

# Graton CSD

## Graton/Forestville Intertie Condition Assessment

### Kickoff Meeting

Location: MS Teams  
Date: April 9, 2024  
Time: 1PM  
Attendees - Graton: John Gibson  
Attendees – WY Team: Anne Girtz (West Yost); Alejandro Ramirez, Max Alvin (V&A)

## NOTES

1. Introductions
  - a. District, West Yost, V&A
2. Background on Graton-Forestville Intertie
  - a. John provided some background information on the intertie including usage, historical leaks/breaks, etc. - see notes on plan set (attached)
  - b. Graton is only responsible/knowledgeable about the portion owned by Graton (up to Ross Station Road air valve).
    - i. Cory is the Forestville chief plant operator (707-975-6508)
    - ii. **Action Item:** Anne to contact Cory and set up meeting.
3. Purpose, Goals
  - a. Assess condition; what is required as far as maintenance or rehabilitation
    - i. The pipeline will have more use in future; haven't used past Chenowith recently due to condition issues.
    - ii. Graton sends disinfected tertiary (non-chlorinated) water to users and Forestville; Forestville sends back in winter for storage.
4. Review Scope of Work – see notes from V&A scope (attached)
5. Available Data
  - a. Previous geotechnical information – none available
  - b. Plan set – Addendum 1 (note these are not as-builts)
    - i. Reviewed plan set and access points
  - c. **Action Item:** John to send his set of plans with valve markups
  - d. **Action Item:** John to send pictures of piece that was recently cut out for repairs
6. Field Work
  - a. Access points – the plan set was reviewed (Graton portion only) for access points – see notes on plan set (attached)
  - b. Scheduling, logistics
    - i. Access – mostly bike path; driveable
    - ii. Turnouts – V&A to coordinate access with John (gates, etc.)
    - iii. Testing Equipment: portable generator; mostly hand-held; small truck
  - c. Standard traffic control will be provided by V&A
7. Overall schedule
  - a. Tentative start date– May 6, 1 week or less of field work
    - i. V&A/West Yost to notify John/Graton 1-2 weeks prior for coordination
  - b. August for final report

# SONOMA COUNTY WATER AGENCY

## FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2

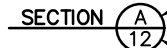
### TYPICAL SECTION AND DETAIL LETTERING SYSTEM

SECTIONS AND DETAILS CUT ON SHEET NO. 12 TO BE FOUND ON SHEET NO. 15:



SECTION OR DETAIL LETTER

ON SHEET NO. 15 THIS SECTION IS SHOWN AS:



SHEET ON WHICH IT APPEARS

SECTION OR DETAIL LETTER

SHEET FROM WHICH SECTION WAS CUT

SECTIONS AND DETAILS TO BE FOUND ON SAME SHEET AS CUT:



### ABBREVIATIONS

A.B.	AGGREGATE BASE	JB	JUNCTION BOX
A.E.	APPROVED EQUAL	LT.	LEFT
APPROX.	APPROXIMATE	MIN.	MINIMUM
BLD.	BUILDING	NO.	NUMBER
cu. ft.	CUBIC FOOT	OHPL	OVERHEAD POWER LINE
C.I.	CURB INLET	OHT	OVERHEAD TELEPHONE LINE
CL	CLASS	PL	PLATE
CLR	CLEAR(ANCE)	PVI	POINT OF VERTICAL INTERSECTION
CMP	CORRUGATED METAL PIPE	R.C.	RELATIVE COMPACTION
CO.	COUNTY	RCP	REINFORCED CONCRETE PIPE
CP	CONCRETE PIPE	RPBP	REDUCED PRESSURE BACKFLOW PREVENTER
CSD	COUNTY SANITATION DISTRICT	RT.	RIGHT
D.I.	DROP INLET	SHT.	SHEET
DO	DISSOLVED OXYGEN	SO <sub>2</sub>	SULPHUR DIOXIDE
EA. WY.	EACH WAY	SQ.	SQUARE
E	FLOW LINE	T.C.E.	TEMPORARY CONSTRUCTION EASEMENT
FM	FORCE MAIN	TE	TREATED EFFLUENT
GPM	GALLONS PER MINUTE	YD	YARD
HWY.	HIGHWAY	SST	STAINLESS STEEL
JP	JOINT POLE		

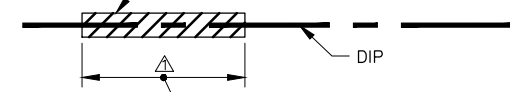
SHEET NO.	DRAWING NO.	TITLE
1.	70 - 2&3 - 102.1	INDEX TO DRAWINGS & GENERAL NOTES
2.	- 102.2	LOCATION/VICINITY MAP
3.	- 104.1	RIGHT OF WAY, PIPELINE
4.	- 104.2	RIGHT OF WAY, PIPELINE
5.	- 102.3	GRATON SITE PLAN
6.	- 102.4	GRATON POND OUTLET PIPING PLAN & DETAILS
7.	- 102.5	FORESTVILLE SITE GRADING PLAN
8.	- 102.6	FORESTVILLE SITE PLAN
9.	- 102.7	FORESTVILLE POND OUTLET PIPING PLAN & DETAILS
10.	- 102.8	TYPICAL PUMP STATION PIPING PLAN/PROFILE
<del>11.</del>	<del>102.9</del>	<del>CHLORINE RESIDUAL ANALYZER PIPING</del>
12.	- 102.10	STRUCTURAL DETAILS
13.	- 102.11	SYSTEM SCHEMATIC
14.	- 102.12	PUMP STATION PIPING & MECHANICAL DETAILS
15.	- 102.13	FORCE MAIN PLAN STA 0+98± TO STA 25+00 GRAVITY MAIN PLAN STA 150+00 TO STA 153+86.13
16.	- 102.14	FORCE MAIN PLAN STA 25+00 TO STA 49+00
17.	- 102.15	FORCE MAIN PLAN STA 49+00 TO STA 73+00
18.	- 102.16	FORCE MAIN PLAN STA. 73+00 TO STA 94+79±
19.	- 102.17	FORCE MAIN PROFILE STA 0+98± TO STA 55+00
20.	- 102.18	FORCE MAIN PROFILE STA 55+00 TO STA 94+79± & GRAVITY MAIN PROFILE STA 150+04± TO STA 153+79.6±
21.	- 102.19	TRENCH BEDDING/BACKFILL
22.	- 102.20	MISCELLANEOUS PIPING DETAILS
23.	- 102.21	MISCELLANEOUS PIPING DETAILS
24.	- 102.22	TURNOUT PLANS & DETAILS
25.	- 102.23	IRRIGATION TURNOUT & DRAIN PIPING PLANS & DETAILS
26.	- 102.24	MISCELLANEOUS DETAILS
27.	- 102.25	MISCELLANEOUS DETAILS
28.	- 102.26	GRATON ELECTRICAL SITE PLAN
29.	- 102.27	GRATON ELECTRICAL PLAN & DETAILS
30.	- 102.28	FORESTVILLE ELECTRICAL SITE PLAN
31.	- 102.29	FORESTVILLE ELECTRICAL PLAN & DETAILS
32.	- 102.30	GRATON MOTOR CONTROL CIRCUIT & DETAILS
33.	- 102.31	FORESTVILLE MOTOR CONTROL CIRCUIT & DETAILS
34.	- 102.32	GRATON MISC. ELECTRICAL DETAILS
35.	- 102.33	FORESTVILLE MISC. ELECTRICAL DETAILS
36.	- 102.34	FORESTVILLE/GRATON MISC. ELECTRICAL DETAILS
37.	- 102.35	FORESTVILLE/GRATON MISC. ELECTRICAL DETAILS

### GENERAL NOTES

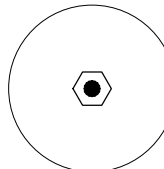
- HORIZONTAL DATUM :** AS SHOWN AND DESCRIBED IN RECORD OF SURVEY FILED IN BOOK 537 OF MAPS, PAGE 33-37, SONOMA COUNTY RECORDS.
- VERTICAL DATUM :** MEAN SEA LEVEL DATUM OF 1929 BASED ON C & GS BENCH MARK DISK STAMPED G-239 RESET IN 1971. FOUND SET IN TOP OF THE WESTERLY CORNER OF A DRAIN INLET IN FRONT OF SERVICE STATION 65 FEET NORTHEAST OF THE INTERSECTION OF STATE HIGHWAY 116 AND GREEN VALLEY ROAD. EL 218.18
- STATIONING :** ALL STATIONING REPRESENTS HORIZONTAL MEASUREMENT AT CENTERLINE OF CONSTRUCTION.
- ORIENTATION :** RIGHT AND LEFT DIRECTIONS ARE FROM CENTERLINE LOOKING UPSTREAM.
- UTILITIES :** THE AGENCY, TO THE BEST OF ITS ABILITY, HAS DELINEATED ON THE DRAWINGS ALL UTILITY INSTALLATIONS TO BE ENCOUNTERED WITHIN THE LIMITS OF WORK. SUCH INFORMATION IS BASED UPON INFORMATION FURNISHED TO THE AGENCY BY THE UTILITY OWNERS, AND THE AGENCY DOES NOT EITHER EXPRESSLY OR BY IMPLICATION GUARANTEE THAT UTILITY INSTALLATIONS WILL BE FOUND AT THE LOCATIONS OR DEPTHS INDICATED. THE AGENCY ASSUMES NO RESPONSIBILITY FOR THE ACCURACY OF THE INFORMATION SHOWN OR THE INADVERTENT OMISSION OF ANY SUCH INFORMATION.
- FENCING :** EXISTING FENCING DISTURBED BY CONSTRUCTION SHALL BE RESET OR REPLACED IN KIND UNLESS OTHERWISE SPECIFIED ON THE DRAWINGS.  
▲ PROTECTIVE FENCE TO BE PLACED ALONG PIPELINE SPECIAL CONSTRUCTION AREA, AS DIRECTED BY THE ENGINEER.

### LEGEND

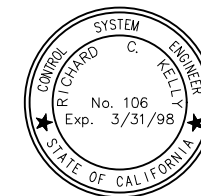
PIPELINE SPECIAL CONSTRUCTION AREA ▲  
FOR OAK TREES & WHERE SHOWN ON PLANS



PROTECTIVE FENCE, SEE GENERAL NOTE NO. 6



TREE TO BE REMOVED ▲



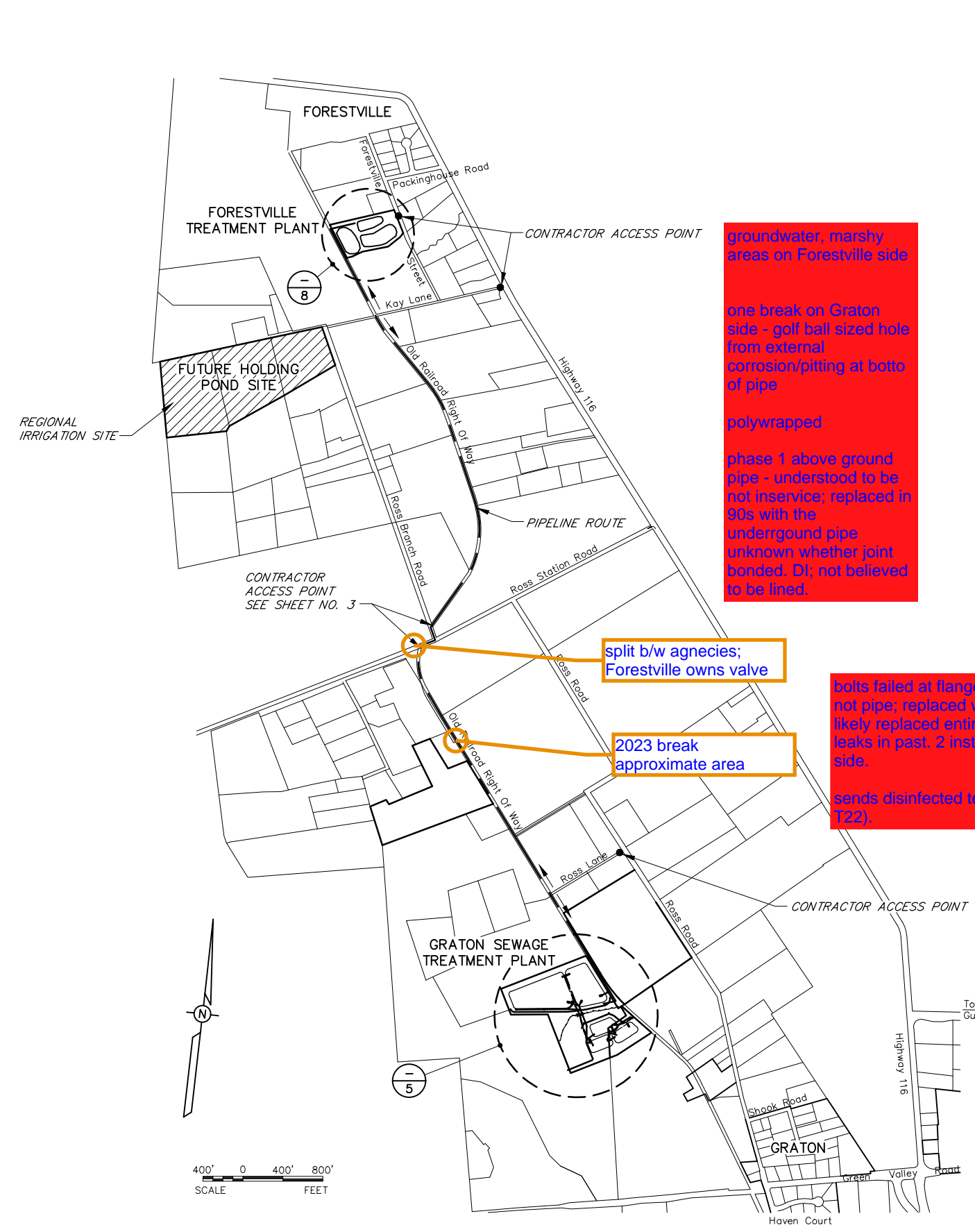
NO.	DATE	REVISION	BY	REVISION
▲	11/29/95	ADDENDUM NO. 1	ADF	

**INDEX TO DRAWINGS & GENERAL NOTES**

SCALE : NOT TO SCALE    APPROVED    CHIEF ENGINEER    RCE 33447    DRAWN : FJA/DJT/CBT  
DATE : NOV 29, 1995    CHECKED :

**SONOMA COUNTY WATER AGENCY**

DESIGNED RCE 35525    SUBMITTED RCE 23790    DRAWING NUMBER    70-2&3-102.1



**VICINITY MAP**  
NOT TO SCALE

groundwater, marshy areas on Forestville side

one break on Graton side - golf ball sized hole from external corrosion/pitting at bottom of pipe

polywrapped

phase 1 above ground pipe - understood to be not in service; replaced in 90s with the underground pipe  
unknown whether joint bonded. DI; not believed to be lined.

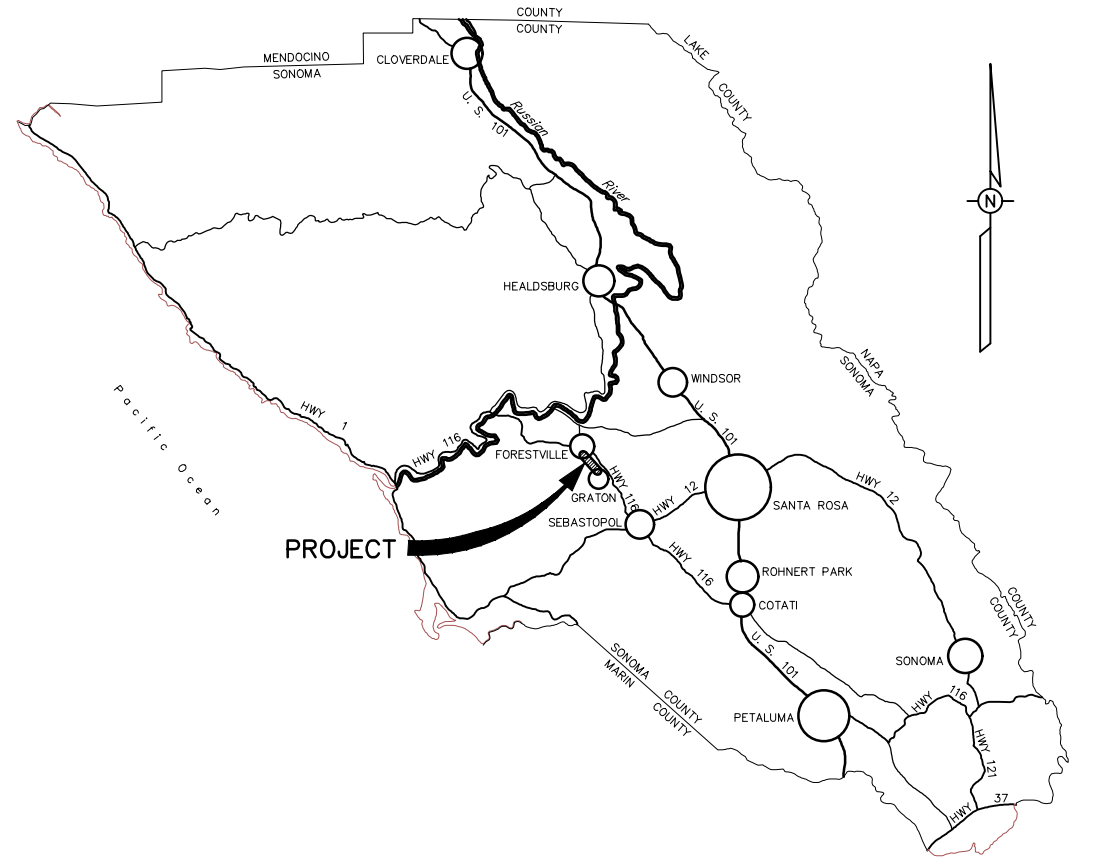
split b/w agencies; Forestville owns valve

2023 break approximate area

bolts failed at flanges (corrosion) - but not pipe; replaced with SS hardware; likely replaced entire valve; only other leaks in past 2 instances. on Graton side.

sends disinfected tertiary (not fully T22).

**NOTE:**  
ACCESS CONTROLLED BY LOCKED GATES.  
SEE SHEETS NO. 3 & 4 FOR LOCATIONS.

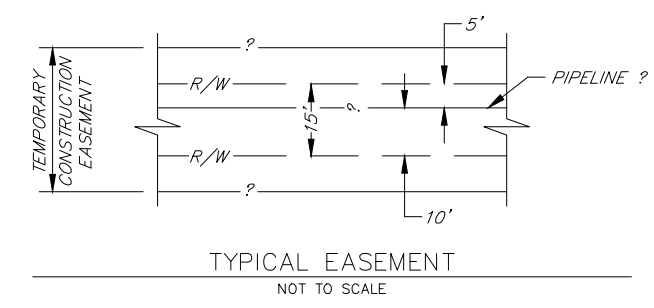
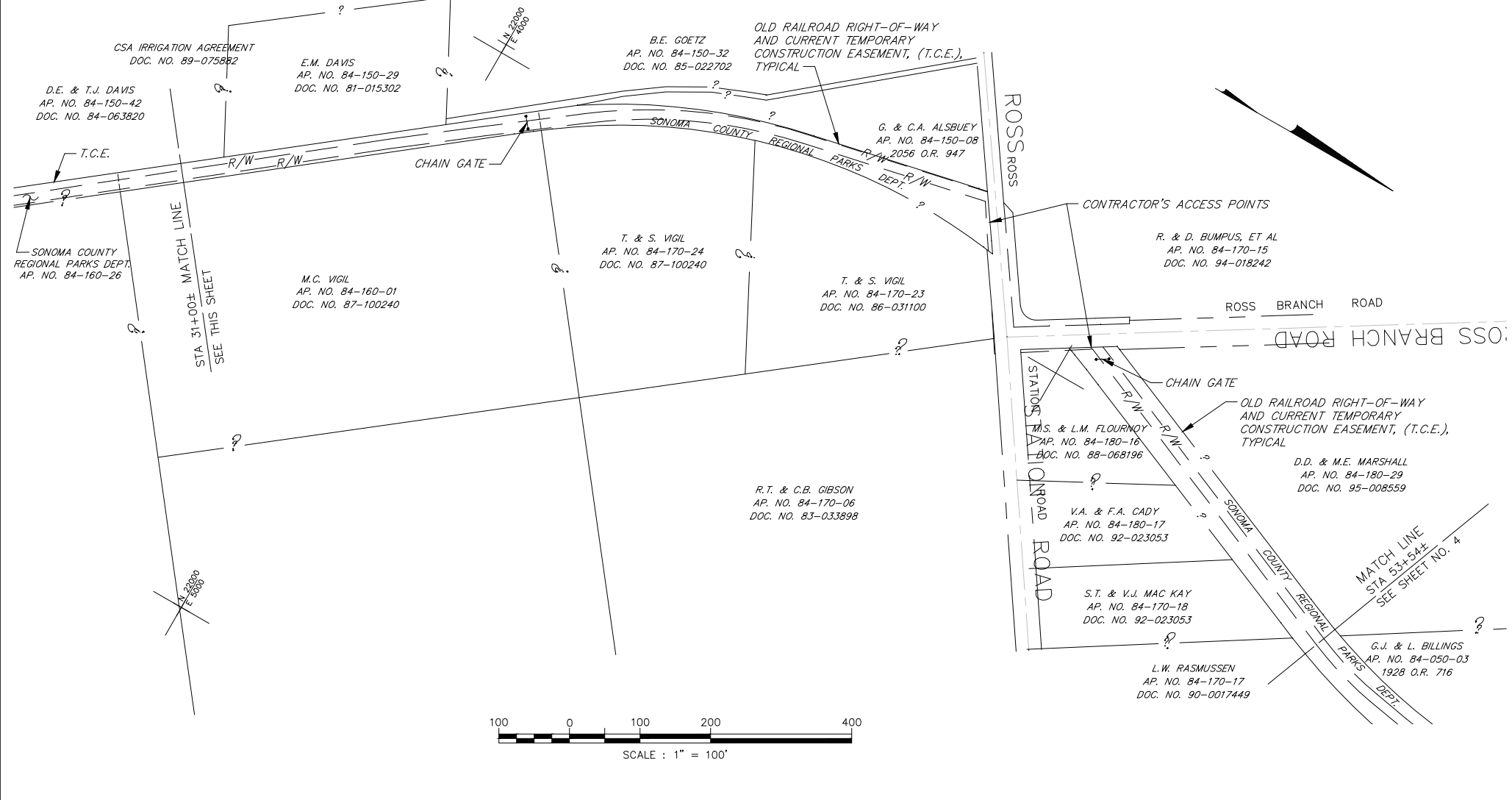
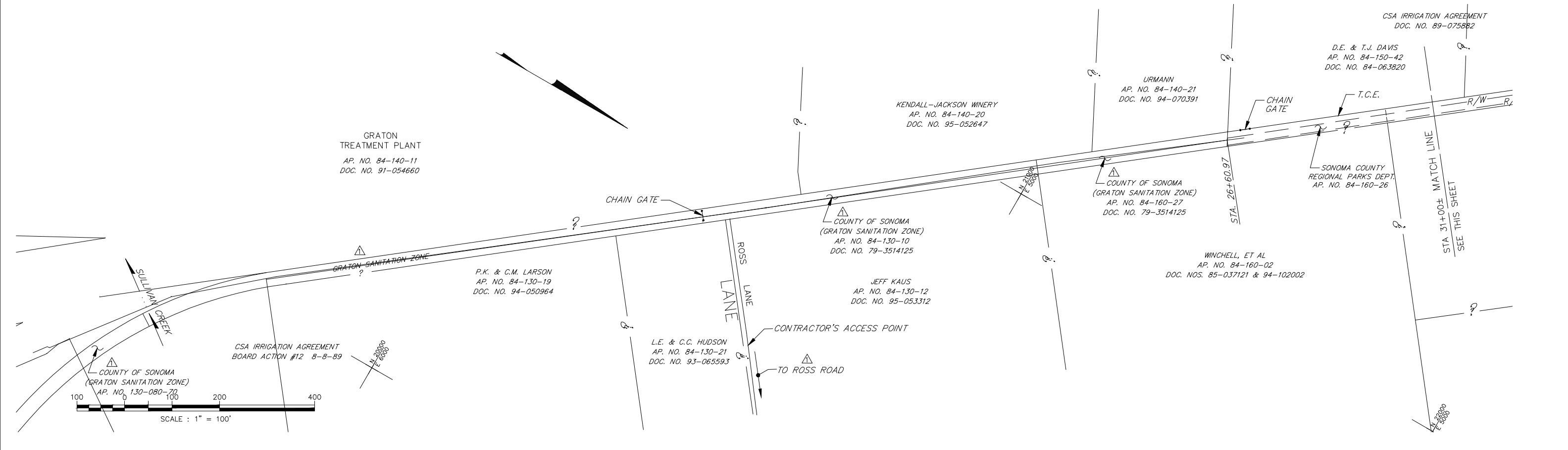


**LOCATION MAP**  
NOT TO SCALE

NO.	DATE	REVISION	BY

<b>FORESTVILLE &amp; GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2</b> <b>LOCATION/VICINITY MAP</b>	
<small>SCALE : AS SHOWN</small>	<small>APPROVED CHIEF ENGINEER RCE 33447</small>
<small>DATE : NOV 2, 1995</small>	<small>DRAWN : FJA</small> <small>CHECKED :</small>
<b>SONOMA COUNTY WATER AGENCY</b>	
<small>DESIGNED RCE 35525</small>	<small>SUBMITTED RCE 23790</small> <small>DRAWING NUMBER</small>
<b>70 - 2&amp;3 - 102.2</b>	

SHEET NO. 2



NO.	DATE	REVISION	BY
1	11/28/95	ADDENDUM NO. 1	
FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2 RIGHT OF WAY			
SCALE: 1" = 100'		APPROVED	CHEF ENGINEER RCE 33447
DATE: NOV 3, 1995		DRAWN: ANDY/FJA	
		CHECKED:	
<b>SONOMA COUNTY WATER AGENCY</b>			
DESIGNED	LS 5351	SUBMITTED	RCE 23790
DRAWING NUMBER		70-2&3-104.1	
P:\FGWMP\FGWMP-03			

A. CADY  
1-180-17  
2-023053

V.J. MAC KAY  
2-84-170-18  
0-92-023053

L.W. RASMUSSEN  
AP. NO. 84-170-17  
DOC. NO. 90-0017449

MATCH LINE  
STA 53+54±  
SEE SHEET NO. 4

G.J. & L. BILLINGS  
AP. NO. 84-050-03  
1928 O.R. 716

TOPOLOS AT RUSSIAN RIVER VINEYARDS  
AP. NO. 84-050-10  
94-028321

M.W. OLIVEN  
AP. NO. 84-050-01  
90-011120

STA 79+72±  
MATCH LINE  
SEE THIS SHEET

FORESTVILLE CO. SANITATION DISTRICT  
AP. NO. 84-060-21  
2114 O.R. 27

CARMEN KOZLOWSKI  
AP. NO. 84-170-01  
94-067169

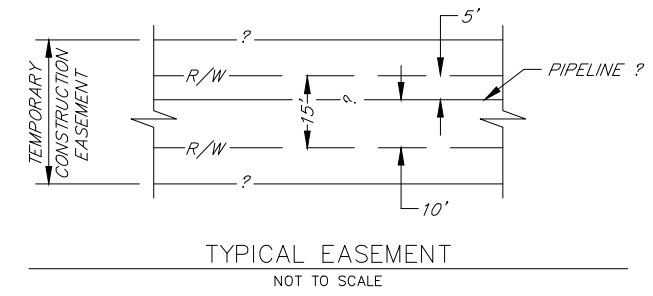
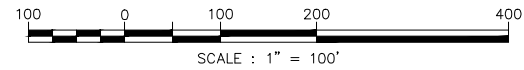
K. & C. MURAMOTO  
AP. NO. 84-060-12  
91-044694

CARMEN EIGERMAN  
AP. NO. 84-060-18  
93-031797

S.J. & K.C. EVANS  
84-060-07  
95-007285

TOPOLOS AT RUSSIAN RIVER VINEYARDS  
AP. NO. 84-060-22  
94-028321

D.W. VAIO  
AP. NO. 84-060-24  
87-038964



TYPICAL EASEMENT  
NOT TO SCALE

STA 79+72±  
MATCH LINE  
SEE THIS SHEET

M.W. OLIVEN  
AP. NO. 84-050-01  
90-011120

CRINELLA PROPERTIES  
AP. NO. 84-031-63  
92-005526

BATCHELDER  
AP. NO. 84-031-57  
81-012975

CONTRACTOR'S  
ACCESS POINT

CRINELLA PROPERTIES  
AP. NO. 84-031-62  
92-005526

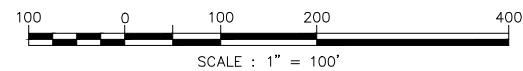
HOBINGSWORTH  
AP. NO. 84-020-11  
DOC. NO. 93-118825

FORESTVILLE CSD SEWER ESMT.  
2826 O.R. 837

H.P. GALUSHA  
AP. NO. 84-020-17  
1768 O.R. 124

FORESTVILLE  
TREATMENT PLANT  
AP. NO. 84-020-16  
D-070952

FORESTVILLE CO. SANITATION DISTRICT  
AP. NO. 84-060-21  
2114 O.R. 27



NO.	DATE	REVISION	BY

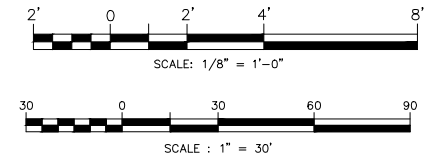
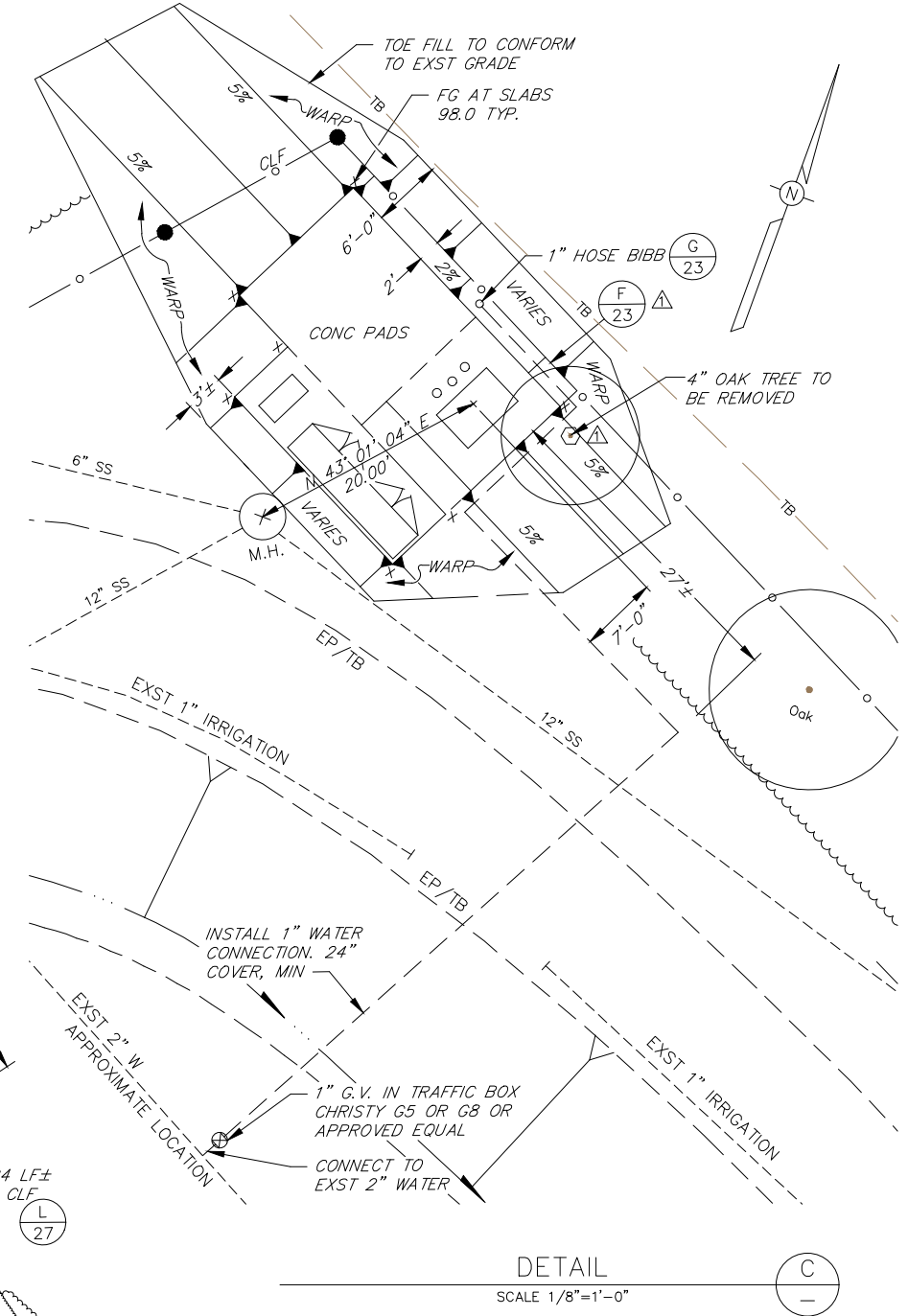
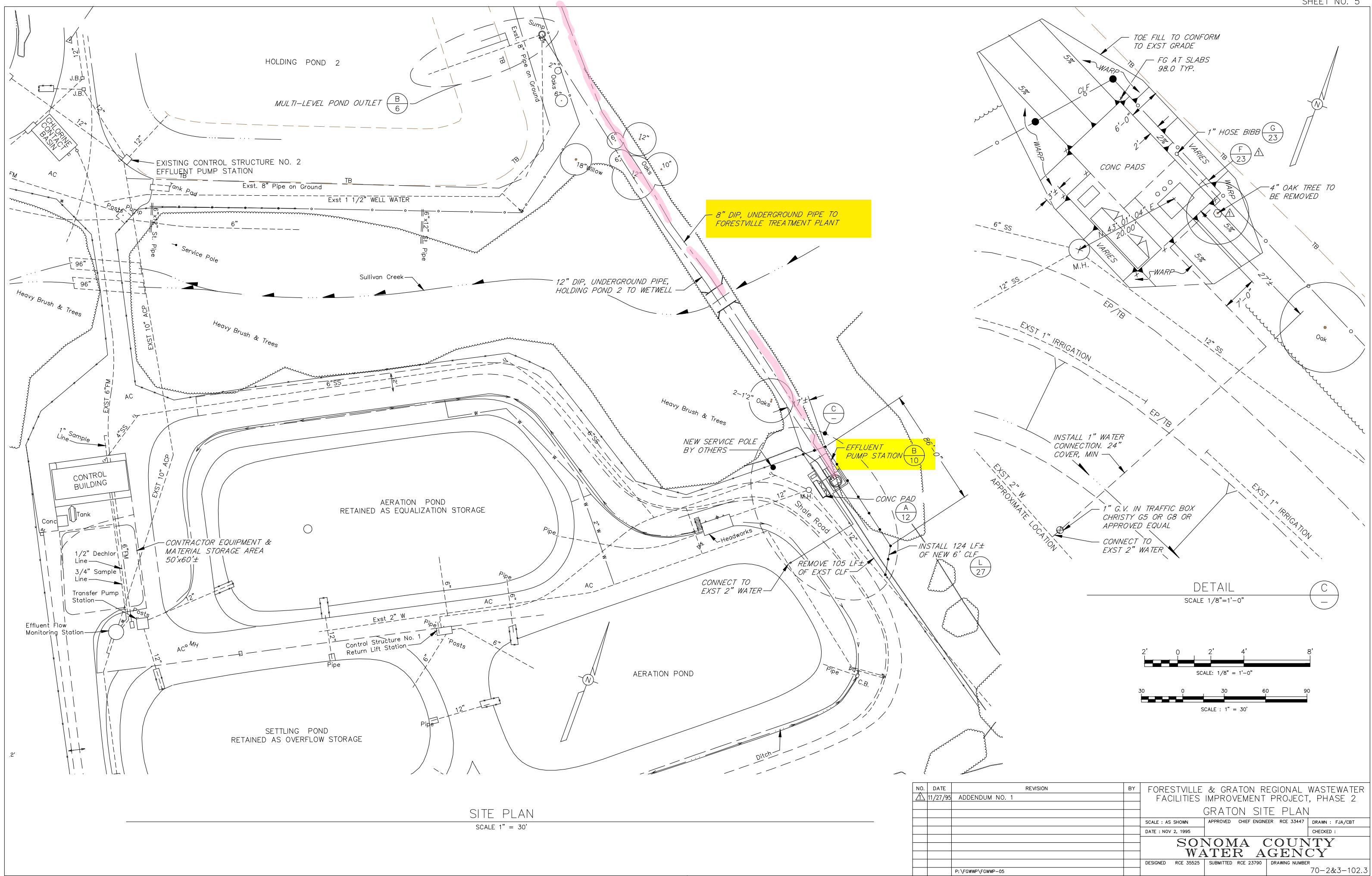
FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
RIGHT OF WAY

SCALE : 1" = 100'	APPROVED	CHIEF ENGINEER RCE 33447	DRAWN : ANDY/FJA
DATE : NOV 3, 1995			CHECKED :

**SONOMA COUNTY WATER AGENCY**

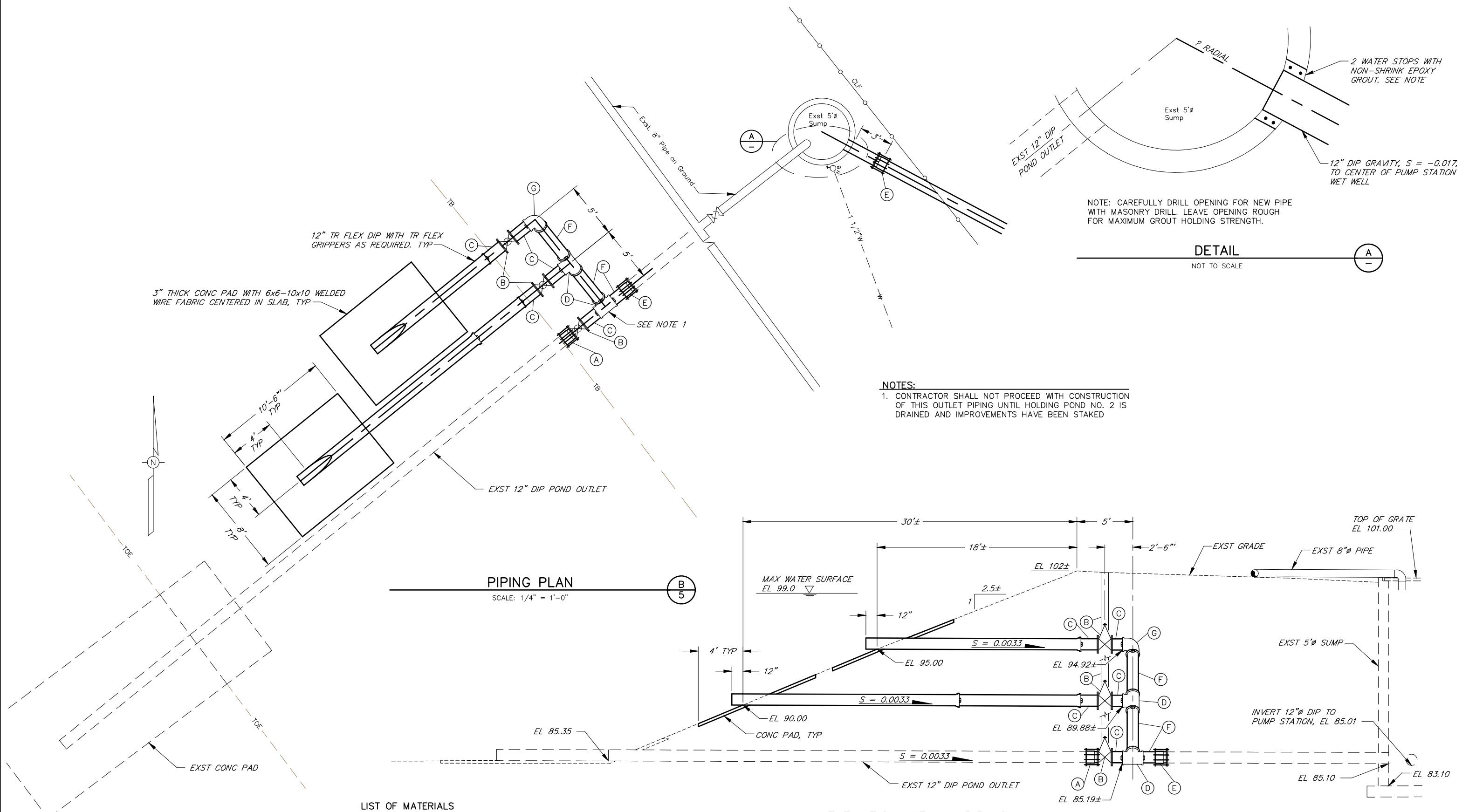
DESIGNED	LS 5351	SUBMITTED	RCE 23790	DRAWING NUMBER	70-2&3-104.2
----------	---------	-----------	-----------	----------------	--------------

P:\FGWMP\FGWMP-04



**SITE PLAN**  
SCALE 1" = 30'

NO.	DATE	REVISION	BY
1	11/27/95	ADDENDUM NO. 1	
FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2 GRATON SITE PLAN			
SCALE : AS SHOWN		APPROVED	CHEF ENGINEER RCE 33447
DATE : NOV 2, 1995		DRAWN : FJA/CBT	
		CHECKED :	
<b>SONOMA COUNTY WATER AGENCY</b>			
DESIGNED	RCE 35525	SUBMITTED	RCE 23790
		DRAWING NUMBER	
		70-2&3-102.3	



NOTE: CAREFULLY DRILL OPENING FOR NEW PIPE WITH MASONRY DRILL. LEAVE OPENING ROUGH FOR MAXIMUM GROUT HOLDING STRENGTH.

