



County of Santa Cruz

385

PLANNING DEPARTMENT

701 OCEAN STREET, 4TH FLOOR, SANTA CRUZ, CA 95060
(831) 454-2580 FAX: (831) 454-2131 TDD: (831) 454-2123

ALVIN D. JAMES, DIRECTOR

March 16, 1999

AGENDA: April 13, 1999

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

RE: APPROVE SOLE SOURCE PROVIDER CONTRACT FOR IMPLEMENTATION OF SAN VICENTE CREEK ENHANCEMENT PROJECT GRANT

Members of the Board:

On June 17, 1997 your Board adopted Resolution No. 267-97 supporting a grant application to the Department of Fish and Game for the Enhancement Project. This grant is to fund an enhancement of the Coho Salmon habitat within San Vicente Creek. This will be accomplished by constructing instream structures of wood and rock to create pools for rearing, and spawning. The Department was successful in its grant application and on March 9, 1999 your Board accepted the grant in the amount of \$68,849.

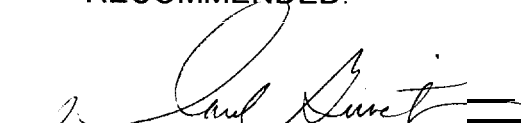
The Planning Department has worked with General Services to choose a vendor to complete the construction portion of this project. It was determined that specialized equipment and expertise would be required to perform the required tasks. This is very specialized work and previous attempts to obtain competitive bids on similar grant projects have been unsuccessful. Because we are only aware of one contractor capable of carrying out this work, a sole source provider is recommended. The contractor is North Coast Fisheries Restoration.

It is therefore RECOMMENDED that your Board approve the attached ADM-29 and contract for North Coast Fisheries Restoration in an amount not to exceed \$31,500 to perform the construction portion of the San Vicente Creek Fisheries Enhancement grant.

Sincerely,

RECOMMENDED:


ALVIN D. JAMES
Planning Director


SUSAN A. MAURIELLO
County Administrative Officer

Attachments: 1. ADM-29 Contract and Project Plans

COUNTY OF SANTA CRUZ
REQUEST FOR APPROVAL OF AGREEMENT

386

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

FROM:

Planning

[Signature] (Signature) 3/25/99 (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 Santa Cruz Flood Control & Water Conservation District-Zone 4 (Agency)
and North Coast Fisheries Restoration, 30000 Hwy 299, Blue Lake, CA 95525 (Name & Address)

2. The agreement will provide for installation of fisheries enhancement structures

3. The agreement is needed because the County cannot perform the service

4. Period of the agreement is from April 13, 1999 to June 30, 1999

5. Anticipated cost is \$ 31,500 (Fixed amount; Monthly rate; Not to exceed)

6. Remarks: San Vicente Stream Restoration Grant will be placed on list of continuing
agreements for 1999-2000

7. Appropriations are budgeted in 135461 (Index#) 3665 (Subobject)

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

Appropriations are available and will be encumbered. Contract No. C081815 Date 3/26/99

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:

ES (Analyst)

County Administrative Officer

By [Signature] Date 3/31/99

Agreement approved as to form. Date

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 _____

BY _____ Deputy Clerk

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ADM - 29 (6/95)

Contract No.

INDEPENDENT CONTRACTOR AGREEMENT

THIS CONTRACT is entered into this 16th day of March, 1999, by and between the COUNTY OF SANTA CRUZ, hereinafter called COUNTY, and NORTH COAST FISHERIES RESTORATION, hereinafter called CONTRACTOR. The parties agree as follows:

1. DUTIES. CONTRACTOR agrees to exercise special skill to accomplish the following result:

Installation of 17 redwood log and root fish habitat structures, and the repair of three sections of eroding streambank with the installation of log and boulder revetment. The Contractor shall be responsible for all placement and securing of structures.

2. COMPENSATION. In consideration for CONTRACTOR accomplishing said result, COUNTY agrees to pay CONTRACTOR as follows:

Payment not to exceed \$3 1,500. \$12,000 to be paid upon completion of the 17 habitat structures, with the remainder to be paid upon completion of the project.

3. TERM. The term of this contract shall be:

The term of this contract shall be from March 16, 1999 to November 1, 1999.

4. EARLY TERMINATION. Either party hereto may terminate this contract at any time by giving 30 days written notice to the other party.

5. INDEMNIFICATION FOR DAMAGES, TAXES AND CONTRIBUTIONS. CONTRACTOR shall exonerate, indemnify, defend, and hold harmless COUNTY (which for the purpose of paragraphs 5 and 6 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 it, 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 CONTRACTOR'S 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).

6. **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 compliance with 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 CONTRACTOR'S 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 use 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 Subparagraph 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 relation 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 to be 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:

Santa Cruz County Planning Department
Attention: Fiscal
701 Ocean Street
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:

Santa Cruz County Planning Department
Attention: Fiscal
701 Ocean Street
Santa Cruz, CA 95060

7. EQUAL EMPLOYMENT OPPORTUNITY. During and in relation to the performance of this Agreement, CONTRACTOR agrees as follows:

A. The CONTRACTOR shall not discriminate against any employee or applicant for employment because of race, color, religion, national origin, ancestry, physical or mental disability, medical condition (cancer related), marital status, sexual orientation, age (over 18), veteran status, gender, pregnancy, or any other non-merit factor unrelated to job duties. Such action shall include, but not be limited to, the following: recruitment; advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training (including apprenticeship), employment, upgrading, demotion, or transfer. 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. If this Agreement provides compensation in excess of \$50,000 to CONTRACTOR and if CONTRACTOR employs fifteen (15) or more employees, the following requirements shall apply:

(1) The CONTRACTOR shall, in all solicitations or advertisements for employees placed by or on behalf of the CONTRACTOR, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, national origin, ancestry, physical or mental disability, medical condition (cancer related), marital status, sexual orientation, age (over 18), veteran status, gender, pregnancy, or any other non-merit factor unrelated to job duties. In addition, the CONTRACTOR shall make a good faith effort to consider Minority/Women/Disabled Owned Business Enterprises in

CONTRACTOR's solicitation of goods and services. Definitions for Minority/Women/Disabled Business Enterprises are available from the COUNTY General Services Purchasing Division.

(2) The CONTRACTOR shall furnish COUNTY Affirmative Action Office information and reports in the prescribed reporting format (PER 4012) identifying the sex, race, physical or mental disability, and job classification of its employees and the names, dates and methods of advertisement and direct solicitation efforts made to subcontract with Minority-Women/Disabled Business Enterprises.

(3) In the event of the CONTRACTOR's non-compliance with the non-discrimination clauses of this Agreement or with any of the said rules, regulations, or orders said CONTRACTOR may be declared ineligible for further agreements with the COUNTY.

(4) The CONTRACTOR shall cause the foregoing provisions of this Subparagraph 7B. to be inserted in all subcontracts for any work covered under this Agreement by a subcontractor compensated more than \$50,000 and employing more than fifteen (15) employees, provided that the foregoing provisions shall not apply to contracts or subcontracts for standard commercial supplies or raw materials.

8. **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 contracted 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: (a) 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 work place; (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 signatures 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.

9. NONASSIGNMENT. CONTRACTOR shall not assign this Agreement without the prior written consent of the COUNTY.

10. RETENTION AND AUDIT OF RECQDS. CONTRACTOR shall retain records pertinent to this Agreement for a period of not less than five (5) years after final payment under this Agreement or until a final audit report is accepted by COUNTY, whichever occurs first. CONTRACTOR hereby agrees to be subject to the examination and audit by the Santa Cruz County Auditor-Controller, the Auditor General of the State of California, or the designee of either for a period of five (5) years after final payment under this Agreement.

11. PRESENTATION OF CLAIMS. Presentation and processing of any or all claims arising out of or related to this Agreement shall be made in accordance with the provisions contained in Chapter 1.05 of the Santa Cruz County Code, which by this reference is incorporated herein.

12. ATTACHMENTS. This Agreement includes the following attachments :

none

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

1. CONTRACTOR

4. COUNTY OF SANTA CRUZ

By: Matt Smith

By: _____

Address: 30,000 HWY 299
Blue Lake, CA 95525

Telephone: (707) 668-417 1

2. APPROVED AS TO INSURANCE:

By: Janet McKinley 2-25-99
Risk Management

3. APPROVED AS TO FORM:

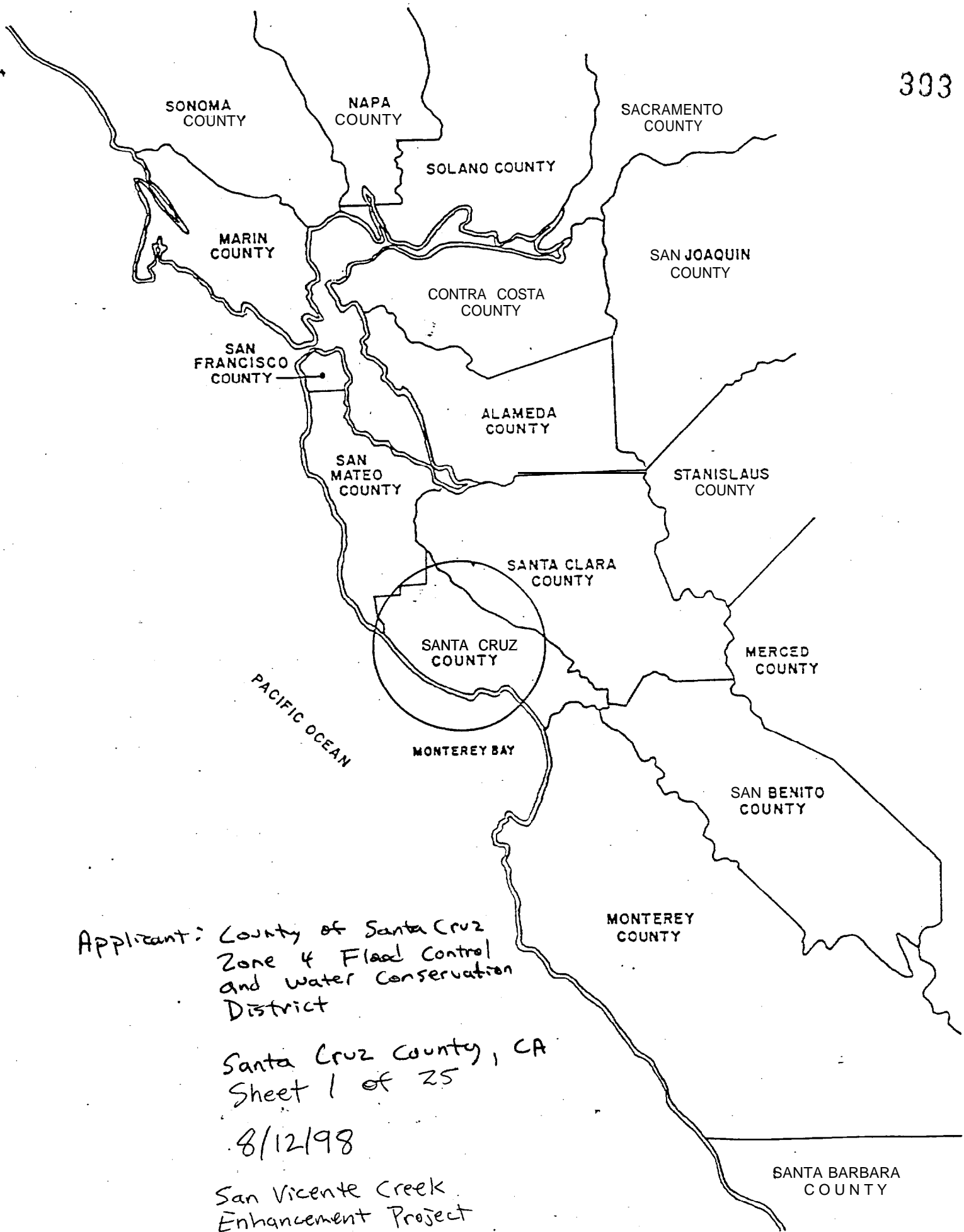
By: Dee Sa
County Counsel

DISTRIBUTION: County Administrative Office
Auditor-Controller
County Counsel
Risk Management
Contractor

FMTICA

01-12-1998

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Applicant: County of Santa Cruz
Zone 4 Flood Control
and Water Conservation
District

