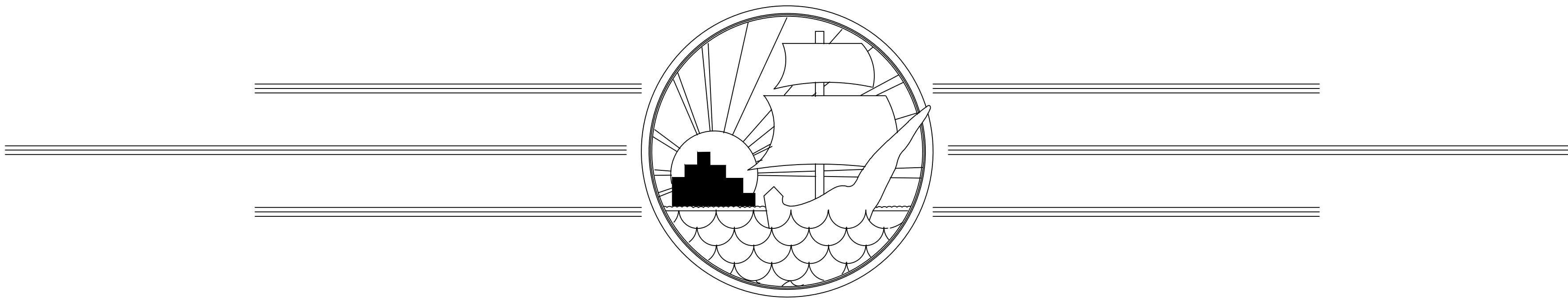
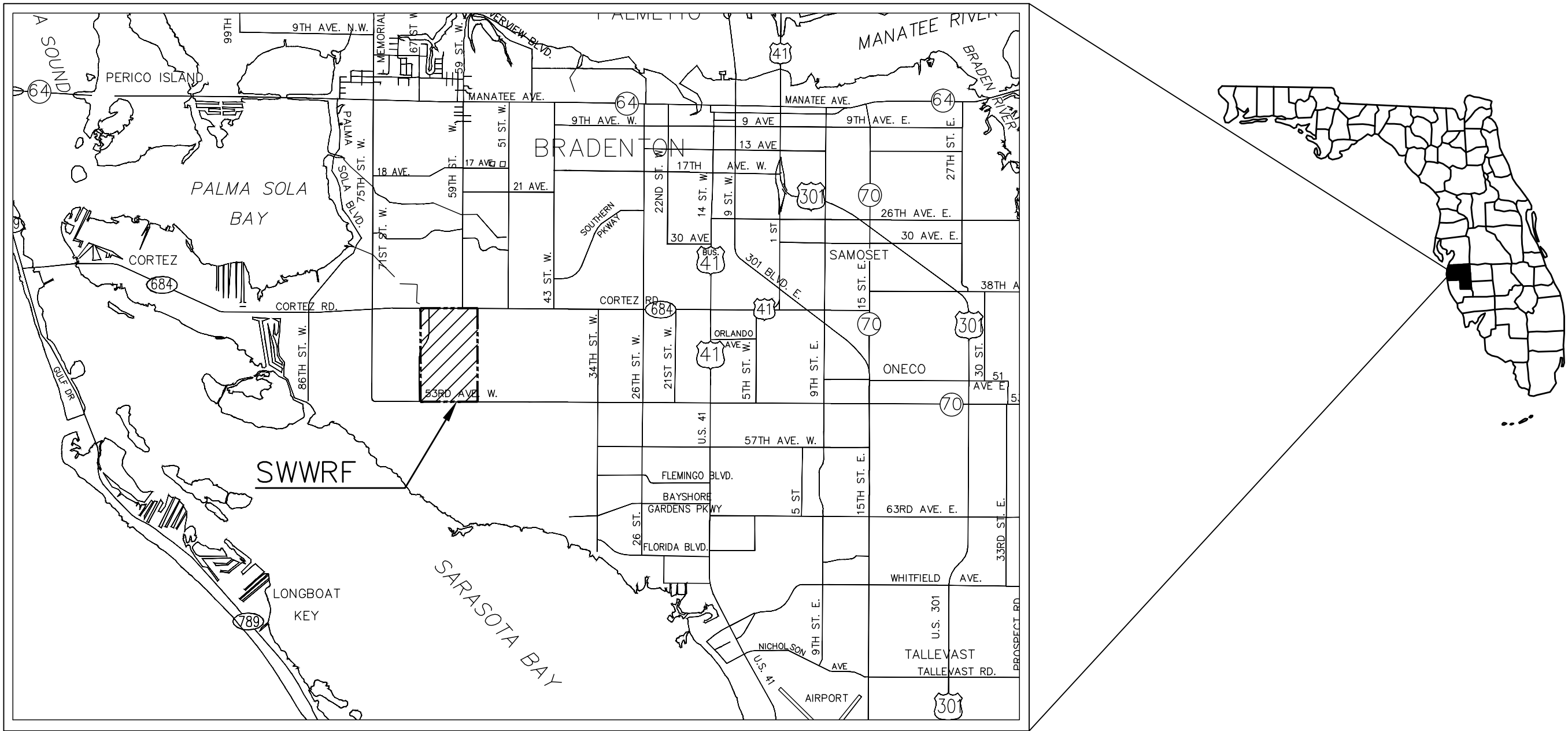


SWWRF RECLAIMED WATER AUTOMATION

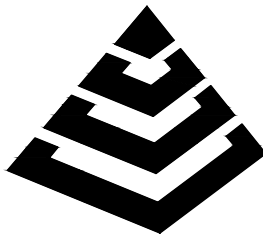
COUNTY PROJECT #6016392
RECORD DRAWINGS
AUGUST 2012



MANATEE COUNTY, FLORIDA



PROJECT VICINITY MAP
SECTION 35S, TOWNSHIP 17E, RANGE 8



McKIM & CREED
1365 Hamlet Avenue
Clearwater, FL 33756
Phone: (727)442-7196, Fax: (727)461-3827
EB0006691
www.mckimcreed.com

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BRANDES DESIGN-BUILD INC.
2051 NE COACHMEN ROAD
CLEARWATER, FLORIDA 33765

O: 727-445-7544 / F 727-445-7534

☐ REVISIONS ☒ NO REVISIONS

DATE: MARCH 2012
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MATTHEW S. LOVE, PE
No. 66118

LEGEND

ARV	AIR RELEASE VALVE
ABD	ABANDONED
BFV	BUTTERFLY VALVE
BV	BALL VALVE
CB	CATCH BASIN
CO	CLEANOUT
CORP	CORPORATION
CV	CHECK VALVE
D.I.	DUCTILE IRON
DIA	DIAMETER
D.I.P.	DUCTILE IRON PIPE
ELEC.	ELECTRICAL
EXIST.	EXISTING
FHA	FIRE HYDRANT ASSEMBLY
FL	FLANGED
GS	GALVANIZED STEEL
GV	GATE VALVE
HB	HOSE BIBB
HDPE	HIGH DENSITY POLYETHYLENE
MH	MANHOLE
MJ	MECHANICAL JOINT
PE	PLAIN END
PS	PUMP STATION
PV	PLUG VALVE
PVC	POLYVINYLCHLORIDE
RED.	REDUCER
SDH	SCHEDULE
SDR.	DIAMETER RATIO
SS.	STAINLESS STEEL
TBR	TO BE REMOVED
UB	UNDERGROUND ELECTRIC
VERT.	VERTICAL
WM	WATER METER

Diagram illustrating the components of a pipe symbol:

- PIPE DIAMETER (INCHES)
- PIPE
- 12SPW
- FLOW STREAM/SERVICE
- FLOW ARROW

SECTION NAME
(LETTER ONLY, NO NUMBER) SHEET WHERE
SECTION IS SHOWN

A/M-7.2

RECORD DRAWING

SWWRF RECLAIMED WATER AUTOMATION
ABBREVIATION, SYMBOLS AND LEGENDS



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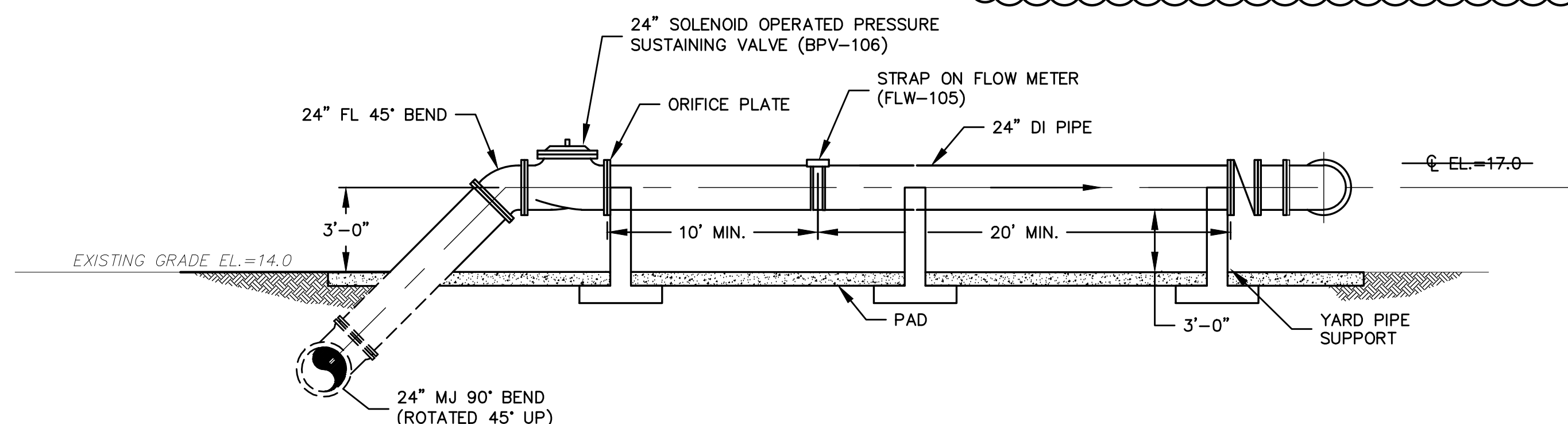
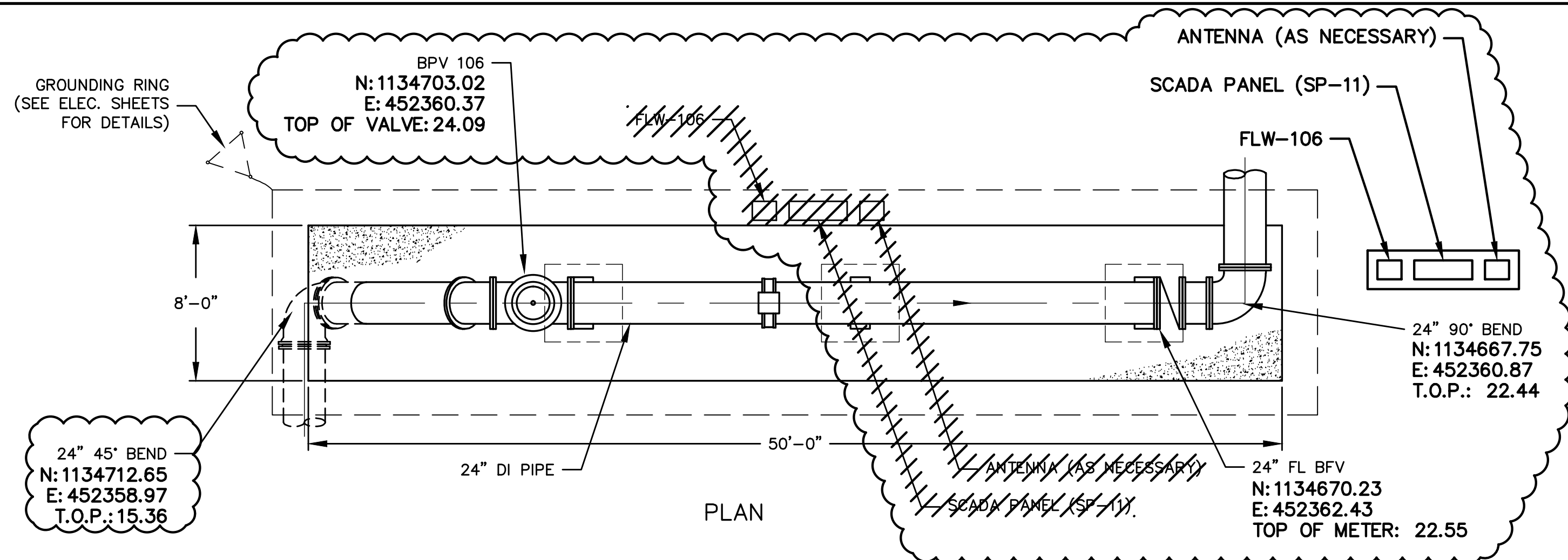
MATTHEW S. LOVE, PE
no. 66118

DATE:	AUGUST 2012	SCALE	DRAWING NUMBER
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CHECKED	JSL		
PROJ. MGR.	MSL		

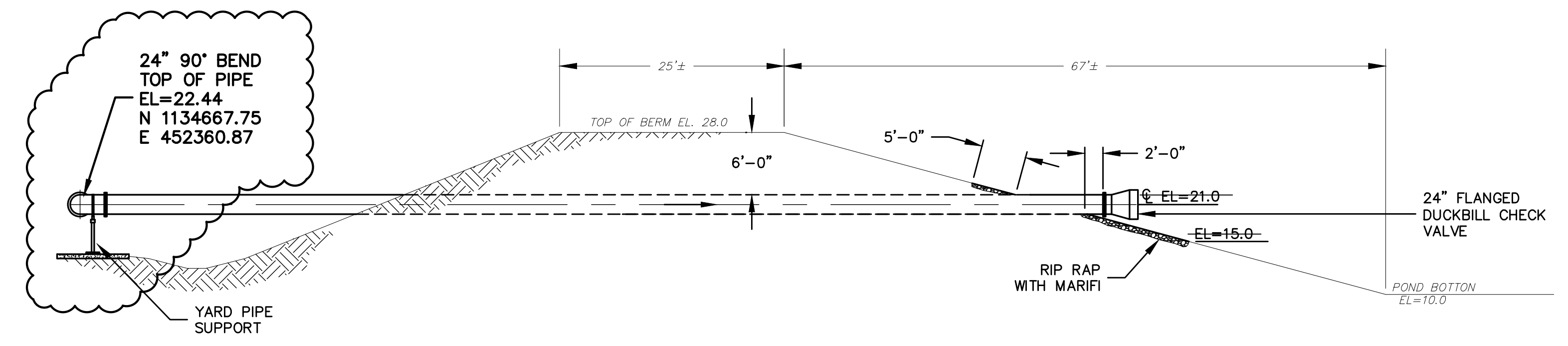
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REVISION

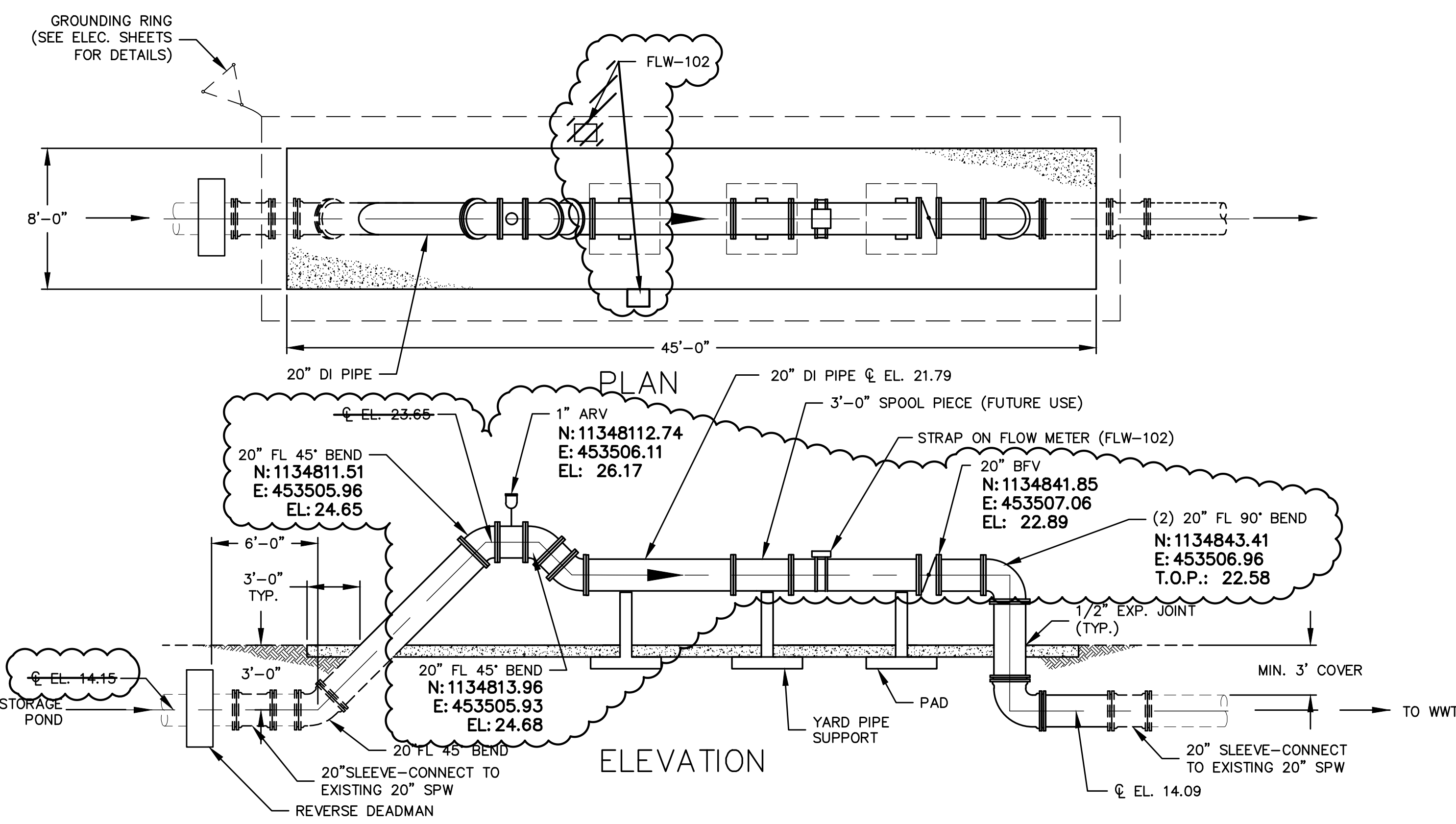
RECORD DRAWING



24" METER ASSEMBLY
3/16"=1'-0" (BPV-106, FLW-105, SP-11)



POND SECTION DETAIL
3/32"=1'-0"



20" METER ASSEMBLY
3/16"=1'-0" (FLW-102)

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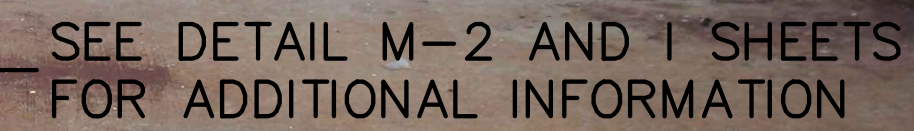
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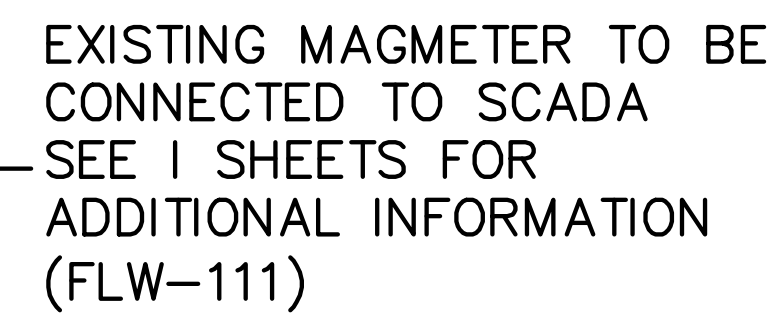
MATTHEW S. LOVE, PE
No. 66118

<table><tr><td>NO.</td><td>RECORD DRAWING</td><td>DATE</td><td>JULY 2012</td></tr><tr><td>REV.</td><td>DESCRIPTIONS</td><td>DATE</td><td></td></tr><tr><td>1</td><td>REVISIONS</td><td></td><td></td></tr></table>	NO.	RECORD DRAWING	DATE	JULY 2012	REV.	DESCRIPTIONS	DATE		1	REVISIONS			<table><tr><td>SEAL</td><td>MATTHEW S. LOVE, P.E. No. 66118</td></tr></table>	SEAL	MATTHEW S. LOVE, P.E. No. 66118	<table><tr><td>SEAL</td><td></td></tr></table>	SEAL		<table><tr><td></td><td>McKIM & CREED 1365 Hamlet Avenue Clearwater, Florida 33756 Phone: (727)442-7196, Fax: (727)461-3827 EB0006691 www.mckimcreed.com</td></tr></table>		McKIM & CREED 1365 Hamlet Avenue Clearwater, Florida 33756 Phone: (727)442-7196, Fax: (727)461-3827 EB0006691 www.mckimcreed.com	<table><tr><td></td><td>MANATEE COUNTY, FLORIDA</td></tr></table>		MANATEE COUNTY, FLORIDA	<table><tr><td colspan="2">SWWRF RECLAIMED WATER AUTOMATION</td></tr><tr><td colspan="2">MECHANICAL DETAILS 2A</td></tr></table>	SWWRF RECLAIMED WATER AUTOMATION		MECHANICAL DETAILS 2A		<table><tr><td>DATE: AUGUST 2012</td><td>SCALE: AS SHOWN</td><td>DRAWING NUMBER: M-2A</td></tr><tr><td>MCE PROJ. # 1024-0128</td><td>HORIZONTAL: NA</td><td>REVISION</td></tr><tr><td>DRAWN: QES</td><td>VERTICAL: NA</td><td></td></tr><tr><td>DESIGNED: MSL</td><td></td><td></td></tr><tr><td>CHECKED: JSL</td><td></td><td></td></tr><tr><td>PROJ. MGR: MSL</td><td></td><td></td></tr></table>	DATE: AUGUST 2012	SCALE: AS SHOWN	DRAWING NUMBER: M-2A	MCE PROJ. # 1024-0128	HORIZONTAL: NA	REVISION	DRAWN: QES	VERTICAL: NA		DESIGNED: MSL			CHECKED: JSL			PROJ. MGR: MSL			<table><tr><td colspan="2">STATUS: RECORD DRAWING</td></tr></table>	STATUS: RECORD DRAWING	
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NTS



NTS



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

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DATE: MARCH 2012

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MATTHEW S. LOVE, PE
N. RETIRED

RD	RECORD DRAWING	JULY 2012
REV.NO.	DESCRIPTIONS REVISIONS	DATE

SEAL

MATTHEW S. LOVE, P.E.
No. 66118


SEAL



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 Clearwater, Florida 33756
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 EB0006691

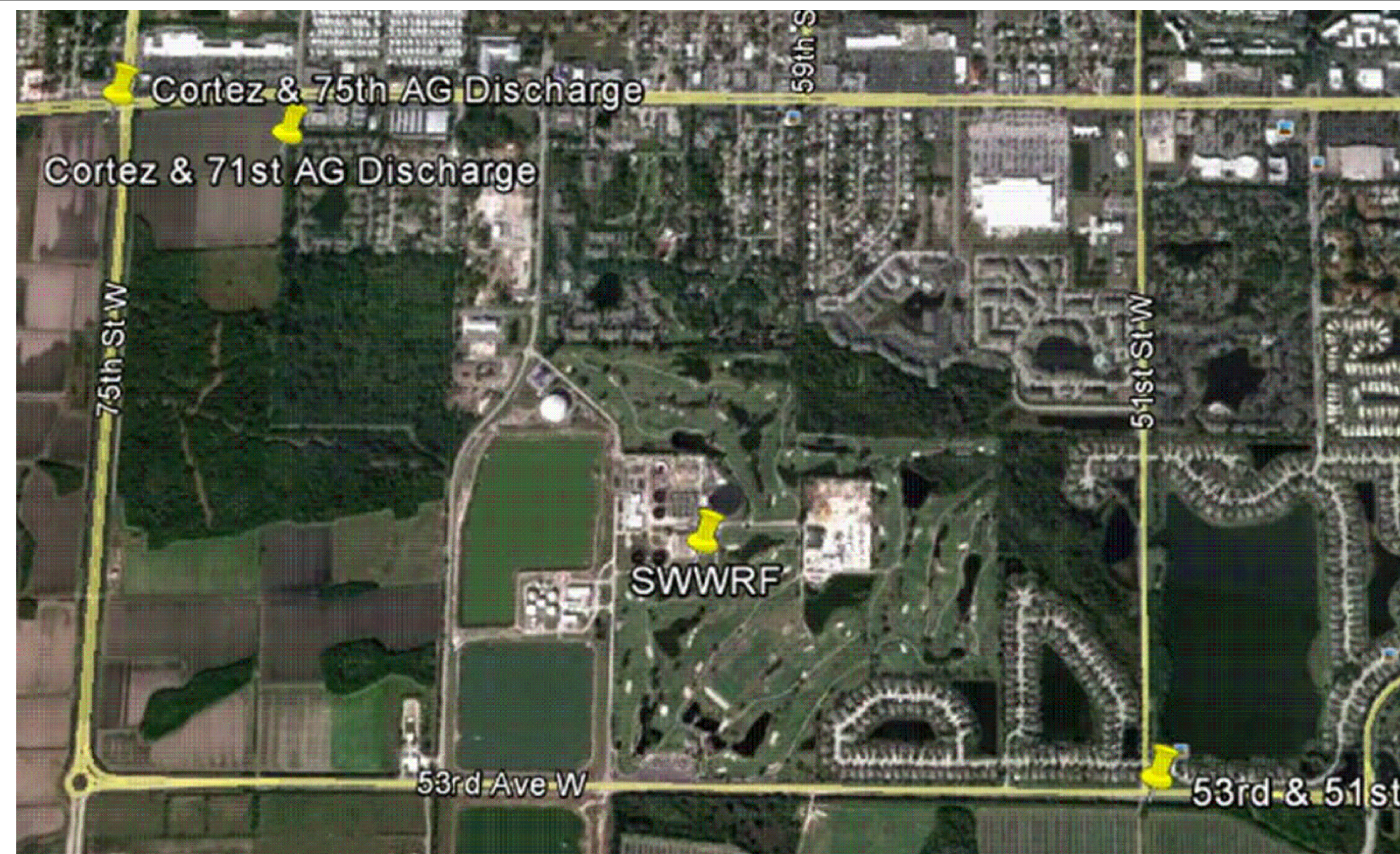
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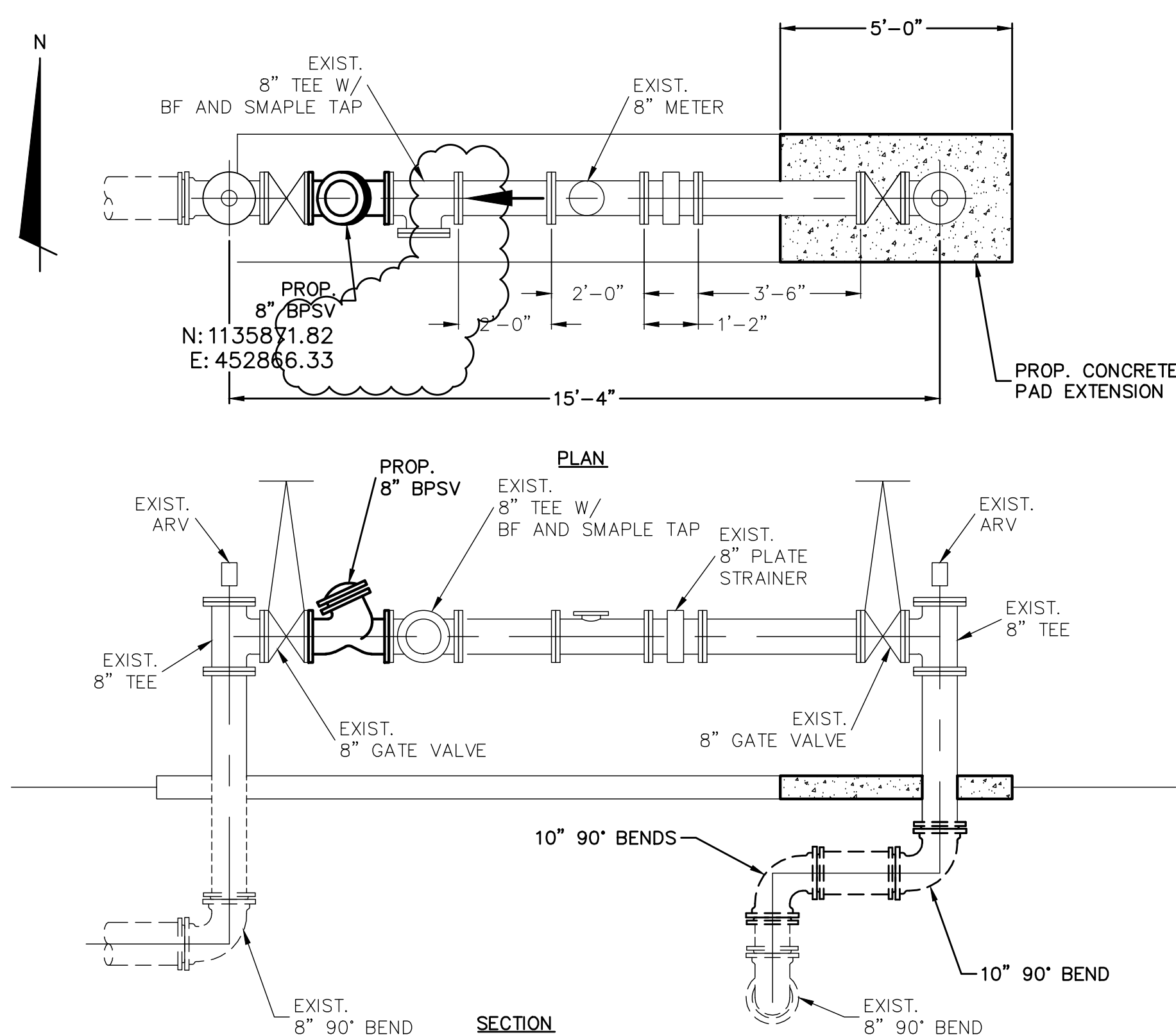
MANATEE COUNTY, FLORIDA