DETAIL  
NOT TO SCALE

NOTES:  
1. CONTRACTOR SHALL NOT PROCEED WITH CONSTRUCTION OF THIS OUTLET PIPING UNTIL HOLDING POND NO. 2 IS DRAINED AND IMPROVEMENTS HAVE BEEN STAKED

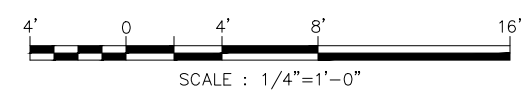
PIPING PLAN  
SCALE: 1/4" = 1'-0"

ELEVATION VIEW - PIPING  
SCALE: 1/4" = 1'-0"

LIST OF MATERIALS

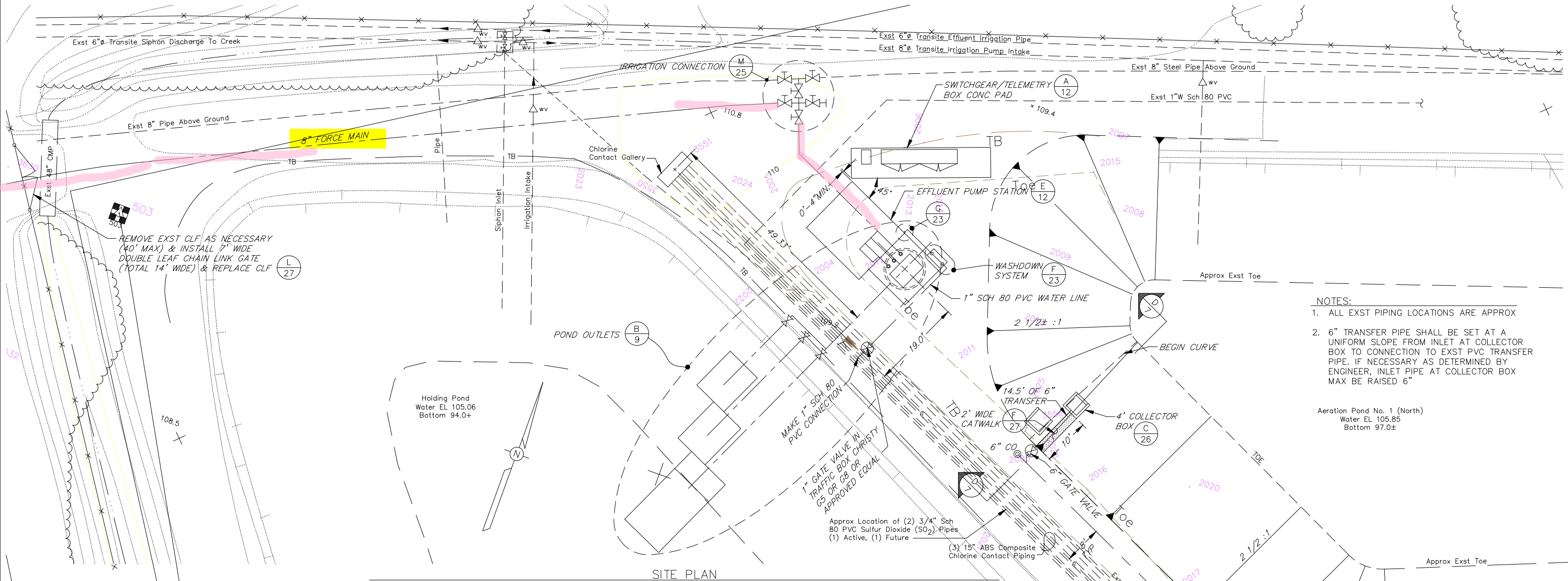
A	12" FLANGED COUPLING ADAPTOR
B	12" FLANGED GATE VALVE WITH VALVE BOX *
C	12" DIP FLANGED x PLAIN
D	12" TR FLEX TEE WITH TR FLEX GRIPPERS
E	12" FLEXIBLE COUPLING
F	12" DIP PLAIN x PLAIN
G	12" TR FLEX 90° BEND WITH TR FLEX GRIPPERS

\* SEE SHEET NO. 26



NO.	DATE	REVISION	BY

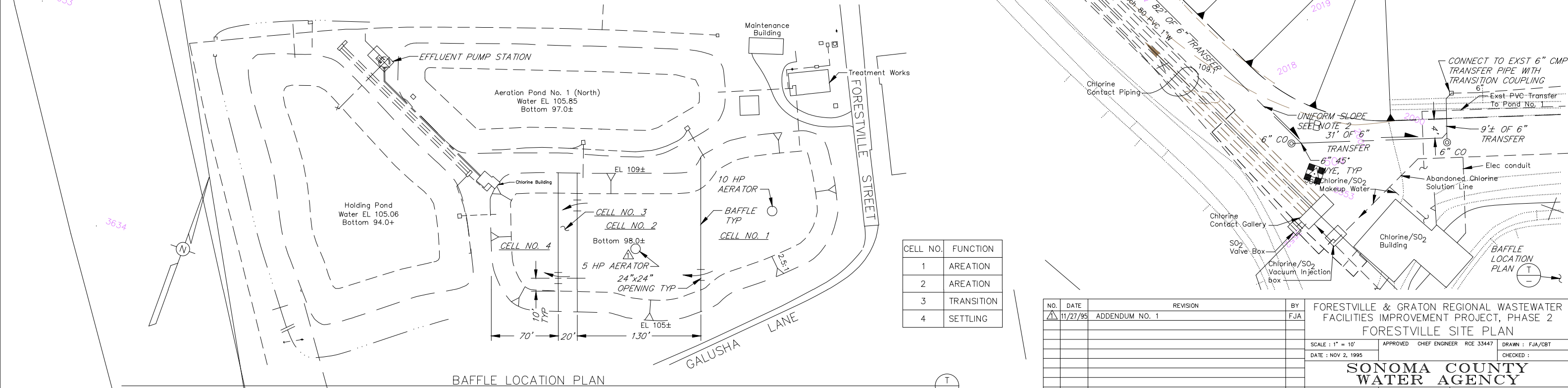
FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
**GRATON POND OUTLET PIPING PLAN & DETAILS**  
 SCALE: AS SHOWN    APPROVED: CHIEF ENGINEER RCE 33447    DRAWN: ANDY/FJA  
 DATE: NOV 2, 1995    CHECKED:    **SONOMA COUNTY WATER AGENCY**  
 DESIGNED: RCE 35525    SUBMITTED: RCE 23790    DRAWING NUMBER: 70-2&3-102.4



- NOTES:**
- ALL EXST PIPING LOCATIONS ARE APPROX
  - 6" TRANSFER PIPE SHALL BE SET AT A UNIFORM SLOPE FROM INLET AT COLLECTOR BOX TO CONNECTION TO EXST PVC TRANSFER PIPE. IF NECESSARY AS DETERMINED BY ENGINEER, INLET PIPE AT COLLECTOR BOX MAY BE RAISED 6"

Aeration Pond No. 1 (North)  
Water EL 105.85  
Bottom 97.0±

**SITE PLAN**  
SCALE: 1"=10'



CELL NO.	FUNCTION
1	AREATION
2	AREATION
3	TRANSITION
4	SETTLING

**BAFFLE LOCATION PLAN**  
NOT TO SCALE

NO.	DATE	REVISION	BY
1	11/27/95	ADDENDUM NO. 1	FJA

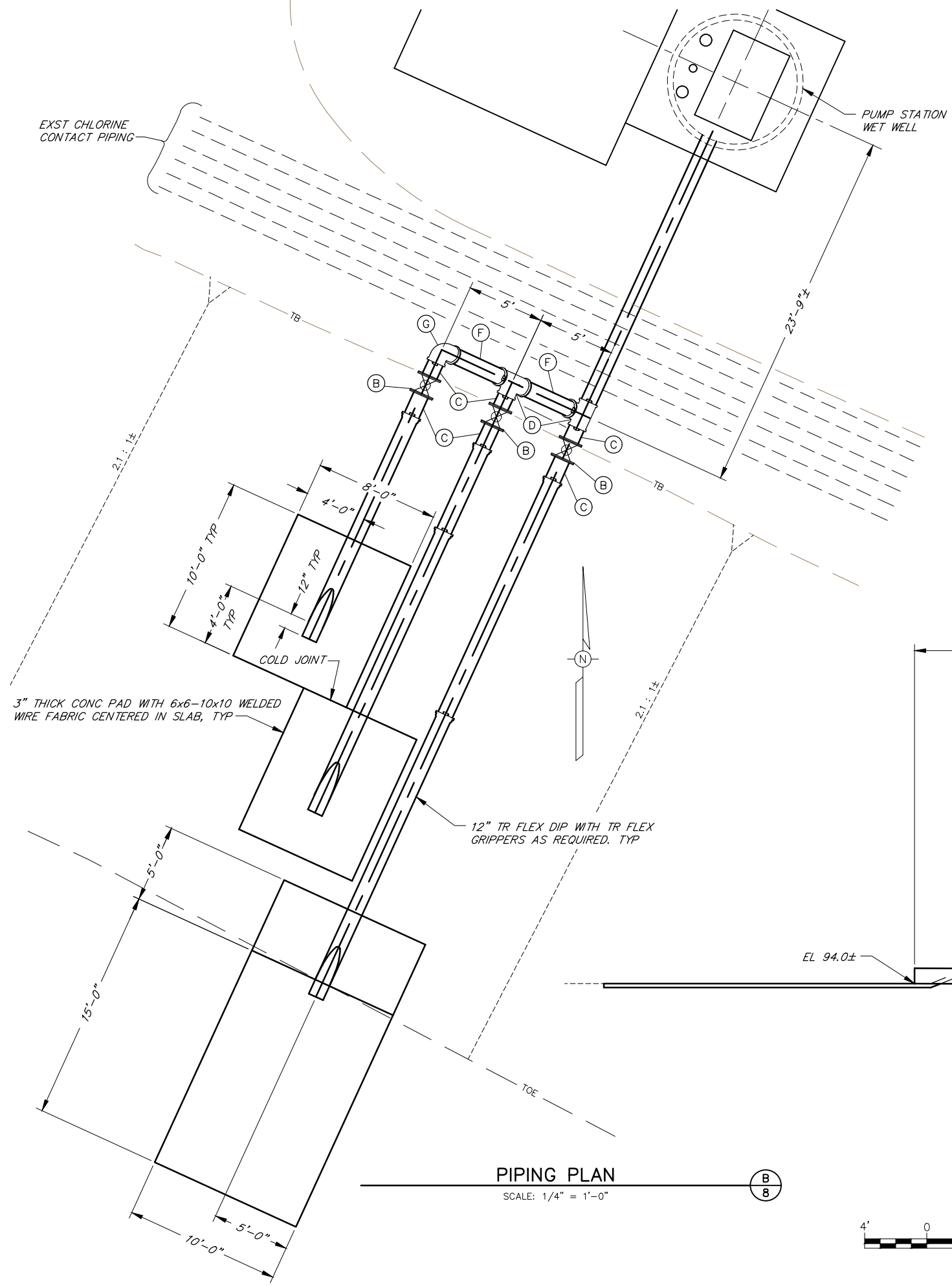
FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
**FORESTVILLE SITE PLAN**

SCALE: 1" = 10'    APPROVED: CHIEF ENGINEER    RCE 33447    DRAWN: FJA/CBT  
DATE: NOV 2, 1995    CHECKED:

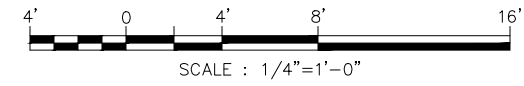
**SONOMA COUNTY**  
**WATER AGENCY**

DESIGNED: RCE 35525    SUBMITTED: RCE 23790    DRAWING NUMBER: 70-2&3-102.6





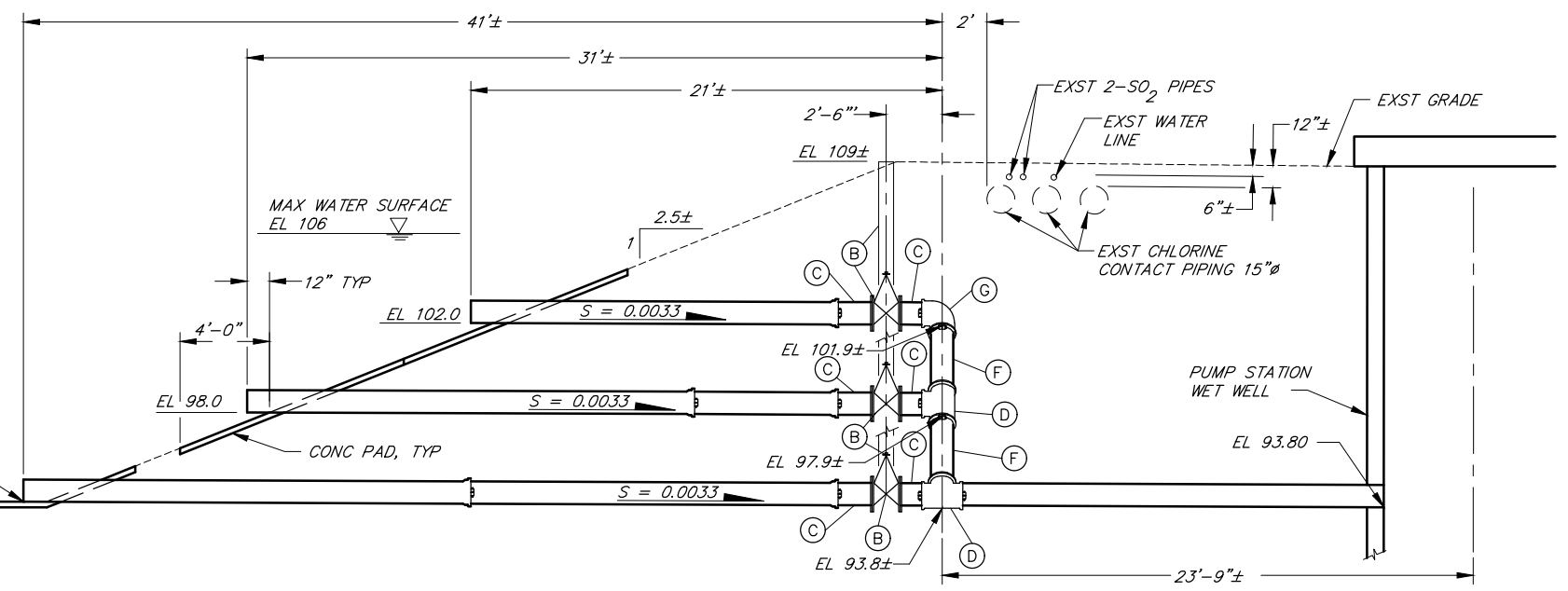
**PIPING PLAN**  
SCALE: 1/4" = 1'-0"



**LIST OF MATERIALS**

B	12" FLANGED GATE VALVE WITH VALVE BOX *
C	12" DIP FLANGED x PLAIN
D	12" TR FLEX TEE WITH TR FLEX GRIPPERS
F	12" DIP PLAIN x PLAIN
G	12" TR FLEX 90° BEND WITH TR FLEX GRIPPERS

\* VALVE BOX, SEE SHEET NO. 26



**ELEVATION VIEW - PIPING**

SCALE: 1/4" = 1'-0"

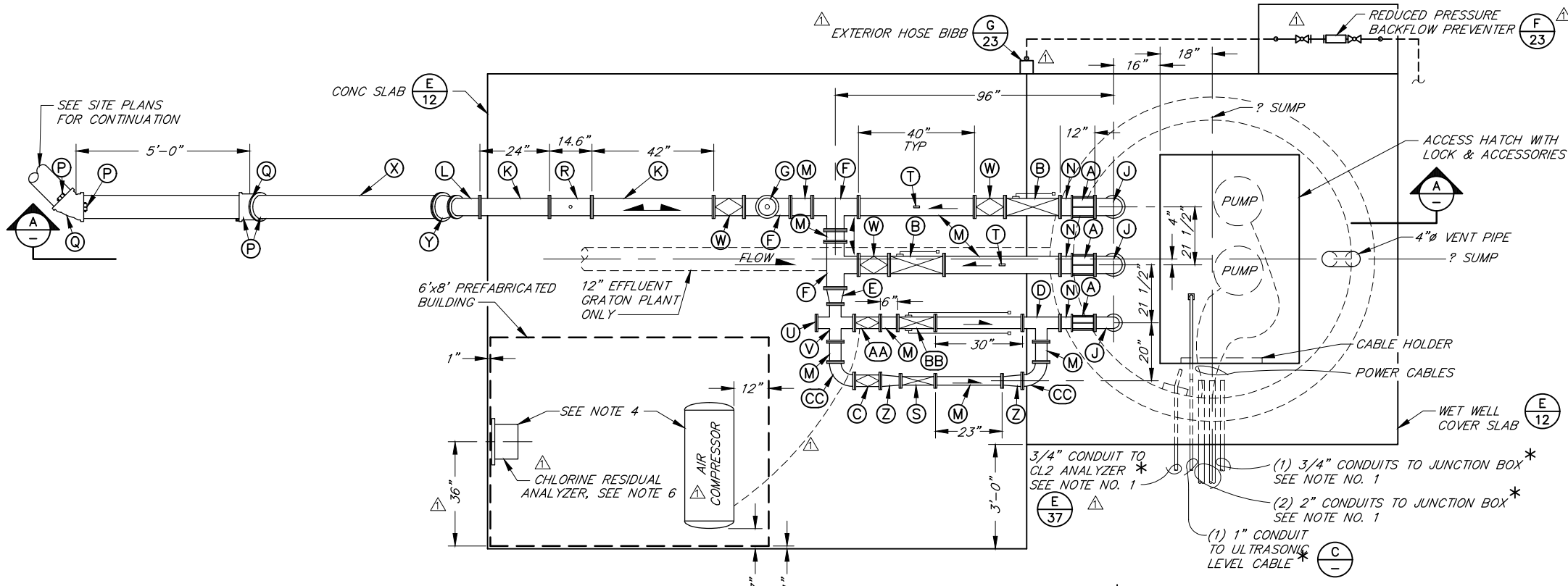
NO.	DATE	REVISION	BY

FORESTVILLE & GRATON REGIONAL WASTEWATER  
FACILITIES IMPROVEMENT PROJECT, PHASE 2  
**FORESTVILLE  
POND OUTLET PIPING PLAN & DETAILS**

SCALE: 1/4" = 1'-0"    APPROVED: CHIEF ENGINEER RCE 33447    DRAWN: ANDY  
DATE: NOV 2, 1995    CHECKED:   

**SONOMA COUNTY  
WATER AGENCY**

DESIGNED: RCE 35525    SUBMITTED: RCE 23790    DRAWING NUMBER: 70 - 2&3 - 102.7



PLAN

SCALE: 1/2"=1'-0"

**TABLE NO. 2**

(A) 6" FLANGED COUPLING ADAPTOR WITH RESTRAINT BOLTS	(P) 8" TR FLEX GRIPPER RING
(B) 6" CHECK VALVE	(Q) 8" 45° TR FLEX BEND
(C) 4" PLUG VALVE	(R) 6" FLOW METER *
(D) 4"x4"x4" TEE	(S) 3" SURGE RELIEF VALVE W/ SPRINGS
(E) 6"x4" FLANGED ECCENTRIC REDUCER	(T) PRESSURE GAUGE & PRESSURE TRANSMITTER *
(F) 6"x6"x6" TEE	(U) BLIND FLANGE
(G) 2" SEWAGE COMBINATION AIR VALVE *	(V) 4" CROSS
(H) ADJUSTABLE PIPE SUPPORT *	(W) 6" PLUG VALVE
(J) 6" 90° FLANGED ELBOW	(X) 8" DUCTILE IRON PIPE-FLANGED x PLAIN
(K) 6" DUCTILE IRON PIPE	(Y) 6"x8" FLANGED REDUCER
(L) 6" 45° FLANGED ELBOW	(Z) 4"x3" FLANGED REDUCER
(M) FLANGED SPOOL	(AA) PNUMATIC PLUG VALVE (NORMALLY OPEN) *
(N) 6" DUCTILE IRON PIPE-FLANGED x PLAIN	(BB) 4" SEWAGE BACK-PRESSURE SUSTAINING VALVE W/ COUNTERWEIGHT *
(CC) 4" 90° FLANGED ELBOW	

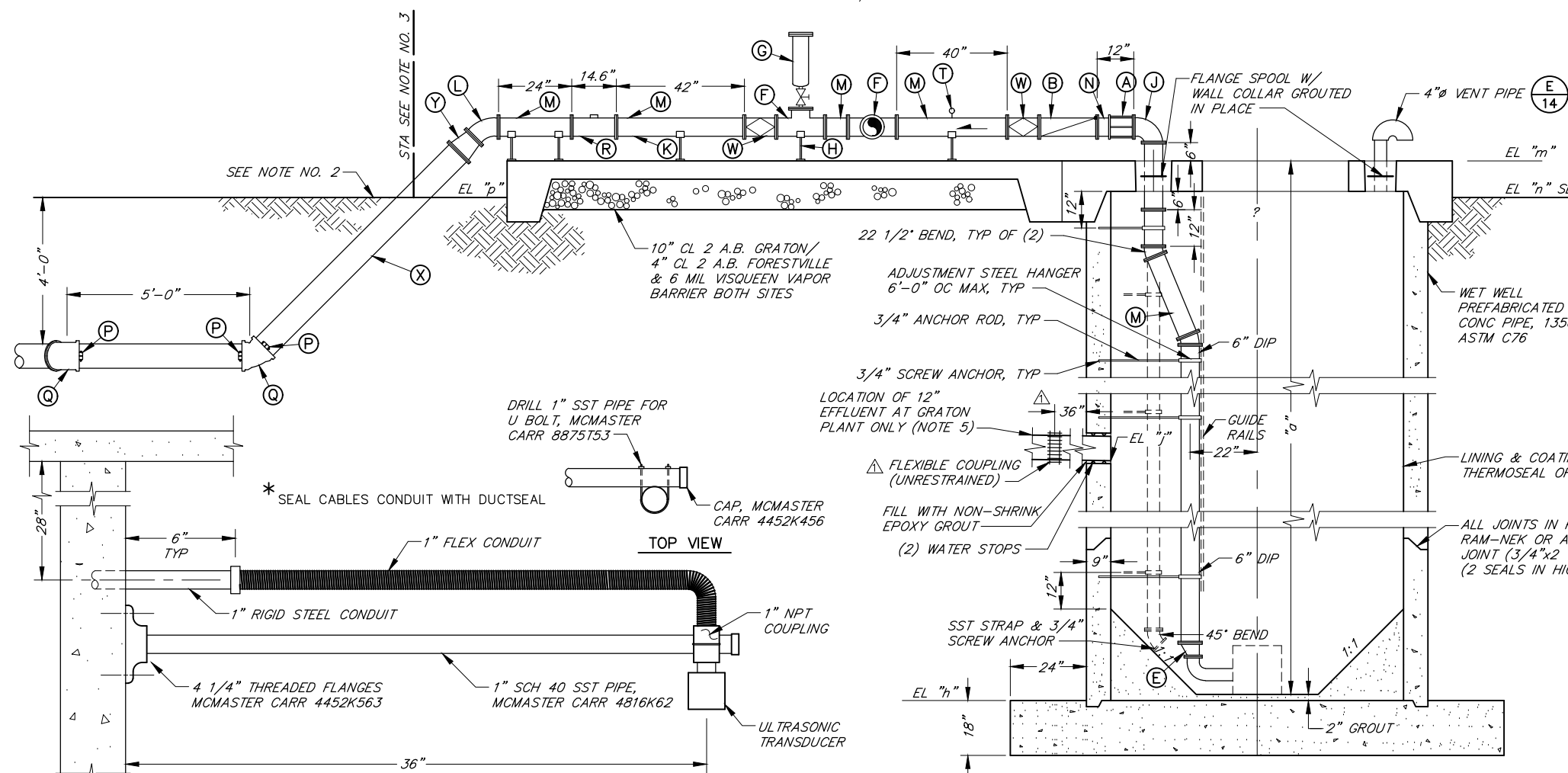
\* SEE SHEET NO. 14 FOR DETAILS

**NOTES:**

- SEE ELECTRICAL PLANS FOR LOCATIONS OF CONDUITS
- GRADE AROUND PADS AS REQUIRED. SLOPE AWAY FROM PADS
- GRATON: STA 1+22.32  
FORESTVILLE: STA 94+56.26
- ORIENTATION OF ANALYZER & COMPRESSOR TO BE SET BY ENGINEER IN THE FIELD.
- SEE SITE PLANS FOR ORIENTATION OF 12" EFFLUENT
- MOUNT CHLORINE RESIDUAL ANALYZER ON 20"x20"x3/4" THICK EXTERIOR GRADE PLYWOOD. CENTER OF ANALYZER 5'-6" ABOVE TOP OF CONC. BOLT PLYWOOD TO BUILDING USING MIN OF (4) BOLTS WITH TAMPER PROOF HEADS, NUTS & (2) WASHERS, EACH

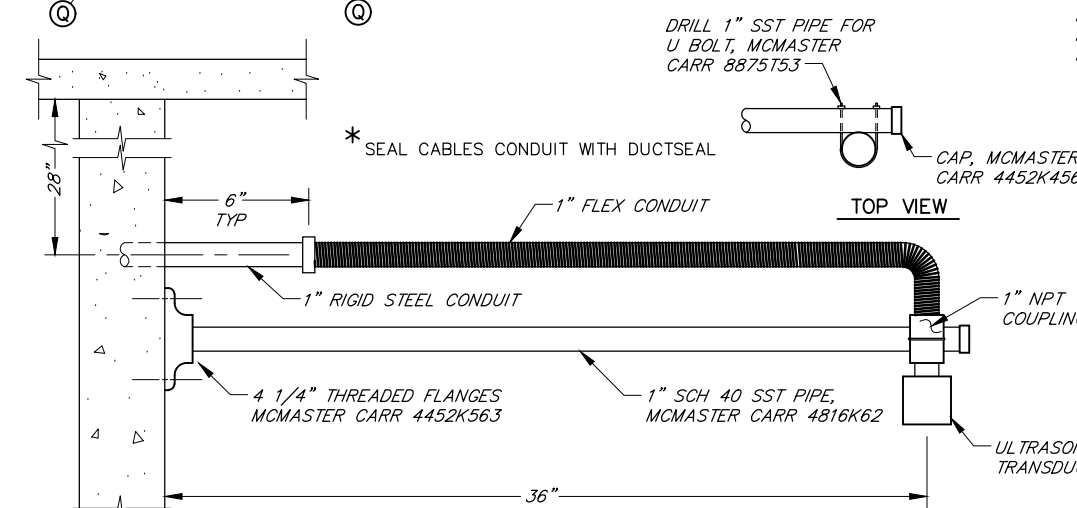
**TABLE NO. 1**

	FORESTVILLE	GRATON
a	27'-3"	31'-9"
h	EL 82.58	EL 67.58
j	EL 93.80	EL 78.64
m	EL 110.00	EL 99.50
n	EL 109+	EL 98.00
p	EL 109.6	EL 98.00



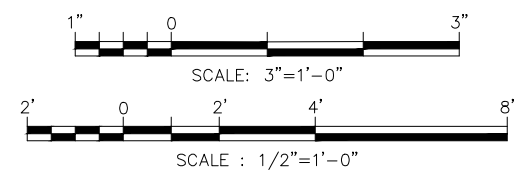
SECTION

SCALE: 1/2"=1'-0"



ULTRASONIC TRANSDUCER & MOUNTING DETAIL

NOT TO SCALE



NO.	DATE	REVISION	BY
1	11/28/95	ADDENDUM NO. 1	

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
TYPICAL PUMP STATION PIPING PLAN/PROFILE

SCALE: AS SHOWN    APPROVED: CHIEF ENGINEER RCE 33447    DRAWN: FJA/CBT  
DATE: NOV 2, 1995    CHECKED:

**SONOMA COUNTY WATER AGENCY**

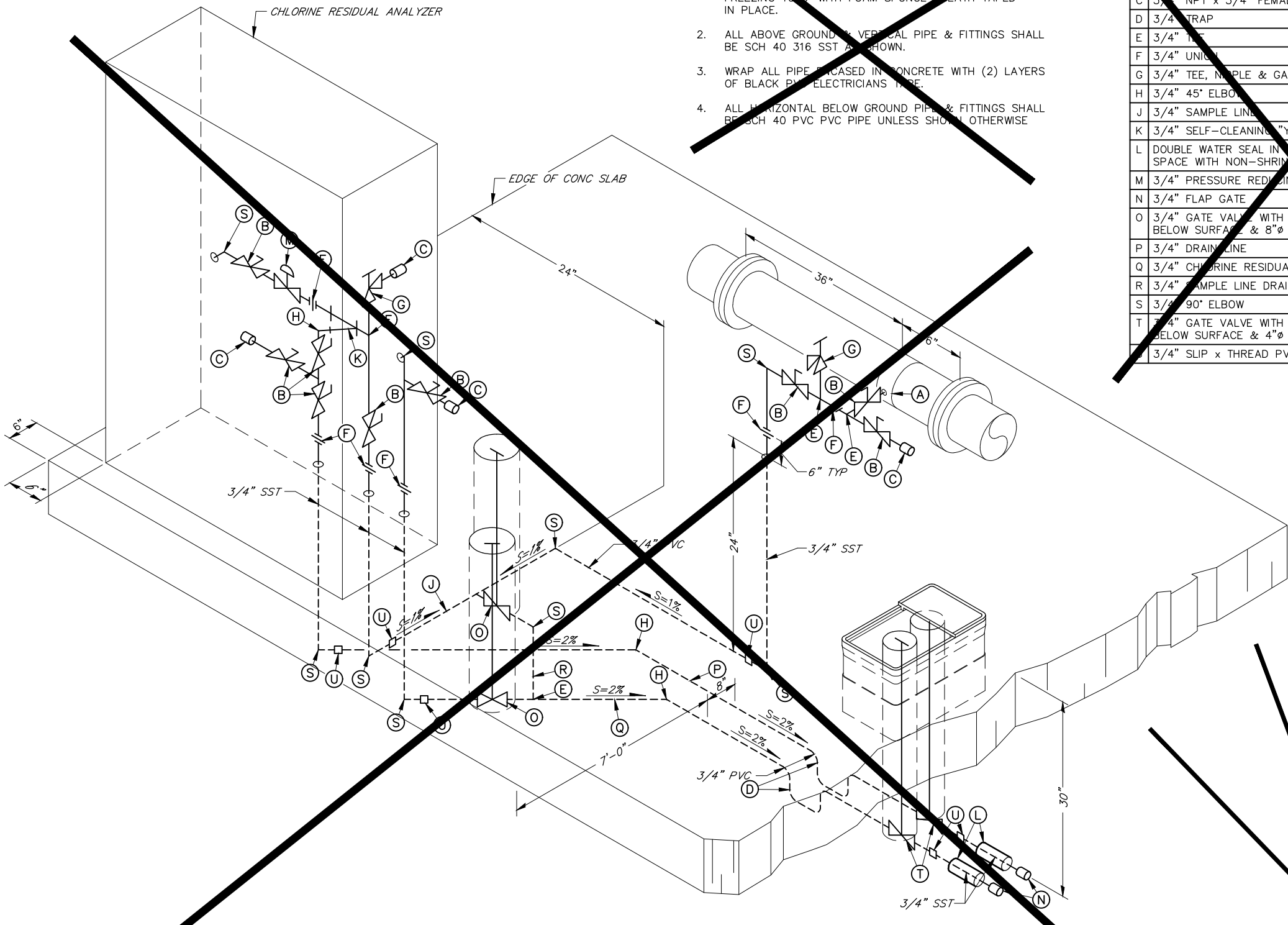
DESIGNED: RCE 35525    SUBMITTED: RCE 23790    DRAWING NUMBER: 70-2&3-102.8

SHEET NO. 10

**NOTES:**

1. ALL ABOVE GROUND PIPING SHALL BE PROTECTED FROM FREEZING TO 0' WITH FOAM SPONGE SHEATH TAPED IN PLACE.
2. ALL ABOVE GROUND VERTICAL PIPE & FITTINGS SHALL BE SCH 40 316 SST AS SHOWN.
3. WRAP ALL PIPE ENCASED IN CONCRETE WITH (2) LAYERS OF BLACK PVC ELECTRICIANS TAPE.
4. ALL HORIZONTAL BELOW GROUND PIPE & FITTINGS SHALL BE SCH 40 PVC PVC PIPE UNLESS SHOWN OTHERWISE

A	TAPPING SADDLE 6"x3/4" NPT
B	3/4" BALL VALVE
C	3/4" NPT x 3/4" FEMALE QUICK DISCONNECT
D	3/4" TRAP
E	3/4" UNION
F	3/4" UNION
G	3/4" TEE, NIPPLE & GARDEN VALVE
H	3/4" 45° ELBOW
J	3/4" SAMPLE LINE
K	3/4" SELF-CLEANING "Y" STRAINER
L	DOUBLE WATER SEAL IN WELL WALL, FILL ANNULAR SPACE WITH NON-SHRINKING EPOXY GROUT
M	3/4" PRESSURE REDUCING VALVE
N	3/4" FLAP GATE
O	3/4" GATE VALVE WITH STEM EXTENDED TO 6" BELOW SURFACE & 8" RISER PIPE & VALVE BOX
P	3/4" DRAIN LINE
Q	3/4" CHLORINE RESIDUAL ANALYZER DRAIN LINE
R	3/4" SAMPLE LINE DRAIN TO ANALYZER DRAIN LINE
S	3/4" 90° ELBOW
T	3/4" GATE VALVE WITH STEM EXTENDED TO 4" BELOW SURFACE & 4" RISER PIPE & UTILITY BOX
U	3/4" SLIP x THREAD PVC COUPLING

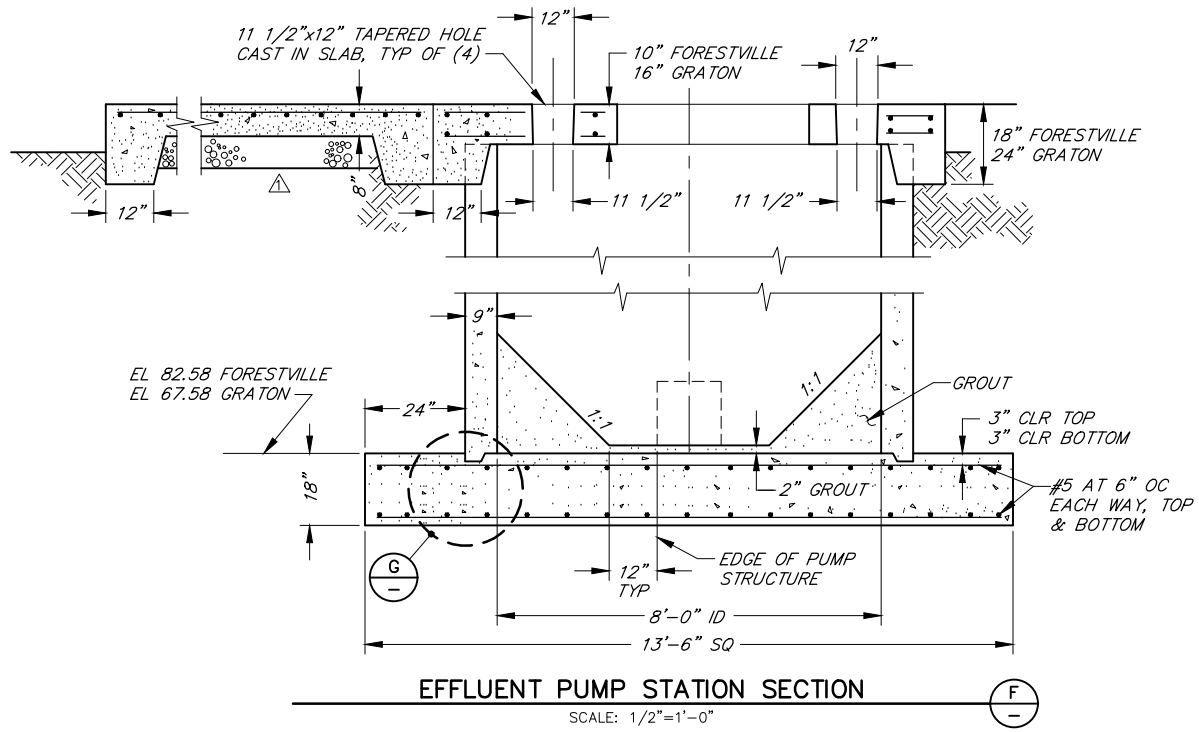


CHLORINE RESIDUAL ANALYZER ISOMETRIC PIPING  
NOT TO SCALE

A  
10

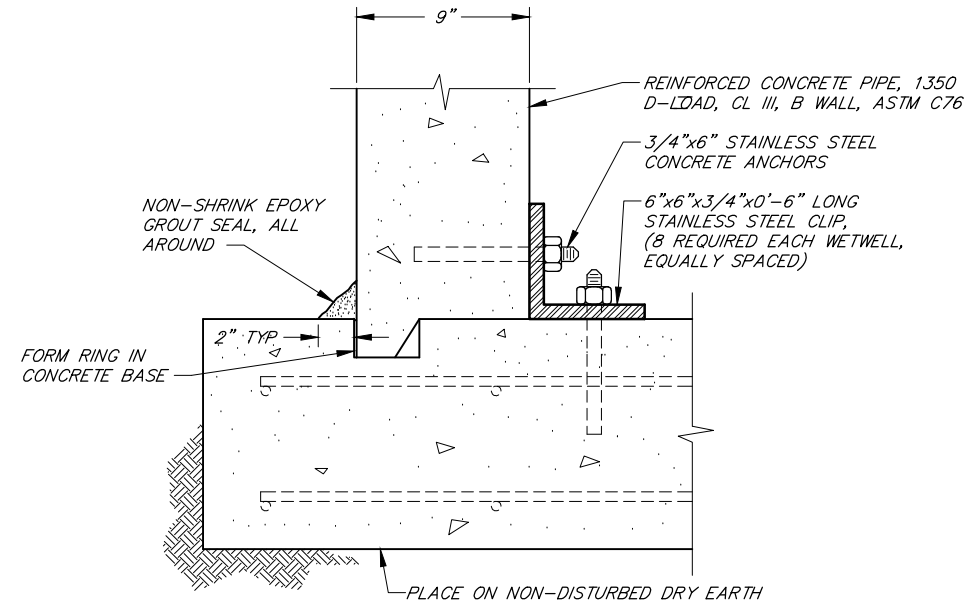
NO.	DATE	REVISION	BY	FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENTS & PIPELINES-PHASE 2
1	11/28/95	ADDENDUM NO. 1	ADF	CHLORINE RESIDUAL ANALYZER PIPING
				SCALE : NOT TO SCALE APPROVED CHIEF ENGINEER RCE 33447 DRAWN : FJA
				DATE : NOV 2, 1995 CHECKED :
				<b>SONOMA COUNTY WATER AGENCY</b>
DESIGNED	RCE 35525	SUBMITTED	RCE 23790	DRAWING NUMBER
				70-2&3-102.9

SHEET NO. 11



EFFLUENT PUMP STATION SECTION

SCALE: 1/2"=1'-0"



DETAIL

NOT TO SCALE

TELEMETRY CONTROL BOX LOCATION VARIES, SEE SHEET NO'S 5 & 8

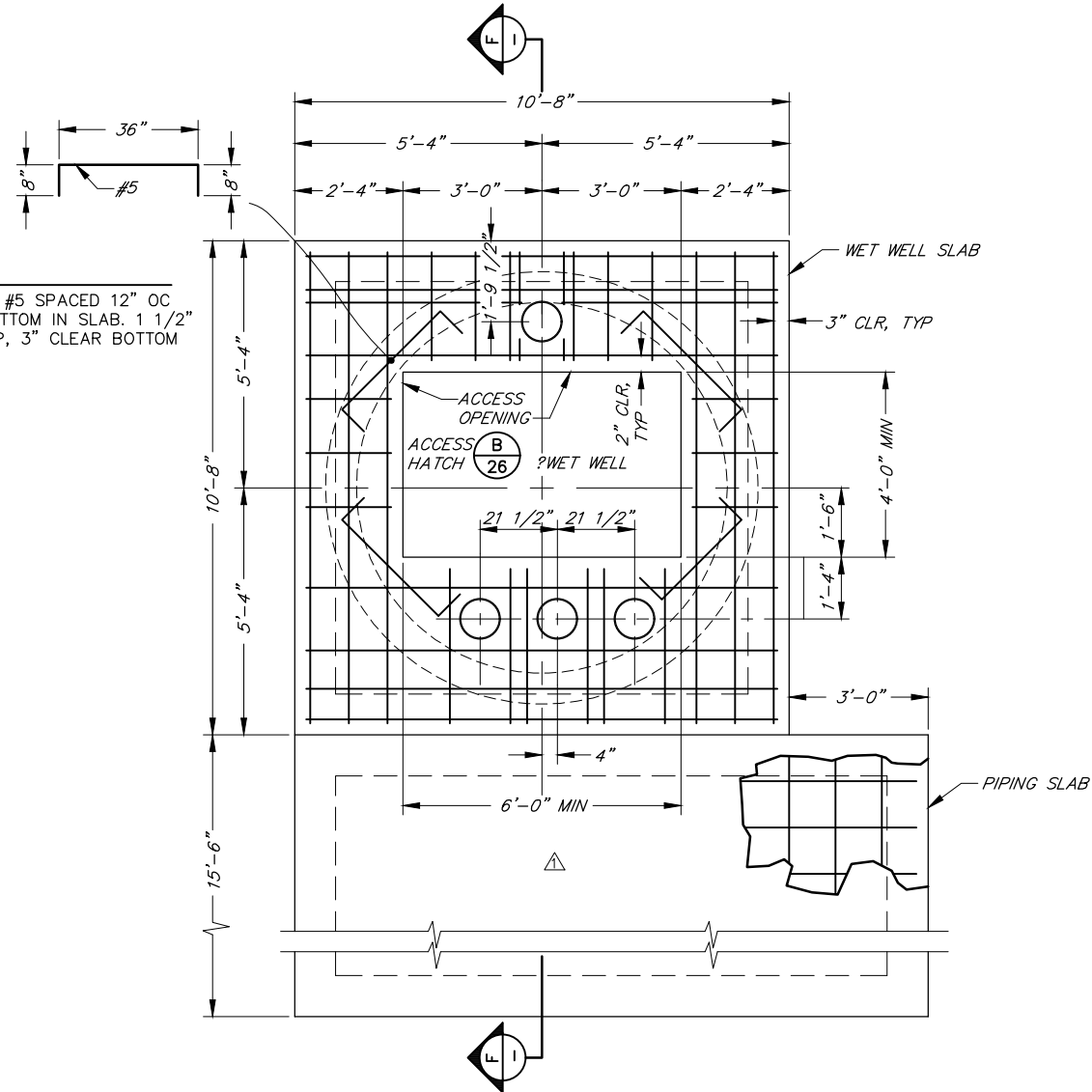
	GRATON	FORESTVILLE
A	20'-0"	29'-4"
B	~13'-4"	~16'-0"
C	6'-4"	7'-0"
D	0'-4"	6'-4"

CONC PAD - SWITCHGEAR/TELEMETRY CONTROL BOX

NOT TO SCALE

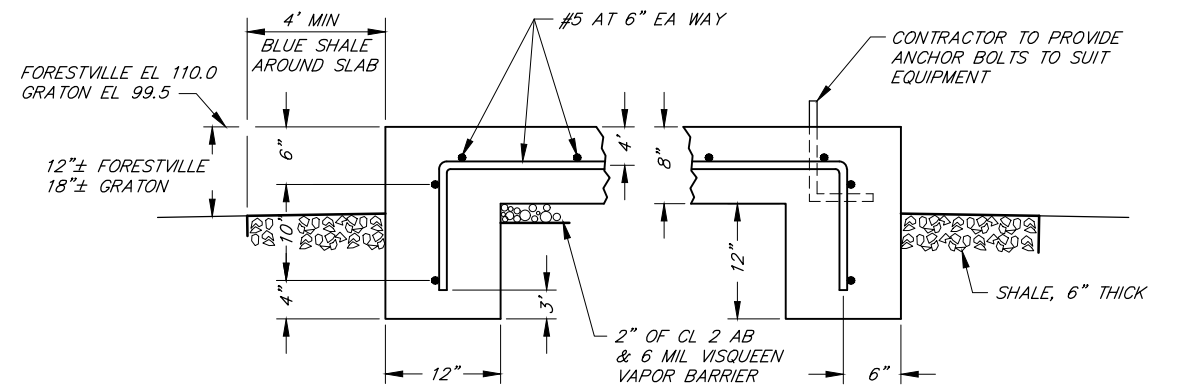
NOTE:

ALL BARS #5 SPACED 12" OC TOP & BOTTOM IN SLAB. 1 1/2" CLEAR TOP, 3" CLEAR BOTTOM



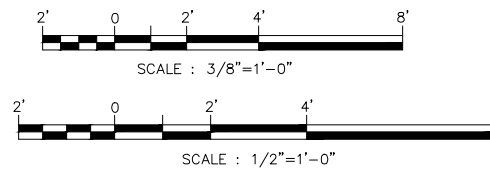
EFFLUENT PUMP STATION PLAN

SCALE: 1/2"=1'-0"



SECTION - CONCRETE PAD

NOT TO SCALE



NO.	DATE	REVISION	BY
1	11/29/95	ADDENDUM NO. 1	

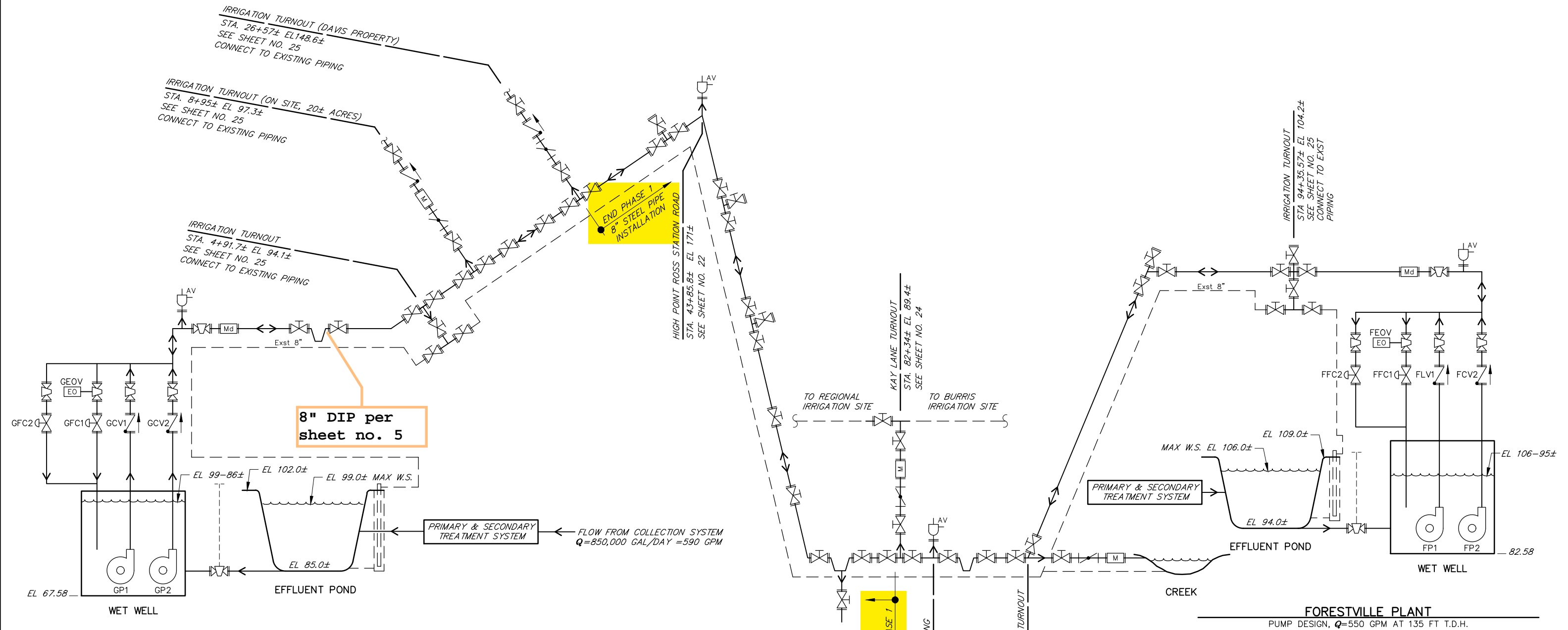
  

DESIGNED RCE 35525		SUBMITTED RCE 23790		DRAWING NUMBER 70-2&3-102.10	
--------------------	--	---------------------	--	------------------------------	--

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
STRUCTURAL DETAILS

SCALE: AS SHOWN APPROVED CHIEF ENGINEER RCE 33447 DRAWN: FJA  
DATE: NOV 2, 1995 CHECKED:

**SONOMA COUNTY WATER AGENCY**



8" DIP per sheet no. 5

END PHASE 1 8" STEEL PIPE INSTALLATION

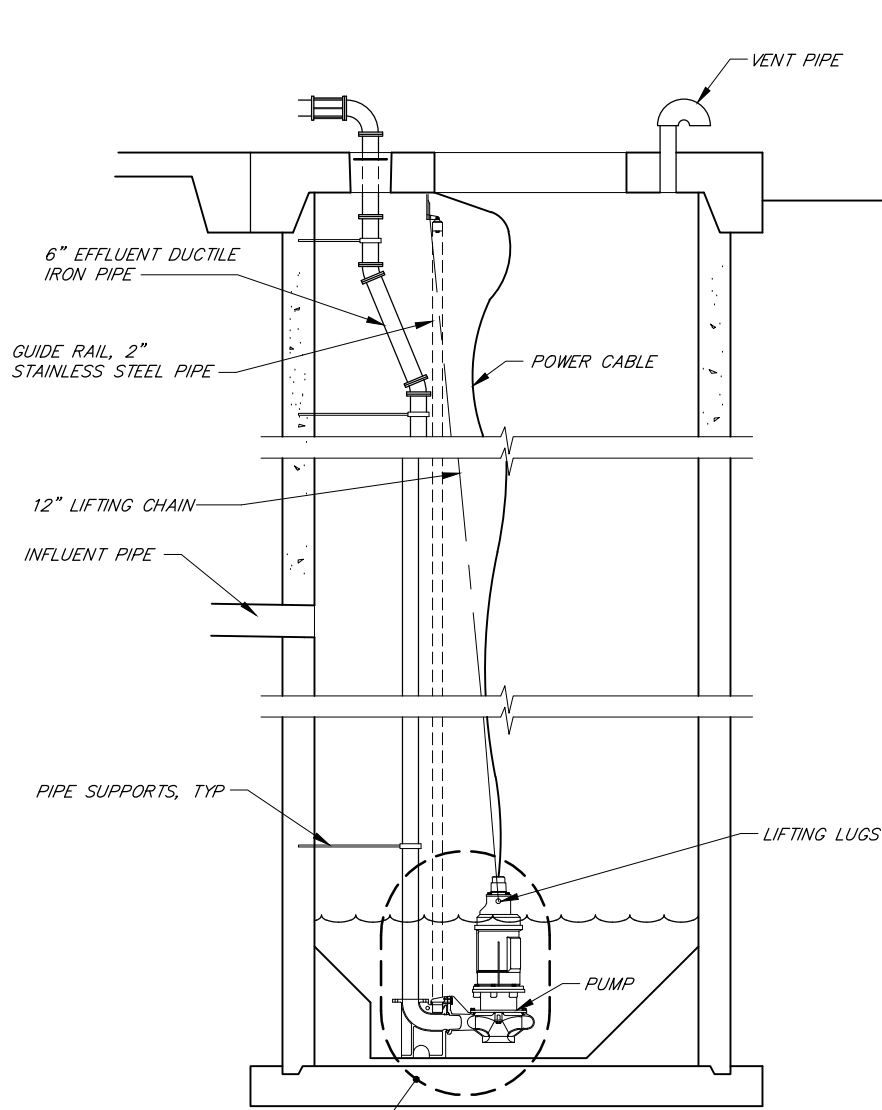
- LEGEND**
- SEWAGE COMBINATION AIR VALVE WITH SHUTOFF VALVE
  - CHECK VALVE
  - GATE VALVE
  - FLOW METER
  - FLOW METER, BI-DIRECTIONAL
  - PLUG VALVE
  - FLOW CONTROL VALVE (TYPE 1 OR 2), SEE SPECS
  - BUTTERFLY VALVE
  - PUMP
  - FLOW DIRECTION
  - ELECTRIC PNEUMATIC OPERATED VALVE

**IDENTIFICATION LEGEND**

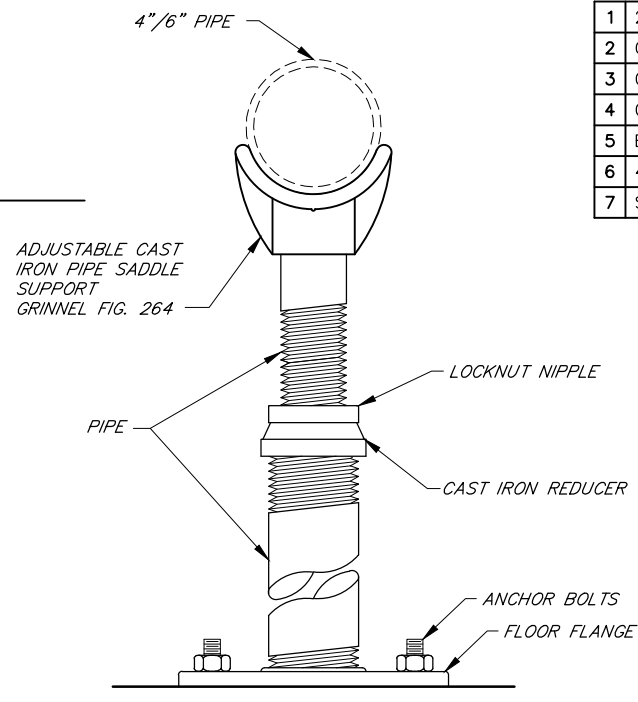
- FFC1 FORESTVILLE FLOW CONTROL VALVE, TYPE 1
- GCV2 GRATON CHECK VALVE 2, ETC.

