# PROPOSITION 84 IRWM IMPLEMENTATION GRANT APPLICATION ROUND 1

"Implementing IRWM Projects in the Greater Monterey County Region"

Submitted to the California Department of Water Resources

By the City of Soledad



# On Behalf of the Greater Monterey County Regional Water Management Group

Big Sur Land Trust
California Coastal Commission
California State University Monterey Bay
California Water Service Company
Castroville Community Services District
City of Salinas
Coastlands Mutual Water Company
Elkhorn Slough National Estuarine Research Reserve
Environmental Justice Coalition for Water
Garrapata Creek Watershed Council
Marina Coast Water District
Monterey Bay National Marine Sanctuary
Monterey County Agricultural Commissioner's Office
Monterey County Water Resources Agency
Monterey Regional Water Pollution Control Agency
Moss Landing Marine Laboratories
Resource Conservation District of Monterey County
San Jerardo Cooperative, Inc.

January 7, 2011

## I. APPLICANT INFORMATION TAB

## **1. APPLICANT INFORMATION**

Organization Name: City of Soledad

Tax ID: 946000432

Proposal Name: "Implementing IRWM Projects in the Greater Monterey County Region"

**Proposal Objective:** The projects in this proposal have been selected to address as many goals and objectives of the region as possible, as outlined in both the Salinas Valley IRWM FEP (the "approved" plan) and the Greater Monterey County IRWM Plan (which is still under construction). Together, the seven projects address over three-quarters of the combined goals and objectives of those two plans (63 of a total 82 goals and objectives), including:

Water Supply: 10 of 17 goals/objectives Water Quality: 15 of 20 goals/objectives Environment: All (14 of 14) goals/objectives Flood Protection and Floodplain Management: 4 of 11 goals/objectives DAC: All (6 of 6) goals/objectives Regional Communication and Cooperation: All (6 of 6) goals/objectives Climate Change: All (8 of 8) goals/objectives

## 2. BUDGET

Other Contribution: \$0 Funding Match (Local Contribution): \$260,000 Federal Contribution: \$684,464 In-kind Contribution: \$615,846 Grant Funds Requested: \$4,868,441 Total Project Cost: \$6,428,751

## **3. GEOGRAPHIC INFORMATION**

Latitude: 36.239

Longitude: -121.196

**Location:** The approximate geographic center of the Greater Monterey County IRWM region lies just northwest of King City in Monterey County.

**County:** The Greater Monterey County IRWM Region is located almost entirely within Monterey County. A very small portion of the planning region is located in San Benito County, where the Salinas River Watershed extends into that county.

Groundwater Basin(s): Pajaro Valley, Salinas Valley

Hydrologic Region(s): Central Coast

Watershed(s): 26-Santa Lucia, 27-Salinas

## 4. LEGISLATIVE INFORMATION

State Assembly District: Districts 27 and 28State Senate District: Districts 15 and 12U.S. Congressional District: District 17

## **II. APPLICANT INFORMATION AND QUESTION'S TAB**

**Q1. Proposal Description:** The overall goal of this proposal is to implement a mix of water resource management projects that will provide diverse and multiple benefits to the Greater Monterey County IRWM region in terms of water supply, water quality, environmental enhancement, and flood protection. The seven projects in this proposal consist of the following (implementing agency and project title):

- Project 1: City of Soledad: "Soledad Water Recycling/Reclamation Project"
- **Project 2**: Castroville Community Services District: "Castroville CSD Well 2B Treatment Project"
- **Project 3**: San Jerardo Cooperative, Inc.: "San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley"
- **Project 4**: Elkhorn Slough Foundation: "Integrated Ecosystem Restoration in Elkhorn Slough"
- **Project 5**: Central Coast Wetlands Group at Moss Landing Marine Labs: "Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville"
- **Project 6**: Monterey Bay National Marine Sanctuary, Central Coast Wetlands Group, and RCD of Monterey County: "Watershed Approach to Water Quality Solutions"
- **Project 7**: UC Davis Granite Canyon Marine Pollution Studies Laboratory: "Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems"

Together these seven projects will provide important and multiple benefits to the region, including increased and improved groundwater in the Salinas Valley Groundwater Basin (the primary source of water supply in the region); improved water quality for surface, groundwater, estuarine, and coastal waters, including coastal waters of the Monterey Bay National Marine Sanctuary; increased and enhanced habitat and other ecosystem benefits through streambank, wetlands, and grasslands restoration; enhanced flood protection; better protection against sea level rise and other impacts of climate change through coastal wetlands restoration and improved water supply reliability; and increased public access and community involvement.

The proposal also addresses the majority of the region's goals and objectives as outlined in the IRWM Plan, and will implement a diverse array of resource management strategies. Importantly, the proposal addresses critical water resource needs of two disadvantaged communities in the region, providing urgently needed wastewater treatment improvements to the San Jerardo farmworker community in the Salinas Valley, and providing drinking water treatment to remove arsenic from the community of Castroville's drinking water supply.

#### **Q2. Project Director:**

Adela P. Gonzalez City Manager City of Soledad 248 Main St. Soledad, CA 93960 (831) 223-5016 Email: AGonzalez@cityofsoledad.com

#### **Q3. Project Management:**

Clifton W. Price Public Works Director City of Soledad 248 Main St. Soledad, CA 93960 (831) 223-5173 CPrice@cityofsoledad.com

**Q4. Applicant Information:** 

City of Soledad 248 Main St. Soledad, CA 93960

Q5. Additional Information: The applicable DWR region is the South Central Coast.

**Q6. Responsible RWQCB:** The Greater Monterey County IRWM region is located entirely within the Central Coast RWQCB (Region 3).

**Q7. Eligibility:** This proposal provides a 24% non-State funding match. The proposal as a whole meets the minimum 25% funding match requirement because two of the seven projects contained in the proposal are intended to address critical water resource needs of disadvantaged communities (DACs), and therefore are not required to meet the minimum 25% match. Nonetheless, both of those DAC projects do provide funding matches, and one of the DAC projects provides more than the required 25% match. All of the other five projects contribute at least a 25% non-State funding match.

**Q8. Eligibility:** The application represents a single application from an IRWM Region approved in the RAP. The name of that planning region is the Greater Monterey County IRWM region.

**Q9. Eligibility:** The City of Soledad is a local agency as defined in Appendix B of the Grant Guidelines.

**Q10. Eligibility:** Only one project proponent applying for funds through this proposal, the City of Soledad, meets the definition of "urban water supplier." (Note: Castroville Community Services District supplies water for municipal purposes, but provides water to fewer than 3,000 connections and supplies less than 3,000 acre-feet of water annually.) Self-certification of compliance with CWC §525 et seq. and AB 1420 has been submitted by the City of Soledad in hard copy format as part of this application.

**Q11. Eligibility:** Yes, the City of Soledad has submitted a 2005 Urban Water Management Plan (UWMP) to DWR, and the plan has been verified by DWR to be complete. The City of Soledad will also submit a complete updated 2010 UWMP, consistent with the 2010 UWMP Guidebook. Note that DWR has delayed the release of the updated guidelines and has moved the due date for the 2010 UWMP to July 1, 2011. The City of Soledad intends to submit a complete updated 2010 UWMP by that date, and if awarded funds through the Implementation Grant Program, will submit the updated 2010 UWMP prior to execution of a grant agreement.

**Q12. Eligibility:** Yes, the urban water supplier listed in Q10, the City of Soledad, has submitted AB 1420 compliance tables and supporting documentation to DWR. This information has been submitted in hardcopy format along with this application.

Q13. Eligibility: Three projects included in this proposal have potential (positive) groundwater impacts:

- City of Soledad: Soledad Water Recycling/Reclamation Project
- Castroville Community Services District: Castroville CSD Well 2B Treatment Project
- San Jerardo Co-operative, Inc.: San Jerardo Wastewater Project

**Q14. Eligibility:** All of the projects listed in Q13 reside in the Salinas Valley Groundwater Basin, and are therefore covered by the Monterey County Groundwater Management Plan (GWMP), approved May 2006, that has been prepared and implemented by the Monterey County Water Resources Agency. The Monterey County GWMP is in compliance with CWC §10753.7, and is attached as ATT1\_IG1\_PIN\_Eligible\_3of5.

**Q15. Eligibility:** No, the Greater Monterey County IRWM region does not receive water supplied from the Sacramento-San Joaquin Delta. All water used in the region is derived primarily from within the region itself, or from watersheds and groundwater basins immediately adjacent on the Central Coast. The main source of water for most water users in the planning region is groundwater, primarily from the Salinas Valley Groundwater Basin. The only exceptions are in the Big Sur coastal area, where residents depend entirely on surface water and shallow wells for their water supply, and in an area near Greenfield in the Salinas Valley, where residents use water supplied from a diversion from the Arroyo Seco River. The Nacimiento and San Antonio Dams are an important feature of the region's water supply, releasing water into the Salinas River for percolation to underground aquifers. The watersheds of both reservoirs lie astride the boundaries of Monterey and San Luis Obispo Counties; and although the Nacimiento Reservoir is owned and operated by the Monterey County Water Resources Agency, it is actually located entirely within San Luis Obispo County, outside of the Greater Monterey County IRWM region.

Q16. Eligibility: N/A

Q17. Eligibility: N/A

PROJECT 1: City of Soledad: Soledad Water Recycling/Reclamation Project					
PROJECT BENEFITS INFORMATION					
Project Name:	Project 1: S	oledad Wa	ater Recycling/Reclamation Project		
Benefit Type:	95 – Conve	Conveyance – Water Supply Enhancement			
	127 – Wate	- Water Use Efficiency – Recycled Land Irrigated			
Benefit Level:	Primary be	nefit is Wa	ter Use Efficiency - Recycled Land Irrigated.		
<b>D</b>	Secondary	benefit is C	Conveyance – Water Supply Enhancement.		
Description:	The benefit balance of completion recreation a the use of r	s will be of the Soledac of design of treas in and ecycled wa	btained by designing and constructing, in fundable phases, the d Water Recycling/Reclamation Project. This project includes of a recycled water delivery system to both agricultural and d near the City of Soledad. This project also includes research on atter for agricultural uses.		
	The first pl the recycle to connect station. Co landscaped also includ communitie Soledad W	ase, which d water pur the recycle- mpletion of areas curre e a feasibili es of Gonza ater Reclan	is being proposed through this grant application, is to construct mp station and design and construct the transmission mains needed d water transmission mains already constructed to the pump f this phase would enable delivery of recycled water to multiple ently being irrigated with potable water. This first phase would ity study and preliminary conceptual design for the neighboring ales and Greenfield for delivery of their cities' wastewater to the nation Facility for processing.		
Measurement:	The recycle	ed water pro	oject is expected to reduce potable water consumption by 70 acre-		
	ft per year, switch to re basin is in landscaping irrigation r	r year, initially, and then growing to 180 acre-feet per year as more customers ch to recycled water for their lawn irrigation needs. Given that the groundwater n is in an overdraft situation, this will help mitigate the overdraft. Sixty acres of scaping are expected to be converted, based on a 3 acre-foot per acre annual			
BUDGET	inigation				
Other Contributi	ion:		\$0		
Funding Match (Local Contribution		ibution):	\$0		
Federal Contribu	1 Contribution:		\$0		
In-kind Contribution:			\$375,000		
Grant Funds Requested:			\$1,155,000		
Total Project Cost:			\$1.530.000		
GEOGRAPHIC INFORMATION					
Latitude:	Nort	n pipe: 36.4	129262		
Longitude:	Nort	n pipe: -12	1.333485		
Location:	3452	0 Morosoli	Road, Soledad, CA 93960		
County:	Mon	Monterey			
Groundwater Ba	sins: 3-4 S	3-4 Salinas Valley			
Hydrologic Reg	ons: 3 Central Coast				
Watershed:	27 3309 Salinas Riv		River		
LEGISLATIVE INFORMATION					
State Assembly	District:	Districts	28		
State Senate Dis	State Senate District:		Districts 12		
U.S. Congressional District:		District 1	17		

# **III. PROJECTS TAB**

PROJECT 2: Castroville Community Services District: Castroville CSD Well 2B				
Project Name	Project 2: Castroville CSD Well 2B Treatment Project			
Renefit Type:	93 - New	– New Water Supply Facilities		
Benefit Type.	64 - Group	idwater Ma	inagement	
Benefit Level:	Primary be	nefit is Nev	w Water Supply Facility.	
	Secondary	benefit is C	Groundwater Management.	
Description:	Castroville region. Cas Groundwa In 2007, C drilled a ne that arsenic ppb).	stroville is a disadvantaged community located in the northern part of the IRWM ion. Castroville's wells are in the 180/400-Foot Aquifer of the Salinas Valley bundwater Basin, and were experiencing increased salinity due to seawater intrusion. 2007, Castroville Water District (now the Castroville Community Services District) lled a new well, No. 2B, into the 900-Foot Aquifer. Water quality testing indicated t arsenic levels in the new well (17 ppb) exceeded the MCL for drinking water (10 b).		
	Construction system cap facility. Put reduce the change, co shallow aq Monterey	struction of a new well pump and treatment facility will increase the overall water em capacity for Castroville, achieving the primary benefit of a new water supply ity. Pumping water from the deep aquifer instead of the 180/400-Foot Aquifer will ce the migration rate of seawater-intruded groundwater in the shallow aquifer. This ge, coupled with other IRWM projects that reduce agricultural pumping from the ow aquifer, supports the groundwater management strategy developed by the terey County Water Resources Agency for the Salinas Valley Groundwater Basin		
Measurement:	The averag a design ca 50% of the improved g measurable	average annual water demand for Castroville is 880 acre-feet per year. Well 2B has sign capacity of 800 gallons per minute (gpm), which is capable of meeting up to o of the District's demand, or 440 acre-feet/year. The effect of the project on roved groundwater management by reduced seawater intrusion is not directly		
BUDGET	measurable	•		
Other Contribut	Other Contribution:		\$0	
Funding Match (Local Contri		ibution):	\$195,000	
Federal Contribution:		,	\$0	
In-kind Contribu	In-kind Contribution:		\$7,020	
Grant Funds Re	Grant Funds Requested:		\$581,000	
Total Project Co	ost:		\$783,020	
GEOGRAPHIC		TION		
Latitude:	36° 4	6' 15.8"		
Longitude:	-121	° 45' 14.93	5' 14.932"	
Location: North corn		h corner of	corner of Speegle and Axtell Streets, Castroville, CA 95012	
County:	Monterey			
Groundwater Ba	Groundwater Basins: 3-4 Salinas Va Specifically. P		ley rissima formation underlying the 180/400 Foot Aquifer	
Hydrologic Reg	Hydrologic Regions: 3 Central Coast		· · ·	
Watershed: 27 3309 Sali		309 Salinas	s River	
LEGISLATIVE INFORMATION				
State Assembly	District:	Districts	27	
State Senate Dis	State Senate District:		12	
U.S. Congressional District:		District	17	

PROJECT 3: San Jerardo Co-operative, Inc.: San Jerardo Wastewater Project				
PROJECT BENEFITS INFORMATION				
Project Name:	Projec Farm-	ect 3: San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged n-worker Community in the Salinas Valley.		
Benefit Type:	91 – V 64 – C	Water ( Ground	Quality Inf water Ma	frastructure – Improved wastewater treatment plant nagement – Other
Benefit Level:	Prima Secon	ary ben ndary b	efit is Wat enefit is G	ter Quality Infrastructure – Improved wastewater treatment plant. Groundwater Management.
Description:	The b system machi	enefits n. The ine roo	will be at current sy m, and it y	tained by upgrading the disadvantaged community's wastewater stem consists of four unlined ponds, leach fields and a small works mostly by gravity.
	This p wells. addition at cap disady phase attain	project will line the first two ponds, expand the leach fields and install monitoring s. This will lead to water quality improvement in the groundwater, and also tional monitoring of groundwater in the area. Since the current wastewater system is pacity, the project also involves conservation measures in the homes of the dvantaged community to increase conservation and reduce water usage. A future e of the project also involves studies for recycling water. This will lead to present of water conservation herefits.		
Measurement:	The q averag assess retent	quantity of wastewater with improved treatment will be 23.5 acre-feet per year on age. The effect of the project on improved groundwater management will be used by measurement of nitrates and tri-chloropropane released from treatment and tion ponds to leach fields. Monitoring wells will be installed with this project		
BUDGET				
Other Contribution:			\$0	
Funding Match (Local Contribution):		oution):	\$0	
Federal Contribution:			\$0	
In-kind Contribution:			\$105,000	
Grant Funds Requested:			\$924,455	
Total Project Co	ost:			\$1,029,455
GEOGRAPHIC INFORMATION				
Latitude:		36 38	34	
Longitude:		-121 3	2 13	
Location:		24500 Calle El Rosario, S		Rosario, Salinas, CA 93908
County:		Monterey County		
Groundwater Ba	isins:	Salinas Valley Groundwater Basin		Groundwater Basin
Hydrologic Regi	ions:	is: Central Coast hy		ydrologic region
Watershed: 27 3309 Salinas				
LEGISLATIVE	INFO	RMAT	ION	
State Assembly	District	t:	District 2	28
State Senate Dis	trict:		District 1	2
U.S. Congressional District:		District 1		

<b>PROJECT 4:</b>	Elkh	orn Slough Fou	undation: Integrated Restoration in Elkhorn Slough	
PROJECT BENEFITS INFORMATION				
Project Name:	Project 4: Integrated Restoration in Elkhorn Slough			
Benefit Type:	32 - 2	Ecosystem: Shalle	ow Water/ Marsh/ Wetland Habitat	
	129 -	Watershed Prote	ction-Water Quality Improvement	
	76 -	Other-Environme	ntal Restoration	
	4 - F	lood Protection		
Benefit Level:	Prim	ary: 32 - Ecosyste	em: Shallow Water/ Marsh/ Wetland Habitat	
	Prim	ary: 129 - Waters	hed Protection-Water Quality Improvement	
	Seco	ndary: 76 - Other	-Environmental Restoration	
	Seco	ndary: 4 - Flood I	Protection	
Description:	The	Elkhorn Slough F	oundation (ESF), in collaboration with the California Department	
	of Fi	sh and Game, the	Elkhorn Slough National Estuarine Research Reserve	
	(ESN	NERR), the Moss	Landing Harbor District, the Monterey County Water Resources	
	Ager	ncy and the Count	y of Santa Cruz, proposes to (1) develop a program for the	
	bene	ficial reuse of sed	iment generated by flood control and harbor maintenance	
	proje	ects, (2) restore 75	acres of salt marsh, and (3) create a 30 acre native grass buffer to	
	redu	ce non-point sour	ce pollution of the Elkhorn Slough estuary.	
Measurement:	Ecos	ystem: Shallow V	Vater/ Marsh/ Wetland Habitat: The project will increase the	
	acrea	ige of tidal marsh	in Elkhorn Slough by 75 acres. Salt marsh provides habitat for	
	threa	tened and endang	ered species. Breeding southern sea otters, federally threatened,	
	routi	nely use tidal mar	sh habitat in the area for resting. Salt marsh degradation is	
	assoc	clated with the loc	cal extirpation of the federally endangered California clapper rail	
	in the	e 1980s; this proje	ect is a first step to recovering critical habitat for this species.	
	Wate	ershed Protection-	Water Quality Improvement: The project will establish a	
	vege	tated buffer to int	ercept and treat an average of 35 acre-feet of agricultural runoff	
	annually. This Best M		anagement Practice will be located on public property, benefitting	
	grow	ers in the region l	by providing an accessible demonstration of this practice, and	
	creat	ing the opportuni	ty for research and education in a low risk setting. Salt marsh	
	resto	ration will also in	nprove estuarine water quality.	
	Othe	r-Environmental	Restoration: The project will increase the resilience of Elkhorn	
	Slough tidal marshes t		o climate change by improving the sediment budget of the	
	estua	ry. Without proje	cts such as this that address subsided former tidal marsh, the salt	
	marsh in Elkhorn Slough will remain 'sediment starved' and at risk of degradation			
	sea level rises.			
	Floo	d Protection: The	project will enable the Pajaro River Bench Excavation Project,	
	whic	h increases flood	protection for over 9358 acres of land, by providing needed	
	place	ement areas for the	e sediment generated.	
BUDGET				
Other Contribution:			\$0	
Funding Match (Local Contribution):		Contribution):	\$0	
Federal Contribution:			\$489,000	
In-kind Contribution:			\$0	
Grant Funds Requested:		d:	\$1,049,984	
Total Project Cost:			\$1,538,984	
GEOGRAPHIC	GEOGRAPHIC INFORMATION			
Latitude: 36° 48' 32		36° 48' 32.60"		
Longitude:		121° 45' 09.00"		

Location:	1700 Elkhorn Road, Watsonville, CA 95076		
County:	Monterey County		
Groundwater Basins:	Pajaro Valley Groundwater Basin		
Hydrologic Regions:	Central Coast Hydrologic Region		
Watershed:	Elkhorn Slough Watershed		
LEGISLATIVE INFORMATION			
State Assembly District:		Districts 27	
State Senate District:		Districts 15 and 12	
U.S. Congressional District:		District 17	

<b>PROJECT 5:</b>	Moss Landing Marine Labs Central Coast Wetlands Group: "Water
Quality Enhai	ncement of the Tembladero Slough and Public Access for the Community
of Castroville	
<b>PROJECT BE</b>	NEFITS INFORMATION
Project Name:	Project 5: "Water Quality Enhancement of the Tembladero Slough and Public Access for the Community of Castroville"
Benefit Type:	32 - Ecosystem: Shallow Water/ Marsh/ Wetland Habitat
	51 - New/Improved Public Access (other than coastal)
	179 - Agricultural Drainage-Water Quality Improvement
	147 - Watershed Coordination
	145 - Training and Outreach
	48 - Demonstration/Interpretive Programs
Benefit Level:	Primary (all benefits)
Description:	Ecosystem: Shallow Water/ Marsh/ Wetland Habitat: Phase 1 of this project will work with stakeholders to identify locations, obtain landowner permission and develop plans for future marsh/wetland habitat restoration. Restoration will occur in Phase 2.
	New/Improved Public Access (other than coastal): Phase 1 will work with landowners to identify potential public access locations including those places designated for restoration. Phase 2 will build the necessary paths and fences.
	Agricultural Drainage-Water Quality Improvement: Phase 1 will plan for 13.5 acres of land to be converted to treatment wetland. Watershed Coordination: Phase 1 involves a great deal of stakeholder involvement and coordination to ensure that all affected parties agree to the implementation before any work is started.
	Training and Outreach: Part of Phase 1 is focus on Community Outreach including a community meeting in Castroville and scoping for a MERITO program in Castroville.
	Demonstration/Interpretive Programs: Several of the restoration and treatment wetland sites completed in Phase 2 will have interpretive signs and function as demonstration sites to encourage further restoration in the region. Benefits will be achieved in Phase 2 of this project through the implementation of improvement projects and the continuance of educational programs.
Measurement:	Ecosystem: Shallow Water/ Marsh/ Wetland Habitat – Approximately 13.5 acres of wetland will be restored.
	New/Improved Public Access (other than coastal) – Miles of trail created
	Agricultural Drainage-Water Quality Improvement – Approximately 120 acre-feet per year will be treated through the treatment wetland.

Wat	Watershed Coordination – Meetings held		
Trai	Training and Outreach – People trained		
Den	nonstration/Inte	rpretive Programs – Events hosted	
BUDGET			
Other Contribution:		\$0	
Funding Match (Loca	l Contribution)	: \$0	
Federal Contribution:		\$98,714	
In-kind Contribution:		\$46,726	
Grant Funds Requeste	ed:	\$436,340	
Total Project Cost:		\$581,780	
GEOGRAPHIC INFORMATION			
Latitude:	36 46 6		
Longitude:	-121 46 2		
Location:	The project covers the lower section of the Gabilan watershed beginning South of		
	Castroville, V	Vest of Highway 156 and following the Tembladero Slough as it runs	
	adjacent to town and West to the Ocean.		
County:	Monterey		
Groundwater Basins:	Salinas Valley Groundwater Basin (3-4), 180/400 Foot Aquifer Subbasin (3-4.01)		
Hydrologic Regions:	Central Coast		
Watershed:	27 – Salinas		
LEGISLATIVE INFORMATION			
State Assembly District: Districts		cts 27	
State Senate District: Districts		cts 15 and 12	
U.S. Congressional District: District		ct 17	

<b>PROJECT 6:</b>	Monterey Bay National Marine Sanctuary: Watershed Approach to Water
Quality Soluti	ons
<b>PROJECT BE</b>	NEFITS INFORMATION
Project Name:	Project 6: Watershed Approach to Water Quality Solutions
Benefit Type:	129 - Watershed Protection-Water Quality Improvement
	103 - Sediment Removal-Water Quality Improvement
	179 - Agricultural Drainage-Water Quality Improvement
	35 - Erosion Control-Bank Restoration/Stabilization
	45 - Interpretive Enhancements-General Public Recreation
	49 - New/enhanced public parks
	66 - Water and Sediment Quality-Surface water quality samples taken
	76 - Other-Ecological Monitoring
	174 - Other-Data bases developed
Benefit Level:	Watershed Protection-Water Quality Improvement - primary
	Sediment Removal-Water Quality Improvement - primary
	Agricultural Drainage-Water Quality Improvement -primary
	Erosion Control-Bank Restoration/Stabilization - secondary
	Interpretive Enhancements-General Public Recreation - tertiary
	New/enhanced public parks- tertiary
	Water and Sediment Quality-Surface water quality samples taken - tertiary
	Other-Data bases developed - tertiary
	Other-Ecological Monitoring – quartary

Description:	Watershed Protection-Water Quality Improvement – This will be accomplished through management practices implemented in agricultural fields, educating local residents about urban runoff and through revegetating Santa Rita Creek.
	Sediment Removal-Water Quality Improvement – This will be accomplished through erosion control practices in agricultural fields and revegetating stretches of the creek.
	Agricultural Drainage-Water Quality Improvement will be accomplished through leveraging funds from AWEP and Livestock and Lands program as well as erosion control practices.
	Erosion Control-Bank Restoration/Stabilization will be accomplished through erosion control practices in agricultural fields and revegetating stretches of the creek.
	Interpretive Enhancements-General Public Recreation – Restoration will occur adjacent to a neighborhood baseball field and local park which will become demonstration sites and are currently locations for the community to gather. Interpretive signs will be posted.
	New/enhanced public parks – The ball field will become a demonstration site and is currently a location for the community to gather. The second restoration site runs through a neighborhood park, is owned by the school district, and is adjacent to an elementary school.
	Water and Sediment Quality-Surface water quality samples taken – A citizen monitoring program will collect samples throughout the project area.
	Other-Ecological Monitoring – California Rapid Assessment monitoring as well as photo monitoring will be conducted for stretches of the creek.
	Other-Data bases developed – A database to track implementation practices and effectiveness monitoring will be developed to demonstrate success.
Measurement:	Watershed Protection-Water Quality Improvement –The measurable benefits are to reduce the nitrate concentration to less than 10 mg-N/L, and the e. coli MPN/100ml to less than 400.
	Sediment Removal-Water Quality Improvement – Approximately 8 acre-feet of sediment per year will be prevented from entering the creek.
	Agricultural Drainage-Water Quality Improvement – Water quality will be improved in approximately 180 acre-feet per year of runoff.
	Erosion Control-Bank Restoration/Stabilization – Approximately 0.25 stream miles will be restored and stabilized.
	Interpretive Enhancements-General Public Recreation – The number of interpretive signs and tours will be tracked.
	New/enhanced public parks – The acreage of enhanced parks will be tracked. Three acres of parks are anticipated to be enhanced.
	Water and Sediment Quality- Surface water quality samples taken – A goal is set at four monitoring stations and 18 samples per station to be collected.
	Other-Ecological Monitoring – Site assessments including CRAM scores photo monitoring will be conducted at four stations (minimum).
	Other-Data bases developed – The data will be incorporated into state and regional databases.

BUDGET		
Other Contribution:		\$0
Funding Match (Local	Contribution):	\$65,000
Federal Contribution:		\$96,750
In-kind Contribution:		\$0
Grant Funds Requeste	d:	\$475,562
Total Project Cost:		\$637,312
GEOGRAPHIC INFORMATION		
Latitude:	36 44 4	
Longitude:	-121 38 27	
Location:	Santa Rita Creek Watershed which parallels San Juan Grade Road in Salinas CA	
	from the Gabilan foothills to Van Buren Avenue then heads NW to the coast.	
County:	Monterey	
Groundwater Basins:	Salinas	
Hydrologic Regions:	Central Coast	
Watershed:	Alisal-Tembladero Slough	
LEGISLATIVE INFORMATION		
State Assembly District: District		27
State Senate District: Districts		s 12
U.S. Congressional District: District		. 17

<b>PROJECT 7:</b> UC Davis Granite Canyon Marine Pollution Studies Lab: Evaluation of			
Potential for S	Stormwater Toxicity Reduction by LID Treatment Systems		
PROJECT BE	NEFITS INFORMATION		
Project Name:	Project 7: Evaluation of Potential for Stormwater Toxicity Reduction by Low Impact		
	Development (LID) Treatment Systems		
Benefit Type:	66 - Water and Sediment Quality-Surface water quality samples taken		
	106 - Stormwater Flood-Water Quality Improvement		
Benefit Level:	Water and Sediment Quality-Surface water quality samples taken (Primary)		
	Stormwater Flood-Water Quality Improvement (Secondary)		
Description:	Water and Sediment Quality-Surface water quality samples taken: Results of the		
	efficacy study and loading determinations will be made available to natural resource		
	managers and planners for future and long-term stormwater planning decisions. Project		
	findings could be incorporated into future stormwater BMP guidelines and stormwater		
	planning documents. Increased adoption of urban bioswales will result in regional water		
	quality improvements.		
	Stormwater Flood-Water Quality Improvement: Water quality samples will be collected		
	at four LID sites during storm events to determine pollutant loading of stormwater		
	runoff and efficacy of bioswales in removing toxicity to aquatic organisms.		
Measurement:	Water and Sediment Quality-Surface water quality samples taken: Project findings will		
	be disseminated to a minimum of five agencies and natural resource management bodies		
	that are involved with stormwater management, including the Central Coast Regional		
	Water Quality Control Board, the City of Salinas Planning Department, the Monterey		
	Bay National Marine Sanctuary, the Monterey County Water Pollution Control Agency,		
	the Monterey County Water Resources Agency, and the Low Impact Development		
	Center, Inc.		

	Stormwater Flood-Water Quality Improvement: 72 water quality samples will be		
	collected an	d analyzed	for multiple parameters including nutrients, total suspended
solids, metals, polycyc			clic aromatic hydrocarbons (PAH), and current use pesticides.
BUDGET			
Other Contribution	n:		\$0
Funding Match (Local Contribution):		bution):	\$0
Federal Contribution:			\$0
In-kind Contribution:			\$82,100
Grant Funds Requested:			\$246,100
Total Project Cost:			\$328,200
GEOGRAPHIC INFORMATION			
Latitude:	36 43	8	
Longitude:	-121	39 54	
Location: Site 1: Boronda		: Boronda	Crossing Shopping Center, 1950 N. Davis Road, Salinas, CA
County: Monterey Count		erey Count	ty
Groundwater Basins: Salinas Valley		as Valley C	Groundwater Basin (3-4)
Hydrologic Regions: Central Coast		al Coast	
Watershed: 27-Salinas			
LEGISLATIVE INFORMATION			
State Assembly District: Districts		Districts	28
State Senate District: Districts		Districts	12
U.S. Congressional District: District		District 1	7

## ATT1\_IG1\_Eligible\_1of5 Authorization and Eligibility Requirements

## **1. Authorizing Documentation**

A Resolution from the City Council of the City of Soledad is attached as ATT1\_IG1\_Eligible\_2of5 (Resolution No. 4599, dated and signed December 15, 2010). The Resolution authorizes the City Manager (or her delegate) to act as lead applicant on behalf of this grant application and to enter into an agreement with the California Department of Water Resources in order to receive Proposition 84 Implementation Grant funds.

#### 2. Eligible Applicant Documentation

#### **1.** Is the applicant a local agency as defined in Appendix B of the Guidelines? Please explain.

The City of Soledad is an incorporated City of the State of California and as such is a local agency as defined in Appendix B of the Guidelines.

# 2. What is the statutory or other legal authority under which the applicant was formed and is authorized to operate?

The City of Soledad was officially incorporated as a municipality by the State of California on March 9, 1921. The City of Soledad is a general law municipal entity, organized pursuant to resolution 1 under the authority provided by Government Code Section 34102 (see also Government Code Section 34851 et seq., establishing the basic organization structure for general law cities). As a general law city, Soledad has all powers established by general laws enacted by the California State Legislature, as well as all powers conferred by the California Constitution.

# **3.** Does the applicant have legal authority to enter into a grant agreement with the State of California?

In California, general law cities such as the City of Soledad are authorized directly and by implication to accept grants from other public entities that are authorized by appropriate law to make such grants. See for example: Government Code Sections 16366.1-16367.8; Health and Safety Code Section 50517.5; Public Resources Code Section 5096.151. By way of Resolution No. 4599, adopted by the Soledad City Council on December 15, 2010, the City Council has provided express authority to enter into a grant agreement with the State of California.

# 4. Describe any legal agreements among partner agencies and/or organizations that ensure performance of the Proposal and tracking of funds.

When awarded work of this nature, we enter into formal contractual agreements with any partner agencies or organizations that will be receiving funds. Terms and Conditions of our agreement with the State are incorporated into those agreements as an addendum. Sub-recipient agreements between the City of Soledad and the other project proponents will be entered into after receipt of notification that the grant funds have been awarded.

## 3. Groundwater Management Plan Compliance

Three projects included in this proposal may have potential (positive) groundwater impacts:

- City of Soledad: Soledad Water Recycling/Reclamation Project
- Castroville Community Services District: Castroville CSD Well 2B Treatment Project
- San Jerardo Co-operative, Inc.: San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley

All of these projects reside in the Salinas Valley Groundwater Basin, and as such are covered by the Monterey County Groundwater Management Plan (GWMP), approved May 2006, that has been prepared and implemented by the Monterey County Water Resources Agency. The Monterey County GWMP is in compliance with CWC §10753.7, and is attached as ATT1\_IG1\_Eligible\_3of5.

#### 4. Compliance with CWC §83002.(b)(3)(B)

Eligibility for implementation grant funding for the projects included in this proposal is based on the Salinas Valley IRWM Functionally Equivalent Plan (FEP), which was adopted prior to September 30, 2008. The Salinas Valley Regional Water Management Group (RWMG) consisted of the Monterey County Water Resources Agency, Marina Coast Water District, and the Castroville Water District (now the Castroville Community Services District). The FEP was adopted by the RWMG in May 2006 (signed on May 16, 2006 by Castroville Water District, on May 22, 2006 by the Monterey County Water Resources Agency, and on May 24, 2006 by the Marina Coast Water District).

In January 2009, the boundaries of the Salinas Valley IRWM Region were expanded in order to address significant IRWM geographic coverage voids in the Central Coast Funding Area. As a result, the new Greater Monterey County IRWM Region was formed along with a new RWMG (expanding from three agencies to 18 agencies and organizations). The Greater Monterey County IRWM Plan is currently under development. The Greater Monterey County RWMG is prepared to enter into a binding agreement with the Department of Water Resources to update, within two years of the execution date of the grant agreement, the IRWM Plan to meet the IRWM Plan standards contained in the Proposition 84 Guidelines. For the purposes of the Implementation Grant solicitation, the RWMG has undertaken all reasonable and feasible efforts to take into account the water-related needs of disadvantaged communities (DACs) within the Greater Monterey County. Two of the seven projects contained in this application address critical water resource management needs of DACs, including wastewater treatment for the San Jerardo Cooperative farm-worker community in the Salinas Valley and water supply treatment for the community of Castroville.

## 5. Consistency with an Adopted IRWM Plan

The seven projects included in this proposal are all consistent with the Primary Project List that was approved as part of the Salinas Valley IRWM FEP, adopted in May 2006. However, because the Salinas Valley FEP is in the process of being re-developed (as the Greater Monterey County IRWM Plan, in accordance with the Proposition 84 Guidelines), these seven projects have also been vetted by the Greater Monterey County RWMG according to the project review and project ranking process that has been approved for the new Plan. In other words, the projects are consistent with both the old Salinas Valley FEP and the new Greater Monterey County IRWM Plan.

#### **Consistency with Greater Monterey County IRWM Plan**

All seven projects included in this proposal were vetted by the Greater Monterey County RWMG through an approved project review process. In June 2010, the RWMG received 58 project submittals, including 32 implementation projects and 26 concept proposals. The projects included in this application were amongst those 32 implementation projects.

All 58 projects submitted for inclusion in the Greater Monterey County IRWMP were first reviewed for technical considerations by four Project Committees, each focused on a different water resource area, including Water Supply, Water Quality, Flood and Watershed Management, and Natural Resource Enhancement. The Project Committees were composed of both RWMG members and local experts in each of the water resource areas. The Committees reviewed the projects for such things as technical feasibility, consistency with laws and regulations, budget, anticipated benefits, and foreseeable problems.

The project proposals were then reviewed by the Integration Committee, a subcommittee of the RWMG, for identification of opportunities to maximize integration, regional partnerships, efficiency, and project benefits. Finally, all of the implementation projects were ranked according to a project ranking system that was approved by the RWMG (concept proposals were not ranked). The project ranking process was quite rigorous, and took into consideration the number of regional objectives addressed (40% of the total score), IRWM Program Preferences addressed (40% of the total score), and how well the project contributed to "integration," including number/magnitude of benefits that will result from the project, number and diversity of resource management strategies implemented, regionalism, and partnerships (20% of the total score). Four of the seven projects included in this proposal scored within the top five (out of 32 projects) in this project ranking process.

Of the 32 implementation projects included in the Greater Monterey County IRWM Plan, 21 of those projects were deemed eligible to apply for Implementation Grant funding based on consistency with the Salinas Valley FEP (the projects must be consistent with the Project List included in that Plan, since the Greater Monterey County IRWM Plan is not yet approved). The seven projects that are contained in this proposal were selected from those 21 projects based on several factors, including how well they scored in the project ranking process, readiness to proceed, and how well they contributed to a mix of projects that would provide multiple water resource benefits, address multiple objectives of the region, implement a variety of resource management strategies, and engage a diversity of partners.

#### **Consistency with Salinas Valley FEP**

The "Primary Project List" in the Salinas Valley FEP includes 57 projects for potential implementation in the Salinas Valley IRWM Region. Some of those projects are quite general (i.e., reflecting project needs), while others are very specific. The FEP Primary Project List is attached as ATT1\_IG1\_Eligible\_4of5. Below is a brief explanation of how each of the seven projects proposed in this application is eligible for Round 1 Implementation Grant funds based on the FEP Primary Project List.

Project 1: City of Soledad: "Soledad Water Recycling/Reclamation Project": This is the second phase of a project specifically identified on the Salinas Valley FEP Primary Project List. The proposed project meets short-term and long-term priorities of the Salinas Valley FEP, namely meeting existing and future water demand, and protecting and improving groundwater quality. What has been accomplished with Proposition 50 funds is the completion of a 5.5 MGD water Reclamation facility that is currently producing Title 22 water, the quality required for reuse as recycled water pursuant to the Central Coast Regional Water Quality Control Board Order No. R3-2008-0042, Master Reclamation Permit for the City of Soledad Water Recycling Facility. What is pending is the construction of the recycled water pump station and the transmission main and connections (a part of the project that was not funded through Proposition 50) that are needed to transport and deliver recycled water to the City pursuant to the aforementioned Master Reclamation Permit. The project proposed in this application will deliver recycled water to areas that are currently using over 23,000,000 gallons of groundwater annually for irrigation. Funding will also provide the first step toward reducing nitrate levels in the wastewater that is currently not being

denitrified for both Gonzales and Greenfield, as well as providing additional recycled water volume for off-setting the groundwater being pumped from the Salinas Valley basin for irrigation.

- Project 2: Castroville Community Services District: "Castroville CSD Well 2B Treatment Project": The Salinas Valley IRWM FEP included the "Castroville Water District Well Relocation and Replacement Project" as part of its project prioritization process as a future project to be addressed. Castroville's wells are in the 180/400-foot aquifer of the Salinas Valley Groundwater Basin, and at that time had been experiencing increased salinity due to seawater intrusion. The project was to construct a new well in the deeper 900-foot aquifer and reduce pumping from the shallower aquifers. In 2007, Castroville Water District (now the Castroville Community Services District) drilled a new well, No. 2B, into the 900-foot aquifer. Water quality testing indicated that arsenic levels in the new well exceeded the MCL for drinking water. The District has designed the well pump and treatment system for the new well, but has not initiated construction. The requested grant would fund the final phase of the Well Relocation and Replacement Project. In addition, Castroville is a disadvantaged community with a critical water concern and hence has been given high priority by the RWMG.
- Project 3: San Jerardo Co-operative, Inc.: "San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley": The San Jerardo Wastewater Project falls under two project categories in the Salinas Valley FEP Primary Project List, namely, "Local Treatment Facility/Infrastructure Improvements," and "Wastewater Disposal Management," and is therefore eligible for submission in this Round of grant funding. Furthermore, this is a disadvantaged community project with an urgent water resource management need, and as such has been given high priority for funding by the RWMG.
- **Project 4: Elkhorn Slough Foundation: "Integrated Restoration in Elkhorn Slough":** This project implements several priority projects from the Salinas Valley FEP. The project directly implements "Elkhorn Slough Wetland Enhancement" through direct restoration of salt marsh habitats. It advances the "Elkhorn Slough Conservation Plan" by conserving wetlands in Elkhorn Slough through increasing the viability of tidal marsh habitat in the face of sea level rise. It implements "Grower Education and Demonstration Projects" by establishing a native grass buffer and restored wetland adjacent to a working farm all on property owned by the State, which provides a demonstration site for outreach and education to growers in the region. The grass buffer is also a Best Management Practice, as identified in the Primary Project List.
- Project 5: Central Coast Wetlands Group at Moss Landing Marine Labs: "Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville": This is a site-specific implementation project for "Wetland Augmentation with Diverted Surface Water," a project category identified in the Primary Project List. The Tembladero Restoration project is defined in the Reclamation Ditch Watershed Assessment and Management Strategy (2005). This project also meets the objectives of "Implementation of Best Management Practices" and "Coordination with County General Plan Update," specifically, the Castroville Community Redevelopment Plan and Local Coastal Program amendment.
- Project 6: Monterey Bay National Marine Sanctuary: "Watershed Approach to Water Quality Solutions": The emphasis of the "Watershed Approach to Water Quality Solutions" project is on reducing polluted runoff from irrigated agriculture and improving the habitat and water quality conditions of Santa Rita Creek in Salinas, CA. This project falls under several project categories listed in the FEP Primary Project List, including: "Agriculture Irrigation Audits," "Continued Implementation of Nitrate Management Programs," "Grower Education and Demonstration Projects," "Implementation of Best Management Practices," and "Water Quality and Fish Habitat

Monitoring Program." The project is a holistic approach to improving water quality conditions in a watershed with multiple TMDLs resulting from upstream agricultural practices and urban development.

Project 7: UC Davis Granite Canyon Marine Pollution Studies Lab: "Evaluation of Potential for Stormwater Toxicity Reduction by Low Impact Development (LID) Treatment Systems": This project is eligible for submission in Round 1 as part of the "Storm Water Capture and Management" project on the FEP Primary Project List, which is linked to the Storm Water Management Plan for the City of Salinas. Stormwater toxicity in the City of Salinas has been reported in the Salinas Storm Water Management Plan Annual Report (2006-2007), with impacts on the freshwater invertebrate Ceriodaphnia, and the green algae Selanastrum capricornutum. Toxic stormwater has the potential to impact the Salinas River Watershed, which has high ecological value.

## ATT1\_IG1\_Eligible\_2of5 Authorization and Eligibility Requirements

#### **RESOLUTION NO. 4599**

A RESOLUTION OF THE CITY COUNCIL OF THE CITY OF SOLEDAD AUTHORIZING:

- 1) APPLICATION BE MADE TO THE CALIFORNIA DEPARTMENT OF WATER RESOURCES TO OBTAIN AN INTEGRATED REGIONAL WATER MANAGEMENT IMPLEMENTATION GRANT PURSUANT TO THE SAFE DRINKING WATER, WATER QUALITY AND SUPPLY, FLOOD CONTROL, RIVER AND COASTAL PROTECTION BOND ACT OF 2006 (PUBLIC RESOURCE CODE SECTION 75001 ET SEQ.);
- 2) APPOINTING THE CITY MANAGER OR HER DELEGATE AS THE AUTHORIZED REPRESENTATIVE FOR THE CITY OF SOLEDAD TO ENTER INTO AN AGREEMENT TO RECEIVE A GRANT FOR THE CITY OF SOLEDAD RECYCLE WATER PROJECT;
- 3) AUTHORIZING AND DIRECTING THE CITY MANAGER OR HER DELEGATE TO PREPARE THE NECESSARY DATA, CONDUCT INVESTIGATIONS, FILE SUCH APPLICATION, AND EXECUTE A GRANT AGREEMENT WITH CALIFORNIA DEPARTMENT OF WATER RESOURCES

WHEREAS, on November 24, 2010 the City of Soledad was invited by the Greater Monterey County Regional Water Management Group (RWMG) and the Elkhorn Slough Foundation to submit a project for application in Round One of the Prop 84 Integrated Regional Water Management (IRWM) Implementation Grant funding program; and

WHEREAS, application for this grant is necessary for this project would to leverage the Water Capital Funds to complete \$1,530,000 of work for a cost of \$375,000 enabling the City to deliver recycle water to the City from the Water Reclamation Facility saving approximately 23,000,000 gallons of drinking water per year that is currently being used for irrigation of City parks and landscaping at completion of this phase; and

WHEREAS, part way through the development of the Proposal Solicitation Packages (PSP) the Elkhorn Slough Foundation withdrew as lead agency; and

WHEREAS, in order to keep the PSP development on schedule for the first round of applications Soledad volunteered to take the role of lead agency because the application deadline is January 7, 2011; and

WHEREAS, the City of Soledad as the lead agency needs to adopt a resolution required by the California State Department of Water Resources (DWR) and submit same with the Grant application.

Resolution No. 4599 Page 2

NOW THEREFORE, BE IT HEREBY RESOLVED, by the City Council of the City of Soledad as follows:

- 1) Authorizes that application be made to the California department of Water Resources to obtain an Integrated Regional Water Management Implementation Grant pursuant to the Safe Drinking Water, Water Quality and Supply, Flood Control, River and Coastal Protection Bond Act of 2006 (Public Resource Code Section 75001 et seq.);
- 2) Appointing the City Manager or her delegate as the authorized representative for the City of Soledad to enter into an agreement to receive a grant for the City of Soledad Recycle Water Project;
- 3) Authorizing and directing the City Manager or her delegate to prepare the necessary data, conduct investigations, file such application, and execute a grant agreement with California Department of Water Resources.

PASSED AND ADOPTED by the City Council of the City of Soledad at a special meeting duly held on the 15<sup>th</sup> of December, 2010 by the following vote:

AYES, and in favor thereof, Councilmembers: Christopher Bourke, Alejandro Chavez, Richard Perez, and Mayor Fred J. Ledesma

NOES, Councilmembers:

ABSTAIN, Councilmembers:

ABSENT, Councilmembers:

Patricia Stephens

FRED J. LEDESMA, Mayor

ATTEST:

ADELA P. GONZALEZ, City Cle

# ATT1\_IG1\_Eligible\_3of5 Authorization and Eligibility Requirements

## **PLACEHOLDER**

Monterey County Groundwater Management Plan attached here

## ATT1\_IG1\_Eligible\_4of5 Authorization and Eligibility Requirements

## Salinas Valley IRWM FEP Primary List of Projects

Project prioritization for the Salinas Valley IRWM FEP occurred in four steps.

**I. Primary List of Projects:** First, a list of current and future water-related projects was created. This list consisted of a range of potential projects, including projects in the design phase and projects that had not undergone feasibility assessments. Projects were included for all of the water management entities in the Region.

Additional Diversion of Salinas River	Implementation of Best	Salinas River Lagoon Habitat
for M&I Use	Management Practices	Improvement
Agricultural irrigation audits	Increased Urban/Ag Recycled Water	Salinas Valley Integrated Water
	Use	Management Plan
Aquifer Storage and Recovery	Indirect Potable Reuse	Salinas Valley Water Project
Central Coast RWQCB Ag. Waiver	Industrial Wastewater Source	Salinity and Nitrate Education and
Program	Control Programs	Incentive Programs
Cloud Seeding	Local Treatment	Seasonal Storage of Recycled Water
	Facility/Infrastructure Improvements	
Conservation Ad Campaign	Low flow toilet rebates, shower	Soledad Water
	heads and kitchen and lavatory	Recycling/Reclamation Project
	faucets	
Continued Enhancement of	M&I Water Treatment Plants	Storm Water Capture and
Groundwater/Surface Water Models		Management
Continued implementation of Nitrate	MCWD Desalination plant expansion	Storm Water Management Plan
Management Programs		
Continued Reservoir Operations and	MCWD Well No. 33, Booster Station	Surface water storage and diversion
Maintenance	and Reservoir Project	for urban delivery and agriculture
		during irrigation periods
Coordination with County General	Mobile Irrigation Laboratory Program	Liered Water Rates
Plan Update		Lister De suele d'Meter Dreis et
Delivery to Expanded CSIP	Modification of pumping practices	Urban Recycled Water Project –
Decelipation	MPW/DCA Plant Membrane	Former FL Ord
Desalination		Orban Runon Management Program
Desalination plant at Mass Landing	On Form Tile Drain Management	Wastowator Disposal Management
Desaination plant at moss Landing		Wastewater Disposal Management
Elkhorn Slough Conservation Plan	On-going Channel Maintenance	Water Quality Improvement
Eikhom blough bonservation i lan	Program	delivered to CSIP
Elkhorn Slough Wetland	On-going GW extraction elevation	Water Quality and Fish Habitat
Enhancement	and quality monitoring and data	Monitoring Program
	collection. Maintain and enhance	
	data management tools	
Groundwater	On-going waterway flow and water	Water Use Efficiency Studies
extraction/transfer/banking	guality monitoring and data	,
5	collection w/ USGS	
Groundwater Pump for GW Level	Regional Urban Water	Water Use/Metering Programs
Management	Augmentation Project	
Grower education and demonstration	Relocation of groundwater pumping	Well Construction and Abatement
projects		Ordinance, Well Management
		Programs
High-efficiency washing machine	Salinas River Coalition Projects	Wetland Augmentation with
rebates		Recycled Water, Groundwater,
		diverted Surface Water

## **Primary List of Projects**

**II. Secondary List of Projects:** The second step of the process focused on choosing projects from the primary list that were potential projects for inclusion in the current round of Salinas Valley Integrated Regional Water Management. The criteria for this step included projects that were either currently being implemented or were currently under development and at a stage of development that their scope was clear. This list contained the following projects:

- Cloud Seeding
- Continued implementation of Nitrate management programs
- Continued Reservoir Operations and Maintenance
- Coordination with County General Plan Update
- Desalination
- Elkhorn Slough Conservation Plan
- Elkhorn Slough Wetland Enhancement
- MCWD Well No. 33, Booster Station and Reservoir Project
- On-going Channel Maintenance Program
- On-going GW extraction, elevation, and quality monitoring and data collection. Maintain and enhance data management tools
- On-going waterway flow and water quality monitoring and data collection w/ USGS
- Regional Urban Water Augmentation Project
- Salinas Valley Water Project
- Soledad Water Recycling/Reclamation Project
- Storm Water Management Plan

**III. Final Project List in the Salinas Valley FEP:** The third step was to determine which projects from the secondary list of projects would be included in the IRWM Planning process. These projects were identified to be in the planning or design process and scheduled to begin the bidding/construction process by December 31, 2006.

The projects that were identified through this step were:

- MCWD Well No. 33, Booster Station and Reservoir Project,
- Salinas Valley Water Project,
- Soledad Water Recycling/Reclamation Project,
- Water Quality and Fish Habitat Monitoring Program

Additional projects to be considered in future IRWM planning are:

- Regional Urban Water Augmentation Project,
- Castroville Water District Well Relocation and Replacement Project, and
- Urban Recycled Water Project Former Fort Ord

## ATT1\_IG1\_Eligible\_5of5 Letters of Support

The following letters of support for this proposal are attached as part of Attachment 1:

- 1. Assemblymember Bill Monning, California State Assembly District 27
- 2. Assemblymember Luis Alejo, California State Assembly District 28
- 3. Supervisor Louis Calcagno, Monterey County Board of Supervisors, Second District
- 4. Supervisor Simon Salinas, Monterey County Board of Supervisors, Third District
- 5. Juan Uranga, Executive Director, Center for Community Advocacy
- 6. Heidi Niggemeyer, Program Manager, Monterey Regional Storm Water Permit Participants Group
- 7. Linda McIntyre, General Manager/Harbor Master, Moss Landing Harbor District
- 8. Yazdan Emrani, Director of Public Works, Monterey County Department of Public Works
- 9. Jorge Jasso, Santa Rita Elementary School Principal, Santa Rita Union School District
- 10. Deneen Newman, District Superintendent, Soledad Unified School District
- 11. Tracy Hemmeter, Senior Project Manager, Santa Clara Valley Water District
- 12. Donald Gage, Chairman, Pajaro River Watershed Flood Prevention Authority
- 13. John Presleigh, Director of Public Works, Santa Cruz County Department of Public Works
- 14. Michael Scattini, landowner, Luis Scattini & Sons

## **PLACEHOLDER**

LETTERS OF SUPPORT ATTACHED HERE

# ATT2\_IG1\_Adopt\_1of1 Adopted Plan and Proof of Formal Adoption

N/A. As explained in ATT1\_IG1\_Eligible\_1of5, Compliance with CWC §83002.(b)(3)(B), eligibility is being established using an IRWM Plan adopted prior to September 30, 2008. Therefore the IRWM Plan and proof of formal adoption do not need to be submitted.

# ATT3\_IG1\_WorkPlan

# List of Attachments for Attachment 3 Work Plan

The following documents are attached as part of Attachment 3:

A	ATTACHMENT 3: WORK PLAN			
	ATT3_IG1_WorkPlan_1of46	I. Work Plan Introduction		
	ATT3 IG1 WorkPlan 20f46	II. Work Plan Tasks		
P	ROJECT 1: Soledad Appendices	S		
		90% Design Plans and Specifications, City of Soledad WWTP 5.5		
	ATT3_IG1_WorkPlan_3of46	MGD Upgrade and Expansion, December 28, 2009		
	ATT3_IG1_WorkPlan_4of46	Long-Term Wastewater Management Plan, March 2006		
	ATT3_IG1_WorkPlan_5of46	Urban Water Management Plan, December 2005		
	ATT3_IG1_WorkPlan_6of46	Soledad Water Master Plan, December 2005		
	ATT3_IG1_WorkPlan_7of46	Recycled Water User Manual, 2009		
	ATT3_IG1_WorkPlan_8of46	Letter from CDPH, approval of Soledad Recycled Water User Manual		
	ATT3_IG1_WorkPlan_9of46	Project Drawing 1		
	ATT3_IG1_WorkPlan_10of46	Project Drawing 2		
	ATT3_IG1_WorkPlan_11of46	Project Drawing 3		
	ATT3_IG1_WorkPlan_12of46	Project Drawing 4		
	ATT3_IG1_WorkPlan_13of46	Final Environmental Impact Report for City of Soledad General Plan and Wastewater Treatment and Disposal Master Plan, September 21, 2005		
	ATT3_IG1_WorkPlan_14of46	Letter from State Water Resources Control Board, June 2007, ESA Section 7 concurrence		
	ATT3_IG1_WorkPlan_15of46	Letter from US Fish & Wildlife Service, January 31, 2008, ESA Section 7 concurrence		
	ATT3_IG1_WorkPlan_16of46	Letter from RWQCB, July 31, 2008, Master Water Reclamation Requirements		
	ATT3_IG1_WorkPlan_17of46	Letter from State Water Resources Control Board, January 2008, approval of Facilities Plan		
P	ROJECT 2: Castroville Appendi	Ces		
	ATT3_IG1_WorkPlan_18of46	Memorandum Report, Summary of Operations: Construction of Castroville Water District Well No. 2B, June 8, 2010		
	ATT3_IG1_WorkPlan_19of46	90% Design Plans, Castroville Community Services District Well 2B Arsenic Treatment. Improvements, February 2009		
	ATT3_IG1_WorkPlan_20of46	90% Design Specifications (part 1 of 3), Castroville Community Services District Well 2B Arsenic Treatment Improvements, February 2009		
	ATT3_IG1_WorkPlan_21of46	90% Design Specifications (part 2 of 3), Castroville Community Services District Well 2B Arsenic Treatment Improvements, February 2009		
	ATT3_IG1_WorkPlan_22of46	90% Design Specifications (part 3 of 3), Castroville Community Services District Well 2B Arsenic Treatment Improvements, February 2009		
	ATT3_IG1_WorkPlan_23of46	90% Design Engineer's Cost Estimate, January 2009		

	ATT3_IG1_WorkPlan_24of46	2009 Castroville CSD Consumer Confidence Report		
		2009 Groundwater Summary Report, Monterey County Water		
	ATT3_IG1_WorkPlan_25of46	Resources Agency, August 2010		
		2007 Seawater Intrusion Maps, Monterey County Water Resources		
	ATT3_IG1_WorkPlan_26of46	Agency		
		2007 Groundwater Level Maps, Monterey County Water Resources		
_	ATTS_IG1_workPlan_2/0146	Agency		
P	ROJECT 3: San Jerardo Append			
	ATT3_IG1_WorkPlan_280f46	Drawing of Drain Field Improvements		
	ATT2 IC1 WorkDlar 20af46	Engineering Report: San Jerardo Waste Water Treatment Plant		
	ATT5_101_workPlail_290140	Engineering Penort: San Jerardo Wastewater Treatment Facility		
	ATT3 IG1 WorkPlan 30of46	Capacity Evalution October 2004		
	ATT3 IG1 WorkPlan 31of46	CEOA Study		
	ATT3_IG1_WorkPlan_32of46	Wasta Discharge Requirement		
	ATT2 IG1 WorkPlan 22of46	Correspondence recording design status		
	PO IECT 4: Elkhorn Slough Ann			
P	ROJECT 4: Elknorn Slough App	Elikhorn Slough Tidel March Sites Destorable by Sediment Addition		
		with High Benefit to Cost Ratio Site Descriptions: DRAFT		
	ATT3 IG1 WorkPlan 34of46	December 22, 2010		
	ATT3 IG1 WorkPlan 35of46	Elkhorn Slough Watershed Conservation Plan, 1999		
	ATT3 IG1 WorkPlan 360f46	Elkhorn Slough Tidal Wetland Plan, 2007		
Р	ROJECT 5: Central Coast Wetla	nds Group Appendices		
_		Reclamation Ditch Watershed Assessment and Management		
		Strategy – Part A Watershed Assessment, 2005, Central Coast		
		Watershed Studies (CCoWS), California State University Monterey		
	ATT3_IG1_WorkPlan_37of46	Bay		
		Reclamation Ditch Watershed Assessment and Management		
		Strategy – Part B Management Strategy, 2005, Central Coast Watershed Studies (CCoWS), California State University Monterey		
	ATT3 IG1 WorkPlan 38of46	Bay		
	ATT3 IG1 WorkPlan 39of46	Castroville Community Plan (2007)		
	ATT3 IG1 WorkPlan 40of46	Friends of the Tembladero concept proposal		
		Cross-section and close-up man created by MLML and Friends of		
		the Tembladero) for one particular parcel as a response to highway		
	ATT3_IG1_WorkPlan_41of46	expansion		
	ATT3_IG1_WorkPlan_42of46	Draft summary of the results at the Molera Road treatment wetland		
	ATT3_IG1_WorkPlan_43of46	Northern Salinas Valley Watershed Restoration Plan (1997)		
	ATT3_IG1_WorkPlan_44of46	Central Coast Regional Toxic Hot Spot Cleanup Plan (1997)		
Ρ	ROJECT 6: Monterey Bay Natio	nal Marine Sanctuary Appendices		
		Monterey Bay Sanctuary Citizen Watershed Monitoring Network		
		Citizen Based Water Quality Monitoring Program Monitoring		
		Report For Non-point Source Pollution Monitoring Fund		
<u> </u>	ATT3_IG1_WorkPlan_45of46	Supplemental Environmental Project (June 2007)		
	ATT2 IC1 West-DI 46-546	Quality Assurance Project Plan, Clean Streams Program for Santa		
-	A113_IG1_workPlan_460146	Kita Creek and Reclamation Ditch (June 2005)		
۲				
1	(No attachments)			

## ATT3\_IG1\_WorkPlan\_1of46 Work Plan Introduction

## I. INTRODUCTION

## 1. Goals and Objectives

The overall goal of this proposal is to implement a mix of water resource management projects that will provide diverse and multiple benefits to the Greater Monterey County IRWM region in terms of water supply, water quality, environmental enhancement, flood protection, and protection against the impacts of climate change.

The projects contained in this application have been carefully selected to address several objectives pertaining to the proposal itself:

- To provide diverse and multiple water resource and environmental benefits;
- To provide coverage of different geographic areas of the Greater Monterey County region;
- To address critical water resource needs of disadvantaged communities in the region;
- To address as many goals and objectives of the Salinas Valley IRWM Functionally Equivalent Plan (FEP) and the Greater Monterey County IRWM Plan as possible;
- To implement numerous and diverse resource management strategies;
- To include a mix of partners in implementing projects for the region; and
- To be responsive to the Central Coast Regional Water Quality Control Board's specific request to implement IRWM projects that support "A Vision of Healthy Watersheds."

The Greater Monterey County region represents an expansion of a former IRWM region, the Salinas Valley region, which was created under Proposition 50. The new region was created to address significant IRWM Plan coverage voids in the Central Coast Funding Area. A Regional Water Management Group (RWMG) for the new Greater Monterey County region was formed in January 2009, expanding the former Salinas Valley RWMG from just three organizations (Monterey County Water Resources Agency, Marina Coast Water District, and Castroville Water District) to 18 organizations, including government agencies, nonprofit organizations, academic institutions, water service districts, private water companies, and organizations representing agricultural, environmental, and community interests.

Expanding the Salinas Valley IRWM region has brought several key geographic areas into the IRWM planning process that had not been represented previously, including: the Big Sur coastal watersheds and communities on the western side of the Santa Lucia Range; the larger Salinas River Watershed from the Salinas River National Wildlife Refuge at the Pacific Ocean south to the San Luis Obispo County line and including the east and west ranges of the valley; the troubled Gabilan Watershed in the northern part of the Salinas River Watershed; and portions of western San Benito County. Expanding the boundary has also served to make the region more inclusive, inviting more partners and stakeholders to the table and opening up new opportunities for cooperation and integration of efforts.

This new expanded approach to integrated regional water management planning in the Greater Monterey County IRWM region is reflected in this application for Implementation Grant funds. The proposal includes seven projects that cover various geographic areas of the region and engage a diverse mix of partners in the IRWM planning process, including a local municipality, a local water supply district, two federal government natural resource management agencies, two academic research institutions, a local Resource Conservation District (RCD), and a farmworker co-operative community in the Salinas Valley. The proposal addresses the majority of the region's goals and objectives as outlined in the IRWM Plan, and will implement a diverse array of resource management strategies (described in more detail below). Importantly, the proposal addresses critical water resource needs of two disadvantaged communities in the region, providing urgently needed wastewater treatment improvements to the San Jerardo farmworker community in the Salinas Valley, and providing drinking water treatment to remove arsenic from the community of Castroville's drinking water supply.

The seven projects in this proposal consist of the following (implementing agency and project title):

- **Project 1**: City of Soledad: "Soledad Water Recycling/Reclamation Project"
- Project 2: Castroville Community Services District: "Castroville CSD Well 2B Treatment Project"
- **Project 3**: San Jerardo Cooperative, Inc.: "San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley"
- **Project 4**: Elkhorn Slough Foundation: "Integrated Ecosystem Restoration in Elkhorn Slough"
- **Project 5**: Central Coast Wetlands Group at Moss Landing Marine Labs: "Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville"
- Project 6: Monterey Bay National Marine Sanctuary, Central Coast Wetlands Group, and RCD of Monterey County: "Watershed Approach to Water Quality Solutions"
- Project 7: UC Davis Granite Canyon Marine Pollution Studies Laboratory: "Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems"

Together these seven projects will provide important and multiple benefits to the region, including increased and improved groundwater in the Salinas Valley Groundwater Basin (the primary source of water supply in the region); improved water quality for surface, groundwater, estuarine, and coastal waters, including coastal waters of the Monterey Bay National Marine Sanctuary; increased and enhanced habitat and other ecosystem benefits through streambank, wetlands, and grasslands restoration; enhanced flood protection; better protection against sea level rise and other impacts of climate change through coastal wetlands restoration and improved water supply reliability; and increased public access and community involvement.

Benefits		How Projects will Provide these Benefits
Water Supply	Drinking Water	<ul> <li>Arsenic removal treatment system for Castroville</li> </ul>
	Recycled Water	<ul> <li>Increased distribution of recycled water in Soledad, with</li> </ul>
		planning/design to expand to neighboring communities of
		Gonzales and Greenfield
	Groundwater	<ul> <li>Increased groundwater supplies in the Salinas Valley</li> </ul>
		Groundwater Basin due to increased use of recycled water in
		Soledad
		<ul> <li>Increased groundwater supplies due to groundwater quality</li> </ul>
		improvements (as described below)
		<ul> <li>Increased groundwater supplies due to increased water</li> </ul>
		conservation and water use efficiency through farmer outreach
		and implementation of agricultural BMPs in Santa Rita Creek
		subwatershed, and including grass buffers in Tembladero
		Slough and Elkhorn Slough
Water Quality	Surface Waters	<ul> <li>Reduced sedimentation and nonpoint source pollution in</li> </ul>

The table below shows how the different projects will provide these benefits:

	1	
		agricultural runoff through farmer outreach and
		implementation of agricultural BMPs in Santa Rita Creek
		subwatershed and Tembladero Slough
		Reduced sedimentation and nonpoint source pollution in urban
		runoff as a result of research to determine effectiveness of
		I any Impact Davalonment (I ID) practices in the city of
		Low impact Development (LID) practices in the city of
		Sainas
		<ul> <li>Reduced sedimentation and nonpoint source pollution in</li> </ul>
		surface waters as a result of environmental restoration
		conducted in Santa Rita Creek, Elkhorn Slough, and
		Tembladero Slough (vegetated buffers, treatment wetlands,
		and streambank restoration)
	Groundwater	<ul> <li>Improved groundwater quality in Salinas Valley Groundwater</li> </ul>
		Basin due to wastewater treatment system improvements at
		San Jerardo farm-worker community
		<ul> <li>Improved groundwater quality as a result of efforts to address</li> </ul>
		agricultural runoff in Santa Rita Creek subwatershed
		<ul> <li>Improved groundwater quality as a result of afforts to reduce</li> </ul>
		urban runoff through LID research in the city of Salines
	Estuaring Waters	Improved estuaring water quality due to extensive wetler 1
	Estuarme waters	<ul> <li>Improved estuarme water quanty due to extensive wetrands</li> <li>material in Elliberry and Tauchladers Classical including</li> </ul>
		restoration in Elkhorn and Templadero Sloughs, including
	C I W	treatment wetlands and implementation of agricultural BMPs
	Coastal Waters	<ul> <li>Improved coastal water quality through environmental</li> </ul>
		restoration and implementation of BMPs upstream, as
		described above
Environment	Riparian Corridors	• Streambank restoration and habitat improvements with native
		plants along Santa Rita Creek in the lower Salinas River
		Watershed
	Wetlands	<ul> <li>Restoration of wetlands and habitat improvements in</li> </ul>
	Enhancement	Tembladero Slough (planning/design phase) and in Elkhorn
		Slough
	Grasslands	<ul> <li>Restoration of grasslands and habitat improvements in Elkhorn</li> </ul>
	Enhancement	Slough
Flood and	Coastal Flood	<ul> <li>Sediment removal in Moss Landing Harbor and the Paiaro</li> </ul>
Floodplain	Protection	River flood control channel resulting in more effective flood
Management		management
1. Lunagemente		<ul> <li>Enhanced floodplain function through wetlands restoration in</li> </ul>
		Elkhorn Slough and Tembladero Slough
Climate Change	Sea Level Rise	<ul> <li>Increased protection against sea level rise as a result of coastal</li> </ul>
Chinate Change	Sea Level Rise	watlanda restoration in Ellyhorn Slough and Tambladaro
		Slough
	Water Supply	Increased protection against general imposts of alimete -harmen
	water Supply	Increased protection against general impacts of climate change
	Reliability	through water supply and water quality improvements
Public Outreach	Community	<ul> <li>Engagement of community members in environmental</li> </ul>
and	Involvement	restoration and water quality protection through streambank
Recreational		restoration in Santa Rita Creek
Benefits		• Engagement of local farmers in water quality protection efforts
		and environmental enhancement (Santa Rita Creek and
		Tembladero Slough)
	Public Access	<ul> <li>Design/planning for public access trail from Castroville to the</li> </ul>
		ocean

Finally, one of the objectives of this proposal is to be responsive to the Central Coast Regional Water Quality Control Board's (RWQCB) specific request to the Greater Monterey County RWMG to implement IRWM projects that support the RWQCB's "Vision of Healthy Watersheds." The Central Coast RWQCB is moving in a fundamentally new strategic direction, based on this Vision. Healthy Watersheds support healthy, diverse aquatic habitat, have healthy riparian areas and corridors with sufficient vegetative buffer area to minimize land pollutant runoff into surfaces waters, sufficient cover and canopy to maintain healthy habitat, and have near natural levels of sediment transport. Surface waters meet water quality objectives, and sediments are available and sufficiently low in pollutants to provide for healthy habitat. Groundwaters are near natural levels in quantity and quality, for water supply purposes and for base flow for sustaining creek habitat and migratory fish routes. A Healthy Watershed sustains these characteristics through measures that ensure the dynamics that provide these healthy factors and functions are protected. The RWQCB has established three measurable goals:

- *Healthy Aquatic Habitat*: By 2025, 80 percent of Aquatic Habitat is healthy, and the remaining 20 percent exhibits positive trends in key parameters.
- Proper Land Management: By 2025, 80 percent of lands within a watershed will be managed to
  maintain proper watershed functions, and the remaining 20 percent will exhibit positive trends in
  key watershed parameters.
- *Clean Groundwater:* By 2025, 80 percent of groundwater will be clean, and the remaining 20 percent will exhibit positive trends in key parameters.

