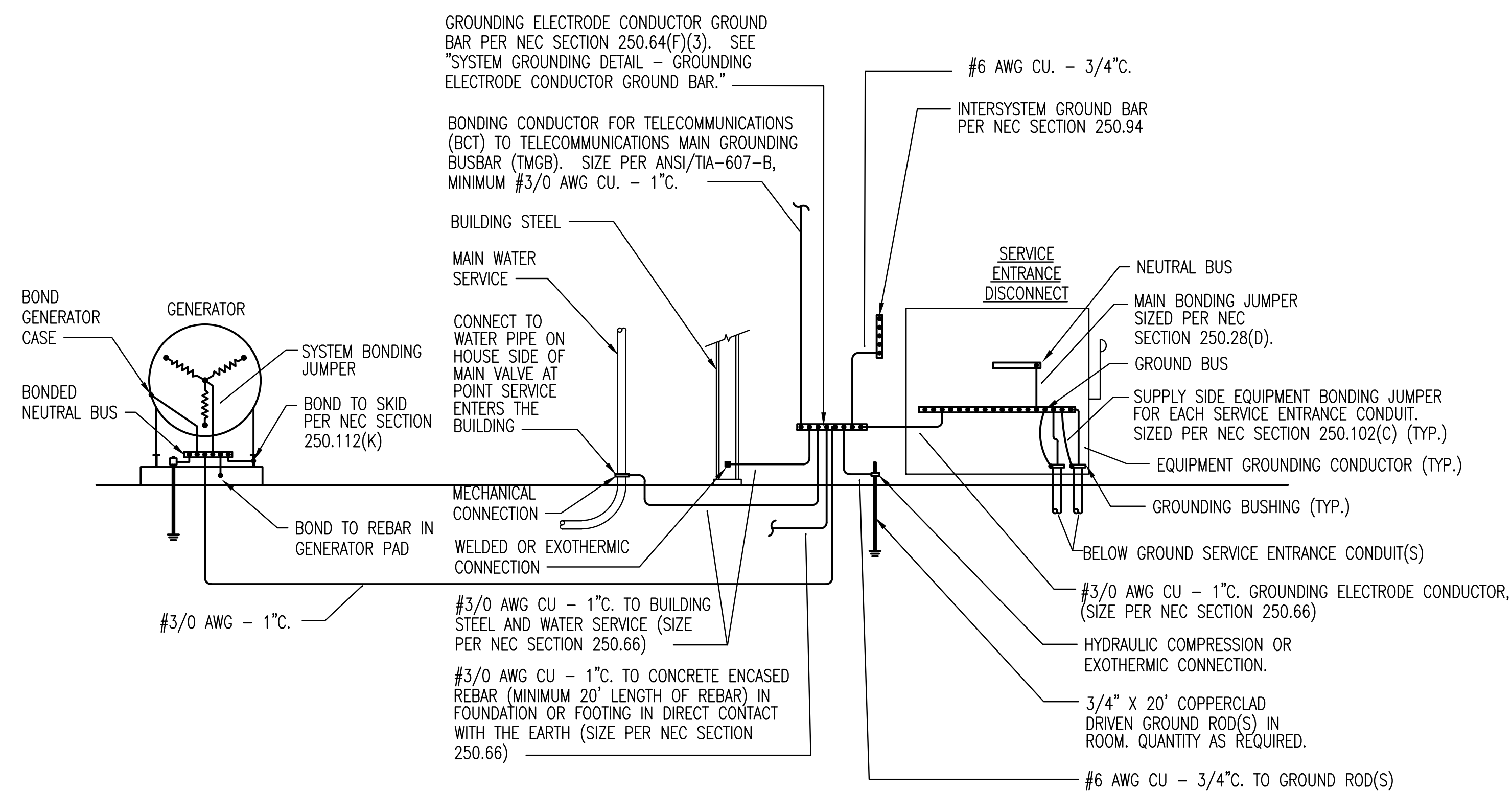
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 U:\Wichita-Civil\2016\160316\001\Elec\Drawings\160316-001-E1.1 ELECTRICAL DETAILS

		No. _____ Revision _____ By _____ Date _____	
LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>ELECTRICAL DETAILS</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136			
		PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com	
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Drawn by	JBG	Date	JUNE 2017
			Sht. E1.1



**1** TYPICAL TRANSFORMER GROUNDING DETAIL

NO SCALE NOTE: WHERE METAL WATER PIPING OR BUILDING STEEL IS UNAVAILABLE, GROUND TO ANY OF THE OTHER ELECTRODES IDENTIFIED IN NEC SECTION 250.52(A).

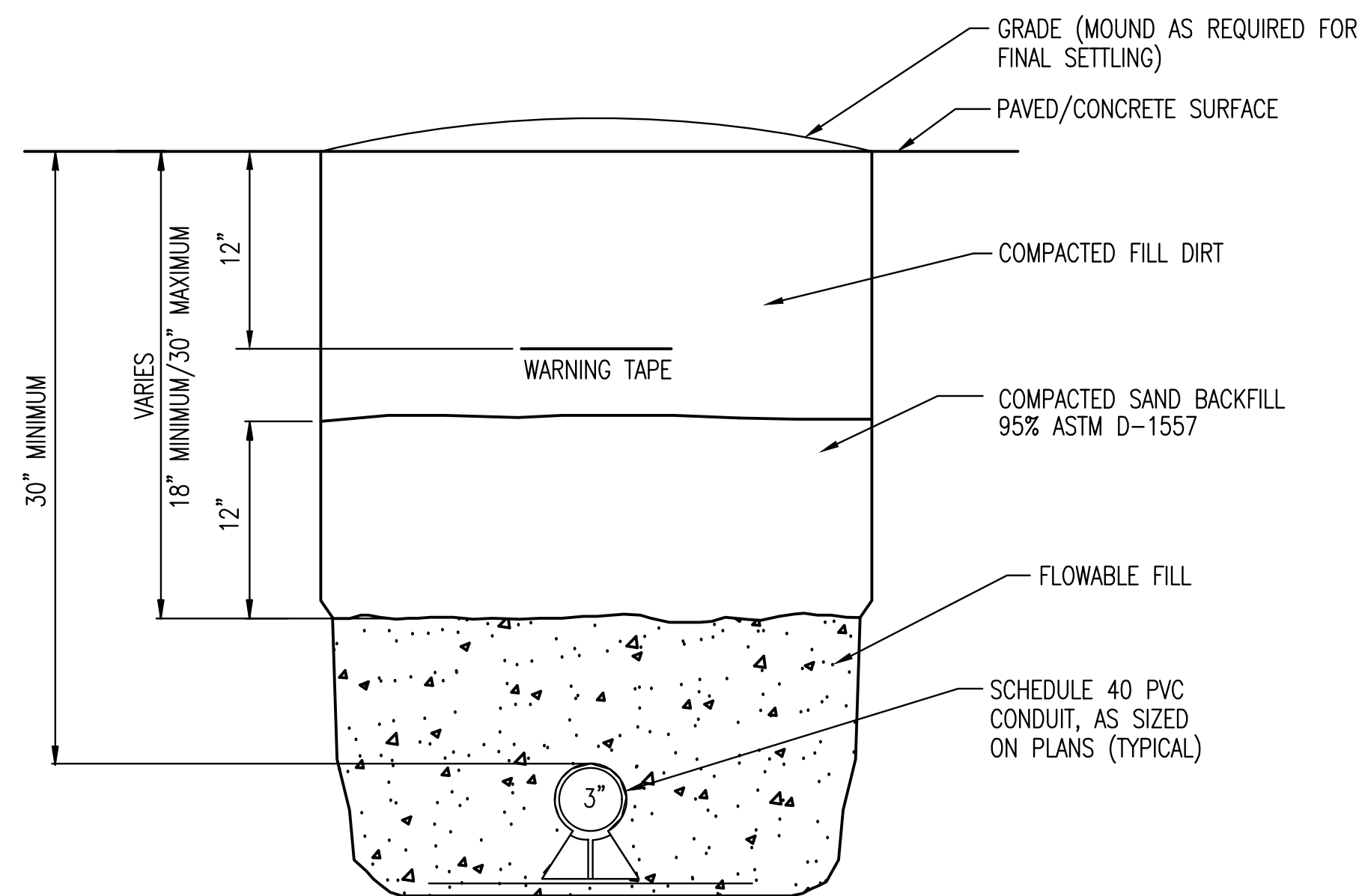


**NOTES:**

1. PROVIDE OTHER GROUNDING CONNECTIONS AS SPECIFIED IN NEC SECTION 250.50.
2. LABEL EACH GROUNDING ELECTRODE CONDUCTOR AND BONDING JUMPER.
3. WHERE CONDUCTORS ARE ROUTED IN FERROUS CONDUIT, BOND BOTH ENDS OF THE CONDUIT TO THE CONDUCTOR.

