

# MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)

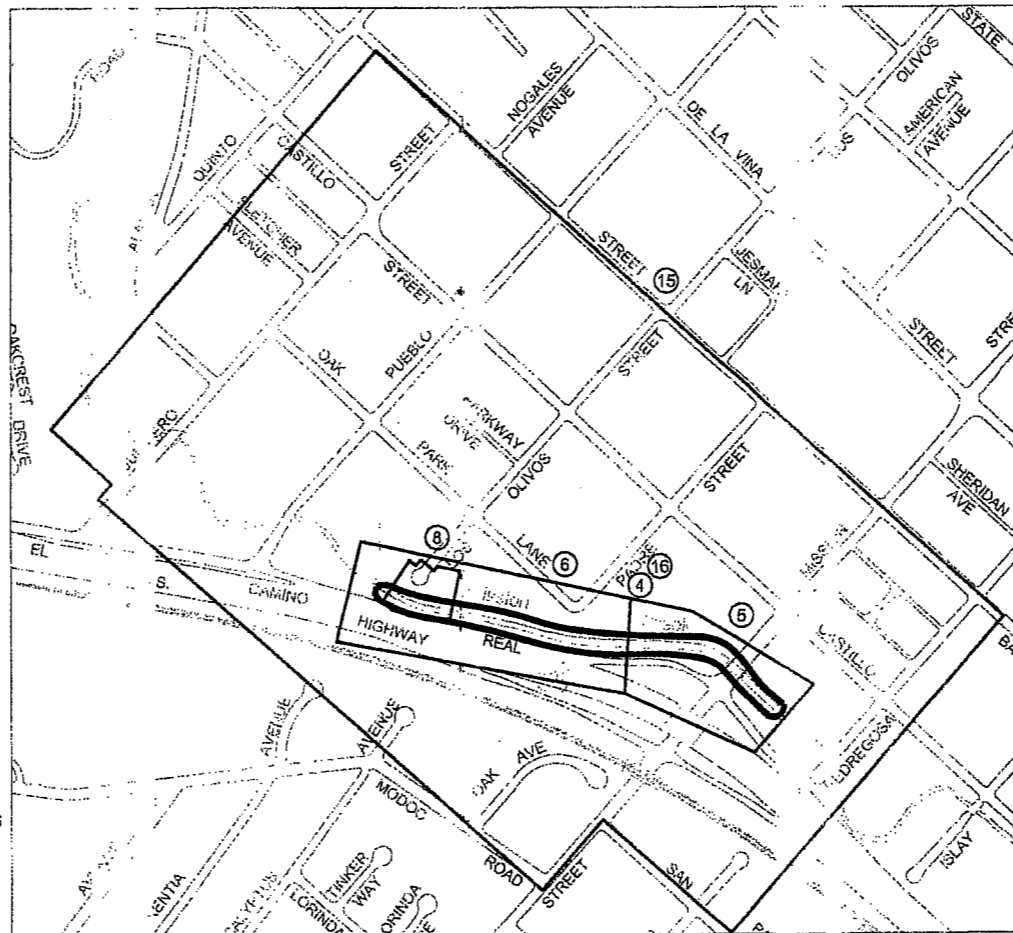
PROJECT NO. 9024 BID NO. 3619



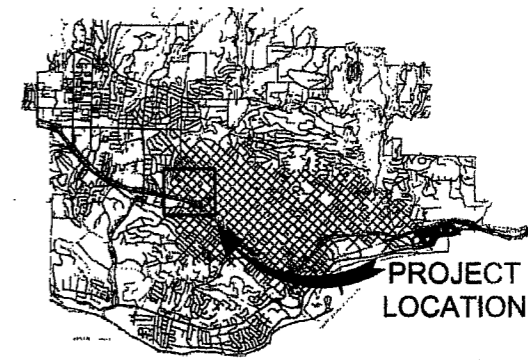
**PROJECT LOCATION  
STATE MAP  
(N.T.S.)**

**SHEET INDEX**

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2	GENERAL INFORMATION, LEGEND AND ABBREVIATIONS
3	SURVEY CONTROL & CONSTRUCTION NOTES
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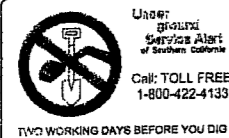
**CONSTRUCTION LOCATIONS  
VICINITY MAP  
(N.T.S.)**



**CITY OF SANTA BARBARA  
SITE MAP  
(N.T.S.)**

**SHEET INDEX**

SHEET NO.	TITLE
15	TRAFFIC CONTROL PLAN
16	STAGING AREA PLAN



APPROVED:  
*[Signature]*  
CHECKS DIVISION MANAGER  
ORIGINAL SIGNED DATE **May 3, 2011**

APPROVED:  
*[Signature]*  
DEPUTY DIRECTOR  
ORIGINAL SIGNED DATE **April 27, 2011**



PROJECT ENGINEER  
*[Signature]* DATE **4/27/11**



HDR  
HDR Engineering, Inc.  
2500 El Comodoro Blvd, Suite 200  
Folsom, CA 95630

APPROVED:  
*[Signature]*  
CITY ENGINEER  
ORIGINAL SIGNED DATE

DESIGN - BUS  
DRAWN - JLR  
CHECKED - WFL  
FINAL PLANS

NO.	DATE	APPROVED	REVISIONS

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**TITLE SHEET & VICINITY MAP  
SITE MAP & STATE MAP**

2011-000217  
PB# NO.  
3619  
BID NO. SHT. DES.  
C-1-4639  
DWS. NO.  
SHT. 1 of 16

**SYMBOL LEGEND**

Control Point		Existing Storm Drain Manhole	
Existing Cable TV Box		Existing Structure Bench	
Existing Cable TV Vault		Existing Structure Bollard/Post	
Existing Catch Basin		Existing Telephone Box	
Existing Electric Box		Existing Telephone Manhole	
Existing Electric Guy Wire		Existing Telephone Pole	
Existing Electric Manhole		Existing Telephone Vault	
Existing Electric Meter		Existing Vegetation Bush/Hedge	
Existing Electroliner		Existing Vegetation Cactus	
Existing Fire Hydrant		Existing Vegetation Shrub	
Existing Gas Meter		Existing Vegetation Tree	
Existing Gas Valve		Existing Vegetation Tree Eucalyptus	
Existing Irrigation Sprinkler		Existing Vegetation Tree Lemon	
Existing Luminary		Existing Vegetation Tree Palm	
Existing Mailbox		Existing Vegetation Tree Pine	
Existing Monument		Existing Vegetation Tree Stump	
Existing Power & Telephone Pole		Existing Vegetation Tree Sycamore	
Existing Rock		Existing Vegetation Tree Willow	
Existing Sewer Cleanout		Existing Vegetation Tree Yucca	
Existing Sewer Manhole		Existing Water Meter	
Existing Signage		Existing Water Spigot	
Existing Storm Drain Grate		Existing Water Valve	
		Existing Water Well	

**LINETYPE LEGEND**

Boundary Easement Line		E/L
Boundary Right of Way Line		
Boundary Property Line		
Centerline		
Contourline-Major		
Contourline-Minor		
Existing AC Edge of Pavement		
Existing Flowline		
Existing Building		
Existing Drainage		
Existing Facilities		
Existing Fence (chainlink)		
Existing Guardrail		
Existing Structure Wall		
Existing Utility Cable TV		CTV
Existing Utility Gas		G
Existing Utility Sewer		S
Existing Utility Telephone		T
Existing Utility Water		W
Existing Sidewalk		
Existing Storm Drain		SD
Existing Wood Rail Fence		
Existing Vegetation Brush		
Existing Structure Concrete		
Proposed Facilities		
Proposed Storm Drain		
Retaining Wall Gutter		
Temporary Construction Fence or Existing Barbed Wire Fence		X

**ABBREVIATIONS**

AB	Aggregate base	IN	Inch
ACP	Asbestos cement pipe	N	North or northing
APN	Assessors parcel number	LF	Linear Feet
APPROX	Approximate	NTS	Not to scale
APWA	American Public Works Assoc.	OC	On center
BC	Beginning of Curve	OD	Outside diameter
BLDG	Building	PCC	Point of Compound Curve, Portland cement concrete
BOT	Bottom	PL	Plate
CALTRANS	State of California Department of Transportation	PRC	Point of Reverse Curve
CASQA	California Stormwater Quality Association	R1	Record per book no. page nn of maps
CFS	Cubic feet per second	RSP	Rock Slope Protection
CITY	City of Santa Barbara	S	Sewer or slope or south
CJP	Complete Joint Penetration	SD	Storm Drain
CL or CL	Center Line	SDMH	Storm drain manhole
CMP	Corrugated metal pipe	SPPWC	Standard Plans for Public Works Construction
CONC	Concrete	SS	Stainless Steel
CONST	Construct	STA	Station
CONSTR	Construction	S/W	Sidewalk
COUNTY	County of Santa Barbara	SWR	Sewer
DIA	Diameter	TCE	Temporary construction easement
E	East or Easting	TBM	Temporary bench mark
EA	Each	TOF	Top of Footing
EC	End of Curve	TOW	Top of wall
EG	Existing ground	TRANS	Transition
EL	Elevation	TP	Top of pavement
ELEC	Electric	TS	Tubular Steel
EX	Existing	TYP	Typical
FL	Flow Line	W	West or Water Line
FOC	Fiber Optic Cable	WL	Water line
FT	Feet	WF	Wall face
FP	Fish Passage	WS	Water Service Line
FS	Finished Surface		
Galv	Galvanized		
GAS	Gas line		
GB	Grade break		
HDPE	High density polyethylene		

**STANDARD DETAILS AND PLANS LIST**

**STATE DEPARTMENT OF TRANSPORTATION**

The Standard Plan sheets applicable to this contract include, but are not limited to those indicated below. The Revised Standard Plans (RSP) and New Standard Plans (NSP) which apply to this contract are included as individual sheets and attached hereto.

Standard No.	Description
A10A	Abbreviations
A10B	Symbols

**STANDARD PLANS FOR PUBLIC WORKS CONSTRUCTION**

814-2 Reinforced Concrete Retaining Wall Type 5

**CALIFORNIA STORMWATER QUALITY ASSOCIATION (CASQA)**

STORMWATER BEST MANAGEMENT PRACTICES (BMP) HANDBOOK



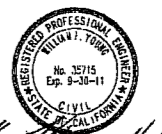
**HR**

HR Engineering, Inc.  
2250 El Camino Real Suite 230  
Santa Barbara, CA 93103

PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION  
APPROVED: *[Signature]* DATE: *[Date]*  
CITY ENGINEER ORIGINAL SIGNED DATE

NO.	DATE	APPROVED	DESIGN	BUS	JLR	CHECKED	DATE
			DRAWN			WFT	

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**GENERAL INFORMATION**  
**LEGEND & ABBREVIATIONS**



PROJECT ENGINEER *[Signature]* DATE *[Date]*

2011-000217	
PBW. NO.	3619
BID NO.	C-1-4639
SHT. DES.	DWG. NO.
SHT. 2	OF 16

**SURVEY CONTROL**

**1. MAPPING**

TOPOGRAPHIC MAPPING WAS COMPILED BY PENFIELD AND SMITH AT A SCALE OF 1"=20', WITH A ONE FOOT CONTOUR INTERVAL, USING DATA COLLECTED IN A FIELD SURVEY USING CONVENTIONAL METHODS AND PROCEDURES IN OCTOBER AND NOVEMBER OF 2009, AT THE REQUEST OF THE CITY OF SANTA BARBARA.

**2. HORIZONTAL DATUM**

THE COORDINATE BASIS FOR THIS MAP IS THE CALIFORNIA COORDINATE SYSTEM, NAD 83, ZONE 5 GRID (EPOCH 1989.35), AND IS DERIVED FROM GPS AND CONVENTIONAL TIES TO THE SANTA BARBARA CONTROL NETWORK, SHOWN ON THE RECORD OF SURVEY FILED IN THE OFFICE OF THE SANTA BARBARA COUNTY RECORDER IN BOOK 147, PAGES 70 THROUGH 74, INCLUSIVE, OF RECORD OF SURVEYS.

THE SITE COMBINATION FACTOR IS 0.99994081 AND THE SITE MAPPING ANGLE IS -0°58'37.09", BOTH CALCULATED AT CONTROL POINT 2, SHOWN HEREON.

SEE CONTROL POINT LISTING

**3. ELEVATIONS**

ELEVATIONS SHOWN HEREON ARE EXPRESSED IN U.S. SURVEY FEET AND ARE REFERENCED TO THE NORTH AMERICAN VERTICAL DATUM OF 1988 (NAVD88), UTILIZING SBON STATION 0012 AS THE PROJECT BENCHMARK. ELEVATION = 167.26 U.S. SURVEY FEET

SEE CONTROL POINT LISTING

**4. UTILITIES**

SURFACE UTILITY FEATURES SHOWN HEREON HAVE BEEN LOCATED IN A FIELD SURVEY PERFORMED BY PENFIELD AND SMITH BASED ON VISIBILITY ON THE DATE OF SURVEY. ADDITIONALLY, WATER LINES, STORM DRAINS, SEWER LINES AND ASSOCIATED FEATURES HAVE BEEN COMPILED FROM SANTA BARBARA CITY ATLAS, AND ASSEMBLED IN ANOTHER DRAWING TO ACCOMPANY THIS BASEMAP. MISCELLANEOUS OTHER UTILITIES HAVE ADDED TO SAID DRAWING, BASED UPON INFORMATION RECEIVED FROM PRIVATE UTILITY COMPANIES.

THE EXISTING UTILITIES SHOWN HEREON HAVE BEEN COMPILED FROM ATLAS MAPS OBTAINED FROM THE FOLLOWING PUBLIC AND PRIVATE ENTITIES:

- ELECTRIC - SOUTHERN CALIFORNIA EDISON COMPANY
- GAS - SOUTHERN CALIFORNIA GAS COMPANY - COMPILED FROM SO CAL GAS, PANELS SBA 1505-1, 1505-3, 1505-4, 1508-3, 1608-1, 1608-2 AND 1608-4
- CATV - COX COMMUNICATIONS - NO FACILITIES
- TELEPHONE COMMUNICATIONS - VERIZON
- FIBER OPTIC CABLE - AT&T - COMPILED FROM AT&T DRAWING WR 34287-301
- FIBER OPTIC CABLE - U.S. SPRINT - WITHIN UNION PACIFIC R.O.W.
- FIBER OPTIC CABLE - MCI NETWORK SERVICES INC.
- WATER - CITY OF SANTA BARBARA - COMPILED FROM CITY ATLAS
- SEWER - CITY OF SANTA BARBARA - COMPILED FROM CITY ATLAS
- STORM DRAIN - CITY OF SANTA BARBARA - COMPILED FROM CITY ATLAS

WATER, SEWER AND STORM DRAIN OBTAIN FROM CITY OF SANTA BARBARA ATLAS. HORIZONTAL DATUM: CCS ZONE V, NAD 1983, VERTICAL DATUM: NAVD 1988

COMPILED UTILITIES HAVE BEEN GEOREFERENCED TO VISIBLE SURFACE UTILITIES SHOWN ON THE AERIAL TOPO MAP RECEIVED ON SEPTEMBER 19, 2003 FROM STEWART TECHNOLOGIES.