In keeping with this Healthy Watershed approach, the RWQCB asked that the Greater Monterey County RWMG support the implementation of green infrastructure projects, such as Low Impact Development (LID) practices, as part of the ongoing IRWM planning process, and secondly, that the RWMG support implementation of agricultural best management practices, including specifically irrigation efficiency, and nutrient as well as pesticide and sediment management. The projects contained in this proposal respond to these specific requests, and together support all of the Healthy Watershed goals outlined above.

## 2. Purpose and Need

The projects contained in this proposal address some of the most pressing problems of the Greater Monterey County IRWM region. These problems include water supply reliability, due in large part to seawater intrusion and nitrate contamination in the Salinas Valley Groundwater Basin; water quality impairments in groundwater, surface, estuarine, and coastal waters, and concomitant ecosystem degradation; and specific water resource needs in disadvantaged communities (DACs). This section provides a brief overview of these problems and then explains how the projects included in this proposal address these water resource management issues. This section also demonstrates how the proposal addresses the goals and objectives of the IRWM Plan, and how the projects will implement a diverse array of the water resource management strategies outlined in the Plan.

## a. Significant Problems in the Region and How the Proposed Projects Address Them

## **Problem: Water Supply Reliability**

Groundwater is the main source of water for most water users in the Greater Monterey County planning region with the primary exception of residents along the Big Sur coast, who depend entirely on surface water and shallow wells for their water supply. (Note: The Big Sur coastal portion of the Greater Monterey County region is not represented in this grant proposal because projects from this geographic area are not included on the Primary Project List from the Salinas Valley IRWM FEP, and therefore are not eligible for submission under this solicitation.) The largest groundwater basin in the planning region

is the Salinas Valley Groundwater Basin, and by far the largest usage of groundwater is agriculture: approximately 90% of Salinas Valley groundwater is used for agricultural purposes, while the remaining 10% is used to meet urban needs. Water supply from the Salinas Valley Groundwater Basin is severely threatened by seawater intrusion, nitrate contamination, and other water quality impairments (e.g., arsenic).

*Seawater Intrusion:* As both irrigated agriculture and urban development have increased during the past several decades, groundwater demand has exceeded available recharge. The Monterey County Water Resources Agency (MCWRA) estimates the annual non-drought overdraft of the Salinas Valley Groundwater Basin to be approximately 45,300 AFY, though during the last drought the annual overdraft was estimated at 150,000–300,000 AFY. Seawater intrusion was first documented in a few wells in the Castroville area in 1932. By the 1940s, many agricultural wells in the Castroville area had become so salty that they had to be abandoned.

Currently, more than 16,000 acres of agricultural land near the coast overlie groundwater too salty for agricultural use. As a result of overdraft, seawater has intruded approximately six miles inland in the most shallow regional (180-foot) aquifer, and three miles inland in the second-deepest regional (400-foot) aquifer.<sup>1</sup> In 1999, MCWRA estimated that seawater affected approximately 24,000 acres overlying the 180-foot aquifer and 10,500 acres overlying the 400-foot aquifer in the northern Salinas Valley. The intruded area has reached the cities of Marina and Castroville, and is approaching the city of Salinas. As a result of this intrusion, urban and agricultural supply wells have been abandoned, destroyed, and relocated.

*Nitrate Contamination:* Nitrate contamination in the Salinas Valley was first documented in a report published by the Association of Monterey Bay Area Governments (AMBAG) in 1978. Nitrate contamination is present throughout the Salinas Valley, with concentrations highest in the 180-foot aquifer. As of 1993, average nitrate concentrations in the 180-foot aquifer approached or exceeded the maximum drinking water standard of 45 mg/l in three of the basin's four hydrologic sub-basins<sup>2</sup>. All of the Salinas Valley cities have had to replace domestic water wells due to high nitrate levels that exceed the drinking water standard. The State Water Resources Control Board (SWRCB) ranked the Salinas Valley as their number one water quality concern due to the severity of nitrate contamination in a July 1995 staff report. As a result, development and implementation of a nitrate management program for the Salinas Valley has become a priority for the SWRCB.

## Response: How the Proposed Projects Address Water Supply Reliability

Three projects in this proposal directly address water supply reliability, in three different ways:

- The San Jerardo Wastewater Project addresses nitrate contamination in the Salinas Valley Groundwater Basin (and by extension, the serious drinking water quality problem that has been plaguing this farm-worker community for decades, as described below) through the proposed wastewater treatment improvements. Note that this project also addresses an urgent water resource management need of a disadvantaged community in the region.
- The *Castroville CSD Well 2B Treatment Project* will increase the useable groundwater supply through the removal of arsenic, thereby providing safe drinking water for the community of Castroville. Note that this project also addresses an urgent water resource management need of a disadvantaged community in the region.

<sup>&</sup>lt;sup>1</sup> Central Coast Regional Water Quality Control Board, January 2002, Watershed Management Initiative, p. 29 <sup>2</sup> Ibid.

• The *Soledad Water Recycling/Reclamation Project* will positively impact the groundwater supply by removing contaminants and salt through reclamation and by providing recycled water for agricultural and landscaping in the City of Soledad and surrounding areas. The project is expected to reduce potable water consumption by 70 AFY initially, growing to 180 AFY as more customers switch to recycled water for their lawn irrigation needs.

Note that all of the projects that improve surface water quality (described below), particularly in the upper watersheds of the region, also improve water supply reliability.

#### Problem: Surface Water Quality Impairments and Environmental Degradation

Within the Greater Monterey County IRWM region, 28 water bodies have been determined by the Central Coast RWQCB to be impaired under Section 303(d) of the Clean Water Act, including Santa Rita Creek, Elkhorn Slough, Tembladero Slough, and Moss Landing Harbor. The quality of surface waters in the region is greatly influenced by land use practices. Primary causes of pollutants to surface waters include agricultural runoff, urban runoff, erosion and sedimentation, and septic systems. Agricultural runoff is of particular concern since agriculture represents the primary land use in Monterey County, accounting for about 56% of the total land area and occupying more than 1.4 million acres of land. Erosion is a widespread problem, due in part to the erosive nature of local soils as well as from land use practices (including farming on steep slopes).

Water quality impairments in the upper watersheds of the region from urban and agricultural sources directly impact sensitive habitats downstream, including estuarine and coastal marine ecosystems. Environmental resources of particular significance in the Greater Monterey County region, and included in this proposal, are the Monterey Bay National Marine Sanctuary and the Elkhorn Slough National Estuarine Research Reserve.

*Monterey Bay National Marine Sanctuary:* The Greater Monterey County region is situated adjacent to the federally protected Monterey Bay National Marine Sanctuary (MBNMS). The MBNMS was designated in 1992 as a federally protected marine area, and is home to one of the most diverse marine ecosystems in the world, including 33 species of marine mammals, 94 species of seabirds, 345 species of fishes, and numerous invertebrates and plants. The MBNMS receives runoff from all of the region's major watershed areas. Offshore areas of the Sanctuary are in relatively good condition, but nearshore coastal areas show a number of problems resulting largely from nonpoint sources of pollution, including elevated levels of nitrates, sediments, persistent pesticides, metals, bacteria, pathogens, detergents, and oils. The greatest loads of nutrients and persistent contaminants in the Sanctuary are delivered via the rivers that drain heavily cultivated watersheds<sup>3</sup>. Nitrates from the Pajaro and Salinas Rivers and Tembladero Slough are far greater in comparison to other major rivers that drain to the MBNMS.<sup>4</sup> Harmful algal bloom (HAB) events have been linked with these freshwater runoff events.<sup>5</sup>

Elkhorn Slough National Estuarine Research Reserve: Elkhorn Slough, located in the northern coastal area of the region, provides some of the most important freshwater marsh and brackish marsh habitat for

<sup>&</sup>lt;sup>3</sup> Los Huertos, M., L. Gentry, C. Shennan. 2003. Land Use and Water Quality on California's Central Coast:

Nutrient Levels in Coastal Waterways. Center for Agroecology & Sustainable Food Systems. Research Briefs. Paper brief no2.

<sup>&</sup>lt;sup>4</sup> CCLEAN. 2007. Central coast long-term environmental assessment network: 2001-2006 Program Overview.

Submitted to the California Regional Water Quality Control Board, CCLEAN, Santa Cruz, CA. 177pp.

<sup>&</sup>lt;sup>5</sup> Kudela, R.M. and F.P. Chavez. 2004. The impact of coastal runoff on ocean color during an El Niño year in central California. Deep-Sea Research II 5:1173-1185.
wildlife in California. Elkhorn Slough is one of the few coastal wetlands remaining in California. The main channel of the slough, which winds inland nearly seven miles, is flanked by a broad salt marsh second in size in California only to San Francisco Bay. Part of the MBNMS, the Elkhorn Slough supports remarkable biological diversity and harbors several rare, threatened or endangered species, including peregrine falcons, Santa Cruz long-toed salamanders, California red-legged frogs, brown pelicans, least terns and sea otters. Elkhorn Slough is also on the Pacific Flyway, providing an important feeding and resting ground for many types of migrating waterfowl and shorebirds. The area is protected by a combination of private, federal, and state landowners.

Over the past 150 years, human actions have altered the tidal, freshwater, and sediment processes in Elkhorn Slough and its watersheds. Such impacts have substantially changed the water quality conditions and have increased the levels of pollution and eutrophication in the slough.<sup>6</sup> Approximately two dozen wetlands comprising nearly 637 acres of estuarine habitats in the Elkhorn watershed are currently behind water control structures and levees. Control structures have caused many sites in Elkhorn Slough to have very restricted tidal exchange, thus resulting in poor water quality conditions, as evident through low dissolved oxygen and elevated levels of organic matter accumulation. Relatively high levels of nutrients and legacy agricultural pesticides, such as DDT, have been documented within the Elkhorn Slough wetlands complex. Pathogens, pesticides, sediments, low dissolved oxygen levels and ammonia have impaired sections of Elkhorn Slough and waterbodies adjacent to the slough (including Moss Landing Harbor).

# **Response: How the Proposed Projects Address Surface Water Quality Impairments and Environmental Degradation**

Four projects in this proposal will help improve surface water quality:

- Both the *Integrated Ecosytem Restoration in Elkhorn Slough* and the *Water Quality Enhancement* of the Tembladero Slough projects will provide significant water quality improvements through extensive wetlands restoration, via wetland functions related to sedimentation, filtration, and the transformation of nutrients and pesticides.
- The *Watershed Approach to Water Quality* project directly addresses surface water quality through farmer outreach programs, the implementation of agricultural best management practices, and streambank restoration (reducing sedimentation and nonpoint source pollutants). This project will demonstrate the ability to quantitatively measure surface water quality improvements within a small watershed. Lessons learned will be used as a model in other watersheds to effectively and efficiently measure and demonstrate success of management practices to improve surface water quality.
- Evaluation of Potential for Stormwater Toxicity Reduction by Low impact Development *Treatment Systems* addresses the problem urban runoff by evaluating the efficacy of urban bioswales in treating stormwater runoff. The results of this research will inform resource managers and may significantly impact future land use practices in the region.

In addition, three projects in this proposal will directly enhance environmental resources:

<sup>&</sup>lt;sup>6</sup> ESTWPT (Elkhorn Slough Tidal Wetland Project Team). 2007. Elkhorn Slough tidal wetland strategic plan. A report describing Elkhorn Slough's estuarine habitats, main impacts, and broad conservation and restoration recommendations. 100pp.

- Integrated Ecoystem Restoration in Elkhorn Slough will restore up to 90 acres of tidal salt marsh in the nationally significant Elkhorn Slough and create a 30-acre native grassland buffer, improving and creating new habitat.
- Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville will provide the foundation Phase II implementation of wetlands restoration in Tembladero Slough, while providing opportunities for public access.
- The *Watershed Approach to Water Quality* project will include streambank restoration with native plants along Santa Rita Creek in the Salinas River Watershed, providing opportunities for community involvement and education as well as enhanced habitat and improved natural surroundings for community outdoor recreation.

#### Problem: Critical Water Resource Management Needs in Disadvantaged Communities

Two projects contained in this proposal address critical water supply and water quality needs of disadvantaged communities (DACs) within the Greater Monterey County region. These DACs are the community of Castroville in the northern coastal portion of the region and San Jerardo Co-operative, a farm-worker community in the Salinas Valley.

Water supply for the community of Castroville comes exclusively from the 180/400-foot aquifer, which is a portion of the Salinas Valley Groundwater Basin. This aquifer is experiencing seawater intrusion due to over-pumping along the coast (as described above), and Castroville is beginning to see increased levels of chlorides and total dissolved solids (TDS) at their municipal wells. The community drilled a new well into the 900-foot aquifer, a deeper stratum of the Salinas Valley Groundwater Basin which is not experiencing seawater intrusion. When this well was tested, it was discovered that the water contained arsenic at concentrations above the safe drinking water standard of 0.010 mg/L. The Castroville CSD Well 2B Treatment Project will construct a wellhead treatment system that will remove the arsenic and allow the District to add this new source of water supply to the distribution system. The commensurate reduction in well pumping from the shallower aquifer will help to reduce the rate of seawater intrusion.

San Jerardo is a rural housing complex for low-income farm-worker families on a 33-acre site in rural Monterey County, about 7.5 miles Southeast of Salinas. For many years, the residents at the Co-op have struggled with water and wastewater issues. In 1997, the Environment Protection Agency (EPA) filed a lawsuit against Alco Water Corporation, the owners of San Jerardo's drinking water system for violations of the federal Safe Drinking Water Act, including falsifying water quality reports and failing to comply with treatment requirements. San Jerardo's water system languished in court-appointed receivership for years while residents continued to be supplied with highly contaminated drinking water. The residents experienced serious health impacts from water contamination including rashes, sores, and hair loss. Eventually, Monterey County, working with San Jerardo residents and the Department of Public Health (DPH), were able to access enough resources to construct a new well and distribution system.

San Jerardo has already spent considerable time and resources over the last few years trying to resolve their drinking water contamination issues, and now they have very few resources to address their desperately needed wastewater upgrades. The proposed San Jerardo Wastewater Project will provide critical public health benefits to the San Jerardo community by ensuring an adequate wastewater treatment system and by reducing nitrate and 1,2,3-trichloropropane discharge into the underlying aquifer system. The upgrade of the wastewater system will help prevent the cycle of contamination and recontamination between the wastewater ponds and the underlying aquifer. It may also reduce the amount of treatment needed for the community's new drinking water supply from the nearby well.

#### b. How the Projects Address Goals and Objectives of the IRWM Plan

While projects for this proposal were selected to address the region's most pressing water resource management problems, they were also selected to address as many goals and objectives of the region as possible, as outlined in both the Salinas Valley IRWM FEP and the Greater Monterey County IRWM Plan (which is still under construction). Together, the seven projects address over three-quarters of the combined goals and objectives of those two plans (63 of a total 82 goals and objectives), including:

Water Supply: 10 of 17 goals/objectives Water Quality: 15 of 20 goals/objectives Environment: All (14 of 14) goals/objectives Flood Protection and Floodplain Management: 4 of 11 goals/objectives DAC: All (6 of 6) goals/objectives Regional Communication and Cooperation: All (6 of 6) goals/objectives Climate Change: All (8 of 8) goals/objectives

The table beginning on the following page demonstrates how the projects in this proposal address each of the region's goals and objectives.

# HOW PROJECTS ADDRESS GOALS AND OBJECTIVES OF THE SALINAS VALLEY FEP & THE GREATER MONTEREY COUNTY IRWM PLAN

SALINAS VALLEY FEP	GREATER MONTEREY COUNTY IRWMP	Solodad	Castrovillo	San	Elkhorn	CCWG	MRNMS	UC Davis
		Juicuau	Castiovine	Jerardo	Slough	COWO	WDNNS	Davis
	Meet or exceed all applicable water quality							
Meet or exceed all applicable water quality regulatory	regulatory standards (for drinking water, surface							
standards	and groundwater quality).	х	x	х	х	х	х	
Meet or exceed M&I water quality targets established by								
stakeholders			х					
Deliver Agricultural water to meet quality guidelines								
established by stakeholders.		Х					Х	
Meet or exceed Recycled water quality targets								
Aid in monting TMDL's established for the Salinas Piver		X	-					
Watershed					x	x	x	x
	Protect surface waters and groundwater basins				~	~	~	Λ
Protect surface waters from contamination and threat of	from contamination and the threat of							
contamination	contamination.	х			х	х	х	х
	Protect surface waters and groundwater basins							
Protect groundwater basins from contamination and the	from contamination and the threat of							
threat of contamination	contamination.			Х				
Prevent seawater intrusion	Prevent seawater intrusion.		X		X			
impacts to existing land uses while preserving								
environmental habitats								
	Incorporate or promote principles of low impact							
	development where feasible, appropriate, and							
	cost effective.	х				х		х
	Support research and pilot projects for the co-							
	management of food safety and water quality							
	protection.				X	Х	X	
	infrastructure, wastewater treatment systems							
	and manure management programs to prevent							
	water quality contamination.	х		х				
	Support research and other efforts on salinity							
	management.							
	Support monitoring to better understand major							
	sources of erosion, and implement a							
	comprehensive erosion control program.							
	guantity and improve the quality of urban and							
	agricultural runoff and/or mitigate their effects in							
	surface waters, groundwater, and the marine							
	environment.				х	х	х	х
	Promote regional monitoring and analysis to	Х		Х			Х	Х

	better understand water quality conditions							
	Support research of emerging technologies							
	(enzymes, etc.) to develop effective water							
	cenzymes, etc.) to develop enective water							
	Dremete public education chaut water quality							
	Promote public education about water quality					v		
	Issues and needs.	X				X	X	X
	Utilize emerging technologies to better track							
	sources of pollution (i.e., PCR, GIS, etc.).							
	GOAL: Protect and improve surface,							
	groundwater, estuarine, and coastal water quality							
	for all designated beneficial uses.	х	х	Х	X	Х	Х	
WATER SUPPLY GOALS	WATER SUPPLY GOALS & OBJECTIVES							
Stop Seawater Intrusion			х		х			
Improve the long-term hydrologic balance between	GOAL: Improve the long-term hydrologic balance							
recharge and withdrawal	between recharge and withdrawal.							
Provide sufficient water supply to meet all water needs	Provide sufficient water supply to meet all							
through the year 2030	identified water needs through the year 2030.	х	х					
Increase groundwater recharge through the Salinas	Increase groundwater recharge and protect							
River	groundwater recharge areas.	x						
Increase groundwater storage		~						
	Optimize the use of aroundwater storage with				-			
	infrastructure enhancements and improved							
Optimize the use of aroundwater storage	operational techniques							
	Diversify water supply sources, including but not							
Diversify Water Supply Sources	limited to the use of recycled water	×	×	v				
Continue and enhance water concervation programs for		~	^	~	-			
both municipal and caricultural uses	Maximiza water concernation programs			X				
Doth municipal and agricultural uses	Maximize water conservation programs.	X		X				
Optimize conjunctive use of the Salinas River, its								
tributaries, and the Groundwater Basin	Optimize conjunctive use where appropriate.							
	Protect and augment groundwater and surface							
	water supplies for designated beneficial uses.	х		Х			Х	Х
	Address water storage and conveyance							
	infrastructure needs.	Х						
	Capture and manage storm water runoff.						Х	Х
	Support research and monitoring to better							
	understand identified water supply needs.							
	Support the creation of water supply certainties							
	for local production of agricultural products.							
	Promote public education about water supply							
	issues and needs.			х				
	Establish a plan to provide emergency drinking							
	water to communities in the region in the event of							
	a disaster.							
	GOAL: Improve water supply reliability.		х					
ENVIRONMENTAL ENHANCEMENT GOALS	ENVIRONMENT GOALS & OBJECTIVES		-					
Identify apportunities to protect enhance and/or rectore	GOAL: Protect enhance and restore the region's							
natural resources including streams groundwater	ecological resources while respecting the rights							
watershede, and other resources	of private property owners				Y	v	v	v
שמנכו שופט, מווע טנווכו וכשטעונכש.	I of private property owners.	1	1	1	X X	۸ (	X	X

Minimize adverse environmental impacts of potential	Minimize adverse environmental impacts of water						
projects	resource management projects.	х		х	х		х
Identify opportunities for open spaces and trails adjacent							
to streams, sloughs and lagoons				х	х	х	
Identify opportunities to enhance ecological habitats,							
including migratory steelhead fish, through project							
implementation and operation.				х	х		
· · ·	Support science-based projects to protect,						
	improve, and restore the region's ecological						
	resources.			х	х		х
	Develop and implement projects that protect,						
	enhance, and/or restore the ecologic functions of						
	rivers, streams, wetlands, estuaries and coastal						
	lagoons, while providing opportunities for public						
	access and recreation where appropriate.			х	х	х	
	Protect and enhance state and federally listed						
	species and their habitats.			х			
	Support research and monitoring to better						
	understand environmental conditions.						
	environmental water needs, and the impacts of						
	water-related projects on environmental						
	resources.	х					х
	Implement fish-friendly stream and river corridor						
	restoration projects.			х			
	Reduce adverse impacts of sedimentation into						
	streams, particularly from roads and non-point						
	sources.				х	х	
	Reduce the effects of invasive species.			Х	Х	Х	
	Promote native drought-tolerant plantings in						
	municipal and residential landscaping.	х				х	
	Consider opportunities to purchase fee title or						
	conservation easements on lands from willing						
	sellers that provide integrated water resource						
	management benefits. Ensure adequate funding						
	and infrastructure to manage properties and/or						
	monitor easements.			х	х		
	Support the development of cost-effective	1		 			
	strategies to reduce adverse impacts on						
	ecological resources.			х	х		х
	FLOOD PROTECTION AND FLOODPLAIN						
FLOOD PROTECTION GOALS	MANAGEMENT GOALS & OBJECTIVES						
Protect existing infrastructure from flooding and erosion	Protect infrastructure and property from flood						
due to flood events	damage			x			
Work with Stakeholders to preserve existing channel				~		1	
maintenance program							
Preserve flood protection associated with Dam							
Onerations							
	GOAL Develop fund and implement integrated			1	ļ	1	
	watershed approaches to flood management			v			
1	materiance approaches to noou management	1	1	^			

through collaborative and community supported processes						
Improve flood management infrastructure and						
operational techniques/strategies.						
Implement flood management projects that						
provide multiple benefits such as public safety,						
habitat protection, recreation, agriculture, and						
economic development.			х	х	х	
Protect, restore, and enhance the natural						
ecological and hydrological functions of rivers,						
creeks, streams, and their floodplains.	х		х	х	х	
Support research and monitoring efforts to						
understand the effects of flooding on surface and						
coastal waters particularly following wildfire						
events.						
Support research and monitoring efforts to						
understand the effects of flooding on transport						
and persistence of pathogens in food crop						
production areas.						
Support management of flood waters so that they						
do not contaminate fresh produce in the field.						
Promote public education about local flood						
management issues and needs.						
REGIONAL COMMUNICATION AND						
COOPERATION GOALS & OBJECTIVES						
GOAL: Promote regional communication,						
cooperation, and education regarding water						
resource management.	х	х	х	Х	Х	
Facilitate dialogue and reduce inconsistencies in						
water management strategies/regulations						
between local, regional, state, and federal						
entities.	Х			Х		Х
Promote dialogue between federal and state						
regulators and small water system managers to						
facilitate water quality regulation compliance.	Х					
Foster collaboration between regional entities to						
minimize and resolve potential conflicts and to						
obtain support for responsible water supply						
solutions and improved water quality.	Х		 	Х		
Build relationships with state and federal						
regulatory agencies and other water agencies to						
racilitate the permitting, planning, and						
implementation of water-related projects.	Х		X	Х	Х	
Increase stakeholder input and public education						
about the need, complexity, and cost of						
strategies, programs, plans, and projects to						
improve water supply, water quality, flood						
management, coastal conservation, and						
environmental protection.	X	1	X	Х	Х	

DISADVANTAGED COMMUNITIES							
GOALS & OBJECTIVES							
GOAL: Ensure the provision of high-quality							
potable affordable water and healthy conditions							
for disadvantaged communities	x		x				
Seek funding opportunities to ensure all	X		~				
communities have a water system with adequate							
safe high-quality drinking water	×						
Seek funding opportunities to ensure all	X						
communities have adequate wastewater							
treatment	Y		Y				
Ensure that disadvantaged communities are	~		~				
adequately protected from flooding and the							
impacts of poor surface and droundwater quality			v		v		
Provide support for the participation of			^		^		
disadvantaged communities in the development							
implementation monitoring and long term							
maintenance of water resource management							
projects	v		v		v	×	
Promoto public advantion in disadvantaged	×	-	~		Χ	~	
example it is a short water resource protection							
communities about water resource protection,							
and waterabad baalth	v		v		v	×	
	X		X		X	X	
GUALS & OBJECTIVES							
GOAL: Adapt the region's water management							
approach to deal with impacts of climate change							
using science-based approaches, and minimize							
the regional causal effects	Х						
Plan for potential impacts of future climate							
change.				Х			
Support increased monitoring and research to							
obtain greater understanding of long-term							
impacts of climate change in the Greater							
Monterey County region.	X	-					
Support efforts to research alternative energy							
and to diversify energy sources appropriate for							
the region.	X	-					
Seek long-term solutions to reduce greenhouse							
gas producing energy use.	X	-					
Seek long-term solutions to maintain and protect							
existing pristine natural resources.		<b> </b>		Х			
Support research of land-based efforts such as							
carbon-sequestration on working lands and							
wildiands in the Greater Monterey County region.	Х			Х			
Promote public education about impacts of							
climate change, particularly as it relates to water							
resource management in the Greater Monterey							
County region.	Х			Х			

#### **Resource Management Strategies**

Another objective of this proposal was to implement as diverse a mix of resource management strategies as possible. Together, the projects contained in this proposal will implement 27 of the 37 water resource management strategies identified in the Greater Monterey County IRWM Plan. These include:

- Agricultural Water Use Efficiency
- Urban Water Use Efficiency
- Conveyance Regional/local
- Conjunctive Management & Groundwater Storage
- Recycled Municipal Water
- Drinking Water Treatment and Distribution
- Groundwater Remediation/Aquifer Remediation
- Matching Water Quality to Use
- Pollution Prevention
- Salt and Salinity Management
- Urban Runoff Management
- Agricultural Lands Stewardship
- Economic Incentives (Loans, Grants, and Water Pricing)
- Ecosystem Restoration
- Land Use Planning and Management
- Water-Dependent Recreation
- Watershed Management/Planning
- Flood Risk Management
- Environmental and Habitat Protection and Improvement
- Recreation and Public Access
- Storm Water Capture and Management
- Wetlands Enhancement and Creation
- Water and Wastewater Treatment
- Infrastructure Reliability
- Regional Cooperation
- Education and Outreach
- Monitoring and Research

# 3. Project List

The table below summarizes the projects contained in this proposal, including project abstract, implementing agency, current status, and requested funds.

# Project Summary Greater Monterey County Integrated Regional Water Management Region IRWM Implementation Grant Request, Round 1 January 2011

# Total Grant Request: \$4,868,441

Project	Implementing	Project Title	Abstract	Status	Budget
#	Agency				Request
1	City of Soledad	Soledad Water Recycling/Reclamation Project	The City of Soledad proposes to design and construct, in fundable phases, the balance of the Soledad Water Reclamation Project. The 5.5 MGD Water Reclamation Facility was substantially complete on February 24, 2010. This project would include completion of design of a recycle water delivery system to both agricultural and recreation areas in and near the City of Soledad. This project would also include research on the use of recycle water for agricultural uses. The entire project would cost an estimated \$45M. The first phase, which is being proposed through this grant application, is to construct the recycle water pump station and design and construct the transmission mains needed to connect the recycle water transmission mains already constructed to the pump station. Completion of this phase would enable delivery of recycle water to multiple landscaped areas currently being irrigated with potable water. This first phase would also include a feasibility study and preliminary conceptual design for the neighboring communities of Gonzales and Greenfield for delivery of their cities' wastewater to the Soledad Water Reclamation Facility for	Recycle pump station and piping design is 90% complete, awaiting project financing before preparing final (100%) bid documents. CEQA/NEPA plus for SRF completed; included this as part of the Water Reclamation Facility environmental documents.	\$1,155,000
	Q ( 11)		processing.	D : : 000/	<b>\$701.000</b>
2	Castroville Community Services District	2B Treatment Project	The project is construction of a well pump and arsenic removal treatment system for an existing well in Castroville, CA. This is a water supply enhancement project. Castroville's wells are in the 180/400-Foot aquifer of the Salinas Valley Groundwater Basin, and were experiencing increased salinity	Design is 90% complete, awaiting project financing before preparing final	\$581,000

			due to seawater intrusion. The overall project is to construct a new well in the deeper 900-foot aquifer and reduce pumping from the shallower aquifers. In 2007, Castroville Water District (now the Castroville Community Services District) drilled a new well, No. 2B, into the 900-foot aquifer. Water quality testing indicated that arsenic levels in the new well (17 ppb) exceeded the MCL for drinking water (10 ppb). The District has designed the well pump and treatment system for the new well, but has not initiated construction.	(100%) bid documents. CEQA NOE was filed at the time the well was constructed.	
3	San Jerardo Cooperative, supported directly by the Rural Community Assistance Corporation (RCAC), Engineers Without Borders (EWB), Nilsen and Associates, and the Environmental Justice Coalition for Water (EJCW)	San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm- Worker Community in the Salinas Valley	San Jerardo Cooperative is a farm-worker housing collective. It is a disadvantaged community (DAC) that is confronted with serious drinking water, wastewater, and human health concerns. The community is requesting funding for wastewater system improvements. Presently, the community runs its own wastewater system in the form of four ponds, leach fields, and a machine room. The area's groundwater, and hence the community's drinking water, is threatened by nitrate contamination among other things; hence the community urgently needs to upgrade the wastewater system to prevent further water quality deterioration. In addition, the current system is at capacity, and the proposed repairs and upgrade are necessary to ensure compliance with the Central Coast Regional Water Quality Control Board's Waste Discharge Requirement Order No. R3-2003-0054 and to prevent further groundwater contamination in the Salinas Valley - East Side aquifer. The project is in close collaboration with a number of entities, including: Monterey County; the Central Coast RWQCB; RCAC; EWB; and EJCW.	The project is ready to be implemented and urgently required.	\$924,455
4	Elkhorn Slough Foundation	Integrated Ecosystem Restoration in Elkhorn Slough	The Elkhorn Slough Foundation, in partnership with the Elkhorn Slough National Estuarine Research Reserve, the Moss Landing Harbor District, the Monterey County Water Resources Agency and the County of Santa Cruz, proposes to restore up to 90 acres of tidal salt marsh and a 30-acre native grassland buffer to provide habitat and reduce non-point source pollution in Elkhorn Slough. The marsh will be restored through the placement of sediment to be removed from Moss Landing Harbor and benches along the Pajaro	Ready to proceed. Acquisition and initial planning is complete. The present phase is CEQA compliance, 30% engineering design, and initial	\$1,049,984

			River, making harbor maintenance and flood protection projects more effective and with fewer impacts on the environment. The project will address these specific problems through a collaborative approach and using a phased implementation approach. Prior phases included property acquisition and establishment of a buffer between farmland and the estuary. The next phase, which is the focus this proposal, includes the following steps: planning to finalize the project description and conduct CEQA compliance, engineering to a 30% design, establishment of native grassland in portions of the vegetated buffer, and site preparation for receiving sediment.	construction. Future phases will include wetlands and grasslands restoration.	
5	Central Coast Wetlands Group at Moss Landing Marine Labs through San Jose State Research Foundation	Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville	This project aims to enhance the thoroughly degraded Tembladero Slough, a water body which currently has 14 303(d) listed pollutants that flows untreated into the Monterey Bay National Marine Sanctuary. Enhancement will be achieved through a collaborative effort between County planners, farmers, scientific researchers, and the community. In this first phase of the project, the Coordination Team will redesign the form and function of the lower drainage to include wetland enhancement projects, water quality treatment areas and public access, while addressing agriculture discharge permits, the Castroville Redevelopment Plan, and the County Flood Control Program. In the second phase, the Coordination Team will improve water quality through the purchase of easements and creation of treatment wetlands in strategic locations along the slough, improve flood plain open space areas, create enhanced habitat, and construct public access trails where possible.	This funding is for the implementation of Phase 1. This phase is primarily planning, coordination, designing projects and permitting.	\$436,340
6	Monterey Bay National Marine Sanctuary, Central Coast Wetlands Group, and the Resource Conservation District (RCD) of Monterey County	Watershed Approach to Water Quality Solutions	This project will take a watershed approach to improve water quality in Santa Rita Creek, an impaired waterbody located within the Lower Salinas River Watershed. This approach will address impacts from agriculture and urban areas and will incorporate creek restoration while engaging the community. Santa Rita Creek flows into the Salinas Reclamation Canal, Tembladero Slough and ultimately to the Monterey Bay National Marine Sanctuary. These waterbodies are considered the most polluted waterbodies on the Central	Ready to proceed	\$475,562

			Coast with 37 TMDL listings, 7 of them on Santa Rita Creek.		
			Agricultural efforts will focus outreach and referrals to		
			leverage existing programs and funding for implementation of		
			irrigation and nutrient management practices and the		
			Livestock and Lands program. In addition, much needed		
			management measures will control erosion from strawberry		
			crops. Two restoration projects along Santa Rita Creek		
			totaling 0.25 stream miles will promote environmental		
			stewardship, reduce illegal dumping, stabilize banks and		
			increase biofiltration of pollutants through revegetation of		
			native plants. Tools will be developed to determine		
			effectiveness of these practices and will build a knowledge		
			base to allow water and land resource managers to make		
			comparisons and demonstrate improvements between		
			watershed scale practices and ambient water quality		
			conditions within this watershed.		
7	University of	Evaluation of Potential	In order to protect the beneficial uses of aquatic habitats,	Urban LID sites	\$246,100
	California, Davis	for Stormwater	many cities are now mandating Low Impact Development	have been	
	(Granite Canyon	Toxicity Reduction by	(LID) treatment systems such as bioswales. Information on	identified with	
	Marine Pollution	Low Impact	the ability of urban bioswales to reduce toxicity is an	assistance from	
	Studies	Development (LID)	important component for evaluating impacts of regional urban	City of Salinas	
	Laboratory),	Treatment Systems	stormwater runoff. This project will evaluate the efficacy of	Planning	
	Monterey, CA		bioswales in reducing the concentrations of contaminants that	Department and	
			contribute to stormwater toxicity in the City of Salinas.	local engineering	
			Looking at four sites in the City of Salinas, the project will: 1)	firms. Work on	
			assess toxic effects of stormwater runoff to aquatic organisms	project could	
			prior to treatment by bioswales; 2) evaluate efficacy of	begin in June	
			bioswales to reduce toxicity to aquatic organisms; 3)	2011.	
			determine stormwater and pollutant load reduction through		
			bioswales; and 4) provide data to stormwater agencies, water		
			quality managers, LID engineers, and others to be		
			incorporated into future land-use planning and management		
			decisions.		

# 4. Integrated Elements of Projects

Various synergies exist between the different water resource management projects included in this proposal that promise to result in significant added value. The Regional Maps on the following pages illustrate how the projects are located in relation to one another, and how the surface waters affected by each of these projects physically connect.

The suite of projects included in this proposal incorporates all aspects of water management within the Greater Monterey County IRWM planning region, including water supply, water quality protection and improvement, flood protection, and water-related natural resource enhancement. The Greater Monterey County RWMG places particular emphasis in addressing water needs of disadvantaged communities through water supply and wastewater treatment. The Soledad water recycling project builds on funding from Proposition 50 to expand the system to include recycled water, thereby reducing extraction of groundwater in the region. The remaining four projects focus on improving surface water quality within one of the most polluted watersheds on the Central Coast, the Gabilan Watershed (as described below). These projects will incorporate best management practices in both urban and agricultural land uses to improve water quality. They will also demonstrate practices that can be replicated in other watersheds within the region, expanding the utility and regional approach to integrated watershed management.

One objective of the Greater Monterey County RWMG is to restore ecological function and to address water quality impairments in the Gabilan Watershed area, a subwatershed of the Salinas River Watershed. The waters of the Gabilan Watershed (also referred to as the Reclamation Ditch Watershed) are highly degraded and are designated by the Central Coast RWQCB as a priority watershed. All of the projects contained in this proposal are located in the Gabilan Watershed with the exception of the Soledad Water Recycling/Reclamation Project and the Elkhorn Slough project. Three of these projects directly employ a watershed approach in the Gabilan subwatershed region, specifically: "Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville," "Watershed Approach to Water Quality Solutions," and "Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems." Implementation of these projects will contribute significantly to the ongoing effort to improve ecological resources and water quality in this troubled watershed region.

Land use management and water quality improvements implemented in the upper watersheds will positively impact water quality and environmental resources downstream. Two projects in particular – "Watershed Approach to Water Quality Solutions" and the LID Treatment Systems research (or the results of that research), both of which will be conducted in the upper Gabilan Watershed area – will have potential impacts on downstream areas via surface waters including the Reclamation Ditch, Tembladero Slough, the Old Salinas River Channel, Moss Landing Harbor, and on out to the Monterey Bay. For example, implementation of agricultural practices in the Santa Rita Creek subwatershed will likely result in fewer pollutants and less sedimentation in the lower watershed areas, including Tembladero Slough and Moss Landing Harbor.

Elkhorn Slough is also connected to these other waterways via tidal influences. For example, incoming tides have been shown to transport nutrients from Tembladero Slough into Elkhorn Slough; and thus, water quality improvements in Tembladero Slough and the entire upper watershed will help protect the sensitive Elkhorn Slough ecosystem. And all of the water quality and land use management practices implemented as part of this proposal will help protect the Monterey Bay National Marine Sanctuary.

In addition, almost all of the proposed projects overlie the same groundwater basin, the Salinas Valley Groundwater Basin (with the exception of the Elkhorn Slough project, which overlies the Pajaro Valley Groundwater Basin). As described above, serious water quality problems exist in this groundwater basin,

most notably seawater intrusion (due to over-extraction) and nitrate contamination. Therefore, water quality and water supply improvements resulting from each of the proposed projects will have a cumulative effect on the groundwater basin as a whole. Six out of the seven projects contained in this proposal are anticipated to positively impact the Salinas Valley Groundwater Basin, either directly or indirectly, both in terms of water quality and water supply. They include, specifically:

- Soledad Water Recycling/Reclamation Project
- Castroville CSD Well 2B Treatment Project
- San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley
- Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville
- Watershed Approach to Water Quality Solutions
- Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems

#### 5. Regional Maps

The Regional Maps that follow illustrate how the proposed projects contained in this proposal are located in relation to one another, how the surface waters affected by each of these projects physically connect, where the projects lie in relation to groundwater basins, watersheds, locations of disadvantaged communities in the region, and project monitoring locations.

#### **REGIONAL MAP 1:** Project Locations



#### **REGIONAL MAP 2:** Surface Waters



#### **REGIONAL MAP 3:** Groundwater Basins



#### **REGIONAL MAP 4: Watersheds**







#### **REGIONAL MAP 6:** Project Monitoring Locations



# ATT3\_IG1\_WorkPlan\_2of46 Work Plan Tasks

# II. TASKS

The following outlines the specific activities that will be performed to implement the projects contained in the proposal. For the sake of clarity, the tasks are organized according to project, such that each task represents implementation of each of the seven projects contained in this proposal. Note that the "subtasks" within each task are organized according to Budget categories, as provided in Exhibit B of the Proposal Solicitation Package.

# TASK 1: Soledad Water Recycling/Reclamation Project

### I. INTRODUCTION

Implementing Agency: City of Soledad

Project Title: Soledad Water Recycling/Reclamation Project

**Project Goals and Objectives:** The goal of this project is to replace 180 acre-feet per year of potable water demand with recycled water. Potable water demand for the basin is currently in excess of basin safe yield. This project is designed to lower the demand on the basin through delivery of recycled water from the existing Water Reclamation Plant.

**Purpose and Need:** The City's wastewater treatment plant facilities are regulated by Waste Discharge Requirements (WDR) Order No. R3-2005-0074 issued by the Central Coast Regional Water Quality Control Board (RWQCB). The previous WDR, Order No. 95-25, required that a minimum of 40 acres of existing percolation basins be used for water reclamation. Plant flow, however, increased to such an extent that it became impossible to keep 40 acres of the infiltration disposal area set aside for reclamation due to site conditions that severely limited percolation through the soil profile.

A study was conducted to forecast growth, wastewater treatment demands, and the best way to meet those demands. Converting to activated sludge treatment at City Plant to provide the needed treatment capacity was deemed more cost-effective than constructing two separate systems (one at City Plant and one at Prison Plant). Therefore, a 5.5 MGD activated sludge treatment system at City Plant was selected and recommended for implementation. As the final stage of this project, the City needs to build a pump station and delivery system to bring the recycled water to City parks and other users. Recycled water ordinance and user manual have already been created by the City.

**Project Description:** The project entails upgrading and expanding the city's wastewater treatment and effluent handling system in order to facilitate its recycling and reclamation and at the same time mitigate existing regulatory concerns of potential degradation of the underlying groundwater.

The City of Soledad proposes to design and construct, in fundable phases, the balance of the Soledad Water Reclamation Project. The 5.5 MGD Water Reclamation Facility was substantially complete on February 24, 2010. This project would include completion of design of a recycled water delivery system to both agricultural and recreation areas in and near the City of Soledad. This project would also include research on the use of recycled water for agricultural uses. The entire project would cost an estimated \$45M. The first phase, which is being proposed through this grant application, is to construct the recycled

water pump station and design and construct the transmission mains needed to connect the recycled water transmission mains already constructed to the pump station. Completion of this phase would enable delivery of recycled water to multiple landscaped areas currently being irrigated with potable water. This first phase would also include a feasibility study and preliminary conceptual design for the neighboring communities of Gonzales and Greenfield for delivery of their cities' wastewater to the Soledad Water Reclamation Facility for processing.

**Completed Work:** The 5.5 MGD Water Reclamation Facility was substantially complete on February 24, 2010.

#### **Existing Data and Studies:**

- 90% Design Plans and Specifications, prepared by Black & Veatch. (The cover page and Table of Contents of these Design Plans and Specifications are attached as an appendix. The full document is available upon request.)
- Long-Term Wastewater Management Plan, 2006, prepared by Black & Veatch (attached).
- Urban Water Management Plan, 2005, prepared by Harris & Associates (attached).
- Soledad Water Master Plan, December 2005, prepared by Schaaf & Wheeler (attached).
- Recycled Water User Manual, 2009, prepared by the City of Soledad (attached).

**Project Timing and Phasing:** The recycled water project is ready to proceed as soon as funding is awarded and received. The project should take a year to construct and place into service.



PROJECT SITE MAP: Soledad Water Recycling/Reclamation Project

## II. TASKS

#### TASK 1: Soledad Water Recycling/Reclamation Project

#### **Task 1.1: Project Administration**

**Task 1.1.a: General Administration:** The City of Soledad is the lead applicant for this proposal. The applicant will conduct all general grant administration tasks throughout the duration of the project period.

**Task 1.1.b: Labor Compliance Program:** The applicant will conduct activities necessary to meet labor compliance requirements.

**Task 1.1.c: Reporting:** The applicant will write and submit quarterly and annual reports to the Department of Water Resources, as well as a final report as specified in the Grant Agreement.

Status: Will start at project commencement.

**Deliverables:** Preparation of invoices as required. Submission of Labor Compliance Program requirements. Submission of quarterly and annual reports.

#### Task 1.2: Planning/Design/Engineering/Environmental Documentation

**Task 1.2.a: Assessment and Evaluation:** N/A – Already completed in the Long-Term Water Master Plan.

**Task 1.2.b: Feasibility Study:** Study the construction of connecting Gonzales and Greenfield to the Soledad Water Reclamation Facility.

**Task 1.2.c: Preliminary Conceptual Design:** Conduct the preliminary design of constructing the connection between the Soledad Water Reclamation Facility with Gonzales and with Greenfield.

**Task 1.2.d: Final Design:** The project is currently at the 90% design phase. The final design element is to pull the design sections from the larger project and put the designs and specs into biddable form. This stage also includes some potholing and finite depths and measurements for the connecting lines.

**Task 1.2.e: Environmental Documentation:** N/A – Already completed, and received determination of no adverse affects.

**Task 1.2.f: Permitting:** Already obtained as part of water reclamation facility. At this point, the project will only require encroachment and right of access permits at the time of project start.

Status: Project is through 90% design.

**Deliverables:** Completion of project plans and specifications at the final level. Encroachment and right of access permits as needed.

#### Task 1.3: Construction/Implementation

**Task 1.3.a: Construction Contracting:** The City follows the public contract code and SRF requirements when contracting for construction projects.

Task 1.3.b: Construction: Construction is expected to take up to 12 months.

Task 1.3.b.1: Engineering: Engineering for the project is 90 percent complete.

**Task 1.3.b.2: Mobilization and Site Preparation:** Immediately following contracting, the General Contractor shall submit technical information to the Engineer for review and approval. Once approved, the equipment can be ordered. The street encroachment permit will be obtained. Site mobilization will be scheduled based on equipment delivery schedules so that the site preparation is completed before equipment arrives.

Task 1.3.b.3: Project Construction: Construction will include underground piping

installation, including sewer pipeline, concrete equipment pads, electrical conduit and cabling for new equipment, metal building to house electrical panels, controllers and chemicals, installation of new well pump and motor.

**Task 1.3.b.4: Performance Testing and Demobilization:** Once the system is installed, the pump will be tested to ensure design production rates are met. The overall site controls will be tested.

Status: Not yet started.

**Deliverables** Advertisement for bids, award contract, issue notice-to-proceed, final contract documents, submittal schedule and review logs, start-up and testing schedule, progress photos, system operations and maintenance manual.

## Task 1.4: Environmental Compliance/Mitigation/Enhancement

The City of Soledad staff will monitor the site for Contractor compliance with the construction permit conditions. Mitigation monitoring is not required for this project. Post-project monitoring of groundwater quality will be performed as part of the District's ongoing operations and maintenance.

Status: Not yet started

Deliverables: none

### **Task 1.5: Construction Administration**

The City will hire a construction monitor to oversee construction progress and report back to the City.

Status: Not yet started.

**Deliverables:** Meeting minutes, monthly pay estimate reviews, submittal schedule and review log, change orders, laboratory testing reports, record (as-built) drawings.

**Permits and Environmental Compliance:** All major permits and compliances were obtained for the water reclamation facility, of which this project was an initial part until funding fell through.

•	Final EIR (CEQA)	September 2005
•	NEPA Overlay	September 2006
•	Waste Discharge Requirements, Update	January 2007
•	Title 22 Reclamation Requirements	January 2007

In addition, master water reclamation requirements were adopted on July 31, 2008. The State Water Resources Control Board determined on June 8, 2007 that the project is not likely to adversely affect special status species. The California Department of Public Health (CDPH) issued approval of the Recycled Water Users Manual on April 28, 2009. The City also received approval of the Facilities Plan for the subject project by the Division of Financial Assistance on January 18, 2008.

**Plans and Specifications:** The project passed the 90% Design stage. Four project drawings are attached as appendices.

Materials, Methods, and Standards: The City of Soledad will follow AWWA and CDPH standards for recycled water lines.

Acquisition of Land or Rights-of-Way and Landowner Agreements: Land acquisition was accomplished as part of the water reclamation facility work. At project start, encroachment permits and

right of entry permits will be requested, as needed.

**Performance Measures and Monitoring Plans:** The primary performance measure is the amount of potable water no longer used for irrigation. Section B, pages 15-17 of the Recycled Water Users Manual outlines the performance measures and monitoring plans for the recycled water facility. The performance measure is expected to be 70 acre-ft per year initially of reduced potable water usage, growing to 180 acre-ft per year.

**Deliverables:** Deliverables are identified in the above Task table for the specific tasks.

Appendices: The following supporting materials are attached as appendices (15 appendices in total):

Attachment Title	Contents
	90% Design Plans and Specifications, City of Soledad WWTP 5.5
	MGD Upgrade and Expansion, December 28, 2009, prepared by Black
	& Veatch. Note that only the Title Page and Table of Contents are
ATT3_IG1_WorkPlan_3of46	attached; full document is available upon request.
	Long-Term Wastewater Management Plan, March 2006, prepared by
ATT3_IG1_WorkPlan_4of46	Black & Veatch.
	Urban Water Management Plan, December 2005, prepared by Harris
ATT3_IG1_WorkPlan_5of46	and Associates.
	Soledad Water Master Plan, December 2005, prepared by Schaaf &
ATT3_IG1_WorkPlan_6of46	Wheeler.
ATT3_IG1_WorkPlan_7of46	Recycled Water User Manual, 2009
ATT3_IG1_WorkPlan_8of46	Letter from CDPH, approval of Soledad Recycled Water User Manual
ATT3_IG1_WorkPlan_9of46	Project Drawing 1
ATT3_IG1_WorkPlan_10of46	Project Drawing 2
ATT3_IG1_WorkPlan_11of46	Project Drawing 3
ATT3_IG1_WorkPlan_12of46	Project Drawing 4
	Final Environmental Impact Report for City of Soledad General Plan
	and Wastewater Treatment and Disposal Master Plan, September 21,
ATT3_IG1_WorkPlan_13of46	2005, prepared by Crawford, Multari, & Clark.
	Letter from State Water Resources Control Board, June 2007, ESA
ATT3_IG1_WorkPlan_14of46	Section 7 concurrence.
	Letter from US Fish & Wildlife Service, January 31, 2008, ESA
ATT3_IG1_WorkPlan_15of46	Section 7 concurrence.
	Letter from RWQCB, July 31, 2008, Master Water Reclamation
ATT3_IG1_WorkPlan_16of46	Requirements.
	Letter from State Water Resources Control Board, January 2008,
ATT3_IG1_WorkPlan_17of46	approval of Facilities Plan.

# TASK 2: Castroville CSD Well 2B Treatment Project

## I. INTRODUCTION

Implementing Agency: Castroville Community Services District

Project Title: Castroville CSD Well 2B Treatment Project

**Project Goals and Objectives:** The primary goal of the project is to complete the construction of Well 2B, allowing the production drinking water from the 900-foot aquifer to meet the drinking water requirements of Title 22 of the California Code of Regulations (CCR). The water production goal for the system is 800 gallons per minute. This production will off-set some District pumping of water from the 400-foot aquifer, helping to achieve a secondary goal of stabilizing chloride and total dissolved solids (TDS) levels at the District's remaining wells in the 400-foot aquifer. This project addresses critical water resource needs of a disadvantaged community (DAC). For a detailed discussion of the DAC aspects of the Castroville project, and the environmental justice issues associated with this community, please see Attachment 12: Disadvantaged Community Assistance.

This project supports two of the stated goals and five of the stated objectives in the Salinas Valley IRWM Functionally Equivalent Plan (FEP):

- Water Supply Goal 1: Improve Water Supply Reliability
- Water Quality Goal 1: Protect and Improve Groundwater Quality
- Water Supply Objective 1: Stop seawater intrusion
- Water Supply Objective 3: Provide sufficient water supply to meet all water needs through 2030
- Water Supply Objective 7: Diversify water supply sources
- Water Quality Objective 1: Meet or exceed all applicable water quality regulatory standards
- Water Quality Objective 2: Meet or exceed municipal and industrial water quality targets established by stakeholders

These goals and objectives are discussed further in Attachment 11, Program Preferences.

**Purpose and Need:** This project serves the safe drinking water supply needs of Castroville, a disadvantaged community in the Salinas Valley. Castroville is an unincorporated community in rural Monterey County, about 6.5 miles northwest of Salinas. The Salinas Valley IRWM FEP, dated May 2006, included the "Castroville Water District Well Relocation and Replacement Project" as a future project to be addressed. This is a water supply enhancement project. Castroville's wells are in the 180/400-foot aquifer of the Salinas Valley Groundwater Basin, and were experiencing increased salinity (identified as chlorides and total dissolved solids) due to seawater intrusion. The project was to construct a new well in the deeper 900-foot aquifer and reduce pumping from the shallower aquifers. Desalination of supply at the wellhead and construction of new wells outside the zone of seawater intrusion were more costly and required more mitigation than this alternative. In 2007, Castroville Water District (now the Castroville Community Services District) drilled a new well, No. 2B, into the 900-foot aquifer. Water quality testing indicated that arsenic levels in the new well exceeded the MCL for drinking water. The District has designed the well pump and treatment system for the new well, but has not initiated construction. The requested grant would fund the final phase of the Well Relocation and Replacement Project.

**Project Description:** The project generally consists of constructing a well pump and motor, electrical service and controls, arsenic removal treatment equipment, chemical feed systems, a fabricated metal building, and related utilities. The well has already been drilled and developed.

**Completed Work**: The following items of preliminary work have been completed for the CCSD Well 2B Treatment Project:

- Well design, drilling, casing and development (2007)
- CEQA NOE was filed for the well project in 2006
- Preliminary treatment system design
- Design of well pump and arsenic removal treatment system (2009)

#### **Existing Data and Studies**:

- Memorandum report, Summary of Operations: Construction of Castroville Water District Well No. 2B, prepared by Martin B. Feeney, P.G., Consulting Hydrogeologist, on June 8, 2010. Castroville Well 2B was constructed in January-March 2007. This report includes well logs and water quality samples collected at the time of construction.
- Preliminary Design prepared by Boyle Engineering (now AECOM) in 2008. This report analyzed available treatment technologies for arsenic removal. Based on the proposed well capacity, capital and operational costs and the site limitations, the analysis recommended the coagulation and filtration method of arsenic removal, as reflected in the construction plans.
- 90% Design Plans and Specifications, *Castroville Community Services District Well 2B Arsenic Treatment Improvements*, dated February 2009, prepared by AECOM, Sacramento, CA.
- The Castroville CSD conducts weekly, monthly, and quarterly water quality sampling at their wells and within the distribution system. Annual *Consumer Confidence Reports* are prepared, which show the increased detection of chlorides and total dissolved solids at the municipal wells.
- Monterey County Water Resources Agency manages the Salinas Groundwater Basin. The Agency operates a regional network of monitoring wells, and consolidates data from numerous local agencies. The *Annual Groundwater Summary Report* provides a record of basin-wide groundwater use and water conservation activities.
- The Monterey County Water Resources Agency publishes maps of groundwater levels and seawater intrusion on a less-than-annual basis. The most recent maps were prepared in 2008, reflecting conditions in 2007.

**Project Timing and Phasing**: The CCSD Well 2B Treatment Project is the final phase of the Well Relocation and Replacement Project. When the well was constructed and tested, the need for arsenic removal treatment was identified. Installation of a well pump and arsenic treatment system are awaiting project funding.







## II. TASKS

#### TASK 2: Castroville CSD Well 2B Treatment Project

#### **Task 2.1: Project Administration**

**Task 2.1.a: General Administration:** The Castroville Community Services District (CSD, or District) will conduct all general grant administration tasks throughout the duration of the project period.

**Task 2.1.b: Labor Compliance Program:** The District will conduct activities necessary to meet labor compliance requirements, and submit to the lead applicant.

**Task 2.1.c: Reporting:** The District will write and submit quarterly and annual reports to the lead applicant.

**Status:** Not started (pertains to grant administration). The District has sufficient staff to complete this task.

**Deliverables:** Preparation of invoices as required. Submission of Labor Compliance Program requirements. Submission of quarterly and annual reports.

#### Task 2.2: Planning/Design/Engineering/Environmental Documentation

The project plans and specifications are currently at 90% complete. When project funding is obtained, the design engineer, AECOM, will produce final plans and specifications for permitting, bidding and construction.

Task 2.2.a: Assessment and Evaluation: N/A – Preliminary design was previously completed.

**Task 2.2.b: Final Design:** The 90% plans will be updated to reflect any final comments from the Castroville CSD and/or changes to applicable codes and standards. Final plans, specifications and bid documents will be provided to the Castroville CSD for project bidding.

**Task 2.2.c: Environmental Documentation:** CEQA NOE was previously filed for the well construction. An updated NOE will be filed for the completion of the improvements.

**Task 2.2.d: Permitting:** Update of the water system permit and permitting of the wastewater discharge to the regional wastewater treatment facility will occur during the testing and start-up phase of the project. All construction permits and notices will be obtained during the construction mobilization phase.

**Status:** Assessment is complete. Final design plans and specifications are ready to sign and issue as final, as soon as bid dates are added. CEQA NOE for initial well drilling was filed at the time of the work, and an updated NOE will be filed when this contract is bid and awarded. Updating the water system permit cannot occur until the project is constructed.

Deliverables: Final project plans and specifications.

#### Task 2.3: Construction/Implementation

The project generally consists of constructing a well pump and motor, electrical service and controls, arsenic removal treatment equipment, chemical feed systems, a fabricated metal building, and related utilities. Castroville CSD will conduct a competitive bid for this work.

**Task 2.3.a: Construction Contracting:** Castroville CSD will advertise this project for competitive bidding between qualified general contractors. The process includes the following tasks: advertising, pre-bid meeting, bid opening, bid review, contract award by the Board of Directors, and execution of contract documents. This is expected to take two to three months.

**Task 2.3.b: Construction:** Construction will occur on a single, existing site within Castroville. The project construction will take six to nine months, depending upon equipment lead times.

**Task 2.3.b.1: Mobilization and Site Preparation:** The major activities during the mobilization phase are equipment manufacture and permitting. The project includes three long-lead-time items: (1) a 55 hp well pump and motor, (2) a variable frequency drive, and (3) a packaged arsenic removal treatment system. Immediately following contracting, the General Contractor shall submit technical information to the Engineer for review and approval. Once approved, the equipment can be ordered. Stormwater and testing water management plans will also be submitted and reviewed during this phase, and the street encroachment permit will be obtained. Site mobilization will be scheduled based on equipment delivery schedules so that the site preparation is completed before equipment arrives. Site preparation will include installation of construction stormwater BMPs.

**Task 2.3.b.2: Project Construction:** Construction will include underground piping installation, including sewer pipeline in the adjacent street, concrete equipment pads, electrical conduit and cabling for new equipment, metal building to house electrical panels, controllers and chemicals, installation of new well pump and motor and installation of the arsenic removal treatment system.

**Task 2.3.b.3: Performance Testing and Demobilization:** Once the system is installed, the well pump will be tested to ensure design production rates are met. The chemical feed metering pumps and arsenic removal treatment system will be tested to ensure that the system is achieving the target water quality. The overall site controls will be tested to ensure that the Well 2B controls are coordinated with the Well 2A pump and the fire booster pumps located on-site. Once the arsenic removal system is calibrated and consistently working properly, the CDPH water system permit will be updated so that the new well may be connected to the Castroville water system.

Status: Construction is awaiting project funding.

**Deliverables:** Advertisement for bids, final contract documents, submittal schedule and review logs, NPDES Construction General Permit Notice, start-up and testing schedule, progress photos, system operations and maintenance manual.

# Task 2.4: Environmental Compliance/Mitigation/Enhancement

Castroville CSD staff will monitor the site for Contractor compliance with the construction permit conditions. Mitigation monitoring is not required for this project. Post-project monitoring of groundwater quality will be performed as part of the District's ongoing operations and maintenance.

**Status:** Monitoring will occur concurrent with the construction. District has sufficient staff to complete this task.

Deliverables: None.

# Task 2.5: Construction Administration

Castroville CSD will hire engineers and inspectors for the following tasks.

**Task 2.5.a: Bid Phase Engineering Support:** The Engineer shall prepare the advertisement for bidding, attend the pre-bid meeting, answer requests for information, prepare and publish addenda, review the bids and make a recommendation to the Board for award of the construction contract.

**Task 2.5.b: Construction Phase Engineering Support:** The Engineer shall attend the preconstruction and progress meetings, review submittals, answer requests for information, review pay estimates and claims, prepare change orders as needed, conduct site visits, supervise start-up and testing, assist with final CDPH and Monterey Regional Water Pollution Control Agency permitting, and prepare record drawings.

**Task 2.5.c: Construction Inspection:** The Inspector shall observe the work, collect samples and perform tests in the following areas: geotechnical and soils, civil construction, electrical construction, water quality laboratory testing.

Status: Construction is awaiting project funding.

**Deliverables:** Meeting minutes, monthly pay estimate reviews, submittal schedule and review log, change orders, laboratory testing reports, Engineer's Report for CDPH, CDPH Approval Letter, record (as-built) drawings.

**Permits and Environmental Compliance:** The project will require and/or be subject to the following permits:

- California Department of Public Health (CDPH) water system permit no. 2710005 must be updated to add the new well and treatment system. This will be completed following final testing of the treatment system.
- A CEQA Notice of Exemption was filed for the project on September 11, 2006, by the Castroville Water District (now Community Services District). Replacement of an existing well is categorically exempt under Section 15301(b) and (d) of the CEQA statutes. This action pre-dates the tribal notification requirement. However, the site is within an existing subdivision and is not known to be a tribal area. An updated NOE will be filed when this project is contracted.
- The project site is less than one acre, so a separate NPDES permit will not be required for this project. The contractor must comply with the State Construction General Permit, NPDES No. CAS000002, SWRCB order 2009-0009-DWQ, and with the Monterey Regional Stormwater Management Plan (small MS4 permit). A notice of intent will be filed by the general contractor at the time the work is performed. If possible, the project will be scheduled so that the start-up and testing phase, which requires discharging well water, does not occur during the winter rain period.
- A street encroachment permit for construction of a new sewer pipeline is required from Monterey County Public Works Department. This will be obtained at the time the work is contracted.
- Discharge to the sanitary sewer system will require approval of the Monterey Regional Water Pollution Control Agency. The discharge must be sampled and characterized during start-up and testing to complete and file this application.
- New electrical service permits are not required. The site has existing primary and emergency backup power for Well 2A. PG&E permit modifications will be required for the additional services within the existing system.

**Plans and Specifications:** The project plans and specifications, titled *Castroville Community Services District Well 2B Arsenic Treatment Improvement*, dated February 2009, are currently at 90% complete. The design was prepared by AECOM, 100 Howe Avenue, Suite 250N, Sacramento, CA 95825.

**Materials, Methods, and Standards**: The proposed coagulation and filtration treatment technology for arsenic removal is a standard treatment technology used by public water supply agencies. It can achieve removal rates from 50 to 95 percent, depending upon the water chemistry and the system configuration. The primary drinking water standard for arsenic (As) is 10  $\mu$ g/L (micrograms per liter), or 10 parts per billion (ppb). The source water has an arsenic concentration of 17 ppb, so the required arsenic reduction is less than 50%. There is a sanitary sewer available for disposal of the filter backwash.

Acquisition of Land or Rights-of-Way and Landowner Agreements: The project site is owned by the

#### Castroville CSD.

**Performance Measures and Monitoring Plans:** The primary performance measure is the water quality produced by the treatment system. Water samples will be collected and tested for arsenic, as well as for the other primary drinking water constituents, during system start-up and testing and on a recurring basis thereafter. The standard to be achieved is a post-treatment arsenic level of less than 10 ppb. Once that standard is met, the system can be permitted and placed into operation. A secondary benefit of the project is a reduced migration rate for seawater-intruded groundwater in the 180/400-foot aquifer. That will be monitored through routine sampling and testing of groundwater supply at the District's wells within the 180/400-foot aquifer. Reduced pumping from the shallow aquifer should reduce or eliminate the increasing levels of total dissolved solids (TDS) observed at the District wells.

**Deliverables**: The following deliverables to DWR are anticipated:

- Preparation of invoices as required
- Submission of Labor Compliance Program requirements
- Submission of quarterly and annual reports
- Final project plans and specifications
- Advertisement for bids
- Construction contract
- CEQA Notice of Exemption
- Submittal schedule and review logs
- NPDES Construction General Permit Notice
- Start-up and testing schedule
- Progress photos
- System operations and maintenance manual
- Meeting minutes
- Monthly pay estimate reviews (submitted with grant invoices)
- Change orders, if needed
- Laboratory testing reports
- Engineer's Report for CDPH water system permit update
- CDPH Approval Letter
- Record (as-built) drawings

Attachment Title	Contents
	Memorandum Report, Summary of Operations: Construction of
	Castroville Water District Well No. 2B, prepared by Martin B. Feeney,
ATT3_IG1_WorkPlan_18of46	P.G., Consulting Hydrogeologist, on June 8, 2010.
	90% Design Plans, Castroville Community Services District Well 2B
	Arsenic Treatment Improvements, dated February 2009, prepared by
ATT3_IG1_WorkPlan_19of46	AECOM, Sacramento, CA.
	90% Design Specifications (part 1 of 3), Castroville Community
	Services District Well 2B Arsenic Treatment Improvements, February
ATT3_IG1_WorkPlan_20of46	2009, prepared by AECOM, Sacramento, CA.
	90% Design Specifications (part 2 of 3), Castroville Community
	Services District Well 2B Arsenic Treatment Improvements, February
ATT3_IG1_WorkPlan_21of46	2009, prepared by AECOM, Sacramento, CA.
ATT3_IG1_WorkPlan_22of46	90% Design Specifications (part 3 of 3), Castroville Community

Appendices: The following supporting materials are attached as appendices (10 appendices in total):

	Services District Well 2B Arsenic Treatment Improvements, February
	2009, prepared by AECOM, Sacramento, CA.
	90% Design Engineer's Cost Estimate, January 2009, prepared by
ATT3_IG1_WorkPlan_23of46	AECOM, Sacramento, CA.
ATT3_IG1_WorkPlan_24of46	2009 Castroville CSD Consumer Confidence Report.
	2009 Groundwater Summary Report, Monterey County Water
ATT3_IG1_WorkPlan_25of46	Resources Agency, August 2010.
	2007 Seawater Intrusion Maps, Monterey County Water Resources
ATT3_IG1_WorkPlan_26of46	Agency.
	2007 Groundwater Level Maps, Monterey County Water Resources
ATT3 IG1 WorkPlan 27of46	Agency.

