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County of Santa Cruz

PARKS, OPEN SPACE &CULTURAL SERVICES

979 17 th AVENUE, SANTA CRUZ, CA 95062

(831) 454-7900 FAX: (831) 454-7940 TDD: (831) 454-7978

BARRY C. SAMUEL, DIRECTOR

August 30, 1999

AGENDA: September 2 1, 1999

BOARD OF SUPERVISORS
County of Santa Cruz
701 Ocean Street
Santa Cruz, CA 95060

SUBJECT: OFF-ROAD VEHICLE FUND - BUZZARD LAGOON

Dear Members of the Board:

On June 24, 1999, your Board approved the State Parks grant request of $5,000 from the Off-Road Vehicle Fund (134936/3740) for the Buzzard Lagoon Project. The Parks Department has negotiated an agreement with State Parks for the completion of the restoration work.

The initial phases of the Buzzard Lagoon restoration involved installing cement filled pipe stobbers at key access points, followed by the planting of native grasses and shrubs to accelerate the restoration process. The original pipe stobbers are not deep enough to withstand off-road vehicle winches. This agreement will allow for the installation of fifty (50) 6" diameter 7' long stobbers which will be 2' deeper than the previous installation. The core of the stobbers will be filled with 250 lbs of concrete. This work should be completed by June, 2000.

It is therefore RECOMMENDED that your Board approve the attached agreement in the amount of $5,000 with State Parks for restoration work at Buzzard Lagoon; authorize the Director of County Parks to sign the agreement on behalf of the County; and take related actions.

Sincerely,

Barry C. Samuel
Director

RECOMMENDED:

SUSAN A. MAURIELLO
County Administrative Officer

cc: Auditor-Controller
County Counsel
CAO
State Parks
County Parks

Enclosure: Contract Agreement

COUNTY OF SANTA CRUZ

REQUESTFORAPPROVALOFAGREEMENT

579

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

FROM: Parks, Open Space & Cultural Services (Dept.)

(Signature) _____ (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 - Parks Department (Agency)

and California Department of Parks and Recreation (Name & Address)

2. The agreement will provide for the purchase and installation of approximately 50 (fifty) 7' long stobbers to prevent Off-Road Vehicle use at Buzzard Lagoon.

3. The agreement is needed because the County cannot provide the services.

4. Period of the agreement is from September 21, 1999 to June 30, 2000

5. Anticipated cost is $ 5,000.00 (~~Fixed amount, Monthly rate,~~ Not to exceed)

6. Remarks:

7. Appropriations are budgeted in 134936 (Index#) 3740 (Subobject)

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

Appropriations ~~are~~ / are not available and ~~have been~~ / will be encumbered. Contract No. 0091931 Date 8/31/99

GARY A. KNUTSON, Auditor - Controller

By Ronald J. Silva Deputy.

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

Remarks:

(Analyst)

County Administrative Officer

By _____ Date 9/2/99

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.

ADM - 29 (6/95)

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 ____

County Administrative Officer

By _____ Deputy Clerk

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Contract No._____ 580

INDEPENDENT CONTRACTOR AGREEMENT

THIS CONTRACT is entered into this _____ day of _____ 1999, by and between the COUNTY OF SANTA CRUZ, hereinafter called COUNTY, and the CALIFORNIA DEPARTMENT OF PARKS AND RECREATION, hereinafter called CONTRACTOR.

Recital

WHEREAS, the State Vehicle Code Section 38240.1, Damage From Off-Highway Vehicles Use of Fees permits the utilization of funds collected under Section 38240 for reconstructing and repairing damage caused by the use of off-highway vehicles on property where the operation of those vehicles is prohibited by Federal, State or Local laws;

WHEREAS, the Buzzard Lagoon Road is such a site that has been damaged by off-highway vehicles (APN Nisene Marks State Park);

WHEREAS, the Forest of Nisene Marks State Park is owned by California State Parks, and where such off-highway vehicle is prohibited;

WHEREAS, the California State Parks has embarked on such project to restore the Buzzard Lagoon area of The Forest of Nisene Marks State Park

WHEREAS, State subvention license fees collected by the California Department of Motor Vehicles and remitted to COUNTY for off-highway vehicles registered within the boundaries of Santa Cruz County may be used to fund reconstruction and repair projects associated with damage caused by off-highway motor vehicles;

NOW, THEREFORE, it is agreed as follows:

1. DUTIES. CONTRACTOR agrees to exercise special skill to accomplish the installation of Approximately 50 stobber posts, 7 feet long.

as indicated on Exhibit___ to the AGREEMENT. Such action by the CONTRACTOR will restrict off-highway vehicle access to the Buzzard Lagoon area from Buzzard Lagoon Road thus preventing further degradation of the area by off-highway vehicles.

2. COMPENSATION. In consideration for CONTRACTOR accomplishing said result, COUNTY agrees to pay CONTRACTOR an amount not-to-exceed $ 5,000 Upon receipt of claims for posts, concrete, and installation costs; to the Santa Cruz County Department of Parks, Open Space, and

Cultural Services, 979 17th Avenue, Santa Cruz, California 95062, the CONTRACTOR shall be" reimbursed for **costs** not-to-exceed $ 5,000 associated with the installation of stobber posts as stated herein. The COUNTY shall make three reimbursement payments; (a) Completion of the design and CEQA review, (b) At 50% completion of the construction restoration work, and **(c)** At 100% completion of the construction restoration work after the final site review by the County Parks, Open Space and Cultural Services Department.

3. TERM. The term of this contract shall be from when contract approved, and shall terminate with final payment associated with said work or on June 30, 2000 October, 1999, which ever occurs first. This contract may be extended upon mutual agreement by both parties.

4. -EARLY TERMINATION. Either party hereto may terminate this AGREEMENT 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. 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 ail of the following insurance coverage(s) and requirements. Such insurance coverage shall be primary coverage as respects COUNTY and any insurance or self-insurance mainrained 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

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(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 ,OOO,OOO 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 C O U N T Y _____/_____

B. Other Insurance Provisions

(1) If any insurance coverage required in this Agreement is provided on a "Claim 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 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 :

Bob Olson, Park Planner
Department of Parks, Open Space and Cultural Services
979 17th Avenue
Santa Cruz, California 95062"

(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:

Bob Olson, Park Planner
Department of Parks, Open Space and Cultural Services
979 I 7th Avenue
Santa Cruz, California 95062

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, disability, medical condition (cancer related and general characteristics), marital status, sex, sexual orientation, age (over 1 S), 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 of 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 CONTRACTORS: state that all qualified applicants will receive consideration for employment without regard to race, color, creed, religion, national origin, ancestry, disability, medical condition (cancer related and genetic characteristics), marital status, sex, sexual orientation, age (over 1 S), 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 clause of this Agreement or with any of the said rules, regulations, or orders said CONTRACTOR may be declared ineligible for further agreements with rhe 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 responsible for all insurance (workers compensation, unemployment, etc.) And all payroll related taxes.. CONTRACTOR is not entitled to any employee benefits. COTJNTY 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 district 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 Iength 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 an employer-employee relationship; (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 he: considered judgment that the CONTRACTOR engaged under this Agreement is in fact an independent contractor.

9. NONASSIGNMENT. CONTRACTOR shall nor: assign this Agreement without the prior written consent of the COUNTY.

10. RETENTION AND AUDIT OF RECORDS. 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:

Map showing location of project, Proposal Application,

Resource Management Plan

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

COUNTY OF SANTA CRUZ

CONTRACTOR: CALIFORNIA DEPARTMENT OF PARKS AND RECREATION

Address: 600 Ocean

Santa Cruz, CA 95060

Telephone: 831-429-2867

APPROVED AS TO INSURANCE:

By: Janet McKinley 8-25-99
Risk Management

APPROVED AS TO FORM:

By: Marie Costa 8-25-99
Office of the County Counsel

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

STATE OF CALIFORNIA - STATE AND CONSUMER SERVICES AGENCY PETE WILSON, Governor

DEPARTMENT OF GENERAL SERVICES
OFFICE OF RISK AND INSURANCE MANAGEMENT
1325 J Street, Suite 1800
Sacramento, CA 95814
FAX (916) 327-5776
(916) 445-2162

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November 12, 1996

Bob Olson, Park Planner
Parks Open Space & Cultural Services
9000 Soquel Ave., Suite 101
Santa Cruz, Ca. 95062

STATE OF CALIFORNIA
PUBLIC LIABILITY AND WORKERS' COMPENSATION INSURANCE
PARKS AND RECREATION SANTA CRUZ DISTRICT
BUZZARD LAGOON CONTRACT

To Whom It May Concern:

The State of California has elected to be insured for its motor vehicle and general liability exposures through a self-insurance program. The State Attorney General administers the general liability program through an annual appropriation from the Genera1 Fund. The Office of Risk and Insurance Management administers the motor vehicle liability program,

Under this form of insurance, the State and its employees (as defined in Section S 10.2 of the Government Code) are insured for any tort liability that may develop through carrying out official activities, including state official operations on non-state owned property. Should any claims arise by reason of such operations or under an official contract or license agreement, they should be referred to the Attorney General, State of California, Tort Liability Section, 1300 I Street, Sacramento, CA 958 14.

The State of California has entered into a Master Agreement with the State Compensation Insurance Fund to administer workers' compensation benefits for all state employees, 2s required by the Labor Code.

Sincerely,

CATHERINE WOOD
Associate Risk Analyst
(916) 445-2162

CYW: drc

cc: Sheila Branan,
Ca. State Parks.
600 Ocean **St.**
Santa Cruz. Ca. 95060

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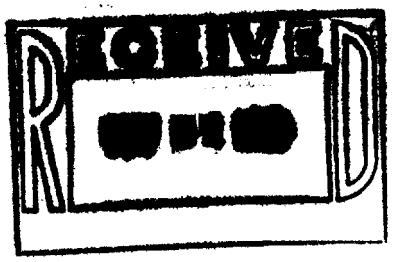

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PROPOSAL APPLICATION FOR RESTORATION PROJECTS CAUSED BY ILLEGAL USE OF OFF-ROAD VEHICLES ON PUBLIC LANDS WITHIN SANTA CRUZ COUNTY

PROPOSAL CONTENTS

I. APPLICANT DATA

A. Applicant Identification

1. Name of Organization/ Agency:
   California State Parks

2. Address of Organization/ Agency:
   600 Ocean St.
   Santa Cruz, CA 95060

3. Type of Organization/ Agency:

   County [ ] City [ ]
   State [X] Private Non-Profit [ ]
   Other [ ] (describe)_____

B. Applicant's Agent

The applicant's agent is the local contact designated as project director or project manager. The applicant's agent has immediate authority over the project and would be the authorized recipient of the Off-Road Vehicle funds. Please list below the applicant's agent.

1. Name, Title: George Gray, District Resource Ecologist

2. Business Phone: 831-429-2867

II. PROJECT DESCRIPTION

A. Project Title: Buzzard Lagoon Stobber Posts

B. ProjectLocation(AddressorOtherLocationDescription)Buzzard Lagoon Road, The Forest of Nisene Marks State Park

C. Map(s): (Please Provide map showing the site specific location of the project)

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D. Project Abstract:

Briefly describe the primary objectives of the proposed project as to how it will restore the targeted area to its natural state, and how the project will deter unauthorized use of off-road vehicles at the project site in the future. If plans have already been completed for the project, include one set with your application. At minimum, provide a sketch in sufficient detail along with the narrative to fully illustrate the scope of the project.

