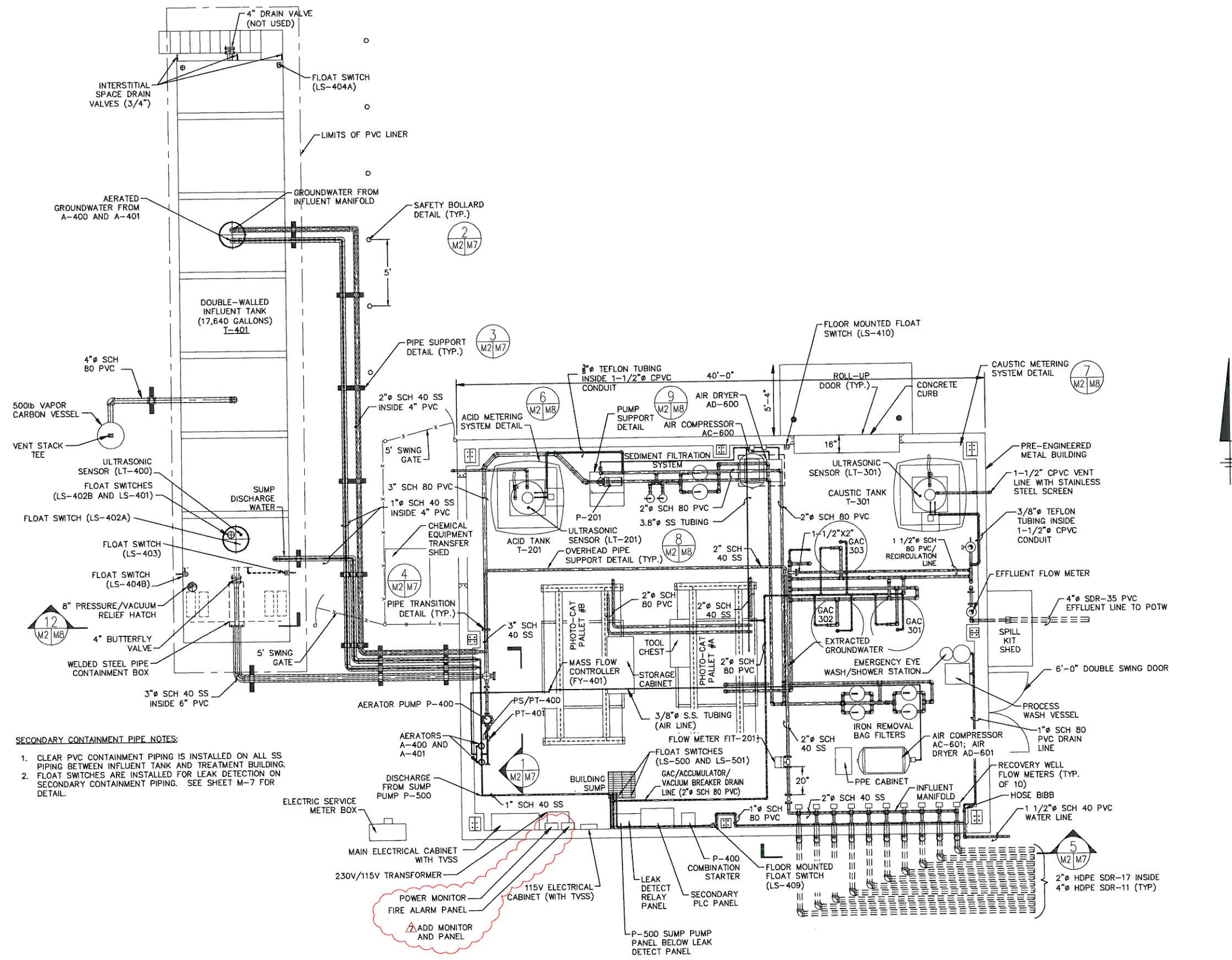


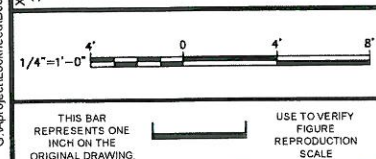
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Appendix A
Record Drawings

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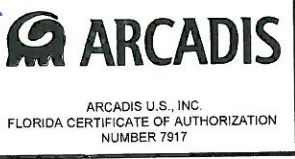


- SECONDARY CONTAINMENT PIPE NOTES:**
1. CLEAR PVC CONTAINMENT PIPING IS INSTALLED ON ALL SS PIPING BETWEEN INFLUENT TANK AND TREATMENT BUILDING.
 2. FLOAT SWITCHES ARE INSTALLED FOR LEAK DETECTION ON SECONDARY CONTAINMENT PIPING. SEE SHEET M-7 FOR DETAIL.



No.	Date	Revisions	By	Ckd
7	8/26/11	AS-BUILT DRAWING UPDATE	MS	JB
6	8/26/10	AS-BUILT DRAWING UPDATE	MS	JB
5	1/30/09	AS-BUILT DRAWINGS	MS	JB

Professional Engineer's Name JAMES MICHAEL BEDESSES	
Professional Engineer's No. 55694	
State FL	Date Signed 08/22/11
Designed by JB	Project Mgr. DS
Drawn by MS	Checked by JB



LOCKHEED MARTIN TALLEVAST SITE • TALLEVAST, FLORIDA
CONSTRUCTION DRAWINGS

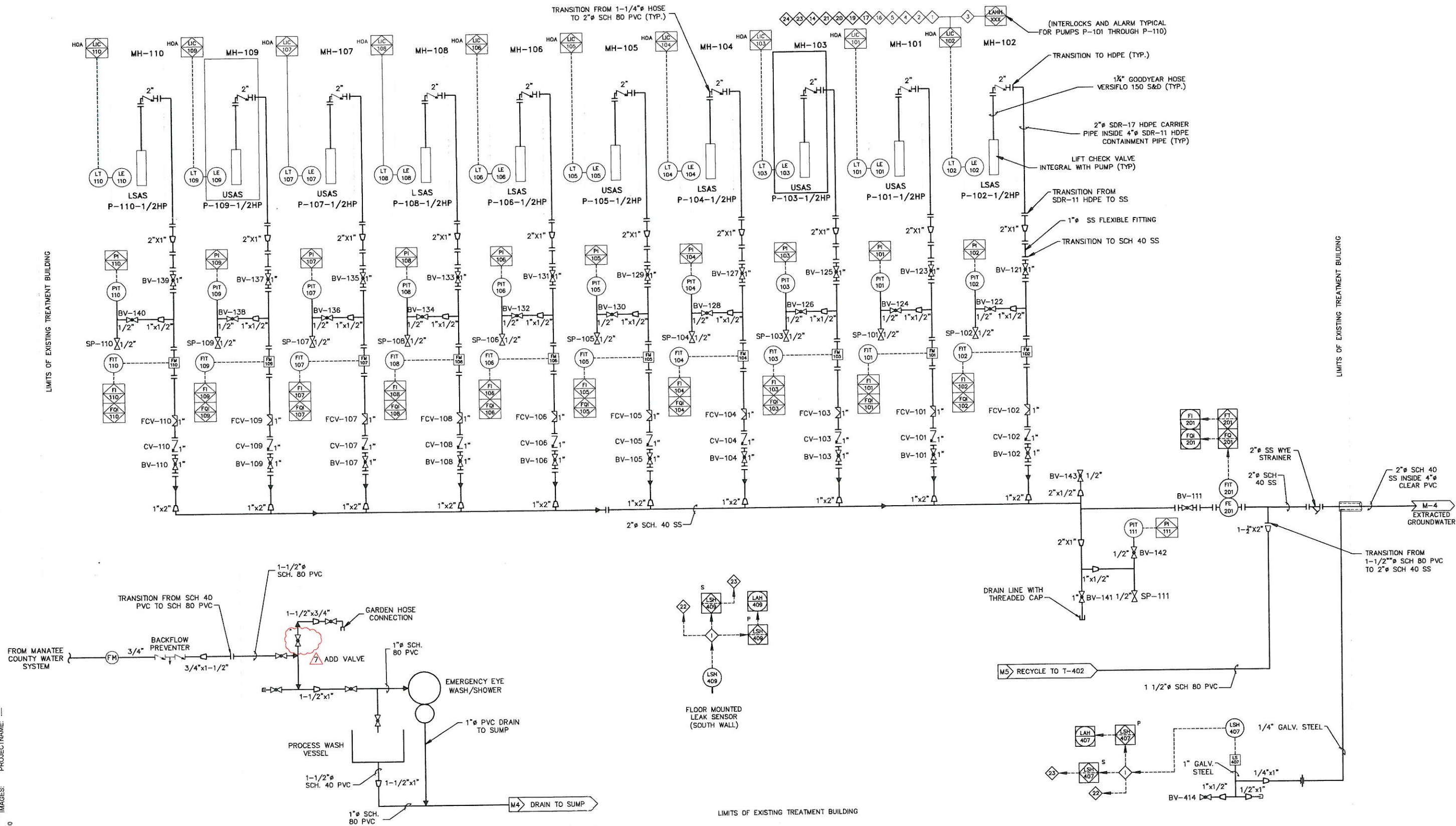
EQUIPMENT LAYOUT FOR IRON REMOVAL MODIFICATIONS

GENERAL

ARCADIS Project No. 80038055.0038.00002
Date AUGUST 2011
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M-2

