

CALLEGUAS CREEK WATERSHED TREATMENT – PHASE III FINAL REPORT

March 22, 2006

CALLEGUAS CREEK WATERSHED, VENTURA COUNTY, CA

COVER CROP, MULCHING, STREAMBANK STABILIZATION AND PERMIT COORDINATION PROGRAM

**319(h) Water Quality
Nonpoint Source Project**

Matching Funds Provided By Partner Agencies and Private Growers

**Original Grant total \$297,400
Total amended 10/05 to \$202,382**

SUBMITTED BY:



*Ventura County
Resource Conservation District*

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CONTRACT SUMMARY

Date filled out: 11/5/03

A) Contract Information	
1. Contract Number: 01-135-254-0	
2. Project Title: Calleguas Creek Watershed Treatment – Phase III	
3. Project Purpose – Problem: <i>Decrease NPS pollution from agricultural sources, including orchards and streambanks, to improve water quality in downstream water bodies.</i>	
4. Project Goals:	
a. Short-term Goals: <i>Provide incentives and cost sharing to growers to implement mulching and streambank stabilization practices on farms to reduce erosion. Typically citrus and avocado (especially avocado) plantings are on erosion susceptible slopes. Mulching was proven in the Phase I project to be an effective tool against sheet and rill erosion on hillside plantings. Both Phase I and Phase II projects demonstrated streambank stabilization practices that reduced erosion of streambanks. The short-term goal of this project was to provide incentive through cost share to growers who were otherwise reluctant to implement such practices on their farms.</i>	
b. Long-term Goals: <i>The majority of projects within channels require permits. Obtaining permits can be an onerous task that many landowners choose to not attempt. For that reason, the percent of viable projects that gets implemented is very low. Our long-term goal was to develop a simplified permit process for streambank stabilization and related practices. The completed permit coordination program will allow the landowner to work directly with NRCS and the RCD to obtain all necessary permits in a fraction of the usual time. A simplified process will lead to increased project implementation.</i>	
5. Project Location: (lat/longs, watershed, etc.) <i>Grimes Canyon, Calleguas Creek Watershed, Ventura County, CA. LAT: 34° 18'47.52" LONG: 118° 55'16.09"</i>	
a. Physical Size of Project: (miles, acres, sq. ft., etc.) <i>165 Acres were mulched and programmatic permits obtained for entire watershed</i>	b. Counties included in the project: <i>Ventura</i>
c. Legislative Districts: (Assembly and Senate) <i>Assembly Districts 37 & 38, Senate District 19, Congressional Districts 23 & 24</i>	
6. Which SWRCB program is funding this contract? <input type="checkbox"/> Prop 13 <input checked="" type="checkbox"/> EPA 319(h) <input type="checkbox"/> Other	
B) Contract Contact: Refers to contract project director.	
Name: <i>Patricia Oliver</i>	Job Title: <i>District Manager</i>
Organization: <i>Ventura County Resource Conservation District</i>	Webpage Address: <i>none</i>
Address: <i>P.O. Box 147, 3380 Somis Rd., Somis, CA 93066</i>	
Phone: <i>(805) 386-4685</i>	Fax number: <i>(805) 386-4890</i>
Email: <i>patricia.oliver@vcrcd.org</i>	
C. Contract Time Frame: Refers to the implementation period of the contract.	
From: <i>July 2002</i>	To: <i>December 2005</i>
D) Project Partner Information: Name all agencies/groups involved with project. <i>USDA Natural Resource Conservation Service, UC Cooperative Extension, US Army Corps of Engineers, US Fish & Wildlife Service, California Department of Fish & Game, Sustainable Conservation, Coastal Commission, Ventura County Public Works, Ventura County Watershed Protection District, Los Angeles Regional Water Quality Control Board.</i>	
E) Nutrient and Sediment Load Reduction Projection (if applicable): Qualitative measurement	



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- Appendix A – List of References
- Appendix B – List of Deliverables
- Appendix C – List of Subcontractors

Attachments:

- Signed MOA with US Army Corps of Engineers
- Signed 401 Water Quality Certification with LA RWQCB
- Watercourse Permit from Ventura County Watershed Protection District



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Executive Summary

This project is the third in a series of 319(h) grants to address excess erosion in the Calleguas Creek watershed. This project began in April 2002 and was designed to reduce run-off from local orchards and ranches in order to reduce sedimentation in downstream environments. The key elements to this project included cost-share components for local growers for the implementation of on-farm conservation practices and the development of a Coordinated Permit Program.

Phase I compared non-protected hillside orchards with adjacent orchard that had been mulched or cover cropped. Various effects were measured or observed, including the amount of sediment leaving the orchard, effects of Best Management Practices (BMPs) on temperature within the orchard, changes in leaf nutrients, and changes in the amount and type of weeds growing. A second element of Phase I was the comparison of various erosion reducing practices, including cover crops, mulches and streambank stabilization practices for cost and effectiveness in reducing erosion. Primary funding was supplied by a 319(h) grant for \$75,865. Additional funds were obtained from the California Coastal Conservancy and the California Integrated Waste Management Board.

Phase II of the project consisted of further demonstrations, and focused specifically on streambed and streambank stabilization methods. The focus was on the total restoration of a one-mile reach of channel. The intent was to demonstrate alternative, environmentally friendly methods of stream stabilization. Phase II was a financial collaboration of the State Water Resources Control Board 319(h) grant, California Coastal Conservancy and in-lieu fees from a developer. The total budget was approximately \$950,000. The 319(h) grant contributed \$182,535 to this project.

