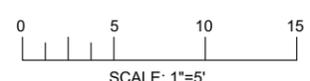


- NOTES:**
- FOR STANDARD PLANS OF WELL VAULT AND METER VAULT, SEE DWG S-02-01.
  - FOR MECHANICAL PLANS OF WELL VAULT AND METER VAULT, SEE DWG M-02-01.
  - FOR PLC PANEL, SEE DWG E-02-01.

**FW-1 WELL, METER AND VALVE VAULT SITE PLAN**  
1" = 5'



DRAFT  
NOT FOR  
CONSTRUCTION



NO.		DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1		9/8/14	PRE-FINAL (90%) DESIGN													
0		4/5/13	INTERMEDIATE (60%) DESIGN													

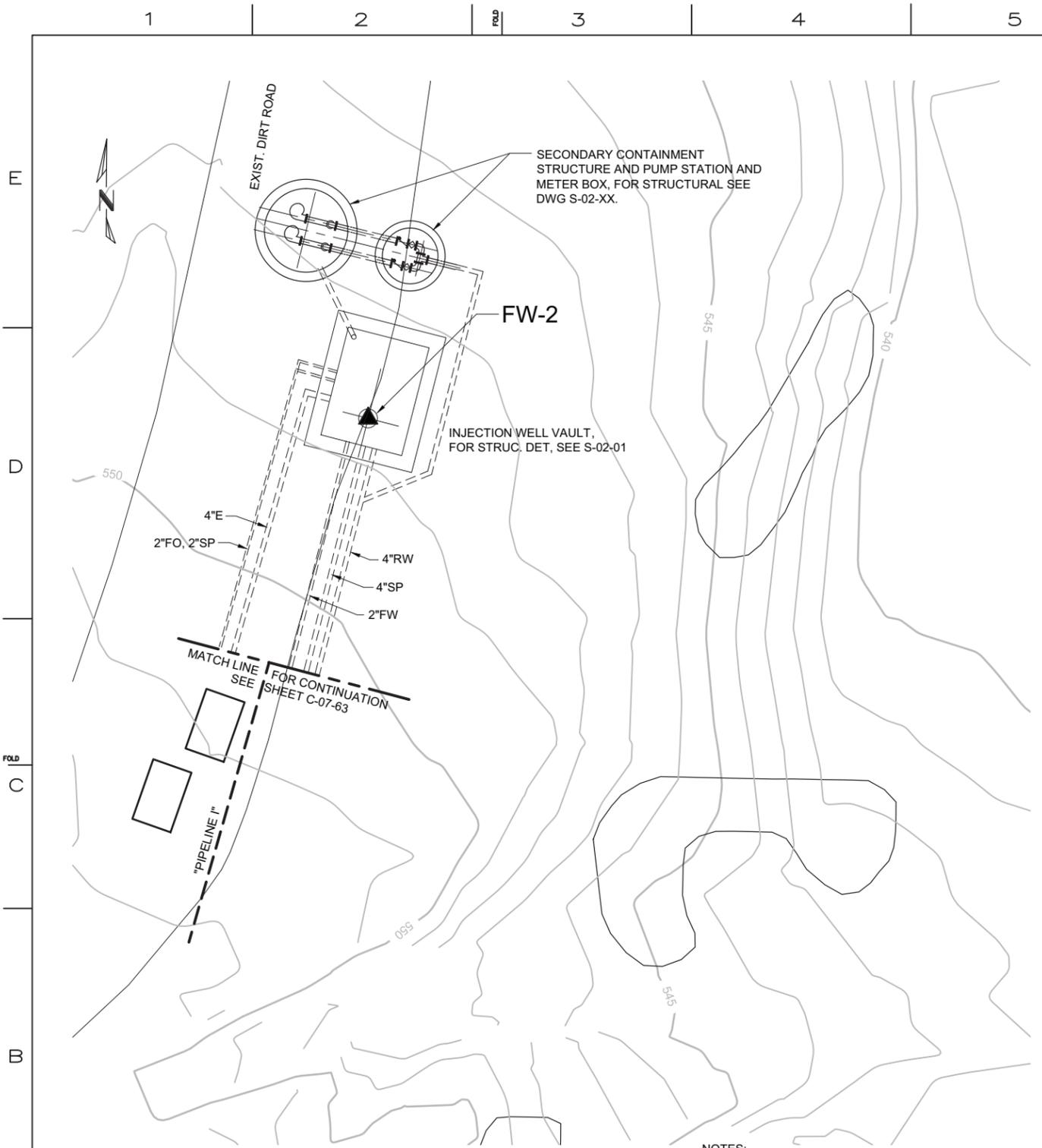
APPROVED BY	SO
	SUPV
	VMB
	DSGN
	PT
	DWN
	PH
	CHKD
	VMB
	OK
	VMB
DATE	09/08/14
SCALE	1" = 5'-0"

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESHWATER INJECTION WELL  
FW-1 - SITE PLAN**  
GAS TRANSMISSION & DISTRIBUTION  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA

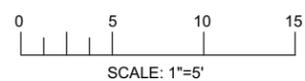
MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
C-02-01	1

PLOT DATE: \$PLOTDATE PLOT TIME: \$PLOTTIME FILENAME: E2-C-XXX-0201AD.DWG

C:\Users\peter.huband\CAD\Topo\MEP-C-XXX-0201.DWG, 22/09/14, 8/18/2014, 8:35:59 AM

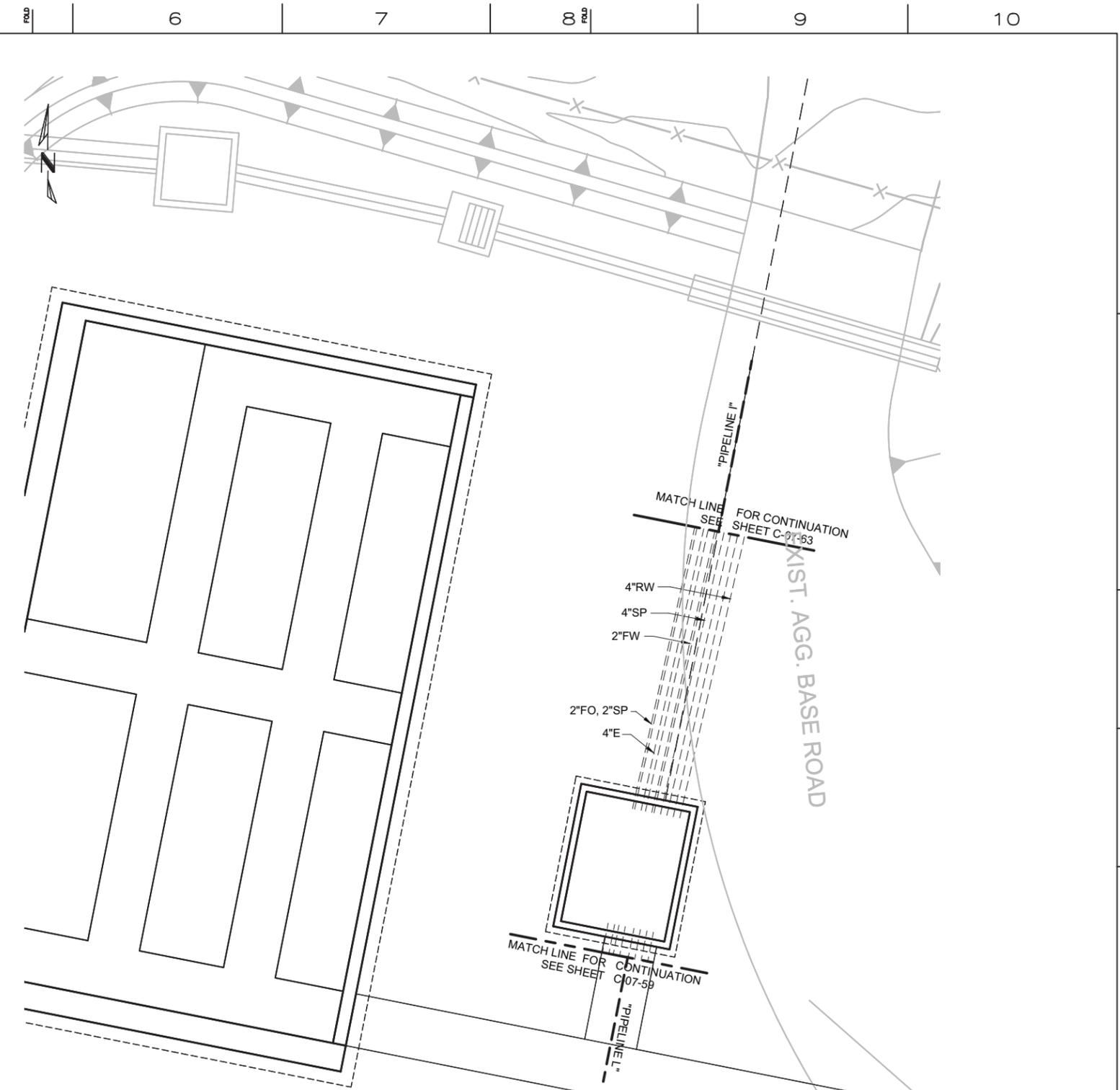


**FW-2 WELL VAULT SITE PLAN**  
1" = 5'



**NOTES:**

1. FOR STANDARD PLANS OF WELL VAULT AND METER VAULT, SEE DWG S-02-01.
2. FOR MECHANICAL PLANS OF WELL VAULT AND METER VAULT, SEE DWG M-02-01.
3. FOR PLC PANEL, SEE DWG E-02-01.
4. FOR STRUCTURAL PLANS OF SECONDARY CONTAINMENT STRUCTURE AND VALVE BOX, SEE DWG S-02-XX
5. FOR MECHANICAL PLANS OF SECONDARY CONTAINMENT STRUCTURE, SEE DWG M-02-XX.



**FW-2 METER AND VALVE VAULT SITE PLAN**  
1" = 5'

DRAFT  
NOT FOR  
CONSTRUCTION

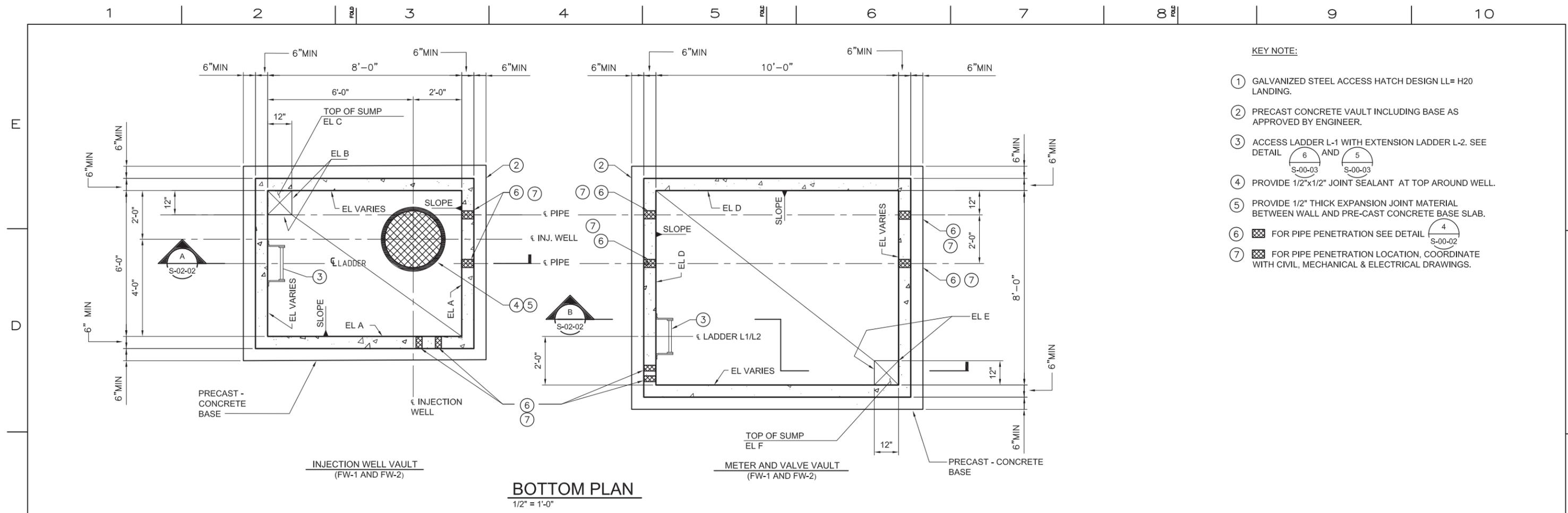


NO.		DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
	1	9/8/14	PRE-FINAL (90%) DESIGN													
	0	4/5/13	INTERMEDIATE (60%) DESIGN													

APPROVED BY	SO
	SUPV
	VMB
	DSGN
	PT
	DWN
	PH
	CHKD
	VMB
	OK
	VMB
DATE	09/08/14
SCALE	1" = 5'-0"

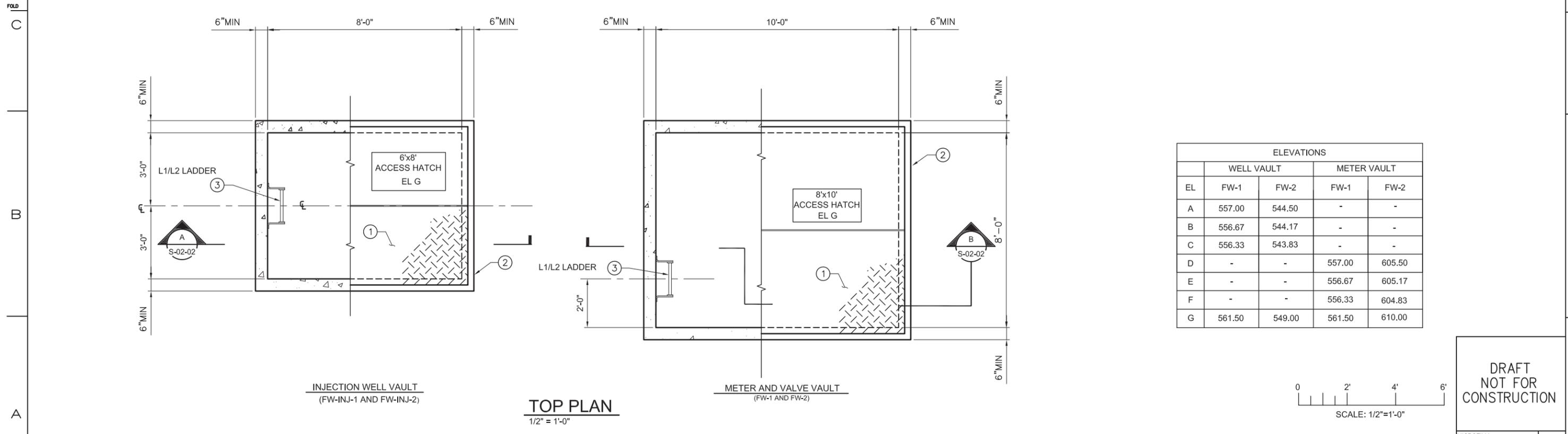
TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESHWATER INJECTION WELL FW-2 - SITE PLAN**  
GAS TRANSMISSION & DISTRIBUTION  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA

MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
C-02-02	1



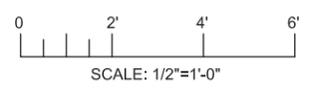
**BOTTOM PLAN**  
1/2" = 1'-0"

- KEY NOTE:**
- ① GALVANIZED STEEL ACCESS HATCH DESIGN LL= H20 LANDING.
  - ② PRECAST CONCRETE VAULT INCLUDING BASE AS APPROVED BY ENGINEER.
  - ③ ACCESS LADDER L-1 WITH EXTENSION LADDER L-2. SEE DETAIL S-00-03 AND S-00-05
  - ④ PROVIDE 1/2"x1/2" JOINT SEALANT AT TOP AROUND WELL.
  - ⑤ PROVIDE 1/2" THICK EXPANSION JOINT MATERIAL BETWEEN WALL AND PRE-CAST CONCRETE BASE SLAB.
  - ⑥ [Hatched Pattern] FOR PIPE PENETRATION SEE DETAIL S-00-02
  - ⑦ [Cross-hatched Pattern] FOR PIPE PENETRATION LOCATION, COORDINATE WITH CIVIL, MECHANICAL & ELECTRICAL DRAWINGS.