Santa Cruz County, CA
Sheet 1 of 25

8/12/98

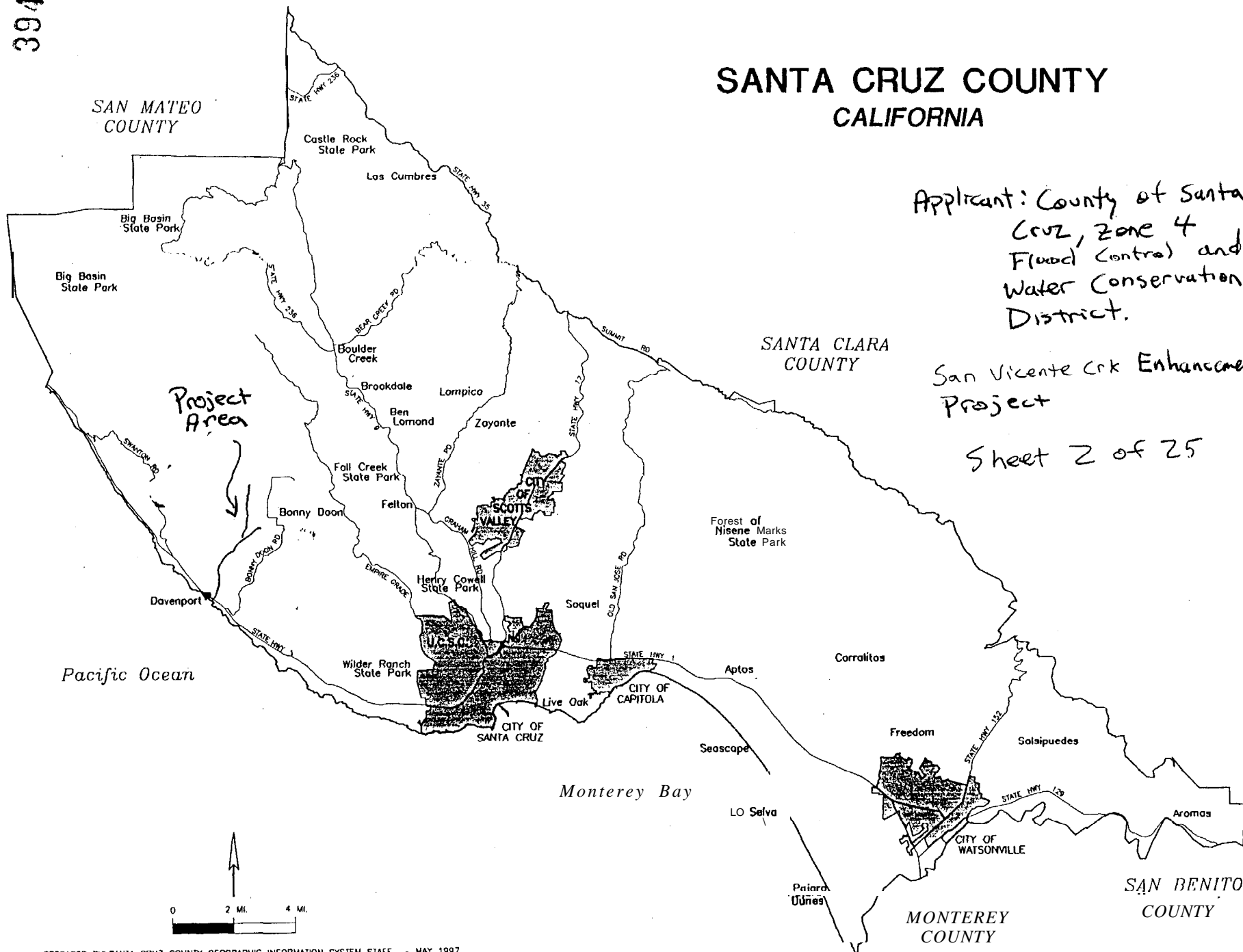
San Vicente Creek
Enhancement Project

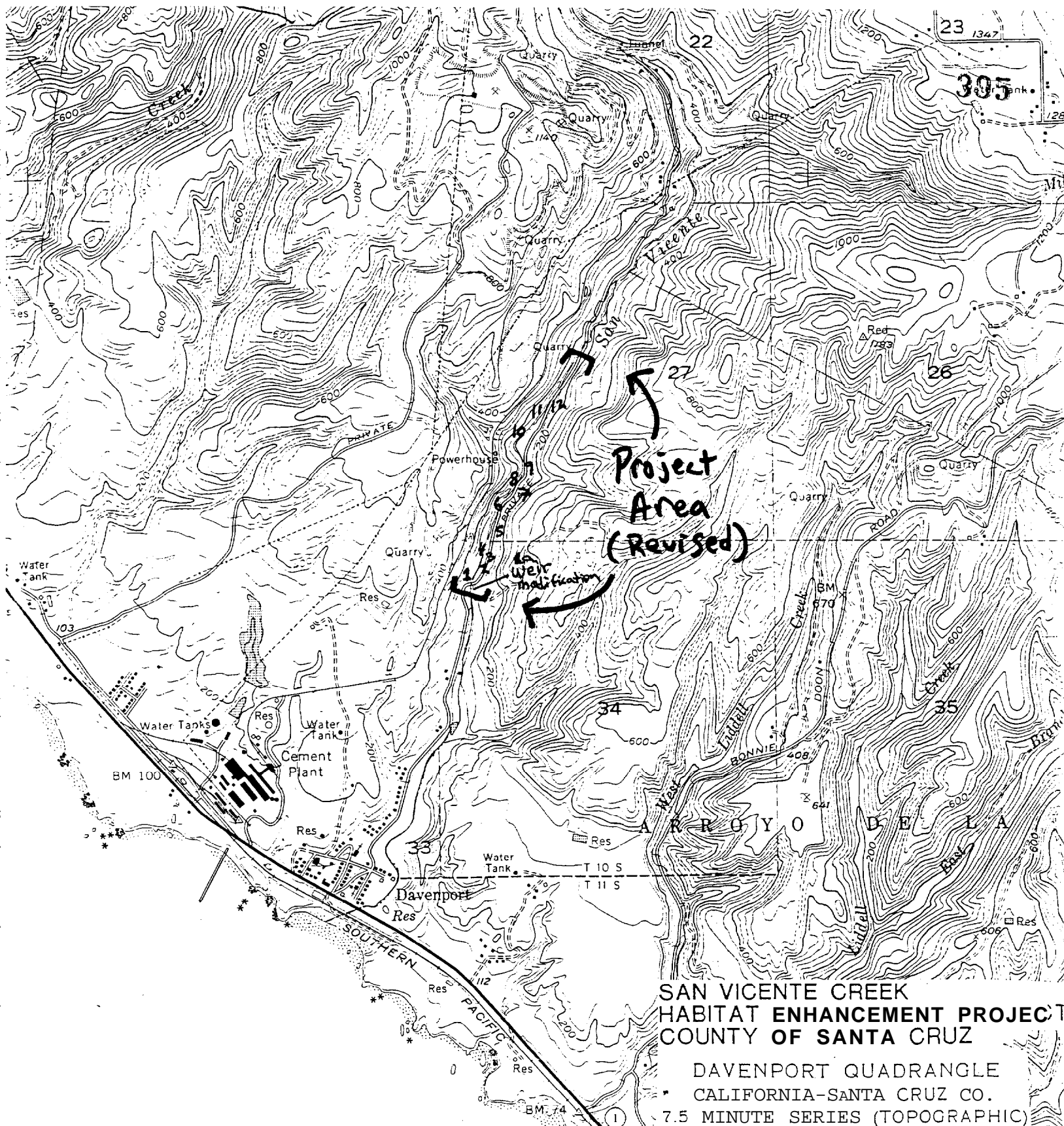
SANTA CRUZ COUNTY CALIFORNIA

Applicant: County of Santa
Cruz, Zone 4
Flood Control and
Water Conservation
District.

San Vicente Crk Enhancement
Project

Sheet 2 of 25



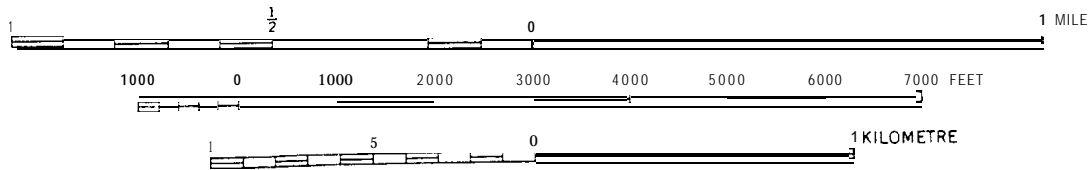


SAN VICENTE CREEK
HABITAT ENHANCEMENT PROJECT
COUNTY OF SANTA CRUZ

DAVENPORT QUADRANGLE
CALIFORNIA-SANTA CRUZ CO.
7.5 MINUTE SERIES (TOPOGRAPHIC)

12'30" 571 572 573 MAJORS 22 MI. 10' (SANTA CRUZ) 575
SANTA CRUZ (CALIF. 9) 10 MI. 1557 INW

SCALE 1:24000



CONTOUR INTERVAL 40 FEET
NATIONAL GEODETIC VERTICAL DATUM OF 1929
SHORELINE SHOWN REPRESENTS THE APPROXIMATE LINE OF MEAN HIGH WATER

Sheet 3 of 25
8/12/98



QUADRANGLE LOCATION

PROJECT
ITEM

San Vicente
Site # 1 & 1a

SHEET NO. OF SHEETS

DATE 19

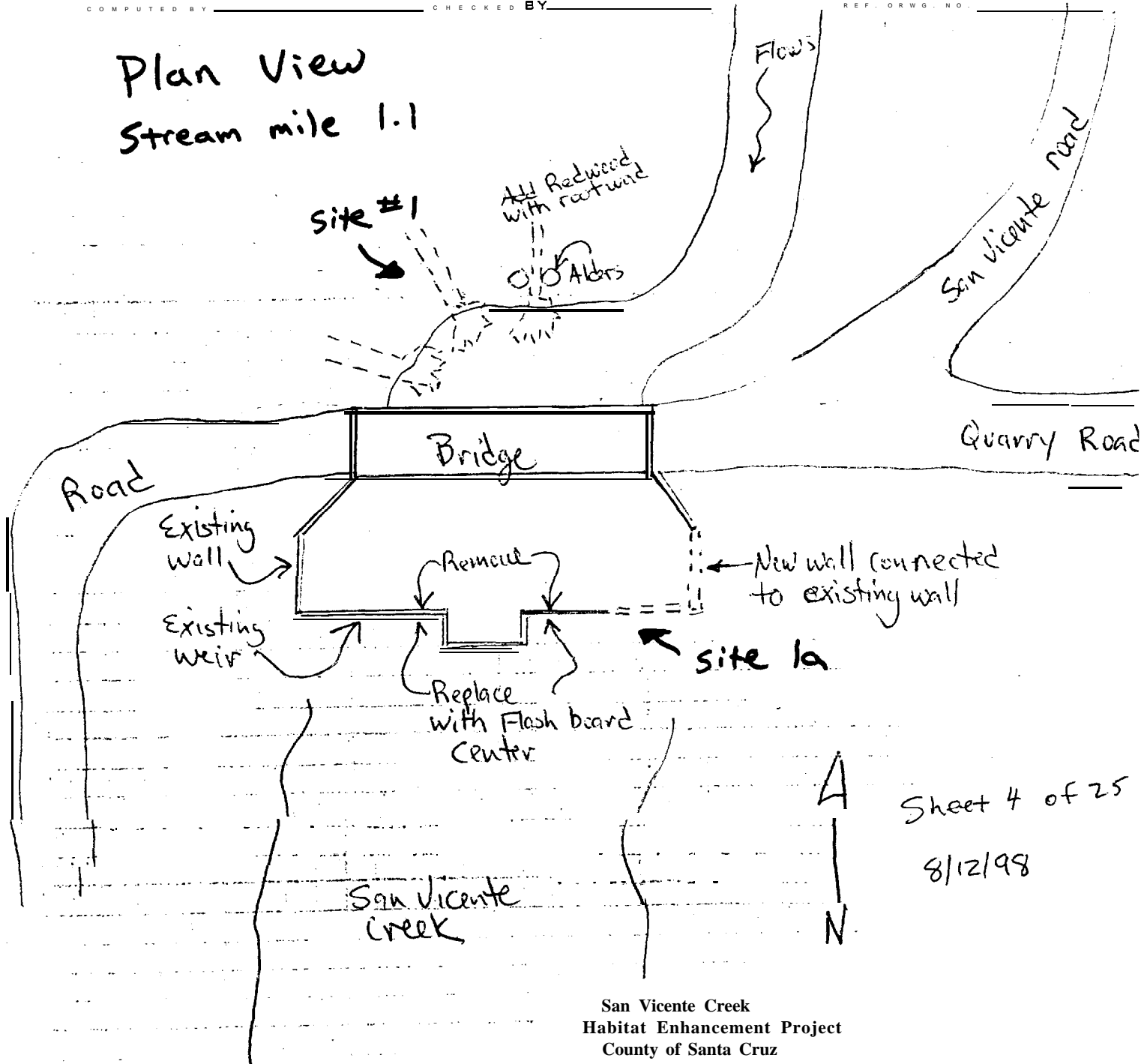
FILE 396

COMPUTED BY

CHECKED BY

REF. ORWG. NO.