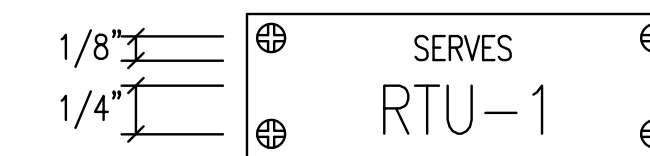
**2** SYSTEM GROUNDING DETAIL - DISCONNECT WITH 4-POLE ATS

NO SCALE

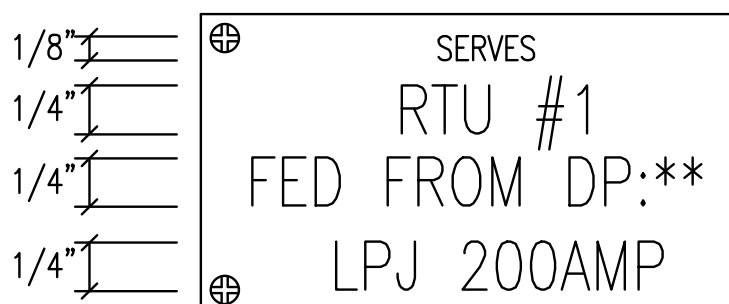


**4** DUCTBANK DETAIL - FLOWABLE FILL

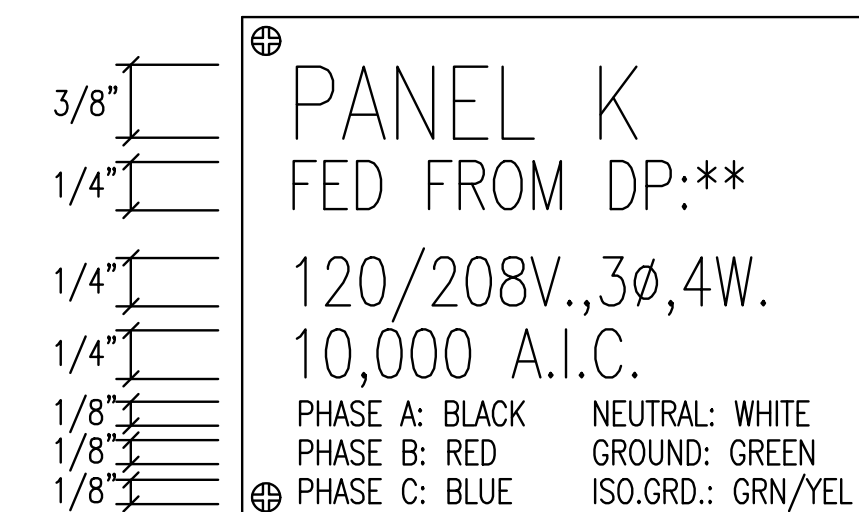
NO SCALE



SWITCHBOARD/DISTRIBUTION PANEL/MOTOR CONTROL CENTER BREAKER/SWITCH



DISCONNECT SWITCH



BRANCH CIRCUIT/DISTRIBUTION PANEL

**3** TYPICAL NAME PLATES

NO SCALE

NOTE: SEE SPECIFICATION SECTION 260500 FOR NAME PLATE COLOR REQUIREMENTS.

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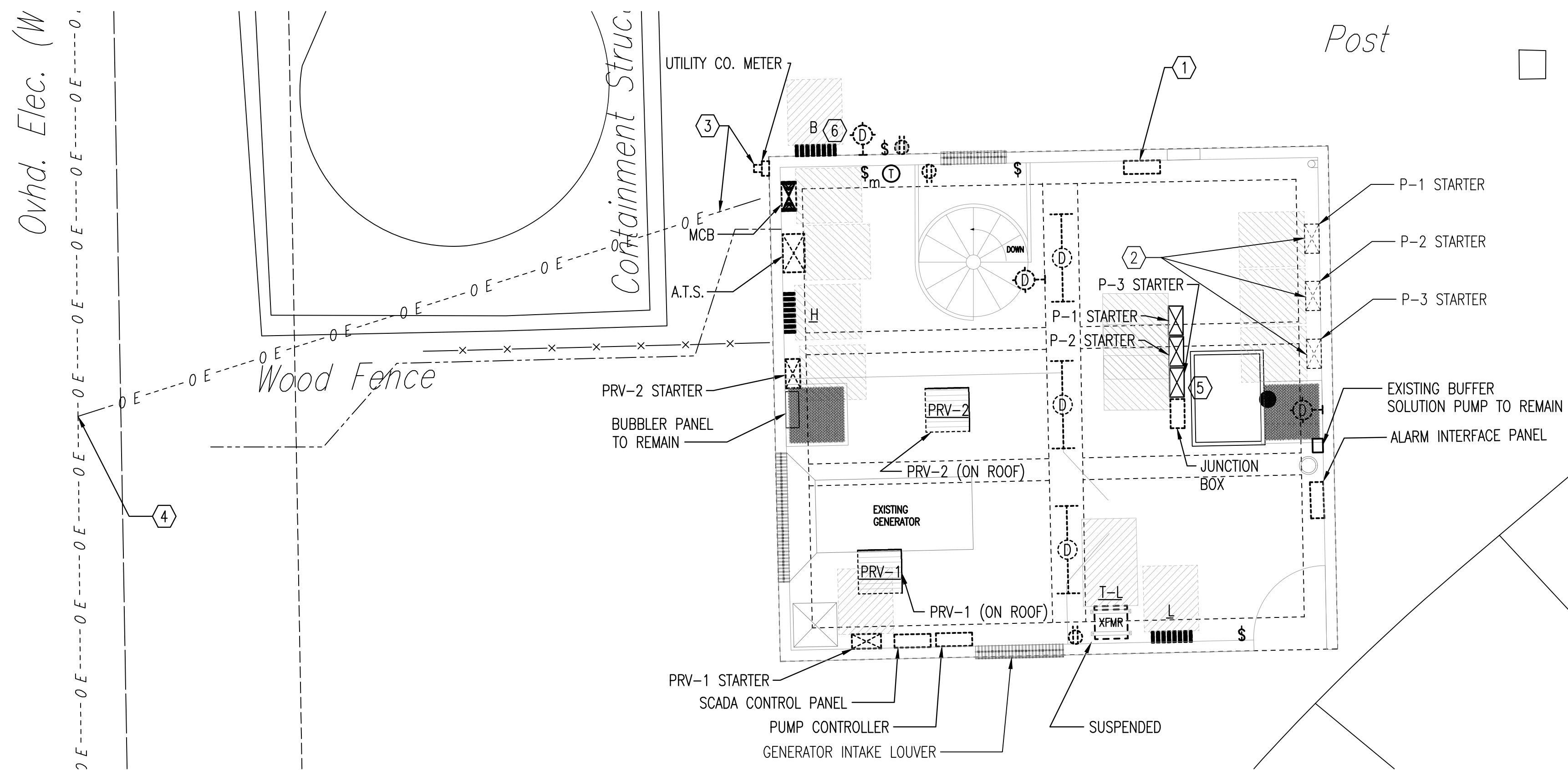
No.	Revision	By	Date
LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>ELECTRICAL DETAILS</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136			
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Drawn by	JBG	Date	JUNE 2017
			Sht. E1.2

