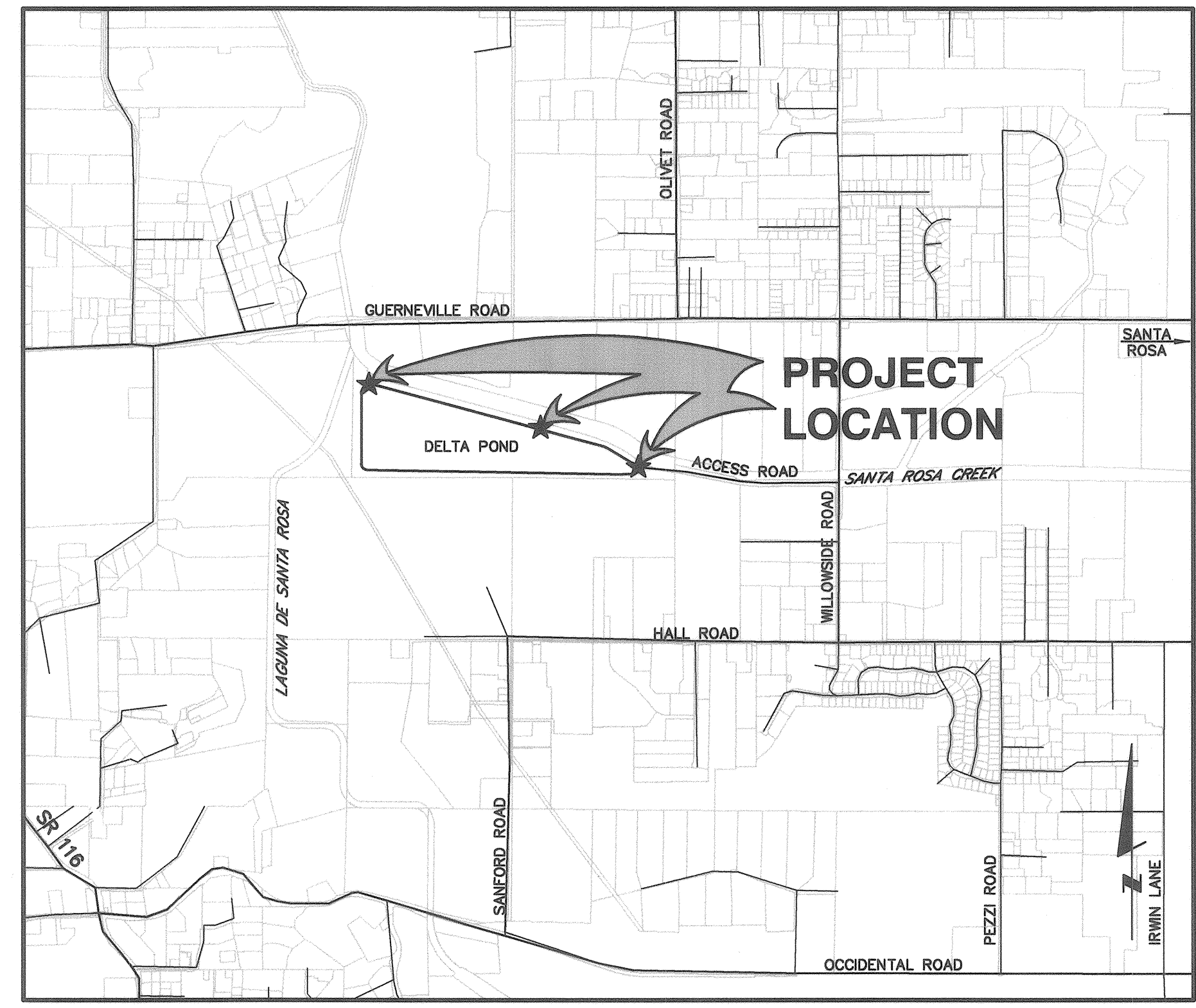


**CITY OF SANTA ROSA**  
IMPROVEMENT PLANS FOR

# GEYSERS-DELTA CONNECTION IMPROVEMENTS

CONTRACT NO. C02111



**INDEX OF SHEETS**

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**RECORD PLAN DATA**

PROJECT START:	WATER SERVICE TYPE:
PROJECT END:	MANUFACTURER:
GEN. CONTRACTOR:	FIRE HYDRANT TYPE:
SUPERINTENDENT:	MANUFACTURER:
UNDERGROUND CONTRACTOR:	INSPECTOR:
FOREMAN:	CONSTRUCTION MANAGER:
SEWER PIPE TYPE:	RECORD PLANS BY:
MANUFACTURER:	ADDITIONAL INFO:
SEWER FITTINGS MANUFACTURER:	
M.I. MANUFACTURER:	
WATER PIPE TYPE:	
MANUFACTURER:	
WATER VALVE MANUFACTURER:	
WATER FITTINGS MANUFACTURER:	

BEFORE EXCAVATING  
CALL U.S.A. NORTH  
UNDERGROUND SERVICE ALERT  
AT 811  
TWO WORKING DAYS BEFORE ALL  
PLANNED WORK OPERATIONS

FINAL PAY ITEM(S)  
BID ITEM(S) NAME AND QUANTITY

EXCAVATION 630 CY  
EMBANKMENT & MISCELLANEOUS FILL 730 CY

DATE	BY	DEPT	SIGNATURE
5/11/22			
5/11/22			
5/11/22			
5/11/22			

DATE: MAY 2022  
CHK BY: BB & DC  
APPROVED: Deputy Director - Engineering  
Date: 5/11/22  
By: Mike Prinz

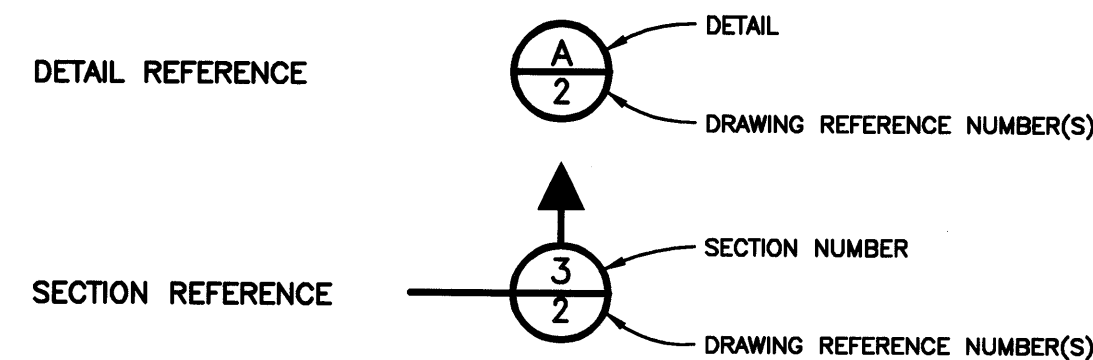
City of Santa Rosa	
<b>GEYSERS-DELTA CONNECTION IMPROVEMENTS</b>	
<b>COVER</b>	
CONTRACT NO.	C02111
SHEET	1 OF 27
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# ABBREVIATIONS

AB	AGGREGATE BASE	MG	MILLION GALLONS
AC	ASPHALT CONCRETE	MH	MANHOLE
ACP	ASBESTOS CEMENT PIPE	MIN	MINIMUM
AD	ALGEBRAIC DIFFERENCE	MISC	MISCELLANEOUS
ADA	AMERICANS WITH DISABILITIES ACT	MJ	MECHANICAL JOINT
ADPT	ADAPTER	MSL	MEAN SEA LEVEL
AGG	AGGREGATE	MWS	MAX WATER SURFACE
ALUM	ALUMINUM	N	NORTH
AP	ANGLE POINT	NO.	NUMBER
APN	ASSESSORS' PARCEL NUMBER	NA	NOT APPLICABLE
APPROX	APPROXIMATE	NIC	NOT IN CONTRACT
ARV	AIR RELEASE VALVE	NPT	NATIONAL PIPE THREAD
AVE	AVENUE	OC	ON CENTER
BC	BEGIN HORIZONTAL CURVE	OD	OUTSIDE DIAMETER
BLDG	BUILDING	OH	OVERHEAD
BLVD	BOULEVARD	OZ	OUNCE
BM	BENCHMARK	PA	PLANTER AREA
BO	BLOWOFF	PC	POINT OF CURVATURE
BV	BUTTERFLY VALVE	PC	POINT OF COMPOUND CURVATURE
BVC	BEGIN VERTICAL CURVE	PCC	PORTLAND CEMENT CONCRETE
BSW	BACK OF SIDEWALK	PD	PLANTER DRAIN
BT	BOTTOM OF TAPER	PE	PLAIN END
B&R	BRELJE & RACE	PG	PAD GRADE
CAV	COMBINATION AIR AND VACUUM RELEASE VALVE	PV	POST INDICATOR VALVE
CB	CATCH BASIN	R	PROPERTY LINE
CBC	CALIFORNIA BUILDING CODE	PN	PAVING NOTCH
CD	CONTROLLED DENSITY FILL	POC	POINT OF CONNECTION
CHK	CHECK	POC	POINT ON CURVE
CIPP	CAST-IN-PLACE PIPE	POS	PRIVATE OPEN SPACE
C	CENTERLINE	POT	POINT ON TANGENT
CL	CENTERLINE	PP	POWER POLE
CLR	CLEAR	PRC	POINT OF REVERSE CURVATURE
CMP	CORRUGATED METAL PIPE	PRV	PRESSURE REDUCING VALVE
CMPA	CORRUGATED METAL PIPE ARCH	PSI	POUND PER SQUARE INCH
CN	CLEANOUT	PSV	PRESSURE SUSTAINING VALVE
COAX	COAXIAL CABLE	PT	POINT OF TANGENCY
CONC	CONCRETE	PU	PUBLIC UTILITY EASEMENT
COND	CONDUIT	PVC	POLYVINYL CHLORIDE
COTG	CLEANOUT TO GRADE	PVI	POINT OF VERTICAL INTERSECTION
CP	CONTROL POINT	PVMT	PAVEMENT
CPLG	COUPLING	PWE	PUBLIC WATER EASEMENT
CR	CURB RETURN	R	RADIUS
CSP	CORRUGATED STEEL PIPE	RAW	RAW WATER
CTR	CENTER	RCB	RELATIVE COMPACTION
CY	CUBIC YARDS	RCG	REINFORCED CONCRETE BOX
C/C	CENTER TO CENTER	RCP	REINFORCED CONCRETE PIPE
C&G	CURB AND GUTTER	RD	ROAD
DBL	DOUBLE	RD	ROOF DRAIN
DDCD	DOUBLE CHECK DETECTOR CHECK	RED	REDUCER
DDC	DOUBLE DETECTOR CHECK	REF	REFERENCE
DET	DETECTOR	RFPBP	REDUCED PRESSURE BACKFLOW PREVENTER
DI	DROP INLET	RSC	REMOTE SUPERVISORY CONTROL
DIA	DIAMETER	RT	RIGHT
DIP	DUCTILE IRON PIPE	RT	RING TIGHT
DR	DRIVE	RW	RECYCLED WATER
DS	DOWNSPOUT	RWL	RAIN WATER LEADER
DS	DOWNSTREAM	R/W	RIGHT OF WAY
DWG	DRAWING	S	SOUTH
D/W	DRIVEWAY	S	SLOPE
E	EAST	S.A.D.	SEE ARCHITECTURAL DRAWINGS
EC	END HORIZONTAL CURVE	SCADA	SUPERVISORY CONTROL AND DATA ACQUISITION
ECC	ECCENTRIC	SCH	SCHEDULE
EFFL	EFFLUENT (SEWER)	SD	STORM DRAIN
EG	EXISTING GROUND	SDBC	STORM DRAIN CATCH BASIN
EL	ELEVATION	SDDC	STORM DRAIN CLEANOUT
ELEC	ELECTRICAL	SDDI	STORM DRAIN DROP INLET
ELL	ELBOW	SDE	STORM DRAIN EASEMENT
EP	EDGE OF PAVEMENT	SDMH	STORM DRAIN MANHOLE
ESMT	EASEMENT	SE	SEWER EASEMENT
EVC	END VERTICAL CURVE	S.E.D.	SEE ELECTRICAL DRAWINGS
EW	EACH WAY	SF	SQUARE FEET
EX	EXISTING	SG	SUBGRADE
EXIST	EXISTING	S.L.D.	SEE LANDSCAPE DRAWINGS
FC	FACE OF CURB	SOF	SLIP ON FLANGE
FCA	FLANGED COUPLING ADAPTER	SO	SIDE OPENING (SD)
FDC	FIRE DEPARTMENT CONNECTION	S.P.D.	SEE PLUMBING DRAWINGS
FES	FLARED END SECTION	SPEC	SPECIFICATION
FF	FINISHED FLOOR	SS	STAINLESS STEEL
FG	FINISHED GRADE	SS	SANITARY SEWER
FH	FIRE HYDRANT	SSCO	SANITARY SEWER CLEANOUT
F	FLOWLINE	S.S.D.	SEE STRUCTURAL DRAWINGS
FL	FLOWLINE	SSMH	SANITARY SEWER MANHOLE
FLG	FLANGE	ST	STREET
FLSO	FLOWLINE OF SIDE OPENING	STA	STATION
FLEX	FLEXIBLE	STD	STANDARD
FM	FORCE MAIN (PRESSURE)	STL	STEEL
FRP	FIBERGLASS REINFORCED PLASTIC	SVC	SERVICE
FT	FEET	SWE	SIDEWALK EASEMENT
FTG	FOOTING	SY	SQUARE YARDS
GALV	GALVANIZED	S/W	SIDEWALK
GB	GRADE BREAK	T	TANGENT
GPM	GALLONS PER MINUTE	TAN	TANGENT
GRD	GROUND	TB	TOP OF BOX
GRS	GALVANIZED RIGID STEEL	TC	TOP OF CURB
GSS	GALVANIZED STEEL PIPE	TCE	TEMPORARY CONSTRUCTION EASEMENT
GV	GAS VALVE	TEL	TOP OF DIKE
GV	GATE VALVE	TEL	TELEPHONE
HB	HOSE BIBB	TEMP	TEMPORARY
HB	HEADER BOARD	TF	TOP OF FOUNDATION
HDG	HOT DIPPED GALVANIZED	TG	TOP OF GRATE
HDPE	HIGH DENSITY POLYETHYLENE	THD	THREADED
HP	HIGH POINT	TI	TOP OF SLAB
HPG	HIGH PRESSURE GAS	TT	TOP OF TAPER
HWY	HIGHWAY	TT	TOP OF TAPER
ICV	IRRIGATION CONTROL VALVE	TW	TOP OF WALL
ID	INSIDE DIAMETER	TYP	TYPICAL
INV	INVERT	UFFG	UNDER FLOOR FINISHED GRADE
IP	IRON PIPE	UNO	UNLESS NOTED OTHERWISE
IPS	IRON PIPE SIZE	VC	VERTICAL CURVE
IRR	IRRIGATION	W	WEST
ISA	INTERNATIONAL SYMBOL OF ACCESSIBILITY	W	WATER
JP	JOINT POLE	WM	WATER METER
JT	JOINT TRENCH	WNF	WELD NECK FLANGE
KIPS	THOUSAND POUNDS-FORCE	WS	WATER SERVICE
L	LENGTH	WT	WEIGHT
LF	LINEAL FEET	WV	WATER VALVE
LG	LIP OF GARAGE	.	DEGREES
LG	LIP OF GUTTER	'	MINUTES
LP	LOW POINT	"	SECONDS
LT	LEFT	Δ	DELTA
LT	LEFT	AND	AND
MAX	MAXIMUM	AT	AT
MGR	METAL BEAM GUARD RAIL	N	NUMBER
MFR	MANUFACTURE	P	POUNDS
		%	PERCENT

# SYMBOLS



# LEGEND

## LINES

BOUNDARY	---
PARCEL	----
CENTER	.....
EASEMENT	-----

## UTILITY LINES

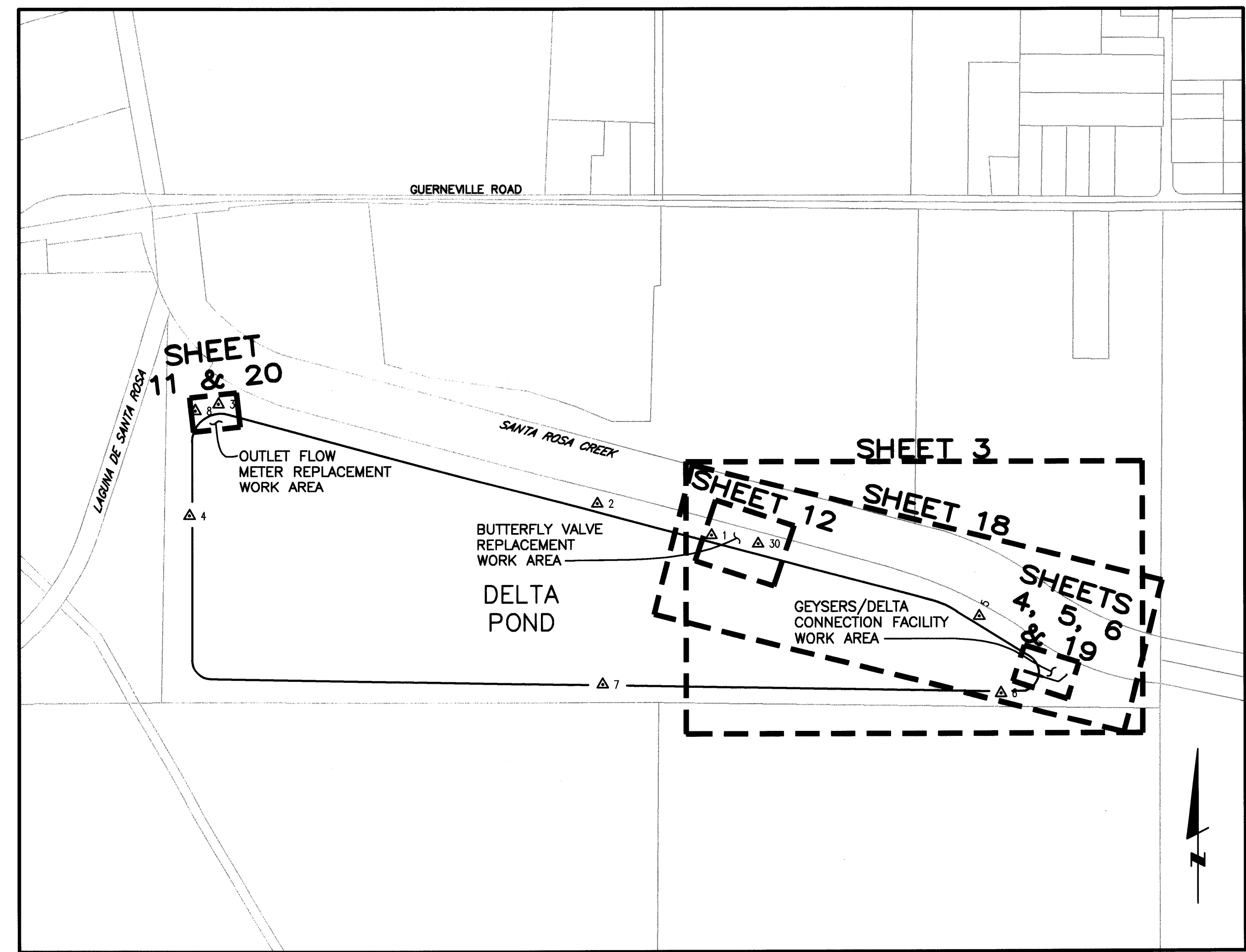
	EXISTING	PROPOSED
STORM DRAIN	3" SD	24" SD
WATER	8" W	8" W
SEWER	12" SS	12" SS
GAS	3" G	
ELECTRICAL		12KV E
TELEPHONE	T	
TELEVISION	TV	
JOINT TRENCH	JT	

## TOPOGRAPHY

DROP INLET	□
DROP INLET WITH SIDE OPENINGS	□
WATER METER	□
WATER VALVE	□
BLOWOFF	□
FIRE HYDRANT	□
THRUST BLOCK	□
GAS METER	□
STORM DRAIN MANHOLE	□
STORM DRAIN CATCH BASIN	□
SEWER MANHOLE	□
SEWER CLEANOUT	□
JOINT POLE	□
LIGHT STANDARD	□
GUY/ANCHOR	□
CURB & GUTTER	□
AC DIKE	□
FENCE	□
CHAIN LINK FENCE	□
DITCH/SWALE	□
MONUMENT	□
TREE PROTECTION	□
TREE TO BE SAVED	□
TREE TO BE REMOVED	□
WATER SURFACE	□

# GENERAL NOTES

- ALL WORKMANSHIP, MATERIALS AND CONSTRUCTION SHALL CONFORM TO THE CITY OF SANTA ROSA STANDARD PLANS, THE CONSTRUCTION SPECIFICATIONS FOR PUBLIC IMPROVEMENTS, THE SPECIAL PROVISIONS FOR THIS PROJECT AND THE STATE STANDARD SPECIFICATIONS AND STANDARD PLANS. THE CONTRACTOR IS RESPONSIBLE FOR UNDERSTANDING ALL STANDARDS PERTAINING TO THIS PROJECT.
- THE CONTRACTOR SHALL CALL UNDERGROUND SERVICE ALERT (USA NORTH) AT 811 NO LESS THAN 2 WORKING DAYS PRIOR TO ANY EXCAVATION FOR MARK OUTS OF EXISTING UNDERGROUND FACILITIES IN ACCORDANCE WITH SECTION 5-1.36E OF THE SPECIAL PROVISIONS.
- THE LOCATIONS OF UNDERGROUND UTILITIES AND OTHER OBSTACLES SHOWN ON THE PLANS ARE BASED ON THE BEST AVAILABLE INFORMATION. THE CONTRACTOR SHALL POT HOLE AND DETERMINE THE EXACT LOCATION OF ALL POTENTIAL CONFLICTS IN ACCORDANCE WITH U.S.A. LAWS AND THESE SPECIAL PROVISIONS AND THE STANDARD SPECIFICATIONS. IF ANY UNMARKED UTILITIES ARE ENCOUNTERED, OR IF UNABLE TO LOCATE A MARKED UTILITY AFTER POT HOLING, THE CONTRACTOR SHALL IMMEDIATELY NOTIFY THE OWNER OF THAT UTILITY AND THE ENGINEER.
- ALL SEWER MANHOLES, MAINLINE CLEANOUTS AND WATER VALVES THAT ARE ON ACTIVE SYSTEMS SHALL BE ACCESSIBLE TO CITY PERSONNEL AT ALL TIMES AND SHALL BE BROUGHT TO GRADE WITHIN 48 HOURS OF PAVING.
- THE CONTRACTOR SHALL PROTECT AND PRESERVE CITY MONUMENTS. THE CONTRACTOR SHALL COORDINATE WITH THE CITY ENGINEER 10 WORKING DAYS IN ADVANCE FOR REFERENCING OF EXISTING MONUMENTS TO BE DISTURBED. THE CONTRACTOR SHALL RECONSTRUCT DISTURBED MONUMENTS IN ACCORDANCE WITH CITY STANDARD 280.
- OVERHEAD UTILITY SERVICE DROPS ARE NOT SHOWN ON THE PLANS. THE CONTRACTOR SHALL INVESTIGATE THE SITE AND BE AWARE OF LIMITED CLEARANCES UNDER OVERHEAD UTILITY LINES AND LOW HANGING TREE BRANCHES. THE CONTRACTOR'S TRUCKS AND EXCAVATION EQUIPMENT SHALL BE SIZED SO THAT OVERHEAD WIRES AND TREE BRANCHES ARE NOT DAMAGED.
- ALL EXCAVATED MATERIAL SHALL BE DISPOSED OF AS GENERATED AND AT NO TIME SHALL THE CONTRACTOR PLACE EXCAVATED MATERIAL AT THE WORK SITE.
- THE CONTRACTOR SHALL ONLY REMOVE EXISTING TREES OR SHRUBS AS NOTED ON THE PLANS OR AS DIRECTED BY THE ENGINEER.
- FOR CLARITY OF EXISTING SUBSURFACE CONDITIONS, NOT ALL CROSSWALKS, STOP BARS, OR EXISTING PAVEMENT MARKINGS ARE SHOWN ON THE PLANS. TRAFFIC STRIPES, RAISED PAVEMENT MARKERS AND PAVEMENT MARKINGS DAMAGED DUE TO THE CONTRACTOR'S OPERATIONS SHALL BE REPLACED PER CITY OF SANTA ROSA TRAFFIC STANDARDS PART III, TRAFFIC MARKINGS. PATCHING OF DAMAGED MARKINGS WILL NOT BE ALLOWED WITHOUT PRIOR APPROVAL FROM THE ENGINEER. ALL DAMAGED RAISED PAVEMENT (NON-REFLECTIVE) MARKERS MUST BE CERAMIC.



# SHEET LAYOUT AND SURVEY CONTROL DATA

NOT TO SCALE

# CONTROL POINT COORDINATE TABLE

NO	NORTHING	EASTING	ELEVATION	TYPE
1	1925907.489	6325602.376	82.71	3/4" IP W/C.S.R. CTRL PLUG
2	1926076.412	6325002.490	80.07	3/4" IP W/C.S.R. CTRL PLUG
3	1926609.072	6323011.106	80.68	PUNCH IN CONCRETE SCRIBED SQUARE
4	1926014.524	6322858.263	79.83	3/4" IP W/C.S.R. CTRL PLUG
5	1925475.049	6327008.460	79.96	3/4" IP W/C.S.R. CTRL PLUG
6	1925089.296	6327121.858	79.96	3/4" IP W/C.S.R. CTRL PLUG
7	1925118.586	6325029.619	0.00	3/4" IP W/C.S.R. CTRL PLUG
8	1926574.275	6322889.210	79.72	1-3/4" ALUMINUM DISK "S.C.W.A."
30	1925861.320	6325847.168	80.12	CUT X IN CONC. CONTROLLER PAD

# BENCHMARK

CONTROL POINT #6: FOUND 3/4" IRON PIPE "CRS CONTROL"  
EL 80.05 (NAVD 88)

# BASIS OF BEARING

BASIS OF BEARINGS ARE NAD 83, EPOCH 2010

HORIZONTAL BASIS OF BEARING SOUTH 69°27'51" EAST DETERMINED BETWEEN CONTROL POINTS #3 AND #6

# VERTICAL DATUM NOTES

ALL ELEVATIONS INDICATED ON THESE PROJECT PLANS ARE PROVIDED IN ACCORDANCE WITH NAVD88 DATUM.

NAVD88 ELEVATIONS = NGVD29 ELEVATIONS + 2.81'

THE CURRENT SURVEYED SPILLWAY CREST IS ELEVATION 73.22 PER NGVD29. THE NAVD88 ELEVATIONS OF THE SPILLWAY AND DAM CREST ARE 76.03 AND 79.03 RESPECTIVELY. SEE SHEET 11 FOR ADDITIONAL INFORMATION.



City of Santa Rosa  
**Brelje & Race**  
CONSULTING ENGINEERS  
4443 Dwyer Avenue, Santa Rosa, CA 95405  
www.breljeandrace.com

NO.	DATE	BY	REVISION

SCALE:	AS SHOWN	DWN BY:	PIT	DATE:	MAY 2022	CHK BY:	BB & DYC

City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
ABBREVIATIONS, LEGEND, NOTES, SHEET LAYOUT & SURVEY CONTROL DATA

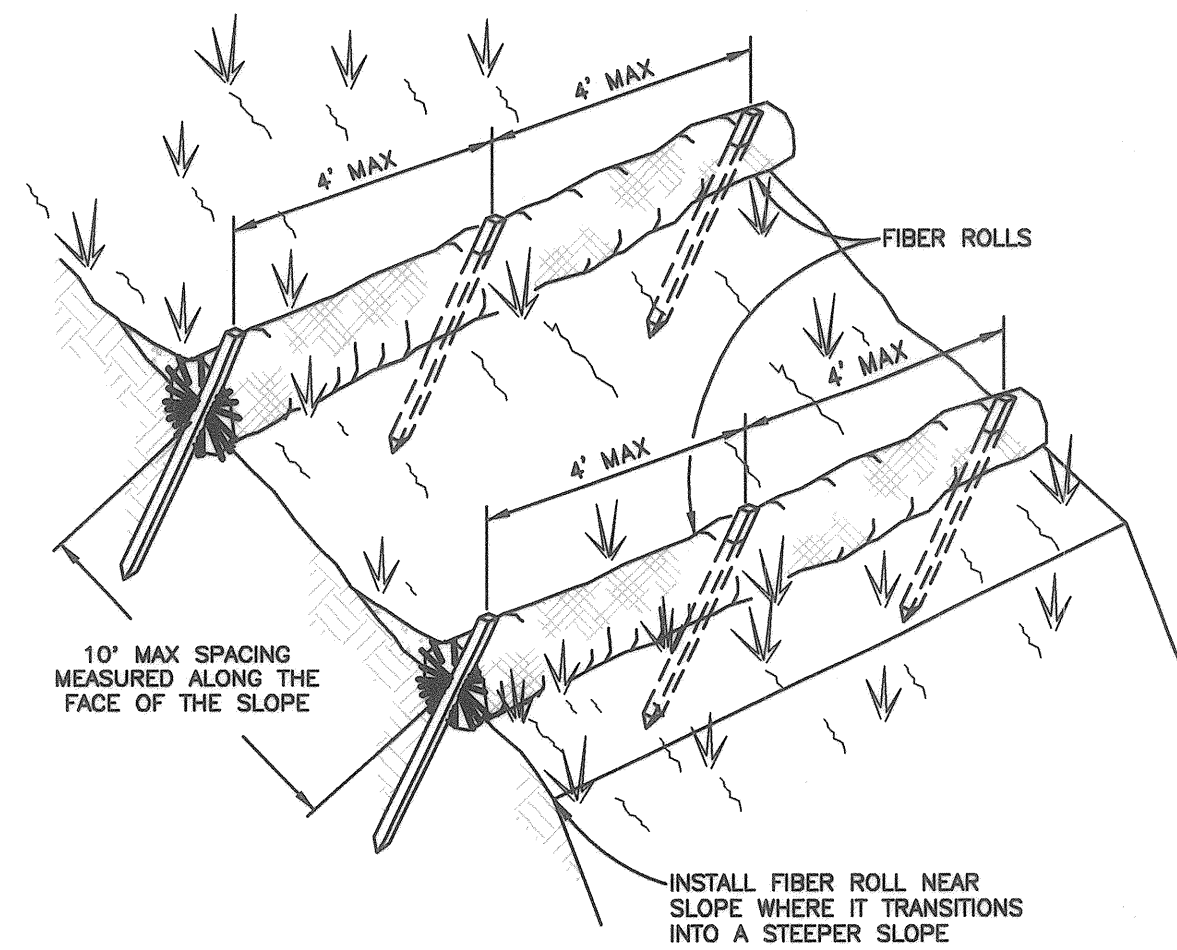
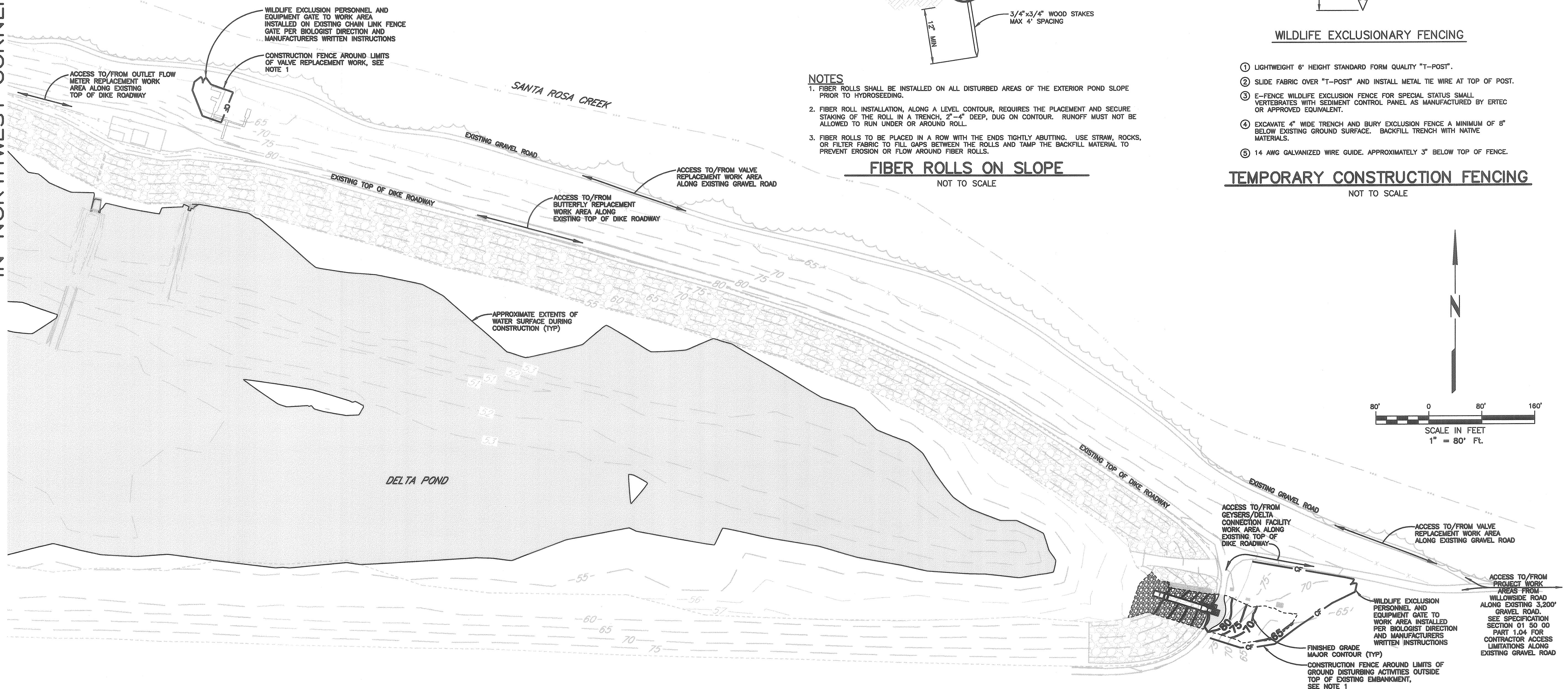
CONTRACT NO. C02111

SHEET 2 OF 27

FILE NO. 2018-0048



SEE SHEET 11 & 25 FOR OUTLET FLOW METER REPLACEMENT WORK IN NORTHWEST CORNER OF POND



**NOTES**

- FIBER ROLLS SHALL BE INSTALLED ON ALL DISTURBED AREAS OF THE EXTERIOR POND SLOPE PRIOR TO HYDROSEEDING.
- FIBER ROLL INSTALLATION, ALONG A LEVEL CONTOUR, REQUIRES THE PLACEMENT AND SECURE STAKING OF THE ROLL IN A TRENCH, 2"-4" DEEP, DUG ON CONTOUR. RUNOFF MUST NOT BE ALLOWED TO RUN UNDER OR AROUND ROLL.
- FIBER ROLLS TO BE PLACED IN A ROW WITH THE ENDS TIGHTLY ABUTTING. USE STRAW, ROCKS, OR FILTER FABRIC TO FILL GAPS BETWEEN THE ROLLS AND TAMP THE BACKFILL MATERIAL TO PREVENT EROSION OR FLOW AROUND FIBER ROLLS.

**FIBER ROLLS ON SLOPE**

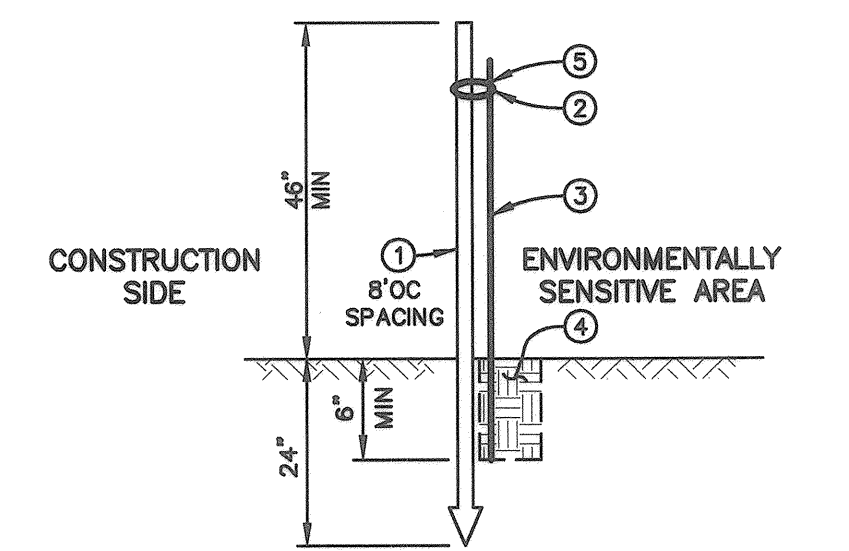
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**GENERAL PREPARATION AND SHEET NOTES**

- ALL CONSTRUCTION ACTIVITIES BEYOND THE OUTSIDE TOP OF THE EXISTING DELTA POND EMBANKMENT SHALL BE CONFINED TO THE LIMITS OF TEMPORARY CONSTRUCTION FENCING SHOWN.
- THE CONTRACTOR SHALL INSTALL THE TEMPORARY CONSTRUCTION FENCING AS THE FIRST ORDER OF WORK PRIOR TO ANY GROUND DISTURBING ACTIVITIES.

**LEGEND**

CF - INSTALL TEMPORARY CONSTRUCTION FENCING PER DETAILS ON THIS SHEET. TEMPORARY CONSTRUCTION FENCING ALSO INDICATES THE PERMITTED LIMITS OF WORK. ANY WORK PERFORMED BY THE CONTRACTOR IS TO REMAIN WITHIN THE FENCING BOUNDARY UNLESS OTHERWISE NOTED. PROJECT BIOLOGIST WILL DETERMINE EXACT LOCATIONS AND TYPE OF CONSTRUCTION FENCING.

