



**SAN ANTONIO WATER SYSTEM**  
**DSP WATER PRODUCTION FACILITY UPGRADES PROJECT**

**SAWS JOB NUMBER 12-6103**

**ADDENDUM NO. 1**  
**September 23, 2013**

**To Respondent of Record:**

This addendum, applicable to work referenced above, is an amendment to the bidding documents and as such will be a part of and included in the Contract Documents. Acknowledge receipt of this addendum by entering the addendum number and issue date in the space provided in submitted copies of the proposal.

**A. Mandatory Pre-Proposal Meeting and Site Visits**

As outlined in the Invitation for Competitive Sealed Proposals, proposals will not be accepted from any company who was late or not represented at both the mandatory pre-proposal meeting and mandatory site visit on September 18, 2013 at 10:00 a.m. The following is a record of the represented firms that attended both events:

- Alterman Electric
- Archer Western
- Associated Construction Partners (ACP)
- Bartek Construction
- Cunningham Constructors & Associates
- Durasite Construction, LLC
- HJD Capital Electric
- Jep Landscaping & Maintenance
- Lambda Construction
- Loran C Company
- MGC Contractors
- Pesado Construction
- Prime Controls
- Pronto Sandblasting & Coating and Oil Field Services
- R&R Paint and Contract Services

**B. Questions and Answers**

Question #1

Q1. Regarding the subject project - is this taxable or exempt?

A1. *The project is tax exempt.*

Question #2

Q1. Refer to 2.01D in Section 09970. Is this system intended to coat the walls of the existing buildings at the pump station sites? If so, are both the interior and exterior wall surfaces to be coated? If the walls of these buildings are to be coated, can you furnish building dimensions?

*A1. The system is intended to coat all concrete surfaces of the existing buildings at the Blackhawk and Pitluk pump stations. Both, the interior and exterior surfaces will be coated. For bidding purposes, contractor will include in his bid two (2) 10 feet by 10 feet buildings located at the Blackhawk PS, and two (2) 12 feet by 22 feet buildings located at the Pitluk PS.*

Q2. Refer to 2.01D in Section 09970. Is this system intended to coat the new concrete slab surfaces at the pumps and electrical equipment?

*A2. New concrete slab surfaces located at the wells and electrical equipment will not be coated.*

Q3. Refer to 2.01C in Section 09970. Is this system intended to coat the underside of the new steel decking at the steel canopies, or just the new structural steel framing at the canopies?

*A3. The system is intended to coat the underside surfaces of all steel decking at the new steel canopies. All metal surfaces associated with the canopies will be coated with this system.*

Question #3

Q1. If this project is going to be awarded based on one lump sum would it be possible to reduce the bid form to one lump sum plus the allowance items?

*A1. The price proposal form will not be revised.*

Question #4

Q1. Can integrators qualifications be submitted after award of contract?

*A1. Contractors are encouraged to submit all of their qualifications with their Price Proposal by the date indicated on the Invitation for Competitive Sealed Proposals in order for the San Antonio Water System to perform an appropriate review of the sealed proposals.*

Q2. Please clarify what scope SAWS considers as part the well mudding allowance? Is it complete from well shutdown to well operation including but not limited to material, frac tanks, vacuum trucks, temporary valves, etc..?

*A2. The scope of work associated with the well mudding allowance can be found in section 02525-2, 3.02, of the technical specifications. This allowance will only be used by SAWS should the Edwards Aquifer static water level exceeds the ground elevation of the Pitluk PS. Contractor will furnish commercial drilling mud as necessary to maintain the holes in a satisfactory condition.*

Question #5

Q1. KST Electric would like to be an approved PCSI in order to bid the DSP Water Production Facility Upgrades Project. We are not currently listed as an approved PCSI within the specs. What can we do to be permanently added to the approved PCSI list? We have, and currently are, performing this type of work for SAWS. We consistently have to email you to be added to the list which means an addendum must be generated. Is there someone we can talk to in order to discuss? We will continue to bid this type for work for SAWS since we have been successful in the past on these types of projects. We are just curious what we can do so we do not have to always ask you for each job we bid.

A1. *See revised section 17300. See response to Question #4.*

Question #6

We have questions regarding Specification Section 17310, Field Instruments, 2.02 Pressure Transmitter. We are requesting clarification since the Rosemount model number 2088G2S22A1B4DWM7 requested conflicts with a couple of lines in the written specification.

Q1. A.1. Local and remote indication – The part number does have LCD display on the transmitter. Please clarify what is meant by remote indication.

A1. *Remote indication refers to the locally mounted LCD display.*

Q2. A.6. Stainless Steel certification tag for Factory Mutual (FM) Explosion Proof rating – The Explosion Proof rating is an option and can be added to the part number. Not being in an intrinsically safe area, not sure why this option would be needed. Please advise.

A2. *Explosion Proof rating requirement will be removed from the specification.*

Q3. B.3. Accuracy: +/- 0.075% of span – This is an option for higher accuracy that is not ask in the part number. Standard accuracy is +/- 0.10% of span. Please clarify if the option needs to be added.

A3. *Accuracy requirement will be changed to +/- 0.10% of span to match model number.*

**C. Modifications to the Specifications**

1. SUPPLEMENTARY CONDITIONS

Add the following:

Article V. CONTRACT RESPONSIBILITIES

5.7.1.1.8 Builder's Risk Line of Coverage is waived for this project.

2. SECTION 16722 – CCTV SURVEILLANCE AND SECURITY SYSTEMS

Page 16722-3, add 2.01.D.2. “A Cisco GLC-SX-MM fiber SPF module must be furnished and installed in switch for fiber optic cable connection.”

3. SECTION 17300 – INSTRUMENTATION – GENERAL PROVISIONS

Page 17300-1, Paragraph 1.01.F.1. Remove the reference to the “Somerset Pump Station” such that it now reads”....Panel as shown in the contract drawings.”

Page 17300-5, Paragraph 1.04.A.14. Add “or applicable codes and ordinances per area’s site location.”

Page 17300-5, Paragraph 1.05.B. Delete the sentence: “Only approved suppliers, as listed herein, are approved”.

Page 17300-6, Paragraph 1.05.D. Delete the words: “The PCSI shall be one of the following:” and replace with “Recommended PCSI Suppliers:”

Page 17300-7, Paragraph 1.06.D. Replace “The ASP shall be:” with “Recommended ASP providers:”

Page 17300-7, Paragraph 1.06.D. Replace “NO APPROVED EQUALS” with “Other.”

4. SECTION 17310 – FIELD INSTRUMENTS

Page 17310-3, Paragraph 2.02.A.6. Remove entire sentence.

Page 17310-3, Paragraph 2.02.B.3. Change accuracy from +/- 0.075% of span to +/- 0.10% of span.

5. SECTION 17325 – SCADA SECURITY PANEL

Page 17325-3, Paragraph 1.04.A.31. Add “or applicable codes and ordinances per area’s site location.”

6. SECTION 17400 CONTROL LOOP DESCRIPTIONS

Page 17400, add new paragraph section 2.08 as follows:

2.08 CHLORINE CYLINDER WEIGHT

Local

- The chlorine cylinder weight can be read at the local scale.

Remote Manual

- None.

Remote Automatic

- None.

SCADA Interface

- The PLC monitors the data using the weight indicator and transmits a signal to the Production Control Room. The operators can read the weight in pounds.
- The PLC monitors the weight value and alerts the Production Control Room operator with a low weight alarm.

7. SECTION 17500 – PROGRAMMABLE LOGIC CONTROLLER

Page 17500-4, Paragraph 2.01, B.1. Remove all programming languages except for “Function Block Diagram (FBD)”.

8. SECTION 17515 – COMMUNICATIONS INTERFACE EQUIPMENT

Page 17515-1, Paragraph 1.01.A. Change the last sentence in the paragraph to “Security equipment as shown in the Contract Drawings will be located in the upper portion of the SCADA/Security panel.”

Page 17515-1, Paragraph 1.02, “RELATED SECTION”, insert a new A. with the following “Section 16722 CCTV surveillance and security system”.

Page 17515-3, Paragraph 2.01 add the following “B” and “C”: “B. A Cisco GLC-SX-MM fiber SPF module must be furnished and installed in switch for fiber optic

cable connection.” “C. Multimode fiber optic cable shall be supplied and installed for the connection between the Ethernet switch and the security router.”

Page 17515-3, Paragraph 2.03.B Delete “4.9-5.9 GHz, 14 inch, 23dBi, 8 degree” and “Vertical Mounting Kit For Terminal Unit Redline 3K-LW-MNT-SS-02”

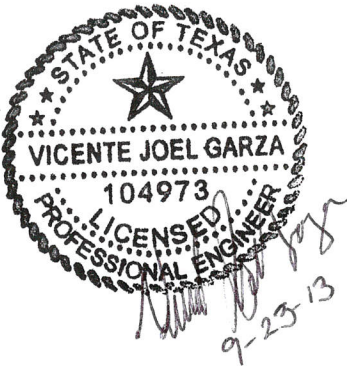
Page 17515-3, Paragraph 2.03.B Delete “PTP to PMP upgrade for security Redline SecurelinkPTP-SecurelinkSC”

**D. Modifications to Drawings**

1. The following drawings have been revised: E-100; E-103; E-104; E-106; E-107; E-108; E-110; E-113; E-200; E-203; E-204; E-206; E-207; E-208; E-210; E-300; E-303; E-304; E-307; E-308; E-310; E-400; E-403; E-404; E-406; E-407; E-408; E-410; and E-503.
  - a. See attached drawings.

**ACKNOWLEDGMENT BY BIDDER**

Each respondent is requested to acknowledge receipt of this Addendum No. 1 by his/her signature affixed hereto and to file same with and attach to his/her proposal.



Vicente J. Garza, P. E.  
TXBPE 104973  
San Antonio Water System  
Project Engineer

The undersigned acknowledges receipt of this Addendum No. 1 and the proposal submitted herewith is in accordance with the information and stipulations set forth.

\_\_\_\_\_  
Date

\_\_\_\_\_  
Signature of Bidder



San Antonio Water System

# MEETING SIGN-IN SHEET

<b>Project:</b> DSP Water Production Facility Upgrades Project	<b>Meeting Date:</b> 09/18/13
<b>Subject:</b> Mandatory Pre-proposal Meeting	<b>Place/Room:</b> CR-C452

Name	Company	Phone	E-Mail
Diana W. Dwyer	SAWS	210-233-3372	ddwyer@saws.org
ROBERT G. RODRIGUEZ <sup>RR</sup>	R+R PAINT & CONTRACTORS	210-340-6362	RGR650@GMAIL.COM
JEFF HODGES <sup>gm</sup>	R+R CONTRACTOR	210-859-5092	jeffhodges08@gmail.com
WAYLAN SIMMONS	LAMBDA CONSTRUCTION	830-629-5800	waylan@stx.tv.com
Nelson Froboese NF	Alterman Electric	210-496-6888	NFroboese@goAlterman.com
Damian Porter DF	Cunningham Constructors & Assoc	512-863-2131	cca017@ecpi.com
Henry Bosquez	Bosquez Electric	210-415-2276	hbosquez2@hbosquez.com
PAT LANDRYM	DURASITE CONST. HJD	281-541-9403	PATL@DURASITECONSTRUCTION.COM
EDDIE FISCHER <sup>HJD</sup>	Capital Electric	210-589-0745	efischer@hjdcapital.com
KIRBY ANDERSON <sup>MG</sup>	MGC CONTRACTORS LLC	210-694-0865	TKBIDS@mgcontractors.com



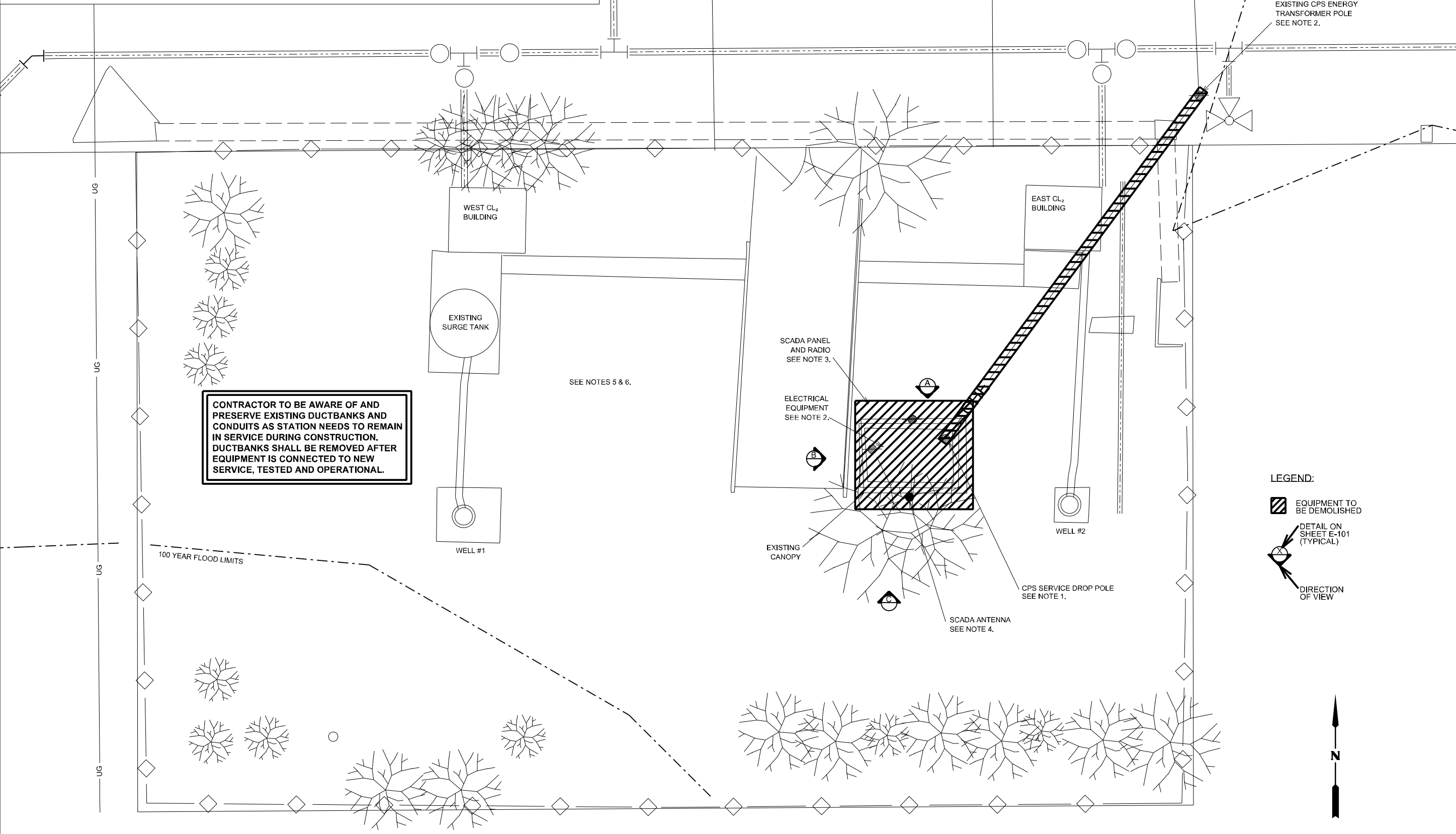
# MEETING SIGN-IN SHEET

<b>Project:</b> DSP Water Production Facility Upgrades Project	<b>Meeting Date:</b> 09/18/13
<b>Subject:</b> Mandatory Pre-proposal Meeting	<b>Place/Room:</b> CR-C452

Name	Company	Phone	E-Mail
Sandra Ross	SAWS	233-3385	SRoss@saws.org
<del>Jason</del> Jason Ford	Prime Controls	281-253-2120	J.ford@prime-controls.com
Mike Cox	PESADO Construction Co., Inc	210-651-4452	mcox@pesadocor.com
Rod Lunkwitz RL	ARCHER WESTERN	817-640-3898	RLUNKWITZ@WALSHGROUP.COM
Austin Adkins WA	" "	512-563-2698	AADKINS@WALSHGROUP.COM
Kimberly Murphy KM	Bartek	210-648-4780	Kim@bartektx.com
Sharm Painter SP	Pronto	210-633-2039	prntosandbashing@SATX.RR.COM
Noel Burns	Mar Cor Associated	(210) 243-4892	NBurns@mcpcr.com
Bill Sturgis BS	ACP Construction Partners	210-842-3128	jill@acpartners.org
Dale McChesney DM	Loran C Company	713-442-1998	dalemchelsey@loranccompany.com
SEP Maintenance Inc	SEP Maintenance Inc	—	SEPMAINTENANCE@yahoo.com
PAUL GRAP	Grays Eba	210-861-7906	Paulgrategr@com
Vicente J Garza	SACUS	210-233-3596	vgarza@sacus.org
Waylan Simmons	LAMBDA CONST.	830-629-5808	waylan@SATX.IV.COM
Mike Cox	PESADO		
Joe Panagopoulos	SEP Maint.	—	SEPMAINTENANCE@yahoo.com

- NOTES:
1. CONTRACTOR SHALL COORDINATE WITH CPS ENERGY REGARDING THE DISCONNECTION OF EXISTING SERVICE DROP AFTER PROPOSED MCC IS ENERGIZED AND ALL LOADS ARE CONNECTED, TESTED AND OPERATIONAL.
  2. EXISTING CPS ENERGY SERVICES ELECTRICAL PANELS, CANOPY, LIGHTING AND CONCRETE SLAB TO BE DEMOLISHED AFTER NEW MCC IS FULLY ENERGIZED, TESTED AND OPERATIONAL. SAWS HAS FIRST RIGHT OF REFUSAL OF SALVAGEABLES. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL UNSALVAGEABLE EQUIPMENT.
  3. CONTRACTOR TO REMOVE EXISTING SCADA AND INTERCONNECT PANELS AFTER PROPOSED SCADA AND INTERCONNECT PANELS HAVE BEEN TESTED AND OPERATIONAL.
  4. CONTRACTOR TO REMOVE EXISTING SCADA ANTENNA AFTER PROPOSED ANTENNA IS INSTALLED, TESTED AND OPERATIONAL.
  5. ANY ABANDONED DUCTBANKS SHALL BE REMOVED AS PART OF THIS PROJECT. REFER TO SHEET CB-5 FOR APPROXIMATE EXISTING DUCTBANK LOCATIONS.
  6. ALL REPLACED CONDUITS/CABLES SHALL BE REMOVED. IF REMOVAL IS NOT POSSIBLE, ABANDONED CONDUITS SHALL BE PLUGGED AT GRADE.

# BLACKHAWK TRAIL (60' R.O.W.)



**CONTRACTOR TO BE AWARE OF AND PRESERVE EXISTING DUCTBANKS AND CONDUITS AS STATION NEEDS TO REMAIN IN SERVICE DURING CONSTRUCTION. DUCTBANKS SHALL BE REMOVED AFTER EQUIPMENT IS CONNECTED TO NEW SERVICE, TESTED AND OPERATIONAL.**

**LEGEND:**

- EQUIPMENT TO BE DEMOLISHED
- DETAIL ON SHEET E-101 (TYPICAL)
- DIRECTION OF VIEW

**SCALE IN FEET**

0 5 10

**N**

<b>JOB NO.</b> 12-6103	
<b>Date</b> 9/20/13	<b>Approved</b> RDG
<b>Drn.</b> SG	<b>ADDENDUM #1</b>
<b>No.</b> 1	
<b>INFORMATION</b>	
GRUBB ENGINEERING, INC. ELECTRICAL POWER SYSTEMS DESIGN & TESTING TYPE FIRM REGISTRATION #8904 3128 SHINE #89008 SAN ANTONIO, TEXAS 78255 PHONE: 210.588.7500 FAX: 210.588.0865	
<b>Date:</b> 08/16/2013	<b>Drawn by:</b> SG
<b>Designed by:</b> BLD, CKG	<b>Checked by:</b> PG, SM
<b>Scale:</b> AS NOTED ABOVE	<b>Approved by:</b> RDG
<b>Map No.:</b> XXX-XXX	
<b>San Antonio Water System</b>	
<b>JOB NO 12-6103 DSP WATER PRODUCTION FACILITY UPGRADES DEMOLITION ELECTRICAL SITE PLAN SAWS BLACKHAWK PUMP STATION FACILITY #66</b>	
<b>DRAWING NO.</b> E-100 51 OF 107	

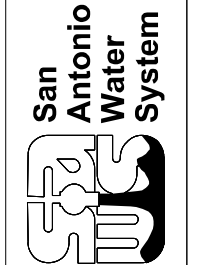




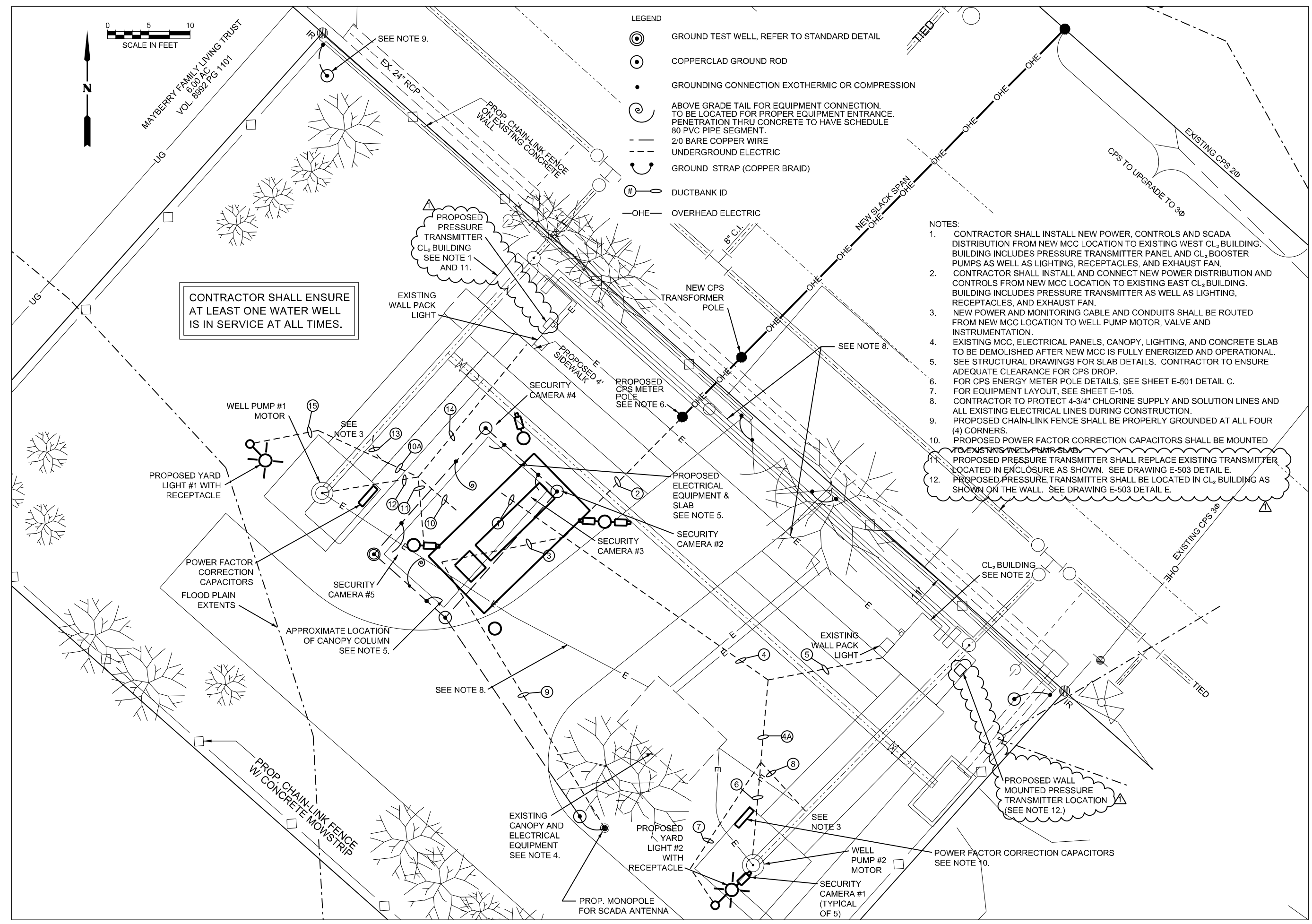
Revisions	No.	Description	Drn.	Approved	Date
	ADDENDUM #1		SG	RDG	9/20/13

**GRUBB ENGINEERING, INC.**  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING  
TYPE FIRM REGISTRATION #9904  
3128 SHINE BROOKS, SAN ANTONIO, TEXAS 78265  
TEL: 210.986.7500 FAX: 210.986.8865

Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: P.G., SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
ELECTRICAL SITE PLAN  
SAWS BLACKHAWK PUMP STATION  
FACILITY #66

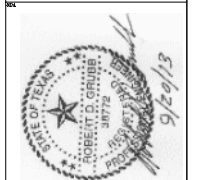


- LEGEND**
- GROUND TEST WELL, REFER TO STANDARD DETAIL
  - COPPERCLAD GROUND ROD
  - GROUNDING CONNECTION EXOTHERMIC OR COMPRESSION
  - ABOVE GRADE TAIL FOR EQUIPMENT CONNECTION. TO BE LOCATED FOR PROPER EQUIPMENT ENTRANCE. PENETRATION THRU CONCRETE TO HAVE SCHEDULE 80 PVC PIPE SEGMENT.
  - 2/0 BARE COPPER WIRE
  - UNDERGROUND ELECTRIC
  - GROUND STRAP (COPPER BRAID)
  - DUCTBANK ID
  - OVERHEAD ELECTRIC

- NOTES:**
1. CONTRACTOR SHALL INSTALL NEW POWER, CONTROLS AND SCADA DISTRIBUTION FROM NEW MCC LOCATION TO EXISTING WEST CL<sub>2</sub> BUILDING. BUILDING INCLUDES PRESSURE TRANSMITTER PANEL AND CL<sub>2</sub> BOOSTER PUMPS AS WELL AS LIGHTING, RECEPTACLES, AND EXHAUST FAN.
  2. CONTRACTOR SHALL INSTALL AND CONNECT NEW POWER DISTRIBUTION AND CONTROLS FROM NEW MCC LOCATION TO EXISTING EAST CL<sub>2</sub> BUILDING. BUILDING INCLUDES PRESSURE TRANSMITTER AS WELL AS LIGHTING, RECEPTACLES, AND EXHAUST FAN.
  3. NEW POWER AND MONITORING CABLE AND CONDUITS SHALL BE ROUTED FROM NEW MCC LOCATION TO WELL PUMP MOTOR, VALVE AND INSTRUMENTATION.
  4. EXISTING MCC, ELECTRICAL PANELS, CANOPY, LIGHTING, AND CONCRETE SLAB TO BE DEMOLISHED AFTER NEW MCC IS FULLY ENERGIZED AND OPERATIONAL. SEE STRUCTURAL DRAWINGS FOR SLAB DETAILS. CONTRACTOR TO ENSURE ADEQUATE CLEARANCE FOR CPS DROP.
  5. FOR CPS ENERGY METER POLE DETAILS, SEE SHEET E-501 DETAIL C.
  6. FOR EQUIPMENT LAYOUT, SEE SHEET E-105.
  7. CONTRACTOR TO PROTECT 4-3/4" CHLORINE SUPPLY AND SOLUTION LINES AND ALL EXISTING ELECTRICAL LINES DURING CONSTRUCTION.
  8. PROPOSED CHAIN-LINK FENCE SHALL BE PROPERLY GROUNDED AT ALL FOUR (4) CORNERS.
  9. PROPOSED POWER FACTOR CORRECTION CAPACITORS SHALL BE MOUNTED TO EXISTING WELL PUMP SLAB.
  10. PROPOSED PRESSURE TRANSMITTER SHALL REPLACE EXISTING TRANSMITTER LOCATED IN ENCLOSURE AS SHOWN. SEE DRAWING E-503 DETAIL E.
  11. PROPOSED PRESSURE TRANSMITTER SHALL BE LOCATED IN CL<sub>2</sub> BUILDING AS SHOWN ON THE WALL. SEE DRAWING E-503 DETAIL E.
  - 12.

CONTRACTOR SHALL ENSURE AT LEAST ONE WATER WELL IS IN SERVICE AT ALL TIMES.

