



February 2, 1999

AGENDA: February 9, 1999

Board of Supervisors
County of Santa Cruz
701 Ocean Street
Santa Cruz, CA 95060

**SUBJECT: EVALUATION OF SEDIMENT SOURCES AND CONTROL MEASURES FOR
THE SAN LORENZO RIVER WATERSHED**

Members of the Board:

On May 9, 1995, your Board approved a grant from the State Water Resources Control Board to conduct an update of the County's 1979 San Lorenzo River Watershed Management Plan. That work is still progressing. A major component of the Plan Update was an evaluation of erosion and sedimentation in the watershed. An initial assessment project was completed in 1998. As a result, the State awarded additional grant funds to complete a sediment control plan, formally known as a TMDL (Total Maximum Daily Load). Environmental Health staff is recommending that your Board accept unanticipated revenue and authorize approval of contracts for completion of that work.

Background

Excessive erosion is probably the most significant water quality problem in the San Lorenzo Watershed. Sediment from excessive erosion degrades water supply, causes public and private property damage, increases flood hazard, and is a significant cause of the dramatic declines in salmon and steelhead in the River. As a result of the 1979 Watershed Plan, the County has adopted many measures to reduce erosion in the watershed. However, excessive sediment load continues to be a major problem.

As a part of the Watershed Plan Update, on February 6, 1996, your Board approved a contract with Balance Hydrologics to prepare an assessment of streambed conditions and sediment sources in the San Lorenzo Watershed. That project was completed in July, 1998, with publication of the report, Assessment of Streambed Conditions and Erosion Control Efforts in the San Lorenzo River Watershed. That report concluded that streambed sedimentation had not improved significantly since 1979, despite various erosion control efforts that had been implemented. The report found that public and private roads were the most significant sources of sedimentation and made a number of recommendations for improved erosion control efforts. Many of these recommendations are being incorporated into the preliminary work program for improved water resources management.

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Additional Grant Funds for a Sediment TMDL

The State and federal governments have identified excessive sediment as a major water quality impairment in the San Lorenzo River. As a result of that designation, the Federal Clean Water Act requires that a Total Maximum Daily Load (TMDL) be prepared to provide a plan for reducing sediment from the various sources in order to meet water quality objectives. The State and EPA are now pursuing development of TMDL's for many rivers in northern and central California.

In 1998, the State offered funds to the County to build on the work already completed and develop a sediment TMDL for the San Lorenzo River. Only \$66,000 was available, but it was recognized that this could be applied to a subarea of the Watershed. Although a contract amendment for the work was completed, the additional funds have not yet been accepted and appropriated into the County budget. A resolution accepting and appropriating unanticipated revenue is attached, along with a copy of the contract amendment and workplan. Funds will be brought into the Environmental Health budget (362860) and expended on professional services to accomplish the necessary work.

The **workplan** for the sediment TMDL includes three interrelated elements:

1. Establishment of a volunteer monitoring program to monitor indicators of excessive sedimentation (**Subtask 6.1**),
2. Quantify sediment sources and develop a TMDL plan to reduce sediment from those sources (Subtasks 6.2, 6.3, and 6.4), and,
3. Hold a public workshop to promote the specific measures to reduce erosion and sedimentation that are identified in the project (**Subtask 2.4**)

Staff has identified two entities to perform the first two tasks, as described below. It is anticipated that the third task could be performed by the **Santa Cruz** County Resource Conservation District, whose staff have indicated a strong interest in the project. A contract for that work will be deferred to a later date when the scope of work is more specifically defined.

Volunteer Monitoring of Sedimentation

There has been little quantitative monitoring of sediment transport and streambed conditions in the San Lorenzo Watershed for the past twenty years. This is probably due to the high cost of traditional sediment transport monitoring and the reduction of funds available for such efforts. In recent years new techniques have been developed to allow the quantitative assessment of sedimentation by monitoring streambed conditions. In addition, there have been a number of successful efforts utilizing volunteer citizens to do most of the monitoring. Citizen monitoring programs are in fact encouraged in many opportunities for grant funding.

In Santa Cruz County, we are fortunate to have one local entity, the Coastal Watershed Council (CWC) that is organizing volunteer monitoring efforts. They are doing work in Soquel Creek, Arana Gulch, and Pescadero Creek, among other places. They are also already under contract with the Resource Conservation District to monitor streambed sedimentation in parts of the San Lorenzo Watershed as a part of another grant project.

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Staff is proposing to contract with CWC to build on their current efforts and provide the monitoring needed for this project. The CWC will utilize technical guidance and oversight from County staff and the consultant to be hired for the sediment source analysis (see below). The CWC will also assist in monitoring sediment sources on public roads, under the direction of the consultant. Under the proposed contract CWC will monitor 5-6 stream stations 1-2 times during the contract period, at a total cost not to exceed \$12,000. Expenditures will be made out of the Environmental Health budget (362860, subobject 3665), and will be entirely reimbursed by the grant funds. A proposed contract and scope of work is attached. The scope has been reviewed and approved by the Watershed Plan Technical Advisory Committee and State Contract Manager.

Sediment Source Analysis and TMDL Development

The sediment source analysis and TMDL development needs to be performed by a qualified consultant with experience in erosion, sedimentation, source analysis, and sediment control methodologies. Performance of this work exceeds existing County staff time and expertise. Environmental Health staff has followed standard County procurement procedures to identify a consultant who is qualified to perform this unique project. Staff solicited Statements of Qualification (SOQ) along with a request to describe the proposed approach to the work, from five consulting firms experienced with this specific type of work. A subcommittee of the technical Advisory committee reviewed the three responses that were submitted.

Swanson Hydrology was selected to perform the work. They have strong local knowledge and data and can maximize effort under a limited budget; and they have a strong practical focus on assessing sources and developing appropriate sediment control measures for a representative subarea of the Watershed. The proposed scope of work for this project has been reviewed by the Technical Advisory Committee, which includes staff from County Planning and Public Works Departments. Swanson Hydrology will work closely with the TAC and County staff in the completion of the work and development of recommendations. The TAC includes a broad based membership and can be expected to represent a wide range of opinions including those of the community at large.

The cost of this study will not exceed \$48,990, which will come entirely from the grant funds provided by the State Water Resources Control Board. Expenditures will be made out of the Environmental Health budget (362860, subobject 3665). It is expected that up to \$35,000 will be spent this fiscal year, with the remainder to be spent next fiscal year.

Recommendation

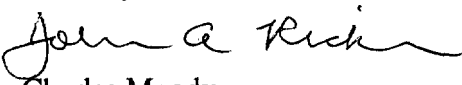
It is therefore RECOMMENDED that your Board:

1. Adopt the attached resolution accepting and appropriating unanticipated revenue in the amount of \$47,000 in fiscal year 1998-99 from the State Water Resources Control Board for development of a sediment control strategy for the San Lorenzo Watershed.

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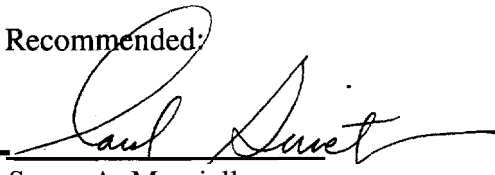
2. Authorize the Health Services Agency Administrator to execute the proposed contract with the Coastal Watershed Council to establish a volunteer monitoring program of stream sedimentation in the San Lorenzo Watershed for an amount not to exceed \$12,000.
3. Authorize the Health Services Agency Administrator to execute the proposed contract with Swanson Hydrology for evaluation of erosion and sediment control measures for the San Lorenzo River Watershed Management Plan Update for an amount not to exceed \$48,990 (not more than \$35,000 .00 in fiscal year 1998-99).

Sincerely,


 for Charles Moody
 Health Services Agency Administrator

Attachments

Recommended:


 for Susan A. Mauriello a
 County Administrative Office

cc: CAO

County Counsel
 Auditor
 Health Services Agency
 Environmental Health
 Planning
 Coastal Watershed Council
 Swanson Hydrology

**BEFORE THE BOARD OF SUPERVISORS
OF THE COUNTY OF SANTA CRUZ, STATE OF CALIFORNIA**

Resolution No. _____

On the motion of Supervisor _____
duly seconded by Supervisor _____
the following resolution is adopted:

RESOLUTION ACCEPTING UNANTICIPATED REVENUE

Whereas, the County of Santa Cruz is a recipient of funds from State Water Resources
Control Board for Watershed Management program; and

WHEREAS, the County is recipient of funds in the amount of \$47,000 which are
either in excess of those anticipated or are not specifically set forth in the current fiscal year
budget of the County; and

WHEREAS, pursuant to Government Code Section 29130(c) / 29064(b), such funds may be
made available for specific appropriation by four-fifths vote of the Board of Supervisors;

NOW, THEREFORE, BE IT RESOLVED AND ORDERED that the Santa Cruz County
Auditor-Controller accept funds in the amount of \$47,000 into
Department Health Services/Environmental Health

<u>T/C</u>	<u>Index Number</u>	<u>Revenue Subobject Number</u>	<u>Account Name</u>	<u>Amount</u>
001	362860	1134	Contrib. State Agencies	\$47,000.00

and that such funds be and are hereby appropriated as follows:

<u>T/C</u>	<u>Index Number</u>	<u>Expenditure Subobject Number</u>	<u>PRJ/UCD</u>	<u>Account Name</u>	<u>Amount</u>
021	362860	3665		Prof. Services	\$47,000.00

DEPARTMENT HEAD I hereby certify that the fiscal provisions have been researched and
that the Revenue(s) (has been) (will be) recieved within the current fiscal year.