The Phase III project began in April 2002 and was designed to reduce run-off from local orchards and ranches in order to decrease sedimentation in downstream environments. The key elements to this project included cost-share components for local growers to implement on-farm conservation practices and to develop a Coordinated Permit Program. This phase of the project (Phase III) focuses on the implementation of some of these practices through the incentive of cost-share and the development of a coordinated permit program.

The conservation practices targeted included cover crops, mulching and streambank stabilization. Grower interest was obtained by holding a series of workshops, conducting direct mailings, and performing direct calling for the cost-share program. Orchard mulching proved very popular among the growers who participated in the program. Approximately 167 acres of mulching were installed. All of the funds allotted for cover crop and mulching were used.

Growers were reticent to participate in the streambank stabilization program. Twelve potential project sites were identified, but only two progressed to the design stage. However, the project proponents for these two sites were unable to submit plans in time to apply and receive permits and install the practices during the grant period. For this reason, the streambank task was not completed.

Momentum for the Coordinated Permit Program got a slow start because a federal lead was not available. This was resolved and the program moved forward and gained speed by November 2004. A strong partnership was formed with the USDA Natural Resources Conservation Service (NRCS). The NRCS will act as the



Federal lead for permitting and will continue as a partner when the permits are administered. Our permit program is patterned after other, similar successful programs in Elkhorn Slough and Morro Bay. Sustainable Conservation, a non-governmental non-profit organization, was instrumental in both of the programs mentioned above and with this project.

All CEQA documents were prepared and circulated for comment in the summer of 2005. Permit applications were prepared and submitted to the appropriate agencies in August 2005. Permits were in-hand by December 2005, and early in 2006. The permits include: a U.S. Army Corps of Engineers 404 Permit, a U.S. Fish & Wildlife Service Technical Assistance Letter, Los Angeles Regional Water Quality Control Board 401 Certification, a California Department of Fish and Game Master Streambed Agreement, a Ventura County Watershed Protection District Watercourse/Encroachment Permit, and a Ventura County Public Works Grading Permit. The following agencies were cooperative partners in all of our efforts for this project: USDA Natural Resources Conservation Service, U.S. Army Corps of Engineers, U.S. Fish & Wildlife Service, Los Angeles Regional Water Quality Control Board, California Department of Fish and Game, Ventura County Watershed Protection District, and Ventura County Public Works.

In summary, this project can be deemed a success. Although actual streambank stabilization projects were not implemented due to time constraints, other important aspects of these projects were realized. Through our outreach and education efforts, nine area growers initiated mulching practices on their properties. Their efforts reduced the quantity of sediment lost from their orchards for an estimated annual soil savings of nearly 152 tons per year. The success experienced by these farmers sets a positive example for other growers in the area. With the addition of the permits now in possession of the VCRCD and our outreach efforts, we believe that additional growers will be motivated to employ sediment-reduction practices on their properties.



I. Problem Statement & Relevant Issues

The Calleguas Creek watershed tributaries are impaired with sediment, excess nutrients, and elevated levels of pesticides from nonpoint sources of pollution. Both historically banned pesticides and currently used pesticides have bioaccumulated in the fish and shellfish populations. Sediment is also an issue in downstream environments within the watershed, particularly in Mugu Lagoon (an important wetland area), where Calleguas Creek drains to the Pacific Ocean. Many of the contaminants mentioned above are delivered to the water bodies through the sediments when they attach to soil particles. Decreases in erosion will lead to reduced contamination by sediment particles and the contaminants attached. Orchards and streambanks have been identified as two of the primary sources of eroded sediment in the watershed. Many of these surfaces have been denuded of any stabilizing vegetation through the weed control efforts of farmers. Additionally, the majority of the upland soils in the watershed are formed from marine sandstone, shale, and semi-consolidated materials, which are highly erodible. As such, soil losses occur during any precipitation event that has sufficient strength and duration to trigger run-off.

Education and outreach to local farmers will not only raise general awareness about this issue, but will also provide solutions such as mulching, cover-cropping, and streambank stabilization to alleviate soil losses.

Presently, the permitting process for in-stream projects consists of many, time-consuming steps. The availability of a simplified permit process through the VCRCDC will be a key element to increased stream restoration and improved habitat corridors throughout the Calleguas Watershed.

This is the third phase of a sequential battle to not only reduce sediments, which leave the upper watershed and enter downstream environments, but to also assist growers with the necessary permits for in-stream stabilization projects.

II. Project Goals

The project goals are to:

1. Reduce sediment leaving orchards and streambanks within the watershed, which will improve water quality by decreasing suspended solids, associated nutrients, and pesticides attached to the soil particles.
2. Promote implementation of stream stabilization practices through development and administration of a permit coordination program.

III. Project Description

A. Summary

Phase I and II of this project demonstrated the effectiveness of best management practices for use in orchards and along streambanks to reduce erosion and downstream sedimentation. This Phase III project was conceived to work toward extensive implementation of the recommended best management practices that include cover crops, mulches, and streambank stabilization. Part of



the funding for this project was used as cost-share to the landowners for best management practice implementation. Included in this task is the development of regionally based permits from the permitting agencies for implementation of streambank stabilization practices within the watershed and under the purview of the Ventura County Resource Conservation District. The best management practices are listed below:

- Channel Stabilization
- Clearing & Snagging
- Critical Area Planting
- Diversion
- Underground Outlet
- Filter Strips
- Grade Stabilization Structure
- Grassed Waterway
- Obstruction Removal
- Pipeline
- Riparian Forest Buffer
- Sediment Basin
- Stream Bank Protection
- Structure for Water Control

B. Project Type

This project is a combination of implementation and planning. The Mulching and Streambank Tasks (Tasks 3 and 5) were implementation tasks, offering cost-share reimbursement to growers for implementation of best management practices. Tasks 2 and 4 involved the CEQA/NEPA documentation and all of the coordination necessary to develop programmatic permits for 14 stream-related practices within the Calleguas Creek Watershed.