**TOP PLAN**  
1/2" = 1'-0"

ELEVATIONS				
EL	WELL VAULT		METER VAULT	
	FW-1	FW-2	FW-1	FW-2
A	557.00	544.50	-	-
B	556.67	544.17	-	-
C	556.33	543.83	-	-
D	-	-	557.00	605.50
E	-	-	556.67	605.17
F	-	-	556.33	604.83
G	561.50	549.00	561.50	610.00



**DRAFT  
NOT FOR  
CONSTRUCTION**



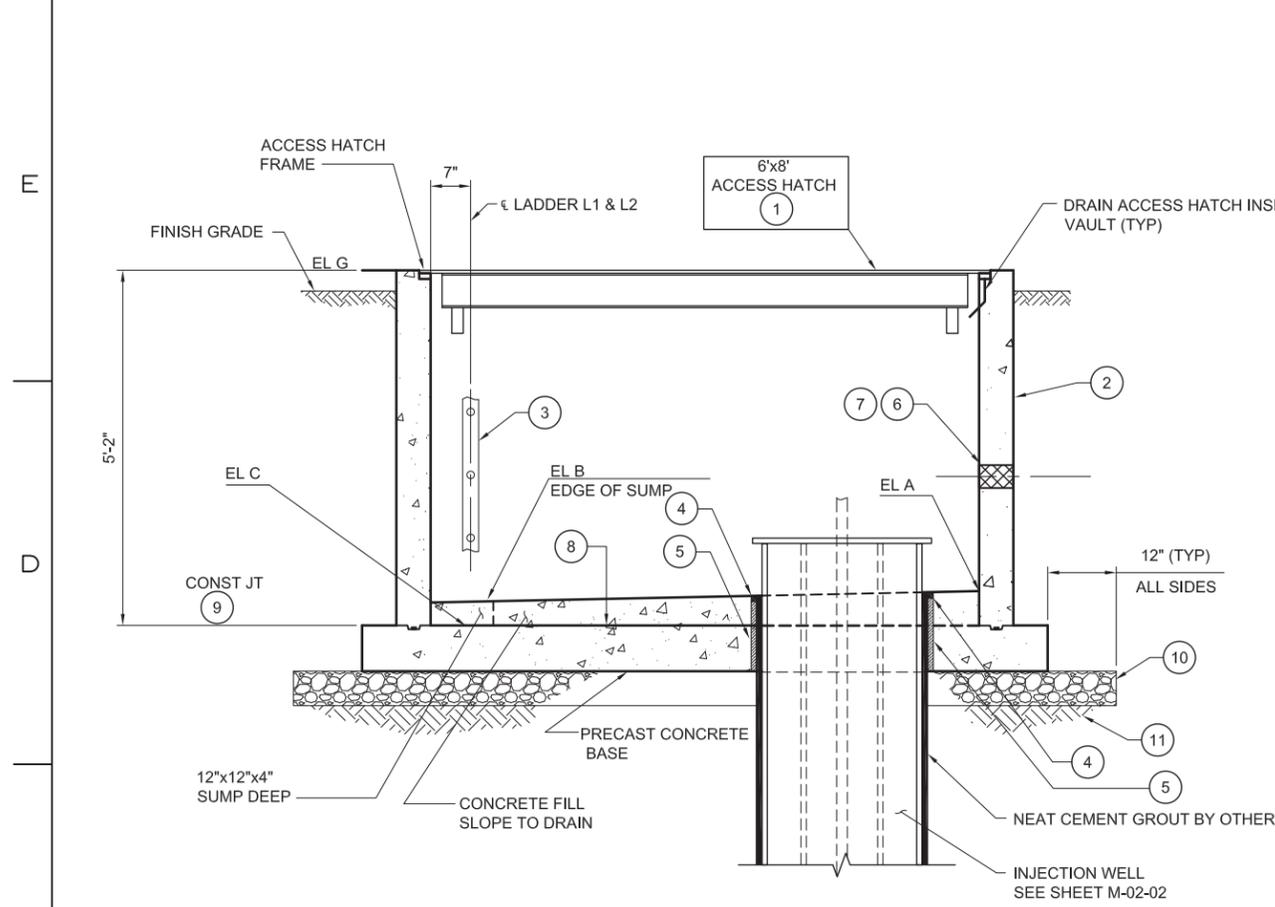
NO.		DATE		DESCRIPTION		GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	09/08/14			PRE-FINAL (90%) DESIGN			MD	KJ	VMB	VMB
0	04/05/13			INTERMEDIATE (60%) DESIGN			MD	KJ	VMB	VMB

APPROVED BY	SO
	SUPV
	VMB
	DSGN
	KDD
	DWN
	MD
	CHKD
	KJ
	OK
	VMB
	VMB
DATE	6/30/14
SCALE	1/2"=1'-0"

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**INJECTION WELL  
 METER & VALVE VAULT  
 TOP & BOTTOM PLANS**  
 GAS TRANSMISSION & DISTRIBUTION  
 PACIFIC GAS AND ELECTRIC COMPANY  
 SAN FRANCISCO, CALIFORNIA

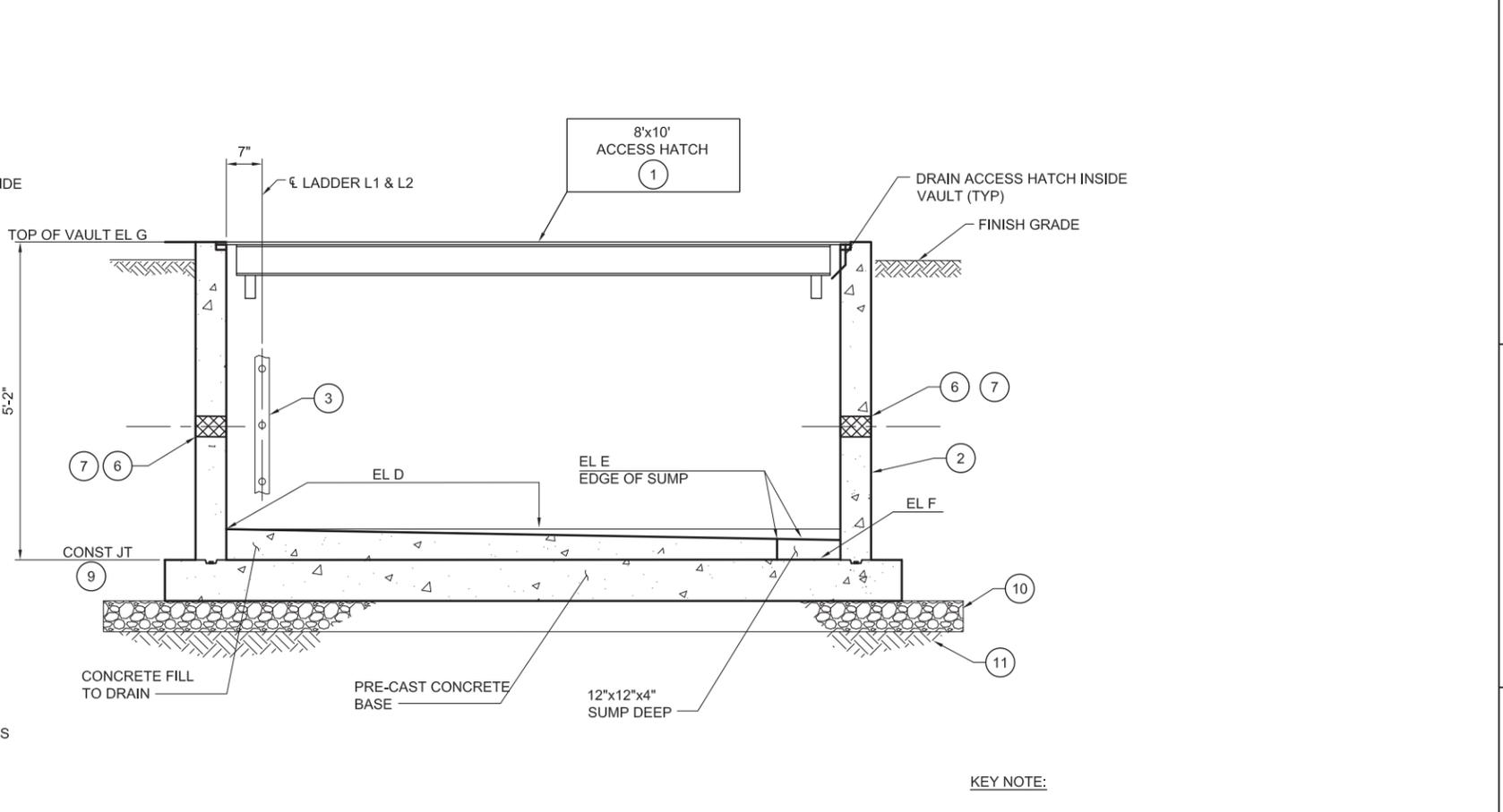
MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
S-02-01	1

PLOT DATE: \$PLOTDATE PLOT TIME: \$PLOTTIME FILENAME: E2-S-XXX-0201AD.dwg



**INJECTION WELL VAULT**  
(FW-1 AND FW-2)

**A SECTION**  
3/4" = 1'-0"  
S-02-01



**METER AND VALVE VAULT**  
(FW-1 AND FW-2)

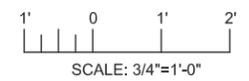
**B SECTION**  
3/4" = 1'-0"  
S-02-01

**NOTES:**

1. FOR ELEVATIONS, SEE SHEET S-02-01.

2. FOR PIPING LAYOUT AND SUPPORTS, SEE SHEET M-02-01.

- KEY NOTE:**
- ① GALVANIZED STEEL ACCESS HATCH DESIGN LL= H20 LOADING
  - ② PRECAST CONCRETE VAULT INCLUDING BASE AS APPROVED BY ENGINEER.
  - ③ ACCESS LADDER L-1 WITH EXTENSION LADDER L-2. SEE DETAIL ⑥ AND ⑤
  - ④ PROVIDE 1/2"x1/2" JOINT SEALANT AT TOP AROUND WELL.
  - ⑤ PROVIDE 1/2" THICK EXPANSION JOINT MATERIAL BETWEEN WALL AND PRE-CAST CONCRETE BASE SLAB.
  - ⑥ [Symbol] FOR PIPE PENETRATION SEE DETAIL ④
  - ⑦ [Symbol] FOR PIPE PENETRATION LOCATION, COORDINATE WITH CIVIL, MECHANICAL & ELECTRICAL DRAWINGS.
  - ⑧ ROUGHEN PRECAST CONCRETE BASE SURFACE AND APPLY BONDING AGENT PRIOR TO PLACING CONCRETE FILL.
  - ⑨ WALL HORIZONTAL KEYED CONSTRUCTION JOINT W/PREFORMED PLASTIC ADHESIVE WATERSTOP,
  - ⑩ 6" CRUSHED DRAIN ROCK.
  - ⑪ STRUCTURAL FILL, 95% COMPACTION (MIN.)



**DRAFT NOT FOR CONSTRUCTION**



NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	09/08/14	PRE-FINAL (90%) DESIGN													
0	04/05/13	INTERMEDIATE (60%) DESIGN													

APPROVED BY	SO
	SUPV
	VMB
	DSGN
	KDD
	DWN
	MD
	CHKD
	VMB
	OK PT
	DATE
	6/30/14
	SCALE
	3/4"=1'-0"

TOPOCK GROUNDWATER REMEDIATION PROJECT

**INJECTION WELL METER & VALVE VAULT SECTIONS**

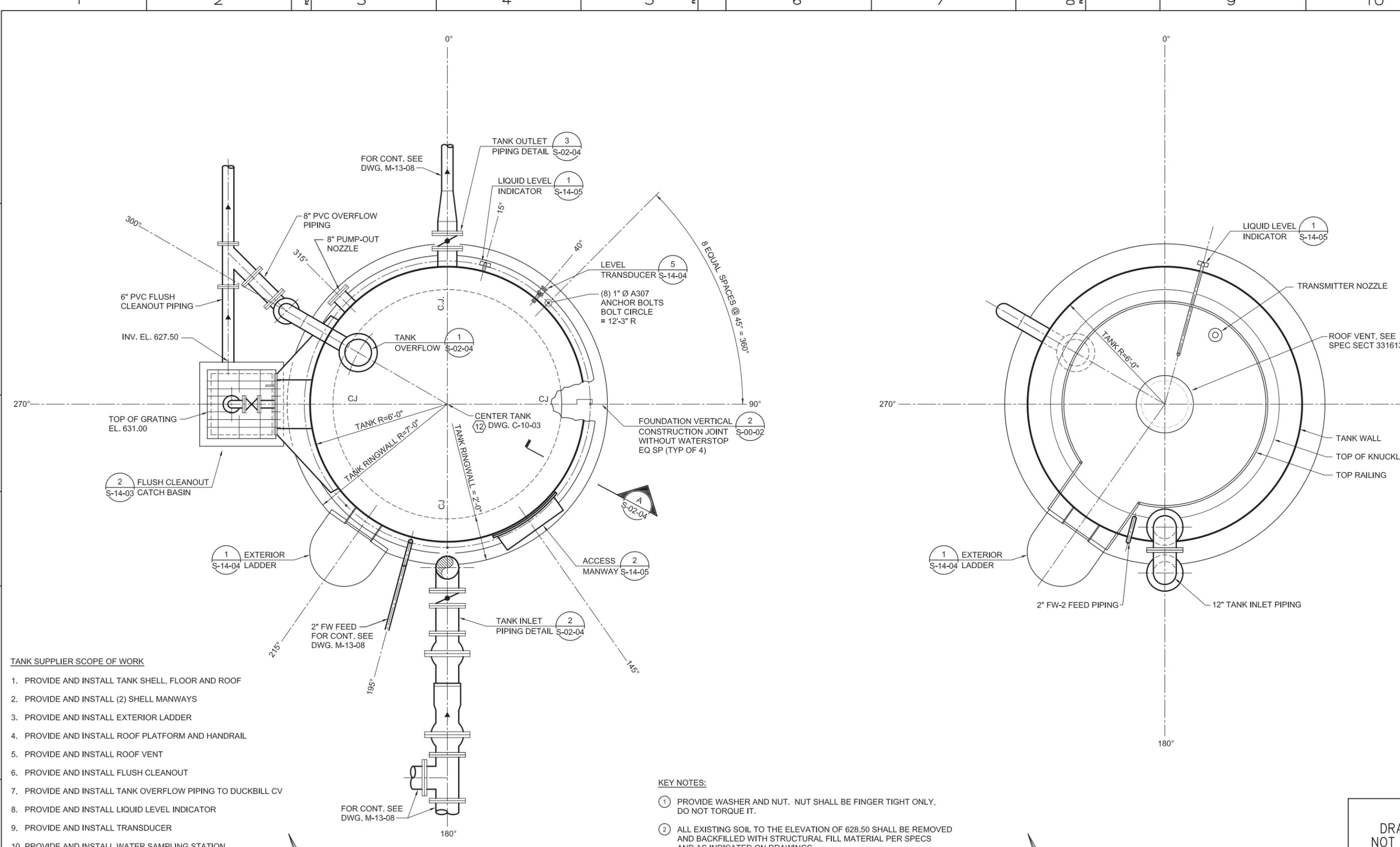
GAS TRANSMISSION & DISTRIBUTION

PACIFIC GAS AND ELECTRIC COMPANY

SAN FRANCISCO, CALIFORNIA

MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
S-02-02	1

E  
D  
C  
B  
A



- TANK SUPPLIER SCOPE OF WORK**
1. PROVIDE AND INSTALL TANK SHELL, FLOOR AND ROOF
  2. PROVIDE AND INSTALL (2) SHELL MANWAYS
  3. PROVIDE AND INSTALL EXTERIOR LADDER
  4. PROVIDE AND INSTALL ROOF PLATFORM AND HANDRAIL
  5. PROVIDE AND INSTALL ROOF VENT
  6. PROVIDE AND INSTALL FLUSH CLEANOUT
  7. PROVIDE AND INSTALL TANK OVERFLOW PIPING TO DUCKBILL CV
  8. PROVIDE AND INSTALL LIQUID LEVEL INDICATOR
  9. PROVIDE AND INSTALL TRANSDUCER
  10. PROVIDE AND INSTALL WATER SAMPLING STATION
  11. PROVIDE AND INSTALL PAINTING AND COATING SYSTEM FOR TANK
  12. PROVIDE AND INSTALL CATHODIC PROTECTION SYSTEM

- KEY NOTES:**
1. PROVIDE WASHER AND NUT. NUT SHALL BE FINGER TIGHT ONLY, DO NOT TORQUE IT.
  2. ALL EXISTING SOIL TO THE ELEVATION OF 628.50 SHALL BE REMOVED AND BACKFILLED WITH STRUCTURAL FILL MATERIAL PER SPECS AND AS INDICATED ON DRAWINGS.
  3. FOR TANK LOCATION AND EQUIPMENT PAD, SEE DWG. C-10-04.

**1 TANK BOTTOM PLAN**  
1/2" = 1'-0"  
C-10-04

**2 TANK TOP PLAN**  
1/2" = 1'-0"  
C-10-04

**DRAFT NOT FOR CONSTRUCTION**



NO.		DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
		0	9/8/14								PRE-FINAL (90%) DESIGN					

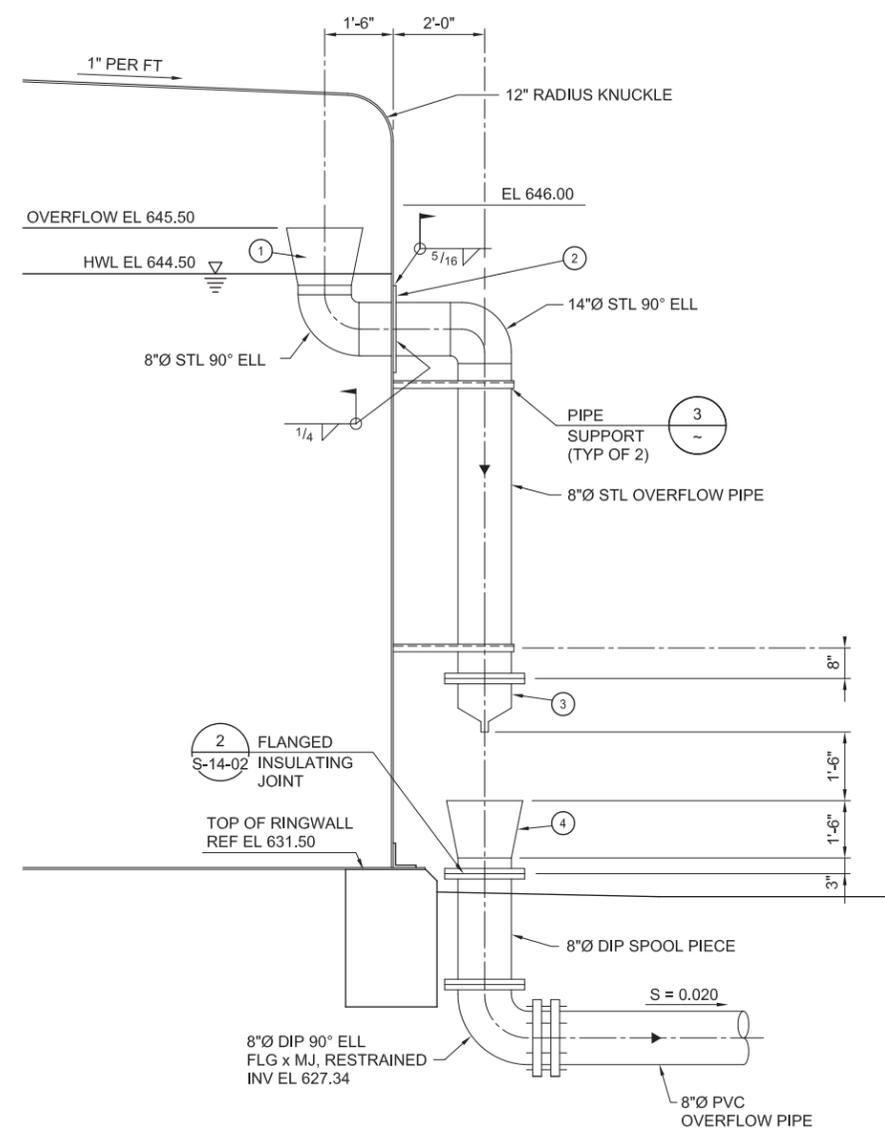
APPROVED BY	SO
	VMB
	KDD
	WTH
	KJ
	VMB
	VMB
DATE	9/8/14
SCALE	AS SHOWN

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**REMEDY FRESHWATER STORAGE TANK**  
**MECHANICAL PLAN AND DETAILS**  
 GAS TRANSMISSION & DISTRIBUTION  
**PACIFIC GAS AND ELECTRIC COMPANY**  
 SAN FRANCISCO, CALIFORNIA

MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
S-02-03	REV 0

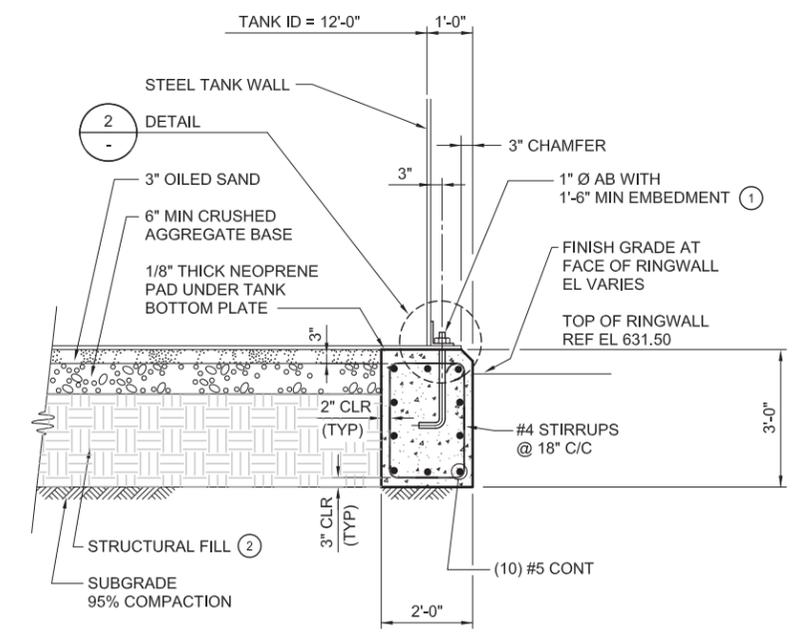
FILENAME: E2-S-XXX-0203.dwg PLOT TIME: \$PLOTTIME

E  
D  
C  
B  
A

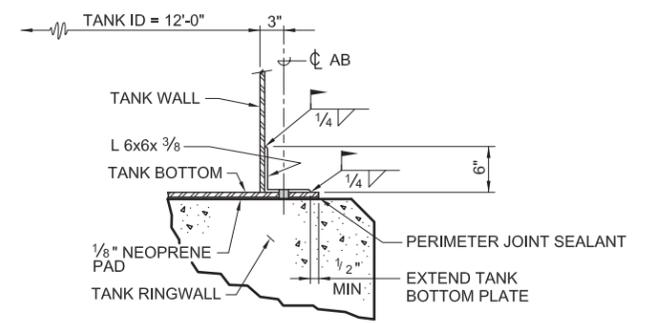


**OVERFLOW PIPING**  
**1** DETAIL  
1/2" = 1'-0"  
S-02-03

- KEY NOTES:**
- ① 20" x 8" STEEL CONE, 3/8" WALL
  - ② 3/8" MIN THK STL PLATE, 24" OD
  - ③ ONYX VALVE CO 8" FLANGED "DUCKBILL" CHECK VALVE, SERIES DBCP
  - ④ 20" x 8" STEEL CONE, 3/8" WALL, EPOXY COATED WITH SS 316 BIRDSCREEN ON WIDE END (TOP)
- NOTES:**
- 1. DIMENSIONS, WELDING, AND DETAILS NOT SHOWN SHALL BE AS PER TANK MANUFACTURER'S APPROVED SUBMITTALS.



**A** SECTION  
1/2" = 1'-0"  
S-02-03



**2** DETAIL  
1" = 1'-0"

DRAFT  
NOT FOR  
CONSTRUCTION



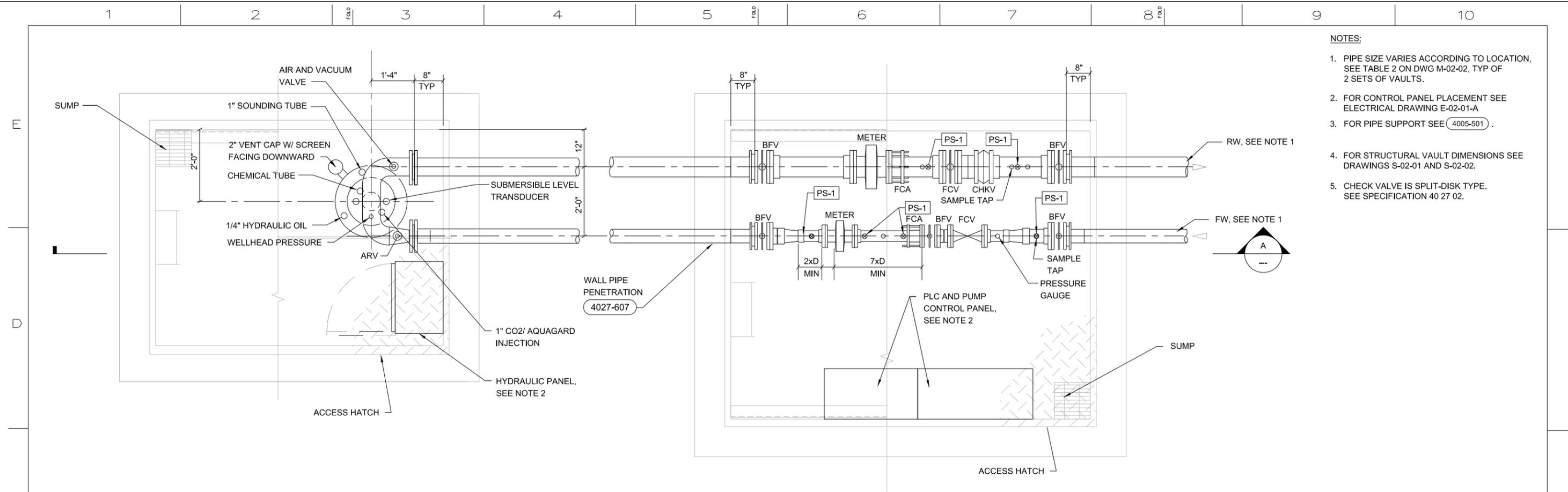
NO.		DATE		DESCRIPTION		GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.		DATE		DESCRIPTION		GM/SPEC	DWN	CHKD	SUPV	APVD BY
		0		9/8/14									PRE-FINAL (90%) DESIGN			WTH	KJ	VMB	VMB		
REVISIONS																					

APPROVED BY	SO
	SUPV VMB
	DSGN KDD
	DWN WTH
	CHKD KJ
	OK VMB
DATE	9/8/14
SCALES	AS SHOWN

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**REMEDY FRESH WATER STORAGE TANK SECTIONS AND DETAILS**  
GAS TRANSMISSION & DISTRIBUTION  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA

MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
S-02-04	REV 0

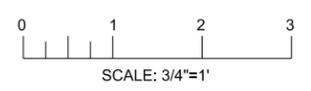
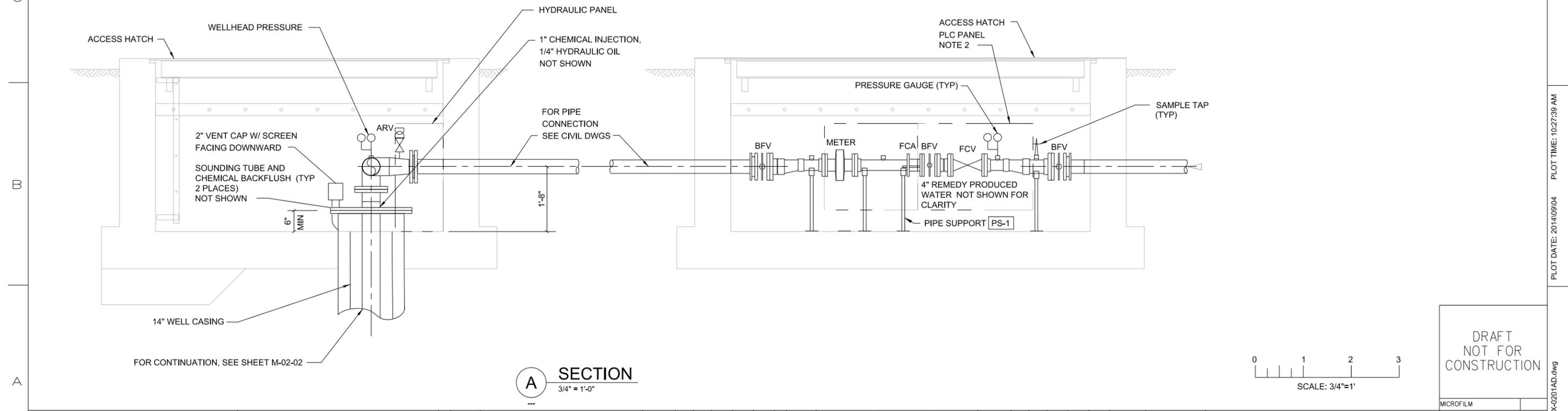
PLOT DATE: \$PLOTDATE PLOT TIME: \$PLOTTIME FILENAME: E2-S-XXX-0204.dwg



- NOTES:**
1. PIPE SIZE VARIES ACCORDING TO LOCATION, SEE TABLE 2 ON DWG M-02-02, TYP OF 2 SETS OF VAULTS.
  2. FOR CONTROL PANEL PLACEMENT SEE ELECTRICAL DRAWING E-02-01-A
  3. FOR PIPE SUPPORT SEE (4005-501) .
  4. FOR STRUCTURAL VAULT DIMENSIONS SEE DRAWINGS S-02-01 AND S-02-02.
  5. CHECK VALVE IS SPLIT-DISK TYPE. SEE SPECIFICATION 40 27 02.

**WELL VAULT PLAN**  
NOTE 1

**METER VAULT PLAN**  
NOTE 1



DRAFT  
NOT FOR  
CONSTRUCTION

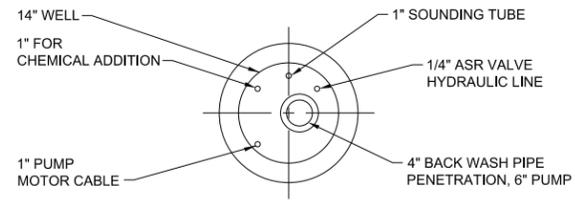


NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
0	11/2011	PRELIMINARY (30%) DESIGN													
1	04/2013	INTERMEDIATE (60%) DESIGN													
2	09/2014	PRE-FINAL (90%) DESIGN													

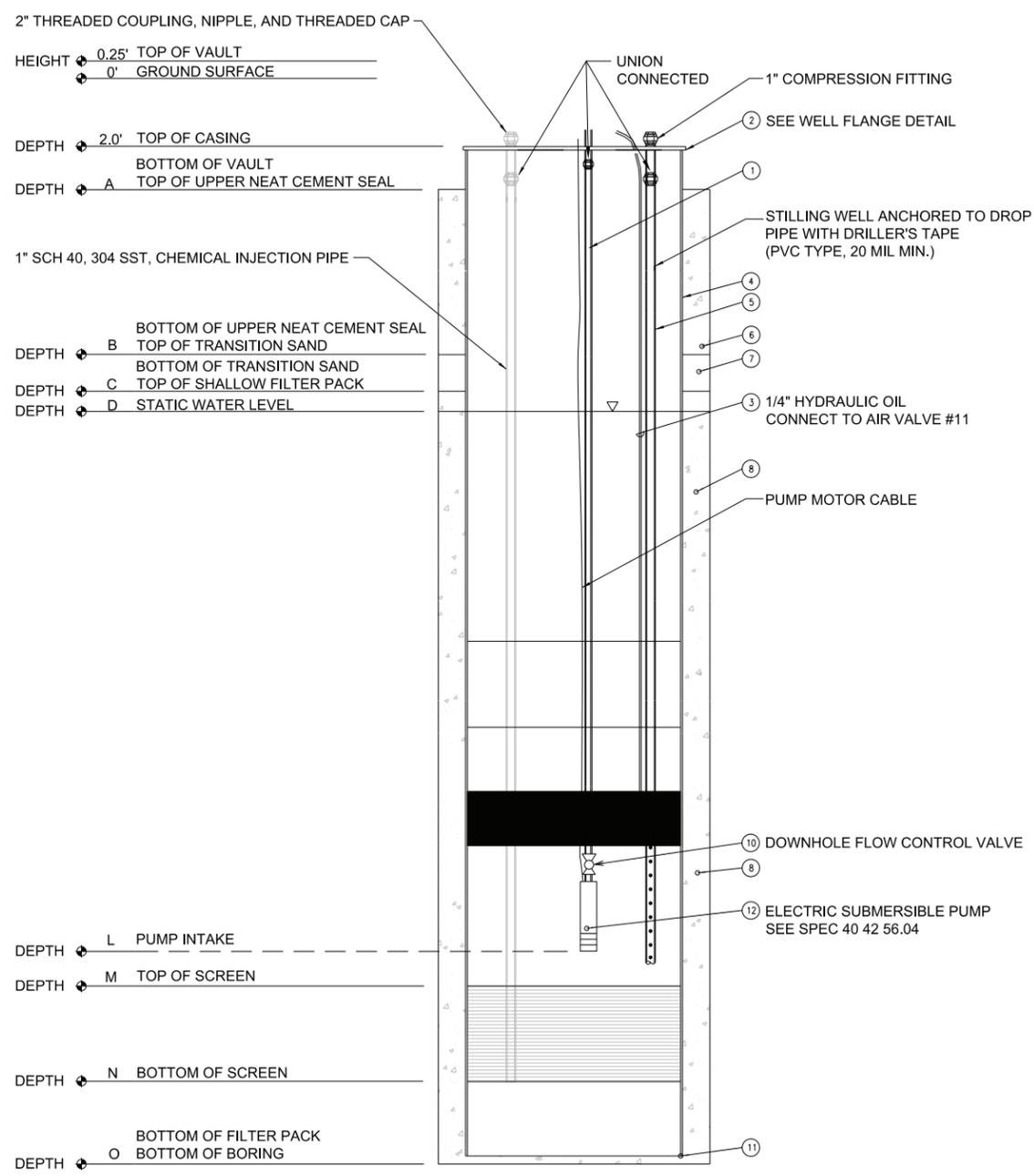
TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESHWATER INJECTION WELL  
AND METER VAULT  
PLANS AND SECTIONS**  
GAS TRANSMISSION & DISTRIBUTION  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA

MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO. of SHEETS	M-02-01
REV	

PLOT DATE: 2014/09/04 PLOT TIME: 10:27:39 AM FILENAME: CH-M-XXX-0201AD.dwg



**WELL FLANGE DETAIL**  
NTS



**FRESH WATER INJECTION WELL WITH BACKWASH PUMP**  
NTS

NOTES:  
1. FOR DISTANCE BETWEEN VAULTS, SEE TABLE 1 FOR CIVIL DRAWING REFERENCE.

**TABLE 1**

PIPE SIZES/MOC/CIVIL DRAWING REFERENCE								
	FW INTO METER VAULT	FW INSIDE METER VAULT	FW OUT OF METER VAULT/INTO WELL VAULT	FW INSIDE WELL VAULT	RW OUT OF WELL VAULT/INTO METER VAULT	RW IN METER VAULT	RW OUT OF METER VAULT	REFERENCE TO CIVIL SITE PLAN
MOC	HDPE	CPVC	HDPE	CPVC	DOUBLE CONTAINED HDPE	CPVC	DOUBLE CONTAINED HDPE	
FW-001	4"	4"	4"	4"	6" IN 10"	6"	6" IN 10"	C-02-03
FW-002	2"	2"	2"	2"	4" IN 8"	4"	4" IN 8"	C-02-04

NOTE: TWO VAULTS ARE REPRESENTED BY THIS TABLE

RW (REMEDY WATER) PIPE IS DOUBLE CONTAINED LEAVING THE VAULTS

ALL HDPE PIPING IS STANDARD DIMENSION RATIO - SDR-11

ALL CPVC PIPING IS SCHEDULE 80

1	4" DROP PIPE
2	CUSTOM TAPPED WELL FLANGE
3	1/4" DIAMETER HYDRAULIC OIL TO VALVE
4	WELL CASING (316L SS)
5	1" PVC TUBING (STILLING WELL WITH PRESSURE TRANSDUCER)
6	ANNULAR SPACE, NEAT CEMENT GROUT W/UP TO 6% BENTONITE
7	ANNULAR SPACE, TRANSITION SAND (SIZE TBD)
8	ANNULAR SPACE, FILTER PACK (TYPE TBD)
9	WELL SCREEN (316L SS, WIRE-WOUND)
10	DOWNHOLE FLOW CONTROL
11	SUMP
12	ELECTRIC SUBMERSIBLE WELL PUMP

NOTES:

- ALL DEPTH INTERVALS 'A' THRU 'K' ARE IN FEET BELOW GROUND SURFACE.
- ALL COORDINATES BASED ON NAD83, CA ZONE V.
- ALL WELL SEALS ARE 100% NEAT CEMENT WITH UP TO 6% BENTONITE.
- ALL ABOVE-GRADE PIPING AND INSTRUMENTATION INSTALLED IN ACCORDANCE WITH THE P&ID AND THE WELLHEAD MECHANICAL LAYOUT.
- DROP PIPE IS SCH 40 ASTM A53 GRADE B OR API 5CT J55 WITH NPT COUPLINGS.
- FW-1 DROP PIPE SIZE IS 4", PUMP PIPE CONNECTION IS 4", AND FLOW CONTROL VALVE IS 4". FW-2 DROP PIPE SIZE IS 4", PUMP PIPE CONNECTION IS 3", AND FLOW CONTROL VALVE IS 4". COORDINATE WITH APPROVED SHOP DRAWINGS AND FLOW CONTROL VALVE MANUFACTURER'S INSTRUCTIONS.



NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
0	11/2011	PRELIMINARY (30%) DESIGN													
1	09/2012	INTERMEDIATE (60%) DESIGN													
2	09/2014	PRE-FINAL (90%) DESIGN													

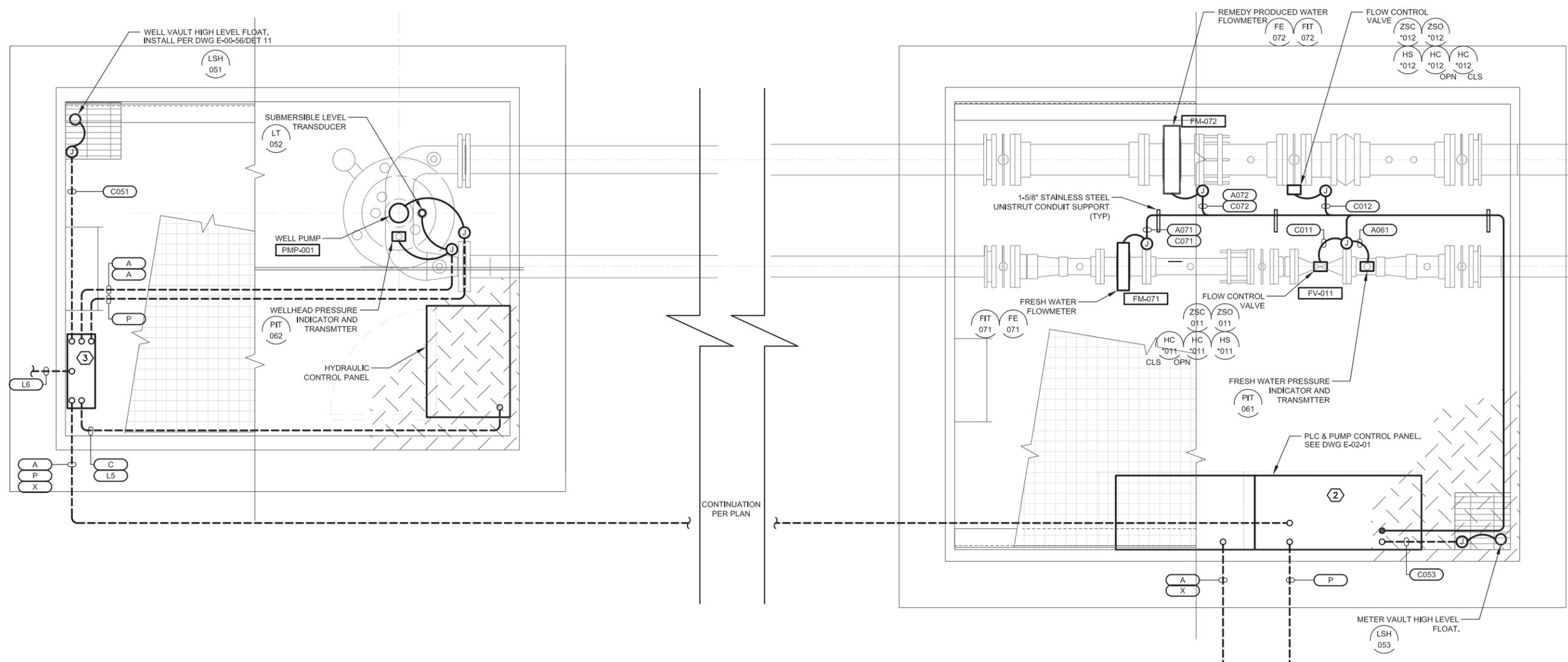
APPROVED BY	DATE	SCALE
SO		
SUPV		
DSGN		
DWN		
CHKD		
OK		
JP		

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESH WATER INJECTION WELL CONSTRUCTION DETAILS**  
GAS TRANSMISSION & DISTRIBUTION  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA

DRAFT NOT FOR CONSTRUCTION

MICROFILM
BILL OF MATL
DWG LIST
SUPSDS
SUPSD BY
SHEET NO. of SHEETS
M-02-02
REV

FILENAME: CH-M-XXX-0202AD.dwg PLOT TIME: 10:04:31 AM



TYPICAL WELL AND METER VAULTS ELECTRICAL PLAN ①

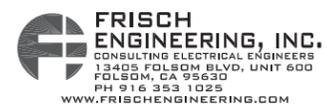


**ELECTRICAL PLAN NOTES:**

- SEE ELECTRICAL PLAN NOTES ON DRAWING E-00-02.

**DRAWING REFERENCED NOTES:**

- DRAWING TYPICAL FOR EQUIPMENT REQUIREMENTS AND LAYOUT WITHIN THE VAULTS. VAULT ORIENTATIONS ARE SITE SPECIFIC. SEE CIVIL DRAWINGS AND ELECTRICAL SITE PLANS FOR ORIENTATION.
- SEE DRAWINGS E-01-08, E-01-09, E-01-10 & E-01-11 FOR IRL-4 PLC & PUMP CONTROL PANEL.
- 16"H X 14"W X 6"D, NEMA 4X STAINLESS STEEL JUNCTION BOX. JUNCTION BOX SHALL BE HOFFMAN CHNFSS OR EQUAL.

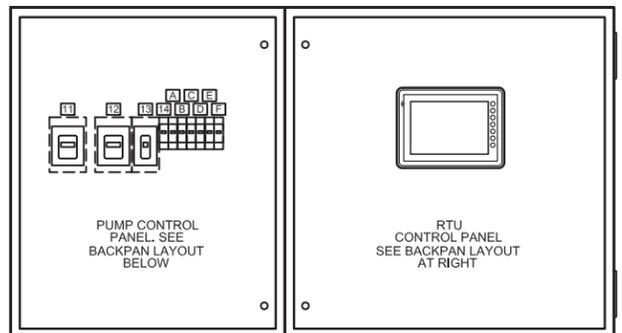


NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN					MBY		TPF						
0	4/5/13	INTERMEDIATE (60%) DESIGN					MBY		TPF						

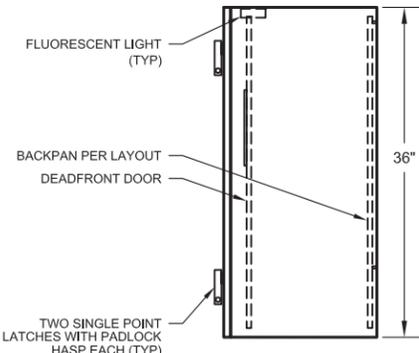
APPROVED BY	SO
TPF	SUPV TPF
	DSGN MBY
	DWN MBY, NC
	CHKD MF
	OK TPF
	DATE
	SCALES
	N/A

TOPOCK GROUNDWATER REMEDIATION PROJECT  
TYPICAL INJECTION WELL  
WELL AND METER VAULTS  
ELECTRICAL PLAN (TYPICAL)  
GAS TRANSMISSION & DISTRIBUTION  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA

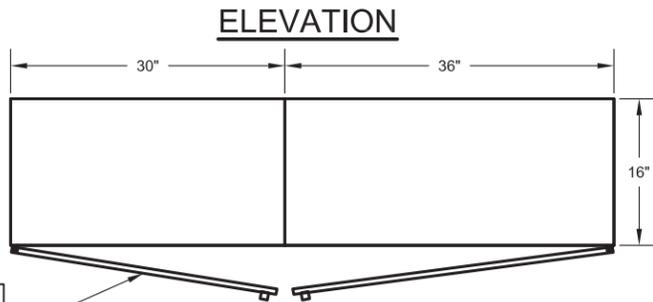
DRAFT NOT FOR CONSTRUCTION	
MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
E-02-01	REV 1



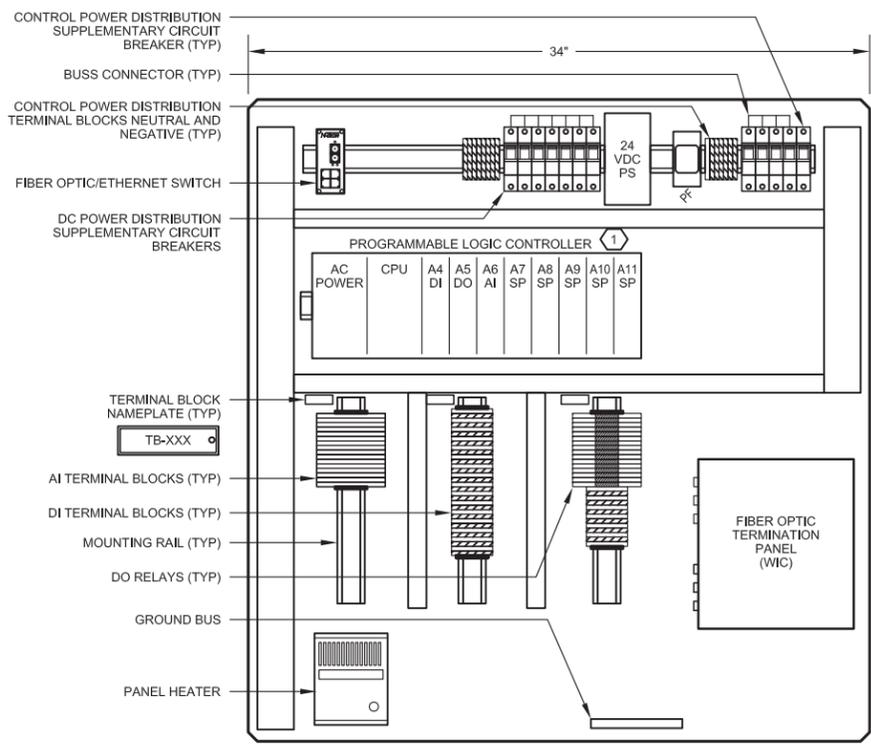
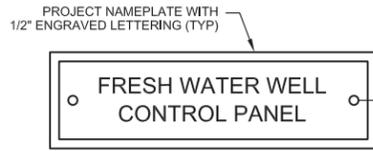
**DEADFRONT DOOR ELEVATION**  
(SHOWN WITH OUTER DOOR REMOVED)



**SIDE ELEVATION**

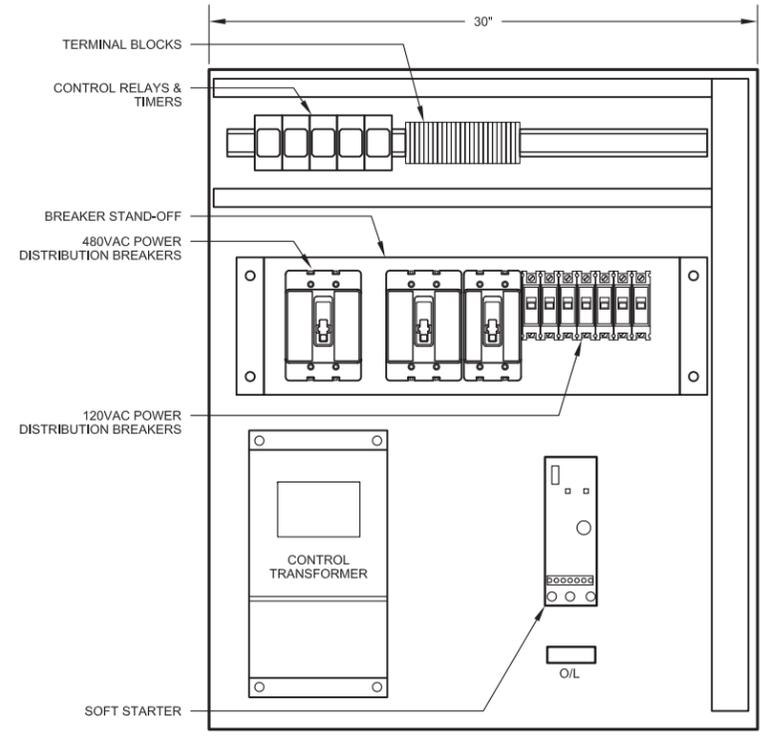


**BASE PLAN**



**PLC PANEL BACKPAN LAYOUT**

(1) WIRE I/O TO TERMINAL BLOCK PER EXAMPLE I/O WIRING DIAGRAMS.



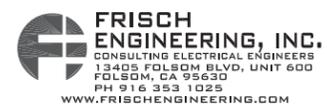
**PUMP CONTROL PANEL BACKPAN LAYOUT**

KEY	ENGRAVING		LETTER HEIGHT
	LINE 1	LINE 2	
11	MAIN	DISCONNECT	3/16"
12	PUMP	DISCONNECT	3/16"
13	TRANSFORMER	DISCONNECT	3/16"
14	PANEL LP	DISCONNECT	3/16"
A	RTU	DISCONNECT	3/16"
B	PEDESTAL AUXILIARY	POWER DISTRIBUTION	3/16"
C	PEDESTAL AUXILIARY	POWER DISTRIBUTION	3/16"
D	MOTOR CONTROL		3/16"
E	SPARE BREAKER		3/16"
F	SPARE BREAKER		3/16"

**PANEL FABRICATION METHODS**

- NEMA 4, SS, FOR INDOOR OR OUTDOOR WALLMOUNT INSTALLATION.
- ALL SEAMS CONTINUOUS WELDED.
- OUTER DOORS TO BE PADLOCKABLE WITH HEAVY DUTY SINGLE POINT LATCHES.
- DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
- NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
- INTERNAL SCREWS, BOLTS, AND NUTS SHALL BE MACHINE THREAD.
- PLASTIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL DEVICES ON DEADFRONT SCREWS SHALL BE STAINLESS STEEL.
- FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
- ALL WIRING SHALL BE PERMANENTLY LABELLED WITH WIRE MARKERS ON BOTH ENDS.
- WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
- AS - BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.

**DRAFT NOT FOR CONSTRUCTION**



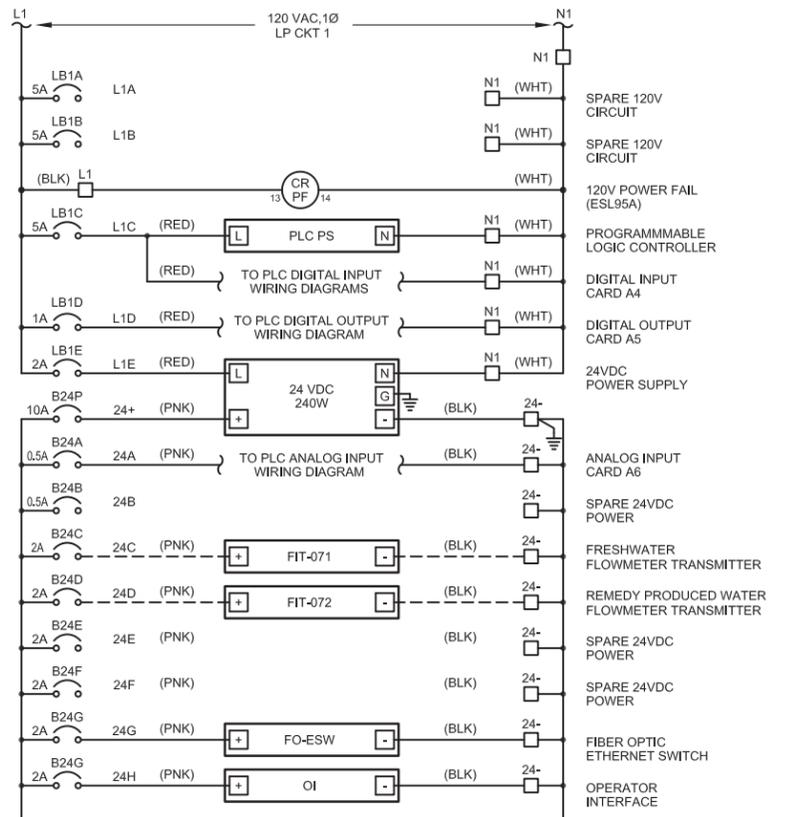
NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN					MBY								TPF
0	4/5/13	INTERMEDIATE (60%) DESIGN					MBY								TPF

APPROVED BY	SO
TPF	SUPV TPF
	DSGN MBY
	DWN MBY, NC
	CHKD MF
	OK TPF
	DATE
	SCALES
	N/A

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESHWATER INJECTION WELL  
FW-1 PLC CONTROL PANEL  
ELEVATION & BACKPAN LAYOUT**  
GAS TRANSMISSION & DISTRIBUTION  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA

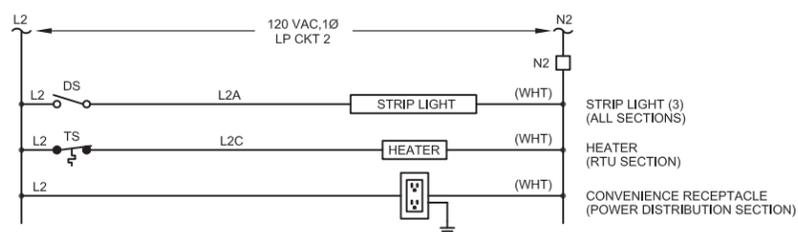
MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
E-02-02	REV 1

PLOT DATE: Aug 25, 2014 PLOT TIME: 3:07:25pm FILENAME: FE-E-XXX-0202AD.DWG

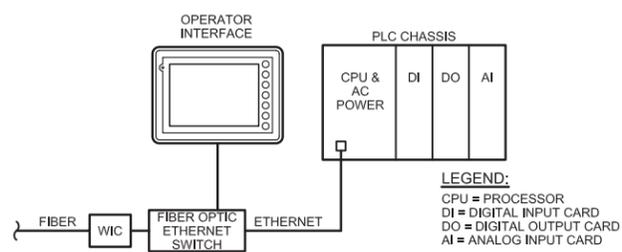


**POWER DISTRIBUTION DIAGRAM 1**

- SCHEMATIC REFERENCED NOTES:**
- 1 DISTRIBUTION DIAGRAM REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ADDITIONAL FUSES, CIRCUITS AND COMPONENT CONNECTIONS MAY BE REQUIRED FOR A FUNCTIONAL SYSTEM.
- GENERAL NOTES:**
- REMAINING WIRES AND TERMINALS SHALL BE NUMBERED BY MANUFACTURER DURING SUBMITTAL.

