Rimrock Ranch
Draft Specific Plan/EIR

SCH #98092066

July 15, 2000

Prepared by:

Mono County Planning Department
P.O. Box 8
Bridgeport, CA 93517
(760) 932-5217

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SUMMARY--RIMROCK RANCH DRAFT SPECIFIC PLAN/EIR

- **Draft Specific Plan/Environmental Impact Report**
  The Rimrock Ranch Draft Specific Plan/Environmental Impact Report addresses State planning law requirements for a Specific Plan and CEQA requirements for an EIR in one integrated document, as allowed by §15120 (b) of the CEQA Guidelines.

- **Project Description**
  The project objective is to provide rural residential parcels (including access and utilities) for construction of a custom designed single family residence on each parcel.

  The 180-acre Rimrock Ranch Specific Plan will designate 100± acres for a wildlife corridor and will subdivide 80 acres into thirty-five (35) lots with a minimum parcel size of 2.0 acres gross (see Tentative Tract Map, Appendix C). The lots will be used for single-family residential development. Specific Plan policies establish land use and design standards for the proposed development.

  The 80-acre single-family residential land use is proposed to be consistent with the General Plan designation of Specific Plan and the zoning district "Estate Residential". The project density on an 80-acre portion (approximately 1 dwelling unit per 2 acres) is proposed to be consistent with surrounding residential uses and with Wheeler Crest Area Plan policies. Previously, 100 acres of the Specific Plan site was sold to the California Department of Fish and Game for a wildlife corridor.

- **Public Concerns Regarding the Proposed Project**
  During the scoping process for the project, concerns were raised regarding the following topics:

  a. Impacts to water resources.
  b. Impacts to traffic.

  These concerns are considered in the project design and analyzed by the Draft EIR along with other environmental factors.

- **Significant Effects and Proposed Mitigation Measures**
  CEQA requires an EIR to identify significant environmental effects of a proposed project (CEQA Guidelines Section 15126.2 a) and mitigation measures which could minimize those potential impacts (CEQA Guidelines Section 15126.4). The Environmental Analysis in Chapter IV determined that the following potential environmental effects of the Rimrock Ranch Specific Plan could be significant; proposed mitigation measures would reduce the potential effects to a less than significant level. A summary of the proposed mitigation measures for each of these impacts is contained in the Mitigation Monitoring Program (Chapter VI).

  a. Erosion impacts (see Chapter IV, "Geology and Soils" and "Air Quality").
  b. Impacts to groundwater (water quantity impacts) (see Chapter IV, "Water Resources").
  c. Impacts to plant life (see Chapter IV, "Vegetation").
  d. Impacts to animal life (see Chapter IV, "Wildlife").
  e. Visual impacts (see Chapter IV, "Visual Resources").

- **Significant Unmitigatible Effects**
  CEQA requires an EIR to describe any unavoidable significant impacts, "... including those which can be mitigated but not reduced to a level of insignificance" (CEQA Guidelines Section 15126.2 b). The Draft EIR concludes no unavoidable significant environmental effects will occur as a result of implementing the Rimrock Ranch Specific Plan.

- **Project Alternatives**
  The Draft EIR describes five project alternatives, including a No Project Alternative, a Redesigned Project (Fewer Lots), a Redesigned Project (Larger Lots), a Redesigned Project (Clustered Development), and an Alternative Site Project and compares them to the Project described in the Rimrock Ranch Specific Plan. The alternatives developed for the proposed Rimrock Ranch were evaluated based on their potential to eliminate significant adverse environmental effects or reduce them to a level of insignificance, as well as to attain the project objective.

- **Environmentally Superior Alternative**
  The Environmentally Superior Alternative is the No Project Alternative since it would not create any environmental impacts. However, the No Project Alternative would not fulfill the project objective. When the No Project Alternative is the environmentally superior alternative, CEQA Guidelines § 15126.e.2 requires the identification of an environmentally superior alternative from the remaining alternatives.

  Of the remaining alternatives, the environmentally superior alternative is considered to be **Alternative 2--Redesigned Project (Fewer Lots)** since that alternative would result in the fewest potential impacts. However, Alternative 2 would not completely fulfill the project objective.

I. INTRODUCTION

SPECIFIC PLAN REQUIREMENTS

The Rimrock Ranch Draft Specific Plan/Environmental Impact Report (SP/EIR) addresses California planning law requirements for a Specific Plan and California Environmental Quality Act (CEQA) requirements for an EIR in one integrated document, as allowed by §15120 (b) of the CEQA Guidelines.

The Rimrock Ranch Specific Plan contains the following requirements as specified in §65451 of the California Government Code:

A. Text and a diagram or diagrams which specify all of the following in detail:
   1. The distribution, location, and extent of the uses of land, including open space, within the area covered by the plan.
   2. The proposed distribution, location, extent, and intensity of major components of public and private transportation, sewage, water, drainage, solid waste disposal, energy and other essential facilities proposed to be located within the area covered by the plan and needed to support the land uses described in the plan.
   3. Standards and criteria by which development will proceed, and standards for the conservation, development and utilization of natural resources, where applicable.
   4. A program of implementation measures including regulations, programs, public works projects, and financing measures necessary to carry out paragraphs 1, 2 and 3.

B. A statement of the relationship of the specific plan to the general plan.

RELATIONSHIP OF SPECIFIC PLAN TO EIR

The development standards and implementation measures required in a Specific Plan (see Chapter V, Specific Plan Goals, Policies, & Implementation Measures) serve as the mitigation measures for potential impacts identified in the environmental analysis portion of this document (Chapter IV). If the project is approved, a Mitigation Monitoring Program will be prepared (see Chapter V), as required by the CEQA (PRC §21081.6) and the Mono County Environmental Handbook.

RELATIONSHIP OF SPECIFIC PLAN TO MONO COUNTY GENERAL PLAN

The Mono County General Plan and its associated Area Plans contain general land use policies for the unincorporated areas of the county. The Rimrock Ranch Specific Plan provides detailed direction for implementation of General Plan and Area Plan policies for a specific area of the Wheeler Crest Area Plan.

Section 65454 of the Government Code requires a proposed specific plan to be consistent with the General Plan, including any applicable Area Plan. The Rimrock Ranch Specific Plan has been designed to be consistent with all provisions of the Mono County General Plan and the Wheeler Crest Area Plan. The Wheeler Crest Area Plan designates the proposed project area as Low Density Residential and calls for overall densities in the Wheeler Crest Planning Area not to exceed one unit per two acres and for a two acre minimum lot size (**Mono County General Plan Land Use Element**, Wheeler Crest Area Plan, Objective A, Action 1.1). The Specific Plan designation is intended for undeveloped areas and provides detailed site-specific analysis and planning. The provisions of the Mono County General Plan and the Wheeler Crest Area Plan apply except where other policies and implementation measures are detailed in the Rimrock Ranch Specific Plan.

REQUIRED CONTENTS OF AN EIR

CEQA requires lead agencies to prepare an Environmental Impact Report (EIR) in cases where a project may have a significant effect on the environment. A "significant effect" is defined as:

> " ... a substantial, or potentially substantial, adverse change in any of the physical conditions within the area affected by the project, including land, air, water, minerals, flora, fauna, ambient noise, and objects of historic or aesthetic significance. An economic or social change by itself shall not be considered a significant effect on the environment. A social or economic change related to a physical change may be considered in determining whether the physical change is significant."
> (CEQA Guidelines Section 15382)

An EIR is an informational document which is intended to a) inform decision makers and the public of the significant environmental effects of a project, b) identify possible ways to minimize those significant effects, and c) describe a range of reasonable alternatives to the project (CEQA Guidelines Section 15121).

The CEQA Guidelines require that EIRs contain specific elements (Guidelines Sections 15122-15132). The location of each required element is noted below:

INTENDED USES OF THE EIR

Public Agencies Using the EIR

The following agencies are expected to use the EIR in their regulatory and approval programs:

State

Lahontan Regional Water Quality Control Board. NPDES permit (if necessary).

Local

Mono County Health Department. Well and septic system design approvals.

Mono County Planning Department. Planning permit approvals (building permits).

Mono County Public Works Department. Grading permits and construction approvals (building permits). Road design and right-of-way approvals. Solid waste design approvals. Tentative Tract map review.

Mono County Planning Commission. Tentative Tract Map and Specific Plan review and recommendations.

Mono County Board of Supervisors. Tentative Tract Map and Specific Plan approvals.

Permits and Approvals Required to Implement the Project

The following additional permits and approvals are required to implement the project:

Mono County Health Department Well Permit and Septic System Permits.
Mono County Board of Supervisors Tract Map approval.
Lahontan NPDES permit (if necessary).

Related Environmental Review and Consultation Requirements

No additional environmental review is required to implement the project.

II. PROJECT DESCRIPTION

PROJECT SETTING

The Rimrock Ranch Specific Plan area is located south and west of existing development along Rimrock Drive in Wheeler Crest, immediately west of the Pinon Ranch subdivision, in the southern portion of Mono County (see Figure 1, Location Map and Figure 2, Vicinity Map). The project site includes approximately 180 acres; 80 acres adjacent to existing development are proposed for subdivision, the remaining 100 acres are proposed for open space designation and have been sold to the Department of Fish and Game for deer habitat protection (see Figure 3, Specific Plan Map).

The project site is located adjacent to existing development on two benches in a gently sloping area. The benches are divided by a drainage course which traverses northwest to southeast through the middle of the property. The drainage course enters the property in a water-cut channel, approximately 150 feet deep and 500 feet wide. Where the drainage course exits the property it is much smaller, approximately 20 feet deep and 70 feet wide (this large rather drainage course is on a 100 acre property owned by the Department of Fish and Game but is still part of the Specific Plan area). Other smaller drainages also exist onsite (see Figure 3, Specific Plan Map).

The upper bench area is north of the large drainage channel, adjacent to the Pinon Ranch development. This area slopes southeasterly and southerly at grades of 7 to 14 percent. The elevation of this area varies from about 6,000 feet to 6,340 feet above sea level. An unpaved airport runway is located on this bench, about 500 feet west of Pinon Ranch. The runway will be abandoned after the Specific Plan is adopted. The lower bench area is located on either side of the drainage channel on the southern portion of the property. It slopes southeasterly at grades of 10 to 20 percent and varies in elevation from 5,450 feet to 6,050 feet above sea level. The benches are connected by two dirt roads.

Existing vegetation is primarily Great Basin Sagebrush Scrub, with bands of riparian vegetation along the drainages. Riparian vegetation along the major drainage course varies in width from 30 to 120 feet. A few pinon pines are scattered throughout the property but there are no significant stands of trees onsite.

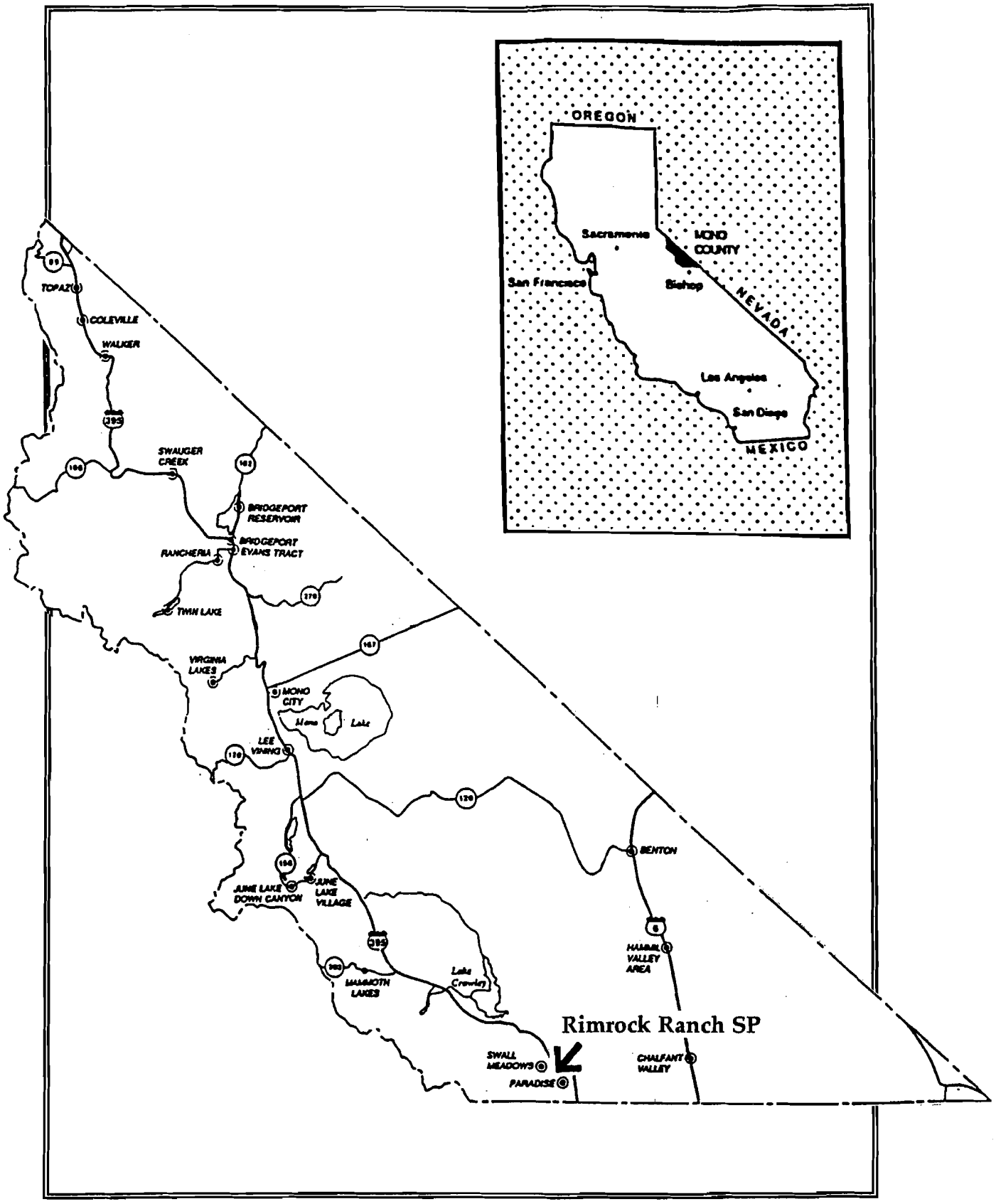
Access to the property is from the north via Valley View Road and Rimrock Road, which are county maintained paved roads, or from dirt roads located to the south of the property on City of Los Angeles land which connect the property to Lower Rock Creek Road near Paradise Estates (see Figure 2, Vicinity Map).