In 1994, California State Parks installed 100 stobber posts along Buzzard Lagoon Road to eliminate Four-Wheel Drive access to Buzzard Lagoon which had been occurring at that site since the 1960's. Subsequently, California State Parks spent approx. $10,000 to restore landforms and revenetate. An additional $5,000 from this fund was used in 1197-99 to revegetate. Unfortunately, we have found that the original stobbers were inadequate to eliminate four-wheel-drive vehicles. They are 5 feet long with approx. 3 feet in the ground with 200 lbs. of concrete on each, but vehicles are able to winch out the posts. This project would replace and/or reinforce 50 posts with posts 7 feet long, 5 feet of which would be in the ground (6" diameter pipe similar the diameter of the earlier posts). 250 lbs. of of concrete would be placed in the hole.

III. COST ESTIMATE

A. Provide a detailed cost estimate for all the major components of the project (i.e. design costs, California Environmental Quality Act "CEQA" review, permits, construction elements, and construction observation, etc.). Please note, the Off-Road Vehicle funds do not require matching funds from the applicant.

SEE NEXT PAGE

50 6" diam. galvanized posts 7' long	$4,250
Concrete delivered to site & worked	$ 750
TOTAL	$5,000

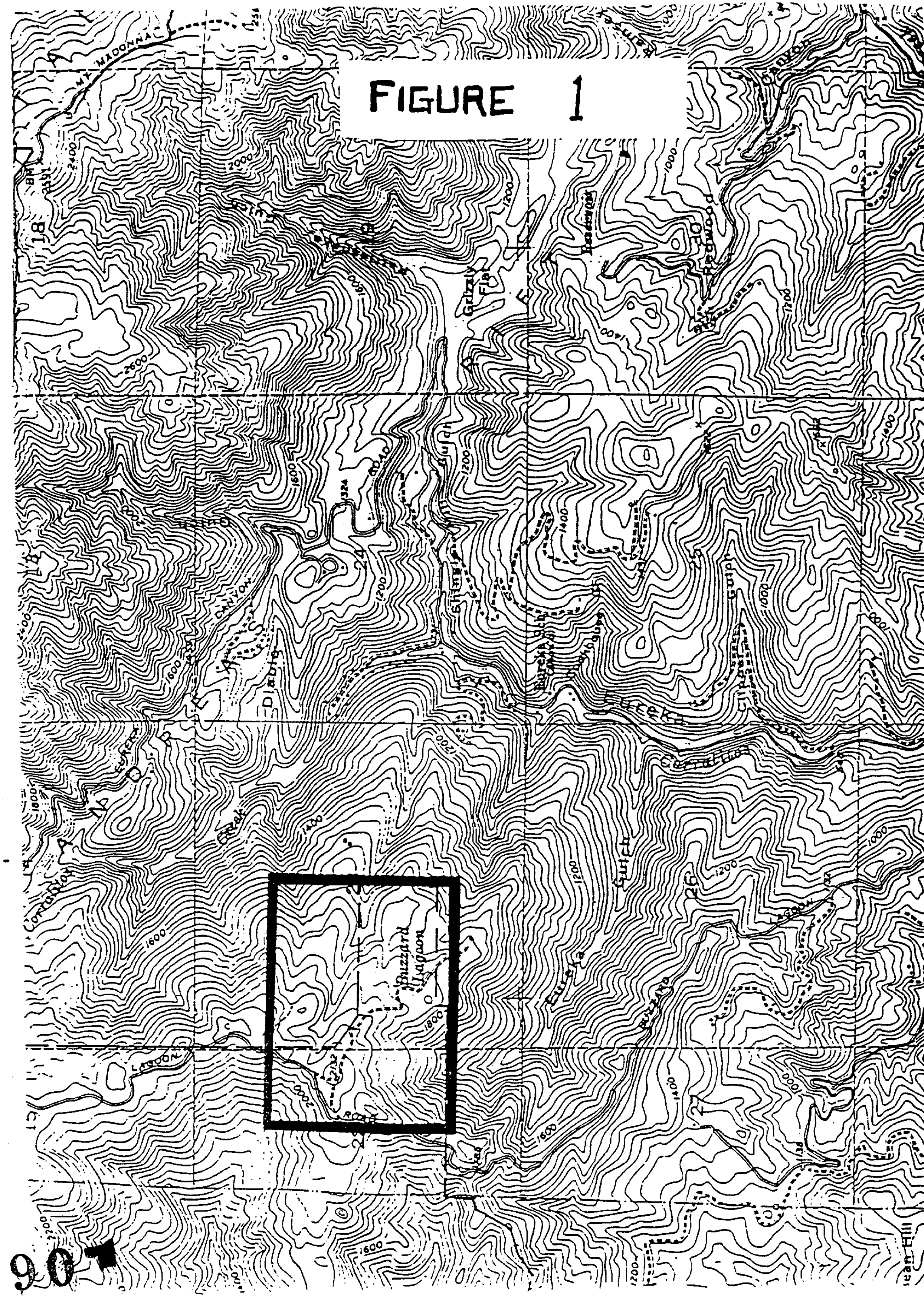
IV. WORK SCHEDULE

A. Provide a detailed schedule which clearly delineates project milestones from time of initiation to completion.

Work will be completed during the summer of 1999.

Tasks:
1. Drill 5' deep 12" diam holes - one day
2. Place posts in hole, pour and work concrete - one day

FIGURE 1



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November 10, 1994

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RESOURCE MANAGEMENT PLAN

BUZZARD LAGOON AND UPLANDS RESTORATION PROJECT NISENE MARKS STATE PARK

INTRODUCTION

Buzzard Lagoon and its upland watershed are located in the far northeast corner of Nisene Marks State Park, perched 1880 feet above sea-level on Santa Rosalia Ridge between the upper drainage of Eureka Gulch and Corralitos Creek (Figures 1-2). Buzzard Lagoon is one of only two montane wetlands in public ownership in Santa Cruz County.

The environment of Buzzard Lagoon has been severely degraded by years of abuse by off-road vehicles (ORV's). The damage includes the destruction of native vegetation, soil compaction, and intense gullying accompanied by the erosion of the upland and siltation of the wetland.

Illegal ORV access into the area between Buzzard Lagoon Road and the wetland has been greatly reduced through the placement of stobber posts at access points along Buzzard Lagoon Road by state park personnel. Fifty-six new stobbers (6 inch cement-filled and anchored, galvanized steel posts) were added in late July of 1994 to thirty identical posts placed previously by park personnel. These stobber posts have effectively precluded access to the area by four-wheel drive vehicles.

In August and September of 1994, under contract with the Department of Parks and Recreation (DPR), Botanist Randall Morgan, and restoration specialist Peter Slattery produced a floral inventory and general ecological assessment of the Buzzard Lagoon environment (References 1&2)

INTRODUCTION (continued)

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Restoration priorities and management alternatives were outlined in these two reports. The purpose of this Resource Management Plan is to define the specific actions to be implemented by state park personnel toward the protection and restoration of this damaged ecosystem.

PROJECT GOALS AND BENEFITS

The goals of the project are to restore natural drainage patterns in the Buzzard Lagoon watershed, to restore Buzzard Lagoon to its natural conditions, and to rehabilitate illegal roadways and other degraded areas in the vicinity. Through a series of erosion control measures, topographic restorations, and continuing efforts to exclude illegal access by ORV's, we hope to drastically reduce the erosion of the upland and the transport of sediment into the wetland. Native vegetation will be restored, wildlife habitat will be greatly enhanced, and a wide range of ecological processes will be set back into balance.

CURRENT CONDITIONS

A general physical, biological and historical overview is provided on pages 4-6, sections 2.1., 2.2. and 4.1. of the Restoration Plan for Buzzard's Lagoon (RPBL), prepared by ABA Consultants. Prior to its inclusion into Nisene Marks State Park (NMSP) the area had a history of heavy ORV use. Many of these recreationists have failed to respect the change in ownership and regulation. The many years of ORV abuse and concomitant erosion each winter carved deep, furrowed scars into the landscape. In the most extreme cases there are now roadbeds that lie an

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average depth of four feet below natural grade over a length of over 150 feet. The soil removed from these roadbeds continually moves down-slope and accumulates as sediment pollution in Buzzard Lagoon. The majority of the ORV trails and an extensive upland flat have been completely denuded of vegetation and compacted by use. There is continuing abuse by three-wheelers and motorcycles, which can pass readily between the stobber posts.

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RESTORATION MATERIALS

1. Excavator- Cat. 215C, or equivalent.

2. Bulldozer- Cat. D-6, or equivalent, with rippers.

3. Straw Bales- 75 bales, one bale for every 75' of road, plus 15 bales for the upland bare flat.

PLANNED ACTIONS

A. ACCESS

1. Stobber Posts

The placement of stobber posts at access points along Buzzard Lagoon Road has already occurred, and these will be maintained and additional posts placed as needed by park personnel.

2. Signs

Two signs are currently present on main access points along Buzzard Lagoon Road. Four additional signs will be placed and maintained in the restoration area.

3. Berms-trench structures to prevent vehicle access

The two existing berms-trenches found in the first forty feet of the southern-most access road on Buzzard Lagoon Road (Fig. 3A) will be deepened and steepened.

PLANNED ACTIONS- ACCESS

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The single berm-trench one-hundred feet south of Buzzard Lagoon will also be improved as above.

Two additional berm-trenches will be placed to block access to Buzzard Lagoon from Buzzard Lagoon Road.

PLANNED ACTIONS

B. LANDFORM RESTORATION and EROSION CONTROL

These actions include the topographic restoration of gullied roadbeds, the out-sloping of roads, and the construction of water-bars. Straw and native leaf-litter will be spread over ripped roadways and topographic restoration sites, at a rate of one bale for approximately each 75 feet of road treated.

1. Upland Flat

[This is a denuded and compacted area at the top of the watershed. Natural re-growth of the Northern Coastal Scrub and Chaparral plant communities (predominantly Coyote Brush) will reclaim this area if the following restorative actions are taken.]

a. The entire bare area of roughly two-thousand square feet will be ripped to a depth of 18 inches to decompact the soil surface.

b. The two large, rutted troughs (30'L x 8'W x 2.5' Deep) will be partially filled with soil pushed in from the bermed edge of the trough.

c. These newly loosened areas, being level and for the most part, draining away from the sensitive Buzzard Lagoon wetland, are of lower priority in terms of further erosional control measures. Fifteen bales of straw will be spread across the site to increase percolation and to minimize run-off.

PLANNED ACTIONS- LANDFORM RESTORATION and EROSION CONTROL

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2. Water-bar Construction

[Our management goal is to prevent Water from flowing down roads a distance greater than 100 feet. This will slow the velocity and minimize the volume of run-off water through the disturbed section of the watershed, and to disperse the run-off flow over a broad area.]

a. Water-bars will consist of a trough and a down-slope berm, with the dimensions being roughly 36 inches from the base of the trough to the top of the berm. The berm will have a base width of not less than 24 inches, and will be well-compacted throughout its construction.

b. Water-bars will be spaced between 40 and 70 feet apart on steep slopes, (40% grade) and 50 to 80 feet apart on slopes with a grade of less than 40%. They will be constructed at approximately a 45% angle to the roads, maintaining a steep enough grade to prevent sediment from depositing on the water-bar.

c. Finally, the bare soil areas of these restored roadbeds will be covered with a layer of straw, and, or, natural leaf litter. Straw will be applied at a rate of one bale per 750 square feet.