SWWRF RECLAIMED WATER AUTOMATION MECHANICAL DETAILS 3

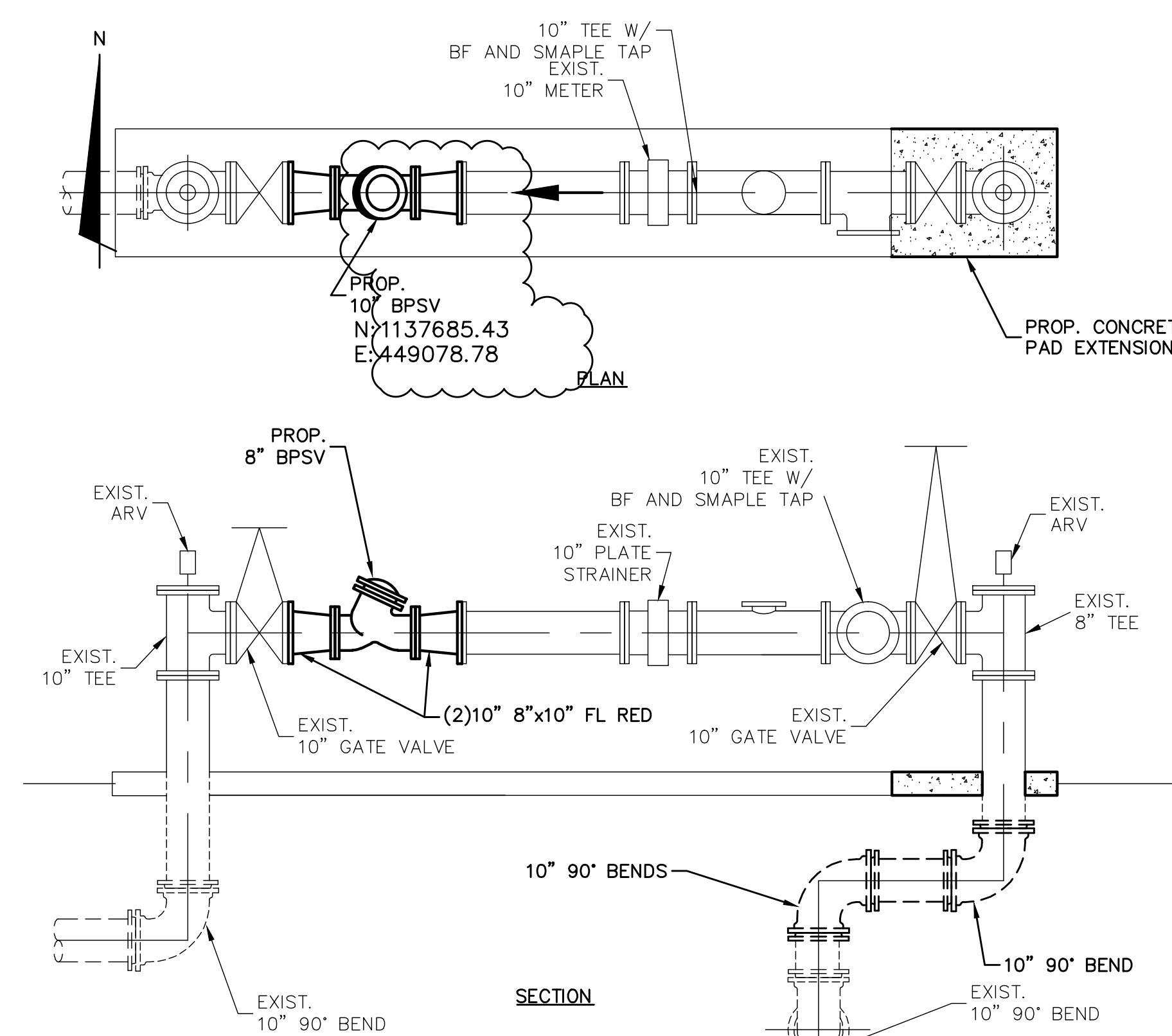
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PROJ. MGR. MSL		
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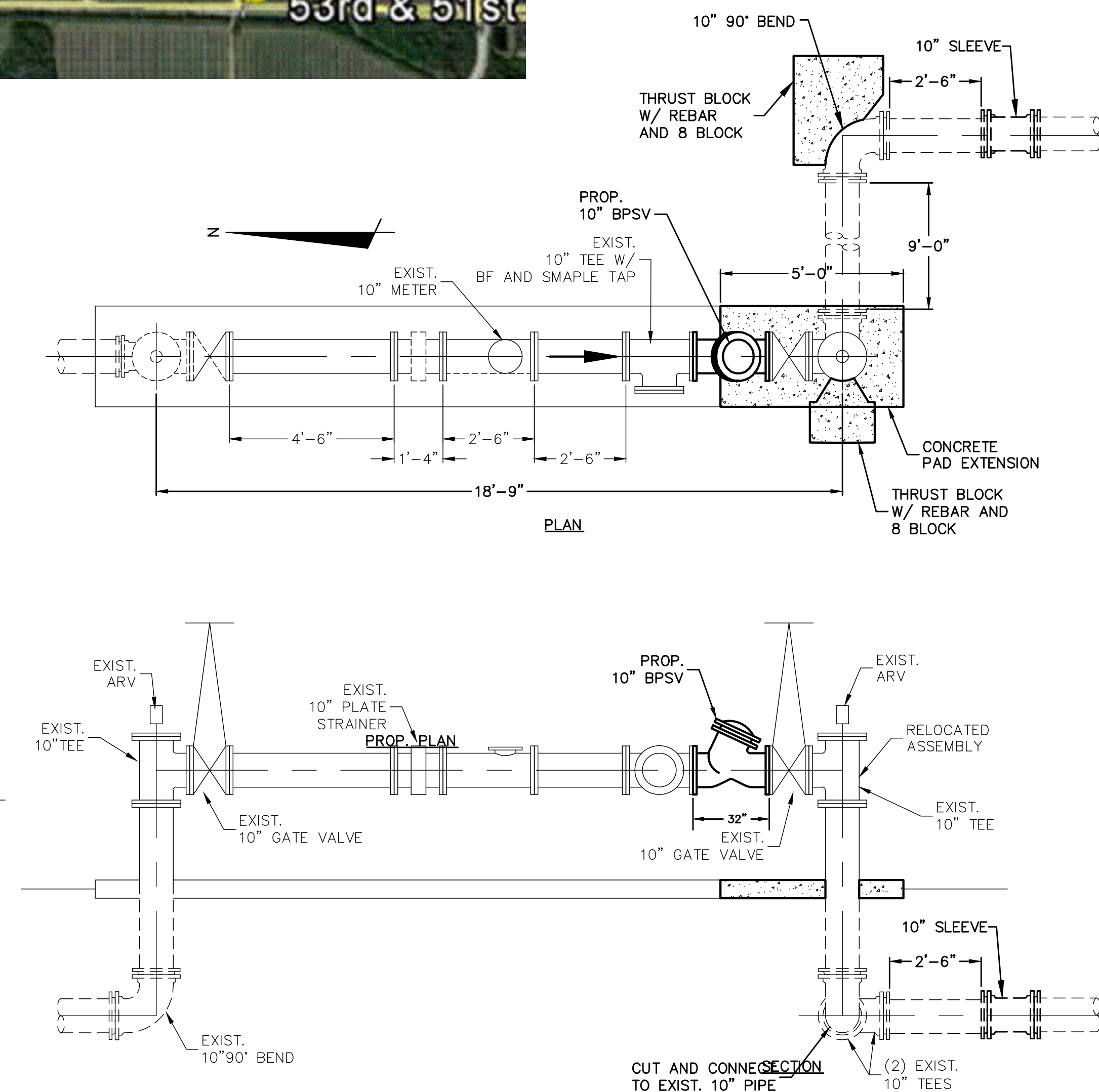
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NOT TO SCALE



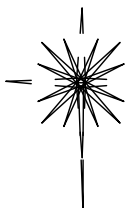
CORTEZ & 75th
SCALE: 3/8" = 1'-0"



CORTEZ & 71 ST
SCALE: 3/8" = 1'-0"



51st & 53rd
SCALE: 3/8" = 1'-0"

CERTIFICATION					
CERTIFIED TO: BRANDES DESIGN BUILD					
I HEREBY CERTIFY THAT THE SURVEY REPRESENTED HEREON MEETS THE MINIMUM TECHNICAL STANDARDS SET FORTH BY THE FLORIDA BOARD OF PROFESSIONAL SURVEYORS AND MAPPERS IN CHAPTER 5J-17, FLORIDA ADMINISTRATIVE CODE, PURSUANT TO SECTION 472.027 FLORIDA STATUTES.					
SEPTEMBER 26, 2011 DATE OF SURVEY					
DAN H. RIZZUTO PROFESSIONAL LAND SURVEYOR LICENSE NUMBER LS 5227 STATE OF FLORIDA					
PROJECT: SOUTHWEST WATER RECLAIMED FACILITY					
TYPE OF SURVEY: RECORD SURVEY					
PREPARED FOR: BRANDES DESIGN BUILD					
 POLARIS ASSOCIATES INC. PROFESSIONAL SURVEYING LB 6113 2165 SUNNYDALE BOULEVARD, SUITE D CLEARWATER, FLORIDA 33765 (727) 461-6113					
SAVED: 10/22/2012 12:06 PM PLOTTED: 10/22/2012 12:07 PM					
CHECKED BY: JDF	SCALE: AS NOTED	DRAWN BY: JT	JOB NO. 3022-04	DRAWING PATH: S:\3284_BRANDES\3022\JOB\TO-RECORD\0108\MECHANICAL\W-3A DETAILS-10240128.DWG	SHEET 3 OF 3

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MATTHEW S. LOVE, PE
SE-11-8

[illegible]

MATTHEW S. LOVE, P.E.
No. 66118

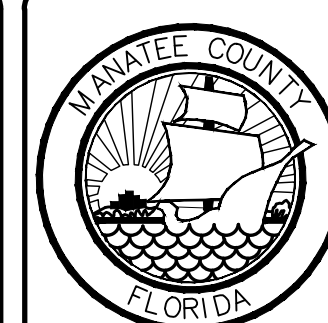
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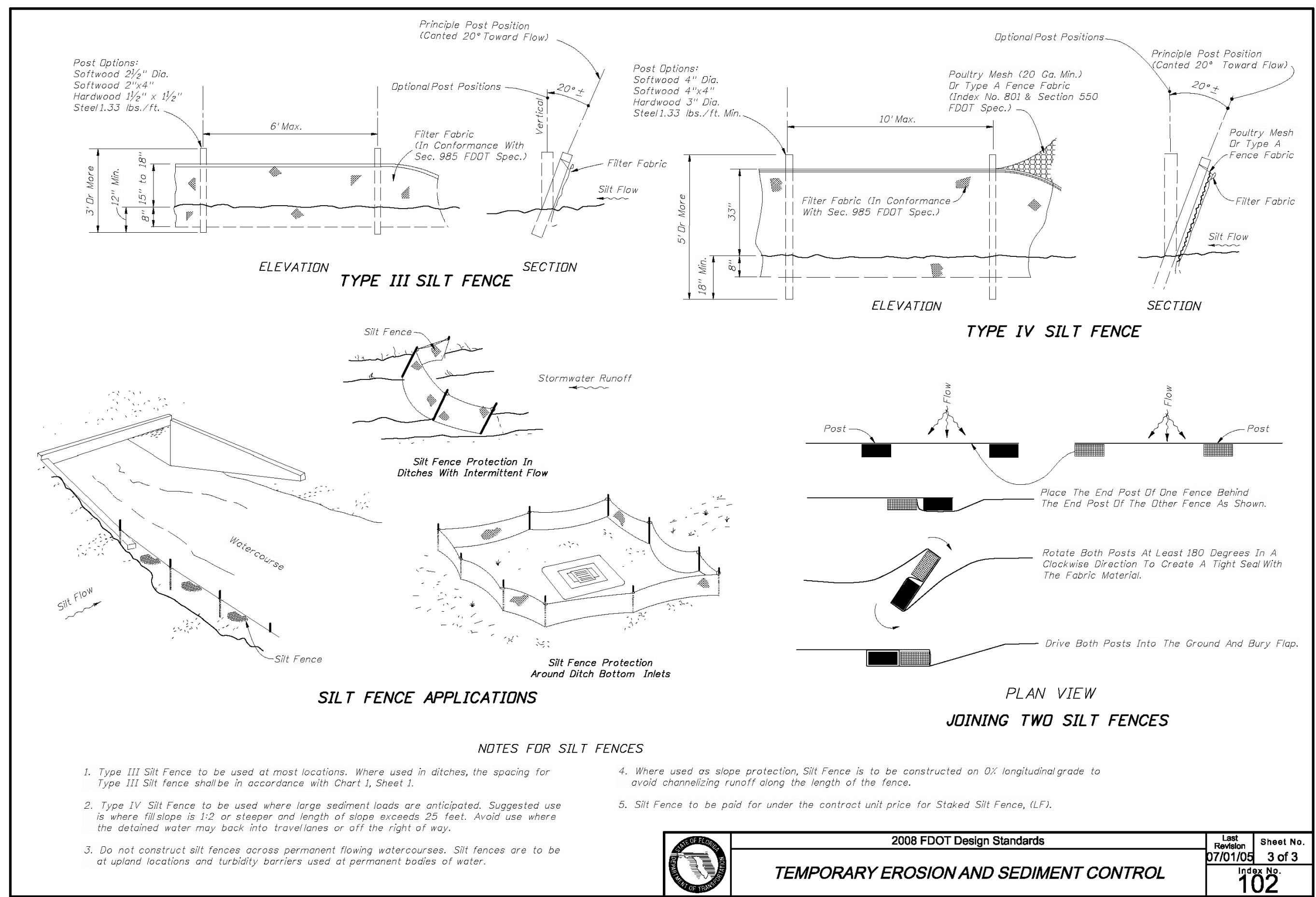
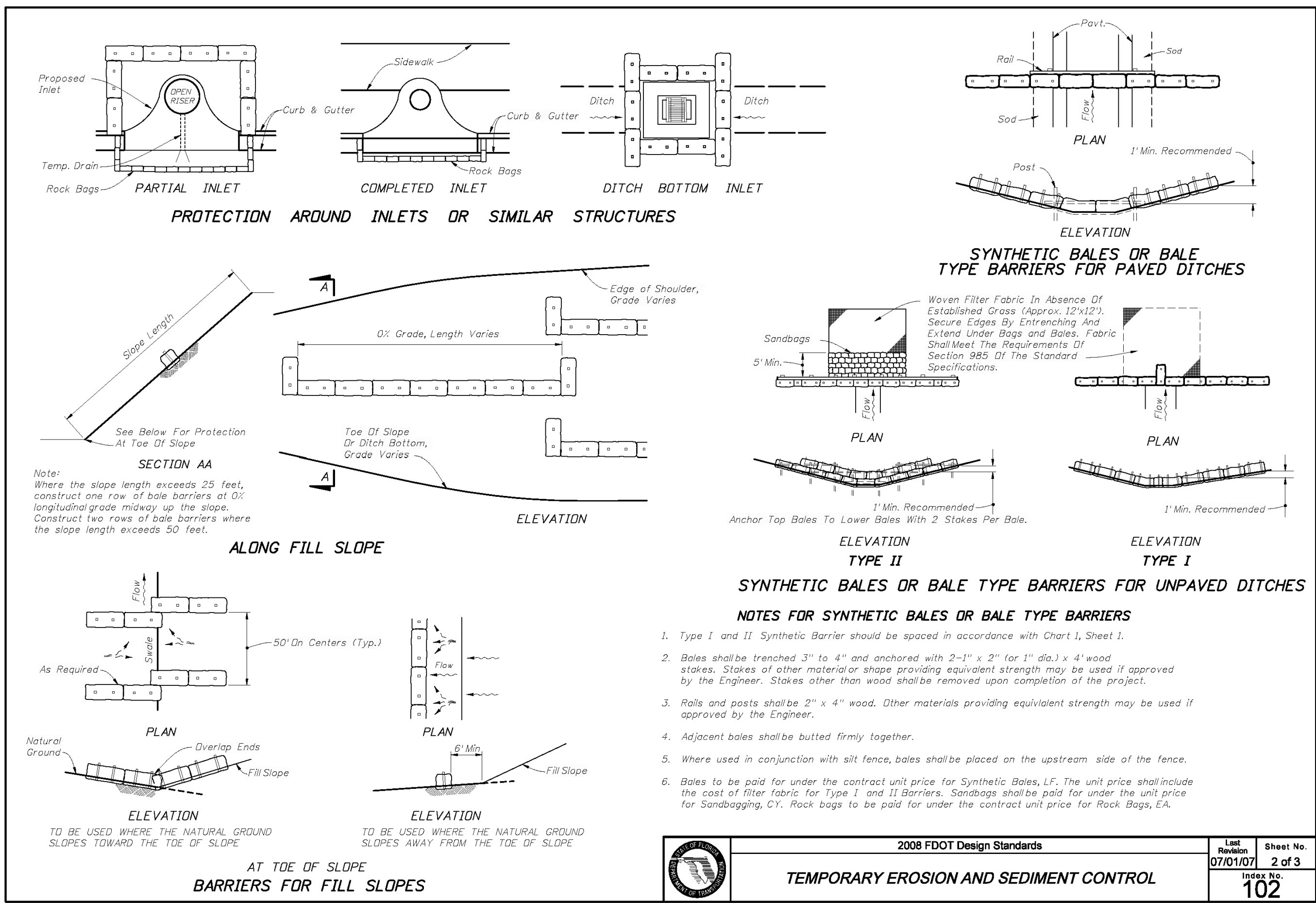
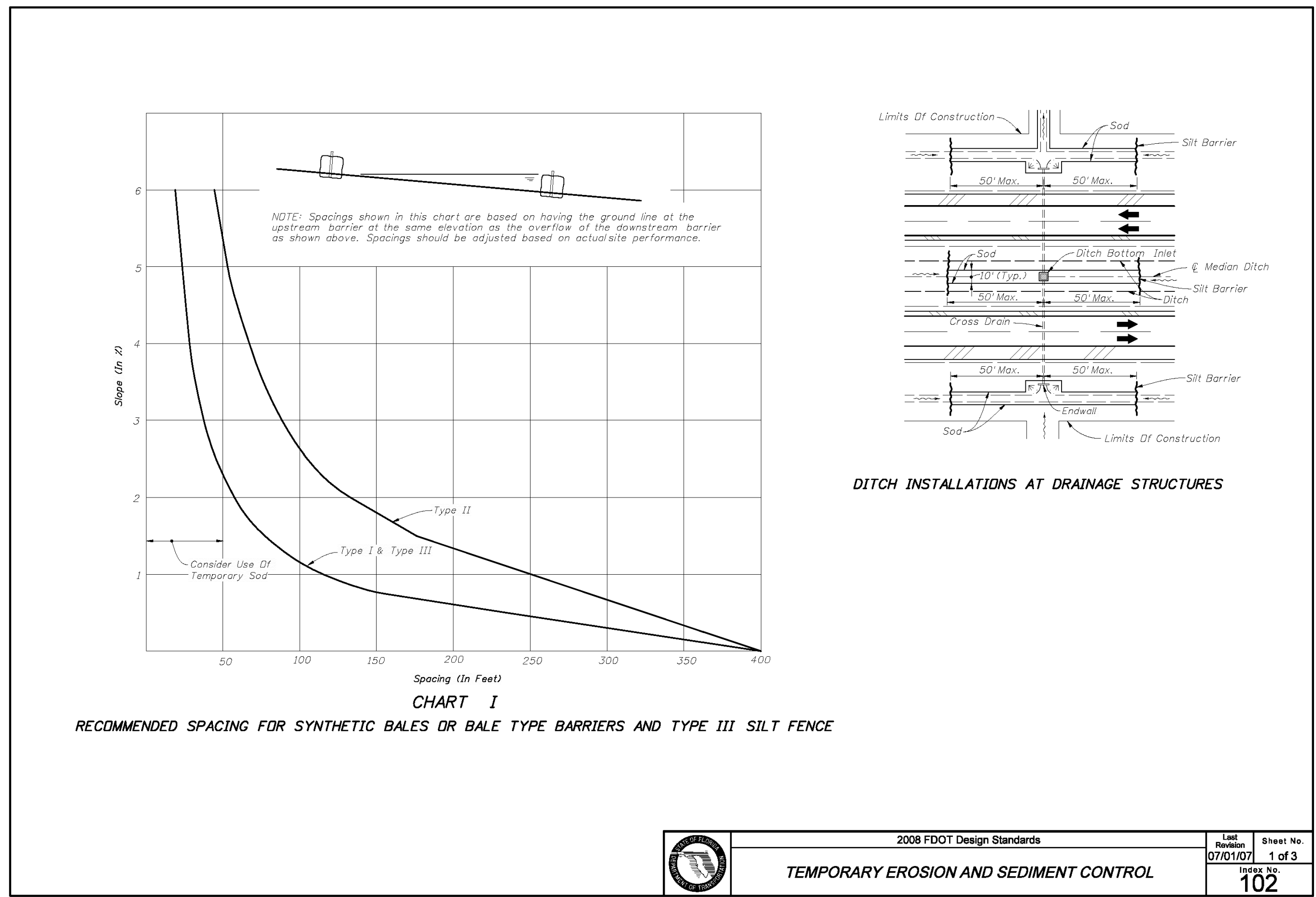
MANATEE COUNTY, FLORIDA

SWWRF RECLAIMED WATER AUTOMATION

MECHANICAL DETAILS 3A

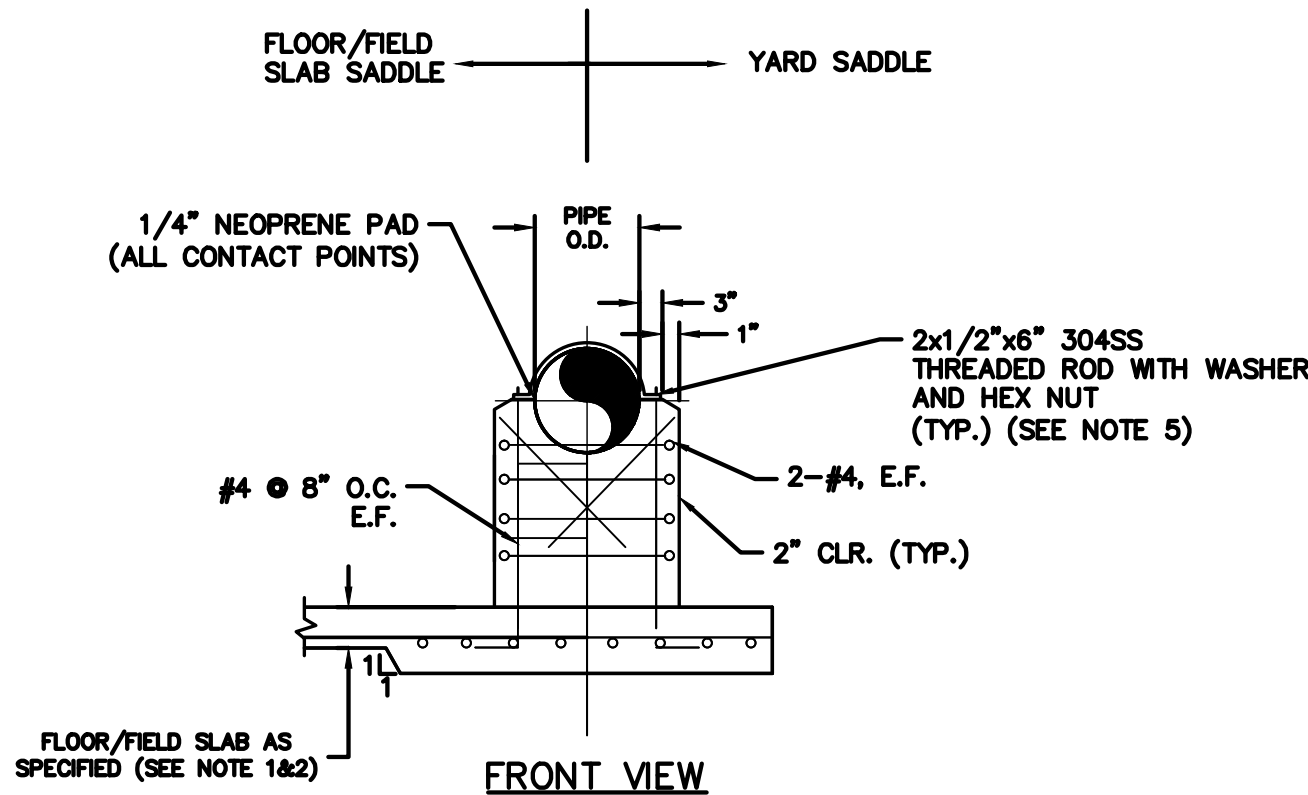
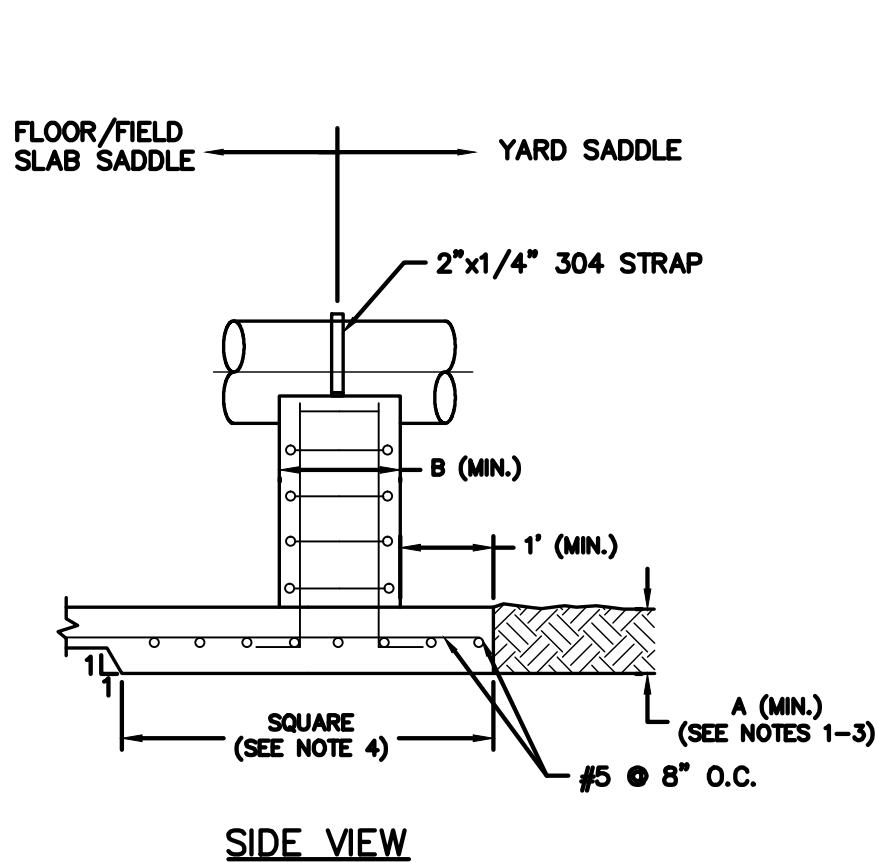
DATE: AUGUST 2012		DRAWING NUMBER
MCE PROJ. # 1024-0128		
DRAWN	QES	
DESIGNED	MSL	
CHECKED	JSL	
PROJ. MGR.	MSL	
SCALE		DRAWING NUMBER
HORIZONTAL:		
AS SHOWN		
VERTICAL:		
NA		M-3A
STATUS: REVISION <div style="text-align: center; font-size: 24pt; font-weight: bold;">RECORD DRAWING</div>		

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- GENERAL NOTES:**
- PIPE SUPPORT SLAB DEPTH SHALL BE NO LESS THAN ADJOINING FLOOR SLAB.
 - PIPE SUPPORT REINFORCEMENT SHALL BE NO LESS THAN ADJOINING REINFORCEMENT REQUIREMENTS
 - FOR A=10" OR THICKER, USE 2 LAYERS OF REINF. T/B E/W.
 - SADDLE FOOTER SHALL BE SQUARE (IN INCREMENTS OF 6") AND BE SIZED FOR FULL PIPE CONDITION WITH A MAXIMUM SOIL BEARING CAPACITY OF 500 LBS/SF. BASED ON REQUIRED SUPPORT SPACING.
 - ROD SHALL BE EMBEDDED WITH EPOXY GROUT TO A DEPTH OF 6".
 - INCREASE 4" CLEARANCE AS REQUIRED IF BOLT HAS TO BE INSERTED FROM THE SUPPORT SIDE OF THE CONNECTION.
 - SLAB DEPTH (A); 8" FOR OD < 24"
10" FOR 24" < OD < 42"
 - SADDLE WIDTH (B); 8" FOR OD < 24"
12" FOR 24" < OD < 42"

YARD PIPE SUPPORT DETAIL
NTS



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REV.	DESCRIPTION	DATE
1	RECORD DRAWING	JULY 2012
2	REVISIONS	

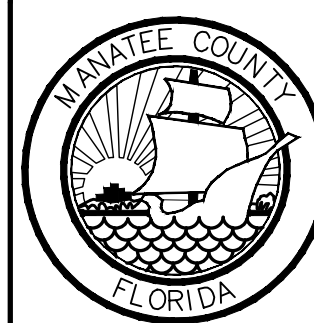
SEAL

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SEAL

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MANATEE COUNTY, FLORIDA

SWWRF RECLAIMED WATER AUTOMATION

EROSION CONTROL DETAILS

AND MECHANICAL DETAILS 4

DATE:	AUGUST 2012	SCALE:	DRAWING NUMBER:
MCE PROJ. #	1024-0128	HORIZONTAL:	AS SHOWN
DRAWN	BNF	VERTICAL:	NA
DESIGNED	MSL		
CHECKED	JSL		
PROJ. MGR.	MSL		
STATUS:	RECORD DRAWING	REVISION	

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FUNCTION SYMBOL SCHEDULE

FIRST LETTER		SUCCEEDING—LETTERS		
MEASURED OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A Analysis		Alarm		
B Burner, Combustion		Programmer		
C Conductivity (Electrical)			Control	Closed
D Density or Specific Gravity	Differential			
E Voltage		Sensor (Primary Element)	Eduction	
F Flow Rate	Ratio (Fraction)			
G Gaging		Glass, Viewing Device		
H Hand				High
I Current (Electrical)		Indicate		
J Power	Scan			
K Time, Time Schedule			Control Station	
L Level		Light (Pilot)		Low
M Motor				Middle, Intermediate
N Vibration				
O Operation	Offset	Orifice, Restriction		Open
P Pressure, Vacuum		Point (Test) Connection		
Q Quantity, Event	Integrate, Totalize	Integrate		
R Radiation		Record, Print	Regulate	
S Speed, Frequency	Safety		Switch	
T Temperature			Transmit	
U Multivariable	Trend	Multifunction	Multifunction	Multifunction
V Viscosity	Vacuum		Valve, Damper, Louver, Gate	
W Weight, Force, Torque		Well		
X Unclassified		Unclassified	Unclassified	Unclassified
Y			Relay, Compute, Convert	
Z Position			Final Control Element	Drive, Actuator, Unclassified Final Control Element

BASIC SYMBOLS

MULTIPLE FUNCTION

	OR		FIELD MOUNTED INSTRUMENT OR DEVICE
	OR		FRONT OF PANEL MOUNTED INSTRUMENT ON UCP OR MCC, VFD
	OR		REAR OF PANEL MOUNTED INSTRUMENT ON UCP OR MCC, VFD
	OR		FRONT OF PANEL MOUNTED INSTRUMENT ON MAIN PANEL
	OR		REAR OF PANEL MOUNTED INSTRUMENT ON MAIN PANEL
	OR		PLC AND/OR COMPUTER SOFTWARE COMPONENT (OPERATOR ACCESSIBLE UNDER NORMAL CONDITIONS)
	OR		PLC AND/OR COMPUTER GENERATED COMPONENT (NOT OPERATOR ACCESSIBLE UNDER NORMAL CONDITIONS)
	OR		PLC INPUT/OUTPUT

LINE CODES

	INSTRUMENT SIGNAL
	ELECTRICAL SIGNAL
	DATA LINK
	PNEUMATIC
	CAPILLARY
	SONIC OR R.F.
	HYDRAULIC
	TELEPHONE
	NO ELECTRICAL CONNECTION
	ELECTRICAL CONNECTIONS (INDICATED BY DOTS)
	HEAT TRACED PROCESS
	LINE OR EQUIPMENT
	MATCHLINE
	PROCESS LINE OR ELECTRICAL SIGNAL CONTINUATION TO/FROM SHEET NUMBER INDICATED
	CONTINUATION ON SAME SHEET
	CONTINUATION ON FACILITIES
	NOT SHOWN ON DRAWINGS

VALVES, PUMPS & METERS

	FLAME ARRESTOR
	PINCH VALVE
	GATE
	NEEDLE
	BUTTERFLY
	BALL OR ROTARY
	GLOBE
	PLUG OR COCK
	DIAPHRAGM
	CHECK
	DIAPHRAGM CHECK
	CONTROL VALVE POSITIONER
	PRESSURE REGULATING VALVE
	BACKPRESSURE REGULATING VALVE
	PISTON OPERATED
	S=SOLENOID OPERATED
	M=MOTOR OPERATED
	P=PNEUMATIC OPERATED
	DRAIN
	Y=WEIR GATE
	T=SLIDE SLUICE GATE
	I=STOP LOG
	BLIND FLANGE
	PULSATION DAMPENER
	PRESSURE RELIEF OR SAFETY
	3-WAY
	4-WAY
	TELESCOPING
	REDUCER
	HOSE CONNECTION
	WAFER/CHECK VALVE

VALVES, PUMPS & METERS (CONT'D)

	FLOAT SWITCH OR FLOAT
	(ARV) AIR RELEASE VALVE (ARVV) AIR VACUUM RELEASE VALVE
	ELECTRIC MOTOR
	ORIFICE/ANNUBAR
	AIR DIFFUSER
	LIQUID DIFFUSER
	CAPACITANCE METER
	REGULATOR/FILTER
	SUBMERSIBLE PUMP
	MAGNETIC METER (INLINE/INSERT)
	ULTRASONIC METER
	VENTURI OR FLOW TUBE
	PROPELLER OR TURBINE METER
	DOPPLER OR TRANSIT TIME FLOW METER
	ROTAMETER
	PROGRESSING CAVITY PUMP
	CENTRIFUGAL PUMP
	POSITIVE DISPLACEMENT PUMP
	DIAPHRAGM OR METERING PUMP
	EDUCTOR
	STRAINER
	DIAPHRAGM ISOLATOR
	HORN
	GRADUATED MEASURING CYLINDER
	CYLINDER HYDRAULIC OR PNEUMATIC
	LATERAL WYE
	RUPTURE DISK
	RESTRAINED FLEX CONN.
	FLEX CONN.
	FILTER AIR/WATER
	CENTRIFUGAL BLOWER
	POSITIVE DISPLACEMENT BLOWER
	MANUAL BAR RACK
	MIXER
	SUBMERSIBLE AERATOR/MIXER (ELECTRIC MOTOR DRIVEN)
	UNION