Plan View
Stream mile 1.1



Sheet 4 of 25
8/12/98

San Vicente Creek
Habitat Enhancement Project
County of Santa Cruz

Fill volume below OHLW:
3 yd³ - new concrete wall
3 yd³ - redwood w/ rootball

Applicant:

County of Santa Cruz
Zone 4 Flood Control and
Water Conservation District

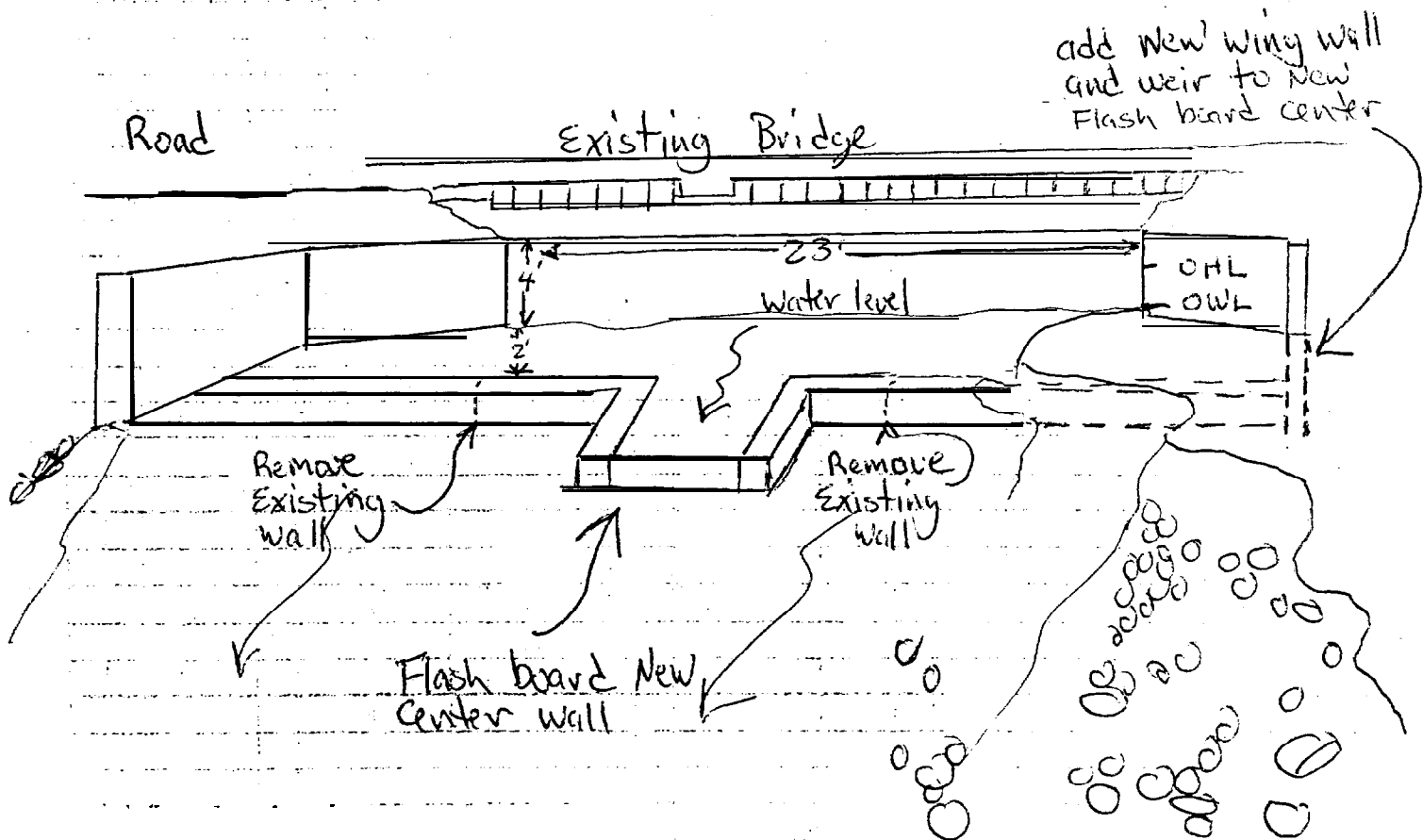
Property Owner:

RMC Lone Star Cement Corporation,
Coast Dairies and Land Company

APNs:

058-122-10; 063-071-01, -04

Cross section
Stream mile 1.1



San Vicente Creek
Habitat Enhancement Project
County of Santa Cruz

Applicant: County of Santa Cruz
Zone 4 Flood Control and
Water Conservation District

Property Owner: RMC Lone Star Cement Corporation;
Coast Dairies and Land Company

APNs: 053-122-10; 063-071-01, -04

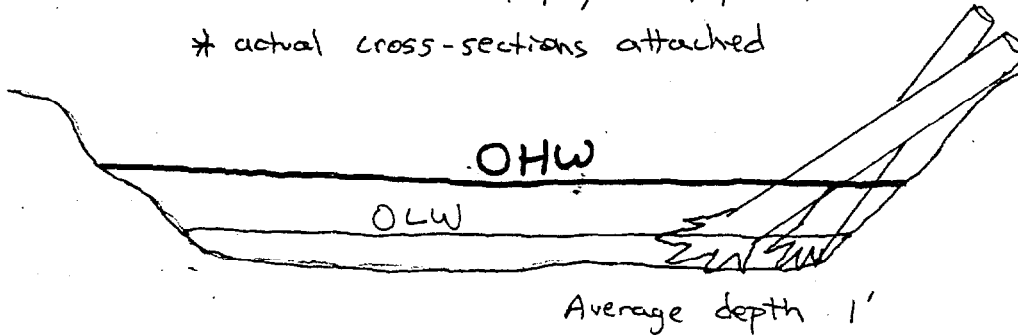
Sheet 5 of 25

8/12/98

Typical Cross-Section

(for work sites: 1, 2, 3, 4a, b, 6a, b, 8a, b, c, 9a, b, 10a, b, 11a, b)

* actual cross-sections attached



- Average Channel width
15' - 25'

- Stream mile 1.1 to 1.8 (San Vicente)

- Dimension of activity below OHW
3-5 yd³ per structure

San Vicente Creek
Habitat Enhancement Project
County of Santa Cruz

Applicant County of Santa Cruz
Zone 4 Flood Control and
Water Conservation District