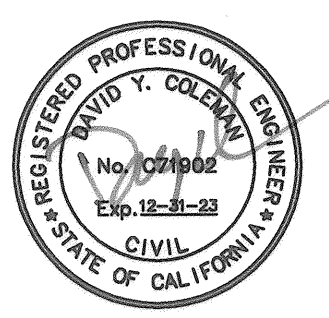
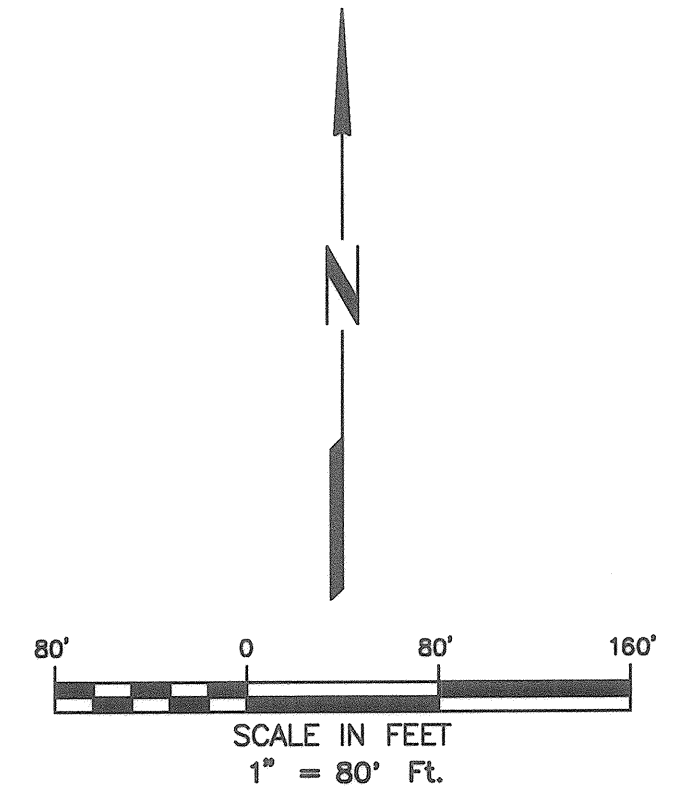


**WILDLIFE EXCLUSIONARY FENCING**

- LIGHTWEIGHT 6" HEIGHT STANDARD FORM QUALITY "T-POST".
- SLIDE FABRIC OVER "T-POST" AND INSTALL METAL TIE WIRE AT TOP OF POST.
- E-FENCE WILDLIFE EXCLUSION FENCE FOR SPECIAL STATUS SMALL VERTEBRATES WITH SEDIMENT CONTROL PANEL AS MANUFACTURED BY ERTEC OR APPROVED EQUIVALENT.
- EXCAVATE 4" WIDE TRENCH AND BURY EXCLUSION FENCE A MINIMUM OF 6" BELOW EXISTING GROUND SURFACE. BACKFILL TRENCH WITH NATIVE MATERIALS.
- 14 AWG GALVANIZED WIRE GUIDE. APPROXIMATELY 3" BELOW TOP OF FENCE.

**TEMPORARY CONSTRUCTION FENCING**

NOT TO SCALE



City of Santa Rosa  
**Brelje & Race**  
 CONSULTING ENGINEERS  
 1500 Santa Rosa Blvd., Suite 150 - Santa Rosa, CA 95405 - 707.576.5322

NO.	DATE	REVISION	BY

SCALE: AS SHOWN	DATE: MAY 2022	CHK BY: BB & DYC
DWN BY: RW		

City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**SITE ACCESS, LIMITS OF WORK & EROSION CONTROL PLAN**

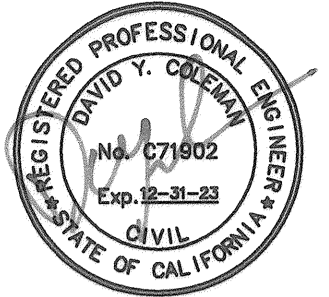
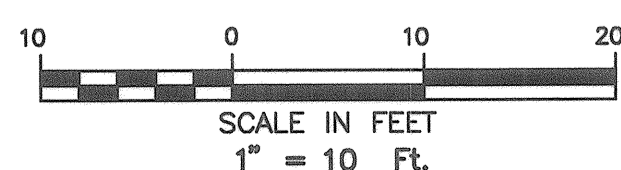
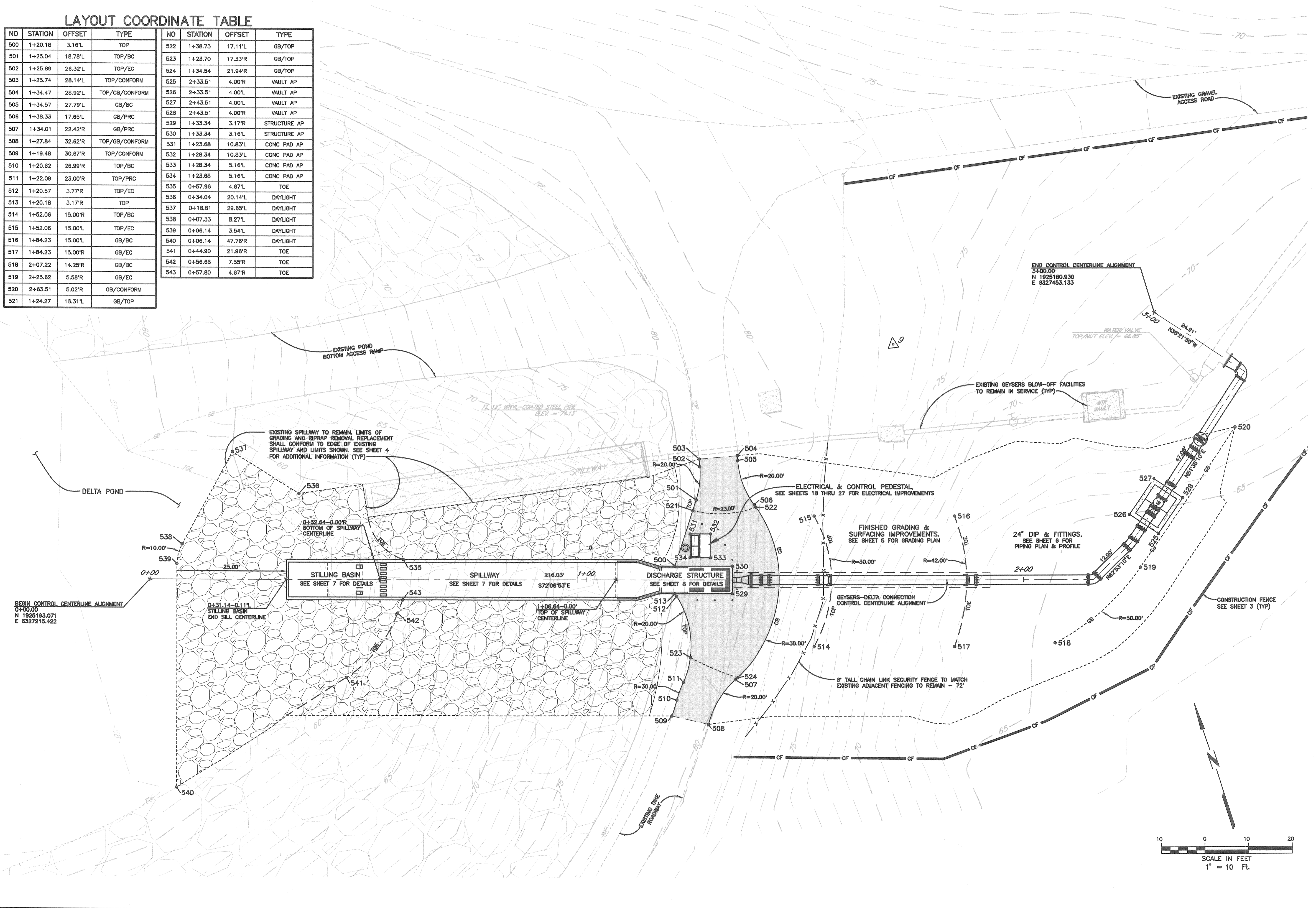


LAYOUT COORDINATE TABLE

NO	STATION	OFFSET	TYPE	NO	STATION	OFFSET	TYPE
500	1+20.18	3.16'L	TOP	522	1+38.73	17.11'L	GB/TOP
501	1+25.04	18.78'L	TOP/BC	523	1+23.70	17.33'R	GB/TOP
502	1+25.89	26.32'L	TOP/EC	524	1+34.54	21.94'R	GB/TOP
503	1+25.74	28.14'L	TOP/CONFORM	525	2+33.51	4.00'R	VAULT AP
504	1+34.47	28.92'L	TOP/GB/CONFORM	526	2+33.51	4.00'L	VAULT AP
505	1+34.57	27.79'L	GB/BC	527	2+43.51	4.00'L	VAULT AP
506	1+38.33	17.65'L	GB/PRC	528	2+43.51	4.00'R	VAULT AP
507	1+34.01	22.42'R	GB/PRC	529	1+33.34	3.17'R	STRUCTURE AP
508	1+27.84	32.62'R	TOP/GB/CONFORM	530	1+33.34	3.16'L	STRUCTURE AP
509	1+19.48	30.67'R	TOP/CONFORM	531	1+23.68	10.83'L	CONC PAD AP
510	1+20.62	26.99'R	TOP/BC	532	1+28.34	10.83'L	CONC PAD AP
511	1+22.09	23.00'R	TOP/PRC	533	1+28.34	5.16'L	CONC PAD AP
512	1+20.57	3.77'R	TOP/EC	534	1+23.68	5.16'L	CONC PAD AP
513	1+20.18	3.17'R	TOP	535	0+57.96	4.67'L	TOE
514	1+52.06	15.00'R	TOP/BC	536	0+34.04	20.14'L	DAYLIGHT
515	1+52.06	15.00'L	TOP/EC	537	0+18.81	29.65'L	DAYLIGHT
516	1+84.23	15.00'L	GB/BC	538	0+07.33	8.27'L	DAYLIGHT
517	1+84.23	15.00'R	GB/EC	539	0+06.14	3.54'L	DAYLIGHT
518	2+07.22	14.25'R	GB/BC	540	0+06.14	47.78'R	DAYLIGHT
519	2+25.62	5.58'R	GB/EC	541	0+44.90	21.98'R	TOE
520	2+63.51	5.02'R	GB/CONFORM	542	0+56.68	7.55'R	TOE
521	1+24.27	16.31'L	GB/TOP	543	0+57.80	4.67'R	TOE

TAB: 4 CONNECTION FACILITY SITE & LAYOUT

04-08-22 grubb \4443\dwg\4443 00\4443.00 BASE.dwg



City of Santa Rosa  
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 CONSULTING ENGINEERS  
 4000 Highway 101, Suite 120 - Santa Rosa, CA 95403 - 707.576.5252

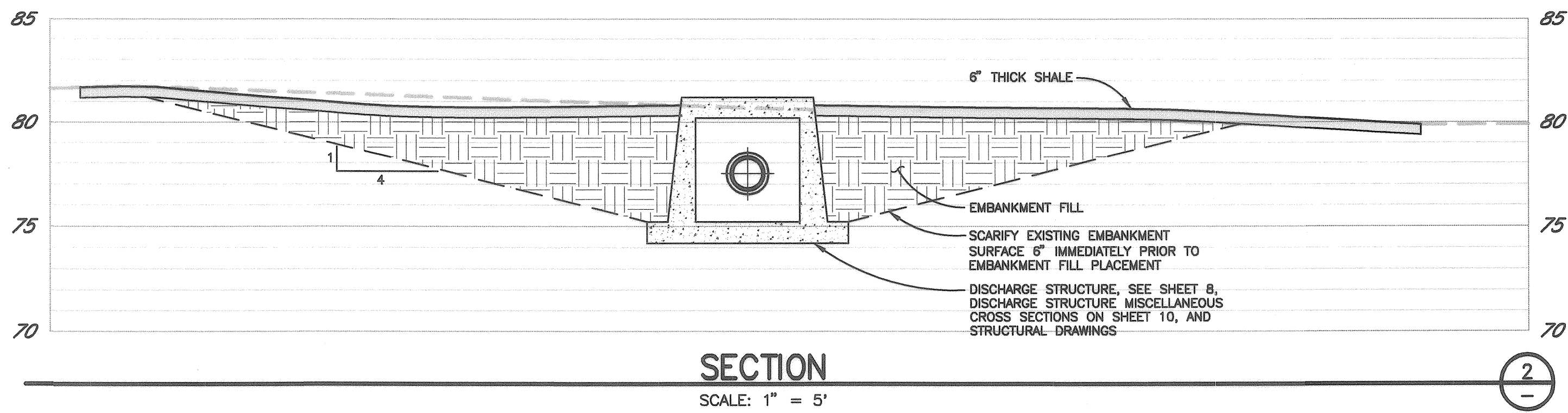
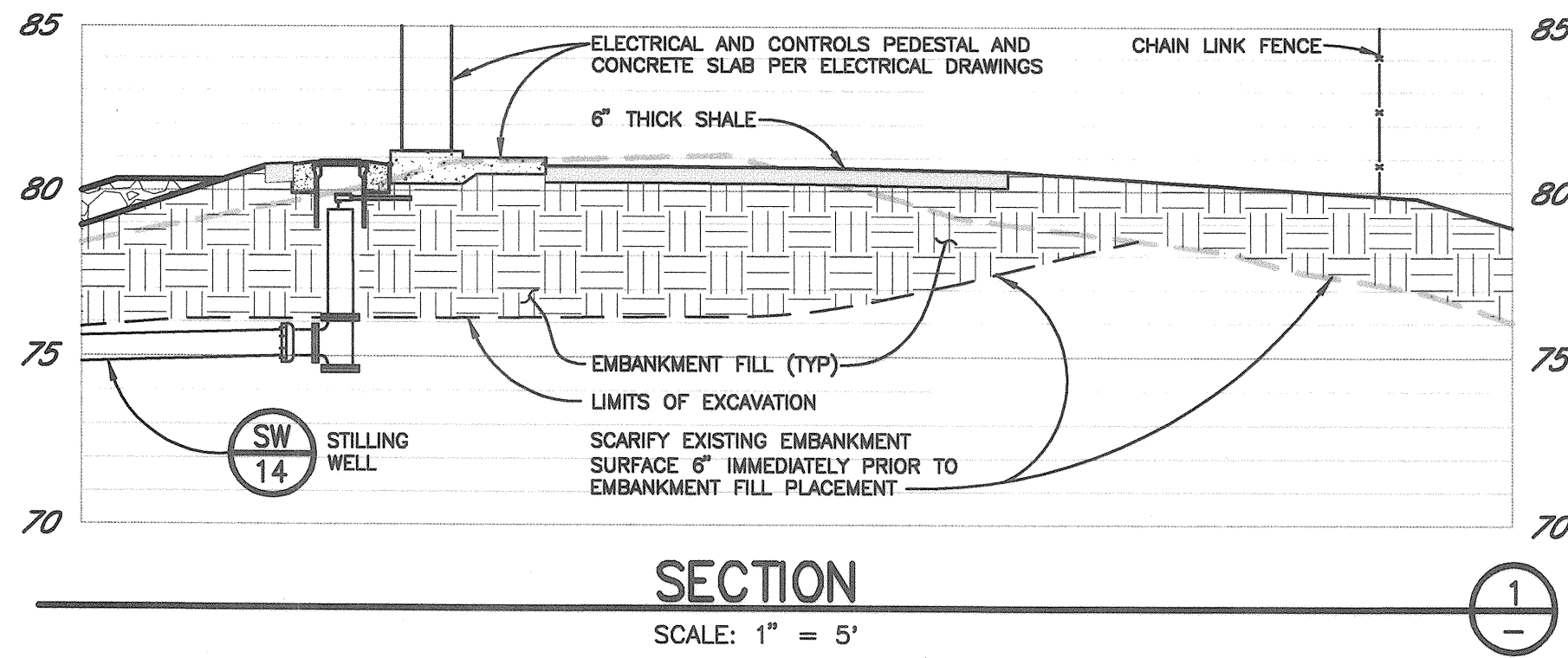
NO.	DATE	REVISION	BY

SCALE: AS SHOWN	DATE: MAY 2022
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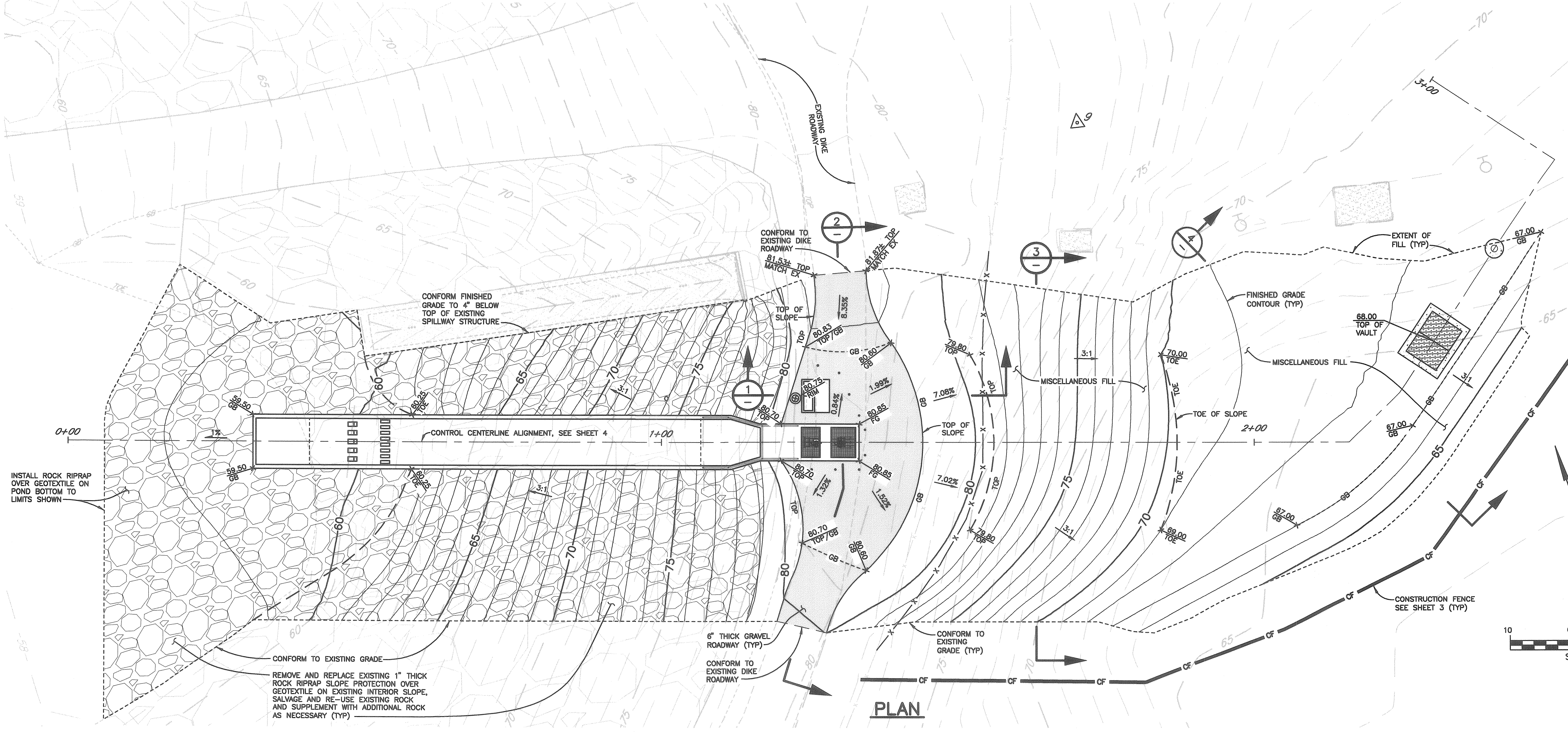
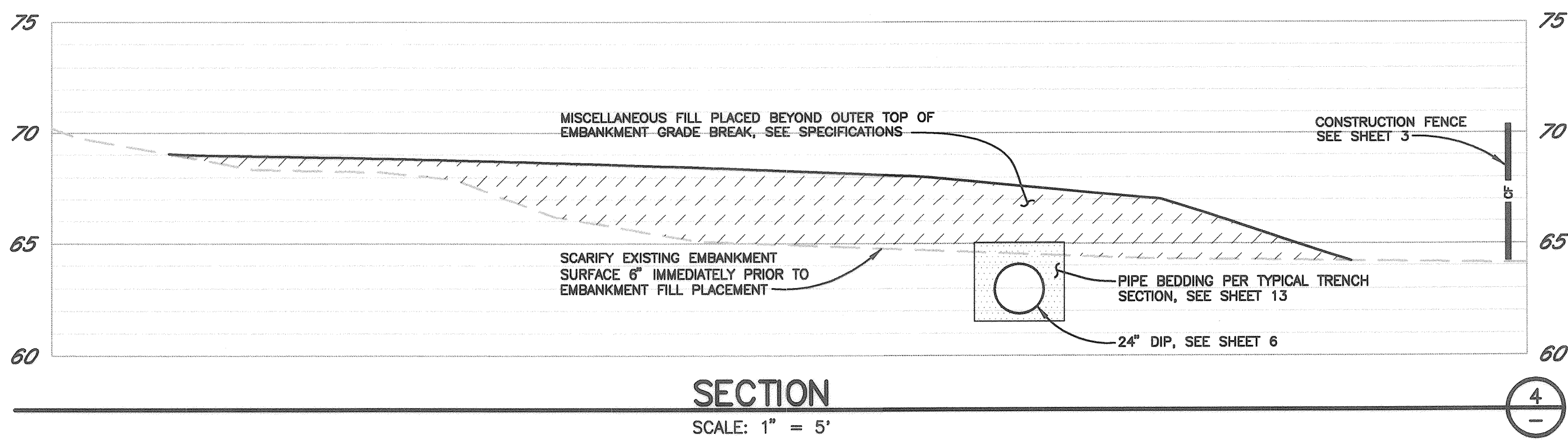
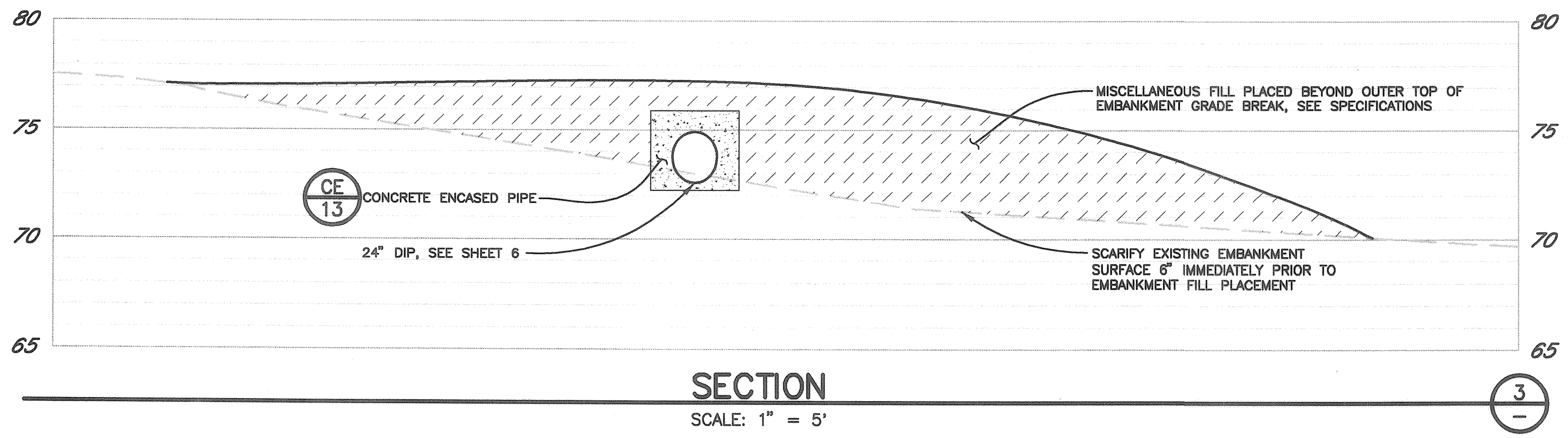
City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**CONNECTION FACILITY SITE & LAYOUT**

CONTRACT NO. CO2111  
 SHEET 4 OF 27  
 FILE NO. 2018-0048





**NOTE**  
 FINISHED GRADES AND FINISHED GRADE CONTOURS SHOWN DEPICT FINISHED TOP OF EMBANKMENT FILL BELOW RIPRAP ROCK SLOPE PROTECTION SURFACING.

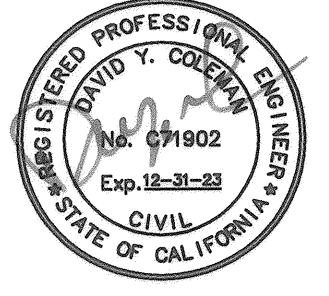
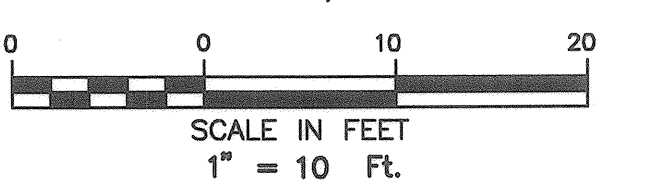


**APPROXIMATE EARTHWORK BALANCE**

EMBANKMENT EXCAVATION (CUT)	630 CY
EMBANKMENT & MISCELLANEOUS FILL	730 CY
SHRINKAGE (5%)	80 CY
WASTE / STRIPPING	90 CY
<b>IMPORT REQUIRED</b>	<b>250 CY</b>

**EARTHWORK NOTES**

1. VARIOUS EARTHWORK ITEMS OF WORK ARE FINAL PAY ITEMS AS DEFINED IN THE STANDARD SPECIFICATIONS. THE CONTRACTOR SHALL PERFORM THEIR OWN CALCULATIONS BASED UPON THEIR METHODS OF OPERATION AND ADJUST THEIR BID UNIT PRICES ACCORDINGLY.
2. EMBANKMENT EXCAVATION VOLUME INDICATED ABOVE INCLUDES EXCAVATION VOLUMES REQUIRED FOR STRUCTURES, PIPELINE TRENCHES, AND ELECTRICAL TRENCHES. VOLUME ALSO ASSUMES EXCAVATIONS ARE LAID BACK AS DETAILED IN THE PROJECT PLANS.
3. EMBANKMENT AND MISCELLANEOUS FILL VOLUME INDICATED ABOVE ACCOUNTS FOR CONCRETE, BACKFILL, BEDDING, AND SURFACING MATERIALS WHICH ARE EXCLUDED FROM THE CALCULATED VOLUME. VOLUME INCLUDES TRENCHES AND EXCAVATIONS BACKFILLED WITH EMBANKMENT OR MISCELLANEOUS FILL MATERIALS.



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City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**GRADING PLAN**

CONTRACT NO. C02111  
 SHEET 5 OF 27  
 FILE NO. 2018-0048

04-08-22 grubb 4443.dwg 4443 00 4443.00 BASE.dwg TAB: 5 GRADING PLAN



# PIPING LEGEND

PIPING LEGEND NOTES 1 THRU 9 SHOWN ON SHEET 8 - DISCHARGE STRUCTURE MECHANICAL SECTIONS & DETAILS

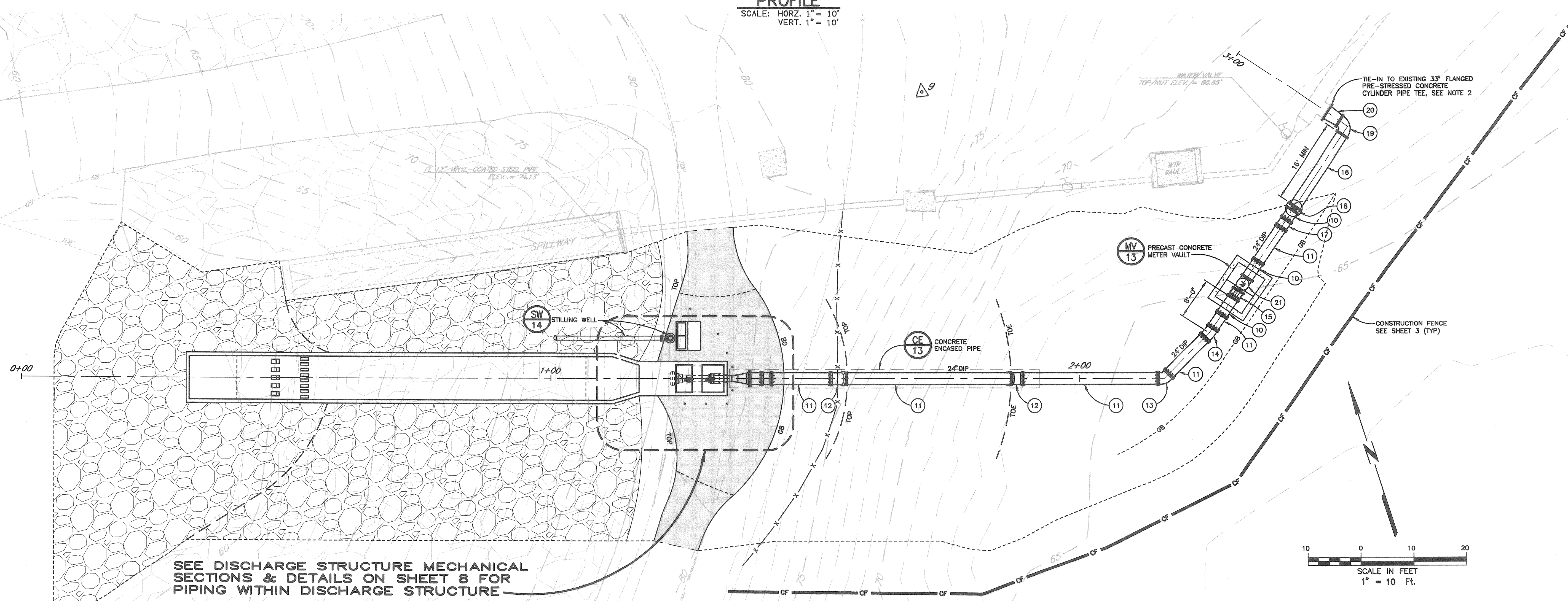
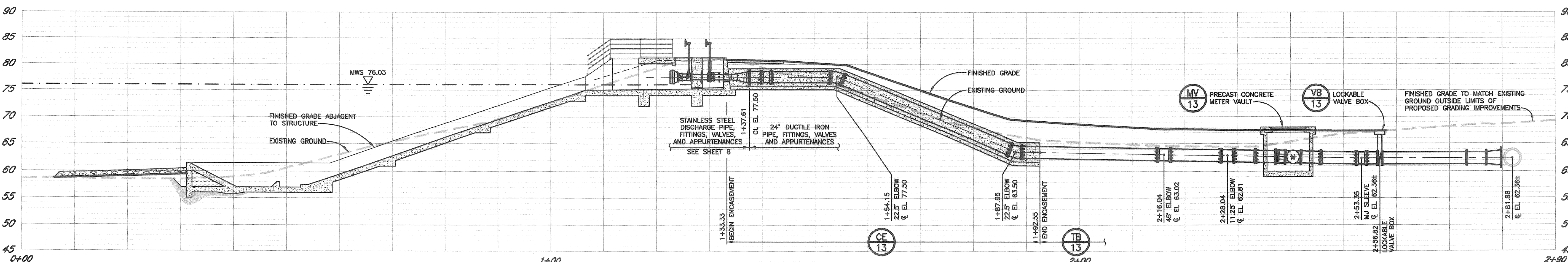
- 10 24" FLG DUCTILE IRON SPOOL WITH CLASS 250 FLG - LENGTH AS NECESSARY OR INDICATED PER PLAN.
- 11 24" MJ DUCTILE IRON PIPE WITH HIGH PRESSURE MECHANICAL JOINT RESTRAINTS. ALL MECHANICAL JOINTS NOT SHOWN FOR CLARITY.
- 12 24" MJ DUCTILE IRON 22.5° ELBOW WITH HIGH PRESSURE MECHANICAL JOINT RESTRAINTS. RESTRAINTS NOT SHOWN FOR CLARITY.
- 13 24" MJ DUCTILE IRON 45° ELBOW WITH HIGH PRESSURE MECHANICAL JOINT RESTRAINTS. RESTRAINTS NOT SHOWN FOR CLARITY.
- 14 24" MJ DUCTILE IRON 11.25° ELBOW WITH HIGH PRESSURE MECHANICAL JOINT RESTRAINTS. RESTRAINTS NOT SHOWN FOR CLARITY.
- 15 24" DISMANTLING JOINT WITH CLASS 300# FLANGES.
- 16 24" FLANGED SPOOL WITH CLASS 250 FLANGES - LENGTH PER PLAN.
- 17 24" MJ DUCTILE IRON SLEEVE WITH HIGH PRESSURE MECHANICAL JOINT RESTRAINTS.
- 18 24" FLANGED BUTTERFLY VALVE WITH CLASS 300# FLANGES AND BURIED MANUAL GEAR ACTUATOR SIMILAR TO CITY STD 878. INSTALL LOCKABLE VALVE BOX, VALVE STEM RISER, AND RISER PIPE PER CITY STD 877 AND VALVE BOX COLLAR DETAIL ON SHEET 13.
- 19 24" FLG DUCTILE IRON 90° ELBOW WITH CLASS 250 FLANGES.
- 20 CUSTOM FABRICATED EPOXY LINED AND COATED STEEL FITTING. 33" FLANGE TO MATCH EXISTING 33" CONCRETE CYLINDER PIPE FLANGE BY 24" CLASS 300# FLANGE. POTHOLE PRIOR TO FABRICATION.
- 21 24" FLANGED MAGNETIC FLOW METER.

# NOTES

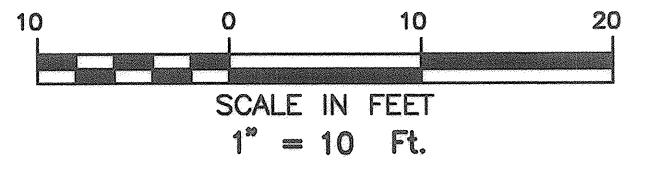
1. ALL PIPING, FITTINGS, AND JOINTS SHALL BE RESTRAINED AND RATED FOR A WATER WORKING PRESSURE OF 350 PSI. SPECIAL FLANGE GASKETS CONTAINING A MOLDED ANNULAR SEALING ELEMENT SHALL BE USED WHERE NECESSARY TO PROVIDE PRESSURE RATING.
2. REMOVE EXISTING BLIND FLANGE AND DEWATER PIPE AS NECESSARY TO MAKE CONNECTION. POTHOLE TO VERIFY CONDITIONS AND DEPTH OF EXISTING FACILITIES. EXISTING ISOLATION VALVE ALONG 33-INCH PIPELINE IS LOCATED APPROXIMATELY 600 FEET UPSTREAM OF PROPOSED CONNECTION.



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SEE DISCHARGE STRUCTURE MECHANICAL SECTIONS & DETAILS ON SHEET 8 FOR PIPING WITHIN DISCHARGE STRUCTURE



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City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**PIPING PLAN & PROFILE**

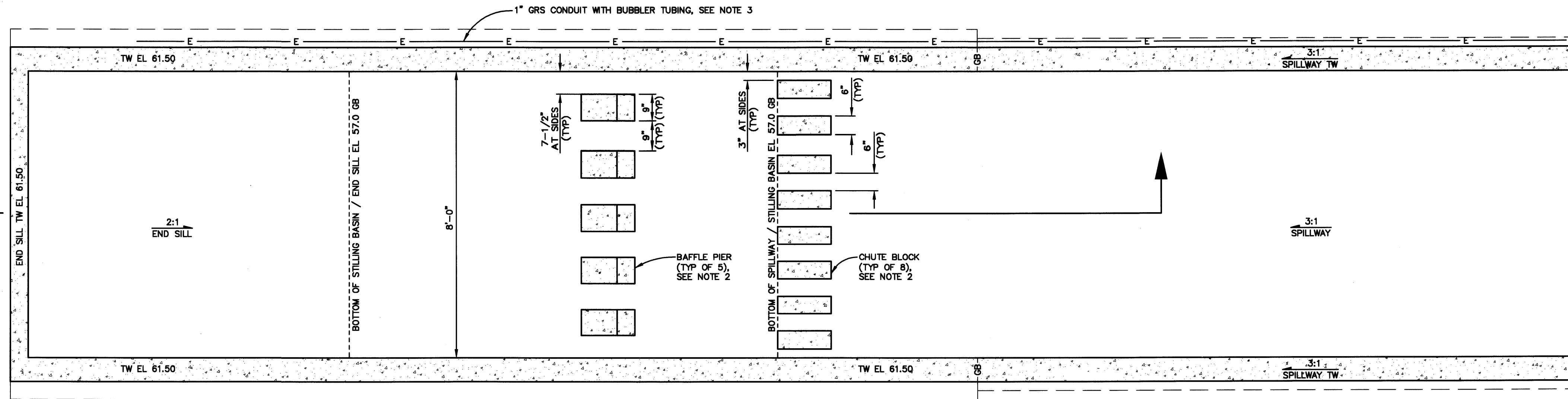
CONTRACT NO. C02111  
 SHEET 6 OF 27  
 FILE NO. 2018-0048

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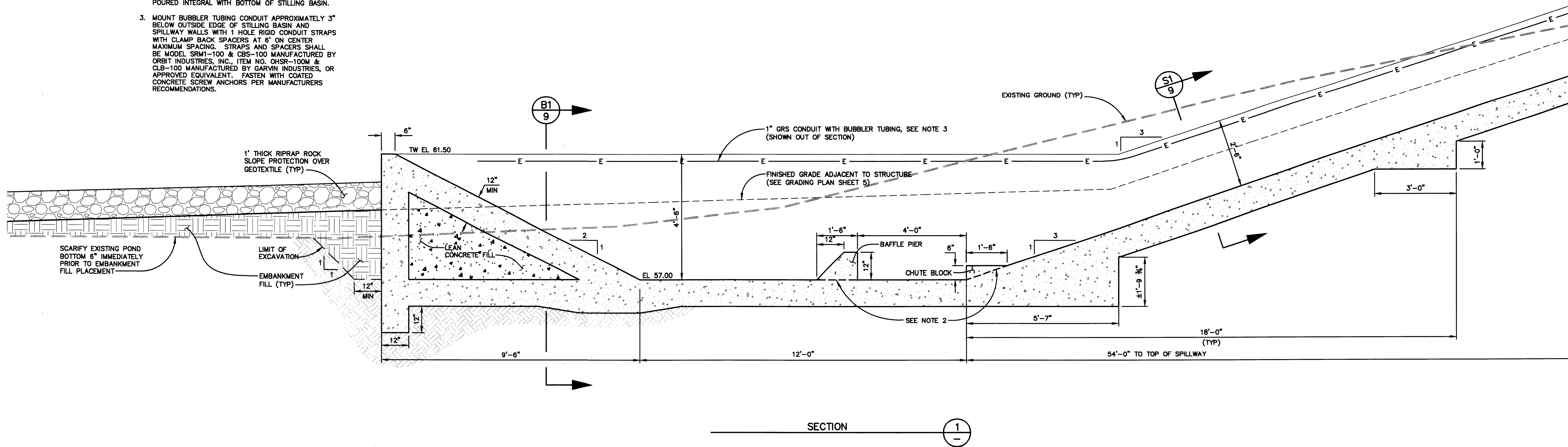


**NOTES**

- SEE STRUCTURAL DRAWINGS ON SHEETS 10 THRU 12 FOR REINFORCING, CONSTRUCTION JOINT LOCATIONS, AND DIMENSIONS NOT NOTED HERE.
- CHUTE BLOCKS AND BAFFLE PIERS SHALL BE POURED INTEGRAL WITH BOTTOM OF STILLING BASIN.
- MOUNT BUBBLER TUBING CONDUIT APPROXIMATELY 3" BELOW OUTSIDE EDGE OF STILLING BASIN AND SPILLWAY WALLS WITH 1 HOLE RIGID CONDUIT STRAPS WITH CLAMP BACK SPACERS AT 6" ON CENTER MAXIMUM SPACING. STRAPS AND SPACERS SHALL BE MODEL SRM1-100 & CBS-100 MANUFACTURED BY ORBIT INDUSTRIES, INC., ITEM NO. OHSR-100M & CLB-100 MANUFACTURED BY GARVIN INDUSTRIES, OR APPROVED EQUIVALENT. FASTEN WITH COATED CONCRETE SCREW ANCHORS PER MANUFACTURERS RECOMMENDATIONS.