# **TASK 3:** San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley

## I. INTRODUCTION

Implementing Agency: San Jerardo Co-operative, Inc.

**Project Title:** San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley

#### **Project Goals and Objectives:**

Goals:

- Reduce nitrate, trichloropropane, and other pollutants released from the wastewater treatment system into groundwater.
- Reduce household water use to lower the impact on the wastewater treatment system.
- Increase resident capacity to manage wastewater treatment system.
- Research, develop and adopt a plan for how to provide water recycling and grey water for the San Jerardo community, and to include a blueprint for implementation if recommendation to proceed results.

Objectives:

- 1.1 Upgrade wastewater treatment facility efficiency through expanded drainfields and aeration.
- 1.2 Remove accumulated contaminated solids from treatment ponds.
- 1.3 Improve monitoring of effects on groundwater by installing monitoring wells and flow meters by early 2012.
- 1.4 Reduce maintenance and operating expense through improved filtration and solar aeration by July 2012.
- 1.5 Complete improvements by July 2012.
- 1.6 Achieve a 20% reduction in nitrates and 10% reduction in trichloropropane by 2013.
- 2.1 Implement a water conservation education program by the end of 2011.
- 2.2 Implement a water conservation grant program for qualifying residents and community facilities to fund improvements by June 2011.
- 2.3 Implement a program to provide and install water restricted faucets and shower heads and low water use toilets to reduce use for 80% of households by November 2011.
- 2.4 Achieve a 20% reduction in water consumption and up to 30% reduction in wastewater flows into the treatment system by 2012.
- 3.1 Provide access for Co-operative Board members to participate in Rural California Assistance Corporation wastewater system management classes by 2012.
- 3.2 Provide training to staff and residents interested in California Wastewater System Operator certification by 2012.
- 3.3 Train General Manager and Board on methods to improve technical, managerial and financial stability for the system by 2012.
- 3.4 Develop a 20-year capital improvement plan to replace system components by 2012.
- 4.1 Determine feasibility and cost benefits of grey water diversion and water recycling and adopt a
plan by 2011 to implement selected recommendations.

4.2 Develop a funding strategy for capital costs by 2012.

**Purpose and Need, and Project Description:** The San Jerardo Co-operative (Co-operative, or Co-op) owns and operates a wastewater system for this 64-unit farm-worker housing community. The Co-operative was formed in the 1970s, when it purchased an unused farm labor camp and rehabilitated it for farm-worker family housing. The on-site wastewater treatment facility dates to 1979. It has been operated by the Co-op membership, with outside testing and advisory services from the Central Coast Regional Water Quality Control Board (RWQCB). The RWQCB has now strongly recommended upgrades to the existing aging system in order to maintain compliance with the operating permit. Hence, the San Jerardo Wastewater Project is needed to address the lack of adequate wastewater services in a disadvantaged community, which is a critical public health issue. It is also needed as a means to reduce further water contamination of the underlying aquifer.

The drinking water system for San Jerardo has been under federal court jurisdiction for many years due to violations of federal, state, and local water quality regulations by the private operator. It has been estimated that the egregious violations date back to at least the 1990s. Extremely high concentrations of nitrates and 1,2,3-trichloropropane in the drinking water were determined to be a public health risk requiring intervention by the courts and Monterey County. Several test results of the San Jerardo water supply well performed by California-certified environmental laboratories indicated nitrate and 1,2,3-trichloropropane concentrations consistently exceed the California primary Maximum Contaminant Levels (MCLs) standards and Notification Levels for drinking water, respectively. Nitrate concentrations were found to be approximately double the MCL set in Title 22 Section 64431 of California Code of Regulations. 1,2,3-trichloropropane was found to exist at levels more than 13 times higher than the Notification Levels. The concentrations of these two constituents in the water indicate contamination of the underlying groundwater aquifer.

San Jerardo residents experienced health impacts from water contamination including rashes, sores, and hair loss. A new source of drinking water has now been developed with combined federal, state, and local resources, and community organizing and advocacy. The new well system was inaugurated by Monterey County Supervisors on December 17, 2010, and will become available by January 2011.

However, the inadequate wastewater system remains a threat due to the discharge of contaminants into the Salinas Valley Groundwater Basin. The Co-operative's wastewater ponds overlie the East Side Aquifer of the Salinas Valley Groundwater Basin. The East Side Aquifer provides drinking water for all residents at San Jerardo. In addition, within a two-mile radius there are a number of single-family residences and two small drinking water systems that depend on wells drawing from this aquifer as the source of water supply. Accumulated contaminants in the wastewater residue pose a continuing risk to groundwater quality. As of this date, there are no known plans at EPA or the County to address contaminants in the wastewater effluent or residual solids. Over a period of at least nine years, these constituents have entered the wastewater treatment ponds and drainfields, which drain back into the underlying aquifer system, causing continued contamination of the aquifer. Contamination of the underlying aquifer system is a violation of San Jerardo Co-operative's Waste Discharge Requirements Order No. R3-2003-0054, and the California Water Code.

According to the Central Coast RWQCB Basin Plan, the Salinas Valley Groundwater Basin shall be suitable for "agricultural water supply, municipal and domestic water supply, and industrial use." Section II.A.4 of the Basin Plan, "Objectives for ground water," specifies that aquifers shall not contain concentrations of organic chemicals nor chemical constituents in excess of the limits specified in California Code of Regulations, Title 22, Chapter 15, Article 4 and 5.5, respectively.

The RWQCB has expressed to the Co-operative that their wastewater system is out of compliance with their Waste Discharge Requirements (WDR) Order No. R3-2003-0054, due to a lack of pond linings, inadequate aeration systems, and insufficient monitoring wells (there are none in place currently). Thus far, the RWQCB has not levied any fines out of sensitivity to the Co-operative's disadvantaged status, their lack of resources and the severe drinking water and health difficulties the community has suffered over the past several years. However, the RWQCB has indicated in personal communications that if San Jerardo is unable to bring their system into compliance soon, they will be forced to issue a notice of violation. The WDR is attached.

Addressing contamination from the wastewater system is consistent with the Central Coast Basin Plan and enhances groundwater quality. The RWQCB is requiring installation of three monitoring wells to facilitate testing for contaminants from treated effluent infiltration into the aquifer. There are no groundwater monitoring wells in existence for the system at present. The RWQCB is also requiring installation of aerators. In addition, the leachfields where the water will pass after the fourth pond need to be expanded.

Hence, the San Jerardo Co-operative is requesting funding from the Department of Water Resources (DWR) for critical water quality needs of a disadvantaged community, for wastewater system improvements necessary to ensure compliance with the RWQCB's WDR, and to prevent further groundwater contamination in the Salinas Valley-East Side Aquifer.

This project will also provide additional air quality benefits, as expansion of the system's capacity will reduce noxious odors from the overtaxed ponds. But most importantly, the Co-operative's proposed wastewater project will address a critical public health need in a disadvantaged community. By upgrading the wastewater system, it will help prevent the cycle of contamination and re-contamination between the ponds and the underlying aquifer. It also includes a potential reduction in the amount of treatment needed for the community's drinking water supply from the nearby well. This is expected to provide water quality benefits, which will extend to the surrounding area, including nearby residential uses. This project will benefit not just the San Jerardo community but also other communities relying on the East Side Aquifer for their drinking water. In addition, the project will contribute to the wellbeing and enhancement of the entire region of Monterey County because, ultimately, the County cannot thrive if all residents do not have their critical water and wastewater needs met.

For a detailed discussion of the disadvantaged community (DAC) aspects of the project, and the environmental justice issues associated with this community, please see Attachment 12: Disadvantaged Community Assistance.

# **Existing Data and Studies**:

- San Jerardo Wastewater study prepared by Norris Associates in October 2004.
- San Jerardo Wastewater Feasibility Report prepared by Tim Loper, Engineers Without Borders in February 2010.

**Project Timing and Phasing**: The project will be completed in one phase and is not dependent upon timing or implementation of other components. However, the studies for Recycled Water, Grey Water, and Conservation will, when completed, establish the feasibility of additional measures to divert water from the treatment system and reduce the overall impact on groundwater resources and energy use.

# PROJECT SITE MAP I: San Jerardo Wastewater Project



PROJECT SITE MAP II: San Jerardo Wastewater Project (closer view)





PROJECT SITE MAP III: San Jerardo Wastewater Project (showing four monitoring wells)

# II. TASKS

TASK 3: San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley

# **Task 3.1: Project Administration**

**Task 3.1.a: General Administration:** The project proponent will conduct all general grant administration tasks throughout the duration of the project period.

**Task 3.1.b: Labor Compliance Program:** The project proponent will conduct activities necessary to meet labor compliance requirements, and submit to the lead applicant (City of Soledad).

**Task 3.1.c: Reporting:** The project proponent will write and submit quarterly and annual reports to the lead applicant.

**Status:** The project proponent is in the process of selecting a project manager and labor compliance program subcontractor for the project.

**Deliverables:** Preparation of invoices as required. Submission of Labor Compliance Program requirements. Submission of quarterly, annual and final reports.

# Task 3.2: Planning/Design/Engineering/Environmental Documentation

#### Task 3.2.a: Assessment and Evaluation

**Task 3.2.a.1:** A hydrology report and soils analysis will be required prior to drilling groundwater monitoring wells.

**Task 3.2.a.2:** The final phase of the project for this funding round is a feasibility study of the potential benefits and costs for water recycling grey water diversion and other water conservation measures to reduce impact on the wastewater treatment system.

**Task 3.2.b: Final Design:** Preparation of final plans for the wastewater system improvements is underway. Location of the groundwater monitoring sites will be incorporated into the 100% plans and specifications upon completion of hydrology and soils reports.

**Task 3.2.c: Environmental Documentation:** A CEQA Initial Study resulting in a Mitigated Negative Declaration was completed and approved in 2008 for the site. The Initial Study will be amended to include the drainfield expansion and groundwater monitoring well installation.

**Task 3.2.d: Permitting:** The project sponsor will be required to obtain permits from the RWQCB, Monterey County Environmental Health and the Monterey County Building Department for the proposed improvements.

**Status:** Design plans for the wastewater system improvements are at 50 percent as of December 1, 2010. It is expected that final plans and specifications will be complete within 30 days of receiving the hydrology and soils reports. The scope of work for the water recycling and wastewater report is under development and will be issued as a Request for Proposals (RFP) by January 5, 2011. Discussions have been held with the RWQCB, Health Department and Planning and Building regarding permits.

**Deliverables:** Completed final plans and specifications. Completed technical reports. CEQA amendment approved. Feasibility Plan completed regarding water recycling and grey water diversion. Permits approved.

# Task 3.3: Construction/Implementation

Task 3.3.a: Construction Contracting: Bid documents are under development which will

incorporate plans, specifications, labor standards and other requirements of DWR, RWQCB, and the County. Bid advertisements and an outreach protocol will be written to ensure compliance with agency standards. The final plans, specifications, and bid documents will represent 100% design engineering. A notice of bid will be published and sent to local clearinghouses, disadvantaged contractors' lists, and others. A pre-bid meeting for contractors will be held. Bids will be opened and approved as to form by counsel. A pre-construction meeting will be held on site and a Notice to Proceed issued after completion of the preconstruction biologic survey. Contractor submittals will be reviewed by the engineer and approved prior to implementation of work.

# Task 3.3.b: Construction

**Task 3.3.b.1: Mobilization and Site Preparation:** Tasks include pre-construction biological survey, construction staking, temporary fencing, submittal of traffic control plan, and SWP submitted to County.

**Task 3.3.b.2: Project Construction:** The general scope of work includes repair of pond embankments, dredging and lining ponds, expansion of drain area, installation of aeration, filtration, bypass and flow valves and metering, installation of groundwater monitoring wells, and equipment and water conservation measures. The following items are included in this work:

- Dredge and remove solids from Ponds 1 and 2. Test and haul waste to a designated disposal site.
- Repair pond walls to restore one foot freeboard minimum at Ponds 1-4.
- Purchase monitoring equipment, digital pH meter, DO meter, calibration solutions, and accessories.
- Install bypass piping and valving to allow isolation of Pond 1, Pond 2, and Pond 3. Install
  effluent filter upstream of drainfields.
- Install aerators to replace blower system, Pond 1 and Pond 2, 2 HP max each. Bid Alternative 1: Install Solar Bee or equivalent solar powered aerators.
- Install influent open channel flow monitoring station with digital totalizer in new manhole.
- Install influent duplex pumping station with gravity bypass to Pond 2, mag flow meter and totalizer on discharge, gravity spillway from Pond 1 to Pond 2. Increase solids storage and digestion capacity in Pond 1, provides for reliable flow monitoring.
- Complete hydrologic study to locate and install up gradient and down gradient monitoring wells.
- Install Hypalon plastic liner for Pond 1 and Pond 2.
- Expand discharge area with rapid infiltration basin in fenced area or install additional subsurface drainfields under soccer field.
- Install two groundwater monitoring wells (up and down gradient of ponds).
- Install 1.3-gallon flush toilets in designated units, community center, and child care facility.
- Install water restrictor valves or fixtures in designated interior faucets and showers.
- Install flow meter at inflow point from wastewater collection pipe system.
- Inspect cleanout fittings, repair as needed and install filter unit at community center, child care facility, and designated units.

**Task 3.3.b.3: Performance Testing and Demobilization:** Performance testing will be conducted by the system operator supervised by the project engineer. Deficiencies will be

addressed through a punch list and corrective action by the contractor prior to release of retention. The contractor will be required to remove temporary staking, fencing and equipment from the site. All warranties and operating manuals will be provided to the project proponent for incorporation into the system operating manual.

*Water Quality and Flow Testing:* Perform baseline sampling and testing at completion of monitoring well installation and as recommended by the RWQCB. Secondary baseline to be performed upon completion of pond lining; third stage at installation and operation of the new aerators and at 30-day intervals for the first six months. Standard quarterly testing will continue through the construction period. Water flow into the treatment system will be measured upon installation of flow meters. Monitoring data will be maintained and distributed in accordance with the Greater Monterey County IRWM Plan protocols.

**Status:** Advertisement for bids and bid document preparation at 50 percent. Project will go out to bid in July-August of 2011. Construction can begin within 60 days of grant agreement execution.

**Deliverables:** Advertisement for bids, as advertised plans and specifications, pre-bid meeting minutes, bid results, bid award, construction contract, pre-construction conference minutes, contractor submittals and reviews, inspection records, permit sign-offs, as built drawings, baseline and project completion performance test data.

# Task 3.4: Environmental Compliance/Mitigation/Enhancement

Task 3.4.a: Incorporate mitigation monitoring measures in bid documents.

Task 3.4.b: Issue RFPs for biologist, review proposals, and contract for services.

Task 3.4.c: Coordinate with lead agency for compliance with mitigation measures.

**Task 3.4.d:** Review reports of findings, if any, and consult with the Department of Fish and Game, etc. Prepare and distribute final report.

**Status:** CEQA Mitigated Negative Declaration adopted for the site in 2008. An Amendment has been requested to incorporate minor changes for wastewater system improvements. The amended project description and site plan requested by Planning Department staff will be submitted in December 2011. The amendment should be complete by spring 2012. A biological consultant will be retained to complete a pre-construction survey and supervise ground-disturbing activities which are expected to be minimal. The scope of services is in draft form. An RFP will be issued in January.

**Deliverables:** Advertisement for proposals. Proposal evaluation and contract. Reports of findings and final report.

# **Task 3.5: Construction Administration**

**Task 3.5.a: Labor Standards Compliance Consultant:** Issue an RFP to hire a consultant to oversee the labor standards compliance program for the project. Review proposals, select and contract for services.

**Task 3.5.b: Construction Coordinator/Manager:** Issue an RFP to hire a construction coordinator/manager to work with the project engineer, contractor, subcontractors, agencies and other consultants to complete the project in a timely manner and in compliance with all federal, state, and local regulations.

Task 3.5.b.1: Bid phase

Task 3.5.b.2: Construction phase

Task 3.5.b.3: Inspection

Status: Requests for Proposals will be distributed before the January grant deadline.

Deliverables: Requests for proposals, scope of services, contract, invoices, and reports.

# Task 3.6: Other

**Task 3.6.a: Legal Services:** Review of bid documents, contracts, grant agreements. Approve bids as to form. Consultation regarding bid challenges and construction disputes and miscellaneous legal services.

**Task 3.6.b: Permits and Fees:** Mitigated Negative Declaration Amendment fee, recording fees, building permit and plan check fees, RWQCB fees, Environmental Health well permit fees, waste disposal fees.

**Task 3.6.c: Monitoring and Testing:** Groundwater monitoring well testing at well completion and during course of related construction as directed by the RWQCB, monitoring and testing as described in 3.3.b.3 above.

**Task 3.6.d.: Other Studies:** Water Recycling, grey water diversion and water conservation study and plan preparation.

**Status:** The Co-operative is negotiating for reduced rate legal services and will supply draft documents marked up for the intended purpose to its attorney to minimize legal expenses. Draft professional service contracts will be completed by mid-January. San Jerardo has initiated discussions with County Planning Department staff regarding processing the request for amendment of the adopted Mitigated Negative Declaration from 2008 for the site. Waiver of County processing fees and permits will be requested as part of the process.

**Deliverables:** Documents approved as to form, invoices for permits and fees, well drilling reports, water quality test reports, water flow level records, RFPs, contract invoices, and recommendations, final plan.

# Task 3.7: Construction/Implementation Contingency

Task 3.7.a: Review engineer's cost estimate at 100% design completion.

Task 3.7.b: Review at Bid opening, Change Order review during construction.

Task 3.7.c: Contingency closeout after processing and approval of all work by engineer.

Status: Contingency based on 20% of construction costs at 50% design completion.

**Deliverables:** Engineer's final cost estimate, Bid opening schedules, construction contract, change orders, if any invoices and closeout spreadsheet.

**Permits and Environmental Compliance:** The Central Coast RWQCB is responsible for the primary permit approval process for the wastewater system. Conceptual approval of the proposed scope of work was included in the recommendation for Cleanup and Abatement Account funding, which was approved by resolution of the RWQCB in October 2009. Monterey County Environmental Health will approve the monitoring well permits based on the recommendations of the RWQCB. County Planning and Building will issue grading permits if needed, and approved and final environmental review determinations. Depending on the outcome of the Phase I environmental assessment, all required permits are expected to be in place by August 2011 in order for the contractor to pull permits in September. Required permits are further described in the Work Plan task table above.

*Environmental Review:* Repairs to the existing treatment facility are exempt under CEQA. Amendment of the Initial Study for the water project in connection with construction of the new monitoring wells is under discussion. The project description and site plan study was updated in December 2010 and submitted to the Planning Department to initiate a formal decision process. NEPA review is not required as no federal funds will be used for the wastewater system at this time.

The project's environmental impact was examined within a CEQA Initial Study, which resulted in a Mitigated Negative Declaration. The US Fish and Wildlife Service and California Department of Fish and Game were consulted during the development of the study and mitigation plan. Construction during the project could impact the habitat of two endangered species, the California Tiger Salamander and the California Red-Legged Frog. Careful biological monitoring during the project will ensure that no endangered species are harmed. To date, the potentially impacted species have not been discovered in the construction zone for the drinking water project, indicating the likelihood that they will not be discovered in the construction zone for the wastewater project.

**Plans and Specifications:** Preliminary Plans are at 50% completion. Work will proceed on the technical specification and bid packet until spring 2011. However, since San Jerardo is a disadvantaged community, it has been challenging to complete all plans and specifications on our own. The community requests DWR for assistance in completing the plans and specifications.

*Engineering:* Preliminary studies and site plans are complete except as noted. Plans are at 50% completion. The project engineer is Tim Lopez of Engineers Without Borders (EWB). Design work will continue and should be completed during spring of 2011.

*Partner Commitments:* The Co-operative has received a commitment from EWB for in-kind engineering services. The Rural Community Assistance Corporation (RCAC) and the Environmental Justice Coalition for Water (EJCW) are providing much needed technical assistance and coordination for the project. Nilsen and Associates has provided grant and project management services on a pro-bono basis through December 2010.

*Consistency with IRWMP Plans, Ground Water Management and General Plan:* Not only is the project consistent with the Central Coast Basin Plan, but protection of groundwater resources has been identified on the "Priority List of Issues" within the 2009 Triennial Review of the Basin Plan, according to Resolution R3-2009-0052, July 10, 2009. Groundwater cleanup has also been identified as one of three priorities within the RWQCB's vision of "Healthy Watersheds – A Vision for the Future," available on their website.

The project is also consistent with Monterey County Water Resources Agency's Groundwater Management Plan (GWMP). Objective 3.3 of the plan states that "preservation of groundwater quality for beneficial use" is one of three groundwater goals. The report further states that these management goals include "the investigation of any groundwater contamination problems, through cooperation with responsible parties and regulatory agencies, or through independent action." The proposed project thus enhances the goals of the Groundwater Management Plan.

Ensuring an adequate wastewater system and protection of groundwater is also consistent with Monterey County's 2007 General Plan. Goal PS-4 specifically outlines the need to "Ensure adequate treatment and disposal of wastewater," and includes the use of recycled water and upgrading existing wastewater treatment facilities as tools to meet the desired objective. Goal PS-2 outlines the need to "assure an adequate and safe water supply to meet the county's current and long-term needs," and specifies the protection and management of groundwater as a policy to achieve this goal.

**Materials, Methods, and Standards**: The proposed wastewater system improvements and repairs are standard technologies and methods utilized by public and private wastewater systems in California and are subject to review and approval by the RWQCB, Monterey County Environmental Health and Planning and Building Departments.

Acquisition of Land or Rights-of-Way and Landowner Agreements: The site is owned by the Cooperative. There are no utility easements required. Due to the location, no encroachment into public streets or other properties is anticipated.

**Performance Measures and Monitoring Plans:** Performance measures include reduction in pollutant levels released into the aquifer from the wastewater treatment system, reduction in water use, increased resident capacity to manage the treatment system, and development of a plan for water recycling, grey water diversion and water conservation. Water samples from newly installed monitoring wells and flow metering will provide a method for measuring these project outcomes. During the implementation phase and thereafter as required, reports will be provided to DWR on a quarterly basis. Further, water quality testing records and reports will continue to be maintained at the Co-operative and submitted to Monterey County Environmental Health and to the RWQCB at least quarterly in compliance with permitting requirements.

**Partnership Collaboration:** While the Co-operative wastewater project is proposed by one entity, it builds upon several years of collaborative water management and problem solving in the community. Multiple agencies and organizations, ranging from the Rural Community Assistance Corporation to the California Rural Legal Association, to agencies such as the EPA, RWQCB, County Department of Environmental Health and County Department of Public Works have worked hard to create long-term solutions to San Jerardo's various barriers to safe drinking water and wastewater services. This project, while not specifically related to the drinking water project, builds on the many efforts of agencies and organizations over the past several years. A letter of support from the County is attached, and there is no opposition.

The current proposal is a collaborative effort between the Environmental Justice Coalition for Water, the Co-operative, Rural Community Assistance Corporation, and Engineers Without Borders. RCAC and EJCW have provided technical advice in project development and fund solicitation. EWB has provided pro-bono engineering services. Each organization brings a unique skill set that together are helping San Jerardo residents resolve long-standing water issues.

**Project Financing:** Until now, the Co-operative has been unable to proceed with its wastewater system repairs due to funding constraints. The Co-operative cannot afford this project by itself. It has explored various funding sources such as the State Revolving Fund, Community Development Block Grant (CDBG), USDA Rural Utility Service Programs, and, more recently, the Cleanup and Abatement (CAA) funds through the State Water Resource Control Board. Unfortunately, many funding programs are inaccessible because of the legal structure of the Co-operative (they are a mutual benefit corporation). Others require debt service payments, which are not within the means of the community because it is a DAC and the residents are unable to afford rate increases at current income levels. The Co-operative currently has an application into the Cleanup and Abatement Fund to address the wastewater upgrades, but it is stagnant since the State Board will not provide the funds to the Co-op. We have requested various local entities and agencies for fiscal sponsorship to receive the funds, but since the Co-op is nobody's responsibility, this process has been stagnant for over a year.

**Property Encumbrances:** The property is financed by a loan from USDA. It is restricted to housing for lower income farm-worker households regardless of the status of the USDA loan (in perpetuity). The

USDA would have to approve the use of project reserves and other budgeting measures if alternative funding resulting in a lien or payments would be required.

**Deliverables**: The following deliverables to DWR are anticipated:

- Preparation of invoices as required.
- Submission of Labor Compliance Program requirements.
- Submission of quarterly, annual and final reports.
- Completed final plans and specifications.
- Completed technical reports.
- CEQA amendment approved.
- Feasibility Plan completed regarding water recycling and grey water diversion. Permits approved.
- Advertisement for bids, as advertised plans and specifications, pre-bid meeting minutes, bid results, bid award, construction contract, pre-construction conference minutes, contractor submittals and reviews, inspection records, permit sign-offs, as built drawings, baseline and project completion performance test data.
- Advertisement for construction/implementation proposals. Proposal evaluation and contract. Reports of findings and final report.
- Requests for construction proposals, scope of services, contract, invoices and reports.
- Documents approved as to form, invoices for permits and fees, well drilling reports, water quality test reports, water flow level records, RFPs, contract invoices, and recommendations, final plan.

Attachment Title	Contents
ATT3_IG1_WorkPlan_28of46	Drawing of Drain Field Improvements
	Engineering Report: San Jerardo Waste Water Treatment Plant Upgrade
ATT3_IG1_WorkPlan_29of46	Feasibility Report, February 2010
	Engineering Report: San Jerardo Wastewater Treatment Facility
ATT3_IG1_WorkPlan_30of46	Capacity Evaluation, October 2004
ATT3_IG1_WorkPlan_31of46	CEQA Study
ATT3_IG1_WorkPlan_32of46	Waste Discharge Requirement
ATT3_IG1_WorkPlan_33of46	Correspondence regarding design status

Appendices: The following supporting materials are attached as appendices (6 appendices in total):

# TASK 4: Integrated Ecosystem Restoration in Elkhorn Slough

# I. INTRODUCTION

**Implementing Agency:** Elkhorn Slough Foundation, in partnership with the California Department of Fish and Game and the Elkhorn Slough National Estuarine Research Reserve

Project Title: Integrated Ecosystem Restoration in Elkhorn Slough

**Project Goals and Objectives:** This project directly advances local, regional, state, and federal priorities for aquatic resource management and estuarine restoration. The Salinas Valley IRWM Functionally Equivalent Plan (FEP) calls for implementation of the projects Elkhorn Slough Wetland Enhancement and Implementation of the Elkhorn Slough Watershed Conservation Plan, of which this is a recommended action. The following goals and objectives refer to the complete project, of which this is Phase 2. Additional context for these goals is provided below.

<u>Goal 1</u>: Increase the extent and the sustainability of tidal marsh in Elkhorn Slough in the face of climate change.

- *Objective 1.1:* Restore 75 acres of salt marsh in Elkhorn Slough, a rapidly declining habitat.
- *Objective 1.2:* Reduce tidal scour, which erodes habitat, exports sediment from the estuary and reduces the viability of tidal marshes.
- *Objective 1.3:* Fill the "accommodation space" in Elkhorn Slough left over from past land management, which competes with tidal marsh for sediment.

<u>Goal 2</u>: Reduce the cost of water management in the region by integrating projects.

• *Objective 2.1:* Develop projects that reduce costs to project proponents by restoring wetlands through the beneficial re-use of sediment from flood control and harbor dredging projects.

Goal 3: Protect and improve surface water quality in Elkhorn Slough.

- *Objective 3.1:* Establish Best Management Practices to clean up stormwater from agricultural fields on land where ownership enables public viewing and data sharing.
- *Objective 3.2:* Manage nonpoint source pollution by restoring wetlands, which improve estuarine water quality.

Anticipated Outcomes: Anticipated outcomes of the complete project, including subsequent phases, include:

- 75 acres of tidal marsh will be restored.
- A 30-acre native grass buffer will be established between farmland and the slough.
- Water quality in Elkhorn Slough will be improved.
- The 2,750 acres of tidal marsh, intertidal mudflat, and soft subtidal habitats in Elkhorn Slough will be made more resilient to sea level rise by the reduced tidal scour and greater sediment availability.
- Flood management on the Pajaro River may be made more cost effective, benefitting taxpayers and residents of the floodplain in the city of Watsonville and town of Pajaro.
- Navigation and harbor activities in Moss Landing Harbor may be made more cost effective.

Benefits identified as statewide priorities include:

- Ecosystem restoration; preserve, restore and enhance wetlands.
- The project will increase the acreage of tidal marsh in Elkhorn Slough by 10%.
- Salt marsh provides habitat for threatened and endangered species. Southern sea otters, federally threatened, routinely use adjacent tidal marsh habitat for resting. Salt marsh

degradation is associated with the local extirpation of the federally endangered California clapper rail in the 1980s; this project is a first step to recovering critical habitat for this species.

- Plan multi-purpose flood management projects:
  - Beneficial reuse of sediment generated by flood and navigation management projects reduces costs to flood and navigation management agencies, reduces the consumption of landfill space, and reduces the impacts at offshore disposal sites.
- Watershed protection and management:
  - Improved water quality will increase fisheries support. Elkhorn Slough is designated as water quality impaired with respect to supporting the beneficial uses of cold water and warm water fish habitat. For example, 50% of the local commercial flatfish catch use Elkhorn Slough as a nursery.
  - Well-established agricultural water quality Best Management Practices, such as the native grass buffer, will benefit growers in the region by providing the opportunity for research and education in a low-risk publicly owned setting.

**Purpose and Need:** Elkhorn Slough is an extraordinary coastal environment located in central California, in northern Monterey County, in the hydrologic unit of the Salinas River Watershed. Part of the Monterey Bay National Marine Sanctuary, the slough supports remarkable biological diversity and harbors a dozen rare, threatened, or endangered species, as well as the largest tracts of tidal salt marsh on the West Coast south of San Francisco Bay. Elkhorn Slough hosts world-class wildlife viewing opportunities, attracting 40,000 recreational visitors each year.

## Need: Salt marshes, sea level rise and a sediment shortage

Over the past 150 years, human actions have altered the tidal, freshwater, and sediment processes. This has caused wetland habitat loss and degradation that continue today. Elkhorn Slough has lost 1,000 acres of tidal marsh, and is predicted to lose 500 more acres (80% of those remaining) without action (Philip Williams and Associates et al., 2008). Sediments are needed to rebuild lost and degraded marshes and offset sea level rise, but are expensive to procure unless combined with other sediment management activities.

One hundred years ago, the Elkhorn Slough National Estuarine Research Reserve's (ESNERR) western region was dominated by grasslands and salt marsh. By the 1930s and '40s the salt marsh on the project sites had been diked and drained. Decades later, these dikes began to fail, reintroducing tidal waters to the reclaimed wetlands. The years of draining had lead to land subsidence, however, which made the land too low and wet to support salt marsh. High elevation intertidal mudflat has occurred instead that is less productive than native tidal flats along the main channels.

The additional tidal water that fills and drains these areas accelerates currents in other parts of the slough, leading to a process referred to as "tidal scour." Soft sediment habitats in Elkhorn Slough are eroded as a result. Raising the marsh elevation with sediment additions will reduce the "tidal prism," the volume of water moving in and out of the estuary each day, and help reduce the erosion of the slough's benthic habitats and tidal creeks. The hardened subtidal habitat is less suited for the production of large invertebrates and more prone to invasion by non-native species.

The viability of tidal marsh in Elkhorn Slough is limited by the availability of fine sediment (Philip Williams and Associates et al., 2008). Tidal scour exports fine sediment from the slough. Tidal scour and subsidence have both created an extensive "accommodation space," deep areas where sediment deposits readily. These areas compete with tidal marsh for fine sediment. The volume of the accommodation space

in Elkhorn Slough related to past subsidence totals over two million cubic yards, roughly one third of the estuary volume.

## Need: Wetland restoration and cost effective sediment supplies

The beneficial reuse of sediment can restore this habitat, providing a win-win for agencies responsible for flood management and navigation and those responsible for ecosystem preservation and stewardship. The Pajaro River Bench Excavation Project, which reduces the risk of flooding in the low lying city of Watsonville and town of Pajaro, is anticipated to generate approximately 350,000 cubic yards of silt that is low in contaminants and the perfect texture for tidal marsh restoration. The search for disposal sites for that material is underway, and this project provides an economical option. Moss Landing Harbor dredge materials are presently disposed offshore, but could be delivered economically to the project site. This sediment is also appropriate with respect to texture and quality, based on past analyses (Linda McIntyre, Moss Landing Harbor District, personal communication).

#### *Need: Water quality impairment*

Existing watershed land use, including nitrogen loading from agricultural and urban sources, results in degraded water quality. This project by improving water quality is consistent with the Central Coast Basin Plan: Elkhorn Slough frequently violates Basin Plan objectives. The 2010 303(d) List Staff Report of the Central Coast Regional Water Quality Control Board lists 14 distinct impairments in the watershed warranting TMDLs. Elkhorn Slough and adjacent water bodies in the watershed are listed as impaired for the following constituents: low dissolved oxygen, pesticides, total coliform, pH, sedimentation/siltation, chlorophyll-a, ammonia (unionized), and sediment toxicity. Seasonal eutrophic "dead zones" occur in some locations (Diaz and Rosenberg, 2008).

**Project Description:** The Elkhorn Slough Foundation (ESF), in partnership with the California Department of Fish and Game, the Elkhorn Slough National Estuarine Research Reserve (ESNERR), the Moss Landing Harbor District, the Monterey County Water Resources Agency, and the County of Santa Cruz, proposes to (1) develop a program for the beneficial reuse of sediment generated by flood control and harbor maintenance projects, (2) restore 75 acres of salt marsh, and (3) create a 30-acre native grass buffer to reduce non-point source pollution of the Elkhorn Slough estuary.

This project will occur on the tidal wetlands and uplands of the ESNERR, which is owned by the California Department of Fish and Game (CDFG) and managed in partnership with the National Oceanic and Atmospheric Administration (NOAA). These wetlands include areas called Seal Bend Marsh, Minhoto Marsh, Hester's Marsh, and the Sixth Finger of Parsons Slough. The native grass buffer will be established on ESNERR's Minhoto parcel (see Design Diagrams, following the text), the site of a 105-acre cut flower farm, between the farmland and the estuary to intercept stormwater runoff. Restored tidal marsh is also expected to improve water quality in the estuary.

This project will plan and initiate the restoration of these tidal marshes. The marsh to be restored was drained for decades. During that time the land subsided by up 12 to 30 inches and has now converted to a high elevation intertidal mudflat. The marsh will be restored through the placement of sediment from various local sources, which were investigated in detail during an earlier planning phase. The most cost-effective sources will be evaluated further and incorporated into the project design. Those sources include Moss Landing Harbor dredge materials, excavations from the benches along the Pajaro River flood control channel, and fill and sediment deposits on the project property that were generated by past agricultural activities such as road building.

In addition to restoring habitat, sediment reuse will make harbor maintenance and flood protection maintenance activities more cost-effective and reduce their impact on the environment by diverting sediment from offshore disposal sites and landfills.

## Addressing the need: Dying salt marshes and a sediment shortage

Adding sediment to subsided former marshes will both restore tidal marsh directly and increase the resilience of other tidal marshes in the estuary. Filling the "accommodation space" will make more fine sediment available to help all the tidal marshes in the slough gain elevation fast enough to keep pace with the future rate of sea level rise (Philip Williams and Associates, 2008). Raising the marsh elevation with sediment additions will reduce the "tidal prism," decreasing tidal scour and reducing erosion of the slough's benthic habitats and tidal creeks. The engineering issues associated with sediment import, containment, and placement will be resolved using a collaborative ecosystem approach to maximize benefits and minimize impacts.

#### Addressing the need: Wetland restoration and cost effective sediment supplies

The project will resolve the regulatory and technical issues necessary to secure these sediment supplies and realize the economic benefits of paired projects. The estimated cost per acre of restored tidal marsh is expected to vary by site and sediment source between \$20,000 - \$80,000, providing the most cost effective opportunities for tidal marsh restoration in the region. The next least expensive option is estimated at \$114,000 per acre (ESNERR and Moffatt and Nichol, 2010). The regulatory process for the beneficial reuse of sediment for these purposes has been outlined and applied in nearby regions such as San Francisco Bay, providing a strong starting place and precedence for this project. Establishing this approach in our region will nonetheless require considerable effort. Technical design issues are similarly straightforward but labor intensive.

#### Addressing the need: Water quality impairment

The proposed project will address nonpoint source stormwater runoff and improve water quality. Wetlands provide numerous water quality improvement functions related to sedimentation, filtration, and the transformation of nutrients and pesticides (Kadlec and Wallace, 2008). Restored marshes will replace mudflats dominated by algae, which is associated with impairment of water quality by low dissolved oxygen concentrations. Tidal marsh is also associated with increased rates of denitrification and sedimentation in Elkhorn Slough, which improve water quality directly.

The proposed project will increase the extent of tidal marsh in Elkhorn Slough by 10 percent, providing substantial water quality benefits to the entire estuary in a setting essentially free from maintenance. Wetlands can process the nutrient inputs of farmland at a ratio of one acre of wetland to more than 25 acres of farmland (Mitsch and Gosselink, 2008). By that ratio, this project will offset the nutrient inputs from about 2,000 acres of cropland which, in the Elkhorn Slough watershed, would yield over \$20 million in produce annually.

The Minhoto site had cropland running from the hilltop to the edge of the estuary until 2009. After acquisition, the footprint of the existing agricultural fields was reduced from 140 to 105 acres, to decrease direct agricultural runoff. That 35-acre buffer is planted presently in an annual barley cover crop. The proposed project will result in a perennial native grass buffer between the cropland and the wetlands. This buffer will intercept stormwater runoff, resulting in improved water quality downstream. As a working farm that is also part of a Research Reserve, the restoration will establish an ideal place to study the comanagement of water quality and food safety, a local priority.

# Regulatory Pathway for Beneficial Reuse

The primary environmental issues related to sediment addition projects are sediment chemistry, sediment logistics, and wetland type conversion. Resolving these technical issues will be the focus of present phase of the proposed project (Phase 2). Preliminary assessment of sediment chemistry data from Moss Landing Harbor and the Pajaro River Bench Excavation Project indicated that some and potentially all of the

sediment generated by dredging and levee maintenance activities will be compatible with marsh restoration objectives. The proposed project will entail a detailed analysis of the toxicology of the sediment sources. The findings of that investigation will drive the regulatory compliance process and the engineering designs.

# Benefitting a Disadvantaged Community

This project provides indirect benefits to a disadvantaged community (DAC) that is located outside the Greater Monterey County IRWM region. The town of Pajaro, in unincorporated Monterey County, California, is a DAC as defined by the State. Pajaro is located in the adjacent Pajaro River Watershed IRWM planning area, and is directly impacted by Pajaro River flooding. The Pajaro River Bench Excavation Project is anticipated to reduce the frequency and degree of flooding of this community. That project is limited by the availability of suitable sediment placement sites. The proposed project would enable this flood management project to proceed more predictably and efficiently, benefitting this disadvantaged community.

**Completed Work:** The proposed project will be led by ESF in partnership with ESNERR, a partnership that is now 27 years old. ESF is a community non profit and land trust, and serves as the fiscal agent for federal grants from the NOAA for the support of ESNERR staff. ESNERR, a member of the national network of estuarine research reserves, is a partnership between NOAA and CDFG. The project is the outcome of an extensive planning effort. Since 2004 the Elkhorn Slough Tidal Wetland Project has engaged over 100 scientists, agency staff, and elected officials in planning and implementing activities to restore estuarine habitats.

Key project partners will be regulatory agencies, as the project will require close collaboration and coordination to efficiently execute the regulatory compliance process. The following affected parties are aware of this project and support advancing it from the concept stage to the CEQA/NEPA Documentation phase. These parties include:

- California Department of Fish and Game (landowner, regulatory agency, potential CEQA lead)
- Monterey County Water Resources Agency (sediment manager Pajaro River)
- Santa Cruz County, Departments of Public Works and Planning (sediment manager Pajaro River)
- Moss Landing Harbor District (sediment manager)
- US EPA (regulatory agency)
- US Army Corp of Engineers (regulatory agency, potential NEPA lead)
- Monterey Bay National Marine Sanctuary (regulatory agency)
- Regional Water Quality Control Board (regulatory agency, potential CEQA lead)
- California Coastal Commission (regulatory agency)

# Planning Status

The proposed project is in the advanced conceptual stage. Detailed planning on the beneficial reuse of sediment to restore tidal marshes has been conducted as part of earlier planning processes.

*CEQA and NEPA documentation and compliance:* CEQA and NEPA documentation and compliance is anticipated to proceed smoothly. Many of the key regulatory agencies are well aware of the project goals, objectives, and underlying issues. The project sites are not high quality existing habitat and so the project is non-controversial. Further information is provided under Permit Requirements below.

**Existing Data and Studies:** Extensive existing information will enable the efficient development of 30 percent designs, which will be used to drive the CEQA and NEPA document preparation process.

Technical Studies:

- The environmental conditions for the area have been investigated in detail during preparation of a
  major restoration project at Parsons Slough, which is located adjacent to the project site. These
  are described in detail in the *Final Initial Study and Mitigated Negative Declaration: Parsons
  Slough Project*, State Clearinghouse Number 2010041084, Vinnedge Environmental Consulting,
  August 2010. This document and all of the data supporting it are owned by the project proponent
  and will serve as a valuable starting place.
- The concept engineering analysis of restoring subsided wetlands in Elkhorn Slough through the beneficial reuse of sediment was developed in detail in the *Parsons Slough Restoration Plan*, Elkhorn Slough National Estuarine Research Reserve and Moffatt and Nichol, 2010.
- The hydrodynamics and geomorphology of Elkhorn Slough has been investigated in detail, as reported in *Elkhorn Slough Tidal Wetland Project, Hydrodynamic Modeling and Morphologic Projections of Large-Scale Restoration*, Philip Williams and Associates 2008. A major recommendation of that report was to restore the historic landscapes in Elkhorn Slough by importing sediment and adding it to subsided areas. This report also provides valuable technical guidance for wetland restoration. The modeling files and base data are owned by the project proponent.

*Data Sets:* Key data of the project sites include LiDAR elevation data, water quality stations with records going back 15 years with continuous data and 20 years with monthly data. The bibliography of papers on Elkhorn Slough includes over 900 entries.

*Consistency with State, Federal and Local Plans:* In addition to being listed in the Salinas Valley IRWM FEP (see above), the proposed project is consistent with the RWQCB's Water Management Initiative. This project will implement Non-Point Source Management Measure related to Hydromodification (MM 5.1A, 5.1B, 5.3A, 5.4A) and Wetland, Riparian Areas, and Vegetated Treatment Systems (MM 6A-D).

- The Elkhorn Slough National Estuarine Research Reserve Management Plan 2006-2011 (Elkhorn Slough National Estuarine Research Reserve, 2005) identifies restoring estuarine habitats as its first goal. The restoration of native grassland species is also identified as a top priority.
- The *Elkhorn Slough Watershed Conservation* Plan (Elkhorn Slough Foundation and The Nature Conservancy, 1999) calls for management of stormwater runoff from cultivated fields and restoration of native habitats.
- The *Elkhorn Slough Tidal Wetland Plan* (Elkhorn Slough Tidal Wetland Project Team, 2007) identifies reducing marsh dieback and estuarine habitat erosion through sediment addition as a top priority for improving the ecologic health of the estuary.
- The project supports state and federal restoration goals: The *Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California* (U.S. Fish and Wildlife Service, 2010) encourages restoration in Elkhorn Slough.
- The work will demonstrate results for work supported by the *West Coast Governors' Agreement* on Ocean Health (Gregoire et al., 2008), which identifies the Elkhorn Slough Tidal Wetland Project and Ecosystem Based Management initiative as a groundbreaking example of collaborative conservation and stewardship.

Project Timing and Phasing: This project will utilize a phased approach.

# Phase 1. Land acquisition [COMPLETE]

- 1. Acquisition by the California Department of Fish and Game of key lands including restoration sites and adjacent cropland was completed in January 2009
- 2. Stabilization of the property (erosion control, lease agreements)
- 3. Collaboration with key sediment management partners and regulatory agencies

# Phase 2a. Preliminary Design and CEQA/NEPA compliance [THIS PROJECT]

- 1. Beneficial reuse of sediment program development
- 2. CEQA/NEPA document preparation
- 3. Salt marsh restoration design (30% level)
- 4. Identify and establish sediment staging areas

# Phase 2b. Implementation of permanent native grass buffer [THIS PROJECT]

- 1. Native grass buffer design
- 2. Obtain propagule material
- 3. Prepare site; establish native plants on site

# Phase 3. Final Regulatory Compliance, Implementation of salt marsh restoration [FUTURE PHASES]

- 1. Final design for marsh restoration areas (Minhoto, Seal Bend, Hester's Marsh, Parsons Slough Sixth Finger)
- 2. Permitting for all areas or individual sites as appropriate
- 3. Tidal wetland restoration
  - a. Minhoto Marsh (up to 38 acres)
  - b. Hester's Marsh (up to 31 acres)
  - c. Seal Bend Marsh (up to 21 acres)
  - d. Sixth Finger of Parsons Slough (up to 27 acres)
- 4. Maintenance of the native grass buffer

**PROJECT SITE MAP 1:** Integrated Ecosystem Restoration in Elkhorn Slough: Potential Sediment Addition Sites and Monitoring Sites





**PROJECT SITE MAP 2:** Integrated Ecosystem Restoration in Elkhorn Slough: Excavation Sites

# II. TASKS

# TASK 4: Integrated Restoration at Elkhorn Slough

# **Task 4.1: Project Administration**

**Task 4.1.a: General Administration:** The Elkhorn Slough Foundation will conduct all general grant administration tasks throughout the duration of the project period.

**Task 4.1.b: Labor Compliance Program:** The Elkhorn Slough Foundation will conduct activities necessary to meet labor compliance requirements, and submit to the lead applicant.

**Task 4.1.c: Reporting:** The project proponent will write and submit quarterly and annual reports to the lead applicant.

Status: Project administration team is in place.

**Deliverables:** Preparation of invoices as required. Submission of Labor Compliance Program requirements. Submission of quarterly and annual reports.

#### Task 4.2: Purchase of Land/Easement

The land acquisition phase of this project is complete. No further acquisition or right of way is necessary for project implementation.

**Status:** Land acquisition was completed on January 22, 2009 as an earlier phase of the project. Total acquisition costs were \$4.75 million. (These funds are not included in the budget for this project.)

Deliverable: Ownership and transaction records are available on request.

#### Task 4.3: Planning/Design/Engineering/Environmental Documentation

**Task 4.3.a: Assessment and Evaluation:** During this task the site will be assessed and data compiled to characterize the site for restoration design and regulatory compliance purposes. Specific tasks include:

- Compile and process existing site data, including LiDAR, land use, source sediment quality and tidal hydrology.
- Collect and process new site data, including soil engineering characteristics and site sediment quality.
- Conduct wetland delineation.
- Evaluate alternatives.
- Develop sediment stockpiling plan.
- Develop native grass buffer design.

**Task 4.3.b: 30% Design:** Develop preliminary engineering design for restoration project to 30% level.

**Task 4.3.c: Planning and Community Engagement:** Engage with partners and stakeholders, including funders, neighbors, tenant growers, sediment suppliers (Monterey County Water Resources Agency, Moss Landing Harbor District and Santa Cruz County), and community members. Develop and implement financing strategies.

#### Task 4.3.d: Environmental Documentation: Tasks include:

- Develop project description.
- Host Multi-Agency Coordination Meeting.

- Develop Initial Study.
- Develop EIR/EIS as CEQA/NEPA compliance documentation.

# Task 4.3.e: Permitting:

- Conduct analysis according to Army Corps of Engineers dredge disposal manuals for uplands and inland waters.
- Conduct analysis of toxicologic risk assessment related to sediment placement in consultation with the Army Corps of Engineers.
- Coordinate with regulatory agencies to identify permitting pathways and required documents.

**Status:** Extensive planning, site assessment and sediment source economic analysis has been completed. All partners and regulatory agency stakeholders are engaged and supportive of the project. Additional detail is provided below under the heading Permits and Environmental Compliance.

# **Deliverables:**

- Technical reports.
- Project Description.
- Multi-agency Meeting.
- Fact Sheet.
- Engineering Plans to 30% Level of Completeness.
- CEQA/NEPA documentation (EIR/EIS) ready for public review, including the Mitigation Monitoring Plan.
- Completed sediment disposal analysis based on appropriate Army Corps manual.
- List of permits and approvals required by the agencies.
- Sediment stockpiling plan.
- Native grass buffer design.
- Compliance and mitigation monitoring and reporting plan.

# Task 4.4: Construction/Implementation

This phase of the project will include the first construction phase. Construction elements include:

- Construction of staging areas for stockpiling sediment generated by source projects.
- Establishment of a native grass buffer along the edge of the agricultural fields.

**Task 4.4.a: Construction Contracting:** Contracts will be established for construction administration, for the construction of the staging area, and for the establishment of the native grass buffer.

# Task 4.4.b: Construction, This Phase:

**Task 4.4.b.1: Mobilization, Site Preparation, and Demobilization:** Construction staking will be performed. Equipment and materials will be brought to the site. Demobilization will entail removing construction stakes.

**Task 4.4.b.2: Project Construction:** Native grass buffer will be established by seedbed preparation, planning and irrigation. Contractors operating earth moving equipment will prepare high priority sediment stockpiling areas to receive sediment deliveries from donor sites.

**Task 4.4.b.3: Performance Testing and Demobilization:** Construction inspection will be performed to ensure compliance with sediment stockpiling plan.

**Task 4.4.c: Construction, Later Phases:** Later phases of the project will include the delivery of sediment to the site and the placement of the sediment to restore the tidal marsh. These phases of project construction are not included in the project budget. These later phases will include mobilization, site preparation, construction and demobilization.

**Status:** The 30-acre buffer between the cropland and the estuary has been established by pulling back the footprint of the farmed area and establishing annual barley as the buffer vegetation. Planting of native vegetation in areas of the buffer is ready to proceed. Identification of staging areas is pending the design process.

# **Deliverables:**

- Advertisement for bids.
- Pre-bid contractors meeting.
- Awarded sediment staging areas construction contract.
- Staking, grading and establishment of select areas of the native grass buffer.
- Construction of sediment staging areas.

# Task 4.5: Environmental Compliance/Mitigation/Enhancement

All CEQA/NEPA and permit compliance and mitigation requirements will be performed for the phase of construction funded by this project.

**Task 4.5.a: Construction Best Management Practices**: During construction Best Management Practices will be adhered to, in compliance with the EIR/EIS and any guidance from regulatory agencies. Contractors and staff will develop compliance reports.

Status: Not started.

**Deliverables:** Implementation of environmental mitigation or enhancement efforts. Compliance and mitigation monitoring plan summary report.

# **Task 4.6: Construction Administration**

Contractor(s) and staff will oversee construction activities.

**Task 4.6.a: Construction Oversight**: Contractor(s) or staff will inspect construction to ensure quality workmanship and regulatory compliance.

Status: Not started.

Deliverables: Documentation of Best Management Practices.

# Task 4.7: Other

**Task 4.7.a: Legal Advice:** Legal advice will be sought related to land access agreements for contractors and for regulatory compliance.

Status: Not started.

Deliverables: Notice of correspondence.

**Permits and Environmental Compliance:** The proposed project falls under the jurisdiction of many different regulatory agencies. All of the relevant agencies are familiar with the issues of wetland restoration in Elkhorn Slough through collaboration in the Tidal Wetland Project. This will make the permitting process efficient and collaborative. Phase 2 of the proposed project will establish the necessary groundwork for permit issuance. The permitting itself will be conducted during Phase 3. While an extensive environmental review and permitting process is anticipated, this is because of construction activity in wetlands and waters of the United States, not because of controversy around the project. The

project proponent recently completed a similar permitting process for the Parsons Slough Sill Project (winter of 2010/2011), which required consultation with all of the same agencies, and that process went well. This should enable a smooth and efficient regulatory compliance process.

The following documents have been identified as likely to be required by the agencies in the development of the project:

# Environmental Compliance

- CEQA Compliance (EIR anticipated)
- NEPA Compliance (EIS anticipated)

# Federal Agency Authorizations and Permits

- Army Corps of Engineers (individual Section 404 Permit anticipated)
- Monterey Bay National Marine Sanctuary (permit anticipated)
- US Fish and Wildlife Service (Biological Opinion)
- US Fish and Wildlife Service (Incidental Harassment Authorization Endangered Species Act)
- National Marine Fisheries Service (Incidental Harassment Authorization under the Marine Mammal Protection Act)

# State Agency Authorizations and Permits

- Regional Water Quality Control Board (401 Water Quality Certification/WDR/ NPDES anticipated) California Department of Fish and Game (Right of Entry Permit)
- California Department of Fish and Game (LSA/Section 1602 Agreement)
- Coastal Commission/Monterey County (Coastal Development Permit)

# Local Agency Authorizations and Permits

- Monterey County (Design Review)
- Monterey County (Grading Permit)
- Monterey County (Construction Permit)
- Santa Cruz County (Construction Permit)
- Moss Landing Harbor District (Construction Permit)

# Climate Change Adaptation and Mitigation

CEQA compliance requires consideration of climate change. This project helps ensure longevity of Elkhorn Slough's fragile salt marshes by increasing their resilience to climate change. Vegetated marshes accumulate sediment and gain elevation over time, while unvegetated mudflats, the existing condition at the site, do not necessarily. By reducing "accommodation space" the project is anticipated to increase the accretion rate of other wetlands in the area. The restored tidal marsh will enable the capture and sequestration of approximately 200 tons of  $CO_2$  per year after completion of all phases of construction. Construction is anticipated to generate approximately 800 tons of  $CO_2$ . The project would provide net carbon capture and storage after four years.

**Plans and Specifications:** The concept designs for restoring subsided wetlands in Elkhorn Slough through the beneficial reuse of sediment generated from harbor dredging, flood control projects and other sources was developed in detail in the *Parsons Slough Restoration Plan* (Elkhorn Slough National Estuarine Research Reserve and Moffatt and Nichol, 2010). These concepts were further refined during meetings of the Science Panel and Strategic Planning Team of the Elkhorn Slough Tidal Wetland Project. Key regulatory agency staff participated in those meetings and the production of that document. The proposed project site, located adjacent to Parsons Slough, provides a more cost-effective site for tidal marsh restoration (see Cost Benefit Analysis), which is why it was prioritized above most of Parsons

Slough for this project. The plan provides conceptual designs and cost estimates for restoration on a peracre basis. Design drawings are presented following the text.

# Materials, Methods, and Standards:

*Beneficial reuse of sediment – primary guidance:* We will adapt pioneering documents developed by the San Francisco Bay RWQCB: *Beneficial reuse of dredged materials: Sediment screening and test guidelines, Staff Report* (San Francisco Bay RWQCB 2000), and the San Francisco District of the Army Corps of Engineers, which define regulatory compliance thresholds for beneficial reuse of dredged sediment in San Francisco Bay.

The beneficial reuse of dredge materials requires evaluation based on standard procedures established by the US EPA and the Army Corps. The methodology they have instructed us to use is the Upland Training Manual: *Evaluation of Dredged Material Proposed for Disposal at Island, Nearshore, or Upland Confined Disposal Facilities* — *Testing Manual* (U.S. ACOE, 2003). This document enables data driven decision-making by federal and state regulators regarding sediment placement in confined sites such as restored wetlands (Brian Ross, US EPA, personal communication). The Inland and Ocean Testing Manuals (US EPA and USACE, 1991, USACE and US EPA, 1995) will be consulted for unconfined sediment placement alternatives. These manuals outline the procedures to evaluate possible impacts in the wetland and the adjacent estuary. Background chemical contamination at restoration sites, bioaccumulation risk, and sediment toxicity will be characterized as necessary with a sampling plan developed in consultation with ACOE, EPA, and other stakeholders.

*Computational models for predicting system response:* Hydraulic (HEC-RAS) and hydrodynamic (DELFT 3D) models of Elkhorn Slough have been developed by URS Corporation and Philip Williams and Associates, respectively, and these calibrated and validated models will greatly facilitate the technical analysis, design and regulatory compliance elements of the project.

*Procedures for Awarding Subcontracts:* Competitive bidding is our planned approach for selecting subcontractors. This approach will be used in all cases where adequate time is available to run a competitive bid process. The competitive bid process will consist of the development of a request for proposals (RFP) that presents tasks, timelines and specifications; the announcement of the RFP using print and/or electronic media; the review of proposals by project staff in consultation with our advisory committee based on an objective scoring criteria, and execution of the contract. Factors to be considered in evaluating proposals will include price, quality, the ability of the contractor to meet the schedule and other factors. Sole source subcontracting is anticipated only where established local partners with unique knowledge and expertise are available to perform the work, and the contract value is less than \$50,000.

*California Labor Code Compliance:* All work performed under this grant award will comply with and adopted labor compliance program pursuant to California Labor Code §1771.5(b). Prevailing wage requirements will be made explicit in the bids solicitation process.

Acquisition of Land or Rights-of-Way and Landowner Agreements: There are no barriers to the implementation of this project from a land ownership or access perspective. All of the project lands are owned by the California Department of Fish and Game, which is a committed partner on the project. In 2009, The Elkhorn Slough Foundation acquired the Minhoto property for \$4.75 million, the site of the Minhoto and Hester's marshes and the native grass buffer. The land was donated to the California Department of Fish and Game and made part of the Elkhorn Slough National Estuarine Research Reserve. The neighboring landowner, County Supervisor and dairyman Lou Calcagno, is a supporter of the project (see letter of support, attached as part of Attachment 1).

Performance Measures and Monitoring Plans: The performance measures and associated monitoring

for the present project phase are presented in Attachment 6. As part of the CEQA document deliverable, this phase of the project will develop a Mitigation Monitoring Plan for implementation phases of the project to ensure regulatory compliance. That plan will be amended as permits with new monitoring conditions are secured. Progress toward achieving the goals of this phase of the project will be tracked and reported to the IRWM Data Management System, which is under development. A *Compliance and Mitigation Monitoring Plan Summary Report* will report monitoring findings for the project.

The Elkhorn Slough National Estuarine Research Reserve conducts long-term monitoring programs as part of its core mission. These cover of a wide array of environmental indicators, including water quality, land cover, shorebird abundance and diversity, and benthic invertebrate abundance and diversity. Monitoring stations bracket the project site with upstream and downstream locations. Those data will be incorporated as appropriate into the Mitigation Monitoring Plan and performance monitoring during future project phases.

# **Deliverables**:

- Task 4.1: Quarterly and annual reports will document progress on all tasks, summarize deliverables completed during the reporting period, and provide a financial summary. Invoices will be submitted as required. Labor Compliance Program requirements will be documented as necessary.
- Task 4.2: The ownership and property acquisition transaction records are available on request. The land was acquired by the California Department of Fish and Game in January 2009.
- Task 4.3: Copies of the following documents will be provided with the quarterly reports as they are generated: Technical reports, Project Description, Multi-Agency Meeting Notes, the project Fact Sheet, Engineering Plans to 30% Level of Completeness, CEQA/NEPA Documentation (EIR/EIS) ready for public review, Completed Sediment Disposal Analysis based on appropriate Army Corps manual, the List of Permits and approvals required by the agencies, the Sediment Stockpiling Plan for the property, the Native Grass Buffer Design, and the Regulatory Compliance and Mitigation Monitoring and Reporting Plan. These documents will describe the topic with text, tables and figures as necessary. Substantial effort will go into the Engineering Plans to 30% Level of Completeness, CEQA/NEPA Documentation (EIR/EIS), and Sediment Disposal Analysis. These documents will be developed to meet the standards of the California Department of Fish and Game (as land owner), the CEQA lead agency (to be determined) and the Army Corps and US EPA (agencies regulating Sediment Disposal).
- Task 4.4: The following documents will be provided with the quarterly reports: Advertisement for Bids, Pre-Bid Contractors Meeting Notes, Awarded Contract for building the sediment staging areas, As-Built Report for the constructed sediment staging areas, As-Built Report for the establishment of the native grass buffer.
- Task 4.5: The following document will be provided with the quarterly report during the quarter it is published: Compliance and Mitigation Monitoring Plan Summary Report. It will summarize mitigation and monitoring requirements of the agencies for the construction period.
- Task 4.6: The following document will be provided with the quarterly report during the quarter it is published: Documentation of Best Management Practices. It will summarize BMPs used during construction with text, tables and figures as necessary.
- Task 4.7: Notice of Correspondence between the project proponent and the attorney will be provided with the Quarterly Report in the quarter during which it occurs.

Attachment Title	Contents
	Elkhorn Slough Tidal Marsh Sites Restorable by Sediment Addition
	with High Benefit to Cost Ratio Site Descriptions: DRAFT, December
ATT3_IG1_WorkPlan_34of46	22, 2010. (Largay and Woolfolk, 2010)
	Elkhorn Slough Watershed Conservation Plan, 1999, Elkhorn Slough
ATT3_IG1_WorkPlan_35of46	Foundation and The Nature Conservancy.
	Elkhorn Slough Tidal Wetland Plan, 2007, Elkhorn Slough Tidal
ATT3_IG1_WorkPlan_36of46	Wetland Project Team.

Appendices: The following supporting materials are attached as appendices (3 appendices in total):

#### References

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Elkhorn Slough National Estuarine Research Reserve, Moffatt and Nichol, Chambers Group, Inc., Wetland and Water Resources, FarWest Restoration Engineering, 2010. <u>Final Parsons Slough Complex</u> <u>Restoration Plan</u>. Prepared for the California Coastal Conservancy, January 31, 2010.

Elkhorn Slough Foundation and The Nature Conservancy, 1999. <u>The Elkhorn Slough Watershed</u> <u>Conservation Plan.</u>

Elkhorn Slough Tidal Wetland Project Team, 2007. The Elkhorn Slough Tidal Wetland Plan.

Gregoire C.O., Kulongski T.R. and Schwarzenegger A., 2008. West Coast Governors' Agreement on Ocean Health Action Plan May 2008. The Offices of the Governors of Washington, Oregon and California. <u>http://westcoastoceans.gov/</u>

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USEPA and USACE. 1995. QA/QC guidance for sampling and analysis of sediments and tissues for dredged material evaluations – chemical evaluations. EPA 823-B-95-001. Washington, DC. http://www.epa.gov/waterscience/cs/library/evaluationguide.pdf

U.S. Fish and Wildlife Service, 2010. The Draft Recovery Plan for Tidal Marsh Ecosystems of Northern and Central California

Vinnedge Environmental Consulting, Grassetti Environmental Consulting, Lux Environmental Consulting, LLC, Wetlands and Water Resources, Inc, Michael Podlech and Hoffman & Associates. August 2010. Initial Study and Mitigated Negative Declaration: Parsons Slough Project. August 2010.

# **DESIGN DIAGRAM 1**

Engineer's Conceptual Design of sediment placed to restore the subsided former wetlands at the Parsons Sixth Finger and other sites (Elkhorn Slough National Estuarine Research Reserve and Moffatt and Nichol, 2010).



# **DESIGN DIAGRAM 2**

Engineer's Conceptual Design of a containment dike used to retain sediment placed to restore the subsided former wetlands at the Parsons Sixth Finger site (Elkhorn Slough National Estuarine Research Reserve and Moffatt and Nichol, 2010).



# **TASK 5:** Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

# I. INTRODUCTION

**Implementing Agency:** Central Coast Wetlands Group at Moss Landing Marine Labs through San Jose State Research Foundation

**Project Title:** Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

**Project Goals and Objectives:** The overall project goal is to integrate stream restoration and water quality improvement into land-use planning and redevelopment, flood control management, and agricultural operations, and implement on-the-ground alterations that will lead to water quality improvements.

Phase 1 Goals and Objectives:

Goal: Get Technical Advisory Committee agreement on project plan.

• *Objective:* TAC agreement on multiple objectives of project.

Goal: Obtain regulatory support for project design elements.

- *Objective:* Monterey County Water Resources Agency and the Monterey County Redevelopment Agency to promote integration of Tembladero and Castroville slough restoration and water quality enhancement in all future re-development programs in the project area.
- *Objective:* Regulatory agencies, including the Central Coast Regional Water Quality Control Board (RWQCB), gain agreement that lower drainage enhancements can be part of a watershed approach to agricultural permitting.

Goal: Obtain landowner and operator support from all potentially affected parties.

- *Objective:* Multiple Landowners agreement to initiate the purchase of easements on 20 acres of property.
- *Objective:* Complete design restoration plans and submit permits for projects that maximize water quality benefits.

Goal: Obtain community support.

Phase 2 Goals:

Goal: Reduce 303d listed pollutants through implementation of restoration projects.

*Goal:* Attain community access to natural sites. The access must be safe to the public and create no liability or other burdens on any unwilling participants.

**Purpose and Need:** The Gabilan Watershed is a subwatershed of the Salinas River Watershed, the lower section of which contains the Tembladero Slough, which is the focus of this project. The waters of the Gabilan Watershed (also referred to as the Reclamation Ditch Watershed) are highly degraded and are designated by the Central Coast RWQCB as a priority watershed. The lower section of the watershed, which drains to the Tembladero Slough before flowing to the Monterey Bay National Marine Sanctuary, is channelized and polluted with nutrients and sediment. Both agriculture and urban lands contribute nonpoint source pollutants to receiving waters, including nutrients, pesticides, and pathogens. Fourteen TMDLs are scheduled for development in the Tembladero Slough. Erosion and sedimentation have increased flood risk, and serve to transport toxic chemicals through the watershed, leading to contamination and hypoxia within the Moss Landing Harbor and Elkhorn Slough.

Flood control is a long-standing goal in the watershed. The Reclamation Ditch, which flows into the Tembladero Slough, was originally constructed in 1917 to drain swampland and thus increase available lands for farming and urban development. Now with the watershed population at approximately 170,000 people, it is being asked to perform as a stormwater flood control channel without an improvement in the hydraulic capacity. Previously proposed improvements to this flood control system have focused on increased flow rates (through concrete lining and additional clearing of vegetation), a proposal that has received significant critical review for the limited environmental considerations of this strategy. The Reclamation Ditch (Gabilan) Watershed Assessment and Management Strategy (2005, attached as an appendix) defined the multiple objectives of stakeholders that must be integrated through the watershed management process for this highly degraded watershed. The proposed project will establish several of those objectives, including restoration, public access, and water quality enhancement objectives as integral parts of future flood control management for the watershed.

Food safety is another public health goal in the watershed. Produce grown in this watershed is shipped nationally and internationally in a highly competitive marketplace. Stakeholders have stated that a real or publicly perceived threat to the safety of the food supply must be avoided as the highest priority. Increasingly, retailers and wholesalers of fresh produce demand that harvest be made from fields absent of any non-crop vegetation, and of any standing water. Thus, a food safety goal has now come into conflict with environmental goals of protecting water quality and increasing habitat for protected species. By working with industry partners and local researchers that have investigated options for safe coexistence of wetlands/riparian areas and food production, we will define the design elements necessary to ensure that safe and profitable agriculture can continue while obtaining other environmental and water quality objectives within this drainage.