MISCELLANEOUS SYMBOLS

	PURGE CONNECTION
	SAMPLE POINT
	INTERLOCK
	MULTIPLY
	DIVIDE
	HIGH SELECT
	LOW SELECT
	SQUARE ROOT
	SUM (ALGEBRAIC)
	SPECIAL FUNCTION
	R+B RATIO PLUS BIAS
	dL/dt RATE OF RISE (LEVEL)

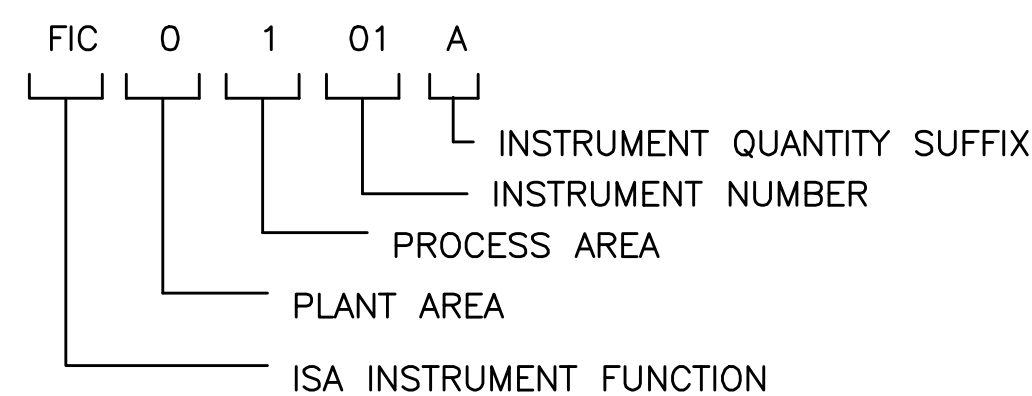
EQUIPMENT NOTATION

B	= BLOWER OR FAN
E	= ENGINE
G	= GENERATOR
F	= FILTER
GS	= GRINDER/SCREEN
K	= COMPRESSOR
H	= HOIST
ME	= MECHANICAL EQUIPMENT
MX	= MIXER
P	= PUMP
R	= HEAT EXCHANGER
T	= TANK OR SUMP

VALVE DESIGNATIONS

HV	= HAND VALVE
FCV	= FLOW CONTROL VALVE (MODULATING)
PRV	= PRESSURE REGULATING VALVE
LCV	= LEVEL CONTROL VALVE
FV	= FLOW VALVE (NON-MODULATING)
MV	= MUD VALVE
TV	= TELESOPING VALVE
CV	= CHECK VALVE
MOV	= MOTOR OPERATED VALVE

INSTRUMENT TAG NOTATION



VALVE OPERATION NOTATION

EFC	= ELECTRIC FAIL CLOSE
AFC	= AIR FAIL CLOSE
EFO	= ELECTRIC FAIL OPEN
AFO	= AIR FAIL OPEN
AFS	= AIR FAIL STATIC
EFS	= ELECTRIC FAIL STATIC

CONTROLLER NOTATION

PV	= PROCESS VARIABLE INPUT
SP	= SET POINT INPUT
C	= CONTROL OUTPUT

PLC NOTATIONS

AI	= ANALOG INPUT
AO	= ANALOG OUTPUT
DI	= DISCRETE INPUT
DO	= DISCRETE OUTPUT
D/A	= DISCRETE TO ANALOG CONVERTOR
SSDC	= SURGE SUPPRESSION DEVICE

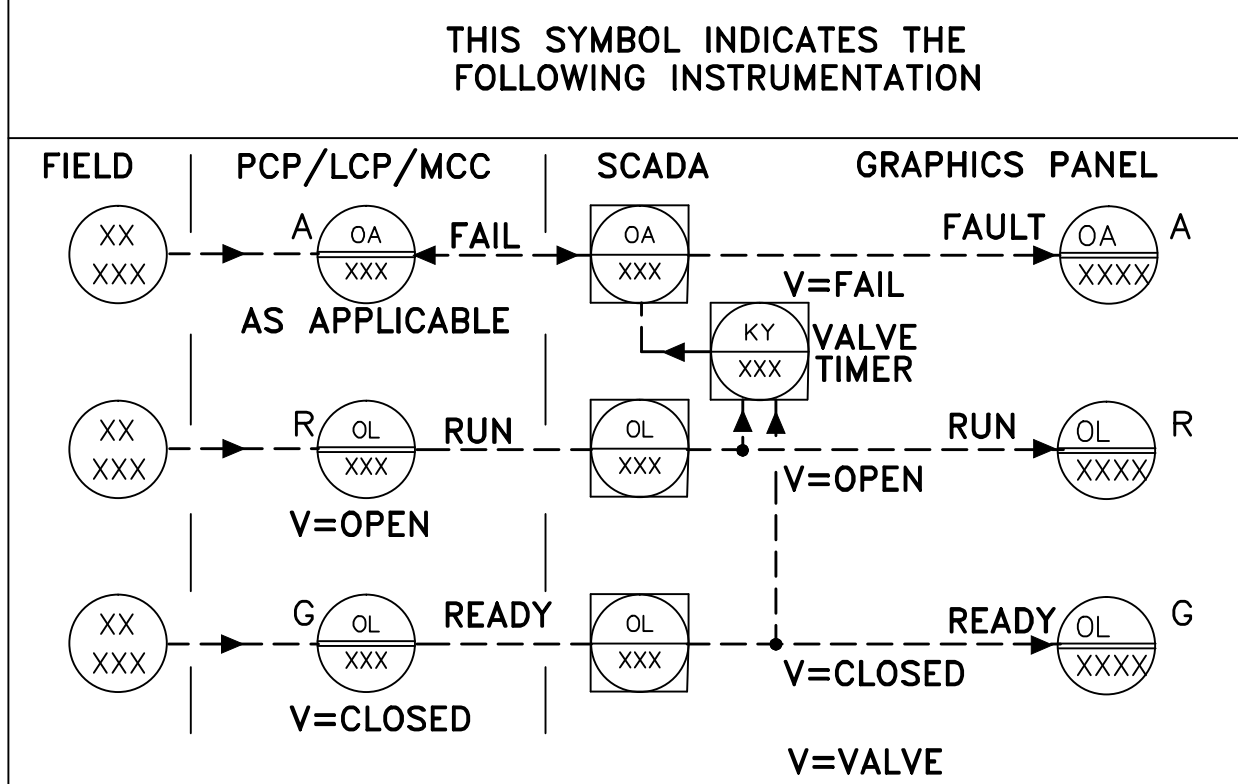
HAND SWITCH NOTATION

HOA	= HAND-OFF-AUTO
S/S	= START/STOP
SEL	= SELECTOR
O/C	= OPEN/CLOSE
O/O	= ON/OFF
LOS	= LOCKOUT-START
D/S	= DUTY/STANDBY
FOS	= FAST-OFF-SLOW
OAC	= OPEN-AUTO-CLOSE
OOCA	= OPEN-OFF-CLOSE-AUTO
ROF	= REVERSE-OFF-FORWARD
ROL	= RAISE-OFF-LOWER
F/R	= FORWARD/REVERSE
HOR	= HAND-OFF-REMOTE
LOR	= LOCAL-OFF-REMOTE
SAR	= SILENCE-AUTO-RESET

MISCELLANEOUS NOTATIONS

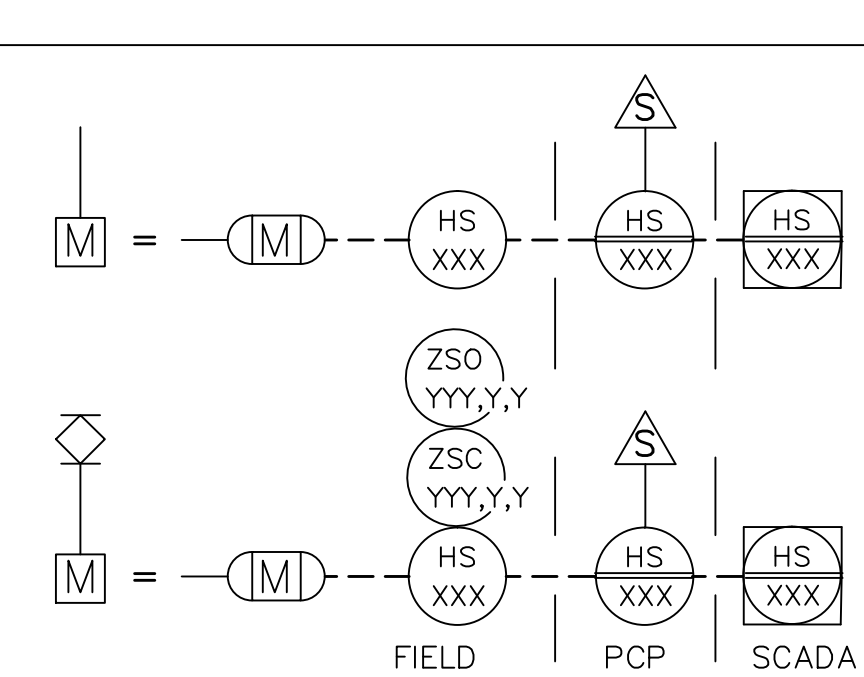
S/D	= SHUTDOWN
O/R	= OVERRIDE
MCC	= MOTOR CONTROL CENTER
VFD	= VARIABLE FREQUENCY DRIVE
UCP	= UNIT CONTROL PANEL
LCP	= LOCAL CONTROL PANEL
MCP	= MASTER CONTROL PANEL
ES	= ELECTRICAL SUPPLY
IS	= INLET SILENCER
DS	= DISCHARGE SILENCER
SEQ	= SEQUENCER/ALTERNATOR
SA	= SURGE ARRESTOR
DO	= DISSOLVED OXYGEN
ETM	= ELAPSED TIME METER
TURB	= TURBIDITY
US	= ULTRASONIC

THIS SYMBOL INDICATES THE FOLLOWING INSTRUMENTATION



TYPICAL FOR [M]

(IF NOT OTHERWISE ILLUSTRATED ON DWGS)



RECORD DRAWING

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A. ENGINEERS REVIEW OF INFORMATION PROVIDED
B. INFORMATION FURNISHED BY:
BRANDES DESIGN-BUILD INC.
2051 NE COACHMEN ROAD
CLEARWATER, FLORIDA 33765
C: 727-445-7544 / F 727-445-7534
REVISIONS NO REVISIONS

DATE: MARCH 2012
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THOMAS E. ROBINSON, JR.
No.62976

REV.	DESCRIPTION	DATE
1	RECORD DRAWING	JULY 2012

THOMAS E. ROBINSON JR. P.E. No. 62976
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SEAL

 1365 Hamlet Avenue Clearwater, Florida 33756 Phone: (727)442-7196, Fax: (727)461-3827 EB0006691 www.mckimcreed.com
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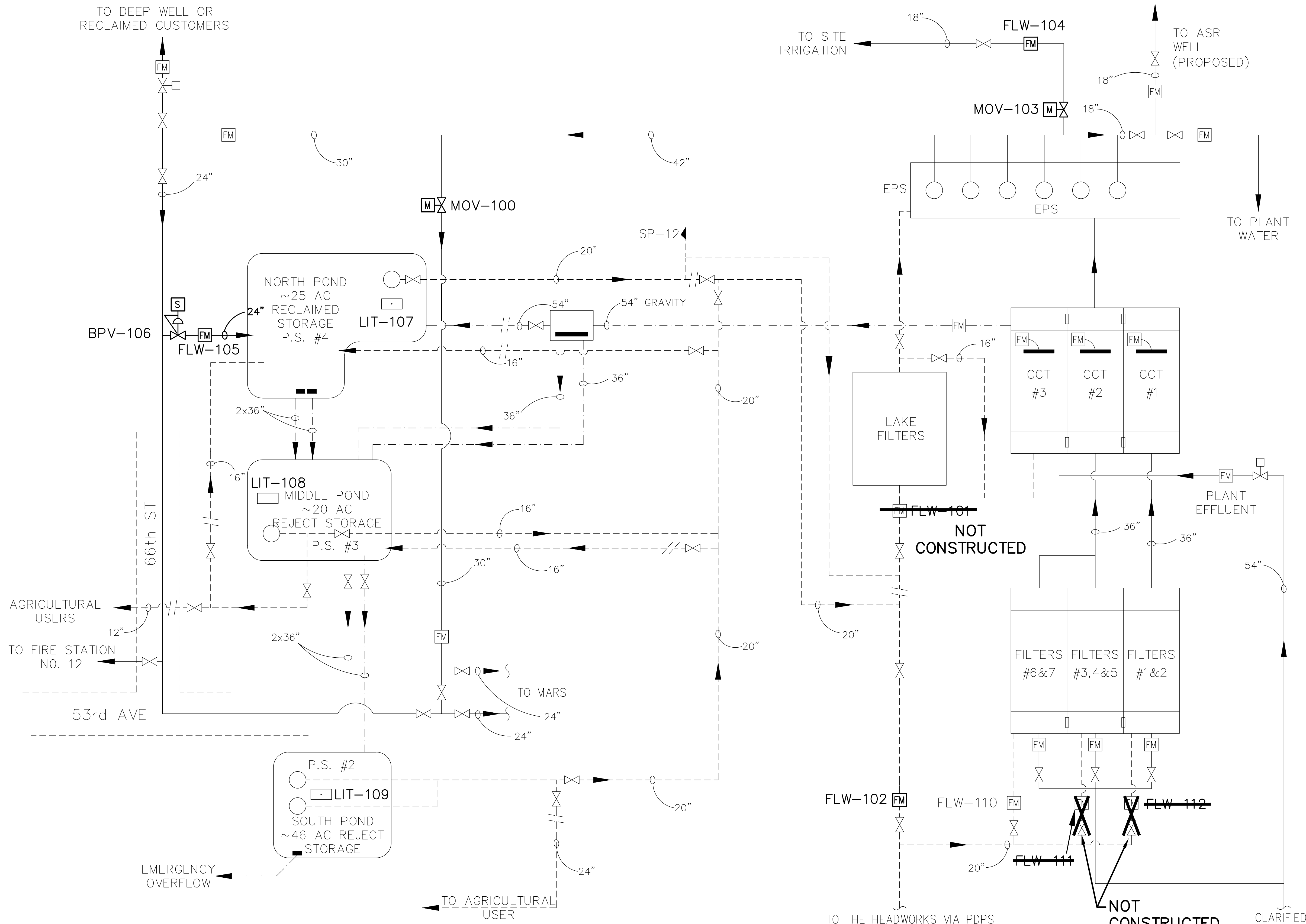
 MANATEE COUNTY, FLORIDA

SWWRF RECLAIMED WATER AUTOMATION PROCESS AND INSTRUMENTATION GENERAL NOTES, LEGEND AND ABBREVIATIONS

DATE: AUGUST 2012 MCE PROJ. # 1024-0128 DRAWN: EEB DESIGNED: EEB CHECKED: TER PROJ. MGR. MSL	SCALE HORIZONTAL: NA VERTICAL: NA	DRAWING NUMBER I-1
STATUS: RECORD DRAWING		REVISION

LEGEND:

- FM - EXISTING FLOW METER (C)
- - EXISTING PUMP STATION
- ✕ - EXISTING VALVE
- CCT - CHLORINE CONTACT TANK
- EPS - EFFLUENT PUMP STATION
- MARS - MANATEE AGRICULTURAL REUSE SYSTEM
- - EXISTING POND EFFLUENT
- - EXISTING PLANT EFFLUENT
- - - - - EXISTING GRAVITY FLOW
- - EXISTING WEIR GATE
- PDPS - PLANT DRAIN PUMP STATION
- - EXISTING LAKE LEVEL INDICATOR
- // - PROPOSED DISCONNECT
- - PROPOSED EFFLUENT
- - - - - PROPOSED POND EFFLUENT
- ✕ - PROPOSED VALVE
- M - PROPOSED ELECTRIC VALVE OPERATOR
- BPV - BACK PRESSURE SUSTAINING VALVE
- FLW - FLOWMETER
- LIT - LEVEL INDICATOR TRANSMITTER
- MOV - MOTOR OPERATED VALVE



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O: 727-445-7544 / F 727-445-7534

☑ REVISIONS ☐ NO REVISIONS

DATE: MARCH 2012

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REV.	DESCRIPTION	DATE
1	RECORD DRAWING	JULY 2012
2	REVISIONS	
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THOMAS E. ROBINSON, JR. P.E. No. 62976

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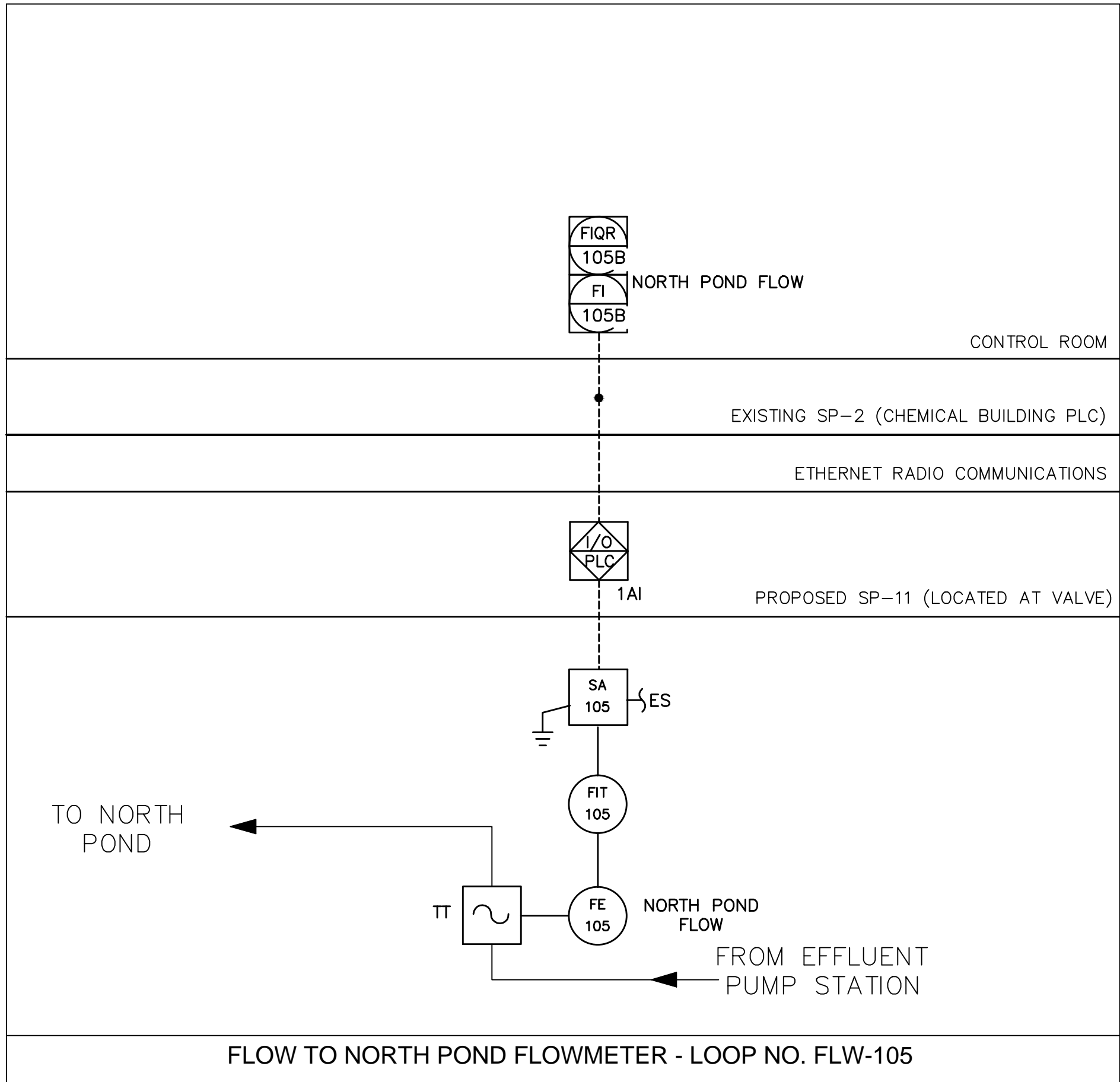
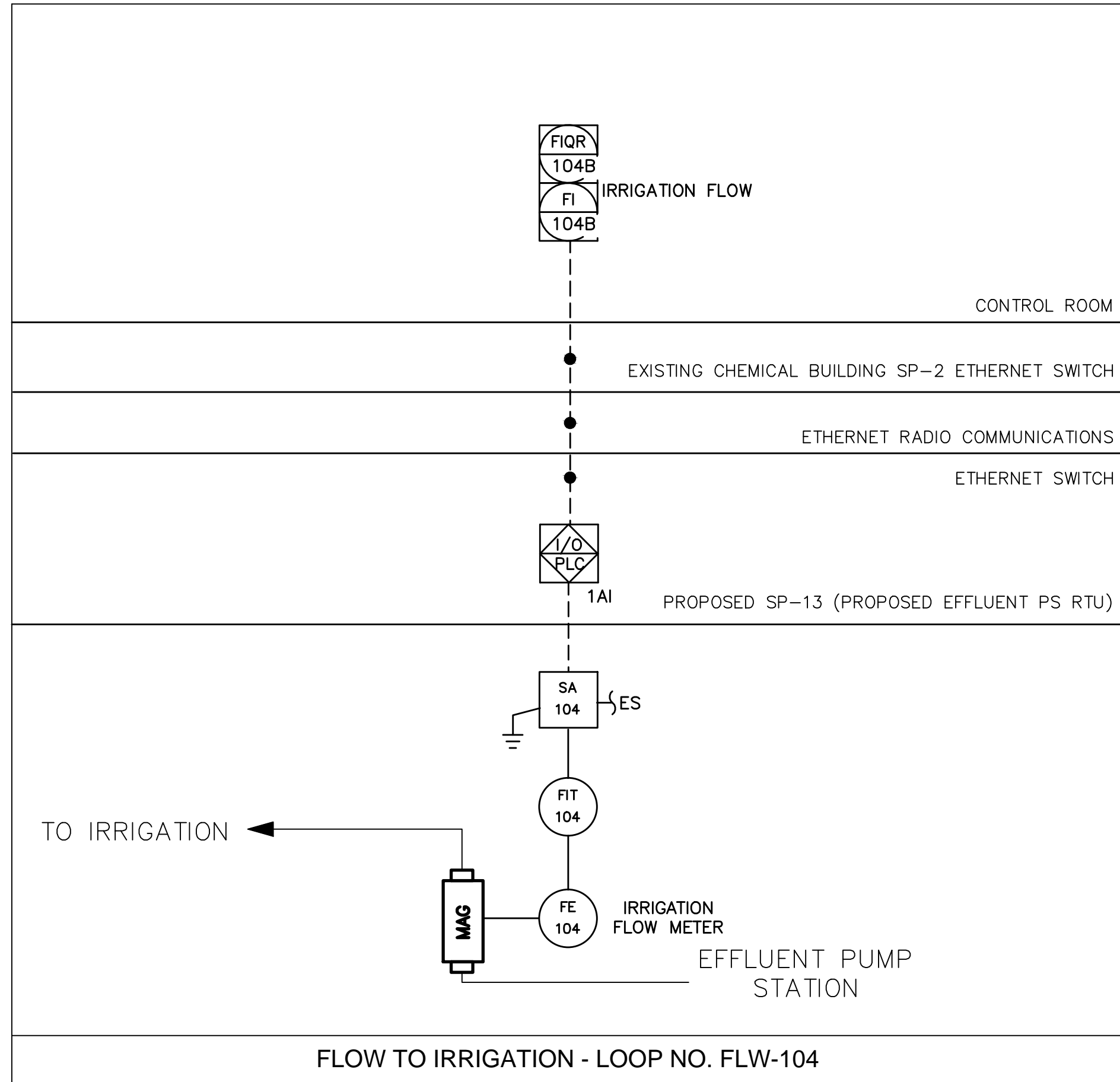
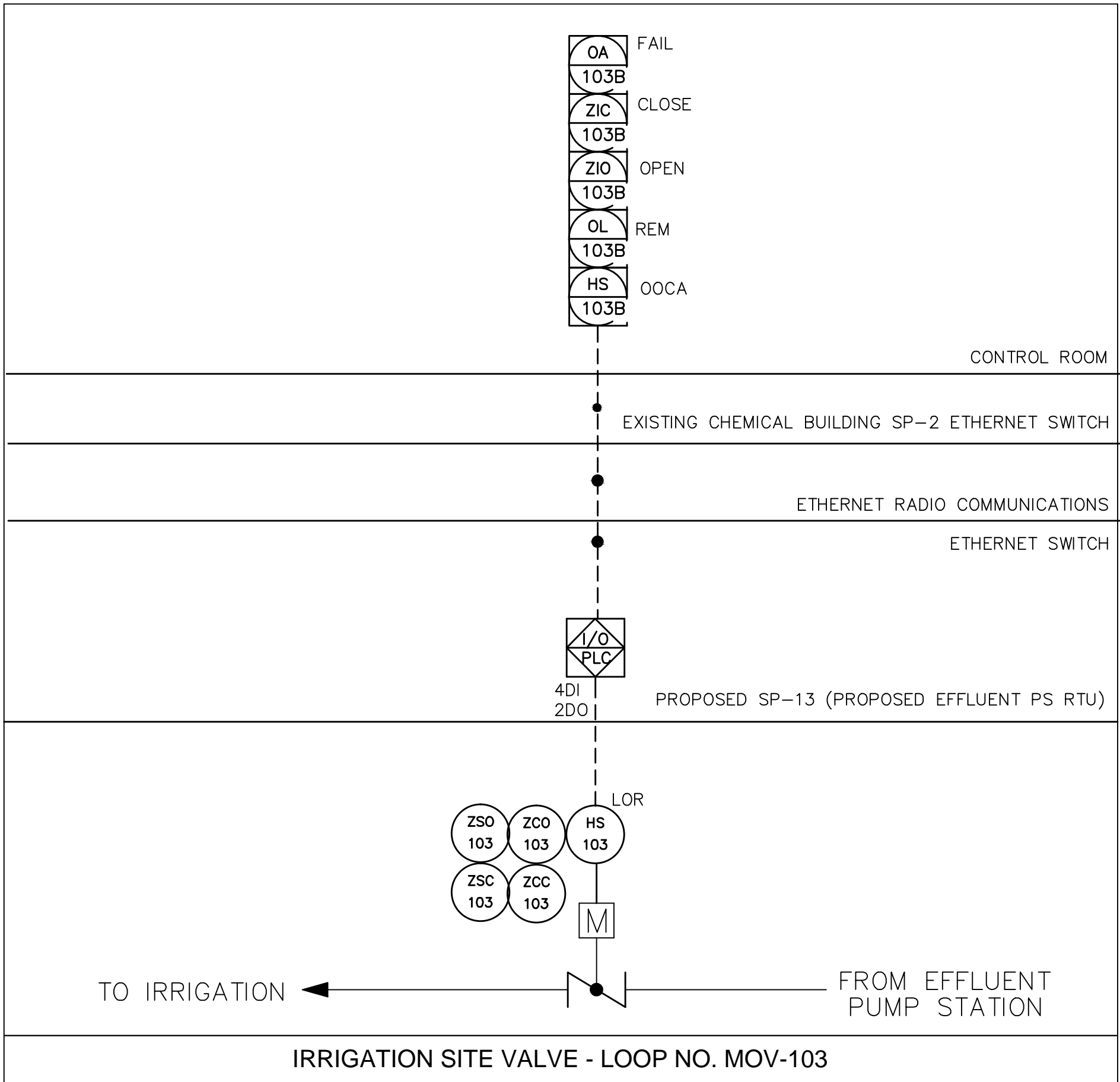
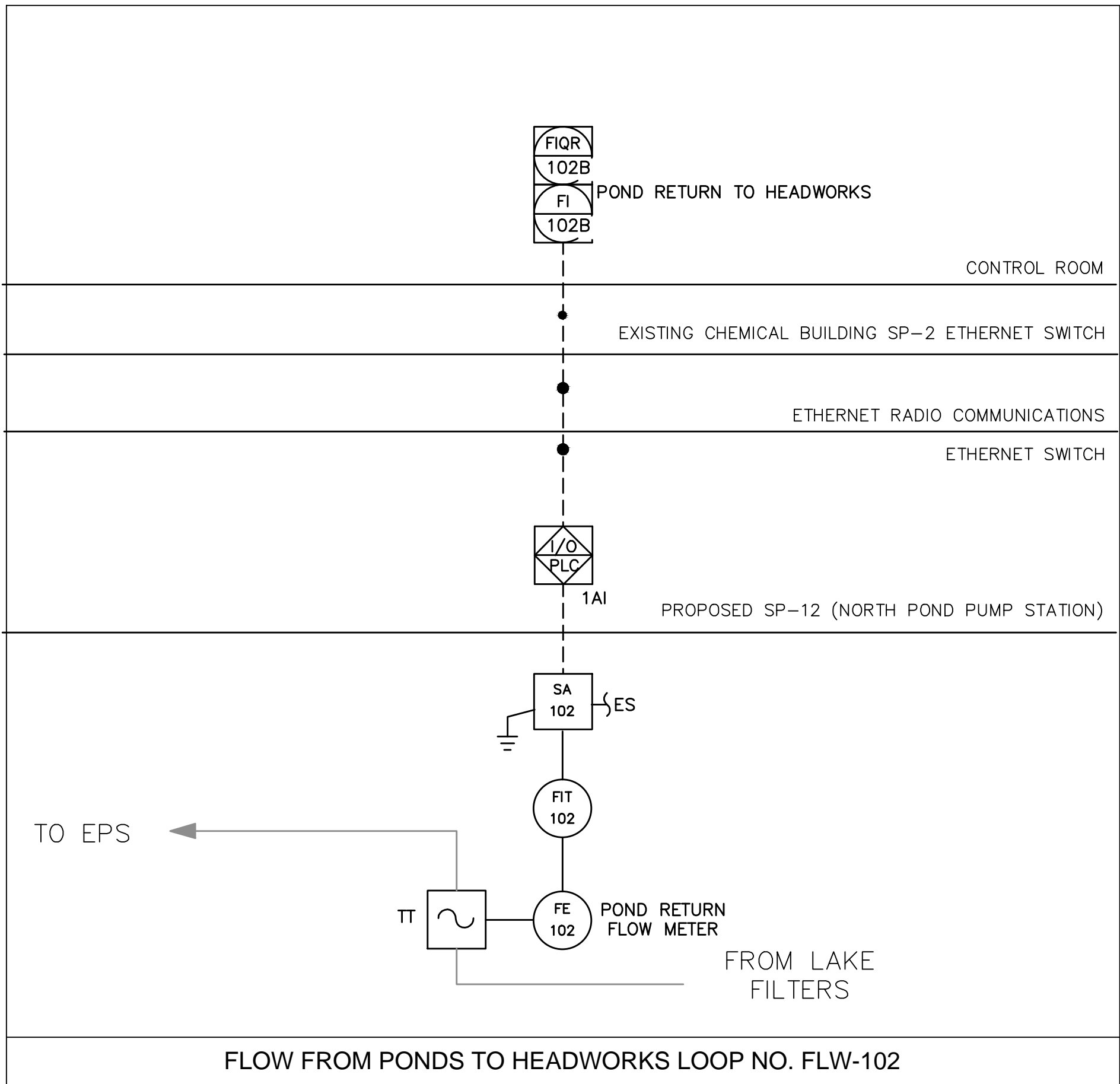
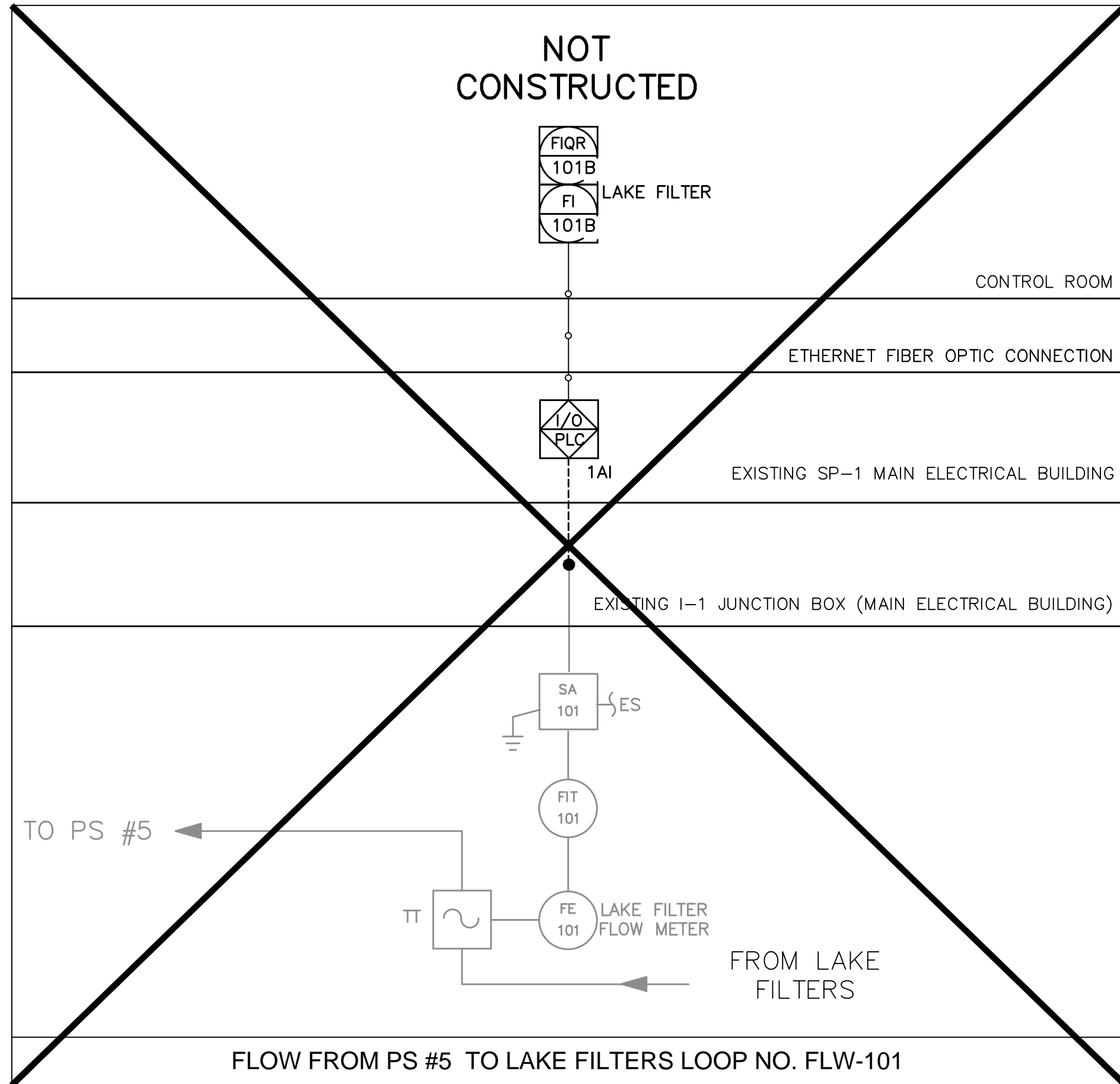
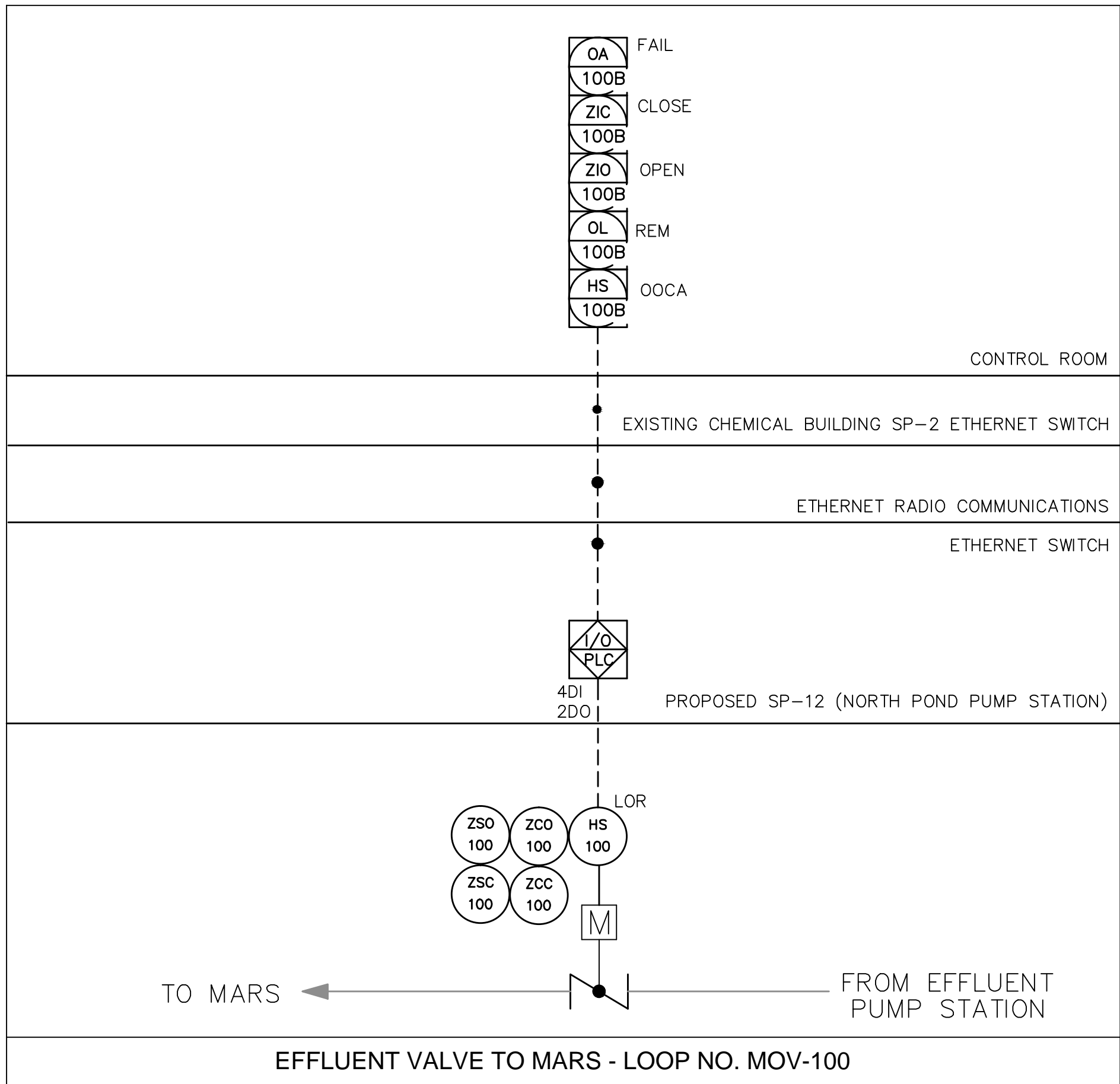
MANATEE COUNTY, FLORIDA