C. Funding

Project funding included grant funds (\$202,382 as revised 10/05) were expended as cost share to growers for the installation of cover crop and mulching. The original budget was \$297,400, which was revised due to the inability of growers to complete their streambank stabilization designs in time for permitting. Funds were also spent developing the streambank stabilization program, even though no projects were completed. Grant funds were also spent on the CEQA/NEPA and Permit Coordination Tasks, as well as project administration. Matching funds consisted of in-kind contribution of time by agency personnel to assist with the project and actual dollars spent by growers in the cost-share programs.

1. Mulching

The growers were required to spend \$600 per acre for mulch installation and they would be reimbursed \$300 per acre. Without exception, the growers spent more than the required \$600 per acre. All funds spent by growers beyond the reimbursement are considered matching and totaled \$83,317 for \$50,000 spent in grant funds.



2. Permit Coordination Program / and CEQA

The permit coordination program required extensive direct communication and cooperation with the permitting agencies. Grant spending for these efforts will total approximately \$52,790 by completion in December 2005. Matching contributions in time spent by agencies was estimated at \$28,400.

3. Streambank Stabilization

Although no implementation was completed, extensive work was performed in the development of the program. As well as grant dollars, cooperating agency time was also spent on the preparation of Memorandums of Understanding (MOUs) and assisting with site investigations. Donated agency time for this task is estimated at \$10,500. Two growers were signed up for the program and committed substantial personal funds to the preparation of surveys and engineering plans. The estimated amount for the two projects is \$70,600. Total grant funds spent on this task equal \$39,039.

D. Project Methodology / Pollutant Loading

1. Mulching

The purpose of this grant was to help reduce the potential for erosion within the Calleguas Creek Watershed. This grant was made available to qualified growers in order to encourage them to apply mulching material or cover crop to areas of their ranch/farm prone to erosion. Mulch is any loose material placed over the soil to control weeds, conserve soil moisture, and shield soil particles from the erosive forces of raindrops and runoff. Usually it is coarse organic matter, such as leaves or bark, but can also be chipped clippings from tree pruning or trimming. The grant reimbursed the grower 50% of the grower's cost with a limit of \$300.00 per acre.

This task was allocated \$50,000, which covered approximately 167 acres, based on a maximum of \$300.00 per acre. In order to qualify, a ranch had to be located on a hillside or sloping area and had to be an income producing operation within the watershed. Most participants in the project grew avocados and/or lemons. Each grower was required to complete a Cooperative Agreement and Cost Share Agreement prior to beginning work. Mulching was required to be applied no less than 4" thick and in rows approximately 50% of the width in between trees. Special note was given to placing mulch in configurations as to reduce erosion, specifically, perpendicular to the flow of water. Once work was complete, each grower completed a grower reimbursement summary form.

In our effort to promote this program a number of workshops were held in our office, talks were given at local grower meetings, and some advertising was used including displays at various venues, and the Ventura County fair.

In the program, we had nine growers that qualified. All growers met or exceeded the requirements that were set forth. We have included in this report a table summarizing the projects and a detailed summary for each



grower with accompanying photos of each ranch showing before and after mulching pictures. The soil savings were estimated using data from Table 3-f, Erosion and Sediment by Erosion Source of the Calleguas Creek Watershed Erosion and Sediment Control Plan for Mugu Lagoon, published May, 1995.

Table 1
Mulching Program Summary

Grower	Acres Treated	Matching Contributed	Estimated Total Soil Savings in tons/yr
Gene Baker	24	\$13,054	10.32
Greg Berry	2.3	\$ 1,394	.76
Charles Blanc	19.9	\$ 5,993	8.56
Brian Lee	20	\$ 9,052	8.60
Tom Fields	3	\$ 5,600	1.29
Jim Lloyd-Butler	18.6	\$10,857	8.00
Gene Mabry	33.6	\$17,565	14.45
Ron Partain	13	\$ 7,192	5.59
Gary Seaton	33	\$12,610	94.38
TOTAL	167.4	\$83,317	151.95



GROWER SUMMARY

GROWER NAME:	GENE BAKER
LOCATION OF RANCH:	SOMIS
COMMODITIES GROWN:	LEMONS & AVOCADOS
ACRES PER GROWER AGREEMENT:	20
ACRES ACTUALLY MULCHED:	24.0
ACRES ACTUALLY COVER CROPPED:	0
DEGREE OF SLOPE:	10% - 20%
ESTIMATED EROSION PER YEAR	
PER ACRE BEFORE MULCH	.45 Tons / acre
PER ACRE AFTER MULCH	.02 Tons / acre
NET REDUCTION PER YEAR	24 X .43 = 10.32 Tons / yr
TOTAL AMOUNT REIMBURSED TO GROWER:	\$ 7,200
TOTAL COST INCURRED BY GROWER:	\$20,254
TOTAL MATCHING CONTRIBUTION	\$13,054

Mr. Baker's ranch is located on a hillside, which has potential for erosion. He was a very enthusiastic participant in this program and secured copious amounts of mulch, which he applied liberally to his grove. Because of this program and the benefits derived from mulching, Mr. Baker has continued to add material to his ranch even though he will no longer be reimbursed.





