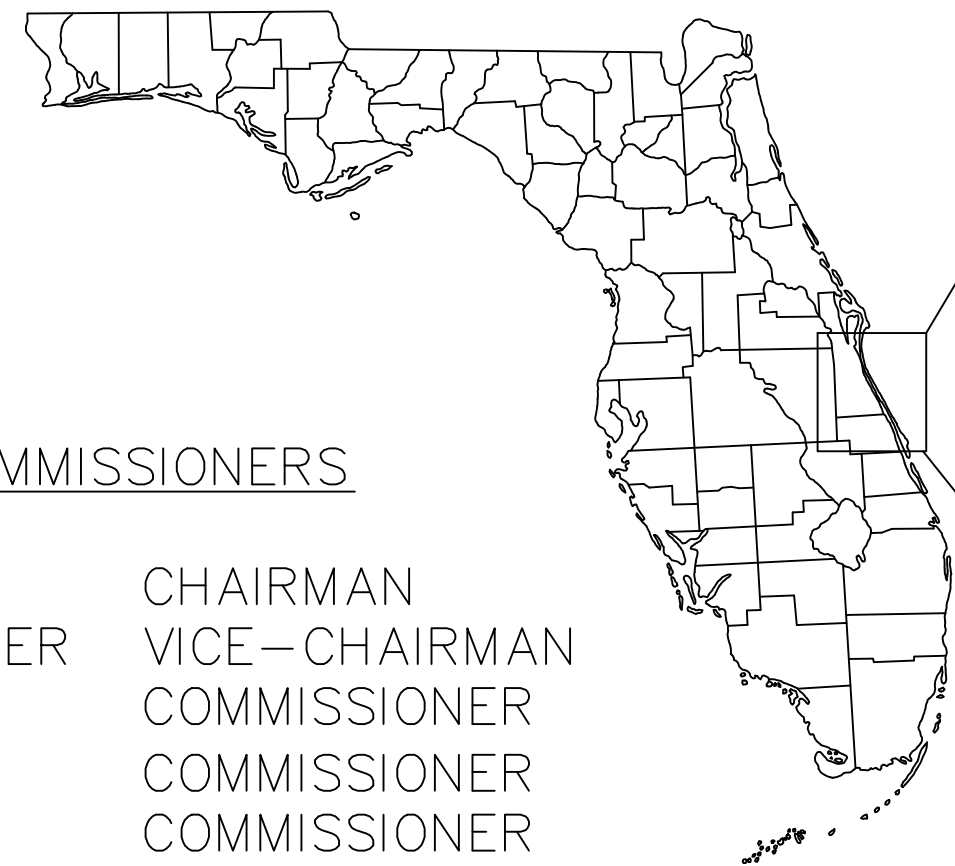


# CONSTRUCTION PLANS FOR SWWTF REUSE CONTROL PANEL REPLACEMENT

PREPARED FOR  
**INDIAN RIVER COUNTY UTILITIES DEPARTMENT**  
**OCTOBER 2021**

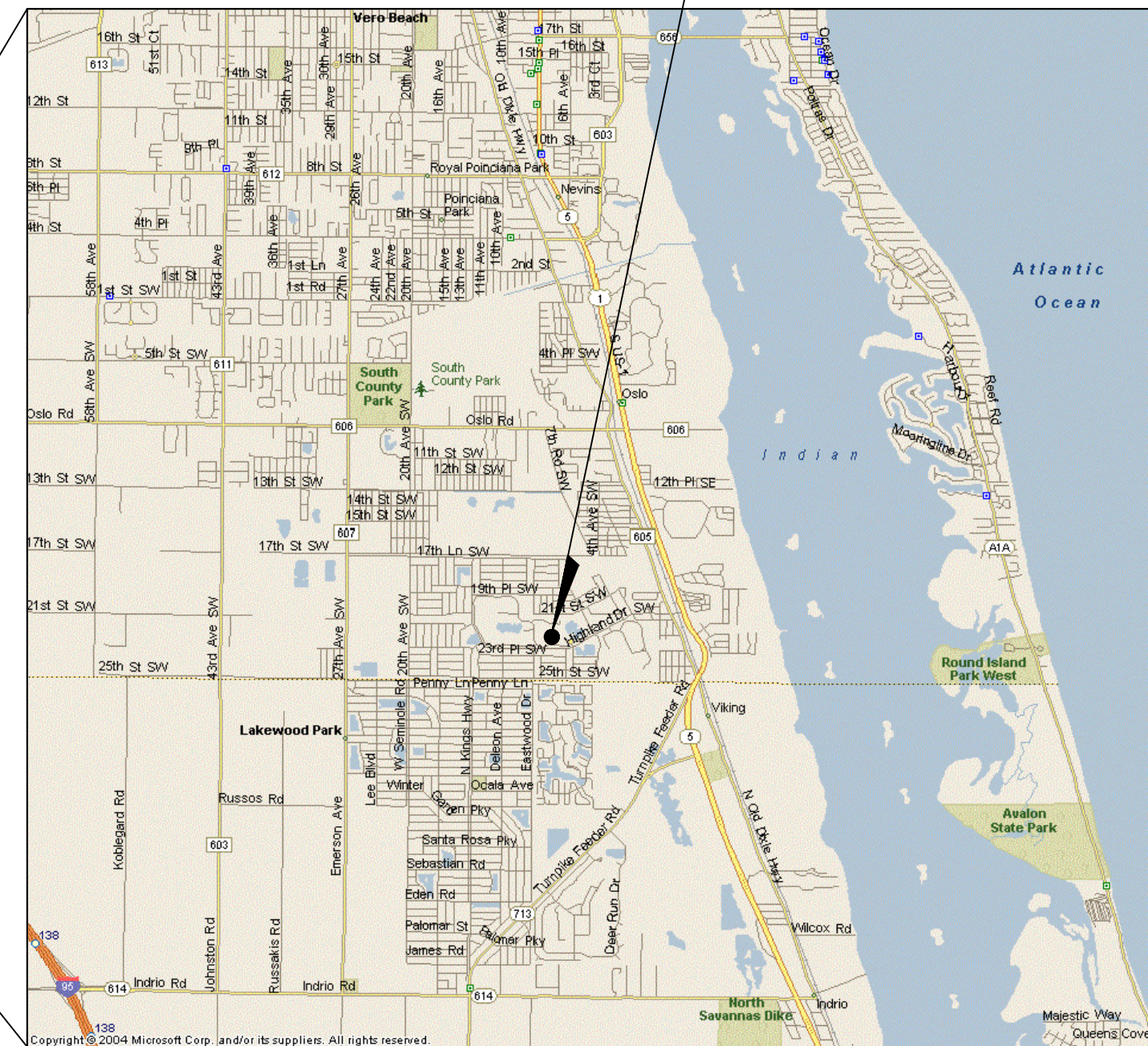


**BOARD of COUNTY COMMISSIONERS**

DISTRICT 1	SUSAN ADAMS	CHAIRMAN
DISTRICT 2	JOSEPH FLESCHER	VICE-CHAIRMAN
DISTRICT 3	TIM ZORC	COMMISSIONER
DISTRICT 4	PETER O'BRYAN	COMMISSIONER
DISTRICT 5	BOB SOLARI	COMMISSIONER

VINCENT BURKE, P.E. – DIRECTOR OF UTILITIES

PROJECT SITE  
SOUTH COUNTY WWTF  
2500 6TH AVE. SW,  
VERO BEACH, FL 32962



LOCATION MAP  
N.T.S.

INDEX OF SHEETS

SHEET #	DESCRIPTION
G-1	COVER SHEET
C-1	SITE PLAN
C-2	PROJECT AREA PLAN
C-3	REUSE PUMP STATION
I-1	PROCESS AND INSTRUMENTATION DIAGRAM
I-2	REUSE PUMP STATION
E-1	ELECTRICAL NOTES & LEGENDS
E-2	GENERATOR BUILDING ELECTRICAL PLAN
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E-5	REUSE PUMP STATION INSTRUMENTATION CONDUITS
E-6	VFD DETAILS
E-7	STANDARD LOOP DIAGRAMS
E-8	ELECTRICAL DETAILS

Plotted By: King, Bertrand  
 Sheet Set: SWWTF REUSE CONTROL PANEL REPLACEMENT - Layout: G-1 COVER SHEET - October 22, 2021, 11:19:42am  
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KHA PROJECT  
044572065

DATE  
OCT 2021

SCALE AS SHOWN

DESIGNED BY NPOB

DRAWN BY SS

CHECKED BY MDM

**SWWTF REUSE CONTROL  
PANEL REPLACEMENT**

PREPARED FOR  
**INDIAN RIVER COUNTY UTILITIES  
DEPARTMENT**

INDIAN RIVER  
COUNTY,  
FLORIDA

LICENSED PROFESSIONAL

NICHOLAS P.O. BLACK, P.E.

FLORIDA LICENSE NUMBER  
84908

DATE: \_\_\_\_\_

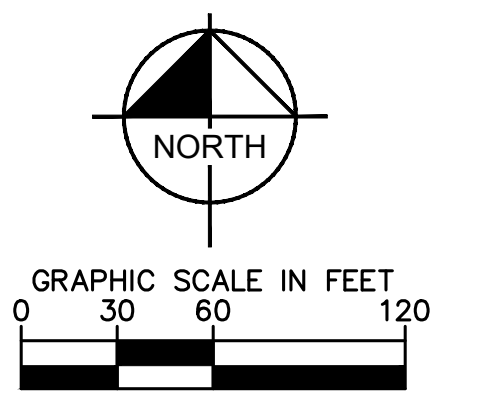
**COVER SHEET**

SHEET NUMBER

**G-1**



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**SWWTF REUSE CONTROL  
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 PREPARED FOR  
**INDIAN RIVER COUNTY UTILITIES  
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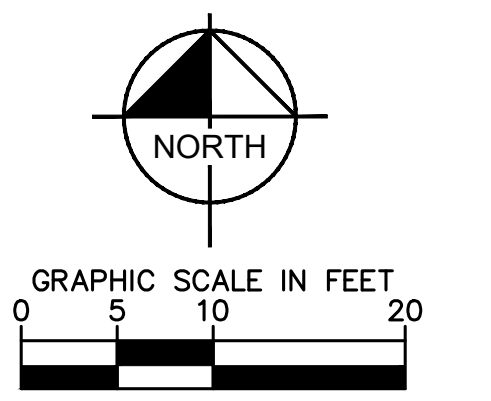
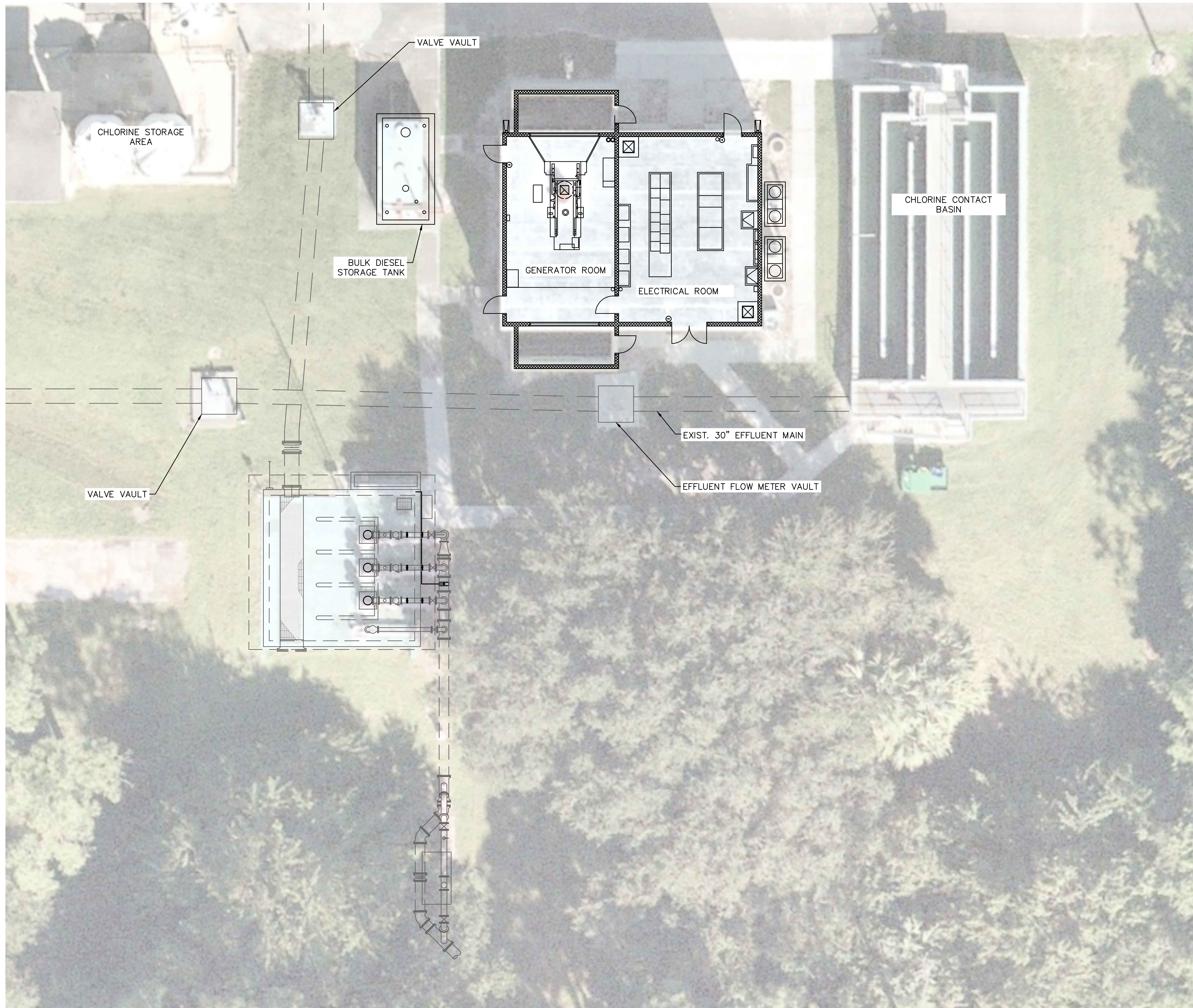
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 FLORIDA LICENSE NUMBER  
 84908

