



CITY OF TAMPA

Bob Buckhorn, Mayor

CONTRACT ADMINISTRATION DEPARTMENT

David L. Vaughn, AIA, Director

ADDENDUM NO. 2

DATE: November 22, 2013

Contract 14-C-00006; Lake Eckles Pump Station and Force Main Replacement

Bidders on the above referenced project are hereby notified that the following addendum is made to the Contract Documents. BIDS TO BE SUBMITTED SHALL CONFORM TO THIS NOTICE.

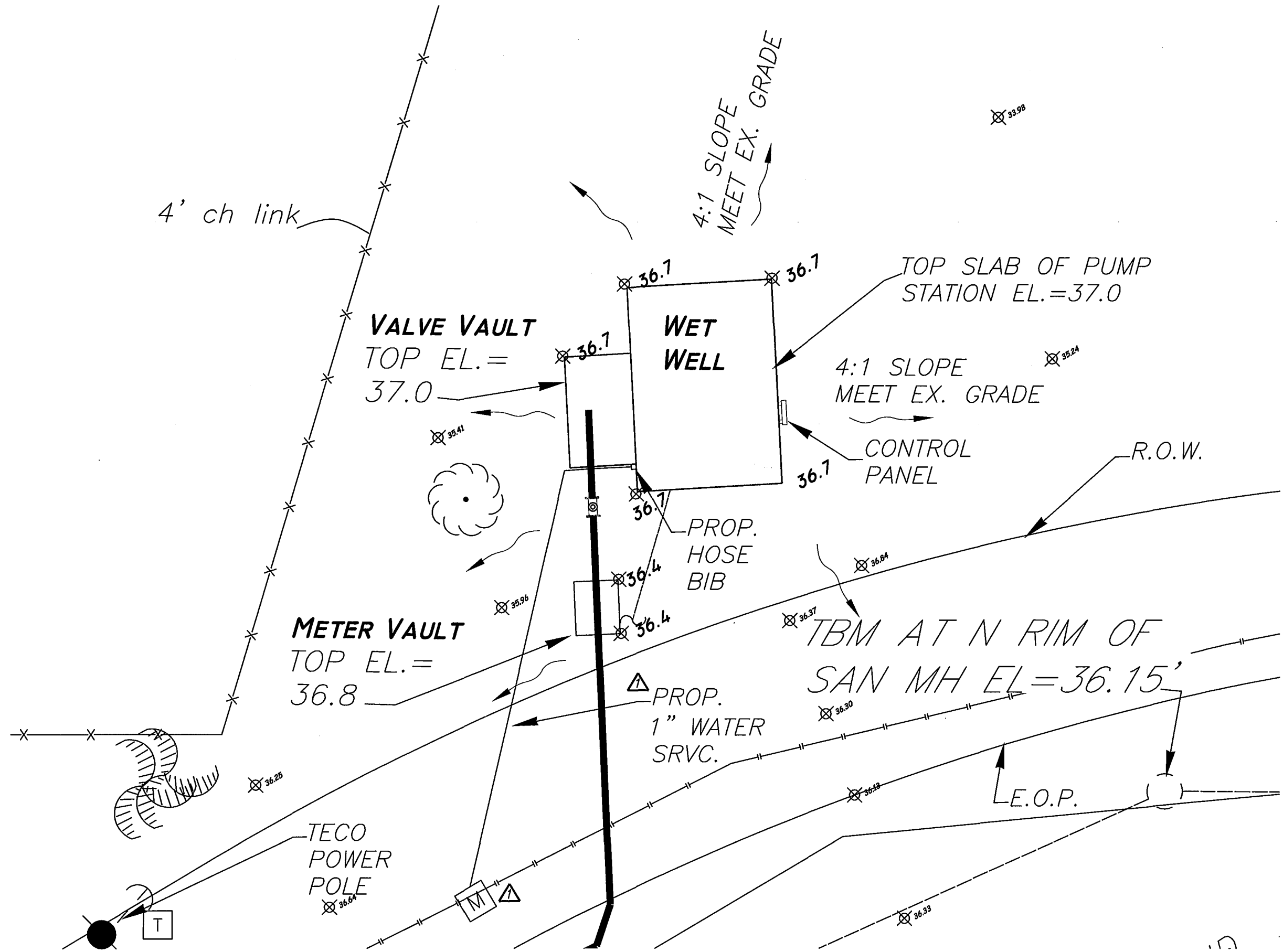
- Item 1: Replace Plan Sheet C-2 with the attached Plan Sheet C-2
- Item 2: Replace Plan Sheets E-1 through E-20 with the attached Plan Sheets E-1 through E-20.
- Item 3: Replace Plan Sheet C-15 with the attached Plan Sheet C-15.
- Item 4: Replace Plan Sheet S-5 with the attached Plan Sheet S-5.
- Item 5: Replace Proposal page P-3 with the attached page P-3R.
- Item 6: Add, on page C-9 of the Specifications, to Contract Item 0420-2, in the third paragraph, third line after "screen", the following: one 1-inch diameter water service from meter to hose bib location, hose bib and mounting post,
- Item 7: Add, on page C-11 of the Specifications, to Contract Item 6940-10, in the second paragraph, after "station," the following: rain gauge and associated wiring, mounting and instrumentation,
- Item 8: Attached for reference is a subsurface exploration report, a monitoring well installation report, and a monitoring well map.

All other provisions of the Contract Documents and Specifications not in conflict with this Addendum shall remain in full force and effect. Questions are to be e-mailed to ContractAdministration@tampagov.net.

Jim Greiner

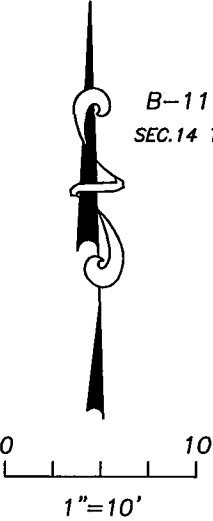
Jim Greiner, P.E., Contract Management Supervisor

User: ss17 Drawing Name: K:\Stormwater Drafting\Active Projects\510H (Lake Eckles)\Lake Eckles Force Main.dwg
Layout- Nov 12, 2013 - 3:29pm CTB - Monochrome.ctb



SW

B-11
SEC. 14 T28S R18E



No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1	11/12/13	ADDED NEW WATER METER & 1" SERVICE LINE	4		

DES: MTM
DRN: MP
CKD:
DATE:

CITY of TAMPA
Department of Public Works
Stormwater Engineering


LAKE ECKLES PUMP STATION
SITE GRADING PLAN

W.O. 510H
SHEET
C-2
OF 53

GENERAL NOTES:

1. CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL PRIOR TO PURCHASING EQUIPMENT OR COMMENCING CONSTRUCTION.
2. ALL CONDUCTORS SHALL BE STRANDED COPPER, AWG 12 MIN. w/ THHN INSULATION, UNLESS OTHERWISE NOTED.
3. ALL WIRING SHALL BE IDENTIFIED w/ NUMBERS AT ALL TERMINALS AND ON WIRING DIAGRAMS.
4. VERIFY ALL MECHANICAL EQUIPMENT SIZES AND RATINGS PRIOR TO CONNECTING.
5. FIELD VERIFY ALL EQUIPMENT LOCATIONS AND CONNECTIONS PRIOR TO COMMENCING CONSTRUCTION.
6. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE w/ THE LATEST EDITION OF THE NEC AND ALL APPLICABLE LOCAL ORDINANCES.
7. ALL THREADED CONNECTIONS SHALL BE COATED w/ COPPER SHIELD ANTI-SEIZE COMPOUND MANUFACTURED BY THOMAS & BETTS (T & B).
8. ALL PANELS, DISCONNECTS, SWITCHES AND EQUIPMENT COVERPLATES SHALL BE LABELED w/ NAMEPLATES. NAMEPLATES SHALL BE THREE-PLY PHENOLIC BLACK-WHITE-BLACK ENGRAVED THROUGH THE FIRST BLACK LAYER. LETTERING SHALL BE 0.5 CM (3/16") MIN. EDGE OF NAMEPLATE SHALL BE BEVELED 45 DEG.
9. ALL CONDUIT SHALL BE SUPPORTED AT MAXIMUM 5'-0" INTERVALS.
10. ALL CIRCUITS SHALL HAVE A GROUNDING CONDUCTOR ROUTED INSIDE EACH CONDUIT w/ POWER CONDUCTORS.
11. ALL CONDUCTOR LENGTHS SHALL BE CONTINUOUS. NO SPLICES OR CONDUCTOR TERMINATIONS SHALL BE PERMITTED UNLESS SPECIFICALLY DESIGNATED IN THE DRAWINGS.
12. NEATLY COIL ALL SPARE CONDUCTORS & TAPE w/ VINYL ELECTRICAL TAPE (SCOTCH 33+). U.O.N.
13. PROVIDE A MINIMUM OF 3'-0" CLEARANCE IN FRONT OF ALL ELECTRICAL EQUIPMENT IN ACCORDANCE w/ ARTICLE 110 OF THE NEC. CLEARANCE SHALL NOT BE LESS THAN 42" FOR VOLTAGES GREATER THAN 150V TO GROUND.
14. ALL INSTALLATIONS SHALL BE IN ACCORDANCE w/ CITY OF TAMPA CODE 5-111.6.1.5 CITY OF TAMPA CODE CHAPTER 5 ISSUED 10/01/2005.
15. ALL FASTENING HARDWARE (SCREWS, BOLTS, NUTS, ETC.) SHALL BE 316 STAINLESS STEEL. FASTENING HARDWARE CONSTRUCTED OF FERROUS MATERIAL ARE NOT ACCEPTABLE.
16. ALL CONDUITS SHALL BE RIGID HEAVY WALL ALUMINUM CONDUIT, UNLESS OTHERWISE NOTED.
17. A 316 STAINLESS STEEL CHANNEL ERECTOR SYSTEM SHALL BE USED TO SUPPORT ALL CONDUITS, BOXES, ETC. USE 316 STAINLESS STEEL MOUNTING HARDWARE.
18. THE CONTRACTOR SHALL FIELD VERIFY EXISTING CONDITIONS AND MAKE ADJUSTMENTS AS NECESSARY TO EXECUTE THE PROPOSED INSTALLATIONS.
19. ALL EXISTING INSTALLATIONS DENOTED ON THE DRAWINGS ARE FOR THE CONTRACTORS REFERENCE ONLY. ALL EXISTING INSTALLATIONS SHALL BE FIELD VERIFIED PRIOR TO SUBMITTING A BID AND PRIOR TO COMMENCING CONSTRUCTION.
20. PULL BOXES SHALL BE INSTALLED AS NECESSARY TO FACILITATE WIRE PULLS AND TO AVOID EXCESSIVE PULLING TENSION ON WIRING. IN NO CASE SHALL CONDUIT LENGTHS EXCEED 150' OR THE EQUIVALENT OF FOUR QUARTER BENDS (360 DEGREES TOTAL) WITHOUT A PULL BOX. PULL BOXES SHALL BE SIZED IN ACCORDANCE WITH ARTICLE 314 OF THE NEC.
21. CONDUIT ROUTING SHOWN IS DIAGRAMMATIC UNLESS OTHERWISE NOTED. CONTRACTOR SHALL OPTIMIZE THE CONDUIT ROUTING, TAKING INTO ACCOUNT THE FIELD CONDITIONS AND THE FINAL EQUIPMENT SELECTED AND APPROVED IN THE SUBMITTALS.

A	AMPERES	HP	HORSEPOWER	THRU	THROUGH
AFF	ABOVE FINISHED FLOOR	JB, JBOX	JUNCTION BOX	TR	TRIP
C	CONDUIT	KW	KILOWATTS	TT	TEMPERATURE TRANSMITTER
CAT	CATALOG	LPX	LIGHTING PANEL X	TVSS	TRANSIENT VOLTAGE SURGE SUPPRESSOR
CLG	CEILING	MLO	MAIN LUGS ONLY		
CKT	CIRCUIT	MNTD	MOUNTED	TYP	TYPICAL
CTR	CENTER	Ø	PHASE	UON	UNLESS OTHERWISE NOTED
DISC	DISCONNECT	PB	PUSH BUTTON	V	VOLT
DT	DOUBLE THROW	PT	PRESSURE TRANSMITTER	W	WIRE
DWG	DRAWING			w/	WITH
ELEC	ELECTRICAL, ELECTRIC	PWR	POWER	XFMR	TRANSFORMER
EXH	EXHAUST	RECEPT	RECEPTACLE	XFR	TRANSFER
GFCI	GROUND FAULT CIRCUIT INTERRUPTER	SW	SWITCH	XMTR	TRANSMITTER
		SWBD	SWITCHBOARD		



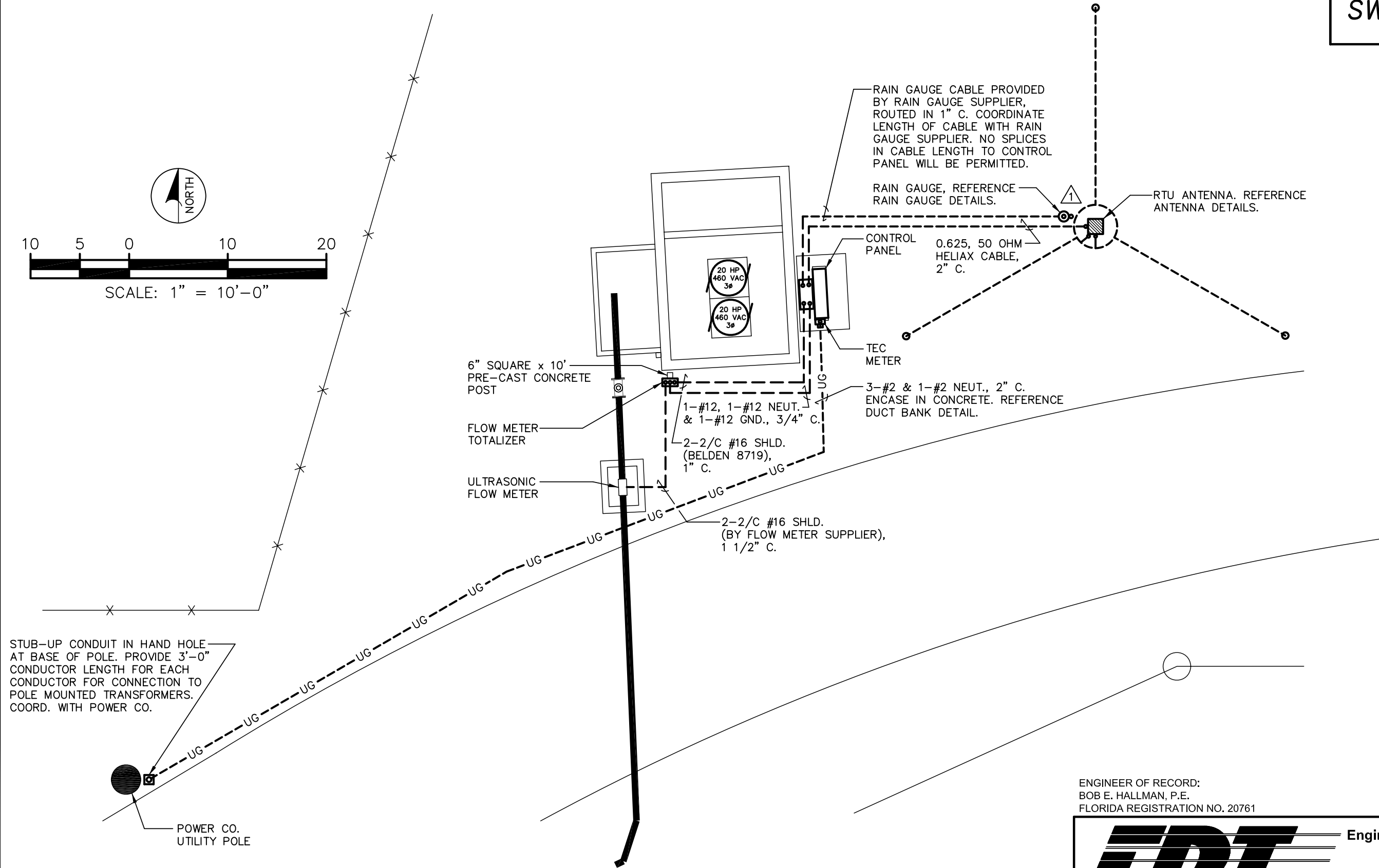
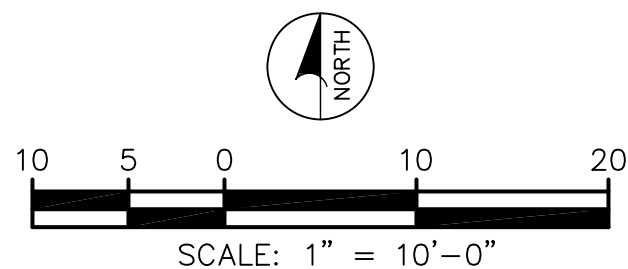
Certificate of Authorization Number: 4795

**Engineering Design
Technologies Corp.**

P.O. Box 152403
Tampa, FL 33684-2403
813.289.8080
813.282.9184 FAX
engineering@edt1.com

No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: STK DRN: RWB CKD: DATE: 09/27/13	CITY of TAMPA Department of Public Works Stormwater Engineering	LAKE ECKLES STORMWATER PUMP STATION ELECTRICAL LEGEND & ABBREVIATIONS	W.O. 510H
3			6						SHEET
2			5						E-1
1			4						

SW



STUB-UP CONDUIT IN HAND HOLE AT BASE OF POLE. PROVIDE 3'-0" CONDUCTOR LENGTH FOR EACH CONDUCTOR FOR CONNECTION TO POLE MOUNTED TRANSFORMERS. COORD. WITH POWER CO.

ENGINEER OF RECORD:
BOB E. HALLMAN, P.E.
FLORIDA REGISTRATION NO. 20761

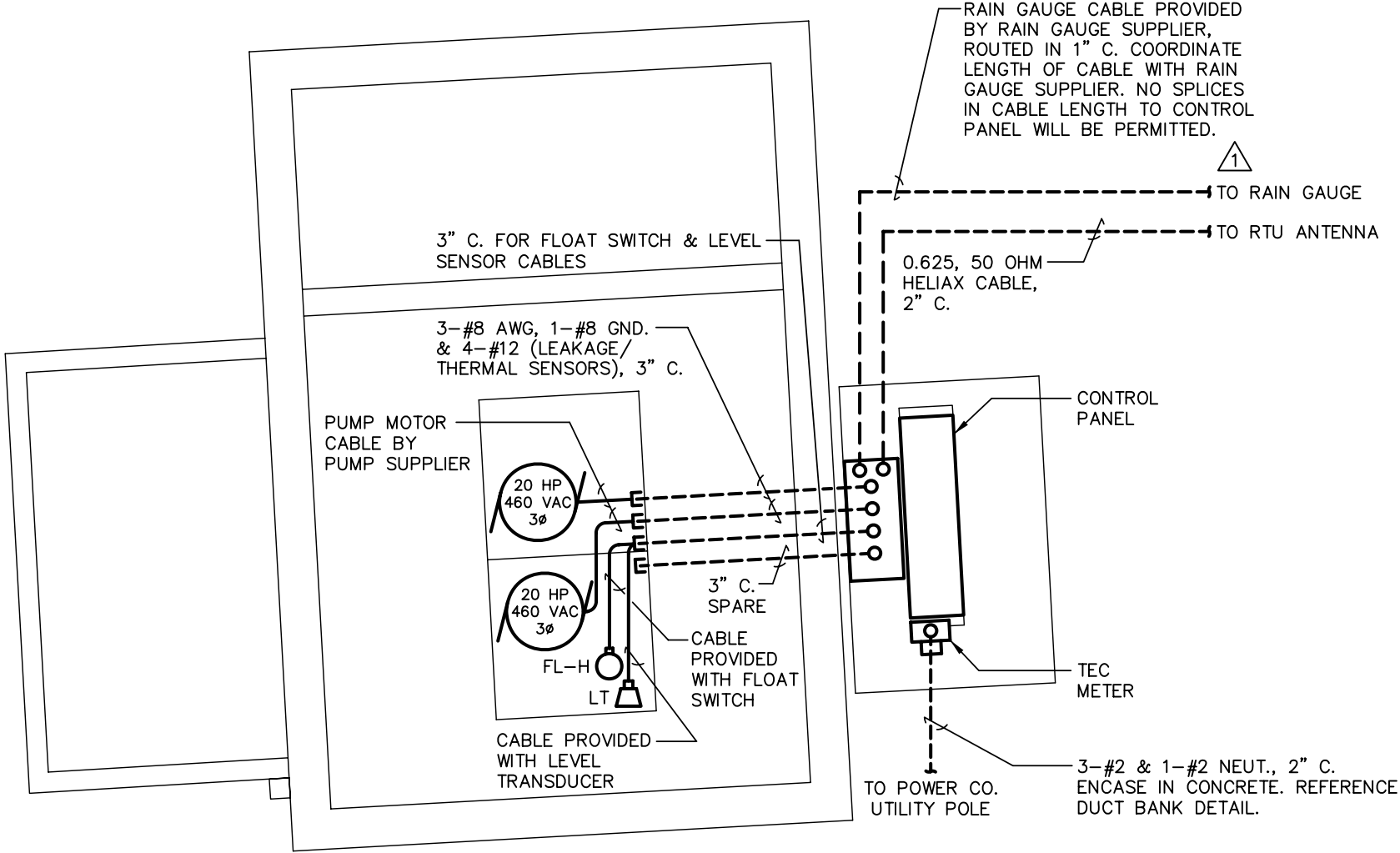
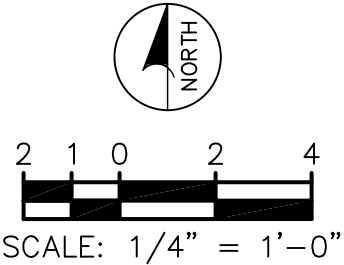