By Chuck Moody
Department Head

Date 1/26/99

COUNTY ADMINISTRATIVE OFFICER

 AS

Recommended to Board

 /

Not recommended to Board

PASSED AND ADOPTED by the Board of Supervisors of the County of Santa Cruz, State of California, this _____ day of _____, 19____ by the following vote (requires four-fifths vote for approval):

AYES: SUPERVISORS

NOES: SUPERVISORS

ABSENT: SUPERVISORS

Chairperson of the Board

ATTEST:

Clerk of the Board

APPROVED AS TO FORM:

Linda A. Oberhelman
County Counsel 12/16/97

APPROVED AS TO ACCOUNTING DETAIL:

Linda Chow, 1/27/99
Auditor-Controller

Distribution:

Auditor-Controller

County Counsel

County Administrative Officer

Originating Department

AUD60 (REV 12/97)

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COUNTY OF SANTA CRUZ
REQUEST FOR APPROVAL OF AGREEMENT

159

TO: Board of Supervisors
County Administrative Officer
County Counsel
Auditor-Controller

FROM: Health Services Agency (Dept.)
Chuck Moody (Signature) 1/26/99 (Date)

The Board of Supervisors is hereby requested to approve the attached agreement and authorize the execution of the same.

1. Said agreement is between the County of Santa Cruz (Agency)
and State Water Resources Control Board, P.O. Box 100, Sacramento, CA 95812-0100 (Name & Address)
2. The agreement will provide Amendment of contract to provide additional grant funds for preparation of a sediment control program for the San Lorenzo River Watershed pursuant to State Contract No. 4-133-250-3.
3. The agreement is needed, to protect and improve water quality in the San Lorenzo River
4. Period of the agreement is from 06/15/98 to 06/30/99
5. Anticipated ^{revenue} cost is \$ 47,000 (~~Fixed amount, Monthly rate, Not to exceed~~)
6. Remarks: Term of contract is 06/15/95 - 11/30/99
Original contract authorized by Board of Supervisors 05/09/95; 08/15/95 (item 30)
7. ^{Revenues} ~~Appropriations~~ are budgeted in 362860 (Budget) 1134 (Account)

NOTE: IF APPROPRIATIONS ARE INSUFFICIENT, ATTACH COMPLETED FORM AUD-74

Appropriation ~~are~~ ^{are not} available and ~~have been~~ ^{will be} encumbered. Contract No R-592 Date 1/27/99
NA
GARY A. KNUTSON, Auditor - Controller
By Linda Chon Deputy,

Proposal reviewed and approved. It is recommended that the Board of Supervisors approve the agreement and authorize the
to execute the same on behalf of the

(Agency).

Remarks: gh (Analyst)

By gh County Administrative Officer Date 1/29/99
County Counsel

Agreement approved as to form. Date _____

By _____ Asst.

Distribution:

Bd. of Supv. • White
Auditor-Controller • Blue
County Counsel • Green •
Co. Admin. Officer • Canary
Auditor-Controller • Pink
Originating Dept. • Goldenrod

*To Orig. Dept. if rejected.

State of California)
County of Santa Cruz) ss

I _____ ex-officio Clerk of the Board of Supervisors of the County of Santa Cruz,
State of California, do hereby certify that the foregoing request for approval of agreement was approved by
said Board of Supervisors as recommended by the County Administrative Officer by an order duly entered
in the minutes of said Board on _____ County Administrative Officer
_____ 19 _____ By _____ Deputy Clerk

30

CONTRACT NUMBER 4-133-250-0	AM. NO. 160 ³
TAXPAYER'S FEDERAL EMPLOYER IDENTIFICATION NUMBER 94-6000534	

THIS AGREEMENT, made and entered into this 15th day of June 98
by the State of California, by and between State of California, through its duly elected or appointed, qualified
and acting
TITLE OF OFFICER ACTING FOR STATE
Chief, Div. of Administrative Services AGENCY
State Water Resources Control Board
County of Santa Cruz, hereafter called the State and

Contractor, hereafter called the Contractor.
WITNESSETH: That the Contractor for and in consideration of the covenants, conditions, agreements, and stipulations of the State hereinafter expressed,
does hereby agree to furnish to the State services and materials as follows: (Set forth service to be rendered by Contractor, amount to be paid Contractor,
time for performance or completion, and attach plans and specifications, if any.)

Standard Agreement No. 4-133-250-0, originally made and entered into on June 15, 1995 and amended on
May 14, 1997 and December 10, 1997 is further amended as follows:

a. Standard Form No. 2, paragraph 3 is amended to read as follows:

Term of this agreement shall be from June 15, 1995 through November 30, 1999 if approved by the State
Department of General Services. The Contractor shall not be entitled to payment for any work done
prior to the commencement date.

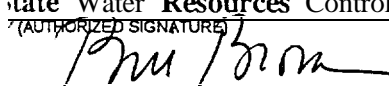

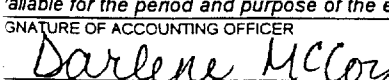
b. Exhibit B, Section B, Task 2, a new Subtask 2.4 is added to read as follows:

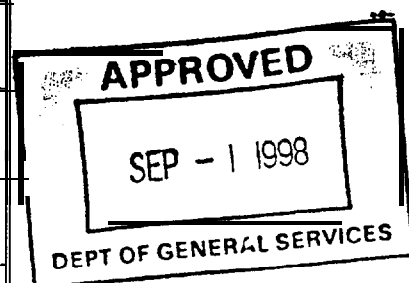
Conduct a public workshop on the use of best management practices to reduce the primary sources of
sedimentation identified during this project.

(continued)

CONTINUED ON SHEETS, EACH BEARING NAME OF CONTRACTOR AND CONTRACT NUMBER.

The provisions on the reverse side hereof constitute a part of this agreement.
WITNESS WHEREOF, this agreement has been executed by the parties hereto, upon the date first above written.

STATE OF CALIFORNIA		CONTRACTOR	
AGENCY State Water Resources Control Board		CONTRACTOR (If other than an individual, state whether a corporation, partnership, etc.) County of Santa Cruz	
BY (AUTHORIZED SIGNATURE) 		BY (AUTHORIZED SIGNATURE) 	
PRINTED NAME OF PERSON SIGNING Bill Brown		PRINTED NAME AND TITLE OF PERSON SIGNING Charles Moody, Health Services Agency Administrator	
TITLE Chief, Division of Administrative Services		ADDRESS 701 Ocean Street, Santa Cruz, CA 95060	
AMOUNT ENCUMBERED BY THIS DOCUMENT +66,000.00 PRIOR AMOUNT ENCUMBERED FOR THIS DOCUMENT 82,500.00 TOTAL AMOUNT ENCUMBERED TO DATE 148,500.00	PROGRAM/CATEGORY (CODE AND TITLE) 99 (OPTIONAL USE) Federal 106		FUND TITLE General
	ITEM 3940-001-001	CHAPTER	STATUTE 1998
	FISCAL YEAR 98/99		
	OBJECT OF EXPENDITURE (CODE AND TITLE) 0250 418 403-50 +\$66,000		
I hereby certify upon my personal knowledge that budgeted funds are available for the period and purpose of the expenditure stated above.		T.B.A. NO.	B.R. NO.
SIGNATURE OF ACCOUNTING OFFICER 		DATE 8-14-98	



1. The Contractor agrees to indemnify, defend and save harmless the State, its officers, agents and employees from any and all claims and losses accruing or resulting to any and all contractors, subcontractors, materialmen, laborers and any other person, **firm** or corporation furnishing or supplying work services, materials or supplies in connection with the performance of this contract, and from any and all claims and losses accruing or resulting to any person, **firm** or corporation who may be injured or damaged by the Contractor in the performance of this contract.
2. The Contractor, and the agents and employees of Contractor, in the performance of the agreement, shall act in an independent capacity and not as officers or employees or agents of State of California.
3. The State may terminate this agreement and be relieved of the payment of any consideration to Contractor should Contractor fail to perform the covenants herein contained at the time and in the manner herein provided. In the event of such termination the State may proceed with the work in any manner deemed proper by the State. The cost to the State shall be deducted from any sum due the Contractor under this agreement, and the balance if any, shall be paid the Contractor upon demand.
4. Without the written consent of the State, this agreement is not assignable by Contractor either in whole or in part.
5. Time is of the essence in this agreement.
6. No alteration or variation of the terms of this contract shall be valid unless made in writing and signed by the parties hereto, and no oral understanding or agreement not incorporated herein, shall be binding on any of the parties hereto.
7. The consideration to be paid Contractor, as provided herein, shall be in compensation for all of Contractor's expenses incurred in the performance hereof, including travel and per diem, unless otherwise expressly so provided.

- c. Exhibit B, a new Task 6 is added to read as follows:

Task 6. TMDL Development

Subtask 6.1 Monitor Sediment Impacts

Establish a volunteer monitoring program to monitor key indicators of impacts of sedimentation on beneficial uses. Include such indicators such as sediment particle size, embeddedness, pool filling, cross-section, mean bed elevation, and persistent turbidity. Use the EPA Draft Protocol for Developing Sediment Total Maximum Daily Loads (**TMDL's**) in developing the monitoring program. Conduct the monitoring program from the fall of 1998 through the spring of 1999, according to the following schedule: select indicators; provide training for volunteers; establish monitoring sites; conduct monitoring; summarize and evaluate monitoring data; and, recommend an ongoing monitoring plan.

Subtask 6.2 Assess Sediment Sources

Prepare an inventory of primary sediment sources in the San Lorenzo watershed. Include in the inventory a list of problems known to county staff and other field workers, and provide a more detailed assessment of **all** significant sediment sources through field work, aerial photography, mapped information, and literature. Focus on quantifying the relative magnitude of sediment sources within a subarea of the watershed that includes representative soil, geology, topography, and land use. Monitor this subarea under **Subtask 6.1**.