Property Owner RMC Lone Star Cement Corporation;
Coast Dairies and Land Company

APNs 058-122-10; 063-071-01, -04

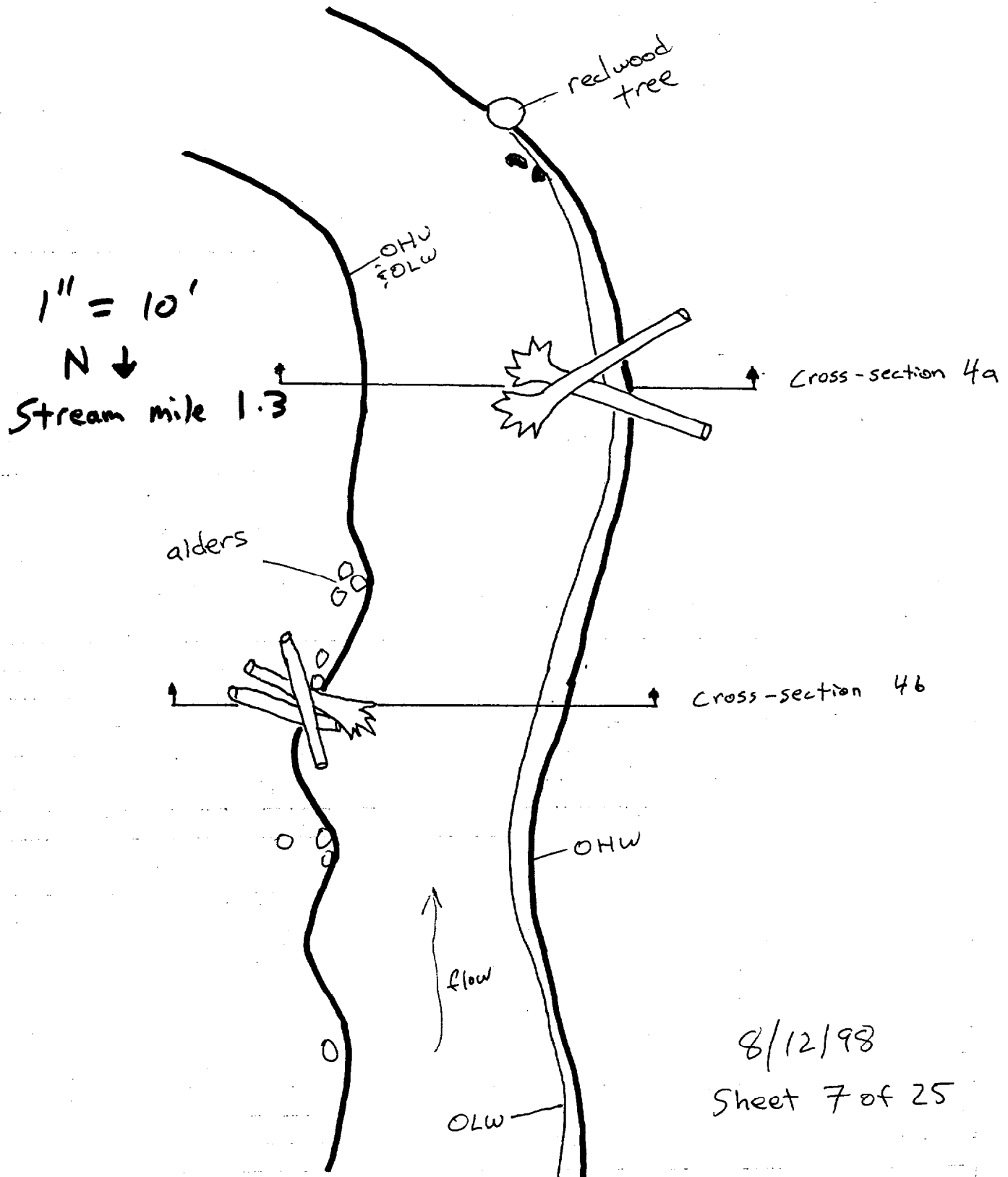
8/12/98

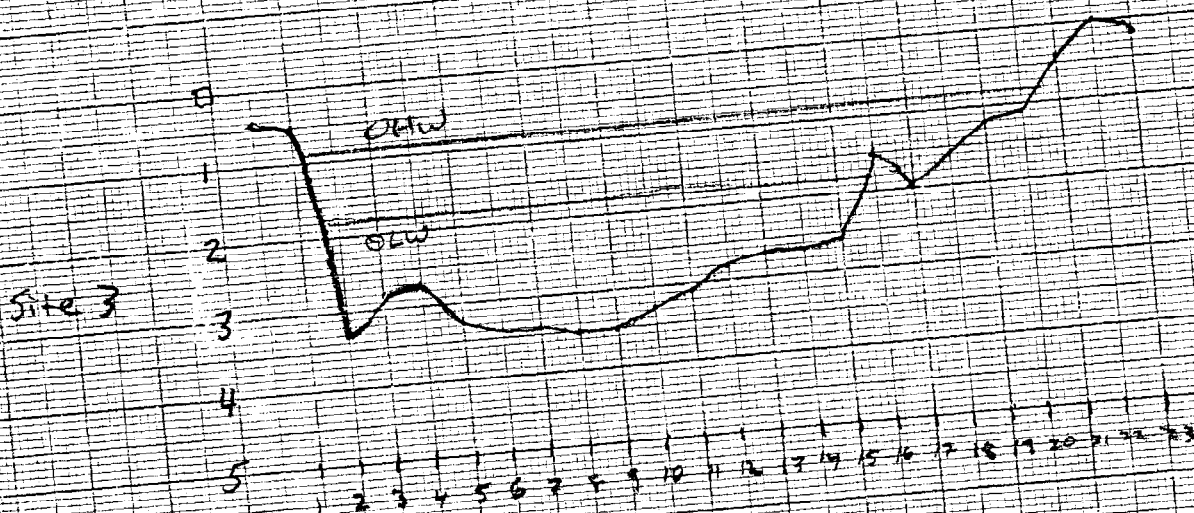
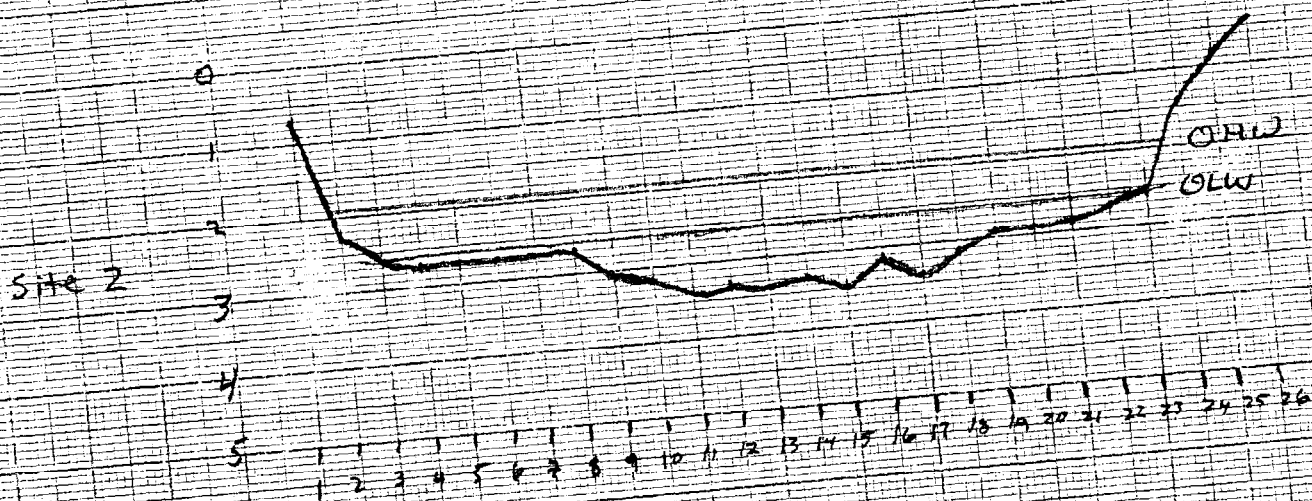
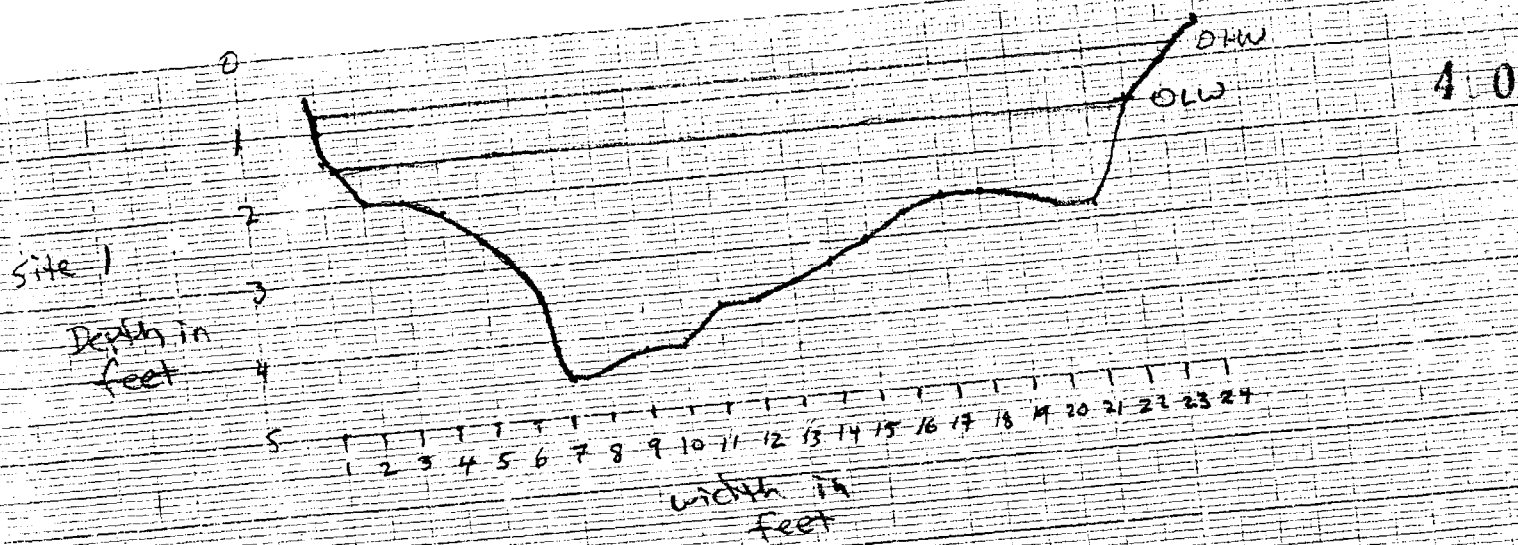
Sheet 6 of 25

COMPUTATION SHEET

PROJECT San Vicente
ITEM Site 4a, 4b
COMPUTED BY _____ CHECKED BY _____

SHEET NO. _____ OF SHEETS
DATE _____ 19____
FILE 309
REF. DRWG. NO. _____

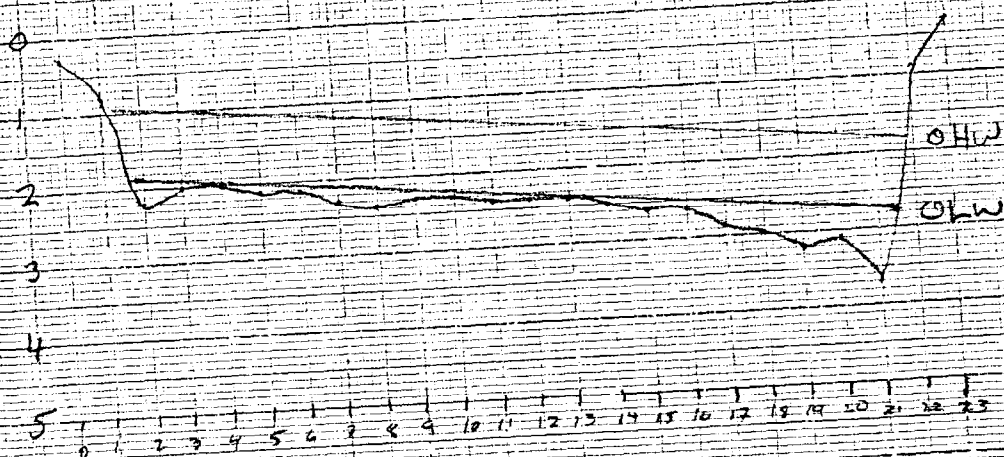




San Vicente Crk
8/12/98 MJB

Sheet 8 of 25

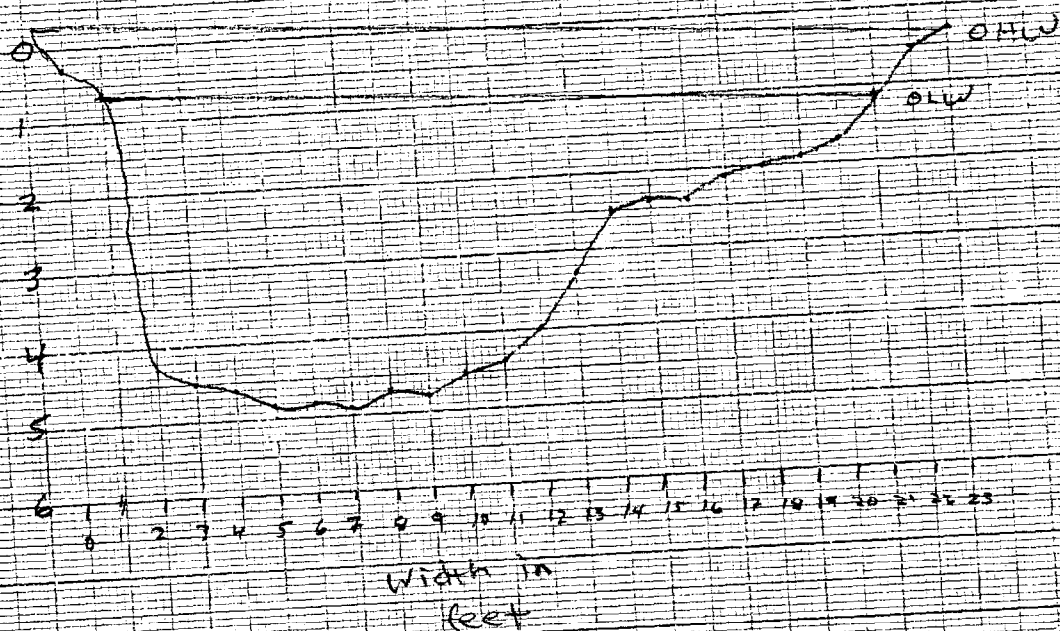
Site 4a



401

Site 4b

Depth in feet



Site 5



San Vicente Crk

8/12/98 MJB

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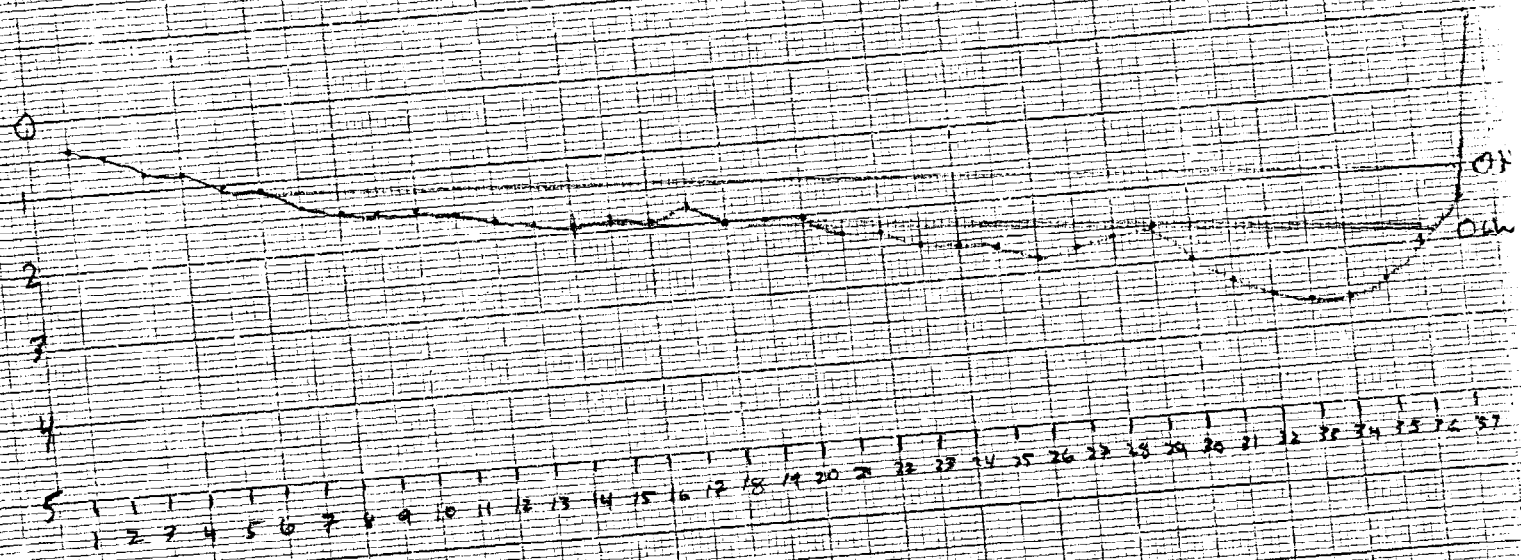
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Site 6a