**DEMOLITION NOTES:**

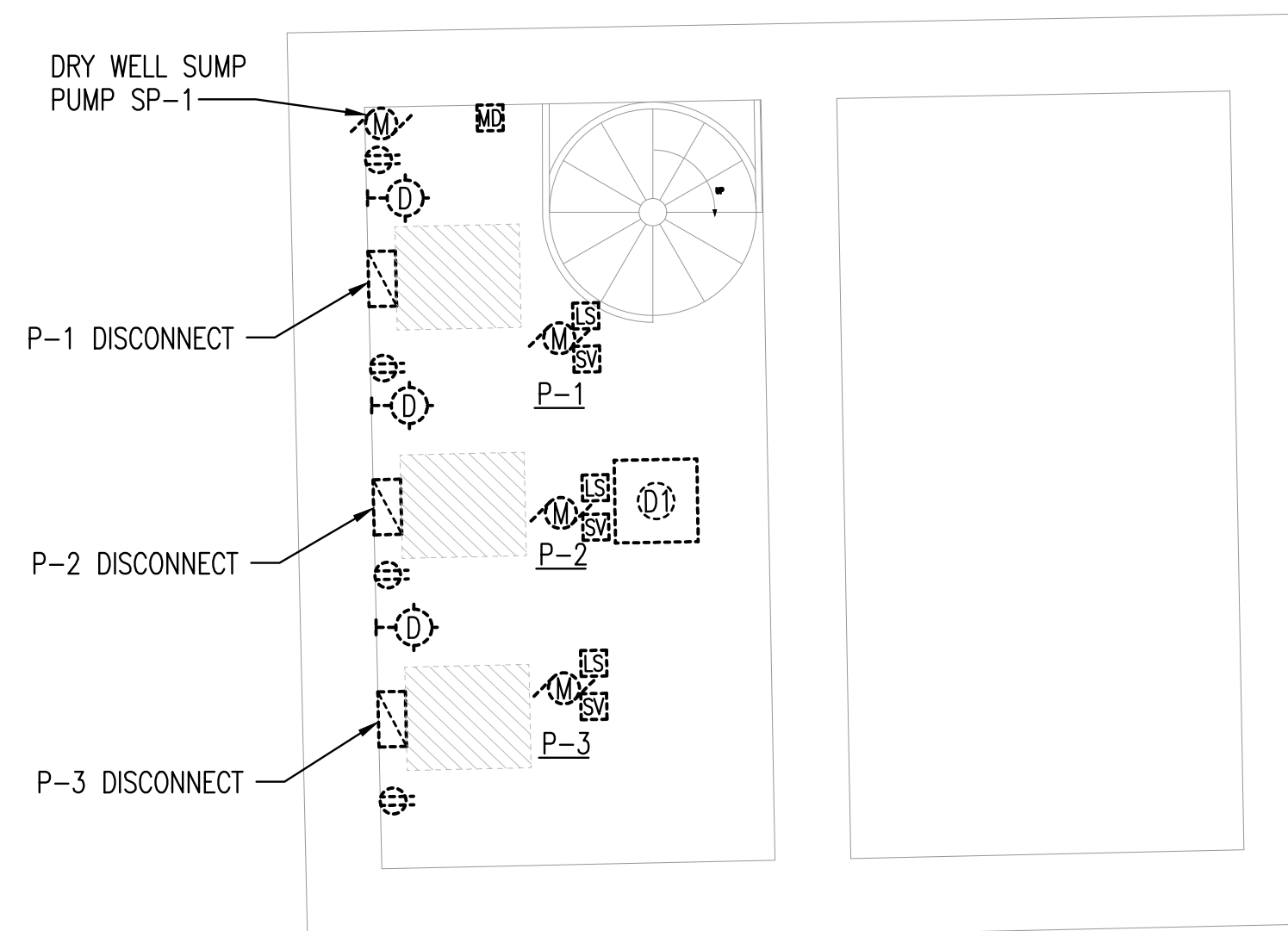
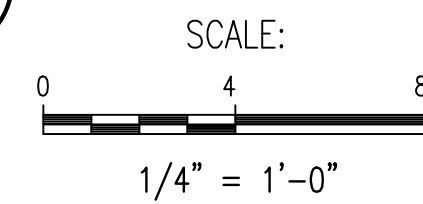
- DEMOLITION PLANS SHOW THE GENERAL EXTENT OF THE ELECTRICAL DEMOLITION WORK. THE ELECTRICAL CONTRACTOR SHALL DISCONNECT ELECTRICAL SERVICES TO ALL EQUIPMENT BEING REMOVED, SEE MECHANICAL PLANS. OWNER SHALL HAVE THE OPTION TO RETAIN REUSABLE ITEMS, SUCH AS COVERPLATES, RECEPTACLES, LIGHTS, PANELS, ETC. NOT BEING USED IN THE FINISHED WORK. COORDINATE WITH OWNER PRIOR TO STARTING DEMOLITION. PROPERLY AND LEGALLY DISPOSE OF ALL EQUIPMENT AND MATERIALS BEING REMOVED.
- GENERAL CONTRACTOR SHALL BE RESPONSIBLE FOR PATCHING ALL OPENINGS IN EXISTING CONSTRUCTION AFTER REMOVAL OF EQUIPMENT AND ELECTRICAL DEVICES, ETC.
- WHERE EQUIPMENT AND OTHER DEVICES ARE BEING REMOVED, THE CIRCUITING SHALL BE REMOVED, IF POSSIBLE, BACK TO POINT OF SUPPLY. WHERE REQUIRED, CIRCUITING SHALL BE EXTENDED TO MAINTAIN CONTINUITY OF THE CIRCUIT OR OPERATION OF THE SYSTEM.
- ALL DEVICES SHOWN DASHED ON THE DEMOLITION PLAN(S) SHALL BE REMOVED, UNLESS NOTED OTHERWISE.
- PROVIDE MATCHING BLANK COVERPLATES WHERE DEVICES ARE BEING REMOVED FROM EXISTING WALLS TO REMAIN.
- FIELD VERIFY ALL EXISTING CONDITIONS AND DIMENSIONS PRIOR TO BEGINNING WORK.
- ALL EQUIPMENT TO BE REMOVED DURING PHASE 2 UNLESS OTHERWISE NOTED.

**KEYED NOTES:**

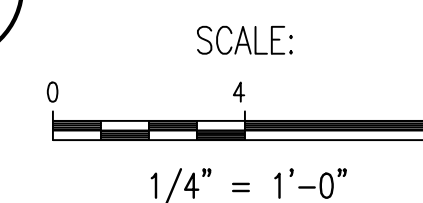
- ABANDONED STARTER TO BE REMOVED DURING PHASE 1.
- MOTOR STARTERS TO BE RELOCATED DURING PHASE 1. EXTEND CONDUITS AND CIRCUITS AS REQUIRED.
- EXISTING UTILITY METER AND OVERHEAD SERVICE CONDUCTORS TO BE REMOVED DURING PHASE 2. COORDINATE WITH UTILITY COMPANY.
- EXISTING UTILITY COMPANY POLE-MOUNTED TRANSFORMERS TO BE REMOVED DURING PHASE 2. COORDINATE WITH UTILITY COMPANY.
- RELOCATE P-1, P-2 AND P-3 STARTERS TO EXISTING UNISTRUT STRUCTURE DURING PHASE 1. EXTEND STRUCTURE AS REQUIRE. STARTERS TO BE REMOVED DURING PHASE 2.
- REPLACE PANEL INTERIOR