3. Outsloping of Roads (see Figure 3A, sections 1,4,6)

[Part or all of the roadways that traverse the slope can be recontoured by outsloping (see Figure 4). This technique serves the dual purpose of dispersing run-off flow more evenly over a broad area, and denying access to ORV's.]

Outsloping will occur as follows:

a. The outer half of the terraced roadway will be pulled up-slope and packed tightly into the corner of the terrace until the former grade has been restored.

b. These slopes will be treated with straw at a rate of one bale per seventy-five feet. The application of straw over the area will effectively improve water retention and percolation through the soil layers, and minimize erosion.

PLANNED ACTIONS

C. RESTORATION OF BUZZARD LAGOON

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Excavation will be confined to the sediment fan at the western edge of the lagoon. The fill will be deposited in depressions and gullied roadbeds approximately 100 feet north of the lagoon, (see Figure 3A).

1. Equipment- The excavation will be performed by Cat. 215C, or equivalent, anchored on the dry land at the western border of the lagoon. The excavator will pile the soil on dry land where the Cat. D-6 can push it to the deposition site.

2. Area and Volume- An area of approximately 35 feet by 15 feet will be excavated to a depth of 3 feet. This will entail the removal of 58 cubic yards of material. Upon completion of the excavation, the shoreline will be graded smooth and sloped to match the adjacent area.

3. As recommended in the BLRP, and in Randall Morgan's Botanical Survey, no revegetation with plants from outside sources will occur. Native plants from within the area to be disturbed by excavation will be salvaged and replanted upon the completion of the project. Native Juncus, and Eleocharis from the site will also be propagated as described in Randall Morgan's Botanical Survey.

MONITORING and MITIGATION

The Buzzard Lagoon Restoration Project will be monitored by park ecologists and rangers. On-site observations will be made each week by the district ecologist and environmental services intern through the first month following the restoration work. Evidence of continuing ORV damage to the site will result in an increase in signage, ranger patrols, and improvements to the barriers to prevent access by three-wheelers.

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MONITORING and MITIGATION (continued).

Particular attention will be paid to the potential slumping of the deposition site, filled gullies, and out-sloped roads during, and following severe storms in the winter of 1995-6. In the event of slope failure, mitigation measures will take the form temporary erosion control utilizing log, and, or straw-bale check-dams. We will respond to unacceptable levels of erosion by spreading additional straw, and non-invasive annual grass seed over the problem areas.

Twelve Photo-monitoring sites will be established and photographic documentation will take place for a period of three years.

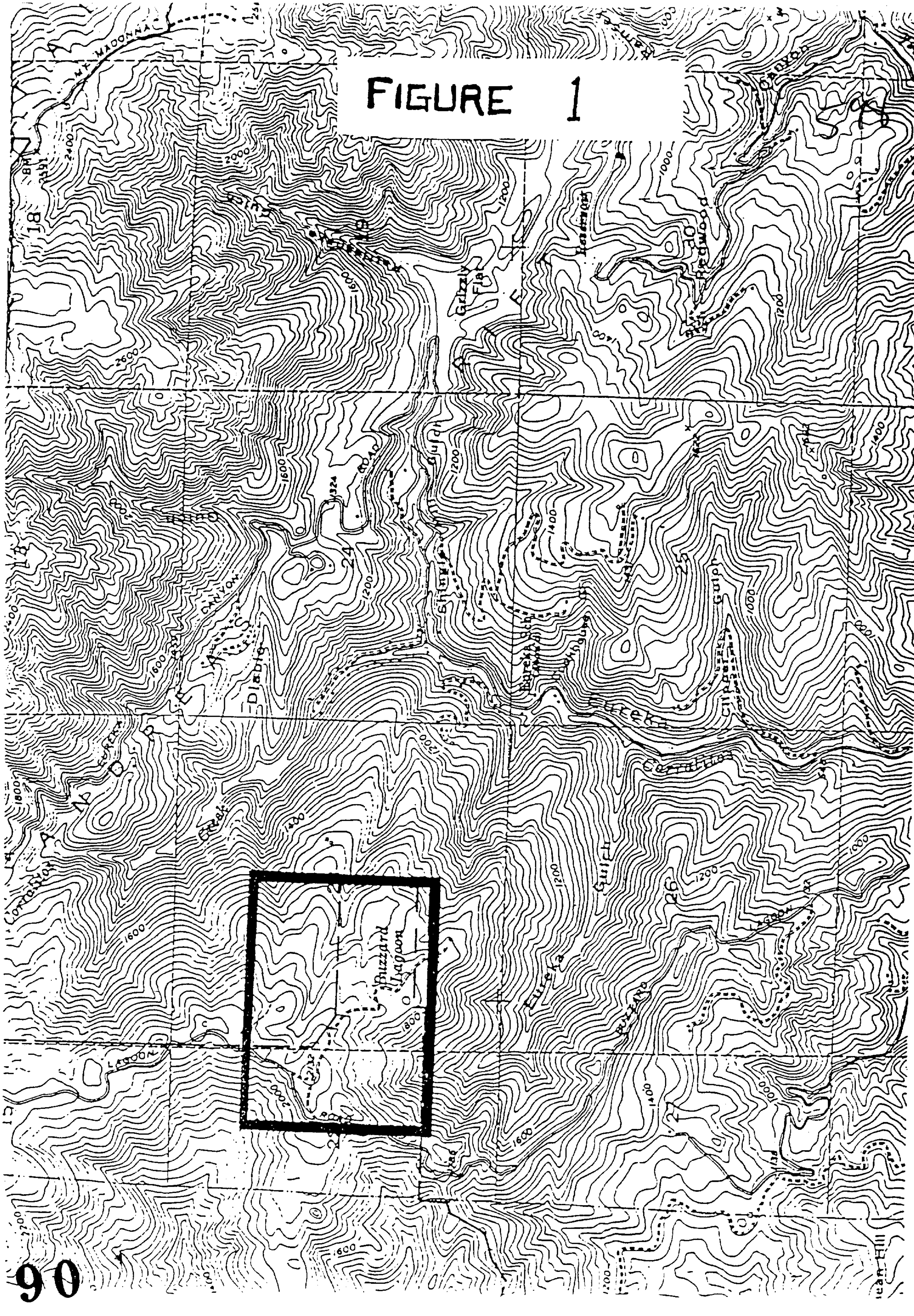

Grizzly Flat
Redwood
Diablo
CANYON
ROAD
Eureka
Corralitos
Eureka Gulch
Buzzard Lagoon
LAGOON

FIGURE 1

FIGURE 2

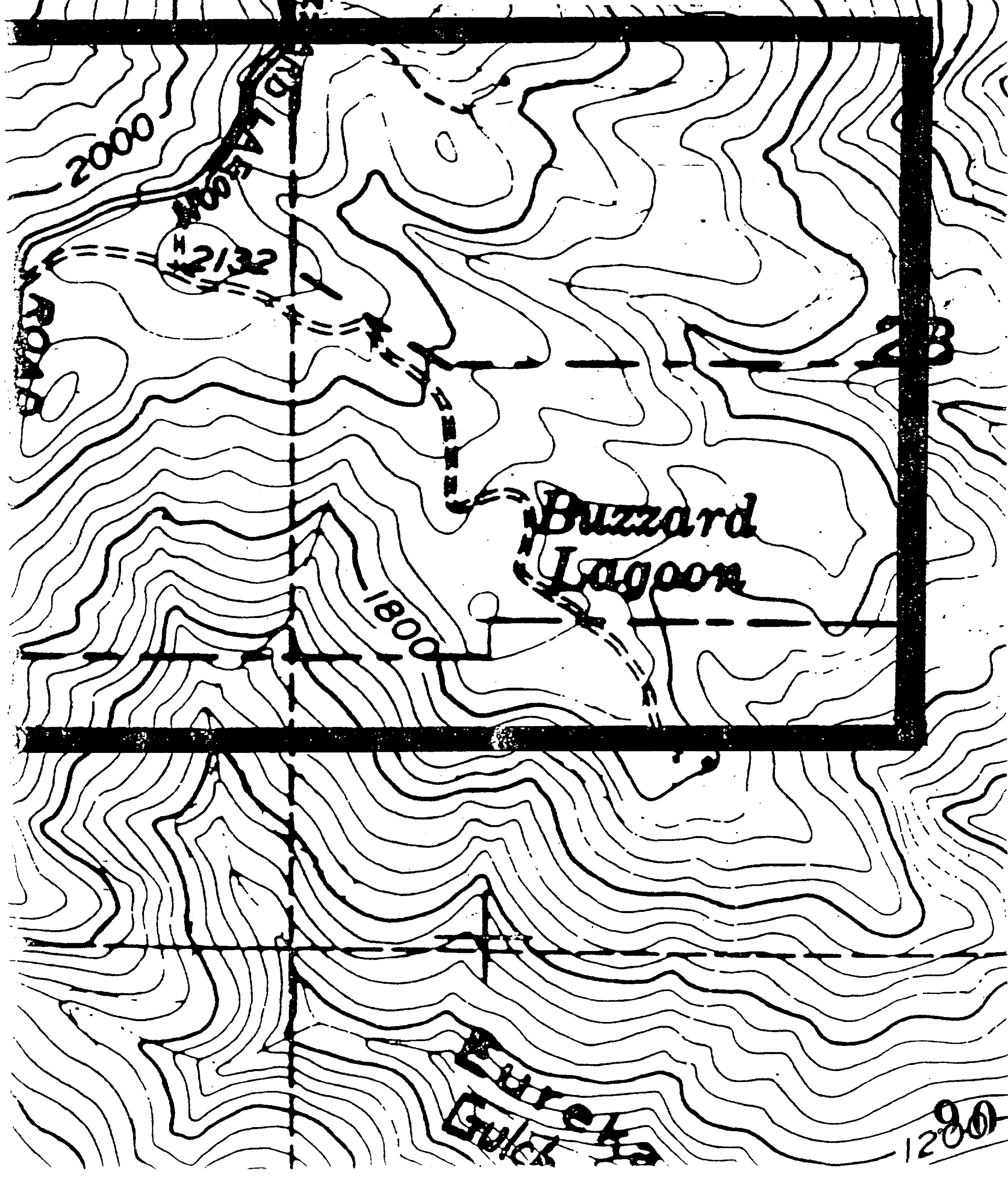
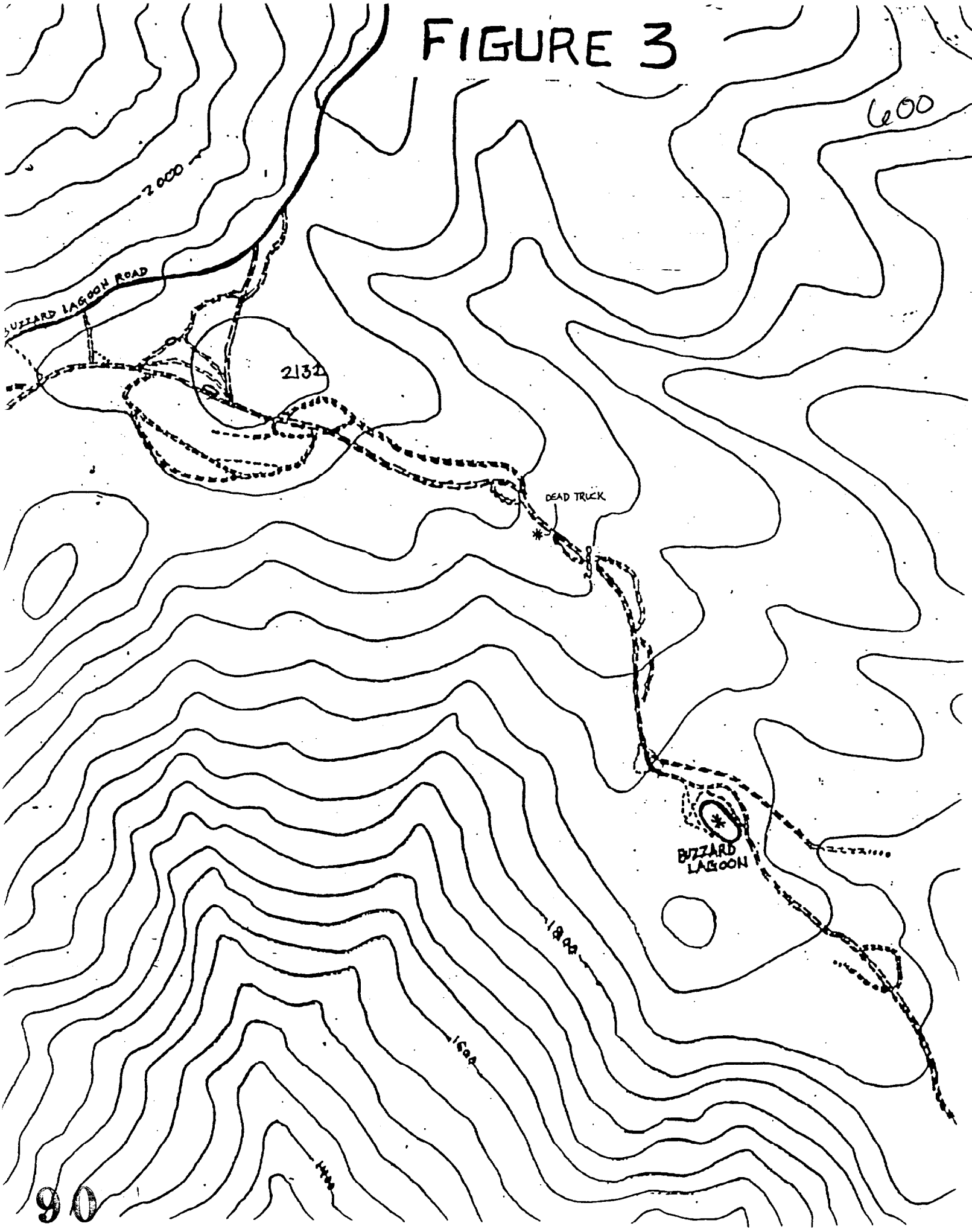