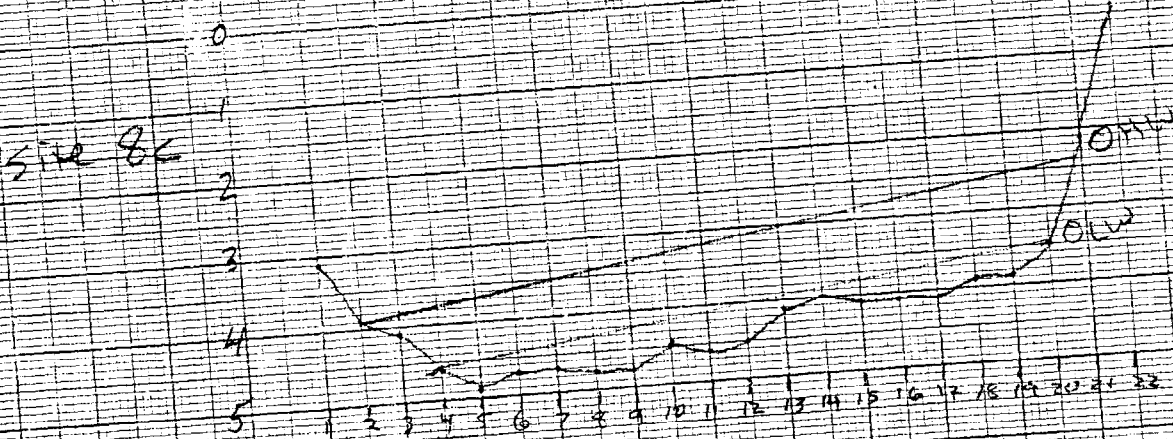
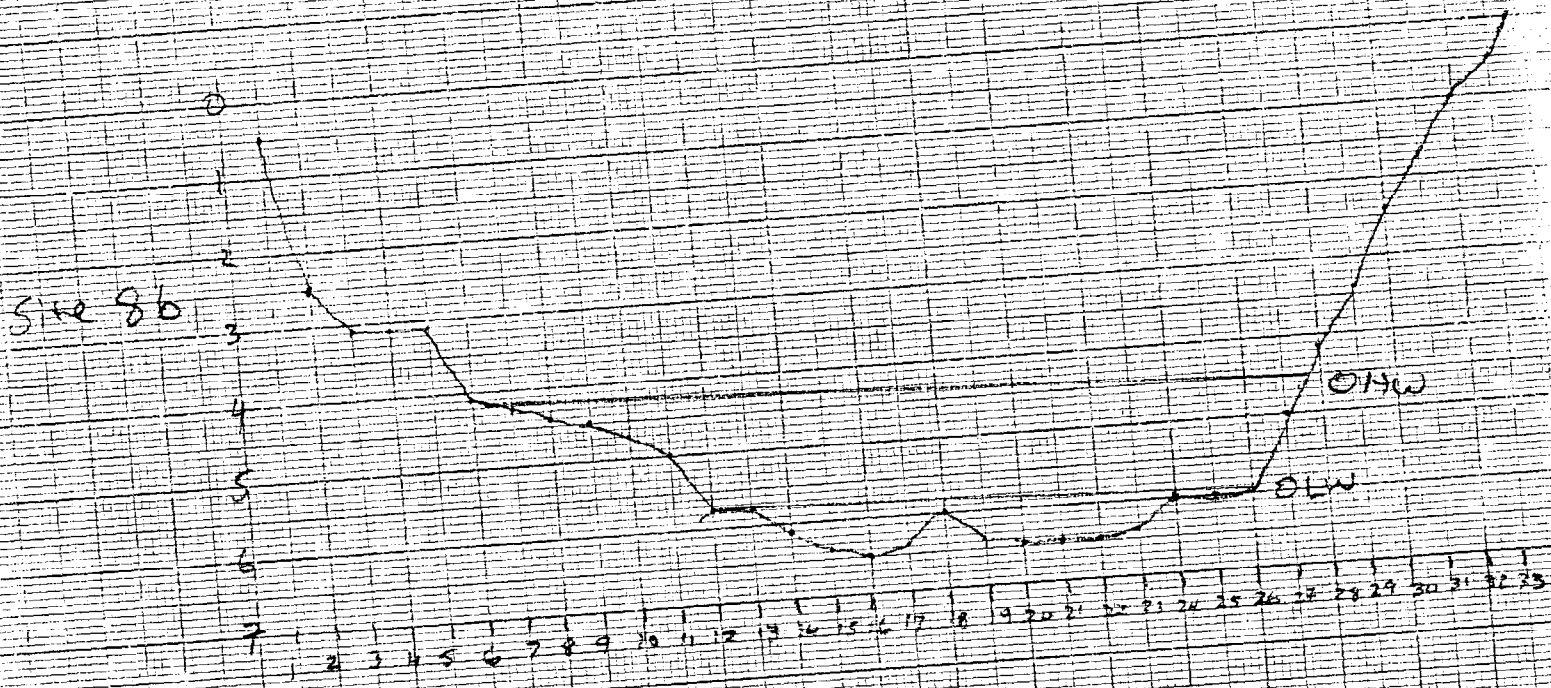
Site 6b



Site 6c



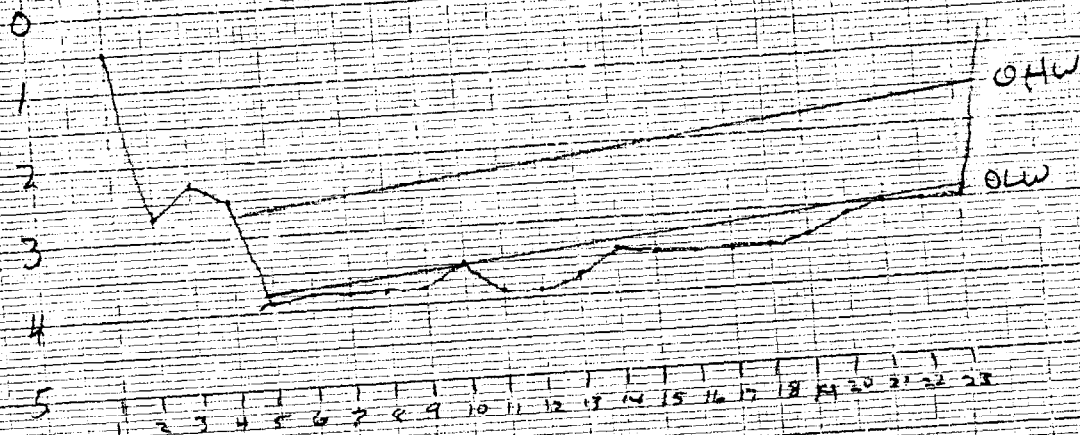
San Vicente Creek
8/12/98
MTB



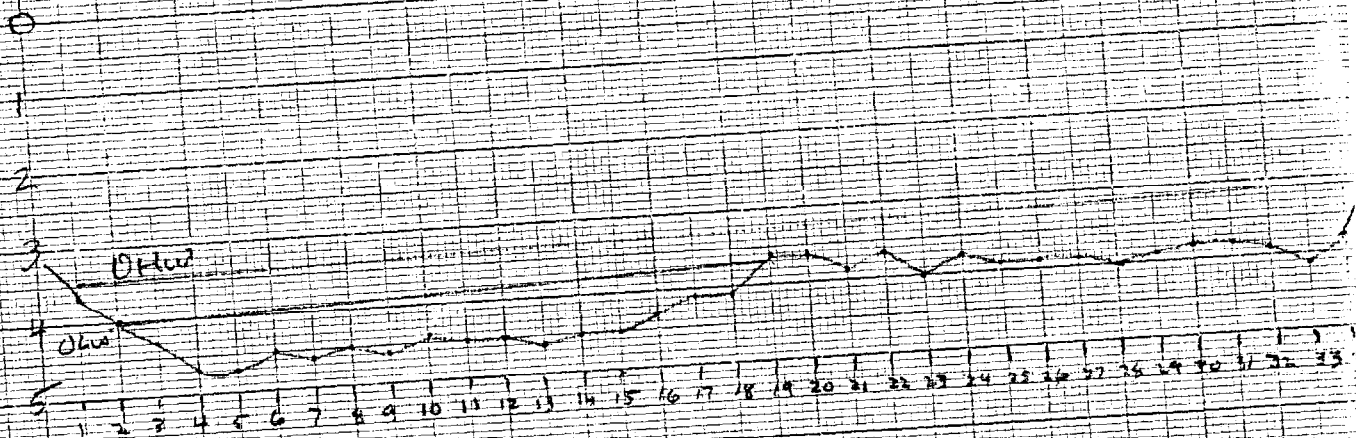
San Vicente Creek
8/12/98
MTJB 63

404

Site 9a



Site 9b



Site 10a





San Vicente Creek
 8/12/98 MTB
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Digger Logs

Digger logs are placed with one end anchored securely on the bank and the other end plunging into the bottom of a pool. Primary use of digger logs is to enhance pool habitat by creating diverse cover for rearing juveniles as well as for migrating adults. They are also used to scour the channel, creating or expanding pool habitat. Logs with root wads intact should have the root wad end extending down into the pool to offer the most complexity for increasing rearing habitat and maximizing scour (Figure VII-18). Digger logs will be most secure when two-thirds of the log is on the bank and one-third of the log extends into the channel.

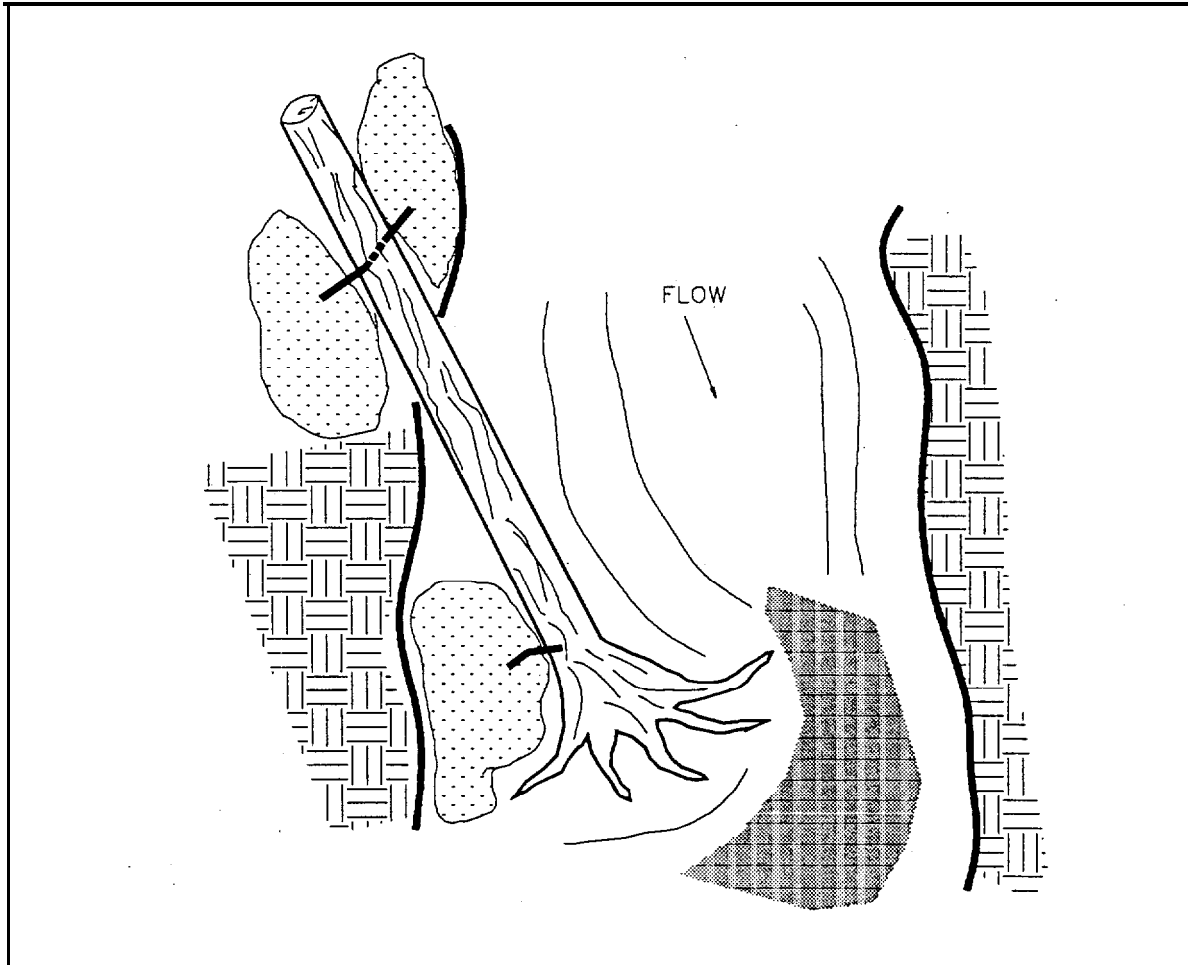


Figure VII-18. Digger log.

Digger logs are usually secured to bedrock and held in place using cable and polyester resin adhesive, or secured to live trees or downed wood with threaded rebar. The log must be anchored in at least two places, with anchors spaced as far apart on the log as possible to keep it secure during high flows. Digger logs can be set in a trench dug into the stream bank. At least one-third of the length of the log should be placed in the bank. This buried end of the log should be covered

CALIFORNIA SALMONID STREAM HABITAT RESTORATION MANUAL

with boulders to anchor the structure. If the digger log is to successfully create scour, it is important that the end of the log in the water does not float during high flows.

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Digger logs will usually be positioned to point downstream, although there may be some situations where pointing them upstream would be appropriate (where the intention of the log placement is to create scour). The vertical angle of the log should usually be 30 to 45 degrees to the bank.

Spider Logs

Spider logs, also called mini log jams, are several logs placed at angles to mimic a log or debris jam. They provide cover for juvenile rearing and adult spawning and collect woody debris to increase diversity. Their use is restricted to areas where there is no danger of causing bank failure or channel migration. Pools and backwater eddy areas on the stream channel margins are the best locations for these structures (Figure VII- 19).