Subtask 6.3 Develop a Sediment TMDL

Using information gathered under **Subtasks 6.1** and **6.2** develop a sediment TMDL which can be applied directly to the subarea and which can be extrapolated more generally to the entire San Lorenzo watershed. Include the following elements in the TMDL: identify specific best management practices to address primary sediment sources; estimate the costeffectiveness of the **BMPs**; allocate responsibility and extent to which **BMPs** can be applied; establish sediment reduction and **implementation** targets; identify sediment control projects; and, develop implementation strategies.

Subtask 6.4 Complete TMDL Report

Prepare a report that includes the findings and recommendations of Task 6 and also includes a summary of any relevant work completed under Task 5. Submit the report to the Contract Manager for review and comment. Include the report as a chapter or appendix in the project final report.

- d. Exhibit B, Section B, Task 6. Update Watershed Management Plan is renumbered to Task 7.
- e. Exhibit B, Section B, Task 7. Implementation, Institutional, and Financial Planning is renumbered to Task 8.
- f. Exhibit B, Section B, Task 8. Prepare Project Reports is renumbered to Task 9.

- g. Exhibit B, Section C is amended to read as follows:

Schedule of Completion Dates

1.	Project Management	
	1.1 Management	ongoing
	1.2 Quarterly Reports	*
	1.3 Subcontracting	Aug 1995
	1.4 Data Management	Oct 1998
2.	Public Participation	
	2.1 Form TAC	Jul 1995
	2.2 Public Meetings	ongoing
	2.3 Response Summary	**
	2.4 Workshop on BMPS	Sep 1999
3.	Quality Assurance Plan	Oct 1995
4.	Urban Runoff Impacts	
	4.1 Literature Review	Sep 1995
	4.2 Sampling and Analysis	Sep 1995
	4.3 Epidemiologic Surveys	Oct 1996
	4.4 Recommend Control Measures	Sep 1998
5.	Erosion and Sedimentation Impacts	
	5.1 Literature Review	Nov 1995
	5.2 Assessment of Stream Conditions	May 1996
	5.3 Survey of Sediment Sources	Mar 1996
	5.4 Recommend Erosion Control Plan	Aug 1998
6.	TMDL Development	
	6.1 Monitor Sediment Impacts	Jun 1999
	6.2 Assess Sediment Sources	Jun 1999
	6.3 Establish Sediment TMDL	Aug 1999
	6.4 Prepare TMDL Report	Sep 1999
7.	Update Watershed Management Plan	
	7.1 Identify Issues	Sep 1995
	7.2 Update Plan	Mar 1999
8.	Implementation Plan	
	8.1 Implementation	Apr 1999
	8.2 Checklist	Sep 1999
9.	Project Reports	
	9.1 Draft Report	Sep 1999
	9.2 Final Report	Nov 1999

* Due at the end of each calendar quarter

** Due the month after each public meeting

- h. Exhibit B, Section D, subsection 3 is amended to read as follows:

Not later than September 30, 1999 the Project Director shall submit to the Contract Manager one (1) copy of a draft report describing the work performed pursuant to Section B of this Exhibit for review and comment.

- i. Exhibit C is replaced in its entirety with the attached Exhibit C which is hereby incorporated and made a part of this agreement.

2. Except as amended hereby, all other terms and conditions shall remain in full force and effect.

EXHIBIT C - BUDGET

<u>TASK</u>	<u>STATE BOARD</u>	<u>MATCH</u>	<u>106 FUNDS</u>	<u>TOTAL</u>
1. Project Management				
1.1 Management	\$ 4,500	\$ 4,500	\$3,000	\$12,000
1.2 Quarterly Reports	---	---		---
1.3 Subcontracting	---	---		---
1.4 Data Management	1,500	500		2,000
2. Public Participation				
2.1 Form TAC	---	---		---
2.2 Public Meetings	1,875	625	1,000	3,500
2.3 Response Summary	375	125		500
2.4 Public Workshop on BMPs			2,000	2,000
3. Quality Assurance Plan	1,125	375		1,500
4. Urban Runoff Impacts				
4.1 Literature Review	1,875	625		2,500
4.2 Sampling and Analysis	23,625	15,375		39,000
4.3 Epidemiologic Surveys	6,375	10,625		17,000
4.4 Control-Measures	2,250	3,750		6,000
5. Erosion and Sedimentation Impacts				
5.1 Literature Review	2,250	750		3,000
5.2 Stream Conditions	9,000	3,000		12,000
5.3 Survey Sediment Sources	12,750	4,250		17,000
5.4 Erosion Control Plan	3,750	1,250		5,000
6. TMDL Development				
6.1 Monitor Sediment Impacts			12,000	12,000
6.2 Assess Sediment Sources			30,000	30,000
6.3 Establish TMDL			13,000	13,000
6.4 Complete TMDL Report			5,000	5,000
7. Update Watershed Management Plan				
7.1 Identify Issues	2,250	750		3,000
7.2 Update Plan	3,000	1,000		4,000
8. Implementation Plan				
8.1 Implementation	2,250	750		3,000
8.2 Checklist	---	---		---
9. Project Reports				
9.1 Draft Report	2,000	750		2,750
9.2 Final Report	1,750	500		2,250
TOTALS	\$ 82,500	\$49,500	\$66,000	\$198,000

COUNTY OF SANTA CRUZ
REQUEST FOR APPROVAL OF AGREEMENT

166

TO: Board of Supervisors
County Administrative Officer
County Counsel
Auditor-Controller

FROM: HEALTH SERVICES AGENCY (Dept.)
Charles Moody Jr (Signature) 1/26/99 (Date)

The Board of Supervisors is hereby requested to approve the attached agreement and authorize the execution of the same.

1. Said agreement is between the County of Santa Cruz (Agency)
and Swanson Hydrology, 835 Cedar Street, Santa Cruz, CA 95060 (Name & Address)
2. The agreement will provide for preparation of a sediment source analysis and control plan for a
part of the San Lorenzo Watershed.
3. The agreement is needed to implement work under a grant from the State Water Resources Control
Board.
4. Period of the agreement is from 2/9/99 to 6/30/99
5. Anticipated cost is \$ 35,000.00 through 6/30/99 (Fixed amount; Monthly rate; Not to exceed)
6. Remarks: Full term of contract is from 2/9/99 to 11/30/99 with a total contract amount
not to exceed \$48,990.00
7. Appropriations are budgeted in 362860 (Budget) 3665 (Account)

NOTE: IF APPROPRIATIONS ARE INSUFFICIENT, ATTACH COMPLETED FORM AUD-74

Appropriations are available and have been encumbered.
are not will be

Contract No. C081789 Date 1/27/99
GARY A. KNUTSON, Auditor - Controller
By Linda Chou Deputy.

Proposal reviewed and approved. It is recommended that the Board of Supervisors approve the agreement and authorize the
to execute the same on behalf of the
(Agency).

Remarks: GH (Analyst)

BY Whitely County Administrative Officer
Date 1/29/99
County Counsel

Agreement approved as to form. Date _____

BY _____ Asst.

Distribution:

Bd. of Supv. - White
Auditor-Controller - Blue
County Counsel - Green *
Co. Admin. Officer - Canary
Auditor-controller - Pink
Originating Dept. - Goldenrod

'To Orig. Dept. if rejected.

State of California)
County of Santa Cruz) ss

I _____ ex-officio Clerk of the Board of Supervisors of the County of Santa Cruz,
State of California, do hereby certify that the foregoing request for approval of agreement was approved by
said Board of Supervisors as recommended by the County Administrative Officer by an order duly entered
in the minutes of said Board on _____

_____ 19____ By _____ Deputy Clerk

Contract No.: _____

Index: 362860

Account: 3665

Santa Cruz County
Health Services Agency

Professional Services Agreement

This agreement is entered into this 9th day of February, 1999, by and between the COUNTY OF SANTA CRUZ, hereinafter called COUNTY, and SWANSON HYDROLOGY & GEOMORPHOLOGY, hereinafter called CONTRACTOR. The parties agree as follows:

1. **DUTIES.** CONTRACTOR agrees to exercise special skill to accomplish the following result: CONTRACTOR is responsible for conducting field investigations, data analyses, and preparation of a report addressing the primary sources of excessive sedimentation in the Zayante Subbasin of the San Lorenzo Watershed, with a recommended Sediment TMDL (Total Maximum Daily Load) Plan to reduce stream impairment by sedimentation, as described in the attached "Exhibit A", which is hereby made a part of this agreement.
2. **COMPENSATION.**
 - A. In consideration for CONTRACTOR accomplishing said services, COUNTY agrees to pay CONTRACTOR an amount not to exceed \$48990.00, for completion of the tasks as shown in Exhibit A.
 - B. CONTRACTOR shall submit invoices for costs incurred no more frequently than once per month, but at least quarterly, by the seventh working day of April, July, October, and January. Invoices shall be accompanied by a brief report of work completed during the billing period. Promptly after receipt of each invoice, but in no event later than sixty (60) days after its receipt COUNTY shall make payment thereon to the CONTRACTOR. Payment by COUNTY shall be contingent upon completion of work described in Exhibit A.
 - C. Funds provided under this contract shall not be used for payment of salaries to consultant in excess of the maximum daily rate for GS-18. The limit expressed herein does not include transportation and subsistence costs for necessary travel for work required under this contract.
3. **TERM.** The term of this agreement shall be: from the Date of Execution to November 30, 1999, unless terminated in accordance with Paragraph 4.
4. **EARLY TERMINATION.** Either party hereto may terminate this agreement at any time by giving thirty (30) days written notice to the other party.
5. **SUBCONTRACTING** CONTRACTOR shall not subcontract any portion of the work required by this Agreement without prior approval of COUNTY. COUNTY shall retain final approval authority for any and all "Scope of Services" of subcontractors for this project. The CONTRACTOR shall retain responsibility for satisfactory completion of all tasks to be carried out under any subcontract for work under this project.