SWWRF RECLAIMED WATER AUTOMATION

PROPOSED EFFLUENT FLOW SCHEMATIC

DATE: AUGUST 2012	SCALE: AS SHOWN	DRAWING NUMBER: I-2
MCE PROJ. # 1024-0128	HORIZONTAL: NA	REVISION
DRAWN: QES	VERTICAL: NA	
DESIGNED: MSL		
CHECKED: JSL		
PROJ. MGR. MSL		
STATUS: RECORD DRAWING		

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RECORD DRAWING

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BRANDES DESIGN-BUILD INC.
2051 NE COACHEMEN ROAD
CLEARWATER, FLORIDA 33765
O: 727-445-7544 / F 727-445-7534

DATE: MARCH 2012
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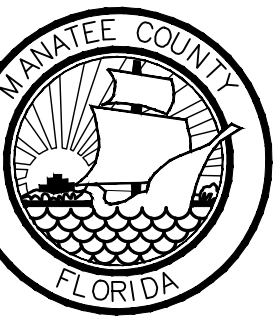
THOMAS E. ROBINSON, JR.
No. 62976

REV.	DESCRIPTION	DATE
1	RECORD DRAWING	JULY 2012
2	REVISIONS	
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THOMAS E. ROBINSON, JR. P.E. No. 62976

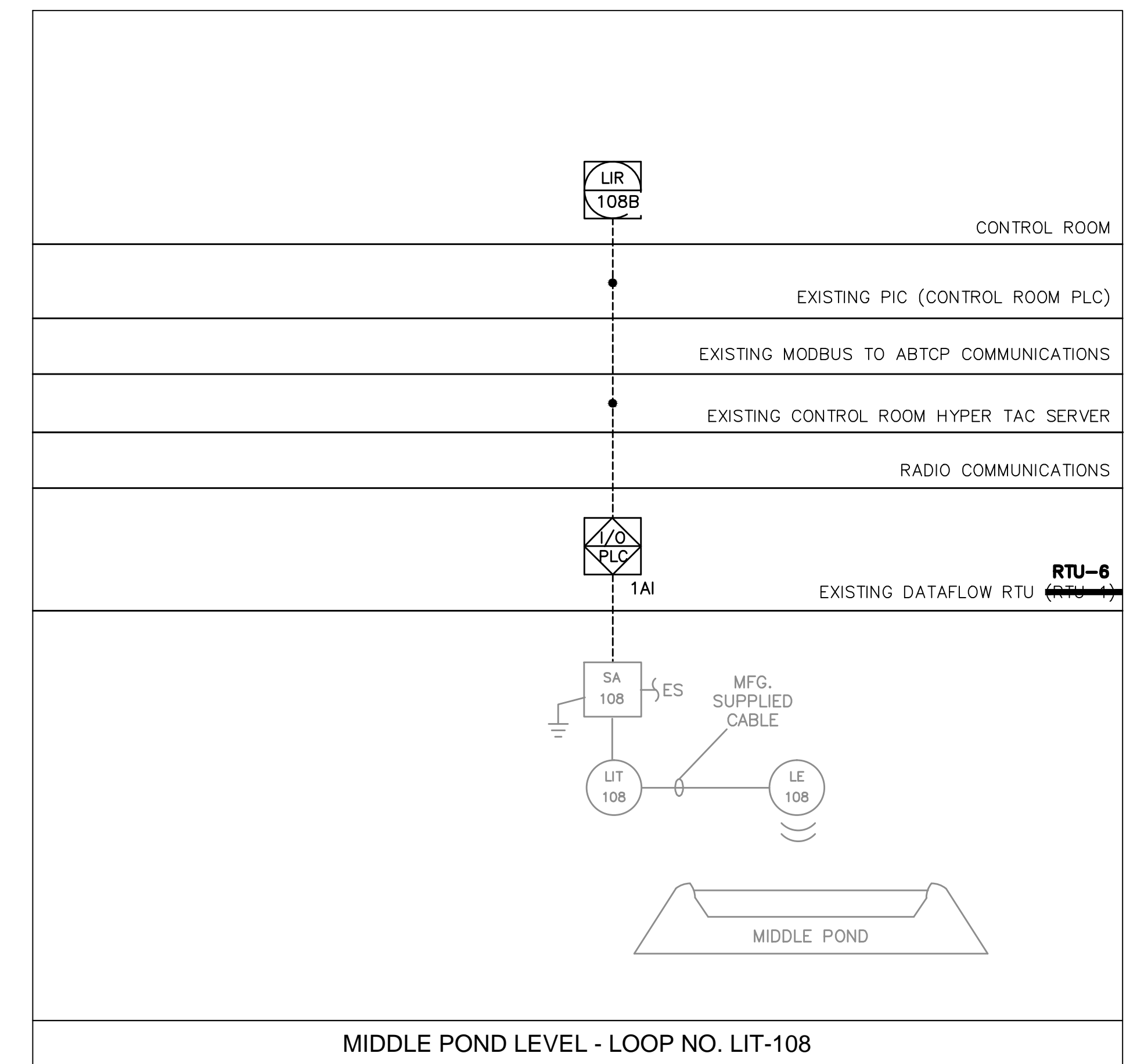
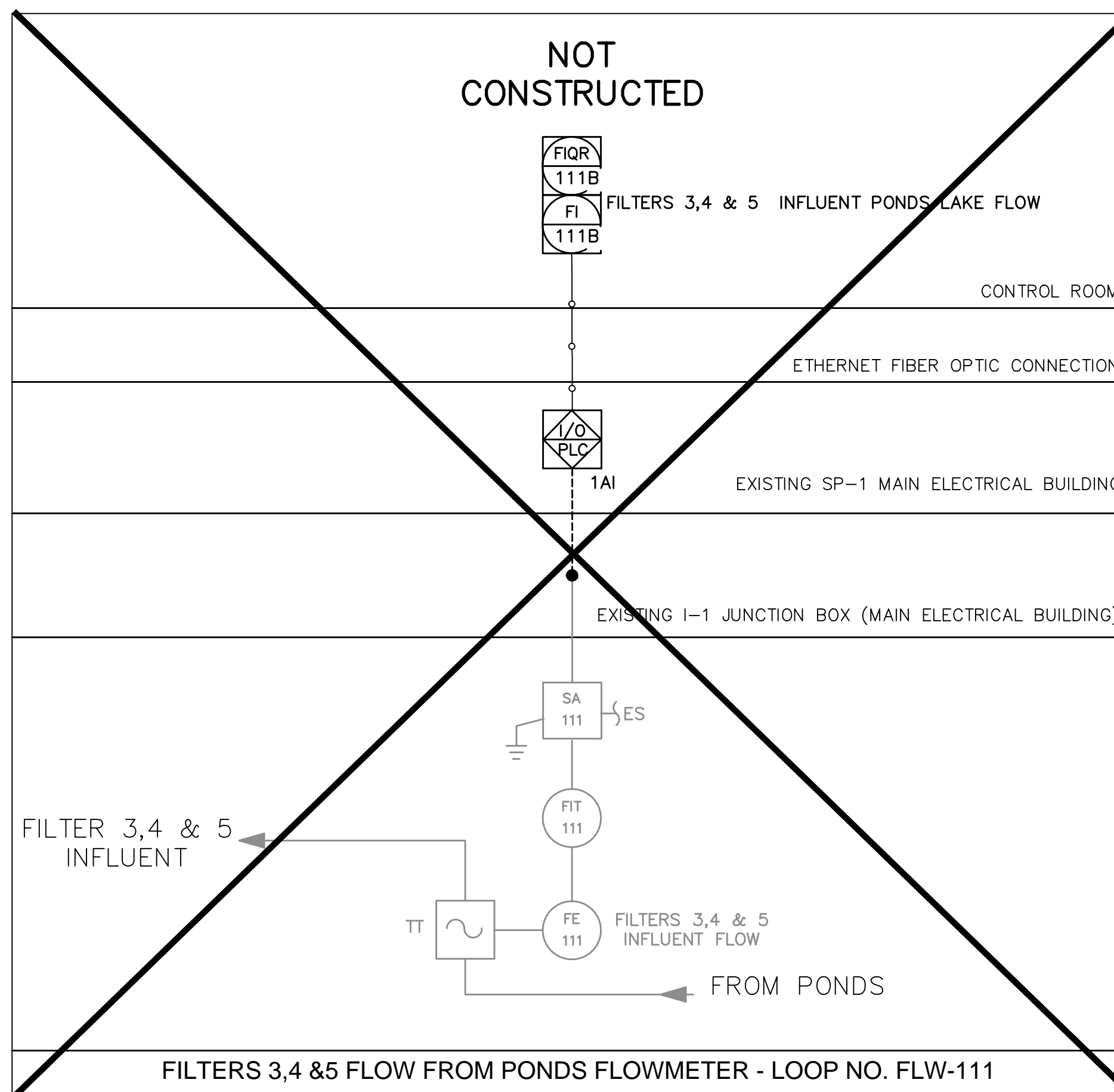
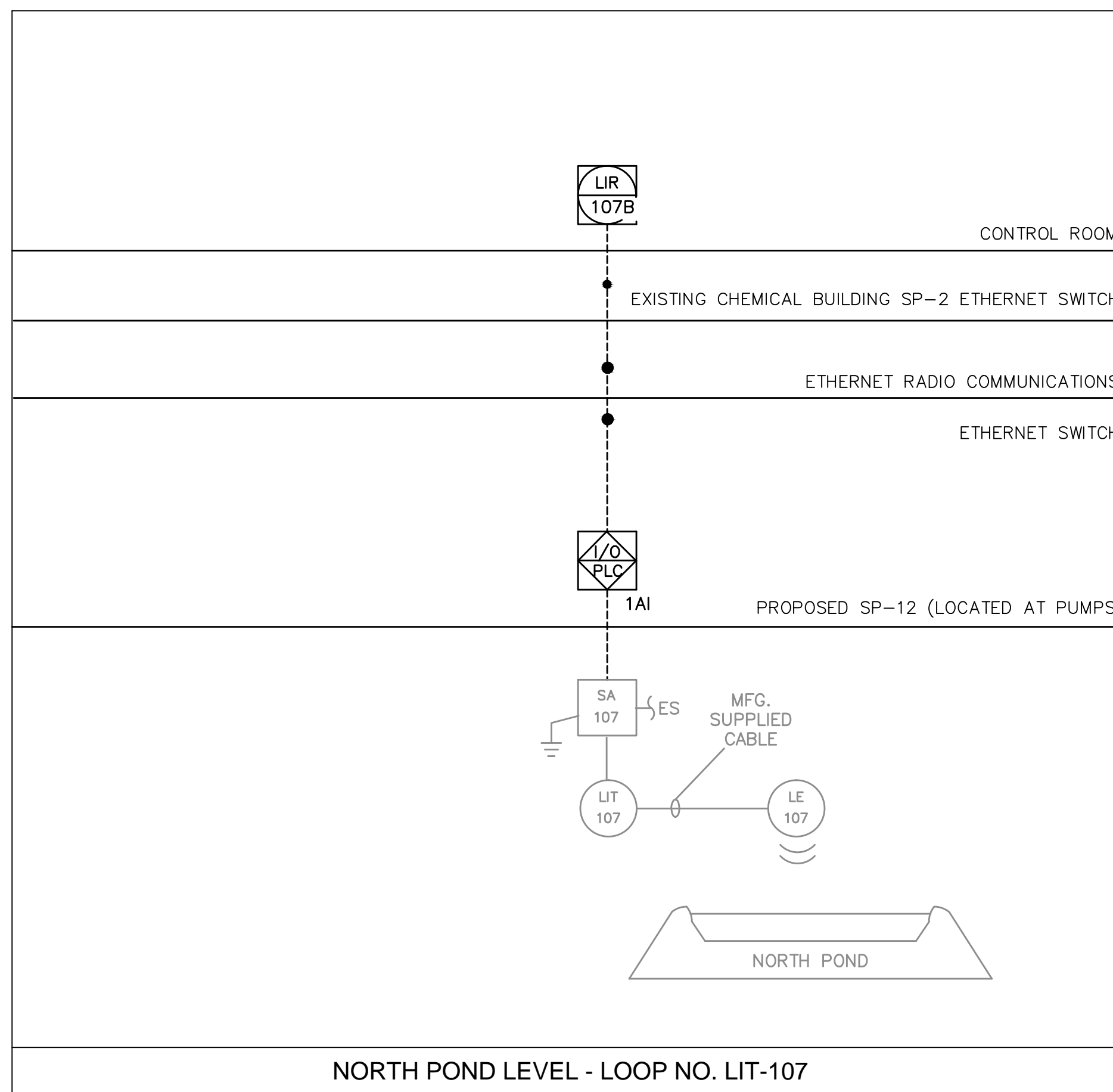
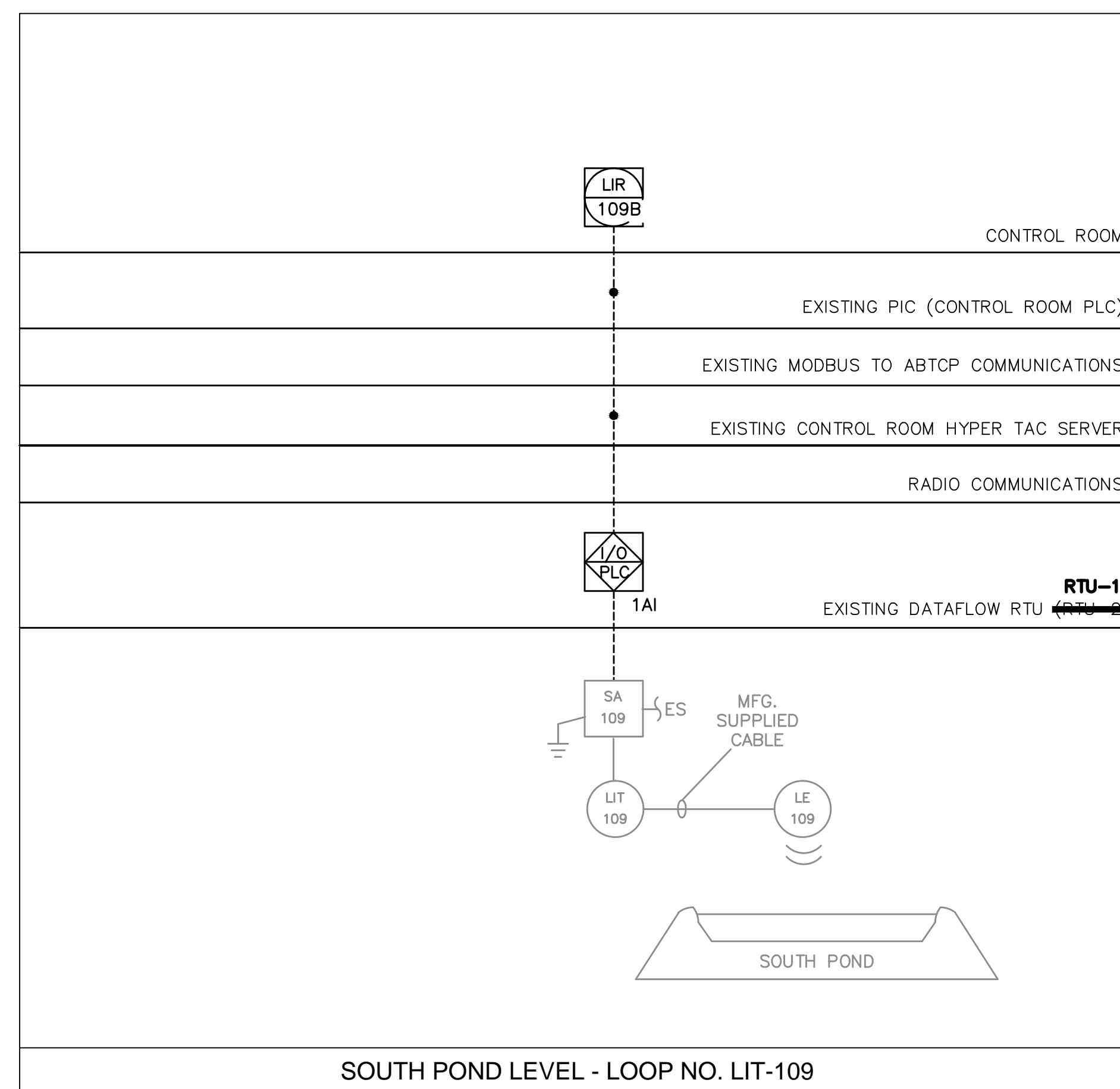
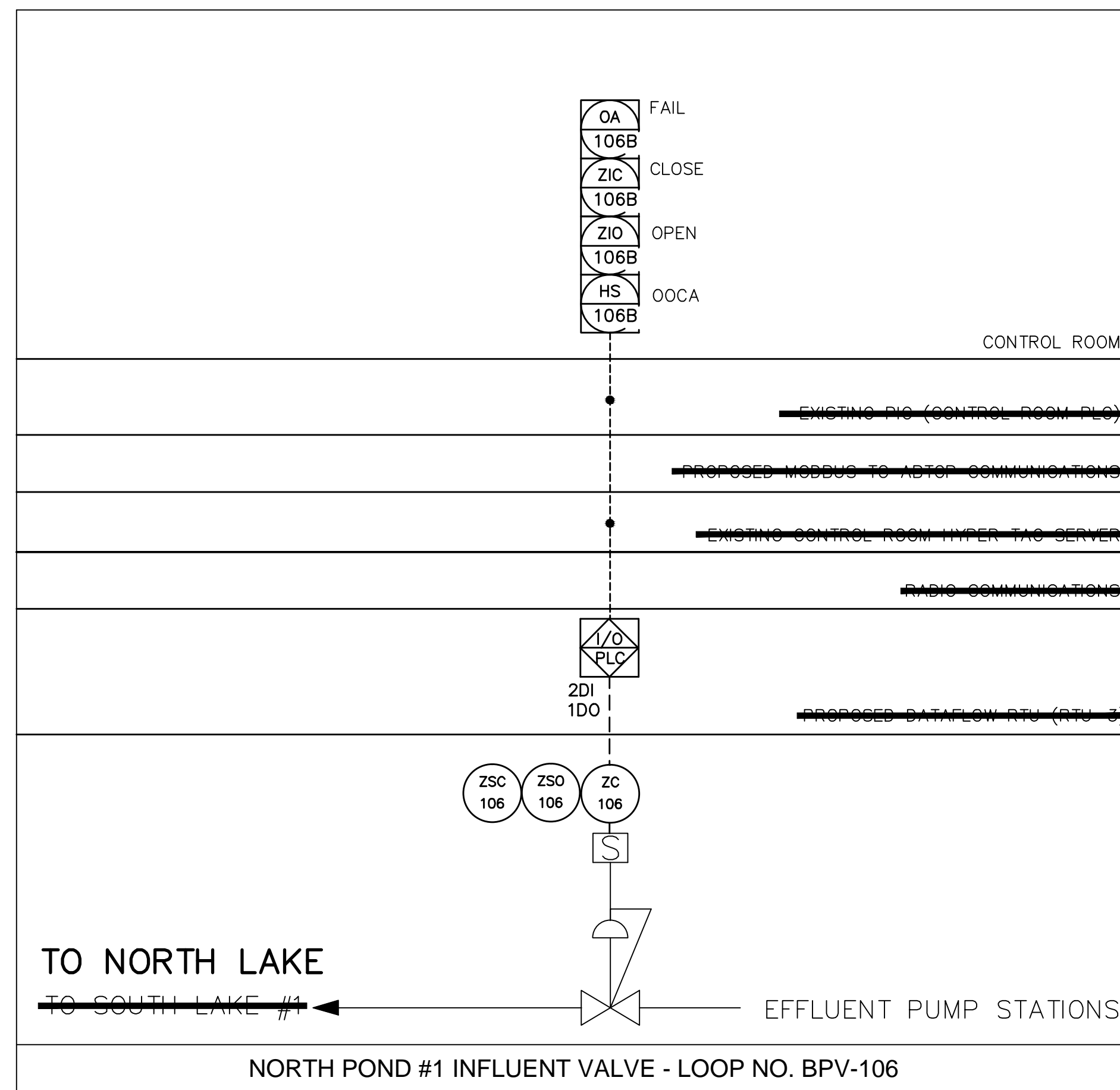
SEAL

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 MANATEE COUNTY, FLORIDA
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SWWRF RECLAIMED WATER AUTOMATION PROCESS AND INSTRUMENTATION DIAGRAM SHEET 1

DATE: AUGUST 2012 MCE PROJ. # 1024-0128 DRAWN: EEB DESIGNED: EEB CHECKED: TER PROJ. MGR. MSL	SCALE HORIZONTAL: NA VERTICAL: NA	DRAWING NUMBER I-3
STATUS: RECORD DRAWING		



RECORD DRAWING

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A. ENGINEERS FURNISHED BY:

BRANDES DESIGN-BUILD INC.
2051 NE COACHMEN ROAD
CLEARWATER, FL 33765
C: 727-445-7544 / F 727-445-7534

☒ REVISIONS ☐ NO REVISIONS

DATE: MARCH 2012

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THOMAS E. ROBINSON, JR.
P. 0176

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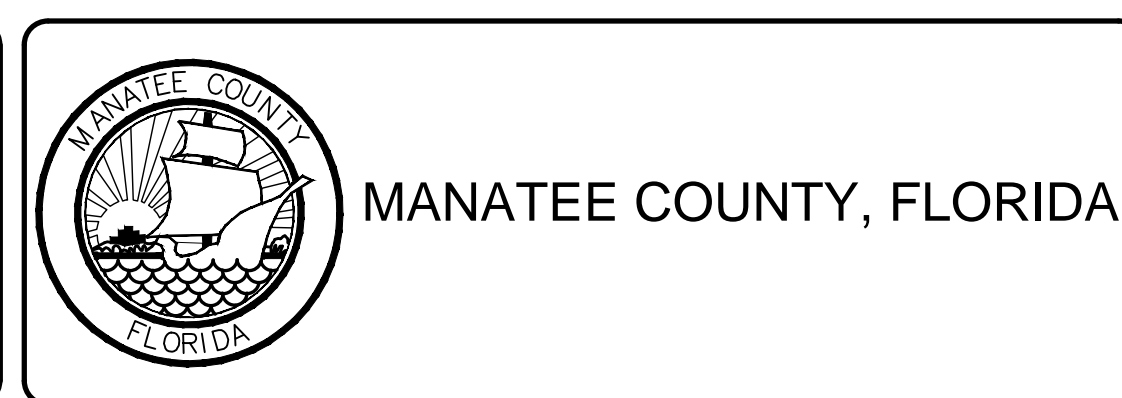
SEAL