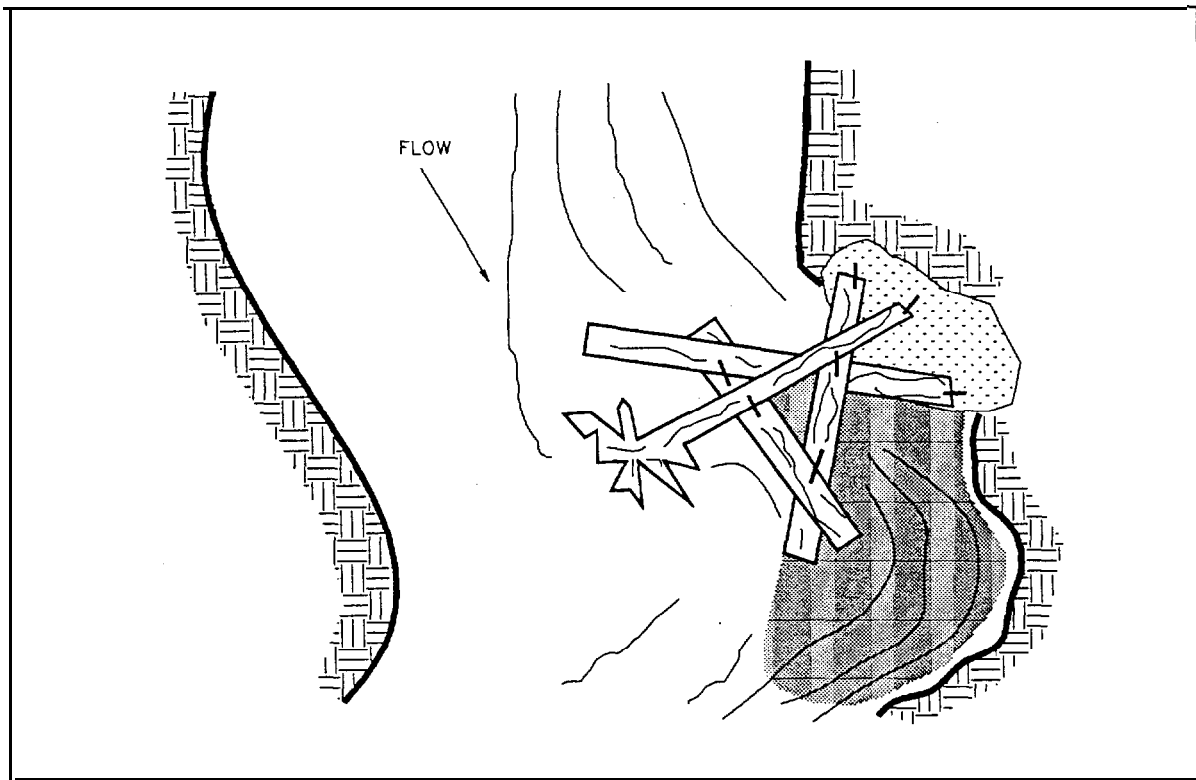


Figure VII-19. Spider logs.

The structures are composed of several logs placed across each other, in the shape of a triangle, to imitate a natural debris or log jam. Each of the logs must be secured to bedrock or large boulders in the channel with cable and polyester resin adhesive, or to live trees with threaded rebar. The logs are secured together with threaded rebar. Several other logs with branches and root wads attached are then fastened to these structure logs with cable or threaded rebar.

Caution must be used in locating -these structures as the potential for an adverse effect is great. Before placing spider logs it is necessary to determine channel capacity and bankfull discharge that can be expected. Log structures should not reduce channel capacity below flood stage needs or a massive log jam and sediment trap could develop.

Log, Root Wad, and Boulder Combinations

Log, root wad, and boulder combinations combine the two main forms of structure added to a stream to enhance habitat. The longevity of boulders combined with the cover provided by logs can create habitat that is superior to that offered by either element individually.

Log, root wad, and boulder combinations are used to create cover for juvenile rearing. These structures also act as resting areas and escape cover for spawning salmonids. By creating velocity shear zones they create areas of deposition as well as scour, thereby enhancing spawning through gravel sorting (Figure VII-20).

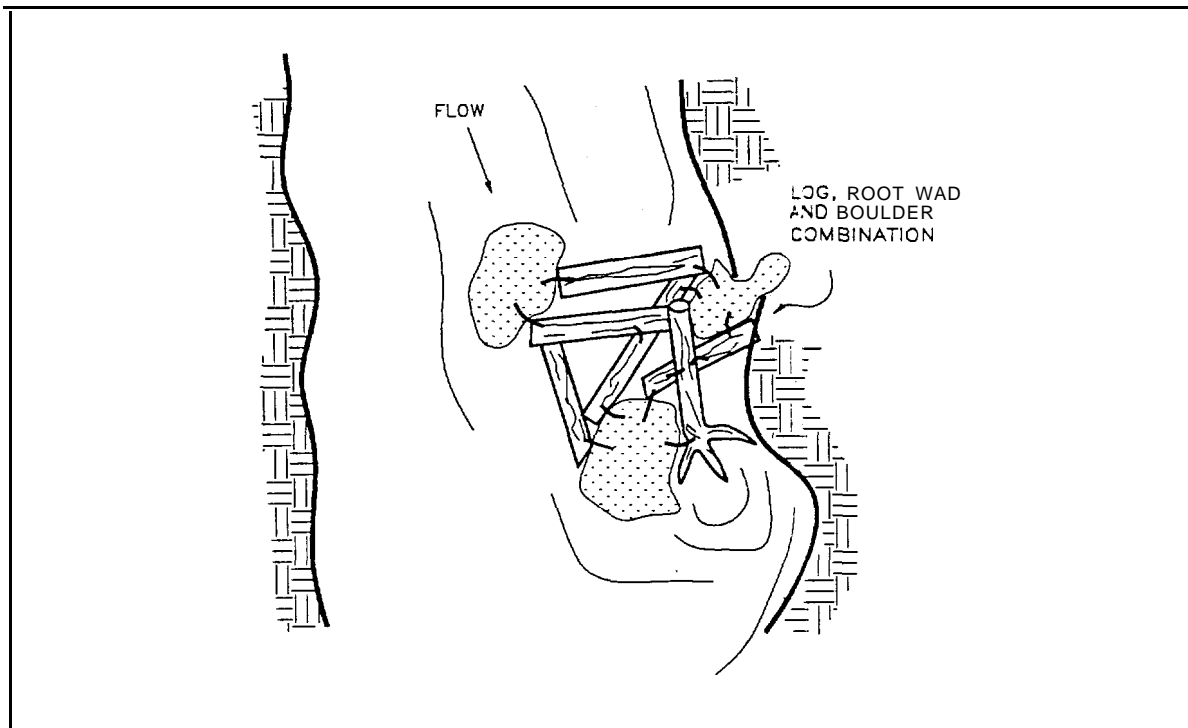


Figure VII-20. Log, root wad, and boulder combination.

CALIFORNIA SALMONID STREAM HABITAT RESTORATION MANUAL

Methods used to install log, root wads, boulder combination structures are the same as those used for installing log or boulder structures. The boulders used must be of sufficient size to counteract the buoyancy of the logs. Because of the potential for deflecting high flows into adjacent stream banks, it is important to make sure that banks are resistant to erosion or to take steps to increase their resistance by armoring them with boulders and/or logs. 4 CD

Boulder Structures

Boulder structures are placed in the active channel and along stream banks for creating a desired habitat type. They are used to break up or diversify stream flow in a particular stream reach, to provide instream cover for juvenile salmonids and spawning adults, or to recruit spawning gravel. It is desirable to create a variety of stream flow velocities, because juvenile salmonids will select different velocities depending on whether they are feeding or resting. Different water velocities will also sort gravel and create diversity in the substrate.

Boulders are well suited for diversifying flows because they are resistant to being displaced by high flows. Because of this they can be placed mid-channel without constructing a full-channel spanning structure. The interstices in boulder clusters and between large boulders can provide escape cover for juvenile and adult salmonids. Boulders must be sized according to stream discharge and channel morphology. Whenever possible, it is best to individually select boulders for use in a project.

There are several disadvantages to using boulders. One is that boulders often must be hauled to the construction site from a quarry. If there is not a quarry nearby, the cost of buying and trucking boulders can be very high. A second problem with using boulders is that if they are placed in mobile substrate, perimeter scour may cause the boulder to bury itself. For this reason, it is necessary to use large boulders, or to secure boulders using polyester resin adhesive and cable to form a larger structure.

Design of boulder structures depends upon the primary function to be served. The range of flows to which a particular structure or series of structures may be subjected will dictate size of boulders to be used, and proper anchoring techniques to be employed.

Boulders can be used in a variety of situations and configurations to perform a desired function or fulfill a particular habitat need. Possible configurations of boulders include weirs, clusters, and single and opposing wing-deflectors.

Boulder Weirs

Boulder weirs are primarily used to collect and retain gravel for spawning habitat, or to create one or more jump pools to facilitate fish passage on marginally accessible or impassable stream reaches. Such fish barriers may be natural or human-induced.

COMPUTATION SHEET

PROJECT

San Vicente

ITEM

Site # 5

SHEET NO. ___ OF ___ SHEETS

DATE ___ 19__

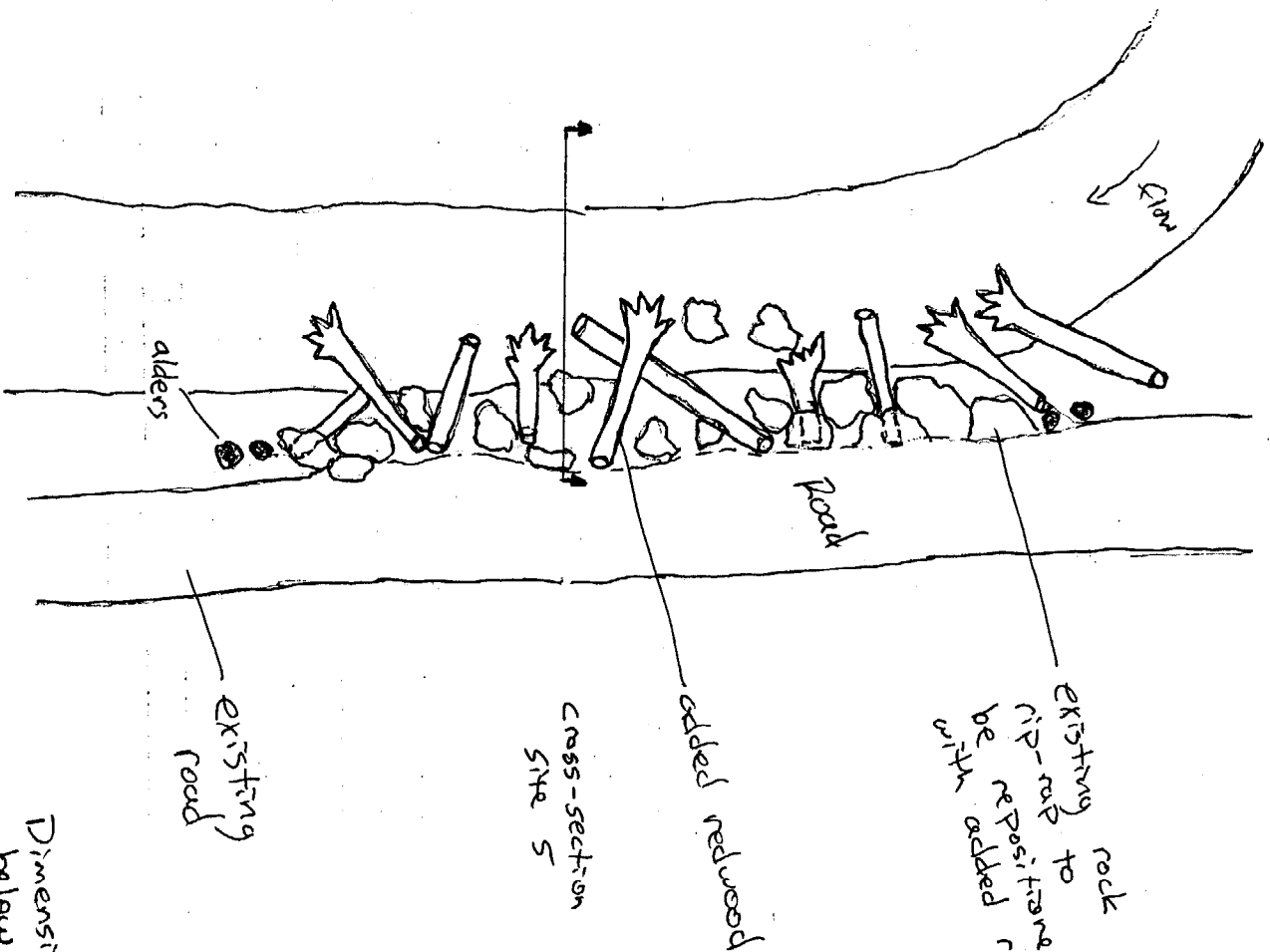
FILE 410

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REF. DRWG. NO. ___

Site # 5
1" = 20'
N ↑



Dimension of activity
below OHW 20yd³

Sheet 18 of 25

8/12/98

PROJECT

San Vicente

ITEM

Site # 7

SHEET NO. — OF — SHEETS

DATE

19

FILE

411

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REF. DRWG. NO.