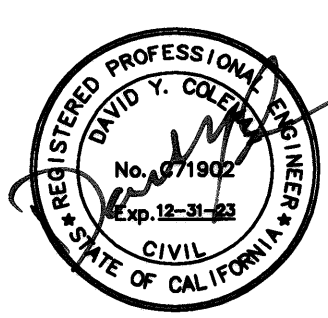
PLAN



SECTION

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

SEE SPILLWAY STRUCTURAL SECTIONS & DETAILS ON SHEET 16 AND PROFILE ON SHEET 8 FOR CONTINUATION



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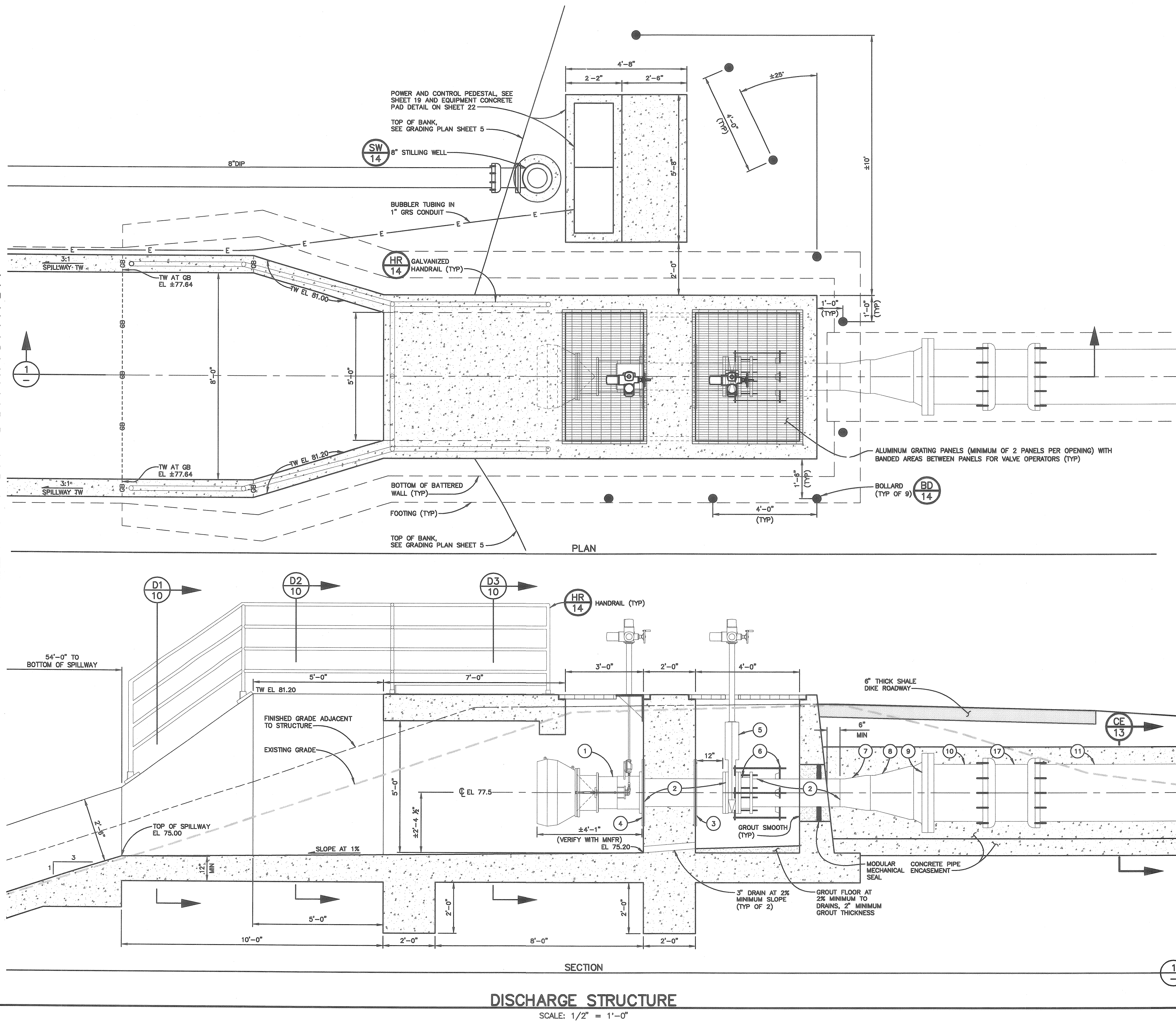
NO.	DATE	REVISION	BY

SCALE: AS SHOWN	DATE: MAY 2022
DWN BY: PIT	CHK BY: BB & DYC

City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**STILLING BASIN & SPILLWAY SECTIONS & DETAILS**



SEE SPILLWAY STRUCTURAL SECTIONS & DETAILS ON SHEET 16  
AND PROFILE ON SHEET 7 FOR CONTINUATION



**DISCHARGE STRUCTURE**  
SCALE: 1/2" = 1'-0"

SEE PIPING PLAN & PROFILE ON SHEET 6 FOR CONTINUATION

**NOTES**

1. ALL PIPING, FITTINGS, AND JOINTS SHALL BE RESTRAINED AND RATED FOR A WATER WORKING PRESSURE OF 350 PSI. SPECIAL FLANGE GASKETS CONTAINING A MOLDED ANNULAR SEALING ELEMENT SHALL BE USED WHERE NECESSARY TO PROVIDE PRESSURE RATING.
2. ALL STAINLESS STEEL PIPING, VALVES, FITTINGS, AND APPURTENANCES SHALL BE GRADE 316 OR 316L.
3. SEE STRUCTURAL DRAWINGS ON SHEETS 10 THRU 12 FOR REINFORCING, CONSTRUCTION JOINT LOCATIONS, AND DIMENSIONS NOT NOTED ON THIS SHEET.

**MECHANICAL LEGEND**

- 1 12" STAINLESS STEEL FIXED-CONE DISPERSION VALVE WITH INTEGRALLY ATTACHED HOOD AND MOTORIZED ACTUATOR, SEE TECHNICAL SPECIFICATION SECTION 33 12 16.22 & SECTION 33 12 16.23
- 2 12" SCHEDULE 40S STAINLESS STEEL WELDED / SEAMLESS PIPE PER ASTM A312.
- 3 30" x 2" THICK STAINLESS STEEL THRUST RING CONTINUOUSLY WELDED TO STAINLESS STEEL PIPE RATED TO TRANSFER 45KIPS BEARING LOAD. THRUST RING SHALL BE EMBEDDED 1" INTO FACE OF CONCRETE WALL.
- 4 THRUST RING PER NOTE 3 WITH TAPPED HOLES TO MATCH BOLTING PATTERN OF 12" FIXED-CONE DISPERSION VALVE FLANGE AND RATED TO 350 PSI WORKING WATER PRESSURE.
- 5 12" STAINLESS STEEL SQUARE BOTTOM KNIFE GATE VALVE WITH MOTORIZED ACTUATOR, SEE TECHNICAL SPECIFICATION SECTION 33 12 16.21 & SECTION 33 12 16.23
- 6 12" FLANGE COUPLING ADAPTER. RESTRAINED WITH FOUR (4) 7/8" B8M (316) STAINLESS STEEL TIE RODS, ANVIA M11 STAINLESS STEEL ANCHOR POINTS ATTACHED TO PIPE, AND HARNESS LUGS AT KNIFE GATE FLANGE.
- 7 16"x12" SCHEDULE 40 (STANDARD WEIGHT) STAINLESS STEEL BUTT-WELD CONCENTRIC REDUCER PER ASTM A403
- 8 24"x16" SCHEDULE 40 (STANDARD WEIGHT) STAINLESS STEEL BUTT-WELD CONCENTRIC REDUCER PER ASTM A403.
- 9 24" STAINLESS STEEL CLASS 300# RAISED FACE SLIP-ON FLANGE.
- 10 24" FLG&PE DUCTILE IRON SPOOL WITH CLASS 250 FLG - LENGTH AS NECESSARY OR INDICATED PER PLAN.
- 11 24" MJ DUCTILE PIPE WITH HIGH PRESSURE MECHANICAL JOINT RESTRAINTS. ALL MECHANICAL JOINTS NOT SHOWN FOR CLARITY.
- 17 24" MJ DUCTILE PIPE SLEEVE WITH HIGH PRESSURE MECHANICAL JOINT RESTRAINTS.

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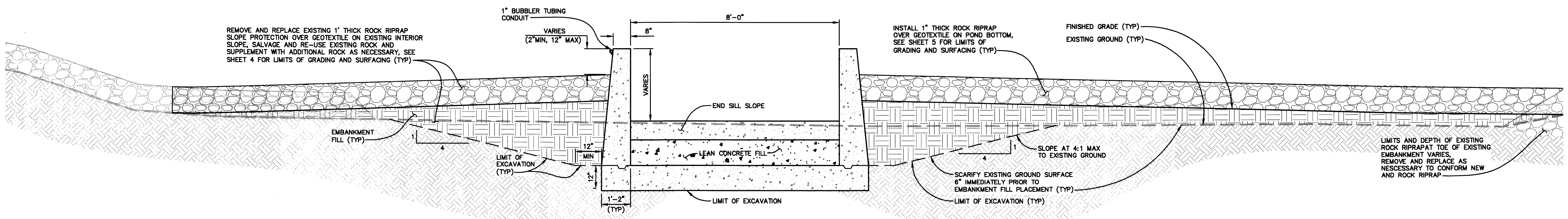
City of Santa Rosa  
**Breje & Race**  
CONSULTING ENGINEERS  
4370 Piedra Blanca - Suite 120 - Santa Rosa, CA 95403 - 707.538.8322  
REGISTERED PROFESSIONAL ENGINEER  
No. C71802  
EXPIRES 12-31-23  
CIVIL  
STATE OF CALIFORNIA



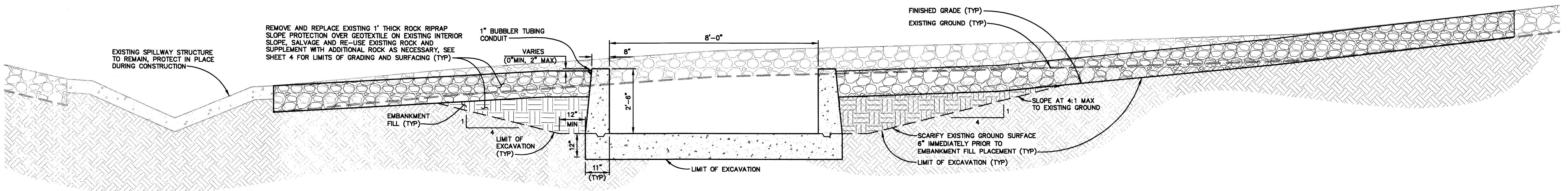
**NOTE**  
 SEE STRUCTURAL DRAWINGS ON SHEETS 15 THRU 17 FOR REINFORCING, CONSTRUCTION JOINT LOCATIONS, AND DIMENSIONS NOT NOTED ON THIS SHEET.



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TYPICAL CROSS SECTION **B1**  
**STILLING BASIN CROSS SECTION**  
 SCALE: 1/2" = 1'-0"



TYPICAL CROSS SECTION **S1**  
**SPILLWAY CROSS SECTION**  
 SCALE: 1/2" = 1'-0"

NO.	DATE	REVISION	BY

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City of Santa Rosa  
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**SPILLWAY & STILLING BASIN MISCELLANEOUS CROSS SECTIONS**

04-08-22 grubb \\4443\dwg\4443 00\4443.00 SECTION & DETAILS.dwg TAB: 9 SPILLWAY & STILLING BASIN MISCELLANEOUS CROSS SECTIONS

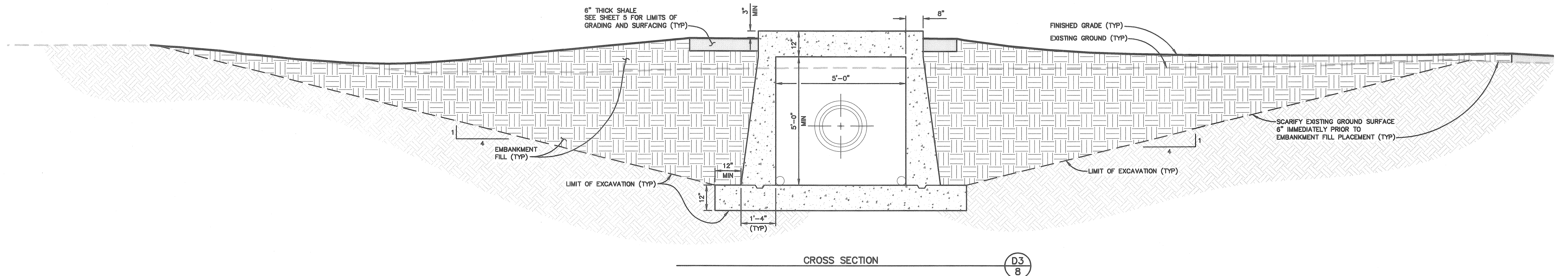
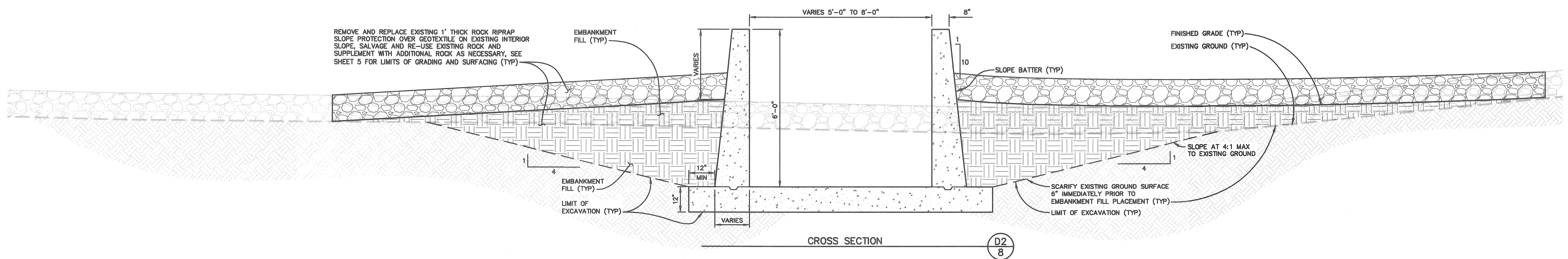
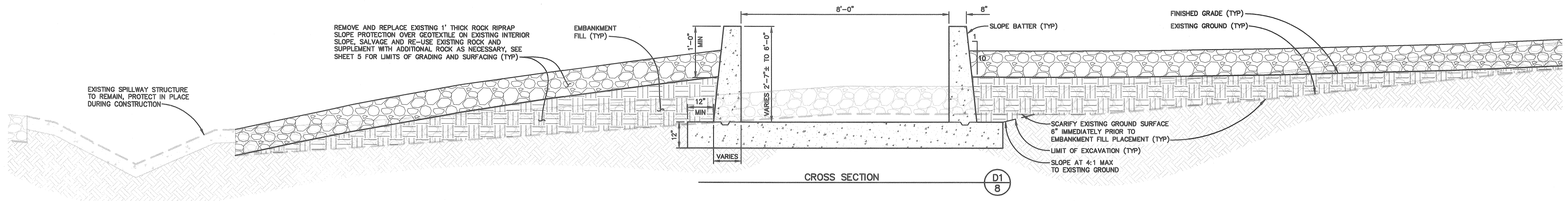


TAB: 10 DISCHARGE STRUCTURE MISCELLANEOUS CROSS SECTIONS

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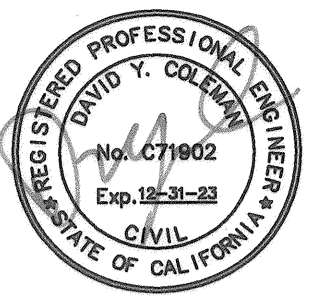
**NOTE**

SEE STRUCTURAL DRAWINGS ON SHEETS 15 THRU 17 FOR REINFORCING, CONSTRUCTION JOINT LOCATIONS, AND DIMENSIONS NOT NOTED ON THIS SHEET.



**DISCHARGE STRUCTURE CROSS SECTIONS**

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



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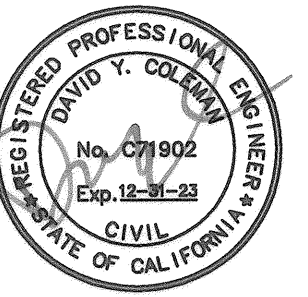
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City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**DISCHARGE STRUCTURE MISCELLANEOUS CROSS SECTIONS**

CONTRACT NO. C02111  
 SHEET 10 OF 27  
 FILE NO. 2018-0048



05-06-22 Pathal \\4443\dwg\4443\_00\4443.00 DETAIL-Delta Pond.dwg TAB: 11 OUTLET FLOW METER REPLACEMENT SITE & PIPING PLANS



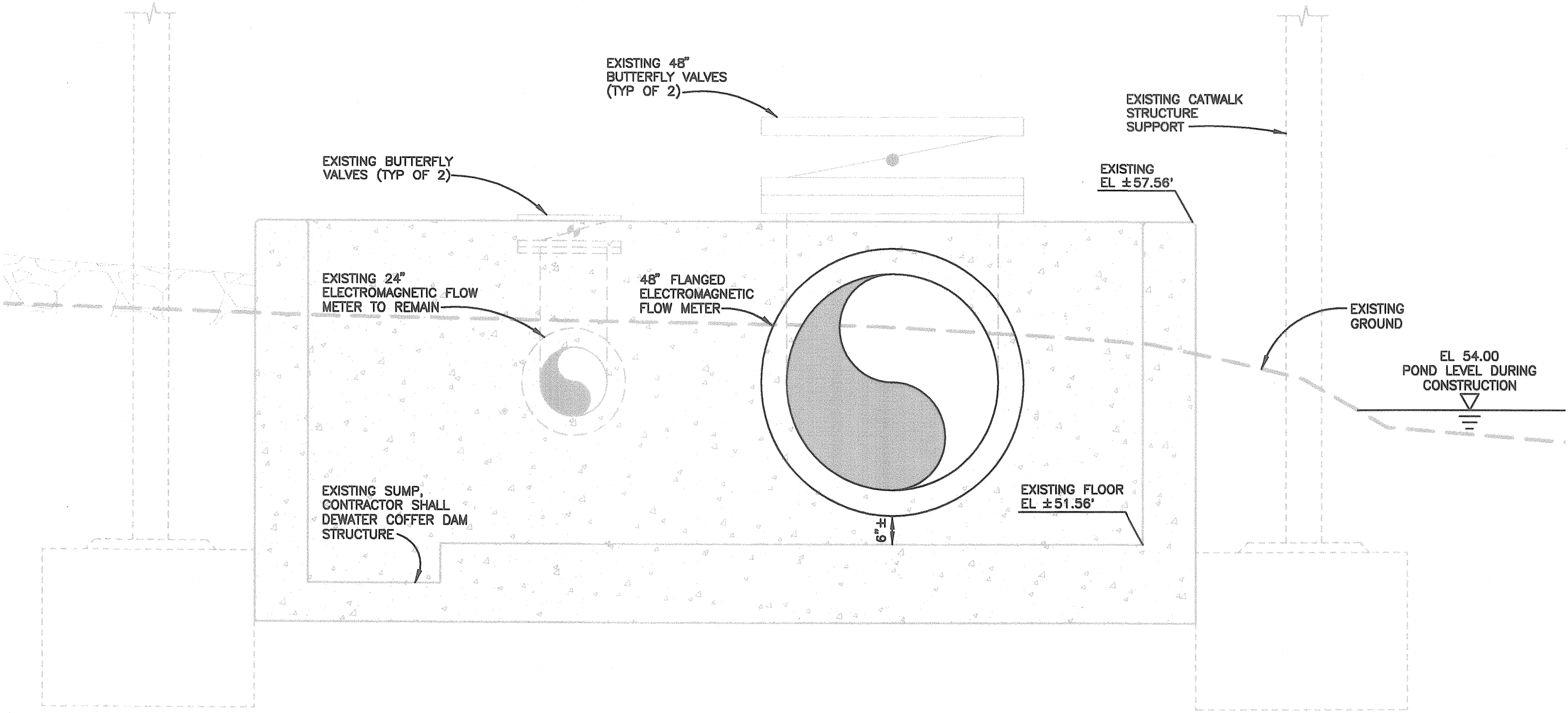
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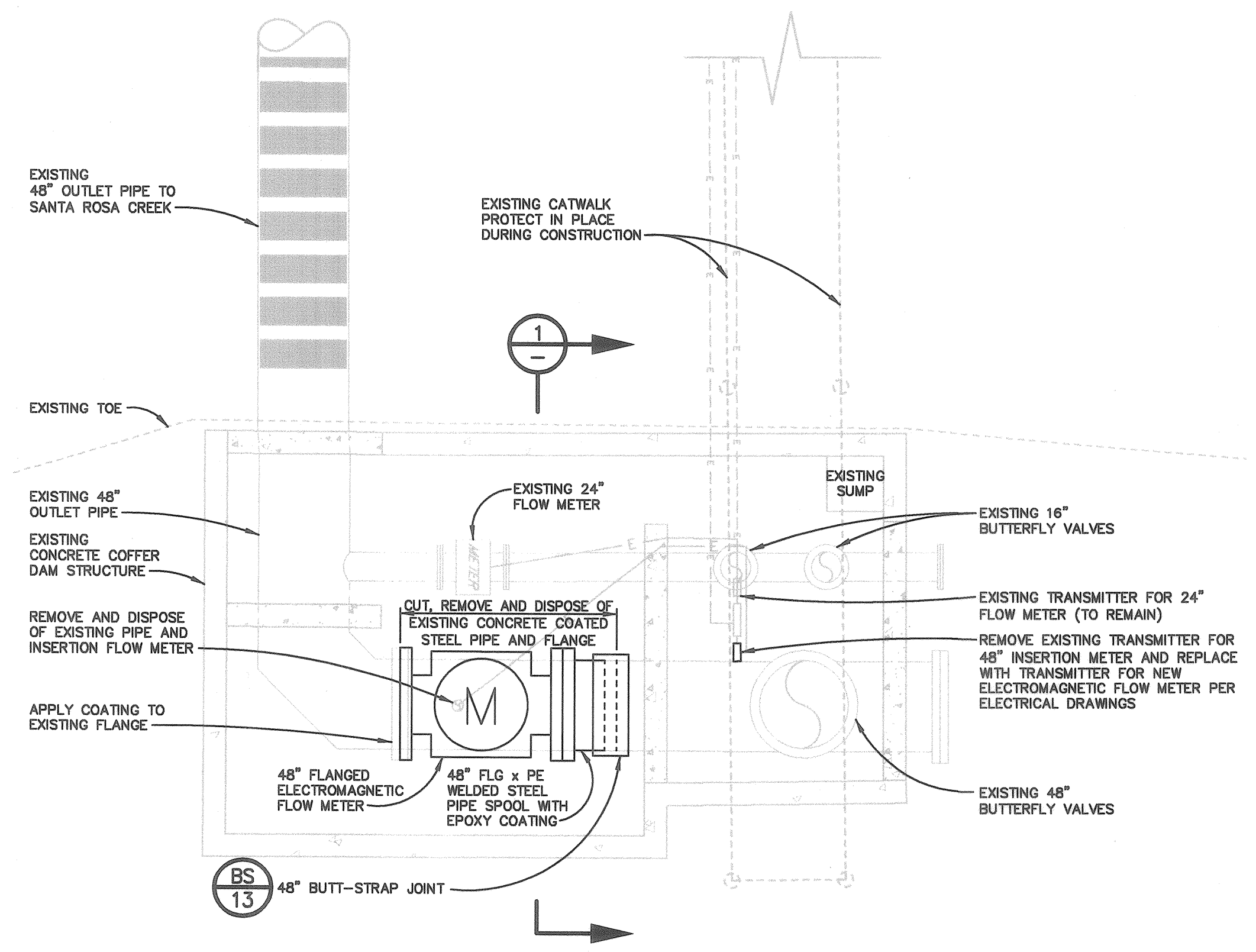
SCALE	DATE	CHK BY	DWC BY
AS SHOWN	MAY 2022	BB & DYC	

City of Santa Rosa  
**GEYSERS-DELTA CONNECTION  
 IMPROVEMENTS  
 OUTLET FLOW METER  
 REPLACEMENT SITE &  
 PIPING PLANS**

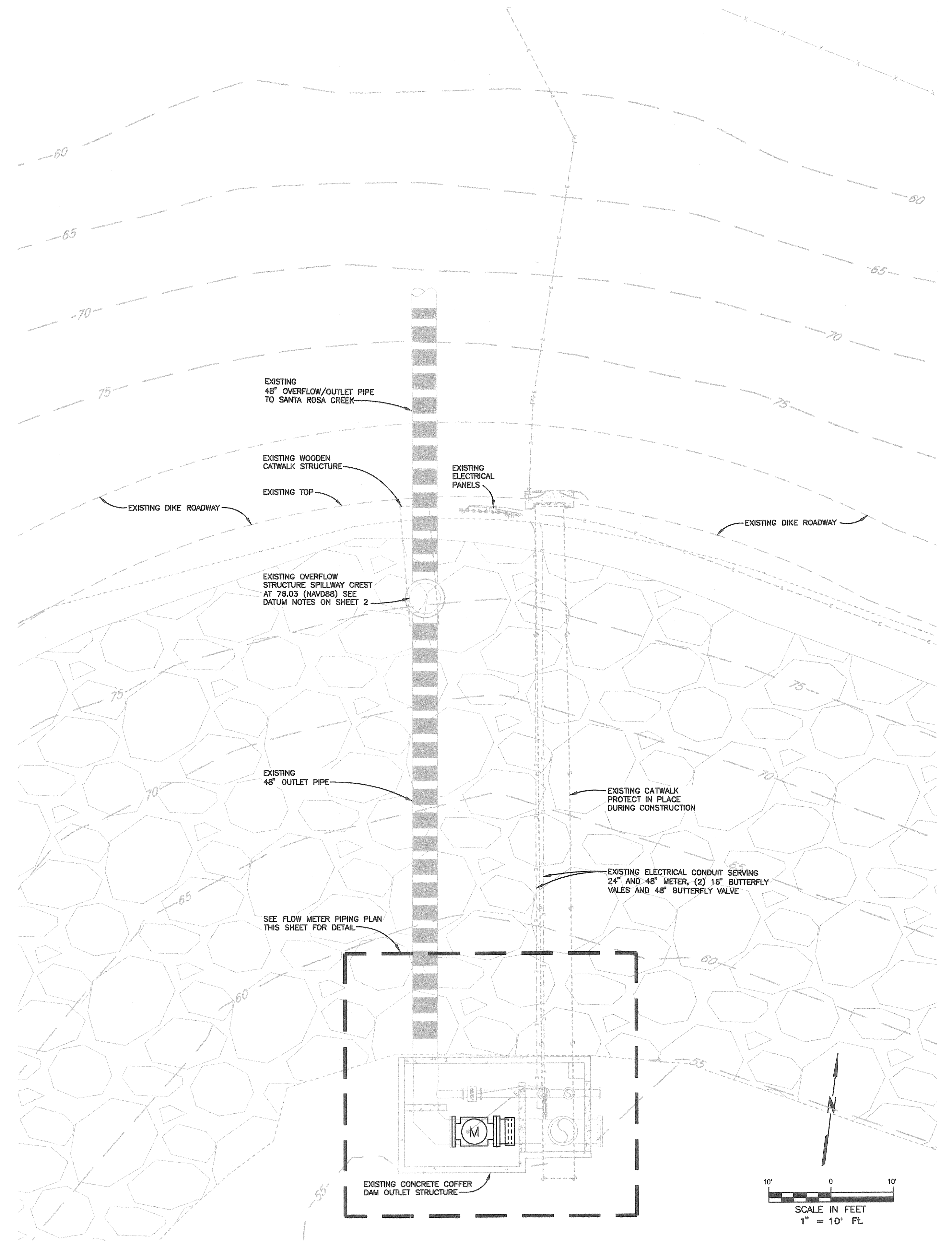
CONTRACT NO.  
 C02111  
 SHEET 11 OF 27  
 FILE NO. 2018-0048



**SECTION 1-1**  
 SCALE: 1"=2'



**FLOW METER PIPING PLAN**  
 SCALE: 1"=5'

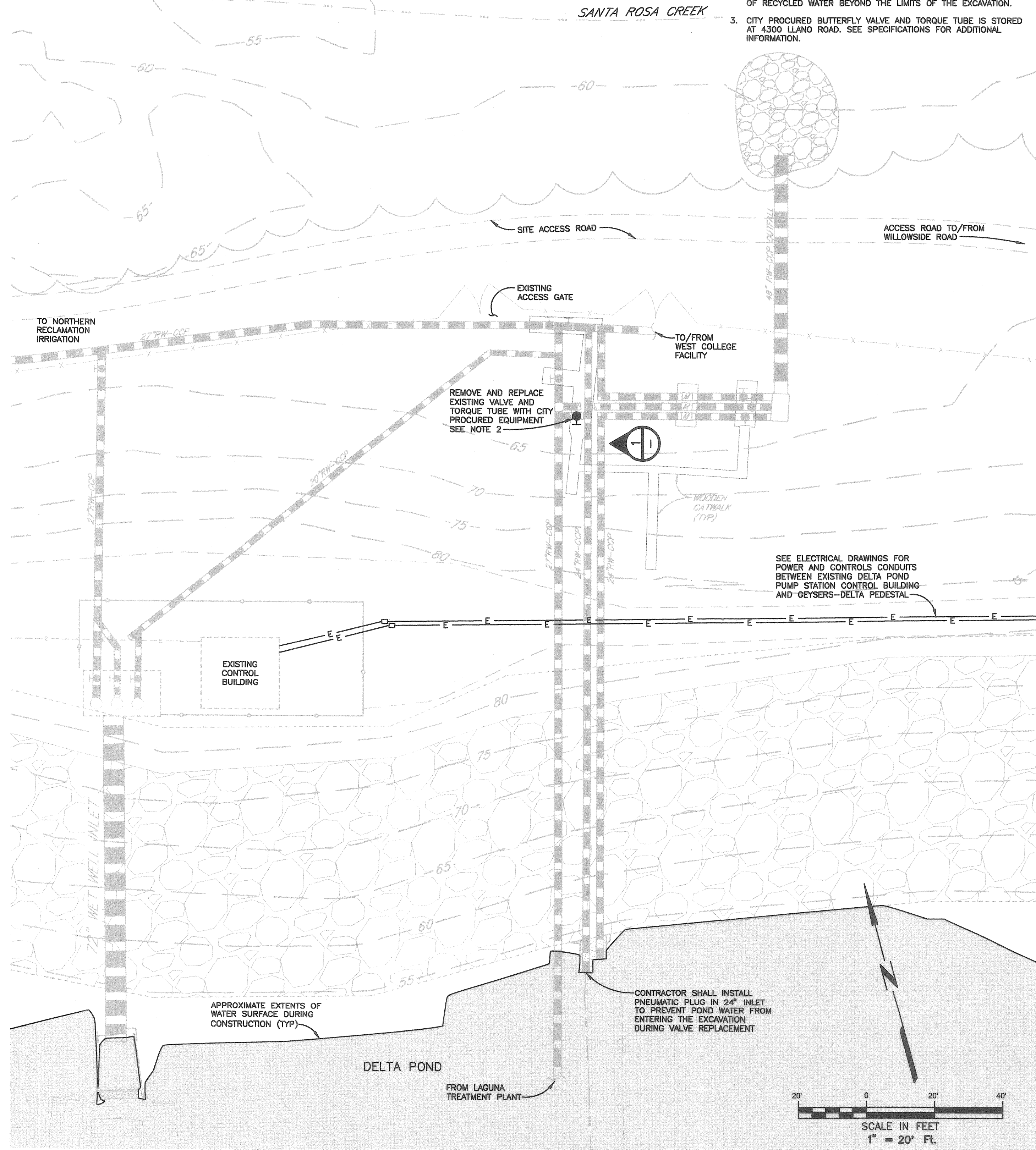


**FLOW METER SITE PLAN**  
 SCALE: 1"=20'

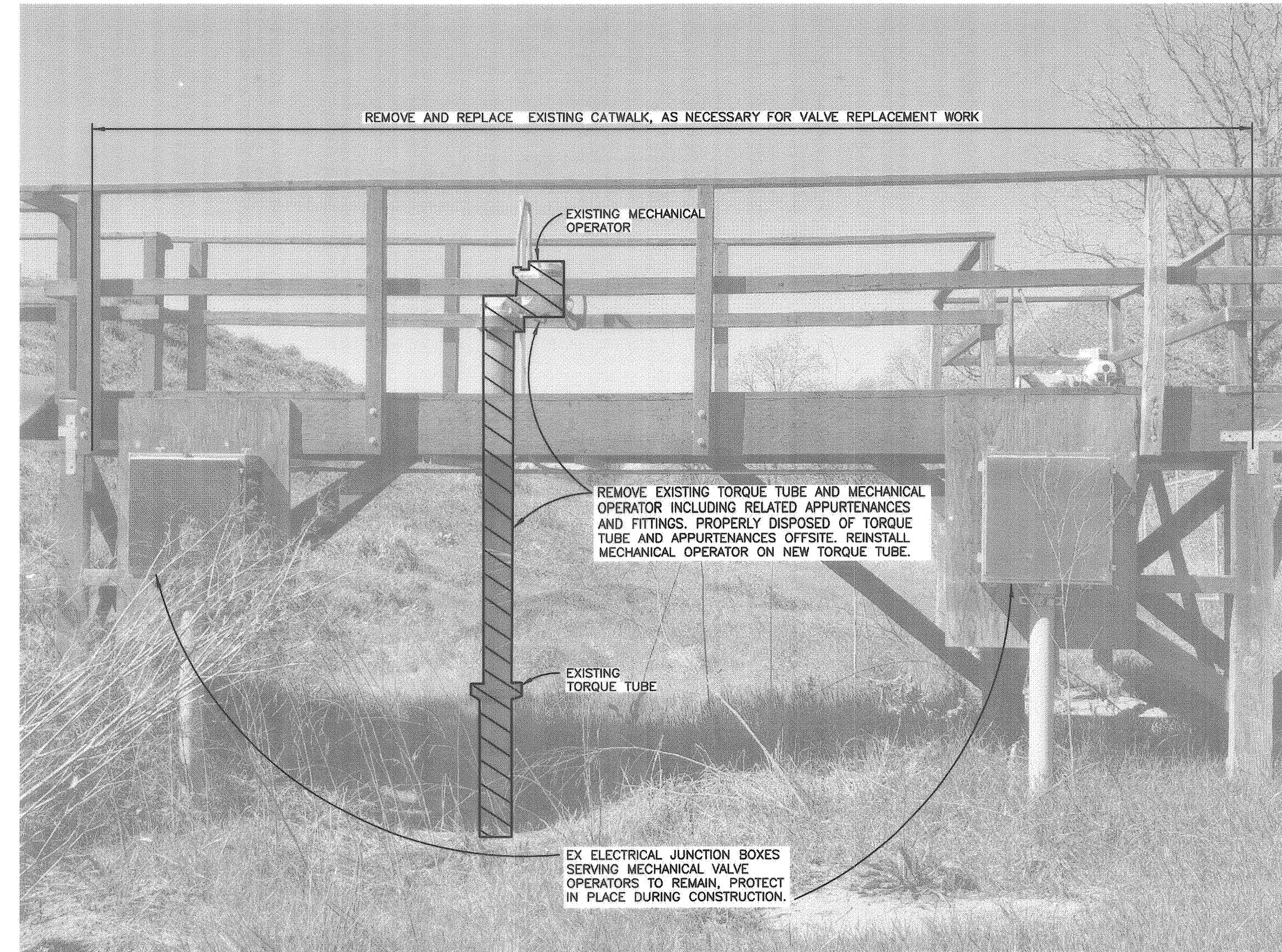


### SHEET NOTES

1. TOPOGRAPHIC INFORMATION BEYOND THE OUTSIDE TOP OF THE EMBANKMENT BASED ON 2013 COUNTY LIDAR, AS-BUILT, AND 2022 AERIAL INFORMATION.
2. CONTRACTOR SHALL DEWATER EXISTING PIPELINE AND EXCAVATION AS NECESSARY TO COMPLETE VALVE REPLACEMENT WORK. ALL WATER SHALL BE DISCHARGED INTO DELTA POND. THE ANTICIPATED VOLUME OF WATER TO BE DEWATERED FROM THE PIPELINE IS APPROXIMATELY 250,000 GALLONS. THE CONTRACTOR SHALL RELEASE WATER FROM THE PIPELINE IN A CONTROLLED MANNER THAT IS HANDLED WITH THE CONTRACTORS DEWATERING PUMP AND DOES NOT RESULT IN AN UNCONTROLLED DISCHARGE OF RECYCLED WATER BEYOND THE LIMITS OF THE EXCAVATION.
3. CITY PROCURED BUTTERFLY VALVE AND TORQUE TUBE IS STORED AT 4300 LLANO ROAD. SEE SPECIFICATIONS FOR ADDITIONAL INFORMATION.

