Summary: City of Mountain View Cost-Share Agreement A3401 Payments

*Project	*Project Descr	*Check#	*Check Dt	*Voucher Descr	*Vendor Name	*Orig PO Amount	*Amount	*Bud Ref + Chartfield
26244001	Permanente Ck, Bay-Fthill CSC	178812	12/2/2010	A3401: Cost Sharing Agreement	CITY OF MOUNTAIN VIEW	$665,000.00	$363,174.00	2011-26-326-6781-26244001-1660
26244001	Permanente Ck, Bay-Fthill CSC	180304	1/20/2011	A3401: Cost Sharing Agreement	CITY OF MOUNTAIN VIEW	$665,000.00	$16,390.00	2011-26-326-6781-26244001-1660

AGREEMENT PAYMENT HISTORY

Agreement # **A3401** **City of Mountain View**
Cost Share Agreement for Const.
of District's Floodwall @ Perm. Creek
vendor # 854

INVOICE ROUTING SEQUENCE
1. Theresa Szabo
2. S. Hosseini
3.

PS PO #	CODING	AMOUNT	Date of Agreement
AG11A3401	2011-26-326-6781-26244001-1660	$ 665,000.00	7/29/2010
TOTAL:		$ 665,000.00	

Invoice #	Invoice Date	Process Date	Billed		Paid	Check Date
10-0222	10/29/2010	11/10/2010	363,174.00		363,174.00	12/2/2010
10-0329	12/20/2010	1/10/2011	16,390.00		16,390.00	1/20/2011
					-	
					-	
					-	
					-	
					-	
					-	
					-	
					-	
					-	
TOTAL			$ 379,564.00	$ -	$ 379,564.00	

Agreement Summary

Agreement Amount:		**$ 665,000.00**
Less:		
Total paid to date:	**379,564.00**	
Total retained to date:	**-**	
Total invoiced amount		**379,564.00**
Available Balance		**$ 285,436.00**

* Special Note:

Santa Clara Valley Water District

Date of Routing: 3/13/12

GENERAL ACCOUNTING UNIT
ROUTING SLIP

No.	Name	Initial	Date
	CEO/GM (102)		
	Judkins, S		
	GENERAL COUNSEL (112)		
	Yamamoto, S		
	Lei-Morales, S		
	COMMUNICATIONS UNIT (172)		
	OPERATIONS (202)		
	Water Supply Mgmt (425)		
	Kao, C		
	Garcia, S		
	Hurley, L		
	Meamber, G		
	Water Utility Operations (510)		
	Hook, D		
	Tailor, A		
	Mooers, M		
	Wu, S		
	Nguyen, T		

No.	Name	Initial	Date
	Watershed Management (210)		
	Fiedler, J		
	Christie, J		
	Groundwater Management (465)		
	Ahmadi, B		
	De La Piedra, V		
	Mohr, T		
	Water Use Efficiency Unit (445)		
	Ashktorab, H		
	De La Piedra, G		
	Elvert, K		
	John, P		
	Morvay, K		
	De La Piedra, G		
	Vye, T		
	Zhu, Stanley		
	Information Management (715)		
	Berggren, J		
	Blank, J		
	Li, M		

No.	Name	Initial	Date
	Business Resources (670)		
3	**Canha, G**		
	Capital Program Services (310)		
	Butler, D		
	Chen, J		
2	Cheong, D		
	Harris, S		
	Hosseini, S		
	Idowu, S		
	Krutul, L		
	Leal, M		
	Lee, Liang		
	Lueneberger, K		
1	Ndah, T	B.T. for TN	3/15/12
	Nguyen, Ngoc		
	Rouhani, A		
	Szabo, T		
	Tsou, E		
	Weese, R		
	Yung, T		

☒ Your approval of the attached invoices indicates that the service/items have been received in accordance with the terms of our agreement.

☐ You are to retain the attachment

☐ Other: _____

Agreement Amount: _____

Less Total Billings to Date: _____

Available Amount: _____

COYOTE CAPITAL PROJECTS
CONSULTANT INVOICE REVIEW FORM

AGREEMENT #: A2403

CONSULTANT NAME: GHD

INVOICE ID#: 63875

INVOICE PERIOD: 01/16/2011 – 02/19/2012

ARE CONSULTANT'S COSTS TO DATE REASONABLE? YES __X__ NO ____ , EXPLAIN BELOW.

IS CONSULTANT'S ESTIMATED EARNED PROGRESS TO DATE REASONABLE?
YES __X__ NO ____ , EXPLAIN BELOW.

ANY MAJOR WORK PLAN OR SCHEDULE VARIANCES? YES ___ NO __X__ , EXPLAIN BELOW.

OTHER AREAS OF CONCERN/COMMENT:

RECOMMEND FOR PAYMENT? YES __X__ NO ____ , EXPLAIN BELOW.

PREPARED & REVIEWED BY:
BOBBY TAN

DATE: March 15, 2012

Invoice Review Checklist

Is the invoice format consistent with sample invoice provided? YES

Is the Agreement Number shown in the upper right hand corner? YES

Does the cover sheet contain the signature language in the contract? Is it signed? YES

Does the invoice cover a specific time period? YES

Is a summary sheet included with expenditures to date and percent complete? YES

Are the charge rates and terms consistent with the contract? YES

Is the Total Maximum Not-to-Exceed Budget consistent with contract? YES

Is the Previously Billed Amount from last invoice correct? YES

Are the Current Charges charged to the right subtask based on personnel and contract conditions? YES

Is the dollar amount for Budget Remaining consistent with District records? YES

Is 10% retention being withheld? NO

Are all subtasks within the contract budget amount for that item, if not are they complete? YES

Have the deliverables been received for tasks reported to be completed? YES

Is a status report attached? YES

Is the schedule attached? YES. Planned activities are provided.

Is there backup for all expenses over $25? YES

Is there backup for each subconsultant invoice? N/A

Does the subconsultant invoice match the reported expense on prime invoice? N/A

Did the subconsultant markup other subconsultants? N/A

Is the markup on expenses (including subconsultants) correct? YES

Has an explanation been provided for processing delay (if applicable)? YES

Project Manager: _____ Date 03/15/2012

Agreement No: A2403 **Inv. # 63875/No. 107**

REMIT PAYMENTS TO:
P.O. Box 5848, Unit 2
Portland, OR 97208

FEDERAL TAX IDENTIFICATION NUMBER : **98-0425935**

707.523.1010

Agreement #: A2403
Invoice #: 63875
Invoice Date: 2/21/2012
Project: 01245101
Project Name: LOWER BERRYESSA CREEK

SANTA CLARA VALLEY WATER DISTRICT
COYOTE WATERSHED PROGRAM
P.O. BOX 20670
SAN JOSE CA 95160-0670

SCUWD2MAR 9'12PM 2:12

ACCOUNTS PAYABLE/TONY NDAH

Billing Period from 1/16/2012 through 2/19/2012

TASK OS 8.1 DESIGN LEVEL GEOTECH INVEST	0.00
TASK OS 8.2 DESIGN SUPPORT	461.25

TOTAL INVOICE AMOUNT: 461.25
RETAINAGE: (0.00)

TOTAL DUE: $ 461.25

I hereby certify as principal of the firm GHD that the charge of $461.25 as summarized above & shown on the attachments represents charges for the time actually worked, is fair & reasonable, is in accordance with the terms of Agreement #A2403 dated 02/14/01, and has not been previously paid.

Approved by

STEPHEN J COX
GHD

DATE: 3/6/12

APPROVAL FOR PAYMENT

Please Provide the Following:

AG08 A2403
PO or Agreement Number

Routed By/Date: G.C. 3/13

2 0 1 2 1 2 3 3 4 6 1 2 1
Bud Yr Fund Dept Account

4 0 1 7 4 0 0 4 1 2 0 9
Project Activity

Approved: _____ Date: _____

REMIT PAYMENTS TO:
P.O. Box 5848, Unit 2
Portland, OR 97208

707.523.1010

FEDERAL TAX IDENTIFICATION NUMBER : **98-0425935**

SANTA CLARA VALLEY WATER DISTRICT
COYOTE WATERSHED PROGRAM
P.O. BOX 20670
SAN JOSE, CA 95160-0670

Invoice # : 63875
Invoice Date : 2/21/2012
Project : **01245101**
Invoice Group: **

Attention: MR TONY NDAH

Billing Period from 1/16/2012 through 2/19/2012

LOWER BERRYESSA CREEK PROJECT
Contract # 40174004

		Current Billings
Phase : 32401 -- OS 8.2 DESIGN SUPPORT		
	Labor	450.00
	Unit Pricing	11.25
	Phase Total	**461.25**
	Current Invoice	**461.25**
	Amount Due This Invoice:	**$461.25**

STEPHEN J COX

Statement

Prior Invoices	$2,613,611.69
This Invoice	$461.25
Total Invoiced	$2,614,072.94
Invoices Paid to Date	$2,595,150.18
Unpaid Retainage Due	**$18,138.63**
Unpaid Invoices Due	**$784.13**

Project Fee Summary

Authorized Fee	$2,657,161.00
Total Invoiced	$2,614,072.94
Unbilled Fee Remaining	$43,088.06

REMIT PAYMENTS TO:
P.O. Box 5848, Unit 2
Portland, OR 97208

707.523.1010

FEDERAL TAX IDENTIFICATION NUMBER : **98-0425935**

Project : 01245101 -- LOWER BERRYESSA CREEK PROJECT **Invoice # : 63875**

Phase : 32401 -- OS 8.2 DESIGN SUPPORT

Rate Schedule Labor

Class / Employee Name	*Hours*	*Rate*	*Amount*
Associate Consultant			
RICHARD K JORGENSEN	1.00	180.00	180.00
Senior Project Engineer			
CLAY S SERRAHN	1.50	180.00	270.00
Total : LABOR			**450.00**

Unit Pricing

Vendor / Employee Name	*Units*	*Rate*	*Amount*
Inhouse Equipment / Supplies			
RICHARD K JORGENSEN	1.00	4.50	4.50
CLAY S SERRAHN	1.50	4.50	6.75
Total: Inhouse Equipment / Supplies			**11.25**
Total : EXPENSES			**11.25**
Total Phase : 32401 -- OS 8.2 DESIGN SUPPORT			**461.25**

Total Project: 01245101 -- LOWER BERRYESSA CREEK PROJECT **$461.25**

GHD Inc. USA West Offices In:
Eureka, Inland Empire, Irvine, Sacramento, San Diego, San Francisco, San Jose, Santa Ana, Santa Rosa, CA; Portland, OR; Seattle, WA; Phoenix, AZ; Guam and Saipan

Lower Berryessa Creek Project Progress Report
February 2012

Work Accomplished This Month

Task	Work Accomplished this Month
OS 8.1 Design Level Geotech Investigation	No activity this period
OS 8.2 Design Support	• Provided support to District for 90% design effort. Prepare monthly progress report and invoice. • Address any comments regarding the draft technical memorandum for the seismic/structural analysis for the Abel Street piers

Planned Activities for Next Month

Task	Planned Activities for Next Month
OS 8.1 Design Level Geotch Investigation	None planned.
OS 8.2 Design Support	• Provide support to District for 90% design effort. Prepare monthly progress report and invoice. • Finalize technical memorandum

Budget Status

Remaining contract funds have been allocated to two Design Phase tasks, OS 8.1 Design Level Geotechnical Investigation and OS 8.2 Design Support. All current and future effort on the project will be charged to these two tasks. Budget information and current charges are summarized as follows and in the attached "Task Summary" spreadsheet:

Billing Period From 01/16/2012 thru 02/19/2012	Budget	Cost		Budget	% Budget	Est. %
		Current Month	Project-to-Date	Remaining	Expended	Complete
Engineering Planning Phase	$ 2,459,362	$ -	$ 2,459,362	$ -	100%	100%
OS 8.1 Design Level Geotech Investigation	$ 141,350	$ -	$ 130,961	$ 10,389	93%	95%
OS 8.2 Design Support	$ 56,449	$ 461	$ 23,750	$ 32,699	42%	45%
Project Total	$ 2,657,161	$ 461	$ 2,614,073	$ 43,088	98%	99%

GHD Inc. 2235 Mercury Way Suite 150 Santa Rosa CA 95407 USA
T 1 707 523 1010 **F** 1 707 527 8679 **E** santarosa@ghd.com **W** www.ghd.com

Summary of Issues

There are no outstanding issues.

Attachments:
Task Summary

Lower Berryessa Creek Project

Billing Period From 01/16/2012 thru 02/19/2012

Task No.	Task	Contract Amount	Previously Billed	Current Bill	Billed to Date	Amount Remaining	Act. % Spent	Est. % Complete	Est. Earned Value
	Engineering Planning Phase	2,459,362	2,459,362	0	2,459,362	0		100%	2,459,362
OS 8.1	Design Level Geotech Investigation	141,350	130,961	0	130,961	10,389	92.7%	95.0%	134,283
OS 8.2	Design Support	56,449	23,288	461	23,750	32,699	42.1%	45.0%	25,402
	Project Total	**2,657,161**	**2,613,611**	**461**	**2,614,073**	**43,088**	**98.4%**	**98.6%**	**2,619,047**

Santa Clara Valley Water District - Task Summary - Winzler & Kelly, Consulting Engineers

Lower Berryessa Creek Project

Billing Period From 01/16/2012 thru 02/19/2012

Task No.	Task	Contract Amount	Current Retention	Current Less Retention	Total Retention	Amount Due to Date	Amount Paid to Date	Balance Outstanding
	Engineering Planning Phase	2,459,362	0	0	18,139	2,441,223	2,441,223	0
OS 8.1	Design Level Geotech Investigation	141,350	0	0	0	130,961	130,961	0
OS 8.2	Design Support	56,449	0	461	0	23,750	22,966	784
	Project Total	**2,657,161**	**0**	**461**	**18,139**	**2,595,934**	**2,595,150**	**784**

CITY OF MOUNTAIN VIEW

Finance and Administrative Services Department, 500 Castro Street, P.O. Box 7540, Mountain View, CA 94039-7540

INVOICE

Invoice Number
10 – 0222
Invoice Date
10/29/10
Due Date
11/28/10

SANTA CLARA VALLEY WATER DISTRICT
ATTN MR. SAEID HOSSENINI - SR. PROJECT
5750 ALMADEN EXPRESSWAY
SAN JOSE CA 95118-3686

Description	Amount Due
DESIGN SERVICES - REIMBURSEMENT	14,984.00
CONTRUCTION BID COST - REIMBURSEMENT	348,190.00
SCVWD reimbursement per Cost Sharing Agreement between SCWD and City of Mountain View for construction of SCVWD's floodwall as part of City's Permanente Creek Trail Project 06-33.	
Total Amount Due	$363,174.00

This bill is now due and payable and will be subject to penalty after Sunday, November 28, 2010

Questions concerning this bill should be directed to
SEAN ROSE – PUBLIC WORKS Department at (650) 903 - 6525
or Finance Department at (650) 903 - 6025

Please return this portion with payment

AG11A3401

APPROVAL FOR PAYMENT
Please Provide the Following:
SANTA CLARA VALLEY WATER DISTRICT
Routed by/Date: CC - 11/10
PO or Agreement Number
2011263266751
Bud Yr Fund Dept Account
2624400116169
~~4063301 420210 401 inv~~
Project Activity
Approved: Saeid Hosseini Date: 11/22/10

Invoice Number 10 – 0222
Balance due $363,174.00
Amount Paid $363,174.00

MARK THOMAS & COMPANY, INC.
Providing Engineering, Surveying and Planning Services

October 15, 2010 File No. SJ-10126

Mr. Sean Rose
City of Mountain View
Public Works Department
P.O. Box 7540
Mountain View, CA 94039-7540

**RE: CONSTRUCTION SUPPORT -
PERMANENTE CREEK TRAIL, HWY 101 TO
OLD MIDDLEFIELD WAY
PROJECT 06-33
INVOICE NO. 14217**

OFFICES
Cupertino
Fresno
Pleasanton
Sacramento
Salinas
San Jose
San Mateo County
Walnut Creek

Dear Mr. Rose:

Enclosed is our invoice for services performed through October 3, 2010 for your review and approval for payment.

Should you have any questions, please call.

Sincerely,

MARK THOMAS & COMPANY, INC.