CONTRACTOR agrees to include sections 6-l 1 in all contracts and tier subcontracts directly related to project performance.

6. **AUDIT. ACCESS TO RECORDS**

A. CONTRACTOR and any subcontractors shall maintain books and records pertinent to performances of all work related to this contract in an adequate manner and in accordance with generally accepted accounting principles and practices. The records must be sufficient to assure that contract funds are

allocable to allowable costs,

B. At all reasonable times during the term of this contract and for five (5) years following final payment and closure of all other pending matters, the State Auditor General, the State Board, EPA, the Comptroller General of the United States, or any of their authorized representatives, shall have access to the records of the CONTRACTOR and any subcontractors related to work performed under this contract and the CONTRACTOR shall make such records available for audit, examination, excerpts, and transcriptions.

C. CONTRACTOR and all subcontractors shall maintain books and records pertinent to performances of all work related to this agreement in an adequate manner and in accordance with generally accepted accounting principles and practices. The records must be sufficient to assure that agreement funds are allocated to allowable costs.

D. CONTRACTOR and all subcontractors shall maintain fiscal control and accounting procedures which are sufficient to:

- (1) Permit preparation of reports required by 40 CFR Part 3.1 (including those required by 40 CFR Part 3.1.40 and 3.1.41) and statutes authorizing the grant.
- (2) Permit tracing of funds to a level of expenditures adequate to establish that such funds have not been used in violation of the restrictions and prohibitions of applicable statutes.

7. NONDISCRIMINATION CLAUSE.

A. During the performance of this contract, CONTRACTOR and its subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical disability (including HIV and AIDS), medical condition (cancer related), marital status, age (over 40), gender, sexual preference, or any other non-merit factor unrelated to job duties. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. CONTRACTOR and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination and harassment. CONTRACTOR and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code, Section 12900 et seq.) and the applicable regulations promulgated thereunder (California Administrative Code, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990, set forth in Chapter 5 of Division 4 of Title 2 of the California Administrative Code are incorporated into this contract by reference and made a part hereof as if set forth in full. CONTRACTOR and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notice setting forth the provisions of this non-discrimination clause.

B. CONTRACTOR shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

8. UTILIZATION OF SMALL, MINORITY, AND WOMEN'S BUSINESSES The CONTRACTOR agrees that affirmative steps will be taken to assure that qualified small, minority, and women's businesses are used when possible as sources of supplies, construction and services in the performance of EPA grant-assisted contracts and subcontracts. Affirmative steps taken shall include the following:

- A. Including qualified small, minority, and women's businesses on solicitation lists;
- B. Assuring that small, minority, and women's businesses are solicited whenever they are potential sources;

- C. Dividing total requirements, when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses;
- D. Establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority, and women's businesses;
- E. Using the services and assistance of the Small Business Administration, the Office of Minority Business Enterprise of the U.S. Department of Commerce, and the State Office of Small & Minority Business as appropriate; and
- F. If the CONTRACTOR awards subcontracts, requiring the subcontractor to take the affirmative steps in paragraphs A. through E. of this Section.

9. CONFLICT OF INTEREST.

- A. CONTRACTOR agrees that no officer or employee in the State civil service or other appointed State official shall be employed by CONTRACTOR for compensation which will be received under this contract. Nor shall any such state officer, employee, or appointed official have any financial interest in the subject matter of this contract.
- B. CONTRACTOR agrees and acknowledges that it is aware that no retired, dismissed, separated, or formerly employed person of any state agency or department employed under the state civil service or otherwise appointed to serve in state government may enter into this contract if he or she engaged in any of the negotiations, transactions, planning, arrangements, or any part of the decision making process relevant to the contract while employed in any capacity by the state agency or department.

10. DISCLOSURE REOUIREMENTS.

- A. Any final document or written report which is subject or product of this contract prepared in whole or part by CONTRACTOR shall contain in a separate section a disclosure statement which includes the following:

This document was prepared through Contract No. 4-133-250-o in the amount of \$148500.00 with the California State Water Resources Control Board.

- B. If the CONTRACTOR is required to prepare multiple documents or written reports, the disclosure statement may also contain a statement indicating that the total contract amount represents compensation for multiple documents or written reports.

- C. Any documents which are published by the CONTRACTOR shall contain the following statement:

This project has been funded wholly or in part by the United States Environmental Protection Agency Assistance Agreement C6999214-95-0 to the State Water Resources Control Board by Contract No. 4-133-250-o in the amount of \$148,500.00. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency or the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

11. INDEMNIFICATION FOR DAMAGES, TAXES AND CONTRIBUTIONS. CONTRACTOR shall exonerate, indemnify, defend, and hold harmless COUNTY (which for purposes of paragraphs 11 and 12 shall include, without limitation, its officers, agents, employees and volunteers) from and against:

- A. Any and all claims, demands, losses, damages, defense costs, or liability of any kind or nature which

COUNTY may sustain or incur or which may be imposed upon them for injury to or death of persons, or damage to property as a result of, arising out of, or in any manner connected with the CONTRACTORS performance under the terms of this Agreement, excepting any liability arising out of the sole negligence of the COUNTY. Such indemnification includes any damage to the person(s), or property (ies) of CONTRACTOR and third persons.

B. Any and all federal, State, and local taxes, charges, fees, or contributions required to be paid with respect to CONTRACTOR and CONTRACTORS officers, employees and agents engaged in the performance of this Agreement (including, without limitation, unemployment insurance, social security and payroll tax withholding).

12. INSURANCE. CONTRACTOR, at its sole cost and expense, for the full term of this Agreement (and any extensions thereof), shall obtain and maintain at minimum all of the following insurance coverage(s) and requirements. Such insurance coverage shall be primary coverage as respects COUNTY and any insurance or self-insurance maintained by COUNTY shall be excess of CONTRACTORS insurance coverage and shall not contribute to it.

If CONTRACTOR utilizes one or more subcontractors in the performance of this Agreement, CONTRACTOR shall obtain and maintain Independent Contractor's Insurance as to each subcontractor or otherwise provide evidence of insurance coverage for each subcontractor equivalent to that required of CONTRACTOR in this Agreement, unless CONTRACTOR and COUNTY both initial here _____

A. Types of Insurance and Minimum Limits

(1) Worker's Compensation in the minimum statutorily required coverage amounts. This insurance coverage shall not be required if the CONTRACTOR has no employees and certifies to this fact by initialing here _____

(2) Automobile Liability Insurance for each of CONTRACTOR's vehicles used in the performance of this Agreement, including owned, non-owned (e.g. owned by CONTRACTOR's employees), leased or hired vehicles, in the minimum amount of \$500,000 combined single limit per occurrence for bodily injury and property damage. This insurance coverage shall not be required if vehicle used by CONTRACTOR is not a material part of performance of this Agreement and CONTRACTOR and COUNTY both certify to this fact by initialing here ____/____.

(3) Comprehensive or Commercial General Liability Insurance coverage in the minimum amount of \$1,000,000 combined single limit, including coverage for: (a) bodily injury, (b) personal injury, (c) broad form property damage, (d) contractual liability, and (e) cross-liability.

(4) Professional Liability Insurance in the minimum amount of \$_____ combined single limit, if, and only if, this Sub-paragraph is initialed by CONTRACTOR and COUNTY _____

B. Other Insurance Provisions

(1) If any insurance coverage required in this Agreement is provided on a "Claims Made" rather than "Occurrence" form, CONTRACTOR agrees to maintain the required coverage for a period of three (3) years after the expiration of this Agreement (hereinafter "post agreement coverage") and any extensions thereof. CONTRACTOR may maintain the required post agreement coverage by renewal or purchase of prior acts or tail coverage. This provision is contingent upon post agreement coverage being both available and reasonably affordable in related to the coverage provided during the term of this Agreement. For purposes of interpreting this requirement, a cost not exceeding 100% of the last annual policy premium during the term of this Agreement in order to purchase prior acts or

tail coverage for post agreement coverage shall be deemed reasonable.

(2) All required Automobile and Comprehensive or Commercial General Liability Insurance shall be endorsed to contain the following clause:

“The County of Santa Cruz, its officials, employees, agents and volunteers are added as an additional insured as respects the operations and activities of, or on behalf of, the named insured performed under Agreement with the County of Santa Cruz.”

(3) All required insurance policies shall be endorsed to contain the following clause:

“This insurance shall not be canceled until after thirty (30) days prior written notice has been given to:

Water Quality Program Manager
Environmental Health Service
701 Ocean Street, Room 3 12
Santa Cruz CA, 95060”

(4) CONTRACTOR agrees to provide its insurance broker(s) with a full copy of these insurance provisions and provide COUNTY on or before the effective date of this Agreement with Certificates of Insurance for all required coverages. All Certificates of Insurance shall be delivered or sent to:

Water Quality Program Manager
Environmental Health Service
701 Ocean Street, Room 3 12
Santa Cruz CA, 95060

13. **FINAL APPROVAL:** CONTRACTOR agrees that all reports, manuals, statistics and any other documentation required under the terms of this Agreement are subject to final approval by the COUNTY's Water Quality Program Manager before project goals and objectives will be considered completed.
14. **PARTIAL PERFORMANCE:** It is hereby agreed that payments called for under this Agreement are based on performance of the items listed under Paragraph 1 (Duties). In the event all duties are not completed or delivered, the amount due under this Agreement shall be reduced on a pro-rated basis to be determined by COUNTY.
15. **NONASSIGNMENT OF AGREEMENT:** CONTRACTOR shall not assign or subcontract this Agreement to a third party unless prior written approval is obtained by COUNTY. Any assignment without such written consent shall automatically terminate this Agreement.
16. **SUBCONTRACTS:** CONTRACTOR agrees to maintain and make available to COUNTY copies of all written subcontracts.
17. **INDEPENDENT CONTRACTOR STATUS:** CONTRACTOR and COUNTY have reviewed and considered the principal test and secondary factors below and agree that CONTRACTOR is an independent contractor and not an employee of COUNTY. CONTRACTOR is responsible for all insurance (workers compensation, unemployment, etc.) and all payroll related taxes. CONTRACTOR is not entitled to any employee benefits. COUNTY agrees that CONTRACTOR shall have the right to control the manner and means of accomplishing the result contractor for herein.