Before



After

GENE BAKER



GROWER SUMMARY

GROWER NAME:	GREG BERRY
LOCATION OF RANCH:	MOORPARK
COMMODITIES GROWN:	BLUEBERRIES
ACRES PER GROWER AGREEMENT:	2.5
ACRES ANNUALLY MULCHED:	1.3
ACRES ACTIVELY COVER CROPPED:	1.0
DEGREE OF SLOPE:	4% - 35%
ESTIMATED EROSION PER YEAR	
PER ACRE BEFORE MULCH	.35 Tons / acre
PER ACRE AFTER MULCH	.02 Tons / acre
NET REDUCTION PER YEAR	$2.3 \times .33 = .76$ Tons / yr
TOTAL AMOUNT REIMBURSED TO GROWER:	\$ 465.00
TOTAL COST INCURRED BY GROWER:	\$ 1,859.67
TOTAL MATCHING CONTRIBUTION	\$ 1,394.67

Mr. Berry grows blueberries in an area with moderate to very steep hillsides as can be seen from the accompanying pictures. In the areas with moderate sloping mulch was applied. However, the steep hillsides had to be cover cropped.

Mr. Berry did comply with all of our requirements and did a very good job. All material was applied by ranch labor.





Before



After

GREG BERRY



GROWER SUMMARY

GROWER NAME:	CHARLES BLANC
LOCATION OF RANCH:	MOORPARK
COMMODITIES GROWN:	AVOCADOS
ACRES PER GROWER AGREEMENT:	20
ACRES ACTUALLY MULCHED:	19.9
ACRES ACTUALLY COVER CROPPED:	0
DEGREE OF SLOPE:	9% - 12%
ESTIMATED EROSION PER YEAR	
PER ACRE BEFORE MULCH	.45 Tons / acre
PER ACRE AFTER MULCH	.02 Tons / acre
NET REDUCTION PER YEAR	19.9 X .43 = 8.56 Tons / yr
TOTAL AMOUNT REIMBURSED TO GROWER:	\$ 5,970
TOTAL COST INCURRED BY GROWER:	\$11,963
TOTAL MATCHING CONTRIBUTION	\$ 5,993

Mr. Blanc was another grower who totally embraced the mulch program and continues to apply material to his avocado grove.

Mr. Blanc used both an outside contractor to apply the mulch and ranch labor on the very steep areas of his ranch.

The requirements, which were set forth in our grower agreement, were adhered to by the grower.





Before



After

CHARLES BLANC



GROWER SUMMARY

GROWER NAME:	TOM FIELDS
LOCATION OF RANCH:	MOORPARK
COMMODITIES GROWN:	AVOCADOS
ACRES PER GROWER AGREEMENT:	3.5
ACRES ACTUALLY MULCHED:	3.0
ACRES ACTUALLY COVER CROPPED:	0
DEGREE OF SLOPE:	4% - 40%
ESTIMATED EROSION PER YEAR	
PER ACRE BEFORE MULCH	.45 Tons / acre
PER ACRE AFTER MULCH	.02 Tons / acre
NET REDUCTION PER YEAR	3 X .43 = 1.29 Tons / yr
TOTAL AMOUNT REIMBURSED TO GROWER:	\$ 900
TOTAL COST INCURRED BY GROWER:	\$ 6,500
TOTAL MATCHING CONTRIBUTION	\$ 5,600

Mr. Fields has recently planted avocados on his hillside property. With the addition of mulch, these hillsides will be protected from eroding into the streambed below his property. Mr. Fields had the mulch applied by a ranch management company and met our requirements.





Before



After

TOM FIELDS



GROWER SUMMARY

GROWER NAME:	BRIAN LEE
LOCATION OF RANCH:	MOORPARK
COMMODITIES GROWN:	AVOCADOS & LEMONS
ACRES PER GROWER AGREEMENT:	20.0
ACRES ACTUALLY MULCHED:	20.0
ACRES ACTUALLY COVER CROPPED:	0
DEGREE OF SLOPE:	10% - 25%
ESTIMATED EROSION PER YEAR	
PER ACRE BEFORE MULCH	.45 Tons / acre
PER ACRE AFTER MULCH	.02 Tons / acre
NET REDUCTION PER YEAR	20 X .43 = 8.6 Tons / yr
TOTAL AMOUNT REIMBURSED TO GROWER:	\$ 6,000
TOTAL COST INCURRED BY GROWER:	\$15,052
TOTAL MATCHING CONTRIBUTION	\$ 9,052

Mr. Lee is a young grower new to this profession and is very cost-conscious. After qualifying for our program, the grower was able to expand his mulching project in a larger way and over the hillsides where his ranch is located. The grower has secured large amounts of mulch material and in order to mitigate cost he is using ranch labor to apply the material. This method takes longer due to other obligations, but he has been able to cover a majority of his ranch under our time table.