Michael Fisher
Project Manager

bee

Corporate Headquarters
1960 Zanker Road San Jose, CA 95112
www.markthomas.com **Tel:** (408) 453-5373 **Fax:** (408) 453-5390

CITY OF MOUNTAIN VIEW

Finance and Administrative Services Department, 500 Castro Street, P.O. Box 7540, Mountain View, CA 94039-7540

INVOICE

Invoice Number
10 – 0329
Invoice Date
12/20/10
Due Date
1/19/11

SANTA CLARA VALLEY WATER DISTRICT
ATTN MR. SAEID HOSSENINI - SR. PROJECT
5750 ALMADEN EXPRESSWAY
SAN JOSE CA 95118-3686

Description	Amount Due
SCVWD REIMBURSEMENT FOR CONSTRUCTION CONTRACT BID COST & DESIGN SERVICES PER COST SHARING AGREEMENT BETWEEN SCVWD & CITY OF MOUNTAIN VIEW FOR CONSTRUCTION OF SCVWD'S FLOODWALL AS PART OF THE CITY'S PERMANENTE CREEK TRAIL PROJECT 06-33. THIS IS THE FINAL INVOICE FOR DESIGN SERVICES PER ITEM 4.3b OF THE AGREEMENT.	16,390.00
Total Amount Due	$16,390.00

This bill is now due and payable and will be subject to penalty after Wednesday, January 19, 2011

Questions concerning this bill should be directed to
SEAN ROSE – PUBLIC WORKS Department at (650) 903 - 6525
or Finance Department at (650) 903 - 6014

Please return this portion with payment

Invoice Number 10 – 0329
Balance due $16,390.00
Amount Paid $16,390.00

SANTA CLARA VALLEY WATER DISTRICT

AG A3401
2011 26 326 6781 26249001 1660

4063301-420210-401 Inv Approved X Saeid Hossenini Date 1-6-11

MARK THOMAS & COMPANY, INC.
Providing Engineering, Surveying and Planning Services

RECEIVED
DEC 02 2010
PUBLIC WORKS

November 30, 2010

File No. SJ-10126

Mr. Sean Rose
City of Mountain View
Public Works Department
P.O. Box 7540
Mountain View, CA 94039-7540

RE: CONSTRUCTION SUPPORT - PERMANENTE CREEK TRAIL, HWY 101 TO OLD MIDDLEFIELD WAY
PROJECT 06-33
INVOICE NO. 14557/14558

OFFICES
Cupertino
Fresno
Pleasanton
Sacramento
Salinas
San Jose
San Mateo County
Walnut Creek

Dear Mr. Rose:

Enclosed are our invoices for services performed through October 31, 2010 for your review and approval for payment. The SCVWD floodwall design is being billed separately per your instruction.

Should you have any questions, please call.

Sincerely,

MARK THOMAS & COMPANY, INC.

Michael Fisher
Project Manager

bee

110711
PO / CONTRACT INVOICES
Purchase Order No. 110900
Date Received 12/1/10
Acct. No. 4063001 - 554000
Signature
$25,496.00

Ok to pay.
SRR

Corporate Headquarters
1960 Zanker Road San Jose, CA 95112
www.markthomas.com **Tel:** (408) 453-5373 **Fax:** (408) 453-5390

QUANTITY AND COST ESTIMATE SHEET

Santa Clara Valley Water District

PROJECT: Lower Berryessa Creek Project

LOCATION: Lower Berryessa Crk @ Lower Penitenica confluence

ESTIMATOR: Bobby Tan (03/17/11)

PROJ NUMBER.: 40174004

CHECKED BY: Tony Ndah (03/17/11)

DIVISION: Watersheds Capital Projects Division

STATUS OF DESIGN: 60% Submittal

ASSUMPTIONS--The following assumptions have been made:

►Days for Completion is approximately 183 calendar days (estimated First Chargeable Date--April 16, 2012).

Apr (15dy) + May (31dy) + Jun (30dy) + Jul (31dy) + Aug (31dy) + Sep (30dy) + Oct (15dy) = 183 days.

►Construction days (not incl. weekends and holidays) is approximately 131 days (Apr16-Oct15). Weekends is approximately 52 days.

►Unit pricing developed from 2011 RS Means Heavy Construction Cost Data book and references from previous District projects.

►If applicable, Caltrans Price Index for Construction Items (Exhibit A) was used to update previous District project cost to current dollars.

►Construction Cost Escalation Rate (CCER) @ 3% per year and Market Conditions Factor (MCF) @ 0% for FY12-16 per Oct'2010 Memo.

BID ITEM	DESCRIPTION	QUANTITY	UNIT PRICE		COST
1	**COMPLIANCE WITH NPDES GENERAL PERMIT**				
	Cost from recent Lower Silver Creek Project (C0564-Jul28'10)				
	Avg Lump Sum cost of Bids is approximately $83,333	1	83,333	LS	83,333
	CCER (thru mid-year 2012; see *Assumptions* this page)		3	%	85,833
					$90,000.00
2	**MIGRATORY BIRDS**				
	Cost from recent Upper Guadalupe Reach 6 Project (C0556-Feb17'10)				
	Avg Lump Sum cost of Bids is approximately $100,000	1	100,000	LS	100,000
	Ecological services--biological surveys (Maximo labor cost for Biologist II)	40	107	HR	4,280
	Ecological services--wildlife rescues/relocation (Maximo labor cost for Biologist II)	40	107	HR	4,280
	CCER (thru mid-year 2012; see *Assumptions* this page)		3	%	111,817
					$115,000.00
3	**MOBILIZATION / DEMOBILIZATION**				
	Temporary Access Road, Staging Area and Temporary Construction Facilities				
	--Access point (AP) at ABEL ST (A = 20' x 50' x 2 sides = 200 SF)	22.2		SY	
	--AP at N MILPITAS BLVD (A = 20' x 50' x 2 sides = 200 SF)	22.2		SY	
	--AP at N HILLVIEW DR (A = 20' x 50' x 2 sides = 200 SF)	22.2		SY	
	--AP at CALAVERAS BLVD (A = 20' x 50' = 100 SF)	11.1		SY	
	--Staging area (1) by HANSON CT (A = 0.5 x 225' x 300' = 33,750 SF)	3,750		SY	
	--Staging area (2) by ABEL ST (A = 75' x 225' = 16,875 SF)	1,875		SY	

BID ITEM	DESCRIPTION	QUANTITY	UNIT PRICE		COST
3	--Staging area (3) by EMBASSY SUITES LOT (A = 50' x 265' = 13,250 SF)	1,472		SY	
(cont'd)	--Gravel fill, no surfacing, 8" depth (01 55 23.50 0100)	7,175	11.35	SY	81,436
	--Office trailer, furnished, 20' x 8' rental, x 2 trailers (01 52 13.20 0250)	7	292	MO	2,044
	--For air conditioning, rent per month, x 2 trailers (01 52 13.20 0700)	7	83	MO	581
	--Delivery cost, assume 100 mi roundtrip, x 2 trailers (01 52 13.20 0800)	100	9.20	Mi	920
	--Office equip rental, expenses, supplies, x 2 trailers (01 52 13.40 0100 & 0120)	7	572	MO	4,004
	--Telephone bill, incl long distance, x 2 trailers (01 52 13.40 0140)	7	162	MO	1,134
	--Field office lights and HVAC, x 2 trailers (01 52 13.40 0160)	7	304	MO	2,128
	--Temporary construction water bill, x 2 trailers (01 51 13.80 0700)	7	124	MO	868
	Traffic cones for AP, PVC, 28" high; 10' o.c. per cone (01 56 23.10 0850)	60	17.85	EA	1,071
	Traffic, const. signs for AP, 24" x 24", reflector (10 14 53.20 0100 & 1500)	24	148.24	EA	3,558
	Flaggers for AP (i.e. Common Laborer) (Means Div--Crew B-11W)	25	1,589	DY	39,725
	Photo Documentation-cameraman, color film, processing (01 32 33.50 1720)	5	1,375	DY	6,875
	Topographical site surveys-avg cost of min/max; 200' & 150' widths (02 21 13.09)	47	1,500.35	AC	70,516
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	253,320
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	260,920
					$265,000.00
4	**PRESERVATION FENCING**				
	--Preservation fencing at staging area (1) (L = 300' + 225' + 375')	900		LF	
	--Preservation fencing at staging area (2) (L = 2 x 75' + 2 x 225')	600		LF	
	--Preservation fencing at staging area (3) (L = 2 x 50' + 2 x 265')	630		LF	
	Cost from recent Calabazas Creek Project (C0560-Jun30'10)				
	Avg Unit price of Bids is approximately $7.50 / LF	2,130	7.50	LF	15,975
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	16,454
	Unit price for this item = 16,454 / 2,130 =		7.73	LF	**$8 / LF**
					($17,040.00)
5	**CLEARING AND GRUBBING**				
	Clear and Grub for Lower Berryessa Creek (Qty per PSR Nov18'09)				
	--Selective clearing at exist levees (A = 3 AC)	3		AC	
	--Selective clearing at toes of exist levees (A = 6 AC)	6		AC	
	--Selective clearing at access roads (A = 4 AC)	4		AC	
	--Topsoil stripping and stockpiling at exist levees (A = 16,667 SY)	16,667		SY	
	--Topsoil stripping and stockpiling at toes of exist levees (A = 26,667 SY)	26,667		SY	
	--Topsoil stripping and stockpiling at access roads (A = 17,889 SY)	17,889		SY	
	Clear brush w/ dozer, medium clearing (31 13 13.10 0400)	13.0	1,125	AC	14,625
	Grub stumps and remove, trees up to 12" dia. (31 11 10.10 0250)	12.6	2,865	AC	36,240
	Cut & chip medium, trees up to 12" dia. + stumps (31 11 10.10 0200)	12.6	4,375	AC	55,341

BID ITEM	DESCRIPTION	QUANTITY	UNIT PRICE		COST
5	Contractor's Arborist, assume field personnel labor rate (01 31 13.20 0220)	2.5	2,375	WK	5,938
(cont'd)	Add'l Crews (Crew B-7 and B-30) can work simultaneously throughout reach	2	5,933.6	DY	11,867
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	146,209
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	150,595
					$155,000.00
6	**TEMPORARY FENCING**				
	--Temporary fencing at staging area (1) (L = 300' + 225' + 375')	900		LF	
	--Temporary fencing at staging area (2) (L = 2 x 75' + 2 x 225')	600		LF	
	--Temporary fencing at staging area (3) (L = 2 x 50' + 2 x 265')	630		LF	
	--Temporary fencing at *Begin Work* area (L = 12' + 8' + 8' x 2 sides of bank)	56		LF	
	--Temporary fencing at Abel St area (L = 12' + 8' + 8')	28		LF	
	--Temporary fencing at N Milpitas Blvd trail entrances (L = 28' x 4 sides)	112		LF	
	--Temporary fencing at Hillview Dr trail entrances (L = 28' x 4 sides)	112		LF	
	--Temporary fencing at *End Work* area (L = 12' + 8' + 8' x 2 sides of bank)	56		LF	
	Rented CL-6 temporary fencing, over 1000' (01 56 26.50 0250)	2,494	5.12	LF	12,769
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	15,055
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	15,507
	Unit price for all fill = 15,507 / 2,494 =		6.22	LF	**$7 / LF**
					($17,458.00)
7	**SITE DEMOLITION**				
	Remove bridges, temp storage, demolish abutments, & haul, and dispose				
	--Remove bridge at Calera Creek, and store (A = 20' W x 70' L = 1,400 SF)	1,400		SF	
	--Remove pedestrian bridge, and store (A = 10' W x 120' L = 1,200 SF)	1,200		SF	
	--Demolish Calera Creek abutments, haul, and dispose (V = 60 CY per PSR)	1,620		CF	
	--Demolish pedestrian bdg abutments, haul, and dispose (V = 60 CY per PSR)	1,620		CF	
	Bridges, pedestrian, precast, 60'-150' long (02 41 16.33 0100)	2,600	15.65	SF	40,690
	Concrete, elevated slab, rebar, over 6 CF (02 41 19.16 1050) Use 25% of cost	3,240	7.98	CF	25,855
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	78,457
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	80,810
					$85,000.00

BID ITEM	DESCRIPTION	QUANTITY	UNIT PRICE		COST
8	**CONTROL OF WATER**				
	Sandbags, diffuser, fish screen(s) (i.e. District furnished) (3 mo diversion)				
	--Geotextile fabric/tarp for sandbags (A = 50' x 5' x 4 areas) = 1,000 SF	111.1		SY	
	Geotextile fabric, polypropylene, adverse conditions (33 46 26.10 0110)	111.1	1.96	SY	218
	4" dia HDPE pipe; L = 8,600' / 4 areas = 2,150' (33 11 13.35 0100)	2,150	9.15	LF	19,673
	4" centrifugal pump w/ suction and discharge hose (31 23 19.20 1000)	90	574	DY	51,660
	Add'l Crew (Crew B-10I) 1 laborer to check diversion on wknds (avg 8 wknd/mo)	24	274.80	DY	6,595
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	92,134
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	94,898
	Avg cost from recent Upper Guadalupe Reach 6 Project approx. $110,000				**$95,000.00**
9	**CHANNEL EXCAVATION (F)[1]**				
	Excavation for Lower Berryessa Creek (Qty per PSR Nov18'09)				
	--Excav for levee replaced by floodwall (bulk excav to PL for floodwall), BCY	174,848		CY	
	--Excav for levee, reconstructed, final benching, bulk excav, BCY	17,250		CY	
	--Excav for levee, reconstructed, benched, bulk excav, BCY	23,805		CY	
	Add 10% swell/fluff factor from excavation and hauling off-site for reuse	237,493		CY	
	Cost from recent Upper Guadalupe Reach 6 Project (C0556-Feb17'10)				
	Avg Unit price of Bids is approximately $30 / CY	237,493	30	CY	7,124,799
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	7,338,543
	Unit price for this item = 7,338,543 / 237,493 =		30.90	CY	**$35 / CY**
					($8,312,255.00)
10	**LEVEE AND EMBANKMENT FILL**				
	Embankment Fill for Lower Berryessa Creek (Qty per PSR Nov18'09)				
	--Reconstructed levee, compacted	110,207		CY	
	--Reconstructed levee-burrow (top 1-ft), compacted	23,460		CY	
	--Bench for vegetation strip-native, compacted	7,359		CY	
	Add 3% shrinkage/compaction factor	145,388		CY	
	Embkmt backfill labor, compact 12" layers, vibrating plate (31 23 23.13 1100)	145,388	23.13	CY	3,362,816
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	3,964,760
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	4,083,703
	Unit price for all fill = 4,083,703 / 145,388 =	145,388	28.09	CY	**$30 / CY**
	Note: Cost is for labor and equipment only. Suitable fill material supplied from all excavation.				**($4,361,640.00)**

BID ITEM	DESCRIPTION	QUANTITY	UNIT PRICE		COST
11	**SHORING**				
	--Shoring for floodwall excavation(A = 8,883 SF per PSR Nov18'09)	8,883		SF	
	Wood, solid sheeting, 20' deep, drive, extract, & salvage (31 41 16.10 4500)	8,883	9.62	SF	85,454
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	100,751
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	103,773
					$105,000.00
12	**SOIL-CEMENT FILL MATERIAL**				
	Soil-Cement for Lower Berryessa Creek (Qty per PSR Nov18'09)				
	~~--Floodwall and lower maintenance road, incl turnouts~~	~~43,000~~		~~CY~~	
	--Floodwall and lower maintenance road, incl turnouts (per revised x-sec)	21,000		CY	
	--Guide vane at Sta 0+00	1,037		CY	
	--Apron at R/R crossing culverts	625		CY	
	Soil-cement, incl scarify and compaction, 12% mix, 12" deep (31 32 13.16 1360)	22,662	17.68	SY	400,664
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	472,383
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	486,555
					$490,000.00
13	**TOPSOIL**				
	Topsoil for Lower Berryessa Creek (Qty per PSR Nov18'09)				
	--Reconstructed levee slopes	20,500		CY	
	--Vegetation strip	7,400		CY	
	Topsoil placement and grading, furnish and place, 6" deep (32 91 19.13 0800)	55,800	6.30	SY	351,540
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	414,466
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	426,900
					$430,000.00
14	**OFFSITE SOIL DISPOSAL (F)[1]**				
	--Exacavated amount in *Excavation--Bid Item No (9)*	237,493		CY	
	--Fill amount from *Native Fill Material--Bid Item No (10)*	145,388		CY	
	Haul excess excav after fill amount, V = 113,590 CY (31 23 23.20 4046)	92,106	3.65	CY	336,186
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	396,363
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	408,254
					$410,000.00