PRINCIPAL TEST: The CONTRACTOR rather than COUNTY has the right to control the manner and means of accomplishing the result contracted for.

SECONDARY FACTORS: The extent of control which, by agreement, COUNTY may exercise over the details of the work is slight rather than substantial; (b) CONTRACTOR is engaged in a distinct occupation

or business; (c) In the locality, the work to be done by CONTRACTOR is usually done by a specialist without supervision, rather than under the direction of an employer; (d) The skill required in the particular occupation is substantial rather than slight; (e) The CONTRACTOR rather than the COUNTY supplies the instrumentalities, tools and workplace; (f) The length of time for which CONTRACTOR is engaged is of limited duration rather than indefinite; (g) The method of payment of CONTRACTOR is by the job rather than by the time; (h) The work is part of a special or permissive activity, program, or project, rather than part of the regular business of COUNTY; (I) CONTRACTOR and COUNTY believe they are creating an independent contractor relationship rather than an employer-employee relationship; and (j) the COUNTY conducts public business.

It is recognized that it is not necessary that all secondary factors support creation of an independent contractor relationship, but rather that overall there are significant secondary factors which indicate that CONTRACTOR is an independent contractor.

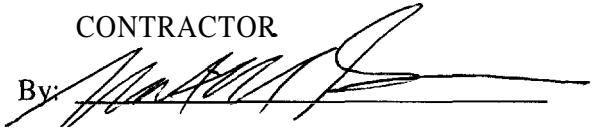
By their signature to this Agreement, each of the undersigned certifies that it is his or her considered judgment that the CONTRACTOR engaged under this Agreement is in fact an independent contractor.

IN WITNESS WHEREOF, the parties hereto have set their hands the day and year first written above.

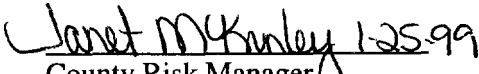
COUNTY OF SANTA CRUZ

By: _____
-Health Services Administrator

CONTRACTOR

By: 
Address: 835 CEDAR ST
SANTA CRUZ, CA 95060
Telephone: 831-427-0288

Approved as to insurance coverage:


County Risk Manager

Approved as to form:

 1/25/99
Assistant County Counsel

Distribution:

County Administrative Officer
County Counsel
Auditor-Controller
Risk Management
Health Services Agency
Contractor

Mitchell Swanson
Swanson Hydrology & Geomorphology
835 Cedar Street - Santa Cruz - California - 95060
phone 831-427-0288 fax 831-427-0472 email swanson@swansonh2o.com

January 24, 1998

Mr. John Ricker
Water Quality Program Manager
County of Santa Cruz
701 Ocean Street, Room 3 12
Santa Cruz, CA 95060

RE: Proposed Scope and Budget to Develop the San Lorenzo River Watershed Water Quality Attainment Strategy for Sediment / TMDL

Dear Mr. Ricker,

As requested, Swanson Hydrology is submitting the following proposal for consulting services to assist the County of Santa Cruz Department of Environmental Health in the development of the San Lorenzo River Watershed TMDL for Sediment.

INTRODUCTION

For this effort, Gary Kittleson, Senior Hydrologist with Swanson Hydrology and Geomorphology will serve as Project Manager. Mitchell Swanson, Principal of Swanson Hydrology, will serve as Senior Geomorphologist. Swanson Staff Scientists Brian Laurent and Kevin Sibley will assist in numerous tasks. Subconsultants Steve Singer, Erosion Control Specialist, and **Toby** Hanes, Senior Hydrologist and Principal of Hydrosience will provide additional strength to both the quantitative analysis of sediment sources and to the development and feasibility of sediment Best Management Practices. Please refer to our previously submitted Statement of Qualifications for more details about the Swanson Team.

The following scope and budget details our approach to the tasks that will be undertaken in the development of the San Lorenzo Sediment TMDL. Budget figures are attached as Table 1.

APPROACH AND METHODS

The Sediment TMDL for the San Lorenzo River Watershed will be conducted in four parts, reflecting **Subtasks** 6.1 through 6.4 of the existing Section 205(j) grant. The activities proposed by the Swanson Team build on the 1998 San Lorenzo Sediment and Erosion Control Report through direct, efficient, local involvement with the Coastal Watershed Council's volunteer monitoring efforts. The Swanson Team also proposes coordination with the UCSC Earth and Marine Science Department, Environmental Studies Department, and GIS lab for assistance in field surveys, quantitative analysis of sediment yield and refinement of pertinent GIS coverages.

WORK TASKS.

Task 1. Background Data and Study Design

This initial task focuses on collection of pertinent watershed documents, data, maps, and aerial photographs. Many critical documents, field notes, and maps are readily available to the consultant team in our own libraries. A limited amount of time will be spent collecting and assessing more recent digital data sets available through the County's EMIS system, UCSC Map Library and GIS lab, the Bay Area Shared Information Consortium (BASIC) and other sources. Through this task, we will develop a regional GIS/DEM/DTM data dictionary to serve as a guidance document for use of the various GIS coverages and spatial data sets likely to be available for this effort.

Deliverable: Submit *Detailed Study Approach* to Technical Advisory Committee

Schedule: Task completion due two weeks following authorization.

Task 2. Monitor Sediment Impacts

As part of the TMDL study, Gary Kittleson will coordinate and oversee the ongoing CWC volunteer monitoring for bed conditions and channel surveying. We propose to locate 3 to 4 additional sites in Love and Newell Creeks to supplement the CWC study sites. The Newell and Love Creek sites will be surveyed and channel conditions will be characterized with the same methods as the existing sites on Zayante and Bean Creeks. Swanson Hydrology will conduct physical measurements of substrate size, particle size distribution, channel cross-sections, longitudinal profiles, bank conditions, and embeddedness in the monitoring site locations. Swanson Hydrology will estimate embeddedness through McNeil core samples and sieve analysis at the newly sited sampling locations, in addition to the existing CWC sites. We assume CWC will

conduct their embeddedness estimate with the Areal-Grid Hybrid Technique (Bauer and Burton, 1993). A comparison of these two methods will be included in the *Bed Conditions Summary* deliverable.

The Swanson Team will conduct informal side by side sampling assistance and field methods training to Coastal Watershed Coalition Volunteers at the existing CWC sites, concurrent with the development of digital topographic surveys of each site. The development of digital topo will be undertaken by the Swanson Team with our Nikon Total Station Survey equipment to supplement CWC efforts and to more fully depict the reach hydraulics the **affect** sediment transport and bed conditions at each monitoring site. The resulting survey data will be plotted on digital topographic form and will include all existing benchmarks, photo-points cross section endpoints and significant geomorphic features like bedrock ledges. Through this refinement of channel reach characteristics, it will be more possible to interpret seasonal changes in riffle/run/pool configurations as well as the overall reach hydraulics that control sediment transport.

The digital topo maps of will be located by GPS and/or georeferenced for inclusion in the **EMIS** system and future studies. The hard copy maps will be useful for volunteer monitors, particularly to field map subtle changes in channel conditions between visits.

Schedule: Channel and monitoring reach surveys will be conducted during low flow conditions, possibly as early as early February, 1999. *Site Topo Maps and Bed Conditions Summary* will be submitted for TAC review by June 1, 1999.

Deliverable: Monitoring Site Topo Maps and Bed Conditions Summary

(Should storms keep us out of the streams until late Spring 1999, we will focus wet season work on Task 3 subtasks, which are discussed below.)

Task 3. Assess Sediment Sources

The assessment of sediment sources is the most complex set of **subtasks** in the development of the sediment TMDL. Using previous studies, primary sources, and informal interviews with local land managers and planners, the Swanson team will create a working **basemap** of visible, known sediment sources in the Zayante, Bean Newell and Love Creek subdrainages. Initial observations of sediment sources will be strictly visual and their relative magnitude will assist in the prioritization of follow-up quantification of source yield.

Based on previous assessments of sediment sources in the San Lorenzo Watershed, the quantitative sediment yield components of this TMDL will focus on known sources. Both natural background erosion and human-induced disturbance **can** be extreme in the

Santa Cruz Mountains. Developing a greater understanding of the ratio between background and induced erosion is a fundamental objective in the TMDL process in the San Lorenzo Watershed. This understanding serves as the relative basis for setting realistic success criteria for the **instream** substrate numeric targets.

The specific **subtasks** proposed by Swanson Hydrology and **Geomorphology** for the San Lorenzo Sediment TMDL Study include:

Roads Survey

- Manage and conduct a roads survey in the Zayante, Bean, Newell and Love Creek basins. We will inventory accessible public roads, roads visible in recent imagery and aerial photos, and private roads with permission of landowners, road associations, or water districts.
- Develop road inventory worksheet for use by the team, CWC volunteers, UCSC student assistance, or others.
- GPS and map sites for inclusion in the spatial database.