**Project Description:** The process of moving from a conceptual restoration design to final design becomes complex when the project is intended to meet multiple water objectives of multiple partners. Stakeholders that must be involved in all phases of planning and implementation include regulating agencies, agencies responsible for land use and water conveyance, agricultural landowners and operators, public landowners, scientists, and the community. For this project, the Central Coast Wetlands Group (CCWG) proposes to work with all of the numerous stakeholders to modify the conceptual design for the construction of a lower Gabilan drainage enhancement project in ways that create habitat, water quality, and public access values while meeting the needs of the other stakeholders (see concept plans designed by the Friends of the Tembladero and Moss Landing Marine Labs, attached). In previous discussions with stakeholders regarding this project, concerns were raised about issues such as public safety, food safety, liability, and maintenance. In the past there has not been funding to address these concerns and develop a final set of implementable plans on which everyone could agree. Thus, Phase 1 of this project will support collaborations with stakeholders to design a restoration plan that takes these concerns into account.

Design criteria for the final wetland habitat and water quality improvement project will include considerations for flood conveyance, community redevelopment and land use overlays, protection of landowner rights and economic opportunities, adjacent park and ball field needs for the community, the Monterey Bay coastal trail development, the Central Coast RWQCB Ag Order requirements, anadromous fish protection and support, food safety, public health and safety, and downstream protection of the Moss Landing Harbor and Elkhorn Slough. Most of these concerns are defined within the Reclamation Ditch Watershed Assessment and Management Strategy (2005), which will provide guidance for moving forward.

The project will identify 20 acres of land for the purchase of easements, which will be restored as treatment wetlands, flood control sites, buffer for adjacent farmland and natural habitat in the lower section of the Gabilan Watershed. Currently, several major landowners in the target area have expressed

interest in this project and several priority areas have been identified. The final project will reestablish a functioning slough drainage that includes areas designated to filter water quality, as well as natural restored areas and a trail system. If possible this trail system will link Castroville to the Coastal Trail and the beach, the feasibility of which will be determined during Phase 1.

CCWG will also work with the Central Coast RWQCB to identify how this project will help landowners meet their Ag Order requirements. Pilot efforts to evaluate alternative planting strategies ("crop buffer") along the slough will be tested to determine if such innovative strategies eliminate the perceived food safety threat from non-crop vegetation and wetlands.

*Outcomes:* Phase 1 will focus on improving dialogue and collaboration between stakeholders in the watershed, developing interest and understanding of the benefits of restoration, addressing stakeholder concerns about change in the watershed, and completing a working design for the project that meets all regulatory and stakeholder requirements and that is ready to be submitted for permitting. Phase 2, to be funded separately, will focus on the implementation of the agreed upon design.

**Completed Work**: Recent studies by Moss Landing Marine Labs and partners have defined the most effective mechanism to address water quality degradation and increased flood risk in the Gabilan Watershed as: 1) addressing pollutants and flows at the source, and 2) restoring the natural function of the watershed to filter pollutants, reduce erosion and sedimentation, increase flood capacity, and restore wildlife habitat. Programs are currently underway to implement a range of agricultural management conservation practices on farms throughout the upper and mid Gabilan Watershed. This project is aimed at restoring habitat, flood capacity, and water filtration (as well as improved open space for the public enjoyment) in the Tembladero Slough to improve the slough's water quality prior to reaching other critical aquatic resources within the lower Gabilan Watershed, including Elkhorn Slough and the Monterey Bay.

This integrated wetland restoration, public access, and water treatment basin design was based on work by the Friends of the Tembladero Slough for inclusion in the Castroville Community Redevelopment Plan in 2003 (the plan is attached as an appendix). The integrated design reflects the full range of management objectives outlined within the Reclamation Ditch Watershed Assessment and Management Strategy and the Northern Salinas Valley Watershed Restoration Plan (both plans are attached). The project aims to address multiple needs including providing improved park and open space access to the community, slough and drainage enhancements that will help reduce the flood risk and improve water quality, and a bike/walking path from the economically underserved community of Castroville to their beach. This will provide a safe and healthy way for residents and visitors to get to the beach without having to get in a car.

In 2006 a treatment wetland at the confluence of the Tembladero Slough and Old Salinas River Channel was completed (see Project Map). This project and the subsequent research by Moss Landing Marine Labs (MLML) and the Watershed Institute at California State University Monterey Bay (CSUMB) have greatly informed regulatory agencies and local stakeholders of the value of this project design, making it a priority IRWM Plan project. Constructive dialogue with the Monterey County Water Resources Agency (through the IRWM planning process) has led to new opportunities to address multiple objectives within this drainage which have until recently not been possible.

**Existing Data and Studies:** Decades of water quality monitoring and numerous regional plans have been completed by MLML and other partners for this watershed including: the Northern Salinas Valley Watershed Restoration Plan (1997), the Central Coast Regional Toxic Hot Spot Cleanup Plan (1997), the Salinas River Watershed Management Action Plan (1999), and the Reclamation Ditch Watershed Assessment and Management Strategy (2005). The proposed project was originally designed for inclusion

in the Castroville Community Redevelopment Plan (2007). The California Coastal Commission has not approved the Local Coastal Program (LCP) amendment for the part of the Redevelopment Plan that falls within the Coastal Zone. This project is designed to address some of the issues identified by the Coastal Commission that must be rectified.

The Reclamation Ditch Watershed Assessment and Management Strategy is the most comprehensive document defining necessary parameters for future restoration projects in this watershed. The Strategy was developed through a collaborative process among many stakeholders including staff at CCWG, and sets up 10 tentative management goals. The proposed project helps to achieve six of those goals, including: Improve Water Quality, Reduce Flooding of Developed Land, Create Parklands and Natural Areas, Reduce Mosquitoes, Reduce Harbor Sedimentation, and Maintain Economic Viability of Adjacent Agriculture.

The MLML and Watershed Institute's research on the effectiveness of the pilot treatment wetland shows clear reductions in concentration of nitrate, phosphate, and suspended sediment. The results for ammonia, diazinon, and dimethoate appeared more ambiguous and dictate that coordination with upstream agriculture practices is necessary. The Monterey Bay National Marine Sanctuary tests the water at several sites along the Slough for their annual "snapshot day" water quality event. These data as well as RWQCB Coastal Confluence measurements and those of the Elkhorn Slough long-term monitoring program have led to the listing of the Tembladero Slough as a 303d impaired waterbody for 14 different pollutants. TMDL development is scheduled for 2013.

A 2007 senior thesis at the pilot treatment wetland by Miles Daniels documented that if just 0.26% of the watershed were converted to treatment wetland, the reductions in nitrate would be enough to obtain water quality objectives and removed the drainage from the 303d list. Phosphate and suspended sediment loads would improve as well. These studies have led CCWG to set an interim target of 13.5 acres of constructed treatment wetland in the project area, necessary to achieve initial pollutant load reduction objectives (see the draft summary of results at the Molera Road treatment wetland, attached as an appendix). The total target for the project is 20 acres of easement; in addition to 13.5 acres for treatment wetlands, we also plan to have 3.5 acres for open space (which can come in a number of forms) and 3 acres for habitat restoration, more focused on providing wildlife habitat than improving water quality.

**Project Timing and Phasing**: The first phase of this program will fund efforts to address regulatory requirements, county local planning objectives, stakeholder needs, and food safety concerns through establishing a collaborative team (landowners, county and community representatives and the IRWMP partners) to complete the project design. Phase 2 funding will be sought to construct the preferred alternative design. Because this project aims to address multiple objectives of multiple stakeholders, the first phase of the project (funded through this grant application) will support the necessary coordination between scientists, landowners, the County, the Central Coast RWQCB, and the public to fully outline the scope of the project and define a final design that meet the needs of all partners. This partnership approach was recognized in the Reclamation Ditch Watershed Assessment and Management Strategy (2005) as a critical phase in project development and construction.



**PROJECT SITE MAP:** "Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville"

# II. TASKS

TASK 5: Water Quality Enhancement of the Tembladero Slough and Public Access for the Community of Castroville

## **Task 5.1: Project Administration**

**Task 5.1.a: General Administration:** CCWG will conduct all general grant administration tasks throughout the duration of the project period.

# Task 5.1.b: Labor Compliance Program: N/A.

**Task 5.1.c: Reporting:** The project proponent will write and submit quarterly and annual reports to the lead applicant.

**Status:** CCWG has successfully administered similar grants in the past, the infrastructure is in place. First report will be due September 1, 2011.

Deliverables: Preparation of invoices as required. Submission of quarterly and final reports.

#### Task 5.2: Planning/Design/Engineering/Environmental Documentation

For this phase of the project, the majority of the work will fall into this task. The goal is to turn the dialogue that has taken place over the past decade into planned and permitted projects which can be started during Phase 2 of the project. This phase integrates the science of restoration with the regulations faced by farmers, development issues faced by the County, and the need of the public for access to open space.

#### Task 5.2.a: Assessment and Evaluation

**Task 5.2.a.1: Assessment - Compiling Data and TAC Development**: The first item to complete when funding is granted is gathering of all the data that has been collected in the project area. This includes any information on water quality, flora and fauna, BMPs already in place, groundwater monitoring and anything else that may be useful in making informed decisions about the project. Potential TAC members will be contacted and the data distributed to them. Once the final TAC is formed, there will be two meetings held per year. This task includes establishing the TAC and obtaining stakeholder input to address key technical questions and potential watershed conflicts as previously identified in partnership with the IRWMP process.

**Status:** CCWG knows the sources of the necessary data and has a preliminary list of potential task members.

**Deliverables:** A compiled list of all relevant data sources and a summary of the types of data gathered. A packet with all this information will be provided to each TAC member. List of members and meeting minutes from each of the four TAC meetings.

**Task 5.2.a.2: Watershed Coordination and Site Evaluation**: Watershed coordination will be the key to successful completion of this phase of the project which will lead to successful implementation in Phase 2. The task involves ongoing meeting and coordination with both the Monterey County Water Resources Agency and the Monterey County Redevelopment Agency to promote integration of Tembladero and Castroville slough restoration and water quality enhancement in all future re-development programs in the project area. CCWG will work with regulatory agencies, including the Central Coast RWQCB, to gain agreement that lower drainage enhancements can be part of a watershed approach to agricultural permitting.

In every way possible CCWG will work with FDA representatives and researchers to address the food safety issues. This will include efforts to lessen the regulations on artichokes so they
are not designated a "leafy green" and treated as such. It could also include designing a buffer that includes a fence along any planned public access trails. The ultimate goal of this work will be to eventually have key food buyers agree to some guidelines that accommodate plants and habitat.

In terms of identifying sites for Phase 2 implementation, we will focus on areas of high pollutant inputs where restoration and urban and agricultural water quality BMPs can be built. CCWG will work with affected and adjacent agricultural landowners and operators, Monterey County, RCD, and Big Sur Land Trust to gain access and support for these BMPs and to preliminary site-specific plans. CCWG will work with the Monterey County Water Resources Agency to ensure that restoration goals do not conflict with (but rather benefit) flood control needs. No projects will be planned without complete support from all potentially affected parties.

CCWG will work towards agreement from the RWQCB and the Coastal Commission that these wetland treatment areas should not be regulated as wetlands once created but as water treatment areas to allow for maintenance, redesign, and limited liability for the adjacent landowners. We will also coordinate with the Monterey County Redevelopment Agency and the RWQCB to integrate projects of this type into land use planning, the Basin Plan, and TMDLs.

**Status:** CCWG has a number of sites in mind and has had some preliminary talks with landowners. CCWG has also obtained comments from the Friends of the Tembladero about the Castroville Redevelopment, which include suggestions for improvement.

**Deliverables:** List of priority areas for planning wetland enhancement projects in the Castroville Redevelopment area incorporating comments from the Coastal Commission on the LCP. Draft plans for wetland, habitat, and open space enhancements in the Project Area (for Phase 2) that have support of agencies and landowners. List of 20 acres; work with partners to identify key habitat areas habitat conservation areas; letters of commitment from landowners whether public or private; comments back on scoping plans from Monterey County Water Resources Agency staff.

**Task 5.2.a.3: Community Outreach:** Community outreach will be an ongoing process throughout all phases of the project, since community participation and excitement about the project will ensure its long-term success. CCWG and partners will work with the community of Castroville and surrounding landowners to develop the various components of the proposed project (public access, priorities, security). For example, CCWG will work with the community to design areas of open space for public recreation and to identify new opportunities for safe and enjoyable public access along parts of the slough. CCWG will also work with the community to better integrate natural resources into the overall redevelopment of Castroville. Public meetings and translations of important documents will be a key part of this task to increase public appreciation for local wetlands.

Education for all ages is an important component of this outreach. CCWG and partners will work with the schools, particularly the elementary school in Castroville, to hold a planting day to teach students about the value of native plants. A large component of Phase 2, as well as several other programs and projects in Castroville, is implementing the Monterey Bay National Marine Sanctuary's "Multicultural Education for Resource Issues Threatening Oceans" (MERITO) program in the community of Castroville. The MERITO program provides ocean and watershed education for English as a Second Language (ESL) participants. Phase 1 of the project is intended to fund preliminary scoping (contact potential partners), prepare needs assessment data collection instruments, conduct needs assessment data collection, analyze data

and prepare final report. Once this is completed, further funding either through Phase 2 of this project or through a different means will allow for the MERITO program to begin.

**Status:** The MERITO program is already established elsewhere and ready to begin work. Several of CCWG's partners are community outreach groups specializing in Spanish-speaking communities, and they have provided advice and have offered assistance.

**Deliverables:** Bilingual displays and outreach material. Meetings with community participation. Integration of community concerns and desires into planning and project recommendations and design. Successful collaboration with the elementary school with one planting day. Report from the MERITO program about their scoping results.

**Task 5.2.b: Final Design:** Moving from 10% (Conceptual) Design to 90% (Pre-final) Design. The design plans will be drawn up by a qualified engineering firm based on the designs created by the TAC and CCWG. Tasks include surveying and CAD for base topography, design drawings and technical specifications, a table of quantities of cut and fill materials, and a table of cost estimates for project implementation.

**Status:** Some very preliminary ideas have been drawn, but nothing specific can be done until the site locations are finalized.

**Deliverables:** Designs for all the sites finalized and submitted with permit applications to permitting agencies (target = 20 acres: 13.5 acres designed for water treatment, 3.5 as open space, and 3 for habitat restoration).

## Task 5.2.c: Environmental Documentation

Status: No environmental documentation has been started.

**Deliverable:** Submission of CEQA document to lead agency. Expected outcome is a Negative Declaration.

**Task 5.2.d: Permitting:** The following permits and other documentation could be required and must be budgeted for: CCC Development Permit, Monterey County Grading Permit, Corps 404 Permit, Biological Resources Assessment, Biological Assessment, Wetland Delineation, RWQCB 401 Certification, CDFG LSAA, Cultural Resources Records Search.

Status: Environmental documentation has not yet been initiated.

**Deliverable:** Determination of necessary documentation and permits and submission to applicable agencies.

**Permits and Environmental Compliance:** The permits and additional documentation necessary for Phase 2 will be determined by the engineering plans and calculations, as well as the exact location and nature of the work. Acquisition of the permits will begin as soon as all the necessary documents are complete. Possible requirements include: CCC Coastal Development Permit, Monterey County Grading Permit, Corps 404 Permit, Biological Resources Assessment, Biological Assessment, Wetland Delineation, RWQCB 401 Certification, CDFG LSAA, Cultural Resources Records Search. In addition CEQA will be required but has not yet been started. A Negative Declaration is expected.

**Plans and Specifications:** Concept plans designed by the Friends of the Tembladero and Moss Landing Marine Labs several years ago are attached as appendices. These plans are in the concept phase and will be used as guidance for further development.

**Materials, Methods, and Standards:** The 2005 Watershed Management Strategy clearly identifies the critical step of building a collaborative stakeholder process for the design of this project. For this reason, the project will be split into two manageable phases. During the proposed Phase 1 project, CCWG will

enlist the help of local hydrologists, flood control representatives, community representatives and farmers to develop a TAC, which will be tasked with helping CCWG develop a preferred project design. Once specific parcels are identified for inclusion in the project and landowner agreement is attained, the TAC will help CCWG delineate the appropriate layout of various restoration features including treatment wetlands, open space/flood control areas, areas for habitat enhancement. All parties will have a place at the table as these design elements are determined, helping to ensure success.

CCWG will utilize the multiple demonstration projects completed within the watershed over the past decade to enable the TAC to integrate substantive design elements into the final concept design for the lower drainage. Most stakeholders support the project in concept but will not agree to a design that does not address their concerns. The TAC forum will enable all concerns to be voiced and addressed in a respectful forum. All TAC members will take field trips to numerous demonstration sites as well as to the project area. The success of the Molera Road Treatment project (see attachment) will be highlighted regarding water quality enhancement, and presentations to the TAC on the success of the Natividad Creek Park restoration project in the upper Gabilan Watershed will provide a framework for integrating public access and recreation into the design. The multiple benefits of these projects will be highlighted to all TAC members prior to initial discussions regarding the design of the Lower Gabilan Project.

Once the TAC has agreed to the general design elements, an experienced local hydrologic engineering firm will be hired to draw the final designs and provide the necessary flow calculations. No building materials will be required in this phase of the project. The construction in the second phase will include dirt moving, hydrologic modifications, flood and erosion control elements and the construction of the recreation path.

Acquisition of Land or Rights-of-Way and Landowner Agreements: Conservation and public access easements will be obtained within the second phase of this project. Phase 1 of the project will ensure that adjacent landowners are provided with the necessary assurances that the final project design will provide for the necessary protection of their adjacent properties. CCWG and its partners have acquired numerous parcels for restoration and conservation adjacent to working farms in the past, and have discussed this project with many local landowners. CCWG will explore numerous options for the best locations of easements, including the possibility of a linear easement along the degraded waterways, which has not yet been attempted. This grant will support the creation of project design elements and mitigation measures that will address adjacent farmer concerns prior to securing any properties for restoration.

**Performance Measures and Monitoring Plans:** Performance measures for this project will be the timeliness and successful completion of the deliverables for each of the tasks listed below. For Phase 2, additional performance measures including improvements in water quality, habitat, and public access will also be used. CCWG has developed a number of the state-adopted environmental assessment protocols and wetland monitoring strategies that will be used in Phase 2.

**Deliverables:** Quarterly reports will be provided to DWR starting on September 1, 2011 stating the progress that CCWG has made on the task deliverables. A final report will be provided to DWR at the end of the two-year project timeline outlining everything that was achieved, providing copies of finalized plans and the status of permits, and detailing next steps. CCWG will use the knowledge and experience of the TAC members to define the monitoring objectives, parameters and procedures for construction, lab analysis, classification, etc. to quantify successful implementation of Phase 2 activities.

Attachment Title	Contents
	Reclamation Ditch Watershed Assessment and Management Strategy -
	Part A Watershed Assessment, 2005, Central Coast Watershed Studies
ATT3_IG1_WorkPlan_37of46	(CCoWS), California State University Monterey Bay
	Reclamation Ditch Watershed Assessment and Management Strategy -
	Part B Management Strategy, 2005, Central Coast Watershed Studies
ATT3_IG1_WorkPlan_38of46	(CCoWS), California State University Monterey Bay
ATT3_IG1_WorkPlan_39of46	Castroville Community Plan (2007)
	Concept proposal submitted by Friends of the Tembladero, which
ATT3_IG1_WorkPlan_40of46	inspired much of the idea behind this application
	Cross section and close-up map made by Moss Landing Marine Labs
	and Friends of the Tembladero for one particular parcel as a response
ATT3_IG1_WorkPlan_41of46	to highway expansion.
ATT3_IG1_WorkPlan_42of46	Draft summary of the results at the Molera Road treatment wetland
ATT3_IG1_WorkPlan_43of46	Northern Salinas Valley Watershed Restoration Plan (1997)
ATT3_IG1_WorkPlan_44of46	Central Coast Regional Toxic Hot Spot Cleanup Plan (1997)

Appendices: The following supporting materials are attached as appendices (8 appendices in total):

# TASK 6: Watershed Approach to Water Quality Solutions

# I. INTRODUCTION

**Implementing Agency:** Monterey Bay National Marine Sanctuary, Central Coast Wetlands Group at Moss Landing Marine Labs, and the Resource Conservation District (RCD) of Monterey County

Project Title: Watershed Approach to Water Quality Solutions

**Project Goals and Objectives:** The goal of this project is to measure improved water quality conditions in Santa Rita Creek and begin to restore native habitat and proper function of the creek. The objectives of this project include a combination of three efforts:

- 1. The Resource Conservation District (RCD) of Monterey County will provide technical assistance to growers and ranchers within the watershed. They will do this by leveraging existing funding programs for irrigation nutrient management and manure management to reduce the amount of water, fertilizers, and bacteria flowing from farms and small ranchettes. There are currently no funding resources that address erosion from farms, so that will be a priority for the RCD.
- 2. The second objective will be removal of non-native plants and re-vegetation along two stretches of Santa Rita Creek by the Central Coast Wetlands Group (CCWG). The sites that were chosen have willing landowners and are in public areas that will provide visible results and that will encourage the community to appreciate their natural surroundings. There will be plenty of opportunity for community involvement through trash and weed removal, native planting, and water quality monitoring.
- **3.** The Monterey Bay National Marine Sanctuary (MBNMS) will be the lead for the third objective, which is to be able to demonstrate measureable improvements to water quality. Through water quality monitoring and accepted agricultural practice effectiveness modeling, we hope to demonstrate that the practices that are implemented will reduce the amount of contaminants in the creek, thereby meeting the water quality objectives and ultimately delisting Santa Rita Creek as an impaired waterbody.

**Purpose and Need:** Santa Rita Creek has seven listings on the Central Coast RWQCB's 303d list that include nutrients, pesticides, sediment, and bacteria. The creek flows into the Salinas Reclamation Ditch and Tembladero Slough which are considered the most polluted waterbodies on the Central Coast. It is very difficult to demonstrate measurable improvements in water quality that are due to implementation of best management practices. The 303d list continues to grow while it is rare to see waterbodies removed from this list.

Using the model developed by the US EPA Measure W watersheds, the goal of this project is to focus on a 12-digit HUC and all the management practices implemented to improve water quality within that drainage, and to demonstrate measureable improvements. The Santa Rita Creek Watershed provides an optimal demonstration watershed because of the extremely poor condition it is in and the multiple reasons for its impairment. This small watershed is impaired due to agriculture, small ranchettes, and urbanization. There are 18 months of water quality data on this creek that can be used as a baseline. Monitoring will be conducted throughout the project period and strategically located to quantify changes due to practice implementation. Tools will be developed to quantify load reductions. If we can demonstrate measureable improvements to water quality at this sub-watershed scale we will be able to make better management decisions to effectively and efficiently improve water quality and ecosystem health throughout the region. **Project Description:** A holistic watershed approach will target outreach to growers and rural land managers as well as residents and commercial properties within this drainage to implement source control measures. The RCD of Monterey County will provide technical assistance to strawberry growers (a dominant source of water quality impairments) since there are currently no local conservation-support programs focused on their unique issues. We will leverage existing funding for irrigation and nutrient management (INM) provided through the Agricultural Water Enhancement Program (AWEP) – a new pool of federal cost share funding available to growers in the region specifically for INM. We will also leverage funding for outreach and implementation of rangeland, pasture, and manure management practices provided by the Livestock and Lands program.

Complementing the upstream efforts, this project will also implement two creek restoration projects, one at Ferrasci Little League Park (landowner approved) and one on Santa Rita School District property (landowner approved) totaling 0.25 stream miles. The restoration will reduce erosion, establish habitat, and provide an aesthetically pleasing area for the community to enjoy. As demonstrated in previous efforts (Natividad Creek Park), this project will promote community awareness, integrate restored creek habitat into a community park, and instill a sense of ownership over their adjacent creek.

Lastly, partners will establish methods to track all efforts within the watershed, even those outside of this grant, to map and quantify BMPs and link those efforts to all of the water quality monitoring being conducted within the drainage. Monitoring will be coordinated with regional efforts (CEDEN, CCAMP, SAM) so that measurable results will be possible and will be of value for TMDL implementation.

**Completed Work:** An 18-month monitoring program identified severe water quality impairments to Santa Rita Creek for nutrients and fecal indicator bacteria (see Existing Data and Studies). The practices and programs being recommended have been tested and implemented in other watersheds on the Central Coast and have demonstrated successful outcomes. They include the Irrigation Efficiency program in Santa Clara County, Livestock and Lands program implemented in Santa Cruz County and other sediment management practices implemented throughout the Central Coast watersheds. Several stakeholder meetings have been organized by the CCWG in coordination with the MBNMS Water Quality Protection Program. We have landowner support for restoration on two reaches of Santa Rita Creek. One is owned by the Boys Stadium of Salinas and the other by the Santa Rita School District (see letters of support in Attachment 1). There is also support from the Central Coast Regional Water Quality Control Board, City of Salinas, Monterey County, and the Santa Rita School District for this holistic approach to improving water quality and the health of Santa Rita Creek.

**Existing Data and Studies:** Santa Rita Creek was monitored on a monthly basis for 18 months beginning in August 2005. Conclusions from that monitoring indicated that urban streams in Salinas are severely impacted for multiple reasons. The creeks upstream of the City limits flow through intensely farmed agricultural areas. The stream channels within the City have all been modified because of urban build-out and for flood protection. Most residents encountered during the monitoring program said that the streams are used as dumping grounds for appliances, trash, and illicit activities. The potential for important habitat and recreational enjoyment seemed to be recognized only by our partners and volunteers.

Based on observations in the Santa Rita drainage, implementation of best management practices and restoration is crucial to revive the urban stream. Thousands of water snails and worms appeared to comprise the limited diversity of invertebrates observed throughout the drainage. There was significant algal growth, which was visible and substantiated through the anoxic and supersaturated dissolved oxygen conditions.

The two obvious impacts from agriculture within and upstream of the City limits are sediment, which carries with it pollutants, and high concentrations of nitrate. Santa Rita Creek had the highest recorded

nitrate concentration of 440 mg-N/L and exceeded the CCAMP attention level for orthophosphate approximately 80% of the time. Trash seemed to be the main pollutant from urban areas.

Future recommendations from the monitoring program included:

- The need for an education campaign for City residents to appreciate the natural beauty of urban streams, and to rally to make improvements in their neighborhoods.
- Continue efforts of the Agriculture Water Quality Alliance to provide technical assistance and implement best management practices in reducing pesticides, herbicides, nutrients and sediment flowing from local farms.
- Establish demonstration sites along creeks throughout the City to show residents the potential for improved riparian corridors, which can increase property values and reduce crime.
- Conduct outreach to growers in the Santa Rita drainage regarding BMPs for nutrient applications (see report attached).

**Project Timing and Phasing:** This project is ready to proceed. The technical assistance to the grower community and public outreach can begin immediately. Agricultural outreach will inform growers of services and cost share available to them through the Agriculture Watershed Enhancement Program (AWEP) and the Livestock and Lands program. Based on need, irrigation audits and some practices can be implemented without delay. Engineering/permitting/CEQA documentation will be funded by matching funds from the State Coastal Conservancy as part of the Integrated Watershed Restoration Program in Monterey County. That is scheduled to begin early 2011 and be completed by summer 2011. This project is not dependant on any other funding source or restrained by other programs. We have landowner approval to do restoration on two parcels adjacent to Santa Rita Creek totaling 0.25 stream miles.



PROJECT SITE MAP: Watershed Approach to Water Quality Solutions

# II. TASKS

## TASK 6: Watershed Approach to Water Quality Solutions

## **Task 6.1: Project Administration**

**Task 6.1.a: General Administration:** The project proponent will conduct all general grant administration tasks throughout the duration of the project period.

**Task 6.1.b: Labor Compliance Program:** The project proponent will conduct activities necessary to meet labor compliance requirements, and submit to the lead applicant.

**Task 6.1.c: Reporting:** The project proponent will write and submit quarterly and annual reports to the lead applicant.

Status: Ready to proceed.

**Deliverables:** Preparation of invoices as required and submission of quarterly and annual reports.

#### Task 6.2: Planning/Design/Engineering/Environmental Documentation

#### Task 6.2.a: Grower Assessment

Task 6.2.a.1: Identify local growers, crop types, and acreage.

**Task 6.2.a.2:** Provide growers with information regarding available resources such as INM, erosion control, and manure management practices.

Task 6.2.a.3: Determine the needs of local growers and willingness to participate.

Task 6.2.b: Engineering and Design of Creek Restoration: N/A, funded through IWRP.

Task 6.2.c: Environmental Documentation: N/A, funded through IWRP.

Task 6.2.d: Permitting: N/A, funded through IWRP.

**Task 6.2.e: Quality Assurance Project Plan:** State-approved QAPP for water quality monitoring program to ensure all data collected is SWAMP comparable and uploadable to a statewide database.

**Status:** Ready to proceed. The QAPP development will begin immediately in order to ensure it is approved prior to the commencement of any monitoring. There has already been a considerable amount of interaction with growers in the region, so the assessment will begin immediately.

**Deliverables:** Task 6.2.a: Report details regarding crop type, acreage, grower needs, and level of participation. Task 6.2.e: State-approved QAPP.

## Task 6.3: Construction/Implementation

**Task 6.3.a: Grower Technical Assistance:** Conduct outreach and technical assistance for implementation of irrigation and nutrient management, manure management and erosion control in agricultural regions of the watershed. Work with growers to achieve implementation of recommended practices.

*Irrigation Management:* Through scheduled site visits, evaluate the irrigation system, taking into account elements such as the following:

- System efficiency: Assess locations of water loss (such as leaks), pressure losses and differences, emitter/sprinkler performance, and tailwater volume relative to volume of applied water;
- Irrigation system distribution uniformity (DU);

• Overall irrigation efficiency: Assess irrigation scheduling and application volumes relative to CIMIS-guided ideal timing and volumes given soil type and other field-specific variables.

*Nutrient Management:* Through scheduled site visits, evaluate nutrient management practices through means such as:

- Evaluate source water nutrient content, if it has not been measured by the irrigation advisor;
- Identify practices to capture residual soil fertilizer at the end of the crop-growing season and practices to prevent leaching during the rainy season (example: use cover crops, bacteriological living products, and natural vegetation);
- Determine crop nutrient requirements (to be used for nutrient budgeting, along with all sources supplying nutrients to the crop) and optimal timing for nutrient and fertilizer application by utilizing soil nitrate and phosphorus quick tests, or other methods;
- Calculate the Nitrate Pollution Hazard Index;
- Evaluate potential for off-site movement of nutrient fertilizers and other fertilizer losses (timing and location);
- Identify any related field issues that contribute to the potential for discharging nutrients and fertilizer to surface water (e.g., lack of impermeable layers in fertilizer storage facilities, lack of appropriate back-flow prevention devices).

*Rangeland, Pasture, and Manure Management:* Implement practices provided by the Livestock and Lands program as appropriate for improved water quality management on non-irrigated livestock and rangelands. This includes: pasture, paddock and stall drainage improvements; off-stream water source improvement; riparian pasture management; improved manure storage and composting structure improvements such as manure bunkers and roofing; pasture and field road vegetation improvements; filter strips and bioswales for concentrated drainage/runoff areas; and roof rainwater diversion or capture.

Soil and Water Management on Hillside Berry Farms and Other Highly Erodible Lands: As many area berry growers on small acreages speak Spanish as a first language, a high percentage of this assistance will be provided in Spanish as needed. Based on site assessments conducted with the grower and Natural Resources Conservation Service (NRCS) engineering field staff, we will provide recommendations, up to 50% cost-share assistance, implementation oversight and verification of benefits for practices such as: row arrangement for strawberry growers farming on sloped ground (site specific recommendations on the direction and slope beds should be listed to reduce soil erosion); furrow cover crops to establish selected grass varieties in the strawberry furrows and caneberry row middles to increase infiltration, reduce sediment loss, and suppress weed pressure; and grassed farm roads to reduce soil loss on sloped ground. Key engineered practices for which the program will guide cooperators to NRCS technical and financial support programs will include water and sediment control basins, gully stabilization, and underground outlets to improve management of winter storm runoff on already damaged or uniquely challenging sites.

**Task 6.3.a.1: Agriculture Community Outreach:** Develop an outreach strategy that will include strategies to coordinate with a broad spectrum of the agricultural community and industry (e.g., local growers, strawberry commission, farm bureau, agricultural commissioner) to ensure that the program implementation will yield maximum water quality improvement.

**Task 6.3.a.2: Agriculture Community On-farm Meetings:** Hold at least two on-farm demonstration field meetings each year of the project period for growers and rural residents to communicate soil and water conservation techniques for row crops, ranchettes, and hillside farms. These meetings will also serve as a means of soliciting grower participation and communicating cost-sharing and technical support availability through this and other programs (most notably EQIP and AWEP).

**Task 6.3.b: Santa Rita Creek Restoration:** Restoration will include widening of the channel to slow flow and improve habitat, and planting of sedges, native grasses and lupines along the banks to reduce erosion and increase uptake of pollutants. Two creek restoration projects will be implemented (totaling 0.25 miles of stream) at Ferrasci Little League Park and on Santa Rita School District property (both landowner approved).

**Task 6.3.b.1: Invasive removal:** The first step will be to clear access routes to both restoration sites. This will allow for the removal weeds and trash along flat surfaces adjacent to the creek. We will then move down into the creek channel to remove weeds and trash along the banks of the creek. Throughout the entire project period we will continue maintenance of weed and trash removal to prevent re-infestation and allow new plants to flourish.

**Task 6.3.b.2: Native Plant Propagation:** Seeds and cuttings of native plants included in the plant palette will be collected from as close to the project site as possible for native plant propagation. Plants will be propagated at CCWG greenhouses located around the Monterey Bay area by trained personnel.

**Task 6.3.b.3: Planting Natives and Ground Engineering:** Ground engineering will take place at the Ferrasci Little League Park prior to planting. The ground changes will include widening the stream to decrease erosional forces and to allow the stream to slow and drop out some of the sediment coming from upstream agriculture. Natives will be planted based on an agreed upon site plan, and maintenance and watering will occur as needed throughout the project period. The planting design will allow for enough space for a walking path so people can enjoy the newly restored area and the multiple benefits it provides.

**Task 6.3.b.4: Residential Community Outreach:** Involve the community in the water quality monitoring and restoration activities along the urbanized stretches of Santa Rita Creek to promote community awareness and instill a sense of ownership over their adjacent creek.

**Task 6.3.b.4.a: Bilingual Interpretive Signs:** Signs in both Spanish and English will inform the public about the restoration environmental enhancements that are taking place on this stream and in the watershed as a whole. This will give the public a great understanding of their place in the watershed and the role they can play in its stewardship.

**Task 6.3.b.4.b: Residential Community Meetings/Training:** Recruit community members to participate in restoration projects (i.e., weeding and planting) and in water quality monitoring.

**Task 6.3.b.4.c: Community Watershed Festival:** Annually coordinate a watershed festival promoting education of sustainable agricultural practices, healthy living, environmental protection and stewardship.

**Task 6.3.b.4.d: Multicultural Education:** Promote all activities and educational opportunities to the Latino community through Spanish translated promotional pieces and experiences.

**Status:** Ready to proceed. Grower technical assistance will begin as soon as the assessment is completed and the needs are identified. The restoration efforts on Santa Rita Creek will begin as soon as the permits and environmental documentation is completed. This is scheduled to be finalized prior to award of this grant. Community outreach will be ongoing through the duration of implementation efforts.

**Deliverables:** Task 6.3.a: Quarterly report detailing amount of tailwater and fertilizer use reduced, number of manure management practices implemented, number and type of erosion control projects, estimates of associated load reductions per project site, and acreages treated. Task 6.3.a.1: Outreach Strategy. Task 6.3.a.2: Summary of six on-farm field meetings. Task 6.3.b.4.a: Images of two interpretive signs. Task 6.3.b.4.b: Agendas/Sign-in sheet for

community meetings/trainings. Task 6.3.b.4.c: Flyers advertising watershed festival and estimated attendance. Task 6.3.b.4.d: Documentation of products and meetings translated.

## Task 6.4: Other

## Task 6.4.a: Monitoring and Tracking Effectiveness

**Task 6.4.a.1: Tracking System:** Develop methods to track all water quality improvement efforts within the watershed to map and quantify BMPs and link those efforts to all of the water quality monitoring being conducted within the drainage. Coordinate monitoring with statewide efforts (CEDEN, CCAMP, SAM) so that measurable results will be possible and will be of value for TMDL implementation.

**Task 6.4.a.2: Water Quality Monitoring:** Conduct water quality monitoring upstream and downstream of project areas for nutrients, indicator bacteria, and turbidity. Existing monitoring sites will be used initially so that comparison of pre-implementation will be possible. Monitoring sites will be added depending on location of BMP implementation so that changes to water quality can be measured.

**Task 6.4.a.3: CRAM Monitoring:** Additional tracking will include area and condition of stream restored using the California Rapid Assessment Method (CRAM). This entails selecting representative areas at each restoration location to assess condition. Four main attributes of condition are assessed: buffer and landscape, hydrology, physical structure and biotic structure. Assessments will be conducted prior to and just following when restoration activities take place.

**Task 6.4.a.4: Photo Monitoring:** Photo monitoring will be conducted at all restoration locations. Photo points will be selected that have good coverage of the area to be restored. Photos will be taken prior to, during, and upon completion of restoration activities.

**Status:** Ready to proceed. Monitoring will be conducted prior to and during implementation of practices and restoration.

**Deliverables:** Task 6.4.a.1: Digital spreadsheet of practice implementation with information necessary to quantify improvements. Task 6.4.a.2: Water quality results in a format uploadable to CEDEN. Task 6.4.a.3 and Task 6.4.a.4: Report detailing CRAM results including photo documentation.

**Permits and Environmental Compliance:** Permits and environmental compliance will be completed spring 2011, through funding provided by the State Coastal Conservancy.

**Plans and Specifications:** N/A

## Materials, Methods, and Standards: N/A

# Acquisition of Land or Rights-of-Way and Landowner Agreements: N/A

**Performance Measures and Monitoring Plans:** One unique advantage to this project that has been incorporated into its design is the previous water quality data collected on this creek and the knowledge available to identify where restoration activities seem most appropriate. Water quality monitoring conducted from 2005 to 2007 by the MBNMS will be used as a baseline for project implementation. Water quality monitoring will be conducted upstream and downstream of project areas for nutrients, bacteria, and turbidity. A State-approved QAPP exists for the monitoring on Santa Rita Creek, but will need to be updated for this project. SWAMP comparable methods will be utilized to measure basic water chemistry, nutrients, turbidity, and bacteria in order to measure reduction in concentrations of agriculture pollutants as a result of BMPs implemented in the project. The data will be uploaded to CEDEN so that

anyone interested in the data will have access to it. Results from the CRAM wetland condition assessments will be uploaded to the State wetland tracking database managed by the Central Coast Wetlands Group for the Central Coast region. This means that all the scientifically quantifiable outcomes of the project will be available online to any interested groups.

We anticipate that management practices implemented on agricultural land will reduce tailwater runoff, nutrient and bacteria loading, as well as sediment transport. In addition, streambank restoration and stabilization along stretches of Santa Rita Creek will reduce flooding concerns and minimize sediment transport flowing from the upper watershed representing 40% of the total stream length. Additional data tracking will include: area and condition of stream restored (using CRAM), amount of tailwater and fertilizer use reduced, number of manure management practices implemented, number and type of erosion control projects, estimates of associated load reductions per project site, and acreages treated.

A database will be used to track BMPs and water quality monitoring results building on existing efforts of the Central Coast Synthesis Analysis and Management (SAM) project at the MBNMS. This will standardize reporting so that proper statistical analysis will be possible, and all data will be SWAMP compatible. Existing monitoring sites will be used initially so that comparison of pre and post implementation will be possible. Monitoring sites will be added depending on location of BMP implementation so that changes to water quality can be measured.

The goal of this project is to take a watershed approach to improving water quality and be able to quantify the improvements. This is important for the TMDL process and will be a model approach to improving water quality in other watersheds. The success of the project will be quantified by: the number of cooperating growers and implementation projects, the condition and acreage of stream restoration on Santa Rita Creek, estimated load reductions, amount of community participation, and measureable improvements to water quality in Santa Rita Creek.

**Deliverables**: Deliverables will be submitted with quarterly and final reports (Task 6.1.c). They will include:

- Task 6.2.a: Report which details crop type, acreage, grower needs, and level of participation committed or anticipated for agriculture technical assistance in the Santa Rita Creek watershed.
- Task 6.2.e: State-approved QAPP for water quality monitoring on Santa Rita Creek.
- Task 6.3.a: Quarterly reports detailing amount of tailwater and fertilizer use reduced, number of
  manure management practices implemented, number and type of erosion control projects, estimates
  of associated load reductions per project site, and acreages treated.
- Task 6.3.a.1: Outreach Strategy, which will detail the process to communicate with growers in order to minimize impacts to water quality from on-farm practices.
- Task 6.3.a.2: Summary of six on-farm field meetings for growers and rural residents to communicate soil and water conservation techniques for row crops, ranchettes, and hillside farms.
- Task 6.3.b.4.a: Images of two interpretive signs, one at each restoration site highlighting the benefits of native plants in providing habitat, improved water quality, and community enjoyment.
- Task 6.3.b.4.b: Agendas/sign-in sheet for community meetings/trainings.
- Task 6.3.b.4.c: Flyers advertising three annual watershed festivals and estimated attendance at each.
- Task 6.3.b.4.d: Documentation of products and meetings translated into Spanish.
- Task 6.4.a.1: Digital spreadsheet of practice implementation with information necessary to quantify improvements.

- Task 6.4.a.2: Water quality results in a format uploadable to CEDEN and summary findings.
- Task 6.4.a.3 and Task 6.4.a.4: Report detailing CRAM results including photo documentation.

Appendices: The following supporting materials are attached as appendices (2 appendices in total):

Attachment Title	Contents
	Monterey Bay Sanctuary Citizen Watershed Monitoring Network
	Citizen Based Water Quality Monitoring Program Monitoring Report
	For Non-point Source Pollution Monitoring Fund Supplemental
ATT3_IG1_WorkPlan_45of46	Environmental Project, Grant # 20040676, June 2007.
	Quality Assurance Project Plan, Project Number 20040676, Clean
	Streams Program for Santa Rita Creek and Reclamation Ditch June 21,
ATT3_IG1_WorkPlan_46of46	2005.

**TASK 7:** UC Davis Granite Canyon Marine Pollution Studies Laboratory: Evaluation of Potential for Stormwater Toxicity Reduction by Low Impact Development (LID) Treatment Systems

# I. INTRODUCTION

Implementing Agency: University of California, Davis, Granite Canyon Marine Pollution Studies Laboratory

**Project Title:** Evaluation of Potential for Stormwater Toxicity Reduction by Low Impact Development (LID) Treatment Systems

**Project Goals and Objectives:** This project will evaluate the efficacy of Low Impact Development (LID) treatment systems in reducing the concentrations of contaminants that contribute to stormwater toxicity. Four sites in the City of Salinas will be sampled during storm events to determine toxic impacts to aquatic life from stormwater entering and leaving the treatment systems. Toxicity will be assessed using three aquatic species, following established U.S. EPA toxicity testing protocols. The study has the following objectives:

- 1) Assess toxic effects of stormwater runoff to aquatic organisms prior to treatment by bioswales.
- 2) Evaluate efficacy of bioswales to reduce stormwater runoff toxicity to aquatic organisms.
- 3) Determine presence and concentrations of toxic chemicals and other water quality constituents through chemical analysis.
- 4) Determine stormwater pollutant load reduction through established bioswales.
- 5) Provide data to stormwater agencies, water quality managers, LID engineers, and others to be incorporated into future planning and management decisions.

**Purpose and Need:** Nonpoint source pollution, in the form of urban runoff, can contain high levels of pesticides, nutrients, metals, suspended solids, and hydrocarbons. Cities and counties in California are now required to monitor dry-season and stormwater runoff as part of National Pollution Discharge Elimination System (NPDES) regulatory requirements. This monitoring has indicated there are widespread pollution and toxicity problems in freshwater habitats throughout California. These include acute toxicity to aquatic organisms, ecological impacts to invertebrate communities, adverse impacts on fish, and food web magnification in fish and wildlife (e.g., Holmes et al., 2008; Hunt et al., 2010; Davis et al., 2010).

In order to protect the beneficial uses of aquatic habitats, many cities are now mandating LID design principles in new urban developments under the NPDES permit. LID is a stormwater management strategy aimed at maintaining or restoring the natural hydrologic functions of a site by employing features that reduce the rate of runoff, filter pollutants, and facilitate the infiltration of water into the ground.

A number of larger developments in the City of Salinas have implemented LID practices such as bioswales, which act as the primary treatment and water capture system for runoff. Bioswales are vegetated drainage courses with sloped sides that trap sediments and treat contaminants. While research and site evaluations have established success in slowing and capturing water, settling sediments, and reducing nutrients in the runoff (http://www.bmpdatabase.org) there has been little research to date on the effectiveness of these bioswales in reducing toxicity to aquatic organisms. Previous studies in vegetated treatment systems for agricultural runoff (Hunt et al., 2008, Anderson et al., in press) have demonstrated success in reducing toxicity to aquatic invertebrates.

Despite the implementation of LID practices, stormwater toxicity in the City of Salinas has been reported in the Salinas Stormwater Management Plan Annual Report (2006-2007), with impacts on the freshwater invertebrate *Ceriodaphnia*, and the green algae *Selanastrum capricornutum*. Toxic stormwater has the potential to impact the Salinas River Watershed, which has high ecological value. The Salinas River runs through the City of Salinas, flows into an estuarine National Wildlife Reserve and drains to the Monterey Bay National Marine Sanctuary. This watershed provides essential habitat for threatened anadromous fish species, migratory birds, early life stages of commercial marine fish species, and other wildlife.

The Salinas Reclamation Ditch is another primary conveyance of city stormwater and agriculture runoff, and this system flows to Moss Landing Harbor and the Elkhorn Slough via the Tembladero Slough. Previous studies have demonstrated water and sediment toxicity in this system, and Moss Landing Harbor is listed as a degraded water body under Clean Water Act provisions due to pesticide contamination and toxicity. The study sites included in this project flow to the Salinas Reclamation Ditch and eventually the Tembladero Slough, via the Markeley Swamp and Carr Lake subwatersheds. The Reclamation Ditch, Moss Landing Harbor, and the Elkhorn Slough are all included on the Central Coast Regional Water Quality Control Board (RWQCB) 303(d) list of impaired water bodies due to water and sediment toxicity, pesticides, sedimentation, nitrates, and turbidity.

Information on the ability of urban bioswales and other treatment systems to reduce toxicity is an important component for evaluating impacts of regional urban stormwater runoff, and could be used to inform future decisions related to stormwater management and aquatic life protection.

**Project Description:** LID sites have been identified in the City of Salinas for an evaluation of the efficacy of urban bioswales in treating stormwater runoff. Stormwater samples will be collected at four LID sites (urban bioswales) during three storm events over a three-year period. First flush storm events will be targeted in order to capture stormwater runoff with the highest potential for pollutant loading. Sites have been selected to reflect different land-use types, including residential and commercial (home furnishings, home construction and nursery supplies, restaurants, and mixed-use) developments.

Water samples will be collected at rising, peak, and post-storm periods of the hydrograph and composited to adequately capture variability during the storm event. Composited samples will be collected pre-treatment (as runoff from the development, prior to entering the bioswale treatment systems), and post-treatment (as treated runoff after it has moved through the treatment systems). Samples will be collected following stormwater collection guidelines (EPA, 1992), including all applicable handling and sampling QA/QC procedures.

Acute toxicity tests will be conducted on all water sample composites using three EPA test protocols. Test organisms will include the freshwater cladoceran, *Ceriodaphnia dubia* (U.S. EPA, 2002), a freshwater amphipod, *Hyalella azteca* (U.S. EPA, 2002), and a larval freshwater minnow, *Pimephales promelas* (U.S. EPA, 2002). Acute (survival) endpoints will determine the magnitude of toxic effects resulting from exposure to the water sample. For all toxicity tests, laboratory water quality measurements will also include measures of nutrients (nitrates and phosphates), total suspended solids (TSS), and conventional water quality parameters (dissolved oxygen, pH, conductivity, hardness, and alkalinity). Tests will be conducted at the UC Davis Marine Pollution Studies Laboratory (UCD-MPSL) in Monterey County.

All water samples will be analyzed for a number of constituents that have been shown to contribute to receiving water degradation and aquatic toxicity in past studies. These include total suspended solids (TSS), metals, and hydrocarbons (PAHs). In addition, two classes of current use pesticides associated with urban watershed toxicity will be measured: pyrethroid pesticides and fiprinol (and fiprinol

degradates). Samples will be analyzed for organic contaminants using gas chromatography/mass spectrometry (GC/MS or NCI-GC/MS (pyrethroids) and for trace metals using inductively coupled plasma/mass spectrometry (ICP/MS).

A central objective of LID is runoff volume control, as reduction in runoff volume is presumed to reduce overall loading of contaminants. During each storm event, measurements will be made of the volume of water falling on the catchment area, the volume entering the treatment system, and the volume leaving the treatment system. Percent infiltration and contaminant loading will be calculated using these measurements in conjunction with engineering design specifications and analytical measurements. Engineering plans and design calculations will be reviewed to develop potential pollutant load reduction models for each site. Models will then be validated by comparing contaminant load reduction in three separate storm events for each bioswale. Water retention capacity and infiltration rates will be included as parameters of the model, and rainfall and storm hydrograph information will be evaluated for each bioswale assessment event.

**Completed Work**: Engineering designs and construction were completed on all four urban bioswales prior to initiation of this study. No new construction will occur under this project, and no environmental compliance documents are needed in order to begin work.

**Existing Data and Studies**: While research and site evaluations have established success in slowing and capturing water, settling sediments, and reducing nutrients and other chemicals in the runoff (e.g., David et al., 2010), there has been little research to date on the effectiveness of bioswales, rain gardens, and other LID practices in reducing toxicity to aquatic organisms. Previous studies in vegetated treatment systems for agricultural runoff (Hunt et al., 2008, Anderson et al., in press) have demonstrated success in reducing pesticide-associated toxicity to aquatic invertebrates.

Despite the increasing implementation of LID practices, stormwater toxicity in the City of Salinas has been reported in the Salinas Stormwater Management Plan Annual Report (2006-2007), with impacts on the freshwater invertebrate *Ceriodaphnia*, and the green algae *Selanastrum capricornutum*. Causes of this toxicity have not been identified. Toxic stormwater has the potential to impact the Salinas River Watershed, which has high ecological value.

Data from all tasks will be analyzed and compiled into an interpretive data report. Concentrations of contaminants determined through chemical analyses will be used to help develop loading and load reduction calculations. Chemical concentrations will be compared to aquatic toxicity thresholds (median lethal concentrations, LC50s) to determine potential ecosystem impacts from any contaminants found. The report will be disseminated to stormwater agencies, water quality managers, LID engineers, and other interested parties.

**Project Timing and Phasing**: This project is designed as a stand-alone project, in that the timing and phasing of project components do not depend upon the schedule of other projects. The main determining factor in the timing of this project is the occurrence of rainfall events that generate sufficient runoff for evaluation.

**PROJECT SITE MAP:** Evaluation of Potential for Stormwater Toxicity Reduction by Low Impact Development (LID) Treatment Systems



# II. TASKS

**TASK 7:** Evaluation of Potential for Stormwater Toxicity Reduction by Low Impact Development (LID) Treatment Systems

#### **Task 7.1: Project Administration**

**Task 7.1.a: General Administration:** The project proponent will conduct all general grant administration tasks throughout the duration of the project period.

**Task 7.1.b: Reporting:** The project proponent will write and submit quarterly and annual reports to the lead applicant.

Status: Not initiated.

Deliverables: Preparation of invoices as required. Submission of quarterly and annual reports.

#### Task 7.2: Planning/Design/Engineering/Environmental Documentation

Project planning is mostly complete, but further site evaluations and review of engineering plans will be required to finalize optimal sampling design and development of stormwater runoff and load reduction models.

**Task 7.2.a: Assessment and Evaluation:** Engineering plans for each bioswale will be further assessed in relation to local hydrologic parameters to determine optimal sampling design.

Status: Initial review of engineering designs complete.

**Deliverables:** Details of work completed under this planning task will be presented in the first quarterly report.

## Task 7.3: Construction/Implementation

Stormwater samples will be collected over a three-year period. Toxicity testing will be conducted and samples will be analyzed for chemical contaminants. Efficacy of treatment systems (bioswales) will be evaluated.

**Task 7.3.a: Collect Samples of Stormwater Runoff Pre and Post LID Treatment System:** Stormwater samples will be collected at four sites during three storm events over a three-year period. First flush storm events will be targeted in order to capture stormwater runoff with the highest potential for pollutant loading. Sites have been selected to reflect different land-use types, including residential and commercial (home furnishings, home construction and nursery supplies, restaurants, and mixed-use) developments. Water samples will be collected at rising, peak, and post-storm periods of the hydrograph and composited to adequately capture variability during the storm event. Composited samples will be collected pre-treatment (as runoff from the development, prior to entering the bioswale treatment systems), and post-treatment (as treated runoff after it has moved through the treatment systems). Samples will be collected following stormwater collection guidelines (EPA, 1992), including all applicable handling and sampling QA/QC procedures.

**Task 7.3.b: Conduct Toxicity Testing on all Composited Stormwater Samples with Three Aquatic Species:** Acute toxicity tests will be conducted on all water sample composites using three EPA test protocols. Test organisms will include the freshwater cladoceran, *Ceriodaphnia dubia* (U.S. EPA, 2002), a freshwater amphipod, *Hyalella azteca* (U.S. EPA, 2002), and a larval freshwater minnow, *Pimephales promelas* (U.S. EPA, 2002). Acute (survival) endpoints will determine the magnitude of toxic effects resulting from exposure to the water sample. For all toxicity tests, laboratory water quality measurements will also include measures of nutrients (nitrates and phosphates), total suspended solids (TSS), and conventional water quality parameters (dissolved oxygen, pH, conductivity, hardness, and alkalinity). Tests will be conducted at the UCD- MPSL laboratory in Monterey County.

**Task 7.3.c: Analyze Chemical Components of Water Samples:** All water samples will be analyzed for a number of constituents that have been shown to contribute to receiving water degradation and aquatic toxicity in past studies. These include total suspended solids (TSS), metals, and hydrocarbons (PAHs). In addition, two classes of current use pesticides associated with urban watershed toxicity will be measured: pyrethroid pesticides and fiprinol (and fiprinol degradates). Samples will be analyzed for organic contaminants using gas chromatography/mass spectrometry (GC/MS or NCI-GC/MS (pyrethroids) and for trace metals using inductively coupled plasma/mass spectrometry (ICP/MS).

**Task 7.3.d: Determine Stormwater Runoff, Infiltration Rates, and Load Reduction:** A central objective of LID is runoff volume control, as reduction in runoff volume is presumed to reduce overall loading of contaminants. During each storm event, measurements will be made of the volume of water falling on the catchment area, the volume entering the treatment system, and the volume leaving the treatment system. Percent infiltration and contaminant loading will be calculated using these measurements in conjunction with engineering design specifications and analytical measurements. Engineering plans and design calculations will be reviewed to develop potential pollutant load reduction models for each site. Models will then be validated by comparing contaminant load reduction in three separate storm events for each bioswale. Water retention capacity, and infiltration rates will be included as parameters of the model, and rainfall and storm hydrograph information will be evaluated for each bioswale assessment event.

**Task 7.3.e: Analyze Data and Develop Interpretive Data Report:** Data from all tasks will be analyzed and compiled into an interpretive data report. Concentrations of contaminants determined through chemical analyses will be used to help develop loading and load reduction calculations. Chemical concentrations will be compared to aquatic toxicity thresholds (median lethal concentrations, LC50s) to determine potential ecosystem impacts from any contaminants found. The report will be disseminated to stormwater agencies, water quality managers, LID engineers and other interested parties.

Status: None of these tasks have been initiated.

**Deliverables:** Task 7.3.a: Thirty-six samples will be collected for analyses. Task 7.3.b: Data from all toxicity test results documenting percent survival will be available in spreadsheet format. Task 7.3.c: All chemistry data will be analyzed and compiled into an interpretive data report. Raw data files will be available as an appendix in spreadsheet format. Task 7.3.d: Contaminant load reductions per storm event will be calculated for each site. Pollutant load calculation models will be developed as data spreadsheets to be used for each site during three storm events. Task 7.3.e: A Draft and Final Interpretive Data Report will be developed and distributed broadly at completion of the field work.

# Permits and Environmental Compliance: N/A

## Plans and Specifications: N/A

**Materials, Methods, and Standards**: No new construction will be completed as part of this project. The bulk of the project includes monitoring of stormwater events, and as such, performance methods are primarily linked to adherence to EPA sampling and testing guidelines referenced in this proposal. Acute toxicity tests will be conducted on all water sample composites using three EPA test protocols. Test organisms will include the freshwater cladoceran, *Ceriodaphnia dubia* (U.S. EPA, 2002), a freshwater amphipod, *Hyalella azteca* (U.S. EPA, 2002), and a larval freshwater minnow, *Pimephales promelas* (U.S. EPA, 2002). Samples will be analyzed for organic contaminants using gas chromatography/mass

spectrometry (GC/MS or NCI-GC/MS (pyrethroids) and for trace metals using inductively coupled plasma/mass spectrometry (ICP/MS). Samples will be collected following stormwater collection guidelines (EPA, 1992), including all applicable handling and sampling QA/QC procedures.

## Acquisition of Land or Rights-of-Way and Landowner Agreements: N/A

**Performance Measures and Monitoring Plans:** No new construction will be completed as part of this project. The bulk of the project includes monitoring of stormwater events, and as such, performance measures are primarily linked to project completion and adherence to EPA sampling and testing guidelines referenced in this proposal.

**Deliverables**: Quarterly and Annual Reports will be developed. All toxicity test data, analytical chemistry data, and stormwater load reductions per storm event will be available as spreadsheets and in the draft and final interpretive data report.

## Attachments: N/A

## **References:**

Anderson, BS, Phillips, BM, Hunt, JW, Largay, B, Shihadeh, R, Berretti, M. In Press. Pesticide and toxicity reduction using an integrated vegetated treatment system. Environ Toxicol Chem.

David, N. 2009. Green infill for clean results. Technical Report. San Francisco Estuary Institute.

Holmes RW, Anderson BS, Phillips BM, Hunt JW, Crane DB, Mekebri A, Blondina G, Nguyen L, Connor V. 2008. Statewide Investigation of the Role of Pyrethroid Pesticides in Sediment Toxicity in California's Urban Waterways. *Environ Sci Technol*. 42(18): 7003-7009.

Hunt, JW, Anderson, BS, Phillips, BM, Tjeerdema, RS, Largay, B, Hanson, E, Beretti, M, Bern'A. 2008. Use of toxicity identification evaluations in determining the pesticide mitigation effectiveness of on-farm vegetated treatment systems. Environ Poll. 156: 348-358.

USEPA, 2002. Methods for measuring acute toxicity of effluents and receiving water to freshwater and marine organisms. EPA-821-R-02-021. Office of Research and Development, Washington, D.C.

# ATT4\_IG1\_Budget\_1of18 Budget

The Greater Monterey County RWMG is requesting a total of \$4,868,441 in Proposition 84 IRWM Implementation Grant funds to fund seven projects that will provide multiple water resource benefits for the region. The proposal includes \$1,560,310 in non-State matching funds, and the total proposal cost is \$6,428,751.

The following attachments provide cost and funding match information for each of the implementation projects included in this proposal. A "Table 7 Project Budget" and a "Budget Detail" table are provided for each project, beginning with Project 1. Two of the projects also provide budget narratives (these are also attached). Following the tables and budget narratives is a single Summary Budget (Table 8) outlining total costs for the proposal.

Note: The proposal as a whole provides a 24% non-State funding match. The proposal nonetheless meets the minimum 25% funding match requirement because two of the seven projects contained in the proposal are intended to address critical water resource needs of disadvantaged communities (DACs), and therefore are not required to meet the minimum 25% match. Nonetheless, one of the DAC projects provides more than the 25% funding match requirement (26% match), and the other DAC project provides 10% match. All of the other five projects contribute at least a 25% non-State funding match.

ATT4_IG1_Budget_1of18	Budget Introduction
ATT4_IG1_Budget_2of18	Project 1: Soledad Table 7
ATT4_IG1_Budget_3of18	Project 1: Soledad Budget Detail
ATT4_IG1_Budget_4of18	Project 2: Castroville Table 7
ATT4_IG1_Budget_5of18	Project 2: Castroville Budget Detail
ATT4_IG1_Budget_6of18	Project 3: San Jerardo Table 7
ATT4_IG1_Budget_7of18	Project 3: San Jerardo Budget Detail
ATT4_IG1_Budget_8of18	Project 4: Elkhorn Slough Table 7
ATT4_IG1_Budget_9of18	Project 4: Elkhorn Slough Budget Detail
ATT4_IG1_Budget_10of18	Project 5: CCWG Table 7
ATT4_IG1_Budget_11of18	Project 5: CCWG Budget Detail
ATT4_IG1_Budget_12of18	Project 5: CCWG Budget Narrative
ATT4_IG1_Budget_13of18	Project 6: MBNMS Table 7
ATT4_IG1_Budget_14of18	Project 6: MBNMS Budget Detail
ATT4_IG1_Budget_15of18	Project 6: MBNMS Budget Narrative
ATT4_IG1_Budget_16of18	Project 7: UC Davis Table 7
ATT4_IG1_Budget_17of18	Project 7: UC Davis Budget Detail
ATT4_IG1_Budget_18of18	Table 8: Summary Budget

This section includes the following attachments:

#### Table 7 - Project Budget

#### Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region

#### Project 1: Soledad Water Recycling/Reclamation Project

Implementing Agency: City of Soledad

		(a)	(b)	(c)	(d)	(e)
	Budget Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
(a)	Direct Project Administration Costs	\$35,000	\$40,000		\$75,000	47%
	Task 1.1.a: General Administration	\$30,000		1	\$30,000	
	Task 1.1.b: Labor Compliance Program	\$2,000			\$2,000	
	Task 1.1.c: Reporting	\$3,000			\$3,000	
(b)	Land Purchase/Easement					
(c)	Planning/Design/Engineering/ Environmental Documentation	\$190,000	\$140,000		\$330,000	58%
	Task 1.2.a: Assessment and Evaluation	\$20,000			\$20,000	
	Task 1.2.b: Feasibility Study	\$5,000	\$120,000		\$125,000	
	Task 1.2.c: Preliminary Conceptual Design	\$10,000	\$20,000		\$30,000	
	Task 1.2.d: Final Design	\$100,000			\$100,000	
	Task 1.2.e: Environmental Documentation	\$25,000	1		\$25,000	
	Task 1.2.f: Permitting	\$30,000		11	\$30,000	
(d)	Construction/Implementation	\$90,000	\$975,000		\$1,065,000	8%
	Task 1.3.a: Construction Contracting	\$5,000			\$5,000	
	Task 1.3.b: Construction:			1		
	Task 1.3.b.1: Engineering	\$60,000			\$60,000	
	Task 1.3.b.2: Mobilization and Site Preparation					
	Task 1.3.b.3: Project Construction	\$25,000	\$975,000		\$1,000,000	
	Task 1.3.b.4: Performance Testing and Demobilization					
(e)	Environmental Compliance/ Mitigation/Enhancement	\$15,000			\$15,000	100%
	Task 1.4: Environmental Compliance/Mitigation/Enhancement	\$15,000			\$15,000	
(f)	Construction Administration	\$20,000		1	\$20,000	100%
	Task 1.5: Construction Administration	\$20,000			\$20,000	
(g)	Other Costs			-		
(h)	Construction/Implementation Contingency	\$25,000	1		\$25,000	100%
(1)	Grand Total (Sum rows (a) through (h) for each column)	\$375,000	\$1,155,000		\$1,530,000	25%

"List sources of funding: Funding match will be provided by the City of Soledad.

				Bu	dget Det	ail								
	Proposal Ti	tle: Impler	nenting IR	WM Pr	ojects in	the Greate	er Monte	erey Co	unty Regio	'n				
		Project	1. Soleda	d Water	Recyclic	ng/Reclam	ation Dr	oiect						
		rioject	I. Joicua	u water	necyciii	ig/ neciam	ation ri	oject						
			Impler	nenting /	Agency: Ci	ty of Soleda	d							
		-												-
	Budget Cotenany	Deservation	Dissipling	Pate	Labor Cos	Tatalishar	Mate	rials and	Supplies	Halt Cost	Equipment	Total Cost	Other	TOTAL COSTS
	Budger Category	Percentage	Discipline	Rate	Hou	Iotal Labor	Cont	# OI	Iotal Cost	Unit Cost	# of Units	Iotal Cost	Other	
(a)	Direct Project Administration Costs	orcost	_		Hours	\$70,000	Lost	Units	\$5,000		-		items	\$75.000
177	Task 1.1 Project Administration costs based on proportional		Various	100	700	\$70,000	200	25	\$5,000	-				
	project percentage, with total project administration for		10000	-	1.000	et et en			10000					
	entire proposal limited to less than 5%						1							
(b)	Land Purchase/Easement													
(c)	Planning/Design/Engineering/Environmental					\$320,000			\$10,000	7				\$330,000
	Documentation													
	Task 1.2.a: Assessment and Evaluation		Various	100	200	\$20,000								
	Task 1.2.b: Feasibility Study		Various	150	800	\$120,000	5000	1	\$5,000					
	Task 1.2.c: Preliminary Conceptual Design		Various	150	200	\$30,000			1				-	
	Task 1.2.d: Final Design		Engrs	150	650	\$97,500	2500	1	\$2,500		1	2	_	1
	Task 1.2.e: Environmental Documentation		Various	150	150	\$22,500	2500	1	\$2,500	-	-	-	-	
	Task 1.2.f: Permitting		Various	100	300	\$30,000	1.5.2			_	-			
(d)	Construction/Implementation		-	_		\$665,000		-	\$300,000	-		\$100,000		\$1,065,000
	Task 1.3.a: Construction Contracting	-	Various	100	50	\$5,000	-	_						
	Task 1.3.b: Construction:	-			100					_			-	
	Task 1.3.b.1: Engineering	-	Engrs	150	400	\$60,000	-	_			-		_	
	Task 1.3.5.2: Mobilization and Site Preparation		Mathin	00	75.00	1000 000	200000	1	\$200.000	6100.000		6100.000		_
	Task 1.3.b.3: Project Construction		various	00	7500	5000,000	500000	+	5300,000	\$100,000	1	\$100,000		
(a)	Finisonmental Compliance / Mitigation /Enhancement	-	_			\$15,000	_				-			\$15,000
(e)	Task 1 4: Environmental		Various	150	100	\$15,000					-			923,000
	Compliance/Mitigation/Enhancement		Various	130	100	\$13,000					-			
(f)	Construction Administration					\$20,000				-				\$20,000
14	Task 1.5: Construction Administration	-	Various	100	200	\$20,000			1				_	
(g)	Other Costs	-								-		1	-	
(h)	Construction/Implementation Contingency		Various	100	250	\$25,000			V (	-				\$25,000
(i)	Grand Total						1							\$1,530,000

	Table 7 - Pr	oject Budget				
	Proposal Title: Implementing IRWM Proje Project 2: Castroville CSD	cts in the Great Well 2B Treat	ater Montere ment Project	y County Regi	on	
	Implementing Agency: Castron	ville Community	Services Distric	t.		
		(a)	(b)	(c)	(d)	(e)
	Budget Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
(a)	Direct Project Administration Costs	\$7,020			\$7,020	100%
	Task 2.1.a: General Administration	\$2,340			\$2,340	
	Task 2.1.b: Labor Compliance Program	\$2,340		1	\$2,340	
	Task 2.1.c: Reporting	\$2,340			\$2,340	
(b)	Land Purchase/Easement					
	N/A	1			1000	
(c)	Planning/Design/Engineering/Environmental Documentation	\$80,000		-	\$80,000	100%
	Task 2.2.a: Assessment and Evaluation	1.5	1	1		
	Task 2.2.b: Final Design	\$80,000			\$80,000	
	Task 2.2.c: Environmental Documentation					
_	Task 2.2.d; Permitting	1	1		· · · · · · · · · · · · · · · · · · ·	
(d)	Construction/Implementation	1	\$566,000		\$566,000	0%
	Task 2.3.a: Construction Contracting					
	Task 2.3.b: Construction:		Filmer 1			
	Task 2.3.b.1: Mobilization and Site Preparation	2	\$56,600		\$56,600	
	Task 2,3.b.2: Project Construction	2	\$452,800	1	\$452,800	
	Task 2.3.b.3: Performance Testing and Demobilization		\$56,600		\$56,600	
(e)	Environmental Compliance/ Mitigation/Enhancement					
(f)	Construction Administration	\$100,000			\$100,000	100%
	Task 2.5.a: Bid Phase Engineering Support	\$10,000		2	\$10,000	
	Task 2.5.b; Construction Phase Engineering Support	\$30,000	1	(	\$30,000	
	Task 2.5.c: Construction Inspection	\$60,000	J.		\$60,000	
(g)	Other Costs					
(h)	Construction/Implementation Contingency	\$15,000	\$15,000		\$30,000	50%
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$202,020	\$581,000	\$0	\$783,020	26%

\*List sources of funding: Funding for the local match will come from Castroville CSD rates and fees.