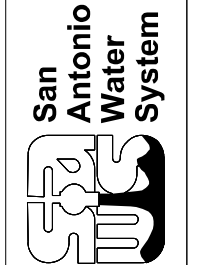




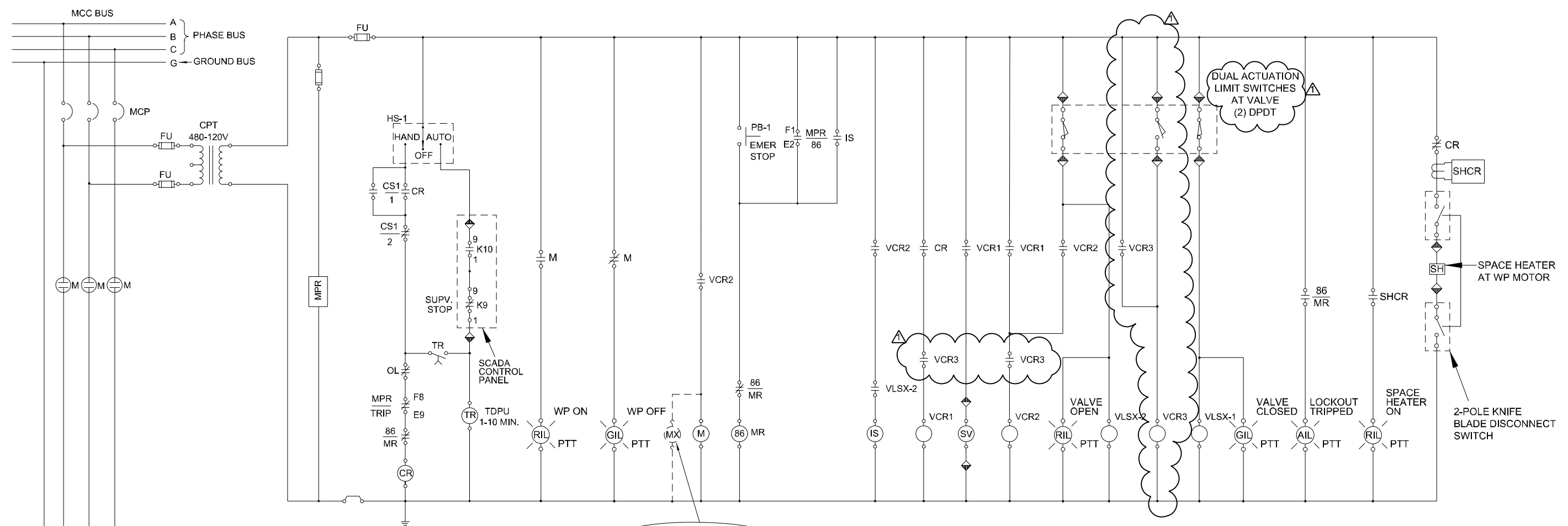
No.	Description	Drn.	Approved	Date
1	ADDENDUM #1	SG	RDG	9/20/13

**INFORMATION**  
 GRUBB ENGINEERING, INC.  
 ELECTRICAL POWER SYSTEMS  
 DESIGN & TESTING  
 TYPE FIRM REGISTRATION #9904  
 3128 SHINE #POONS SAN ANTONIO, TEXAS 78205  
 (817) 206-8250 FAX (214) 684-8865

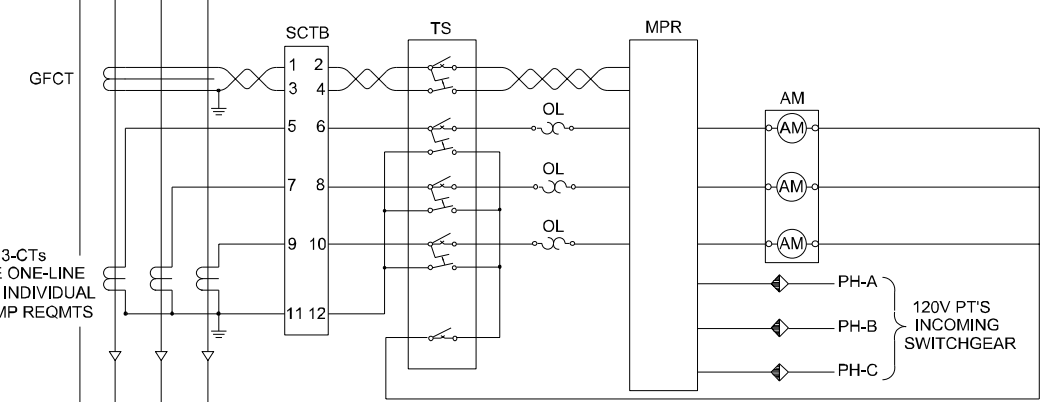
Date: 08/16/2013  
 Drawn by: SG  
 Designed by: BLD, CKG  
 Checked by: PG, SM  
 Scale: AS NOTED ABOVE  
 Approved by: RDG  
 Map No: XXX-XXX



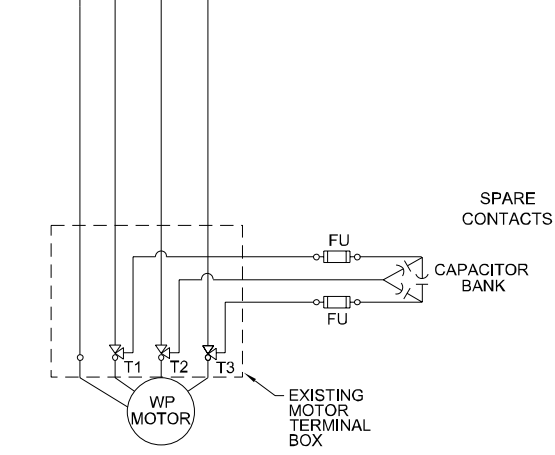
JOB NO 12-6103  
 DSP WATER PRODUCTION  
 FACILITY UPGRADES  
 WELL PUMP MOTOR CONTROL SCHEMATIC  
 SAWS BLACKHAWK PUMP STATION  
 FACILITY #66



MX TO BE FURNISHED IF NECESSARY IN THE EVENT M RELAY DOES NOT HAVE SUFFICIENT CONTACTS

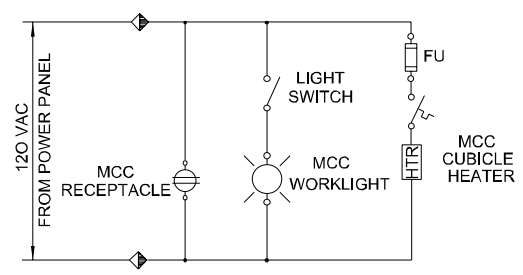


3-CTs SEE ONE-LINE FOR INDIVIDUAL PUMP REQMTS



CONTACT	START	NORMAL		
		AFTER START	AFTER STOP	STOP
1	X			
2	X	X	X	
3				X
4				X

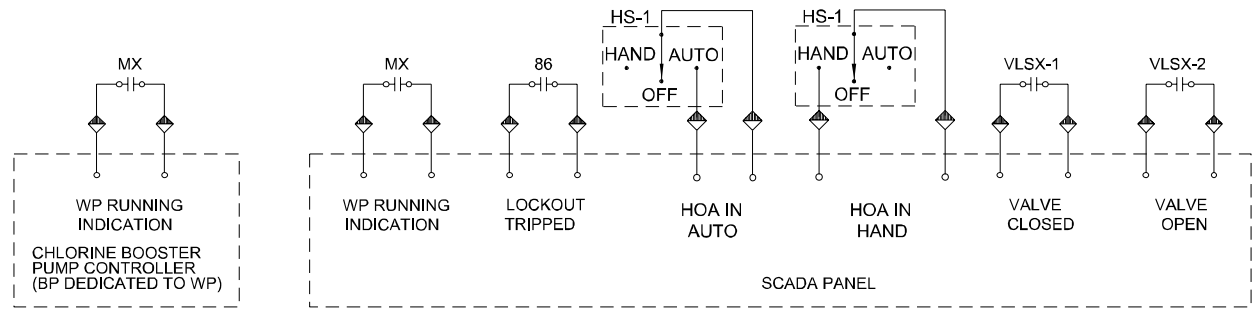
X - INDICATES CONTACT IS CLOSED



◆ TERMINAL POINT IN WP MOTOR STARTER/CONTROLLER CUBICLE  
 DARK SIDE INDICATES CONNECTION INTERNAL TO PANEL.

**LEGEND**

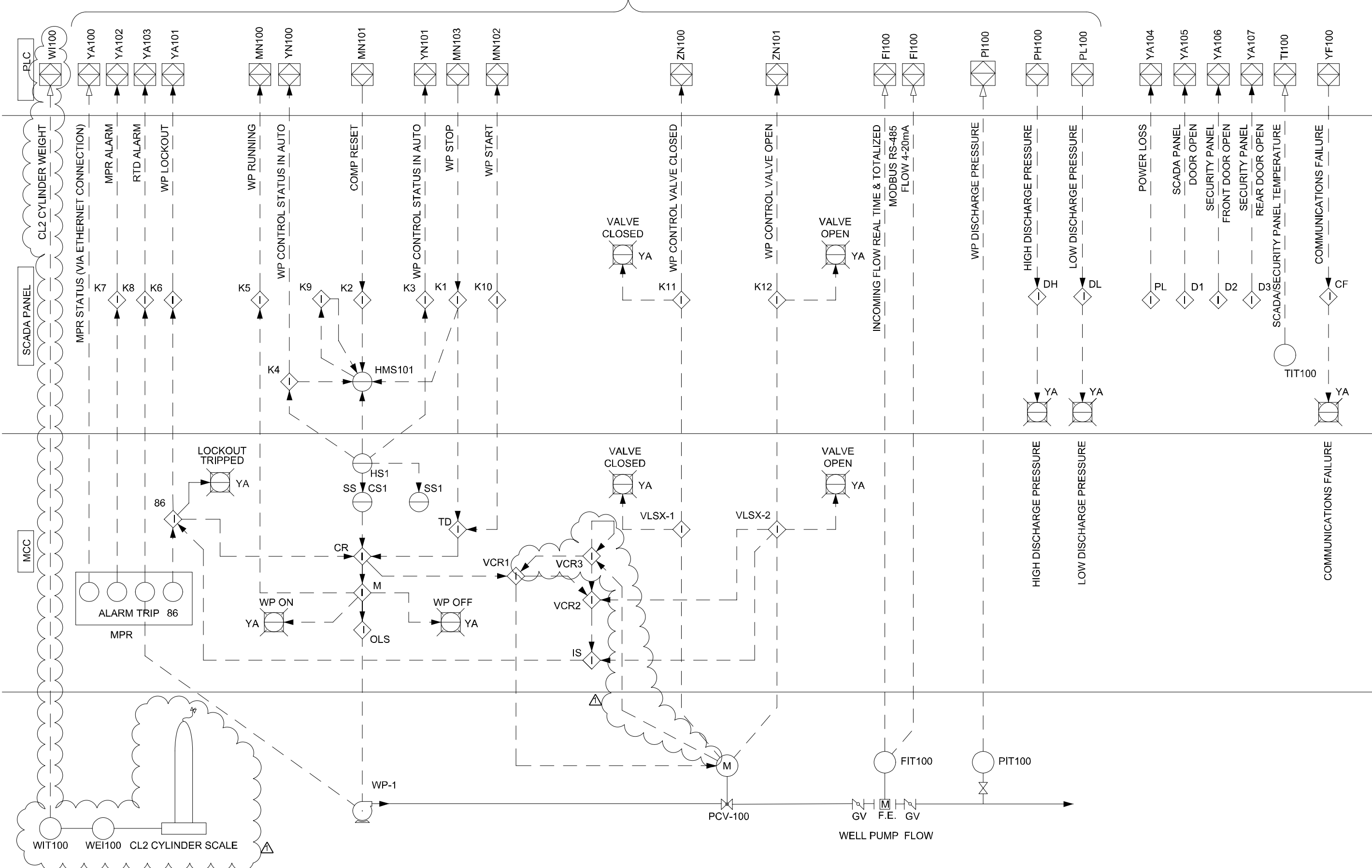
AIL	AMBER INDICATING LIGHT	PB	PUSHBUTTON
AM	AMMETER	RIL	RED INDICATING LIGHT
BTR	BEARING TEMPERATURE RTD RELAY	RTD	RESISTANCE TEMPERATURE DEVICE
CPT	CONTROL POWER TRANSFORMER	SCTB	SHORTING CURRENT TRANSFORMER BLOCK
CR	CONTROL RELAY	SEC	SECONDS
CS	CONTROL SWITCH	SHCR	SPACE HEATER CURRENT RELAY
CT	CURRENT TRANSFORMER	SS	SELECTOR SWITCH
EMER	EMERGENCY	SUPV	SUPERVISORY
FT	FLOW TRANSMITTER	TDDO	TIME DELAY AFTER DROP OUT
FU	FUSE	TDPU	TIME DELAY AFTER PICK UP
GIL	GREEN INDICATING LIGHT	TS	TEST SWITCH
IS	INCOMPLETE SEQUENCE	TR	TIMING RELAY
M	MAIN CONTACTOR AUX. CONTRACT	VCR	VALVE CONTROL RELAY
MCP	MOTOR CIRCUIT PROTECTOR	VLS	VALVE LIMIT SWITCH
MIN	MINUTES	VLSX	VALVE POSITION INDICATION RELAY
MPR	MOTOR PROTECTION RELAY	WP	WELL PUMP
MX	MAIN CONTACTOR AUXILIARY RELAY	86	LOCKOUT RELAY
OL	OVERLOAD RELAY	△	CABLE TERMINATION
PTT	PRESS-TO-TEST		



**(A) WELL PUMP MOTOR STARTER/CONTROLLER CONTROL SCHEMATIC (TYP. OF 2)**

◆ TERMINAL POINT IN WELL PUMP MOTOR STARTER/CONTROLLER CUBICLE.  
 DARK SIDE INDICATES CONNECTION INTERNAL TO PANEL.

TYPICAL OF EACH WELL PUMP



**JOB NO. 12-6103**

REVISIONS	
No.	Description
1	ADDENDUM #1

Date	Drn.	Approved
9/20/13	RDG	

**INFORMATION**

GRUBB ENGINEERING, INC.  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING

TYPE FIRM REGISTRATION #3904  
3128 BUNKER #9008 SAN ANTONIO, TEXAS 78265  
PHONE: 210.588.7550 FAX: 210.588.0865

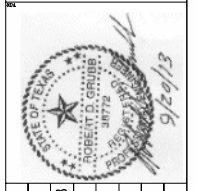
Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: PG, SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX

**San Antonio Water System**

**JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
PROCESS AND INSTRUMENTATION  
DIAGRAM  
SAWS BLACKHAWK PUMP STATION  
FACILITY #66**

**DRAWING NO. E-107**  
58 OF 107

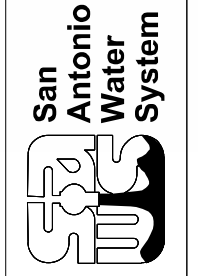
NOTES:  
1. REFERENCE SHEET G-3 FOR LEGEND.



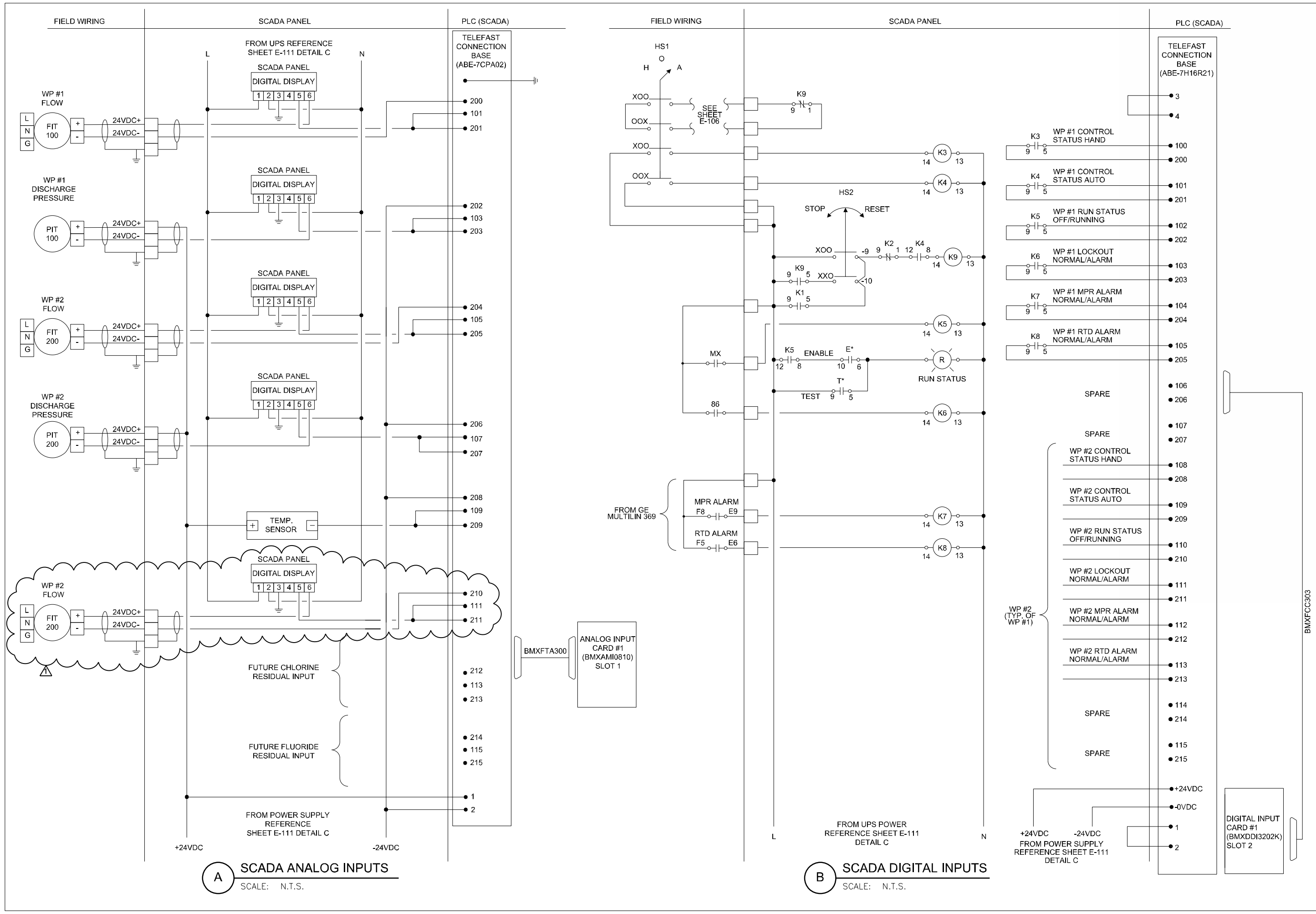
REVISIONS	No.	Description	Drn.	Apprvd	Date
	1	ADDENDUM #1	SG	RDG	9/20/13

**INFORMATION**  
 GRUBB ENGINEERING, INC.  
 ELECTRICAL POWER SYSTEMS  
 DESIGN & TESTING  
 TYPE FIRM REGISTRATION #9904  
 3128 BUNKER BROOKS, SAN ANTONIO, TEXAS 78255  
 (816) 710-987-750 FAX: 710-988-0865

Date: 08/16/2013	Drawn by: SG
Designed by: BLD, CKG	Checked by: P.G., SM
Scale: AS NOTED ABOVE	Approved by: RDG
	Map No: XXX-XXX



JOB NO 12-6103  
 DSP WATER PRODUCTION  
 FACILITY UPGRADES  
 PLC CONNECTION DIAGRAM I  
 SAWS BLACKHAWK PUMP STATION  
 FACILITY #66



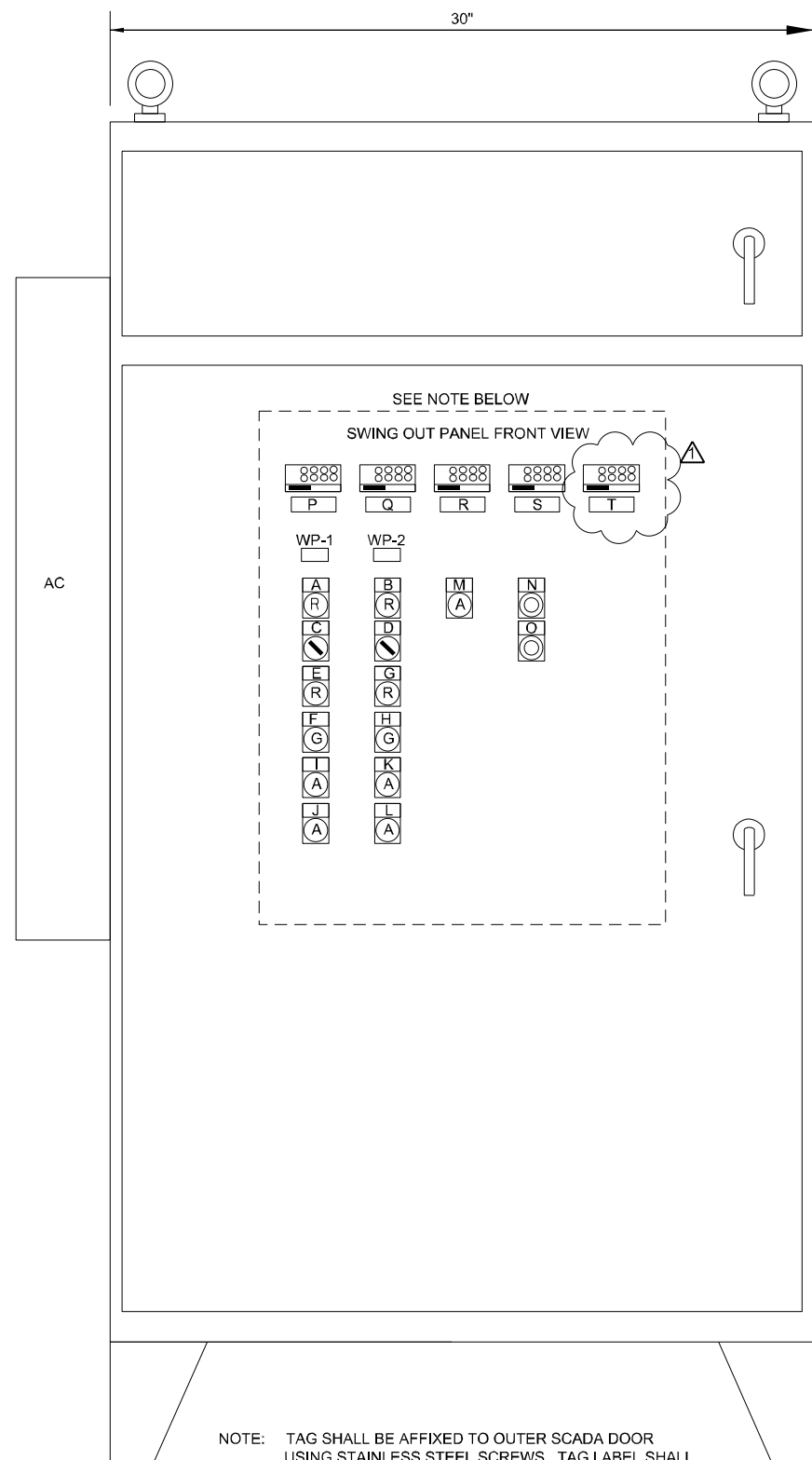
**A SCADA ANALOG INPUTS**  
SCALE: N.T.S.

**B SCADA DIGITAL INPUTS**  
SCALE: N.T.S.

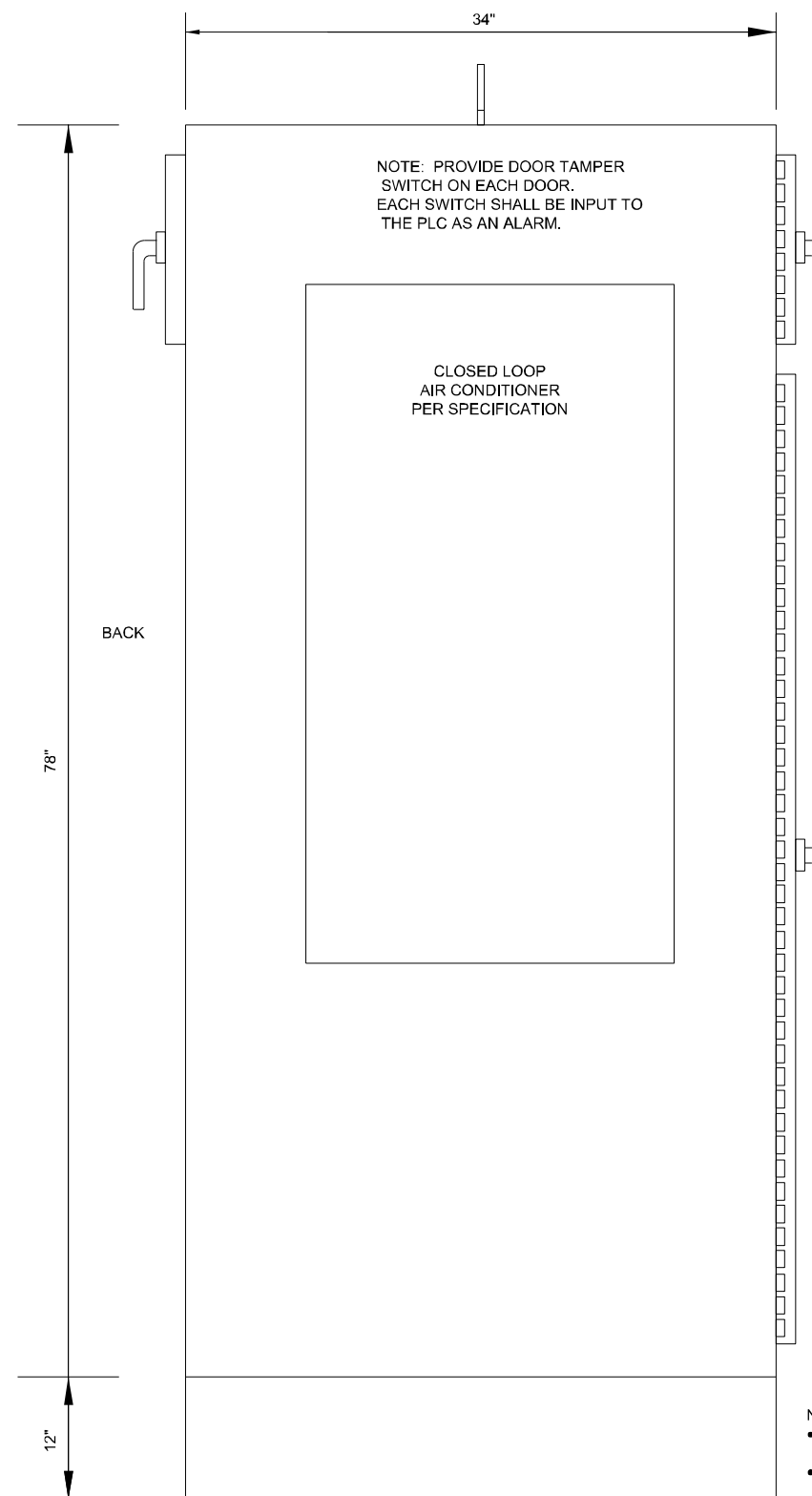
BMXFCC303



EXTERIOR FRONT VIEW



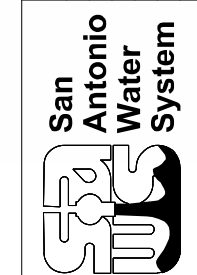
EXTERIOR SIDE VIEW



ITEM	TAG NO.	QTY.	LET.	DESCRIPTION	LEGEND PLATE
1		1	A	WP #1 PUMP RUN STATUS	PUMP RUN STATUS
2		1	B	WP #2 PUMP RUN STATUS	PUMP RUN STATUS
3		1	C	WP #1 STOP OR RESET SWITCH	STOP/RESET
4		1	D	WP #2 STOP OR RESET SWITCH	STOP/RESET
5		1	E	WP #1 PUMP CONTROL VALVE OPEN	VALVE OPEN
6		1	F	WP #1 PUMP CONTROL VALVE CLOSED	VALVE CLOSED
7		1	G	WP #2 PUMP CONTROL VALVE OPEN	VALVE OPEN
8		1	H	WP #2 PUMP CONTROL VALVE CLOSED	VALVE CLOSED
9		1	I	WP #1 DISCHARGE PRESSURE HIGH	DISCHARGE PRESSURE HIGH
10		1	J	WP #1 DISCHARGE PRESSURE LOW	DISCHARGE PRESSURE LOW
11		1	K	WP #2 DISCHARGE PRESSURE HIGH	DISCHARGE PRESSURE HIGH
12		1	L	WP #2 DISCHARGE PRESSURE LOW	DISCHARGE PRESSURE LOW
13		1	M	COMMUNICATIONS FAILURE	COMM FAIL
14		1	N	LAMP TEST PUSHBUTTON	LAMP TEST
15		1	O	LIGHT ENABLE PUSHBUTTON	PANEL LIGHTS ON
16	PIT-100	1	P	WP #1 DISCHARGE PRESSURE INDICATOR	WP #1 DISCHARGE PRESSURE
17	PIT-200	1	Q	WP #2 DISCHARGE PRESSURE INDICATOR	WP #2 DISCHARGE PRESSURE
18	FIT-100	1	R	WP #1 FLOW INDICATOR	WP #1 FLOW
19	FIT-200	1	S	WP #2 FLOW INDICATOR	WP #2 FLOW
20	WIT-200	1	T	CL2 CYLINDER WEIGHT INDICATOR	CL2 CYLINDER WEIGHT

REVISIONS		Date	Appr.
No.	Description		
1	ADDENDUM #1	9/20/13	RDG

INFORMATION  
 GRUBB ENGINEERING, INC.  
 ELECTRICAL POWER SYSTEMS  
 DESIGN & TESTING  
 TYPE FIRM REGISTRATION #8904  
 3128 SHINE #8000S, SAN ANTONIO, TEXAS 78255  
 (816) 210-8875 FAX: 210-887-8865

