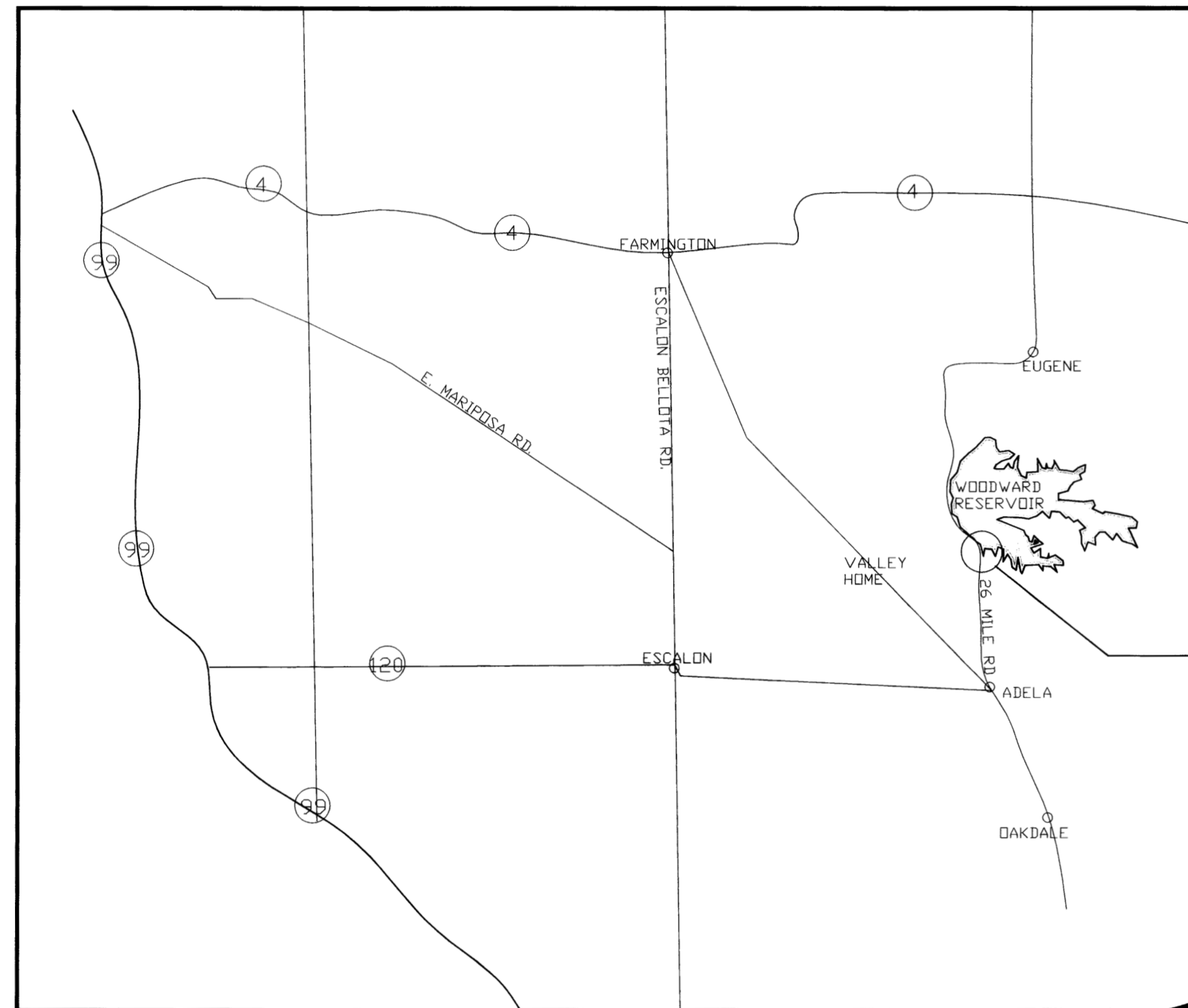


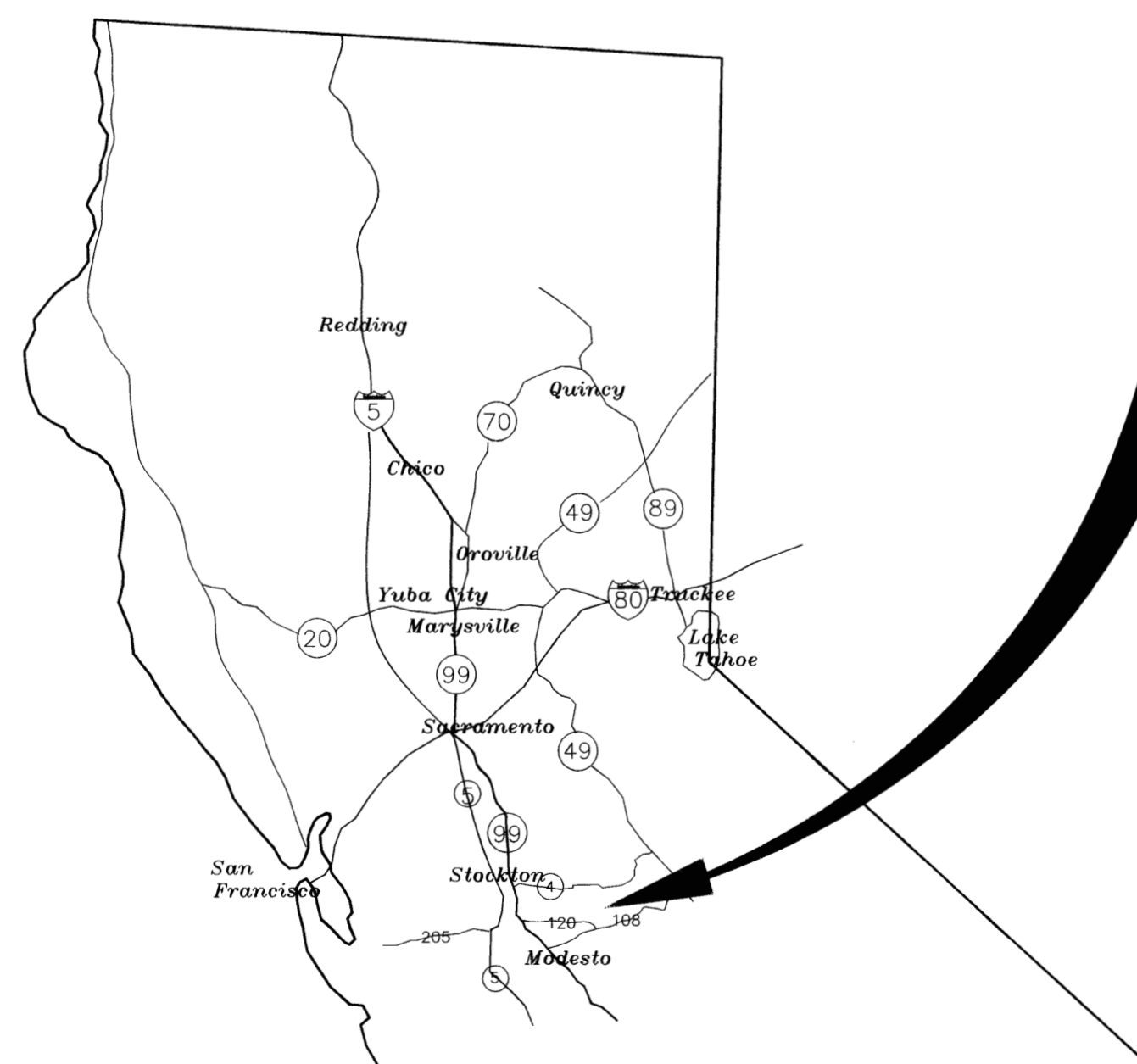
COUNTY OF STANISLAUS  
DEPARTMENT OF PARKS AND RECREATION

WOODWARD RESERVOIR  
WATER WELL AND WATER FILTRATION SYSTEM

SEPTEMBER 2007



PROJECT SITE



LOCATION MAP

SUBMITTED: *Dean D. Marsh* 9/17/07  
Dean D. Marsh,  
Consulting Engineer Date



APPROVED: *Arny K. Head* 9/24/07  
Stanislaus County Department  
of Parks and Recreation Date

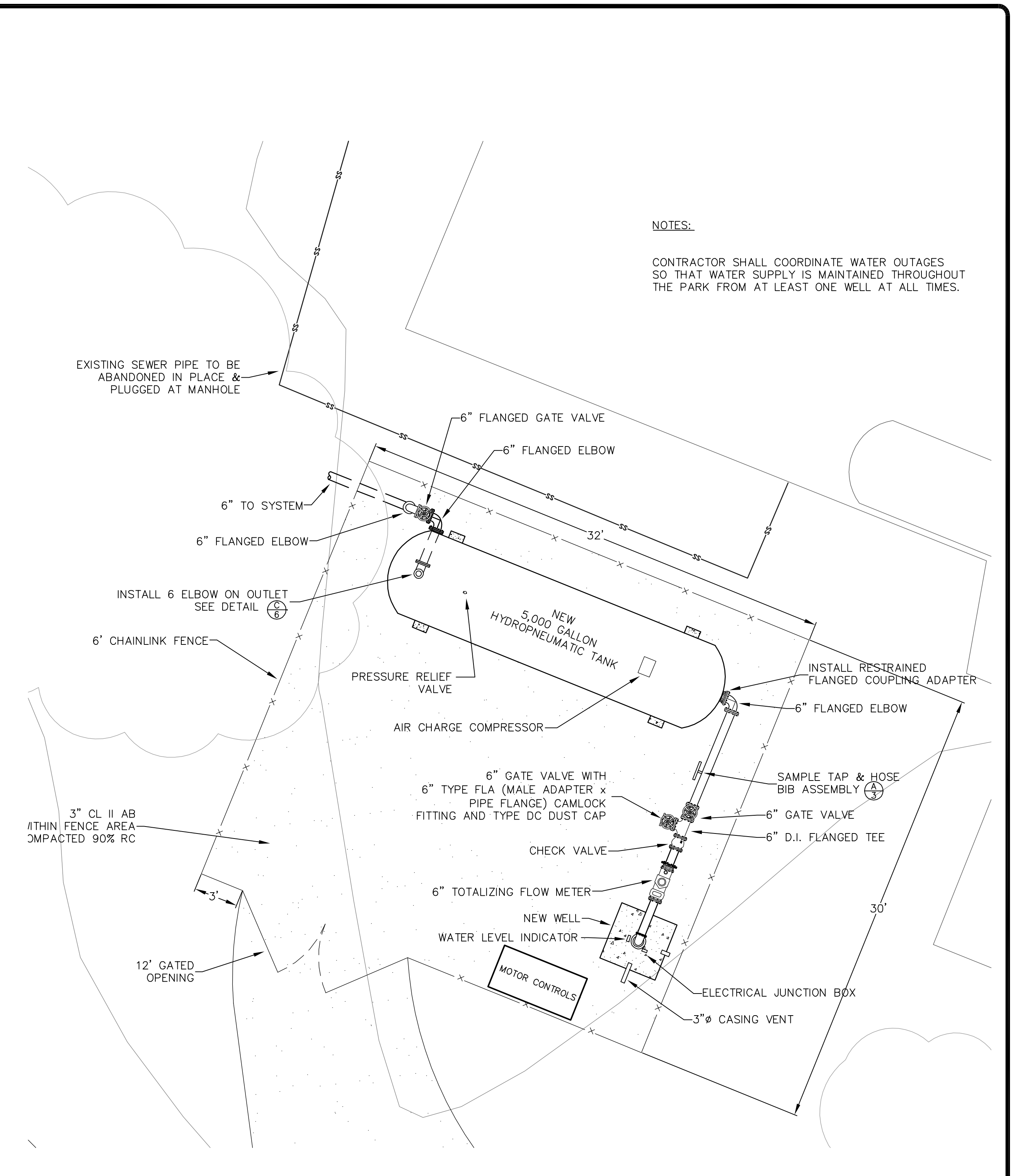
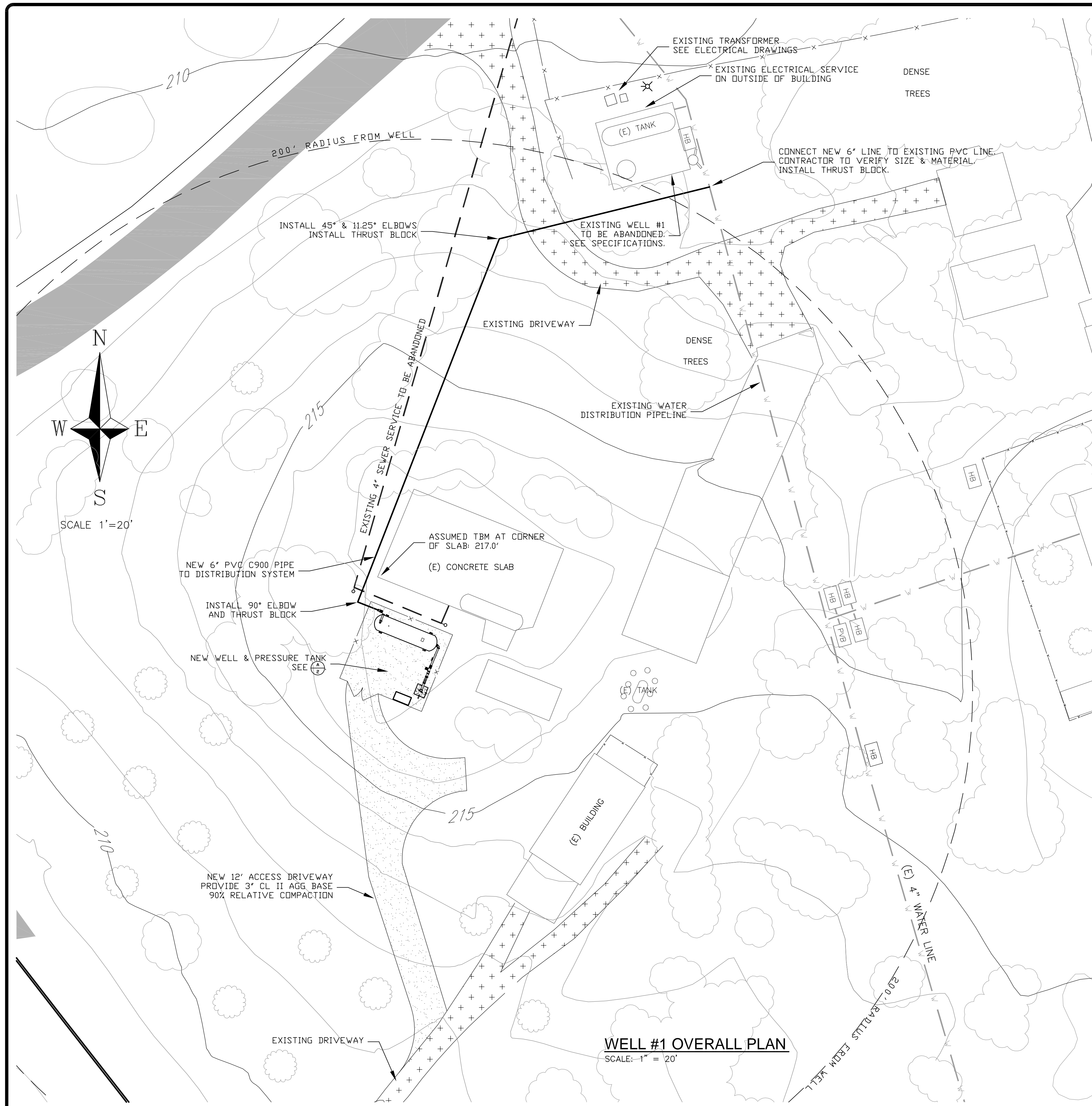
SHEET INDEX

- SHEET 1 - COVER AND INDEX
- SHEET 2 - WELL # 1 SITE PLAN
- SHEET 3 - WELL # 1 WELL HEAD DETAIL
- SHEET 4 - WELL # 2 SITE PLAN
- SHEET 5 - WELL # 2 WELL HEAD DETAIL
- SHEET 6 - TANK PROFILE AND FOUNDATION
- SHEET 7 - CHAIN LINK FENCE DETAILS
- SHEET 8 - PLAN AND PROFILE 1 STA. 100+00 TO 111+50
- SHEET 9 - PLAN AND PROFILE 2 STA. 111+50 TO 124+50
- SHEET 10 - PIPE DETAILS
- SHEET 11 - ELECTRICAL - SYMBOLS AND ABBREVIATIONS
- SHEET 12 - WELL SITE NO. 1 ELECTRICAL PLAN
- SHEET 13 - WELL SITE NO. 1 SINGLE LINE AND ELEVATION
- SHEET 14 - WELL SITE NO. 1 CONTROL WIRING DIAGRAM
- SHEET 15 - WELL SITE NO. 2 ELECTRICAL PLAN
- SHEET 16 - WELL SITE NO. 2 SINGLELINE AND ELEVATION
- SHEET 17 - WELL SITE NO. 2 CONTROL WIRING DIAGRAM
- SHEET 18 - ELECTRICAL DETAILS I
- SHEET 19- ELECTRICAL DETAILS II

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Civil and Environmental Engineers

440 Lower Grass Valley Road, Suite A, Nevada City, CA 95959  
Telephone (530) 265-8021

REVISIONS		APPROVALS		COUNTY OF STANISLAUS DEPARTMENT OF PARKS AND RECREATION	DRAWING COVER
NO.	ITEM	DATE			
△				WOODWARD RESERVOIR WATER WELL AND WATER FILTRATION SYSTEM	SHEET 1 OF 19
△					
△				DEPARTMENT	
△				DEPARTMENT	
△				DATE: SEPTEMBER 17, 2007	SCALE:
△				DRAFTED:	CHECKED:
				FILE NO:	W.O. NO:



NOTES:  
 CONTRACTOR SHALL COORDINATE WATER OUTAGES SO THAT WATER SUPPLY IS MAINTAINED THROUGHOUT THE PARK FROM AT LEAST ONE WELL AT ALL TIMES.

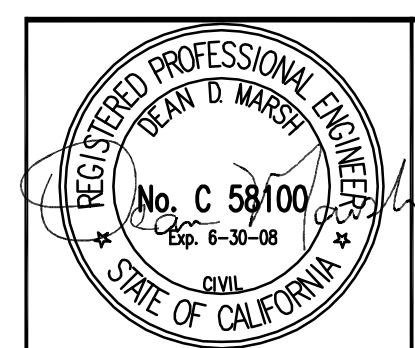
**WELL #1 SITE PLAN**  
 SCALE: 1" = 5'

**WELL #1 OVERALL PLAN**  
 SCALE: 1" = 20'



**LEGEND**

PVB	PRESSURE VACUUM BREAKER	GATE VALVE / SHUT-OFF VALVE
HB	HOSE BIB	SEWER MANHOLE
DF	DRINKING FOUNTAIN	WHARF FIRE HYDRANT



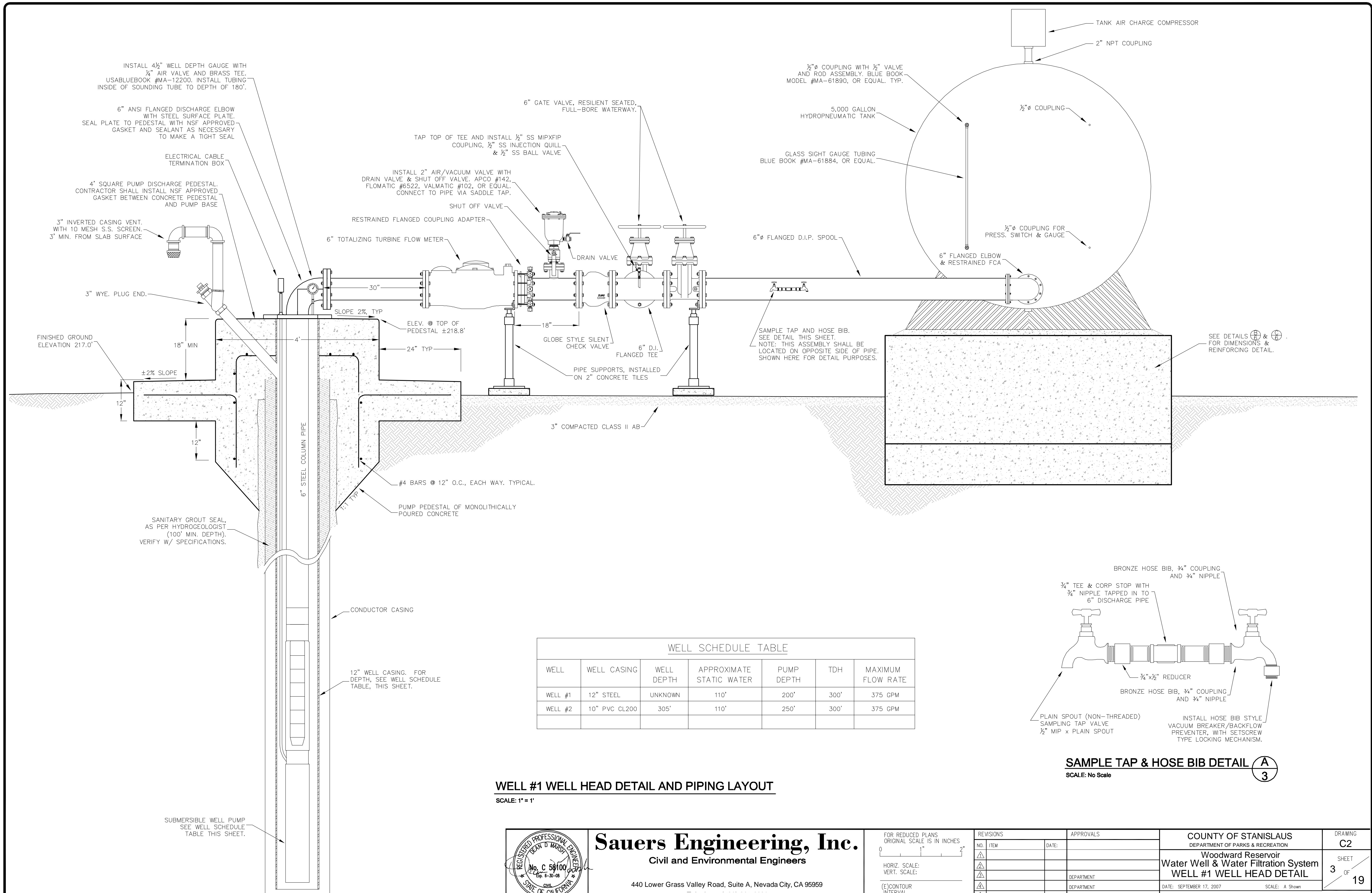
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 Civil and Environmental Engineers  
 440 Lower Grass Valley Road, Suite A, Nevada City, CA 95959

FOR REDUCED PLANS  
 ORIGINAL SCALE IS IN INCHES  
 0 1" 2"  
 HORIZ. SCALE:  
 VERT. SCALE:  
 (E) CONTOUR  
 INTERVAL

REVISIONS		APPROVALS	
NO.	ITEM	DATE:	

COUNTY OF STANISLAUS DEPARTMENT OF PARKS & RECREATION		DRAWING C1
Woodward Reservoir Water Well & Water Filtration System WELL #1 SITE PLAN		SHEET 2 OF 19
DATE: SEPTEMBER 17, 2007	SCALE: As Shown	
DRAFTED: KEM	CHECKED: DDM	FILE NO. W.O. NO.

NOTE: THE TYPES, LOCATIONS, SIZES AND DEPTHS OF WATER AND SEWER FACILITIES SHOWN ON THESE MAPS COME FROM SOURCES OF VARYING RELIABILITY. ONLY ACTUAL EXCAVATION AND PHYSICAL MEASUREMENTS WILL VERIFY SUCH UTILITIES. SAUERS ENGINEERING, INC. ASSUMES NO RESPONSIBILITY OR LIABILITY FOR THE ACCURACY OF THE UTILITIES SHOWN OR FOR THE EXISTENCE OF OTHER UNDERGROUND UTILITIES THAT MAY EXIST, BUT ARE NOT SHOWN.



INSTALL 4 1/2" WELL DEPTH GAUGE WITH 1/2" AIR VALVE AND BRASS TEE. USABLUBOOK #MA-12200. INSTALL TUBING INSIDE OF SOUNDING TUBE TO DEPTH OF 180'.

6" ANSI FLANGED DISCHARGE ELBOW WITH STEEL SURFACE PLATE. SEAL PLATE TO PEDESTAL WITH NSF APPROVED GASKET AND SEALANT AS NECESSARY TO MAKE A TIGHT SEAL.

ELECTRICAL CABLE TERMINATION BOX

4" SQUARE PUMP DISCHARGE PEDESTAL. CONTRACTOR SHALL INSTALL NSF APPROVED GASKET BETWEEN CONCRETE PEDESTAL AND PUMP BASE

3" INVERTED CASING VENT. WITH 10 MESH S.S. SCREEN. 3' MIN. FROM SLAB SURFACE

3" WYE. PLUG END.

FINISHED GROUND ELEVATION 217.0'

18" MIN

±2% SLOPE

12"

12"

SANITARY GROUT SEAL, AS PER HYDROGEOLOGIST (100' MIN. DEPTH). VERIFY W/ SPECIFICATIONS.

6" STEEL COLUMN PIPE

CONDUCTOR CASING

12" WELL CASING. FOR DEPTH, SEE WELL SCHEDULE TABLE, THIS SHEET.

SUBMERSIBLE WELL PUMP SEE WELL SCHEDULE TABLE THIS SHEET.

SLOPE 2%, TYP

ELEV. @ TOP OF PEDESTAL ±218.8'

24" TYP

30"

18"

6" TOTALIZING TURBINE FLOW METER

RESTRAINED FLANGED COUPLING ADAPTER

SHUT OFF VALVE

DRAIN VALVE

6" GATE VALVE, RESILIENT SEATED, FULL-BORE WATERWAY.

TAP TOP OF TEE AND INSTALL 1/2" SS MIPXIFIP COUPLING, 1/2" SS INJECTION QUILL & 1/2" SS BALL VALVE

INSTALL 2" AIR/VACUUM VALVE WITH DRAIN VALVE & SHUT OFF VALVE. APCO #142, FLOMATIC #6522, VALMATIC #102, OR EQUAL. CONNECT TO PIPE VIA SADDLE TAP.