NO.	DATE	REVISION	BY

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2 SYSTEM SCHEMATIC  
 SCALE : NOT TO SCALE    APPROVED    CHIEF ENGINEER    RCE 33447    DRAWN : FJA/CBT  
 DATE : NOV 2, 1995    CHECKED :  
**SONOMA COUNTY WATER AGENCY**  
 DESIGNED    RCE 23790    SUBMITTED    RCE 23790    DRAWING NUMBER  
 P:\FGWMP\FGWMP-13    70 - 2&3 - 102.11

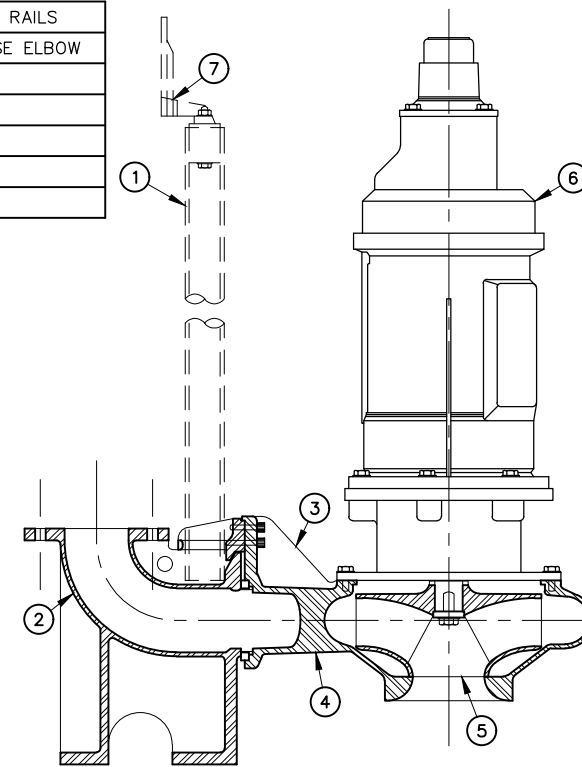


**SUBMERSIBLE PUMP—SETTING PLAN (VIEW)**  
NOT TO SCALE

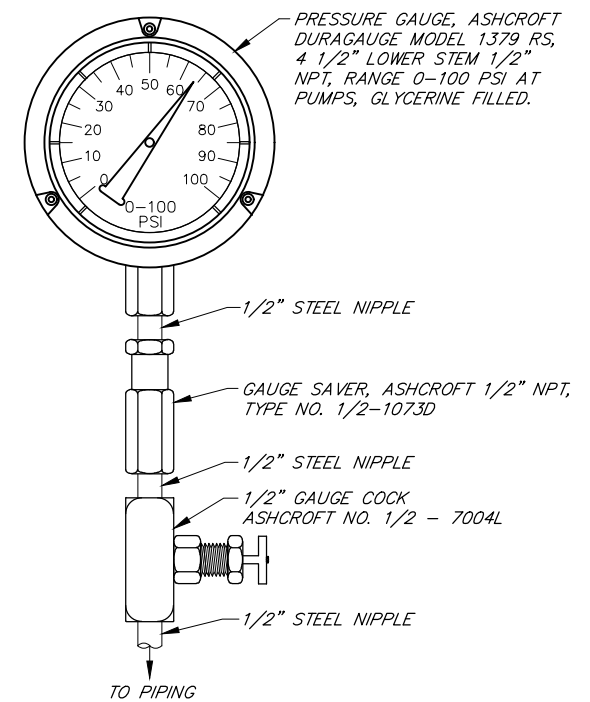


**ADJUSTABLE PIPE SUPPORT DETAIL**  
(14 REQUIRED PER SITE)  
NOT TO SCALE

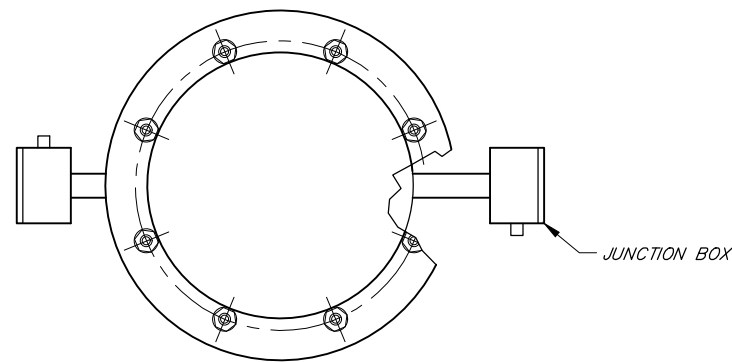
1	2" STAINLESS STEEL GUIDE RAILS
2	CAST IRON DISCHARGE BASE ELBOW
3	GUIDE BRACKET
4	CAST IRON VOLUTE
5	BRONZE IMPELLER
6	460 VOLT MOTOR
7	STEEL GUIDE BRACKET



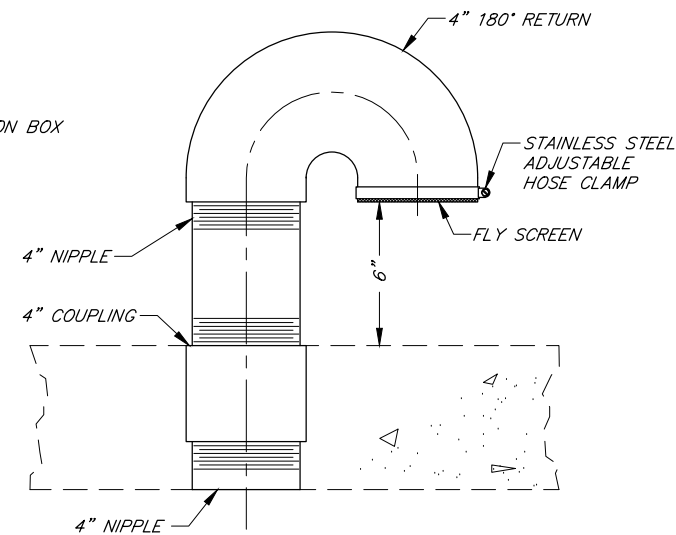
**PULL-UP SUBMERSIBLE PUMP**  
NOT TO SCALE



**TYPICAL PRESSURE GAUGE DETAIL**  
NOT TO SCALE



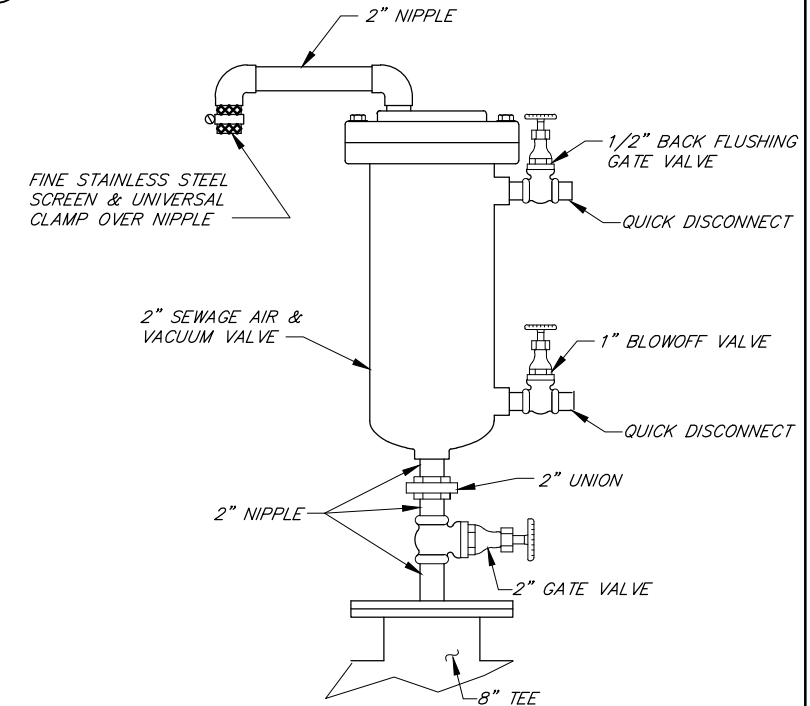
**FLOW METER ELECTRODE AXIS**  
NOT TO SCALE



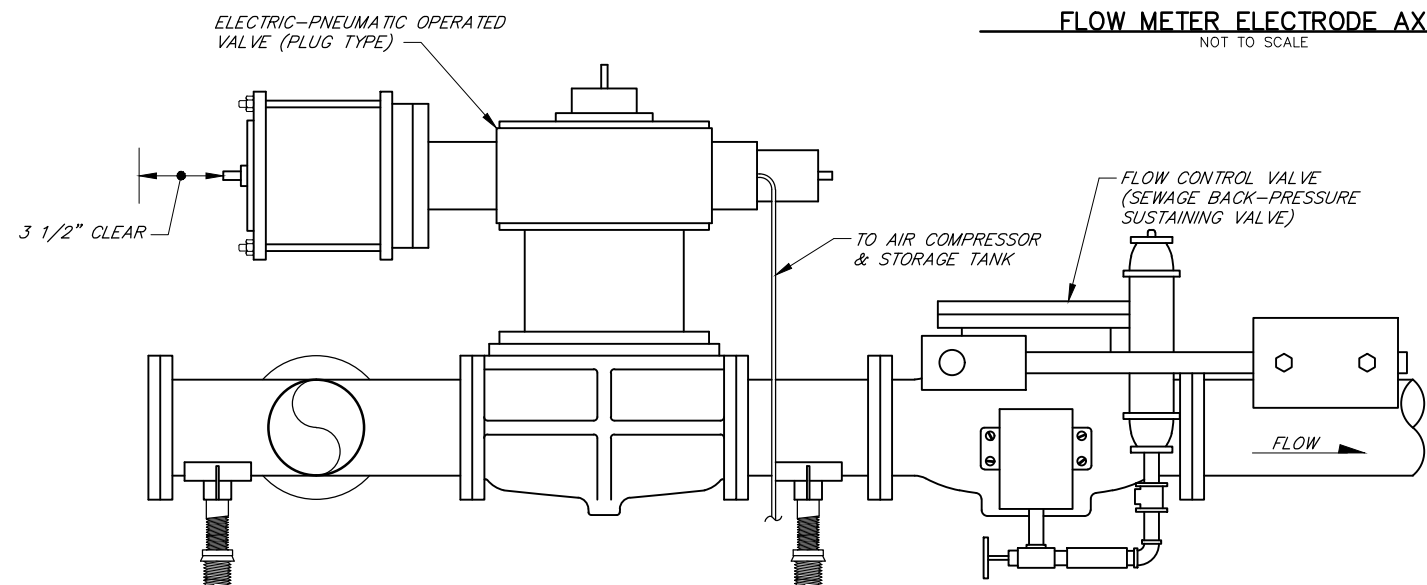
**AIR VENT DETAIL**  
SCALE: 3"=1'-0"

**NOTES:**

1. ALL VENT PIPE AND FITTINGS TO BE SCHEDULE 40 GALVANIZED IRON PIPE.
2. EMBED COUPLING & BOTTOM NIPPLE IN SLAB, TOP OF COUPLING TO BE FLUSH WITH TOP OF SLAB.



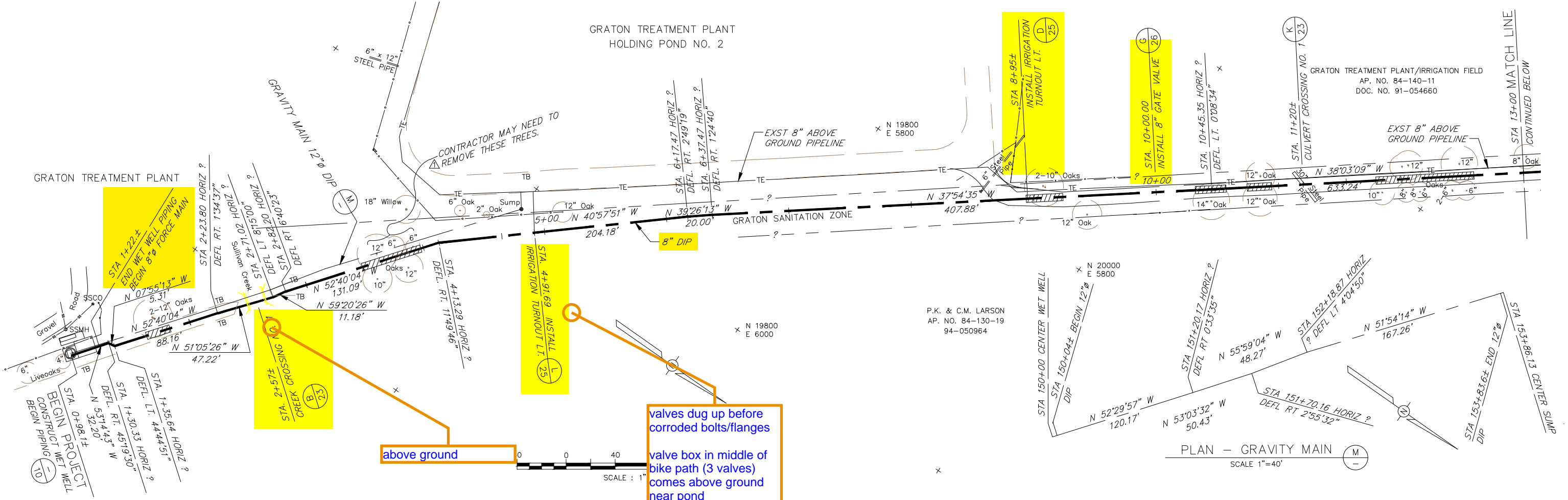
**SEWAGE COMBINATION AIR VALVE INSTALLATION**  
NOT TO SCALE



**PNEUMATIC OPERATED PLUG VALVE & SURGE RELIEF VALVE ASSEMBLY**  
SCALE: 3"=1'-0"

NO.	DATE	REVISION	BY

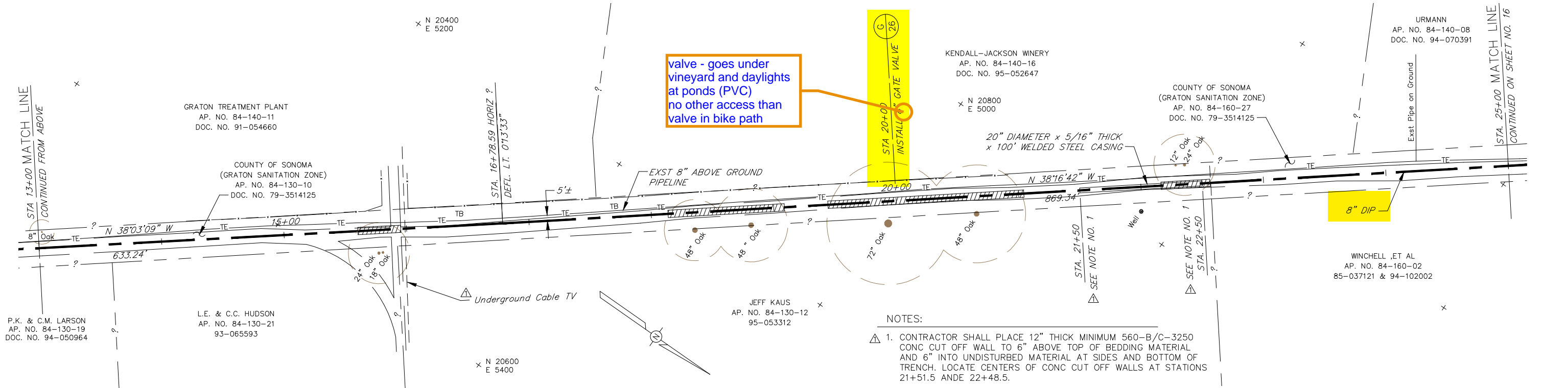
FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
**PUMP STATION PIPING & MECHANICAL DETAILS**  
 SCALE: AS SHOWN APPROVED: CHIEF ENGINEER RCE 33447 DRAWN: DJT/FJA  
 DATE: NOV 2, 1995 CHECKED: \_\_\_\_\_  
**SONOMA COUNTY WATER AGENCY**  
 DESIGNED: RCE 23790 SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.12



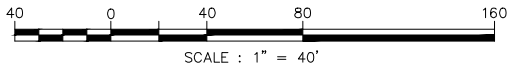
above ground

valves dug up before  
corroded bolts/flanges  
valve box in middle of  
bike path (3 valves)  
comes above ground  
near pond

valve - goes under  
vineyard and daylight  
at ponds (PVC)  
no other access than  
valve in bike path



- NOTES:
- 1. CONTRACTOR SHALL PLACE 12" THICK MINIMUM 560-B/C-3250 CONC CUT OFF WALL TO 6" ABOVE TOP OF BEDDING MATERIAL AND 6" INTO UNDISTURBED MATERIAL AT SIDES AND BOTTOM OF TRENCH. LOCATE CENTERS OF CONC CUT OFF WALLS AT STATIONS 21+51.5 ANDE 22+48.5.



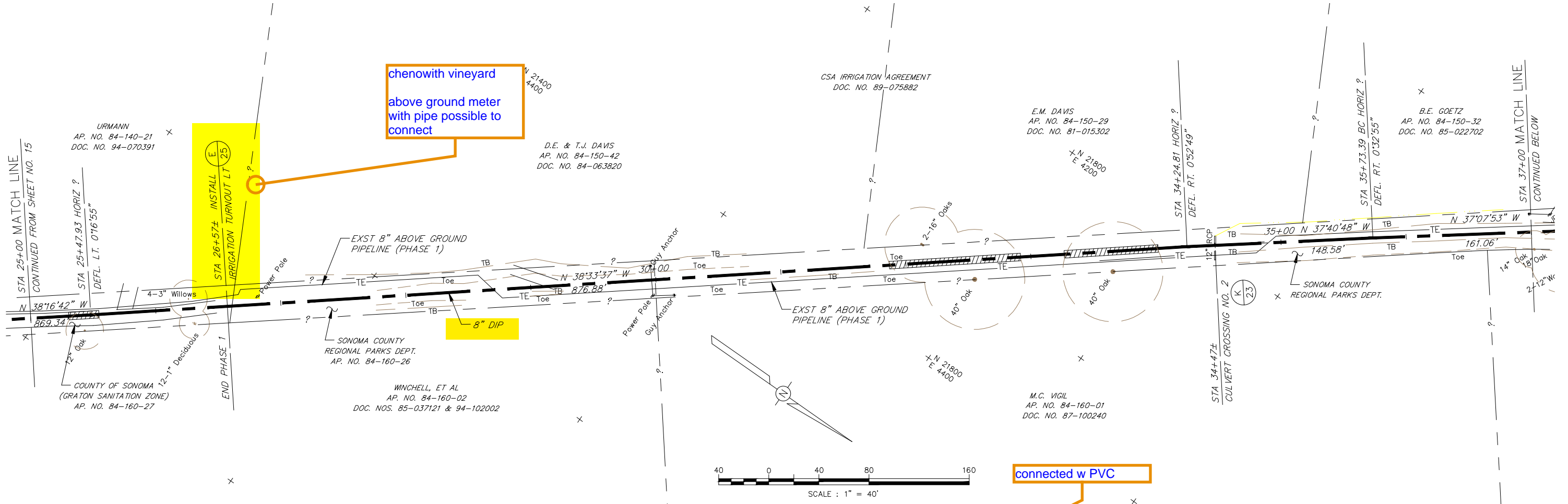
NO.	DATE	REVISION	BY
1	11/28/95	ADDENDUM NO. 1	

**FORESTVILLE & GRATON REGIONAL WASTEWATER  
FACILITIES IMPROVEMENT PROJECT, PHASE 2  
FORCE MAIN PLAN STA 0+98.1± TO STA 25+00  
GRAVITY MAIN PLAN STA 150+00 TO STA 153+86.31**

SCALE : 1" = 40'  
DATE : NOV 2, 1995  
APPROVED: [Signature] RCE 33447  
DRAWN : ADF/FJA/JLW  
CHECKED : [Signature]

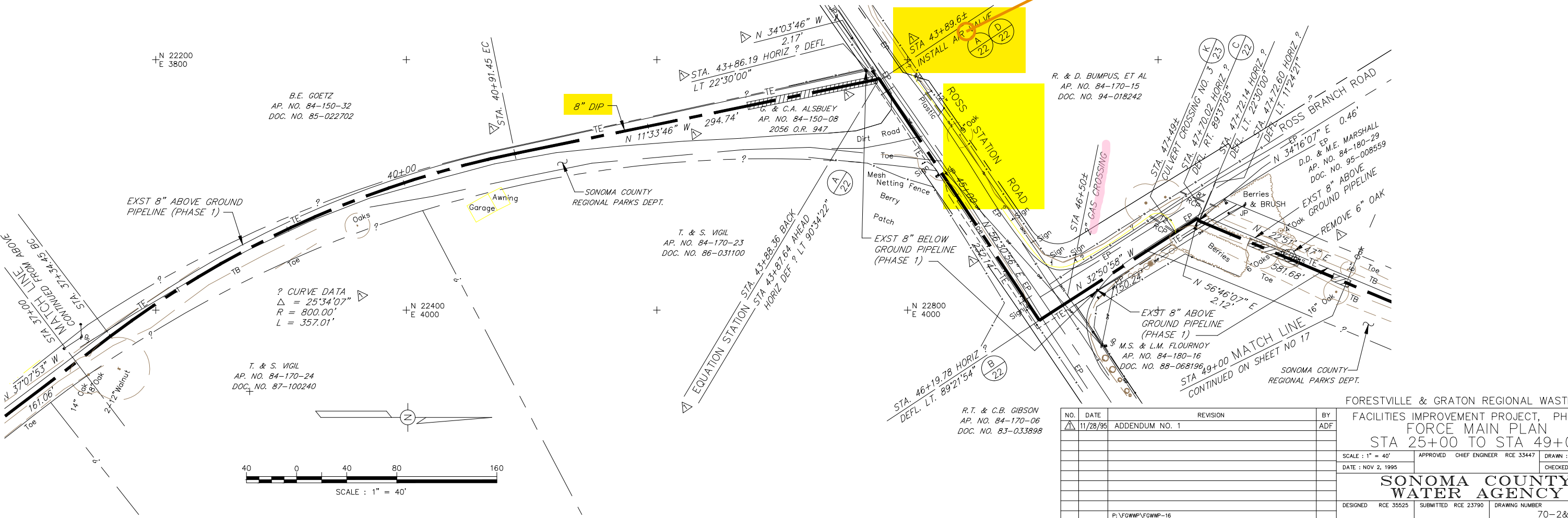
**SONOMA COUNTY  
WATER AGENCY**

DESIGNED: RCE 35525 SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.13



chenowith vineyard  
above ground meter  
with pipe possible to  
connect

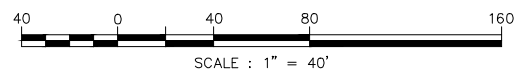
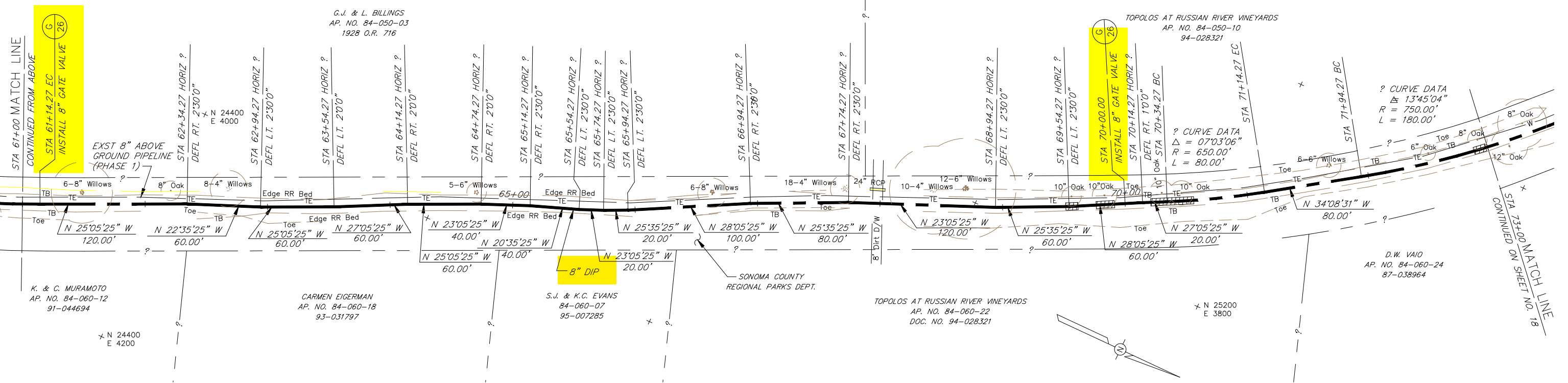
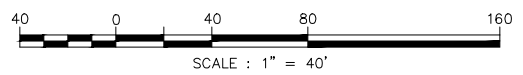
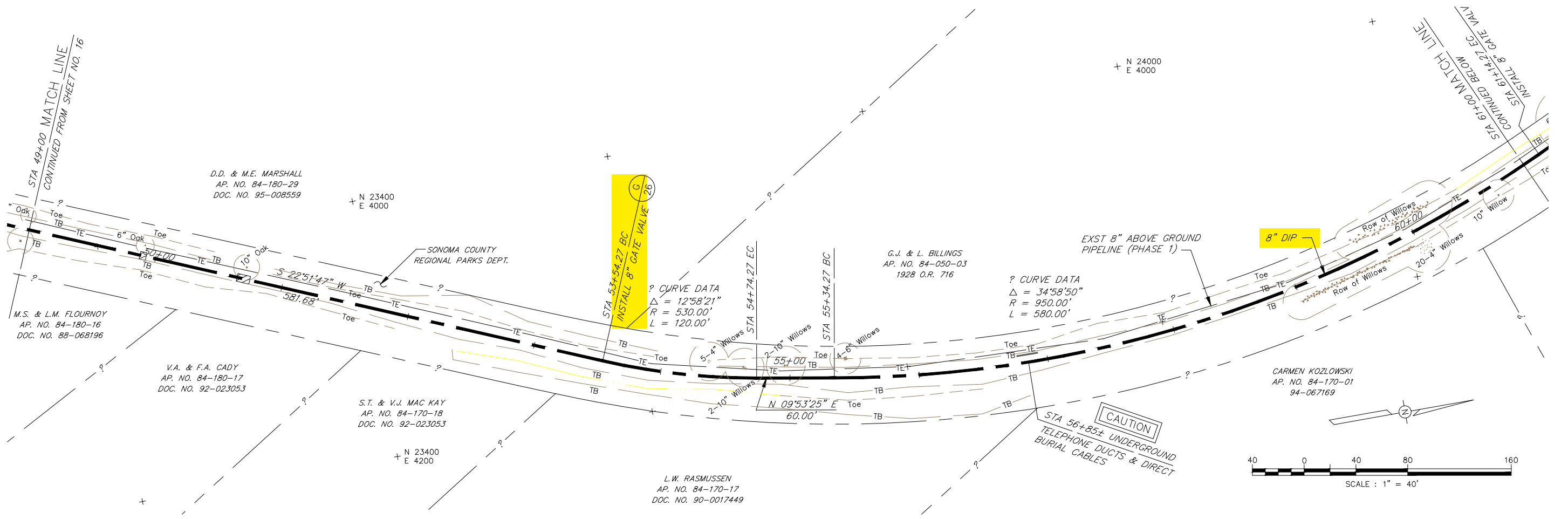
connected w PVC



NO.	DATE	REVISION	BY
1	11/28/95	ADDENDUM NO. 1	ADF

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
**FORCE MAIN PLAN**  
 STA 25+00 TO STA 49+00  
 SCALE: 1" = 40' APPROVED: CHIEF ENGINEER RCE 33447 DRAWN: ADF/FJA/JLW  
 DATE: NOV 2, 1995 CHECKED: \_\_\_\_\_  
**SONOMA COUNTY WATER AGENCY**  
 DESIGNED: RCE 35525 SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.14





NO.	DATE	REVISION	BY

**FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2**  
**FORCE MAIN PLAN**  
**STA 49+00 TO STA 73+00**

SCALE: 1" = 40'    APPROVED: CHIEF ENGINEER RCE 33447    DRAWN: ADF/JLW  
 DATE: NOV 2, 1995    CHECKED:

**SONOMA COUNTY WATER AGENCY**

DESIGNED: RCE 35525    SUBMITTED: RCE 23790    DRAWING NUMBER: 70-2&3-102.15

TOPOLOS AT RUSSIAN RIVER VINEYARDS  
AP. NO. 84-050-10  
94-028321

M.W. OLIVEN  
AP. NO. 84-050-01  
90-011120

D.W. VAIO  
AP. NO. 84-060-24  
87-038964

SONOMA COUNTY  
REGIONAL PARKS DEPT.

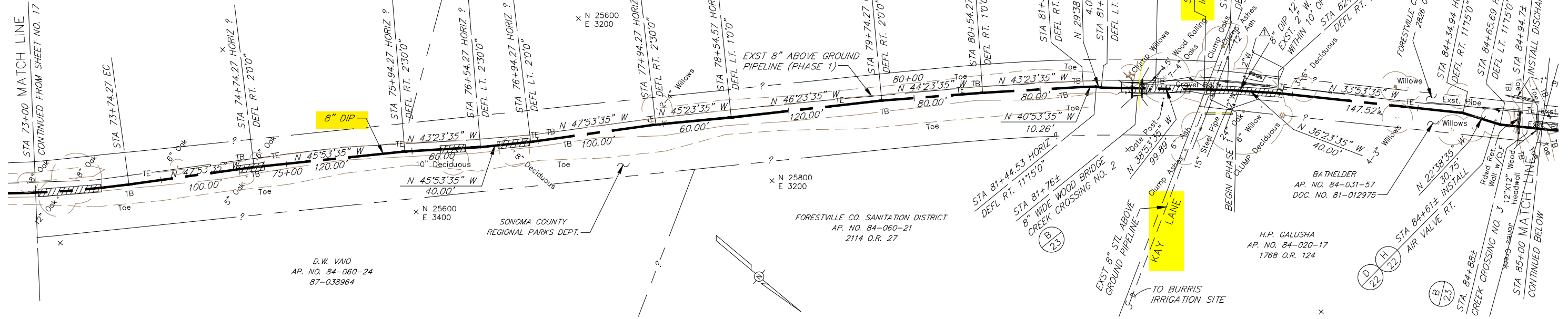
FORESTVILLE CO. SANITATION DISTRICT  
AP. NO. 84-060-21  
2114 O.R. 27

H.P. GALUSHA  
AP. NO. 84-020-17  
1768 O.R. 124

TO REGIONAL  
IRRIGATION SITE

BATHELDER  
AP. NO. 84-031-57  
DOC. NO. 81-012975

TO BURRIS  
IRRIGATION SITE



CRINELLA PROPERTIES  
AP. NO. 84-031-63  
92-005526

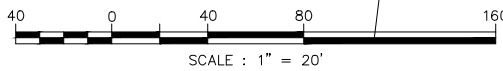
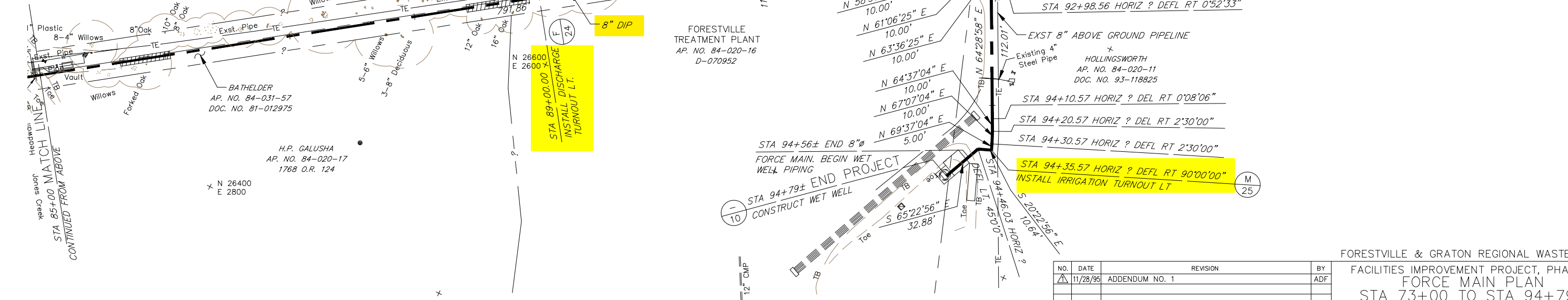
FORESTVILLE CSD SEWER ESMT.  
2826 O.R. 837

CRINELLA PROPERTIES  
AP. NO. 84-031-62  
92-005526

FORESTVILLE  
TREATMENT PLANT  
AP. NO. 84-020-16  
D-070952

HOLLINGSWORTH  
AP. NO. 84-020-11  
DOC. NO. 93-118825

H.P. GALUSHA  
AP. NO. 84-020-17  
1768 O.R. 124



NO.	DATE	REVISION	BY
1	11/28/95	ADDENDUM NO. 1	ADF

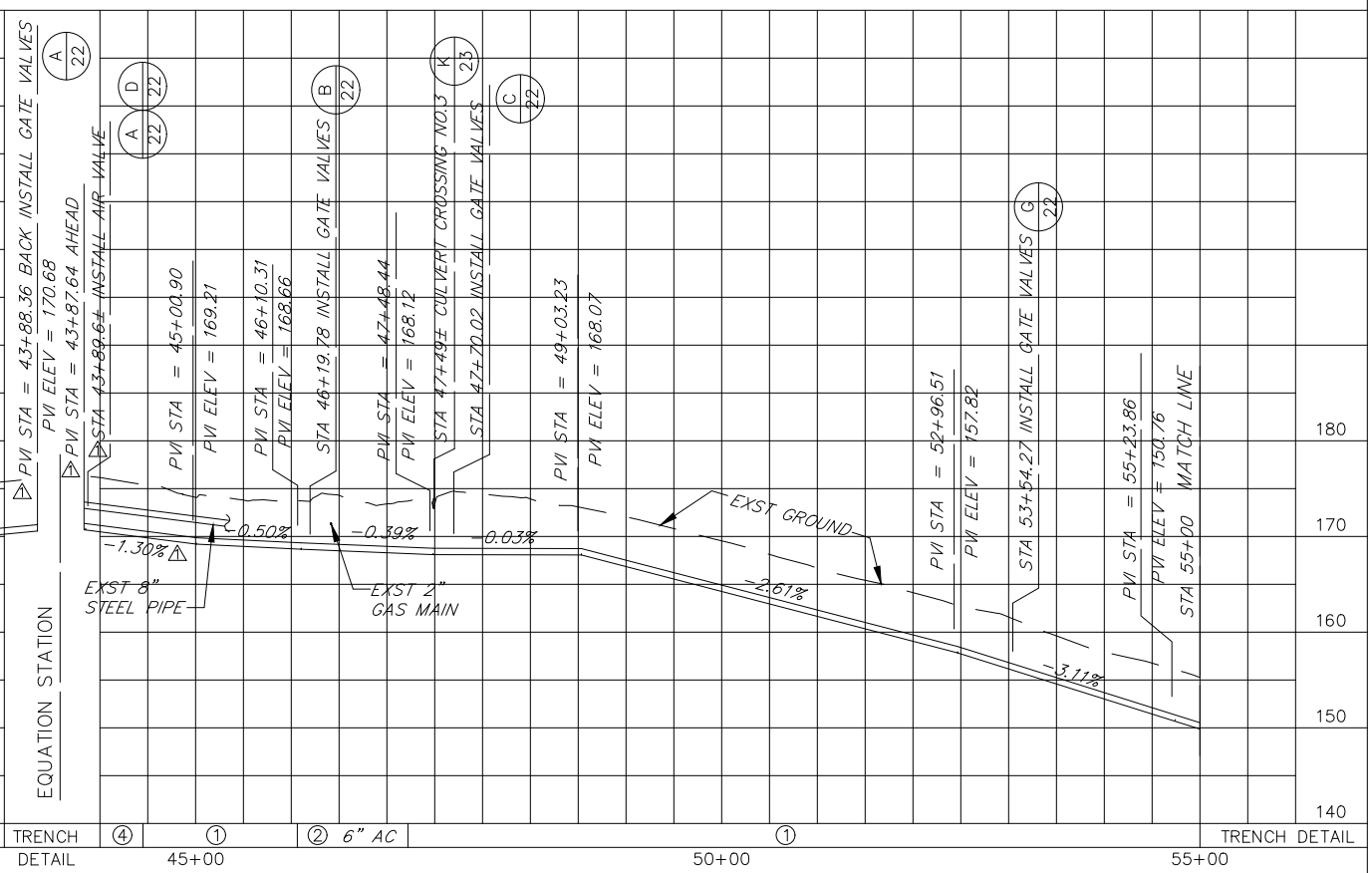
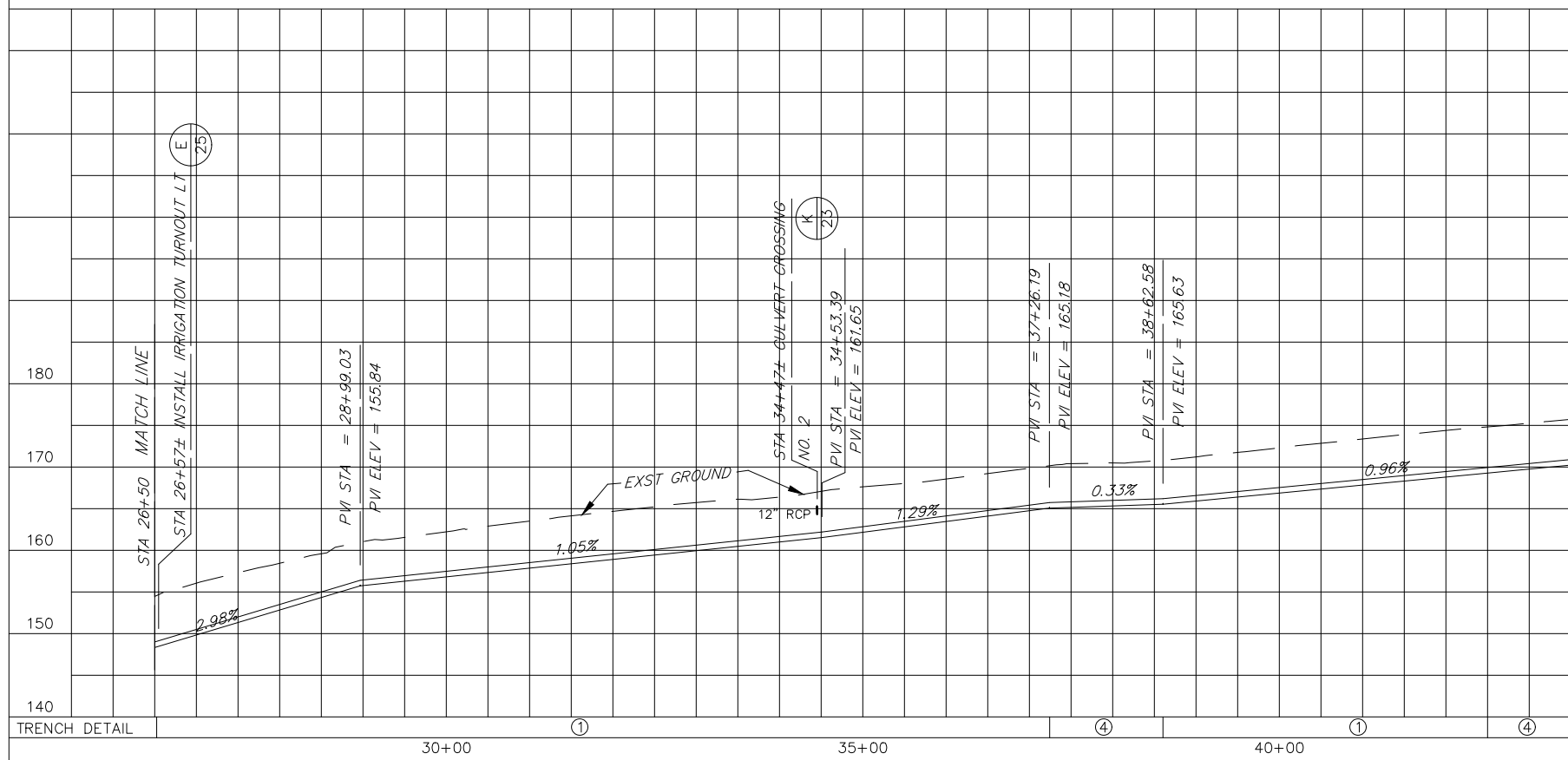
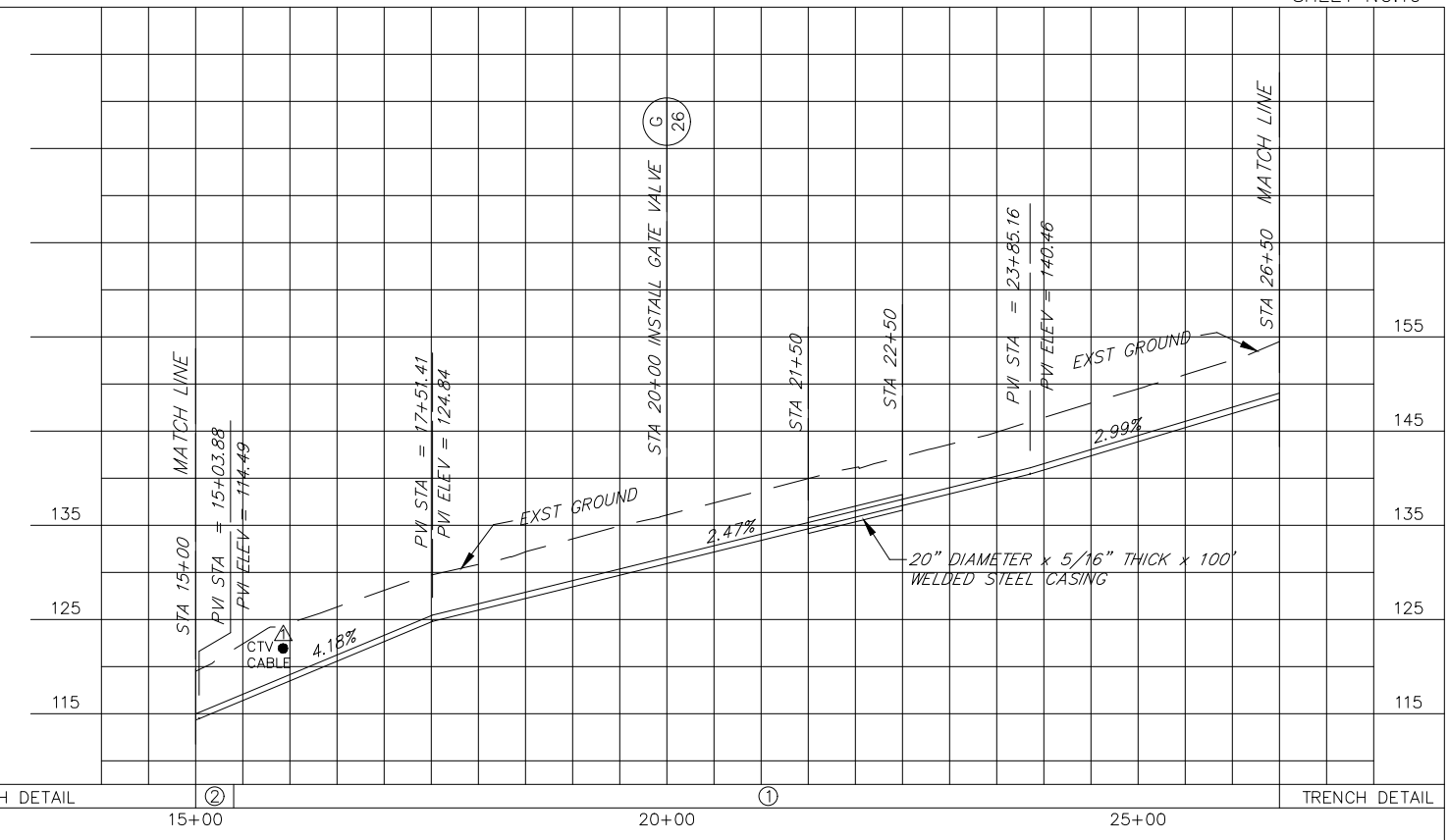
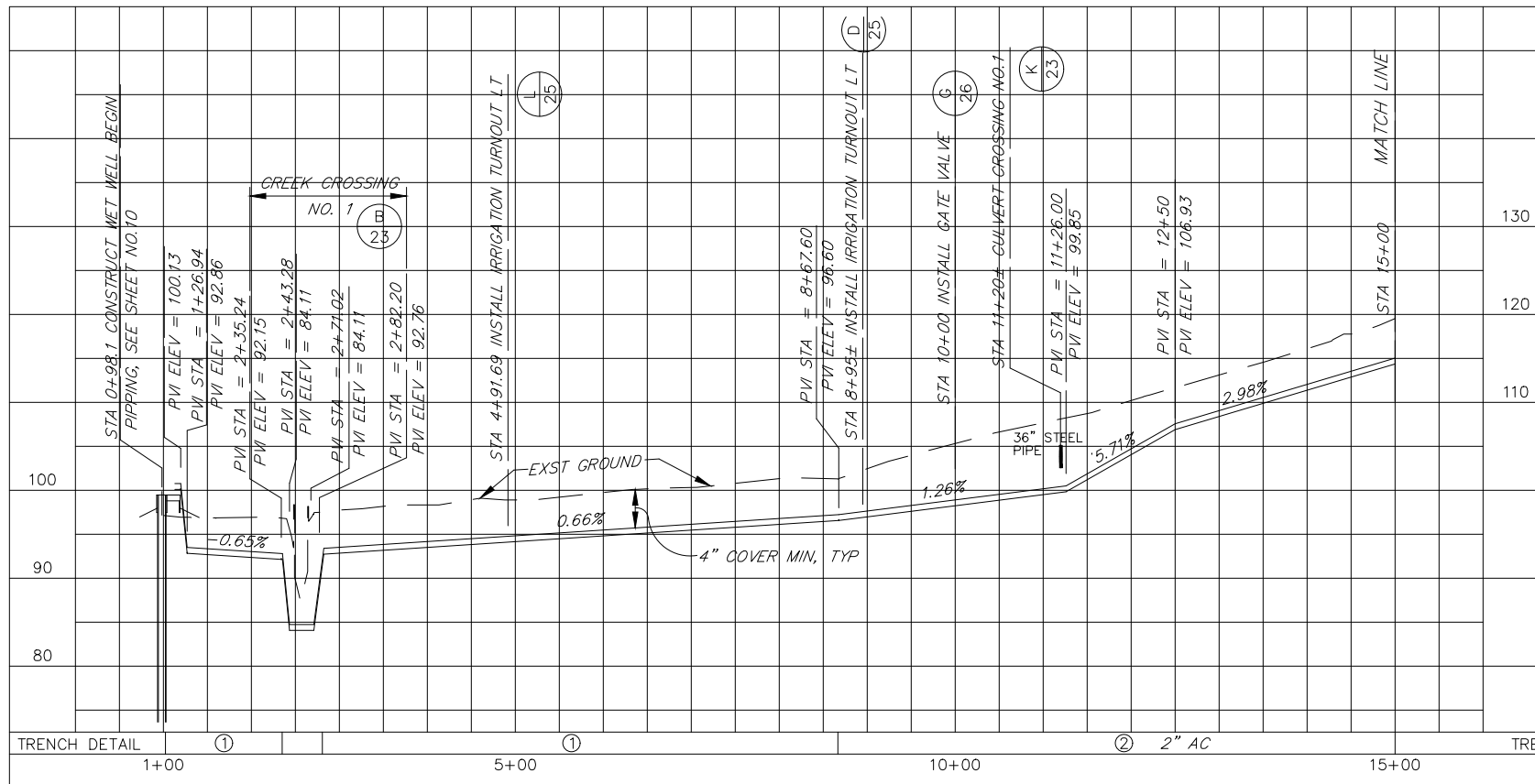
FORESTVILLE & GRATON REGIONAL WASTEWATER  
FACILITIES IMPROVEMENT PROJECT, PHASE 2  
FORCE MAIN PLAN  
STA 73+00 TO STA 94+79±