## **Budget Detail**

## Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region

#### Project 2: Castroville CSD Well 2B Treatment Project

## Implementing Agency: Castroville Community Services District

		-	-	Labor Cost		Mate	tials and S	upplies	-	Equipment			TOTAL
	Budget Category	Percentage	Rate	# of	Total	Unit	# of	Total	Unit Cost	# of Units	Total Cost	Other	COSTS
		of Cost	Constant I	Hours	Labor	Cost	Units	Cost				Items	
(a)	Direct Project Administration Costs		1		\$7,020		-				1	- Hellip	\$7,020
	Task 2.1 Project Administration costs based on 108 hours at	0.10%	65	108	\$7,020				-				
	\$65/hour. This is funding match, and it totals less than 1% of	1.000		1.1									
	total project cost												
(b)	Land Purchase/Easement			-	-	-				-			-
(c)	Planning/Design/Engineering/ Environmental	-		-	1							\$80,000	\$80,000
	Documentation											1 5 1 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	100100
	Task 2.2.a: Assessment and Evaluation			-		-							
	Task 2.2.b: Final Design: Contract w/AECOM (flat rate)		_	-	1							\$80,000	
	Task 2.2.c: Environmental Documentation		-										
	Task 2.2.d: Permitting (costs under construction		-			1							
	administration)												
(d)	Construction/Implementation										1	\$566,000	\$566,000
Cover-	Task 2.3.a: Construction Contracting (costs under												
	construction administration)					-						_	
	Task 2.3.b: Construction:			-	-	1000	-						
	Task 2.3.b.1: Mobilization and Site Preparation: 10% of											\$56,600	
	Engineer's Cost Estimate	_	_	_		_					_		
	Task 2.3.b.2: Project Construction: 80% of Engineer's Cost											\$452,800	
	Estimate			1	12	12.00	-	1	1	1		1.2	
	Task 2.3.b.3: Performance Testing and Demobilization: 10% of											\$56,600	
	Estimated Construction Cost	/									_		
(e)	Environmental Compliance/ Mitigation/Enhancement				1	L		1					
	N/A Inspection listed under Construction Administration			1									
(f)	Construction Administration			1	1000			1	-			\$100,000	\$100,000
	Task 2.5.a: Bid Phase Engineering Support estimated as 2% of											\$10,000	
	construction cost								-		_		
	Task 2.5.b: Construction Phase Engineering Support											\$30,000	
	estimated at 5% of construction cost			-	-	-			-		_		
	Task 2.5.c: Construction Inspection estiamted at 10% of				1							\$60,000	
	construction cost					_	-					-	
(g)	Other Costs				-	-			_			410.007	200.000
(h)	Construction/Implementation Contingency estimated at 5%											\$30,000	\$30,000
	of construction cost		_	-	-	-		-		-	-		6707.076
(1)	Grand lotal												\$783,020

#### Table 7 - Project Budget

# Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region

#### Project 3: San Jerardo Wastewater Project

Implementing Agency: San Jerardo Co-operative, Inc.

		(a)	(b)	(c)	(d)	(e)
	Budget Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
(a)	Direct Project Administration Costs		\$45,355		\$45,355	0%
	Task 3.1.a: General Administration		\$45,355	1		
(b)	Land Purchase/Easement			-		
(c)	Planning/Design/Engineering/Environmental Documentation	\$105,000	\$44,500		\$149,500	70%
	Task 3.2.a: Assessment and Evaluation		\$7,500			
	Task 3.2.b: Final Design	\$105,000	\$15,000			
	Task 3.2.c: Environmental Documentation		\$22,000			
(d)	Construction/Implementation		\$583,680		\$583,680	0%
	Task 3.3.b: Construction: Mobilization and Site Preparation, Project Construction, Performance Testing and Demobilization	1	\$583,680			
(e)	Environmental Compliance/ Mitigation/Enhancement					
(f)	Construction Administration		\$36,000	1	\$36,000	0%
	Task 3,5.a: Labor Standards Compliance Consultant		\$9,000			
	Task 3.5.b: Construction Coordinator/Manager		\$27,000	1		
(g)	Other Costs		\$69,000	1.	\$69,000	0%
	Task 3.6.a: Legal Sevices		\$5,000	1	11	
	Task 3.6.b: Permits and Fees		\$21,000	1		
	Task 3.6.c: Monitoring and Testing		\$6,000		-	
	Task 3.6.d: Other Studies - Consultant(s)		\$37,000	1		
(h)	Construction/Implementation Contingency		\$145,920		\$145,920	0%
	Task 3.7.c: Contingency Closeout		\$145,920			
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$105,000	\$924,455		\$1,029,455	10%

\*List sources of funding: Task 3.2: Engineers Without Borders Pro Bono Design & Construction Engineering; and Nilsen & Assocates Pro Bono Services Prior to December 2010.

				Project 3:	San Jera	ardo Was	tewater Proj	ject							
			In	plementing	Agency:	San Jeraro	lo Co-operativ	e, Inc.							
1			1			Labor Co	osts	Materia	its and Su	pplies		Equipme	nt		TOTAL COSTS
		Budget Category	Percentage of Cost	Discipline	Rate	# of Hours	Total Labor	Unit Cost	# of Units	Total Cost	Unit Cost	# of Units	Total Cost	Other Items	
	Task 3.1	: Direct Project Administration Costs		11.00			\$45,355				51			-	\$45,355
(a)	3.1.a	General Administration - Flat Fee, less than 1% of requested amount		Admin Consult			\$45,355								
	3.1.b	Labor Compliance Program - See 3.5.b for Cost	1.0	Consult	1		1			-	1	1		1.00	
	3.1.c	Reporting - Included in 3.1.a		Consult									· · · · · ·	-	
	Task 3.2	Planning/Design/Engineering/Environmental Documentation	1 -				\$149,500	1		1					5149,500
	3.2.a	Assessment and Evaluation - Flat Fee	d	Consult			\$7,500	(					· · · · · · · · · · · · · · · · · · ·	-	
(b)	3.2.b	Final Design - Flat Fee - Specialty Engineering - No charge Design Engin	1	Engineer			\$120,000	1 m						(	
	3.2.c	Environmental Documentation - Includes 3.4 Flat Fee	2 C	Biologist	1		\$22,000								
	3.2.d	Permitting - Fees included in 3.6.b	1				1						· · · · · · · · · · · · · · · · · · ·		
1.000	Task 3.3	: Construction/Implementation		1	-		\$583,680				1				\$\$83,680
(c)	3.3.a	Construction Contracting - Construction Engineering - No Charge	1	Engineer	-	-					10000	-	1		
(-)	3.3.b	Construction: Mobilization and Site Preparation, Project Construction, Perfomance Testing and Demobilization	I	Contractor			\$583,680	1	1			A	[		
	Task 3,4	Environmental Compliance/ Mitigation/Enhancement		1			1							-	-
	3.4.8	Bid Document Preparation - Fee included in 3.2.c		Biologist	-		1		-		1				
(d)	3.4.b	RFP -Fee included in 3.2.c	1.	Biologist	-			-							
	3.4.c	Compliance Coordination - Fee included in 3.2.c		Biologist		-	1								
	3.4.d	Prepeare and distribute reports - Fee included in 3.2.c		Biologist		1000			-	1			2		
	Task 3.5	: Construction Administration					\$36,000	1 1							\$36,000
(e)	3.5.a	Labor Standards Compliance Consultant - Flat Fee	1.1	Consult		1000	\$9,000				1			-	
	3.5.b	Construction Coordinator/Manager - Flat Fee	1	Consult			\$27,000	· · · · · · · · · · · · · · · · · · ·			1		A		
	Task 3.6	: Other Costs					\$42,000							527,000	\$69,000
	3.6.a	Legal Sevices -Flat Fee		DL		-	\$5,000		-		1		1		
(1)	3.6.b	Permits and Fees - Per Schedule	1		k	· · · · · · · · · · · · · · · · · · ·				1	s	· · · · · · · · · · · · · · · · · · ·		\$21,000	
-	3.6.c.	Monitoring and Testing - Per Schedule		Test Cons	1	1			-		1		1 mm	\$6,000	
	3.6.d	Other Studies - Consultant(s) - Flat Fee		Engineer			\$37,000				-	1			
	Task 3.7	: Construction/Implementation Contingency					\$145,920	1							\$145,920
1.01	3.7.a	Engineering Review at 100% plans - No Charge	1	Engineer			I contract the second	1							
(8)	3.7.b	Bid and change Order Reviews - Engineer No charge		Engineer	· · · · · ·	1	in the second	1			) — — — — — — — — — — — — — — — — — — —		1	-	
	3.7.c	Contingency Closeout - Included in Admin 3.1.a	1	Consult			\$145,920					100 C		Constant.	
(h)		Grand Total	1	1	1	-	\$1,002,455	15.000			1	-	1	\$27,000	\$1,029,455

	Table 7 - Pro	ject Budget				
	Proposal Title: Implementing IRWM Projec Project 4: Integrated Ecosystem Implementing Agency: Elk	ts in the Gre Restoration	ater Montere in Elkhorn Sl oundation	y County Regi ough	ion	
		(a)	(b)	(c)	(d)	(e)
	Budget Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
(a)	4.1 Direct Project Administration Costs		\$49,999		\$49,999	0%
	Task 4.1.a: General Administration		\$25,000	1	\$25,000	
	Task 4.1.b: Labor Compliance Program		\$8,333		\$8,333	
	Task 4.1.c: Reporting		\$16,666		\$16,666	
(b)	4.2 Land Purchase/Easement			1		
(c)	4.3 Planning/Design/Engineering/ Environmental Documentation	\$489,000	\$799,974	1	\$1,288,974	38%
	Task 4.3.a: Assessment and Evaluation	\$340,500	\$324,257		\$664,757	
	Task 4.3.b: 30% Design	\$69,000	\$120,000		\$189,000	
	Task 4.3.c: Planning and Community Engagement	\$27,000	\$162,592		\$189,592	
	Task 4.3.d: Environmental Documentation	\$47,500	\$126,392		\$173,892	
	Task 4.3.e: Permitting	\$5,000	\$66,733		\$71,733	
(d)	4.4 Construction/Implementation		\$122,938		\$122,938	0%
	Task 4.4.a: Construction Contracting		\$29,073	1	\$29,073	
	Task 4.4.b: Construction:					
	Task 4.4.b.1: Mobilization and Site Preparation	-	\$10,000		\$10,000	
	Task 4.4.b.2: Project Construction		\$70,000		\$70,000	
	Task 4.4.b.3: Performance Testing and Demobilization		\$13,864		\$13,864	
(e)	4.5 Environmental Compliance/ Mitigation/Enhancement		\$10,000	1	\$10,000	0%
	Task 4.5.a: Construction - Best Mananagement Practices		\$10,000	-	\$10,000	
(f)	4.6 Construction Administration		\$39,073	1	\$39,073	0%
	Task 4.6.a: Construction oversight		\$39,073		\$39,073	
(g)	4.7 Other Costs		\$3,000		\$3,000	0%
	Task 4.7.a: Legal advice		\$3,000	-	\$3,000	
(h)	4.8 Construction/Implementation Contingency		\$25,000		\$25,000	0%
(1)	Grand Total (Sum rows (a) through (b) for each column)	\$489.000	\$1.049.984	-	\$1,538,984	32%

\*List sources of funding: Sources of match include: US EPA, \$68,000 Wetland Program Development Grant, portion spent after September 30, 2008; NOAA, \$206,000, National Estuarine Research Reserve, Research, Stewardship and Coastal Program Grant, FY 08/09; NOAA, \$215,000, National Estuarine Research Reserve, Research, Stewardship and Coastal Program Grant, FY 09/10.

			Budget D	etail										
		Proposal	Title: Implementing IRWM Projects	in the Gr	eater Mo	onterey C	ounty Re	gion						
			Project 4: Integrated Ecosystem F Implementing Agency: Elkho	lestoratio	n in Elkh Foundatio	orn Slou	gh							
-		_		-	Labor Coals	_	Hater	internet Sur	anline	_	Equipment		-	TOTAL COST
	Budget Category	Percentage of Cost	Discipline	Rate	# of Hours	Total Labor	Unit Cost	= of Units	Total Cost	Unit Cost	# of Units	Total Cost	Other Items	TOTAL CUST
(a)	4.1 Direct Project Administration Costs			-	-	\$49,999		-	-			-		\$49,999
		<5% of	Direct Project Administration	5%		\$49,999			-	-				
	Task 1 Project Administration costs based on proportional	requested	and the second											
	project percentage	funds		-		<u></u>	l.	-	-		-			
(b)	4.2 Land Purchase/Easement	1	2	-										
(c)	4.3 Planning/Design/Engineering/ Environmental Documentation	1				\$769,974			\$20,000			510,000		\$799,974
	lask 4,3.a. Assessment and Evaluation		Technical Land	C 74 14	1671	6130 194		<u> </u>		-	-	-		
		-	Project Manager	\$ 84.03	346	\$79.073			-		-	-		-
			Contract 1 - Hydrology	5 04.05	340	\$20,000		-			-			
			Contract 2 - Water and sediment quality	-	-	\$80,000		-	-					
			Contract 3 - Topography/Surveys			\$10,000						-		-
			Contract 4 - GIS			\$10,000							1	
			Contract 5 - Wetlands and soils			\$20,000				1			1.	
		-	Contract 6 - Special status species, birds,	-		\$5,000						1 1		
			mammals, invertebrates	1										
		A	Materials and Supplies			1			\$20,000			i con it	1	
			Equipment	-							-	\$10,000		
	Task 4.3.b: (30% Design):										-			
		-	Contract 7- Engineering 30% design	-		\$120,000		-		-	-	-		
	Task 4.3.c Planning and Community Engagement:										-	-	1	
			Planning Lead	\$ 64.20	20/8	\$133,519		_		-	-	-		
	Tark & T. d. Englandmental Descentation		Project Manager	\$ 84.03	340	\$29,073			_					-
	lask 4.5.d. Environmental Documentation	-	Compliance Land	6 64 37	1295	675 310					-	-	1	
			Project Manager	5 84.03	346	579,510				-		-		
			Contract 8 - Agency/CEDA advice	2 04.43	340	\$10,000				-	-			
		97	Contract 9 - Archaeology	-		\$5,000		5		1				
			Contract 10 - Traffic			\$2,000		1		-				
	the second se	1	Contract 11 - Noise	1.000		\$5,000	· · · · ·	J		1	-		1	
	Task 4.3.e: Permitting	1		1		1		5						
		1	Compliance Lead	\$ 54.37	693	\$37,659			-	-			I	
		1	Project Manager	\$ 84.03	346	\$29,073			-			-		
(d)	4.4 Construction/Implementation	1				\$122,938		-		1	-	-		\$122,938
	Task 4.4.a: Construction Contracting	1		and the second		1								
			Project Manager	\$ 84.03	346	\$29,073				-	-	-	-	
	Task 4.4.D: Construction:		-			-				-		-		
	lask 4,4.0.1, mobilization and Demobilization		Contract 17 Staking			\$10,000				-	-			
	Task 4.4 b 7: Project Construction		Contract az - Stannig			210,000				-		-		
		1	Contract 13 - Establishment of native grasses		-	\$40,000		1						
			Contract 14 - Preparation for sediment			\$30,000				-				
	the second s		stockpile sites			1							· · · · ·	
	Task 4.4.b.3: Performance Testing and Demobilization	1	Technical Lead	\$ 74.14	187	\$13,864								
(e)	4.5 Environmental Compliance/ Mitigation/Enhancement					\$10,000								\$10,000
			Contract 15 - Construction BMPs	-		\$10,000			_	-	-		1	
(1)	4.6 Construction Administration	1		-		\$39,073		1						\$39,073
_		-	Project Manager	\$ 84.03	346	\$29,073	-	_	_	-			-	
			Contract 16 - Construction Administration			510,000								
(g)	4.7 Other Costs	1			-	\$3,000	Y	P				-	1	\$3,000
		-	Contract 17 - Legal			\$3,000		·	_	-	-	-	435.355	
(h)	4.8 Construction/Implementation Contingency					-		-					\$25,000	\$25,000
(1)	Grand Iotal						1		-	1	-			\$1,049,984

Crocker memory county region

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#### Table 7 - Project Budget

#### Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region

#### Project 5: Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

#### Implementing Agency: Central Coast Wetlands Group at Moss Landing Marine Labs

		(a)	(b)	(c)	(d)	(0)
	Budget Category         Direct Project Administration Costs         Task 5.1.a: General Administration         Task 5.1.b: Labor Compliance Program - N/A.         Task 5.1.c: Reporting         Land Purchase/Easement         Planning/Design/Engineering/ Environmental Documentation         Task 5.2.a: Assessment and Evaluation         Task 5.2.a.1: Assessment - Compiling data and TAC development         Task 5.2.a.2: Watershed Coordination and Site Evaluation         Task 5.2.a.3: Community Outreach         Task 5.2.b: Final Design - Move from 10% (Conceptual) Design 90% (Pre-final) Design         Task 5.2.c: Environmental Documentation (CEQA)	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
(a)	Direct Project Administration Costs	-	\$11,250		\$11,250	0%
	Task 5.1.a: General Administration		\$3,250		\$3,250	
	Task 5.1.c: Réporting	-	\$8,000		\$8,000	
(b)	Land Purchase/Easement		1			
(c)	Planning/Design/Engineering/ Environmental Documentation	\$145,440	\$425,090		\$570,530	25%
	Task 5.2.a: Assessment and Evaluation		\$198,305		\$198,305	
	Task 5.2.a.1: Assessment - Compiling data and TAC development		\$5,250	1	\$5,250	
	Task 5.2.a.2: Watershed Coordination and Site Evaluation	\$145,440	\$172,500	·	\$317,940	
	Task 5.2.a.3: Community Outreach		\$20,555		\$20,555	-
	Task 5.2.b: Final Design - Move from 10% (Conceptual) Design to 90% (Pre-final) Design		\$150,665		\$150,665	
	Task 5.2.c; Environmental Documentation (CEQA)		\$25,000	1	\$25,000	
	Task 5.2.d: Permitting		\$51,120		\$51,120	
(d	Construction/Implementation		1	1000000		
(e)	Environmental Compliance/ Mitigation/Enhancement					
(f)	Construction Administration		1			
(g)	Other Costs					
(h	Construction/Implementation Contingency					
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$145,440	\$436,340		\$581,780	25%

\*List sources of funding: Wetland restoration, enhancement and planning in the lower gabilan watershed. This project, using USEPA funding, provides resources to implement Phase II of the Moro Cojo Management and Enhancement Plan, provides resources for management and enhancement of restored areas of this coastal estuary necessary to meet good faith agreements with local farmers, and provides technical designs for Phase III implementation of projects within the lower Gabilan Watershed. Match: \$145, 440. Funding source: \$98,714 from USEPA West Coast Estuaries Program; \$46,726 from unrecovered F&A from the San Jose State University Research Foundation.

#### **Budget Detail**

#### Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region

#### Project 5: Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

Implementing Agency: Central Coast Wetlands Group at Moss Landing Marine Labs

Budget Category				Labor Cost			Wateriale and 5		ppies	1	Equipment	1		TOTAL
		Percentage	Discipline	Rate	# of Hours	Total Labor	Unit Cost	# of Units	Total Cost	Unit Cost	# of Units	Total Cost	Other Items	COSTS
1	the second se	of Cost			1000			-				1000		
(a)	Direct Project Administration Costs	2%		1	-	\$11,250			-			/		511,250
1	in the second	1.	Project	\$50	65	\$3,250					-	1		
	Task 5.1.a: Project Administration costs		Manager	1.000			-				-			
	Task 5.1.b: Labor Compliance Program - N/A			1									·	
1		1.1.1	Project	\$50	160	\$8,000		1	Y			11.0	-	
	Task 5.1.c: Reporting		Manager		10000									
(b)	Land Purchase/Easement			-		1		1		-		1		
(c)	Planning/Design/Engineering/Environmental		1 5	2		\$557,830			\$12,700					\$570,530
1.1	Documentation			)	_	and the second	-							
	Task 5.2 a Assessment and Evaluation					6242 745	-	-	-	-				
	Task 5.2.4. Assessment, Convolution data and 747					03431745		-	-	-	-	-		
	development					30,230								
	development.			61.0	10	22.000	-	-	-	-	-	-		
	compiling data		Project	550	40	52,000								
			Coordinator				-	-	-	-	-	-		-
	TAC development		Project	\$50	65	\$3,250	1		19					
		_	Coordinator						-		_			
	Task 5.2,a.2: Watershed Coordination and Site Evaluation		_			\$317,940	1				1	1	-	
				\$50	2250	\$112,500								
	County, Eoastal Commission and Regional Board coordination		Project	1.00		1.000								
	for development and agriculture in the project area		Coordinator			1				-	-			
	Site identification including landowner outreach and		Project	\$50	1200	\$60,000								
	integrated restoration designs.	the second second	Coordinator		10000	1	1.000							
	Wetland restoration, enhancement and planning in the lower		Project	\$45	3232	\$145,440		-			-			
	sabilan watershed		Manager				1							
	Tack 5.2 a 3: Community Outreach		intering at			530 555			-					
	Test States Community Obdeach	-	director?	home com		Ceno		-	-		-			
	Stanification		Condinator	tourist strutt		0000								
	Planting day		Coordinator	224	2.55	111 325		-	-		-	-		
	Castrowile distreach: 2-3 meetings to talk about what the	1.1.1.1	Contracting	250	125	\$11,250								
	vision is, couple of school activities, get community opinions,		for Outreach											
	translating			1.000	1			· · ·		-	_		-	
	the stand out of the stand of the		Contracting	\$35	243	\$8,505								
	MERITO: Program scoping and course outline		for Outreach					_	-	_	_			
	Task 5.2.0: Final Design: Moving from 10% (Conceptual)		Contracting			\$144,665			55,000					
	Design to SON (Pre-final) Design		for Design							-				
	Review existing documentation; site visits, meetings	-		5112	165	\$18,645								
	Surveying and Engineering Design based on six wetland			5113	1062	\$120,006								
	enhancement projects totalling twenty acres. Specific				1000	1 public of								
	deliverables to include: 1. Surveying and CAD for base													
	topography 2. Design drawings and technical specifications.												1 1	
	3 Table of guartities of cut and fill materials and 4 Table of												1 1	
	s. Table of quantities of cut and in materials, and 4, have of												1 1	
	cost escimates for project implementation		-	202				-	-		-	-		
	biological overlight & Project Management		-	291	94	20,014	Contraction of the local distribution of the		41.000		-	-		
	Supplies				-		varies	many	\$1.000	_	-	-		
	Employee Expenses	-			_		varies	mam	\$5,000	_	-	-	-	
	Task 5.2.c: Environmental Documentation		Contracting			\$25,000						_		
			for CEQA			-		-		_				
	CEQA	1		Lump Sum		\$25,000								1
									_		-			
	Task 5.2 d: Permitting		Contracting	1	-	544,420			\$6,700					the second s
			for											
			Permitting											
	Permitting oversite			598	312	\$10,920		-				-		
	COC Development Permit	-		\$97	36	\$1,500					-			
				\$96			Permit		\$800					
	Monterey County Stadios Remain			1.000	76	53 500	Eer		2000					
	Come A/Id Decourt	-		504	52	SEAM	140			-	-	-	-	
	Large way recom.	-	-	- Jarg-	32	22,000		-	-	-	-	-		
	The second se			Lump sum		Time								
	Biological Resources Assessment	_		1000	-	\$4,000	-	-	-	-	-	-	-	
	and the second of the second sec			Lump Sum	1	1 22 2 1								
	Biological Assessment			1.000	_	\$5.000		_	-	_	-	-		
	Wetland Delineation	-		\$97	62	\$6.000		-		5			1	
				\$97			Permit							1
	RWQCB 401 Certification				36	\$3,500	Fee		\$1,000					
				597			Permit							
	CDFG LSAA			1000	36	\$3,500	Fee		\$1,600					
				\$100.00			Permit							
	Cultural Resources Records Search	1.000		1.1.1.1.1.1.1	5	\$500	Fee		\$300	12 2 2 3				
	Excenses		-	-			Varies	many	\$3,000					
(d)	Construction/Implementation	-	-	-				- Control -	Tabling	-				
(0)	Environmental Constiance/ Mitiantion / Colona		-	-					-					
(0)	Construction Administration		-			-	0	-			-			
(m)	Construction Administration		-	-			-		-	-	-	-		
191	Construction Restructure Production						-	-				-		
100	Construction/Impsenientation Contingency	-	-	-		-	-	-	-	-	-			in a second
(0)	Grand total	1												5581,780

# **Budget Justification Narrative**

**Project 5:** Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

Implementing Agency: Central Coast Wetlands Group at Moss Landing Marine Labs

The staff of the Central Coast Wetlands Group (CCWG) has years of experience coordinating stakeholders and planning restoration in North Monterey County. The costs of the work are based on prevailing wages for the type of work, estimated time to complete the work, and fair market prices. CCWG through San Jose State Research Foundation will do the administration and coordinate much of the assessment and evaluation. Their wage rate of \$50 is typical for this type of work considering the amount of background knowledge and experience required to be successful. The Community Outreach and planting day will either be conducted by CCWG or subcontracted at the same rate. The MERITO program costs are based on a quote from the project coordinator.

The cost for design plans and permitting are from Ducks Unlimited, an organization with years of experience doing this same type of planning and permitting in Monterey County. Either they, or an equally qualified and affordable group will be hired to do this work based on the preliminary plans from the TAC.

## Match

CCWG is providing \$145, 440 in matching funds (25% of the total project cost). The source of matching funds is: \$98,714 from USEPA West Coast Estuaries Program; and \$46,726 from unrecovered Facilities & Administrative funds (F&A) from the San Jose State University Research Foundation.

#### Table 7 - Project Budget

#### Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region

#### **Project 6: Watershed Approach to Water Quality Solutions**

Implementing Agencies: Monterey Bay National Marine Sanctuary, Central Coast Watershed Studies, and RCD of Monterey County

		(a)	(b)	(c)	(d)	(e)	
	Budget Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match	
(a)	Direct Project Administration Costs	\$5,625	\$20,800		\$26,425	21%	
	Task 6.1.a: General Administration		\$5,760		\$5,760		
	Task 6.1.b: Labor Compliance Program		\$2,880		\$2,880		
	Task 6.1.c: Reporting	\$5,625	\$12,160		\$17,785		
(b)	Land Purchase/Easement						
(c)	Planning/Design/Engineering/Environmental Documentation	\$1,125	\$53,250		\$54,375	2%	
-	Task 6.2.a: Grower Assessment		\$50,000	-	\$50,000		
	Task 6.2.b: Engineering and Design of Creek Restoration						
	Task 6.2.c: Environmental Documentation						
	Task 6.2.d: Permitting	1			-		
	Task 6.2.e: Monitoring Plan/QAPP	\$1,125	\$3,250		\$4,375		
(d)	Construction/Implementation	\$143,000	\$314,932	1	\$457,932	31%	
	Task 6.3.a: Grower Technical Assistance	\$20,000	\$120,500		\$140,500		
	Task 6.3.a.1: Agriculture Community Outreach	\$40,000	\$28,600		\$68,600		
	Task 6.3.a.2: Agriculture Community On Farm Meetings	\$28,000	\$8,280		\$36,280		
	Task 6.3.b: Santa Rita Creek Restoration	\$55,000			\$55,000		
	Task 6.3.b.1: Invasive Removal and maintenance		\$11,025		\$11,025		
	Task 6.3.b.2: Native Plant Propagation	-	\$55,152	-	\$55,152		
	Task 6.3.b.3: Native Planting and channel modification		\$60,375		\$60,375		
	Tack 6.3 h 4: Recidential Community Outreach		A Solution		********		
	Task 6.3 h 4 a: Bilingual Interpretive signs		\$5,000		\$5,000		
	Tack 6.2 b.4 b: Posidontial Community Montings /Trainings		\$5,000		\$5,000		
	Tark 5.3.b.4 - Community Watershed Fortival		\$6,500		\$6,500		
	Task 6.3.b.4 d: Multicultural Education		000,000 \$13,000		\$13,000		
16)	Environmental Compliance/ Mitigation /Enhancement	-	440,000		713,000		
(f)	Construction Administration	-					
(g)	Other Costs	\$12,000	\$86,580	101	\$98,580	12%	
	Task 6.4.a: Monitoring and Practice Effectiveness		A10 844		481.844		
	Task 6.4.a.1: Tracking System	\$12,000	\$42,500		\$54,500		
	lask o.4.a.2: water Quality Monitoring/Lab analysis		\$36,720	_	\$30,720		
	Task 6.4.a.3: CRAM Monitoring		\$4,480		\$4,480	-	
(b)	Task 6.4.a.4: Photo monitoring		\$2,880		\$2,880		
(0)	Grand Total (Sum rows (a) through (h) for each column)	\$161,750	\$475,562		\$637,312	25%	

\*List sources of funding match: Funding match is from federal and local sources. Federal sources: from NOAA for MBNMS staff time (reporting and QAPP), Federal Earmark for Agricultural Technical Assistance/Outreach, and from Agricultural Watershed Enhancement Program (AWEP, Federal source through USDA) for Irrigation Nutrient Management program. From local sources: from PG&E settlement and from Moss Landing Power Plant fund in partnership with the Monterey County Agricultural Trust. Match is described in detail in the budget narrative.

#### **Budget Detail**

#### Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region

#### Project 6: Watershed Approach to Water Quality Solutions

#### Implementing Agencies: Monterey Bay National Marine Sanctuary, Central Coast Watershed Studies, and RCD of Monterey County

big         big<				Labor Costs				Materials and Supplies			Equipment			TOTAL	
(A)         First Papel Administration Costs         of 9 of requested amount         (a)         (b) of administration (MSP)         (b) of Administration (MSP)         (c)		Budget Category		Discipline	Rate	# of Hours	Total Labor	Unit Cost	4 of Units	Total Cost	Unit Cost	# of Units	Total Cost	Other Items	COSTS
Int 6.1.2. General Administration (MSP)         Administrative Manager         64         90         55.30         100	{a}	Direct Project Administration Costs	<5% of requested amount				\$20,800								\$20,800
Tark 6.15: Lisber (MBS7)         Administrative Maraget Tark 6.1: rkporting (MBS7)         Administrative Maraget Administrative Maraget Mara		Task 6.1.a: General Administration (MBSF)		Administrative Manager	64	90	\$5,760								
Tark & L. Reporting (MSF)         Administrative Marger         Administrative Marger         State		Task 6.1.b: Labor Compliance (MBSF)		Administrative Manager	64	45	\$2,880								
(b)         Land Purchase/Learner         Image of the comment and solution (RCMC)         Frage of Manager         6         510         553.00         5<		Task 6.1.c: Reporting (MBSF)		Administrative Manager	64	190	\$12,160								
Plansing/Design/Engineering/Environmental         Plansing/Design/Engineering/Environmental         Plansing/Design/Engineering/Environmental         Plansing/Design/Engineering/Environmental         Plansing/Design/Engineering/Environmental         Status	(b)	Land Purchase/Easement		A		1		10-11-11			10	1			
Tak 6.2.a. Assessment and Evaluation (RCMC)         Project Nanager         69         510         555.500         Image: Control of Control	(c)	Planning/Design/Engineering/Environmental	1			1	\$48,250	1		\$5,000	-				\$\$5,250
Task 6.2.a. A sessment and Evaluation         Executive Director         82         120         59.810         Image: Contruction (School)         Image: Contruction (Sc		Task 6.2.a: Assessment and Evaluation (RCDMC)		Project Manager	69	510	\$35,190								
Task 6.2.a. Assessment and Evaluation         Project Manager         Image         Stop         Stop         Image		Task 6.2.a: Assessment and Evaluation (RCDMC)		Executive Director	82	120	\$9,810					-		-	-
Task 6.2.e: Quelity Assumance Project Manager         Montoring         65         50         53.250         Image: Second Assistance (RDMC)         State St		Task 6.2.a: Assessment and Evaluation (RCDMC)(milease/supplies)		Project Manager						\$5,000					
(d)         Construction/Implementation         Solution         S237.683         Sec. Solution         S515.000         S318.93           Table 5.3.e Grover Technical Assistance (RCDMC)         Project Manager         69         999         566.831         2         250         535.000         1           Table 5.3.e Grover Technical Assistance (RCDMC)         Project Manager         82         235         511.070         535.000         1 <td< td=""><td></td><td>Task 6.2.e: Quality Assurance Project Plan</td><td></td><td>Monitoring</td><td>65</td><td>50</td><td>\$3,250</td><td></td><td></td><td></td><td>1</td><td></td><td></td><td></td><td>-</td></td<>		Task 6.2.e: Quality Assurance Project Plan		Monitoring	65	50	\$3,250				1				-
Task 5.3.e         Task 5.	(d)	Construction/Implementation	-	coordinator		1	\$237,683			\$62,250			\$15,000		\$314.933
Table 3.3.6 Convert Technical Assistance (RCDMC)         Executive Director         B2         135         511.070         1         535.000         1         1         1           Table 3.3.6 Convert Technical Assistance (RCDMC)         Project Manager         6         120         535.000         1         1         555.000         1         1         1         555.000         1		Task 5.3.a: Grower Technical Assistance (RCDIAC)		Project Manager	69	999	\$68,931	2	250	\$500			Papiese		Pratices
Task 6.3.e. Convert Technical Assistance (RCDMC)         Project Manager         Dot         Dot         S5.000         Image: S5.000 <t< td=""><td>Task 6.3.a: Grower Technical Assistance (RCDMC)</td><td></td><td>Executive Director</td><td>82</td><td>135</td><td>\$11,070</td><td>-</td><td>200</td><td>\$35,000</td><td></td><td></td><td></td><td></td><td></td></t<>		Task 6.3.a: Grower Technical Assistance (RCDMC)		Executive Director	82	135	\$11,070	-	200	\$35,000					
Bits 6.5 al.: Agriculture Community Outrasch (MBNMS)         Ag Coordinator         65         440         528.600  <		Task 6.3.a: Grower Technical Assistance (RCDMC)		Project Manager						\$5,000				-	
Task 6.3.b.2: Agriculture Community On Farm Meetings (RCDMC)         Project Manager         69         120         592000         1 <td>Task 5.3 a 1: Agriculture Community Outreach (MRNMS)</td> <td></td> <td>As Coordinator</td> <td>65</td> <td>440</td> <td>\$28,600</td> <td>-</td> <td></td> <td></td> <td>-</td> <td></td> <td></td> <td></td> <td></td>		Task 5.3 a 1: Agriculture Community Outreach (MRNMS)		As Coordinator	65	440	\$28,600	-			-				
Task 6.3.b: Santa Rita Creek Pestoration         Description         Disk 5.1b: Santa Rita Creek Pestoration         Disk 5.1b: Santa Rita Rita Creek Pestoration         Disk 5.1b: Santa Rita Rita Rita Rita Rita Rita Rita Ri		Task 5.3.a.2: Agriculture Community On Farm Meetings (RCD)	MC)	Project Manager	69	120	58,280				-				
Task 6.3.b.1: Invisive Removal and maintenance (CCWG)         Restoration         35         315         \$11,025         Image: Comparison of the comparison of		Task 6.3.b: Santa Rita Creek Restoration	T												
Task 6.3.b.2: Native Plant Propagation         Field Engineer         100         50         \$5,000         50         \$515/vd3         1000         \$15,000           Waterway Consulting, Inc.)         Task 6.3.b.2: Native Planting (\$10000/acre x 1.5 acre) (Trees         \$15,000         \$55         \$00         \$27,500         \$15,000         \$15,000           Task 6.3.b.2: Native Planting (\$10000/acre x 1.5 acre) (Trees         \$15,000         \$55         \$00         \$2,750         \$100         \$15,000           Task 6.3.b.4: Bilingual Interpretive sign         \$15,000         \$55         \$00         \$2,750         \$100         \$15,000         \$100 <td></td> <td>Task 6.3.b.1: Invasive Removal and maintenance (CCWG)</td> <td></td> <td>Restoration</td> <td>35</td> <td>315</td> <td>\$11,025</td> <td></td> <td></td> <td></td> <td>1</td> <td></td> <td></td> <td></td> <td></td>		Task 6.3.b.1: Invasive Removal and maintenance (CCWG)		Restoration	35	315	\$11,025				1				
Task 6.3.b.3: (Thannel Grading/Excavation (quote from Waterway: Consulting, inc.)         Field Engineer         100         50         57.000         51,000         515,000         516,000         516,000         516,000         516		Task 6.3.b.2: Native Plant Propagation		(eentite and			\$49,152			\$6,000		-		-	-
Task 6.3.b.3: Native Planting (\$10000/acre x 1.5 acre) (Trees \$55 x 50)         \$15,000         \$55         \$00         \$2,750           Task 6.3.b.3: Native Planting (\$10000/acre x 1.5 acre) (Trees \$55 x 50)         \$14,625         \$8,000         \$100           Task 6.3.b.3: Native Planting (\$10000/acre x 1.5 acre) (Trees \$55 x 50)         \$14,625         \$8,000         \$100           Task 6.3.b.4: Bilingual Interpretive signs         Ag Coordinator         65         100         \$6,500         \$100           Task 6.3.b.4: Residential Community Watershed Festival (MBIMS)         Ag Coordinator         65         100         \$6,500         \$100         \$100         \$100         \$100         \$100         \$100         \$100         \$100         \$100         \$100         <		Task 6.3.b.3: Channel Grading/Excavation (quote from Waterways Consulting, Inc.)		Field Engineer	100	50	\$5,000				\$15/yd3	1000	\$15,000		
Date 6.3.0.3. Watering \$4875/quarter x 3 quarters         S14,625         \$8,000         S14,625         \$8,000         S14,625         \$100         \$100         \$200         \$2         \$500         \$100		Task 6.3.b.3: Native Planting (\$10000/acre x 1.5 acre) (Trees \$55 x 50)					\$15,000	55	50	\$2,750					
Task 6.3.b.4.a: Bilingual Interpretive signs         Ag Coordinator         65         100         56.500         2         55,000         4         4           Task 6.3.b.4.b: Residential Community Meetings/Trainings (MBNMS)         Ag Coordinator         65         100         56.500         4		Task 6.3.b.3: Watering \$4875/guarter x 3 guarters			-	1	\$14,625			\$8,000		1		-	
Task 6.3.b.4.b: Residential Community Watershed Festival (MBNMS)     Ag Coordinator     65     100     56.500     100     56.500       Task 6.3.b.4.c: Community Watershed Festival (MBNMS)     Ag Coordinator     65     100     56.500     100     56.500       Task 6.3.b.4.c: Community Watershed Festival (MBNMS)     MERITO Coordinator     65     100     56.500     100     56.500       (e)     Environmental Compliance/ Mitigation/Enhancement     MERITO Coordinator     65     200     \$13.000     100     100       (f)     Construction Administration     100     56.580     518.000     100     586.580       (g)     Other Costs     54.3.1: Management Practice tracking tools/Assessment (MBNMS)     Water Quality Analyst     85     500     \$42,500       Task 6.4.a.1: Management Practice tracking tools/Assessment (MBNMS)     Task 6.4.a.2: Water Quality Monitoring (550 site x 8 sites)     Restoration     \$4,480     100     \$18,000       Task 6.4.a.3: CRAM Monitoring (550 site x 8 sites)     Restoration     \$4,480     100     \$18,000     100       Task 6.4.a.4: Photo monitoring (5240/day x 12 days)     Restoration     \$2,880     180     100     \$18,000     100       (h)     Construction/Implementation Contingency     100     \$18,000     100     \$18,000     100       (h) <td rowspan="4"></td> <td>Task 6.3.b.4.a: Bilingual Interpretive signs</td> <td></td> <td></td> <td>1</td> <td>A</td> <td></td> <td>2500</td> <td>2</td> <td>\$5,000</td> <td></td> <td></td> <td></td> <td></td> <td></td>		Task 6.3.b.4.a: Bilingual Interpretive signs			1	A		2500	2	\$5,000					
Instruction         Image of the structure		Task 6.3.b.4.b: Residential Community Meetings/Trainings (MRNMAS)	1	Ag Coordinator	65	100	\$6,500								
Task 6.3.b.4.d: Multicultural Education (MBNM5)         MERITO Coordinator         65         200         \$13,000         Image: Construction administration         Image: Construction administratin administration         Image: Construction ad		Task 6.3.b.4.c: Community Watershed Festival (MBNMS)		Ag Coordinator	65	100	\$6,500								-
(e)       Environmental Compliance/ Mitigation/Enhancement       Image: Construction Administration       Image: Construction Administrati		Task 6.3.b.4.d: Multicultural Education (MBNM5)		MERITO Coordinator	65	200	\$13,000								-
(f)         Construction Administration         Image: mark of the costs         Image: mark of the costs<	(e)	Environmental Compliance/ Mitigation/Enhancement										-			
Other Costs       Other Costs       S68,580       \$18,000       \$96,580         Task 6.4.a. Monitoring and Tracking Effectiveness       Image: Cost of the c	(0)	Construction Administration	-			-					1 10		-	-	-
Task 6.4.a: Monitoring and Tracking Effectiveness       Image: Construction of the section of the sec	(a)	Other Costs	3				\$68,580			\$18,000	1			-	\$86,580
Task 6.4.a.1: Management Practice tracking tools/Assessment       Water Quality Analyst       85       500       \$42,500       Image: Construction of the construction of	187	Task 6.4.a: Monitoring and Tracking Effectiveness	-										11	1	
Mark 6.4.a.2: Water Quality Monitoring/Lab analysis       Monitoring Coordinator       65       288       \$18,720       180       100       \$18,000       Image: Coordinator         Task 6.4.a.3: CRAM Monitoring (\$560 site x 8 sites)       Restoration Technician       \$4,480       Image: Coordinator       \$4,480       Image: Coordinator		Task 6.4.a.1: Management Practice tracking tools/Assessment (MRNMS)	1	Water Quality Analyst	85	500	\$42,500							1	
Task 6.4,a.3: CRAM Monitoring (\$560 site x 8 sites)     Restoration Technician     \$4,480     Image: Comparison of the comparison		Task 6.4.a.2: Water Quality Monitoring/Lab analysis		Monitoring	65	288	\$18,720	180	100	\$18,000				1	
Task 6.4.a.4: Photo monitoring (\$240/day x 12 days)     Restoration Technician     \$2,880     Section     Section       (h)     Construction/Implementation Contingency     Technician     Implementation Contingency     Implementation Contingency       (i)     Grand Total     \$375,313     \$85,250     \$15,000		Task 6.4.a.3: CRAM Monitoring (5560 site x 8 sites)		Restoration			\$4,480							1.	
(h)         Construction/Implementation Contingency         Implementation Continteaction Contingency		Task 6.4.a.4: Photo monitoring (5240/day x 12 days)		Restoration			\$2,880			1					
(i) Grand Total \$375,313 \$85,250 \$15,000 \$475,56	(h)	Construction/Implementation Contingency					Concernance of the second		1			-	6	1	
	(i)	Grand Total					\$375,313	1		\$85,250			\$15,000	1	\$475,563

# **Budget Justification Narrative**

## Project 6: Watershed Approach to Water Quality Solutions

**Implementing Agency:** Monterey Bay National Marine Sanctuary, Central Coast Wetlands Group at Moss Landing Marine Labs, and the Resource Conservation District (RCD) of Monterey County

## Central Coast Wetlands Group

The staff of the Central Coast Wetlands Group (CCWG) has years of experience conducting habitat restoration in North Monterey County. The costs of the restoration are based on prevailing wages, estimated time to complete the projects, and fair market prices. Plant propagation is a time-consuming, skilled task. The price of propagation is based on time spent doing seed and cutting collection from local sources for fast growing plants based on plant palette, and greenhouse growing which includes planting, transplanting, fertilizing, watering and pest control. This is estimated to take 1404 hours at the wage rate of \$35/hour. Greenhouse supplies are required as well. CCWG and partners have available greenhouses but supplies including soil, fertilizer, pots, shovels, wheelbarrows, gloves, and water are expected to cost \$6,000 based on past projects.

Planting at restoration sites costs \$10,000 per acre; this project is 1.5 acres in size. This cost is based on previous sites and includes transporting the plants, digging holes, adding soil, planting the plants and filling the holes around them. There is an additional cost for certain trees, mainly oaks that must be purchased from a greenhouse because they must be several years old before they can be planted; \$55 is the standard cost per tree. Watering will be done during the dry season after the plants are planted for three quarters. This price includes getting water delivered to the site and on the plants.

CRAM assessments will be conducted before restoration and immediately after. There will be four sites, the Ferasci Ball field, Santa Rita Park, one urban and one agriculture reference site. That equals eight assessments, which CCWG will do at a cost of \$560 per site. The cost includes creating maps in GIS, researching background information, the site visit with at least two trained practitioners, plant species identification and data entry into www.cramwetlands.org. Photomonitoring will be done quarterly at each site for a total of 12 photo monitoring trips. Each trip will cost \$240 including the site visit and photo downloads and labeling.

Match: CCWG Match comes from a demonstration erosion control project on the upper Moro Cojo Slough. This project, using mitigation funding, integrates erosion control using native plant and erosion control structures through close collaboration with the landowner and farming leaseholder. The methods developed can be applied to other areas in the region where agriculture adjoins wetland corridors. Match: \$55,000. Funding Source: Moss Landing Power Plant. Partner: Monterey County Agricultural Trust

## Resource Conservation District of Monterey County

The staff of the RCD of Monterey County (RCDMC) has years of experience conducting grower outreach and technical assistance in Monterey County and elsewhere in California. Hourly rates are consistent with other local organizations relative to professional experience, training and staffing level. The estimated time and expenses for assessment and technical assistance tasks are based on those expended under similar past successful RCDMC programs in North Monterey County and elsewhere. Thanks to a close partnership with USDA Natural Resources Conservation Service, these expenses leverage NRCS professional services and implementation (cost share) assistance programs as well as routine equipment and supply expenses such as additional vehicle use, surveying and GIS equipment, and minor printing and mailing costs.
**Match:** The RCD match for work with the agriculture community includes \$8,000 from the Congressional Earmark for an AWQA mini-grant that was primarily dedicated to Santa Rita Creek. Additional Earmark funding for irrigation evaluations in Monterey County is estimated at \$10,000 for 2010. Match also includes \$10,000 from a settlement fund from PG&E (local match).

Additional technical assistance matching funds is expected from the USDA NRCS Agricultural Water Enhancement Program for the Central Coast, which provides dedicated technical and financial assistance for area irrigation and nutrient management improvements. A conservative estimate of the AWEP funds that will be expended on behalf of Santa Rita Creek watershed improvement projects coordinated under this proposal is \$20,000, but it could easily exceed \$100,000 depending on the types of projects needed by participating growers.

### Monterey Bay National Marine Sanctuary

The staff of the Monterey Bay Sanctuary Foundation has over 10 years of experience conducting water quality monitoring and working collaboratively with a diversity of partners. The hourly rates are based on prevailing wages, estimated time to complete the projects, and fair market prices. This project expands and enhances the ongoing mission of the Monterey Bay National Marine Sanctuary (MBNMS) and its fiscal sponsor, the Monterey Bay Sanctuary Foundation. The Water Quality Protection Program (WQPP) at the MBNMS will lead the efforts for water quality monitoring, residential community outreach, agricultural community outreach and water quality data analysis. Hours for staff are estimated based on prior experience for this type of work. Because unique qualifications are necessary for data analysis and modeling, that work is billed at \$85/hour rather than the standard \$65/hour rate. Mileage and other expenses will not be billed to this contract, rather absorbed through other funding sources.

**Match:** The WQPP Director is a Federal Employee and time working on this grant will be considered match. That includes \$5,625 for compiling quarterly and annual reports and \$1,125 for providing supervision on the development of the water quality monitoring QAPP. Additionally, \$40,000 match will come from a Congressional Earmark for outreach to the agricultural community. For over ten years, this earmark has paid for an Agriculture Water Quality Coordinator to work with growers and technical service providers to encourage voluntary implementation of practices in central coast watersheds. In 2010, the earmark also provided \$12,000 in funding to develop a Best Practice tracking tool for local Resource Conservation Districts. That tool will provide the framework to track practices that are implemented as a result of this funding.

### Table 7 - Project Budget

Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region

#### Project 7: Evaluation of Potential for Stormwater Toxicity Reduction by Low Impact Development (LID) Treatment

#### Implementing Agency: UC Davis Granite Canyon Marine Pollution Studies Laboratory

		(a)	(b)	(c)	(d)	(e)
	Budget Category	Non-State Share* (Funding Match)	Requested Grant Funding	Other State Funds Being Used	Total	% Funding Match
(a)	Direct Project Administration Costs	\$6,985	\$9,416		\$16,401	43%
	Task 7.1.a: General Administration	\$6,985	-		\$6,985	
	Task 7.1.b: Reporting		\$9,416	1	\$9,416	
(b)	Land Purchase/Easement					
(c)	Planning/Design/Engineering/ Environmental Documentation	\$75,115	\$10,077		\$85,192	88%
	Task 7.2.a: Assessment and Evaluation					
	Labor Costs: Specialists, Staff Research Associates		\$10,077		\$10,077	
	LID components are 100% complete in design and construction. Engineering designs and calculations have been provided, and these are considered in-kind funding match.	\$75,115			\$75,115	
(d)	Construction/Implementation		\$189,055	1	\$189,055	0%
	Task 7.3.a: Collect Samples of Stormwater Runoff Pre and Post LID		\$35,935		\$35,935	
	Labor Costs: Specialists, Staff Research Associates		\$35,935		\$35,935	
	Task 7,3.b: Conduct Toxicity Testing On All Composited Stormwater Samples with Three Aquatic Species		\$60,100	1	\$60,100	
	Labor Costs: Specialists, Staff Research Associates		\$60,100		\$60,100	
	Task 7.3.c: Analyze Chemical Components of Water Samples		\$29,100		\$29,100	
	Sub-Contracted per analyses	_	\$29,100		\$29,100	
	Task 7.3.d: Determine Stormwater Runoff, Infiltration Rates, and Load Reduction		\$25,550		\$25,550	
	Labor Costs: Specialists, Staff Research Associates		\$25,550		\$25,550	
	Task 7.3.e: Analyze Data and Develop Interpretive Data Report		\$38,370		\$38,370	
(e)	Environmental Compliance/ Mitigation/Enhancement		1			
(f)	Construction Administration					
(g)	Other Costs		\$37,552		\$37,552	0%
	Field and Laboratory Supplies		\$36,550		\$36,550	
	Travel		\$1,002	1	\$1,002	
(h)	Construction/Implementation Contingency					
(i)	Grand Total (Sum rows (a) through (h) for each column)	\$82,100	\$246,100		\$328,200	25%

\*List sources of funding: Matching funds are supplied as in-kind services provided, including project administration costs by UC Davis personnel and engineering plans and retention calculations for LID sites.

#### **Budget Detail**

Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region

Project 7: Evaluation of Potential for Stormwater Toxicity Reduction by Low Impact Development (LID) Treatment

Implementing Agency: UC Davis Granite Canyon Marine Pollution Studies Laboratory

_		_		-	Labor Costs	_	Matter	als and Supe	Trim i	_	Environment	_	_	TOTAL COSTS
	Budget Category	Percentage	Discipline	Rate	# of Hours	Total Labor	Unit Cost	and and oupp	Total Cost	Unit Cost	# of Units	Total Cost	Other Items	IDIAL CODIC
	and a contract of	of Cost												
(a)	Direct Project Administration Costs					\$16,401	-							\$16,401
1.0	Task 7.1.a: General Project Administration	5%	In-kind matching funds (UC Davis personnel)	\$55	127	\$6,985		1					)	
	Task 7.1.b: Reporting			\$55	171	59,416			1					
(b)	Land Purchase/Easement						1		· · · · · · · · · · · · · · · · · · ·	-	-	-		
(c)	Planning/Design/Engineering/Environmental Documentation	1 1	1			\$10,077	-		\$75,115			1		\$85,192
	Task 7.2.e: Assessment and Evaluation					\$10,077			\$75,115		-			6 - C
	Labor Costs			\$55	75	\$4,125							1	
	Labor Costs		P	\$32	186	\$5,952							1.000	
	Engineering designs and calculations have been provided for completed LID, and these are considered in-kind funding match.						_		\$75,115					
(d)	Construction/Implementation			1		\$189,055			2			-	-	\$189,055
	Task 7.3.a: Collect Samples of Stormwater Runoff Pre and Post LID					\$35,935								
	Labor Costs		-	\$55	270	\$14,850	S				-			
	Labor Costs			\$32	275	\$8,800						-		
	Labor Costs			\$21	585	\$12,285	-	1.000					1.1	
	Task 7.3.b: Conduct Toxicity Testing On All Composited Stormwater Samples with Three Aquatic Species					\$60,100								
	Labor Costs: Specialists, Staff Research Associates			\$20	3005	\$60,100	1. Inc.			· · · · · ·			2	
	Task 7,3.c: Analyze Chemical Components of Water Samples		Subcontracted per analyses			\$29,100								
	Task 7.3.d: Determine Stormwater Runoff, Infiltration Rates, and Load Reduction					\$25,550								
	Labor Costs		N	\$32	300	\$9,600			4	1			· · · · · · · · · · · · · · · · · · ·	
	Labor Costs			\$55	290	\$15,950				1				-
	Task 7.3.e: Analyze Data and Develop Interpretive Data Report					\$38,370								
	Labor Costs			\$32	460	\$14,720								
	Labor Costs			\$55	430	\$23,650					1	-	1	
(e)	Environmental Compliance/Mitigation/Enhancement						1			6	2 · · · · ·		-	
(1)	Construction Administration					1		_		1				
(g)	Other Costs		the second se			\$37,552			1	2 <sup></sup> 1,	[]		1	\$37,552
	Field and Laboratory Supplies (Test organisms, Ammonia test kits, Pipe fittings)		Field and Laboratory Supplies			\$36,550								
			Travel (2,045 miles at \$0.49/mile)		1	\$1,002	1			10.000		1.000	1.000	
(h)	Construction/Implementation Contingency						-							
(i)	Grand Total		1		1						1			\$328,200

# **Table 8 - Summary Budget**

# Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region

	Individual Project Title	Non-State Share (Funding Match)	Requested Grant Funding (DWR Grant Amount)	Other State Funds Being Used	Total	% Funding Match
(a)	Project 1: Soledad Water Recycling/Reclamation Project	\$375,000	\$1,155,000		\$1,530,000	25%
(b)	Project 2: Castroville Community Services District	\$202,020	\$581,000		\$783,020	26%
(c)	Project 3: San Jerardo Wastewater Project	\$105,000	\$924,455		\$1,029,455	10%
(d)	Project 4: Integrated Ecosystem Restoration in Elkhorn Slough	\$489,000	\$1,049,984		\$1,538,984	32%
(e)	Project 5: Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville	\$145,440	\$436,340		\$581,780	25%
(f)	Project 6: Watershed Approach to Water Quality Solutions	\$161,750	\$475,562		\$637,312	25%
(g)	Project 7: Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems	\$82,100	\$246,100		\$328,200	25%
(h)	Grand Total	\$1,560,310	\$4,868,441	\$0	\$6,428,751	24%

# ATT5\_IG1\_Schedule\_1of1 Schedule

The following pages show the project schedules for each of the seven projects contained in this proposal.

i			Greater Monterey Co	unty iRWMG						
ID I	0	Task Name	Duration	Start	Finish Ot	Q2 Q3 Q4 Q1	02 03	04  01  02  03	04 01 0	2 03 104
1	19 - C	DWR Grant Awarded	0 days	Wed 6/1/11	Wed 6/1/11	♠ 6/1				
2	1	Task 1 - "Soledad Water Recycling/Reclamation Project"	826 days	Wed 6/1/11	Thu 7/31/14	-	_			
- 3	1.	Task 1.1: Project Administration	826 days	Wed 6/1/11	Thu 7/31/14	-				
4	3	Task 1.1 a. General Administration	783 days	Wed 6/1/11	Fri 5/30/14	1				-
5	3	Task 1.1.b: Labor Compliance Program	783 days	Wed 6/1/11	Fri 5/30/14					-
6	in a	Task 1.1.c: Reporting	652 days	Thu 9/1/11	Sat 3/1/14	Contract on	2000			
1	10 <sup>m</sup>	Task 1.1 Quarterly Reporting	652 days	Thu 9/1/11	Sat 3/1/14	9 9 9	0 0	0 0 0 0	0 0	
19	24	1.1 - Milestones - Substantial Completion Report	0 days	Mon 12/17/12	Mon 12/17/12			12/17		
20		1.1 - Milestones - Project Completion Report	0 days	Mon 7/1/13	Mon 7/1/13			• 7/1		1000
21	<b>B</b>	1.1 - Milestones - Final Report	0 days	Thu 7/31/14	Thu 7/31/14					· 7/31
22	-	Task 1.2: Planning/Design/Engineering/Environmental Documentation	262 days	Wed 6/15/11	Fri 6/15/12	-				
23	24	Task 1.2 or Assessment and Evoluation	88 days	Wed 6/15/11	Sat 10/15/11	-				
24	3	Task 1.2 b: Feasibility Study	173 days	Mon 10/17/11	Thu 6/14/12	-	-			
25	1.0	Task 1 2.c. Preliminary Conceptual Design	44 days	Moh 10/17/11	Fri 12/16/11					
26	3	Task 1 2.d. Final Design	85 days	Mon 12/19/11	Tue 4/17/12		2			
27		Task 1.2.e. Environmental Documentation	88 days	Wed 6/15/11	Sat 10/15/11					
28	8	Task 1.2.f. Permitting	261 days	Wed 6/15/11	Thu 6/14/12					
29	-	1 2 - Milestone - Obtain Caltrans Encroachment Permit	0 days	Wed 12/14/11	Wed 12/14/11	12/1	4			
30	100	1.2 - Milestone - Obtain Union Pacific Encroachment Permit	0 days	Fri 6/15/12	Fri 6/15/12		♠ 6/15			
31	1.	Task 1.3: Construction/Implementation	532 days	Thu 6/2/11	Sat 6/15/13			-		
32	24	Tesk 1.3.a: Construction Contracting	43 days	Fri 6(15/12)	Wed 8/15/12		-			
33		Task 1.3.b; Construction:	532 days	Thu 6/2/11	Sat 6/15/13	P				
34	10	Task 1 3 b 1: Engineering	332 days	Thu 6/2/11	Fn 9/7/12	6				
35	10	Task 1.3.b.2: Mobilization and Site Preparation	22 days	Thu 8/16/12	Sun 9/16/12					
36	1.	Task 1.3.b.3. Project Construction	172 days	Mon 9/17/12	Wed 5/15/13		-			
37	1	Task 1.3.b.4: Performance Testing and Demobilization	22 days	Thu 5/16/13	Sat 6/15/13					
38	33	1.3 - Milestone - Pump Tests	0 days	Thu 5/23/13	Thu 5/23/13			¢ 5/23		
39		1.3 - Milestone - Pipe Tests	0 days	Sat 6/15/13	Sal 6/15/13			-@ 6/15		
40	1	Task 1.4: Environmental Compliance/Mitigation/Enhancement	151 days	Mon 10/3/11	Tue 5/1/12	-				
41	34	Task 1.4. Environmental Compliance/Mitigation/Enhancement	151 days	Mon 10/3/11	Tue 5/1/12	-				
42	3	1.4 - Milestone - Survey	0 days	Tue 5/1/12	Tue 5/1/12		¢ 5/1			
43	10	Task 1.5: Construction Administration	261 days	Frt 6/15/12	Sm 6/15/13					
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Projec Dote:	t. IRWM Wed 1/5	P schedule ESF Task Milestone  Split Summary  Progress Project Summary		External Tasks External Mileston Deadline		<b>.</b>				
1			Page 1							

	-			Great	er Monterey Co	unity IRWMG						
1D 61	a	Task Name Task 2 - "Castroville Well 28 Treatment Project	ar .		Buration 826 days	Start Wed 6/1/11	Finish Thu 7/31/14		21 02 03 1	04 01 02	03 04 01 0	2 03 104
62	1	Task 2.1: Project Administration			826 days	Wed 6/1/11	Thu 7/31/14					
63	22	Task 2.1.a: General Administration			783 days	Wed 6/1/11	Fn 5/30/14	1				
64	11.0	Task 2.1.b: Labor Compliance Program			783 days	Wed 6/1/11	Fri 5/30/14					
65		Task 2.1.c: Reporting			760 days	Thu 9/1/11	Thu 7/31/14	-	_			
66	CG	Task 2.1 Quarterly Reporting			652 days	Thu 5/1/11	Sat 3/1/14	0 0	0 0 0	0.0.0	0 0 0	
78	110	2 1 - Milestone - Final Report			0 days	Thu 7/31/14	Thu 7/31/14					¢ 7/31
79		Task 2.1: Project Administration			532 days	Wed 6/1/11	Sat 6/15/13	-	_			
80	121	Task 2.1.a: General Administration			523 days	Wed 6/15/11	Sat 6/15/13	-				
81	176	Task 2.1 b. Labor Compliance Program			467 days	Thu 9/1/11	Sat 6/15/13					
82	114	Task 2.1.c. Reporting			0 days	Wed 6/1/11	Wed £/1/11	÷ 6/1				
83		Task 2.2 Planning/Design/Engineering			340 days	Fri 9/2/11	Thu 12/20/12	-	_			
84	178	Task 2.2.5 Final Design			50 days	Fn 9/2/11	Thu 11/10/11					
85	118	Task 2.2 c CEQA NOE			0 days	Fn 2/17/12	Fn 2/17/12		¢ 2/17			
66	11	Task 2.2 d Permitting			210 days	Fri 3/2/12	Thu 12/20/12		la seconda de	_		
87	100	2.2 - Milestone - Pre-construction permit	ts.		0 days	Thu 4/12/12	Thu 4/12/12		- 4/12			
88	111	2.2 - Milestone - Post-construction perm	vita		D days	Thu 12/20/12	Thu 12/20/12					
89		Task 2.3 Construction/Implementation			289 days	Fri 11/11/11	Thu 12/20/12	-	_			
90	118	Task 2 3 a Construction Contracting			80 days.	Fri 11/11/11	Thu 3/1/12					
- 91	1	Task 2.3.b Construction			170 days	Fri 3/2/12	Thu 10/25/12		-	U		
92	177	Task 2.3 b 1 Mobilization and Site I	Preparation		60 days	Fri 3/2/12	Thu 5/24/12		-			
93	176	Task 2.3 b.2 Project Construction			90 days	Fri 5/25/12	Thu 9/27/12					
94	11	Task 2.3 b 3 Performance Testing a	and Demobilization		20 days	Fri 9/28/12	Thu 10/25/12					
95	100	2.3 Milestone - Issue project for bid			0 days	Fri 11/11/11	Fn 11/11/11	¢ 11	/11			
96	100	2.3 Milestone - Notice of award			D days	Thu 2/2/12	Thu 2/2/12		o 2/2			
97	110	2.3 Milestone - file GEQA NOE			0 days	Fri 2/17/12	Fri 2/17/12		· 2/17			
98	100	2.3 Milestone - Construction mobilization	ñ		D days	Fri 3/2/12	Fri 3/2/12					
99	100	2.3 Milestone - Start-up and testing			0 days	Fn 9/28/12	Fn 9/28/12			9/28		
100	100	2.3 Milestone - System permit update			0 days	Thu 12/20/12	Thu 12/20/12			· 12/20		
101	-	Task 2.5 Construction Administration			270 days	Fri 11/11/11	Thu 11/22/12		_			
102	114	Task 2.5.a Bid Phase Engineering			80 days	Fri 11/11/11	Thu 3/1/12					
103	111	Task 2.5 b Construction Phase Enginee	nng		190 days-	Fri 3/2/12	Thu 11/22/12					
104	100	Task 2.5 c Inspection			120 days	Fn 5/11/12	Thu 10/25/12		1			
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Project Date: \	t: IRWM Wed 1/5	P schedule ESF Split /11 Progress	Summary Project Summ	tary		xternal Tasks External Mileston Jeadline	-	-				
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					Grea	ter Monterey Co	ounty IRWMG					
ID O	Task Name					Duration	Start	Finish Of	02 03 04 01 0	2 03 04 01 03	03 04 01	02 03 04
121	Task 3 - San Jerard	to Wastewater Proj	ect			826 days	Wad 6/1/11	Thu 7/31/14				
122	Task 3.1; Projec	Canada Administration	Louis .			826 days	Wed 5/1/11	Fri 5/30/14		200 C	0.00	
120 129	1000.0.1.0. Tech 7.0.0	Laber Completes D	a contraction of the contraction			703 days	Med City	Fil Sr30/14	-			
124 114	1356 3.1.0.	Labor Compliance P	rogram			765 days	Wed 6/1/11	FTI 0/00/14	-			
120	Task 3.1.C	Reporting	100			760 days	Thu 9/1/11	110 //31/14				~
126 044	Task 3	1 Quarterly Report	ting			652 days	Thu 9/1/11	Sat 3/1/14	0 10 0	0.0.0.0	0.000	
138	4.1 - M	inestones - Final Rep	port			0 days	100 7/31/14	Thu 7/31/14				
139	Task 3.2: Plann	ing/Design/Enginee	ering/Environmental C	locumentation		76 days	Wed 6/1/11	Thu 9/15/11				
140 3	3.3.1 - Miles	stone - Completed for	nal plans and specificat	ons		0 days	Sun 7/31/11	Sun 7/31/11	· 7/31			
141 34	3.2.2 - Mile	stone - Completed te	echnical reports			0 days	Sun 7/31/11	Sun 7/31/11	· 7/31			
142 24	3.2.3 - Miles	stone CEQA amend	dment approved			0 days	Wed 6/1/11	Wed 6/1/11	· 6/1			
143 24	32.4 - Miles	stone - Permits appro	oved			0 days	Thu 9/15/11	Thu 9/15/11	· 9/15			
144	Task 3.3: Const	truction/implementa	ation			368 days	Wed 7/6/11	Sat 12/1/12	-			
145	3.3 Miesto	one - Bid opening an	d approved			0 days	Thu 9/1/11	Thu 9/1/11	· 9/1			
146	Task 3.3.a:	Construction:				283 days	Fri 9/30/11	Wed 10/31/12	-			
147 34	3381	-Milestone - Mobiliz	zation and Site Prepara	tion Completed		0 days	Fri 9/30/11	Fri 9/30/11	¢ 9/30			
148	3.3.8.2	-Milestone - Project	d Construction complete	ed.		0 days	Fri-8/31/12	Fri 8/31/12	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	# 8/31		
149	33a3	- Milestone - Permit	ts Finalized			0 days	Wed 10/31/12	Wed 10/31/12		· 10/31		
150	Task 3.3.b:	Performance Testi	ing and Demobilizatio	n		368 days	Wed 7/6/11	Sat 12/1/12	-			
151 0	3.3.b.1	- Milestone - Mont	hly Testing Reports			350 days	Mon 8/1/11	Sat 12/1/12	0000000000	0000000		
169 0	3.3.b.2	- Milestone - Quart	terly Reports to CCRV	VOCB		325 days	Wed 7/6/11	Wed 10/3/12	0000	8.8		
176 7	3303	- Milestone - Demot	bilization			0 days	Fn 8/31/12	Fri 8/31/12	1.2.2.2	@ 8/31		
177	Task 3.4: Enviro	unmental Complian	ice - Miligation Measu	185		262 days	Thu 9/1/11	Fri 8/31/12	-			
178 34	Task 3.4 a l	Environmental Comp	liance - Mitigation Mea	sures		262 days	Thu 9/1/11	Fri 8/31/12	-			
179 11	3.4 - Milesto	one - Mitigation meas	sures report complete			0 days	Fri-8/31/12	Fn 8/31/12		8/31		
160	Task 3.5 Const	ruction Administra	tion			381 days	Fri 7/15/11	Mon 12/31/12	Designed			
181 114	3.5.1 - Miles	stone - Final Labor S	itandards Compliance F	tepost		0 days	Mon 12/31/12	Mon 12/31/12		A 12/31		
182 13	3.5.2 - Mile	stone - Bid Package	Prepared			0 days	Fri 7/15/11	Fri 7/15/11	- 7/15			
183 23	35.3 - Mile	stone - Contract sub	relitais approved			0 days	Mon 10/31/11	Mon 10/31/11	- 10/31			
184 12	3.5.4 - Mile	stone - Final Invoice	is processed			0 days	Sun 9/30/12	Sim 9/30/12		4 9(30		
185 22	3.5.5 - Mile	stone - Final Inspect	ton Report			0 days	En 8/31/12	Et 1/31/12		# 8/31		
185	Tank 3.5 Othur 1	Costs	and the post			A11 days	Ward 5/1/11	Mon 12/31/12	-			
187 74	Task 3.6 Other	Local				337 days	Wed 5/1/11	Ed 8/31/17				
100	5.6. Miaste	bos - Contracts and I	Dide approved as to for			0 days	Sup Old/11	Sup 0.4/11	0.04			
100 39	5.0 - Milesia	Bermite and Free	pics approved as to for			240 days	Sun prerin	300 300 11	· 9/4			
109	Task 3.6.0:	Permits and Fees	· And a canal address	the infation		348 days	Wed 8/31/11	Mon 12/31/12				
190 24	300.1	- Milestone - As ree	s paid except construc	oon reated		0 days	Wed 8/31/11	VVED-6/31/11	- 8/31	+ 0.04		
191 11	3602	- Milestone - Contra	ctor Construction Perm	ins ninai		0 days	FIL 6(31/12)	FIL 0/31/12		· 8/31		
192 19	3.6.5.3	- Milestone - RWDC	a Permit Amended			0 days	Mon 12/31/12	Mon 12/31/12		• 12/31		
193	Task 3.6.c:	Monitoring and Te	sung	Columbria California		0 days	Mon 12/31/12	Mon 12/31/12		Q 12/31		
194 29	366-	Ministone - Records	a Reporting vis a vis V	romptan & Measures		0 days	Mon 12/31/12	Mon 12/31/12	1.000	· 12/31		
195	Task 3.6,d:	Other Studies	The state of the state			0 days	Sat 12/31/11	Sat 12/31/11	♠ 12/31			
196	3.6- M	lestone - Reuse, Rei	cycling and Capital Imp	rovement Plans complet	Ne.	0 days	Sat 12/31/11	Sat 12/31/11	12/31	1		
197	Task 3.7 Const	ruction/Implementi	ation Contingency			381 days	Fri 7/15/11	Mon 12/31/12	9	~		
198	3.7 1- Miles	tone - Engineer's co	st estimate at 100% de	sign completion		0 days	En 7/15/11	En 7/15/11	\$ 7/15	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
199 34	3,7.2 - Miles	stone - Contingency	Closeout			0 days	Mon 12/31/12	Mon 12/31/12		12/31		
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		Task	2	Milestone		1	External Tasks	-				
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Date: Wed 1/5	211	Promiser	-	Brolant Cummin			Deadling					
		Progress		Project summar	Y w	-	Jeagline					
						Page 3						