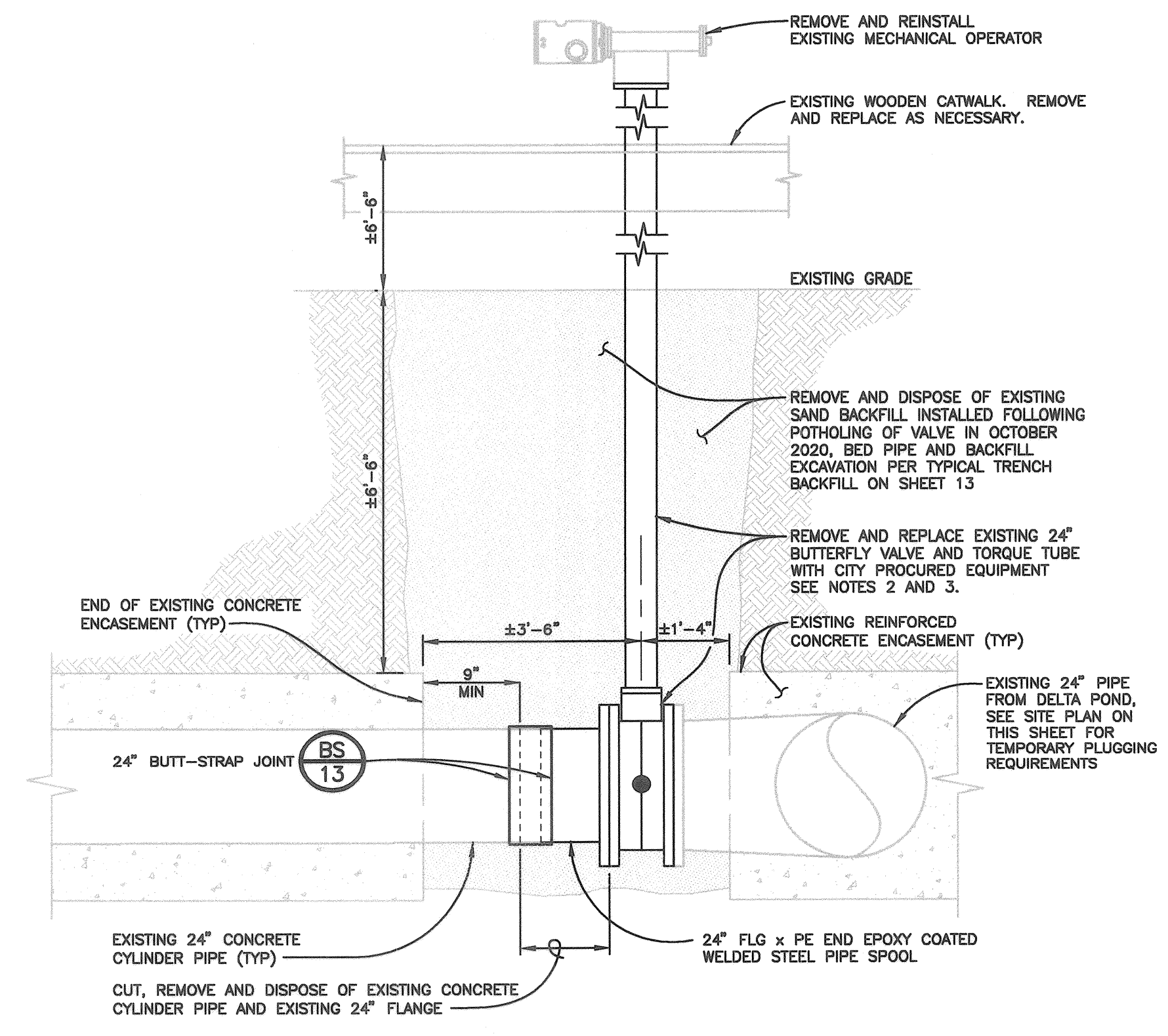


### BUTTERFLY VALVE REPLACEMENT SITE PLAN



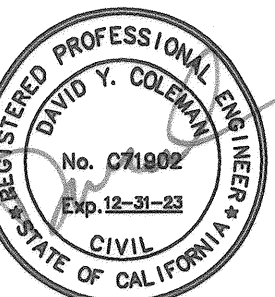
### BUTTERFLY VALVE REPLACEMENT SELECTIVE SITE DEMOLITION ELEVATION

NOT TO SCALE



### BUTTERFLY VALVE REPLACEMENT DETAIL

NOT TO SCALE



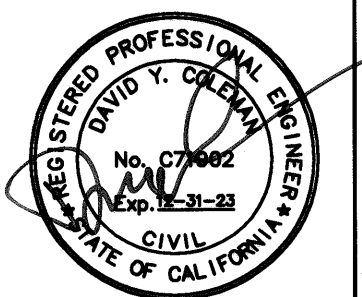
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 475 Aviation Blvd., Suite 1250, Santa Rosa, CA 95402  
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**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**BUTTERFLY VALVE REPLACEMENT**





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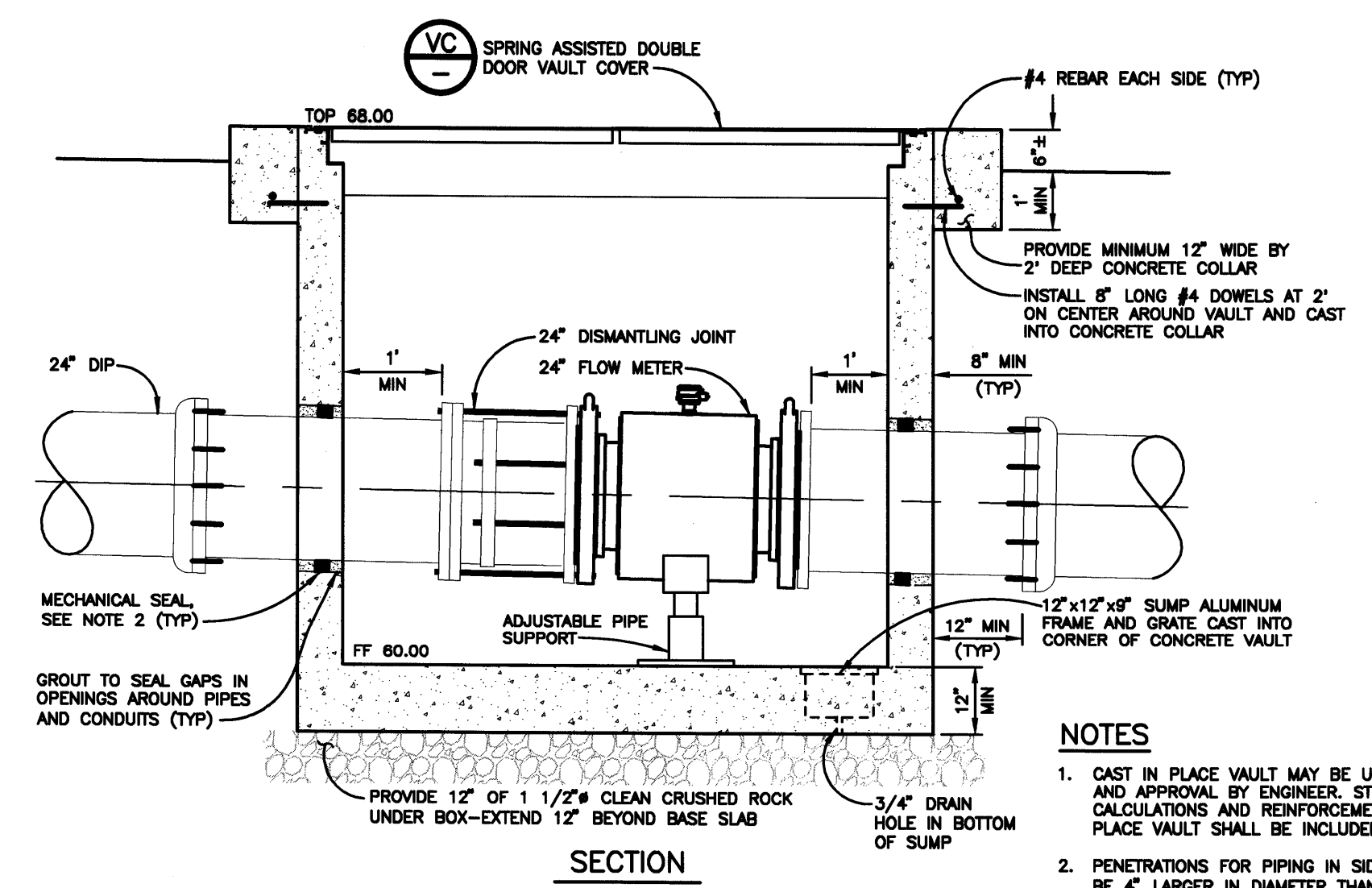
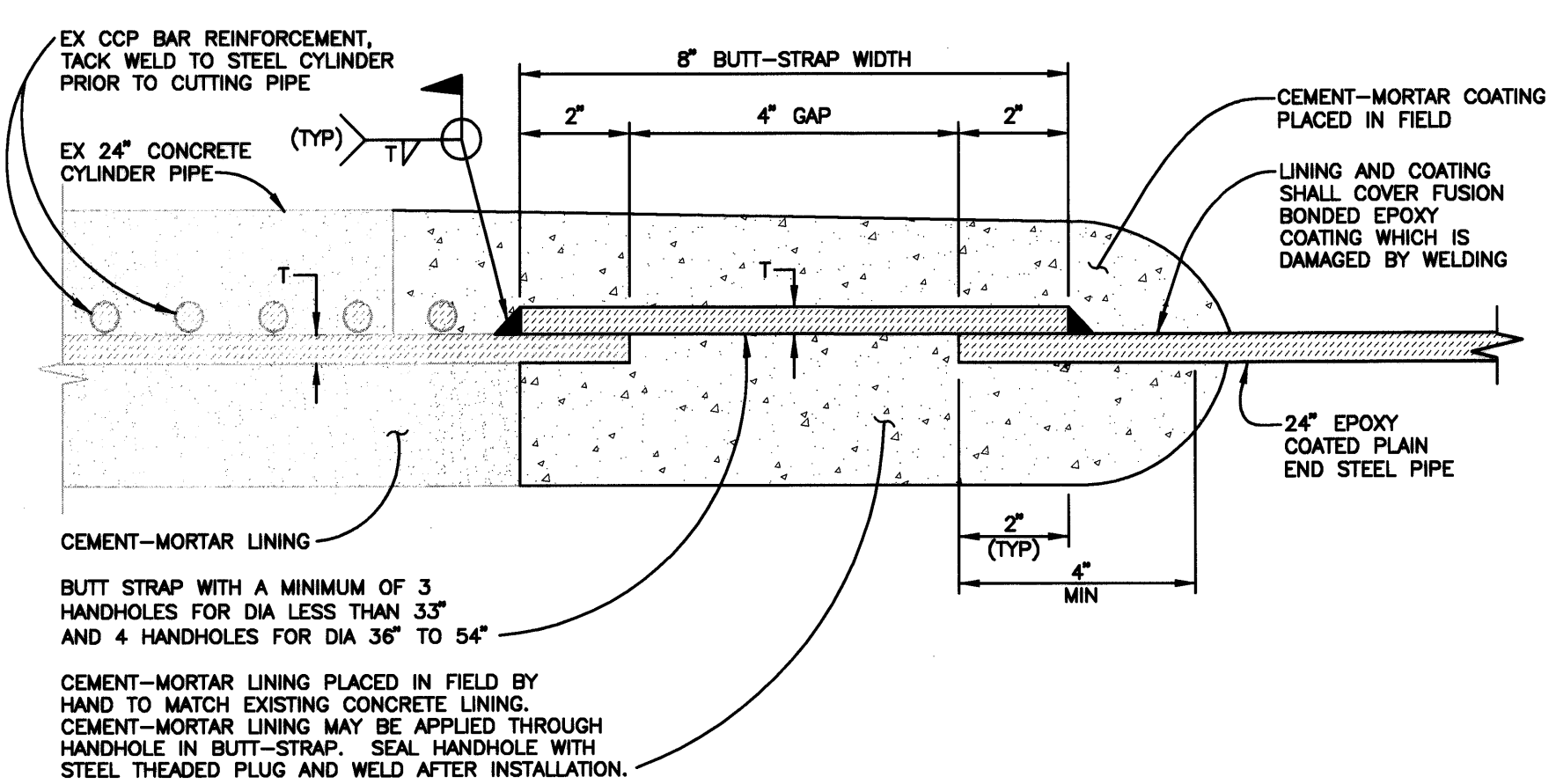
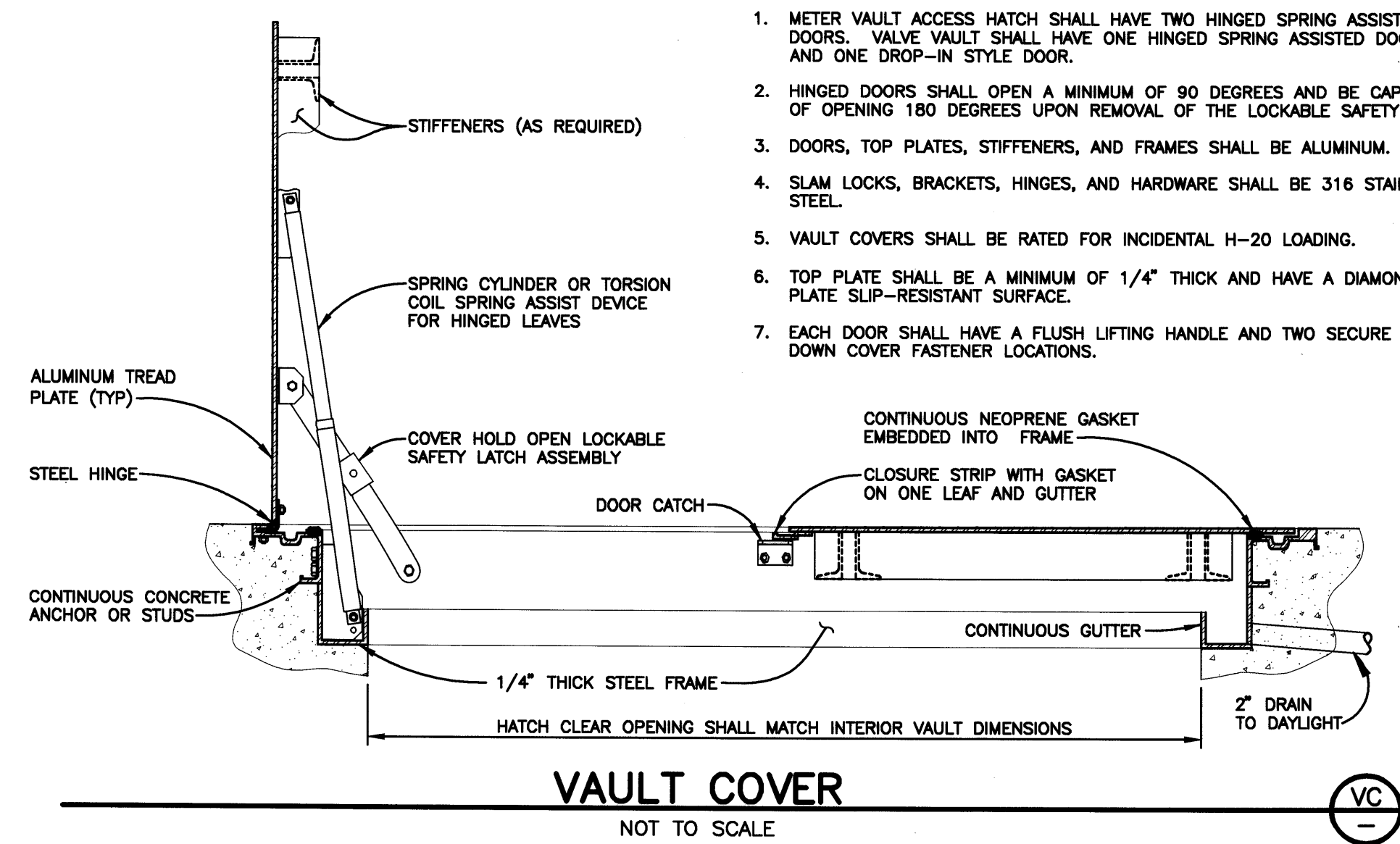
SCALE: AS SHOWN	DATE: MAY 2022	CHK BY: BB & DYC
DWN BY: PIT		

City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**MISCELLANEOUS PIPING DETAILS**

CONTRACT NO. C02111  
 SHEET 13 OF 27  
 FILE NO. 2018-0048

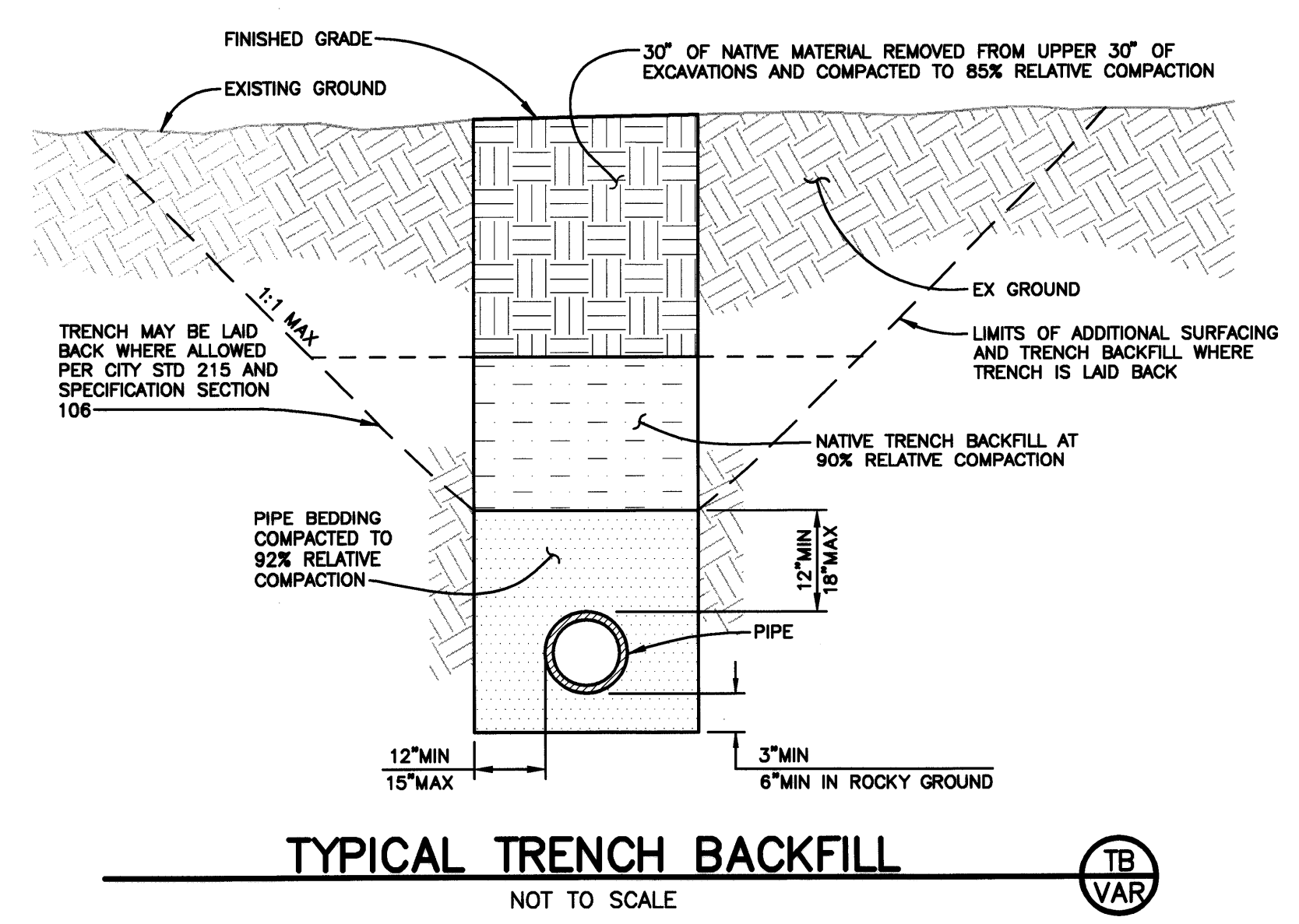
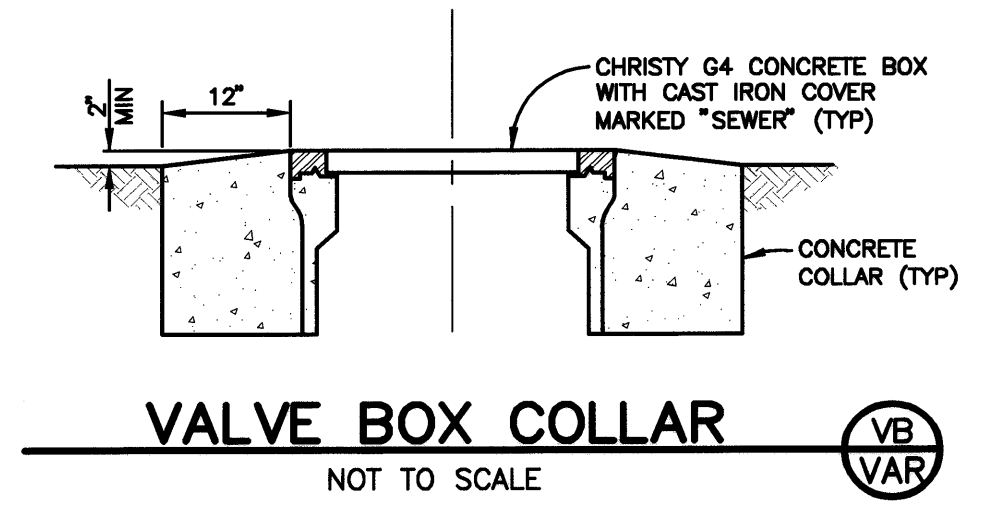
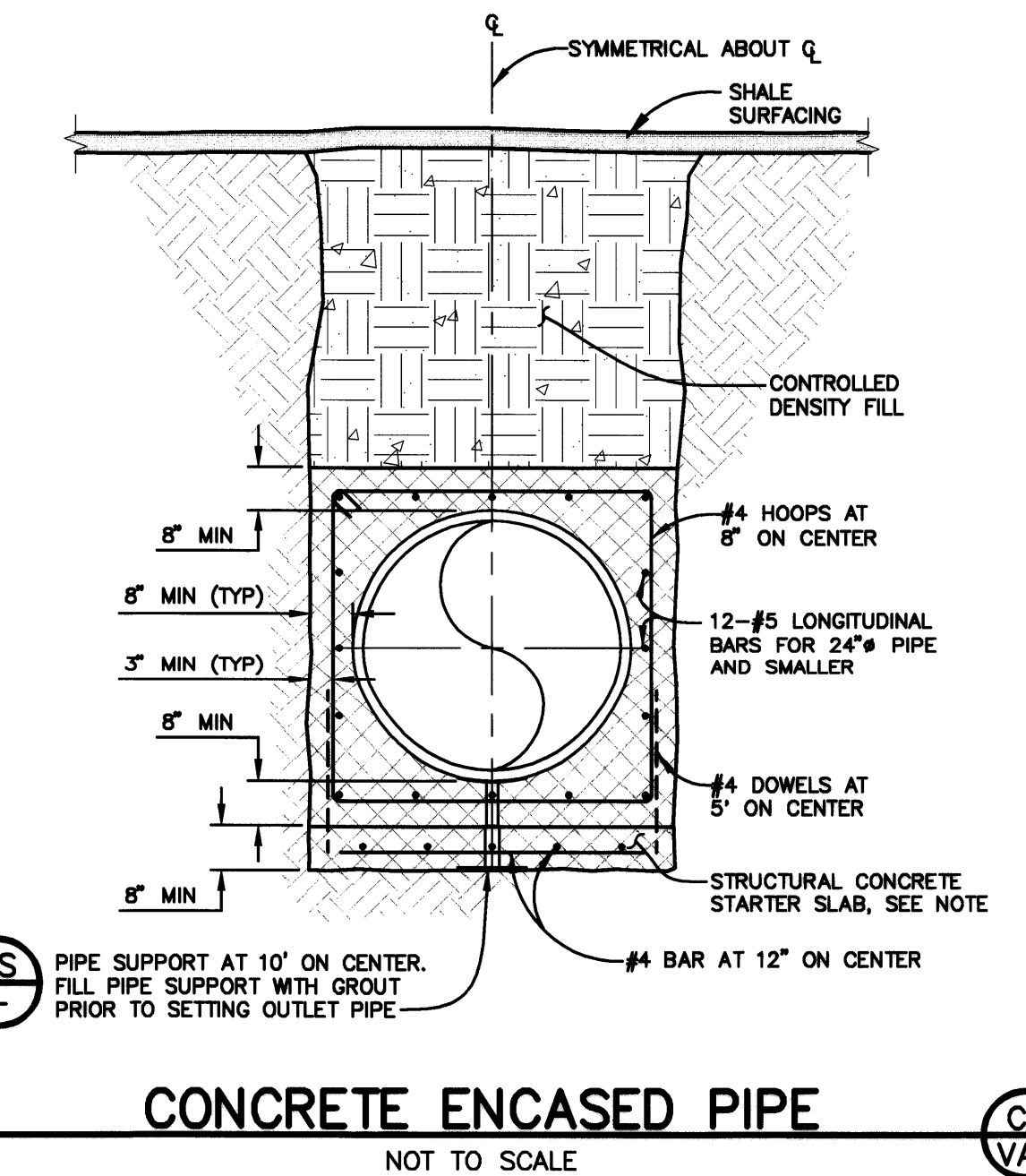
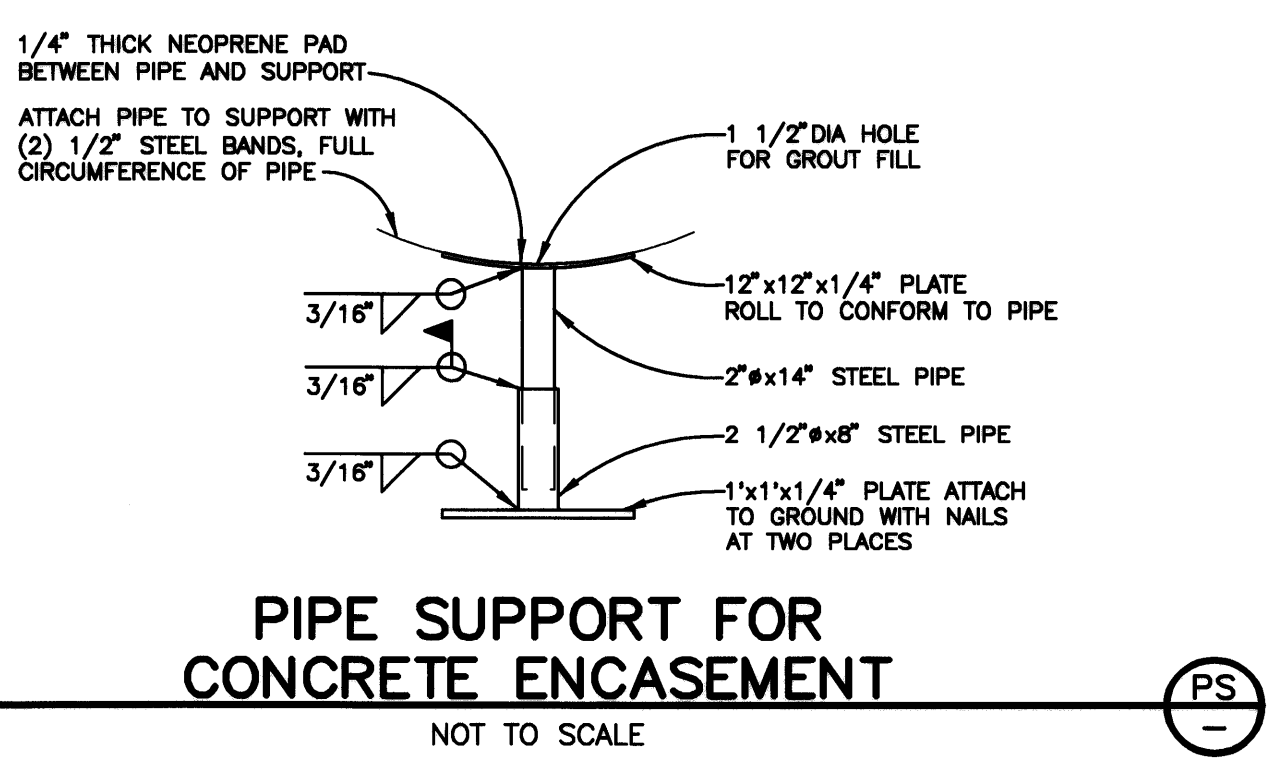
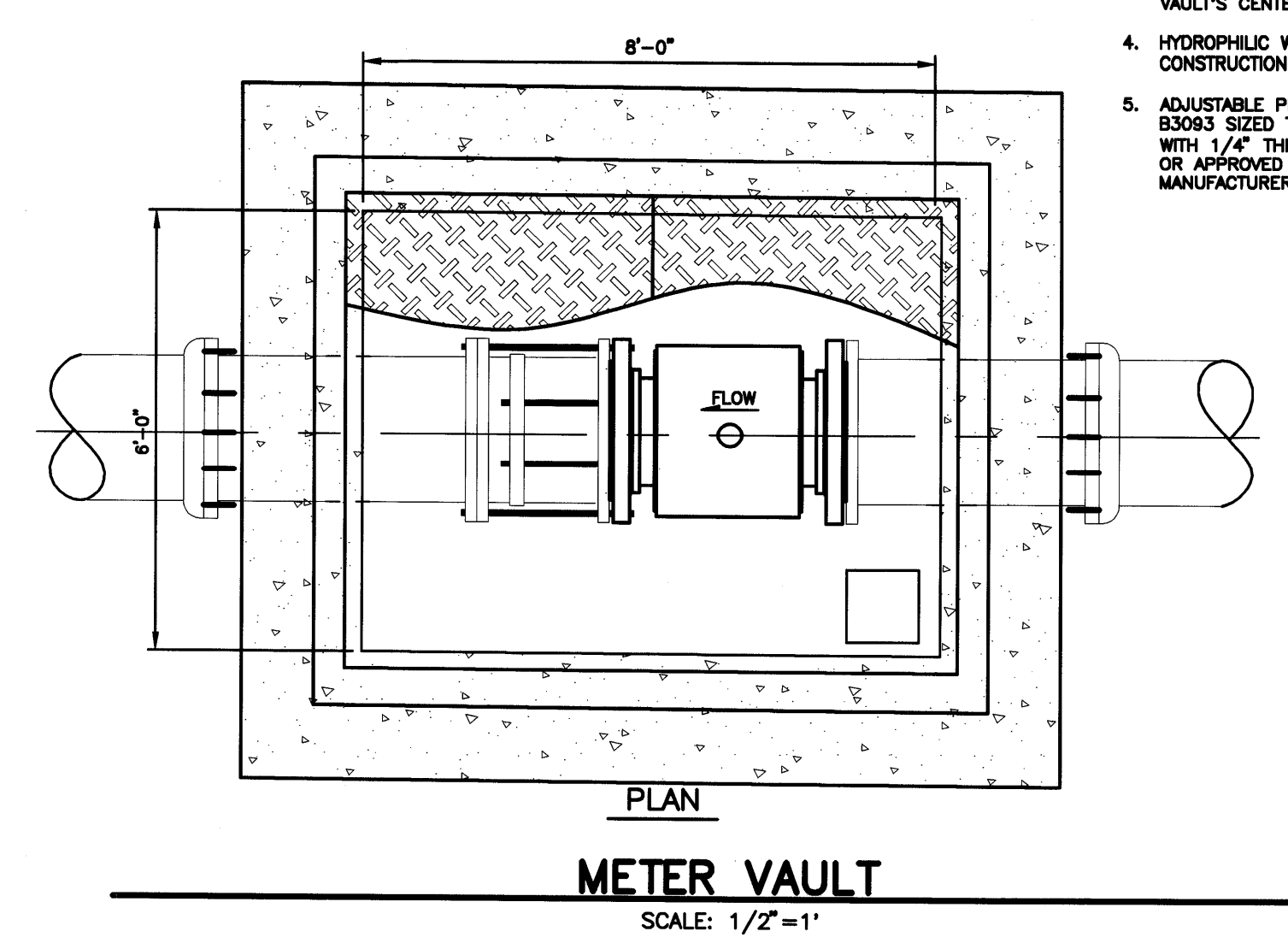
**NOTES**

- METER VAULT ACCESS HATCH SHALL HAVE TWO HINGED SPRING ASSISTED DOORS. VALVE VAULT SHALL HAVE ONE HINGED SPRING ASSISTED DOOR AND ONE DROP-IN STYLE DOOR.
- HINGED DOORS SHALL OPEN A MINIMUM OF 90 DEGREES AND BE CAPABLE OF OPENING 180 DEGREES UPON REMOVAL OF THE LOCKABLE SAFETY LATCH.
- DOORS, TOP PLATES, STIFFENERS, AND FRAMES SHALL BE ALUMINUM.
- SLAM LOCKS, BRACKETS, HINGES, AND HARDWARE SHALL BE 316 STAINLESS STEEL.
- VAULT COVERS SHALL BE RATED FOR INCIDENTAL H-20 LOADING.
- TOP PLATE SHALL BE A MINIMUM OF 1/4" THICK AND HAVE A DIAMOND PLATE SLIP-RESISTANT SURFACE.
- EACH DOOR SHALL HAVE A FLUSH LIFTING HANDLE AND TWO SECURE BOLT DOWN COVER FASTENER LOCATIONS.



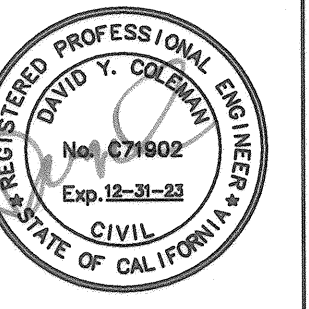
**NOTES**

- CAST IN PLACE VAULT MAY BE USED UPON SUBMITTAL AND APPROVAL BY ENGINEER. STRUCTURAL CALCULATIONS AND REINFORCEMENT FOR CAST IN PLACE VAULT SHALL BE INCLUDED IN SUBMITTAL.
- PENETRATIONS FOR PIPING IN SIDES OF VAULT SHALL BE 4 LARGER IN DIAMETER THAN THE PIPE.
- LIFTING LUGS SHALL BE LOCATED ABOVE PRECAST VAULT'S CENTER OF GRAVITY.
- HYDROPHILIC WATERSTOP SHALL BE PLACED AT ALL CONSTRUCTION JOINTS.
- ADJUSTABLE PIPE SUPPORT SHALL BE B-LINE MODEL B3093 SIZED TO FIT OUTSIDE OF FLOW METER BODY WITH 1/4 THICK NEOPRENE PAD AND MODEL B3087 OR APPROVED EQUIVALENT. INSTALL PER MANUFACTURERS WRITTEN INSTRUCTIONS.