**A ELECTRICAL DEMOLITION PLAN**



**B ELECTRICAL DEMOLITION PLAN - BASEMENT**



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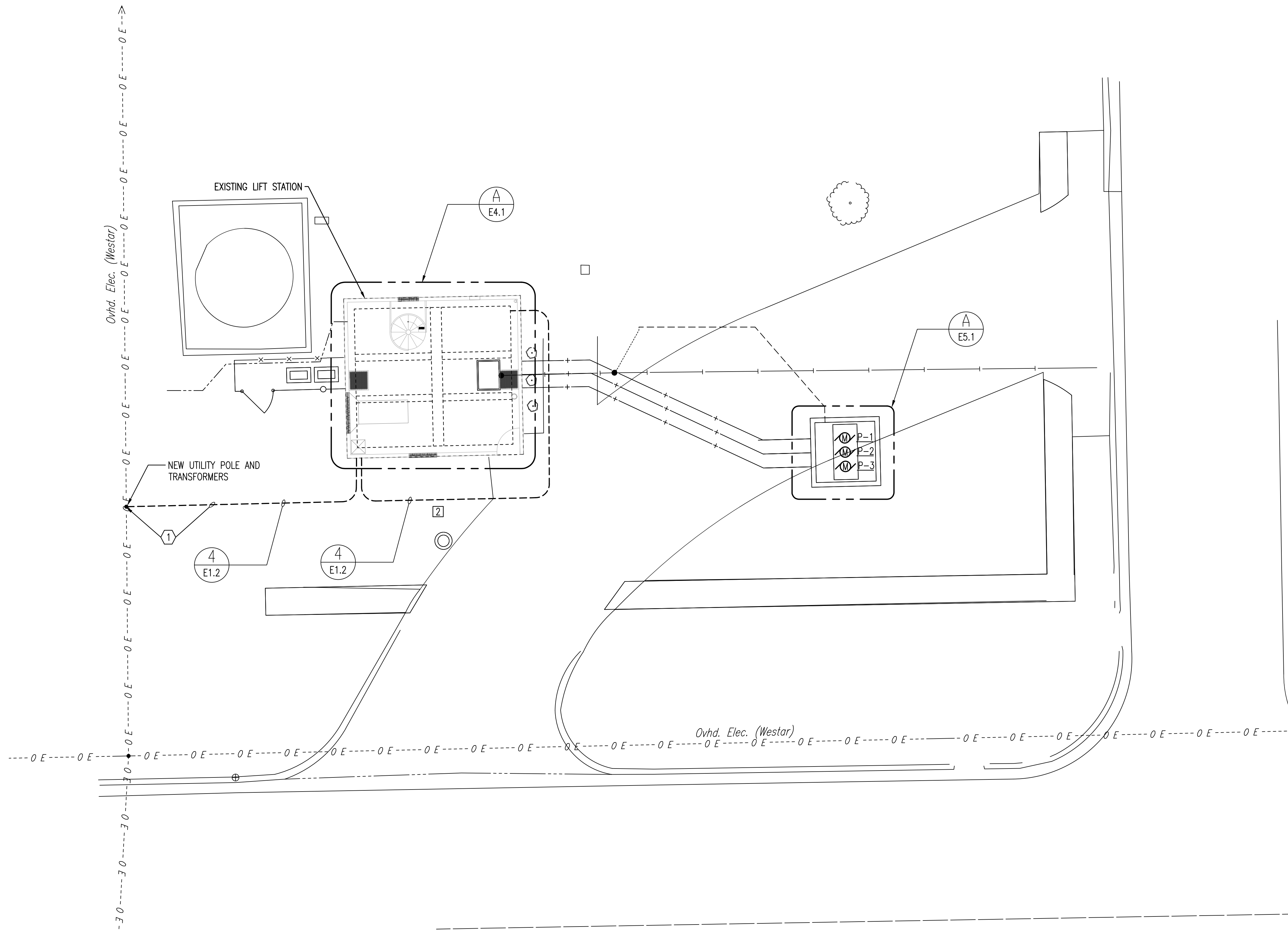
No.	Revision	By	Date
LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>ELECTRICAL DEMOLITION PLAN</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136			
		PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com	
Designed by	RWW	Job No.	35-160316-1-0042
Drawn by	JBG	Date	JUNE 2017
			Sht. E2.1

**ELECTRICAL SITE PLAN NOTES:**

1. UNLESS OTHERWISE NOTED, ALL CONDUIT ROUTED ON SITE SHALL BE 1" MINIMUM.
2. ALL RISERS SHALL BE PVC COATED RIGID GALVANIZED STEEL (RGS) ALL ELLS BELOW GRADE SHALL BE PVC COATED RIGID GALVANIZED STEEL (RGS). PROVIDE WITH PVC TO STEEL ADAPTER(S) AS NECESSARY. (THIS REQUIREMENT SHALL NOT APPLY TO FIXTURE POLE BASES)
3. ALL ELECTRICAL WORK AND FEES ASSOCIATED WITH UTILITIES SHALL BE VERIFIED AND COORDINATED WITH LOCAL SERVICE PROVIDER PRIOR TO BID.
4. CONTRACTOR SHALL REFERENCE ALL RELATED CONTRACT DOCUMENTS, SITE SURVEY, AND OTHER RESOURCES FOR POSSIBLE CONFLICTS WITH OTHER UNDERGROUND UTILITIES. AT UTILITY CROSSINGS, CONTRACTOR SHALL VERIFY UTILITY DEPTHS AND COORDINATE CONDUIT ROUTING AS NECESSARY.
5. CONTRACTOR SHALL VERIFY AND COORDINATE EXISTING CONDITIONS OF PROJECT SITE PRIOR TO BID.

**KEYED NOTES:**

- ① CONTRACTOR TO PROVIDE 3" SCHEDULE 40 PVC CONDUIT AND PULL ROPE TO UTILITY COMPANY POLE. INSTALLATION TO BE PER WESTAR SERVICE STANDARDS.

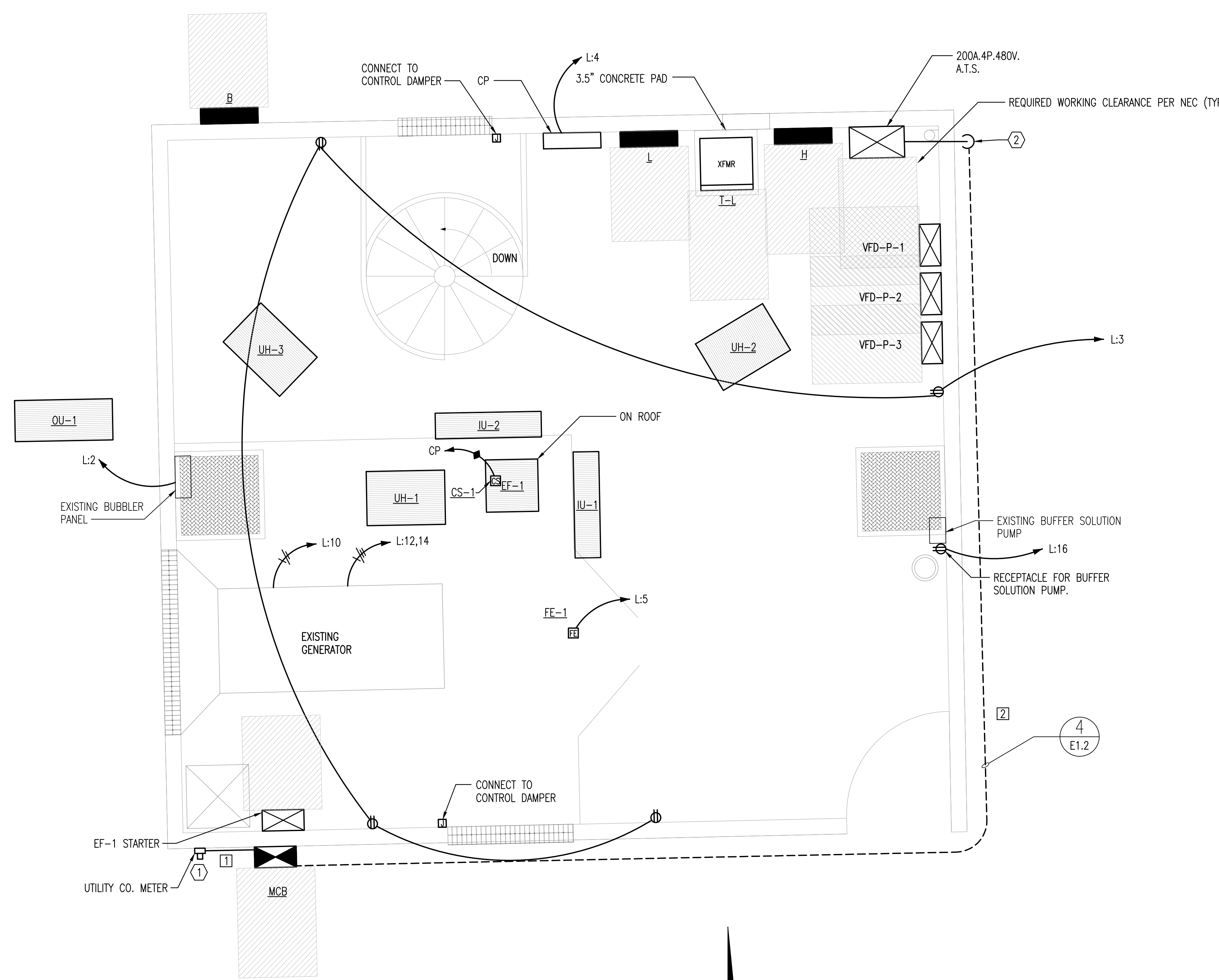


**A ELECTRICAL SITE PLAN**

SCALE:  
0 8 16  
1/8" = 1'-0"