The property is currently undeveloped with the exception of a hangar at the airstrip. An above ground transmission line runs north-south along the western edge of the property.

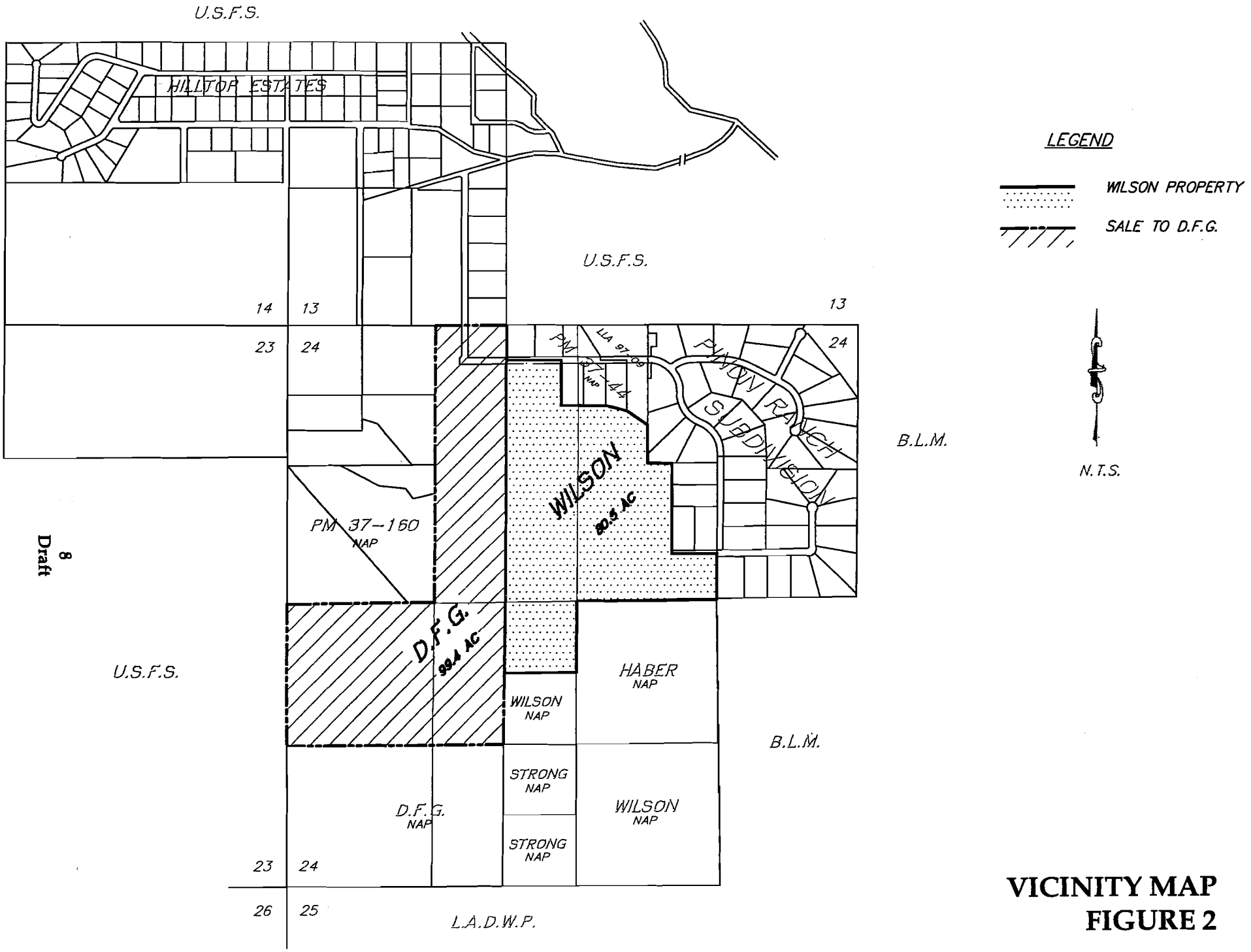
The project site is surrounded to the north and east by single-family residential development, to the west by public lands managed by the Inyo National Forest, and to the south by private land and by public lands managed by the U.S. Bureau of Land Management (see Figure 2, Vicinity Map).

PROJECT OBJECTIVE

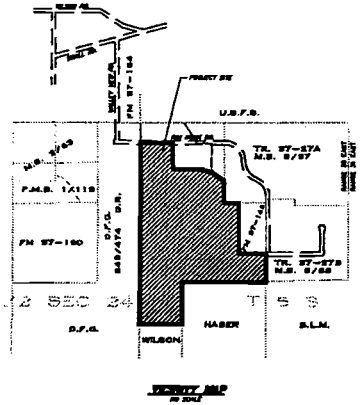
The project objective is to provide 35 rural residential parcels (including access and utilities) for construction of a custom designed single-family residence on each parcel.



LOCATION MAP
FIGURE 1



VICINITY MAP
FIGURE 2



VICINITY MAP
NO SCALE

Draft
9
July 2000

DESIGN NOTES

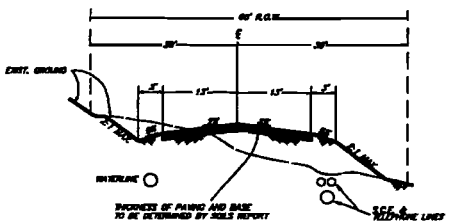
ASSESSOR'S PARCEL NO.: TO BE ASSIGNED, POR 64-100-33
GROSS SITE AREA: 80.52 ACRES±
DENSITY: 2.30 ACRES (AVERAGE) PER LOT GROSS
MINIMUM LOT SIZE: 2.00 ACRE PARCEL GROSS
EXISTING ZONING: RR2
EXISTING LAND USE DESIGNATION: ESTATE RESIDENTIAL
WATER SUPPLY: WHEELER CREST COMMUNITY SERVICES DISTRICT
SEWAGE DISPOSAL: INDIVIDUAL SEPTIC/LEACH FIELDS
ELECTRICITY: S.C.E.
TELEPHONE: G.T.E.
FIRE PROTECTION: WHEELER CREST FIRE PROTECTION DISTRICT

PRIOR PHASES OF RIMROCK RANCH

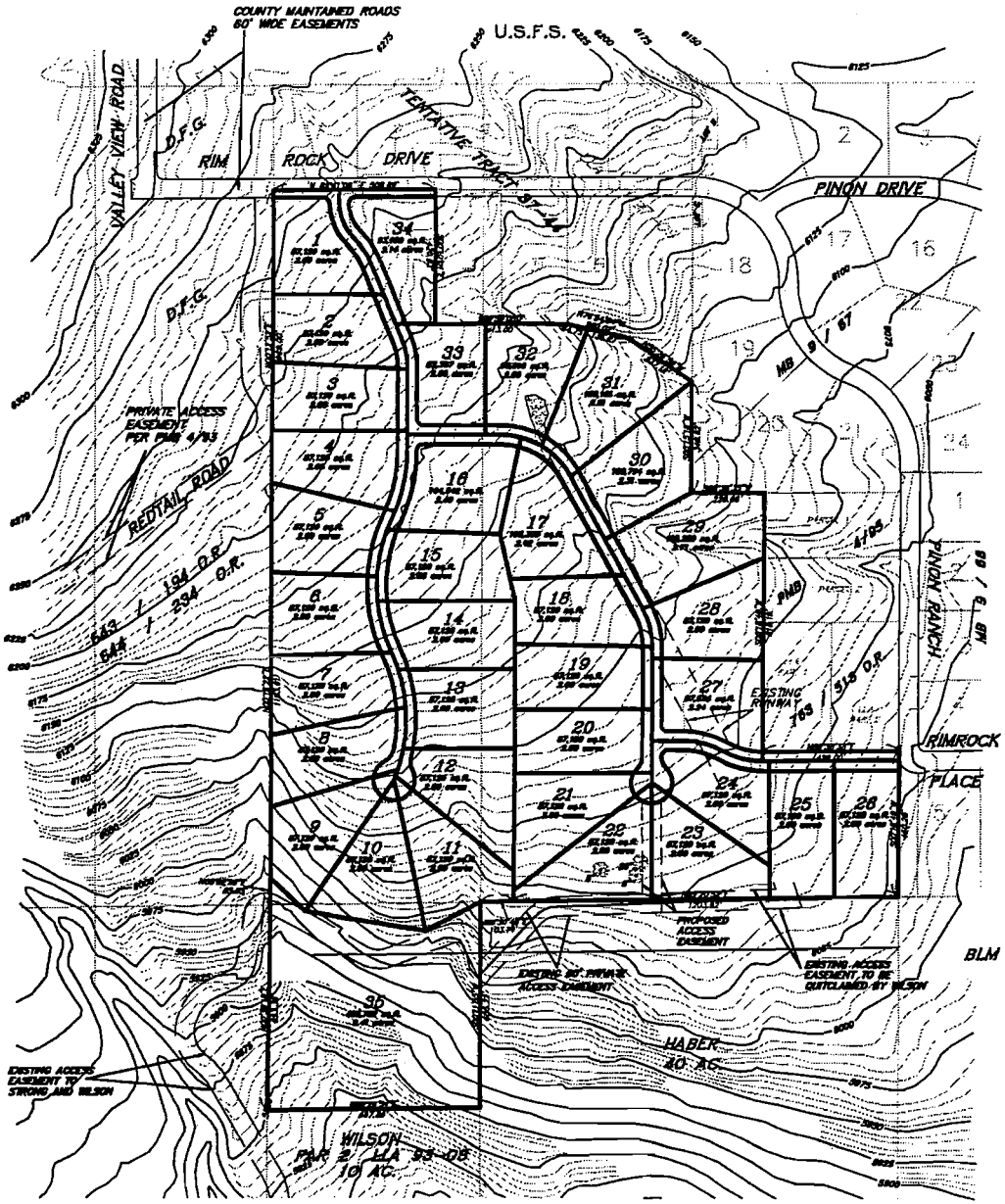
PHASE 1: LOTS 1 - 3 OF LLA 97-09
PHASE 2: LOTS 1 - 8 OF TRACT 37-44

FUTURE PHASING - SUBJECT TO CHANGE

PHASE 3: LOTS 1 - 4, 16, 32 - 34
PHASE 4: LOTS 20 - 27
PHASE 5: LOTS 17 - 19, 28 - 31
PHASE 6: LOTS 5 - 15, 35



PROPOSED ROAD SECTION & UTILITY LOCATION
N.T.S.



RIMROCK RANCH SPECIFIC PLAN MAP
FIGURE 3

OWNER
WILSON FAMILY TRUST
C/O JOHN R. WILSON
RTE 2, BOX 321
BISHOP, CA 93514
(760) 387-2421

DEVELOPER
RIMROCK RANCH PARTNERSHIP
C/O JOHN R. WILSON
RTE 2, BOX 321
BISHOP, CA 93514
(760) 387-2421

GRAPHIC SCALE
(IN FEET)
1 inch = 600 ft.

LOT CONFIGURATION
RIMROCK RANCH SPECIFIC PLAN
PREPARED FOR: RIMROCK RANCH PARTNERSHIP

triad/holmes associates
Bishop office: 211 west line st., suite 1, bishop, ca 93514 (760) 873-4273
Mammoth lakes office: p.o. box 1570 mammoth lakes, ca 93546 (760) 934-7588
Irvine office: 17782 mitchell n., suite 1, irvine, ca 92614 (949) 474-0311
civil engineering surveying land development

DATE 05/12/00
SCALE 1" = 200'
DRAWN RLP
JOB NO. 430.1
A:\SCP\LOTS.DWG
SHEET 1

PROJECT DESCRIPTION

The Rimrock Ranch Specific Plan will allow subdivision of 80 acres of the approximately 180-acre project site into thirty-five (35) lots with a minimum lot size of 2.0 acres gross (see Figure 3, Specific Plan Map and Appendix C, Tentative Tract Maps). The lots will be used for custom designed single-family residential construction. Specific Plan policies establish land use and design standards for proposed future development. C.C. & R's recorded for the project site also address a number of development concerns; Specific Plan policies are intended to be consistent with the adopted C.C. & R's.

Open Space

Open space will be provided in several ways within the proposed Specific Plan area (see Figure 4, Open Space Plan). Within the approximately 80 acres proposed for subdivision and subsequent development of single-family residences, large setbacks (50 feet on all sides) will create 100-foot wide development-free corridors along property boundaries. A required 30-foot setback from the top of the bank of onsite perennial drainages will maintain open space along those drainages. Certain areas of riparian vegetation, identified by the project biologist as desirable for wildlife habitat, will be preserved with open space easements which will allow no construction (structures or utilities) and no fencing.

The 100-acre area of the Specific Plan, which was previously sold to the California Department of Fish and Game (DFG), is managed by the DFG as deer habitat along with an additional 60 adjacent acres obtained from another landowner, and will be maintained as open space.

Infrastructure/Utilities

Water

Water will be provided by the Wheeler Crest Community Service District (CSD). A new well, reservoir, and pipelines constructed for the development of lots along Rimrock Drive (Tract Map 37-44) will be utilized for the project. The project proponent is also proposing a series of underground fiberglass storage tanks, approximately 20,000 gallons each, connected to the reservoir. Figure 5 shows the layout of the proposed water system.