05-06-22 Pathaal \\4443\dwg\4443\_00\4443.00 SECTION & DETAILS.dwg TAB: 13 MISCELLANEOUS PIPING DETAILS

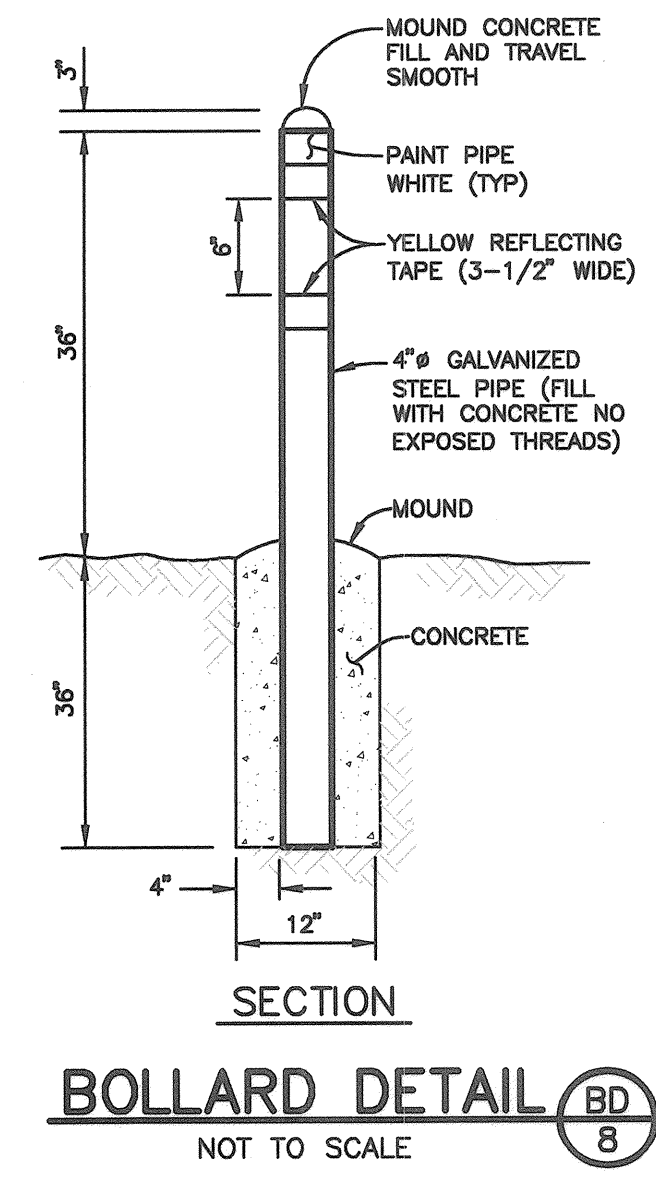
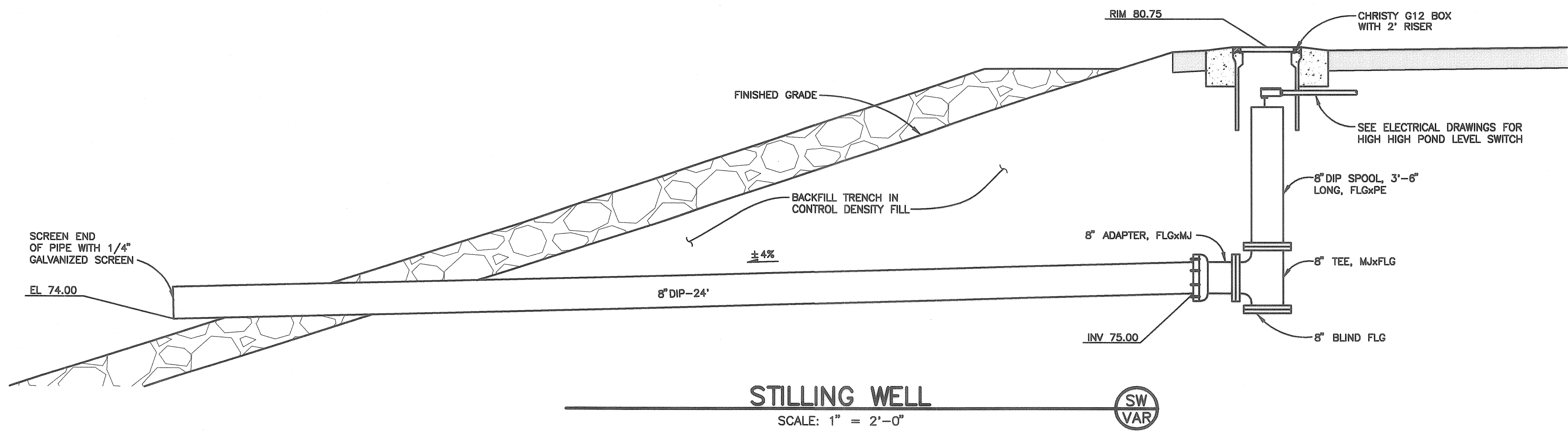
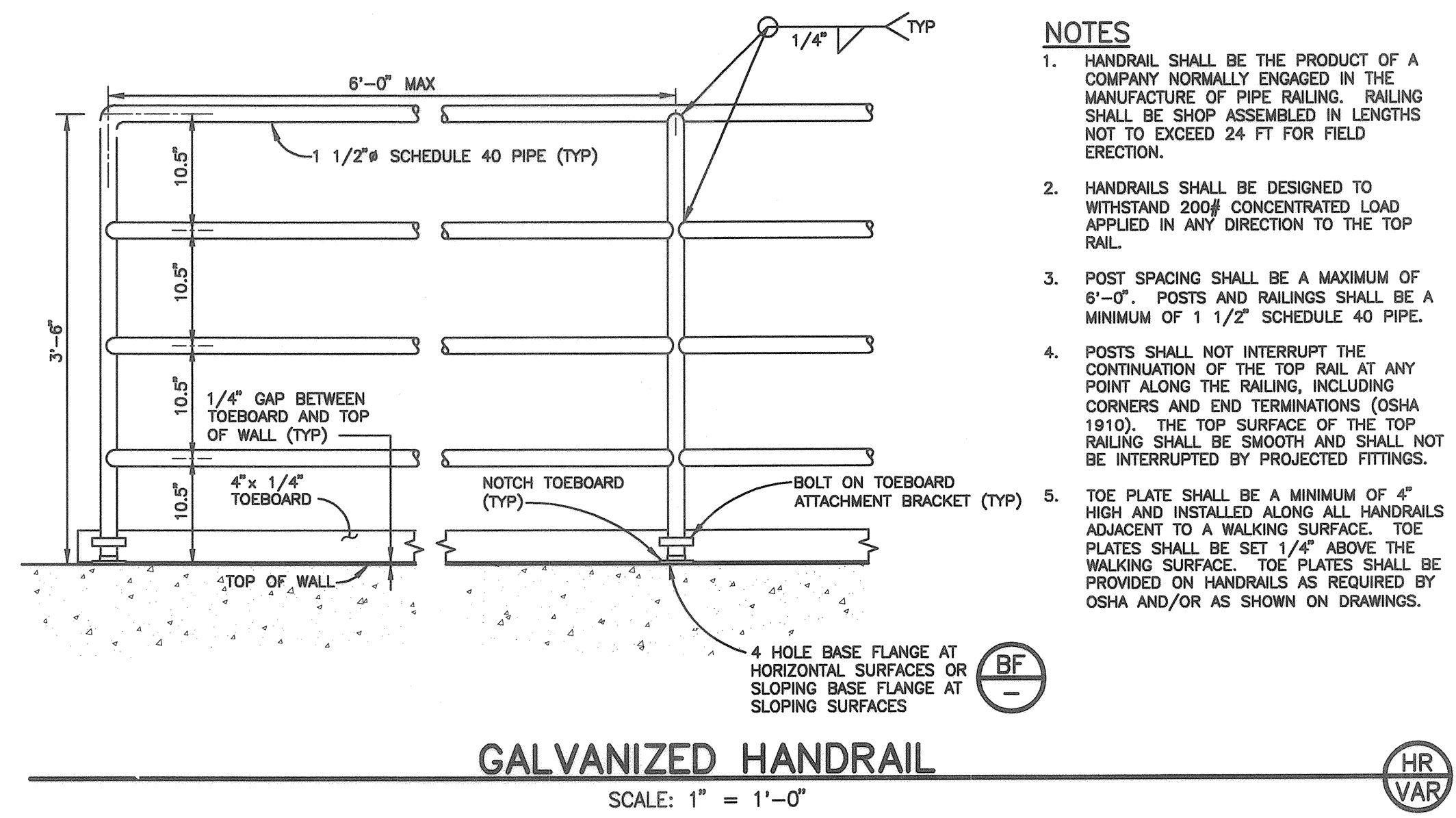
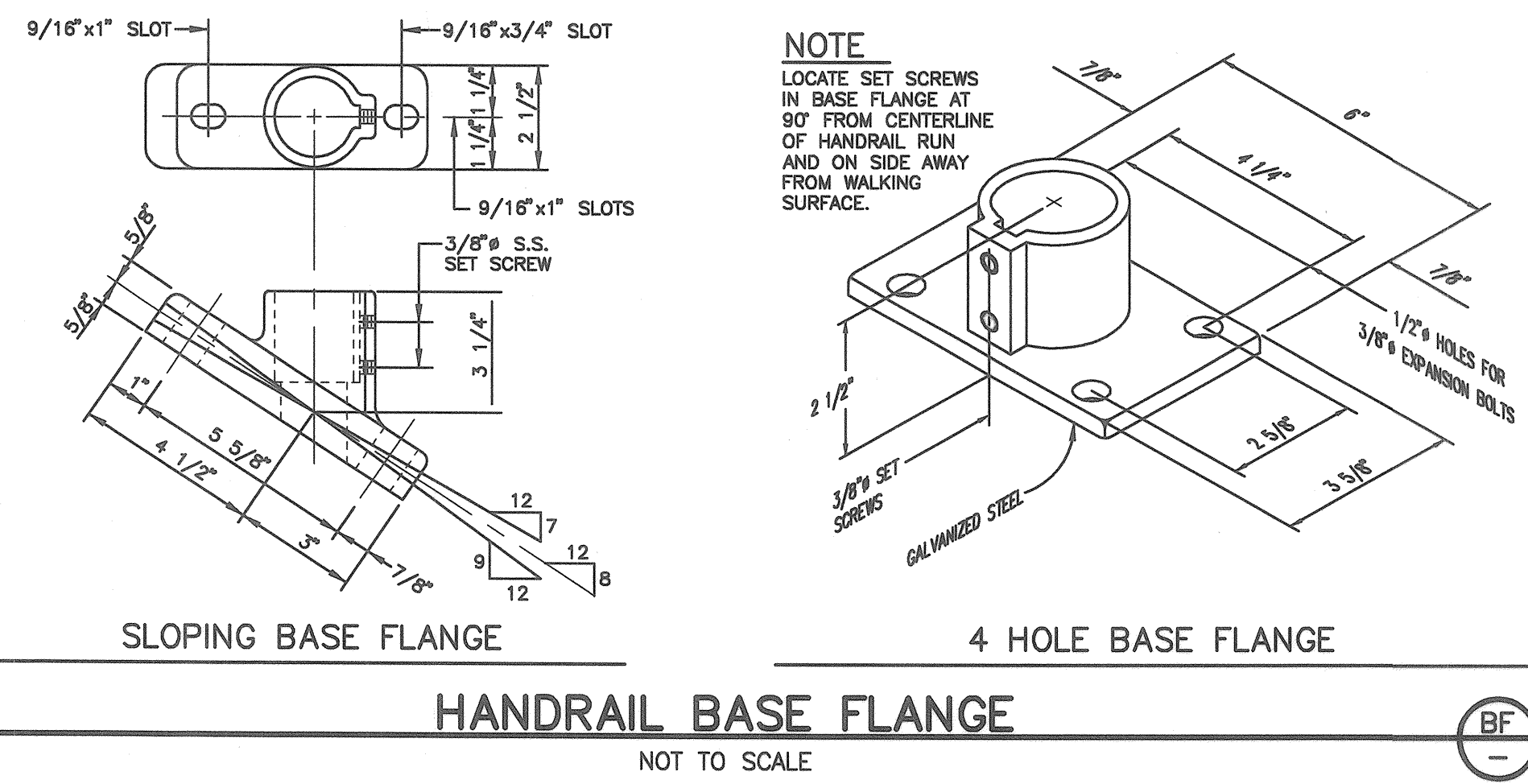




NO.	DATE	REVISION	BY

SCALE: AS SHOWN	DATE: MAY 2022	CHK BY: BB & DYC
DWN BY: PIT		

City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**MISCELLANEOUS DETAILS**

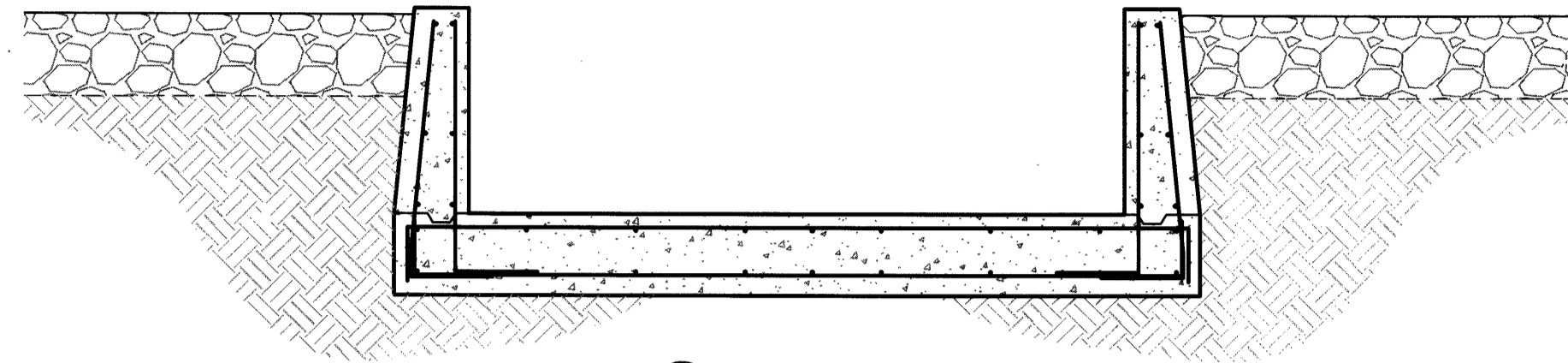


05-05-22 Pathrel \4443\dwg\4443.dwg\4443.dwg\4443.dwg SECTION & DETAILS.dwg TAB: 14 MISCELLANEOUS DETAILS



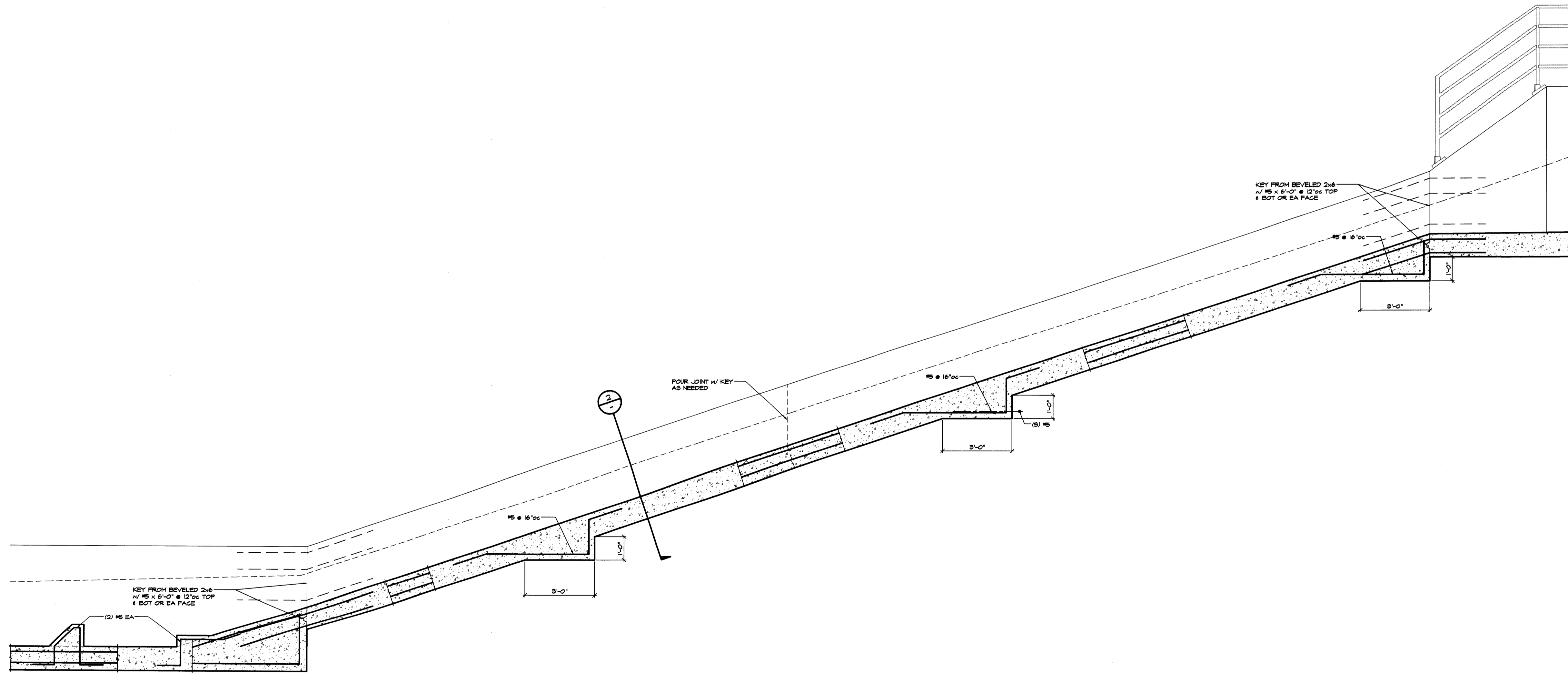






SEE  $\frac{2}{10}$  FOR WALL & SLAB REINFORCING

$\frac{2}{-}$  CROSS SECTION  
SEE CIVIL PLAN FOR DIMENSION NOT NOTED HERE



FOUR JOINT W/ KEY  
AS NEEDED

KEY FROM BEVELED 2x6  
w/ 15 x 6'-0" @ 12"oc TOP  
& BOT OR EA FACE

KEY FROM BEVELED 2x6  
w/ 15 x 6'-0" @ 12"oc TOP  
& BOT OR EA FACE

SECTION

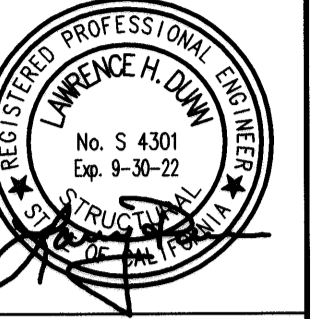
SEE CIVIL PLAN FOR DIMENSION NOT NOTED HERE

SPILLWAY

SCALE: 3/8" = 1'-0"

Structural  
Design  
Group

2455 Bennett Valley Rd  
Suite B119  
Santa Rosa, CA 95404  
(707) 284-3641  
SDG Job# 18-146



City of  
Santa Rosa  
**Brelje & Race**  
CONSULTING ENGINEERS  
475 Alameda Blvd., Suite 200, Santa Rosa, CA 95402  
www.breljeandrace.com

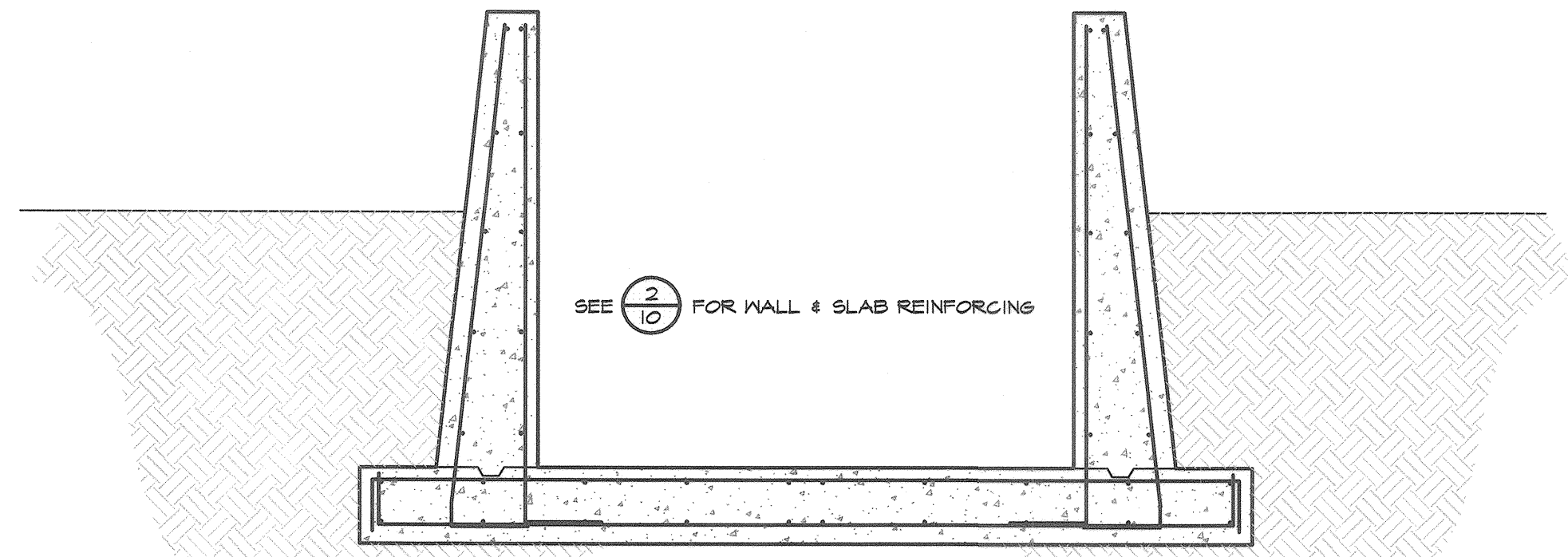
NO.	DATE	REVISION	BY

SCALE: 1/2" = 1'-0"	DATE: MAY 2022
DWN BY: SDG	CHK BY: LHD

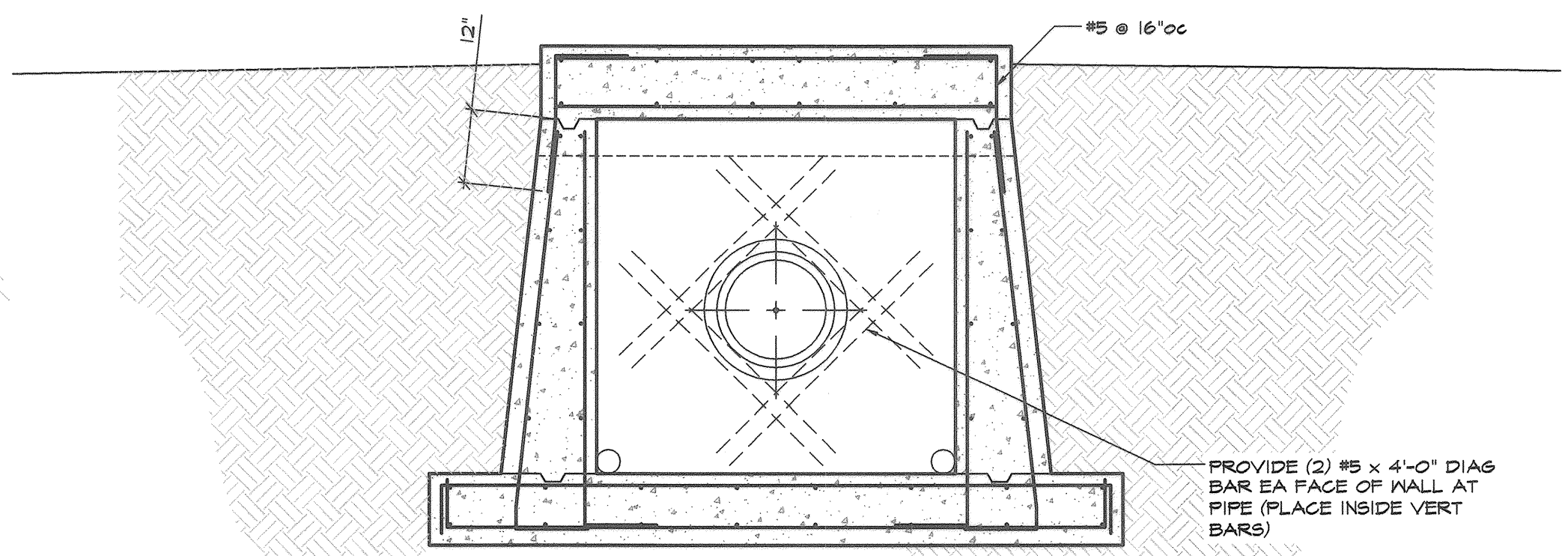
City of Santa Rosa  
**GEYSERS-DELTA CONNECTION  
IMPROVEMENTS**  
**SPILLWAY  
STRUCTURAL SECTIONS & DETAILS**

CONTRACT NO. C02111
SHEET 16 OF 27
FILE NO. 2018-0048

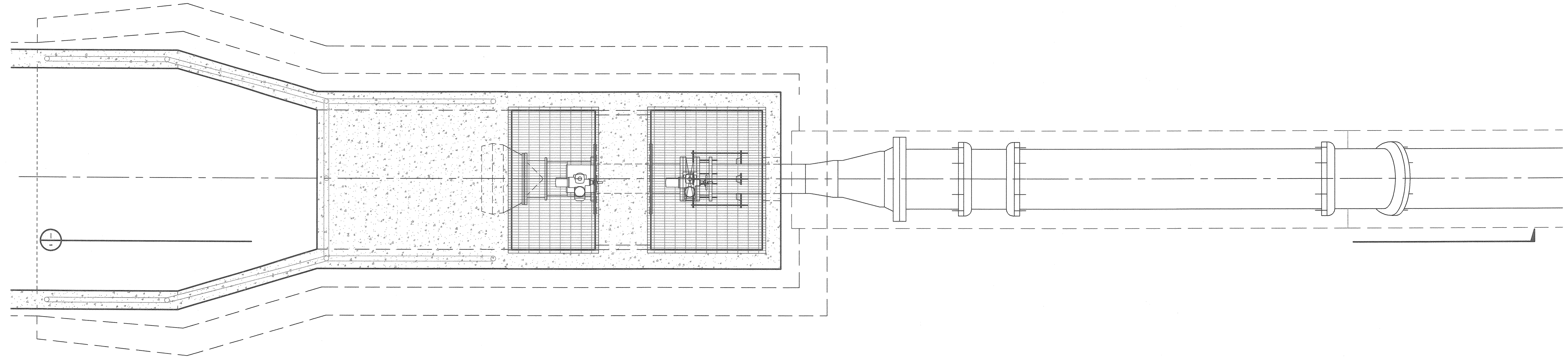




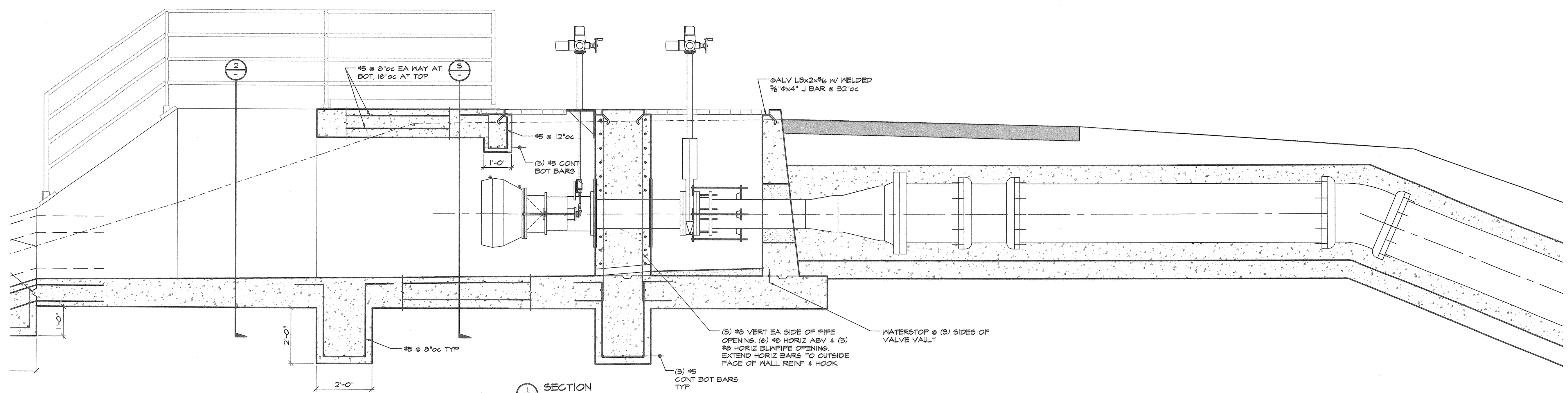
2 CROSS SECTION  
SEE CIVIL PLAN FOR DIMENSION NOT NOTED HERE



3 CROSS SECTION  
SEE CIVIL PLAN FOR DIMENSION NOT NOTED HERE



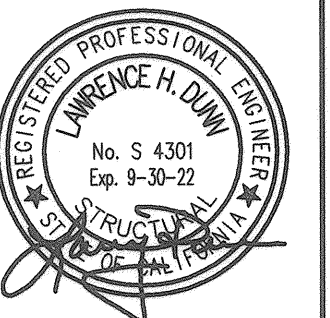
PLAN  
SEE CIVIL PLAN FOR DIMENSION NOT NOTED HERE



1 SECTION  
SEE CIVIL PLAN FOR DIMENSION NOT NOTED HERE

STILLING BASIN

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



NO.	DATE	REVISION	BY

SCALE: 1/2" = 1'-0"	DATE: MAY 2022	CHK BY: LHD
DWN BY: SDG		

City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**DISCHARGE STRUCTURE STRUCTURAL SECTIONS & DETAILS**







GEYSER DELTA CONNECTION LOAD CALCULATIONS		UTILITY SERVICE				
HP DESCRIPTION	LOAD AMPS	QTY	LOAD VA	RUN AMPS	QTY	RUN VA
3 FIXED CONE VALVE	4.8	1	3,991		1	3,991
3.2 KNIFE GATE	5.3	1	4,406		1	4,406
<b>MISCELLANEOUS LOADS</b>						
TELEMETRY	1.0		500			500
CONVENIENCE RECEPTACLES	0.8		360			180
BUBBLER	0.4		180			0
SPARE	0.0		0			0
SPARE	0.0		0			0
SPARE	0.0		0			0
<b>SUBTOTAL</b>	<b>10.5</b>		<b>9,437</b>	<b>10</b>		<b>9,077</b>
<b>DIVERSITY FACTOR</b>			<b>96 %</b>			
<b>3.2 HP</b>				<b>4,406</b>	<b>0.25</b>	<b>1,102</b>
<b>TOTAL</b>						<b>10,179</b>
/ 480 V, 3 Phase 4 Wire Service Amps =		12.2 Amps				
		1.25 Multiplier				
	Service Size =	15.3 Amps				
	Main Size =	50.0 Amps				
	% Main Load =	31%				

KEY	DEVICE	P&ID	ENGRAVING	NAMEPLATE SIZE (H X W)	LETTER SIZE
1	PEDESTAL		GEYSER DELTA CONNECTION - POWER SECTION	2" x 4"	1/4"
2	PEDESTAL		GEYSER DELTA CONNECTION - RTU SECTION	2" x 4"	1/4"
10	BREAKER		MAIN DISCONNECT	3/4" X 3"	3/16"
11	BREAKER		FIXED CONE VALVE DISCONNECT	3/4" X 3"	3/16"
12	BREAKER		KNIFE GATE DISCONNECT	3/4" X 3"	3/16"
13	BREAKER		(BLANK)	3/4" X 3"	3/16"
14	BREAKER		XFMR DISCONNECT	3/4" X 3"	3/16"
20	BREAKER		PANELBOARD DISCONNECT	3/4" X 3"	3/16"
21	BREAKER		TELEMETRY	3/4" X 3"	3/16"
22	BREAKER		CONVENIENCE RECEPTACLE	3/4" X 3"	3/16"
23	BREAKER		BUBBLER	3/4" X 3"	3/16"
24	BREAKER		(BLANK)	3/4" X 3"	3/16"
25	BREAKER		(BLANK)	3/4" X 3"	3/16"
26	BREAKER		(BLANK)	3/4" X 3"	3/16"

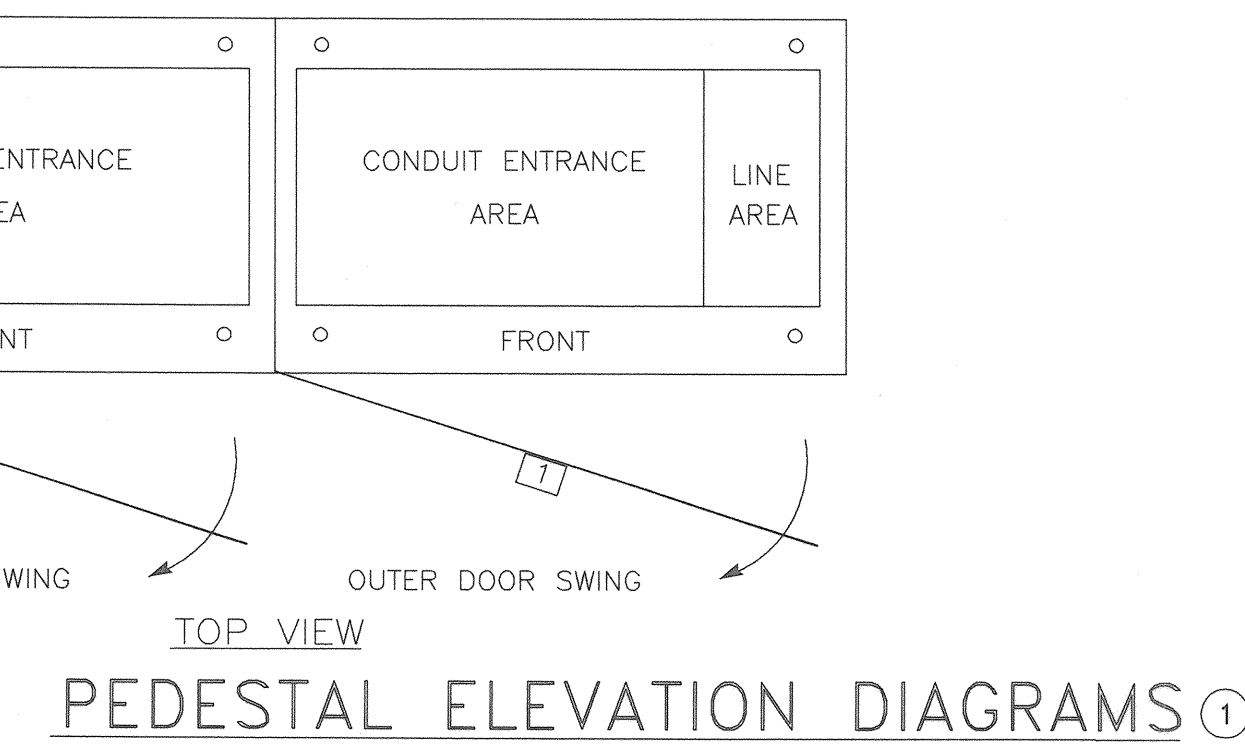
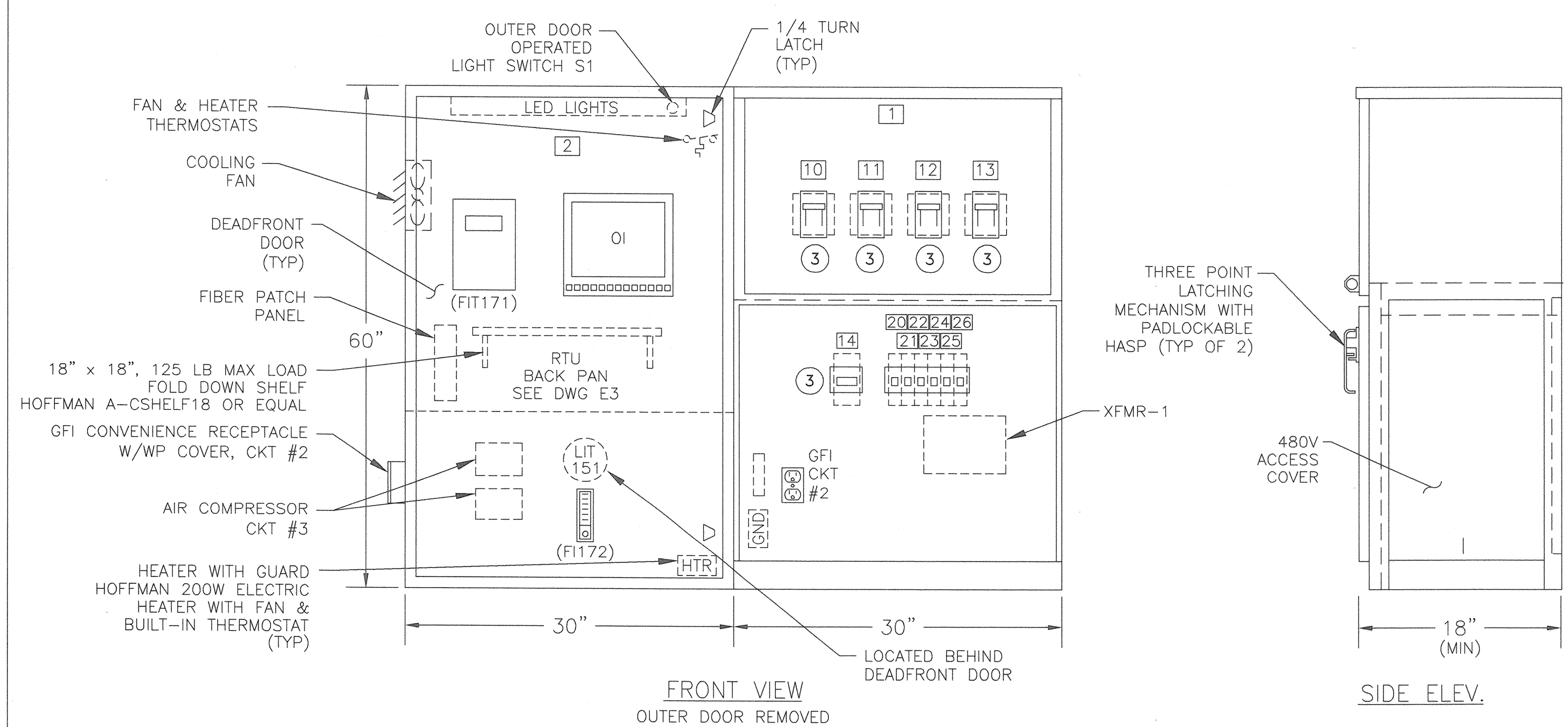
DWG REF: E2 NAMEPLATE: P LOCATION: DELTA POND BLDG		MOUNTING: SURFACE		VOLTS: 277 / 480		PHASE: 3		WIRE: 3		BUS AMPS: 250A		ENTRY: BOTTOM	
BKR NO.	LOAD DESCRIPTION	LOAD VA	LINE AMPS	BKR AMP/POLE	BKR NO.	PHASE	BKR NO.	AMP/POLE	LINE AMPS	LOAD VA	LOAD DESCRIPTION	BKR NO.	
1		277	1	20/3	1	A	2	20/3	1	277		2	
3	FV 4900708	277	1	20/3	3	B	4	20/3	1	277	FCV 490713	4	
5		277	1	20/3	5	C	6	20/3	1	277		6	
7		277	1	20/3	7	A	8	20/3	1	277		8	
9	FV 4900709	277	1	20/3	9	B	10	20/3	1	277	FCV 490714	10	
11		277	1	20/3	11	C	12	20/3	1	277		12	
13		277	1	20/3	13	A	14	20/3	1	277		14	
15	FV 4900710	277	1	20/3	15	B	16	20/3	1	277	FCV 490715	16	
17		277	1	20/3	17	C	18	20/3	1	277		18	
19		277	1	20/3	19	A	20	20/3	0	0		20	
21	FV 4900711	277	1	20/3	21	B	22	20/3	0	0	SPARE	22	
23		277	1	20/3	23	C	24	20/3	0	0		24	
25		277	1	20/3	25	A	26	20/3	12	3,393	GEYSER / DELTA CONN	26	
27	FV 4900712	277	1	20/3	27	B	28	20/3	12	3,393	SPARE	28	
29		277	1	20/3	29	C	30	20/3	12	3,393		30	
31		0	0	20/3	31	A	32	20/3	0	0		32	
33	SPARE		0	20/3	33	B	34	20/3	0	0	UPS FEED	34	
35			0	20/3	35	C	36	20/3	0	0		36	
37	PANEL TRANSFORMER	1,500	5	20/3	37	A	38	30/3	11	3,084		38	
39	PANEL TRANSFORMER	1,500	5	20/3	39	B	40	30/3	8	2,296	PANEL L	40	
41			0	20/3	41	C	42	30/3	13	3,636		42	

PHASE	A	B	C
LEFT SIDE AMPS	10	10	5
LEFT SIDE KVA	2.89	2.89	1.39
TOTAL KVA	28.84		
TOTAL AMPS @ 208V, 3P	34.7		
DIVERSITY FACTOR	0.90		
LOAD KVA	25.96		

NEUTRAL  
GROUND

350	B	C	PHASE
26	24	28	RIGHT SIDE AMPS
7.31	6.52	7.86	RIGHT SIDE KVA
2.89	2.89	1.39	LEFT SIDE KVA
10.19	9.40	9.24	TOTAL PHASE KVA
37	34	33	TOTAL PHASE AMPS
106	98	96	% OF AVERAGE

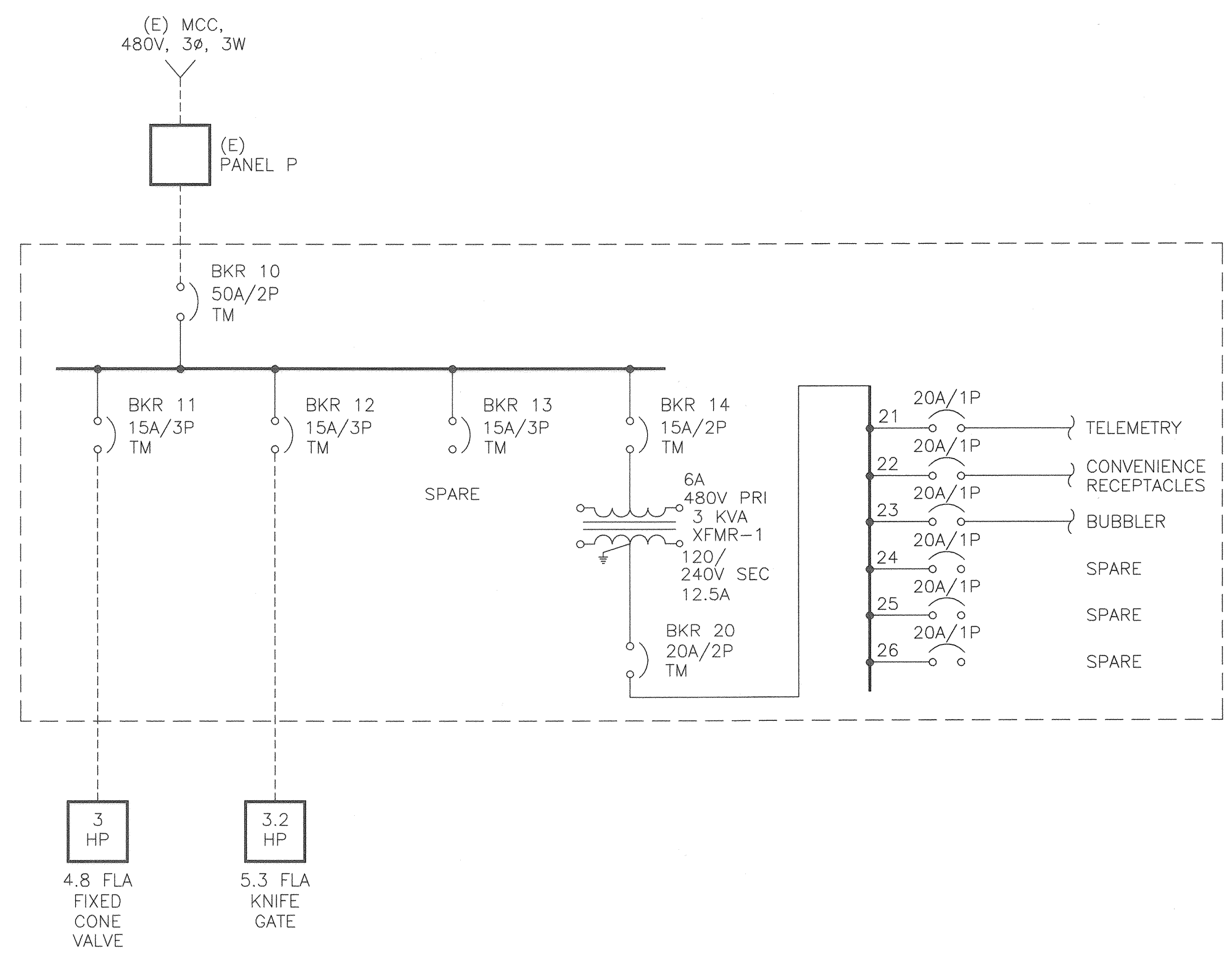
- NOTES: 1. MEANS OF WIRE COLOR CODING SHALL BE POSTED ON PANELBOARD PER NEC 210.5  
 2. (G) INDICATES GFI BREAKER REQUIRED WITH 30 MA SENSITIVITY.  
 3. (H) INDICATES HACR RATED BREAKER.  
 4. (L) PROVIDE PADLOCKING PROVISION IN ORDER TO LOCK BREAKER IN THE OFF POSITION.