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3			6			DRN: RWB			SHEET
2			5			CKD:			E-2
1	11/04/13	ADD RAIN GAUGE	4			DATE: 09/27/13			

SW



ENGINEER OF RECORD:
BOB E. HALLMAN, P.E.
FLORIDA REGISTRATION NO. 20761



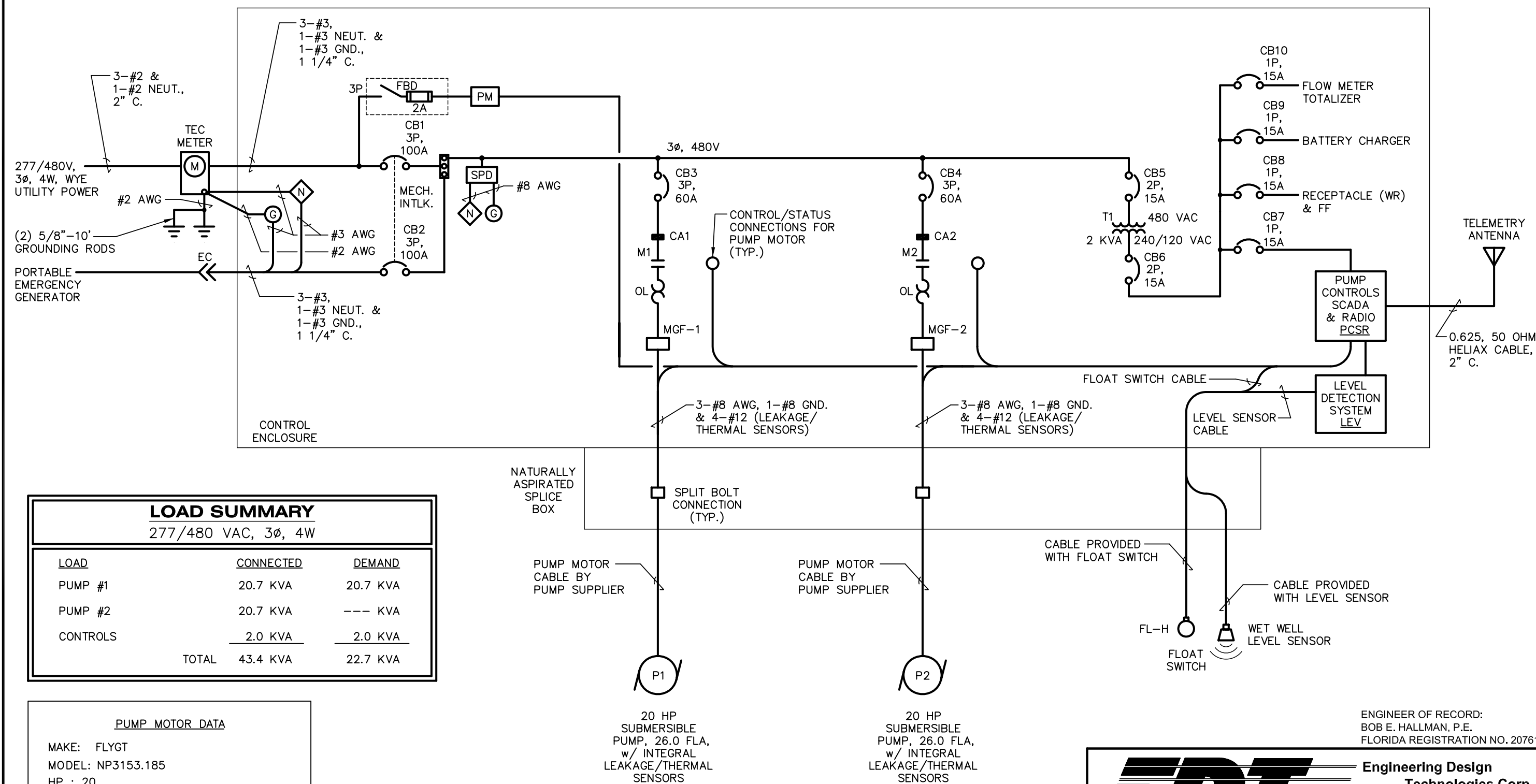
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3			6			DRN: RWB			SHEET
2			5			CKD:			E-3
1	11/04/13	ADD RAIN GAUGE	4			DATE: 09/27/13			

SW



ELECTRICAL ONE-LINE DIAGRAM



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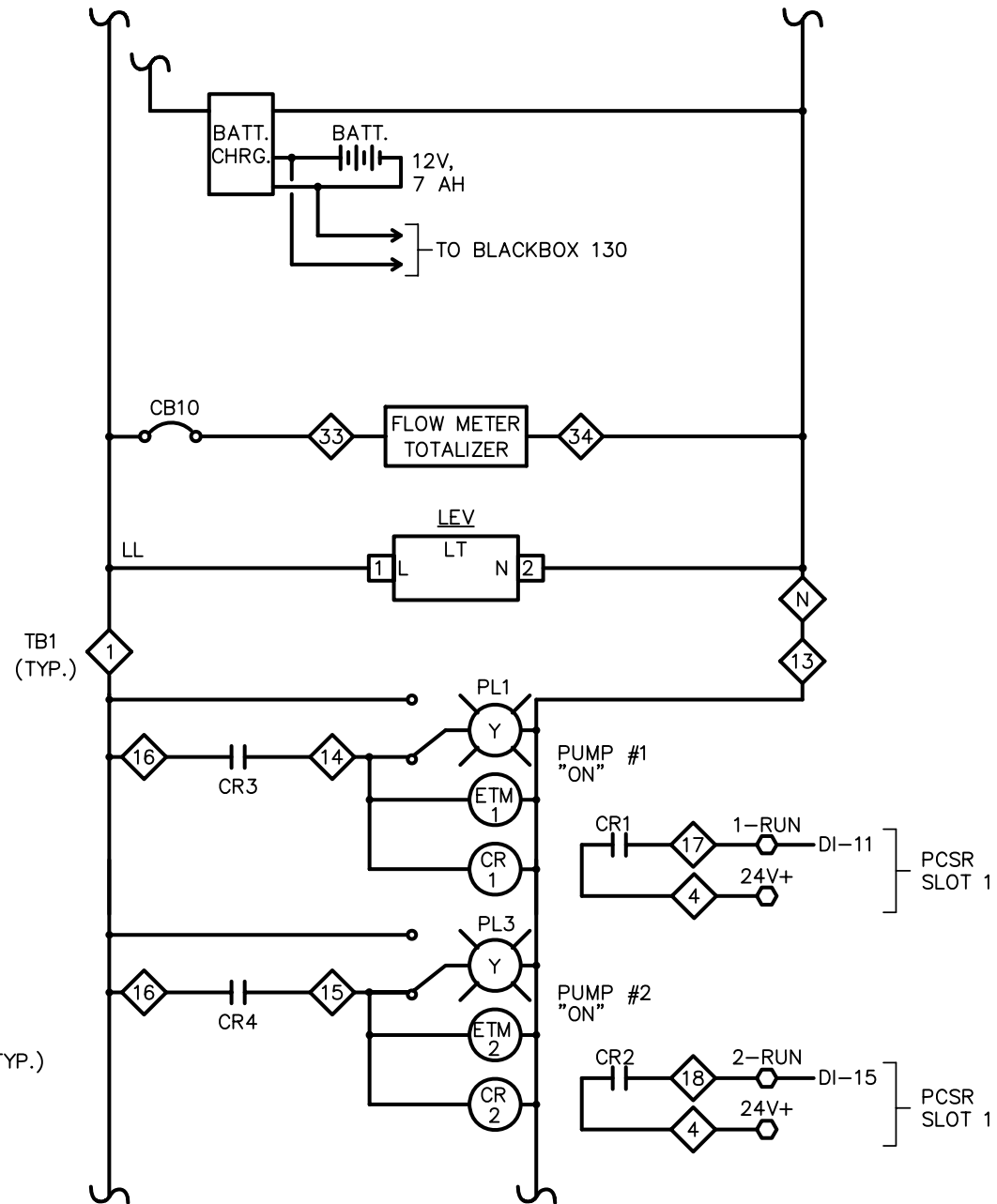
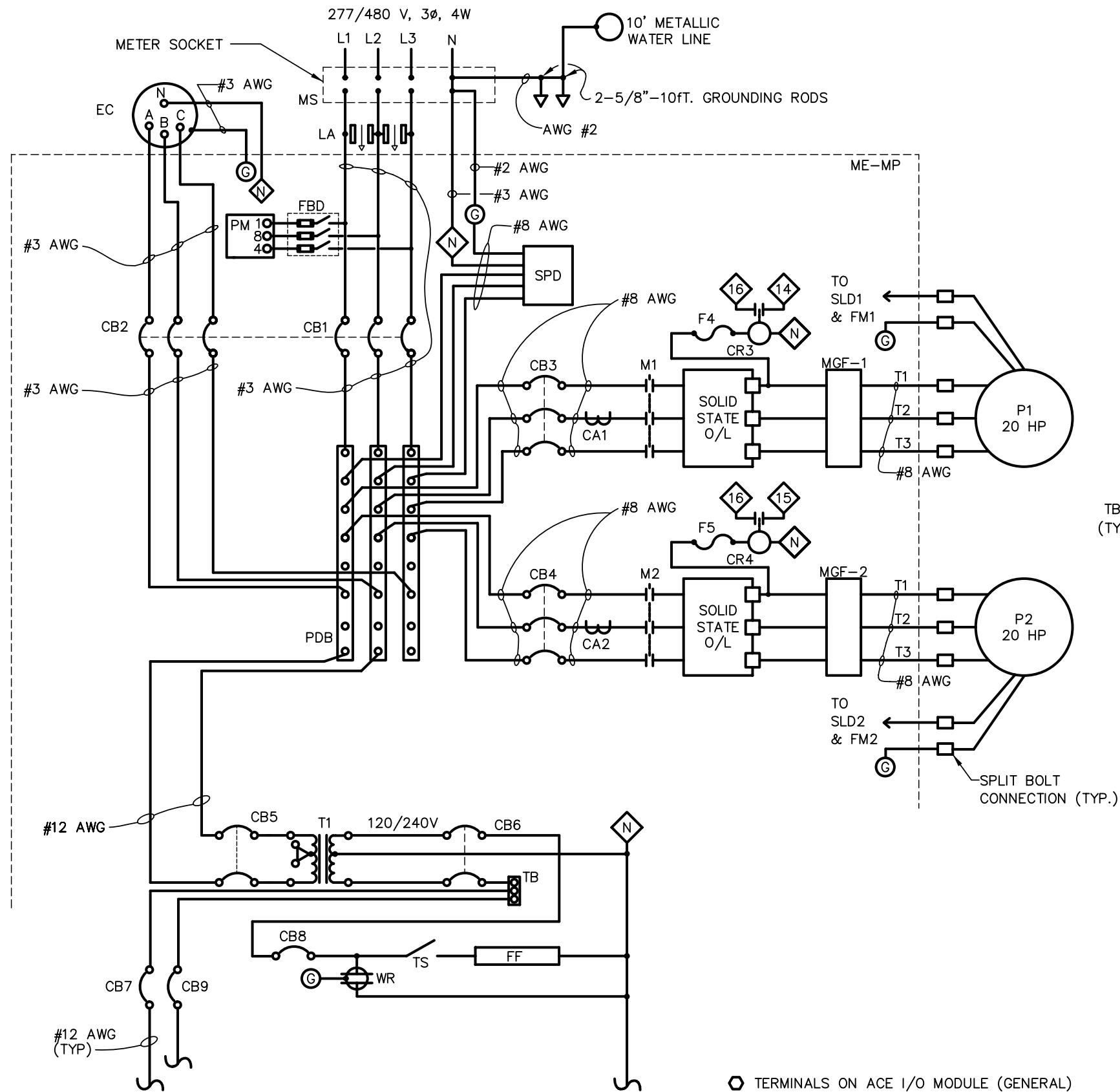
ENGINEER OF RECORD:
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3			6			DRN: RWB	Department of Public Works Stormwater Engineering	ELECTRICAL	SHEET
2			5			CKD:		ONE-LINE DIAGRAM	E-4
1			4			DATE: 09/27/13			

SW



SEE NOTES ON SHEET E-14

ENGINEER OF RECORD:
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No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1			4		

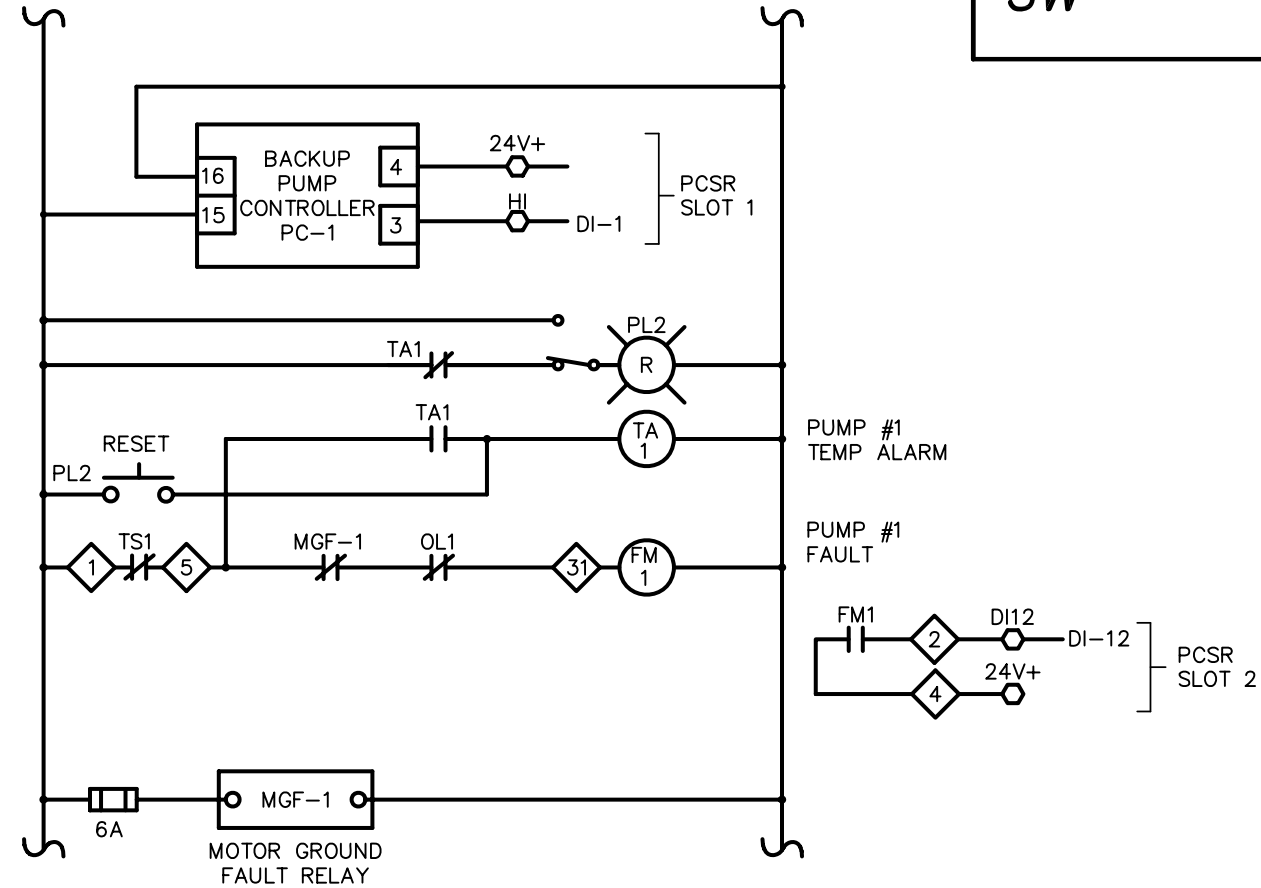
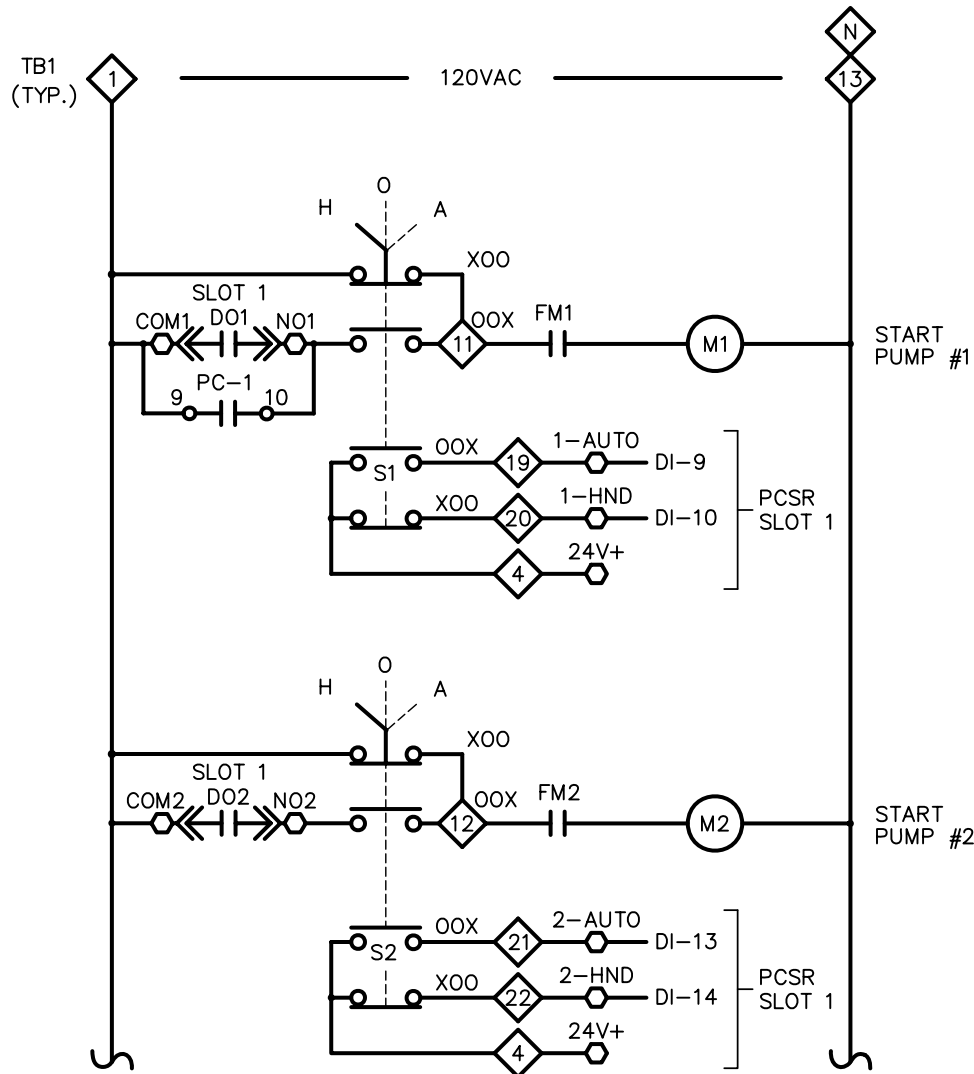
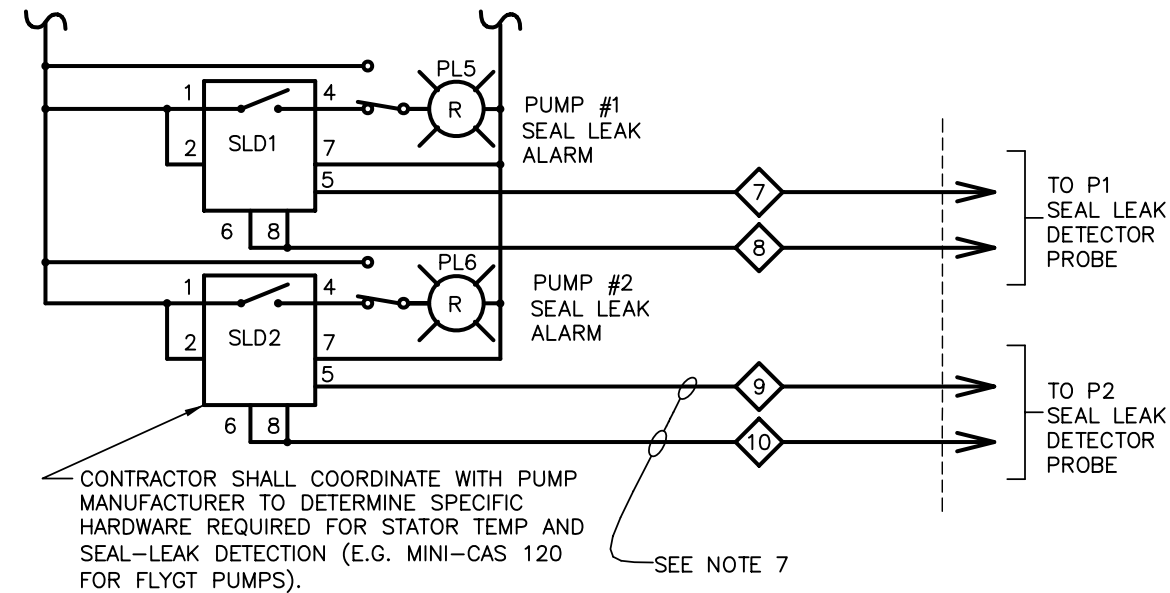
- TERMINALS ON ACE I/O MODULE (GENERAL)
- ◇ TERMINALS IN PUMP CONTROL PANEL

