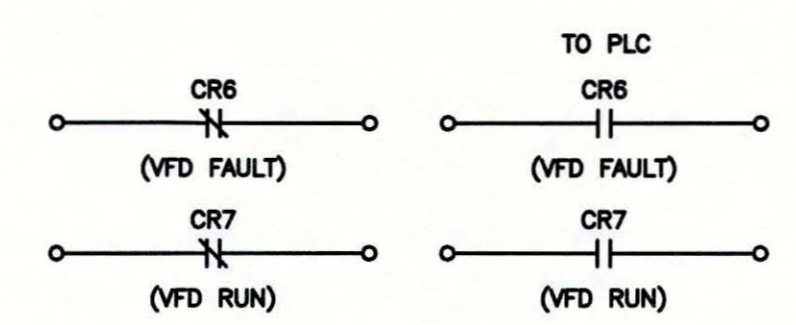


KEYED NOTES

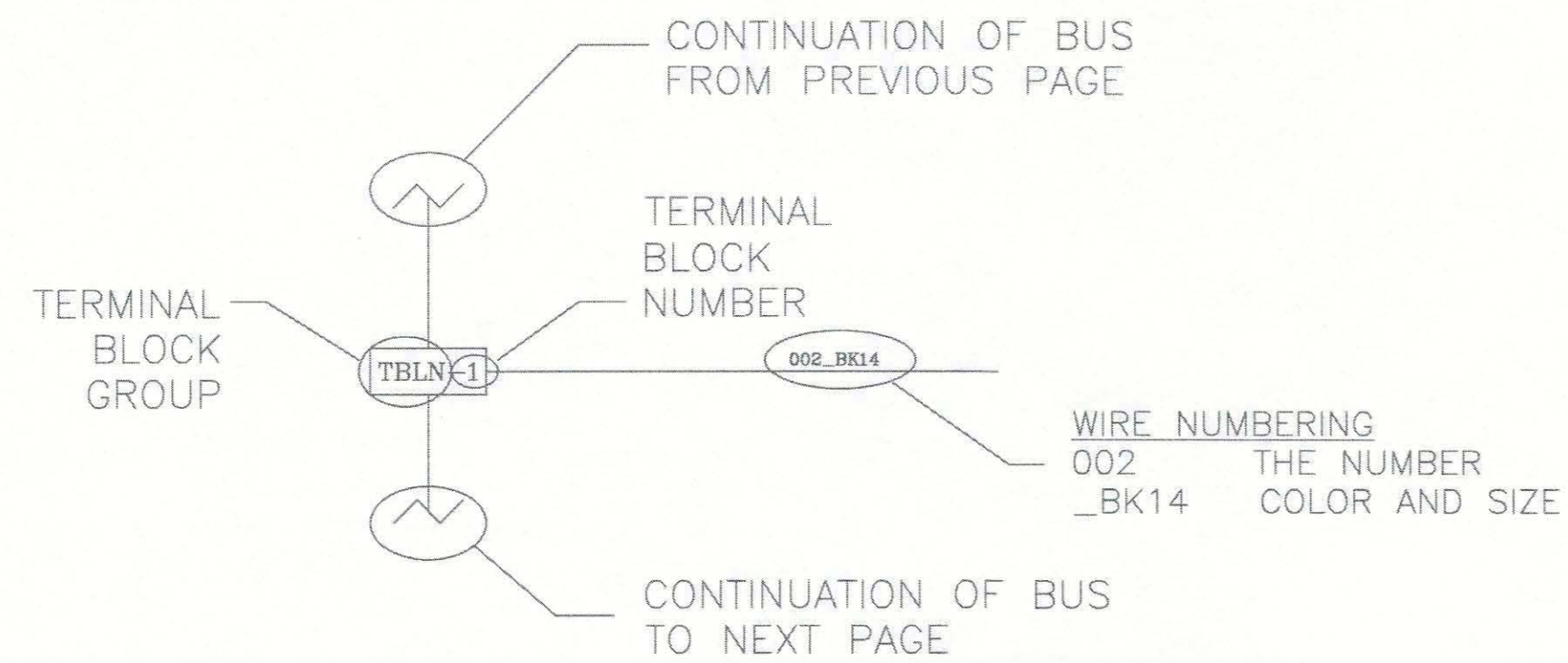
- ① PROVIDE A CONTROL POWER TRANSFORMER OF SUFFICIENT CAPACITY FOR THE CONTROL CIRCUIT, INCLUDING THE MOTOR HEATERS.
- ② PROVIDE FUSES PER ABB AC800 HARDWARE MANUAL REQUIREMENTS. PER MANUAL A FUSE MUST BE USED IN CONJUNCTION WITH A CIRCUIT BREAKER.
- ③ PROVIDE SHIELDED MULTI-CONDUCTOR POWER CABLE PER ABB ACS800 HARDWARE MANUAL REQUIREMENTS.



VFD ELECTRICAL DETAIL
SEE EACH DETAIL FOR SCALE



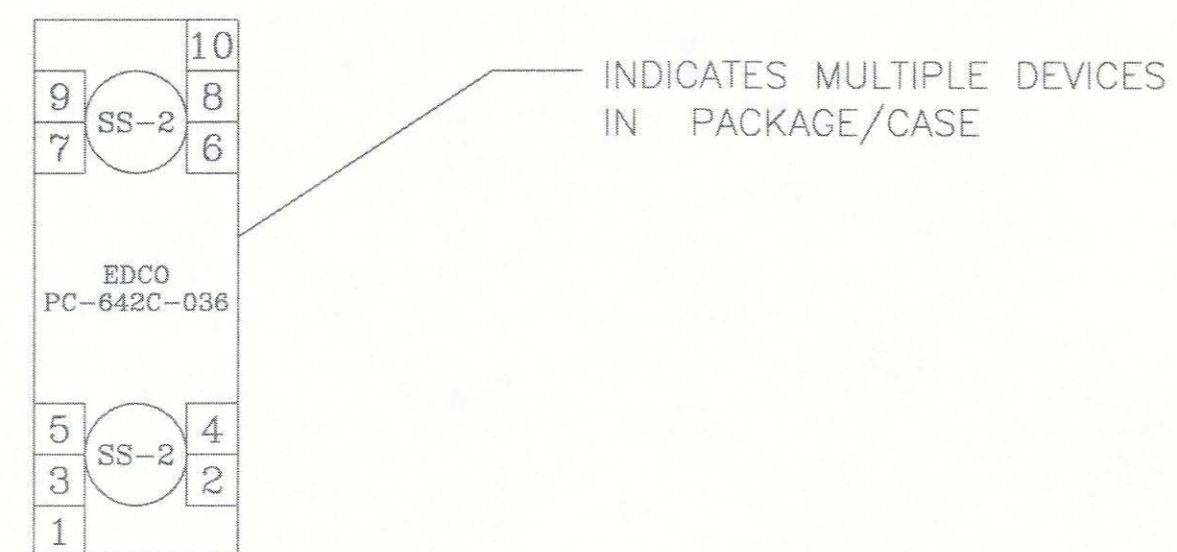
Stantec Stantec Consulting Services Inc. • 5172 Station Way, Sarasota, FL 34233 Tel. 941.366.1922 • Fax. 941.225.6182 • Florida Certificate No. 27013 • www.stantec.com		CLIENT: MANATEE COUNTY PUBLIC WORKS PROJECT: VILLAGE OF PARRISH MASTER PUMP STATION	DATE: AUGUST 2015 HORIZONTAL SCALE: 1"=4' VERTICAL SCALE: 1"=4' SEC: 20, 29 RGE: 33, 19 CROSS REFERENCE FILE NO.: PROJECT NUMBER: 177310561	TITLE: VFD DETAILS INDEX NUMBER: D-05925-001-0000E1 SHEET NUMBER: E10 OF 17
ACTIVITY DESIGNED BY: JN JULY 2015 DRAWN BY: BB JULY 2015 CHECKED BY: MA JULY 2015 CONTRACT ADMIN. BY: WM APPROVED BY:	INITIALS/EMP. NO. JN BB MA	DATE JULY 2015 JULY 2015 JULY 2015	REVISION A UPDATE DESIGN/CODE UPDATES FOR REPERMITTING 08/13/15 KG	