ID       0       Task Name         204       Task 4. Integrated Ecosystem Restoration in Elkhorn Slough         205       Task 4.1: Project Administration         206       Task 4.1: a General Administration         207       Task 4.1 a General Administration         208       Task 4.1.: Reporting         209       Task 4.1.: Reporting         221       4.1 - Milestones - Final Report         222       Task 4.2: Purchase of Land/Easement         223       Task 4.3: Planning/Design/Engineering/Environmental Documentation         224       Task 4.3: Assessment and Evaluation.         225       Task 4.3 & Assessment and Evaluation.         226       Task 4.3 & C Bianong and Community Enganement	Duration           826 days           826 days           826 days           783 days           783 days           760 days           652 days           D days           D days           0 days           783 days           783 days           783 days           783 days           783 days           390 days           616 days           20 days           0 days           616 days           20 days           0 days	Start Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Thu 9/1/11 Thu 9/1/11 Thu 7/31/14 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Mon 10/3/11 Wed 6/1/11 Thu 2/13/14	Finish Q Thu 7/31/14 Thu 7/31/14 Fri 5/30/14 Fri 5/30/14 Thu 7/31/14 Sa 3/1/14 Thu 7/31/14 Wed 8/1/11 Fri 5/30/14 Thu 5/31/12 Fri 3/29/13 Fri 5/30/14 Wed 2/12/14	02 03 04		04 01		01 02 03 04 • 7/31
204     Task 4.: Project Administration       205     Task 4.1: Project Administration       206     Task 4.1: Project Administration       207     Task 4.1: Diabor Compliance Program.       208     Task 4.1: Reporting       209     Task 4.1: Reporting       221     4.1: Milestones - Final Report.       222     Task 4.2: Purchase of Land/Easement       223     Task 4.3: Planning/Design/Engineering/Environmental Documentation       224     Task 4.3: Organized and Evaluation.       225     Task 4.3: A 3.0: Spesign       226     Task 4.3: A 3.0: Spesign	826 days 826 days 783 days 783 days 780 days 0 days 0 days 783 days 783 days 262 days 390 days 783 days 616 days 20 days 0 days	Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Thu 9/1/11 Thu 9/1/11 Thu 7/31/14 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Mon 10/3/11 Thu 2/13/14	Thu 7/31/14 Fri 5/30/14 Fri 5/30/14 Thu 7/31/14 Set 31/1/4 Thu 7/31/14 Wed 6/1/11 Fri 5/30/14 Thu 5/31/12 Fri 3/29/13 Fri 5/30/14 Wed 2/12/14	+ 61	× -	000		• 7/31
205     Task 4.1: Project Administration       206     Task 4.1 is General Administration       207     Task 4.1 is General Administration       208     Task 4.1 is Compliance Program.       209     Task 4.1: Reporting       221     4.1 - Milestones - Final Report.       222     Task 4.2: Purchase of Land/Easement       223     Task 4.3: Planning/Design/Engineering/Environmental Documentation       224     Task 4.3: Planning/Design       225     Task 4.3: Compliance and Evaluation.       226     Task 4.3: Compliance and Evaluation.       227     Task 4.3: Compliance and Evaluation.	782 days 783 days 786 days 652 days D days D days 783 days 262 daya 390 days 783 days 616 days 20 days D days	Wed 6/1/11 Wed 6/1/11 Thu 9/1/11 Thu 9/1/11 Thu 7/31/14 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Mon 10/3/11 Wed 6/1/11 Thu 2/13/14	Fri 5/30/14 Fri 5/30/14 Fri 5/30/14 Thu 7/31/14 Sat 31/1/14 Thu 7/31/14 Wed 8/1/11 Fri 5/30/14 Thu 5/31/12 Fri 3/29/13 Fri 5/30/14 Wed 2/12/14	+ 61	× -	000		• 7/31
207     Task 4.1 a. General Automatation       207     Task 4.1 b. Labor Compliance Program.       208     Task 4.1.c: Reporting       209     Task 4.1 Quarterly Reporting       221     4.1 - Milestones - Final Report.       222     Task 4.2: Purchase of Land/Easement       223     Task 4.3: Planning/Design/Engineering/Environmental Documentation       224     Task 4.3: Assessment and Evaluation.       225     Task 4.3: a. Assessment and Evaluation.       226     Task 4.3: a. Assessment and Evaluation.       225     Task 4.3: b. 30% Design       226     Task 4.3: b. 30% Design	783 days 786 days 652 days D days D days D days 783 days 262 days 390 days 783 days 616 days 20 days D days D days	Web 5/1/11 Thu 9/1/11 Thu 9/1/11 Thu 7/31/14 Web 6/1/11 Web 6/1/11 Web 6/1/11 Mon 10/3/11 Web 6/1/11 Thu 2/13/14	Fn 5/30/14 Fn 5/30/14 Thu 7/31/14 Sat 31/1/14 Thu 7/31/14 Wed 8/1/11 Fri 5/30/14 Thu 5/31/12 Fn 3/29/13 Fri 5/30/14 Wed 2/12/14	+ 61	× •	000		• 7/31
207     Task 4.1.0: Reporting       208     Task 4.1.0: Reporting       221     4.1 - Milestones - Final Report       222     Task 4.2: Purchase of Land/Easement       223     Task 4.3: Planning/Design/Engineering/Environmental Documentation       224     Task 4.3: a: Assessment and Evaluation       225     Task 4.3: 3: 3: 3: 5: 3: 5: 5: 5: 5: 5: 5: 5: 5: 5: 5: 5: 5: 5:	760 days 760 days 0 days 0 days 0 days 783 days 262 days 390 days 783 days 616 days 20 days 0 days 0 days	Thu 9/1/11 Thu 7/31/14 Thu 7/31/14 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Mon 10/3/11 Mon 10/3/11 Thu 2/13/14	Thu 7/31/14 Sat 31/14 Thu 7/31/14 Thu 7/31/14 Wed 8/1/11 Fri 5/30/14 Thu 5/31/12 Fri 3/29/13 Fri 5/30/14 Wed 2/12/14	+ en		000		• 7/31
Z00     Task 4.1 c: Reporting       209     Task 4.1 Quarterly Reporting       221     4.1 - Milestones - Final Report       222     Task 4.2 Purchase of Land/Easement       223     Task 4.3 Planning/Design/Engineering/Environmental Documentation       224     Task 4.3 er Assessment and Evaluation       225     Task 4.3 bi 30% Design       226     Task 4.3 er Planning and Community Enganement	780 days 652 days D days 783 days 262 days 390 days 783 days 616 days 20 days 0 days 0 days	Thu 9/1/11 Thu 7/31/14 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Mon 10/3/11 Mon 10/3/11 Thu 2/13/14	Thu 7/31/14 Sat 31/14 Thu 7/31/14 Wed @1/11 Fri 5/30/14 Thu 5/31/12 Fri 3/29/13 Fri 5/30/14 Wed 2/12/14	+ 61		000		¢ 7/31
209     Ctain     Task 4.1 Outrieny Reporting       221     4.1 - Milestones - Final Report       222     Task 4.2: Plurchase of Land/Easement       223     Task 4.3: Planning/Design/Engineering/Environmental Documentation       224     Task 4.3: Assessment and Evaluation       225     Task 4.3: Diamong and Community Engineering	632 days D days C days 783 days 262 days 390 days 783 days 616 days 20 days 0 days 0 days	Thu 7/31/14 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Mon 10/3/11 Wed 6/1/11 Mon 10/3/11 Thu 2/13/14	Sat 31/14 Thu 7/31/14 Wed 61/11 Fri 5/30/14 Thu 5/31/12 Fri 5/30/14 Wed 2/12/14	+ 61				¢ 7/31
221     4.1 - Miessones - Final Report.       222     Task 4.2: Plurchase of LandEasement       223     Task 4.3: Planning/Design/Engineering/Environmental Documentation       224     Task 4.3: Planning/Design/Engineering/Environmental Documentation       225     Task 4.3: 0: 30% Design       226     Task 4.3: c. Planning and Community Enganement	0 days, 0 days 783 days 262 days 390 days 783 days 616 days 20 days 0 days 0 days	Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Wed 6/1/11 Mon 10/3/11 Thu 2/13/14	Thu 7/31/14 Wed 8/1/11 Fri 5/30/14 Thu 5/31/12 Fri 3/29/13 Fri 5/30/14 Wed 2/12/14	¢ 6/1				• //31
Task 4.3 end         Task 4.3 end<	783 days 262 days 390 days 783 days 616 days 20 days 0 days 0 days	Wed 6/1/11 Wed 6/1/11 Mon 10/3/11 Wed 6/1/11 Mon 10/3/11 Thu 2/13/14	Fri 5/30/14 Thu 5/31/12 Fri 5/30/14 Wed 2/12/14					
Z23         Task 4.3: Planning/Design/Engineering/Environmental Documentation           224         Task 4.3 a: Assessment and Evaluation           225         Task 4.3 b: 30% Design           226         Task 4.3 c: Planning and Community Engineering	262 daya 390 days 783 days 616 days 20 days 0 days	Wed 6/1/11 Mon 10/3/11 Wed 6/1/11 Mon 10/3/11 Thu 2/13/14	Fri 5/30/14 Thu 5/31/12 Fri 3/29/13 Fri 5/30/14 Wed 2/12/14				-	
224         Task 4.3.a. Assessment and Evaluation.           225         Task 4.3.b. 30% Design           226         Task 4.3.b. 30% Design           228         Task 4.3.b. 20 minute for the second s	262 days 390 days 783 days 616 days 20 days 0 days 0 days	Wed 6/1/11 Mon 10/3/11 Wed 6/1/11 Mon 10/3/11 Thu 2/13/14	Fri 3/29/13 Fri 5/20/14 Wed 2/12/14			_		
225 Task 4.3.5 30% Design	390 days 783 days 616 days 20 days 0 days	Mon 10/3/11 Wed 6/1/11 Mon 10/3/11 Thu 2/13/14	Fri 5/30/14 Wed 2/12/14					
226 Lask 4.3 c. Planning and Community Engagement	783 days 618 days 20 days 0 days	Mon 10/3/11 Thu 2/13/14	Wed 2/12/14					
and the set of annual grand community engineering	616 days 20 days 0 days	Mon 10/3/11 Thu 2/13/14	Wed 2/12/14					
227 Task 4.3 d Environmental Documentation	20 days 0 days	Thu 2/13/14	the second se					
228 Task 4.3.e. Permitting	0 days		Wed 3/12/14					4
229 4 3 - Milestones - Project description		Fri 3/29/13	Fri 3/29/13			1.00	3/29	
230 4.3 - Milestones - Multi-agency meeting	0 days	Fri 9/28/12	Fri 9/28/12	-	-		1	
231 4.3 - Milestones - Engineering plans	0 days	Fri 3/29/13	Fn 3/29/13				♣ 3/29	
232 4 3 - Milestones - CEQA documentation	0 days	Wed 4/30/14	Wed 4/30/14					→φ 4/30
233 4 3 - Allestones - Native grass buffer design	0 days	Fri 6/8/12	Fri 6/8/12		<b>)</b> 0	8		
234 4.3 - Milestones - Sediment stockpiling plan	0 days	Fil 6/21/13	Fri 6/21/13				- B/21	
235 4.3 - Milestones - Completion of permit list	0 days	Tue 4/29/14	Tue 4/29/14					4/29
236 Task 4.4: Construction/implementation	652 days	Tue 11/1/11	Wed 4/30/14		_		-	
237 Task 4.4 a Construction Contracting	20 days	Thu 6/20/13	Thu 7/18/13				-04	1
238 Task 4.4 b: Construction:	652 days	Tue 11/1/11	Wed 4/30/14		_			
239 Task 4.4 b 1 Mobilization and Demobilization	20 days	Thu 7/18/13	Thu 8/15/13				1	
240 Task 4.4.b.2: Project Construction	652 days	Tue 11/1/11	Wed 4/30/14	199				
241 Task 4.4.b.2.a: Establishment of native grasses	652 days	Tue 11/1/11	Wed 4/30/14					
242 Task 4.4.b.2 b: Preparation for sediment stockpile sites	60 days	Thu 8/15/13	Wed 11/6/13					
243 Task 4.4 b.3. Performance Testing and Demobilization	20 days	Thu 11/7/13	Wed 12/4/13					
244 4 - Milestones - Pre-bid contractors meeting	D days	Thu 5/9/13	Thu 5/9/13				G-45/0	
245 4.4 - Milestones - Award sadiment staging area contract	0 days	Wed 8/7/13	Wed 8/7/13				\$ 8/7	
246 4.4 - Milestones - Complete sediment staging area	0 days.	Wed 11/6/13	Wed 11/6/13				a 1	1/6
247 Task 4.5: Environmental Compliance/Mitigation/Enhancement	20 days	Thu 2/13/14	Wed 3/12/14					40
248 Task 4.5 a: Construction BMPs	20 days	Thu 2/13/14	Wed 3/12/14					1 K .
249 4.5 - Milestones - Construction BMPs	D days	Wed 3/12/14	Wed 3/12/14					- 3/12
250 Task 4.6 Construction Administration	652 days	Tue 11/1/11	Wed 4/30/14	1				
251 Task 4.7: Other	783 days	Wed 6/1/11	Fri 5/30/14	-				-
252 Task 4.7 a Legal support on Permits and Contracts	783 days	Wed 6/1/11	En 5/30/14			_	1 1 1	
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1D-	0	Task Name	Duration	Start	Finish C	1 02 03 04	01 02 0	3 04 01 02	Q3 Q4 Q1	02	Q3 Q4
264	-	Task 5 - "Water Quality Enhancement and Coastal Access"	826 days	Wed 6/1/11	Thu 7/31/14	-				_	
265	-	Task 5.1: Project Administration	826 days	Wed 6/1/11	Thu 7/31/14	-				_	-
200	110	Task 5.1.6 General Administration	763 08/5	Wed C/1/11	F/1 0/30/14	-					
267	10.0	Tesh 5 1 D. Labor Compliance Program	/63 days	Wed 6/1/11	FII 5/30/14	-				-	
208	00	Task 5.1.C. Reporting	760 days	Thu 9/1/11	Thu 7/31/14			1 - 1 - 1	4 .4 E		
269	22	Task 5.1 Quarterly Reporting	652 days	Thu Maria	5at 3/1/14	9. 9	9.9	0 0 0 0	1. 10 . 10 . 14	M	. 7/74
201	100	5.1 - Milestones - Final Report	U days	110 7/31/14	1114 1/21/14	-	_	_	_	-	· (13)
282	-	Task 5.2: Planning/Design/Engineering/Environmental Documentation	/bb days	Wed 6/1/11	Wed 5/7/14		_			-	
283	-	Test 5.2.6: Assessment and Evaluation	705 days	Wed 6/1/11	Wed 5///14	1				-	
204	-	Subtask 2.2.1: Assessment - Compliang data and TAC development	/22 days	Sun 7/31/11	Sup 7/21/11	1 704		-		-	
200		5.2 e.1 Ministers - Dela Gomphania Completed	Tan days	Sun manni	Start Protect	@ //a1			1.1.4	261	
200	2	5.2.4 (- Miesibies - TAC Meetings	7 20 days	Wed \$/3/11	Wed Sillia	0.0	0.0	0 0 0	0.00	1.00	
299		Subtasil, 5,2,a.2. Watershed Coordination and Site Evaluation	261 days	7700 0/1/11	Thu 5/31/12	-		4			
300	100	5 2.8.2 - Miestones - Sies chosen with Agencies and Landowners	U days	1110 D(31/12	100 5/31/12		· •				
301	100	Subtask 5.2.a.3. Community Outreach	412 days	wed c/1/11	Mon 12/31/12	-	_	1 100			
302	11.0	5.2.8.3 - Milestones - Planung Day	u days	58(12/1/12	581 12/1/12		and the second	· 12/1			
303	100	5 2.a.3 - Miestones - Castroville Community Meeting	U døys	Sat 12/31/11	581 12/31/11		· 12/31				
304	0.0	5.2.8.3 - Milestones - MERTIO scoping complete	0 days	1114 0/31/12	1110 5/31/12		\$ 5(3				
305	11	Task 6 2 D. Final Design	101 days	Ph 0/1/12	Mon 12/31/12			1000			
306	110	5.2 - Milestones - Completed Designs to moude in permits	0 days	Mon 12/31/12	Mon 12/31/12			• 12/31			
307	1	5.2. Environmental Documentation	260 days	Fn 0/1/12	Ph 5(31/13				4/24		
306	110	2.2 - Milestones - Expected completion of CEGA application	U days	Pri bratita	FII 5/31/13				- 5/31		
309	-	E 2. Microsoft Identification of necessary normatic	109 days	Mon 12/3//12	Tue tite 12						
211	6	5.2 • Milestones - Identification of necessary permits	U days	Ed 5/31/43	Ed 5/01/13			· 1/13	K124		
211	-	a.z Milestones - Expected completion of permitting approaching	0 Qays	Prioraina	FII 3-51/15				9(31		
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ID	0	Task Name	Duration	Start	Finish Q	1 02 03 04	Ot 102 03 04	01 02 03 04	01 02 03 04
336	-	Task 8 - "Watershed Approach to Water Quality Solutions"	826 days	Wed 6/1/11	Thu 7/31/14	-			
33/	-	Task 6.1. Project Administration	826 days	Wed 6/1/11	110 7/31/14				
338	2	TASK 0.1 m. General Administration	783 days	Wed 6/1/11	Fn 5/30/14	-			
339	22	Task 6.1.D. Labor Compliance Program	783 days	Wed 6/1/11	Fft 5/30/14	-			
340	-	Task 6.1.c: Reporting	760 days	Thu 9/1/11	Thu 7/31/14	-			
341	CH-	Task 6.1 Quarterly Reporting	652 days	Thu 9/1/11	Sat 3/1/14	9 9	0 0 0 0	00000	9
353	12	6.1 - Milestones - Final Report	0 days	Thu 7/31/14	Thu 7/31/14			1 1 1 1 1 1 1 1	· 7/31
354	-	Task 6.2: Planning/Design/Engineering/ Environmental Documentation	523 days	Wed 6/1/11	Sat 6/1/13	9.			
355	10	Task 6.2.a. Assessment and Evaluation	523 days	Wed 6/1/11	Sat 6/1/13	-			
356	2.0	Task 6.2.a Milestone - Make contact with 50% of growers in watershed	0 daya	Fri 6/1/12	Fn 6/1/12	1.1	- 6/1		
357	2	Tesk 6.2.e: Monitoring Plan/QAPP	66 days	Fn 7/1/14	Sat 10/1/11				
358		Task 6.3: Construction/Implementation	782 days	Wed 6/1/11	Fri 5/30/14	-			
359	100	Tesk 6.3.a. Grower Technical Assistance	760 days	Wed 6/1/11	Tue 4/29/14	-			
360		Task 6.3.b: Santa Rita Creek Restoration	774 days	Mon 6/13/11	Fri 5/30/14	-			
361	100	Task 6.3.b.1. Invasive Removal and maintenance	B7 days	Fri 7/1/11	Tue 11/1/11	-			
362	11	Task 6.3,b.2: Native Plant Propagation	400 days	Mon 6/13/11	Fri 12/21/12	-			
363	10.0	Task 6.3 b.3: Native Planting and channel modification	99 days	Thu 3/1/12	Tue 7/17/12				
364		Task 6.3.b.4: Residential Community Outreach	760 days	Eri 7/1/11	Fri 5/30/14	-			
365	13	Task 6.3.5.4 a. Bilingual Interpretive signs	89 days	Tue 5/1/12	Fri 6/31/12	1000			
366	122	Task 6.3 b.4 b: Residential Community Meetings/Training	610 days	Mon 8/1/11	Sun 12/1/13	-			
367	100	6.3 b 4.b. Milestone - Community Meeting	0 days	Thu 9/1/11	Thu 9/1/11	@ 9/1			
368	112	6.3.0.4.b. Milestone - WQ Monitoring training	0 days	Wed 11/30/11	Wed 11/30/11		11/30		
369	-	Task 6.3 b 4 c Community Watershed Festival	587 days	Fn 7/1/11	Tue 10/1/13				
370	1	6.3.b.4.c: Milestone - Annual Watershed Festival	0 days	Mon 4/30/12	Mon 4/30/12		⊕ 4/30		
371	111	6.3.b.4.c. Milestone - Annual Watershed Fastival	0 days	Tue 4/30/13	Tue 4/30/13		- 10 C	4/30	
372	1	6 3 b.4 c: Milestone - Annual Watershed Festival	0 days	Wed 4/30/14	Wed 4/30/14				4 4/30
373	<b>G</b> -	Task 6.3 h 4 d. Multeuthural Education	760 days	Ed 7/1/11	En 5/30/14				
374	-	Task 6.4: Other Costs	782 days	Wed 6/1/11	Fri 5/30/14	-			
375	-	Task 6.4.a. Monitoring and Practice Effectiveness	782 days	Wed 6/1/11	Fri 5/30/14	-	-		
376	-	Task 5 d a 1' Mananamarti Practice tracking tools/Assessment	679 stave	Mon 1/2/12	En 5/30/14		-		
377	6	8.4 a 1 Milestone , database for practice implementation	D days	En 6/1/12	Ed 6/1/12		- 6/1		
378	8	Tack 6.4 a 2: Water Citality Monitorianili ab analysis	E31 dave	Mon RITIT	Tue 12/31/12	_	- Git		
370	-	Task 5.4 a 3: CRAM Monitoring Cau analysis	0 days	Wed 6/1/11	Mad 5/1/11	A 6/1			
300	-	Task 6.4 a.4. Drate modification	E65 days	Men 11/14/11	E6 12/27/13	- W MI			
204	10	Task 64 a.4. Photo monitolog	ana make	MGAT 11/14/11	FII 12/21/13				
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396	Task 7 = "Evaluation of Storm	nwater Toxicity Reduction by LID Tre	atment Systems"	826 days	Wed 6/1/11	Thu 7/31/14	-	_	-			~	
397	Task 7.1: Project Admini	Istration		826 days	Wed 6/1/11	Thu 7/31/14	-			-			1
390 11	Task 7 5 to 1 abox Co	administration		763 days 763 days	Wed Eistes	FR 5/30/14	-						
400	Task 7.1 c: Baportin	inplance Program		760 days	Thu Britis	Thu 7/31/14	-						
401 00.	Task 7.1 Quarte	ade Paporting		657 days	The 9/1/11	Sat 3/1/14		A 81	A 44	X & X	A 16		
413 172	7 1 - Milestones	- Final Bennit		0 days	Tma 7/31/14	Thu 7/31/14	-	8 Y	8 A.	0 9 V	~ ~	× .	7/31
414	Task 7.2: Planning/Desir	m/Engineering/Environmental Docum	mentation	87 days	Wed 6/1/11	Fri 9/30/11	-						1.01
415 154	Task 7.2 a Assessm	ent and Evaluation	and the state of the	87 days	Wed 5/1/11	Fn 9/30/11	-						
416 78	7.2 - Milestone - Engi	ineering plans and calculations		0 days	Fri 9/30/11	Fn 9/30/11	-	9/30					
417	Task 7.3: Construction/h	molementation		717 days	Thu 9/1/11	Sat 5/31/14	-					_	
418 174	Task 7.3 a: Collect St	amples of Stormwater Runoff Pre and P	Post LID	631 days	Thu 9/1/11	F/I 1/31/14			_		_	6 I I I	
419 172	Tesk 7 3 b Conduct	Toxicity Testing with Three Aquatic Spe	cies	631 dévs	Thu 9/1/11	Fri 1/31/14			-		-		
420 11	Task 7.3.c. Analyze 0	Chemical Components of Water Sample	+5	672 days	Thu 9/1/11	Mon 3/31/14							
421 178	Task 7 3 d. Determine	e Stormwaler Runoff, Infiltration Rates	and Load Reduction	631 days	Thu 9/1/11	Fn 1/31/14		_					
422 54	Task 7.3.e. Analyze [	Data and Develop Interpretive Data Rep	port	652 days	Thu 12/1/11	Sat 5/31/14		-	_			_	
423 174	73 - Milestone - All s	amples collected (3 storm events)	1.2.	0 days	Fn 2/28/14	Fri 2/28/14		-				€ 2/28	
424 5	73 - Milestone - All to	oxicity testing complete (3 tests per sam	nple)	0 days	Mon 3/31/14	Mon 3/31/14						4 3/31	
425 114	73 - Milestone - All c	hemistry samples analyzed		0 days	Set 5/31/14	Sat 5/31/14						¢ 5/3	i1
426 5	73 - Milestone - All s	torm event load reductions calculated.		0 days	Sat 5/31/14	Sat 5/31/14						+ 50	11
427 1	7.3 - Milestone - Inter	pretive Data Report complete		0 days	Sat 5/31/14	Sal 5/31/14						- 5/3	11
Project: IRWM Date: Wed 1/5/	P scnediále ESF Sp 11 Pro	sk <b>e se</b>	Milestone Summary Project Summary	·	External Tasks External Milestone	•							
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## **ATT6\_IG1\_Measures\_1of1** Monitoring, Assessment, and Performance Measures

The following describes the monitoring plans, assessments, and performance measures for each of the seven projects contained in this proposal.

### Project 1: Soledad Water Recycling/Reclamation Project

### Implementing Agency: City of Soledad

The performance measure for the Soledad Water Recycling/Reclamation Project will be the reduction in potable water use from customers switching to recycled water for their lawn irrigation needs. The City of Soledad anticipates that initially 70 acre-ft per year of potable water will be replaced with recycled water. This is anticipated to grow to 180 acre-ft per year as more customers switch to recycled water for their lawn irrigation needs.

All users receiving recycled water will be metered. Thus, the quantity of recycled water delivered monthly and annually will be recorded and used to measure performance and progress toward the goal. Correspondingly, groundwater pumpage is also recorded and those values will be compared with current and recent pumpage data to demonstrate a reduction as a result of this project. The data will be normalized for annual weather variations as well as changes in the number and type of customers on the system.

Use of actual water metering data will produce precise measures of the success of this project. This project does not contain a monitoring component other than the ongoing effluent quality monitoring at the Wastewater Reclamation Plant. Such monitoring is already being performed.

### Project 2: Castroville CSD Well 2B Treatment Project

### Implementing Agency: Castroville Community Services District

The primary goal of the project is to complete the construction of Well 2B, allowing the production of drinking water from the 900-Foot Aquifer to meet the drinking water requirements of Title 22 of the California Code of Regulations (CCR). This production will offset some District pumping of water from the 400-Foot Aquifer.

The desired specific outcome for the project is a municipal production well and treatment system that produces 800 gallons per minute (gpm) of potable water supply. A desired secondary outcome is a stabilization of Chloride and Total Dissolved Solids (TDS) levels at the District's wells in the 400-Foot Aquifer.

System performance will be measured and reported using two output indicators and two outcome indicators, as discussed below and summarized in Table 1 below.

Output Indicator 1: Well Production.

- Target: The target water production rate for Well 2B is 800 gallons per minute (gpm). This is based on analysis of the 900-Foot Aquifer and the well development test pumping performed during well construction, as summarized in the memorandum report *Summary of Operations, Construction of Castroville Water District Well No. 2B.* This rate will allow the well to meet 25 to 50 percent of the District's annual demand. Nominal production target is 220 acre-feet per year (25%).
- Measurement methods: A totalizing flow meter will be installed with the well pump.
- Measurement location: Well 2B.
- Reporting: Well meters are read monthly. The District General Manager makes a monthly report to the board of directors on well production and water usage. Well production is reported annually to the California Department of Public Health (CDPH), and annually to the Monterey County Water Resource Agency (MCWRA). MCWRA publishes an annual report summarizing all reported groundwater use within the Salinas Valley Groundwater Basin.

Output Indicator 2: Residual Arsenic Level.

- Target: The primary drinking water standard for arsenic is  $\leq 0.010$  mg/L (CCR, Title 22, §64431).
- Measurement methods: Water samples will be collected by trained water system operators and tested at an ELAP certified laboratory using EPA method 200.8. Initial start-up and testing will require frequent sampling, but routine sampling will be on a monthly basis.
- Measurement location: A sampling tap will be located after the well 2B treatment train but before the piping joins the District water distribution network.
- Reporting: Monthly water quality testing results are reported to CDPH. Results are compiled annually into a Consumer Confidence Report.

Outcome Indicator 1: Chloride Level in the 400-Foot Aquifer.

- Target: The secondary drinking water standard for chloride is  $\leq 500 \text{ mg/L}$  (CCR, Title 22, \$64449). The state goal for drinking water is chloride  $\leq 250 \text{ mg/L}$ .
- Measurement methods: Water samples will be collected by trained water system operators and tested at an ELAP certified laboratory using EPA method 300.0. Routine sampling is conducted on a monthly basis.
- Measurement location: Sampling will be from Well 2A, which is on the same site as Well 2B but constructed in the 400-Foot Aquifer. An existing sampling tap is located on the well piping.

• Reporting: Monthly water quality testing results are reported to CDPH. Results are compiled annually into a Consumer Confidence Report. Source water quality information is shared with MCWRA, which compiles seawater intrusion maps.

Outcome Indicator 2: Total Dissolved Solids (TDS) Level in the 400-Foot Aquifer.

- Target: The secondary drinking water standard for TDS is  $\leq 1000 \text{ mg/L}$  (CCR, Title 22, §64449). The state goal for drinking water is TDS  $\leq 500 \text{ mg/L}$ .
- Measurement methods: Water samples will be collected by trained water system operators and tested at an ELAP certified laboratory using method SM 2540C. Routine sampling is conducted on a monthly basis.
- Measurement location: Sampling will be from Well 2A, which is on the same site as Well 2B but constructed in the 400-Foot Aquifer. An existing sampling tap is located on the well piping.
- Reporting: Monthly water quality testing results are reported to CDPH. Results are compiled annually into a Consumer Confidence Report. Source water quality information is shared with MCWRA, which compiles seawater intrusion maps.

	Sampled	Method and	Goal or	Regulatory	
Parameter	at	Frequency	Target	Standard	Reference
Well production	Well 2B	Flow meter	800 gpm 220 ac-ft/yr	N/A	N/A
Arsenic (post-process)	Well 2B	EPA 200.8 monthly	≤ 0.010 mg/L	≤ 0.010 mg/L	CCR Title 22 § 64431
Chloride (source water)	Well 2A	EPA 300.0 Monthly	≤ 250 mg/L	500 mg/L secondary	CCR Title 22 § 64449
Total dissolved solids (source water)	Well 2A	SM 2540C monthly	≤ 500 mg/L	1000 mg/L secondary	CCR Title 22 § 64449

#### **Table 1: Performance Measures**

# **Project 3:** San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley

Implementing Agency: San Jerardo Cooperative, Inc.

### Monitoring and Assessments Status:

The San Jerardo Co-operative currently operates the wastewater system and is responsible for compliance with the Discharge Permit Terms. Testing services are provided by a Monterey County company. Reports are submitted quarterly to the Central Coast Regional Water Quality Control Board (RWQCB) at this time. Wastewater flows into the treatment system are not currently monitored nor is the outflow into the drain field quantified. There are no monitoring wells in place to establish baseline levels of nitrate or other pollution load concentrations in the groundwater treatment system area. However, drinking water production wells at the site had to be abandoned because of levels far in excess of maximum accepted nitrates and 1,2,3-trichloropropane contaminants. The plumbing fixtures at San Jerardo have not been upgraded since initial installation in 1979. The Co-op has not installed or upgraded water-restricting faucets, showerheads or low-flow toilets in the residential units, in the child-care facility, or the community room. Water conservation and recycling education programs or materials were not provided by previous drinking water system owners and no educational programs have been implemented by Monterey County to date. No formal study of the feasibility or cost benefit of water recycling or grey water diversion has been undertaken at this juncture, however, both could have a positive impact on wastewater system efficiency and water usage. San Jerardo's Discharge Permit does not require a certified wastewater system operator. The residents provide volunteer labor to maintain the system and keep it in good working order. The Co-operative wastewater system is operated by the General Manager under the supervision of a volunteer Board of Directors of the Co-op.

### Monitoring Assessment and Performance Proposed Improvements:

The project includes installation of three groundwater monitoring wells up-and-down gradient from the system. The well sites will be determined by the project engineer based on the results of the hydrological study recommendations. Samplings will be taken in accordance with Central Coast RWQCB requirements.

Flow meters will be installed at the treatment pond intake and outflow locations to quantify effluent generation and outflow to the drain field area.

Repairs to pond embankments will prevent spills of untreated effluent when the system is at maximum capacity at times of peak occupancy and during winter storms.

Water conservation improvements are expected to produce immediate measurable reductions in wastewater from households projected at 20% by the end of 2012 and an additional 10% by the end of 2013 when taking into account the summer seasonal migrant Headstart program at the child-care facility located on the Co-op. Installation of the fixtures and out-flow metering at intake to the treatment ponds early in the construction process will produce measurable results prior to project completion.

### **Reporting Methods:**

Water Quality sampling results will be reported on a quarterly basis to the Central Coast RWQCB and Monterey County in GAMA-compatible formats.

Water usage will be recorded in accordance of IRWMP protocols and distributed to interested parties.

Improvements to management of the wastewater system will be measured by participation and completion of training programs and State certification of volunteer residents as Wastewater Operators.

Records will be available at the Rural Community Assistance Corporation (RCAC), the Co-operative office and online Water System Operator State certification listings.

Quarterly project completion reports will be submitted to the State through the applicant. Records will be maintained by the Co-operative, and distributed to interested parties upon request. Construction Project invoices will be reviewed by the project engineer and fiscal agent and maintained at the Co-operative. Labor Standards records and reports will be filed in accordance with the Labor Standards Compliance Plan approved by DIR.

Please see the Project Performance Measures Table below.

				Measurement Tools and	
Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Methods	Targets
Reduce nitrate, tri-chloropropane and other pollutants released from wastewater system into groundwater	Significant pollutant load reduction	Measurement of nitrates, tri-chloropropane released from treatment and retention ponds to leach fields Measurements at monitoring wells to be installed with this grant.	Measurements of reduced nitrate, tri-chloropropane and other contaminants compared to pre- improvement levels	Monitoring well installation at one up gradient and two down gradient sites for the system. Monthly sampling from treatment ponds and monitoring wells with quarterly reporting to MC Environmental Health, MCWR and RWQCB in GAMA compatible formats	<ul> <li>20% reduction in nitrates from system samples.</li> <li>10% reduction in trichloropropane in groundwater monitoring wells.</li> </ul>
Reduce household water use to lower impact on wastewater treatment system	Significant reduction in inflow to wastewater system	Measurement of water flow at intake to wastewater system	Measured reduction of intake flow to wastewater system compared to baseline readings taken prior to installation of water conservation fixtures and resident education program	Flow measurements to be taken monthly and compared to installation percentage of completion. At full rollout, flow differentials will be recorded in accordance with IRWMP protocols and distributed to interested parties.	<ul> <li>80% of households participate in the water conservation grant program.</li> <li>100% of residents participate in the community water conservation educational program.</li> <li>10% reduction in individual household water consumption.</li> <li>10% reduction in wastewater flows into the wastewater system</li> </ul>
Increase resident capacity to manage wastewater system.	Increase access to wastewater treatment operator and wastewater system management educational opportunities.	Number of residents and board members that participate in classes and complete coursework.	Increased number of residents and board members take classes offered by RCAC and others.	RCAC and other educational providers will record applications and completion data semi-annually. Certification lists are available on-line. Program data will be maintained in accordance with IRWMP protocols and distributed to interested parties.	<ul> <li>Two resident members of the San Jerardo Co-op will obtain Operator I Certification.</li> <li>The General Manager and two members of the Co- operative Board of Directors will complete coursework on wastewater system management.</li> </ul>

## San Jerardo Wastewater Project: Project Performance Measures Table

				Measurement Tools and	
Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Methods	Targets
Research, develop and adopt a water recycling and grey water plan for San Jerardo to include a blueprint for implementation if recommendation to proceed results.	Determine feasibility of water recycling and grey water diversion for the San Jerardo community.	Status of plan development, peer review and permitting agency review.	Final plan released and adopted by Board of Directors of the San Jerardo Co-operative.	Plan will be distributed to interested parties, filed with IRWMP in accordance with established protocols and records will be maintained at the Co-op.	<ul> <li>The draft synopsis and recommendations will be made available to all residents in Spanish and English.</li> <li>A translator will be present to facilitate at two planned community meetings to discuss the draft plan.</li> <li>The Co-op Board of Directors will hold two hearings prior to plan adoption.</li> </ul>

### Project 4: Integrated Ecosystem Restoration in Elkhorn Slough

### Implementing Agency: Elkhorn Slough Foundation

Project performance with respect to the goal "Increase the extent and the sustainability of tidal marsh in Elkhorn Slough in the face of climate change" will be tracked in two ways, centered on the two major themes for this phase of the project: engineering analysis and regulatory compliance, as follows:

- 1. Completion of the 30% Design Report will enable the establishment of the sediment stockpiling areas. Once established, donor projects can secure final permits and begin to deliver sediment. The establishment of the staging areas will indicate that this milestone has been achieved. Verification that the staging area has been established will be provided by an As-Built Report. The target is to achieve this milestone on schedule.
- 2. Progress with respect to regulatory compliance will center on the achievement of key milestones in the CEQA process. Progress will be marked by the timely completion of the Initial Study and Project Description. The target is publication of these items on schedule. (In Phase 3 of the project, this goal will be tracked by quantifying the acreage of tidal marsh restored.)

The goal "Reduce the costs of water management in the region by integrating projects" is focused on the identification of win-win opportunities that combine sediment management and wetland restoration projects to reduce project costs. The primary indicator of success will be whether such win-win alternatives are identified. In order to quantify the benefit of integrating projects, these savings will be evaluated in the Engineer's Cost Estimates and Cost Benefit Analysis. Part of the 30% Design Report, this analysis will compare paired projects against projects implemented individually. The target for success is to identify at least one alternative where the paired project represents a cost savings over individual projects.

Progress in achieving the goal "Protect and improve surface water quality in Elkhorn Slough" will be demonstrated by the implementation of the native grass buffer, a proven best management practice for agricultural non-point source pollution. The areal extent of the grass buffer will be the quantity measured to verify progress. The target extent of the grass buffer is 4.0 acres. (In Phase 3 of the project, this goal will be tracked by the establishment of the remaining acreage of the native grass buffer.) This project is consistent with the Basin Plan. Elkhorn Slough is impaired with respect to water quality, frequently violating Basin Plan objectives. The 2010 303(d) List Staff Report of the Central Coast Regional Water Quality Control Board lists 14 separate impairments in the watershed warranting TMDLs.

Please see the Project Performance Measures Table below.

		,			
Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	Measurement Tools and Methods	Targets
Increase the extent and the sustainability of tidal marsh in Elkhorn Slough in the face of climate change	Acreage of tidal marsh is increased and the "accommodation space" for marsh building sediment is decreased	Completion of the 30% Design Report Publication of the Initial Study and Project Description	Establishment of sediment staging areas	GPS, mapping, As- Built Report Verification of online posting of documents	Staging area established on schedule Initial Study and Project Description published on schedule
Reduce the costs of water management in the region by integrating projects	The most cost-effective strategies to wetland restoration and sediment management are identified and developed	Cost estimates are developed that compare the costs of a paired project alternative with separate projects	Paired projects are identified that reduce costs for both project proponents	Engineer's Cost Estimates and Cost Benefit Analysis	Engineer Cost Estimate for a paired project alternative is less than estimate for separate projects
Protect and improve surface water quality in Elkhorn Slough	Agricultural runoff is intercepted by vegetated buffer	Publication of Native Grass Buffer Design Report	Phase 1 planting of the native grass buffer	GPS, mapping, area comparison	Minimum of four acres of native grass buffer planted

### Integrated Ecosystem Restoration in Elkhorn Slough: Project Performance Measures Table

# **Project 5:** Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

#### Implementing Agency: Central Coast Wetlands Group at Moss Landing Marine Labs

During Phase 1 (this round of funding) project performance will be measured against the Work Plan tasks, which were designed based on the Phase 1 Goals and Objectives. The project will be considered successful if the tasks are completed with the desired outcomes within the timeline set out in the Schedule. Because the tasks are so closely tied to the goals of the project, if the tasks are completed the goals will be met.

The two project goals for this phase focus on successfully collaborating with affected parties and building support for the project. The goals are to *integrate stream restoration and water quality improvement objectives into County land-use planning and redevelopment, flood control management and agricultural operations,* and *create a stakeholder approved enhancement plan for slough alterations that will lead to the necessary improvements to water quality.* The Technical Advisory Committee that the CCWG forms will be key in reaching the first goal. Because they will represent a diverse group of interests and knowledge, we can measure our performance in developing comprehensive plans and collaboration based on the TAC's own approval and the success of TAC products in convincing other groups of the worth of the project. The second goal will be reached through getting stakeholder agreement on implementation plans for the on-the-ground restoration in Phase 2.

The Project Performance Measures Table below outlines the goals of the project and how we can monitor our success at meeting them. Because this phase does not include any on-the-ground monitoring or implementation, there will not be any new data collected or analyzed until Phase 2. However, ten years of water quality data conducted by the Central Coast Watershed Studies Group (CCoWS) at California State University Monterey Bay and the Monterey Bay National Marine Sanctuary on several sites along the Slough will be compiled and used as a baseline for project design.

# Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville: Project Performance Measures Table

				Measurement	
		Output	Outcome	Tools and	<b>_</b>
Project Goals (Phase 1)	Desired Outcomes	Indicators	Indicators	Methods	Targets
Integrate stream restoration and water					
quality improvement objectives into County		Number of TAC			
land-use planning and redevelopment, flood	<b>TAO</b> (11)	members who	TAC positive or		
control management and agricultural	IAC agreement on multiple	vote to adopt	negative vote on		90% adoption of
operations	objectives of project	project objectives	project objectives	Meeting notes	project objectives
			Positive comments		
Integrate stream restaration and water			on each design		
auality improvement objectives into County		TAC commont			
land-use planning and redevelopment flood	Positive review of project goals	letters regarding	control food safety	Simple	90% positive review
control management and agricultural	and general plans of project	Project Design	habitat public	spreadsheet of	of project design
operations	through scoping process	Elements	access)	TAC comments	elements
	Landowner and operator	Liointointo			Clotholito
	support from all potentially				
	affected parties. Multiple			Letters of Intent	
Create a stakeholder approved	Landowners agreement to		Number of	with parcel	
enhancement plan for slough alterations that	initiate the purchase of	Letters of Intent	accepted letters of	numbers and	
will lead to the necessary improvements to	easements on 20 acres of	to secure an	Intent and acreage	acreage	20 acres of identified
water quality	property	easement	totals	estimates	properties
					5 community groups
					provide support for
			Number of	Compilation of	the project including
Create a stakeholder approved	Community support for	1 - 44	community groups	meeting notes,	school and library
ennancement plan for slough alterations that	rempladero Restoration and	Letters of support	that support the	emails and	groups, business
will lead to the necessary improvements to		from community	objectives of the	from the public	faith based groups
water quality	project	organizations	project	from the public	raim-based groups

### Project 6: Watershed Approach to Water Quality Solutions

**Implementing Agency:** Monterey Bay National Marine Sanctuary, Central Coast Wetlands Group at Moss Landing Marine Labs, and the Resource Conservation District (RCD) of Monterey County

### Water Quality Monitoring

Water quality monitoring will be conducted by the community under the supervision of the Monterey Bay Sanctuary Foundation (MBSF) staff. This monitoring is modeled after the Salinas Clean Streams monitoring program that took place on Santa Rita Creek monthly between August 2005 and January 2007 (report attached). Monitoring will be conducted at five sites along the creek bracketing different land uses and restoration sites. Parameters will include water temperature, dissolved oxygen, pH, conductivity, transparency, nitrate-N, orthophosphate-P, e. coli, and total suspended solids. Sites will be monitored monthly and sometimes more frequently depending on restoration and agriculture practice implementation. The goal of the monitoring is to determine if we can measure improvements to water quality based on best practice implementation. All methods and protocols are recommended/approved by the Surface Water Ambient Monitoring Program. A Quality Assurance Project Plan will be submitted to the Central Coast Regional Water Quality Control Board for approval prior to any monitoring (previous QAPP attached as ATT3\_IG1\_WorkPlan\_46of46).

Water quality data will be stored in a database of similar format to the state CEDEN database. Results will be compared to historical data to determine both spatial and temporal trends.

Sampling Locations for	Location			
Santa Rita Creek	ID Number	Sampling Location and Driving Instructions	Latitude	Lonaitude
Upstream of the 14 <sup>th</sup> hole at the Salinas Valley Country Club	SRITA-33	Heading east on San Juan Grade Road, turn left onto Augusta Drive. Turn right onto Tam O'Shanter Rd. Park and walk north (left) on the dirt Ag road. At end of road cut over onto the golf course path and cross over pedestrian bridge. Sample below the bridge.	36 45' 01.2"	(-121 37' 54.5")
Santa Rita Creek behind 19225 Bellinzona Ave	SRITA-32	Access to this site has changed because the city locked the gate. Access is now off of Paul Ave. instead of Bellinzona. Turn right onto Denner Road from San Juan Grade Road when returning from the Golf Course site. Turn right onto Paul Ave. Park near white fence at right of way. Walk north to the site	36 43' 50 0	(-121 38' 32 7")
Santa Rita Creek at Russel Rd and Paul Street	SRITA-34	Site is at the corner of Paul Ave and Russell Road. Sample upstream of Russell Road.	36 44' 08.0"	(-121 38' 20.7")
Santa Rita Creek Park upstream of Van Buren Ave	SRITA-35	Site is at the corner of Van Buren and E. Bolivar. Access through chainlink fence on Van Buren where the road crosses the creek.	36 43' 33.4"	(-121 38' 58.6")
Santa Rita Creek at Main St and E. Bolivar	SRITA-36	Site is located where Santa Rita Creek flows under Main St just west of E. Bolivar. Sample on the downstream side of the bridge.	36 43' 28.9"	(-121 39' 22.2")

### Habitat Improvement Monitoring

Habitat Improvement monitoring will be conducted by the Central Coast Wetlands Group and consist of photomonitoring and California Rapid Assessment Method (CRAM) assessments using the riverine system module. CRAM uses four attributes (Buffer and Landscape Context, Hydrology, Physical

Structure, Biotic Structure) consisting of 14 metrics and submetrics (for example buffer condition, channel stability, structural patch richness, topographic complexity, percent plant invasion) to assess the overall health of a wetland and riparian system. A CRAM assessment will be conducted at each restoration site before any implementation begins to help guide the overall restoration process, again immediately after the restoration is complete. Two additional reference sites—one urban, one agricultural—will be assessed to show that the improvements are related to the projects.

CRAM final scores can range from 25-100. We would expect Santa Rita Park to increase in score from 8-10% due to the improvements in vegetation cover, and the Ferasci Park to improve 12-15% due to both vegetation and channel improvements. Photo monitoring will be used to validate the increased scores and provide a striking before and after model to act as a template for other sites. The CRAM and photo monitoring will ensure that this project is reaching the goal for the Environment as stated in the IRWM Plan "Protect, enhance, and restore the region's ecological resources while respecting the rights of private property owners."

The CRAM assessments will be uploaded to the CRAM website, www.cramwetlands.org.

### **Agricultural Practice Implementation Monitoring**

Monitoring for project impacts will be conducted using the following methods:

- Irrigation Management: Comparison of pre- and post-implementation irrigation distribution uniformity through paired distribution uniformity and system audit evaluations; and estimation or measurement (depending on absence or presence of flow meter) of irrigation water application and comparison with crop demand estimation using CIMIS (California Irrigation Management Information System) data.
- 2) Nutrient Management: Recording actual reduction in applied fertilizer in terms of nutrient pounds per acre based on grower communication in response to project staff recommendations. Recommendations will be based on nutrient budgets developed using soil samples, source water samples, irrigation system, and crop nutrient demand guidelines from UC Cooperative Extension.
- 3) Hillside berry farming erosion control: We will visually assess the presence and/or absence of visual signs of erosion on field roads and in furrows and ditches and estimate the annual delivery of sediment in tons from project sites by simple surveys of ditches before and after winter rains, the reduction in cross-sectional area of which will be recognized as accumulated sediment lost from lands up slope. These estimates will be compared with natural erosion rates as well as those estimated for the site if no erosion control efforts were made using the NRCS "Practice Effectiveness for the Elkhorn Watershed" spreadsheet (2002).
- 4) Manure Management on Ranchette parcels: From physical measurements of each animal-holding area and associated drainage structures, local rainfall data, estimated potential nutrient and pathogen production per animal, and published effectiveness data of the BMPs employed on each site, we will run a "Load Reduction Model" developed specifically for small-acreage livestock holdings to generate an estimate of reduced delivery of relevant pollutants.

				Measurement Tools	
Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	and Methods	Targets
Implementation of Erosion	No impact on Santa Rita Creek from upstream	Observation of erosion. Volume of sediment	Visible lack of gullies and erosion on roads, furrows and slopes. Drains and ditches below fields lack	Visual assessment of rills and sedimentation. Estimation of volume of sediment in field bottom ditches based on sampled cross sections prior to and following winter storm	80% less sediment in participating field bottom drains than estimated for the same fields without
Implementation of Irrigation Management practices	No impact on Santa Rita Creek from upstream agriculture	Volume and timing of applied water. Observation of excessive irrigation tailwater or system leaks.	Applied water compared with estimated demand according to weather, soil, crop data, and irrigation system best practices. Presence/absence of significant leaks or other inefficiencies contributing excessive tailwater	Flow meter readings; recording of irrigation start and end times; CIMIS data incorporated into demand estimation formula; distribution uniformity evaluations; system efficiency audits; observed leaks	Irrigation efficiencies of 70% for furrow irrigation, 75% for hand-move sprinkler, 80% for solid set sprinkler, and 90% for drip irrigation sites
Implementation of Nutrient Management practices	No impact on Santa Rita Creek from upstream agriculture	Pounds of nutrient applied per acre. Load of nitrate and orthophosphate in tail water	Reduced input of fertilizer per acre. Reduced fall applications of nitrogen.	Communication with growers and recording of fertilizer applications and timing	20% reduction in pounds of nitrogen applied per acre; 50% of participating growers reducing or eliminating fall nitrogen fertilizer applications
Implementation of Manure Management practices	No impact on Santa Rita Creek from local ranchettes.	Load of nitrogen, sediment, and/or pathogens in drains leaving properties	Reduced pollutant load in water leaving participating ranchettes	Load Reduction Model for participating ranchettes run prior to and post BMP implementation	Estimated load reductions of 80% at participating ranchette sites
Improved Habitat on Santa Rita Creek	Healthy native vegetation on 0.25 miles of creek.	Increased cover of native vegetation, reduction in bare ground and non- native vegetation	Comparison of before and after photos, and pre- and post-project CRAM scores	CRAM (one assessment at each and one reference site done before and after implementation). Photo Monitoring	Improvements in some metric scores for leading to an improvement in overall CRAM score of 12-15% for the ball field and 8-10% for the park
Improved Water Quality Conditions in Santa Rita Creek	Natural flow of pollutant- free water in Santa Rita Creek.	Measurements for: - Water temperature - Dissolved oxygen - Total suspended solids - Orthophosphate - Nitrate - e. Coli	Results will be compared to historical water quality results for ambient conditions.	Methods will be SWAMP comparable and will be formatted to upload to CEDEN.	90% of water quality measurements taken in Santa Rita Creek meet the nutrient and FIB objectives for Cold Water Fish beneficial use
Community support and understanding of healthy environment	Community members support a clean, native vegetated, litter free Santa Rita Creek.	Number of Community Member participation. Reduction in amount of trash.	Tracking community participation in WQ monitoring and at events. Pounds of trash collected	Comparison of participation and amount of trash collected between Y1 and Y3	

# **Project 7:** Evaluation of Potential for Stormwater Toxicity Reduction by Low Impact Development (LID) Treatment Systems

### Implementing Agency: UC Davis Granite Canyon Marine Pollution Studies Laboratory

The project does not entail new construction, and as such, does not have a post-construction monitoring component. The project entails evaluating the efficacy of four constructed urban bioswales in reducing stormwater runoff toxicity. The project in itself can be considered a monitoring project, and includes toxicity testing with three species and chemical analyses as the two main indicators of effectiveness. These components are detailed in the Work Plan narrative tasks descriptions, but are briefly summarized here.

Toxicity testing of stormwater runoff pre and post treatment will be conducted using three standardized US EPA acute toxicity test protocols for *Ceriodaphnia dubia, Hyalella azteca*, and *Pimephales promelas* (US EPA 2002). The toxicity endpoints will measure reduction of stormwater toxicity before and after treatment with bioswales.

Chemical concentrations and loadings of suspended solids, metals, PAHs, nutrients and pesticides will be analyzed in water samples collected before and after treatment by bioswales. GC/MS and NCI-GC/MS will be used to analyze organic pollutants. ICP/MS will be used to analyze metals. Total Suspended solids (TSS) will be analyzed using EPA Method SM 254OD. Nutrients and turbidity will be analyzed using a spectrophotometer.

This monitoring data will be important for regional stormwater management agencies to use in future land use planning decisions.

Please see the Project Performance Measures Table below.

### Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems: Project Performance Measures Table

				Measurement Tools	
Project Goals	Desired Outcomes	Output Indicators	Outcome Indicators	and Methods	Targets
Assess efficacy of LID practices (bioswales) to reduce stormwater toxicity.	Reduction of stormwater toxicity after treatment with bioswales	Survival of crustacean and fish toxicity test species before and after stormwater treatment in bioswales	Parametric statistical comparisons of toxicity test organism survival before and after stormwater treatment by bioswales	Standardized US EPA acute toxicity test protocols for <i>C.</i> <i>dubia, H. azteca,</i> and <i>P.</i> <i>promelas</i> (US EPA 2002)	N/A. Project will not entail new construction. Monitoring is a main component of this project, as described in the Work Plan, with no targets other than accurately capturing treatment efficacy.
Determination of stormwater pollutant load reduction through bioswales	Reductions of contaminant loadings through treatment of stormwater with bioswales	Chemical concentrations and loadings of suspended solids, metals, PAHs, nutrients and pesticides before and after bioswale treatment	Watershed modeling, rainfall totals, stormwater flow, storm hydrograph characterization, contaminant analysis, contaminant loading, contaminant load differences before and after bioswale treatment	GC/MS and or NCI-GC/MS – organic pollutants (PAHs, pesticides, EPA Method 8310 or 625M Negative Chemical Ionization); ICP/MS – metals US EPA 200.7, TSS - EPA Method SM 2540D), nutrients - spectrophotometric, turbidity - spectrophotometric	N/A. Project will not entail new construction. Monitoring is a main component of this project, as described in the Work Plan, with no targets other than accurately capturing treatment efficacy.
Provide data to stormwater agencies, water quality managers, LID engineers, and others to be incorporated into future land-use planning and management decisions.	Final report discussing the effectiveness of bioswales constructed for residential and commercial applications	N/A	N/A	N/A	Final Report will be distributed to at least five different stormwater agencies and regional water quality managers.

## ATT7\_IG1\_WSBen\_1of16 Economic Analysis – Water Supply Costs and Benefits

### I. Proposal Economic Costs

This proposal is based on the coordination and collective benefits of seven projects with distinct project management timelines. The economics of the proposal are largely based on the data included in the Budget. The capital and other initial costs for each of the seven projects in this attachment are identical to those included in Budget Attachment 4. A significant difference between the Budget Table 7 and Economic Cost Table 11 is the accounting for the timing of expenditures over the years coupled with the discounting of those expenditures back to a present value in the year 2010.

In addition to expressing costs as a present value, Table 11 also includes Administration, Operations, Maintenance, Replacement, and Other costs that may be incurred once the project's facilities are completed. The following presents the costs of each project contained in this proposal.

### Project 1: Soledad Water Recycling/Reclamation Project

### Implementing Agency: City of Soledad

The project entails upgrading and expanding the City's wastewater treatment and effluent handling system in order to facilitate its recycling and reclamation and at the same time mitigate existing regulatory concerns of potential degradation of the underlying groundwater. The City of Soledad proposes to design and construct, in fundable phases, the balance of the Soledad Water Reclamation Project. The 5.5 MGD Water Reclamation Facility was substantially complete on February 24, 2010. This project would include completion of design of a recycled water delivery system to both agricultural and recreation areas in and near the City of Soledad. This project would also include research on the use of recycled water for agricultural uses. The entire project would cost an estimated \$45M.

The first phase, which is being proposed through this grant application, is to construct the recycled water pump station and design and construct the transmission mains needed to connect the recycled water transmission mains already constructed to the pump station. Completion of this phase would enable delivery of recycled water to multiple landscaped areas currently being irrigated with potable water. This first phase would also include a feasibility study and preliminary conceptual design for the neighboring communities of Gonzales and Greenfield for delivery of their cities' wastewater to the Soledad Water Reclamation Facility for processing. The goal of this project is to replace 180 acre-feet per year of potable water demand with recycled water. Potable water demand for the basin is currently in excess of basin safe yield. This project is designed to lower the demand on the basin through delivery of recycled water from the existing Water Reclamation Plant.

Analysis assumes a 20-year service life for the pump station starting in November 2012. Engineering costs are incurred in 2009-10 and construction costs in 2010-11. There is no added administration cost for this project. All operations are estimated at 1.5% of capital cost and maintenance at 1.0% of capital cost. Replacement cost is calculated based on estimated value of equipment to be replaced in year 20. All capital and other costs are shown in the table below and explained in detail in Table 11.

	Capital and Other Initial Costs	All Other Costs	Total Cost
Cost Over Proposal Life	\$1,530,000	\$636,938	\$2,166,937
Present Value of Cost	\$1,301,700	\$305,137	\$1,606,837

Capital and Other Initial Costs are included from the year 2012 to 2013, during project design and construction. Costs for operations and maintenance of the project improvements are included through the year 2032, which represents the end of the project's useful life.

### Project 2: Castroville CSD Well 2B Treatment Project

### Implementing Agency: Castroville Community Services District

The project entails construction of a well pump and arsenic removal treatment system for an existing well in Castroville, CA. This is a water supply enhancement project. Castroville's wells are in the 180/400-foot aquifer of the Salinas Valley Groundwater Basin, and were experiencing increased salinity due to seawater intrusion. The overall project is to construct a new well in the deeper 900-foot aquifer and reduce pumping from the shallower aquifers. In 2007, Castroville Water District (now the Castroville Community Services District) drilled a new well, No. 2B, into the 900-foot aquifer. Water quality testing indicated that arsenic levels in the new well (17 ppb) exceeded the MCL for drinking water (10 ppb). Construction of a new well pump and treatment facility will increase the overall water system capacity for Castroville, achieving the primary benefit of a new water supply facility. Pumping water from the deep aquifer instead of the 180/400-foot aquifer will reduce the migration rate of seawater-intruded groundwater in the shallow aquifer. This change, coupled with other IRWM projects that reduce agricultural pumping from the shallow aquifer, supports the groundwater management strategy developed by the Monterey County Water Resources Agency for the Salinas Valley Groundwater Basin.

	Capital and Other Initial Costs	All Other Costs	Total Cost
Cost Over Proposal Life	\$783,020	\$482,624	\$1,265,624
Present Value of Cost	\$705,670	\$233,229	\$938,899

Capital and Other Initial Costs are included from mid-2009 through mid-2011, during project design and construction. Costs for operations and maintenance of the project improvements are included through the year 2032, which represents the typical service life for municipal water supply equipment such as this.

### **Project 3**: San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley

### Implementing Agency: San Jerardo Cooperative, Inc.

The San Jerardo Co-operative is a farm-worker housing collective. It is a disadvantaged community (DAC) that is confronted with serious drinking water, wastewater and human health concerns. The community is requesting funding for required wastewater system upgrades. Presently, the community runs its own wastewater system, in the form of four ponds, leach fields and a machine room. However, the area's groundwater, which provides the community's drinking water, is threatened by nitrate contamination among other things. The community urgently needs to upgrade the wastewater system to prevent further water quality deterioration. Also, the current system is at capacity, and the repairs and upgrade are necessary to ensure compliance with the Central Coast Regional Water Quality Control Board's Waste Discharge Requirement Order No. R3-2003-0054 and prevent further groundwater

contamination in the Salinas Valley - East Side aquifer. Total cost of construction and administration is shown in the table below.

San Jerardo administrative expense includes \$800 annual management reporting expense. Total operation-related expenses include \$2,000 in wastewater lab analysis and \$3,000 for the electrical engine room. Total maintenance-related expenses include \$2,040 in clean-up maintenance and \$2,900 in maintenance labor. There is no replacement cost for this project. Other expenses include \$2,000 in miscellaneous expenses. Electrical power supply is included in the operating budget for the Co-operative as a whole. The project engineer estimates electricity costs at \$5,256 per year for the aerators. The new costs for monitoring well pumps and associated equipment are expected to be offset by the use of solar aerators. Expenses are calculated on an annual basis. The project will be initiated in the fall 2011 and completed by late summer 2012. The only increase directly attributable to the project is for water testing, which will be multiplied by 4 after completion to include testing at each of the three new monitoring wells.

	Capital and Other Initial Costs	All Other Costs	Total Cost
Cost Over Proposal Life	\$1,029,455	\$503,915	\$1,533,370
Present Value of Cost	\$979,298	\$266,624	\$1,245,922

Capital and Other Initial Costs are included from the year 2010 to 2011, during project design and construction. Costs for operations and maintenance of the project improvements are included through the year 2032, which represents the end of the project's useful life.

### **Project 4**: Integrated Ecosystem Restoration in Elkhorn Slough

### Implementing Agency: Elkhorn Slough Foundation

The Elkhorn Slough Foundation, in partnership with the Elkhorn Slough National Estuarine Research Reserve, the Moss Landing Harbor District, the Monterey County Water Resources Agency and the County of Santa Cruz, proposes to restore up to 90 acres of tidal salt marsh and a 30-acre native grassland buffer to provide habitat and reduce nonpoint source pollution in Elkhorn Slough. The marsh will be restored through the placement of sediment to be removed from Moss Landing Harbor and benches along the Pajaro River, making harbor maintenance and flood protection projects more effective and with fewer impacts on the environment. The project will address these specific problems through a collaborative approach and using a phased implementation approach. Prior phases included property acquisition and establishment of a buffer between farmland and the estuary. The next phase, which is the focus this proposal, includes the following steps: planning to finalize the project description and conduct CEQA compliance, engineering to a 30% design, establishment of native grassland in portions of the vegetated buffer, and site preparation for receiving sediment.

Initial costs include the requested funds for this grant. Matching funds for project planning were spent in 2009 and 2010 and are sunk costs. Total project costs include the cost of CEQA compliance, engineering and permitting (2012), and capital costs during construction phases in 2013 (Minhoto), 2014 (Seal Bend) and 2015 (Hester's Marsh). These construction costs were estimated at \$35 per yard of placed sediment. Additional cost estimate detail is provided in the attached report by Largay and Woolfolk (2010, attached as part of Attachment 3, ATT3\_IG1\_WorkPlan\_34of46). This estimate is conservative when compared to costs estimated at \$13 to \$21 per yard of placed sediment for other restoration sites in Elkhorn Slough (ESNERR and Moffatt and Nichol 2010, pp. 3-104). Maintenance costs of \$8000 per year are associated with maintaining the native grass buffer with mowing. All other costs related to the property, including

administration and other maintenance costs, will be incurred regardless of whether the project is implemented, and therefore are not included. The project is expected to persist in perpetuity. A 40-year project life was used for planning purposes. Capital and Other Initial Costs are included for years 2011 through 2015, during project design and construction. Costs for operations and maintenance of the project improvements are included through the year 2048.