The project proponent and engineer have stated that the new Rimrock system will be fully integrated with the existing Pinon Ranch system, providing water for domestic and fireflow uses for the Rimrock Ranch area and improving the water supply for the Pinon Ranch area. Since the Rimrock Ranch Specific Plan area is located on land with a substantial elevation difference, it will require two water pressure zones. The upper lots will be supplied directly from the upper reservoir located just north of Rimrock Drive. The lower lots will be supplied from the existing Pinon Ranch reservoir and/or from the upper distribution lines after a reduction in pressure. The Pinon Ranch reservoir and Pinon Ranch lots will also be supplied from the upper distribution system.

Initially, the water system will have a minimum of 60,000 gallons of storage for fire protection, equal to a flow of 500 gallons per minute for a two hour period, in addition to storage for domestic use. Another 60,000 gallons of storage will be provided at project buildout (120,000 gallons total). The fire flow portion of the storage has been designed and constructed since it is a requirement of an approved Tract Map (Tract Map 37-44 which allows for the development of lots along Rimrock Drive). Domestic use storage will be added as necessary for the project.

Sewer

Individual septic systems will be utilized and will be designed and constructed in compliance with Mono County Health Department requirements. The Mono County Health Department has been given the authority by the Lahontan Regional Water Quality Control Board (RWQCB) to review, process and permit septic systems for developments that only discharge domestic waste. The siting of individual sewage disposal systems for the proposed project will comply with the

"Criteria for Individual Waste Disposal Systems" in the Water Quality Control Plan for the Lahontan Region (Basin Plan).

On most of the lots, the Health Department will require a standard sewage disposal system with supporting percolation tests for each lot prior to lot development. In areas where the depth to bedrock is eight feet or more with suitable soils and acceptable percolation tests, conventional leach fields will be utilized. In areas where the depth to bedrock is eight feet of soil or less or where percolation tests are not acceptable, sand filter pressure dosing systems may be utilized. Depending on the results of percolation tests, neither conventional or sand filter pressure dosing systems may be suitable. In such cases, special designs or systems may be required.

Gas
Individual propane tanks may be installed on each parcel. Specific Plan policies require screening of propane tanks.

Electric
Electricity will be provided by Southern California Edison from the transmission main along the western boundary of the project site. Utility lines will be installed underground in conformance with Mono County General Plan and Wheeler Crest Area Plan policies.

Phone/Cable
Telephone service will be provided by GTE from an existing pole route along the western boundary of the project site. Utility lines will be installed underground in conformance with Mono County General Plan and Wheeler Crest Area Plan policies.

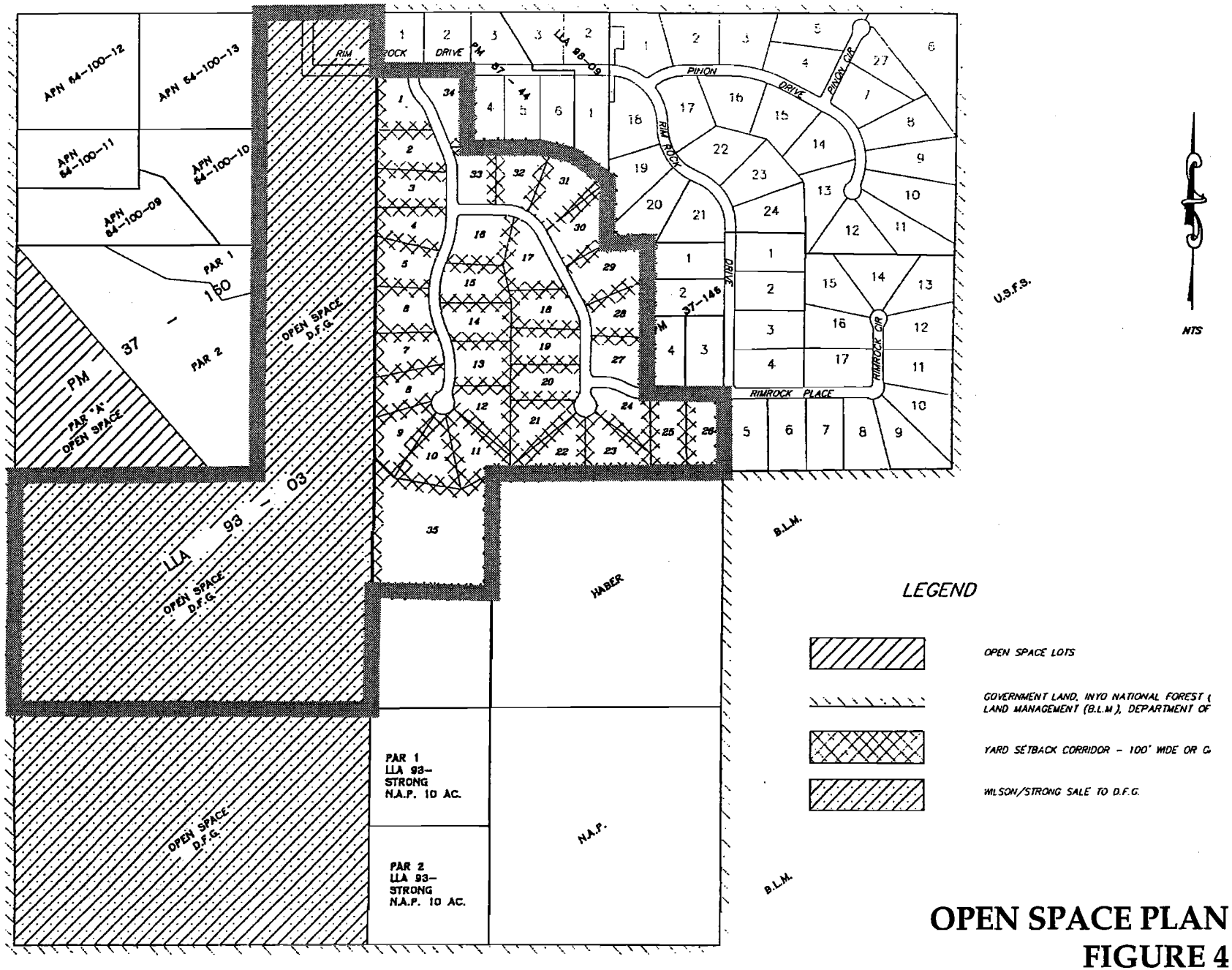
Solid Waste Disposal
Individual property owners will be responsible for transporting their solid waste to the Paradise Transfer Station.

Streetlights
Streetlights will not be provided. Specific plan policies address outdoor lighting at individual residences.

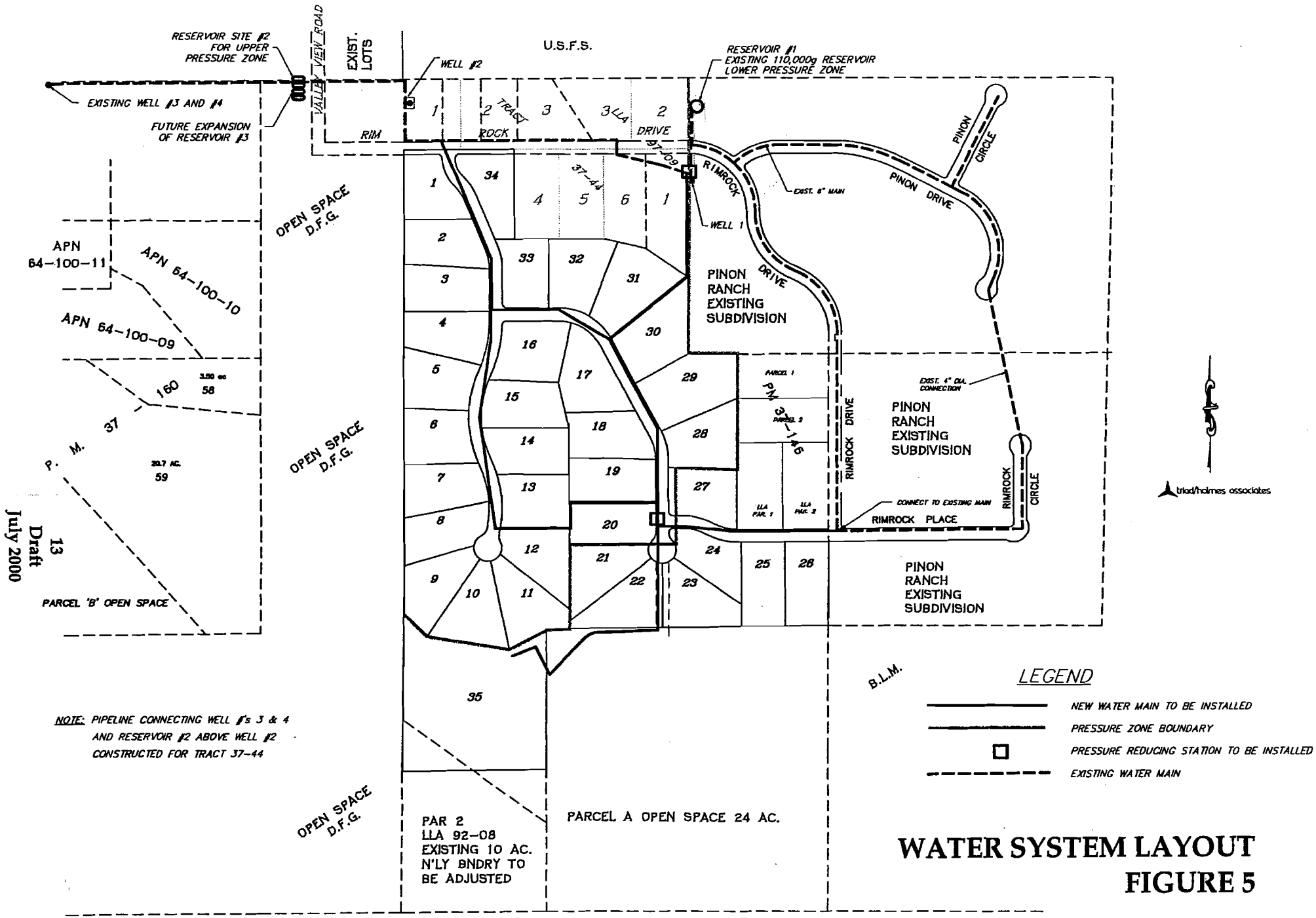
Road Maintenance
Newly created roads will be constructed to County Roadway standards and will be County maintained. A zone of benefit district will be created for all lots along newly accepted County roads in order to pay for road maintenance.

Drainage
Specific Plan policies and the project's C.C. & R's prohibit interference with established drainage patterns.

Fire Prevention/Suppression
Fire prevention and suppression services will be provided by the Wheeler Crest Fire Protection District (FPD); Specific Plan policies require a will-serve letter from the Wheeler Crest FPD prior to approval of the tract maps. The water system will have a minimum of 60,000 gallons of storage for fire protection, equal to a flow of 500 gallons per minute for a two hour period. Fire hydrants will be installed to the satisfaction of the Wheeler Crest FPD. All road improvements will comply with CDF Fire Safe regulations.



OPEN SPACE PLAN
FIGURE 4



WATER SYSTEM LAYOUT
FIGURE 5

Access
All roads will be constructed to Mono County Roadway standards, with a 60 foot right-of-way and 26 foot wide paved traffic lanes. Road grades will not exceed nine (9) percent. All road improvements will comply with California Department of Forestry (CDF) Fire Safe regulations for emergency access. At the north edge of the property, the main road through the development will connect with Rimrock Drive just east of its junction with Valley View Road; at the south edge of the property, the same road will connect with Rimrock Drive at its junction with Rimrock Place (see Figure 3, Specific Plan Map, and Appendix C, Tentative Tract Maps). This will create an alternative route for most of Rimrock Drive, providing a secondary route for emergency access. One additional cul-de-sac road will join the main road through the subdivision, providing access for additional lots.

Design
Design guidelines in the Specific Plan are intended to ensure that development of the project minimizes potential impacts to the existing visual environment in the vicinity, to water quality and air quality, and to wildlife habitat. Landscaping is required to minimize visual impacts from structures and to provide vegetative screening to reduce deer avoidance of developed areas. Design guidelines in the Specific Plan require the use of specific building and fencing materials in order to help ensure that development harmonizes with existing development in the area, the surrounding natural environment, and onsite topography. Specific Plan policies limit the amount of site disturbance and require revegetation of disturbed areas with native vegetation as soon as possible following construction. Phase II EPA certified wood-burning devices are required, in conformance with the Mono County General Plan, in order to reduce impacts to air quality.

Animals
Specific Plan policies and C.C. & R.'s for the project restrict animals to small domestic animals (e.g. dogs, cats, rabbits) horses and other large animals (e.g. sheep, llamas, cattle and other grazing animals) as permitted by Mono County Zoning and Development Code Section 19.03.270 and require those animals to be contained at all times.

PROJECT PHASING

The project proponents intend to develop the project in the following four phases:

Phase 1	Lots 1-4, 16, 33, 34	(Tentative Tract Map 37-45)
Phase 2	Lots 17-21, 27-32	(Tentative Tract Map 37-47, Phase 1)
Phase 3	Lots 22-26	(Tentative Tract Map 37-47, Phase 2)
Phase 4	Lots 5-15, 35	(Tentative Tract Map 37-49)

As noted above, Tentative Tract Maps have been submitted for all four phases (see Appendix C). The proposed Rimrock Ranch Specific Plan is part of ongoing development in the Rimrock Ranch area of Wheeler Crest; Tentative Tract Map 37-45, which is Phase 1 of the Rimrock Ranch Subdivision, is Phase 3 of the overall development, etc.

PROJECT FINANCING

The project will be financed with private funding. The Economic Analysis section of this chapter contains additional information concerning project financing.

ECONOMIC ANALYSIS

The Wheeler Crest Area Plan requires an economic analysis, including projected public costs, if any extension of services will be required for a proposed project (Mono County Land Use Element, **Wheeler Crest** Policies, Objective A, Action 1.3). The following discussion, provided by

the Rimrock Ranch Partnership, addresses the development of the water system as well as additional construction related costs.