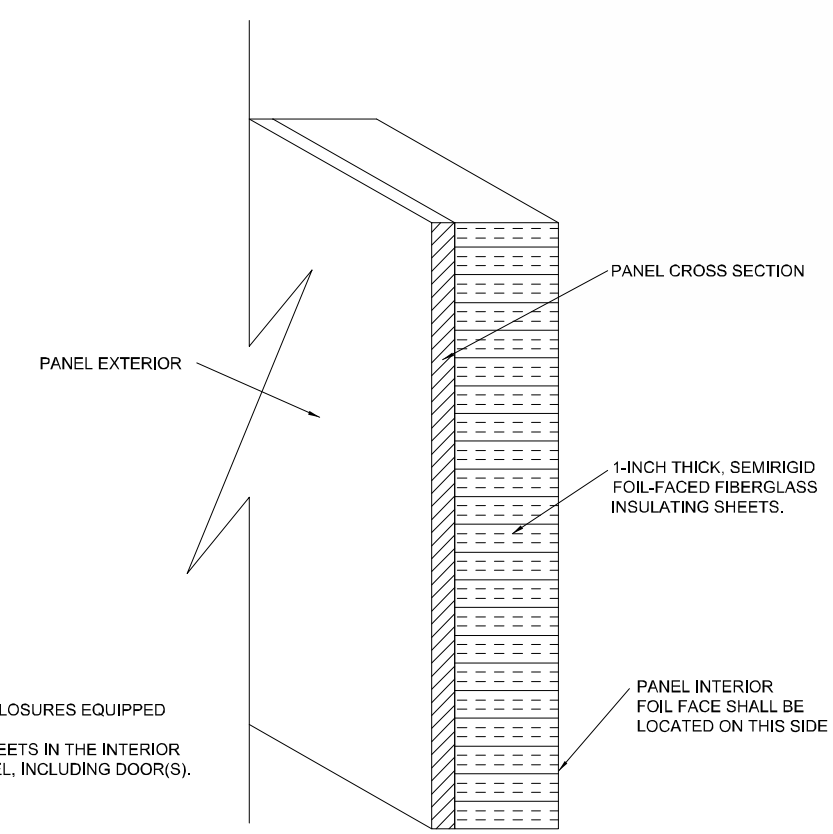


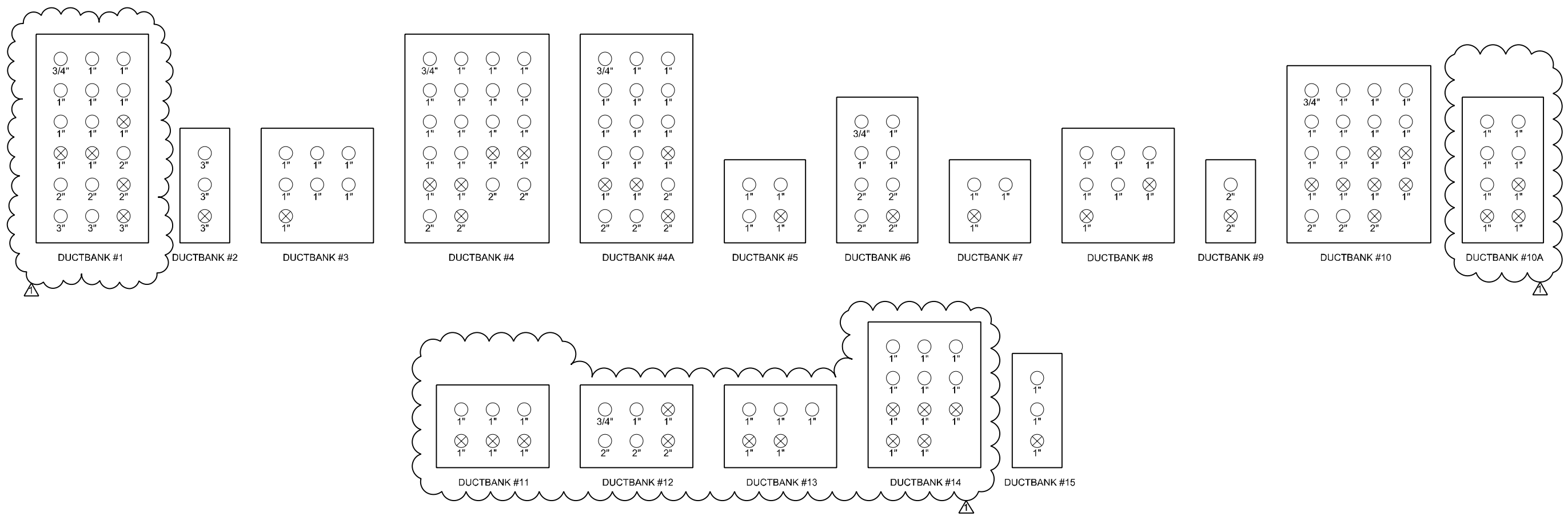
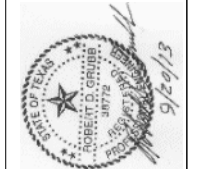
JOB NO 12-6103  
 DSP WATER PRODUCTION  
 FACILITY UPGRADES  
 SCADA/SECURITY PANEL LAYOUT I  
 SAWS BLACKHAWK PUMP STATION  
 FACILITY #66

**A** SCADA/SECURITY PANEL LAYOUT  
SCALE: N.T.S.

**B** CLIMATE CONTROLLED PANEL INSULATION  
SCALE: N.T.S.

- NOTES:
- REQUIRED FOR ALL ENCLOSURES EQUIPPED WITH A/C UNIT.
  - INSTALL INSULATING SHEETS IN THE INTERIOR SURFACES OF THE PANEL, INCLUDING DOOR(S).





**A** DUCTBANK CROSS-SECTIONS  
SCALE: N.T.S.

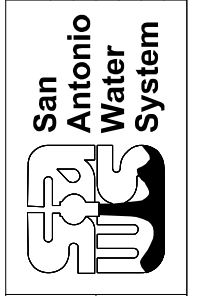
REVISIONS			
No.	Description	Drn.	Date
ADDENDUM #1		SG	9/20/13
		RDG	

**INFORMATION**

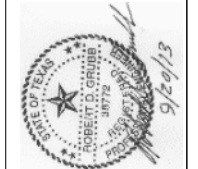
GRUBB ENGINEERING, INC.  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING

TYPE FIRM REGISTRATION #8904  
3128 SUNKY #80005 SAN ANTONIO, TEXAS 78205  
PHONE: 210.588.7500 FAX: 210.588.8865

Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: PG, SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
CONDUIT CROSS-SECTIONS  
SAWS BLACKHAWK PUMP STATION  
FACILITY #66



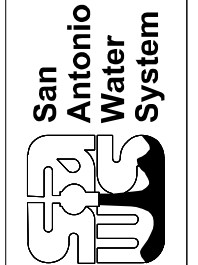
Date	Approved	Drn.	Description
9/20/13	RDG	SG	ADDENDUM #1

**INFORMATION**

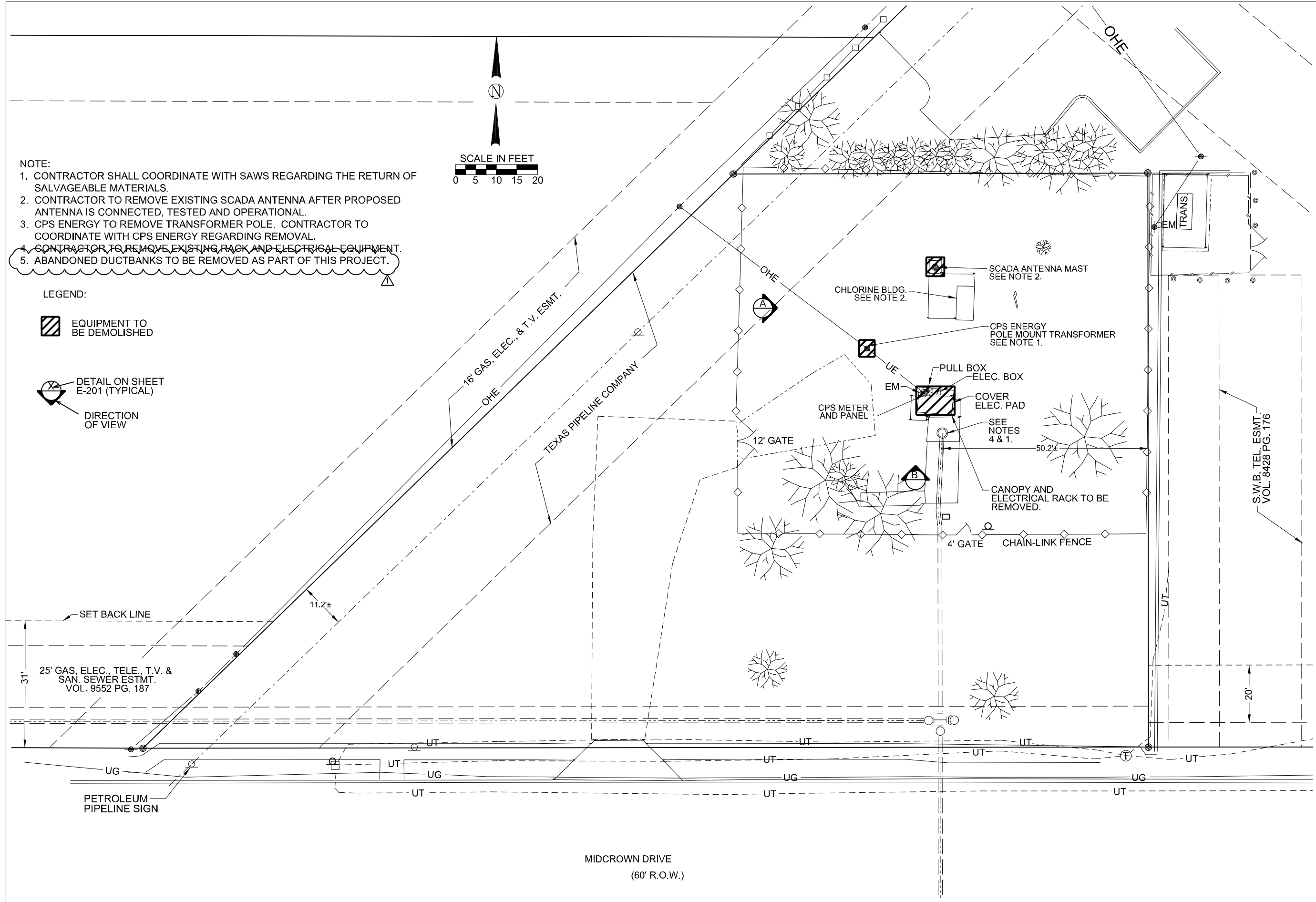
GRUBB ENGINEERING, INC.  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING

TBPE FIRM REGISTRATION #8904  
3128 SHINE #RD005, SAN ANTONIO, TEXAS 78265  
BLR: 210.588.750 FAX: 210.588.8665

Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: PG, SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
DEMOLITION ELECTRICAL SITE PLAN  
SAWS MIDCROWN PUMP STATION  
FACILITY #36



- NOTE:
1. CONTRACTOR SHALL COORDINATE WITH SAWS REGARDING THE RETURN OF SALVAGEABLE MATERIALS.
  2. CONTRACTOR TO REMOVE EXISTING SCADA ANTENNA AFTER PROPOSED ANTENNA IS CONNECTED, TESTED AND OPERATIONAL.
  3. CPS ENERGY TO REMOVE TRANSFORMER POLE. CONTRACTOR TO COORDINATE WITH CPS ENERGY REGARDING REMOVAL.
  4. CONTRACTOR TO REMOVE EXISTING RACK AND ELECTRICAL EQUIPMENT.
  5. ABANDONED DUCTBANKS TO BE REMOVED AS PART OF THIS PROJECT.

LEGEND:

EQUIPMENT TO BE DEMOLISHED

DETAIL ON SHEET E-201 (TYPICAL)

DIRECTION OF VIEW










MIDCROWN DRIVE  
(60' R.O.W.)

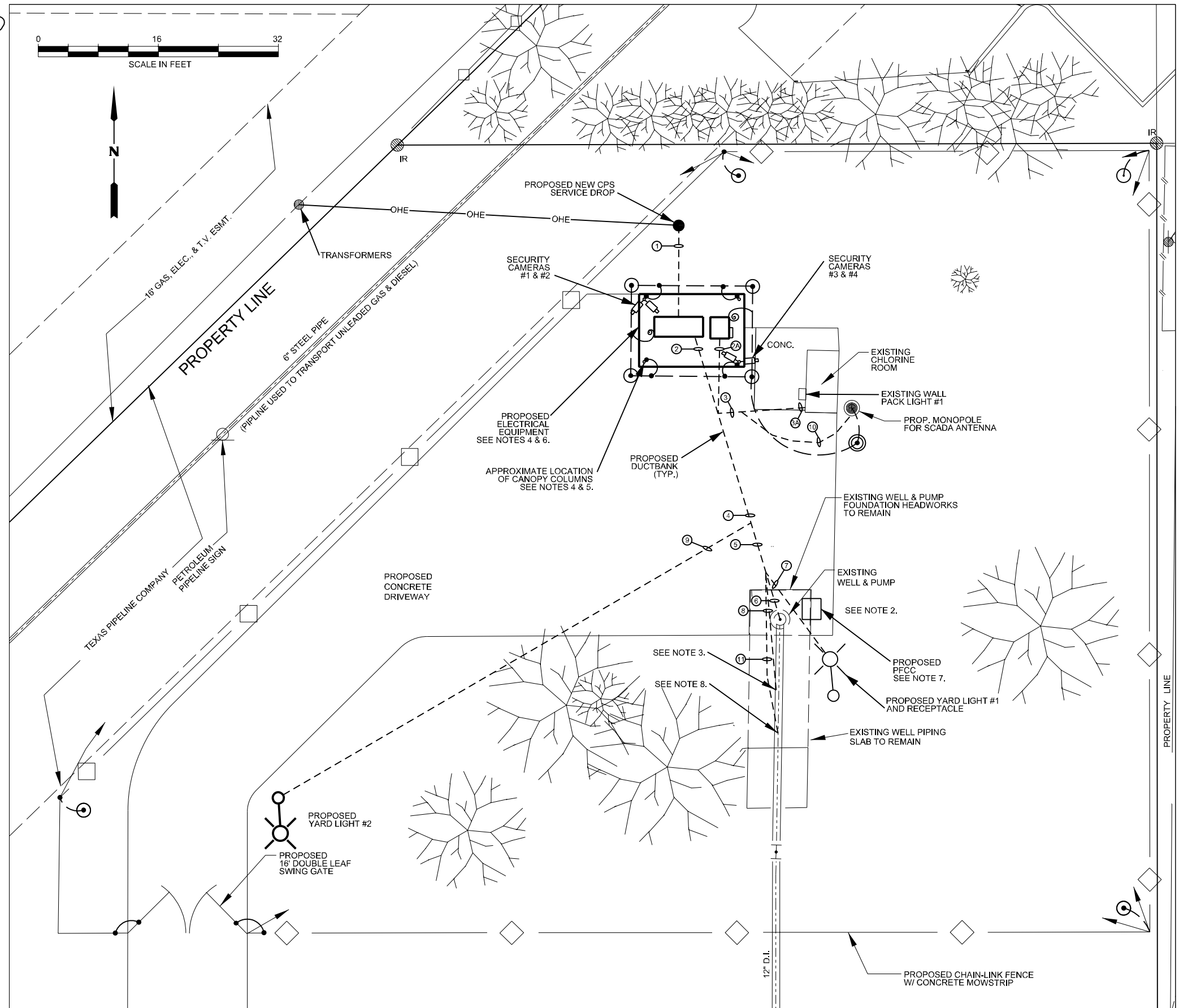


NOTES:

1. CONTRACTOR SHALL INSTALL NEW POWER CONTROLS AND SCADA DISTRIBUTION FROM NEW MCC LOCATION TO EXISTING CL<sub>2</sub> BUILDING. CL<sub>2</sub> BUILDING INCLUDES CL<sub>2</sub> BOOSTER PUMPS, LIGHTING AND RECEPTACLES.
2. NEW POWER AND MONITORING CABLE AND CONDUITS SHALL BE ROUTED FROM NEW MCC LOCATION TO WELL PUMP MOTOR.
3. NEW POWER AND CONTROL CABLES AND CONDUIT SHALL BE ROUTED TO PROPOSED PUMP CONTROL VALVE.
4. SEE STRUCTURAL DRAWINGS FOR ELECTRICAL SLAB, ANTENNA SLAB & CANOPY DETAILS.
5. CANOPY MUST BE 1' AWAY FROM FENCE.
6. FOR EQUIPMENT LAYOUT, SEE SHEET E-205.
7. PROPOSED PFCC SHALL BE MOUNTED TO EXISTING WELL PUMP SLAB.
8. APPROXIMATE LOCATION OF PROPOSED PRESSURE TRANSMITTER, (SEE SHEET E-303, DETAIL E.)

LEGEND

-  GROUND TEST WELL, REFER TO STANDARD DETAIL
-  COPPERCLAD GROUND ROD
-  GROUNDING CONNECTION EXOTHERMIC OR COMPRESSION
-  ABOVE GRADE TAIL FOR EQUIPMENT CONNECTION. TO BE LOCATED FOR PROPER EQUIPMENT ENTRANCE. PENETRATION THRU CONCRETE TO HAVE SCHEDULE 80 PVC PIPE SEGMENT.
-  2/0 BARE COPPER WIRE
-  UNDERGROUND ELECTRIC
-  GROUND STRAP (COPPER BRAID)
-  DUCTBANK ID
-  OVERHEAD ELECTRIC



JOB NO.  
**12-6103**



Revisions	No.	Description	Drn.	Apprvd.	Date
	1	ADDENDUM #1	SG	RDG	9/20/13

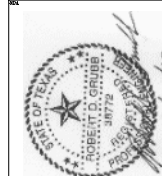
**GRUBB ENGINEERING, INC.**  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING  
TYPE FIRM REGISTRATION #9904  
3128 SHINE #90005 SAN ANTONIO, TEXAS 78255  
PHONE: 210.588.7550 FAX: 210.588.8865

Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: PG, SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
ELECTRICAL SITE PLAN  
SAWS MIDCROWN PUMP STATION  
FACILITY #36

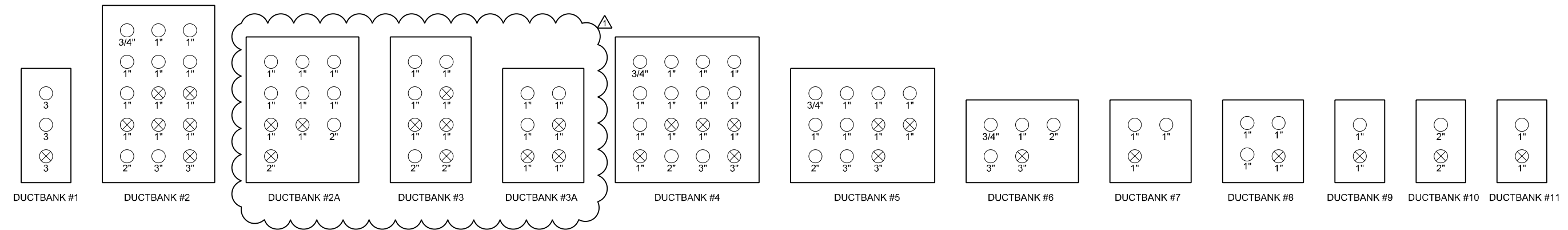
DRAWING NO.  
**E- 203**  
68 OF 107



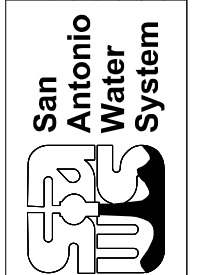
SECTION(S) ID	CONDUIT		CABLES			FROM	TO	CIRCUIT
	ID	SIZE	POWER	GROUND/NEUTRAL	CONTROL			
	1	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #1	POE TO CAMERA #1
	2	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #2	POE TO CAMERA #2
	3	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #3	POE TO CAMERA #3
	4	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #4	POE TO CAMERA #4
1	5	3	3-1/C 4/0 THWN	1-1/C 4/0 THWN NEUTRAL		DISCONNECT SWITCH	MCC	MAIN UTILITY FEED
1	6	3	3-1/C 4/0 THWN	1-1/C 4/0 THWN NEUTRAL		DISCONNECT SWITCH	MCC	MAIN UTILITY FEED
1	7	3	SPARE			DISCONNECT SWITCH	MCC	SPARE (STUB UP IN MCC AND DISCONNECT AND CAP WITH PULL STRING)
2,3,3A	8	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	CHLORINE BUILDING	CHLORINE BUILDING RECEPTACLES AND LIGHTING
2,3,3A	9	1	SPARE			POWER PANEL "A"	CHLORINE BUILDING	SPARE (STUB UP AT POWER PANEL 'A' AND CHLORINE BUILDING AND CAP WITH PULL STRING)
2,3,3A	10	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		MCC CHLORINE BOOSTER PUMP STARTER SECTION	CHLORINE BOOSTER PUMP JUNCTION BOX	CHLORINE BOOSTER PUMP POWER FEED
2,3,3A	11	1	SPARE			MCC CHLORINE BOOSTER PUMP STARTER SECTION	CHLORINE BOOSTER PUMP JUNCTION BOX	SPARE
2,4,5,6	12	3	3-1/C 350 KCMIL	1-1/C #3 THWN GROUND		MCC WELL PUMP STARTER SECTION	WELL PUMP JUNCTION BOX	WELL PUMP POWER FEED
2,4,5,6	13	3	SPARE			MCC WELL PUMP STARTER SECTION	WELL PUMP JUNCTION BOX	SPARE (STUB UP IN MCC AND IN JUNCTION BOX AND CAP WITH PULL STRING)
2,4,5,6	14	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		MCC WELL PUMP STARTER SECTION	WELL PUMP JUNCTION BOX	WELL PUMP SPACE HEATER POWER
2,4,5,6	15	3/4"	2-1/C #10 THWN	1-1/C #10 THWN GROUND		MCC HEAT TRACE CONTROL PANEL	WELL PUMP HEAT TRACE JUNCTION BOX	WELL PUMP AND CONTROL VALVE HEAT TRACE
2,4,5,6	16	2			8x(3/C #16 TW/SH/TRIAD)	MCC WELL PUMP STARTER SECTION	WELL PUMP JUNCTION BOX	WELL PUMP RESISTANCE TEMPERATURE DETECTORS
2,4,7	17	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND	2-1/C #12 THWN	LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #1	YARD LIGHT #1 POWER
2,4,7	18	1	SPARE			LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #1	SPARE (STUB UP IN MCC AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)
2,4,7	19	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	YARD LIGHT #1 RECEPTACLE	YARD LIGHT #1 RECEPTACLE POWER
2,4,9	20	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND	2-1/C #12 THWN	LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #2	YARD LIGHT #2 POWER
2,4,9	21	1	SPARE			LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #2	SPARE (STUB UP IN MCC AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)
2A,3,3A	22	1		1-1/C #12 THWN GROUND	6-1/C #12 THWN	SCADA/SECURITY CABINET (CANOPY)	CHLORINE BUILDING	CHLORINE LEAK ALARMS TO SCADA
2A,3,3A	23	1			2X #16 TW/SH/PR	SCADA/SECURITY CABINET (CANOPY)	CHLORINE BUILDING	CHLORINE CYLINDER WEIGHT TO SCADA
2A,3,10	24	2			CAT6e	SCADA/SECURITY CABINET (CANOPY)	SCADA ANTENNA MAST	SCADA RADIO TO ANTENNA CONNECTION
2A,3,10	25	2	SPARE			SCADA/SECURITY CABINET (CANOPY)	SCADA ANTENNA MAST	SPARE
2A,4,5,8	26	1		1-1/C #12 THWN GROUND	6-1/C #12 THWN	MCC WELL PUMP STARTER SECTION	WELL PUMP CONTROL VALVE	VALVE LIMIT SWITCHES AND CONTROL (ADD ADDITIONAL CABLE AS REQUIRED PER MFR.)
2A,4,5,8	27	1			#16/TW/SH/PR + RS485 TW/SH	SCADA/SECURITY CABINET (CANOPY)	WELL PUMP FLOWMETER (FIT-100)	WELL PUMP FLOW MODBUS RS485 AND 4-20mA
2A,4,5,8	28	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		SCADA/SECURITY CABINET (CANOPY)	WELL PUMP FLOWMETER (FIT-100)	WELL PUMP FLOWMETER POWER
2A,4,5,8	29	1	SPARE			SCADA/SECURITY CABINET (CANOPY)	WELL PUMP FLOWMETER (FIT-100)	SPARE (STUB UP IN SCADA/SECURITY CABINET AND AT FLOWMETER AND CAP WITH PULL STRING)
2A,4,5,11	30	1			#16 TW/SH/PR	SCADA/SECURITY CABINET (CANOPY)	WELLPUMP PRESSURE TRANSMITTER	WELL PUMP PRESSURE TRANSMITTER
2A,4,5,11	31	1	SPARE			SCADA/SECURITY CABINET (CANOPY)	WELLPUMP PRESSURE TRANSMITTER	SPARE

REVISIONS: Date, Appr, Dm, Description, No., INFORMATION: GRUBB ENGINEERING, INC., ELECTRICAL POWER SYSTEMS DESIGN & TESTING, TYPE FIRM REGISTRATION #9904, 3128 SHINE #90005, SAN ANTONIO, TEXAS 78265, (817) 709-8750 FAX 710-584-0865, Date: 08/16/2013, Drawn by: SG, Designed by: BLD, CKG, Checked by: PG, SM, Scale: AS NOTED ABOVE, Approved by: RDG, Map No: XXX-XXX

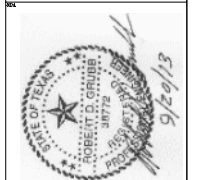
**A** CABLE AND CONDUIT LIST  
SCALE: N.T.S.