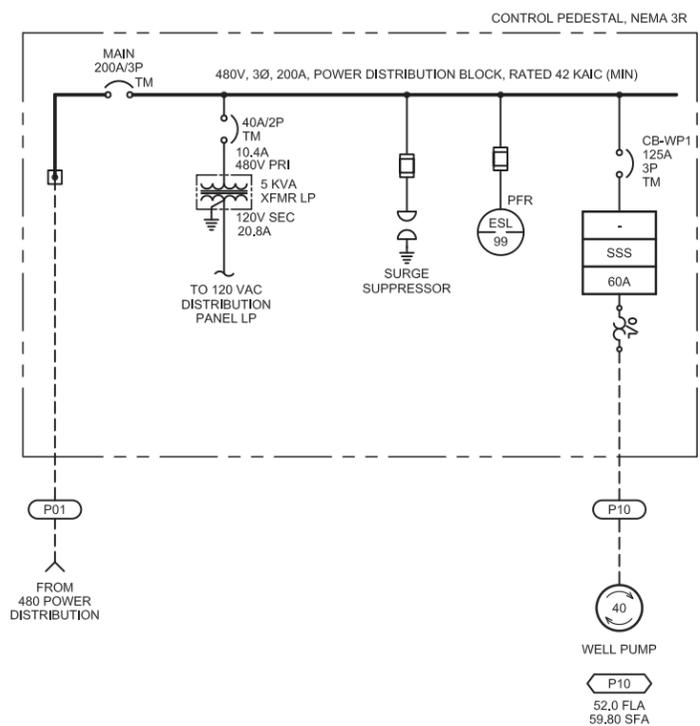


**PEDESTAL AUXILIARY POWER DISTRIBUTION DIAGRAM**

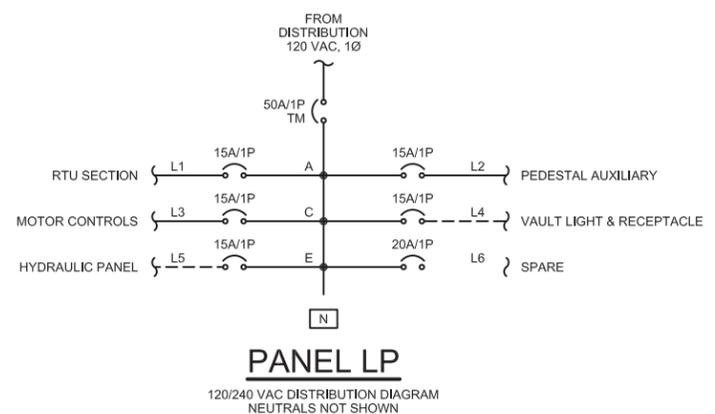


**PLC BLOCK DIAGRAM**

FW-1 - LOAD CALCULATIONS			
LOAD DESCRIPTION	LOAD	QTY	TOTAL
40 HP INJECTION WELL	52.00 A	1	43232.0 VA
5 KVA PANELBOARD TRANSFORMER	10.42 A	1	5000.0 VA
<b>TOTAL LOAD</b>	<b>58.01 A</b>		<b>48232.0 VA</b>
<b>LOAD CORRECTION FACTORS</b>			
LARGEST MOTOR LOAD x 25%:			
40 HP => 0.25 x	43232.0 VA	=	13.00 A
80% BREAKER DERATING =	TOTAL x 0.25 =		17.75 A
FOR CONTINUOUS LOADS NEC 210-20			
UTILITY SERVICE SIZE (MIN) =	88.77 A		73800.0 VA
480 V, 3 PHASE, 4 WIRE			
UTILITY SERVICE SIZE REQUIRED =	200 AMP		



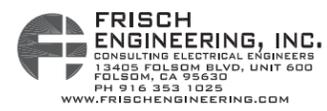
**ONE-LINE DIAGRAM**



**PANEL LP**

120/240 VAC DISTRIBUTION DIAGRAM  
NEUTRALS NOT SHOWN

**DRAFT  
NOT FOR  
CONSTRUCTION**



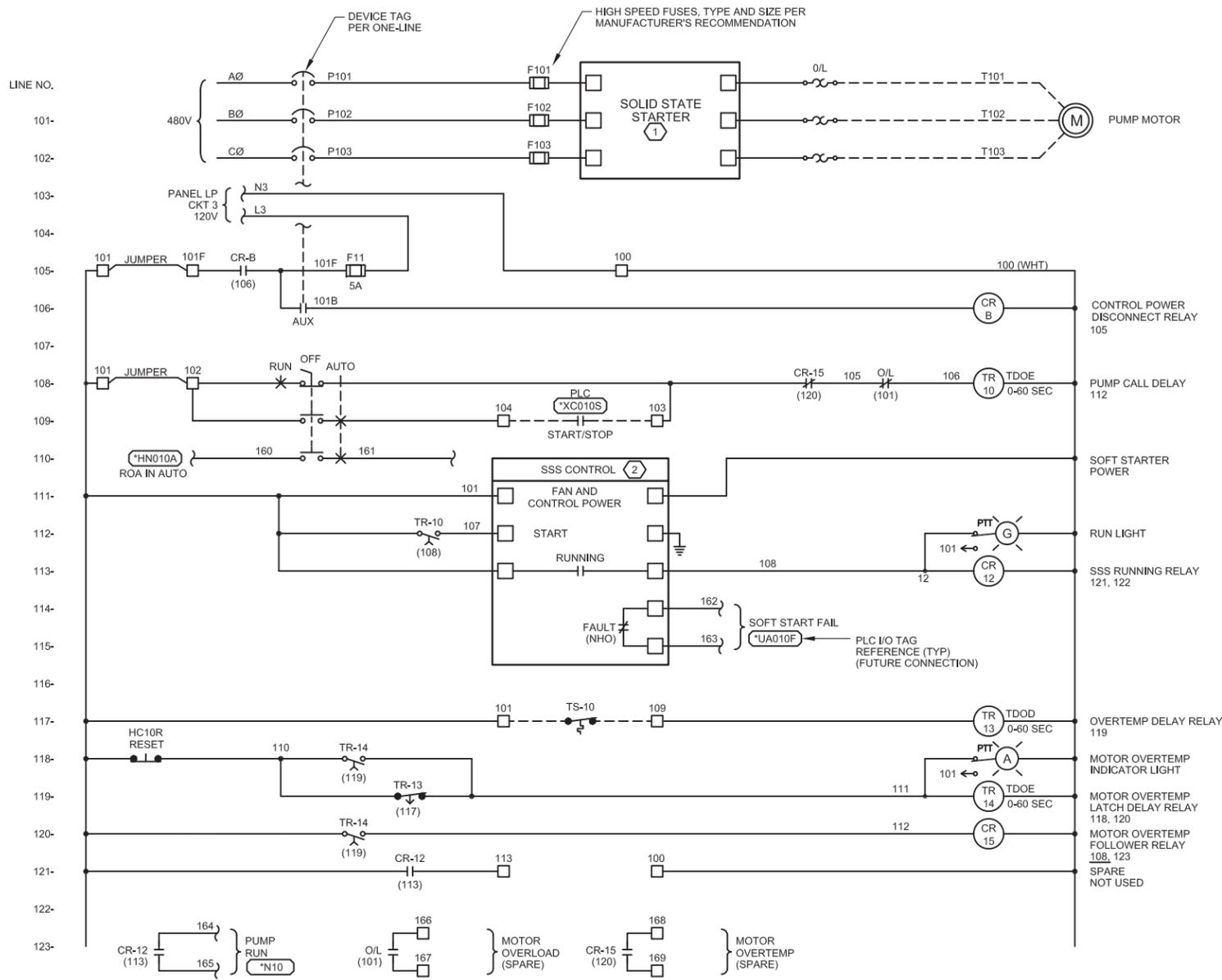
NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN					MBY								
0	4/5/13	INTERMEDIATE (60%) DESIGN					MBY							TPF	

APPROVED BY	SO
TPF	SUPV
	TPF
	DSGN
	MBY
	MBY, NC
	DWN
	MBY
	OK
	TPF
	DATE
	SCALES
	N/A

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESHWATER INJECTION WELL  
 FW-1 CONTROL PANEL POWER  
 DISTRIBUTION & PLC DIAGRAM**  
 GAS TRANSMISSION & DISTRIBUTION  
 PACIFIC GAS AND ELECTRIC COMPANY  
 SAN FRANCISCO, CALIFORNIA

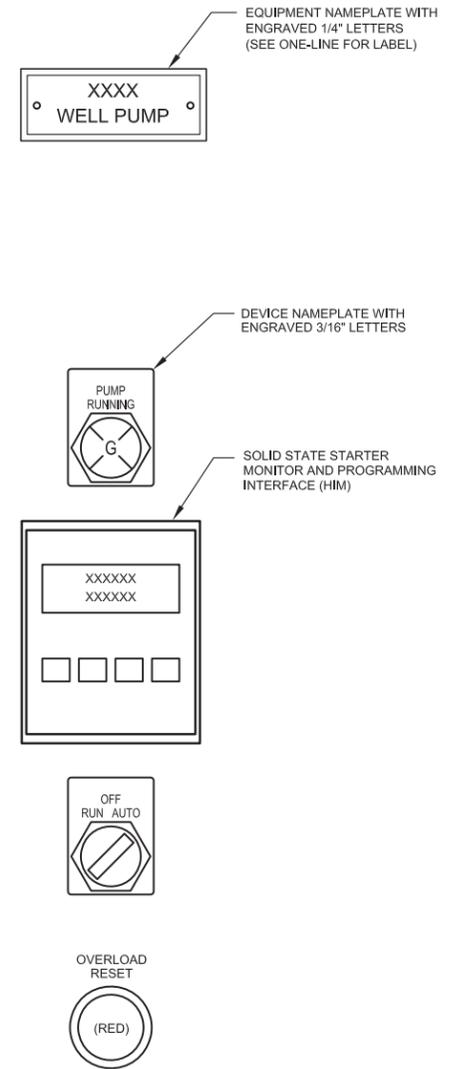
MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
E-02-03	REV 1

PLOT DATE: Aug 25, 2014 PLOT TIME: 2:58:13pm FILENAME: FE-E-XXX-0203AD.DWG



**WELL PUMP ELEMENTARY DIAGRAM**

**DOOR LAYOUT (PARTIAL)**



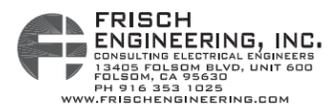
**NOTES REFERENCED IN DRAWING:**

- ① SOLID STATE STARTER SHALL PROVIDE THE FOLLOWING MOTOR PROTECTION PARAMETERS:  

VOLTAGE	CURRENT	MOTOR PARAMETERS
PHASE REVERSAL	OVERLOAD	OVERLOAD CLASS
	UNBALANCE	FULL LOAD CURRENT
- ② 120 VAC CONTROL INTERFACE, NO EXCEPTIONS.

**GENERAL NOTES:**

- 1. TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME EXCEPT: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.



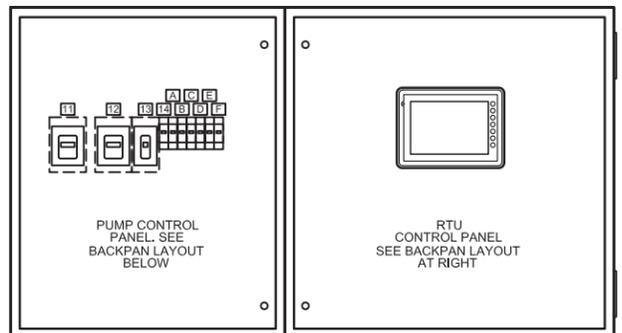
NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN					MBY		TPF						
0	4/5/13	INTERMEDIATE (60%) DESIGN					MBY		TPF						

APPROVED BY	SO
TPF	SUPV
	DSGN
	MBY
	DWN
	MBY, NC
	CHKD
	MF
	OK TPF
	DATE
	SCALES
	N/A

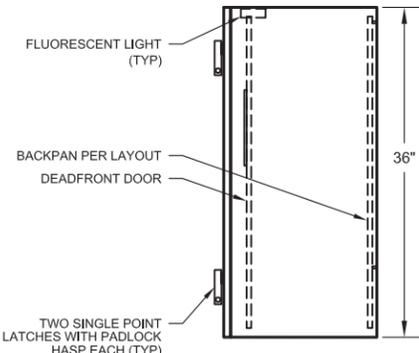
TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESHWATER INJECTION WELL  
 FW-1 PUMP ELEMENTARY  
 DIAGRAM**  
 GAS TRANSMISSION & DISTRIBUTION  
 PACIFIC GAS AND ELECTRIC COMPANY  
 SAN FRANCISCO, CALIFORNIA

DRAFT NOT FOR CONSTRUCTION	
MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
E-02-04	REV 1

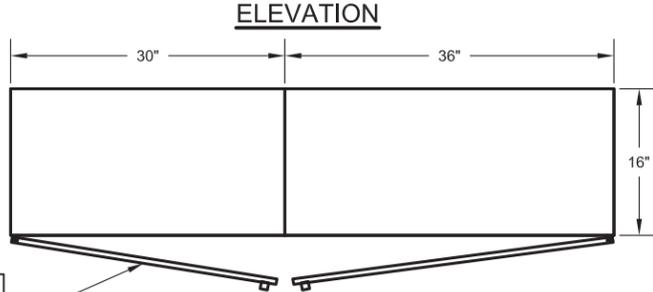
PLOT DATE: Aug 25, 2014 PLOT TIME: 2:58:02pm FILENAME: FE-E-XXX-0204AD.DWG



**DEADFRONT DOOR ELEVATION**  
(SHOWN WITH OUTER DOOR REMOVED)



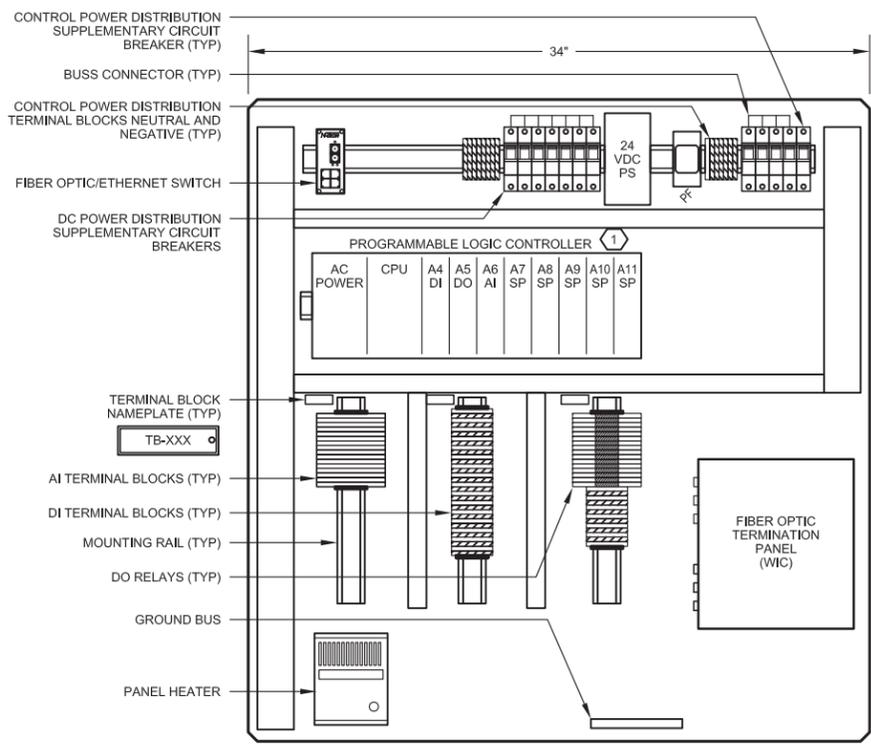
**SIDE ELEVATION**



**ELEVATION**

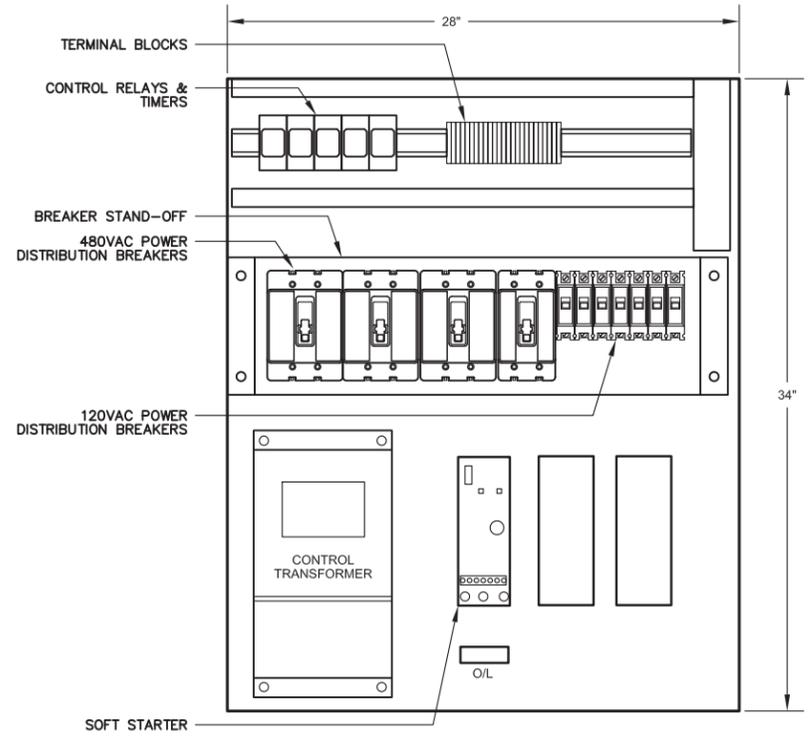


**BASE PLAN**



**PLC PANEL BACKPAN LAYOUT**

① WIRE I/O TO TERMINAL BLOCK PER EXAMPLE I/O WIRING DIAGRAMS.