**SITE PLAN**  
 DATE: \_\_\_\_\_

SHEET NUMBER  
**C-1**



Plotted By: King, Bertrand  
 Sheet Set: SWWTF REUSE CONTROL PANEL REPLACEMENT - Layout: C-2 SWWTF PROJECT AREA PLAN - October 22, 2021, 11:19:56am - K:\WPB\_Civil\044572065 - SWWTF RCP Replacement\CAD\Plansheets\C-2 SWWTF PROJECT AREA PLAN.dwg  
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**SWWTF REUSE CONTROL  
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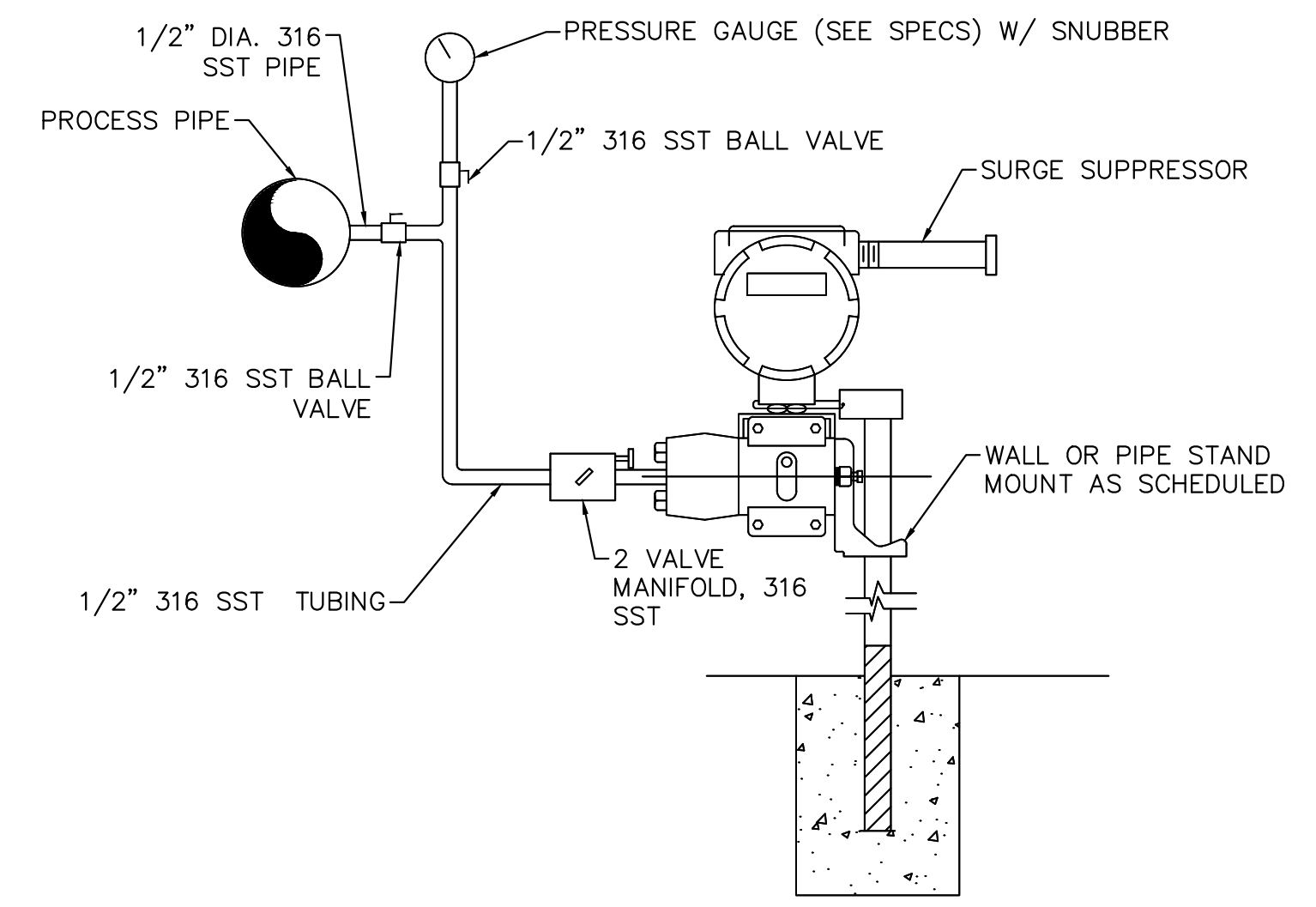
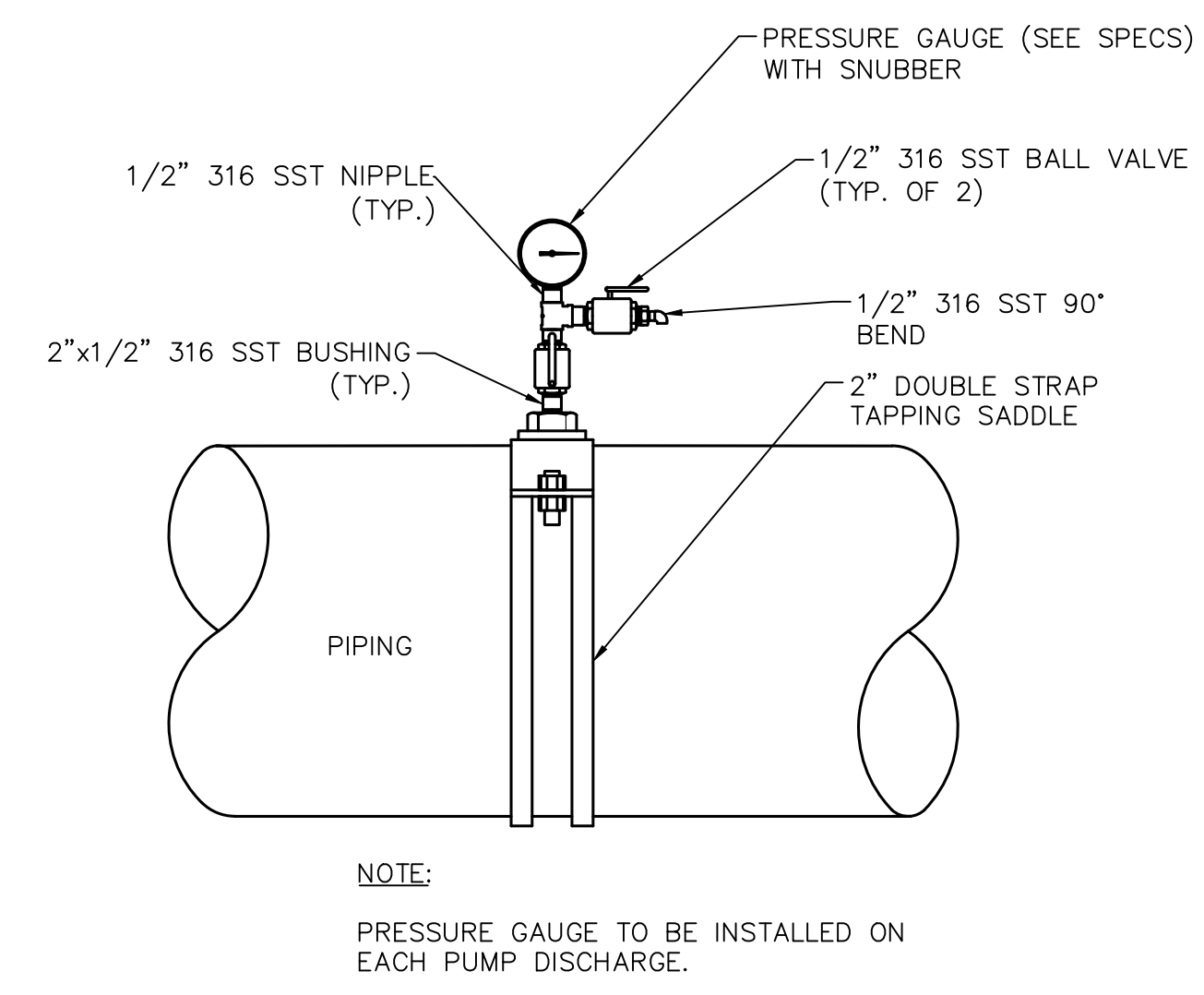
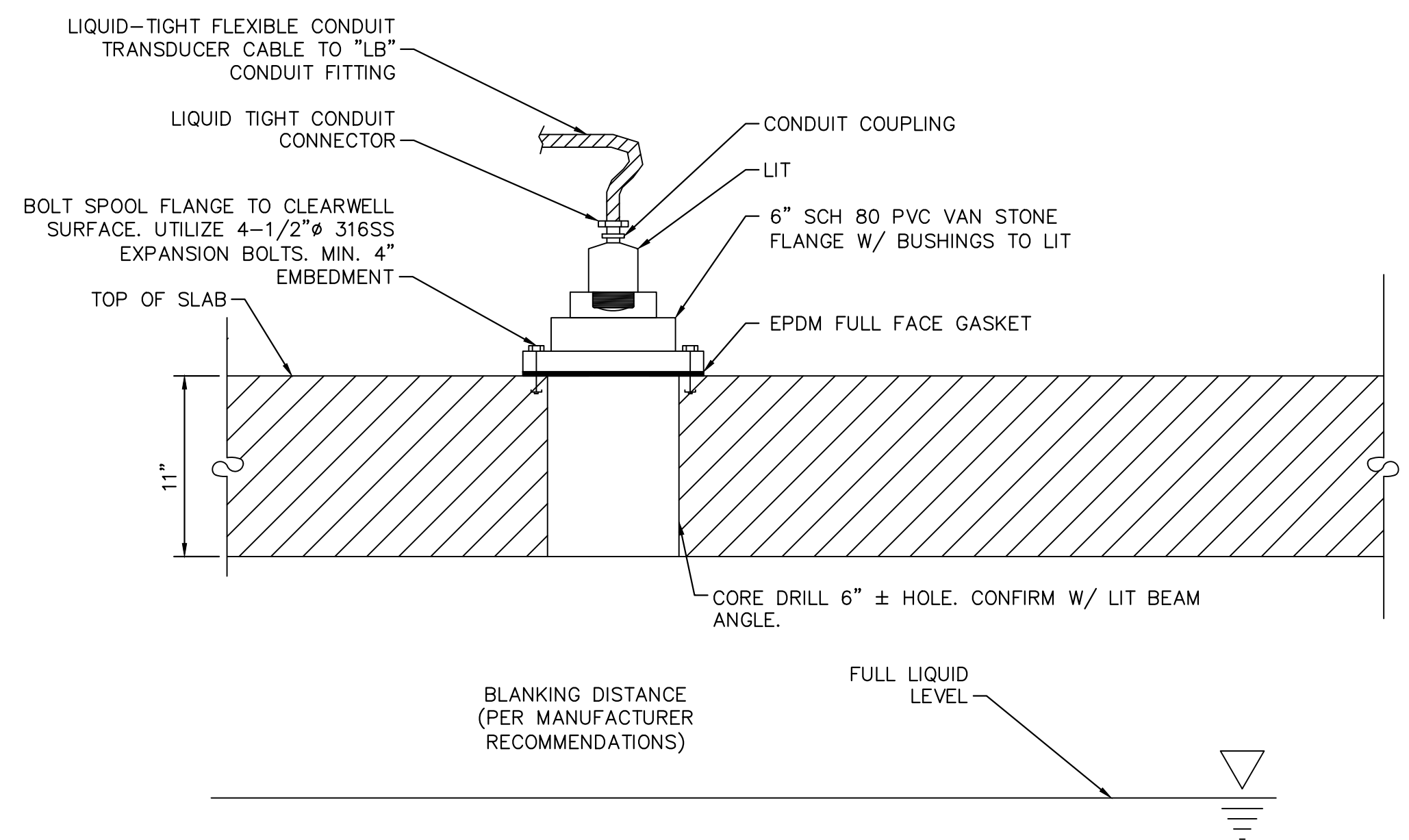
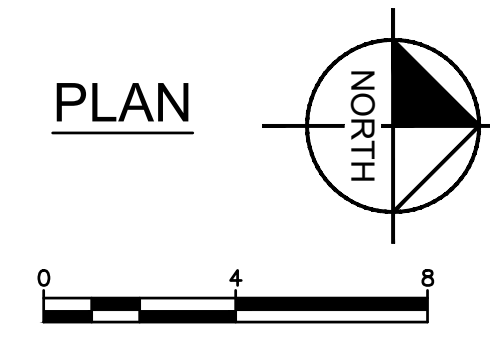
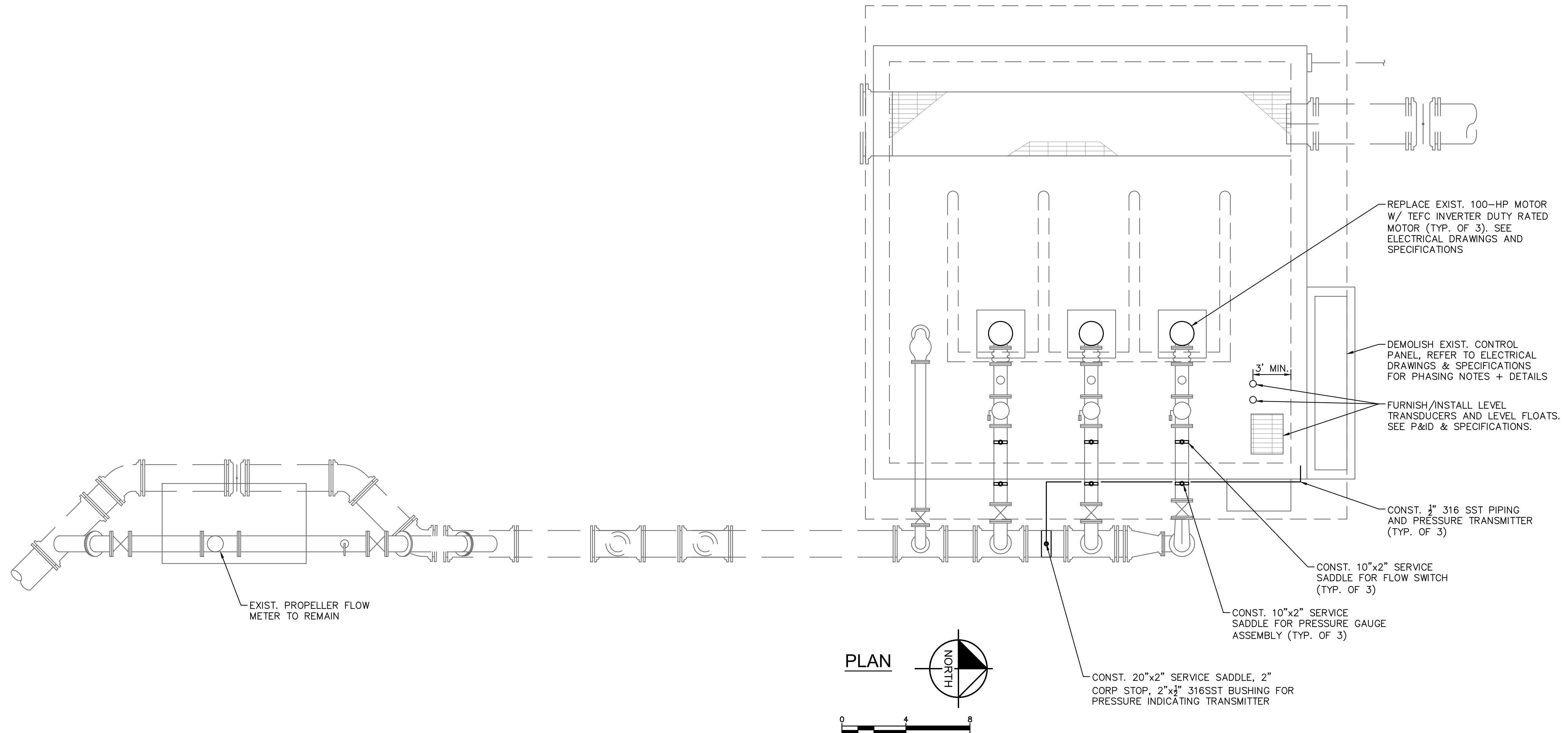
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**PROJECT AREA PLAN**  
 DATE: \_\_\_\_\_

SHEET NUMBER  
**C-2**



Plotted By: King, Bertrand  
 Sheet Set: SWWTF REUSE CONTROL PANEL REPLACEMENT - Layout: C-3 REUSE PUMP STATION  
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**SWWTF REUSE CONTROL  
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 FLORIDA

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 NICHOLAS P.O. BLACK, P.E.  
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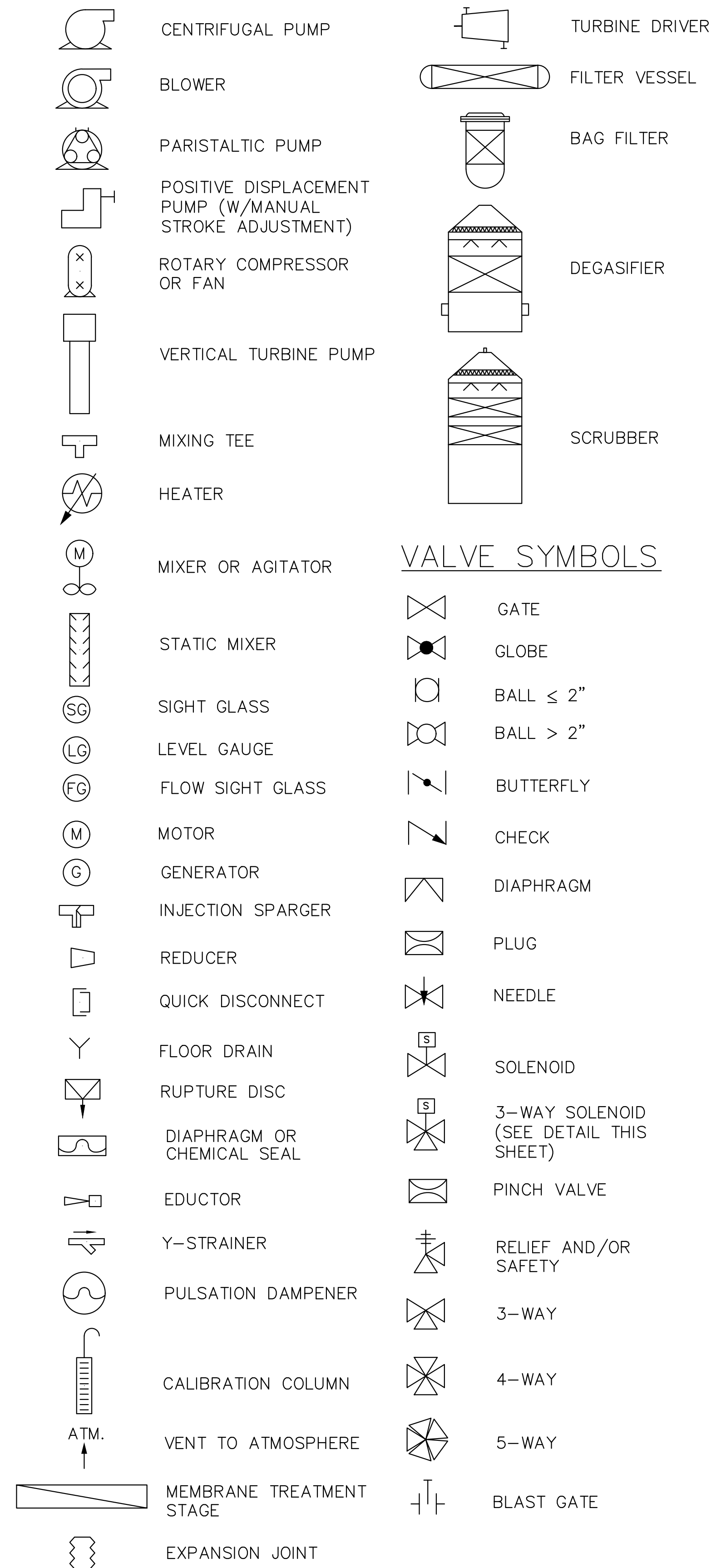
**REUSE PUMP STATION**

SHEET NUMBER  
**C-3**

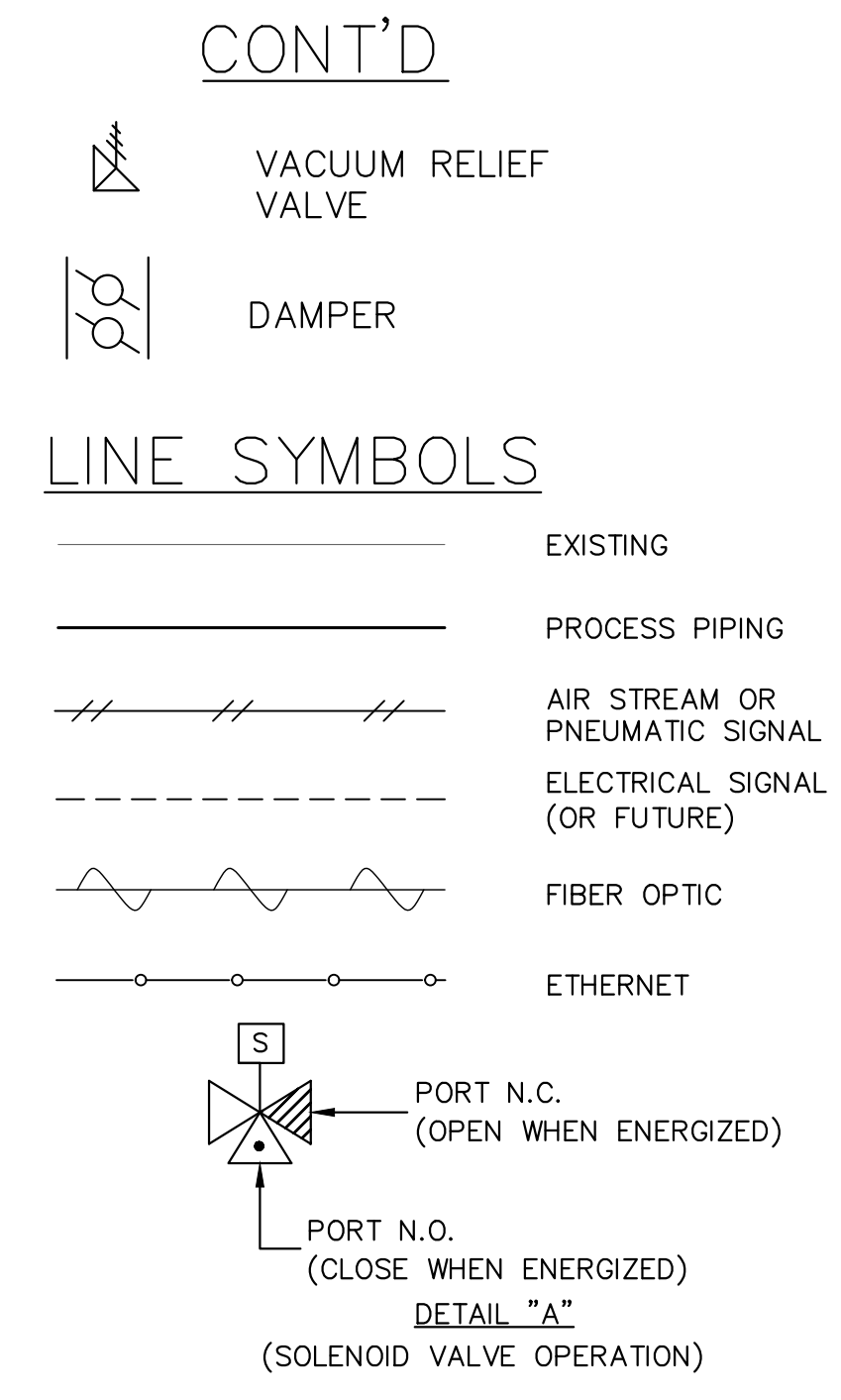


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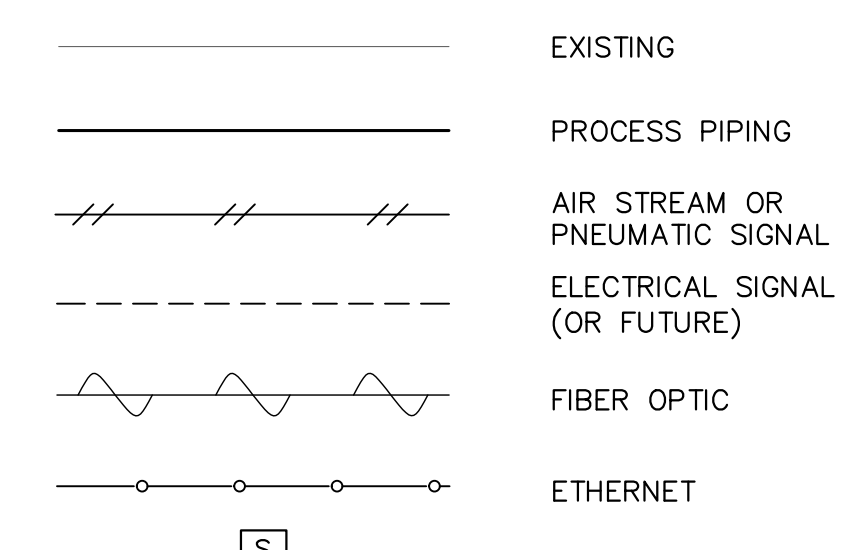
### PIPING AND EQUIPMENT SYMBOLS