BID ITEM	DESCRIPTION	QUANTITY	UNIT PRICE		COST
15	**ROCK RIPRAP**				
	--Volume of riprap at Sta 29+00 (V_T = 100 LCY per PSR Nov18'09)	100		CY	
	--Weight for 1-Ton rock (V_T = 2,700 CF x 150 PCF / 2000 = 202.50 TON)	202.50		TON	
	Cost from recent Lower Silver Creek Project (C0564-Jul28'10)				
	Avg Unit price of Bids is approximately $52 / TON (Use $100/TON for scale)	202.50	100	TON	20,250
	Labor + Equipment for placement and installation of 1-ton rock use $21.80/CY to account for deletion of "materials" cost (31 37 13.10 0100)	100	21.80	CY	2,180
	Labor cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	2,570
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	23,505
	Unit price for this item = 23,505 / 202.50 =		116	TON	**$120 / Ton**
					($24,300.00)
16-22	**CONCRETE FLOODWALLS (TYPES I, II, III, III A, IV, V, V A)**				
	Cast-In-Place Concrete for Lower Berryessa Crk (Qty per PSR Nov18'09)				
	--Main floodwall-Foundation V = 11,000 CY	11,000		CY	
	--Main floodwall-Wall V = 5,300 CY	5,300		CY	
	--Abutments for vehicular bridge at Calera Creek V = 130 CY	130		CY	
	--Abutments for pedestrian bridge V =105 CY	105		CY	
	--Retaining walls at R/R crossing V = 482 CY	482		CY	
	--Retaining walls at N Milpitas Blvd Bridge V = 106 CY	106		CY	
	--Retaining walls at Town Center access ramp V = 107 CY	107		CY	
	--Floodwalls at Tularcitos Creek V = 140 CY	140		CY	
	Cost from recent Upper Guadalupe Reach 6 Project (C0556-Feb17'10)				
	Avg Unit price of Bids is approximately $750 / CY	17,370	750	CY	13,027,500
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	13,418,325
	Unit price for this item = 13,418,325 / 17,370 =		772.50	CY	**$800 / CY**
					($13,896,000.00)
23	**PEDESTRIAN BRIDGE MODIFICATIONS**				
	--Salvage exist pedestrian bridge, stl truss, 127' L, 10' W (Qty per PSR Nov18'09)	5	7,120	DY	35,600
	--Concrete abutments for pedestrian bridge (Qty per PSR Nov18'09)	105	560	CY	58,800
	--Flexible paving for pedestrian bridge ends (Qty per PSR Nov18'09)	156	18.62	SY	2,896
	Bring these price into current dollars. Caltrans CPI factor = 76.8/78.4 = 0.97959		0.97959	Indx	95,311
	--Adjustable jack post (data on hydraulic jacks unavailable) (05 12 23.15 5850)	8	67.50	EA	540
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	637
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	98,826
					$100,000.00

BID ITEM	DESCRIPTION	QUANTITY	UNIT PRICE		COST
24	**WRIGLEY FORD CONFLUENCE OUTLET MODIFICATIONS**				
	--18" dia SD with flapgate at new VTA culvert (L = 10')	10		LF	
	--36" dia SD with flapgate at new VTA culvert (L = 60')	60		LF	
	--Storm drain with flapgate at new VTA culvert (L = 15', assume 18" dia)	15		LF	
	--Modify exist outlet at Wrigley Ford Pump Station (L = 20', assume 36" dia each)	60		LF	
	Storm drain, galvanized metal, coated, 18" dia, 16 ga (33 41 13.40 2120)	25	29.94	LF	749
	Storm drain, galvanized metal, coated, 36" dia, 12 ga (33 41 13.40 2180)	120	55.10	LF	6,612
	Flap gate, aluminum, 18" dia (35 20 16.66 0100)	2	2,347.00	EA	4,694
	Flap gate, aluminum, 36" dia (35 20 16.66 0130)	4	4,780.00	EA	19,120
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	36,755
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	37,857
					$40,000.00
25	**EROSION CONTROL BLANKET**				
	--Erosion control mat at reconstructed levee (A = 61,300 SY per PSR)	61,300		SY	
	--Erosion control mat at bench for vegetation strip (A = 8,700 SY per PSR)	8,700		SY	
	Cost from current Upper Guadalupe Reach 6 Project (C0556-Feb17'10)				
	Avg Unit price of Bids is approximately $3.35 / SY (Use $3.50/SY)	70,000	3.50	SY	245,000
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	252,350
	Unit price for this item = 252,350 / 70,000 =		3.61	SY	**$4 / SY**
					($280,000.00)
26	**ASPHALT PAVING**				
	--AB for maintenance road at top of levee, 12" deep (Qty per PSR Nov18'09)	17,900		SY	
	--AB for other access road, 12" deep (Qty per PSR Nov18'09)	21,200		SY	
	--Flexible paving for maintenance road at top of levee (Qty per PSR Nov18'09)	18,000		SY	
	--Flexible paving for other access roads, pedestrian bridge access (Qty per PSR N	21,200		SY	
	Aggregate base course, crushed 1-$^{1}/_{2}$", compacted, 8" deep (32 11 23.23 1522)	8,689	44.59	CY	387,438
	Plant-mix asphalt paving, wearing course, 2" thick (32 12 16.13 1270)	39,200	9.80	SY	384,160
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	909,714
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	937,005
					$940,000.00

BID ITEM	DESCRIPTION	QUANTITY	UNIT PRICE		COST
27	**HYDROSEEDING**				
	Hydro-seeding w/ mulch for Lower Berryessa Creek (Qty per PSR)				
	--Reconstructed levee slopes (A = 61,300 SY)	61,300		SY	
	--Vegetation strip (A = 8,700 SY)	8,700		SY	
	Cost from current Upper Guadalupe Reach 6 Project (C0556-Feb17'10)				
	Avg Unit price of Bids is approximately $1,540 / AC	14.5	1,540	AC	22,330
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	23,000
	Unit price for this item = 23,000 / 14.5 =		1,586	AC	**$1,600 / AC**
					($23,200.00)
28	**12-INCH BURIED BYPASS PIPE**				
	--Bypass pipe at STA 4+00 - STA 9+20 (L = 520')	520		LF	
	--Bypass pipe at STA 11+60 - STA 20+20 (L = 860')	860		LF	
	--Bypass pipe at STA 30+50 - STA 53+20 (L = 2270')	2,270		LF	
	12" dia corrugated HDPE piping, water tight conn (33 41 13.50 1135)	3,650	11.40	LF	41,610
	12" dia HDPE split coupling, spaced at 300-feet (33 41 13.50 1402)	13	61.30	EA	797
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	49,998
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	51,498
					$55,000.00
29	**16-FOOT DOUBLE-SWING SIX-FOOT CHAIN LINK GATES**				
	--Access gate at Lower Penitencia confluence (L = 20')	1		EA	
	--Access gates at N Milpitas Blvd bridge (L = 20' x 4 trail entrances)	4		EA	
	--Access gates at N Hillview Dr bridge (L = 20' x 4 trail entrances)	4		EA	
	Double swing gates, 6' high, 12' opening, in conc (32 31 13.20 5060)	9	796	EA	7,164
	Tabulated cost x 1.179 city location factor (Ref: San Jose, CA)		17.9	%	8,446
	CCER (thru mid-year 2012; see *Assumptions* on Pg.1)		3	%	8,700
					$9,000.00
	TOTAL				**$30,315,893.00**

[1](F) Final Pay Quantity Item

Project: Lower Penitencia Creek Capacity Restoration
Location: Coyote Creek confluence to Berryessa Creek confluence

Phase: Early Planning
Length of project: ~ 4700 ft

Construction Cost Breakdown

* does not include task 8: construction contracting, revegetation/hydroseeding (part of environmental compliance)					
Description	Quantity	%	Unit Price		Cost
compliance with NPDES General Permit	1		$30,000	LS	$30,000
materials		0.2			$6,000
equipment		0.2			$6,000
labor		0.6			$18,000
ecological services (biological surveys,monitoring,rescues,relocation, etc...)	1		$30,000	LS	$30,000
materials		0.2			$6,000
equipment		0.1			$3,000
labor		0.7			$21,000
mobilization	1		$50,000	LS	$50,000
materials		0.25			$12,500
equipment		0.2			$10,000
labor		0.55			$27,500
clearing and grubbing	1		$60,000	LS	$60,000
materials		0.1			$6,000
equipment		0.2			$12,000
labor		0.7			$42,000
dewatering systems	1		$50,000	LS	$50,000
materials		0.3			$15,000
equipment		0.35			$17,500
labor		0.35			$17,500
channel excavation	20000		$35	CY	$700,000
(4700' length x 3' sed x 40' wide)					
materials		0.14			$98,000
equipment		0.2			$140,000
labor		0.66			$462,000
levee and embankment excavation	40000		$35	CY	$1,400,000
(4700' x 2 (for both sides) x 24' wide of levee slope x 12' high)*.4					
materials		0.14			$196,000
equipment		0.2			$280,000
labor		0.66			$924,000
in-channel fill					
(2500' dual channel length x 30' wide x 3' additional height)	8000		$30	CY	$240,000
materials		0.14			$33,600
equipment		0.2			$48,000
labor		0.66			$158,400
levee and embankment fill	40000		$30	CY	$1,200,000
(4700' x 2 (for both sides) x 24' wide of levee slope x 12' high*.4 (multiplier)					
materials		0.14			$168,000
equipment		0.2			$240,000
labor		0.66			$792,000
maintenance roads and ramps adjustments	1		$60,000	LS	$60,000
materials		0.2			$12,000
equipment		0.3			$18,000
labor		0.5			$30,000
winterization (erosion blankets and other methods/materials as needed)	1		$70,000	LS	$70,000
materials		0.3			$21,000
equipment		0.2			$14,000
labor		0.5			$35,000
traffic control	1		$30,000	LS	$30,000
materials		0.25			$7,500
equipment		0.2			$6,000
labor		0.55			$16,500
temporary fencing	1		$60,000	LS	$60,000

materials		0.3			$18,000
equipment		0.15			$9,000
labor		0.55			$33,000
demobilization	1		$40,000	LS	$40,000
materials		0.25			$10,000
equipment		0.2			$8,000
labor		0.55			$22,000
total materials	$610,000				
total equipment	$810,000				
total labor	$2,600,000				
Total Construction Cost	$4,020,000				

Santa Clara Valley Water District

GENERAL ACCOUNTING UNIT
ROUTING SLIP

Date of Routing: 10/9/12

No.	Name	Initial	Date
	CEO/GM (102)		
	GENERAL COUNSEL (112)		
	Yamamoto, S		
	Lei-Morales, S		
	COMMUNICATIONS UNIT (172)		
	OPERATIONS (202)		
	Water Supply Mgmt (425)		
	Kao, C		
	Garcia, S		
	Hurley, L		
	Dam Safety (595)		
	Desai, H		
	Mooers, M		
	Wu, S		
	Ferranti, S		
	Akiyama, K		
	Valle, M		
	Julian, S		
	Springer, B		
	Hernandez, T		
	Martin, M		

No.	Name	Initial	Date
	Watershed Management (210)		
	Groundwater Management (465)		
	Ahmadi, B		
	De La Piedra, V		
	Mohr, T		
	Water Use Efficiency Unit (445)		
	Ashktorab, H		
	De La Piedra, G		
	Elvert, K		
	John, P		
	Morvay, K		
	De La Piedra, G		
	Vye, T		
	Arnold, D		
	Aryee, E		
	Caldon, D		
	Dharasker, S		
	Dougherty, T		
	O'Kane, K		
	Nguyen, Tim		
	Springer, R		
	Uyeda, K		

No.	Name	Initial	Date
	General Accounting Unit (673)		
3	**Canha, G**		
	Capital Program Services (310)		
	Butler, D		
	Chen, J		
	Cheong, D		
	Harris, S		
	Hosseini, S		
	Idowu, S		
	Leal, M		
	Lueneberger, K		
	Ndah, T		
	Nguyen, Ngoc		
	Rouhani, A		
	Szabo, T		
	Tsou, E		
	Weese, R		
	Yung, T		
	Szabo, T		
1	TAN, B	BT	10/11/12
2	Minkler, K		

☒ Your approval of the attached invoices indicates that the service/items have been received in accordance with the terms of our agreement.

☐ You are to retain the attachment

☐ Other: ______________________

Agreement Amount: ______________

Less Total Billings to Date: ______________

Available Amount: ______________

Agreement No. A2496G
Project No. 401704
October 2, 2012
Invoice #99829

Dennis Cheong
Santa Clara Valley Water District
P.O. Box 20670
San Jose, CA 95160-0670

ESA Project #: 201425
Client ID: 01085

BERRYESSA CREEK LEVEES PROJECT EIR
(SCVWD #401704)

SCVWD OCT 4'12AM10:20

Services for the period: July 1, 2012 to July 31, 2012

Project Manager: Alisa Moore

Task 1--Project Management	$	-
Task 2--CEQA	$	-
Task 3--Permitting	$	488.75
Task 4--Design	$	-
Task 5--Optional Tasks	$	-
Task 6--Optional Services #2	$	-
Task 7--Calera/Tularcitos Creeks (Amend. No. 1)	$	170.00
Task 8--Upper Celera (Amend. No. 2)	$	-
Total Due This Invoice	**$**	**658.75**
Prior Retainage Due To Date	*$*	*72,935.83*

I hereby certify that the charge of **$658.75** as summarized above and shown on the attachments represents charges for the time actually worked, is fair and reasonable, is in accordance with the terms of Agreement #A2496G dated 12/18/2001, and has not been previously paid.

Approved by

Alisa Moore
Project Director
Environmental Science Associates

APPROVAL FOR PAYMENT

Please Provide the Following:

Routed By/Date: 6.C. 10/9

A608A2496
PO or Agreement Number

2012 12 3346 163
Bud Yr Fund Dept Account

4017 4004 1209
Project Activity

Approved: _____ Date: _____

Terms: Net 30 days
Please send payment to:
Environmental Science Associates
PO Box 92170
Elk Grove, IL 60009

ESA Federal ID # 94-1698350

ESA Water

225 Bush Street
Suite 1700
San Francisco, CA 94104
415.896.5900 phone
415.896.0332 fax

www.esassoc.com

memorandum

date October 2 , 2012

to Dennis Cheong, SCVWD

from Priya Finnemore, ESA

subject Lower Berryessa Creek - July 1, 2012 through July 31, 2012
Attachments: Invoice for ESA #99829

A. BUDGET STATUS

~~Table 1a presents a summary of costs, budget and percent complete by task.~~
Total project percent budget expended: 99%.

B. SCHEDULE STATUS

No future work is currently scheduled; ESA is awaiting direction or requests from the District

C. WORK COMPLETED AND WORK SCHEDULED

Table 2 indicates work completed during the reporting period and work scheduled for the remainder of the project.

Work Completed during the reporting period July 2012:

- Contacted Holly Costa (USACE) to ensure 404 IP permit application remained in good status
- Worked with the District (Sunny Williams) to summarize status of all permit applications and agency requests for additional information, including outstanding need for response to comments on USACE Public Notice (comment rec'd from EPA, regarding long term maintenance impacts and mitigation proposal).
- Worked with District (Sunny Williams) to consider CEQA document coverage of O&M activities within newly-created creek areas.
- Worked with District (Sunny Williams) to summarize current status of impact calculations and availability for on-site mitigation
- Project management including invoicing, scheduling and meetings

Future Work Scheduled:

- Periodically contact USACE Regulatory Project Manager, Holly Costa, re. Individual Permit processing status (to maintain communication and ensure no permit withdrawal or other negative actions).

D. MAJOR PROJECT DECISIONS

The District has elected to complete the following tasks:

- Complete Draft RWQCB 401 and CDFG 1600 applications, including revisions to address long term maintenance of new channel areas and a revised mitigation proposal, with minor input/review by ESA prior to submittal
- Request new application fee checks and deliver with permitting items (CDFG + RWQCB applications)
- Prepare response to EPA comment on the USACE IP Public Notice, with input/guidance from ESA
- Prepare a 404(b)(1) Alternatives Analysis in support of USACE IP and RWQCB 401 Certification
- Prepare a 'basic' Habitat Mitigation and Monitoring Plan (HMMP), with minor oversight/guidance from ESA
- Printing and distribution of all remaining permitting items

E. OUSTANDING ISSUES

The District has expressed an interest in utilizing remaining budget for ESA's assistance in negotiating permitting terms and conditions, including mitigation and monitoring, with the regulatory agencies. The request for future permitting assistance from ESA will be made by the District, based upon budget, logistics, and District staff availability.