TERMINAL BLOCK GROUP	DESCRIPTION	NUMBER ASSIGNMENT
TB1	DC BUS POSITIVE	1000-1999
TB2	DC BUS NEGATIVE (RETURN)	2000-2999
TB3	FIELD WIRING	3000-3999
TB4	MISCELLANEOUS WIRES	4000-8999
TB8	ANALOG BUSS / FIELD	8000-8999
L1	AC (LINE)	1-99
N	NEUTRAL BUSS	100-199
TBL	AC (LINE) SURGE PROTECTED	300-300
TBN	NEUTRAL SURGE PROTECTED	400-499

WIRE COLOR CONVENTION:

BK=BLACK
 BN=BROWN
 BU=BLUE
 DN=SHIELD
 GN=GREEN
 GY=GREY
 OR=ORANGE
 PI=PINK
 RD=RED
 VI=VIOLET
 WT=WHITE
 YL=YELLOW
 DUAL COLOR: PRIMARY/TRACE



WIRE LEGEND

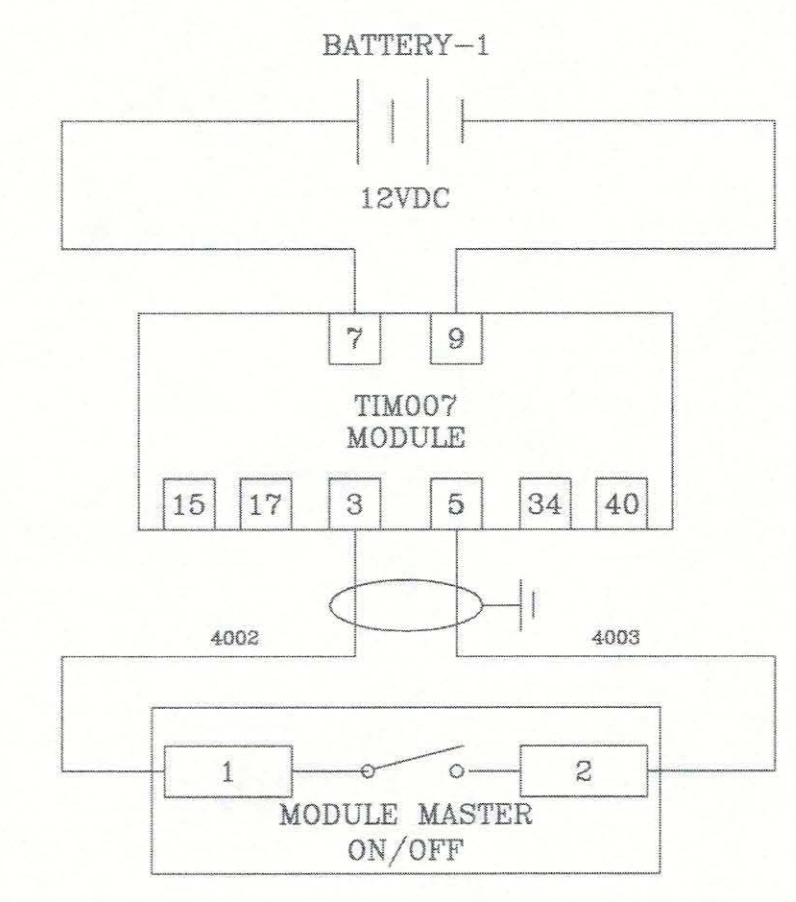
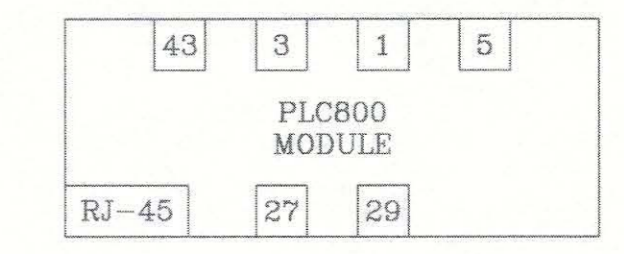
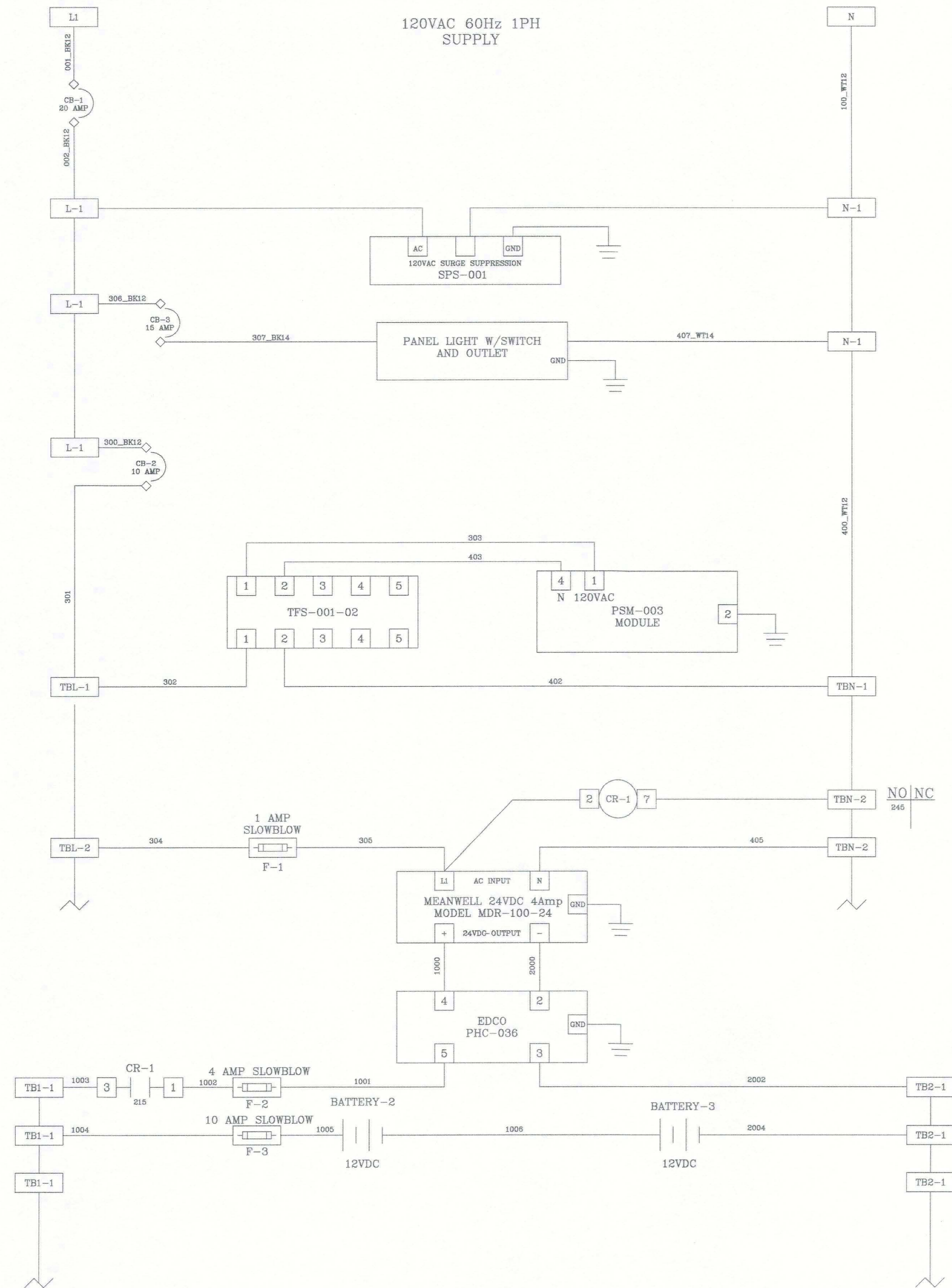
CONTROL WIRE SIZE #16 UNLESS NOTED
 ANALOG WIRE #18 SHIELDED TWISTED PAIR
 AC CONTROL WIRES - RED
 NEUTRAL WIRES - WHITE
 DC+ WIRES - BLUE
 DC- WIRES - BLUE/WHITE
 POWERED FROM FIELD - YELLOW
 FIELD WIRING _____