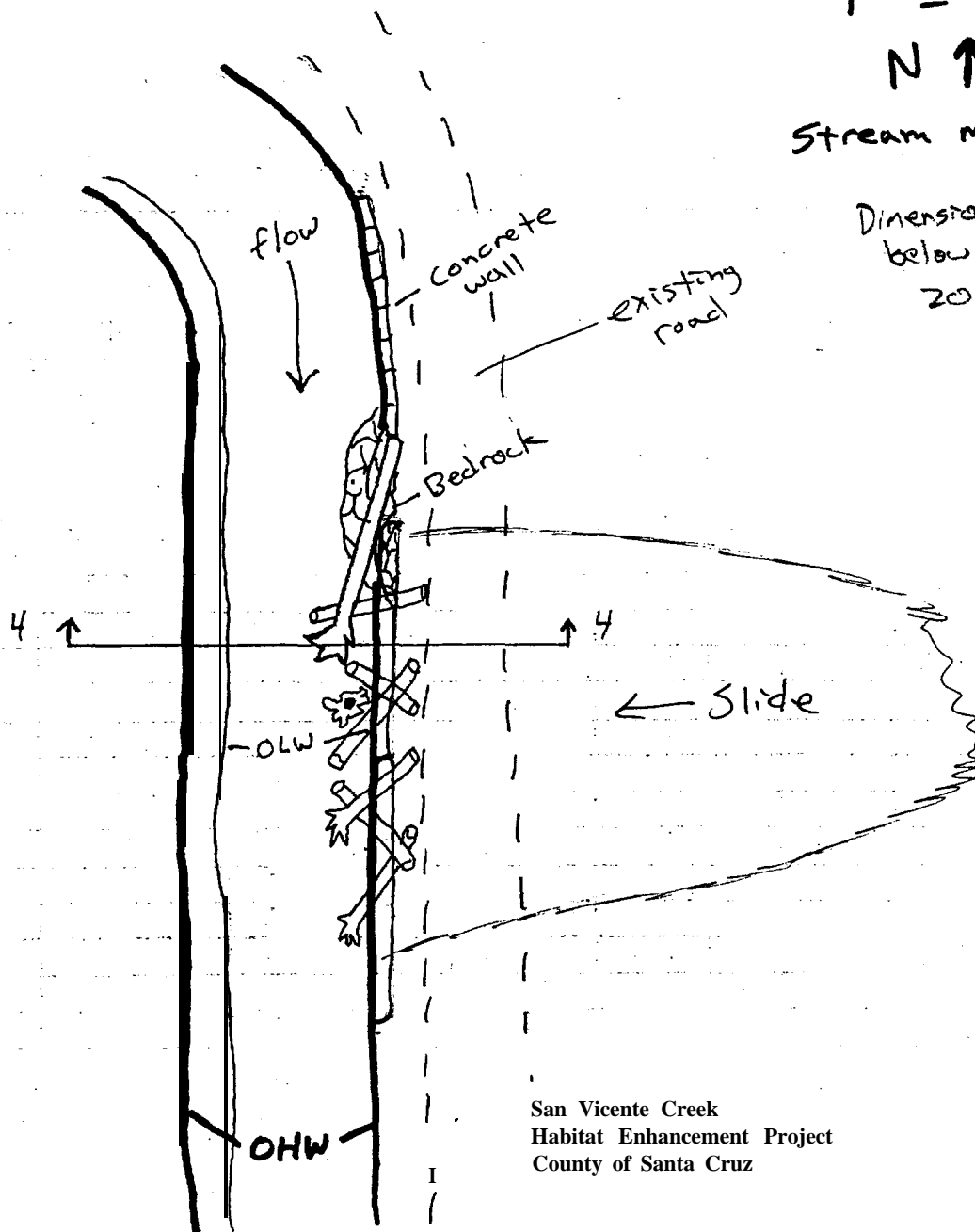
Site # 7

1" = 20'

N ↑

Stream mile 1.6

Dimension of activity
below OHW =
20 yd³



San Vicente Creek
Habitat Enhancement Project
County of Santa Cruz

Applicant:

County of Santa Cruz
Zone 4 Flood Control and
Water Conservation District

Property Owner:

RMC Lone Star Cement Corporation;
Coast Dairies and Land Company

APNs: _____

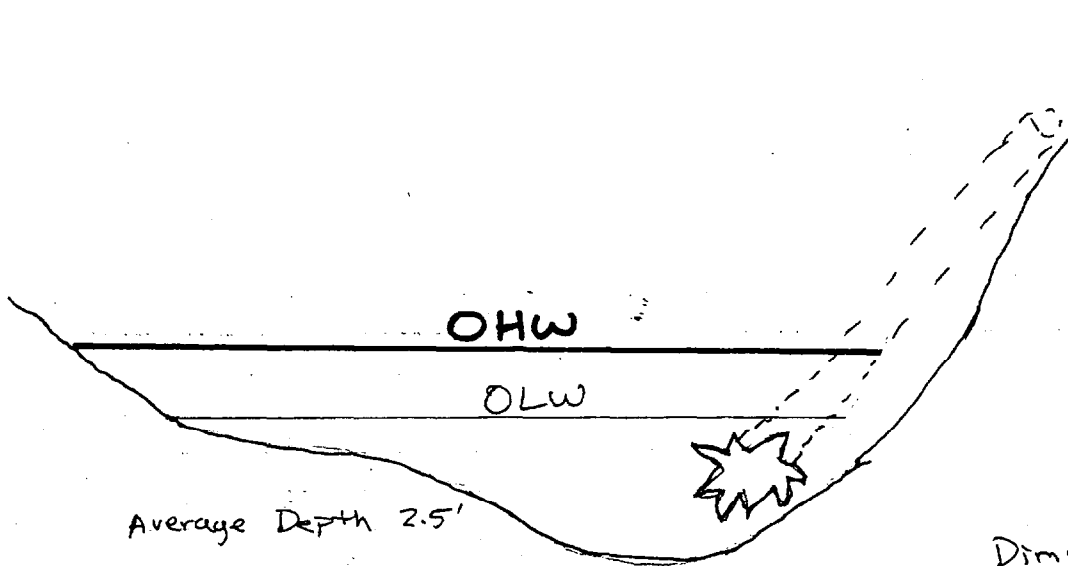
058-122-10; 063-071-01, -04

Sheet 19 of 25

8/12/98

COMPUTATION SHEET
PROJECT San Vicente
ITEM Site # 7
COMPUTED BY _____ CHECKED BY _____

SHEET NO. _____ OF _____ SHEETS
DATE _____, 19____
FILE _____
REF. DRWG. NO. 412



Site # 7
Section 7
1" = 4'
Stream mile 1.6

Dimension of Activity
below OHW: 20 yd³

San Vicente Creek
Habitat Enhancement Project
County of Santa Cruz

Applicant: County of Santa Cruz
Zone 4 Flood Control and
Water Conservation District

Property Owner: RMC Lone Star Cement Corporation;
Coast Dairies and Land Company

APNs: 058-122-10; 063-071-01, -03

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Sheet 20 of 25

PROJECT

San Vicente
Site # 9

ITEM

SHEET NO. — OF — SHEETS

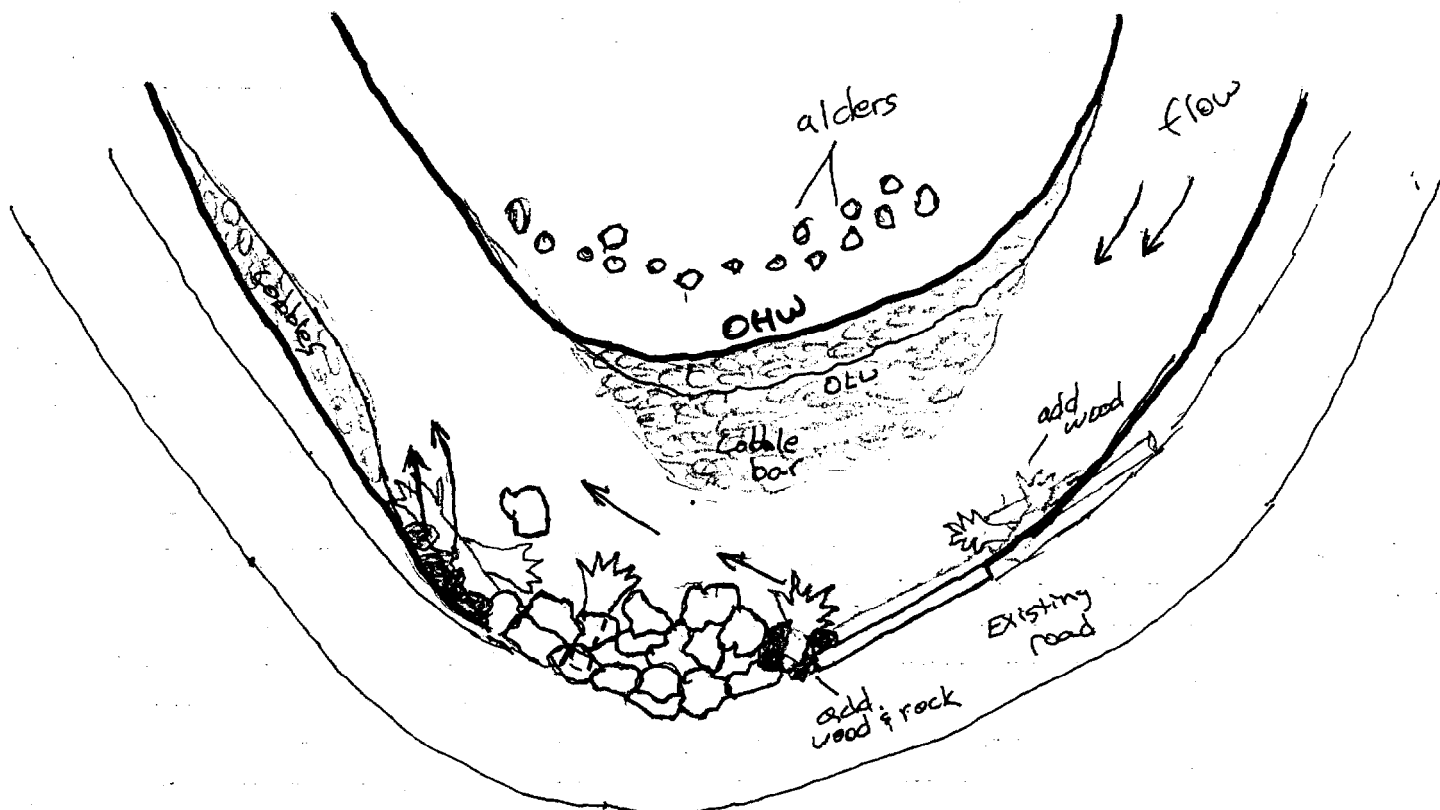
DATE 19

FILE 413

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REF. DRWG. NO.



Site #9

1" = 20'

N →

8/12/98

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COMPUTATION SHEET

PROJECT San Vicente
 ITEM Site # 12
 COMPUTED BY _____ CHECKED BY _____

SHEET NO. _____ OF _____ SHEETS

DATE _____ 19 ____

FILE _____

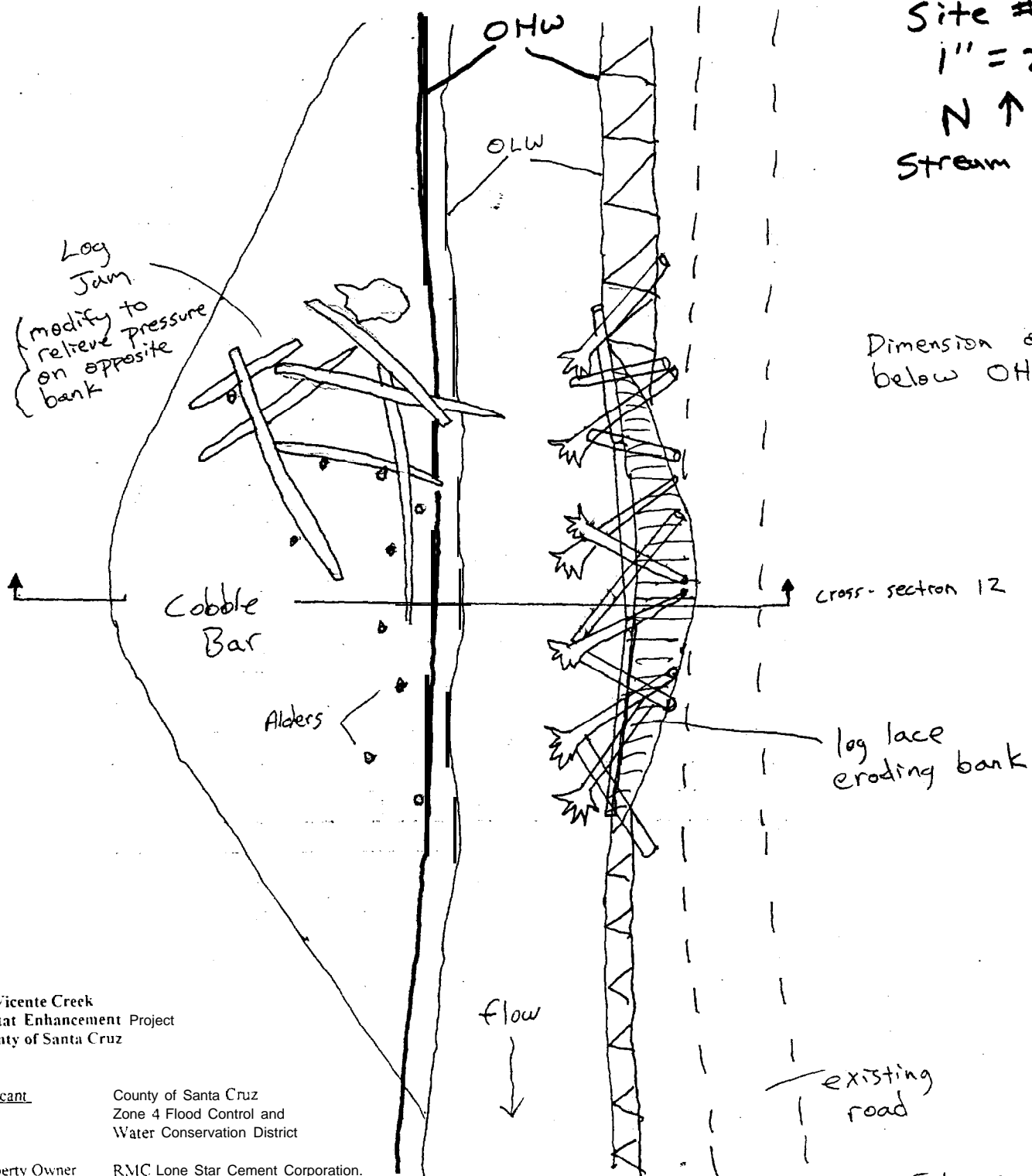
REF. DRWG. NO. 4 14

Site # 12

1" = 20'