**B** DUCTBANK CROSS-SECTIONS  
SCALE: N.T.S.



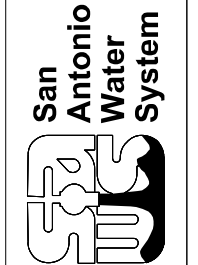
JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
CABLE & CONDUIT LIST AND DUCTBANK  
CROSS-SECTIONS  
SAWS MIDCROWN PUMP STATION  
FACILITY #36



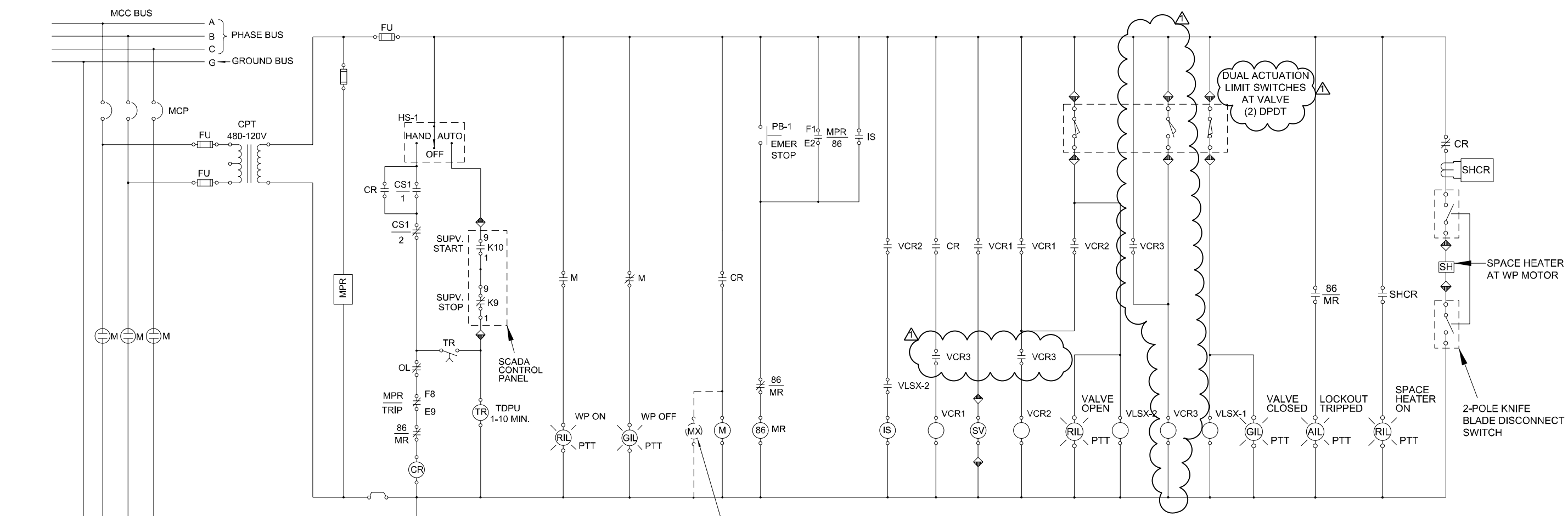
No.	Description	Drn.	Approved	Date
1	ADDENDUM #1	SG	RDG	9/18/13

**GRUBB ENGINEERING, INC.**  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING  
TYPE FIRM REGISTRATION #9004  
3128 SUNDY #RD005 SAN ANTONIO, TEXAS 78255  
TEL: 210.586.7500 FAX: 210.586.0865

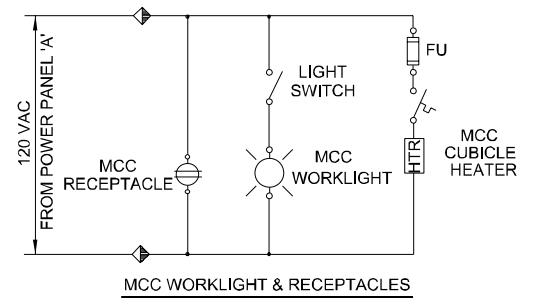
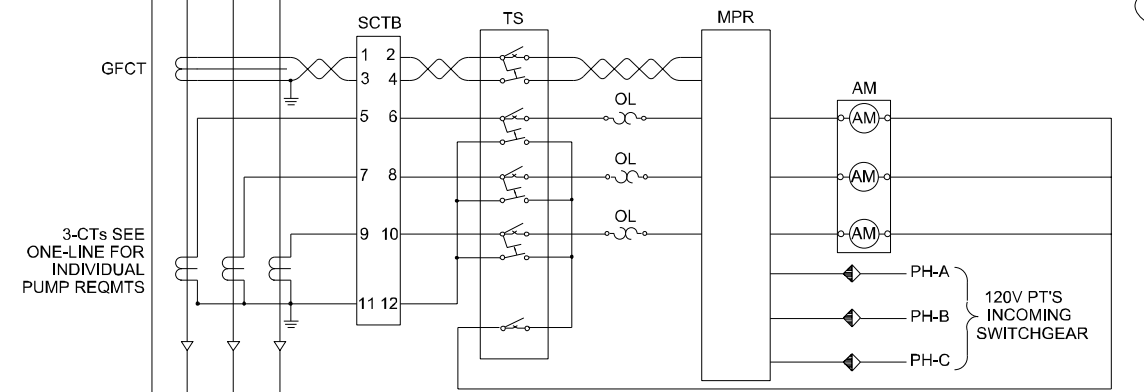
Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: P.G., SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
WELL PUMP MOTOR CONTROL SCHEMATIC  
SAWS MIDCROWN PUMP STATION  
FACILITY #36



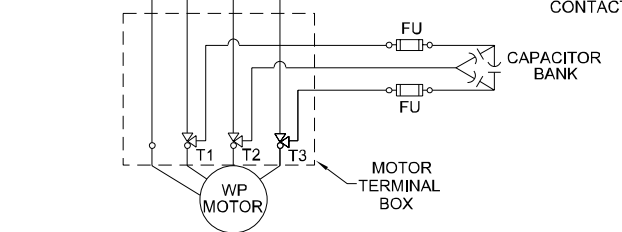
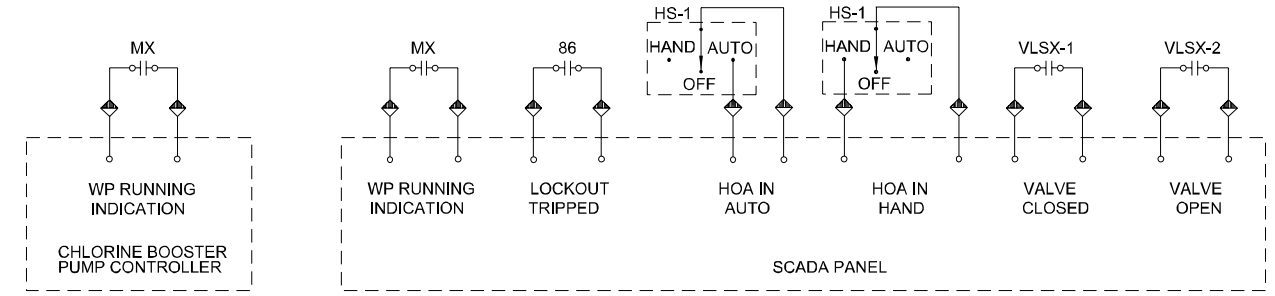
MX TO BE FURNISHED IF NECESSARY IN THE EVENT M RELAY DOES NOT HAVE SUFFICIENT CONTACTS



◆ TERMINAL POINT IN WP MOTOR STARTER/CONTROLLER CUBICLE  
DARK SIDE INDICATES CONNECTION INTERNAL TO PANEL.

CONTACT	START	NORMAL		STOP
		AFTER START	AFTER STOP	
1	X			
2	X	X	X	
3				X
4				X

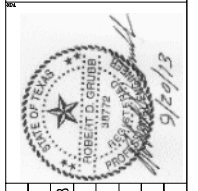
X - INDICATES CONTACT IS CLOSED



PROVIDE SURGE PROTECTIVE DEVICES AT MOTOR AS PER SPECIFICATION 16406.

**(A) WELL PUMP MOTOR STARTER/CONTROLLER CONTROL SCHEMATIC**

◆ TERMINAL POINT IN WELL PUMP MOTOR STARTER/CONTROLLER CUBICLE.  
DARK SIDE INDICATES CONNECTION INTERNAL TO PANEL.



REVISIONS	
No.	Description
1	ADDENDUM #1

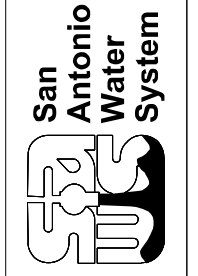
  

Date	Drn.	Approved
9/20/13	RDG	

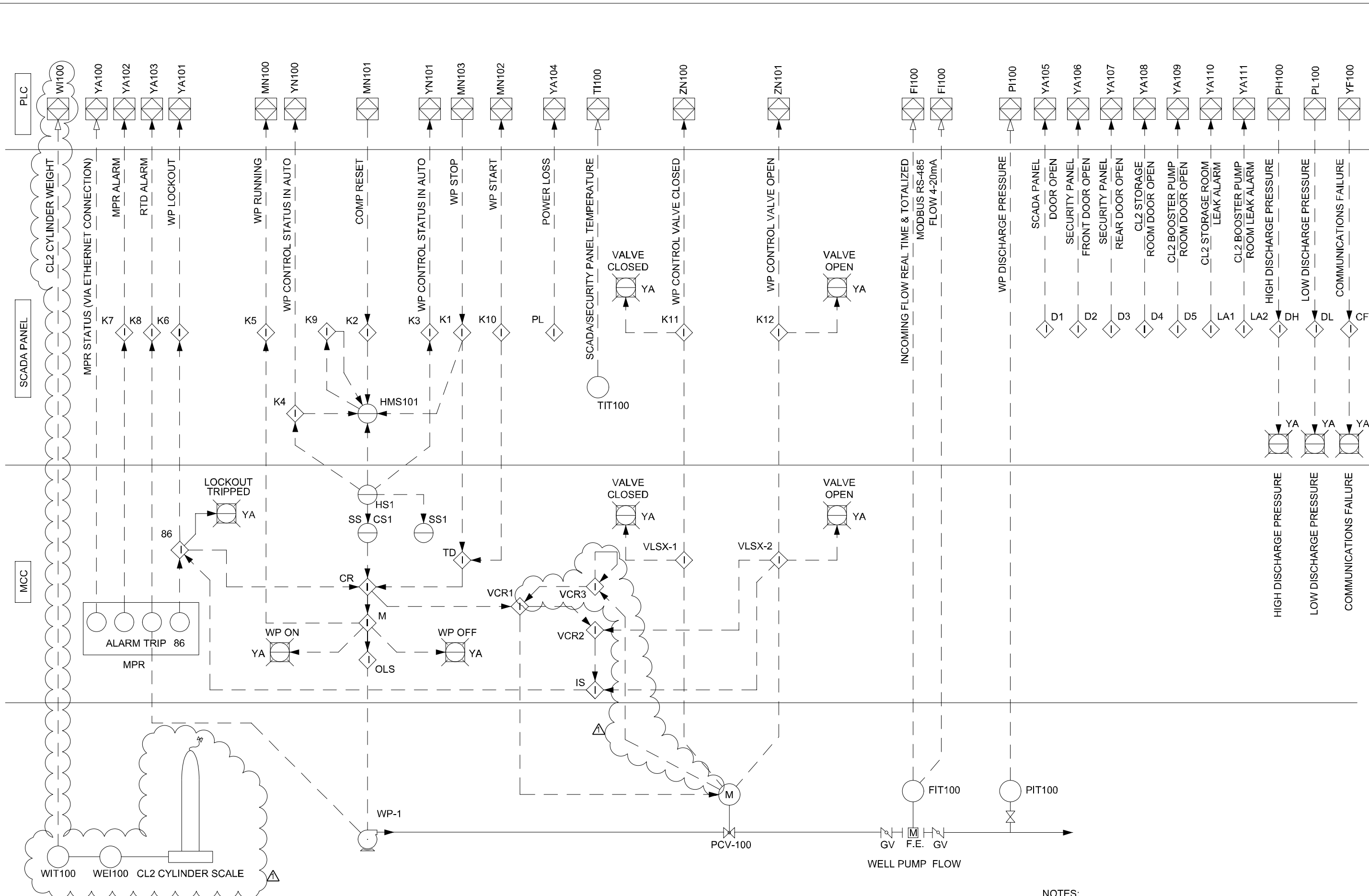
  

INFORMATION	
GRUBB ENGINEERING, INC.	ELECTRICAL POWER SYSTEMS DESIGN & TESTING
TYPE FIRM REGISTRATION #3904	
3128 SHINE #9008 SAN ANTONIO, TEXAS 78255	
(BUS: 210.588.750 FAX: 210.588.0865)	

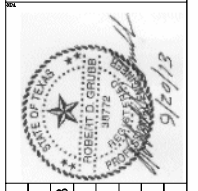
Date: 08/16/2013	Drawn by: SG
Designed by: BLD, CKG	Checked by: PG, SM
Scale: AS NOTED ABOVE	Approved by: RDG
Map No: XXX-XXX	



JOB NO 12-6103  
**DSP WATER PRODUCTION FACILITY UPGRADES**  
 PROCESS AND INSTRUMENTATION DIAGRAM  
**SAWS MIDCROWN PUMP STATION FACILITY #36**



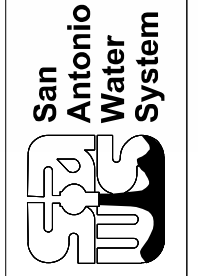
NOTES:  
1. REFERENCE SHEET G-3 FOR LEGEND.



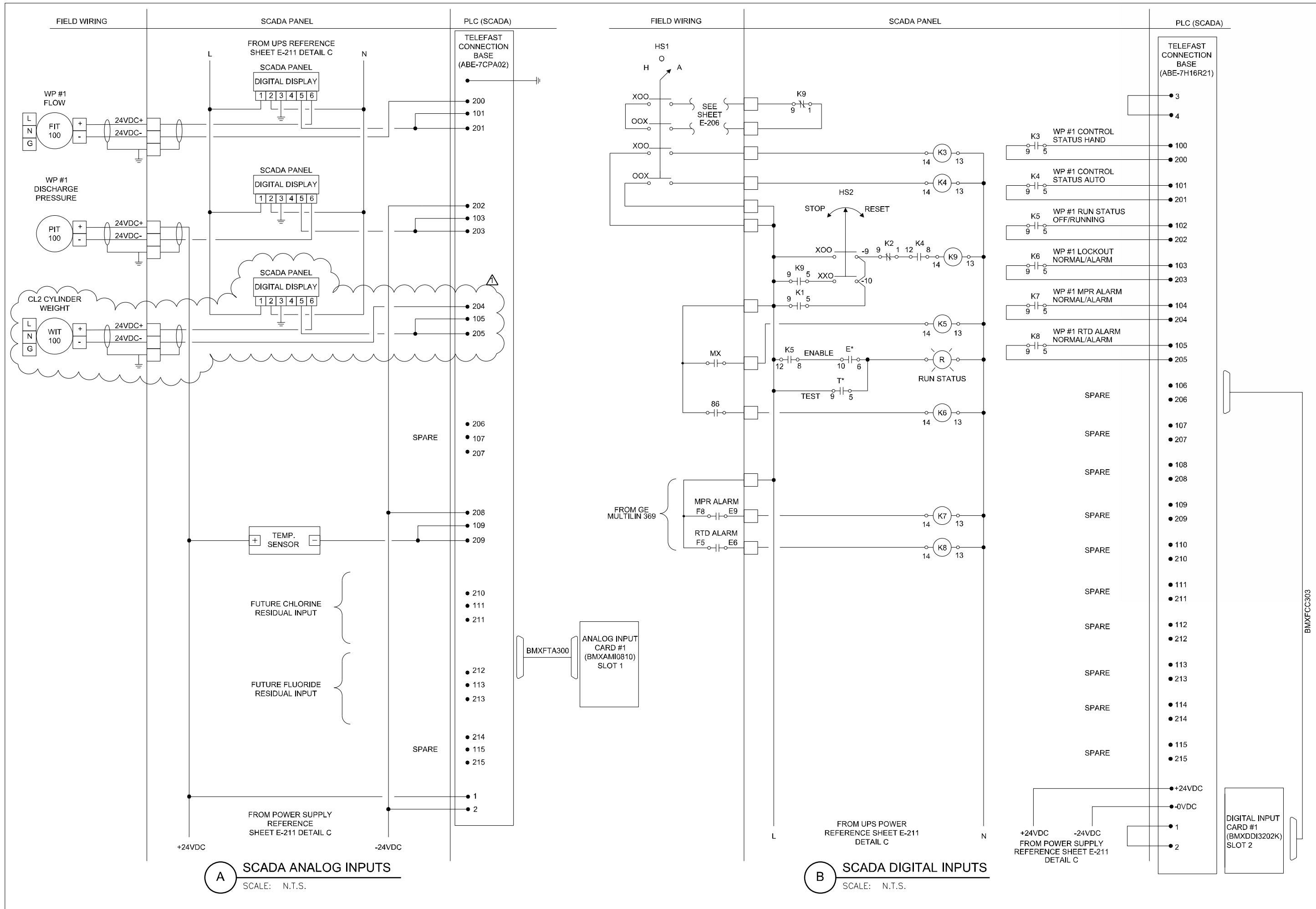
REVISIONS	No.	Description	Drn.	Apprvd	Date
	1	ADDENDUM #1	SG	RDG	9/20/13

**INFORMATION**  
 GRUBB ENGINEERING, INC.  
 ELECTRICAL POWER SYSTEMS  
 DESIGN & TESTING  
 TYPE FIRM REGISTRATION #9904  
 3128 SHINE BROOKS, SAN ANTONIO, TEXAS 78255  
 (817) 209-8875 FAX: 210-584-0865

Date: 08/16/2013	Drawn by: SG
Designed by: BLD, CKG	Checked by: P.G., SM
Scale: AS NOTED ABOVE	Approved by: RDG
Map No: XXX-XXX	



**JOB NO 12-6103**  
**DSP WATER PRODUCTION**  
**FACILITY UPGRADES**  
**PLC CONNECTION DIAGRAM I**  
**SAWS MIDCROWN PUMP STATION**  
**FACILITY #36**



**A SCADA ANALOG INPUTS**  
SCALE: N.T.S.

**B SCADA DIGITAL INPUTS**  
SCALE: N.T.S.

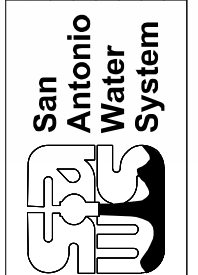
BMXFCC303



REVISIONS		Date
No.	Description	Appr. / Dwn.
1	ADDENDUM #1	RDG / SG

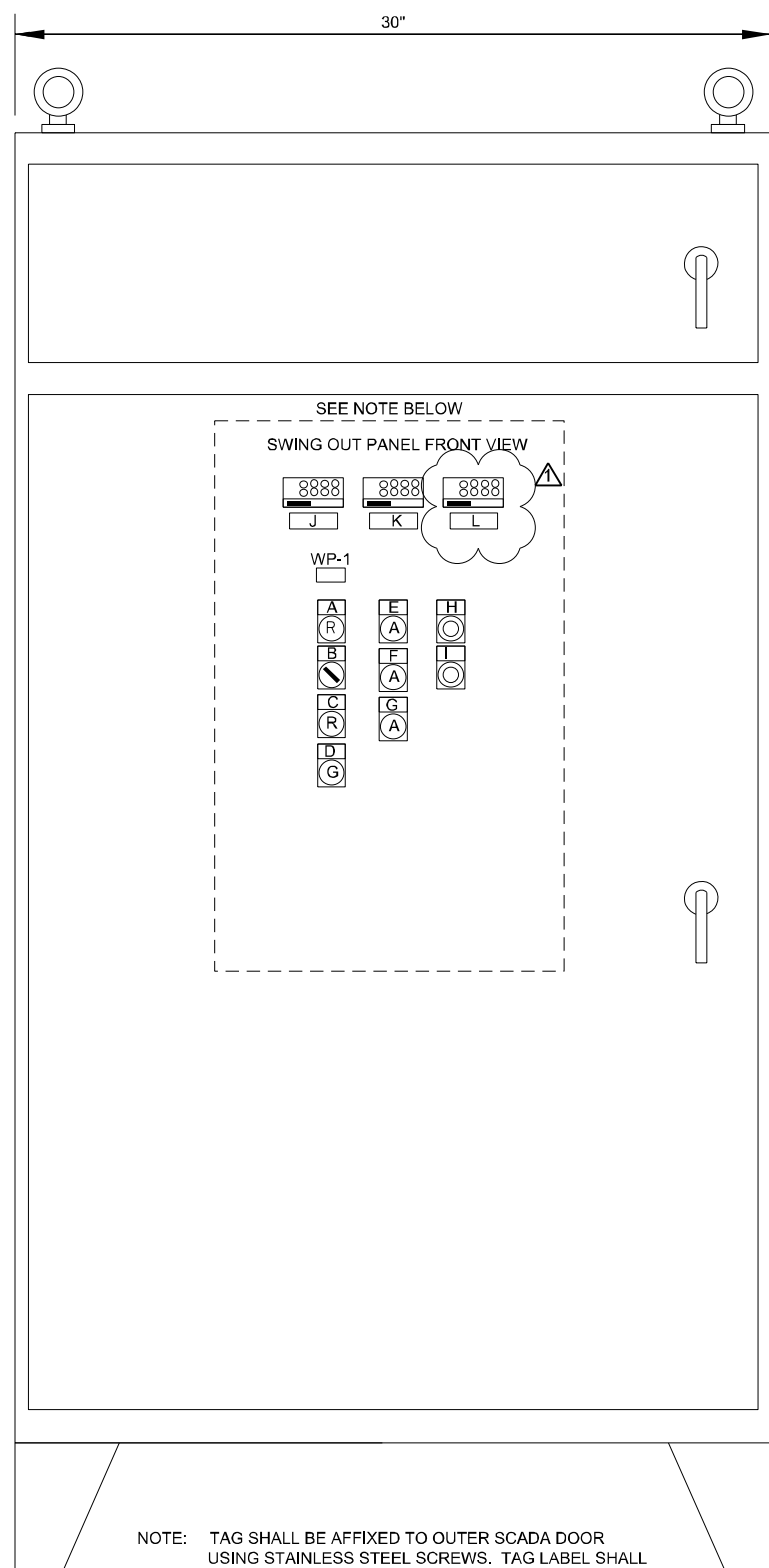
**INFORMATION**  
 GRUBB ENGINEERING, INC.  
 ELECTRICAL POWER SYSTEMS  
 DESIGN & TESTING  
 TYPE FIRM REGISTRATION #9904  
 3128 SHINE #9005 SAN ANTONIO, TEXAS 78255  
 (816) 210-9875 FAX: 210-584-0865

Date: 08/16/2013  
 Drawn by: SG  
 Designed by: BLD, CKG  
 Checked by: PG, SM  
 Scale: AS NOTED ABOVE  
 Approved by: RDG  
 Map No: XXX-XXX

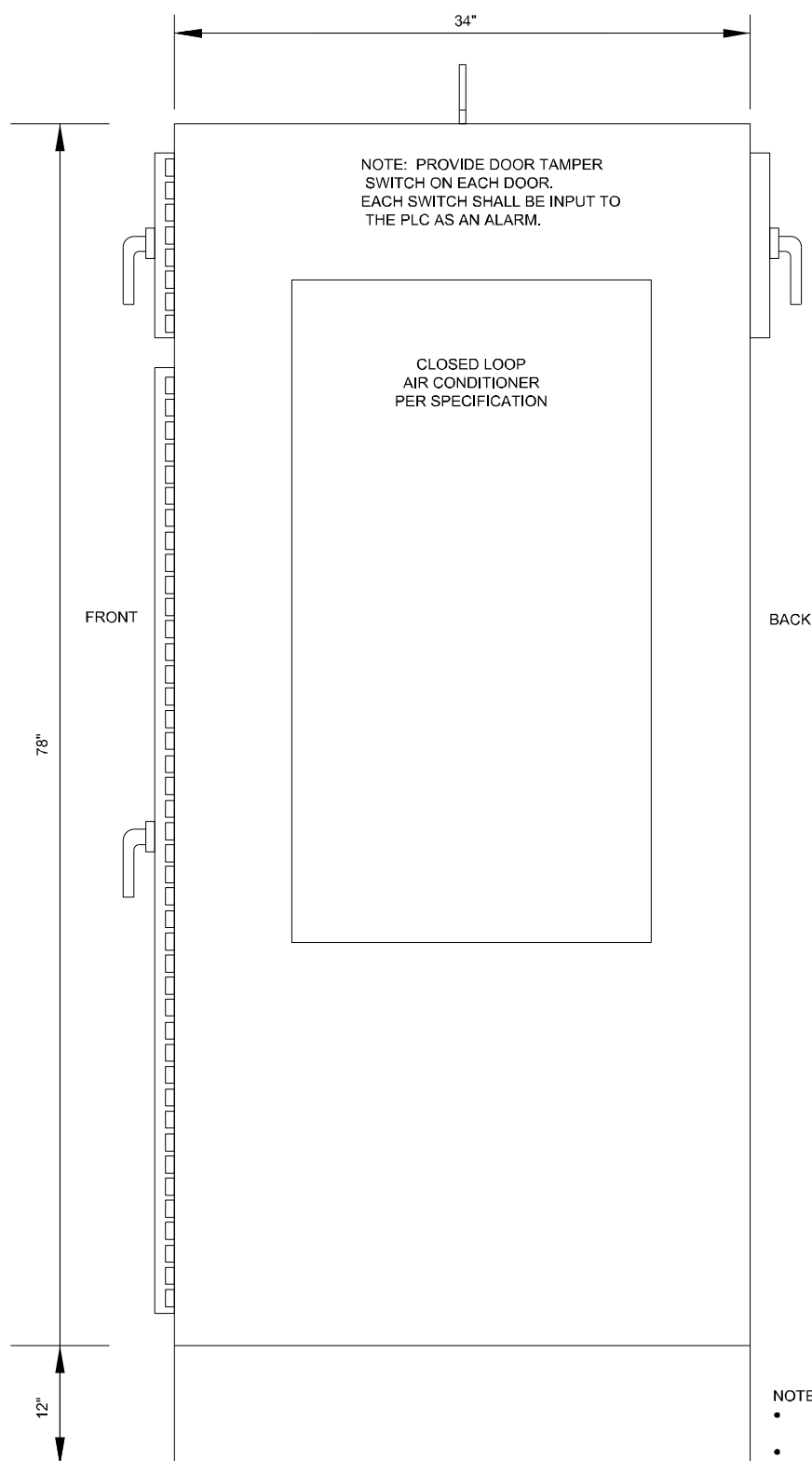


JOB NO 12-6103  
 DSP WATER PRODUCTION  
 FACILITY UPGRADES  
 SCADA/SECURITY PANEL LAYOUT I  
 SAWS MIDCROWN PUMP STATION  
 FACILITY #36

EXTERIOR FRONT VIEW

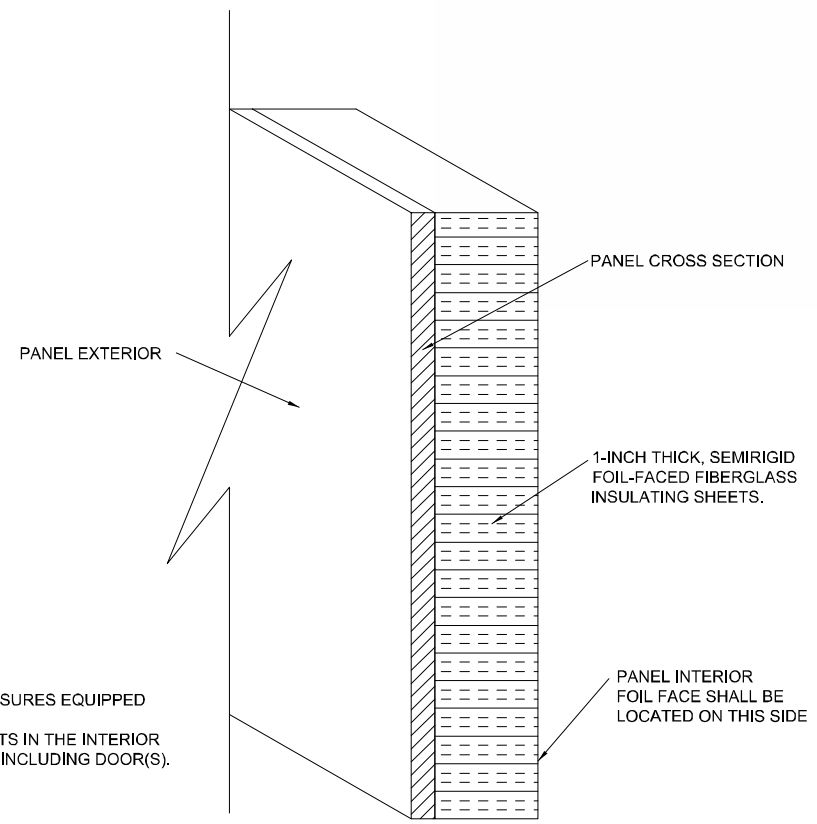


EXTERIOR SIDE VIEW



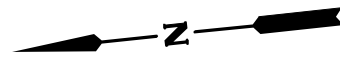
ITEM	TAG NO.	QTY.	LET.	DESCRIPTION	LEGEND PLATE
1		1	A	WP #1 PUMP RUN STATUS	PUMP RUN STATUS
2		1	B	WP #1 STOP OR RESET SWITCH	STOP/RESET
3		1	C	WP #1 PUMP CONTROL VALVE OPEN	VALUE OPEN
4		1	D	WP #1 PUMP CONTROL VALVE CLOSED	VALUE CLOSED
5		1	E	DISCHARGE PRESSURE HIGH	DISCHARGE PRESSURE HIGH
6		1	F	DISCHARGE PRESSURE LOW	DISCHARGE PRESSURE LOW
7		1	G	COMMUNICATIONS FAILURE	COMM FAIL
8		1	H	LAMP TEST PUSHBUTTON	LAMP TEST
9		1	I	LIGHT ENABLE PUSHBUTTON	PANEL LIGHTS ON
10	PIT-100	1	J	WP #1 DISCHARGE PRESSURE INDICATOR	WP #1 DISCHARGE PRESSURE
11	FIT-100	1	K	WP #1 FLOW INDICATOR	WP #1 FLOW
12	WIT-100	1	L	CYLINDER WEIGHT INDICATOR	CL2 CYLINDER WEIGHT

- NOTES:
- REQUIRED FOR ALL ENCLOSURES EQUIPPED WITH A/C UNIT.
  - INSTALL INSULATING SHEETS IN THE INTERIOR SURFACES OF THE PANEL, INCLUDING DOOR(S).



**A** SCADA/SECURITY PANEL LAYOUT  
SCALE: N.T.S.

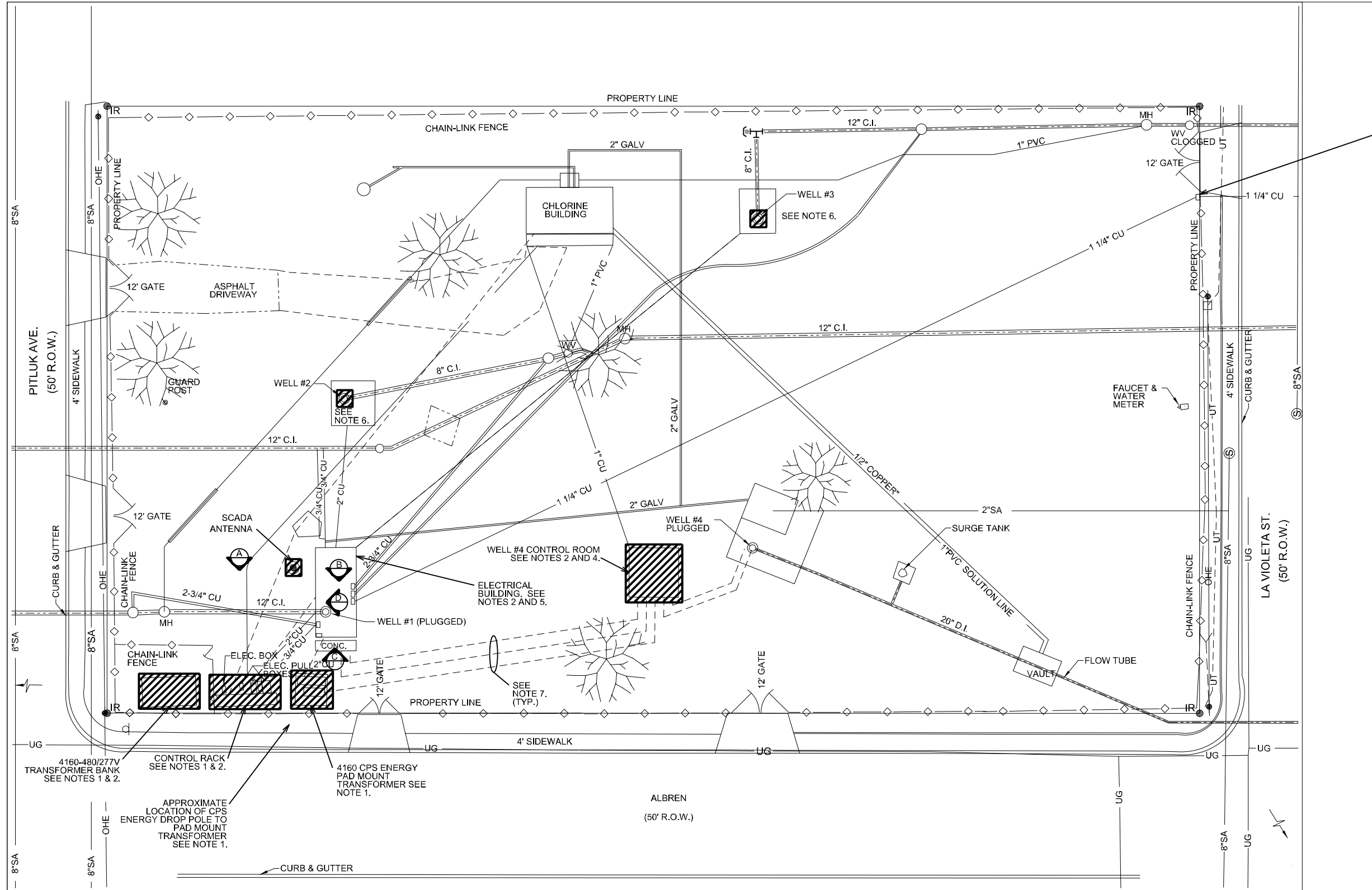
**B** CLIMATE CONTROLLED PANEL INSULATION  
SCALE: N.T.S.