The project will utilize private funding from the Rimrock Ranch Partnership which has previously developed nine lots along Rimrock Drive. The Partnership has provided a new water system for the area including a water well, pump, hydropneumatic pressure system and water main along the length of Rimrock Drive which connects to the Pinon Ranch water system. This new system has been dedicated to the Wheeler Crest CSD to serve the lots along Rimrock Drive and to provide additional supply to the Pinon Ranch system. A second reservoir for the Wheeler Crest CSD is now in the design and construction phases.

Funds for improvements for the Rimrock Ranch Specific Plan lots will come from lot sales. Assessment District financing for some of the improvements is a possibility and would be subject to the required public agency approvals. Assessment District financing may be appropriate where the cost of improvements will be shared with other properties within the Wheeler Crest CSD since assessments are spread among affected lots in proportion to the benefit received.

The largest single infrastructure cost will be for the upper pressure zone reservoir, approximately $130,000. Additional wells, pumps, and feeder pipeline will increase the cost to $220,000 to $260,000, depending on the well depth and location and the number of wells needed to provide an adequate supply. This amounts to $6,000 per lot when divided among the nine lots previously developed by the Rimrock Ranch Partnership and the 35 lots proposed in the Rimrock Ranch Specific Plan.

Additional construction costs are directly related to road length and include the following:

TABLE 1 ROAD & UTILITY CONSTRUCTION COSTS, RIMROCK RANCH SPECIFIC PLAN

Item	Price Per Lineal Foot
Grading and Drainage	$ 25
Road Base & Paving	$ 50
Water Main, Laterals, Hydrants	$ 50
SCE fees	$ 15
Common Trench (Power, Telephone, TV)	$ 25
Total Price Per Lineal Foot	$ 165

Total Construction Costs:	
New Road Length 4,250 feet x $ 165 (price per lineal foot)	$ 700,000
Permits and Soil Testing (5 percent of total cost)	$ 35,000
Contingencies (10 percent of total cost)	$ 70,000
TOTAL ROAD & UTILITY CONSTRUCTION COSTS	**$ 805,000**

The 35 lots proposed by the Specific Plan will share the Total Construction Costs at a cost of $ 23,000 per lot.

Source: Rimrock Ranch Partnership, 1/2000

TABLE 2 DEVELOPMENT COSTS PER LOT, RIMROCK RANCH SPECIFIC PLAN

Construction Costs	$ 23,000
Water Supply & Storage	$ 6,000
Mapping, Engineering, Surveying	$ 3,000
Land Cost	$ 16,000
TOTAL DEVELOPMENT COST PER LOT	**$ 48,000**

Source: Rimrock Ranch Partnership, 1/2000

Sale prices are anticipated to vary, from $ 65,000 to $ 70,000 for some interior lots, to $70,000 to $85,000 for some more desirable lots. The profit margin is low for a land development project, but construction costs were estimated on the high side and sale prices on the low side to ensure that the project is feasible in a worst case scenario. Should the average time on market for sales be over three years, carrying costs will eliminate profit. The carrying costs noted above are actually "opportunity" costs since no loans are anticipated; construction will be financed with funds from sales. If sales are poor, other potential investment opportunities will have proven to be a wiser choice, but no other ramifications will result.

TABLE 3 POTENTIAL PROFIT PER LOT, RIMROCK RANCH SPECIFIC PLAN

Average Sale Price	$ 70,000
Commission and Escrow	-- $ 6,000
Net Sale	$ 64,000
Development Cost	-- $ 48,000
Subtotal	$ 16,000
Carrying Cost	
($ 48k @ 10% x 18 months on market)	-- $ 8,000
Potential Profit (17% of $ 48,000)	**$ 8,000**

Fire Service Costs
Fire District fees in Wheeler Crest are collected at the rate of $0.50 per square foot of total dwelling area. This fee is collected on behalf of the Wheeler Crest Fire Protection District at the time that a building permit is issued.

School Fees
School impact fees in Wheeler Crest are collected at the rate of $1.93 per square foot of "conditioned" area (the living area) of a dwelling. This fee is collected on behalf of the Round Valley School District at the time that a building permit is issued.

Solid Waste Fees
Solid waste fees are collected yearly by the County of Mono as a special fee on the tax bills. The fee is $60 per residence and $0 for vacant lots. This fee is reported to cover about 50% of the landfill operational costs while the other 50% is covered by gate fees at the landfills.

Road Maintenance Fees

All lots which will access from the new roads (some do not; a few of the lots access from the existing Rimrock Drive) will be included in a Zone of Benefit for road maintenance. This is very similar to an Assessment District in that the fees are collected yearly on the tax rolls. The fees accrue to Mono County to offset increased costs associated with maintaining the new roadways. If the subdivision is approved, the Mono County Public Works Department will determine the annual costs and make the assessments to each benefiting lot.

III. SPECIFIC PLAN GOALS, POLICIES & IMPLEMENTATION MEASURES[1]

PROJECT GOAL

Provide rural residential separate parcels (including access and utilities) for construction of a custom-designed single- family residence on each parcel.

LAND USE

Objective: Establish a low density, single family development with provision for an open space and wildlife corridor.

Policy 1: Designate the approximately 100 acres owned by the Department of Fish and Game as Open Space/Natural Habitat Protection (OS/NHP). Permitted uses shall be limited to undisturbed natural uses.

Policy 2: Designate the approximately 80 acres intended for subdivision (APN 64-100-33) as Estate Residential (ER) with a two acre minimum lot size (see Figure 6, Land Use Map; 2 acre minimum lot size--**Wheeler Crest Area Plan**, Objective A, Action 1.1).

Policy 3: Permitted uses for the Estate Residential (ER) designation include the following:

a. One single-family residence per parcel.

b. One detached guest house per parcel in compliance with Mono County Zoning and Development Code requirements (MCZDC 19.01.560). The guest house shall not contain any kitchen or cooking facilities (C.C. & R's).

c. Detached secondary residences shall not be permitted (C.C. & R's).

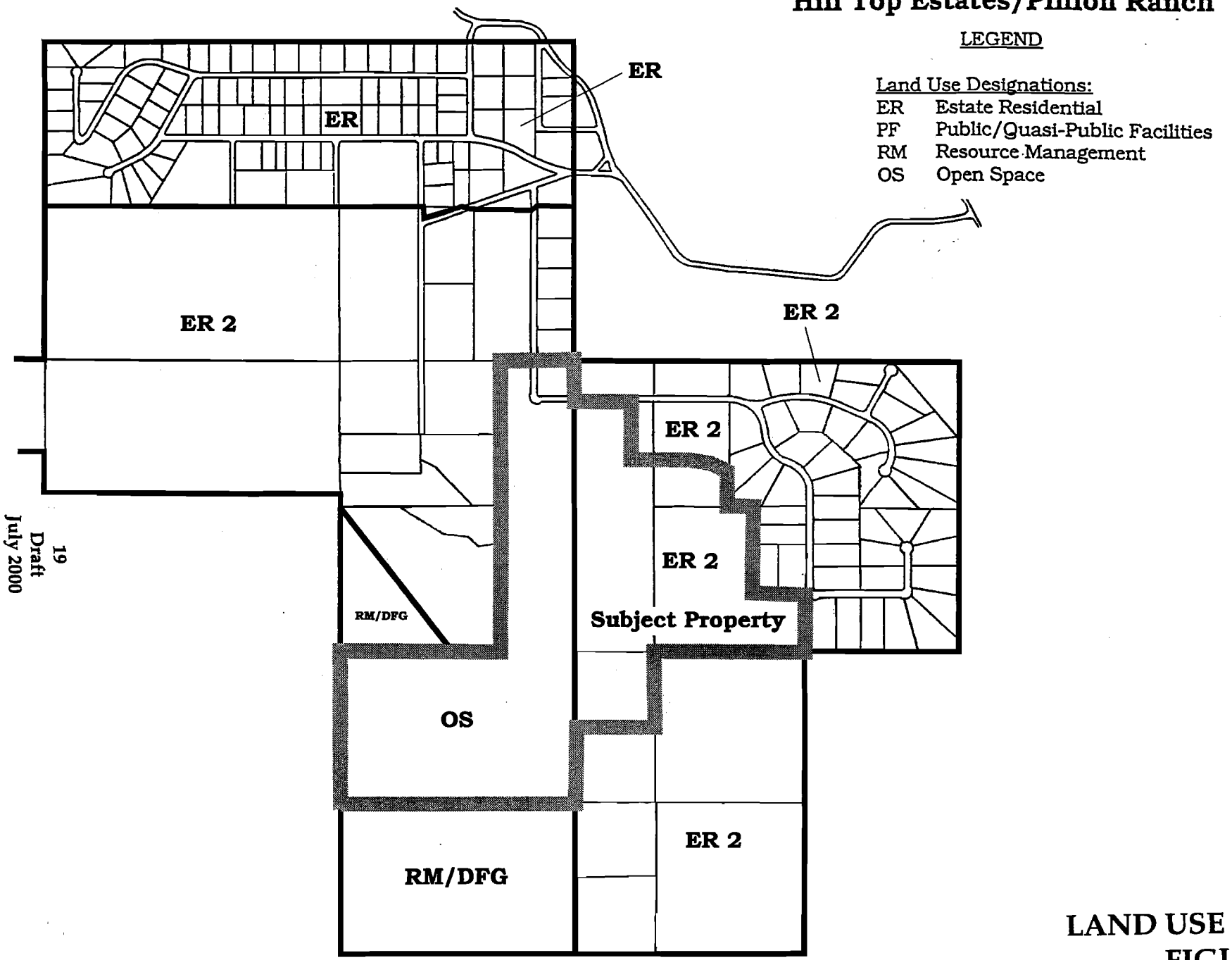
d. Accessory buildings and uses customarily incidental to single-family residential use, when located on the same lot and constructed simultaneously with or subsequent to the main building, e.g. garages, barns, stables, in compliance with the Mono County Zoning and Development Code for accessory structures (19.01.030).

e. Small domestic animals (e.g. dogs, cats, rabbits) in compliance with the Mono County Zoning and Development Code animal standards (19.03.270) (C.C. & R's).

f. Horses and other large animals (i.e. sheep, llama, cattle and other grazing animals) in compliance with the Mono County Zoning and Development Code animal standards (C.C. & R's).

Policy 4: Site development standards for the Estate Residential (ER) land use designation shall be as follows:

[1] Policies which are also included in the C.C. & R's for the project are followed by the notation (C.C. & R's). Policies which are suggested as mitigation measures in the **Rimrock Ranch Specific Plan Deer Study** are followed by the notation (Taylor, 1993). Policies specifically required by policies in the **Wheeler Crest Area Plan** are followed by the notation (Wheeler Crest Area Plan, Policy #).



LAND USE MAP
FIGURE 6

a. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (C.C. & R's and Taylor, 1993).

b. Building Setbacks: 50 feet front, 50 feet side and 50 feet rear. No exceptions shall be allowed.

c. Minimum Building Size: 1,600 square feet on the ground floor. A garage may not be considered part of the main structure for the purposes of achieving the minimum square footage (C.C. & R's).

d. Lot coverage: 20 percent maximum.

e. Parking: Each residence shall provide, at a minimum, an enclosed two-car garage. The garage shall be constructed simultaneously with the main structure (Mono County Circulation Element, Wheeler Crest Policies, Action 3.1) (C.C. & R's).

f. Building height shall not exceed 22 feet, determined by adding the heights of each of the four corners of the building above the natural grade and dividing by four (C.C. & R's).

g. Design requirements: See Design Guidelines policies.

h. Fencing: See Design Guidelines policies.

Policy 5: No further subdivision of any lot shall be permitted.

Policy 6: Within the approximately 80 acres proposed for subdivision, open space shall be provided as follows (see Figure 4, Open Space Plan):

a. Large setbacks of 50 feet from all property lines are required that will create 100-foot wide development-free corridors centered along property boundaries.
b. A 30-foot setback is required from the top of the bank of onsite perennial drainages that will maintain open space along those drainages [Natural Resource Conservation Policy 15 and Mono County Zoning and Development Code 19.03.130 (7)(b)].
c. Certain areas of riparian vegetation adjacent to onsite drainages, which have been identified by the project biologist as desirable for wildlife habitat, will be preserved with open space easements.

Open space easements for the areas identified above and shown on Figure 4 shall be recorded on the final maps for the appropriate phase(s) of the project. The final maps shall note that permitted land uses within the open space easements shall be limited to undisturbed natural uses.

INFRASTRUCTURE (UTILITIES AND SERVICES)

Objective: Provide for the development of adequate facilities and services to serve the proposed development in a timely manner.

Policy 1: Each lot in the subdivision shall be connected to the water supply system.

Policy 2: Prior to approval of the final Tract Map(s), the project proponents shall provide the County with a "will-serve" letter from the Wheeler Crest Community Services District (CSD), indicating that the CSD has adequate water capacity to serve the proposed project.

Policy 3: The project shall provide a calculated fire flow of five hundred gallons per minute (500 gpm) at 20 pounds per square inch (20 psi) residual pressure for a duration of two hours at fire hydrants installed throughout the project. Prior to approval of the final Tract Map(s), the project proponents shall provide the County with a "will serve" letter from the Wheeler Crest Fire Protection District (FPD) indicating the District's approval of the project's compliance with this requirement and indicating approval of the final map(s).

Policy 4: All utility lines (electricity, telephone, cable TV) shall be installed underground in compliance with Mono County Zoning and Development Code requirements (MCZDC 19.03.070 (E)). The project shall not have streetlights.

Policy 5: Solid waste removal shall be the responsibility of individual parcel owners.

Policy 6: Individual propane tanks may be installed on each parcel. Propane tanks shall be shielded to reduce visual impacts as specified by the Design Guidelines policies of this Specific Plan.

Policy 7: Individual septic systems shall be utilized. The design and construction of septic systems shall comply with the "Criteria for Individual Waste Disposal Systems" in the Water Quality Control Plan for the Lahontan Region (Basin Plan) and the requirements of the Mono County Health Department.