Before



After

BRIAN LEE



GROWER SUMMARY

GROWER NAME:	JIM LLOYD-BUTLER
LOCATION OF RANCH:	OXNARD
COMMODITIES GROWN:	AVOCADOS & LEMONS
ACRES PER GROWER AGREEMENT:	29.0
ACRES ACTUALLY MULCHED:	18.6
ACRES ACTUALLY COVER CROPPED:	0
DEGREE OF SLOPE:	14% - 25%
ESTIMATED EROSION PER YEAR	
PER ACRE BEFORE MULCH	.45 Tons / acre
PER ACRE AFTER MULCH	.02 Tons / acre
NET REDUCTION PER YEAR	18.6 X .43 = 8.0 Tons / yr
TOTAL AMOUNT REIMBURSED TO GROWER:	\$ 5,580
TOTAL COST INCURRED BY GROWER:	\$ 16,437
TOTAL MATCHING CONTRIBUTION	\$ 10,857

Mr. Lloyd-Butler manages approximately 230 acres of a family farm consisting both of row crops, citrus and avocado groves. His avocado and lemon groves are planted on sloping hillsides and qualified for our program.

The grower was very selective in the type and quality of mulch using primarily lemon wood. The mulch was applied by an outside contractor, until he purchased his own spreaders and is now applying the mulch. The mulching was completed.





Before



After

JIM LLOYD BUTLER



GROWER SUMMARY

GROWER NAME:	GENE MABRY
LOCATION OF RANCH:	MOORPARK
COMMODITIES GROWN:	LEMONS & AVOCADOS
ACRES PER GROWER AGREEMENT:	50
ACRES ACTUALLY MULCHED:	33.6
ACRES ACTUALLY COVER CROPPED:	0
DEGREE OF SLOPE:	4% - 25%
ESTIMATED EROSION PER YEAR	
PER ACRE BEFORE MULCH	45 Tons / acre
PER ACRE AFTER MULCH	.02 Tons / acre
NET REDUCTION PER YEAR	$33.6 \times .43 = 14.45$ Tons / yr
TOTAL AMOUNT REIMBURSED TO GROWER:	\$ 10,080
TOTAL COST INCURRED BY GROWER:	\$ 27,645
TOTAL MATCHING CONTRIBUTION	\$ 17,565

Mr. Mabry raises both lemons and avocados on his ranch. The ranch consists of areas with moderate to steep slopes.

The majority of mulch was applied by an outside contractor with a small amount applied by ranch labor.

Mr. Mabry complied with our requirements to the best of his ability. However, there were a few small areas where we felt he did not meet our standards for which we withheld reimbursement.





Before



After

GENE MABRY



GROWER SUMMARY

GROWER NAME:	RON PARTAIN
LOCATION OF RANCH:	MOORPARK
COMMODITIES GROWN:	LEMONS & AVOCADOS
ACRES PER GROWER AGREEMENT:	20.0
ACRES ACTUALLY MULCHED:	13.0
ACRES ACTUALLY COVER CROPPED:	0
DEGREE OF SLOPE:	6% - 12%
ESTIMATED EROSION PER YEAR	
PER ACRE BEFORE MULCH	.45 Tons / acre
PER ACRE AFTER MULCH	.02 Tons / acre
NET REDUCTION PER YEAR	13 X .43 = 5.59 Tons / yr
TOTAL AMOUNT REIMBURSED TO GROWER:	\$ 3,900
TOTAL COST INCURRED BY GROWER:	\$11,092
TOTAL MATCHING CONTRIBUTION	\$ 7,192

Mr. Partain is an absentee farmer, therefore he employs a grove management company to maintain his lemon and avocado grove. The mulch was applied by an outside contractor with little concern for cost. The mulch was applied liberally with all hillsides covered as required.





Before



After

RON PARTAIN



GROWER SUMMARY

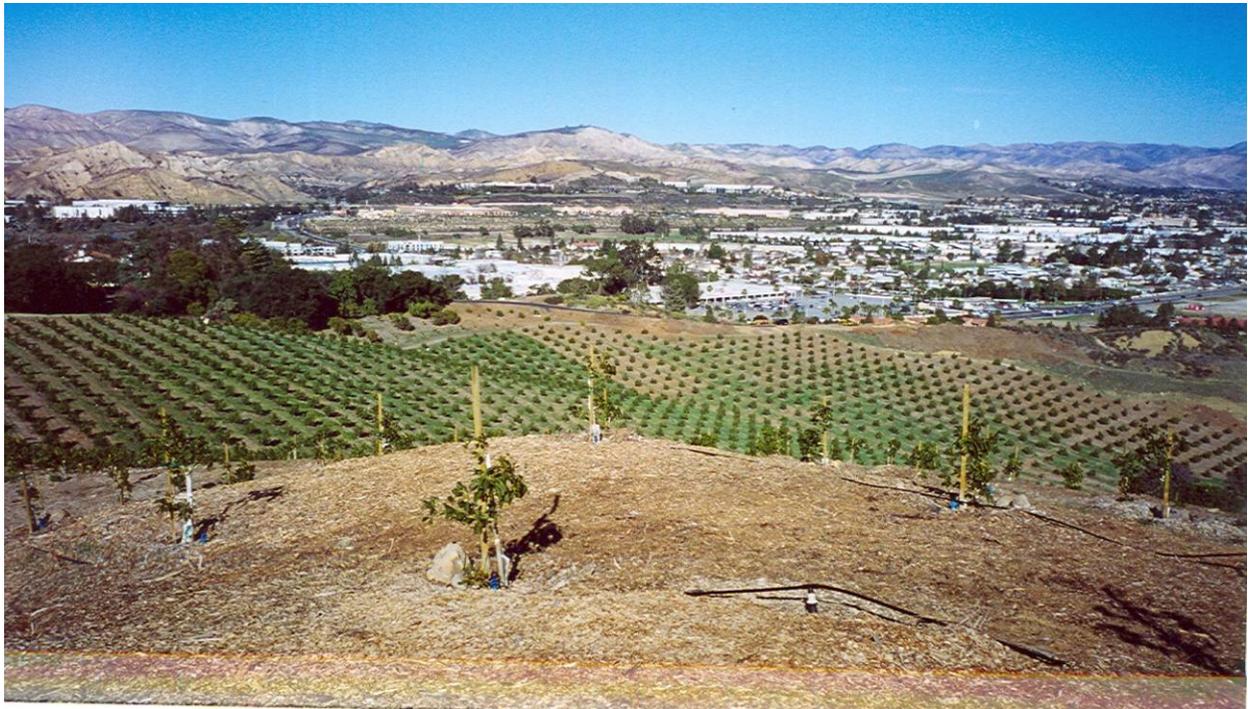
GROWER NAME:	GARY SEATON
LOCATION OF RANCH:	SIMI VALLEY
COMMODITIES GROWN:	AVOCADOS
ACRES PER GROWER AGREEMENT:	35.0
ACRES ACTUALLY MULCHED:	33.0
ACRES ACTUALLY COVER CROPPED:	0
DEGREE OF SLOPE:	20% - 40%
ESTIMATED EROSION PER YEAR	
PER ACRE BEFORE MULCH	3.46 Tons / acre
PER ACRE AFTER MULCH	.6 Tons / acre
NET REDUCTION PER YEAR	33 X 2.86 = 94.38 Tons / yr
TOTAL AMOUNT REIMBURSED TO GROWER:	\$ 9,900
TOTAL COST INCURRED BY GROWER:	\$ 22,510
TOTAL MATCHING CONTRIBUTION	\$ 12,610