PENFIELD AND SMITH DOES NOT ACCEPT ANY RESPONSIBILITY FOR INDICATED SIZES, LOCATIONS, ACCURACY OR COMPLETENESS OF INFORMATION OBTAINED FROM SAID ATLAS MAPS.

**5. ADDITIONAL SURVEY**

ADDITIONAL SURVEY OF MISSION CREEK WAS PERFORMED BY CITY OF SANTA BARBARA FOR THIS PROJECT. THIS SURVEY INCLUDES THE UNLINED SECTIONS OF THE CREEK LOCATED BETWEEN PHASE 1 AND PHASE 2 OF THIS PROJECT. THIS SURVEY WAS USED AS A BASIS FOR ANY PROPOSED GRADING SHOWN OUTSIDE THE TOPOGRAPHY DEVELOPED BY PENFIELD AND SMITH WHICH WAS INCLUDED IN THESE PLANS. THE FOLLOWING IS BASIS OF THAT ADDITIONAL SURVEY:

BENCHMARK:  
CITY BLOCK MONUMENT IN THE NORTHWEST CORNER SIDEWALK OF CASTILLO STREET AND VALERIO STREET

LEAD AND TAG, CITY ENGR  
ELEVATION: 100.53' NAVD 88  
BASIS OF BEARINGS: R/S BOOK 147, PAGES 70 - 74

**CONTROL POINT LISTING**

POINT	NORTHING	EASTING	ELEVATION	DESCRIPTION
1	1980488.2490	6044708.9770	74.37	60d NAIL
2	1980114.2360	6044807.5880	70.22	MAG NAIL/FEATHER
3	1980666.8420	6044431.2870	78.71	1/2IN IP
4	1979655.0830	6045303.5400	62.23	MAG NAIL/FEATHER
5	1979186.7250	6045829.8950	62.74	MAG NAIL/FEATHER
6	1978984.3630	6045939.1690	49.82	60d NAIL
7	1978929.7950	6046115.9950	47.23	60d NAIL
8	1978880.9250	6046503.8230	41.18	60d NAIL
9	1978467.4550	6046846.4940	35.66	60d NAIL
10	1978287.8340	6047066.7380	31.85	60d NAIL
11	1978250.8050	6047339.0060	29.30	60d NAIL
12	1978193.9580	6047713.8890	40.29	60d NAIL
13	1978298.1720	6047653.8910	35.19	PK&TIN
14	1978155.8330	6047615.1770	26.50	60d NAIL
17	1979191.3900	6045873.1490	62.13	
18	1979541.4890	6046492.0150	70.44	
19	1982088.5910	6041896.2870	114.65	MAG NAIL/FEATHER
20	1982017.7680	6042141.5480	111.41	
21	1981944.5610	6042571.2040	105.97	MAG NAIL
22	1880008.6860	6044637.4250	114.58	SCRIBED +
23	1880222.1800	6045097.0300	95.57	1/2IN IP
24	1882208.7800	6041875.3740	125.33	PK&TIN
25	1982318.9350	6041742.3630	126.4670	PK&TIN
26	1978239.2390	6047378.8780	46.22	
27	1981895.6231	6043028.4871	100.31	HUB/TACK
28	1981725.6408	6043195.2557	97.04	C-NAIL
29	1978234.2860	6047408.2040	47.87	

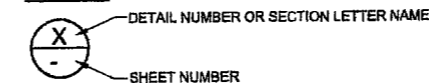
**CONSTRUCTION NOTES**

1. CONST. OUTLET TRANSITION STRUCTURE PER DETAIL 1 ON SHEET 11
2. CONST. 4' WIDE RECTANGULAR FISH PASSAGE CHANNEL PER DETAIL 2 ON SHEET 11 AND STRUCTURAL SECTION A ON SHEET 12
3. CONST. 10' LONG FISH POCKETS 40' APART (TYPICAL) PER DETAIL 2 ON SHEET 11 AND STRUCTURAL SECTION C ON SHEET 12
4. CONST. SILL STRUCTURES 40' APART (TYPICAL) PER DETAIL 2 ON SHEET 11 AND STRUCTURAL DETAIL 1 ON SHEET 12
5. CONST. INLET TRANSITION STRUCTURE PER DETAIL 1 ON SHEET 9
6. CONST. ACCESS RAMP WITH 4" THICK 1-1/2" CRUSHED GRAVEL PER DETAILS F AND G ON SHEET 13
7. REPLACE 8" PCC CHANNEL PAVEMENT PER DETAIL A AND B ON SHEET 13
8. CONST. REINFORCED CONCRETE RETAINING WALL TYPE 5 PER SPPWC STD. 614-2 AND DETAILS ON SHEET 13 (HEIGHT PER PROFILE)
9. CONST. CUT-OFF PER DETAIL C ON SHEET 13
10. INSTALL 30" OF RIP RAP STONE PER TABLE ON SHEET 3
11. INSTALL 8" PCC CHANNEL LINING PER DETAILS D AND E ON SHEET 13
12. GRADE SLOPES AT 1.5:1 H:V
13. GRADE SLOPES AT 4:1 H:V
14. INSTALL 16" WIDE PIPE SWING GATE PER DETAIL 3 ON SHEET 7
15. CONSTRUCT ROCK RIFFLE PER STRUCTURAL DETAILS ON SHEET 10 AND PER TABLE ON SHEET 3
16. INSTALL 36" OF 1/4 TON CLASS COBBLESTONE PER TABLE ON SHEET 3

**DEMOLITION NOTES**

1. REMOVE EXISTING CONCRETE CHANNEL LINING
2. REMOVE EXISTING CONCRETE LINING TO NEXT JOINT

**DETAILS**



**GRADATION TABLES**

RIP RAP STONE	
ROCK SIZE	% LARGER THAN
700 LB	
500 LB	0-5
200 LB	50-100
75 LB	90-100
25 LB	95-100
5 LB	
1 LB	
83 CY	

RIFFLE STREAMBED SEDIMENT	
SIEVE SIZE	% PASSING
3"	100
#4	35-70
#50	15-35
#200	15
31 CY	

RIFFLE 1/4 TON CLASS COBBLESTONE	
STONE SIZE	% LARGER THAN
2000 LB	0-5
1000 LB	10-50
700 LB	
500 LB	85-100
200 LB	
75 LB	90-100
25 LB	
2.2 LB	
63 CY	

STREAMBED COBBLESTONE	
STONE SIZE	% PASSING
18	100
8	84
3	50
1	16
NO. 10 SIEVE	10
103 CY	

GRAVEL BLANKET	
SIEVE SIZE	% PASSING
2"	100
#4	35-70
#50	5-20
#200	0-10
50 CY	

CRUSHED ROCK	
SIEVE SIZE	% PASSING SIEVE
2 IN	100
1-1/2 IN	85-100
3/4 IN	50-85
3/8 IN	
NO. 4	25-45
NO. 300	10-25
NO. 200	2-9
11 CY	



**HDR**  
HDR Engineering, Inc.  
2200 El Camino Real Suite 200  
Palo Alto, California 94303

PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION

APPROVER: *[Signature]* DATE: 4/11/11  
CITY ENGINEER ORIGINAL SIGNED DATE

NO.	DATE	APPROVED	DESIGN	BAS	DESIGN	DESIGN	DESIGN

FINAL PLANS

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**SURVEY CONTROL & CONSTRUCTION NOTES**

2011-000217  
PBR NO.  
3819 -  
BID NO. SHT. DES.  
C-1-4639  
DWS. NO.  
SHT. 3 OF 16

REGISTERED PROFESSIONAL ENGINEER  
No. 35715  
Exp. 9-30-11  
STATE OF CALIFORNIA  
CIVIL  
*[Signature]*  
PROJECT ENGINEER DATE: 4/11/11

PROPERTY LINES ARE APPROXIMATE



HDR

HDR Engineering, Inc.  
2700 G Street, Suite 200  
Folsom, California 95630

PUBLIC WORKS  
DEPARTMENT  
ENGINEERING DIVISION

APPROVED: *[Signature]* DATE: 4/27/11  
CITY ENGINEER ORIGINAL SIGNED DATE

DESIGN: JLR  
DRAWN: JLR  
CHECKED: WEY  
FINAL PLANS

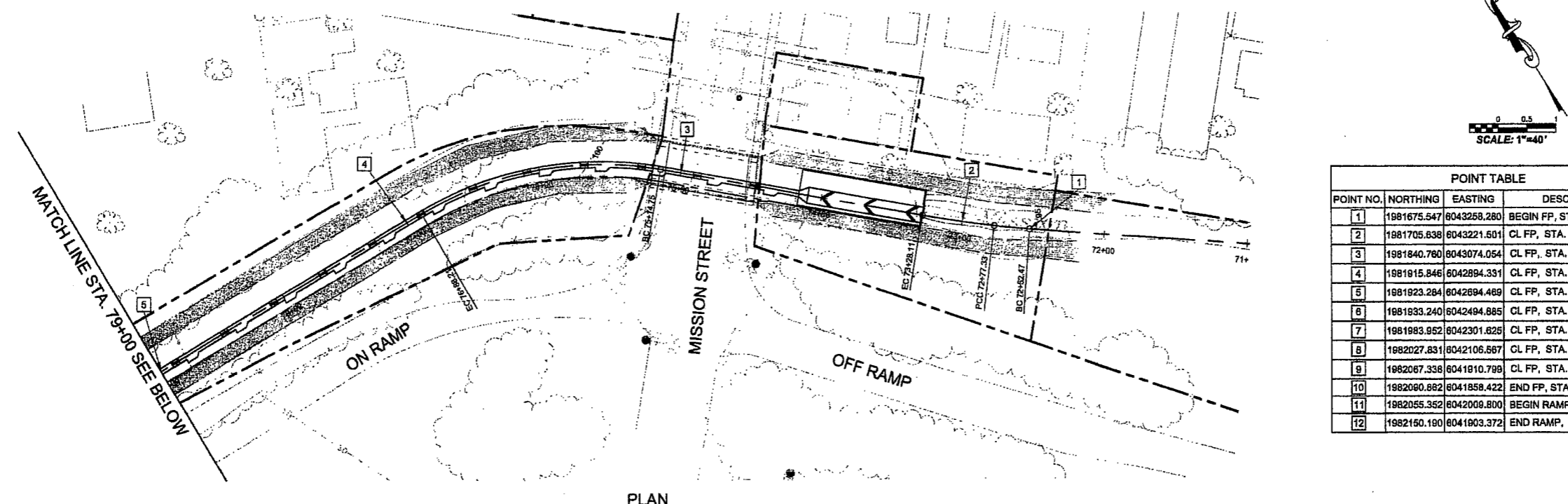
NO.	DATE	APPROVED	BUS.	DESIGN	REVISIONS

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**HORIZONTAL CONTROL**  
STA. 72+52.47 TO 87+57.46

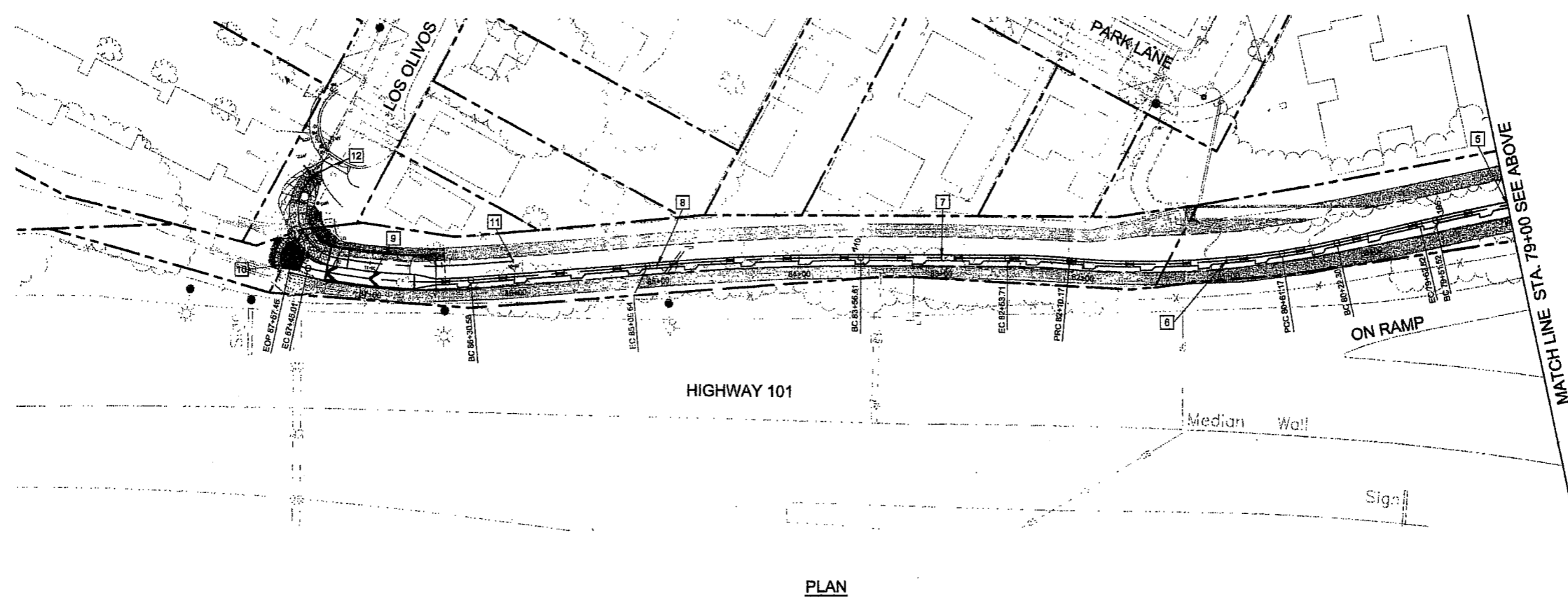
2011-000217

PERM. NO. 3619  
SHT. DES. C-1-4639  
DWC. NO.