TABLE 2
WORK COMPLETED THROUGH JULY 2012 AND WORK SCHEDULED

Task	Work Completed During the Reporting Period (July 1, 2012 through July 31, 2012)	Work to Be Completed During the Next Reporting Period
Task 1: Project Management		
PM1 – Work Plan, PM2 – Kick-off Meeting, PM4 – Project Management	None.	None.
PM3 – Monthly Meetings	None.	Occasional conference calls may be necessary.
PM5 – Engineering Coordination		
Task 2: CEQA		
C1 – Alternatives Screening	None.	None.
C2 – Consult w/ Resp. Agen.	None.	None.
C3 – Notice of Preparation	None	None
C4 – Public Outreach	None.	None.
C5 – Admin. DEIR	None.	None.
C6 – Screen Check DEIR/Public DEIR	None.	None.
C7 – Public Review DEIR	None.	None.
C8 – Draft FEIR	None.	None.
C9 – Certification Materials/MMP	None.	None.
C10 – Screen Check FEIR	None.	None.
C11 – FEIR Distribution	None.	None.
C12 – Certify FEIR	None.	None.
C13 – File NOD	None.	None.
Task 3: Permits		
P1 – Interagency Meeting	None.	None.
P2 – Biological Studies	None.	None.
P3 – Wetland Delineation	None.	None.
P4 – Biological Assessment	None.	None.
P5 – ACOE Permit Apl.	None (submitted).	None (submitted).
P6 – ACOE Review	Continued follow-up; Develop draft response to PN comments.	Respond to District requests, as needed
P7 - JARPA	None.	None.
P8 – DFG/RWQCB Review	Continued work on the permit applications	Respond to District requests, as needed
Task 4: Design Review		
DR1 – 30% Review	None.	None.
DR2 – 60% Review	None.	None.
DR3 – 90% Review	None.	None.
Task 5: Unauthorized Optional Services		
	None.	None.
Task 6: Authorized Optional Services		
Project Management	None.	None.
Alternatives Screening	None.	None.
Task 7: Calera/Tularcitos Creeks (Amendment No. 1)		
A1.1 Alternatives Screening	None.	None.
A1.2 Consult with Responsible Agencies	None.	None.
A1.3 Incorporate into NOP	None.	None.
A1.4 Incorporate into ADEIR and DEIR	None.	None.
A1.5 Incorporate into FEIR	None.	None.
A1.6 Biological Studies (Existing Conditions)	None.	None.
A1.7 Wetland Delineation	None.	None.
A1.8 Incorporate into Bio Assessment	None.	None.
A1.9 Incorporate into Corps Appl/Rvw	None.	None.
A1.10 Incorporate into JARPA/Rvw	None.	None.
A1.11 Design Services	None.	None.
A1.12 Project Management	None.	None.
A1.OS *Optional Services*	Current: Prepare monthly progress report and invoices; review PCRs.	On-going: Prepare monthly progress report and invoices; review PCRs.
Task 8: Upper Calera Creek (Amendment No. 2)		
B1.1 Alternatives Screening	None.	None.

Task	Work Completed During the Reporting Period (July 1, 2012 through July 31, 2012)	Work to Be Completed During the Next Reporting Period
B1.2 Incorporate into NOP	None.	None.
B1.3 Incorporate into Project Description	None.	None.
B1.4 Incorporate into FEIR	None.	None.
B1.5 Biological Studies	None.	None.
B1.6 Wetland Delineation	None.	None.
B1.7 Incorporate into BA	None.	None.
B1.8 Incorporate into Corps Permit	None.	None.
B1.9 Incorporate into 401/1602	None.	None.
B1.10 Project Management	None.	None.
B1.OS *Optional Services*	None.	None.

ESA

Environmental Science Associates
550 Kearny Street, Suite 800
San Francisco, CA 94108
(415) 896-5900

INVOICE

Dennis Cheong
Santa Clara Valley Water District
Accounts Payable Department
P.O. Box 20670
San Jose, CA 95160-0670

October 02, 2012
Invoice No: 99829
Project Manager: Alisa Moore

Project D201425.00 Lower Berryessa Creek Project

Professional Services from July 01, 2012 to July 31, 2012

Task 0000003 Permitting

Subtask 0000P08 P08-DFG/RWQCB/BCDC Review

Professional Personnel

	Hours	Rate	Amount	
Managing Associate II				
Finnemore, Priya	4.25	115.00	488.75	
Totals	4.25		488.75	
Total Labor				**488.75**
		Total this Subtask		**$488.75**
		Total this Task		**$488.75**

Task 0000007 Calera/Tularcitos Creeks

Subtask 00000OS A1.OS-Optional Services

Professional Personnel

	Hours	Rate	Amount	
Project Manager				
Kanner, Elizabeth	1.00	135.00	135.00	
Administrative				
Pennington, Jay	.50	70.00	35.00	
Totals	1.50		170.00	
Total Labor				**170.00**
		Total this Subtask		**$170.00**
		Total this Task		**$170.00**
		TOTAL INVOICE AMOUNT:		**$658.75**

	Current	Prior	Total	Received
Billings to Date	**658.75**	**901,736.30**	**902,395.05**	**828,800.47**

Remit to:

Environmental Science Associates
P.O. Box 92170
Elk Grove, IL 60009

PAYMENT DUE UPON RECEIPT

REMIT PAYMENTS TO:
DEPT LA 23922
PASADENA, CA 91185-3922

707.523.1010

FEDERAL TAX IDENTIFICATION NUMBER : **98-0425935**

Agreement #: A2403
Invoice #: 68912
Invoice Date: 11/19/2012
Project: 01245101

SANTA CLARA VALLEY WATER DISTRICT
COYOTE WATERSHED PROGRAM
P.O. BOX 20670
SAN JOSE CA 95160-0670

SCVWD DEC 4'12AM10:16

ACCOUNTS PAYABLE/DENNIS CHEUNG

Billing Period from 4/16/2012 through 11/11/2012

LOWER BERRYESSA CREEK PROJECT

TASK OS 8.1 DESIGN LEVEL GEOTECH INVEST	0.00
TASK OS 8.2 DESIGN SUPPORT	92.25

Per conversation with Rick Jorgenson of GHD, we will not release the retention at this time. Insted, Mr. Jorgenson will submit a separate invoice for $92.25. Ted I. (1/9/13)

TOTAL INVOICE AMOUNT: 92.25
RETAINAGE DUE: 18,138.63

TOTAL DUE: $18,230.88

I hereby certify as principal of the firm GHD that the charge of $18,230.88 as summarized above & shown on the attachments represents charges for the time actually worked, is fair & reasonable, is in accordance with the terms of Agreement #A2403 dated 02/14/01, and has not been previously paid.

Approved by

STEPHEN J COX
GHD

DATE: 11/20/12

APPROVAL FOR PAYMENT

Please Provide the Following:
A608A403
PO or Agreement Number

Routed By/Date: G.C. 12/5

Bud Yr | Fund | Dept | Account

Project | Activity

Approved _____ Date: _____

FEDERAL TAX IDENTIFICATION NUMBER : **98-0425935**

REMIT PAYMENTS TO:
DEPT LA 23922
PASADENA, CA 91185-3922

707.523.1010

SANTA CLARA VALLEY WATER DISTRICT
COYOTE WATERSHED PROGRAM
P.O. BOX 20670
SAN JOSE, CA 95160-0670

Attention: MR DENNIS CHEUNG

Invoice # : 68912
Invoice Date : 11/19/2012
Project : 01245101
Client : 2451
Invoice Group : **

Billing Period from 4/16/2012 through 11/11/2012

LOWER BERRYESSA CREEK PROJECT
Contract # 40174004

		Current Billings
Phase : 32401 -- OS 8.2 DESIGN SUPPORT		
	Labor	90.00
	Unit Pricing	2.25
	Phase Total	**92.25**
	Current Charges	**92.25**
	Current Retention Due	**18,138.63**
	Amount Due This Invoice:	**$18,230.88**

STEPHEN J COX

Statement

Prior Invoices	$2,615,087.69
This Invoice	$92.25
Total Invoiced	$2,615,179.94
Invoices Paid to Date	$2,596,949.06
Unpaid Retainage Due	**$18,138.63**
Unpaid Invoices Due	**$92.25**

Project Fee Summary

Authorized Fee	$2,657,161.00
Total Invoiced	$2,615,179.94
Unbilled Fee Remaining	$41,981.06

REMIT PAYMENTS TO:
DEPT LA 23922
PASADENA, CA 91185-3922

707.523.1010

FEDERAL TAX IDENTIFICATION NUMBER : **98-0425935**

Project : 01245101 -- LOWER BERRYESSA CREEK PROJECT **Invoice # : 68912**

Phase : 32401 -- OS 8.2 DESIGN SUPPORT

Rate Schedule Labor

Class / Employee Name	*Hours*	*Rate*	*Amount*
Senior Project Engineer			
CLAY S SERRAHN	0.50	180.00	90.00
Total : LABOR			**90.00**

Unit Pricing

Vendor / Employee Name	*Units*	*Rate*	*Amount*
Inhouse Equipment / Supplies			
CLAY S SERRAHN	0.50	4.50	2.25
Total : EXPENSES			**2.25**
Total Phase : 32401 -- OS 8.2 DESIGN SUPPORT			**92.25**

Total Project: 01245101 -- LOWER BERRYESSA CREEK PROJECT **$92.25**

REF: 01245101

November 20, 2012

Mr. Dennis Cheung
Santa Clara Valley Water District
Coyote Watershed Program
PO Box 20670
San Jose, CA 95160-0670

Re: Lower Berryessa Creek Project - October Invoice # 68912

Dear Mr. Cheung:

Enclosed please find the invoice for services through early November 2012 for the above referenced project. The invoice reflects services for reviewing and revising the seismic/structural analysis for the Abel Street piers at the request of the District. In addition, based on a conversation with Tony Ndah, we are invoicing the retainage that has been withheld.

If you have any questions please do not hesitate to contact me.

Sincerely,
GHD

Steve Cox, P.E.
Project Manager

Berryessa Creek Project

Santa Clara County, California

Appendix B

Engineering and Design

Part IV: Design and Cost of Alternatives

TETRA TECH

JULY 2012

BERRYESSA CREEK PROJECT

APPENDIX B, Part IV: Design and Cost of Alternatives

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CHAPTER 1: INTRODUCTION

This portion of the engineering appendix (*Appendix B, Part IV: Design and Cost of Alternatives*) describes the underlying assumptions behind project alternative designs, quantity takeoffs, and cost estimates for the Berryessa Creek project alternatives. Design considerations and corresponding costs are presented for individual project features along Berryessa Creek. The project features include modifications to channel reaches and bridge and culvert crossings located between I-680 at the upstream end of the project and Calaveras Boulevard at the downstream end. The project reach includes eight existing bridge and culvert crossings within the project area, as described in Table 1.1.

Table 1.1 Existing Bridge and Culvert Crossings within Berryessa Creek Project Area

Station	Description	Approximate Dimensions
248+00	I-680	60-ft top span x 10-ft height, trapezoidal channel
210+90	Montague Expy	Double 12-ft span x 9-ft height box culvert
206+05	UPRR Trestle	40-ft top span x 10-ft height, 4 sets of piers
186+80	UPRR Culvert	Triple 11-ft span x 12-ft height box culvert
182+10	Ames Avenue	75-ft top span x 10-ft height, trap. channel, single pier
168+80	Yosemite Drive	75-ft top span x 10-ft height, trap. channel, single pier
137+50	Los Coches Street	75-ft top span x 10-ft height, trap. channel, single pier
131+05	Calaveras Blvd	50-ft span x 7-ft height, 4 continuous piers

The following chapters discuss the proposed modifications to individual bridge and culvert crossings and the channel reaches bounded by each crossing. Project features are discussed in order from upstream to downstream. The hydraulic conveyance capacity of proposed channels and bridge and culvert crossings are based on the results presented in *Appendix B, Part I: Hydraulic Analysis of Alternatives*. Further discussion on damages, economic costs and benefits, and the selection of the level of performance is included in *Appendix C: Economics*.

All vertical elevation data referenced in this report, including cross sectional and profile plots, are in the NAVD88 vertical datum. Some cross section and profile views are shown with substantial vertical exaggeration. All cross sections are shown looking downstream, and references to right and left bank are likewise based on a downstream orientation. Stationing is based on the HEC-RAS cross section identifiers as described in *Appendix B, Part I: Hydraulic Analysis of Alternatives*. Figure 1.1 shows the relative location of the individual bridge and culvert crossings within the project footprint. A more detailed project footprint, including temporary construction easements, staging areas, and access routes, is presented in the overview exhibits of the accompanying set of 11”x17” plan/profile sheets (Sheets G-3, G-4, and G-5).

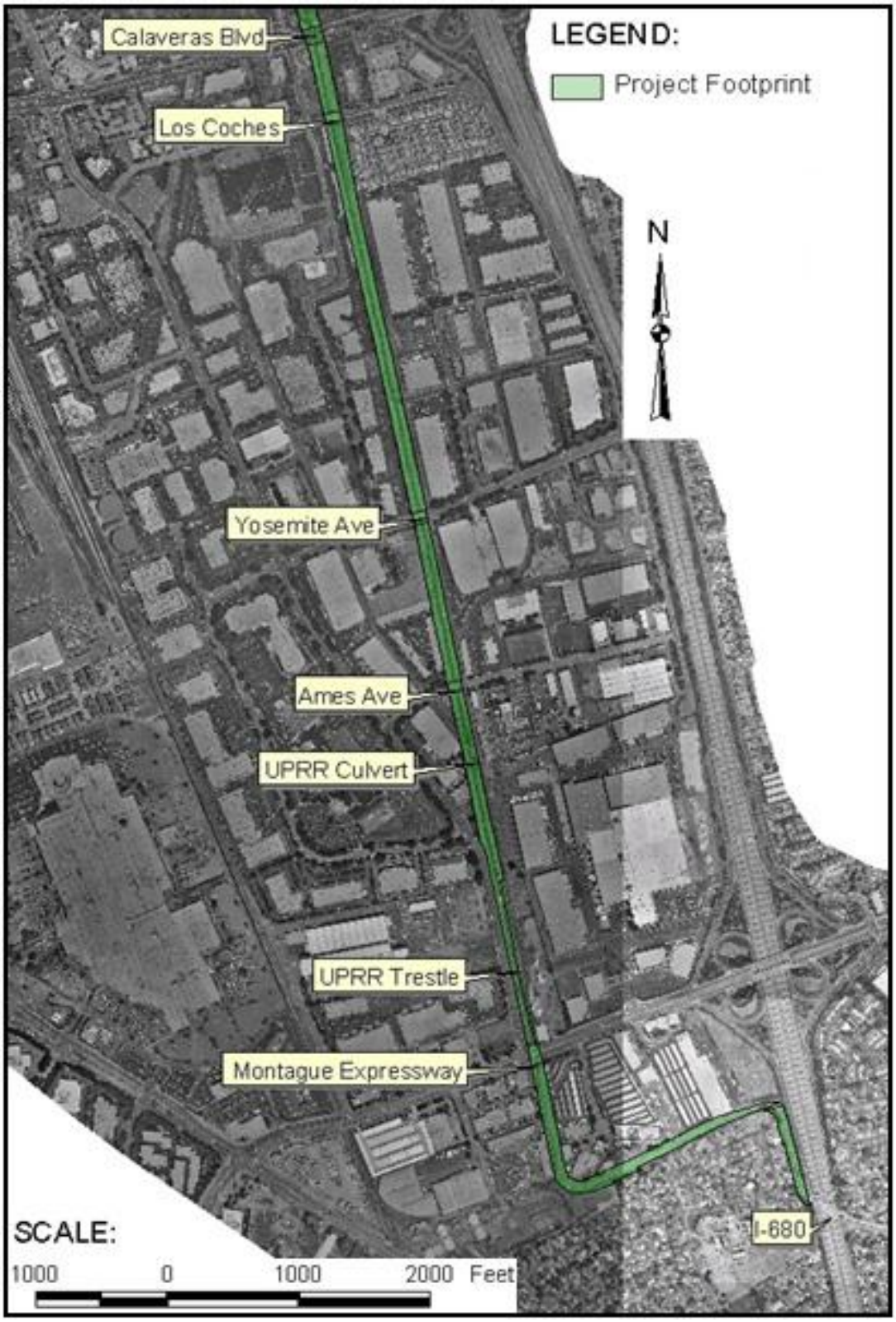


Figure 1.1 Berryessa Creek Project Footprint

CHAPTER 2: ALTERNATIVES

2.1 Preliminary Array of Alternatives

The preliminary array of alternatives included an incised trapezoidal channel, a terraced trapezoidal channel, a walled trapezoidal channel, and the Authorized Plan (a concrete trapezoidal channel). Further details on the evaluation criteria, screening process, and refinement of the alternatives array are included in *Appendix B, Part I: Hydraulic Analysis of Alternatives* and *Appendix C: Economics*.

The 1990 Authorized Plan was designed for 1% chance exceedance discharges that have since been modified under revised hydrologic analyses. Levees, floodwalls, and tops of bank in the current project alternatives are designed according to risk and uncertainty principles as described in *Appendix B, Part I: Hydraulic Analysis of Alternatives*.

2.2 Final Array of Alternatives

Three project alternatives are being evaluated under the final array of alternatives along with a no-action alternative. The project features comprising each alternative are summarized below:

- *Alternative 1 (No Action)*. Without-project condition, assuming routine maintenance.

- *Alternative 2A/d (Incised Trapezoidal Channel)*. Earthen trapezoidal channel section with varying bottom width and 2:1 sideslopes. Free-standing concrete floodwalls as needed and in-channel access road where suitable. This alternative applies a moderate level of flood risk reduction, passing the 50% certainty 0.01 event without additional certainty. Under this alternative, all bridge and culvert crossings remain in their existing configuration, with the exception of the UPRR trestle, which is replaced with a triple barrel concrete box culvert.

- *Alternative 2B/d (Incised Trapezoidal Channel)*. Earthen trapezoidal channel section with varying bottom width and 2:1 sideslopes. Free-standing concrete floodwalls as needed and in-channel access road where suitable. This alternative applies a FEMA-certifiable level of flood risk reduction, passing the 0.01 event with 95% certainty. Under this alternative, all bridges and culverts are replaced with the exception of I-680, Ames Avenue and Yosemite Drive.