CITY: DIV/GROUP: DB: LD: PIC: PM: LYRON="OFF=REF"
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 XREFS: IMAGES: PROJECTNAME: 38055X00



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6	8/26/10	AS-BUILT DRAWING UPDATE	MS	JB
5	1/30/09	AS-BUILT DRAWINGS	MS	JB

Professional Engineer's Name
JAMES MICHAEL BEDESSEM

Professional Engineer's No.
 55694

State
 FL

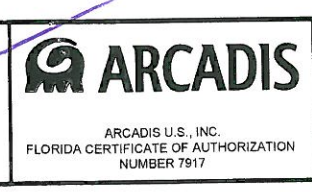
Date Signed
 8/22/11

Project Mgr.
 DS

Designed by
 JB

Drawn by
 MS

Checked by
 JB



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 CONSTRUCTION DRAWINGS

PIPING AND INSTRUMENTATION DIAGRAM

GENERAL

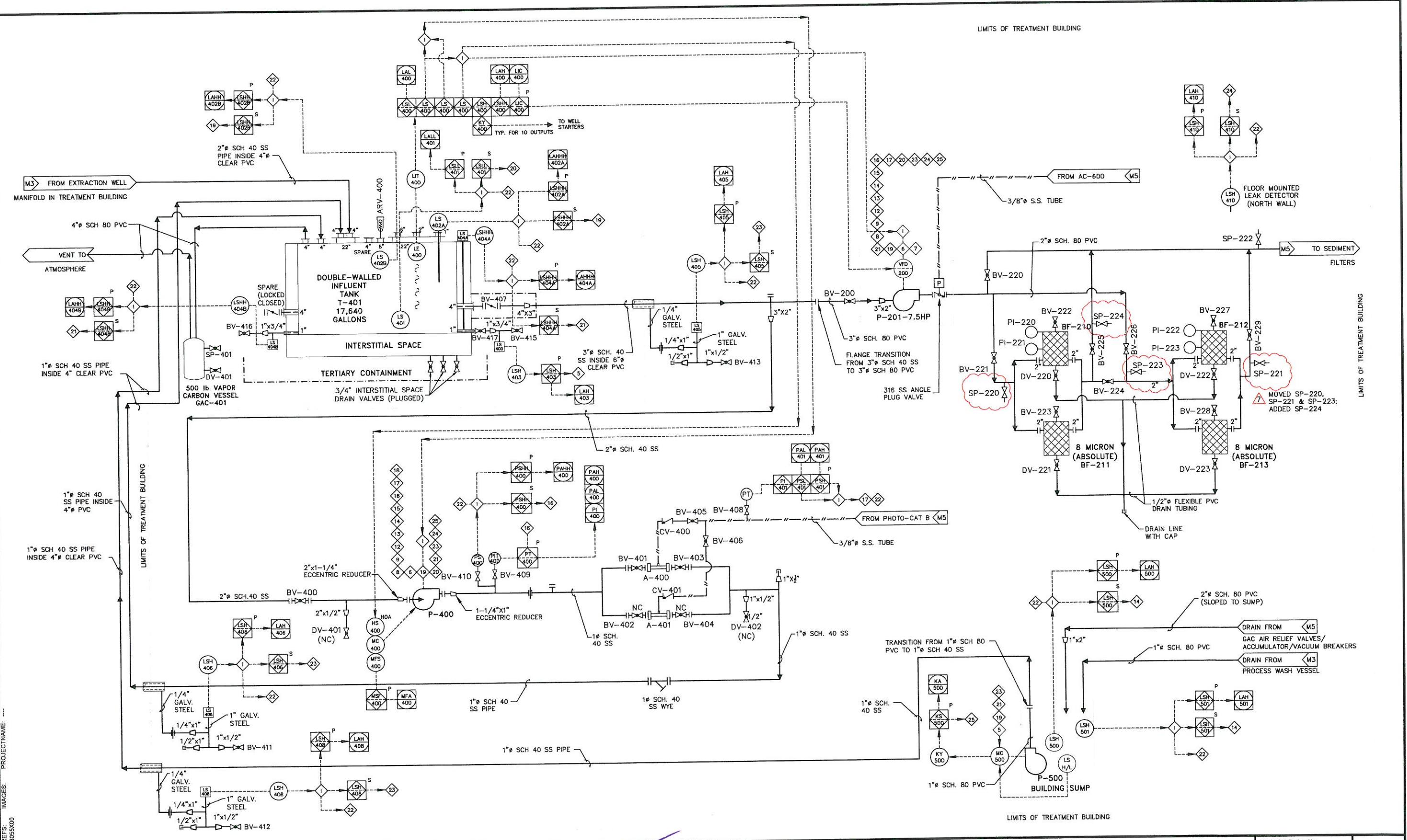
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M-3

CITY: DIV/GROUP: DB: LD: PIC: PM: TM: LYRON+OFF=REF-
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 PROJECT NAME: 38055X00
 REFERENCES: IMAGES:



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		Revisions No. Date By Ckd 7 8/26/11 AS-BUILT DRAWING UPDATE MS JB 6 8/26/10 AS-BUILT DRAWING UPDATE MS JB 5 1/30/09 AS-BUILT DRAWINGS MS JB				
THIS DRAWING IS THE PROPERTY OF THE ARCADIS ENTITY IDENTIFIED IN THE TITLE BLOCK AND MAY NOT BE REPRODUCED OR ALTERED IN WHOLE OR IN PART WITHOUT THE EXPRESS WRITTEN PERMISSION OF SAME.						
Professional Engineer's Name JAMES MICHAEL BEDESSEM				State FL		
Professional Engineer's No. 55694				Date Signed 08/22/11		
State FL				Project Mgr DS		
Designed by JB				Drawn by MS		
Checked by JB				Date 08/22/11		

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 NUMBER 7917

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PIPING AND INSTRUMENTATION DIAGRAM

