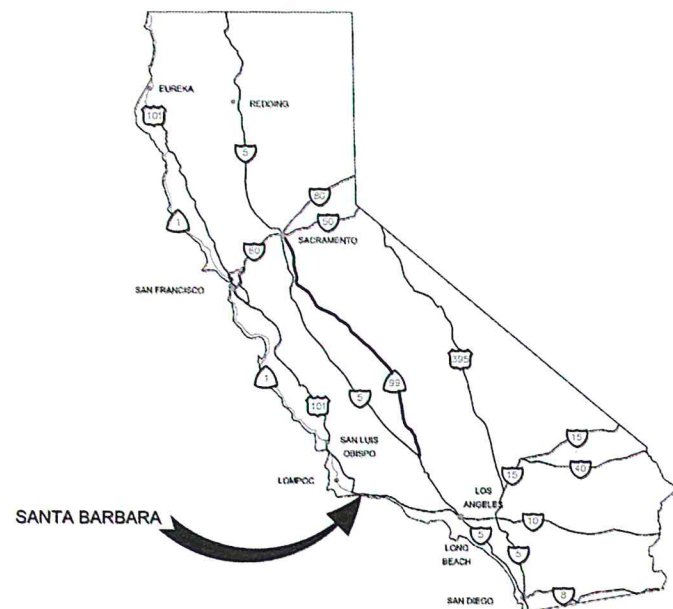




# LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT CONFORM GRADING

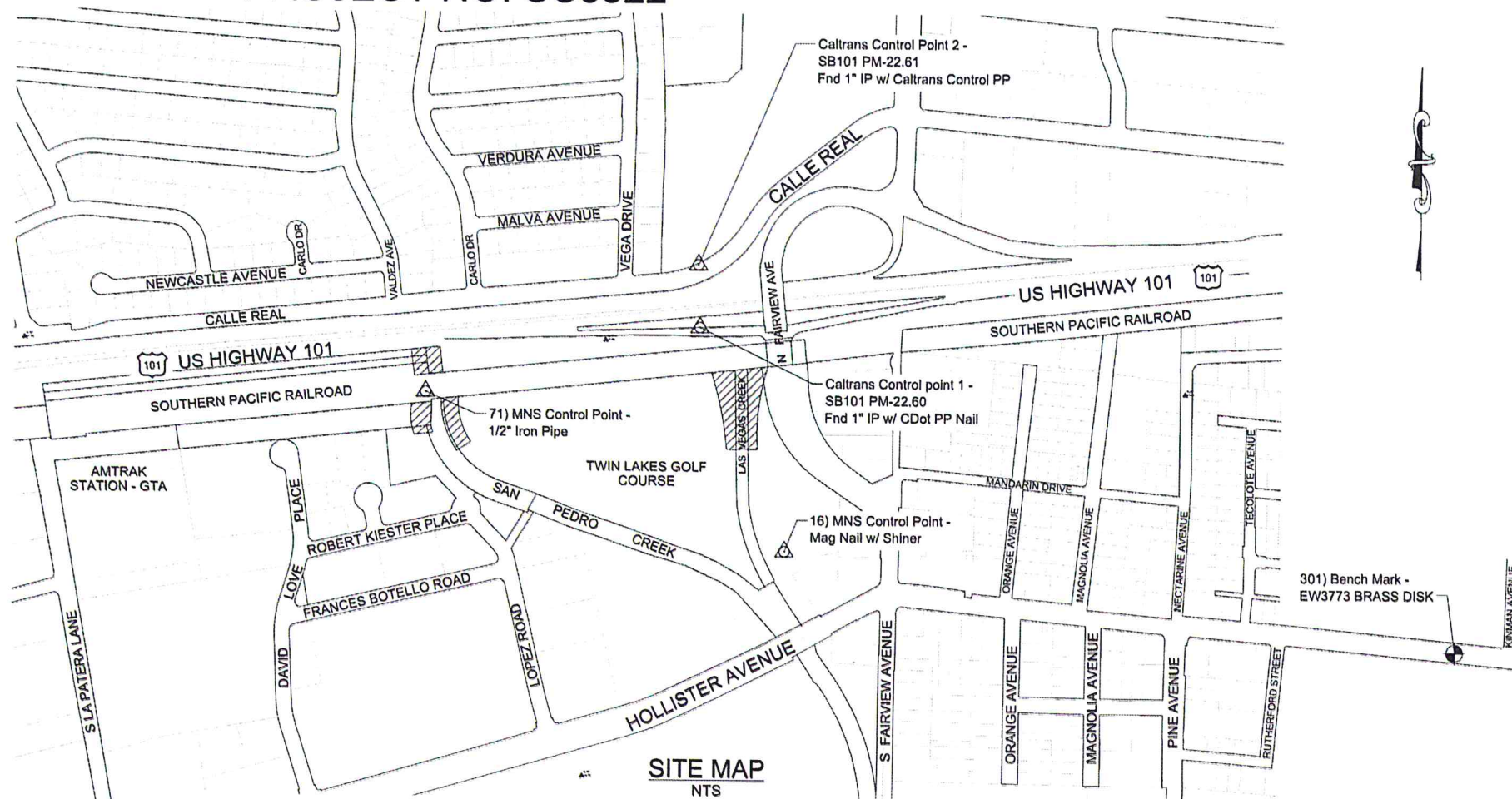
## PROJECT NO. SC8322



**PROJECT LOCATION  
STATE MAP  
NTS**

**DISTRICT BOARD OF DIRECTORS**

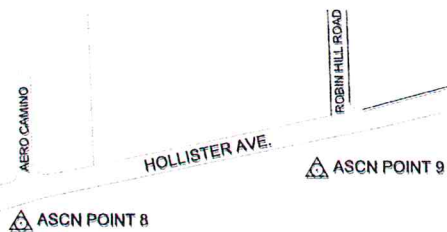
- FIRST DISTRICT - SALUD CARBAJAL
- SECOND DISTRICT - JANET WOLF
- THIRD DISTRICT - DOREEN FARR
- FOURTH DISTRICT - PETER ADAM
- FIFTH DISTRICT - CHAIR - STEVE LAVAGNINO



**SITE MAP  
NTS**

**SHEET INDEX**

SHEET NO.	TITLE	DWG. NO.	SHEET NO.	TITLE	DWG. NO.
①	TITLE SHEET AND SITE MAP AND STATE MAP	FC-001	⑦	SECTIONS	FC-007
②	GENERAL INFORMATION, LEGEND AND ABBREVIATIONS	FC-002	⑧	LAS VEGAS CREEK SECTIONS	FC-008
③	SURVEY CONTROL AND CONSTRUCTION NOTES	FC-003	⑨	SAN PEDRO CREEK SECTIONS	FC-009
④	HORIZONTAL CONTROL	FC-004	⑩	WETLANDS PLAN	FC-010
⑤	LAS VEGAS CREEK PLAN AND PROFILE	FC-005	⑪ to ⑬	TWIN LAKES GOLF COURSE EXISTING IMPROVEMENTS AND ACCESS PLANS	FC-011 - 013
⑥	SAN PEDRO CREEK PLAN AND PROFILE	FC-006			



**HDR**

HDR Engineering, Inc.  
2320 El Camino Real Suite 200  
Irvine, California 92612

DATE	APPROVED	DESIGN	RSW	ORIGI	CHECKED	BJD

**LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT CONFORM GRADING  
TITLE SHEET AND VICINITY MAP  
SITE MAP AND STATE MAP**

2014-SC8322  
SHT. NO. FC-001  
DWG. NO. FC-001  
SHT. 1 OF 13



APPROVED: *[Signature]* 4-15-15  
FLOOD CONTROL ENGINEERING MANAGER  
DATE  
ORIGINAL SIGNED DATE

APPROVED: \_\_\_\_\_  
Original to be signed  
FLOOD CONTROL MAINTENANCE SUPERINTENDENT  
DATE  
ORIGINAL SIGNED DATE

APPROVED: *[Signature]* 4-16-15  
DEPUTY DIRECTOR  
DATE  
ORIGINAL SIGNED DATE

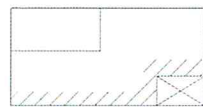
APPROVED: \_\_\_\_\_  
SANTA BARBARA CO. FLOOD CONTROL & WATER CONSERVATION DISTRICT

APPROVED: *[Signature]* 4-17-15  
ENVIRONMENTAL SERVICES MANAGER  
DATE  
ORIGINAL SIGNED DATE

APPROVED: *[Signature]*  
PROJECT ENGINEER  
DATE 11-07-14



**SYMBOL LEGEND**



Exist Building



Existing Drop Inlet, Round Drop Inlet



Exist Manhole



Existing Vegetation Shrub, Palm



Existing Vegetation Tree



Existing Vegetation Bush/Hedge/Tree Line



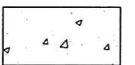
Direction Flow of Water



Horizontal and Vertical Control Point



Rock Slope Protect



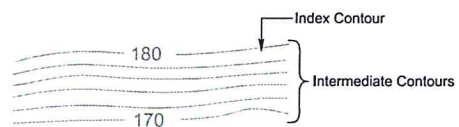
Concrete Structure



HPTRM

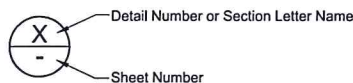


Existing Monument



657.2 Spot Elevation (at Decimal Point)

**DETAILS**



Detail Number or Section Letter Name

Sheet Number

**LINETYPE LEGEND**

Boundary Easement Line	-----
Boundary Right of Way Line	-----
Centerline	-----
Contourline-Major	-----
Contourline-Minor	-----
Existing Contourline-Major	-----
Existing Contourline-Minor	-----
Exist Flowline (Natural and Manmade)	-----
Existing Drainage	-----
Existing Facilities	-----
Existing Fence (Chainlink)	-----
Existing Guardrail	-----
Exist Retaining Wall	-----
Existing Utility Gas	-----
Existing Utility Sewer	-----
Existing Storm Drain	-----
Existing Wood Rail Fence	-----
Existing Vegetation Brush	-----
Temporary Construction Fence or Existing Barbed Wire Fence	-----

**GENERAL NOTES**

- EXISTING UTILITY INFORMATION: ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS AND ARE APPROXIMATE. THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR MUST NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1-800-422-4133.
- EXCAVATIONS OVER FIVE FEET (5) REQUIRE AN EXCAVATION PERMIT FROM THE DEPARTMENT OF INDUSTRIAL SAFETY.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES TO CITY OF SANTA BARBARA, GOLETA SANITARY DISTRICT, TWIN LAKES GOLF COURSE OR ANY OTHER UTILITIES CAUSED BY HIS/HER OPERATIONS.
- ALL SANITARY SEWER CONSTRUCTION SHALL BE IN ACCORDANCE WITH THE REQUIREMENTS OF THE GOLETA SANITARY DISTRICT. CALL THE GOLETA SANITARY DISTRICT A MINIMUM OF TWO WORKING DAYS PRIOR TO EXCAVATIONS WITHIN LAS VEGAS CREEK @ 1-805-967-4519.
- THE CONTRACTOR IS RESPONSIBLE FOR OFF-SITE DISPOSAL OF CONCRETE AND REINFORCEMENT AND SPOILS NOT NEEDED FOR BACKFILL AS REQUIRED BY THE SPECIFICATIONS.
- THE INTEGRITY OF THE SANITARY SEWER LINE WITHIN LAS VEGAS CREEK WILL BE MAINTAINED BY THE CONTRACTOR THROUGHOUT CONSTRUCTION.
- SOIL COVER FOR RSP SHALL BE OBTAINED FROM EXCAVATED MATERIAL ACCEPTABLE TO THE DISTRICT BIOLOGIST.

**ABBREVIATIONS**

APN	Assessors parcel number	LF	Linear Feet
APPROX	Approximate	MH	Manhole
APWA	American Public Works Assoc.	NTS	Not to Scale
BC	Begin Transition	No.	Number
Beg.	Beginning	OC	On Center
BLDG	Building	OD	Outside Diameter
BOT	Bottom	PI	Point of Intersection
CALTRANS	State of California Department of Transportation	PM	Parcel Map
CASQA	California Stormwater Quality Association	R1	Record per book nn, page nn of maps
CFS	Cubic feet per second	SBCFC & WCD	Santa Barbara County Flood Control & Water Conservation District
CITY	City of Santa Barbara	RCB	Reinforced Concrete Box
CLF	Chainlink Fence	RSP	Rock Slope Protection
C/L or $\bar{c}$	Center Line	R/W	Right of Way
CMP	Corrugated metal pipe	S	Sewer or slope or south
CONC	Concrete	SB	South Bound
CONST	Construct	SD	Storm Drain
CONSTR	Construction	SDMH	Storm drain manhole
COUNTY	County of Santa Barbara	Sh	Sheet
DIA	Diameter	SPPWC	Standard Plans for Public Works Construction
DWG	Drawing	SS	Sanitary Sewer
E	East or Easting	STA	Station
EA	Each	SWR	Sewer
EC	End of Curve	TCE	Temporary construction easement
EG	Existing ground	TBM	Temporary bench mark
EL	Elevation	TOF	Top of Footing
EP	Edge of pavement	TOW	Top of wall
ELEC	Electric	TRANS	Transition
EX	Existing	TP	Top of pavement
FL	Flow Line	TYP	Typical
FT	Feet	T/ROCK	Top of Rock
FP	Fish Passage	W	West or Water Line
FS	Finished Surface	WF	Wall face
GB	Grade break	W	With
H : V	Horizontal : Vertical	UPRR	Union Pacific Railroad
HPTRM	High Performance Turf-Reinforced Mat	VCP	Vitrified Day Pipe
IN	Inch		
N	North or Northing		



2201 El Camino Real Suite 200 Irvine, California 92602

DESIGN	RSW
DRAWN	PP
CHECKED	BJD
DATE	APPROVED
NO.	REVISIONS

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**GENERAL INFORMATION  
LEGEND AND ABBREVIATIONS**

2014-SC8322  
PBW. NO.  
SHT. DES.  
FC-002  
DWG. NO.  
SHT. 2 OF 13



PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE 4/10/15

**CONSTRUCTION NOTES**

- ① CONSTRUCT 2:1 SLOPE PER DETAIL A, SHEET 7.
- ② PROTECT-IN-PLACE EXISTING SEWER MANHOLE.
- ③ JOIN TO EXISTING CHANNEL PER DETAIL F, SHEET 7.
- ④ JOIN TO PROPOSED CHANNEL BY UPRR PER DETAIL G, SHEET 7.
- ⑤ ABANDONED 10" VCP SANITARY SEWER. CONTRACTOR TO FIELD VERIFY. IF FOUND CONFLICTING W/ WORK, CUT, CAP, AND REMOVE AS NECESSARY.
- ⑥ RELOCATE IRRIGATION FACILITIES OUTSIDE LIMITS OF GRADING. VERIFY FINAL VALVE LOCATIONS WITH TWIN LAKES GOLF COURSE DIRECTOR JIM LEY (805) 964-1414.
- ⑦ TRIM EXISTING PIPE FLUSH WITH SLOPE FACE
- ⑧ RELOCATE AND CONSTRUCT POST RAIL FENCE PER DETAIL K, SHEET 7.
- ⑨ CONSTRUCT 2:1 SLOPE WITH 2" THICK LIGHT CLASS RSP PER DETAIL B & C, SHEET 7
- ⑩a) CONSTRUCT 1.5:1 SLOPE WITH 3' THICK ¼ TON RSP PER DETAIL D2, SHEET 7
- ⑩b) CONSTRUCT 2:1 SLOPE WITH 3' THICK ¼ TON RSP PER DETAIL D1, SHEET 7
- ⑪ CONSTRUCT WETLAND ROCK WEIR PER SHEET 10.
- ⑫ JOIN EXISTING CHANNEL PER DETAIL E, SHEET 7.
- ⑬ JOIN PROPOSED CHANNEL BY UPRR.
- ⑭ APPLY HYDROSEED WITH SEED MIX PER SPECIAL PROVISIONS.
- ⑮ REMOVE EXIST. CONC. CHANNEL

**NOTE:**

THE EXISTING UTILITIES SHOWN HEREON HAVE BEEN COMPILED FROM AS-BUILTS DRAWINGS FROM THE FOLLOWING AGENCIES.

- SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
- GOLETA SANITATION DISTRICT
- SOUTHERN CALIFORNIA GAS COMPANY
- CITY OF SANTA BARBARA

**PERMITS:**

CENTRAL COAST REGIONAL WQCB  
 - WATER QUALITY 401 CERT. #34212WQ05 FOR LAS VEGAS - SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT, SANTA BARBARA COUNTY, DATED 12/07/12.

US ARMY CORPS OF ENGINEERS: DEPT. OF THE ARMY  
 NATIONWIDE PERMITS 3(a)(b)(c) AND 43  
 - PERMIT NO. SPL-2011-00782-TS, DATED 12/10/12, WITH PERMIT EXTENSION (6/11/14).

STATE OF CALIFORNIA - THE NATURAL RESOURCES AGENCY  
 DEPT. OF FISH & WILDLIFE  
 - MASTER STREAMBED ALTERATION AGREEMENT NOTIFICATION # 1600-2012-0155-R5  
 LAS VEGAS - SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT, DATED 11/19/12.

ROCK SLOPE PROTECTION				
LOCATION	LIGHT RSP CY	1/4 TON RSP CY	1/2 TON RSP CY	BACKING NO. 1 CY
LAS VEGAS CREEK	-	-	-	50
SAN PEDRO CREEK	790	1460	-	-

EARTHWORK	
LOCATION	CHANNEL EXCAVATION CY
LAS VEGAS CREEK	800
SAN PEDRO CREEK	5220

**BENCH MARK:**

N 1985887.3220, E 6012085.1910 ELEV. 35.35  
 EW3773 BEING A BRASS DISK RECOVERED IN GOOD CONDITION. A NEW DESCRIPTION FOLLOWS. IN GOLETA, AT 5679 HOLLISTER AVENUE, SET VERTICALLY IN THE NORTH FACE OF THE GOLETA VALLEY COMMUNITY CENTER, 4.2 M (13.8 FT) EAST OF THE CENTER 1 OF 3 ENTRANCE DOORS, 0.8 M (2.6 FT) ABOVE A CONCRETE FLOOR, AND 0.03M (0.1 FT) BELOW A TELEPHONE MOUNTED ON THE WALL.

**BASIS OF BEARINGS AND HORIZONTAL DATUM:**

THE BASIS OF BEARINGS IS FROM THE RECORD OF SURVEY FOR THE CITY OF SANTA BARBARA DESCRIBED AS "AIRPORT SURVEY CONTROL NETWORK" FILED IN BOOK 170, PAGE 63 OF RECORD SURVEYS. THE CONTROL POINTS ON SAID MAP USED FOR THE BASIS OF BEARINGS WHERE ACSN9 AND ACSN8. THE HORIZONTAL DATUM FOR THIS SURVEY IS NAD83 (1991.35 epoch).

**VERTICAL DATUM:**

THE VERTICAL DATUM FOR THIS SURVEY IS NAVD88 AS DETERMINED BY TIES TO NGS POINT PID EW3773 PER NGS DATA SHEET BEING A BRASS DISK HAVING AN ELEVATION OF 35.35 FEET.

**SURVEY**

TOPOGRAPHY SURVEY PROVIDED BY:  
 MNS ENGINEERING ON 09/21/12, 10/07/13 AND 10/09/13  
 CALTRANS ON 01/28/13

**SURVEY CONTROL POINTS FOR MNS**

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATUS
16	1986298.5793	6009268.8979	18.84	MAG. NAIL W/ SHINER	PERMANENT
71	1986966.0273	6007758.6191	28.74	1/2" IRON PIPE	PERMANENT
301	1985887.3220	6012085.1910	35.35	EW3773 BRASS DISK	PERMANENT

**SURVEY CONTROL POINTS FOR ASCN**

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATUS
8	1984357.7920	6004336.0200	12.12	ASCN 8 - SET MONUMENT ON RECORD SURVEY	PERMANENT
9	1984549.7730	6005367.9000	11.63	ASCN 9 - SET MONUMENT ON RECORD SURVEY	PERMANENT

**SURVEY CONTROL POINTS FOR CALTRANS**

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATUS
1	1987245.1600	6008904.9600	43.51	Fnd 1"IP w/ CDot PP & Nail	PERMANENT
2	1987509.5800	6008896.9500	27.49	Fnd 1"IP w/ Caltrans Control PP	PERMANENT



HDR Engineering, Inc.  
 2200 El Camino Real Suite 200  
 Irvine, California 92614

DATE	APPROVED	DESIGN	RSW	DRAWN	PIP	CHECKED	BID

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SURVEY CONTROL AND CONSTRUCTION NOTES**

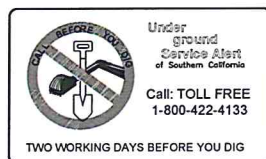
2014-SC8322  
 PBW NO. -  
 SHT. DES. -  
 FC-003  
 DWG. NO.

SHT. 3 OF 13

PROPERTY LINES  
 ARE APPROXIMATE



*Rosette S. Nimal*  
 PROJECT ENGINEER DATE 4/10/15



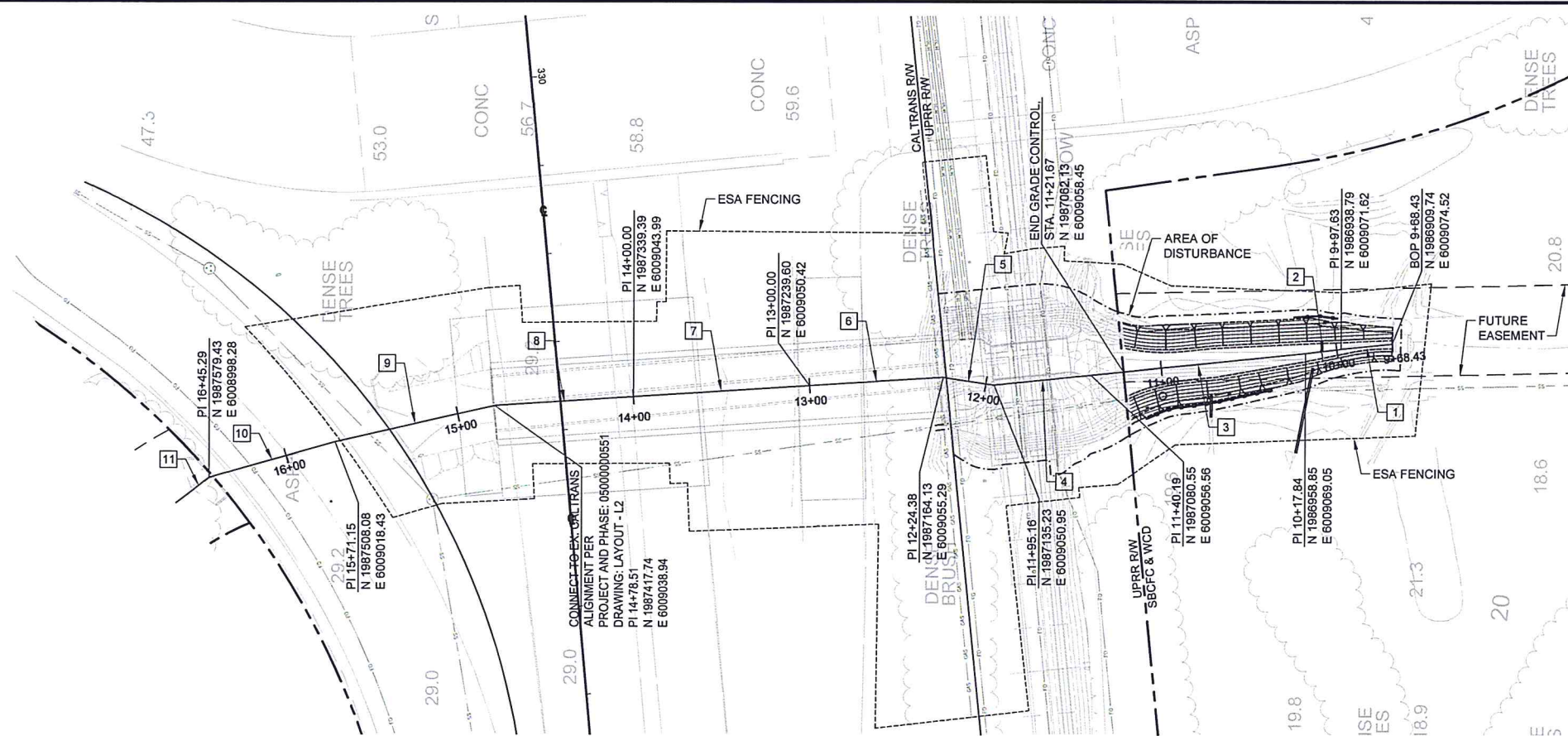


HDR  
HDR Engineering, Inc.  
2220 El Camino Real Suite 200  
Irvine, California 92602

NO.	DATE	APPROVED	DESIGN	RSW
			DRAWN	PP
			CHECKED	BJD

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**HORIZONTAL CONTROL**  
 LAS VEGAS AND SAN PEDRO CREEKS

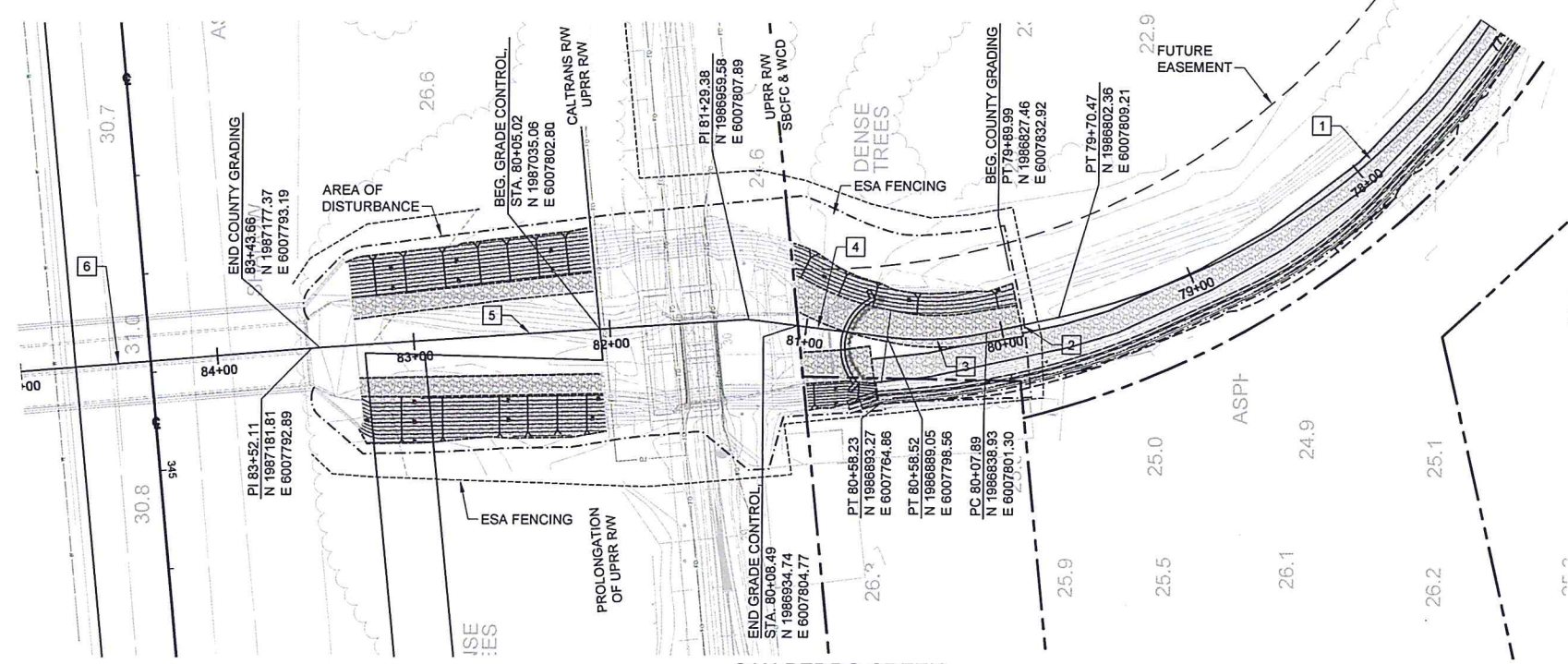
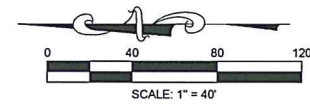
2014-SC8322  
 SHEET NO. -  
 SHT. DES.  
**FC-004**  
 DWG. NO.  
 SHT. 4 OF 13



LAS VEGAS CREEK PLAN

LINE/CURVE TABLE

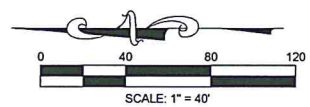
POINT NO.	RADIUS	BEARING/DELTA	LENGTH	TANGENT
1	-	N 05°42'10" W	29.20'	-
2	-	N 07°19'25" W	20.22'	-
3	-	N 05°51'24" W	122.35'	-
4	-	N 05°51'24" W	54.97'	-
5	-	N 08°32'02" E	29.22'	-
6	-	N 03°41'20" W	75.62'	-
7	-	N 03°41'20" W	100.00'	-
8	-	N 03°41'20" W	78.51'	-
9	-	N 12°47'24" W	92.64'	-
10	-	N 15°46'29" W	74.14'	-
11	-	N 37°40'21" W	78.22'	-



SAN PEDRO CREEK PLAN

LINE/CURVE TABLE

POINT NO.	BEARING/DELTA	RADIUS	LENGTH	TANGENT
1	58°46'46"	350.00'	359.06'	197.13'
2	N 12°11'53" W	-	37.42'	-
3	19°20'23"	150.00'	50.63'	25.56'
4	N 07°08'30" E	-	70.86'	-
5	N 03°51'36" W	-	222.73'	-
6	N 04°33'57" W	-	196.56'	-



PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE 4/10/15

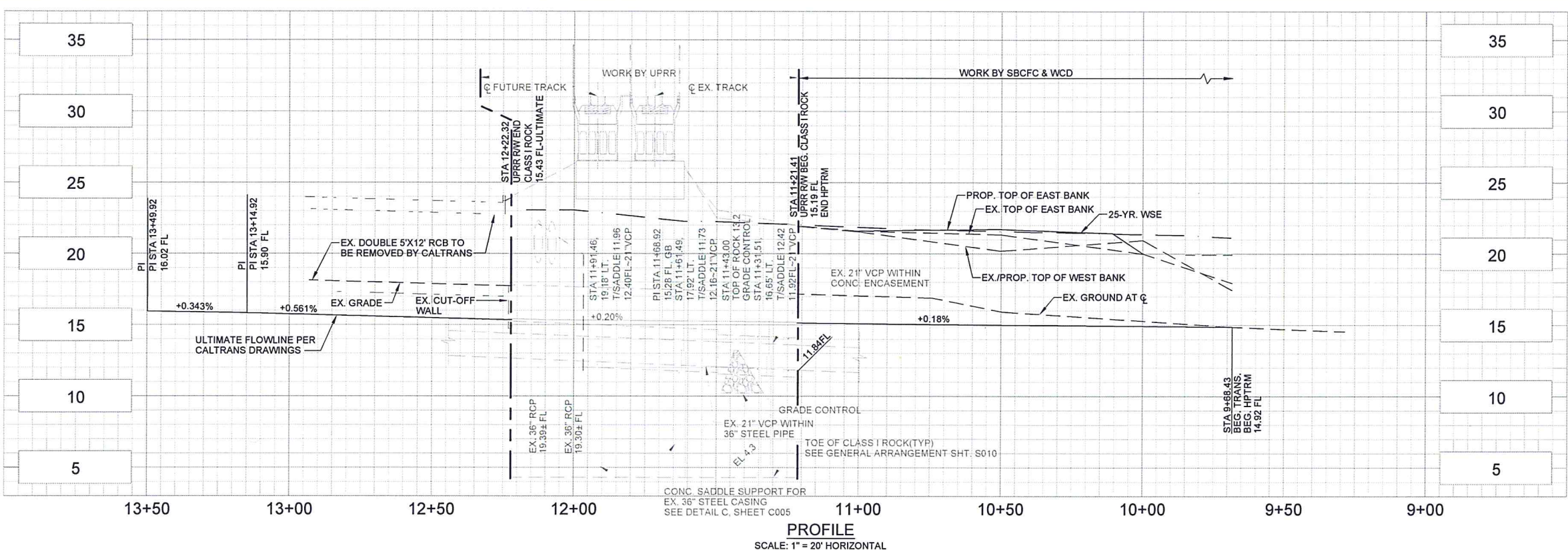
Under  
ground  
Service Alert  
of Southern California  
Call: TOLL FREE  
1-800-422-4133  
TWO WORKING DAYS BEFORE YOU DIG

**SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT**  
LAS VEGAS & SAN PEDRO CREEK CAPACITY IMPROVEMENT PROJECT



**HDR**

HDR Engineering, Inc.  
3230 El Camino Real Suite 200  
Irvine, California 92602



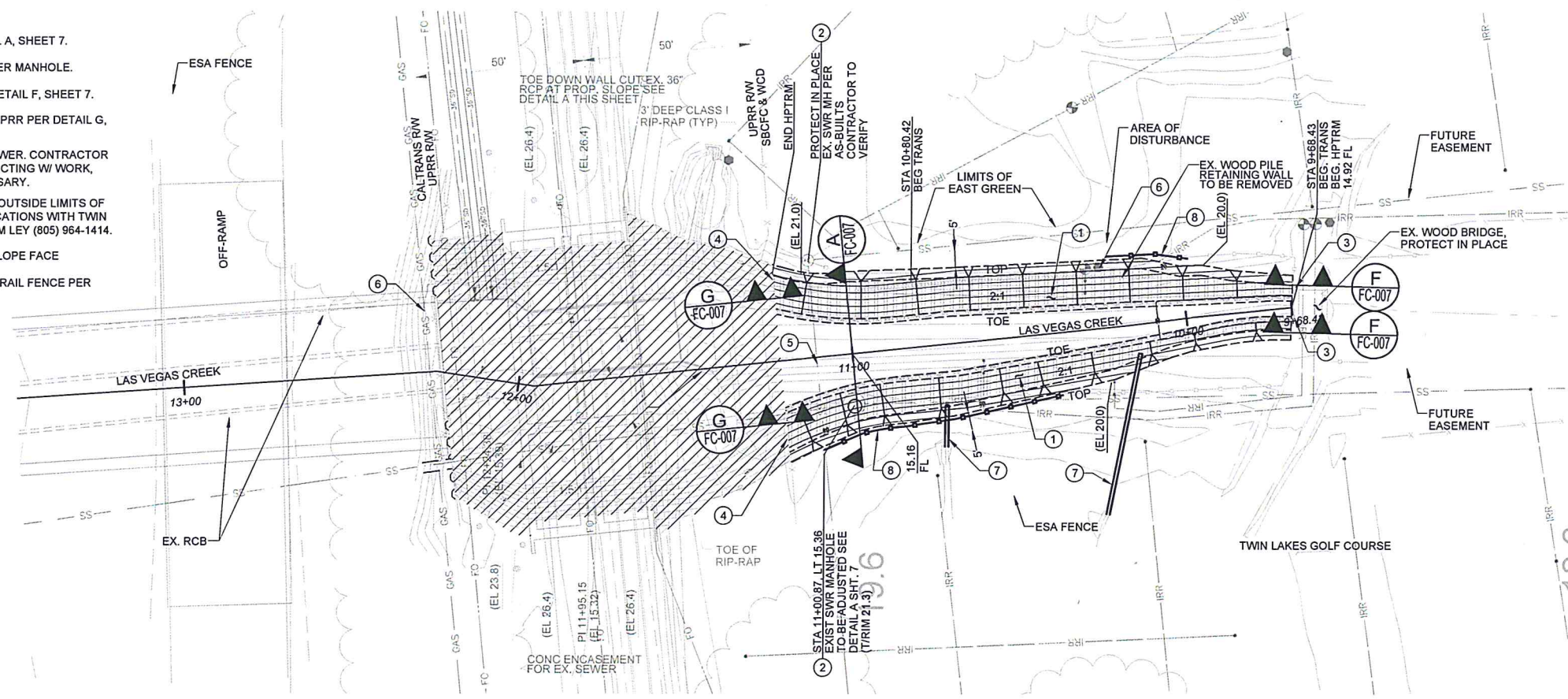
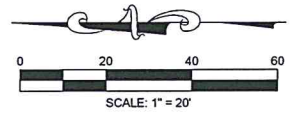
**CONSTRUCTION NOTES**

- 1 CONSTRUCT 2:1 SLOPE PER DETAIL A, SHEET 7.
- 2 PROTECT-IN-PLACE EXISTING SEWER MANHOLE.
- 3 JOIN TO EXISTING CHANNEL PER DETAIL F, SHEET 7.
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- 5 ABANDONED 10" VCP SANITARY SEWER. CONTRACTOR TO FIELD VERIFY. IF FOUND CONFLICTING W/ WORK, CUT, CAP, AND REMOVE AS NECESSARY.
- 6 RELOCATE IRRIGATION FACILITIES OUTSIDE LIMITS OF GRADING. VERIFY FINAL VALVE LOCATIONS WITH TWIN LAKES GOLF COURSE DIRECTOR JIM LEY (805) 964-1414.
- 7 TRIM EXISTING PIPE FLUSH WITH SLOPE FACE
- 8 RELOCATE AND CONSTRUCT POST RAIL FENCE PER DETAIL K, SHEET 7.

**LEGEND:**

WORK BY UPRR

NOTE: STATIONING BASED ON THE CALTRANS PLANS ENTITLED "PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY IN SANTA BARBARA COUNTY IN GOLETA FROM 0.2 MILE SOUTH TO 0.7 MILE NORTH OF FAIRVIEW AVENUE OVERCROSSING".



**PLAN**

NO.	DATE	APPROVED	DESIGN	RSW
			DRAWN	PP
			CHECKED	BJD

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**LAS VEGAS CREEK**  
**PLAN AND PROFILE**

2014-SC8322

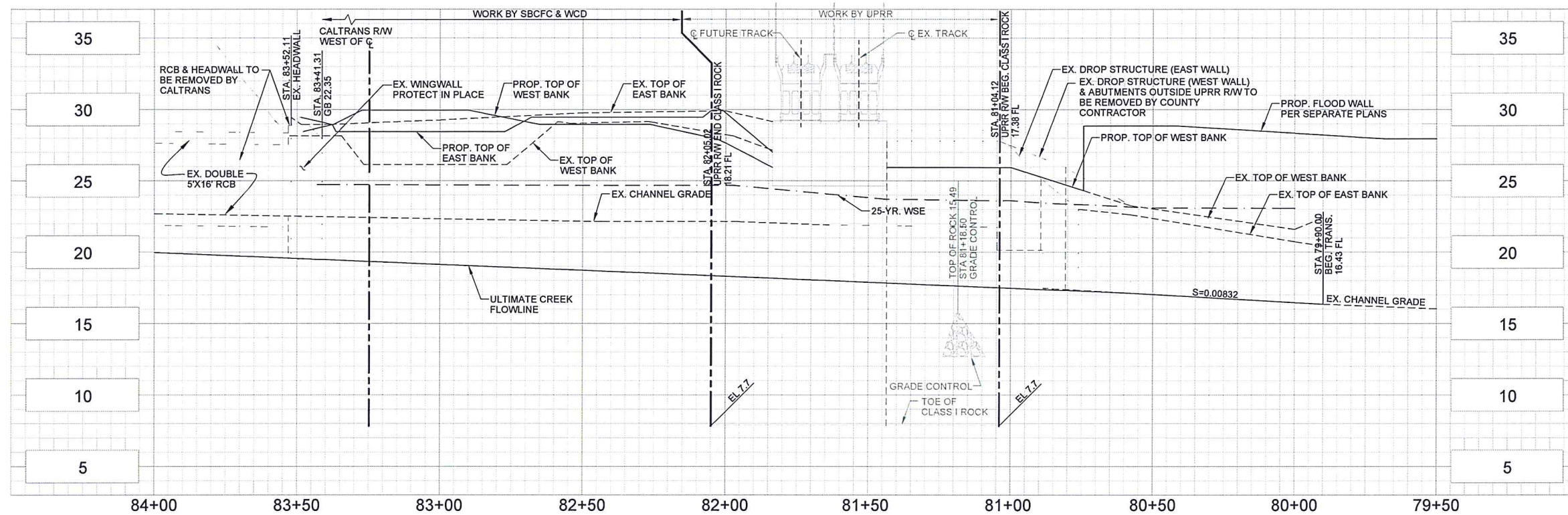
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-  
SHT. DES.  
**FC-005**  
DWG. NO.

SHT. 5 OF 13

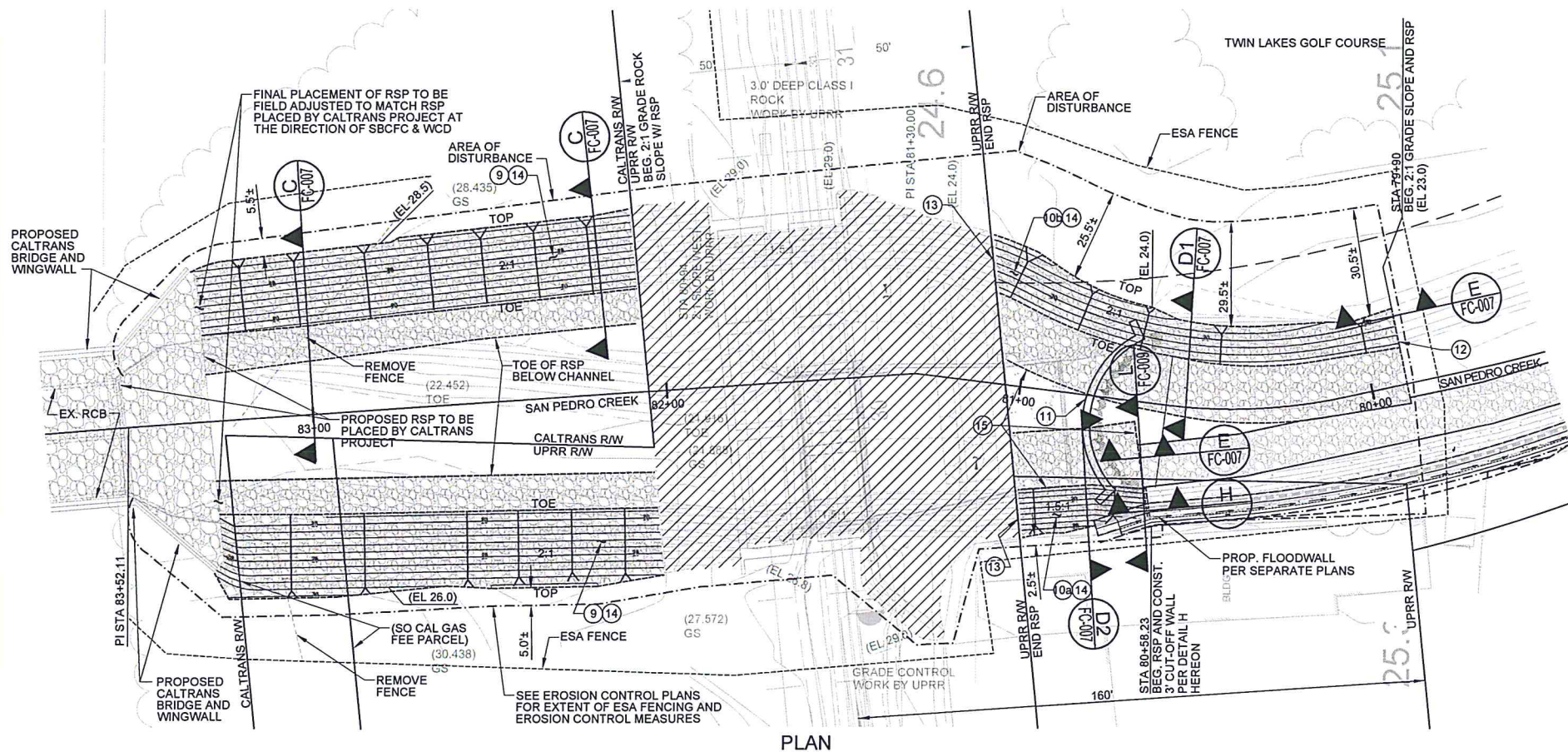
PROPERTY LINES ARE APPROXIMATE



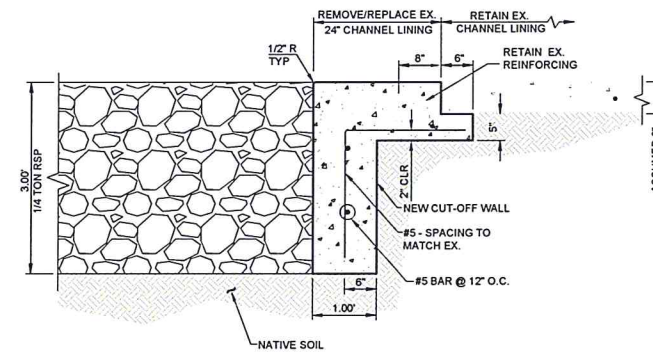
PROJECT ENGINEER DATE 4/10/15



PROFILE  
SCALE: 1" = 20' HORIZONTAL



PLAN



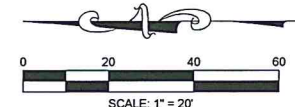
H CUT-OFF WALL  
SCALE: NTS

CONSTRUCTION NOTES

- 9 CONSTRUCT 2:1 SLOPE WITH 2' THICK LIGHT CLASS RSP PER DETAIL B & C, SHEET 7
- 10a CONSTRUCT 1.5:1 SLOPE WITH 3' THICK 1/4 TON RSP PER DETAIL D2, SHEET 7
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- 11 CONSTRUCT WETLAND ROCK WEIR PER SHEET 10.
- 12 JOIN EXISTING CHANNEL PER DETAIL E, SHEET 7.
- 13 JOIN PROPOSED CHANNEL BY UPRR.
- 14 APPLY HYDROSEED WITH SEED MIX PER SPECIAL PROVISIONS
- 15 REMOVE EXIST CONC. CHANNEL.

LEGEND:

WORK BY UPRR



PROPERTY LINES ARE APPROXIMATE

DATE	APPROVED	DESIGN	RSW
		DRAWN	PP
		CHECKED	BUD

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK**  
**PLAN AND PROFILE**

2014-SC8322  
PBW. NO.  
-  
SHT. DES.  
FC-006  
DWG. NO.  
SHT. 6 OF 13

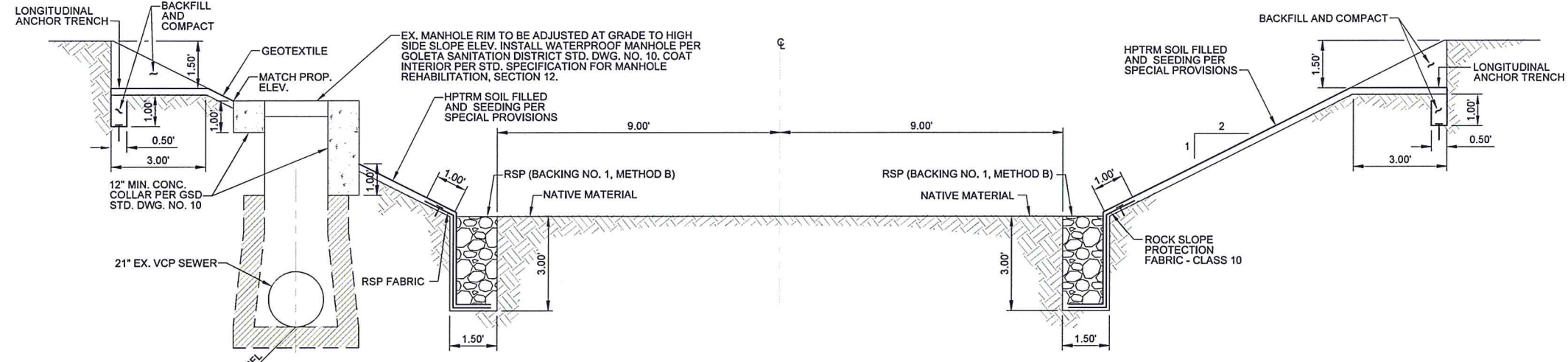


PROJECT ENGINEER DATE 4/10/15

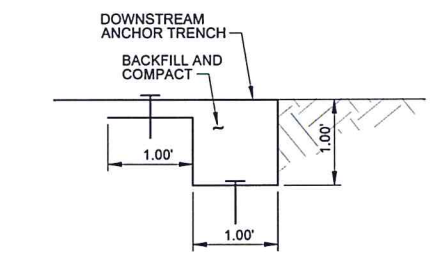
DATE	APPROVED	DESIGN	RSW
		DRAWN	PP
		CHECKED	BID

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**LAS VEGAS AND SAN PEDRO CREEKS**  
**SECTIONS**

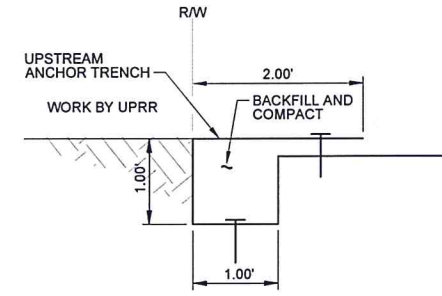
2014-SC8322  
 FBW. NO.  
 -  
 SHT. DES.  
 FC-007  
 DWG. NO.



**A SECTION**  
SCALE: 1/2" = 1'-0"

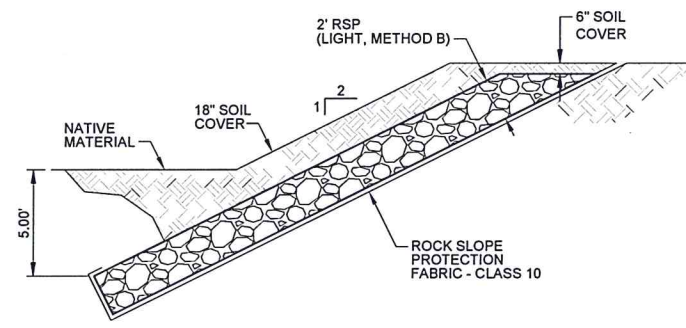


**F SECTION**  
SCALE: 1" = 1'-0"

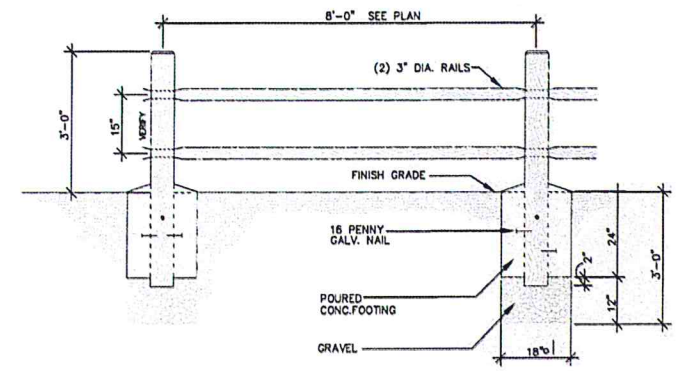


**G SECTION**  
SCALE: 1" = 1'-0"

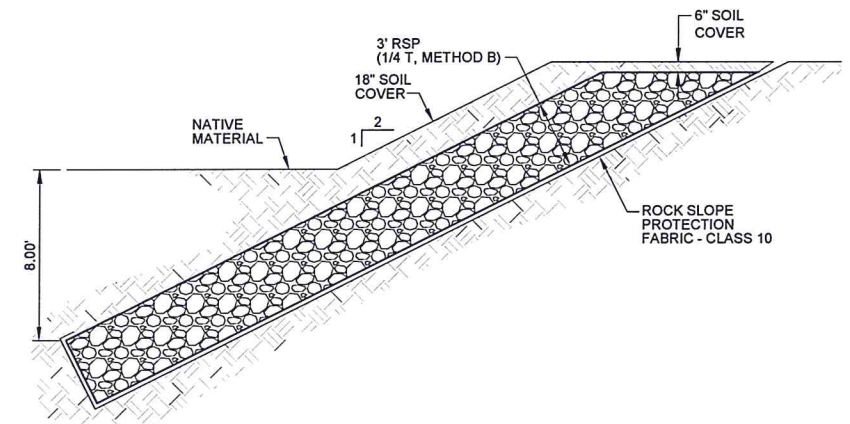
**B SECTION - NOT USED**  
SCALE: 1/8" = 1'-0"



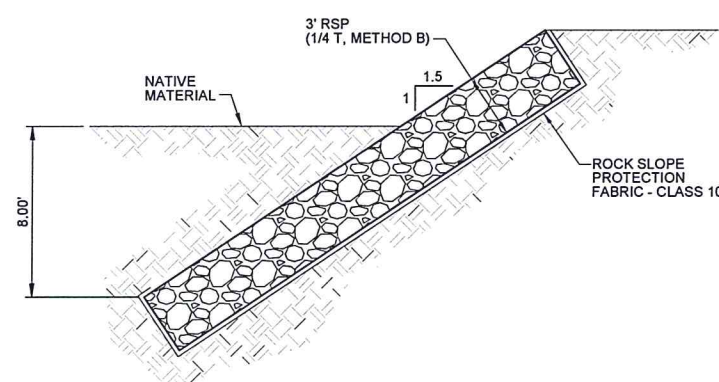
**C SECTION**  
SCALE: 1/4" = 1'-0"



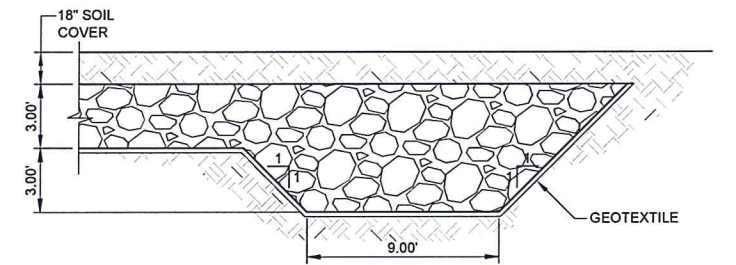
**K POST RAIL FENCE**  
SCALE: NTS  
 POSTS & RAILS TO BE 'POLECRAFT' AVAILABLE FROM GOLETA FENCE FACTORY (949-2812) OR EQUAL. PREDRILLED, TREATED LOGPOLE PINE. RAILS DOWELED. POSTS DRILLED TO RECEIVE RAILS, CHAMFERED TOPS.



**D1 SECTION**  
SCALE: 1/4" = 1'-0"



**D2 SECTION**  
SCALE: 1/4" = 1'-0"

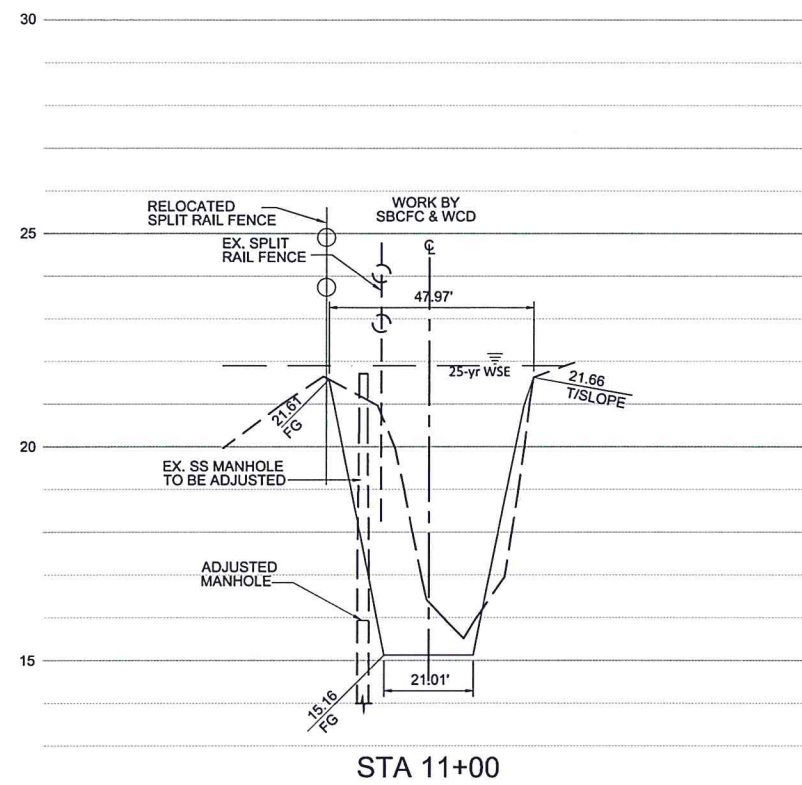


**E SECTION**  
SCALE: 1/4" = 1'-0"

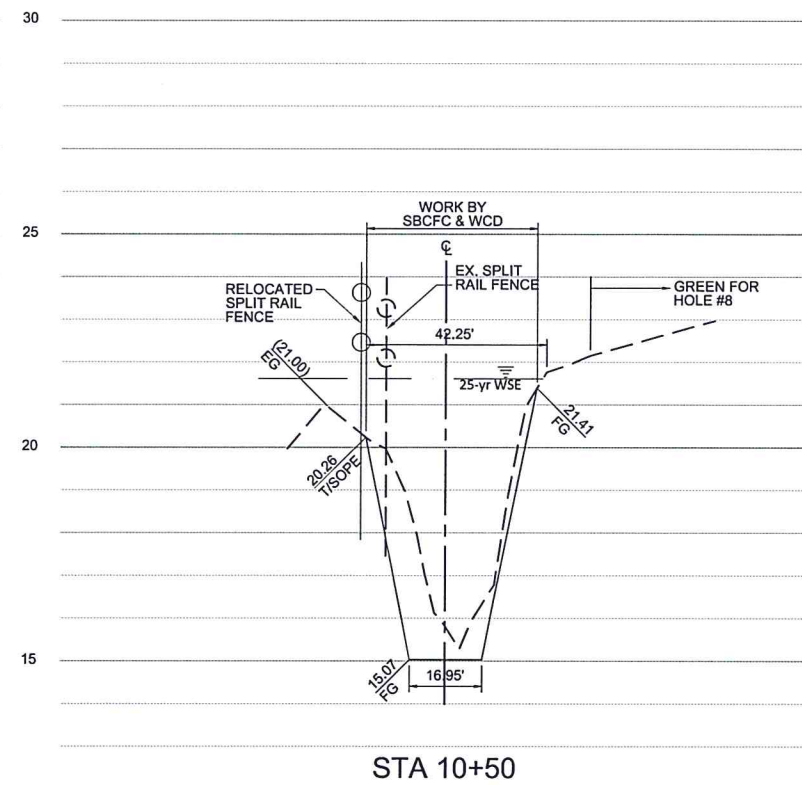


GOLETA SANITATION DISTRICT  
 APPROVED: \_\_\_\_\_  
 ENGINEER DATE

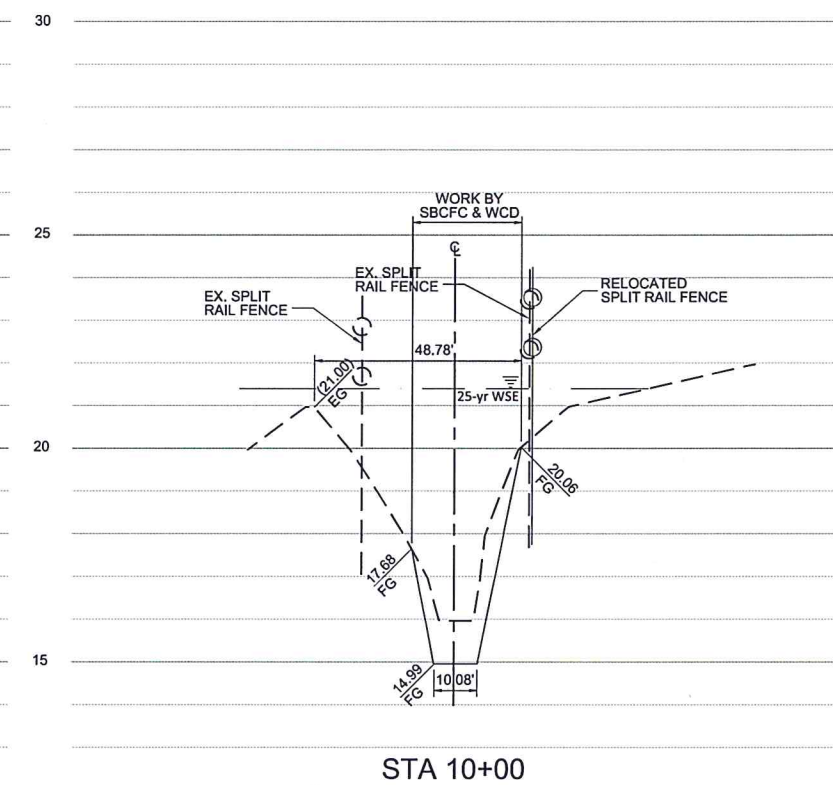
PROJECT ENGINEER DATE 4/10/15



STA 11+00



STA 10+50



STA 10+00

SCALE:  
HORIZ. 1:20  
VERT. 1:2



**HDR**

HDR Engineering, Inc.  
2220 El Camino Real Suite 200  
Irvine, California 92602

DATE	APPROVED	DESIGN	RSV
		DRAWN	PP
		CHECKED	BUD

REVISIONS

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**LAS VEGAS CREEK  
CROSS SECTIONS**

2014-SC8322  
PW. NO.  
-  
SHT. DES.  
**FC-008**  
DWG. NO.