THOMAS E. ROBINSON JR.
P.E. No. 62976

SEAL



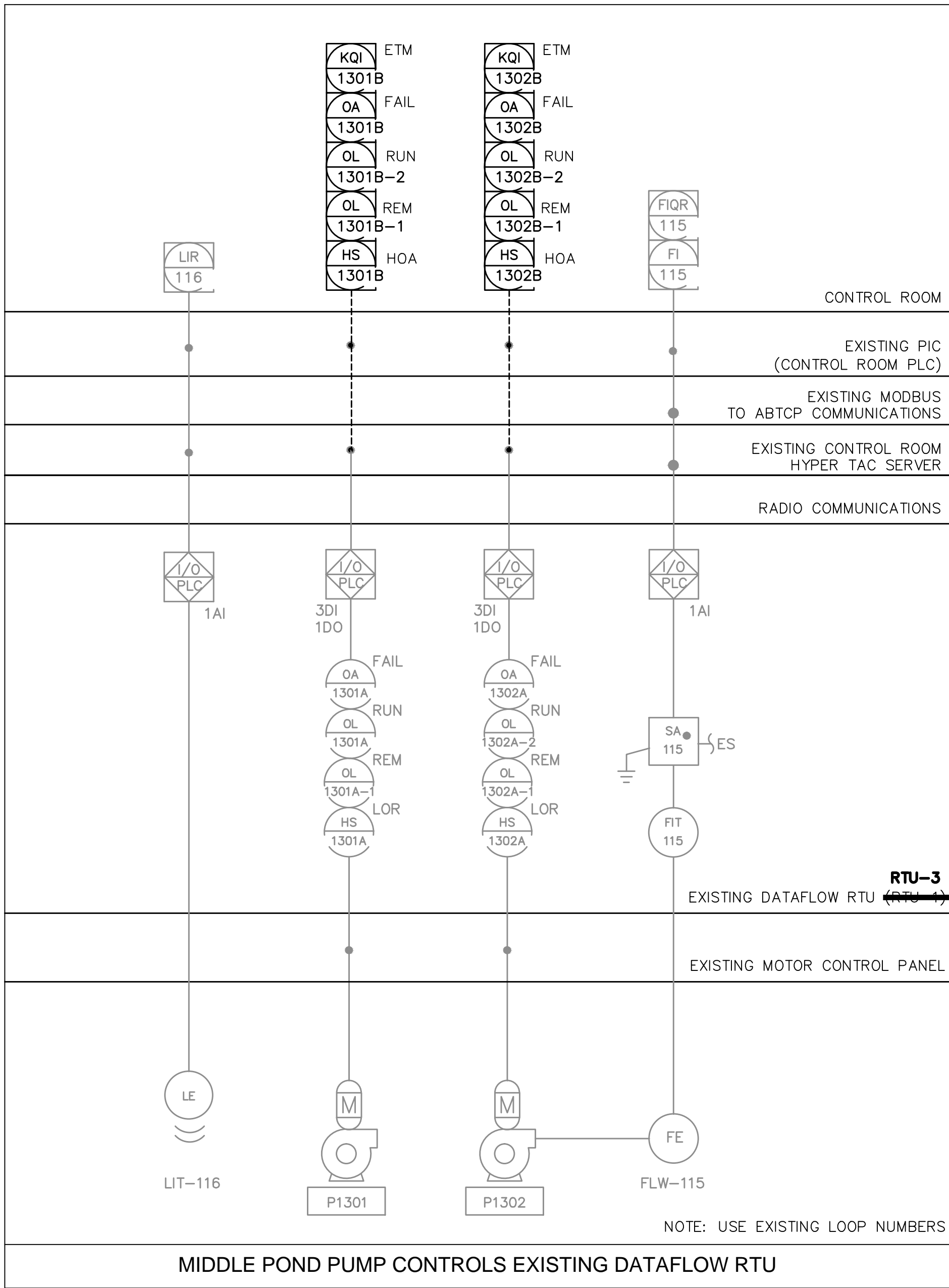
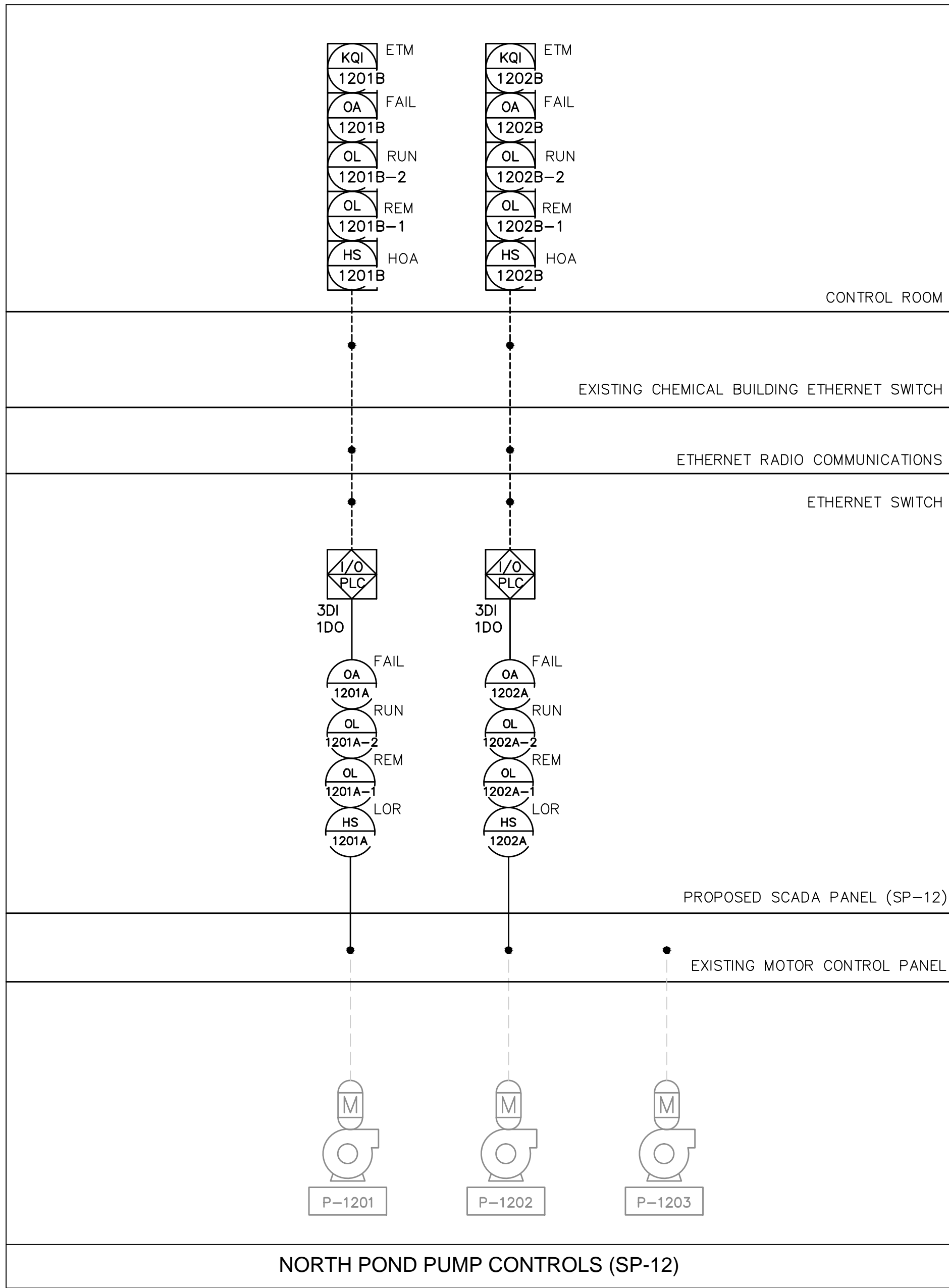
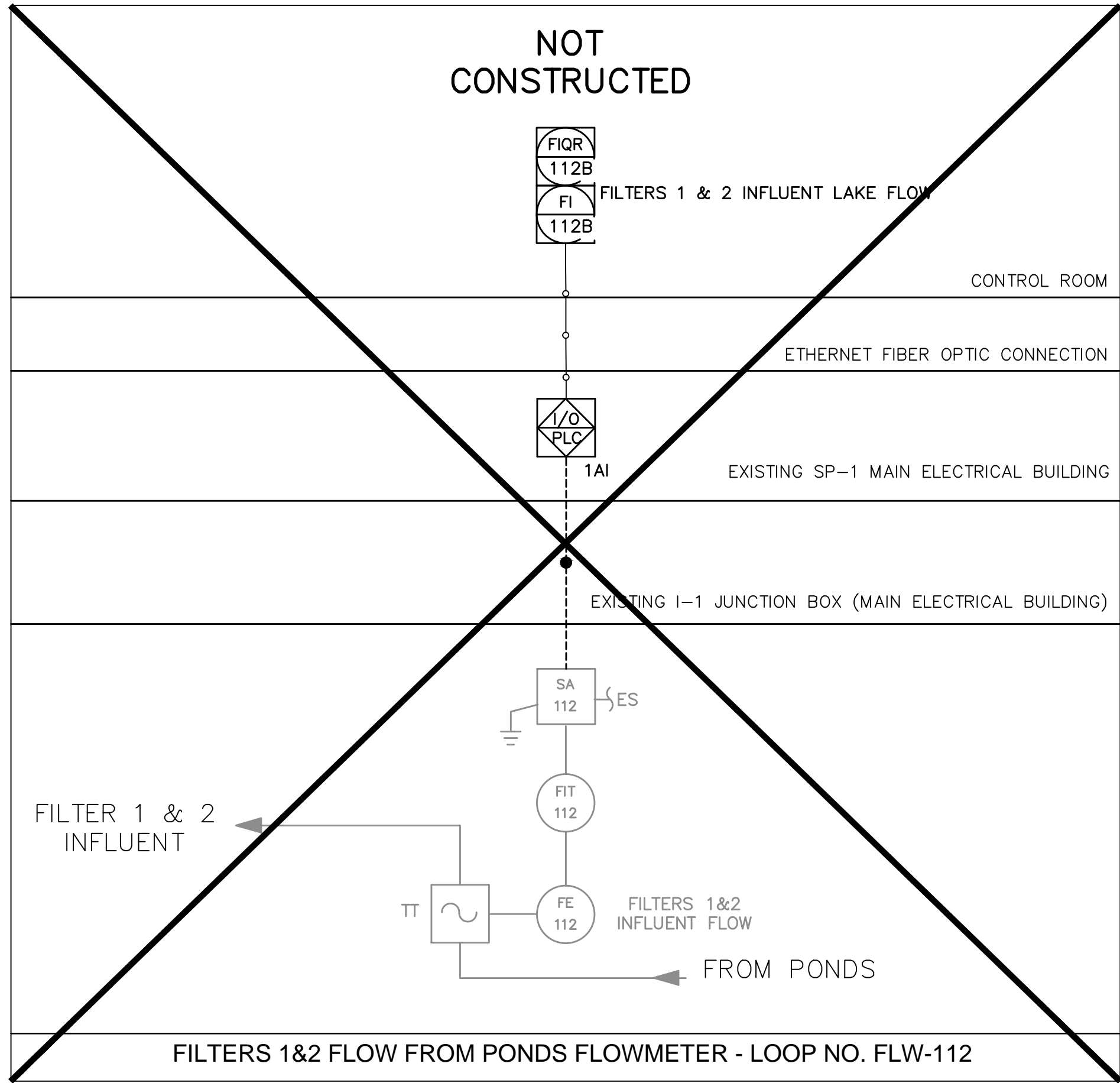
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SSWRF RECLAIMED WATER AUTOMATION PROCESS AND INSTRUMENTATION DIAGRAM SHEET 2
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DATE:	AUGUST 2012	SCALE	DRAWING NUMBER
MCF PROJ. #	1024-0128	HORIZONTAL:	I-4
DRAWN	EEB	NA	
DESIGNED	EEB	VERTICAL:	
CHECKED	TER	NA	
PROJ. MGR.	MSL		
STATUS:		REVISION	

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REV.	DESCRIPTION	DATE
1	RECORD DRAWING	JULY 2012
2	REVISIONS	
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THOMAS E. ROBINSON JR. P.E. No. 62976
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MANATEE COUNTY, FLORIDA

**SWWRF RECLAIMED WATER AUTOMATION
PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 3**

DATE: AUGUST 2012 MCE PROJ. # 1024-0128 DRAWN: EEB DESIGNED: EEB CHECKED: TER PROJ. MGR: MSL	SCALE HORIZONTAL: NA VERTICAL: NA	DRAWING NUMBER I-5
STATUS: RECORD DRAWING		

RECORD DRAWING

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B. INFORMATION FURNISHED BY:

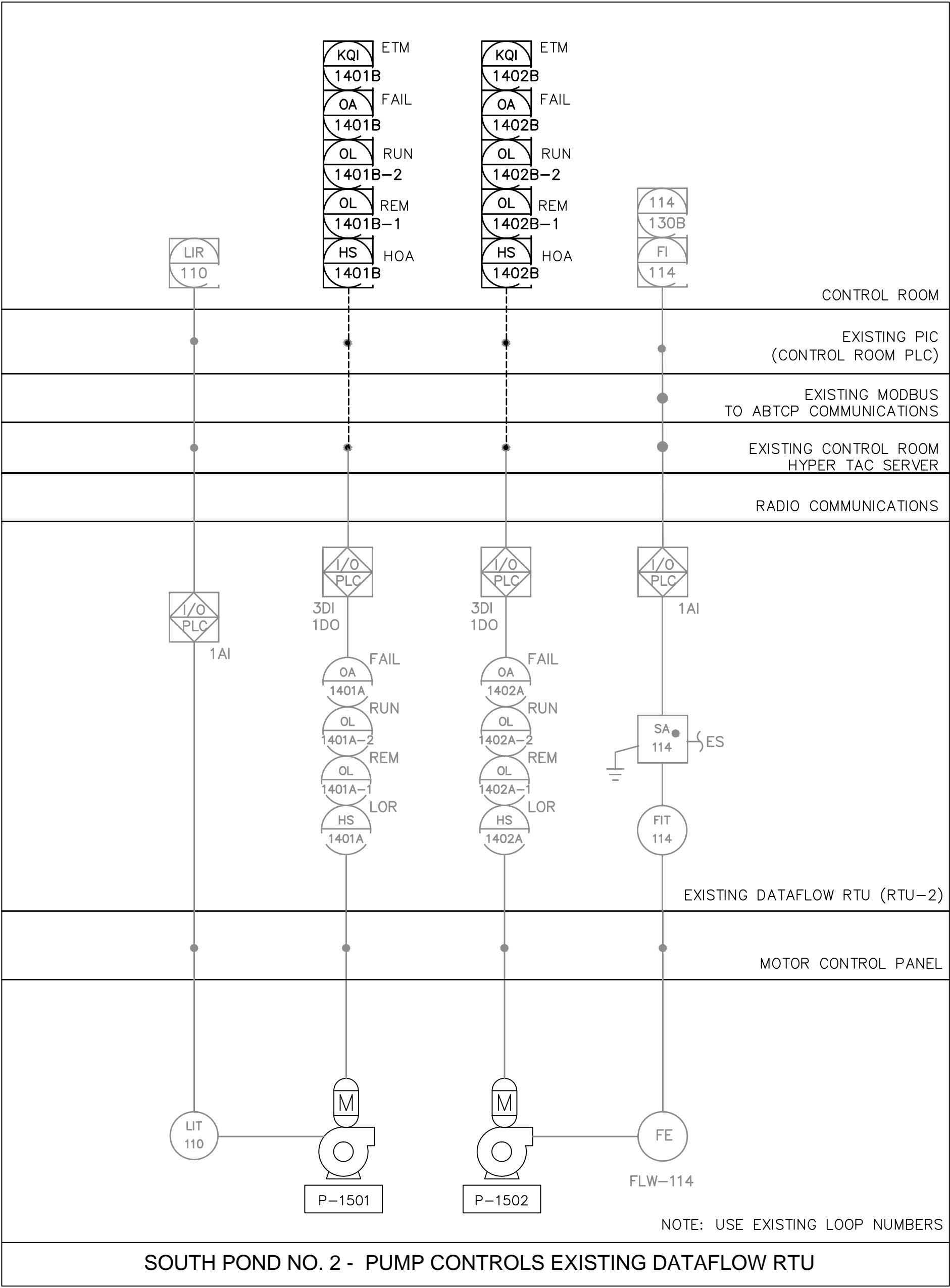
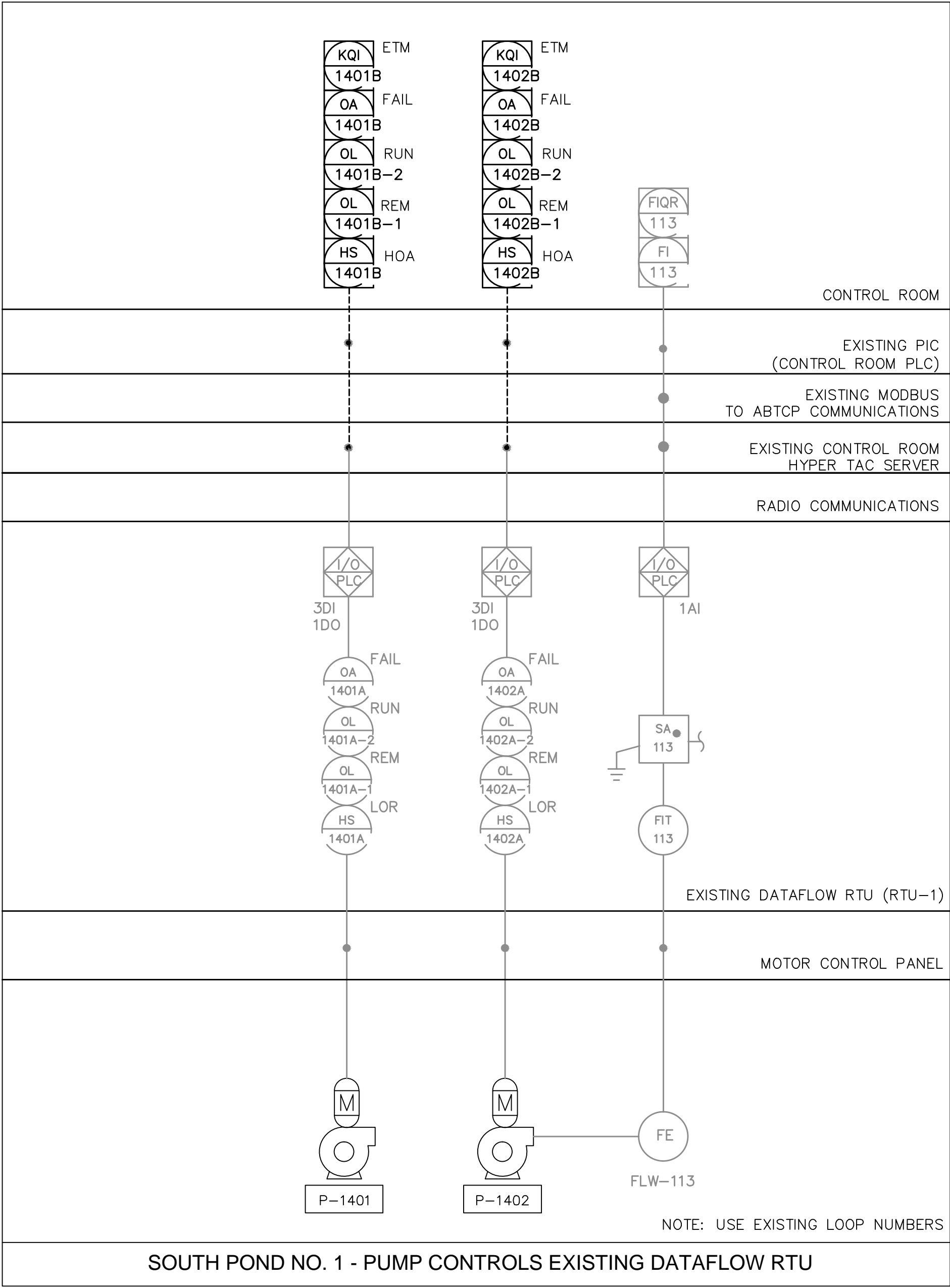
BRANDES DESIGN-BUILD INC.
2051 NE COACHMEN ROAD
CLEARWATER, FLORIDA 33765
O: 727-445-7544 / F 727-445-7534

DATE MARCH 2012

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THOMAS E. ROBINSON, JR.
No. 62976

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RECORD DRAWING

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BRANDES DESIGN-BUILD INC.

2051 NE COACHMEN ROAD

CLEARWATER, FLORIDA 33765

O: 727-445-7544 / F 727-445-7534

☒ REVISIONS

☐ NO REVISIONS

DATE: MARCH 2012
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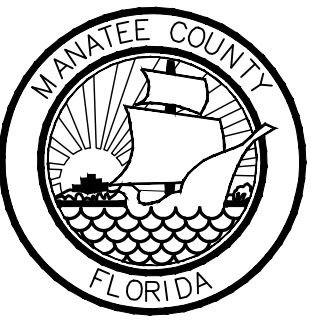
THOMAS E. ROBINSON, JR.
No. 62976

REV.	DESCRIPTION	DATE
1	RECORD DRAWING	JULY 2012
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THOMAS E. ROBINSON, JR. P.E. No. 62976

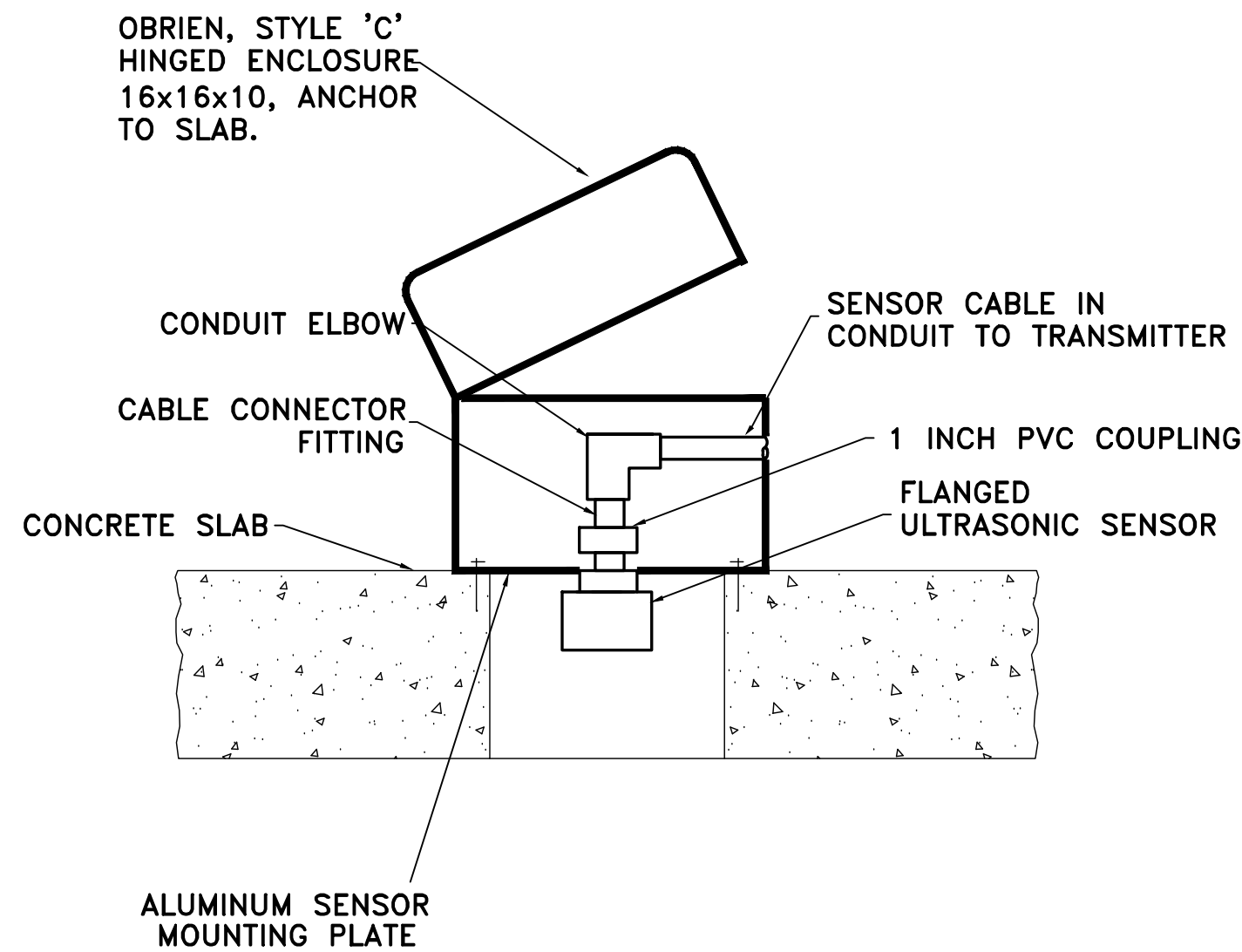
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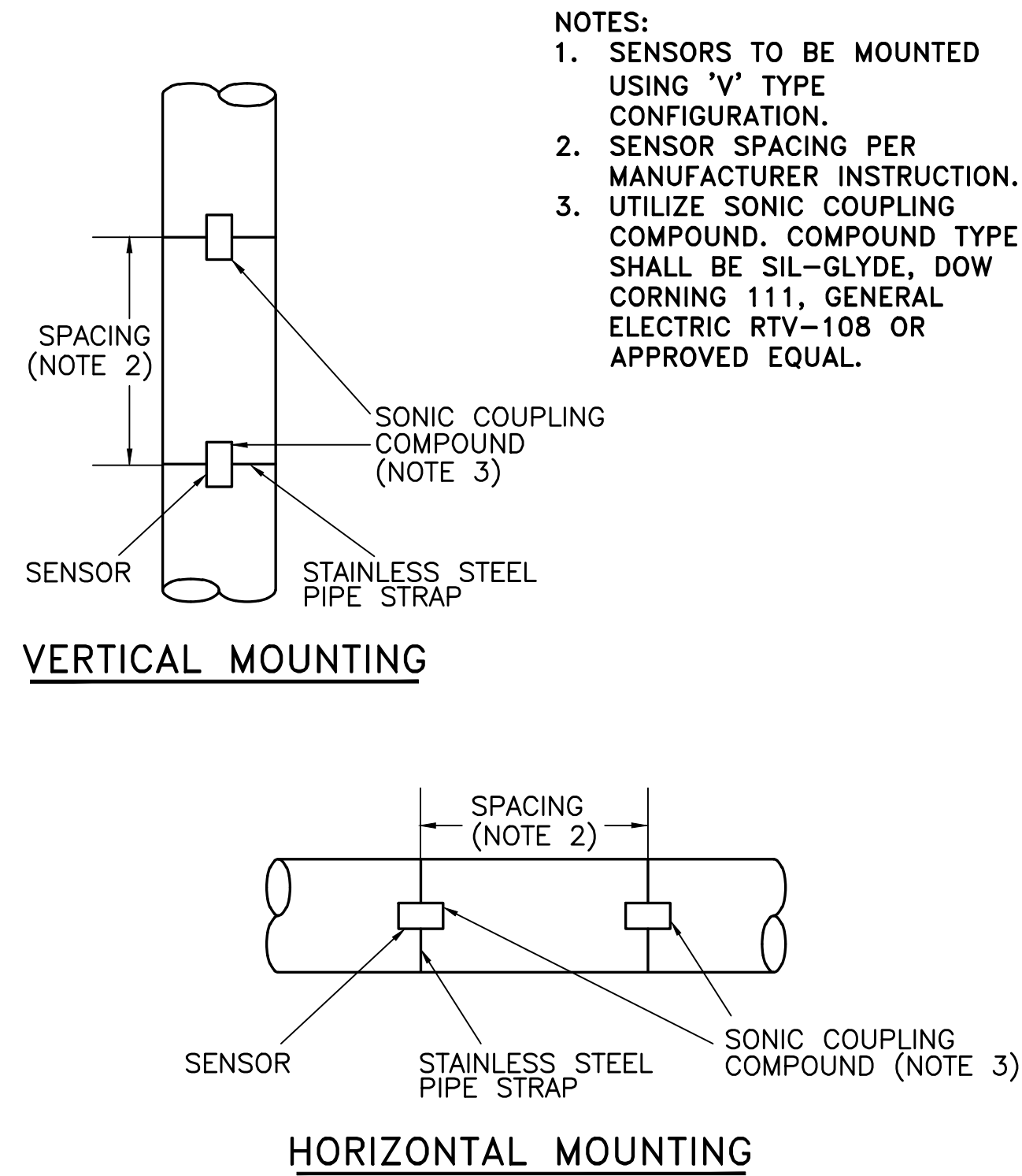
 MANATEE COUNTY, FLORIDA
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SWWRF RECLAIMED WATER AUTOMATION
PROCESS AND INSTRUMENTATION DIAGRAM
SHEET 4

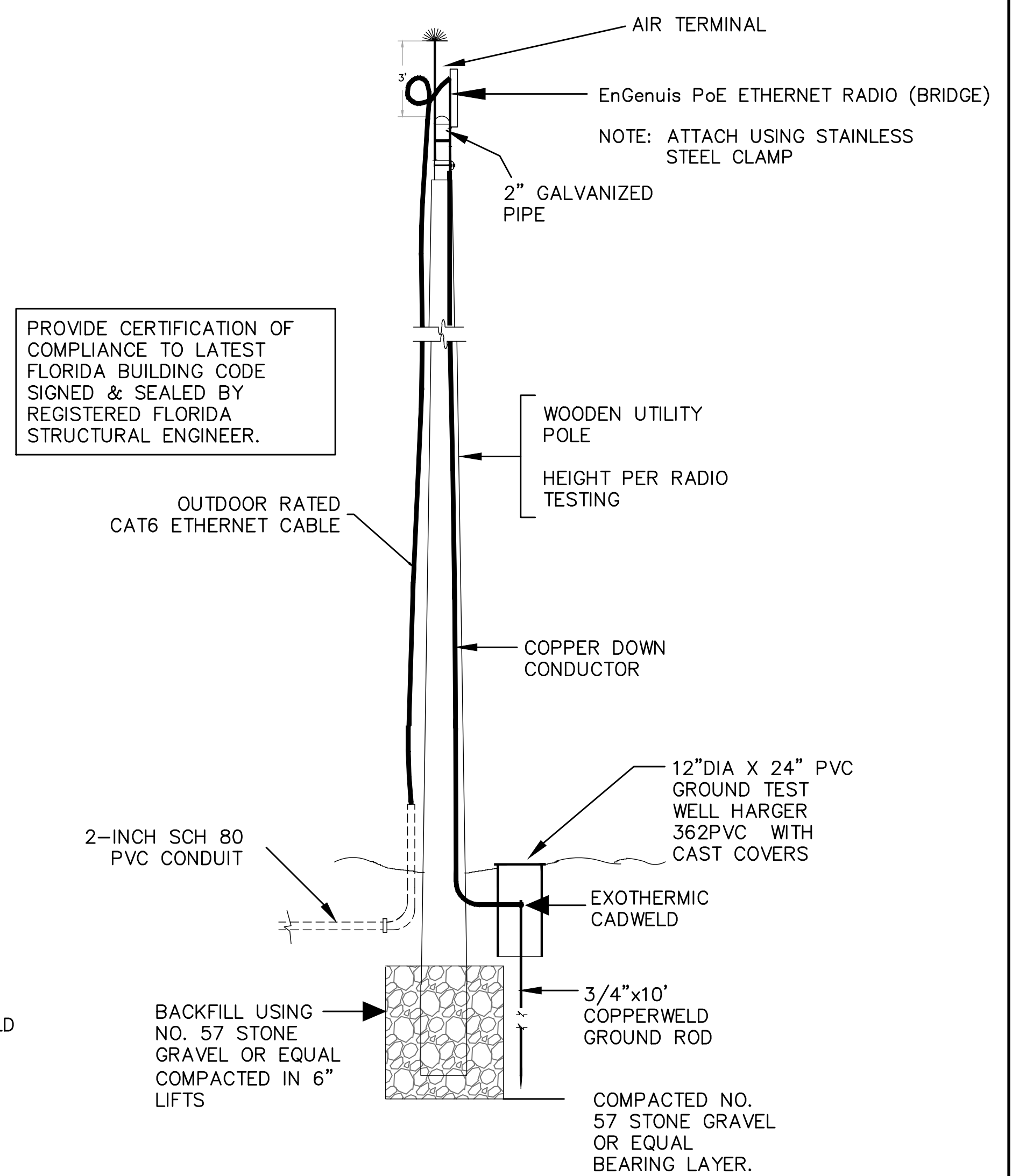
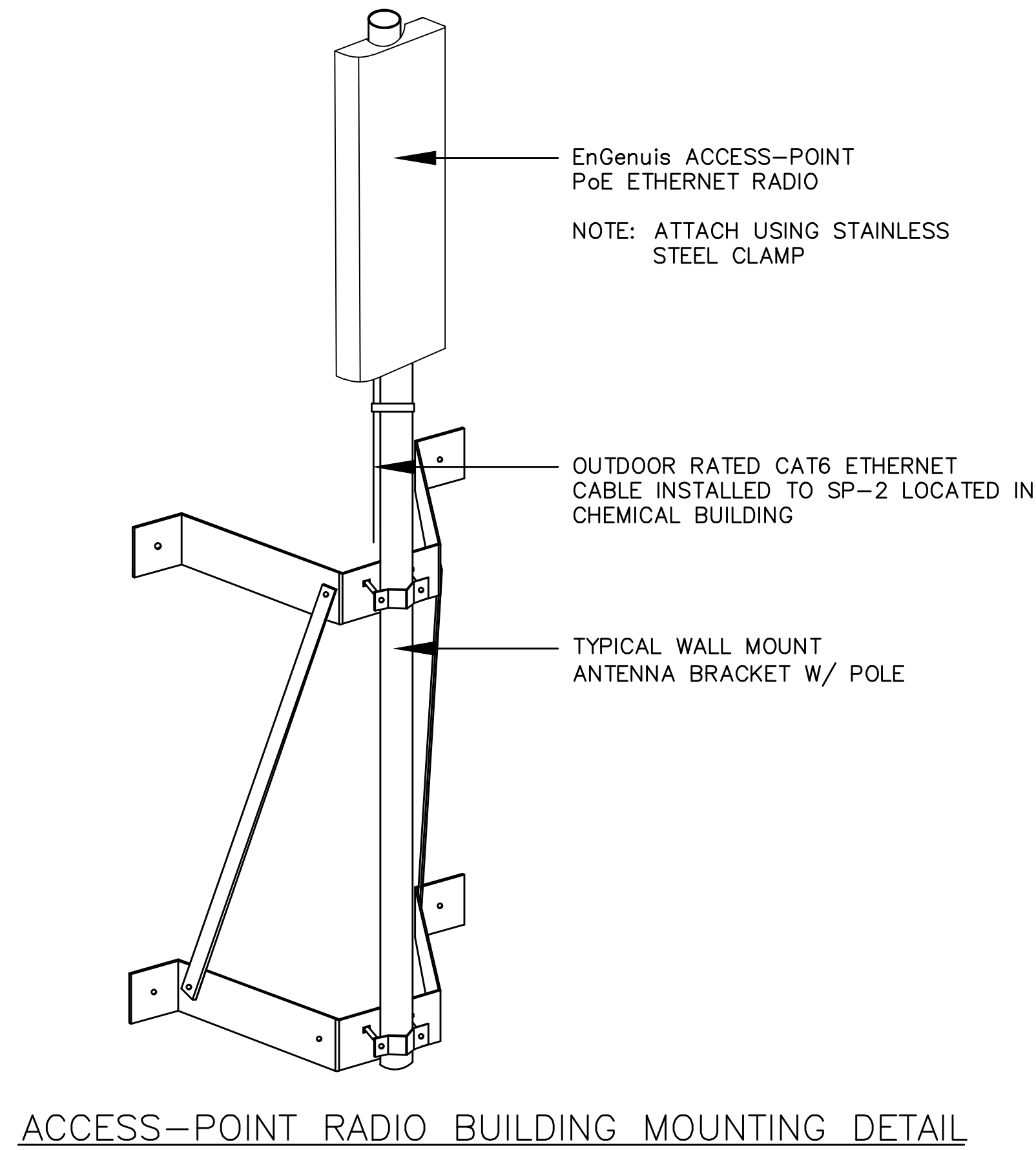
DATE: AUGUST 2012 MCE PROJ. # 1024-0128 DRAWN: EEB DESIGNED: EEB CHECKED: TER PROJ. MGR: MSL	SCALE HORIZONTAL: NA VERTICAL: NA	DRAWING NUMBER I-6
STATUS: RECORD DRAWING		REVISION