6" FLANGED D.I.P. SPOOL

5,000 GALLON HYDROPNEUMATIC TANK

GLASS SIGHT GAUGE TUBING BLUE BOOK #MA-61884, OR EQUAL.

1/2" COUPLING

1/2" COUPLING FOR PRESS. SWITCH & GAUGE

6" FLANGED ELBOW & RESTRAINED FCA

SEE DETAILS FOR DIMENSIONS & REINFORCING DETAIL.

3" COMPACTED CLASS II AB

PIPE SUPPORTS, INSTALLED ON 2" CONCRETE TILES

GLOBE STYLE SILENT CHECK VALVE

6" D.I. FLANGED TEE

6" D.I. FLANGED TEE

6" D.I. FLANGED TEE

6" D.I. FLANGED TEE

6" D.I. FLANGED TEE

6" D.I. FLANGED TEE

6" D.I. FLANGED TEE

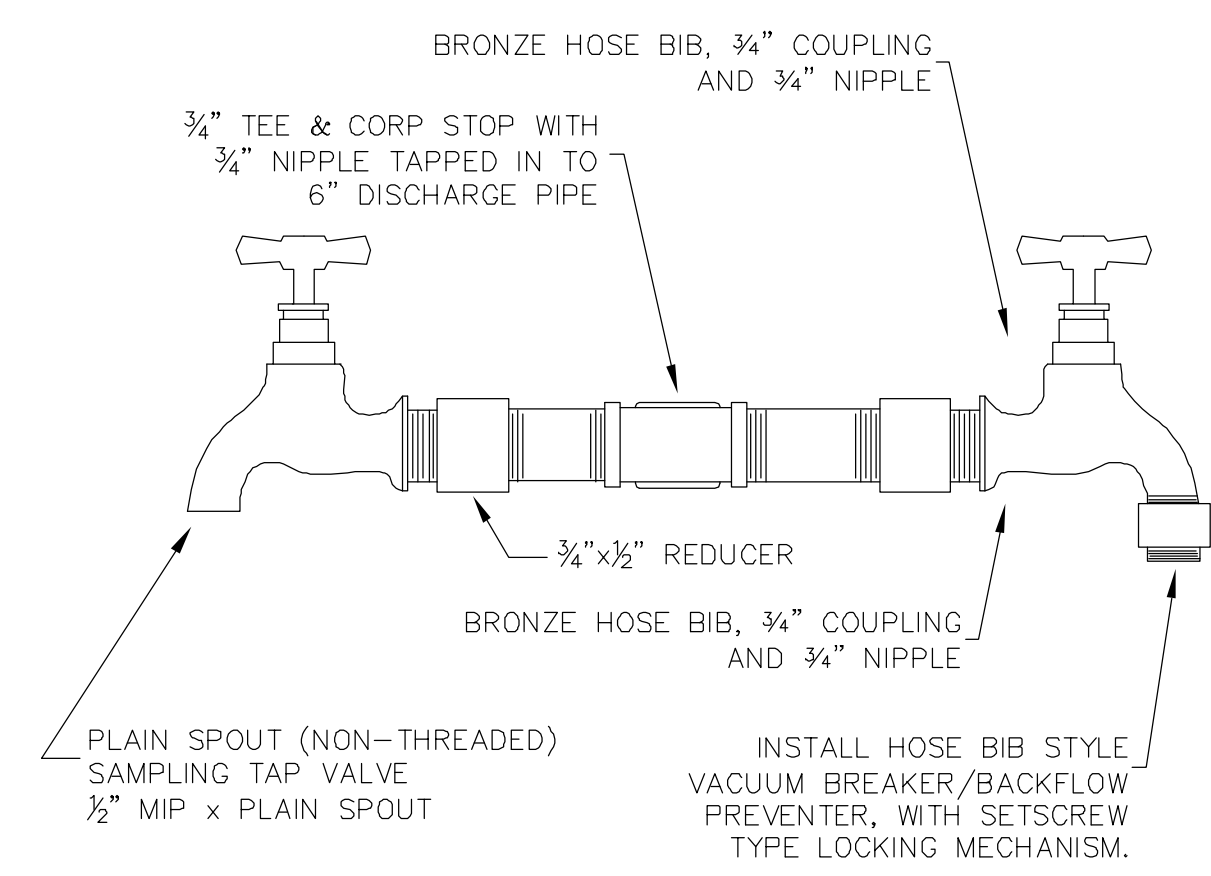
6" D.I. FLANGED TEE

WELL SCHEDULE TABLE

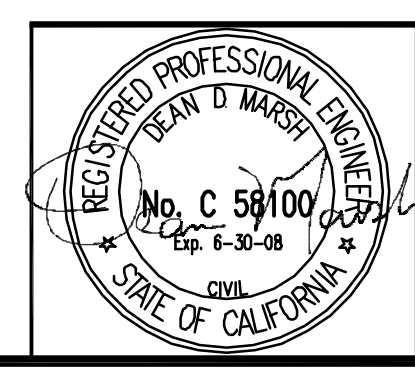
WELL	WELL CASING	WELL DEPTH	APPROXIMATE STATIC WATER	PUMP DEPTH	TDH	MAXIMUM FLOW RATE
WELL #1	12" STEEL	UNKNOWN	110'	200'	300'	375 GPM
WELL #2	10" PVC CL200	305'	110'	250'	300'	375 GPM

WELL #1 WELL HEAD DETAIL AND PIPING LAYOUT

SCALE: 1" = 1'



SAMPLE TAP & HOSE BIB DETAIL (A) 3  
SCALE: No Scale



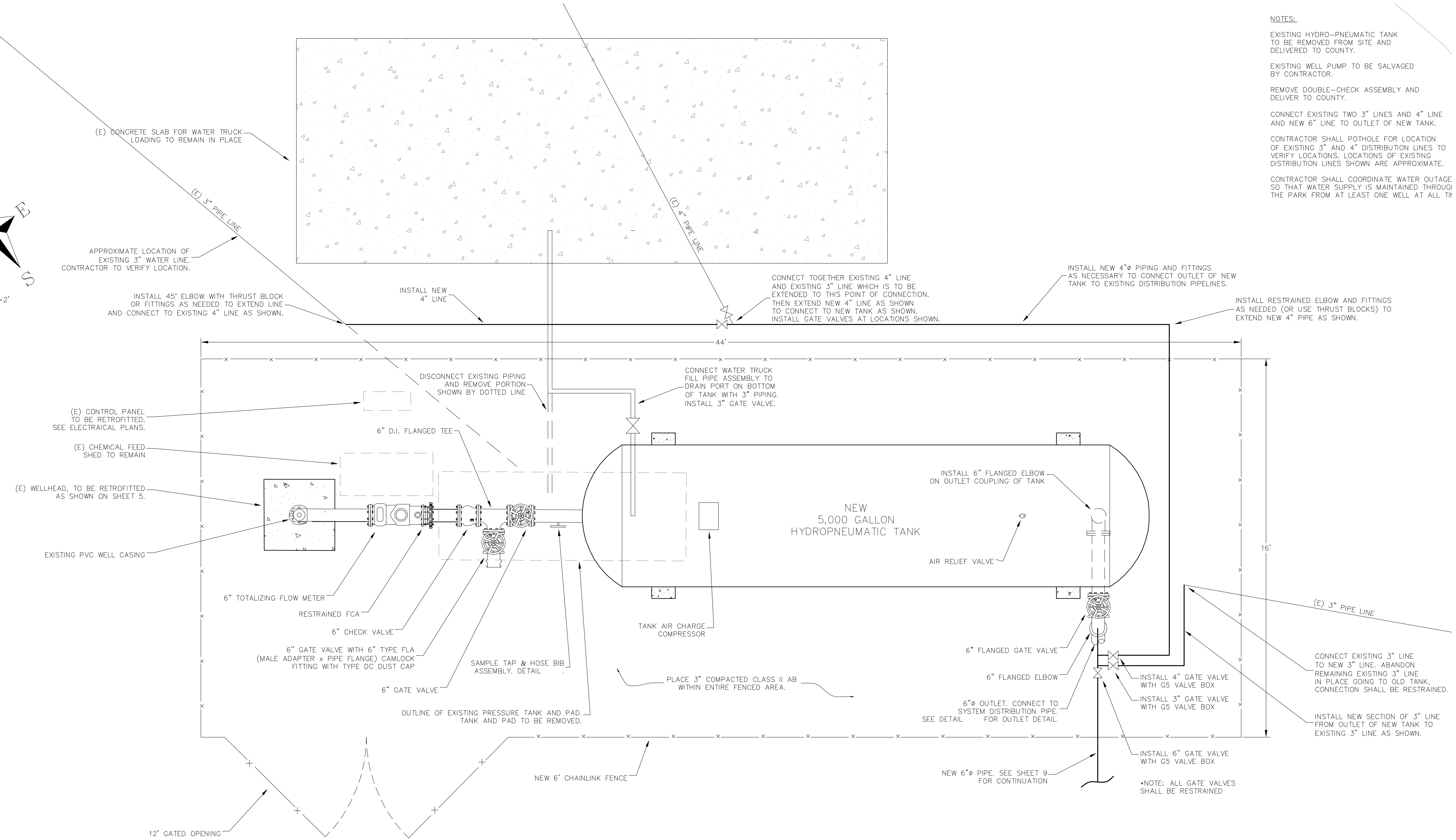
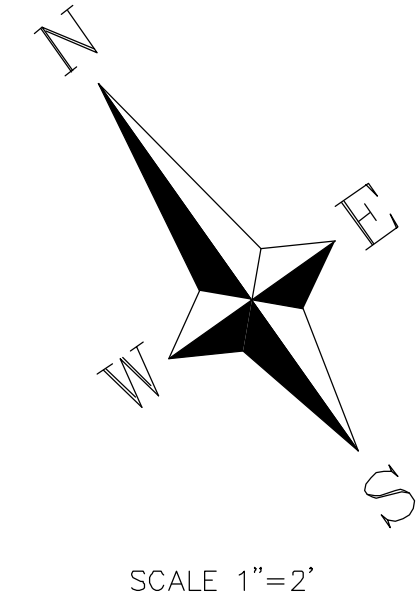
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440 Lower Grass Valley Road, Suite A, Nevada City, CA 95959

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES  
0 1" 2"  
HORIZ. SCALE:  
VERT. SCALE:  
(E) CONTOUR INTERVAL

REVISIONS		APPROVALS	
NO.	ITEM	DATE:	

COUNTY OF STANISLAUS  
DEPARTMENT OF PARKS & RECREATION  
Woodward Reservoir  
Water Well & Water Filtration System  
WELL #1 WELL HEAD DETAIL  
DATE: SEPTEMBER 17, 2007  
DRAFTED: KEM  
CHECKED: DDM  
SCALE: A Shown  
FILE NO:  
W.O. NO:

DRAWING C2  
SHEET 3 OF 19



**NOTES:**

EXISTING HYDRO-PNEUMATIC TANK TO BE REMOVED FROM SITE AND DELIVERED TO COUNTY.

EXISTING WELL PUMP TO BE SALVAGED BY CONTRACTOR.

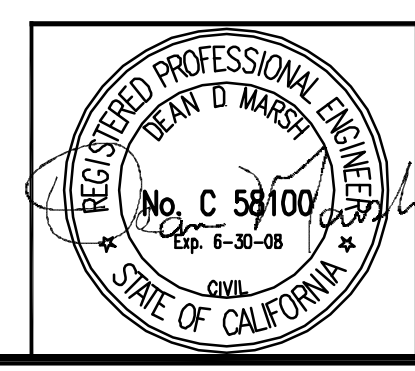
REMOVE DOUBLE-CHECK ASSEMBLY AND DELIVER TO COUNTY.

CONNECT EXISTING TWO 3" LINES AND 4" LINE AND NEW 6" LINE TO OUTLET OF NEW TANK.

CONTRACTOR SHALL POTHOLE FOR LOCATION OF EXISTING 3" AND 4" DISTRIBUTION LINES TO VERIFY LOCATIONS. LOCATIONS OF EXISTING DISTRIBUTION LINES SHOWN ARE APPROXIMATE.

CONTRACTOR SHALL COORDINATE WATER OUTAGE SO THAT WATER SUPPLY IS MAINTAINED THROUGH THE PARK FROM AT LEAST ONE WELL AT ALL TI

**WELL #2 SITE PLAN** A  
4  
SCALE: 1" = 2'

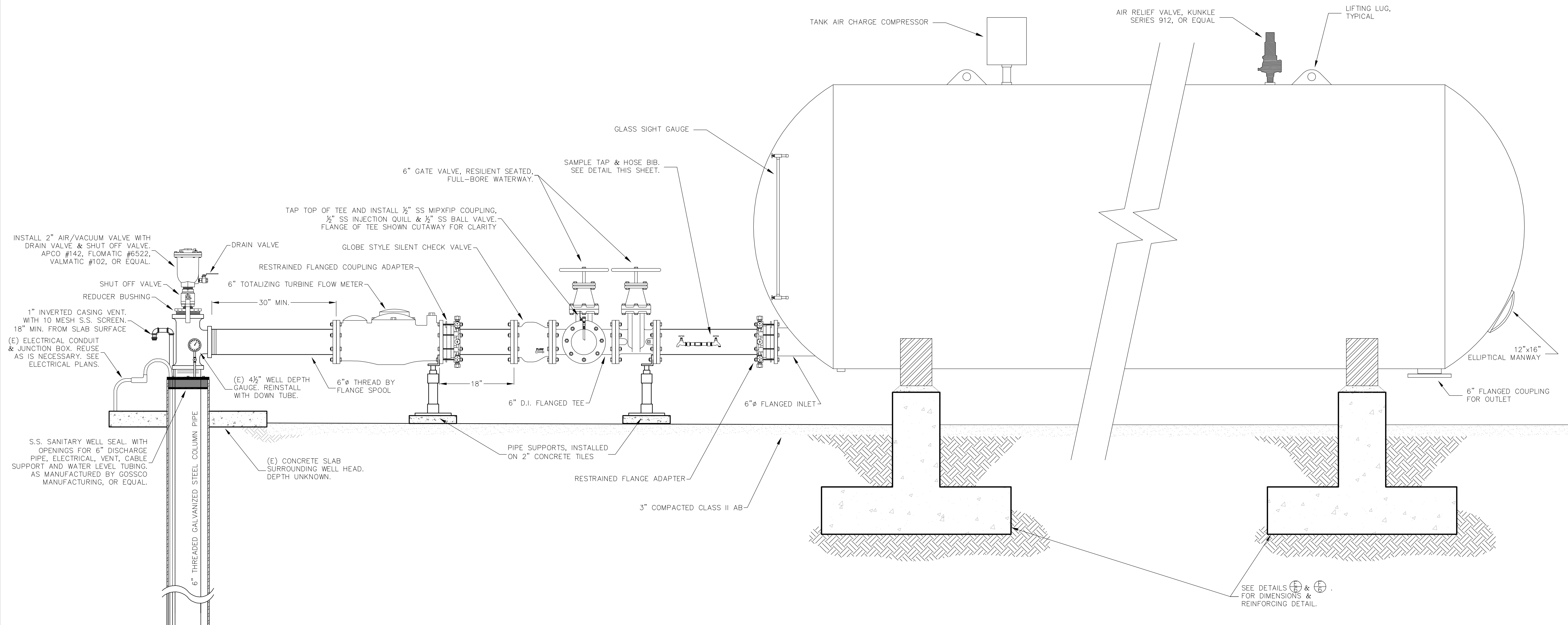


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FOR REDUCED PLANS  
ORIGINAL SCALE IS IN INCHES  
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REVISIONS		APPROVALS	
NO.	ITEM	DATE	

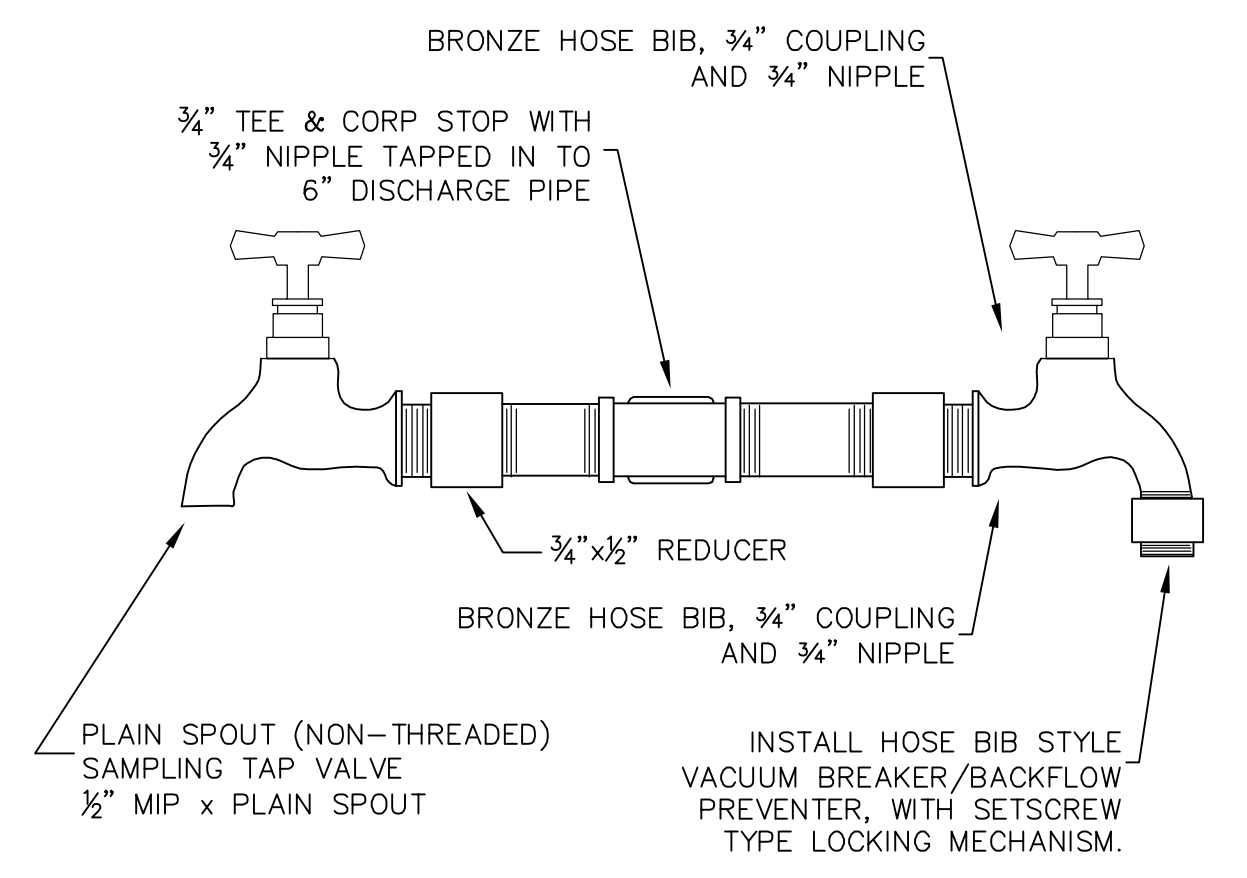
COUNTY OF STANISLAUS DEPARTMENT OF PARKS & RECREATION		DRAWING C3
Woodward Reservoir Water Well & Water Filtration System WELL #2 SITE PLAN		SHEET 4 OF 19
DATE: SEPTEMBER 17, 2007	SCALE: A Shown	
DRAFTED: KEM	CHECKED: DDM	FILE NO:
		W.O. NO:



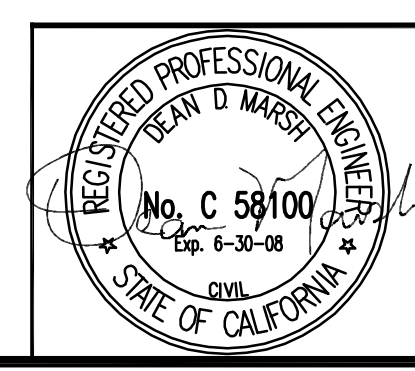
**WELL SCHEDULE TABLE**

WELL	WELL CASING	WELL DEPTH	APPROXIMATE STATIC WATER	PUMP DEPTH	TDH	MAXIMUM FLOW RATE
WELL #1	12" STEEL	UNKNOWN	110'	200'	300'	375 GPM
WELL #2	10" PVC CL200	305'	110'	250'	300'	375 GPM

**WELL #2 WELL HEAD DETAIL AND PIPING LAYOUT**  
SCALE: 1" = 1'



**SAMPLE TAP & HOSE BIB DETAIL (A)**



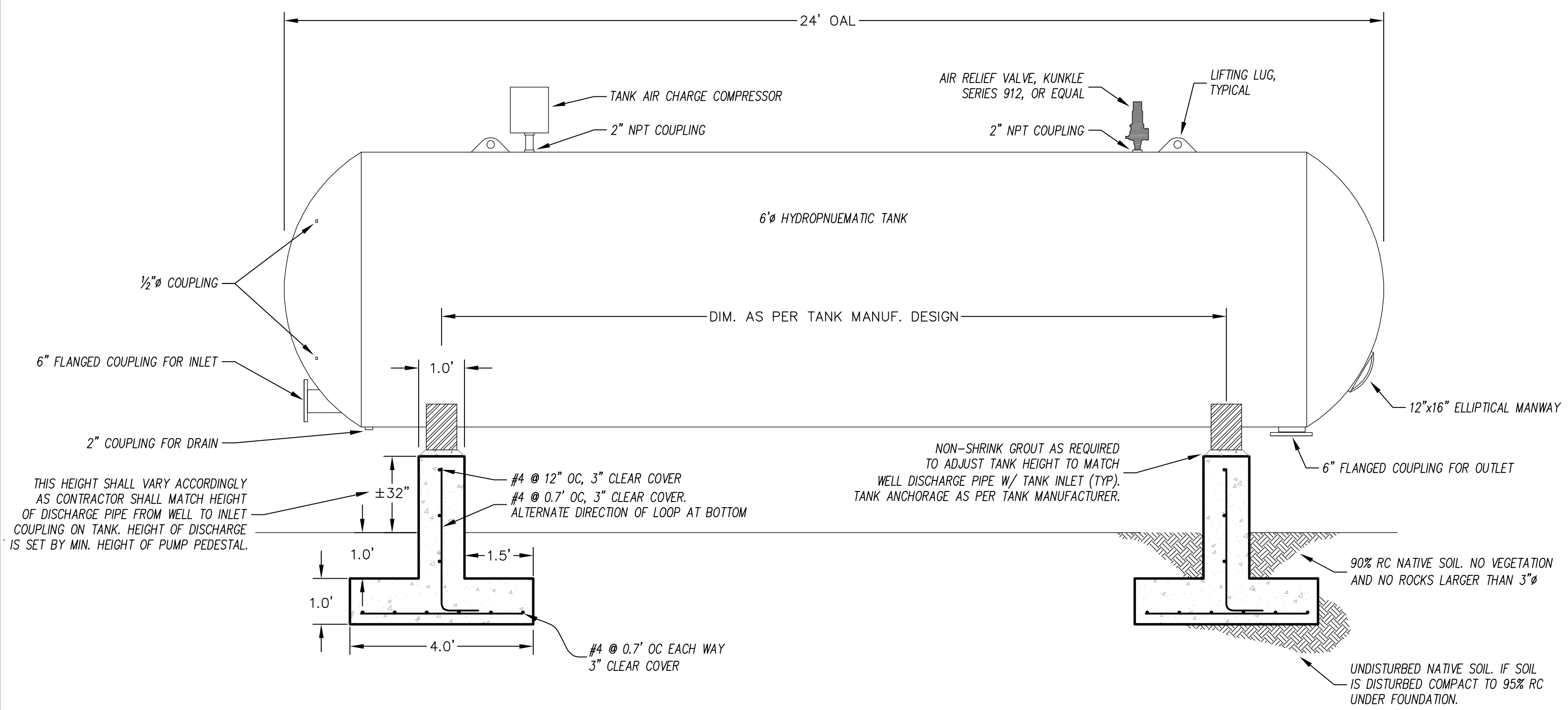
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440 Lower Grass Valley Road, Suite A, Nevada City, CA 95959

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES  
0 1" 2"  
HORIZ. SCALE:  
VERT. SCALE:  
(E) CONTOUR INTERVAL

REVISIONS		APPROVALS	
NO.	ITEM	DATE	
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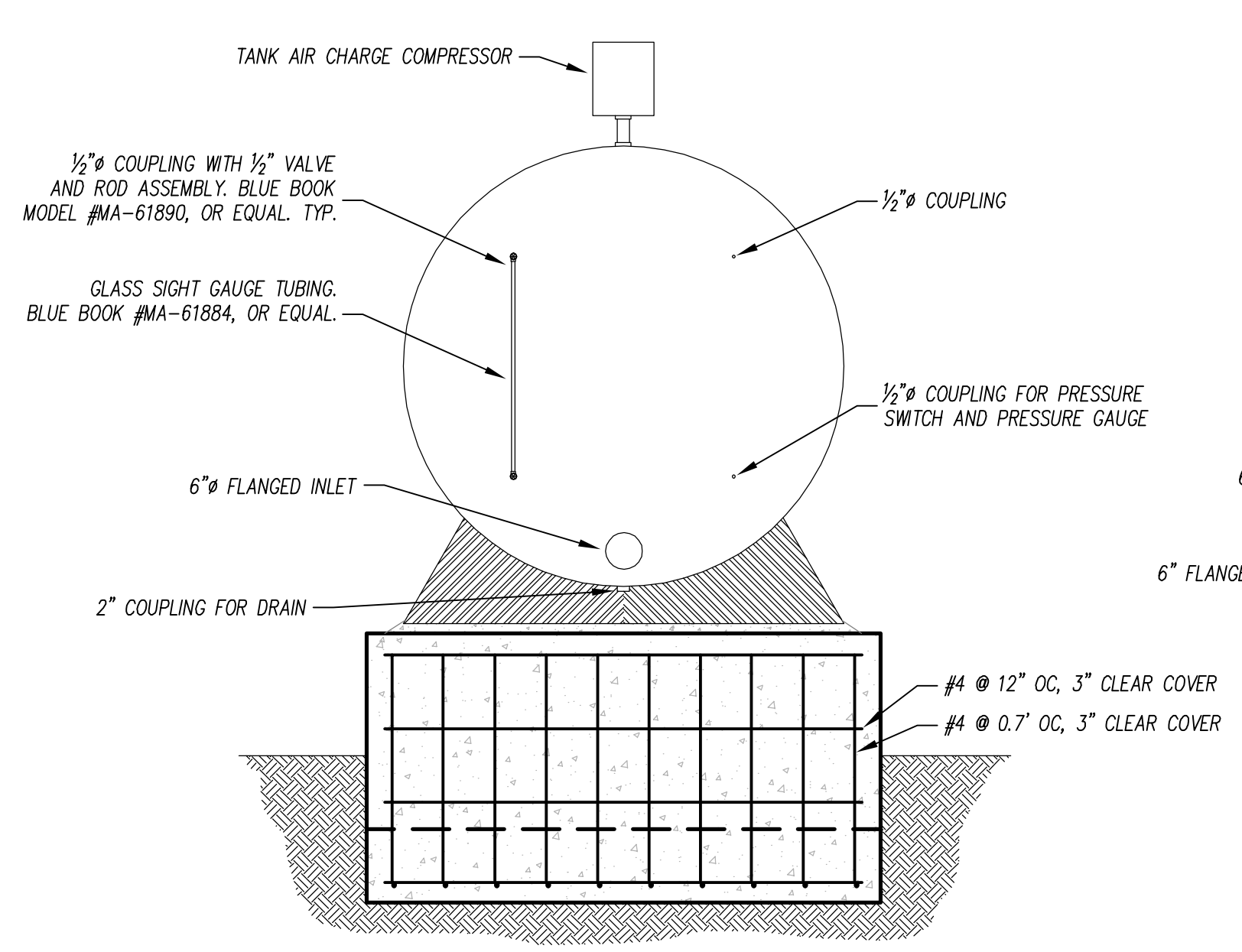
COUNTY OF STANISLAUS  
DEPARTMENT OF PARKS & RECREATION  
Woodward Reservoir  
Water Well & Water Filtration System  
**WELL #2 WELL HEAD DETAIL**  
DATE: SEPTEMBER 17, 2007 SCALE: A Shown  
DRAFTED: KEM CHECKED: DOM FILE NO. W.O. NO.