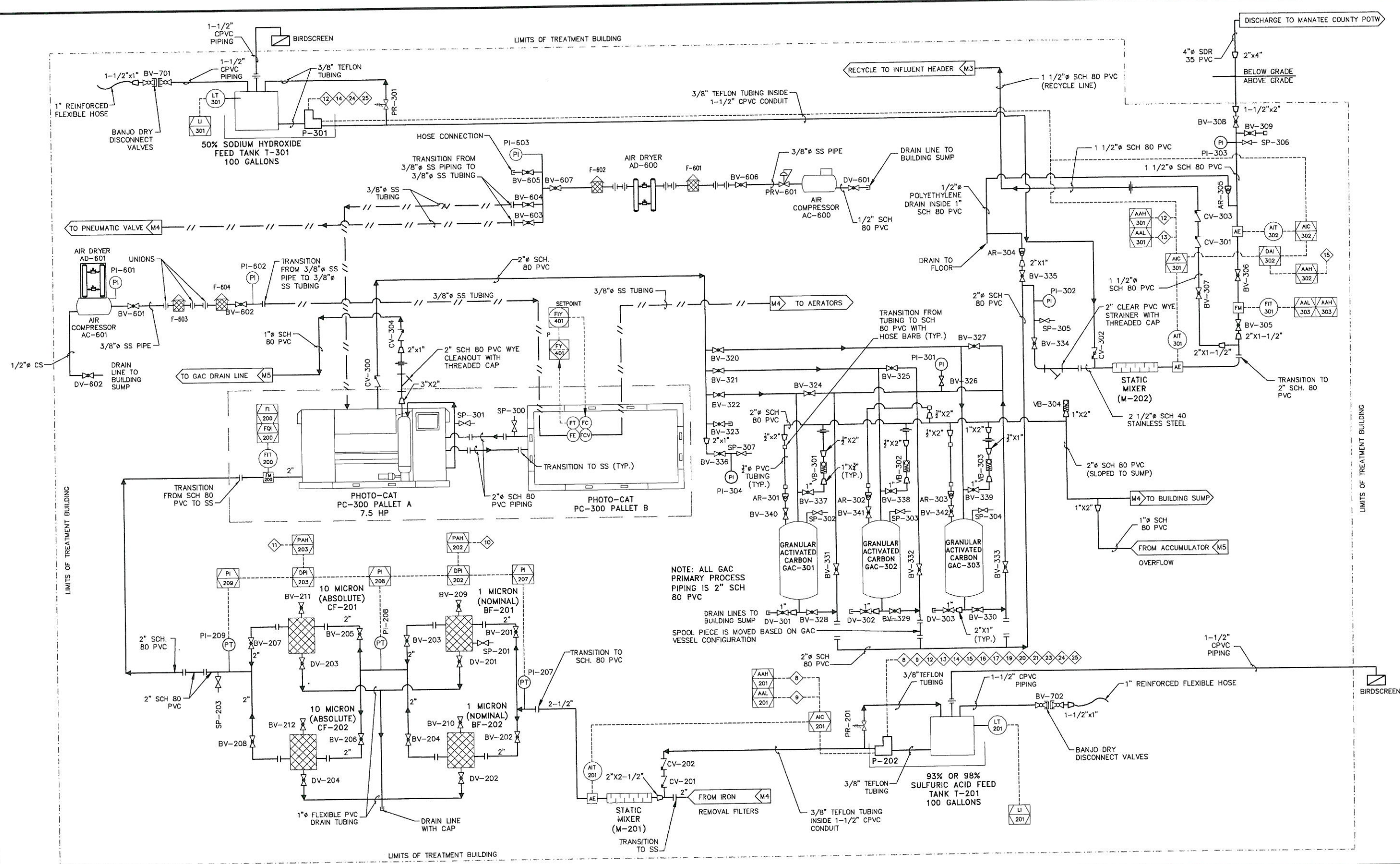
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CITY: DIV/GROUP: DB: LD: PIC: PM: TM: LYRON=OFF=REF-
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 XREFS: IMAGES: PROJECTNAME: 38065300



NOTE: ALL GAC PRIMARY PROCESS PIPING IS 2" SCH 80 PVC
 DRAIN LINES TO BUILDING SUMP DV-301, BV-328, DV-302, BV-329, DV-303, BV-330
 SPOOL PIECE IS MOVED BASED ON GAC VESSEL CONFIGURATION

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6	8/26/10	AS-BUILT DRAWING UPDATE	MS	JB
5	1/30/09	AS-BUILT DRAWINGS	MS	JB

Professional Engineer's Name JAMES MICHAEL BEDESSEM	
Professional Engineer's No. 55694	
State FL	Date Signed 05/22/11
Designed by JB	Project Mgr. DS
Drawn by MS	Checked by JB

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M-5

CITY: DIV/PROJECT: DB: LD: PIC: PM: TM: LYNOR: OFF: REF: PROJECTNAME: IMAGES: XREFS: 3805500
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INTERLOCKS:

- 1 HIGH LEVEL AT EXTRACTION WELL (MH-101 THROUGH MH-110), TURN ON RESPECTIVE PUMP (P-101 THROUGH P-110). IF PLC DOES NOT REGISTER FLOW AT RESPECTIVE FLOW METER (FIT-101 THROUGH FIT-110), TURN OFF PUMP.
- 2 LOW LEVEL AT EXTRACTION WELL (MH-101 THROUGH MH-110), TURN OFF RESPECTIVE PUMP (P-101 THROUGH P-110).
- 3 HIGH HIGH LEVEL AT EXTRACTION WELL (MH-101 THROUGH MH-110), SIGNAL ALARM AT PLC (LAHH-101 THROUGH LAHH-110). PLC TO SIGNAL AUTO DIALER.
- 4 HIGH LEVEL ALARM (LAH-400) AT INFLUENT TANK T-401. TURN OFF EXTRACTION WELL PUMPS P-101 THROUGH P-110, PUMPS P-201, P-202, P-301, P-400, P-500 AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC (LAH-400). PLC TO SIGNAL AUTO DIALER.
- 5 HIGH LEVEL ALARM (LAH-403) AT INFLUENT TANK T-401 INTERSTITIAL SPACE. TURN OFF EXTRACTION WELL PUMPS P-101 THROUGH P-110, PUMPS P-201, P-202, P-301, P-400, P-500 AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC (LAH-403). PLC TO SIGNAL AUTO DIALER.
- 6 PUMP OFF SET POINT AT INFLUENT TANK (T-401). TURN OFF P-201 AND P-400.
- 7 PUMP ON SET POINT AT INFLUENT TANK (T-401). TURN ON P-201.
- 8 PH ALARM HIGH (AAH-201) AT ACID INJECTION POINT. TURN OFF PUMPS P-201, P-202, P-301, P-400, AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC. PLC TO SIGNAL AUTO DIALER.
- 9 PH ALARM LOW (AAL-201) AT ACID INJECTION POINT. TURN OFF PUMPS P-201, P-202, P-301, P-400, AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC. PLC TO SIGNAL AUTO DIALER.
- 10 HIGH DIFFERENTIAL PRESSURE ALARM (PAH-202) ACROSS BAG FILTERS (BF-201 AND BF-202). SIGNAL ALARM AT PLC. PLC TO SIGNAL AUTO DIALER.
- 11 HIGH DIFFERENTIAL PRESSURE ALARM (PAH-203) ACROSS CARTRIDGE FILTERS (CF-201 AND CF-202). SIGNAL ALARM AT PLC. PLC TO SIGNAL AUTO DIALER.
- 12 PH ALARM HIGH (AAH-301) AT CAUSTIC INJECTION POINT. TURN OFF PUMPS P-201, P-202, P-301, P-400, AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC. PLC TO SIGNAL AUTO DIALER.
- 13 PH ALARM LOW (AAL-301) AT CAUSTIC INJECTION POINT. TURN OFF PUMPS P-201, P-202, P-301, P-400, AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC. PLC TO SIGNAL AUTO DIALER.
- 14 HIGH LEVEL ALARM (LAH-500) AND HIGH LEVEL ALARM (LAH-501) AT BUILDING SUMP. TURN OFF PUMPS P-101 THROUGH P-110, P-201, P-202, P-301, P-400, AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC TO SIGNAL AUTO DIALER.
- 15 HIGH DIFFERENTIAL pH ALARM (AAH-302) ACROSS EFFLUENT pH PROBES. TURN OFF PUMPS P-201, P-202, P-301, P-400, AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC. PLC TO SIGNAL AUTO DIALER.
- 16 HIGH/LOW PRESSURE IN AERATOR PIPING (PAH-400, PAL-400, PAHH-400). TURN OFF PUMPS P-101 THROUGH P-110, P-201, P-202, P-301, P-400, AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC. PLC TO SIGNAL AUTO DIALER.
- 17 HIGH/LOW PRESSURE IN AIR LINE TO AERATOR PIPING (PAH-401, PAL-401). TURN OFF PUMPS P-101 THROUGH P-110, P-201, P-202, P-301, P-400, AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC. PLC TO SIGNAL AUTO DIALER.
- 18 PUMP ON SET POINT AT INFLUENT TANK (T-401). TURN ON P-400.
- 19 HIGH/HIGH LEVEL ALARM (LAHH-402A AND LAHH-402B) AT INFLUENT TANK T-401. TURN OFF PUMPS P-201, P-202, P-301, P-400, EXTRACTION WELL PUMPS P-101 THROUGH P-110 AND PHOTOCAT SYSTEM.
- 20 LOW/LOW LEVEL ALARM (LALL-401) AT INFLUENT TANK T-401. TURN OFF EXTRACTION WELL PUMPS P-101 THROUGH P-110, PUMPS P-201, P-202, P-301, P-400, AND PHOTOCAT SYSTEM.
- 21 HIGH/HIGH ALARM (LAHH-404A, LAHH-404B) AT INFLUENT TANK INTERSTITIAL SPACE. TURN OFF EXTRACTION WELL PUMPS P-101 THROUGH P-110, PUMPS P-201, P-202, P-301, P-400, P-500, AND PHOTOCAT SYSTEM. SIGNAL ALARM AT PLC.
- 22 SIGNALS ALARM AT AUTO DIALER.
- 23 HIGH ALARM (LAH-405, LAH-406, LAH-407, AND LAH-408) AT DOUBLE CONTAINED PROCESS PIPING. TURN OFF PUMPS P-201, P-202, P-301, P-400, EXTRACTION WELL PUMPS P-101 THROUGH P-110, AND PHOTOCAT SYSTEM. TURN OFF PUMP P-500 FOR HIGH ALARM (LAH-408) ONLY.
- 24 HIGH ALARM (LAH-409 AND LAH-410) AT FLOOR MOUNTED CONDUCTANCE PROBES. TURN OFF PUMPS P-201, P-202, P-301, P-400, EXTRACTION WELL PUMPS P-101 THROUGH P-110, AND PHOTOCAT SYSTEM.
- 25 KY-500 TIME DELAY RELAY IS INITIATED WHEN P-500 STARTS AND IS RESET WHEN P-500 STOPS. KY-500 IS SET FOR 30 MINUTES. WHEN KY-500 TIMES OUT IT SHUTS OFF PUMPS P-101 THROUGH P-110, P-201, P-202, P-301, P-400, AND PHOTOCAT SYSTEM.