SCALE: 1" = 40'  
DATE: NOV 2, 1995

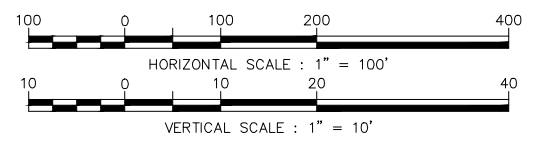
APPROVED: [Signature] RCE 33447  
DRAWN: ADF/FJA/JLW  
CHECKED: [Signature]

**SONOMA COUNTY  
WATER AGENCY**

DESIGNED: RCE 35525 SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.16



NOTE:  
SEE SHEET NO. 21  
FOR TRENCH DETAILS



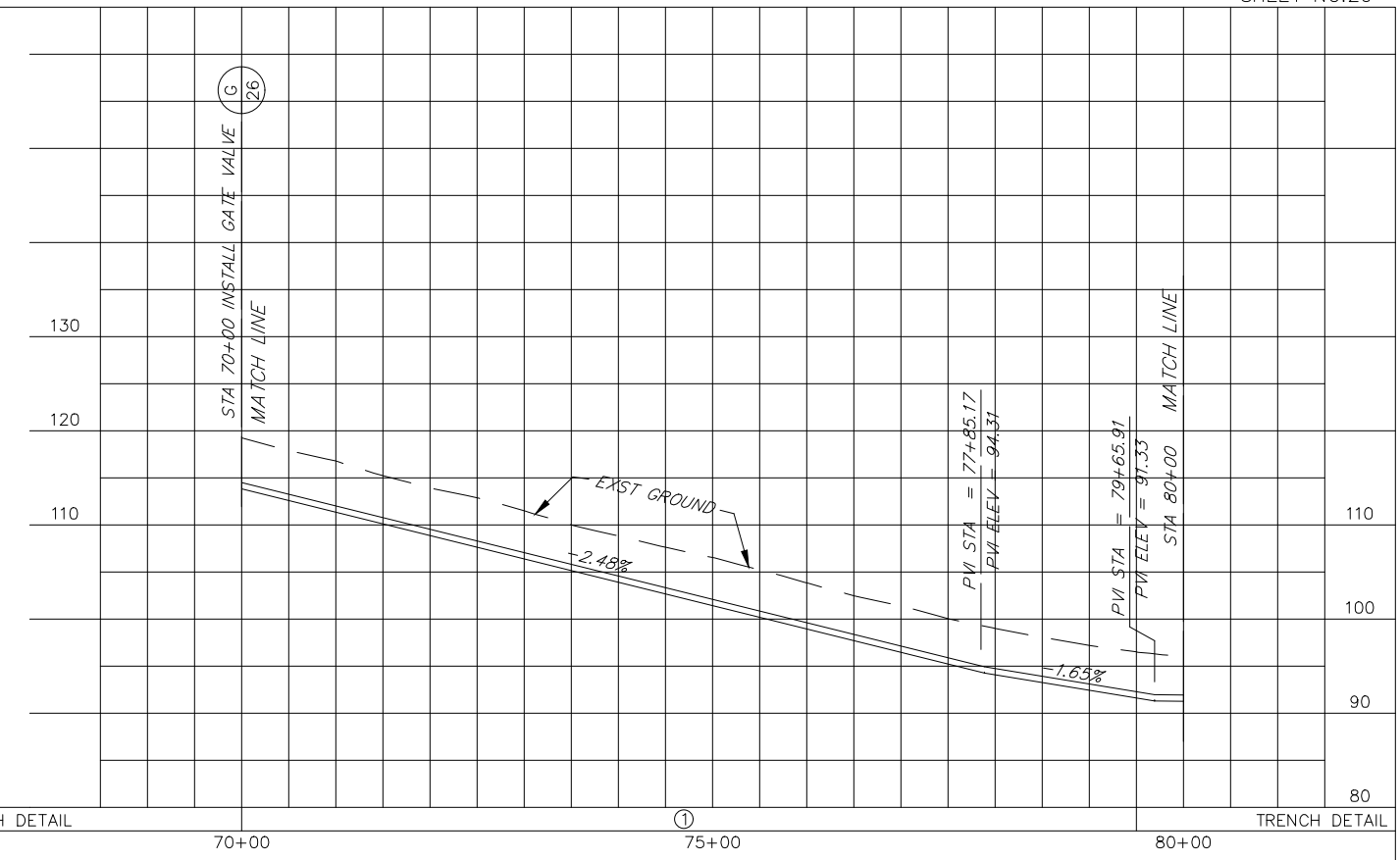
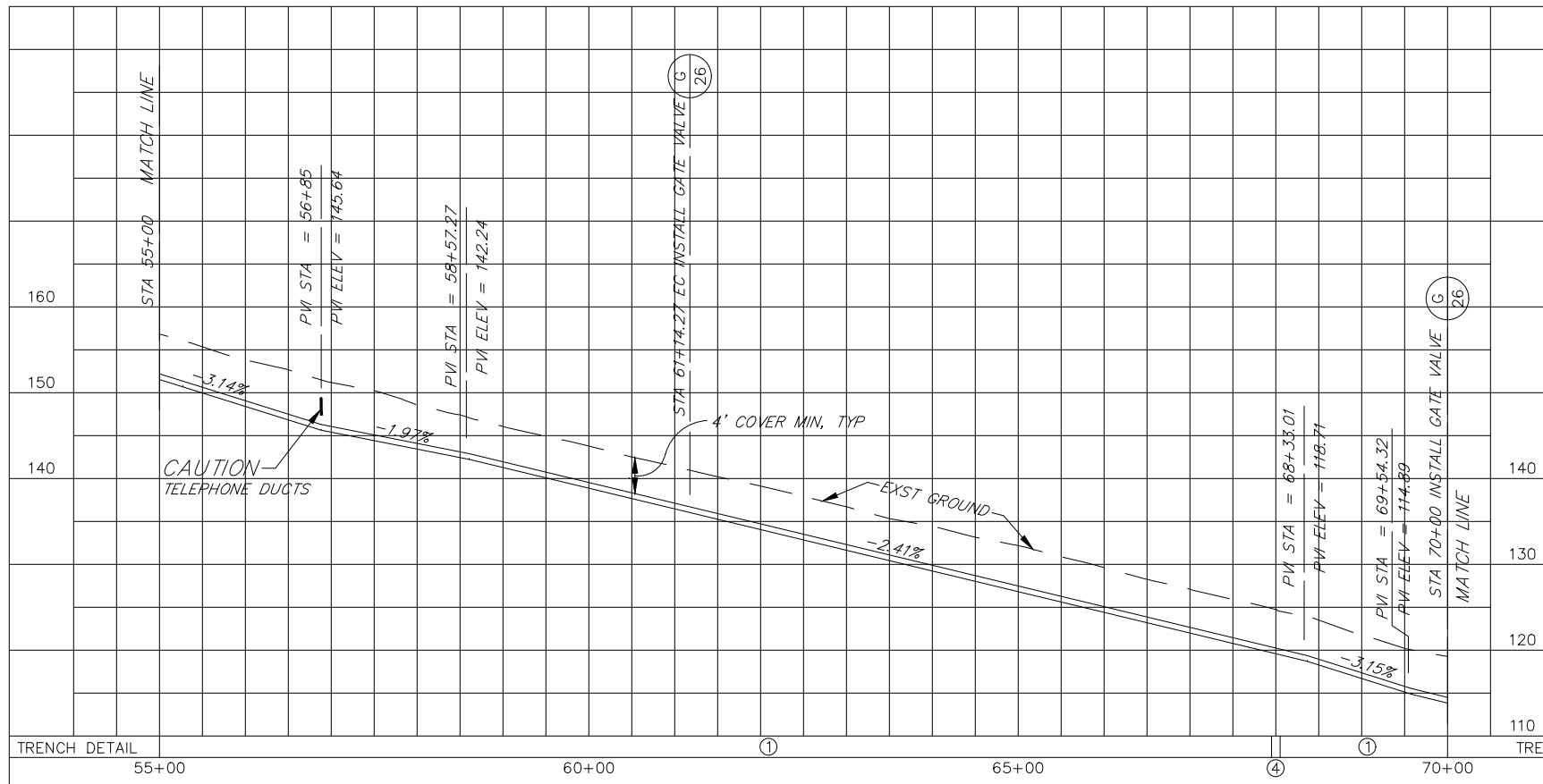
NO.	DATE	REVISION	BY
1	11/28/95	ADDENDUM NO. 1	ADF

FORESTVILLE & GRATON REGIONAL WASTEWATER  
FACILITIES IMPROVEMENT PROJECT, PHASE 2  
FORCE MAIN PROFILE  
STA 0+98.1± TO STA 55+00

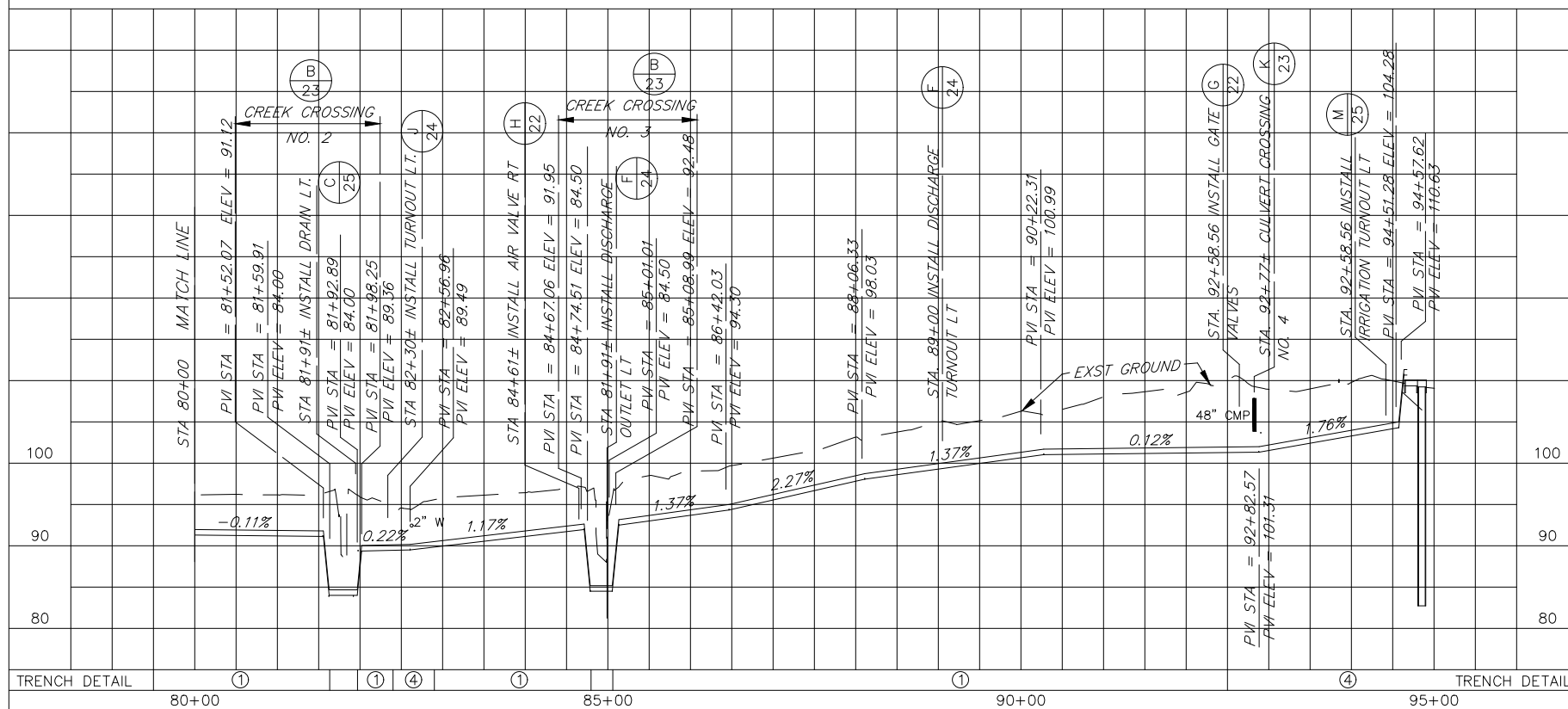
SCALE: 1" = 100'  
DATE: NOV 2, 1995

**SONOMA COUNTY  
WATER AGENCY**

DESIGNED: RCE 35525    SUBMITTED: RCE 23790    DRAWING NUMBER: 70-2&3-102.17

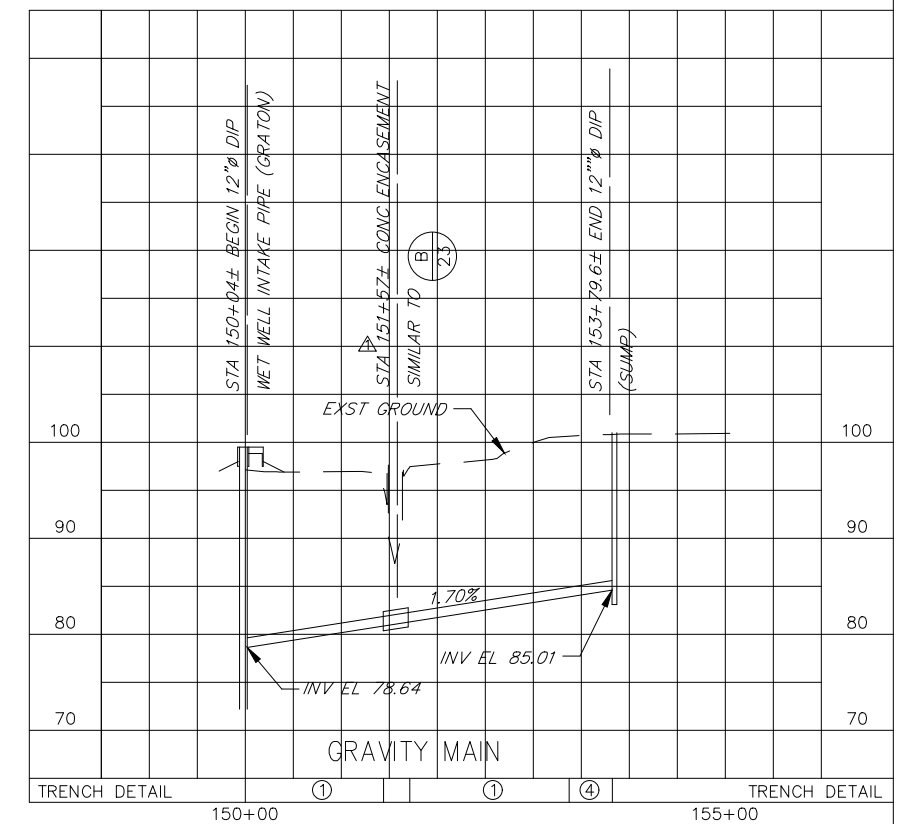
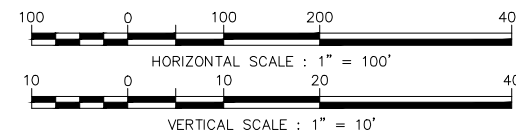


FORCE MAIN



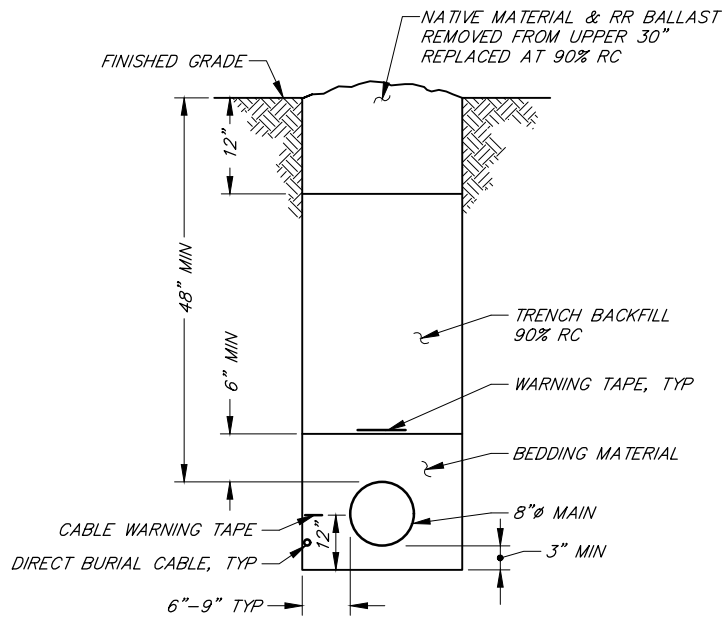
FORCE MAIN

NOTE:  
SEE SHEET NO. 21  
FOR TRENCH DETAILS



GRAVITY MAIN

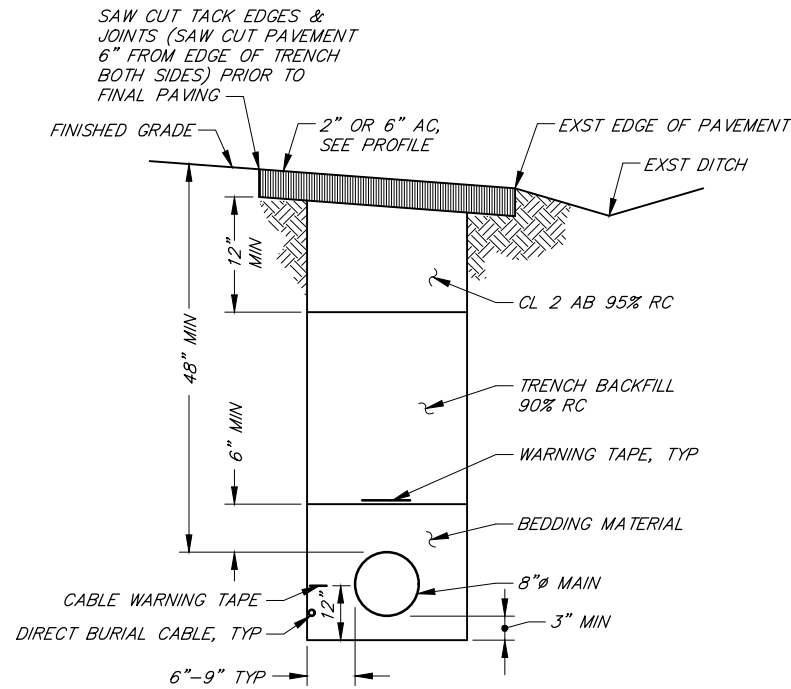
NO.	DATE	REVISION	BY
1	12/1/95	ADDENDUM NO. 1	ADF
FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2 PROFILE - STA 55+00 TO STA 94+58± & STA 150+04± TO STA 153+79.6±			
SCALE: 1" = 100'		APPROVED	CHEF ENGINEER RCE 33447
DATE: NOV 2, 1995		DRAWN: ANDY	
		CHECKED:	
<b>SONOMA COUNTY WATER AGENCY</b>			
DESIGNED	RCE 35525	SUBMITTED	RCE 23790
DRAWING NUMBER		70 - 2&3 - 102.18	



TYPICAL MAIN IN RAILROAD ROW AND OFF ROAD

SCALE: 1"=1'-0"

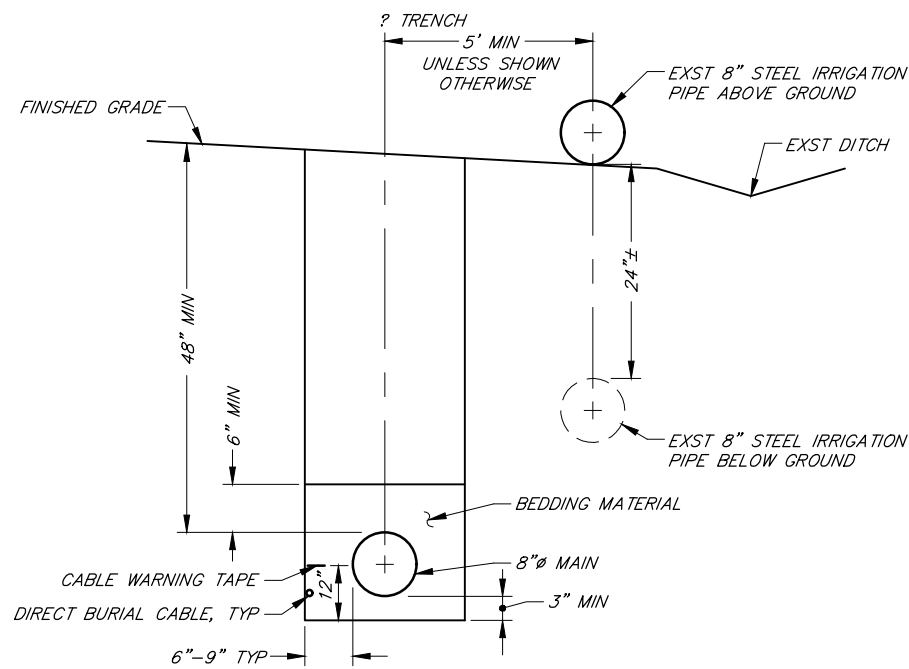
1



TYPICAL MAIN IN ROAD

SCALE: 1"=1'-0"

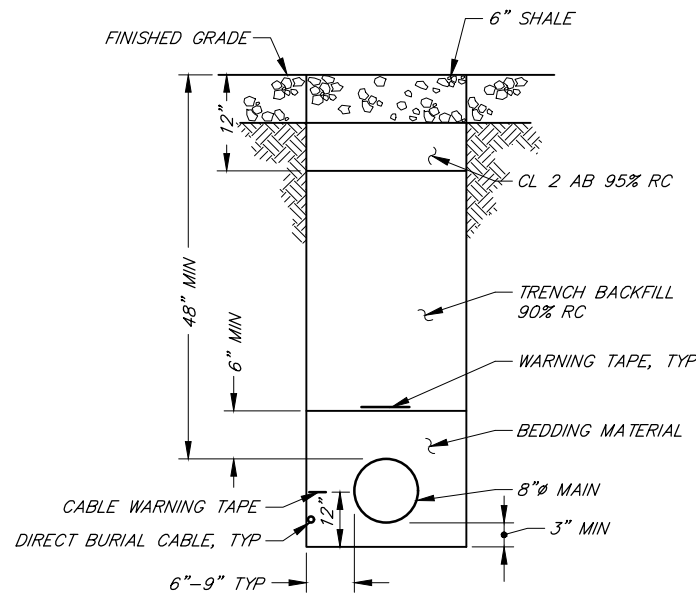
2



TYPICAL MAIN IN RELATION TO EXST 8" MAIN

SCALE: 1"=1'-0"

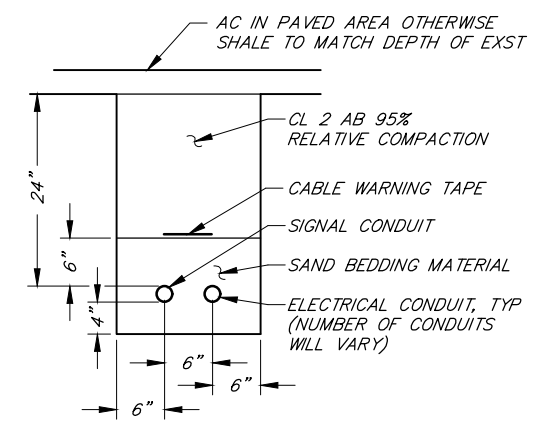
3



TYPICAL MAIN WITH SHALE SURFACING

SCALE: 1"=1'-0"

4



COMMON ELECTRICAL TRENCH DETAIL

SCALE: 1"=1'-0"

**NOTE:**

- 1. SEE SCWA SANITARY SEWER STANDARD 107 FOR ADDITIONAL TRENCH DETAILS & NOTES
- 2. SEE PROFILE FOR LOCATIONS WHERE TRENCH RESURFACING TYPES ARE USED.



NO.	DATE	REVISION	BY

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
**TRENCH BEDDING/BACKFILL**

SCALE : AS SHOWN	APPROVED	CHEF ENGINEER	RCE 33447	DRAWN : FJA
DATE : NOV 2, 1995				CHECKED :

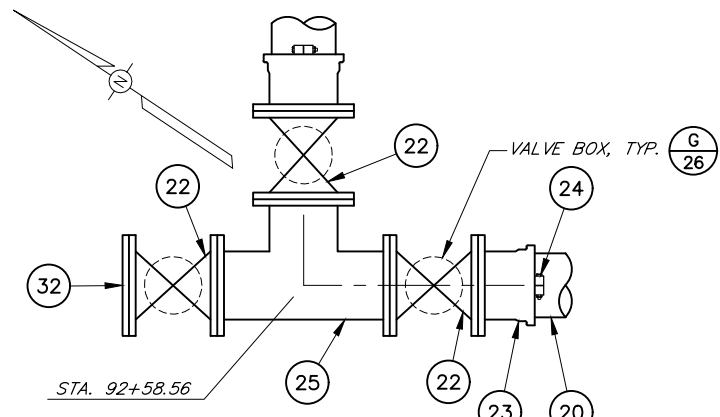
**SONOMA COUNTY WATER AGENCY**

DESIGNED	RCE 35525	SUBMITTED	RCE 23790	DRAWING NUMBER

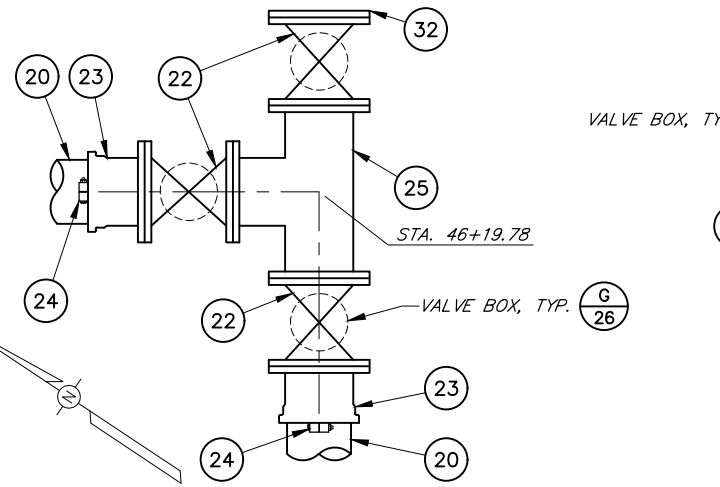
70-2&3-102.19

P:\FGWWP\FGWWP-21

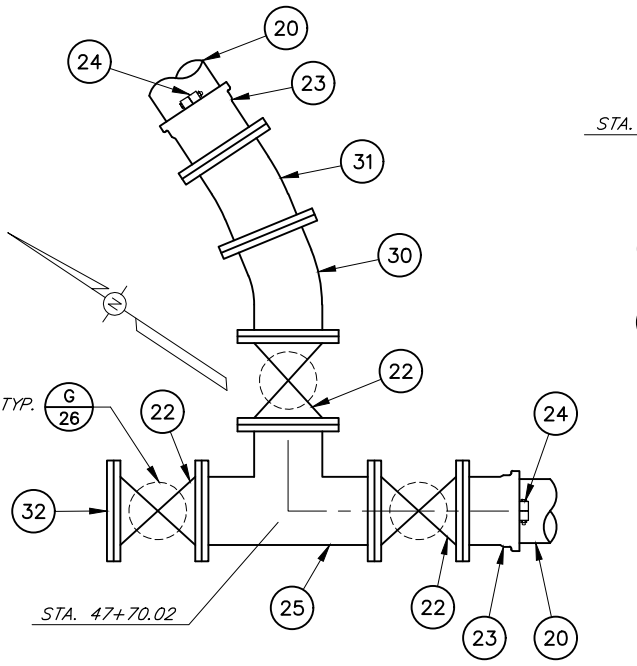
LIST OF MATERIALS	
1	SEWAGE COMBINATION AIR VALVE
2	2" SCH 80 PVC OUTLET TO POLE
3	1/2" BACK FLUSHING GATE VALVE
4	1" BLOWOFF GATE VALVE
5	2" UNION
6	2" GATE VALVE W/ 2" OPERATING NUT
7	8" DUCTILE IRON FLANGE, TAPPED & THREADED 2", ECCENTRIC
8	2" SCH 80 PVC SLIPxTHREADED
9	2" COUPLING
10	QUICK DISCONNECT
11	30"Ø MH FRAME & COVER - TRAFFIC RATED, D&L SUPPLY, MODEL A1465
12	30"Ø RCP CL3, D-LOAD 1350
13	NON-SHRINK EPOXY GROUT
14	CONCRETE FOOTING Δ 560-B/C-3250 CONC
15	CRUSHED ROCK
16	FOUNDATION GRADE REDWOOD
17	SST PL 1"x1/4" STRAP
18	3/8" SST BOLTS (2) EACH
19	3"x5" "C" CHANNEL
20	8" FORCE MAIN
21	2" SCH 80 PVC PIPE, PURPLE OR PURPLE TAPE PER SPECS
22	8" FLANGED GATE VALVE W/ 2" OPERATING NUT & EXTENSION
23	8" FLANGEDxTR FLEX ADAPTOR WITH TR FLEX GRIPPER
24	8" GRIPPER RING
25	8" FLANGED TEE
26	2" SCH 80 PVC UNION
27	2" PVC x GSP ADAPTOR
28	2" GSP WRAPPED WITH 2 LAYERS PVC ELECTRICAL TAPE BELOW GRADE
29	FINE STAINLESS STEEL SCREEN & UNIVERSAL CLAMP OVER GALVANIZED NIPPLE
30	8" FLANGED 22 1/2" BEND
31	8" FLANGED 11 1/4" BEND
32	8" BLIND FLANGE
33	3/4" SST PRESSURE SENSING ASSEMBLY W/ BALL VALVES AT STA. 43+89.6±



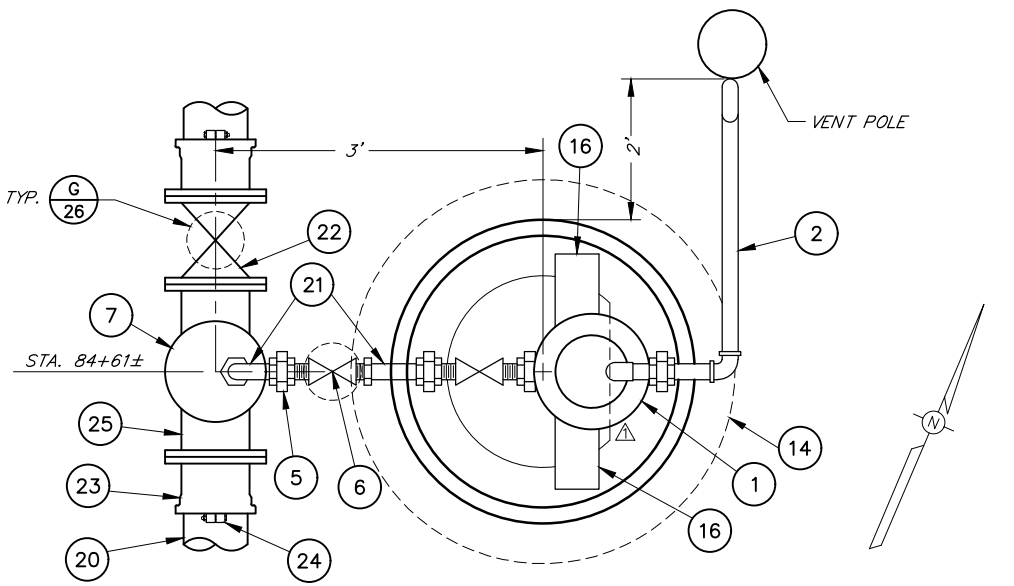
PLAN - STA. 92+58.56  
NOT TO SCALE



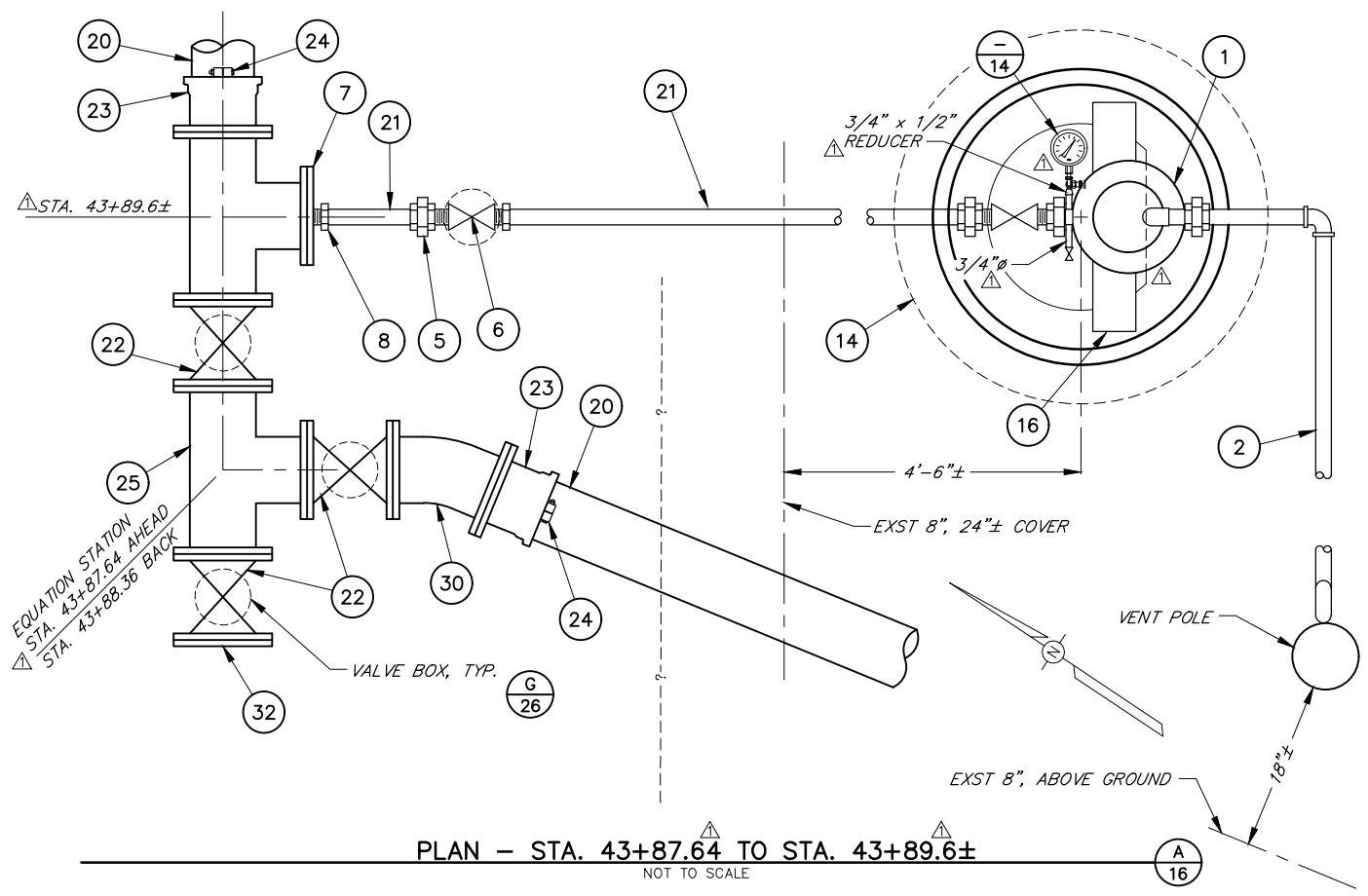
PLAN - STA. 46+19.78  
NOT TO SCALE



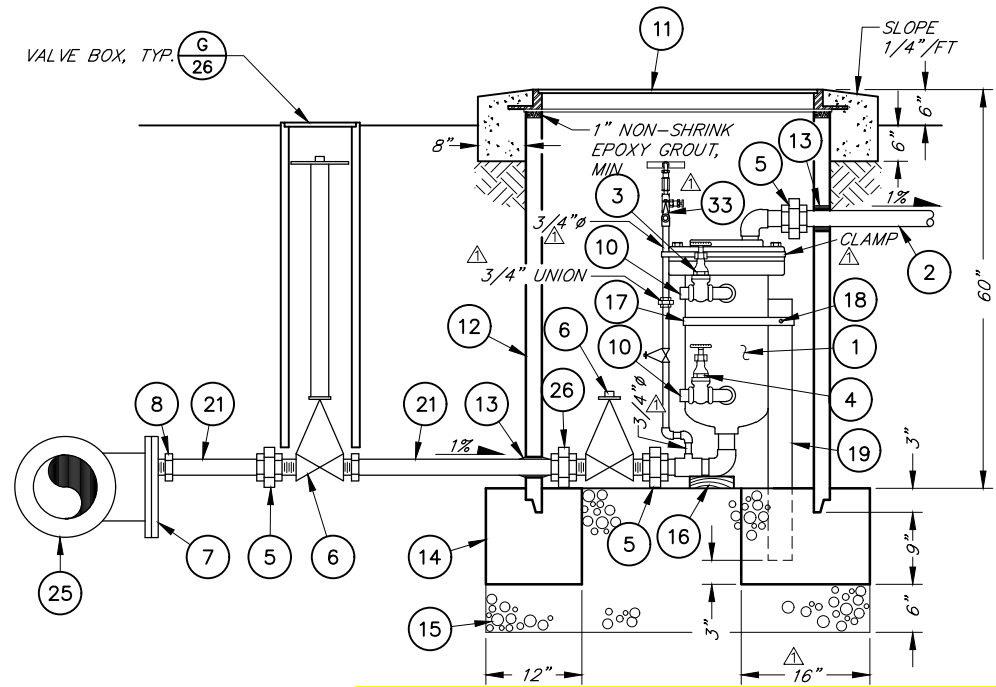
PLAN - STA. 47+70.02  
NOT TO SCALE



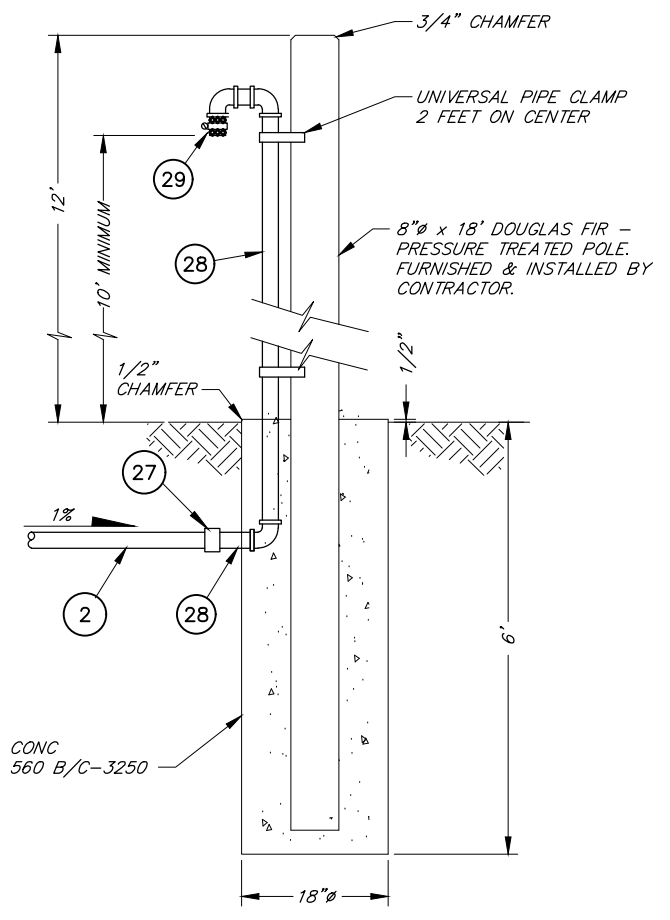
PLAN - STA. 84+61±  
NOT TO SCALE



PLAN - STA. 43+87.64 TO STA. 43+89.6±  
NOT TO SCALE



TYPICAL SECTION - SEWAGE COMBINATION AIR VALVE INSTALLATION - STA. 43+89.6± & STA. 84+61.4±  
NOT TO SCALE



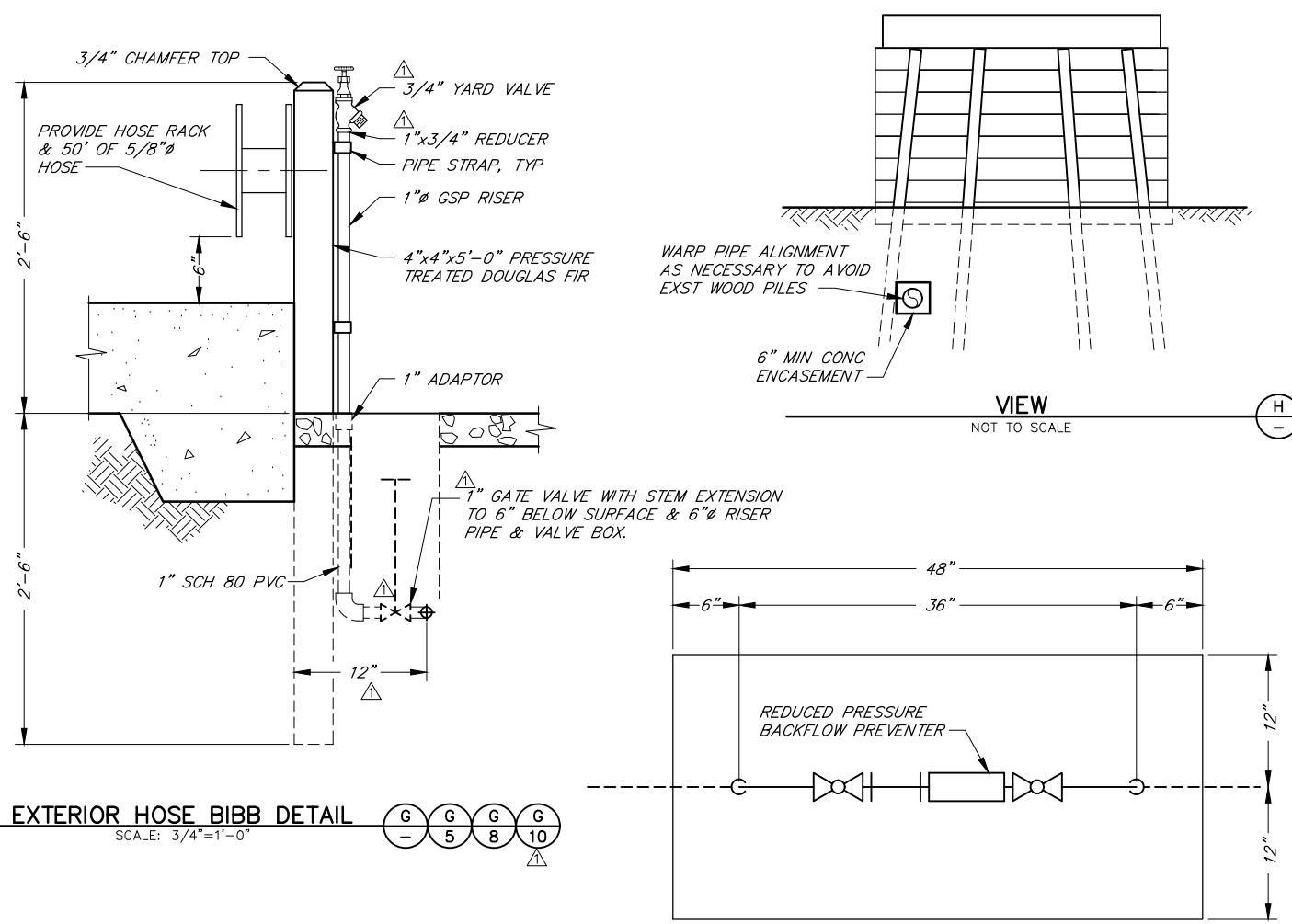
NO.	DATE	REVISION	BY
1	11/28/95	ADDENDUM NO. 1	ADF