				ACTIVITY	INITIALS/EMP. NO.	DATE	CLIENT:	DATE:	TITLE:	
				DESIGNED BY:	JN	JULY 2015	MANATEE COUNTY PUBLIC WORKS	AUGUST 2015	PLC CONTROL LEGEND	MARTIN S. ARMENTA, P.E. FLORIDA LICENSE NO. 75333
				DRAWN BY:	BB	JULY 2015	PROJECT:	HORIZONTAL SCALE:		INDEX NUMBER:
				CHECKED BY:	MA	JULY 2015	VILLAGE OF PARRISH MASTER PUMP STATION	1"=4'		D-05925-001-0000E1
				CONTRACT ADMIN. BY:				VERTICAL SCALE:		SHEET NUMBER:
				WM APPROVED BY:				1"=4'		E11 of E17
Δ/REV. NO.	REVISION	DATE	DRAWN BY / EMP. NO.	CHECKED BY / EMP. NO.	WM APPROVED BY:			SEC. TWP. RSE:	PROJECT NUMBER:	
A	UPDATE DESIGN/CODE UPDATES FOR REPERMITTING	08/13/15	KG					20 29 33 19	177310561	



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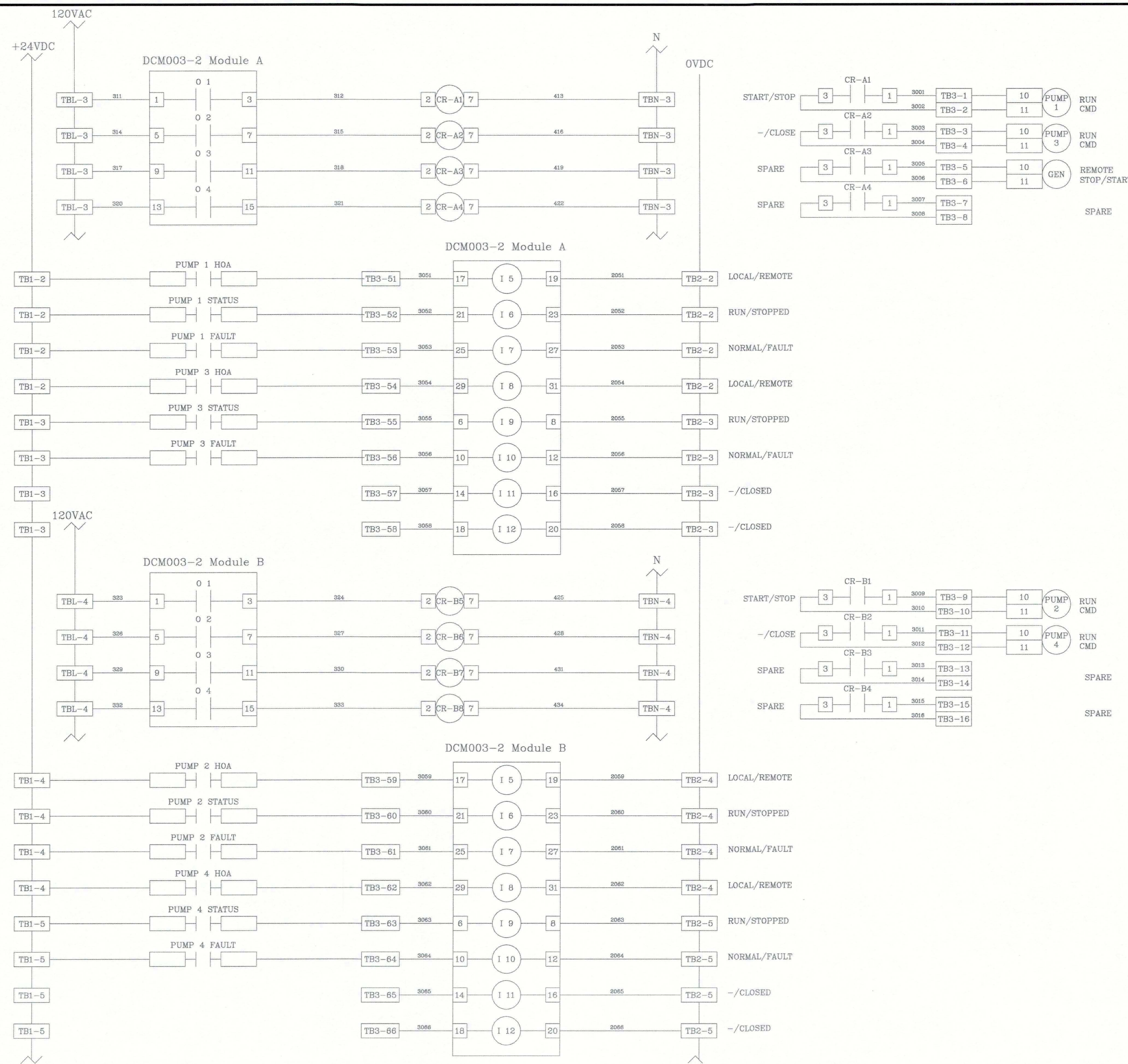
- NOTE:
- (1) ALL GROUNDING CONNECTIONS TO BE SINGLE POINT TO GROUND BUS ONLY
 - (2) AC AND DC BUS ARE TYPICAL TERMINAL BLOCK BUSES
 - (3) WIRES FOLLOW LEGEND UNLESS OTHERWISE MARKED
 - (4) SHIELDED CABLE
 - (5) INVERTED DATA STRAP
 - (6) PLC CENTRAL STRAP