Quantification of background and human induced sources

- Sediment sources will be mapped using available USGS Topos, **EMIS** coverages, and hand held GPS units.
- Road contributions will be estimated by field measurement of road surface loss over the field period at selected road study sites identified in the road inventory. Specific approaches to road surface contribution measurements are weather dependent. Specific methods will be identified and presented as the road inventory proceeds and as weather conditions dictate.
- Major sources like the Mount Herman Slide, the Bean Creek Road failures, and the toe of the Love Creek Slide will be surveyed with our digital survey equipment as soon as possible and again following the runoff season. The before and after data will be rendered and, soil creep, slide movement, and sediment transport from the sites will be estimated. This effort is weather dependent. Should the season yield little rain and result in imperceptible mass movement, our efforts will be limited to setting slide movement pins for **re-survey** in follow-up years.
- We propose to conduct similar detailed surveys to assess loss of stockpiled material on road pullouts and road surface material **from** representative road types. All sites will be captured on film and narrated video, while in the field
- Recent CA DFG Stream Survey data will be available for Zayante and Lompico Creeks and will be utilized to locate streambank instability and near-stream sediment sources.
- Quantitative estimates of streambank contributions will be made by observation in the CWC monitoring locations. Methods to be developed and discussed with the TAC.
- Using sediment source data developed in the field **surveys** and existing published studies quantify, to the extent feasible, the sediment-contributing hillslope processes by developing a digital terrain model (**DTM**) sediment yield analysis by subwatershed.
- Develop and quantify sediment source ratio for background and anthropogenic sources

- Coordinate UCSC student **involvement/GIS** lab analysis of detailed road coverage(s) for the project area. This task involves editing existing roads coverages, developing additional data, assigning road-related attributes and quantitative analyses.

Deliverable: *Data Assessment and Sediment Source Quantification Technical Memorandum* (Results and findings to be presented in Draft TMDL document)

Schedule: Road and sediment source survey will be started upon authorization. Deliverable will be submitted for TAC review by June 30, 1999.

4. Develop San Lorenzo Sediment TMDL

The Swanson Team will assemble all data, maps, and observations in a draft TMDL report. Which will be in conformance with EPA guidelines.

The development of the San Lorenzo Sediment TMDL calls for (1) the quantification of sediment sources, (2) the estimation of sediment reduction that may be achieved by the implementation of sediment Best Management Practices, and (3) the development of measurable and achievable numeric targets to monitor changes in watershed conditions and known beneficial uses.

Based on the field identification of sediment sources, the Swanson Team will identify Best Management Practices for Manageable Loads. These suggested approaches for site-specific sediment reduction project will be conceptual plans with approximate **cost** estimates. We recognize that, under this authorization, a limited number of alternatives will be considered for any site and that actual design and construction will be conducted in **future** efforts. Where appropriate, general sediment management **BMPs** may be suggested for typical types of problems that are **frequently** encountered in the sediment source inventory.

We will estimate potential sediment reductions for proposed **BMP's**, and estimate cost effectiveness of proposed **BMP's**, should they be implemented. Through this process, the Swanson Team, with the involvement of the Technical Advisory Committee, will allocate responsibility and treatment potential for manageable loads.

Working with the Coastal Watershed Council and County and State project managers, the TMDL team will establish **instream** numeric targets, based on the physical monitoring that the CWC and Swanson team is currently conducting. Because the **instream** targets are specifically pertinent to anadromous fisheries habitat requirements and surface water treatment rules, the TMDL team will rely heavily on the local water purveyors, the Department of Fish and Game, and area fisheries biologists to assist in the development of the numeric targets and associated success criteria.

These numeric targets will likely be based on bed conditions being measured by CWC, including but not limited to; % fines, geometric mean particle size (**D50**), residual pool volume, and width-depth ratios. Fish population itself is not anticipated to be a primary numeric target, as water supply facilities and episodes of extreme disturbance have significant effects on the local steelhead lifecycle. Perhaps the most important point to be made is that numeric targets developed in the Sediment TMDL must be understood as *goals*, not *requirements*.

Deliverable: Draft TMDL Study

Schedule: Mid August, 1999

5. Respond to TAC/Agency Comments

6. Complete Final TMDL Report

Schedule.- September 30, 1999

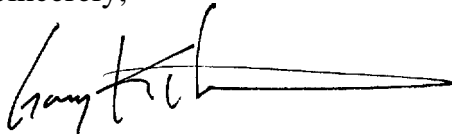
7. Technical Advisory Meetings

Includes kickoff meeting after authorization and following TAC review of deliverables described above. Dates and times will be determined by TAC.

BUDGET

Labor and expense costs are included in the attached Table 1. Feel free to contact me at (83 1) 427-0288 or in writing at 835 Cedar Street, Santa Cruz, California 95060.

Sincerely,



Gary Kittleson
Senior Hydrologist
Swanson Hydrology and Geomorphology

Attachment: Budget Table 1

Table 1. San Lorenzo Sediment TMDL

Tasks	Allocation
1. Background Data and Study Design	
<i>Delivemle and Action: Submit detailed study approach to TAC</i>	\$2,000
2. Monitor Sediment Impacts	
<i>Delivembles: Monitoring Site Topo Maps and Bed Conditions Summary</i>	\$9,440
3. Assess Sediment Sources	
<i>Deliverable: Sediment Source Quantification Technical Memorandum</i>	\$20,700
4. Develop Sediment TMDL	
<i>Deliverable: Draft TMDL Study</i>	\$10,650
5. Respond to TAC/Agency Comments	\$2,360
6. Complete Final TMDL Report	\$2,030
7. Technical Advisory Meetings	\$1,810
Labor and Expense Subtotal	\$48,990

COUNTY OF SANTA CRUZ
REQUEST FOR APPROVAL OF AGREEMENT

180

TO: Board of Supervisors
County Administrative Officer
County Counsel
Auditor-Controller

FROM: HEALTH SERVICES AGENCY (Dept.)
Chaler Moody (Signature) 1/26/99 (Date)

The Board of Supervisors is hereby requested to approve the attached agreement and authorize the execution of the same.

- Said agreement is between the County of Santa Cruz (Agency)
and the Coastal Watershed Council, 204 Laguna Street, Santa Cruz, CA 95060 (Name & Address)
- The agreement will provide for implementation of volunteer monitoring of sedimentation in the San Lorenzo Watershed.
- The agreement is needed to implement tasks under a grant from the State Water Quality Control Board.
- Period of the agreement is from 2/9/99 to 6/30/99
- Anticipated cost is \$12,000.00 (Fixed amount; Monthly rate, Not to exceed)
- Remarks: Full term of contract is from 2/9/99 to 11/30/99, at a total cost not to exceed 12,000.00.
- Appropriations are budgeted in 362860 (Budget) 3665 (Account)

NOTE: IF APPROPRIATIONS ARE INSUFFICIENT, ATTACH COMPLETED FORM AUD-74

Appropriations are available and have been encumbered. Contract No. DO 81790 Date 1/27/99
are not will be
GARY A. KNUTSON, Auditor-Controller
By Linda Chou Deputy

Proposal reviewed and approved. It is recommended that the Board of Supervisors approve the agreement and authorize the
to execute the same on behalf of the

(Agency).

County Administrative Officer

Remarks:

gh (Analyst)

By WHE Date 1/29/99

County Counsel

Agreement approved as to form. Date

By As

Distribution:

Bd. of Supv. - White
Auditor-Controller - Blue
County Counsel - Green *
Co. Admin. Officer - Canary
Auditor-Controller - Pink
Originating Dept. - Goldenrod

*To Orig. Dept. if rejected.

ADM 29 (1/78) 3

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State of California)
County of Santa Cruz) ss

I _____ ex-officio Clerk of the Board of Supervisors of the County of Santa Cruz,
State of California, do hereby certify that the foregoing request for approval of agreement was approved by
said Board of Supervisors as recommended by the County Administrative Officer by an order duly entered
in the minutes of said Board on _____ County Administrative Officer

_____ 19 _____ By _____ Deputy Clerk

Contract No.: _____
 Index: 362860
 Account: 3665

Santa Cruz County
 Health Services Agency

Professional Services Agreement

This agreement is entered into this 9th day of February, 1999, by and between the COUNTY OF SANTA CRUZ, hereinafter called COUNTY, and COASTAL WATERSHED COUNCIL, hereinafter called CONTRACTOR. The parties agree as follows:

1. DUTIES. CONTRACTOR agrees to exercise special skill to accomplish the following result: CONTRACTOR is responsible for developing and implementing a volunteer monitoring program to monitor sedimentation of streams in the San Lorenzo Watershed, as described in the attached "Exhibit A", which is hereby made a part of this agreement.
2. COMPENSATION.
 - A. In consideration for CONTRACTOR accomplishing said services, COUNTY agrees to pay CONTRACTOR an amount not to exceed \$12,000.00, for completion of the tasks as shown in Exhibit A.
 - B. CONTRACTOR shall submit invoices for costs incurred, at least quarterly, by the seventh working day of April, July, October, and January. Invoices shall be accompanied by a brief report of work completed during the billing period. Promptly after receipt of each invoice, but in no event later than sixty (60) days after its receipt COUNTY shall make payment thereon to the CONTRACTOR. Payment by COUNTY shall be contingent upon completion of work described in Exhibit A.
 - C. Funds provided under this contract shall not be used for payment of salaries to consultant in excess of the maximum daily rate for GS-18. The limit expressed herein does not include transportation and subsistence costs for necessary travel for work required under this contract.
3. TERM. The term of this agreement shall be: from the Date of Execution to November 30, 1999, unless terminated in accordance with Paragraph 4.
4. EARLY TERMINATION. Either party hereto may terminate this agreement at any time by giving thirty (30) days written notice to the other party.
5. SUBCONTRACTING. CONTRACTOR shall not subcontract any portion of the work required by this Agreement without prior approval of COUNTY. COUNTY shall retain final approval authority for any and all "Scope of Services" of subcontractors for this project. The CONTRACTOR shall retain responsibility for satisfactory completion of all tasks to be carried out under any subcontract for work under this project.