DES: STK
DRN: RWB
CKD:
DATE: 09/27/13

CITY of TAMPA
Department of Public Works
Stormwater Engineering

LAKE ECKLES STORMWATER PUMP STATION
ELECTRICAL SCHEMATIC DIAGRAM
(SHEET 1 OF 5)

W.O. 510H
SHEET
E-5



SEE NOTES ON SHEET E-14

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3			6		
2			5		
1			4		

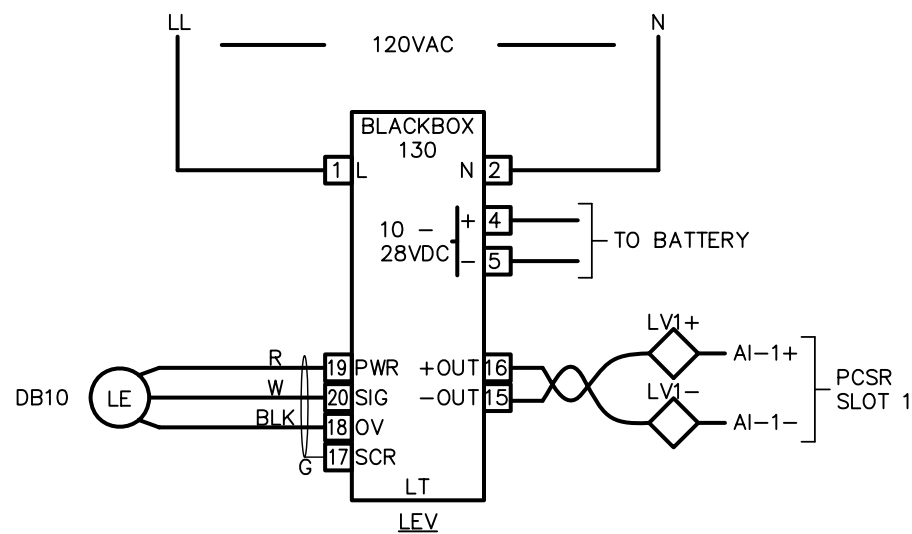
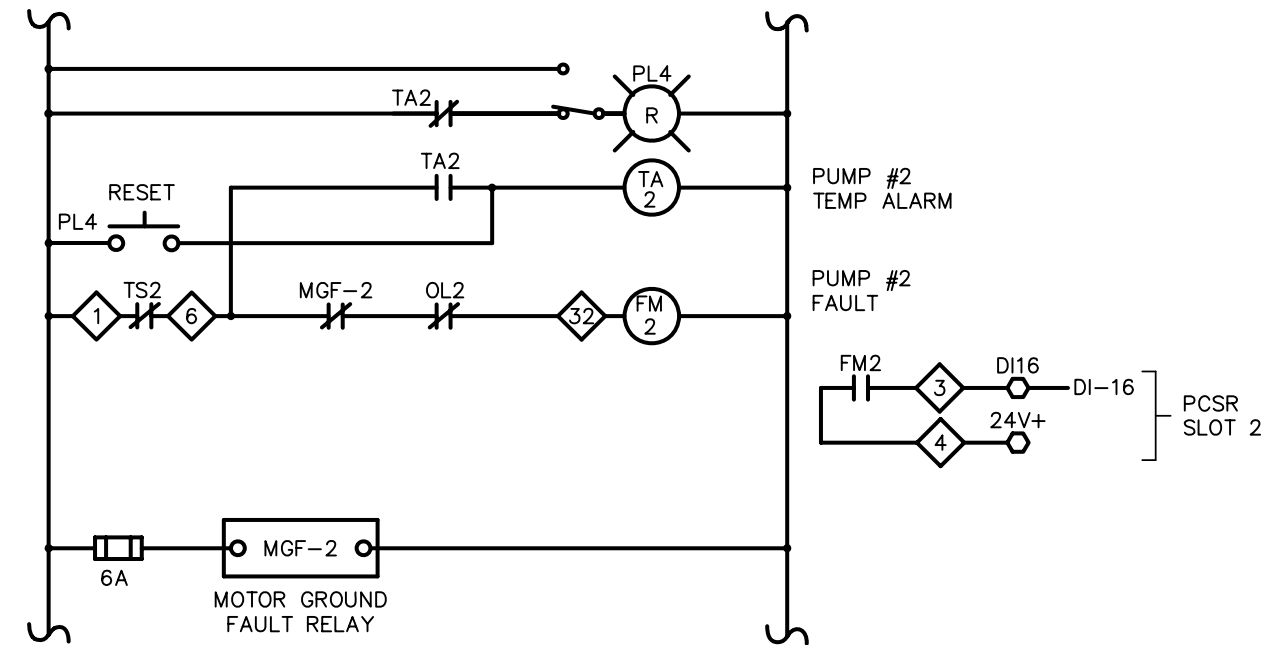
○ TERMINALS ON ACE I/O MODULE (GENERAL)
◇ TERMINALS IN PUMP CONTROL PANEL

CITY of TAMPA
Department of Public Works
Stormwater Engineering

LAKE ECKLES STORMWATER PUMP STATION
ELECTRICAL SCHEMATIC DIAGRAM
(SHEET 2 OF 5)

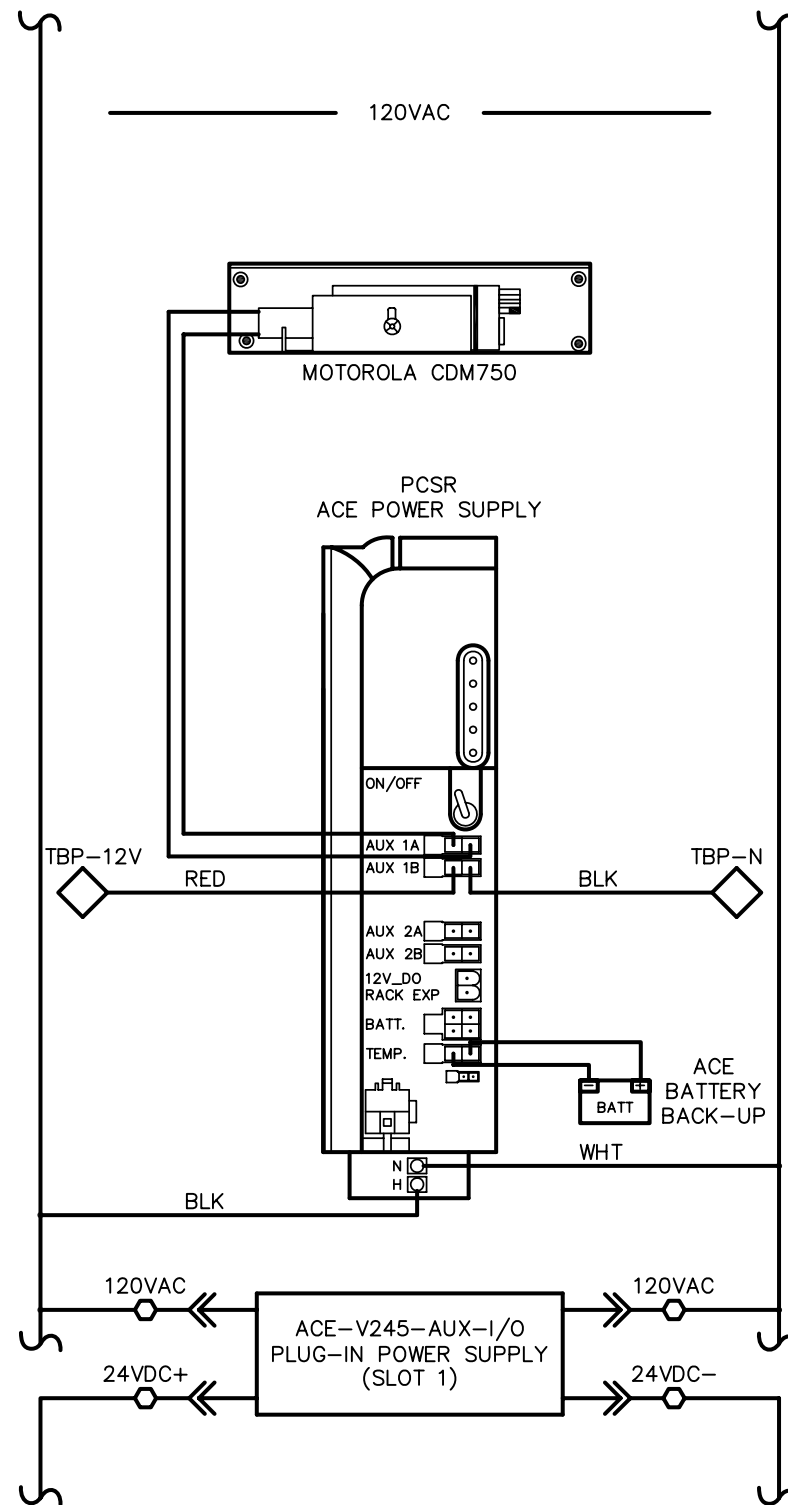
W.O. 510H
SHEET
E-6

DES: STK
DRN: RWB
CKD:
DATE: 09/27/13



○ TERMINALS ON ACE I/O MODULE (GENERAL)

◇ TERMINALS IN PUMP CONTROL PANEL



SEE NOTES ON SHEET E-14

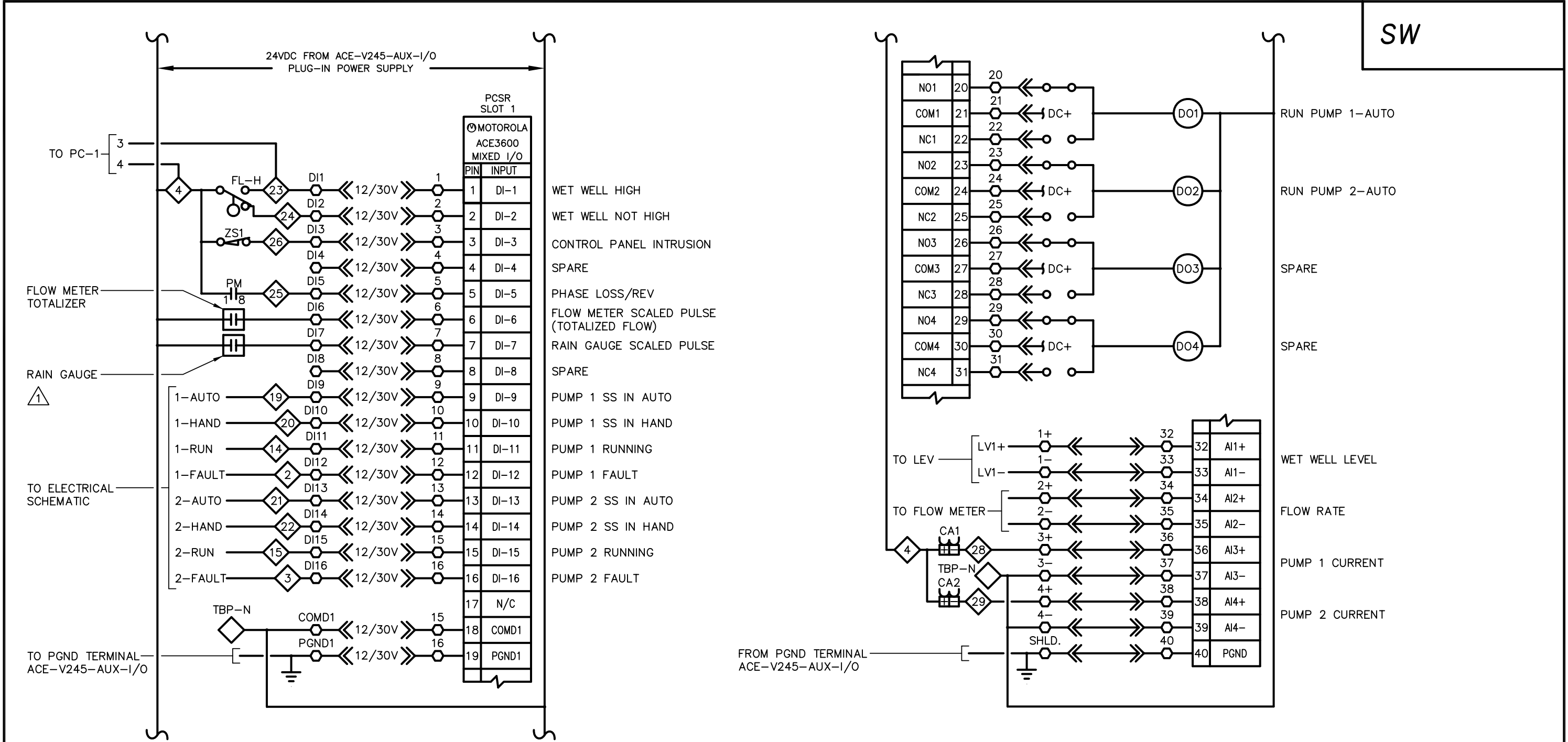
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No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: STK DRN: RWB CKD: DATE: 09/27/13	CITY of TAMPA Department of Public Works Stormwater Engineering	LAKE ECKLES STORMWATER PUMP STATION ELECTRICAL SCHEMATIC DIAGRAM (SHEET 3 OF 5)	W.O. 510H
3			6						SHEET
2			5						E-7
1			4						



SEE NOTES ON SHEET E-14

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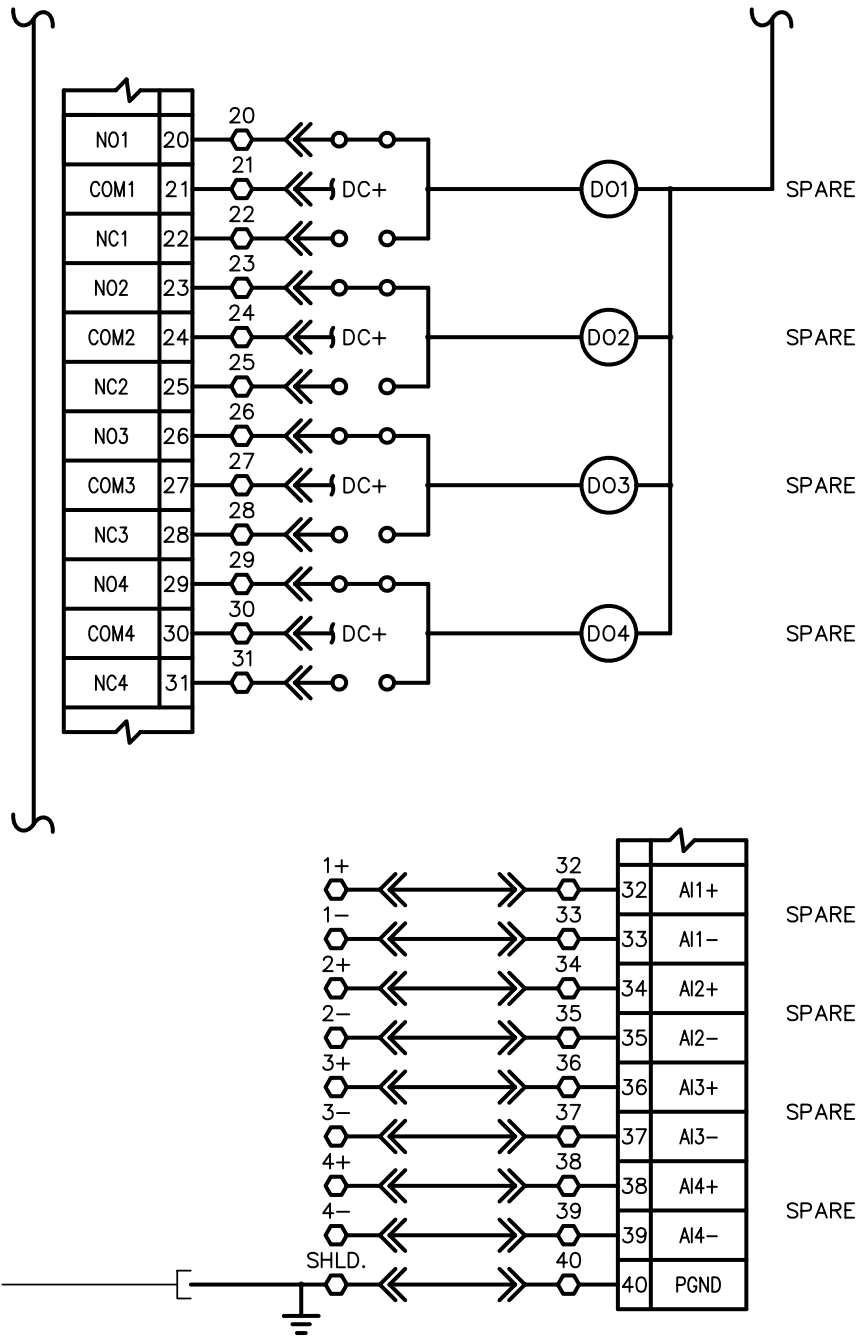
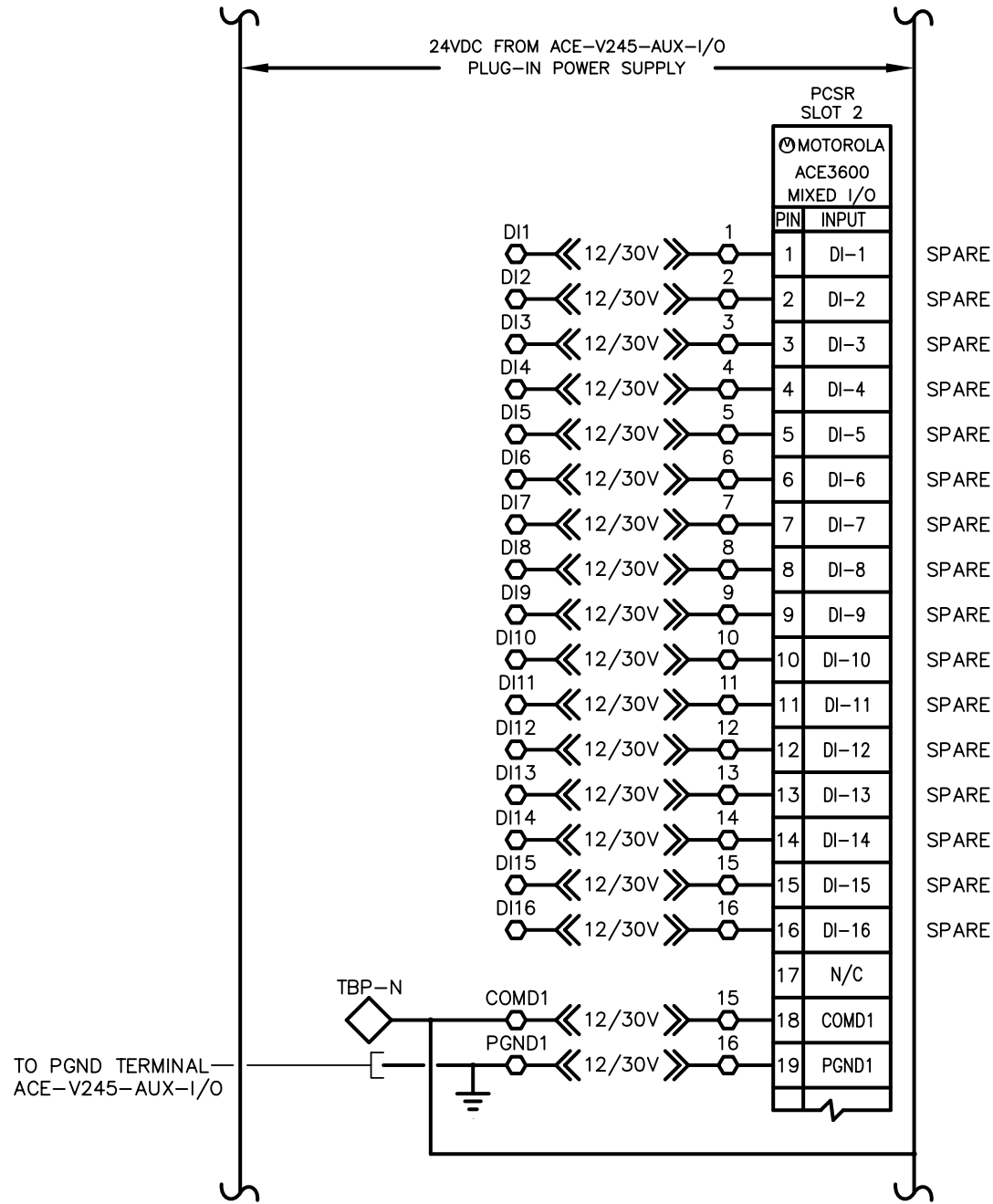


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- TERMINALS ON ACE I/O MODULE (GENERAL)
- ◇ TERMINALS IN PUMP CONTROL PANEL

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3			6						
2			5						
1	11/04/13	ADD RAIN GAUGE	4						



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TERMINALS ON ACE I/O MODULE (GENERAL)