FIGURE 3


2000
600
BUZZARD LAGOON ROAD
2132
DEAD TRUCK
BUZZARD LAGOON
1800
1600

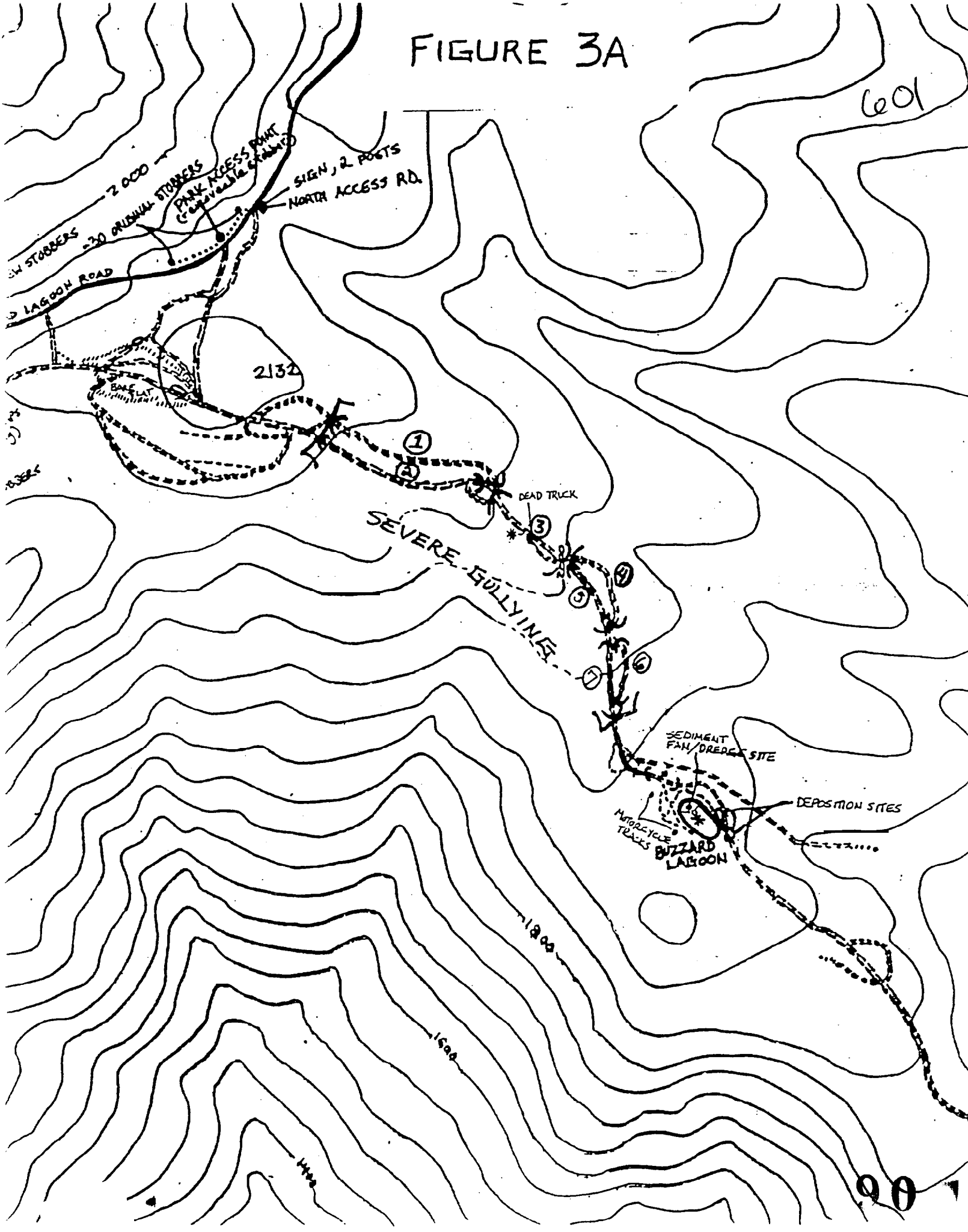


FIGURE 3A
601
2000
SIGN, 2 POSTS
NORTH ACCESS RD.
LAGOON ROAD
2132
BARE FLAT
DEAD TRUCK
SEVERE GULLYING
SEDIMENT FAN/DREDGE SITE
DEPOSITION SITES
MOTORCYCLE TRACKS
BUZZARD LAGOON
1800
1600
90