**PUMP CONTROL PANEL BACKPAN LAYOUT**

KEY	ENGRAVING		LETTER HEIGHT
	LINE 1	LINE 2	
11	MAIN	DISCONNECT	3/16"
12	PUMP	DISCONNECT	3/16"
13	TRANSFORMER	DISCONNECT	3/16"
14	PANEL LP	DISCONNECT	3/16"
A	RTU	DISCONNECT	3/16"
B	PEDESTAL AUXILIARY	POWER DISTRIBUTION	3/16"
C	PEDESTAL AUXILIARY	POWER DISTRIBUTION	3/16"
D	MOTOR CONTROL		3/16"
E	SPARE BREAKER		3/16"
F	SPARE BREAKER		3/16"

**PANEL FABRICATION METHODS**

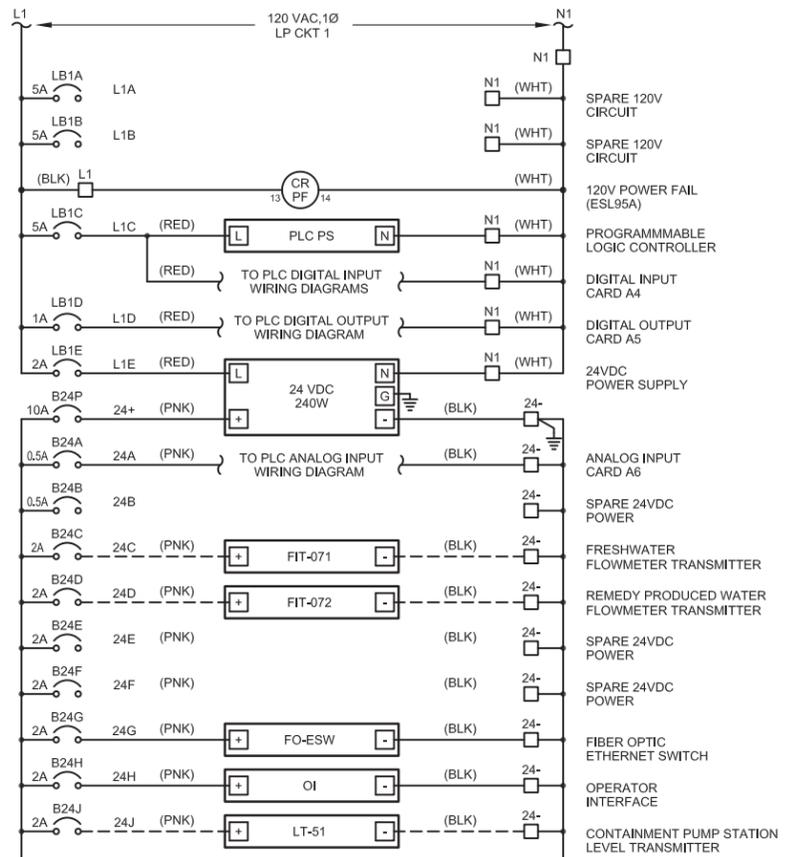
- NEMA 4, SS, FOR INDOOR OR OUTDOOR WALLMOUNT INSTALLATION.
- ALL SEAMS CONTINUOUS WELDED.
- OUTER DOORS TO BE PADLOCKABLE WITH HEAVY DUTY SINGLE POINT LATCHES.
- DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
- NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
- INTERNAL SCREWS, BOLTS, AND NUTS SHALL BE MACHINE THREAD.
- PLASTIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL DEVICES ON DEADFRONT SCREWS SHALL BE STAINLESS STEEL.
- FABRICATION AND WIRING SHALL CONFORM TO U.L. AND NEMA STANDARDS.
- ALL WIRING SHALL BE PERMANENTLY LABELLED WITH WIRE MARKERS ON BOTH ENDS.
- WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.
- AS - BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.

**DRAFT NOT FOR CONSTRUCTION**

NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN					MBY								TPF
0	4/5/13	INTERMEDIATE (60%) DESIGN					MBY								TPF

APPROVED BY	SO
TPF	SUPV TPF
	DSGN MBY
	DWN MBY, NC
	CHKD MF
	OK TPF
	DATE
	SCALES
	N/A

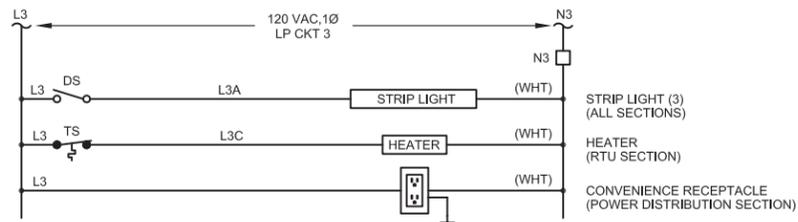
MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
E-02-05	REV 1



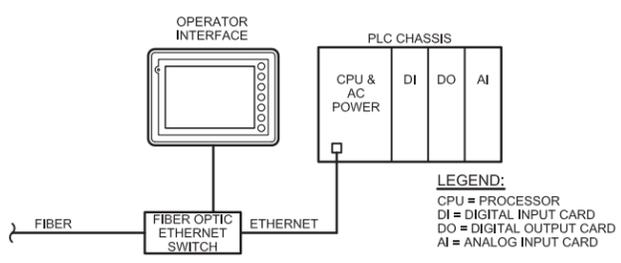
**POWER DISTRIBUTION DIAGRAM** ①

**SCHEMATIC REFERENCED NOTES:**  
 ① DISTRIBUTION DIAGRAM REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ADDITIONAL FUSES, CIRCUITS AND COMPONENT CONNECTIONS MAY BE REQUIRED FOR A FUNCTIONAL SYSTEM.

**GENERAL NOTES:**  
 1. REMAINING WIRES AND TERMINALS SHALL BE NUMBERED BY MANUFACTURER DURING SUBMITTAL.

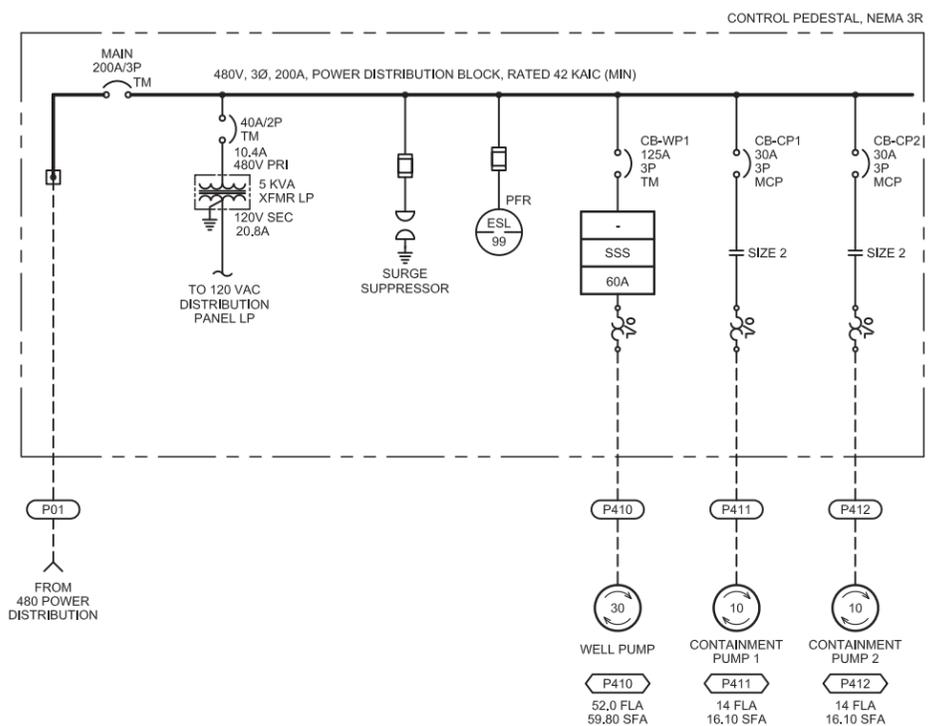


**PEDESTAL AUXILIARY POWER DISTRIBUTION DIAGRAM**

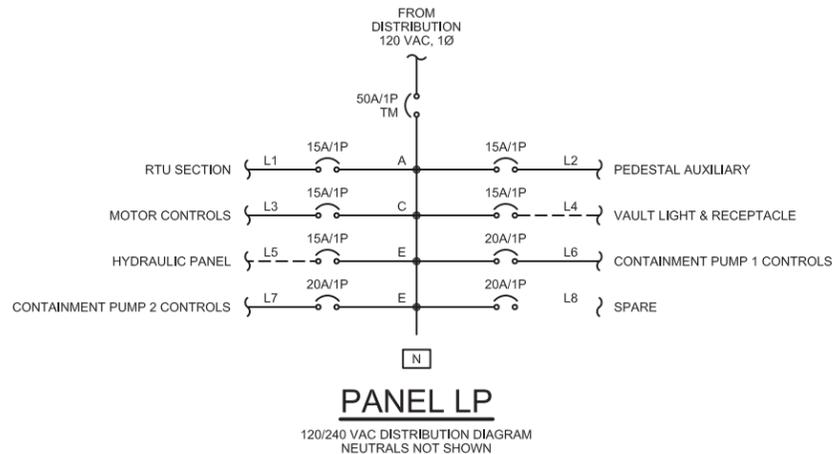


**PLC BLOCK DIAGRAM**

FW-2 - LOAD CALCULATIONS			
LOAD DESCRIPTION	LOAD	QTY	TOTAL
30 HP INJECTION WELL	40.00 A	1	33255.4 VA
10 HP CONTAINMENT PUMPS	14.00 A	2	23278.8 VA
5 KVA PANELBOARD TRANSFORMER	10.42 A	1	5000.0 VA
<b>TOTAL LOAD =</b>	<b>74.01 A</b>		<b>61534.1 VA</b>
LOAD CORRECTION FACTORS			
LARGEST MOTOR LOAD x 25%:			
HP => 0.25 x	33255.4 VA	=	10.00 A
80% BREAKER DERATING =	TOTAL x 0.25 =		21.00 A
FOR CONTINUOUS LOADS NEC 210-20			
UTILITY SERVICE SIZE (MIN) =	480 V, 3 PHASE, 4 WIRE		105.02 A
UTILITY SERVICE SIZE REQUIRED =			200 AMP



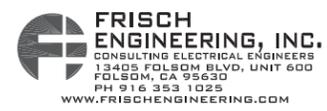
**ONE-LINE DIAGRAM**



**PANEL LP**

120/240 VAC DISTRIBUTION DIAGRAM  
 NEUTRALS NOT SHOWN

**DRAFT NOT FOR CONSTRUCTION**



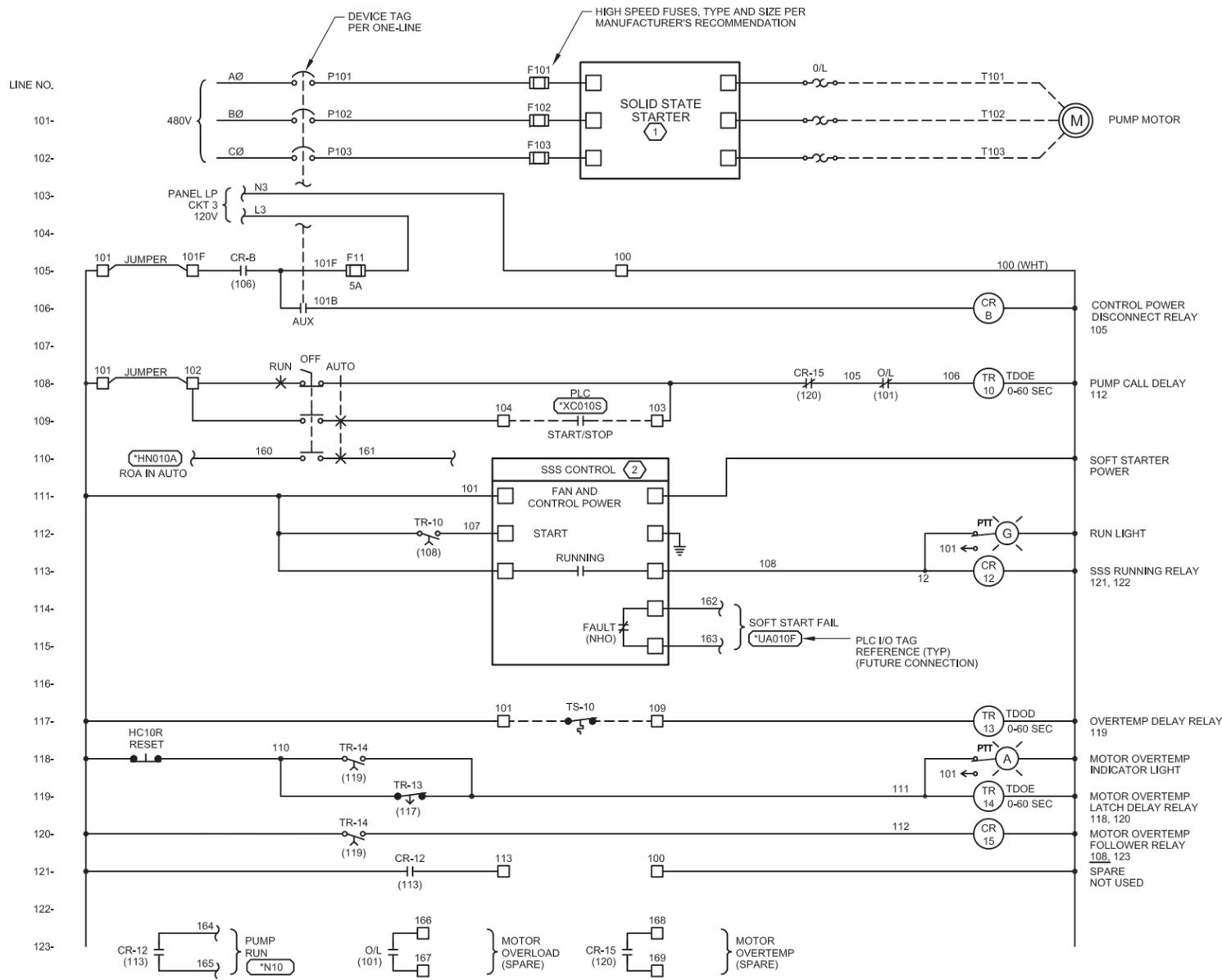
NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN					MBY								
0	4/5/13	INTERMEDIATE (60%) DESIGN					MBY							TPF	

APPROVED BY	SO
TPF	SUPV TPF
	DSGN MBY
	DWN MBY, NC
	CHKD MF
	OK TPF
	DATE
	SCALES
	N/A

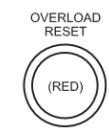
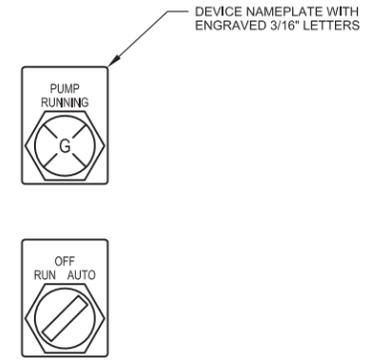
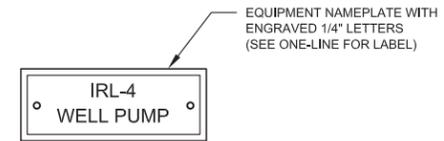
TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESHWATER INJECTION WELL  
 FW-2 CONTROL PANEL POWER  
 DISTRIBUTION & PLC DIAGRAM**  
 GAS TRANSMISSION & DISTRIBUTION  
 PACIFIC GAS AND ELECTRIC COMPANY  
 SAN FRANCISCO, CALIFORNIA

MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
E-02-06	REV 1

PLOT DATE: Aug 25, 2014 PLOT TIME: 2:58:45pm FILENAME: FE-E-XXX-0206AD.DWG



**WELL PUMP ELEMENTARY DIAGRAM**



**DOOR LAYOUT (PARTIAL)**

**NOTES REFERENCED IN DRAWING:**

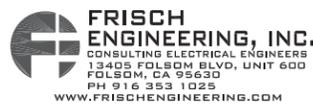
- ① SOLID STATE STARTER SHALL PROVIDE THE FOLLOWING MOTOR PROTECTION PARAMETERS:  

VOLTAGE	CURRENT	MOTOR PARAMETERS
PHASE REVERSAL	OVERLOAD	OVERLOAD CLASS
	UNBALANCE	FULL LOAD CURRENT
- ② 120 VAC CONTROL INTERFACE, NO EXCEPTIONS.

**GENERAL NOTES:**

- 1. TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME EXCEPT: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.