SHT. 4 OF 16



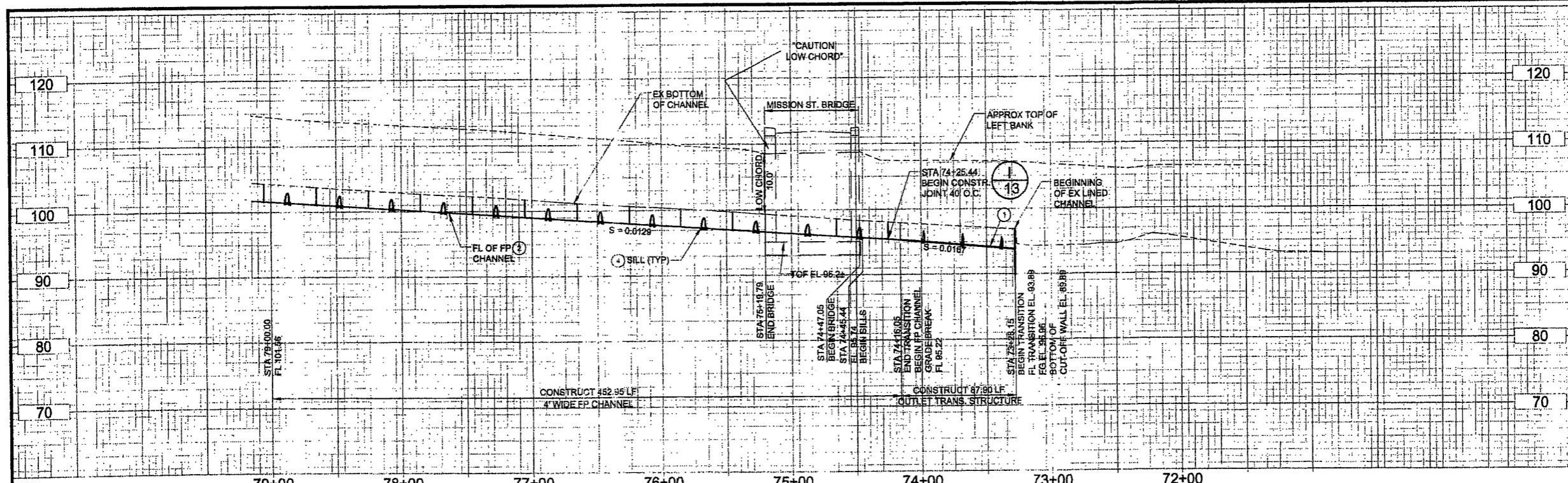
POINT NO.	NORTHING	EASTING	DESCRIPTION
1	1981675.547	6043258.280	BEGIN FP, STA. 72+52.47
2	1981705.638	6043221.501	CL FP, STA. 73+00.00
3	1981840.780	6043074.054	CL FP, STA. 75+00.00
4	1981815.846	6042894.331	CL FP, STA. 77+00.00
5	1981923.284	6042694.469	CL FP, STA. 79+00.00
6	1981933.240	6042494.885	CL FP, STA. 81+00.00
7	1981983.952	6042301.825	CL FP, STA. 83+00.00
8	1982027.831	6042106.667	CL FP, STA. 85+00.00
9	1982067.338	6041810.798	CL FP, STA. 87+00.00
10	1982080.882	6041858.422	END FP, STA. 87+57.46
11	1982055.352	6042008.800	BEGIN RAMP, STA. 10+00.00
12	1982150.180	6041903.372	END RAMP, STA. 12+11.86



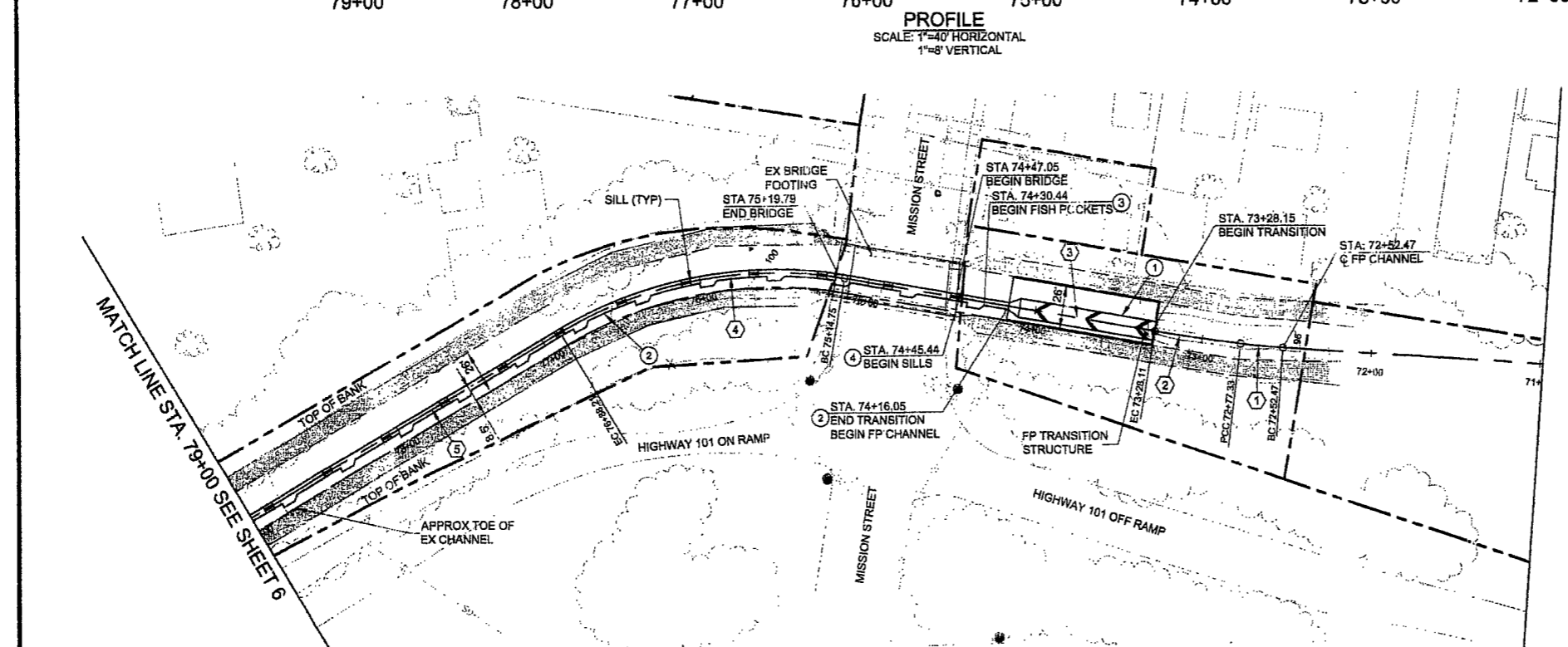
PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER *[Signature]* DATE: 4/27/11



**PROFILE**  
SCALE: 1"=40' HORIZONTAL  
1"=8' VERTICAL



**PLAN**

**NOTES**

ALL DIMENSIONS IN FEET UNLESS OTHERWISE NOTED  
ALL UTILITIES MUST BE PROTECTED IN PLACE  
ALL TREES MUST BE PROTECTED IN PLACE

LINE/CURVE	STATION	Δ/BEARING	LENGTH	RADIUS	TANGENT
①	72+52.47	2°49'26"	24.86'	504.50'	12.43'
②	72+77.33	2°53'47"	50.78'	1004.50'	25.39'
③	73+28.11	N47°23'05.42"W	188.84'	-	-
④	75+14.75	40°29'02"	173.48'	245.50'	90.53'
⑤	76+88.21	N87°52'07.32"W	263.31'	-	-

**CONSTRUCTION NOTES**

- ① CONST. OUTLET TRANSITION STRUCTURE PER DETAIL 1 ON SHEET 11
- ② CONST. 4' WIDE RECTANGULAR FISH PASSAGE CHANNEL PER DETAIL 2 ON SHEET 11 AND STRUCTURAL SECTION A ON SHEET 12
- ③ CONST. 10' LONG FISH POCKETS 40' APART (TYPICAL) PER DETAIL 2 ON SHEET 11 AND STRUCTURAL SECTION C ON SHEET 12
- ④ CONST. SILL STRUCTURES 40' APART (TYPICAL) PER DETAIL 2 ON SHEET 11 AND STRUCTURAL DETAIL 1 ON SHEET 12



**HDR**  
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2228 El Camino Real Suite 200  
Berkeley, California 94704

PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION  
APPROVED: [Signature] DATE: 5/3/11  
DESIGN: [Signature] DATE: [Signature]  
DRAWN: [Signature] DATE: [Signature]  
CHECKED: [Signature] DATE: [Signature]  
FINAL PLANS

NO.	DATE	APPROVED	DESIGN	BUS	JLR	DATE

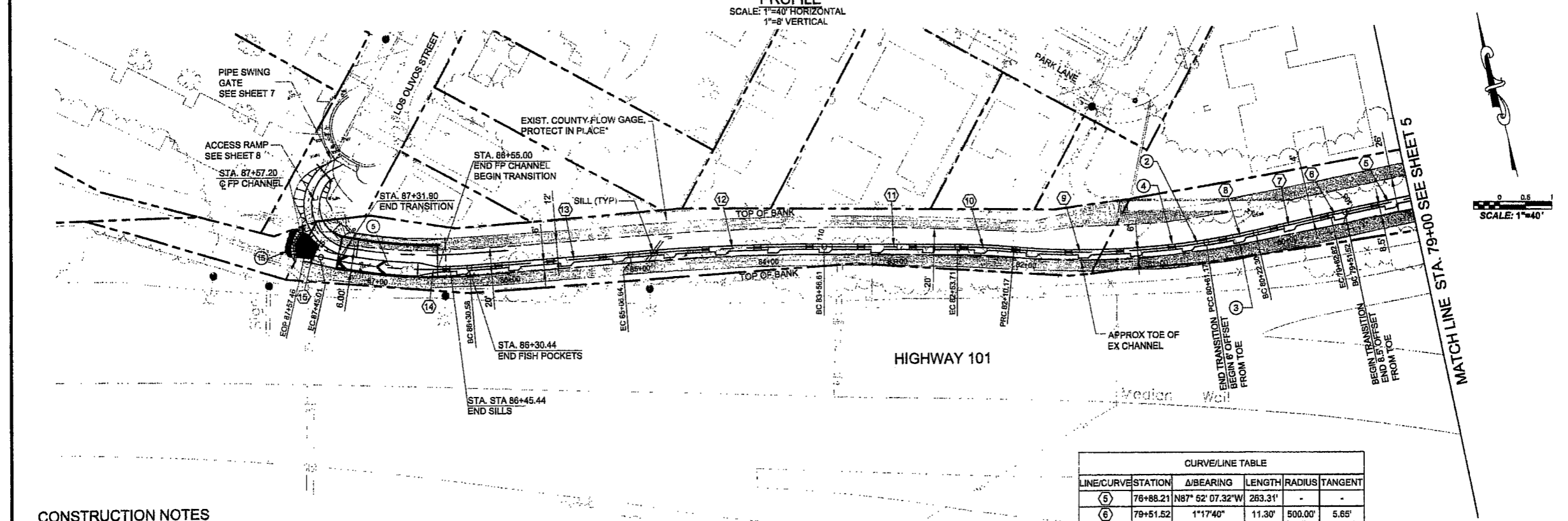
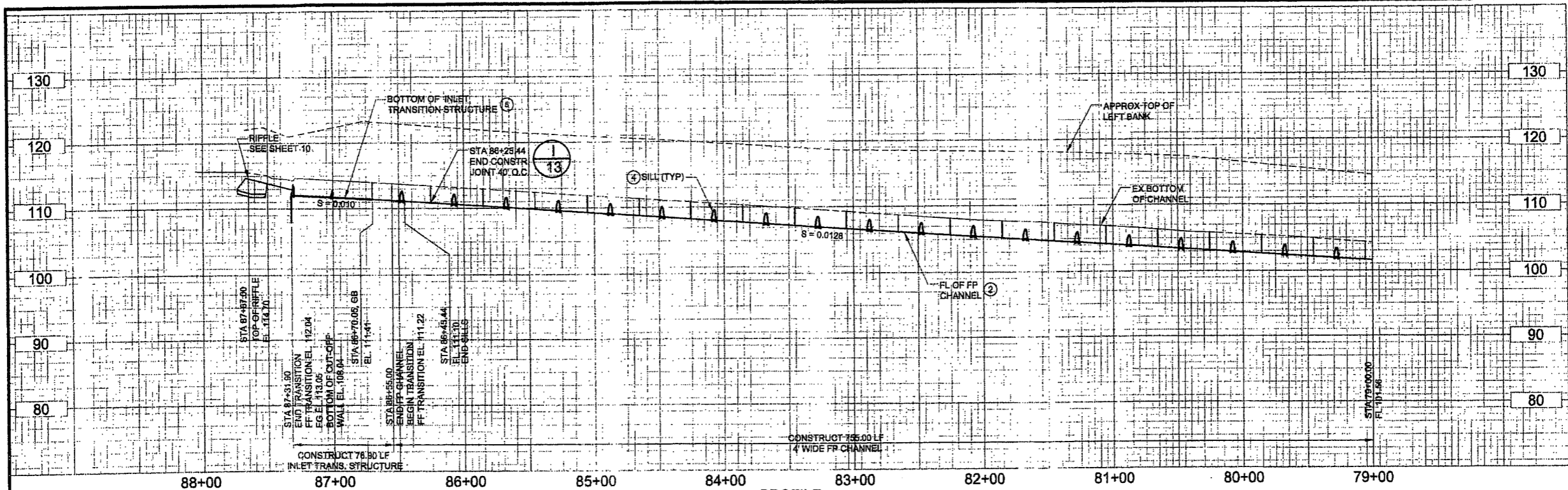
MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**PLAN AND PROFILE**  
STA. 72+52.47 TO 79+00

PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER [Signature] DATE: 4/27/11

2011-000217  
PBR. NO.  
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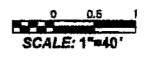
**CONSTRUCTION NOTES**

- ② CONST. 4' WIDE RECTANGULAR FISH PASSAGE CHANNEL PER DETAIL 2 ON SHEET 11 AND STRUCTURAL SECTION A ON SHEET 12
- ③ CONST. 10' LONG FISH POCKETS 40' APART (TYPICAL) PER DETAIL 2 ON SHEET 11 AND STRUCTURAL SECTION C ON SHEET 12
- ④ CONST. SILL STRUCTURES 40' APART (TYPICAL) PER DETAIL 2 ON SHEET 11 AND STRUCTURAL DETAIL 1 ON SHEET 12
- ⑤ CONST. INLET TRANSITION STRUCTURE PER DETAIL 1 ON SHEET 9
- ⑬ CONSTRUCT ROCK RIFFLE PER STRUCTURAL DETAILS ON SHEET 10 AND PER TABLE ON SHEET 3

**NOTES**

ALL DIMENSIONS IN FEET UNLESS OTHERWISE NOTED.  
ALL UTILITIES MUST BE PROTECTED IN PLACE  
ALL TREES MUST BE PROTECTED IN PLACE  
CONTRACTOR SHALL COORDINATE WITH COUNTY FLOOD CONTROL HYDROLOGY DEPARTMENT DURING CONSTRUCTION IN THE AREA OF THE FLOW GAGE.