FIGURE 7

OUTSLOPING CROSS-SECTION

602

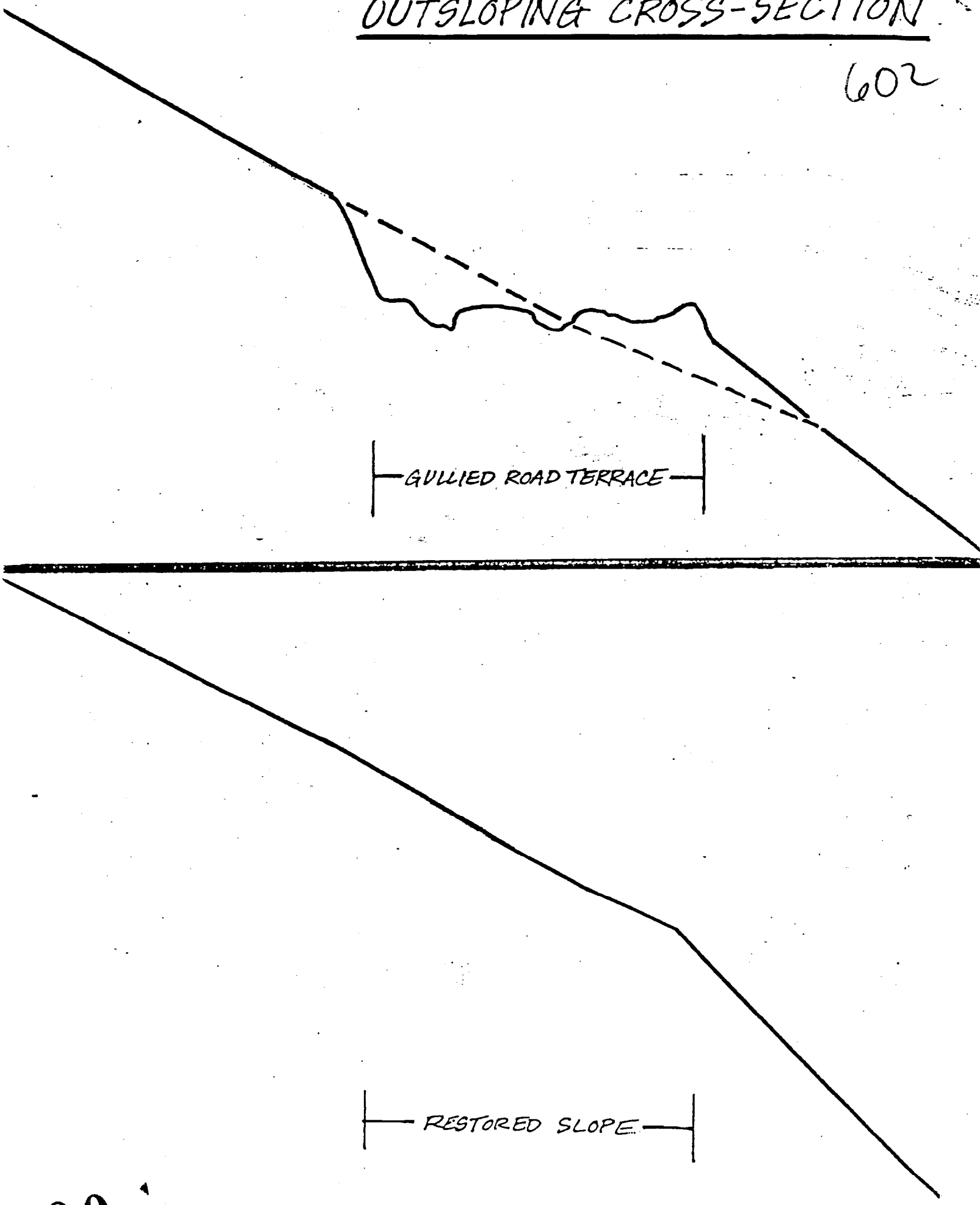
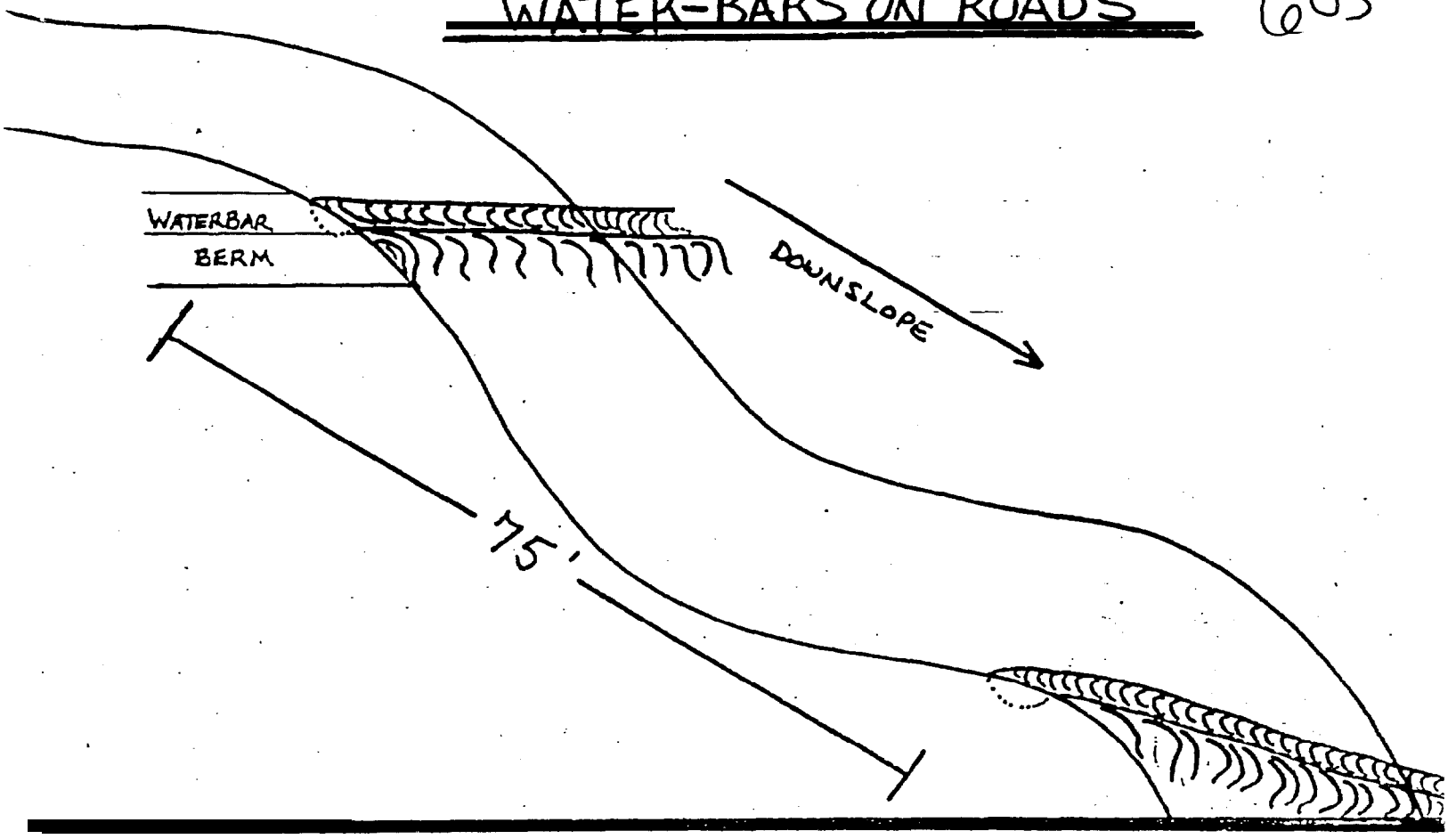


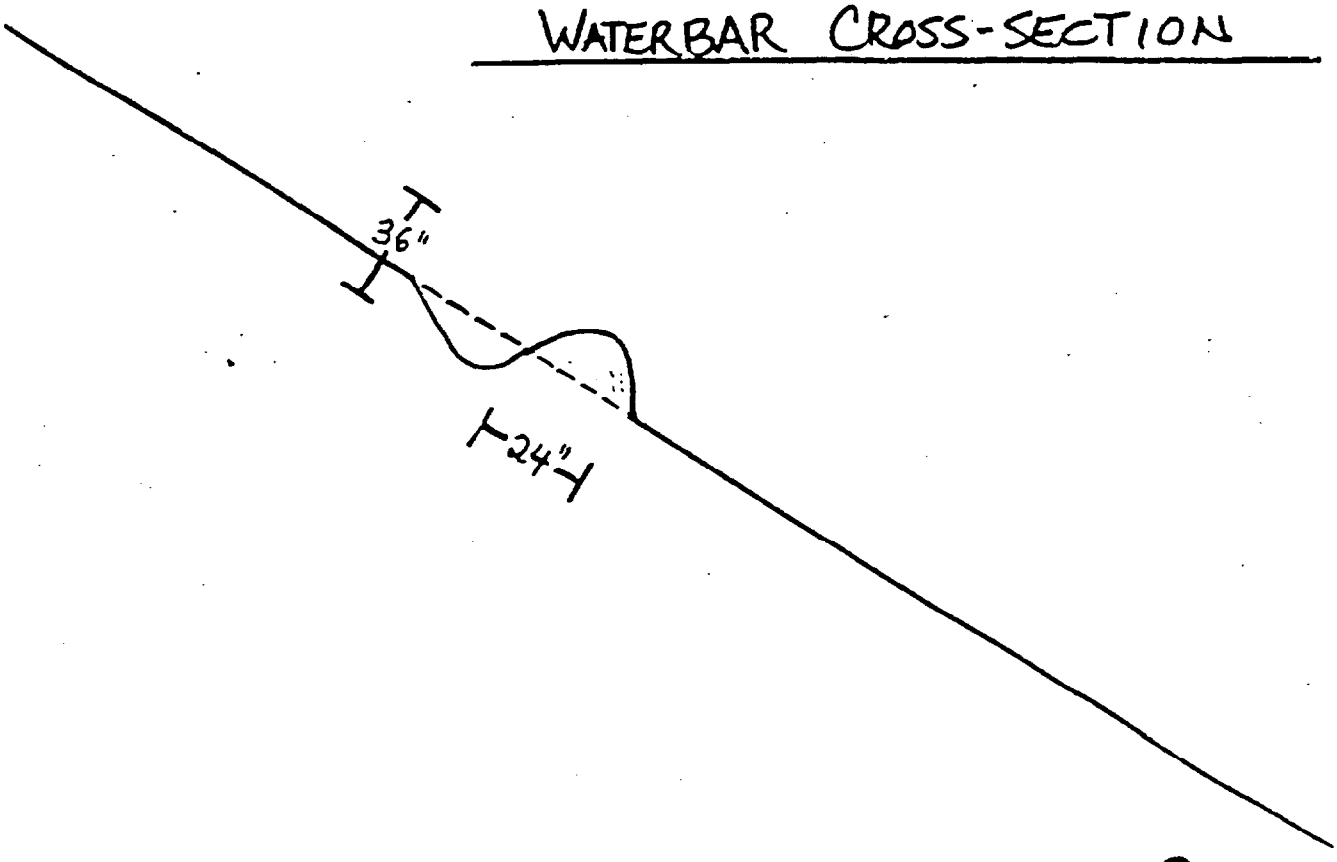
FIGURE 5

WATER-BARS ON ROADS

603



WATERBAR CROSS-SECTION



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Restoration Plan for Buzzard's Lagoon, Santa Cruz County, California

Prepared For

California State Department of Parks and Recreation

Prepared By

ABA Consultants

October 1994

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Restoration Plan for Buzzard Lagoon, Santa Cruz County, California

Prepared for

California Department of Parks and Recreation

October 1994

Contents

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1. INTRODUCTION

Wetlands are becoming increasingly recognized as being of great value. In 'California about 95% of original wetlands have been lost leaving' their functions to the remaining few percent. In the Monterey Bay area a critical function of wetlands has been to recharge subterranean aquifers with fresh water. As this function has been compromised, salt water intrusion has destroyed the value of much of the near coastal aquifers. Another critical value of wetlands is their function as habitat for plants and animals. A large number of species is partially or wholly dependent on wetlands to complete their life cycles. For example, the pristine Californian elk herd of about a half million individuals was nearly extirpated due in great part to loss of wetlands.

The condition of wetlands in Santa Cruz County is similar to those in the rest of California. Most riparian wetlands have been severely altered, and lacustrine and palustrine wetlands are naturally uncommon. The inherent value of wetlands which stems from their practical functions such as flood control, sediment stabilization, freshwater recharge, and habitat provision, is enhanced because of their rarity. White's and Buzzard Lagoons are unique. Their management as uniquely valuable resources is fortunately quite feasible since they are within the boundaries and protection of Nisene Marks State Park.

This plan identifies problems of degradation of Buzzard Lagoon and makes recommendations for its restoration. However, Buzzard Lagoon is directly dependent on its watershed, and therefore restoration recommendations must address the watershed. The prime degradation is erosion of the watershed which has caused severe sediment deposition in lagoon. Consequently the physical condition of soil instability is the main problem addressed. Other ancillary problems such as litter and wildlife habitat destruction are also addressed. The watershed is a fairly small area and simple problems and solutions.

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2. OVERVIEW

221. DESCRIPTION

Buzzard Lagoon is a small, shallow pond within a heavy cover of second growth forest, mainly redwood and Douglas fir trees, with some madrones and a few coast live oaks. Immediately nearby are brushy hillsides with mostly coyote brush cover. The redwood forest had been logged before the turn of the century and most stumps have regenerated sizable trees in the typical "goose pen" circles. The nearby brush areas were undoubtedly cleared by agriculturists as late as a few decades ago. Soil under the forest cover is well covered by a layer of duff, leaf litter a few inches deep. The upper layers are relatively moist and enriched with organic matter. In contrast, soils on the brushy hillsides are thin and dry, with little organic material. The total area of the east-facing drainage which contributes to the Iagoon is around one tenth of one square mile. Three channels conduct water to the lagoon down moderately steep slopes: a single main channel which is the heavily eroded set of vehicle tracks, and two minor and minimally eroded natural channels on either side.

2.2. HISTORY

Since the mid 1800's impacts on the general area have intensified beyond the seasonal burning by Indians-and livestock grazing by Spanish, neither of which was likely within the study area. Consequently logging and intense agricultural practices performed by the Americans were probably the first significant insults to the study area. In general these practices resulted in removal of forest cover, and conversion of types: rich prairie grasslands to crops, forest to brush land and/or grazing lands, and brush lands to annual grasslands. Massive export of nutrients occurred when plant cover was removed, and soil compaction and over-use resulted in erosion. Consequently the vigor and/or diversity of natural revegetation, if it occurred, was undoubtedly reduced. Roads contributed to severe erosion. The depth of some road tracks in the Buzzard Lagoon area is apparently due to long history of use of the tracks and continued erosion. Resprouting redwood stumps and coyote bush patches over disturbed landscapes indicate the ability of the soils to support natural restoration of native plant communities.