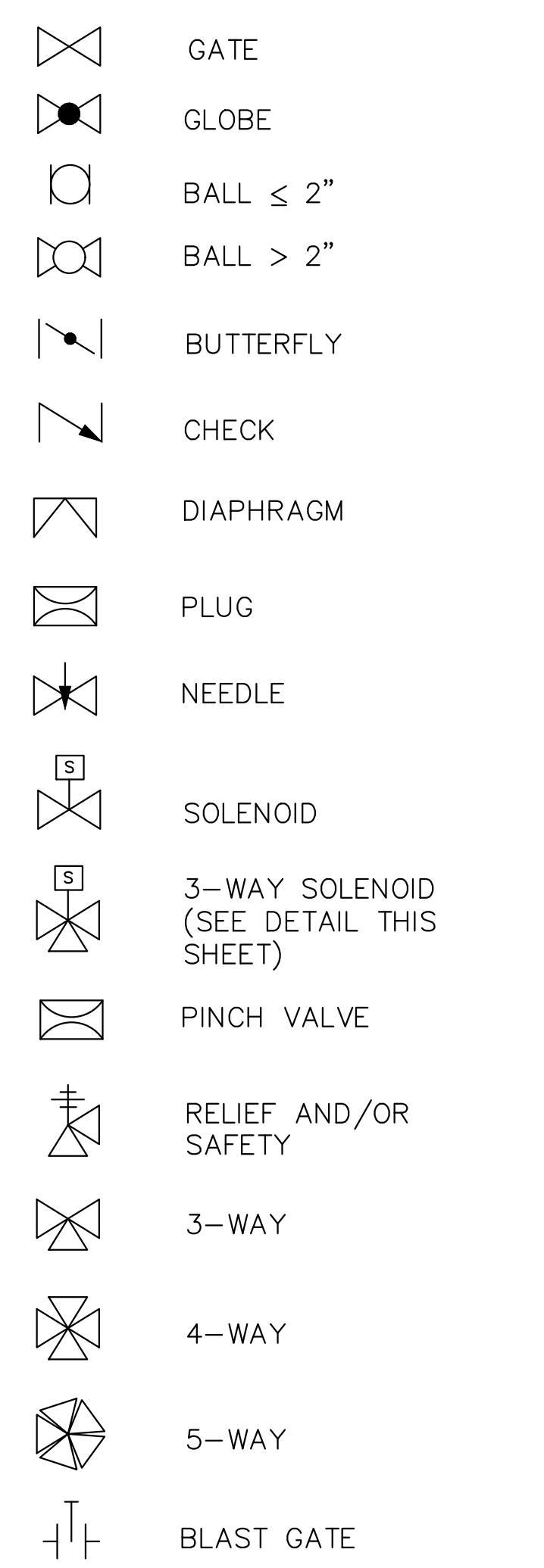
### VALVE SYMBOLS



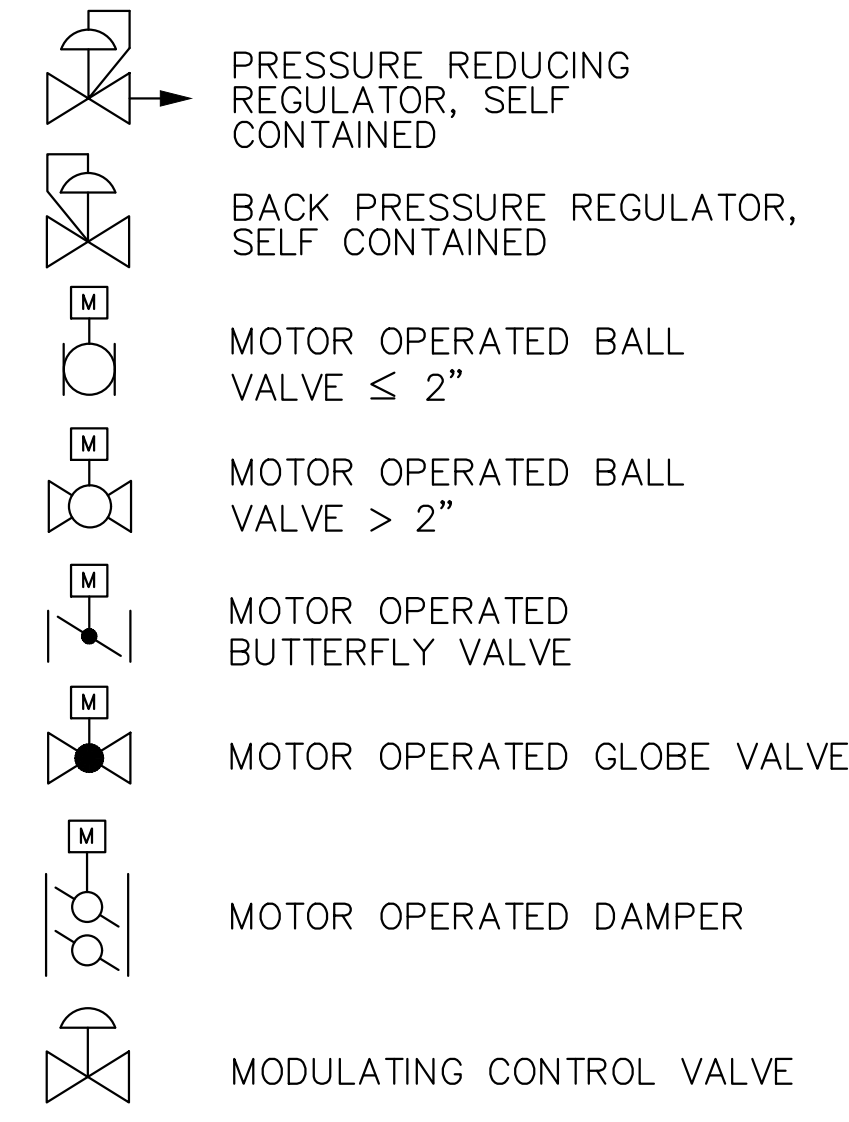
### LINE SYMBOLS



### VALVE SYMBOLS



### CONTROL VALVES/ACTUATORS



### SPECIAL IDENTIFICATION

SDI - SILT DENSITY INDEX TEST FILTER HOLDER W/0.45 MICRON FILTER HOLDER  
 N.C. - NORMALLY CLOSED  
 N.O. - NORMALLY OPEN  
 F.C. - FAIL CLOSED  
 F.O. - FAIL OPEN

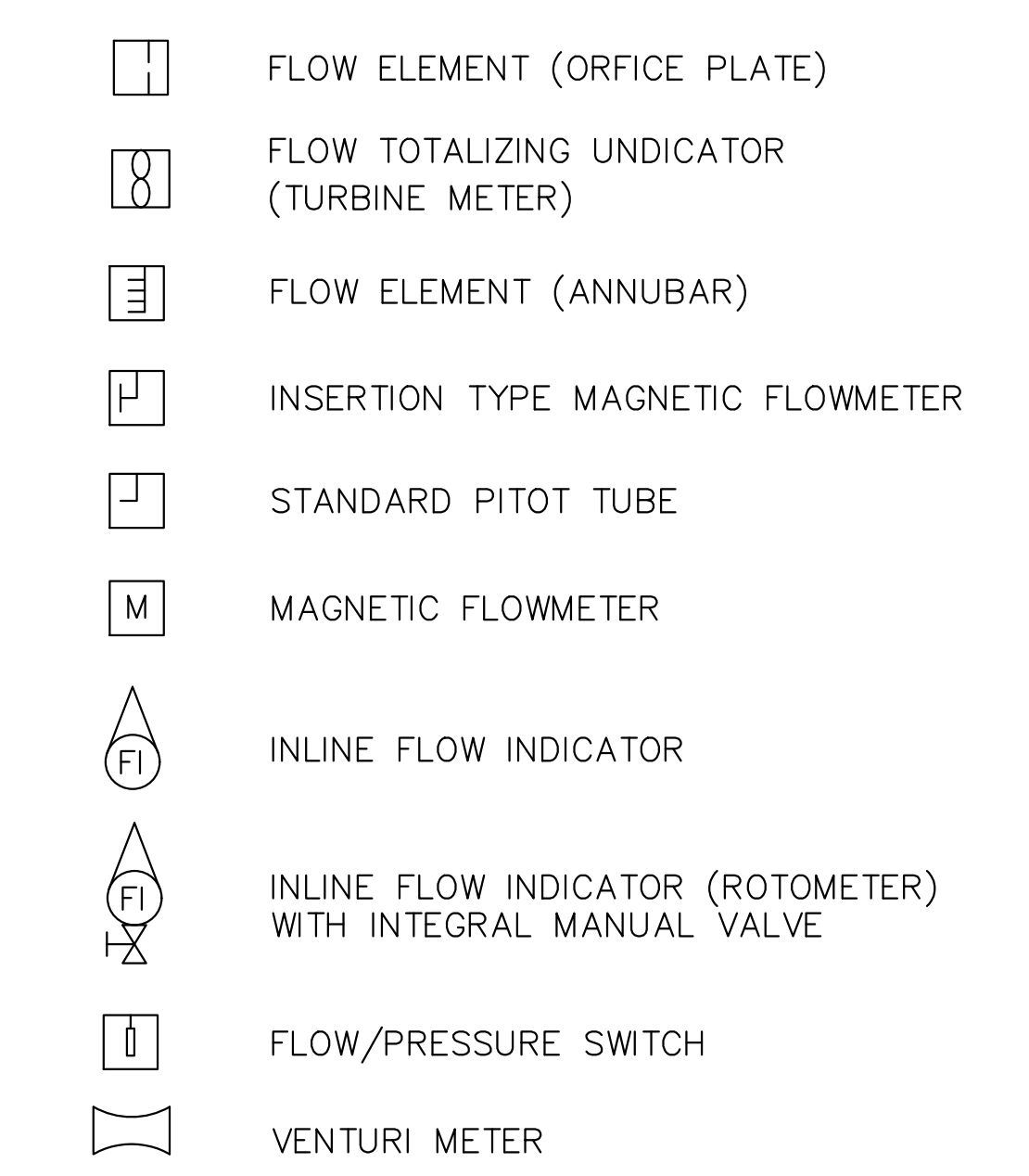
### INSTRUMENT SYMBOLS

PRIMARY CHOICE OR BASIC PROCESS CONTROL SYSTEM	ALTERNATE CHOICE OR SAFETY INSTRUMENTED SYSTEM	COMPUTER SYSTEMS AND SOFTWARE	DISCRETE	LOCATION AND ACCESSIBILITY
				- LOCATED IN THE FIELD - NOT PANEL, CABINET, OR CONSOLE MOUNTED - VISIBLE AT FIELD LOCATION - NORMALLY OPERATOR ACCESSIBLE
				- LOCATED IN OR ON FRONT OF CENTRAL OR MAIN PANEL OR CONSOLE - VISIBLE ON FRONT OF PANEL OR ON VIDEO DISPLAY - NORMALLY OPERATOR ACCESSIBLE AT PANEL FRONT OF CONSOLE
				- LOCATED IN REAR OF CENTRAL OR MAIN PANEL - LOCATED IN CABINET BEHIND PANEL - NOT VISIBLE ON FRONT OF PANEL OR ON VIDEO DISPLAY - NOT NORMALLY OPERATOR ACCESSIBLE AT PANEL OR CONSOLE
				- LOCATED IN OR ON FRONT OF SECONDARY OR LOCAL PANEL OR CONSOLE - VISIBLE ON FRONT OF PANEL OR ON VIDEO DISPLAY - NORMALLY OPERATOR ACCESSIBLE AT PANEL FRONT OR CONSOLE
				- LOCATED IN REAR OF SECONDARY OR LOCAL PANEL - LOCATED IN FIELD CABINET - NOT VISIBLE ON FRONT OF PANEL OR ON VIDEO DISPLAY - NOT NORMALLY OPERATOR ACCESSIBLE AT PANEL OR CONSOLE

#### INSTRUMENT DEVICE OR FUNCTION SYMBOLS, MISC.

	- SIGNAL PROCESSING FUNCTION - LOCATE IN UPPER RIGHT OR LEFT QUADRANT OF SYMBOLS ABOVE - ATTACH TO SYMBOLS ABOVE WHERE AFFECTED SIGNALS ARE CONNECTED - INSERT SIGNAL PROCESSING SYMBOLS FROM TABLE 5.6 - EXPAND SYMBOL BY 50% INCREMENTS FOR LARGER FUNCTION SYMBOLS
	- INSTRUMENTS OR FUNCTIONS SHARING A COMMON HOUSING - IT IS NOT MANDATORY TO SHOW A COMMON HOUSING - NOTES SHALL BE USED TO IDENTIFY INSTRUMENTS IN COMMON HOUSINGS NOT USING THIS SYMBOL
	- PILOT LIGHT - CIRCLE SHALL BE REPLACED WITH ANY SYMBOL FROM COLUMN D
	- PILOT LIGHT - CIRCLE SHALL BE REPLACED WITH ANY SYMBOL FROM COLUMN D

### FLOW MEASUREMENT SYMBOLS

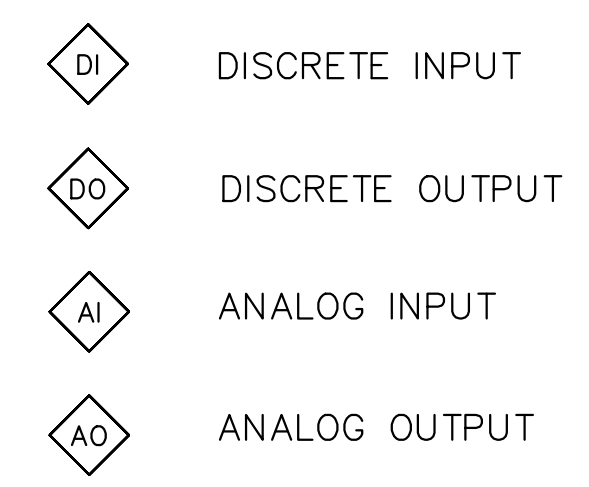


### INSTRUMENT IDENTIFICATION LETTERS

	FIRST LETTER (OR PAIR)		SUCCEEDING LETTERS		
	MEASURED/ INITIATING VARIABLE	VARIABLE MODIFIER	READOUT/PASSIVE FUNCTION	OUTPUT/ACTIVE FUNCTION	FUNCTION MODIFIER
A	ANALYSIS(2)		ALARM		
B			USERS CHOICE(3)	USERS CHOICE(3)	USERS CHOICE(3)
C	CONDUCTIVITY (ELECTRIC)			CONTROL	CLOSE
D		DIFFERENTIAL			
E	VOLTAGE (E.M.F.)		PRIMARY ELEMENT		
F	FLOW RATE	RATIO (FUNCTION)			
G	GAGING (DIMENSION)		GLASS (DIRECT VIEW)	GATE	
H	HAND (MANUAL)				HIGH
I	CURRENT (ELECTRIC)		INDICATE		
J	POWER	SCAN			
K	TIME OR TIME SCHEDULE			CONTROL STATION	
L	LEVEL		LIGHT(PILOT)		LOW
M	MOISTURE OR HUMIDITY				MIDDLE
N	USER'S CHOICE(3)		USERS CHOICE(3)	USERS CHOICE(3)	NORMAL
O	OXIDE REDUCT. POTENTIAL		ORFICE (RESTRICTION)		OPEN
P	PRESSURE OR VACUUM		TEST OR SAMPLE POINT		
Q	QUANTITY OR EVENT	INTERGRATE/TOTALIZER			
R	RATIO		RECORD OR PRINT		
S	SPEED OR FREQUENCY	SAFETY		SWITCH	
T	TEMPERATURE			TRANSMIT	
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V	VISCOSITY			VALVE,DAMPER, OR LOUVER	
W	WEIGHT OR FORCE		WELL		
X	UNCLASSIFIED(4)	UNCLASSIFIED(4)	UNCLASSIFIED(4)	UNCLASSIFIED(4)	UNCLASSIFIED(4)
Y	USERS CHOICE(3)		LIGHT SOURCE	RELAY OR COMPUTE	
Z	POSITION			DRIVE, ACTUATE, ETC.	

- ANY FIRST LETTER COMBINED W/ MODIFIER REPRESENTS A NEW AND SEPARATE MEASURED VARIABLE. EXAMPLES: PD=DIFFERENTIAL PRESSURE, FQ=TOTALIZED OR INTERGRATED FLOW. EXCEPTION IS MODIFIER "J" FOR MULTIPOINT SCANNING. "A" IS USED FOR ANALYTICAL VARIABLES. EXAMPLES: pH, Nq, SiO~s2~S, O~s2~S, ETC. A SYMBOL OR DESCRIPTION
- DENOTING THE FUNCTION IS SHOWN OUTSIDE THE INSTRUMENT SYMBOL. EXAMPLE: pH
- MEANING OF A "USER CHOICE" LETTER SHALL BE CONSISTENT THROUGHOUT A PROJECT AND SHALL BE SPECIFIED IN THE DRAWING LEGEND.
- UNCLASSIFIED LETTER MAY HAVE A FEW DIFFERENT MEANINGS ON A PROJECT. THE MEANING SHALL BE SPECIFIED NEAR EACH INSTRUMENT SYMBOL USING THE UNCLASSIFIED LETTER.