- *Alternative 4/d (Walled Trapezoidal Channel)*. 10-ft bottom width earthen low-flow channel with 3:1 sideslopes, 3 ft deep. Two vegetated floodplain benches bounded by vertical concrete floodwalls, 32-ft bench width on the left bank, and 10-ft width on the right bank. Access road location varies. Wall extensions as required to contain flows. This alternative applies a FEMA-certifiable level of flood risk reduction, passing the 0.01 event with 95% certainty. Under this alternative, all bridges and culverts are replaced with the exception of I-680, Ames Avenue and Yosemite Drive.

All project alternatives include a 15-foot obstruction-free zone outside of the project features along both banks. The obstruction-free zone also acts as a vegetation-free zone to ensure compliance with current vegetation criteria for levees and floodwalls. The obstruction-free zone also acts as an access route for flood-fighting and maintenance activities.

2.2.1 Alternative 1

Alternative 1 is the no action alternative and represents without-project conditions, assuming routine maintenance. The performance of the existing creek and flood control system, including a description of the existing capacities of channel reaches and bridge and culvert crossings, is described in *Appendix B, Part I: Hydraulic Analysis of Alternatives*. The no-action alternative assumes channel reaches and bridge and culvert crossings are fully maintained to remove accumulated debris and repair flood damage. For areas with existing debris accumulation or erosion problems, the hydraulic performance of the without-project conditions model described in *Appendix B, Part I: Hydraulic Analysis of Alternatives* may therefore differ from the actual observed conditions. Estimated maintenance quantities are described in Chapter 3.

2.2.2 Alternative 2A/d

Schematic sections of Alternative 2A/d are shown in Figure 2.1. This scenario involves the following features:

- Channel excavation and earthen levee construction to the water surface level of the 50% certainty, 0.01 exceedance probability event discharge from I-680 to Calaveras Boulevard
- 2H:1V sideslopes with cellular bank protection and buried riprap scour protection
- Free-standing concrete floodwalls in the immediate vicinity of Montague Expressway as well as between the Piedmont Creek confluence and Calaveras Blvd
- Access road located along the left bank channel slope downstream of Yosemite Drive
- Recreational trail within the obstruction-free zone where primary flood control use allows secondary recreational use
- Replacement of UPRR trestle with triple box culvert
- Construction of transition structures at Montague Expressway, UPRR Culvert, Los Coches Street, and Calaveras Blvd
- Shoring of bridge abutments and construction of transition structures at Ames Avenue and Yosemite Drive to accommodate widened channel
- Utility relocations for storm drains entering the channel or running parallel to the channel that fall within the channel excavation areas

2.2.3 Alternative 2B/d

Schematic sections of Alternative 2B/d are shown in Figure 2.2. This scenario involves the following features:

- Channel excavation and earthen levee construction to the water surface level of the 95% certainty, 0.01 exceedance probability event discharge from I-680 to Calaveras Boulevard
- 2H:1V sideslopes with cellular bank protection and buried rip rap scour protection
- Free-standing concrete floodwalls between I-680 and Montague Expressway and between Yosemite Drive and Calaveras Blvd
- Access road intermittently along one or both banks, within the channel (between the 0.1 and 0.04 exceedance probability event), or both
- Replacement of Montague Expressway Culvert crossing with 60-ft span
- Replacement of UPRR trestle with triple 15-ft box culvert
- Replacement of UPRR culvert with 60-ft span
- Shoring of bridge abutments at Ames Avenue and Yosemite Drive to accommodate widened channel
- Replacement of Los Coches Street Bridge with 100-ft span
- Replacement of Calaveras Boulevard Bridge with 100-ft span
- Utility relocations as required

2.2.4 Alternative 4/d

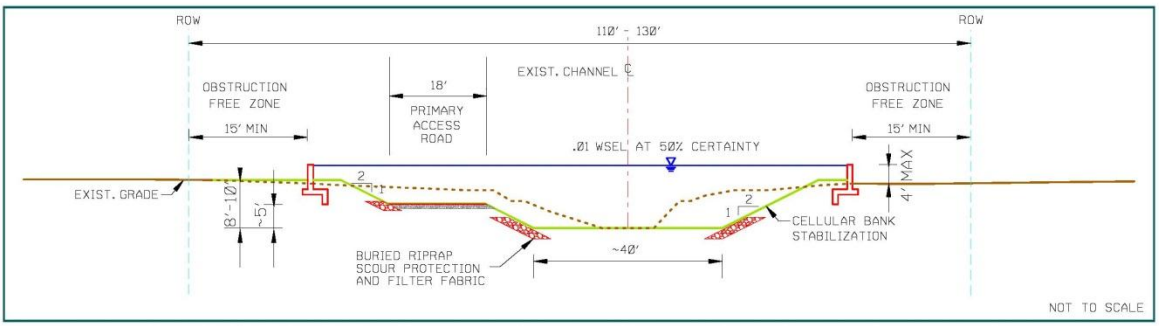
Schematic sections of Alternative 4/d are shown in Figure 2.3. This scenario involves the following features:

- Channel excavation and concrete wall construction to the water surface level of the 95% certainty, 0.01 exceedance probability event discharge from I-680 to Calaveras Boulevard
- Concrete retaining walls to the existing ground surface and above-ground floodwall extensions as required
- Replacement of Montague Expressway Culvert crossing with 60-ft span
- Replacement of UPRR trestle with triple 15-ft box culvert
- Replacement of UPRR culvert with 60-ft span
- Shoring of bridge abutments at Ames Avenue and Yosemite Drive to accommodate widened channel
- Replacement of Los Coches Street Bridge with 100-ft span
- Replacement of Calaveras Boulevard Bridge with 100-ft span
- Utility relocations as required

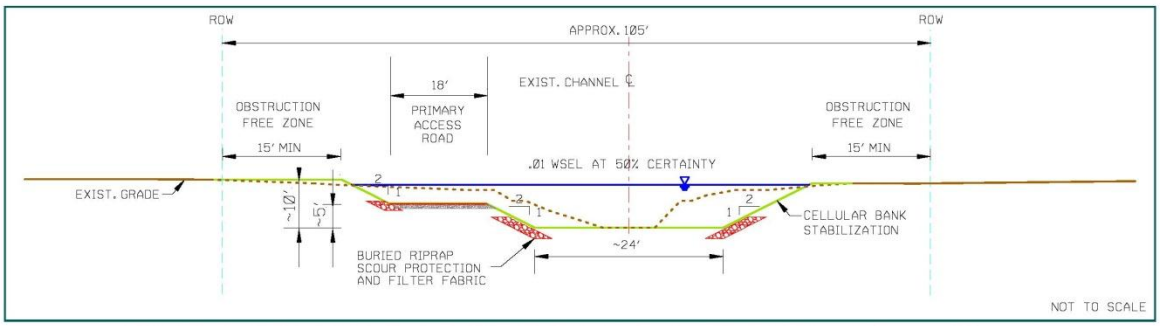
2.3 Description of Project Features in Final Array

Typical sections showing the overall configuration of each alternative are presented in Figure 2.1, Figure 2.2 and Figure 2.3 below. Additional details are shown in the accompanying 35-sheet set of 11”x17” plan/profile figures.

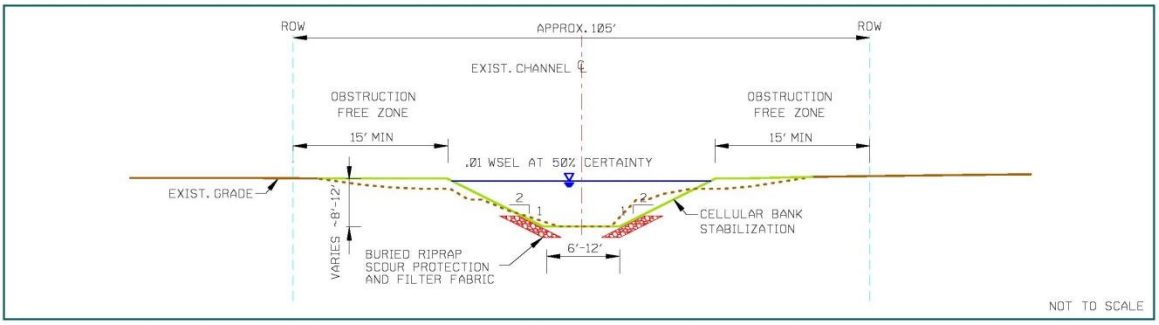
Table 2.1 tabulates the individual channel and bridge/culvert modifications that make up each of the three project alternatives. Utility modifications are required under all scenarios and are not called out individually in the summary table. The addition of optional recreational features along existing and proposed maintenance roads will be addressed further as the project develops.



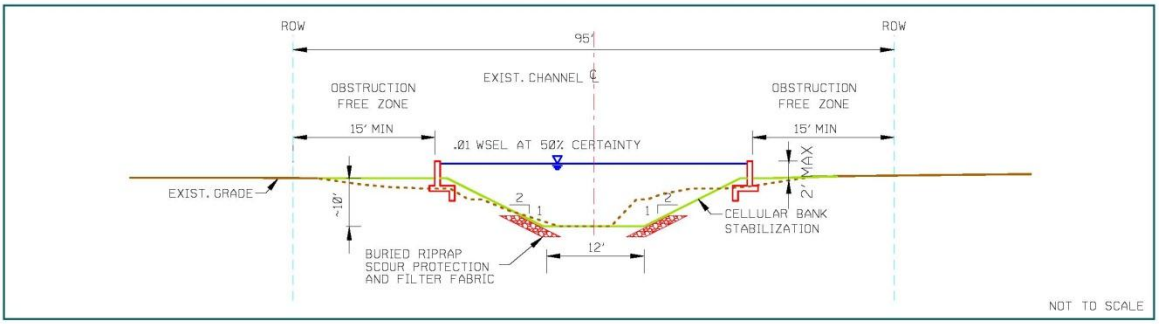
TYPICAL CROSS SECTION, CALAVERAS BLVD TO PIEDMONT CREEK (STA 130 TO 160)



TYPICAL CROSS SECTION, PIEDMONT CREEK TO YOSEMITE DR (STA 160 TO 170)

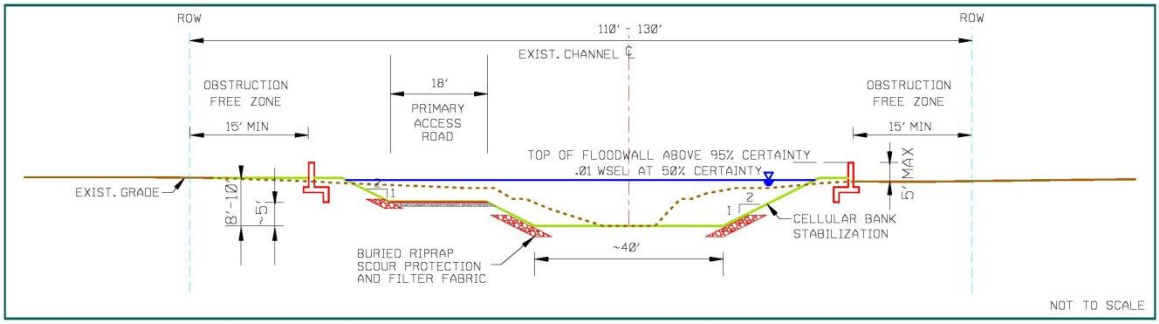


TYPICAL CROSS SECTION YOSEMITE DR TO I-680 (STA 170 TO 212 AND 214 TO 237)

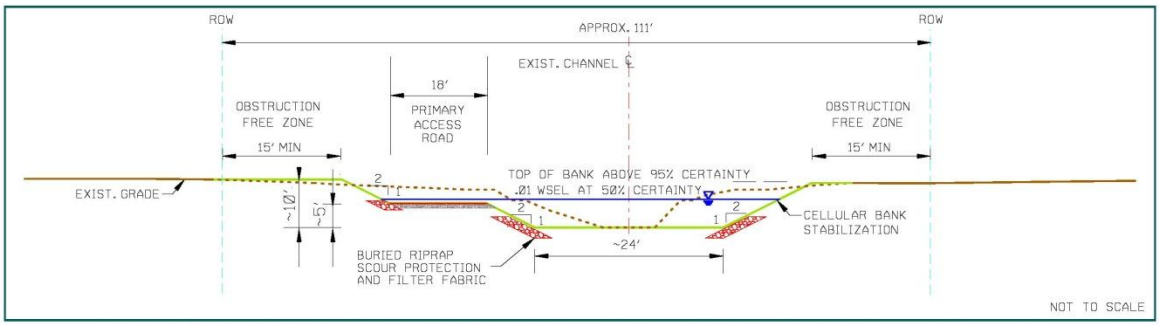


TYPICAL CROSS SECTION, MONTAGUE EXPY TO 200' UPSTREAM (STA 212 TO 214)

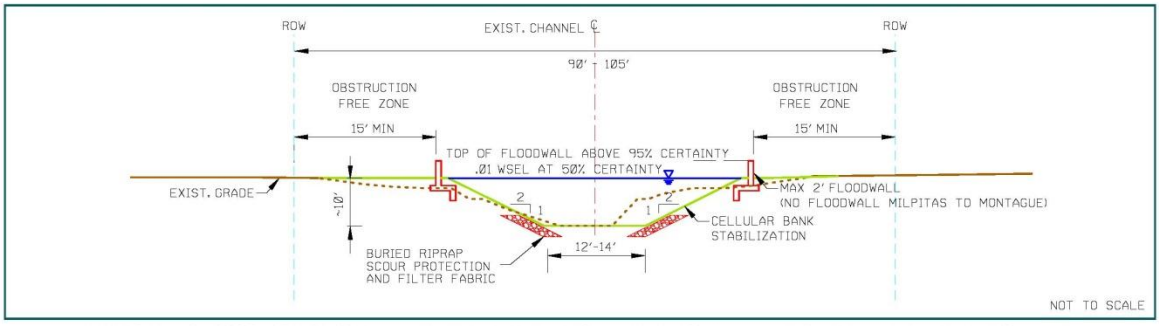
Figure 2.1 Alternative 2A/d Typical Sections



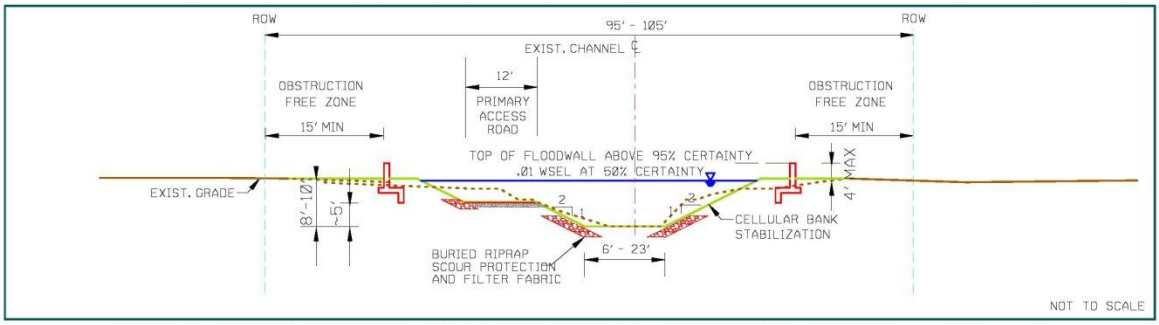
TYPICAL CROSS SECTION, CALAVERAS BLVD TO YOSEMITE DR (STA 130 TO 170)



TYPICAL CROSS SECTION, YOSEMITE DR TO MILPITAS BLVD (STA 170 TO 195)

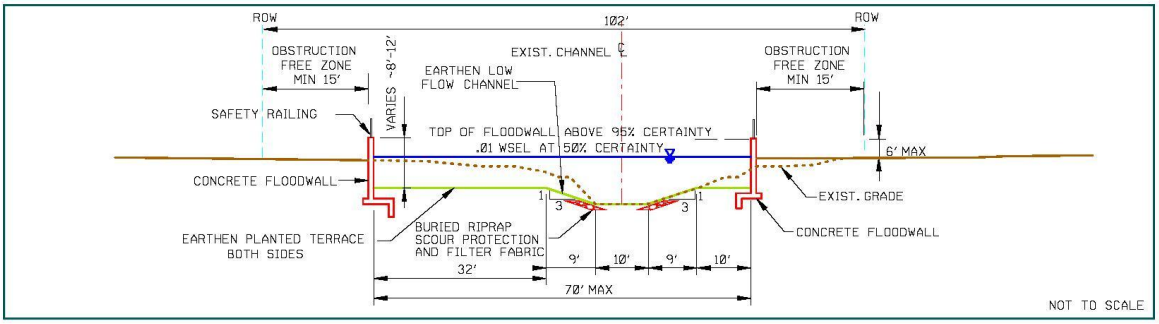


TYPICAL CROSS SECTION MILPITAS BLVD TO I–680 (STA 195 TO 212 AND 230 TO 248)