CONTRACTOR agrees to include sections 6-11 in all contracts and tier subcontracts directly related to project performance.

6. AUDIT. ACCESS TO RECORDS

A. CONTRACTOR and any subcontractors shall maintain books and records pertinent to performances of all work related to this contract in an adequate manner and in accordance with generally accepted accounting principles and practices. The records must be sufficient to assure that contract funds are allocable to allowable costs.

B. At all reasonable times during the term of this contract and for five (5) years following final payment

and closure of all other pending matters, the State Auditor General, the State Board, EPA, the Comptroller General of the United States, or any of their authorized representatives, shall have access to the records of the CONTRACTOR and any subcontractors related to work performed under this contract and the CONTRACTOR shall make such records available for audit, examination, excerpts, and transcriptions.

C. CONTRACTOR and all subcontractors shall maintain books and records pertinent to performances of all work related to this agreement in an adequate manner and in accordance with generally accepted accounting principles and practices. The records must be sufficient to assure that agreement funds are allocated to allowable costs.

D. CONTRACTOR and all subcontractors shall maintain fiscal control and accounting procedures which are sufficient to:

- (1) Permit preparation of reports required by 40 CFR Part 3 1 (including those required by 40 CFR Part 3 1.40 and 3 1.4 1) and statutes authorizing the grant.
- (2) Permit tracing of funds to a level of expenditures adequate to establish that such funds have not been used in violation of the restrictions and prohibitions of applicable statutes.

7. NONDISCRIMINATION CLAUSE.

A. During the performance of this contract, CONTRACTOR and its subcontractors shall not unlawfully discriminate, harass, or allow harassment against any employee or applicant for employment because of race, religion, color, national origin, ancestry, physical disability (including HIV and AIDS), medical condition (cancer related), marital status, age (over 40), gender, sexual preference, or any other non-merit factor unrelated to job duties. Such action shall include, but not be limited to the following: employment, upgrading, demotion, or transfer, recruitment or recruitment advertising, layoff or termination, rates of pay or other forms of compensation and selection for training, including apprenticeship. CONTRACTOR and subcontractors shall insure that the evaluation and treatment of their employees and applicants for employment are free of such discrimination and harassment. CONTRACTOR and subcontractors shall comply with the provisions of the Fair Employment and Housing Act (Government Code, Section 12900 et seq.) and the applicable regulations promulgated thereunder (California Administrative Code, Title 2, Section 7285.0 et seq.). The applicable regulations of the Fair Employment and Housing Commission implementing Government Code, Section 12990, set forth in Chapter 5 of Division 4 of Title 2 of the California Administrative Code are incorporated into this contract by reference and made a part hereof as if set forth in full. CONTRACTOR and its subcontractors shall give written notice of their obligations under this clause to labor organizations with which they have a collective bargaining or other agreement. The CONTRACTOR agrees to post in conspicuous places, available to employees and applicants for employment, notice setting forth the provisions of this non-discrimination clause.

B. CONTRACTOR shall include the nondiscrimination and compliance provisions of this clause in all subcontracts to perform work under the contract.

8. UTILIZATION OF SMALL, MINORITY, AND WOMEN'S BUSINESSES The CONTRACTOR agrees that affirmative steps will be taken to assure that qualified small, minority, and women's businesses are used when possible as sources of supplies, construction and services in the performance of EPA grant-assisted contracts and subcontracts. Affirmative steps taken shall include the following:

- A. Including qualified small, minority, and women's businesses on solicitation lists;
- B. Assuring that small, minority, and women's businesses are solicited whenever they are potential sources;
- C. Dividing total requirements, when economically feasible, into small tasks or quantities to permit maximum participation of small, minority, and women's businesses;

D. Establishing delivery schedules, where the requirements of the work permit, which will encourage participation by small, minority, and women's businesses;

E. Using the services and assistance of the Small Business Administration, the Office of Minority Business Enterprise of the U.S. Department of Commerce, and the State Office of Small & Minority Business as appropriate; and

F. If the CONTRACTOR awards subcontracts, requiring the subcontractor to take the affirmative steps in paragraphs A. through E. of this Section.

9. CONFLICT OF INTEREST.

A. CONTRACTOR agrees that no officer or employee in the State civil service or other appointed State official shall be employed by CONTRACTOR for compensation which will be received under this contract. Nor shall any such state officer, employee, or appointed official have any financial interest in the subject matter of this contract.

B. CONTRACTOR agrees and acknowledges that it is aware that no retired, dismissed, separated, or formerly employed person of any state agency or department employed under the state civil service or otherwise appointed to serve in state government may enter into this contract if he or she engaged in any of the negotiations, transactions, planning, arrangements, or any part of the decision making process relevant to the contract while employed in any capacity by the state agency or department.

10. DISCLOSURE REQUIREMENTS.

A. Any final document or written report which is subject or product of this contract prepared in whole or part by CONTRACTOR shall contain in a separate section a disclosure statement which includes the following:

This document was prepared through Contract No. 4-133-250-o in the amount of \$148,500.00 with the California State Water Resources Control Board.

B. If the CONTRACTOR is required to prepare multiple documents or written reports, the disclosure statement may also contain a statement indicating that the total contract amount represents compensation for multiple documents or written reports.

C. Any documents which are published by the CONTRACTOR shall contain the following statement:

This project has been funded wholly or in part by the United States Environmental Protection Agency Assistance Agreement C6999214-95-0 to the State Water Resources Control Board by Contract No. 4-133-250-o in the amount of \$148500.00. The contents of this document do not necessarily reflect the views and policies of the Environmental Protection Agency or the State Water Resources Control Board, nor does mention of trade names or commercial products constitute endorsement or recommendation for use.

11. INDEMNIFICATION FOR DAMAGES, TAXES AND CONTRIBUTIONS. CONTRACTOR shall exonerate, indemnify, defend, and hold harmless COUNTY (which for purposes of paragraphs 11 and 12 shall include, without limitation, its officers, agents, employees and volunteers) from and against:

A. Any and all claims, demands, losses, damages, defense costs, or liability of any kind or nature which COUNTY may sustain or incur or which may be imposed upon them for injury to or death of persons, or damage to property as a result of, arising out of, or in any manner connected with the CONTRACTORS performance under the terms of this Agreement, excepting any liability arising out of the sole negligence

of the COUNTY. Such indemnification includes any damage to the person(s), or property (ies) of CONTRACTOR and third persons.

B. Any and all federal, State, and local taxes, charges, fees, or contributions required to be paid with respect to CONTRACTOR and CONTRACTOR'S officers, employees and agents engaged in the performance of this Agreement (including, without limitation, unemployment insurance, social security and payroll tax withholding).

12. INSURANCE. CONTRACTOR, at its sole cost and expense, for the full term of this Agreement (and any extensions thereof), shall obtain and maintain at minimum all of the following insurance coverage(s) and requirements. Such insurance coverage shall be primary coverage as respects COUNTY and any insurance or self-insurance maintained by COUNTY shall be excess of CONTRACTORS insurance coverage and shall not contribute to it.

If CONTRACTOR utilizes one or more subcontractors in the performance of this Agreement, CONTRACTOR shall obtain and maintain Independent Contractor's Insurance as to each subcontractor or otherwise provide evidence of insurance coverage for each subcontractor equivalent to that required of CONTRACTOR in this Agreement, unless CONTRACTOR and COUNTY both initial here _____

A. Types of Insurance and Minimum Limits

(1) Worker's Compensation in the minimum statutorily required coverage amounts. This insurance coverage shall not be required if the CONTRACTOR has no employees and certifies to this fact by initialing here _____

(2) Automobile Liability Insurance for each of CONTRACTOR's vehicles used in the performance of this Agreement, including owned, non-owned (e.g. owned by CONTRACTOR's employees), leased or hired vehicles, in the minimum amount of \$500,000 combined single limit per occurrence for bodily injury and property damage. This insurance coverage shall not be required if vehicle used by CONTRACTOR is not a material part of performance of this Agreement and CONTRACTOR and COUNTY both certify to this fact by initialing here _____/_____

(3) Comprehensive or Commercial General Liability Insurance coverage in the minimum amount of \$1,000,000 combined single limit, including coverage for: (a) bodily injury, (b) personal injury, (c) broad form property damage, (d) contractual liability, and (e) cross-liability.

(4) Professional Liability Insurance in the minimum amount of \$_____ combined single limit, if, and only if, this Sub-paragraph is initialed by CONTRACTOR and COUNTY _____/_____.

B. Other Insurance Provisions

(1) If any insurance coverage required in this Agreement is provided on a "Claims Made" rather than "Occurrence" form, CONTRACTOR agrees to maintain the required coverage for a period of three (3) years after the expiration of this Agreement (hereinafter "post agreement coverage") and any extensions thereof. CONTRACTOR may maintain the required post agreement coverage by renewal or purchase of prior acts or tail coverage. This provision is contingent upon post agreement coverage being both available and reasonably affordable in related to the coverage provided during the term of this Agreement. For purposes of interpreting this requirement, a cost not exceeding 100% of the last annual policy premium during the term of this Agreement in order to purchase prior acts or tail coverage for post agreement coverage shall be deemed reasonable.

(2) All required Automobile and Comprehensive or Commercial General Liability Insurance shall

be endorsed to contain the following clause:

“The County of Santa Cruz, its officials, employees, agents and volunteers are added as an additional insured as respects the operations and activities of, or on behalf of, the named insured performed under Agreement with the County of Santa Cruz.”