SHT. 8 OF 13

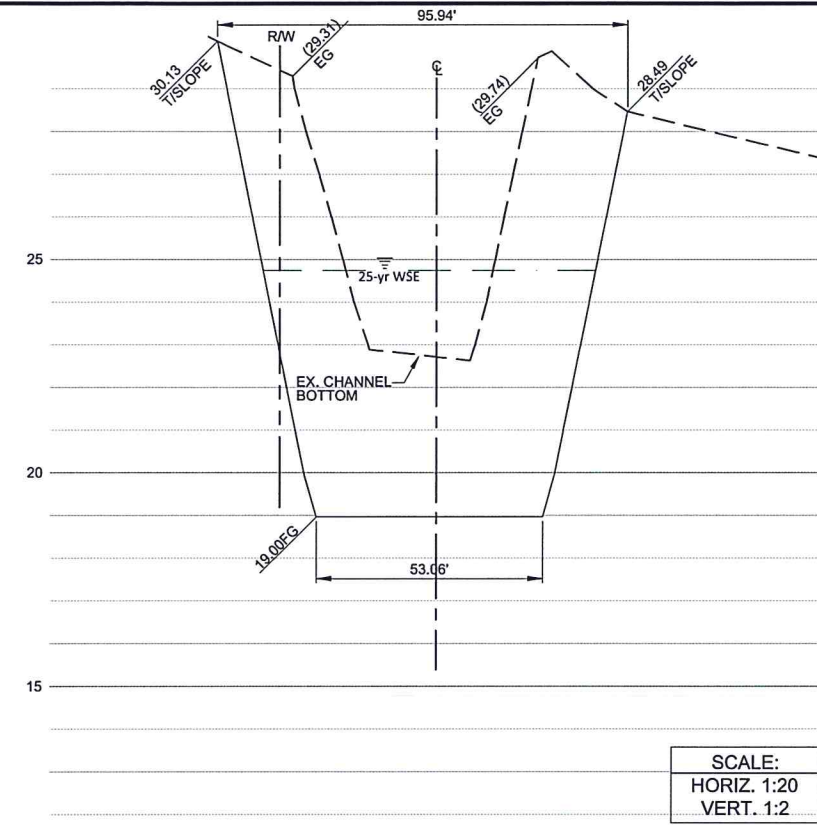


PROJECT ENGINEER DATE 4/10/15



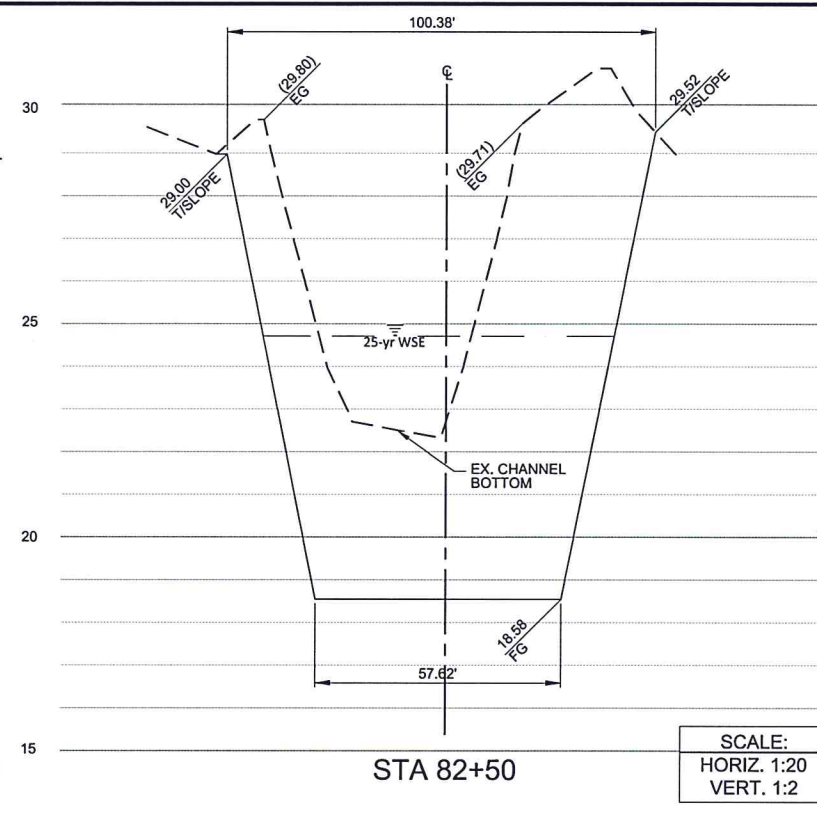


HDR  
HDR Engineering, Inc.  
2320 El Camino Real Suite 200  
Irvine, California 92602



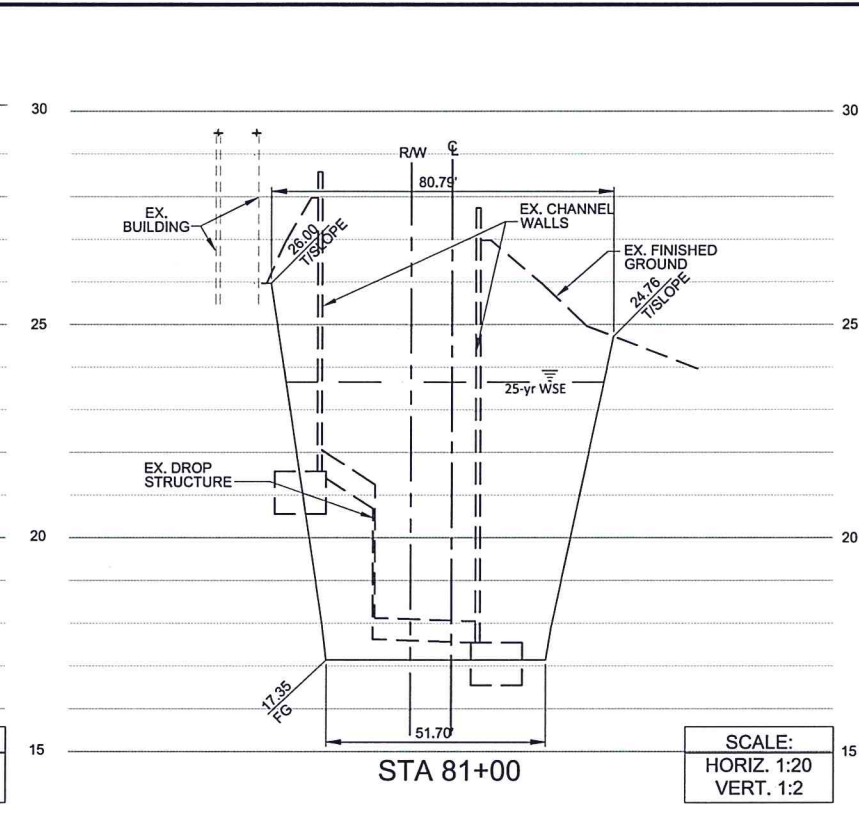
SCALE:  
HORIZ. 1:20  
VERT. 1:2

STA 83+00



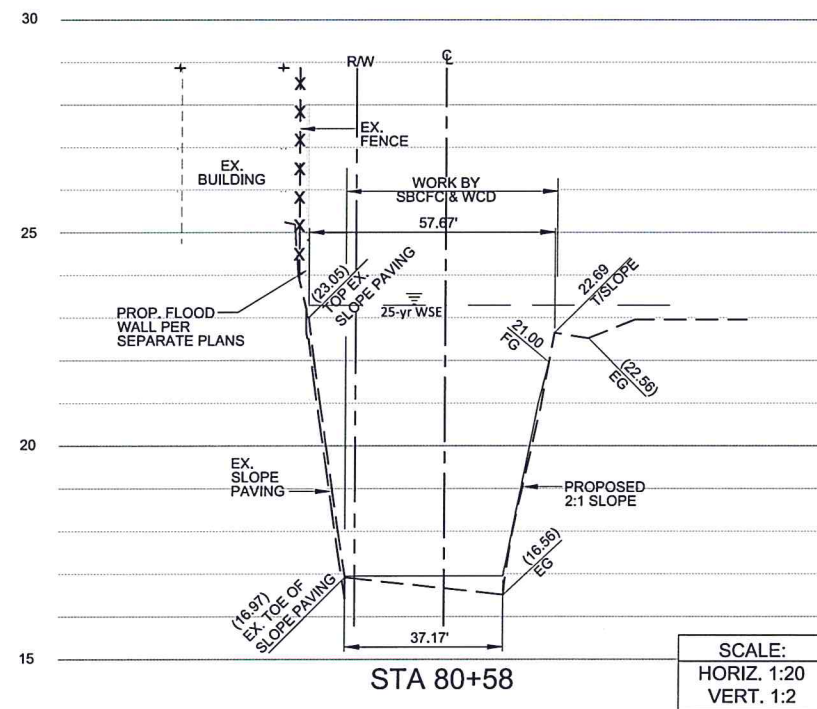
SCALE:  
HORIZ. 1:20  
VERT. 1:2

STA 82+50



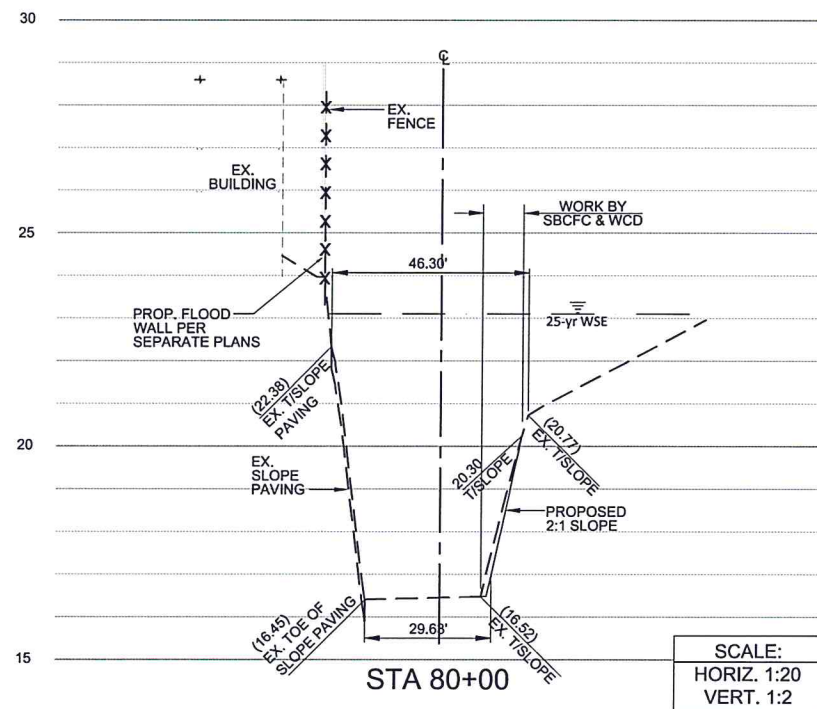
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VERT. 1:2

STA 81+00



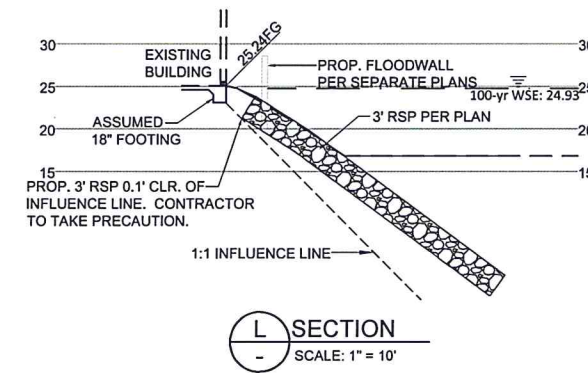
SCALE:  
HORIZ. 1:20  
VERT. 1:2

STA 80+58



SCALE:  
HORIZ. 1:20  
VERT. 1:2

STA 80+00



SECTION L  
SCALE: 1" = 10'

DATE	APPROVED	DESIGN		
		RSW	PP	PP
		DESIGN	DRAWN	CHECKED
				BID

NO.	REVISIONS

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK**  
CROSS SECTIONS

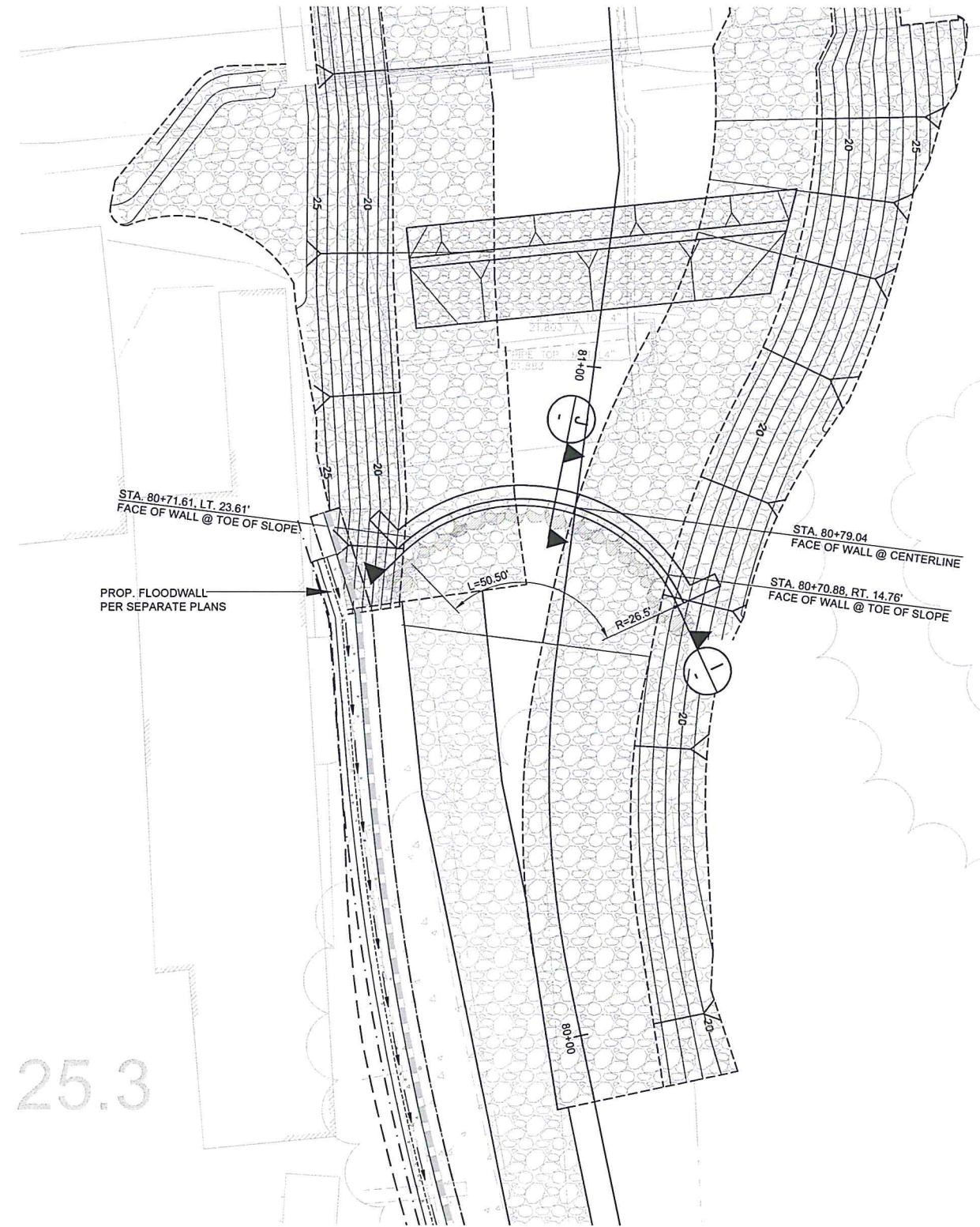
2014-SC8322  
PBW. NO. -  
SHT. DES. -  
FC-009  
DWG. NO.



**SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT**  
LAS VEGAS & SAN PEDRO CREEK CAPACITY IMPROVEMENT PROJECT

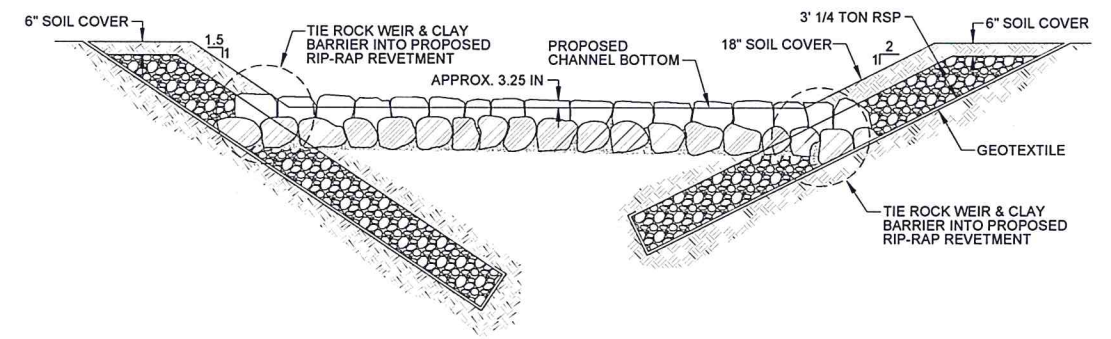


PROJECT ENGINEER  
DATE: 4/10/15

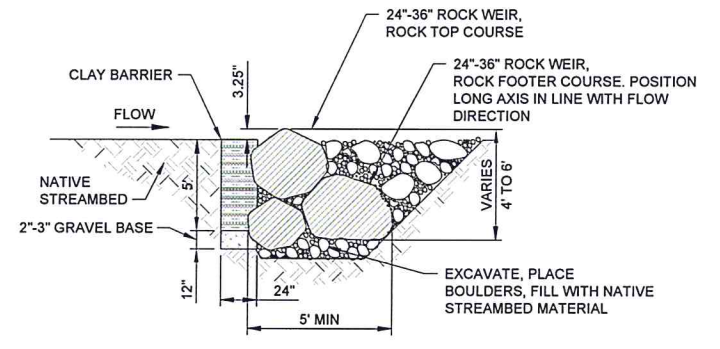


**PLAN**  
SCALE: 1"=10'

2



**I SECTION**  
SCALE: NTS



**J SECTION**  
SCALE: NTS

25.3

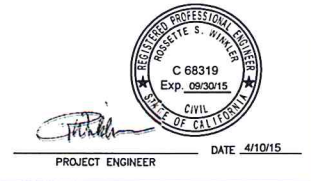


**HDR**  
HDR Engineering, Inc.  
2225 El Camino Real Suite 200  
Irvine, California 92602

DATE	APPROVED	DESIGN	RSW
		DRAWN	PP
		CHECKED	BID



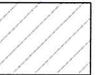

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK  
WETLANDS PLAN**

2014-SC8322  
PBW NO.  
-  
SHT. DES.  
FC-010  
DWG. NO.  
SHT. 10 OF 13



**SAN PEDRO CREEK  
CONFORM GRADING**

**Legend:**

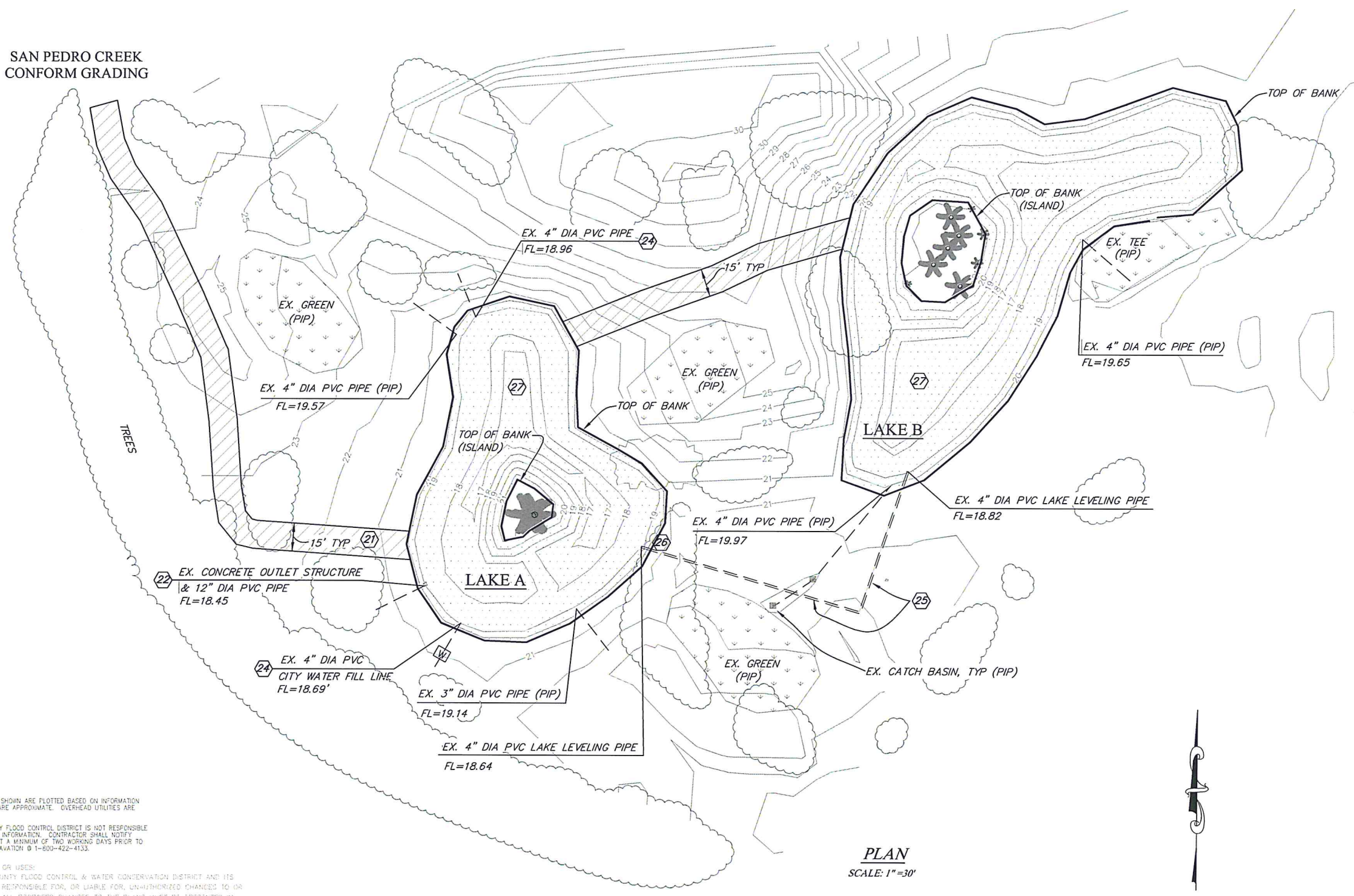
-  Tree or Vegetation
-  Existing Lake Liner and Aeration System (38,935± SF, Total)
-  Contractor Access Route
-  Existing Tee or Green

**Construction Notes:**

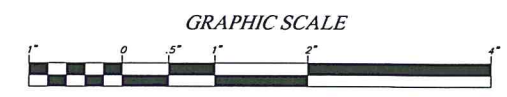
- 21** Establish and delineate access route. Contractor must coordinate access route location with the golf course prior to use.
- 22** Remove concrete outlet structure. Protect existing 12" Dia. PVC outlet pipe in place.
- 23** BLANK
- 24** Abandon PVC pipe.
- 25** Remove existing lake leveling pipe. Excavation beyond 1 Ft horizontal from existing pipe alignment is prohibited.
- 26** Remove tree.
- 27** Remove existing lake liner and aeration system. Cap Aeration system beyond the limits of removal in coordination with the golf course.

**General Notes:**

- 1. All tree locations are approximate
- 2. Not all Golf Course trees are shown.



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



ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN.

THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1-800-422-4133.

UNAUTHORIZED CHANGES OR USES:  
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

REVISIONS			
NO.	DESCRIPTION	DATE	APR



DESIGNED BY:	DATE:
FLOOD CONTROL DESIGN ENGINEER	

SANTA BARBARA COUNTY  
FLOOD CONTROL AND  
WATER CONSERVATION DISTRICT  
130 E. VICTORIA STREET  
SANTA BARBARA, CA 93101  
(805) 568-3440



**LAS VEGAS & SAN PEDRO  
CAPACITY IMPROVEMENT  
PROJECT  
CONFORM GRADING**

**TWIN LAKES GOLF COURSE  
EXISTING IMPROVEMENTS AND  
ACCESS PLAN**

DESIGNED BY:	MG
DRAWN BY:	OR
CHECKED BY:	KS
SHEET 11 OF 13	

LAKE A LINE TABLE

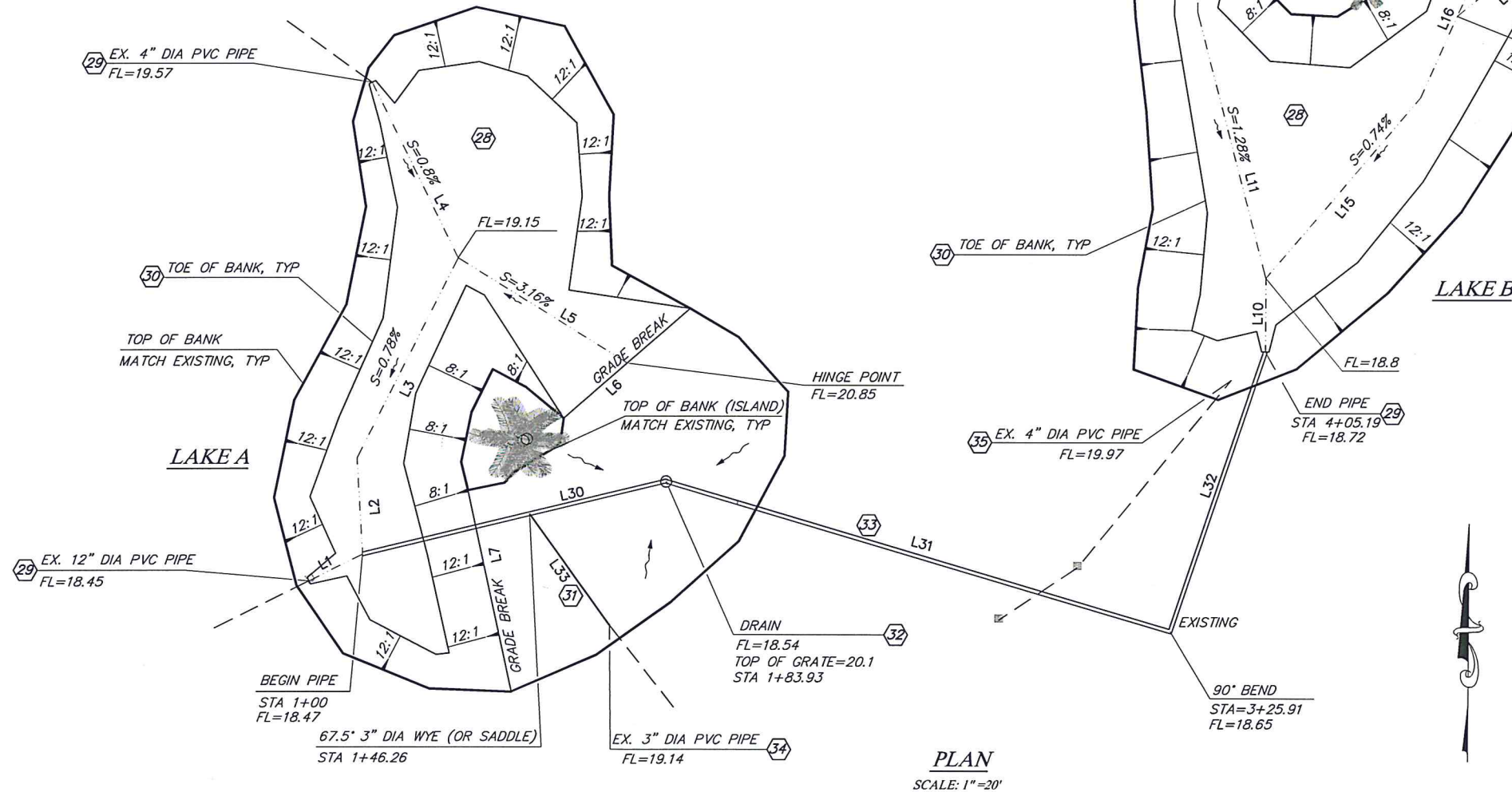
SEGMENT ID	START POINT		END POINT		LENGTH
	NORTHING	EASTING	NORTHING	EASTING	
L1	1986669.22	6008014.41	1986674.40	6008028.85	16.13
L2	1986676.40	6008028.85	1986702.26	6008027.17	25.91
L3	1986702.26	6008027.17	1986756.15	6008054.08	60.23
L4	1986756.15	6008054.08	1986803.47	6008030.72	52.77
L5	1986756.15	6008054.08	1986727.82	6008099.81	53.80
L6	1986742.55	6008116.64	1986712.91	6008082.78	45.00
L7	1986639.47	6008069.15	1986693.55	6008057.18	55.38

FILL QUANTITIES

LAKE A	950 CY
LAKE B	1500 CY

Construction Notes:

- (28) Grade lake areas per Typical Lake Section, Sheet B.
- (29) Conform toe of slope to match pipe FL.
- (30) Toe of bank elev.=19.5, or adjacent FL elev. where FL>19.5.
- (31) Install 3" Dia SDR35 PVC pipe.
- (32) Install 15" Dia Nyoplast drain basin with pedestrian grate, or approved equal.
- (33) Install 12" Dia SDR35 PVC lake leveling pipe per Profile and Typical Trench Section, Sheet 13. Pipe alignment between lakes must match existing lake leveling pipe alignment, contractor must verify location during removal.
- (34) Install coupler existing PVC Pipe, contractor to verify type and size.
- (35) Conform slope to daylight pipe FL.