CURVE/LINE TABLE						
LINE/CURVE	STATION	Δ/BEARING	LENGTH	RADIUS	TANGENT	
⑤	76+88.21	N87° 52' 07.32"W	283.31'	-	-	
⑥	79+51.52	1°17'40"	11.30'	500.00'	5.66'	
⑦	79+62.82	N69° 09' 47.26"W	59.49'	-	-	
⑧	80+22.30	4°27'13"	38.87'	500.00'	19.44'	
⑨	80+61.17	13°55'35"	149.00'	813.00'	74.87'	
⑩	82+10.17	4°55'50"	43.54'	506.00'	21.79'	
⑪	82+53.71	N75° 42' 48.16"W	102.90'	-	-	
⑫	83+56.81	4°41'42"	150.04'	1831.00'	75.06'	
⑬	85+06.64	N80° 24' 30.86"W	123.94'	-	-	
⑭	86+30.58	17°15'11"	114.43'	380.00'	57.65'	
⑮	87+44.01	N63° 09' 19.87"W	12.45'	-	-	



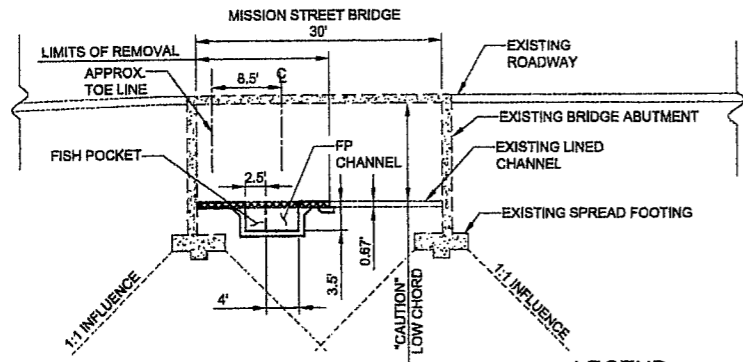
PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER [Signature] DATE 4/27/11

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**PLAN AND PROFILE**  
STA. 79+00 TO 87+57.46

2011-000217  
PBW NO.  
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LEGEND

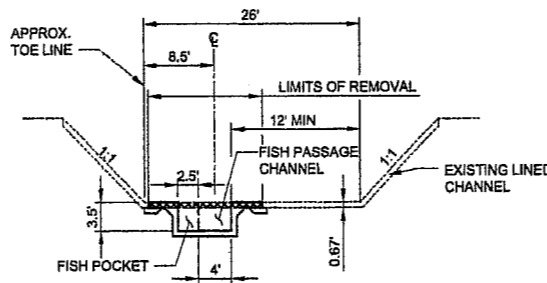
CONCRETE REMOVAL

TYPICAL SECTION STA 74+47.05 TO 75+19.79

0 5 10 20 30 FT

SCALE: 1"=10'

NOTE: SECTIONS ARE TAKEN LEFT TO RIGHT LOOKING UPSTREAM



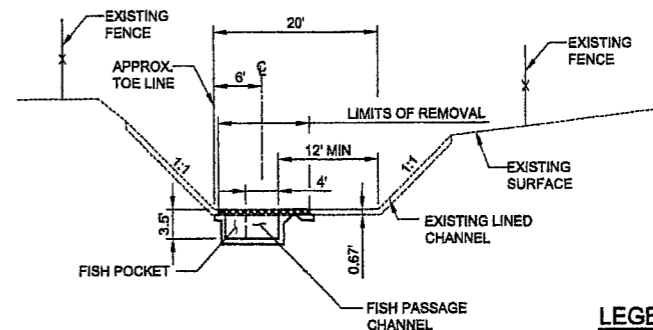
LEGEND

CONCRETE REMOVAL

TYPICAL SECTION STA 74+16.05 TO 74+47.05

0 5 10 20 30 FT

SCALE: 1"=10'



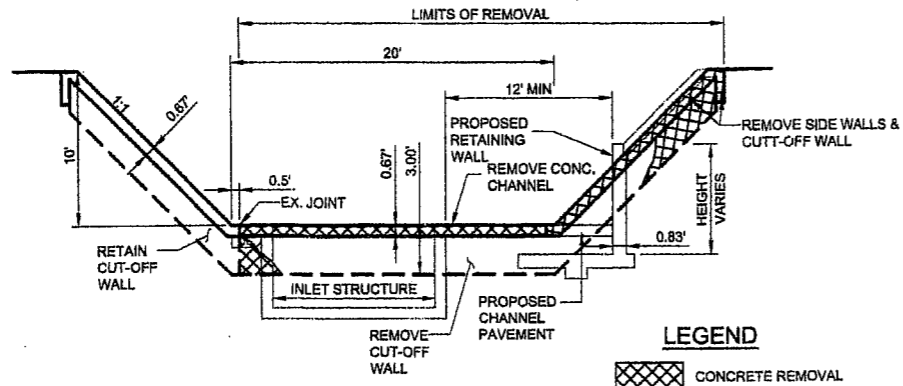
LEGEND

CONCRETE REMOVAL

TYPICAL SECTION STA 80+61.17 TO 86+55.00

0 5 10 20 30 FT

SCALE: 1"=10'



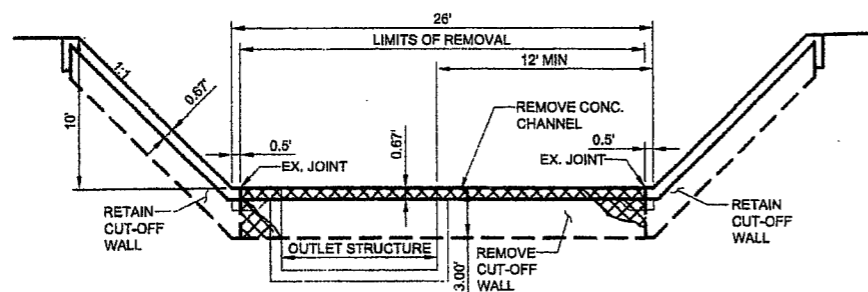
LEGEND

CONCRETE REMOVAL

TYPICAL REMOVAL INLET STRUCTURE

0 5 10 15 FT

SCALE: 1"=5'



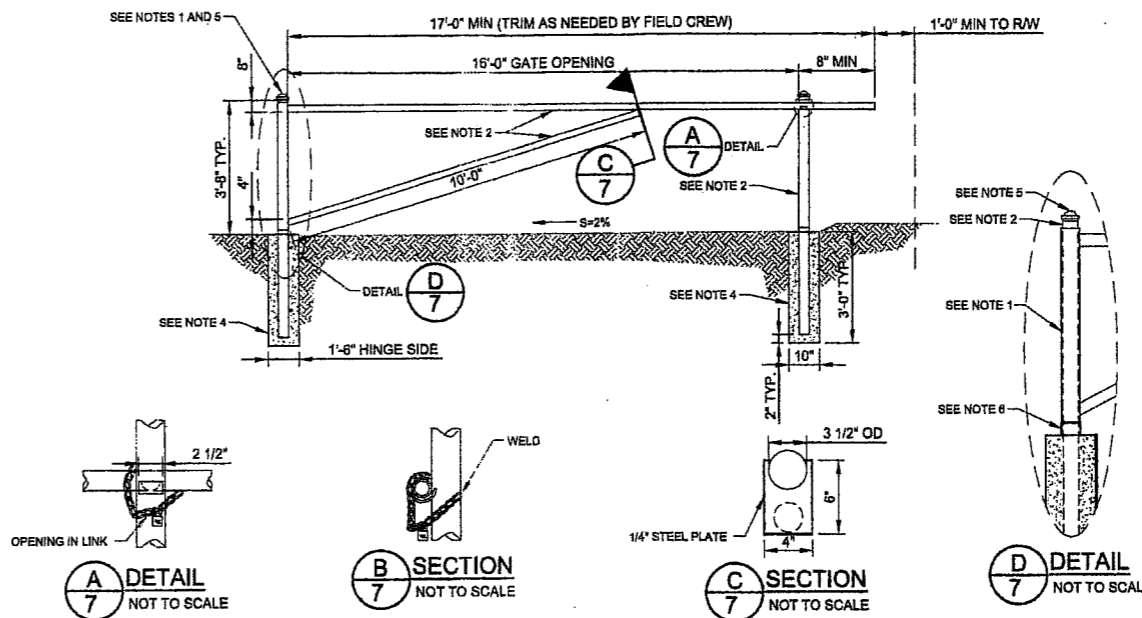
LEGEND

CONCRETE REMOVAL

TYPICAL REMOVAL OUTLET STRUCTURE

0 5 10 15 FT

SCALE: 1"=5'



A  
7  
DETAIL  
NOT TO SCALE

B  
7  
SECTION  
NOT TO SCALE

C  
7  
SECTION  
NOT TO SCALE

D  
7  
DETAIL  
NOT TO SCALE

- GATE NOTES:
1. GALVANIZED IRON PIPE 3 1/2" O.D.; WALL THICKNESS 0.318".
  2. GALVANIZED IRON PIPE 2 7/8" O.D.; WALL THICKNESS 0.278".
  3. CONSTRUCT GATE REST, ONE-HALF OF GALVANIZED IRON PIPE 3 1/2" O.D.; GRIND TO FIT VERTICAL POST, FIELD WELD.
  4. CLASS "B" CONCRETE.
  5. POST ANCHORED IN CONCRETE SHALL HAVE CAPS.
  6. 2" FREE STANDING PIVOT SLEEVE 3 1/2"; WALL THICKNESS 0.318".
  7. INSTALL 3/8" GALVANIZED CHAIN, FIELD WELD ONE LINK TO VERTICAL POST. PROVIDE OPENING IN LINKS FOR PADLOCK AS SHOWN. CHAIN SHALL BE OF SUFFICIENT LENGTH TO ENCIRCLE HORIZONTAL PIPE.
  8. MATERIALS AND CONSTRUCTION METHODS SHALL CONFORM TO THE APPLICABLE PORTION OF SECTION 208-6, 210-3 AND 304-3 OF THE "STANDARDS SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION," LATEST EDITION.

3  
7  
PIPE SWING GATE  
NOT TO SCALE

PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE 4/24/11



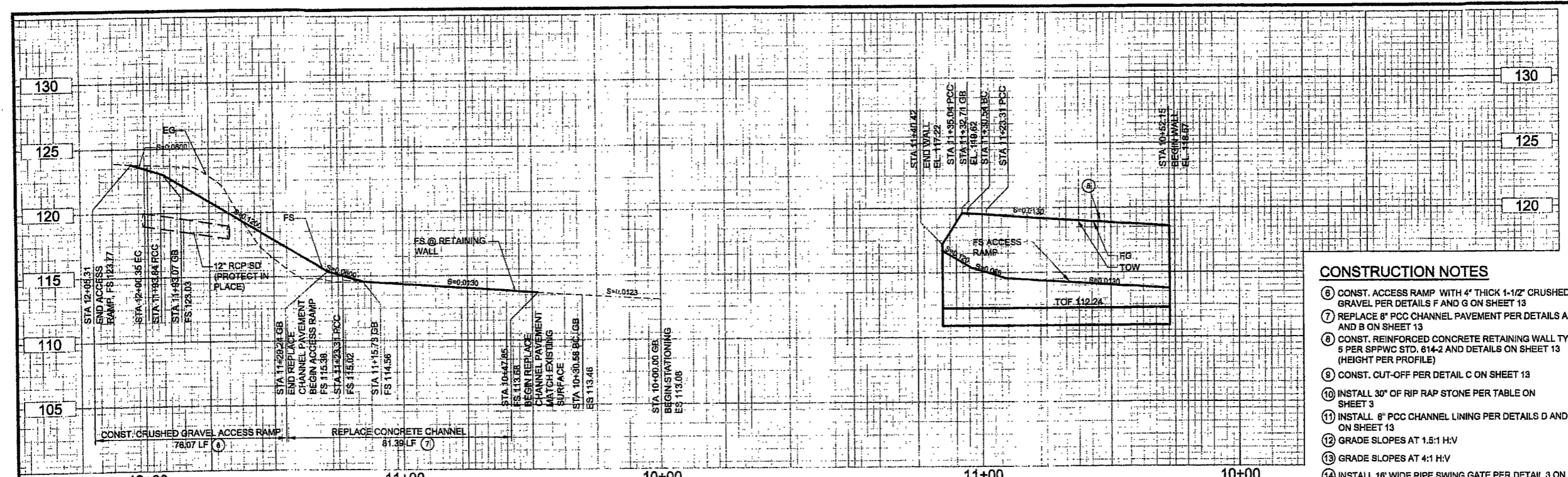
HDR  
HDR Engineering, Inc.  
2220 W. Colorado Road, Suite 200  
Irvine, California 92614

PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION  
APPROVED: [Signature] DATE 5/14/11  
CITY ENGINEER ORIGINAL SIGNED DATE

DESIGN	JLR
DRAWN	JLR
CHECKED	WJP
APPROVED	[Signature]
DATE	
NO.	
REVISIONS	

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
TYPICAL SECTIONS

2011-000217  
PBW. NO.  
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DWG. NO.  
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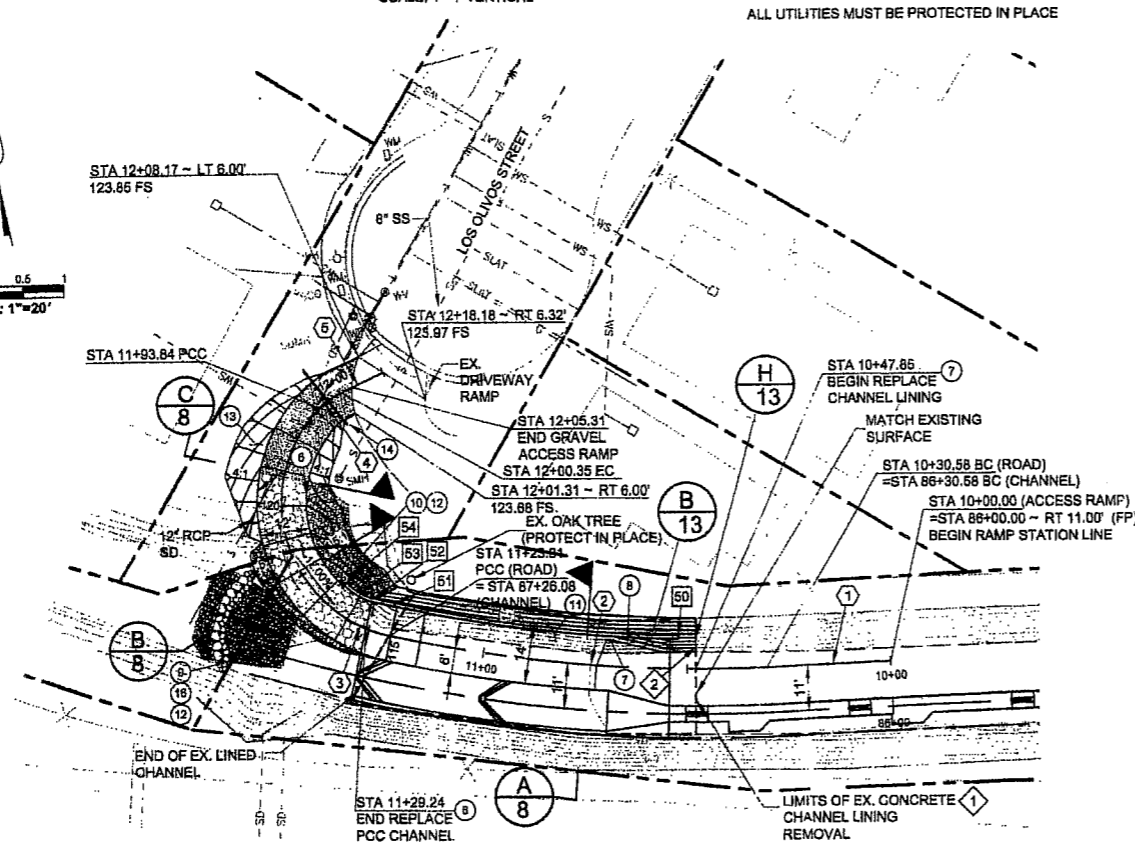
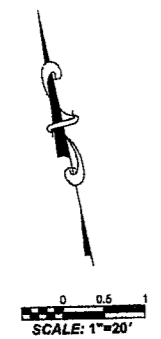


**PROFILE ACCESS RAMP**  
SCALE: 1"=20' HORIZONTAL  
SCALE: 1"=4' VERTICAL

**NOTES**  
FINISH GRADES SHALL MATCH EXISTING SURFACE  
ALL TREES MUST BE PROTECTED IN PLACE  
ALL UTILITIES MUST BE PROTECTED IN PLACE