	Capital and Other Initial Costs	All Other Costs	Total Cost
Cost Over Proposal Life	\$3,739,982	\$296,000	\$4,035,982
Present Value of Cost	\$2,931,088	\$104,363	\$3,035,451

# **Project 5**: Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

Implementing Agency: Central Coast Wetlands Group at Moss Landing Marine Labs

This project, led by the Central Coast Wetlands Group (CCWG) at Moss Landing Marine Labs, aims to enhance the thoroughly degraded Tembladero Slough, a water body which currently has 14 303(d) listed pollutants that flows untreated into the Monterey Bay National Marine Sanctuary. Enhancement will be achieved through a collaborative effort between County planners, farmers, scientific researchers, and the community. In this first phase of the project, the Coordination Team will redesign the form and function of the lower drainage to include wetland enhancement projects, water quality treatment areas and public access, while addressing agriculture discharge permits, the Castroville Community Redevelopment Plan, and the County Flood Control Program. In the second phase, the Coordination Team will improve water quality through the purchase of easements and creation of treatment wetlands in strategic locations along the slough, improve flood plain open space areas, create enhanced habitat, and construct public access trails where possible.

The staff of the CCWG has years of experience coordinating stakeholders and planning restoration in North Monterey County. The costs of the work are based on prevailing wages for the type of work, estimated time to complete the work, and fair market prices. CCWG through San Jose State Research Foundation will do the administration and coordinate much of the assessment and evaluation. Total initial costs for this project are shown in table below.

	Capital and Other Initial Costs	All Other Costs	Total Cost
Cost Over Proposal Life	\$581,780	\$0	\$581,780
Present Value of Cost	\$501,086	\$0	\$501,086

Matching funds were spent in 2009-2010 and are expected for 2011. Costs associated with the requested funding are expected to occur during years 2011-2013 as coordination and planning actually occurs. There are no costs of construction or implementation for this project.

### **Project 6**: Watershed Approach to Water Quality Solutions

**Implementing Agency:** Monterey Bay National Marine Sanctuary, Central Coast Wetlands Group at Moss Landing Marine Labs, and the Resource Conservation District (RCD) of Monterey County

The proposed project will take a watershed approach to improve water quality in Santa Rita Creek, an impaired waterbody located within the Lower Salinas River Watershed. This approach will address

impacts from agriculture and urban areas and will incorporate creek restoration while engaging the community. Santa Rita Creek flows into the Salinas Reclamation Canal, Tembladero Slough and ultimately to the Monterey Bay National Marine Sanctuary. These waterbodies are considered the most polluted waterbodies on the Central Coast with 37 TMDL listings, 7 of them on Santa Rita Creek. Agricultural efforts will focus outreach and referrals to leverage existing programs and funding for implementation of irrigation and nutrient management practices and the Livestock and Lands program. In addition, much needed management measures will control erosion from strawberry crops. Two restoration projects along Santa Rita Creek totaling 0.25 stream miles will promote environmental stewardship, reduce illegal dumping, stabilize banks and increase biofiltration of pollutants through revegetation of native plants. Tools will be developed to determine effectiveness of these practices and will build a knowledge base to allow water and land resource managers to make comparisons and demonstrate improvements between watershed scale practices and ambient water quality conditions within this watershed.

The staff of the Monterey Bay Sanctuary Foundation has over 10 years of experience conducting water quality monitoring and working collaboratively with a diversity of partners. The hourly rates are based on prevailing wages, estimated time to complete the projects, and fair market prices. This project expands and enhances the ongoing mission of the Monterey Bay National Marine Sanctuary (MBNMS) and its fiscal sponsor, the Monterey Bay Sanctuary Foundation. The Water Quality Protection Program (WQPP) at the MBNMS will lead the efforts for water quality monitoring, residential community outreach, agricultural community outreach and water quality data analysis. Total initial costs for this project are shown in table below.

	Capital and Other Initial Costs	All Other Costs	Total Cost
Cost Over Proposal Life	\$637,312	\$0	\$637,312
Present Value of Cost	\$581,192	\$0	\$581,192

Capital and Other Initial Costs for are included from the year 2010 to 2011 during project design and construction. There are no costs for operations or maintenance of the project.

### Project 7: Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems

### Implementing Agency: UC Davis Granite Canyon Marine Pollution Studies Laboratory

In order to protect the beneficial uses of aquatic habitats, many cities are now mandating Low Impact Development (LID) treatment systems such as bioswales. Information on the ability of urban bioswales to reduce toxicity is an important component for evaluating impacts of regional urban stormwater runoff. This project will evaluate the efficacy of bioswales in reducing the concentrations of contaminants that contribute to stormwater toxicity in the City of Salinas. Looking at four sites in the City of Salinas, the project will: (1) assess toxic effects of stormwater runoff to aquatic organisms prior to treatment by bioswales; (2) evaluate efficacy of bioswales to reduce toxicity to aquatic organisms; (3) determine stormwater and pollutant load reduction through bioswales; and (4) provide data to stormwater agencies, water quality managers, LID engineers, and others to be incorporated into future land-use planning and management decisions.

This project is designed to monitor bioswales that have already been constructed in three shopping centers and one apartment complex. The bioswales are operated and maintained by the shopping centers and apartment complex managers where they have been constructed, but these operating costs are separate from the project. The project's goal is to simply measure stormwater chemistry and toxicity before and after it is treated by the bioswales, and this monitoring does not affect the operating costs. Total initial costs for this project are shown in table below.

	Capital and Other Initial Costs	All Other Costs	Total Cost
Cost Over Proposal Life	\$328,200	\$0	\$328,200
Present Value of Cost	\$315,221	\$0	\$315,221

Initial Costs are included from the year 2010 to 2012, during project design and construction. There are no operations and maintenance costs for this project.

### **II. Proposal Water Supply Benefits**

The Greater Monterey County proposal includes a suite of seven projects that, when implemented collectively, will provide water supply, water quality benefits, natural resource benefits, flood protection benefits, as well as a variety of other benefits. Water supply benefits have been quantified economically for three of the seven projects:

- Project 1: Soledad Water Recycling/Reclamation Project
- Project 2: Castroville CSD Well 2B Treatment Project
- Project 3: San Jerardo Wastewater Project

The remaining four projects contained in this proposal will provide water supply benefits but more intangibly; that is, water supply reliability will improve indirectly as a result of water quality improvements which each of the four projects will attain. Improved surface water quality will improve groundwater quality via percolation, which will improve water supply quality and therefore water supply reliability (since groundwater is the primary source of water supply in the region). In addition, restored wetlands may also increase groundwater percolation, which will also increase the groundwater supply. However, these water supply benefits have not been quantified.

The water supply benefits are explained in turn for each project below.

### Project 1: Soledad Water Recycling/Reclamation Project

### Implementing Agency: City of Soledad

The goal of this project is to replace 180 acre-feet per year of potable water demand with recycled water. Potable water demand for the basin is currently in excess of basin safe yield. The project is designed to lower the demand on the basin through delivery of recycled water from the existing Water Reclamation Plant. The project will replace 23,000,000 gallons of potable water with recycled water for Irrigation purposes. In addition, the school will receive 10,000,000 gallons of recycled water per year. As per the Urban Water Management Plan (UWMP) for December 2005, Soledad is expected to use 900 acre-feet of additional recycled water from 2010 through 2015, on average totaling 180 acre-feet per year. The project benefits will begin November 2012.

The City of Soledad has limited potable water supply. Currently they are over pumping the groundwater to meet the irrigation demands for future growth. With this project in place, 180 acre-feet per year of potable water will be replaced with recycled water. In absence of this project, Soledad will need to rely on some other source of water. If Soledad were to opt for desalination as the source, then in order to meet the

original potable water demand the unit value would be \$1,000 per acre-feet of water. Based on these numbers, the water supply benefit for Soledad is quantified in Table 12.

### Project 2: Castroville CSD Well 2B Treatment Project

### Implementing Agency: Castroville Community Services District

This project's primary benefit is increased water supply for Castroville (i.e., treatment of a new water supply source to render the water potable). As discussed under Performance Measures in Attachment 6, this system is expected to produce 800 gallons per minute of potable water supply. At that rate, the system could meet one half of Castroville's annual water demand of 880 acre-feet per year, though it will more likely meet an average of 25% of the annual demand, or 220 acre-feet/year, due to the increased cost of operating the system over the existing, shallower wells. This volume is used for the economic analysis. The Schedule in Attachment 5 shows construction being completed in October 2012. Therefore, Tables 11 and 12 show two months of water production and O&M costs in 2012, and the full annual production and costs in the subsequent years.

Under the Castroville Community Plan, published by Monterey County Housing and Redevelopment Office, up to 1,600 new dwelling units may be constructed in Castroville during the life of this project. The addition of housing and commercial development will increase water demand by more than 50% above current levels, and this will certainly increase the volume of water pumped from the 900-foot aquifer by the Castroville CSD. However, the Community Plan is a not a projection of future development, and cannot therefore be used as the sole basis for estimating future water demand. Because the per unit benefit value for this project is high, using the current demand levels results in a sufficiently high benefit to cost ratio.

Castroville CSD has sufficient well capacity to meet its current annual water demand. This is a new water supply facility, which adds 800 gallons per minute, or 220 acre-feet/year of system capacity. Without this project, the added system capacity is zero. These values were used in Table 12. Because this is water from a new supply source, the unit benefit value for the water was estimated as the difference in cost between producing water from this project and purchasing potable water from a nearby new supply project. California American Water Company, Monterey County Water Resources Agency, and the Marina Coast Water District are jointly working on a Regional Desalination Facility project, which will be located just south of Castroville in northern Marina. The estimated cost of water at the proposed plant ranges from \$2,000 per acre-foot to \$2,500 per acre-foot. The lower end estimate of \$2,000 per acre-foot was used in this cost analysis. The alternative of constructing an inland well outside the zone of seawater intrusion and a connecting pipeline was not considered, because that project does not achieve the reduction in well pumping from the 180/400-foot aquifer as the Well 2B project does.

It is estimated that the per unit production cost (power and chemicals) for the Well 2B system will be \$100 per acre-foot. Total per unit cost benefit of not purchasing desalinated supply from the proposed regional facility is then \$1,900 per acre-foot (\$2,000 - \$100). This value is used in Table 12, Annual Water Supply Benefits.

The primary beneficiaries of this project are the residents of Castroville, who will have a more secure source of water supply. Castroville will realize this benefit as soon as the project is installed and commissioned. Because this project is part of the regional effort to reduce groundwater pumping from the 180/400-foot aquifer near the coast, the benefit area stretches inland to Salinas and surrounding communities that rely upon that aquifer as their source of supply. The typical cost of producing water from the 180/400-foot aquifer is \$65 per acre-foot, or 35% less than from the 900-foot aquifer. Actions that reduce or mitigate seawater intrusion benefit the inland groundwater users who may continue their

use of the upper aquifer. It cannot be accurately estimated what benefit percentage an inland groundwater user would realize due to this project. Castroville accounted for 0.6% of the groundwater use within the Pressure Subarea of the Salinas Valley Groundwater Basin (MCWRA 2009 Annual Summary Report). This project is expected to reduce 25% of that pumping. At the same time, the Salinas Valley Reclamation Project will be delivering over 4,000 acre-feet per year of surface water to reduce the use of irrigation wells in the upper aquifer. This benefit is shown qualitatively in Table 14 – Annual Other Water Supply Benefits. No potential adverse affects are identified for this project. Because the 900-foot aquifer is separate from and significantly older than the upper aquifer, additional taste and odor treatment may be required once the well is brought into full production. The treatment process is configured to address those adjustments via the chemical feed ratios.

### **Project 3**: San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley

### Implementing Agency: San Jerardo Cooperative, Inc.

The San Jerardo Co-operative plans to install water conservation measures as part of this project. Conservation measures will include low flow toilets and other water saving fixtures for the community households. It is estimated that the community currently uses 21,000 to 29,000 gallons of water per day. Peak usage is 32,000. Conservation measures are expected to reduce that water usage by at least 30 percent beginning next year. Starting from 2011, the San Jerardo community will be expected to pump 30 percent less groundwater, upon completion of the water conservation component of the project. Water rates for each household can be reduced or maintained at current levels and will thereby reduce the cost of groundwater pumping at a rate of about \$1,000 per acre-feet. These water supply benefits are quantified in Table 12.

The project will also have energy savings by using solar-powered aerators and potentially other solar technology where feasible. Water conservation measures implemented through this project will also have potentially significant energy saving implications. The energy savings from installing two solar aerators is expected to be offset by operating costs of on-demand pumps at the three monitoring wells. This benefit cannot be quantified. Water supply benefits include the provision of an alternate source of water for grounds upkeep and year-round soccer field irrigation through the reuse or recycling of treated wastewater, thus reducing water supply demand. Water recycling is still in the planning phase and therefore cannot be quantified at this point. There will have to be additional measures installed in order for this project to be in compliance with Title 22. Water quality benefits of this project are explained in detail in Attachment 8.

Future economic benefits are expected to result from the planning component of the grant, which include the substitution of recycled water for water from the new well site for secondary uses and diversion of grey water, reducing operating costs to pump, store and maintain the wastewater system. These benefits will be achieved only if the recycled and grey water projects are implemented. As these components are in the planning phase, this benefit is a non-quantifiable benefit.

### **Avoided Cost Benefits**

Project benefits include avoided costs. If this project is not implemented, significant and serious health issues in the community are likely to continue to occur due to contaminated water. In addition, the RWQCB would impose a fine on San Jerardo in the range of \$1,000 to \$5,000 per each day the system is in violation of the Wastewater Discharge permit and the provisions of State Water Codes. The calculations for this fine are based on the \$1,000 per day value on the lower side. Also, in that case San Jerardo would have to relocate each household. The Migrant Head Start program and childcare center would be closed. Resident relocation costs are for 64 households in the range of \$4-5 million. Actual
costs would be determined based on the income of residents, household size, availability of replacement units, and actual market rents at the time relocation is implemented. Based on information about other relocation projects involving families with more than five residents per household, it was recommended to use an estimate in the range of \$6 million. A major cost associated with relocation in situations similar to San Jerardo is overcrowding of the original units due to multigenerational family occupancy. Two or three replacement rental units and moving expense for each multi-family household would be required if the unit is considered to be overcrowded. It is estimated that relocation would occur over a period of up to six months due to the shortage of comparable large-size rental units in neighboring areas. During the relocation period, the RWQCB is likely to impose an Order for wastewater removal. Costs for removal are based on \$1,500 per load (RWQCB figures) at the average daily flow rate for the system. All avoided cost benefits are quantified in Table 13.

### Project 4: Integrated Ecosystem Restoration in Elkhorn Slough

### Implementing Agency: Elkhorn Slough Foundation

The Elkhorn Slough project includes no economically quantifiable water supply benefits per se. However, by implementing this project, water quality in Elkhorn Slough will be improved and 75 acres of tidal marsh will be restored. These water quality benefits are described in Attachment 8. Flood Damage Benefits are described in Attachment 9.

# **Project 5**: Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

### Implementing Agency: Central Coast Wetlands Group at Moss Landing Marine Labs

This project includes no economically quantifiable water supply benefits per se, though the water quality improvements in the Tembladero Slough will positively impact the underlying groundwater basin. The original concept behind the project was to focus on flood damage reduction as a benefit of open space, but since that benefit is not yet quantifiable, all of the benefits for the purpose of this economic analysis are included only in the Water Quality and Other Benefits table, described in Attachment 8.

### Project 6: Watershed Approach to Water Quality Solutions

**Implementing Agency:** Monterey Bay National Marine Sanctuary, Central Coast Wetlands Group at Moss Landing Marine Labs, and the Resource Conservation District (RCD) of Monterey County

This is not a water supply or wastewater infrastructure project, but is focused on water quality improvements. Therefore this project was evaluated with regard to improved environmental conditions. Benefits to water quality, recreation, and habitat restoration are described in Attachment 8.

### Project 7: Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems

### Implementing Agency: UC Davis Granite Canyon Marine Pollution Studies Laboratory

This project does not include construction or installation of control measures to improve water quality, but rather an evaluation of existing LID structures to see how well they perform. The benefit of this project is information, enabling water resource managers and land use planners to determine whether policies to promote LID will result in cleaner stormwater and the protection of water supplies. These project benefits are potentially quite important for future land use planning and for improving surface water quality, but they cannot be quantified.

### **III. Proposal Costs/Benefits and Project Relationship**

Since the proposal includes seven projects, Table 1 on the next page shows the relationship of each project to the overall proposal costs. Table 2 on the following pages shows the relationship of each project to the overall proposal benefits. Table 2 clearly shows that integration and implementation of the entire suite of projects will provide a full range and breadth of water supply, and other, benefits.

Greater Monterey County IRWMP Proposal	Non-State Share (Funding Match)	State Share (Grant Funding)	State Share (Grant Funding)		% of Total Proposal Grant Request	% of Total Proposal Costs
1. Soledad Recycled Water Project	\$375,000	\$1,155,000	\$1,530,000	24.0%	23.7%	23.8%
2. Castroville CSD Well 2B Treatment Project	\$202,020	\$581,000	\$783,020	12.9%	11.9%	12.2%
3. San Jerardo Wastewater Project	\$105,000	\$924,455	\$1,029,455	6.7%	19.0%	16.0%
4. Integrated Restoration at Elkhorn Slough	\$489,000	\$1,049,984	\$1,538,984	31.3%	21.6%	23.9%
5. Water Quality Enhancement of the Tembladero Slough	\$145,440	\$436,340	\$581,780	9.3%	9.0%	9.0%
6. Watershed Approach to Water Quality Solutions	\$161,750	\$475,562	\$637,312	10.4%	9.8%	9.9%
7. Evaluation of Potential for Stormwater Toxicity Reduction	\$82,100	\$246,100	\$328,200	5.3%	5.1%	5.1%
Total Proposal Budget	\$1,560,310	\$4,868,441	\$6,428,751	100%	100%	100%

### Table 1. Relationship of Each Project to the Overall Proposal Costs

Table 2. Relationshi	p of Each Pro	iect to the Overal	Water Supply	/ Benefits of the	Proposal
		Jeet te thie e teran			

Proposal Water Supply Benefits	1. Soledad Recycled Water Project	2. Castroville CSD Well 2B Treatment Project	3. San Jerardo Wastewater Project	4. Integrated Restoration at Elkhorn Slough	5. Water Quality Enhancement of the Tembladero Slough	6. Watershed Approach to Water Quality Solutions	7. Evaluation of Potential for Stormwater Toxicity Reduction
Quantified							
Improved Water Supply Facility		X					
Water Supply Efficiency			Х				
Water Use Efficiency - Recycling	х		х				
Qualified (Not Quantified)							
Improved Water Quality			Х		Х	Х	Х
Ecosystem Restoration					Х		
Tidal Marsh Restoration				Х			
Recreation and Public Access						Х	
Water Toxicity Reduction			Х				Х

# **IV. Economic Proposal Documentation**

Tables 11, 12	2, 13, 14, a	and 15 have	e been prepare	ed and atta	ached to this	s narrative	as follows (	in the form	at
ATT7_WSB	en_xof17)	:							

	Table 11	Table 12	Table 13	Table 14	Table 15
1. Soledad	2of17	3of17			4of17
2. Castroville	5of17	6of17		7of17	8of17
3. San Jerardo	9of17	10of17	11of17	12of17	13of17
4. Elkhorn Slough	14of17				
5. CCWG: Tembladero Slough	15of17				
6. MBNMS: Watershed Approach	16of17				
7. UC Davis: LID Evaluation	17of17				

These tables demonstrate a numerical summary of the economic costs and water supply benefits of the proposal. Costs supporting these tables were derived from Attachment 4, Table 7 and Budget Narratives, as well as multiple documents included in Attachment 3, Work Plan.

(All costs should be in 2010 Dollars)

# Project 1: Soledad Water Recycling/Reclamation Project

	Initial Costs	Initial Costs Operations and Maintenance Costs (1)						Discounting Calculations		
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	
YEAR	Grand Total Cost From Table 7 (row (i), column(d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) ++ (f)	Discount Factor	Discounted Costs(g) x (h	
2010	SO						\$0	1.000	\$0	
2011	\$0						\$0	0.943	\$0	
2012	\$330,000		\$2,663	\$1,775	\$0		\$334,438	0.890	\$297,649	
2013	\$1,200,000		\$15,975	\$10,650	\$0		\$1,226,625	0.840	\$1,030,365	
2014			\$15,975	\$10,650	\$0		\$26,625	0.792	\$21,087	
2015			\$15,975	\$10,650	\$0		\$26,625	0.747	\$19,889	
2016			\$15,975	\$10,650	\$0		\$26,625	0.705	\$18,771	
2017			\$15,975	\$10,650	\$0		\$26,625	0.665	\$17,706	
2018			\$15,975	\$10,650	\$0		\$26,625	0.627	\$16,694	
2019			\$15.975	\$10,650	\$0		\$26,625	0.592	\$15,762	
2020		3	\$15,975	\$10,650	\$0		\$26,625	0.558	\$14,857	
2021			\$15,975	\$10,650	\$0		\$26,625	0.527	\$14,031	
2022			\$15,975	\$10,650	\$0		\$26.625	0.497	\$13,233	
2023			\$15,975	\$10,650	\$0		\$26,625	0.469	\$12,487	
2024			\$15,975	\$10,650	\$0		\$26,625	0.442	\$11,768	
2025			\$15,975	\$10,650	\$0	-	\$26,625	0.417	\$11,103	
2026			\$15,975	\$10,650	\$0		\$26,625	0.394	\$10,490	
2027		1	\$15,975	\$10,650	\$0		\$26,625	0.371	\$9,878	
2028			\$15,975	\$10,650	\$0		\$26,625	0.350	\$9,319	
2029			\$15,975	\$10,650	\$0		\$26,625	0.331	\$8,813	
2030			\$15,975	\$10,650	\$0		\$26,625	0.312	\$8,307	
2031			\$15.975	\$10.650	\$100.000		\$126.625	0.294	\$37.228	
2032			\$15,975	\$10,650	\$0		\$26,625	0.278	\$7,402	
					Total Present	Value of Dis	counted Costs (S	um of Column (i))	\$1,606,83	

c. Operations estimated at 1.5% of capital cost

d. Maintenance estimated at 1.0% of capital cost.

e. Replacement based on estimated value of equipment to be replaced in year 20

### Table 12 - Annual Water Supply Benefits

(All benefits should be in 2009 dollars)

### Project 1: Soledad Water Recycling/Reclamation Project

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) × (g)	Discount Factor	Discounted Benefits (h) × (i)
				1		(1)	(1)	(1)	(1)
2010	127	Acre-feet	0	0.00	0.00	\$1,000	\$0	1.000	\$0
2011	127	Acre-feet	0	0.00	0.00	\$1,000	\$0	0.943	\$0
2012	127	Acre-feet	0	30.00	30.00	\$1,000	\$30,000	0.890	\$26,700
2013	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.840	\$151,200
2014	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.792	\$142,560
2015	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.747	\$134,460
2016	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.705	\$126,900
2017	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.665	\$119,700
2018	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.627	\$112,860
2019	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.592	\$106,560
2020	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.558	\$100,440
2021	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.527	\$94,860
2022	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.497	\$89,460
2023	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.469	\$84,420
2024	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.442	\$79,560
2025	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.417	\$75,060
2026	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.394	\$70,920
2027	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.371	\$66,780
2028	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.350	\$63,000
2029	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.331	\$59,580
2030	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.312	\$56,160
2031	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.294	\$52,920
2032	127	Acre-feet	0	180.00	180.00	\$1,000	\$180,000	0.278	\$50,040
Project Life								347.	
					Total Present V (Sum of the val	alue of Discoun ues in Column (	ted Benefits Base j) for all Benefits	d on Unit Value shown in table)	\$1,864,140

Comments:

a. Benefit # 127 Water Use Efficiency - Recycling-Land Irrigated

b. This project will replace 23,000,000 gallons of potable water with recycled water for Irrigation purposes. In addition, the school will receive 10,000,000 gallons or recycled water per year. As per UWMP for December 2005, Soledad is going to use 900 AF of additional recycled water from 2010 through 2015, on an average that comes out to be 180 AF/year. (Soledad UWMP page 52). The project benefits will begin from Nov 2012.

c. City of Soledad has limited potable water supply. Currently they are over pumping the groundwater to meet the irrigation demands for future growth. Now, with this project in place 180 Af/year of potable water will be replaced with recycled water. In absence of this project, Soledad will have to either rely on Desalination to come up with additional potable water supply. Unit value based on estimated cost of alternative water supply, surface water treatment or desalinization.

	Table 15. Total Water Sup (All benefits should be in 20	oply Benefits 009 dollars)	
Proje	ct 1: Soledad Water Recycling	/Reclamation Projec	t
Total Discounted Water Supply Benefits (a)	Total Discounted Avoided Project Costs (b)	Other Discounted Water Supply Benefits (c)	Total Present Value of Discounted Benefits (d) (a) + (c) or (b) + (c)
\$1,864,140	\$0	\$0	\$1,864,140
Comments:			

(All costs should be in 2009 Dollars)

Project 2: Castroville CSD Well 2B Treatment Project

	Initial Costs	Operations and Maintenance Costs (1)							Discounting Calculations	
-	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	
YEAR	Grand Total Cost From Table 7 (row (i), column(d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) ++ (f)	Discount Factor	Discounte Costs(g) x (	
2009	\$80,000					-	\$80,000	1.000	\$80,000	
2010	\$0		1				\$0	0.943	\$0	
2011	\$703,000	1					\$703,000	0.890	\$625,670	
2012			\$1,415	\$943			\$2,358	0.840	\$1,981	
2013			\$8,490	\$5,660	\$9,863		\$24,013	0.792	\$19,019	
2014			\$8,490	\$5,660	\$9,863		\$24,013	0.747	\$17,938	
2015			\$8,490	\$5,660	\$9,863		\$24,013	0.705	\$16,929	
2016			\$8,490	\$5,660	\$9,863		\$24,013	0.665	\$15,969	
2017			\$8,490	\$5,660	\$9,863		\$24,013	0.627	\$15,056	
2018			\$8,490	\$5,660	\$9,863		\$24,013	0.592	\$14,216	
2019			\$8,490	\$5,660	\$9,863		\$24,013	0.558	\$13,399	
2020			\$8,490	\$5,660	\$9,863		\$24,013	0.527	\$12,655	
2021			\$8,490	\$5,660	\$9,863		\$24,013	0.497	\$11,935	
2022			\$8,490	\$5,660	\$9,863		\$24,013	0.469	\$11,262	
2023			\$8,490	\$5,660	\$9,863		\$24,013	0.442	\$10,614	
2024			\$8,490	\$5,660	\$9,863		\$24,013	0.417	\$10,014	
2025			\$8,490	\$5,660	\$9,863		\$24,013	0.394	\$9,461	
2026			\$8,490	\$5,660	\$9,863		\$24,013	0.371	\$8,909	
2027			\$8,490	\$5,660	\$9,863		\$24,013	0.350	\$8,405	
2028			\$8,490	\$5,660	\$9,863		\$24,013	0.331	\$7,948	
2029			\$8,490	\$5,660	\$9,863		\$24,013	0.312	\$7,492	
2030			\$8,490	\$5,660	\$9,863		\$24,013	0.294	\$7,060	
2031			\$8,490	\$5,660	\$9,863		\$24,013	0.278	\$6,676	
2032			\$8,490	\$5,660	\$9,863		\$24,013	0.262	\$6,291	
				Transfer to Tabl	Total Preser e 20, column (c), E	nt Value of Dis xhibit F: Prope	counted Costs (S osal Costs and Be	um of Column (i)) nefits Summaries	\$938,89	

b. No added Admin costs anticipated.

c. Operations estimated at 1.5% of \$566,000 capital cost.

d. Maintenance estimated at 1.0% of \$566,000 capital cost.

e. Replacement is based on annual sinking fund for filter media replacement every 10 years. Annual contribution at 4% to achieve \$80,000 materials cost. Labor is included in O&M estimate.

# Table 12 - Annual Water Supply Benefits

(All benefits should be in 2009 dollars)

Project 2: Castroville CSD Well 2B Treatment Project

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Discount Factor	Discounted Benefits (h) x (i)
				4		(1)	(1)	(1)	(1)
2009					0		\$0	1.000	\$0
2010				1	0		\$0	0.943	\$0
2011	1				0		\$0	0.890	\$0
2012	93	acre-feet	0	40	40	\$1,900	\$76,000	0.840	\$63,840
2013	93	acre-feet	0	220	220	\$1,900	\$418,000	0.792	\$331,056
2014	93	acre-feet	0	220	220	\$1,900	\$418,000	0.747	\$312,246
2015	93	acre-feet	0	220	220	\$1,900	\$418,000	0.705	\$294,690
2016	93	acre-feet	0	220	220	\$1,900	\$418,000	0.665	\$277,970
2017	93	acre-feet	0	220	220	\$1,900	\$418,000	0.627	\$262,086
2018	93	acre-feet	0	220	220	\$1,900	\$418,000	0.592	\$247,456
2019	93	acre-feet	0	220	220	\$1,900	\$418,000	0.558	\$233,244
2020	93	acre-feet	0	220	220	\$1,900	\$418,000	0.527	\$220,286
2021	93	acre-feet	0	220	220	\$1,900	\$418,000	0.497	\$207,746
2022	93	acre-feet	0	220	220	\$1,900	\$418,000	0.469	\$196,042
2023	93	acre-feet	0	220	220	\$1,900	\$418,000	0.442	\$184,756
2024	93	acre-feet	0	220	220	\$1,900	\$418,000	0.417	\$174,306
2025	93	acre-feet	0	220	220	\$1,900	\$418,000	0.394	\$164,692
2026	93	acre-feet	0	220	220	\$1,900	\$418,000	0.371	\$155,078
2027	93	acre-feet	0	220	220	\$1,900	\$418,000	0.350	\$146,300
2028	93	acre-feet	0	220	220	\$1,900	\$418,000	0.331	\$138,358
2029	93	acre-feet	0	220	220	\$1,900	\$418,000	0.312	\$130,416
2030	93	acre-feet	0	220	220	\$1,900	\$418,000	0.294	\$122,892
2031	93	acre-feet	0	220	220	\$1,900	\$418,000	0.278	\$116,204
2032	93	acre-feet	0	220	220	\$1,900	\$418,000	0.262	\$109,516
_					Total Present (Sum of the v	Value of Discou alues in Column	nted Benefits Bas (j) for all Benefits	ed on Unit Value s shown in table)	\$4,089,180
Comments: Ba	ased on expected pr	oduction of 220	ac-ft/yr of pota	ble supply, startin	ng NOV 2012.				

Benefit type 93 - new water supply facility

Unit value based on lowest estimated cost of water purcahse at proposed regional desalination facility (\$2000) minus the power cost for well production under this project (\$100).

(a)	(b)	(c)	(d)	(e)	(f)
Year	Type of Benefit	Description of Benefit	Annual Benefits (\$)	Discount Factor	Discount Benefit (d) x (e
2009	64		(4)	1.000	\$0
2010	64			0.943	\$0
2011	64			0.890	\$0
2012	64	Reduced pumping from 180/400-foot aquifer		0.840	\$0
2013	64	Reduced pumping from 180/400-foot aquifer	-	0.792	\$0
2014	64	Reduced pumping from 180/400-foot aquifer		0.747	\$0
2015	64	Reduced pumping from 180/400-foot aquifer		0.705	\$0
2016	64	Reduced pumping from 180/400-foot aquifer		0.665	\$0
2017	64	Reduced pumping from 180/400-foot aquifer		0.627	\$0
2018	64	Reduced pumping from 180/400-foot aquifer		0.592	\$0
019	64	Reduced pumping from 180/400-foot aquifer		0.558	\$0
020	64	Reduced pumping from 180/400-foot aquifer		0.527	\$0
2021	64	Reduced pumping from 180/400-foot aquifer	-	0.497	\$0
2022	64	Reduced pumping from 180/400-foot aquifer		0.469	\$0
2023	64	Reduced pumping from 180/400-foot aquifer		0.442	\$0
2024	64	Reduced pumping from 180/400-foot aquifer		0.417	\$0
2025	64	Reduced pumping from 180/400-foot aquifer		0.394	\$0
2026	64	Reduced pumping from 180/400-foot aquifer		0.371	\$0
2027	64	Reduced pumping from 180/400-foot aquifer		0.350	\$0
2028	64	Reduced pumping from 180/400-foot aquifer		0.331	\$0
2029	64	Reduced pumping from 180/400-foot aquifer		0.312	\$0
2030	64	Reduced pumping from 180/400-foot aquifer	1	0.294	\$0
2031	64	Reduced pumping from 180/400-foot aquifer		0.278	\$0
2032	64	Reduced pumping from 180/400-foot aquifer		0.262	\$0
		Total Present Value of Discounted Bene (Sum of the values in Column (f) for all	efits Based on Benefits show	Unit Value n in table)	\$0

(All costs should be in 2009 Dollars)

### Project 3: San Jerardo Wastewater Project

	Initial Costs		C	perations and M	aintenance Costs <sup>()</sup>	1)		Discounting	Discounting Calculations	
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	
YEAR	Grand Total Cost From Table 7 (row (i), column(d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) ++ (f)	Discount Factor	Discounted Costs(g) x (h)	
2010	\$149,500						\$149,500	1.000	\$149,500	
2011	\$879,955	\$267	\$3,419	\$1,647	\$0	\$667	\$885,954	0.943	\$835,454	
2012		\$800	\$10,256	\$4,940	\$0	\$2,000	\$17,996	0.890	\$16,016	
2013		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.840	\$20,157	
2014		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.792	\$19,005	
2015		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.747	\$17,925	
2016		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.705	\$16,917	
2017		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.665	\$15,957	
2018		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.627	\$15,045	
2019		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.592	\$14,206	
2020	1	\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.558	\$13,390	
2021		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.527	\$12,646	
2022		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.497	\$11,926	
2023		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.469	\$11,254	
2024		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.442	\$10,606	
2025		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.417	\$10,006	
2026		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.394	\$9,454	
2027		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.371	\$8,903	
2028		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.350	\$8,399	
2029		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.331	\$7,943	
2030		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.312	\$7,487	
2031		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.294	\$7,055	
2032		\$800	\$16,256	\$4,940	\$0	\$2,000	\$23,996	0.278	\$6,671	
Project Life						_				
Commente				Transfer to Tabl	Total Prese e 20, column (c), E	nt Value of Dis xhibit F: Propo	counted Costs (S osal Costs and Be	um of Column (i)) nefits Summaries	\$1,245,922	

a. San Jerardo admin expense include \$800 annual management reporting expense.

b. Total operation related expense include \$2000 in wastewater lab analysis and \$3000 in electrical engine room and \$5256 for electric cost of aerators.

c. Total maintenance related expenses include \$2040 in clean up maintenance and \$2900 in maintenance labor.

d. There is no replacement cost line. Other expense include \$2000 in Misc. expenses.

e. The project will be started in fall, 2011 and completed by late summer 2012. The only increase directly attributable to the project is for water testing which will be multiplied by 4 after completion.

### Table 12 - Annual Water Supply Benefits

(All benefits should be in 2009 dollars)

Project 3: San Jerardo Wastewater Project

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)	
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) – (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Discount Factor	Discounted Benefits (h) x (i)	
-						(1)	(11)	(1)	(1)	
2010	123	Acre-feet	0	0.00	0.00	\$1,000	\$0	1.000	\$0	
2011	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.943	\$30,633	
2012	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.890	\$28,911	
2013	123	Acre-feet	0	32.48	32,48	\$1,000	\$32,484	0.840	\$27,287	
2014	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.792	\$25,727	
2015	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.747	\$24,266	
2016	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.705	\$22,901	
2017	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.665	\$21,602	
2018	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.627	\$20,368	
2019	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.592	\$19,231	
2020	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.558	\$18,126	
2021	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.527	\$17,119	
2022	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.497	\$16,145	
2023	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.469	\$15,235	
2024	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.442	\$14,358	
2025	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.417	\$13,546	
2026	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.394	\$12,799	
2027	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.371	\$12,052	
2028	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.350	\$11,369	
2029	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.331	\$10,752	
2030	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.312	\$10,135	
2031	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.294	\$9,550	
2032	123	Acre-feet	0	32.48	32.48	\$1,000	\$32,484	0.278	\$9,031	
Project Life					1					
Total Present Value of Discounted Benefits Based on Unit Value \$39										

Comments:

a. Water Conservation benefit 121 - BMP Conservation

b. Per San Jerardo the total water usage in the DCA is 29,000 gallons per day and by installing conservation measures, 30 percent less water will need to be pumped out

Ground Water unit cost is \$1000 per AF.

# Table 13 - Annual Costs of Avoided Projects

(All avoided costs should be in 2009 dollars)

		C	osts		Discountin	g Calculations
(a)	(b)	(c)	(d)	(e)	(f)	(g)
YEAR	Alternative Avoided Pro undertaken	(Avoided Project oject Description:	Name): Alterna	ntive 1 provements	Discount Factor	Discounted Costs (e) x (f)
	Avoided Fine Costs	Avoided Replacement/R elocation Costs	Avoided Operations and Maintenance Costs/ Wastewater Pump Out and	Total Cost Avoided for Individual Alternatives		
2010					1.000	\$0
2011	\$365,000	\$6,000,000	\$1,350,000	\$7,715,000	0.943	\$7,275,245
2012				0	0.899	\$0
2013				0	0.839	\$0
			1			
Project Life				0		
			Total Pre	esent Value of ( Su	Discounted Costs m of Column (g))	\$7,275,245
			(%) A	voided Cost Cl	aimed by Project	100%
Total Prese	ent Value of	Discounted Avoid	ed Project Cost	s Claimed by al	ternative Project	\$7,275,245

# Project 3: San Jerardo Wastewater Project

Comments: San Jerardo Disadvantaged Community (DAC) does not have resources or other funding to correct deficiencies in the wastewater system. Staff at the Central Coast Regional Water Quality Control Board has described the enforcement steps that will apply to San Jerardo if the proposal repairs and upgrade are not undertaken: fines, relocation, and temporary haul-out until relocation is complete. The following enforcement actions would result in financial cost to the residents of San Jerardo.

a. If this project is not implemented there is fine imposed by RWQCB of \$1-5 thousand per day. Taking \$1000

(Total Present Value of Discounted Costs x % Avoided Cost Claimed by Project)

per day, the total fine for the year would be a minimum of \$365,000.

b. In the absence of this project, the residents of the San Jerardo community will have to be relocated. The Migrant Head Start and Childcare programs will be required to close. As the majority of units are composed of more than 5 residents per household, relocation is estimated to cost approximately \$6 million in total, in part, to alleviate overcrowding. Actual costs would be determined based on the income of residents, household size, availability of replacement units and actual market rents at the time relocation is implemented. An additional cost, not shown in the

c. As a temporary measure pending relocation, the RWQCB will allow haul-out of wastewater. The cost is estimated at \$1,500 per load for removal and disposal. Over the projected six month period for relocation of all residents and closure of the Head Start program, haul-out and disposal costs are expected to total \$1,350,000.

# Table 14 - Annual Other Water Supply Benefits

(All benefits should be in 2009 dollars)

# Project 3: San Jerardo Wastewater Project

Year	Tune of			
	rypeor	Description of Benefit Annual D	iscount	Discounted
	Benefit	Benefits	Factor	Benefits
		(\$)		(d) x (e)
		(1)	(1)	(1)
2009	а		1.000	\$0
	b		1.000	\$0
	с		1.000	\$0
	**			I. J.
2010	a		0.943	\$0
	b		0.943	\$0
	С		0.943	\$0
2011	а	Non Quantifiable	0.890	\$0
	b		0.890	\$0
	с		0.890	\$0
Project Life				
		Total Present Value of Discounted Benefits Based on Un (Sum of the values in Column (f) for all Benefits shown i	it Value n table)	\$0
Comments	s: The pr	oject will provide reduced cost of operations. The water supply and water treat	tment in	npacts upon
completio	n of futu	re projects will result from wastewater recycling, grey water diversion and oth	er water	
conservati	ion plann	ning to be funded through the grant.		

	Table 15. Total Water Sup	ply Benefits 09 dollars)	
	Project 3: San Jerardo Wast	ewater Project	
Total Discounted Water Supply Benefits (a)	Total Discounted Avoided Project Costs (b)	Other Discounted Water Supply Benefits (c)	Total Present Value of Discounted Benefits (d) (a) + (c) or (b) + (c)
\$391,142	\$7,275,245	\$0	\$7,275,245
Comments:			

		P	(All roject 4: Inte	costs should be in grated Restor	ost of Project 2009 Dollars) ation in Elkhori	n Slough					
	Initial Costs		c	perations and M	aintenance Costs <sup>(1</sup>	U)		Discounting	inting Calculations		
YEAR	(a) Grand Total Cost From Table 7 (row (i), column(d))	(b) Admin	(c) Operation	(d) Maintenance	(e) Replacement	(f) Other	(g) Total Costs (a) ++ (f)	(h) Discount Factor	(i) Discounted Costs(g) x (h)		
2009	\$0	\$0	\$0	\$0	\$0	\$0	\$0	1.000	\$0		
2010	\$0	\$0	\$0	\$0	\$0	\$0	\$0	0.943	\$0		
2011	\$349,994	\$0	\$0	\$0	\$0	\$0	\$349,994	0.890	\$311,495		
2012	\$849,994	\$0	\$0	\$8,000	\$0	\$0	\$857,994	0.839	\$720,089		
2013	\$1,099,994	\$0	\$0	\$8,000	\$0	\$0	\$1,107,994	0.791	\$876,901		
2014	\$522,000	\$0	\$0	\$8,000	\$0	\$0	\$530,000	0.746	\$395,550		
2015	\$918,000	\$0	\$0	\$8,000	\$0	\$0	\$926,000	0.704	\$651,700		
2016	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.664	\$5,309		
2017	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.626	\$5,007		
2018	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.590	\$4,721		
2019	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.557	\$4,452		
2020	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.525	\$4,198		
2021	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.495	\$3,959		
2022	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.467	\$3,733		
2023	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.440	\$3,521		
2024	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.415	\$3,320		
2025	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.391	\$3,131		
2026	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.369	\$2,952		
2027	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.348	\$2,784		
2028	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.328	\$2,625		
2029	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.309	\$2,476		
2030	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.292	\$2,335		
2031	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.275	\$2,201		
2032	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.259	\$2,076		
2033	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.245	\$1,958		
2034	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.231	\$1,846		
2035	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.218	\$1,741		
2036	\$0	\$0	\$0	\$8,000	\$0	\$0	\$8,000	0.205	\$1,642		
2037	\$0	\$0	\$0	\$8,000	50	\$0	\$8,000	0.194	\$1,548		
2038	\$0	\$0	\$0	\$8,000	50	\$0	\$8,000	0.182	\$1,460		
2039	\$0	50	\$0	\$8,000	\$0	\$0	\$8,000	0.1/2	\$1,3//		
2040	50	\$0	\$0	\$8,000	50	50	\$8,000	0.162	\$1,298		
2041	50	50 \$0	50	\$8,000	04	ŞU 60	\$8,000	0.153	\$1,224		
2042	50	50	50	\$8,000	50	50	\$8,000	0.144	\$1,154		
2043	\$0 \$0	\$0 \$0	\$0	\$8,000	50	\$0 \$0	\$8,000	0.130	\$1,089		
2044	50	\$0 \$0	50	\$0,000	06	90 \$0	\$8,000	0.120	\$1,027		
2045	50 Ćņ	\$0 \$0	50	\$8,000	00	\$0 \$0	\$8,000	0.121	\$900		
2046	\$0 \$0	50	\$0	\$8,000	50	\$0 \$0	\$8,000	0.114	\$913		
2047	50	\$0 \$0	50	\$8,000	06	90 \$0	\$8,000	0.108	\$001		
Droject Life	υç	ĢĢ	οų	000,000	οĢ	ψŪ	\$8,000	0.101	2012		
Troject Life	1		F.	Transfer to Tabl	Total Prese le 20, column (c), E	nt Value of Dis xhibit F: Prop	counted Costs (S osal Costs and Be	um of Column (i)) nefits Summaries	\$3,035,451		

Comments: Initial costs include the requested funds for this grant. Matching funds were spent in 2009 and 2010 and are sunk costs. Future costs include the cost of final engineering and permitting (2012), and construction phases in 2013 (Minhoto), 2014 (Seal Bend) and 2015 (Hester's Marsh). These construction costs were estimated at \$35 per yard of imported sediment. This estimate is conservative whe compared to costs estimated at \$13 to \$21 per yard of imported sediment for other sites in Elkhorn Slough (ESNERR and Moffatt and Nichol 2010, p.3-104). Maintenance costs are associated with maintaining the native grass buffer with mowing. All other costs related to the property, including administration and other maintenance costs, will be incurred regardless of whether the project is implemented, and therefore are not included. The project is expected to persist in perpetuity. A 40-year project life was selected arbitrarily.

(All costs should be in 2009 Dollars)

# Project 5: Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

	Initial Costs	_	Discounting Calculations						
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
YEAR	Grand Total Cost From Table 7 (row (i), column(d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) ++ (f)	Discount Factor	Discounted Costs(g) x (h)
2009	\$32,905						\$32,905	1.000	\$32,905
2010	\$32,905						\$32,905	0.943	\$31,029
2011	\$122,873	-	1				\$122,873	0.890	\$109,357
2012	\$342,958			1	1		\$342,958	0.840	\$288,085
2013	\$50,139			1			\$50,139	0.792	\$39,710
Project Life			1					***	
				Transfer to Tabl	Total Prese e 20. column (c). I	nt Value of Dis Exhibit F: Prop	counted Costs (S osal Costs and Be	um of Column (i)) nefits Summaries	\$501,086
Comments:									

(All costs should be in 2009 Dollars)

# **Project 6: Watershed Approach to Water Quality Solutions**

	Initial Costs		C	Discounting Calculations					
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(b)	(i)
YEAR	Grand Total Cost From Table 7 (row (i), column(d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) ++ (f)	Discount Factor	Discounted Costs(g) x (h)
2009					-		\$0	1.000	\$0
2010	\$118,605						\$118,605	0.943	\$111,845
2011	\$527,357		1				\$527,357	0.890	\$469,348
2012			1				\$0	0.840	\$0
		_							
***				1					
Project Life			-						
				Transfer to Tab	Total Prese e 20, column (c),	ent Value of Dis Exhibit F: Prop	counted Costs (S osal Costs and Be	um of Column (i)) nefits Summaries	\$581,192
Comments:									

(All costs should be in 2009 Dollars)

# Project 7: Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems

	Initial Costs	Operations and Maintenance Costs (1)							Calculations
	(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)
YEAR	Grand Total Cost From Table 7 (row (i), column(d))	Admin	Operation	Maintenance	Replacement	Other	Total Costs (a) ++ (f)	Discount Factor	Discounted Costs(g) x (h)
2010	\$101,603						\$101,603	1.000	\$101,603
2011	\$226,530						\$226,530	0.943	\$213,618
2012		-					\$0	0.890	\$0
2013					1		\$0	0.840	\$0
2014									
2015							1		
Project Life									
				Transfer to Tabl	Total Prese e 20, column (c), I	nt Value of Dis Exhibit F: Prop	counted Costs (S osal Costs and Be	um of Column (i)) enefits Summaries	\$315,221
Comments:									

# ATT8\_IG1\_WQOtherBen\_1of5 Water Quality and Other Expected Benefits

This proposal is based on the coordination and collective benefits of seven different projects. This section describes water quality and other benefits, if any, that will accrue from each of these seven projects.

### Project 1: Soledad Water Recycling/Reclamation Project

### Implementing Agency: City of Soledad

The Soledad Water Recycling/Reclamation Project will have no direct water quality impacts. However, it will help reduce extraction from a groundwater basin that is significantly overdrawn, helping to reduce seawater intrusion and thereby indirectly helping to increase water quality of the Salinas Valley Groundwater Basin. The project will also reduce the amount of water that must be treated to meet requirements for potable water. This will help defer capacity expansion projects on the system. These water supply benefits are described in Attachment 7.

### Project 2: Castroville CSD Well 2B Treatment Project

### Implementing Agency: Castroville Community Services District

The Castroville CSD Well 2B Treatment Project includes construction of a well pump and arsenic removal treatment system for an existing well in Castroville, CA. While the project will improve water quality of groundwater in the well, the project is primarily considered a water supply enhancement project. The water supply benefits of this project are discussed in Attachment 7. Pumping water from the deep aquifer instead of the 180/400-foot aquifer will reduce the migration rate of seawater-intruded groundwater in the shallow aquifer. This change, coupled with other IRWM projects that reduce agricultural pumping from the shallow aquifer, supports the groundwater management strategy developed by the Monterey County Water Resources Agency for the Salinas Valley Groundwater Basin.

### **Project 3:** San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley

### Implementing Agency: San Jerardo Cooperative, Inc.

The primary goal of this project is to reduce contaminants in the Salinas Valley Goundwater Basin resulting from the San Jerardo community's wastewater. Total benefit includes 20 percent reduction in nitrates from system samples and 10 percent reduction in 1,2,3-trichloropropane in groundwater monitoring wells. These benefits are shown in Table 16.

The drinking water system for San Jerardo has been under federal court jurisdiction for many years due to violations of federal, state and local water quality regulations by the private operator. It has been estimated that the egregious violations date back to at least the 1990s. Extremely high concentrations of nitrates and 1,2,3-trichloropropane in the drinking water were determined to be a public health risk requiring intervention by the courts and Monterey County. Several test results of the San Jerardo water supply well performed by California certified environmental laboratories indicated nitrate and 1,2,3-trichloropropane concentrations consistently exceed the California primary Maximum Contaminant Levels (MCLs) standards and Notification Levels for drinking water, respectively. Nitrate concentrations were found to be approximately double the MCL set in Title 22 Section 64431 of California Code of

Regulations. 1,2,3-Trichloropropane was found to exist at levels more than 13 times higher than the Notification Levels. The concentrations of these two constituents in the water indicate contamination of the underlying groundwater aquifer.

This project will provide additional air quality benefits as expansion of the system's capacity will reduce noxious odors from the overtaxed ponds. However, the primary benefit of the Co-operative's proposed wastewater project is in addressing a critical public health need in a disadvantaged community. By upgrading the wastewater system, the project will help prevent the cycle of contamination and recontamination between the ponds and the underlying aquifer. The project will also potentially reduce the amount of treatment needed for the community's drinking water supply from the nearby well.

The project is expected to provide significant water quality benefits for groundwater in the Salinas Valley Groundwater Basin - East Side aquifer. The East Side aquifer provides drinking water for all residents at San Jerardo. The project will benefit not just the San Jerardo community but also other communities relying on the East Side aquifer for their drinking water. Within a two-mile radius there are a number of single-family residences and two small drinking water systems that depend on wells drawing from this aquifer as the source of water supply.

## Project 4: Integrated Ecosystem Restoration in Elkhorn Slough

### Implementing Agency: Elkhorn Slough Foundation

The anticipated water quality benefits of this project are quantified in Table 16, and include the following:

- 75 acres of tidal marsh will be restored (quantified in dollar terms below);
- A 30-acre native grass buffer will be established between farmland and the slough;
- Water quality in Elkhorn Slough will be improved;
- The 2,750 acres of tidal marsh, intertidal mudflat and soft sub-tidal habitats in Elkhorn Slough will be made more resilient to sea level rise by reduced tidal scour and greater sediment availability;
- Flood management on the Pajaro River may be made more cost-effective, benefitting taxpayers and residents of the floodplain in the city of Watsonville and Town of Pajaro (summarized in Attachment 9, Flood Damage Benefits);
- Navigation and harbor activities in Moss Landing Harbor may be made more cost-effective.

Ecosystem restoration will include preserving, restoring and enhancing wetlands. The project will increase the acreage of tidal marsh in Elkhorn Slough by 10%. Salt marsh provides habitat for threatened and endangered species. Southern sea otters, federally threatened, routinely use adjacent tidal marsh habitat for resting. Salt marsh degradation is associated with the local extirpation of the federally endangered California clapper rail in the 1980s; this project is a first step to recovering critical habitat for this species.

Improved water quality will increase fisheries support. Elkhorn Slough is designated as water quality impaired with respect to supporting the beneficial uses of cold water and warm water fish habitat. (The 14 TMDL listings are discussed in detail in the project description.) This impairment has economic implications. For example, 50% of the Monterey Bay commercial flatfish catch has been found to use Elkhorn Slough as a nursery. Well established agricultural water quality Best Management Practices, such as the native grass buffer, will benefit growers in the region by providing the opportunity for research and education in a low risk publicly owned setting.

Tidal marsh per acre value was estimated by D. King, 1998, in *National Wetlands Newsletter* (vol. 20, no. 4). This paper reviews data on the "Revealed Willingness to Pay" to estimate the cost per acre to restore tidal marsh. The two studies reviewed provide estimates of \$49,000 and \$415,007 for salt marsh and intertidal emergent wetlands respectively (in 1997 dollars). The lower number has been used for the purposes of this analysis. Values have been adjusted to the year of construction assuming an inflation rate of 3% per year. In 2009 dollars the value per acre is \$69,000. The value used is reasonable when compared to alternative sites for wetland restoration in Elkhorn Slough, which range from \$80,000 to \$271,000 per acre (ESNERR and Moffatt and Nichol, 2010, page 3-104). This value is comparable to large-scale restoration projects occurring in the San Francisco Bay area, including the South Bay Salt Ponds project (\$75,000 per acre) and Hamilton/Bel Marin Keys (\$73,000 per acre) (Philip Williams and Associates et al., 2008, page 149). The value of \$49,000 per acre for restored tidal marsh was adjusted for inflation at a 3-percent annual rate to the year in which the wetlands will be restored (2013 through 2015). Adjusted for inflation, the average value of these restored wetlands is \$80,000 per acre.

Another benefit of this project includes the planning of multi-purpose flood management projects. Beneficial reuse of sediment generated by flood and navigation management projects reduces costs to flood and navigation management agencies, reduces the consumption of landfill space, and reduces the use of offshore disposal sites. Flood management benefits is described further in Attachment 9.

# **Project 5:** Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

### Implementing Agency: Central Coast Wetlands Group at Moss Landing Marine Labs

The waters of the Gabilan Watershed are highly degraded, and are designated by the Central Coast Regional Board as a priority watershed. The lower section of the watershed, which drains to the Tembladero Slough before flowing to the Monterey Bay National Marine Sanctuary, is particularly bad. Both agriculture and urban lands contribute nonpoint source pollutants to receiving waters, including nutrients, pesticides, and pathogens. The primary data on the Tembladero Slough are derived from the Watershed Institute at California State University Monterey Bay's (CSUMB) research on the effectiveness of the constructed treatment wetlands. The final report for the treatment wetland project shows clear reductions in concentrations of nitrate, phosphate, and suspended sediment. The results for ammonia, diazinon, and dimethoate are more ambiguous. The Monterey Bay National Marine Sanctuary tests the water at several sites along the Slough for their annual "snapshot day" water quality event. This water testing has led the Slough to be listed as a 303d impaired water body for 14 different pollutants. TMDLs are expected to be implemented in 2013. A capstone (senior thesis) project conducted at the treatment wetland by CSUMB student Miles Daniels documents that converting just 0.26% of the Slough drainage to treatment wetland would result in reductions in nitrate sufficient to remove the Slough from the 303d list. Phosphate and suspended sediment loads would improve as well. With that calculation in mind, CCWG has chosen to target 13.5 acres in the project area to become treatment wetland, with an additional 3 acres of habitat focused restoration and 3.5 acres of open space. The following water quality benefits will be achieved by implementing this project. These non-quantifiable benefits are also shown in Table 16.

#### **Reduced Sediment**

Suspended sediment concentrations have shown consistent reductions within water flowing through the Molera wetland. Sediment accumulation within the upper basin is estimated at 20-30 cm/5 years (approximately 5m3). The Toxic Hot Spot Plan Assessment of Actions required to remedy and restore Moss Landing Harbor identifies restoration of the floodplain as a means for reducing the movement of pesticide-laden sediments into the Harbor. Reducing the sediments in the watershed through coordinated

efforts to retain sediment on site (through IRWMP partner activities) and restoration of critical sections of the drainage system will reduce the need for frequent dredging of the Moss Landing Harbor (currently conducted every three years). The 13.5 acres of treatment wetlands planned for Phase 2 of this project will remove sufficient sediment from the system will help to demonstrate the cumulative value of agricultural Management Practices and drainage enhancement (target 5m3 /year).

### **Ecosystem Benefits: Habitat Restoration and Ecosystem Improvements**

Movement among local slough systems (Elkhorn, Moro Cojo and Tembladero) is common for birds and other wildlife. Phase 2 of the proposed project will provide 3 acres of dedicated critical habitat for these species, allowing for expansion of their ranges and enhancement of the current resources. Native bird populations are found to be much higher in areas with established native plant populations. Restoration sites within a mile of the proposed planning area have seen significant increases in bird utilization since native plants were reestablished 10 years earlier. These restored fresh water wetlands provide a unique habitat where water quality and invertebrate populations are healthy enough to be inviting to several rare freshwater bird species (white pelicans & white faced ibis). We plan to complete the studies necessary to quantify the local economic value of enhanced birding opportunities to the adjacent communities of Moss Landing and Castroville.

### **Recreation and Public Access Benefits: Public Access**

One of the most attractive aspects of this project to the residents of Castroville is the creation of new recreational opportunities. The project plans to provide 20 acres of public access within an enhanced natural riparian environment. This project will provide one of the only places to view nature within walking distance of the local neighborhoods. These public amenities will support the objectives of the Castroville Community Redevelopment Plan.

### **Public Education**

The educational component of this project will occur in a number of forms. The MERITO program is a direct education provider, teaching adults about wetland function and how to help improve it. The community outreach CCWG and partners will conduct is aimed primarily at educating people of all ages about the resources of the Tembladero Slough and the restoration and enhancement opportunities for the community.

### **Improved Collaboration**

The work proposed around the Tembladero Slough will combine the talents of many disparate stakeholders who work independently towards their own goals with little collaboration. Phase 1 of the project will support collaboration among stakeholder groups to define common objectives and combine resources of the various participants, including farmers, research scientists, State and Federal agency representatives, Monterey County officials, private landowners, and land conservancies. The project will help overcome obstacles that have been slowing plans for restoration in the region for decades.

### Project 6: Watershed Approach to Water Quality Solutions

**Implementing Agency:** Monterey Bay National Marine Sanctuary, Central Coast Wetlands Group at Moss Landing Marine Labs, and the Resource Conservation District (RCD) of Monterey County

This project takes a holistic approach to addressing water quality impairments in an urban stream flowing through the City of Salinas, and eventually discharging into the Monterey Bay National Marine Sanctuary approximately 12 miles downstream. The Santa Rita Creek watershed was chosen because it has a multitude of land uses all contributing to the degradation of the creek. The project proponent's goal is to be able to quantify water quality improvement due to upstream agricultural best management practices, stream restoration on two stream reaches, and community education and outreach. Demonstration of

improvement in this small watershed will enable resource managers to implement this model in other similar watersheds within the Salinas Valley and beyond. The upstream technical assistance provided to growers in the watershed will do the most for improving water quality and benefiting by cost savings. Erosion control practices will reduce turbidity in the creek and will reduce the amount of pollutants, such as pesticides that bind to sediment and are carried downstream. The growers will benefit by keeping the soil on the fields and local government will not have to dredge the creek each winter for flood control. Irrigation and nutrient management practices will save the growers substantial amounts of money using less water and less fertilizer. There will be less nutrient-rich water flowing from the fields into Santa Rita Creek. This will help the creek return to a more natural flow, with less impact from agricultural runoff. An estimated 70-90% less water will be used by growers and 20-50% reduction in pounds of nitrogen will be applied to fields. Manure management at small ranchettes along the creek is estimated to reduce 80% of fecal and nutrient contamination entering the creek. Conducting these activities on a voluntary basis will also help the growers to meet their regulatory obligations required by the Central Coast Regional Water Quality Control Board Irrigated Agriculture Order.

The reduction of pollutant loading at its source will make the largest contribution to improving the health of Santa Rita Creek. In addition, there will be two restoration projects that will include invasive weed removal and the planting of natives, which will help to improve habitat. By planting natives on the creek banks, the project will help reduce erosion and slow the flow of water, allowing sediment to drop out. A healthy and beautiful riparian area will inspire stewardship and a sense of community. The public will be encouraged to get involved by participating in planting days, doing water quality monitoring, trash cleanups and community watershed festivals. By encouraging community participation the project will instill pride and ownership in the region, reducing the amount of illicit activities and trash. A healthy creek and riparian corridor may also add property value to neighboring homes. All these water quality benefits are shown in Table 16.

### Project 7: Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems

### Implementing Agency: UC Davis Granite Canyon Marine Pollution Studies Laboratory

This project conducted by UC Davis in the City of Salinas will have no immediate impacts on water quality, but may provide significant future benefits for surface water quality in urban areas. The project will provide information to resource managers regarding the effectiveness of Low Impact Develop (LID) practices (bioswales) in treating stormwater, and may therefore have significant impact on future land use decisions and policy, as well as future LID design modifications. The sample collections and analyses will also augment the existing efforts of the City of Salinas in their work to monitor impacts of stormwater runoff. These benefits are discussed in Attachment 7.

The following tables are attached to demonstrate Water Quality and Other Benefits (Table 16):

Project 3: San Jerardo Co-operative	ATT8_IG1_WQOtherBen_2of5
Project 4: Elkhorn Slough Foundation	ATT8_IG1_WQOtherBen_3of5
Project 5: Central Coast Wetlands Group	ATT8_IG1_WQOtherBen_4of5
Project 6: Monterey Bay National Marine	ATT8_IG1_WQOtherBen_5of5
Sanctuary	

(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(i)
Year	Type of Benefit	Measure of Benefit (Units)	Without Project	With Project	Change Resulting from Project (e) - (d)	Unit \$ Value	Annual \$ Value (f) x (g)	Discount Factor	Discounter Benefits (h) x (i)
2010					0		\$0	1.000	\$0
2011	Water Quality			20% reduction in Nitrate and 10% reduction in trichloropopane Contaminants			\$0	1.000	\$0
2012					0		\$0	1.000	\$0
2013					0		\$0	1.000	\$0
2014					0		\$0	0.943	\$0
2015					0		\$0	0.943	\$0
2016					0		\$0	0.943	\$0
2017					0		\$0	0.943	\$0
2018					0		\$0	0.890	\$0
2019					0		\$0	0.890	\$0
2020	1				0		\$0	0.890	\$0
2021			2		0		\$0	0.890	\$0
2022									
2023									
2024			_						
2025									
2026	-								
2027									
2028							1		
2029									
2031							1		
2032							1		
Project Life									

1. The primary benefit of the project is reduction in the east side ground water contaminant levels through removal of accumulated sludge in wastewater treatment ponds. The water wells in the area have tested at unacceptably high nitrate and 1,2,3-trichloropropane levels. This aquifer provides drinking water for the San Jerardo farmworker community and neighboring residents. This benefit is non quantifiable pending the hydrology report and monitoring well sampling to be funded through this project.

2. Longer term benefits are expected to result from water recycling, grey water diversion and water conservation planning to be funded by the grant.

3. Other non quantifiable benefits are described in the narrative.

121	(6)	(c)	(4)	101	(6)	(a)	(6)	111	(1)
(a) Year	(b) Type of Benefit	(Units)	Without Project	With Project	Change Resulting from Project (e) - (d)	Unit \$ Value	(f) x (g)	(i) Discount Factor	(h) x (i)
2009	n/a				0		\$0	1.000	SO
2010	n/a				0		\$0	0.943	\$0
2011	n/a				0		\$0	0.890	\$0
2012	n/a				0		\$0	0.839	\$0
2013	n/a	1			0		\$0	0.791	\$0
2014	tidal marsh	acres	0	30	30	\$80,000	\$2,400,000	0.746	\$1,791,1
2015	tidal marsh	acres	0	18	18	\$80,000	\$1,440,000	0.704	\$1,013,4
2016	tidal marsh	acres	0	27	27	\$80,000	\$2,160,000	0.664	\$1,433,5
2017	n/a				0		\$0	0.626	\$0
2018	n/a		_		0		\$0	0.590	\$0
2019	n/a				0		\$0	0.557	\$0
2020	n/a				0		\$0	0.525	\$0 ¢0
2021	n/a				0		\$0	0.495	\$0 \$0
2022	n/a				0		\$0	0.467	\$0 \$0
2025	11/d				0		50	0.440	\$0 \$0
2024	n/a				0		\$0	0.415	\$0 \$0
2025	n/a				0		\$0	0.391	30 \$0
2020	n/a		-	-	0		\$0	0.369	30 \$0
2027	n/a			-	0		\$0	0.378	\$0
2029	n/a			-	0		\$0	0.309	\$0
2030	n/a		-		0		\$0	0.292	\$0
2031	n/a			-	0		\$0	0.275	\$0
2032	n/a				0		\$0	0.259	\$0
2033	n/a				0		\$0	0.245	\$0
2034	n/a		-		0		\$0	0.231	\$0
2035	n/a				0		\$0	0.218	\$0
2036	n/a				0		\$0	0.205	\$0
2037	n/a				0		\$0	0.194	\$0
2038	n/a				0		\$0	0.182	\$0
2039	n/a				0		\$0	0.172	\$0
2040	n/a				0		\$0	0.162	\$0
2041	n/a		-		0		\$0	0.153	\$0
2042	n/a				0		\$0	0.144	\$0
2043	n/a			1	0		\$0	0.136	\$0
2044	n/a				0		\$0	0.128	\$0
2045	n/a	-			0		\$0	0.121	\$0
2046	n/a				0		\$0	0.114	\$0
2047	n/a				0		\$0	0.108	\$0
2048	n/a				0		\$0	0.101	\$0
oject Life					75		\$0	0.890	50
					Total Present	Value of Disco alues in Colum	unted Benefits B n (i) for all Benef	ased on Unit Value its shown in table)	\$4,238,

the "Revealed Willingness to Pay" to estimate the cost per acre to restore tidal marsh. The two studies reviewed provided estimates of \$49,000 and \$415,007 for salt marsh and intertidal emergent wetlands respectively (1997 dollars). The lower number was used here. Values were adjusted to the year of construction assuming an inflation rate of 3% per year. In 2009 dollars the value per acre is \$69,000. The value used is reasonable when compared to alternative sites for wetland restoration in Elkhorn Slough, which range from \$80,000 to \$271,000 per acre (ESNERR and Moffatt and Nichol, 2010, page 3-104). This value is comparable to large scale restoration projects proceeding in the San Francisco Bay area, including the South Bay Salt Ponds project (\$75,000 per acre) and Hamilton / Bel Marin Keys (\$73,000 per acre) (Philip Williams and Associates et al 2008, page 149). Using \$49,000 per acre for wetland benefits inflated to 2012 becomes \$80,000 per acre and is used for calculation.