LAKE B LINE TABLE

SEGMENT ID	START POINT		END POINT		LENGTH
	NORTHING	EASTING	NORTHING	EASTING	
L10	1986731.08	6008271.54	1986750.94	6008271.54	19.86
L11	1986750.94	6008271.54	1986822.46	6008252.86	73.92
L12	1986822.46	6008252.86	1986844.06	6008252.49	21.60
L13	1986844.06	6008252.49	1986873.83	6008262.76	31.49
L14	1986873.83	6008262.76	1986895.63	6008282.27	29.56
L15	1986750.94	6008271.54	1986799.64	6008313.07	64.00
L16	1986799.64	6008313.07	1986887.40	6008352.39	96.16
L17	1986821.58	6008322.90	1986855.11	6008363.78	52.87
L18	1986887.40	6008352.39	1986897.50	6008310.80	42.79
L19	1986897.50	6008310.80	1986895.63	6008282.27	28.59
L20	1986887.40	6008352.39	1986912.66	6008436.88	88.19
L21	1986875.80	6008283.56	1986920.29	6008280.67	44.58

LAKE LEVELING PIPE LINE TABLE

SEGMENT ID	START POINT		END POINT		LENGTH
	NORTHING	EASTING	NORTHING	EASTING	
L30	1986676.40	6008028.85	1986696.05	6008110.45	83.93
L31	1986696.05	6008110.45	1986655.82*	6008246.60*	141.97*
L32	1986655.82*	6008246.60*	1986731.08*	6008271.54*	79.28*
L33	1986687.23	6008073.82	1986657.38	6008095.54	36.92

\* MATCH EXISTING LAKE LEVELING PIPE ALIGNMENT



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REVISIONS			
NO.	DESCRIPTION	DATE	APR



DESIGNED BY:	
FLOOD CONTROL DESIGN ENGINEER	DATE

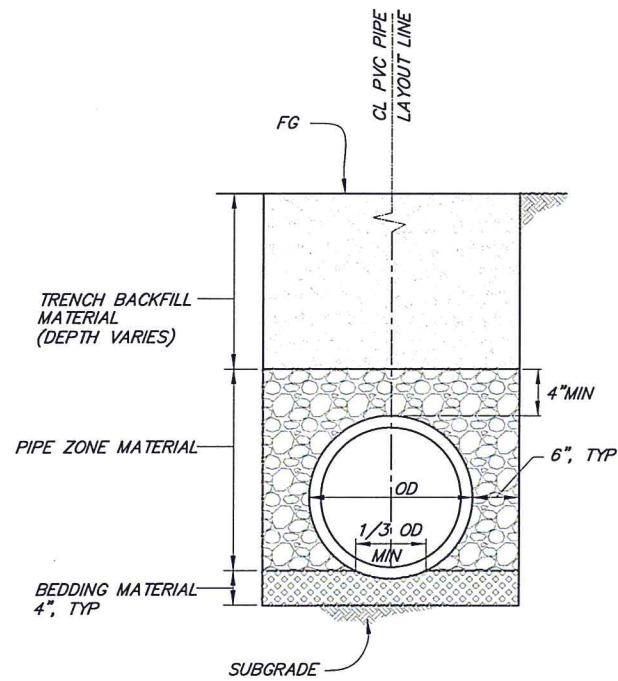
SANTA BARBARA COUNTY  
FLOOD CONTROL AND  
WATER CONSERVATION DISTRICT  
130 E. VICTORIA STREET  
SANTA BARBARA, CA 93101  
(805) 568-3440



LAS VEGAS & SAN PEDRO  
CAPACITY IMPROVEMENT  
PROJECT  
CONFORM GRADING

TWIN LAKES GOLF COURSE  
GRADING PLAN

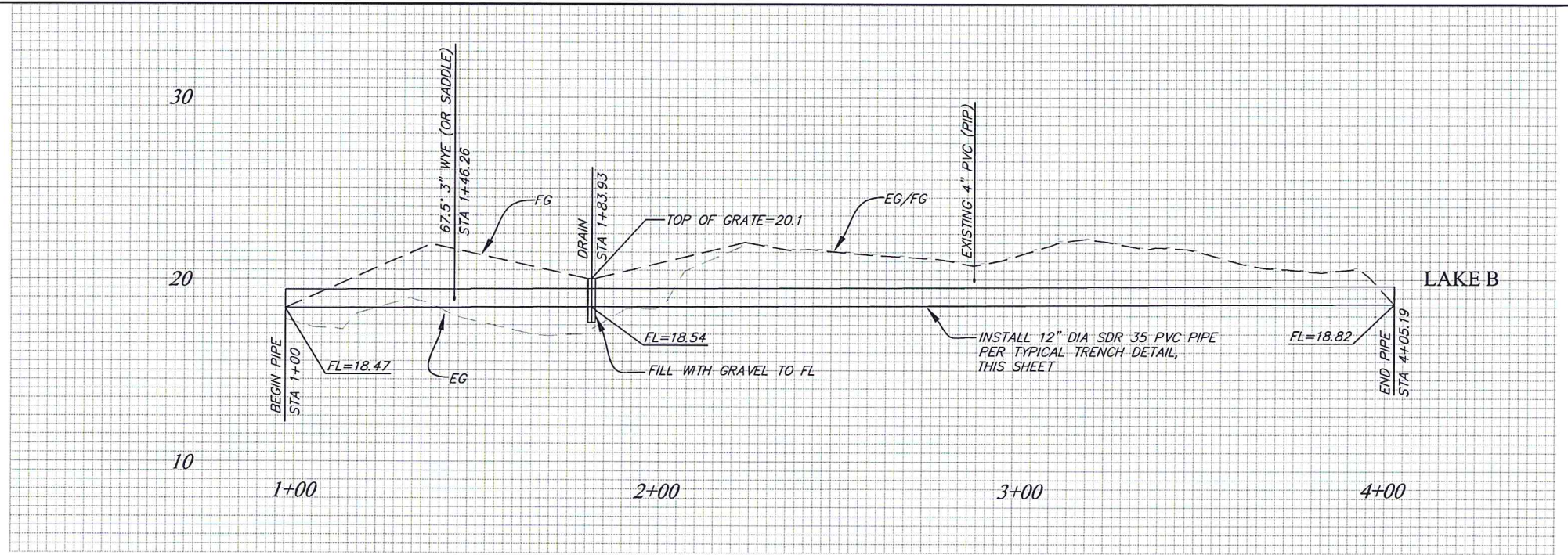
DESIGNED BY:	MG
DRAWN BY:	OR
CHECKED BY:	KS
SHEET 12 OF 13	



**TYPICAL TRENCH DETAIL**  
NTS

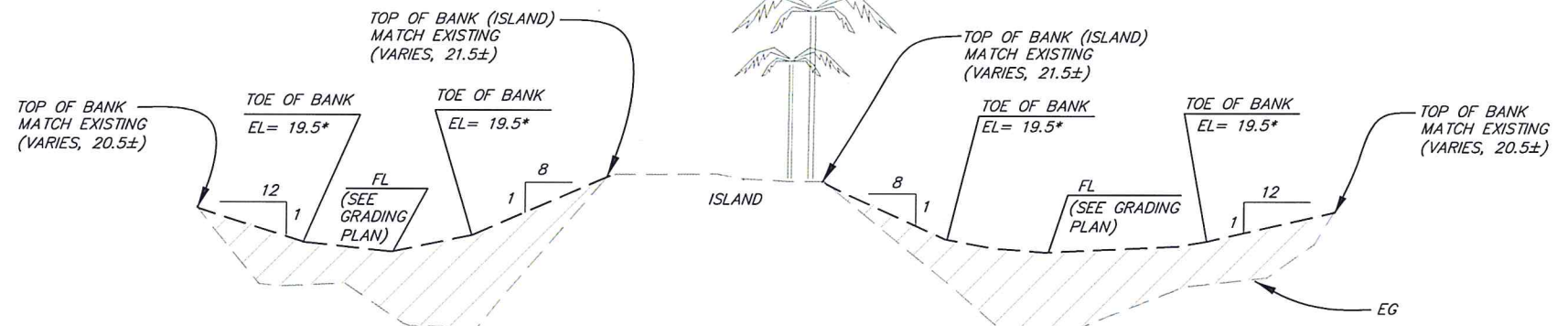
**TYPICAL TRENCH DETAIL NOTES**

1. Bedding material shall conform to the requirements listed in the Special Provisions. Shape bedding material to provide uniform support for pipe as shown. Compact to a minimum of 90% relative compaction.
2. Pipe zone material shall conform to the requirements listed in the Special Provisions. Compact to a minimum of 90% relative compaction.
3. Trench backfill shall conform to the requirements listed in the Special Provisions. Compact to a minimum of 90% relative compaction.
4. Compaction by flooding, ponding or jetting shall not be permitted.



**LAKE LEVELING PIPE PROFILE**

HORIZONTAL: 1"=20'  
VERTICAL: 1"=4'



**TYPICAL LAKE SECTION**

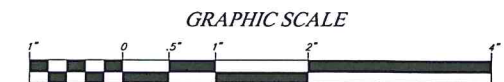
N.T.S.

\* TOE OF BANK EL = NEAREST ADJACENT FL ELEVATION WHEN FL ELEVATION > 19.5'

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REVISIONS			
NO.	DESCRIPTION	DATE	APR



DESIGNED BY:	
FLOOD CONTROL DESIGN ENGINEER	DATE

SANTA BARBARA COUNTY  
FLOOD CONTROL AND  
WATER CONSERVATION DISTRICT  
130 E. VICTORIA STREET  
SANTA BARBARA, CA 93101  
(805) 568-3440



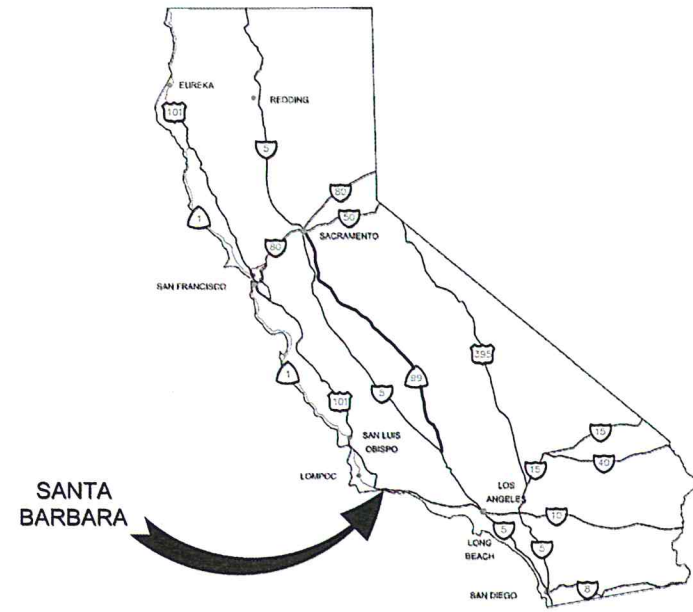
LAS VEGAS & SAN PEDRO  
CAPACITY IMPROVEMENT  
PROJECT  
CONFORM GRADING

TWIN LAKES GOLF COURSE  
GRADING PLAN DETAILS

DESIGNED BY:	M.G.
DRAWN BY:	O.R.
CHECKED BY:	K.S.
SHEET 13 OF 13	



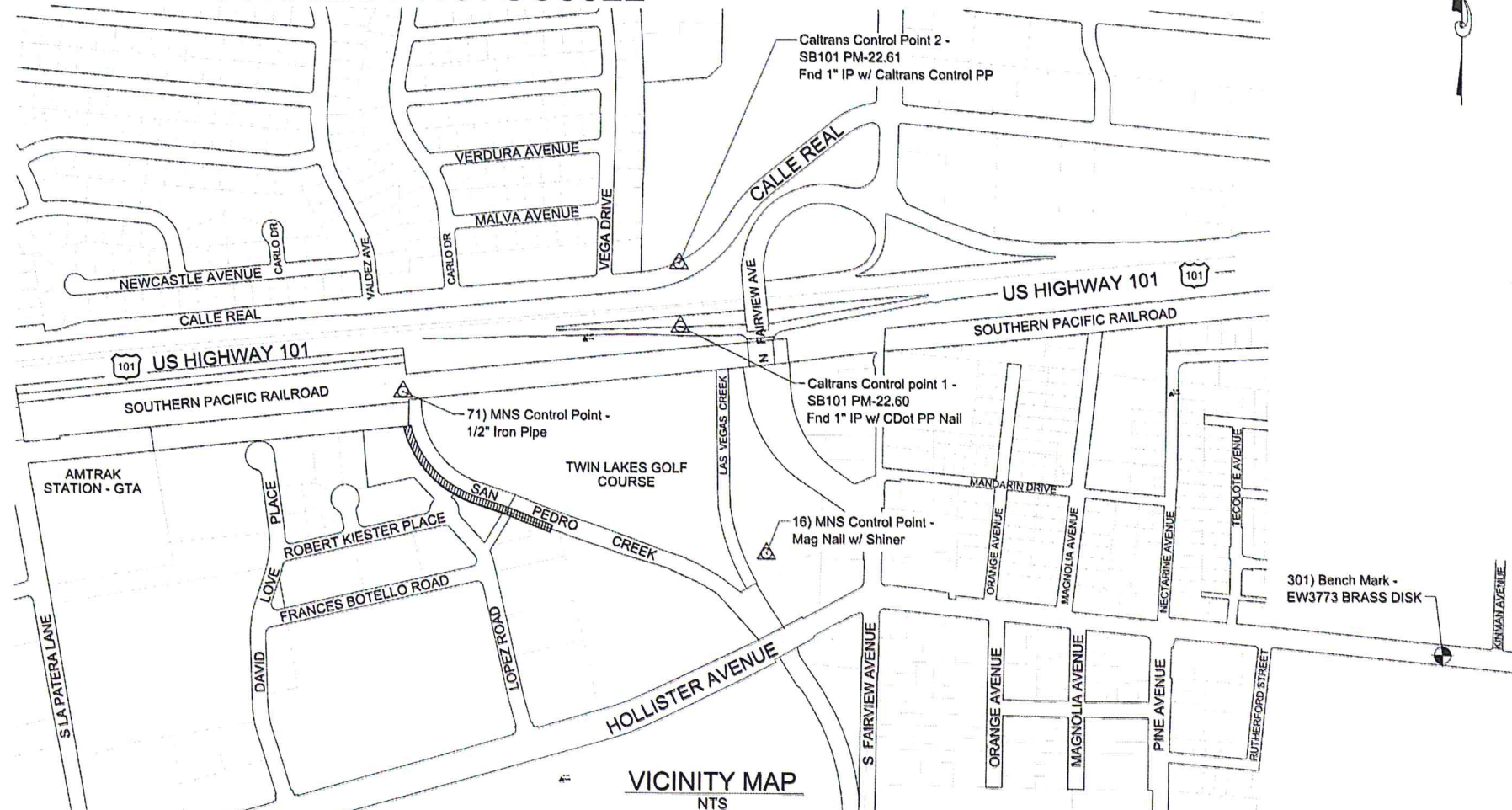
# LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT, FLOODWALL PROJECT NO. SC8322



## PROJECT LOCATION STATE MAP

### DISTRICT BOARD OF DIRECTORS

- FIRST DISTRICT - SALUD CARBAJAL
- SECOND DISTRICT - JANET WOLF
- THIRD DISTRICT - DOREEN FARR
- FOURTH DISTRICT - PETER ADAM
- FIFTH DISTRICT - STEVE LAVAGNINO



### SHEET INDEX

SHEET NO.	TITLE	DWG. NO.	SHEET NO.	TITLE	DWG. NO.
1	TITLE SHEET & VICINITY MAP SITE MAP & STATE MAP	FW-001	9	FLOODWALL TYPICAL SECTIONS	FW-009
2	GENERAL INFORMATION, LEGEND AND ABBREVIATIONS	FW-002	10	FLOODWALL DETAILS 1 OF 3	FW-010
3	SURVEY CONTROL & CONSTRUCTION NOTES	FW-003	11	FLOODWALL DETAILS 2 OF 3	FW-011
4	HORIZONTAL CONTROL	FW-004	12	FLOODWALL DETAILS 3 OF 3	FW-012
5	FLOODWALL PLAN & PROFILE	FW-005	13	STANDARD DETAILS	FW-013
6	FLOODWALL PLAN & PROFILE	FW-006	<b>WATER RELOCATION PLANS</b>		
7	PROPOSED CREEK FLOWLINE	FW-007	1	WATER MAIN RELOCATION PLAN	WM-1
8	CROSS SECTIONS	FW-008	<b>EASEMENTS</b>		
			1	EASEMENTS 1 OF 2	EAS-1
			2	EASEMENTS 2 OF 2	EAS-2



**HDR**  
HDR Engineering, Inc.  
238 El Camino Real Suite 200  
Pine, California 92602

DATE	APPROVED	DESIGN	RSW
		DRAWN	PP
		CHECKED	EJD

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**TITLE SHEET & VICINITY MAP**  
SITE MAP & STATE MAP

2014-SC8322  
PW. NO.  
SHT. DES.  
**FW-001**  
DWG. NO.  
SHT. 1 OF 13



**SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT**  
LAS VEGAS & SAN PEDRO CREEK CAPACITY IMPROVEMENT PROJECT

APPROVED: *[Signature]* 4-15-15  
FLOOD CONTROL ENGINEERING MANAGER  
DATE  
ORIGINAL SIGNED DATE

APPROVED: \_\_\_\_\_  
Original to be signed  
FLOOD CONTROL MAINTENANCE SUPERINTENDENT  
DATE  
ORIGINAL SIGNED DATE

APPROVED: *[Signature]* 4-16-15  
DEPUTY DIRECTOR  
DATE  
ORIGINAL SIGNED DATE

APPROVED: *[Signature]* 4-17-15  
ENVIRONMENTAL SERVICES MANAGER  
DATE  
ORIGINAL SIGNED DATE

PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE 4/10/15

**SYMBOL LEGEND**

- Exist Building
- Existing Drop Inlet, Round Drop Inlet
- Exist Manhole
- Existing Vegetation Shrub, Palm
- Existing Vegetation Tree
- Existing Vegetation Bush/Hedge/Tree Line
- Direction Flow of Water
- Horizontal and Vertical Control Point
- Rock Slope Protection
- Concrete Structure
- Fabric Formed Concrete Liner
- Existing Monument
- Index Contour (180)
- Intermediate Contours (170)
- Spot Elevation (at Decimal Point) (657.2)

**DETAILS**

Detail Number or Section Letter Name

Sheet Number

**LINETYPE LEGEND**

- Boundary Easement Line
- Boundary Right of Way Line
- Centerline
- Contourline-Major (10)
- Contourline-Minor
- Existing Contourline-Major (10)
- Existing Contourline-Minor
- Exist Flowline (Natural and Manmade)
- Existing Drainage
- Existing Facilities
- Existing Fence (Chainlink)
- Existing Guardrail
- Exist Retaining Wall
- Existing Utility Gas
- Existing Utility Sewer
- Existing Storm Drain
- Existing Wood Rail Fence
- Existing Vegetation Brush
- Temporary Construction Fence or Existing Barbed Wire Fence

**GENERAL NOTES**

- EXISTING UTILITY INFORMATION: ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS AND ARE APPROXIMATE. THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR MUST NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1-800-422-4133.
- EXCAVATIONS OVER FIVE FEET (5') REQUIRE AN EXCAVATION PERMIT FROM THE DEPARTMENT OF INDUSTRIAL SAFETY.
- THE CONTRACTOR IS RESPONSIBLE FOR ANY DAMAGES TO CITY OF SANTA BARBARA, GOLETA WATER DISTRICT, TWIN LAKES GOLF COURSE OR ANY OTHER UTILITIES CAUSED BY HIS/HER OPERATIONS.
- THE CONTRACTOR IS RESPONSIBLE FOR OFF-SITE DISPOSAL OF CONCRETE AND REINFORCEMENT AND SPOILS NOT NEEDED FOR BACKFILL AS REQUIRED BY THE SPECIFICATIONS.
- AT VICINITY OF STRUCTURES AND TRAILERS PROVIDE TEMPORARY SHORING REQUIRED TO SUPPORT EXCAVATION AND ALL OTHER ELEMENTS AFFECTED BY THE WORK. ALL TEMPORARY SHORING SHALL BE DESIGNED, SIGNED AND SEALED BY A PROFESSIONAL ENGINEER IN THE STATE OF CALIFORNIA. ALL TEMPORARY SHORING MUST BE APPROVED BY THE CLIENT PRIOR TO CONSTRUCTION.

**ABBREVIATIONS**

ANG	Angle	LF	Linear Feet
APN	Assessors parcel number	MH	Manhole
APPROX	Approximate	NTS	Not to Scale
APWA	American Public Works Assoc.	No.	Number
BC	Begin Transition	OC	On Center
Beg.	Beginning	OD	Outside Diameter
BLDG	Building	PI	Point of Intersection
BOT	Bottom	PM	Parcel Map
CALTRANS	State of California Department of Transportation	PT	Point
CASQA	California Stormwater Quality Association	R1	Record per book nn, page nn of maps
CFS	Cubic feet per second	SBCFC & WCD	Santa Barbara County Flood Control & Water Conservation District
CITY	City of Santa Barbara	RCB	Reinforced Concrete Box
CLF	Chainlink Fence	RSP	Rock Slope Protection
C/L or Q	Center Line	R/W	Right of Way
CMP	Corrugated metal pipe	S	Sewer or slope or south
CONC	Concrete	SB	South Bound
CONST	Construct	SD	Storm Drain
CONSTR	Construction	SDMH	Storm drain manhole
COUNTY	County of Santa Barbara	Sht	Sheet
CSBDPW	County of Santa Barbara Department of Public Works	SPPWC	Standard Plans for Public Works Construction
DIA	Diameter	SS	Sanitary Sewer
DWG	Drawing	STA	Station
E	East or Easting	SWR	Sewer
EA	Each	TCE	Temporary construction easement
EC	End of Curve	TBM	Temporary bench mark
EG	Existing ground	TF	Top of Footing
EL	Elevation	TW	Top of wall
EP	Edge of pavement	TRANS	Transition
ELEC	Electric	TP	Top of pavement
EX	Existing	TYP	Typical
EXP	Expansion	T/ROCK	Top of Rock
FFCL	Fabric Formed Concrete Lining	T/SLOPE	Top of Slope
FL	Flow Line	TOE	Toe of Slope
FT	Feet	W	West or Water Line
FP	Fish Passage	WF	Wall face
FS	Finished Surface	WI	With
GB	Grade break	UPRR	Union Pacific Railroad
GWD	Goleta Water District	VCP	Vitrified Day Pipe
H : V	Horizontal : Vertical		
JT	Joint		
IN	Inch		
LOL	Layout Line		
N	North or Northing		



DESIGN	RSW
DRAWN	PP
CHECKED	BJD

NO.	DATE	APPROVED	REVISIONS

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**GENERAL INFORMATION**  
**LEGEND AND ABBREVIATIONS**

2014-SC8322  
 PBW. NO.  
 -  
 SHT. DES.  
 FW-002  
 DWG. NO.

PROPERTY LINES ARE APPROXIMATE



*[Signature]*  
 PROJECT ENGINEER DATE 4/10/15

**CONSTRUCTION NOTES**

- ① CONSTRUCT 3' SWALE BEHIND PROPOSED FLOODWALL. SEE TYPICAL WALL SECTIONS
- ② REMOVE PORTION OF EXISTING CONCRETE CHANNEL
- ③ CONSTRUCT FLOODWALL PER TYPICAL SECTION 1, SHEET 9
- ④ CONSTRUCT FLOODWALL PER TYPICAL SECTION 2, SHEET 9
- ⑤ REMOVE EXIST RSP & CONSTRUCT 1.5:1 SLOPE WITH FABRIC FORMED CONC. LINER PER TYPICAL SECTION 1 & FABRIC FORMED CONC. LINER DETAIL, SHEET 9
- ⑥ CONSTRUCT FLOODWALL PER TYPICAL SECTION 3, SHEET 9
- ⑦ PROTECT-IN-PLACE EXIST GWD CONCRETE RISER W/ STEEL GRATE
- ⑧ CONSTRUCT OUTLET STRUCTURE TYPE 1 PER DETAIL 3, SHEET 12
- ⑨ CONSTRUCT OUTLET STRUCTURE TYPE 2 PER DETAIL 4, SHEET 12
- ⑩ CONSTRUCT RIPRAP ENERGY DISSIPATOR PER DETAIL 6, SHEET 12
- ⑪ CONSTRUCT WALL OPENING AROUND EXIST 24" SD AND 12" STEEL DRAIN PIPE PER DETAIL 8, SHEET 11
- ⑫ CONSTRUCT WALL OPENING AROUND EXISTING 8" STORM DRAIN PIPE PER DETAIL 10, SHEET 11
- ⑬ CONSTRUCT WALL AT EXISTING 12" WATER LINE PER DETAIL 9, SHEET 11
- ⑭ CONSTRUCT FOOTING AROUND EXIST UTILITY PIPE PER DETAIL 7, SHEET 10
- ⑮ CONSTRUCT 18" RCP D-2200 BEDDING PER CSBDPW STD PLAN 2-020
- ⑯ CONSTRUCT CATCH BASIN TYPE F PER SDRSD DWG No. D-07, SHEET 13
- ⑰ LIMITS OF EXCAVATION FOR RIPRAP

**NOTE:**

THE EXISTING UTILITIES SHOWN HEREON HAVE BEEN COMPILED FROM AS-BUILTS DRAWINGS FROM THE FOLLOWING AGENCIES.

- SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT
- GOLETA SANITATION DISTRICT
- SOUTHERN CALIFORNIA GAS COMPANY
- CITY OF SANTA BARBARA

**PERMITS:**

- CENTRAL COAST REGIONAL WQCB
- WATER QUALITY 401 CERT. #34212WQ05 FOR LAS VEGAS - SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT, SANTA BARBARA COUNTY, DATED 12/07/12.

- US ARMY CORPS OF ENGINEERS: DEPT. OF THE ARMY  
NATIONWIDE PERMITS 3(a)(b)(c) AND 43
- PERMIT NO. SPL-2011-00782-TS, DATED 12/10/12, WITH PERMIT EXTENSION (6/11/14).

- STATE OF CALIFORNIA - THE NATURAL RESOURCES AGENCY  
DEPT. OF FISH & WILDLIFE
- MASTER STREAMBED ALTERATION AGREEMENT NOTIFICATION # 1600-2012-0155-R5  
LAS VEGAS - SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT, DATED 11/19/12.

**BENCH MARK:**

N 1985887.3220, E 6012085.1910 ELEV. 35.35  
EW3773 BEING A BRASS DISK RECOVERED IN GOOD CONDITION. A NEW DESCRIPTION FOLLOWS. IN GOLETA, AT 5679 HOLLISTER AVENUE, SET VERTICALLY IN THE NORTH FACE OF THE GOLETA VALLEY COMMUNITY CENTER, 4.2 M (13.8 FT) EAST OF THE CENTER 1 OF 3 ENTRANCE DOORS, 0.8 M (2.6 FT) ABOVE A CONCRETE FLOOR, AND 0.03M (0.1 FT) BELOW A TELEPHONE MOUNTED ON THE WALL.

**BASIS OF BEARINGS AND HORIZONTAL DATUM:**

THE BASIS OF BEARINGS IS FROM THE RECORD OF SURVEY FOR THE CITY OF SANTA BARBARA DESCRIBED AS "AIRPORT SURVEY CONTROL NETWORK" FILED IN BOOK 170, PAGE 63 OF RECORD SURVEYS. THE CONTROL POINTS ON SAID MAP USED FOR THE BASIS OF BEARINGS WHERE ACSN9 AND ACSN8. THE HORIZONTAL DATUM FOR THIS SURVEY IS NAD83 (1991.35 epoch).

**VERTICAL DATUM:**

THE VERTICAL DATUM FOR THIS SURVEY IS NAVD88 AS DETERMINED BY TIES TO NGS POINT PID EW3773 PER NGS DATA SHEET BEING A BRASS DISK HAVING AN ELEVATION OF 35.35 FEET.

**SURVEY**

TOPOGRAPHY SURVEY PROVIDED BY:  
MNS ENGINEERING ON 09/21/12, 10/07/13 AND 10/09/13  
CALTRANS ON 01/28/13

**SURVEY NOTE:**

FOR CONTROL POINT SEE SHEET 1

**SURVEY CONTROL POINTS FOR MNS**

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATUS
16	1986298.5793	6009268.8979	18.84	MAG. NAIL W/ SHINER	PERMANENT
71	1986966.0273	6007758.6191	28.74	1/2" IRON PIPE	PERMANENT
301	1985887.3220	6012085.1910	35.35	EW3773 BRASS DISK	PERMANENT

**SURVEY CONTROL POINTS FOR ASCN**

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATUS
8	1984357.7920	6004336.0200	12.12	ASCN 8 - SET MONUMENT ON RECORD SURVEY	PERMANENT
9	1984549.7730	6005367.9000	11.63	ASCN 9 - SET MONUMENT ON RECORD SURVEY	PERMANENT

**SURVEY CONTROL POINTS FOR CALTRANS**

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION	STATUS
1	1987245.1600	6008904.9600	43.51	Fnd 1"IP w/ CDot PP & Nail	PERMANENT
2	1987509.5800	6008896.9500	27.49	Fnd 1"IP w/ Caltrans Control PP	PERMANENT



**HDR**  
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2330 El Camino Real, Suite 200  
Irvine, California 92602

DESIGN	RSW
DESIGN	PP
DRAWN	PP
CHECKED	BJD

DATE	APPROVED	REVISIONS

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SURVEY CONTROL AND CONSTRUCTION NOTES**

2014-SC8322

PROPERTY NO.  
SHT. DES.  
**FW-003**  
DWG. NO.