DRAWING C4  
SHEET 5 OF 19

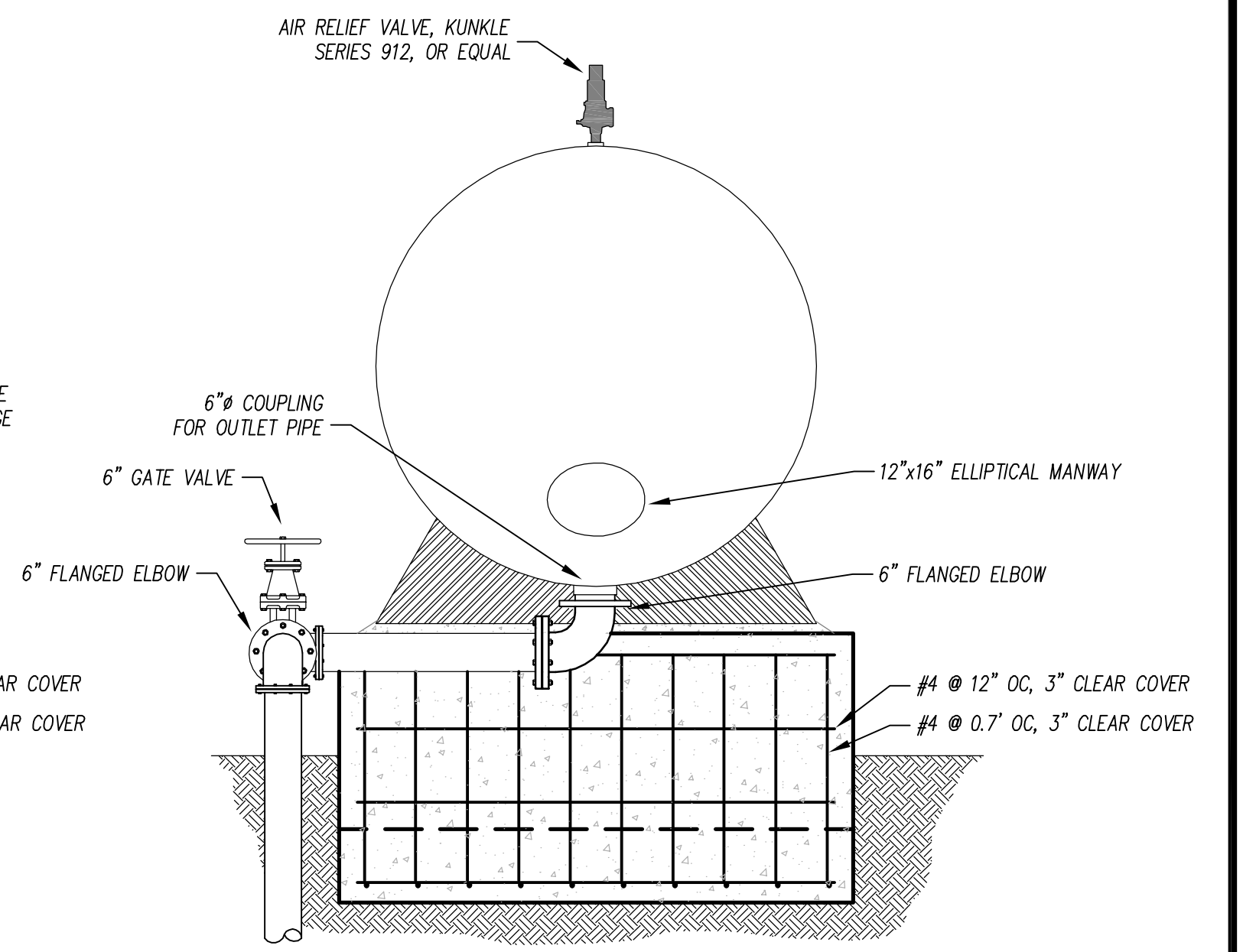


**WELL #1 HYDROPNEUMATIC TANK PROFILE & FOUNDATION** (A/6)  
SCALE: 1" = 2'

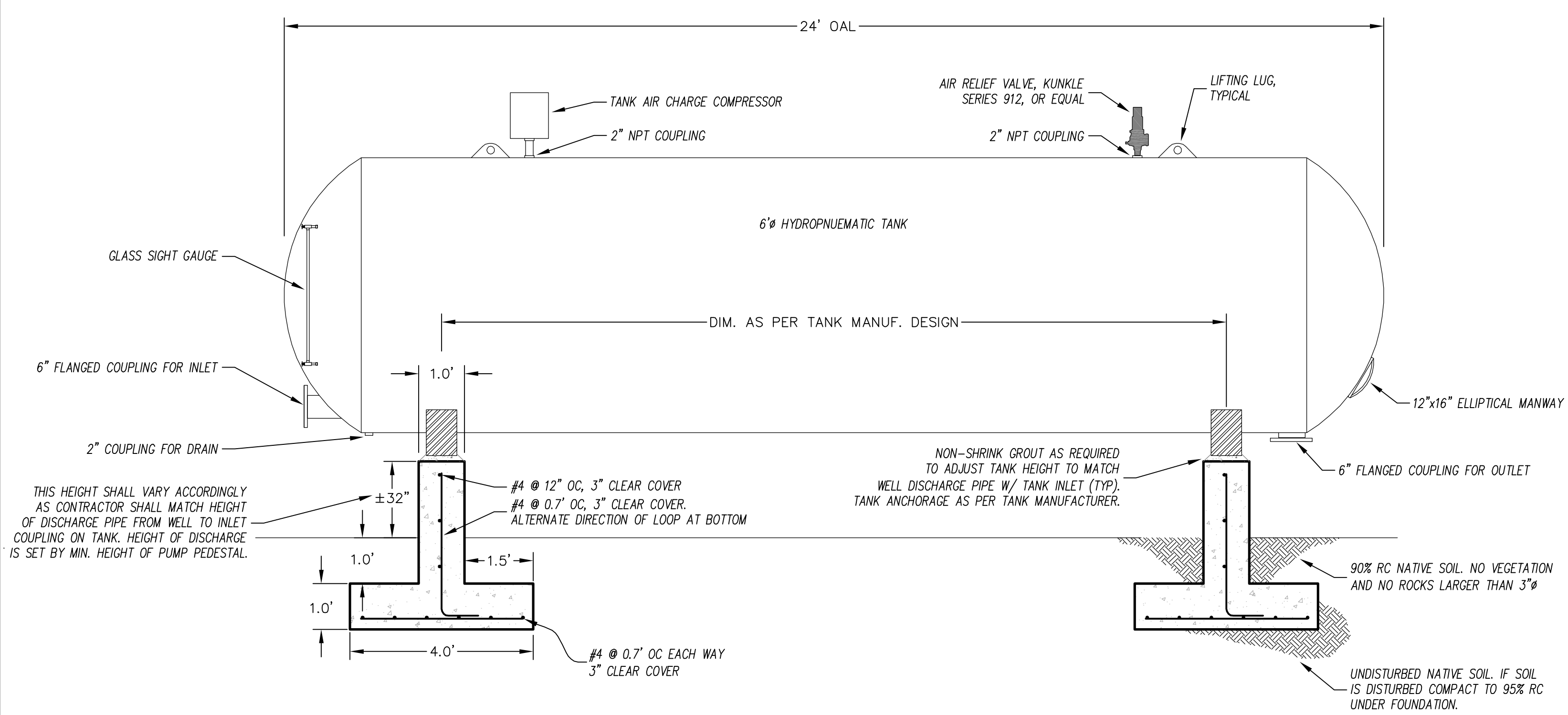
\* FOR DETAIL ON THE INLET PIPING, SEE SHEET 3.



**WELL #1 INLET END DETAILS** (B/6)  
SCALE: 1" = 2'

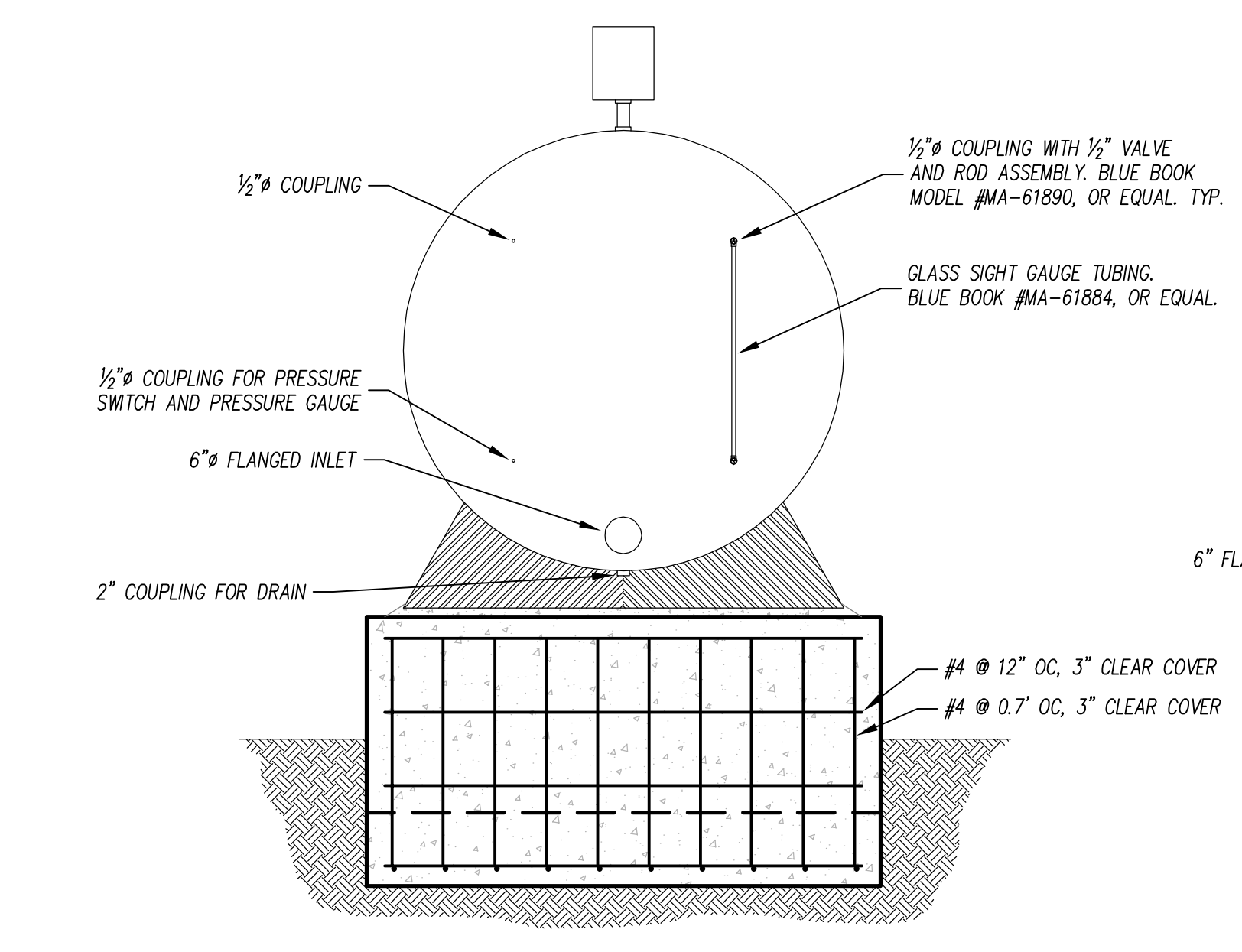


**WELL #1 OUTLET END DETAILS** (C/6)  
SCALE: 1" = 2'

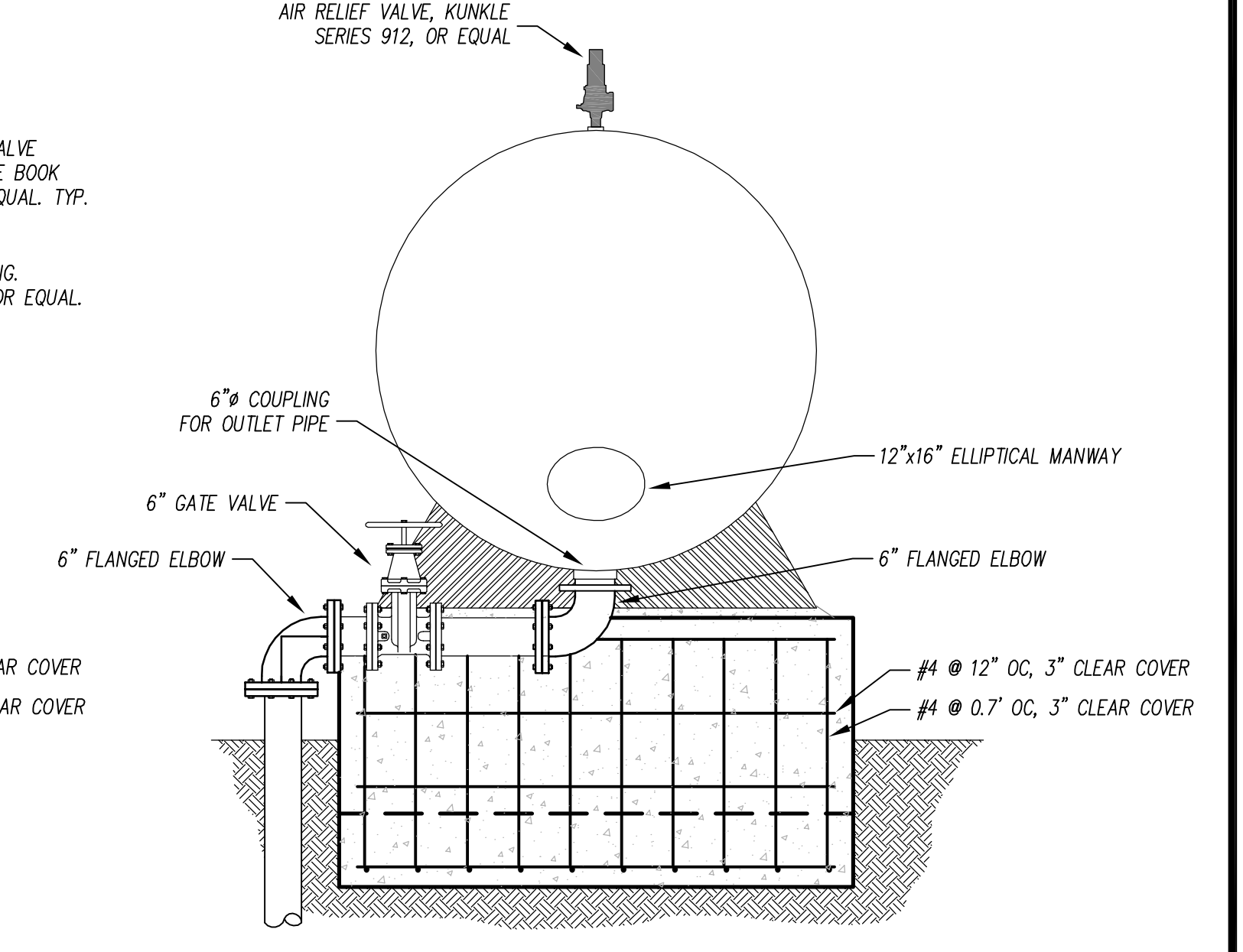


**WELL #2 HYDROPNEUMATIC TANK PROFILE & FOUNDATION** (D/6)  
SCALE: 1" = 2'

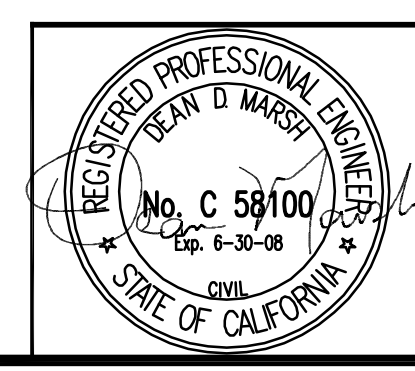
\* FOR DETAIL ON THE INLET PIPING, SEE SHEET 3.



**WELL #2 INLET END DETAILS** (E/6)  
SCALE: 1" = 2'



**WELL #2 OUTLET END DETAILS** (F/6)  
SCALE: 1" = 2'

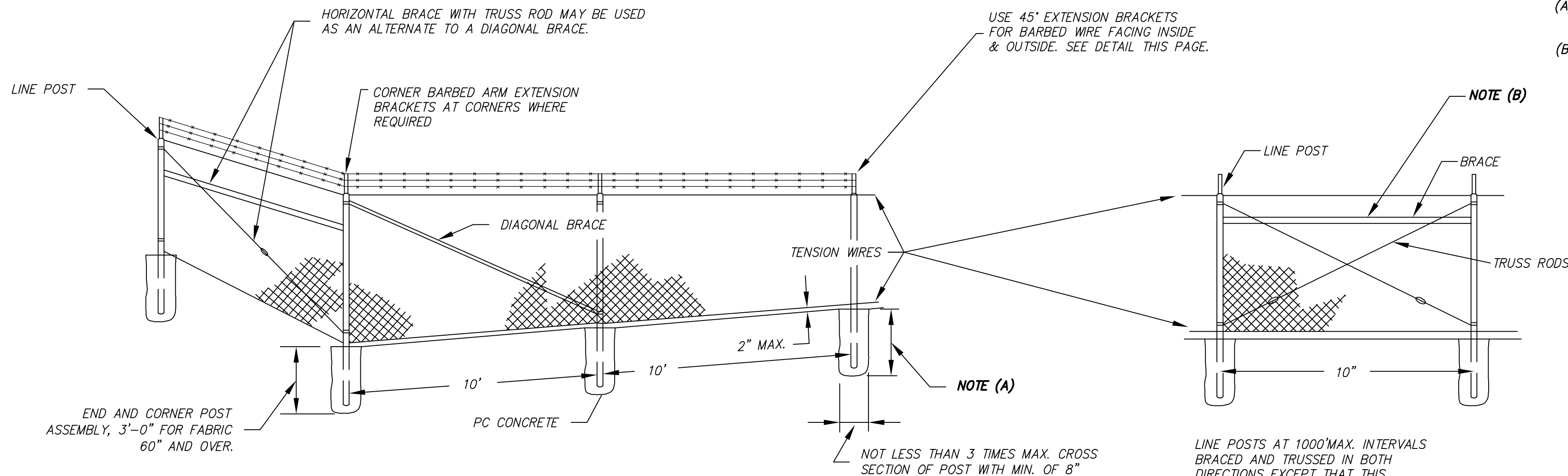


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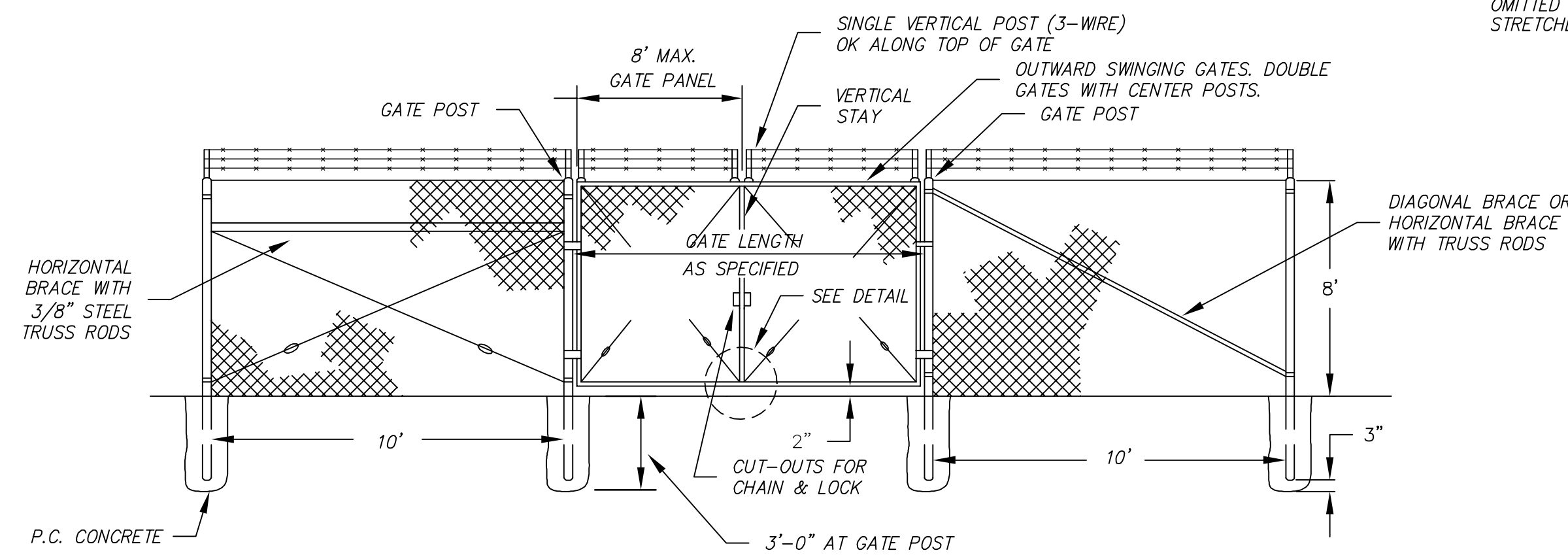
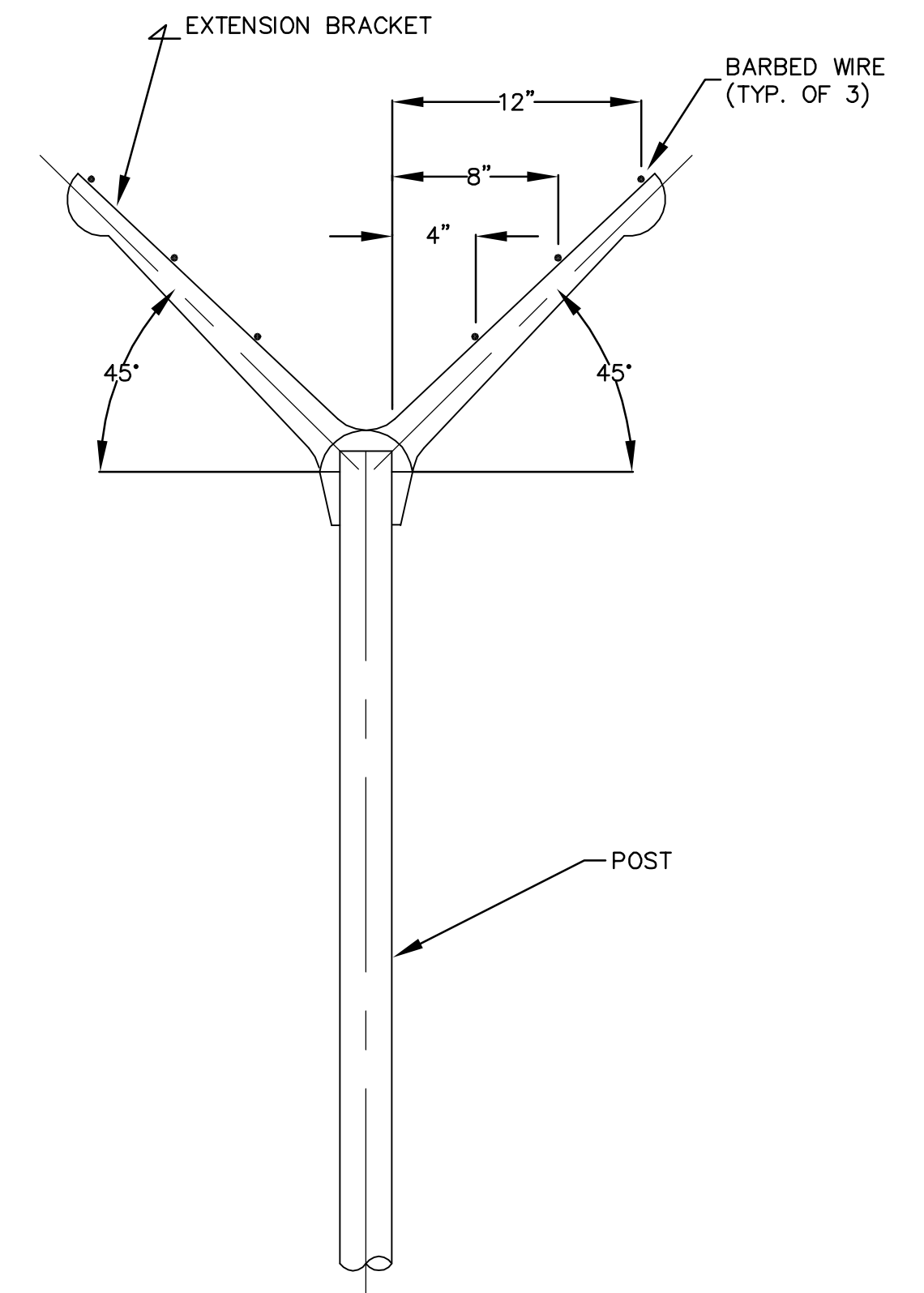
FOR REDUCED PLANS  
ORIGINAL SCALE IS IN INCHES  
0 1" 2"  
HORIZ. SCALE:  
VERT. SCALE:  
(E) CONTOUR  
INTERVAL

REVISIONS		APPROVALS	
NO.	ITEM	DATE:	
1			
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3			
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5			

COUNTY OF STANISLAUS DEPARTMENT OF PARKS & RECREATION		DRAWING C5
Woodward Reservoir Water Well & Water Filtration System TANK PROFILE & FOUNDATION		SHEET 6 OF 19
DATE: SEPTEMBER 17, 2007	SCALE: As Shown	
DRAFTED: KEM	CHECKED: DOM	FILE NO:
		W.O. NO.