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2 MISCELLANEOUS PIPING DETAILS

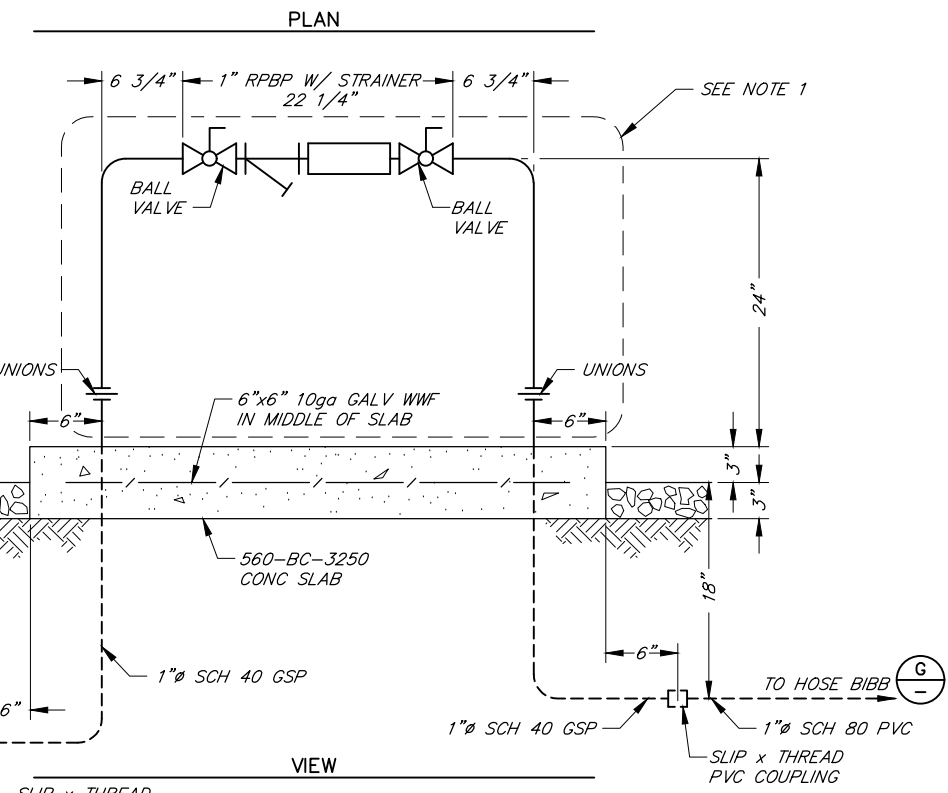
SCALE: AS SHOWN APPROVED: RCE 35525 RCE 33447 DRAWN: FJA  
DATE: NOV 2, 1995 CHECKED:

**SONOMA COUNTY WATER AGENCY**

DESIGNED: RCE 35525 SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.20



**EXTERIOR HOSE BIBB DETAIL**  
SCALE: 3/4"=1'-0"



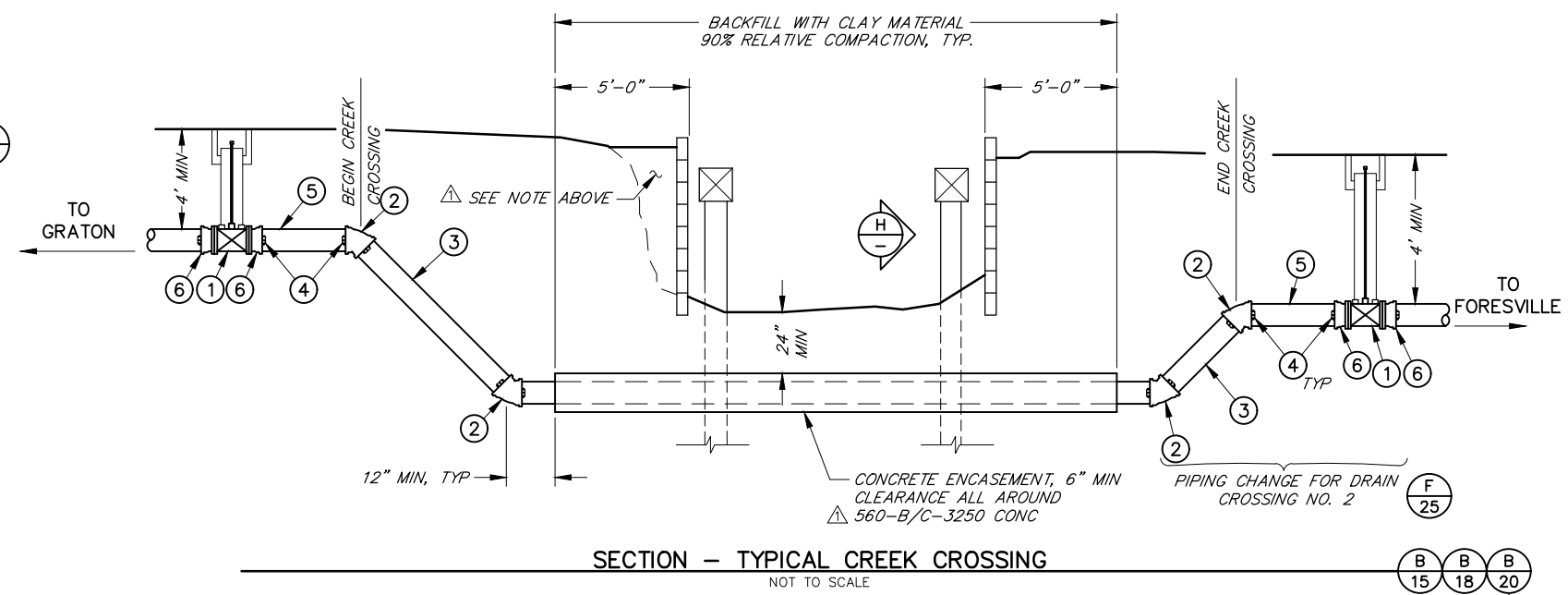
**WASH DOWN SYSTEM - (FORESTVILLE SITE) (GRATON SITE SIMILAR)**  
SCALE: 3/4"=1'-0"

- NOTES:**
1. INSULATE ALL ABOVE GROUND WATER PIPING WITH FOAM SPONGE SHEATH TAPED IN PLACE OR APPROVED INSULATION TO PROTECT FREEZING TO 0°.
  2. WRAP ALL UNDER GROUND & CONC ENCASED GALV STEEL PIPE WITH (2) LAYERS OF BLACK PVC ELECTRICIAN TAPE.

DESCRIPTIONS	
1	8" FLANGED GATE VALVE
2	8" 45° TR FLEX BEND
3	8" DUCTILE IRON PIPE
4	8" TR FLEX GRIPPER RING
5	8" x 3' DUCTILE IRON PIPE SPOOL
6	8" FLANGE x TR FLEX BELL ADAPTOR

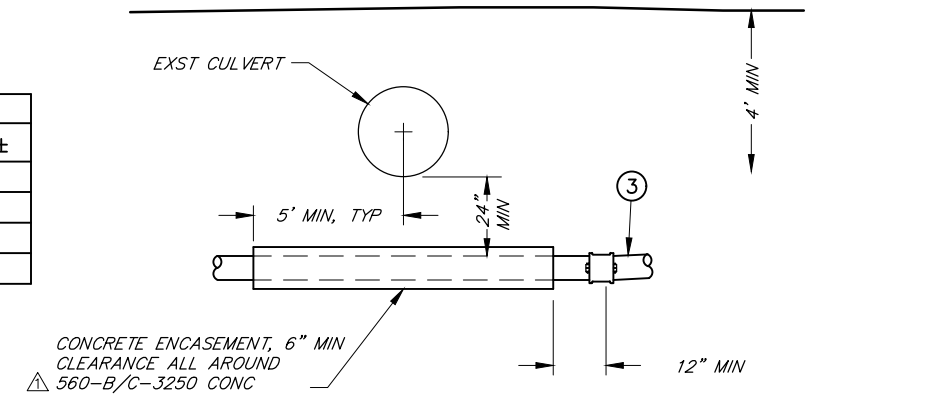
CREEK CROSSINGS		
NUMBER	BEGINNING STATION ±	ENDING STATION ±
1	2+35.2	2+82.2
2	81+52.1	81+98.2
3	84+67.1	85+09.0

NOTE: REPAIR FILL BEHIND SOUTH HEADWALL CROSSINGS 1 & 3.



**SECTION - TYPICAL CREEK CROSSING**  
NOT TO SCALE

CULVERT CROSSINGS	
NUMBER	STATION ±
1	11+20
2	34+47
3	47+49
4	92+77

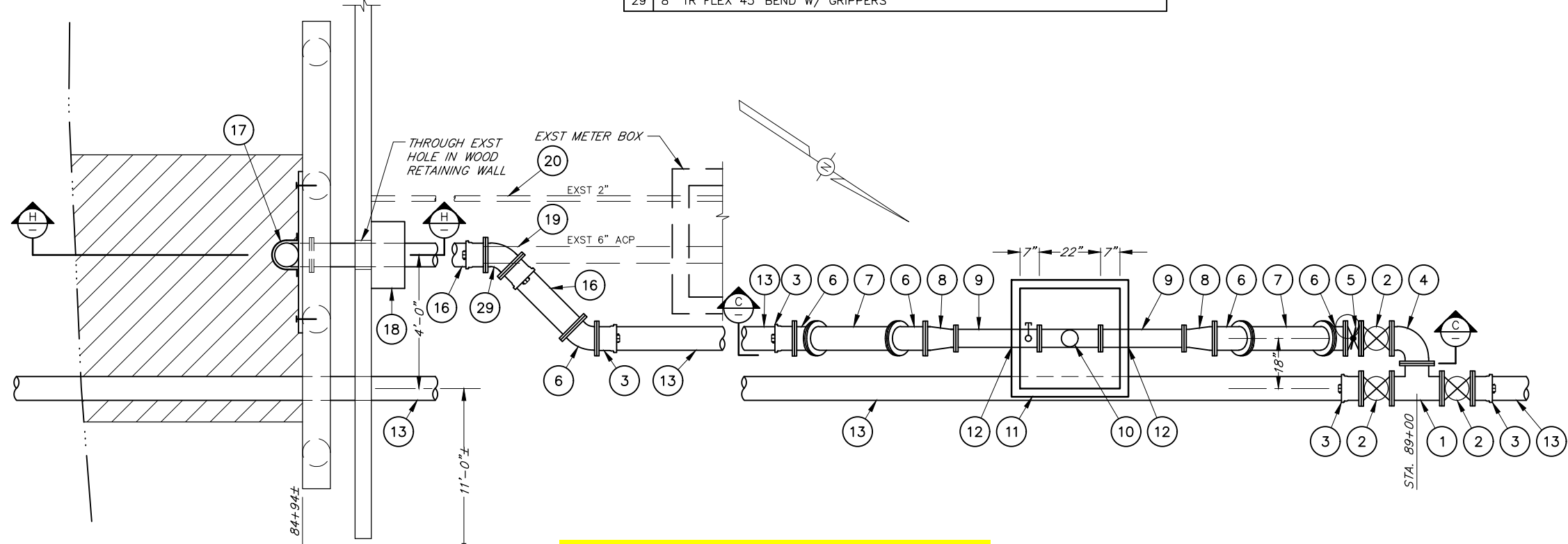


**SECTION - TYPICAL CULVERT CROSSING**  
NOT TO SCALE

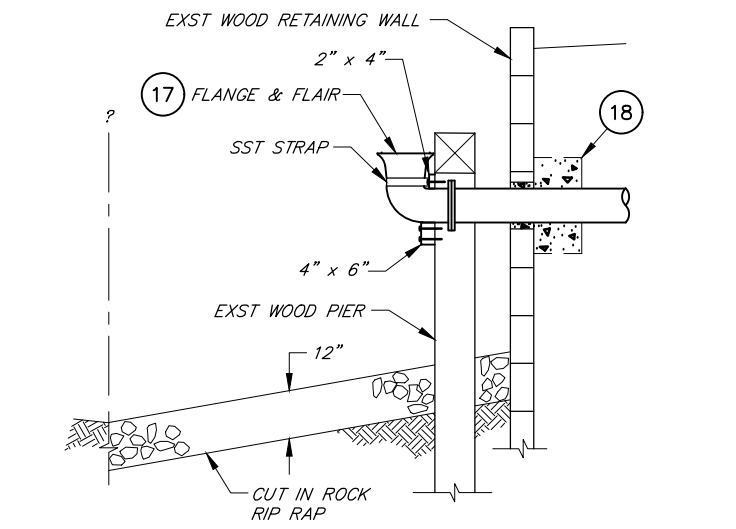
NO.	DATE	REVISION	BY	FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2 MISCELLANEOUS PIPING DETAILS	
1	11/27/95	ADDENDUM NO. 1	ADF		
SCALE: AS SHOWN		APPROVED	CHIEF ENGINEER	RCE 33447	DRAWN: FJA
DATE: NOV 2, 1995					CHECKED:
<b>SONOMA COUNTY WATER AGENCY</b>					
DESIGNED	RCE 35525	SUBMITTED	RCE 23790	DRAWING NUMBER	70-2&3-102.21

LIST OF MATERIALS

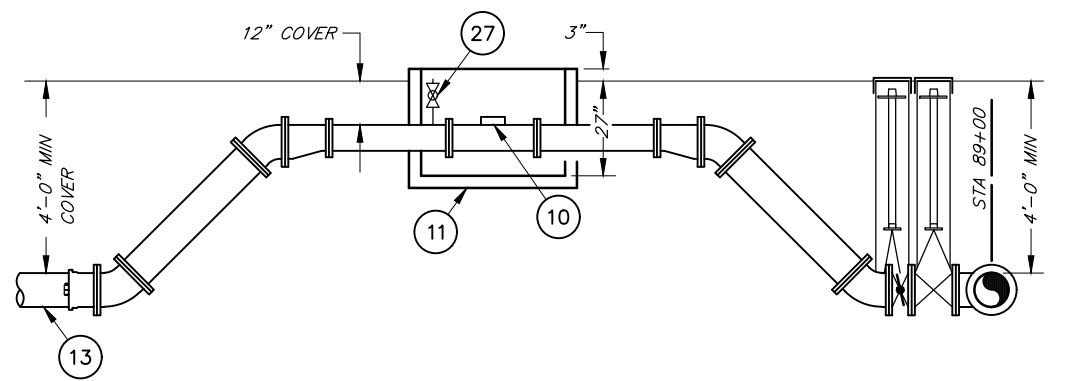
1	8" DIP FLANGED TEE	17	8" STANDARD FLANGE x FLARE 90° BEND. SUPPORT WITH 4" x 6" PRESSURE TREATED DOUGLAS FIR (DF) BEAM LAG BOLTED TO PIERS, USE 1" WIDE SST TRAP BOLTED TO PIERS TO RESTRAIN. PUT PIPE THROUGH SAME HOLE AS REMOVED 6" PIPE.
2	8" FLANGED GATE VALVE WITH VALVE STEM RISER ASSEMBLY	18	2'x2'x1.25' THICK CONCRETE BLOCK TO CLOSE HOLE
3	8" DIP FLANGED x TR FLEX ADAPTOR & GRIPPER RING	19	REMOVE EXISTING CONCRETE AT WALL & 6" AC PIPE TO EXISTING METER BOX
4	8" DIP FLANGED 90° BEND	20	REMOVE EXISTING 2" PIPE TO EXISTING METER BOX
5	8" FLANGED BUTTERFLY VALVE WITH VALVE STEM RISER ASSEMBLY	21	8" DIP FLANGED 22 1/2' BEND
6	8" DIP FLANGED 45° BEND	22	6" DIP FLANGED x TR FLEX ADAPTOR WITH GRIPPERS
7	8" DIP FLANGED DIP SPOOL	23	6"x30" DIP FLANGED x PLAIN END SPOOL
8	8"x6" DIP FLANGED ECCENTRIC REDUCER	24	8" FLANGE & BOLT DIELECTRIC ISOLATION KIT
9	6"x30" DIP FLANGED SPOOL	25	8" STEEL FLANGED x VICTAULIC COUPLING ADAPTOR SPOOL
10	6" FLANGED PROPELLER METER	26	CONNECT TO EXISTING PIPING
11	3'x3'x2'-6" DEEP METER VAULT WITH WATER METER READING TRAFFIC LID	27	1/2" THREADED OUTLET, 1/2" SST x 6" THREADED NIPPLE, 1/2" SST BALL VALVE (AIR BLOWOFF)
12	DOUBLE WATER SEAL & NON-SHRINK EPOXY GROUT	28	8" FLANGED GATE VALVE
13	8" DIP TR FLEX PIPE	29	8" TR FLEX 45° BEND W/ GRIPPERS
15	8" FLANGED SPOOL		
16	8" TR FLEX PLAIN END x FLANGE		



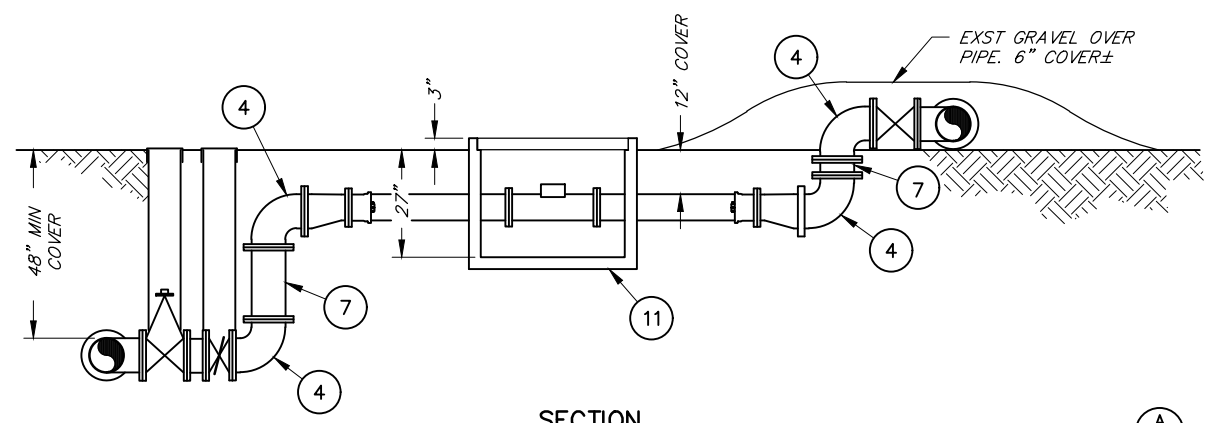
**PLAN - DISCHARGE TURNOUT STA 89+00**  
NOT TO SCALE



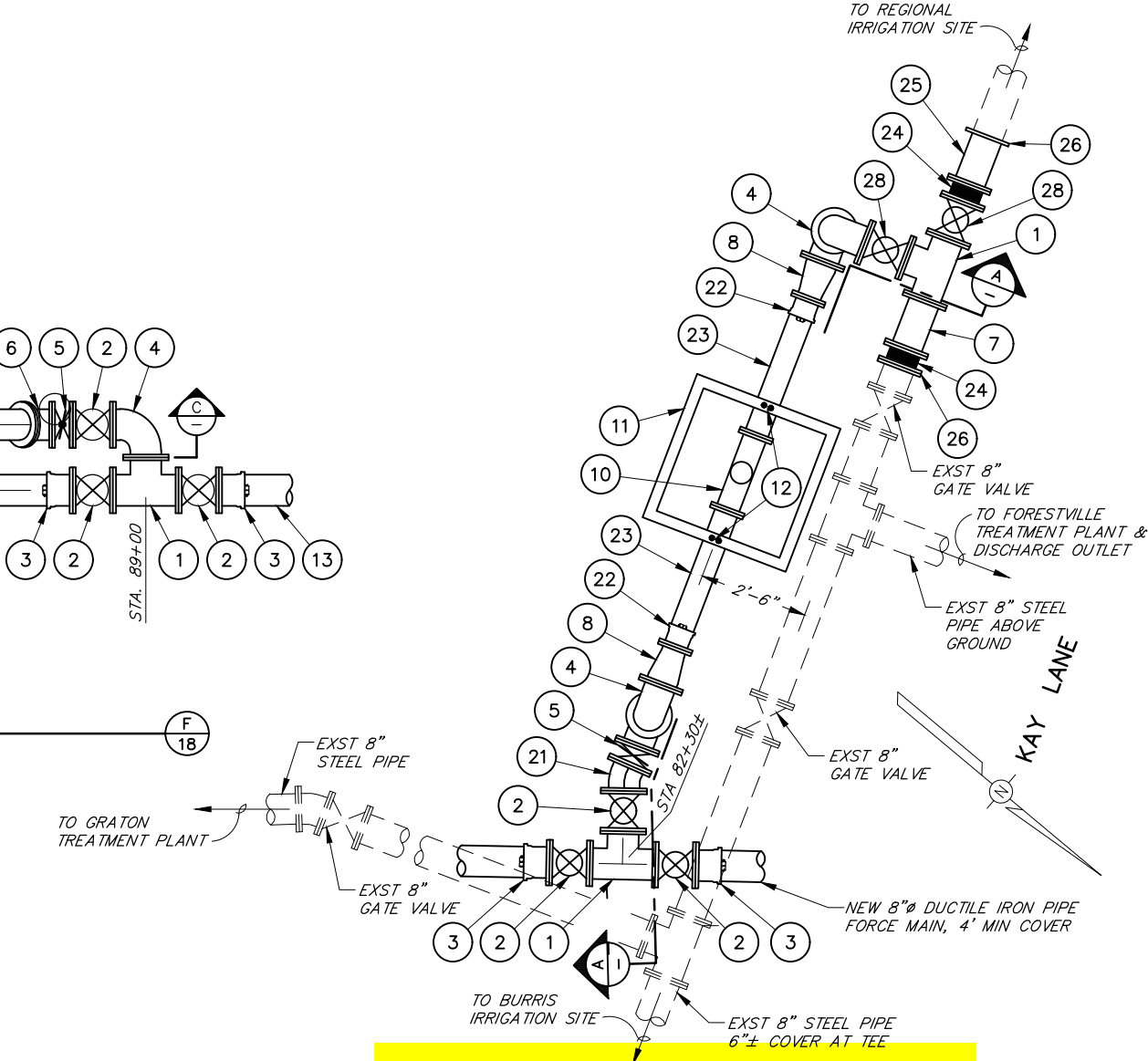
**SECTION**  
NOT TO SCALE



**SECTION**  
NOT TO SCALE



**SECTION**  
NOT TO SCALE



**PLAN - KAY LANE TURNOUT STA 82+30±**  
NOT TO SCALE

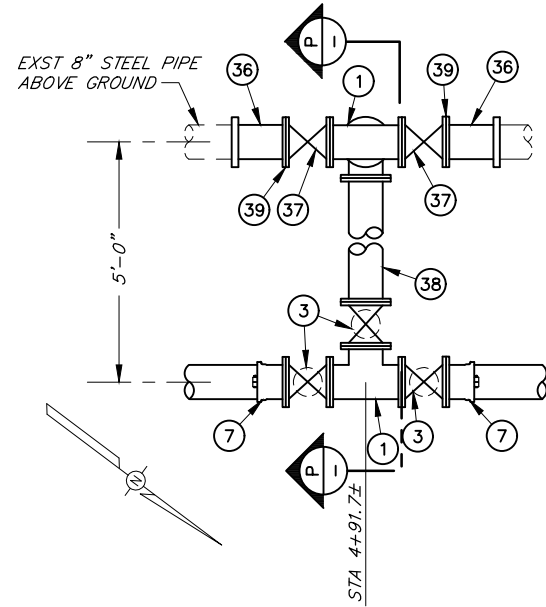
NO.	DATE	REVISION	BY

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
**TURNOUT PIPING PLANS & DETAILS**  
 SCALE: AS SHOWN    APPROVED: CHIEF ENGINEER RCE 33447    DRAWN: JLW/FJA  
 DATE: NOV 2, 1995    CHECKED:

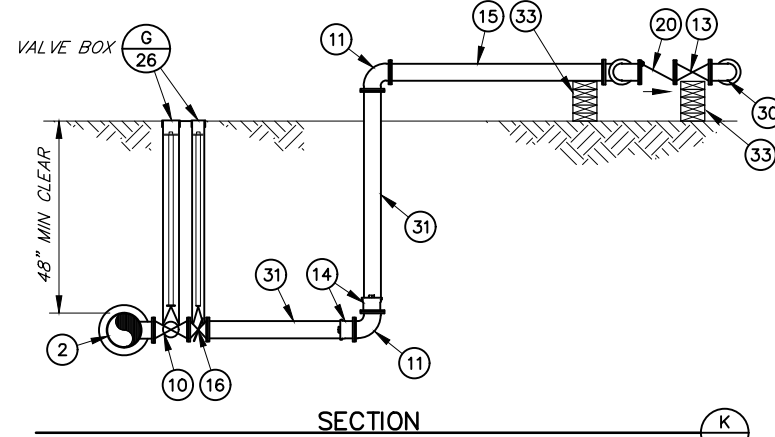
**SONOMA COUNTY WATER AGENCY**  
 DESIGNED: RCE 35525    SUBMITTED: RCE 23790    DRAWING NUMBER: 70-2&3-102.22



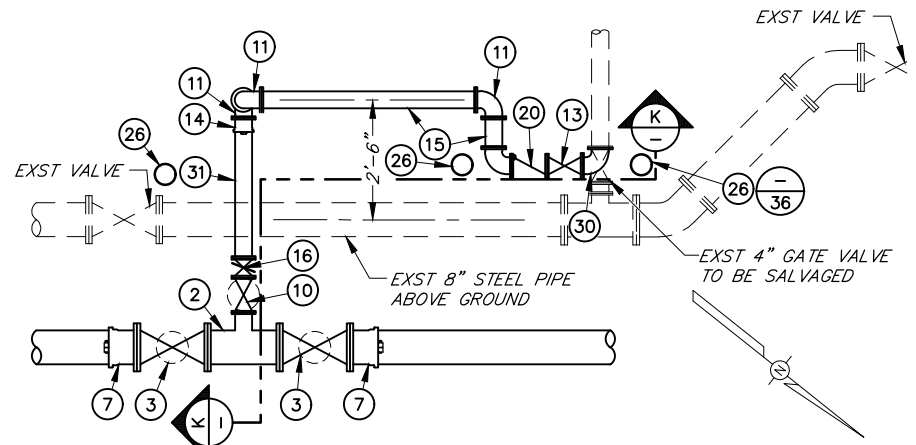
LIST OF MATERIALS	
1	FLANGED 8"x8"x8" TEE
2	FLANGED 8"x8"x4" TEE
3	8" FLANGED GATE VALVE W/ VALVE STEM RISER ASSEMBLY
4	8" FLANGED 90° ELBOW
5	8" FLANGED 45° ELBOW
6	8" FLANGED 22 1/2° ELBOW
7	8" FLANGED x TR FLEX ADAPTOR W/ GRIPPERS
8	8" COMPANION FLANGE TAPPED & THREADED 4" NPT
9	8"x24" FLANGED SPOOL W/ WALL ANCHOR
10	4" FLANGED GATE VALVE W/ VALVE STEM RISER ASSEMBLY AS REQUIRED
11	4" FLANGED 90° ELBOW
12	4" FLANGED 45° ELBOW
13	4" FLANGED GATE VALVE
14	4" FLANGED x TR FLEX ADAPTOR W/ GRIPPERS
15	4" FLANGED SPOOL, LENGTH AS REQUIRED
16	4" FLANGED BUTTERFLY VALVE
17	4"x6" LONG THREADED NIPPLE
18	4" FEMALE THREADED x 4" MALE QUICK DISCONNECT
19	
20	4" FLANGED CHECK VALVE
21	
22	DOUBLE WATER STOP W/ NON-SHRINK EPOXY GROUT
23	4"Ø ECCENTRIC MH SIMILAR TO SCWA SANITATION SEWER MH STANDARD DWG 100-A OR 100-B AS REQUIRED
24	
25	
26	BARRIER POST
27	4" THREADED GATE VALVE W/ OPERATOR WHEEL
28	4" x LENGTH FLANGED x PLAIN SPOOL
29	4" TR FLEX 90° ELBOW W/ GRIPPERS
30	4" FLANGED 90° ELBOW W/ 4" COMPANION FLANGE THREADED 4" NPT MAKE CONNECTION
31	4" FLANGE x PLAIN END SPOOL, LENGTH AS REQUIRED
32	4"x24" FLANGED SPOOL
33	2x6 PRESSURE TREATED DOUGLAS FIR SUPPORTS AS REQUIRED
34	8"Ø DIP BLIND FLANGE
35	8" FLANGED DIP CROSS
36	8" STEEL FLANGED x VITULIC COUPLING ADAPTOR LENGTH AS REQUIRED
37	8" GATE VALVE
38	8" FLANGED SPOOL LENGTH AS REQUIRED
39	8" DIELECTRIC ISOLATION GASKET & BOLT KIT
40	8" FLANGED COUPLING ADAPTOR (UNRESTRAINED)



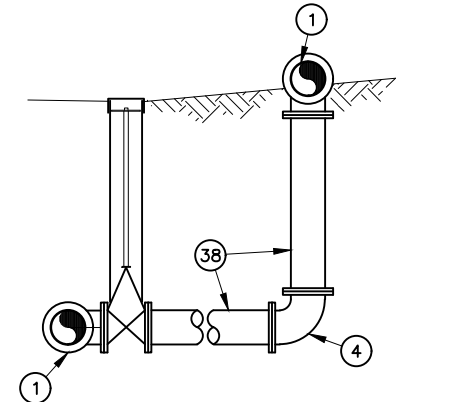
**PLAN - IRRIGATION TURNOUT (GRATON)**  
STA 4+91.7±



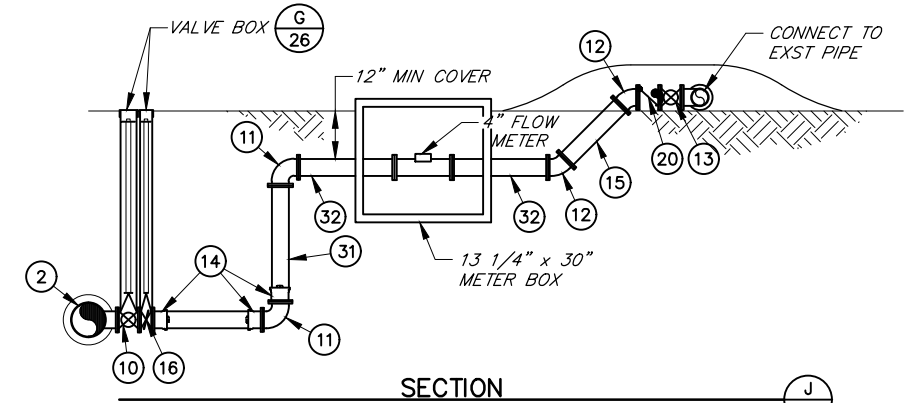
SECTION K



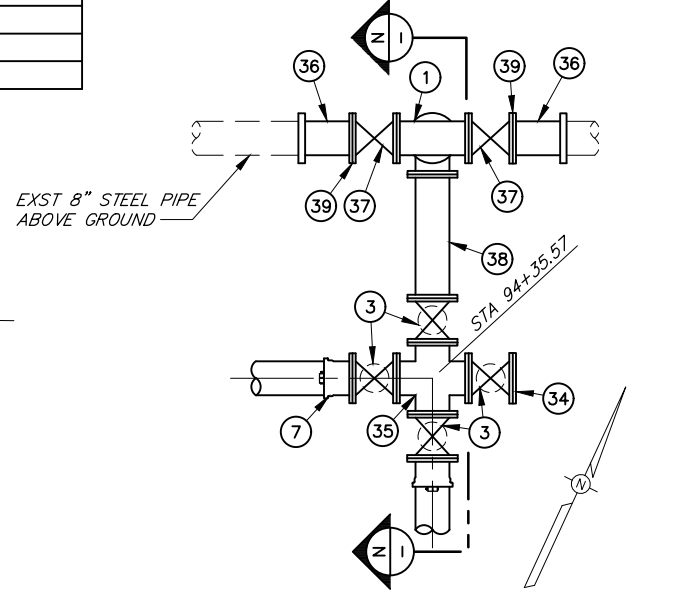
**PLAN - IRRIGATION TURNOUT DETAIL**  
STA 26+57±



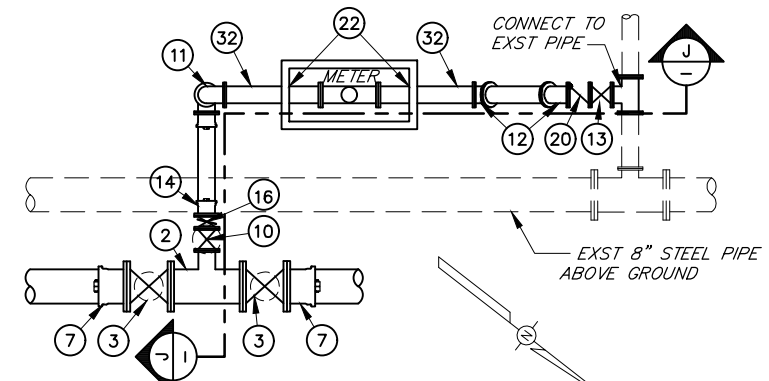
SECTION P



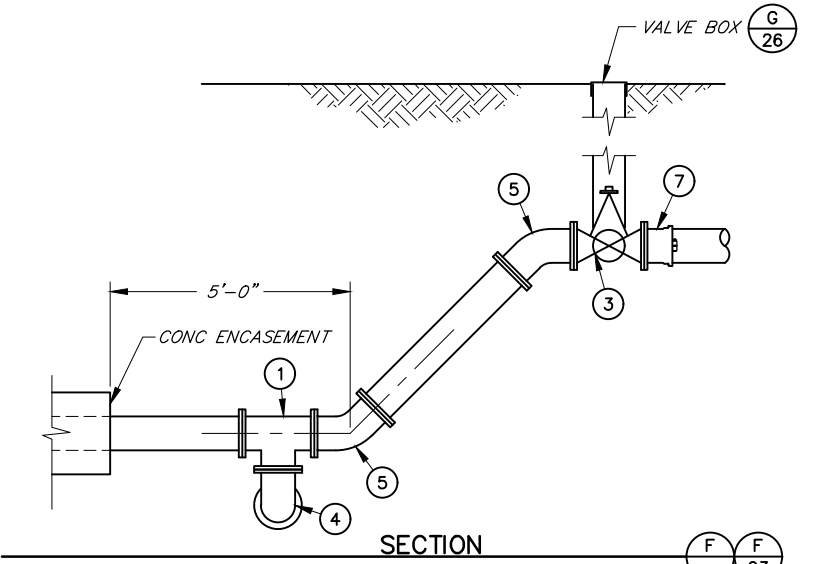
SECTION J



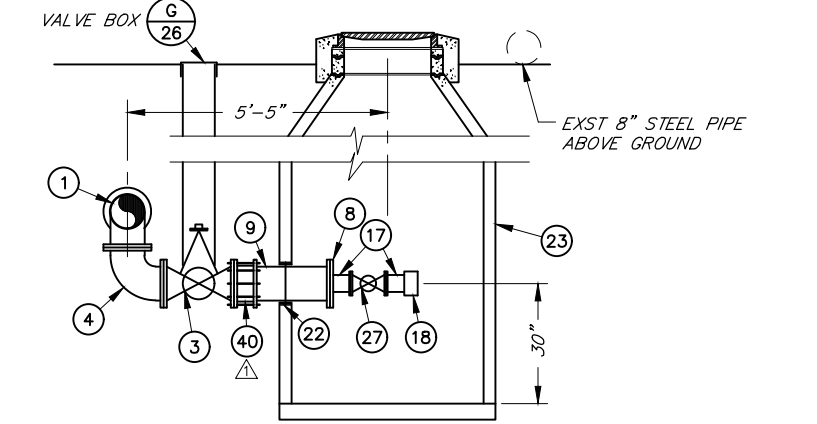
**PLAN - IRRIGATION TURNOUT (FORESTVILLE)**  
STA 94+35.57



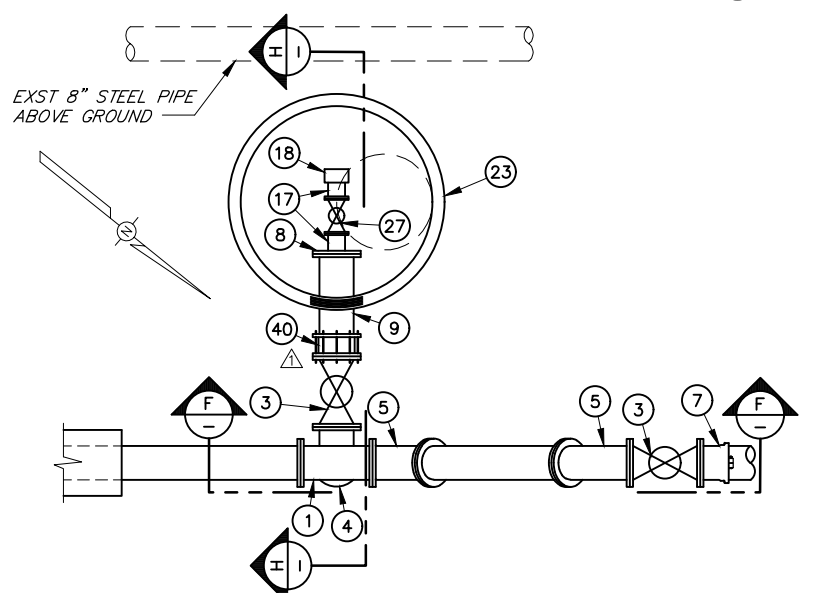
**PLAN - IRRIGATION TURNOUT**  
STA 8+95±



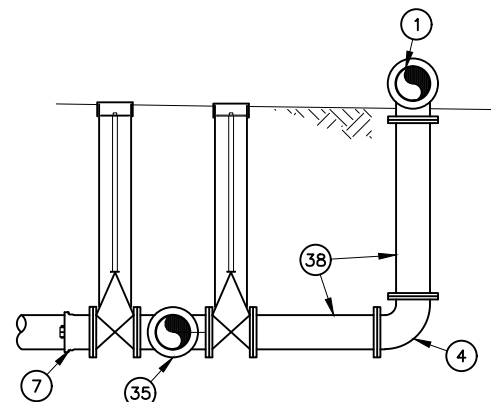
SECTION F



SECTION H



**PLAN - DRAIN**  
STA 81+91±  
(CREEK CROSSING NO. 2)



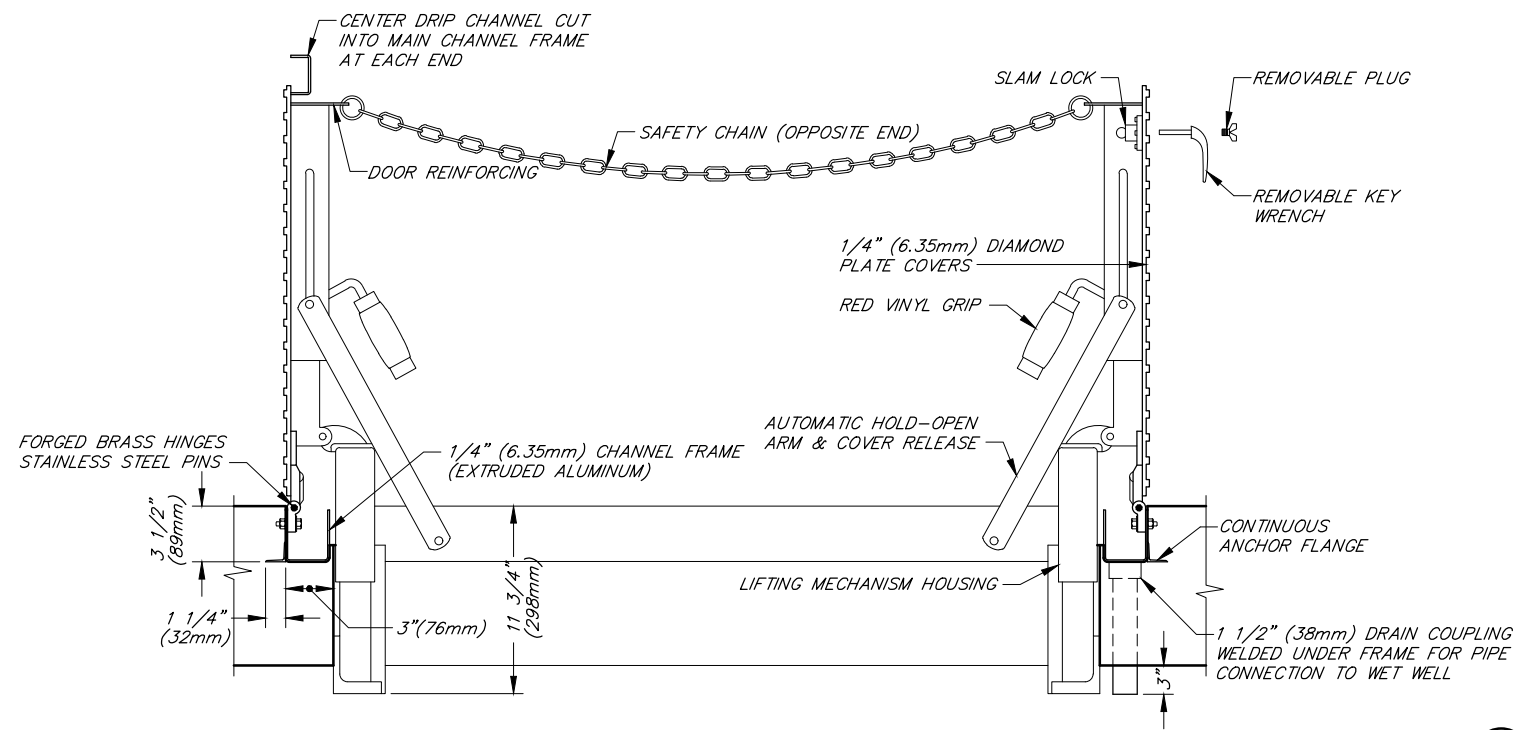
SECTION N

NO.	DATE	REVISION	BY
1	11/27/95	ADDENDUM NO. 1	ADF

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
IRRIGATION TURNOUT & DRAIN PIPING PLANS & DETAILS

SCALE: 1/2" = 1'-0" APPROVED: CHIEF ENGINEER RCE 33447 DRAWN: FJA  
DATE: NOV 2, 1995 CHECKED:

**SONOMA COUNTY WATER AGENCY**  
DESIGNED: RCE 35525 SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.23



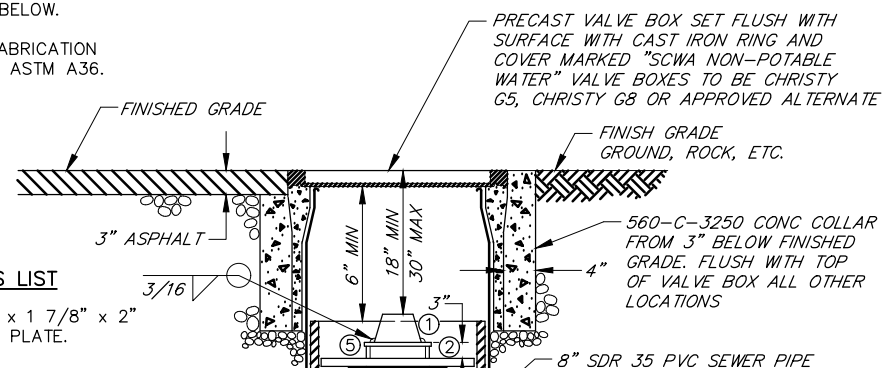
ACCESS HATCH SECTION

NOT TO SCALE

B  
12

STEM EXTENSION FABRICATION NOTES

- ALL WELDS TO RISER SHAFT SHALL BE FILLET WELD ALL AROUND, AS SPECIFIED BELOW.
- ALL STEEL REQUIRED FOR RISER FABRICATION SHALL BE STRUCTURAL STEEL PER ASTM A36.