SHT. 3 OF 13

PROPERTY LINES  
ARE APPROXIMATE



*[Signature]*  
PROJECT ENGINEER

DATE 4/10/15

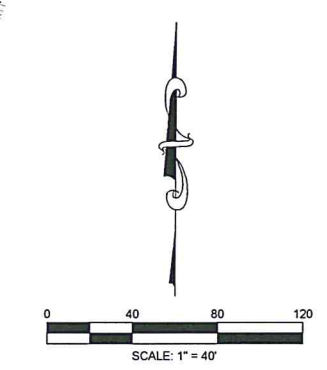
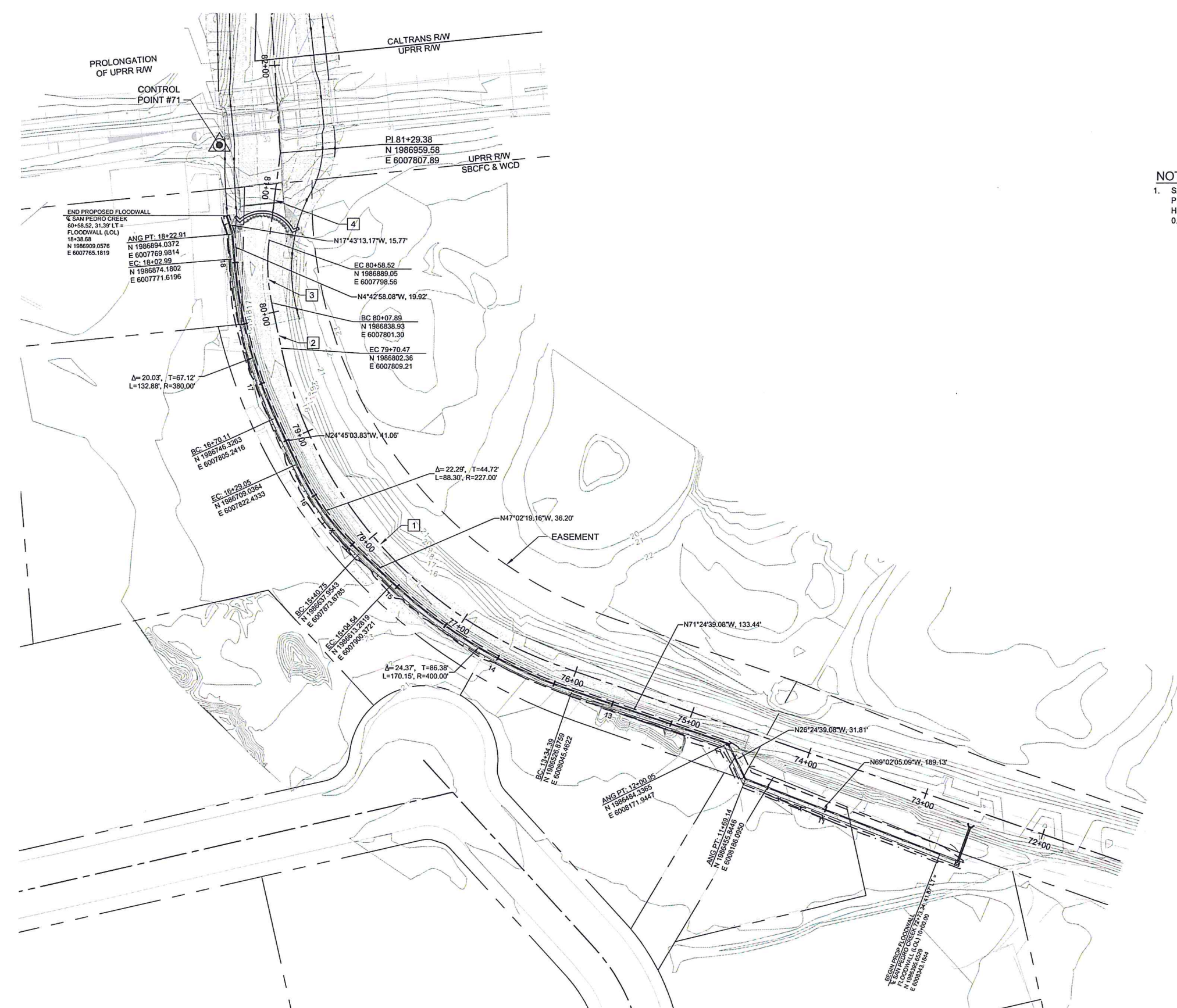




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 2230 El Camino Real Suite 200  
 Irvine, California 92612

LINE/CURVE TABLE				
POINT NO.	BEARING/DELTA	RADIUS	LENGTH	TANGENT
1	58°46'46"	350.00'	359.06'	197.13'
2	N 12°11'53" W	-	37.42'	-
3	19°20'23"	150.00'	50.63'	25.56'
4	N 07°08'30" E	-	70.86'	-
5	N 03°51'36" W	-	222.73'	-
6	N 04°33'57" W	-	196.56'	-

**NOTES**  
 1. SAN PEDRO CREEK CENTERLINE STATIONING BASED ON THE CALTRANS PLANS ENTITLED, "PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY IN SANTA BARBARA COUNTY IN GOLETA FROM 0.2 MILE EAST TO 0.7 MILE WEST OF FAIRVIEW AVENUE OVERCROSSING."



PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE 4/10/15

NO.	DATE	APPROVED	DESIGN		RSW	
			DRAWN	CHECKED	PP	BID

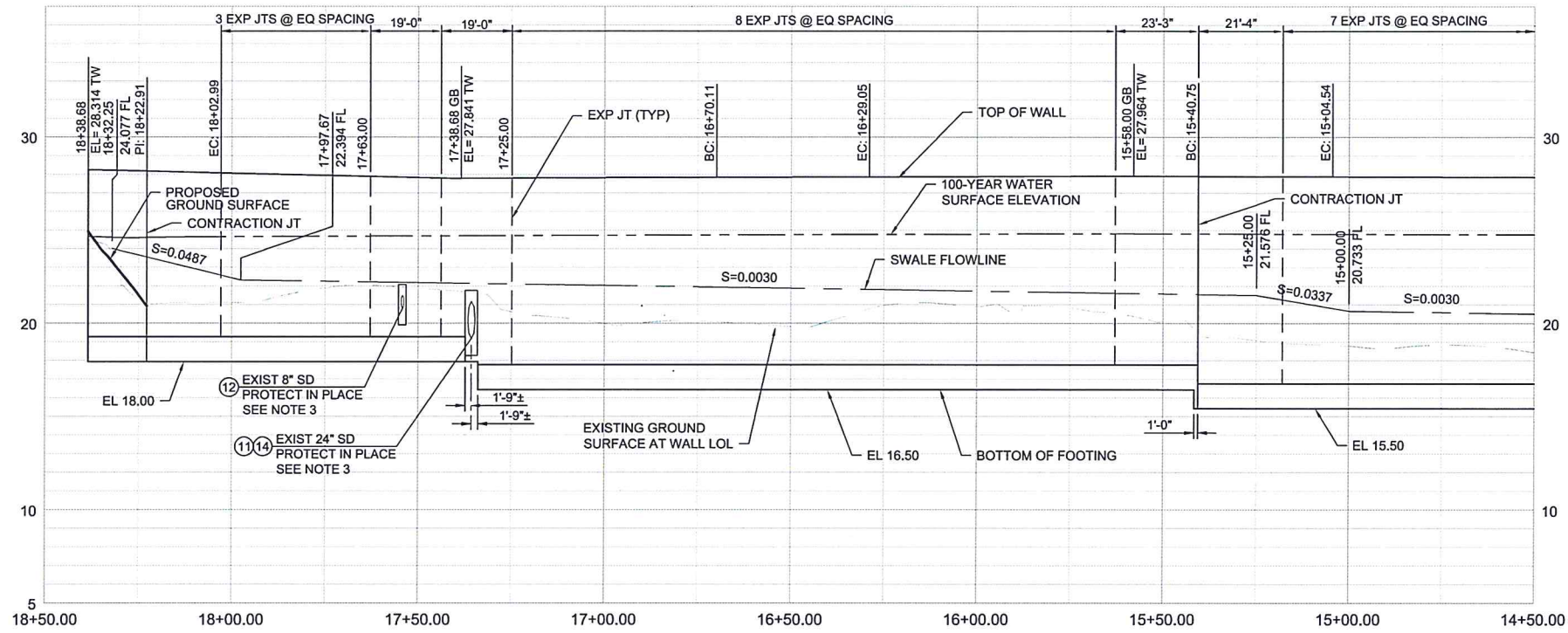
LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK**  
**HORIZONTAL CONTROL**

2014-SC8322  
 PBW.NO.  
 -  
 SHT. DES.  
**FW-004**  
 DWG. NO.  
 SHT. 4 OF 13



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3220 El Camino Real Suite 200  
Irvine, California 92602



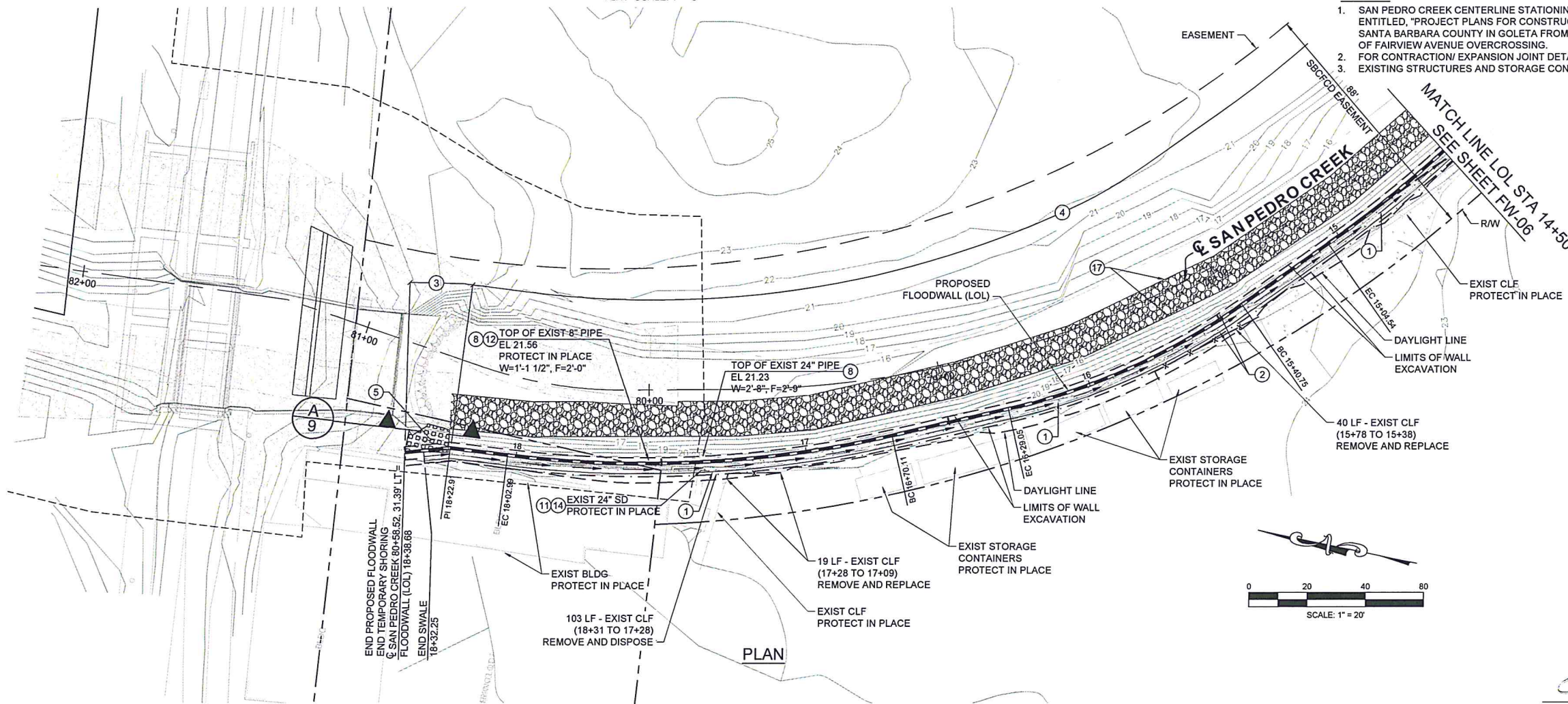
**PROFILE**  
 HORIZ SCALE: 1" = 20'  
 VERT SCALE: 1" = 5'

**CONSTRUCTION NOTES**

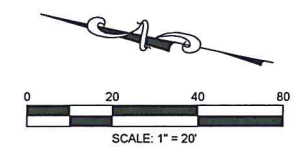
- ① CONSTRUCT 3' SWALE BEHIND PROPOSED FLOODWALL. SEE TYPICAL WALL SECTIONS
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- ⑯ CONSTRUCT CATCH BASIN TYPE F PER SDRSD DWG No. D-07, SHEET 13
- ⑰ LIMITS OF EXCAVATION FOR RIPRAP

**NOTES**

1. SAN PEDRO CREEK CENTERLINE STATIONING BASED ON THE CALTRANS PLANS ENTITLED, "PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY IN SANTA BARBARA COUNTY IN GOLETA FROM 0.2 MILE EAST TO 0.7 MILE WEST OF FAIRVIEW AVENUE OVERCROSSING."
2. FOR CONTRACTION/ EXPANSION JOINT DETAILS SEE SHEET 10
3. EXISTING STRUCTURES AND STORAGE CONTAINERS TO BE PROTECT IN PLACE.



**PLAN**



PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER  
 DATE 4/10/15

DATE	APPROVED	DESIGN	RSW
		DRAWN	PP
		CHECKED	BJD

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK  
 FLOODWALL PLAN AND PROFILE**

2014-SC8322  
 FBW.NO.  
 -  
 SHT. DES.  
**FW-05**  
 DWG. NO.  
 SHT. 5 OF 13



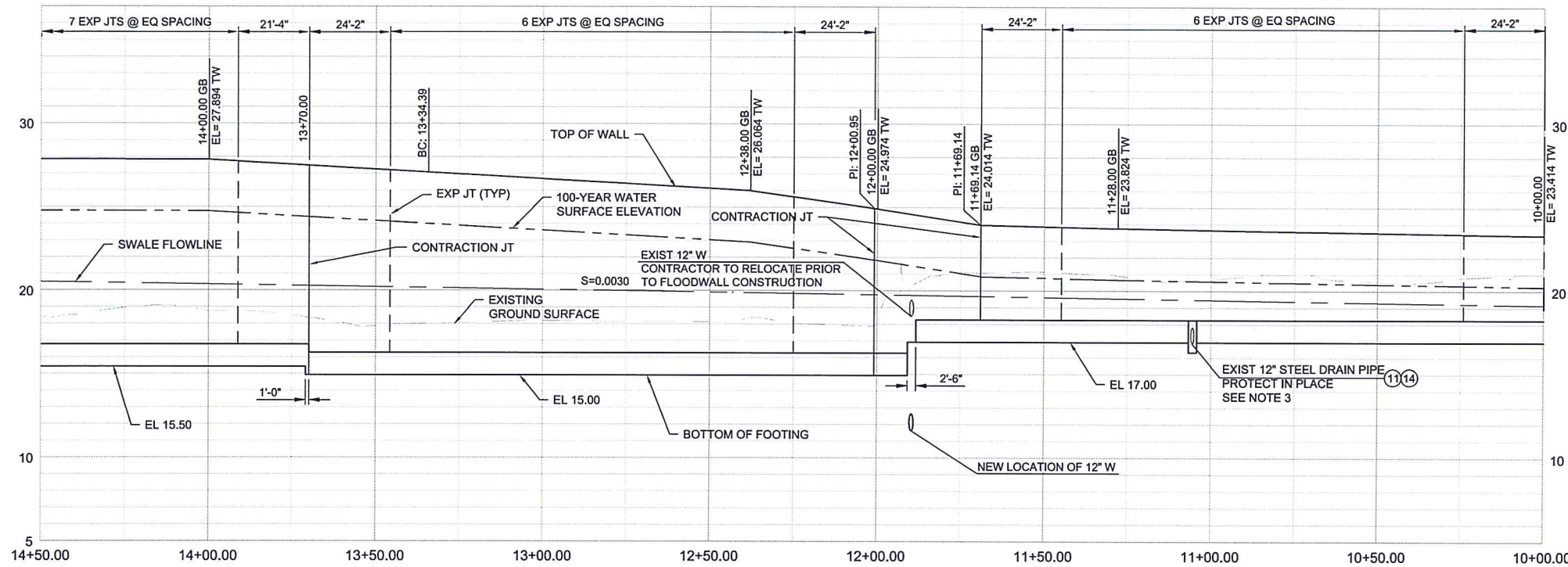
**HDR**  
HDR Engineering, Inc.  
22011 Camino Real Suite 200  
Irvine, California 92612

**CONSTRUCTION NOTES**

- 1) CONSTRUCT 3' SWALE BEHIND PROPOSED FLOODWALL. SEE TYPICAL WALL SECTIONS
- 2) REMOVE PORTION OF EXISTING CONCRETE CHANNEL
- 3) CONSTRUCT FLOODWALL PER TYPICAL SECTION 1, SHEET 9
- 4) CONSTRUCT FLOODWALL PER TYPICAL SECTION 2, SHEET 9
- 5) REMOVE EXIST RSP & CONSTRUCT 1.5:1 SLOPE WITH FABRIC FORMED CONC. LINER PER TYPICAL SECTION 1 & FABRIC FORMED CONC. LINER DETAIL, SHEET 9
- 6) CONSTRUCT FLOODWALL PER TYPICAL SECTION 3, SHEET 9
- 7) PROTECT-IN-PLACE EXIST GWD CONCRETE RISER W/ STEEL GRATE
- 8) CONSTRUCT OUTLET STRUCTURE TYPE 1 PER DETAIL 3, SHEET 12
- 9) CONSTRUCT OUTLET STRUCTURE TYPE 2 PER DETAIL 4, SHEET 12
- 10) CONSTRUCT RIPRAP ENERGY DISSIPATOR PER DETAIL 6, SHEET 12
- 11) CONSTRUCT WALL OPENING AROUND EXIST 24" SD AND 12" STEEL DRAIN PIPE PER DETAIL 8, SHEET 11
- 12) CONSTRUCT WALL OPENING AROUND EXISTING 8" STORM DRAIN PIPE PER DETAIL 10, SHEET 11
- 13) CONSTRUCT WALL AT EXISTING 12" WATER LINE PER DETAIL 9, SHEET 11
- 14) CONSTRUCT FOOTING AROUND EXIST UTILITY PIPE PER DETAIL 7, SHEET 10
- 15) CONSTRUCT 18" RCP D-2200 BEDDING PER CSBDPW STD PLAN 2-020
- 16) CONSTRUCT CATCH BASIN TYPE F PER SDRSD DWG No. D-07, SHEET 13
- 17) LIMITS OF EXCAVATION FOR RIPRAP

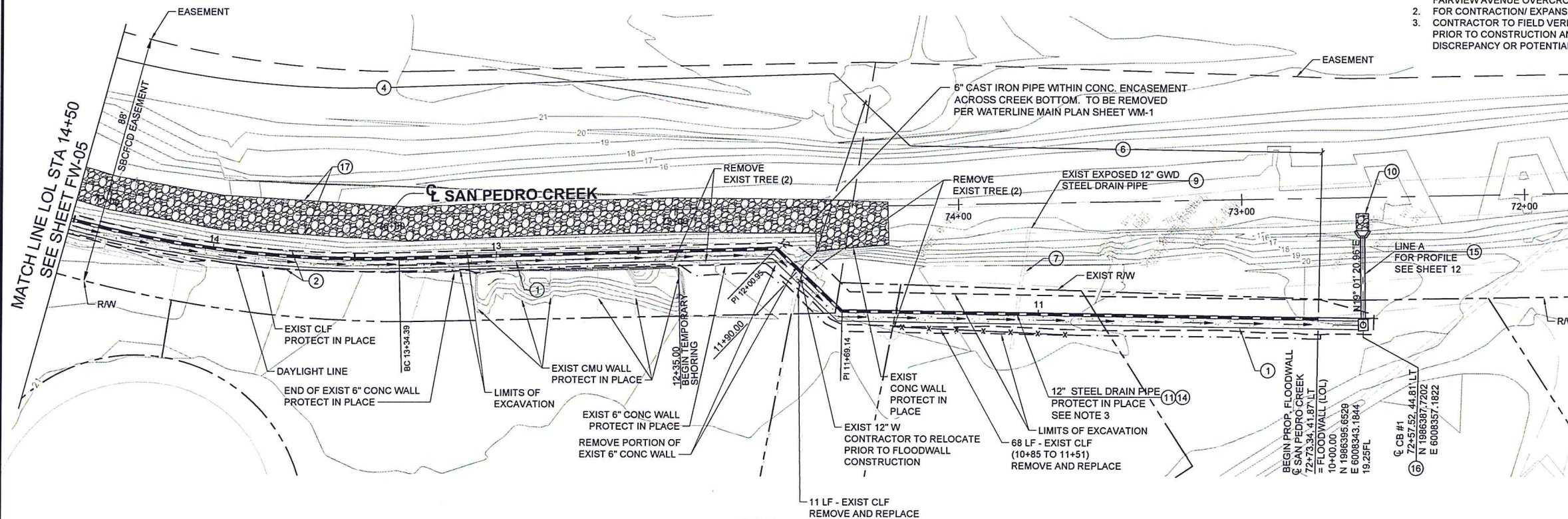
**NOTES**

1. SAN PEDRO CREEK CENTERLINE STATIONING BASED ON THE CALTRANS PLANS ENTITLED, "PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY IN SANTA BARBARA COUNTY IN GOLETA FROM 0.2 MILE EAST TO 0.7 MILE WEST OF FAIRVIEW AVENUE OVERCROSSING."
2. FOR CONTRACTION/ EXPANSION JOINT DETAILS SEE SHEET 10
3. CONTRACTOR TO FIELD VERIFY UTILITY LOCATION/ ELEVATION PRIOR TO CONSTRUCTION AND NOTIFY ENGINEER OF ANY DISCREPANCY OR POTENTIAL CONFLICTS.

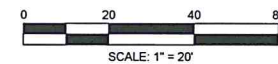


**PROFILE**

HORIZ SCALE: 1" = 20'  
VERT SCALE: 1" = 5'



**PLAN**



PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE 4/10/15

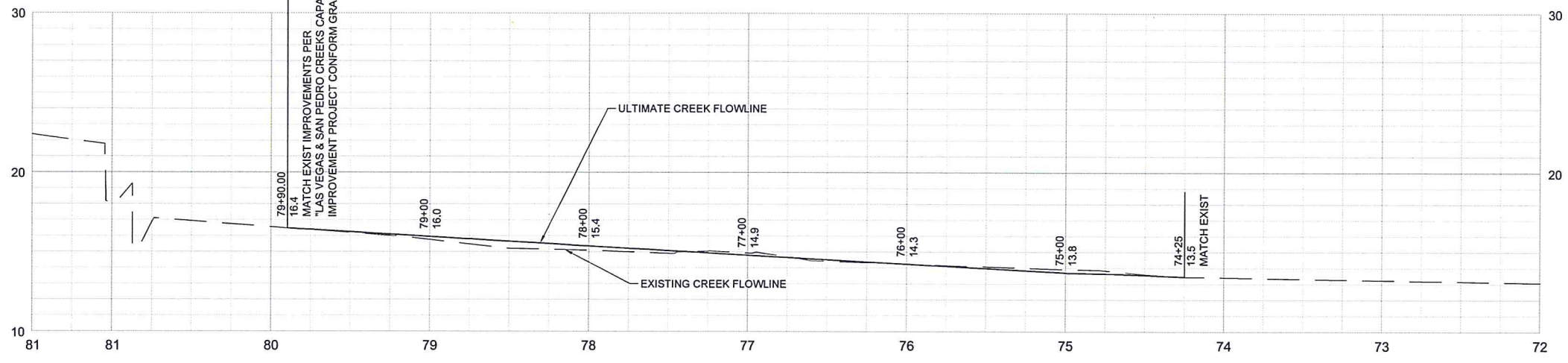
LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK FLOODWALL PLAN AND PROFILE**

2014-SC8322  
PEW NO.  
-  
SHT. DES.  
**FW-06**  
DWG. NO.  
SHT. 6 OF 13



**HDR**

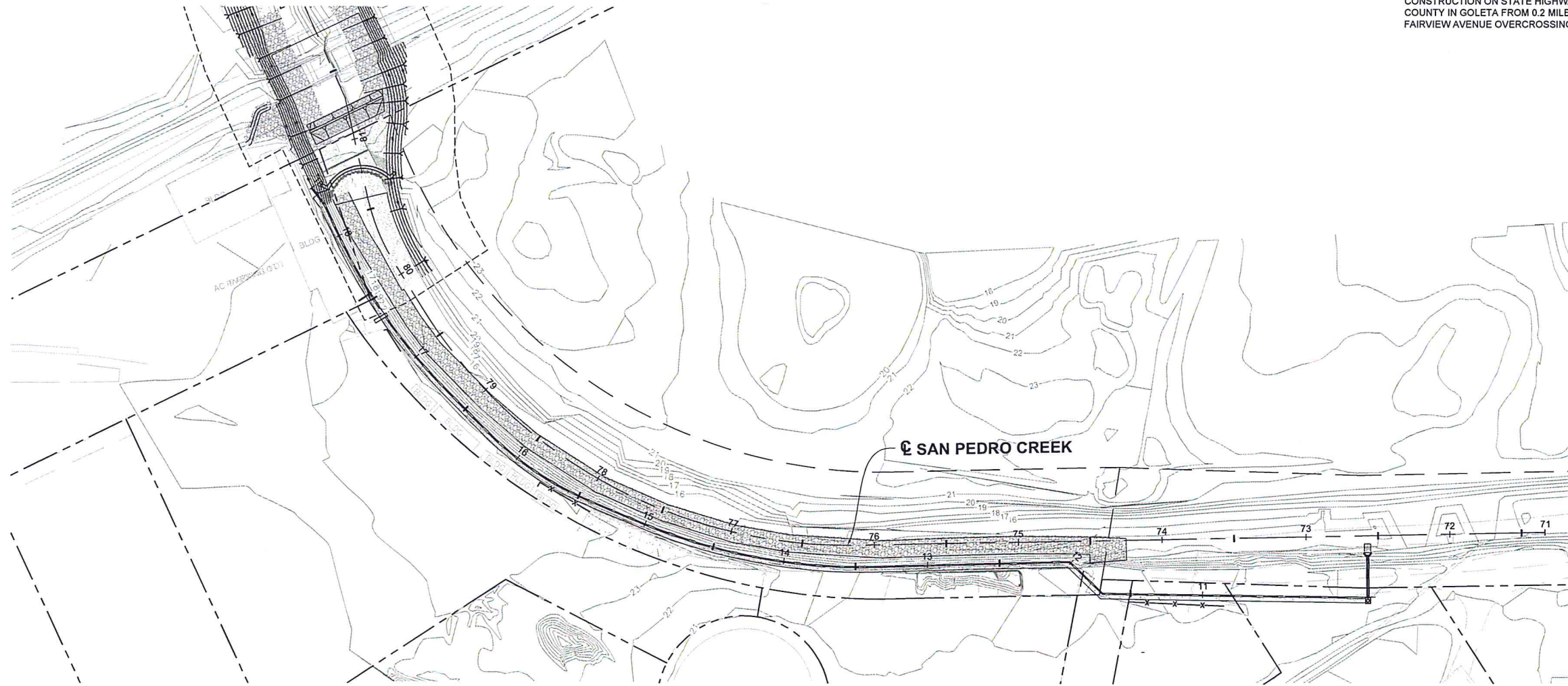
HDR Engineering, Inc.  
2220 El Camino Real Suite 200  
Irvine, California 92602



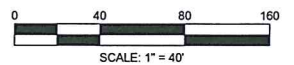
**PROFILE**  
 HORIZ SCALE: 1" = 40'  
 VERT SCALE: 1" = 4'

**NOTE**

- SAN PEDRO CREEK CENTERLINE STATIONING BASED ON THE CALTRANS PLANS ENTITLED, "PROJECT PLANS FOR CONSTRUCTION ON STATE HIGHWAY IN SANTA BARBARA COUNTY IN GOLETA FROM 0.2 MILE EAST TO 0.7 MILE WEST OF FAIRVIEW AVENUE OVERCROSSING."



**PLAN**



PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER

DATE 4/10/15

NO.	DATE	APPROVED	DESIGN	RSW
			DRAWN	PIP
			CHECKED	BUD

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK**  
**PROPOSED CREEK FLOWLINE**

2014-SC8322

PBW. NO.

SHT. DES.

FW-07  
DWG. NO.