### CONTROL SYMBOLS



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KHA PROJECT	044572065
DATE	OCT 2021
SCALE	AS SHOWN
DESIGNED BY	NPOB
DRAWN BY	SS
CHECKED BY	MDM

**SWWTF REUSE CONTROL PANEL REPLACEMENT**  
 PREPARED FOR  
**INDIAN RIVER COUNTY UTILITIES DEPARTMENT**  
 INDIAN RIVER COUNTY, FLORIDA

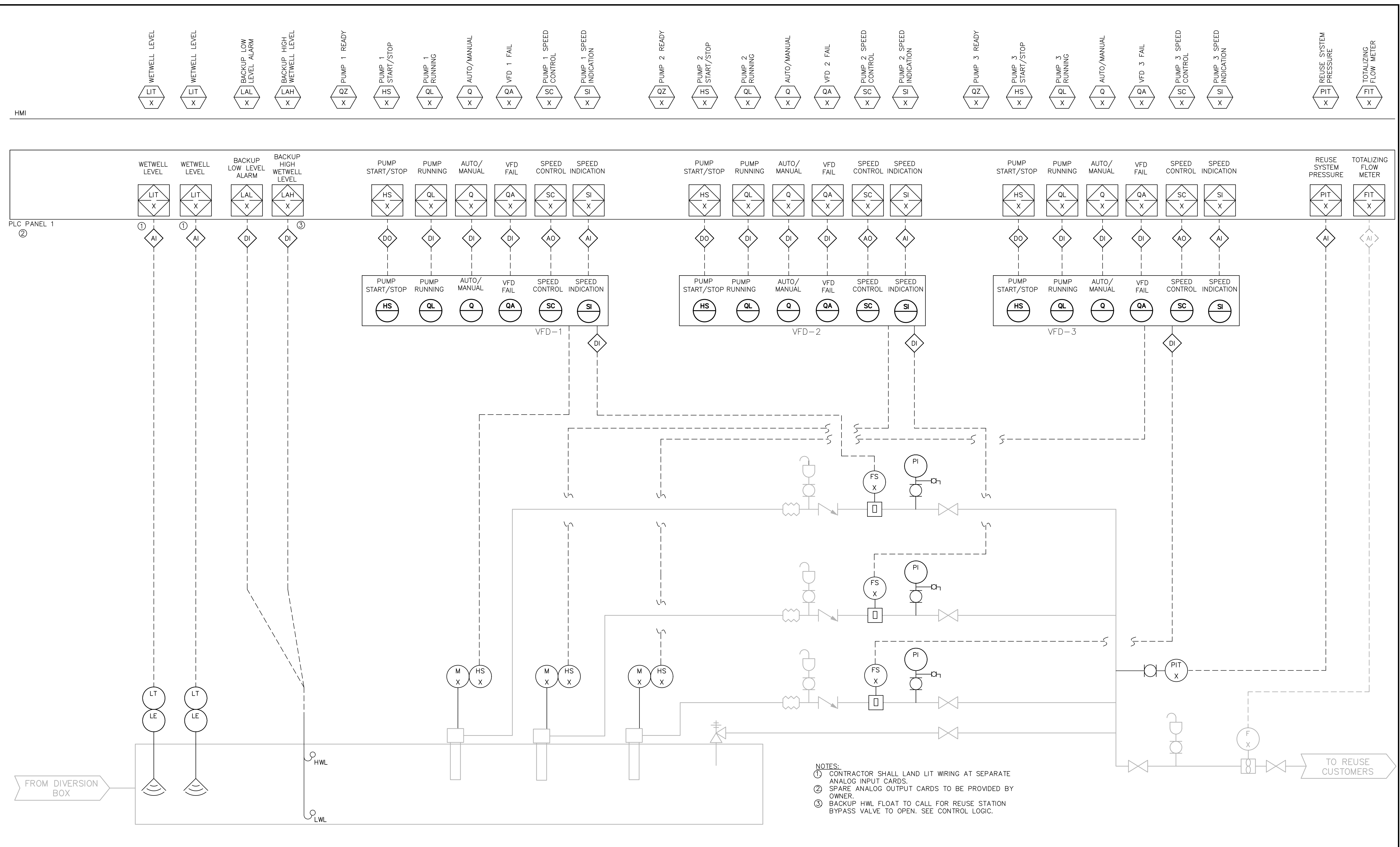
LICENSED PROFESSIONAL	NICHOLAS P.O. BLACK, P.E.
FLORIDA LICENSE NUMBER	84908
DATE:	_____

**PROCESS AND INSTRUMENTATION DIAGRAM**

SHEET NUMBER	I-1
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Plotted By: King, Bertrand  
 Sheet Set: SWWTF REUSE CONTROL PANEL REPLACEMENT - Layout: L=2, VERTICAL TURBINE PUMPS, L=3, October 22, 2021, 11:20:14am  
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- NOTES:**
- CONTRACTOR SHALL LAND LIT WIRING AT SEPARATE ANALOG INPUT CARDS.
  - SPARE ANALOG OUTPUT CARDS TO BE PROVIDED BY OWNER.
  - BACKUP HWL FLOAT TO CALL FOR REUSE STATION BYPASS VALVE TO OPEN. SEE CONTROL LOGIC.

No.	REVISIONS	DATE	BY

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 INDIAN RIVER COUNTY, FLORIDA

LICENSED PROFESSIONAL  
**NICHOLAS P.O. BLACK, P.E.**  
 FLORIDA LICENSE NUMBER  
 84908

**REUSE PUMP STATION**

SHEET NUMBER  
**I-2**



Plotted By: Andrew Demarochi  
 Sheet: SWWTF REUSE CONTROL PANEL REPLACEMENT - Layout: LEG - October, 07, 2021 - 05:04:31pm  
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### GENERAL ELECTRICAL NOTES

- READ THE SPECIFICATIONS**  
REFER TO THE SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS. THERE ARE REQUIREMENTS NOTED IN THE SPECIFICATIONS WHICH ARE NOT INDICATED ON THE DRAWINGS.
- SCHEMATIC NATURE**  
PLAN VIEWS ARE SCHEMATIC IN NATURE AND MEANT TO SHOW THE SCHEMATIC ARRANGEMENT OF EQUIPMENT AND CONDUIT.
- APPROVED SHOP DRAWINGS**  
USE APPROVED SHOP DRAWINGS FOR LAY OUT OF EQUIPMENT. THE CONTRACT DOCUMENTS WILL VARY FROM THE SHOP DRAWINGS. INFORM THE ENGINEER IMMEDIATELY IF THERE ARE LAY OUT ISSUES OR INADEQUATE SPACE FOR EQUIPMENT OR CLEARANCES. LAND CONDUITS IN OPENINGS OF ENCLOSURES PER THE APPROVED SHOP DRAWINGS, DO NOT USE THE CONTRACT DRAWINGS.
- CLEARANCES**  
IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO MEET N.E.C. CLEARANCES ABOUT EQUIPMENT.
- ROUTING**  
CONDUIT ROUTING IS SCHEMATIC IN NATURE. CONDUIT ROUTING IS SHOWN FOR CLARITY ON THE CONTRACT DRAWINGS. ROUTE CONDUITS AS MAY BE REQUIRED.
- FUTURE FACILITIES**  
WHERE FUTURE FACILITIES ARE INDICATED, CONDUIT ROUTING SHALL ACCOUNT FOR SUCH FACILITIES.
- RESPONSIBILITIES**  
BIDDERS, SUPPLIERS, EQUIPMENT VENDORS, GENERAL CONTRACTOR, SUB CONTRACTORS AND OTHER SIMILAR ENTITIES ARE REQUIRED TO READ ALL THE CONTRACT DOCUMENTS INCLUDING DRAWINGS AND SPECIFICATIONS.
- HOWEVERS**  
CONTRACTOR SHALL COORDINATE HOME RUNS BETWEEN PLAN VIEWS. WHERE ANY CONDUIT IS SHOWN IN ANY PLAN VIEW IT SHALL BE INSTALLED THE ENTIRE LENGTH AS MAY BE REQUIRED.

### ELECTRICAL ABBREVIATIONS

37C	37 CONDUCTOR CABLE	OHC	OPEN-HOLD-CLOSE
ATB	ANALOG TERMINAL BOX	OHU	OVER HEAD ELEC UTILITIES
AXS	AUTO TRANSFORMER STARTER	OL	OVER LOAD RELAY
CR	CONTROL RELAY	PB	PUSH BUTTON
CP	CONTROL PANEL	PDP	POWER DIST. PANEL
CPB	CONTROL PULL BOX	PIT	PRESS INDICATING TRANSMITTER
CS	CONTROL STATION	PM	POWER MONITOR
CSD	CONTROL SYSTEM DESIGN INC.	PMB	PARK MAINTENANCE BLDG
CTB	CONTROL TERM. BOX	PNLBD	PANELBOARD
DISC	DISCONNECT SWITCH	PPB	POWER PULL BOX
DMM	DIGITAL MULTIMETER	PSA	PANEL SURGE ARRESTOR
DS	DOOR SWITCH	PSCP	PUMP STATION CONTROL PANEL
DTB	DISCRETE TERMINAL BOX	PTB	POWER TERMINAL BOX
EN	ETHERNET	R-1/0 CBL	REMOTE 1/0 CABLE
ETM	ELAPSED TIME METER	R,G,A	RED, GREEN, AMBER PILOT LIGHT
F	FUSE	RGS	RIGID GALV. STEEL
FCP	FLYGT CONTROL PANEL	RO	READ OUT
FO	FIBER OPTIC	SA	SURGE ARRESTOR
FO-E-CBL	FIBER OPTIC ETHERNET CABLE	SS	SELECTOR SWITCH OR 316 STAINLESS STEEL
FO6PMB	F/O WELL 6 TO PMB	SWBD	SWITCH BOARD
FSA	FIELD SURGE ARRESTOR	STB	SIGNAL TERMINAL BOX
GFI	GROUND FAULT INTERRUPTER	TC	TIME CLOCK
HOA	HAND-OFF-AUTO	TFRO	TROPICAL FARMS REVERSE OSMOSIS
HOR	HAND-OFF-REMOTE	TOT	TOTALIZER
IPB	INST. PULL BOX	TS	TEST SWITCH
ITB	INST. TERMINAL BOX	VCP	VENDOR CP
LA	LIGHTNING ARRESTER	VFD	VARIABLE FREQUENCY DRIVE
LIT	LEVEL INDICATING TRANSMITTER	WP	WEATHER PROOF
LOR	LOCAL-OFF-REMOTE	WW	WIRE WAY
M	MOTOR STARTER	WWCP	WET WELL CONTROL PANEL
MB+	MODBUS PLUS	ZSL	POSITION SWITCH CLOSED
MCC	MOTOR CONTROL CENTER	ZSO	POSITION SWITCH OPEN
MLO	MAIN LUG ONLY		
NF	NON FUSED		

### ELECTRICAL LEGEND

	RACEWAY EXPOSED		LEVEL SWITCH, FLOAT SWITCH		SWITCH 48" AFF,
	LIGHTING RACEWAY CONCEALED		PRESSURE SWITCH		SWITCH 48" AFF, 3-WAY
	RACEWAY CONCEALED		LIMIT SWITCH		ENCLOSED COMBINATION STARTER
	RACEWAY TURNED UP/DOWN		THERMAL SWITCH		JUNCTION BOX
	MOTOR		HEATER		PANELBOARD, ELECTRICAL EQUIP. ENCL
	TRANSFORMER		PILOT LIGHT		CROSS HATCH DENOTES DELETION
	FUSE		DENOTES SEPARATE CONDUITS WITH SEPARATE WIRE		MANUAL MOTOR STARTER
	CIRCUIT BREAKER		DENOTES SEPARATE CONDUITS WITH SEPARATE WIRE		RED, MAINTAINED PUSH BUTTON
	CAPACITOR		DENOTES PANELBOARD A, CIRCUIT 3		TIMING CONTACT
	LIGHTNING ARRESTER		ELAPSED TIME METER		FLOW SWITCH
	SAFETY DISCONNECT SWITCH, HP RATED		SELECTOR SWITCH		CONTROL RELAY, MOTOR STARTER, ETC.
	GROUND		PUSH BUTTON ON-OFF SWITCH		DENOTES CONDUIT TAG 01
	DUPLEX, 14" AFF				
	SIMPLEX, 14" AFF				
	NORMALLY OPEN CONTACT				
	NORMALLY CLOSED CONTACT				

### MATERIAL SCHEDULE

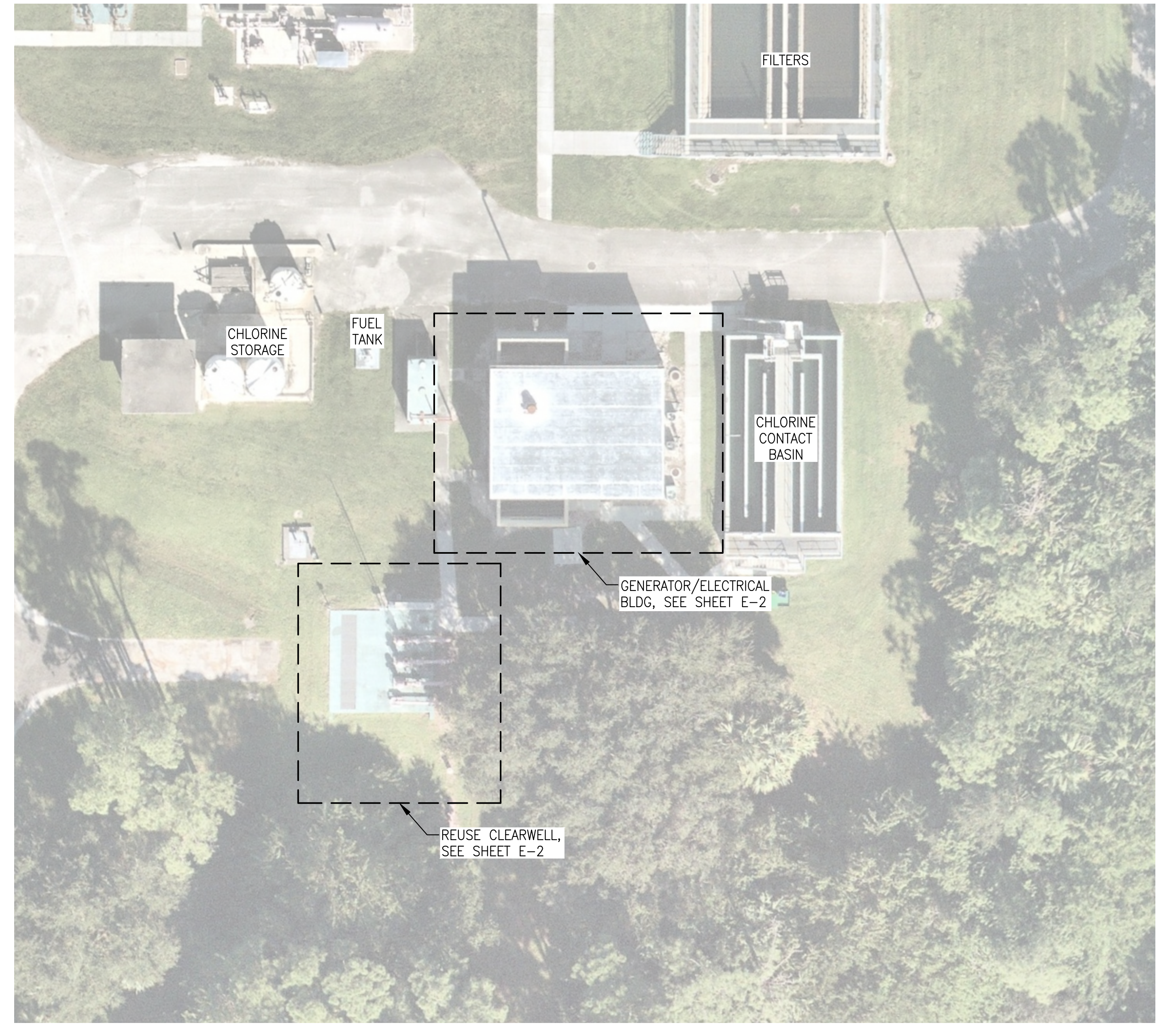
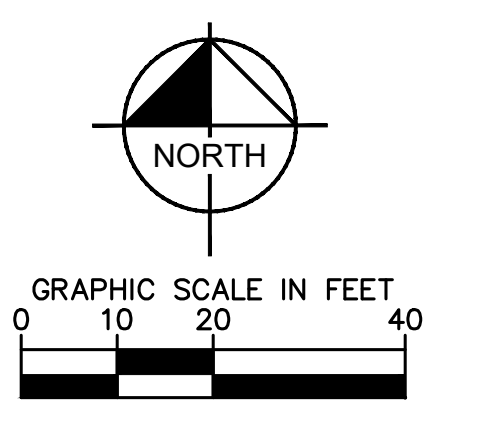
LOCATION	CONDUIT	ENCLOSURE MATERIALS	ENCLOSURE NEMA RATING	FASTENERS, STRUT, THREADED ROD, ETC.	REMARKS
EXTERIOR					
BELOW GRADE	PVC SCHED. 40	CONCRETE BOXES	N/A	316 SS	
ABOVE GRADE	PVC SCHED. 80	316 SS	4X	316 SS	

### GENERAL NOTES

- THE FOLLOWING SHALL ESTABLISH THE MINIMUM LEVEL OF QUALITY FOR MATERIALS.
- THE FOLLOWING SHALL APPLY UNLESS OTHERWISE INDICATED BY DRAWINGS
- THE FOLLOWING SHALL NOT APPLY TO POWER TRANSFORMERS, LIGHT FIXTURES AND LIGHT POLES, THOSE ELEMENTS ARE NOTED OR INDICATED ELSEWHERE

### LEGEND

N/A	NOT APPLICABLE
316 SS	316 STAINLESS STEEL
EMT	ELECTRICAL METALLIC TUBING, GALV. STEEL
ALUMINUM	ALUMINUM RIGID CONDUIT 6063 ALLOY, NOT ALUMINUM EMT



SWWTF ELECTRICAL BUILDING & REUSE CLEARWELL AERIAL PLAN

SCALE AS NOTED

No.	REVISIONS	DATE	BY

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KHA PROJECT	044572065
DATE	OCT. 2021
SCALE	AS SHOWN
DESIGNED BY	JLR
DRAWN BY	AOD
CHECKED BY	MAG