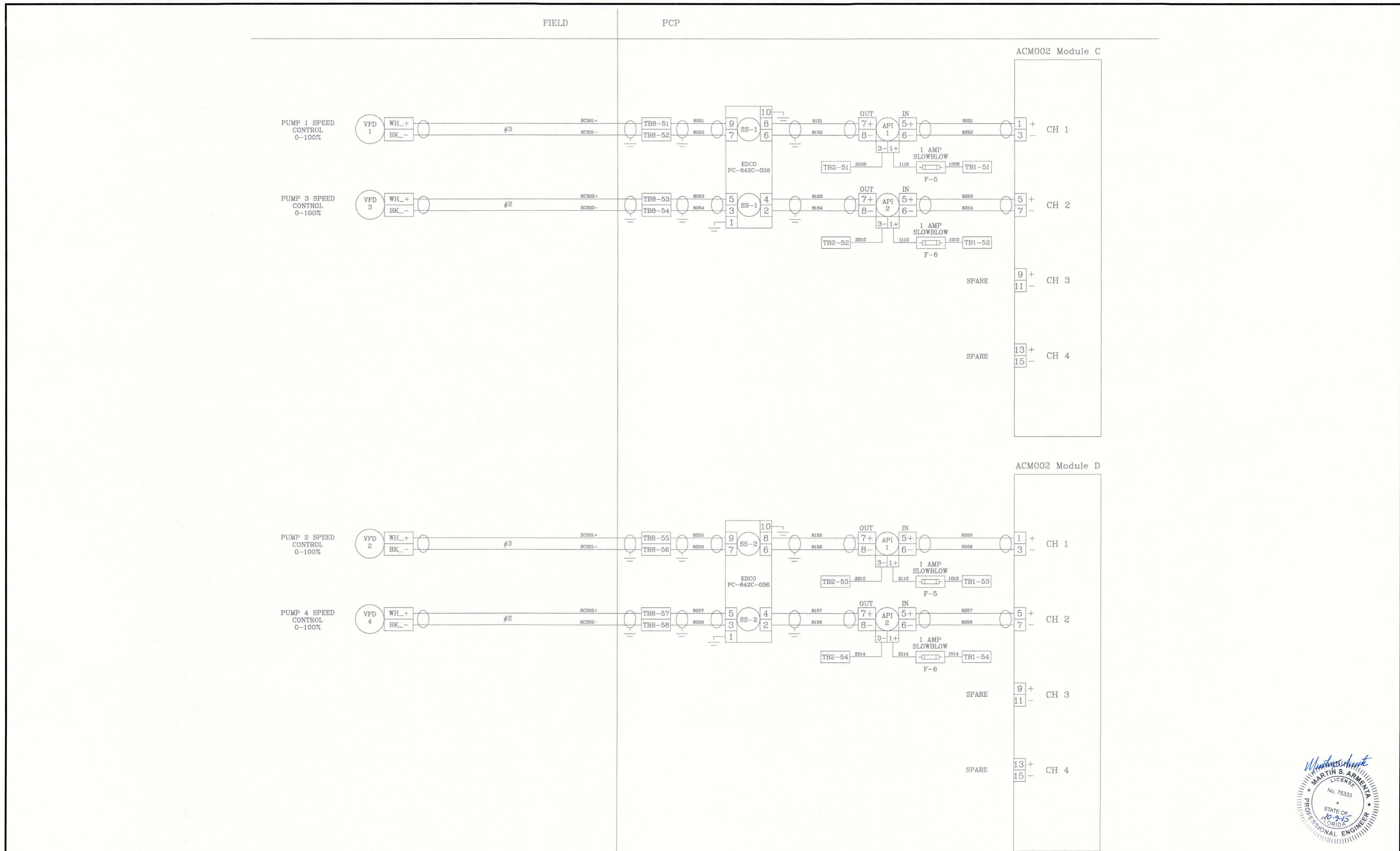
				ACTIVITY	INITIALS/EMP. NO.	DATE	CLIENT:	DATE:	TITLE:	
				DESIGNED BY:	JN	JULY 2015	MANATEE COUNTY PUBLIC WORKS	AUGUST 2015	PLC CONTROL DETAILS	MARTIN S. ARMENTA, P.E. FLORIDA LICENSE NO. 75333
				DRAWN BY:	BB	JULY 2015	PROJECT: VILLAGE OF PARRISH MASTER PUMP STATION	HORIZONTAL SCALE:		INDEX NUMBER:
				CHECKED BY:	MA	JULY 2015		1"=4"		D-05925-001-0000E1
				CONTRACT ADMIN. BY:			VERTICAL SCALE:			CROSS REFERENCE FILE NO.:
				WM APPROVED BY:			1"=4"			PROJECT NUMBER:
							20' 29' 33' 19"			177310561
										SHEET NUMBER:
										E12 OF E17



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ACTIVITY DESIGNED BY: JN JULY 2015 DRAWN BY: BB JULY 2015 CHECKED BY: MA JULY 2015 CONTRACT ADMIN. BY: WM APPROVED BY:		CLIENT: MANATEE COUNTY PUBLIC WORKS PROJECT: VILLAGE OF PARRISH MASTER PUMP STATION		DATE: AUGUST 2015 HORIZONTAL SCALE: 1"=4' VERTICAL SCALE: 1"=4' SEC. TWP. RGE: 20, 29, 33, 19		TITLE: PLC CONTROL DETAILS PROJECT NUMBER: 177310561 SHEET NUMBER: E13 OF 17		INDEX NUMBER: D-05925-001-0000E1 SHEET NUMBER: E13 OF 17	
A UPDATE DESIGN/CODE UPDATES FOR REPERMITTING 08/13/15 KG	DATE DRAWN BY / EMP. NO. CHECKED BY / EMP. NO.	Stantec Consulting Services Inc. • 5172 Station Way, Sarasota, FL 34233 Tel. 941.366.1922 • Fax. 941.225.6182 • Florida Certificate No. 27013 • www.stantec.com							