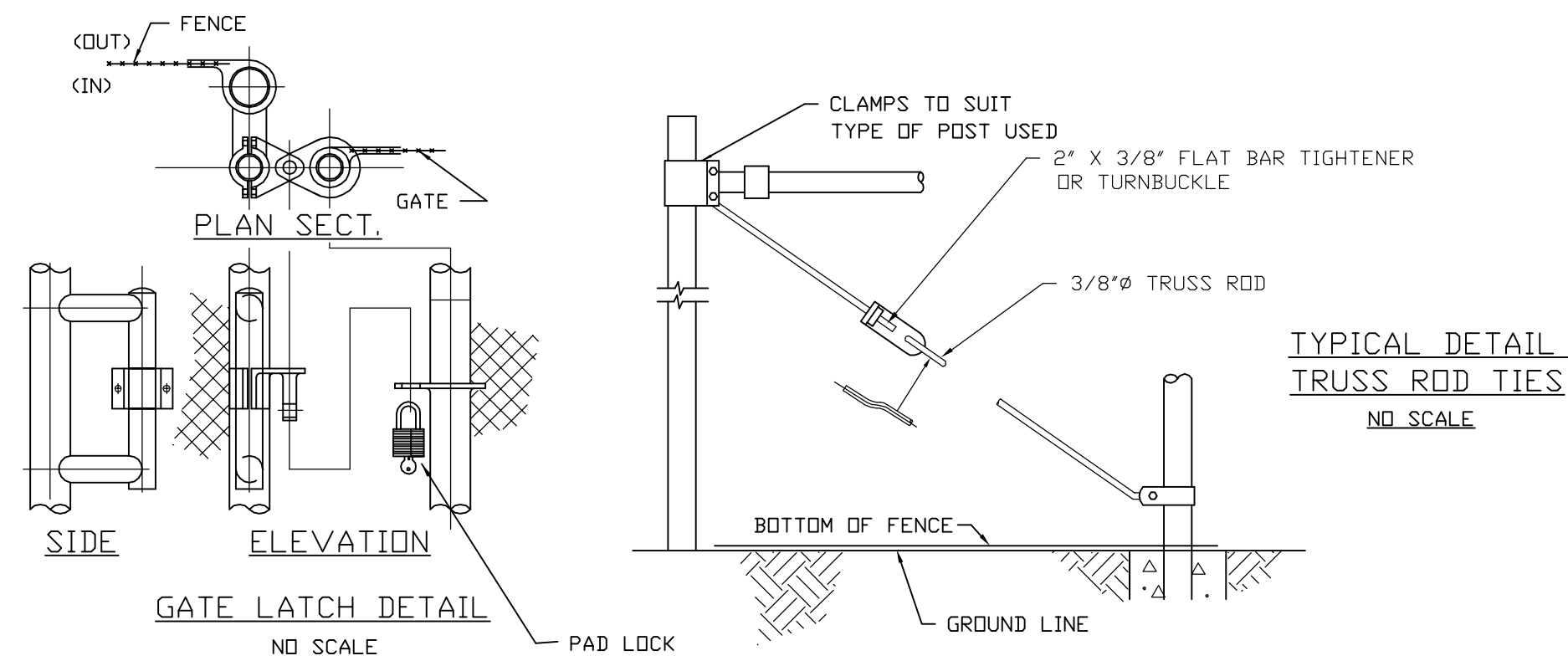


- NOTES:
- (A) 3'-0" FOR FABRIC 60" AND OVER
  - (B) BRACE TO REMAIN IN PLACE THROUGHOUT ENTIRE LENGTH OF FENCE. TENSION WIRE ALONE IS NOT SUITABLE.



NOTE: PROVIDE BROWN VINYL SLATS IN FENCE AND GATE.

2/7 NTS BARBED WIRE SUPPORT ARM & POST CAP DETAIL



FENCE HEIGHT	LINE POSTS		END, LATCH & CORNER POSTS		BRACES	
	ROUND (I.D.)	H	ROUND (I.D.)	H	ROUND (I.D.)	H
OVER 6'	2"	2'-4" x 2"	2'-2" x 2"	2'-2" x 3"	1'-4" x 1"	1'-2" x 1'-10"

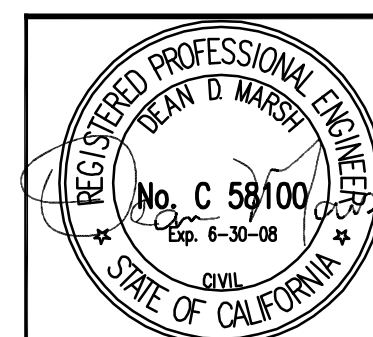
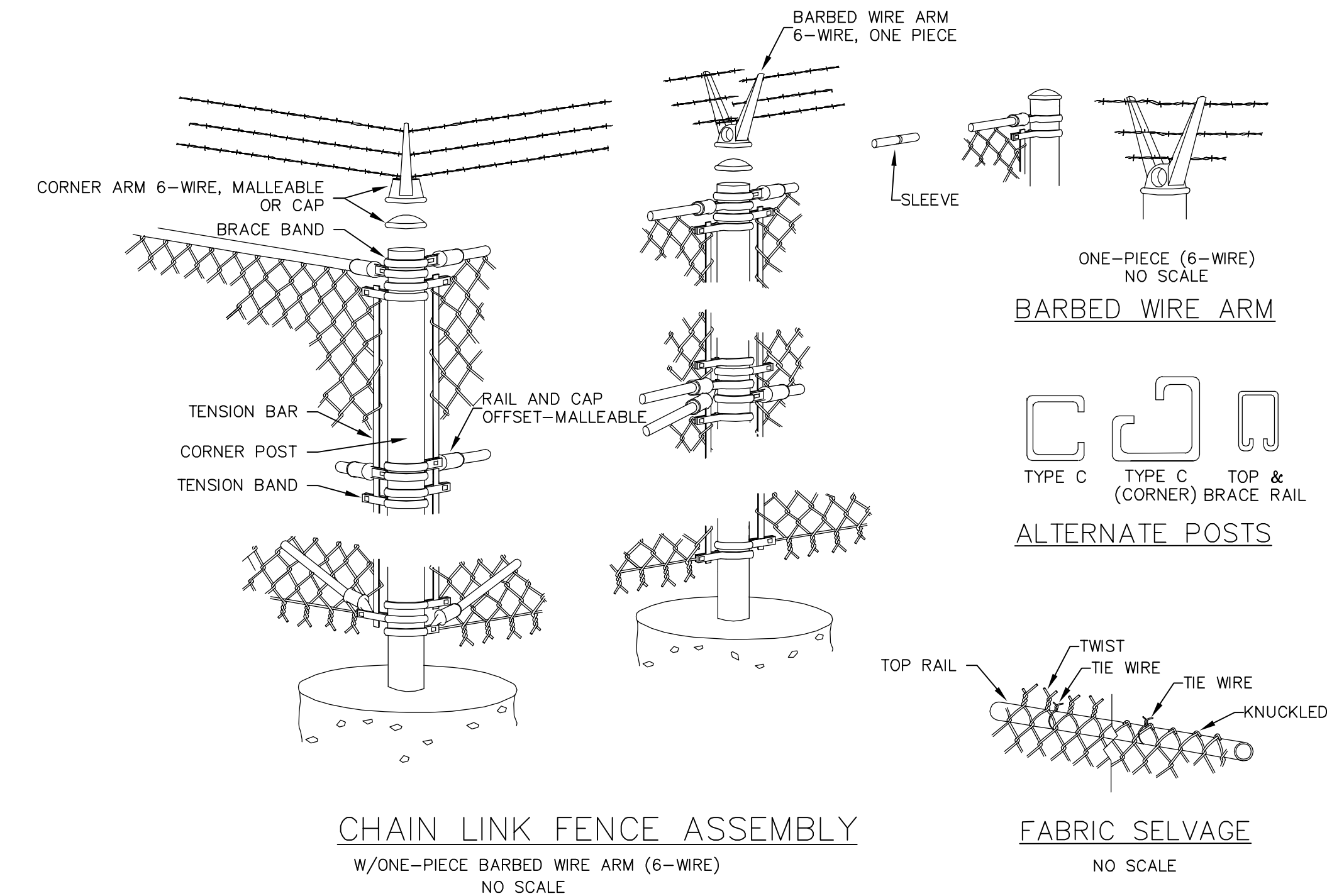
GATE POST			
FENCE HEIGHT	GATE WIDTHS	NOMINAL I.D.	WEIGHT PER FOOT
OVER 6'	UP THRU 6'	3"	7.58
	OVER 6' THRU 12'	5"	14.62
	OVER 12' THRU 18'	6"	18.97
	OVER 18' TO 24' MAX.	8"	28.55

NOTE: ABOVE POST DIMENSIONS AND WEIGHTS ARE MINIMUMS. LARGER SIZES MAY BE USED ON APPROVAL OF ENGINEER.

- NOTES:
- THE TABLE ABOVE SHOWS EXAMPLES OF POST AND BRACE SECTIONS WHICH MAY COMPLY WITH THE SPECIFICATIONS.
  - SECTIONS SHOWN IN THE TABLES MUST ALSO COMPLY WITH THE STRENGTH REQUIREMENTS AND OTHER PROVISIONS OF THE SPECIFICATIONS.
  - OPTIONS EXERCISED SHALL BE UNIFORM ON ANY ONE PROJECT.
  - DIMENSIONS SHOWN ARE NOMINAL.
  - TYPICAL MEMBER DIMENSIONS AND GATE POST TABLES DETAIL (LSC-28A).
  - CONTRACTOR SHALL SUBMIT CALCULATIONS AND SUBMITTALS SHOWING FENCE & GATE IS CAPABLE OF MEETING SNOW LOAD CONDITIONS.

- PROJECT SPECIFIC NOTES:
- ALL CHAIN LINK FENCE, GATES, AND POSTS SHALL CONFORM TO THE MATERIALS AND CONSTRUCTION METHODS AS SET FORTH IN SECTION 80 OF THE STATE SPECIFICATIONS AND THE STANDARD DRAWINGS, EXCEPT AS MODIFIED HEREIN.
  - ALL POSTS SHALL BE ROUND. ROLL FORMED OR H POSTS SHALL NOT BE ALLOWED.
  - FENCE SHALL BE 8 FEET HIGH WITH BARBED WIRE ON SUPPORT ARMS FACING IN AND FACING OUT AS SHOWN IN DETAIL THIS PAGE.

1/7 NTS CHAIN LINK FENCE DETAIL 8' HIGH, 12' GATE OPENING



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0 1" 2"

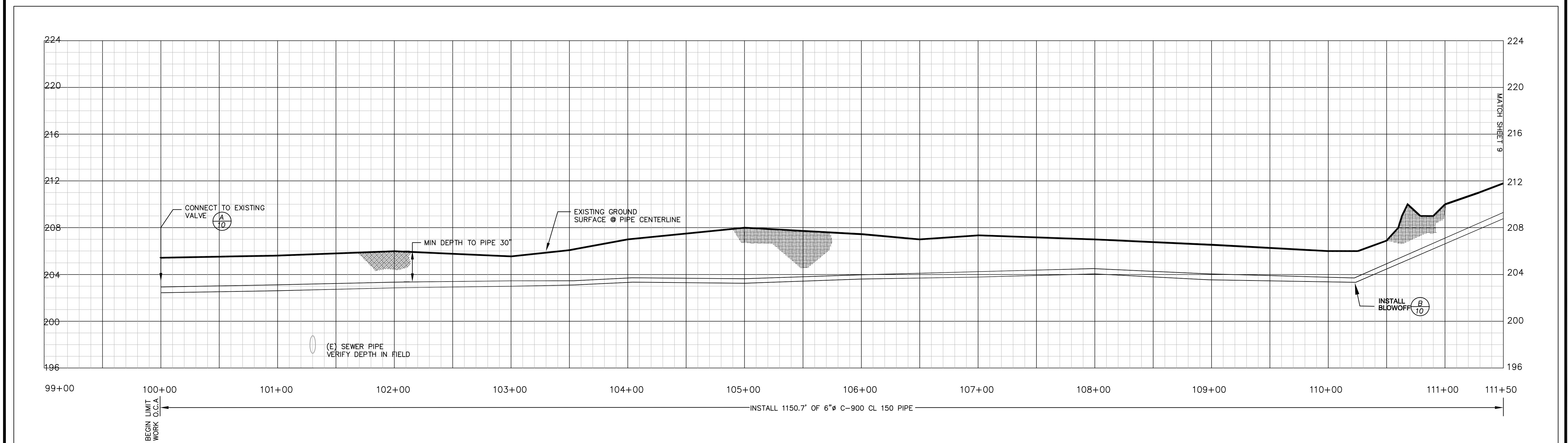
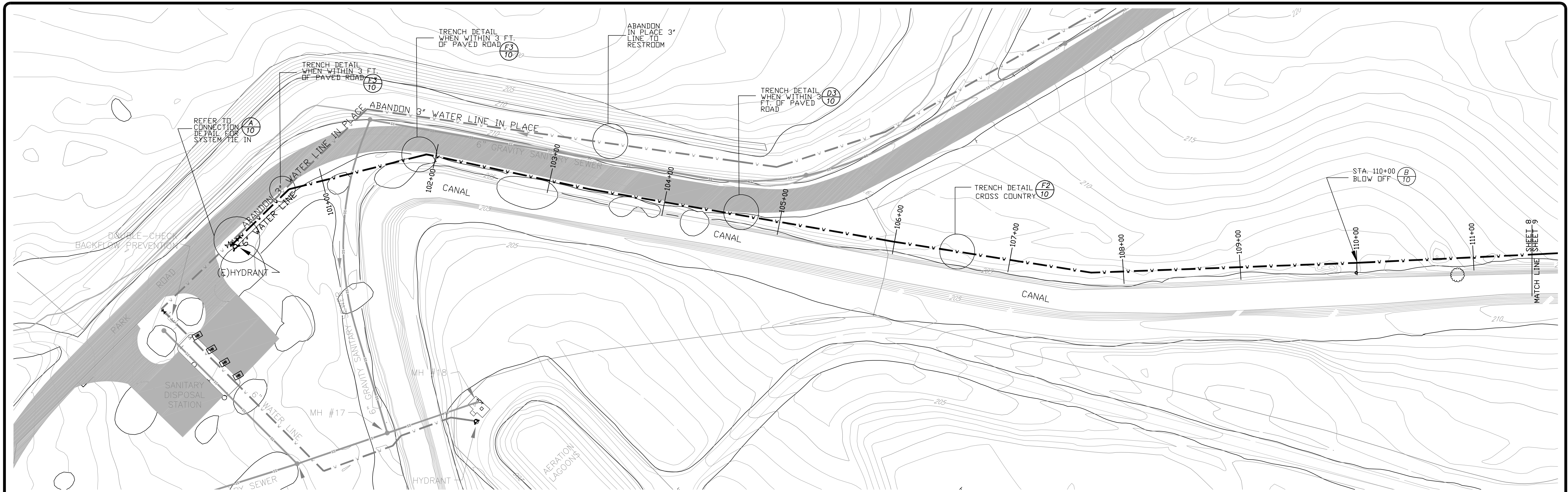
HORIZ. SCALE: \_\_\_\_\_

VERT. SCALE: \_\_\_\_\_

(E) CONTOUR INTERVAL \_\_\_\_\_

REVISIONS		APPROVALS	
NO.	ITEM	DATE	

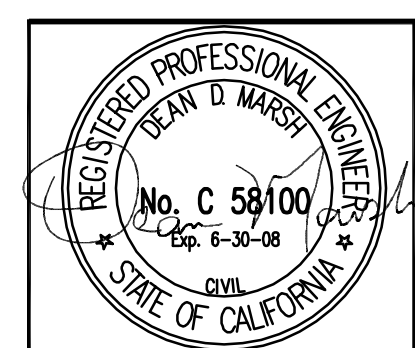
COUNTY OF STANISLAUS DEPARTMENT OF PARKS & RECREATION		DRAWING C6
Woodward Reservoir Water Well & Water Filtration System		SHEET 7 OF 19
CHAIN LINK FENCE DETAILS		
DATE: SEPTEMBER 17, 2007	SCALE: As Shown	
DRAFTED: KEM	CHECKED: DOM	FILE NO: _____
		W.D. NO: _____



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**LEGEND**

PVB PRESSURE VACUUM BREAKER	GATE VALVE / SHUT-OFF VALVE
HB HOSE BIB	SEWER MANHOLE
DF DRINKING FOUNTAIN	WHARF FIRE HYDRANT



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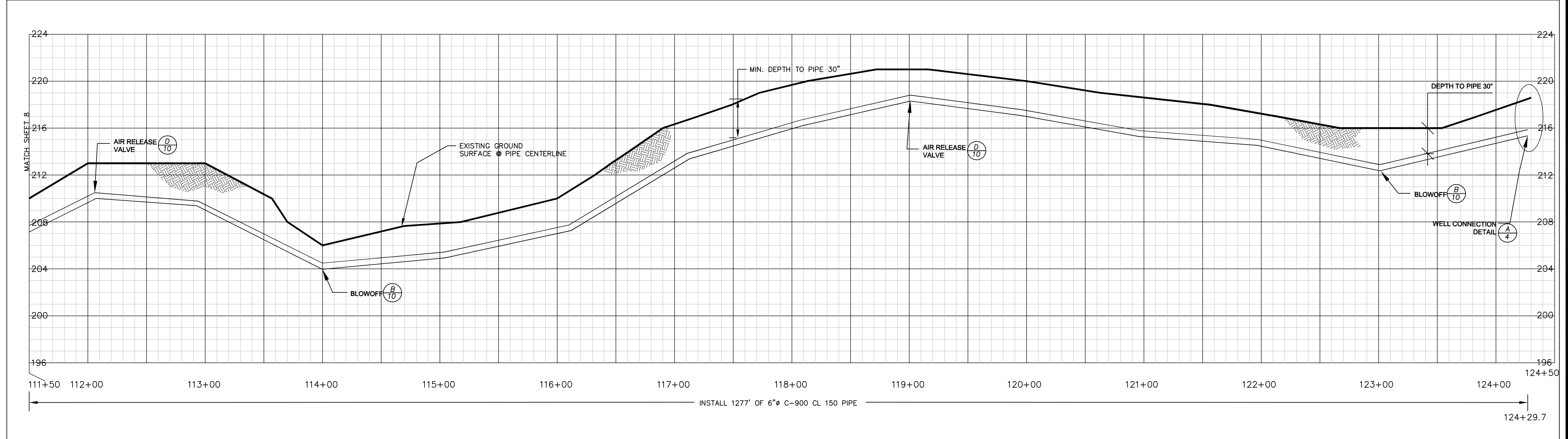
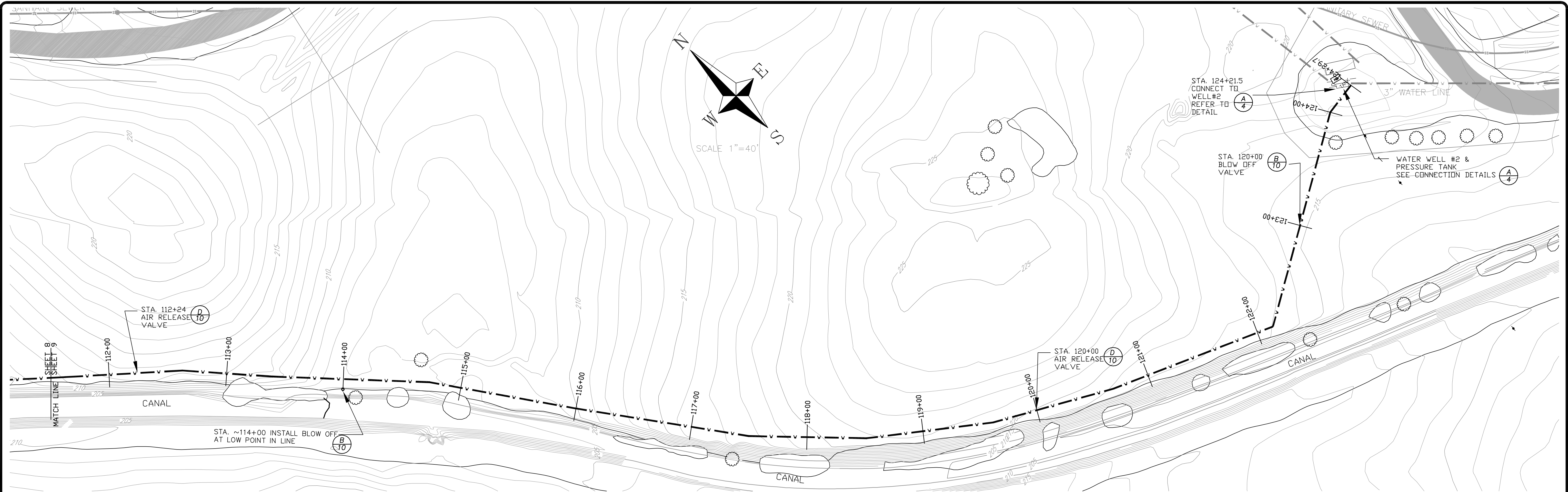
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES  
 0 1" 2"  
 HORIZ. SCALE:  
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 (E) CONTOUR INTERVAL

REVISIONS		APPROVALS	
NO.	ITEM	DATE:	

COUNTY OF STANISLAUS  
 DEPARTMENT OF PARKS & RECREATION  
**Woodward Reservoir**  
 Water Well & Water Filtration System  
 PLAN AND PROFILE 1  
 STA. 100+00 TO 111+50  
 DATE: SEPTEMBER 17, 2007 SCALE: As Shown  
 DRAFTED: KEM CHECKED: DOM FILE NO: W.O. NO:

DRAWING  
**C9**  
 SHEET  
**8** OF  
**19**





**LEGEND**

- PVB PRESSURE VACUUM BREAKER
- HB HOSE BIB
- DF DRINKING FOUNTAIN
- GATE VALVE / SHUT-OFF VALVE
- SEWER MANHOLE
- WHARF FIRE HYDRANT