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3. METHODS

Primary, or first hand, information for the plan was drawn from two main sources: on-site field observations and examination of aerial photographs. The visits were carried out on September 20 and October 8, 1994. Visits lasted several hours each and consisted of walking along the main route from Buzzard Lagoon Road to the lagoon and beyond it to the southeast, along the areas to either side of the route, and the area surrounding the lagoon. Visual inspections were made of the soil conditions, vegetation, and water courses within the watershed. Some indication of the rate of impact to the area was gained by comparing conditions between the two visits, such as accumulation of litter and observation of the effects of the early October rainstorm. In addition, aerial photographs curated in the library'of the University of California at Santa Cruz were examined. The photograph series at *the library covers the time span between the 1920's and the present. An early set of photographs from 1935 and a later set from 1989 were chosen to be representative. They.were examined with magnifying glass, known landmarks common to both were located and features such as roads, cleared and agricultural areas were compared, as well as the site and condition of the lagoon. .

Secondary sources of information included a series of correspondence provided by Parks which concerned conditions of the lagoon and legal and illegal access to it. Other information was gained from discussions with relevant expert biologists. Steve Ruth (Monterey Peninsula College) provided insights to herpetological concerns.- Randy Morgan (local botanist) provided opinions on the plants of the lagoon. In addition he provided through Parks a list of species of plants species currently growing in and around the lagoon, based on his survey of August, 1994. David Schwartz (Cabrillo College) provided geological opinions, particularly regarding sediment deposition in the lagoon and the value of information within the strata. Other anecdotal information was obtained from visitors to the lagoon.

4. RESULTS

4.1. NATURAL COMMUNITIES

Two vegetation types occur on the site growing on their respective soil types: brush and forest. Brushlands grow on generally south-exposed slopes and

plant cover is comprised predominately of coyote bushes. Soils in those areas are dry, thin, and with Little organic matter. Wildlife observed were small passerine birds (towhees, sparrows), fox scat, and western fence lizards. The coyote bush type covers areas which had undoubtedly been cleared and represents natural recovery of plant communities.

Forest cover is primarily redwood and Douglas fir trees. Tree heights mostly exceed 50 feet and often approach 100 feet or more. Tall madrone trees are also common. Some live oaks grow along the edges of clearings. Virtually no wildlife was observed. The forest is also characterized by large redwood stumps indicative of forest clearing by logging, which occurred a little over one hundred years ago.

4.2. OFF ROAD VEHICLES

Incontrovertible evidence of off road vehicles (ORVs) was evident. During the October visit, single track (from dirt bikes) skid marks were observed which were minutes to hours old. Also observed were three dirt bikes being towed by trailer down Buzzard Lagoon Road, quite likely the trespassers. Some severely eroded channels had tire tracks in them. A magazine devoted to off-road vehicle activities published photographs of 4-wheel vehicles in deep ruts identified as the Buzzard Lagoon track. Relatively new tracks paralleled deep, impassable channels of previous tracks, undoubtedly a response by drivers to seek more feasible courses. A four wheel vehicle had been recently abandoned a few hundred yards upstream of the lagoon. The vehicle had been stripped of its engine, tires and other parts. Many other parts were scattered about along with significant quantities of spilled oil. Wheel tracks lead into vegetation that had been broken and damaged in a way consistent with heavy vehicles but hardly possible in other way. Further, indirect, evidence of ORV related degradation was the presence and quality of litter along the tracks: beer containers, mostly cans, but including bottles and cardboard boxes.

Parks implemented efforts to control illegal entry of ORVs from Buzzards Lagoon Road. Concrete-filled posts were implanted deep into the ground, closely spaced, at entry points over the road bank.

Correspondence between State Parks and Santa Cruz County Resource Conservation District, Santa Cruz County and individuals starting in 1965

expressed strong concerns about the damage caused by off-road vehicles. Correspondence stated that traffic control through road closure was legal, feasible and -would be an effective control of destructive trespass.

4.3. EROSION

Soil disturbance by erosion and the result&t deposition in the lagoon were the most striking and relevant features of degradation that were observed. Essentially a single' road or track is responsible for almost all the erosion and sediment transport. Most vehicle tracks or remnants ran mostly parallel to the slope line, were of mineral soil, bare of vegetation and were often several feet below surrounding soil levels. Secondary Sources of information, particularly the series of letters provided by Parks, also indicated erosion, through vehicular disturbance, as the single main concern. The correspondence since 1965 was concerned mainly with managing roads and access, with later correspondence more strongly focused on dealing with road and habitat destruction by trespassing motor vehicles.

Water was conducted down denuded roadways rutted by tracks and water erosion. Water was concentrated in a narrow area, a more or less straight course following the fall line of the slope. Consequently there was more water in a small area and its velocity was increased. No vegetation nor leaf litter was present, the soil surface was loosened and rutted and so was readily displaced by the water. As the surface became greatly rutted, off road vehicles moved to alternate adjacent routes and the process was repeated. We observed wide ruts more than ten feet deep. Vegetation destruction and soil disturbance has taken place on the site for more than one hundred years, beginning with first logging effort. Some of the deep ruts currently used by off road vehicles could be original logging roads.

Erosion on shrub lands uncovered hard sand deposits and exposed some gravel and rocks. Erosion channels under the forest cover were generally wider and deeper than those through brush cover. Some forest erosion channels appeared to be quite old; judging by the condition of the edges they were probably formed many years ago, perhaps from roads formed during the first logging projects. Steep slopes under forest cover were often unvegetated and were covered with leaf litter. These slopes, which were evidently

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undisturbed by vehicle travel, were not eroded and appeared stable despite lack of vegetation and angle of repose.

The erosion channel which conducted most of the sediment to the lagoon appeared to be a remnant of an old logging road and was under forest cover. In places it was fifteen to twenty feet wide and nearly ten feet -deep. The length of the channel was several hundred yards and the volume of sediment removed along it was considerable.

4.4. OBSERVATIONS BY SITE

The most degraded areas were the bare soil along tracks caused by vehicles and exacerbated by water 'erosion in most places. The main track was a road from Buzzard Lagoon Road to the lagoon. It was paralleled in places by newer tracks evidently caused by vehicles which can no longer negotiate the severe ruts of the older track. An old road intersected the track on the east slope. However, water and sediment carried along the eroding old road did not appear to contribute significantly to the input to the lagoon.

4.4.1. Buzzard Lagoon Road and west slope

Buzzard Lagoon Road and west slope did not drain to the lagoon and therefore did not have an immediate effect on it. Access off Buzzard Lagoon Road appeared to be the main entrance for illegal vehicle entry to the lagoon drainage area. Access had been effectively discouraged by concrete-filled steel posts emplaced by Parks. The high and steep road bank was also a strong barrier. Nonetheless, motorcycles were not completely excluded, and four-wheel vehicles with winches could also gain access under present conditions. The illegal road used by vehicles became a large circular-shaped area denuded several hundred yards upslope from Buzzard Lagoon Road. The area appeared to be used as a dirt bike spin-out track area. The area supported small coyote bushes and seedlings along its perimeter. Adjacent to it were two deep pits; these appeared to be tracks and dig-out holes from mired vehicles.

4.42. Upper east slope

Vegetation on the east side was a mix of some forest trees but mostly more or less open brushland. The track followed a saddle which was denuded but not badly eroded. Past the saddle and down the east slope the track became an erosion scar, increasingly severely rutted to extremes of nearly ten feet deep

and twenty feet wide. Along here the original track was scoured with impassable ruts and alternate tracks were made by vehicles. Along this side was the intersection to the south-west with an old road which ran through the hillside brush. Drainage from this road contributed very little to the main track. However, it caused severe scouring within its channel, forming a waterfall four to five feet high with undercut bank where it diverged from the road.

4.4.3. Lower east slope

Here the track entered the forest. The track was a wide erosion channel with nearly vertical sides cut into forest soil. The track appeared to have well weathered sides. The apparently old edges indicate that it could have been an historic logging road, or at least the result of erosion from logging a century ago. Leaf litter under the surrounding forest was dense and a small amount had accumulated on parts of the track. A natural drainage channel which could accommodate a small volume of runoff ran to the east of the main track. Moderate erosion was evident by the mild channeling in the bottom of this drainage. It channeled water to a flat area on the northwest side of the lagoon where its water was nearly confluent with that of the main erosion channel. The main channel veered sharply to the northeast on a flat within 100 yards of the lagoon and continued more or less straight to the west end of the lagoon. Fairly heavy cover of madrone leaves had accumulated in the channel. On the flat area at the sharp veer were the origins of a small drainage course more or less paralleling the main channel and that entered. the lagoon on the south side; and another larger drainage which drained directly downslope to the southeast into Corralitos Creek. No erosion problems were evident in these two drainages.

4.4.4. Buzzard Lagoon

Buzzard Lagoon received water from three sources: primarily from the main channel, small amounts from the short west drainage, and-some overflow from the mildly eroding east drainage. The latter would tend to drain north away from the lagoon, but some overflow into the lagoon appeared possible. Little deposition appeared at the base of the small drainage to the west. A large sediment fan had been deposited at the base of the main channel, on the west side of the lagoon. The fan covered a significant portion of the west end

of the lagoon. This deposition had spilled out to the north and formed some of the flat onto which the east drainage emptied. Along the lagoon edge the fan had covered the base of an oak to an indeterminate depth, probably at least two to three feet. The upper parts of the fan were comprised of dry tan-. colored soil which vehicles had rutted. The lower part of the fan was darker colored and wet. The shoreline of the lagoon on the north, south and east sides was much more distinct than on the west side. On those three sides the shore sloped down to the water level at a natural appearing angle, away from the shoreline vegetation of redwood trees. Little or no d&position appeared to have originated from any but the west shoreline.

Wildlife in the lagoon was reported from observations in August when numerous newts were seen swimming. Deer and raccoon tracks were visible in the mud in September and October.

The lagoon was surrounded by large redwoods and a couple of oaks and a madrone, forming a distinct perimeter above the shoreline. Vegetation in the lagoon is described by Randy Morgan in an accompanying report. The most striking vegetative feature in September and October was the willow grove growing on sediment above the water line. The sediment was contiguous with the depositional fan and appeared that it also may have been fairly recently deposited. The willows had moderate to small trunk diameters, they were probably not old and could have colonized the fan recently (within a few decades). Potamogeton leaves floating on the water comprised most of the other vegetation.

Vehicle tracks surrounded the immediate shore of the lagoon, most or all caused by motorcycles. Tracks also continued to the east of the lagoon into the brush covered hillside, and to the north, into the redwood for&t. Tracks followed well-established routes and smaller more recently worn trails, Current abuse of the edge of the lagoon by ORVs was damaging to vegetation, especially that growing on the most recently deposited sediments on the west side. Migrating salamanders would also be at great risk.