**PROFILE RETAINING WALL**  
SCALE: 1"=20' HORIZONTAL  
SCALE: 1"=4' VERTICAL

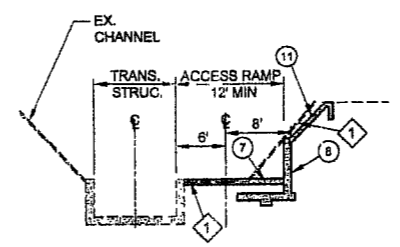
- CONSTRUCTION NOTES**
- 8 CONST. ACCESS RAMP WITH 4" THICK 1-1/2" CRUSHED GRAVEL PER DETAILS F AND G ON SHEET 13
  - 7 REPLACE 8" PCC CHANNEL PAVEMENT PER DETAILS A AND B ON SHEET 13
  - 8 CONST. REINFORCED CONCRETE RETAINING WALL TYPE 5 PER SPPWC STD. 614-2 AND DETAILS ON SHEET 13 (HEIGHT PER PROFILE)
  - 9 CONST. CUT-OFF PER DETAIL C ON SHEET 13
  - 10 INSTALL 30" OF RIP RAP STONE PER TABLE ON SHEET 3
  - 11 INSTALL 8" PCC CHANNEL LINING PER DETAILS D AND E ON SHEET 13
  - 12 GRADE SLOPES AT 1.5:1 H:V
  - 13 GRADE SLOPES AT 4:1 H:V
  - 14 INSTALL 18" WIDE PIPE SWING GATE PER DETAIL 3 ON SHEET 7
  - 16 INSTALL 36" OF 1/4 TON CLASS COBBLESTONE PER TABLE ON SHEET 3



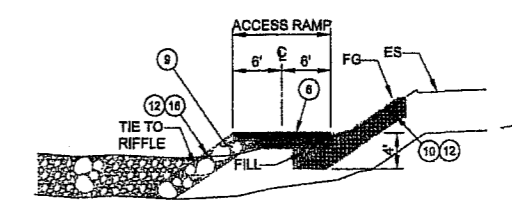
**ACCESS RAMP PLAN**  
SCALE: 1"=20'

- LEGEND**
- [Pattern] 4" THICK CRUSHED GRAVEL
  - [Pattern] 4" THICK CRUSHED GRAVEL OVER 18" THICK RIP-RAP
  - [Pattern] 30" THICK RIP-RAP

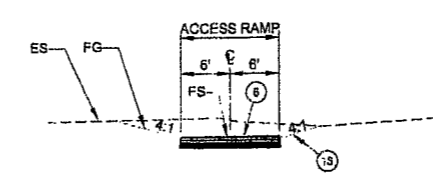
- DEMOLITION NOTES**
- 1 REMOVE EXISTING CONCRETE CHANNEL LINING
  - 2 REMOVE EXISTING CONCRETE LINING TO NEXT JOINT



**A SECTION**  
SCALE: 1"=10'



**B SECTION**  
SCALE: 1"=10'



**C SECTION**  
SCALE: 1"=10'

**CURVE/LINE TABLE**

LINE/CURVE	STATION	Δ/BEARING	LENGTH	RADIUS	TANGENT
1	10+00.00	N80° 24' 30.86"W	30.58'	-	-
2	10+30.58	14° 23' 56"	92.73'	369.00'	46.61'
3	11+23.31	122° 26' 59"	70.53'	33.00'	60.09'
4	11+93.84	19° 38' 25"	6.51'	19.00'	3.29'
5	12+00.35	N76° 04' 48.40"E	11.60'	-	-

**WALL TABLE**

POINT #	DESCRIPTION	STATION	OFFSET	NORTHING	EASTING	Δ/BEARING	LENGTH	RADIUS	TANGENT
50	BEGIN, BC	10+52.15	8.00' RT	1982072.457	6041980.288	11° 03' 00"	69.62'	361.00'	34.62'
51	EC, GB	11+23.31	8.00' RT	1982094.474	6041894.353	N66° 00' 35.20"W	5.57'	-	-
52	BC	11+30.54	7.39' RT	1982096.737	6041889.267	20° 21' 37"	3.55'	10.00'	1.80'
53	PCC	11+35.04	7.00' RT	1982098.722	6041886.343	9° 20' 11"	4.24'	26.00'	2.12'
54	END, EC	11+40.42	7.00' RT	1982101.917	6041883.567	-	-	-	-

PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER: [Signature] DATE: 5/11/11

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**ACCESS RAMP GRADING**

2011-000217  
FEIN. NO.  
3619  
SHEET NO. SHT. DES.  
C-1-4639  
DWG. NO.  
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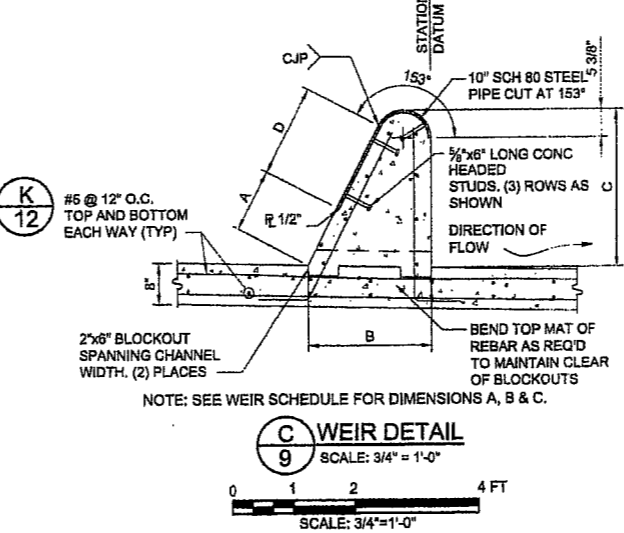
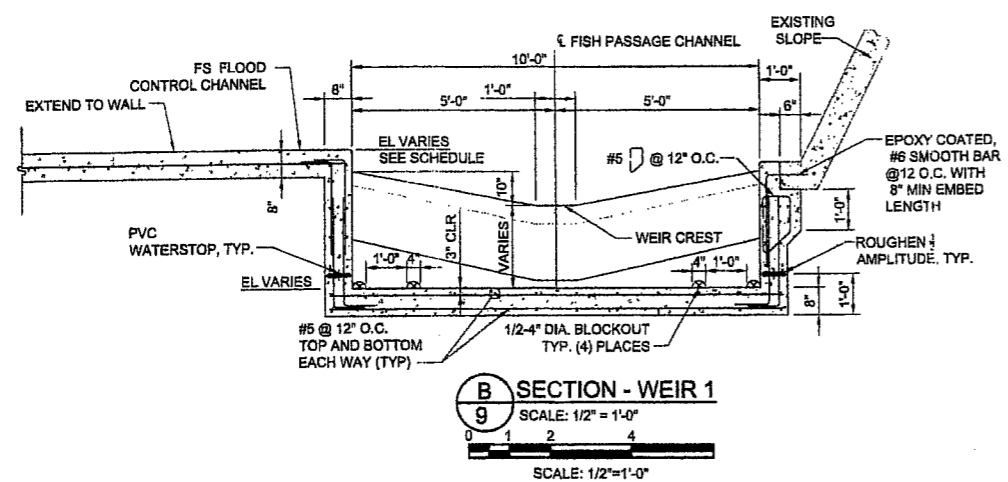
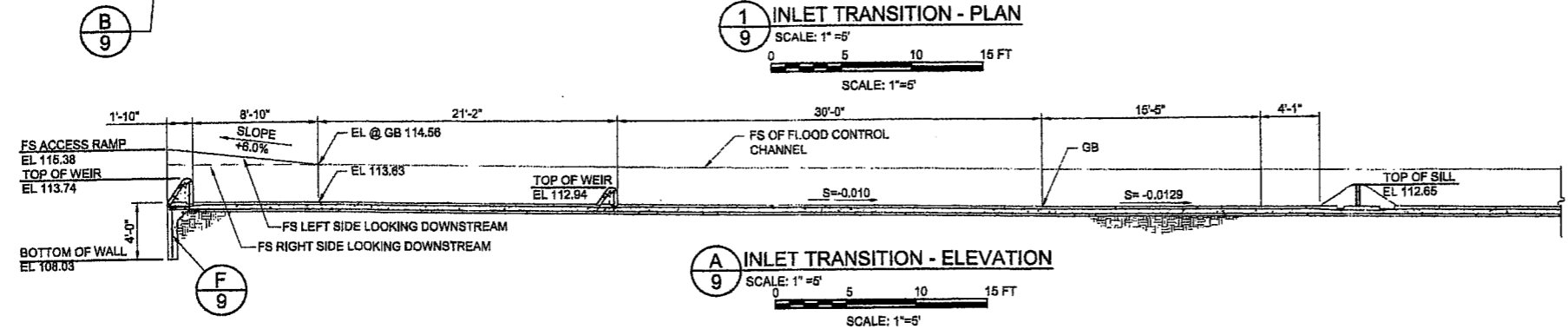
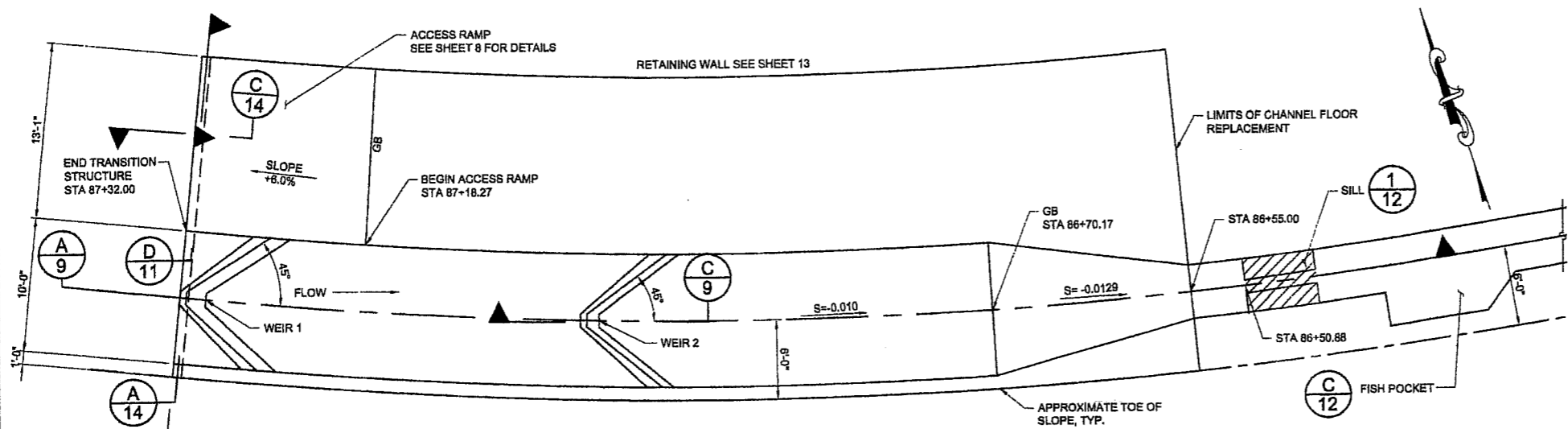
PUBLIC WORKS  
DEPARTMENT  
ENGINEERING DIVISION

DESIGN: [ ]  
DRAWN: [ ]  
CHECKED: WJY  
APPROVED: [Signature]  
DATE: 5/31/11  
ORIGINAL SIGNED DATE: [ ]

NO.	DATE	APPROVED	DESIGN	DRAWN	CHECKED	WJY

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**FISH POCKET, INLET  
TRANSITION, & WEIR DETAILS**

2011-000217  
PW. NO.  
3619  
SHT. DES.  
C-1-4639  
DWG. NO.  
SHT. 9 OF 16



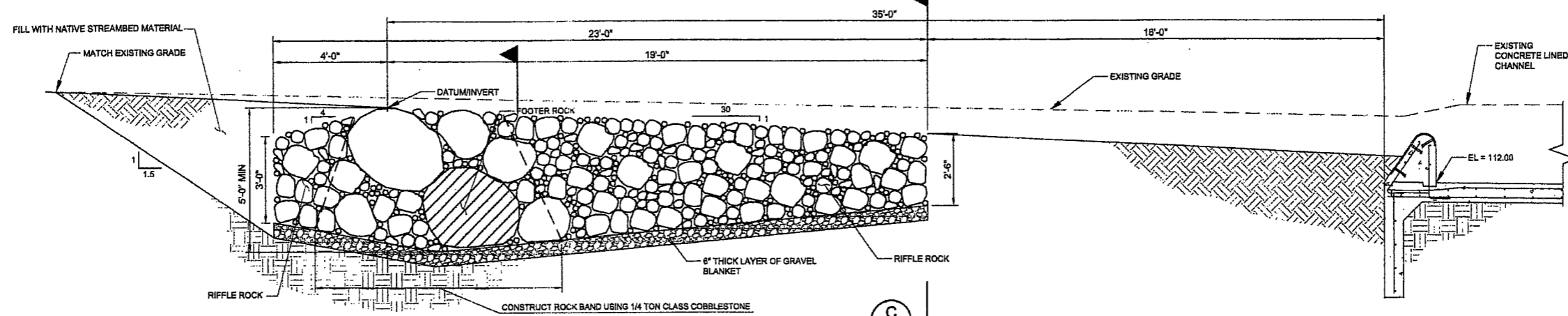
WEIR SCHEDULE										
WEIR ID	STRUCTURE	STATION*	CREST ELEV @ CL	FS ELEV RIGHT / LEFT**	CREST ELEV @ WALL	FL ELEVATION*	A	B	C	D
1	INLET	87+30.19	113.74	115.27 / 114.85	114.57	112.03	0'-4"	1'-10"	1'-8 1/2"	1'-6"
2	INLET	87+00.19	112.94	114.33	113.77	111.71	0'-0"	1'-6"	1'-2 3/4"	1'-3"
3	OUTLET	73+97.90	96.75	97.75	97.75	95.06	0'-4"	1'-9"	1'-8 1/4"	1'-6"
4	OUTLET	73+67.90	96.00	97.39	97.00	94.55	0'-3 1/2"	1'-8 1/2"	1'-3 1/2"	1'-6"
5	OUTLET	73+37.90	95.25	97.04	96.25	94.05	0'-11"	2'-1 1/2"	1'-9 1/2"	1'-6"