**SWWTF REUSE CONTROL PANEL REPLACEMENT**

PREPARED FOR  
**INDIAN RIVER COUNTY UTILITIES DEPARTMENT**

INDIAN RIVER COUNTY, FLORIDA

LICENSED PROFESSIONAL
MICHAEL A. GUIDA
FLORIDA LICENSE NUMBER 60755

**ELECTRICAL NOTES & LEGENDS**

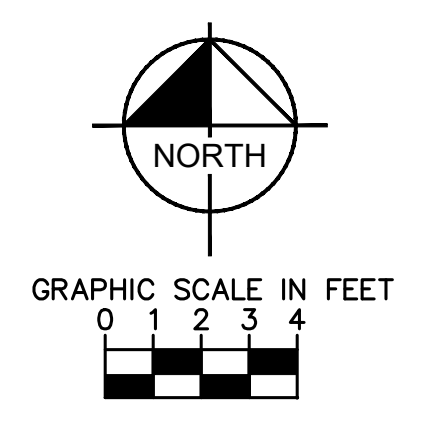
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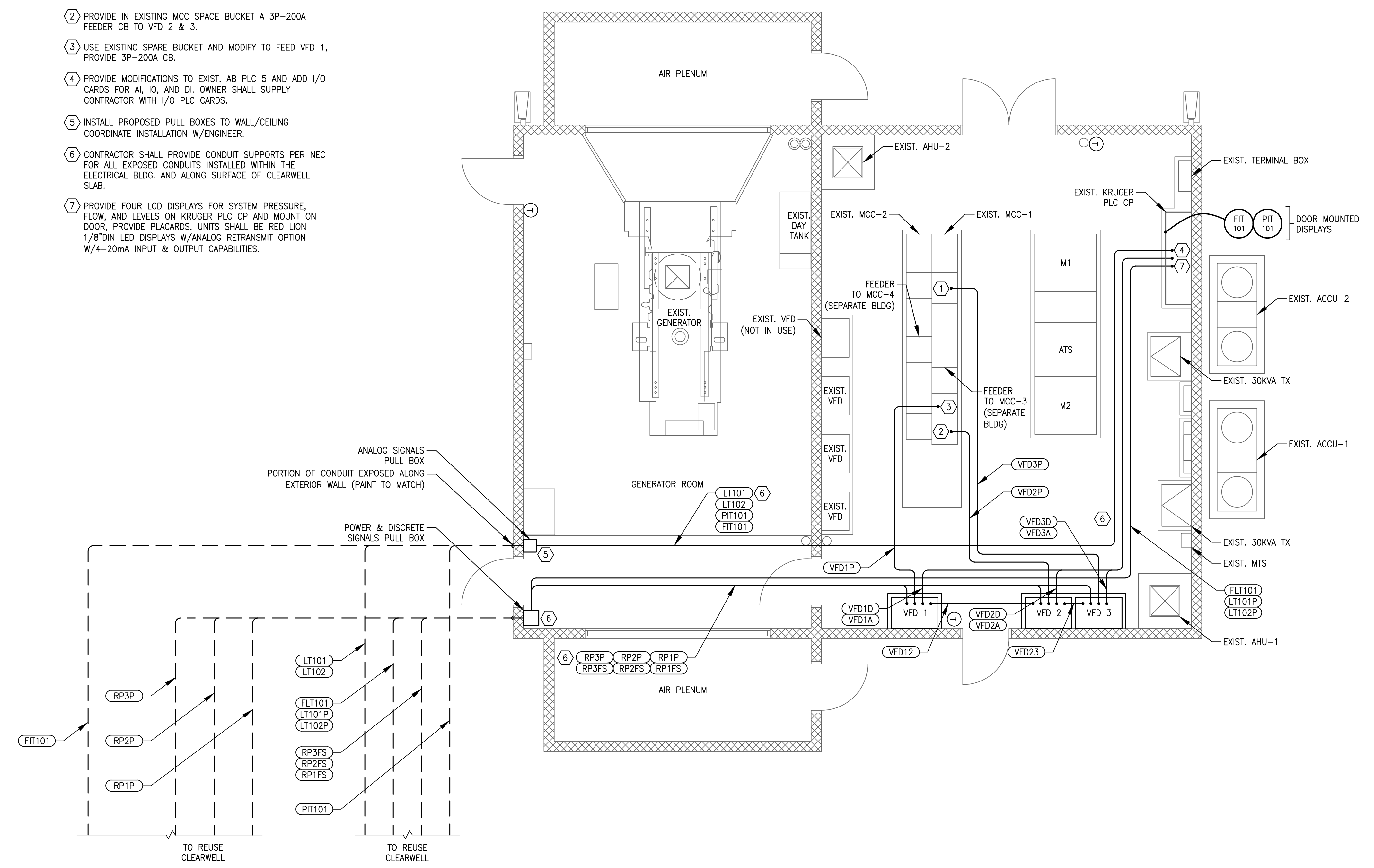


Plotted By: Andres Demarachi  
 Sheet Set: SWWTF REUSE CONTROL PANEL REPLACEMENT - GENERATOR BLDG - October 07, 2021 05:04:31pm  
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**SPECIFIC ELECTRICAL NOTES**

- ① EXIST. REUSE CP 600A CB TO BE REPLACED (AFTER VFD 1 & VFD 2 ARE INSTALLED AND TESTED) WITH 3P-200A CB TO FEED VFD 3.
- ② PROVIDE IN EXISTING MCC SPACE BUCKET A 3P-200A FEEDER CB TO VFD 2 & 3.
- ③ USE EXISTING SPARE BUCKET AND MODIFY TO FEED VFD 1, PROVIDE 3P-200A CB.
- ④ PROVIDE MODIFICATIONS TO EXIST. AB PLC 5 AND ADD I/O CARDS FOR AI, IO, AND DI. OWNER SHALL SUPPLY CONTRACTOR WITH I/O PLC CARDS.
- ⑤ INSTALL PROPOSED PULL BOXES TO WALL/CEILING COORDINATE INSTALLATION W/ENGINEER.
- ⑥ CONTRACTOR SHALL PROVIDE CONDUIT SUPPORTS PER NEC FOR ALL EXPOSED CONDUITS INSTALLED WITHIN THE ELECTRICAL BLDG. AND ALONG SURFACE OF CLEARWELL SLAB.
- ⑦ PROVIDE FOUR LCD DISPLAYS FOR SYSTEM PRESSURE, FLOW, AND LEVELS ON KRUGER PLC CP AND MOUNT ON DOOR, PROVIDE PLACARDS. UNITS SHALL BE RED LION 1/8"DIN LED DISPLAYS W/ANALOG RETRANSMIT OPTION W/4-20mA INPUT & OUTPUT CAPABILITIES.



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DESIGNED BY	JLR
DRAWN BY	AOD
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**SWWTF REUSE CONTROL  
 PANEL REPLACEMENT**  
 PREPARED FOR  
**INDIAN RIVER COUNTY UTILITIES  
 DEPARTMENT**  
 INDIAN RIVER COUNTY,  
 FLORIDA

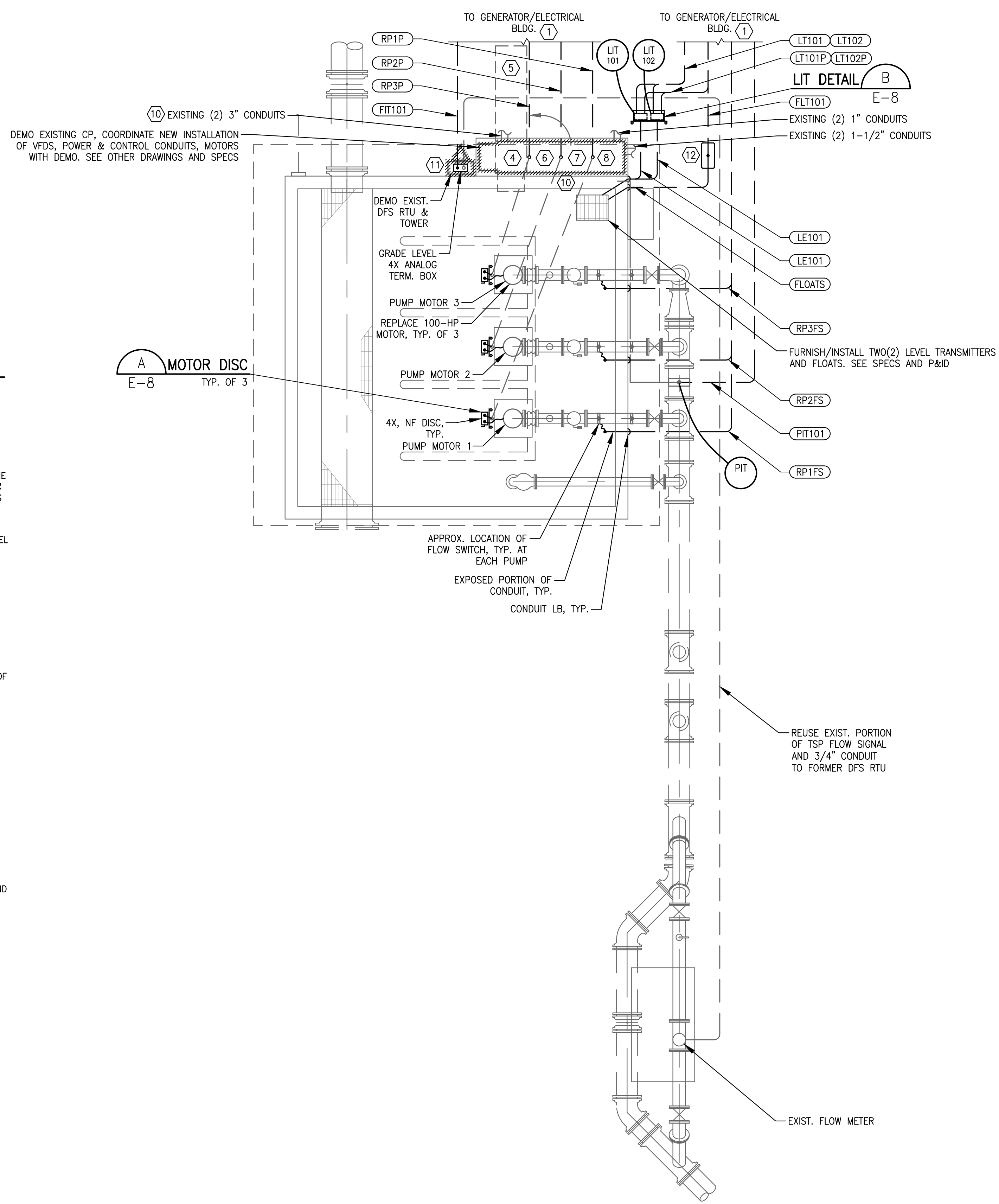
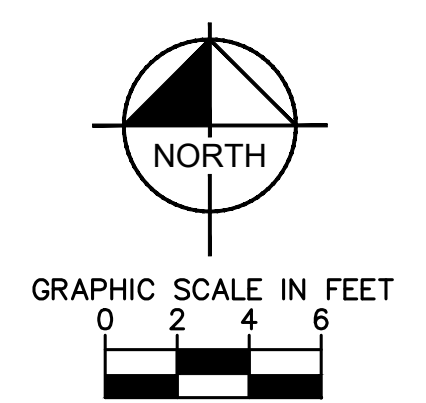
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**GENERATOR BUILDING  
 ELECTRICAL PLAN**

SHEET NUMBER  
**E-2**



Plotted By: Andrew Demarachi  
 Sheet: SWWTF REUSE CONTROL PANEL REPLACEMENT - Layout: REUSE CLEARWELL - October, 07, 2021 - 05:04:31pm  
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**SPECIFIC ELECTRICAL NOTES**

- ① CONTRACTOR SHALL HAVE INSTALLED ALL VFD EQUIPMENT, AND RUN MOST POWER AND CONTROL CONDUITS AND WIRES BEFORE ANY DEMO WORK BEGINS. SEE E-2.
- ② THIS INCLUDES HAVING VFD 1 AND 2 ENERGIZED FROM NEW FEEDER BREAKERS INSIDE EXISTING MCC BUCKETS. SEE HEX NOTES 2 AND 3 ON SHEET E-2.
- ③ AT CLEARWELL CONTRACTOR SHALL HAVE INSTALLED MOST OF THE PROPOSED EQUIPMENT, INCLUDING THE RACEWAY AND WIRES FOR REMOTE ON/OFF, FLOW SWITCHES AND THEIR RELATED RACEWAYS AND WIRES, AND THE PRESSURE AND LEVEL INSTRUMENTS.
- ④ PREPARE AND COORDINATE WITH PLANT PERSONNEL THE SHUT DOWN OF ALL THREE PUMPS WHILE THE EXISTING CONTROL PANEL WIRING IS TEMPORARILY DISCONNECTED SO THIS ENTIRE PANEL MAY BE ROTATED 90 DEGREES COUNTER-CLOCKWISE FROM ITS LEFT SIDE AS THE AXIS, SEE PLAN ON THIS SHEET.
- ⑤ AFTER ROTATING THIS CONTROL PANEL, PROVIDE 4X4 WOOD BLOCKS AND OR CONCRETE BLOCKS AS SUPPORTS TO TEMPORARILY LAY PANEL ON UNEVEN GRASSY AREA NORTH OF EXISTING CLEARWELL PAD. AT THIS TIME PROVIDE TEMPORARY SPLICES AND RECONNECT ALL POWER AND CONTROL WIRING, ORIGINAL PARALLEL 800 AMP FEEDERS WIRES AND PORTION OF CONDUITS OUTSIDE.
- ⑥ RECONNECT ALL POWER AND CONTROL WIRING USING WATERPROOF SPLICE KITS. AFTER PLACING ALL PUMPS BACK ON AND CONFIRMING ALL IS WORKING OKAY, DEMO MAY BEGIN. REMOVE THE 1st STARTER SECTION AND SWITCH IT OVER TO VFD.
- ⑦ REPEAT THE PROCESS FOR THE 2nd STARTER TO BE DEMO AND BE REPLACED WITH VFD.
- ⑧ DEMO 3rd STARTER SECTION AND REMAINDER OF THE CONTROL PANEL.
- ⑨ REPLACE AT THE EXISTING MCC 1 THE 600A BREAKER WITH VFD 3 200A BREAKER AND CONNECT TO VFD3. SEE E-2.
- ⑩ COMPLETE ALL NECESSARY CONNECTIONS TO CONTROL/STATUS AND FIELD INSTRUMENTS AND DEMO PORTION OF SLAB WHERE CONTROL PANEL WAS SITTING, LEAVING IN CONCRETE THE NEW PENETRATIONS FROM THE VFD FEEDER CONDUITS AND PLC SIGNALS.
- ⑪ COORDINATE W/PLANT PERSONNEL AND REMOVE 120V POWER AND PROCEED TO DEMO ALL DFS EQUIPMENT. PROVIDE AN ANALOG TERMINAL 4X JBOX TO EXTEND EXISTING 4-20mA SIGNAL.
- ⑫ PROVIDE A QUAZITE 15-1/2"x25"x12" MIN PULLBOX, PG1324Z80112 SERIES OR EQUAL AND PROVIDE WEATHERPROOF POLARIS TAPS FOR FLOAT SIGNALS.

NOTE: THE HEX NOTES DESCRIBE A SUGGESTED ORDER OF NEW EQUIPMENT INSTALLATION AND EXISTING EQUIPMENT BEING DEMO. THE CONTRACTOR MAY PROVIDE ALTERNATIVE TO BE SUBMITTED FOR REVIEW AND APPROVAL.

No.	REVISIONS	DATE	BY

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KHA PROJECT	044572065
DATE	OCT. 2021
SCALE	AS SHOWN
DESIGNED BY	JLR
DRAWN BY	AOD
CHECKED BY	MAG

**SWWTF REUSE CONTROL PANEL REPLACEMENT**  
 PREPARED FOR  
**INDIAN RIVER COUNTY UTILITIES DEPARTMENT**  
 INDIAN RIVER COUNTY, FLORIDA

LICENSED PROFESSIONAL  
 MICHAEL A. GUIDA  
 FLORIDA LICENSE NUMBER  
 60755

**REUSE CLEARWELL ELECTRICAL PLAN**

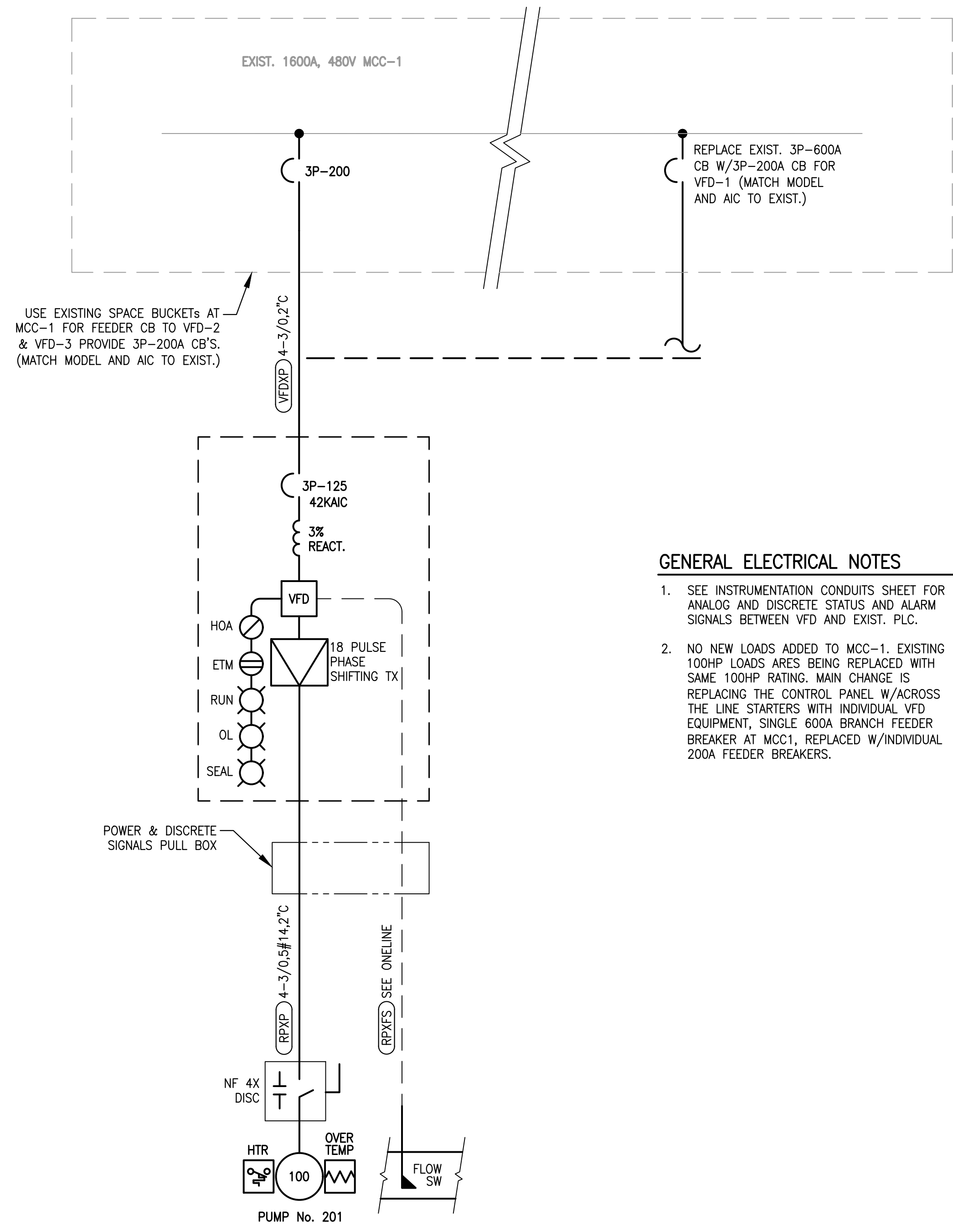
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**E-3**

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**GENERAL ELECTRICAL NOTES**

- SEE INSTRUMENTATION CONDUITS SHEET FOR ANALOG AND DISCRETE STATUS AND ALARM SIGNALS BETWEEN VFD AND EXIST. PLC.
- NO NEW LOADS ADDED TO MCC-1. EXISTING 100HP LOADS ARE BEING REPLACED WITH SAME 100HP RATING. MAIN CHANGE IS REPLACING THE CONTROL PANEL W/ACROSS THE LINE STARTERS WITH INDIVIDUAL VFD EQUIPMENT, SINGLE 600A BRANCH FEEDER BREAKER AT MCC1, REPLACED W/INDIVIDUAL 200A FEEDER BREAKERS.