TERMINALS IN PUMP CONTROL PANEL






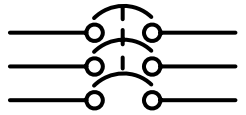

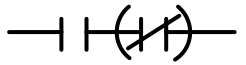




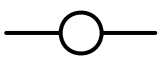

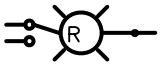



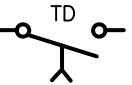



SEE NOTES ON SHEET E-14

No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: STK DRN: RWB CKD: DATE: 09/27/13	CITY of TAMPA Department of Public Works Stormwater Engineering	LAKE ECKLES STORMWATER PUMP STATION ELECTRICAL SCHEMATIC DIAGRAM (SHEET 5 OF 5)	W.O. 510H SHEET E-9
3			6						
2			5						
1			4						

TBI-  MOUNTED ON MAIN PANEL (MP)	
TERM.	DESCRIPTION
1	CB7 OUT PUMPS CONTROL POWER
2	PUMP 1 FAULT CONTROL INTERLOCK
3	PUMP 2 FAULT CONTROL INTERLOCK
4	SLOT-1 PCSR 24V +
5	STATOR TEMP SWITCH FROM P1
6	STATOR TEMP SWITCH FROM P2
7	} P1 SEAL LEAK PROBE
8	
9	} P2 SEAL LEAK PROBE
10	
11	M1 "RUN" CMD
12	M2 "RUN" CMD
13	NEUTRAL
14	P1 "ON" DISCRETE
15	P2 "ON" DISCRETE
16	P1, P2 "ON" EXCITATION
17	P1 "ON" TO PCSR
18	P2 "ON" TO PCSR
19	P1 "AUTO" TO PCSR
20	P1 "HAND" TO PCSR
21	P2 "AUTO" TO PCSR
22	P2 "HAND" TO PCSR
23	} HIGH WATER FLOAT SWITCH
24	
25	PM

TB1 CONT'D	
26	PANEL INTRUSION
27	SLOT-2 PCSR 24V +
28	PUMP 1 CURRENT
29	PUMP 2 CURRENT
30	SPARE
31	M1 FAULT
32	M2 FAULT
33	} FLOW METER
34	
35	SPARE
36	SPARE
37	SPARE
38	SPARE
39	SPARE
40	SPARE
41	SPARE
42	SPARE
43	SPARE
44	SPARE
45	SPARE
46	SPARE
47	SPARE
48	SPARE
49	SPARE
50	SPARE

CONTROL SCHEMATIC SYMBOLS

	TRANSFORMER		AIR LINE
	PUSH BUTTON		CIRCUIT BREAKER (SINGLE-POLE)
	115 V, 60 Hz, DUPLEX RECEPTACLE		CIRCUIT BREAKER (THREE-POLE)
	SWITCH		CONTACT NORMALLY OPEN (CLOSED)
	CONNECTED		SPLIT BOLT SPLICE
	OVERLOAD HEATER COIL		NOT CONNECTED
	COIL { TD - TIME DELAY RELAY CR - CONTROL RELAY ETI - TIMEMETER M - MOTOR STARTER		GROUND BUS
	PILOT LIGHT - RED (PRESS-TO-TEST)		NEUTRAL BUS (INSULATED)
	PRESSURE LEVEL SWITCH CONTACT		FUSE
	"ON DELAY" CONTACT		TB2 TERM STRIP MTD ON MP-- (PCSR INTERFACE)
	INSTANT CLOSE CONTACT		TERMINAL STRIP IN PCSR

SW

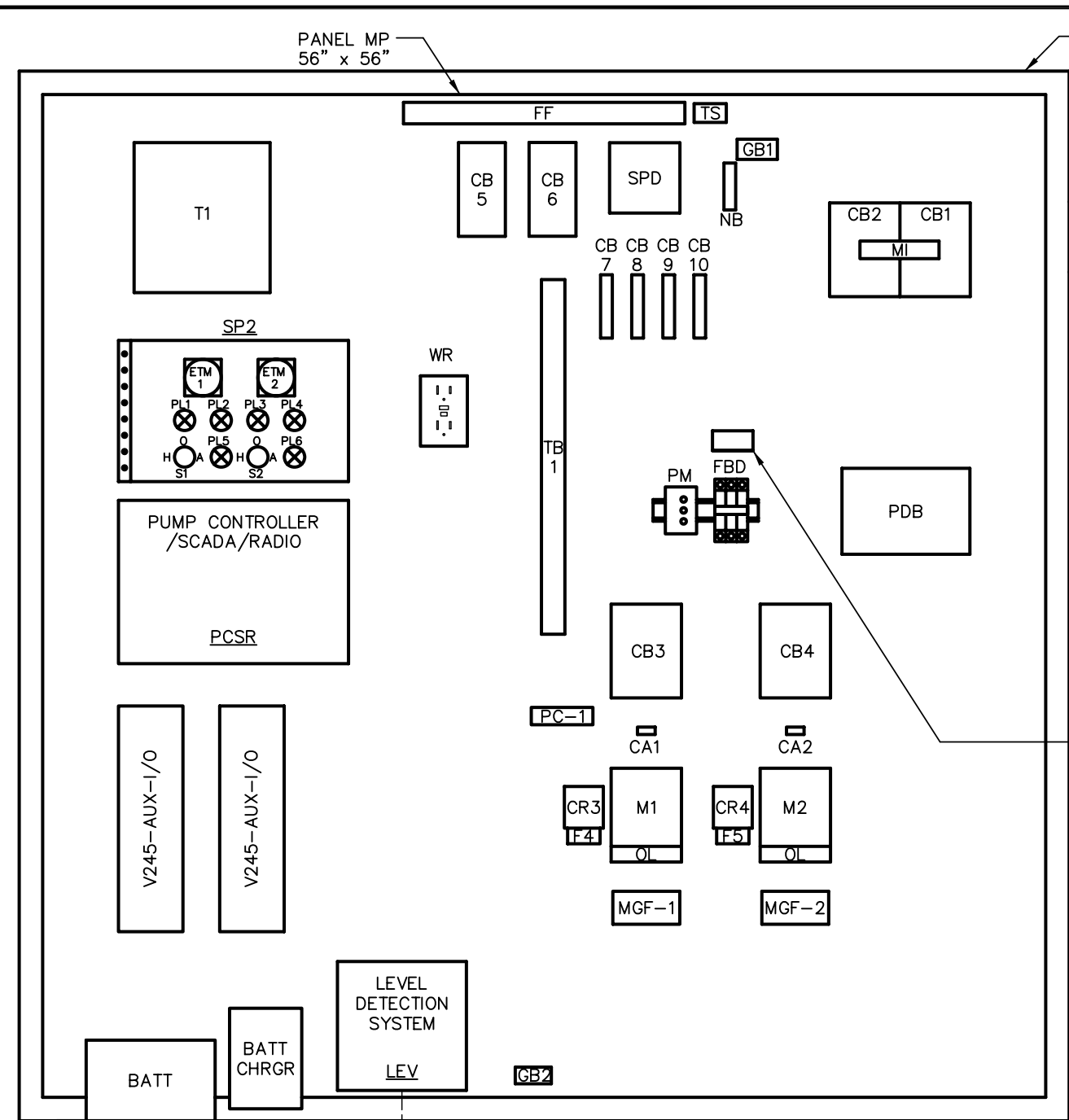
ENGINEER OF RECORD:
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Certificate of Authorization Number: 4795

No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: STK	CITY of TAMPA Department of Public Works Stormwater Engineering	LAKE ECKLES STORMWATER PUMP STATION ELECTRICAL SCHEMATIC LEGEND	W.O. 510H SHEET E-10
3			6			DRN: RWB			
2			5			CKD:			
1			4			DATE: 09/27/13			

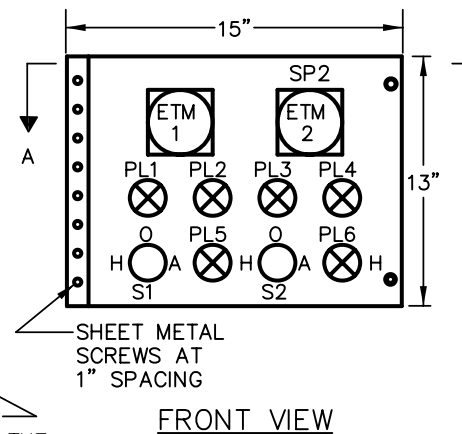


CONTROL PANEL ENCLOSURE* – FRONT VIEW
NOT TO SCALE

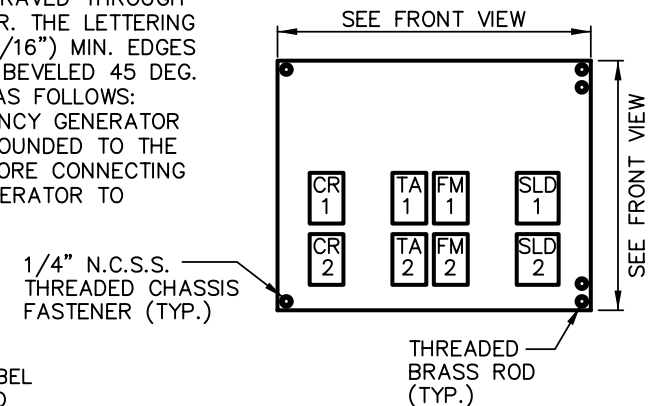
ENCLOSURE ME 60" x 60" x 12"
(ADJUST SIZE AS NECESSARY TO
SUIT FINAL COMPONENT SELECTION-
TYP.)

PROVIDE A PHENOLIC WARNING LABEL
ABOVE THE GENERATOR RECEPTACLE. THE
LABEL SHALL BE A THREE PLY PHENOLIC
RED-WHITE-RED ENGRAVED THROUGH
THE FIRST RED LAYER. THE LETTERING
SHALL BE 0.5 CM (3/16") MIN. EDGES
OF LABEL SHALL BE BEVELED 45 DEG.
LABEL SHALL READ AS FOLLOWS:
"WARNING – EMERGENCY GENERATOR
FRAME SHALL BE GROUNDED TO THE
CONTROL PANEL BEFORE CONNECTING
THE EMERGENCY GENERATOR TO
THE RECEPTACLE".

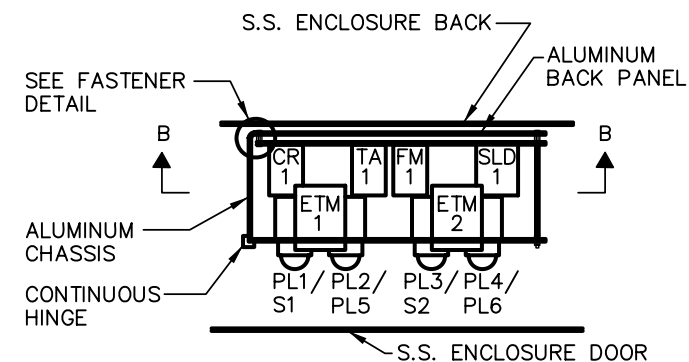
PROVIDE WARNING LABEL
ABOVE FBD. LABEL TO
READ "WARNING –
OPENING MAIN CIRCUIT
BREAKER DOES NOT
DE-ENERGIZE VOLTAGE
TO THIS DISCONNECT".



FRONT VIEW

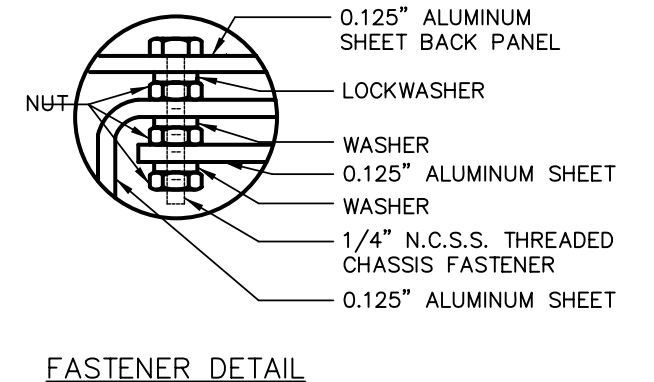


SECTION B-B



SECTION A-A

CONTROL CHASSIS LAYOUT



FASTENER DETAIL

SW

SEE NOTES ON SHEET E-14



Certificate of Authorization Number: 4795


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No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: STK	CITY of TAMPA Department of Public Works Stormwater Engineering	LAKE ECKLES STORMWATER PUMP STATION ELECTRICAL CONTROL PANEL LAYOUT	W.O. 510H SHEET E-II
3			6			DRN: RWB			
2			5			CKD:			
1			4			DATE: 09/27/13			

PARTS SCHEDULE						
SYMBOL	NAME					REMARKS
		MAKE	TYPE	MODEL or CAT. #	RATING	
CB1	CIRCUIT BREAKER	SQUARE D	3 POLE	FHL36100	600V, 100A	
CB2	CIRCUIT BREAKER	SQUARE D	2 POLE	FAL34100	480V, 100A	
CB3, CB4	CIRCUIT BREAKER	SQUARE D	3 POLE	FAL34060	480V, 60A	
CB5	CIRCUIT BREAKER	SQUARE D	2 POLE	FAL24015	480V, 15A	
CB6	CIRCUIT BREAKER	SQUARE D	2 POLE	FAL22015	240V, 15A	
CB7, CB8, CB9, CB10	CIRCUIT BREAKER	SQUARE D	1 POLE	QOU115	120V, 15A	
M1, M2	MOTOR STARTER	SQUARE D	NEMA SIZE 2	CLASS 8536, TYPE SD01	120 VAC (COIL)	25 HP (MAX), 1 N.O.
FBD	FUSE BLOCK/DISCONNECT	ABB SSAC	THREE PHASE – HIGH INTER. CAP.	P0700–241 BLOCK, P0600–11 FUSE	500 VAC, 2A FUSE	100,000 AIC KLK TYPE FUSES
PM	3 PHASE VOLTAGE MONITOR	MOTOR CONTROLS CORP.	DISCRETE/ANALOG	PM–440–118A	480 VAC	DIN RAIL MOUNTING
PC–1	BACKUP PUMP CONTROLLER	WILKERSON	DUPLEX LIFT STATION	DR1920	10A CONTACTS	DIN RAIL MOUNTING
T1	TRANSFORMER	SQUARE D	DRY TYPE	CLASS 7400–2S1F	480//240/120 V 2 KVA	
PL1, PL3	INDICATOR LIGHT	SQUARE D	CLASS 9001	SKT38LYY9	120V LED TYPE	YELLOW LENS & PRESS TEST
PL2, PL4	ILLUM. PUSH BUTTON	SQUARE D	CLASS 9001	SK2L38LRRH13	120V LED TYPE	RED LENS & 1 N.O., 1 N.C.
PL5, PL6	INDICATOR LIGHT	SQUARE D	CLASS 9001	SKT38LRR9	120V LED TYPE	RED LENS & PRESS TEST
S1, S2	HOA SWITCH ASSEMBLY	SQUARE D	OILTIGHT CLASS 9001	SKS – 43B H2	10A @ 120V	
ETM1, ETM2	ELAPSE TIME METER	CRAMER	NON–RESET	635	120V	
FF & TS	FLUORESCENT FIXTURE	DAYTON	INDUSTRIAL	2 V 811	120V, 20W	w/ TOGGLE SWITCH–TS AND TUBE GUARD
WR	RECEPTACLE	HUBBELL	DUPLEX w/ GFI	GF 5262	125 VAC, 15A GFI	w/ CAST ALUMINUM BOX AND COVER
SPD	SURGE SUPPRESSOR	ADVANCE PROTECTION TECHNOLOGIES	MAIN PANEL SPD	TE04XDS104X	277/480 VAC, 3Ø, WYE	
FL	FLOAT SWITCH	ANCHOR SCIENTIFIC	SPDT	S20N0NC	10A @ 120V	
LA	LIGHTNING ARRESTER	GENERAL ELECTRIC	TRANQUELL	9L15ECC001	650V	
TB1	TERMINAL BOARD	ALLEN–BRADLEY	STYLE AA	1492–15T	600V	30 CONTACTS (MIN)

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PARTS SCHEDULE							
SYMBOL		NAME				REMARKS	
			MAKE	TYPE	MODEL or CAT. #		RATING
CA1, CA2		CURRENT SENSOR	ENERCORP INSTRUMENTS	4–20 mA OUTPUT	200–2	0–100A	ADJUSTABLE RANGE
NB		INSULATED TERMINAL STRIP	ALLEN–BRADLEY	STYLE AA	1492–15T	600 VAC, NEUTRAL BLOCK	4 CONTACTS (MIN) w/ SHORTING BARS
ME		CONTROL ENCLOSURE *	QUALITY METALS	NEMA 3R THREE POINT LATCH	60" x 60" x 16" SS 3R	304 SS, 14 GAUGE	w/ DOOR STOP KIT – # A–DSTOPK
MP		ENCLOSURE PANEL *	QUALITY METALS	56" x 56", STEEL	S56 P56, WHITE AS REQUIRED	STEEL, 12 GAUGE	
GB1, GB2		GROUNDING BLOCK	ILSCO	AS REQUIRED			
SLD1, SLD2		SEAL LEAK DETECTOR	SYRELEC	8 PIN PLUG–IN	PNRU110	110V INPUT, 10A CONTACTS	SPDT w/ SOCKET
TA1, TA2, FM1, FM2, CR1, CR2		CONTROL RELAY	POTTER & BRUMFIELD	8 PIN PLUG–IN	KRPA–11AG–120	120V COIL, 10A CONTACTS	DPDT w/ SOCKET AND HOLD DOWN SPRING
LEV		LEVEL DETECTION SYSTEM	PULSAR INC.	CONTROLLER	BLACKBOX 130 (TROPICALIZED) w/ KEYPAD & DISPLAY 130–110–300–00P–KP–TROP	120V, 5 WATT	PROVIDE TRANSDUCER MODEL DB10
BATT.		BATTERY	POWERSONIC AGM		PS–1270 F2	12V, 7.0 AH	
BATT. CHRГ.		BATTERY CHARGER	DELTRAN CORP.		WATERPROOF 800	12V, 0.800A OUTPUT	
PCSR		PLC BASED PUMP CONTROLLER, SCADA & RADIO SYSTEM	MOTOROLA CORPORATION	DUPLEX PUMP CONTROLLER BASED ON ACE 3600 PROG. CONTROLLER	ACE 3600 RTU w/ CONVENTIONAL UHF RADIO CDM 750, 403–470, 450–512 MHZ & ACE–V245–AUX–I/O INTERFACE BOARD	24 VDC w/ BATTERY BACKUP	COORDINATE w/ DCR ENG. SERVICES OR SCADAONE, LLC
	SLOTS 1 & 2	I/O MODULE FOR ACE 3600 RTU	MOTOROLA CORPORATION	MIXED I/O	ACE 3600 MIXED I/O	(4) 4–20 mA ANALOG IN, (16) DIGITAL IN, (4) DIGITAL OUT	
MS		METER SOCKET	MILBANK	7–TERMINAL	SELF CONTAINED	277/480 VAC, 3ø, 200A	COORD. w/ TECO
PDB		POWER DIST. BLOCK	ILSCO	3 POLE	PDB–26–2/0–3	600V, 350A	
CR3 & CR4		CONTROL RELAY	SQUARE D	TYPE "X" (IND. CONTROL RELAY)	CL 8501 X20–V04	277V (COIL)	2 N.O.
F4 & F5		FUSE BLOCK	SQUARE D	CLASS 9999	SF3	600V	SCREW TERMINALS
WITH		FUSE	BUSSMANN		KTK	600V, 1A	

NOTES:

1. ITEMS MARKED "*" TO BE DETERMINED AFTER EQUIPMENT SELECTION.



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No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: STK DRN: RWB CKD: DATE: 09/27/13	CITY of TAMPA Department of Public Works Stormwater Engineering	LAKE ECKLES STORMWATER PUMP STATION PARTS SCHEDULE (SHEET 2 OF 2)	W.O. 510H SHEET E-13
3			6						
2			5						
1			4						

NOTES:

1. TEC SERVICE: 277/480V, 100A, 3ø, 4W, WYE.
CALCULATED FAULT CURRENT – 4,860A; CB1 AIC
RATING – 25,000A SYMMETRICAL.
2. ALL ELECTRICAL WORK SHALL BE PERFORMED IN ACCORDANCE
WITH THE LATEST EDITION OF THE NEC AND CITY OF TAMPA/
HILLSBOROUGH COUNTY CODES AND SHALL BE INSPECTED BY
CITY OF TAMPA/HILLSBOROUGH COUNTY ELECTRICAL INSPECTORS
AS APPLICABLE.
3. ALL ELECTRICAL COMPONENTS SHALL BE UL LISTED AND AS
SPECIFIED, OR AS APPROVED BY THE ENGINEER.
4. THE ENCLOSURE SHALL BE NEMA 3, SHALL BE
CONSTRUCTED OF MINIMUM 14 GAUGE 304 SS, SHALL HAVE
BRUSH FINISHED SURFACE, AND THE CLOSING SURFACE SHALL
HAVE ROLLED LIPS. PROVIDE HINGED DOOR WITH 3–POINT
AND LOCKABLE HANDLE. REFERENCE PARTS SCHEDULE.
5. ALL COMPONENTS TO BE MOUNTED ON PANEL USING TAPPED
HOLES.
6. ALL WIRING SHALL BE COPPER. ALL CONTROL WIRING SHALL BE
STRANDED THWN COPPER, MINIMUM AWG #14, AND SHALL
HAVE SPADE LUG TERMINATIONS.
7. DIMENSIONS, ITEMS, OR ELEVATIONS MARKED ‘*’ TO BE DETERMINED
AFTER EQUIPMENT SELECTION.
8. ALL MECHANICAL CONNECTORS SHALL BE TORQUED PER NEC, UL
OR MANUFACTURERS SPECIFICATIONS.
9. INSTALL LAMINATED SCHEMATIC AND LAMINATED DATA SHEET ON BACK
FACE OF THE DOOR INSIDE THE ENCLOSURE.
10. ENSURE THAT LINE CONNECTIONS TO METER SOCKET PROVIDE
CORRECT METER ROTATION.
11. ROUTE AND SECURE SERVICE ENTRANCE CONDUCTORS SO AS NOT TO
INTERFERE WITH OR CONTACT EQUIPMENT AND COMPONENTS IN THE
PANEL. ALSO, PROVIDE SPACING BETWEEN THE ENCLOSURE AND ALL
CONDUCTORS.
12. CONDUCTORS WITHIN THE ENCLOSURE AND NOT ROUTED IN WIREWAYS,
SHALL BE SECURED TO THE BACK PANEL WITH MECHANICAL
FASTENERS. FASTENERS SECURED WITH ADHESIVE ARE NOT
ACCEPTABLE.
13. ALL HINGED SURFACES SHALL BE GROUNDED WITH A BONDING JUMPER
SECURED TO THE ENCLOSURE OR BACK PANEL.
14. THE PCSR SHALL BE A MOTOROLA ACE 3600 MOSCAD PACKAGE AS
DISTRIBUTED BY DCR ENGINEERING SERVICES INC. OR SCADAONE, LLC.
THE PUMPING STATION CONTRACTOR SHALL COORDINATE HIS EFFORTS
WITH DCR OR SCADAONE, LLC TO ENSURE SYSTEM COMPATIBILITY. THE
CONTRACTOR SHALL PROVIDE AND INSTALL A COMPLETE DUPLEX CONTROL
SYSTEM PACKAGE, AS ASSEMBLED AND PROGRAMMED BY DCR OR
SCADAONE, LLC.
15. A WET WELL LEVEL DETECTION SYSTEM SHALL BE PROVIDED AND
INSTALLED BY THE CONTRACTOR. THE OUTPUT SHALL BE A LINEAR
4–20mA SIGNAL WITH RANGE AND CALIBRATION SUITABLE FOR
THIS APPLICATION. THE SYSTEM SHALL BE OF THE ULTRASONIC
TYPE— PULSAR, INC. MODEL dB10 W/ BLACKBOX 130
TRANSMITTER. CITY INSTRUMENTATION PERSONNEL WILL ASSIST
THE CONTRACTOR WITH TRANSDUCER MOUNTING AND CALIBRATION.