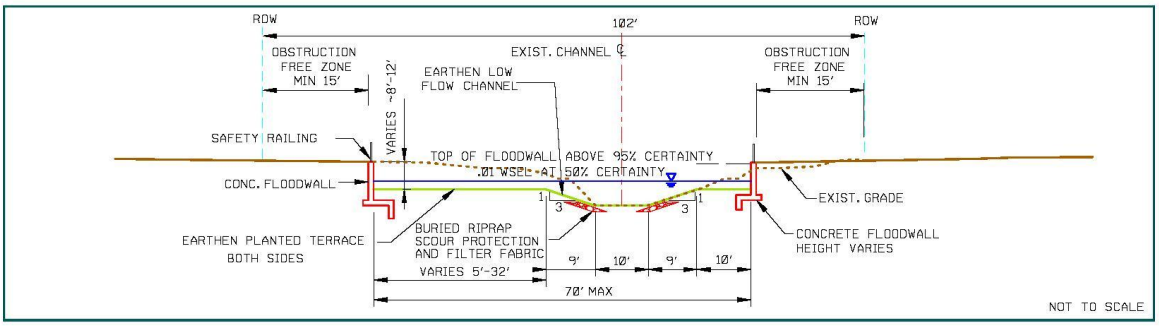


TYPICAL CROSS SECTION, MONTAGUE EXPY TO LAKEWOOD CT (STA 212 TO 230)

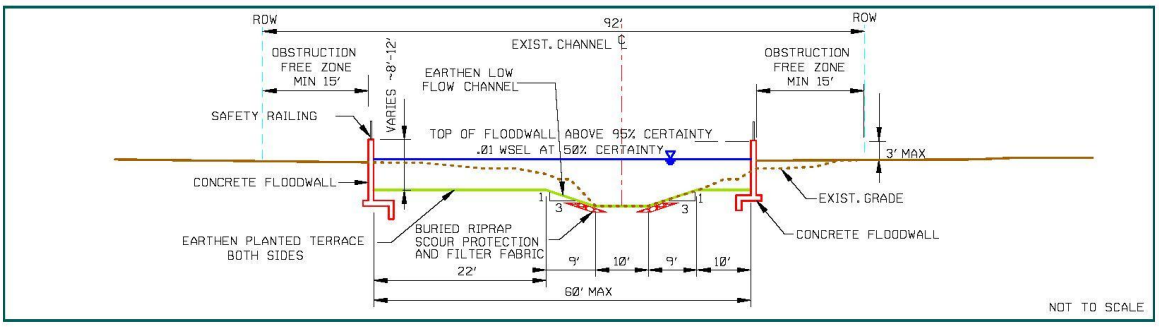
Figure 2.2 Alternative 2B/d Typical Sections



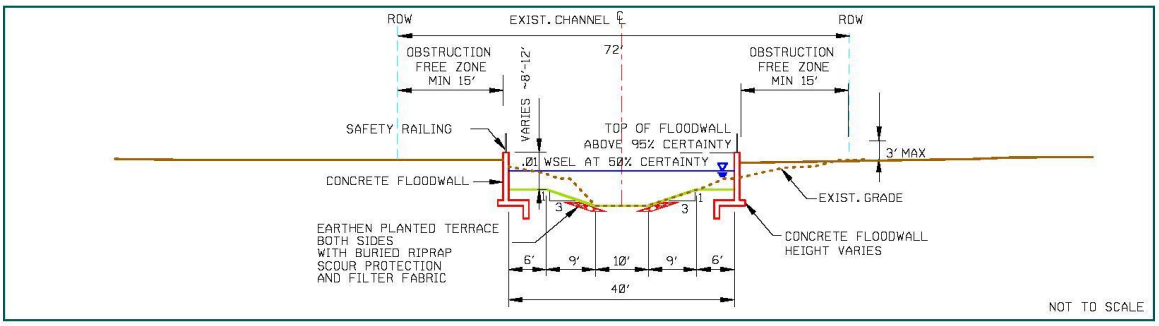
TYPICAL CROSS SECTION, CALAVERAS BLVD TO AMES AVE (STA 130 TO 182)



TYPICAL CROSS SECTION, AMES AVE TO MILPITAS BLVD (STA 182 TO 195)



TYPICAL CROSS SECTION, MILPITAS BLVD TO LAKEWOOD CT (STA 195 TO 230)



TYPICAL CROSS SECTION LAKEWOOD CT TO I-680 (STA 230 TO 248)

Figure 2.3 Alternative 4/d Typical Sections

Table 2.1 Summary of Project Alternative Features

Reach/Structure	Alternative Project Features		
	Alternative 2A/d Incised Trapezoidal Channel	**Alternative 2B/d** Incised Trapezoidal Channel	**Alternative 4/d** Walled Trapezoidal Channel
I-680 Bridge (Sta 248+00)	Remove accumulated sediment at downstream face	Remove accumulated sediment at downstream face	Remove accumulated sediment at downstream face
Channel Reach from I-680 to Montague Expressway (Sta 248+00 – 210+90)	Excavate 6- to 12-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope; Construct 200 lineal feet of free-standing concrete to maximum height of 2 feet	Excavate 6- to 22-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope and access road along left bank slope; Construct free-standing concrete floodwall to maximum height of 4 feet	Excavate 10-foot earthen channel with 10 and 22-foot vegetated terraces and vertical concrete walls extending a maximum of 3 feet above existing ground
Montague Expressway Culvert (Sta 210+90)	Tie floodwall into existing headwall at upstream face of structure; Construct transitions to existing wingwalls	Remove existing box culvert Construct raised 60-foot span bridge	Remove existing box culvert Construct raised 60-foot span bridge
Channel Reach from Montague Expressway to UPRR Trestle (Sta 213+90 – 206+05)	Excavate 12-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope	Excavate 14-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope; Construct free-standing concrete floodwall to maximum height of 2 feet	Excavate 10-foot earthen channel with 10 and 22-foot vegetated terraces and vertical concrete walls extending a maximum of 3 feet above existing ground
UPRR Railroad Trestle Bridge (Sta 206+05)	Remove existing timber trestle Construct triple 15-foot span by 12-foot rise concrete box culvert with wingwalls	Remove existing timber trestle Construct triple 15-foot span by 12-foot rise concrete box culvert with wingwalls	Remove existing timber trestle Construct triple 15-foot span by 12-foot rise concrete box culvert with wingwalls
Channel Reach from UPRR Trestle to UPRR Culvert (Sta 206+05 - 186+80)	Excavate 12-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope	Excavate 10 to 12-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope and access road along left bank slope	Excavate 10-foot earthen channel with 10- and 32-foot vegetated terraces and vertical concrete walls extending to existing ground
UPRR Railroad Culvert (Sta 186+80)	Construct transition to existing wingwalls	Remove existing triple box culvert Construct 60-foot span 12-foot rise bridge	Remove existing triple box culvert Construct 60-foot span 12-foot rise bridge

Reach/Structure	Alternative Project Features		
	Alternative 2A/d Incised Trapezoidal Channel	**Alternative 2B/d** Incised Trapezoidal Channel	**Alternative 4/d** Walled Trapezoidal Channel
Channel Reach from UPRR Culvert to Ames Avenue (Sta 186+80 – 182+10)	Excavate 12-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope	Excavate 17-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope and access road along left bank slope	Excavate 10-foot earthen channel with 10- and 32-foot vegetated terraces and vertical concrete walls extending to existing ground
Ames Avenue Bridge (Sta. 182+10)	Excavate 12-foot bottom width channel beneath bridge; Construct abutment and pier protection	Excavate 17-foot bottom width channel beneath bridge; Construct abutment and pier protection	Excavate channel and construct walls beneath bridge; Construct abutment and pier protection
Channel Reach from Ames Avenue to Yosemite Drive (Sta 182+10 – 168+80)	Excavate 15-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope	Excavate 24-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope and access road along left bank slope	Excavate 10-foot earthen channel with 10- and 32-foot vegetated terraces; Construct concrete floodwall to extend maximum of 6 feet above existing ground
Yosemite Drive Bridge (Sta 168+80)	Excavate 15-foot bottom width channel beneath bridge transitioning to 24-foot bottom width; Construct abutment and pier protection	Excavate 38-foot bottom width earthen channel beneath bridge; Construct abutment and pier protection	Excavate channel and construct walls beneath bridge; Construct abutment and pier protection
Channel Reach from Yosemite Drive to Los Coches Street (Sta 168+80 – 137+50)	Excavate 26-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope and access road along left bank slope	Excavate 38-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope and access road along left bank slope; Construct free-standing concrete floodwall to maximum height of 5 feet	Excavate 10-foot earthen channel with 10- and 32-foot vegetated terraces; Construct concrete floodwall to extend maximum of 6 feet above existing ground
Los Coches Street Bridge (Sta 137+50)	Construct transition to existing structure	Remove existing bridge; Construct 100-foot span bridge with raised deck and 4-foot high solid bridge face	Remove existing bridge**;** Construct 100-foot span bridge with raised deck and 4-foot high solid bridge face

Reach/Structure	Alternative Project Features		
	Alternative 2A/d Incised Trapezoidal Channel	**Alternative 2B/d** Incised Trapezoidal Channel	**Alternative 4/d** Walled Trapezoidal Channel
Channel Reach from Los Coches Street to Calaveras Boulevard (Sta 137+50-131+05)	Excavate 40-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope and access road along left bank slope; free-standing concrete floodwalls to maximum height of 4 feet	Excavate 38-foot bottom width earthen channel with cellular bank protection at 2H:1V sideslope and access road along left bank slope; Construct free-standing concrete floodwall to maximum height of 5 feet	Excavate 10-foot earthen channel with 10- and 32-foot vegetated terraces; Construct concrete floodwall to extend maximum of 6 feet above existing ground
Calaveras Boulevard Bridge (Sta 131+05)	Construct transition to existing structure	Remove existing box culvert Construct 100-foot span bridge with raised deck	Remove existing box culvert Construct 100-foot span bridge with raised deck
Channel Reach Downstream of Calaveras Boulevard (Sta 131+05 – 129+80)	Construct transition to downstream project	Construct transition to downstream project	Construct transition to downstream project

2.3.1 Channel Modifications

Channel widening is proposed in combination with floodwalls under the project alternatives to meet the desired level of performance for the alternatives. The channel excavation templates are depicted in the typical sections above. The extent of proposed armoring, including toe-down depths and armor rock gradation, may vary from section to section as the design is refined. In narrow reaches, the toe protection may be continuous to maintain the integrity of the channel. The channel profile may require grade control at bridge or utility crossing locations to prevent downcutting of the channel. Further geomorphic and sediment transport analyses may determine whether there is a need for additional grade control.

The typical sections for Alternatives 2A/d and 2B/d include an intermittent access road within the channel at the approximate level of the 0.1 to 0.04 exceedance probability event in order to increase the effective conveyance area within the available right-of-way for larger events and allow maintenance equipment to have closer access to the channel. Alternative levels for the access road may be considered as the design of the selected alternative proceeds. The access road surface would need to be graded and compacted to withstand flood flows, and a cross slope for drainage would be required. Although the access road location is generally shown on the left bank in the cross sections, it may alternatively be located on right bank if deemed appropriate during the design phase, and a secondary access road may be located along the opposite bank. Several tributaries enter the channel from the right, and access to local streets is required along both sides of the tributaries. Final placement should consider findings from additional utility investigations; the final access road configuration may vary from reach to reach.

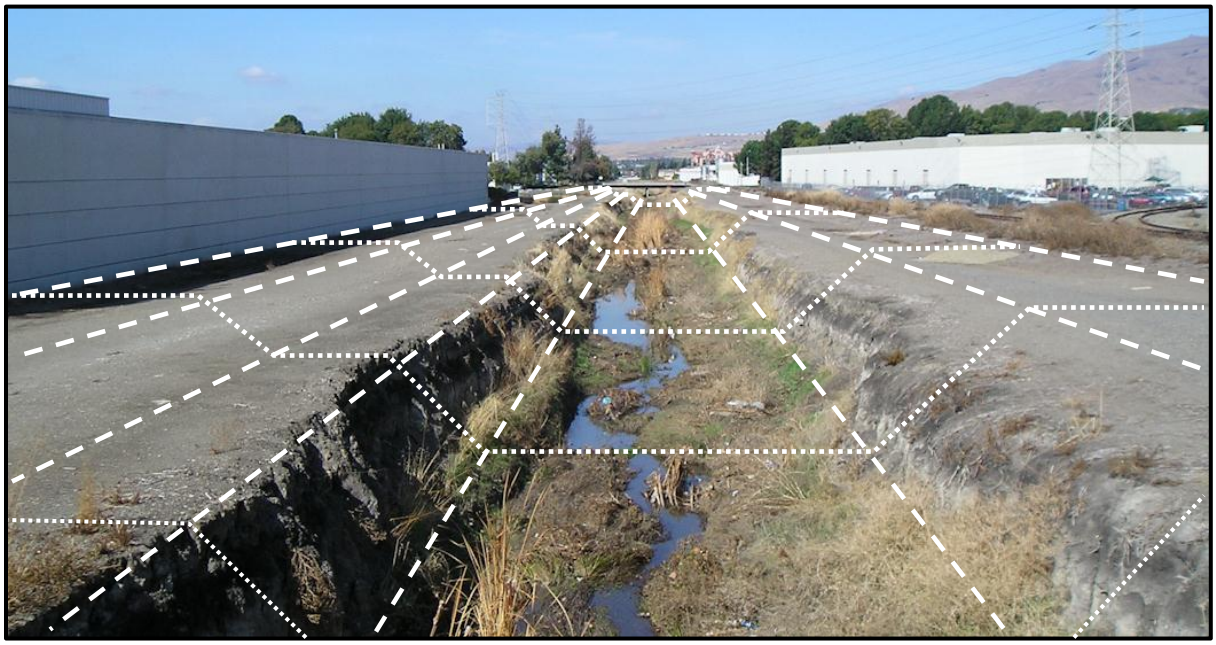


Figure 2.4 Schematic View of Channel Configuration of Alternatives 2A/d and 2B/d

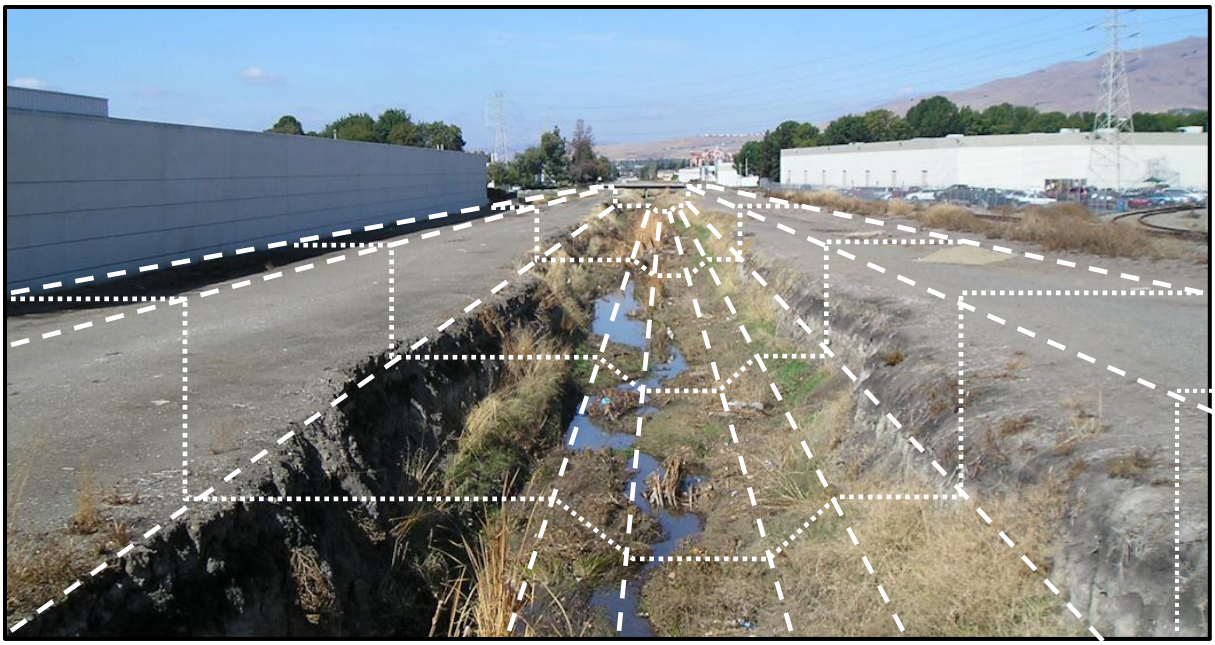


Figure 2.5 Schematic View of Floodwalls and Channel Configuration of Alternative 4/d

Alternative 4/d includes vegetated floodplain terraces. Vegetation would need to be drought-tolerant and/or require irrigation for establishment. Selection of vegetation types should also account for the required root depth and the size of the inner channel. Further details on the vegetation types are included in Chapters 4 and 5 of the main report. While the overall project configuration has been designed to fall within the existing public rights of way, the acquisition of several small parcel areas is required to maintain continuous access along the channel. These areas are shown in further detail in the accompanying plan/profile views. Additionally, temporary construction easements, staging areas, and access routes are required for all three project alternatives. Discrepancies in the available real estate information are described in Tetra Tech, 2005b.