0 16 32  
SCALE IN FEET

NOTES:

- EXISTING ELECTRICAL DISTRIBUTION SHALL BE DEMOLISHED BY CONTRACTOR AFTER THE NEW ELECTRICAL DISTRIBUTION IS INSTALLED, CONNECTED, TESTED AND OPERATIONAL.
- CONTRACTOR SHALL COORDINATE WITH SAWS REGARDING SALVAGEABLE MATERIALS. SAWS HAS FIRST RIGHT OF REFUSAL OF SALVAGEABLES. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL UNSALVAGEABLE EQUIPMENT.
- CONTRACTOR SHALL PROVIDE FOR TEMPORARY POWER FOR THEIR EQUIPMENT DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ANY FEES ASSOCIATED WITH TEMPORARY POWER CONNECTION AND UTILITY
- MODIFICATIONS TO WELL PUMP #4 ELECTRICAL FEED AND CONTROLS ARE NOT INCLUDED IN THIS CONTRACT. EXISTING WELL #4 ELECTRICAL FEEDS WILL BE ABANDONED AND CONTROL ROOM DEMOLISHED.
- ELECTRICAL DISTRIBUTION IN EXISTING ELECTRICAL BUILDING TO BE DEMOLISHED AFTER NEW MCC IS FULLY ENERGIZED AND OPERATIONAL.
- WELL MOTORS 2 AND 3 TO BE REMOVED AND RETURNED TO SAWS.
- SEE SHEET CP-4 FOR UNDERGROUND CONDUIT REMOVAL.



EXISTING JUNCTION BOX FOR LEVEL ELECTRODES

CONTRACTOR TO BE AWARE OF AND PRESERVE EXISTING DUCTBANKS AND CONDUITS AS STATION NEEDS TO REMAIN IN SERVICE DURING CONSTRUCTION. DUCTBANKS SHALL BE REMOVED AFTER EQUIPMENT IS CONNECTED TO NEW SERVICE, TESTED AND OPERATIONAL.

LEGEND:

- EQUIPMENT TO BE DEMOLISHED
- DETAIL ON SHEET E-301 (TYPICAL)
- DIRECTION OF VIEW

JOB NO.  
**12-6103**



Date	Appr'd	Drn.	Description
9/20/13	RDG	SG	ADDENDUM #1

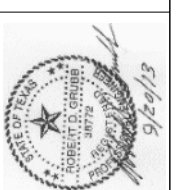
**GRUBB ENGINEERING, INC.**  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING  
TYPE FIRM REGISTRATION #8904  
3128 SUNKY #89005 SAN ANTONIO, TEXAS 78255  
BLR: 210.588.750 FAX: 210.588.0865

Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: PG, SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
DEMOLITION ELECTRICAL SITE PLAN  
PITLUK PUMP STATION  
FACILITY #7

DRAWING NO.  
**E-300**  
78 OF 107



Date	Approved
9/20/13	RDG

Revisions	Description	Drn.	Approved
No.	ADDENDUM #1	SG	

GRUBB ENGINEERING, INC.  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING  
TYPE FIRM REGISTRATION #8904  
3128 BUNKER BROOKS, SAN ANTONIO, TEXAS 78255  
PHONE: 210.588.7550 FAX: 210.588.8865

Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: P.G., SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX

**San Antonio Water System**

JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
ELECTRICAL SITE PLAN  
SAWS PITLUK PUMP STATION  
FACILITY #7

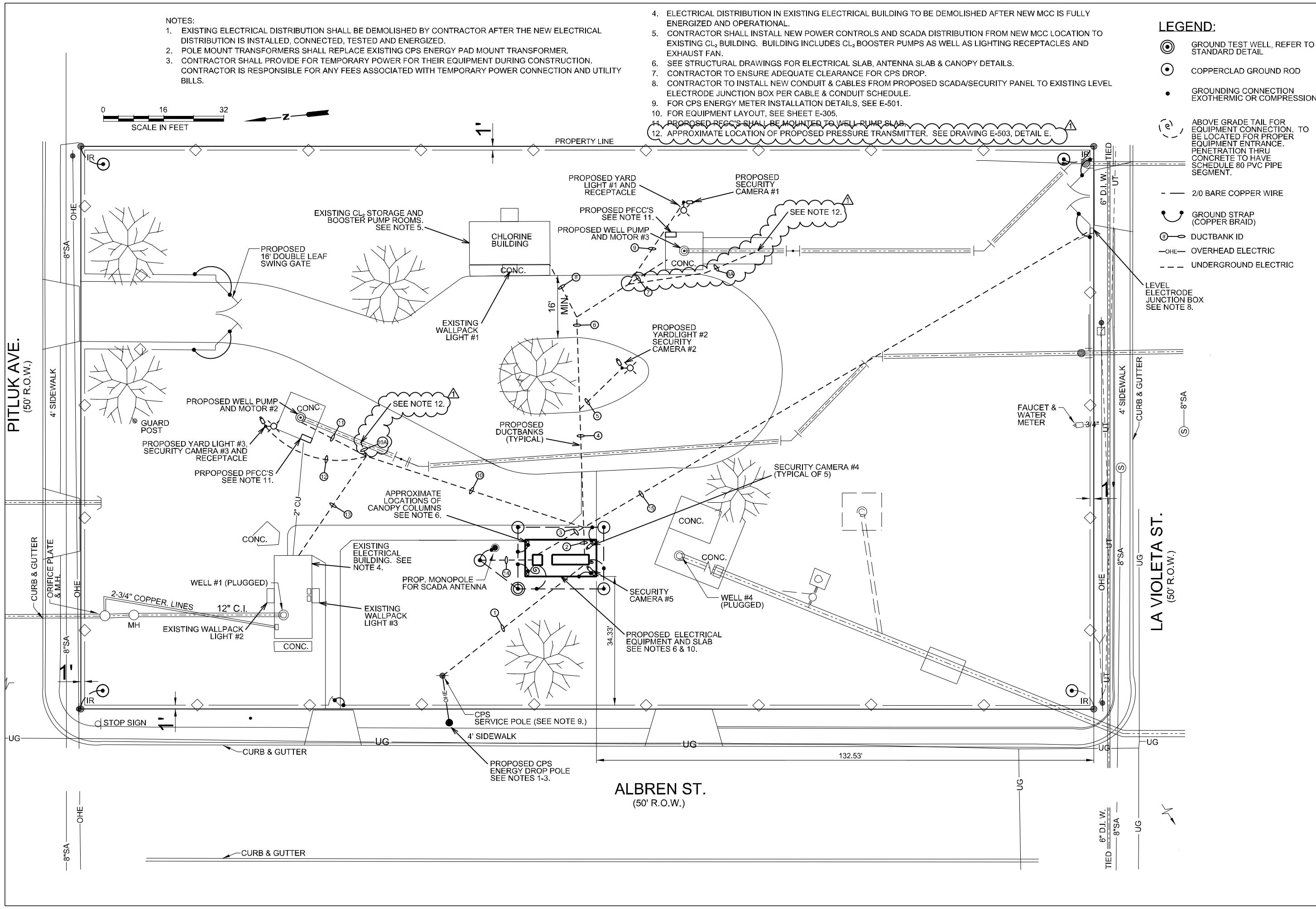
**NOTES:**

- EXISTING ELECTRICAL DISTRIBUTION SHALL BE DEMOLISHED BY CONTRACTOR AFTER THE NEW ELECTRICAL DISTRIBUTION IS INSTALLED, CONNECTED, TESTED AND ENERGIZED.
- POLE MOUNT TRANSFORMERS SHALL REPLACE EXISTING CPS ENERGY PAD MOUNT TRANSFORMER.
- CONTRACTOR SHALL PROVIDE FOR TEMPORARY POWER FOR THEIR EQUIPMENT DURING CONSTRUCTION. CONTRACTOR IS RESPONSIBLE FOR ANY FEES ASSOCIATED WITH TEMPORARY POWER CONNECTION AND UTILITY BILLS.

- ELECTRICAL DISTRIBUTION IN EXISTING ELECTRICAL BUILDING TO BE DEMOLISHED AFTER NEW MCC IS FULLY ENERGIZED AND OPERATIONAL.
- CONTRACTOR SHALL INSTALL NEW POWER CONTROLS AND SCADA DISTRIBUTION FROM NEW MCC LOCATION TO EXISTING CL<sub>2</sub> BUILDING. BUILDING INCLUDES CL<sub>2</sub> BOOSTER PUMPS AS WELL AS LIGHTING RECEPTACLES AND EXHAUST FAN.
- SEE STRUCTURAL DRAWINGS FOR ELECTRICAL SLAB, ANTENNA SLAB & CANOPY DETAILS.
- CONTRACTOR TO ENSURE ADEQUATE CLEARANCE FOR CPS DROP.
- CONTRACTOR TO INSTALL NEW CONDUIT & CABLES FROM PROPOSED SCADA/SECURITY PANEL TO EXISTING LEVEL ELECTRODE JUNCTION BOX PER CABLE & CONDUIT SCHEDULE.
- FOR CPS ENERGY METER INSTALLATION DETAILS, SEE E-501.
- FOR EQUIPMENT LAYOUT, SEE SHEET E-305.
- PROPOSED PFCC'S SHALL BE MOUNTED TO WELL PUMP SLAB.
- APPROXIMATE LOCATION OF PROPOSED PRESSURE TRANSMITTER. SEE DRAWING E-503, DETAIL E.

**LEGEND:**

- GROUND TEST WELL, REFER TO STANDARD DETAIL
- COPPERCLAD GROUND ROD
- GROUNDING CONNECTION EXOTHERMIC OR COMPRESSION
- ABOVE GRADE TAIL FOR EQUIPMENT CONNECTION. TO BE LOCATED FOR PROPER EQUIPMENT ENTRANCE. PENETRATION THRU CONCRETE TO HAVE SCHEDULE 80 PVC PIPE SEGMENT.
- 2/0 BARE COPPER WIRE
- GROUND STRAP (COPPER BRAID)
- DUCTBANK ID
- OVERHEAD ELECTRIC
- UNDERGROUND ELECTRIC
- LEVEL ELECTRODE JUNCTION BOX SEE NOTE 8.



**JOB NO 12-6103**  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
ELECTRICAL SITE PLAN  
SAWS PITLUK PUMP STATION  
FACILITY #7

DRAWING NO.  
**E- 303**  
81 OF 107





Date	Appr. / Dm.	Description
9/20/13	RDG / SG	ADDENDUM #1

**INFORMATION**

GRUBB ENGINEERING, INC.  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING

TYPE FIRM REGISTRATION #8904  
3128 BUNKER #80005 SAN ANTONIO, TEXAS 78255  
BUS: 210.582.7550 FAX: 210.582.0865

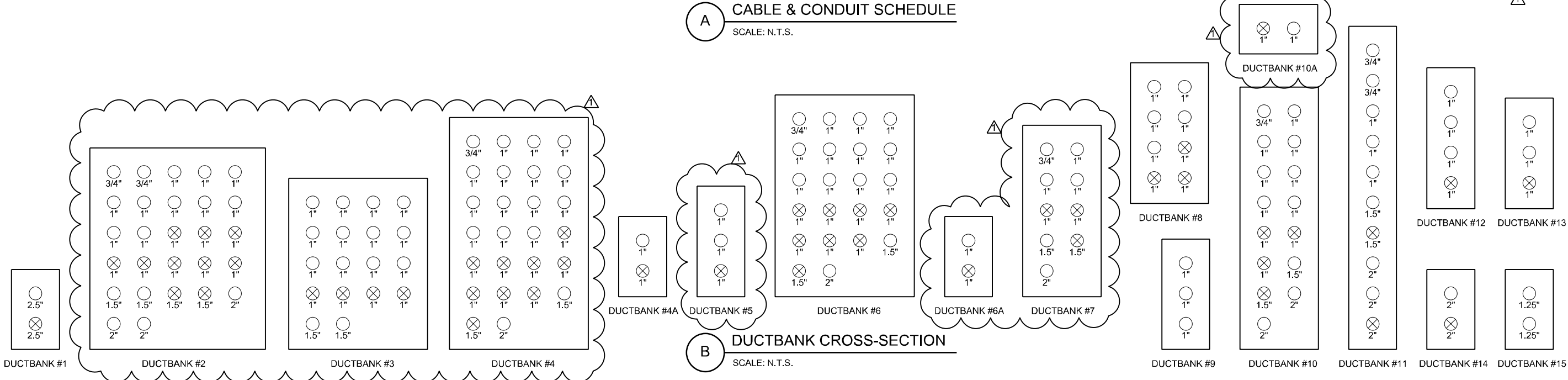
Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: P.G., SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
CABLE & CONDUIT LIST AND DUCTBANK  
CROSS-SECTIONS  
SAWS PITLUK PUMP STATION FACILITY #7

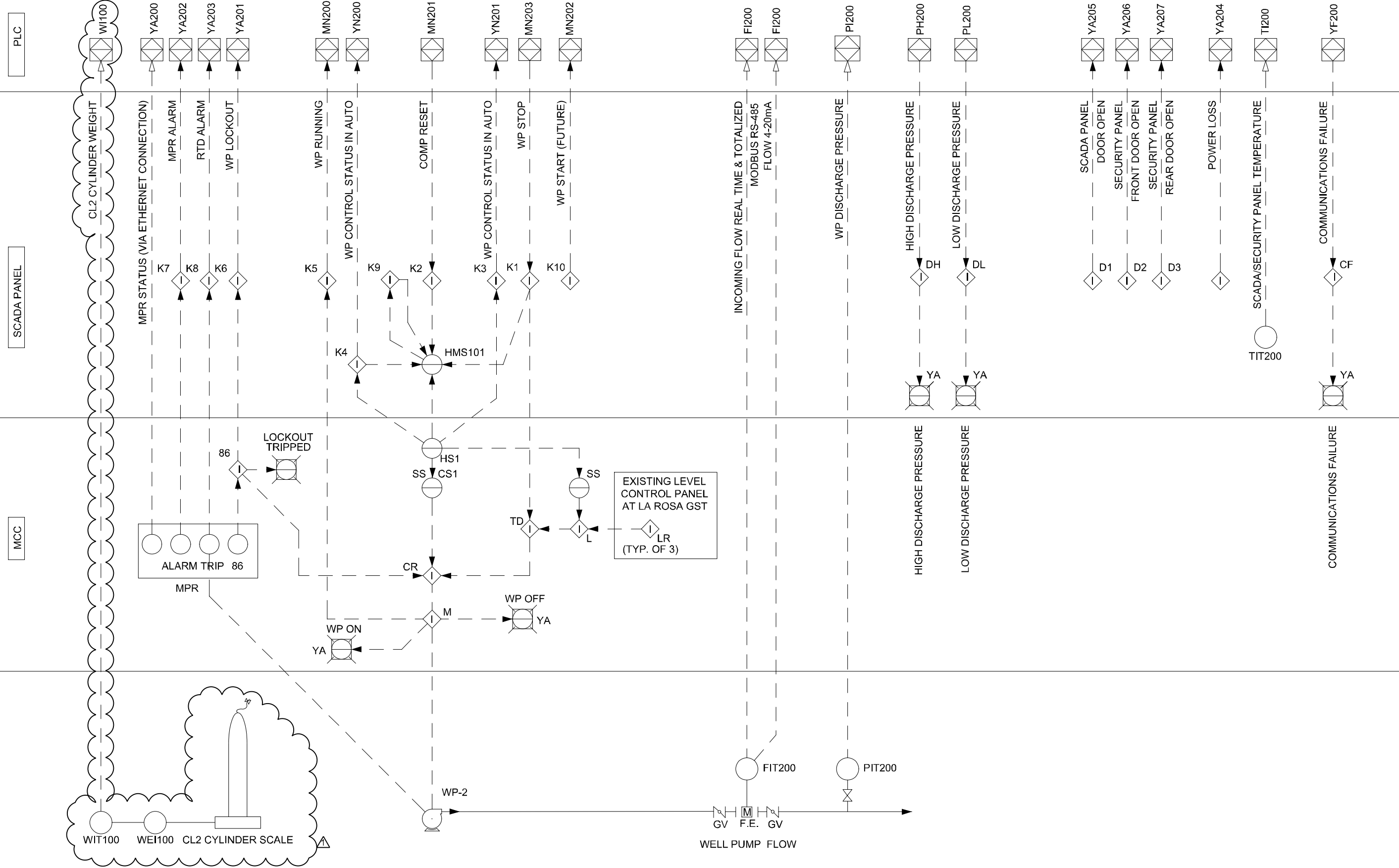
SECTION(S) ID	CONDUIT		CABLES			FROM	TO	CIRCUIT
	ID	SIZE	POWER	GROUND/NEUTRAL	CONTROL			
	1	1				SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #4	POE TO CAMERA #4
	2	1				CAT6	SECURITY CAMERA #5	POE TO CAMERA #5
1	3	2.5	3-1/C 4/0 THWN	1-1/C 4/0 THWN NEUTRAL		DISCONNECT SWITCH	MCC	MAIN UTILITY FEED
1	4	2.5	SPARE			DISCONNECT SWITCH	MCC	SPARE (STUB UP IN MCC AND AT DISCONNECT SWITCH AND CAP WITH PULL STRING)
2,4,5	5	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND	2-1/C #12 THWN	LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #2	YARD LIGHT #2 POWER
2,4,5	6	1	SPARE			LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #2	SPARE (STUB UP IN MCC AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)
2,4,6,7	7	1.5	3-1/C #3 THWN	1-1/C #8 THWN GROUND		MCC WELL PUMP #3 STARTER SECTION	WELL PUMP #3 JUNCTION BOX	WELL PUMP #3 POWER FEED
2,4,6,7	8	1.5	SPARE			MCC WELL PUMP #3 STARTER SECTION	WELL PUMP #3 JUNCTION BOX	SPARE (STUB UP IN MCC AND IN JUNCTION BOX AND CAP WITH PULL STRING)
2,4,6,7	9	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		MCC WELL PUMP #3 STARTER SECTION	WELL PUMP #3 JUNCTION BOX	WELL PUMP #3 SPACE HEATER POWER
2,4,6,7	10	2			8x(3/C #16 TW/SH/TRIAD)	MCC WELL PUMP #3 STARTER SECTION	WELL PUMP #3 JUNCTION BOX	WELL PUMP #3 RESISTANCE TEMPERATURE DETECTORS
2,4,6,7	11	3/4"	2-1/C #10 THWN	1-1/C #10 THWN GROUND		MCC HEAT TRACE CONTROL PANEL	WELL PUMP #3 HEAT TRACE JUNCTION BOX	WELL PUMP #3 AND INSTRUMENTATION HEAT TRACE
2,4,6,8	12	1	4-1/C #10 THWN	2-1/C #10 THWN GROUND		POWER PANEL "A"	CHLORINE BUILDING	CHLORINE BUILDING RECEPT ACLES
2,4,6,8	13	1	SPARE			POWER PANEL "A"	CHLORINE BUILDING	SPARE (STUB UP AT POWER PANEL "A" AND CHLORINE BUILDING AND CAP WITH PULL STRING)
2,4,6,8	14	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	CHLORINE BUILDING	CHLORINE BUILDING EXHAUST FAN AND LIGHTING
2,4,6,8	15	1	SPARE			POWER PANEL "A"	CHLORINE BUILDING	SPARE (STUB UP AT POWER PANEL "A" AND CHLORINE BUILDING AND CAP WITH PULL STRING)
2,4,6,8	16	1	3-1/C #10 THWN	1-1/C #10 THWN GROUND		MCC CHLORINE BOOSTER PUMP #1 STARTER SECTION	CHLORINE BOOSTER PUMP #1 DISCONNECT SWITCH	CHLORINE BOOSTER PUMP #1 POWER FEED
3,4,6,8	17	1			2X #16 TW/SH/PR	SCADA/SECURITY CABINET (CANOPY)	CHLORINE BUILDING	CHLORINE CYLINDER SCALE WEIGHT TO SCADA
2,4,6,8	18	1	SPARE			MCC CHLORINE BOOSTER PUMP #1 STARTER SECTION	CHLORINE BOOSTER PUMP #1 DISCONNECT SWITCH	SPARE (STUB UP AND CAP AT BOTH ENDS WITH PULL STRING)
2,4,6,9	19	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND	2-1/C #12 THWN	LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #1	YARD LIGHT #1 POWER
2,4,6,9	20	1	SPARE			LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #1	SPARE (STUB UP IN MCC AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)
2,4,6,9	21	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	YARD LIGHT #1 RECEPTACLE	YARD LIGHT #1 RECEPTACLE POWER
2,10,11	22	1.5	3-1/C #3 THWN	1-1/C #8 THWN GROUND		MCC WELL PUMP #2 STARTER SECTION	WELL PUMP #2 JUNCTION BOX	WELL PUMP #2 POWER FEED
2,10,11	23	1.5	SPARE			MCC WELL PUMP #2 STARTER SECTION	WELL PUMP #2 JUNCTION BOX	SPARE (STUB UP IN MCC AND IN JUNCTION BOX AND CAP WITH PULL STRING)
2,10,11	24	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		MCC WELL PUMP #2 STARTER SECTION	WELL PUMP #2 JUNCTION BOX	WELL PUMP #2 SPACE HEATER POWER
2,10,11	25	2			8x(3/C #16 TW/SH/TRIAD)	MCC WELL PUMP #2 STARTER SECTION	WELL PUMP #2 JUNCTION BOX	WELL PUMP #2 RESISTANCE TEMPERATURE DETECTORS
2,10,11	26	3/4"	2-1/C #10 THWN	1-1/C #10 THWN GROUND		MCC HEAT TRACE CONTROL PANEL	WELL PUMP #2 HEAT TRACE JUNCTION BOX	WELL PUMP #2 INSTRUMENTATION HEAT TRACE
2,10,11	27	2			8x(3/C #16 TW/SH/TRIAD)	MCC WELL PUMP #2 STARTER SECTION	WELL PUMP #2 JUNCTION BOX	WELL PUMP #2 RESISTANCE TEMPERATURE DETECTORS
2,10,12	28	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND	2-1/C #12 THWN	LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #2	YARD LIGHT #2 POWER
2,10,12	29	1	SPARE			LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #2	SPARE (STUB UP IN MCC AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)
2,10,12	30	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	YARD LIGHT #2 RECEPTACLE	YARD LIGHT #2 RECEPTACLE POWER
2,10,13	31	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	ELECTRICAL BUILDING	ELECTRICAL BUILDING RECEPTACLE
2,10,13	32	1				POWER PANEL "A"	ELECTRICAL BUILDING	ELECTRICAL BUILDING LIGHTING
2,10,13	33	1	SPARE	SPARE	SPARE	POWER PANEL "A"	ELECTRICAL BUILDING	SPARE (STUB UP AT POWER PANEL "A" AND ELECTRICAL BUILDING AND CAP WITH PULL STRING)
3,4,4,8	34	1			#16/TW/SH/PR + RS485 TW/SH	SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #2 FLOWMETER (FIT-200)	WELL PUMP #2 FLOW MODBUS RS485 AND 4-20mA
3,4,4,8	35	1	SPARE			SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #2 FLOWMETER (FIT-200)	SPARE (STUB UP IN SCADA/SECURITY CABINET AND AT FLOWMETER AND CAP WITH PULL STRING)
3,4,5	36	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #2	POE TO CAMERA #2
10,10A	37	1			#16 TW/SH/PR	SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #2 PRESSURE TRANSMITTER	WELL PUMP #2 PRESSURE TRANSMITTER
10,10A	38	1	SPARE			SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #2 PRESSURE TRANSMITTER	SPARE (STUB UP AND CAP AT BOTH ENDS WITH PULL STRING)
3,4,6,7	39	1			#16/TW/SH/PR + RS485 TW/SH	SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #3 FLOWMETER (FIT-100)	WELL PUMP #3 FLOWMETER MODBUS RS485 AND 4-20mA
3,4,6,7	40	1	SPARE			SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #3 FLOWMETER (FIT-100)	SPARE (STUB UP IN SCADA/SECURITY CABINET AND FLOWMETER AND CAP WITH PULL STRING)
3,4,6,6A	41	1			#16/TW/SH/PR	SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #3 PRESSURE TRANSMITTER	WELL PUMP #3 PRESSURE TRANSMITTER
3,4,6,6A	42	1	SPARE			SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #3 PRESSURE TRANSMITTER	SPARE (STUB UP AND CAP AT BOTH ENDS WITH PULL STRING)
3,4,6,7	43	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #3 FLOWMETER (FIT-200)	WELL PUMP #2 FLOWMETER POWER
3,4,6,7	44	1	SPARE			SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #3 FLOWMETER (FIT-200)	SPARE (STUB UP IN MCC AND AT FLOWMETER AND CAP WITH PULL STRING)
3,4,6,9	45	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #1	POE TO CAMERA #1
3,10,11	46	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #2 FLOWMETER (FIT-200)	WELL PUMP #2 FLOWMETER POWER
3,10,11	47	1	SPARE			SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #2 FLOWMETER (FIT-200)	SPARE (STUB UP AT BOTH ENDS AND CAP AND PULL STRING)
3,10,12	48	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #3	POE TO CAMERA #3
3,15	49	1.25			1-1/C #12 THWN GROUND	6-1/C #12 THWN	SCADA/SECURITY CABINET (CANOPY)	EXISTING PUMP CALLS FROM LA ROSA TANK LEVEL CONTROL PANEL
3,15	50	1.25	SPARE			SCADA/SECURITY CABINET (CANOPY)	LEVEL ELECTRODE JUNCTION BOX	SPARE (STUB UP IN SCADA/SECURITY CABINET AND IN LEVEL ELECTRODE JUNCTION BOX)
14	51	2			CAT6e	SCADA/SECURITY CABINET (CANOPY)	SCADA ANTENNA MAST	SCADA RADIO TO ANTENNA CONNECTION
14	52	2	SPARE			SCADA/SECURITY CABINET (CANOPY)	SCADA ANTENNA MAST	SPARE (STUB UP AND CAP AT BOTH ENDS WITH PULL STRING)

**A CABLE & CONDUIT SCHEDULE**  
SCALE: N.T.S.



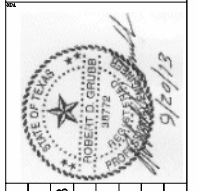
**B DUCTBANK CROSS-SECTION**  
SCALE: N.T.S.

TYPICAL OF WELL PUMPS 2 & 3



<b>JOB NO.</b> <b>12-6103</b>											
<b>INFORMATION</b> GRUBB ENGINEERING, INC. ELECTRICAL POWER SYSTEMS DESIGN & TESTING TYPE FIRM REGISTRATION #3904 3128 SHINE #90005, SAN ANTONIO, TEXAS 78265 (817) 210-9875 FAX: 210-584-0865	<b>REVISIONS</b> <table border="1"> <thead> <tr> <th>No.</th> <th>Description</th> <th>Drn.</th> <th>Approved</th> <th>Date</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>ADDENDUM #1</td> <td>SG</td> <td>RDG</td> <td>9/20/13</td> </tr> </tbody> </table>	No.	Description	Drn.	Approved	Date	1	ADDENDUM #1	SG	RDG	9/20/13
No.	Description	Drn.	Approved	Date							
1	ADDENDUM #1	SG	RDG	9/20/13							
Date: 08/16/2013 Drawn by: SG Designed by: BLD, CKG Checked by: PG, SM Scale: AS NOTED ABOVE Approved by: RDG Map No: XXX-XXX	<b>San Antonio Water System</b> 										
<b>JOB NO 12-6103</b> <b>DSP WATER PRODUCTION</b> <b>FACILITY UPGRADES</b> <b>PROCESS AND INSTRUMENTATION</b> <b>DIAGRAM</b> <b>SAWS PITLLUK PUMP STATION</b> <b>FACILITY #7</b>											
<b>DRAWING NO.</b> <b>E-307</b> 85 OF 107											

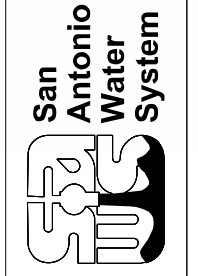
NOTE:  
REFERENCE SHEETS G-3 FOR LEGENDS.