4.5. OTHER PROBLEMS

4.5.1. Litter

By October, several dozen beer cans had been discarded along the main channel, or road, since the September site visit. Fairly heavy use of the area

could be inferred from this amount of litter so recently accumulated. These observations are consistent with the photographs of refuse around the lagoon made in 1979, included with Park's correspondence. Photos and observations indicate a chronic, long-lived problem correlated with and undoubtedly caused by trespassing off-road vehicle operators. Some vehicle parts were recovered from along the trackways. 'The above-mentioned abandoned four-wheel vehicle seems indicative of the level of problem and need for control and education.

Firearm refuse was' also observed, discarded since the September visit. Beer cans with fresh bullet holes were found along the lagoon. Old and fresh spent cartridges, live cartridges and cartridge packaging were also recovered.

Trash in the lagoon included phonograph records, bottles and cans, vehicle parts, plastic wrapping material and bags, and batteries. Car parts represent a threat of toxic pollutants entering the lagoon directly or seeping in from upslope and causing chemical degradation of the lagoon.

4.5.2. Weed species

No weed problems were observed. Periwinkle grew on the exposed hill side east of the lagoon on what appeared to be an old building site, but did not appear to be spreading. Potential problems exist, however. Both French broom and pampas grass are common in Santa Cruz County and are notoriously invasive and extremely difficult and expensive to control. Bare soil supports both species - exposed sites are suitable for pampas grass and roadsides for the broom. Both conditions exist in the study area.

The four alien species recorded by Randy Morgan around the lagoon are not particularly weedy and are not known to be troublesome.

The mud in the lagoon appeared churned which could have been due to pig rooting. However, no hard evidence of pig presence, much less destruction, was observed.

4.5.3. Disruption due to trespass

Off-road vehicle noise, particularly engaged in the sort of spinning and jumping acrobatics that the site seems to imply, and noise from firearms would be disruptive to wildlife in the area. Certainly the damage sustained by vegetation is complete along the tracks and substantial off the tracks where

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vehicles break down bushes. The possibility of a shooter, trespassing and illegally shooting in a park, being tempted away from a beer can target by an animal is strong. Salamander populations dependent on the lagoon will be disrupted or threatened by the barrage of trash thrown into the lagoon and motorcycles racing around the perimeter.

5. CONCLUSIONS

5.1. HISTORICAL

Historical impacts on the landscape are still very evident: huge redwood stumps indicate the enormous size of the virgin growth trees. Exposed dry slopes which may have been grazed in the past appear to have been fairly recently colonized by coyote bush and few longer-lived species have yet become established. The site has great intrinsic value for its naturally recovering plant communities. It presents the very valuable lesson that natural restorative processes can reverse even such intense land abuses as were practiced by pre-turn of the century logging shows. The current damaged areas are relatively small in area, though vulnerable due to their steepness and intensity. No special measures appear necessary to restore them, only. effective protection and common-sense soil stabilizing measures. Work on the lagoon should be dependent on restoration of its watershed.

5.2. ILLEGAL VEHICLES

Off road vehicles at, the Buzzard Lagoon area make a mess esthetically and ecologically, and are blatantly illegal. Tolerance of the destruction sets bad example, bad precedent, and, like the erosion itself, results in a vicious circle with increasingly expensive solutions. The presence and activities of a very few ignorant and possibly destructive individuals are a slap in the face of responsible land management. While the problem may not effect much of the public because of the isolated and primitive nature of the area, those very qualities are the reason for the park and they should be vigorously guarded. Parks as an agency has a large reputation-and actual power, as well as obligation, to safeguard its properties. Initial display of that power will probably pay large dividends. All possible physical, social, and enforcement efforts need to be brought to bear against illegal trespass immediately.

Parks efforts to control illegal entry with concrete-filled posts was a very effective and economical technique. The posts appeared to exclude 4-wheel

vehicles nearly completely. Motorcycles will require more intricate physical barriers.

- Legal visitors on foot may have to be directed around vulnerable restoration sites, off the present main route which is also the ORV track. Most visitors would likely respond if directive signs are displayed and alternate routes provided.

5.3. EROSION

The single-biggest threat to the site and to the lagoon is erosion and subsequent deposition of transported sediments into the lagoon. Most erosion on the site is caused by water running down channels maintained by trespassing vehicles, which kill vegetation and compact and churn surface soils. The exposed soils are mostly mineral with no organic material, so natural revegetative processes may be prolonged even after protection, allowing sediment to continue to wash into Buzzard Lagoon.

Erosion may be controlled immediately by prohibiting vehicles, recontouring channels and diverting water to more dispersive courses, covering bare soils with appropriate mulch, and planting appropriate vegetation. These are straightforward tasks but require great effort and vigilant monitoring and maintenance, especially through the first rainy season. Erosion control should be the first and only priority to protect the lagoon, until erosion has been controlled. Any rehabilitation work in the lagoon before erosion and deposition is controlled would be at risk.

A point about timeliness should be made. While immediate measures to restore habitats are always best applied as soon as possible, in this case promptness is particularly important. The current drought will probably end within a few years and heavier rainfall will return to the area. The' rainfall will be supportive of new vegetation restoring the damaged areas;. or it will be very destructive of existing bare areas, and make their recovery all the harder.

5.4. LAGOON

The current condition of the lagoon must be very different from its pristine state. Aerial photos did not have sufficient resolution to determine the state of the lagoon. The original depth of lagoon is unknown. The current boundaries are marked by redwoods and stumps, and except for the western

fill, are probably nearly the same as historical boundaries. Large amounts of sediment from logging a century ago must have filled much of it. Modern filling from erosion has contributed to the large western fan. The willows occupy a high area contiguous with the fan, undoubtedly also fill. They are not large and do not appear to be very old which could indicate fairly recent deposition of the fill. The western fan is formed of strata-of differing grain -sizes, representing erosional and depositional events. The strata may allow tracking of the history of deposition.

Currently we do not have a firm historical model and therefore restoration should be conservative because we do not know what we are trying to restore. Cores of' sediment may provide valuable information and should be taken before the strata are destroyed. Additionally, the status of amphibian populations should be determined before jeopardizing their possible habitats. Confining excavation to the west side fan would probably not seriously jeopardize amphibians.

The large amount of sediment in the western fan will require a dump site if excavated. This deposit is undoubtedly rich in nutrients and would provide good soil for the establishment of vegetation. It could be used as topsoil over areas recontoured to prevent erosion. Redistributed lagoon soil would need to be protected from being washed by winter rains, either by protective stockpiling or careful placement on restoration areas.

5.5. SITE BY SITE

Protecting the perimeter along Buzzard Lagoon Road from illegal vehicles would solve most problems there. Coyote bush is attempting to revegetate the large spin-out area and will probably be successful if relieved of destructive wheel disturbance. The two mire holes need to be filled. All bare soil would benefit from revegetation, probably planting coyote bush seedlings would be most effective. Mulching and planting a diversity of plants would be desirable but low priority.

The upper east slope area needs immediate attention because of the steepness of the slope. The main track needs some erosion control by water diversion to either side to prevent deep channeling. However, the road to the southwest contributes the water flow which has caused a serious undercut. The undercut is the highest priority of erosion control along this area. Heavy

rainfall will continue to cause severe erosion on the undercut and measures should be taken before the rainy season begins. The road surface is mineral soil and hard and would benefit from mulching to facilitate plant re-establishment.

The lower slope is almost all under forest cover. The track or channel is biggest here. The channel will require bulldozer recontouring along much of its length. The channel needs to be filled, especially along the middle where the central channel is more deeply incised than the main channel. Water should be diverted out of the erosion channel and distributed to the sides. On the lower part of this section, at the right angle bend, is an opportunity to divert water into another drainage which bypasses the lagoon and intersects Corralitos Creek below. While that sort of'diversion would allow respite from sedimentation into the lagoon, it would be another artificial influence on the drainage. It would divert most of the water from the lagoon and could lead to drying the lagoon, and therefore would not be desirable. Much leaf litter has accumulated on the lower part of the channel. The litter appears to be the first step towards stabilizing bare soil. Gathering some litter from stable areas and covering bare soils would probably be effective.

5.6. WILDLIFE

The value of the lagoon as wildlife habitat is. greatly increased due to the status of species which occur and may potentially occur there The lagoon has not been surveyed for amphibians, however it is possible habitat for two listed species, red-legged frogs (candidate) and Santa Cruz long-toed salamanders (endangered) (Steve Ruth, personal communication). In addition the newts observed in the lagoon are a species of concern. Along the central California coast the species is 'suffering declining numbers despite their abundance in specific locations.

5.7. VEGETATION

5.7.1. Weeds

Weeds appear to be of little or no immediate concern. No invasives were observed. Since the area is surrounded by forest and other native plant communities, weed seeds apparently cannot travel to bare soil of the area. However, if a few seed stalks of pampas grass, for example, were imported they could establish themselves on the bare soil. French broom is very

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abundant on nearby roads and could also be easily imported. Weeds will be a threat until revegetation of disturbed ground is carried out.

5.7.2. Native plants

Coyote bush is a very effective recolonizer of disturbed sites. Many bushes grow on the eroded banks and along disturbed roadways. These plants have started restoration and will be successful if they are not torn out or crushed by motor vehicles. Uncontrolled water flow down channels and banks will continue to erode the soil from around the coyote bushes. The bushes need help in their function of stabilizing steep bank soils - namely more plants, other species, control of water flow and recontouring steep slopes to more stable angles.

Under the forest cover of redwood, Douglas fir, and madrone trees, their litter covers the floor as a duff layer. The duff stabilizes the upper soil layers and is quite effective at preventing surface erosion. Accumulation of litter, especially madrone leaves, has begun on the surface of the large, deep, steep walled channel in the forest. However this erosion feature is more than a surface problem and will require extensive soil redistribution as well as surface soil stabilization. The litter would serve the valuable function of protecting the exposed surface soils.

5.8. LITTER (TRASH)

Most of the litter was beer containers, displeasing esthetically but also indicative of the philosophy of use of the area by the dischargers. Vehicle parts, a battery at the lagoon and oiled'soil around an abandoned vehicle are telling examples of the recent history and current use of the area. Serious pollution of lagoon waters and surrounding soils will continue if vehicles are not excluded.

6. RECOMMENDATIONS

The heart of these recommendations is to eliminate erosion. Two main tasks are necessary, one mainly of policy and the other of on-the-ground work. Illegal vehicles are the initial cause of erosion and they should be excluded immediately and completely. This is basically a policy effort and will require constant address. The other task is to control erosion and reverse it effects and this too should be carried out as immediately and completely as possible. It is

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nearly totally an on-the-ground effort, but most of the work is needed early and only diminishing maintenance and monitoring efforts will be needed through the first few years. Constant vigilance may be needed to keep out ORVs, but erosion restoration should heal itself once the 'bleeding has stopped and the wound been dressed." Control of ORVs will also solve ancillary problems: litter, firearms violations, chemical and noise pollution, threat to wildlife, damage to wildlife habitat, and destruction of vegetation.

Once the immediate problems have been addressed and the area has stabilized and put on a trajectory of recovery towards pristine conditions, long-term and biological management problems can be addressed. Monitoring of Buzzard Lagoon will be needed for the long term, and some maintenance in the form of biological controls. Such issues as protecting or managing the amphibians (once they are better known), dealing with pig disturbance, modifying the flora are possible tasks in maintenance of the. lagoon. Other physical factors such as managing the lagoon under wetter winter conditions may also be considered.