LEGEND:

- PROCESS PIPING
- EXISTING PIPING/EQUIPMENT
- PNEUMATIC PIPING
- SKID MOUNTED EQUIPMENT
- BUILDING PERIMETER
- x- FENCE
- ⊗ BALL VALVE
- ⊕ BUTTERFLY VALVE
- ⊘ GLOBE VALVE
- ⊔ BALL CHECK VALVE
- ⊕ SWING CHECK VALVE
- ⊗ SAMPLE TAP
- ⊕ PRESSURE GAUGE
- ⊕ ANALYZER ELEMENT
- ⊕ FLOW METER (MECH.)
- || FLANGED CONNECTION
- ECCENTRIC REDUCER
- ▽ REDUCER
- ⊔ FEMALE HOSE FITTING
- ⊕ CENTRIFUGAL PUMP
- ⊕ DIAPHRAGM PUMP
- ⊕ METERING PUMP
- INSTRUMENT SIGNAL
- ⊕ PRESSURE RELIEF VALVE
- ⊕ PRESSURE REGULATING VALVE
- ⊕ PNEUMATIC ACTUATOR
- ⊕ MALE HOSE FITTING
- ~ FLEXIBLE HOSE
- ⊕ PURIFICS IN-LINE AERATOR
- ⊕ AIR RELEASE
- ⊕ AIR/VACUUM RELEASE
- ⊕ VACUUM BREAKER
- ⊕ ISO DAMPENING FITTING
- ⊕ UNION
- ⊕ CAP
- ⊕ AIR FILTER

ABBREVIATIONS:

- A AERATOR
- AAH pH ANALYZER ALARM HIGH
- AAL pH ANALYZER ALARM LOW
- AC AIR COMPRESSOR
- AD AIR DRYER
- AE pH ANALYZER ELEMENT
- AI pH ANALYZER INDICATOR
- AIT pH ANALYZER INDICATING TRANSMITTER
- AR AIR RELEASE
- AVR AIR/VACUUM RELEASE
- BF BAG FILTER
- BP BY-PASS
- BV BALL VALVE
- CF CARTRIDGE FILTER
- CV CHECK VALVE
- DAI DIFFERENTIAL pH INDICATOR
- DPI DIFFERENTIAL PRESSURE INDICATOR
- DS DISCONNECT SWITCH
- DWG DRAWING
- DV DRAIN VALVE
- FCV FLOW CONTROL VALVE
- GAC GRANULAR ACTIVATED CARBON
- GV GLOBE VALVE
- HDPE HIGH DENSITY POLYETHYLENE
- MC MOTOR CONTROLLER
- MH MANHOLE
- NC NORMALLY CLOSED
- P PRIMARY PLC
- PC PHOTO-CAT
- PCV PRESSURE CONTROL VALVE
- PI PRESSURE INDICATOR
- POTW PUBLICLY OWNED TREATMENT WORKS
- PRV PRESSURE REGULATING VALVE
- PVC POLYVINYL CHLORIDE PIPE
- S SECONDARY PLC
- SCH SCHEDULE
- SDR STANDARD DIMENSIONAL RATIO
- SP SAMPLE PORT
- T TANK
- TYP TYPICAL
- VB VACUUM BREAKER
- VFD VARIABLE FREQUENCY DRIVE
- ϕ DIAMETER

INSTRUMENT IDENTIFICATION LETTERS

FIRST LETTER		SUCCEEDING LETTERS		
MEASURE OR INITIATING VARIABLE	MODIFIER	READOUT OR PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A = ANALYSIS		ALARM		
B = BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C = USER'S CHOICE			CONTROL, CLOSED	
D = USER'S CHOICE	DIFFERENTIAL			
E = VOLTAGE		SENSOR (PRIMARY ELEMENT)		
F = FLOW RATE	RATIO (FRACTION)			
G = USER'S CHOICE		GLASS, VIEWING DEVICE		
H = HAND				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	USER'S CHOICE
O = USER'S CHOICE		ORIFICE, RESTRICTION	OPEN	
P = PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q = QUANTITY	INTEGRATE, TOTALIZE			
R = RADIATION		RECORD	RUN	
S = SPEED, FREQUENCY	SAFETY	SWITCH	STOP	
T = TEMPERATURE			TRANSMIT	
U = MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V = VIBRATION, MECH. ANALYSIS			VALVE, DAMPER, LOUVER	
W = WEIGHT, FORCE		WELL		
X = UNCLASSIFIED	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y = EVENT, STATUS OR PRESENCE	Y AXIS		RELAY, COMPUTE, CONVERT	
Z = POSITION, DIMENSION	Z AXIS		DRIVE, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

NOTES:

- ANY FIRST LETTER COMBINED WITH MODIFIER REPRESENTS A NEW AND SEPARATE MEASURED VARIABLE. EXAMPLES: PD = DIFFERENTIAL PRESSURE FQ = TOTALIZED OR INTEGRATED FLOW. EXCEPTION IS THE MODIFIER "J" FOR MULTIPPOINT SCANNING.
- FOR ANALYSIS NOT IDENTIFIED BY A SPECIFIC LETTER IN THE TABLE, USE FIRST LETTER "A" NEAR THE INSTRUMENT SYMBOL, SPECIFY THE NATURE OF THE ANALYSIS. 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.
- THE MODIFIER "SCAN" APPLIES TO MULTIPPOINT PRINTING INSTRUMENTS, SUCH AS CURS (MULTIPPOINT CONDUCTIVITY RECORDER WITH ALARM SWITCHES).

INSTRUMENT SYMBOLS

	PRIMARY CONTROL PANEL NORMALLY ACCESSIBLE TO OPERATOR	FIELD MOUNTED	AUXILIARY PANEL OR RACK NORMALLY ACCESSIBLE TO OPERATOR
DISCRETE INSTRUMENTS	⊕	⊕	⊕
SHARED DISPLAY, SHARED CONTROL	⊕	⊕	⊕
COMPUTER FUNCTION INCLUDING DISTRIB. CNTL. SYS.	⊕	⊕	⊕
PROGRAMMABLE LOGIC CONTROLLER FUNCTION	⊕	⊕	⊕

GENERAL NOTES:

- ALL ANALOG SETPOINTS SHALL BE FIELD ADJUSTED BY OPERATOR AT HMI INTERFACE SCREEN.
- ALARMS THAT SHUT DOWN EXTRACTION WELLS AND TREATMENT EQUIPMENT MUST BE CLEARED BY OPERATOR BEFORE BEING RESTARTED.
- THIS DRAWING IS PROVIDED FOR INFORMATIONAL PURPOSES ONLY.