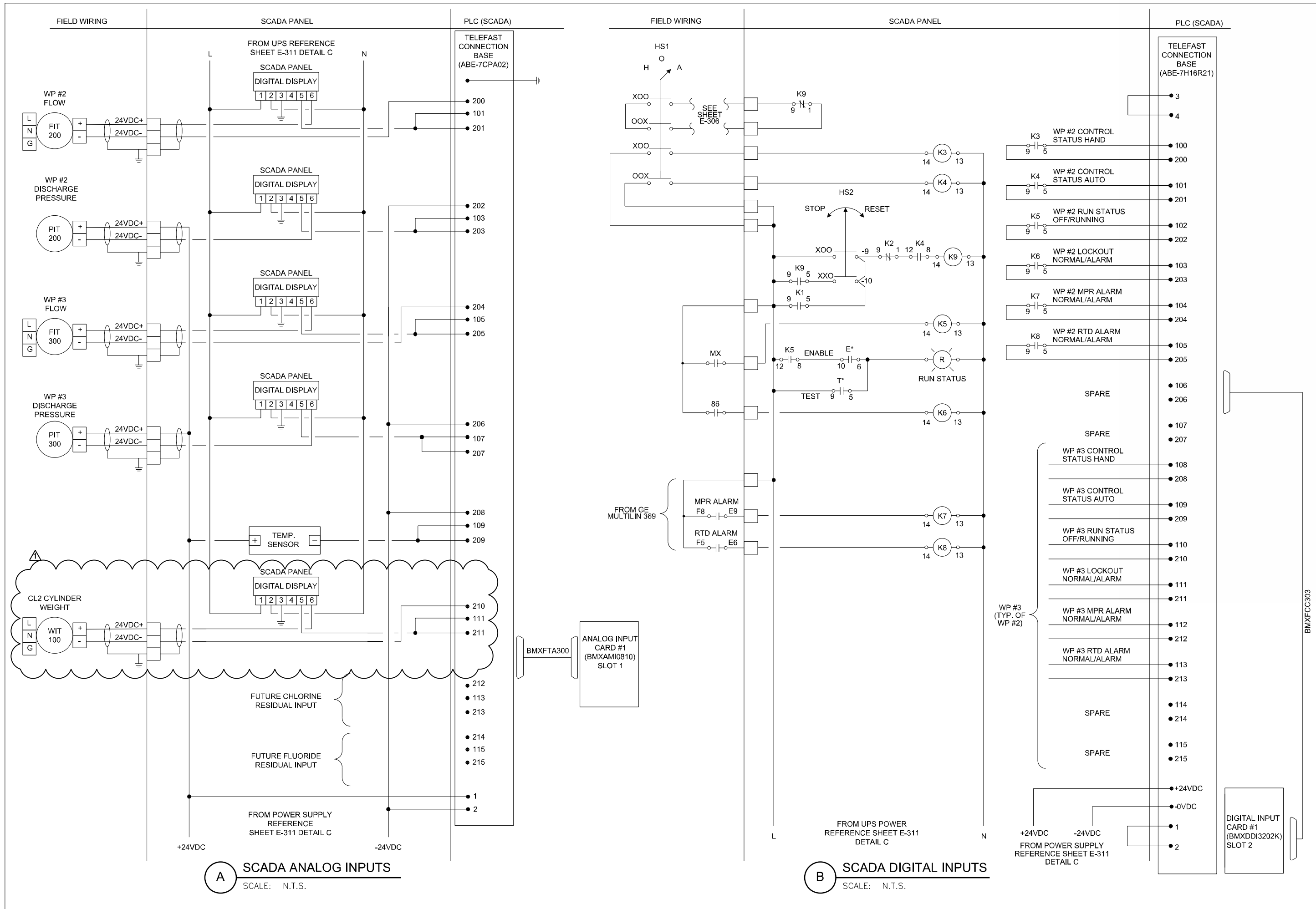
REVISIONS	No.	Description	Drn.	Apprvd.	Date
	1	ADDENDUM #1	SG	RDG	9/20/13

**INFORMATION**  
 GRUBB ENGINEERING, INC.  
 ELECTRICAL POWER SYSTEMS  
 DESIGN & TESTING  
 TYPE FIRM REGISTRATION #9004  
 3128 SHINE #RD005 SAN ANTONIO, TEXAS 78265  
 (816) 710-987-750 FAX: 710-986-0865

Date: 08/16/2013	Drawn by: SG
Designed by: BLD, CKG	Checked by: P.G., SM
Scale: AS NOTED ABOVE	Approved by: RDG
Map No: XXX-XXX	



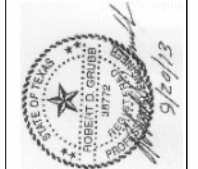
JOB NO 12-6103  
 DSP WATER PRODUCTION  
 FACILITY UPGRADES  
 PLC CONNECTION DIAGRAM I  
 SAWS PITLUK PUMP STATION  
 FACILITY #7



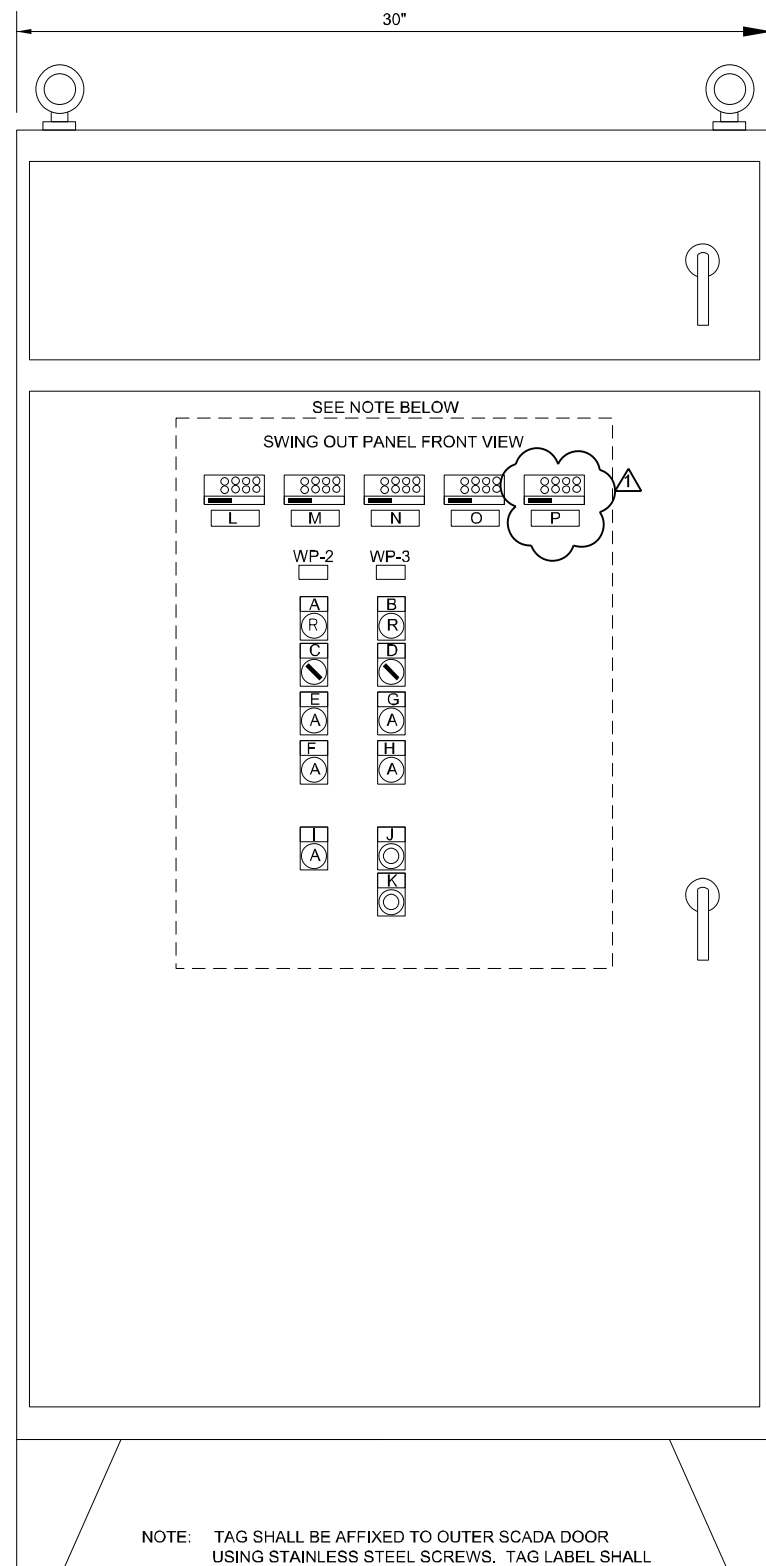
**A SCADA ANALOG INPUTS**  
SCALE: N.T.S.

**B SCADA DIGITAL INPUTS**  
SCALE: N.T.S.

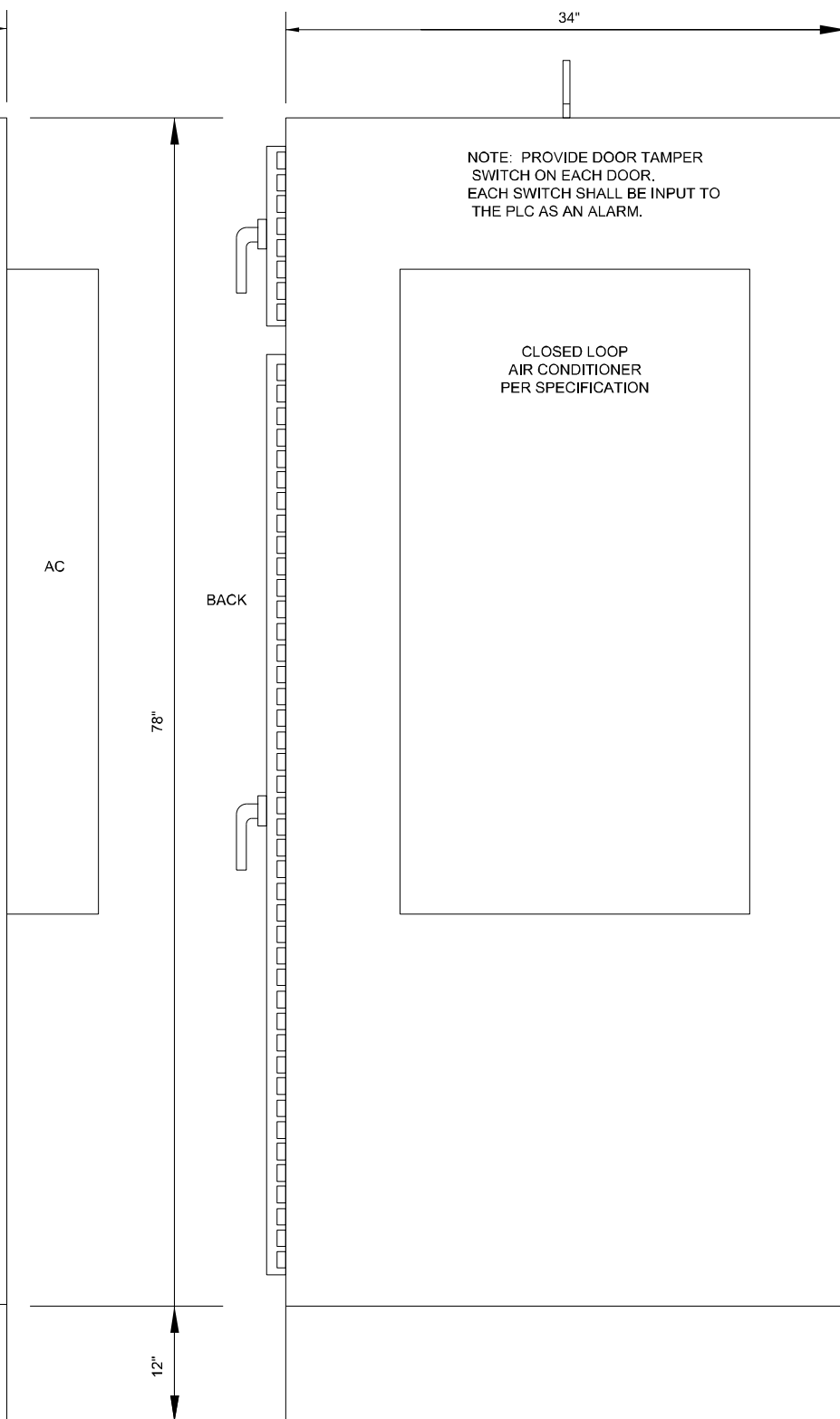
BMXFCC303



EXTERIOR FRONT VIEW

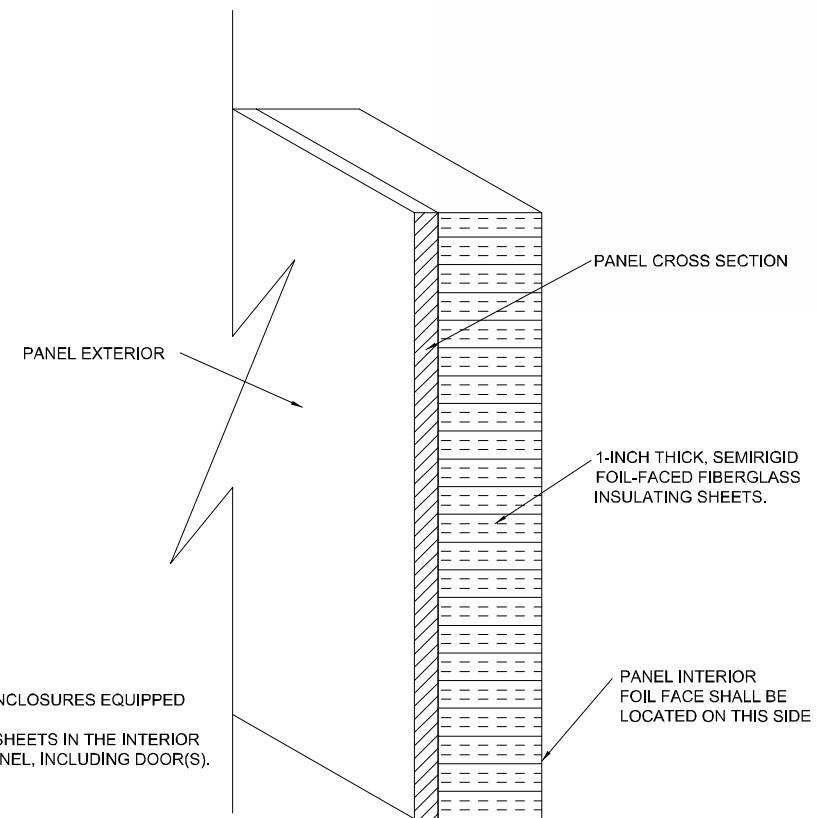


EXTERIOR SIDE VIEW



ITEM	TAG NO.	QTY.	LET.	DESCRIPTION	LEGEND PLATE
1		1	A	WP #2 PUMP RUN STATUS	PUMP RUN STATUS
2		1	B	WP #3 PUMP RUN STATUS	PUMP RUN STATUS
3		1	C	WP #2 STOP OR RESET SWITCH	STOP/RESET
4		1	D	WP #3 STOP OR RESET SWITCH	STOP/RESET
5		1	E	WP #2 DISCHARGE PRESSURE HIGH	DISCHARGE PRESSURE HIGH
6		1	F	WP #2 DISCHARGE PRESSURE LOW	DISCHARGE PRESSURE LOW
7		1	G	WP #3 DISCHARGE PRESSURE HIGH	DISCHARGE PRESSURE HIGH
8		1	H	WP #3 DISCHARGE PRESSURE LOW	DISCHARGE PRESSURE LOW
9		1	I	COMMUNICATIONS FAILURE	COMM FAIL
10		1	J	LAMP TEST PUSHBUTTON	LAMP TEST
11		1	K	LIGHT ENABLE PUSHBUTTON	PANEL LIGHTS ON
12	PIT-100	1	L	WP #2 DISCHARGE PRESSURE INDICATOR	WP #2 DISCHARGE PRESSURE
13	PIT-200	1	M	WP #3 DISCHARGE PRESSURE INDICATOR	WP #3 DISCHARGE PRESSURE
14	FIT-100	1	N	WP #2 FLOW INDICATOR	WP #2 FLOW
15	FIT-200	1	O	WP #3 FLOW INDICATOR	WP #3 FLOW
16	WIT-100	1	P	CL2 CYLINDER WEIGHT INDICATOR	CL2 CYLINDER WEIGHT

FRONT



- NOTES:
- REQUIRED FOR ALL ENCLOSURES EQUIPPED WITH A/C UNIT.
  - INSTALL INSULATING SHEETS IN THE INTERIOR SURFACES OF THE PANEL, INCLUDING DOOR(S).

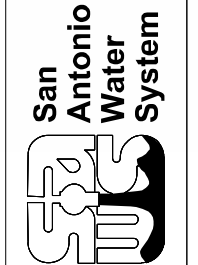
REVISIONS

No.	Description	Drn.	Apprvd.	Date
1	ADDENDUM #1	SG	RDG	9/20/13

INFORMATION

GRUBB ENGINEERING, INC.  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING  
TYPE FIRM REGISTRATION #9904  
3128 SHINE #90005 SAN ANTONIO, TEXAS 78255  
PHONE: 210.588.7550 FAX: 210.588.0865

Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: PG, SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



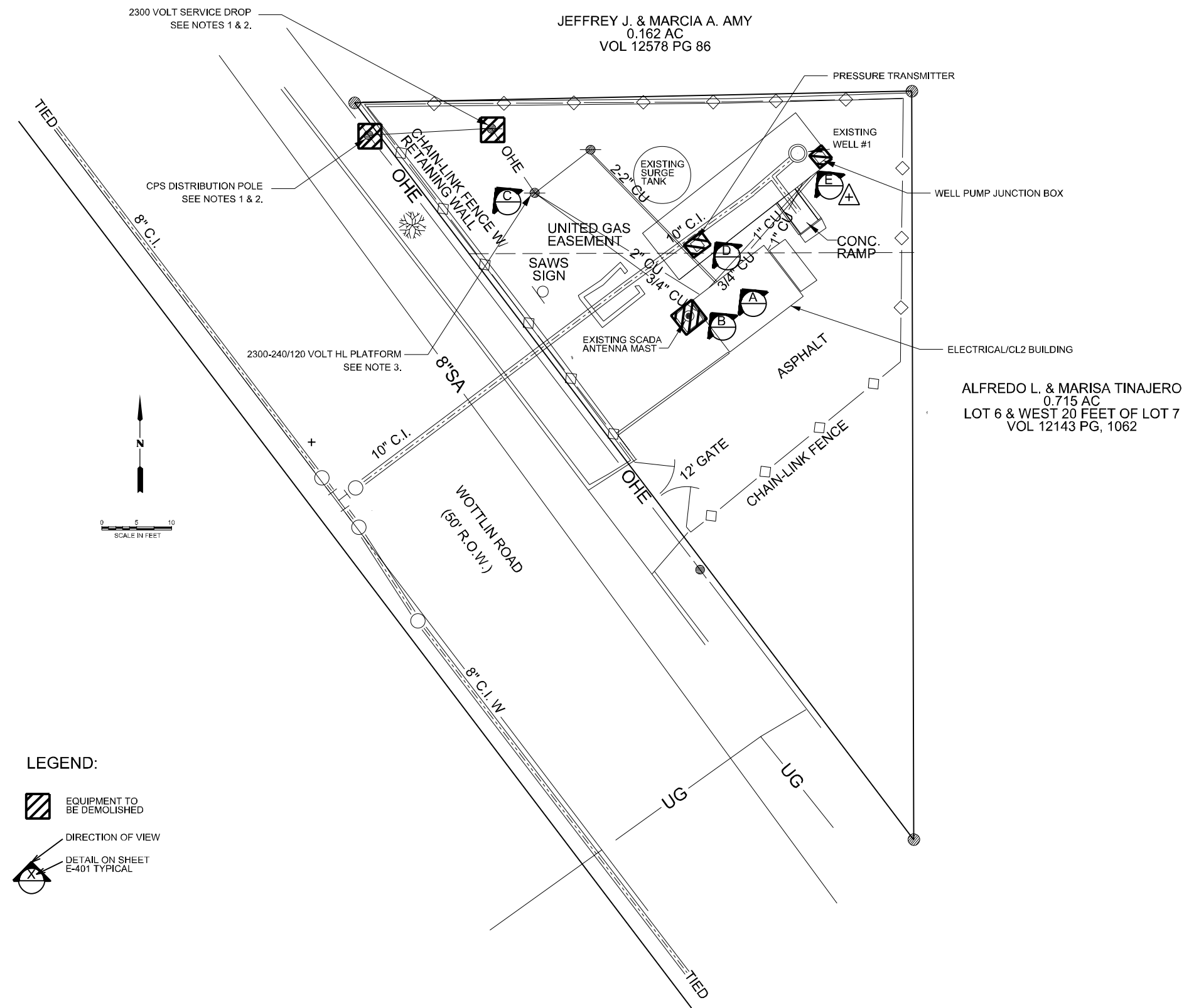
JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
SCADA/SECURITY PANEL LAYOUT 1  
SAWS PITLUK PUMP STATION  
FACILITY #7

**A** SCADA/SECURITY PANEL LAYOUT  
SCALE: N.T.S.

**B** CLIMATE CONTROLLED PANEL INSULATION  
SCALE: N.T.S.



- NOTE:
- EXISTING 3-100KVA POLE MOUNT TRANSFORMERS TO BE REMOVED AFTER PROPOSED CPS POLE MOUNT TRANSFORMERS ARE INSTALLED & OPERATIONAL.
  - CONTRACTOR SHALL COORDINATE WITH CPS ENERGY REGARDING SERVICE DROP & TRANSFORMER POLE REMOVAL.
  - TO BE REMOVED AFTER NEW 2300 VOLT SERVICE IS ENERGIZED. CONTRACTOR SHALL COORDINATE WITH SAWS REGARDING THE RETURN OF SALVAGEABLE MATERIALS. SAWS HAS FIRST RIGHT OF REFUSAL OF SALVAGEABLES. CONTRACTOR SHALL PROPERLY DISPOSE OF ALL UNSALVAGEABLE EQUIPMENT.
  - CONTRACTOR SHALL REMOVE ABANDONED DUCTBANKS.

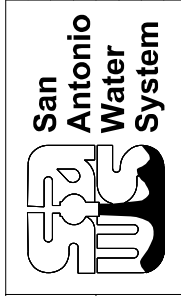


REVISIONS	No.	Description	Drn.	Apprvd	Date
	ADDENDUM #1		SG	RDG	9/20/13

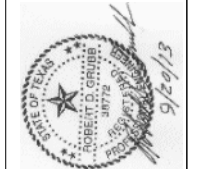
**INFORMATION**

GRUBB ENGINEERING, INC.  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING  
TYPE FIRM REGISTRATION #9904  
3128 SHINE BROOKS SAN ANTONIO, TEXAS 78255  
PHONE: 710.686.7500 FAX: 710.686.8065

Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: PG, SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
DEMOLITION ELECTRICAL SITE PLAN  
SAWS WOTTLIN PUMP STATION  
FACILITY #24



- NOTES:
- CONTRACTOR SHALL INSTALL NEW POWER CONTROLS AND SCADA DISTRIBUTION FROM NEW MCC LOCATION TO EXISTING CL BUILDING, CL BUILDING INCLUDES CL BOOSTER PUMPS, LIGHTING AND RECEPTACLES.
  - NEW POWER AND MONITORING CABLE AND CONDUITS SHALL BE ROUTED FROM NEW MCC LOCATION TO WELL PUMP MOTOR.
  - NEW POWER AND CONTROL CABLES AND CONDUIT SHALL BE ROUTED PROPOSED PUMP CONTROL VALVE.
  - SEE STRUCTURAL DRAWINGS FOR ELECTRICAL SLAB, ANTENNA SLAB & CANOPY DETAILS.
  - CANOPY MUST BE 1' AWAY FROM FENCE. NEC CLEARANCES MUST BE MAINTAINED AT ALL TIMES BETWEEN CANOPY STRUCTURE AND CPS ENERGY 13.2 KV CONDUCTORS.
  - FOR EQUIPMENT LAYOUT, SEE SHEET E-405.
  - EXISTING ANTENNA TO BE DEMOLISHED AFTER PROPOSED ANTENNA IS INSTALLED, TESTED AND OPERATIONAL.
  - POWER SHALL BE ROUTED FROM PROPOSED MCC TO EXISTING CL PUMP MOTOR STARTER VIA EXISTING WIRING GUTTER.
  - FOR THE PUMP'S SPECIFICITY TO THE SCADA SYSTEM.
  - PROPOSED PRESSURE TRANSMITTER SHALL REPLACE EXISTING TRANSMITTER LOCATED IN ENCLOSURE AS SHOWN. SEE DRAWING E-503 DETAIL.