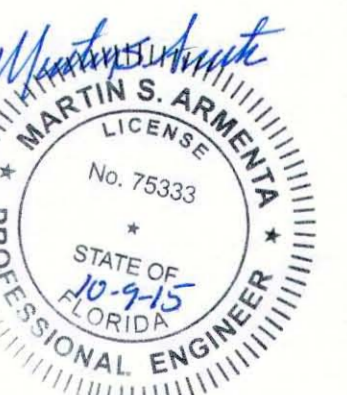
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A	UPDATE DESIGN/CODE UPDATES FOR REPERMITTING	08/13/15	KG			CHECKED BY:	MA	JULY 2015
						CONTRACT ADMIN. BY:		
						DESIGNED BY:	JN	JULY 2015
						DRAWN BY:	BB	JULY 2015



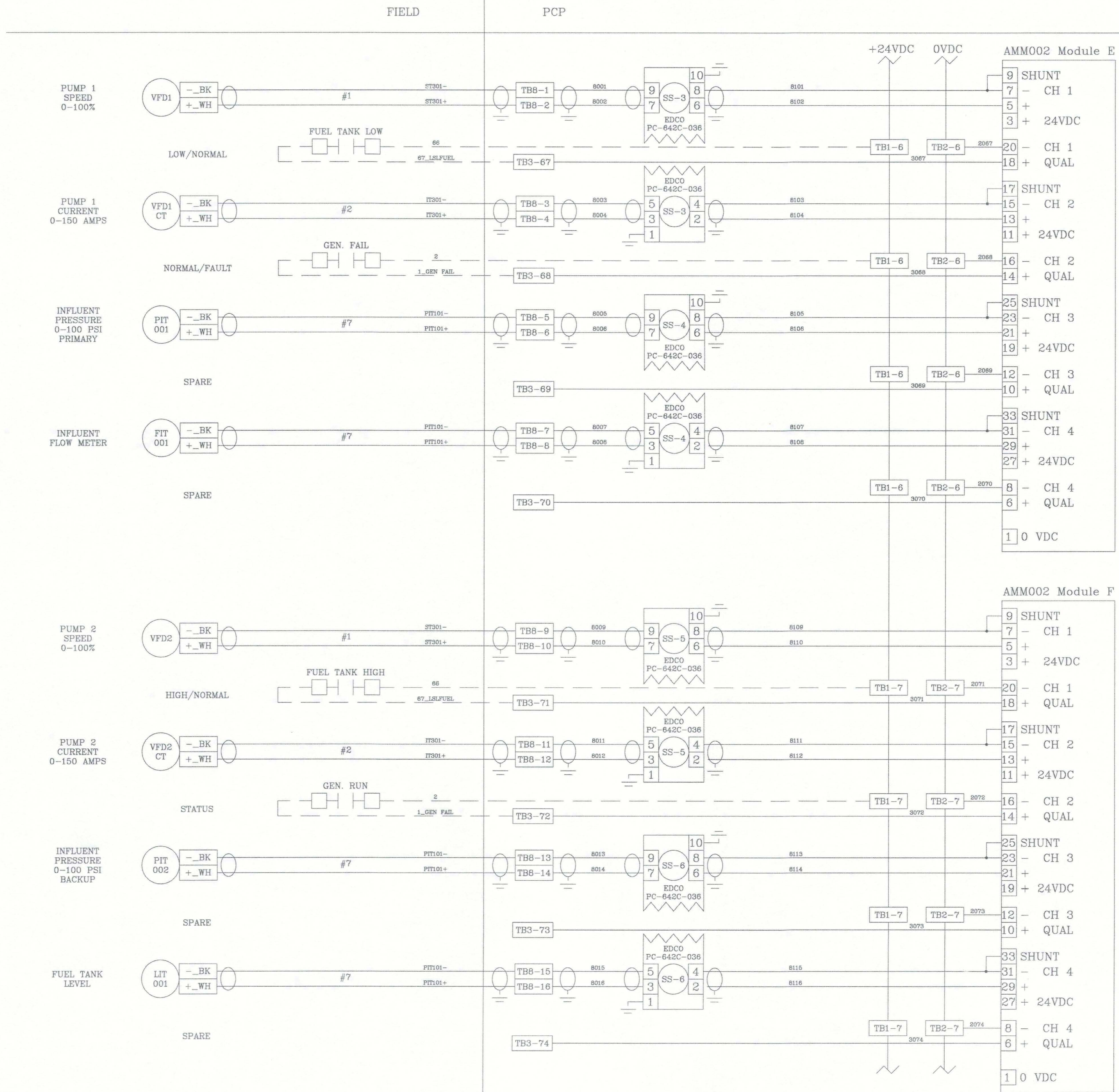
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CLIENT: MANATEE COUNTY PUBLIC WORKS
PROJECT: VILLAGE OF PARRISH MASTER PUMP STATION

DATE: AUGUST 2015
HORIZONTAL SCALE: 1"=4'
VERTICAL SCALE: 1"=4'
SEC: 29 RSE: 33 19
TITLE: PLC CONTROL DETAILS



MARTIN S. ARMENTA, P.E.
FLORIDA LICENSE NO. 75333
INDEX NUMBER: D-05925-001-0000E1
PROJECT NUMBER: 177310561
SHEET NUMBER: E14 OF 17

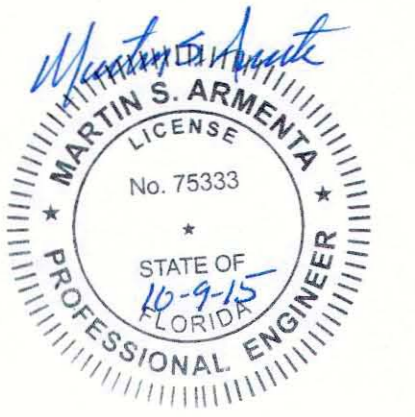


REV. NO.	REVISION	DATE	DRAWN BY / EMP. NO.	CHECKED BY / EMP. NO.	DATE	ACTIVITY	INITIALS/EMP. NO.	DATE
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						DESIGNED BY: JN	JN	JULY 2015
						DRAWN BY: BB	BB	JULY 2015
						CHECKED BY: MA	MA	JULY 2015
						CONTRACT ADMIN. BY:		
						WM APPROVED BY:		