\* VALUE AT DOWNSTREAM FACE OF WEIR CREST CENTERLINE  
\*\* RIGHT AND LEFT LOOKING DOWNSTREAM

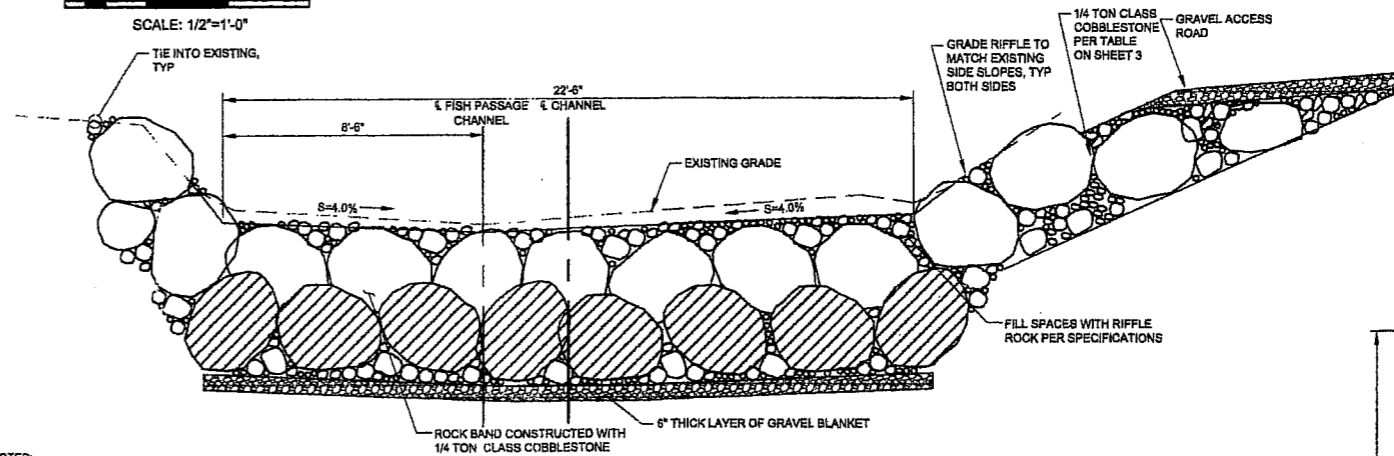
PROPERTY LINES ARE APPROXIMATE



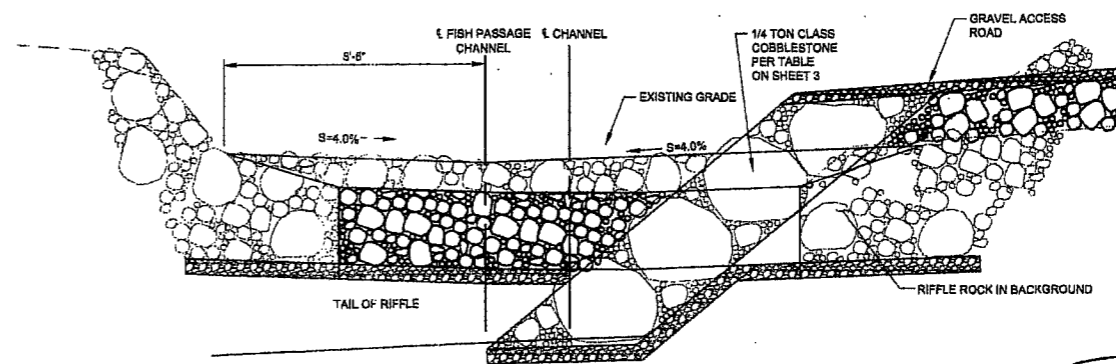
PROJECT ENGINEER DATE 5/31/11



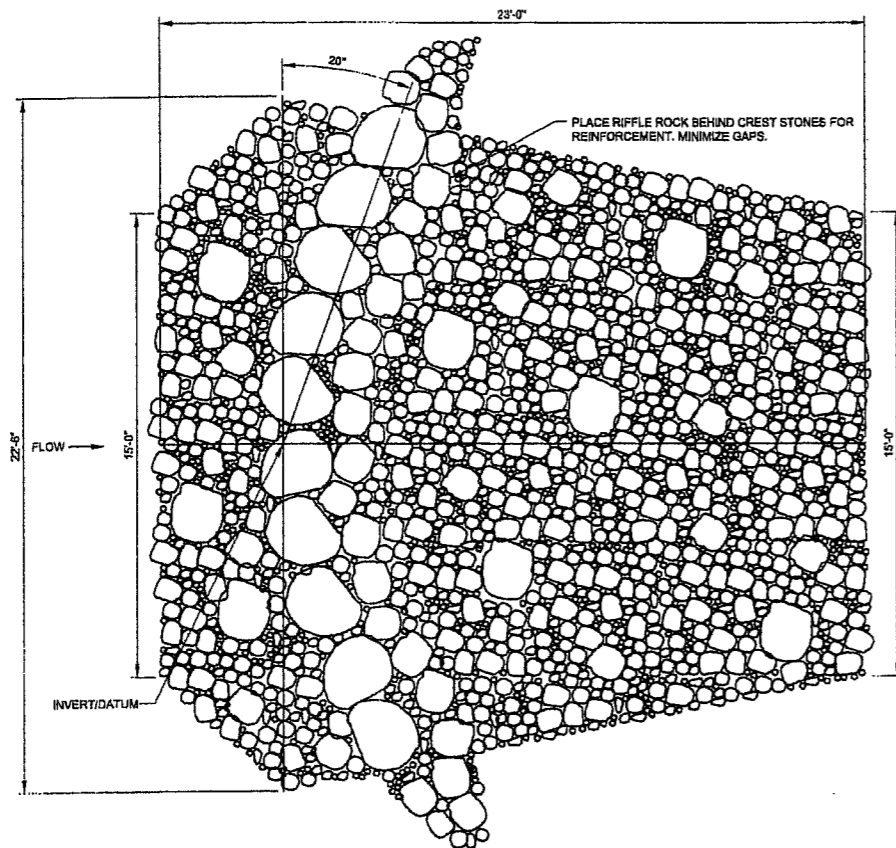
**A**  
SECTION - ROCK RIFFLE  
SCALE: 1/2" = 1'-0"  
0 1 2 4 6 FT



**B**  
SECTION - ROCK RIFFLE  
SCALE: 3/8" = 1'-0"  
0 2 4 8 FT



**C**  
SECTION - ROCK RIFFLE  
SCALE: 3/8" = 1'-0"  
0 2 4 8 FT



**1**  
PLAN - ROCK RIFFLE  
SCALE: 3/8" = 1'-0"  
0 2 4 8 FT

RIFFLE NOTES:  
1. CONSTRUCT MAIN RIFFLE PORTION FROM RIFFLE ROCK PER SPECIFICATIONS AND TABLE ON SHEET 3.  
2. CONSTRUCT ROCK BAND FROM 1/4 TON CLASS COBBLESTONE PER SPECIFICATIONS AND TABLE ON SHEET 3.



HDR Engineering, Inc.  
200 El Camino Real Suite 200  
Orland, California 94552

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APPROVED: *[Signature]* DATE: 5/1/11  
CITY ENGINEER ORIGINAL SIGNED DATE

DESIGN DRAWN BY: JLR  
CHECKED BY: WJY  
FINAL PLANS

DATE	APPROVED	REVISIONS

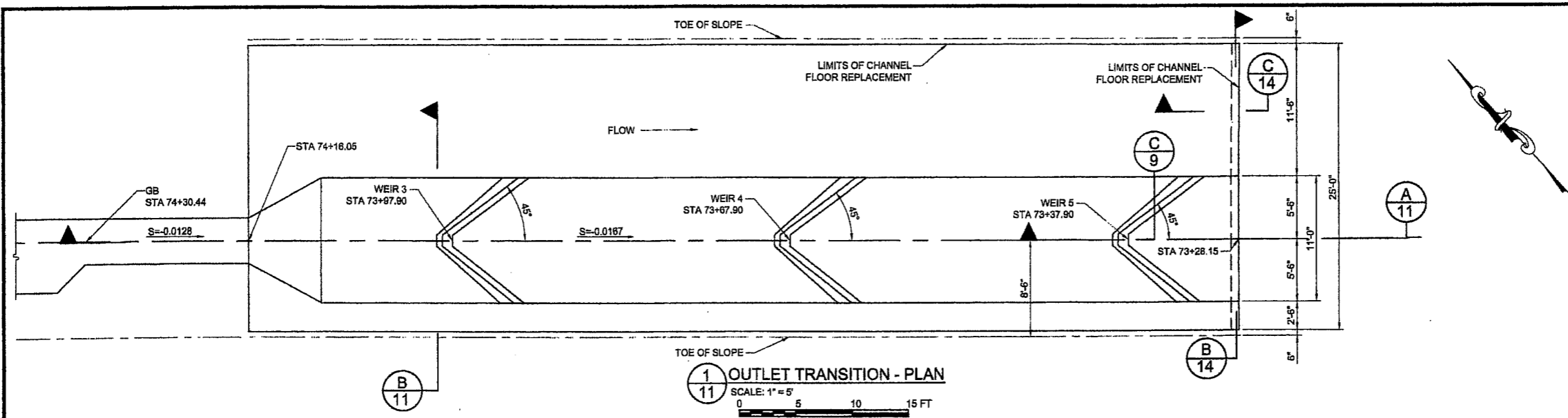
MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**ROCK RIFFLE**  
SECTIONS AND DETAILS

PROPERTY LINES  
ARE APPROXIMATE

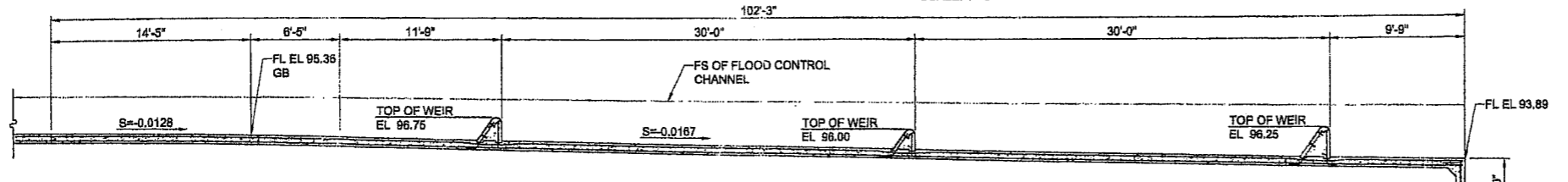


*[Signature]*  
PROJECT ENGINEER DATE: 4/11/11

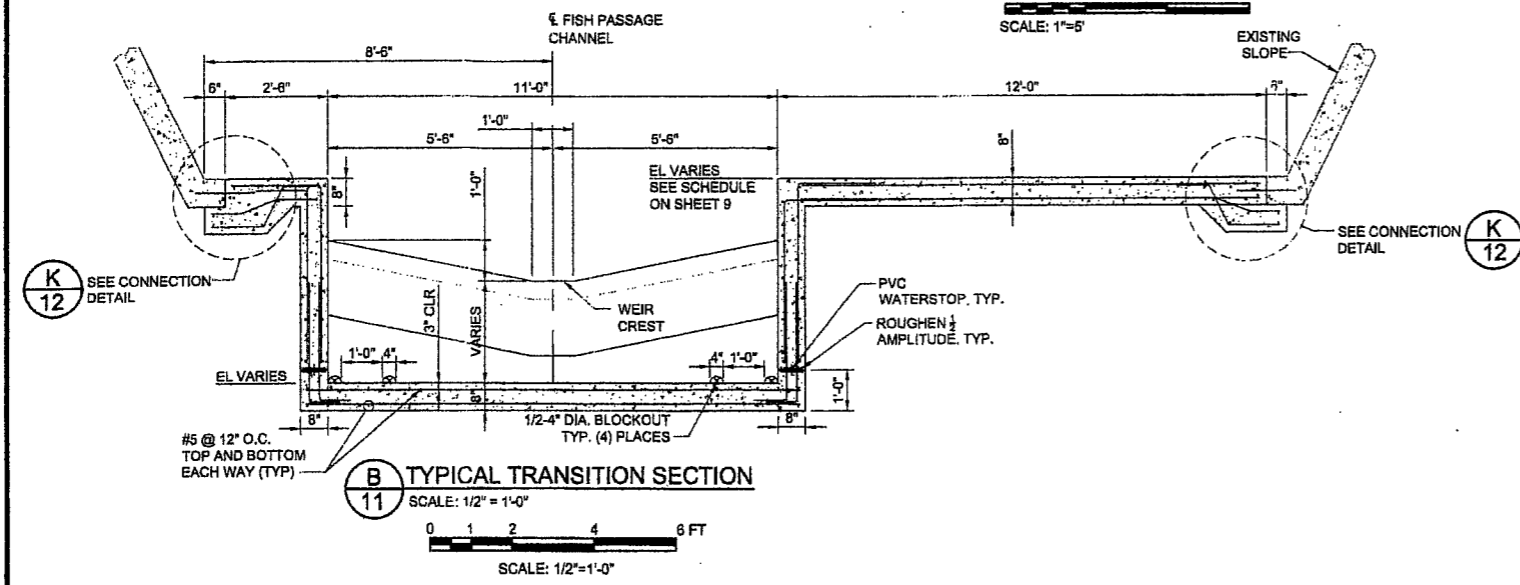
2011-000217  
PBW. NO.  
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BID NO. SHT. DES.  
C-1-4639  
DWG. NO.  
SHT. 10 OF 16



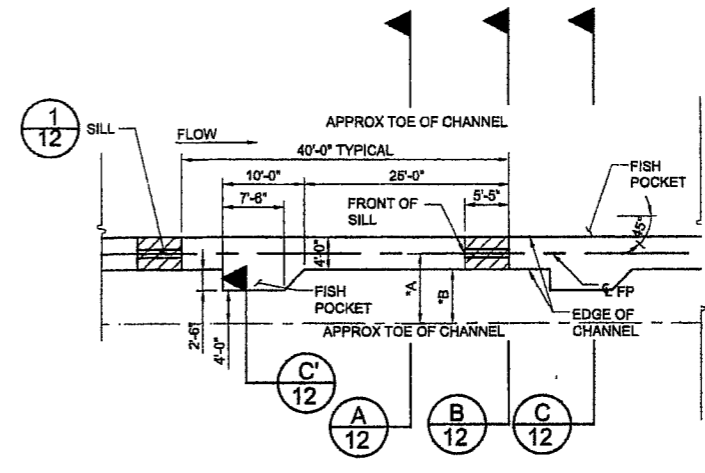
**1** OUTLET TRANSITION - PLAN  
 SCALE: 1" = 5'  
 0 5 10 15 FT



**A** OUTLET TRANSITION - ELEVATION  
 SCALE: 1" = 5'  
 0 5 10 15 FT



**B** TYPICAL TRANSITION SECTION  
 SCALE: 1/2" = 1'-0"  
 0 1 2 4 6 FT



**2** FISH POCKET, SILL AND WEIR LAYOUT  
 SCALE: 1" = 10'  
 0 5 10 20 30 FT

\*LENGTHS "A" AND "B" VARY PER PLAN. SEE SHEETS 6 AND 8.