**POWER ONELINE**

TYP. OF 3 REUSE PUMPS, WHERE X=1,2,3

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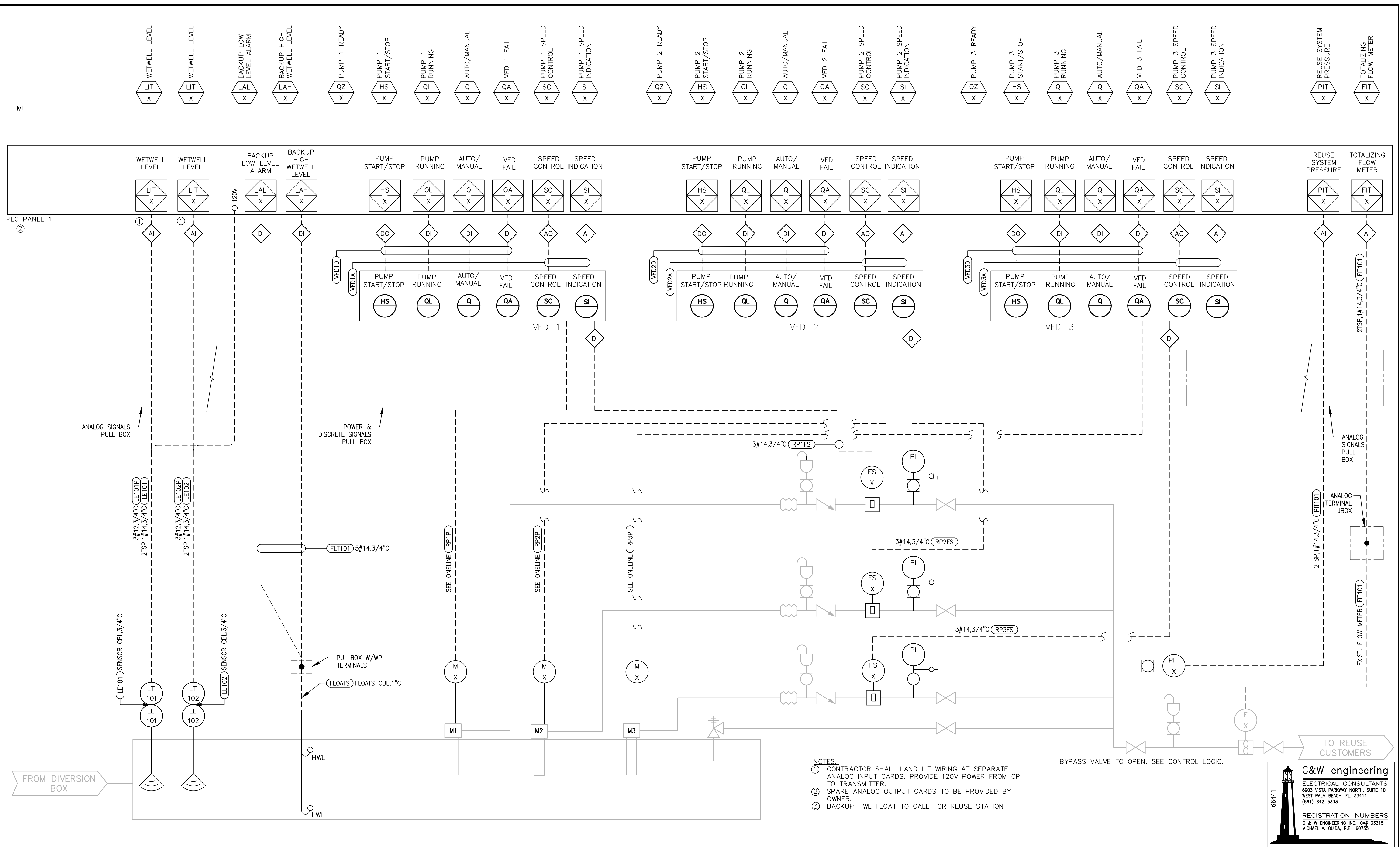
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 PREPARED FOR  
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 INDIAN RIVER COUNTY, FLORIDA

LICENSED PROFESSIONAL  
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 FLORIDA LICENSE NUMBER  
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**POWER ONELINE**  
 SHEET NUMBER  
**E-4**



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- NOTES:
- CONTRACTOR SHALL LAND LIT WIRING AT SEPARATE ANALOG INPUT CARDS. PROVIDE 120V POWER FROM CP TO TRANSMITTER.
  - SPARE ANALOG OUTPUT CARDS TO BE PROVIDED BY OWNER.
  - BACKUP HWL FLOAT TO CALL FOR REUSE STATION

BYPASS VALVE TO OPEN. SEE CONTROL LOGIC.

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**SWWTF REUSE CONTROL PANEL REPLACEMENT**  
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 INDIAN RIVER COUNTY, FLORIDA

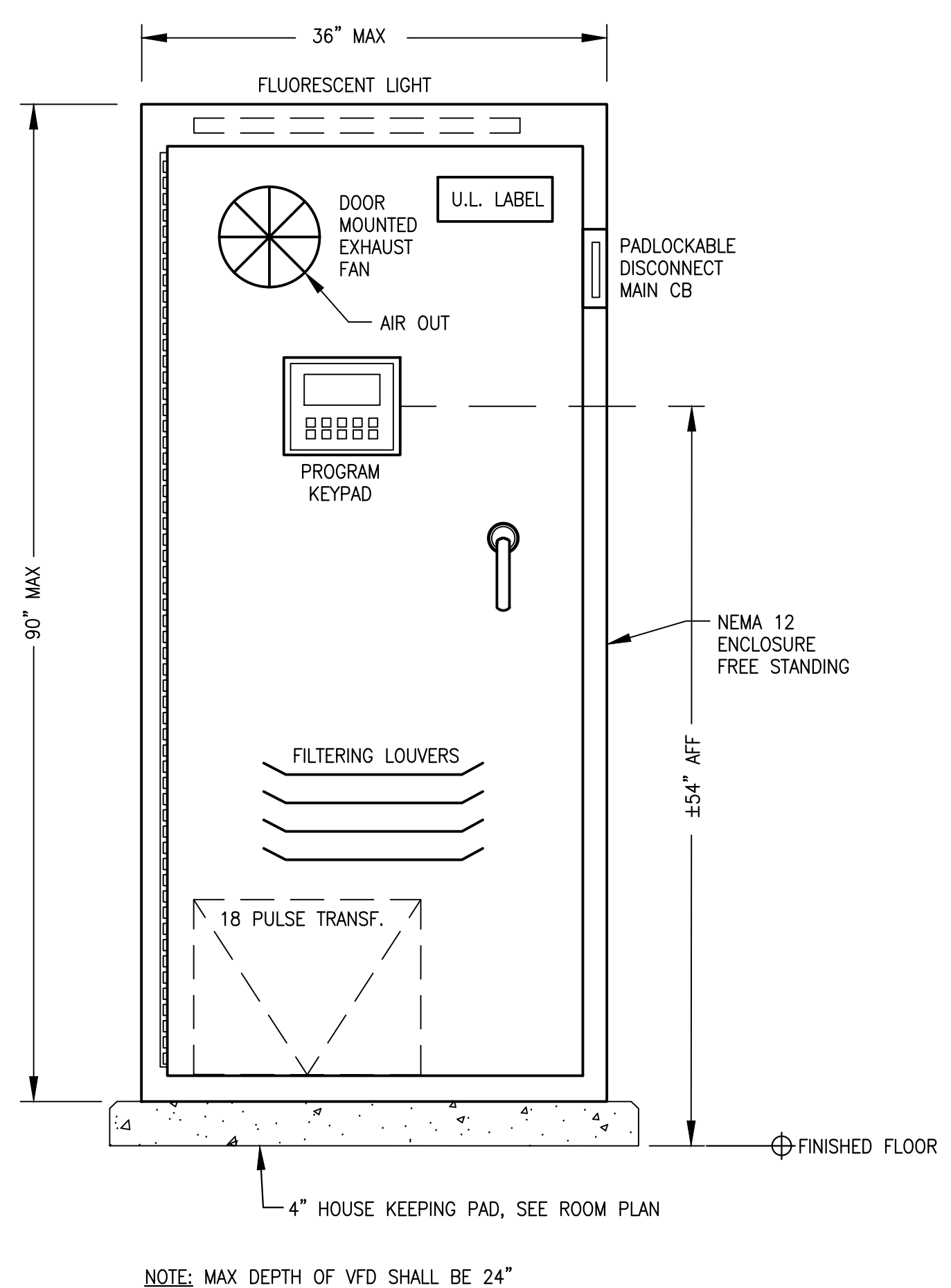
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**REUSE PUMP STATION INSTRUMENTATION CONDUITS**

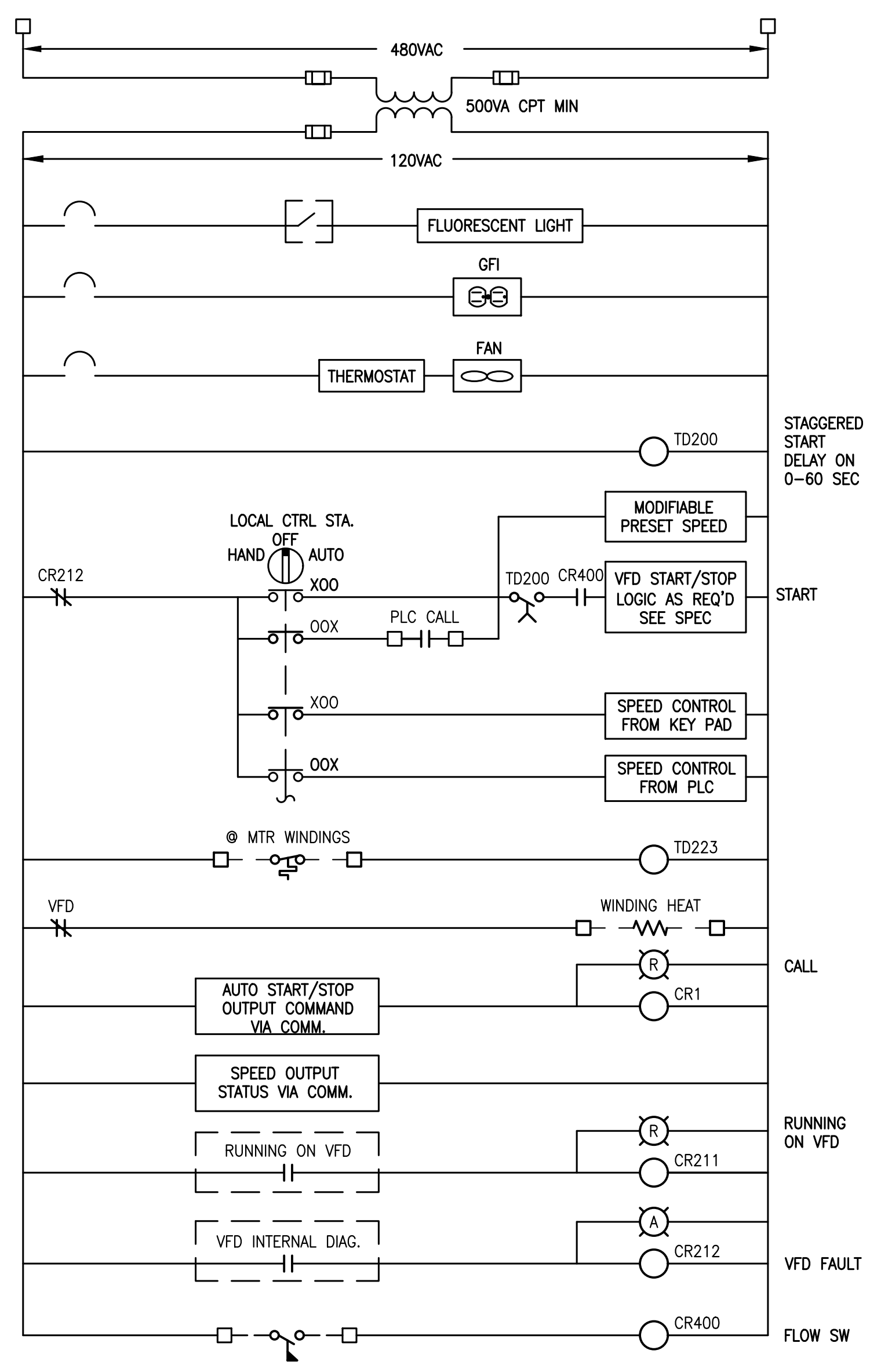
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**REUSE STATION VFD**  
NTS



- SEE PID DIAGRAM AND NETWORK DIAGRAM
- PARAMETERS TO PLC
- VFD RUN
  - VFD FAULT
  - VFD H-O-A, AUTO
  - OVERTEMP
- ANALOG INPUT PARAMETERS
- SPEED COMMAND
- ANALOG OUTPUT PARAMETERS
- SPEED INDICATION
- PROVIDE THESE HARDWIRED PARAMETERS

**VFD SCHEMATIC**  
TYP. FOR REUSE VFD EQUIPMENT

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 FLORIDA LICENSE NUMBER  
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**VFD DETAILS**

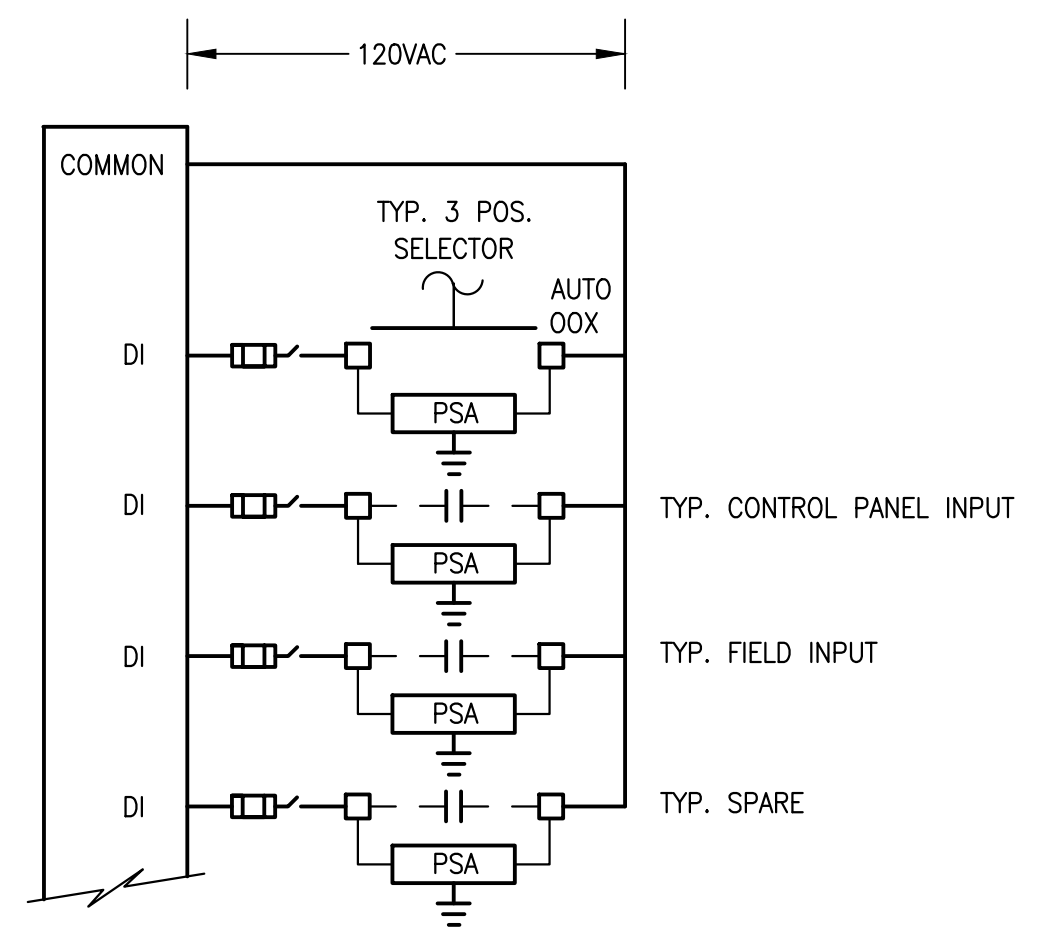
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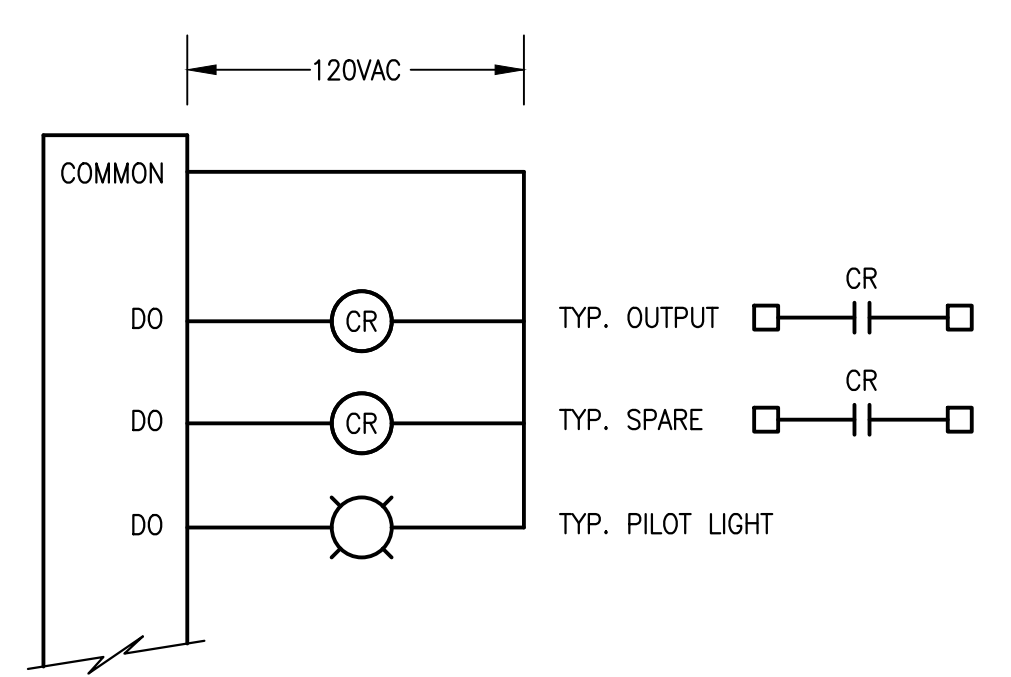