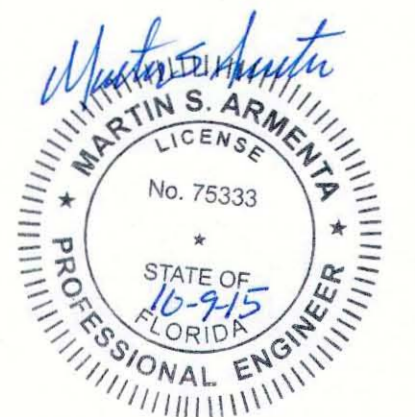
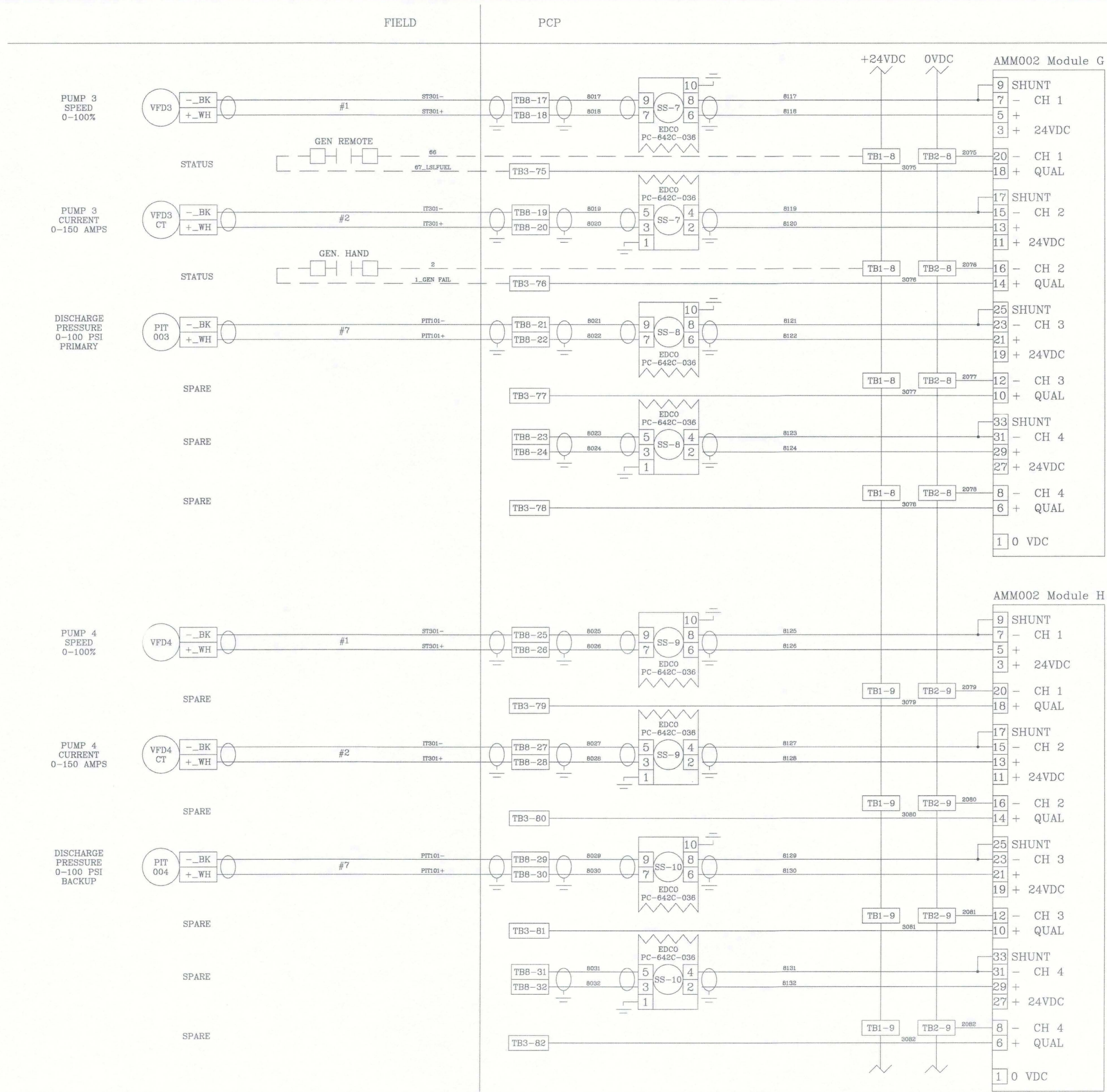


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CLIENT:	MANATEE COUNTY PUBLIC WORKS	DATE:	AUGUST 2015	TITLE:	PLC CONTROL DETAILS
PROJECT:	VILLAGE OF PARRISH MASTER PUMP STATION	HORIZONTAL SCALE:	1"=4'	INDEX NUMBER:	D-05925-001-0000E1
		VERTICAL SCALE:	1"=4'	SHEET NUMBER:	E15 OF E17
		SEC. TRIM: RGE:	25, 29, 33, 19	CROSS REFERENCE FILE NO.:	
				PROJECT NUMBER:	177310561



MARTIN S. ARMENTA, P.E.
FLORIDA LICENSE NO. 75333
D-05925-001-0000E1
E15 OF E17



REV. NO.	REVISION	DATE	DRAWN BY / EMP. NO.	CHECKED BY / EMP. NO.	WM APPROVED BY:	ACTIVITY	INITIALS/EMP. NO.	DATE
A	UPDATE DESIGN/CODE UPDATES FOR REPERMITTING	08/13/15	KG					
						DESIGNED BY: JN	JN	JULY 2015
						DRAWN BY: BB	BB	JULY 2015
						CHECKED BY: MA	MA	JULY 2015
						CONTRACT ADMIN. BY:		