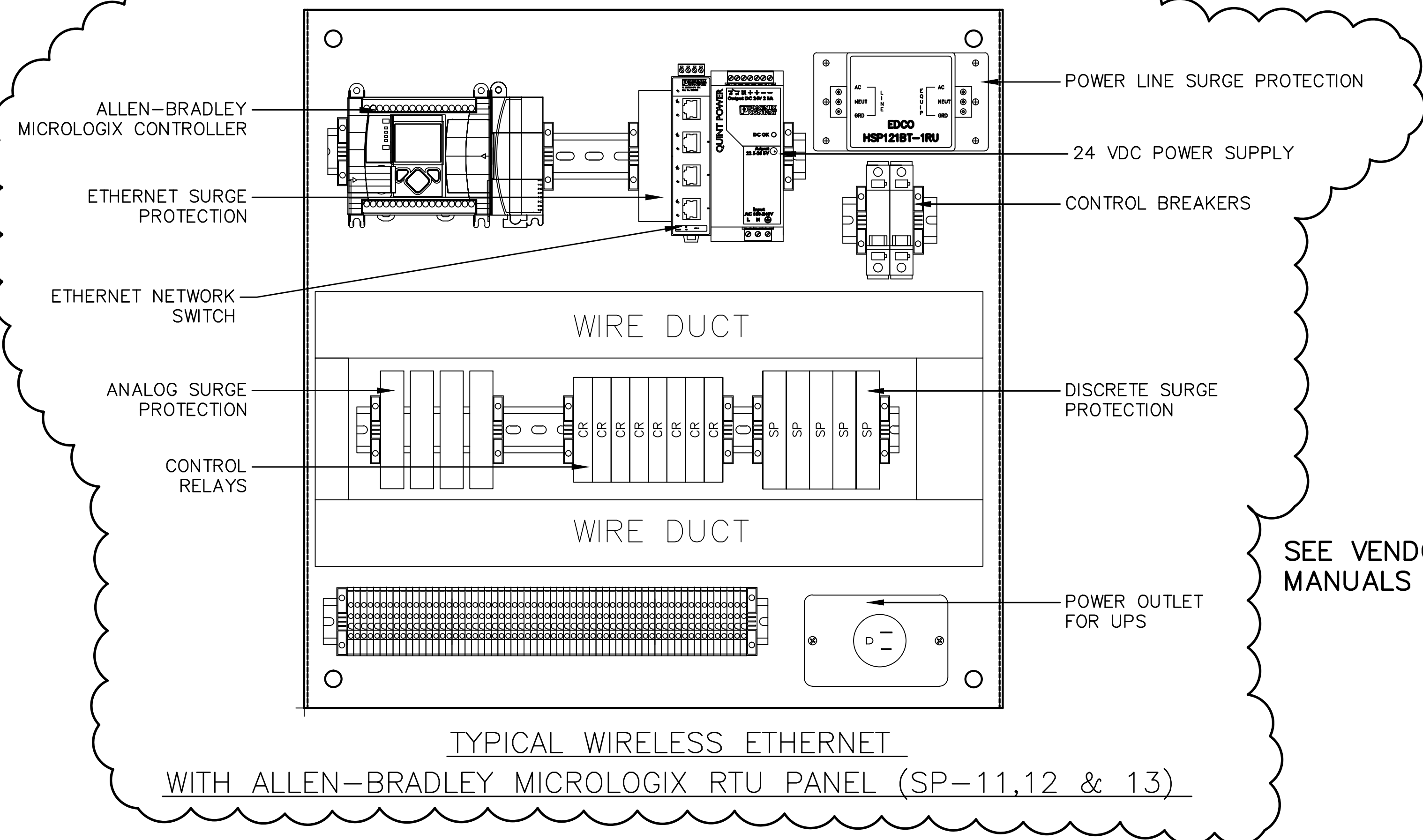
ULTRASONIC SENSOR MOUNTING
FOR ENCLOSED WETWELL DETAIL



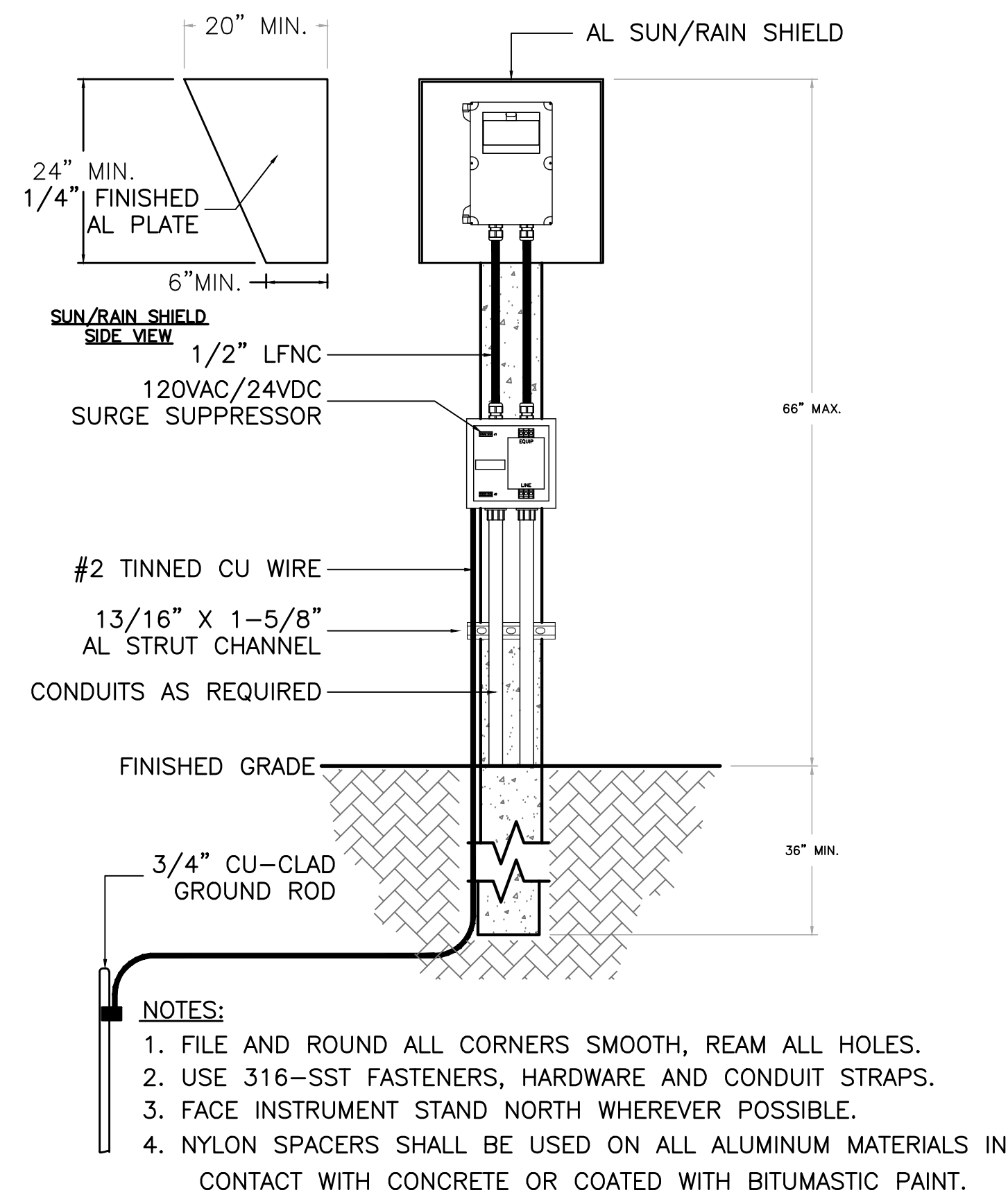
TRANSIT TIME FLOW METER
SENSOR MOUNTING DETAIL



ANTENNA POLE INSTALLATION DETAIL
FOR NORTH POND (SP-11)
NOT TO SCALE



SEE VENDOR O&M
MANUALS FOR DETAILS



INSTRUMENT STAND
CONCRETE POST DETAIL

RECORD DRAWING

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CLEARWATER, FLORIDA 33765
C: 727-445-7544 / F 727-445-7534

☒ REVISIONS ☐ NO REVISIONS

DATE: MARCH 2012

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THOMAS E. ROBINSON, JR.
No. 62976

REV.	DESCRIPTION	DATE
1	RECORD DRAWING	JULY 2012
2	REVISIONS	

SEAL

THOMAS E. ROBINSON JR.
P.E. No. 62976

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Phone: (727)442-7196, Fax: (727)461-3827
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MANATEE COUNTY, FLORIDA

SWWRF RECLAIMED WATER AUTOMATION

**PROCESS AND INSTRUMENTATION
DETAILS**

DATE: AUGUST 2012

MCE PROJ. # 1024-0128

DRAWN: EEB

DESIGNED: EEB

CHECKED: TER

PROJ. MGR. MSL

SCALE

HORIZONTAL: NA

VERTICAL: NA

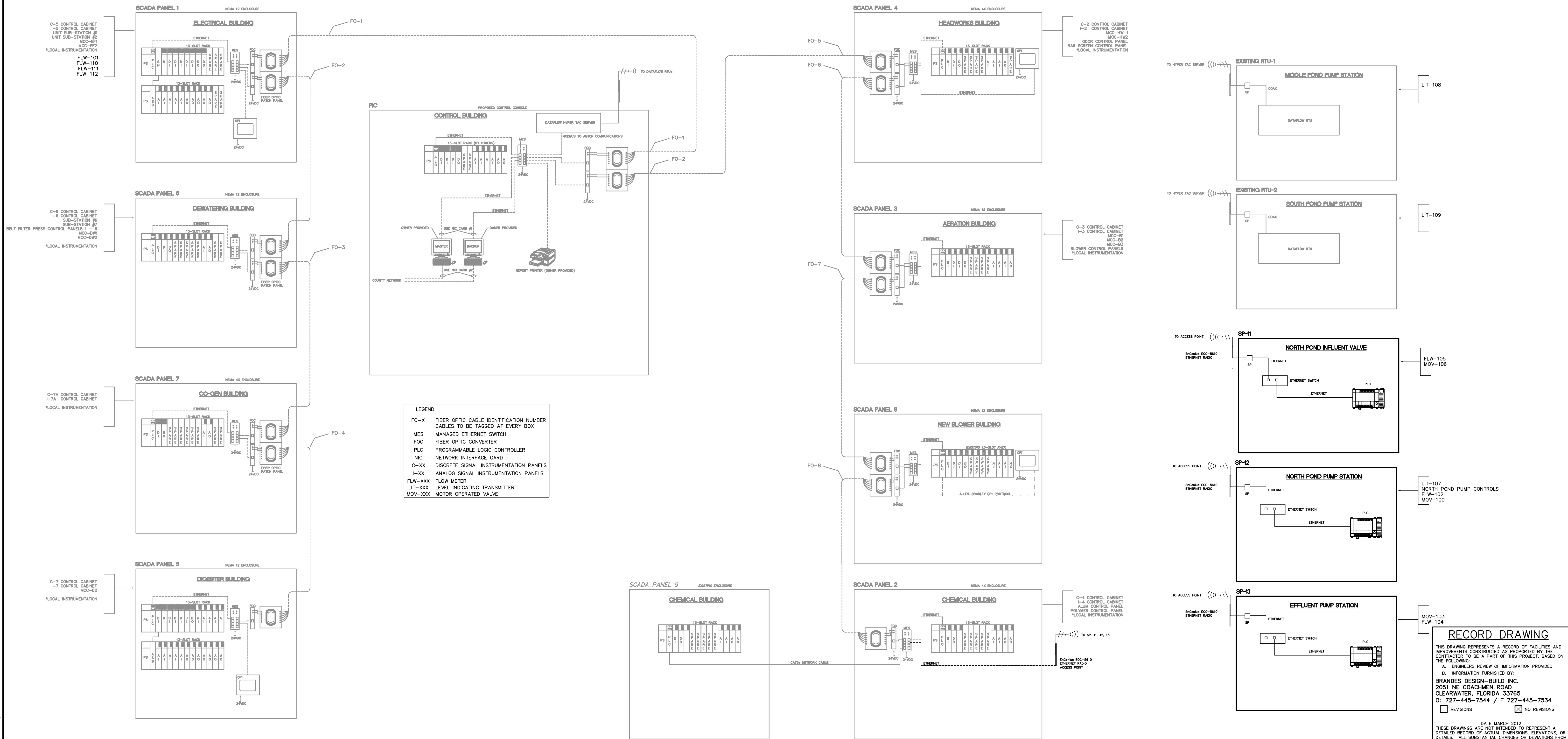
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I-7

REVISION

STATUS: **RECORD DRAWING**

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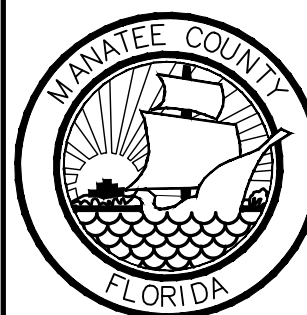


REV.	DESCRIPTION	DATE
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2	REVISIONS	

THOMAS E. ROBINSON JR.
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MANATEE COUNTY, FLORIDA

SWWRF RECLAIMED WATER AUTOMATION
COMMUNICATIONS SYSTEM
OVERVIEW

DATE: AUGUST 2012	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0128	HORIZONTAL: NA	1-8
DRAWN: EEB	VERTICAL: NA	
DESIGNED: EEB		
CHECKED: TER		
PROJ. MGR: MSL		
STATUS: RECORD DRAWING	REVISION:	

GENERAL ELECTRICAL SYMBOLS

CONDUIT HOMERUN TO EQUIPMENT SHOWN. LINE TYPE DESIGNATES CONCEALED, EXPOSED, ETC. NUMBERS/TEXT DESIGNATE HOMERUN EQUIPMENT (I.E. PANEL BOARD CIRCUIT NUMBER).

GENERAL CONDUIT RUN EXPOSED

CONCEALED CONDUIT IN FLOOR SLAB, UNDERGROUND, ETC.

EXISTING CABLE OR CONDUIT

CONDUIT TURNED DOWN

CONDUIT TURNED UP

SITE ELECTRICAL

EXISTING SITE ELECTRICAL

SITE TELEPHONE

EXISTING SITE TELEPHONE

OVERHEAD ELECTRICAL UTILITY

OVERHEAD TELEPHONE UTILITY

UNDERGROUND ELECTRICAL UTILITY

UNDERGROUND TELEPHONE UTILITY

SITE GROUND

EXISTING SITE GROUND

ELECTRICAL INTERLOCK

ELECTRICAL BUSS

ELECTRICAL BUSS DUCT

DISCONNECT SWITCH. TOP NUMBER DENOTES FUSE SIZE (NF=NON-FUSED). BOTTOM NUMBER DENOTES FRAME SIZE. RIGHT NUMBER DENOTES NEMA ENCLOSURE RATING.

CIRCUIT BREAKER. TOP NUMBER DENOTES TRIP. BOTTOM NUMBER DENOTES FRAME SIZE. RIGHT NUMBER DENOTES NEMA ENCLOSURE RATING.

COMBINATION MAGNETIC MOTOR STARTER AND DISCONNECT SWITCH OR MOTOR CIRCUIT PROTECTOR. LEFT NUMBER DENOTES NEMA STARTER SIZE. TOP NUMBER DENOTES FUSE SIZE OR MCP. BOTTOM NUMBER DENOTES FRAME SIZE. RIGHT NUMBER DENOTES NEMA ENCLOSURE.

FULL VOLTAGE NON-REVERSING MOTOR STARTER. LEFT NUMBER DENOTES NEMA STARTER SIZE.

REDUCED VOLTAGE SOLID-STATE MOTOR STARTER.

VARIABLE FREQUENCY MOTOR CONTROLLER.

LIGHTING CONTROL SWITCH:
{LOWERCASE LETTER} - CONTROL SWITCHING

M - MOTOR RATED SWITCH 3 - THREE-WAY SWITCHING
D - DIMMER CONTROL 4 - FOUR-WAY SWITCHING
OS - OCCUPANCY SENSOR

OUTLETS: NUMBER DENOTES PANEL BOARD CIRCUIT FOR POWER OUTLETS. IF SHOWN, LOWERCASE LETTER DENOTES CONTROL SWITCHING FOR POWER OUTLETS.

SIMPLEX RECEPTACLE.

DUPLEX RECEPTACLE.

QUADRAPLEX RECEPTACLE.

VOICE (PHONE) OUTLET.

DATA OUTLET.

VOICE/DATA COMBINATION OUTLET.

LIGHTING SYMBOLS

LIGHT FIXTURES (VARIOUS TYPES) - UPPERCASE LETTER DENOTES FIXTURE TYPE, REFER TO LIGHTING SCHEDULE OR NOTES. NUMBER DENOTES LIGHTING PANEL CIRCUIT. LOWERCASE LETTER DENOTES CONTROL SWITCH.

EMERGENCY LIGHT - BATTERY EQUIPPED, CIRCUIT AHEAD OF CONTROL SWITCHES. ADDITIONAL FIXTURE HEADS MAY BE SHOWN CONNECTED TO UNIT.

EMERGENCY EXIT LIGHT - BATTERY EQUIPPED.

PHOTOELECTRIC CONTROL DEVICE

LIGHTING CONTACTOR

TYPICAL ABBREVIATIONS	
A, AMP	AMPERE
AFD	ADJUSTABLE FREQUENCY DRIVE
AFG	ABOVE FINISHED GRADE
AIT	ANALYTICAL INDICATION TRANSMITTER
AHU	AIR HANDLING UNIT
AIC	AMPERE INTERRUPTING CAPACITY
AL	ALUMINUM
ATS	AUTOMATIC TRANSFER SWITCH
BKR	BREAKER
C	CONDUIT
CAB	CABINET
CAT	CATALOG
CL	CHLORINE
CB	CIRCUIT BREAKER
CCTV	CLOSED CIRCUIT TELEVISION
CKT	CIRCUIT
CLG	CEILING
CP	CONTROL PANEL
CR	CONTROL RELAY, CORROSION RESISTANT
CS	CONTROL SWITCH
CV	CONTROL VALVE
CT	CURRENT TRANSFORMER
CU	COPPER
EF	EXHAUST FAN
EMER	EMERGENCY
EMT	ELECTRICAL METALLIC TUBING
ENCL	ENCLOSURE
EQUIP	EQUIPMENT
EWC	ELECTRIC WATER COOLER
EWB	ELECTRIC WATER HEATER
EPRF	EXPLOSION PROOF
FA	FIRE ALARM
FAAP	FIRE ALARM ANNUNCIATOR PANEL
FACP	FIRE ALARM CONTROL PANEL
FBO	FURNISHED BY OTHERS
FLA	FULL LOAD AMPS
FVNR	FIRE VOLTAGE NON-REVERSING STARTER
FLUOR	FLUORESCENT
FLR	FLOOR
FMC	FLEXIBLE METAL CONDUIT
FWE	FURNISHED WITH EQUIPMENT
GEN	GENERATOR
G, GND	GROUND
GFIC	GROUND FAULT CIRCUIT INTERRUPTER
HH	HANDHOLE
HID	HIGH INTENSITY DISCHARGE
HOA	HAND-OFF-AUTO
HP	HORSE POWER
HPP	HIGH POWER FACTOR
HPS	HIGH PRESSURE SODIUM
HTR	HEATER
HV	HIGH VOLTAGE
Hz	HERTZ
IMC	INTERMEDIATE METALLIC CONDUIT (GALVANIZED)
INCAND	INCANDESCENT
JB	JUNCTION BOX
k	THOUSAND
kCMIL	THOUSAND CIRCULAR MILLS
KA	KILOVOLT AMPERE
kW	KILOWATTS
kWh	KILOWATT-HOURS
LFMC	LIQUIDTIGHT FLEXIBLE METAL CONDUIT
LFNC	LIQUIDTIGHT FLEXIBLE NONMETALLIC CONDUIT
LTC	LEVEL INDICATION TRANSMITTER
LP	LIGHTING PANEL, LIGHT POLE
LTG	LIGHTING
MCB	MAIN CIRCUIT BREAKER
MCC	MOTOR CONTROL CENTER
MCP	MOTOR CIRCUIT PROTECTOR
MDP	MAIN DISTRIBUTION PANEL
MFR	MANUFACTURER
MH	MANHOLE
MLO	MAIN LUGS ONLY
MSB	MAIN SWITCHBOARD
MTD	MOUNTED/MOUNTING
MTS	MANUAL TRANSFER SWITCH
MV	MEDIUM VOLTAGE
NEC	NATIONAL ELECTRIC CODE
N, NEU	NEUTRAL
NA	NOT APPLICABLE
NC	NORMALLY CLOSE
NO	NORMALLY OPEN
NIC	NOT IN CONTRACT
NTS	NOT TO SCALE
P	POLE
PA	PUBLIC ADDRESS
PB	PULL BOX, PUSH-BUTTON
PCP	PUMP CONTROL PANEL
PF	POWER FACTOR
Φ, PH	PHASE
PIT	PRESSURE INDICATION TRANSMITTER
PLC	PROGRAMMABLE LOGIC CONTROLLER
PNL	PANEL
PP	POWER PANEL, POWER POLE
PT	POTENTIAL TRANSFORMER
PWR	POWER
RECEP	RECEPTACLE
RVSS	REDUCED VOLTAGE SOFT STARTER
REQ	REQUIRED
RM	ROOM
RMC	RIGID METAL CONDUIT (GALVANIZED)
RTU	REMOTE TELEMETRY UNIT
SCR	DC MOTOR DRIVE
SH	SHEET
SPEC	SPECIFICATION
SS	SELECTOR SWITCH
SST	STAINLESS STEEL
STP	SHIELDED TWISTED PAIR
SW	SWITCH
SWBD	SWITCHBOARD
SWGR	SWITCH GEAR
TEL	TELEPHONE
TSS	TRANSIENT VOLTAGE SURGE SUPPRESSER
TYP	TYPICAL
UG	UNDERGROUND
UH	UNIT HEATER
UON	UNLESS OTHERWISE NOTED
UTIL	UTILITY
UTP	UNSHIELDED TWISTED PAIR
V	VOLTS
VFD	VARIABLE FREQUENCY DRIVE
W	WIRE, WATT
WH	WATT-HOUR
WP	WEATHERPROOF
XFMR	TRANSFORMER

GENERAL NOTES

1. REFERENCE ALL SPECIFICATIONS AND CONTRACT DRAWINGS FOR ADDITIONAL REQUIREMENTS AND CONTRACT RESPONSIBILITIES PRIOR TO COMMENCING WORK.
2. THE GENERAL NOTES STATED ON THIS DRAWING ARE APPLICABLE TO ALL ELECTRICAL WORK UNLESS NOTED OTHERWISE.
3. ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT NEC, NESC AND LOCAL CODES INCLUDING OWNERS STANDARDS AND REQUIREMENTS.
4. THE ELECTRICAL INSTALLATION SHALL COMPLY THE REQUIREMENTS OF NECA-1 2006: (STANDARD PRACTICES FOR GOOD WORKMANSHIP IN ELECTRICAL CONSTRUCTION).
5. THE SCHEDULING AND DURATION OF ANY SHUTDOWN OF ANY PLANT PROCESS FOR THE REMOVAL OF EXISTING EQUIPMENT OR INSTALLATION OF NEW EQUIPMENT SHALL BE COORDINATED IN ADVANCE WITH THE OWNER.
6. ALL SYMBOLS AND ABBREVIATION MAY NOT BE UTILIZED FOR THIS PROJECT.
7. ADDITIONAL SYMBOLS NOT SHOWN ON THIS DRAWING MAY BE SHOWN ELSEWHERE ON THE ELECTRICAL DRAWINGS.
8. ELECTRICAL DRAWINGS SHOW MAJOR CABLE AND CONDUIT REQUIREMENTS. REFERENCE EQUIPMENT SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
9. ALL 480V ELECTRICAL EQUIPMENT SHALL HAVE A MINIMUM RATING OF 22K AIC.
10. ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED SO THAT ALL CODE—REQUIRED AND MANUFACTURER—RECOMMENDED SERVICING CLEARANCES ARE MAINTAINED. INSTALLATIONS SHALL COMPLY WITH NEC 110-26 FOR CLEARANCE REQUIREMENTS.
11. ALL POWER AND CONTROL WIRING OR CABLES SHALL BE 600V RATED SHOWN OR STRANDED COPPER, UNLESS OTHERWISE NOTED ON DRAWINGS.
12. ALL AMPACITIES ARE BASED ON 75°C RATING. THE CONTRACTOR IS RESPONSIBLE FOR THE INCREASING OF CONDUCTOR SIZES AS NECESSARY TO MEET THE REQUIREMENTS OF NEC 110-14(C) WHERE TERMINATIONS ARE NOT LISTED AND LABELED FOR USE AT 75°C. THIS REQUIREMENT APPLIES TO TERMINATIONS IN BOTH NEW EQUIPMENT AND IN EXISTING EQUIPMENT TO WHICH TERMINATIONS ARE MADE AS PART OF THIS PROJECT.
13. ALL SPLICES OR JOINTS TO FEEDER CABLES SHALL BE MADE WITHOUT ENGINEERS APPROVAL.
14. ALL EXPOSED CONDUIT SHALL BE RIGID ALUMINUM.
15. ALL CONDUIT INSTALLED BELOW GRADE SHALL BE NON-REINFORCED CONCRETE DUCTBANK; REFERENCE DETAIL SHEETS.
16. ALL DUCTBANKS CROSSING ROADWAYS SHALL BE REINFORCED CONCRETE AND EXTEND 5- FEET FROM EDGE OF PAVEMENT. DUCTBANKS SHALL CROSS PROCESS PIPING AT 90° ANGLE WHERE POSSIBLE. REFERENCE DETAIL SHEETS.
17. ALL CONDUIT TRANSITIONS THROUGH FINISHED GRADE OR CONCRETE SHALL BE ALUMINUM WITH HEAVY WALL HEAT-SHRINKABLE TUBING 6" MIN. ABOVE BELOW TRANSITION.
18. ROUGH-IN CONDUIT AS REQUIRED FOR DIRECT CONNECTION TO EQUIPMENT AS SHOWN. PROVIDE FLEXIBLE CONNECTIONS TO ALL EQUIPMENT AND MAKE ALL CONNECTIONS COMPLETE AND IN ACCORDANCE WITH THE SPECIFICATIONS.
19. ALL CONDUIT SHALL RUN CONCEALED UNLESS OTHERWISE NOTED OR SHOWN. THE CONDUITS SHALL RUN PARALLEL TO LINESCAPE AND STRUCTURAL FEATURES, AND THE BENDS AND TURNS SHALL BE MADE BY MEANS OF CONDUIT FITTINGS. MOST CONDUIT LAYOUTS ARE NOT AS SHOWN ON THE PLANS. THE CONTRACTOR SHALL PROPOSE LOGICAL GROUPINGS, MARSHALLING AND ROUTING OF CONDUITS AND WIRING FOR APPROVAL BY ENGINEER PRIOR TO INSTALLATION.
20. THE CONTRACTOR SHALL PROVIDE ALL REQUIRED PULL BOXES, TERMINAL BOXES AND JUNCTION BOXES FOR INSTALLATION OF THE WIRING IN ACCORDANCE WITH THE CONTRACT SPECIFICATIONS THOUGH THE BOXES MAY NOT BE INDICATED ON THE DRAWINGS.
21. CONDUIT AND WIRING FOR LIGHTING, RECEPTACLES AND OTHER SINGLE PHASE POWERED DEVICES ARE GENERALLY NOT SHOWN BUT SHALL BE PROVIDED AS REQUIRED FOR PROPER SERVICE. MULTI-PHASE CIRCUITS SHALL BE PROVIDED WITH DEDICATED NEUTRAL CONDUCTORS.
22. ALL SPARE CONDUITS SHALL BE CAPPED OR PLUGGED AND SHALL INCLUDE 200# TEST POLYPROPYLENE PULL STRING.
23. STRUT—CHANNEL SHALL NOT BE BENT, DRILLED, CUT OR OTHERWISE MODIFIED TO ADDUCE FITTINGS, BRACES OR BRACKETS FOR CONDUIT AND EQUIPMENT SUPPORTS.
24. MANUFACTURED STRUT—CHANNEL BRACES, BRACKETS, FITTINGS OR POST BASES SHALL BE PROVIDED AND INSTALLED WITH ASSOCIATED HARDWARE AND FASTENERS FOR CONDUIT AND EQUIPMENT SUPPORTS.
25. CONTRACTOR SHALL PROVIDE AUXILIARY SUPPORTS FOR SWITCHBOARDS, PANELBOARDS, TRANSFORMER CONTROL PANELS, ETC., AS REQUIRED.
26. CONTRACTOR SHALL PROVIDE AND INSTALL CONCRETE EMBEDDED LEVELING CHANNEL SUPPORTS FOR FLOOR MOUNTED EQUIPMENT.
27. STRUCTURAL MEMBERS SHALL NOT BE DRILLED, CUT, WELDED OR OTHERWISE MODIFIED WITHOUT PRIOR APPROVAL OF THE ENGINEER OF RECORD.
28. ALL NEW EQUIPMENT SHALL FIT INTO EXISTING AVAILABLE SPACE. IT IS THE RESPONSIBILITY OF THE CONTRACTOR TO PROVIDE EQUIPMENT WHICH MEETS THE SPACE REQUIREMENTS.
29. THE WIRING DIAGRAMS, QUANTITY AND SIZE OF WIRES AND CONDUITS ARE BASED UPON SELECTED STANDARD COMPONENTS OF ELECTRICAL EQUIPMENT. ANY MODIFICATIONS APPROVED BY THE ENGINEER MAY BE MADE BY THE CONTRACTOR AT HIS EXPENSE TO ACCOMMODATE EQUIPMENT ACTUALLY PURCHASED.
30. THE CONTRACTOR SHALL PROVIDE ALL NECESSARY COMPONENTS REQUIRED FOR MAKING FINAL CONNECTION OF ALL EQUIPMENT INSTALLED OR MODIFIED AS PART OF THIS CONTRACT.
31. NOT ALL MOISTURE AND HAZARDOUS AREA CONDUIT SEALS ARE SHOWN ON THE DRAWINGS. IT IS THE CONTRACTOR'S RESPONSIBILITY TO CONFIRM WITH THE CODE, SPECIFICATION, AND DRAWING REQUIREMENTS FOR THEIR LOCATION.
32. CONTRACTOR SHALL PROVIDE BLACK TEXT ON WHITE HEAT-SHRINKABLE CABLE/WIRE IDENTIFICATION LABEL AT BOTH ENDS OF POWER, CONTROL AND DATA WIRING.
33. GROUND FAULT CURRENT INTERRUPTING (GFCI) RECEPTACLES:
 - A. SHALL BE RATED FOR 20A AT 120V WITH LEAD POWER INDICATOR
 - B. INSTALLED IN INTERIOR SPACES WHERE EXPOSED TO WATER SOURCES SUCH AS TOILET ROOMS, SHOWER AREAS, KITCHENS, ETC., INDIVIDUAL GFCI RECEPTACLES SHALL BE PROVIDED.
 - C. INSTALLED OUTDOORS OR IN PROCESS AREAS, ALL RECEPTACLES SHALL BE WEATHER PROOF, CORROSION RESISTANT, AND SHALL BE INDIVIDUAL GFCI DEVICES.