**DRAFT NOT FOR CONSTRUCTION**



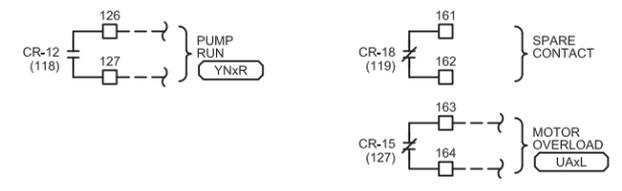
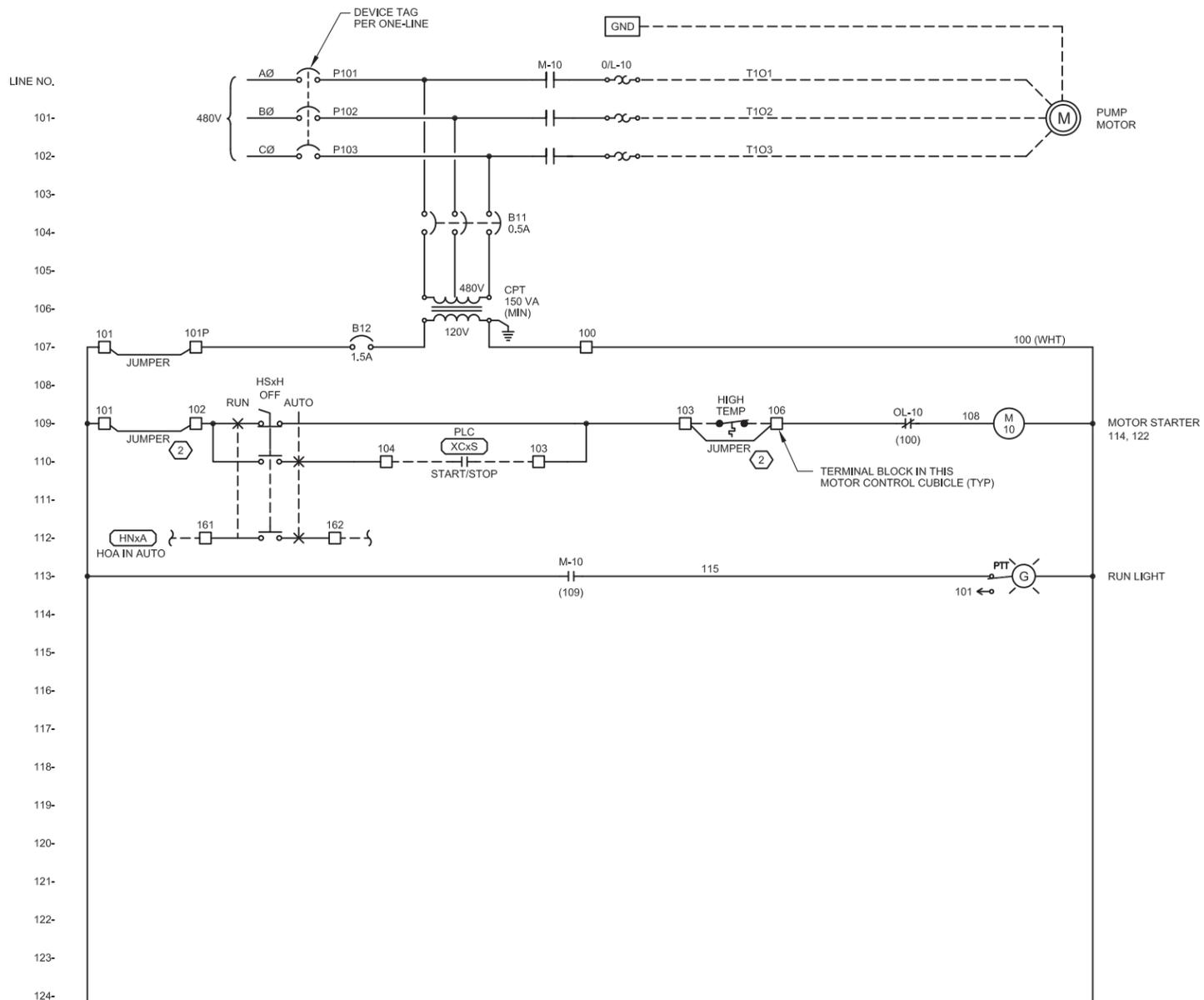
NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN					MBY		TPF						
0	4/5/13	INTERMEDIATE (60%) DESIGN					MBY		TPF						

APPROVED BY	SO
TPF	SUPV
	TPF
	DSGN
	MBY
	DWN
	MBY, NC
	CHKD
	MF
	OK TPF
	DATE
	SCALES
	N/A

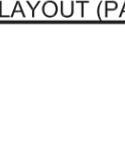
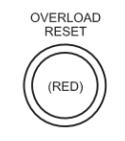
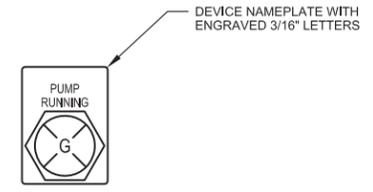
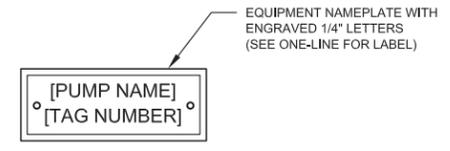
TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESHWATER INJECTION WELL  
 FW-2 SSS PUMP ELEMENTARY  
 DIAGRAM**  
 GAS TRANSMISSION & DISTRIBUTION  
 PACIFIC GAS AND ELECTRIC COMPANY  
 SAN FRANCISCO, CALIFORNIA

MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
E-02-07	REV 1

PLOT DATE: Aug 25, 2014 PLOT TIME: 2:58:55pm FILENAME: FE-E-XXX-0207AD.DWG



**FVNR CENTRIFUGAL MOTOR ELEMENTARY DIAGRAM**



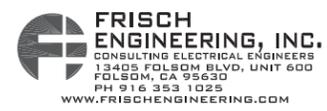
**DOOR LAYOUT (PARTIAL)**

**DOOR LAYOUT**

- NOTES REFERENCED IN DRAWING:**
- 1 SET TIME DELAY ON DROP TO 0.5 SECONDS.
  - 2 REMOVE JUMPER FOR DEVICE WHEN CONNECTED.

- GENERAL NOTES:**
- 1. SIMILAR DIAGRAM FOR PUMPS LISTED AND PER P&IDS.
  - 2. TERMINAL BLOCKS AND WIRES SHALL BE LABELED SAME EXCEPTON: WIRES TO PLC SHALL BE NUMBERED PER CONTROL PANEL TERMINAL BLOCK NUMBER.

**DRAFT NOT FOR CONSTRUCTION**



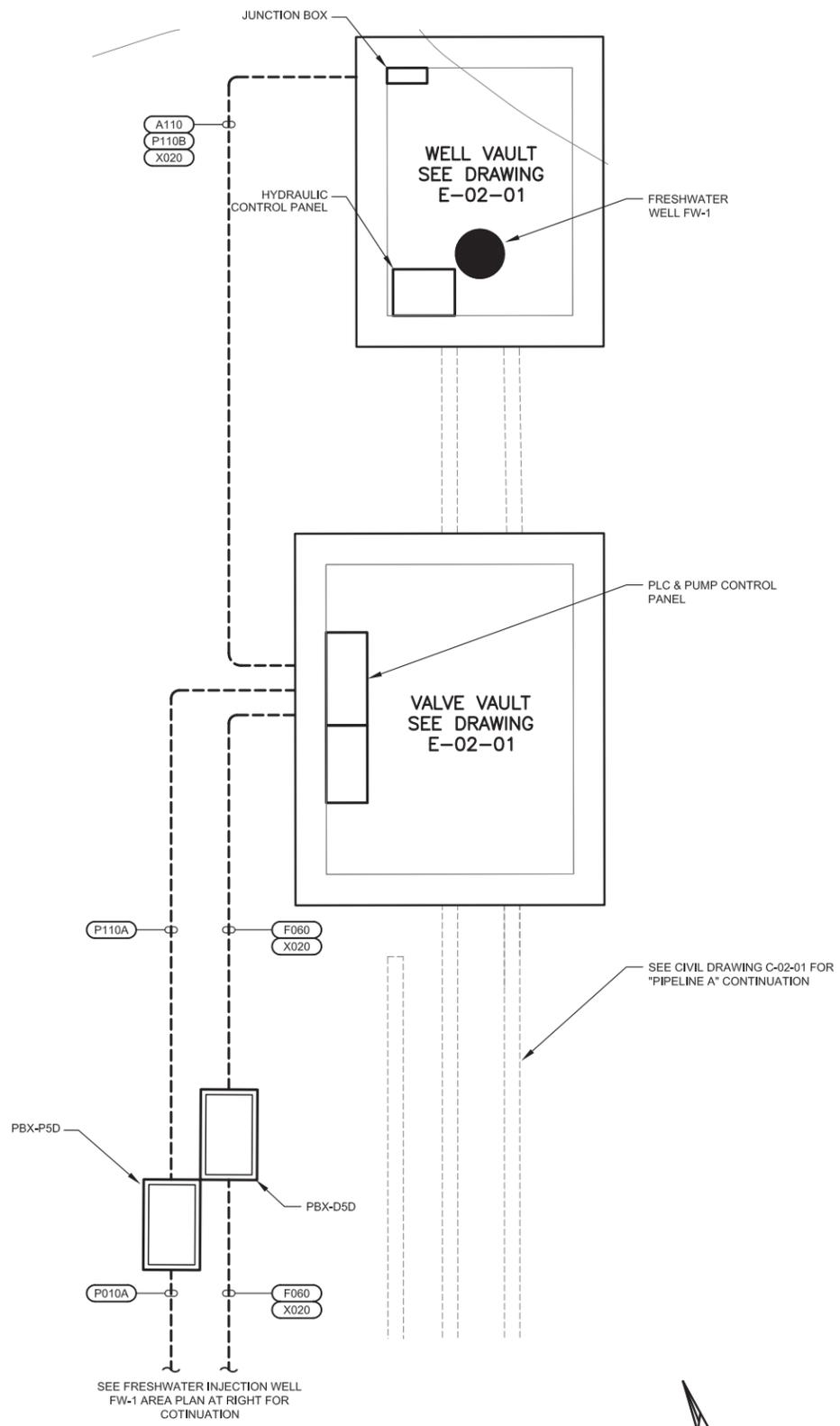
NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN					MBY		TPF						
0	4/5/13	INTERMEDIATE (60%) DESIGN					MBY		TPF						

APPROVED BY	SO
TPF	SUPV TPF
	DSGN MBY
	DWN MBY, NC
	CHKD MF
	OK TPF
	DATE
	SCALES
	N/A

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESHWATER INJECTION WELL  
 FW-2 FVNR PUMP ELEMENTARY  
 DIAGRAM**  
 GAS TRANSMISSION & DISTRIBUTION  
 PACIFIC GAS AND ELECTRIC COMPANY  
 SAN FRANCISCO, CALIFORNIA

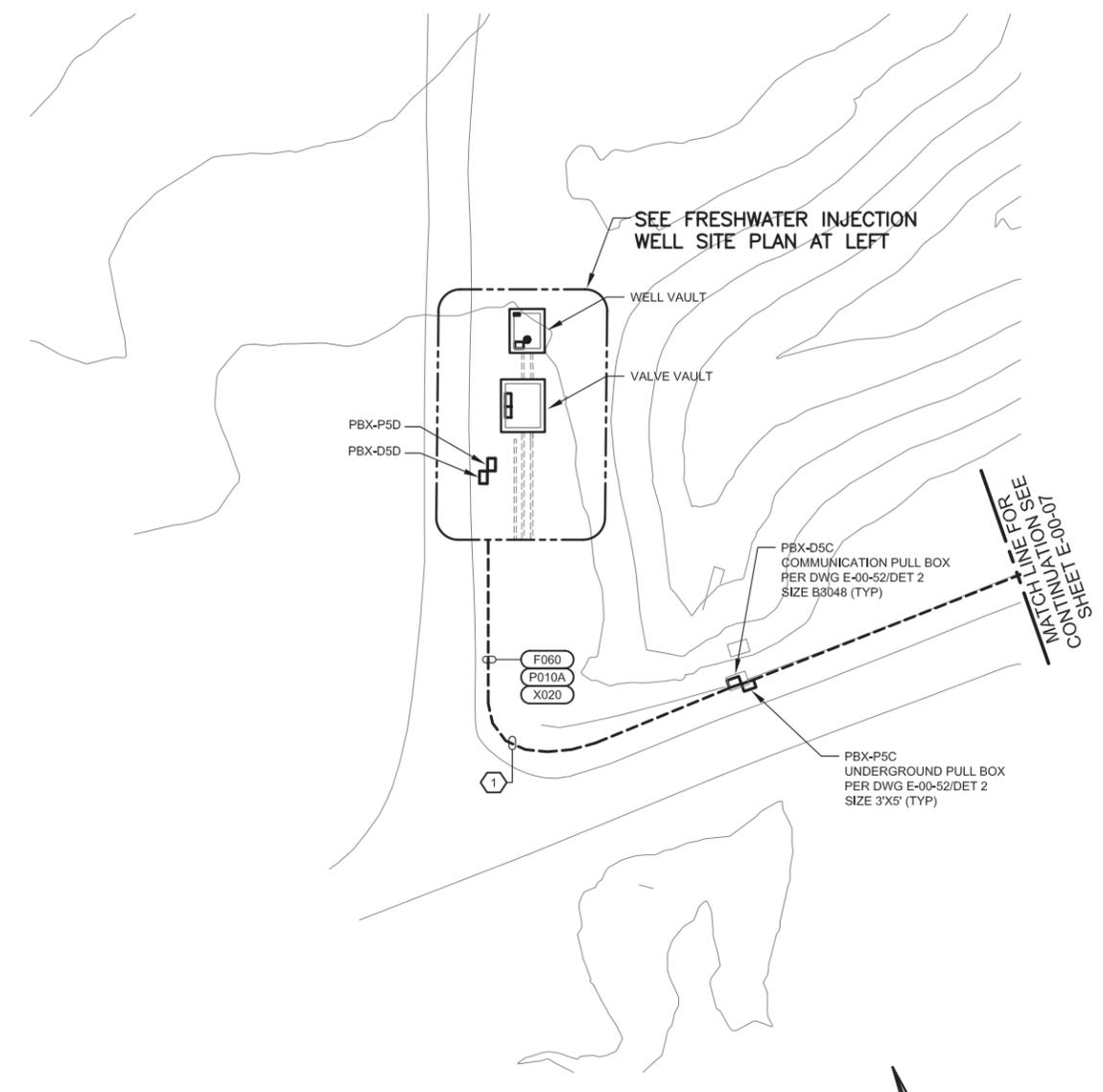
MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO. of SHEETS	E-02-08 of 1

PLOT DATE: Aug 25, 2014 PLOT TIME: 2:58:02pm FILENAME: FE-E-XXX-0208AD.DWG



0 2.6 5.2 7.8  
SCALE: 3/8"=1'

FRESHWATER INJECTION WELL FW-1 SITE PLAN



0 20 40 60  
SCALE: 1"=20'

FRESHWATER INJECTION WELL FW-1 AREA PLAN

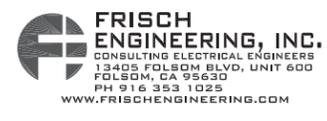
**ELECTRICAL PLAN NOTES:**

- 1. SEE ELECTRICAL PLAN NOTES ON DRAWING E-00-02.

**DRAWING REFERENCED NOTES:**

- 1. CONDUIT ROUTE AND PULLBOX LOCATIONS SHOWN ARE APPROXIMATE. COORDINATE CONDUIT ROUTE AND PULLBOX LOCATIONS WITH CIVIL PIPELINE ROUTING. SEE DRAWINGS C-02-01.

**DRAFT  
NOT FOR  
CONSTRUCTION**

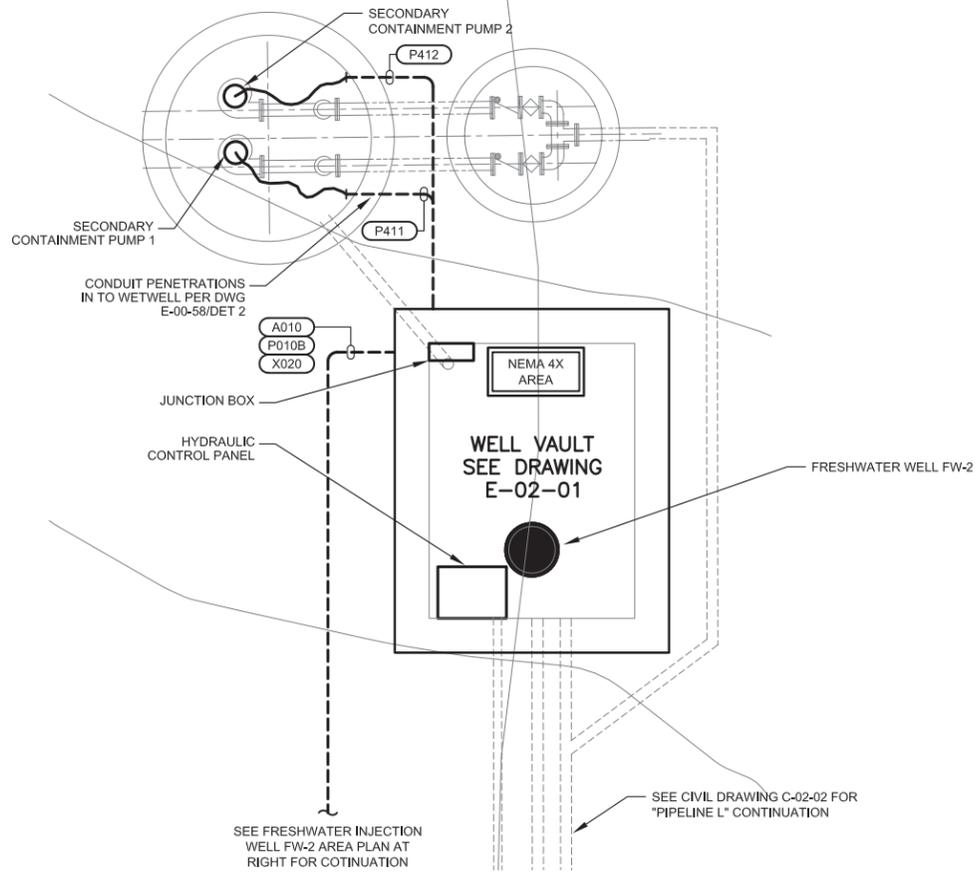


NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN													
0	4/5/13	INTERMEDIATE (60%) DESIGN													

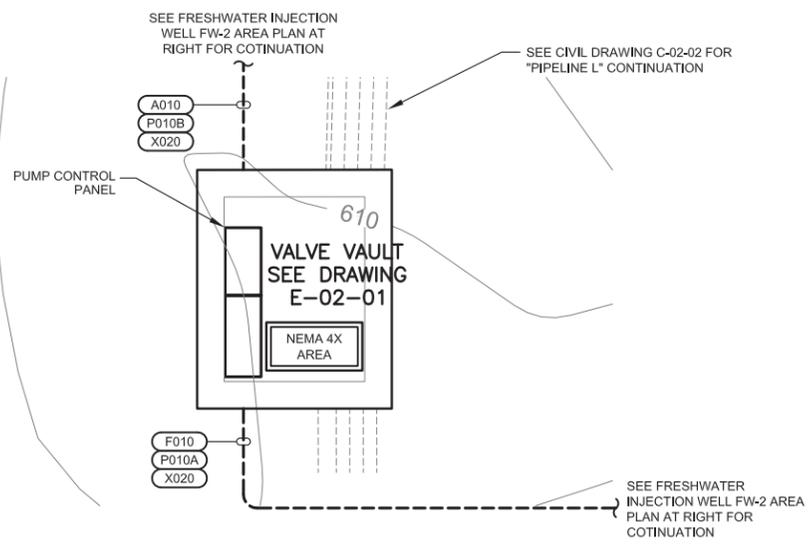
APPROVED BY	SO
TPF	SUPV TPF
	DSGN MBY
	DWN MBY, NC
	CHKD MF
	OK TPF
	DATE
	SCALES
	N/A

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESH WATER  
 INJECTION WELL FW-1  
 SITE PLAN**  
 GAS TRANSMISSION & DISTRIBUTION  
 PACIFIC GAS AND ELECTRIC COMPANY  
 SAN FRANCISCO, CALIFORNIA