No.	Revision	By	Date
LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>ELECTRICAL SITE PLAN</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136			
		PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com	
Designed by	RWW	Job No.	35-160316-1-0042
Drawn by	JBG	Date	JUNE 2017
			Sht. E3.1



**A ELECTRICAL POWER PLAN**  
 SCALE:  
 0' 2' 4'  
 1/2" = 1'-0"

**PLAN NOTES:**

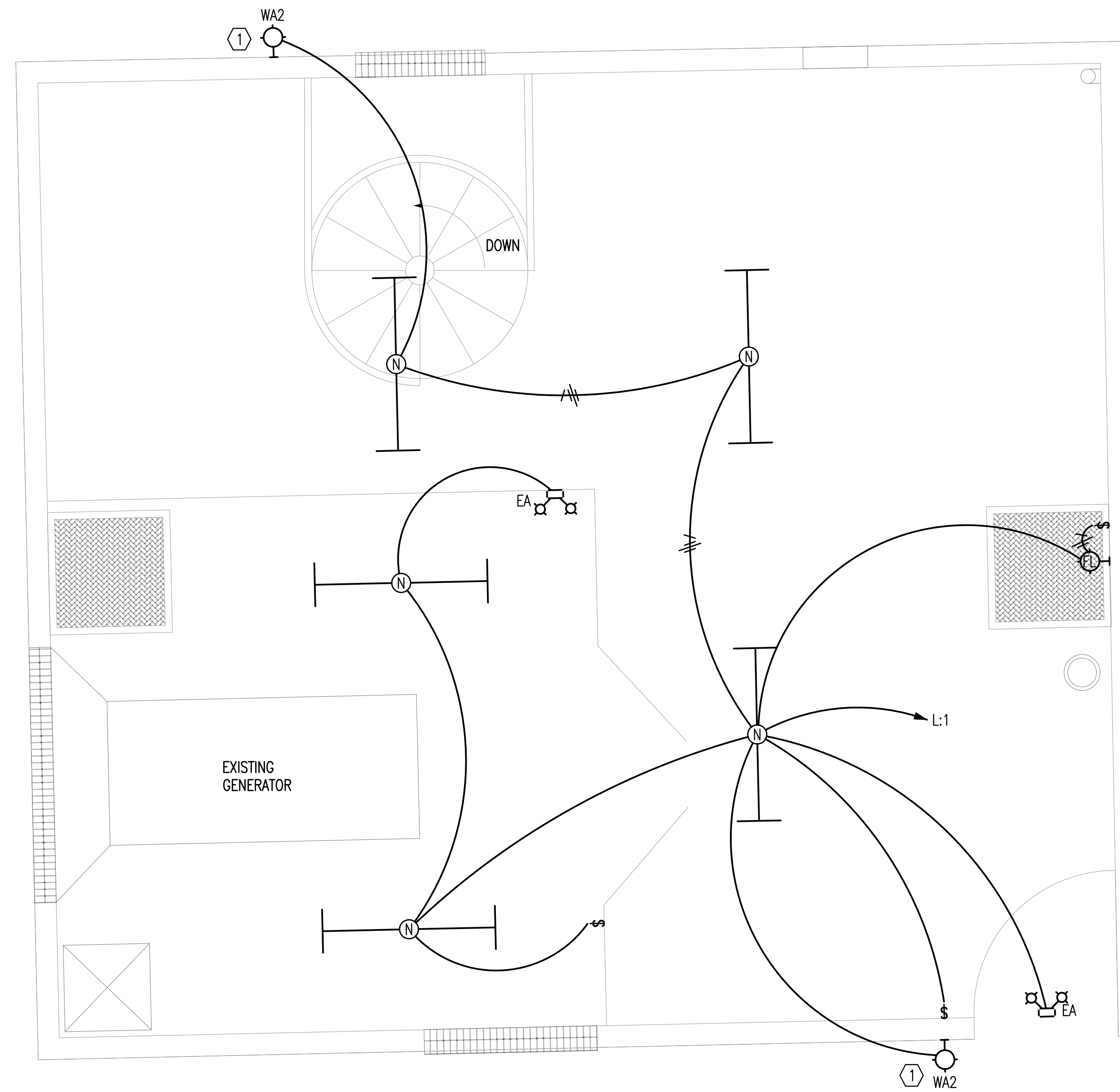
- BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. A MAXIMUM OF THREE CIRCUITS (MAXIMUM OF THREE PHASE CONDUCTORS) MAY BE GROUPED IN A SINGLE CONDUIT. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH. SEE SPECIFICATION SECTION "LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES" FOR ADDITIONAL INFORMATION.
- A GROUND CONDUCTOR SIZED PER N.E.C. ARTICLE 250 IS REQUIRED IN ALL CONDUITS.
- FOR CONNECTION REQUIREMENTS TO MECHANICAL UNITS, SEE MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
- ALL PENETRATIONS IN THE RATED WALLS AND CEILINGS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES. THE SEALANT SHALL HAVE A T-RATING OF ONE HOUR.
- ALL PIPING, CONDUIT, AND OUTLET BOXES (ELECTRIC, TELEPHONE, COMPUTER, ETC.) IN THE RATED WALLS OR CEILING SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIAL.
- OUTLET BOXES (ELECTRIC, TELEPHONE, COMPUTER, ETC.) SHALL BE LIMITED TO TWO OUTLET BOXES PER STUD SPACE. OUTLET BOXES ON OPPOSITE SIDES OF THE RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF 24 INCHES.

**KEYED NOTES:**

- CONTRACTOR TO INSTALL UTILITY COMPANY METER ENCLOSURE. CONTRACTOR TO PROVIDE AND INSTALL 3" SLIP JOINT (CARLTON E954LXX). INSTALLATION TO BE PER WESTAR SERVICE STANDARDS.
- PENETRATE EXTERIOR WALL NEAR FLOOR AND RUN CONDUIT TO ATS. SEAL WALL PENETRATION WEATHER TIGHT.

Saved: 06-26-2017 3:01:25 PM by JAMES GILLESPIE  
 Plot Scale: 1:1 06-26-2017 3:27:47 PM by JAMES GILLESPIE  
 U:\Wichita-Civil\2016\160316\001\Elec\Drawings\160316-001-E4.1 ELECTRICAL POWER PLAN

	No.	Revision	By	Date
	LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>ELECTRICAL POWER PLAN</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136			
		PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com		
Designed by	RWW	Job No.	35-160316-1-0042	Sht.
Drawn by	JBG	Date	JUNE 2017	E4.1



**A ELECTRICAL LIGHTING PLAN**

SCALE:  
 0' 2' 4'  
 1/2" = 1'-0"

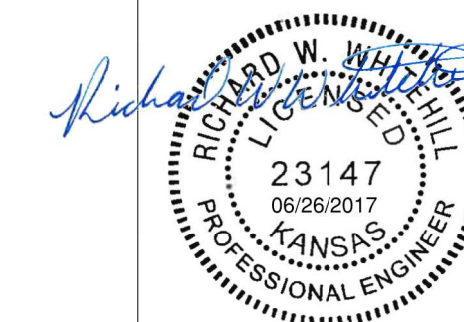
**PLAN NOTES:**


1. BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. A MAXIMUM OF THREE CIRCUITS (MAXIMUM OF THREE PHASE CONDUCTORS) MAY BE GROUPED IN A SINGLE CONDUIT. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH. SEE SPECIFICATION SECTION "LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES" FOR ADDITIONAL INFORMATION.
2. A GROUND CONDUCTOR SIZED PER N.E.C. ARTICLE 250 IS REQUIRED IN ALL CONDUITS.
3. FOR CONNECTION REQUIREMENTS TO MECHANICAL UNITS, SEE MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
4. ALL PENETRATIONS IN THE RATED WALLS AND CEILINGS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES. THE SEALANT SHALL HAVE A T-RATING OF ONE HOUR.
5. ALL PIPING, CONDUIT, AND OUTLET BOXES (ELECTRIC, TELEPHONE, COMPUTER, ETC.) IN THE RATED WALLS OR CEILING SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIAL.
6. OUTLET BOXES (ELECTRIC, TELEPHONE, COMPUTER, ETC.) SHALL BE LIMITED TO TWO OUTLET BOXES PER STUD SPACE. OUTLET BOXES ON OPPOSITE SIDES OF THE RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF 24 INCHES.