6.1. ACCESSCONTROL

6.1.1. Perimeter barriers

Parks has done very well at preventing entry of illegal 4-wheel vehicle by emplacing concrete-filled steel posts at entry points. Posts should be planted at the few remaining potential entry sites off of Buzzard Lagoon Road. Posts should be linked by cable to prevent dirt bikes from passing between the posts. Admittedly, dirt bikes can go nearly anywhere, even be carried, so cable will not necessarily exclude them. Bikers will probably find other entry sites. Nonetheless, cable and/or close spacing of posts will be an effective physical, psychological and visual barrier.

Trees and shrubs should be planted to eventually replace posts with natural barriers of thickets and trees. Vines and climbing shrubs such as honeysuckle, blackberry, poison oak grow in the area, are native, and would cover cables or fences, if installed.

Rehabilitated erosion surfaces must be protected from illegal vehicles. Posts should be planted and cables stretched across previous channels and vehicle routes at critical points such as top, bottom, and midway. Barriers should be

placed or supplemented with other barriers in order to prevent detour and reentry to the protected surface.

6.12. Signs

Many clearly and firmly worded signs should be placed with barriers; for. example: "Restoration area. No vehicle entry. Foot travel avoid restoration areas." Signs should also be placed along the road and will need to be maintained. Parks should be completely intolerant of any illegal trespass; Parks has the legal obligation to protect the area, and some signs might carry legal code references. Some signs should also be educational, with short explanations of the ecology and history of the site.

6.1.3. Law enforcement

Enforcement of codes against violators should be carried out. The physical presence of Park patrols would reinforce the signs and would discourage most violators. However, blatant or repeat or destructive violators should be prosecuted. Parks is the conservator of this property and should not tolerate gratuitous destruction of public-trust values. Legal consequences would effectively reinforce the message that signs, fences and patrols carry and probably would be effective use of time to terminate the pattern of violations.

6.1.4. Communication

Communication should be made to 'appropriate local sportsman clubs, hunting organizations, motorcycle groups, off-road vehicle clubs, motocross tracks, perhaps ORV retailers and other organizations which communicate with potential abusers. A simple letter could suffice. The letter should concisely state the problem - severe damage to public resource, and solutions - enforcement of laws against further destruction, and the request for cooperation.

6.1.5. Volunteers

Local conservation organizations should be aggressively pursued for their help. They will provide invaluable human resources. Their presence would discourage or eliminate illegal activities; at the least they would report violations. They would form "patrols", schedules of people who would point out signs to prospective violators, record license numbers, and report damage. They would erect and maintain barriers and signs, organize and direct other

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volunteers in much of the physical labor of erosion control and restoration, generate outreach programs and provide education. There are numerous volunteer organizations in the Monterey Bay area such as Sempervirens Fund with which Parks has an effective relationship. There is potential to form others such as a Friends of Nisene Marks Park, Buzzard and White's Lagoon Committee; and link up with others such as Wetlands Watch in Watsonville, California Native Plant Society, University-of Santa Cruz intern program, Monterey Bay Salmon and Trout Project, and Santa Cruz Bird Club. A concerted effort should be made to identify and survey organizations and solicit their help.

6.1.6. Hikers

Legitimate foot traffic within the park should be instructed to avoid delicate healing areas, including the perimeter of the lagoon. Alternate walkways will have to be identified or created. Eventually a trail plan may need to be developed to protect healing areas, help in conservation of lagoon. Key points of the plan would be incorporated in visitor &formation mate&l, such as park maps and educational brochures.

6.1.7. Road control

A plan to gate Buzzard Lagoon Road should be formulated and analyzed. The gate should be at the Park property boundary. Property owners with legal right-of-way should be accommodated. The plan should also address the feasibility of Parks acquiring property served by the road through purchase or land exchange in order to gain complete control of roads. There is a long history of correspondence concerning this subject. Conservation land managers, such as the Big Sur Land Trust, would provide direction and help to initiate this solution.

6.1.8. Monitoring

Monitoring must accompany the implementation of the above measures. Monitoring will identify failures. Successes may be used as models to apply to failures in order to improve them. Lessons from other projects could be helpful input. This is another task which could be effectively performed by volunteer groups, especially those drawn from a variety of sources and which could provide a diversity of solutions.

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6.2. EROSION CONTROL

Water which has flowed along channels, for many decades in some cases, must be diverted and dispersed. The unstable soil surfaces-of the present erosion courses and vehicle tracks must be reformed, protected and rehabilitated with vegetation.

6.2.1. Tasks

6.2.1.1. Water diversion

Water must be dispersed from bare soil surfaces to minimize volume and velocity. Along roads and channels many small and closely spaced cross channels should be etched in the surface at a low angle relative to slope line, i.e. so that water running along them will have minimum velocity. Size -and spacing will be a function of slope steepness, more on steeper slopes. Channels should be small and'not themselves become erosional features or' drain onto vulnerable soil i.e. already disturbed or bare or unduly steep. Berms along road edges should be leveled as much as p'ossible. The aim is to redistribute channelized water flows back to a natural dispersed flow, and not to artificially rechannelize water. Water should not be channeled into either of the two existing natural drainages, north or southwest.

6.2.1.2. Water control

Velocity and erosion potential of water should be controlled by dressing the surface of bare soil with leaf litter (redwood forest duff under the forest), straw, or even non-aggressive annual grass such as Zoro annual fescue (but not annual ryegrass). Water bars will be the same as the cross channels as described above.

6.2.1.3. Channel recontouring

The gullied middle of each channel should be filled in to form a smooth surface. Channel edges should be recontoured to a less steep and more stable (natural?) grade. Soil from the channel edges will provide fill for the gullies. Fertile topsoil from the channel edges should be conserved and used on surfaces for advantage in revegetation. Fertile sands along channel bottoms should also be used on the surface for advantage in revegetation. If and when the lagoon is dredged, that soil will be fertile and should also be used on the surface to help in revegetation.

6.2.1.4. Surface protection

Vulnerable recovering surfaces should be protected in the short-term from water erosion. Natural local leaf litter gathered from beneath the conifer forest floor would be appropriate for those surfaces within the forest. It should be supplemented by straw of non-invasive grasses such as wheat or' barley, or of appropriate native species such as needlegrass. Exposed soil on brush lands should be protected by straw cover and also live annual grasses such as Zoro annual fescue, an alien species which will not become an invasive pest. Native grasses local to the site such as melic and needle grass could also be seeded.

Posts, cables and alternate trails should be used if necessary to prevent trespass and disturbance by foot traffic and illegal vehicles:

Long-term protection should be provided by planting appropriate material at the same time that short-term measures are implemented. In the forest, trees and shrubs should be planted: madrones, Douglas firs and redwoods and coffee berry and poison oak would be appropriate. Material should be from local sources. Plantings should be considered also as protecting against trespass; therefore at least some of the material, particularly trees, should be large. In some cases the large material may in turn need protection such as chicken wire enclosures.

Monitoring should be carried out for several years. Monitoring will identify maintenance needs on sites or' tasks. Accommodation must be made to replace plant material if it is damaged or killed. Plant material may also need to tested for appropriateness. For example, survival under the shade of the forest may be low.

6.2.2. Sites

Shrubs, oaks and vines should be planted along Buzzard Lagoon Road and the west slope to form a vegetative barrier to vehicle entry and travel. The track should be scored at right angles to the slope gradient and mulched and/or planted with grasses for erosion protection, and with shrubs, particularly coyote bush. The two pits near the top should be filled.

The upper east slope track should be cross ditched with many small frequent water diversion channels to distribute water off the steep face. Some larger

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plants should be planted in the middle of the track to discourage access. Poles may also be planted at the top middle and bottom of the track to prevent access. The road to the west should also be cross channeled through the berm, or the berm removed, and poled. Its surface should be scored and-mulched to facilitate germination of erosion controlling seeding. Seeding with just coyote bush seeds may also be satisfactory.

The most significant single erosion feature is the vertical drop of about four feet at the end of the historic road. This waterfall needs immediate attention because the rate of erosion is so severe. Rehabilitating the historic road will greatly relieve erosion. Nonetheless, the cavity should be filled with rock or other fill, the sides of the channel reformed to a gentler slope and dispersing. channels to the side should be incised. Little planting appears necessary since the erosion feature along a good cover of brush. Some seeding and mulch should be used on the raw soil resulting from recontouring. Water could be diverted from this erosion scar onto the main vehicle track by digging a channel, but this diversion would be inadvisable since it would route water into a worse erosion event.

The lower east slope comprises the bulk of the ORV track with severe erosion. A great amount of recontouring is required along the upper part of this area. Recontouring would consist of filling in gullies, grading the sides of the major channel to more stable lower angles, smooth the track, and form many small cross channels for water diversion. Here also would be the greatest area of raw soil which would require stabilization with mulch and planting. This area is at the interface of the upper brush land and the forest and could be planted both with faster growing shrubs, particularly coyote brush, as well as trees. Forest leaf litter as well as straw mulch could be used here as well. Also, much topsoil and some deposited sediment should be salvaged for surface dressing to enhance plant growth Judgment will be required to-recontour the edges. In some cases the steep channel walls appear to have been eroding Slowly for decades in an apparently non-destructive way. The walls have been colonized by &ants, although not very effectively. It may be acceptable to allow some vertical faces to remain instead of massively recontouring them. However, planting shade-tolerant species such as melic and especially native bent grasses and bushes such as coffeeberry should be attempted to stabilize steep slopes.

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erosion from winter rains by mulch cover and surface contouring. It may be desirable or necessary to stockpile sediment if all work cannot be completed before rains. Stockpiled sediment should be stabilized against erosion by straw, other mulch, or an impervious cover such as tarps.

Flora and fauna should also be considered within the context of removing sediment. Randy Morgan has recommended measures for conserving floral elements. Steve Ruth, herpetologist at Monterey Peninsula College, recommends conducting surveys for important amphibian species, particularly Santa Cruz long-toed salamanders and red-legged frogs. Surveys for them should be made during winter rains. Excavation of the west fan will probably not be harmful to the known newt populations.

Populations of both flora and fauna should be monitored. Pre- and post-excavation populations should be compared to determine excavation effects. Surveys and effects assessment need not be very rigorous, but certainly presence or absence with order-of-magnitude abundance would be feasible and would provide useful insights to excavation effects. Any effects of pig activity.should be noted.

Protection of the lagoon and its biota should be effective when vehicle access and erosion are controlled. Litter and pollution will cease. Monitoring lagoon waters, at least visually, for oil sheens and other signs of pollutants should be carried out. Current pollutants, such as batteries, should be removed. Foot traffic and pig disturbance remain potential agents of disturbance, but neither appears currently problematic. Amphibians, especially listed forms, should be recognized and accommodated. Monitoring for invasive weeds should be conducted, requiring simple visual inspection occasionally.

Long-term recommendations are dependent on weather, effectiveness of implementation of policy and restoration measures. If and when the lagoon is returned to a pristine state more protective measures could be required: more control of access; management of plant species, such as willows and exotics; control or exclusion of pigs; and management and protection of sensitive wildlife, especially salamanders.