SW

LEGEND PLATE SCHEDULE

SYMBOL	DEVICE	LEGEND
ETM1	ELAPSED TIME METER	PUMP NO. 1 HOURS
ETM2	ELAPSED TIME METER	PUMP NO. 2 HOURS
PL1	YELLOW PILOT LIGHT	PUMP NO. 1 ON
PL2	RED ILLUMINATED PUSH BUTTON	PUMP NO. 1 HIGH TEMPERATURE
PL3	YELLOW PILOT LIGHT	PUMP NO. 2 ON
PL4	RED ILLUMINATED PUSH BUTTON	PUMP NO. 2 HIGH TEMPERATURE
PL5	RED PILOT LIGHT	PUMP NO. 1 SEAL LEAK
PL6	RED PILOT LIGHT	PUMP NO. 2 SEAL LEAK
S1	3–POSITION SWITCH	PUMP NO 1 HAND–OFF–AUTO
S2	3–POSITION SWITCH	PUMP NO. 2 HAND–OFF–AUTO

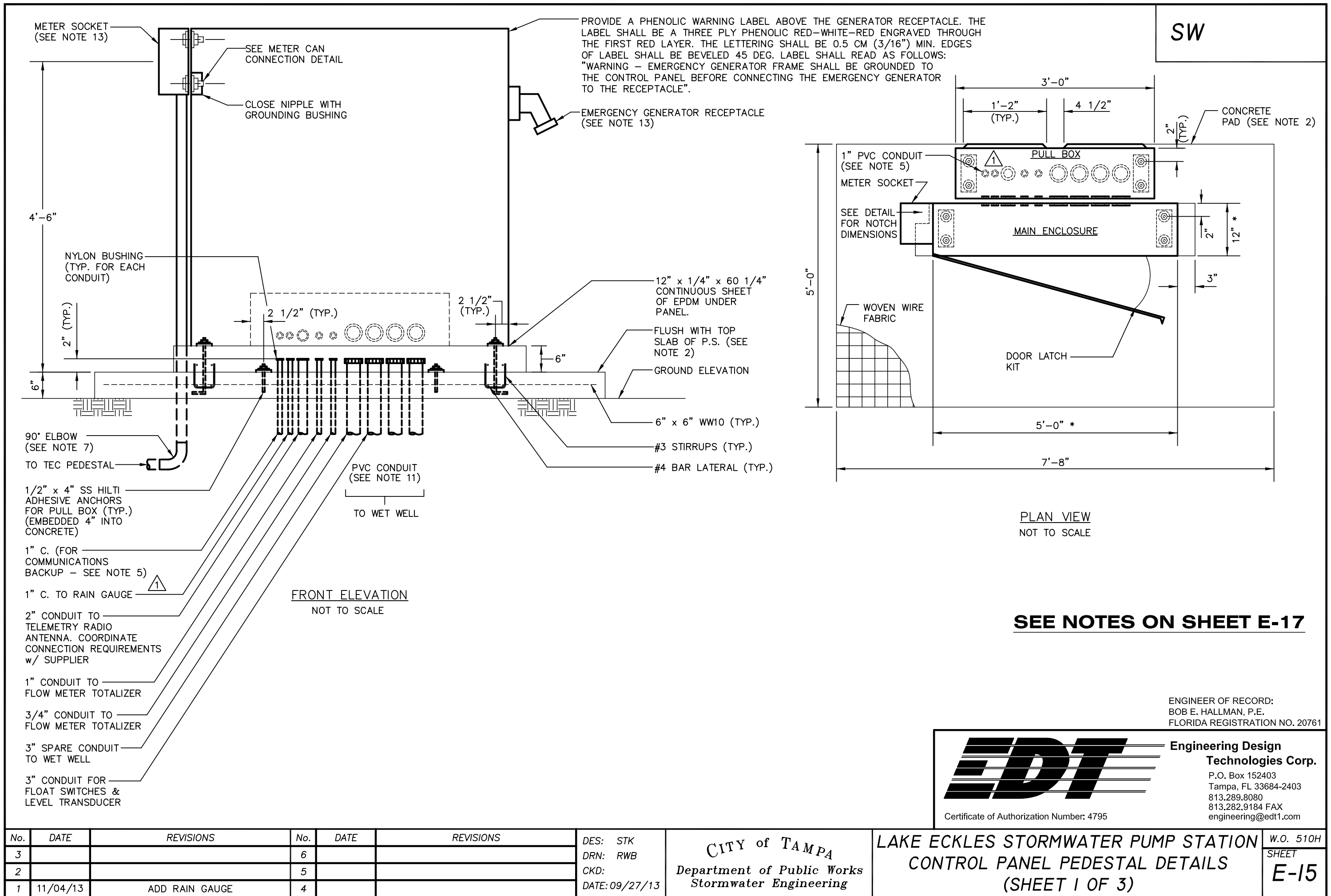
ENGINEER OF RECORD:
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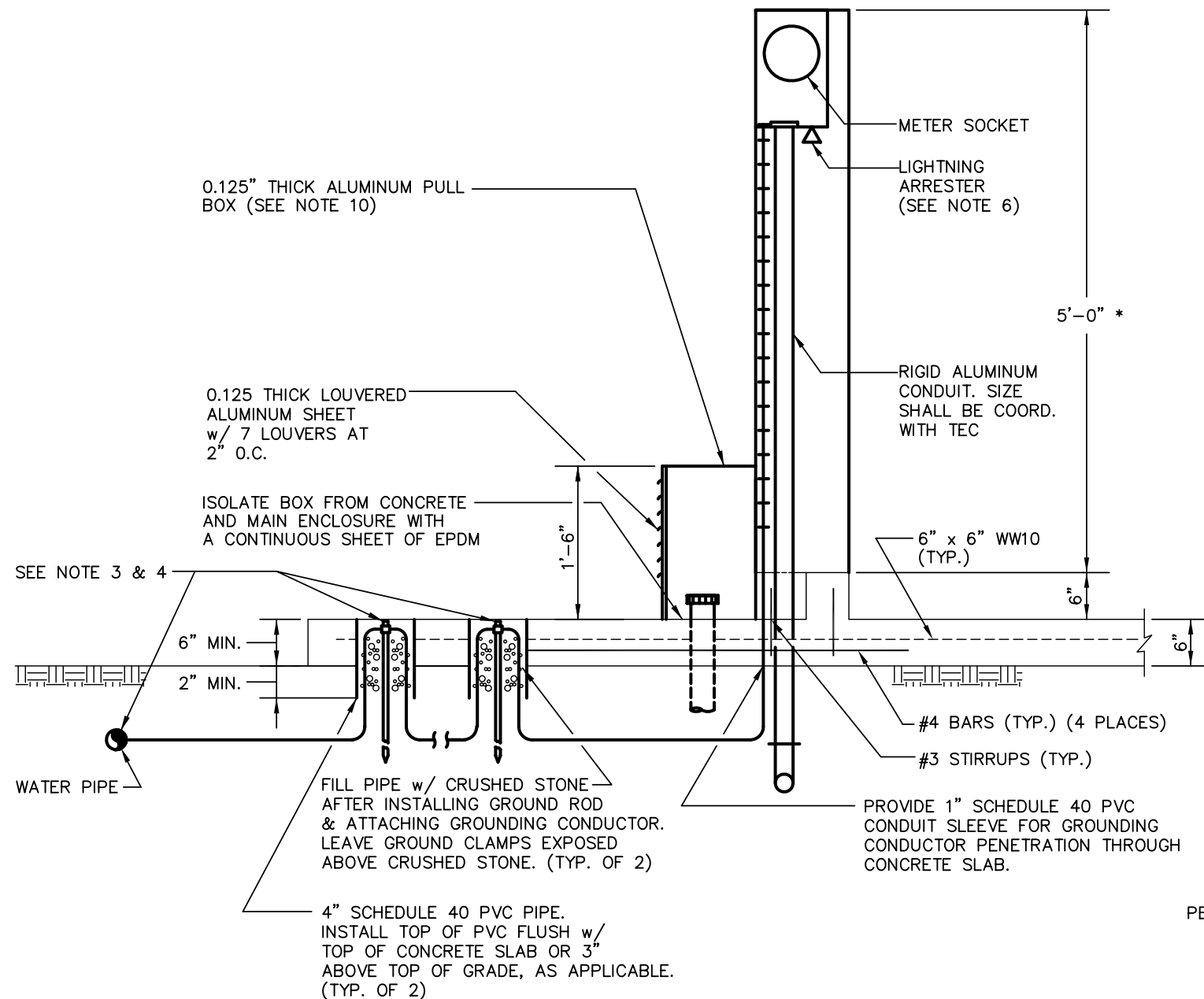
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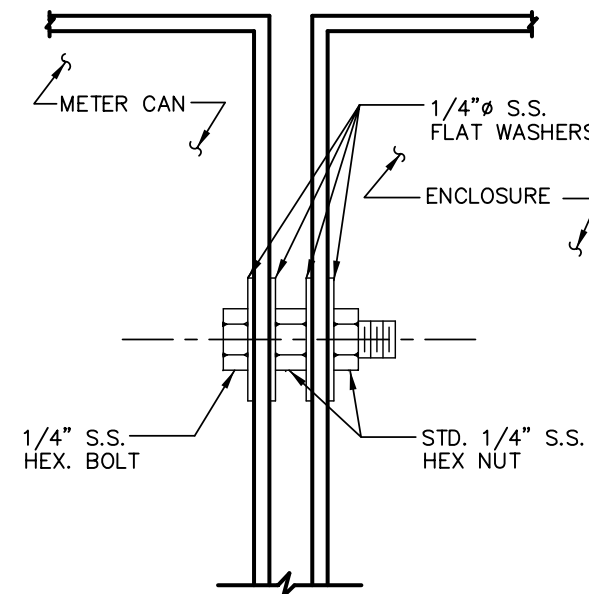
No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: STK DRN: RWB CKD: DATE: 09/27/13	CITY of TAMPA Department of Public Works Stormwater Engineering	LAKE ECKLES STORMWATER PUMP STATION ELECTRICAL CONTROLS LEGEND PLATES	W.O. 510H SHEET E-14
3			6						
2			5						
1			4						



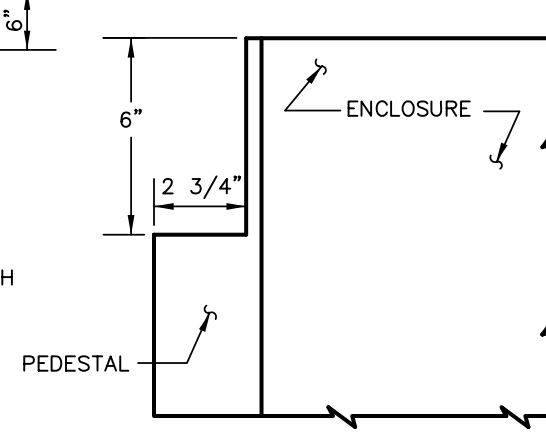
SW



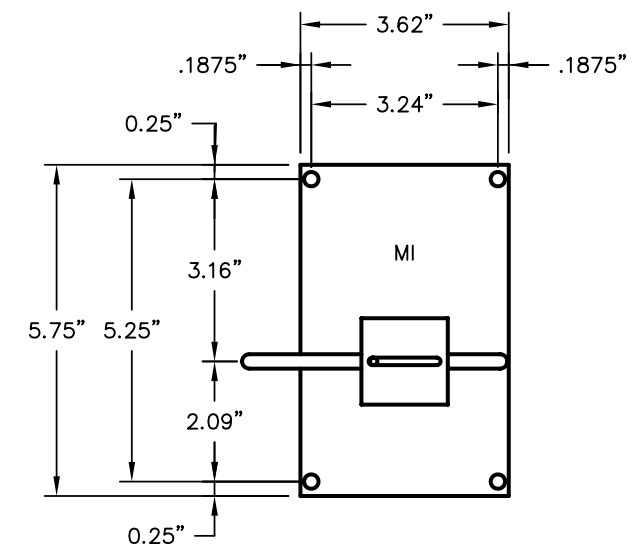
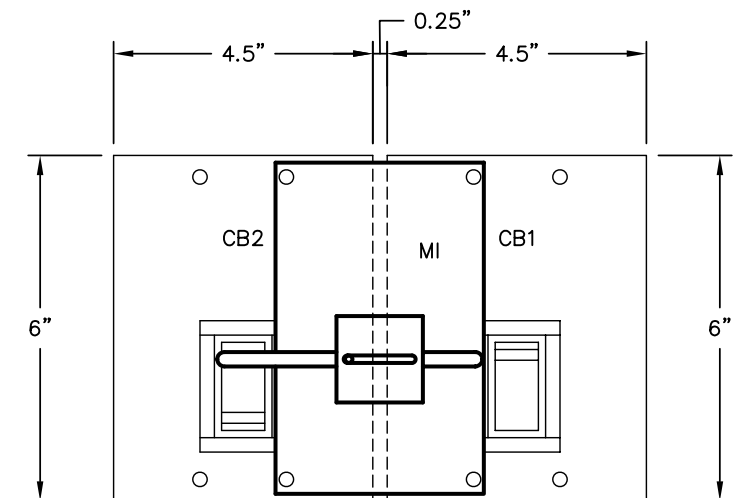
LEFT SIDE ELEVATION
NOT TO SCALE



METER CAN CONNECTION
NOT TO SCALE



NOTCH IN PEDESTAL DETAIL
NOT TO SCALE



INTERLOCK NOTES:

1. FABRICATE ALL PIECES FROM COPPER FREE ALUMINUM. PROVIDE STAINLESS STEEL FASTENING HARDWARE.
2. GRIND ALL EDGES SMOOTH.
3. VERIFY ALL DIMENSIONS PRIOR TO FABRICATION.

CB1 & CB2 INTERLOCK DETAILS
NOT TO SCALE

SEE NOTES ON SHEET E-17

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3			6						SHEET
2			5						E-16
1			4						

NOTES:

1. THWN CONDUCTORS (3-AWG #8 & 1-AWG #8 GND. COPPER EACH PUMP) SHALL EXTEND FROM THE CONTROL PANEL OUT OF THE NYLON BUSHING A MINIMUM OF 18". WHEN INSTALLING THE PUMPS, THE MOTOR CONDUCTORS SHALL BE SPLICED USING SPLIT BOLTS. FOR INSULATION USE MATERIALS THAT ARE RECOMMENDED BY THE MANUFACTURER TO EQUAL INSULATION ON CONDUCTORS. FOLLOW THE SAME PROCEDURE FOR THE LEAKAGE AND THERMAL SENSOR CONDUCTORS.
2. CONCRETE PAD TOP ELEVATION SHALL BE ADJUSTED TO EQUAL TOP ELEVATION OF P. S. TOP SLAB.
3. GROUNDING ELECTRODE CONDUCTOR SHALL BE AWG #2 STRANDED COPPER MINIMUM. SEE SERVICE CONDUCTOR SIZE ON ELECTRICAL SCHEMATIC DRAWING.
4. APPROVED GROUND CLAMPS SHALL BE ATTACHED TO TWO APPROVED 5/8" DIA. x 10'-0" GROUNDING RODS (MINIMUM SPACING 6'-0") AND THE METAL WATER PIPE (IF AVAILABLE ON PREMISES). CONDUCTOR SHALL BE AWG #4 MIN. BARE STRANDED COPPER. SEE CONDUCTOR SIZE ON ELECTRICAL SCHEMATIC DRAWING.
5. 1" PVC CONDUIT w/ PULL WIRE BURIED IN TRENCH WITH POWER CONDUITS. THE CONDUIT SHALL EXTEND FROM THE CONTROL PANEL 3' BEYOND EDGE OF SLAB, CAP & STAKE LOCATION.
6. CITY APPROVED LIGHTNING ARRESTER SHALL BE INSTALLED ON LOAD SIDE OF METER SOCKET.
7. ELBOWS TO BE LONG BUSHED AND THE HORIZONTAL PVC CONDUIT SHALL EXTEND TO A TAMPA ELECTRIC COMPANY HAND-HOLE AT THE BASE OF THE POWER POLE. COORDINATE THIS WORK WITH TEC.
8. ALL CONDUIT TERMINATIONS SHALL BE FITTED WITH NYLON BUSHINGS.
9. WATER SERVICE RISER SHALL BE LOCATED ON SIDE OF PANEL OPPOSITE TO THE TEC METER SOCKET, OR AS INDICATED IN THE DRAWINGS.
10. FRONT OF PULL BOX IS TO BE COVERED BY A LOUVERED ALUMINUM METAL SHEET (MIN. THICKNESS 0.125") AND FASTENED WITH MIN. OF FOUR 1/2" STAINLESS STEEL BOLTS ANCHORED IN THE CONCRETE. LOUVERED PANEL TO BE REMOVABLE AND ATTACHED TO PULL BOX WITH STAINLESS STEEL BOLTS.
11. MINIMUM 3" PVC CONDUITS SIZED FOR NO MORE THAN 35% FILL SHALL BE INSTALLED.
12. REINFORCEMENT SHALL BE AT LEAST 3" FROM EDGE OF PEDESTAL.
13. TEC PREFERS STRAIGHT UNDERGROUND SERVICE CONNECTION TO THE METER BOX. TO AVOID ANY CONFIGURATION CHANGES, THE ENCLOSURE HOLES FOR THE METER BOX AND EMERGENCY CONNECTOR SHALL BE CUT AFTER THE TEC ROUTING IS VERIFIED AT THE TIME OF INSTALLATION.
14. POSITION CONTROL PANEL 90° TO WET WELL HATCH OPENING.
15. COORDINATE WITH CONTROL PANEL MANUFACTURER CONDUIT NIPPLE INSTALLATION IN REAR OF PANEL.
16. DIMENSIONS, ITEMS OR ELEVATIONS MARKED "*" SHALL BE DETERMINED AFTER EQUIPMENT SELECTION.
17. CONDUIT THAT IS IN CONCRETE SHALL BE COATED WITH TWO COATS ASPHALT VARNISH (FED. SPEC. TT-V-51) TO 4" ABOVE AND BELOW CONCRETE.