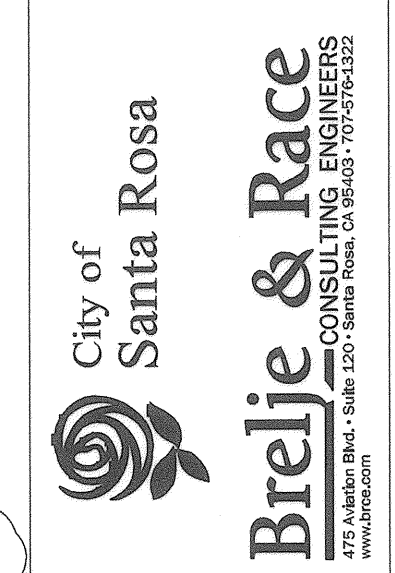
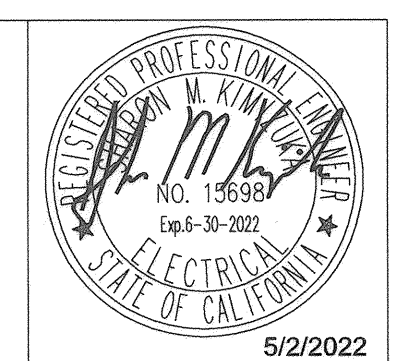
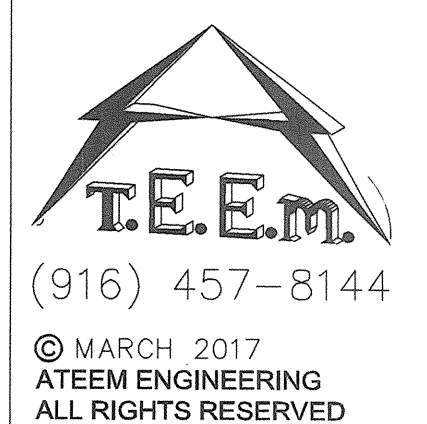
- NOTES: ① ITEMS DRAWN IN DASHED LINES ARE TO BE LOCATED BEHIND DEADFRONT DOORS OUTER DOORS ARE NOT SHOWN FOR ELEVATION CLARITY  
 ② VENTILATION LOUVER WITH REMOVABLE METAL FILTER AND SCREEN.  
 ③ EACH BREAKER SHALL HAVE PADLOCKING PROVISION TO LOCK BREAKER IN THE OFF POSITION.

FABRICATION METHODS

- NEMA 3R WEATHER-PROOFED FOR OUTSIDE INSTALLATION.
- ALL OUTER DOORS SEALED WITH PERMANENT TYPE GASKETING.
- EXTERIOR FABRICATED FROM 304 STAINLESS STEEL.
- 12 GAUGE EXTERIOR AND 14 GAUGE INTERIOR.
- ALL SEAMS CONTINUOUS WELDED.
- OUTER DOORS TO BE PADLOCKABLE WITH HEAVY DUTY 3 POINT LATCHES.
- DOOR HINGES AND PINS SHALL BE 316 STAINLESS STEEL.
- NO SCREWS, RIVETS, OR BOLTS SHALL PROTRUDE EXTERNALLY.
- INTERNAL SCREWS, RIVETS, BOLTS, AND NUTS SHALL BE STAINLESS STEEL.
- AS - BUILT WIRING DIAGRAMS SHALL BE SHIPPED WITH EQUIPMENT.
- EXTERIOR PANEL COLOR: LIGHT GREY.
- INTERIOR DEADFRONT DOOR COLOR: WHITE.
- PHENOLIC SCREW MOUNTED NAMEPLATES SHALL BE PROVIDED FOR ALL DEVICES ON DEADFRONT.
- FABRICATION AND WIRING SHALL CONFORM TO U.L. 508 AND LATEST NEMA STANDARDS.
- ALL WIRING SHALL BE PERMANENTLY LABELED WITH WIRE MARKERS ON BOTH ENDS.
- WIRING DIAGRAMS SHALL BE PLACED IN A PLASTIC DRAWING HOLDER PERMANENTLY ATTACHED TO THE INSIDE OF THE FRONT DOOR.



PEDESTAL ONE LINE DIAGRAM



NO.	DATE	REVISION

SCALE: AS SHOWN	DATE: MAY 2022	CHK BY: SMK & XML
DWN BY: ZKV		

City of Santa Rosa GEYSERS-DELTA CONNECTION IMPROVEMENTS	CONTRACT NO. C02111
PEDESTAL ELEVATION & ONE LINE DIAGRAM, E2	SHEET 19 OF 27
	FILE NO. 2018-0048

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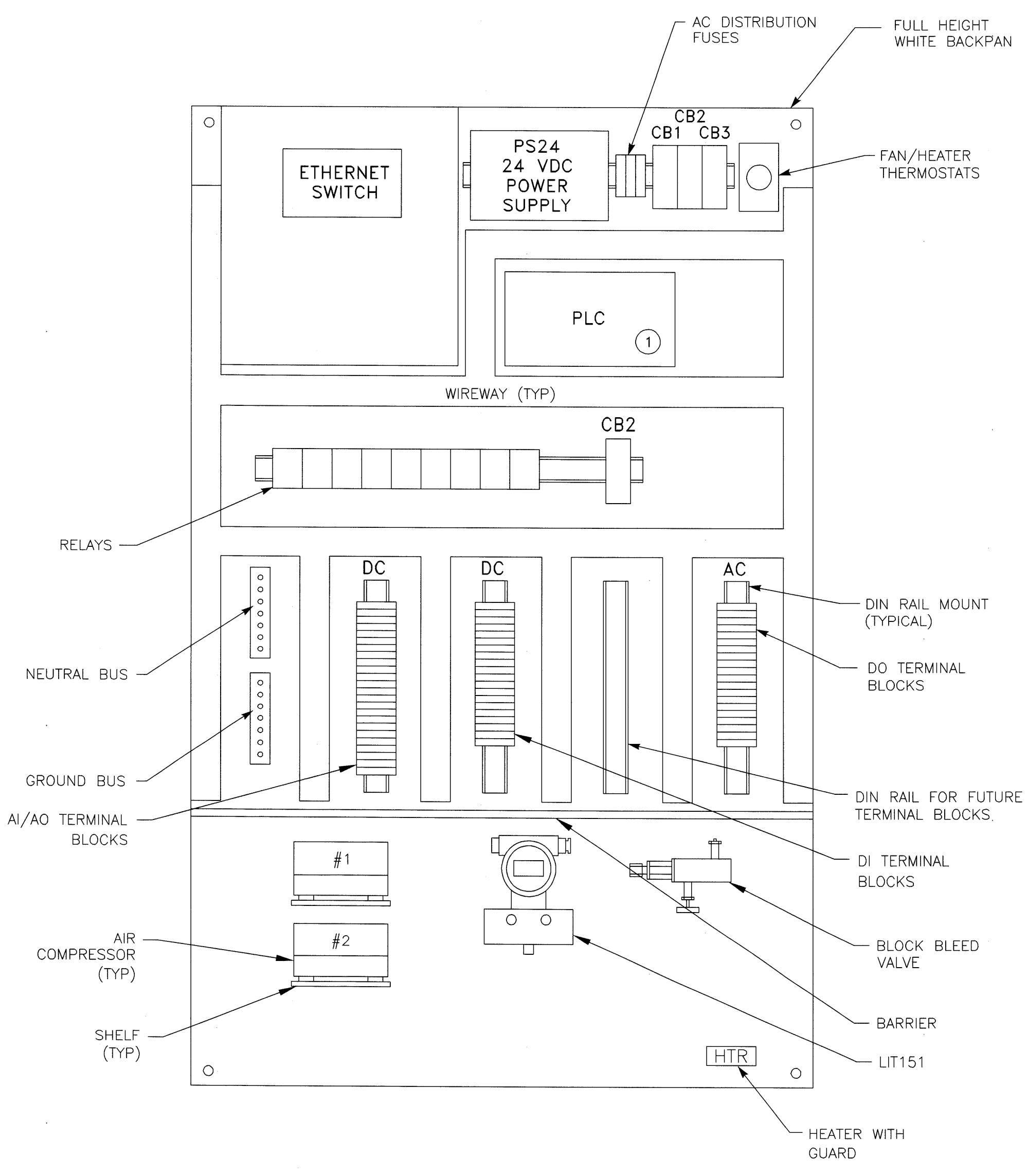


NO.	DATE	REVISION

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AS SHOWN	MAY 2022	SMK & XML
DWN BY:	ZKV	

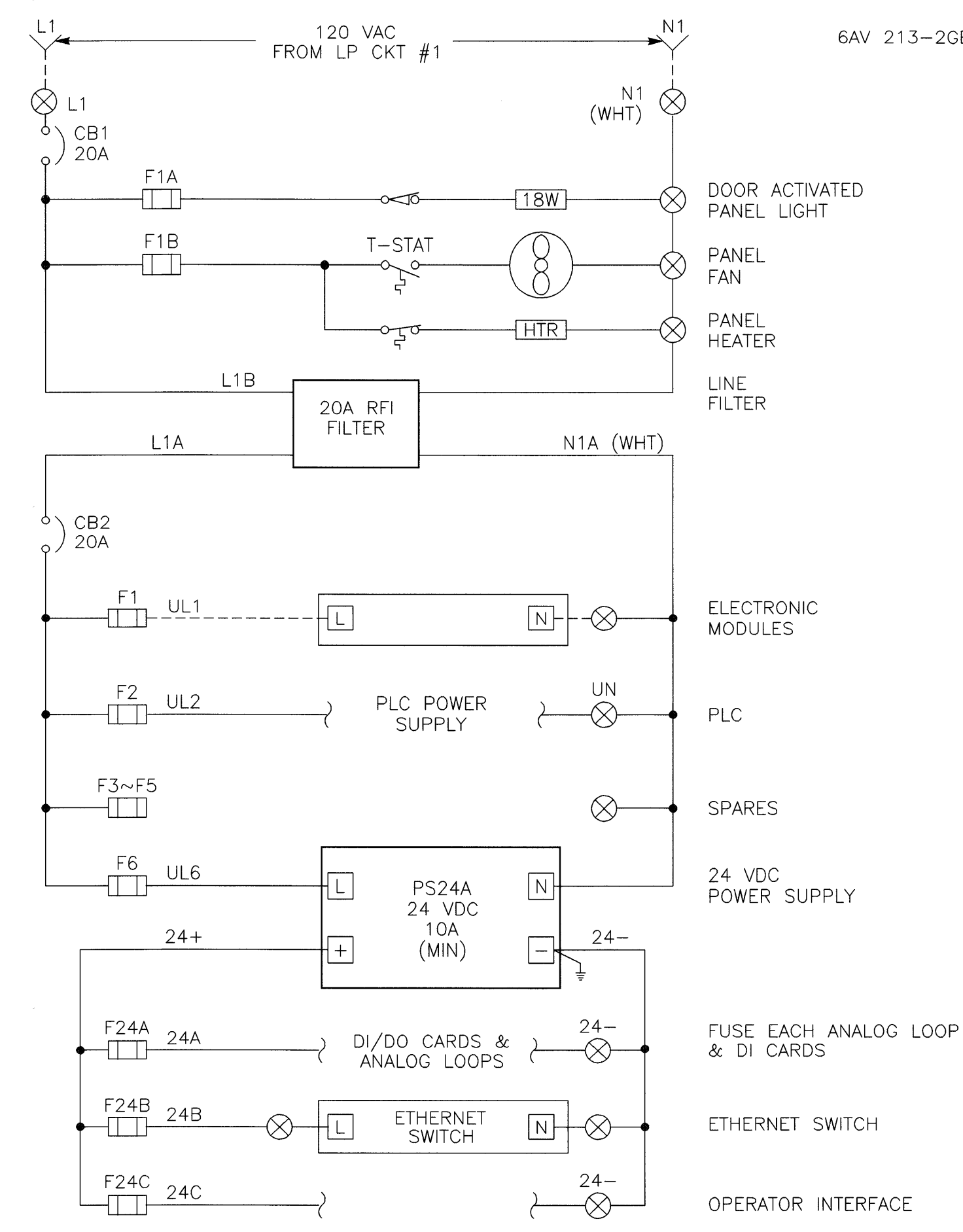
City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**TELEMETRY BACKPAN LAYOUT & ELEMENTARY DIAGRAMS, E3**

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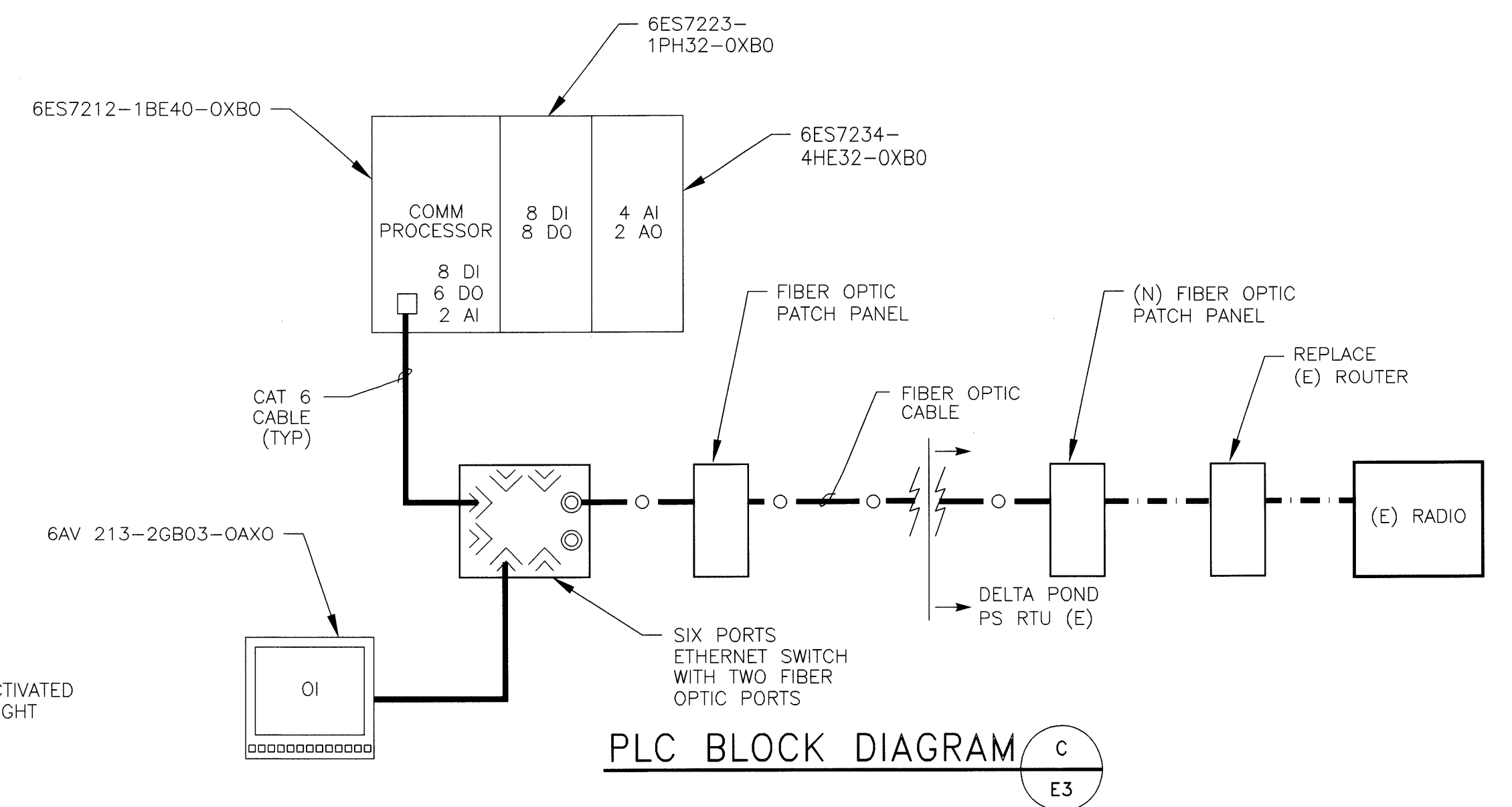
**TELEMETRY BACKPAN LAYOUT** (A) E3  
 NOT TO SCALE

NOTES: (1) WIRE I/O TO TERMINAL BLOCKS.

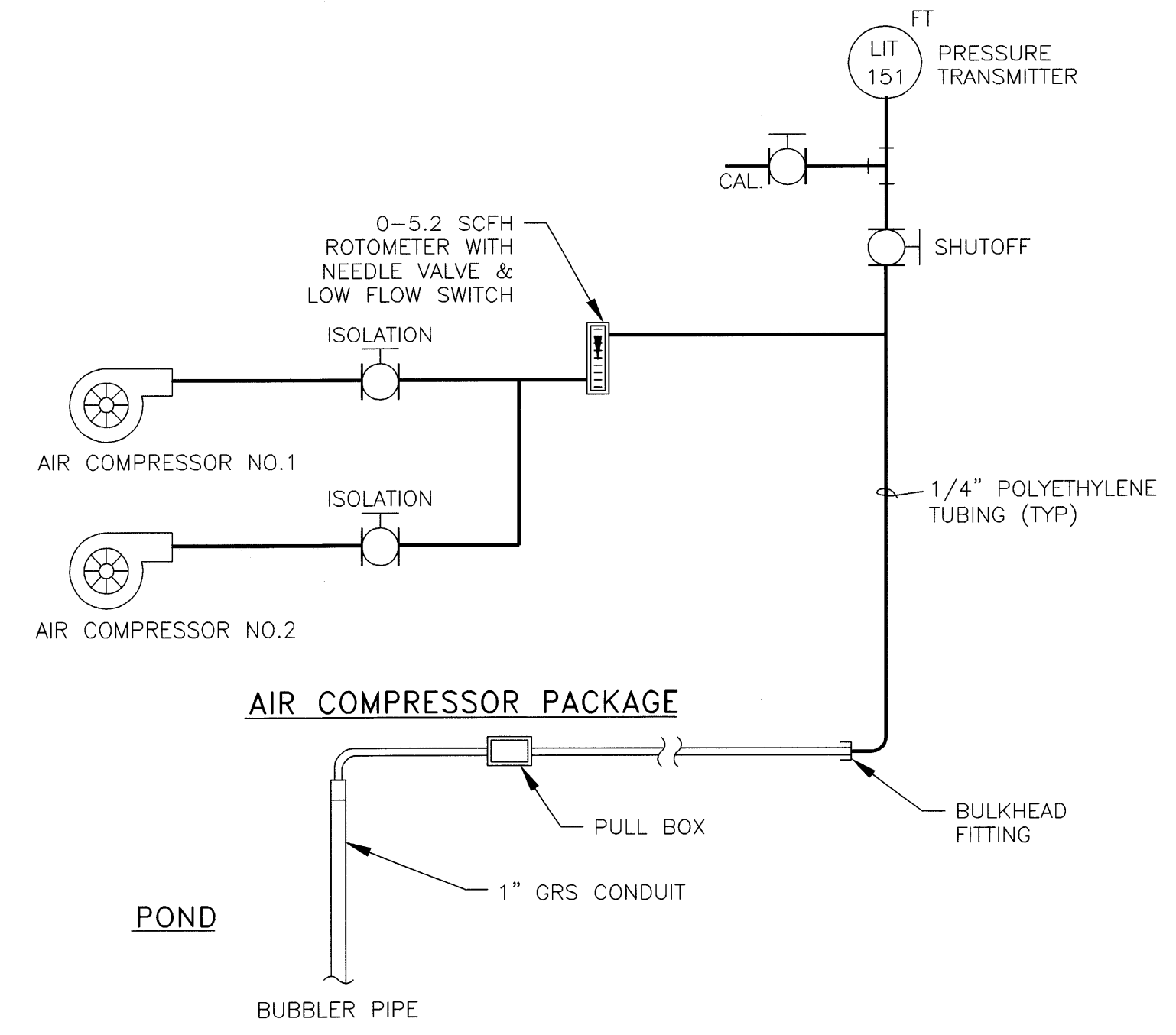


**120 VAC POWER DISTRIBUTION DIAGRAM** (B) E3 (1)

NOTES: (1) DISTRIBUTION DIAGRAM REPRESENTATIVE OF MAJOR COMPONENTS ONLY. ADDITIONAL FUSES, CIRCUITS AND COMPONENT CONNECTIONS MAY BE REQUIRED FOR A FUNCTIONAL SYSTEM.  
 (2) PROVIDE & INSTALL INTERFACE RELAYS IF REQUIRED.



**PLC BLOCK DIAGRAM** (C) E3



**BUBBLER SYSTEM** (D) E3





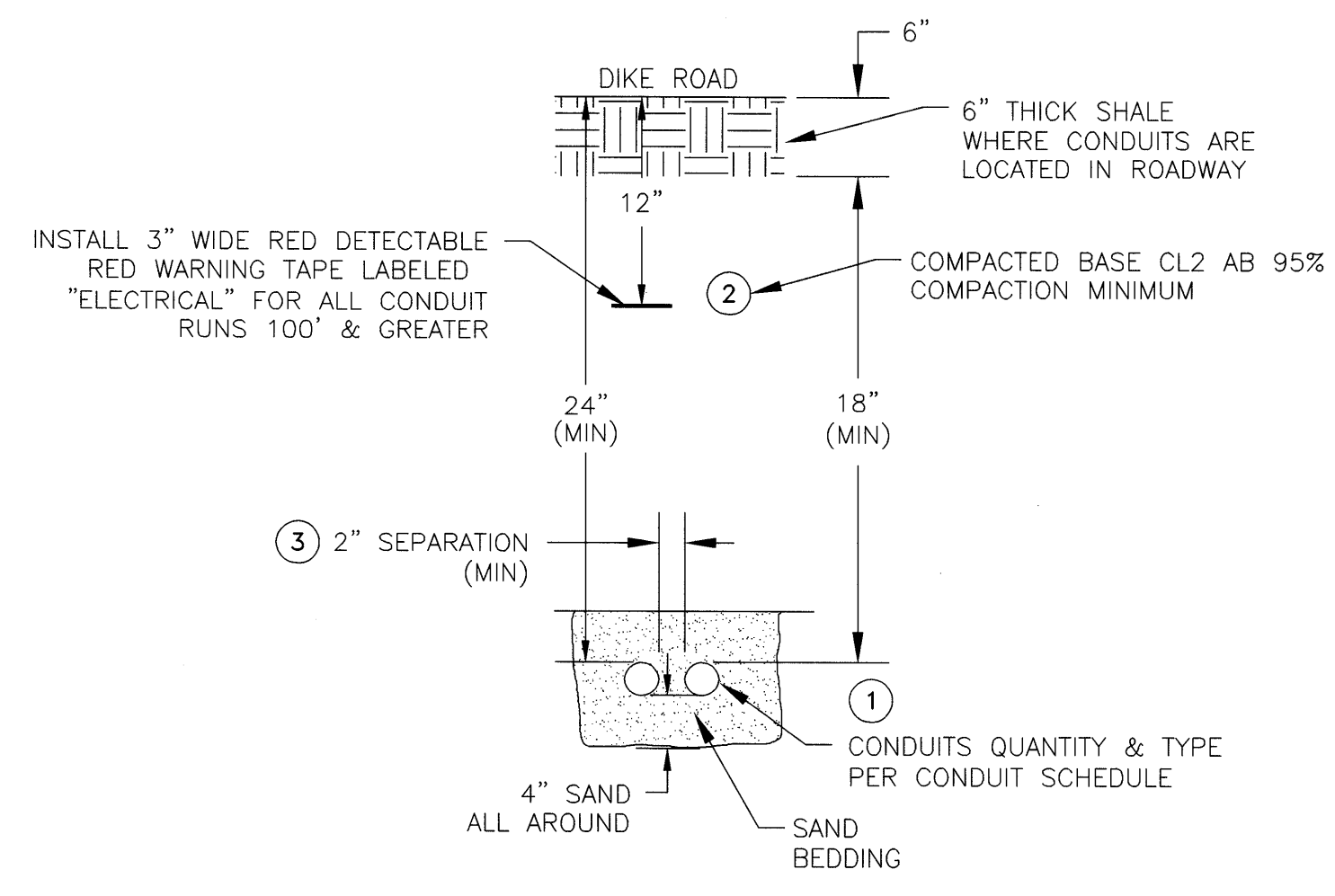
City of Santa Rosa  
**Breje & Race**  
 ELECTRICAL ENGINEERS  
 472 Alabaster Blvd., Suite 100, Santa Rosa, CA 95402  
 www.brejeandrace.com

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DWN BY: ZKV	CHK BY: SMK & XML

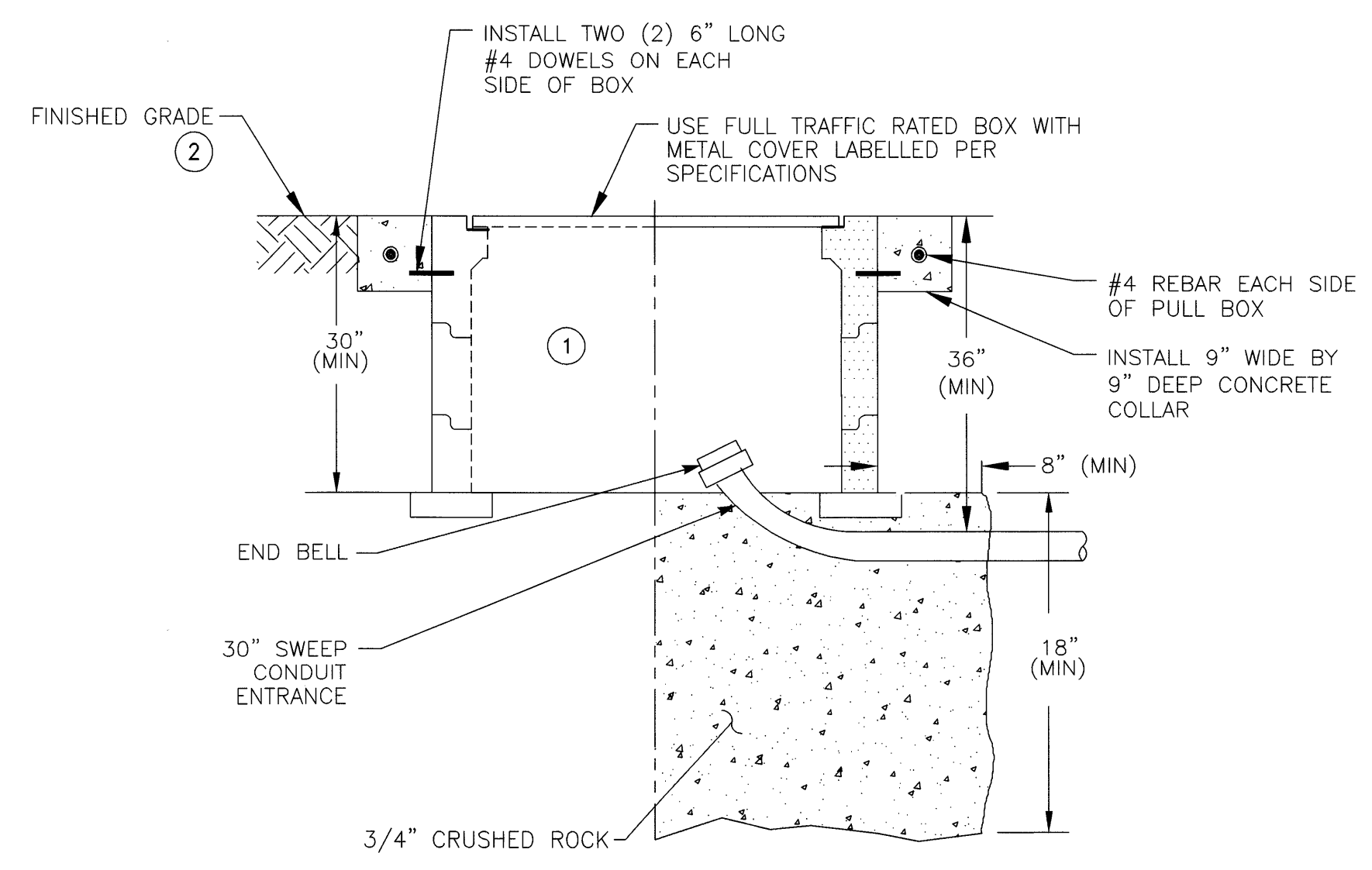
City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**TYPICAL ELECTRICAL DETAILS 1, E4**

CONTRACT NO. C02111
SHEET 21 OF 27
FILE NO. 2018-0048



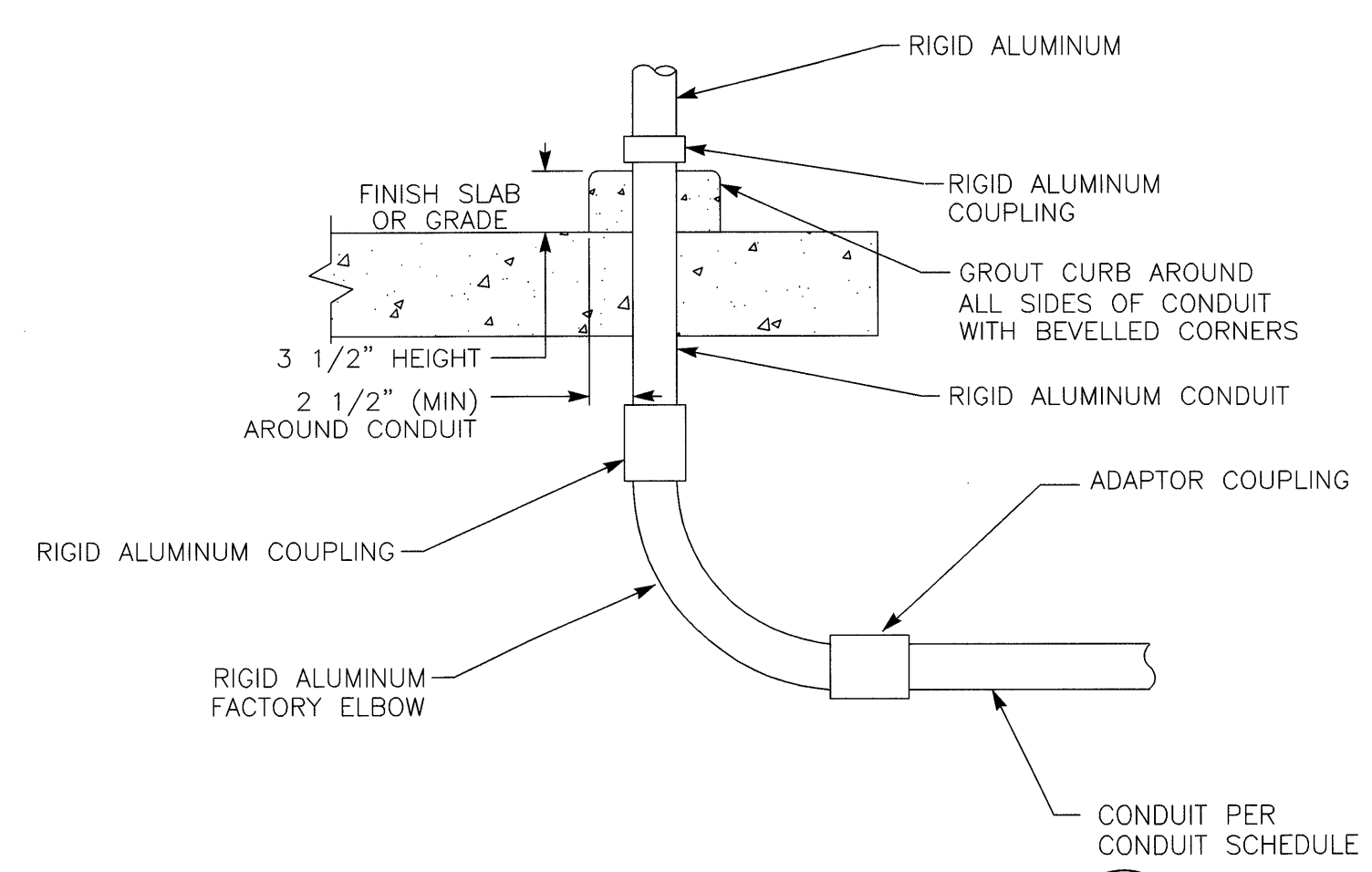
**UNDERGROUND CONDUIT** (A) (VAR)  
 NOT TO SCALE DETAIL

- NOTES:
- PLACE CONDUIT RUNS OF 4 CONDUITS OR GREATER IN PLASTIC SPACERS (RATED FOR DIRECT BURIAL) EVERY 8' ALONG LENGTH OF RUN.
  - TRENCHING & COMPACTED BACKFILL PER CITY STANDARDS.
  - PROVIDE 12" (MIN) SEPARATION BETWEEN "A, C & D" TYPE GROUP AND "L & P" TYPE GROUP CONDUITS.