SHT. 7 OF 13



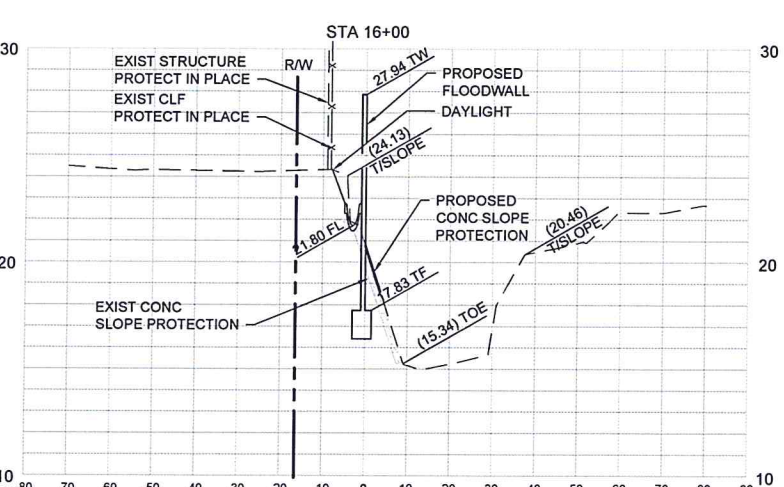
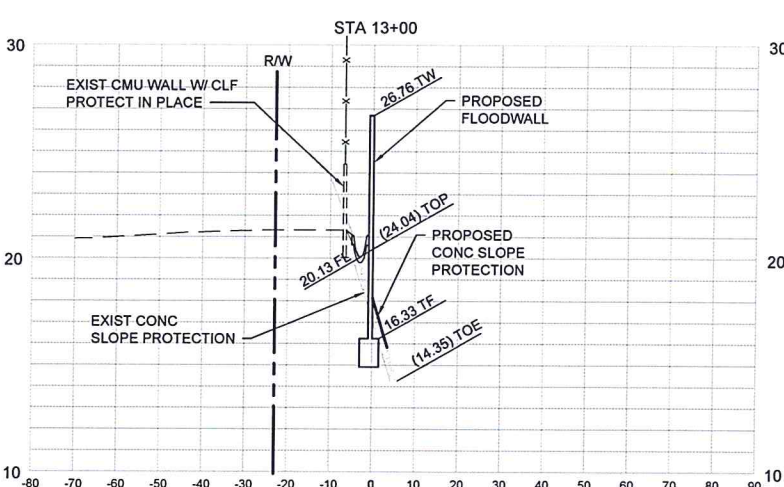
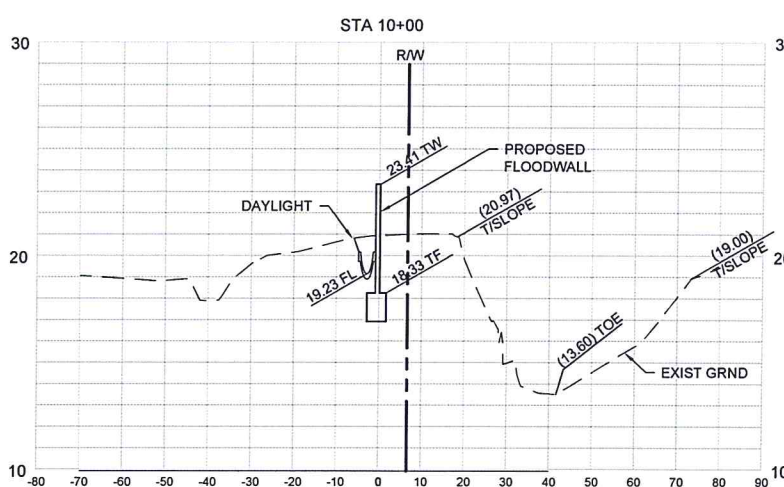
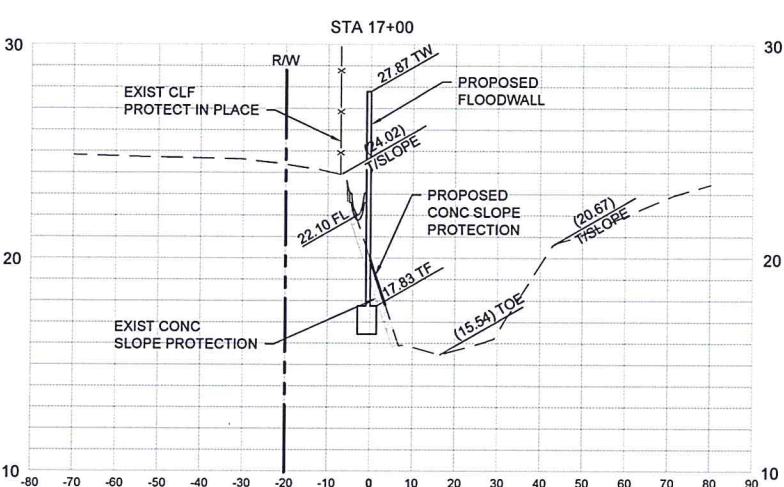
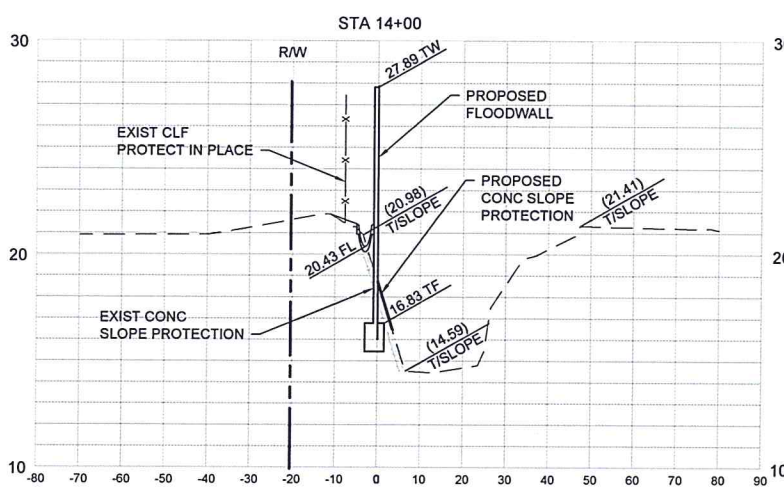
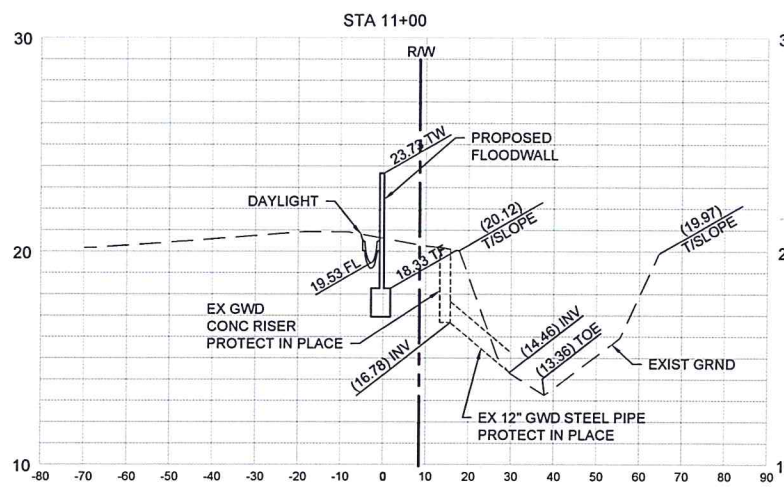
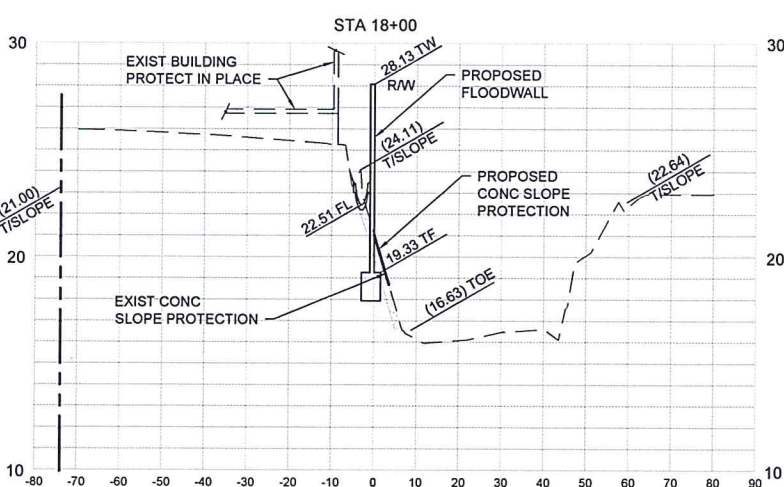
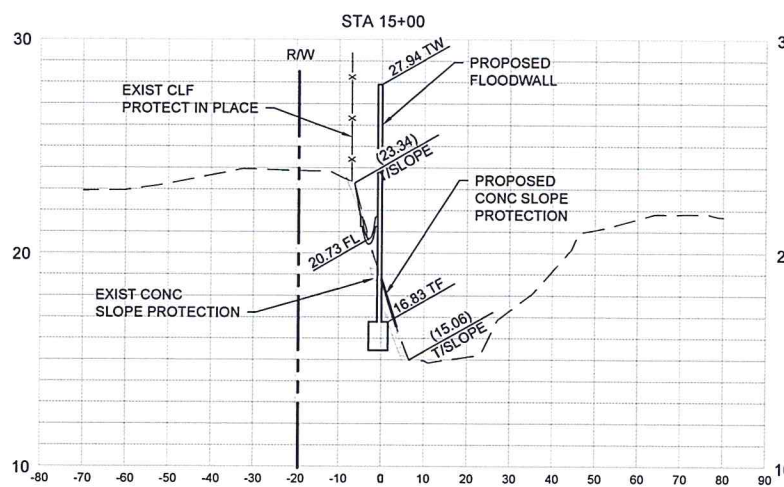
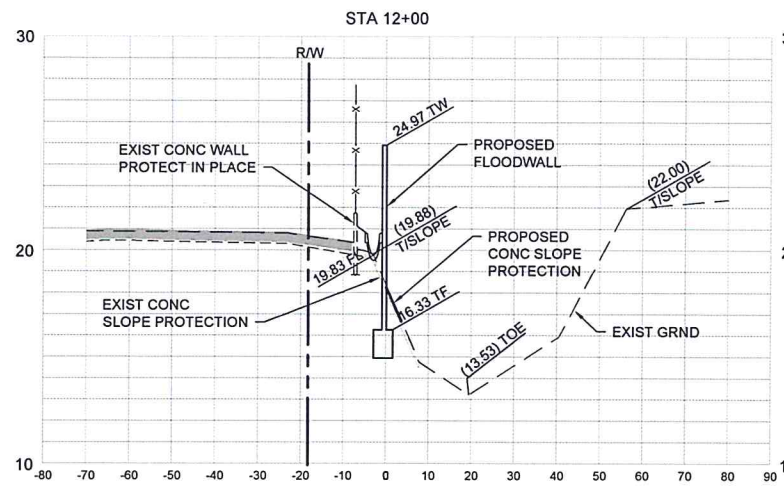
**HDR**

HDR Engineering, Inc.  
1221 El Camino Real, Suite 200  
Irvine, California 92612

NO.	DATE	APPROVED	DESIGN	RSW
			DRAWN	PP
			CHECKED	BJD

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK**  
**CROSS SECTIONS**

2014-SC8322  
 PW. NO.  
 -  
 SHT. DES.  
**FW-08**  
 DWG. NO.  
 SHT. 8 OF 13



SCALE:  
 HOR: 1"=20'  
 VERT: 1"=4'

**LEGEND:**

- PROPOSED
- EXISTING
- TW TOP OF WALL
- TF TOP OF FOOTING
- T/SLOPE TOP OF SLOPE
- TOE TOP OF SLOPE

PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER

DATE 4/10/15



**HDR**

HDR Engineering, Inc.  
2320 El Camino Real Suite 200  
Irvine, California 92602

DESIGN: RSW  
DRAWN: PP  
CHECKED: BJD

DATE: APPROVED:

NO.	DATE	APPROVED	REVISIONS

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK FLOODWALL TYPICAL SECTIONS**

2014-SC8322

PBW NO.

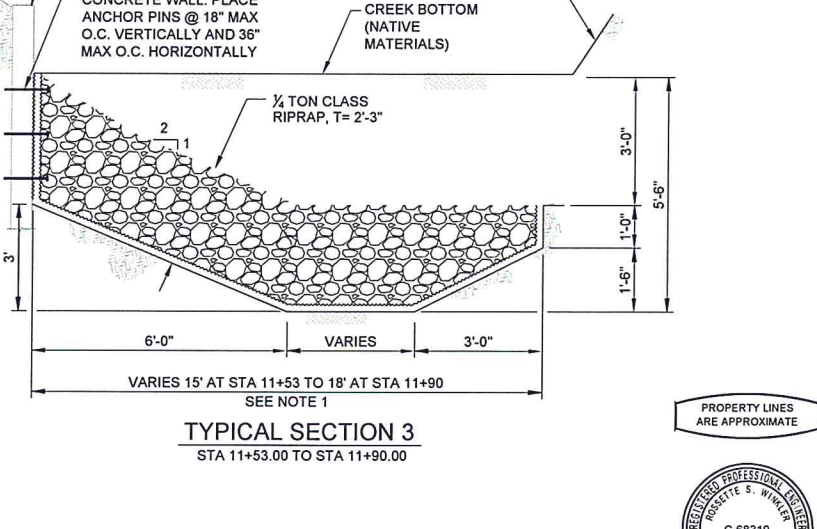
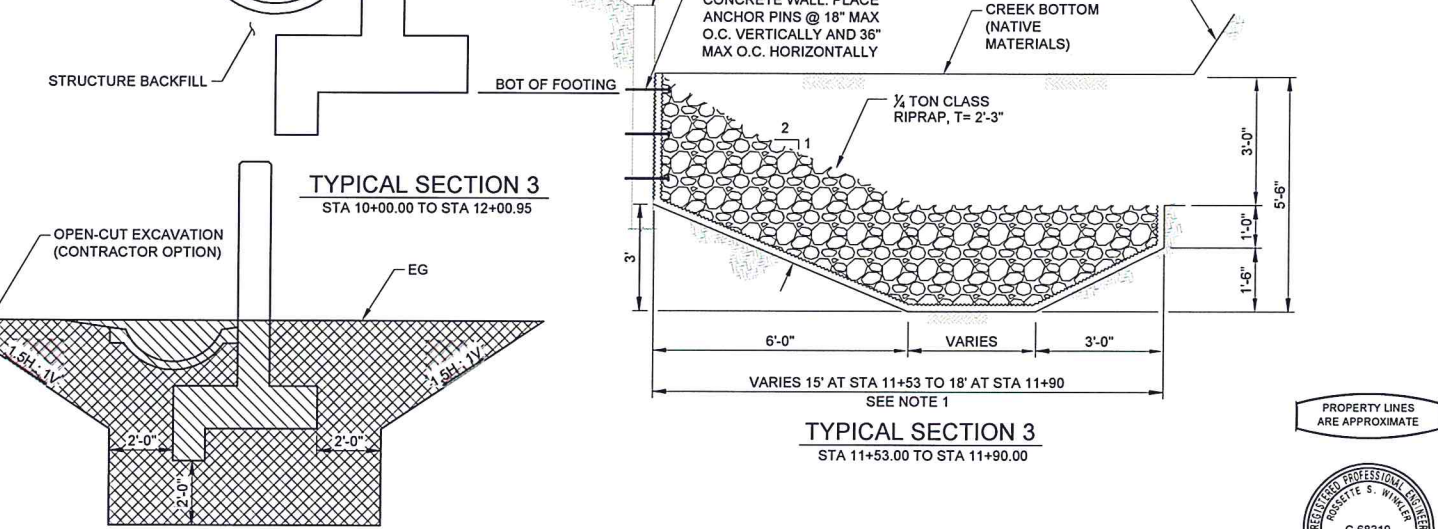
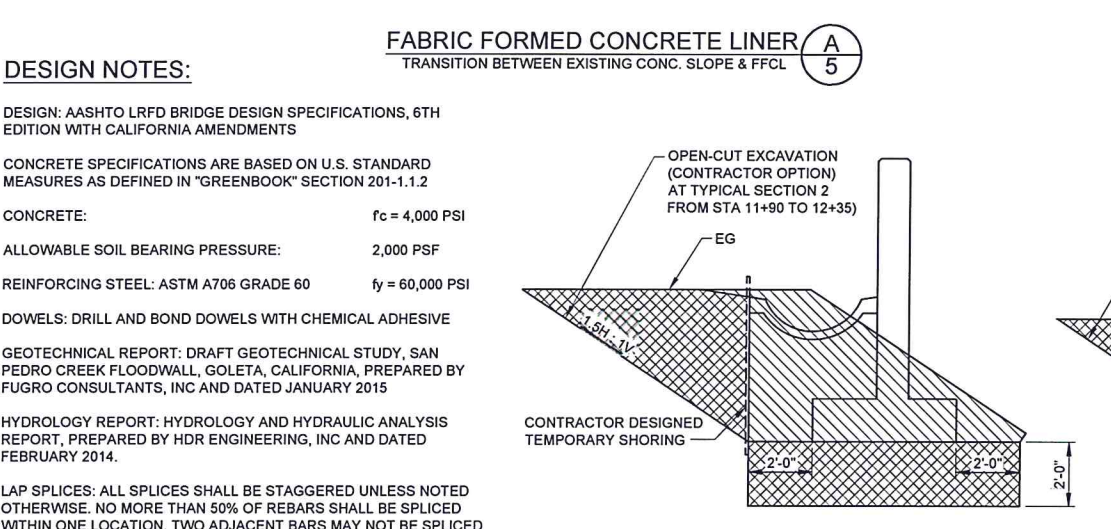
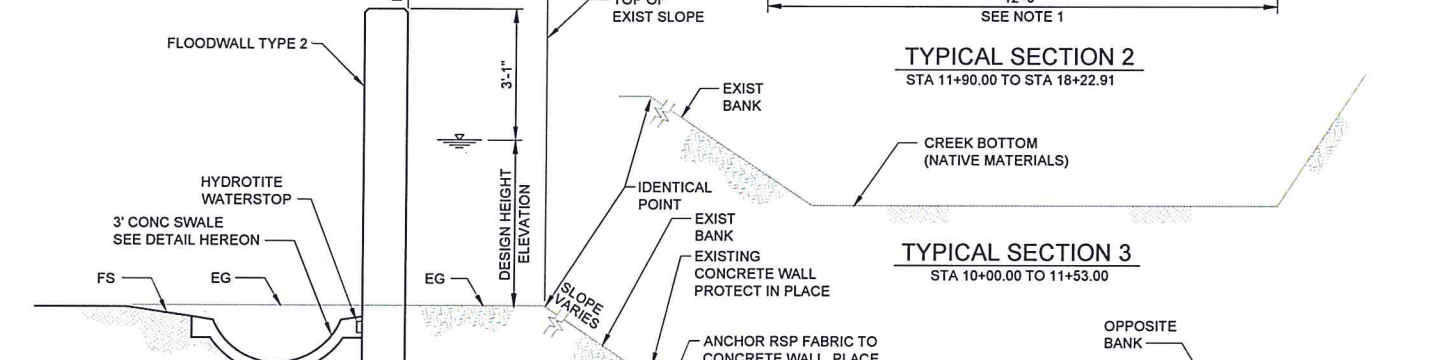
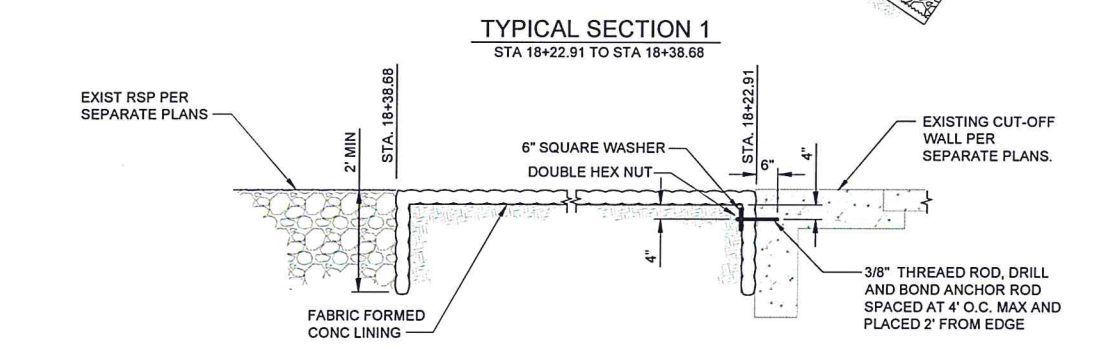
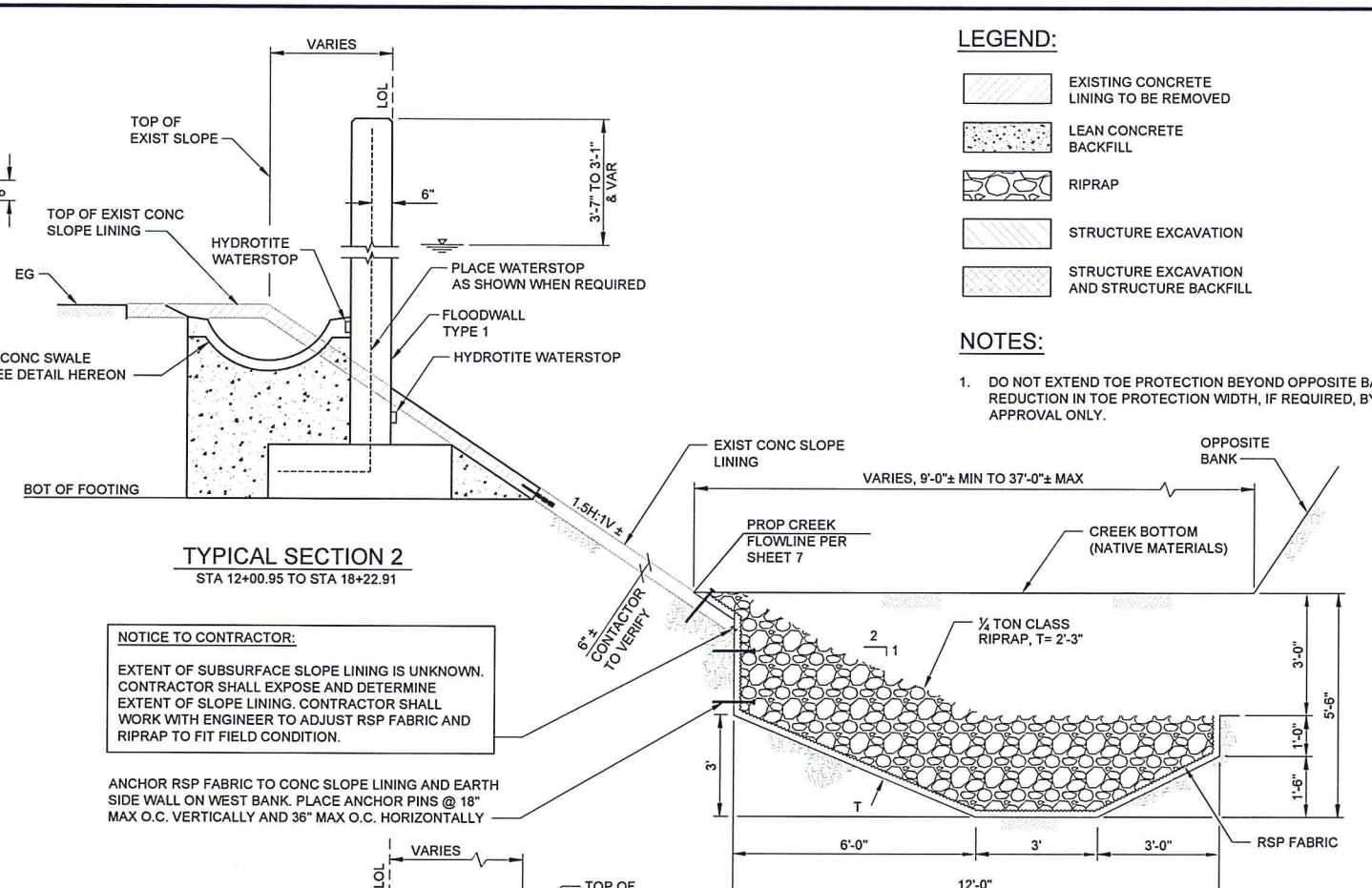
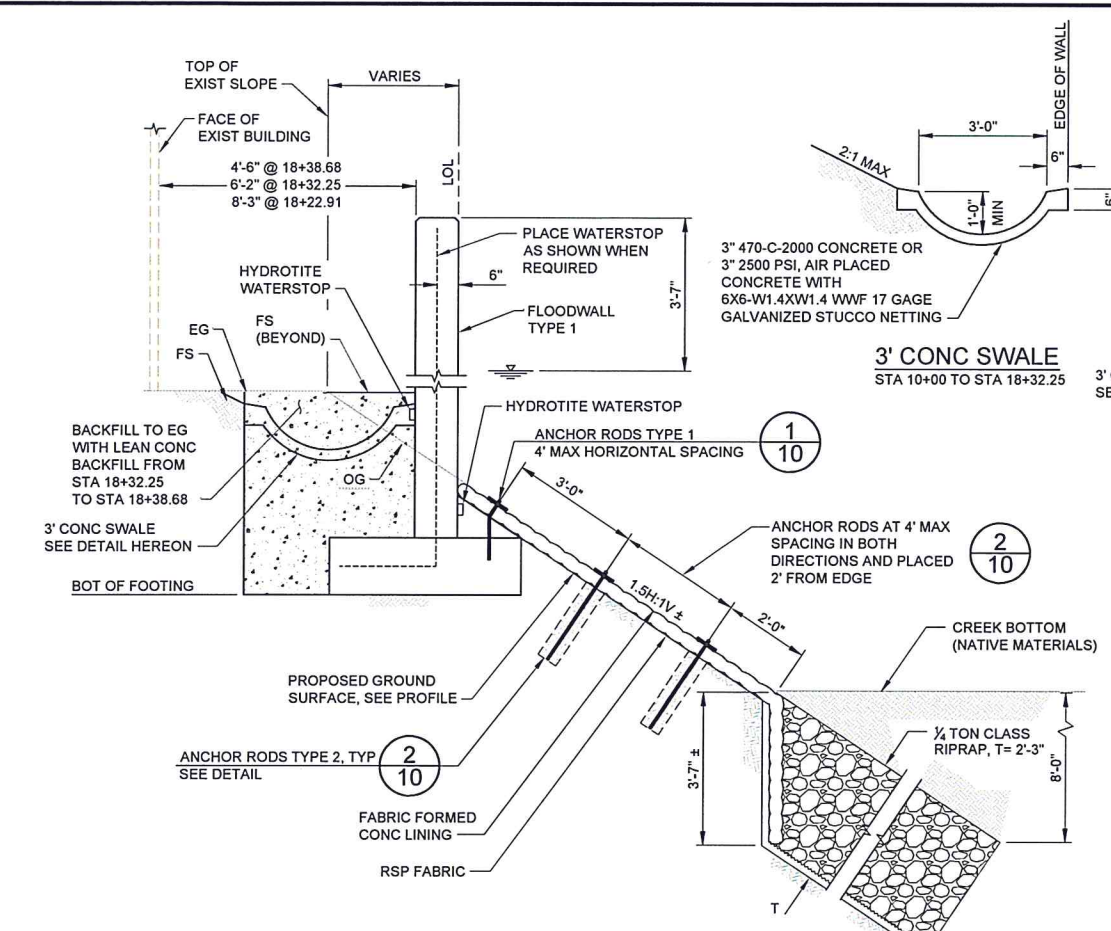
SHT. DES.

FW-009

DWG. NO.

SHT. 9 OF 13

- LEGEND:**
- EXISTING CONCRETE LINING TO BE REMOVED
  - LEAN CONCRETE BACKFILL
  - RIPRAP
  - STRUCTURE EXCAVATION
  - STRUCTURE EXCAVATION AND STRUCTURE BACKFILL
- NOTES:**
- DO NOT EXTEND TOE PROTECTION BEYOND OPPOSITE BANK. REDUCTION IN TOE PROTECTION WIDTH, IF REQUIRED, BY APPROVAL ONLY.



**DESIGN NOTES:**

DESIGN: AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, 6TH EDITION WITH CALIFORNIA AMENDMENTS

CONCRETE SPECIFICATIONS ARE BASED ON U.S. STANDARD MEASURES AS DEFINED IN "GREENBOOK" SECTION 201-1.1.2

CONCRETE:  $f_c = 4,000$  PSI

ALLOWABLE SOIL BEARING PRESSURE: 2,000 PSF

REINFORCING STEEL: ASTM A706 GRADE 60  $f_y = 60,000$  PSI

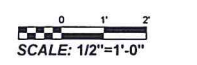
DOWELS: DRILL AND BOND DOWELS WITH CHEMICAL ADHESIVE

GEOTECHNICAL REPORT: DRAFT GEOTECHNICAL STUDY, SAN PEDRO CREEK FLOODWALL, GOLETA, CALIFORNIA, PREPARED BY FUGRO CONSULTANTS, INC AND DATED JANUARY 2015

HYDROLOGY REPORT: HYDROLOGY AND HYDRAULIC ANALYSIS REPORT, PREPARED BY HDR ENGINEERING, INC AND DATED FEBRUARY 2014.

LAP SPLICES: ALL SPLICES SHALL BE STAGGERED UNLESS NOTED OTHERWISE. NO MORE THAN 50% OF REBARS SHALL BE SPLICED WITHIN ONE LOCATION. TWO ADJACENT BARS MAY NOT BE SPLICED AT SAME LOCATION. LAP SPlice LENGTH SHALL BE 40 BAR DIAMETERS.

STRUCTURE BACKFILL SHALL BE COMPACTED TO A RELATIVE COMPACTION OF NOT LESS THAN 95 PERCENT.



PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE 4/10/15

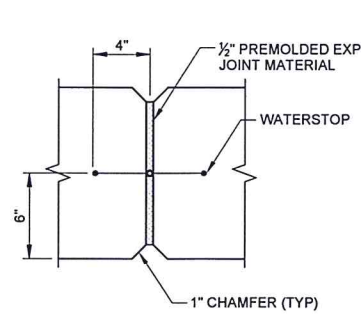


HDR Engineering, Inc.  
2220 El Camino Real Suite 200  
Irvine, California 92602

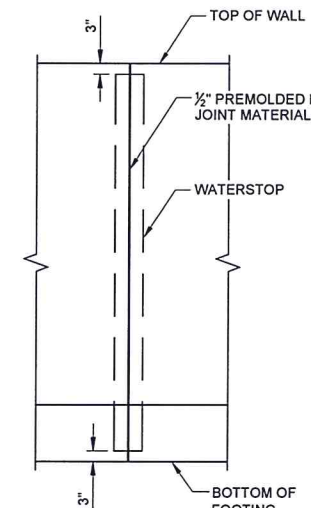
NO.	DATE	APPROVED	DESIGN	RSW
			DRAWN	PIP
			CHECKED	BUD

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK**  
**FLOODWALL DETAILS 1 OF 3**

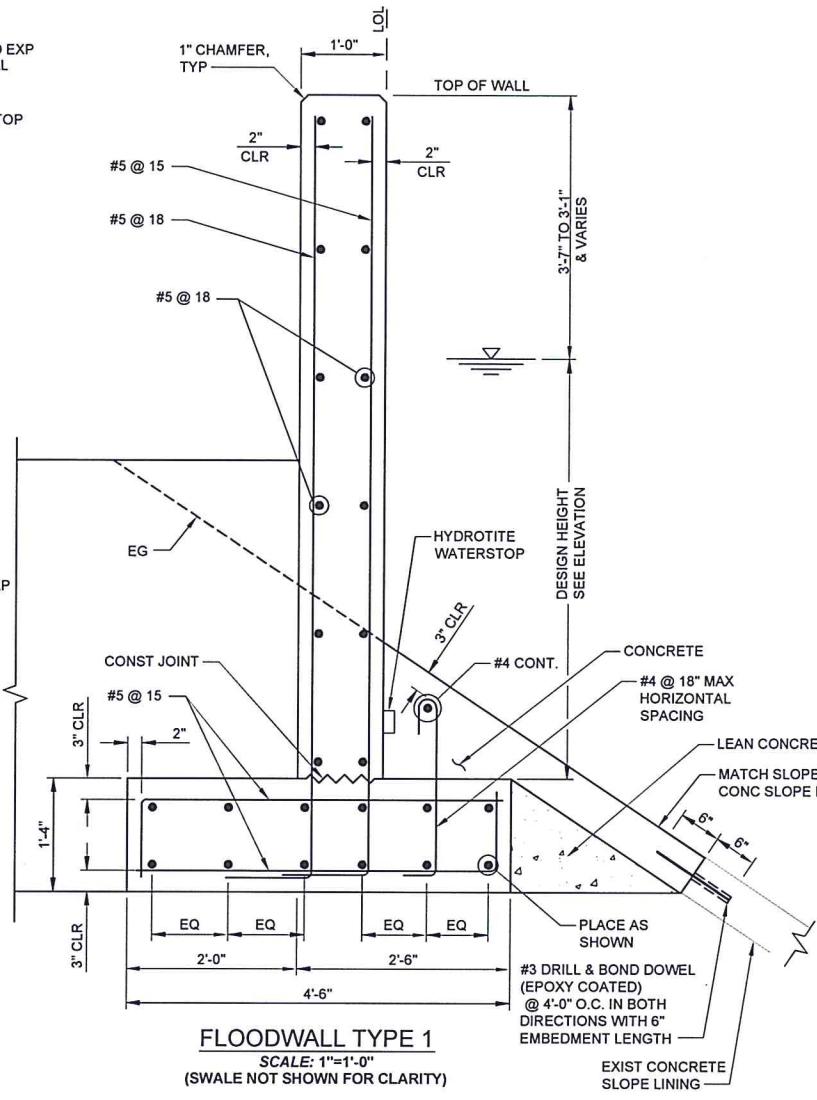
2014-SC8322  
 PBW. NO.  
 -  
 SHI. DES.  
**FW-010**  
 DWG. NO.  
 SHT. 10 OF 13



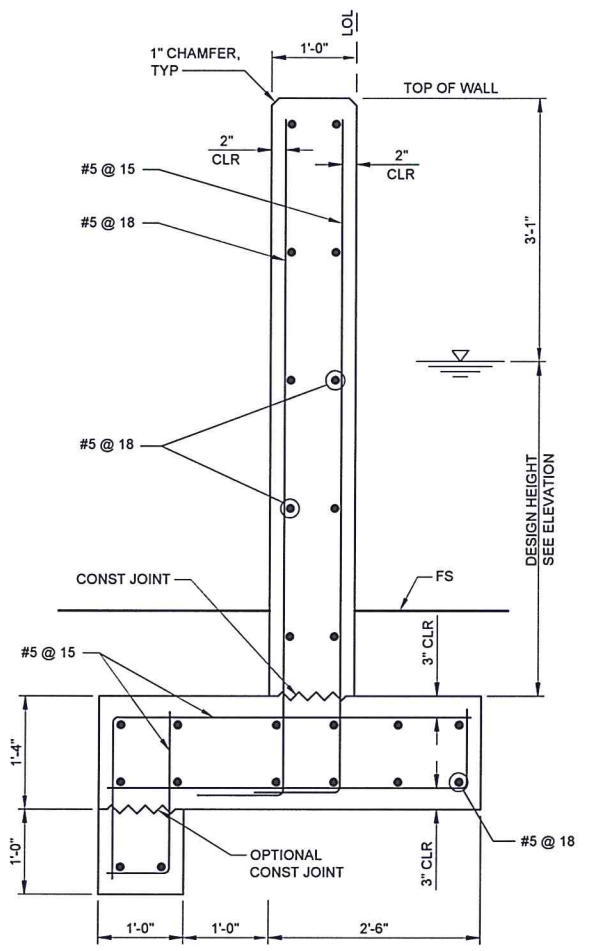
**PLAN OF WALL WITH EXPANSION JOINT**  
 SCALE: 2"=1'-0"



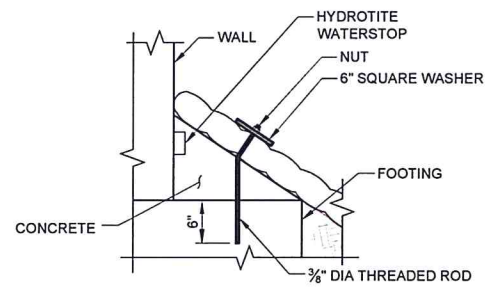
**ELEVATION OF WALL WITH EXPANSION JOINT**  
 SCALE: 1/2"=1'-0"



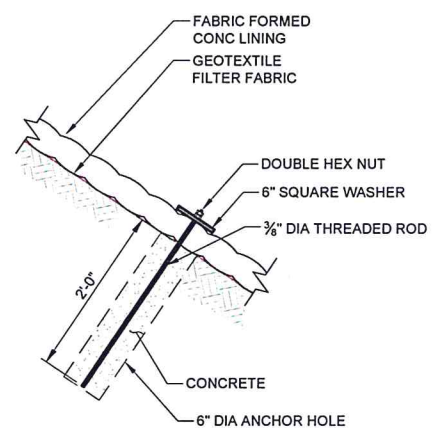
**FLOODWALL TYPE 1**  
 SCALE: 1"=1'-0"  
 (SWALE NOT SHOWN FOR CLARITY)



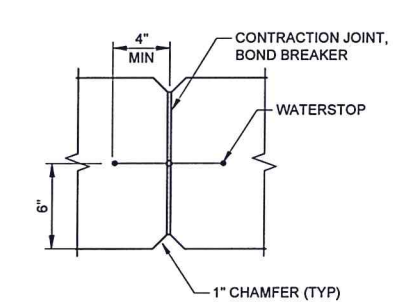
**FLOODWALL TYPE 2**  
 SCALE: 1"=1'-0"  
 (SWALE NOT SHOWN FOR CLARITY)



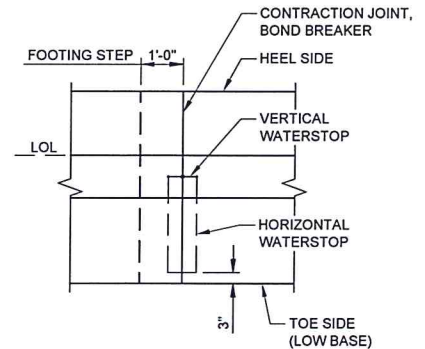
**ANCHOR ROD DETAIL - TYPE 1**  
 SCALE: 1"=1'-0"



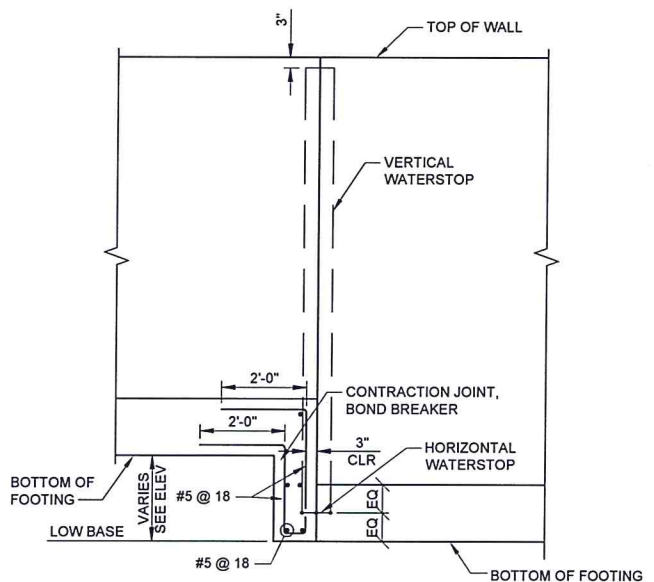
**ANCHOR ROD DETAIL - TYPE 2**  
 SCALE: 1"=1'-0"



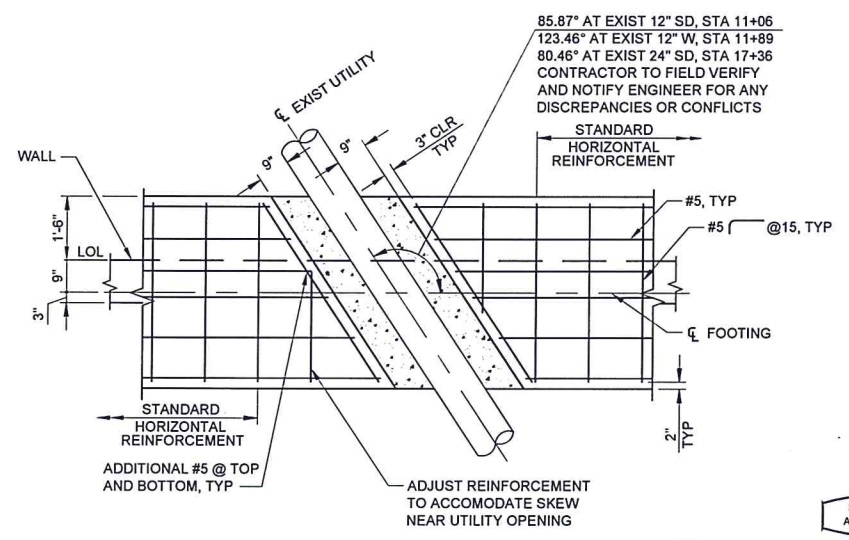
**PLAN OF WALL WITH CONTRACTION JOINT ONLY**  
 SCALE: 2"=1'-0"



**PLAN OF WALL WITH CONTRACTION JOINT AND FOOTING STEP**  
 SCALE: 1/2"=1'-0"



**ELEVATION OF WALL WITH CONTRACTION JOINT AND FOOTING STEP**  
 SCALE: 1/2"=1'-0"



**FOOTING AT UTILITY OPENING DETAIL**  
 SCALE: 1/2"=1'-0"

PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE 4/10/15

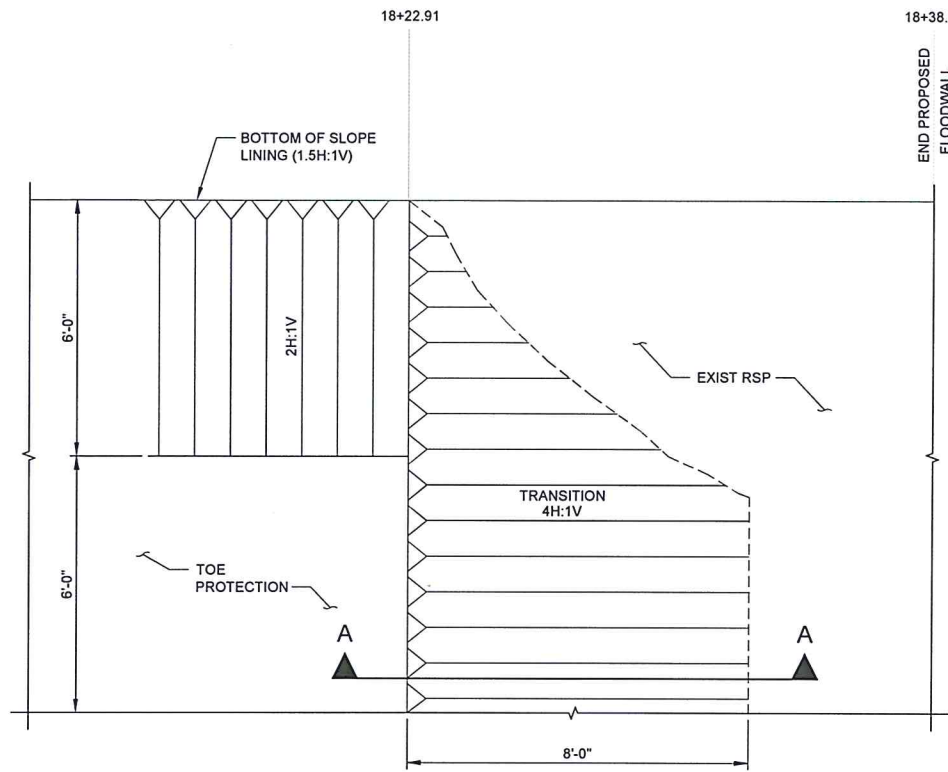


**HDR**  
 HDR Engineering, Inc.  
 1225 El Camino Real Suite 200  
 Irvine, California 92602

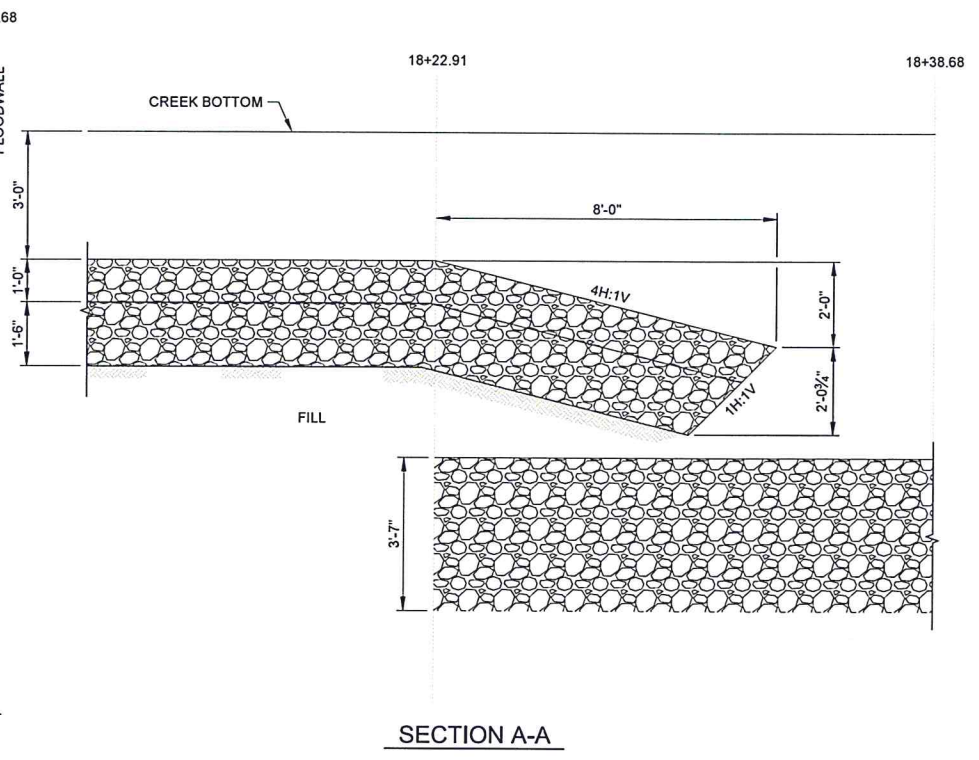
NO.	DATE	APPROVED	DESIGN	RSW
			DRAWN	PP
			CHECKED	BJD

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK  
 FLOODWALL DETAILS 2 OF 3**

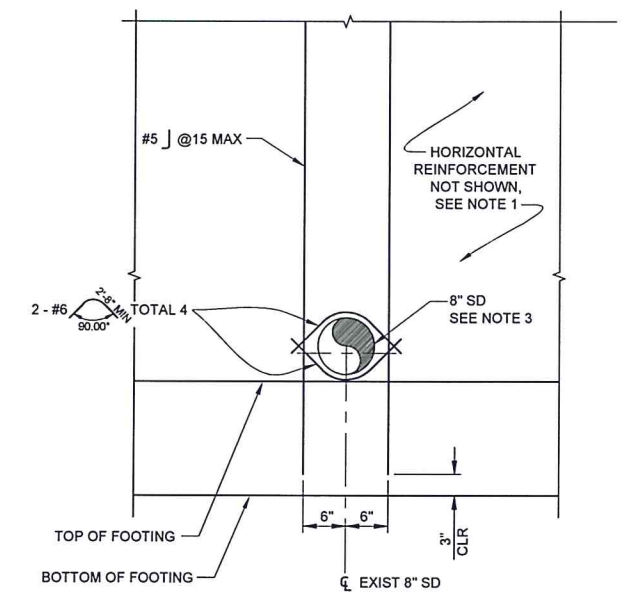
2014-SC8322  
 PBW NO.  
 -  
 SHT. DES.  
**FW-011**  
 DWG. NO.  
 DATE 4/10/15  
 SHT. 11 OF 13



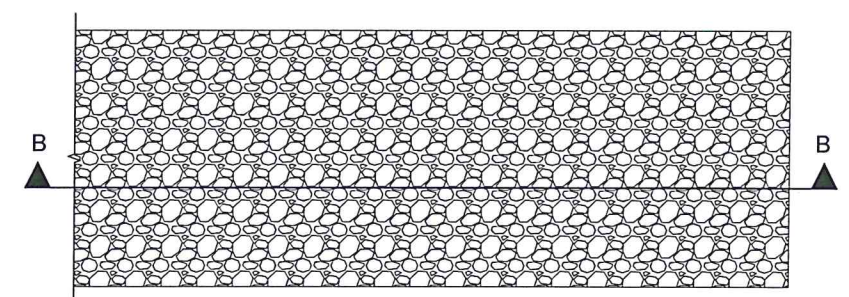
**RSP TRANSITION BETWEEN TYPICAL SECTION 1 AND TYPICAL SECTION 2**  
 SCALE: 1/2"=1'-0"



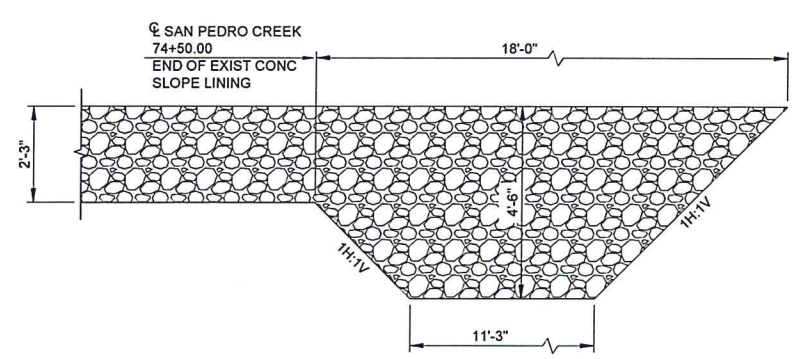
**SECTION A-A**



**WALL AT EXIST 8" SD DETAIL**  
 NOT TO SCALE

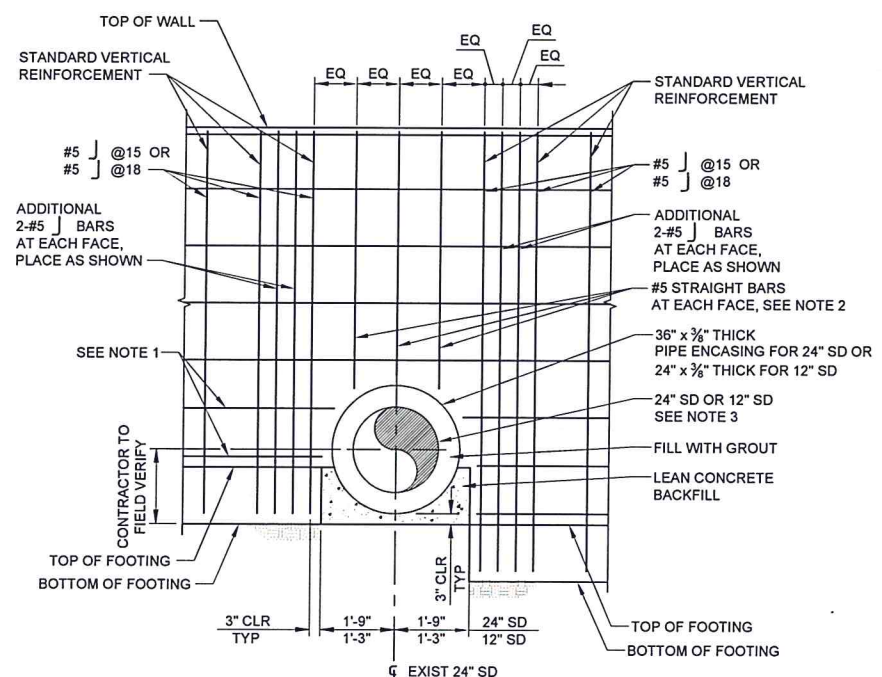


**PLAN**



**SECTION B-B**

**TOE PROTECTION TERMINATION AT DOWNSTREAM END**  
 SCALE: 1/2"=1'-0"



**WALL AT EXIST 24" SD AND 12" STEEL DRAIN PIPE DETAIL**  
 NOT TO SCALE

- NOTES:**
- CUT HORIZONTAL REINFORCEMENT AS REQUIRED TO CLEAR UTILITY
  - ADJUST VERTICAL REINFORCEMENT AS SHOWN TO CLEAR UTILITY
  - TIGHTLY WRAP UTILITY WITH 2 LAYERS OF 15 LBS BUILDING PAPER

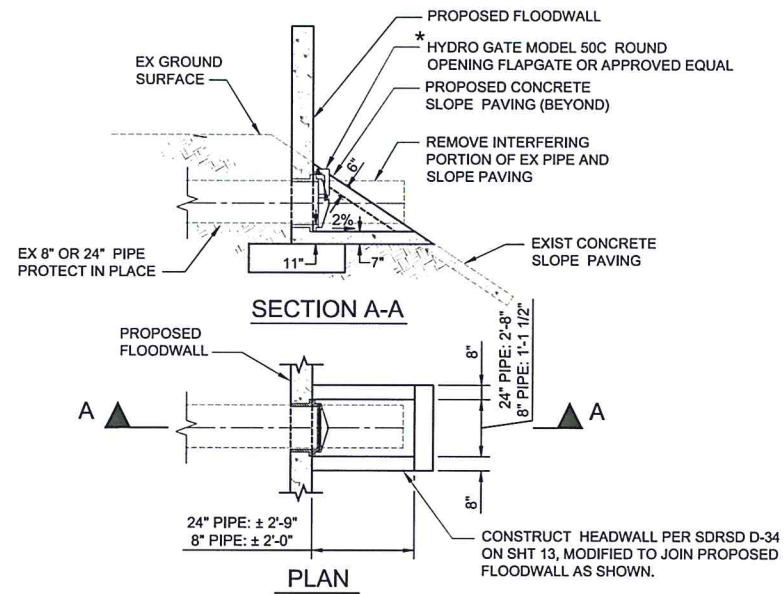
**NOT USED**  
 NOT TO SCALE

PROPERTY LINES ARE APPROXIMATE

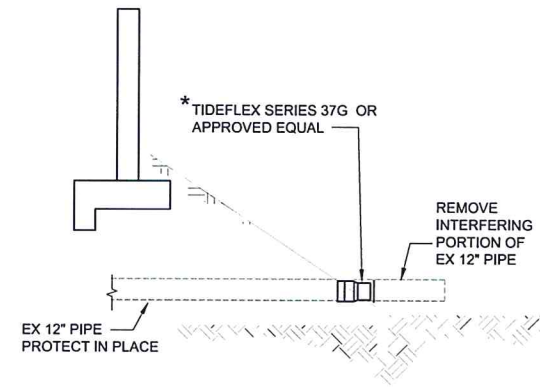


PROJECT ENGINEER DATE 4/10/15

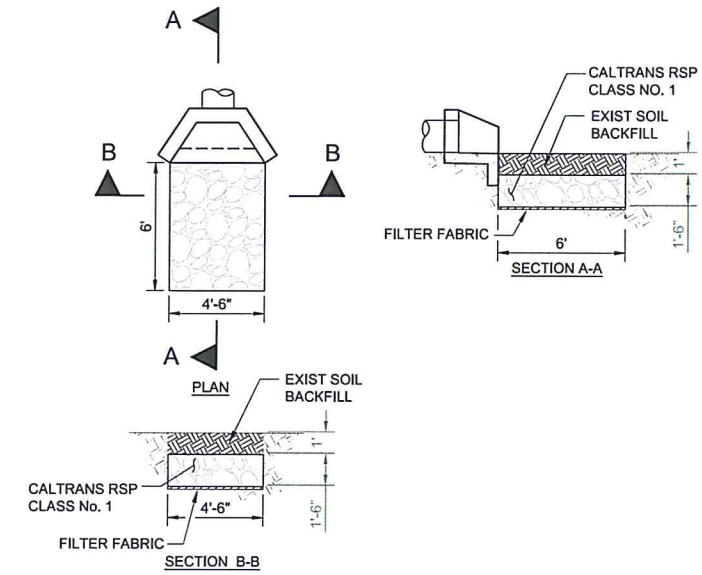




**OUTLET STRUCTURE - TYPE 1** (3)  
WITHIN CONC. SLOPE PAVING NTS

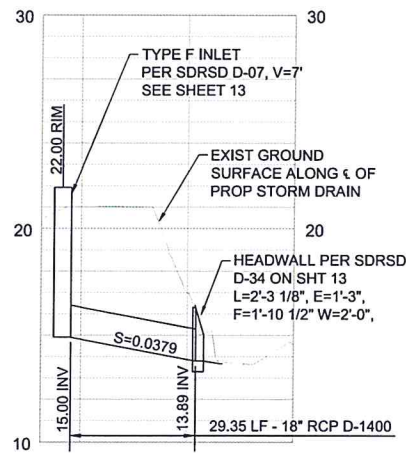


**OUTLET STRUCTURE - TYPE 2** (4)  
WITHIN NATURAL SLOPE NTS



**RIPRAP ENERGY DISSIPATOR DETAIL** (6)  
NTS

\*INSTALLATION OF ALL PARTS SHALL BE DONE BY THE CONTRACTOR ON THE HEADWALLS IN A WORKMANLIKE MANNER AND IN ACCORDANCE WITH THE MANUFACTURE'S INSTRUCTIONS, IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO HANDLE, STORE, AND INSTALL THE GATE IN STRICT ACCORDANCE WITH THE MANUFACTURER'S DRAWINGS & RECOMMENDATIONS.



**LINE A**  
H: 1\"/>



**HDR**  
HDR Engineering, Inc.  
2228 El Camino Real, Suite 200  
Irvine, California 92612

NO.	DATE	APPROVED	DESIGN	RSW	PP	CHECKED	BJD

LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL  
**SAN PEDRO CREEK  
FLOODWALL DETAILS 3 OF 3**

PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE 4/10/15

2014-SC8322  
SHT. DES.  
**FW-012**  
DWG. NO.  
SHT. 12 OF 13

**SECTION A-A**  
SECTION B-B  
PLAN

**NOTES**

- See D-11A & 11B for additional notes and details.
- When V exceeds 4' steps shall be installed. See D-11A for details.
- Exposed edges of concrete shall be rounded with a radius of 1/2".
- Construct openings on both sides unless otherwise shown on plans.
- Maintain 1-1/2" clear spacing between reinforcing and concrete surface.
- Install 1" steel protection bar across opening.
- Diameter "D" shall be 18" max, for larger diameter pipes this drawing must be modified. Pipe diameters to be shown on plans.
- If constructed adjacent to sidewalk, the surface of the top slab of the catch basin shall match the sidewalk slope and finish.

**LEGEND ON PLANS**

**REVISIONS**

Revision	By	Approved	Date
ORIGINAL	Kerechval	12/75	
ADD METRIC	T. Stanton	03/03	
REWORKED	T. Stanton	04/04	
EDITED	T. Stanton	02/09	
EDITED	S.S. I. Riquelme	03/11	

**SAN DIEGO REGIONAL STANDARD DRAWING**  
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  
Chairperson R.C.E. 19246 Date  
DRAWING NUMBER **D-07**

**CATCH BASIN - TYPE F**

**TYPICAL BOX SECTION**  
**STEP DETAIL**

**NOTES**

- Concrete shall be 500-C-3250 unless otherwise noted.
- Reinforcing steel shall comply with this drawing (D-11A and D-11B) unless otherwise specified.
- Reinforcing steel shall be intermediate grade deformed bars conforming to latest ASTM specifications.
- Bends shall be in accordance with latest ACI code.
- Minimum splice length for reinforcing shall be 30 diameters.
- Floor shall have a wood trowel finish and, except where used as junction boxes, shall have a minimum slope of 1:12 toward the outlet.
- Depth V is measured from the top of the structure to the flowline of the box.
- Wall thickness and reinforcing steel required may be decreased in accordance with table on D-11B.
- Wall thickness shall be stepped on the outside of the box.
- When the structure depth V exceeds 4', steps shall be cast into the wall at 15" intervals from 15" above floor to within 12" of top of structure. Where possible place steps in wall without pipe opening, otherwise over opening of smallest diameter.
- Alternate step may be an approved steel reinforced polypropylene step.
- Upon approval of the Agency, the use of precast storm structures is acceptable as an alternate to cast-in-place. Precast units shall conform to ASTM standards and be manufactured in a permanent facility designed for that purpose.