TYPICAL DEVICE MOUNTING HEIGHTS		
RECEPTACLES (INTERIOR PROCESS AREAS)	—	16" AFF
RECEPTACLES (EXTERIOR PROCESS AREAS)	—	48" AFF
LIGHT SWITCHES	—	48" AFF
PHONE OUTLETS	—	16" AFF
PHONE OUTLETS (WALL MOUNT)	—	64" AFF
DATA OUTLETS	—	16" AFF
FIRE ALARM PULL STATION	—	48" AFF
FIRE ALARM AUDIO/VISUAL ALARM	—	80" AFF
FIRE ALARM VISUAL ALARM ONLY	—	80" AFF
EXIT LIGHTS (WALL MOUNT)	—	16" ABOVE DOOR
EMERGENCY LIGHTS (WALL MOUNT)	—	96" AFF

NOTE: DIMENSIONS ARE TO DEVICE TOP UNLESS NOTED OTHERWISE.

RECORD DRAWING

THIS DRAWING REPRESENTS A RECORD OF FACILITIES AND IMPROVEMENTS CONSTRUCTED AS REQUIRED BY THE CONTRACTOR TO BE A PART OF THIS PROJECT, BASED ON THE FOLLOWING:

A. ENGINEER'S RECORD OF INFORMATION PROVIDED
B. INFORMATION FURNISHED BY:

BRANDES DESIGN-BUILD INC.
20501 NE COACHMEN ROAD
CLEARWATER, FLORIDA 33765

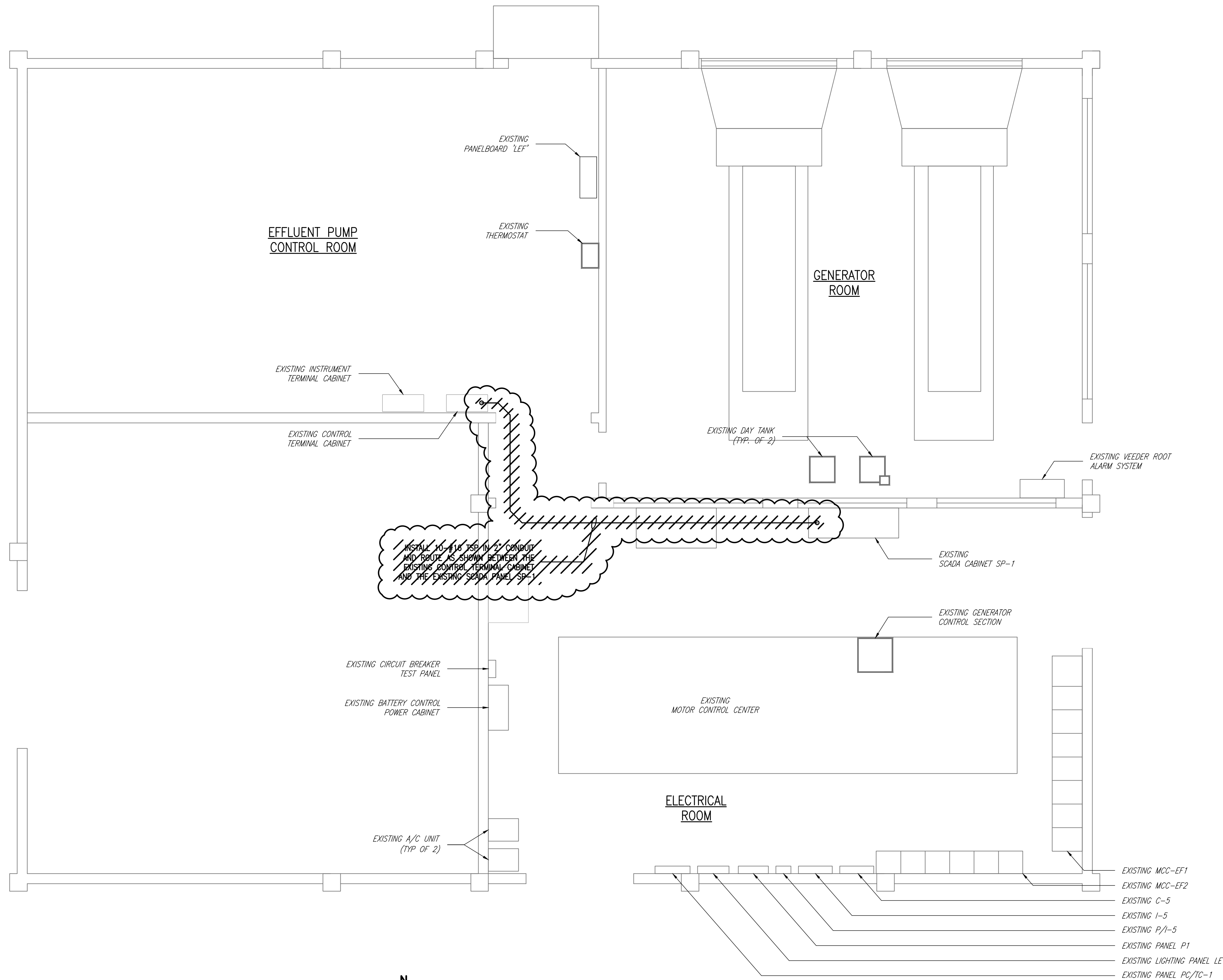
☐ 727-445-7544 / ☐ 727-445-7534

☐ REVISIONS ☒ NO REVISIONS

DATE: MARCH 2012

THESE DRAWINGS ARE NOT INTENDED TO REPRESENT A DETAILED RECORD OF ACTUAL DIMENSIONS, ELEVATIONS, OR DETAILS. ALL SUBSTANTIAL CHANGES OR DEVIATIONS FROM THE ORIGINAL DESIGN, KNOWN BY THE ENGINEER, ARE NOTED HEREON.

MATTHEW S. LOVE, PE
NO. 11618



ELECTRICAL BUILDING FLOOR PLAN
SCALE: 1/4" = 1'

RECORD DRAWING

THIS DRAWING REPRESENTS A RECORD OF FACILITIES AND IMPROVEMENTS CONSTRUCTED AS PROPORTED BY THE CONTRACTOR TO BE A PART OF THIS PROJECT, BASED ON THE FOLLOWING:

A. ENGINEERS REVIEW OF INFORMATION PROVIDED

B. INFORMATION FURNISHED BY:

BRANDES DESIGN-BUILD INC.
2051 NE COACHMEN ROAD
CLEARWATER, FLORIDA 33765
C: 727-445-7544 / F 727-445-7534

☒ REVISIONS ☐ NO REVISIONS

DATE MARCH 2012
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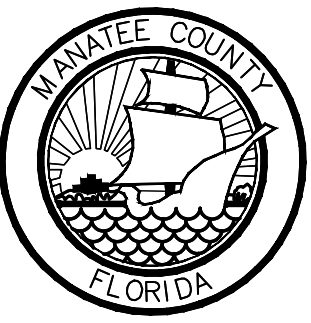
MATTHEW S. LOVE, PE
No. 66118

REV.	DESCRIPTION	DATE
1	RECORD DRAWING	MARCH 2012
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SEAL
ARTHUR L. ANCHORS, P.E.
PROFESSIONAL ENGINEER NO. 39804
STATE OF FLORIDA

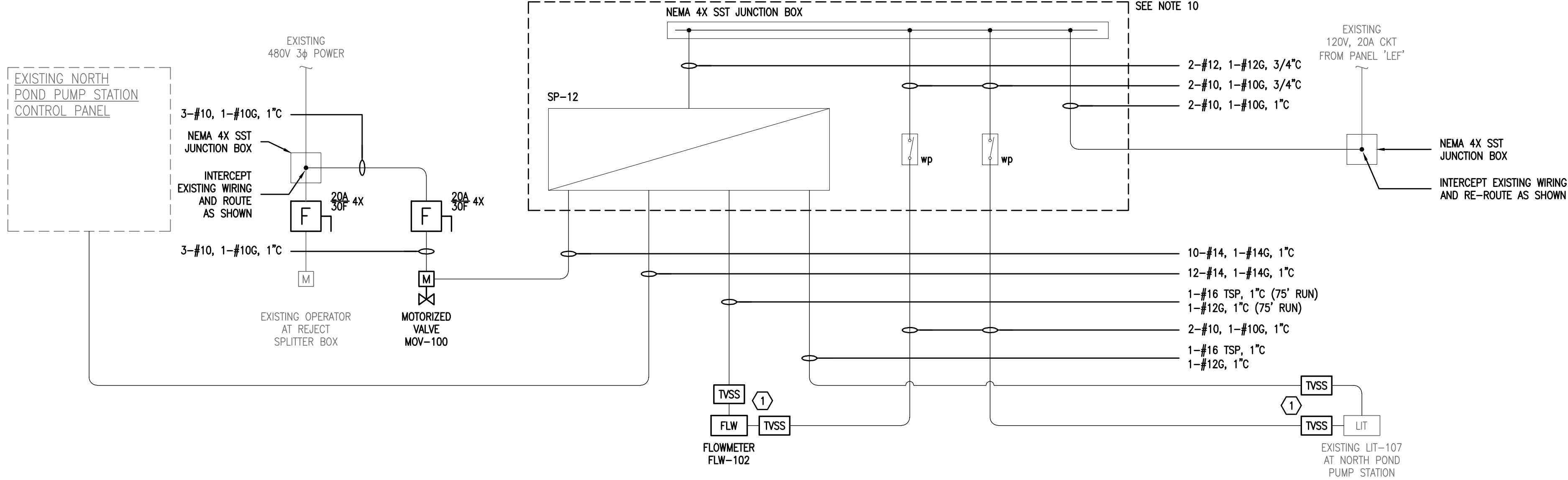
SEAL

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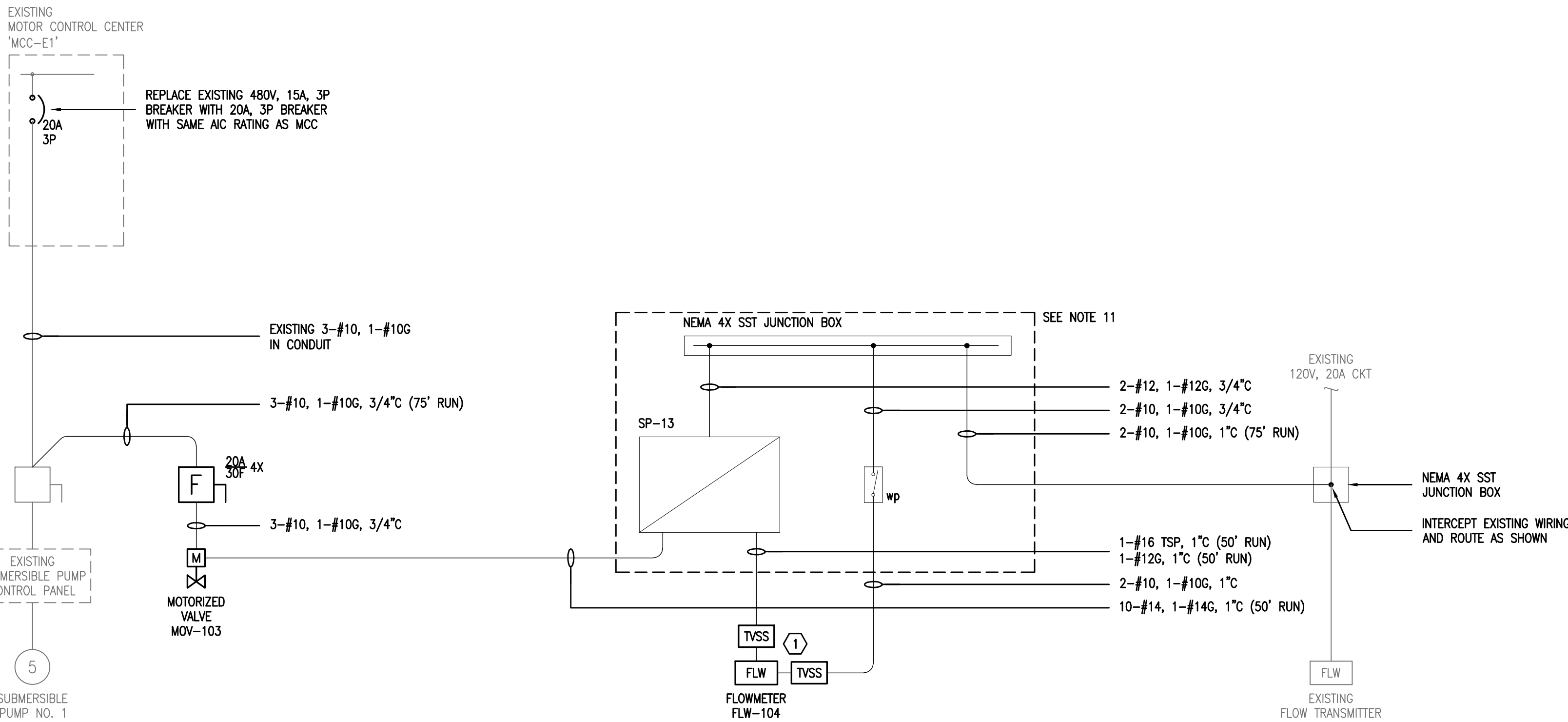
 MANATEE COUNTY, FLORIDA

SWWRF RECLAIMED WATER AUTOMATION
ELECTRICAL BUILDING
PANLE SP-1 MODIFICATIONS

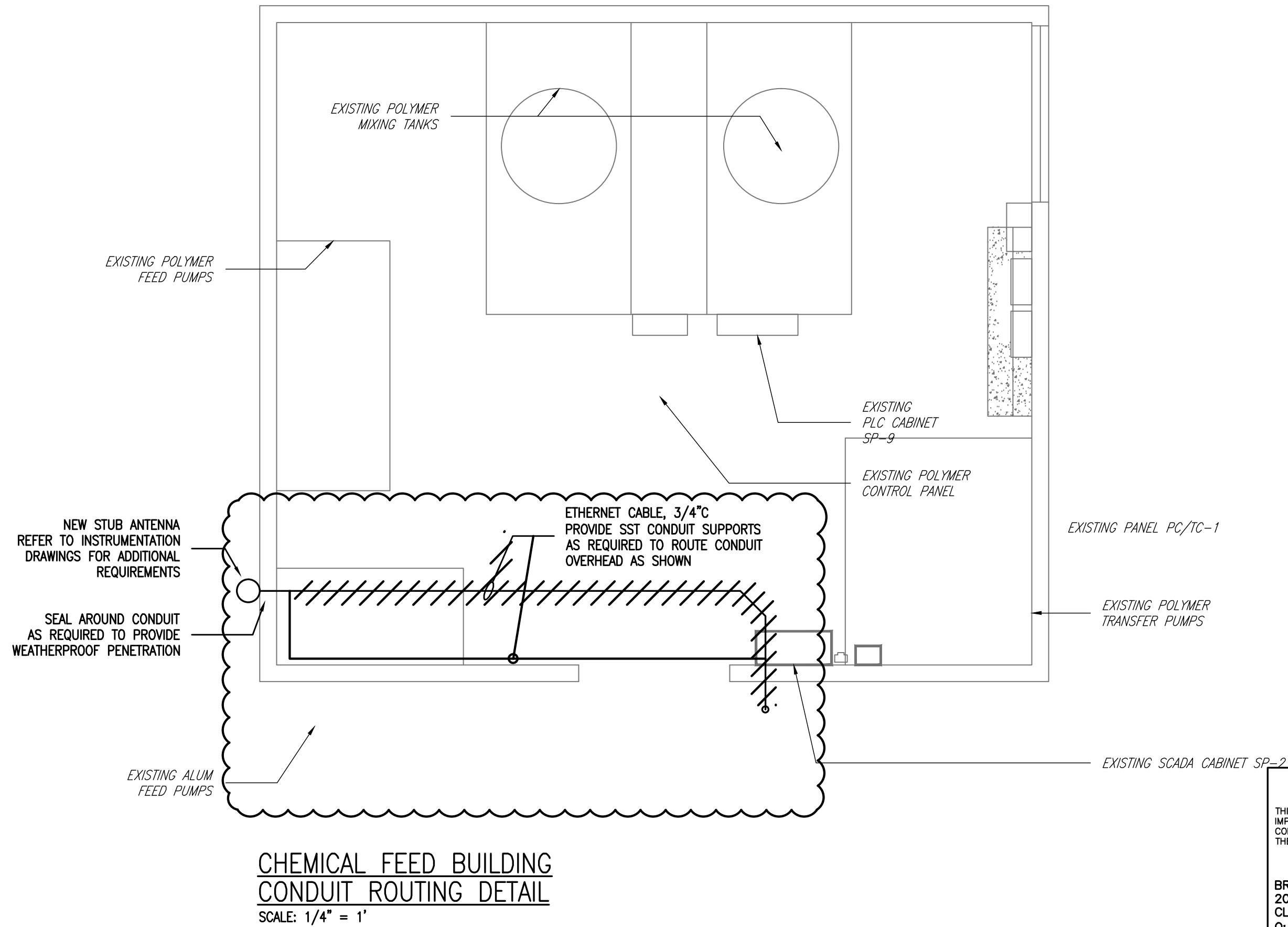
DATE: APRIL 2011	SCALE: 1/4" = 1'	DRAWING NUMBER: E-2
MCE PROJ. # 1024-0128	HORIZONTAL: 1/4" = 1'	REVISION
DRAWN: BMW	VERTICAL: NA	
DESIGNED: BMW		
CHECKED: ALA		
PROJ. MGR: MSL		
STATUS: RECORD DRAWING		



MOV-100, FLW-102
NORTH POND PUMP STATION
RISER DIAGRAM
N.T.S.



MOV-103, FLW-104
EFFLUENT PUMP STATION IRRIGATION METER
RISER DIAGRAM
N.T.S.



NOTES:

- ALL ELECTRICAL WORK SHALL COMPLY WITH THE CURRENT NEC, NESC AND LOCAL CODES INCLUDING OWNERS STANDARDS AND REQUIREMENTS.
- ALL ELECTRICAL EQUIPMENT SHALL BE INSTALLED SO THAT ALL CODE-REQUIRED AND MANUFACTURER-RECOMMENDED SERVICING CLEARANCES ARE MAINTAINED. INSTALLATIONS SHALL COMPLY WITH NEC 110-26 FOR CLEARANCE REQUIREMENTS.
- ALL POWER AND CONTROL CABLING SHALL BE 600V RATED THHN/THWN STRANDED COPPER.
- ALL EXPOSED CONDUIT SHALL BE RIGID ALUMINUM. ALL CONDUIT INSTALLED BELOW GRADE SHALL BE CONCRETE ENCASED SCH. 40 PVC.
- REFER TO DRAWING G-3 FOR LOCATIONS OF EQUIPMENT RACKS, VALVES, LEVEL TRANSMITTERS, AND FLOW TRANSMITTERS.
- TRANSMITTER POWER ON-OFF SWITCH SHALL BE WEATHERPROOF.
- PROVIDE EQUIPMENT RACK FOR NEW SP-12 PANEL ADJACENT TO THE NORTH POND PUMP STATION CONTROL PANEL.
- PROVIDE DISCONNECTS AND STANDS FOR AL MOTORIZED VALVES SUPPLIED OR RELOCATED AS A PART OF THIS CONTRACT.
- PROVIDE MOUNTING STANDS FOR ALL NEW LEVEL AND FLOW TRANSMITTERS PROVIDED AS A PART OF THIS CONTRACT.
- PROVIDE EQUIPMENT RACK, HARDWARE, ETC. AS REQUIRED FOR THE FOLLOWING EQUIPMENT AT A MINIMUM:
 - A. NEMA 4X JUNCTION BOX
 - B. SP-12
 - C. WEATHERPROOF SWITCHES
- PROVIDE EQUIPMENT RACK, HARDWARE, ETC. AS REQUIRED FOR THE FOLLOWING EQUIPMENT AT A MINIMUM:
 - A. NEMA 4X JUNCTION BOX
 - B. SP-13
 - C. WEATHERPROOF SWITCH

KEYNOTES:

- 1 PROVIDE CONDUIT/WIRE AS REQUIRED TO CONNECT INSTRUMENT TVSS DEVICES WHERE SHOWN. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.

RECORD DRAWING

THIS DRAWING REPRESENTS A RECORD OF FACILITIES AND IMPROVEMENTS CONSTRUCTED AS PROVIDED BY THE CONTRACTOR TO BE A PART OF THIS PROJECT, BASED ON THE FOLLOWING:

- ENGINEERS REVIEW OF INFORMATION PROVIDED
- INFORMATION FURNISHED BY:

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2051 NE COACHMEN ROAD
CLEARWATER, FLORIDA 33765
C: 727-445-7544 / F 727-445-7534

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MATTHEW S. LOVE, PE
No. 66118

REV.	DESCRIPTION	DATE
1	RECORD DRAWING	MARCH 2012
2	REVISIONS	
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ARTHUR L. ANCHORS, P.E. PROFESSIONAL ENGINEER NO. 39804 STATE OF FLORIDA
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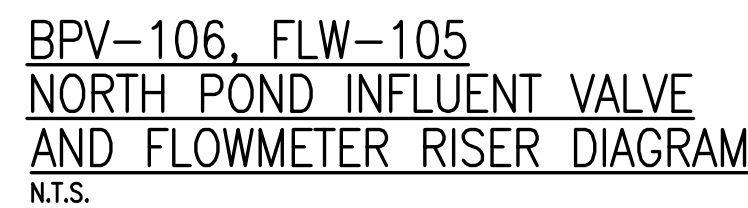
SEAL

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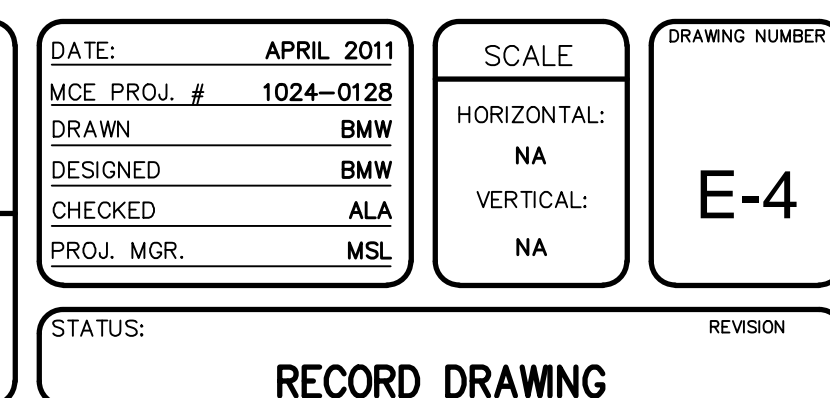
 MANATEE COUNTY, FLORIDA

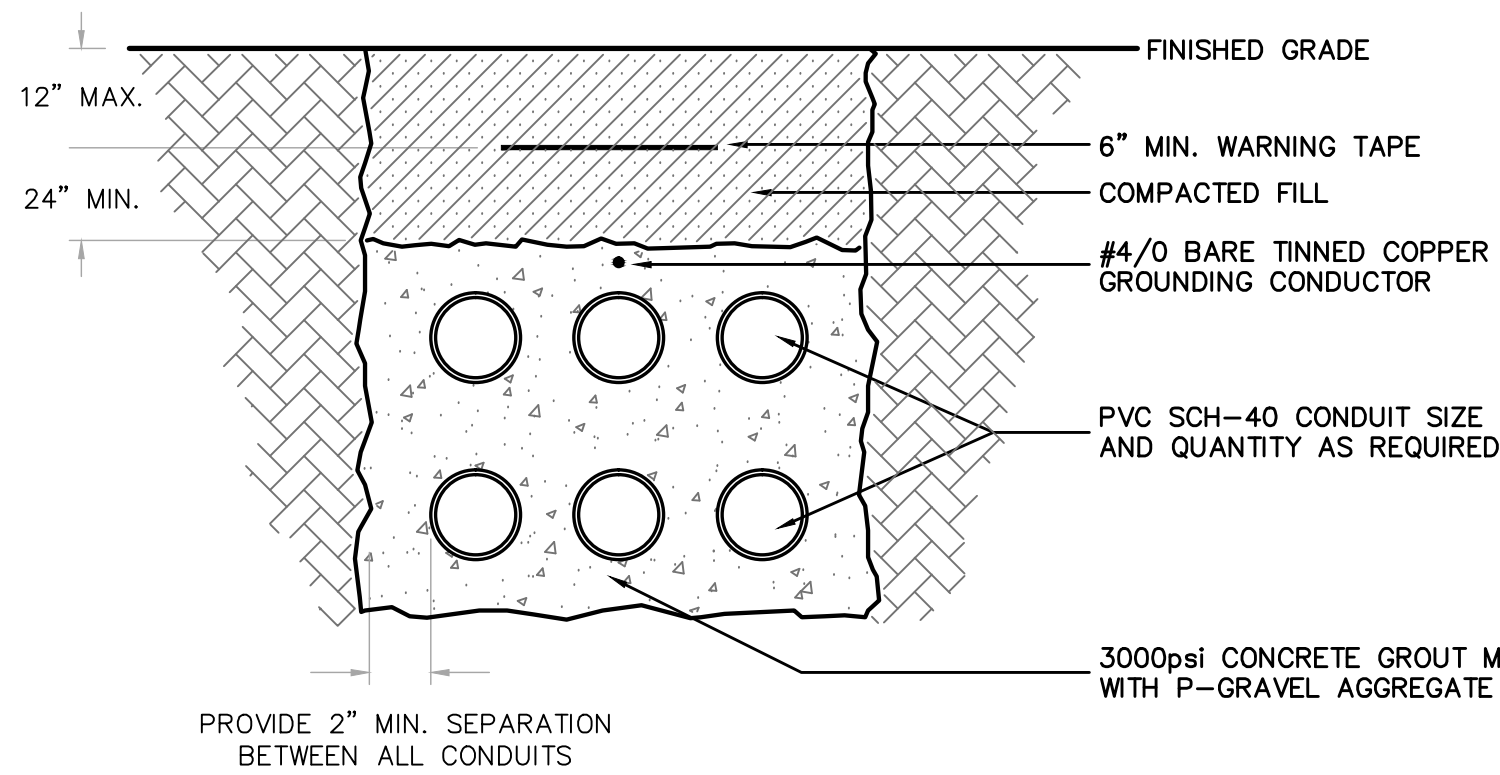
SWWRF RECLAIMED WATER AUTOMATION
MAIN ELECTRICAL BUILDING SINGLE LINE DIAGRAM

DATE: APRIL 2011 MCE PROJ. # 1024-0128 DRAWN: BMW DESIGNED: BMW CHECKED: ALA PROJ. MGR: MSL	SCALE HORIZONTAL: NA VERTICAL: NA	DRAWING NUMBER E-3
STATUS: RECORD DRAWING		REVISION

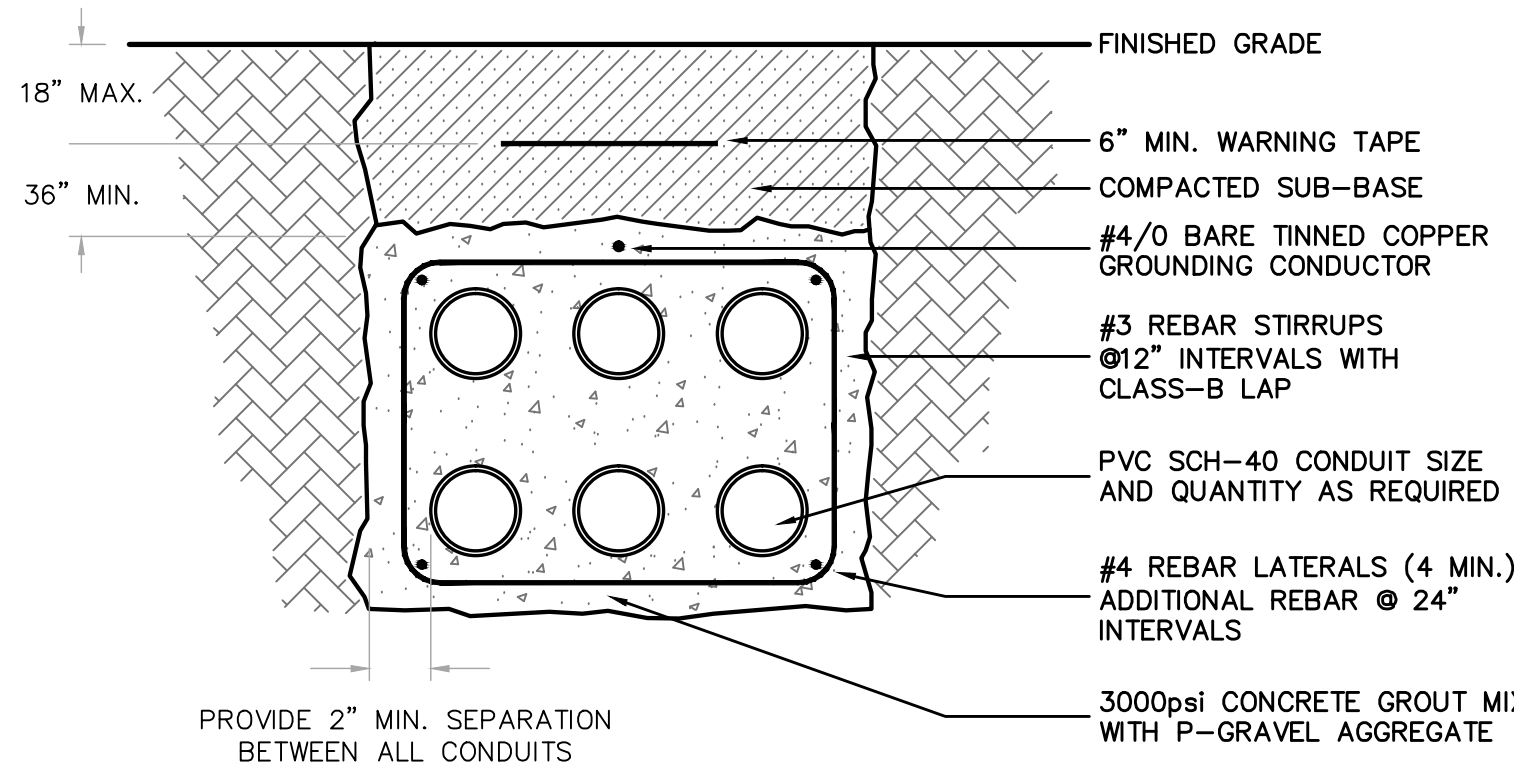


- ① PROVIDE CONDUIT/WIRE AS REQUIRED TO CONNECT INSTRUMENT TVSS DEVICES WHERE SHOWN. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ② INTERCEPT EXISTING POWER AND CONTROL WIRING/CONDUIT FOR EXISTING INSTRUMENTATION SHOWN AND INSTALL TVSS DEVICE FOR BOTH POWER AND SIGNAL WIRING PER MANUFACTURER'S REQUIREMENTS. PROVIDE ADDITIONAL CONDUIT/WIRE AS REQUIRED. REFER TO SPECIFICATIONS FOR ADDITIONAL REQUIREMENTS.
- ③ REFER TO SHEET E-2 FOR ADDITIONAL ROUTING REQUIREMENTS.
- ④ REFER TO SHEET I-7 FOR ANTENNA POLE INSTALLATION DETAIL.