The Health Department will require an engineered sewage disposal system with supporting percolation tests for each lot prior to lot development. In areas where the depth to bedrock is eight feet or more with suitable soils and acceptable percolation tests, conventional leach fields will be utilized. In areas where the depth to bedrock is eight feet of soil or less or where percolation tests are not acceptable, sand filter pressure dosing systems may be utilized. Depending on the results of percolation tests, neither conventional or sand filter pressure dosing systems may be suitable. Those lots may require a package treatment plant or a common leach field system on another lot with suitable soils.

Policy 8: A maintenance district shall be created by the developer of the project to inspect and test all non-conventional sewage disposal systems and provide a report to the Mono County Health Department annually. Lots involved shall incur the costs of the inspection.

DESIGN GUIDELINES

Objective: Minimize the project's potential environmental impacts.

Policy 1: Site disturbance shall be limited by implementation of the site disturbance restrictions contained in the Land Use policies of this Plan.

Policy 2: Exterior lighting on individual lots shall be designed and maintained to minimize the effects of lighting on the surrounding environment. Exterior lighting shall be limited to that necessary for health and safety purposes; high intensity outdoor lighting shall be avoided or adequately shielded; the source of lighting must be concealed on all exterior lighting and all lighting must be designed to confine light rays to the premises of each individual lot. In no event shall a lighting device be placed or directed so as to permit light to fall upon a public street, adjacent lot, or adjacent land area. Lights which could potentially illuminate the deer habitat on the DFG parcel shall be prohibited (i.e. on Specific Plan lots 1-9, and 35).

Policy 3: Siting and design of roadways, driveways and structures shall minimize cut and fill.

Policy 4: Structures and fences shall be designed and constructed to harmonize with existing development in the area, the surrounding natural environment, and onsite topography (C.C. & R's). The following design guidelines shall apply to all development:

a. Structural siting and design should be sensitive to the topography of individual lots.

b. Roofing shall be firesafe wood shingles, fiberglass shingles or metal in colors compatible with the area (e.g. tan, brown, dark green, or similar colors).

c. Bright colors or reflective materials shall not be used for any component of any structure.

d. Siding materials shall have a natural appearance compatible with the surrounding environment. The use of indigenous rock shall be encouraged.

e. Siding materials shall be stained, painted or otherwise finished in muted earth tones in order to blend into the surrounding environment.

f. Colors and materials for fences shall be muted and shall blend with the surrounding natural environment.

Policy 5: Architectural plans for any structure (e.g. dwelling unit, garage, barn, etc.) shall be reviewed and approved by the Wheeler Crest Design Review Committee prior to approval of the building permit (C.C. & R's).

Policy 6: The total fenced area on any parcel shall be limited to the total area disturbed onsite as allowed under Land Use Policy 3a above. Fencing shall be three strand barbed wire or three rail pipe or wood fence. Solid wood fencing may be constructed within the immediate vicinity of a structure but shall encompass an area not greater than one acre (C.C. & R's and Taylor, 1993).

Policy 7: Barbed wire fences shall consist of 3 single strand wires placed 20, 30 and 42 inches from the ground with the bottom wire a smooth strand (Taylor, 1993).

Policy 8: Fencing used for livestock facilities (corrals, etc.) shall incorporate the use of poles, piping or other non-wire materials to allow deer safe passage (Taylor, 1993).

Policy 9: Each parcel shall be landscaped in accordance with the landscaping guidelines in Design Guidelines Policy 10 within six (6) months of the issuance of a Mono County Certificate of Occupancy for a dwelling unit on a parcel.

Policy 10: The following landscaping guidelines shall apply to all development:

a. Landscaping shall be used to minimize potential visual impacts resulting from development and to provide vegetative screening around structures to reduce deer avoidance of developed areas (C.C. & R's and Taylor, 1993). Screening cover should be planted in a minimum 20 foot wide band around each residential site, consisting of an inner strip of trees and an outer dense strip of native shrubs.

b. The following elements shall be shielded using landscaping: trash receptacles, propane tanks, and structures. Trash receptacles and propane tanks may also be shielded with fencing.

c. Xeriscape landscaping (drought-resistant planting, soil preparation and low water use irrigation systems, etc.) shall be required (Wheeler Crest Area Plan, Objective G, Action 1.3). Drip irrigation systems shall be encouraged.

d. Use of native, indigenous species shall be required (Wheeler Crest Area Plan, Objective G, Action 1.3).

e. The use of larger planting stock is encouraged to accelerate the process of visual screening (Taylor, 1993).

Fast growing tree species which work well as screening cover and provide migrating and holdover deer with additional forage include the following (Taylor, 1993):

Trees which require large amounts of water to survive and which may not be compatible with the xeriscape requirement in item b above include:
Poplars (*Populas* sp.)
Alders (*Alnus* sp.)
Willow (*Salix* sp.)

Trees which require less water but which are slower growing include:
Jeffrey pine (*Pinus jeffreyi*)
Single leaf pinyon pine (*Pinus monophylla*)
Western juniper (*Juniperus occidentalis*)

f. Young plants shall be protected from deer and rodents until they are established, e.g. a 5 foot wire fence or vexar tubing have been found to work well to protect seedlings from deer (Taylor, 1993).

NATURAL RESOURCE CONSERVATION

Objective: Conserve natural resources onsite to the greatest extent possible.

Policy 1: Parcel grading operations, structural foundation work, framing work and similar heavy construction activities shall be restricted to the period between May 15 and October 1 to minimize disturbance to migrating and wintering deer. This restriction shall not apply to emergency repair work (C.C. & R's and Taylor, 1993). Emergency repair work shall be defined as that necessary to ensure public health and safety (e.g. water and sewer repair work, power repair work, emergency road clearing activities, etc.).

Policy 2: Construction shall be limited to daylight hours in accordance with Mono County Code Chapter 10.16 (Noise Regulation) in order to minimize impacts to nocturnal resident wildlife species, such as mule deer (Taylor, 1993).

Policy 3: Impediments to deer movement, such as spoil piles, open ditches and excessive cut and fill slopes shall be minimized to the greatest extent possible; e.g. ditches or trenches should not be left open at night as they can be hazardous to deer and other nocturnal wildlife (Taylor, 1993).

Policy 4: With the exception of wells, septic systems, and fire safe storage facilities, surface disturbance activities such as residential development, corrals, fencing and raising crops shall be prohibited outside private yard fenced areas (Taylor, 1993).

Policy 5: Domestic animals shall be restrained at all times, either through the use of leashes or private fenced areas. No animals shall be allowed to be free roaming. Horses and other grazing animals shall be penned or tethered in areas such that the native vegetation is not impacted by such animals in accordance with the site disturbance limits established in Land Use Policy 3a (C.C. & R's and Taylor, 1993)

Policy 6: Dogs belonging to individuals involved in construction activities shall be prohibited in the project area during construction phases (Taylor, 1993).

Policy 7: Dust generated during construction shall be controlled through watering or other acceptable measures.

Policy 8: Noise levels during construction shall be kept to a minimum by equipping all onsite equipment with noise attenuation devices and by compliance with all requirements of Mono County Code Chapter 10.16 (Noise Regulation).

Policy 9: Property owners shall refrain from clearing native vegetation except as necessary for construction (C.C. & R's and Taylor, 1993).

Policy 10: Erosion control measures on disturbed areas shall include the use of netting or similar erosion control materials, the removal, stockpiling, and replacement of topsoil, and revegetation with a native seed mix and/or native plants.

Policy 11: Revegetation of disturbed areas shall occur as soon as possible following construction and shall require the use of native seeds, native plants grown from seeds or seedlings obtained from local native stock. Revegetated areas shall be monitored for a period of five years to ensure the success of the project and shall be replanted if necessary. Revegetated areas shall be irrigated as necessary to establish the plants.

Policy 12: All woodburning devices installed in the project shall be Phase II EPA certified, in conformance with the Mono County General Plan (Conservation/Open Space Element, Public Health and Safety policies, Objective A, Action 6.1).

Policy 13: Design and construction of roadways, driveways and structures shall comply with all requirements of Mono County Code 13.08 (Land Clearing, Earthwork, and Drainage Facilities) and the Lahontan Regional Water Quality Control Board (including requirements for NPDES Stormwater Permits if applicable).

Policy 14: The project proponent shall stop work and notify appropriate agencies and officials if archaeological evidence is encountered during earthwork activities. No disturbance of an archaeological site shall be permitted until such time as the applicant hires a qualified consultant and an appropriate report is filed with the County Planning Department which identifies acceptable site mitigation measures.

Policy 15: All development shall be set back at least 30 feet from the top of the bank of onsite perennial drainages in compliance with Mono County Zoning and Development Code Section 19.03.130 (7)(b) and Land Use Policy 6.

Policy 16: The following mitigation and monitoring program shall be implemented to ensure that possible impacts to the groundwater resource in the surrounding area that are measurable and attributable to the operation of Wheeler Crest Community Service District (WCCSD) Well No. 4 are avoided. This mitigation and monitoring program is taken from the Water Resource Assessment, Rimrock Ranch Specific Plan, 1999.

a. With developer funding, the WCCSD shall take quarterly water level (static) readings in each of its wells. If permission can be obtained and access to the well is reasonable, the groundwater level in all other wells in the area should be measured annually. These data shall be maintained by the WCCSD with copies forwarded annually to the Mono County Health Department.

b. With developer funding, the WCSSD shall develop estimates of the elevation of the measuring point of each well where data are collected. This information should be developed within 5 years from the initiation of operation of WCCSD No. 4 and collection of depth to water data. This will ensure that future analyses are based on accurate estimates of groundwater elevation as well as depth to water.

c. Pumping amounts shall be recorded monthly in WCCSD wells and reported annually to Mono County. The number of service connections shall be accurately recorded and included in the reporting forms. Pumping amounts from domestic wells may be estimated, if necessary, in the future, based on these data.

d. Because the potential for impact is considered low, pumping rotation or pumping limitations are not required as part of this mitigation and monitoring program.

e. WCCSD No. 3 shall be used as a monitoring well and shall act as a "trigger" well. The "trigger" shall be based on a water level decline more severe than the predicted decline under the worst case scenario presented in the Water Resource Assessment, Rimrock Ranch Specific Plan, 1999, i.e.: if the water level in WCCSD No. 3 drops more than five (5) feet after one (1) year of operation of WCCSD No. 4 after the project is fully developed, all collected data shall be analyzed to evaluate the potential for impact to other wells. The objective of the evaluation

would be to update and enhance the evaluation in the Water Resource Assessment, Rimrock Ranch Specific Plan, 1999, using the additional data.

This "trigger" is designed as an early warning system. The Water Resource Assessment notes that "... even if this drawdown [more than 5 feet in 1 year] occurred in a well less than 20 feet away from the pumping well after one year, it is highly unlikely that any significant impacts would be realized in other wells located further away after one year" (Team Engineering, p. 22).

TRAFFIC AND CIRCULATION

Objective: Provide a safe and efficient circulation system.

Policy 1: All roads shall be constructed to County Roadway standards, with a 60-foot wide right-of-way and 26 foot wide paved traffic lanes.

Policy 2: Road grades shall not exceed nine (9) percent without the approval of the Mono County Department of Public Works.

Policy 3: Roadways shall be designed and constructed to comply with the Fire Safe Standards (Mono County Zoning and Development Code, Chapter 19.26).

Policy 4: A Zone of Benefit district shall be created by the developer along newly accepted County roads in order to pay for road maintenance and snow removal.

Policy 5: Adequate snow storage areas shall be provided.

Policy 6: Areas disturbed during the construction of roads shall be revegetated as soon as possible following completion of the roads in compliance with the landscaping and revegetation requirements in the NRC policies.

Policy 7: To minimize direct mortality impacts to the deer herd from vehicle collisions, signs shall be posted along roads within the project area warning drivers of the presence of deer (Taylor, 1993).

Policy 8: Driveways shall be designed to minimize grades so that year-round access is assured and on-street parking is avoided (Mono County Circulation Element, Wheeler Crest policies, Action 3.1)

PHASING

Objective: Develop the project in a manner that addresses infrastructure availability and Subdivision Map Act requirements.

Policy 1: The Rimrock Ranch Specific Plan shall be developed in the following phases:

Phase 1	Lots 1-4, 16, 33, 34	(Tentative Tract Map 37-45)
Phase 2	Lots 17-21, 27-32	(Tentative Tract Map 37-47, Phase 1)
Phase 3	Lots 22-26	(Tentative Tract Map 37-47, Phase 2)
Phase 4	Lots 5-15, 35	(Tentative Tract Map 37-49)

Each phase shall be subject to State and County subdivision requirements. Minor adjustments to these phases may be approved by the Planning Director.

Policy 2: Prior to the development of each project phase, a final tract map shall be approved for that phase.

Policy 3: All infrastructure (roads, utilities, water) and associated landscaping and revegetation shall be available or in the process of being constructed prior to development of each project phase.

Policy 4: Prior to the development of each project phase, the Rimrock Ranch Specific Plan shall be reviewed to ensure that the Plan's provisions remain adequate. If necessary, the Plan shall be amended. The Plan shall be reviewed annually and may be reviewed more often, at the discretion of the Planning Department. Minor amendments to the Plan may be processed through the Director Review Process, in accordance with the Mono County Code.

IV. ENVIRONMENTAL ANALYSIS

PROJECT SCOPING

A Notice of Preparation was circulated in September, 1998. Comments were received from the following entities:

Great Basin Unified Air Pollution Control District, Bishop, CA.
Lahontan Regional Water Quality Control Board, South Lake Tahoe, CA.
Round Valley Joint Elementary School District, Bishop, CA.

Concerns raised in those letters are addressed in the following environmental analysis section. Appendix A contains copies of the NOP and the comment letters.

ENVIRONMENTAL ANALYSIS

The discussion for each of the following topics includes these components:

1. Existing environmental setting.
2. Potential environmental impacts from development of the Rimrock Ranch Specific Plan project.
3. Proposed mitigation measures. Specific Plan (SP) policies (see Chapter IV) serve as mitigation measures for the project and are identified as follows:

LU = Land Use Policies	NRC = Natural Resource Conservation Policies
I = Infrastructure Policies	TC = Traffic and Circulation Policies
DG = Design Guidelines Policies	P = Phasing Policies

Other existing regulations which serve as mitigation measures are also identified.