1			Table 16 - Water Qu	ality and Other Expected Be	enefits				
			(All benefi	its should be in 2009 dollars)					
		Project 5: Water Quality Enhan	cement of the Temb	ladero Slough and Coastal A	ccess for the Community of	Castrovi	lle		
64	1 41		1.0	1 14	10			100	-
(a) Year	Type of Benefit	(C) Measure of Benefit	(d) Without Project	(e) With Project	(T) Change Resulting from Project	Unit S	(h) Annual S	Discount	Discounted
					anning a second second second second	Value	Value	Factor	Benefits
		(Units)			(e) - (d)		(f) x (g)		(h) x (i)
	-				-	14	121	(11)	.01
2011	Other	Number of community members	Few	Many people learning through	More community appreciation of				
-	Other	Improved collaboration by meetings	Separate stakeholder	Ongoing stakeholer meetings and	At least 12 meetings and/or calls	-	-		-
		and conference calls	meetings very rare	calls	per year.				
2012	Other	Number of community members	Few	Many people learning through	More community appreciation of				
	Other	Improved collaboration by meetings	Separate stakeholder	Ongoing stakeholer meetings and	At least 12 meetings and/or calls	-	-	-	
		and conference calls	meetings very rare	calls	per year				
2013	Other	Number of community members	Few	Many people learning through	More community appreciation of				
-	Other	Improved collaboration by meetings	Separate stakeholder	Ongoing stakeholer meetings and	At least 12 meetings and/or calls	2			
		and conference calls	meetings very rare	calis	per year	-			
2014	Other	Number of community members	Few	Many people learning through	More community appreciation of				
	Other	Improved collaboration by meetings	Separate stakeholder	Ongoing stakeholer meetings and	At least 12 meetings and/or calls	1	-	-	
		and conference calls	meetings very rare	calis	per year				
2015	Water Quality	kg-N/Day	Nitrate Loads exceed	Treated water Nitrate loads do not	12kg-N/Day from treated water				
	Water Quality	m3	Sediment loads	Sediment loads reduced to	Sm3 Sediment	-			
			exceeding standards	standards in treated water		1	-		-
-	Water Quality	mg/l phosphate	0.6mg/i untreated water	0.2mg/l treated	0.4 mg/l in treated water	-	-		
-	Ecosystem	Habitat Restoration-wildlife surveys	Low wildlife use	Increased quantity and diversity in	more birds/amphibians/aquatic	-		1.000	50
	Restoration			surveys	species.		-		
1	Ecosystem	CRAM score reflecting ecosystem	Below average CRAM	CRAM score improvement	Increase of 10-20%				
	Recreation and	Ares of accessible land on the	3.5	23.5	20 acres of park-like setting		-		
	Public Access	Tembladero					1		
1	Other	Number of community members	Few	Many people learning through	More community appreciation of	12	1		
	Other	Improved collaboration by meetings	Separate stakeholder	Ongoing stakeholer meetings and	At least 12 meetings and/or calls	1		-	
		and conference calls	meetings very rare	calls	per year	-	-	-	
2016	Water Quality	kg-N/Day	Nitrate Loads exceed	Treated water Nitrate loads do not exceed standards	12kg-N/Day from treated water	1			
	Water Quality	m3	Sediment loads	Sediment loads reduced to	Sm3 Sediment	-	-	-	
			exceeding standards	standards in treated water		-			
-	Water Quality Water Quality	mg/l phosphate	0.6mg/l untreated water high level	0.2mg/l treated	0.4 mg/l in treated water	-	-	1.000	50
	Ecosystem	Habitat Restoration-wildlife surveys	Low wildlife use	Increased quantity and diversity in	more birds/amphibians/aquatic				
	Restoration			surveys	species,		-		
	Restoration	CRAM score reflecting ecosystem	Below average CRAM	CRAM score improvement	Increase of 10-20%		-		
	Recreation and	Ares of accessible land on the	3.5	23.5	20 acres of park-like setting	1			-
_	Public Access	Tembladero					_		
	Other	Number of community members educated on wetland value	Few	Many people learning through	More community appreciation of wetland value				
	Other	Improved collaboration by meetings	Separate stakeholder	Ongoing stakeholer meetings and	At least 12 meetings and/or calls	0		0.890	\$0
		and conference calls	meetings very rare	calts	per year	-			
2017	Water Quality	kg-N/Day	Nitrate Loads exceed	Treated water Nitrate loads do not exceed standards	12kg-N/Day from treated water	-			
	Water Quality	m3	Sediment loads	Sediment loads reduced to	5m3 Sediment				
			exceeding standards	standards in treated water			-		
-	Water Quality	mg/l phosphate	0.6mg/l untreated water high level	0.2mg/l treated	0.4 mg/l in treated water	-	-	1.000	50
	Ecosystem	Habitat Restoration-wildlife surveys	Low wildlife use	Increased quantity and diversity in	more birds/amphiblans/aquatic				
-	Restoration		5.1	surveys	species.	-			-
1	Restoration	CRAM score reflecting ecosystem	score	CRAM score improvement	Increase of 10-20%		-	-	
	Recreation and	Ares of accessible land on the	3.5	23.5	20 acres of park-like setting				
-	Public Access	Tembladero			1100 - 1100 - 1100 - 1100 - 1100 - 1100 - 1100 - 1100 - 1100 - 1100 - 1100 - 1100 - 1100 - 1100 - 1100 - 1100	-	-		
	Other	Number of community members educated on wetland value	Few	Many people learning through outreach	More community appreciation of wetland value	1			
	Other	Improved collaboration by meetings	Separate stakeholder	Ongoing stakeholer meetings and	At least 12 meetings and/or calls	-		0.890	\$0
		and conference calls	meetings very rare	calis	per year				-
2018	water quality	kg-N/Day	standards	exceed standards	12kg-N/Day from treated water	1		-	
1	Water Quality	m3	Sediment loads	Sediment loads reduced to	5m3 Sediment				
2			exceeding standards	standards in treated water		-		1.000	
	Water Quality	pesticides, toxicity loads	high level	0.2mg/i treated	u.4 mg/l in treated water		-	1.000	50
	Ecosystem	Habitat Restoration-wildlife surveys	Low wildlife use	Increased quantity and diversity in	more birds/amphibians/aquatic				
-	Restoration	20111-00-0	Balance	surveys	species.	-			
	Restoration	improvements	score	CROWN score improvement	increase of 10-20%	1.00			
	Recreation and	Ares of accessible land on the	3.5	23.5	20 acres of park-like setting				
	Duble Access	Tamhladara							

	Other	Number of community members educated on wetland value	Few	Many people learning through outreach	More community appreciation of wetland value				
	Other	Improved collaboration by meetings and conference calls	Separate stakeholder meetings very rare	Ongoing stakeholer meetings and calls	At least 12 meetings and/or calls per year			0.890	\$0
2019	Water Quality	kg-N/Day	Nitrate Loads exceed standards	Treated water Nitrate loads do not exceed standards	12kg-N/Day from treated water				
	Water Quality	m3	Sediment loads exceeding standards	Sediment loads reduced to standards in treated water	5m3 Sediment				
	Water Quality	mg/l phosphate	0.6mg/l untreated water	0.2mg/l treated	0.4 mg/l in treated water			1.000	\$0
	Water Quality	pesticides, toxicity loads	high level	possible lower levels	unknown				
	Ecosystem Restoration	Habitat Restoration-wildlife surveys	Low wildlife use	Increased quantity and diversity in surveys	more birds/amphibians/aquatic species.				
	Ecosystem Restoration	CRAM score reflecting ecosystem Improvements	Below average CRAM score	CRAM score improvement	Increase of 10-20%				
	Recreation and Public Access	Ares of accessible land on the Tembladero	3.5	23.5	20 acres of park-like setting				
	Other	Number of community members educated on wetland value	Few	Many people learning through outreach	More community appreciation of wetland value				
	Other	Improved collaboration by meetings and conference calls	Separate stakeholder meetings verv rare	Ongoing stakeholer meetings and calls	At least 12 meetings and/or calls per year			0.890	50
2020	Water Quality	kg-N/Day	Nitrate Loads exceed standards	Treated water Nitrate loads do not exceed standards	12kg-N/Day from treated water			[Con]	
	Water Quality	m3	Sediment loads exceeding standards	Sediment loads reduced to standards in treated water	5m3 Sediment				
	Water Quality	mg/l phosphate	0.6mg/l untreated water	0.2mg/l treated	0.4 mg/l in treated water			1.000	\$0
	Water Quality	pesticides, toxicity loads	high level	possible lower levels	unknown				
	Ecosystem Restoration	Habitat Restoration-wildlife surveys	Low wildlife use	Increased quantity and diversity in surveys	more birds/amphibians/aquatic species.				
	Ecosystem Restoration	CRAM score reflecting ecosystem Improvements	Below average CRAM score	CRAM score improvement	Increase of 10-20%			1	
	Recreation and Public Access	Ares of accessible land on the Tembladero	3.5	23.5	20 acres of park-like setting		1		
	Other	Number of community members educated on wetland value	Few	Many people learning through outreach	More community appreciation of wetland value				
	Other	Improved collaboration by meetings and conference calls	Separate stakeholder meetings very rare	Ongoing stakeholer meetings and calls	At least 12 meetings and/or calls per year			0.890	50
1	+				0		\$0	0.890	50
Project Life									
				Transfer	Total Present Value of Discou (Sum of the values in Column to Table 20, column (I), Exhibit F: Propo	(j) for all Be sal Costs an	s Based on nefits show d Benefits	Unit Value vn in table) Summaries	
Comments:									

			Table 16 - Wa (A	ter Quality and Ot	her Expected Benefits 2009 dollars)				
			Project 6: Water	shed Approach to	Water Quality Solutions				
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
Year	Type of Benefit	Measure of Benefit	Without Project	With Project	Change Resulting from Project	Unit \$ Value	Annual \$ Value	Factor	Discounted Benefits
		(Units)			(e) – (d)	(II)	(f) x (g)	(1)	(h) x (i)
2011	Water Quality	gpm	flow result of Ag practices	Natural flow restored	Reduced flow			1.000	\$0
	Water Quality	mg-N/L	Exceedence of CCAMP Action Levels 53% of the time n=30	No exceedence of CCAMP Action Levels	Nitrate concentrations < 2.25			1.000	\$0
	Water Quality	PPM	Average annual turbidty 622 ppm n=30	Average annual turbidity < 100 ppm	Less turbidity and pollutants bound to sediment			1.000	\$0
	Water Quality	MPN/100 ml	Average annual E. coli 3551 MPN n=75	No exceedence of CCAMP Action Levels	E. coli concentrations < 400 MPN			1.000	\$0
2012	Water Quality	gpm	flow result of Ag practices	Natural flow restored	Reduced flow			1.000	\$0
	Water Quality	mg-N/L	Exceedence of CCAMP Action Levels 53% of the time n=30	No exceedence of CCAMP Action Levels	Nitrate concentrations < 2,25			1.000	50
	Water Quality	PPM	Average annual turbidty 622 ppm n≈30	Average annual turbidity < 100 ppm	Less turbidity and pollutants bound to sediment			1.000	\$0
	Water Quality	MPN/100 ml	Average annual E. coli 3551 MPN n=75	No exceedence of CCAMP Action Levels	E. coli concentrations < 400 MPN			1.000	50
	Recreation and	number of	none	increased community	Stewardship for the environment and				
	Habitat	CRAM score	Pre-restoration CRAM score	Post-restoration CRAM	CRAM score increase of 12-15% for the ball Bald and 8-10% for the park				
2013	Water Quality	eom	flow result of As practices	Natural flow restored	Reduced flow	-		1.000	50
	Water Quality	mg-N/L	Exceedence of CCAMP Action	No exceedence of	Nitrate concentrations < 2.25			1.000	\$0
	Water Quality	PPM	Average annual turbidty 622	Average annual turbidity	Less turbidity and pollutants bound to sediment			1.000	\$0
	Water Quality	MPN/100 ml	Average annual E. coli 3551	No exceedence of	E. coli concentrations < 400 MPN			1.000	\$0
-	Recreation and	number of	none	increased community	Stewardship for the environment and	-	-		
	Public Access	people		participation	community			_	
	Habitat Restoration	CRAM score	Pre-restoration CRAM score	Post-restoration CRAM score	CRAM score increase of 12-15% for the ball field and 8-10% for the park				
2014	Water Quality	gpin	flow result of Ag practices	Natural flow restored	Reduced flow			1.000	\$0
	Water Quality	mg-N/L	Exceedence of CCAMP Action Levels 53% of the time n=30	No exceedence of CCAMP Action Levels	Nitrate concentrations < 2.25			1.000	50
	Water Quality	PPM	Average annual turbidty 622 ppm n=30	Average annual turbidity < 100 ppm	Less turbidity and pollutants bound to sediment			1.000	50
	Water Quality	MPN/100 ml	Average annual E. coli 3551 MPN n=75	No exceedence of CCAMP Action Levels	E. coli concentrations < 400 MPN			1.000	50
	Recreation and Public Access	number of people	none	increased community participation	Stewardship for the environment and community				
	Habitat Restoration	ERAM score	Pre-restoration CRAM score	Post-restoration CRAM score	CRAM score increase of 12-15% for the ball field and 8-10% for the park				
2015	Water Quality	gpm	flow result of Ag practices	Natural flow restored	Reduced flow	1		1:000	
	Water Quality	mg-N/L	Exceedence of CCAMP Action Levels 53% of the time n=30	No exceedence of CCAMP Action Levels	Nitrate concentrations < 2:25			1.000	50
	Water Quality	PPM	Average annual turbidty 622 ppm n=30	Average annual turbidity < 100 ppm	Less turbidity and pollutants bound to sediment			1.000	50
	Water Quality	MPN/100 ml	Average annual E. coli 3551 MPN n=75	No exceedence of CCAMP Action Levels	E_coli concentrations < 400 MPN			1.000	50
	Recreation and	number of	none	increased community	Stewardship for the environment and	1		-	
	Public Access	people		participation	community	-		-	
2016	Water Quality	gpm	flow result of Ag practices	Natural flow restored	Reduced flow	-	-	1.000	50
	water Quality	mg-tw/L	Levels 53% of the time n=30	CCAMP Action Levels	Nitrate concentrations < 2.25			1.000	20
	water Quality	PPM	Average annual turbidty 622 ppm n=30	< 100 ppm	sediment			1.000	50
	Water Quality	MPN/100 ml	Average annual E. coll 3551 MPN n=75	No exceedence of CCAMP Action Levels	e, coll concentrations < 400 MPN			1.000	50
	Recreation and	number of	none	increased community	Stewardship for the environment and	1			
	Public Access Habitat	CRAM score	Pre-restoration CRAM score	Post-restoration CRAM	CRAM score increase of 12-15% for				-
	Restoration		and the second sec	score	the ball field and 8-10% for the park	_	-		
2017	Water Quality Water Quality	mg-N/L	Exceedence of CCAMP Action	No exceedence of	Nitrate concentrations < 2.25			1.000	50
-			Levels 53% of the time n=30	CCAMP Action Levels					

	Water Quality	PPM	Average annual turbidty 622	Average annual turbidity	Less turbidity and pollutants bound to	1.000	\$0
			ppm n=30	< 100 ppm	sediment		
	Water Quality	MPN/100 ml	Average annual E. coli 3551 MPN n=75	No exceedence of ECAMP Action Levels	E. coll concentrations < 400 MPN	1.000	50
	Recreation and Public Access	number of people	none	increased-community participation	Stewardship for the environment and community		
	Habitat Restoration	CRAM score	Pre-restoration CRAM score	Post-restoration CRAM score	CRAM score increase of 12-15% for the ball field and 8-10% for the park	1	
2018	Water Quality	gpm	flow result of Ag practices	Natural flow restored	Reduced flow	1.000	50
	Water Quality	mg-N/L	Exceedence of CCAMP Action Levels 53% of the time n=30	No exceedence of CCAMP Action Levels	Nitrate concentrations < 2.25	1.000	50
	Water Quality	PPM	Average annual turbidty 622 ppm n=30	Average annual turbidity < 100 ppm	Less turbidity and pollutants bound to sediment	1.000	50
	Water Quality	MPN/100 ml	Average annual E. coli 3551 MPN n≈75	No exceedence of CCAMP Action Levels	E, coli concentrations < 400 MPN	1.000	\$0
	Recreation and Public Access	number of people	none	increased community participation	Stewardship for the environment and community		
	Habitat Restoration	CRAM score	Pre-restoration CRAM score	Post-restoration CRAM score	CRAM score increase of 12-15% for the ball field and 8-10% for the park		
2019	Water Quality	gpm	flow result of Ag practices	Natural flow restored	Reduced flow	1.000	50
	Water Quality	mg-N/L	Exceedence of CCAMP Action Levels 53% of the time n=30	No exceedence of CCAMP Action Levels	Nitrate concentrations < 2.25	1.000	\$0
	Water Quality	PPM	Average annual turbidty 622 ppm n=30	Average annual turbidity < 100 ppm	Less turbidity and pollutants bound to sediment	1.000	50
	Water Quality	MPN/100 ml	Average annual E. coli 3551 MPN n=75	No exceedence of CCAMP.Action Levels	E, coli concentrations < 400 MPN	1.000	50
	Recreation and Public Access	number of people	none	increased community participation	Stewardship for the environment and community		
	Habitat Restoration	CRAM score	Pre-restoration CRAM score	Post-restoration CRAM score	CRAM score increase of 12-15% for the ball field and 8-10% for the park		
2020	Water Quality	gpm	flow result of Ag practices	Natural flow restored	Reduced flow	1.000	50
	Water Quality	mg-N/L	Exceedence of CCAMP Action Levels 53% of the time n=30	No exceedence of ECAMP Action Levels	Nitrate concentrations < 2.25	1.000	\$0
	Water Quality	PPM	Average annual turbidty 622 ppm n=30	Average annual turbidity < 100 ppm	Less turbidity and pollutants bound to sediment	1.000	\$0
	Water Quality	MPN/100 ml	Average annual E. coli 3551 MPN n=75	No exceedence of CCAMP Action Levels	E. coli concentrations < 400 MPN	1.000	50
	Recreation and Public Access	number of people	none	increased community participation	Stewardship for the environment and community		
	Habitat Restoration	CRAM score	Pre-restoration CRAM score	Post-restoration CRAM score	CRAM score increase of 12-15% for the ball field and 8-10% for the park		
2021	Water Quality	gpm	flow result of Ag practices	Natural flow restored	Reduced flow	1.000	\$0
	Water Quality	mg-N/L	Exceedence of CCAMP Action Levels 53% of the time n=30	No exceedence of CCAMP Action Levels	Nitrate concentrations < 2.25	1.000	\$0
	Water Quality	PPM	Average annual turbidty 622 ppm n=30	Average annual turbidity < 100 ppm	Less turbidity and pollutants bound to sediment	1.000	\$0
	Water Quality	MPN/100 ml	Average annual E. coli 3551 MPN n=75	No exceedence of CCAMP Action Levels	E. coli concentrations < 400 MPN	1.000	\$0
	Recreation and Public Access	number of people	none	Increased community participation	Stewardship for the environment and community		
	Habitat Restoration	CRAM score	Pre-restoration CRAM score	Post-restoration CRAM score	CRAM score increase of 12-15% for the ball field and 8-10% for the park		

# ATT9\_IG1\_DReduc\_1of4 Economic Analysis – Flood Damage Reduction Costs and Benefits

The only project within this proposal that will provide direct flood reduction benefits is Project 4, described below.

### Project 4: Integrated Ecosystem Restoration in Elkhorn Slough

### Implementing Agency: Elkhorn Slough Foundation

The project "Integrated Restoration in Elkhorn Slough" involves receiving sediment from the Pajaro River Bench Excavation Project, a flood control project managed by the Santa Cruz County Department of Public Works, and using that material to restore salt marsh in Elkhorn Slough. The feasibility of the Bench Excavation Project depends on the availability of large-scale sediment disposal sites. The project is necessary as the capacity of the other available sites is insufficient to accommodate the sediment that will be generated. Therefore, flood damage benefits of the Bench Excavation Project are claimed as the benefits of this project.

The U.S. Army Corps of Engineers has estimated that the flood hazard on the lower Pajaro River results in Total Expected Annual Damages of \$12.1 million under existing conditions. (The relevant excerpt, from the Draft U.S. Army Corps of Engineers General Re-evaluation Report: Economics Appendix, is attached as an addendum to Wolcott, 2010.) This includes the damages in agriculture, transportation (automobile), residential, public space, commercial, industrial, and emergency categories. The \$12.1 million figure is used conservatively, as this value likely underestimates actual damages. Work is underway to revise the estimate in the agricultural and other damage categories (such as rail transportation). The expected result is that the next draft (planned for release in spring 2011) will publish a higher total annual damages figure than the current amount.

The Bench Excavation Project is anticipated to increase the levee conveyance or flood carrying capacity by approximately 2,000 cubic feet per second. This represents a 9-percent increase over the current levee capacity. Northwest Hydraulic Consultants analyzed existing and project conditions for a design storm based on discharges recorded in 1998, when levees were within 0.1 feet of overtopping (see attached, *Pajaro River Bench Excavation Project – Estimated Benefit*, Wolcott 2010). The model analysis indicated that the Bench Excavation Project would reduce the river stage by 0.5 to 1.9 feet in various reaches of the river. The effect of the project on the flood recurrence interval was not determined, however, and therefore the Total Expected Annual Damages under the project could not be estimated using probabilistic methods.

For the purposes of this proposal, the project is estimated to reduce Total Expected Annual Damages by 4.5-percent, half of the increase in channel conveyance, to \$11.5 million. Over a 50-year planning horizon and with a 6-percent discount rate, this benefit provides a present value of \$8.5 million, as quantified in Table 19.

Tables 18 and 19 are attached for this project as ATT9\_IG1\_DReduc\_2of4 (Table 18) and ATT9\_IG1\_DReduc\_3of4 (Table 19). Supporting material is also attached as ATT9\_IG1\_DReduc\_4of4: Pajaro River Bench Excavation Project - Estimated Benefit, County of Santa Cruz Department of Public Works, December 16, 2010 (note: only the first page is attached; the full document has been submitted to DWR and is available upon request).

### Table 18 - Event Damage

### Project: Integrated Restoration in Elkhorn Slough

The U.S. Army Corps of Engineers has estimated that the flood hazard on the lower Pajaro River results in Total Expected Annual Damages of \$12.1 million under existing conditions. (The relevant excerpt, from the Draft U.S. Army Corps of Engineers General Re-evaluation Report: Economics Appendix, is attached as an addendum to Wolcott, 2010). This includes the damages in agriculture, transportation (automobile), residential, public space, commercial, industrial, and emergency categories. The \$12.1 million figure is used conservatively, as this value likely underestimates actual damages. Work is underway to revise the estimate in the agricultural and other damage categories (such as rail transportation). The expected result is that the next draft (planned for release in spring 2011) will publish a higher total annual damages figure than the current amount.

The Bench Excavation Project is anticipated to increase the levee conveyance or flood carrying capacity by approximately 2,000 cubic feet per second. This represents a 9-percent increase over the current levee capacity. Northwest Hydraulic Consultants analyzed existing and project conditions for a design storm based on discharges recorded in 1998, when levees were within 0.1 feet of overtopping (provided as an addendum in Wolcott 2010). The model analysis indicated that the Bench Excavation Project would reduce the river stage by 0.5 to 1.9 feet in various reaches of the river. The effect of the project on the flood recurrence interval was not determined, however, and therefore the Total Expected Annual Damages under the project could not be estimated using probabilistic methods.

	Table 19 - Present Value of Expected Annual Damage Ben	efits	
	Project: Integrated Restoration in Elkhorn Slough		
(a)	Expected Annual Damage Without Project (1)		\$12,053,000
(b)	Expected Annual Damage With Project (1)		\$11,510,615
(c)	Expected Annual Damage Benefit	(a) – (b)	\$542,385
(d)	Present Value Coefficient (2)		15.76
(e)	Present Value of Future Benefits Transfer to Table 20, column (e), Exhibit F: Proposal Costs and Benefits Summaries.	(c) x (d)	\$8,547,988

(1) This program assumes no population growth thus EAD will be constant over analysis period.

(2) 6% discount rate; 50-year analysis period (could vary depending upon life cycle of project).

# COUNTY OF SANTA CRUZ DEPARTMENT OF PUBLIC WORKS

INTER-OFFICE CORRESPONDENCE

DATE: December 16, 2010

TO: Bruce Laclergue, Flood Control Program Manager

FROM: Justine Wolcott, Resource Planner

SUBJECT: Pajaro River Bench Excavation Project- Estimated Benefit

Three ATTCHMENTS support the following estimate:

ATTACHMENT 1:		Existing Conditions- Annual Damages				
		= \$12,053,000".				
		*Note: Likely Under-estimated figure: The Annual Damages in the 2009 draft of the Economics Appendix is considered to be likely under-estimated. Significant work is currently underway to revise damages in the agricultural category, as well as other potential damages categories. The expected result is that the next draft (planned to release in Spring 2011) will list a total annual damages figure that is greater than current.				
ATTACHM	ENT 2:	Bench Excavation- With Project Benefit- Increase in Levee Carrying Capacity (cfs)				
		= 2,000 cfs greater				
ATTACHM	ENT 3:	1995 Flood- Levee Capacity (cfs)				
		= 21,900 cfs.				
CONCLUSION:	1995	Flood peak flow: 21,900 cfs				
	Benc	h Excavation Project Benefit: 2,000 cfs				
	Resu	ult = Gain in capacity: 9%*				
	*Note	: Current flood stage for the U.S.G.S. Chittenden Gauge is 21,600 Therefore, the project benefit could be closer to 9.4%.				

Table 20 - Proposal Project Costs and Benefits Summary Proposal Title: Implementing IRWM Projects in the Greater Monterey County Region									
Project	Agency	Total Present Value Project	Water Supply (2)	B/C Ratio					
(a)	(b)	(c)	(d)	(e)	(f)	(g) (d) + (e) + (f)	(h) (g) / (c)		
Project 1. Soledad Water Recycling/Reclamation Project	City of Soledad	\$1,606,837	\$1,864,140	\$0	\$0	\$1,864,140	1.2		
Project 2. Castroville Well 2B Treatment Project	Castroville Community Services District	\$938,899	\$4,089,180	\$0	\$0	\$4,089,180	4.4		
Project 3. San Jerardo Wastewater Project	San Jerardo Cooperative, Inc.	\$1,245,922	\$7,275,245	\$0	\$0	\$7,275,245	5.8		
Project 4. Integrated Ecosystem Restoration in Elkhorn Slough	Elkhorn Slough Foundation	\$3,035,451	\$0	\$8,547,988	\$4,281,270	\$12,829,258	4.2		
Project 5. Water Quality Enhancement of the Tembladero Slough	Central Coast Wetlands Group	\$501,086	\$0	\$0	\$0	\$0	0.0		
Project 6. Watershed Approach to Water Quality Solutions	Monterey Bay National Marine Sanctuary	\$581,192	\$0	\$0	\$0	\$0	0.0		
Project 7. Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems	UC Davis Granite Canyon Marine Pollution Studies Laboratory	\$315,221	\$0	\$0	\$0	\$0	0.0		
TOTAL	12	\$8,224,608	\$13,228,565	\$8,547,988	\$4,281,270	\$26,057,823	3.2		

(1) From Exhibit C, Table 11, column (i). Or from Exhibit #, Table 17, column (i). If project is a multi-purpose project, avoid double-counting costs.

(2) From Exhibit C, Table 15, column (d)

(3) From Exhibit E, Table 19, row (e)

(4) From Exhibit D, Table 16, column (j)
## ATT11\_IG1\_Preference\_1of1 Program Preferences

This section describes how the proposal assists in meeting the Proposition 84 IRWM Program Preferences as outlined in Section II.F of the Guidelines. Note that all seven projects, as a whole, address the following Program Preference:

• Effectively integrate water management programs and projects within a hydrologic region identified in the California Water Plan; the Regional Water Quality Control Board (RWQCB) region or subdivision; or other region or sub-region specifically identified by DWR

The seven projects within this proposal are all within the Salinas Valley, a sub-region of the Central Coast hydrologic region. All of the projects overlie the Salinas Valley Groundwater Basin and are located within the Salinas River Watershed (or the Bolsa Nueva Watershed, in the very northern reach of the region). Several of the projects are located in a particularly degraded part of the Salinas River Watershed, the lower watershed area (known as the Gabilan or Reclamation Ditch Watershed). The water quality and ecosystem benefits that will result from each of these projects will provide added value and benefit for the watershed system as a whole, contributing to the region's long-term plans to restore ecosystem functioning and improve water quality in that portion of the planning region. In addition, each of the seven projects will directly or indirectly provide water quality and/or water supply benefit for the Salinas Valley Groundwater Basin. The accumulated effects of these projects will have significant and positive impact on the groundwater basin, and will help address the RWMG's goal of improving water supply reliability for the region.

In summary, the projects address the following Program Preferences listed in PRC §75026.(b) and CWC §10544:

Program Preference	Projects that Address Program Preference
Effectively integrate water management programs and	<ul> <li>All projects, as noted above</li> </ul>
projects within a hydrologic region identified in the	
California Water Plan; the RWQCB region or subdivision;	
or other region specifically identified by DWR	
Include regional projects or programs	<ul> <li>Castroville Community Services District</li> </ul>
	<ul> <li>Elkhorn Slough Foundation</li> </ul>
	<ul> <li>Monterey Bay National Marine Sanctuary</li> </ul>
	<ul> <li>UC Davis Granite Canyon Lab</li> </ul>
Address critical water supply or water quality needs of	<ul> <li>Castroville Community Services District</li> </ul>
disadvantaged communities within the region	<ul> <li>San Jerardo Co-operative</li> </ul>
Effectively integrate water management with land use	<ul> <li>Elkhorn Slough Foundation</li> </ul>
planning	
For eligible SWFM funding, projects which: b) provide	<ul> <li>Elkhorn Slough Foundation</li> </ul>
multiple benefits, including, water quality improvements,	
ecosystem benefits, reduction of instream erosion and	
sedimentation, and groundwater recharge.	
Address Statewide priorities:	
Drought Preparedness	<ul> <li>San Jerardo Co-operative</li> </ul>
	City of Soledad
	<ul> <li>Monterey Bay National Marine Sanctuary</li> </ul>
Use and Reuse Water More Efficiently	<ul> <li>San Jerardo Co-operative</li> </ul>
	<ul> <li>City of Soledad</li> </ul>

	Castroville Community Services District
	<ul> <li>Central Coast Wetlands Group</li> </ul>
Climate Change Response Actions	<ul> <li>San Jerardo Co-operative</li> </ul>
	<ul> <li>Elkhorn Slough Foundation</li> </ul>
Expand Environmental Stewardship	<ul> <li>Elkhorn Slough Foundation</li> </ul>
	<ul> <li>Monterey Bay National Marine Sanctuary</li> </ul>
	<ul> <li>UC Davis Granite Canyon Lab</li> </ul>
	<ul> <li>Central Coast Wetlands Group</li> </ul>
Practice Integrated Flood Management	<ul> <li>Elkhorn Slough Foundation</li> </ul>
	<ul> <li>Central Coast Wetlands Group</li> </ul>
Protect Surface Water and Groundwater Quality	<ul> <li>San Jerardo Co-operative</li> </ul>
	<ul> <li>Castroville Community Services District</li> </ul>
	<ul> <li>Central Coast Wetlands Group</li> </ul>
	<ul> <li>Elkhorn Slough Foundation</li> </ul>
	<ul> <li>Monterey Bay National Marine Sanctuary</li> </ul>
	<ul> <li>UC Davis Granite Canyon Lab</li> </ul>
Ensure Equitable Distribution of Benefits	<ul> <li>San Jerardo Co-operative</li> </ul>
	<ul> <li>Castroville Community Services District</li> </ul>
	<ul> <li>Central Coast Wetlands Group</li> </ul>
	<ul> <li>Elkhorn Slough Foundation</li> </ul>
	Monterey Bay National Marine Sanctuary

The Program Preferences addressed by each of the projects contained in this proposal are described in more detail below.

#### Project 1: Soledad Water Recycling/Reclamation Project

#### Implementing Agency: City of Soledad

- 1. Address Statewide Priorities: The project addresses the following Statewide Priorities:
  - a. Drought Preparedness
  - b. Use and Reuse Water More Efficiently

By recycling water and making it available for irrigation, limited groundwater resources are reserved for potable water uses. The Salinas Valley Groundwater Basin is currently in an overdraft condition. While this project alone will not completely remedy the overdraft, initially 70 acre-ft per year of water will not have to be drawn from the basin because of the use of recycled water. This amount is expected to increase to 180 acre-ft per year as more customers switch to recycled water for non-potable needs.

#### Project 2: Castroville CSD Well 2B Treatment Project

#### Implementing Agency: Castroville Community Services District

This project meets several of the Program Preferences as described below:

#### 1. Include regional projects or programs.

This project is included in the May 2006 Salinas Valley Integrated Regional Water Management Functionally Equivalent Plan (FEP). There are 13 stated goals in the FEP. This project addresses two of those goals, Improve Water Supply Reliability and Protect and Improve Groundwater Quality. It improves water supply reliability for the community of Castroville, which is seeing seawater intrusion of groundwater affect the water quality at its municipal wells. The addition of a well in the 900-foot aquifer, which is not affected by seawater intrusion, will both add reliability for the District and allow reduced pumping from the intruded 180/400-foot aquifer. This supports the second goal, Improve Groundwater Quality. Monterey County Water Resources Agency, which manages the Salinas Valley Groundwater Basin, is working to reduce pumping from the 180/400-foot aquifer in the lower basin as a means of arresting or reducing the rate of seawater intrusion.

- The FEP includes 25 stated objectives. This project addresses these five of these objectives:
  - $\circ~$  Stop seawater intrusion. As discussed above, this project will reduce well pumping in the 180/400-foot aquifer.
  - Provide sufficient water supply to meet all water needs through the year 2030. This project augments the water supply for Castroville, CA. Under the Castroville Community Plan, produced by the Monterey County Housing and Redevelopment Office, the community may add 1,655 new dwelling units over the next 20-years. Groundwater supply for this development will come from reduced agricultural pumping, which will be off-set with deliveries of recycled and surface water under the CSIP program. Additional wells within the community will be required to supply this new development as it occurs.
  - Diversify water supply sources. Castroville CSD's current wells are in the 180/400-foot aquifer. The 900-foot aquifer is not hydraulically connected to the 180/400-foot aquifer, and therefore provides a separate source of supply for Castroville that is not subject to the same risk of seawater intrusion.
  - o Meet or exceed all applicable water quality regulatory standards. The purpose of this project is to provide water treatment to meet the drinking water requirements of Title 22 of the California Code of Regulations. The specific standard to be met if the Maximum Contaminant Level for Arsenic. The State and Federal standard for arsenic in drinking water is ≤0.010 mg/L. Water samples collected at the well have been between 0.017 and 0.020 mg/L.
  - Meet or exceed M&I water quality targets established by stakeholders. Castroville CSD has not specified a more restrictive water quality target than those in Title 22 of the California Code of Regulations.

# 2. Address critical water supply or water quality needs of disadvantaged communities within the region.

Castroville is a Census-Designated Place (CDP), so U.S. Census data was used to determine DAC status. Recently, the U.S. Census published the results of their 2005-2009 American Community Survey. In that survey, the MHI for Castroville was identified as \$47,515, or 78.7% of the State of California MHI of \$60,392 (both in 2009 dollars).

#### 3. Address Statewide Priorities for the IRWM Grant Program.

#### a. Use and Reuse Water More Efficiently:

Completion of this deep well project within Castroville is more efficient than relocating a shallow well outside the District boundary, and constructing a long pipeline to connect the well to the system. While this will not affect the quantity of water produced and used, it will reduce the construction impacts and the project power requirements.

#### b. Protect Surface Water and Groundwater Quality:

As discussed under item 1, this project is one of several that will reduce groundwater pumping from the 180/400-foot aquifer as part of a program to reduce seawater intrusion.

#### c. Ensure Equitable Distribution of Benefits:

As discussed above, Castroville is characterized as a DAC under the U.S. Census 2005-2009 *American Community Survey* results. This project addresses a safe drinking water need for the community by providing wellhead treatment for their new water source.

#### **Project 3:** San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley

#### Implementing Agency: San Jerardo Cooperative, Inc.

The San Jerardo Wastewater Project addresses the following Program Preferences:

## 1. Address critical water supply or water quality needs of disadvantaged communities within the region

This project serves the critical water quality needs of a disadvantaged community (DAC), the San Jerardo Co-operative in the Salinas Valley. San Jerardo is a rural housing complex for low-income farm-worker families on a 33-acre site in rural Monterey County, about 7.5 miles Southeast of Salinas. San Jerardo's MHI was found to be at 53.7% of the state's MHI, qualifying it as a DAC.

#### 2. Address Statewide Priorities for the IRWM Grant Program.

#### a. Drought Preparedness:

- Promote water conservation, reuse and recycling
- Improve landscape irrigation efficiencies
- Achieve long term reduction of water use
- Efficient groundwater basin management

First, a water conservation education program will be implemented by the end of 2011. The project also includes direct water conservation measures such as installation of water restrictor fittings and low flush toilets at designated units participating in the new water conservation grant program. This includes installation of 1.3 gallon flush toilets in designated units, the community center and the child-care facility on the premises, installation of water restrictor valves or fixtures in designated interior faucets and showers, installation of a flow meter at inflow point from wastewater collection pipe system, inspection of cleanout fittings, repairs as needed and installation of a filter unit at the community center, child-care facility and designated units.

These water conservation measures are required since the Co-op has not installed or upgraded waterrestricting faucets, showerheads or low-flow toilets in the residential units, in the child-care facility, or the community room. Water conservation and recycling education programs or materials were not provided by previous drinking water system owners and no educational programs have been implemented by Monterey County to date. No formal study of the feasibility or cost benefit of water recycling or grey water diversion has been undertaken yet; however, both could have a positive impact on wastewater system efficiency and water usage.

Water conservation improvements are expected to produce immediate measurable reductions in wastewater from households projected at 20% by the end of 2012 and an additional 10% by the end of 2013 when taking into account the summer seasonal migrant Head Start program at the child-care facility located on the Co-op. Installation of the fixtures and out-flow metering at intake to the

treatment ponds early in the construction process will produce measurable results prior to project completion.

#### b. Use and Reuse Water More Efficiently:

- Implement water use efficiency, water conservation, recycling and reuse to help meet future water demands
- Increase urban water use efficiency measures such as conservation and recycling

These preferences will be achieved as explained in Drought Preparedness above.

#### c. Climate Change Response Actions:

- Reduce Energy Consumption
- Use and reuse water more efficiently
- Reduce energy consumption of water systems and uses
- Use cleaner energy sources to move and treat water
- Reduce not only water demand but wastewater loads as well, and reduce energy demand
- Water use efficiency
- Water recycling
- Water system energy efficiency

The project includes installation of solar-powered surface aerators in Ponds 1 and 2 for adequate aerobic digestion of organic matter. Solar aerators will be installed as an alternative in bid documents and recommended if the cost is competitive with conventional aeration systems. The water conservation and re-use component shall include research and reporting of solar-powered technologies. We will also reduce maintenance and operating expenses through improved filtration and solar aeration by July 2012.

Furthermore, this project will provide additional air quality benefits as expansion of the system's capacity will reduce noxious odors from the overtaxed ponds.

#### d. Protect Surface Water and Groundwater Quality:

• Protecting and restoring groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses

One of the purposes of the San Jerardo Wastewater Project is to reduce further water contamination of the underlying aquifer, the East Side Aquifer of the Salinas Valley Groundwater Basin. Extremely high concentrations of nitrates and 1-2-3-trichloropropane in the drinking water of the community were found and determined to be a public health risk requiring intervention by the courts and Monterey County. The concentrations of these two constituents in the water indicate contamination of the underlying groundwater aquifer.

San Jerardo residents experienced health impacts from water contamination including rashes, sores and hair loss. A new source of drinking water has now been developed with combined federal, state and local resources, and community organizing and advocacy. However, the inadequate wastewater system remains a threat due to the discharge of contaminants into the Salinas Valley Groundwater Basin. Accumulated contaminants in the wastewater residue pose a continuing risk to groundwater quality. Contamination of the underlying aquifer system is a violation of San Jerardo Co-operative's Waste Discharge Requirements Order No. R3-2003-0054, and the California Water Code. Addressing contamination from the wastewater system is thus consistent with the RWQCB's Basin Plan and will help protect and restore groundwater quality.

#### e. Ensure Equitable Distribution of Benefits:

- Increase the participation of small and disadvantaged communities in the IRWM process.
- Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations.
- Contain projects that address safe drinking water and wastewater treatment needs of DACs.

This program preference/statewide priority is at the heart of this project. The project is entirely based in a DAC whose median household income (MHI) is at 53.7% of the state's MHI, and the Co-operative itself is the primary implementing agency.

Since early 2009, this community has been very engaged and participating in the Greater Monterey County IRWM planning process. The Co-operative is represented on the governance structure, the Regional Water Management Group (RWMG), through its Manager and life-long resident, Horacio Amezquita. The Environmental Justice Coalition for Water (EJCW) is a support organization that is also an active member on the RWMG through its program staff, Dipti Bhatnagar. The Greater Monterey County RWMG has consistently encouraged the participation of the San Jerardo Co-operative and EJCW to represent DAC needs within the IRWM Plan and the region. The RWMG has remained responsive to the special needs of a DAC such as San Jerardo, and has offered assistance and support in completing this project application.

#### Project 4: Integrated Ecosystem Restoration in Elkhorn Slough

#### Implementing Agency: Elkhorn Slough Foundation

The Integrated Ecosystem Restoration in Elkhorn Slough project meets several of the Program Preferences listed in PRC §75026.(b) and CWC §10544, as described below:

#### 1. Include regional projects or programs.

This project collaborates across watersheds, regions and counties to make water management projects more cost effective.

#### 2. Effectively integrate water management with land use planning

This project redirects excess sediment from ocean and landfill disposal where it is a waste, to wetland restoration sites where it is an asset.

**3.** For eligible SWFM funding, projects which: ... b) provide multiple benefits, including, but not limited to, water quality improvements, ecosystem benefits, reduction of instream erosion and sedimentation, and groundwater recharge.

This project provides multiple benefits, including: more cost effective flood control and harbor maintenance, improved surface water quality, and ecosystem restoration.

4. Addresses Statewide Priorities: The project addresses the following Statewide priorities:

#### a. Climate Change Response Actions:

Adaptation to Climate Change: This project increases the resilience of tidal marsh to climate change by making it better able to keep pace with sea level rise. It also restores tidal marsh, which will capture and sequester carbon at a rate of approximately 225 tons per year.

b. Expand Environmental Stewardship: This project restores declining and rare tidal marsh

habitats, provides a demonstration of agriculture and habitat restoration side by side, improves water quality, and creates economic win-win situations across watersheds, regions, and counties.

#### c. Practice Integrated Flood Management:

*More sustainable flood and water management systems:* The project makes flood management and harbor dredging more sustainable by enabling those projects to cost less and to have a lesser impact on the environment.

#### d. Protect Surface Water and Groundwater Quality:

Protecting and restoring surface water and groundwater quality to safeguard public and environmental health and secure water supplies for beneficial uses: This project improves surface water quality by restoring tidal marsh in an estuary impaired by eutrophication, and by establishing a native grass buffer between a working farm and the estuary.

#### e. Ensure Equitable Distribution of Benefits:

• Develop multi-benefit projects with consideration of affected disadvantaged communities and vulnerable populations.

This project makes flood management more sustainable on a stretch of the Pajaro River adjacent to the town of Pajaro, a disadvantaged community.

# **Project 5:** Water Quality Enhancement of the Tembladero Slough and Coastal Access for the Community of Castroville

Implementing Agency: Central Coast Wetlands Group at Moss Landing Marine Labs

1. Address Statewide Priorities: The project addresses the following Statewide Priorities:

#### a. Use and Reuse Water More Efficiently:

Phase 1 of the proposed project will set the groundwork for restoration and enhancement of the Tembladero Slough. Through restoration and enhancement of the slough and its surrounding floodplain, and creation of treatment wetlands, Phase 2 of this project will increase the ability of the slough to capture, store, and treat both urban and farm stormwater runoff prior to its release into the Monterey Bay. By holding the water on the land longer, the amount of water that percolates back into the ground will increase as well, increasing groundwater supplies.

#### b. Expand Environmental Stewardship:

In Phase 1 of the proposed project, extensive community outreach and education will take place in Castroville and the surrounding area to involve the community in the planning process. This will increase their overall knowledge of the surrounding water system and with that will come an enhanced sense of stewardship. Phase 2 of the project through restoration and enhancement of the Tembladero Slough will improve watershed, floodplain, and instream functions.

#### c. Practice Integrated Flood Management:

- The project will establish restoration, public access, and water quality enhancement objectives as integral parts of future flood control management for this watershed, creating a more sustainable flood and water management system to handle urban and agricultural runoff.
- The project will identify 20 acres of land for the purchase of easements, which will be

restored as treatment wetlands, flood control sites, buffer for adjacent farmland, and natural habitat in the lower section of the Gabilan Watershed. This will result in enhanced surrounding floodplain ecosystems.

#### d. Protect Surface Water and Groundwater Quality:

A major goal of the proposed project is to protect and restore the surface water and groundwater quality in the Lower Gabilan Watershed to safeguard public and environmental health and secure water supplies for beneficial uses. This will be achieved through the restoration and enhancement of a proposed 20 acres of wetland habitat.

#### e. Ensure Equitable Distribution of Benefits:

- Through extensive community outreach and education in Phase 1 of the proposed project, we will work to increase the participation of Castroville, a small and disadvantaged community, in the planning process for the wetland restoration and public access path.
- This multi-benefit project will establish restoration, public access and water quality enhancement objectives as integral parts of future flood control management for this watershed, specifically in the lower watershed, adjacent to affected disadvantaged communities and vulnerable populations in and around Castroville.

#### Project 6: Watershed Approach to Water Quality Solutions

**Implementing Agency:** Monterey Bay National Marine Sanctuary, Central Coast Wetlands Group at Moss Landing Marine Labs, and the Resource Conservation District (RCD) of Monterey County

This project will meet the following IRWM Program Preferences:

#### 1. Include regional projects or programs.

The project represents a regional project that will implement multiple regional programs already being successfully demonstrated in other regions on the Central Coast such as Livestock and Lands, and Irrigation Nutrient Efficiency for the agriculture community. The California Rapid Assessment Method has been used around the state and is recognized by the Statewide Monitoring Council as a quick and efficient means to document and assess both wetland and riparian health.

#### 2. Address Statewide Priorities.

The project will address several statewide priorities, including:

#### a. Drought preparedness:

While this is not a priority outcome for the project, the project will work to *Improve landscape* and agricultural irrigation efficiencies and Achieve long term reduction of water use. Growers will be encouraged to implement irrigation practices to minimize water use through drip irrigation and native plants will replace non-natives within the restoration sites requiring less uptake of water. Throughout all of the community outreach, water conservation will be promoted. The irrigation management program for growers is estimated to reduce water usage by up to 90% for drip irrigation systems.

#### b. Expand Environmental Stewardship:

The proposed project will implement and successfully achieve environmental stewardship. This will occur throughout the residential and agriculture community, combining outreach through

watershed festivals, on-farm demonstrations, and community involvement through weeding, planting, and monitoring. All activities will include bilingual translation.

#### c. Protect Surface Water and Groundwater Quality:

The project's objectives are all aimed at restoring beneficial uses for Santa Rita Creek and improving water quality in downstream tributaries. Through implementation of best management practices upstream with the agriculture community and restoration on the creek, targets for monitoring include attainment of water quality objectives for beneficial uses on Santa Rita Creek.

#### d. Ensure Equitable Distribution of Benefits:

This project will *Increase the participation of small and disadvantaged communities in the IRWM process.* There are neighborhoods around Santa Rita Creek that are identified as DAC, especially within the school district. Through the community outreach, we will reach the school children and their families and engage them in community events such as planting native plants, water quality monitoring, class projects, and community watershed festivals.

#### Project 7: Evaluation of Potential for Stormwater Toxicity Reduction by LID Treatment Systems

#### Implementing Agency: UC Davis Granite Canyon Marine Pollution Studies Laboratory

The proposed project will meet the following IRWM Program Preferences:

#### 1. Include regional projects or programs.

The project is consistent with the *Salinas River Watershed Action Plan* (Central Coast Regional Water Quality Control Board, 1999), which encourages programs to reduce non-point source pollution in this watershed. The project is located in the City of Salinas where local watersheds are impaired due to numerous contaminants. The project is located in two sub-watersheds (Carr Lake and Markeley Swamp) that feed into the City of Salinas Reclamation Ditch. This channel conveys stormwater from urban and agriculture lands to the Monterey Bay National Marine Sanctuary via Moss Landing Harbor and the Elkhorn Slough. The Reclamation Ditch, Moss Landing Harbor, and the Elkhorn Slough are all included on the Central Coast Regional Water Quality Control Board 303(d) list of impaired water bodies due to water and sediment toxicity, pesticides, sedimentation, nitrates, and turbidity.

There is a watershed-wide Total Maximum Daily Load (TMDL) reduction program for this area. Management practices to achieve prescribed load reductions are being implemented in urban and agriculture lands. This project complements the watershed-wide TMDL program (RWQCB 2008) by providing information on the relative loading of specific constituents of concern listed in the sub-watershed TMDLs. For example, contaminant loading information from this project could be used to differentiate between relative levels of loadings from residential and commercial vs. agriculture sources in regional stormwater, and can determine whether management practices recently required in regional urban LID projects are sufficient to meet the TMDL goals.

#### 2. Address Statewide Priorities.

The project will address several statewide priorities, including:

#### a. Protect Surface Water and Groundwater Quality:

To comply with recent revisions to State and Regional Water Quality Control Board NPDES permitting requirements, cities in the Central Coast region are being required to monitor stormwater quality. The City of Salinas holds the only individual municipal stormwater permit in

the Central Coast Region. Stormwater monitoring at various sites in the City's watersheds have indicated persistent toxicity at some stations. The causes and sources of this toxicity are unclear, and the City's current monitoring plans are not designed to identify sources of contaminants causing toxicity. The proposed project complements the existing Salinas Stormwater Monitoring Program by providing additional information on possible sources of toxicity to subwatersheds in the City.

#### b. Expand Environmental Stewardship:

This project meets the environmental stewardship element of the program preferences by enhancing information on pollutant loading and sources of toxicity in Salinas River Watersheds. This information will be used to differentiate sources of contaminant loading and will lead to improvement of water quality in key watersheds of the Salinas River, Elkhorn Slough, and Monterey Bay ecosystems.

#### c. Practice Integrated Flood Management (LID):

A key element of the regional stormwater management and pollution prevention plans requires implementation of LID practices to reduce stormwater volume and pollutant loading. Construction of bioswales in new and remodeled commercial and residential developments are a primary LID practice recommended in the Salinas Stormwater Management Plan. The proposed project meets the Integrated Flood Management element of the program preferences by providing information to promote implementation of well-designed regional LID projects. The project is designed to compare LID (i.e., bioswale) effectiveness in several urban applications by comparing contaminant load and toxicity reductions in residential and commercial developments. The commercial applications are further delineated by comparing LID load reductions in developments influenced by runoff from different types of businesses (e.g., home furnishings, home construction and nursery supplies, restaurants and mixed-use development). By comparing the effectiveness of LID practices to reduce contaminant loading and toxicity under a variety of commercial and residential settings, the project will provide important information to local, regional, and state agencies responsible for managing storm water, protecting groundwater, and improving surface water quality.

### ATT12\_IG1\_DAC\_1of2 Disadvantaged Community Assistance

Two projects contained in this proposal address critical water supply and water quality needs of disadvantaged communities (DACs) within the Greater Monterey County Region. These disadvantaged communities are the community of Castroville in the northern portion of the region and San Jerardo San Jerardo Co-operative, a farm-worker community in the Salinas Valley. This section provides the required documentation regarding DACs for these two projects.

### 1. Castroville CSD Well 2B Treatment Project

Implementing Agency: Castroville Community Services District

#### A. Documentation of the Presence and Needs of Disadvantaged Communities

This project serves the safe drinking water supply needs of Castroville, a disadvantaged community in the Salinas Valley. Castroville is an unincorporated community in rural Monterey County, about 6.5 miles northwest of Salinas. U.S. Census records reflect Castroville Township as early as 1870. The community is a mixture of residential, small commercial and light industrial uses, focused on supporting regional agriculture and the construction industry.

A DAC is defined by the Department of Water Resources (DWR) as "a community with an annual median household income that is less than 80 percent of the Statewide annual median household income (PRC 75005 (g))."<sup>7</sup>

Castroville is a Census-Designated Place (CDP), so U.S. Census data was used to determine DAC status. The U.S. Census Bureau's 2005-09 American Community Survey 5-year estimates provide Median Household Income (MHI) data for the state of California at \$60,392.<sup>8</sup> For the same data set and time period, Castroville CDP's MHI was found to be \$47,515.<sup>9</sup> Castroville is at 78.7% of the state's MHI and therefore, qualifies as a DAC.

The need for the project has been discussed in the 2006 Salinas Valley IRWM Functionally Equivalent Plan (FEP) and in the Water Supply Cost and Benefits Attachment. Water supply for the community of Castroville comes exclusively from the 180/400-foot aquifer, which is a portion of the Salinas Valley Groundwater Basin. This aquifer is experiencing seawater intrusion due to over-pumping along the coast, and Castroville is beginning to see increased levels of chlorides and total dissolved solids (TDS) at their municipal wells. The community drilled a new well into the 900-foot aquifer, a deeper stratum of the

- <sup>8</sup> U.S. Census Bureau, 2005-09 American Community Survey 5-year estimates, available at: <u>http://factfinder.census.gov/servlet/ACSSAFFFacts? event=Search&geo\_id=&\_geoContext=&\_street=&\_county=</u> & cityTown=& state=04000US06& zip=& lang=en& sse=on&pctxt=fph&pgsl=010
- <sup>9</sup> U.S. Census Bureau, 2005-09 American Community Survey 5-year estimates, available at:

<sup>&</sup>lt;sup>7</sup> Guidelines, Proposition 84 and Proposition 1E, Integrated Regional Water Management, August 2010, pg 31, available at: <u>http://www.water.ca.gov/irwm/guidelines.cfm</u>

http://factfinder.census.gov/servlet/ACSSAFFFacts?\_event=Search&geo\_id=01000US&\_geoContext=01000US|040 00US06|16000US0611978&\_street=&\_county=castroville&\_cityTown=castroville&\_state=04000US06&\_zip=&\_1 ang=en& sse=on&ActiveGeoDiv=geoSelect& useEV=&pctxt=fph&pgsl=010& submenuId=factsheet 1&ds nam e=ACS 2009 5YR SAFF& ci nbr=null&gr name=null&reg=null%3Anull& keyword=& industry=

Salinas Valley Groundwater Basin which is not experiencing seawater intrusion. When this well was tested, it was discovered that the water contained arsenic at concentrations above the safe drinking water standard of 0.010 mg/L. This project is to construct a wellhead treatment system that will remove the arsenic and allow the District to add this new source of water supply to the distribution system. The commensurate reduction in well pumping from the shallower aquifer will help to reduce the rate of seawater intrusion.

#### **B.** Description of Proposed Project and Targeted Benefits to DACs

This project improves the drinking water system for the disadvantaged community of Castroville by adding a new water supply source that meets the state and federal safe drinking water requirements. The Castroville community services district has already constructed the water supply well, but has deferred constructing the wellhead treatment system and placing the well into production due to the impact the capital construction would have on the community water rates. Grant funding will reduce the impact to water rates and allow the Castroville CSD to diversify their water supply sources and reduce well pumping from the 180/400-foot aquifer.

#### C. Documentation of DAC Representation and Participation

Castroville CSD has participated in the Salinas Valley Integrated Regional Water Management Planning process since 2006, when it joined with Monterey County Water Resources Agency and the Marina Coast Water District in publishing the Salinas Valley IRWM Functionally Equivalent Plan (FEP). The community was not a designated DAC at that time, and the proposed Well Relocation and Replacement Project was not included in the 2006 Proposition 50 Implementation Grant Application because other needs in the region were more pressing at the time. This project was included in the FEP as a future project.

Since 2008, the DAC community of Castroville has participated in the Greater Monterey County IRWM process. The District is represented on the governance structure, known as the Regional Water Management Group for the Greater Monterey County Region, through the CSD's General Manager, Eric Tynan.

#### 2. San Jerardo Wastewater Project: Water Quality Concerns in a Disadvantaged Farm-Worker Community in the Salinas Valley

Implementing Agency: San Jerardo Cooperative, Inc.

#### A. Documentation of the Presence and Needs of Disadvantaged Communities

This project serves the critical water quality needs of a disadvantaged community called the San Jerardo Co-operative in the Salinas Valley. San Jerardo is a rural housing complex for low-income farm-worker families on a 33-acre site in rural Monterey County, about 7.5 miles Southeast of Salinas. The Co-operative is the first such development in the State of California, and includes 60 member-owned units, four rentals, a community room, a child-care center and soccer fields. Many of the current residing members contributed to the original construction of the facility in the 1970s and many of the homes belong to multi-generational families.

As noted above, a DAC is defined by DWR as "a community with an annual median household income that is less than 80 percent of the Statewide annual median household income (PRC 75005 (g))."<sup>10</sup> To find the MHI of the State of California, we used the U.S. Census Bureau's 2006-08 American Community Survey 3-year estimates, available on their website. The MHI of California from 2006-08 was found to be \$61,154.<sup>11</sup>

Since San Jerardo is not a Census-Designated Place (CDP), the Census does not provide income data for this specific community. Hence, we are providing income survey data for the community instead. Since the Co-operative continues to be under the purview of the United States Department of Agriculture (USDA), they are required to collect and report income data of all 60 members to the USDA every month. To remain consistent with the time-period of 2006-08 from where the State of California's MHI has been taken, we are providing income survey data for the community for March 2007. The MHI of San Jerardo through its income survey in March 2007 was found to be \$32,820.50. San Jerardo's MHI is at 53.7% of the state's MHI, qualifying it as a DAC.

The attachment, ATT12\_IG1\_DAC\_2of2, shows San Jerardo's detailed income survey dated March 2007, reported to the USDA in May 2007, and a Microsoft Excel-based analysis of the incomes used to calculate the community's MHI.

In addition, it should also be noted that the MHI provided by the income survey is not fully reflective of the incomes within the Co-operative. Since MHI is determined on a household basis, it masks the fact that households at the Co-operative are multi-generational, which means there are multiple families and multiple income-earners at each resident, rather than the one or two income earners typically associated with MHI comparisons. This situation has been exacerbated in recent years, due to the economic downturn, which has forced several younger family members to return home to the Co-operative, thereby increasing the MHI. Hence, a better reflection of incomes within the Co-operative is the per capita income. For March 2007, the collective income of all 60 San Jerardo members is \$2,214,544, and there are a total of 237 residents as evidenced from the income survey, hence the per capita income is a paltry \$9,344.07.

Not only is the San Jerardo Co-op a DAC, but it is also an environmental justice (EJ) community. The US Environment Protection Agency (USEPA) describes Environmental Justice as:

"...the fair treatment and meaningful involvement of all people regardless of race, color, national origin, or income with respect to the development, implementation, and enforcement of environmental laws, regulations, and policies. EPA has this goal for all communities and persons across this Nation. It will be achieved when everyone enjoys the same degree of protection from environmental and health hazards and equal access to the decision-making process to have a healthy environment in which to live, learn, and work."<sup>12</sup>

<sup>&</sup>lt;sup>10</sup> Guidelines, Proposition 84 and Proposition 1E, Integrated Regional Water Management, August 2010, pg 31, available at: <u>http://www.water.ca.gov/irwm/guidelines.cfm</u>

<sup>&</sup>lt;sup>11</sup> U.S. Census Bureau, 2006-08 American Community Survey 3-year estimates, available at:

http://factfinder.census.gov/servlet/ADPTable?\_bm=y&-context=adp&-

<sup>&</sup>lt;u>qr\_name=ACS\_2008\_3YR\_G00\_DP3YR3&-ds\_name=ACS\_2008\_3YR\_G00\_&-tree\_id=3308&-redoLog=true&-</u> <u>caller=geoselect&-geo\_id=04000US06&-format=&-\_lang=en</u>

<sup>&</sup>lt;sup>12</sup> Environmental Justice, US Environment Protection Agency, available at: <u>http://www.epa.gov/environmentaljustice/</u>

Proposition 84 IRWM Implementation Grant Application Greater Monterey County Region

The San Jerardo property used to be an army camp in the 1940s, which may have contributed significantly to its toxic legacy. Then, in the 1950s and 1960s, it was used as a Bracero camp, where temporary contract laborers from Mexico were brought to the U.S. to work primarily in agriculture. In the mid-1970s, San Jerardo was set up as a cooperative housing project for farm-worker families. Anecdotal evidence from the community shows that legendary labor leader, Cesar Chavez, sent homeless farm-worker families to live at San Jerardo Co-op when it began. As farm-workers, the residents of the Co-op are 100% Latino/ Hispanic and have always lived in poverty, with little to no access to resources. Even today, since the Co-op lies in unincorporated Monterey County, it is faced with the revenue and governance disadvantages of being unincorporated, and it must rely on an over-stretched Monterey County for services. This inequitable access to resources on the basis of race or class is an environment justice concern.

#### **B.** Description of Proposed Project and Targeted Benefits to DACs

This project will directly assist the disadvantaged community of San Jerardo to improve water quality by upgrading their wastewater system. The San Jerardo Wastewater Project will provide targeted benefits to this DAC. It is needed to address the lack of adequate wastewater services in the DAC, which a critical human health issue.

For many years, the residents at the Co-op have struggled significantly with their water and wastewater issues. In 1997, the EPA filed a lawsuit against Alco Water Corporation, the owners of San Jerardo's drinking water system for violations of the federal Safe Drinking Water Act, including falsifying water quality reports and failing to comply with treatment requirements. San Jerardo's water system languished in court-appointed receivership for years while residents continued to be supplied with highly contaminated drinking water. Residents experienced health impacts from water contamination including rashes, sores, and hair loss. Eventually, Monterey County, working with San Jerardo residents and the Department of Public Health (DPH), were able to access enough resources to construct a new well and distribution system. This new well system was inaugurated by the Monterey County Supervisors on December 17, 2010. Unfortunately, while residents have received clean drinking water, they now face an additional hardship: the high operating cost of the new well system will raise water rates to an exorbitant \$113 per month. This is a very significant financial burden for residents.

San Jerardo has already spent considerable time and resources over the last few years trying to resolve their drinking water contamination issues, and now they have very few resources to address their desperately needed wastewater upgrades. The Co-operative requests funds from Proposition 84 IRWM Grant Program for the San Jerardo Wastewater Project to address urgent water quality concerns in this disadvantaged community.

The proposed project will provide critical public health benefits to the San Jerardo community by both ensuring adequate wastewater treatment systems and by reducing nitrate and 1,2,3-trichloropropane discharge into the underlying aquifer system. The upgrade of the wastewater system will help prevent the cycle of contamination and re-contamination between the wastewater ponds and the underlying aquifer. This is expected to provide water quality benefits, which will extend to the surrounding area, including nearby residential uses. It also includes a potential reduction in the amount of treatment needed for the community's new drinking water supply from the nearby well.

Water supply benefits include the provision of an alternate source of water for grounds upkeep and yearround soccer field irrigation through the re-use or recycling of treated wastewater, thus reducing water supply demand. It will provide additional air quality benefits as expansion of the system's capacity will reduce noxious odors from the overtaxed ponds. Future economic benefits are expected to result from the planning component of the grant, which include the substitute of recycled water for water from the new well site for secondary uses, reducing operating costs to pump, store and maintain the water system. In addition, the project will have energy savings by using solar-powered aerators and other solar technology where feasible. Implemented water conservation efforts also potentially have large energy-saving implications.

The project will primarily benefit the residents of San Jerardo and local residents that rely on the East Side aquifer for drinking water. However, as reduction of groundwater contamination is an overall regional goal, the project will benefit all Salinas Valley residents.

The project is also required as per the Central Coast Regional Water Quality Control Board (RWQCB), which has informed the Co-operative that their wastewater system is out of compliance with Waste Discharge Requirements (WDR) Order No. R3-2003-0054 due to a lack of pond linings, adequate aeration systems, and sufficient monitoring wells. Thus far, the RWQCB has not levied any fines out of sensitivity to the Co-operative's DAC status, their lack of resources, and the many drinking water difficulties the communications that if San Jerardo is unable to bring their system into compliance soon, they will be forced to issue a notice of violation. Hence, it is critical that the Co-op upgrade their system before they face additional penalties.

Until now, the Co-operative has been unable to proceed with its wastewater system repairs due to funding constraints. The Co-operative cannot afford this project by itself. It has explored various funding sources such as the State Revolving Fund, Community Development Block Grant (CDBG), USDA Rural Utility Service Programs, and, more recently, the Cleanup and Abatement (CAA) funds through the State Water Resource Control Board, for the wastewater treatment upgrades. Unfortunately, many funding programs are inaccessible because of the legal structure of the Co-operative (they are a mutual benefit corporation). Others require debt service payments, which are not within the means of the community because it is a DAC and the residents are unable to afford rate increases at current income levels. The Co-operative currently has an application into the Cleanup and Abatement Fund to address the wastewater upgrades, but it is stagnant since the State Board will not provide the funds to the Co-op. We have requested various local entities and agencies for fiscal sponsorship to receive the funds, but since the Co-op is nobody's responsibility, this process has been stagnant for over a year.

#### C. Documentation of DAC Representation and Participation

This project not only includes DAC representation and participation, but rather it entirely serves the critical water quality needs of a DAC. The primary Implementing Agency for the project is the San Jerardo Co-operative.

The project builds upon several years of collaborative water management and problem-solving in the community. Over the years, the community has actively organized to advocate for their right to clean, safe and affordable drinking water and wastewater services. The *Monterey County Herald*, among other news sources, has reported the community's heroic struggles for years, supported by various organizations.<sup>13</sup> Multiple agencies and non-profit organizations, ranging from the Rural Community Assistance Corporation (RCAC) to the California Rural Legal Association (CRLA), to agencies such as the EPA, the Central Coast RWQCB, Department of Environmental Health and County Department of

<sup>&</sup>lt;sup>13</sup> Danger in the Water: San Jerardo Residents Contend with Contaminated Wells, Monterey County Herald, July 10, 2006, available at:

http://www.redorbit.com/news/science/352235/danger in the water san jerardo residents contend with contami nated/

Public Works have worked hard to create long-term solutions to San Jerardo's various barriers to safe drinking water and wastewater. The current project is a collaborative effort between the Environmental Justice Coalition for Water (EJCW), the Co-operative, RCAC, Nilsen and Associates, and Engineers Without Borders.

Since early 2009, the San Jerardo Co-operative has been participating in the Greater Monterey County IRWM process. The Co-operative is represented on the governance structure, the Regional Water Management Group, through its Manager and life-long resident, Horacio Amezquita. EJCW is a support organization that is also an active member on the RWMG through its program staff, Dipti Bhatnagar (previously through Amy Vanderwarker).

The Greater Monterey County IRWMP's RWMG has consistently encouraged the participation of the San Jerardo Co-operative and EJCW to represent DAC needs within the Plan and the region. The RWMG has remained responsive to the special needs of a DAC such as San Jerardo, and has offered assistance and support in completing this project application.

San Jerardo and EJCW have also played a major role in the group's Planning Grant application to DWR in September 2010, and the organizations hope to receive funds to conduct outreach to even more DACs in the area to involve them in the IRWMP process and provide funding for their critical water needs.

## ATT12\_IG1\_DAC\_2of2 Disadvantaged Community Assistance

Income survey for San Jerardo attached here

## **Attachment 13**

AB 1420 and Water Meter Compliance Information

#### SENT IN HARD COPY TO DWR:

- 1. AB 1420 Self-Certification Table 1
- 2. AB 1420 Self-Certification Table 2
- 3. Water Rates (Support for Tables 1 and 2)
- 4. Self-Certification for Water Meter Compliance
- 5. CUWCC Membership

## ATT14\_IG1\_Consent\_1of1

#### **Consent Form**

Applicant: City of Soledad IRWM Region: Greater Monterey County RWMG: Greater Monterey County Date of Adoption: The Salinas Valley IRWM Functionally Equivalent Plan was adopted in May 2006.

As the authorized representative of the above-referenced RWMG, I acknowledge and affirm that the RWMG is utilizing an IRWM Plan that was adopted on or before September 30, 2008, to meet part of the grant Eligibility Criteria for the Round 1, Proposition 84 IRWM Grant Program, Implementation Grant solicitation.

I also acknowledge that the RWMG understands that it must enter into a binding agreement with DWR to update, within two years of the execution date of the agreement, the IRWM Plan to meet the IRWM Plan standards contained in the Guidelines; and to undertake all reasonable and feasible efforts to take into account water-related needs of disadvantaged communities in the area within the IRWM region.

I further acknowledge that the RWMG understands that failure to meet the condition listed above may result in termination of the grant agreement by DWR and that DWR may demand the immediate repayment to State of an amount equal to the amount of grant funds disbursed to Grantee prior to such termination.

Adela P. Gonzalez Name of Authorized Representative

ul Signature

December 17, 2010

City Manager Title of Authorized Representative

Date