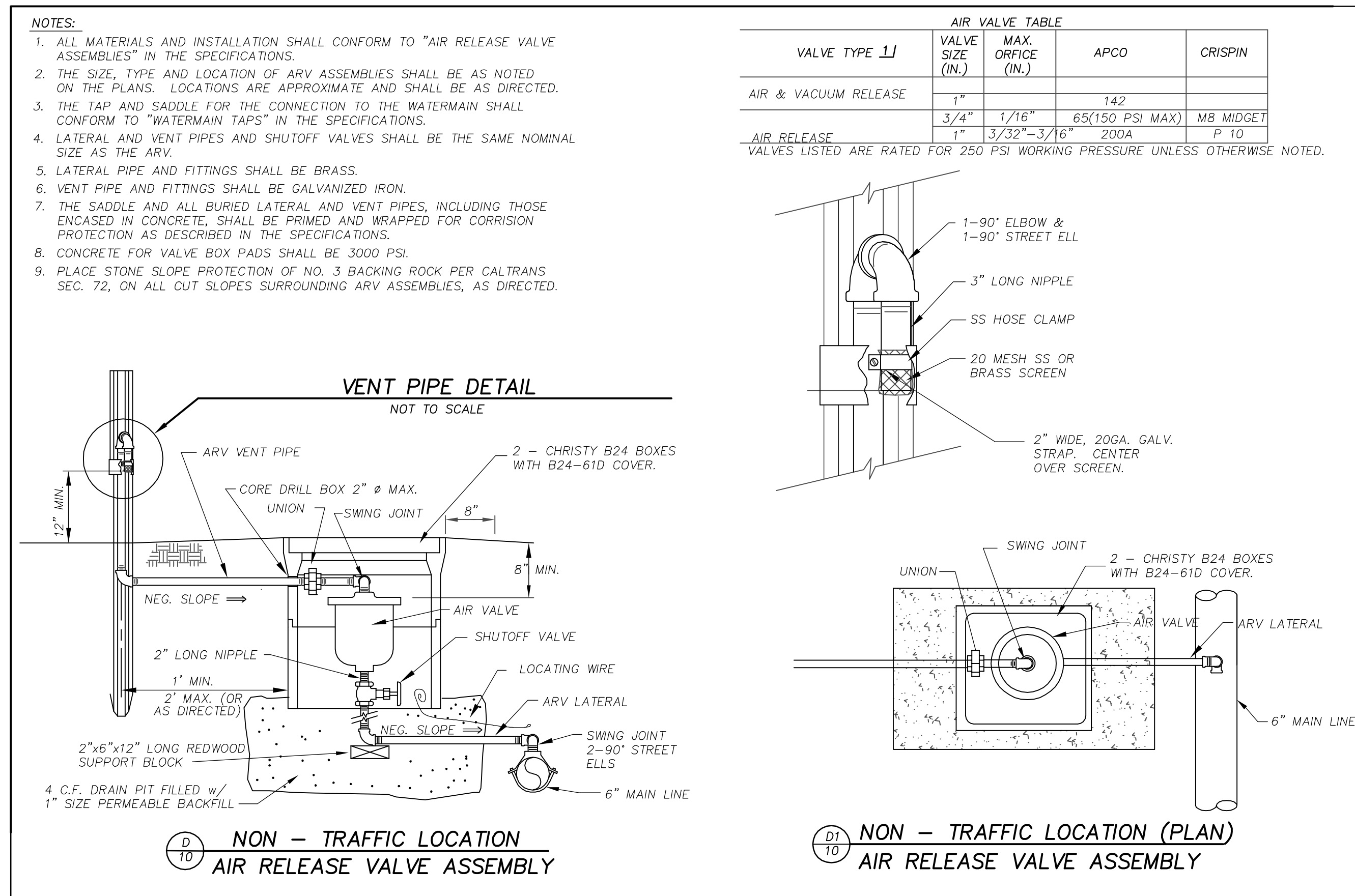
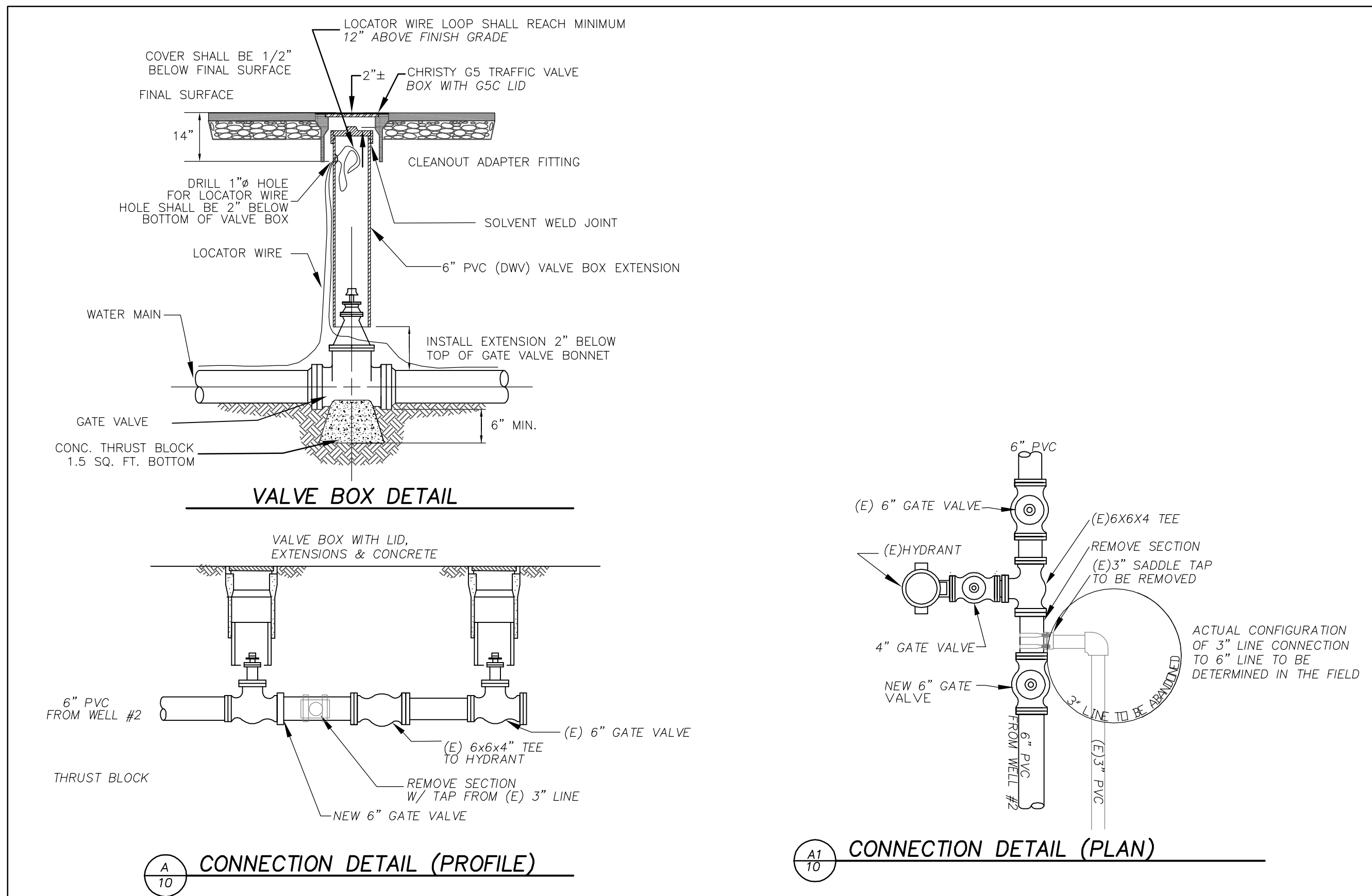
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440 Lower Grass Valley Road, Suite A, Nevada City, CA 95959

FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES  
HORIZ. SCALE: 1" = 40'  
VERT. SCALE: 1" = 4'  
(E) CONTOUR INTERVAL

REVISIONS		APPROVALS	
NO.	ITEM	DATE	

COUNTY OF STANISLAUS DEPARTMENT OF PARKS & RECREATION			
<b>Woodward Reservoir Water Well &amp; Water Filtration System</b>			
PLAN AND PROFILE 2 STA. 111+50 TO 124+50			
DATE: SEPTEMBER 17, 2007	SCALE: As Shown	DRAWING C10	
DRAFTED: KEM	CHECKED: DDM	FILE NO.	W.O. NO.

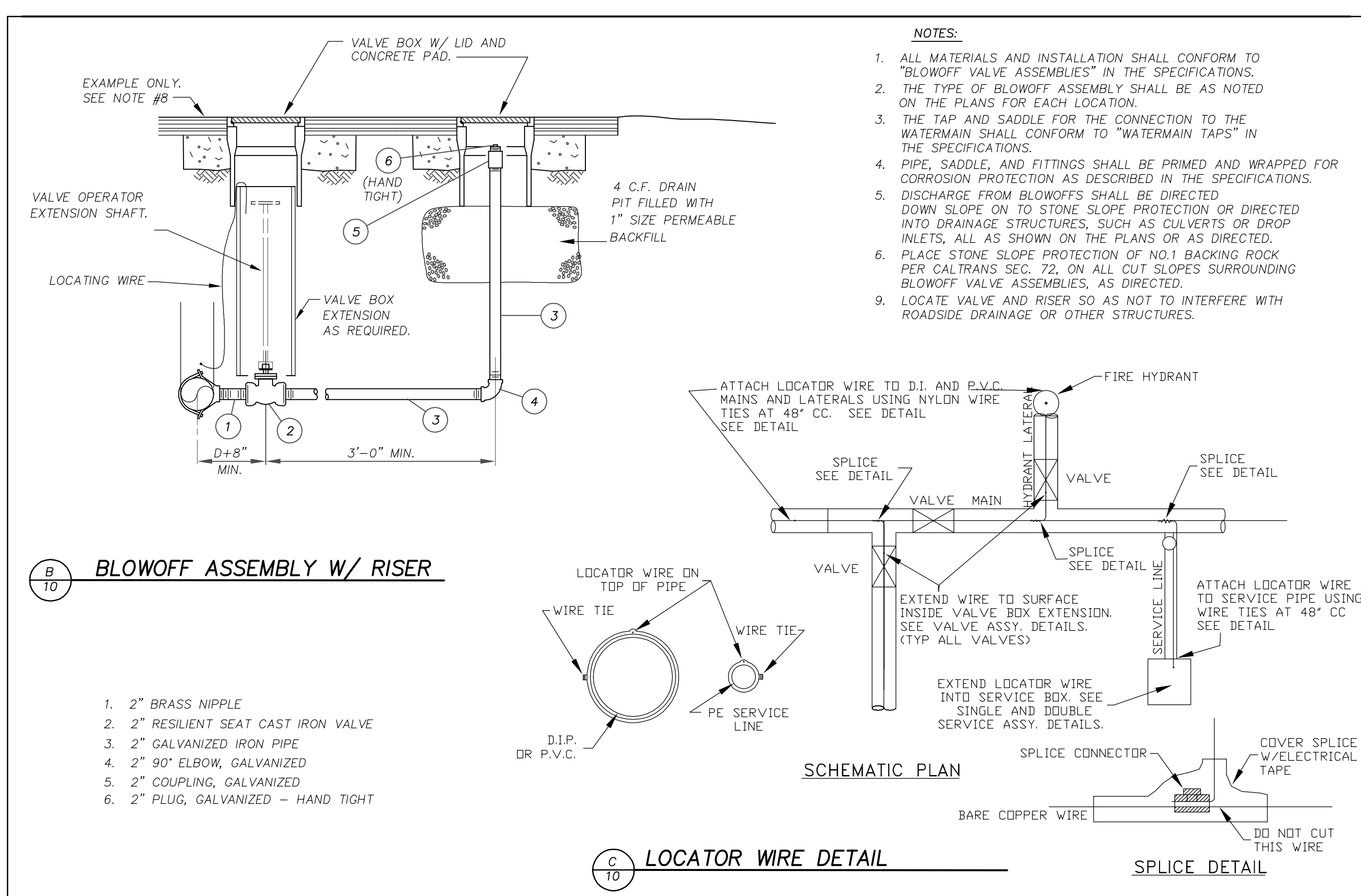
SHEET 9 OF 19



**AIR VALVE TABLE**

VALVE TYPE	VALVE SIZE (IN.)	MAX. ORIFICE (IN.)	APCO	CRISPIN
AIR & VACUUM RELEASE	1"		142	
	3/4"	1/16"	65(150 PSI MAX)	MB MIDGET
AIR RELEASE	1"	3/32"-3/16"	200A	P 10

VALVES LISTED ARE RATED FOR 250 PSI WORKING PRESSURE UNLESS OTHERWISE NOTED.

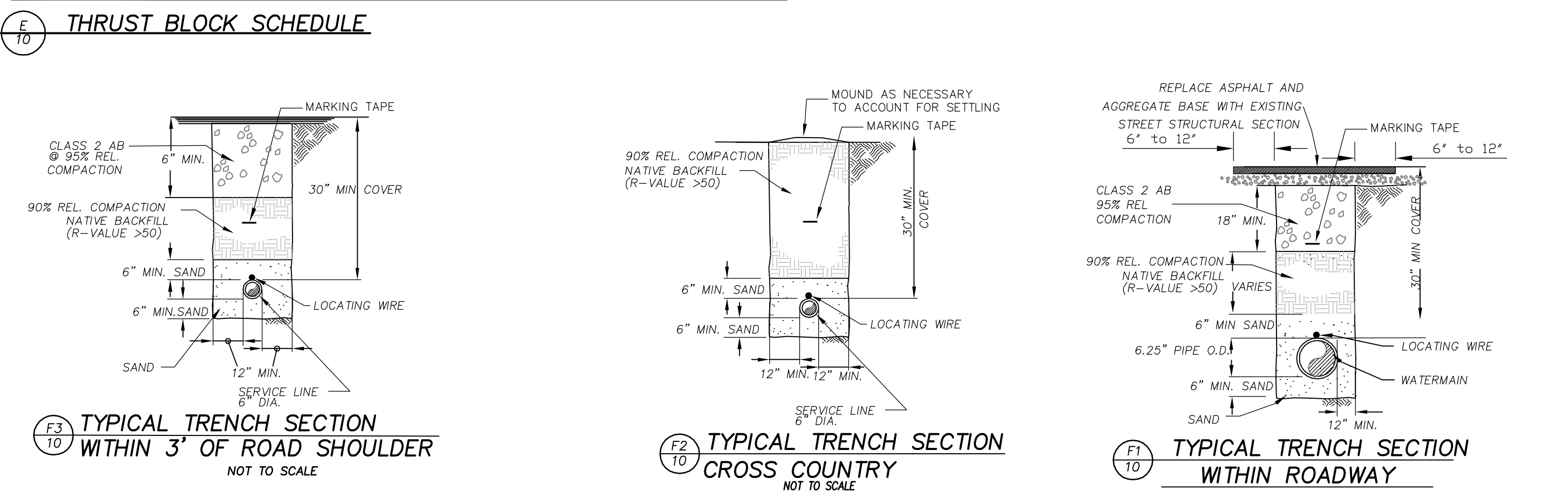


**REQUIRED BEARING AREA-TOTAL SQUARE FEET**

TYPE OF FITTING	TYPICAL INSTALLATION					
	90° BEND	45° BEND	11 1/4" OR 22 1/2" BEND	TEE OR DEAD END	TEE	CROSS
4"	2	1	1	2	2	2
6"	4	2	1	3	4	4
8"	7	4	2	5	7	7
10"	12	6	3	8	12	12
12"	16	10	5	12	16	16
14"	22	11	6	17	22	22

**NOTES:**

- THRUST BLOCKS TO BE CONSTRUCTED OF CLASS "B" CONCRETE.
- AREAS GIVEN ARE FOR CLASS 150 PIPE AT TEST PRESSURE OF 150 P.S.I. IN SOIL WITH 2,000 P.S.F. BEARING CAPACITY.
- BLOCKS TO BE POURED AGAINST UNDISTURBED SOIL.
- JOINTS TO BE KEPT CLEAR OF CONCRETE.



- NOTES:**
- PROVIDE 95% COMPACTION IN 8" LAYERS FOR THE ENTIRE DEPTH OF TRENCH
  - PONDING OR JETTING WILL NOT BE ALLOWED
  - COMPACTION TEST SHALL BE PERFORMED BY CONTRACTOR AND BE SUBMITTED TO (AND APPROVED BY) COUNTY INSPECTOR PRIOR TO PAVING. TEST TO BE PERFORMED USING CAL TRANS TEST METHOD NO. 216 AND NO. 231.
  - IF SOIL R-VALUE IS LESS THAN 50, USE CLASS 2 AB VS NATIVE MATERIAL. R-VALUE TEST REPORTS MUST BE PROVIDED AT TRENCH LOCATIONS.
  - ALL PIPES, INCLUDING, BUT NOT LIMITED TO STORM, WATER, GAS, SEWER, CULVERTS AND LATERALS SHALL BE A MINIMUM OF 30" BELOW SUB GRADE AT EDGE OF PAVEMENT.
  - TRENCHES 5' OR MORE IN DEPTH MUST BE SHORED OR PROTECTED IN ACCORDANCE WITH CAL OSHA AND OTHER STATE AND FEDERAL SAFETY CODES, REGULATIONS, AND ORDINANCES
  - USE A SAND BEDDING DEPTH OF AT LEAST 6" FOR STABLE SOIL FOUNDATIONS, 12" ABOVE ROCK FOUNDATIONS AND 18" OR MORE ABOVE UNSTABLE FOUNDATIONS.
  - IF EDGE OF TRENCH IS LESS THAN 3" FROM EDGE OF LANE, THEN OVERLAY THE TRENCH WITH 1" OF AC.
  - NATIVE BACKFILL SHALL BE SCREENED AND SHALL NOT INCLUDE ANY ORGANICS OR ROCKS OVER 3" IN DIAMETER.

**LEGEND**

PVB PRESSURE VACUUM BREAKER

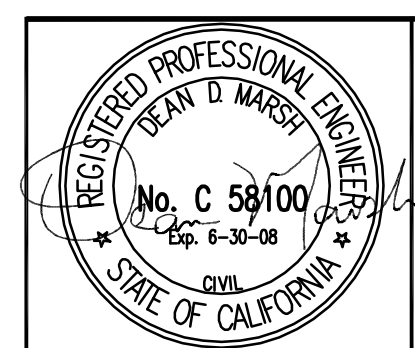
HB HOSE BIB

DF DRINKING FOUNTAIN

GATE VALVE / SHUT-OFF VALVE

SEWER MANHOLE

WHARF FIRE HYDRANT



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FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES

HORIZ. SCALE: 1" = 10'

VERT. SCALE: 1" = 10'

(E) CONTOUR INTERVAL

**REVISIONS**

NO.	ITEM	DATE

**APPROVALS**

DEPARTMENT	DATE

COUNTY OF STANISLAUS  
DEPARTMENT OF PARKS & RECREATION

Woodward Reservoir  
Water Well & Water Filtration System  
PIPELINE DETAILS

DATE: SEPTEMBER 17, 2007 SCALE: As Shown

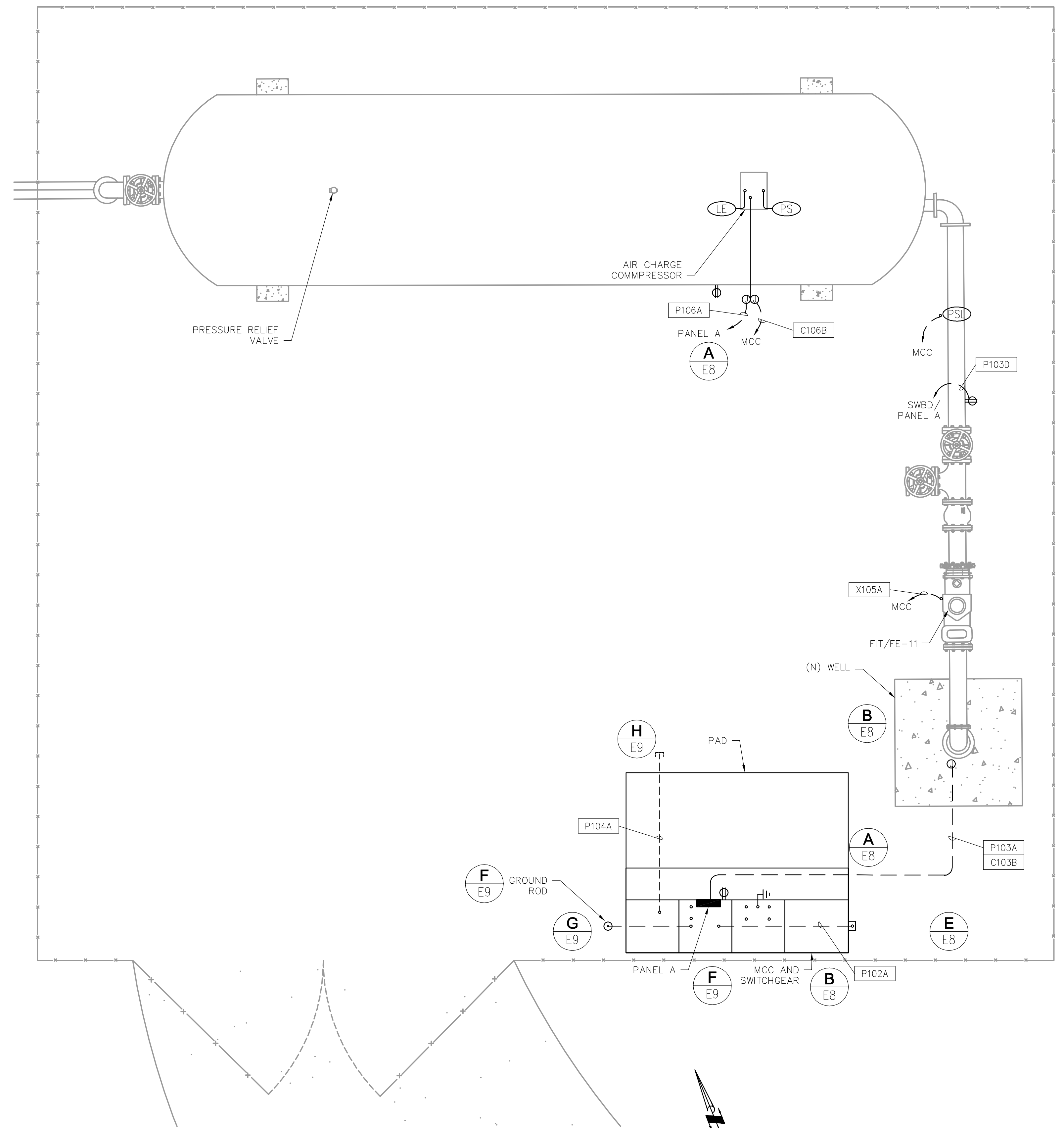
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DRAWING C11  
SHEET 10 OF 19





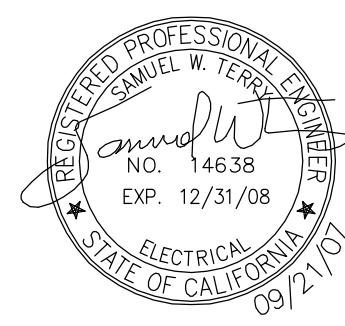
WELL PUMP STATION AREA - ELECTRICAL PLAN  
SCALE: 1" = 50'-0"



WELL PUMP STATION SITE - ELECTRICAL  
SCALE: 1" = 2'-0"



**ECS**  
ECS Engineering, Inc.  
Electrical & Control Systems Engineering  
For Pump Stations & Treatment Facilities  
Eli, Grove, CA  
916-694-1477 Fax 916-694-7161  
santery@earthlink.net



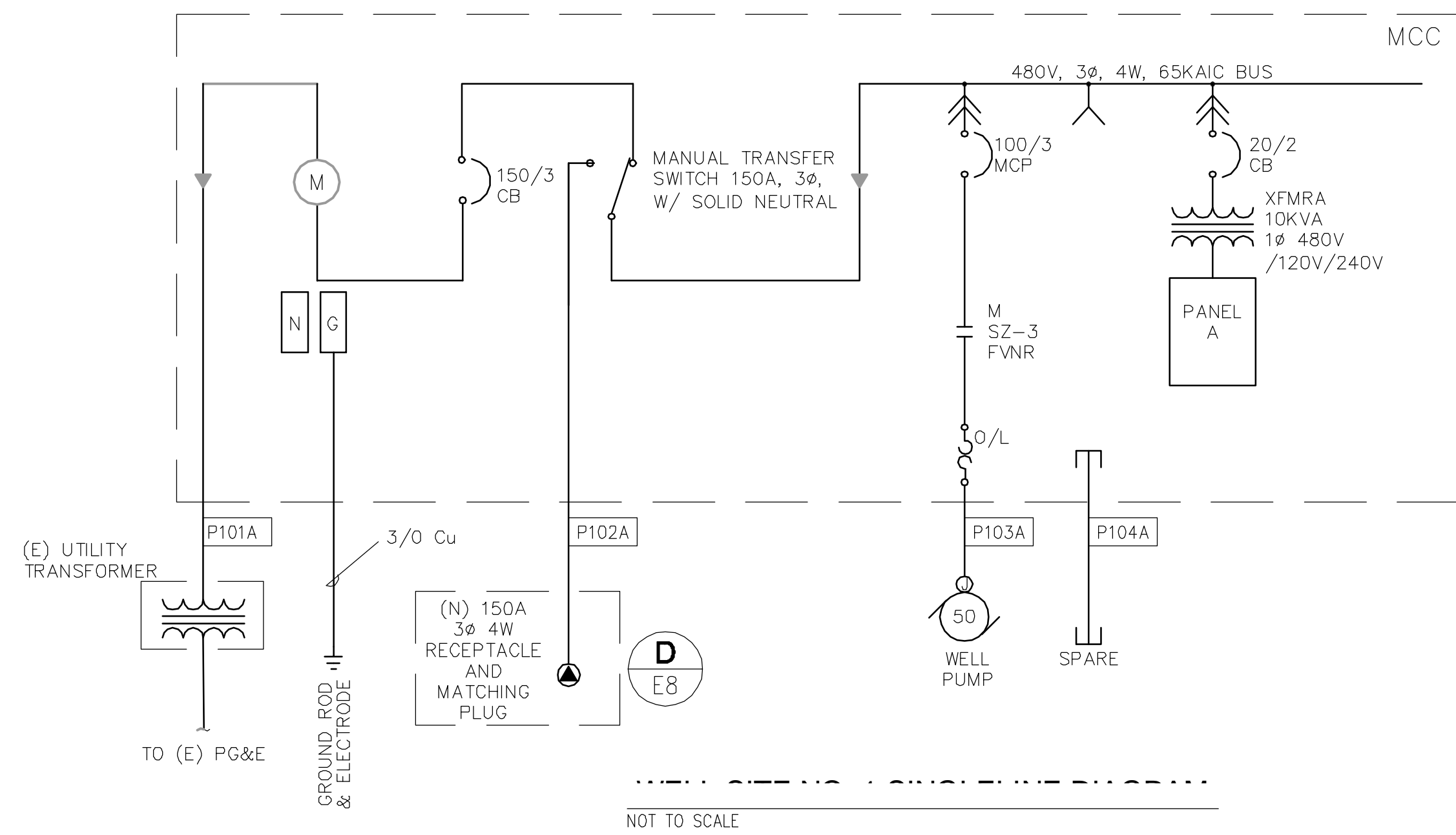
**Sauers Engineering, Inc.**  
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FOR REDUCED PLANS  
ORIGINAL SCALE IS IN INCHES  
0 1" 2"  
HORIZ. SCALE:  
VERT. SCALE:  
(E) CONTOUR  
INTERVAL

REVISIONS		APPROVALS	
NO.	ITEM	DATE:	
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COUNTY OF STANISLAUS  
DEPARTMENT OF PARKS & RECREATION  
Woodward Reservoir  
Water Well & Water Filtration System  
WELL SITE NO. 1 - ELECTRICAL PLAN  
DATE: SCALE:  
DRAFTED: CHECKED: FILE NO. W.O. NO.