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7	8/26/11	AS-BUILT DRAWING UPDATE	MS	JB
6	8/26/10	AS-BUILT DRAWING UPDATE	MS	JB
5	1/30/09	AS-BUILT DRAWINGS	MS	JB

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Professional Engineer's Name
JAMES MICHAEL BESDESSEM

Professional Engineer's No.
55694

State
FL

Date Signed
08/22/11

Project Mgr
DS

Designed by
JB

Drawn by
MS

Checked by
JB

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CONSTRUCTION DRAWINGS

INTERLOCKS, LEGEND, AND ABBREVIATIONS

GENERAL

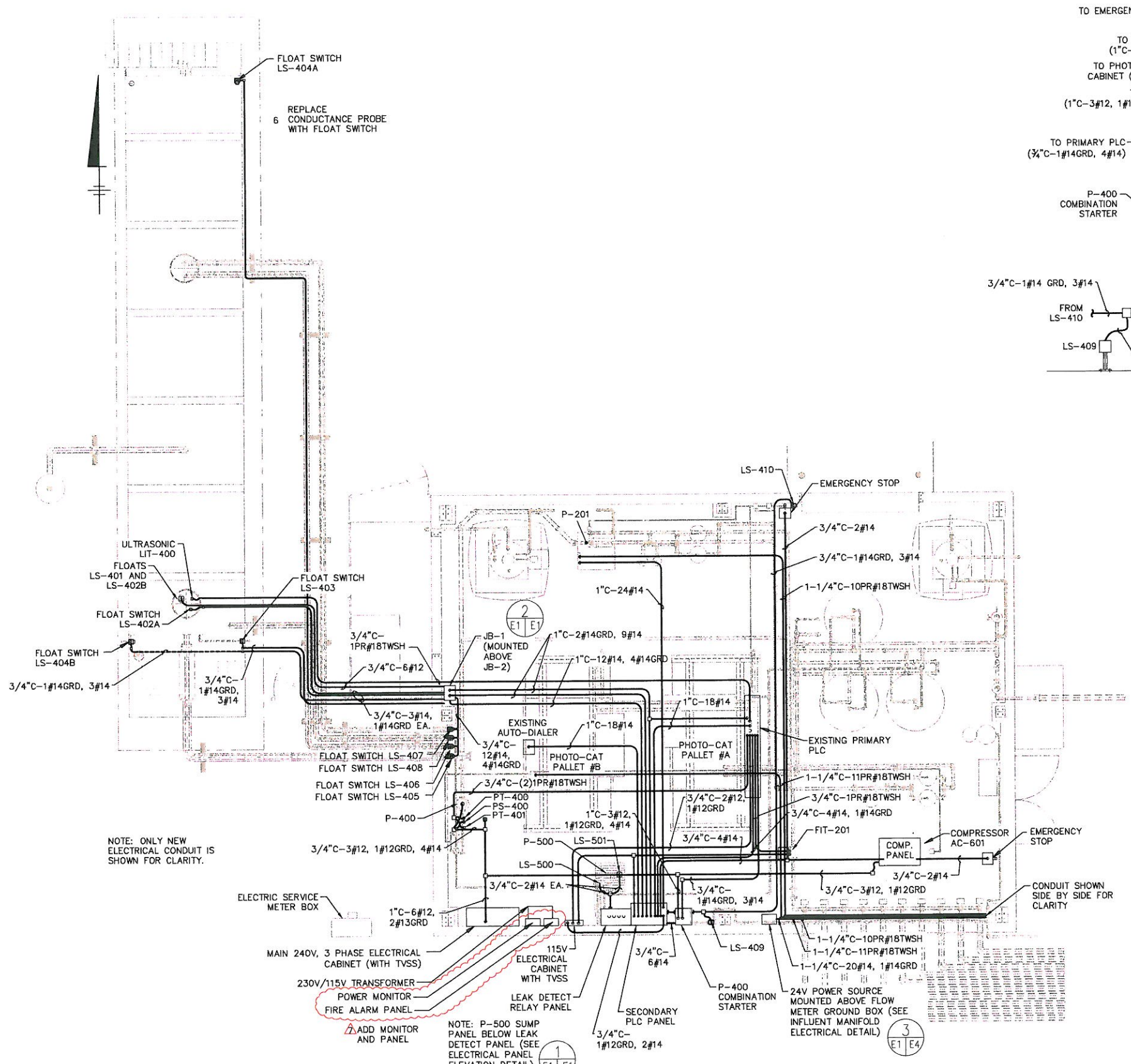
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Date
AUGUST 2011

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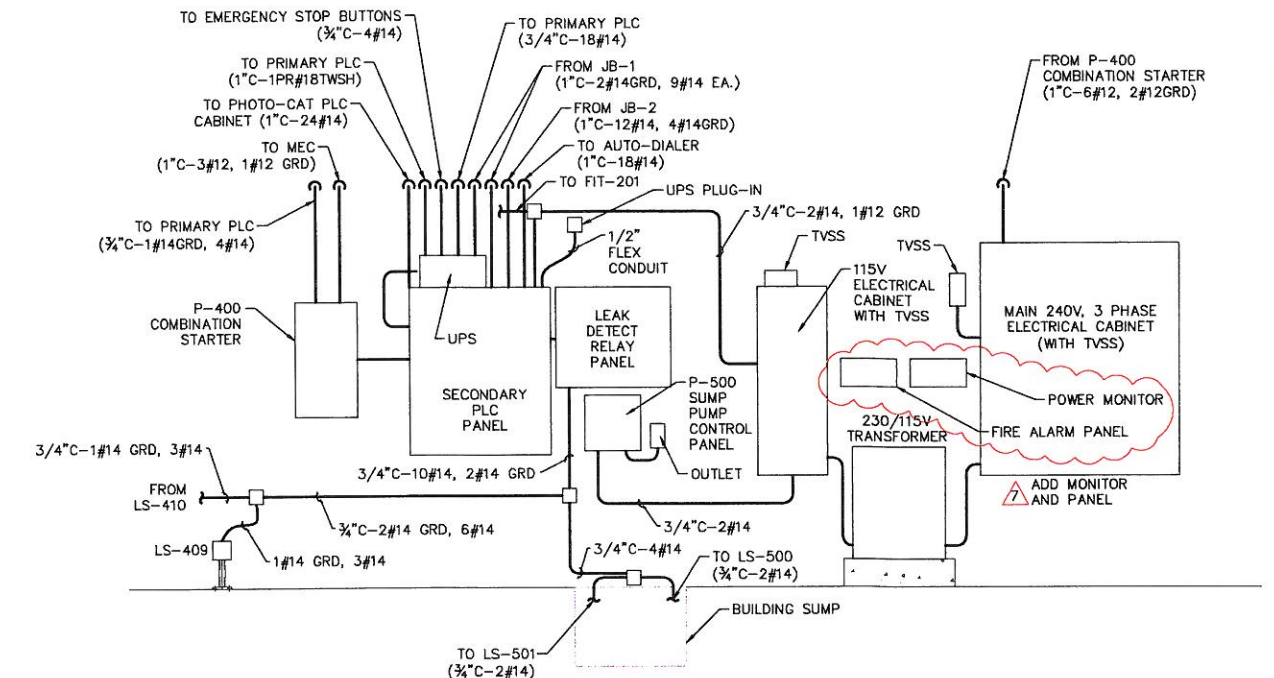
M-6

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 PROJECTNAME: LOCKHEED MARTIN TALLEVAST SITE - TALLEVAST, FLORIDA
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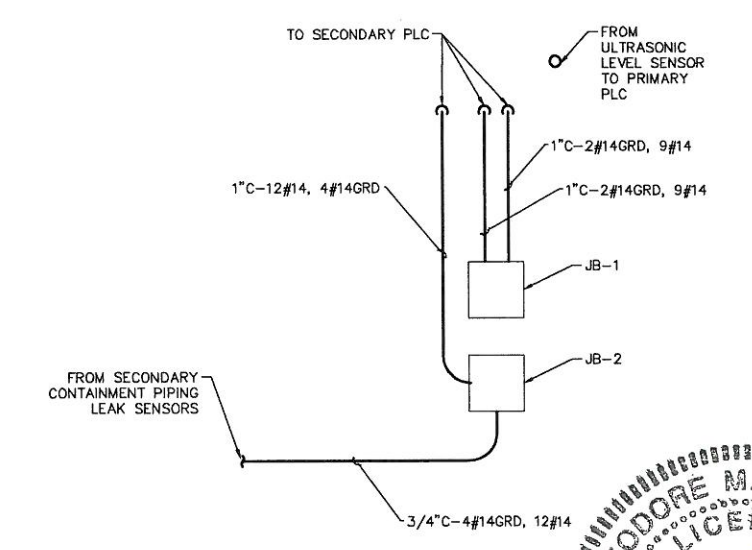


NOTE: ONLY NEW ELECTRICAL CONDUIT IS SHOWN FOR CLARITY.