**LEGEND ON PLANS**

**REVISIONS**

Revision	By	Approved	Date
ORIGINAL	Kerechval	12/75	
ADD METRIC	T. Stanton	03/03	
REWORKED	T. Stanton	04/04	
EDITED	T. Stanton	02/09	
EDITED	S.S. I. Riquelme	03/11	

**SAN DIEGO REGIONAL STANDARD DRAWING**  
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  
Chairperson R.C.E. 19246 Date  
DRAWING NUMBER **D-11A**

**INLETS AND CLEANOUTS NOTES AND DETAILS**

**BOX SECTION REINFORCEMENT (HORIZONTAL AND FLOOR)**

MAXIMUM SPAN X or Y	DEPTH V	THICKNESS T	HORIZONTAL AND FLOOR REINFORCEMENT SIZE AND SPACING
3' to 4'			#4 @ 16"
4'-1" to 7'			#4 @ 12"
7'-1" to 8'			#4 @ 8"
3' to 4'			#4 @ 18"
4'-1" to 5'			#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 8'			#4 @ 6"
3' to 4'			#4 @ 10"
4'-1" to 5'			#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 8'			#4 @ 6"
3' to 4'			#4 @ 12"
4'-1" to 5'			#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 7'			#4 @ 6"
7'-1" to 8'			#5 @ 8"
3' to 4'			#4 @ 12"
4'-1" to 5'			#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 7'			#4 @ 6"
7'-1" to 8'			#5 @ 8"
3' to 4'			#4 @ 12"
4'-1" to 5'			#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 7'			#4 @ 6"
7'-1" to 8'			#5 @ 8"
3' to 4'			#4 @ 12"
4'-1" to 5'			#4 @ 12"
5'-1" to 6'			#4 @ 8"
6'-1" to 7'			#4 @ 6"
7'-1" to 8'			#5 @ 8"

**LEGEND ON PLANS**

**REVISIONS**

Revision	By	Approved	Date
ORIGINAL	Kerechval	12/75	
ADD METRIC	T. Stanton	03/03	
REWORKED	T. Stanton	04/04	
EDITED	S.S. I. Riquelme	03/11	

**SAN DIEGO REGIONAL STANDARD DRAWING**  
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  
Chairperson R.C.E. 19246 Date  
DRAWING NUMBER **D-11B**

**INLETS AND CLEANOUTS NOTES AND DETAILS**

**U TYPE**  
**WING TYPE**  
**ELEVATION**

**LEGEND ON PLANS**

**NOTES**

- Concrete shall be 332kg/M<sup>3</sup> - C-22Mpa (500-C-3250)
- Exposed corners to be chamfered 15mm (5/16")
- Multiple pipes to be set at distance of D/2 with a 300mm(12") minimum between outside diameters of pipes.
- Top of headwall shall be placed approximately parallel to profile grade when the grade is 3% or more.
- Skewed pipes: Dimension W to be increased in width or length due to skew or multiple pipes.
- For pipe wall thickness greater than 75mm (3") use alternate Detail C.

**LEGEND ON PLANS**

**REVISIONS**

Revision	By	Approved	Date
ORIGINAL	Kerechval	12/75	
ADD METRIC	T. Stanton	03/03	
REWORKED	T. Stanton	04/04	
EDITED	T. Stanton	02/09	

**SAN DIEGO REGIONAL STANDARD DRAWING**  
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  
Chairperson R.C.E. 19246 Date  
DRAWING NUMBER **D-34**

**WING AND U TYPE HEADWALLS FOR 450mm (18") TO 900mm (36") PIPES**

# Series 37G

- Fits inside pipe I.D.
- Fastened with internal expansion clamp.
- Features all-elastomer, maintenance-free design.
- Is custom built to customer specifications.
- Closes on entrapped solids.

**Materials of Construction**

- Valves are available in pure gum rubber, neoprene, Hypalon®, buna-N, Viton® and EPDM.
- Stainless steel expansion clamps.

The Series 37G In-Line Check Valve was developed specifically for installations where clearance below the invert of a pipe is insufficient to clear the flange of the standard Series 37. The 37G effectively has a zero face-to-face dimension since it can be completely slipped into an existing pipe. Piping modifications are not required to provide space for the valve. The Series 37G design uses the slip-on principle in reverse.

A special clamp that expands outward is provided to secure the valve to the inside of a pipe, enabling the valve to be installed easily on the outlet pipe from a manhole, such as in a CSO system.

The pressure drop of the Series 37G is increased because of the smaller I.D. required to fit the check valve in the line. Tidlex® Technologies recommends the valves be pinned to the pipe. Each clamp has four pre-drilled holes to allow installation of anchorbolts. Contact our engineering staff for additional information.

**Dimensions Series 37G Check Valve**

Nominal Size (Pipe I.D.)	Length L	Height of Bolt H	Max. Backpressure (psf) Standard	Max. Backpressure (psf) With Saddle Support
2	5	1 7/8	150	
3	5 1/2	2 7/8	100	
4	7	3 7/8	75	
6	11	5 7/8	75	
8	12 1/2	7 7/8	60	
10	15 1/2	9 7/8	45	
12	18 1/2	11 7/8	35	
14	22	13 3/4	25	
16	23	15 3/4	20	
18	24	17 3/4	15	
20	32	19 3/4	10	
24	37	23 3/4	10	
30	41	29 3/4	8	
36	47	35 3/4	8	
42	49	41 1/2	5	
48	52	47 1/2	5	
54	57	53 1/2	5	
60	64	59 1/2	5	
72	73	71 1/2	5	

Numbers indicate maximum dimensions in inches. Contact engineering staff to verify overall dimensions. \* Other sizes available. Consult factory. Valves are also made for non-standard pipe I.D.'s.

**TOP OF FRAME & COVER**  
**SECTION THROUGH FRAME & COVER**  
**SECTION THROUGH RIB**  
**BOTTOM OF COVER**

**NOTES**

- Frame and cover shall be cast iron. Cast iron shall conform to ASTM A8, Class 30.
- Frame and cover for use in non-traffic area only.
- Weights: Frame 29 lbs. - 33 lbs. Cover 95 lbs. - 110 lbs.
- Imported frames and covers shall have the country of origin marked in compliance with federal regulations.

**LEGEND ON PLANS**

**REVISIONS**

Revision	By	Approved	Date
ORIGINAL	Kerechval	12/75	
ADD METRIC	T. Stanton	03/03	
REWORKED	T. Stanton	04/04	
EDITED	S. Gerhart	02/02	

**SAN DIEGO REGIONAL STANDARD DRAWING**  
RECOMMENDED BY THE SAN DIEGO REGIONAL STANDARDS COMMITTEE  
Chairperson R.C.E. 19246 Date  
DRAWING NUMBER **M-2**

**24" MANHOLE FRAME AND COVER LIGHT DUTY**

**COUNTY OF SANTA BARBARA CALIFORNIA**  
**HDR**  
HDR Engineering, Inc.  
2320 El Camino Real Suite 200  
Irvine, California 92602

DESIGN RSW  
DRAWN PP  
CHECKED BJD

DATE APPROVED

NO.

**SAN PEDRO CREEK IMPROVEMENT PROJECT FLOODWALL**  
**SAN PEDRO CREEK CAPACITY IMPROVEMENT PROJECT FLOODWALL**  
**STANDARD DETAILS**

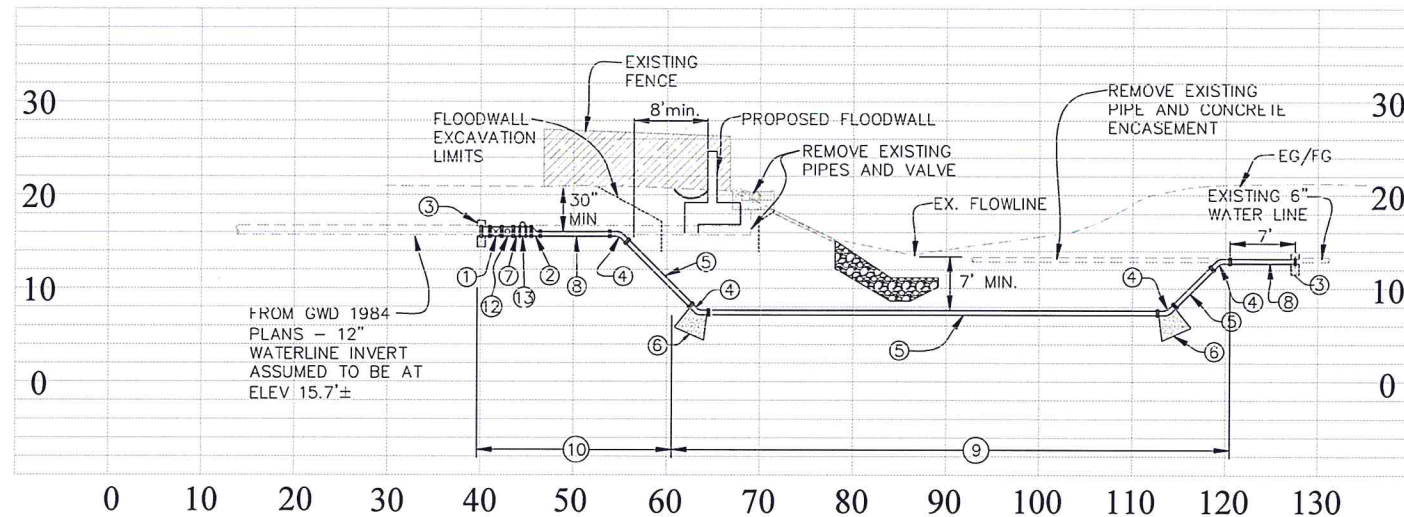
LAS VEGAS & SAN PEDRO CREEKS CAPACITY IMPROVEMENT PROJECT FLOODWALL

2014-SC8322  
PBW NO.  
SHT. DES.  
**FW-013**  
DWG. NO.

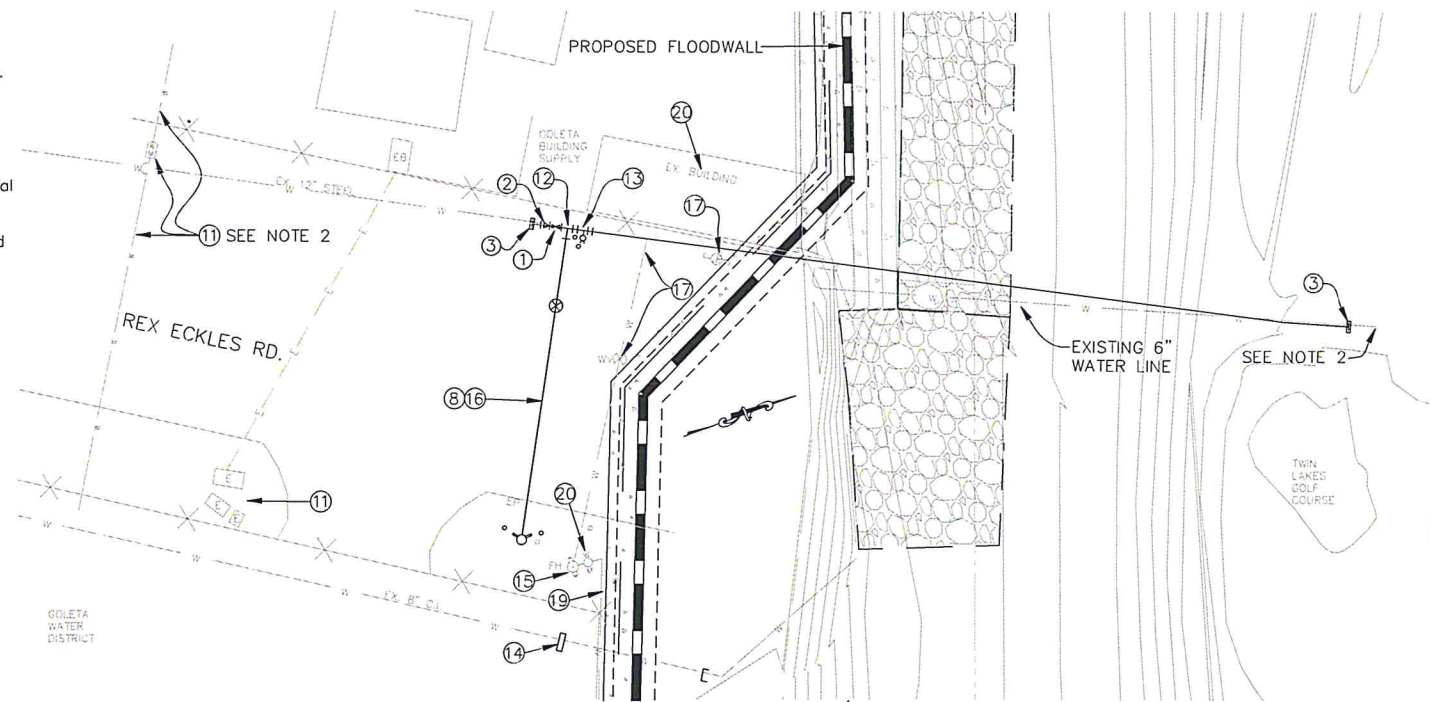
PROJECT ENGINEER DATE

SHT. 13 OF 13

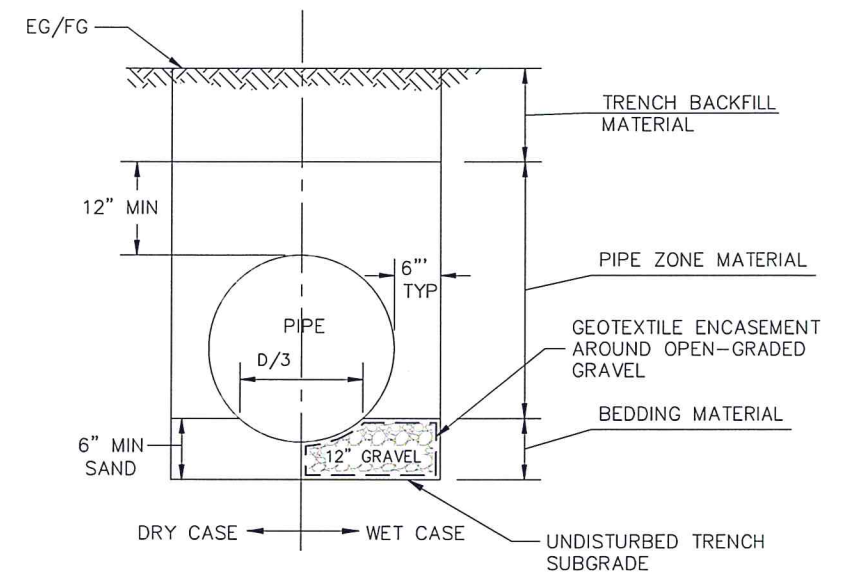
- 1 Install 6" gate valve per City of Santa Barbara Standard Detail W-04.0.
- 2 Install 12" X 6" D.I. reducer.
- 3 MJ & megalug retainer gland with concrete thrust collar per City of Santa Barbara Standard Detail W-10.0.
- 4 45° MJ D.I.P. with megalug retainer gland.
- 5 CL200 6" C900 PVC pipe.
- 6 Thrust block per City of Santa Barbara Standard Detail W-11.0 and table this sheet.
- 7 12" ductile iron pipe, pressure class 350.
- 8 6" ductile iron pipe, pressure class 350.
- 9 Encase pipe in 2-sack slurry cement per pipe trench detail, this sheet.
- 10 Trench bedding & backfill per City of Santa Barbara Standard Detail U-01.0 - U-01.3 in Information Handout.
- 11 Protect in place.
- 12 M.J. D.I. 6" X 6" x 6" tee.
- 13 Install combination air valve and guard posts per City of Santa Barbara Standard Detail W-08.0 & W-03.0.
- 14 Cut, cap and abandon existing 8" C.I. Water main. Remove and dispose interfering portions. Install blind flange and end cap thrust block per City of Santa Barbara Standard Detail W-11.0 and table this sheet.
- 15 Remove and salvage 6" fire hydrant per special provisions.
- 16 Install fire hydrant assembly, gate valve and guard posts per City of Santa Barbara Standard Details W-01.0 - W01.1 and W-03.0 in Information Handout.
- 17 Remove interfering portions existing fire hydrant lateral.
- 18 Remove existing power pole. Prior to removal, contact Southern California Edison and verify that wiring is no longer live.
- 19 Remove interfering portions of 2" irrigation feed.
- 20 To be removed by others prior to start of construction.



**SECTION**  
SCALE: 1" = 10'  
VERTICAL & HORIZONTAL



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



**PIPE TRENCH DETAIL**  
NOT TO SCALE

**PIPE TRENCH DETAIL NOTES**

1. Pipe zone material shall be 2-sack slurry cement backfill.
2. Where wet or yielding soil conditions are encountered at the bottom of the trench excavation, the subgrade shall be stabilized prior to placing bedding according to the recommendations of the Special Provisions.
3. Trench backfill with native streambed material per project specifications. Compact to 95% relative compaction.

D= Pipe diameter

**NOTES**

1. Contractor shall find connection points at each end of water main lowering. Reconnection under inspection of Santa Barbara City utility department.
2. Goleta Building Supply and Goleta Water District water services must be high-lined by the Contractor for a maximum outage of 24 hours during gate valve installation. Temporary service is available from nearby buildings, and must be coordinated with the Airport Maintenance Supervisor (805-967-7111 between 8AM and 5 PM). Contractor is required to provide a minimum 3" continual temporary water service which must be high-lined to Twin Lakes Golf Course for the duration of the water main lowering work.

**THRUST BLOCK SIZES**

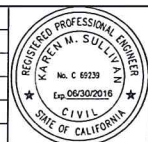
LOCATION	L x H or CY
12"x12"x6" TEE	2.5'x2.5'
8" END CAP	3' x 3'
6" - 45' VERTICAL BENDS	2.3 CY

UNAUTHORIZED CHANGES OR USES:  
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL PROPOSED CHANGES TO THE PLANS MUST BE PRESENTED IN WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION OF ANY SUCH CHANGE OR USE.

ALL UNDERGROUND UTILITIES SHOWN ARE PLOTTED BASED ON INFORMATION PROVIDED BY OTHERS, AND ARE APPROXIMATE. OVERHEAD UTILITIES ARE NOT SHOWN.

THE SANTA BARBARA COUNTY FLOOD CONTROL DISTRICT IS NOT RESPONSIBLE FOR THE ACCURACY OF THIS INFORMATION. CONTRACTOR SHALL NOTIFY UNDERGROUND SERVICE ALERT A MINIMUM OF TWO WORKING DAYS PRIOR TO COMMENCEMENT OF ANY EXCAVATION @ 1-800-422-4123.

REVISIONS			
NO.	DESCRIPTION	DATE	APR



DESIGNED BY: *Km Sullivan*  
FLOOD CONTROL DESIGN ENGINEER  
DATE: 03/31/2015

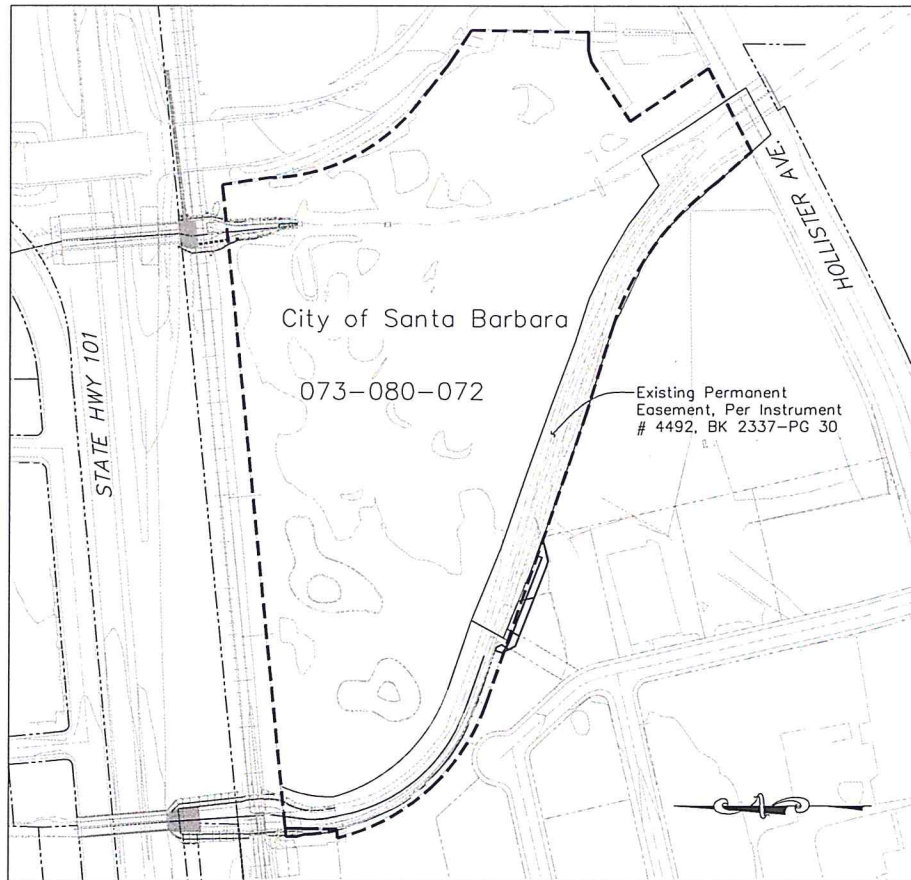
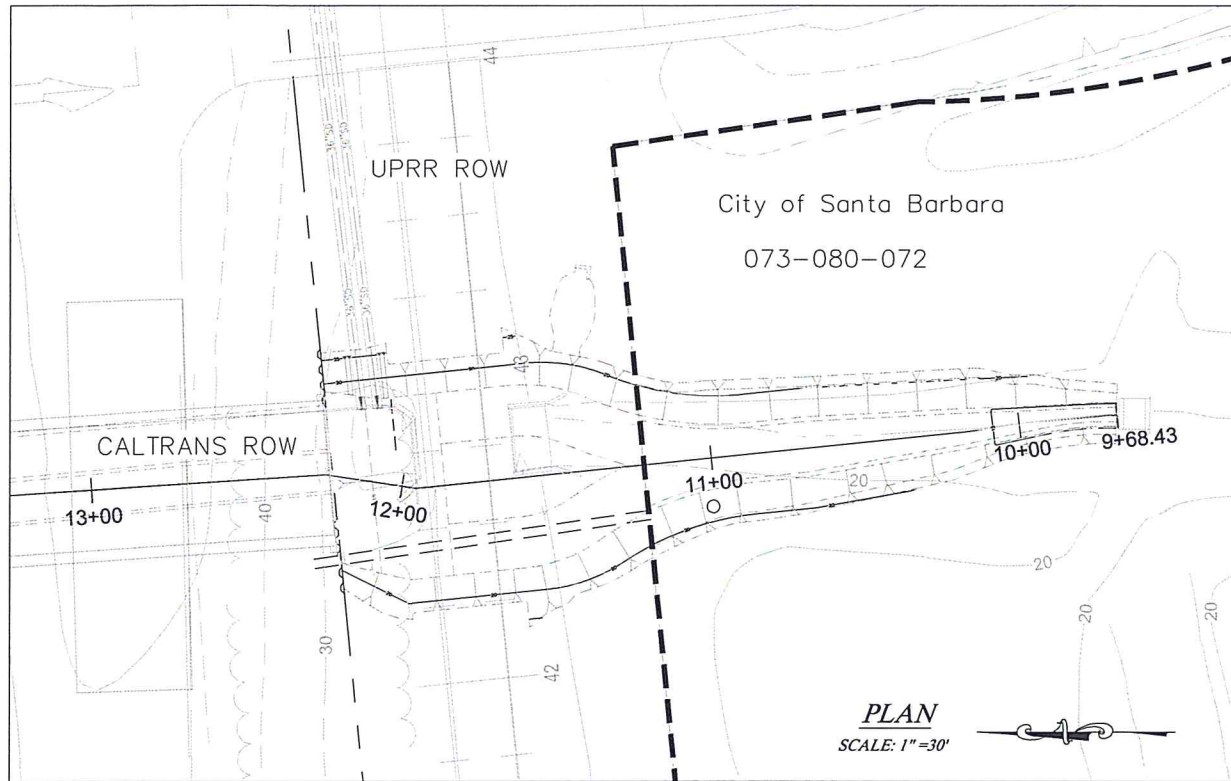
SANTA BARBARA COUNTY  
FLOOD CONTROL AND  
WATER CONSERVATION DISTRICT  
130 E. VICTORIA STREET  
SANTA BARBARA, CA 93101  
(805) 568-3440







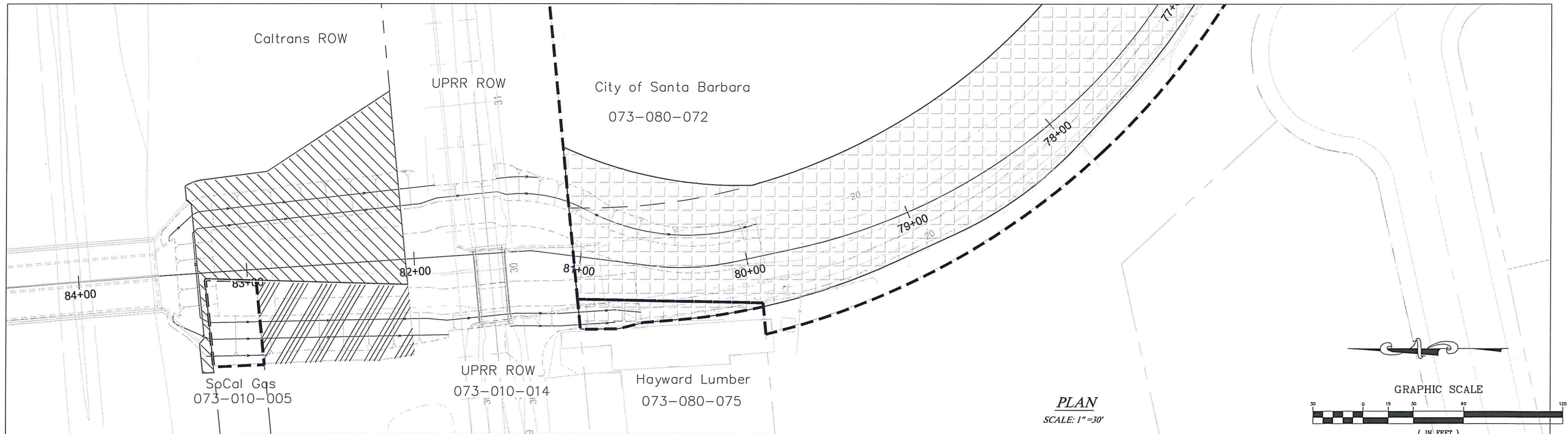
LAS VEGAS SAN PEDRO CREEKS  
CAPACITY IMPROVEMENT PROJECT  
FLOODWALL  
AREA OF GOLETA  
SANTA BARBARA COUNTY, CALIFORNIA

**WATER MAIN  
RELOCATION**

DESIGNED BY:	KS	WM-1
DRAWN BY:	JT	
CHECKED BY:	KS	SHEET 1 OF 1
Filename: SP Floodwall waterline reloc.dwg		



- LEGEND:**
-  TEMPORARY RIGHT OF ENTRY TO BE SECURED BY CONTRACTOR
  -  CALTRANS ENCROACHMENT PERMIT
  -  TEMPORARY RIGHT OF ENTRY PERMIT
  -  PROPOSED PERMANENT EASEMENT



REVISIONS			
NO.	DESCRIPTION	DATE	APR



DESIGNED BY: *KMSullivan* 3/31/2015  
 FLOOD CONTROL DESIGN ENGINEER

SANTA BARBARA COUNTY  
 FLOOD CONTROL AND  
 WATER CONSERVATION DISTRICT  
 130 E. VICTORIA STREET  
 SANTA BARBARA, CA 93101  
 (805) 568-3440



LAS VEGAS & SAN PEDRO CREEKS  
 CAPACITY IMPROVEMENT  
 CONFORM GRADING PROJECT  
 AREA OF GOLETA  
 SANTA BARBARA COUNTY, CALIFORNIA

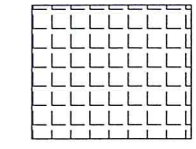
**EASEMENTS**

DESIGNED BY:  
KS  
 DRAWN BY:  
OR  
 CHECKED BY:  
KS

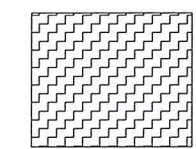
**EAS-1**  
 SHEET 1 OF 2  
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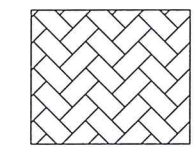
**LEGEND:**



PROPOSED PERMANENT EASEMENT



TEMPORARY CONSTRUCTION EASEMENT



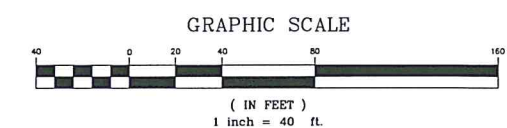
EXISTING FC EASEMENT

**LINE TABLE**

LINE	POINTS	LENGTH	DIRECTION	RADIUS
L1	a-b	16'	S18°35'20.92"W	-
L2	b-c	31.31'	S26°24'39.08"E	-
L3	c-d	194.85'	S69°2'5.09"E	-
L4	d-e	50.43'	N76°17'55.03"E	-
L5	e-f	38.48'	N70°47'33.97"W	-
L6	f-g	7.88'	N70°47'33.97"W	-
L7	g-h	182.78'	N68°0'19.97"W	-
L8	h-i	78.45'	N28°49'24.03"E	-
L9	i-j	157.08'	N71°08'5.97"W	-
L10	j-k	349.25'		361.39'
L11	k-l	116.20'		253.52'
L12	l-m	109.15'	S84°11'52.75"W	-



**PLAN**  
SCALE: 1"=40'



UNAUTHORIZED CHANGES OR USES  
THE SANTA BARBARA COUNTY FLOOD CONTROL & WATER CONSERVATION DISTRICT AND ITS  
EMPLOYEES WILL NOT BE RESPONSIBLE FOR, OR LIABLE FOR, UNAUTHORIZED CHANGES TO OR  
USES OF THESE PLANS. ALL PROPOSED CHANGES TO THESE PLANS MUST BE PRESENTED IN  
WRITING TO THE DISTRICT AND APPROVED IN WRITING BY THE DISTRICT PRIOR TO IMPLEMENTATION  
OF ANY SUCH CHANGE OR USE.

REVISIONS			
NO.	DESCRIPTION	DATE	APR



DESIGNED BY: *K. Sullivan* 3/31/2015  
FLOOD CONTROL DESIGN ENGINEER DATE

SANTA BARBARA COUNTY  
FLOOD CONTROL AND  
WATER CONSERVATION DISTRICT  
130 E. VICTORIA STREET  
SANTA BARBARA, CA 93101  
(805) 568-3440



LAS VEGAS & SAN PEDRO CREEKS  
CAPACITY IMPROVEMENT FLOODWALL  
PROJECT  
AREA OF GOLETA  
SANTA BARBARA COUNTY, CALIFORNIA

**EASEMENTS**

DESIGNED BY: KS  
DRAWN BY: OR  
CHECKED BY: KS

**EAS-2**

SHEET 2 OF 2

Filename: 182788-Proposed\_Grading (ACAD)\_FC-ICE-area\_2-25-15