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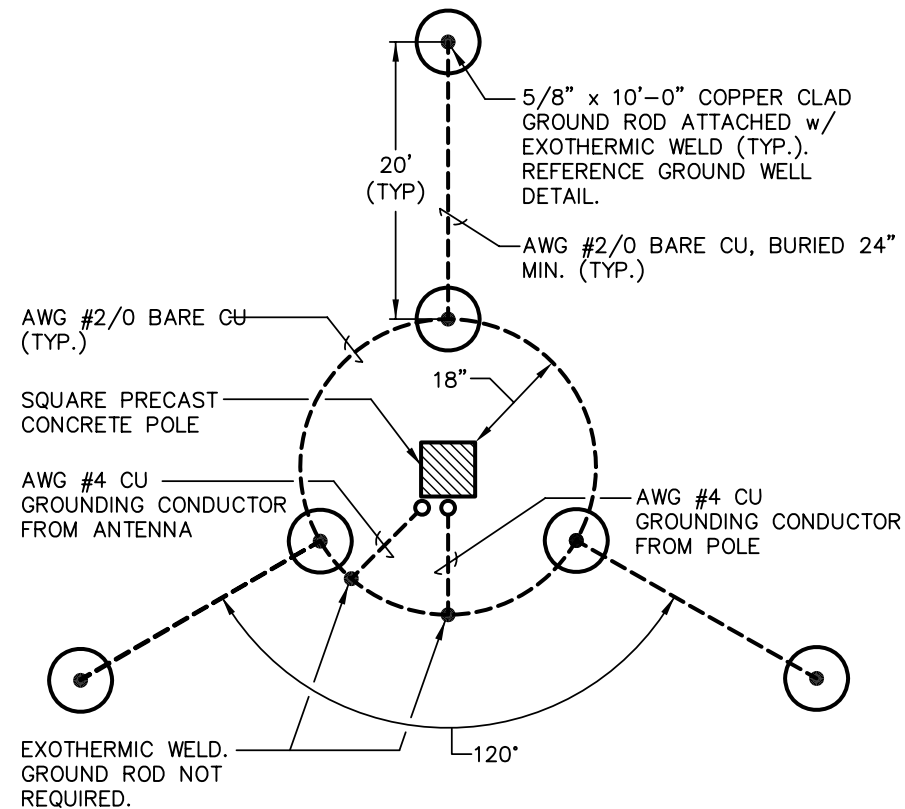
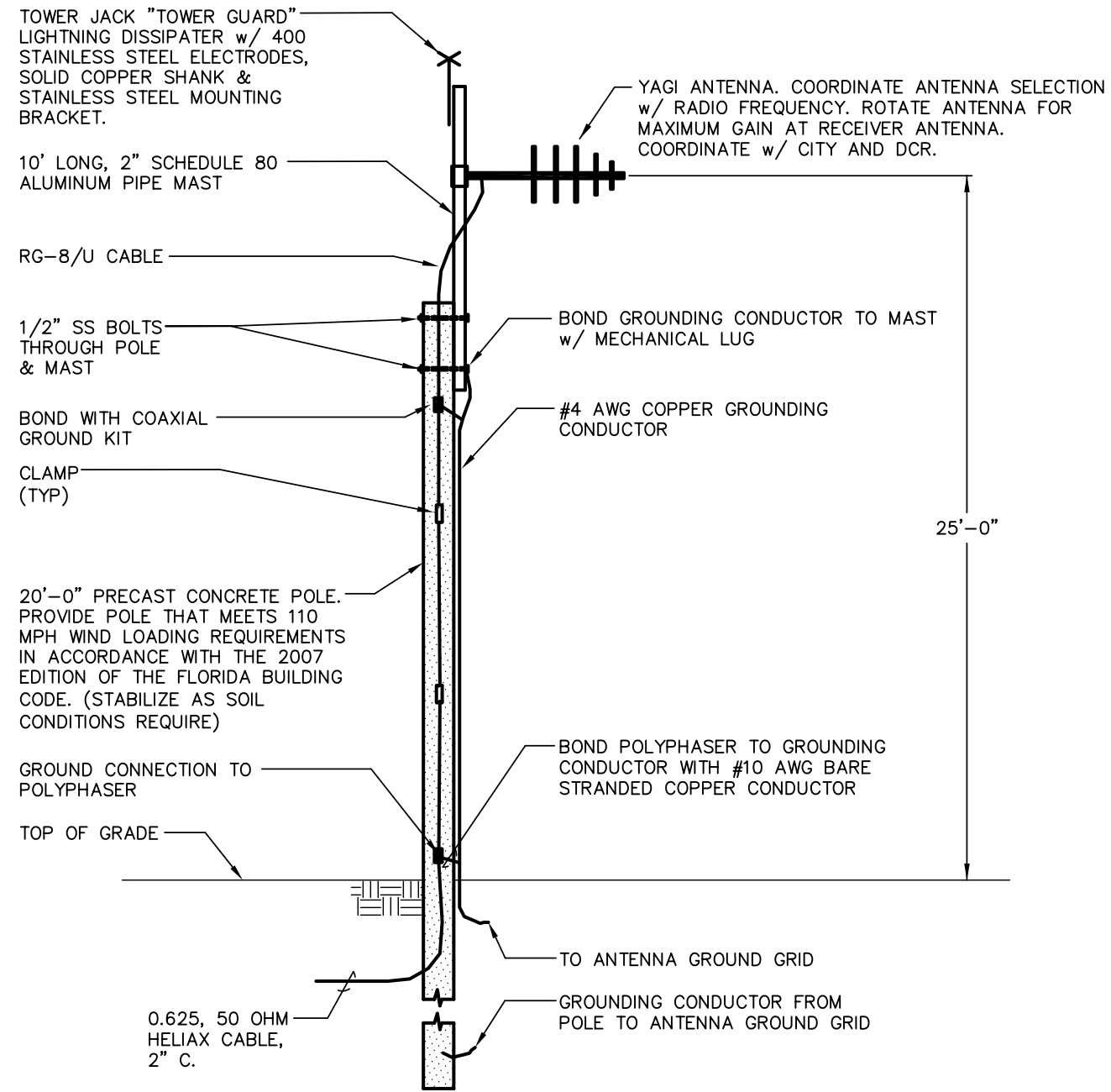


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3			6						
2			5						
1			4						



ANTENNA GROUND GRID DETAIL

NOTES:

1. CONTRACTOR SHALL DETERMINE FINAL TOWER HEIGHT & WIND LOADING REQUIREMENTS. BURIAL DEPTH OF POLE SHALL BE SUITABLE FOR SOIL CONDITIONS TO ENDURE A 120 MPH WIND SPEED w/ A 3 SECOND GUST OF 140 MPH AS DETERMINED BY A REGISTERED PROFESSIONAL CIVIL ENGINEER. PROVIDE CALCULATIONS.
2. ADJUST PLACEMENT OF GROUND RODS AS NECESSARY SO GROUND GRID DOES NOT EXTEND BEYOND PROPERTY LINE OF PUMPING STATION.
3. A RADIO COMMUNICATION PATH SHALL LINK THE STORMWATER PUMPING STATION WITH RECIEVER ANTENNA. THE CONTRACTOR SHALL PERFORM A RADIO PATH SURVEY TO ESTABLISH THE RADIO FREQUENCY, POWER, ANTENNA REQUIREMENTS & ANTENNA HEIGHT FOR THIS COMMUNICATION PATH.

SHOP DRAWINGS SHALL BE IN CONFORMANCE WITH CHAPTER 16, SECTION 1609 OF THE FBC2004 FOR A BASIC WIND SPEED OF 120 MPH AS SHOWN IN FIGURE 1609 OF THE CODE. THE SHOP DRAWINGS SHALL BE SIGNED AND SEALED BY A STRUCTURAL ENGINEER LICENSED IN THE STATE OF FLORIDA.

ANTENNA DETAILS

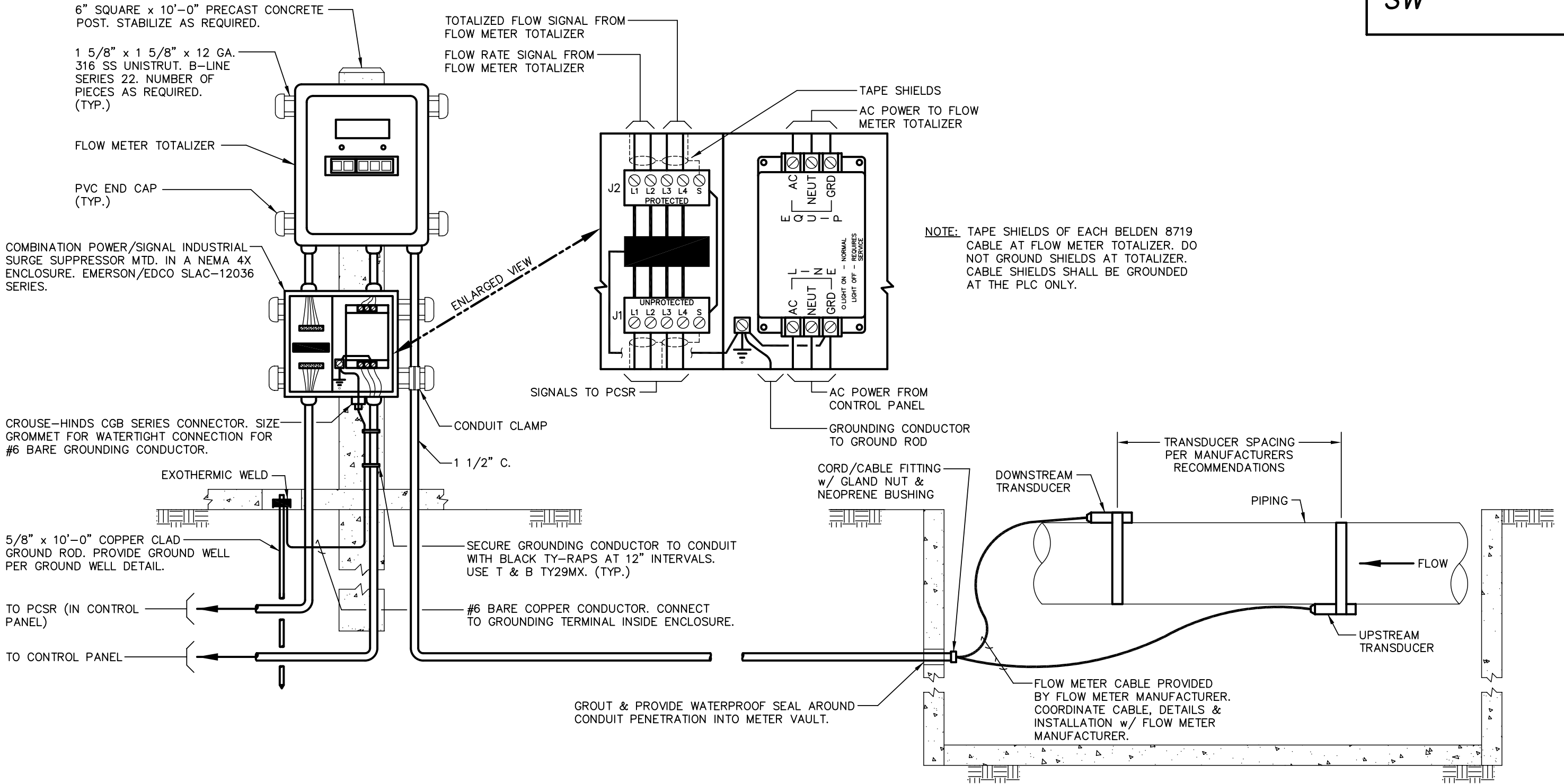
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3			6						
2			5						
1			4						



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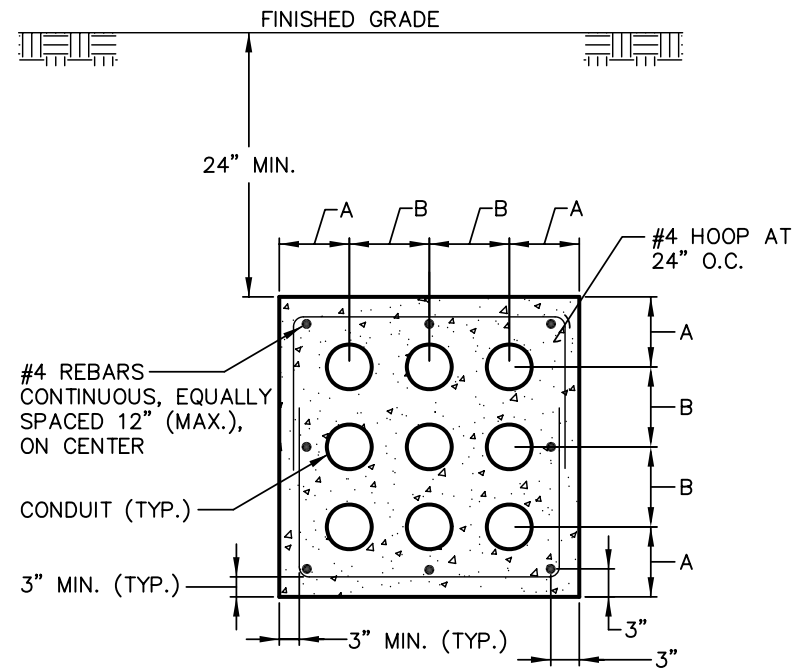
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CLAMP-ON ULTRASONIC TRANSIT TIME FLOW METER CONNECTION DETAIL

- NOTES:
- 1. ALL EDGES OF UNISTRUT SHALL BE FILED SMOOTH.
 - 2. ALL FASTENING AND MOUNTING HARDWARE SHALL BE 316 SS.

No.	DATE	REVISIONS	No.	DATE	REVISIONS	DES: STK	CITY of TAMPA Department of Public Works Stormwater Engineering	LAKE ECKLES STORMWATER PUMP STATION CLAMP-ON ULTRASONIC TRANSIT TIME FLOW METER CONNECTION DETAIL	W.O. 510H SHEET E-19
3			6			DRN: RWB			
2			5			CKD:			
1			4			DATE: 09/27/13			



DUCT BANK CONDUIT SPACING DIMENSIONS											
CONDUIT SIZE	DIMENSION A	CONDUIT SIZE									
		3/4"	1"	1 1/4"	1 1/2"	2"	2 1/2"	3"	3 1/2"	4"	
		DIMENSION B									
3/4"	3 5/8"	3 1/8"	3 1/4"	3 3/8"	3 1/2"	3 3/4"	4"	4 3/8"	4 5/8"	4 7/8"	
1"	3 3/4"	3 1/4"	3 3/8"	3 1/2"	3 5/8"	3 7/8"	4 1/4"	4 1/2"	4 3/4"	5"	
1 1/4"	3 7/8"	3 3/8"	3 1/2"	3 3/4"	3 7/8"	4 1/8"	4 3/8"	4 5/8"	4 7/8"	5 1/8"	
1 1/2"	4"	3 1/2"	3 5/8"	3 7/8"	4"	4 1/4"	4 1/2"	4 3/4"	5"	5 1/4"	
2"	4 1/4"	3 3/4"	3 7/8"	4 1/8"	4 1/4"	4 3/8"	4 5/8"	5"	5 1/4"	5 1/2"	
2 1/2"	4 1/2"	4"	4 1/8"	4 3/8"	4 1/2"	4 5/8"	4 7/8"	5 1/4"	5 1/2"	5 3/4"	
3"	4 3/4"	4 3/8"	4 1/2"	4 5/8"	4 3/4"	5"	5 1/4"	5 1/2"	5 3/4"	6"	
3 1/2"	5"	4 5/8"	4 3/4"	4 7/8"	5"	5 1/4"	5 1/2"	5 3/4"	6"	6 1/4"	
4"	5 1/4"	4 7/8"	5"	5 1/8"	5 1/4"	5 1/2"	5 3/4"	6"	6 1/4"	6 1/2"	

NOTES:

1. CONCRETE SHALL BE 3000 PSI. MINIMUM COMPRESSION STRENGTH.
2. TOP OF DUCT BANK SHALL BE DYED RED.
3. TOP OF DUCT BANK SHALL BE 24" BELOW FINISHED GRADE.
4. 4" CONDUIT BEND RADIUS SHALL BE A MINIMUM OF 48".
5. ALL EMPTY CONDUITS SHALL INCLUDE A PULL WIRE AND SHALL BE CAPPED.
6. DUCT BANKS MAY BE RE-ARRANGED FOR CONVENIENCE OF EGRESS.
7. REFERENCE ELECTRICAL DRAWINGS FOR CONDUIT SIZE.
8. THIS DETAIL IS FOR LAYOUT PURPOSES ONLY. FOR THE ACTUAL NUMBER OF CONDUITS & FEEDERS SEE PLAN DRAWINGS.

4 DUCT BANK DETAIL

ENGINEER OF RECORD:
BOB E. HALLMAN, P.E.
FLORIDA REGISTRATION NO. 20761

Engineering Design Technologies Corp.
P.O. Box 152403
Tampa, FL 33684-2403
813.289.8080
813.282.9184 FAX
engineering@edt1.com

Certificate of Authorization Number: 4795

5 RAIN GAUGE DETAILS

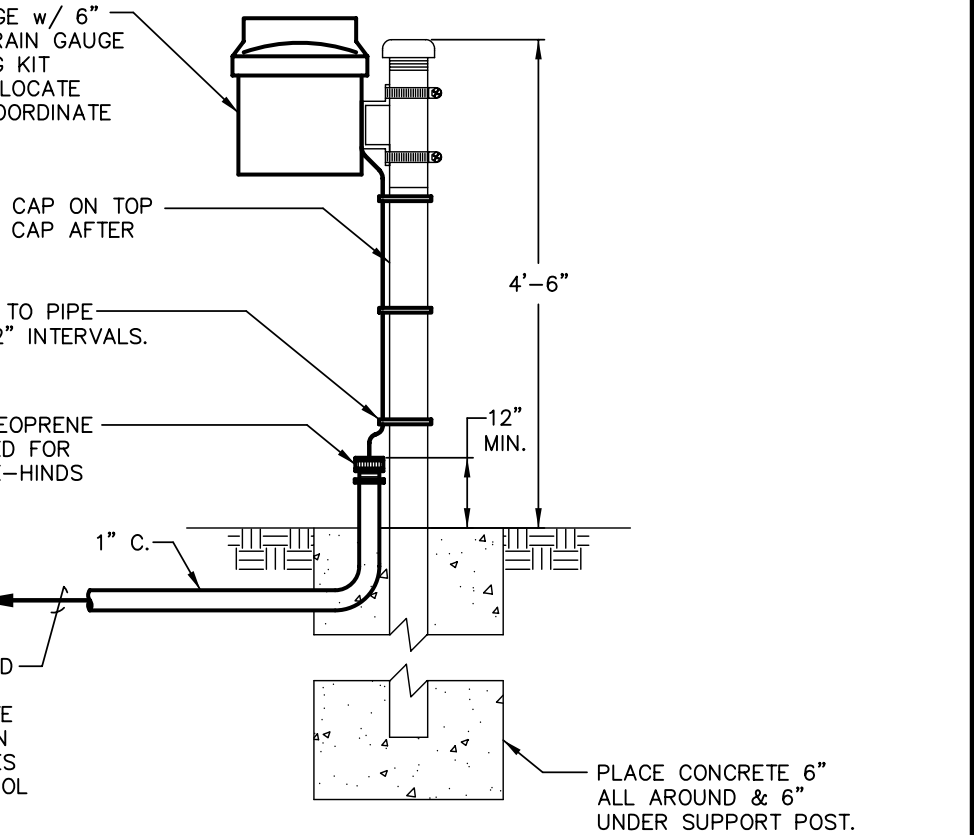
CAMPBELL SCIENTIFIC MODEL TE525 RAIN GAUGE w/ 6" ORIFICE AND SCALED PULSE OUTPUT. MOUNT RAIN GAUGE TO PIPE USING CAMPBELL SCIENTIFIC MOUNTING KIT AND FOLLOW MANUFACTURER'S INSTRUCTIONS. LOCATE RAIN GAUGE AS SHOWN ON THE SITE PLAN. COORDINATE FINAL LOCATION WITH OWNER.

6' LONG 1 1/2" DIA. SCHEDULE 80 PIPE. WELD CAP ON TOP OF PIPE & HOT DIP GALVANIZE ENTIRE PIPE & CAP AFTER FABRICATION.

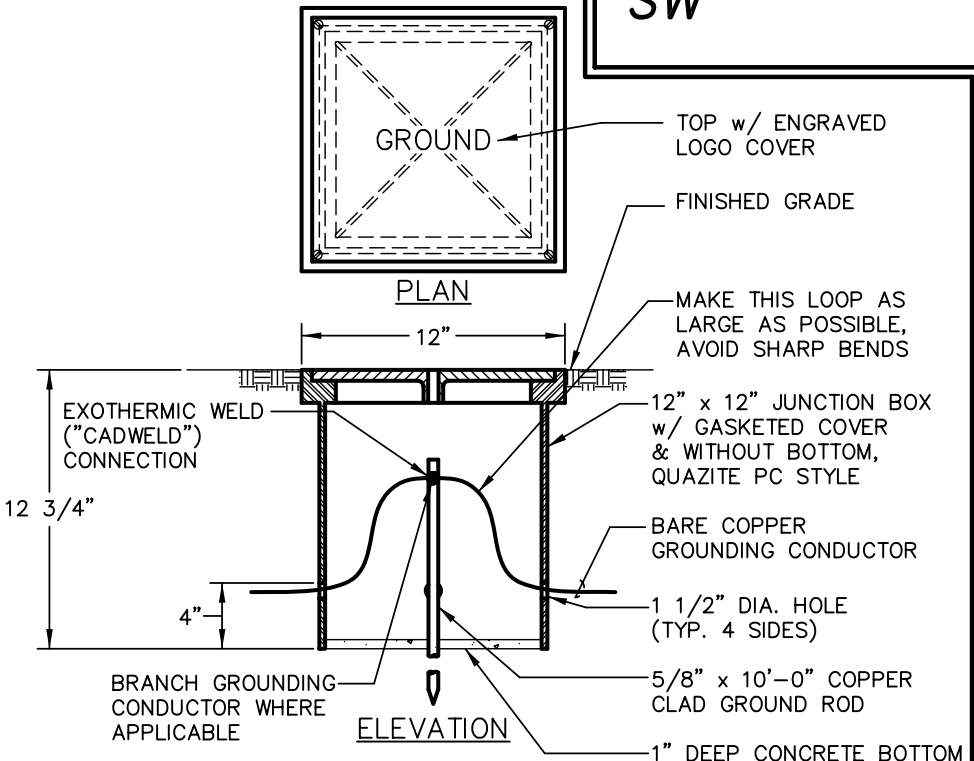
SECURE RAIN GAUGE CABLE TO PIPE WITH BLACK TY-RAPS AT 12" INTERVALS. USE T & B TY29MX. (TYP.)