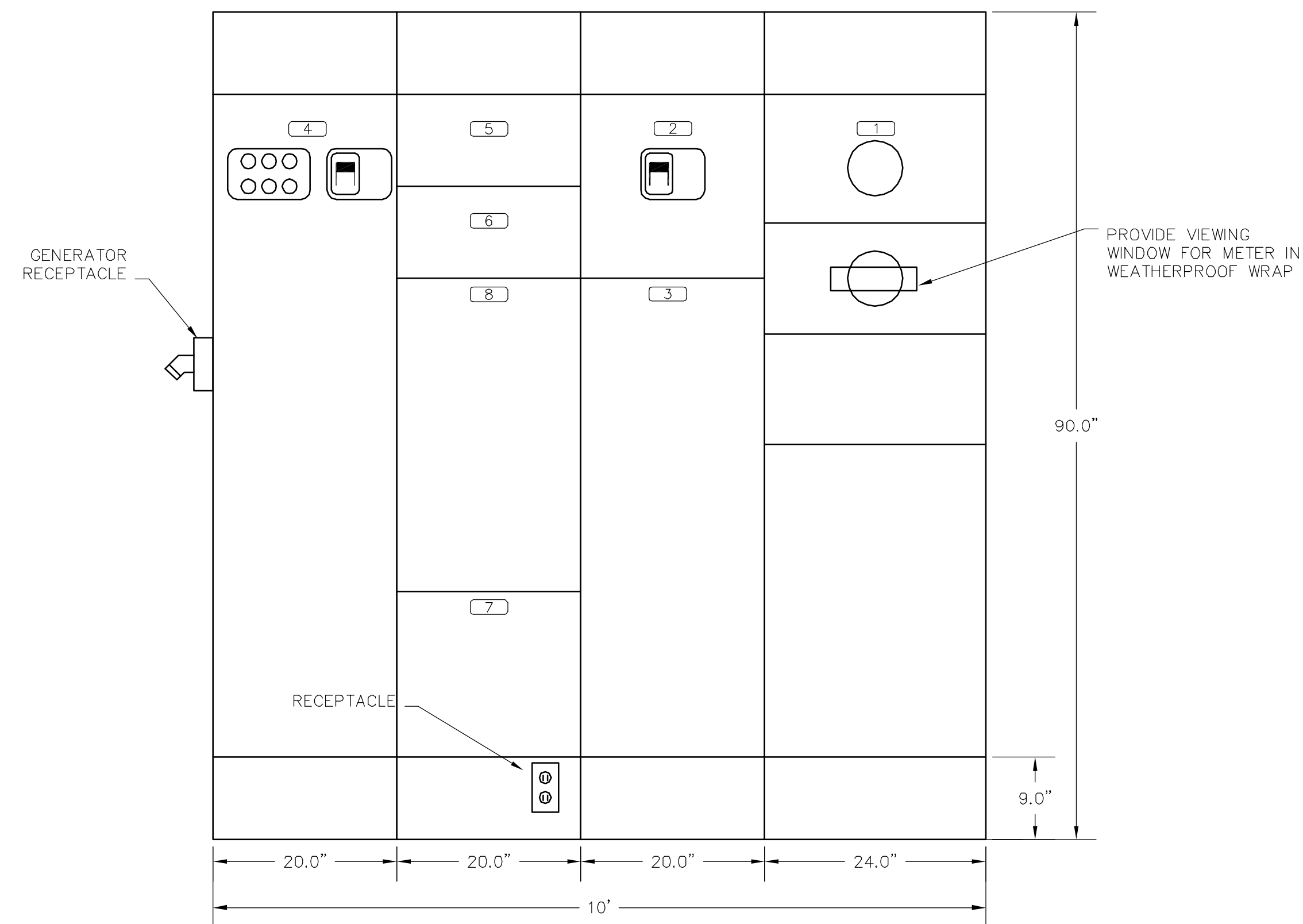
DRAWING  
E2  
SHEET  
12 OF  
19



LOAD CALCULATION	
SITE 1 PUMP STATION (480V PANEL)	
WELL PUMP	65.0 AMPS
AUX LOADS	3.0 AMPS
25% OF LARGEST MOTOR	16.3 AMPS
TOTAL LOAD (131 KVA)	85.3 AMPS

PANEL A		10 KAIC	
VOLTAGE: 120/240	MOUNTING: MCC	KVA: 3.0	
BUS: 100 A	TYPE: MAIN CB	CURRENT: 15 AMPS	
LOAD	KVA	CB NO	LOAD
AUTODIALER	0.20	20 1	AIR CHARGED SYSTEM
SPARE	0.00	20 3	SPARE
SPARE	0.00	20 5	METERING PUMP
SPARE	0.00	20 7	METERING PUMP
SPARE	0.00	20 9	SPARE
SPARE	0.00	20 11	SPARE
SPARE	0.00	20 13	SITE RECEPTACLES
SPARE	0.00	20 15	SPARE
SPARE	0.00	20 17	SPARE

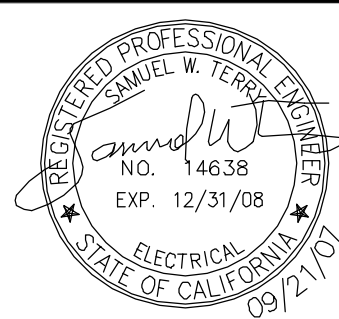
NOTE:  
 CIRCUITS WITH MULTIPLE HOME RUNS SHALL BE COMBINED AT THE PANEL BY AN APPROVED MEANS (PER NEC AND UL). WIRES SHALL NOT BE DOUBLE LUGGED INTO CIRCUIT BREAKERS. MAKE AN APPROVED PIG TAIL WITH AN APPROVED/SPECIFIED DEVICE OR METHOD WITHIN THE PANEL AND LUG A SINGLE WIRE INTO CIRCUIT BREAKER.



WELL SITE NO. 1 - ELECTRICAL ELEVATION  
 NEMA 3 NON WALK-IN ENCLOSURE

NO.	LETTER SIZE	INSCRIPTION
1	1/4"	UTILITY METER
2		MAIN DISCONNECT
3		MANUAL TRANSFER SWITCH
4		WELL PUMP
5		AUTODIALER
6		SPACE
7		XFMR "A"
8		PANEL "A"
9		SPARE

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 Electrical & Control Systems Engineering  
 For Pump Stations & Treatment Facilities  
 Elk Grove, CA  
 916-684-1477 Fax 916-684-7161  
 sam@ecs-engineering.com



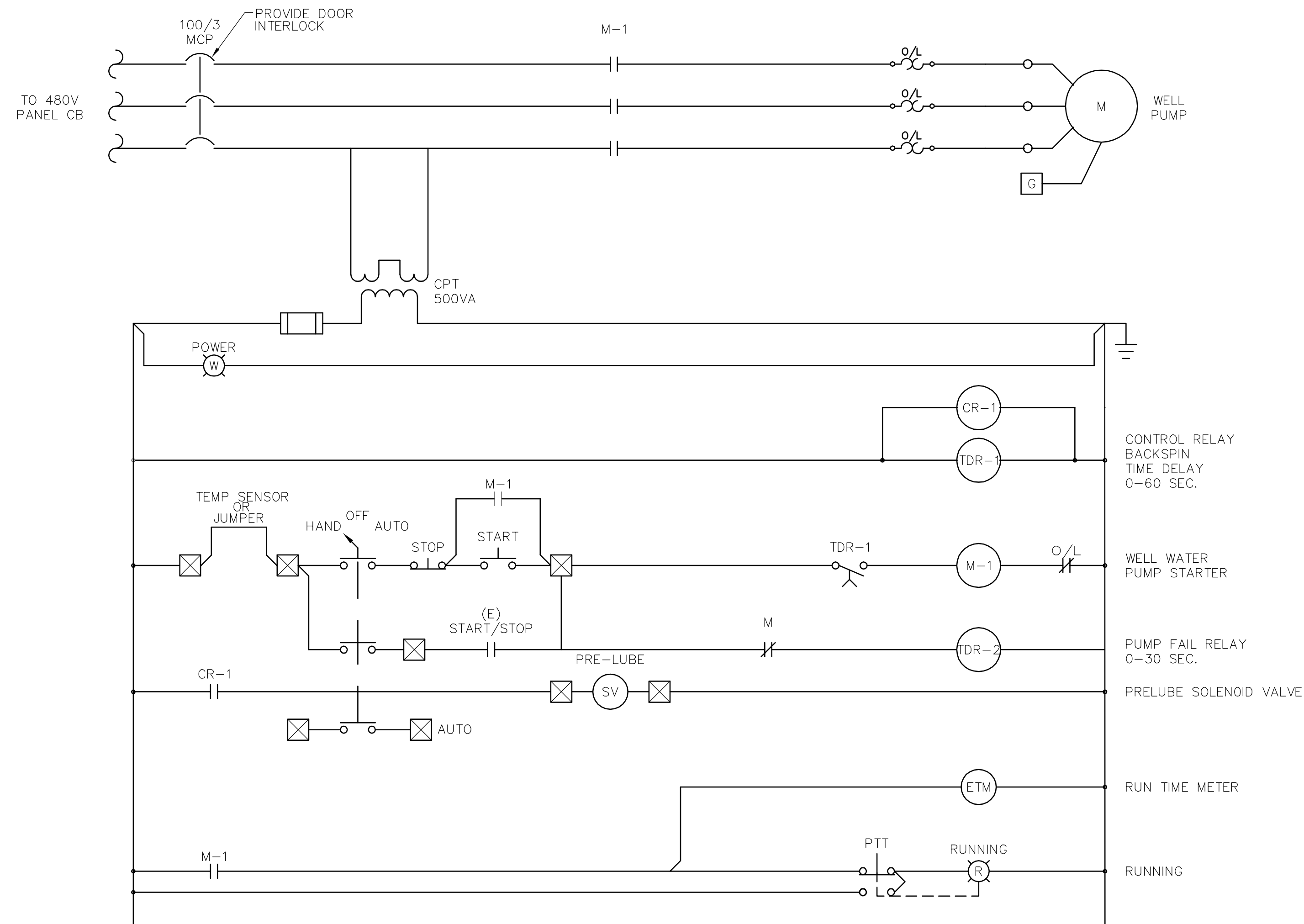
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FOR REDUCED PLANS  
 ORIGINAL SCALE IS IN INCHES  
 0 1" 2"  
 HORIZ. SCALE:  
 VERT. SCALE:  
 (E) CONTOUR  
 INTERVAL

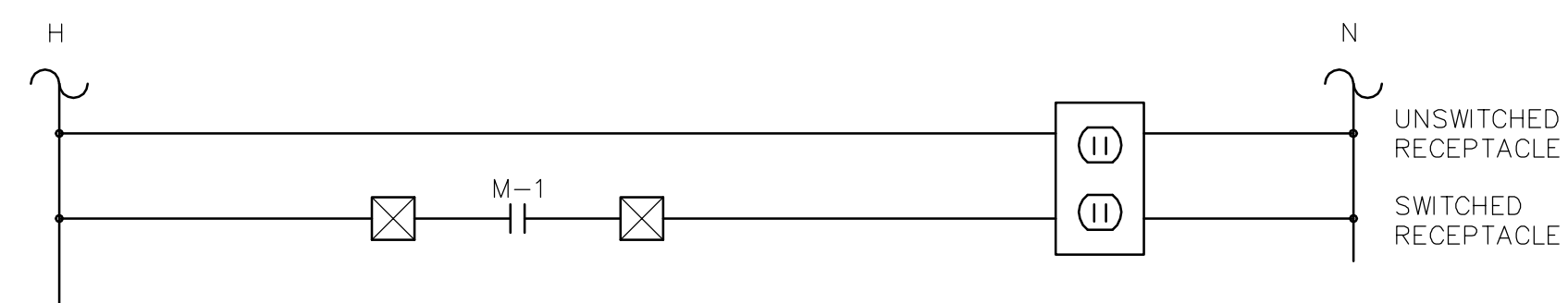
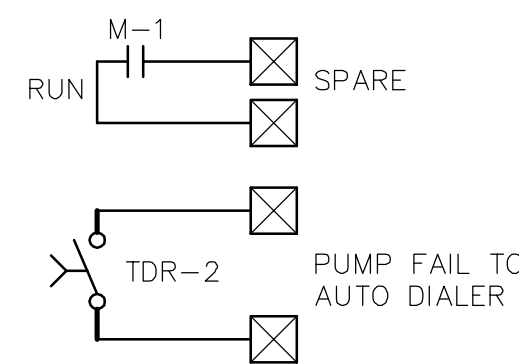
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NO.	ITEM	DATE:	
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COUNTY OF STANISLAUS  
 DEPARTMENT OF PARKS & RECREATION  
 Woodward Reservoir  
 Water Well & Water Filtration System  
 WELL NO.1 SINGLELINE AND ELEVATION  
 DATE: SCALE:  
 DRAFTED: CHECKED: FILE NO. W.O. NO.

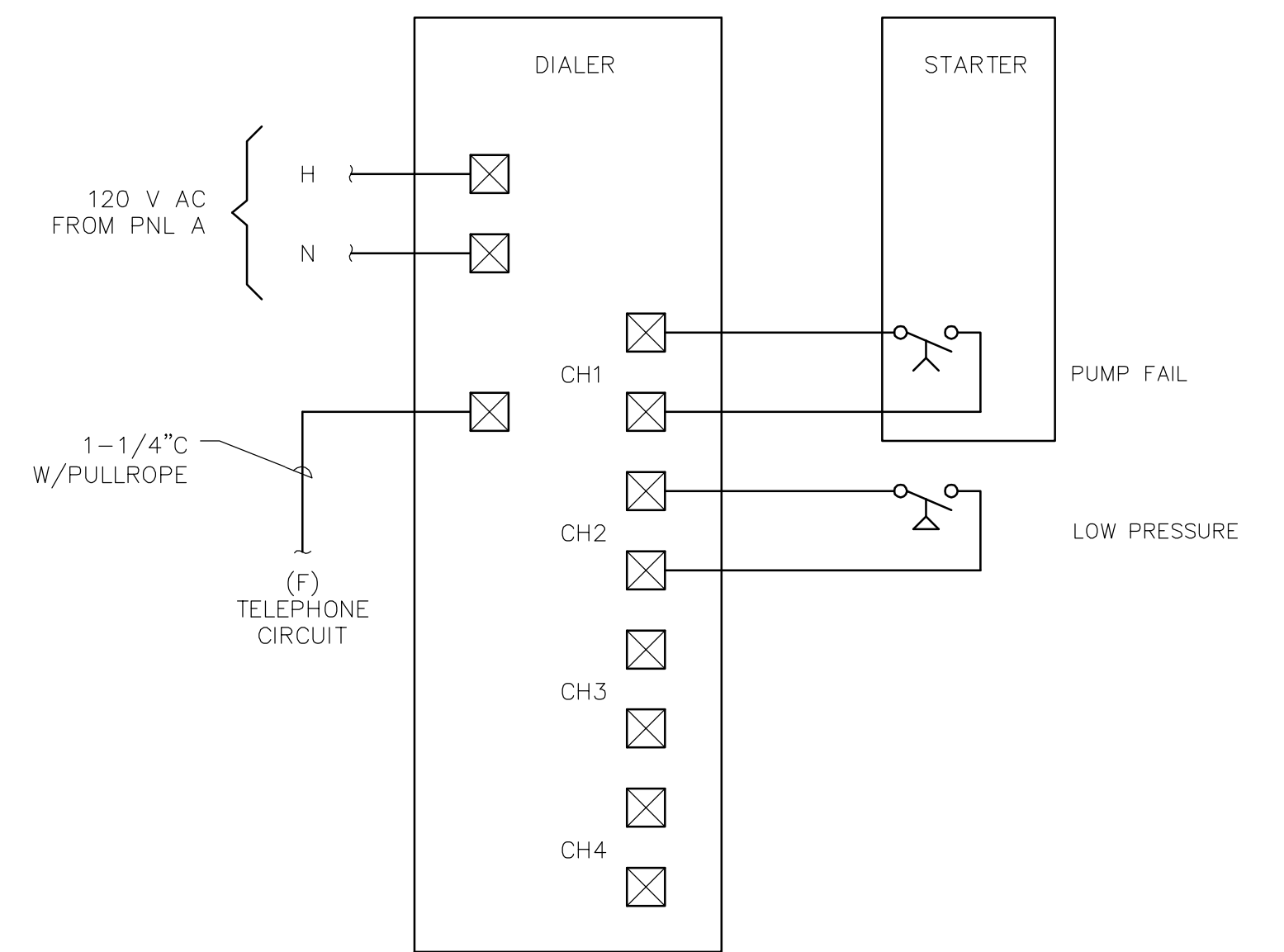
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 E3  
 SHEET  
 13 OF  
 19



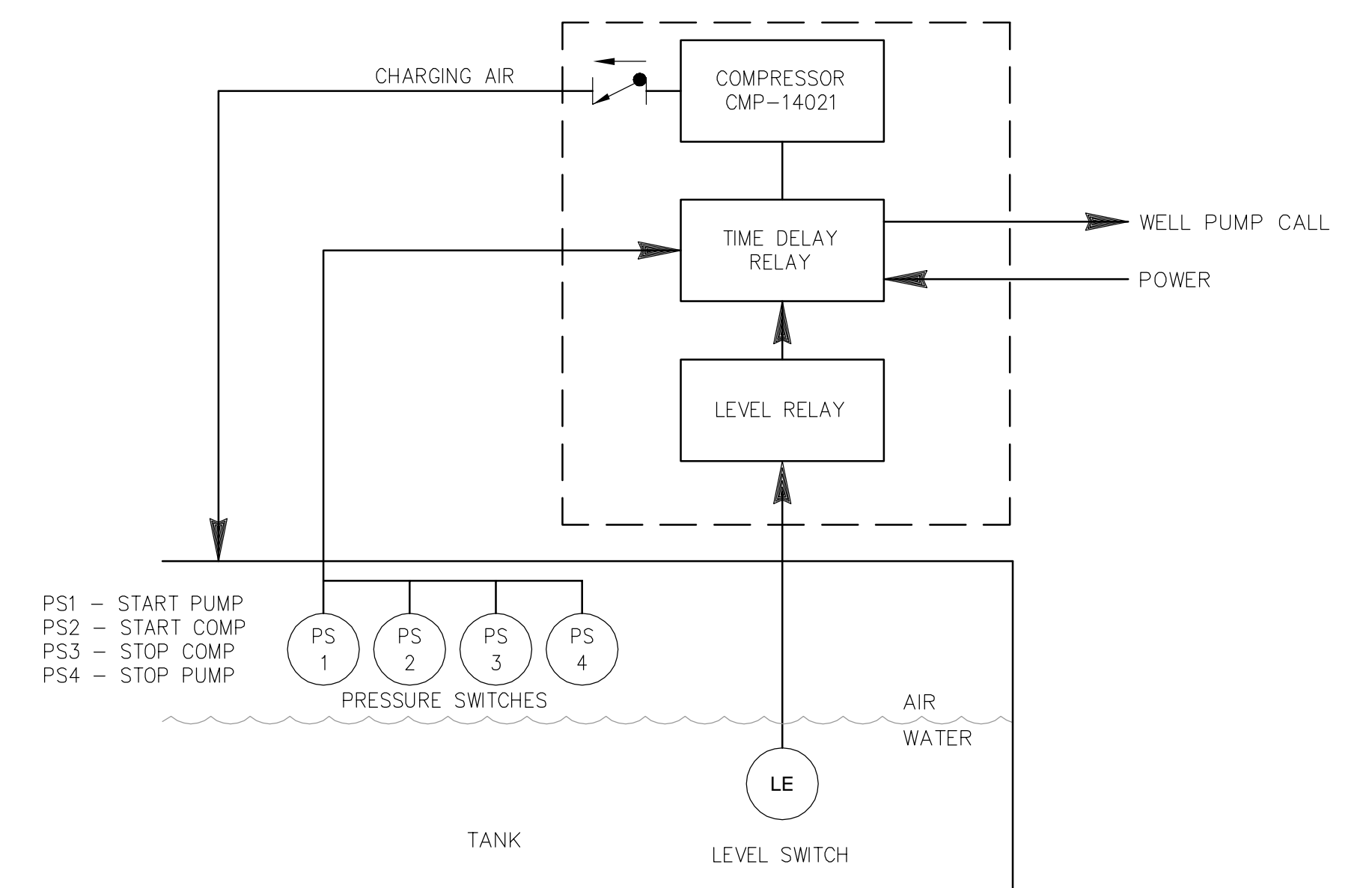
**WELL NO. 1 PUMP CONTROL WIRING DIAGRAM**  
NO SCALE



**CHEMICAL SYSTEM CONTROL WIRING DIAGRAM**  
NO SCALE

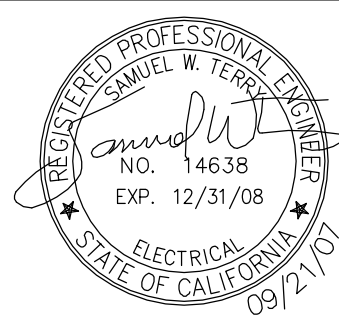


**AUTO DIALER CONTROL WIRING DIAGRAM**  
NO SCALE



**PUMP/COMPRESSOR CONTROL BLOCK DIAGRAM**  
NO SCALE

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For Pump Stations & Treatment Facilities  
Elk Grove, CA  
916-684-1477 Fax 916-684-7161  
samtery@sauersinc.net



**Sauers Engineering, Inc.**  
Civil and Environmental Engineers

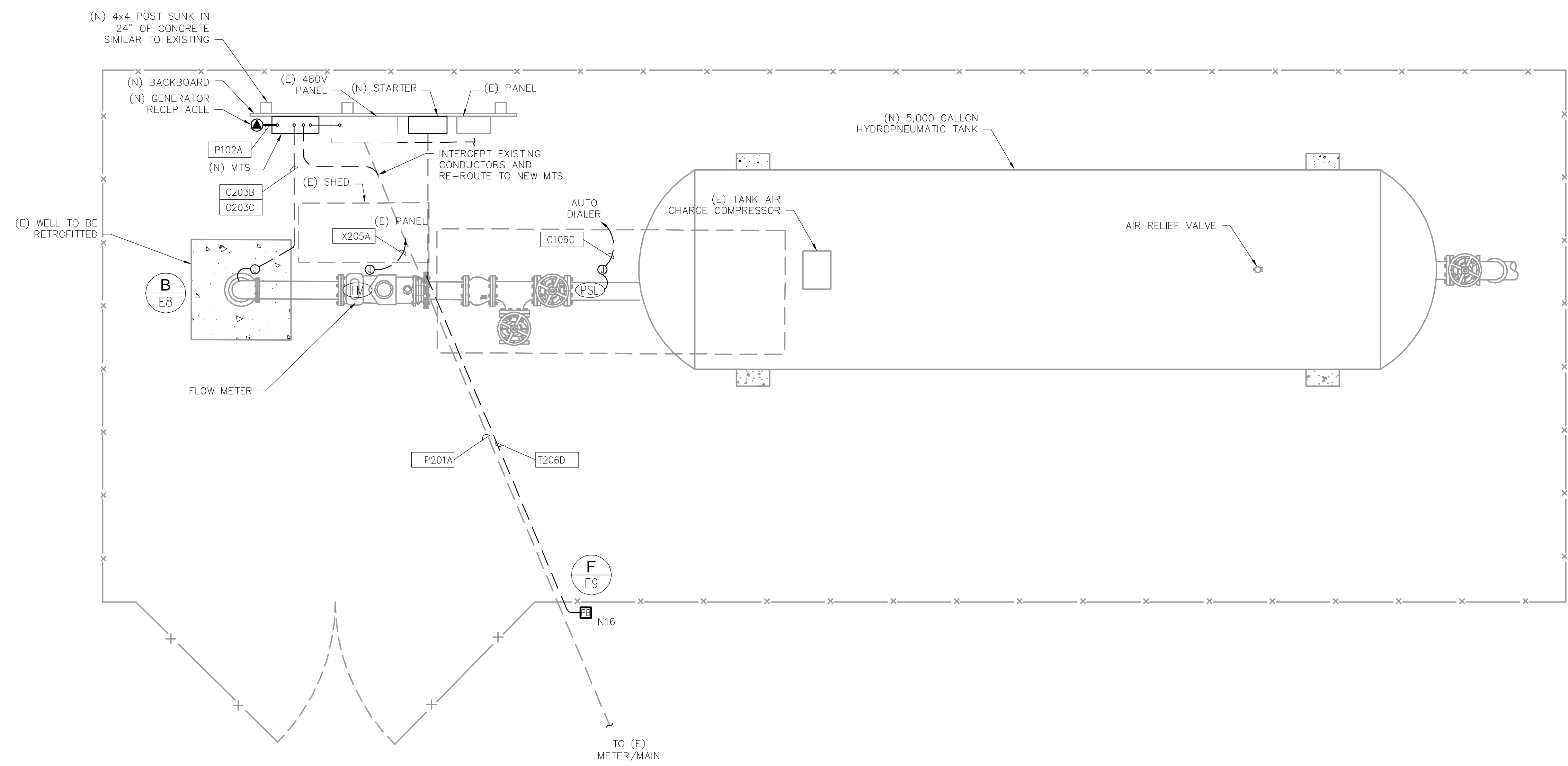
440 Lower Grass Valley Road, Suite A, Nevada City, CA 95959

FOR REDUCED PLANS  
ORIGINAL SCALE IS IN INCHES  
0 1" 2"  
HORIZ. SCALE:  
VERT. SCALE:  
(E) CONTOUR  
INTERVAL

REVISIONS		APPROVALS	
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COUNTY OF STANISLAUS DEPARTMENT OF PARKS & RECREATION	
Woodward Reservoir Water Well & Water Filtration System WELL SITE NO.1 - CONTROL WIRING DIAGRAM	
DATE:	SCALE:
DRAFTED:	CHECKED:
FILE NO.:	W.O. NO.:

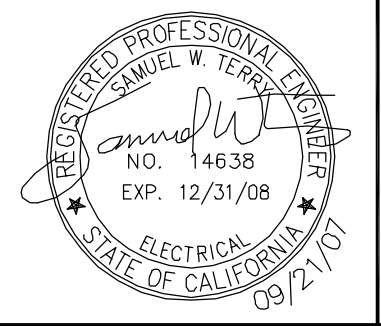
DRAWING  
**E4**  
SHEET  
14 OF  
19



(E) WELL NO. 2 SITE PLAN - ELECTRICAL  
 SCALE: 1/2" = 1'-0"



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 154 Grove, CA  
 916-694-1477 Fax: 916-694-7161  
 samleisy@earthlink.net