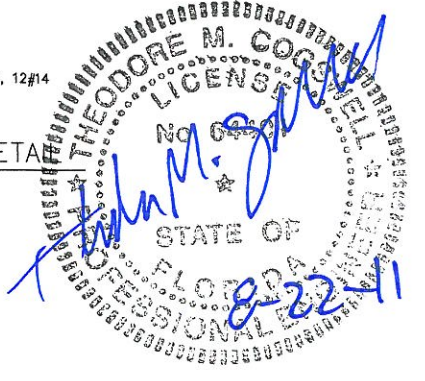
NOTE: P-500 SUMP PUMP CONTROL PANEL BELOW LEAK DETECT RELAY PANEL (SEE ELECTRICAL PANEL ELEVATION DETAIL)



1 ELECTRICAL PANEL ELEVATION DETAIL
NOT TO SCALE



2 JUNCTION BOX DETAIL
NOT TO SCALE



1/4"=1'-0"

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7	8/26/11	AS-BUILT DRAWING UPDATE	MEC	MEC
6	8/26/10	AS-BUILT DRAWING UPDATE	MEC	MEC
5	1/30/09	AS-BUILT DRAWINGS	MEC	MEC

Professional Engineer's Name		THEODORE M. COGSWELL	
Professional Engineer's No.		64401	
State	Date Signed	Project Mgr.	
FL		DS	
Designed by	Drawn by	Checked by	
MEC	MEC	JB	

Professional Engineer's Name		THEODORE M. COGSWELL	
Professional Engineer's No.		64401	
State	Date Signed	Project Mgr.	
FL		DS	
Designed by	Drawn by	Checked by	
MEC	MEC	JB	



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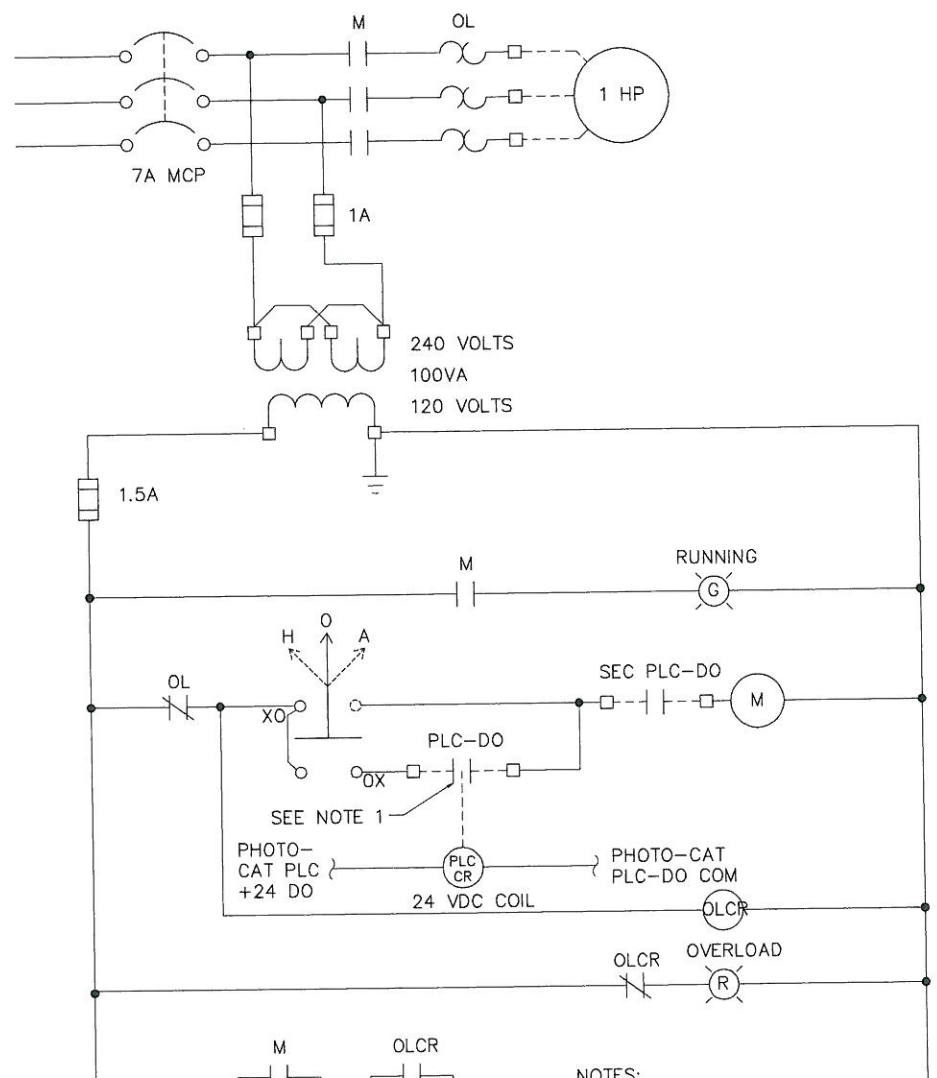
ELECTRICAL LAYOUT