**LEGEND**

	GROUND TEST WELL, REFER TO STANDARD DETAIL
	COPPERCLAD GROUND ROD
	GROUNDING CONNECTION EXOTHERMIC OR COMPRESSION
	ABOVE GRADE TAIL FOR EQUIPMENT CONNECTION, TO BE LOCATED FOR PROPER EQUIPMENT ENTRANCE, PENETRATION THRU CONCRETE TO HAVE SCHEDULE 80 PVC PIPE SEGMENT.
	2/0 BARE COPPER WIRE
	GROUNDING STRAP (COPPER BRAID)
	UNDERGROUND ELECTRIC
	DUCTBANK 1D

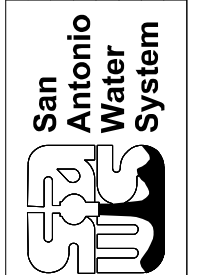
**REVISIONS**

No.	Description	Drn.	Apprvd.	Date
1	ADDENDUM #1	SG	RDG	9/20/13

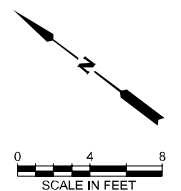
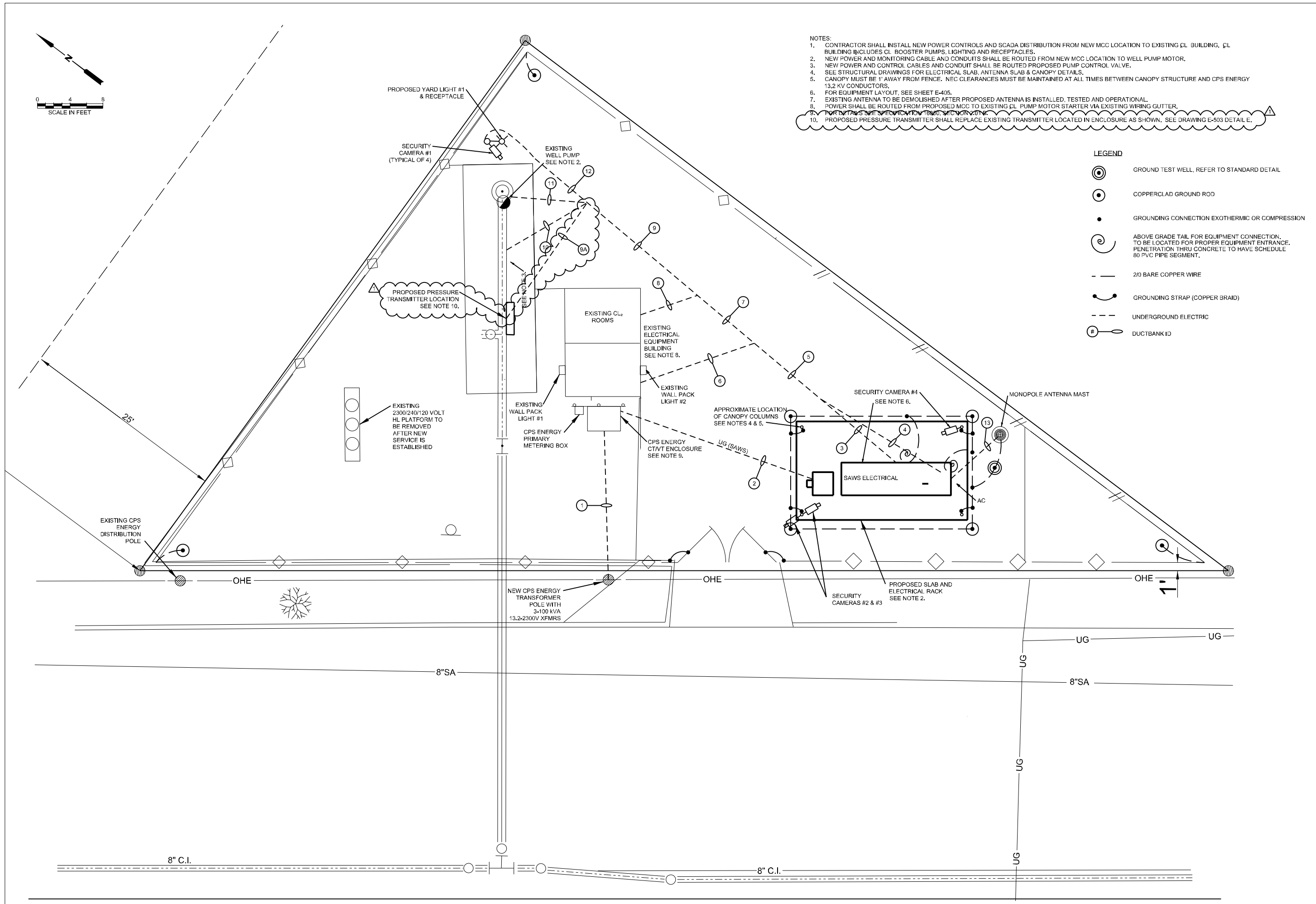
**INFORMATION**

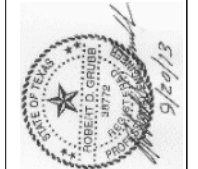
GRUBB ENGINEERING, INC.  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING  
TYPE FIRM REGISTRATION #8904  
3128 SHINE #90005 SAN ANTONIO, TEXAS 78255  
PHONE: 210.588.7550 FAX: 210.588.0865

Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: PG, SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
ELECTRICAL SITE PLAN  
SAWS WOTTLIN PUMP STATION  
FACILITY #24



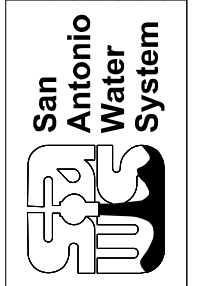


SECTION(S) ID	CONDUIT		CABLES			FROM	TO	CIRCUIT
	ID	SIZE	POWER	GROUND/NEUTRAL	CONTROL			
	1	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #2	POE TO CAMERA #2
	2	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #3	POE TO CAMERA #3
	3	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #4	POE TO CAMERA #4
1	4	*	SIZED BY CPS ENERGY	SIZED BY CPS ENERGY		CPS ENERGY TRANSFORMER	CPS ENERGY PRIMARY METERING BOX	MAIN UTILITY FEED
2	5	3	3-1/C #6 EPR 5KV	1-1/C #8 EPR 5KV NEUTRAL		CPS ENERGY PRIMARY METERING BOX	MCC	MAIN UTILITY FEED
2	6	3	SPARE			CPS ENERGY PRIMARY METERING BOX	MCC	SPARE (STUB UP IN SWITCHBOARD AND METERING BOX AND CAP WITH PULL STRING)
3,5,6	7	1	4-1/C #10 THWN	2-1/C #10 THWN GROUND		POWER PANEL "A"	ELECTRICAL/CHLORINE BUILDING	ELECTRICAL/CHLORINE BUILDING INTERIOR LIGHTING AND RECEPTACLES
4,5,6	8	1			2X #16 TW/SH/PR	POWER PANEL "A"	ELECTRICAL/CHLORINE BUILDING	CHLORINE CYLINDER WEIGHT TO SCADA
3,5,7,8	9	1	3-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	CHLORINE BOOSTER PUMP #1 ST ARTER	CHLORINE BOOSTER PUMP #1 POWER FEED
3,5,7,8	10	1	SPARE			POWER PANEL "A"	CHLORINE BOOSTER PUMP #1 ST ARTER	SPARE
3,5,7,9,10	11	1		1-1/C #12 THWN GROUND	6-1/C #12 THWN	MCC WELL PUMP #1 ST ARTER SECTION	WELL PUMP #1 CONTROL VALVE	WELL PUMP #1 CONTROL VALVE
3,5,7,9,10	12	1	SPARE			MCC WELL PUMP #1 ST ARTER SECTION	WELL PUMP #1 CONTROL VALVE	SPARE (STUB UP AT POWER PANEL AND CAP WITH PULL STRING)
3,5,7,9,10	13	3/4"	2-1/C #10 THWN	1-1/C #10 THWN GROUND		MCC HEAT TRACE CONTROL PANEL	WELL PUMP #1 HEAT TRACE JUNCTION BOX	WELL PUMP #1 AND CONTROL VALVE HEAT TRACE
3,5,7,9,11	14	2	3-1/C #6 EPR 5KV	1-1/C #8 EPR 5KV GROUND		MCC WELL PUMP #1 ST ARTER SECTION	WELL PUMP #1 JUNCTION BOX	WELL PUMP #1 POWER FEED
3,5,7,9,11	15	2	SPARE			MCC WELL PUMP #1 ST ARTER SECTION	WELL PUMP #1 JUNCTION BOX	SPARE (STUB UP IN MCC AND IN JUNCTION BOX AND CAP WITH PULL STRING)
3,5,7,9,11	16	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		MCC WELL PUMP #1 ST ARTER SECTION	WELL PUMP #1 JUNCTION BOX	WELL PUMP #1 SPACE HEATER POWER
3,5,7,9,11	17	2			8x(3/C #16 TW/SH/TRIAD)	MCC WELL PUMP #1 ST ARTER SECTION	WELL PUMP #1 JUNCTION BOX	WELL PUMP #1 RESISTANCE TEMPERATURE DETECTORS
3,5,7,9,12	18	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND	2-1/C #12 THWN	LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #1	YARD LIGHT #1 POWER
3,5,7,9,12	19	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		POWER PANEL "A"	YARD LIGHT #1 RECEPTACLE	YARD LIGHT #1 RECEPTACLE POWER
3,5,7,9,12	20	1	SPARE			LIGHTING CONTACTOR PANEL IN MCC	YARD LIGHT #1	SPARE (STUB UP IN MCC AND OUTSIDE LIGHT BASE AND CAP WITH PULL STRING)
4,5,7,8	21	1		1-1/C #12 THWN GROUND	6-1/C #12 THWN	SCADA/SECURITY CABINET (CANOPY)	ELECTRICAL/CHLORINE BUILDING	CHLORINE BUILDING LEAK ALARM
4,5,7,8	22	1	SPARE			SCADA/SECURITY CABINET (CANOPY)	ELECTRICAL/CHLORINE BUILDING	SPARE (STUB UP AT AND CAP AT BOTH ENDS WITH PULL STRING)
4,5,7,9,9A	23	1			#16 TW/SH/PR	SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #1 PRESSURE TRANSMITTER	WELL PUMP #1 PRESSURE TRANSMITTER 4-20mA
4,5,7,9,10	24	1			#16/TW/SH/PR + RS485 TW/SH	SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #1 FLOWMETER (FIT-100)	WELL PUMP #1 FLOW MODBUS RS485 AND 4-20mA
4,5,7,9,10	25	1	2-1/C #10 THWN	1-1/C #10 THWN GROUND		SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #1 FLOWMETER (FIT-100)	WELL PUMP #1 FLOWMETER POWER
4,5,7,9,10	26	1	SPARE			SCADA/SECURITY CABINET (CANOPY)	WELL PUMP #1 FLOWMETER (FIT-100)	SPARE (STUB UP IN SCADA/SECURITY CABINET AND FLOWMETER AND CAP WITH PULL STRING)
4,5,7,9,12	27	1			CAT6	SCADA/SECURITY CABINET (CANOPY)	SECURITY CAMERA #1	POE TO CAMERA #1
13	28	2			CAT6e	SCADA/SECURITY CABINET (CANOPY)	SCADA ANTENNA	SCADA RADIO TO ANTENNA CONNECTION
13	29	2	SPARE			SCADA/SECURITY CABINET (CANOPY)	SCADA ANTENNA	SPARE

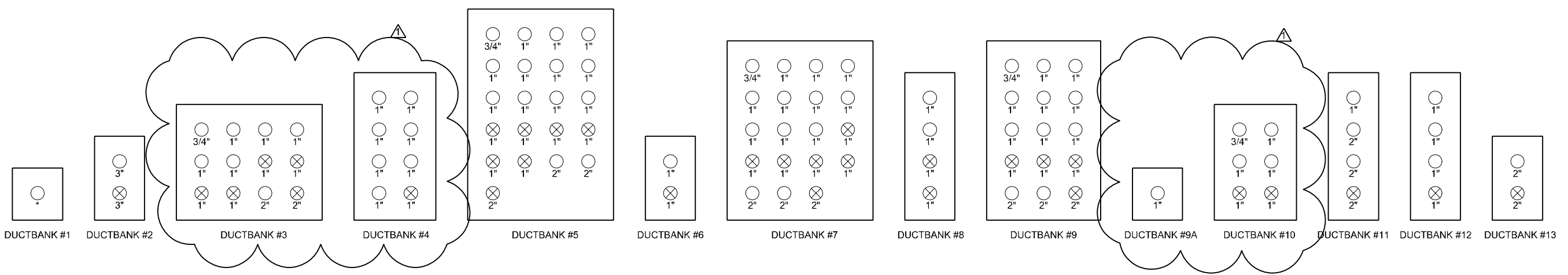
\* CONTRACTOR SHOULD COORDINATE WITH CPS REGARDING SIZE.

**A** CABLE & CONDUIT SCHEDULE  
SCALE: N.T.S.

Date	9/20/13
Drawn by	SG
Designed by	BLD, CKG
Checked by	PG, SM
Scale	AS NOTED ABOVE
Approved by	RDG
Map No.	XXX-XXX

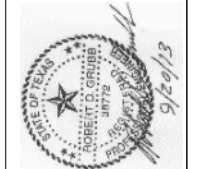


JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
CABLE & CONDUIT LIST AND DUCTBANK  
CROSS-SECTIONS  
SAWS WOTTLIN PUMP STATION  
FACILITY #24



**B** DUCTBANK CROSS-SECTION  
SCALE: N.T.S.

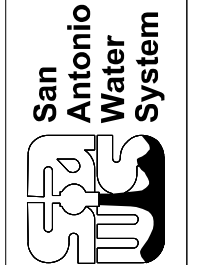
\* CONTRACTOR SHOULD COORDINATE WITH CPS REGARDING SIZE.



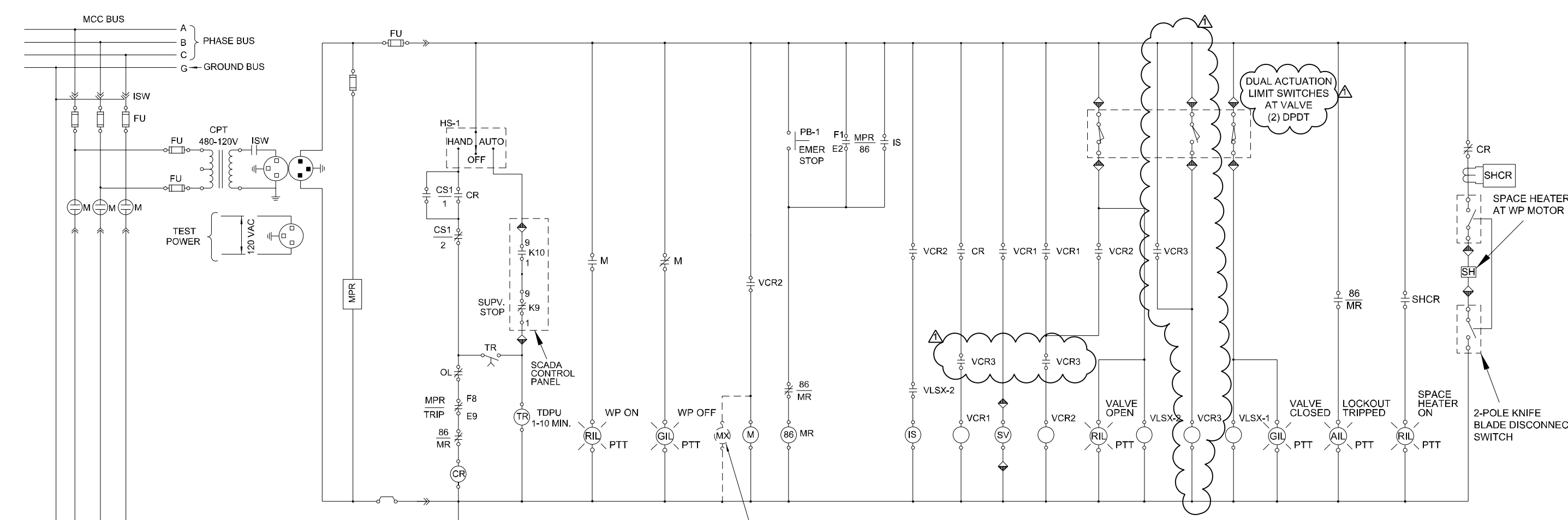
No.	Description	Drn.	Approved	Date
1	ADDENDUM #1	SG	RDG	9/20/13

**GRUBB ENGINEERING, INC.**  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING  
TYPE FIRM REGISTRATION #9904  
3128 SHINE #RD005 SAN ANTONIO, TEXAS 78255  
BLR: 210.588.750 FAX: 210.588.865

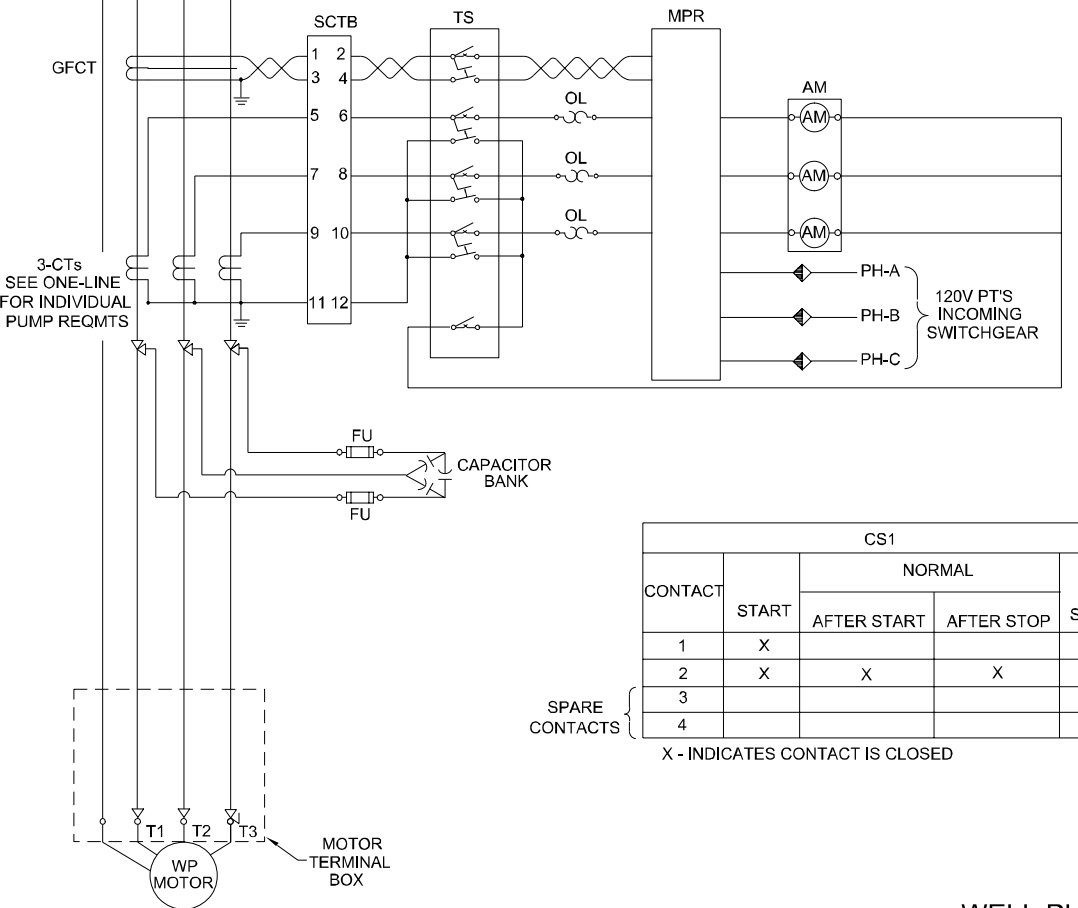
Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: P.G., SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX



JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
WELL PUMP MOTOR CONTROL SCHEMATIC  
SAWS WOTTLIN PUMP STATION  
FACILITY #24

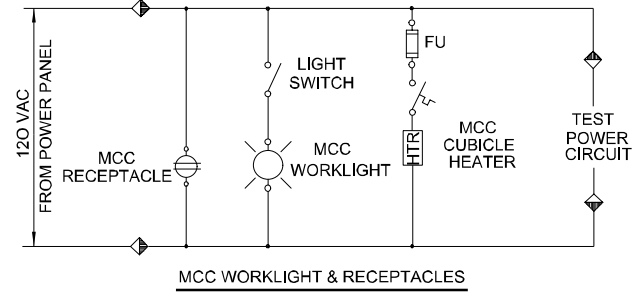


MX TO BE FURNISHED IF NECESSARY IN THE EVENT M RELAY DOES NOT HAVE SUFFICIENT CONTACTS

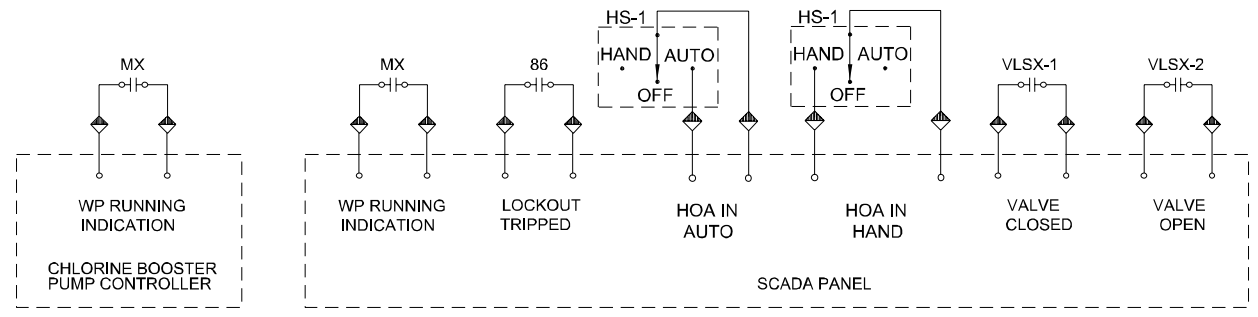


CONTACT	START	NORMAL		STOP
		AFTER START	AFTER STOP	
1	X			
2	X	X	X	
3				X
4				X

X - INDICATES CONTACT IS CLOSED



◆ TERMINAL POINT IN WP MOTOR STARTER/CONTROLLER CUBICLE  
DARK SIDE INDICATES CONNECTION INTERNAL TO PANEL.



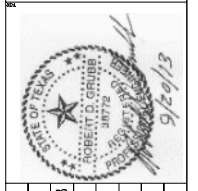
**A WELL PUMP MOTOR STARTER/CONTROLLER CONTROL SCHEMATIC**

◆ TERMINAL POINT IN WELL PUMP MOTOR STARTER/CONTROLLER CUBICLE.  
DARK SIDE INDICATES CONNECTION INTERNAL TO PANEL.

**LEGEND**

AIL	AMBER INDICATING LIGHT	PB	PUSHBUTTON
AM	AMMETER	RIL	RED INDICATING LIGHT
CPT	CONTROL POWER TRANSFORMER	RTD	RESISTANCE TEMPERATURE DEVICE
CR	CONTROL RELAY	SCTB	SHORTING CURRENT TRANSFORMER BLOCK
CS	CONTROL SWITCH	SEC	SECONDS
CT	CURRENT TRANSFORMER	SHCR	SPACE HEATER CURRENT RELAY
EMER	EMERGENCY	SS	SELECTOR SWITCH
FT	FLOW TRANSMITTER	SUPV	SUPERVISORY
FU	FUSE	TDDO	TIME DELAY AFTER DROP OUT
GIL	GREEN INDICATING LIGHT	TDDU	TIME DELAY AFTER PICK UP
IS	INCOMPLETE SEQUENCE	TS	TEST SWITCH
M	MAIN CONTACTOR AUX. CONTACT	TR	TIMING RELAY
MCP	MOTOR CIRCUIT PROTECTOR	VCR	VALVE CONTROL RELAY
MIN	MINUTES	VLS	VALVE LIMIT SWITCH
MPR	MOTOR PROTECTION RELAY	VLSX	VALVE POSITION INDICATION RELAY
MX	MAIN CONTACTOR AUXILIARY RELAY	WP	WELL PUMP
OL	OVERLOAD RELAY	86	LOCKOUT RELAY
PTT	PRESS-TO-TEST	△	CABLE TERMINATION





REVISIONS	
No.	Description
1	ADDENDUM #1

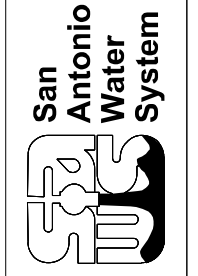
  

Date	Drn.	Approved
9/20/13	SG	RDG

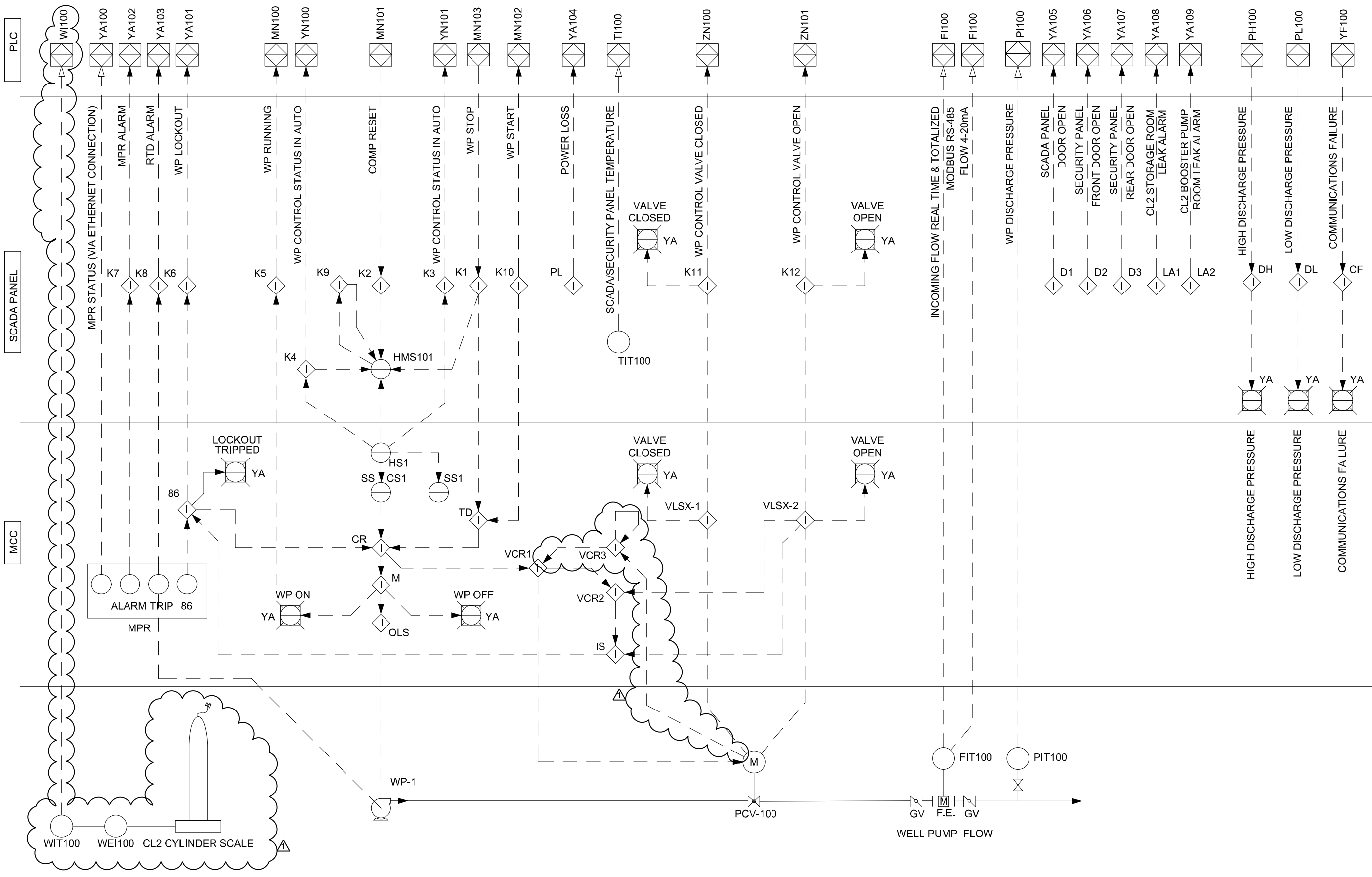
  

INFORMATION	
GRUBB ENGINEERING, INC.	ELECTRICAL POWER SYSTEMS DESIGN & TESTING
3128 SHINE #9008 SAN ANTONIO, TEXAS 78265	TYPE FRM REGISTRATION #9004
PHONE: 210.588.7500 FAX: 210.588.8865	

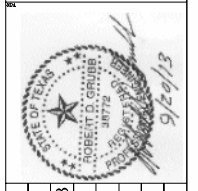
Date: 08/16/2013	Drawn by: SG
Designed by: BLD, CKG	Checked by: PG, SM
Scale: AS NOTED ABOVE	Approved by: RDG
Map No: XXX-XXX	



JOB NO 12-6103  
**DSP WATER PRODUCTION FACILITY UPGRADES**  
 PROCESS AND INSTRUMENTATION DIAGRAM  
**SAWS WOTTLIN PUMP STATION FACILITY #24**



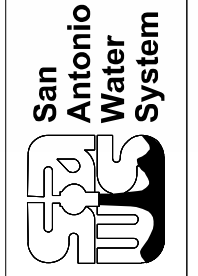
NOTES:  
1. REFERENCE SHEET G-3 FOR LEGEND.