CORD/CABLE FITTING c/w NEOPRENE BUSHING & GLAND NUT SIZED FOR RAIN GAUGE CABLE. CROUSE-HINDS CGB SERIES. (TYP.)

RAIN GAUGE CABLE PROVIDED BY RAIN GAUGE SUPPLIER, ROUTED IN 1" C. COORDINATE LENGTH OF CABLE WITH RAIN GAUGE SUPPLIER. NO SPLICES IN CABLE LENGTH TO CONTROL PANEL WILL BE PERMITTED.

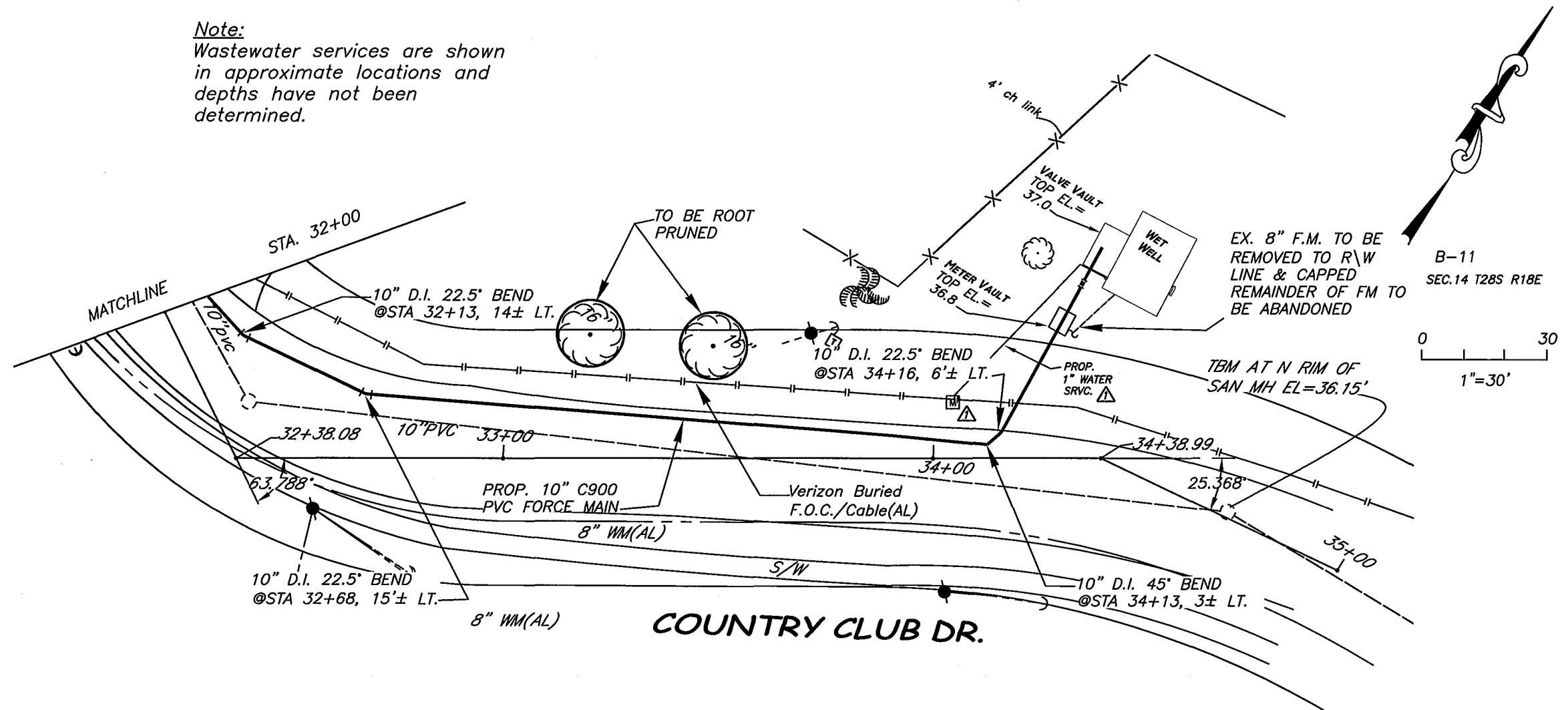


3 GROUND WELL DETAIL



SW

Note:
Wastewater services are shown
in approximate locations and
depths have not been
determined.



User: ss17 Drawing Name: K:\Stormwater Drafting\Active Projects\510H (Lake Eckles)\Lake Eckles Force Main.dwg
Layout- Nov 12, 2013 - 3:29pm CTB - Monochrome.ctb

No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1	11/12/13	ADDED NEW WATER METER & 1" SERVICE LINE	4		

DES: MTM
DRN: MP
CKD:
DATE:

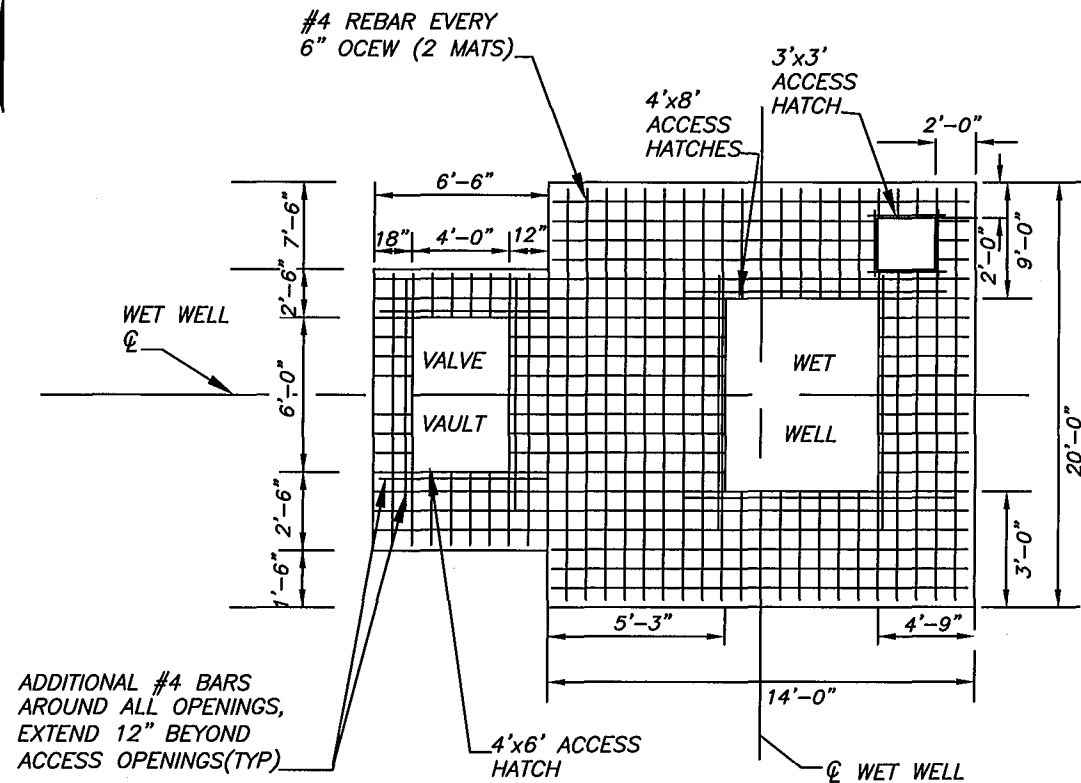
CITY of TAMPA
Department of Public Works
Stormwater Engineering

LAKE ECKLES
FORCE MAIN

W.O. 510H
SHEET
C-15
OF 53

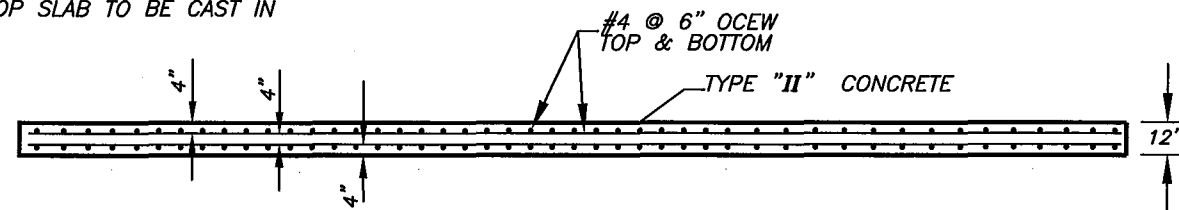
SW

B-11
SEC.14 T28S R18E



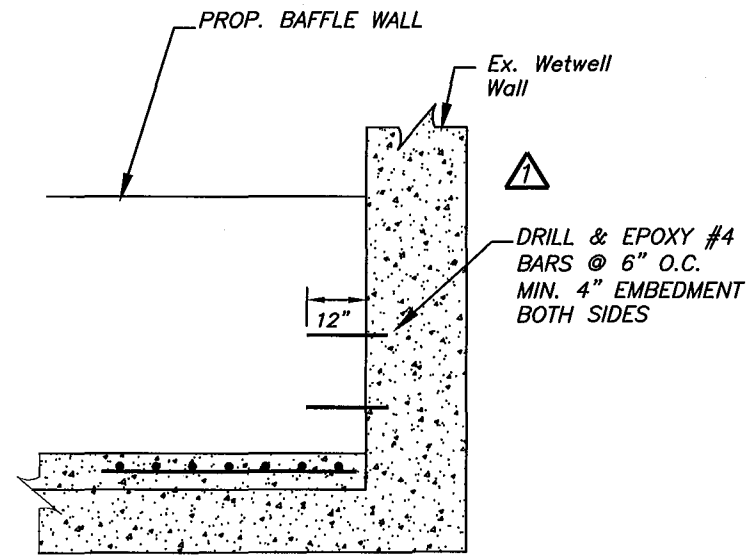
PLAN

NOTE: TOP SLAB TO BE CAST IN PLACE



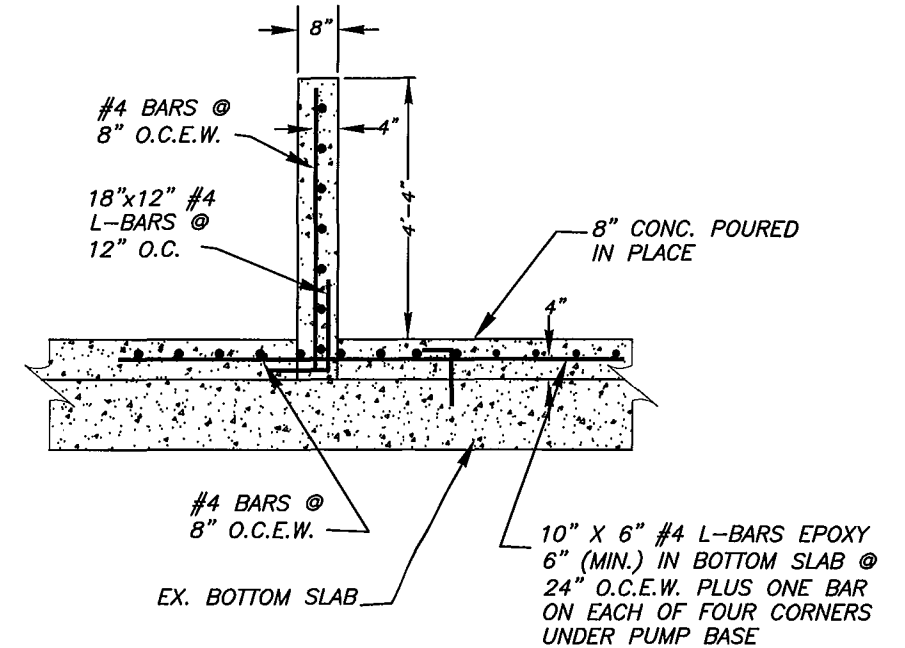
TOP SLAB REINFORCING DETAIL

NOT TO SCALE



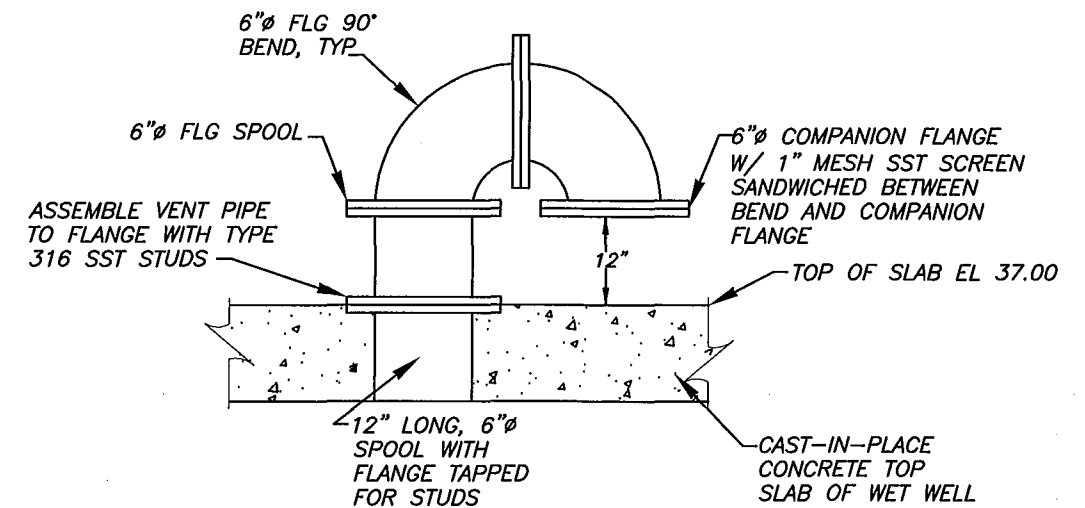
BAFFLE WALL/FLOOR DETAIL

NOT TO SCALE



VENT PIPE DETAIL

NOT TO SCALE



No.	DATE	REVISIONS	No.	DATE	REVISIONS
3			6		
2			5		
1	11/12/13	ADDED NEW BAFFLE WALL DETAIL	4		

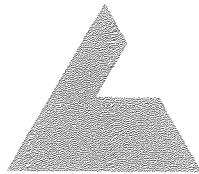
DES: MTM
DRN: ME
CKD:
DATE:

CITY of TAMPA
Department of Public Works
Stormwater Engineering

LAKE ECKLES FORCE MAIN
PUMP STATION

W.O. 510H
SHEET
S-5
OF 53

Item No.	Description	Unit	Approx. Quantity	Unit Price in Words	Unit Price	Total Computed Price
0100-1	Contingency	LS	1	Seventy Five Thousand Dollars and No Cents	\$ 75,000.00	\$ 75,000.00
0101-1	Mobilization	LS	1	Forty Seven Thousand Three Hundred Dollars and No Cents	\$ 47,300.00	\$ 47,300.00
0102-1	Maintenance of Traffic	LS	1		\$	\$
0104-1	Erosion and Tree Protection	LS	1		\$	\$
0105-1	Tree and Root Pruning	LS	1		\$	\$
0108-1	Dewatering and By-Pass Pumping	LS	1		\$	\$
0113-1	Irrigation Repairs	LS	1		\$	\$
0120-3	Grading	LS	1		\$	\$
0127-10	Demolition	LS	1		\$	\$
0285-7	Permanent Pavement Base - 8"	CY	291		\$	\$
0327-1	Milling 1 Inch Asphalt	SY-IN	2700		\$	\$
0334-1	Permanent Pavement Surface Replacement - 1" S-3	TN	140		\$	\$
0334-4	Permanent Pavement Replacement - 1.5" S-1	TN	80		\$	\$
0350-20	Concrete Driveway Replacement	SY	38		\$	\$
0400-10	Wetwell Construction	LS	1		\$	\$
0400-15	Valve Vault Construction	LS	1		\$	\$
0400-20	Wetwell and Valve Vault Top Slab	LS	1		\$	\$



LAW ENGINEERING TESTING COMPANY

geotechnical, environmental & construction materials consultants

4919 WEST LAUREL STREET
P.O. BOX 24183 • TAMPA, FLORIDA 33623
(813) 879-0750

January 27, 1981

City of Tampa
Department of Public Works
City Hall Plaza
Tampa, Florida 33602

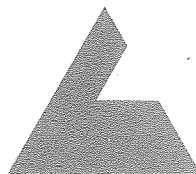
Attention: Mr. Chris Barquin
Project Engineer

Subject: Report of Subsurface Exploration
Lake Eckles Pumping Station
Tampa, Florida
LETCO Job No. T-4035

Gentlemen:

Law Engineering Testing Company has completed a subsurface exploration for the proposed Lake Eckles Pumping Station. This exploration was authorized by your Work Order No. 10 of our contract with the City of Tampa dated November 20, 1980, and was specifically requested by Mr. Fred Huntley, project engineer. Law Engineering previously presented the results of a soil test boring drilled at that site in our report of December 8, 1980.

Our engineer, Mr. A. David Alcott, P.E., made an inspection of this site with the project's structural engineer, Mr. Jorge Fernandez of Diaz, Seckinger and Associates (DSA). We were also provided with Drawings No. S-1 and C-3 of DSA's project plans. This current report describes our evaluation of subsurface conditions at the site relative to support of the proposed facility. Specific soils-related recommendations relative to site pre-



paration and construction are included. The data obtained during the exploration and descriptions of the testing procedures are attached.

EXPLORATORY PROCEDURES

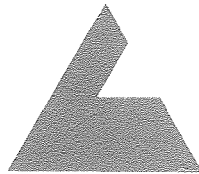
A soil test boring was drilled to a depth of 30 feet as specified by Mr. Barquin in a telephone conversation with our Mr. James L. Studer on December 5, 1980. The test boring location was staked in the field by personnel from the City of Tampa. The boring location appears to be some 30 feet east of the actual new pumping station location. The drilling and testing procedures were described in our earlier report and a Test Boring Record which graphically shows penetration resistances and visual soil classifications is attached to this report.

SITE AND SUBSURFACE CONDITIONS

The proposed pumping station will be located on the south side of Lake Eckles. The site slopes gently down to the north from Country Club Drive toward Lake Eckles. In the specific structure area, existing ground surface elevations range from approximately +34 down to +33 feet. The area has a ground cover of mowed grass and weeds.

The test boring which was drilled between the proposed new pumping station location and the existing structure indicates a subsurface profile comprised almost completely of sands. A fill of loose to firm sands extended from the ground surface to a depth of 6 feet. Penetration resistance values recorded within this stratum were 6 and 14 blows per foot. The fill appeared to overlie an old topsoil or lake-side stratum of dark-colored silty sand. This stratum was about 2.5 feet thick and had a loose relative density with a penetration resistance value of 8 blows per foot.

The boring next encountered loose to firm slightly silty to clean fine sands which extended to a depth of approximately 27.5 feet,



where the limestone formation was encountered. Penetration resistance values ranging from 5 to 16 blows per foot were recorded in this sandy layer. The boring was terminated at a depth of 30 feet, just into the upper portion of the calcareous limestone formation.

At the time of our exploration, a groundwater level of 7 feet below ground surface was recorded. This level is likely closely associated with the level of water in the adjacent Lake Eckles and may be expected to vary significantly depending upon rainfall and lake fluctuations.

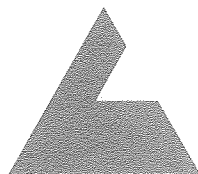
FOUNDATION-RELATED STRUCTURAL INFORMATION

The following is the foundation-related structural information which we have taken from the provided drawings or which have been provided to us verbally by Mr. Fernandez. Should actual structural conditions vary significantly from those described below, we should be informed so that we may have the opportunity to review our recommendations in light of these variations.

The proposed pumping station will be a concrete box structure having overall plan dimensions of approximately 20 by 14 feet supported on a concrete slab. The top of the box section will be at elevation +37 feet and the base of the bottom slab will be at elevation +20 feet. An excavation of approximately 14 to 15 feet below existing ground surface will be required to construct the pumping station. Mr. Fernandez has indicated that the unit load at the base of the structure will be approximately 1800 psf. Considering the unloading resulting from the excavation of soil required to construct the structure, we estimate that the net load at the base of the excavation should be between approximately 700 to 800 psf.

EVALUATION AND RECOMMENDATIONS

The following evaluation of subsurface conditions has been based on the foundation-related structural information discussed above

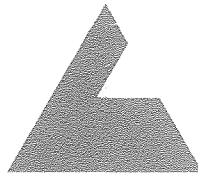


and the information obtained during the exploration. In evaluating the test boring data, we have used correlations previously established between standard penetration resistances and engineering performance characteristics of soils similar to those at your site.

It is our opinion that if subsurface conditions at the location of the proposed pumping station are similar to those encountered in the nearby soil test boring, soil conditions at the site are adequate for support of the proposed pumping station. There are two primary factors which we have considered in this evaluation. The first of these is the fact that the test boring was not drilled at the specific pumping station location. Therefore, our evaluation has been made assuming that subsurface conditions are the same at both locations. It is important that Law Engineering be retained to inspect the soils exposed as the excavation work is in progress. The proposed pumping station is somewhat closer to the lake than the test boring and there is the probability that the thickness of surface fill will be greater at the pumping station location than in the test boring. There is also the possibility that less stable, possibly more organic, soils will be encountered underlying the surface fill. These observations can be made as the excavation is in progress and any variations from the recommendations presented in this report can be addressed at that time. We do not have information which suggests that subsurface conditions between the two locations would be so different as to prevent the successful construction of the pumping station at its intended location.