(3) All required insurance policies shall be endorsed to contain the following clause:

“This insurance shall not be canceled until after thirty (30) days prior written notice has been given to:

Water Quality Program Manager
Environmental Health Service
701 Ocean Street, Room 3 12
Santa Cruz CA. 95060”

(4) CONTRACTOR agrees to provide its insurance broker(s) with a full copy of these insurance provisions and provide COUNTY on or before the effective date of this Agreement with Certificates of Insurance for all required coverages. All Certificates of Insurance shall be delivered or sent to:

Water Quality Program Manager
Environmental Health Service
701 Ocean Street, Room 3 12
Santa Cruz CA, 95060

13. FINAL APPROVAL: CONTRACTOR agrees that all reports, manuals, statistics and any other documentation required under the terms of this Agreement are subject to final approval by the COUNTY's Water Quality Program Manager before project goals and objectives will be considered completed.
14. PARTIAL PERFORMANCE: It is hereby agreed that payments called for under this Agreement are based on performance of the items listed under Paragraph 1 (Duties). In the event all duties are not completed or delivered, the amount due under this Agreement shall be reduced on a pro-rated basis to be determined by COUNTY.
15. NONASSIGNMENT OF AGREEMENT: CONTRACTOR shall not assign or subcontract this Agreement to a third party unless prior written approval is obtained by COUNTY. Any assignment without such written consent shall automatically terminate this Agreement.
16. SUBCONTRACTS: CONTRACTOR agrees to maintain and make available to COUNTY copies of all written subcontracts.
17. INDEPENDENT CONTRACTOR STATUS: CONTRACTOR and COUNTY have reviewed and considered the principal test and secondary factors below and agree that CONTRACTOR is an independent contractor and not an employee of COUNTY. CONTRACTOR is responsible for all insurance (workers compensation, unemployment, etc.) and all payroll related taxes. CONTRACTOR is not entitled to any employee benefits. COUNTY agrees that CONTRACTOR shall have the right to control the manner and means of accomplishing the result contractor for herein.

PRINCIPAL TEST: The CONTRACTOR rather than COUNTY has the right to control the manner and means of accomplishing the result contracted for.

SECONDARY FACTORS: The extent of control which, by agreement, COUNTY may exercise over the details of the work is slight rather than substantial; (b) CONTRACTOR is engaged in a distinct occupation or business; (c) In the locality, the work to be done by CONTRACTOR is usually done by a specialist without supervision, rather than under the direction of an employer; (d) The skill required in the particular occupation is substantial rather than slight; (e) The CONTRACTOR rather than the COUNTY supplies

the instrumentalities, tools and workplace; (f) The length of time for which CONTRACTOR is engaged is of limited duration rather than indefinite; (g) The method of payment of CONTRACTOR is by the job rather than by the time; (h) The work is part of a special or permissive activity, program, or project, rather than part of the regular business of COUNTY; (I) CONTRACTOR and COUNTY believe they are creating an independent contractor relationship rather than an employer-employee relationship; and (j) the COUNTY conducts public business.

It is recognized that it is not necessary that all secondary factors support creation of an independent contractor relationship, but rather that overall there are significant secondary factors which indicate that CONTRACTOR is an independent contractor.

By their signature to this Agreement, each of the undersigned certifies that it is his or her considered judgment that the CONTRACTOR engaged under this Agreement is in fact an independent contractor.

IN WITNESS WHEREOF, the parties hereto have set their hands the day and year first written above.

COUNTY OF SANTA CRUZ

CONTRACTOR

By: _____
Health Services Administrator

By: D. Hynes
Address: 204 Laguna St.
Santa Cruz, Ca 95060
Telephone: 426-9012

Approved as to insurance coverage:

Barry McKinley 1-25-99
County Risk Manager

Approved as to form:

Harry A. Charlemon III 1/25/99
Assistant County Counsel

Distribution:

County Administrative Officer
County Counsel
Auditor-Controller
Risk Management
Health Services Agency
Contractor

Scope of Work to Develop and Implement the San Lorenzo River Watershed Volunteer Monitoring Program for TMDL Development

Coastal Watershed Council
303 Potrero Street #24
Santa Cruz, CA 95060

January 26, 1999

Introduction

The Coastal Watershed Council (CWC) will assist Santa Cruz County Department of Environmental Health in the implementation of a volunteer monitoring program for the San Lorenzo River Watershed for the development of a sediment TMDL for the watershed. The volunteer monitoring program will be used to monitor key indicators of impacts of sedimentation on beneficial uses. It is anticipated that volunteer monitoring will be focused in a representative subarea of the San Lorenzo River watershed.

The Coastal Watershed Council will provide volunteer monitoring program design, volunteer recruitment, volunteer training and management of volunteers in the field during the length of the program. CWC will provide all training materials and equipment for the program. The Coastal Watershed Council will utilize County staff and the project consultant for technical guidance to ensure that the volunteer program provides quality data.

(Description of Parameters to be Monitored)

1. Sediment Monitoring Program

Elements: Cross-section surveys, longitudinal profiles, pebble counts, embeddedness, and photopoints. Fixed stream reaches will be located at each of the monitoring sites. The reaches will be permanently monumented for long term monitoring.

Cross-Sections and Longitudinal Profiles

Channel condition will be evaluated at all selected sites by conducting **cross-sections** and longitudinal profiles for at least one series of pool, riffle, and run at each monitoring site. This series will be referred to as a "reach". Cross-section surveys will provide the means to determine the average **bankfull** cross-sectional area, width, and depth of the entire reach at each monitoring site. The number of cross-sections completed for each reach will vary for each monitoring site. The longitudinal profile provides the means to determine changes in the vertical dimension of channel features. The longitudinal profile also will also provide the average gradient for the reach at each monitoring site. Channel gradient is very important in determining the rate of sediment transport and deposition.

Cross sections and longitudinal profiles will be conducted according to protocols cited in the *USDA Forest Service, General Technical Report RM-245, Stream Channel Reference Sites: An Illustrated Guide to Field Technique*. Equipment used will include a Leica NA820 Surveyors Level; a surveyors rod and tripod.

Product(s): Cross-section and longitudinal profiles for designated reaches at each monitoring site. Associated graphs, raw data and photopoints for each site. Site map for each site.

Sediment Particle Size

Pebble counts will be conducted at all selected monitoring sites. The pebble count provides a quantitative description and basic characterization of the bed material. The technique used will be the Wolman Pebble Count (1954) and particles will be tallied by using Wentworth size classes. We will use the toe-step procedure. A minimum of 100 particles will be measured at each site. The site where the pebble count is conducted will be referenced by the nearest cross-section and on the site map.

Product(s): Quantification of particles; plot of data by size class and frequency. Site map.

Embeddedness

Embeddedness will be measured using the **Areal-Grid Hybrid Technique** developed by Bauer and Burton (1993). Three sampling grids are located on transects where pebble counts have been performed. At each point the percent of fine sediment (< 6mm) within the grid is estimated. The literature notes that the use of this protocol can be useful to complement data collected by pebble counts. If this method is applied to areas where pebble counts are conducted the method can be used to determine if any changes in the amount of fine sediment have occurred. It should be noted that this method provides a crude method to quantify the amount of fine sediment on the surface of the streambed, not the interstitial spaces between spawning gravels. This method will be used at each of the monitoring sites where pebble counts are conducted.

Product(s): Field forms and quantified data for each of the monitoring sites. Site map.

2. Public Road Survey - under direction of Consultant

Elements: Public road survey and associated data sheets .

Volunteers will be used to conduct a survey of public roads within designated areas of the watershed to assess the contribution of sediment from these sources. CWC will coordinate volunteers to conduct weekly field work.

Product(s): Raw data sheets.

Monitoring	Sites			
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Monitoring sites will be selected and finalized with the help of County staff, Regional Board staff, and the project consultants. This scope of work includes a cost estimate for 6 monitoring sites.

Volunteer Management and, Field Supervision

Following training, volunteers will be divided into teams of 2-3 people and will be assigned a day of the month to conduct their monitoring activities. Volunteers currently working on the San Lorenzo 3 19 monitoring program will be utilized for the sediment TMDL work. CWC staff will provide field supervision for each team during the program. This will entail one on one training with the smaller teams, demonstration of the use and maintenance of the monitoring equipment, quality assurance procedures, and data management procedures including information on filling out the data sheet.

Protocols to be Utilized

Flosi, Gary, et. al., California Salmonid Stream Habitat Restoration Manual, 3rd Edition, California Department of Fish and Game, 1998.

Kondolf, Mathias G., The Pebble Count Technique for Quantifying Surface Bed Material Size in Instream Flow Studies, University of California Berkeley, 1992.

Ramos, Carlos, Quantification of Stream Channel Morphological Features: Recommended Procedures for Use in Watershed Analysis and TFW Ambient Monitoring, 1996.

Wolman, M. Gordon, A Method of Sampling Coarse River-Bed Material, 1954.

USDA Forest Service, General Technical Report RM-245, "Stream Channel Reference Sites: An Illustrated Guide to Field Technique," Rocky Mountain Forest and Range Experiment Station, 1994.

Cost Estimate

Please note the following estimates are per site for conducting all monitoring parameters discussed above in a season.

<u>TASK 1 (for seasonal monitoring event)</u>	<u>COST</u>
Cross-section field time and analysis	\$ 480
Longitudinal profile field time and analysis	\$ 480
Pebble counts	\$ 480
Embeddedness	\$ 260
Volunteer training and management	<u>\$ 100</u>
Total Cost per Monitoring Site	<u>\$1800</u>
 Total Cost Monitoring @ 6 sites	 \$10,800
 <u>TASK 2 (Public Roads Survey)</u>	 <u>COST</u>
Manage Volunteer Collection of Data at Designated Sites	<u>\$1115</u>
 Total Cost Tasks 1 & 2	 \$11,915