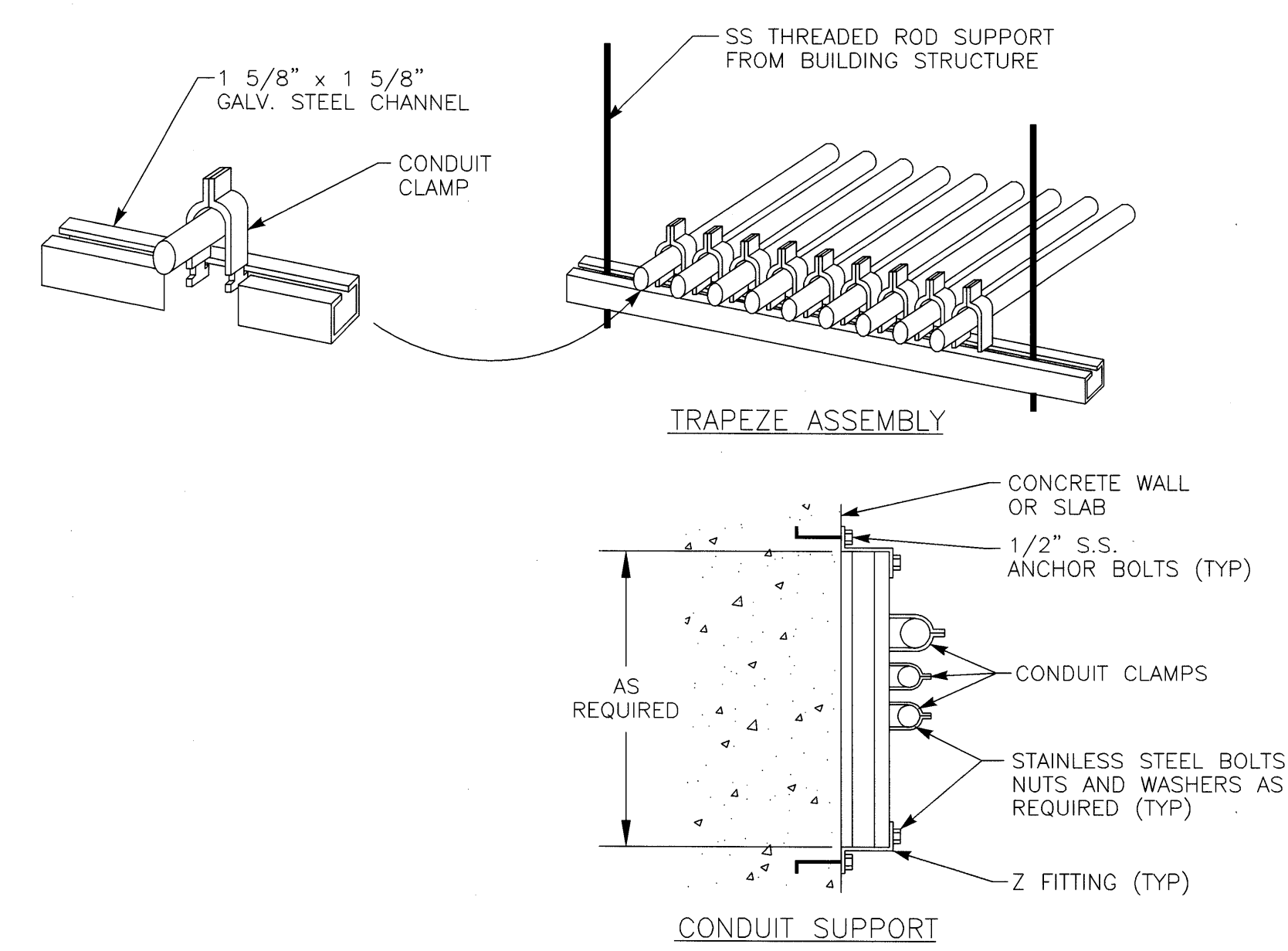


**PULL BOX** (B) (VAR) (3)  
 NOT TO SCALE DETAIL

- NOTES:
- TRAFFIC RATED CHRISTY "B" SERIES OR EQUAL, MINIMUM BOX SIZE PER PLANS, PROVIDE LARGER AT NO ADDITIONAL COST TO OWNER.
  - ADD EXTENSIONS WHERE NECESSARY TO RAISE COVER TO FINISHED GRADE.

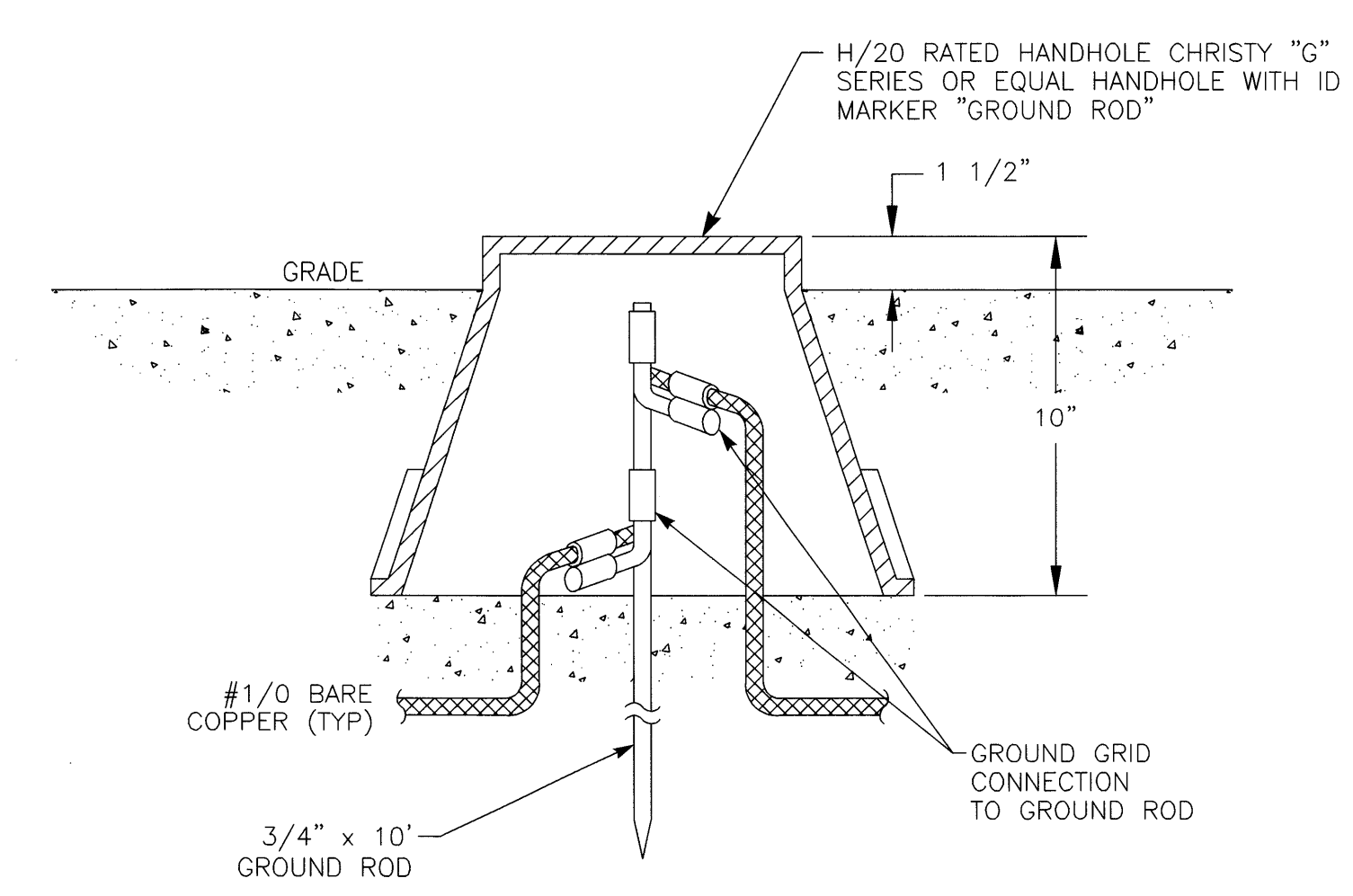


**EXPOSED CONDUIT TRANSITION** (C) (VAR)  
 NOT TO SCALE DETAIL

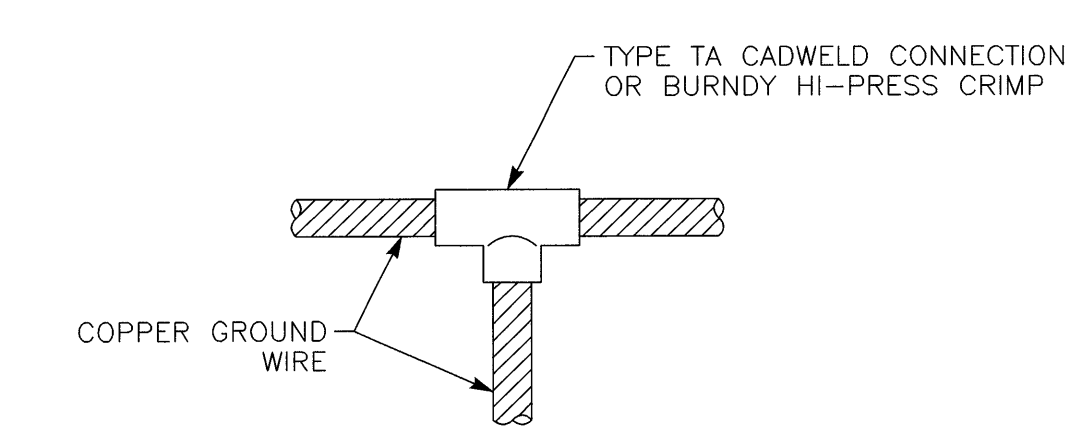


**CONDUIT PIPE STRAP MOUNTING** (D) (E6)  
 NOT TO SCALE DETAIL

- NOTES:
- THIS DETAIL TYPICAL FOR BOTH VERTICAL AND HORIZONTAL MOUNTING.
  - CHANNEL AND ALL SUPPORT DEVICES TO BE NEMA RATED PER AREA CLASSIFICATION. FIELD COAT ALL CUTS, ETC. TO MATCH.
  - CHANNELS TO BE SPACED 5' MAXIMUM.



**HANDHOLE GROUNDING** (E) (E7)  
 NOT TO SCALE DETAIL

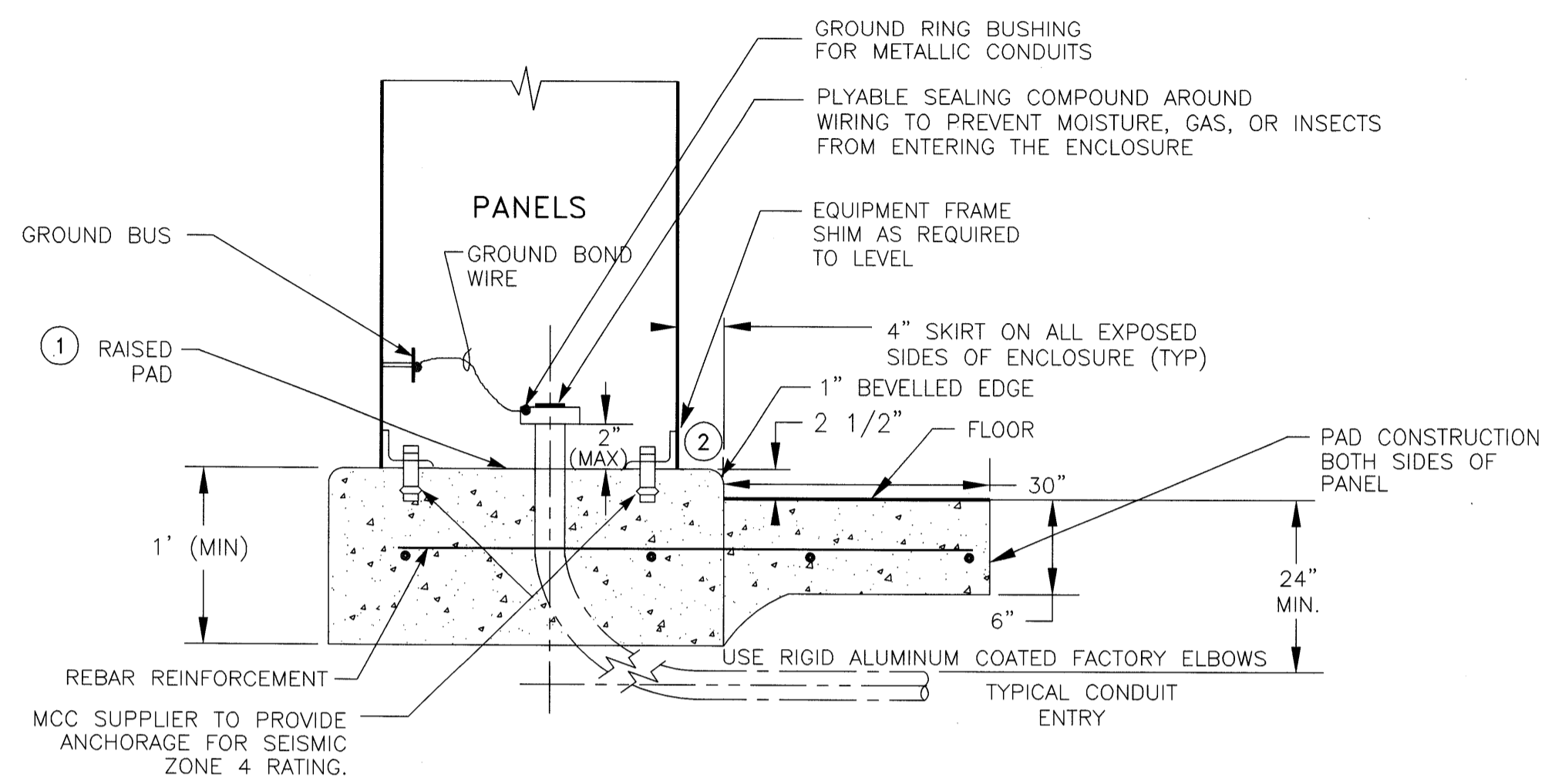


**GROUND CABLE CONNECTION** (F) (E7)  
 NOT TO SCALE DETAIL

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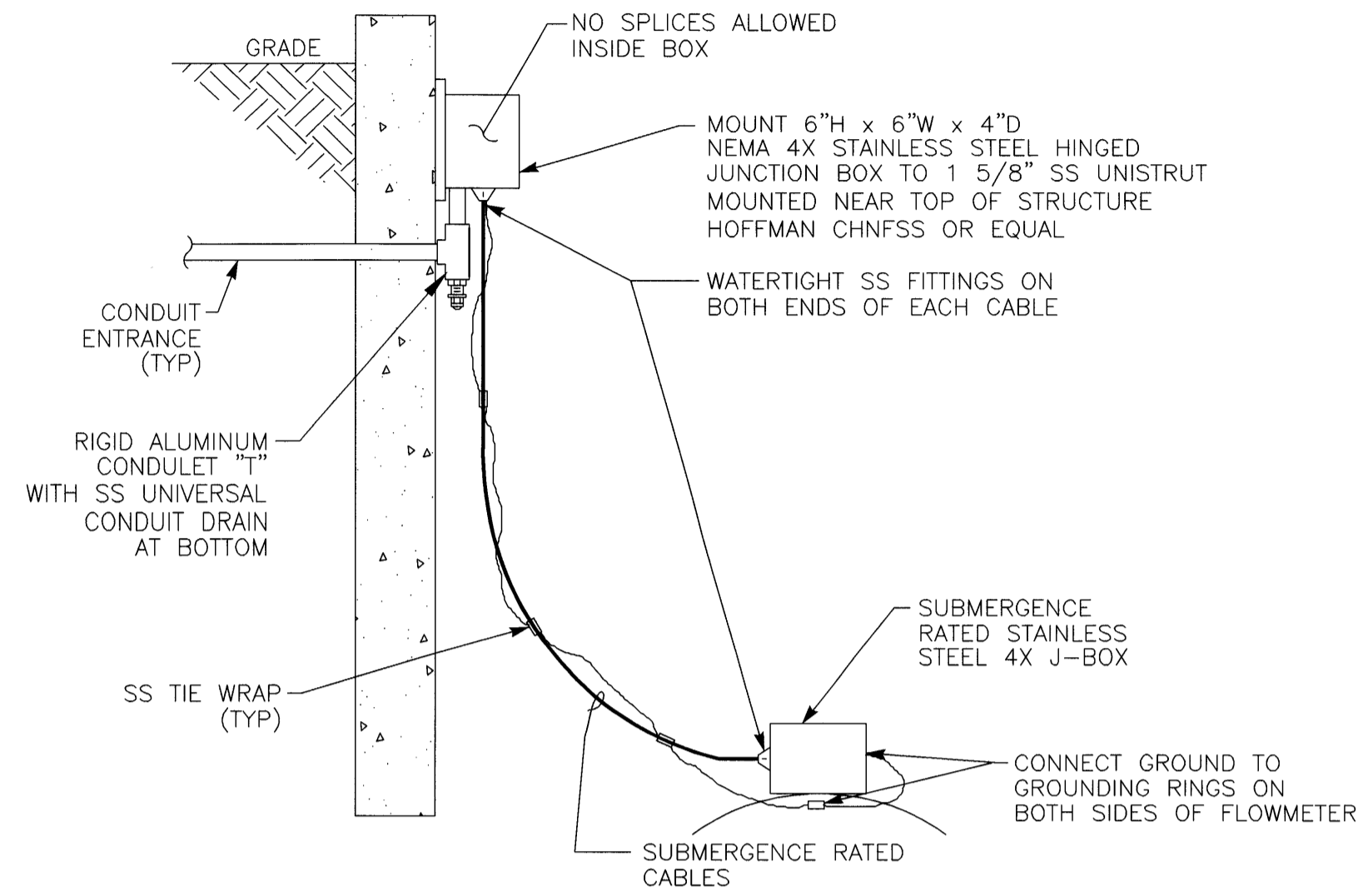




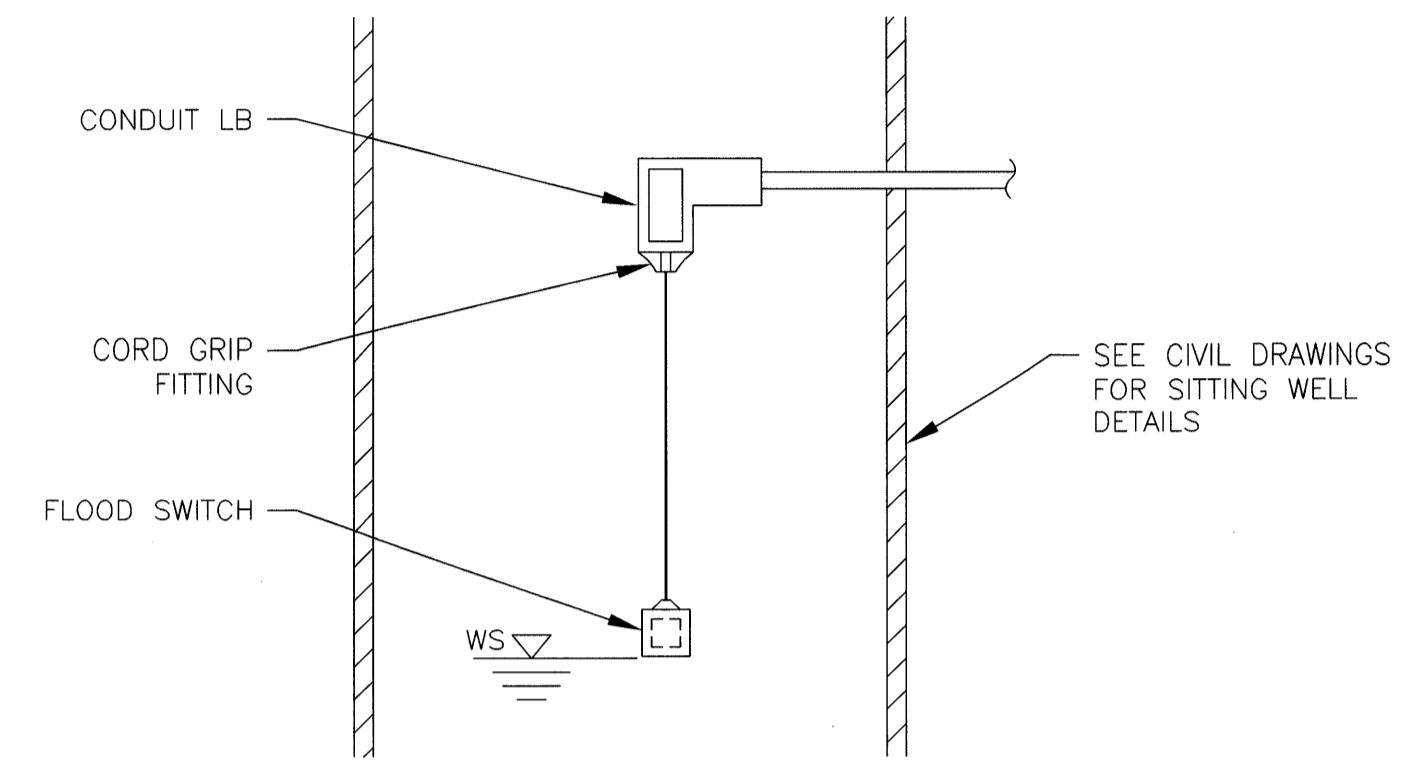


**EQUIPMENT CONCRETE PAD** (A) (E7)  
 NOT TO SCALE  
 DETAIL

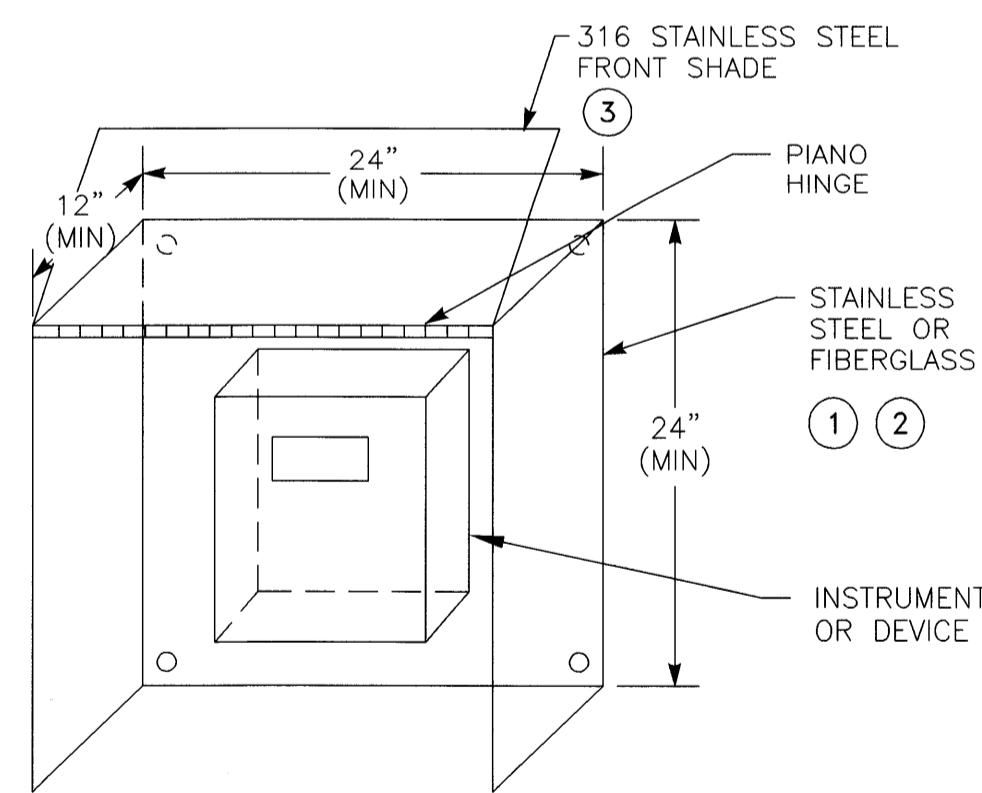
- NOTES:
- CONCRETE PAD ABOVE FLOOR TO BE POURED AFTER MAIN PAD HAD BEEN POURED. PAD ABOVE FLOOR TO BE FINE CONCRETE COMPOSITION ACCURATELY LEVELED WITHIN 1/16" INCH.
  - ALL ENCLOSURES INSTALLED IN NEMA 4X AREAS TO HAVE BEAD OF SILICON AROUND ALL BOTTOM EDGES TO SEAL OUT WATER.



**BELOW GRADE FLOWMETER** (B) (E7)  
 NOT TO SCALE  
 DETAIL

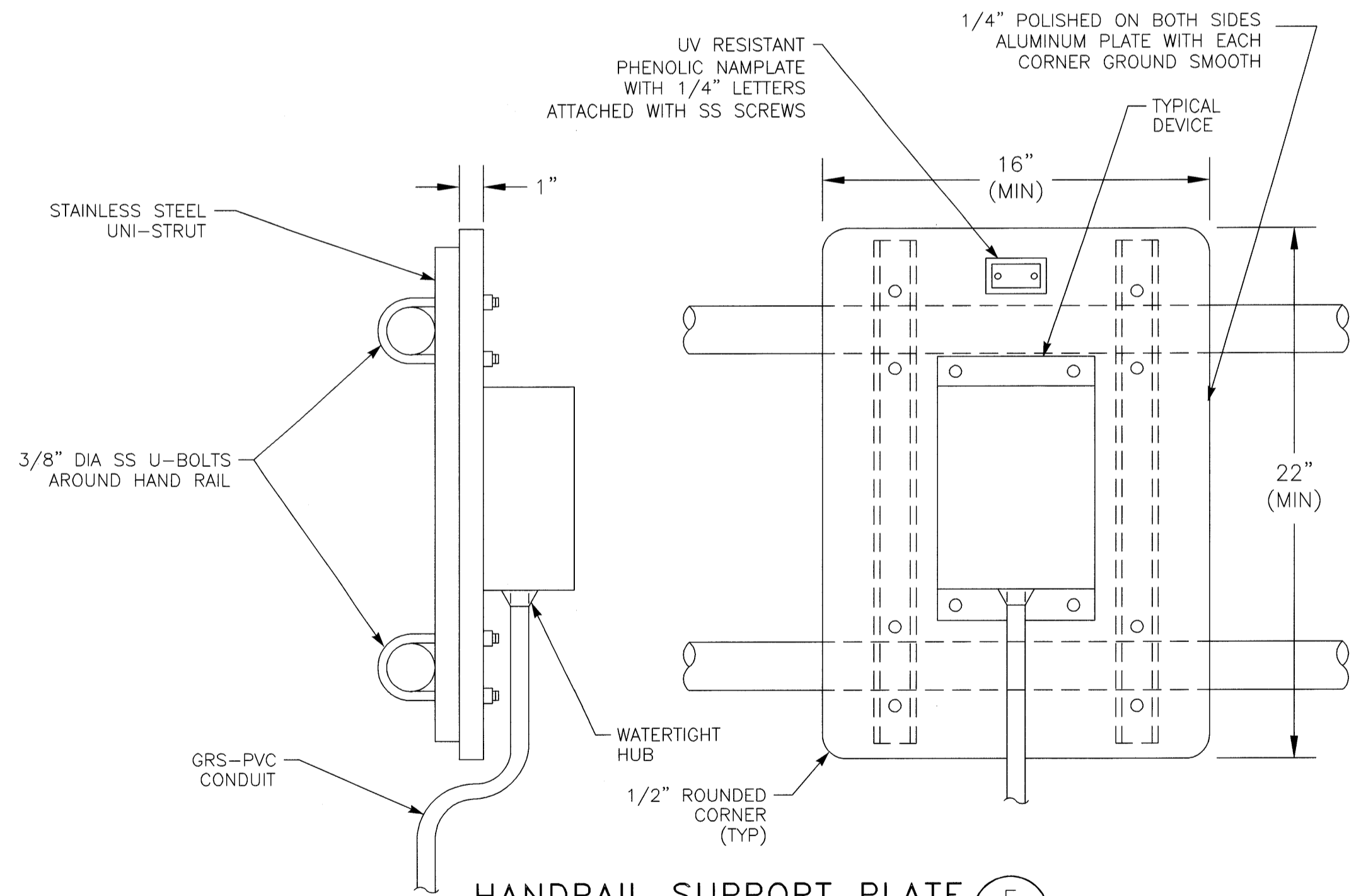


**HIGH HIGH POND LEVEL SWITCH** (C) (E7)  
 NOT TO SCALE  
 DETAIL



**SUNSHIELD** (D) (E8)  
 NOT TO SCALE  
 DETAIL

- NOTES:
- USA BLUEBOOK SUNSHIELD OR EQUAL.
  - SUPPORT WITH STAINLESS STEEL UNISTRUT.
  - FRONT SHADE SHALL FOLD DOWN IN FRONT OF INSTRUMENT/DEVICE TO PROTECT FROM SUN EXPOSURE & OPEN 270° TO LAY FLAT ON TOP OF SUNSHIELD.



**HANDRAIL SUPPORT PLATE** (E) (E8)  
 NOT TO SCALE  
 DETAIL

- NOTES:
- ALL HARDWARE TO BE STAINLESS STEEL.

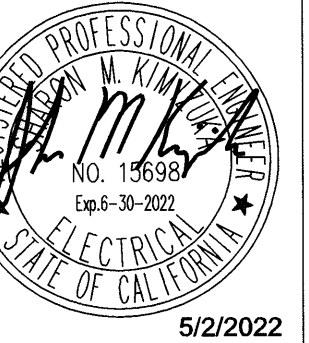
NO.	DATE	REVISION

SCALE: AS SHOWN	DATE: MAY 2022	CHK BY: SMK & XML
DWN BY: ZKV		

City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**TYPICAL ELECTRICAL DETAILS 2, E5**

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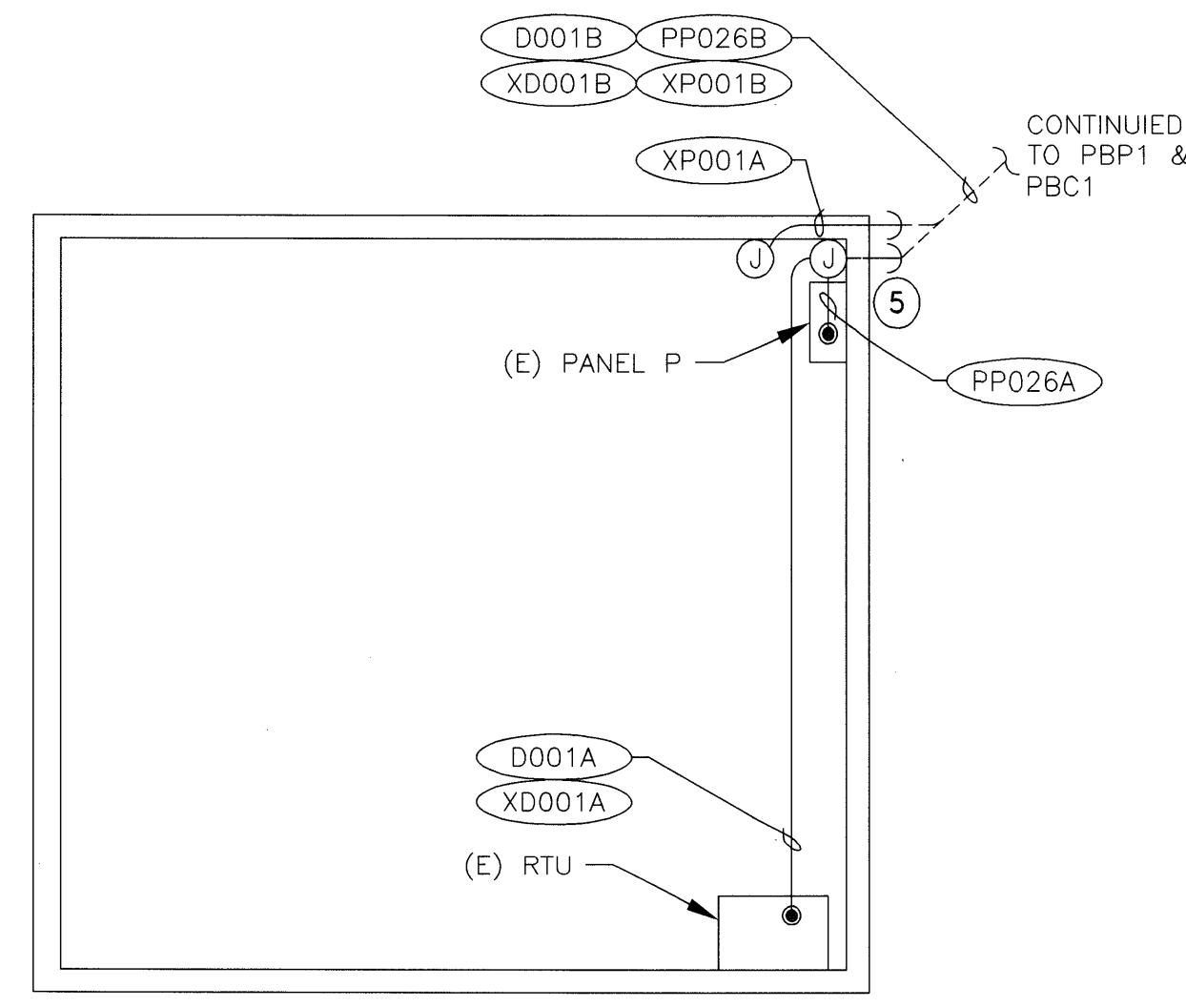
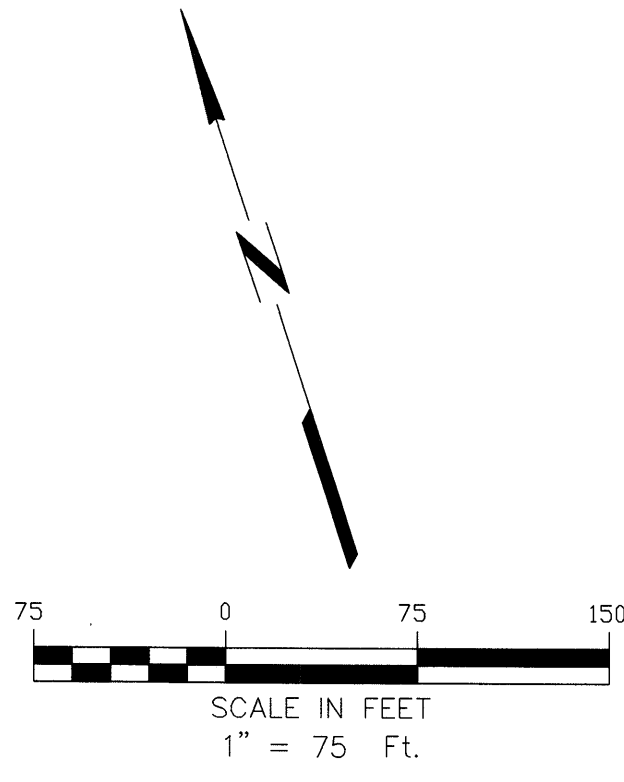




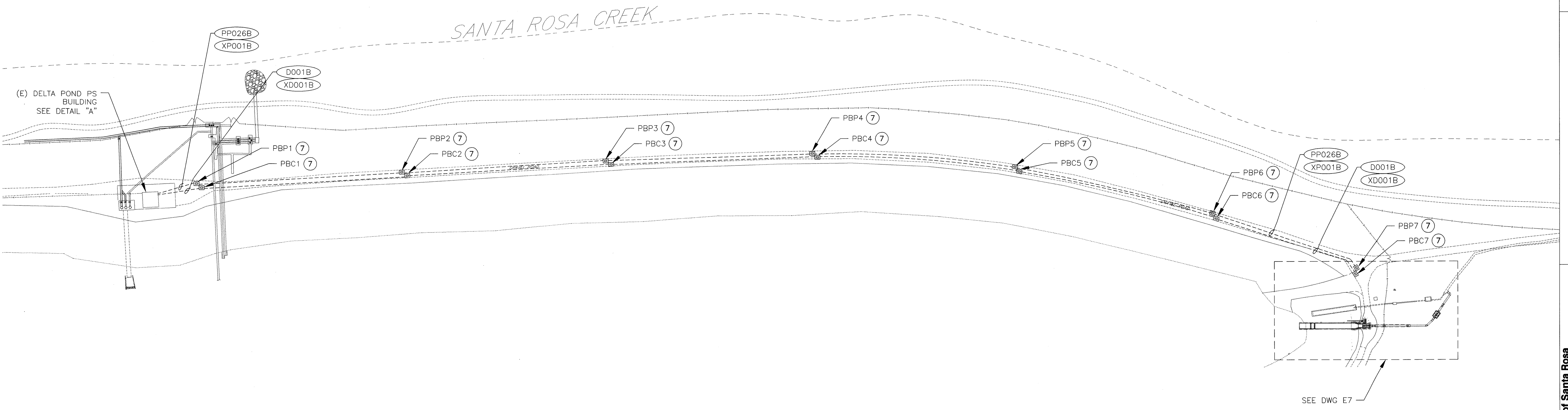
5/2/2022

City of Santa Rosa  
**Breije & Race**  
 ELECTRICAL ENGINEERS  
 472 Alvarado Blvd., Suite 100, Santa Rosa, CA 95402  
 www.breijerace.com

REF DWG	CONDUIT NO.	FROM	TO	CONDUIT			POWER WIRE		CONTROL WIRE		SIGNAL WIRE		NOTES
				QTY	SIZE	TYPE	QTY	SIZE	GND SIZE	QTY	SIZE	QTY	
E7	A 101 A	PEDESTAL	MOV 102 JB-A	1	1-1/2"	ARC-PVC	-	-	2#12	-	-	6 #16TSPR	
E7	A 101 B	MOV 102 JB-A	MOV 101 JB-A	1	1"	ARC-PVC	-	-	#12	-	-	3 #16TSPR	
E7	A 485 B	FIT 480005	FE 480005	1	-	EXISTING	-	-	#8	-	-	MNFR CBL	REPLACE (E) FLOWMETER
E7	A 151	PEDESTAL	BUBBLER	1	1"	ARC	-	-	-	-	-	1 1/4"	BUBBLER TUBING
E7	A 171	PEDESTAL	FE171 JB	1	1"	ARC-PVC	-	-	#8	-	-	MNFR CBL	
E7	C 101 A	PEDESTAL	MOV 101 JB-C	1	1"	PVC-80	-	-	2#12	8	#14	-	
E7	C 101 B	MOV 102 JB-C	MOV 102 JB-C	1	1"	PVC-80	-	-	#12	4	#14	-	
E7	C 152 A	PEDESTAL	LSHH 152	1	1"	ARC	-	-	#12	4	#14	-	POND FLOOD
E6	D 001 A	RTU PANEL	J-BOX	1	2"	PVC-80	-	-	#8	-	-	4 PR FIBER	
E7	D 001 B	J-BOX	PEDESTAL	1	2"	PVC-80	-	-	#8	-	-	4 PR FIBER	
E7	P 101 A	PEDESTAL	MOV 101 JB-P	1	1"	PVC-80	-	-	2#12	8	#14	-	
E7	P 101 B	MOV 102 JB-P	MOV 102 JB-P	1	1"	PVC-80	-	-	#12	4	#14	-	
E6	PP 026 A	PANEL P	J-BOX	1	2"	PVC-80	3	#4	#8	-	-	-	
E7	PP 026 B	J-BOX	PEDESTAL	1	2"	PVC-80	3	#4	#8	-	-	-	
E6	XD 001 A	RTU PANEL	J-BOX	1	2"	PVC-80	-	-	-	-	-	-	PULL ROPE; STUB AND CAP
E7	XD 001 B	J-BOX	PEDESTAL	1	2"	PVC-80	-	-	-	-	-	-	PULL ROPE; STUB AND CAP
E7	XL 001	PEDESTAL	FLOWMETER VAULT	1	1"	PVC-80	-	-	-	-	-	-	PULL ROPE; STUB AND CAP
E7	XP 001 A	BLDG J-BOX	J-BOX	1	2"	AR	-	-	-	-	-	-	PULL ROPE; STUB AND CAP
E7	XP 001 B	J-BOX	PEDESTAL	1	2"	PVC-80	-	-	-	-	-	-	PULL ROPE; STUB AND CAP



DELTA POND PS BUILDING (A) (E6) (10)  
 NOT TO SCALE



OVERALL ELECTRICAL SITE PLAN (1) (2) (3) (4) (6) (8) (9)

- NOTES: (1) NOT ALL EXISTING CONDUITS SHOWN. CONDUITS SHOWN ARE THOSE ASSOCIATED WITH NEW WORK.
- (2) THERE ARE EXISTING CONDUITS, PIPES AND GAS LINES NOT SHOWN WHICH SHALL BE PROTECTED FROM DAMAGE. REPLACE OR REPAIR ALL DAMAGE TO EXISTING UTILITIES AT NO ADDITIONAL COST TO OWNER.
- (3) WHERE CONDUIT CROSSES PAVED AREAS SAW CUT SURFACE FOR TRENCH, BACKFILL, COMPACT, & RESURFACE TO DEPTH OF PAVEMENT TO MATCH EXISTING.
- (4) HAND TRENCH THIS AREA FOR NEW UG CONDUIT RUNS DUE TO UNDERGROUND OBSTRUCTIONS THAT ARE NOT LOCATED. COORDINATE WITH OWNER FOR AREAS THAT REQUIRE HAND DIGGING.
- (5) CORE DRILL (E) BUILDING AND SEAL ENTRY.
- (6) SEE CIVIL DRAWINGS FOR WATER LINE & OTHER PIPE ROUTES.
- (7) INSTALL 10" x 17" PULLBOX (MIN) PER DWG E4, DETAIL "B". LOCATE PULL BOXES IN CENTER OF ROADWAY OUTSIDE VEHICLE PATH.
- (8) ALL JUNCTION BOXES TO BE WEATHERPROOF (WP) TYPE.
- (9) INSTALL ALL UNDERGROUND CONDUITS PER DWG E4, DETAIL "A" AND DWG E4, DETAIL "C".
- (10) INSTALL BUILDING CONDUITS PER DWG E4, DETAIL "D". NOT ALL EQUIPMENT SHOWN.