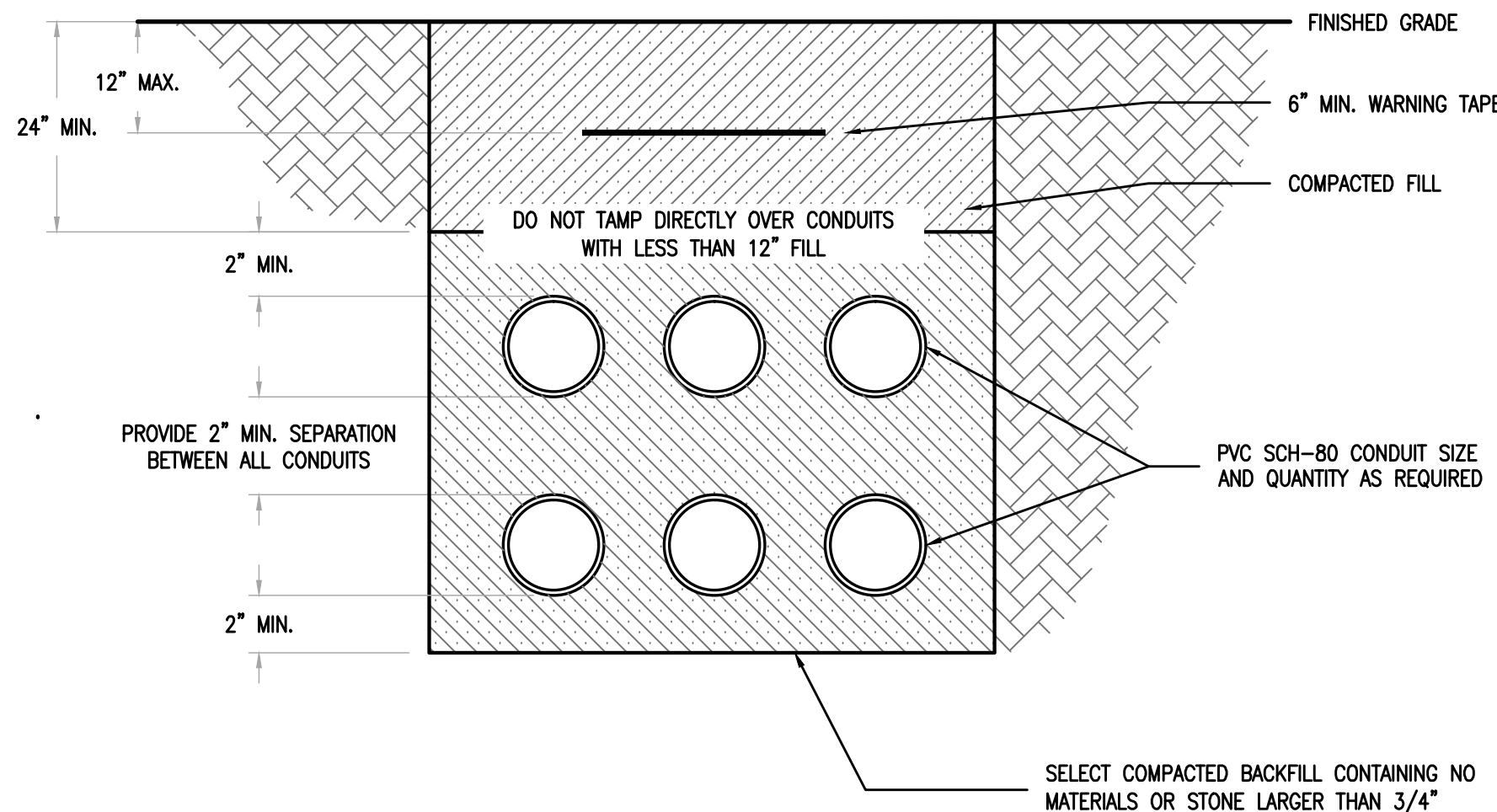




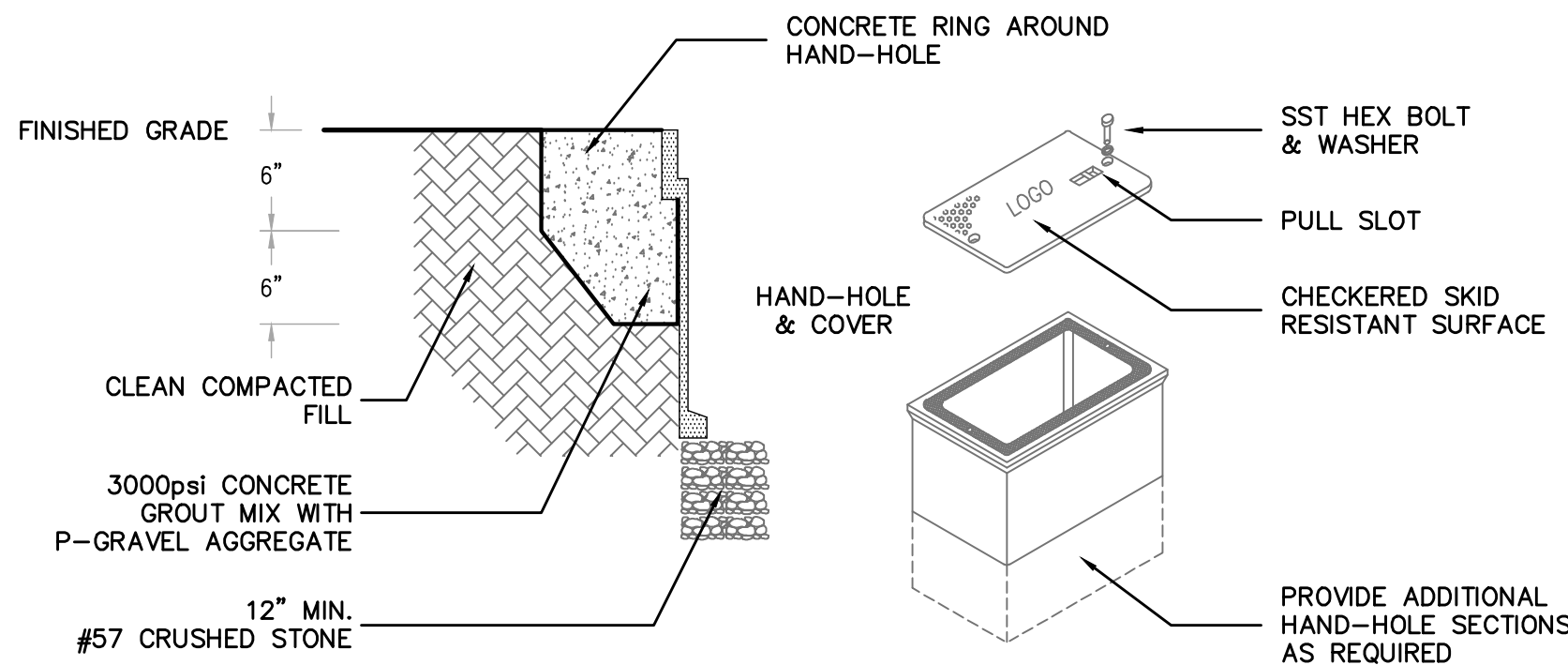
NON-REINFORCED CONCRETE DUCTBANK (YARD PIPING)
N.T.S.



REINFORCED CONCRETE DUCTBANK (ROADWAY CROSSING)
N.T.S.



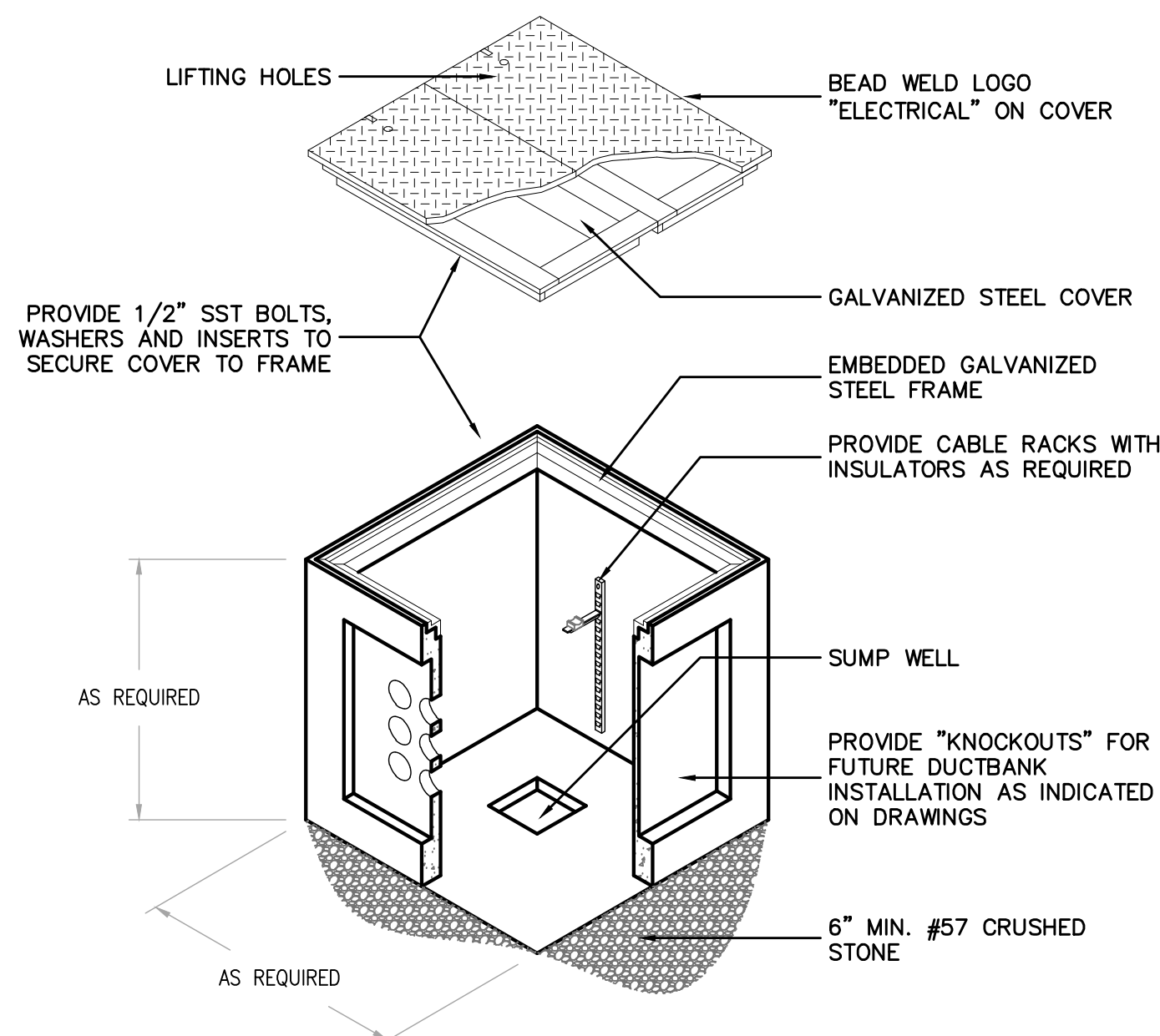
DIRECT BURIED DUCTBANK
SCALE: N.T.S.



NOTES:

1. HOUSING SHALL BE REINFORCED CONCRETE AND SHALL HAVE A COMPRESSIVE STRENGTH NO LESS THAN 10,000psi.
2. HAND-HOLE AND COVER SHALL BE RATED FOR AASHTO H20 LOADING.
3. PROVIDE STAINLESS STEEL BOLTS, WASHERS AND INSERTS.
4. PROVIDE COVER LOGO "ELECTRICAL" "CONTROLS" OR "COMMUNICATIONS" AS APPLICABLE OR INDICATED ON THE DRAWINGS.
5. MINIMUM BOX SIZE SHALL BE 24" LONG x 17" WIDE x 24" DEEP.

TRAFFIC RATED HAND-HOLE DETAIL
N.T.S.



NOTES:

1. BOND ALL METALLIC PARTS WITH #2 TINNED COPPER.
2. EXOTHERMIC WELD CU-CLAD GROUND ROD TO GROUND CABLE.
3. PULL-BOX LID AND LID COLLAR SHALL BE RATED FOR AASHTO H20 LOADING.

STANDARD ELECTRICAL PULL-BOX DETAIL
N.T.S.

RECORD DRAWING

THIS DRAWING REPRESENTS A RECORD OF FACILITIES AND IMPROVEMENTS CONSTRUCTED AS PROVIDED BY THE CONTRACTOR TO BE A PART OF THIS PROJECT, BASED ON THE FOLLOWING:

A. ENGINEERS REVIEW OF INFORMATION PROVIDED

B. INFORMATION FURNISHED BY:

BRANDES DESIGN-BUILD INC.
2051 NE COACHMEN ROAD
CLEARWATER, FLORIDA 33765
C: 727-445-7544 / F 727-445-7534

☐ REVISIONS ☒ NO REVISIONS

DATE MARCH 2012

THESE DRAWINGS ARE NOT INTENDED TO REPRESENT A DETAILED RECORD OF ACTUAL DIMENSIONS, ELEVATIONS, OR DETAILS. ALL SUBSTANTIAL CHANGES OR DEVIATIONS FROM THE ORIGINAL DESIGN, KNOWN BY THE ENGINEER, ARE NOTED HEREON.

MATTHEW S. LOVE, PE
No. 66118

REV.	DESCRIPTION	DATE
1	RECORD DRAWING	MARCH 2012
2	REVISIONS	
3		
4		
5		
6		
7		
8		
9		
10		

SEAL
ARTHUR L. ANCHORS, P.E. PROFESSIONAL ENGINEER NO. 39804 STATE OF FLORIDA

SEAL

MCKIM & CREED

1365 Hamlet Avenue
Clearwater, Florida 33756
Phone: (727)442-7196, Fax: (727)461-3827
EB0006691
www.mckimcreed.com

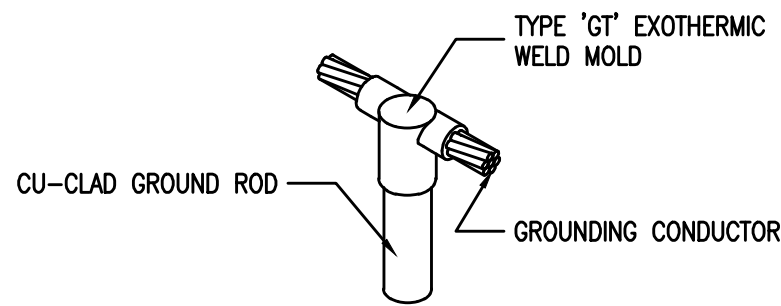
MANATEE COUNTY, FLORIDA

MANATEE COUNTY, FLORIDA

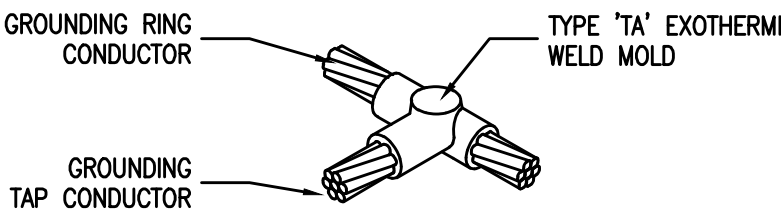
SWWRF RECLAIMED WATER AUTOMATION

ELECTRICAL DETAILS 1

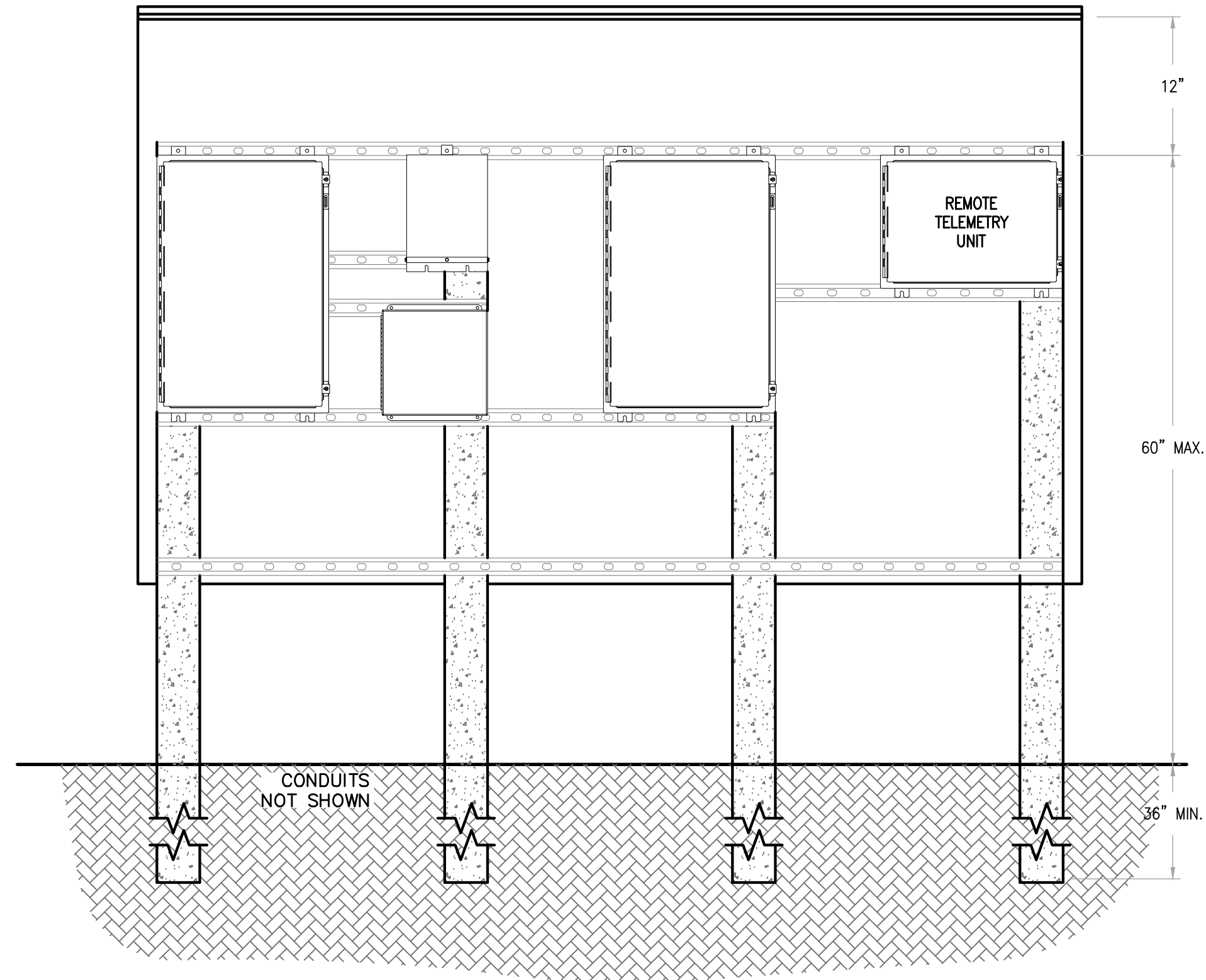
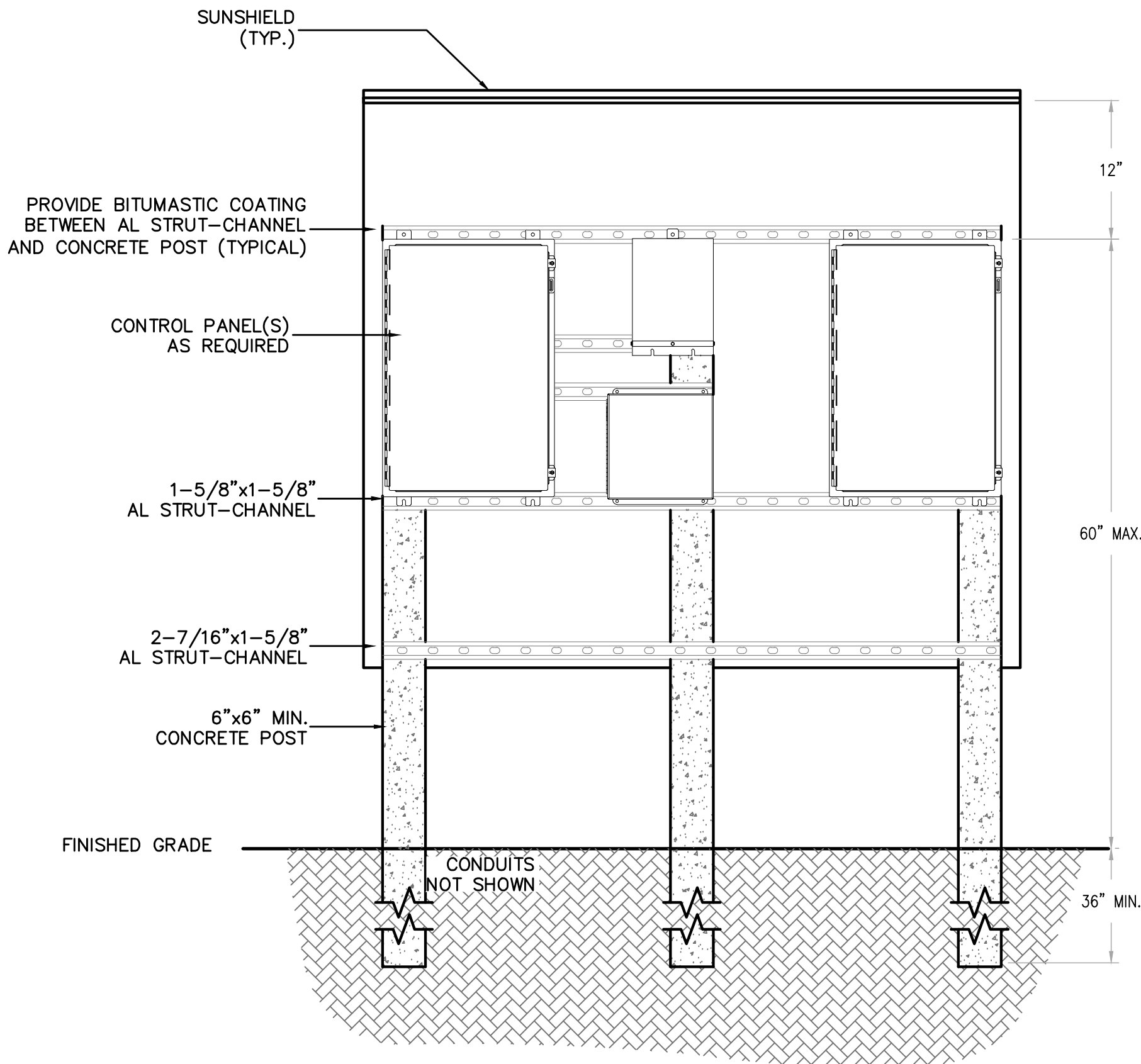
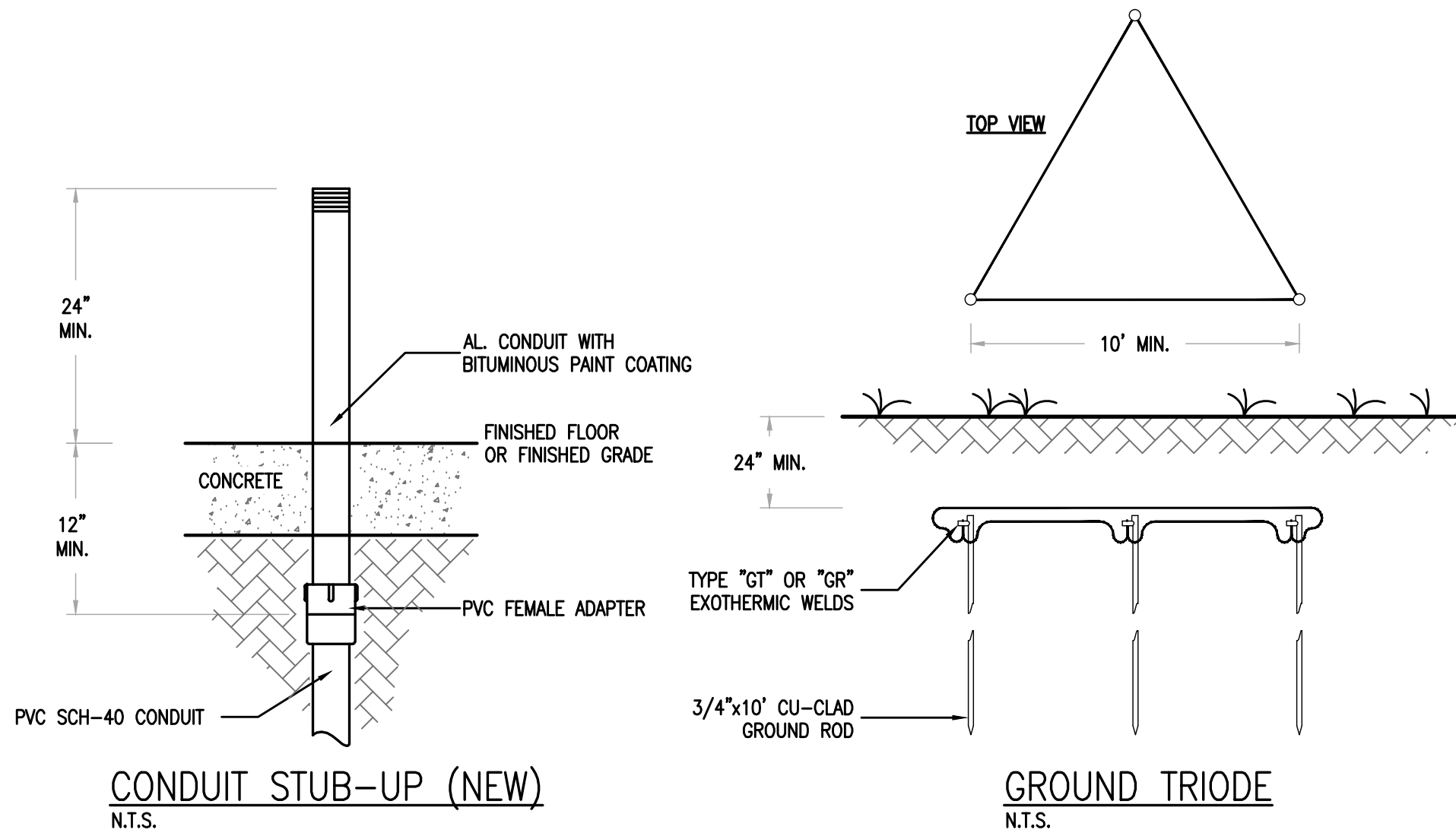
DATE: APRIL 2011	SCALE:	DRAWING NUMBER:
MCE PROJ. # 1024-0128	HORIZONTAL: NA	E-5
DRAWN: BMW	VERTICAL: NA	
DESIGNED: BMW		
CHECKED: ALA		
PROJ. MGR: MSL		
STATUS: RECORD DRAWING	REVISION:	



EXOTHERMIC WELD 'GT' CONNECTION
N.T.S.



EXOTHERMIC WELD 'TA' CONNECTION
N.T.S.

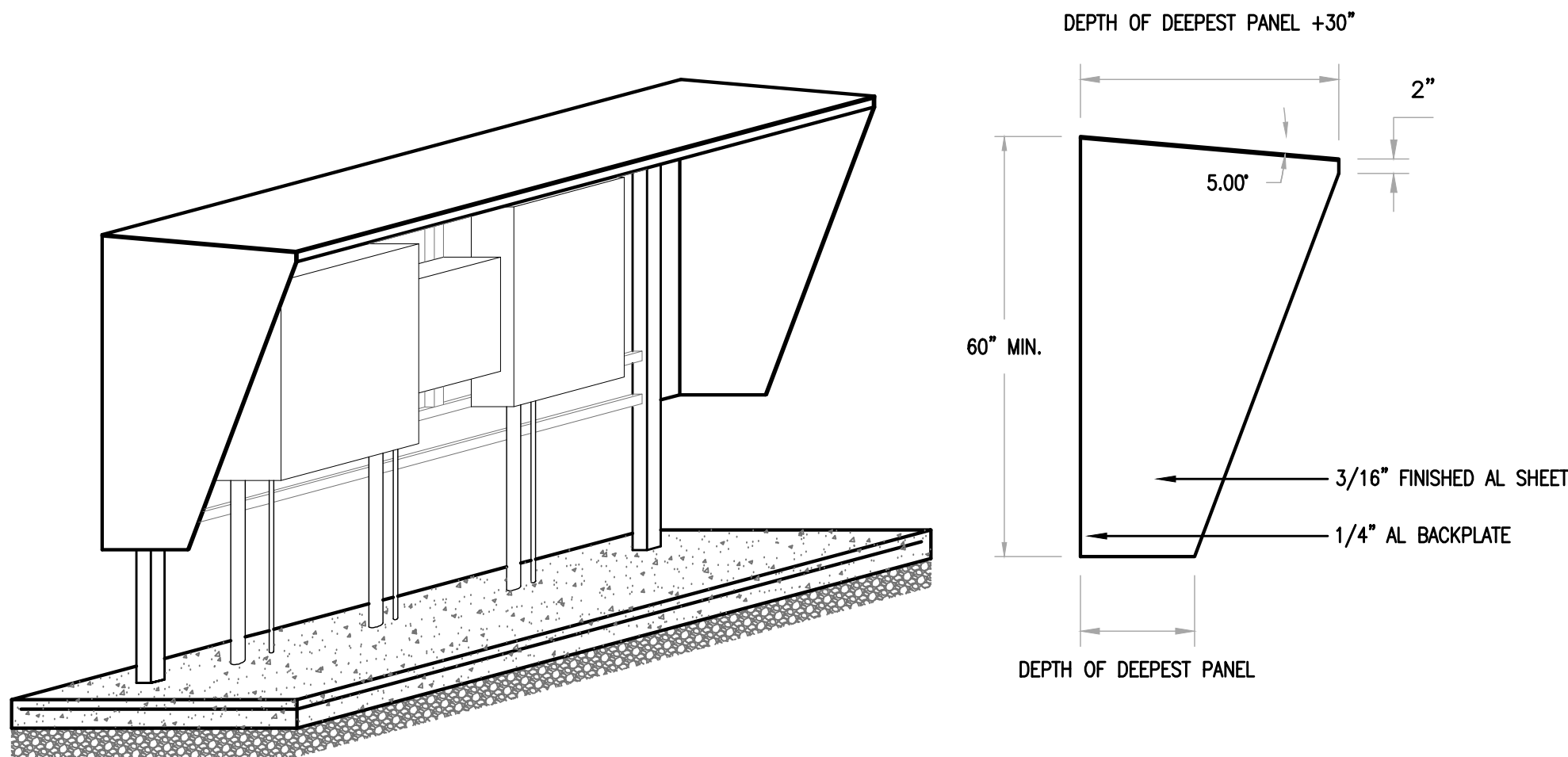


ELECTRICAL EQUIPMENT RACK LAYOUT WITH RTU
N.T.S.

DETAIL NOTES:

- CONTRACTOR SHALL SUBMIT LAYOUT OF ELECTRICAL EQUIPMENT RACK.
- CONTRACTOR SHALL NOT CONSTRUCT ELECTRICAL EQUIPMENT RACK PRIOR TO RECEIVING APPROVED SUBMITTAL, INCLUDING ORDERING AND FABRICATION OF MATERIALS.
- ALL EQUIPMENT MOUNTING HARDWARE SHALL BE 316 STAINLESS-STEEL.
- CONCRETE SHALL BE 3000psi. CONCRETE PADS SHALL BE REINFORCED WITH 6x6-1.4Wx1.4W WWF. PAD SHALL EXTEND 36" OUT FROM DEEPEST PANEL AND 6" OUT FROM SIDES OF SUN/RAIN HOOD.
- PROVIDE ADDITIONAL VERTICAL 6" 'I-BEAM' POSTS AND BASES LIKE THOSE SHOWN ON PLANS TO SPAN GREATER DISTANCES GREATER THAN 96".
- ALARM STROBE SHALL BE MOUNTED, WATER-TIGHT, ATOP PUMP CONTROL PANEL 'PCP'.
- PROVIDE WEATHERPROOF CORROSION RESISTANT FLUORESCENT FIXTURE MOUNTED UNDERNEATH SUN/RAIN HOOD, LIGHT SWITCH AND GFCI RECEPTACLE.
- STRUT-CHANNEL SHALL BE MOUNTED TO 'I-BEAM' POSTS WITH STAINLESS-STEEL FASTENERS AND GALVANIZED CLAMPING HARDWARE.
- THE BOTTOM OF EQUIPMENT SHALL BE MOUNTED NO LESS THAN 20" ABOVE FINISHED CONCRETE PERSONNEL PAD.
- CONDUITS SHALL BE INSTALLED UNBROKEN (NO FITTINGS, COUPLINGS, UNIONS, ETC.) THROUGH CLASS-1/DIV-II BOUNDARY.

ELECTRICAL EQUIPMENT RACK LAYOUT (FRONT ELEVATION)
N.T.S.



SUN/RAIN HOOD TYPICAL (ISOMETRIC)
N.T.S.

SUN/RAIN HOOD DETAIL (SIDE-VIEW)
N.T.S.

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REVISIONS NO REVISIONS

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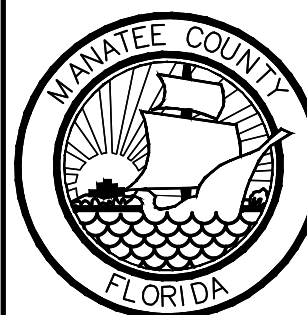
MATTHEW S. LOVE, PE
No. 66118

REV.	DESCRIPTION	DATE
RD	RECORD DRAWING	MARCH 2012
REV. NO.	REVISIONS	DATE

SEAL
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MANATEE COUNTY, FLORIDA

SWWRF RECLAIMED WATER AUTOMATION

ELECTRICAL DETAILS 2

DATE: APRIL 2011
MCE PROJ. # 1024-0128
DRAWN: BMW
DESIGNED: BMW
CHECKED: ALA
PROJ. MGR: MSL

SCALE
HORIZONTAL: NA
VERTICAL: NA

DRAWING NUMBER
E-6

STATUS: RECORD DRAWING
REVISION