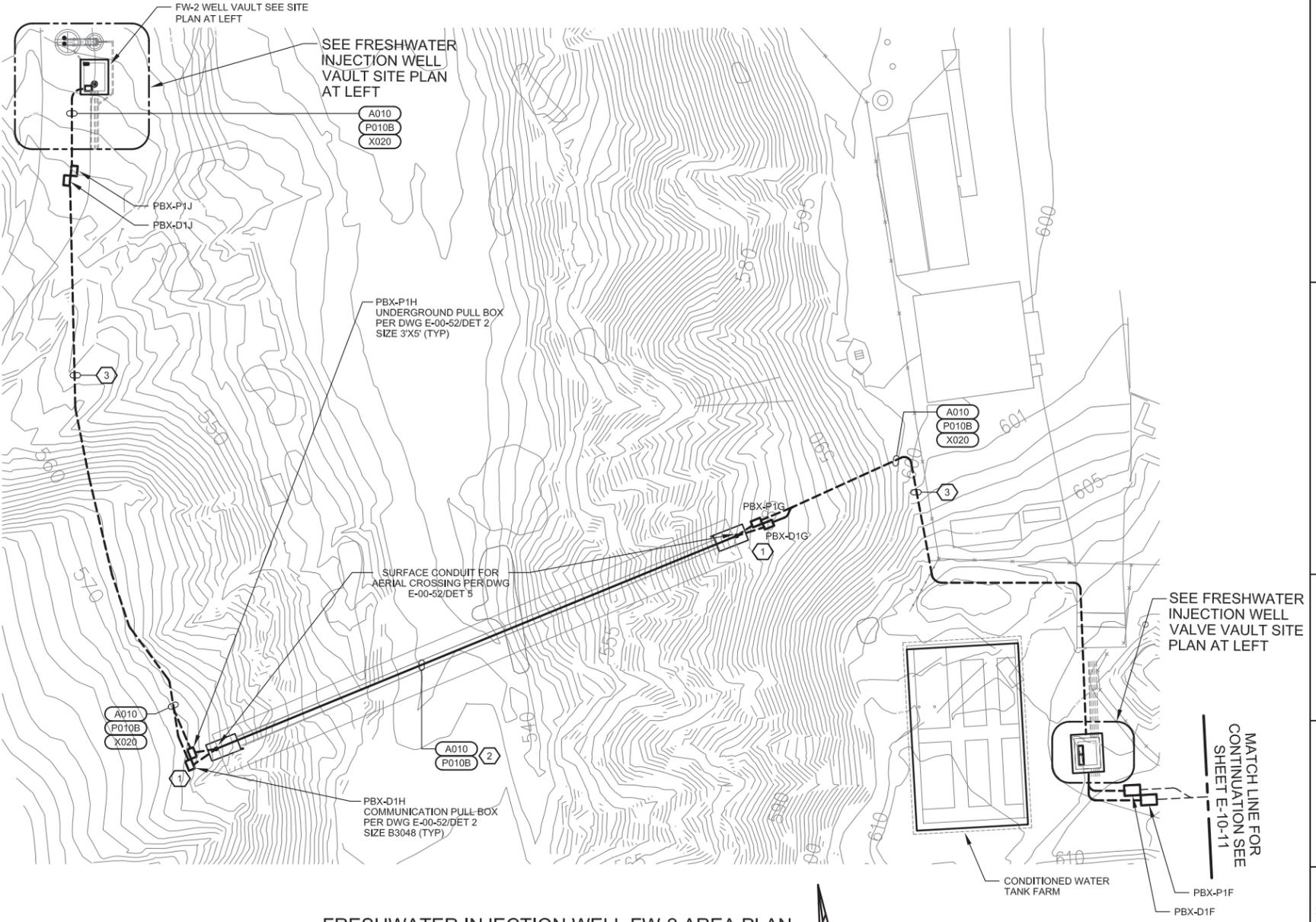
MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
E-02-09	1



**WELL VAULT PARTIAL ELECTRICAL SITE PLAN**



**VALVE VAULT PARTIAL ELECTRICAL SITE PLAN**  
**FRESHWATER INJECTION WELL FW-2 ELECTRICAL SITE PLAN**



**FRESHWATER INJECTION WELL FW-2 AREA PLAN**

**ELECTRICAL PLAN NOTES:**

1. SEE ELECTRICAL PLAN NOTES ON DRAWING E-00-02.

**DRAWING REFERENCED NOTES:**

- ① PROVIDE SERVICE LOOP FOR ALL CONDUCTORS IN PULLBOX TO ALLOW FOR EXPANSION & CONTRACTION.
- ② INSTALL EXPANSION FITTINGS ON CROSSING AS REQUIRED FOR EXPANSION AND CONTRACTION OF EXPOSED CONDUIT.
- ③ CONDUIT ROUTE AND PULLBOX LOCATIONS SHOWN ARE APPROXIMATE. COORDINATE CONDUIT ROUTE AND PULLBOX LOCATIONS WITH CIVIL PIPELINE ROUTING. SEE DRAWINGS C-02-02.

**DRAFT  
NOT FOR  
CONSTRUCTION**

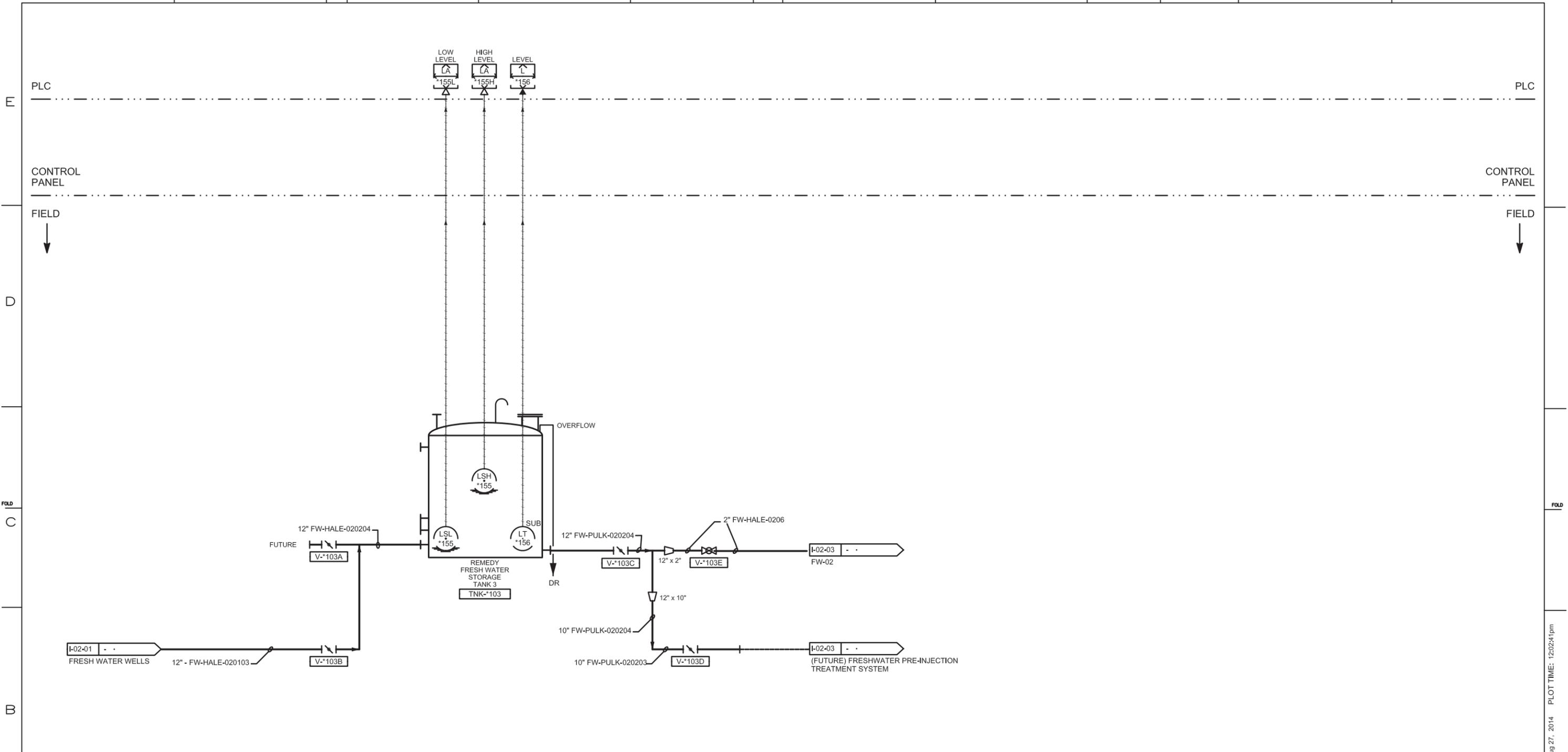


NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN					MBY								
0	4/5/13	INTERMEDIATE (60%) DESIGN					MBY							TPF	

APPROVED BY	SO
TPF	SUPV TPF
	DSGN MBY
	DWN MBY, NC
	CHKD MF
	OK TPF
	DATE
	SCALES
	N/A

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**FRESH WATER  
INJECTION WELL FW-2  
SITE PLAN**  
GAS TRANSMISSION & DISTRIBUTION  
PACIFIC GAS AND ELECTRIC COMPANY  
SAN FRANCISCO, CALIFORNIA

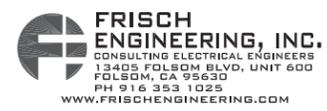
MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
E-02-10	1



**REMEDY FRESH WATER STORAGE TANK**

**DRAWING NOTES:**  
 1. FOR FULL SCADA, INSTRUMENT AND EQUIPMENT TAG NUMBER IDENTIFICATION REPLACE \*\*\* ON THIS DRAWING WITH LOCATION ID FWST.

**DRAFT NOT FOR CONSTRUCTION**



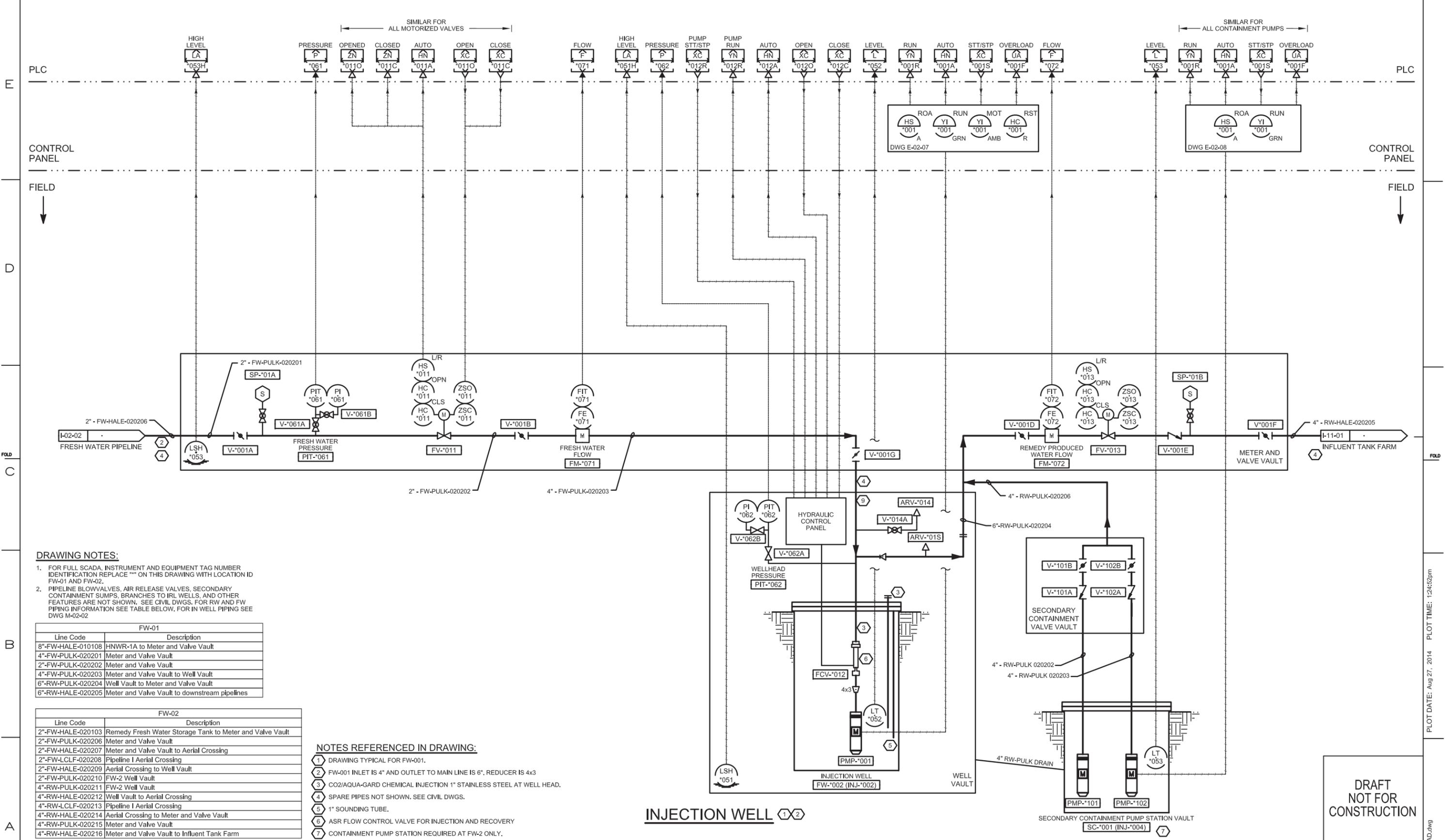
NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN													
0	4/5/13	INTERMEDIATE (60%) DESIGN													

APPROVED BY	SO
TPF	SUPV TPF
	DSGN MBY
	DWN MBY, NC
	CHKD MF
	OK TPF
	DATE
	SCALES
	N/A

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**P&ID**  
**FRESH WATER TANK**  
 GAS TRANSMISSION & DISTRIBUTION  
 PACIFIC GAS AND ELECTRIC COMPANY  
 SAN FRANCISCO, CALIFORNIA

MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
I-02-01	REV 1

PLOT DATE: Aug 27, 2014 PLOT TIME: 12:02:41pm FILENAME: FE-XXXX-0201AD.dwg



**DRAWING NOTES:**

- FOR FULL SCADA, INSTRUMENT AND EQUIPMENT TAG NUMBER IDENTIFICATION REPLACE "" ON THIS DRAWING WITH LOCATION ID FW-01 AND FW-02.
- PIPELINE BLOWVALVES, AIR RELEASE VALVES, SECONDARY CONTAINMENT SUMPS, BRANCHES TO IRL WELLS, AND OTHER FEATURES ARE NOT SHOWN. SEE CIVIL DWGS. FOR RW AND FW PIPING INFORMATION SEE TABLE BELOW. FOR IN WELL PIPING SEE DWG M-02-02

FW-01	
Line Code	Description
8"-FW-HALE-010108	HNWR-1A to Meter and Valve Vault
4"-FW-PULK-020201	Meter and Valve Vault
2"-FW-PULK-020202	Meter and Valve Vault
4"-FW-PULK-020203	Meter and Valve Vault to Well Vault
6"-RW-PULK-020204	Well Vault to Meter and Valve Vault
6"-RW-HALE-020205	Meter and Valve Vault to downstream pipelines

FW-02	
Line Code	Description
2"-FW-HALE-020103	Remedy Fresh Water Storage Tank to Meter and Valve Vault
2"-FW-PULK-020206	Meter and Valve Vault
2"-FW-HALE-020207	Meter and Valve Vault to Aerial Crossing
2"-FW-L-CLF-020208	Pipeline I Aerial Crossing
2"-FW-HALE-020209	Aerial Crossing to Well Vault
2"-FW-PULK-020210	FW-2 Well Vault
4"-RW-PULK-020211	FW-2 Well Vault
4"-RW-HALE-020212	Well Vault to Aerial Crossing
4"-RW-L-CLF-020213	Pipeline I Aerial Crossing
4"-RW-HALE-020214	Aerial Crossing to Meter and Valve Vault
4"-RW-PULK-020215	Meter and Valve Vault
4"-RW-HALE-020216	Meter and Valve Vault to Influent Tank Farm

**NOTES REFERENCED IN DRAWING:**

- DRAWING TYPICAL FOR FW-001.
- FW-001 INLET IS 4" AND OUTLET TO MAIN LINE IS 6". REDUCER IS 4x3
- CO2/AQUA-GARD CHEMICAL INJECTION 1" STAINLESS STEEL AT WELL HEAD.
- SPARE PIPES NOT SHOWN. SEE CIVIL DWGS.
- 1" SOUNDING TUBE.
- ASR FLOW CONTROL VALVE FOR INJECTION AND RECOVERY
- CONTAINMENT PUMP STATION REQUIRED AT FW-2 ONLY.

**INJECTION WELL**

**DRAFT NOT FOR CONSTRUCTION**

**FRISCH ENGINEERING, INC.**  
 CONSULTING ELECTRICAL ENGINEERS  
 13405 FOLSOM BLVD, UNIT 600  
 FOLSOM, CA 95630  
 PH 916 353 1025  
 WWW.FRISCHENGINEERING.COM

**CH2MHILL**

NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY	NO.	DATE	DESCRIPTION	GM/SPEC	DWN	CHKD	SUPV	APVD BY
1	9/8/14	PRE-FINAL (90%) DESIGN					MBY								
0	4/5/13	INTERMEDIATE (60%) DESIGN					MBY							TPF	

APPROVED BY	SO
TPF	SUPV
	DSGN
	DWN
	CHKD
	OK TPF
	DATE
	SCALES
	N/A

TOPOCK GROUNDWATER REMEDIATION PROJECT  
**P&ID INJECTION WELL**  
 GAS TRANSMISSION & DISTRIBUTION  
 PACIFIC GAS AND ELECTRIC COMPANY  
 SAN FRANCISCO, CALIFORNIA

MICROFILM	
BILL OF MATL	
DWG LIST	
SUPSDS	
SUPSD BY	
SHEET NO.	of SHEETS
I-02-02	1

PLOT DATE: Aug 27, 2014 PLOT TIME: 12:45:22pm FILENAME: FE-XXXX-0202AD.dwg