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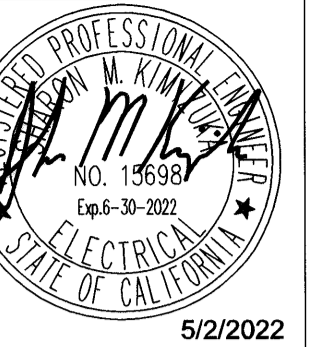
City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**OVERALL ELECTRICAL SITE PLAN, E6**

CONTRACT NO. C02111  
 SHEET 23 OF 27  
 FILE NO. 2018-0048

NO.	DATE	REVISION

SCALE: AS SHOWN  
 DWN BY: ZKV  
 DATE: MAY 2022  
 CHK BY: SMK & XML





NO.	DATE	REVISION

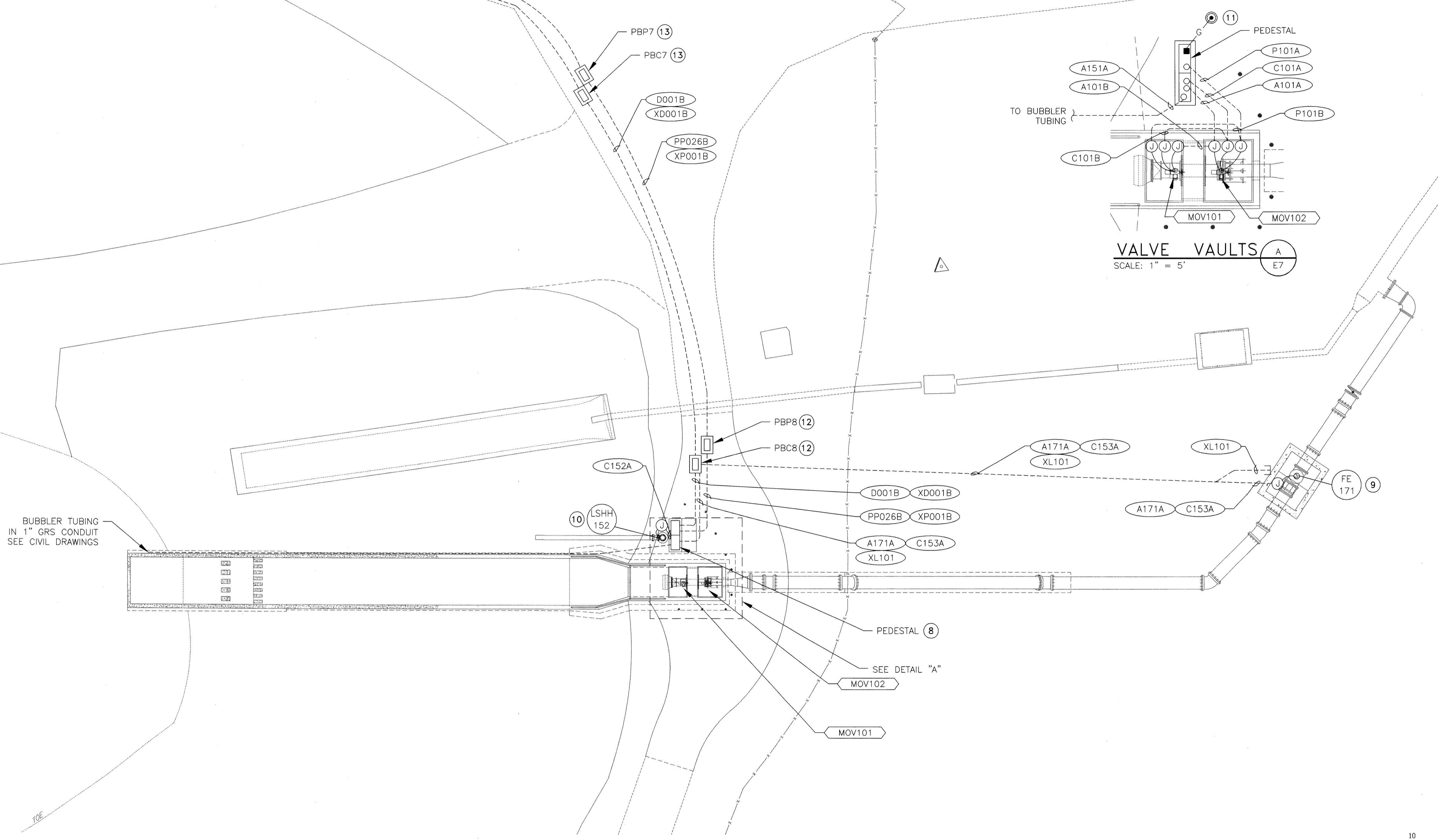
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DWN BY: ZKV	CHK BY: SMK & XML

City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**GEYSER DELTA VALVE & POND ELECTRICAL SITE PLAN, E7**

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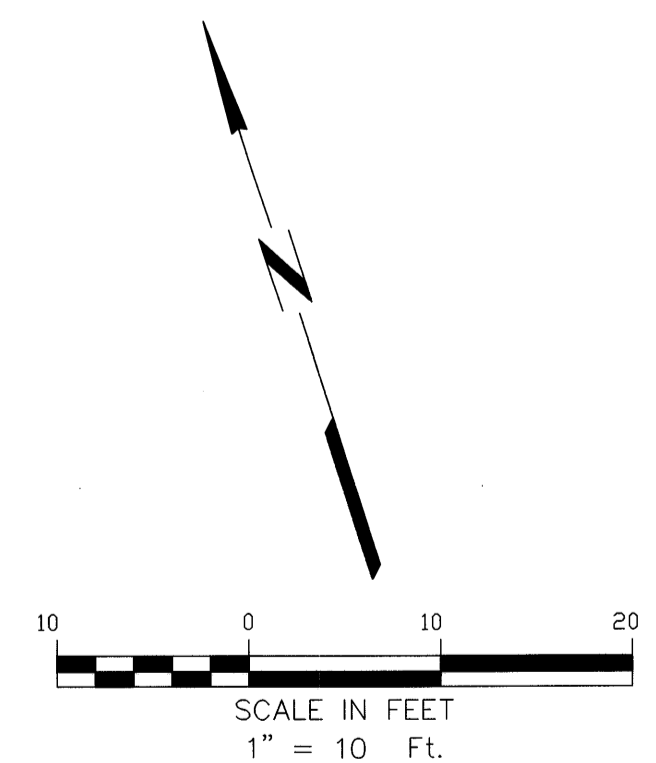
CONTINUED ON DWG E6



BUBBLER TUBING IN 1" GRS CONDUIT SEE CIVIL DRAWINGS

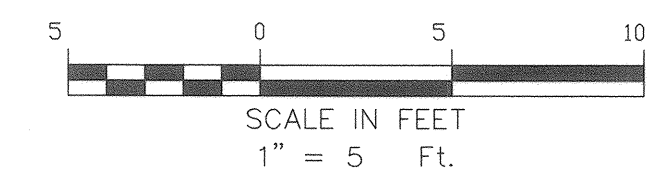
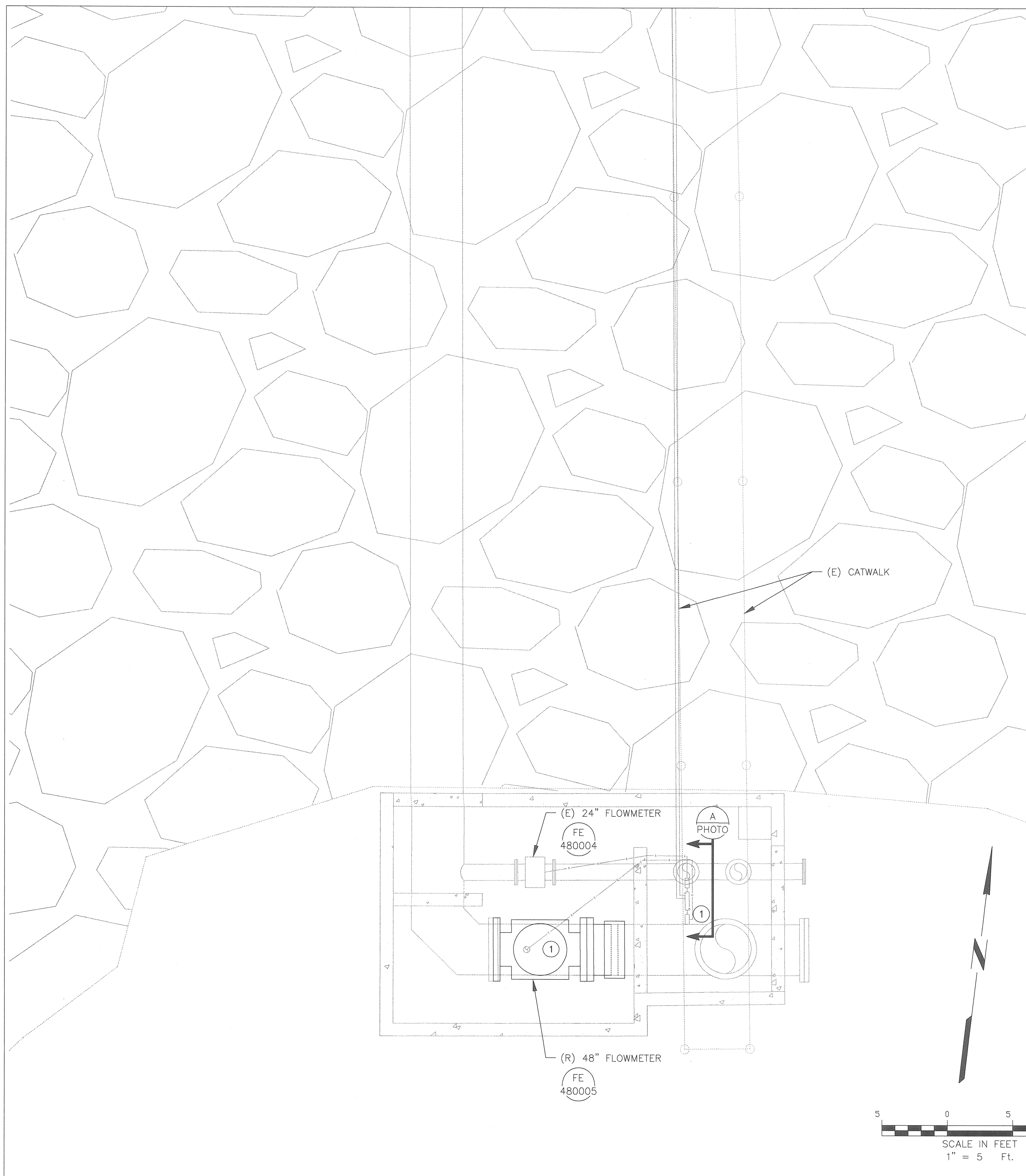
**GEYSER DELTA VALVE & POND ELECTRICAL SITE PLAN ①②③④⑤⑥⑦**

- NOTES:
- ① NOT ALL EXISTING CONDUITS SHOWN. CONDUITS SHOWN ARE THOSE ASSOCIATED WITH NEW WORK.
  - ② THERE ARE EXISTING CONDUITS, PIPES AND GAS LINES NOT SHOWN WHICH SHALL BE PROTECTED FROM DAMAGE. REPLACE OR REPAIR ALL DAMAGE TO EXISTING UTILITIES AT NO ADDITIONAL COST TO OWNER.
  - ③ WHERE CONDUIT CROSSES PAVED AREAS SAW CUT SURFACE FOR TRENCH, BACKFILL, COMPACT, & RESURFACE TO DEPTH OF PAVEMENT TO MATCH EXISTING.
  - ④ HAND TRENCH THIS AREA FOR NEW UG CONDUIT RUNS DUE TO UNDERGROUND OBSTRUCTIONS THAT ARE NOT LOCATED. COORDINATE WITH OWNER FOR AREAS THAT REQUIRE HAND DIGGING.
  - ⑤ ALL JUNCTION BOXES TO BE WEATHERPROOF (WP) TYPE.
  - ⑥ SEE CIVIL DRAWINGS FOR WATER LINE & OTHER PIPE ROUTES.
  - ⑦ INSTALL ALL UNDERGROUND CONDUITS PER DWG E4, DETAIL "A" AND DWG E4, DETAIL "C".
  - ⑧ INSTALL PANELS PER DWG E5, DETAIL "A".
  - ⑨ INSTALL FLOWMETER PER DWG E5, DETAIL "B".
  - ⑩ LEVEL SWITCHES PER DWG E5, DETAIL "C".
  - ⑪ INSTALL GROUNDING PER DWG E4, DETAIL "E" AND DWG E4, DETAIL "F".
  - ⑫ INSTALL 36" x 24" PULLBOX PER DWG E4, DETAIL "B".
  - ⑬ INSTALL 10" x 17" PULLBOX (MIN) PER DWG E4, DETAIL "B". LOCATE PULL BOXES IN CENTER OF ROADWAY OUTSIDE VEHICLE PATH.





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**OUTLET FLOW METER REPLACEMENT ELECTRICAL SITE PLAN ②**

- NOTES: ① REPLACE (E) 48" FLOW ELEMENT AND FLOW TRANSMITTER.  
 ② REMOVE (E) MANUFACTURER CABLE IN CONDUIT TO EXISTING 48" FLOW ELEMENT AND REPLACE WITH NEW CABLE. EXTEND EXISTING CONDUIT AS REQUIRED.

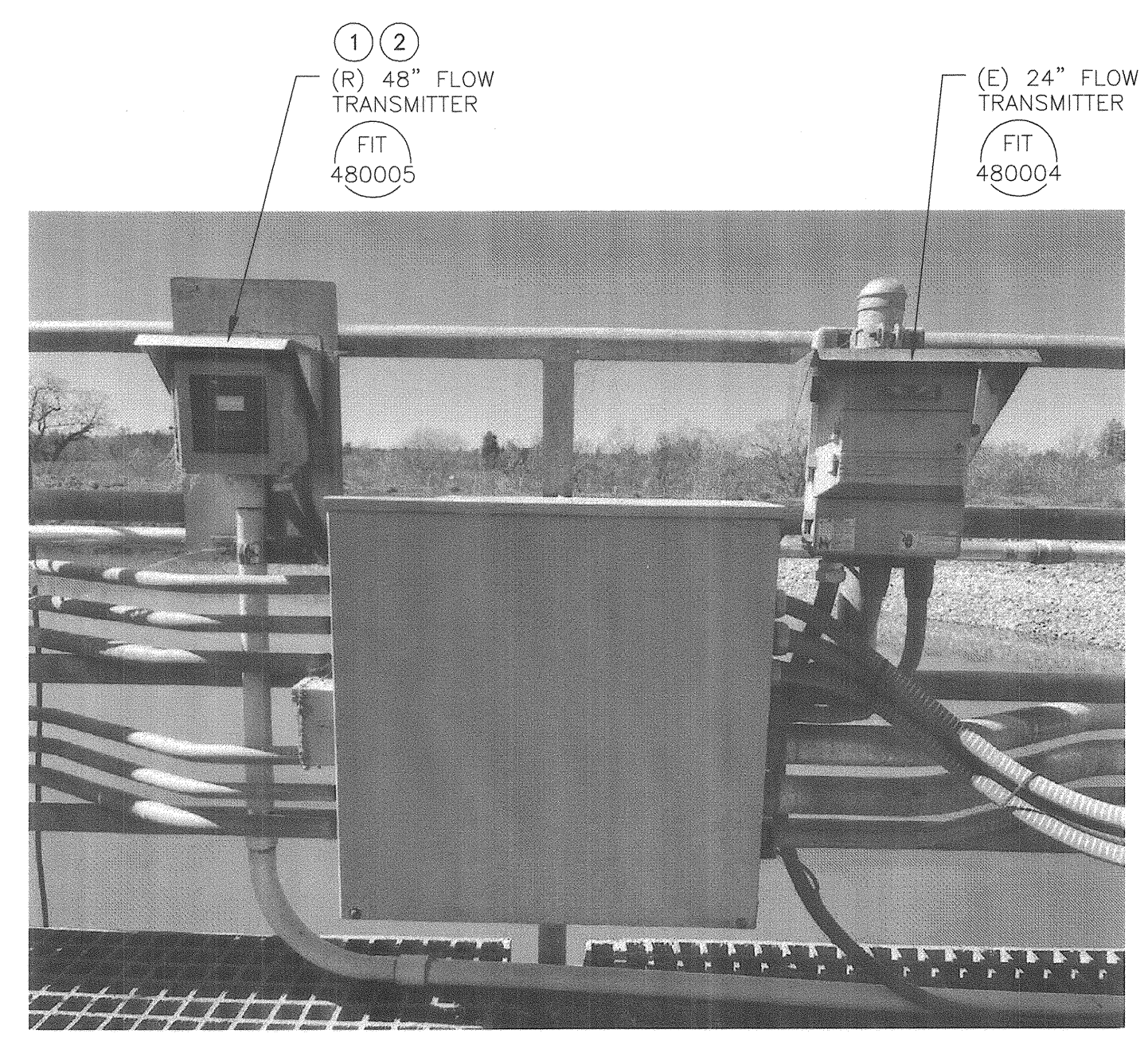
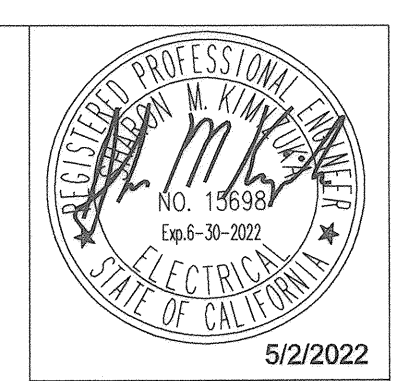


PHOTO A

- NOTES: ① REPLACE (E) FLOW TRANSMITTER, PROVIDE NEW SUNSHIELD PER DWG E5, DETAIL "D".  
 ② RECONNECT EXISTING 120 VAC POWER, 4-20 mA TSPR, FAULT ALARM AND GROUND WIRES.

**ATEEM**  
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**Brelje & Race**  
 CIVIL & ELECTRICAL ENGINEERS  
 475 Avenida Blvd., Suite 100, Santa Rosa, CA 95402  
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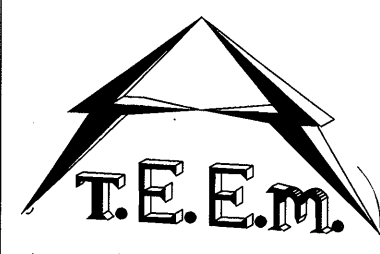
NO.	DATE	REVISION

SCALE: AS SHOWN	DATE: MAY 2022
DWN BY: ZKV	CHK BY: SMK & XML

City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**OUTLET FLOW METER REPLACEMENT ELECTRICAL SITE PLAN, E8**

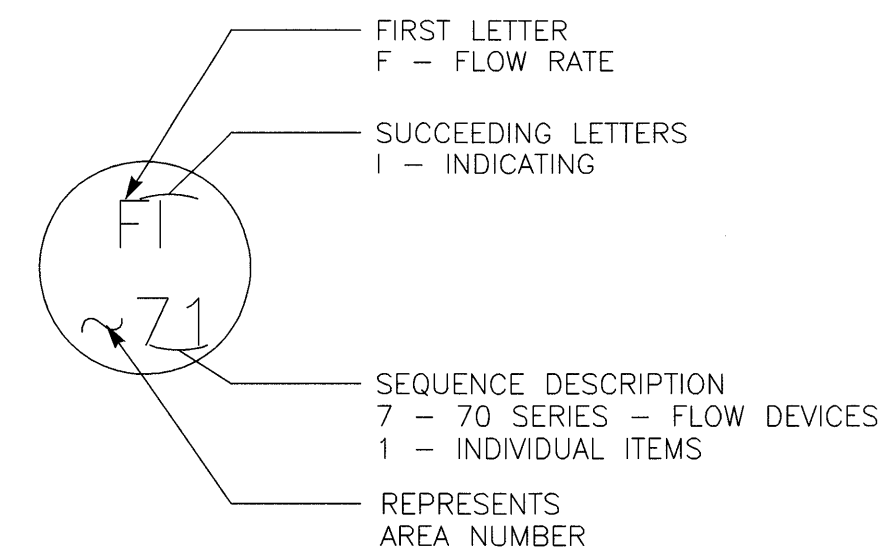
CONTRACT NO. C02111  
 SHEET 25 OF 27  
 FILE NO. 2018-0048



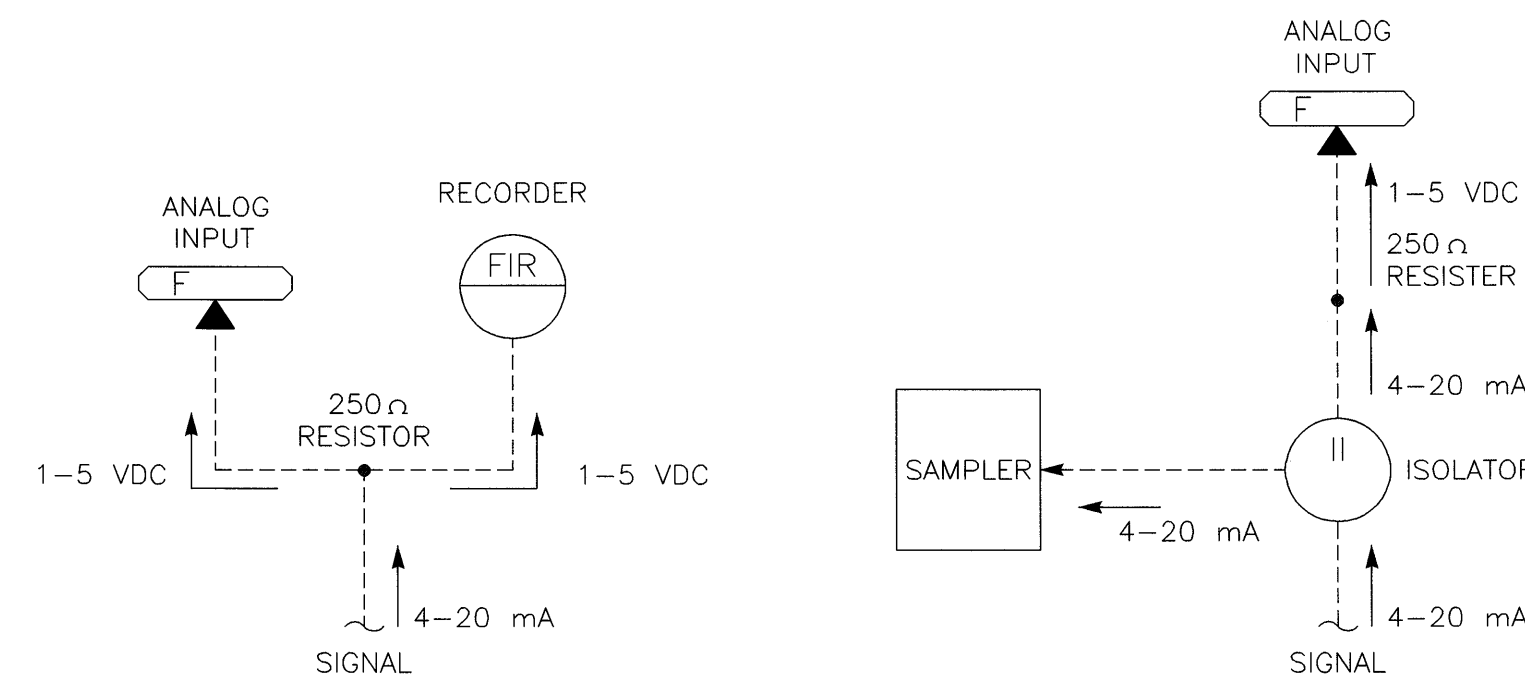


SYMBOL	DESCRIPTION	SYMBOL	DESCRIPTION
<b>P &amp; I DIAGRAM SYMBOLS</b>			
	FIELD MOUNTED INSTRUMENT		VALVE (GENERAL)
	FACE MOUNTED INSTRUMENT ON LOCAL PANEL, OPERATOR ACCESSIBLE		GATE (GENERAL)
	FACE MOUNTED INSTRUMENT ON FIELD PANEL, OPERATOR ACCESSIBLE		CHECK VALVE (GENERAL)
	INSTRUMENT MOUNTED IN LOCAL PANEL, OPERATOR INACCESSIBLE		PUMP (GENERAL)
	INSTRUMENT MOUNTED IN FIELD PANEL, OPERATOR INACCESSIBLE		BLOWER (GENERAL)
	OPERATION PERFORMED WITH LOGIC OR HARDWIRED DEVICES		VALVE/GATE NUMBER
	DWG # - REFERENCE ELEMENTARY DWG. #		EQUIPMENT NUMBER
	PLC OR COMPUTER FUNCTION PERFORMING OPERATION WITH VISUAL INDICATION		ELECTRIC SIGNAL
	PLC OR COMPUTER FUNCTION PERFORMING OPERATION WITH VISUAL ALARM INDICATION		LOGIC OR DATA SIGNAL
	PLC OR COMPUTER PERFORMING INTERNAL OPERATION		PNEUMATIC SIGNAL
	PLC OR COMPUTER PERFORMING INTERNAL ALARM OPERATION		CAPILLARY TUBING (FILLED SYSTEM)
	PROPORTIONAL, INTEGRAL, AND DIFFERENTIAL PARAMETERS		HYDRAULIC SIGNAL
	RATIO AND BIAS PARAMETERS		SONIC OR ELECTROMAGNETIC SIGNAL
	AUDIBLE ALARM (BUZZER OR HORN)		ELECTRIC SUPPLY FROM PANELBOARD CKT
	ANNUNCIATOR WINDOW R - ROW # C - COLUMN #		SERVICE AIR
	LAMP INDICATION (STATUS OR ALARM)		INSTRUMENT AIR
	DISCRETE INPUT		
	DISCRETE OUTPUT		
	ANALOG INPUT		
	ANALOG OUTPUT		
	JUMP TAG FROM ONE AREA TO ANOTHER AREA OF DRAWING "o" TAG CONNECT POINT ON EACH DRAWING		
	CONTINUED ON DWG P-X		
	AUTODIALER PRIORITY # PC BASED SOFTWARE		

INSTRUMENT IDENTIFICATION LETTERS				
FIRST - LETTER	SUCCEEDING - LETTER			
MEASURED OF INITIATING VARIABLE	MODIFIER	READOUT PASSIVE FUNCTION	OUTPUT FUNCTION	MODIFIER
A ANALYSIS		ALARM		
B BURNER, COMBUSTION		USER'S CHOICE	USER'S CHOICE	USER'S CHOICE
C CONDUCTIVITY			CONTROLLER	
D DENSITY	DIFFERENTIAL			
E VOLTAGE		SENSOR, PRIMARY ELEMENT		
F FLOW RATE	RATIO (FRACTION)			
G GENERAL		GLASS VIEWING DEVICE		
H HAND				HIGH, OPENED
I CURRENT (ELEC.)		INDICATING, INDICATOR		
J POWER	SCAN			
K TIME, TIME SCHEDULE	TIME RATE OF CHANGE		CONTROL STATION	
L LEVEL		LIGHT		LOW, CLOSED
M MOISTURE	MOMENTARY			MIDDLE
N STATUS		STATUS	USER'S CHOICE	USER'S CHOICE
O OPERATOR		ORIFICE, RESTRICTION		
P PRESSURE, VACUUM		POINT (TEST) CONNECTION		
Q QUANTITY	INTERGRATE, TOTALIZE			
R RESET		RECORD		
S SPEED, FREQUENCY	SAFETY		SWITCH	
T TEMPERATURE			TRANSMITTER	TEST
U MULTIVARIABLE		MULTIFUNCTION	MULTIFUNCTION	MULTIFUNCTION
V VIBRATION, MECH. ANALYSIS			VALVE, DAMPER LOUVER	
W WEIGHT, FORCE		WELL		
X SWITCH	X AXIS	UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED
Y EVENT, STATE OR PRESENCE	Y AXIS		RELAY, COMPUTER, CONVERTOR	
Z POSITION	Z AXIS		DRIVER, ACTUATOR, UNCLASSIFIED FINAL CONTROL ELEMENT	

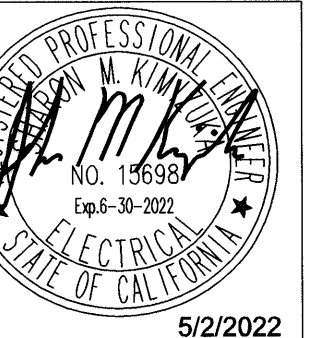


P&ID INSTRUMENT IDENTIFICATION EXAMPLE



TYPICAL SIGNAL FLOWS

NUMBERING SEQUENCE	
SEQUENCE NUMBER	DESCRIPTION
00	COMMON ALARM
01-09	INDIVIDUAL ITEMS
10	MECHANICAL
20	MECHANICAL
30	MECHANICAL
40	MECHANICAL
50	LEVEL DEVICES
60	PRESSURE DEVICES
70	FLOW DEVICES
80	ANALYTICAL DEVICES
90	SAFETY & SECURITY DEVICES



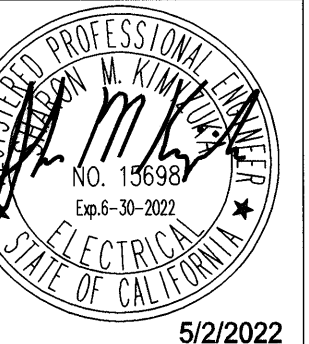
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 REGISTERED PROFESSIONAL ENGINEERS  
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City of Santa Rosa  
**GEYSERS-DELTA CONNECTION IMPROVEMENTS**  
**INSTRUMENTATION SYMBOLS & ABBREVIATIONS, 11**





5/2/2022

City of Santa Rosa  
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 CONSULTING ENGINEERS  
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 www.breje.com

DELTA POND PS  
 (E) OPERATOR  
 INTERFACE  
 OI DISPLAY ②

DELTA POND PS  
 (E) OPERATOR  
 INTERFACE  
 ② OI DISPLAY

① ②  
 GEYSER-DELTA  
 CONNECTOR  
 I-DEVICE

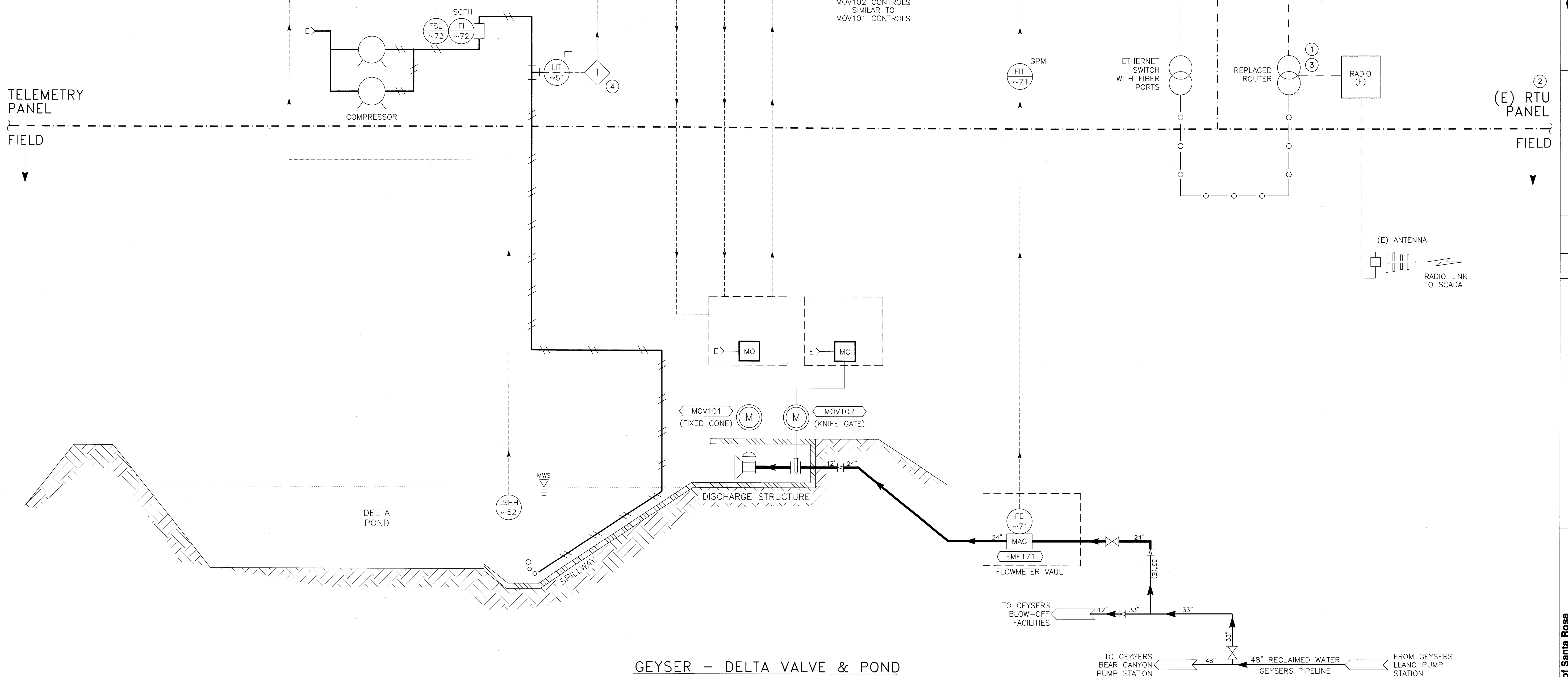
① ②  
 DELTA POND PS  
 (E) PROGRAMMABLE  
 LOGIC  
 CONTROLLER

TELEMETRY  
 PANEL

(E) RTU  
 PANEL

FIELD

FIELD

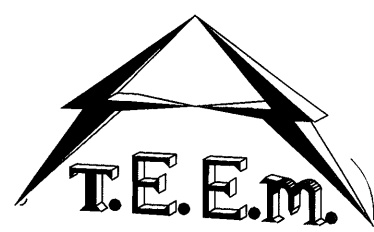


**GEYSER - DELTA VALVE & POND**

- NOTES:
- ① OWNER WILL PROGRAM PLC & ROUTERS.
  - ② LOCATE IN DELTA POND PUMP STATION.
  - ③ REPLACE (E) ROUTER.
  - ④ PROVIDE ISOLATOR TO REPEAT ANALOG SIGNAL.
  - ⑤ LATCHING ALARM.

AREA  
 PREFIX  
 1~

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**GEYSERS-DELTA CONNECTION  
 IMPROVEMENTS**  
**GEYSERS DELTA VALVES  
 & POND P&ID, I2**

CONTRACT NO.  
 C02111  
 SHEET 27 OF 27  
 FILE NO. 2018-0048

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AS SHOWN	MAY 2022	ZKV	SMK & XML