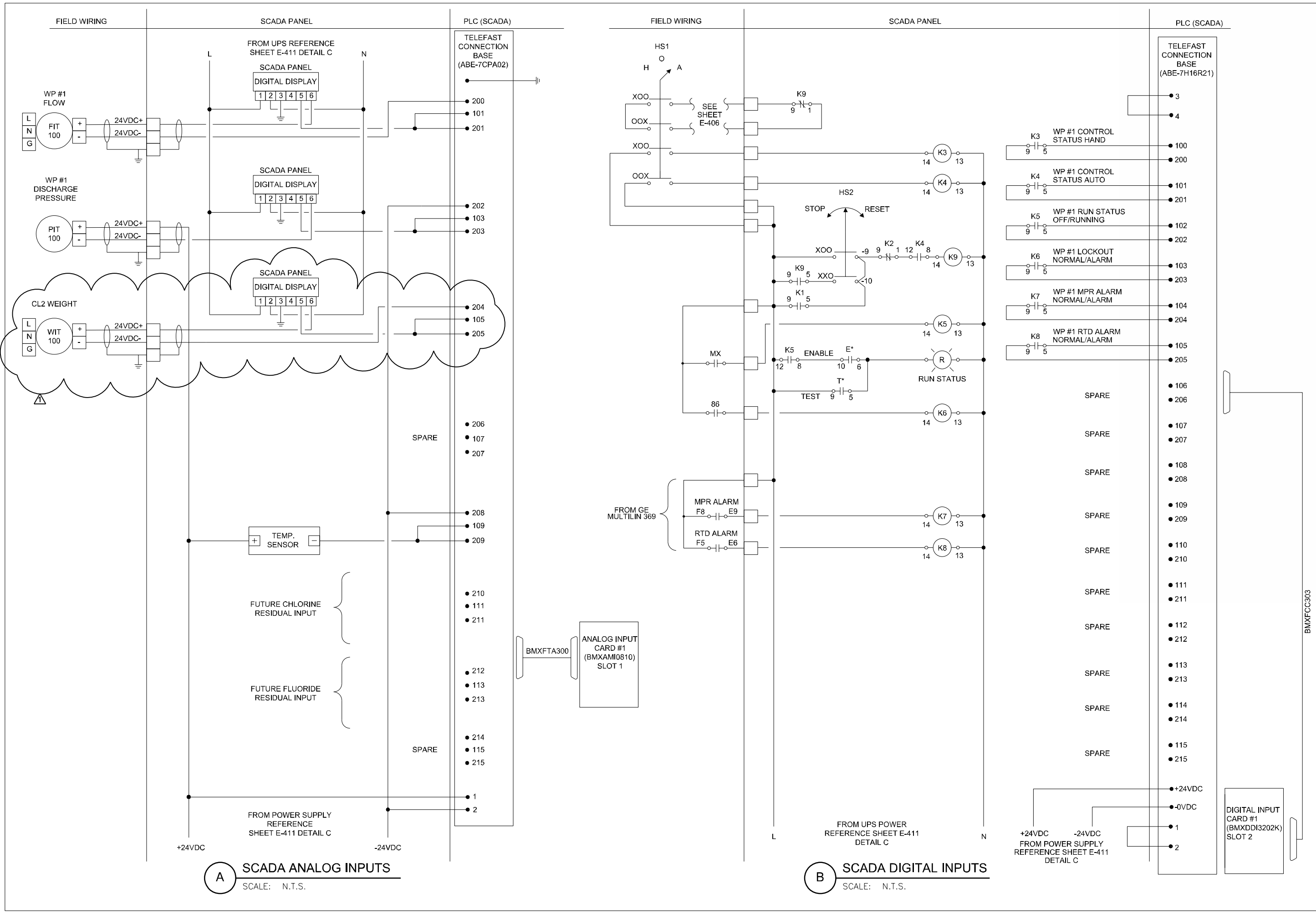
REVISIONS	No.	Description	Drn.	Apprvd.	Date
	1	ADDENDUM #1	SG	RDG	9/20/13

**INFORMATION**  
 GRUBB ENGINEERING, INC.  
 ELECTRICAL POWER SYSTEMS  
 DESIGN & TESTING  
 TYPE FRM REGISTRATION #3904  
 3128 SHINE BROOKS SAN ANTONIO, TEXAS 78255  
 (816) 210-9875 FAX: 210-584-0865

Date: 08/16/2013	Drawn by: SG
Designed by: BLD, CKG	Checked by: P.G., SM
Scale: AS NOTED ABOVE	Approved by: RDG
Map No: XXX-XXX	



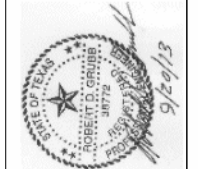
JOB NO 12-6103  
 DSP WATER PRODUCTION  
 FACILITY UPGRADES  
 PLC CONNECTION DIAGRAM I  
 SAWS WOTTLIN PUMP STATION  
 FACILITY #24



**A SCADA ANALOG INPUTS**  
SCALE: N.T.S.

**B SCADA DIGITAL INPUTS**  
SCALE: N.T.S.

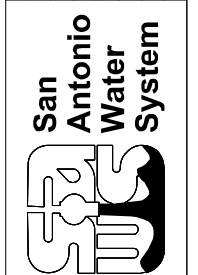
BMXFCC303



Revisions	No.	Description	Drn.	Apprvd.	Date
	1	ADDENDUM #1	SG	RDG	9/20/13

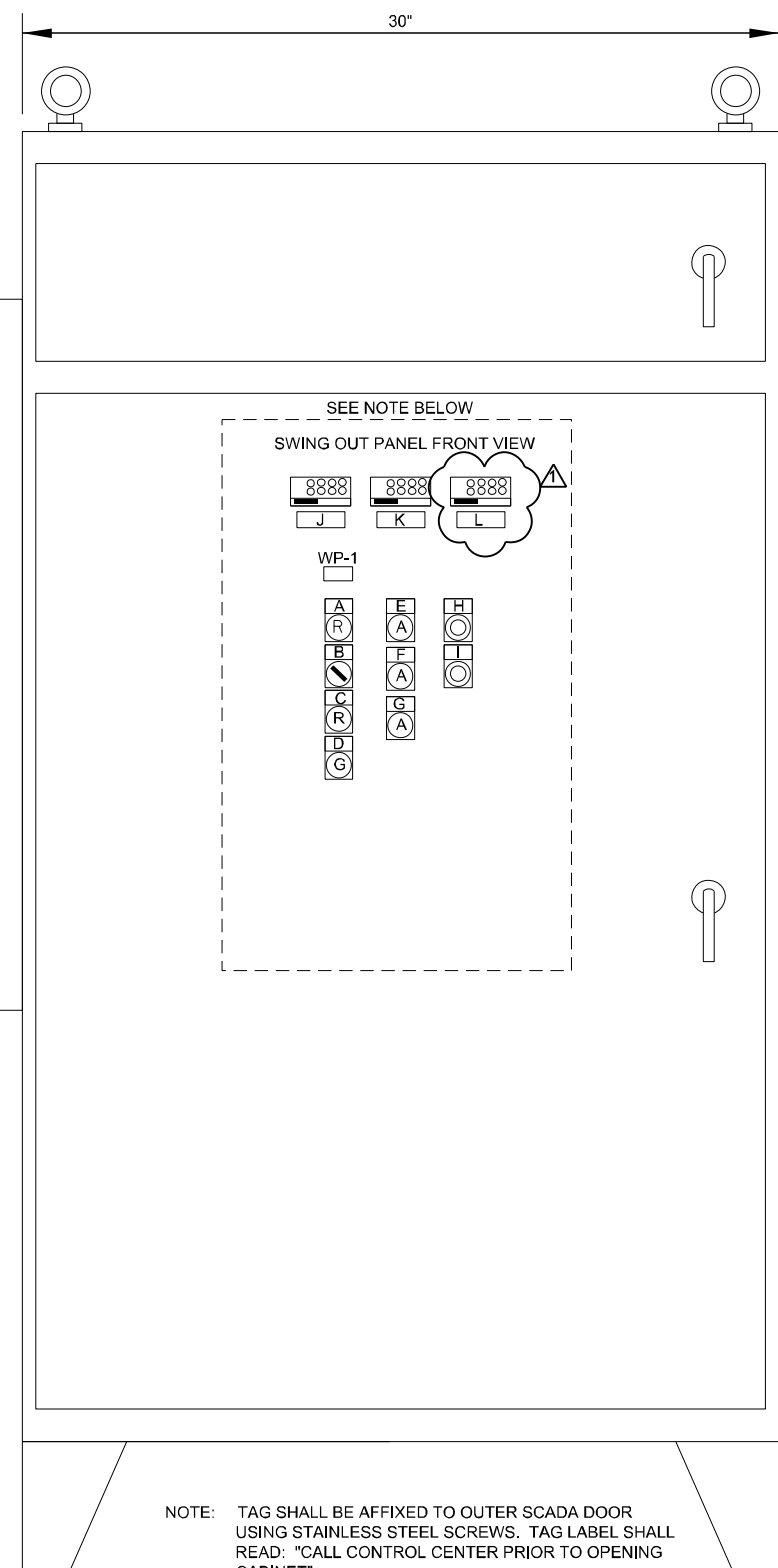
**INFORMATION**  
 GRUBB ENGINEERING, INC.  
 ELECTRICAL POWER SYSTEMS  
 DESIGN & TESTING  
 TYPE FIRM REGISTRATION #8904  
 3128 SUNKER BROOKS, SAN ANTONIO, TEXAS 78255  
 (817) 210-8875 FAX: 210-887-0865

Date: 08/16/2013  
 Drawn by: SG  
 Designed by: BLD, CKG  
 Checked by: PG, SM  
 Scale: AS NOTED ABOVE  
 Approved by: RDG  
 Map No: XXX-XXX

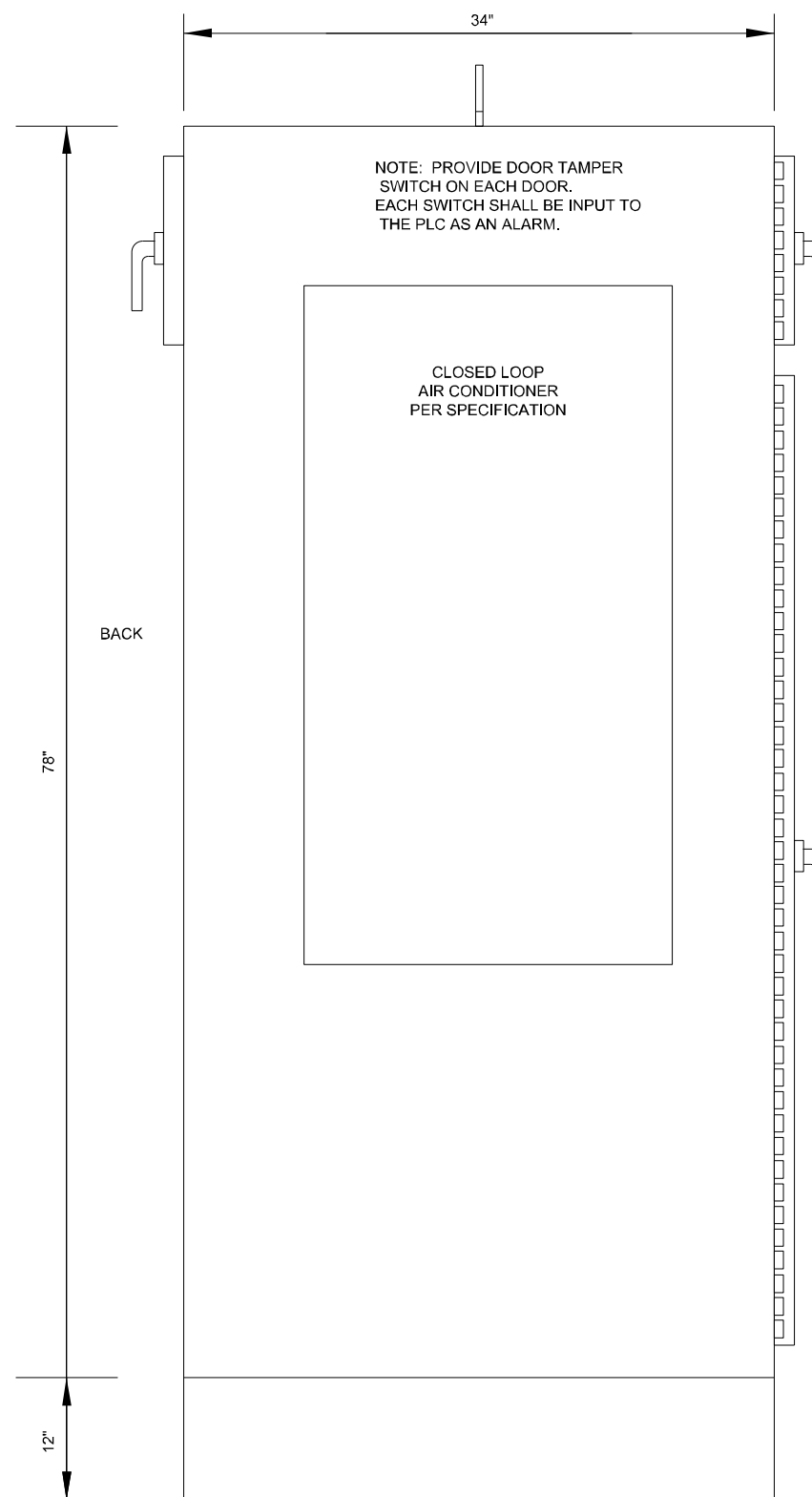


JOB NO 12-6103  
 DSP WATER PRODUCTION  
 FACILITY UPGRADES  
 SCADA/SECURITY PANEL LAYOUT I  
 SAWS WOTTLIN PUMP STATION  
 FACILITY #24

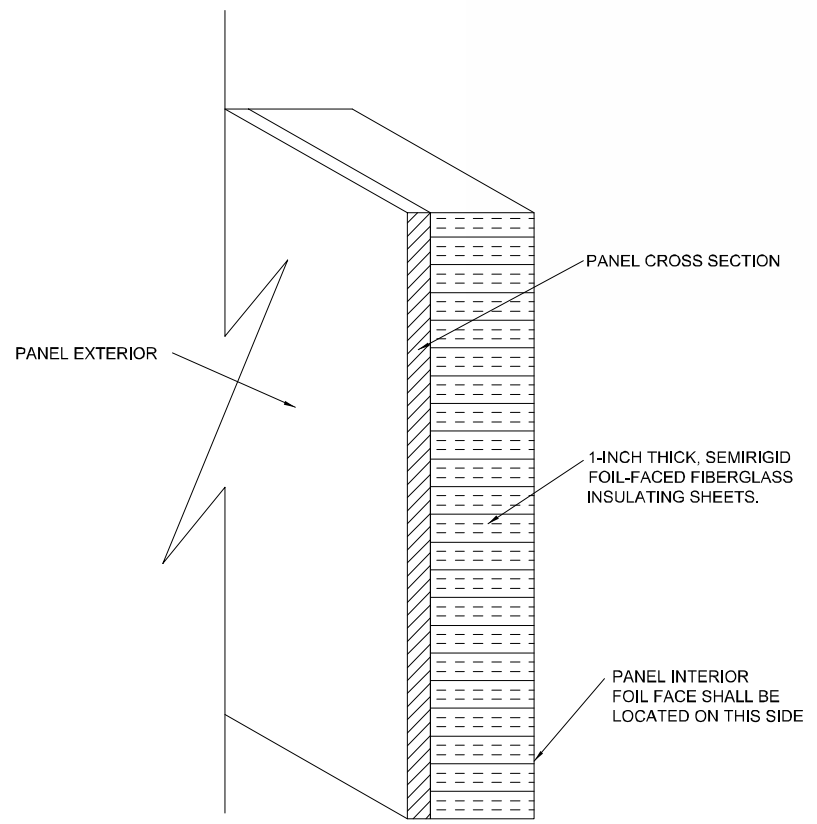
EXTERIOR FRONT VIEW



EXTERIOR SIDE VIEW



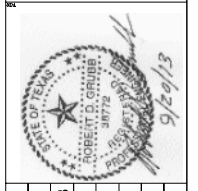
ITEM	TAG NO.	QTY.	LET.	DESCRIPTION	LEGEND PLATE
1		1	A	WP #1 PUMP RUN STATUS	PUMP RUN STATUS
2		1	B	WP #1 STOP OR RESET SWITCH	STOP/RESET
3		1	C	WP #1 PUMP CONTROL VALVE OPEN	VALVE OPEN
4		1	D	WP #1 PUMP CONTROL VALVE CLOSED	VALVE CLOSED
5		1	E	DISCHARGE PRESSURE HIGH	DISCHARGE PRESSURE HIGH
6		1	F	DISCHARGE PRESSURE LOW	DISCHARGE PRESSURE LOW
7		1	G	COMMUNICATIONS FAILURE	COMM FAIL
8		1	H	LAMP TEST PUSHBUTTON	LAMP TEST
9		1	I	LIGHT ENABLE PUSHBUTTON	PANEL LIGHTS ON
10	PIT-100	1	J	WP #1 DISCHARGE PRESSURE INDICATOR	WP #1 DISCHARGE PRESSURE
11	FIT-100	1	K	WP #1 FLOW INDICATOR	WP #1 FLOW
12	WIT-100	1	L	CL2 CYLINDER WEIGHT INDICATOR	CL2 CYLINDER WEIGHT



**A** SCADA/SECURITY PANEL LAYOUT  
SCALE: N.T.S.

- NOTES:
- REQUIRED FOR ALL ENCLOSURES EQUIPPED WITH A/C UNIT.
  - INSTALL INSULATING SHEETS IN THE INTERIOR SURFACES OF THE PANEL, INCLUDING DOOR(S).

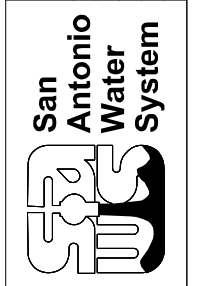
**B** CLIMATE CONTROLLED PANEL INSULATION  
SCALE: N.T.S.



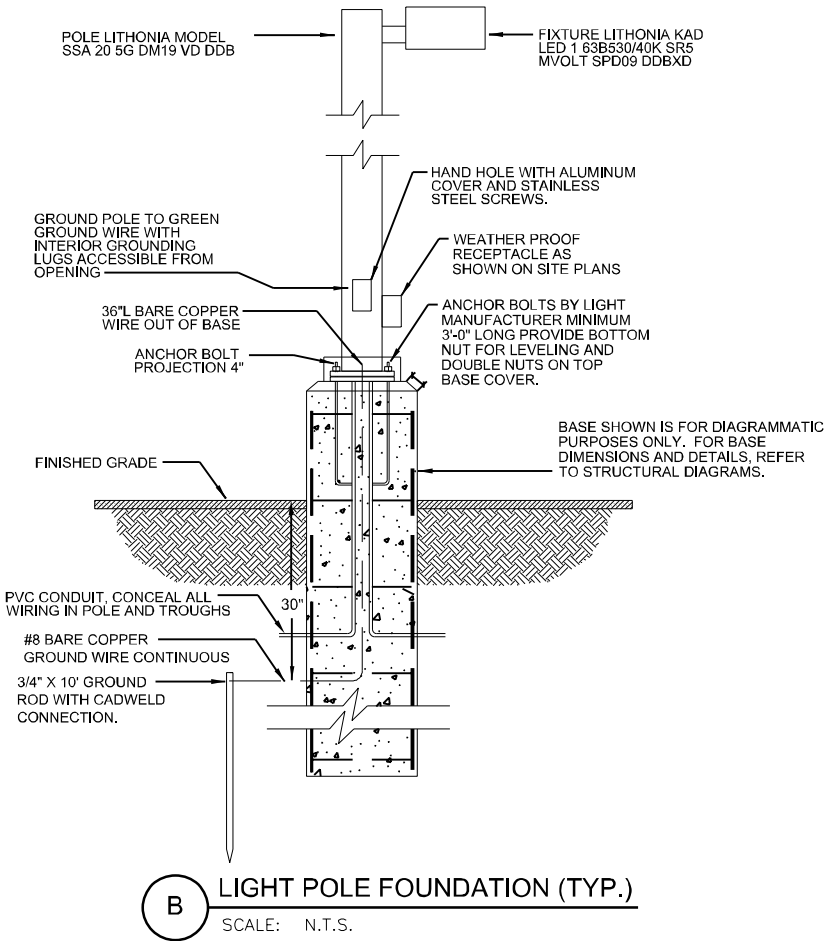
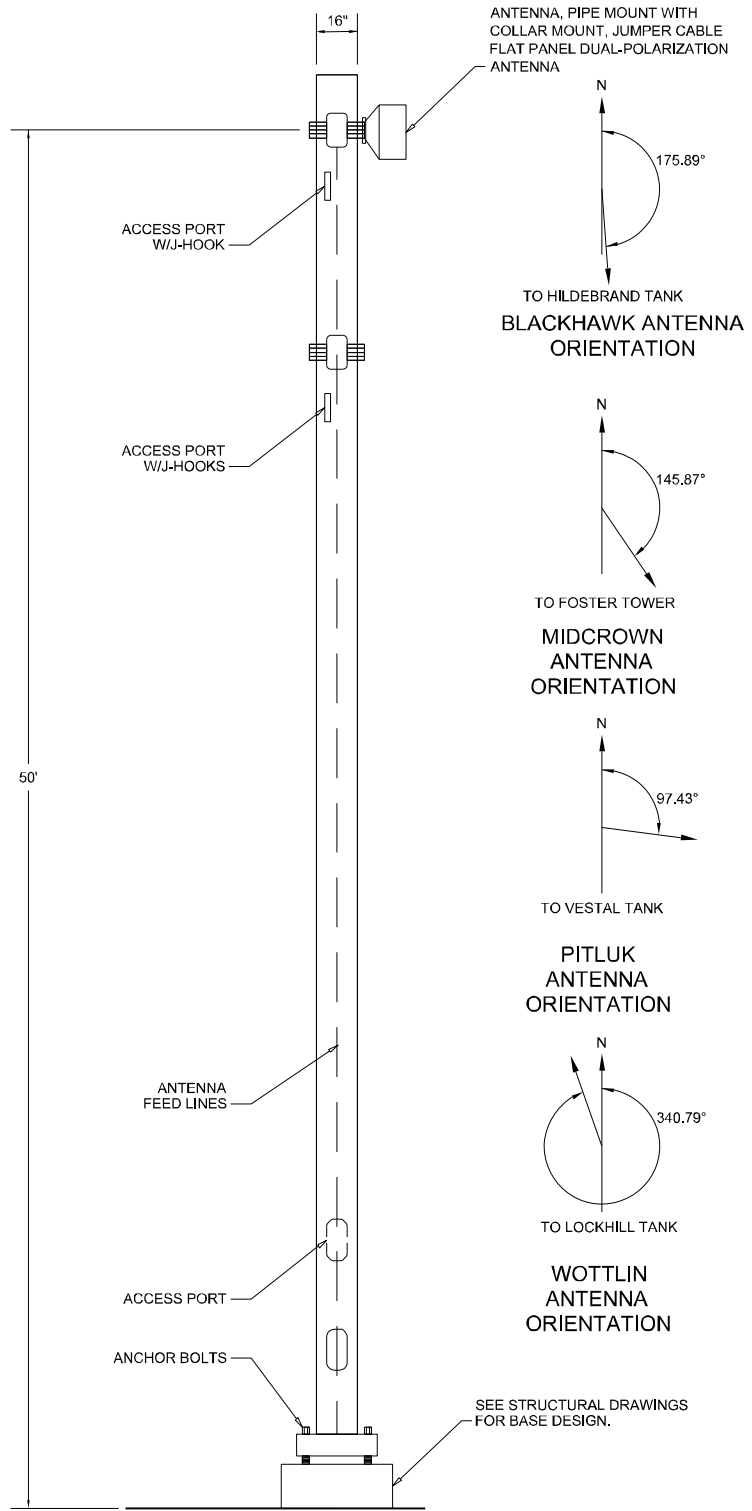
Date	Approved	Drn.	Description
9/20/13	RDG	SG	ADDENDUM #1
			ADDENDUM #1

**GRUBB ENGINEERING, INC.**  
ELECTRICAL POWER SYSTEMS  
DESIGN & TESTING  
TYPE FRM REGISTRATION #8904  
3128 SHINE #9005 SAN ANTONIO, TEXAS 78255  
TEL: 210.588.7550 FAX: 210.588.0865

Date: 08/16/2013  
Drawn by: SG  
Designed by: BLD, CKG  
Checked by: P.G., SM  
Scale: AS NOTED ABOVE  
Approved by: RDG  
Map No: XXX-XXX

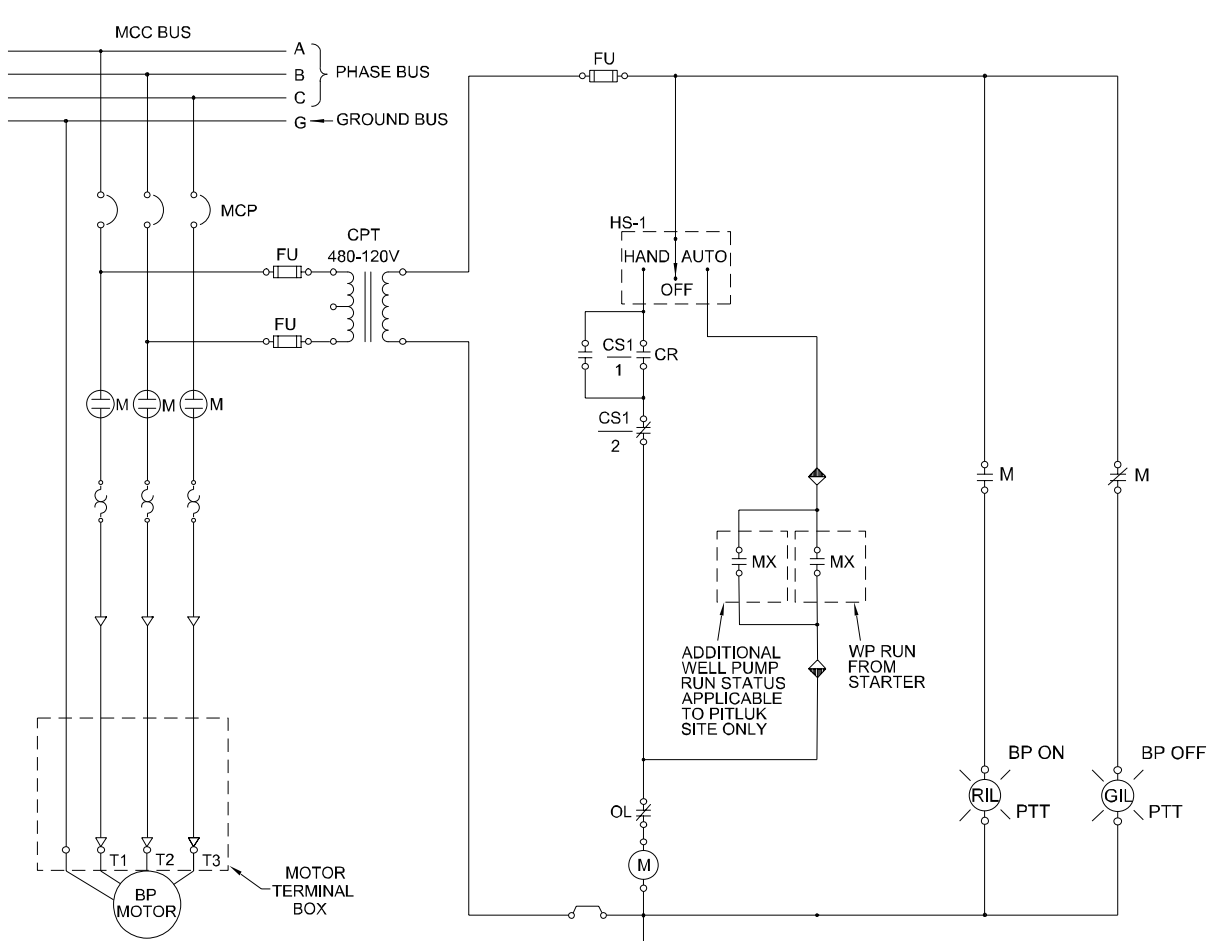


JOB NO 12-6103  
DSP WATER PRODUCTION  
FACILITY UPGRADES  
ELECTRICAL MISCELLANEOUS DETAILS III  
SAWS DSP PUMP STATIONS  
FACILITIES #7, 66, 36 & 24



LIGHT FIXTURE SCHEDULE						
TYPE	LAMPS	MOUNTING	VOLTAGE	MANUFACTURER	DESCRIPTION	CATALOG
YARD LIGHT	1	POLE	120	LITHONIA	AREA LIGHTING	SEE DETAIL B
A	2	SURFACE MOUNTED	120	LITHONIA	CANOPY LIGHTS	DMW 254T5HO120 GEB10PS
B	2	SURFACE MOUNTED	120	LITHONIA	CANOPY LIGHTS	DMW 254T5HO120 GEB10PS

**D LIGHT FIXTURE SCHEDULE**  
SCALE: N.T.S.

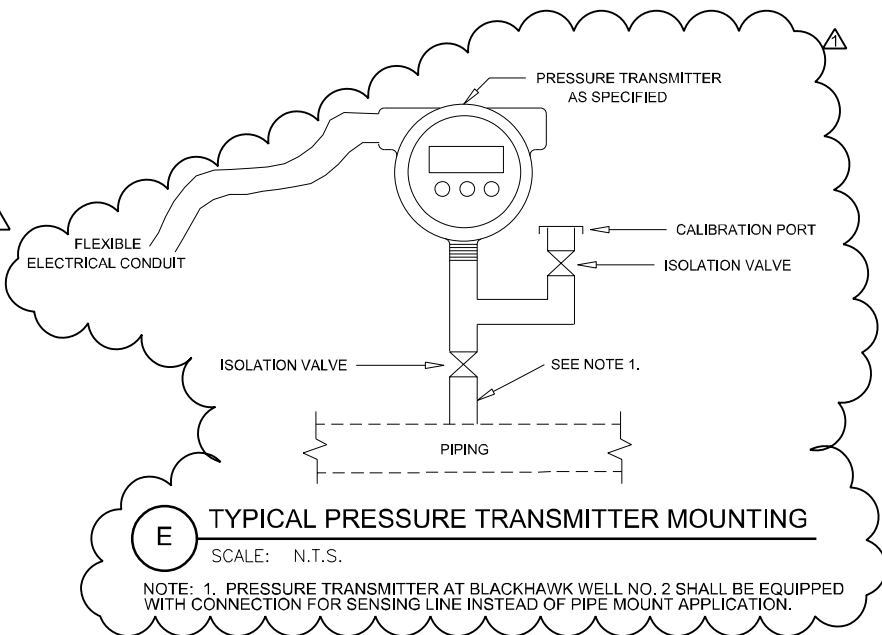


- LEGEND**
- BP BOOSTER PUMP
  - CPT CONTROL POWER TRANSFORMER
  - CS CONTROL SWITCH
  - FU FUSE
  - GIL GREEN INDICATING LIGHT
  - M MAIN CONTACTOR AUX. CONTACT
  - MCP MOTOR CIRCUIT PROTECTOR
  - MX MAIN CONTACTOR AUXILIARY RELAY
  - OL OVERLOAD RELAY
  - PTT PRESS-TO-TEST
  - RIL RED INDICATING LIGHT
  - △ CABLE TERMINATION

CONTACT	START	NORMAL		
		AFTER START	AFTER STOP	STOP
1	X			
2	X	X	X	
3				X
4				X

X - INDICATES CONTACT IS CLOSED

◆ TERMINAL POINT IN BOOSTER PUMP MOTOR STARTER/CONTROLLER CUBICLE. DARK SIDE INDICATES CONNECTION INTERNAL TO PANEL.



NOTE: 1. PRESSURE TRANSMITTER AT BLACKHAWK WELL NO. 2 SHALL BE EQUIPPED WITH CONNECTION FOR SENSING LINE INSTEAD OF PIPE MOUNT APPLICATION.

- NOTES:**
- TOWER SHALL BE SABRE OR APPROVED EQUAL MONOPOLE TOWER WITH A MINIMUM 50' HEIGHT. CONTRACTOR TO USE HANGERS BY ANDREW OR EQUAL SUITABLE FOR HANGING HELIAX CABLE. HOSE CLAMPS AND WIRE TIES ARE NOT ALLOWED.
  - ANTENNA INFORMATION:  
WEIGHT: 4.4lbs.  
EPA: 1.48 SQ. FT.
  - ALL MONOPOLE MATERIALS WILL BE HOT-DIPPED GALVANIZED AS OUTLINED IN ASTM A-123.
  - MAST SHALL CONFORM TO LATEST CITY OF SAN ANTONIO GUIDELINES.