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Date AUGUST 2011
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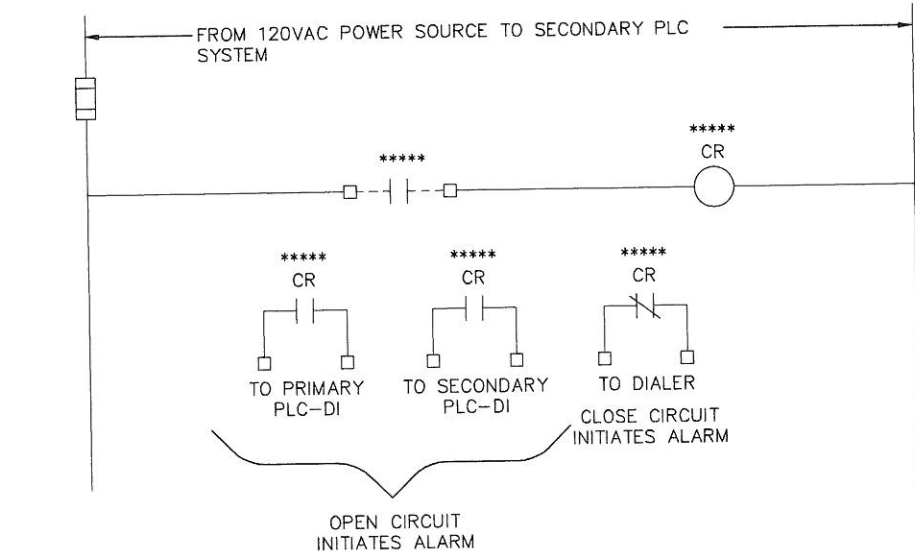
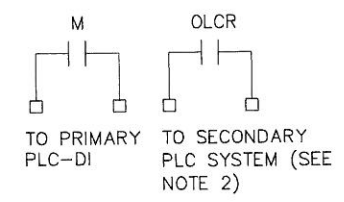
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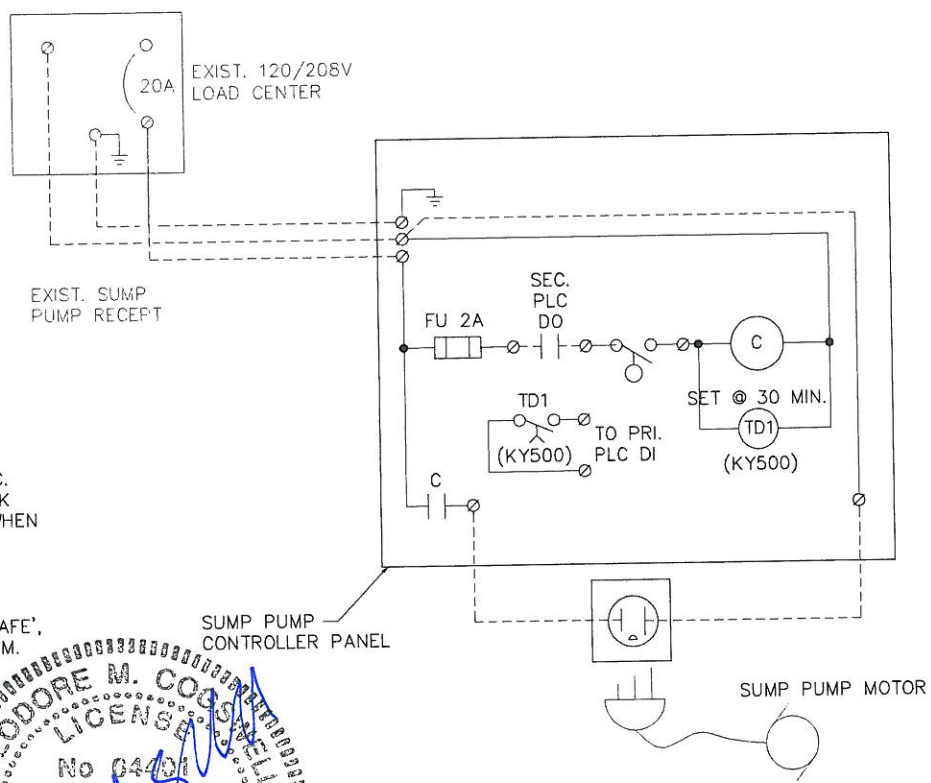


AERATION SYSTEM PUMP P-400

- NOTES:
1. START CONTACT FROM PRIMARY PLC. CLOSES ON LEVEL SETPOINT IN TANK T-400. P-400 WILL SHUT DOWN WHEN P-201 SHUTS DOWN.
 2. TO RELAY IN SECONDARY PLC ENCLOSURE. ALL LOGIC TO THE SECONDARY PLC SYSTEM IS 'FAIL SAFE'. AN OPEN CIRCUIT CAUSES AN ALARM.



TYPICAL FOR ALL SECONDARY PLC INPUTS



SUMP PUMP P-500 CONTROL

ELECTRICAL SPECIFICATIONS

1. INSTALL TWO NEW THERMAL-MAGNETIC 15A, 3 POLE BREAKERS IN THE EXISTING 240 VOLT, 3 PHASE MAIN DISTRIBUTION PANEL. THE BREAKERS SHALL BE OF THE SAME MANUFACTURE AS THE EXISTING BREAKERS AND SHALL HAVE THE SAME INTERRUPTING RATING AS THE EXISTING BREAKERS. ONE BREAKER SHALL BE LABELED 'AERATION PUMP P-400' AND THE OTHER BREAKER SHALL BE LABELED 'AERATION SYSTEM COMPRESSOR AC-601'.

INSTALL ONE 15 AMP SINGLE POLE BREAKER IN THE 115 VOLT LOAD CENTER TO SUPPLY POWER TO THE SECONDARY PLC SYSTEM. THE BREAKERS SHALL BE OF THE SAME MANUFACTURE AS THE EXISTING BREAKERS AND SHALL HAVE THE SAME INTERRUPTING RATING AS THE EXISTING BREAKERS. THE BREAKER LABEL SHALL BE 'SECONDARY PLC SYSTEM'.
2. CONDUIT - ALL CONDUIT SHALL BE HOT DIPPED GALVANIZED STEEL (RGS). ALL FLEXIBLE CONDUIT SHALL BE LIQUID TIGHT METAL FLEXIBLE (LTMF) CONDUIT UL LISTED AS GROUND CONDUCTING. ALL FITTINGS SHALL BE THREADED TYPE. LTMF CONDUIT SHALL BE NOT GREATER THAN 24" AND NOT LESS THAN 9" IN LENGTH. CONDUIT IN GRADE SHALL BE PVC SCHEDULE 80. PVC CONDUIT SHALL CONVERT TO RGS NOT LESS THAN 2" ABOVE FINISHED GRADE AND NOT MORE THAN 6" ABOVE FINISHED GRADE. ALL METAL CONDUIT CONNECTIONS SHALL BE MADE USING A LIBERAL COATING OF A CONDUCTIVE SEALANT SUCH AS T&B'S KOPR SHIELD. THE CONDUCTIVE SEALANT SHALL BE UL APPROVED FOR ELECTRICAL CONDUIT USE. ALL JUNCTION AND PULL BOXES BELOW 30" ABOVE FINISHED FLOOR (AFF) INDOORS AND ALL BOXES OUTDOORS SHALL BE NEMA 4 METALLIC. CONDUIT SHALL BE SPACED A MINIMUM OF 1/4" FROM ANY SURFACE. ALL CHANNEL FOR CONDUIT SPACING, CONDUIT SUPPORT, TRAPEZE SYSTEMS, EQUIPMENT MOUNTING, ETC. SHALL BE HOT DIPPED GALVANIZED STEEL WITH A MINIMUM 1.5 OUNCES PER SQUARE FOOT PER SIDE AS PER ASTM A123. THE HANGER RODS FOR THE TRAPEZE SHALL BE 3/8" DIAMETER 316 SS ALL THREAD ROD. MOUNTING HARDWARE SUCH AS BEAM CLAMPS, ETC. SHALL BE EITHER HOT DIPPED GALVANIZED STEEL TO THE COATING SPEC ABOVE OR 316 SS. ALL BOLTS, NUTS, WASHERS, CHANNEL SPRINGS, ETC. SHALL BE 316 SS.
3. WIRING - WIRING SHALL BE STRANDED XHHW EXCEPT SIGNAL CABLE. SIGNAL CABLE SHALL BE TWISTED SHIELDED #18AWG. THE SHIELD SHALL BE 100% FOIL TYPE WITH DRAIN WIRE. SIGNAL WIRING SHALL NOT BE SPLICED. AT ITS TERMINI, A GIVEN SIGNAL CABLE SHALL WIRED TO 3 CONSECUTIVE TERMINALS (+, -, DRAIN) IN ORDER TO KEEP THE STRIPPING OF THE OUTER INSULATION AND SHIELD TO A MINIMUM. SPLICING OF CONTROL AND POWER WIRING, WHERE NECESSARY, SHALL BE DONE VIA TERMINALS IN A JUNCTION BOX WITH A BACK PANEL TO MOUNT THE TERMINALS. WIRE NUT SPLICES ARE NOT ACCEPTABLE.
4. THE SECONDARY PLC SYSTEM SHALL BE MOUNTED WITHIN A NEMA 12 METALLIC ENCLOSURE. THE ENCLOSURE SHALL BE SUPPLIED WITH AN INTERNAL MOUNTING PANEL. THE ENCLOSURE SHALL BE OF SUFFICIENT SIZE TO HOUSE THE SECONDARY PLC RACK AND ALL ITS COMPONENTS; THE 3 POLE RELAYS; TERMINALS FOR ALL FIELD WIRING, ETC. THE ENCLOSURE SHALL ALSO CONTAIN A UPS CAPABLE OF PROVIDING 2 HOURS OF OPERATING TIME AT MAXIMUM LOAD. EVERY THING WITHIN THE ENCLOSURE POWERED BY THE LIGHTING PANEL CIRCUIT FOR THE SECONDARY PLC SYSTEM SHALL BE CONSIDERED THE LOAD FOR THE UPS. THE SECONDARY PLC SHALL NOT BE CONNECTED TO ANY REMOTE VIEWING, PROGRAMMING OR REMOTE SET POINT DEVICE. EACH SECONDARY PLC DIGITAL OUTPUT POINT SHALL BE ISOLATED, RELAY OUTPUT TYPE. THE DIGITAL OUTPUT SHALL DRIVE A RELAY WITH A 120V COIL AND THE OUTPUT SHALL BE IN SERIES WITH THE LOAD DEVICES INTENDED TO BE SHUT DOWN. ALL SYSTEMS SHALL BE FAIL SAFE. THE RELAY COILS SHALL BE ENERGIZED UNDER NORMAL CONDITIONS. THE PLC I/O SHALL HAVE A MINIMUM OF 25% SPARES AND SHALL BE EXPANDABLE BEYOND THE SPARES. THE RELAY SHALL BE A "ICE CUBE" PLUG-IN TYPE WITH 3PDT CONTACTS RATED FOR 1/2 HP AT 120 VAC. THE COIL SHALL BE 120VAC WITH PILOT LIGHT.
5. SUMP PUMP CONTROL PANEL - CONTACTOR-SQUARE D 8502SB05V02; TIME DELAY RELAY-SQUARE D 9050JCK18V20 WITH 8501NR51 RELAY BASE; FUSE, FIELD TERMINAL STRIP AND DIN RAIL; TWO BOTTOM MOUNTED METALLIC CORD GRIP CONNECTORS FOR THE PUMP CORD AND THE FLOAT CORD; ENCLOSURE-NEMA 12 METAL WITH CONTINUOUS PIANO HINGE AND FLANGE CLAMPS, INTERIOR EQUIPMENT MOUNTING PANEL.