2.3.2 I-680 Bridge

The I-680 Bridge marks the upstream extent of the project. Some debris is present at the downstream face of the bridge. This debris should be removed regularly to ensure that the conditions do not produce higher than anticipated water surface elevations along the channel banks downstream of the bridge. No with-project modifications are proposed for the culvert except that any deferred maintenance will be performed by the local sponsor.

Figure 2.6 Photograph of I-680 Bridge (Looking Upstream)

2.3.3 Montague Expressway

Montague Expressway is a 6-lane arterial crossing over a double barrel 12-ft x 10-ft culvert. The existing bridge allows sufficient capacity for Alternative 2A/d, provided the channel walls tie into the existing structure. For Alternatives 2B/d and 4/d, a replacement span of 70 ft would be required in order to contain the flow in the channel and prevent breakouts. The deck would need to be raised approximately three feet, requiring extensive roadway work, and the headwall would need to tie into upstream and downstream floodwalls. The maintenance road (not shown) would need to transition out of the channel and over the levees or floodwalls.

Figure 2.7 Schematic View of Montague Channel Excavation for Alternative 2B/d

2.3.4 UPRR Trestle

The existing UPRR Trestle is a timber railroad crossing with four sets of piers. There is some discrepancy in the deck height that significantly affects the existing capacity of the trestle, as described in Tetra Tech, 2005a. Due to the condition of the existing structure, excavation around the bed or banks is assumed to be unacceptable, and complete replacement of the trestle is assumed under all project alternatives. A triple barrel concrete box culvert is included in the project scenarios, with replacement configurations applied and modeled using the 1990 Authorized Plan and GDM designs. The cost estimates also assume that a temporary shoo-fly structure would be needed during construction.

Figure 2.8 Schematic View of UPRR Trestle Replacement for Alt 2B/d

2.3.5 UPRR Culvert

The channel transitions to a wider available right-of-way where Milpitas Boulevard veers away from the channel upstream of the UPRR Culvert. The existing UPRR culvert is a triple 11-ft x 11-ft box culvert that crosses Berryessa Creek at a skew angle of almost 60 degrees. The existing structure has sufficient conveyance to meet the requirements of Alternative 2A/d, provided the channel banks are tied into the existing concrete wingwalls. Alternatives 2B/d and 4/d include the complete reconstruction of the culverts with a 60-foot wide span. The cost estimates assume that a temporary shoo-fly structure would be needed during construction.

Figure 2.9 Schematic View of UPRR Culvert Replacement for Alt 2B/d

2.3.6 Ames Avenue Bridge

The Ames Avenue Bridge is a two-lane bridge with a single continuous pier. The span is approximately 80 ft; however, the existing ground blocks much of the cross section below the bridge deck. The existing bridge is retained under all project scenarios. The channel modifications proposed in this reach for Alternatives 2A/d and 2B/d include an access road on the overbank rather than within the channel. The design cross section under the bridge proceeds at 2H:1V from the outside of the span. The bridge is shown in the photograph below along with a typical with-project scenario showing the maximum excavated footprint extending vertically down from the edge of the bridge deck and requiring some shoring to protect the bridge abutments.

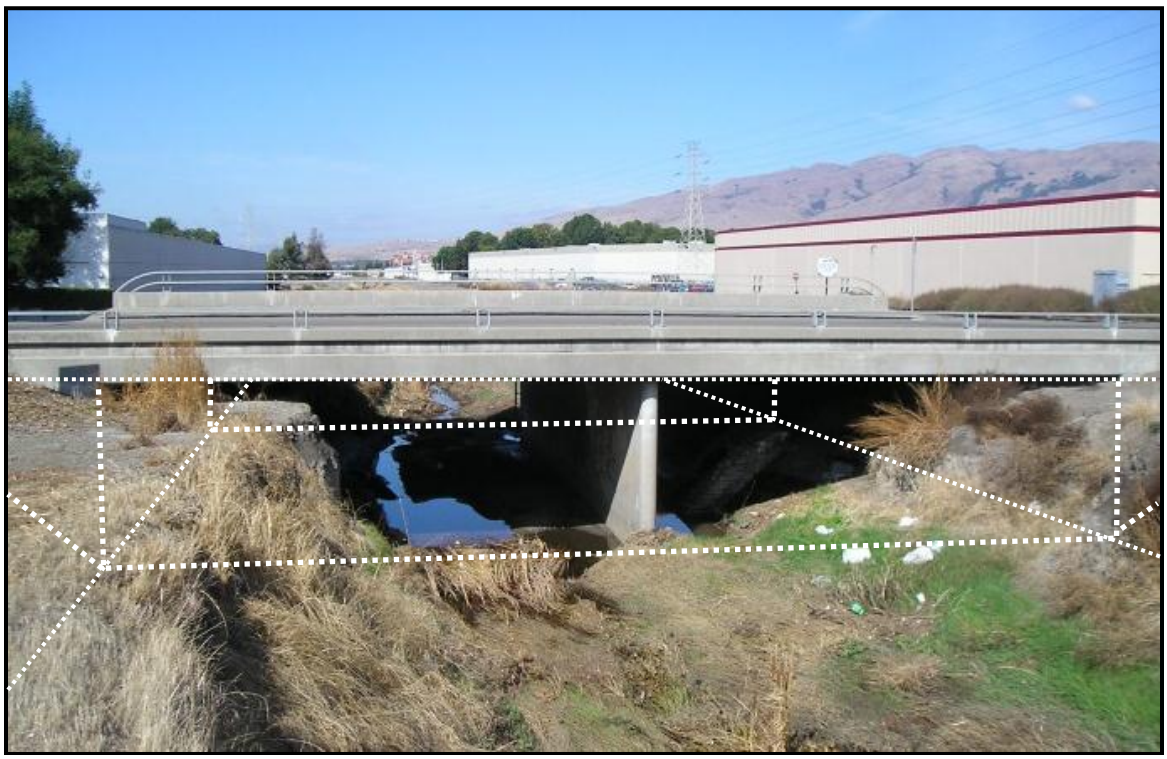


Figure 2.10 Schematic View of Ames Avenue Bridge Modifications

2.3.7 Yosemite Drive Bridge

Yosemite Drive carries a 2-lane road over Berryessa Creek. Along the upstream face of the bridge, a major pipeline is supported by cantilevers, as shown in Figure 2.11. The span is approximately 80 ft with a single continuous pier; however, the existing ground blocks much of the cross section below the bridge deck. The existing bridge is retained under all project scenarios. The channel modifications proposed in this reach for Alternatives 2A/d and 2B/d include an access road on the overbank rather than within the channel. The design cross section under the bridge proceeds at 2H:1V from the outside of the span. The bridge is shown in the photograph below along with a typical with-project scenario showing the maximum excavated footprint extending vertically down from the edge of the bridge deck and requiring some shoring to protect the bridge abutments. The existing bridge is retained under all project alternatives.

In conjunction with the proposed channel excavation, the bridge passes the required channel flow using the existing deck and soffit heights. The depth and configuration of the existing foundation is unknown, and shoring or other stabilization of existing abutments is assumed to be required. Conservative estimates of the required materials have been included in the cost estimate.

Figure 2.11 Schematic View of Yosemite Drive Bridge Modifications

2.3.8 Los Coches Street Bridge

The Los Coches Street Bridge carries two lanes of traffic over a trapezoidal cross section with a single continuous pier at the center. The left side of the channel is concrete, and the right side of the channel is earthen. The Arroyo de los Coches tributary enters at the upstream face on the right bank.

The existing structure allows sufficient conveyance to accommodate Alternative 2A/d, provided the channel walls are tied into the existing structure. For Alternatives 2B/d and 4/d, complete replacement of the Los Coches Street Bridge with a 100-foot open, raised span would be required to provide the required conveyance capacity. Any modifications in the upstream channel would also necessitate reconstructing the Arroyo de los Coches confluence area. In addition, the existing pedestrian bridge cantilevered on the upstream face would need to be reconstructed, and some rerouting of the bicycle path may be required. Raising the deck requires extensive roadway work. The actual height of the existing deck is unknown and should be verified, as the original hydraulic survey data show a solid deck that appears to include the bridge rails.

Figure 2.12 Schematic View of Los Coches Street Bridge Replacement for Alt 2B/d

2.3.9 Calaveras Boulevard Bridge

The Calaveras Boulevard Bridge is an 8-lane divided roadway. The crossing comprises four 8-ft high x 11-ft wide culvert barrels. Figure 2.13 shows the crossing along with a schematic view of the replacement scenario. The outer two barrels are partially filled with the earthen sideslope that projects to the outside toe of the middle culvert barrels. Debris has accumulated to a depth of 1-2 ft within the inner two barrels. It is assumed that the apparent reverse grade through the culvert barrel is a result of deposition or survey error, and that the actual concrete invert is at a flat or downstream slope. The existing bridge provides sufficient conveyance to accommodate Alternative 2A/d, provided the sediment in the outer barrels is excavated and the channel walls are tied into the existing structure. In order to provide the necessary conveyance capacity for Alternatives 2B/d and 4/d, the culvert barrels would need to be replaced by a 100-ft open span bridge. The bridge soffit would need to be raised several feet; however, an arched bridge or other configuration with a similar effective conveyance area may also be acceptable. The sideslopes would be 2H:1V to match the excavated channel footprint for Alternative 2B/d, and vertical abutments would be needed for Alternative 4/d. The downstream project is assumed to be constructed prior to the initiation of any of the project alternatives under consideration. The downstream project extends to the existing Calaveras Boulevard Bridge but does not include modifications to the structure itself; as such, the project improvements under Alternatives 2B/d and 4/d include a transition to match the downstream project approximately 50 ft downstream of Calaveras Boulevard Bridge.

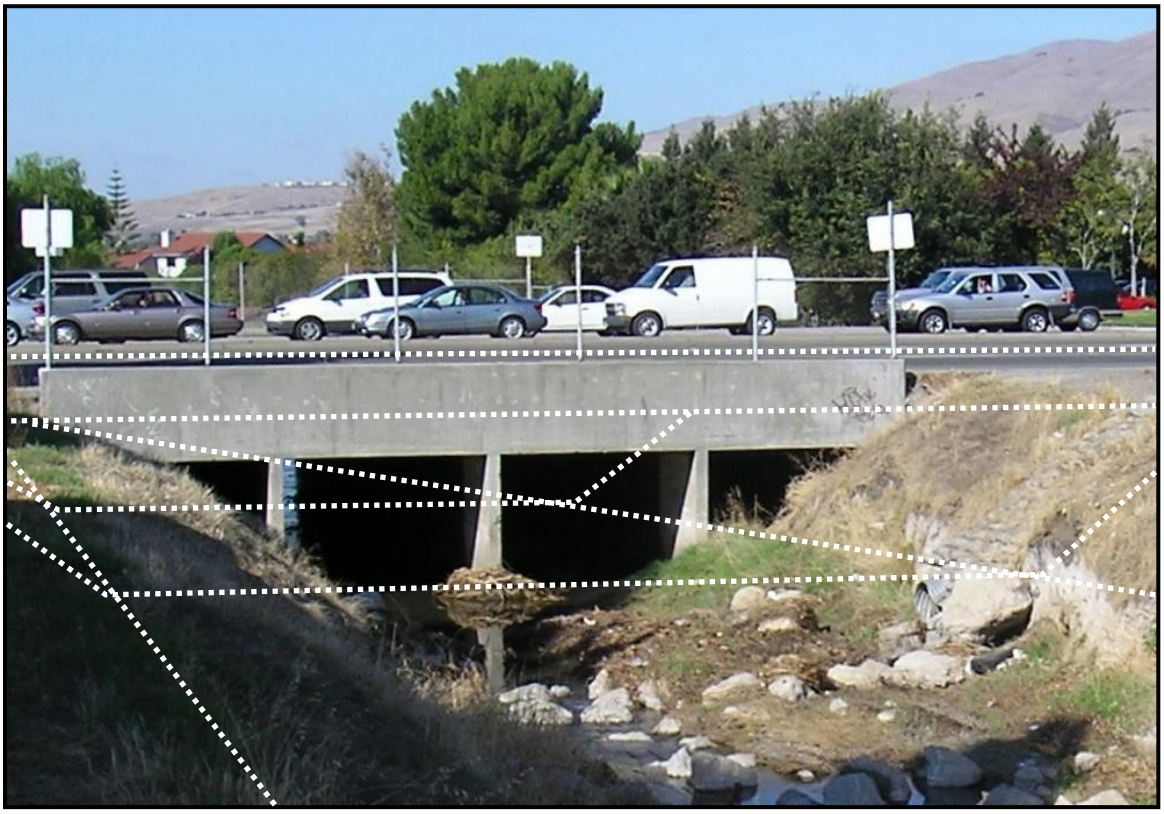


Figure 2.13 Schematic View of Calaveras Boulevard Bridge Replacement for Alt 2B/d

CHAPTER 3: COST ESTIMATES

3.1 Quantities

This chapter outlines the assumptions used in generating construction quantities for the project alternatives.

3.1.1 Bridges and Culverts

Concrete walls for replacement culverts are assumed to be 12" thick, and reinforcing steel is assumed at 200 lbs/cy. Standard wingwalls and headwalls are assumed for replacement bridges and culverts. Customized, cast-in-place wingwalls are assumed for modified bridges and culverts. All bridge and culvert resizing assumes that complete maintenance (sediment and debris removal) is performed periodically at the crossings to maintain the as-built, with-project condition. Wingwall and headwall extensions at modified bridges and culverts assume partial demolition of bridge rails and preparation of the existing headwall for doweling into the surface. Transition structures (with variably sloping wingwalls) are assumed to extend for 50-75 ft upstream or downstream of the bridge face. Where applicable, the maintenance road transitions out of the channel and over floodwalls to meet existing grade at each roadway crossing.

All bridge replacement scenarios assume 2:1 temporary sideslopes for structural excavation and backfill. Pavement, curb and gutter demolition and reconstruction likewise assumes a footprint based on 2:1 temporary sideslopes. Traffic lanes are assumed to require replacement only to their existing level of service. Bridge construction includes foundations, abutments, and approach slabs. Design plans from the GDM study were used as the basis for resizing the upstream UPRR trestle (1993). Though the modeled inverts differ from the design plans, the general channel shape from the plans was used in modeling the proposed replacement bridge.

3.1.2 Channels

All channel excavation and fill placement is assumed to be at 2:1 H:V sideslopes or milder. Channel excavation was modeled using the HEC-RAS channel modification function, as described in *Appendix B, Part I: Hydraulic Analysis of Alternatives*; excavation quantities in the cost estimate are based on end-area computations from HEC-RAS cross sections. Levee top widths (applied to any fill placement along the channel banks) are assumed to be a minimum of 12 ft wide. Where the top of the levee serves as the primary access road, an 18-ft minimum width is assumed. Where the top of the levee serves as the secondary access road, a 12-ft minimum width is assumed. Vertical concrete floodwalls are required as described in Chapter 2. Concrete floodwalls assume 42-inch safety railing would be required for any wall heights above 2 feet. Traffic barriers are assumed for portions of Berryessa Creek running parallel to roadways. A minimum toedown of 3 ft is assumed for riprap toe protection and concrete footer walls. Buried riprap toe protection is assumed to proceed up to 3 ft vertically up the sideslopes. Riprap is assumed at 12-inch D_{50} with a minimum thickness of 24 inches. A cellular confinement system or similar type of bank stabilization allowing the

growth of grass on the sideslopes is assumed for channel excavation and fill areas above the riprap toe protection.

Levee and floodwall heights are designed according to risk and uncertainty principles as described in the hydraulic appendix. All channel fill above existing ground will be designed according to the standards set forth in *EM 1110-2-1913 Design and Construction of Levees*. Stability of all sideslopes will be verified according to *EM 1110-2-1902 Slope Stability*. An obstruction-free zone is assumed adjacent to floodwalls or tops of earthen slopes. Gradation, compaction, and other parameters will be specified based on the results of geotechnical investigations. The suitability of reusing excavated material as fill will likewise be investigated further as the design process proceeds and as geotechnical investigations are completed. Planting is assumed on sloped banks and terraces, but not along the channel bed or within the low flow channel banks. No tree planting is considered on levee slopes or channel slopes.

Concrete walls are assumed to be 12" thick. Free-standing floodwalls assume subsurface concrete accounts for 60% of the total concrete volume. Shoring or stabilization allowing temporary cut slopes of 1:1 is assumed to allow placement of base slabs within the available right-of-way.