GEOLOGY AND SOILS

Geology/Soils

The project site is located at the north end of the Owens Valley, a fault-graben at the western edge of the Great Basin. It is located on a gently-sloping hillside at the eastern base of the Wheeler Crest. Soils consist of sandy gravel, with granite and tuff boulders occurring within the project area and the vicinity. A soil suitability study performed for Tract Map 37-44 (6 lots along Rimrock Drive, directly north of the project site) revealed 5 1/2 to 6 feet of sandy soil underlain by very hard, dense, fractured to massive Bishop Tuff bedrock (Sierra Geotechnical Services, 1998). The report notes that the top two feet of soil in most places is very fine to medium grained sand, often with many rock fragments up to three feet in diameter, with minor amounts of silt and coarse sand. These sandy soils are relatively fragile and are subject to erosion when disturbed by the removal of existing vegetative cover, vegetative litter, and surface rock fragments. The Master Environmental Assessment notes that the project site is subject to sheet and rill erosion (MEA, Figure 18).

The project site is located on two benches in a gently sloping area. The benches are separated by a drainage course which runs northwest to southeast through the middle of the property. The upper bench area, which is north of the drainage channel, adjacent to the Pinon Ranch development, slopes southeasterly and southerly at grades of 7 to 14 percent (see Figure 7, Slope Analysis). The elevation of the upper bench area varies from about 6,000 feet to 6,340 feet above sea level. The lower bench area is located on either side of the drainage channel on the southern

portion of the property. It slopes southeasterly at grades of 10 to 20 percent and varies in elevation from 5,450 feet to 6,050 feet above sea level (see Figure 7, Slope Analysis).

There are no known mineral resources on the project site (MEA, Figure 17).

Geologic Hazards
The project site is not located in a fault hazard zone or on a fault, although there are faults in the vicinity (MEA, Figure 34 and Alquist-Priolo Fault Hazard Maps). The project site is also not located in an area subject to landslides or rockfalls, or in a conditional development area for avalanches (MEA Figures 35, 37).

Potential Impacts and Mitigation

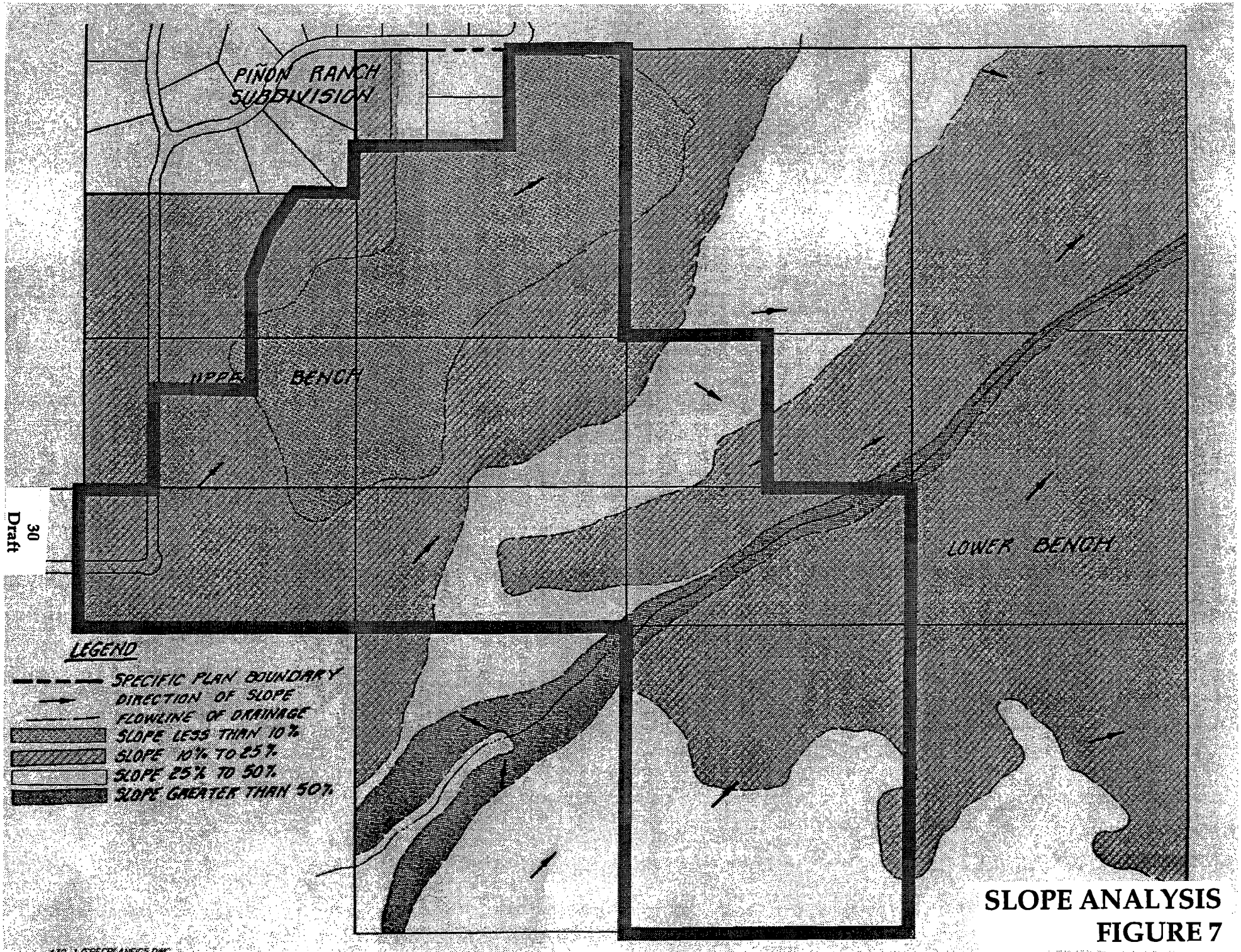
A. The soil underlying the project, when disturbed, is potentially highly erodible which may result in potential visual impacts and impacts to air and water quality during construction and long-term.

1. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (LU Policy 4a).
2. Site disturbance shall be limited by implementation of the site disturbance restrictions contained in the Land Use policies of this Plan (DG Policy 1).
3. Siting and design of roadways, driveways and structures shall minimize cut and fill (DG Policy 3).
4. Erosion control measures on disturbed areas shall include the use of netting or similar erosion control materials, the removal, stockpiling, and replacement of topsoil, and revegetation with a native seed mix and/or native plants. (DG Policy 10).
5. Revegetation of disturbed areas shall occur as soon as possible following construction and shall require the use of native seeds, native plants grown from seeds or seedlings obtained from local native stock. Revegetated areas shall be monitored for a period of five years to ensure the success of the project and shall be replanted if necessary. Revegetated areas shall be irrigated as necessary to establish the plants (NRC Policy 11).
6. Design and construction of roadways, driveways and structures shall comply with all requirements of Mono County Code 13.08 (Land Clearing, Earthwork, and Drainage Facilities) and the Lahontan Regional Water Quality Control Board (including requirements for NPDES Stormwater Permits if applicable). (NRC Policy 13).
7. Areas disturbed during the construction of roads shall be revegetated as soon as possible following completion of the roads in compliance with the landscaping and revegetation requirements in the NRC policies (TC Policy 6).

Potential impacts are mitigated to a less than significant level.

AIR QUALITY

Air quality in the Wheeler Crest area is generally good. The area is currently in compliance with federal and state air quality requirements as monitored by the Great Basin Unified Air Pollution Control District. Soil information for the site indicates that site disturbance during construction may expose material that is highly susceptible to wind erosion.



SLOPE ANALYSIS
FIGURE 7

430-1/SPECPLANFIGS.DWG

Potential Impacts and Mitigation

A. The project would increase emissions from wood burning devices.

1. All woodburning devices installed in the project shall be Phase II EPA certified, in conformance with the Mono County General Plan (NRC Policy 12).

Potential impacts are mitigated to a less than significant level.

B. The project would increase vehicle emissions.

2. The area is in compliance with federal and state standards and project traffic will not add a significant source of vehicle emissions.

Not a significant impact.

C. The project may increase erosion impacts and contribute to a reduction in air quality.

13. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (LU Policy 4a).
14. Site disturbance shall be limited by implementation of the site disturbance restrictions contained in the Land Use policies of this Plan (DG Policy 1).
15. Siting and design of roadways, driveways and structures shall minimize cut and fill (DG Policy 3).
16. Each parcel shall be landscaped in accordance with the landscaping guidelines in Design Guidelines Policy 10 within six (6) months of the issuance of a Mono County Certificate of Occupancy for a dwelling unit on a parcel (DG Policy 9).
17. With the exception of wells, septic systems, and fire safe storage facilities, surface disturbance activities such as residential development, corrals, fencing and raising crops shall be prohibited outside private yard fenced areas (NRC Policy 4).
18. Dust generated during construction shall be controlled through watering or other acceptable measures (NRC Policy 7).
19. Property owners shall refrain from clearing native vegetation except as necessary for construction (NRC Policy 9).
20. Erosion control measures on disturbed areas shall include the use of netting or similar erosion control materials, the removal, stockpiling, and replacement of topsoil, and revegetation with a native seed mix and/or native plants (NRC Policy 10).
21. Revegetation of disturbed areas shall occur as soon as possible following construction and shall require the use of native seeds, native plants grown from seeds or seedlings obtained from local native stock. Revegetated areas shall be monitored for a period of five years to ensure the success of the project and shall be replanted if necessary. Revegetated areas shall be irrigated as necessary to establish the plants (NRC Policy 11).
22. Areas disturbed during the construction of roads shall be revegetated as soon as possible following completion of the roads in compliance with the landscaping and revegetation requirements in the NRC policies (TC Policy 6).

Potential impacts are mitigated to a less than significant level.

WATER RESOURCES

Supply

Water will be provided by the Wheeler Crest Community Service District (WCCSD). A new well, reservoir, and pipelines, which were constructed for the development of lots along Rimrock Drive (Tract Map 37-44), will be utilized for the development. Figure 5 shows a schematic layout of the proposed water system. The project proponent is also proposing a series of underground fiberglass storage tanks, approximately 20,000 gallons each, connected to the reservoir. Underground storage minimizes potential visual impacts, provides for easy installation of additional storage tanks to increase the total storage capacity of the system as needed, and requires less long-term maintenance.

Reservoir storage will be of adequate size to provide two hours of fire flow storage in addition to storage for domestic use. The fire flow portion of the storage has been designed since it is a requirement of Tract Map 37-44 (prior development of lots along Rimrock Drive). Domestic use storage will be added as necessary for the project. Water supply of adequate capacity will be provided to refill the reservoir in peak usage times during less expensive power hours in the late night and early morning hours.

The new Rimrock system will be fully integrated with the existing Pinon Ranch system, providing water for domestic and fireflow uses for the Rimrock Ranch area and improving the water supply for the Pinon Ranch area. Since the Rimrock Ranch Specific Plan area is located on land with a substantial elevation difference, it will require two water pressure zones. The upper lots will be supplied directly from the upper reservoir located just north of Rimrock Drive. The lower lots will be supplied from the existing Pinon Ranch reservoir and/or from the upper distribution lines after a reduction in pressure. The Pinon Ranch reservoir and Pinon Ranch lots will also be supplied from the upper distribution system.

Demand

Project demand was estimated in the Water Resource Assessment, Rimrock Ranch Specific Plan, based on historic use data from the existing residences served by the WCCSD. In 1998, annual water use by the 15 residences in the WCCSD was 2,207,936 gallons or 6.78 acre-feet[2], approximately 403.3 gallons per day per residence. Between 1994 and 1998, annual water usage in the WCCSD increased 84 percent. Peak Monthly Water Use also increased approximately 79 percent during this period, from 494 gallons per day per residence in August, 1994, to 884.2 gallons per day per residence in 1998. There was no increase in the number of homes served by the district during this period. The increase in usage is assumed to be the result of an increase in landscape irrigation. The Water Resource Assessment assumes that the 1998 usage figures are the most accurate and estimates the following water demand at buildout for the project:

Annual Water Demand at Buildout (35 residences) = 5.15 million gallons (15.81 acre-feet)

Peak Monthly Water Demand = 960,000 gallons (2.94 acre-feet)

Groundwater

During April, 1999, Triad/Holmes Associates tested the pumping rate of WCCSD Well No. 4, the well proposed to be used to supply the project. During the pumping, drawdown responses in WCCSD Well No. 3 (a monitoring well) were also monitored. The data obtained during the aquifer test were then used by Team Engineering, along with data on well locations, well depths, and depth to water at the time of construction, to analyze the aquifer characteristics and to estimate the safe yield and the potential impacts of the operation of WCCSD No. 4. The well data

[2]One acre foot = 325,851 gallons.

utilized in the report covered 73 wells in the area, most of them located generally upslope from the WCSSD wells, in the Swall Meadows area (see Figure 4 in the Water Resource Assessment).

The Water Resource Assessment notes that:

> "Given the data available and the objectives of this project, the following approach was used to evaluate the linked concepts of safe-yield and potential impacts of the operation of WCCSD No. 4:
>
> - Using the available data, develop a conceptual level numerical groundwater model of the area,
> - Using the model, run alternative scenarios of operating WCCSD No. 4
> - Evaluate the significance of any changes in groundwater levels estimated from the model." (Team Engineering, p. 8).

The report also notes that:

> "The model represents a convenient tool to evaluate several scenarios of pumping WCCSD No. 4 and assessing the potential changes in groundwater levels in other wells in the area. In addition, the model can be used to assess groundwater level changes in the wetland area [adjacent to Hilltop Estates, not in the project area]" (Team Engineering, p. 16).

The groundwater model utilized the following data: well location, year of construction, depth to water at time of construction (artesian wells were assigned a value of 2 feet above ground surface), well depth, and reported pumping rate of well (Team Engineering, p. 8).