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 CITY ENGINEER  
 ORIGINAL SIGNED DATE: [Date]

NO.	DATE	APPROVED	DESIGN	BLIS	DRAWN	JLR	CHECKED	WJY	FINAL PLANS

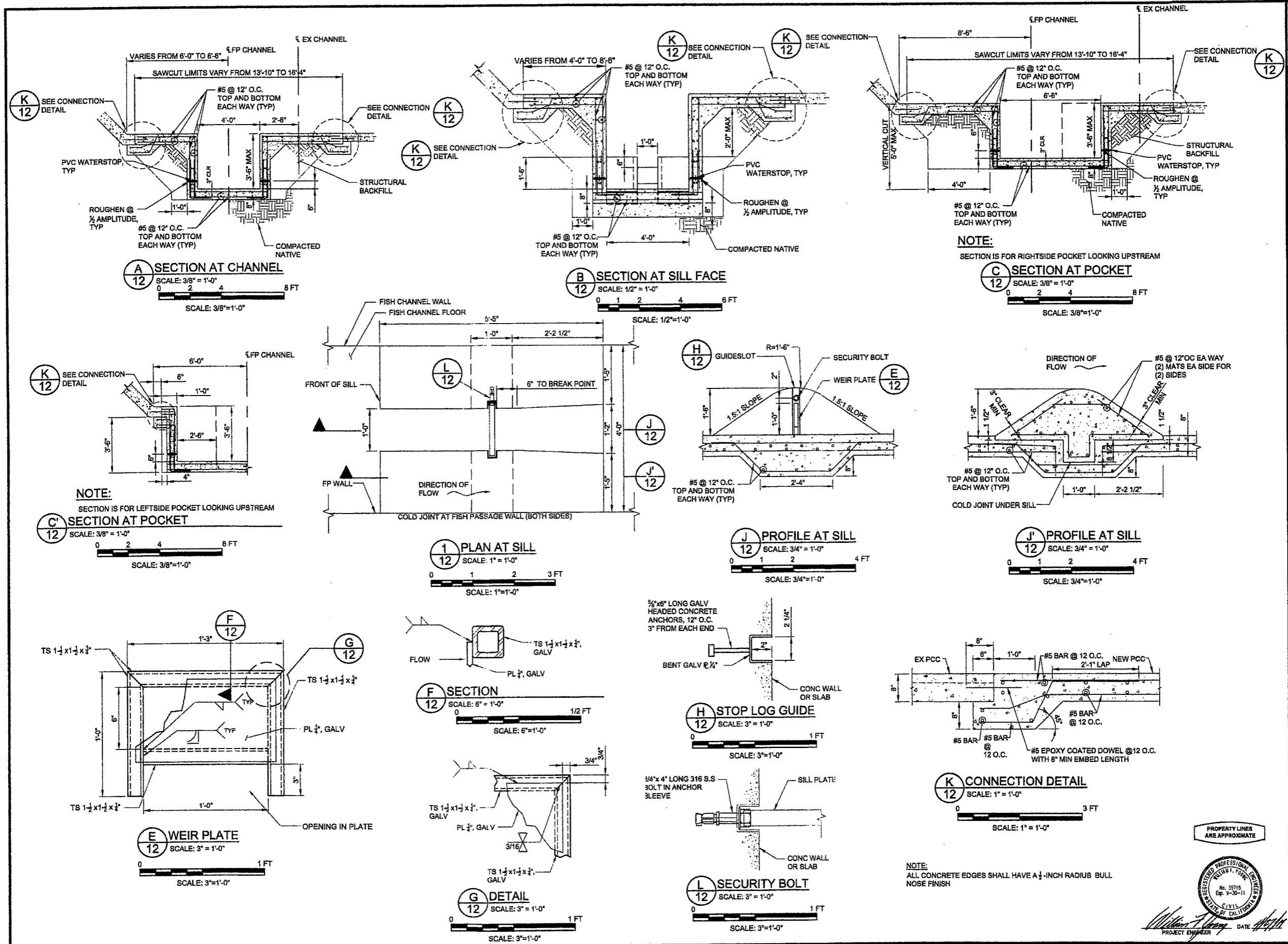
MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**OUTLET TRANSITION & WEIR DETAILS**

PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER [Signature] DATE [Date]

2011-000217  
 PBW. NO.  
 3619  
 BD. NO. SHT. DES.  
 C-1-4639  
 DWG. NO.  
 SHT. 11 OF 16



**HDR**  
HDR Engineering, Inc.  
2001 El Camino Real, Suite 200  
Folsom, California 95630

PUBLIC WORKS  
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ENGINEERING DIVISION

DATE: 5/31/11  
APPROVER: [Signature]  
CITY ENGINEER: [Signature]  
ORIGINAL SIGNED DATE: [Signature]

DESIGN: [Signature]  
DRAWN: [Signature]  
CHECKED: [Signature]  
FINAL PLANS

NO. [ ]  
DATE APPROVED [ ]  
REVISIONS [ ]

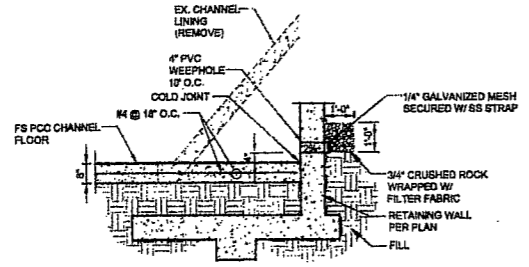
MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**STRUCTURAL DETAILS**

2011-000217  
PEW NO. [ ]  
3619 - [ ]  
C-1-4639  
DWO. NO. [ ]  
SHT. 12 OF 16

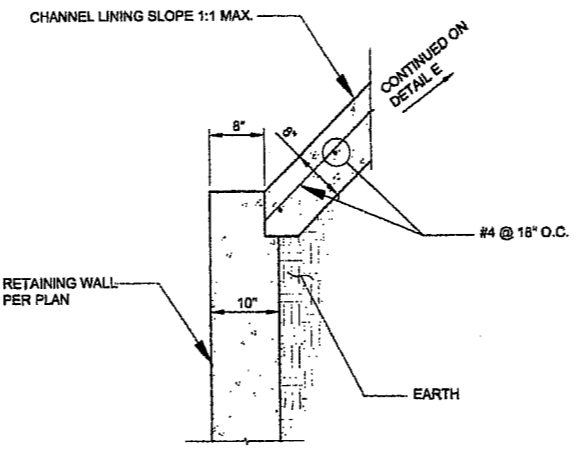
REGISTERED PROFESSIONAL ENGINEER  
No. 35715  
Exp. 9-30-11  
CIVIL  
STATE OF CALIFORNIA  
[Signature]  
PROJECT ENGINEER DATE [ ]

PROPERTY LINES ARE APPROXIMATE

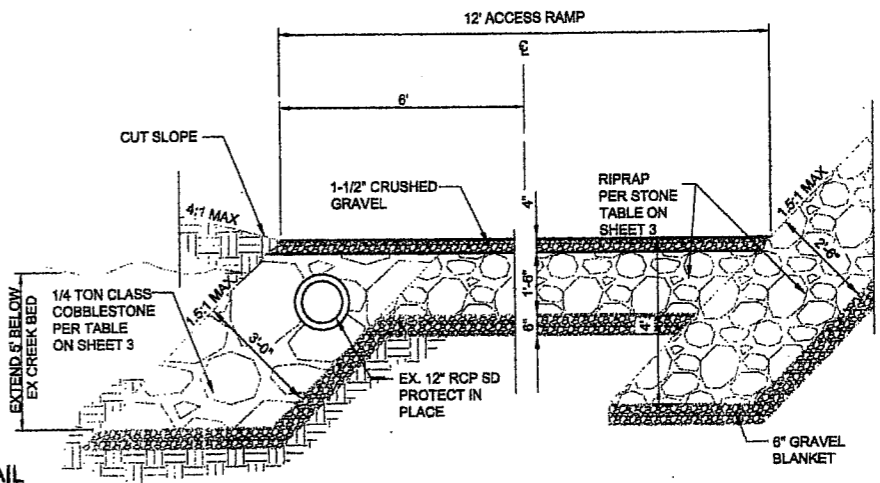
**A** PCC CHANNEL/RETAINING WALL JOINT DETAIL (CASE 1)  
 13 SCALE: 1/2" = 1'-0"  
 0 1 2 4 6 FT  
 SCALE: 1/2" = 1'-0"



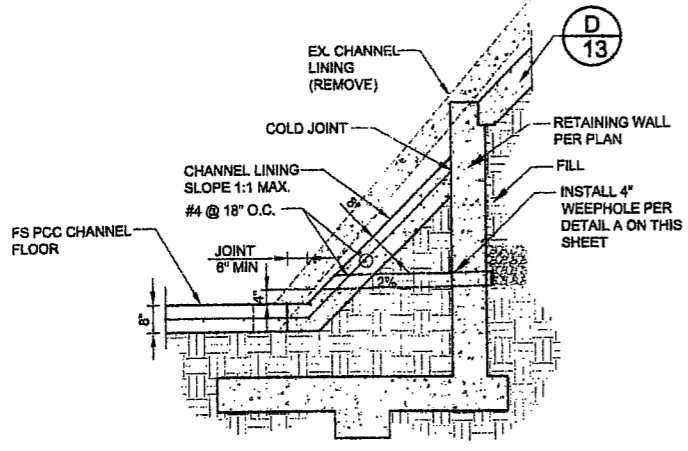
**D** RETAINING WALL/CONCRETE LINING JOINT DETAIL  
 13 SCALE: 1" = 1'-0"  
 0 3 FT  
 SCALE: 1" = 1'-0"



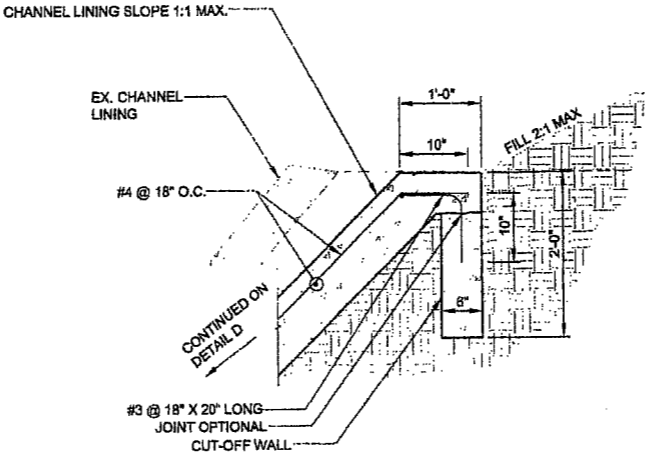
**G** ACCESS RAMP DETAIL  
 13 SCALE: 1/2" = 1'-0"  
 0 1 2 4 6 FT  
 SCALE: 1/2" = 1'-0"



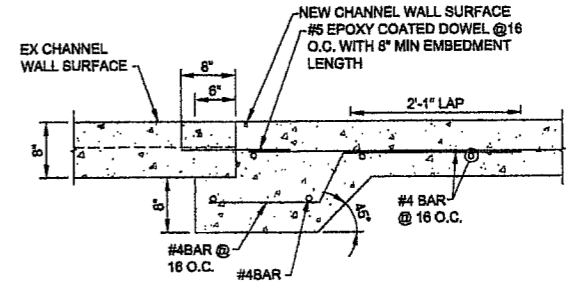
**B** PCC CHANNEL/RETAINING WALL JOINT DETAIL (CASE 2)  
 13 SCALE: 1/2" = 1'-0"  
 0 1 2 4 6 FT  
 SCALE: 1/2" = 1'-0"



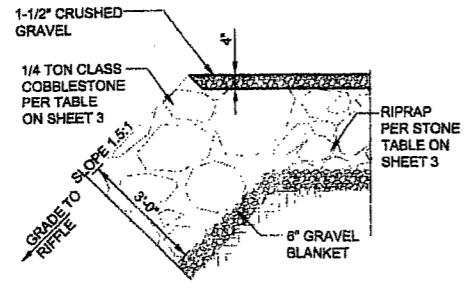
**E** CHANNEL LINING - CUTOFF WALL  
 13 SCALE: 1" = 1'-0"  
 0 3 FT  
 SCALE: 1" = 1'-0"



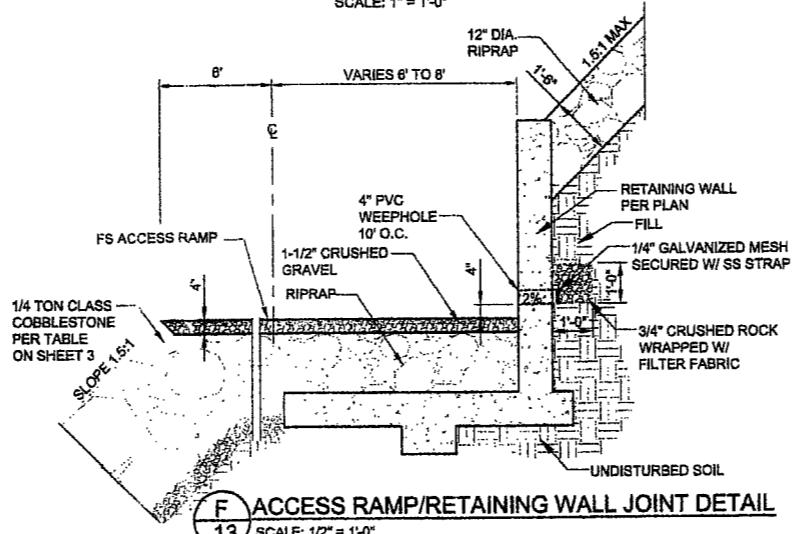
**H** CHANNEL LINING - JOINT DETAIL  
 13 SCALE: 1" = 1'-0"  
 0 3 FT  
 SCALE: 1" = 1'-0"



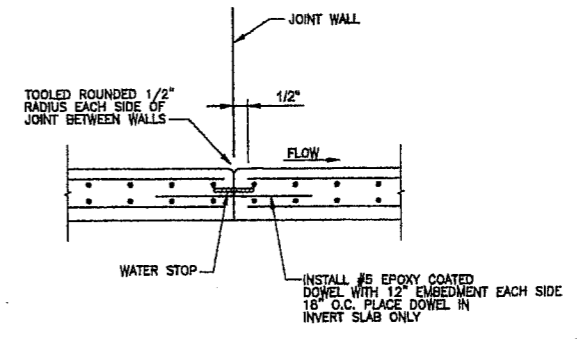
**C** CUT-OFF WALL DETAIL  
 13 SCALE: 1/2" = 1'-0"  
 0 1 2 4 6 FT  
 SCALE: 1/2" = 1'-0"



**F** ACCESS RAMP/RETAINING WALL JOINT DETAIL  
 13 SCALE: 1/2" = 1'-0"  
 0 1 2 4 6 FT  
 SCALE: 1/2" = 1'-0"



**I** CONSTRUCTION JOINT DETAIL  
 13 SCALE: 1" = 1'-0"  
 0 3 FT  
 SCALE: 1" = 1'-0"



PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE: 11/11/11

**HDR**  
 HDR Engineering, Inc.  
 2224 El Camino Real Suite 200  
 Redwood City, CA 94063

PUBLIC WORKS DEPARTMENT  
 ENGINEERING DIVISION

APPROVED: [Signature] DATE: 11/11/11  
 CITY ENGINEER ORIGINAL SIGNED NAME

DESIGN: BUS  
 DRAIN: JLR  
 CHECKED: WFL  
 FINAL PLANS

NO. \_\_\_\_\_

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
 STRUCTURAL DETAILS  
 ACCESS RAMP

2011-000217  
 PERM. NO.  
 3619  
 BID NO. SHT. DES.  
 C-1-4639  
 DWG. NO.  
 SHT. 13 OF 16



**HDR**  
 4100 Engineering, Inc.  
 2341 El Camino Real, Suite 200  
 San Diego, CA 92108-2202

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APPROVED: *[Signature]* DATE: 5/1/11  
 CITY ENGINEER  
 ORIGINAL SIGNED DATE