Mr. Seaton was just beginning to explore the benefits of applying mulch to his avocado grove but was holding back due to the cost. After being accepted into our program, he was able to apply mulch to all areas of his grove. This ranch qualified for our program as it is situated on steep hillsides directly above two housing tracts. Due to the amount of mulch applied just prior to the heavy rains we sustained in the winter of 2004-2005, he experienced little or no soil erosion. Even though he is no longer in the program, Mr. Seaton is continuing to apply mulch.





Before



After

GARY SEATON



2. Streambank Stabilization

Preliminary work was performed for the Streambank Stabilization task similar to the Mulching task, which included development of a Cost-Share Agreement and Grower Reimbursement Form. This grant was made available to qualified growers in order to encourage them to apply streambank best management practices to eroding streambanks within the Calleguas Creek watershed. We had experienced low turnouts for workshops for the mulching portion of this project, so we chose to do direct mailings and phone calling to contact prospective growers. We contacted growers and property management companies that had worked previously with either the RCD or the NRCS. We made announcements at various meetings and posted an announcement in the Farm Bureau newsletter. Over 40 growers or management companies were contacted over the course of 2 years. Staff visited at least 12 potential project sites over the course of two years.

The reimbursement planned was 50% of the grower's cost with a limit of \$25.00 per linear foot per bank. All engineering costs were to be borne solely by the grower and was not to be considered as part of the 50% cost share. Staff feels that disinterest in the program stemmed from multiple sources.

The cost share offered was calculated to be equivalent to the cost share offered by NRCS's Environmental Quality Incentive Program (EQIP). NRCS is a federal agency, which has cost share programs directed to the cost of living of mid-west America rather than of southern California. Over the last few years, the local staff has attempted to modify the state levels of funding for specific practices. Unfortunately, projects estimated with NRCS's allowed limits are very often well below what local contractors bid. As we modeled our cost share limits on NRCS limits, one grower's estimate of their project was roughly four times the cost-share offered. They felt that after the cost of engineering, the cost share was not sufficient incentive. One reason for the high cost of their estimate was the large magnitude of their problem. This attitude was held by several of the growers contacted. If we had been able to offer engineering services as part of the cost-share package, we would have had much greater success. Local engineering firms have been very busy and small on-farm projects have been given lower priority. Another incentive that might have improved our chance of success would have been to increase our cost per linear foot being offered. As our intent was to spread the money out over multiple growers, this would have limited the size of potential projects drastically.

Another reason staff felt growers were not motivated was because their erosion problems were not directly affecting their agricultural operation. Monetary emphasis was placed on repairs and efforts, such as irrigation system repairs, that would have a direct beneficial impact on their agricultural production. Several growers did not want the VCRCD to obtain permits for their project. As that was not an option, those projects were denied. Several other reasons were given for not moving forward with designs, one being that the grower was not prepared to use the specific bioengineering practices being promoted by this grant. We specifically promoted the types of practices being



included in the Coordinated Permit Program. Projects that included lining channels or repairing damaged concrete block structures were denied.

Staff visited 12 potential project sites over the course of two years. Only two growers were either interested in moving forward with designs or qualified for the program. Pictures of some of the proposed project sites are attached. Two projects moved forward with designs and both growers have spent funds for surveying and engineering. One project proponent submitted plans to the VCRCD in October. Staff will be preparing permit applications for the project, but the project implementation will be done with private funds next year. The other landowner hired an engineering firm in July 2005 to work on his design. Staff was contacted by the engineer in February 2006 to talk about design requirements as they were just beginning to work on the design.

Any erosion reduction cannot be projected without specific project sites. As Total Maximum Daily Loads (TMDLs) for sediment and the Irrigated Lands Agricultural Waiver come on line, pressure to do streambank repairs will increase.

In summary, VCRCD staff feels that the streambank protection element of the grant could have been successful if several factors had been different. First, if engineering services had been offered outright or allowed as an in-kind match we would have had more interest. Second, if the Coordinated Permit Program had been in place, obtaining permits would have much quicker and last minute projects may have been possible. Third, the amount of cost share, per linear foot, would have to have been more attractive, possibly as much as double what was offered. Fourth, outside pressure from peers or regulation would have elevated streambank repair to a higher priority.