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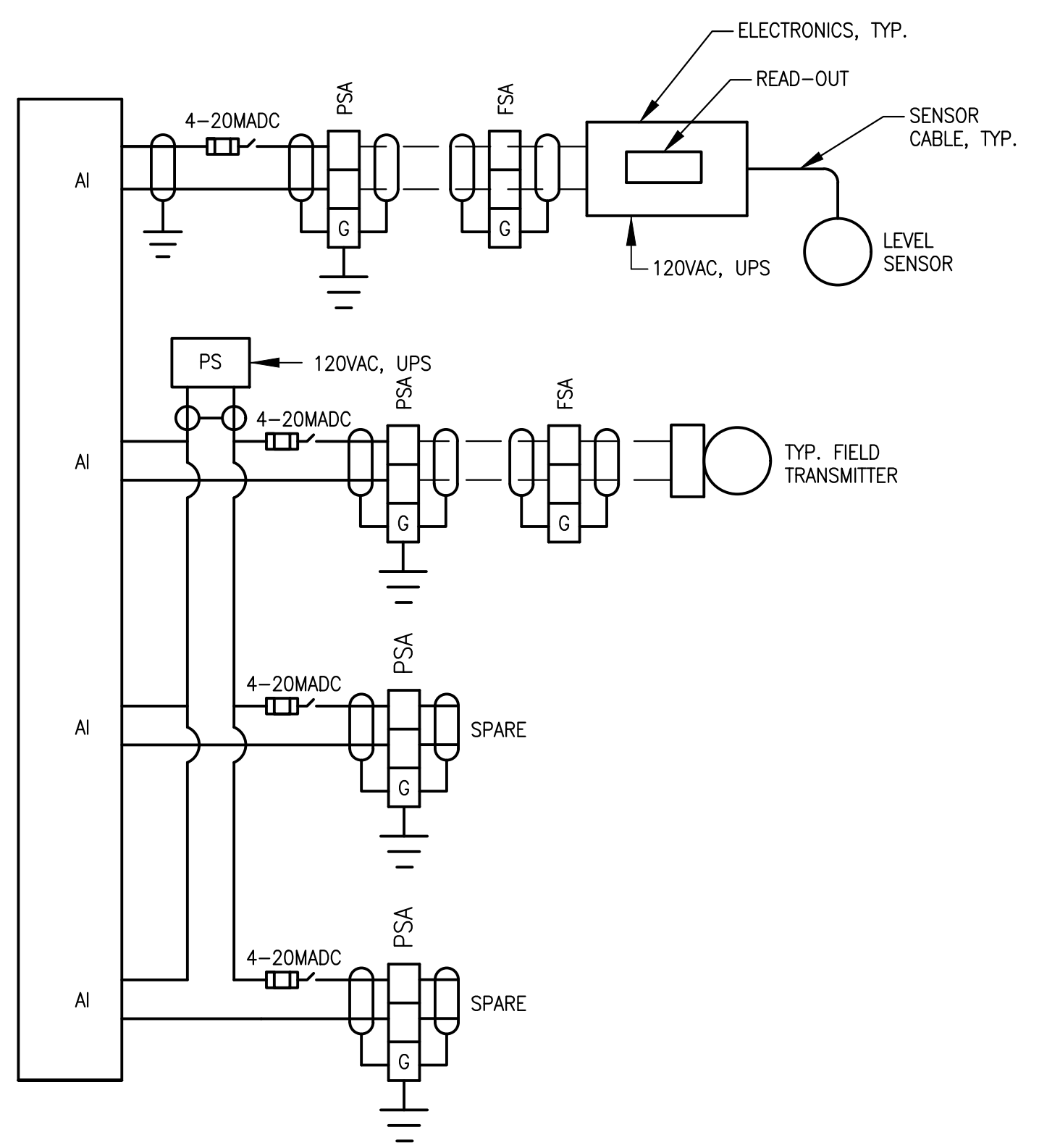
TYPICAL DI DIAGRAM

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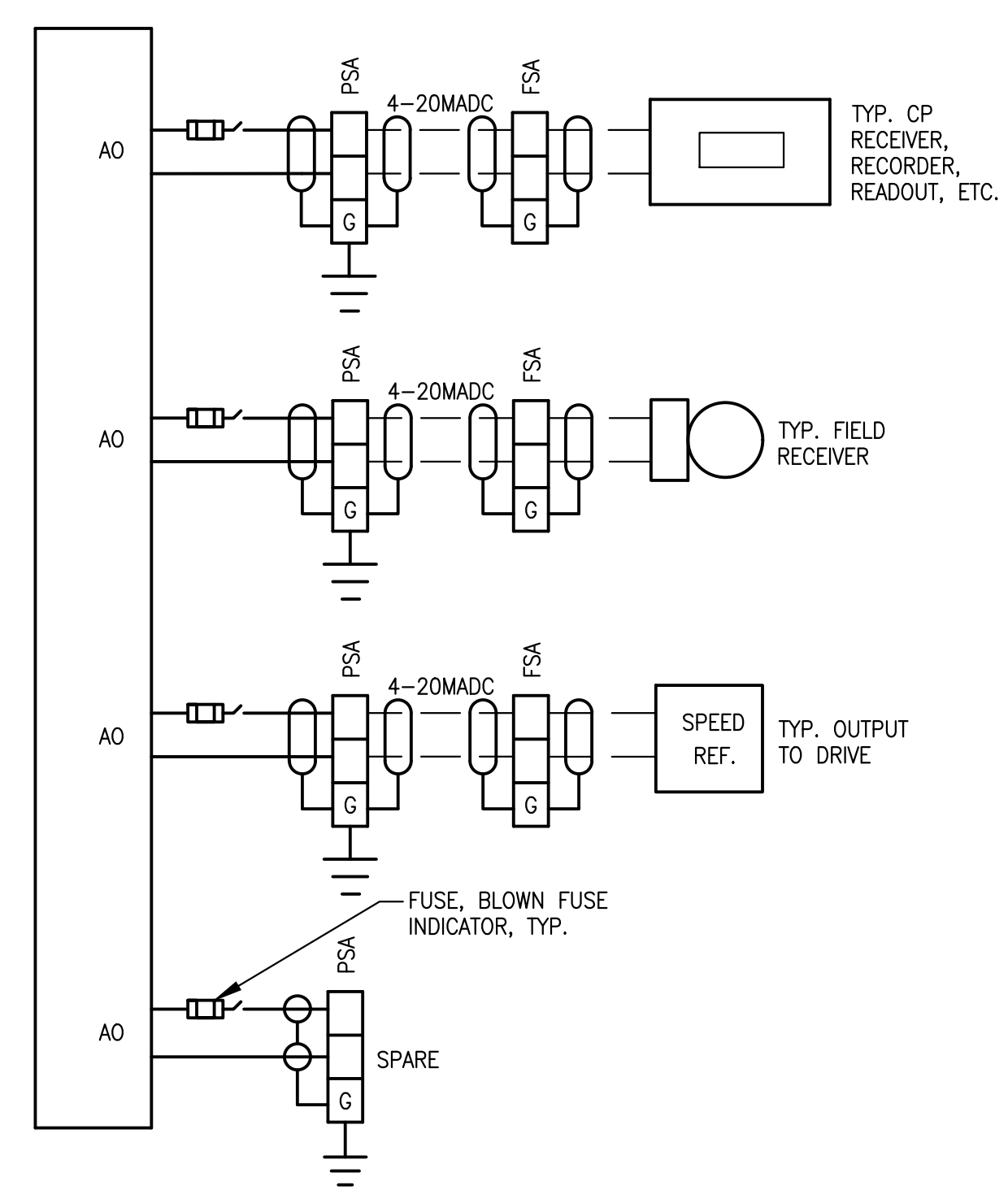
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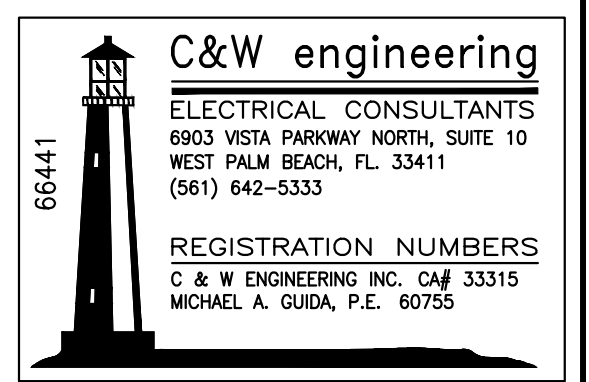
TYPICAL AI LOOP DIAGRAM

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TYPICAL AO LOOP DIAGRAM

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 DESIGNED BY JLR  
 DRAWN BY AOD  
 CHECKED BY MAG

**SWWTF REUSE CONTROL  
 PANEL REPLACEMENT**  
 PREPARED FOR  
**INDIAN RIVER COUNTY UTILITIES  
 DEPARTMENT**  
 INDIAN RIVER  
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 FLORIDA

LICENSED PROFESSIONAL  
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 FLORIDA LICENSE NUMBER  
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**STANDARD LOOP DIAGRAMS**

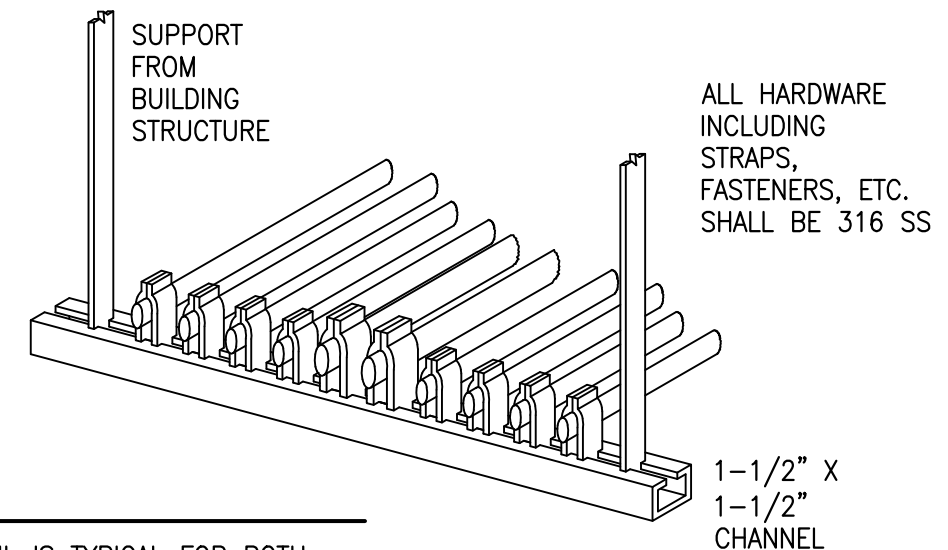
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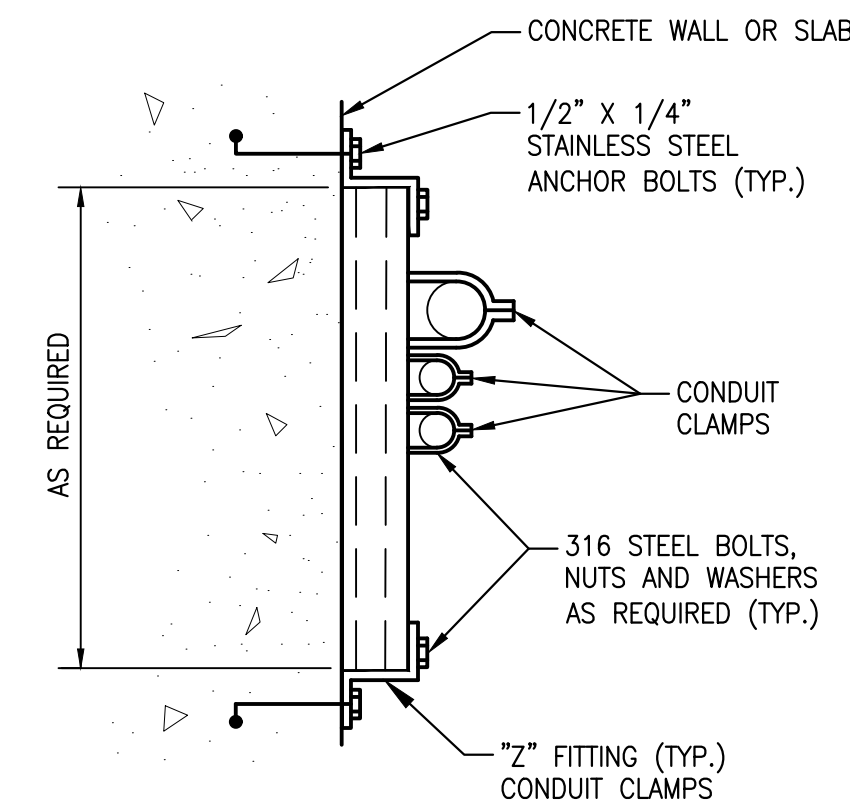
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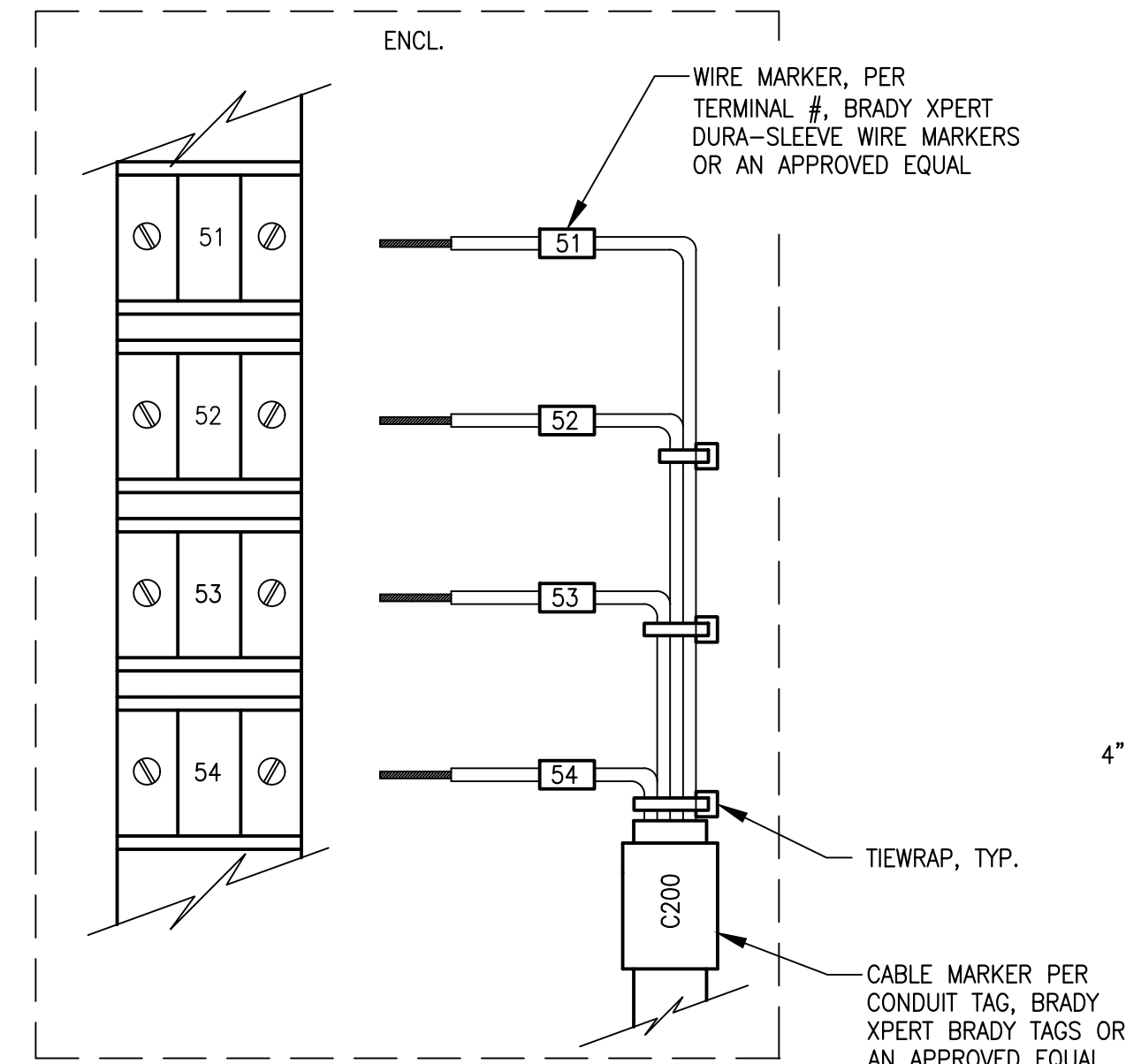


- NOTES:**
- THIS DETAIL IS TYPICAL FOR BOTH VERTICAL AND HORIZONTAL MOUNTING
  - CHANNEL AND ALL SUPPORT DEVICES TO BE FIELD COATED TO MATCH.
  - CHANNELS TO BE SPACES 5' MAXIMUM.
  - ALL MATERIALS SHALL BE 316 SS