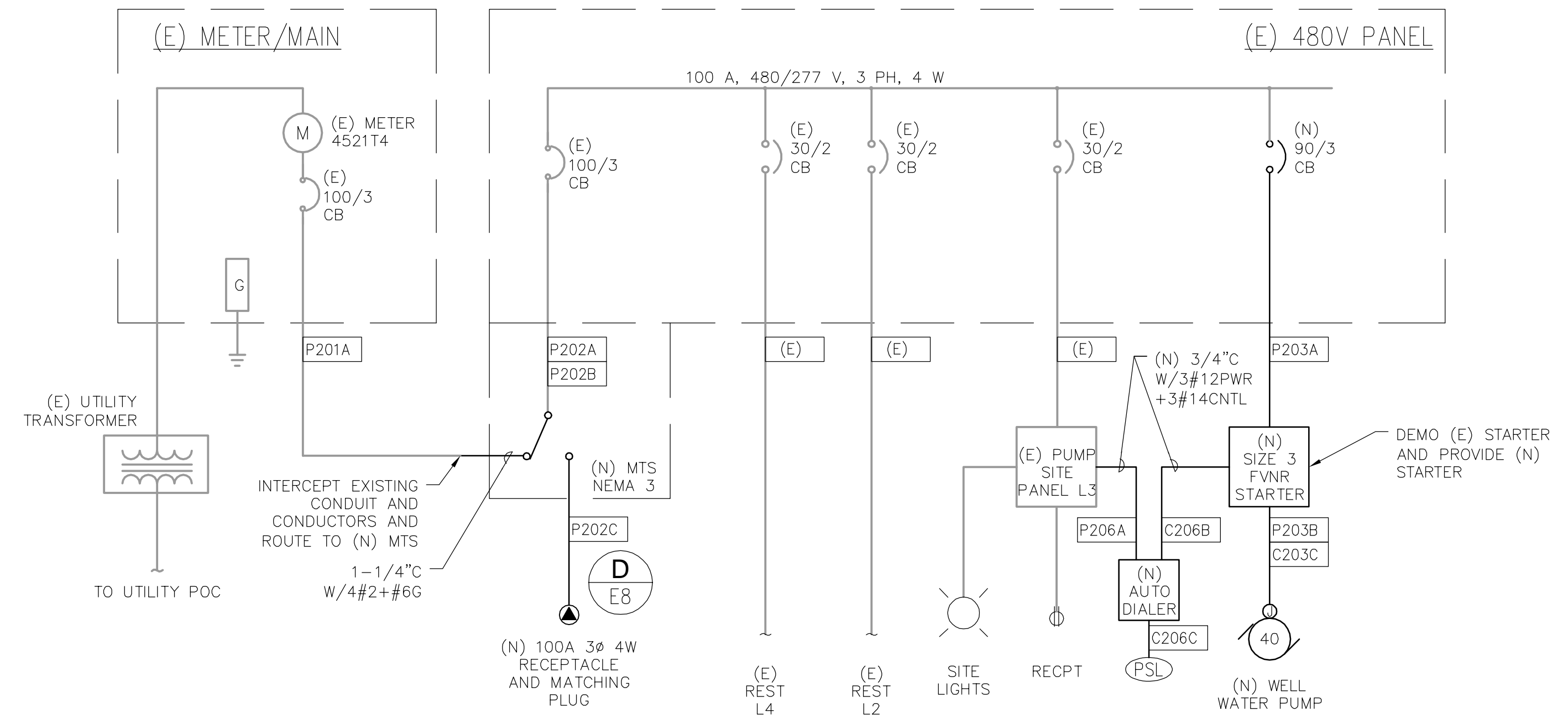
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 Civil and Environmental Engineers  
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FOR REDUCED PLANS  
 ORIGINAL SCALE IS IN INCHES  
 0 1" 2"  
 HORIZ. SCALE:  
 VERT. SCALE:  
 (E) CONTOUR  
 INTERVAL

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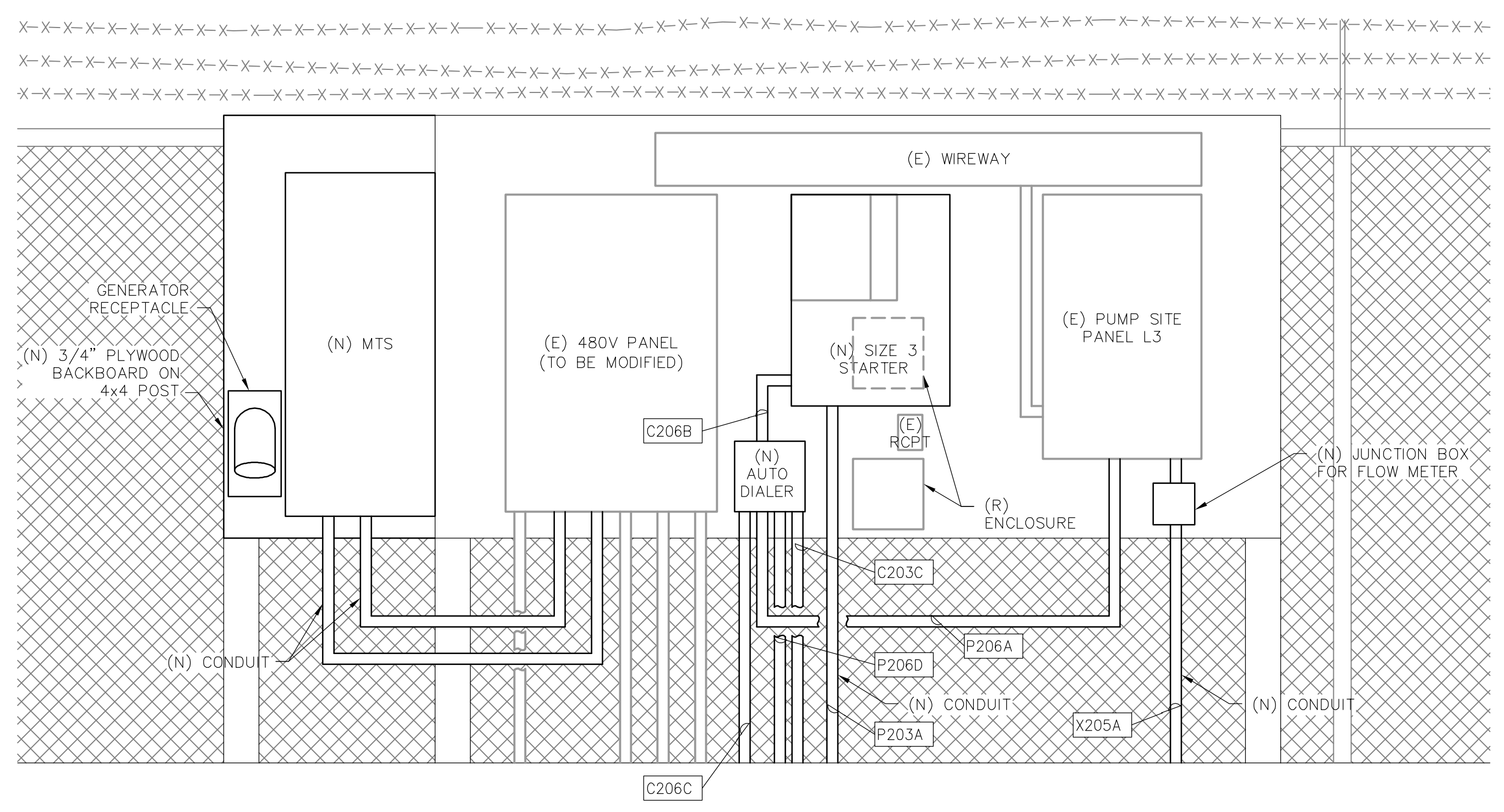
COUNTY OF STANISLAUS DEPARTMENT OF PARKS & RECREATION	
Woodward Reservoir Water Well & Water Filtration System WELL SITE NO.2 - ELECTRICAL PLAN	
DATE:	SCALE:
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FILE NO:	W.O. NO:

DRAWING  
**E5**  
 SHEET  
**15** OF  
**19**



**WELL SITE NO. 2 SINGLELINE DIAGRAM**  
 MODIFICATIONS SHOWN IN HEAVIER LINE WEIGHT THAN EXISTING

LOAD CALCULATION	
SITE 2	
(E) REST L4	4.0 AMPS
(E) REST L2	4.0 AMPS
(E) PANEL L3	4.0 AMPS
WELL WATER PUMP	52.0 AMPS
25% OF LARGEST MOTOR	13.0 AMPS
TOTAL LOAD (131 KVA)	77.0 AMPS



**WELL SITE NO. 2 - ELECTRICAL ELEVATION**  
 MODIFICATIONS SHOWN IN HEAVIER LINE WEIGHT THAN EXISTING

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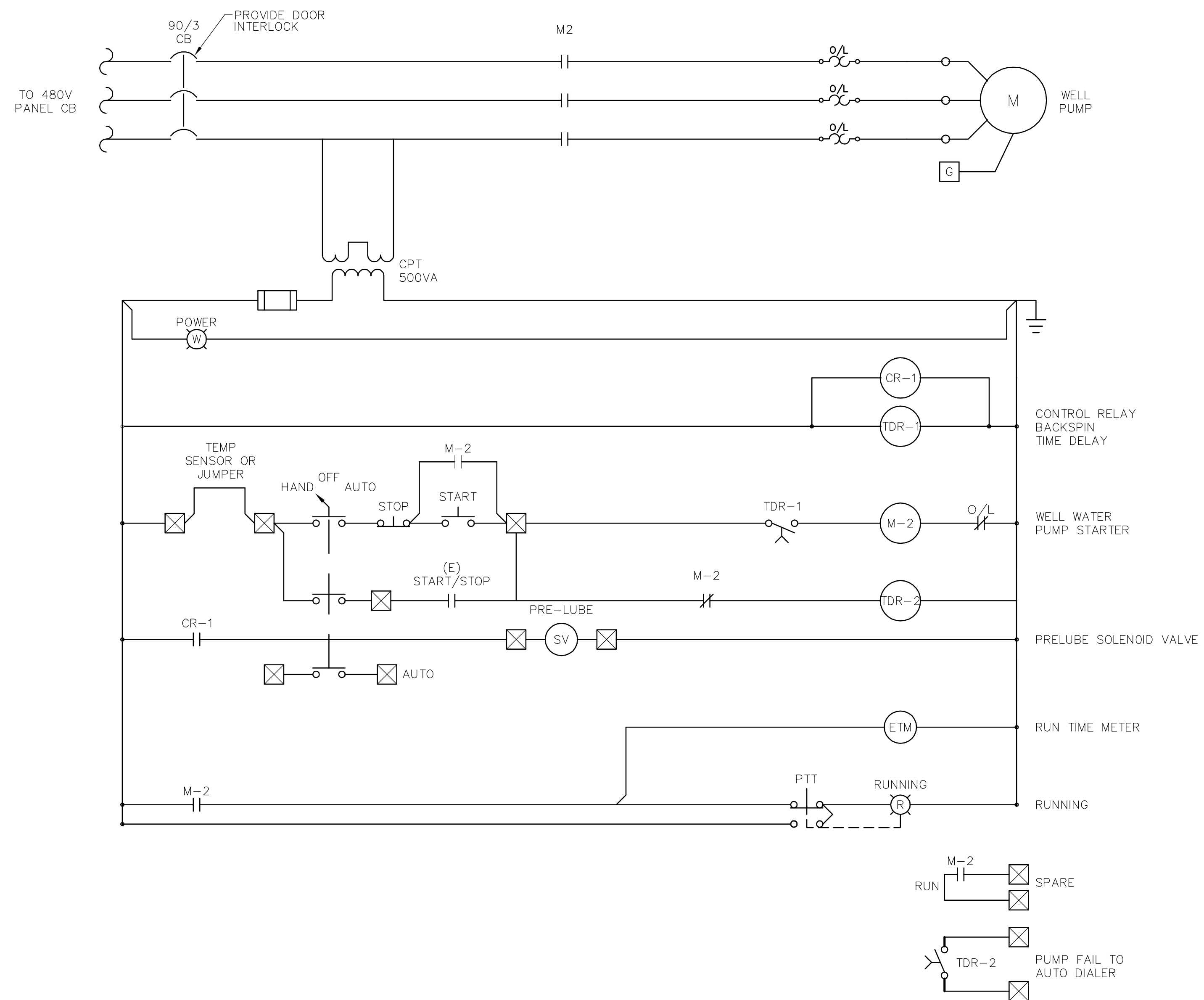
FOR REDUCED PLANS  
 ORIGINAL SCALE IS IN INCHES  
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 VERT. SCALE:  
 (E) CONTOUR  
 INTERVAL

REVISIONS		APPROVALS	
NO.	ITEM	DATE	

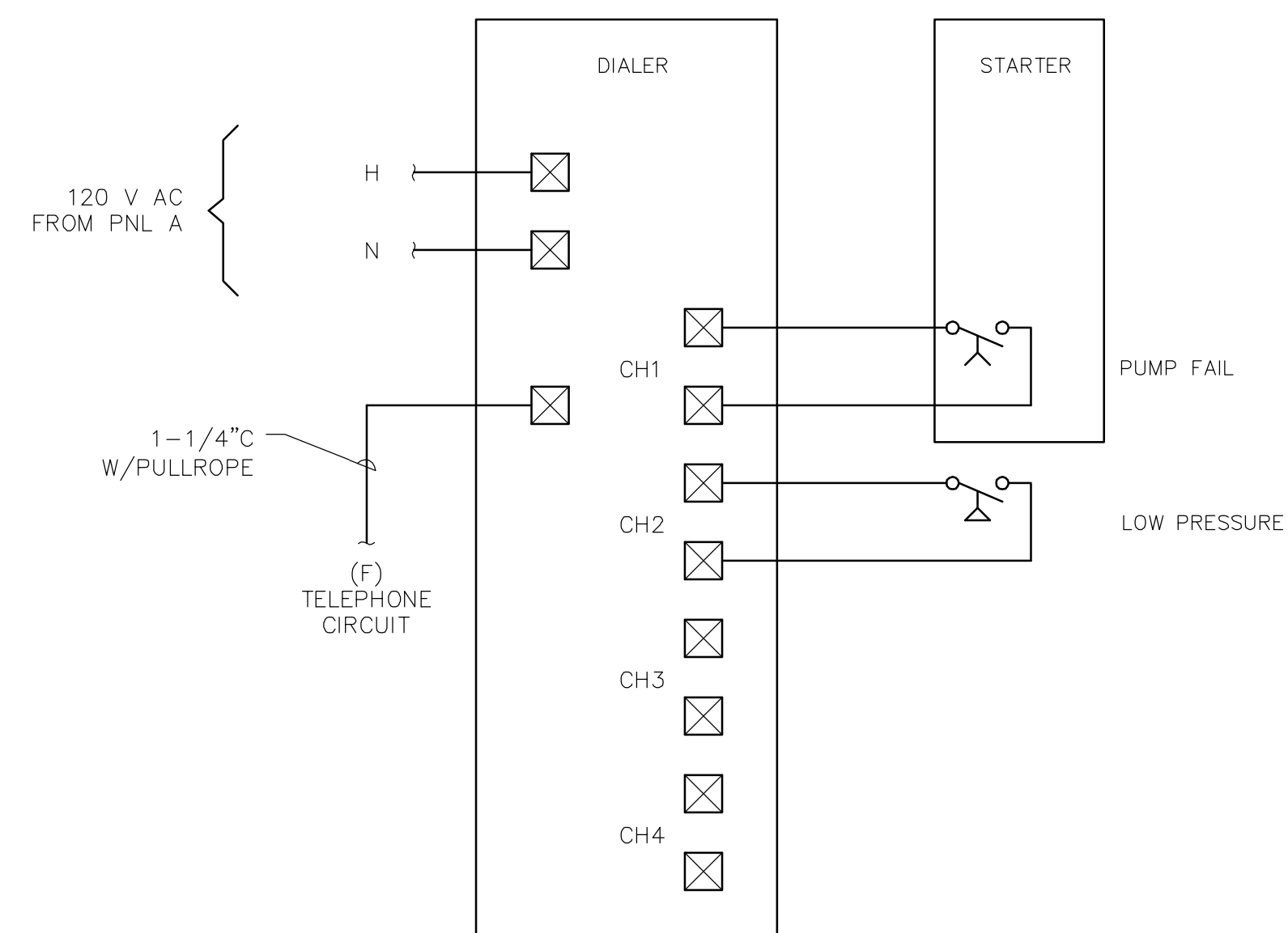
COUNTY OF STANISLAUS  
 DEPARTMENT OF PARKS & RECREATION  
**Woodward Reservoir**  
**Water Well & Water Filtration System**  
**WELL NO.2 SINGLELINE AND ELEVATION**  
 DATE: \_\_\_\_\_ SCALE: \_\_\_\_\_  
 DRAFTED: \_\_\_\_\_ CHECKED: \_\_\_\_\_ FILE NO: \_\_\_\_\_ W.O. NO: \_\_\_\_\_

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**E6**  
 SHEET  
**16** OF  
**19**

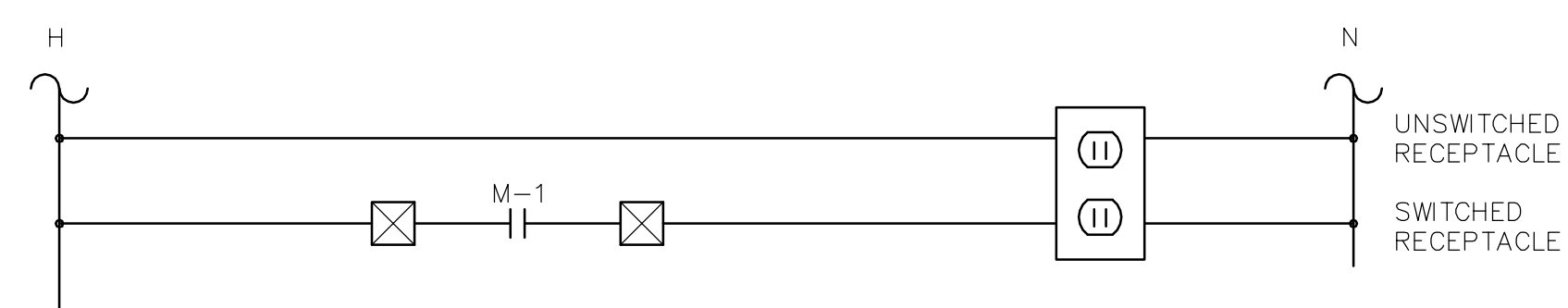




WELL NO. 2 PUMP CONTROL WIRING DIAGRAM  
NO SCALE



AUTO DIALER CONTROL WIRING DIAGRAM  
NO SCALE



CHEMICAL SYSTEM CONTROL WIRING DIAGRAM  
NO SCALE

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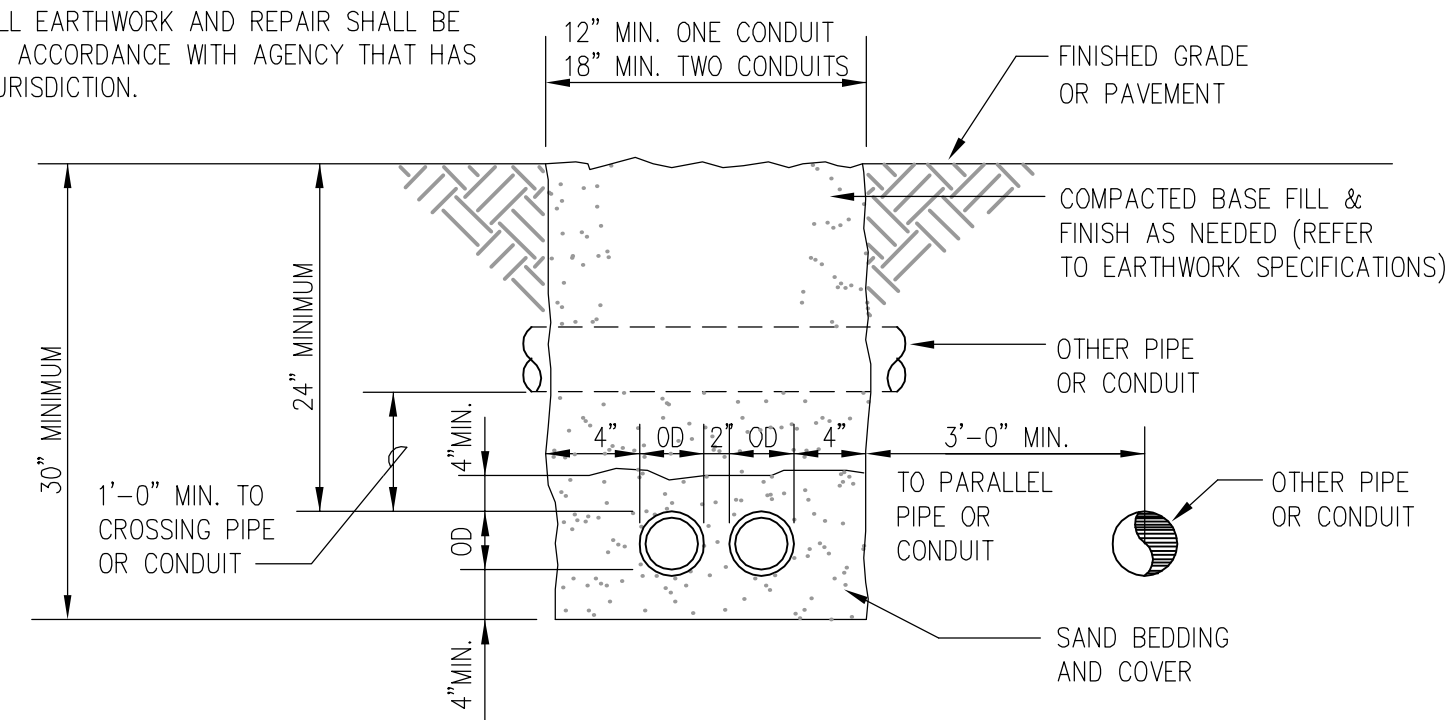
FOR REDUCED PLANS  
ORIGINAL SCALE IS IN INCHES  
0 1" 2"  
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VERT. SCALE:  
(E) CONTOUR  
INTERVAL

REVISIONS		APPROVALS	
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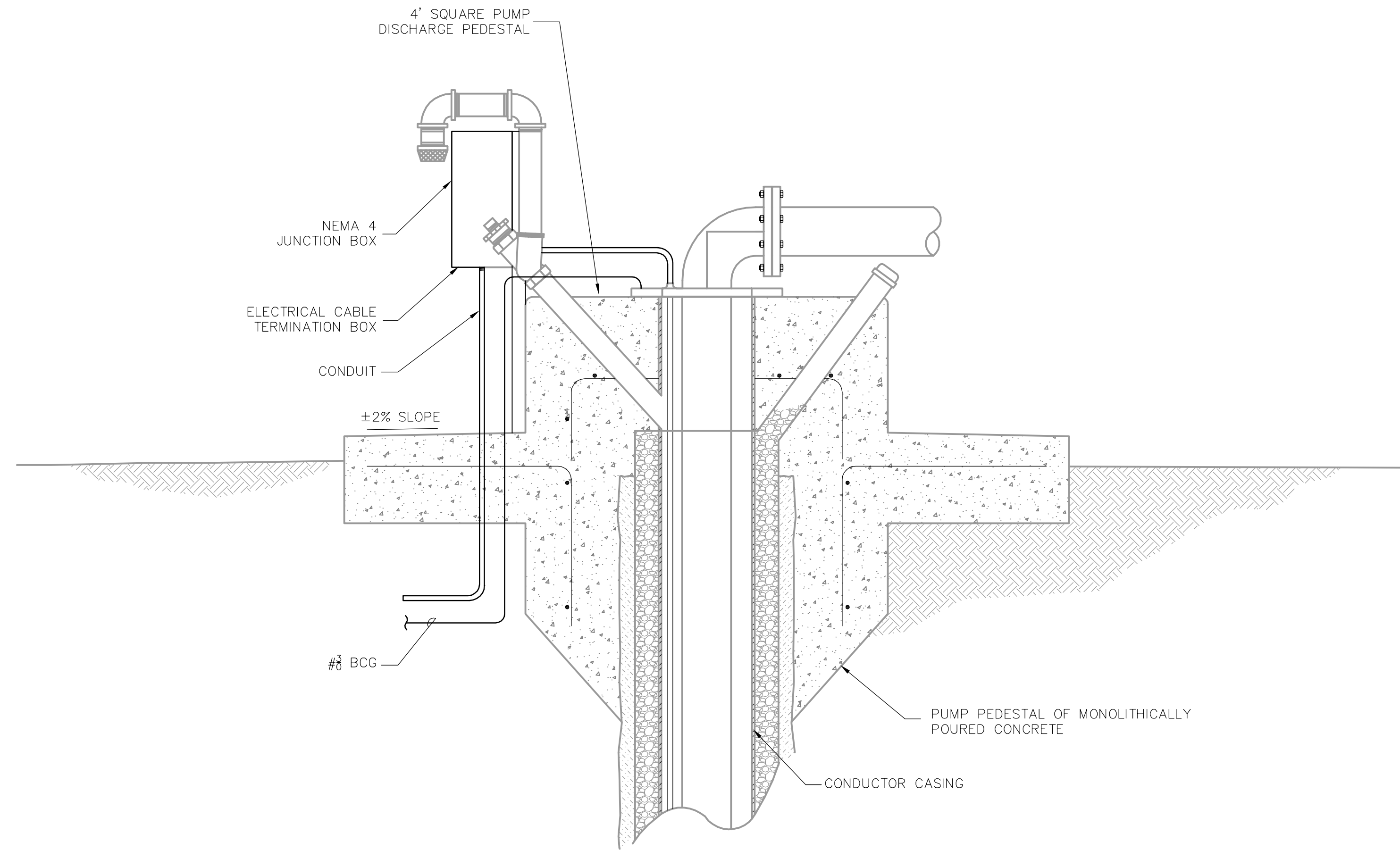
COUNTY OF STANISLAUS DEPARTMENT OF PARKS & RECREATION	
Woodward Reservoir Water Well & Water Filtration System WELL SITE NO.2 - CONTROL WIRING DIAGRAM	
DATE:	SCALE:
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DRAWING  
E7  
SHEET  
17 OF  
19

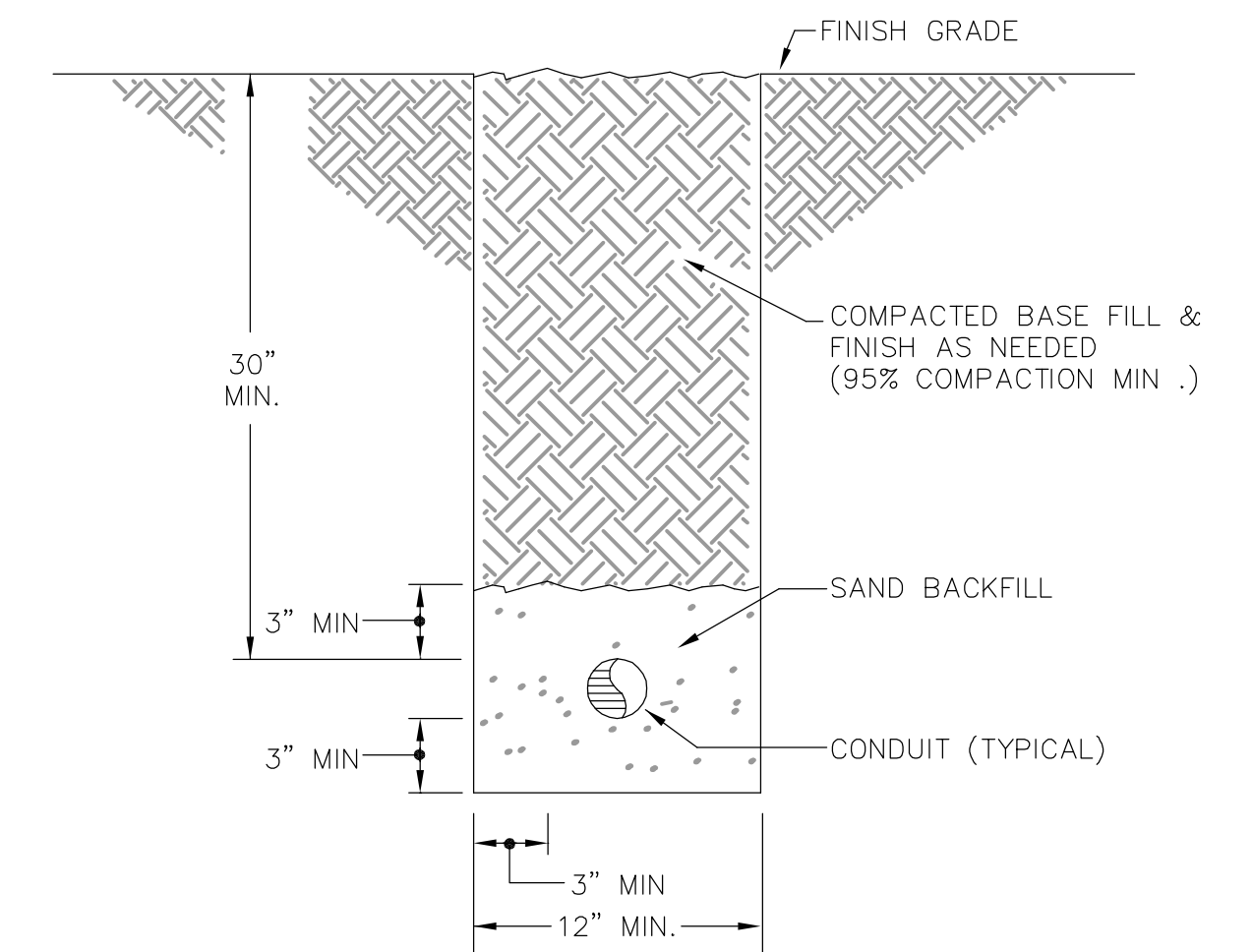
NOTE:  
TRENCHING LOCATED IN PAVED AREAS - ALL EARTHWORK AND REPAIR SHALL BE IN ACCORDANCE WITH AGENCY THAT HAS JURISDICTION.