VALVE STEM EXTENSION PARTS LIST

- VALVE OPERATING NUT OR 1 7/8" x 1 7/8" x 2" HIGH SOLID STEEL WELDED TO TOP PLATE.
- 3/16" THICK x 7 1/2" DIA FREE SPINNING GUIDE PLATE, WITH 3 5/8" DIA HOLE IN CENTER.
- TWO 3/16" x 1 1/2" x 1 1/2" x 5" L STEEL ANGLE WELD TO TWO SIDES OF RISER SHAFT.
- 2 1/2" x 3/16" SQUARE STEEL TUBING LENGTH AS REQUIRED EDGE WELD TO TOP PLATE.
- 3" x 3" x 1/4" STEEL TOP PLATE. WELD TO RISER SHAFT AFTER GUIDE PLATE IS IN PLACE.
- TWO SET SCREWS ON OPPOSITE SIDES OF TUBING. OPERATING NUT SHALL HAVE HOLES TO RECEIVE SET SCREWS.

INSULATED TRACER WIRE #12 COPPER W/2" - 3" PIGTAIL, TYPICAL FOR PVC PIPE ONLY

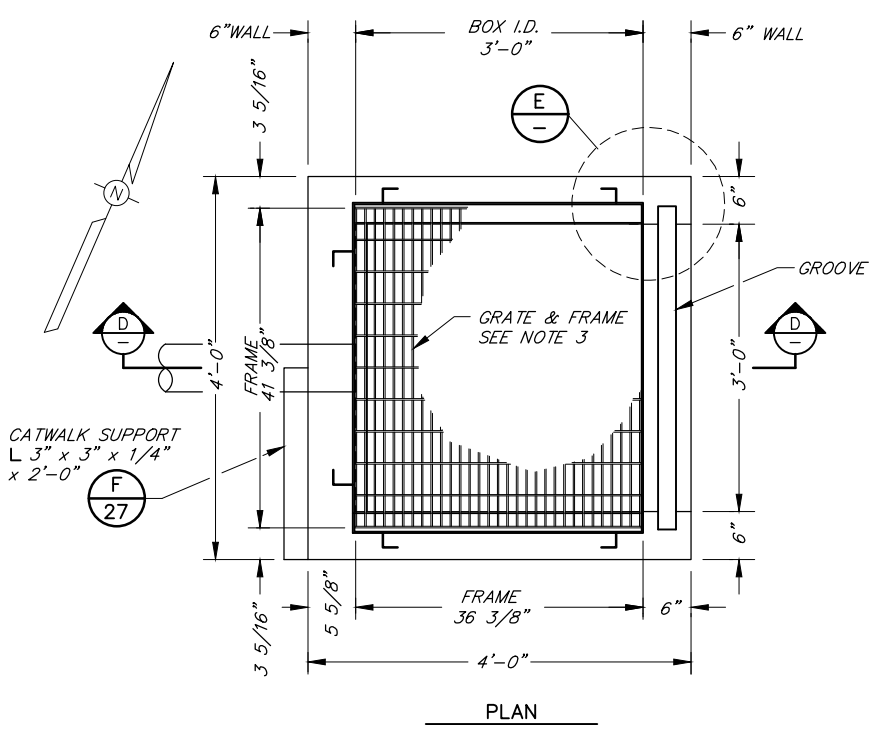
NOTES:

- VALVES SHALL BE RESILIENT GATE VALVES (FLANGED).(BELLED FOR PVC PIPE)
- ALL EXTERNAL BOLTS AND NUTS ON VALVES SHALL BE CADMIUM PLATED CARBON STEEL.
- IF VALVE IS INSTALLED SO THAT THE TOP OF THE OPERATING NUT IS LESS THAN 30" BELOW FINISHED GRADE, THE VALVE STEM RISER IS NOT REQUIRED.

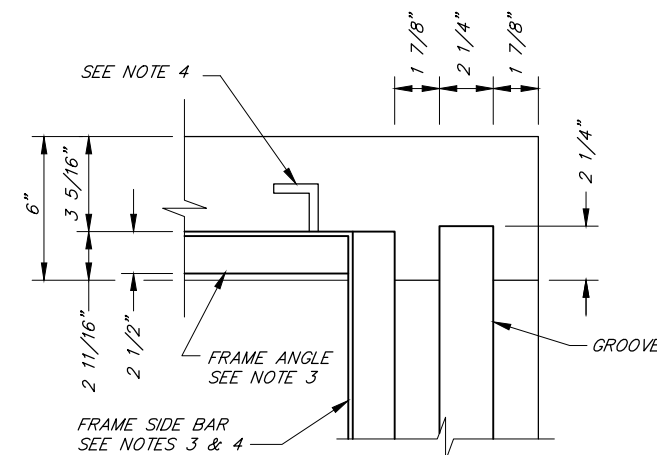
TYPICAL INSTALLATION OF GATE VALVE, VALVE STEM EXTENSION AND VALVE BOX WITH RISER

NOT TO SCALE

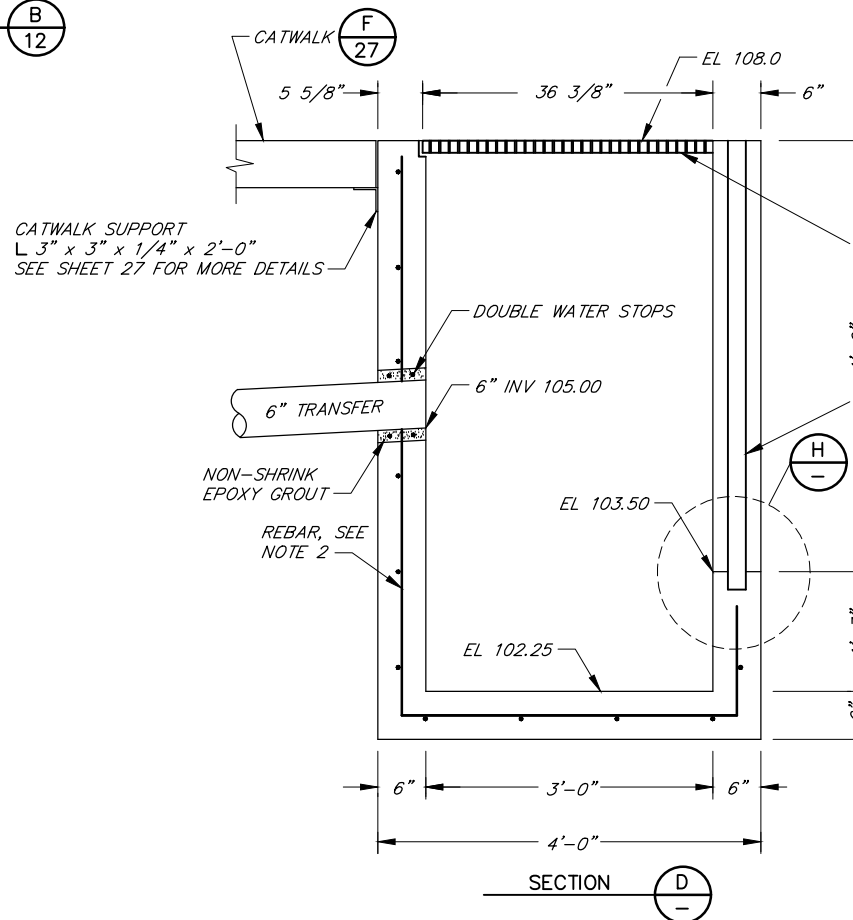
G  
1



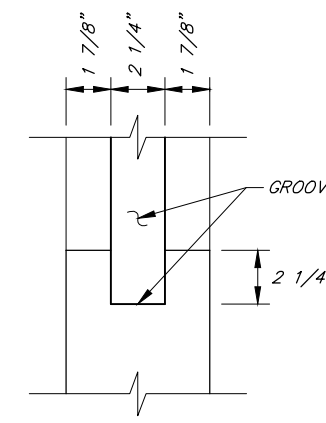
PLAN



DETAIL E



SECTION D



DETAIL H

NOTES:

- PROVIDE 16 - 2" x 4" (ACTUAL DIMENSIONS) CONSTRUCTION GRADE REDWOOD FLASH BOARDS.
- REBAR CENTERED IN WALLS & BASE #4 AT 12" EACH WAY.
- GRATE & FRAME SHALL BE SANTA ROSA CAST PRODUCTS MODEL 1M H-20 OR APPROVED EQUAL ADJUSTED TO FIT ON BOX AS SHOWN.
- TWO EACH 3/8" DIA ANCHORS ADDED TO FRAME ANGLES. NO ANCHORS ON GROOVE END.

COLLECTOR BOX DETAILS

NOT TO SCALE

C  
7 C  
8 C  
27

NO.	DATE	REVISION	BY

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2 MISCELLANEOUS DETAILS

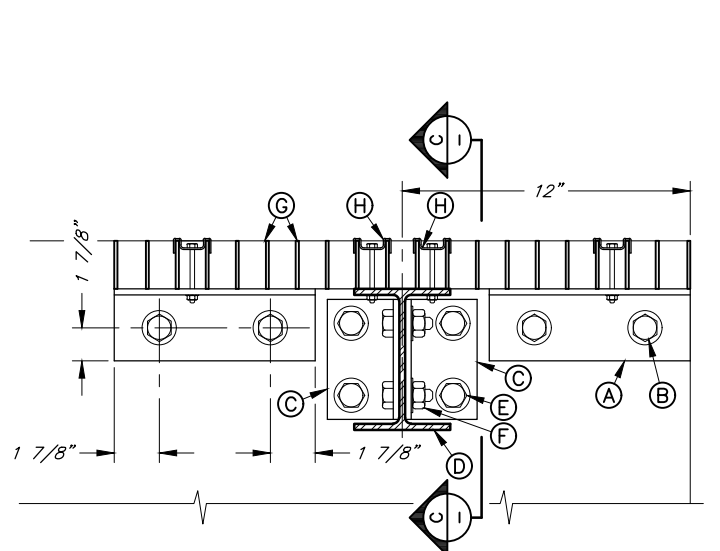
SCALE : AS SHOWN APPROVED CHIEF ENGINEER RCE 33447 DRAWN : FJA/LLW

DATE : NOV 2, 1995 CHECKED :

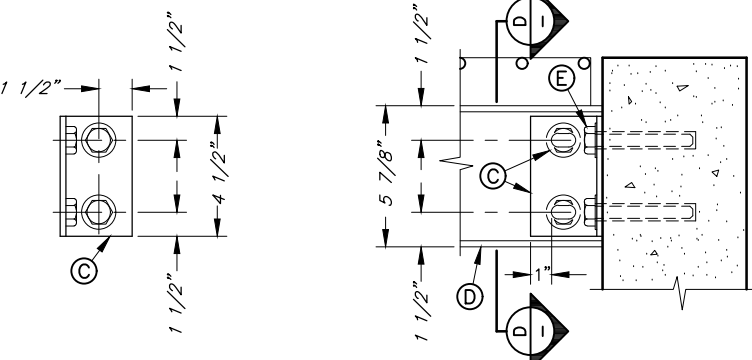
**SONOMA COUNTY WATER AGENCY**

DESIGNED RCE 35525 SUBMITTED RCE 23790 DRAWING NUMBER 70 - 2&3 - 102.24

P:VQWMP\FCWMP-26



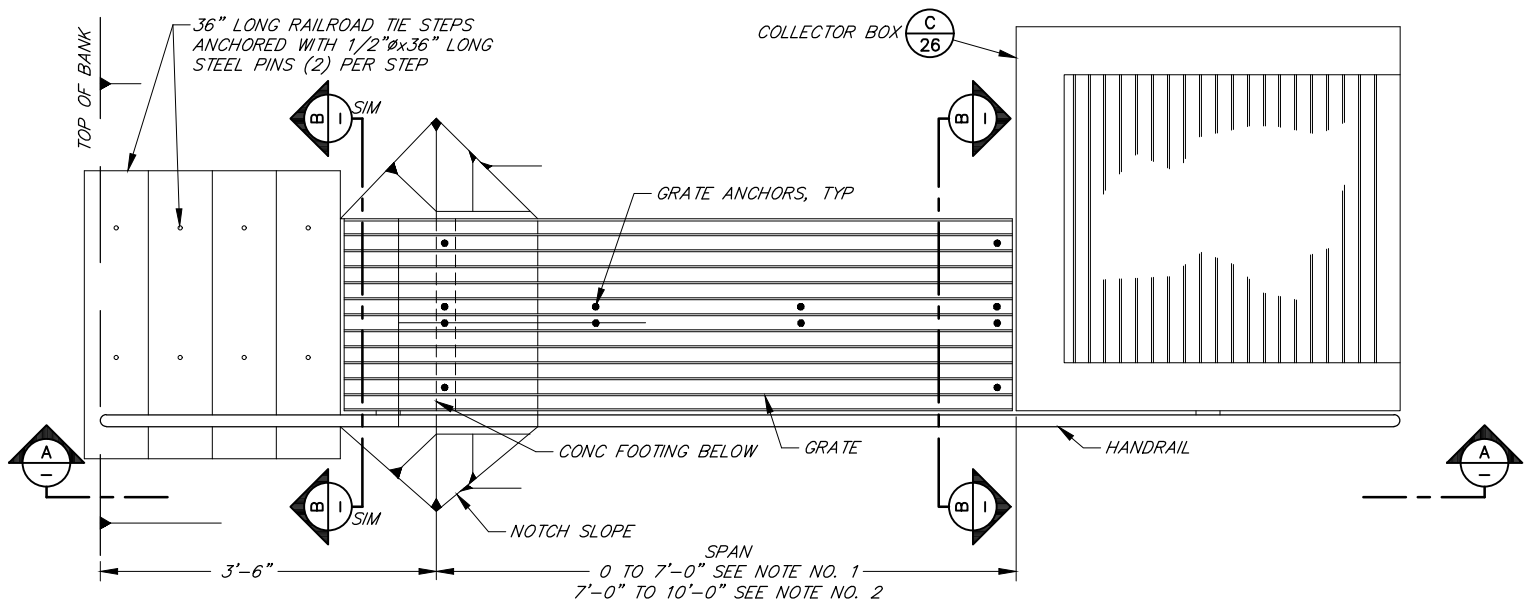
**SECTION**  
SCALE: 3"=1'-0"



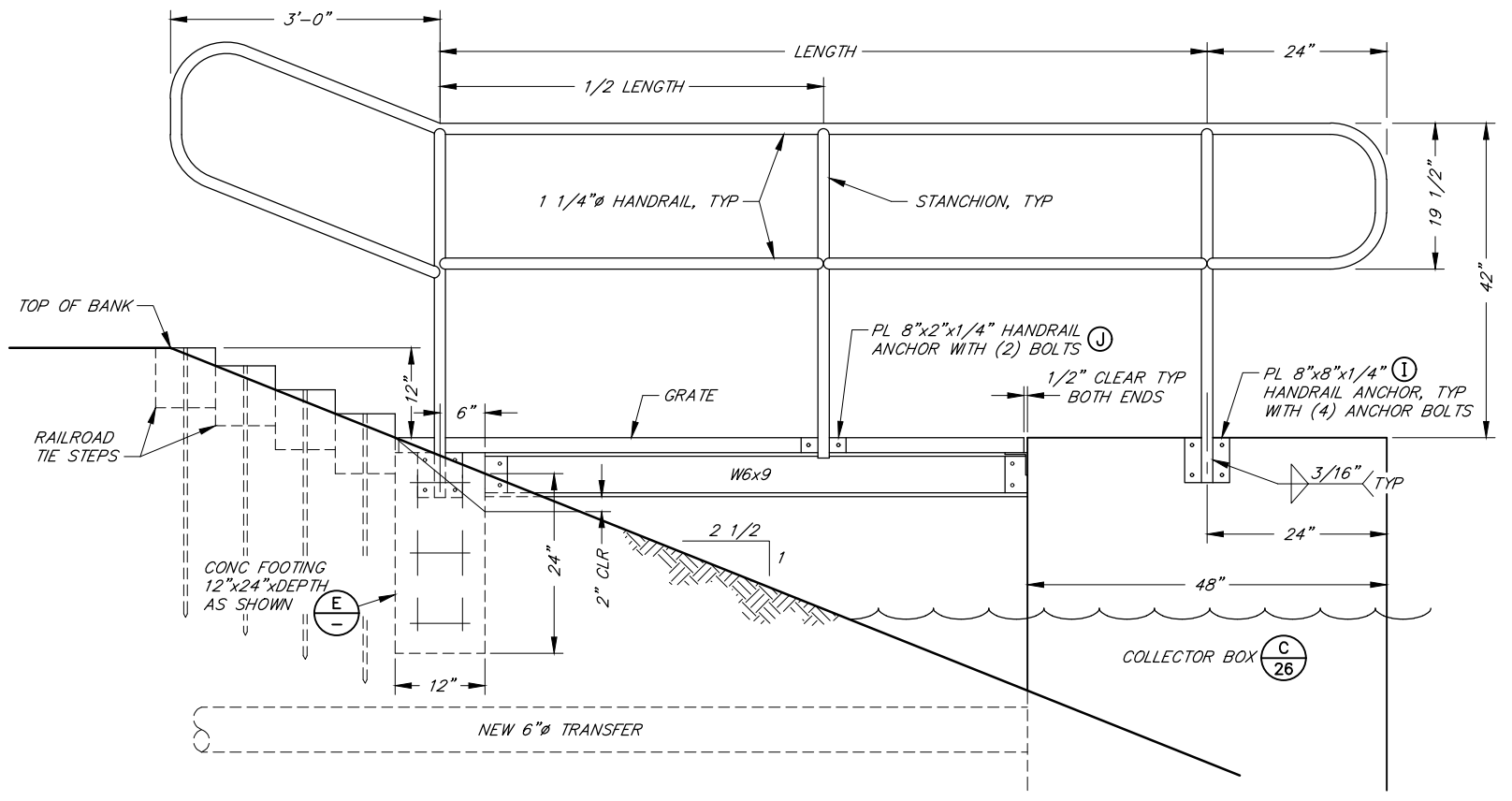
**DETAIL** SCALE: 3"=1'-0" **SECTION** SCALE: 3"=1'-0"

(A)	A36 L 3"x3"x1/4"x8 3/8" WITH (2) EA. 7/16"Ø HOLES
(B)	A325 TYPE 3 EXPANSION ANCHOR 3/8"x4" WITH WASHER
(C)	A36 L 3"x3"x1/4"x4 1/2" WITH (2) 9/16"Ø HOLES FOR ANCHORS & (2) 9/16"x1" SLOT FOR BOLTS
(D)	A36 W6x9
(E)	A325 TYPE 3 EXPANSION ANCHOR 1/2"x4" WITH WASHER
(F)	A325 TYPE 3 BOLT 1/2"x2" WITH FLAT WASHER & LOCK WASHER
(G)	2' WIDE GRATE
(H)	GRATE ANCHOR
(I)	A325 TYPE 3 EXPANSION ANCHOR 3/8" x 4" WITH WASHER
(J)	A325 TYPE 3 3/8" x 1" BOLT, NUT & LOCK WASHER

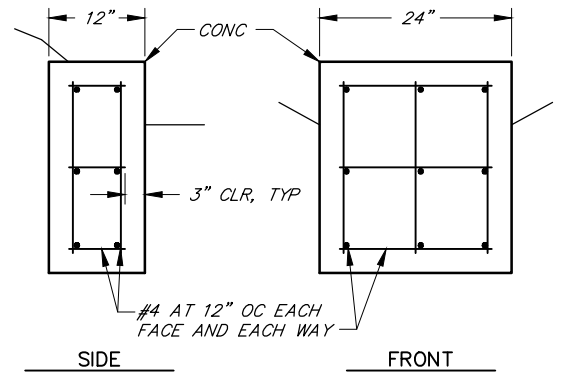
- NOTE:**
- IF SPAN IS LESS THAN 7'-0"  
DO NOT USE W6x9 BEAM AND CONNECTORS.  
USE 3"x3"x1/4"x24" LONG ANGLE AT BOTH ENDS
  - IF SPAN IS GREATER THAN 7'-0"  
USE W6x9 BEAM AND CONNECTORS WITH (2)  
3"x3"x1/4"x8 3/8" LONG ANGLE AT BOTH ENDS
  - GRIND ALL HANDRAIL WELDS SMOOTH



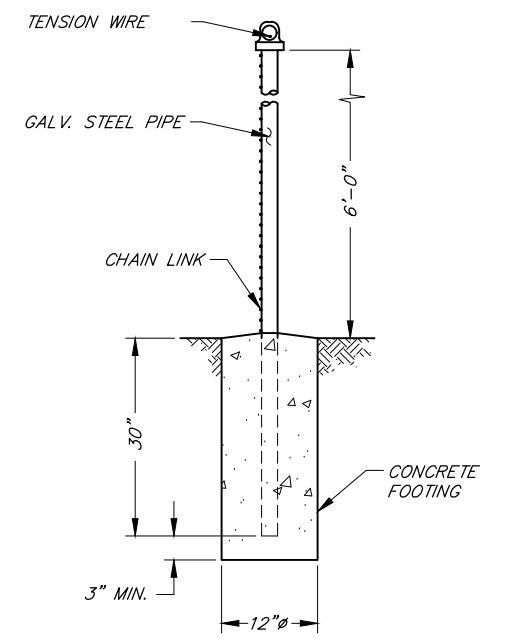
**CATWALK PLAN**  
SCALE: 1"=1'-0"



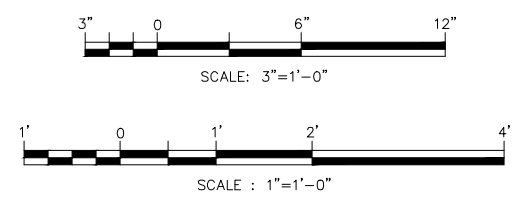
**SECTION**  
SCALE: 1"=1'-0"



**FOOTING DETAIL**  
SCALE: 1"=1'-0"

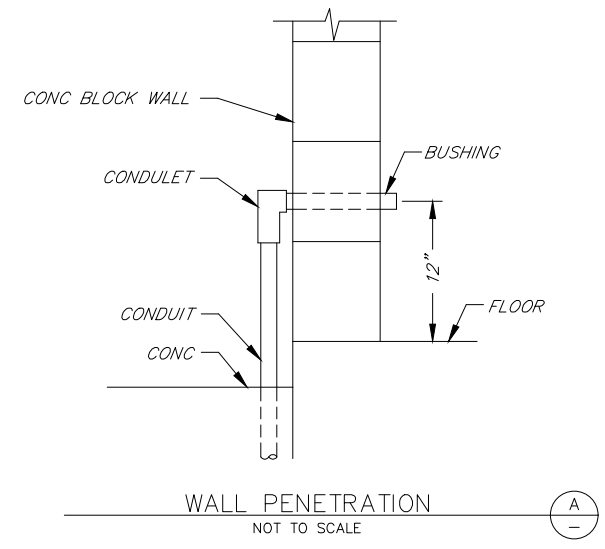
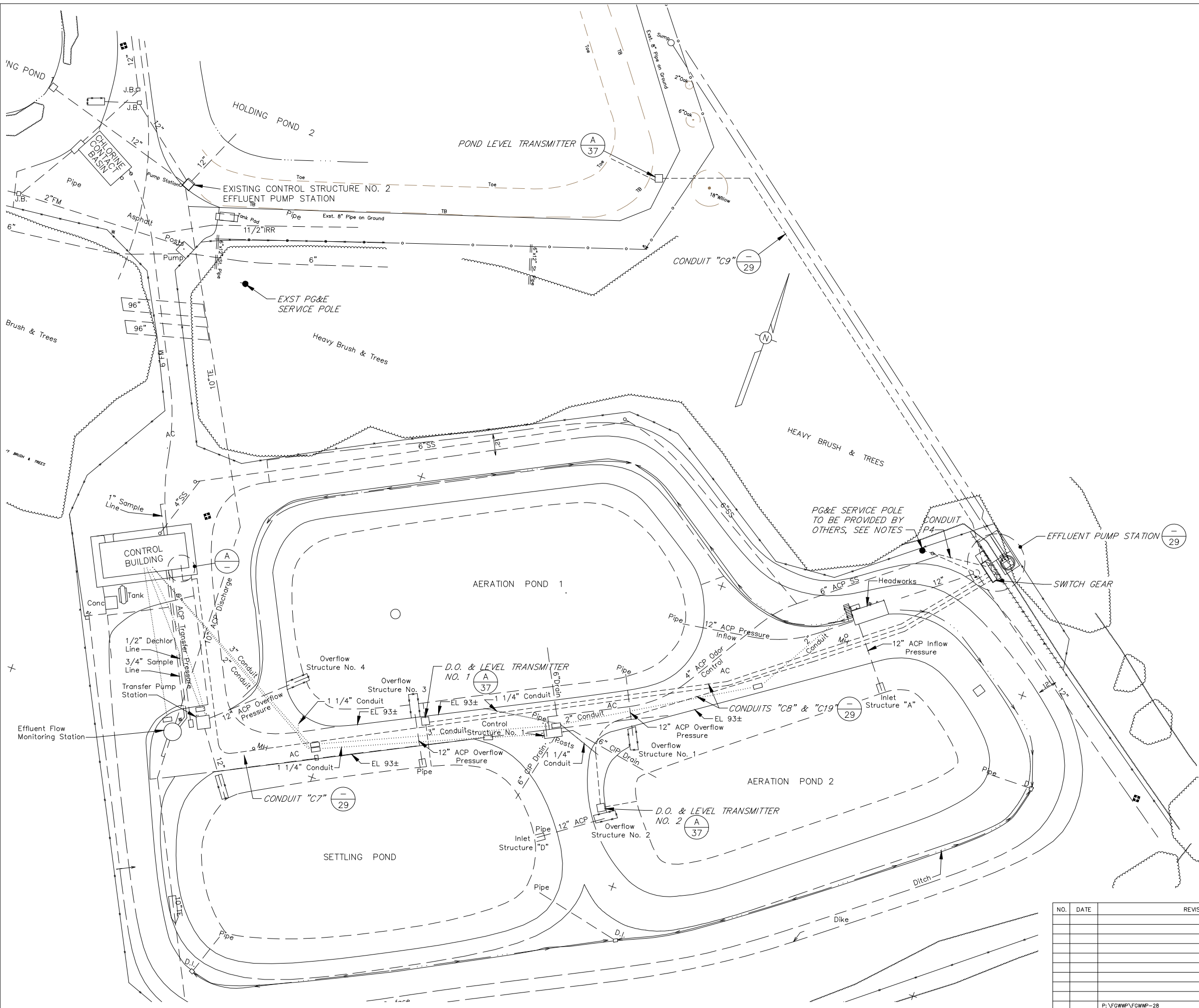


**CHAIN LINK FENCE DETAIL**  
NOT TO SCALE

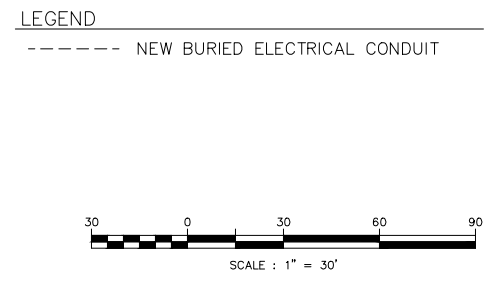


NO.	DATE	REVISION	BY

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
**MISCELLANEOUS DETAILS**  
 SCALE: AS SHOWN APPROVED: CHIEF ENGINEER RCE 33447 DRAWN: FJA  
 DATE: NOV 2, 1995 CHECKED:   
**SONOMA COUNTY WATER AGENCY**  
 DESIGNED: SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.25



- NOTES:
1. FOR TRENCHING DETAILS (21)
  2. FOR CONDUIT SCHEDULE (29)
  3. THE CONDUIT FROM THE PG&E SERVICE POLE AND THE METER SOCKET SHALL BE THE SIZE & TYPE REQUIRED BY PG&E AND SHALL BE INSTALLED PER PG&E REQUIREMENTS.
  4. ELECTRICAL SYSTEM SHALL BE GROUNDED AS REQUIRED BY PG&E.



NO.	DATE	REVISION	BY

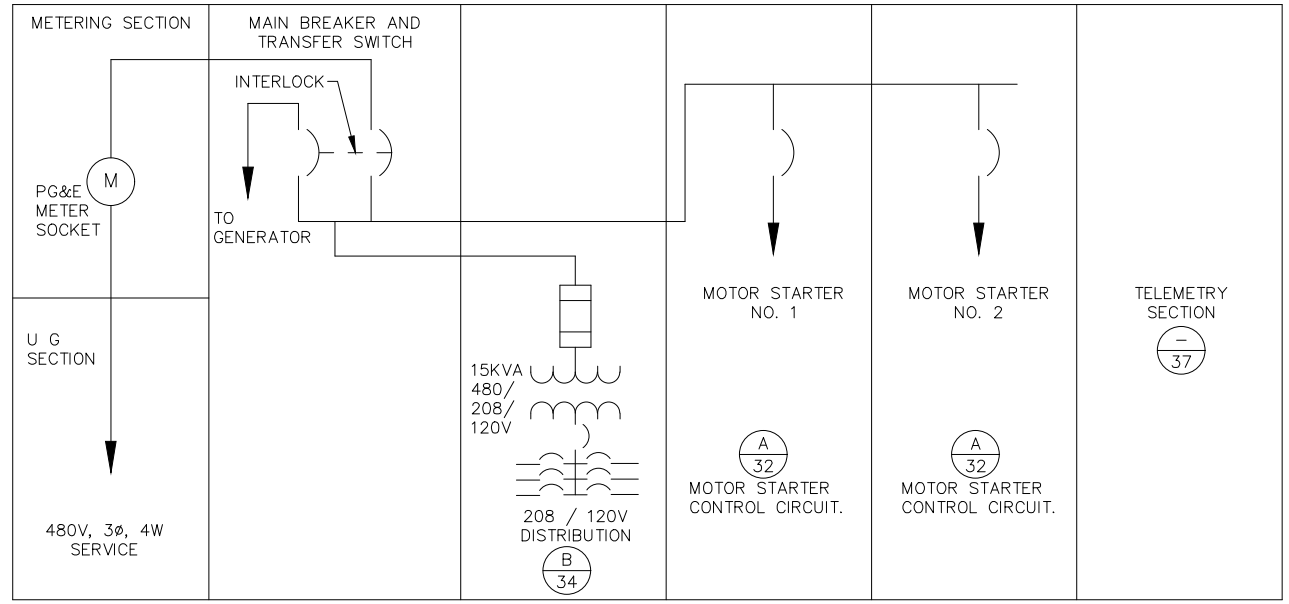
  

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2			
GRATON ELECTRICAL SITE PLAN			
SCALE: AS SHOWN	APPROVED	CHIEF ENGINEER RCE 33447	DRAWN: FJA/CBT
DATE: NOV 2, 1995	CHECKED:		
<b>SONOMA COUNTY WATER AGENCY</b>			
DESIGNED	CSC 106	SUBMITTED	RCE 23790
DRAWING NUMBER			70-2&3-102.26

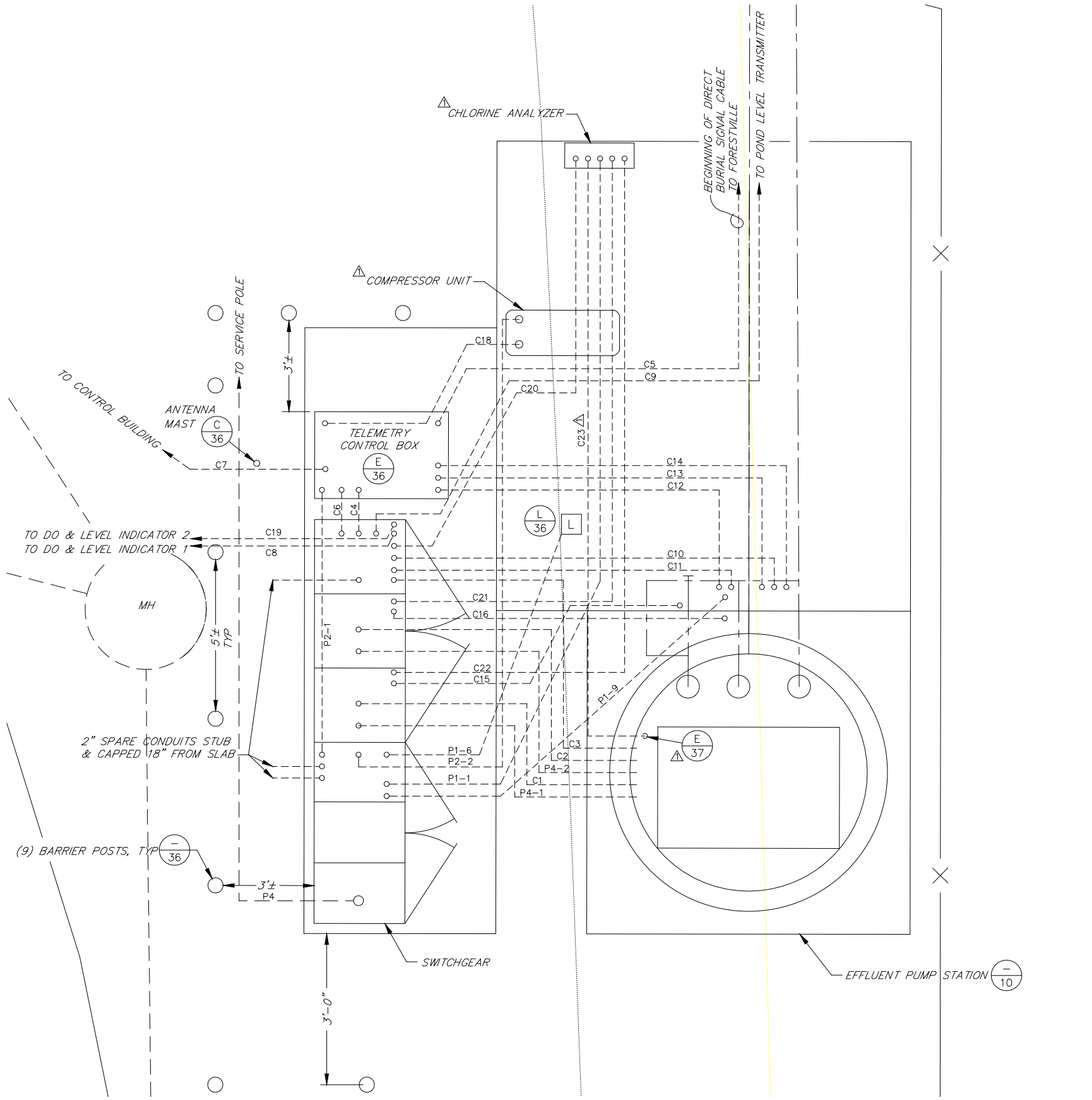
P:\FGWMP\FGWMP-28

CONDUIT SCHEDULE						
CONDUIT NO.	FROM	TO	WIRE NO.	CONDUIT SIZE	COMMENTS	
C1	STARTER NO. 1	MOTOR NO. 1	AS REQ AS REQ	3/4"	TEMPERATURE & MOISTURE DETECTORS	
C2	STARTER NO. 2	MOTOR NO. 2	AS REQ AS REQ	3/4"	TEMPERATURE & MOISTURE DETECTORS	
C3	PUMP CONTROLLER	TRANSDUCER	AS REQ AS REQ	1"	SIGNAL WIRING *	
C4	TELEMETRY SECTION	TELEMETRY CONTROL BOX	AS REQ AS REQ	2"	SIGNAL WIRING	
C5	TELEMETRY CONTROL BOX	SEE PLAN	AS REQ AS REQ	2"	SIGNAL WIRE TO FORESTVILLE ***	
C6	TELEMETRY SECTION	TELEMETRY CONTROL BOX	- -	2"	SPARE	
C7	TELEMETRY CONTROL BOX	CONTROL BUILDING	- -	2"	SIGNAL WIRING	
C8	TELEMETRY CONTROL BOX	D.O. & LEVEL INDICATOR 1	AS REQ AS REQ	1"	SIGNAL WIRING	
C9	TELEMETRY SECTION	POND LEVEL PROBE	AS REQ AS REQ	1"	SIGNAL WIRING	
C10	TELEMETRY SECTION	PRESSURE TRANSMITTER	AS REQ AS REQ	1"	SIGNAL WIRING	
C11	TELEMETRY SECTION	FLOW METER	AS REQ AS REQ	1"	SIGNAL WIRING	
C12	TELEMETRY CONTROL BOX	VALVE NO. GCV1	14 4	1"	SIGNAL WIRING	
C13	TELEMETRY CONTROL BOX	VALVE NO. GCV2	14 4	1"	SIGNAL WIRING	
C14	TELEMETRY CONTROL BOX	VALVE NO. GEOV	14 4	1"	SIGNAL WIRING	
C15	STARTER NO. 1	GEOV VALVE - SOLENOID	12 2	3/4"	120V SUPPLY	
C16	STARTER NO. 2	GEOV VALVE - SOLENOID	12 2	3/4"	120V SUPPLY	
C18	TELEMETRY CONTROL BOX	COMPRESSOR	14 2	1/2"	SIGNAL WIRING	
C19	TELEMETRY SECTION	D.O. & LEVEL INDICATOR 2	AS REQ AS REQ	1"	SIGNAL WIRING	
C20	TELEMETRY CONTROL BOX	CHLORINE ANALYZER	AS REQ AS REQ	1/2"	SIGNAL WIRING	
C21	CHLORINE ANALYZER	STARTER NO. 2	12 2	1/2"	SEE MOTOR CONTROL ON SHEET 32	
C22	CHLORINE ANALYZER	STARTER NO. 1	12 2	1/2"	SEE MOTOR CONTROL ON SHEET 32	
C23	CHLORINE ANALYZER	PROBE	AS REQ AS REQ	3/4"	SIGNAL WIRING	
P1-1	POWER PANEL	CHLORINE ANALYZER	12 3	1/2"	120V SUPPLY	
P1-2	POWER PANEL	LEVEL INDICATOR NO. 2	12 3	1/2" **	120V SUPPLY	
P1-3	POWER PANEL	D.O. INDICATOR NO. 1	12 3	1/2" **	120V SUPPLY	
P1-4	POWER PANEL	LEVEL INDICATOR NO. 1	12 3	1/2" **	120V SUPPLY	
P1-5	POWER PANEL	PUMP CONTROLLER	12 3	1/2" **	120V SUPPLY	
P1-6	POWER PANEL	LIGHT & RECEPTACLE	12 3	1/2"	120V SUPPLY	
P1-7	POWER PANEL	D.O. INDICATOR NO. 2	12 3	1/2" **	120V SUPPLY	
P1-8	POWER PANEL	POND LEVEL INDICATOR NO. 3	12 3	1/2" **	120V SUPPLY	
P1-9	POWER PANEL	PRESSURE TRANSMITTER	12 3	1/2"	120V SUPPLY	
P1-10	POWER PANEL	FLOW METER	12 3	1/2" **	120V SUPPLY	
P2-1	POWER PANEL	TELEMETRY CONTROL BOX	10 4	2"	120/208V SUPPLY	
P2-2	POWER PANEL	COMPRESSOR	12 3	1"	208V SUPPLY	
P4	SERVICE POLE	SWITCHGEAR		AS REQ	480V SERVICE	
P4-1	STARTER NO. 1	MOTOR NO. 1	2 3	2"	480V MOTOR LEADS	
P4-2	STARTER NO. 2	MOTOR NO. 2	2 3	2"	480V MOTOR LEADS	

\* CABLE MUST RUN IN A GROUNDED METAL CONDUIT  
 \*\* RUN IN CONDUIT OR RACEWAY  
 \*\*\* TERMINATE ON TERMINAL STRIP



MAIN SWITCHGEAR & MOTOR CONTROL CENTER ONE LINE DIAGRAM  
 (ENCLOSURE NOT SHOWN)  
 NOT TO SCALE



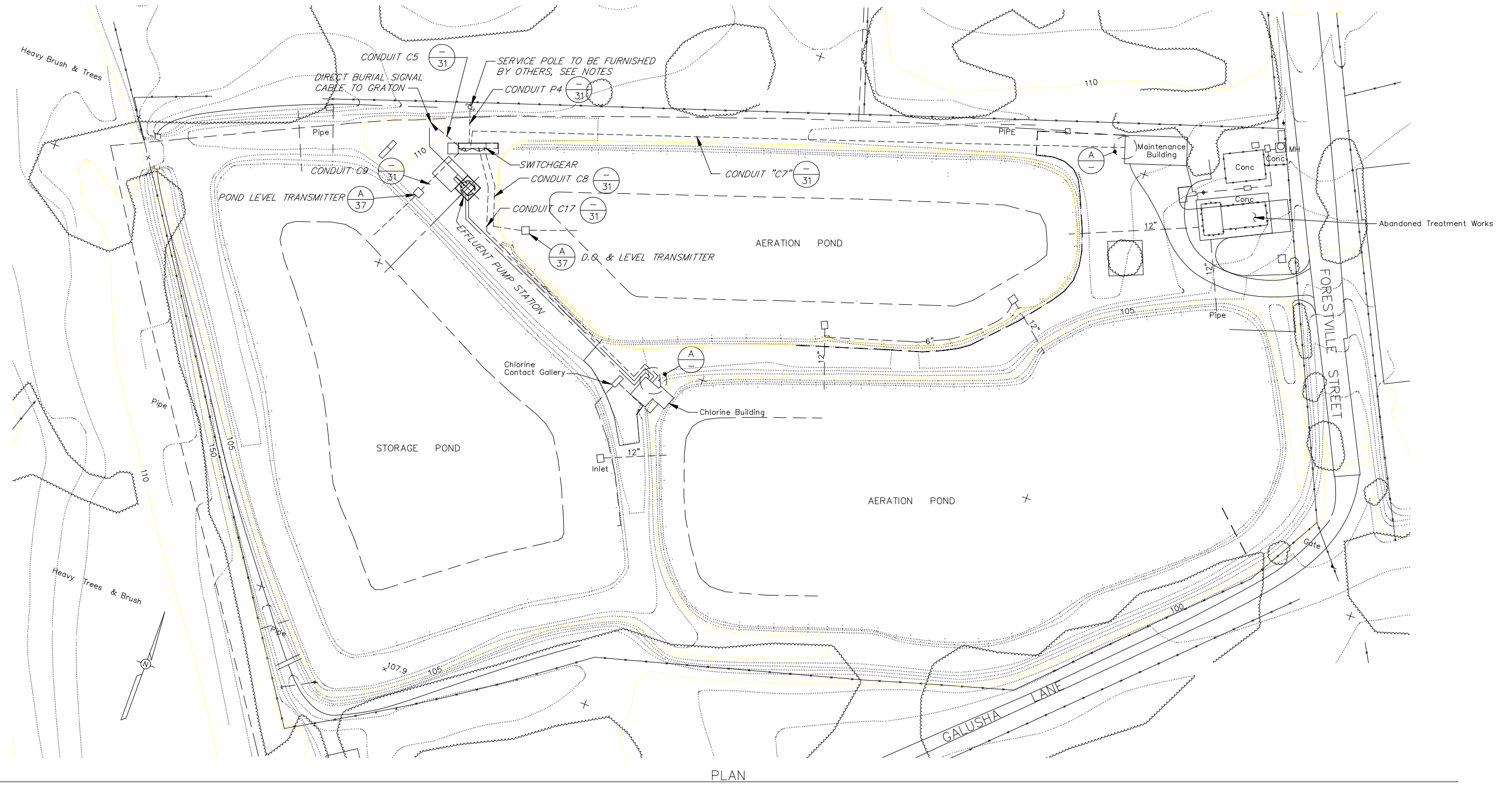
SYMBOLS  
 --- BURIED ELECTRICAL CONDUIT  
 [L] LIGHT & RECEPTACLE

NO.	DATE	REVISION	BY
1	11/27/95	ADDENDUM NO. 1	ADF

DESIGNED: P:\FGWMP\FGWMP-29  
 SUBMITTED: RCE 23790  
 DRAWING NUMBER: 70-2&3-102.27

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
 GRATON ELECTRICAL PLAN & DETAILS  
 SCALE: AS SHOWN APPROVED: CHIEF ENGINEER RCE 33447 DRAWN: FJA  
 DATE: NOV 2, 1995 CHECKED:

**SONOMA COUNTY WATER AGENCY**



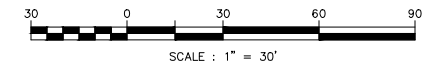
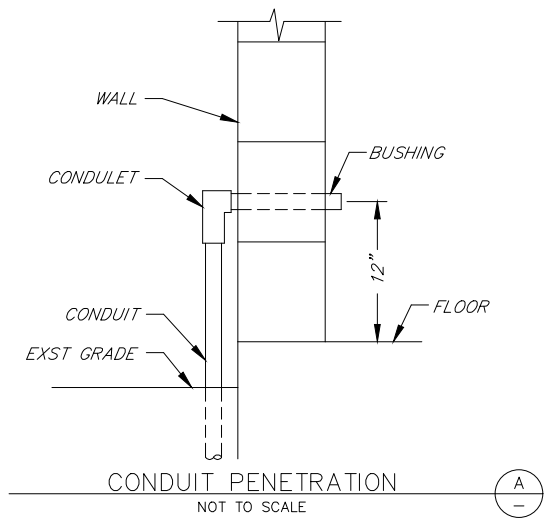
PLAN

NOTES:

1. FOR TRENCHING DETAILS (21)
2. FOR CONDUIT SCHEDULE (31)
3. THE CONDUIT FROM THE PG&E SERVICE POLE AND THE METER SOCKET SHALL BE THE SIZE & TYPE REQUIRED BY PG&E AND SHALL BE INSTALLED PER PG&E REQUIREMENTS.
4. ELECTRICAL SYSTEM SHALL BE GROUNDED AS REQUIRED BY PG&E.