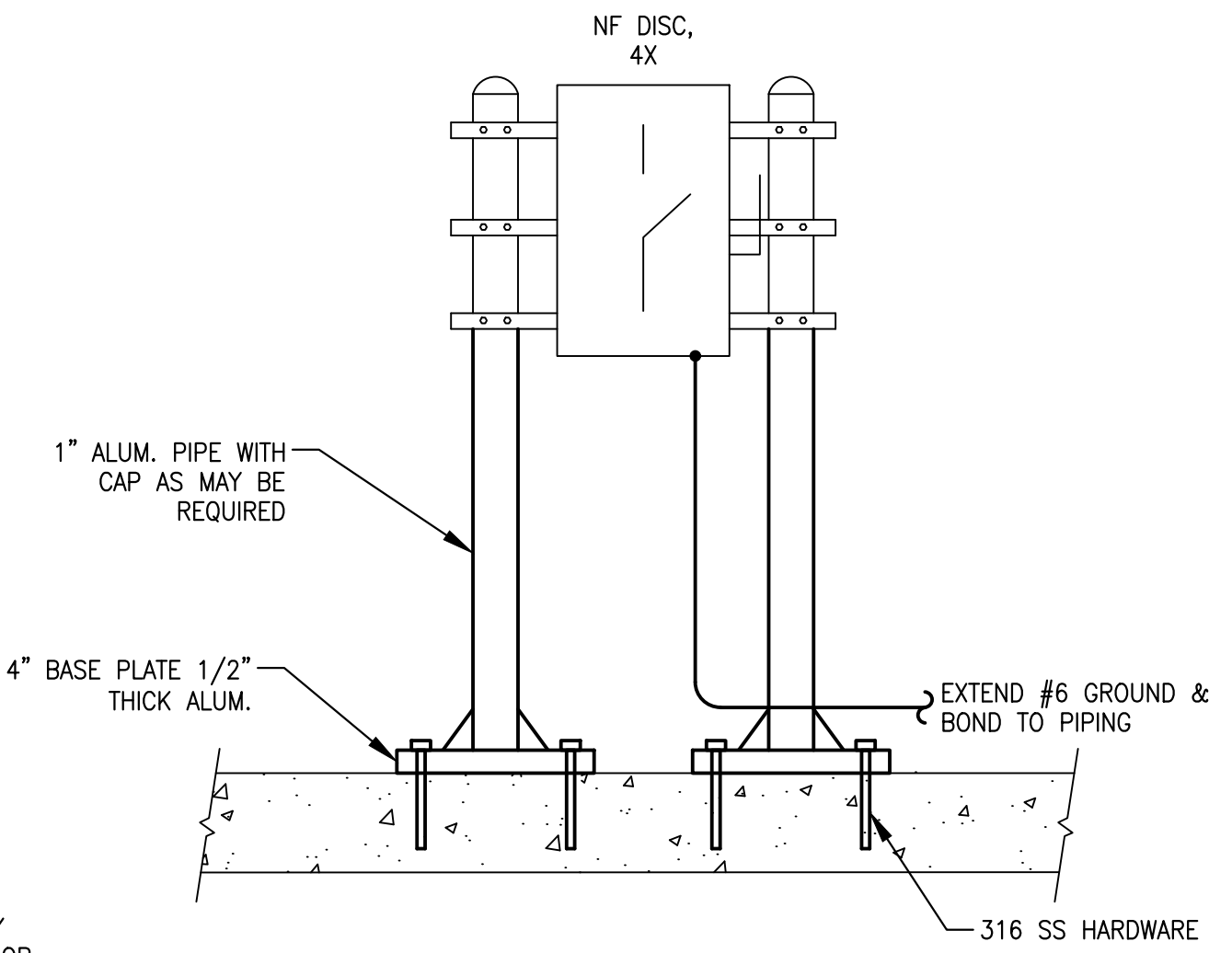
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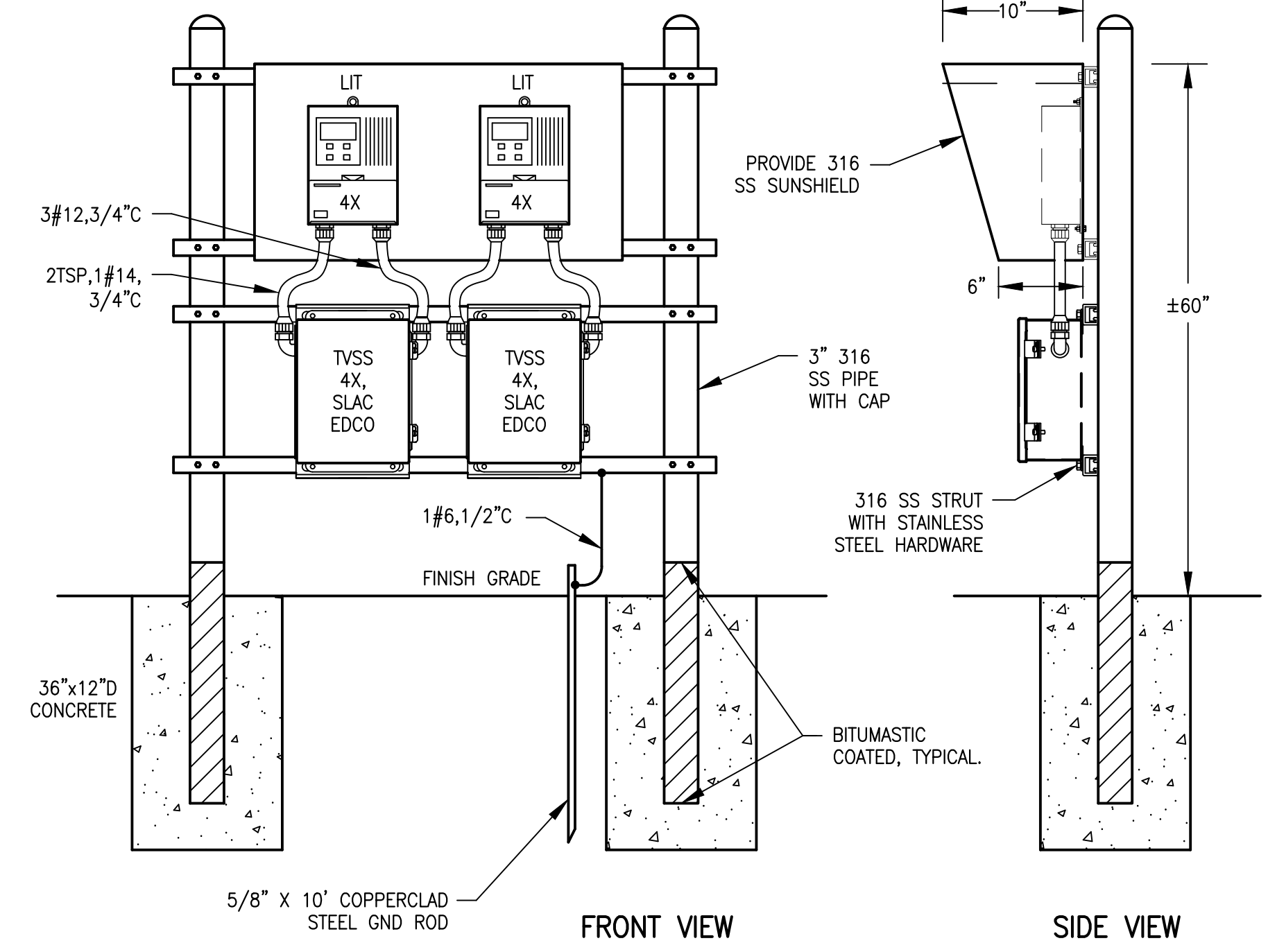
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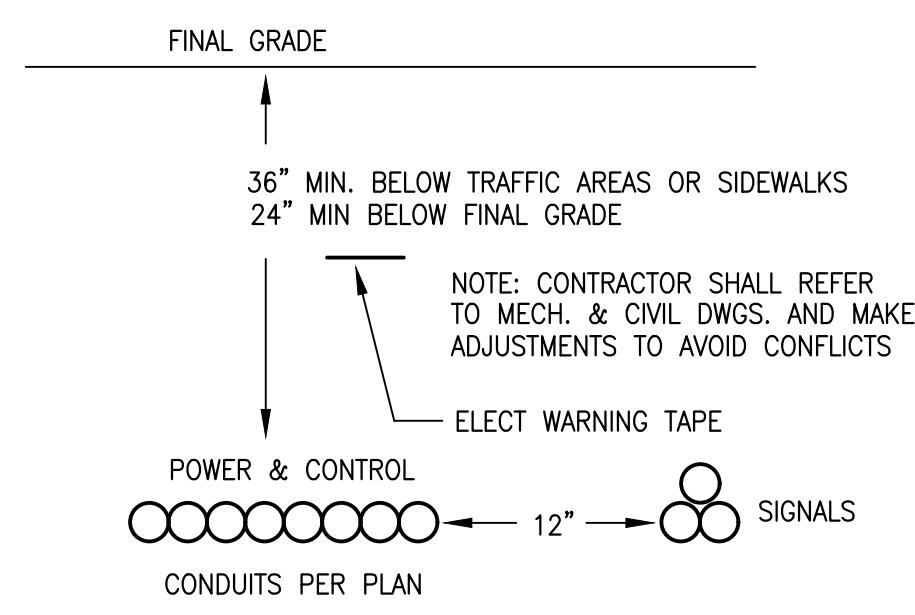
**MOTOR DISCONNECT DETAIL**

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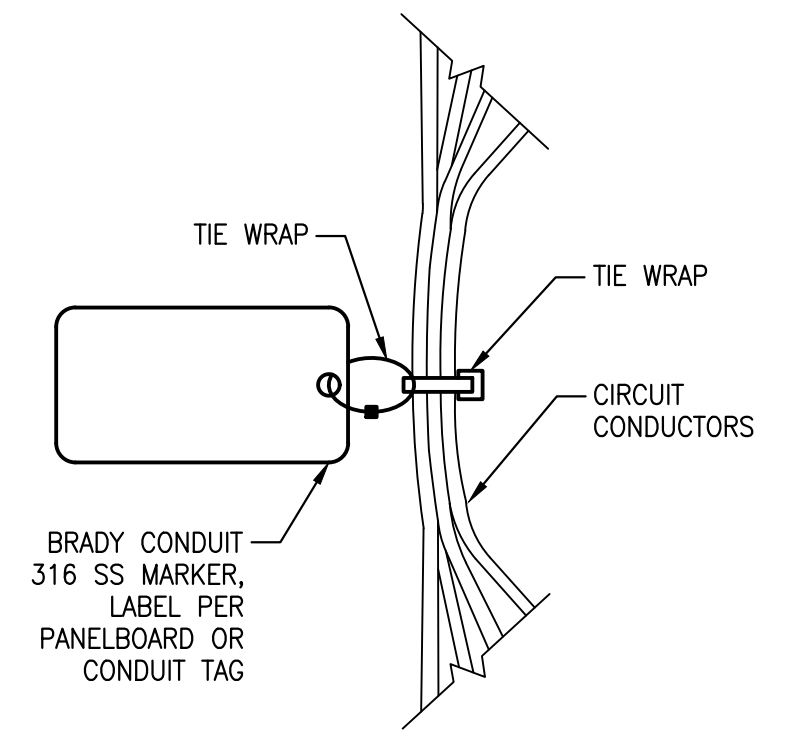
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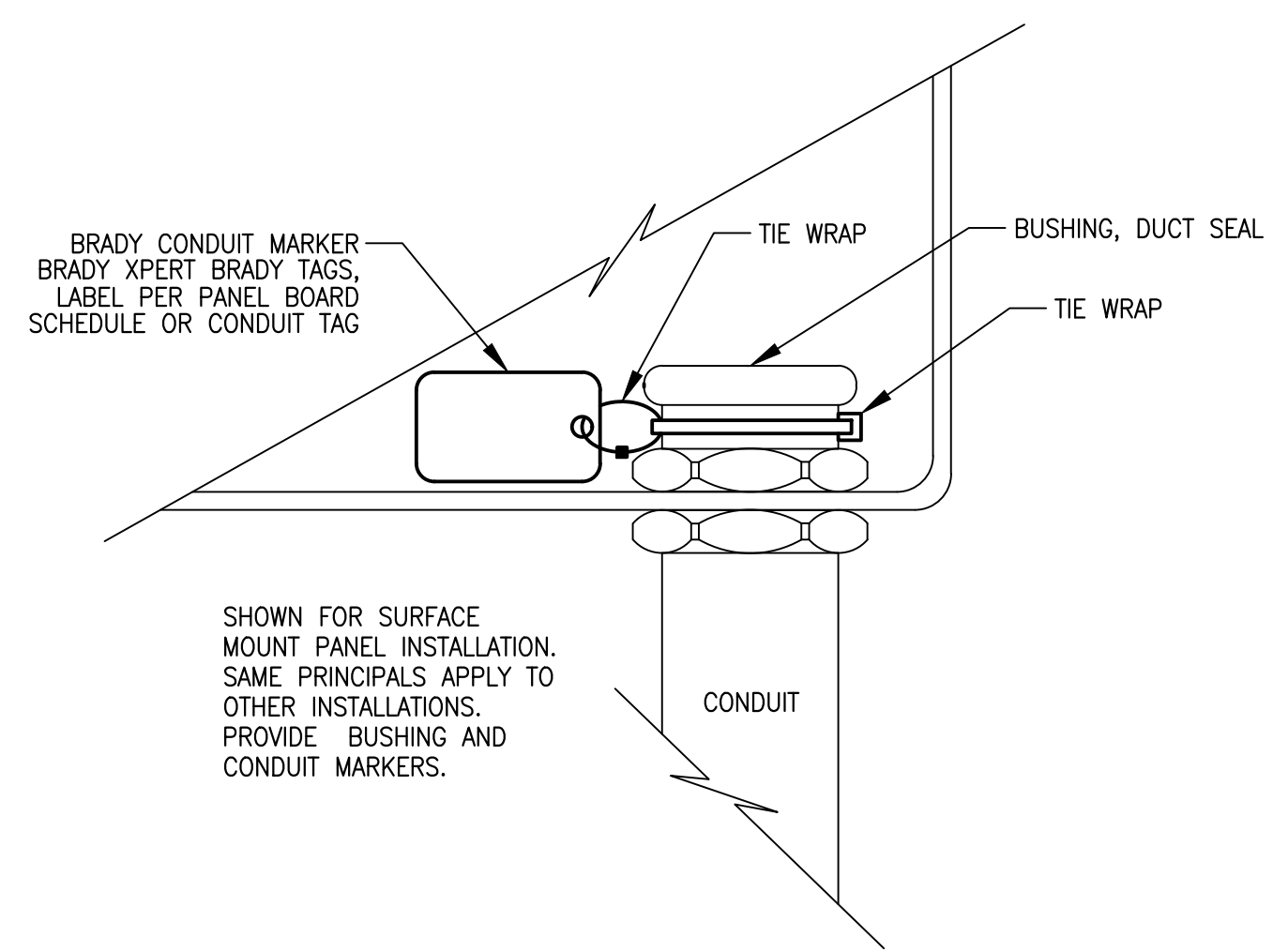
**DIRECT BURIED CONDUIT**

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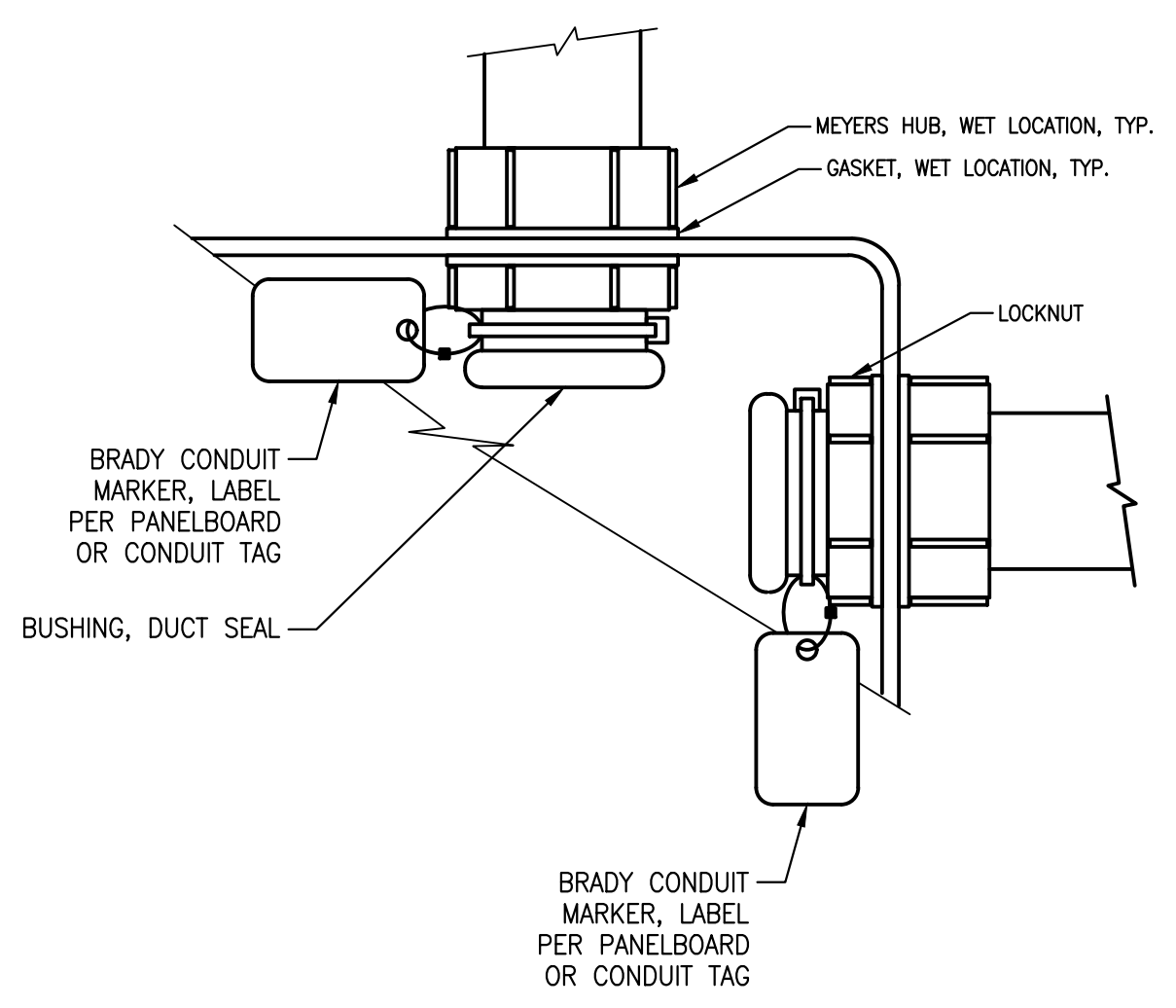
**CIRCUIT MARKER DETAIL**

NTS



**CONDUIT DETAIL**

NTS



**CONDUIT TERMINATION DETAIL**

NTS

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**SWWTF REUSE CONTROL PANEL REPLACEMENT**

PREPARED FOR  
**INDIAN RIVER COUNTY UTILITIES DEPARTMENT**

INDIAN RIVER COUNTY, FLORIDA

LICENSED PROFESSIONAL	MICHAEL A. GUIDA
FLORIDA LICENSE NUMBER	60755

**ELECTRICAL DETAILS**

SHEET NUMBER	<b>E-8</b>
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