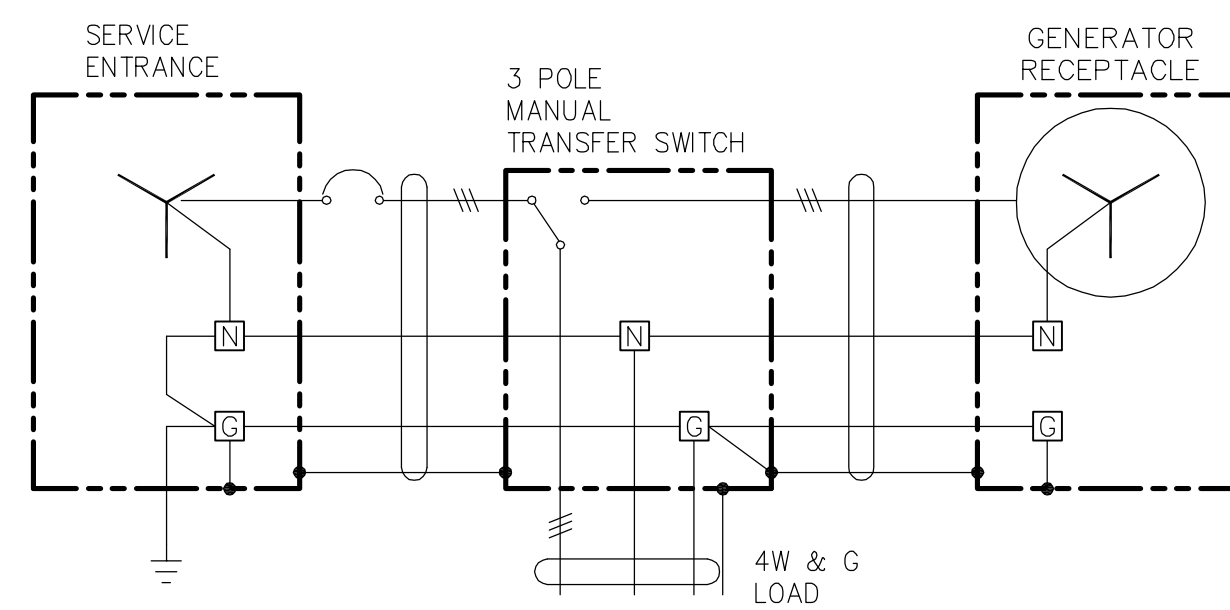
TYPICAL TRENCH DETAIL A  
E8  
NOT TO SCALE



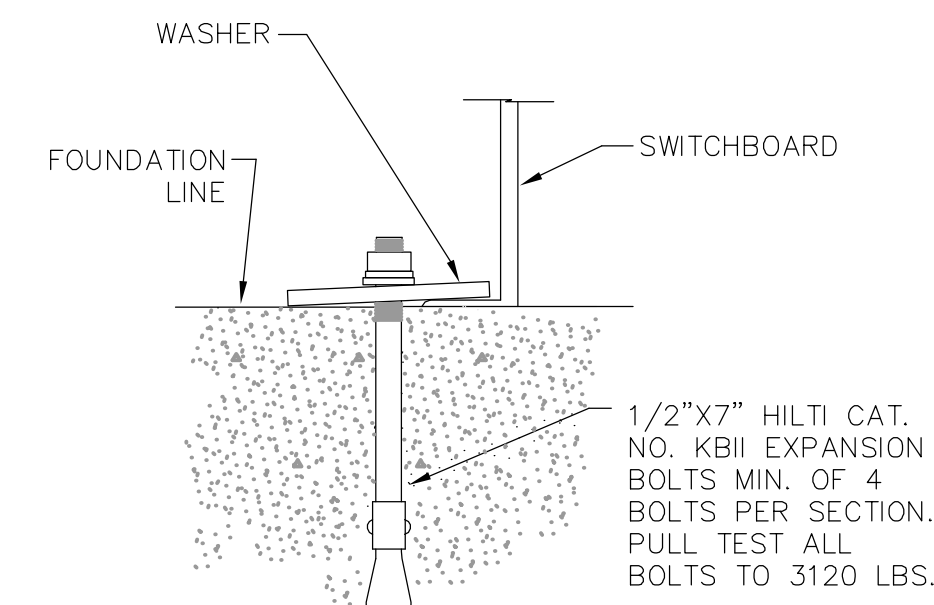
WELL CONNECTION DETAIL B  
E8  
NOT TO SCALE



TYPICAL SECONDARY SERVICE TRENCH DETAIL C  
E8  
NOT TO SCALE

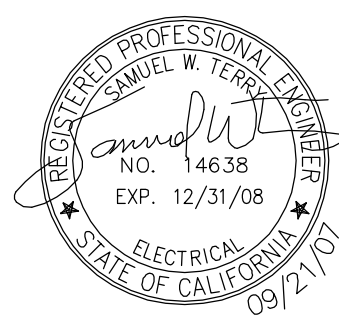


NON-SEPERATELY DERIVED GROUND SYSTEM D  
E8  
NOT TO SCALE



ANCHOR DETAIL E  
E8  
NOT TO SCALE

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samtery@sauersinc.net

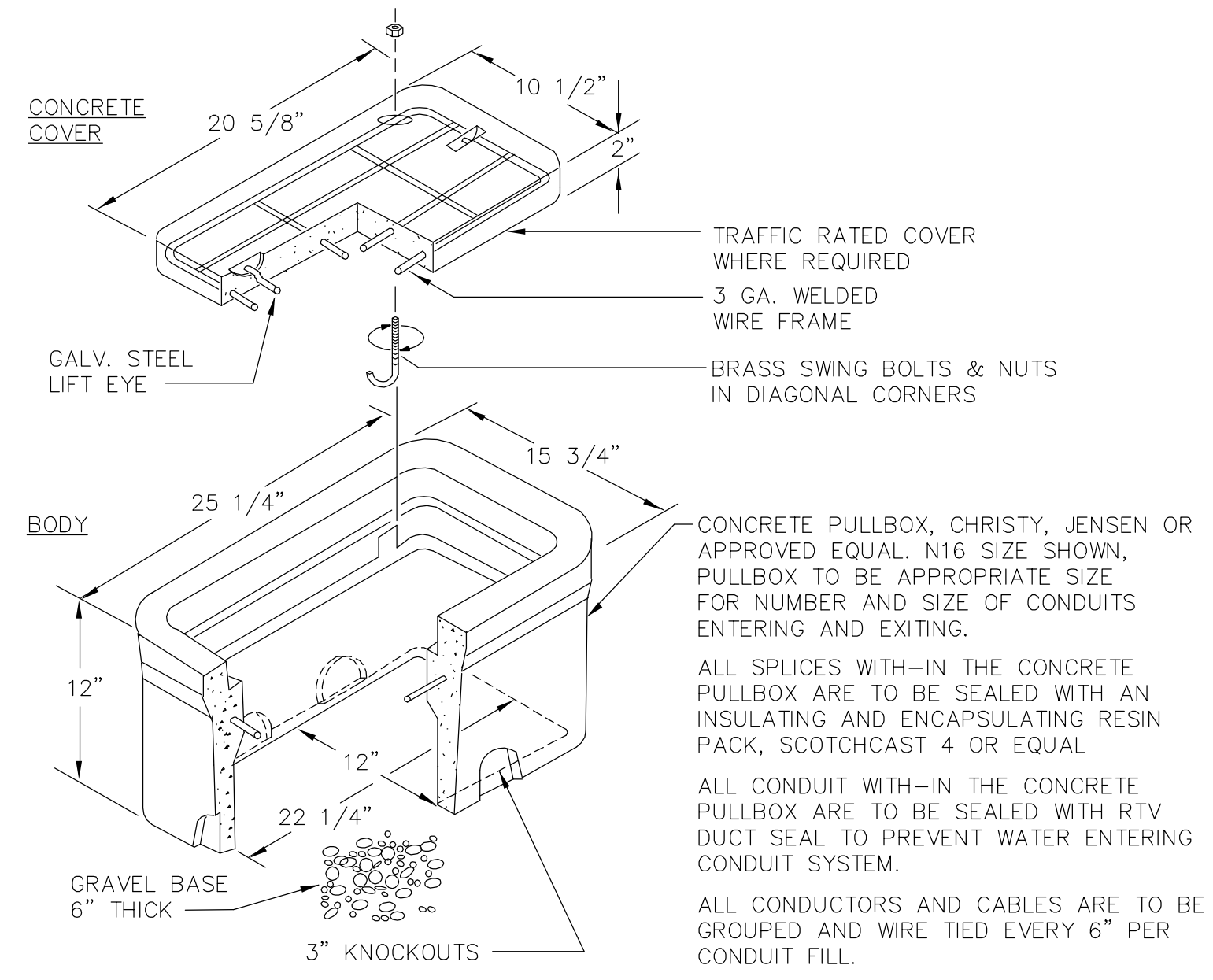


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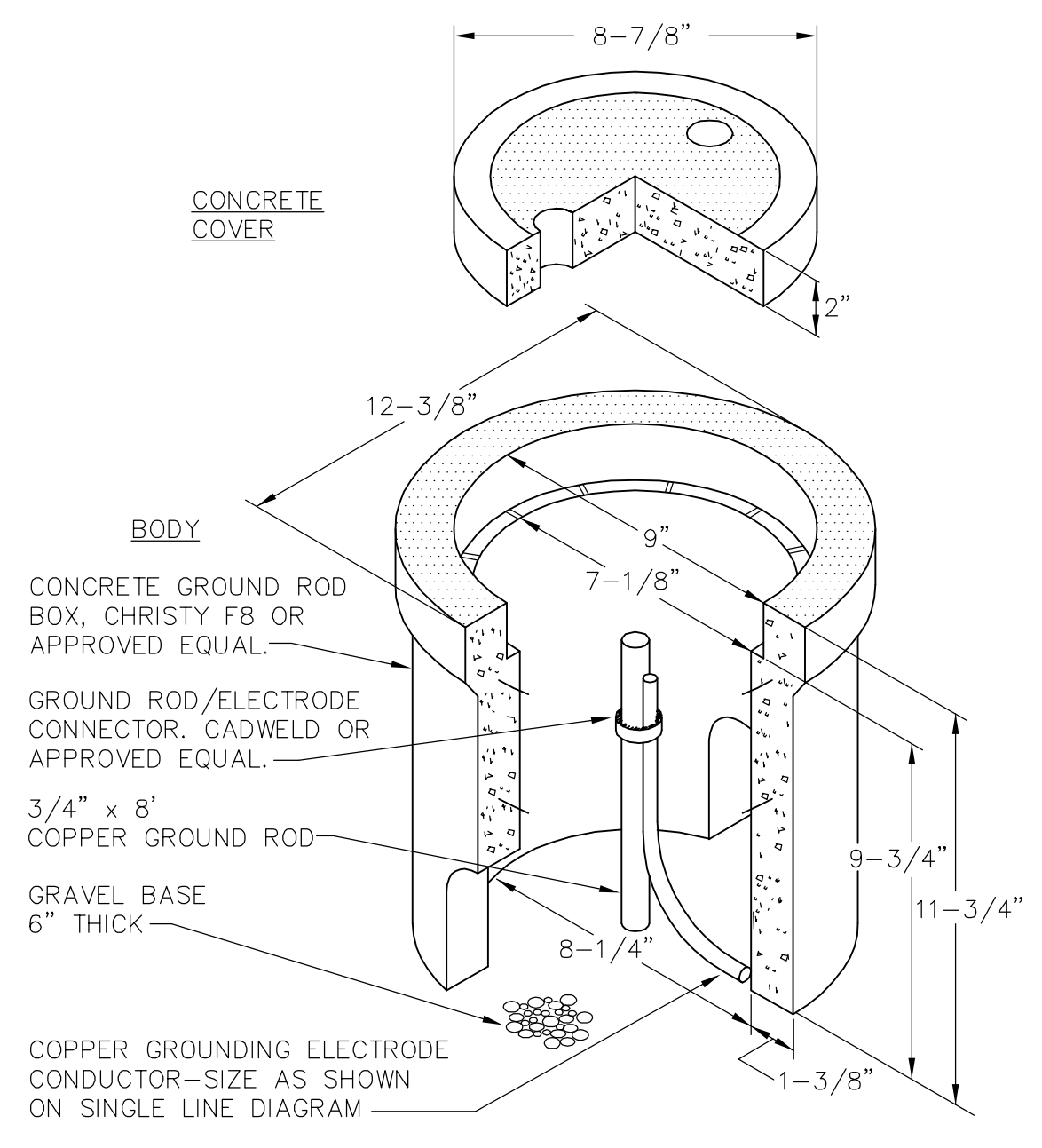
FOR REDUCED PLANS ORIGINAL SCALE IS IN INCHES  
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HORIZ. SCALE:  
VERT. SCALE:  
(E) CONTOUR INTERVAL

REVISIONS		APPROVALS	
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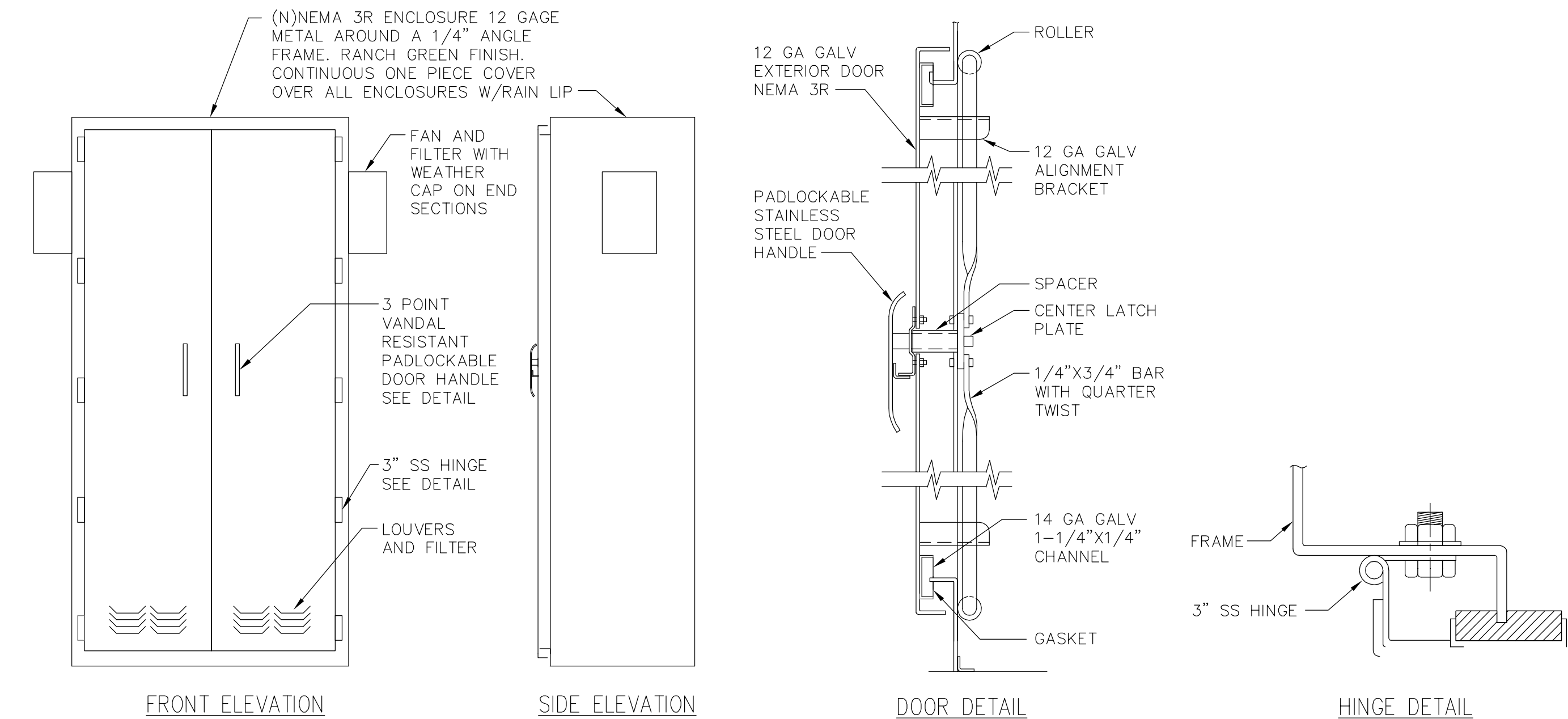
COUNTY OF STANISLAUS DEPARTMENT OF PARKS & RECREATION		DRAWING E8
Woodward Reservoir Water Well & Water Filtration System ELECTRICAL DETAILS I		SHEET 18 OF 19
DATE:	SCALE:	
DRAFTED:	CHECKED:	FILE NO. W.O. NO.



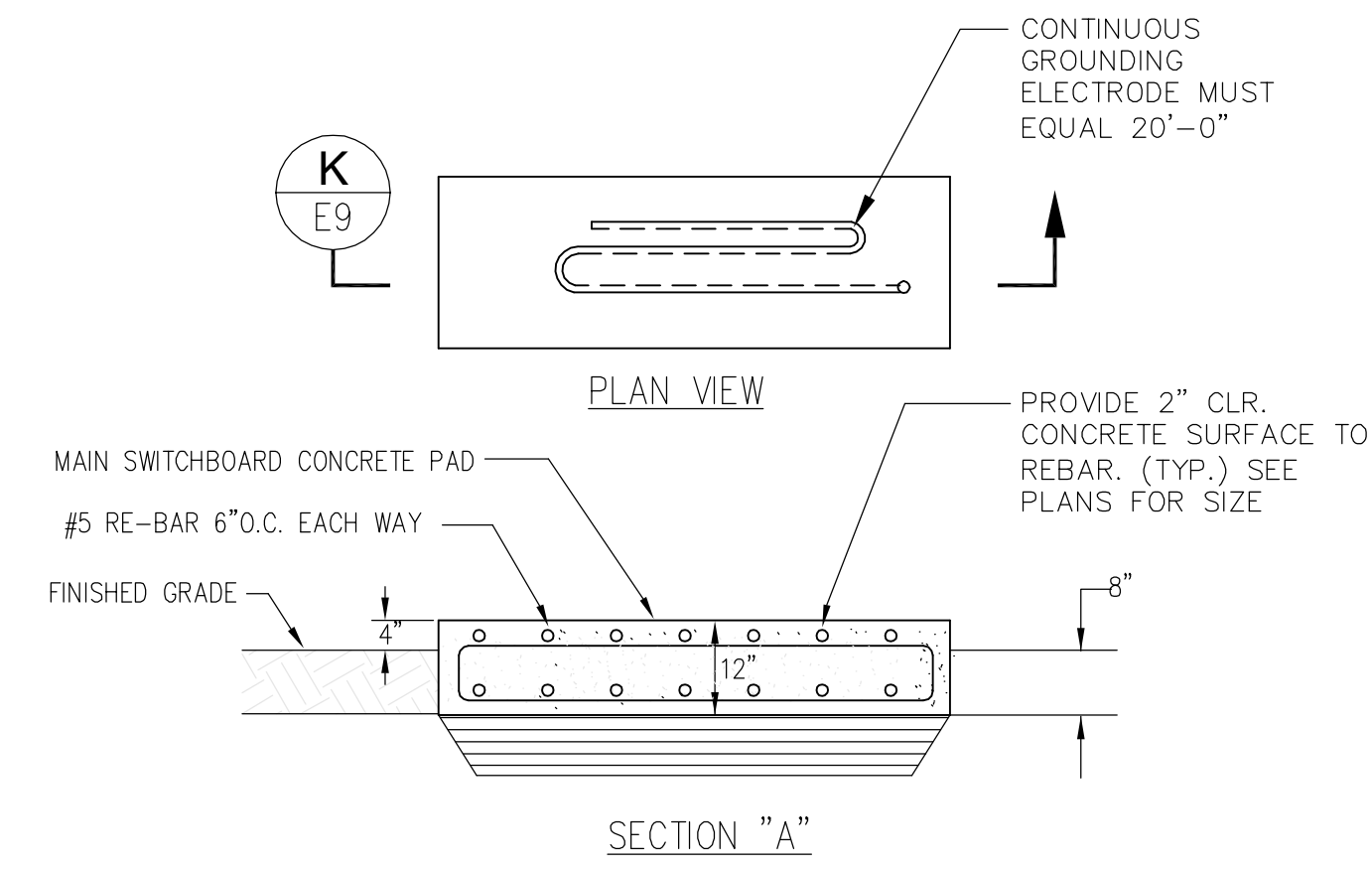
**CONCRETE PULLBOX DETAIL** **F**  
NOT TO SCALE **E9**



**CONCRETE GROUND ROD BOX** **G**  
NOT TO SCALE **E9**



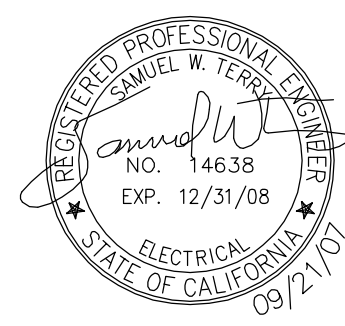
**TYPICAL SWITCHBOARD/MCC WEATHERPROOF ENCLOSURE ELEVATION** **H**  
NOT TO SCALE **E9**



**SWITCHBOARD PAD & GROUNDING DETAIL** **K**  
SCALE: N.T.S. **E9**

NOTE: THE MCC VENDOR SHALL TAKE DETAILED FIELD MEASUREMENTS BEFORE SUBMITTING ON (N) NEMA 3R PANEL ENCLOSURES.

**ECS**  
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ER Grow, CA  
916-684-1477 Fax 916-684-7161  
santery@earthlink.net



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Civil and Environmental Engineers  
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FOR REDUCED PLANS  
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HORIZ. SCALE:  
VERT. SCALE:  
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INTERVAL

REVISIONS		APPROVALS	
NO.	ITEM	DATE	

COUNTY OF STANISLAUS  
DEPARTMENT OF PARKS & RECREATION  
Woodward Reservoir  
Water Well & Water Filtration System  
ELECTRICAL DETAILS II  
DATE: \_\_\_\_\_ SCALE: \_\_\_\_\_  
DRAFTED: \_\_\_\_\_ CHECKED: \_\_\_\_\_ FILE NO. \_\_\_\_\_ W.O. NO. \_\_\_\_\_

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**E9**  
SHEET  
19 OF  
19