The second factor which we have considered is the necessity for completion of a substantial dewatering effort to permit construction of the proposed pumping station "in-the-dry". It is our opinion that a system of wellpoints or wells will be required to lower the groundwater level from its elevation at the time of construction, probably around elevation +28 to +30, down to below the under-slab level of +20 feet. This dewatering must be accomplished prior to excavating below the existing groundwater level. We consider it possible, if not probable, that due to the proximity of the pumping station to Lake Eckles, temporary sheeting may have to be driven around that portion of the pumping station which is adjacent to Lake Eckles to permit effective dewatering.

City of Tampa
Tampa, Florida



January 28, 1981
Page 5

We recommend that once the groundwater level has been lowered to a position of at least two feet below the base of the base slab for the pumping station that the excavation be extended down to elevation +19 feet and that one foot of washed coarse limerock gravel be placed to form a stable working mat. The gravel should be compacted with a small manually guided vibratory sled or single-drum vibratory roller. A sump may be placed in the gravel working mat to control seepage which may bypass the dewatering system.

Once the base, walls and possibly the surface slab of the pumping station have been constructed, backfill should be placed. The backfill should be a clean, cohesionless sand which contains less than 10 percent, by weight, of silt or clay-sized soil fines. The backfill should be placed in thin lifts and compacted with light vibratory equipment to a density of at least 92 percent of its Modified Proctor maximum dry density. The Modified Proctor maximum dry density is determined in accordance with the laboratory test procedures of ASTM D 1557. The dewatering system should be maintained in operation until backfill has been placed to a level sufficient to prevent hydrostatic uplift from raising the newly constructed pumping station.

We have appreciated the opportunity of performing geotechnical engineering and testing services on this project. We look forward to providing engineering inspection and field testing services during both the excavation and construction phase of work on this structure. If there are any questions concerning this report or if we may provide further information, please call us.

Very truly yours,

LAW ENGINEERING TESTING COMPANY

JAMES L. STUDER
James L. Studer ADA
Geotechnical Engineer
Registered, Florida - 26878

A. David Alcott
A. David Alcott
Senior Geotechnical Engineer
Registered, Florida - 16779

JLS/ADA/jt

Copies Submitted: 2 - Addressee
1 - Diaz, Seckinger and Associates
Attn: Mr. Jorge Fernandez

KEY TO CLASSIFICATIONS AND SYMBOLS

CORRELATION OF PENETRATION RESISTANCE WITH RELATIVE DENSITY AND CONSISTENCY

	<u>NO. OF BLOWS, N</u>	<u>RELATIVE DENSITY</u>
SAND	0 - 4	VERY LOOSE
	5 - 10	LOOSE
	11 - 20	FIRM
	21 - 30	VERY FIRM
	31 - 50	DENSE
	OVER 50	VERY DENSE
		<u>CONSISTENCY</u>
SILTS AND CLAYS	0 - 1	VERY SOFT
	2 - 4	SOFT
	5 - 8	FIRM
	9 - 15	STIFF
	16 - 30	VERY STIFF
	31 - 50	HARD
	OVER 50	VERY HARD

SYMBOLS



Undisturbed Sample (UD) Recovered

100/2"

- Number of Blows (100) to Drive the Spoon a Number of Inches (2)

AX, BX, NX

- Core Barrel Sizes Which Obtain Cores 1-1/8, 1-5/8 and 2-1/8 Inches in Diameter Respectively

65%

- Percentage (65) of Rock Core Recovered

RQD

- Rock Quality Designation - % of Core Segments 4 or More Inches Long



- Water Table At Least 24 Hours After Drilling



- Water Table One Hour or Less After Drilling



- Loss of Drilling Water

PP

- Pocket Penetrometer Reading in TSF (kg/cm²)

TV

- Torvane Reading in TSF (kg/cm²)

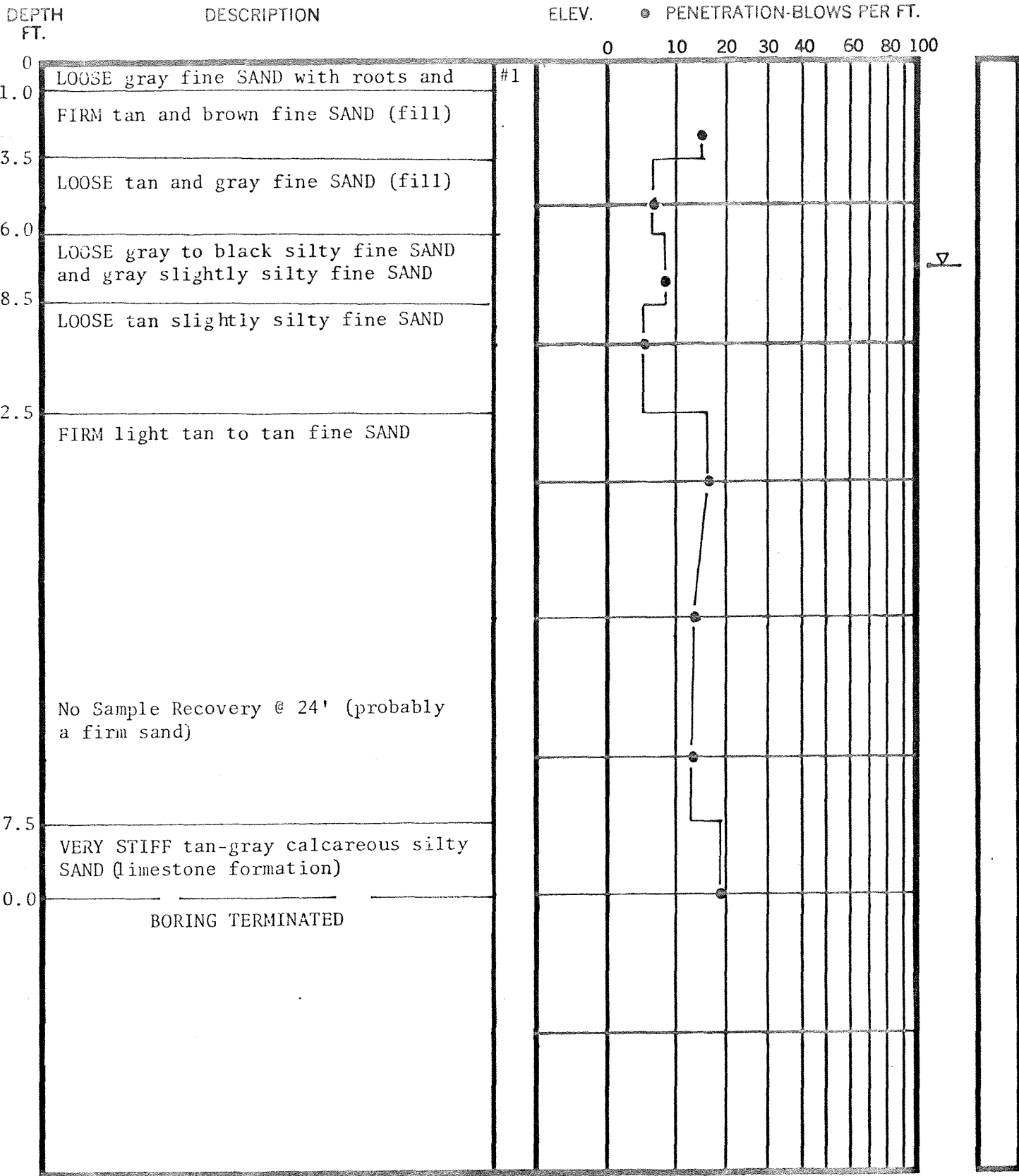
SOIL TEST BORING

A soil test boring provides small soil samples and standard penetration resistances (blow counts) from selected depth intervals. The samples are used for soil classification. Penetration resistances provide a general indication of soil strength and density.

Drilling and standard penetration testing were performed in general accordance with ASTM D 1586-67. The borings were advanced to the desired test depth by a rotary drilling process which utilized a viscous bentonite drilling fluid to flush the cuttings and stabilize the hole. The drill bit was withdrawn and the penetration test was performed with a standard 1.4 inch I.D., 2.0 inch O.D., split-barrel sampler. The test interval varied from 2.5 feet to a maximum of 5.0 feet.


In penetration testing, the sampler was driven with blows of a 140-pound hammer falling 30 inches until either: 1) 18 inches of penetration was achieved, or 2) 50 blows were applied and resulted in less than six inches of penetration. The number of hammer blows required to drive the sampler each six inches was recorded. The first six inches is considered to be a seating drive. The number of blows required to drive the sampler the final foot is designated the "penetration resistance". Where the sampler advanced less than 18 inches, the number of hammer blows applied and the penetration achieved were recorded.


After each penetration test, the split-barrel sample was classified by the driller and a representative portion was sealed in a glass jar. The samples were transported to our laboratory where they were examined by an engineer to verify the field classifications. The boring data are shown as soil classifications and plots of penetration resistances.



BORING AND SAMPLING MEETS ASTM D-1586
CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER
FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

 UNDISTURBED SAMPLE

 C/O ROCK CORE RECOVERY

 WATER TABLE, 24 HR.

 WATER TABLE, TOB

 LOSS OF DRILLING WATER

0.5 hour grout time
1.0 bag cement

TEST BORING RECORD

BORING NO. B-1

DATE DRILLED 12/8/80

JOB NO. T-4035

LAW ENGINEERING TESTING CO.



November 2, 1990

City of Tampa
Department of Sanitary Sewers
City Hall Plaza - 6th Floor East
Tampa, Florida 33602

Attention: Desiree Davis, P.E.

Subject: Monitor Well Installation
Lake Eckels Stormwater Pumping Station
Tampa, Florida
Project No. 90-598

Gentlemen:

As authorized, four monitor wells were installed around the underground fuel storage tank at the referenced site. The approximate location of the wells are shown on the accompanying plan. The following report briefly describes the field test and well installation procedures used and presents the findings.

EXPLORATION PROGRAM

Four auger borings were made with the CME-55 drilling rig at the locations shown on the attached plan. A four inch diameter continuous flight auger was mechanically twisted into the ground to the desired depth. The auger was then withdrawn to permit a continuous examination of the soils penetrated.

FINDINGS

The subsurface data obtained from the field exploration program are presented on the accompanying logs.

MONITOR WELL INSTALLATION

The monitor wells were installed adjacent to the borings. The wells were constructed of 2 inch diameter PVC pipe with the lower 10 foot section slotted. The tip of the wells were set at a depth of approximately $12\frac{1}{2}$ feet. Each well is protected with a manhole-type cover set in a concrete pad and has a locking cap. I have enclosed the keys for the locks. Also attached are copies of the well permit and completion reports submitted to the Southwest Florida Water Management District.

LIMITATIONS

The boring logs represent the subsurface conditions at the specific location at the time of the investigation. The subsurface conditions at other locations may differ, and no warranty as to the subsurface conditions elsewhere is either expressed or implied by the data presented herein. Furthermore, the lines on the boring logs designating the interface between the various strata may only be approximate boundaries when the transition is gradational or could not be detected by the drilling operations.

If there are any questions concerning this project, or if we may be of further assistance, please do not hesitate to call.

Respectfully submitted,

Robin DeRose

Robin DeRose, P.E.

Geotechnical Engineer

CPD
11/5/90

AUGER BORING A-1

<u>Depth</u>	<u>Description</u>	<u>Soil Classification</u>
0' to 2½'	dark brown fine SAND w/trace of organics	SP
2½' to 7'	dark brown fine SAND	SP
7' to 9'	brown fine SAND	SP
9' to 11½'	dark brown fine SAND	SP
11½' to 15'	brown fine SAND	SP
15'	boring terminated	
	groundwater encountered at 3'4"	

AUGER BORING A-2

<u>Depth</u>	<u>Description</u>	<u>Soil Classification</u>
0' to 2½'	brown fine SAND w/trace of shell fragments	SP
2½' to 6'	brown fine SAND	SP
6' to 6½'	dark brown fine SAND w/trace of organics	SP
6½' to 12'	dark brown fine SAND	SP
12' to 15'	brown fine SAND	SP
15'	boring terminated	
	groundwater encountered at 5'4"	

AUGER BORING A-3

<u>Depth</u>	<u>Description</u>	<u>Soil Classification</u>
0' to 6'	dark brown fine SAND	SP
6' to 10½'	dark brown fine SAND w/lenses of brown fine sand	SP
10½' to 20'	brown fine SAND	SP
20'	boring terminated	
	groundwater encountered at 6'8"	

AUGER BORING A-4

<u>Depth</u>	<u>Description</u>	<u>Soil Classification</u>
0' to 1'	gray-brown fine SAND w/trace of shell fragments	SP
1½' to 3½'	dark brown fine SAND	SP
3½' to 5½'	gray-brown fine SAND	SP
5½' to 8'	brown fine SAND	SP
8' to 11'	brown very slightly clayey fine SAND	SP
11' to 16'	brown fine SAND	SP
16' to 18½'	light brown fine SAND	SP
18½' to 20'	light brown slightly clayey fine SAND	SP-SC
20'	boring terminated	
	groundwater encountered at 6'5"	

WELL COMPLETION REPORT

Owner's Name City of Tampa
Permit Number: 5-5940 & 5-5936 thru 5-5938 - 14
X R. F. Buchanan 10/26/90
Water Well Contractor's Signature Completion Date
License No. 9084

**SURFACE CASING, CASING
AND LINER MATERIAL:**

Types	Diam. (In.)	From (Ft.)	To (Ft.)
PVC	2"	0"	2 1/2'
PVC slot SCREEN	2 2"	2 1/2'	12 1/2'
Net Cement: No. of Bags		From (Ft.)	To (Ft.)

IRON: _____ ppm SULFATES: _____ ppm CHLORIDES: _____ ppm
FINISH: Screen: _____ (Ft.) Open Hole: _____ (Ft.)

WELL LOCATION

1/4 NW 1/4 NE 1/4 of Section 14

28
5
18
E
 Township (N-S) Range (E-W)

Latitude

--	--

--	--

--	--

 Deg. Min. Sec.

Longitude

--	--

--	--

--	--

Locate in Section

Locate in Section

Optional
may be
required

DRILL METHOD

[] Rotary [] Cable Tool [] Jet [X] Auger Other _____
 Measured Static Water Level _____ + _____ - _____ Ft.
 Measured Pumping Water Level _____ + _____ - _____ Ft.
 After _____ Hours At _____ G.P.M.
 Measuring Pt. (Describe): _____
 Which is 3' 4" Ft. [] Above [X] Below Land Surface

[illegible]**Driller's Name**

Please complete in black ink or type

WELL COMPLETION REPORT

Owner's Name City of Tampa
 Permit Number: 5-5940 & 5-5936 Trm. 5-5938 14
 x N. Buchanan 10/26/90
 Water Well Contractor's Signature Completion Date
 License No. 9084

**SURFACE CASING, CASING
AND LINER MATERIAL:**

Types	Diam. (In.)	From (Ft.)	To (Ft.)
PVC	2"	0"	2 1/2'
PVC s/o + SCREAN	2"	2 1/2'	12 1/2'
Neat Cement: No. of Bags		From (Ft.)	To (Ft.)

IRON: _____ ppm SULFATES: _____ ppm CHLORIDES: _____ ppm
FINISH: Screen: _____ (Ft.) Open Hole: _____ (Ft.)

WELL LOCATION

1/4 NW 1/4 NE 1/4 of Section 14

28
5
18
E
 Township (N-S) Range (E-W)

Latitude

--	--

Deg.

--	--

Min.

--	--

Sec.

--	--

Longitude

--	--

--	--

--	--

Locate in Section

Optional
may be
required

DRILL METHOD

☒ Rotary ☐ Cable Tool ☐ Jet ☒ Auger Other _____
 Measured Static Water Level _____ + _____ - _____ Ft.
 Measured Pumping Water Level _____ + _____ - _____ Ft.
 After _____ Hours At _____ G.P.M.
 Measuring Pt. (Describe): _____
 Which is 5' 4" Ft. ☐ Above ☒ Below Land Surface

Depth (Ft.)		Examine cuttings at 20 ft. or smaller intervals and at changes. Give color, grain-size and type of material. Note any cavities. Indicate producing zones. Attach additional sheets if necessary.
From	To	
0"	2 1/2'	Br Fi sa w/ 1/4 Sh.
2 1/2'	6'	Br Fi sa.
6'	6' 6"	DK Br Fi sa w/ PEATY Lin
6' 6"	12'	DK Br Fi sa.
12'	15'	Br Fi sa.

Driller's Name



SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT (REGULATORY)

2379 Broad St., Brooksville, Florida 34609-6899
904/796-7211

APPLICATION FOR A PERMIT TO CONSTRUCT A WELL

In compliance with the Rules and Regulations of the Southwest
Florida Water Management District (Regulatory)

RUEUS E. Buchanan		9084	
Drilling Contractor		License Number	
C/O TEST LAB INC			
4619 W. Curtis St		Tampa	33614
Address	Street or Box No.	City	Zip Code

(Please type or print in above space)

PERMIT NO.: 5-5940
5-5936
5-5938 14

STIPULATIONS REQUIRED: (23)

(See Reverse)

DATE: 10-24-90

Requests authorization to construct repair, modify a well for: 4 WELLS
(Circle One)

City of Tampa at Pump House on North Side of Country Club Drive,
APPROX. 350' WEST OF FOREST HILLS DRIVE
(ADDRESS UNKNOWN)
Name of Well Owner Address of Well Location Street or Box No. City Zip Code
1 City Hall Plaza 5N (STORMWATER MANAGEMENT) Tampa 33602

Owners Mailing Address Street or Box No. City Zip Code

TYPE OF EQUIPMENT: <u>Rotary Drill</u>		LOCATION SKETCH (TO CLOSEST MAIN HIGHWAY)	
APPROXIMATE DEPTH: <u>15'</u> DIAMETER: <u>2"</u>			
APPROXIMATE CASSED DEPTH: <u>15'</u> CASING MATERIAL <u>PVC</u>			
SEAL: _____ PURPOSE: <u>Storage Tank Monitor</u>			
LEGAL DESCRIPTION:			
QTR: <u>NW</u> QTR: <u>NE</u> SEC. <u>14</u> TWP. <u>28S</u> RGE. <u>18E</u>			
LOT _____ BLK. _____ UNIT _____ SUBDIVISION _____			
COUNTY <u>Hillsborough</u>			

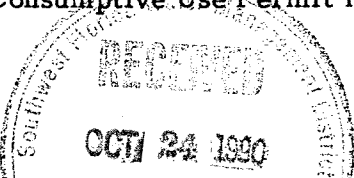
I agree to furnish a Completion Report within 30 days after drilling operations cease and to comply with all the provisions of the Rules and Regulations of the SWFWMD (R) relative to well construction. Driller should supply a copy of the Completion Report to the owner.

I understand if the withdrawal is from a well having an inside diameter of six inches (6") or more or if the withdrawal during any single day is to exceed one-million (1,000,000) gallons or if the average annual daily withdrawal is to exceed one hundred thousand (100,000) gallons average per day on an annual basis, then a Consumptive Use Permit must be approved prior to the Construction Permit being authorized.

Signature of Drilling Contractor R. E. Buchanan

Signature of Owner

or His Authorized Agent R. E. Buchanan



DO NOT WRITE BELOW THIS LINE - FOR OFFICIAL USE ONLY

GRANTED BY: [Signature] DATE: 10/24/90

TITLE: Field Service Permit

THIS PERMIT NOT VALID UNTIL PROPERLY SIGNED BY AN AUTHORIZED OFFICER OF SWFWMD(R). IT SHALL BE KEPT AT THE WELL SITE DURING ALL DRILLING OPERATIONS.

CUP NO. _____

SOUTHWEST FLORIDA WATER MANAGEMENT DISTRICT

TAMPA SERVICE OFFICE

STIPULATION # 23 - TEST/MONITOR WELL (Gasoline Monitor)

- A. This well is to be used as a test/monitor well. If it is to be converted into a production well, an additional permit shall be obtained.
- B. There shall be no injection of fluids into the monitor well without prior written approval from the District. This includes, but is not limited to treated ground water, or the introduction of microbes for In-Situ aquifer restoration.
- C. The well shall be constructed in such a manner to prevent the unauthorized interchange of water between different water bearing zones (i.e., breaching of confining beds, clays or hardpan intervals) as per Chapter 17-532.500 (2)(C), Florida Administrative Code (F.A.C.). This includes, but is not limited to the screened or open hole interval and the annular space.
- D. Prior written approval from the District shall be required if the monitor well will be pumped for use in hydrodynamic control and/or contaminant plume management.
- E. All monitor wells constructed at facilities which store petroleum products in underground tanks, shall adhere to construction standards set forth in the Department of Environmental Regulation Chapter 17-61.05(5), F.A.C., Stationary Tanks.
- F. In the event the well needs to be abandoned, an abandonment permit shall be obtained prior to commencing with abandonment operations.
- G. An observer from our Field Services Office is required on all abandonments to ensure compliance with Chapter 17-532, F.A.C. Please contact Field Services Coordinator Tom Nolan in our Tampa Field Services Office at (813) 985-7481 for additional information.

Approved by: Dayle Eppley

Permit # 5-5940 &

Date _____

5-5936 thru

5-5938

Stip#23--TPA
(7/90)



COPY TO OWNER



WATER LEVEL
11/14/80 - EL. 29.4

SHADED AREA TO
BE ABANDONED N.I.C.

EXISTING P
HOUSE AND
STRUCTURE

COUNTRY