The report notes the following concerning the water level data:

> "The depth to water data at the time of construction were used to develop estimates of depth to water in the wells at other times based on statistical techniques (multiple regression). This effort was completed in order to 'fill-in' data gaps, and was used only to aid in the development of the model. It did, however, provide some interesting insights into the relationship of well depth and groundwater elevations, and in the trends of groundwater levels since 1958." (Team Engineering, p. 8)

A comparison of groundwater elevations vs. well bottom elevations shows that the higher the bottom elevation, the higher the groundwater elevation. "Given the topographic relief, and the fact that the wells in the area are of similar depth, this relationship is more likely reflective of the well location (upper areas have higher groundwater elevations and lower areas have lower groundwater elevations)" (Team Engineering, p. 12). A multiple regression analysis completed with groundwater elevation as the dependent or predicted variable, and ground surface elevation and the year as independent variables, suggested that:

> "... groundwater levels have declined somewhat since 1958 when the first wells were constructed in the area. This observation is consistent with the increased development in the area, and with anecdotal information that some wells have been deepened in response to well failures in the past. Some of this trend may be due to the general trend to construct deeper wells." (Team Engineering, pp. 13-14)

The following assumptions were also utilized for the model (Team Engineering, p. 16):

- No hydrogeologic barriers were assumed between WCCSD Well No. 4 and the wells in the Hilltop Estates area. Such a barrier would tend to reduce any pumping impact in the Hilltop Estates area. The existence of flowing wells along the lower portion of Hilltop

Estates and the existence of the wetland area suggests that some sort of hydrogeologic structure or barrier may exist. This analysis makes a conservative assumption that the barrier does not exist for the purposes of evaluating the worst-case condition.

- By using the hydraulic conductivity (permeability of the aquifer) estimate from the aquifer test, and the assumption that the recharge from rainfall is about one inch per year (10 5 of the total rainfall), the model provides the ability to estimate the subsurface inflow and outflow. Based on these assumptions and the general (within 20 to 100 feet) match of the model groundwater elevations with the actual groundwater elevations, the estimated inflow from the north and west is approximately 20,000 acre-feet per year. The outflow across the southwestern boundary is approximately the same, since the only other recharge to the system is rainfall recharge (about 91 acre-feet per year).
- The multiple regression suggested that groundwater levels have declines by as much as one foot per year as a result of development to date. However, several factors related to the pattern of development (i.e. the apparent trend to construct deeper wells in more recent years, and the general pattern that higher elevation areas were developed before lower elevation areas), may be influencing the data. By including well pumping data into the model, an alternative estimate of groundwater development impacts from current wells can be developed.

The model was used to test a number of alternative scenarios concerning the impacts of current development on groundwater. The outcome of those test runs noted a range of declines in groundwater levels due to current development (Team Engineering, p. 20).:

> "Resolution of the various estimates of groundwater level decline due to current development lies in developing a more complete and accurate conceptualization of the groundwater flow system. Additional data related to a better understanding of the subsurface in terms of barriers to flow, and the variation in hydraulic conductivity would be needed to complete this more accurate characterization. Based on this analysis, it can be stated that current levels of development have caused some decline in groundwater levels (from 1 to 40 feet, depending on the approach). Although this range is large, it provides a basis on which to interpret model estimates of impacts due to pumping of WCCSD No. 4."

The model was adjusted to include pumping of WCCSD No. 4. The report states that:

> "Assuming that WCCSD No. 4 pumps at a rate of 5.15 million gallons per year [the estimated buildout demand for the project], drawdown estimates one mile away after one year of pumping range from less than 0.5 feet to about 2 feet. The lower end of the estimate is considered unrealistic due to the high subsurface inflow that the model calculates. Attempts to reduce this inflow cause groundwater levels to drop to unrealistic levels, but drawdown estimates made with this model range from 0.5 to 1 foot 500 feet upgradient from the WCCSD No. 4. At the other extreme, assuming that no inflow and no recharge take place, and the mitigating effects of the groundwater gradient in the area are ignored, drawdown is estimated to be about 2 feet a mile away after one year of pumping [at buildout]" (Team Engineering, p. 21).

The Water Resource Assessment (Team Engineering, p. 21) concludes that:

> "In general, the proposed operation of WCCSD No. 4 at a rate of 5.15 million gallons will not have significant impacts to the area. There may be some specific instances, however, where impacts may occur. Given the limitations of the data that are available, and the associated limitations in the analysis, a monitoring and mitigation program is recommended in the next section that can be used as an early warning system to ensure that any impact that is

measurable, attributable to the operation of WCCSD No. 4, and significant effect can be avoided."

Potential Impacts and Mitigation

A. The project has the potential to impact groundwater resources by increasing the use of subsurface water for the project.

1. The following mitigation and monitoring program shall be implemented to ensure that possible impacts to the groundwater resource in the surrounding area that are measurable and attributable to the operation of Wheeler Crest Community Service District (WCCSD) Well No. 4 are avoided. This mitigation and monitoring program is taken from the Water Resource Assessment, Rimrock Ranch Specific Plan, 1999.
   a. With developer funding, the WCCSD shall take quarterly water level (static) readings in each of its wells. If permission can be obtained and access to the well is reasonable, the groundwater level in all other wells in the area should be measured annually. These data shall be maintained by the WCCSD with copies forwarded annually to the Mono County Health Department.
   b. With developer funding, the WCSSD shall develop estimates of the elevation of the measuring point of each well where data are collected. This information should be developed within 5 years from the initiation of operation of WCCSD No. 4 and collection of depth to water data. This will ensure that future analyses are based on accurate estimates of groundwater elevation as well as depth to water.
   c. Pumping amounts shall be recorded monthly in WCCSD wells and reported annually to Mono County. The number of service connections shall be accurately recorded and included in the reporting forms. Pumping amounts from domestic wells may be estimated, if necessary, in the future, based on these data.
   d. WCCSD No. 3 shall be used as a monitoring well and shall act as a "trigger" well. The "trigger" shall be based on a water level decline more severe than the predicted decline under the worst case scenario presented in the Water Resource Assessment, Rimrock Ranch Specific Plan, 1999, i.e.: if the water level in WCCSD No. 3 drops more than five (5) feet after one (1) year of operation of WCCSD No. 4 after the project is fully developed, all collected data shall be analyzed to evaluate the potential for impact to other wells. The objective of the evaluation would be to update and enhance the evaluation in the Water Resource Assessment, Rimrock Ranch Specific Plan, 1999, using the additional data. This "trigger" is designed as an early warning system. The Water Resource Assessment notes that "... even if this drawdown [more than 5 feet in 1 year] occurred in a well less than 20 feet away from the pumping well after one year, it is highly unlikely that any significant impacts would be realized in other wells located further away after one year" (Team Engineering, p. 22).

   (NRC Policy 16).

Because the potential for impact is considered low, pumping rotation or pumping limitations are not required as part of this mitigation.

Potential impacts are mitigated to a less than significant level.

VEGETATION

Vegetation onsite and in the project vicinity is Great Basin Sagebrush scrub with a few scattered pinon pines (*Pinus monophylla*). The generally dense scrub (35-55 percent ground cover) is dominated by antelope bitterbrush (*Purshia tridentata*), great basin sagebrush (*Artemisia tridentata*), rabbitbrush (*Chrysothamnus nauseosus, C. viscidiflorus*), desert peach (*Prunus andersonii*),

horsebush (*Tetradymia* sp.), ceanothus (*Ceanothus greggii*) and Morman tea (*Ephedra nevadensis*). The most common of the scattered herbs include Indian ricegrass (*Oryzopsis hymenoides*), squirreltail (*Sitanion* sp.), bromegrass (*Bromus* sp.), needle grass (*Stipa* sp.), bluegrass (*Poa* sp.), Great Basin wild rye (*Elymus cinereus*), blue wildrye (*Elymus glaucus*), and mule ears (*Wyethis mollis*). Great Basin Sagebrush scrub is a common and widespread plant community type in the Eastern Sierra and Great Basin. It is not considered a sensitive vegetation type.

Montane Riparian scrub habitat occurs along the drainages in a dense (20-50 feet wide) band of multi-layered trees, shrubs and herbs. Riparian vegetation includes shrubby willows (*Salix* species), wild rose (*Rosa woodsii*), big sagebrush (*Artemisia tridentata*), rabbitbrush (*Chrysothamnus nauseosus*), and herbs such as sedges (*Carex* species), rushes (*Juncus* species), and grasses.

No rare or endangered plant species occur onsite; no special status plant species occur in the area (MEA, Figures 28, 29).

Potential Impacts and Mitigation

A. The project will result in the removal of native vegetation.

1. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (LU Policy 4a).
2. Certain areas of riparian vegetation adjacent to onsite drainages, which have been identified by the project biologist as desirable for wildlife habitat, will be preserved with open space easements. (LU Policy 6c).
3. Domestic animals shall be restrained at all times, either through the use of leashes or private fenced areas. No animals shall be allowed to be free roaming. Horses and other grazing animals shall be penned or tethered in areas such that the native vegetation is not impacted by such animals in accordance with the site disturbance limits established in Land Use Policy 3a (NRC Policy 5).
4. Landscaping shall be used to minimize potential visual impacts resulting from development and to provide vegetative screening around structures to reduce deer avoidance of developed areas. Screening cover should be planted in a minimum 20 foot wide band around each residential site, consisting of an inner strip of trees and an outer dense strip of native shrubs (DG Policy 10a).
5. Use of native, indigenous species shall be required (DG Policy 10d).
6. Siting and design of roadways, driveways and structures shall minimize cut and fill (DG Policy 3).

B. The removal of native vegetation will remove habitat and forage for local wildlife, particularly the deer herd.

7. Designate the approximately 100 acres owned by the Department of Fish and Game as Open Space/Natural Habitat Protection (OS/NHP). Permitted uses shall be limited to undisturbed natural uses (LU Policy 1).
8. Property owners shall refrain from clearing native vegetation except as necessary for construction (NRC Policy 9).
9. Areas disturbed during the construction of roads shall be revegetated as soon as possible following completion of the roads in compliance with the landscaping and revegetation requirements in the NRC policies (TC Policy 6).

10. Within the approximately 80 acres proposed for subdivision, open space shall be provided as follows (see Figure 4, Open Space Plan):
    a. Large setbacks of 50 feet from all property lines are required that will create 100-foot wide development-free corridors centered along property boundaries.
    b. A 30-foot setback is required from the top of the bank of onsite perennial drainages that will maintain open space along those drainages [Natural Resource Conservation Policy 16 and Mono County Zoning and Development Code 19.03.130 (7)(b)].
    c. Certain areas of riparian vegetation adjacent to onsite drainages, which have been identified by the project biologist as desirable for wildlife habitat, will be preserved with open space easements.

    Open space easements for the areas identified above and shown on Figure 4 shall be recorded on the final maps for the appropriate phase(s) of the project. The final maps shall note that permitted land uses within the open space easements shall be limited to undisturbed natural uses.
    (LU Policy 6).

Potential impacts are mitigated to a less than significant level.

WILDLIFE

The **Rimrock Ranch Specific Plan Deer Study** (Taylor, 1993) prepared for the proposed project provides site specific information concerning the presence, relative abundance and habitat of mule deer onsite (see Appendix B). The assessment also included a literature review and field surveys performed to record other wildlife on-site, indicators of wildlife, and habitat types. In December, 1998, Tim Taylor provided an update of his previous report (personal communication with Keith Hartstrom, Mono County Senior Planner). The deer study recommends mitigation measures to avoid or minimize impacts to deer from the Round Valley deer herd.

The project site is within the winter range of the Round Valley mule deer herd. During the spring, approximately 74 percent of the herd migrates through the project area to its spring range near Mammoth Lakes. The habitat type onsite, Sagebrush-Bitterbrush shrub, is described in the previous section on Vegetation. The sagebrush community provides food and cover for a number of small mammals, rodents, and birds, as well as mule deer. Riparian habitat along the drainages in the project vicinity provide foraging grounds and nesting, hiding, and thermal cover for a variety of wildlife species. The following species were observed on-site in the riparian vegetation: blue grouse (*Dendragapus obscurus*), mountain quail (*Oreortyx pictus*), valley quail (*Callipepla californica*), chukar (*Alectoris chukar*), mourning dove (*Zenadia macroura*), yellow-bellied sapsucker (*Saphyrapicus varius*), Stellar's Jay (*Cyanocitta stelleri*), coyote (*Canis latrans*), desert cottontail rabbit (*Sylvilagus audubonii*), black-tailed jackrabbit (*Lepus californicus*), California ground squirrel (*Spermophilus beecheyi*), and golden-mantled ground squirrel (*S. lateralis*), and a number of other small mammals and birds.

Mule deer use of the project area and vicinity was determined from radio-telemetry studies of the Round Valley herd (1984-1987), fecal pellet-group counts and ground surveys (spring migration 1992), and track counts and ground surveys (fall/winter 1992-1993). The **Rimrock Ranch Specific Plan Deer Study** (Taylor, 1993) identifies a number of deer trails in the Rimrock Ranch Specific Plan area, as well as areas used for foraging and as holding areas. Mule deer use is widespread over the project site. The Study identifies potential impacts to the deer herd and lists mitigation measures to avoid or mitigate potential impacts to a less than significant level. The potential impacts are identified below in the impact analysis section. Mitigation measures identified in the Study have been incorporated into the Specific Plan as policies. The project proponents also incorporated suggested mitigation measures from the Deer Study into the C.C. & R's for the subdivision.

As a result of the **Rimrock Ranch Specific Plan Deer Study**, the project proponents sold 100 acres at the western edge of the subject property to the California Department of Fish and Game to be maintained as a deer migration corridor and habitat area. Those 100 acres were originally intended for development; the project proponents intended to develop 65 single-family residential lots. The major concern with future development in the Wheeler Crest area, including Rimrock Ranch, is the increased fragmentation of the deer migration corridor which passes through Wheeler Crest and the reduction in area and value of winter range habitat. The prior sale of 100 acres of adjacent land to the California Department of Fish and Game by the project proponents, along with an additional 60 adjacent acres obtained from another landowner, created a 160 acre L-shaped parcel which is managed as a deer migration corridor. As noted previously, that sale ensured the retention of a large area of native vegetation for local wildlife habitat and forage.