**KEYED NOTES:**

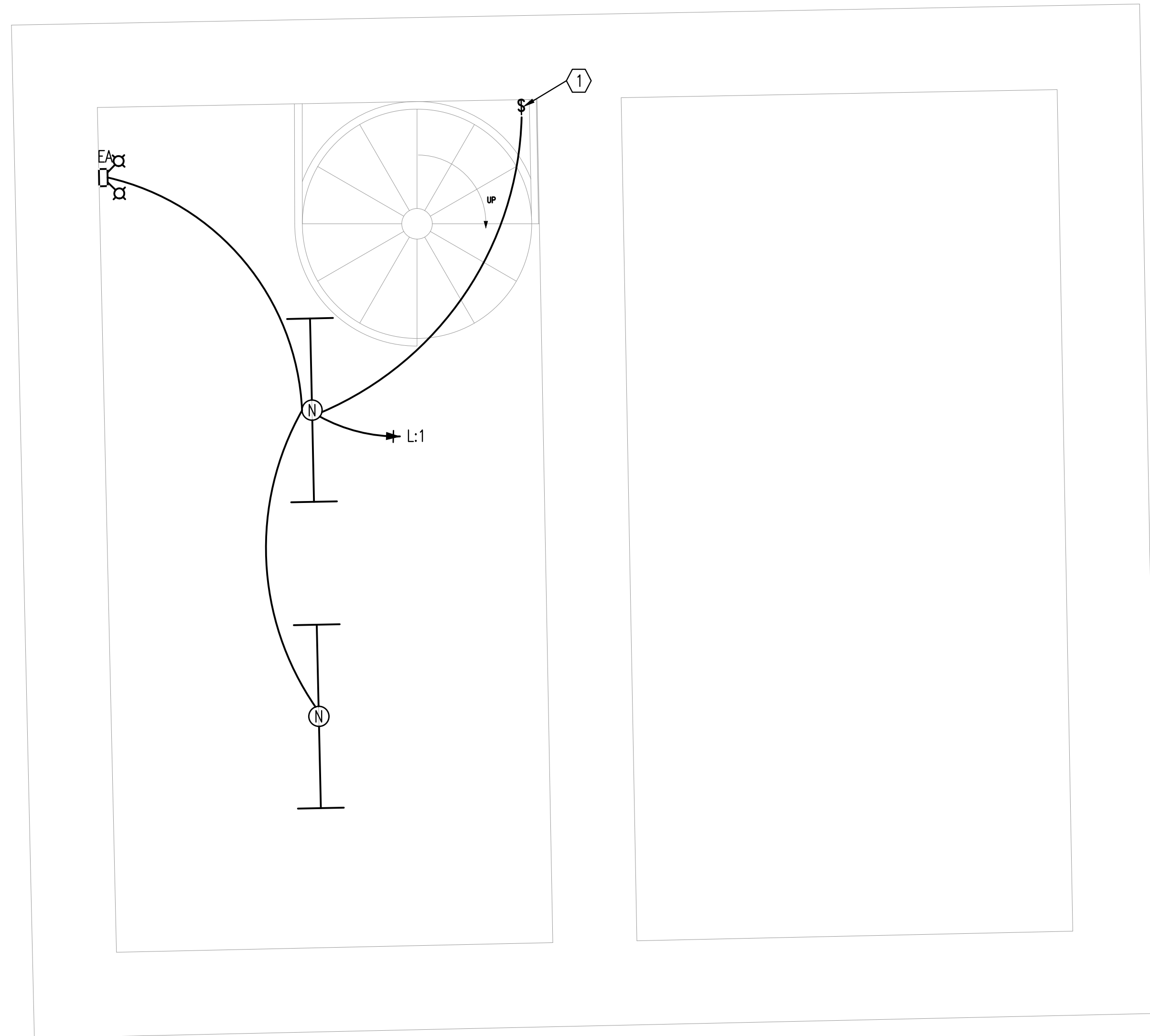
- ① MOUNT AT SAME HEIGHT AS EXISTING LIGHTS.

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 Plot Scale: 1:1 06-26-2017 3:27:53 PM by JAMES GULLESPIE  
 U:\Wichita-Civil\2016\160316\001\Elec\Drawings\160316-001-E4.2 ELECTRICAL LIGHTING PLAN



No.	Revision	By	Date
LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>ELECTRICAL LIGHTING PLAN</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136			
 <b>PEC</b> PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com			
Designed by	RWW	Job No.	35-160316-1-0042
Drawn by	JBG	Date	JUNE 2017
			Sht. E4.2

Saved: 06-26-2017 3:22:53 PM by JAMES GULLESPIE  
 Plot Scale: 1:1 06-26-2017 3:27:57 PM by JAMES GULLESPIE  
 U:\Wichita-Civil\2016\160316\001\Elec\Drawings\160316-001-E4.2 ELECTRICAL POWER PLAN - BASEMENT



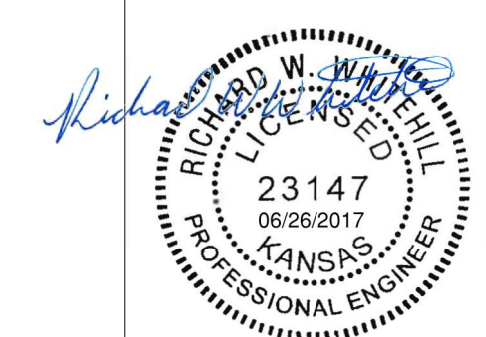
**A** **ELECTRICAL POWER & LIGHTING PLAN - BASEMENT**  
 SCALE:  
 0' 2' 4'  
 1/2" = 1'-0"