SYMBOLS

----- NEW BURIED ELECTRICAL CONDUIT



NO.	DATE	REVISION	BY

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
 FORESTVILLE ELECTRICAL SITE PLAN

SCALE: AS SHOWN    APPROVED: CHIEF ENGINEER RCE 33447    DRAWN: FJA  
 DATE: NOV 2, 1995    CHECKED:

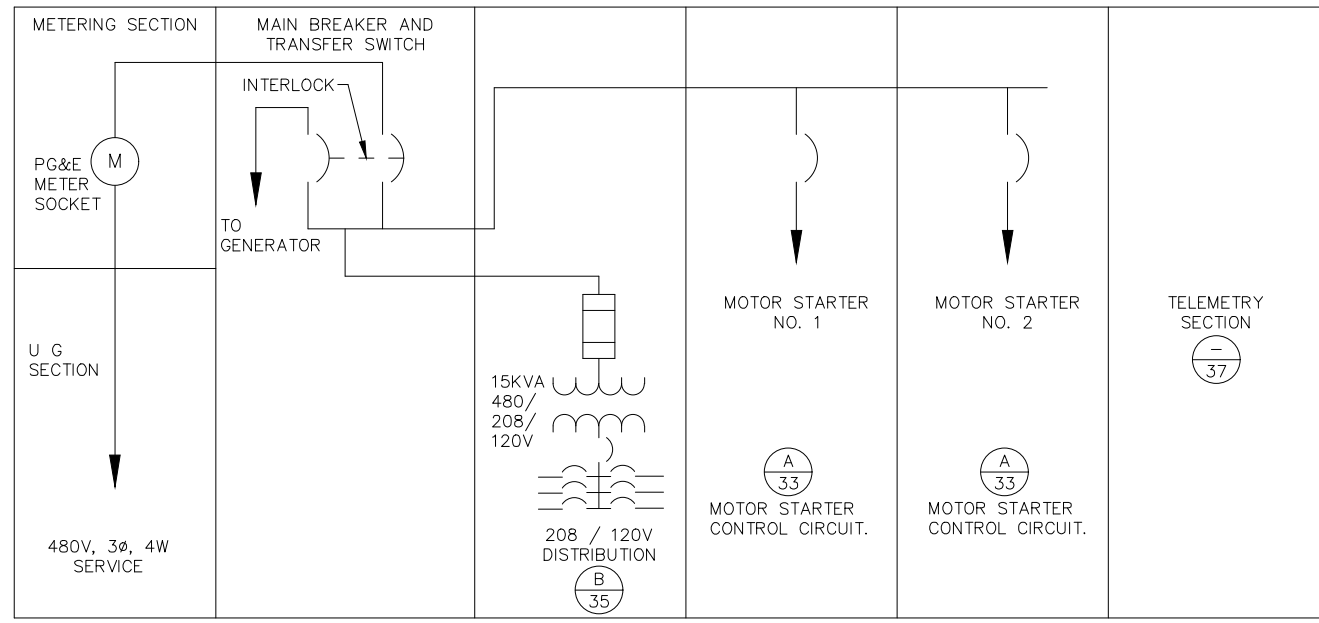
**SONOMA COUNTY WATER AGENCY**

DESIGNED: CSC 106    SUBMITTED: RCE 23790    DRAWING NUMBER: 70-2&3-102.286

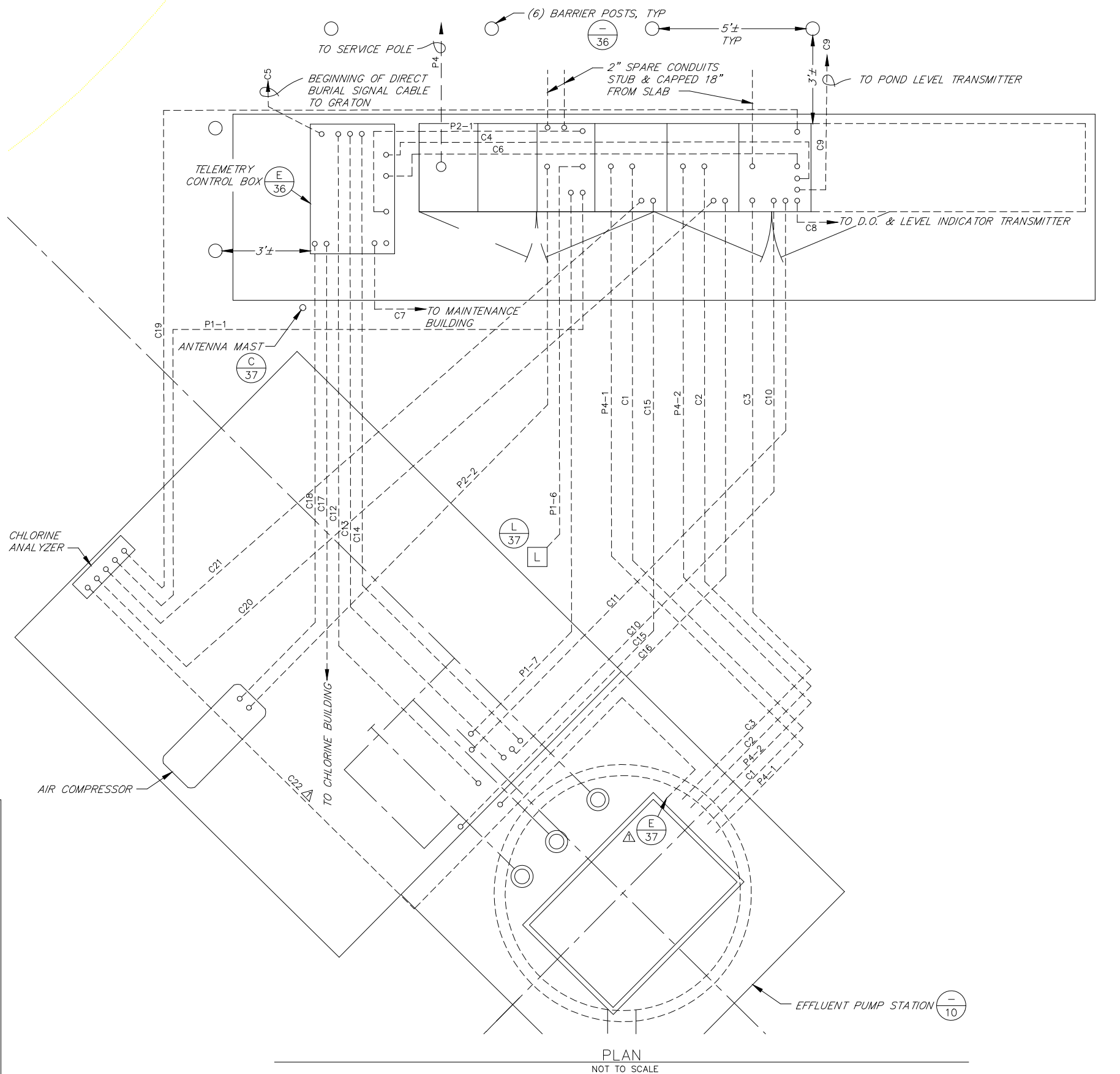
P:\FGWMP\FGWMP-30

CONDUIT SCHEDULE						
CONDUIT NO.	FROM	TO	WIRE SIZE	WIRE NO.	CONDUIT SIZE	COMMENTS
C1	STARTER NO. 1	MOTOR NO. 1	AS REQ	AS REQ	3/4"	TEMPERATURE & MOISTURE DETECTORS
C2	STARTER NO. 2	MOTOR NO. 2	AS REQ	AS REQ	3/4"	TEMPERATURE & MOISTURE DETECTORS
C3	PUMP CONTROLLER	TRANSUDUCER	AS REQ	AS REQ	1"	SIGNAL WIRING *
C4	TELEMETRY SECTION	TELEMETRY CONTROL BOX	AS REQ	AS REQ	2"	SIGNAL WIRING
C5	TELEMETRY CONTROL BOX	SEE PLAN	AS REQ	AS REQ	2"	SIGNAL WIRE TO GRATON ***
C6	TELEMETRY SECTION	TELEMETRY CONTROL BOX	-	-	2"	SPARE
C7	TELEMETRY CONTROL BOX	MAINTENANCE BUILDING	-	-	2"	SIGNAL WIRING
C8	TELEMETRY SECTION	D.O. & LEVEL TRANSMITTER	AS REQ	AS REQ	1"	SIGNAL WIRING
C9	TELEMETRY SECTION	POND LEVEL TRANSMITTER	AS REQ	AS REQ	1"	SIGNAL WIRING
C10	TELEMETRY SECTION	PRESSURE TRANSMITTER	AS REQ	AS REQ	1"	SIGNAL WIRING
C11	TELEMETRY SECTION	FLOW METER	AS REQ	AS REQ	1"	SIGNAL WIRING
C12	TELEMETRY CONTROL BOX	VALVE NO. FCV1	14	4	1"	SIGNAL WIRING
C13	TELEMETRY CONTROL BOX	VALVE NO. FCV2	14	4	1"	SIGNAL WIRING
C14	TELEMETRY CONTROL BOX	VALVE NO. FEOV	14	4	1"	SIGNAL WIRING
C15	STARTER NO. 1	FEOV VALVE - SOLENOID	12	2	3/4"	120V SUPPLY
C16	STARTER NO. 2	FEOV VALVE - SOLENOID	12	2	3/4"	120V SUPPLY
C17	TELEMETRY CONTROL BOX	CHLORINE BUILDING	-	-	2"	SIGNAL WIRING
C18	TELEMETRY CONTROL BOX	COMPRESSOR	14	2	1/2"	SIGNAL WIRING
C19	TELEMETRY SECTION	CHLORINE ANALYZER	AS REQ	AS REQ	1/2"	SIGNAL WIRING
C20	CHLORINE ANALYZER	STARTER NO. 2	12	2	1/2"	SEE MOTOR CONTROL ON SHEET NO. 33
C21	CHLORINE ANALYZER	STARTER NO. 1	12	2	1/2"	SEE MOTOR CONTROL ON SHEET NO. 33
C22	CHLORINE ANALYZER	PROBE	AS REQ	AS REQ	3/4"	SIGNAL WIRING
P1-1	POWER PANEL	CHLORINE ANALYZER	12	3	1/2"	120V SUPPLY
P1-2	POWER PANEL	LEVEL INDICATOR NO. 2	12	3	1/2" **	120V SUPPLY
P1-3	POWER PANEL	D.O. INDICATOR	12	3	1/2" **	120V SUPPLY
P1-4	POWER PANEL	LEVEL INDICATOR NO. 1	12	3	1/2" **	120V SUPPLY
P1-5	POWER PANEL	PUMP CONTROLLER	12	3	1/2" **	120V SUPPLY
P1-6	POWER PANEL	LIGHT & RECEPTACLE	12	3		120V SUPPLY
P1-7	POWER PANEL	PRESSURE TRANSMITTER	12	3	1/2"	120V SUPPLY
P1-8	POWER PANEL	FLOW METER	12	3	1/2" **	120V SUPPLY
P2-1	POWER PANEL	TELEMETRY CONTROL BOX	10	4	2"	120/208V SUPPLY
P2-2	POWER PANEL	COMPRESSOR	12	3	1"	208V SUPPLY
P4	SERVICE POLE	SWITCHGEAR			4"	480V SERVICE
P4-1	STARTER NO. 1	MOTOR NO. 1	2	3	2"	480V MOTOR LEADS
P4-2	STARTER NO. 2	MOTOR NO. 2	2	3	2"	480V MOTOR LEADS

\* CABLE MUST RUN IN A GROUNDED METAL CONDUIT  
 \*\* RUN IN CONDUIT OR RACEWAY  
 \*\*\* TERMINATE ON TERMINAL STRIP



MAIN SWITCHGEAR & MOTOR CONTROL CENTER ONE LINE DIAGRAM  
 (ENCLOSURE NOT SHOWN)  
 NOT TO SCALE



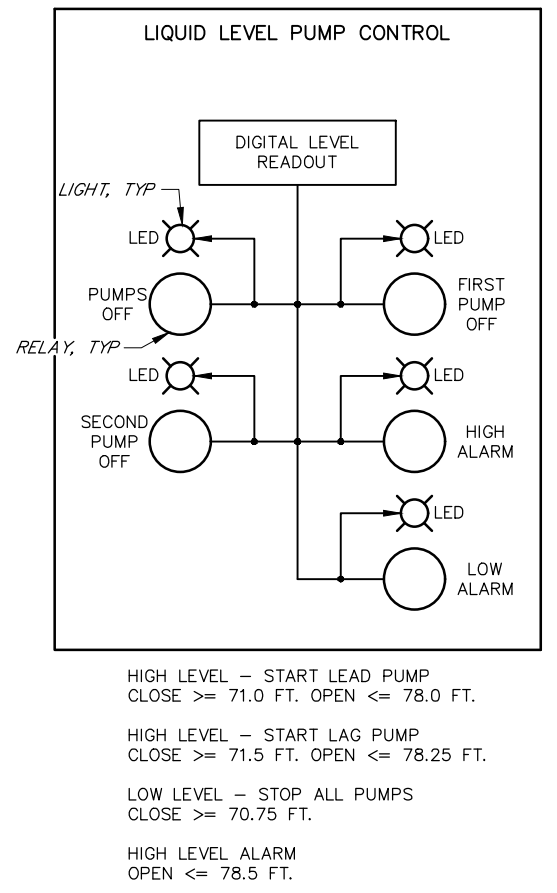
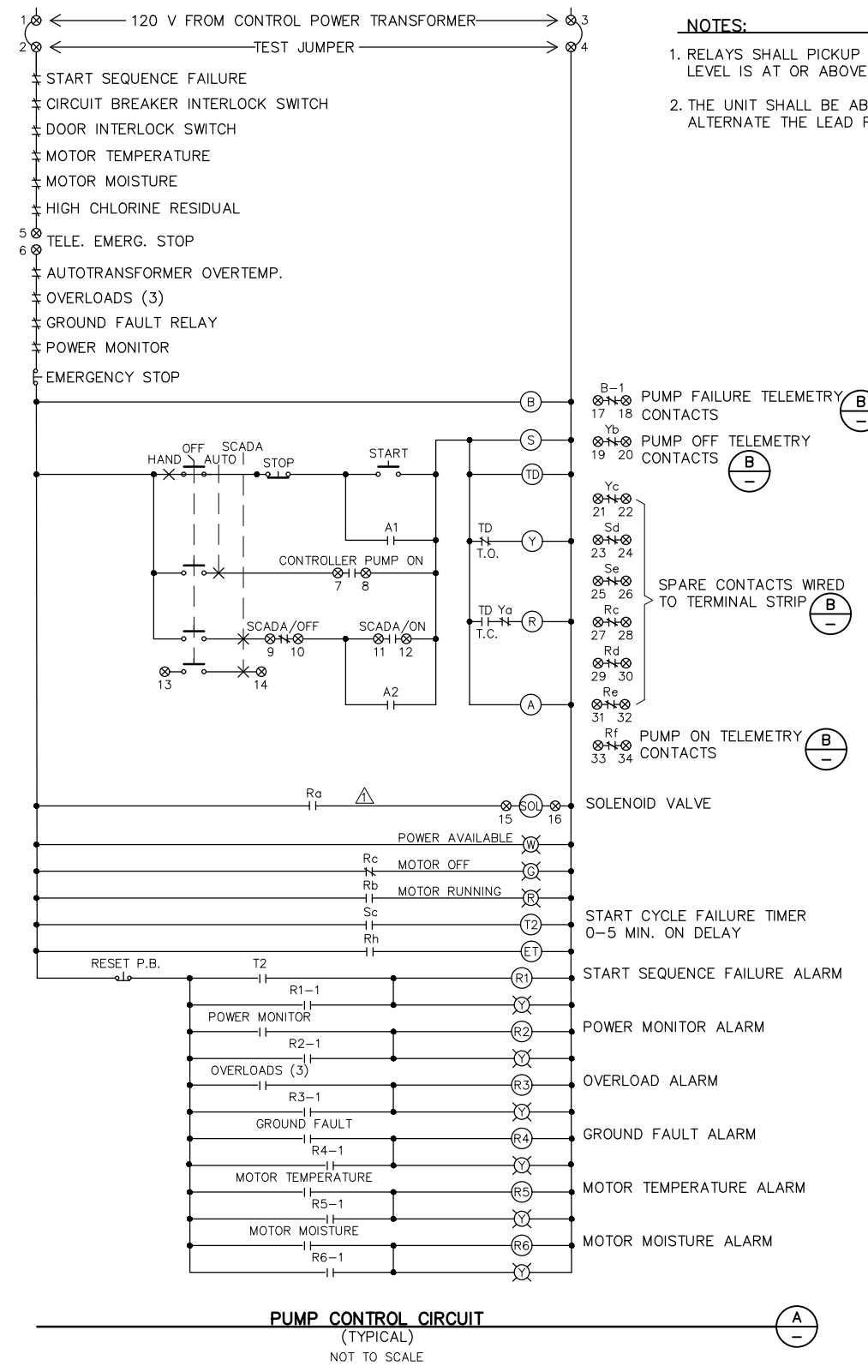
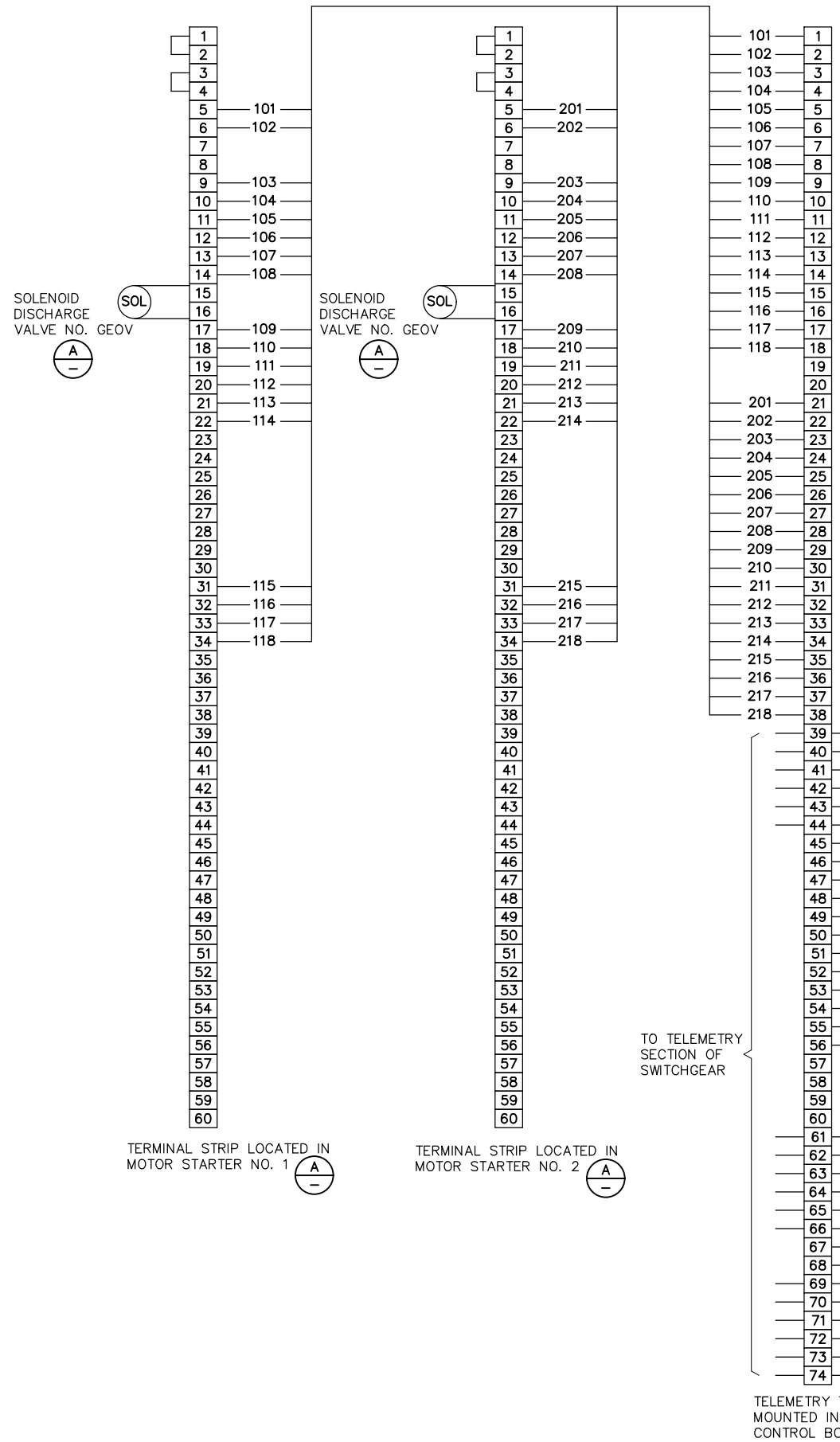
SYMBOLS  
 - - - - - BURIED ELECTRICAL CONDUIT  
 [ L ] LIGHT & RECEPTACLE

NO.	DATE	REVISION	BY
Δ	11/27/95	ADDENDUM NO. 1	ADF

DESIGNED: CSC 106 SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.29

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
 FORESTVILLE ELECTRICAL PLAN & DETAILS  
 SCALE: AS SHOWN APPROVED: CHIEF ENGINEER RCE 33447 DRAWN: FJA  
 DATE: NOV 2, 1995 CHECKED:

**SONOMA COUNTY WATER AGENCY**

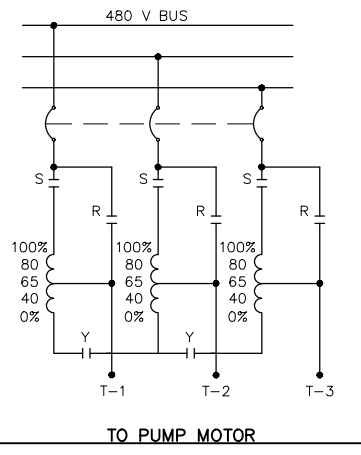


**NOTES**

- RELAY CONTACTS SHOWN WITH STARTER DE-ENERGIZED

**SYMBOLS**

- INDICATING LIGHT
- (A) RELAY NUMBER
- (SOL) SOLENOID
- ⊗ TERMINAL STRIP IN MOTOR STARTER SECTION (B)
- (T) TIMER



NO.	DATE	REVISION	BY
1	11/27/95	ADDENDUM NO. 1	

DESIGNED: CSC 106 SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.30

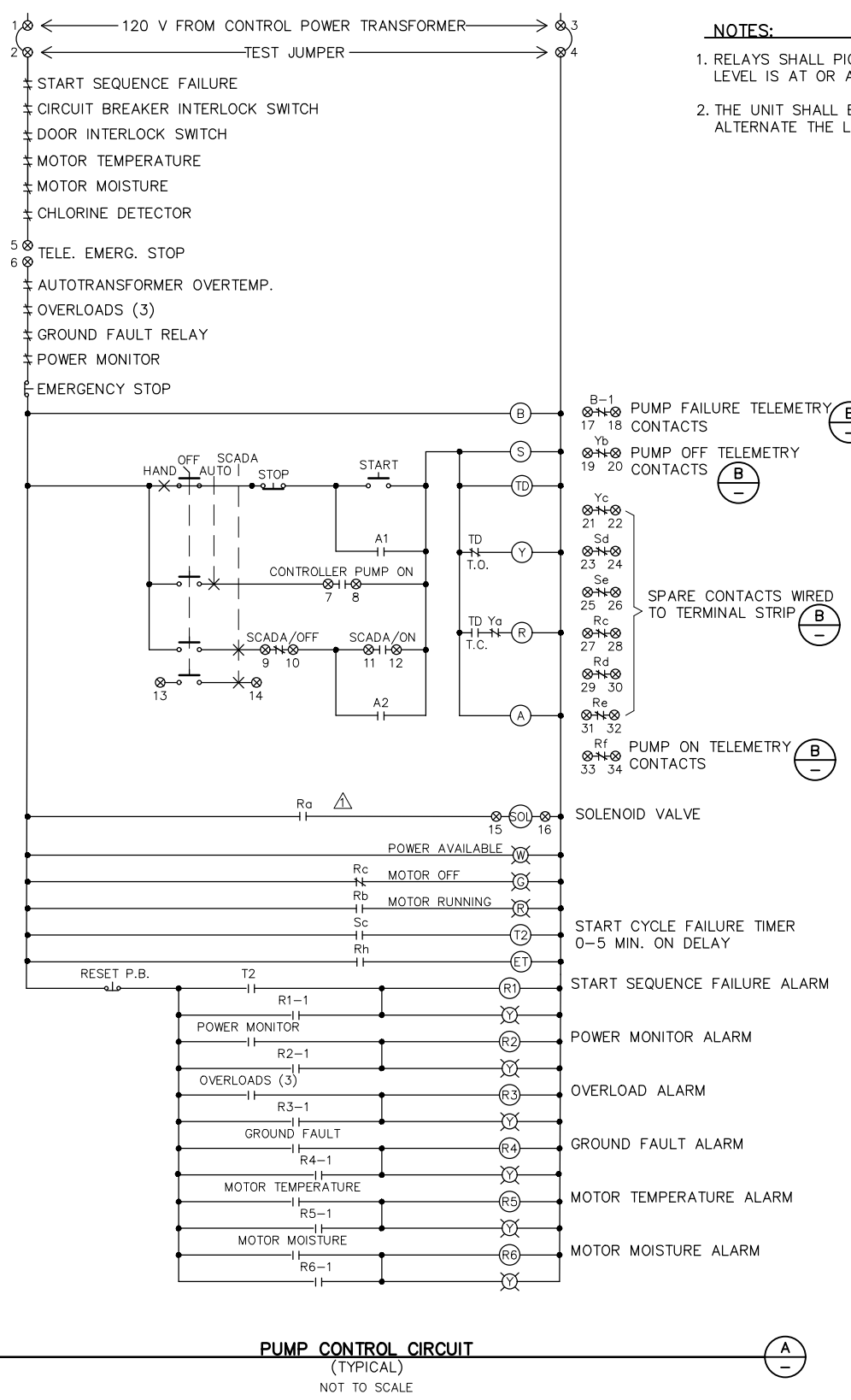
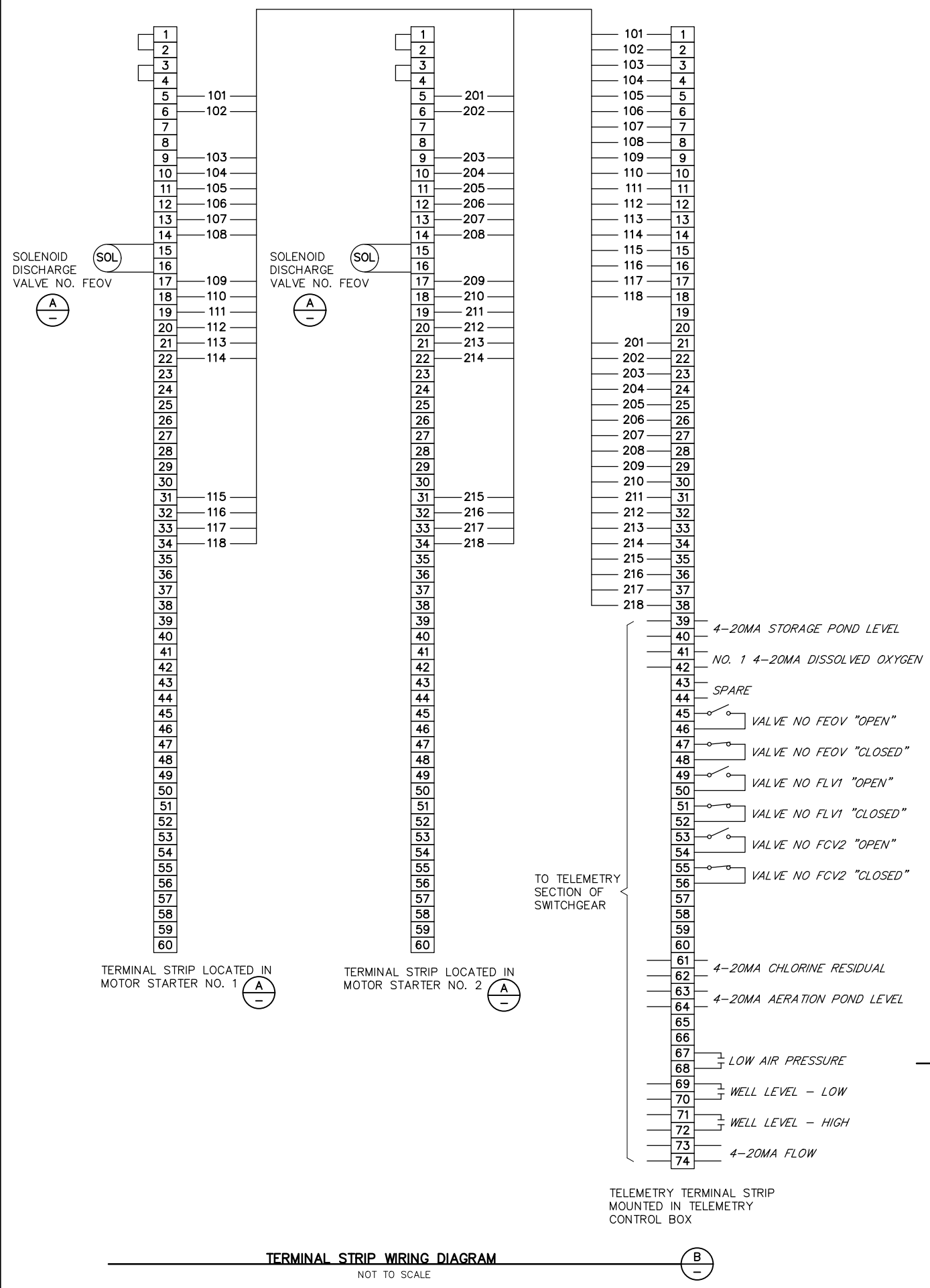
FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
**GRATON MOTOR CONTROL CIRCUIT & DETAILS**

SCALE: AS SHOWN APPROVED: CHIEF ENGINEER RCE 33447 DRAWN: FJA/DJT  
DATE: NOV 2, 1995 CHECKED:

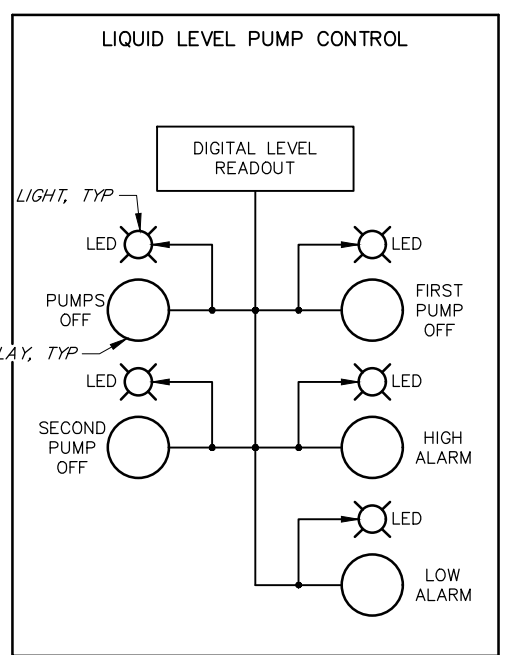
**SONOMA COUNTY WATER AGENCY**

P:\FGWMP\FGWMP-32



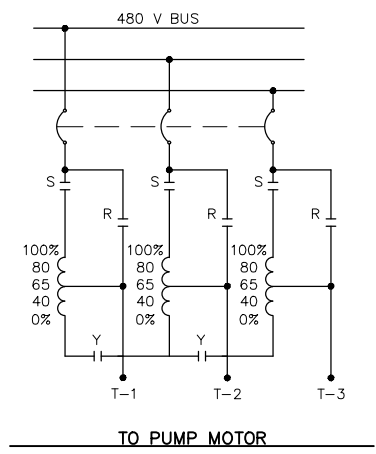


- NOTES:**
- RELAYS SHALL PICKUP WHEN LEVEL IS AT OR ABOVE SETPOINT
  - THE UNIT SHALL BE ABLE TO ALTERNATE THE LEAD PUMP



- HIGH LEVEL - START LEAD PUMP  
CLOSE  $\geq$  86.0 FT. OPEN  $\leq$  93.0 FT.
- HIGH LEVEL - START LAG PUMP  
CLOSE  $\geq$  86.5 FT. OPEN  $\leq$  93.25 FT.
- LOW LEVEL - STOP ALL PUMPS  
CLOSE  $\geq$  85.75 FT.
- HIGH LEVEL ALARM  
OPEN  $\leq$  93.5 FT.

- NOTES**
- RELAY CONTACTS SHOWN WITH STARTER DE-ENERGIZED
- SYMBOLS**
- INDICATING LIGHT
  - RELAY NUMBER
  - SOLENOID
  - TERMINAL STRIP IN MOTOR STARTER SECTION
  - TIMER



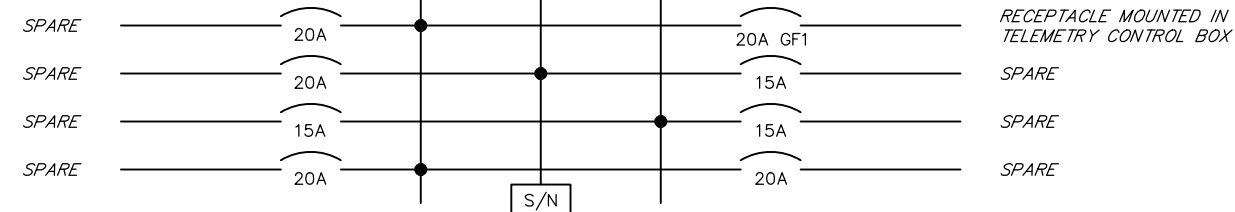
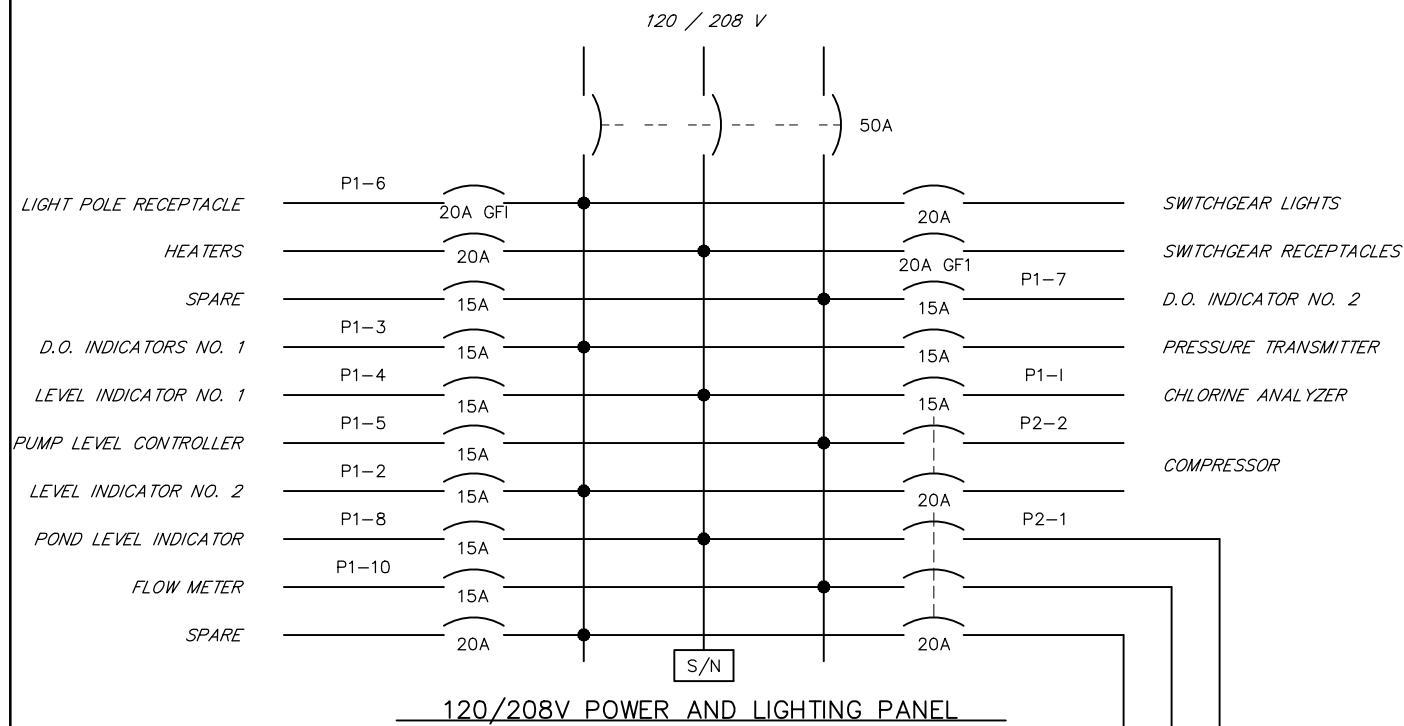
NO.	DATE	REVISION	BY
1	11/27/95	ADDENDUM NO. 1	ADF

DESIGNED: CSC 106 SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.31

APPROVED: CHIEF ENGINEER RCE 33447 DRAWN: FJA/DJT CHECKED:

**SONOMA COUNTY WATER AGENCY**

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
**FORESTVILLE MOTOR CONTROL CIRCUIT & DETAILS**



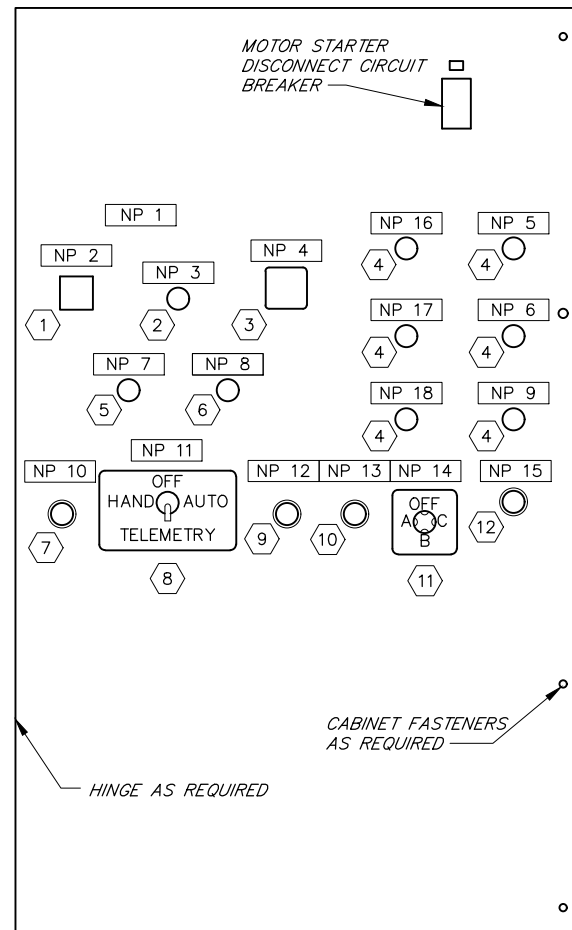
120/208V POWER PANELS

SEE WIRE AND CONDUIT SCHEDULE

NOT TO SCALE

B

29



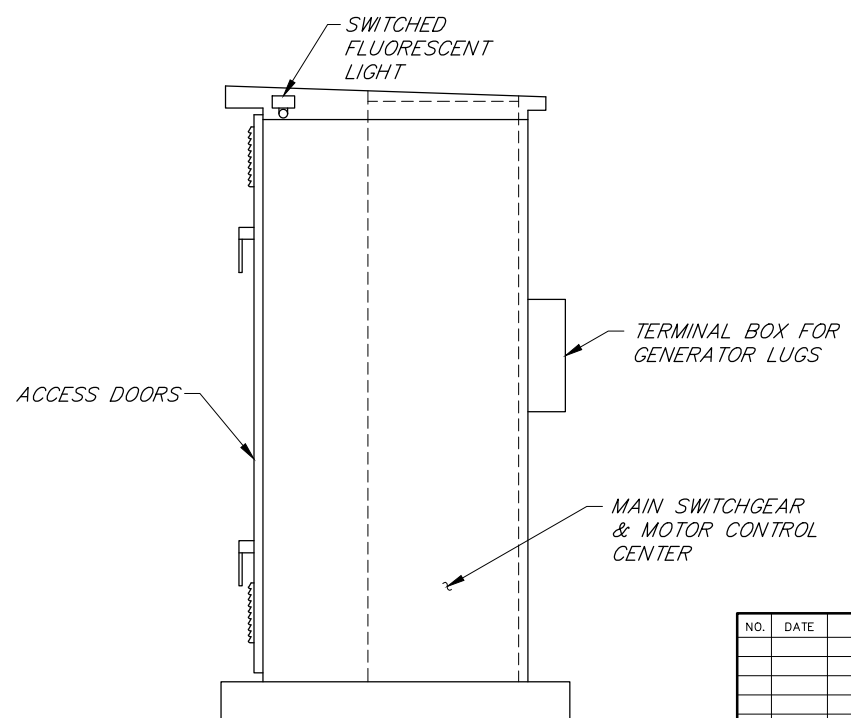
LEGEND

NP 10 NAME PLATE NO. 10

5 MATERIAL LIST ITEM NO. 5

MOTOR STARTER FRONT PANEL LAYOUT

NOT TO SCALE



SIDE ELEVATION - OUTDOOR ENCLOSURE

NOT TO SCALE

NAMEPLATES		
NUMBER	DESCRIPTION	MATERIAL
NP 1	PUMP NO. (1 OR 2) MOTOR STARTER	PHENOLIC
NP 2	HOUR METER	"
NP 3	POWER AVAILABLE	"
NP 4	AMMETER	"
NP 5	MOTOR OVERLOAD	"
NP 6	POWER MONITOR	"
NP 7	MOTOR RUNNING	"
NP 8	MOTOR STOPPED	"
NP 9	SEQUENCE FAILURE	"
NP 10	EMERGENCY STOP	"
NP 11	HAND-OFF-AUTO-TELEMETRY SWITCH	AS REQ'D
NP 12	START	PHENOLIC
NP 13	STOP	"
NP 14	AMMETER SWITCH	"
NP 15	ALARM RESET	"
NP 16	GROUND FAULT	"
NP 17	MOTOR TEMPERATURE	"
NP 18	MOTOR MOISTURE	"

MATERIAL LIST	
NUMBER	DESCRIPTION
1	ELAPSED TIME METER 0-99,999.9 HOURS
2	WHITE INDICATING LIGHT 120 VAC
3	AMMETER
4	YELLOW INDICATING LIGHT 120 VAC
5	RED INDICATING LIGHT 120 VAC
6	GREEN INDICATING LIGHT 120 VAC
7	EMERGENCY STOP PUSHBUTTON-RED-ONE N.C.
8	HAND-OFF-AUTO-TELEMETRY SWITCH
9	START PUSHBUTTON-RED
10	STOP PUSHBUTTON-GREEN
11	3 PHASE AMMETER SWITCH
12	RESET PUSHBUTTON-YELLOW