Proposed repair of concrete block-lined streambank.



Proposed re-lining of downstream eroded area.





Proposed bank repair using bioengineering and removal of invasive plants.



Proposed repair included laying back the slope, planting native grasses on the slope and willows and mule fat at the toe.



3. Permit Coordination Program and CEQA

The Permit Coordination Program was undertaken for several very specific reasons. The first and most important reason to the agricultural community is making the permit process more accessible. A second purpose was to remove disincentives to do restoration work on farms and ranches. A third goal of the program is to improve water quality, wildlife habitat and watershed functions. The Program was patterned after similar programs in Elkhorn Slough and Morro Bay. NRCS is our partner for the development of the Permit Program and will continue to be the Federal lead agency and our partner in the management of the program.

The program will offer the grower a one-stop shop for permitting for projects that meet the specific limitations and requirements. Partnered with the NRCS's EQIP program, the Permit Coordination Program will offer financial as well as technical assistance for the design, installation and monitoring of their stream related projects. All projects accepted under this program must have a net positive benefit for the environment, whether it is water quality or habitat improvement or a combination of these and other benefits.

The Program will offer a simplified process for the regulatory agencies and some assurance that the projects being submitted under this program meet specific requirements and are beneficial projects.

One very important condition of the permits is the establishment and filling of a Permit Coordinator Position to oversee the entire Permit Coordination Program. No permits will be issued through this program without a qualified person overseeing the project.

The list of practices included in the Program, 14 in total, reflects the practices expected to be most used in this area. The list of included practices is below.

**Table 2
 Proposed Conservation Practices
 for the Calleguas Creek Permit Coordination Program**

Conservation Practice	Description and Benefits
Channel Stabilization	Measures used to stabilize the bed or bottom of a channel. This practice applies to stream channels undergoing damaging aggradation or degradation that cannot be controlled by clearing and snagging, bank protection, or upstream water control practices. Installation of grade stabilization structures will be designed to result in a stable streambed favorable to wildlife and riparian growth. Structures may include rock groins, barbs, pipe drops, and bank and riparian vegetation, among others. May also include the removal of accumulated sand or sediment.
Clearing and Snagging	Removing snags, drifts, or other obstructions from a channel. This practice is used to prevent bank erosion by eddies and to increase the flow capacity of a channel by improving its flow characteristics. Special attention is given to restoring or improving habitat for fish and wildlife and maintaining channel and stream bank stability.



**Table 2 (continued)
 Proposed Conservation Practices
 for the Calleguas Creek Permit Coordination Program**

Critical Area Planting	Establishing permanent vegetation to stabilize highly erodible areas and to restore degraded sites such as gullies or deep rills. This practice is used to stabilize the soil, reduce damage from sediment and runoff to downstream areas, improve downstream water quality, and improve wildlife habitat.
Diversion	A channel constructed across the slope generally with a supporting ridge on the lower side. This is an upland practice used to reduce the slope length, collecting water at intervals down the slope, thereby reducing the amount of water concentrated in any one area and the resulting erosion. Each diversion must have a stable outlet such as a grassed waterway, filter strip, grade stabilization structure, underground outlet, watercourse, sediment basin, or combination of these, with appropriate energy dissipaters.
Underground Outlet	A conduit beneath the surface of the ground to collect surface water and convey it to suitable outlets. This practice is used to collect excess surface water from orchards or other areas on steep terrain and discharge it to a sediment basin, grassed waterway, or other practice where high velocity runoff is calmed and suspended sediment is trapped prior to releasing water into a natural drainage.
Filter Strip	A strip or area of herbaceous vegetation located between cropland and environmentally sensitive areas. This practice is used at the lower edges of fields, adjacent to streams, to remove sediment, particulate organics, and other pollutants from runoff, protecting water quality downstream. Filter strips may also serve as part of a Riparian Forest Buffer (see below), and restore, create, or enhance herbaceous habitat for wildlife and beneficial insects.
Grade Stabilization Structure	A structure used to control the grade and prevent head cutting in natural or artificial channels. This practice refers to structures built into the creek bed or gully, including rock checks, timbers, and willow layering to prevent further degradation of gullies and drainages. Stream velocities will be reduced above and below the structure resulting in reduced bank and bed erosion. Structures that trap sediment and attached contaminants will improve downstream water quality.
Grassed Waterway	A natural or constructed channel that is shaped or graded to required dimensions and established with suitable vegetation. This practice is used to convey runoff from diversions, terraces, or other concentrated sources, to reduce gully erosion and improve water quality downstream. Grassed waterways may be used to move runoff from agricultural lands into riparian or wetland areas. All grassed waterways will have a stable outlet designed to prevent scour.
Obstruction Removal	The removal of all types of obstructions and materials that prevent or hinder installation of other conservation practices or otherwise adversely affect the environment. May include rocks, debris, concrete, trash, wood, and non-native plants.
Pipeline	A pipeline less than 8 inches in diameter used to convey water from a source of supply to points of use for livestock. This practice is designed to reduce bank erosion, sediment, and manure in watercourses by shifting livestock to constructed water sources away from streams. Pipes crossing streams will be buried to an appropriate depth to maintain channel and bank stability.
Riparian Forest Buffer	An area of trees and shrubs located adjacent to watercourses. This practice is used to reduce excess sediment, organic material, nutrients, and pesticides in surface runoff and reduce excess nutrients and other chemicals in shallow groundwater flow; provide protection against scour erosion within the floodplain; restore native riparian plant communities; and create wildlife habitat and wildlife corridors.