**PLAN NOTES:**

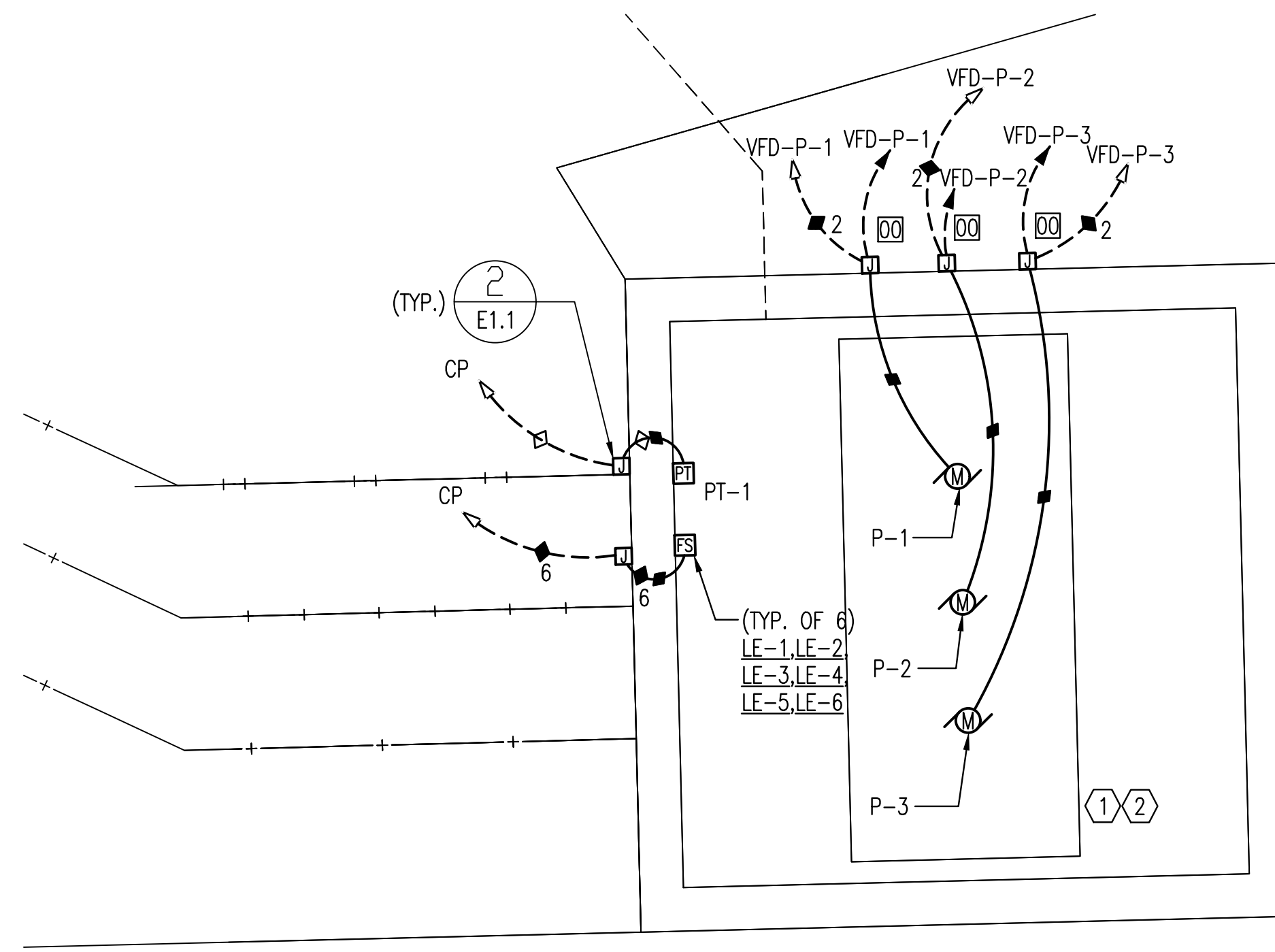
- BRANCH CIRCUITS ARE INDICATED AS ONE CIRCUIT HOME RUNS WITH INDIVIDUAL NEUTRALS. A MAXIMUM OF THREE CIRCUITS (MAXIMUM OF THREE PHASE CONDUCTORS) MAY BE GROUPED IN A SINGLE CONDUIT. WHERE MULTIPLE CIRCUITS ARE LOCATED IN THE SAME RACEWAY, JUNCTION BOX OR ENCLOSURE, NEUTRALS SHALL BE MARKED OR LABELED TO INDICATE WHICH CIRCUIT THEY ARE ASSOCIATED WITH. SEE SPECIFICATION SECTION "LOW VOLTAGE ELECTRICAL POWER CONDUCTORS AND CABLES" FOR ADDITIONAL INFORMATION.
- A GROUND CONDUCTOR SIZED PER N.E.C. ARTICLE 250 IS REQUIRED IN ALL CONDUITS.
- FOR CONNECTION REQUIREMENTS TO MECHANICAL UNITS, SEE MECHANICAL EQUIPMENT CONNECTION SCHEDULE.
- ALL PENETRATIONS IN THE RATED WALLS AND CEILINGS SHALL BE SEALED WITH A MATERIAL CAPABLE OF PREVENTING THE PASSAGE OF FLAMES AND HOT GASES. THE SEALANT SHALL HAVE A T-RATING OF ONE HOUR.
- ALL PIPING, CONDUIT, AND OUTLET BOXES (ELECTRIC, TELEPHONE, COMPUTER, ETC.) IN THE RATED WALLS OR CEILING SHALL BE CONSTRUCTED OF NON-COMBUSTIBLE MATERIAL.
- OUTLET BOXES (ELECTRIC, TELEPHONE, COMPUTER, ETC.) SHALL BE LIMITED TO TWO OUTLET BOXES PER STUD SPACE. OUTLET BOXES ON OPPOSITE SIDES OF THE RATED WALLS SHALL BE SEPARATED BY A HORIZONTAL DISTANCE OF 24 INCHES.

**KEYED NOTES:**

- ① INSTALL LIGHT SWITCH AT TOP OF STAIRS.



No.	Revision	By	Date
LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>ELECTRICAL POWER &amp; LIGHTING PLAN - BASEMENT</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136			
		PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com	
Designed by	RWW	Job No.	35-160316-1-0042
Drawn by	JBG	Date	JUNE 2017
			Sht. E4.3



**A ELECTRICAL SITE PLAN**  
 SCALE:  
 0 2 4  
 1/2" = 1'-0"

**PLAN NOTES:**

1. CONTROL JUNCTION BOXES SHALL BE SIZED PER THE N.E.C. AS A MINIMUM.
2. RUN ALL CONTROL CABLES IN SEPARATE CONDUITS FROM POWER CIRCUITS. RUN SHIELDED CABLES (ANALOG) AND LAN CABLES IN SEPARATE CONDUIT FROM OTHER CONTROL CABLES (DISCRETE).
3. SEE CONTROL CABLES CONDUIT SCHEDULE FOR CONTROL CABLE CONDUIT SIZING REQUIREMENTS.
4. FURNISH AND INSTALL ALL CONDUIT AND WIRING AS REQUIRED FOR COMPLETE FUNCTIONALITY OF EQUIPMENT AS SPECIFIED AND AS IDENTIFIED BY THE MANUFACTURER. COORDINATE FIELD WIRING REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
5. REFER TO CIVIL DRAWINGS AND SECTIONS FOR EXACT EQUIPMENT LOCATIONS.
6. LOCATE CONTROLS CONDUIT AND JUNCTION BOXES SO AS NOT TO INTERFERE WITH EQUIPMENT OPERATION, MAINTENANCE, OR REPLACEMENT.
7. A CONDUIT FOR ANALOG CABLE SHALL TERMINATE IN EQUIPMENT ENCLOSURE AS CLOSE AS POSSIBLE TO THE TERMINALS. CABLES SHALL NOT PASS NEAR TO CABLES OR EQUIPMENT OPERATING ABOVE 24V.
8. INTERNAL AND EXTERNAL I/O SHALL BE LANDED ON TERMINAL STRIPS.
9. I/O IDENTIFIED ON CONTROL DIAGRAM SHEETS ARE FOR INPUTS & OUTPUTS EXTERNAL TO THE EQUIPMENT CONTROL PANEL. I/O NECESSARY FOR THE COMPLETE FUNCTIONALITY OF THE EQUIPMENT (INTERNAL I/O) SHALL BE PROVIDED BY THE EQUIPMENT MANUFACTURER. THE CONTRACTOR SHALL FURNISH & INSTALL CONDUIT AND WIRE REQUIRED FOR COMPLETE FUNCTIONALITY OF EQUIPMENT AS SPECIFIED AND AS IDENTIFIED BY THE MANUFACTURER. THE CONTRACTOR SHALL COORDINATE WITH EQUIPMENT MANUFACTURER TO DETERMINE FIELD WIRING REQUIREMENTS.
10. IN WET WELL: PROVIDE STAINLESS STEEL KELLEMS STRAIN RELIEF SUPPORTED FROM TOP WET WELL FOR PUMP CABLES AND LEVEL CONTROL SYSTEM. PROVIDE STAINLESS STEEL HOOKS IN STRUCTURE TO ACCEPT GRIP EYES
11. PROVIDE SEAL-OFFS IN ALL CONDUITS ENTERING OR LEAVING PUMP VAULT.

**KEYED NOTES:**

- ① CLASS 1 DIV 1 INSIDE WET WELL. ALL DEVICES, MOTORS, ETC. SHALL BE EXPLOSION PROOF. ALL CONDUITS ENTERING WET WELL SHALL CONTAIN SEAL OFFS.
- ② CLASS 1 DIV 2 3' RADIUS FROM HATCH AND 18" DEEP. 13' FROM OUTER EDGE OF HATCH. INSTALL ALL JUNCTION BOXES OUTSIDE OF CLASSIFIED AREA.