NOT TO SCALE

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No.	Date	Revisions	By	Ckd
7	8/26/11	AS-BUILT DRAWING UPDATE	MEC	MEC
6	8/26/10	AS-BUILT DRAWING UPDATE	MEC	MEC
5	1/30/09	AS-BUILT DRAWINGS	MEC	MEC

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Professional Engineer's Name THEODORE M. COGSWELL		
Professional Engineer's No. 64401		
State FL	Date Signed	Project Mgr. DS
Designed by MEC	Drawn by MEC	Checked by JB



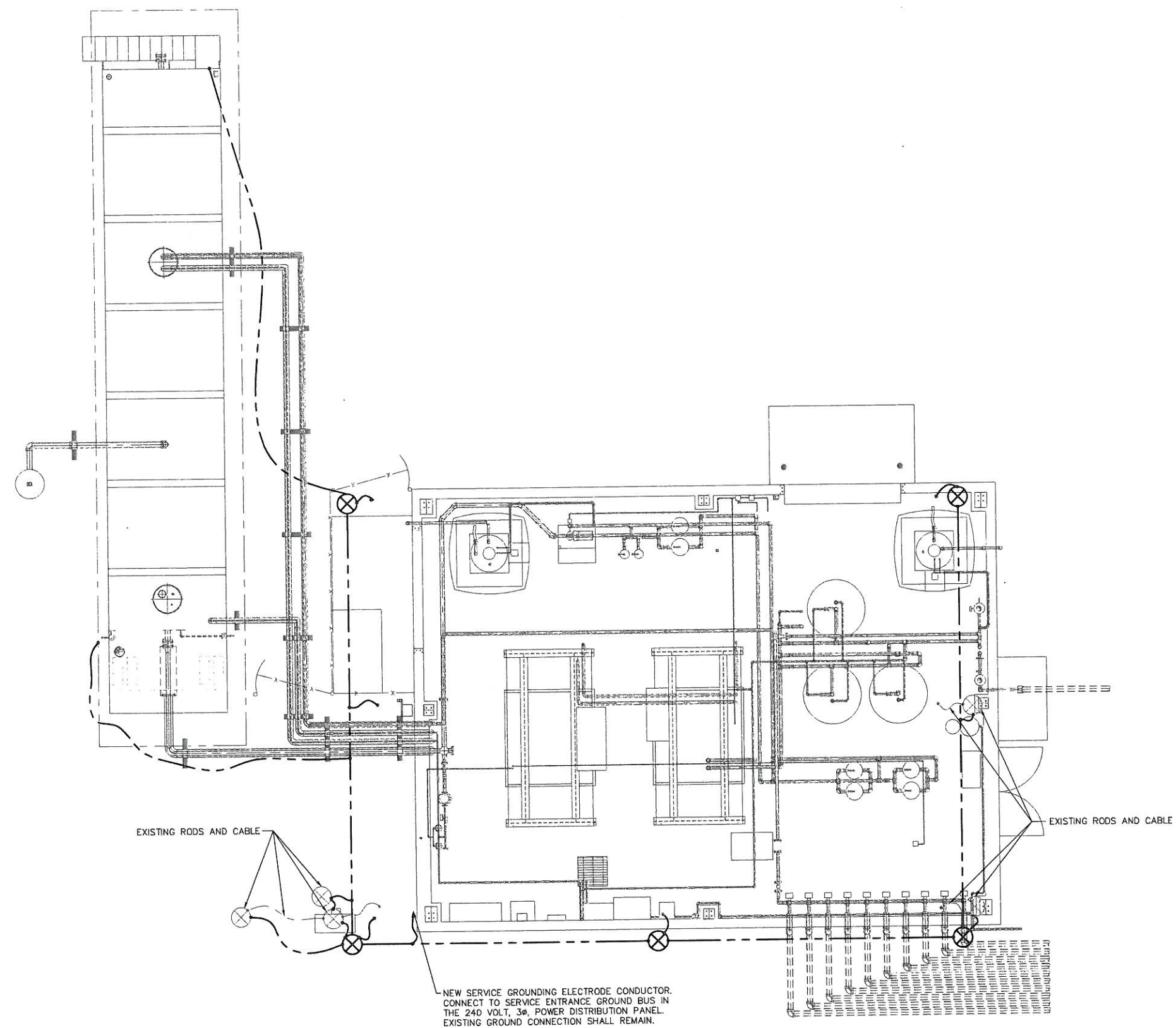
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CONSTRUCTION DRAWINGS

ELECTRICAL DETAILS

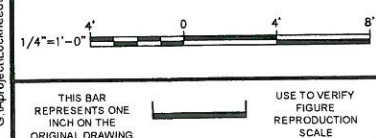
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ARCADIS 3350 BUSCHWOOD PARK DR. SUITE 100 TAMPA, FLORIDA 33618 (813) 933-0697

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- NOTES:
- GROUND CABLE AND ALL PIGTAILS SHALL BE #4/0 BARE COPPER GROUND CABLE.
 - GROUND ROD SHALL BE 3/4" BY 10' COPPER CLAD STEEL.
 - ALL CONNECTIONS EXCEPT AT THE T-401 TANK SHALL BE VIA CRUCIBLE WELD METHOD. AT THE T-401 TANK THE GROUND CONNECTIONS SHALL BE MECHANICAL CONNECTIONS UL APPROVED FOR GROUND SYSTEMS. THE LUG CONNECTED TO THE GROUNDING PIGTAILS SHALL BE HIGH COMPRESSION TYPE WITH LUGS AND COMPRESSION EQUIPMENT UL APPROVED FOR GROUNDING SYSTEMS.
 - ALL EXISTING ROD SHALL BE CONNECTED TO THE NEW GROUNDING SYSTEM VIA THE CRUCIBLE WELD METHOD.
 - THE GROUND GRID CABLE SHALL BE A MINIMUM OF 24" BELOW GRADE.



No.	Date	Revisions	By	Ckd
7	8/28/11	AS-BUILT DRAWING UPDATE	MEC	MEC
6	8/28/10	AS-BUILT DRAWING UPDATE	MEC	MEC
5	1/30/09	AS-BUILT DRAWINGS	MEC	MEC

Professional Engineer's Name THEODORE M. COGSWELL		
Professional Engineer's No. 64401		
State FL	Date Signed	Project Mgr. DS
Designed by MEC	Drawn by MEC	Checked by JB

ARCADIS
 ARCADIS U.S., INC.
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 NUMBER 7917

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 CONSTRUCTION DRAWINGS

ELECTRICAL LAYOUT GROUNDING SYSTEM

GENERAL

ARCADIS Project No. B0038055.0038.00002
Date AUGUST 2011
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