NOTE

1. ALL PHENOLIC NAMEPLATES SHALL BE WHITE LETTERING ON BLACK BACKGROUND. LETTERING SHALL BE 1/2-INCH HIGH.

NO.	DATE	REVISION	BY

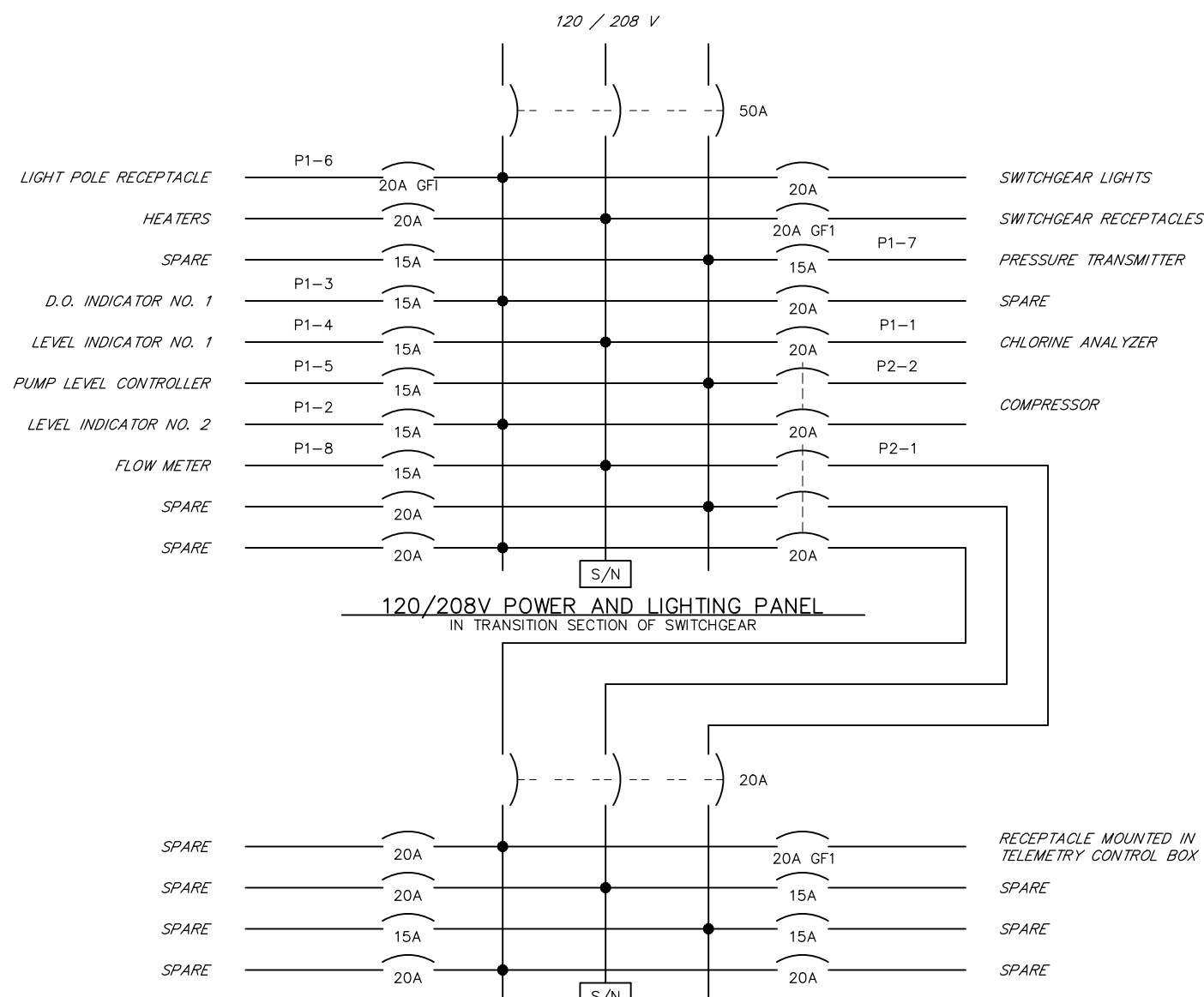
FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
GRATON MISC. ELECTRICAL DETAILS

SCALE : AS SHOWN APPROVED CHIEF ENGINEER RCE 33447 DRAWN : DJT/CBT/FJA  
DATE : NOV 2, 1995 CHECKED :

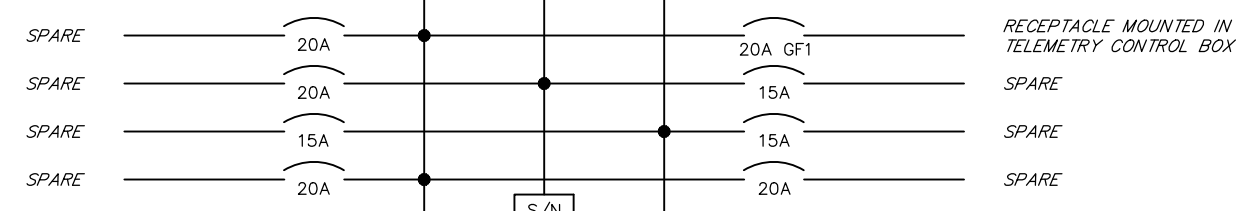
**SONOMA COUNTY WATER AGENCY**

DESIGNED CSC 106 SUBMITTED RCE 23790 DRAWING NUMBER 70-2&3-102.32

P:\FGWMP\FGWMP-34

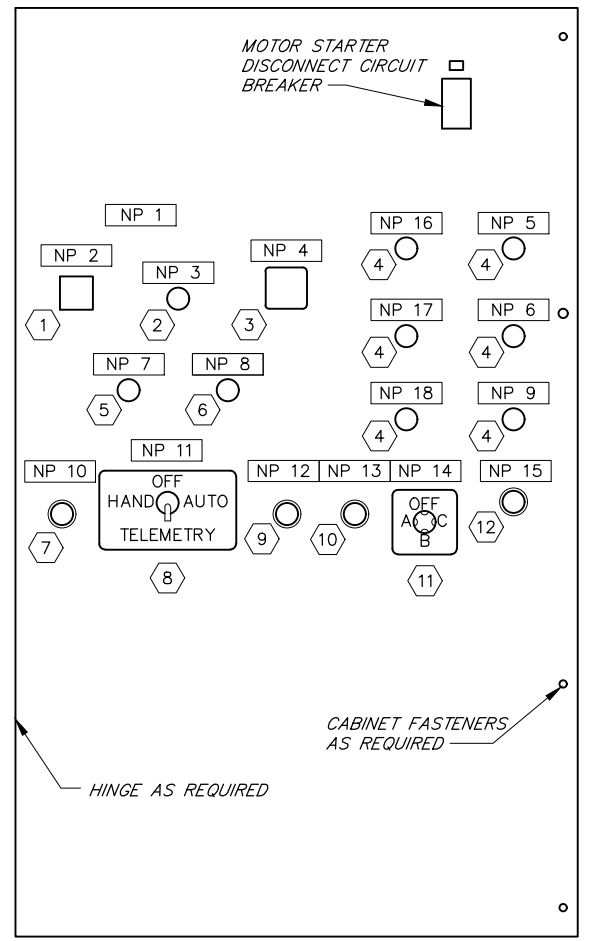


**120/208V POWER AND LIGHTING PANEL**  
IN TRANSITION SECTION OF SWITCHGEAR

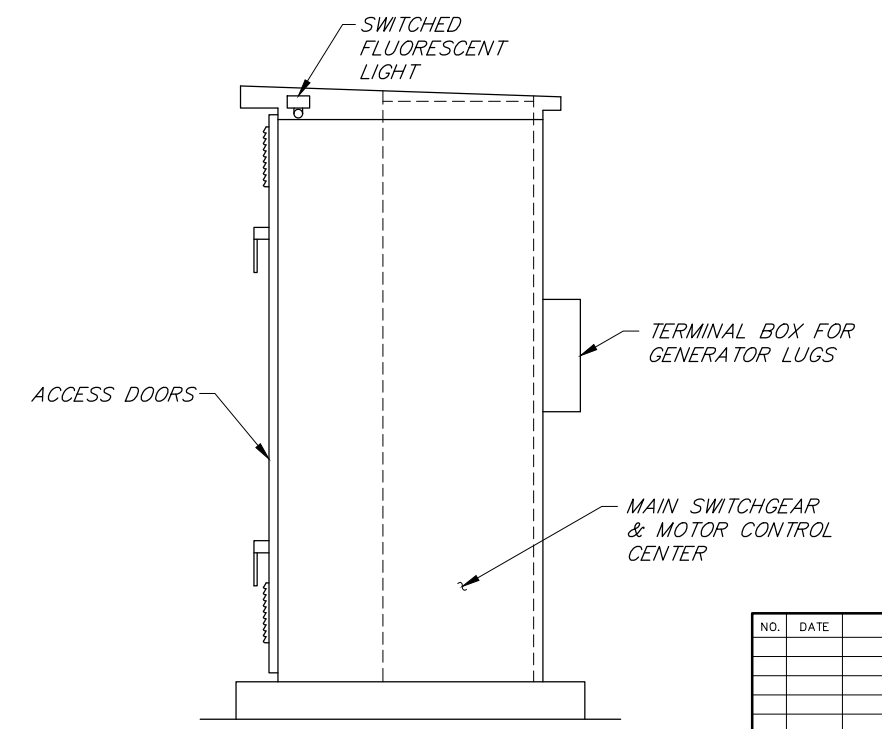


**120/208V POWER PANEL IN TELEMETRY CONTROL BOX**

**120/208V POWER PANELS**  
SEE WIRE AND CONDUIT SCHEDULE  
NOT TO SCALE



**MOTOR STARTER FRONT PANEL LAYOUT**  
NOT TO SCALE



**SIDE ELEVATION - OUTDOOR ENCLOSURE**  
NOT TO SCALE

NAMEPLATES		
NUMBER	DESCRIPTION	MATERIAL
NP 1	PUMP NO. (1 OR 2) MOTOR STARTER	PHENOLIC
NP 2	HOUR METER	"
NP 3	POWER AVAILABLE	"
NP 4	AMMETER	"
NP 5	MOTOR OVERLOAD	"
NP 6	POWER MONITOR	"
NP 7	MOTOR RUNNING	"
NP 8	MOTOR STOPPED	"
NP 9	SEQUENCE FAILURE	"
NP 10	EMERGENCY STOP	"
NP 11	HAND-OFF-AUTO TELEMETRY SWITCH	AS REQ'D
NP 12	START	PHENOLIC
NP 13	STOP	"
NP 14	AMMETER SWITCH	"
NP 15	ALARM RESET	"
NP 16	GROUND FAULT	"
NP 17	MOTOR TEMPERATURE	"
NP 18	MOTOR MOISTURE	"

MATERIAL LIST	
NUMBER	DESCRIPTION
1	ELAPSED TIME METER 0-99,999.9 HOURS
2	WHITE INDICATING LIGHT 120 VAC
3	AMMETER
4	YELLOW INDICATING LIGHT 120 VAC
5	RED INDICATING LIGHT 120 VAC
6	GREEN INDICATING LIGHT 120 VAC
7	EMERGENCY STOP PUSHBUTTON-RED-ONE N.C.
8	HAND-OFF-AUTO-TELEMETRY SWITCH
9	START PUSHBUTTON-RED
10	STOP PUSHBUTTON-GREEN
11	3 PHASE AMMETER SWITCH
12	RESET PUSHBUTTON-YELLOW

**NOTE**  
1. ALL PHENOLIC NAMEPLATES SHALL BE WHITE LETTERING ON BLACK BACKGROUND. LETTERING SHALL BE 1/2-INCH HIGH.

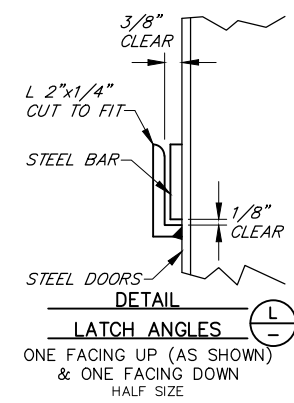
NO.	DATE	REVISION	BY

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
FORESTVILLE MISC. ELECTRICAL DETAILS

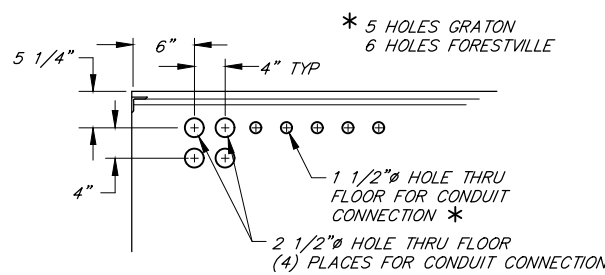
SCALE : AS SHOWN APPROVED CHIEF ENGINEER RCE 33447 DRAWN : DJT/CBT/FJA  
DATE : NOV 2, 1995 CHECKED :

**SONOMA COUNTY WATER AGENCY**

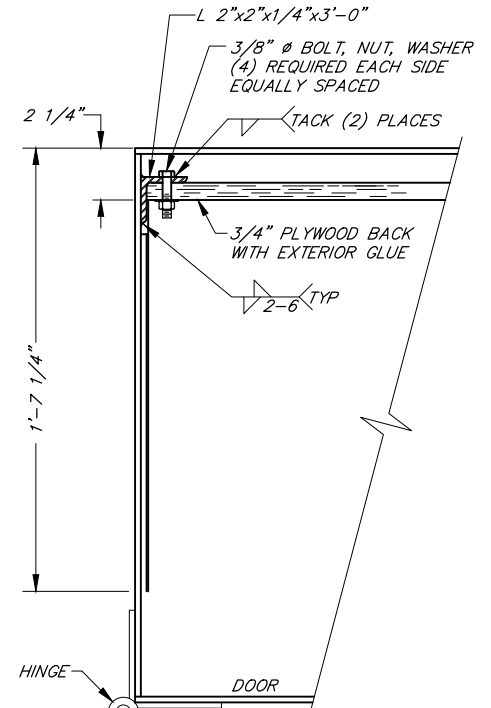
DESIGNED CSC 106 SUBMITTED RCE 23790 DRAWING NUMBER P:VFGWMP\FGWWP-35 70-2&3-102.33



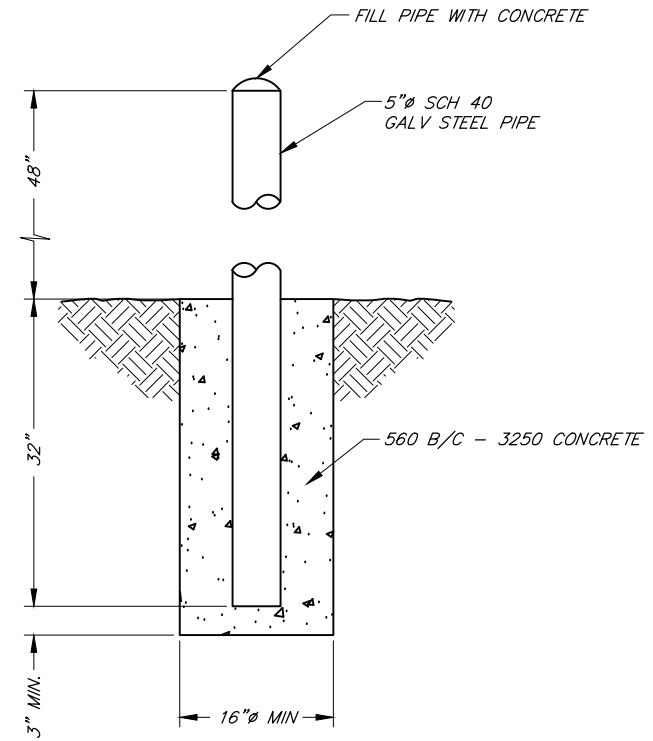
DETAIL LATCH ANGLES  
ONE FACING UP (AS SHOWN)  
& ONE FACING DOWN  
HALF SIZE



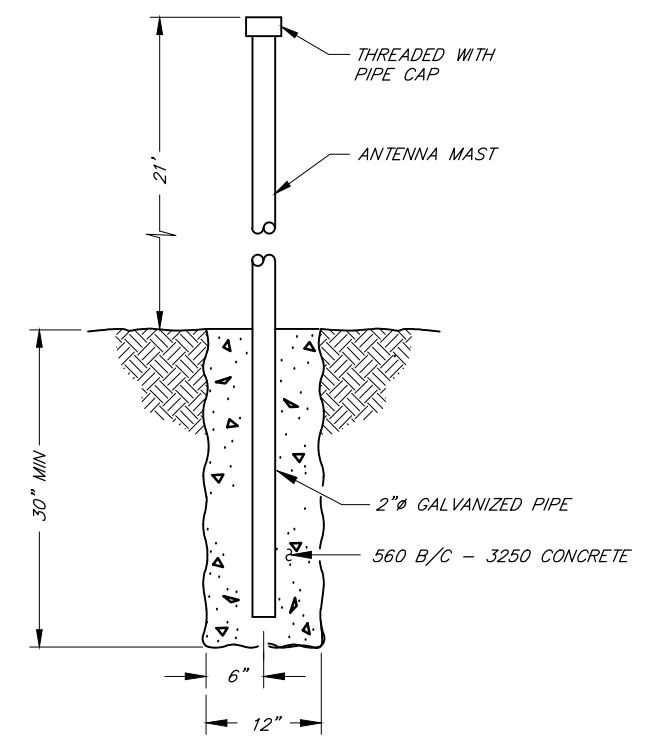
DETAIL OF HOLE PATTERN IN FLOOR  
SCALE: 1" = 1'-0"



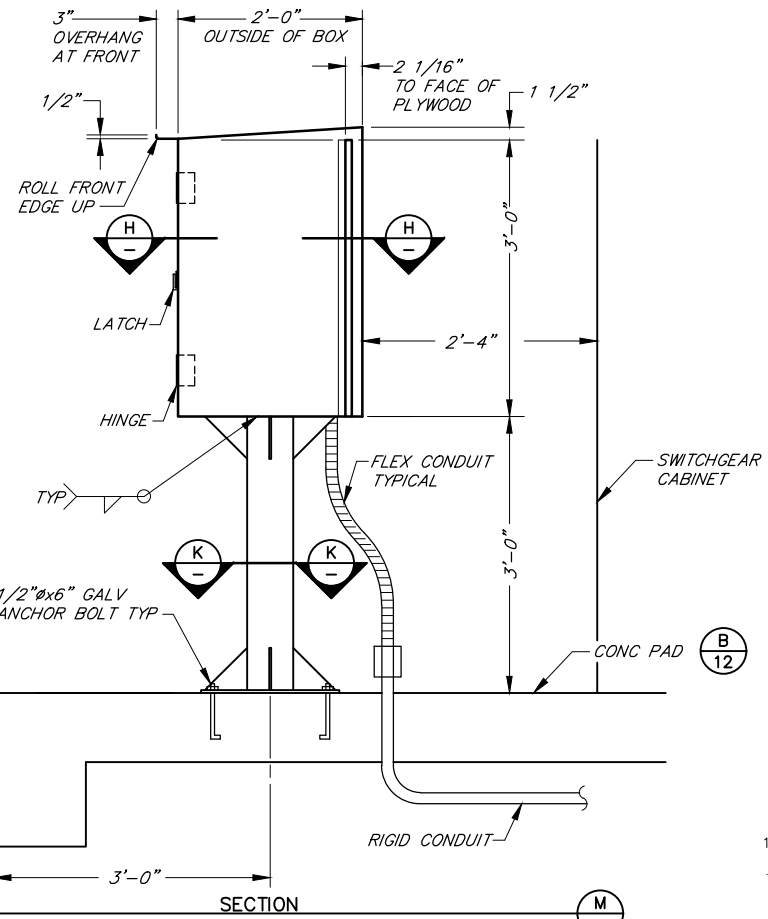
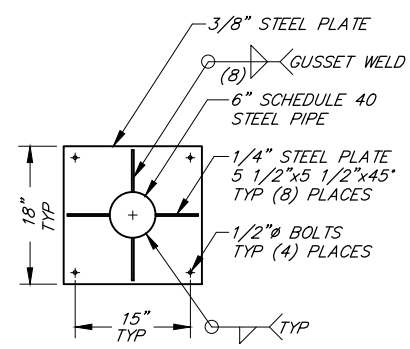
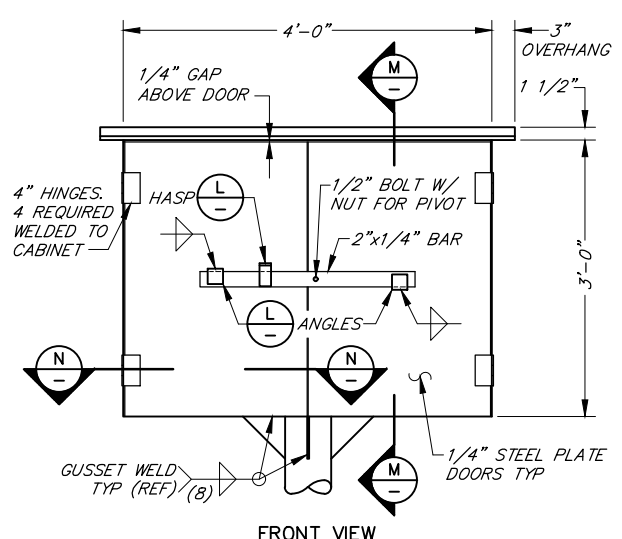
DETAIL - ANGLES & PLYWOOD  
SCALE: 3" = 1'-0"



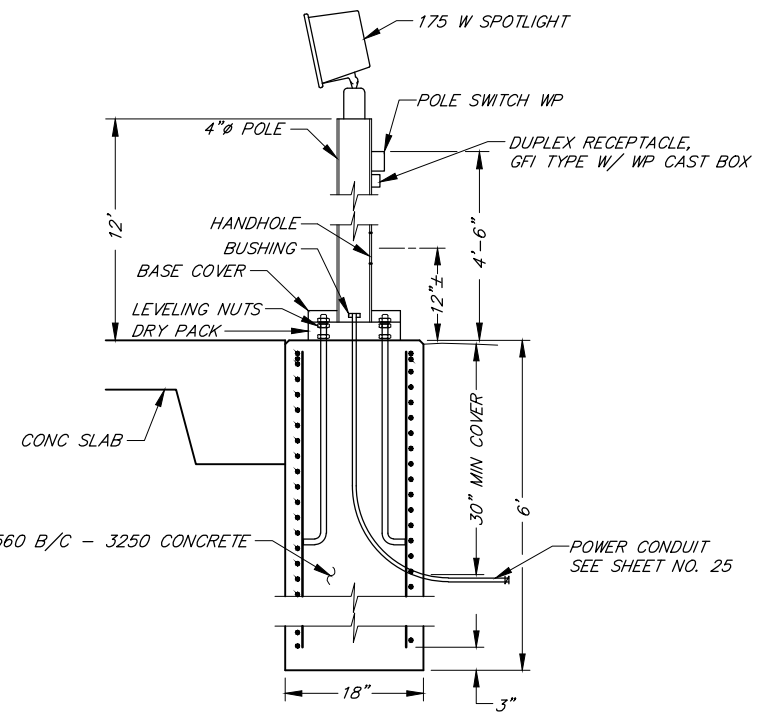
BARRIER POST DETAIL  
NOT TO SCALE



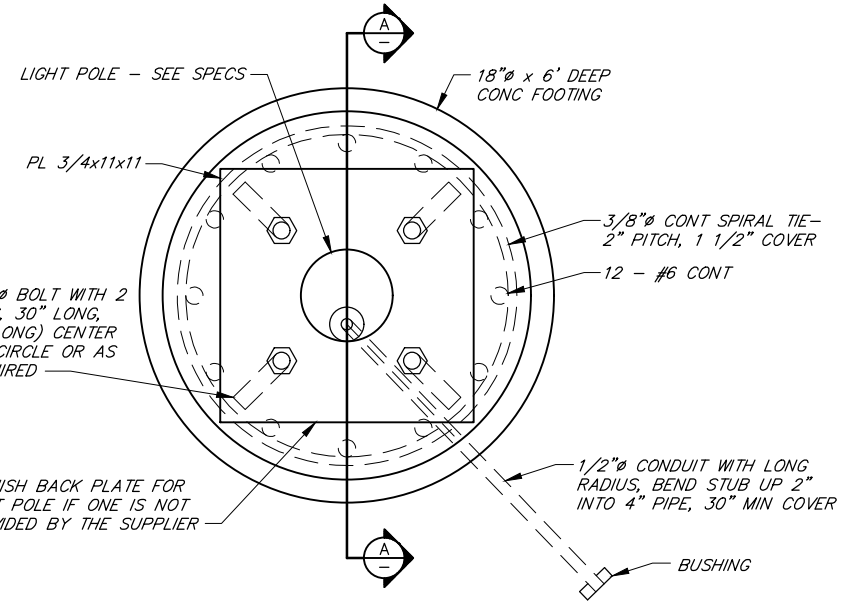
ANTENNA MAST  
NOT TO SCALE



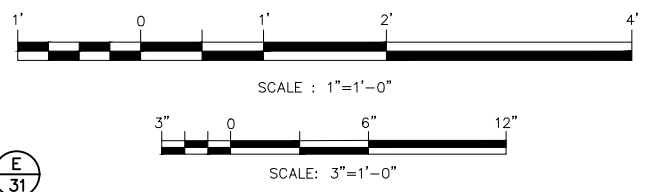
TELEMETRY CONTROL BOX  
SCALE: 1" = 1'-0"



LIGHT STANDARD  
NOT TO SCALE



LIGHT STANDARD PLAN  
NOT TO SCALE



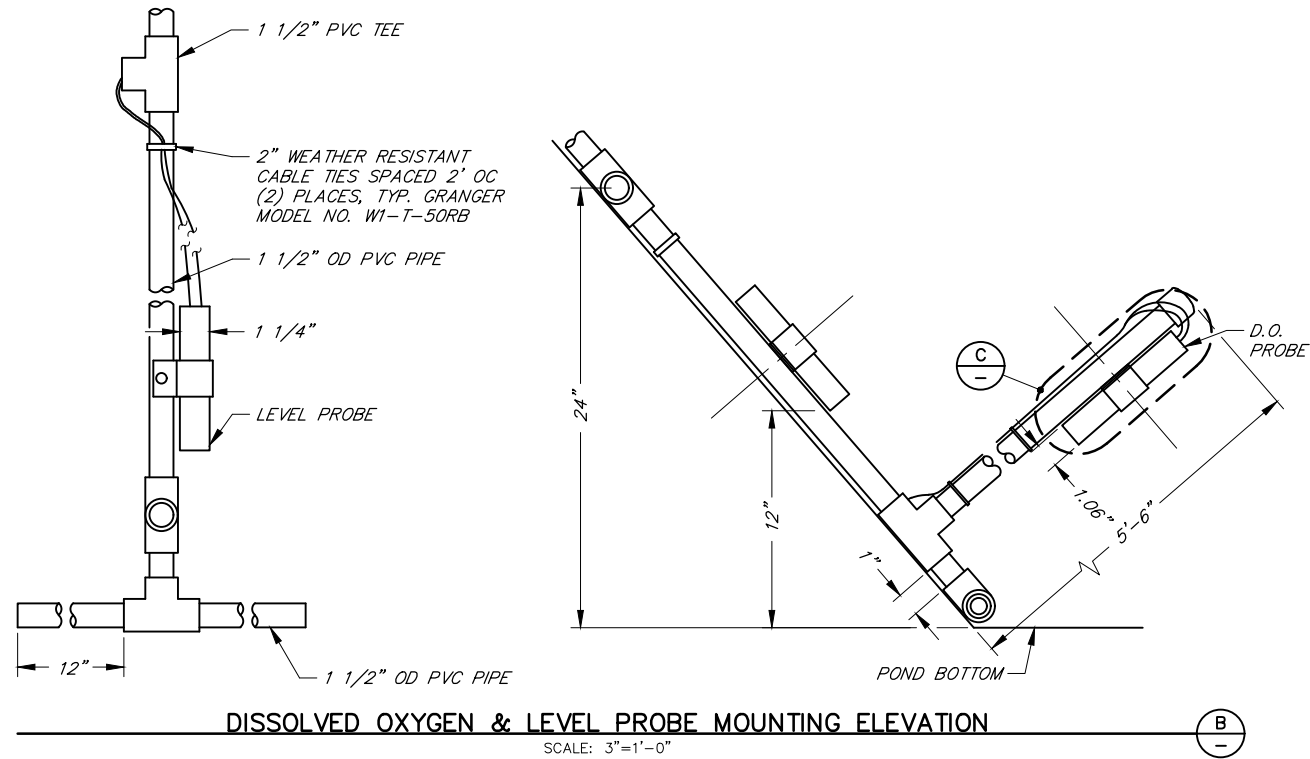
NO.	DATE	REVISION	BY

FORESTVILLE & GRATON REGIONAL WASTEWATER  
FACILITIES IMPROVEMENT PROJECT, PHASE 2  
FORESTVILLE/GRATON  
MISCELLANEOUS ELECTRICAL DETAILS

SCALE: AS SHOWN APPROVED: CHIEF ENGINEER RCE 33447 DRAWN: DJT/FJA  
DATE: NOV 2, 1995 CHECKED: \_\_\_\_\_

**SONOMA COUNTY WATER AGENCY**

DESIGNED: \_\_\_\_\_ SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.34

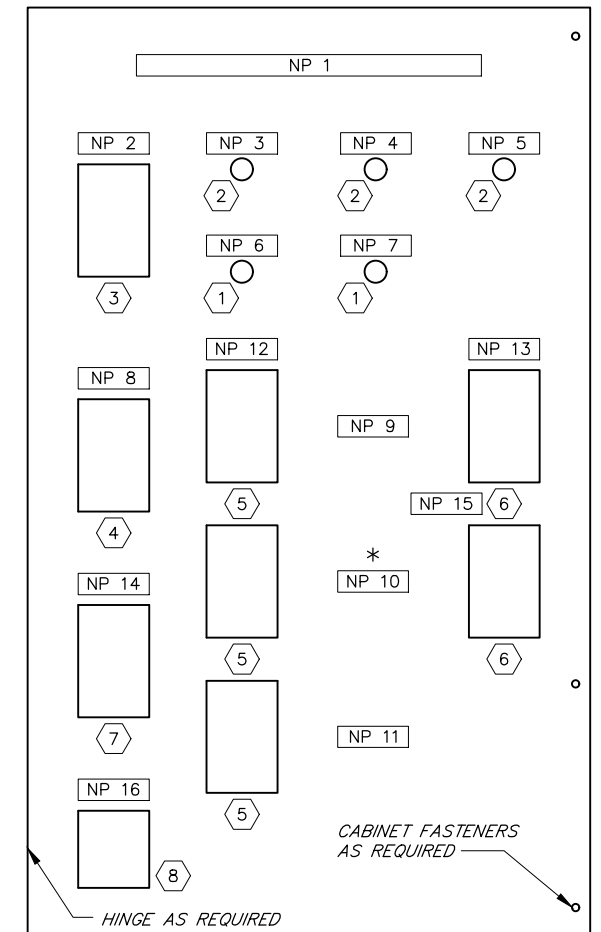


DISSOLVED OXYGEN & LEVEL PROBE MOUNTING ELEVATION

SCALE: 3"=1'-0"

NAMEPLATES		
NUMBER	DESCRIPTION	MATERIAL
NP 1	TELEMETRY CABINET	PHENOLIC
NP 2	WET WELL LEVEL & PUMP CONTROLLER	"
NP 3	PUMPS OFF	"
NP 4	FIRST PUMP OFF	"
NP 5	SECOND PUMP OFF	"
NP 6	HIGH LEVEL ALARM	"
NP 7	LOW LEVEL ALARM	"
NP 8	FLOW, GPM	"
NP 9	AERATION POND 1	"
* NP 10	AERATION POND 2	"
NP 11	SETTLING POND	"
NP 12	LEVEL, FEET	"
NP 13	D.O., POND NO. 1	"
NP 14	CHLORINE RESIDUAL	"
NP 15	D.O., POND NO. 2	"
NP 16	PRESSURE TRANSMITTER, PSI	"

MATERIAL LIST	
NUMBER	DESCRIPTION
1	RED INDICATING LIGHT 120 VAC
2	GREEN INDICATING LIGHT 120 VAC
3	ULTRASONIC PUMP CONTROLLER/LEVEL INDICATOR
4	FLOW INDICATOR
5	LEVEL INDICATOR
6	D.O. INDICATOR
7	CHLORINE RESIDUAL INDICATOR
8	PRESSURE INDICATOR

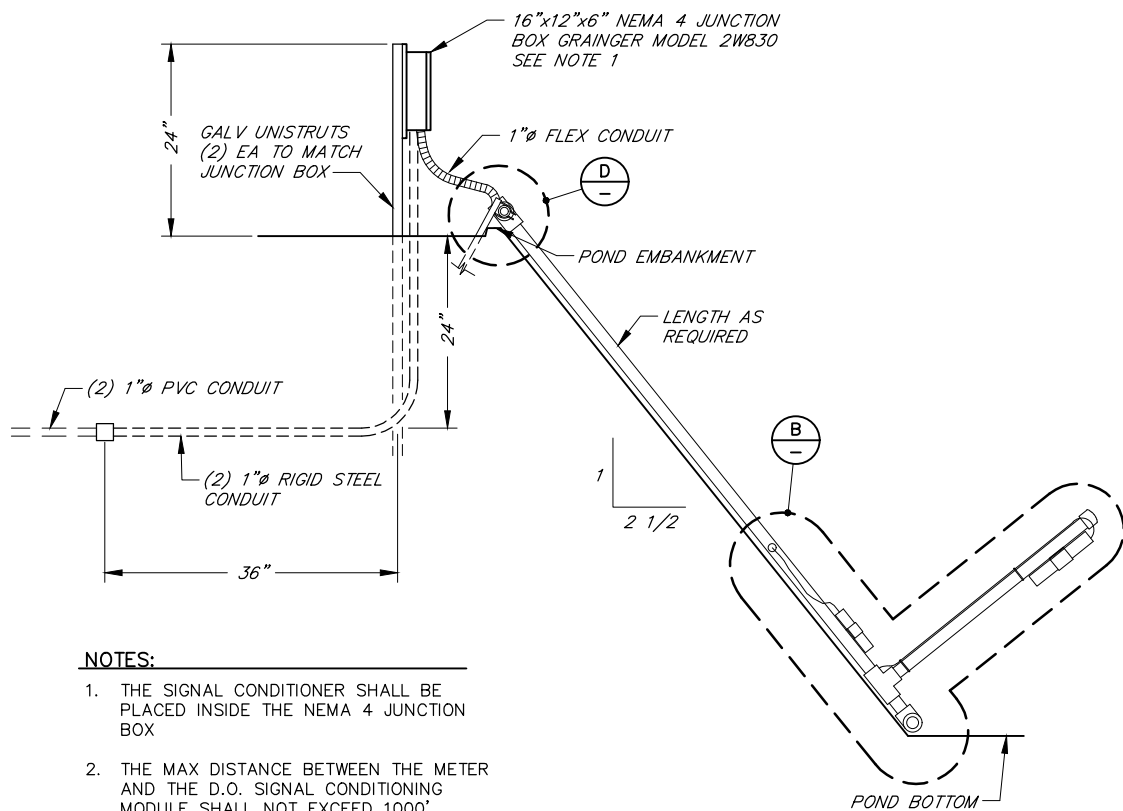


LEGEND

- NP 10 NAME PLATE NO. 10
- 5 MATERIAL LIST ITEM NO. 5
- \* GRATON TREATMENT PLANT ONLY

TELEMETRY SECTION FRONT PANEL LAYOUT

NOT TO SCALE

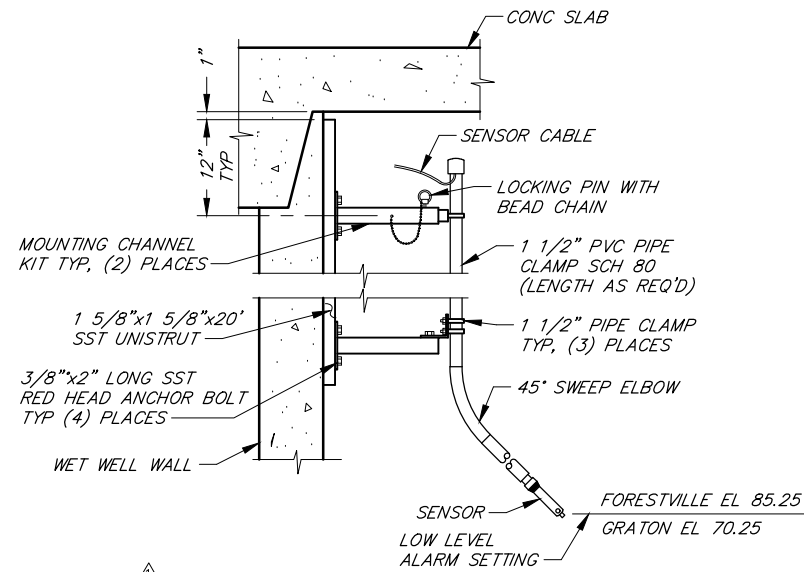
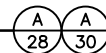


NOTES:

1. THE SIGNAL CONDITIONER SHALL BE PLACED INSIDE THE NEMA 4 JUNCTION BOX
2. THE MAX DISTANCE BETWEEN THE METER AND THE D.O. SIGNAL CONDITIONING MODULE SHALL NOT EXCEED 1000'
3. PROBE ASSEMBLIES CAN BE ANY COMBINATIONS FOR D.O./LEVEL, D.O. ONLY OR LEVEL ONLY

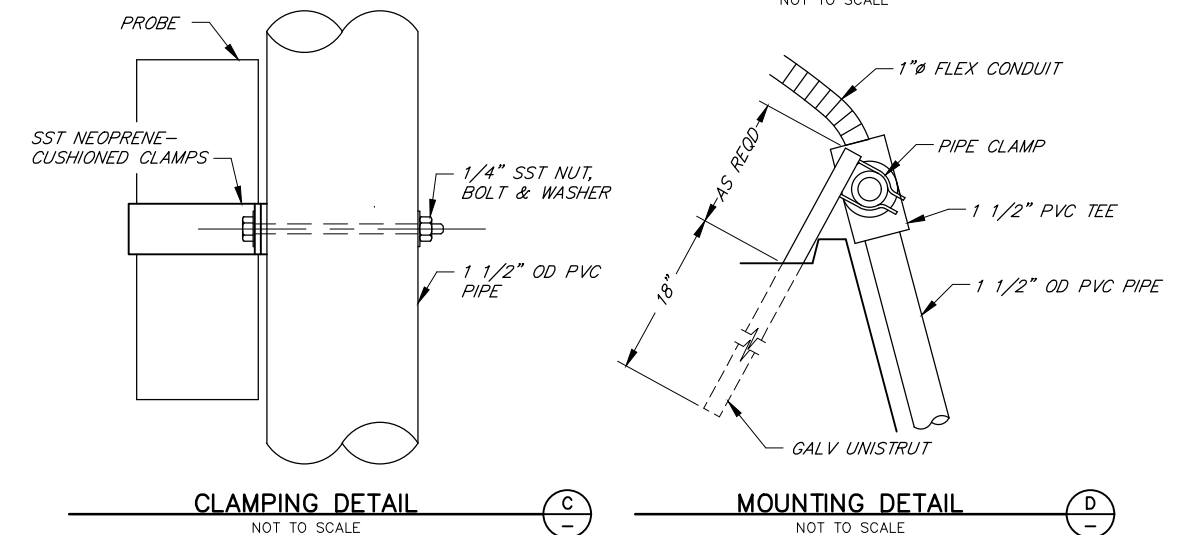
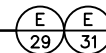
TYPICAL DISSOLVED OXYGEN & POND LEVEL TRANSMITTER MOUNTING

NOT TO SCALE



CHLORINE ANALYZER PROBE MOUNTING DETAIL

NOT TO SCALE



CLAMPING DETAIL

NOT TO SCALE



MOUNTING DETAIL

NOT TO SCALE



NO.	DATE	REVISION	BY
1	11/28/95	ADDENDUM	VS

FORESTVILLE & GRATON REGIONAL WASTEWATER FACILITIES IMPROVEMENT PROJECT, PHASE 2  
 FORESTVILLE/GRATON MISCELLANEOUS ELECTRICAL DETAILS

SCALE: AS SHOWN APPROVED: CHIEF ENGINEER RCE 33447 DRAWN: FJA  
 DATE: NOV 2, 1995 CHECKED:

**SONOMA COUNTY WATER AGENCY**

DESIGNED: SUBMITTED: RCE 23790 DRAWING NUMBER: 70-2&3-102.35

V&A Project No. 24-0050

02/27/2024

Anne Girtz, PE  
Senior Engineer  
West Yost  
via email

**Subject:** West Yost, Graton Community Services District, Intertie Pipeline, Proposal for Corrosion Engineering Services

Dear Anne Girtz:

Thank you for requesting a proposal for the Graton Community Services District (GCSD) Intertie Pipeline Project (Project) located in Graton, California. The pipeline extends from the GCSD treatment plant to Forestville Water District and is shared by both Districts to transfer effluent to water users along its alignment. The intertie pipeline is an 8-inch ductile iron pipeline of approximately 1.8 miles. The condition of the pipeline is not known and must be evaluated before expanding the recycled water program.

V&A is prepared to provide corrosion engineering services to evaluate the condition of the pipeline with respect to external corrosion. This letter proposal presents the tasks associated with the non-destructive, above-grade testing for corrosion risk evaluation.

Per your request, the following is our proposal and detailed scope of work for the subject services:

## Scope of Work

### Task | Description

- 1. Project Management:** Monitor and report project progress and changes, manage the quality of all work activities and project deliverables, and execute the project per the defined scope, schedule, and budget. Submit monthly invoices and communicate project updates. The project duration is assumed to be six (6) months. This task includes the following project management work activities:
  - a. Submit required prevailing wage documents and DAS forms as required by the State of California Department of Industrial Relations for all field-testing work.** Obtain current prevailing wage laws and certified payroll requirements, if necessary.
- 2. Document Review:** Review alignment, geotechnical information, and as-built specifications for pipeline design. Desktop foreign utility investigation will be completed in preparation for the survey work.
- 3. In-situ Soil Resistivity Testing:** Measure soil resistivity using the Wenner four-point method along the proposed alignment at up to 10 locations. The resistivity testing will be performed to a depth of up to 10 feet below grade. A one (1) person crew will perform the testing in one (1) day.
- 4. Electrical Continuity Testing:** V&A will verify the electrical continuity of the pipeline. The testing will be conducted by temporarily discharging current to the pipeline using a portable rectifier and a temporary anode bed. The output of the rectifier will be cycled, and potentials will be measured at strategic locations to verify the electrical continuity of the alignment. Continuity testing requires making direct contact with the pipeline (via exposed pipe, valves, fittings, test stations, etc.) at different locations. A two-person crew will perform continuity testing in one (1) day. If

tells us corrosivity of soil at pipe depth  
requires access to soil  
soil resistivity meter connected to pins;  
every 1000ft or so  
soil type noted as well  
tells us areas that may be more corrosive -  
correlate with failures?  
design parameters for cathodic protection.

if EC for entire length

discontinuities are found, then additional continuity testing may be required to determine approximate discontinuous segments. Additional continuity testing will be invoiced on a time and materials basis at the rates shown on the Resource Allocation Estimate.

5. **Close Interval Survey (CIS):** *If the pipeline is determined to be electrically continuous or all the discontinuous segments are identified, close interval surveys will be performed.*

The CIS will be conducted using an MC Miller iBTVM, Bluetooth voltmeter, and a tablet. The iBTVM unit consists of an integrated digital voltmeter and an integrated WAAS-enabled sub-meter GPS receiver. V&A will connect to the pipeline through a test station or other appurtenance that is electrically continuous with the pipe. Pipe-to-soil potentials will be measured every five feet along the side of the alignment where soil is available. Testing will be attempted along the alignment at locations of exposed soil, cracks in the pavement, joints between the pavement and curb, or exposed soil on the edge of properties. If reliable data cannot be provided at street intersections one-inch diameter holes may have to be drilled down to the soil for an additional fee. A connection to the pipeline will be required. A two-person crew will perform continuity testing for two (2) days.

surface - walk alignment; connect to any intermediate points  
take potential readings  
test locations where we have access to point to narrow down locations of discontinuities.

6. **Cell-to-Cell Survey:** *If the pipeline is determined to be electrically discontinuous or all the discontinuities cannot be identified, a cell-to-cell survey will be performed.*

The purpose of the cell-to-cell survey is to record soil-to-soil potential differences at ground level above a buried pipeline. These potential differences can indicate the location of holidays (coating defects) or other defects and provide a relative indication of the severity of the individual defects related to corrosion. It is important to note that cell-to-cell measurements do not provide a definitive picture of the corrosion rate or corrosion cell dimensions but serve as an indicator of corrosion activity. When potential changes indicative of corrosion are found, other reasons for the shifts should also be investigated. Foreign metallic structures freely corroding near the pipeline cause potential shifts in the data that can appear to be corrosion. It is important to identify all possible reasons for shifts in potential when analyzing cell-to-cell data. The specific cell-to-cell survey performed for this project is also known as the in-line surface potential survey method. A two-person crew will perform continuity testing for three (3) days.

could investigate stray current (from cathodic protected adjacent utilities)

5' interval at surface  
locate potential corrosion

later, could do excavation pits on areas of higher potential

7. **Survey Report:** Prepare a Survey Report detailing the survey results, existing conditions, performance, and recommendations for upgrading and remediating systems where deficiencies are found. Collected data will be tabulated and analyzed to determine the corrosion protection requirements if needed. A draft electronic copy of the report will be submitted for review. Comments will be incorporated, and a final electronic copy will be provided.

Any changes to the following assumptions, prevailing wage assumption, exclusions and limitations, or proposed schedule may necessitate an adjustment to the proposed fee.

### Assumptions

The following is a list of additional assumptions used to develop V&A's scope of work.

- The pipeline material and diameter are not known. It is assumed that the pipeline is metallic.
- Direct contact with the pipeline is **required** along the alignment to perform the tests on task 5 and task 6. It is assumed that pipeline contacts will be available at several locations along the alignment. Direct contact can be achieved at above-grade locations, accessible vaults, valves, and other appurtenances. The District will review a list of the possible locations and indicate the viability of each.
- The District will facilitate access to above-grade turnout connections located on private property. These locations can be used to make direct contact with the pipeline.