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 Plot Scale: 1:1 06-26-2017 3:26:02 PM by JAMES GILLESPIE  
 U:\Wichita-Civil\2016\160316\001\Elec\Drawings\160316-001-E3.2 ENLARGED ELECTRICAL SITE PLAN

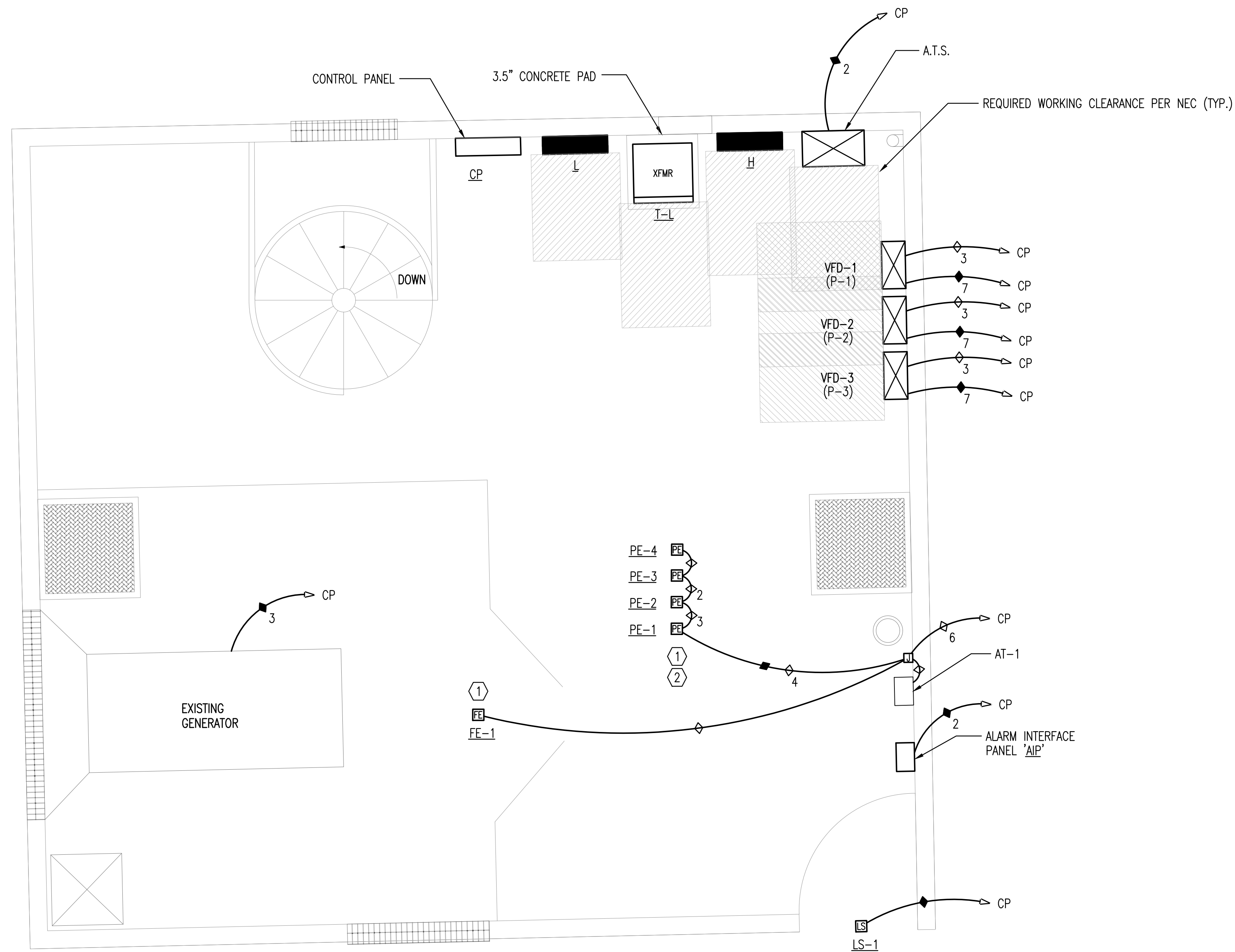
	Revision		By	Date
	LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>ENLARGED ELECTRICAL PLAN</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136			
		PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com		
Designed by	RWW	Job No.	35-160316-1-0042	Sht. E5.1
Drawn by	JBG	Date	JUNE 2017	

**CONTROL PLAN NOTES:**

- CONTROL JUNCTION BOXES SHALL BE SIZED PER THE N.E.C. AS A MINIMUM.
- RUN ALL CONTROL CABLES IN SEPARATE CONDUITS FROM POWER CIRCUITS. RUN SHIELDED CABLES (ANALOG) AND LAN CABLES IN SEPARATE CONDUIT FROM OTHER CONTROL CABLES (DISCRETE).
- SEE CONTROL CABLES CONDUIT SCHEDULE FOR CONTROL CABLE CONDUIT SIZING REQUIREMENTS.
- FURNISH AND INSTALL ALL CONDUIT AND WIRING AS REQUIRED FOR COMPLETE FUNCTIONALITY OF EQUIPMENT AS SPECIFIED AND AS IDENTIFIED BY THE MANUFACTURER. COORDINATE FIELD WIRING REQUIREMENTS WITH EQUIPMENT MANUFACTURER.
- REFER TO CIVIL DRAWINGS AND SECTIONS FOR EXACT EQUIPMENT LOCATIONS.
- LOCATE CONTROLS CONDUIT AND JUNCTION BOXES SO AS NOT TO INTERFERE WITH EQUIPMENT OPERATION, MAINTENANCE, OR REPLACEMENT.
- A CONDUIT FOR ANALOG CABLE SHALL TERMINATE IN EQUIPMENT ENCLOSURE AS CLOSE AS POSSIBLE TO THE TERMINALS. CABLES SHALL NOT PASS NEAR TO CABLES OR EQUIPMENT OPERATING ABOVE 24V.
- INTERNAL AND EXTERNAL I/O SHALL BE LANDED ON TERMINAL STRIPS.
- I/O IDENTIFIED ON CONTROL DIAGRAM SHEETS ARE FOR INPUTS & OUTPUTS EXTERNAL TO THE EQUIPMENT CONTROL PANEL. I/O NECESSARY FOR THE COMPLETE FUNCTIONALITY OF THE EQUIPMENT (INTERNAL I/O) SHALL BE PROVIDED BY THE EQUIPMENT MANUFACTURER. THE CONTRACTOR SHALL FURNISH & INSTALL CONDUIT AND WIRE REQUIRED FOR COMPLETE FUNCTIONALITY OF EQUIPMENT AS SPECIFIED AND AS IDENTIFIED BY THE MANUFACTURER. THE CONTRACTOR SHALL COORDINATE WITH EQUIPMENT MANUFACTURER TO DETERMINE FIELD WIRING REQUIREMENTS.
- IN WET WELL: PROVIDE STAINLESS STEEL KELLEMS STRAIN RELIEF SUPPORTED FROM TOP WET WELL FOR PUMP CABLES AND LEVEL CONTROL SYSTEM. PROVIDE STAINLESS STEEL HOOKS IN STRUCTURE TO ACCEPT GRIP EYES

**KEYED NOTES:**

- PE-1, PE-2, PE-3 AND FE-1 LOCATED IN VALVE VAULT.
- VALVE VAULT IS CLASS 1 DIV 2 SPACE. ALL CONDUITS ENTERING VALVE VAULT SHALL CONTAIN SEAL OFFS.



**A ELECTRICAL CONTROL PLAN**

SCALE:  
0" 2" 4"  
1/2" = 1'-0"

Saved: 06-19-2017 2:36:21 PM by JAMES GILLESPIE  
 Plot Scale: 1:1 06-19-2017 2:40:31 PM by JAMES GILLESPIE  
 U:\Wichita-Civil\2016\160316\001\Elec\Drawings\160316-001-E6.1 ELECTRICAL CONTROL PLAN

	Revision		By	Date	
	LIFT STATION REHABILITATION 31ST STREET SOUTH AND GLENN AVENUE <b>ELECTRICAL CONTROL PLAN</b> GARY JANZEN, P.E. - CITY ENGINEER CITY OF WICHITA PROJECT NO. 468-85136				
		PROFESSIONAL ENGINEERING CONSULTANTS, P.A. 303 SOUTH TOPEKA WICHITA, KS 67202 316-262-2691 www.pec1.com			
Designed by	RWW	Job No.	35-160316-1-0042	Sht.	E6.1
Drawn by	JBG	Date	JUNE 2017		