N ↑

Stream mile 1.9

Dimension of activity
below OHW: 20 yd³

San Vicente Creek
 Habitat Enhancement Project
 County of Santa Cruz

Applicant

County of Santa Cruz
 Zone 4 Flood Control and
 Water Conservation District

Property Owner

R.M.C. Lone Star Cement Corporation.
 Coast Dairies and Land Compaq

APNs:

1X8-122-10. 063-071-01. -04

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PROJECT

San Vicente

ITEM

Site # 12

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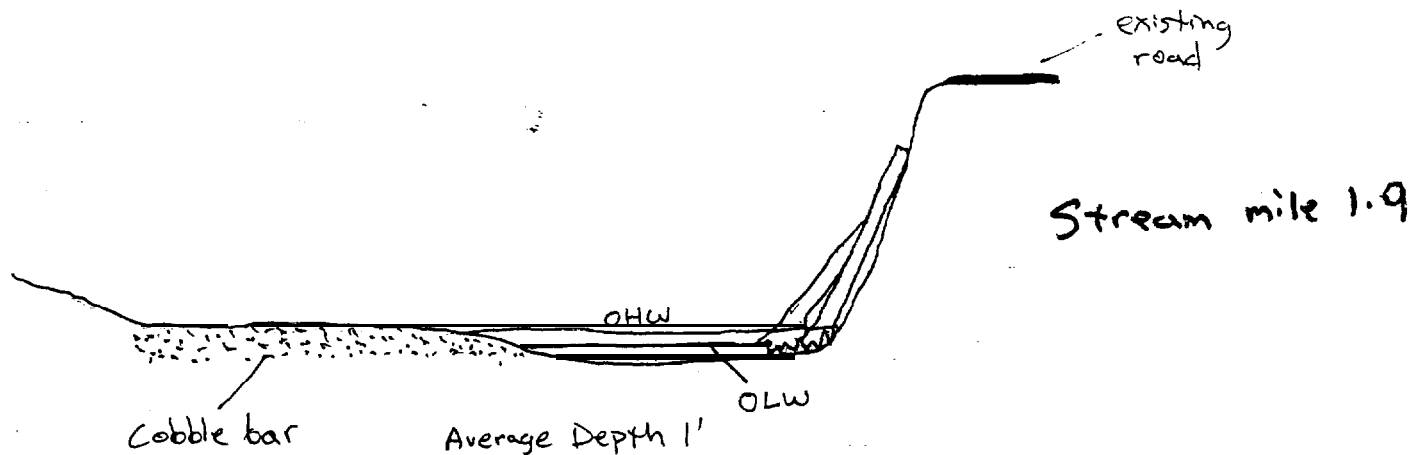
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DATE 19

FILE 415

REF. CRWG. NO.

Site #12
 Section 12
 1" = 20'



San Vicente Creek
 Habitat Enhancement Project
 County of Santa Cruz

Applicant

County of Santa Cruz
 Zone 4 Flood Control and
 Water Conservation District

Property Owner:

RMC Lone Star Cement Corporation.
 Coast Dairies and Land Company

APNs:

058-122-10, 063-071-01, -04

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Native material revetments are alternatives to boulder riprap armoring and crib wall type structures. By combining boulders, logs, and live plant material to armor a stream bank fish habitat is enhanced, in addition to creating a natural looking bank stabilization structure. Native material revetments can provide toe protection for slides or eroding banks and can also be used to re-establish natural stream channel dimensions (Figure VII-55).

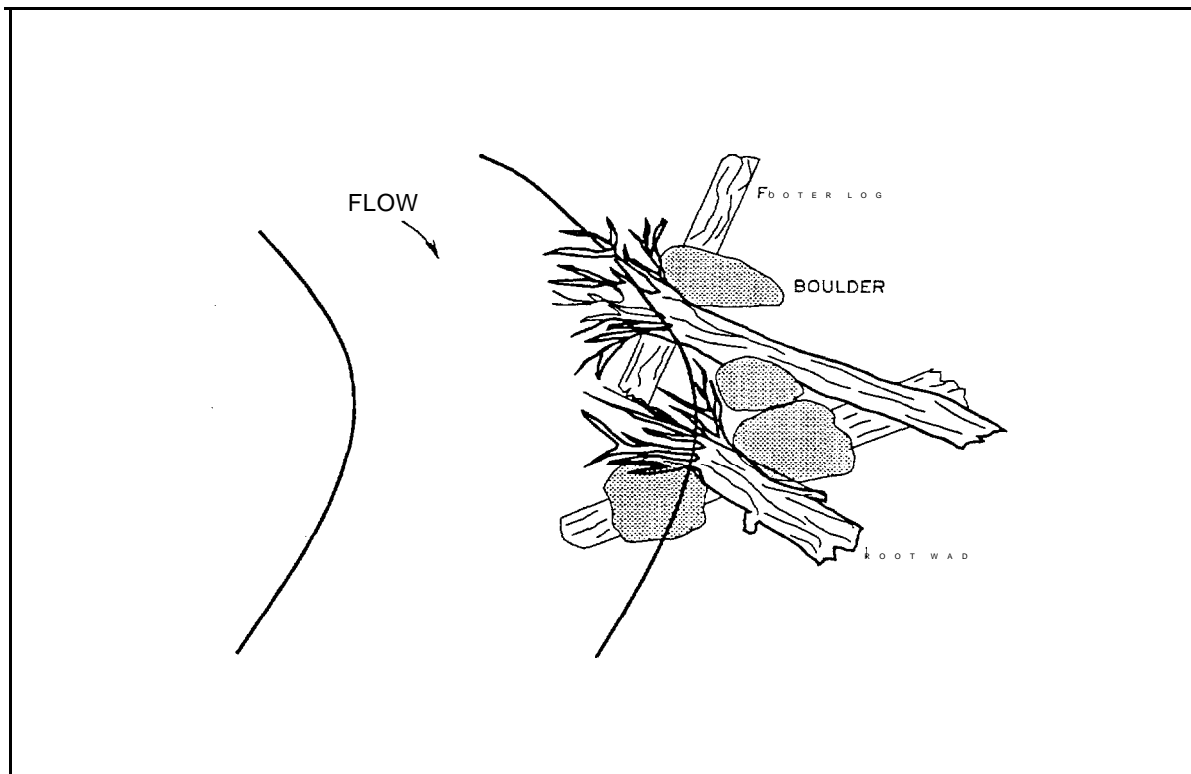


Figure VII-55. Plan view of native material revetment (Rosgen, 1993)

A backhoe or excavator are essential in construction of the revetment. The material sizes needed will vary depending on the stream size and hydrological factors. Logs, preferably redwood with root wads attached, boulders and live plant materials are placed in sequence to ensure stability and proper function of the structure.

Logs without root wads (footer logs) are set in a toe trench below the thalweg line, with the channel end pointed downstream and the butt end angled 45 to 60 degrees upstream. A second log with a root wad is set on top of the footer log diagonally, forming an "X." The root wad end is set pointing upstream and the butt end lying downstream 45 to 60 degrees. The apex of the logs are anchored with threaded rebar. Large boulders are secured in the spaces between the logs, at each apex. After all the logs and boulders have been set in place, any live plant material disturbed from the site along with recruited willows are placed within the spaces of the structure, behind the

CALIFORNIA SALMONID STREAM HABITAT RESTORATION MANUAL

boulders. Once this has been done the excavated gravel and streambed materials can be placed over the bank-end portion of the revetment (Figure VII-56).

417

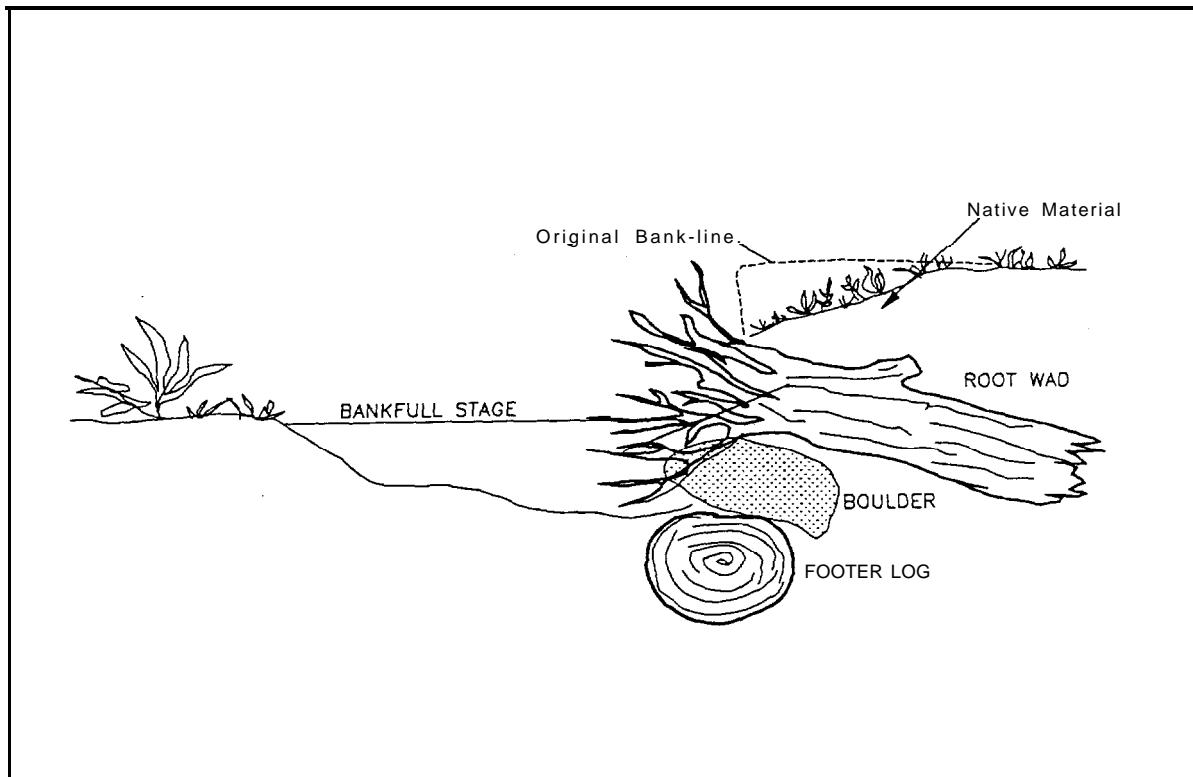


Figure VII-56. Native material revetment (Rosgen, 1993).

Mulching

Mulching for erosion control is covering soil with straw or similar material to discourage erosion and encourage revegetation. It is principally used to protect bare soil from rain and sheet erosion. In areas of heavy rainfall, erosion caused by raindrop impact can be significant. Mulching will also shade soil from the sun and prevent soil from drying. This assists in re-establishing vegetation by creating a stable seed bed and keeping soil moisture levels from becoming too low to sustain new vegetation.

Mulching can be accomplished by adding straw or forest leaf litter to bare soil. Other mulches can be used, but unwanted or exotic plant species may be introduced with them. Such plants can depress native vegetation and become established as a nuisance species. Leaf litter from the forest may be available for the cost of labor to collect it and will usually not contain seeds of undesirable species. Leaf mulches may have to be secured with jute netting. If it is necessary to buy and transport mulch, straw is the most economical and convenient but may contain seeds of undesirable