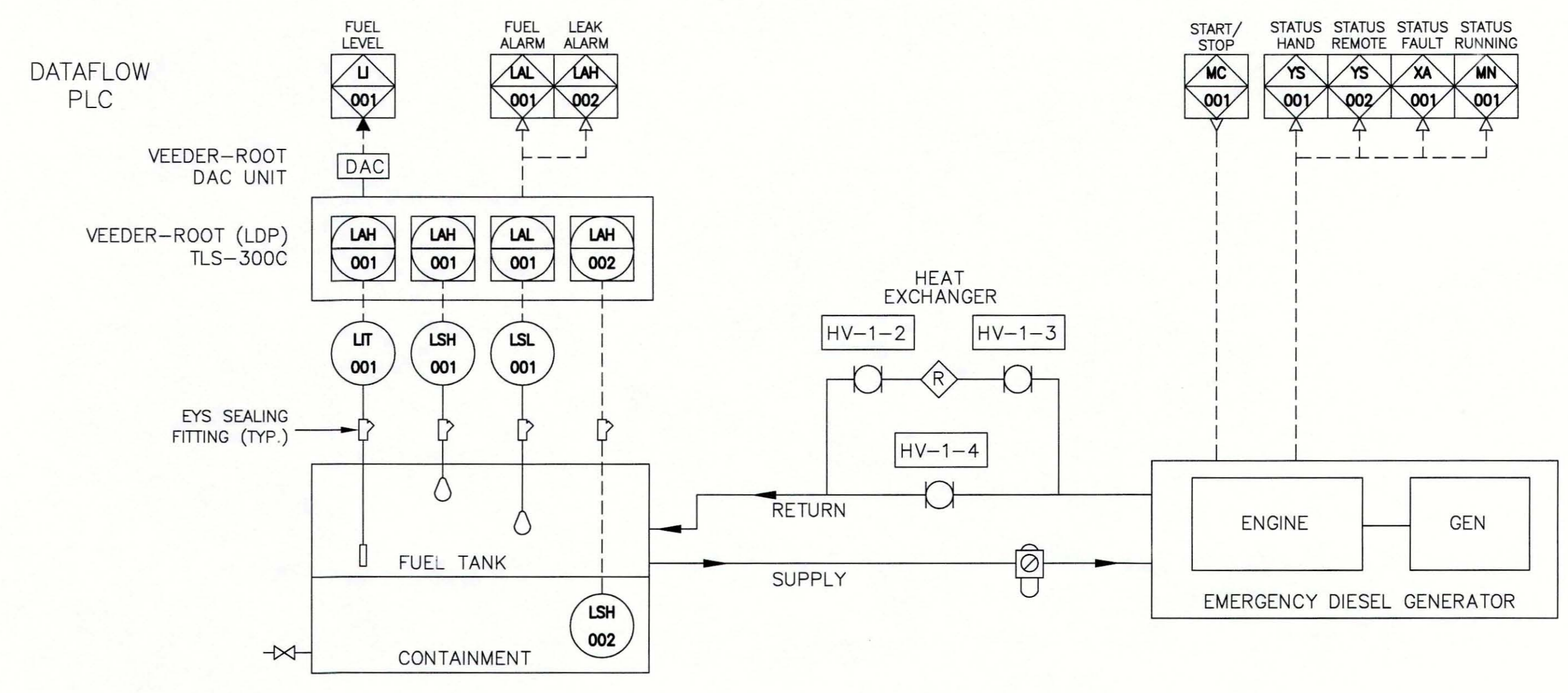
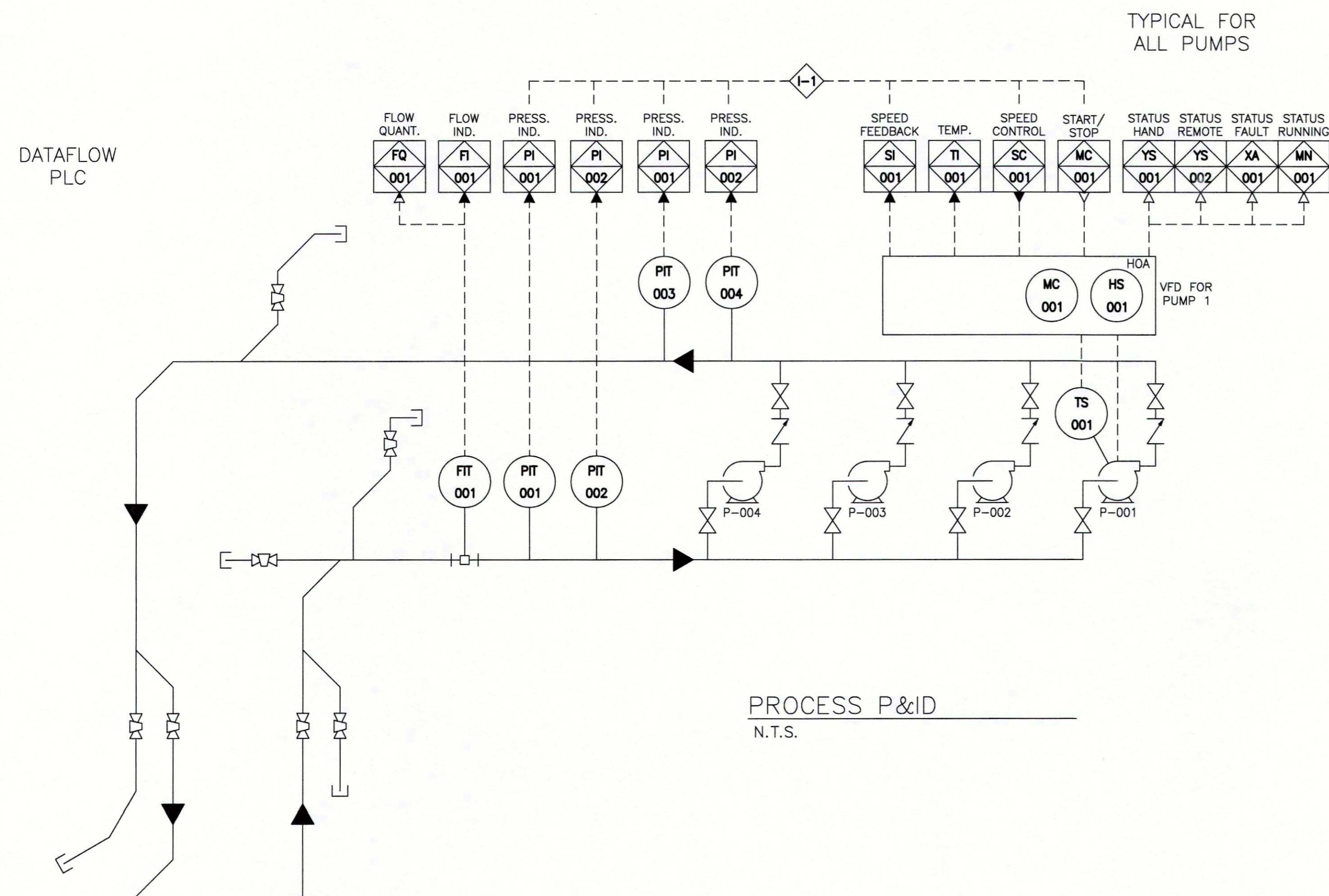


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CLIENT: MANATEE COUNTY PUBLIC WORKS
PROJECT: VILLAGE OF PARRISH MASTER PUMP STATION

DATE: AUGUST 2015
HORIZONTAL SCALE: 1"=4'
VERTICAL SCALE: 1"=4'
SHEET NO.: 29 OF 33
PROJECT NUMBER: 177310561
TITLE: PLC CONTROL DETAILS

MARTIN S. ARMENTA, P.E.
FLORIDA LICENSE NO. 75333
INDEX NUMBER: D-05925-001-0000E1
SHEET NUMBER: E16 OF E17



PROVIDE HARDWIRE CONNECTION BETWEEN GENERATOR, VEEDER-ROOT AND DATAFLOW PLC PROVIDE 10#14 WIRES IN 1" CONDUIT TWO (2) SPARE TW/SH PAIRS

PROVIDE SEALING FITTING FOR ALL CONDUITS CONNECTED TO THE FUEL TANK WITHIN 10 FEET OF THE FUEL TANK.