DESIGN: BJS  
 DRAWN: JLR  
 CHECKED: WJY  
**FINAL PLANS**

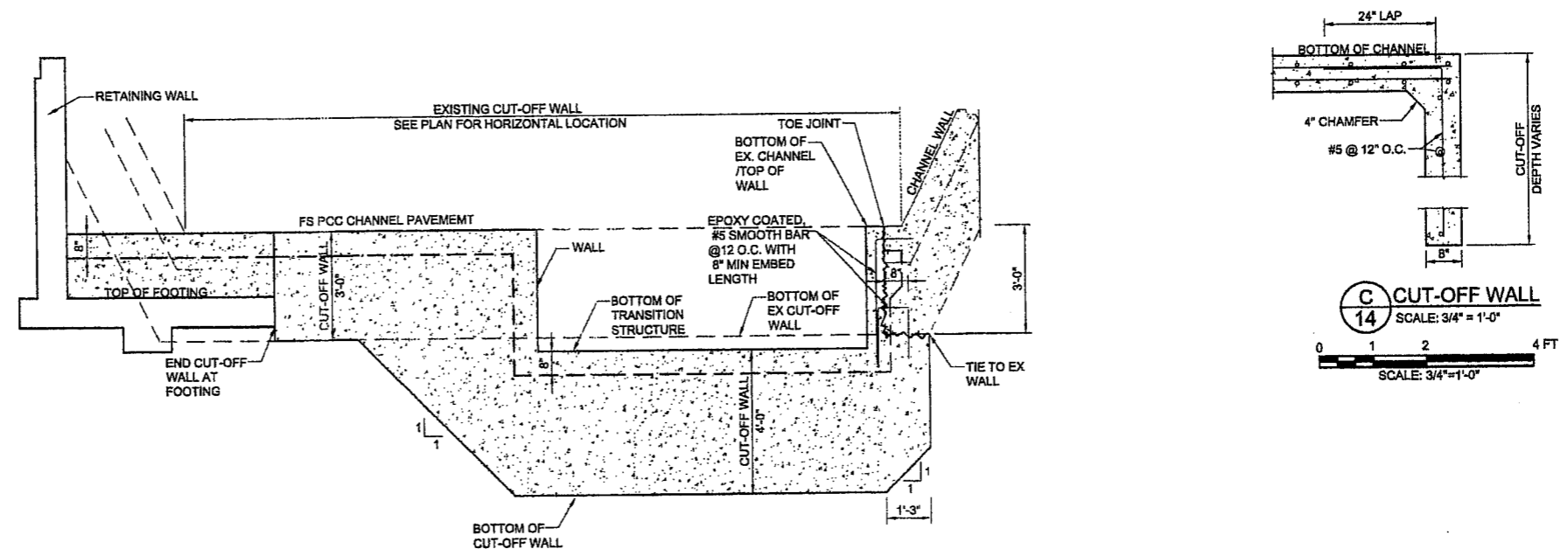
DATE	APPROVED	DESIGN	DRAWN	CHECKED	NO.	REVISIONS

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**STRUCTURAL DETAILS  
 CUT-OFF WALLS**

2011-000217  
 PBW. NO.

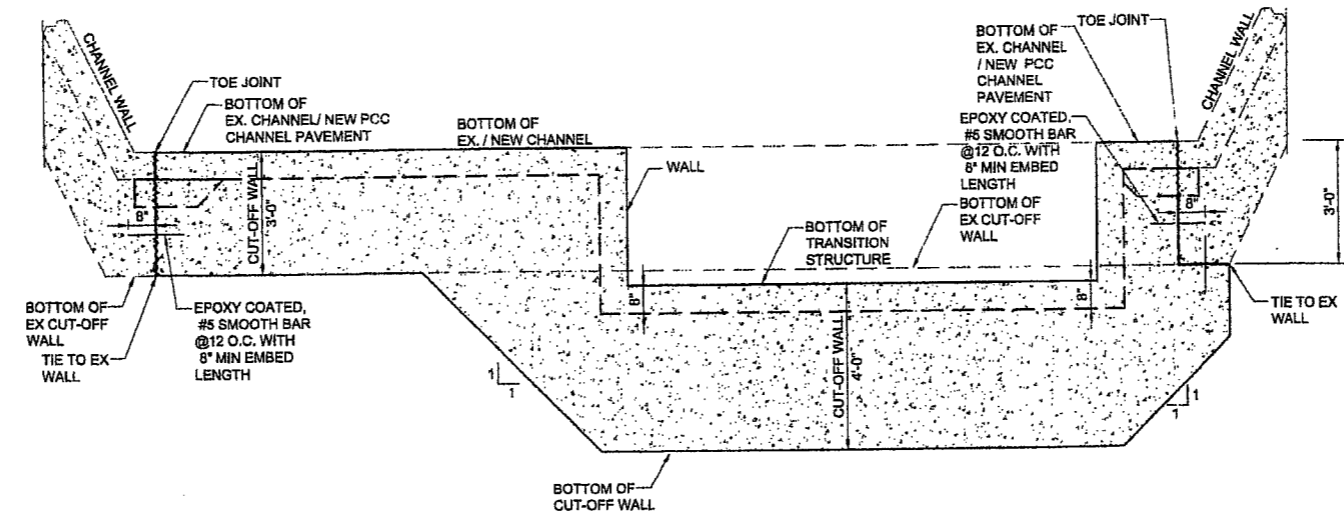
3619 -  
 BID NO. SHT. DES.  
 C-1-4639  
 DWG. NO.

SHT. 14 of 16



**C CUT-OFF WALL**  
 SCALE: 3/4" = 1'-0"  
 0 1 2 4 FT

**A SECTION - CUT-OFF WALL (INLET)**  
 SCALE: 1/2" = 1'-0"  
 0 1 2 4 6 FT  
 SCALE: 1/2" = 1'-0"

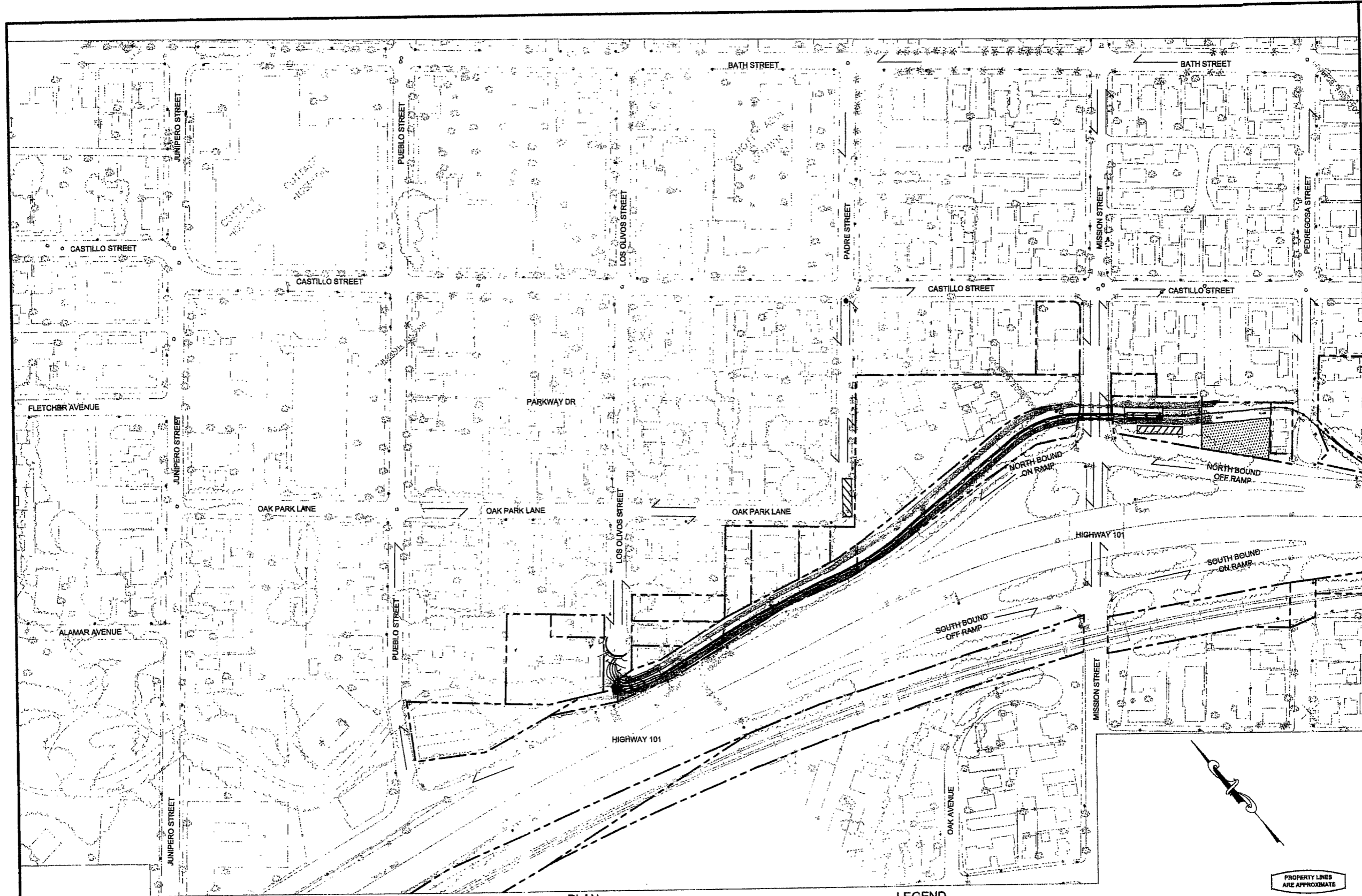


**B SECTION - CUT-OFF WALL (OUTLET)**  
 SCALE: 1/2" = 1'-0"  
 0 1 2 4 6 FT  
 SCALE: 1/2" = 1'-0"

PROPERTY LINES ARE APPROXIMATE






*[Signature]* PROJECT ENGINEER DATE: 4/28/11



**NOTE:**  
 1. PERMIT LOADS ARE PERMISSIBLE ON PEDREGOSA STREET BRIDGE

PLAN  
 0 0.5  
 SCALE: 1"=100'

**LEGEND**

-  TRUCK ACCESS ROUTE
-  TEMPORARY DAILY CONSTRUCTION STAGING AREAS
-  CONSTRUCTION STAGING MATERIAL AND EQUIPMENT STORAGE AREAS

PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE

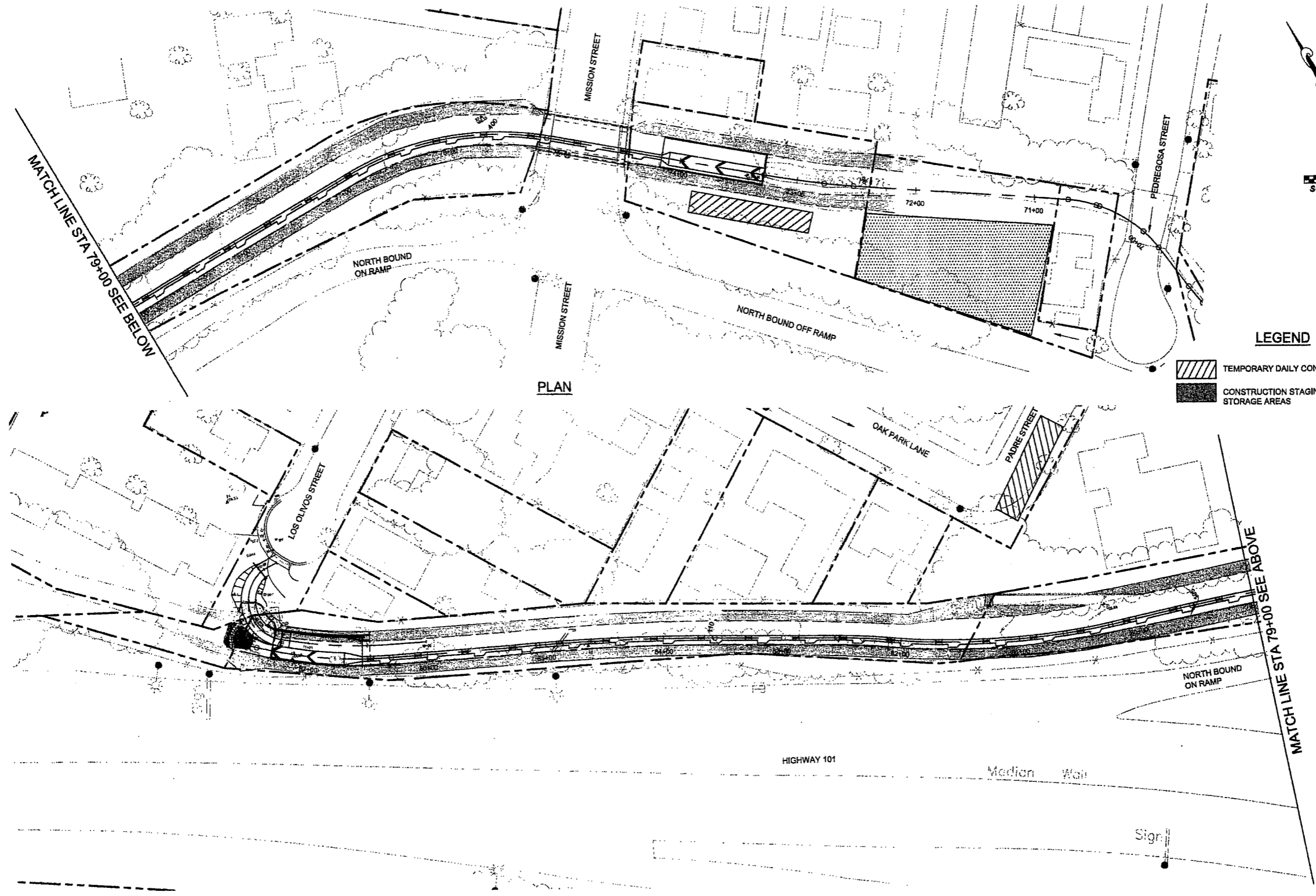


APPROVED: *[Signature]* DATE: 5/2/11  
 ORIGINAL SIGNED NAME

DATE	APPROVED	DESIGN	B.S.	JLR	NO.
		DRAWN			
		CHECKED			

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**TRAFFIC CONTROL PLAN**

2011-000217  
 PRW. NO.  
 3619 -  
 SHT. DES.  
 C-1-4639  
 DWG. NO.  
 SHT. 15 OF 16



**LEGEND**

TEMPORARY DAILY CONSTRUCTION STAGING AREAS

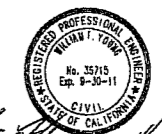
CONSTRUCTION STAGING MATERIAL AND EQUIPMENT STORAGE AREAS

PLAN

PLAN

- NOTES:**
1. TRAFFIC CONTROL SIGN AND DELINEATORS PER THE LATEST EDITION OF THE WORK AREA TRAFFIC CONTROL HANDBOOK (W.A.T.C.H.)
  2. PERMIT LOADS ARE PERMISSIBLE ON PEDREGOSA STREET BRIDGE
  3. PEDREGOSA STREET BRIDGE IS RATED FOR HS-20 LOADING

PROPERTY LINES ARE APPROXIMATE



PROJECT ENGINEER DATE



HDR  
HDR Engineering, Inc.  
225 E. Colorado Blvd. Suite 200  
Irvine, California 92614

PUBLIC WORKS DEPARTMENT  
ENGINEERING DIVISION

APPROVED: *[Signature]* DATE: 5/11  
CITY ENGINEER ORIGINAL SURVEY DATE

DESIGN: BJS  
DRAWN: JLR  
CHECKED: JFY  
FINAL PLANS

DATE	APPROVED	REVISIONS

MISSION CREEK FISH PASSAGE PROJECT (PHASE 1)  
**STAGING AREA PLAN**

2011-000217  
PBW. NO.  
3619 -  
BND NO. SHT. DES.  
C-1-4639  
DWG. NO.  
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