**Table 2 (continued)
 Proposed Conservation Practices
 for the Calleguas Creek Permit Coordination Program**

Sediment Basin	A basin constructed to collect and store debris or sediment. This practice is used to trap sediment, sediment associated contaminants, and other debris and prevent undesirable deposition on bottomlands and in streams. Basins are generally located at the base of agricultural lands adjacent to natural drainages or riparian areas. The design of spillways and outlet works will include water control structures to prevent scouring at discharge point into natural drainage.
Stream Bank Protection	Treatment used to stabilize and protect banks of streams or constructed channels. This practice is used to prevent loss of land where stream banks are eroding, to reduce sediment loads causing downstream damage and pollution, and to improve wildlife habitat in situations where controlling erosion can be solved with simple structures and vegetation. The streambed grade must be controlled before most permanent types of bank protection can be considered feasible. Typical structures may include willow wattles, brush layering, live vegetated cribwall, and live fascines. When rock is required, it will be limited to the area between the toe and the normal high flow and will be keyed in.
Structure for Water Control	A structure used to convey overland flow or concentrated flow into a drainage or under a road. This practice is used to control and/or modify water flow to reduce existing erosion, and provide habitat for fish, wildlife, and other aquatic organisms. Typical structures may include inlets, pump boxes, pipe drop inlets, small v-ditches, or swales lined with geo-web fabric or loose rock, and culverts (repair or replacement of damaged culverts only).

**Table 3.
 Permit Status as of March 21, 2006
 for the Calleguas Creek Permit Coordination Program**

Agency	Permit	Status
US Fish and Wildlife Service	Section 7 Consultation	Completed
US Army Corps of Engineers	Agreement for 404 permit	Completed
Regional Water Quality Control Board	401 Certification	Completed
CA Dept of Fish and Game	Master Streambed Agreement	Pending; Draft submitted
Ventura County Watershed Protection District	Watercourse Permit	Completed
Ventura County Public Works Agency	Grading Exemption	Final pending
CEQA	Negative Declaration	Completed



IV Public Outreach

Our public outreach activities included workshops both sponsored and attended, mass mailings, direct calling and emailing, newspaper advertisements, and mass exposure at local events such as the Ventura County Fair. Direct contact through mailing and phone calling had the best rate of success. Workshops tended to be poorly attended unless they were required for some other purpose. Combining our workshops with other, mandatory attendance, events would increase our exposure. Field tours have been well attended in the past and could have been attempted. Newspaper announcements were very expensive and produced very little response.

V Conclusions

The mulch program was very successful. All of the growers in the program intend to continue mulching without cost-share available. The benefits can be observed as soon as the first major rain of the season. Grower mindset has begun to change substantially. As mulch is a very effective weed suppressant, growers who like a weed-free orchard are able to obtain that goal without costly herbicide.

The streambank stabilization program was not very successful because there was insufficient incentive to the growers to get involved. The agricultural waiver will change that perception tremendously. Direct contact had more response than workshops, newsletters, or newspaper announcements. Growers are required to attend meetings and training sessions as part of their responsibilities to their packinghouses or to maintain their pesticide applicators licenses. Having time on the agendas at such meetings may have increased our exposure, particularly with respect to the streambank projects. Program modifications would still have been necessary to get growers interested in the streambank program. Suggested modifications are: First, if engineering services had been offered outright or allowed as an in-kind match we would have had more interest. Second, if the Coordinated Permit Program had been in place, obtaining permits would have much quicker and last minute projects may have been doable. Third, the amount of cost share, per linear foot, would have to have been more attractive, possibly as much as double what was offered. Fourth, outside pressure from peers or regulation would have elevated streambank repair to a higher priority.

The Permit Coordination Program got off to a rocky start, but now has unanimous agency support and is well on its way to completion. The first major hurdle was finding a federal agency willing to take the Federal lead for NEPA purposes. The programs in Morrow Bay and Elkhorn Slough have proven very successful. Using those programs as models helped to allay fears from agency staff. Once the agencies were onboard with the concept, work progressed well. Calleguas Creek watershed has very few Threatened and Endangered animals outside the area of Mugu Lagoon. Section 7 consultation and subsequent permit negotiations went very well. Project parameters were developed to minimize impacts and the need for mitigation. Additional restrictions will be built into the permits or agreements from individual agencies. The permit program will be ready for administration by mid 2006.



Appendix A

List of References

Calleguas Creek Watershed Erosion and Sediment Control Plan for Mugu Lagoon,
USDA NRCS, May 1995



Appendix B

List of Deliverables

Monthly Progress Reports
Contract Summary Form
Federal MBE/MBE Documentation
Subcontractor Documentation
Project Survey Form
CEQA/NEPA Documentation
Draft Permits
List of permit meeting attendees with agency affiliation and meeting notes.
List of Accepted practices and conditions
Summary of the mechanism for implementation
Workshop agenda, notes, attendees, fliers
MOUs with other agencies involved in the implementation of this project
Cooperative Agreement Sample
Cost Share Agreement Sample
Cost Share Reimbursement Plan
Copies of all practice implementation records, including photo documentation to the extent requested by RWQCB
Draft Final Plan



Appendix C

List of Subcontractors

Consultants:

Peggy Rose
P.A. Rose Consulting

Trudy Ingram, Permit Specialist