INSTRUMENT SYMBOLS

	CONTROL ROOM PANEL	FIELD MOUNTED	LOCAL PANEL
DISCRETE INSTRUMENTS			
SHARED DISPLAY SHARED CONTROL eg. DCS = DISTRIBUTED CONTROL SYSTEM			
COMPUTER FUNCTION eg. FLOW METER			
PROGRAMMABLE LOGIC CONTROL (PLC) (RTU)			

* SUBSCRIPT ABBREVIATION SPECIFIES INSTRUMENT FUNCTION OR LOCATION, eg. IP#1 (INSTRUMENT PANEL #1), SD (SHUTDOWN)

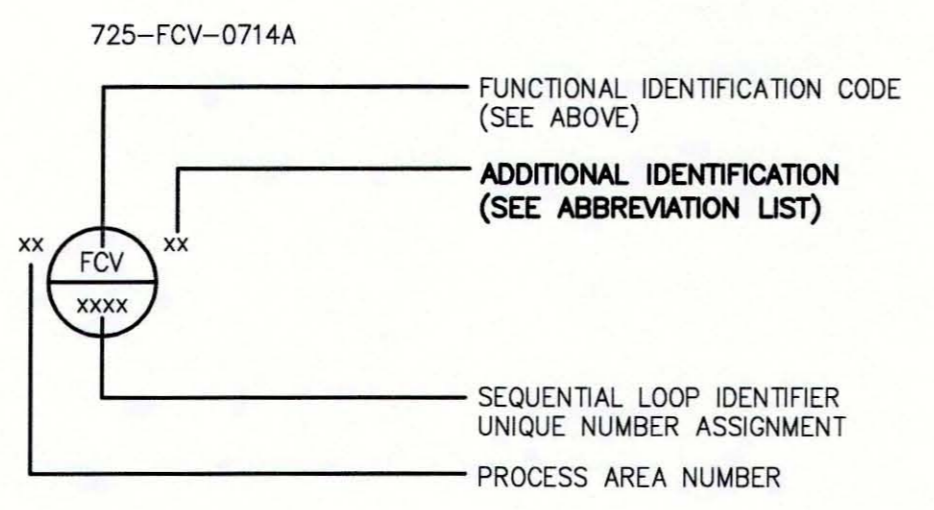
IEM LOGIC

UAL RESET

RGENCY SHUTDOWN LOGIC

IGE OR FLUSHING DEVICE

INSTRUMENT TAG NUMBERS & IDENTIFICATION

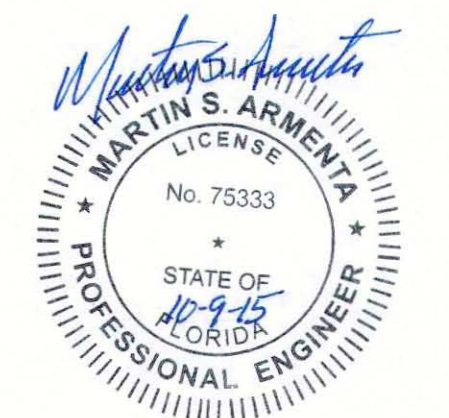


LEGEND

- CHECK VALVE
- ELECTRIC PUMP
- FLOAT SWITCH
- GATE VALVE
- PLUG VALVE
- SEALING FITTING
- PRESSURE TRANSDUCER

IDENTIFICATION LETTERS

FIRST-LETTER		SUCCEEDING-LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A	ANALYSIS		ALARM	
B	BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE
C	CIRCUIT			CLOSED
D	DISCONNECT	DIFFERENTIAL		
E	VOLTAGE / EMERGENCY		SENSOR (PRIMARY ELEMENT)	
F	FLOW RATE	RATIO (FRACTION)		
G	GENERAL / COMMENT		GLASS, VIEWING DEVICE	
H	HAND OPERATED			HIGH
I	CURRENT (ELECTRICAL)		INDICATE	
J	POWER	SCAN		
K	TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION
L	LEVEL		LIGHT	LOW
M	USER'S CHOICE	MOMENTARY		MIDDLE, INTERMEDIATE
N	USER'S CHOICE		USER'S CHOICE	USER'S CHOICE
O	ON / OFF		ORIFICE, RESTRICTION	OPEN
P	PRESSURE, VACUUM		POINT (TEST) CONNECTION	
Q	QUANTITY, STATE	INTEGRATE, TOTALIZE		
R	RADIATION		RECORD	
S	SPEED, FREQUENCY	SAFETY		STATUS SWITCH
T	TEMPERATURE			TRANSMIT
U	MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION
V	VIBRATION, MECHANICAL ANALYSIS			VALVE, DAMPER, LOCKER
W	WEIGHT, FORCE		WELL	
X	UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED
Y	EVENT OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT
Z	POSITION, DIMENSION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT



<table border="1"> <tr><th>REV. NO.</th><th>REVISION</th><th>DATE</th><th>DRAWN BY / DWP. NO.</th><th>CHECKED BY / DWP. NO.</th><th>WM APPROVED BY:</th></tr> <tr><td>A</td><td>UPDATE DESIGN/CODE UPDATES FOR REPERMITTING</td><td>08/13/15</td><td>KG</td><td></td><td></td></tr> </table>	REV. NO.	REVISION	DATE	DRAWN BY / DWP. NO.	CHECKED BY / DWP. NO.	WM APPROVED BY:	A	UPDATE DESIGN/CODE UPDATES FOR REPERMITTING	08/13/15	KG			<table border="1"> <tr><th>ACTIVITY</th><th>INITIALS/EMP. NO.</th><th>DATE</th></tr> <tr><td>DESIGNED BY:</td><td>JN</td><td>JULY 2015</td></tr> <tr><td>DRAWN BY:</td><td>BB</td><td>JULY 2015</td></tr> <tr><td>CHECKED BY:</td><td>MA</td><td>JULY 2015</td></tr> <tr><td>CONTRACT ADMIN. BY:</td><td></td><td></td></tr> </table>	ACTIVITY	INITIALS/EMP. NO.	DATE	DESIGNED BY:	JN	JULY 2015	DRAWN BY:	BB	JULY 2015	CHECKED BY:	MA	JULY 2015	CONTRACT ADMIN. BY:			<p>CLIENT: MANATEE COUNTY PUBLIC WORKS</p> <p>PROJECT: VILLAGE OF PARRISH MASTER PUMP STATION</p>	<p>DATE: AUGUST 2015</p> <p>HORIZONTAL SCALE: 1"=4'</p> <p>VERTICAL SCALE: 1"=4'</p> <p>SEC. TWP. RGE: 29 33 19</p> <p>CROSS REFERENCE FILE NO.: 177310561</p> <p>PROJECT NUMBER: 177310561</p>	<p>TITLE: P&ID</p> <p>MARTIN S. ARMENTA, P.E. FLORIDA LICENSE NO. 75333 INDEX NUMBER: D-05925-001-0000E1 SHEET NUMBER: E17 OF E17</p>
REV. NO.	REVISION	DATE	DRAWN BY / DWP. NO.	CHECKED BY / DWP. NO.	WM APPROVED BY:																										
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