3.1.3 Operation, Maintenance, Rehabilitation, and Repair

Annual inspections of vegetation, bridges, culverts, and channel reaches are assumed throughout a 50-year project life. Vegetation control, partial vegetation replacement, sediment removal, and periodic structural maintenance are also assumed throughout the project life. Irrigation is assumed during the establishment period of approximately 5 years for slope plantings and throughout the project life for floodplain benches. The initial establishment of vegetation is assumed to be included in the unit cost of original construction. Since 1977, and annual average of approximately 7,000 cubic yards of sediment and debris has been removed from Berryessa Creek upstream of Calaveras Blvd. Table 2-1 in the Geomorphic and Sediment Transport Appendix shows the estimated maintenance quantities for historical removal of existing debris and repair of local scour areas; results are presented for each year, and these approximate removal quantities are assumed to reflect with-project maintenance efforts.

3.1.4 Traffic Control

The assumed closure times associated with bridge and culvert modifications and replacements are presented in the accompanying traffic analysis (under separate cover).

3.1.5 Summary of Construction Quantities

Table 3.1 shows a summary of selected construction quantities.

Table 3.1 Summary of Construction Quantities

Material	Alternative		
	2A/d	2B/d	4/d
Demo & reconstruct pavement, curb & gutter (sf)	0	29,000	29,000
Cast-in-place concrete (cy)	1,000	12,000	32,000
Reinforcing steel (ton)	100	1,200	3,200
Excavate and Haul (cy)	46,000	61,000	86,000
Cellular confinement (sf)	170,000	134,000	0
Geotextile (sy)	33,000	49,000	27,000
Riprap (ton)	25,000	28,000	16,000
Planting - bank slopes (ac)	10	15	4
Planting - floodplain terraces (ac)	0	0	9

3.2 Unit Costs

Table 3.2 summarizes the unit costs and assumptions used in the cost estimate. Unit costs presented include labor and materials, with contractor overhead and profit included. Unit costs do not include contingency or other markups that are subsequently added to the construction subtotal.

Contingencies apply to construction costs only and not to markups. Unit costs for operation and maintenance include all markups.

Table 3.2 Summary of Unit Costs (Values from April 2009 Report)

Item	Unit Cost	Comments / Assumptions
Demolition		
Demo, haul, and dispose concrete	$120/cy	Assumes 5 mile haul to Guadalupe disposal site (Newby Island Recycling) – demo and transport only, no material cost, assume market for purchase
Demo, haul, and dispose pavement curb & gutter	$7/sf	Assumes 5 mile haul to disposal/recycling site – demo and transport only, no material cost, assume market for purchase
Demo, haul, and dispose CMP pipe culvert	$25/lf	Assumes 5 mile haul to disposal/recycling site – demo and transport only, no material cost, market for purchase
Demo, haul, and dispose timber	$8/bf	Assume no creosote
Demo, haul, and dispose rails	$110/tf	Assume recycling, market for purchase
Demo and relocate rails	$300/tf	Assume shift onsite or raise on levee for add'l row alt only
Earthwork		
Earthwork - excavate and haul	$25/cy	Excess only, assume temporary stockpile and 5 mile haul to disposal site, no treatment for contamination, assume market for purchase
Earthwork - place and compact fill	$25/cy	Assumes all material available onsite from excess, temporary stockpile

Item	Unit Cost	Comments / Assumptions
Earthwork - excavate and regrade onsite	$15/cy	Includes channel shaping and compaction without stockpiling (no net import or disposal)
Earthwork - excavate, backfill and compact	$50/cy	Excavation, temporary shoring, and backfill for structural earthwork, including bedding material
Concrete/Steel		
Cast-in-place concrete for floodwalls	$750/cy	Cantilevers (floodwalls), assume temporary shoring included for floodwall excavation. 6' base slab, 2' cutoff wall 3' below adjacent EG
Cast-in-place concrete for bridges and culverts	$750/cy	Includes foundations, abutments, approach slabs, not wingwalls or headwalls, not applied to pedestrian bridge
Safety railing	$30/lf	42" high standard double steel tube rail
Concrete traffic barrier	$50/lf	Standard jersey barrier
Reinforcing steel	$2.00/lb	Assume ~100 lb/cy
Articulated revetment	$20/sf	8" thick with openings for vegetation, not including filter or earthwork/compaction
Standard wingwalls	$10,000 ea	10' high x 20' length, including foundation
Standard headwalls	$10,000 ea	2' high, max 40' length, sealed Jersey barrier type or precast, tied to wingwalls
Custom wingwalls/transition structures	$25,000 - $50,000 ea	50'-75' length, 10' high, transition from vertical to 2:1, 3' toedown, includes maintenance access transition
Headwall extension	$50,000 ea	18" headwall extension, assume ~50' length
Rail installation	$350/tf	Includes ties, rails, and bedding
Roadway subgrade	$40/cy	18" aggregate base course subgrade for access road
Access road surfacing	$8sf	Compacted aggregate, mixed grading
Repave roadway and replace curb and gutter	$12/sf	Replace to same level of service as existing; includes all agg base, resurfacing, formwork, striping, inductor loops, etc.
Sheet piling	$80/sf	Assume trapezoidal 1/4" interlocking Z-pile
Fabric, Rock, and Planting		
Geotextile	$6/sy	Assume 2' key-in either side, underlies riprap and articulated revetment
Cellular Confinement	$4/sf	Includes honeycomb material and installation with fill material, planting separate
Import and place riprap	$90/ton	12" D_{50}, angular, toe protection and local maintenance, 3' toedown, 2' thick layer, source within 12 miles
Planting – grasses and hydroseed	$12,000/ac	Includes prep work and 1st year warranty
Planting – floodplain terraces	$35,000/ac	Includes prep work and 1st year warranty. Type and density to be determined
Vegetation replacement	$500-2,500 / ac-yr	Higher during initial establishment period, lower during remaining project life
Clear & Grub	$10,000/ac	Prepare existing ground for levee fill placement, include construction footprint and staging areas
Rock for local O&M repair	$300/ton	Includes all markups – applies to emergency bank repairs
Sediment removal	$75/cy	Includes all markups – based on SCVWD records
Other Costs and Assumptions		

Item	Unit Cost	Comments / Assumptions
Periodic inspections	$10,000/yr	Includes vegetation, bridge/culvert, and channel inspections
Utilities	varies	See details by feature
Mob/Demob	5%	Approximate percentage based on construction subtotal. Assume staging areas available as shown in plans
Cultural Resources	1%	Approximate percentage based on construction subtotal
Dewater	$250,000	Dewatering/diversion during construction
Traffic Control	$800,000	Maintain traffic during construction at major arterials, 30-day closure assumed at secondary bridge replacements.
Contingency	30%	Based on high uncertainty
Design Phase/PED	15%	Assumes planning at ~50% complete, high complexity due to multiple project features
Construction Inspection, S&A	8%	Not including contractor cost
Federal Share	50%-65%	Not including maintenance
LERRD	varies	Based on Corps real estate appraisal, acquisition only, breakdown of abutment, utility costs, etc. for distribution to LERRDS to be determined during cost-share apportionment.
Project Life	50 yrs	Assume periodic replacement/maintenance
Interest Rate	4.000%	Subject to change according to Federal direction

3.3 Cost Summary

Table 3.3 shows a summary of the total construction costs.

Table 3.3 Summary of Construction Cost by Alternative ($1,000)

Item	Alternative			
	2A/d	2B/d	4/d	5
Construction subtotal	$9,216	$25,969	$45,656	$25,890
Total First Cost	$24,675	$51,283	$85,603	$86,561
Present Value with O&M	$26,030	$52,972	$87,520	$89,314
Bridge/utility costs to be distributed to LERRD	$2,367	$20,290	$20,290	$5,529

Further details showing the construction cost of each feature are shown in Table 3.4. A detailed breakdown of individual line item costs can be found in the accompanying electronic spreadsheet.

Table 3.4 Feature Cost Summary for Project Alternatives

Reach/Structure	Type	Alternative 2A/d		Alternative 2B/d		Alternative 4/d		Alternative 5	
		Line Item	Reach Total	Line Item	Reach Total	Line Item	Reach Total	Line Item	Reach Total
General Items		$1,254,000		$2,848,000		$3,885,000		$ 2,450,000	
I-680	Bridge	$ 3,075		$ 3,075		$ 3,075		$ 1,490	
I-680 to Montague	Channel	$1,338,362		$3,246,430		$8,912,100		$ 4,390,703	
Montague Expressway	Bridge	$ 3,750		$3,201,550		$3,201,550		$ 1,040,751	
Montague to UPRR Trestle	Channel	$ 248,926		$ 269,555		$1,165,309		$ 510,359	
Railroad Trestle	Bridge	$1,072,200		$1,077,200		$1,077,200		$ 1,190,522	
UPRR Trestle to Culvert	Channel	$ 742,196		$ 749,484		$4,878,264		$ 2,324,973	
Railroad Culvert	Bridge	$ 1,500		$1,464,200		$1,464,200		$ 105,750	
UPRR Culvert to Ames	Channel	$ 176,523	$ 9,215,695	$ 207,476	$ 25,969,253	$1,044,721	$ 45,656,081	$ 503,879	$18,495,545
Ames	Bridge	$ 230,500		$ 236,500		$ 236,500		$ 120,750	
Ames to Yosemite	Channel	$ 477,903		$ 594,769		$3,026,940		$ 1,474,873	
Yosemite	Bridge	$ 230,500		$ 236,500		$ 236,500		$ 120,750	
Yosemite to Los Coches	Channel	$2,664,217		$3,862,694		$7,938,212		$ 3,086,919	
Los Coches	Bridge	$ 1,875		$2,187,625		$2,187,625		$ 112,380	
Los Coches to Calaveras	Channel	$ 687,926		$ 850,414		$1,394,219		$ 645,696	
Calaveras Blvd	Bridge	$ 3,750		$4,854,750		$4,854,750		$ 110,750	
Downstream of Calaveras	Channel	$ 78,491		$ 79,031		$ 149,916		$ 305,000	
Bridge/utility costs to be distributed to LERRD			$ 1,547,150		$ 13,261,400		$ 13,261,400		$ 3,613,894
Bridge/utility costs (w/ markup for conting, PED,SA)			$ 2,367,140		$ 20,289,942		$ 20,289,942		$ 5,529,258
Subtotal Upstream of I-680									$ 7,394,131
Subtotal Construction Cost			$ 9,215,695		$ 25,969,253		$ 45,656,081		$25,889,676
Real Estate (investigations+acquisition)			$ 10,575,000		$ 11,550,000		$ 15,750,000		$46,950,000
Total First Cost w/ markup for conting, PED, SA, LERRD)			$ 24,675,013		$ 51,282,956		$ 85,603,805		$86,561,205
Total Present Value (including O&M)			$ 26,029,909		$ 52,971,668		$ 87,519,915		$89,313,961

CHAPTER 4: INCIDENTAL RECREATION FEATURES

4.1 Features

While the Berryessa Creek project is a flood control project in terms of the project purpose and justification, the constructed features may also provide some opportunity to achieve incidental recreational benefits. A 15-foot wide obstruction-free zone provides access for maintenance, inspection, and flood-fighting purposes along both sides of the channel throughout the entire project reach. The obstruction-free zone must be kept free of vegetation and any other obstructions per Corps requirements for levees and floodwalls; however, some recreational use may be accommodated within the obstruction-free zone without hindering the primary purposes.

The quantities and cost estimates in Chapters 2 and 3 of this appendix assume the roadway in the obstruction-free zone is surfaced with compacted backfill, in-situ material, or coarse aggregate. A review of the City of Milpitas' Master Trail Plan (Sokale/Landry Collaborative 1997) was conducted to determine the feasibility of locating a multi-use recreation trail within the obstruction-free zone. The City of Milpitas was consulted in comparing the project features in the current design with the Master Plan criteria, and it was determined that additional paving would be required to allow the obstruction-free zone to serve as a recreational trail and meet American Disability Act (ADA) requirements and City of Milpitas design criteria.

While the Master Plan generally recommends that a trail easement should include a 25-foot buffer between the trail and adjoining parcels, the 15-foot wide obstruction-free zone in the current design is bounded intermittently along the project reach by buildings, roadways, and other infrastructure that would preclude the presence of a buffer zone. While not optimal, a City of Milpitas representative has stated that the current design widths will be adequate to meet the minimum standards of a recreation trail.

Only the routes on the upper channel banks are being considered for the multi-use recreational trail; the in-channel maintenance roads will not be utilized as the ramps would not necessarily provide ADA compliance; as such, undercrossings and stream access points are not being considered as incremental recreational features. It is anticipated that pedestrians users of the recreational trails would utilize existing at-grade street crossings; due to the proximity of the project alignment to the Milpitas Boulevard intersections, the installation of an additional pedestrian or bicycle crossing with signaling, striping, and other requirements, is not considered feasible, particularly for the high traffic-volume routes such at Montague and Calaveras. Because there is currently no undercrossing at the I-680 Bridge, the proposed recreational trail extends only between Calaveras Boulevard and the Montague Expressway. Future improvements by others may connect the obstruction-free zones to the existing pedestrian bridge at I-680, allowing this reach to include a recreational trail; however, these features are considered beyond the scope of the current project.

The Master Plan cites that identity signs, use signs, safety signs, private property signs, interpretive and protective signs, and regional signs should be used to mark trails; however, the 15-foot obstruction-free zone must be free of any structures, which includes signage that might encroach on the available width. While some safety signage may be required by the project regardless of recreational use (near floodwalls, bridge crossings, or hydraulic structures, for example), any additional signage would need to be implemented by the non-Federal agency and would need to be placed in locations outside of the obstruction free-zone. The current cost estimate for recreational features assumes signage is located at each access point where the trail meets one of the roadway crossings. Benches are also included at the access points and would likewise need to be located outside of the primary access route. Safety fencing is included in the project costs where vertical concrete walls are present; however, these costs are not considered part of the recreational features as they would be required with or without a multi-use trail. It is assumed that access along Berryessa Creek would remain open as at present; supplemental safety fencing is not provided along the top of the sloping earthen channel banks as part of the project or recreational features.

Due to the limitations of the project area's obstruction-free zone for providing permanent facilities to trail users, existing regional staging areas (e.g., parks and public recreation facilities) should be utilized to provide potable and non-potable water and sanitary facilities. The 2-mile project reach allows these facilities to be located beyond the extents of the project while still meeting the Master Plan requirement of a 5-mile maximum spacing.

Several features that are typically recommended in conjunction with recreational trails in the Master Plan are not considered incidental recreational benefits. These non-incidental features are outside of the authorized project purpose. Adding this purpose to the Authorized Project would require additional authority from Congress, which would require a potentially lengthy process. However, these features could be added to the project as non-Federally funded betterments without additional Congressional authority.

The plan view following this appendix depicts the location of proposed incidental recreational features relative to the project area.

4.2 Quantities

As shown in the attached plan view, the incidental recreational features include twenty access points, each with 2 benches and 2 signs. In addition, the obstruction-free zone includes 244,000 square feet of surface area that would need to be paved in order to meet the requirements listed above. Since the multi-use trail would also be used by equipment for sediment removal and other maintenance purposes, the pavement would need to meet strength and durability requirements for heavy equipment access, including cranes, dump trucks, and excavators. An additional base course of 4 inches is assumed, along with a 4-inch thick asphalt section.

4.3 Costs

The total incremental cost of the recreation items is $1,626,000. This cost includes contingency but does not include costs for the PED phase or construction management.

4.4 Justification

Berryessa Creek runs through the cities of Milpitas and San Jose in Santa Clara County, California. The population of Milpitas and San Jose is 67,476 and 958,789, respectively (source: California Department of Finance, E-1 May 2011.) According to the 2000 Census data, there are over 60,000 residents within one mile of the trail. Expected recreational usage would likely be similar to the current recreational use of the project downstream of Calaveras Boulevard. The study area is located in an urbanized alluvial plain that includes primarily commercial and industrial land uses with a small residential development located adjacent to Los Coches Street; the heaviest usage of the trail would be expected in the vicinity of this residential development.

Construction of recreation features as part of the Corps project will be dependent upon completion of a third-party agreement between SCVWD and the City of Milpitas regarding funding and maintenance of the recreation features.

CHAPTER 5: CONCLUSIONS

This part of the engineering appendix (*Appendix B, Part IV: Design and Cost of Alternatives*) presents the basis of civil design and cost parameters for the Upper Berryessa Creek Project. Assumptions underlying the cost estimate are presented, including estimated construction quantities and unit costs.

- *Quantities*. Construction quantities are based on the required measures for conveying the given flow profiles within cross sectional templates that vary by alternative.

- *Unit Costs*. Unit costs are based on the MCACES 2010 English Unit Cost Library, 2012 Santa Clara County Labor Library, 2009 Region VII Equipment Library, and individual vendor quotations. Costs taken from previous studies have been escalated as appropriate. MII estimates supersede the values presented in this appendix.

The following table summarizes the total first costs by alternative.

Table 5.1 Summary of Total First Costs by Alternative ($1,000)

Item	Alternative			
	2A/d	**2B/d**	**4/d**	**5**
Present Value with O&M	$24,675	$51,283	$85,604	$86,561