In addition, in response to the findings in the **Rimrock Ranch Specific Plan Deer Study**, the subdivision was redesigned to preserve identified deer movement corridors to the greatest extent possible. Identified deer movement corridors now occur primarily along lot lines, in areas where the project's required setbacks will create 100 foot corridors for wildlife movement. These deer movement corridors run alongside roads on the project site, minimizing the number of times deer will have to cross a road. Specific Plan policies and the project's C.C. & R's also limit site disturbance and fencing in order to maximize areas for wildlife movement and habitat. Specific Plan policies and Tract Map conditions of approval establish a 30 foot setback from the top of the bank along the onsite perennial drainages [in compliance with Mono County Code Section 19.03.130 (7)(b)] in order to retain drainage areas as well as to preserve wildlife habitat and movement corridors.

In December, 1998, Tim Taylor provided an update of his previous report (personal communication with Keith Hartstrom, Mono County Senior Planner). He estimated that in 1992, the Round Valley deer herd contained approximately 1,200 deer; in 1998, it contained approximately 2,100 to 2,300 deer. Winter conditions onsite are about the same; the amount and quality of bitterbrush onsite remains good. Fires in the Wheeler Crest vicinity, in 1993 and 1997, reduced the overall amount of forage available to the deer herd in the Wheeler Crest area. This reduction in the amount of overall forage in the general area, along with the increase in the number of deer in the herd, may result in increased use of the project area and more wear and tear to the available forage onsite.

No sagegrouse leks are known to exist within the general area of Wheeler Crest (Steve Nelson, BLM, personal communication, June, 2000).

No rare or endangered wildlife species occur onsite. The **Mono County Master Environmental Assessment** identifies no special status wildlife species in the area.

Potential Impacts and Mitigation

A. **Human intrusion impacts, i.e. noise, motion, domestic pets, visual stimulus (lights), may result in decreased use of habitat, alteration of migration routes and shift of home range, decreased productivity and foraging efficiency.**
   1. Parcel grading operations, structural foundation work, framing work and similar heavy construction activities shall be restricted to the period between May 15 and October 1 to minimize disturbance to migrating and wintering deer. This restriction shall not apply to emergency repair work. Emergency repair work shall be defined as that necessary to ensure public health and safety (e.g. water and sewer repair work, power repair work, emergency road clearing activities, etc.). (NRC Policy 1).

2. Construction shall be limited to daylight hours in accordance with Mono County Code Chapter 10.16 (Noise Regulation) in order to minimize impacts to nocturnal resident wildlife species, such as mule deer (NRC Policy 2).
3. Impediments to deer movement, such as spoil piles, open ditches and excessive cut and fill slopes shall be minimized to the greatest extent possible; e.g. ditches or trenches should not be left open at night as they can be hazardous to deer and other nocturnal wildlife (NRC Policy 3).
4. With the exception of wells, septic systems, and fire safe storage facilities, surface disturbance activities such as residential development, corrals, fencing and raising crops shall be prohibited outside private yard fenced areas (NRC Policy 4).
5. Domestic animals shall be restrained at all times, either through the use of leashes or private fenced areas. No animals shall be allowed to be free roaming. Horses and other grazing animals shall be penned or tethered in areas such that the native vegetation is not impacted by such animals in accordance with the site disturbance limits established in Land Use Policy 3a (NRC Policy 5).
6. Dogs belonging to individuals involved in construction activities shall be prohibited in the project area during construction phases (NRC Policy 6).
7. Noise levels during construction shall be kept to a minimum by equipping all onsite equipment with noise attenuation devices and by compliance with all requirements of Mono County Code Chapter 10.16 (NRC Policy 8).
8. Exterior lighting on individual lots shall be designed and maintained to minimize the effects of lighting on the surrounding environment. Exterior lighting shall be limited to that necessary for health and safety purposes; high intensity outdoor lighting shall be avoided or adequately shielded; the source of lighting must be concealed on all exterior lighting and all lighting must be designed to confine light rays to the premises of each individual lot. In no event shall a lighting device be placed or directed so as to permit light to fall upon a public street, adjacent lot, or adjacent land area. Lights which could potentially illuminate the deer habitat on the DFG parcel shall be prohibited (i.e. on Specific Plan lots 1-9, and 35). (DG Policy 2).
9. The total fenced area on any parcel shall be limited to the total area disturbed onsite as allowed under Land Use Policy 3a above. Fencing shall be three strand barbed wire or three rail pipe or wood fence. Solid wood fencing may be constructed within the immediate vicinity of a structure but shall encompass an area not greater than one acre (DG Policy 6).
10. Barbed wire fences shall consist of 3 single strand wires placed 20, 30 and 42 inches from the ground with the bottom wire a smooth strand (DG Policy 7).
11. Fencing used for livestock facilities (corrals, etc.) shall incorporate the use of poles, piping or other non-wire materials to allow deer safe passage (DG Policy 8).

B. Habitat removal and alteration reduces forage and cover availability for deer and other wildlife.

12. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (LU Policy 4a).
23. Building Setbacks: 50 feet front, 50 feet side and 50 feet rear. No exceptions shall be allowed (LU Policy 4b).

24. Certain areas of riparian vegetation adjacent to onsite drainages, which have been identified by the project biologist as desirable for wildlife habitat, will be preserved with open space easements (LU Policy 6c).
25. Property owners shall refrain from clearing native vegetation except as necessary for construction (NRC Policy 9).
26. Revegetation of disturbed areas shall occur as soon as possible following construction and shall require the use of native seeds, native plants grown from seeds or seedlings obtained from local native stock. Revegetated areas shall be monitored for a period of five years to ensure the success of the project and shall be replanted if necessary. Revegetated areas shall be irrigated as necessary to establish the plants (NRC Policy 11).
27. All development shall be set back at least 30 feet from the top of the bank of onsite perennial drainages in compliance with Mono County Zoning and Development Code Section 19.03.130 (7)(b) and Land Use Policy 6. (NRC Policy 15).
28. Landscaping shall be used to minimize potential visual impacts resulting from development and to provide vegetative screening around structures to reduce deer avoidance of developed areas. Screening cover should be planted in a minimum 20 foot wide band around each residential site, consisting of an inner strip of trees and an outer dense strip of native shrubs (DG Policy 10a).

C. **Direct mortality losses from road kills.**

29. To minimize direct mortality impacts to the deer herd from vehicle collisions, signs shall be posted along roads within the project area warning drivers of the presence of deer (TC Policy 7).

Potential impacts are mitigated to a less than significant level.

NOISE

Construction related noise impacts may cause some temporary disturbance. No noise impacts are anticipated from the single-family residential uses. Specific plan policies direct that noise levels during construction be kept to a minimum by equipping all onsite equipment with noise attenuation equipment and by compliance with all requirements of Mono County Code 10.16 (Noise Regulation) (NRC Policy 8). No significant impacts are anticipated.

LAND USE

The project site is currently largely undeveloped. There is an airstrip onsite with a hangar, several dirt roads across the site, a small area with minerals processing equipment, and a utility pole line along the western boundary of the property. Approximately 100 acres of the 180± acre site will remain as wildlife habitat owned by DFG. Of the remaining 80± acres, development will result in the permanent transformation of approximately 40 acres of the site from Great Basin Sagebrush scrub to single-family residential use (about 25% for roadways and up to 30% site clearing for driveways, structures, etc.).

The proposed single-family residential land use is consistent with the General Plan designation of Specific Plan and the zoning district "Estate Residential". The proposed project density (approximately 1 dwelling unit per 2 acres) is consistent with surrounding residential uses and with Wheeler Crest Area Plan policies. The prior sale of 100 acres of adjacent land to the California Department of Fish and Game by the project proponents ensures the retention of a large area of native vegetation and open space for local wildlife habitat.

The proposed use is consistent with surrounding land uses which include single-family residential uses and undeveloped properties. No significant impacts are anticipated.

EMPLOYMENT, HOUSING, POPULATION

Construction Employment Impacts. The purpose of this discussion is to give a rough estimate of the number of employees needed to construct the project. Certain construction projects can create a "boom and bust" effect, especially in smaller communities. The impacts from large construction projects can be substantial in regard to effect on local services and housing, albeit they are usually short term.

The major determinants of impact are the number of workers and duration of construction involved in the project. A methodology utilizing the ratio of project value to labor costs is adequate for this discussion given the variables involved.[3] The methodology uses assumptions about the project and project values. In this case, it is assumed that 25% of the total project value (less land costs) is attributable to labor costs, the average salary of a construction worker is approximately $30,000 per year, and the same number of workers will be needed for each year of the project. The project is assumed to be built out in 10 years.

Although there is uncertainty as to where the projected construction workers would originate (i.e., local or imported into the labor market), it is likely that present local construction firms and/or independent construction workers would be able to accommodate the project with present employees or only minor increases in employees. There are a number of home construction firms and individual contractors in the area and no unusual construction requirements are anticipated. Nevertheless, it is assumed that there would be a small number of imported employees (10%) presently not employed in the area.

Table 4 shows the results of this methodology which indicates that about nine construction workers will be needed for the project in each year, one of which will be imported. To the extent local forces are used, the number of housing units and the effect on other services will be lessened since these workers are assumed to already be living in the area and using local services. The general area (Mammoth / Bishop) has a substantial number of transient housing units in addition to a broad range of support services. There should be negligible concerns in accommodating the low number of imported employees anticipated

TABLE 4: CONSTRUCTION RELATED EMPLOYMENT

Project Value Less Land Cost[4]	Total Value to Labor Ratio	Average Annual Salary	Person Years	Total Workers. per year	Local Const. Workers	Imported Const. Workers
$10,500,00	25%	$30,000	87.5	9 (rnded)	8 (rnded)	1 (rnded)

Long Term Employment. Residential projects are normally considered a response to jobs created by other sectors of the economy rather than a direct employment source. For example, jobs created by a new factory result in a demand for housing. But residential projects themselves can

[3] Construciotn Industry Research Board, Colifornia Economic Development Department, 1992.

[4] The proposed subdivision has 35 lots. Each house is assumed to average 3000 square feet in size and cost $100 per square foot to construct; 3.5 homes are completed each year for 10 years.

create a certain amount of long term employment due to the need for continuing maintenance. This includes general home repairs, appliance repairs, periodic painting, landscape services, house cleaning, snow removal, etc. Additionally, home occupants will generate secondary jobs through purchases of supplies and services such as household needs, clothing, sports equipment, entertainment, recreation , transportation fuels, electricity, other utilities, home heating fuels, etc. Suppliers will need employees to provide these items, thus producing secondary job opportunities (also known as "multiplier effects").

Rimrock Ranch's primary long term source of employment will be from employment generated by the service needs of the development. The estimated number of jobs created is shown in Table 5. Jobs attributable to multiplier effects of the project are also shown in this table. These employment figures reflect the long term, after construction impacts of the project. As shown in the table, there will be an estimated three jobs produced to accommodate project. Assuming these jobs are all new jobs ("imported") and each creates on household, there will be three housing units needed in the area in addition to those created by the project itself.

TABLE 5: LONG TERM EMPLOYMENT[5]

Number of Dwelling Units	Primary Positions	Multiplier Positions	Total Job Increase	Indirect House-holds Created
35	2	1	3	3

Population Induced. The total number of people induced by the project can be estimated based on the number of households created both directly and indirectly via service and multiplier effects. The proposed development at buildout will provide 35 single-family residences. Utilizing the 1990 Census figure of 2.51 persons per household in the unincorporated areas of Mono County, the development will eventually provide housing for approximately 88 persons at 100% occupancy. Another 8 persons would be generated from indirect household growth; total growth induced is 96 persons as shown in Table 6. On average there would be about 9 to 10 people added during each year of the assumed 10 year project.

TABLE 6: POPULATION GENERATED

Number of Dwelling Units	Households Created	Indirect House-holds Created	Total House-holds Created	Pop./Hshld. Factor	Population Generated
35	35	3	38	2.51	96

Housing Impacts. As many as 96 persons could be induced by the full buildout of the project Most of these will be accommodated by the 35 dwelling units proposed on the project site with another 3 indirectly induced units accommodated in the general area. Housing directly produced by the project is expected to be in the moderate to upper income levels. There will be limited potential for lower and low income persons. Due to the expected cost of the dwellings in the project, there will be little contribution toward meeting housing goals for affordable housing units. Although this is not considered a significant environmental impact of the project, it is an important consideration with regard to creating housing for all economic segments in the county.

[5] Estimates from "The Bluffs EIR," Town of Mammoth Lakes, July, 1995: 0.05 primary positions per dwelling unit and 0.01 multiplier positions per dwelling unit.

No significant impacts are anticipated and no mitigation measures are required.

TRANSPORTATION & CIRCULATION

Access to and within the project site will be provided by paved County maintained roads (see Figure 3, Lot Layout and Plot Plan). All project roads will be constructed to Mono County Roadway standards, with a 60-foot right-of-way and 26-foot-wide paved traffic lanes. Road grades will not exceed nine (9) percent without the approval of the Mono County Department of Public Works. Access to the site from Lower Rock Creek Road will be via Swall Meadows Road to Swall Road, then to Valley View Road on the north side of the project. All road improvements will comply with CDF Fire Safe regulations for emergency access. At the north edge of the property, the main road through the development will connect with Rimrock Drive just east of its junction with Valley View Road; at the south edge of the property, the same road will connect with Rimrock Drive at its junction with Rimrock Place (see Tentative Tract Map, Appendix C). This will create an alternative route within the project vicinity for most of Rimrock Drive, providing a secondary route for emergency access. In the Specific Plan area, one additional cul-de-sac road will join the main road through the property.

Existing Capacity/Level of Service. "LOS" is a qualitative measure of traffic operating conditions with letter grades from "A" through "F." Generally, LOS "A" is considered satisfactory, while LOS "D" is marginally acceptable to most drivers. LOS "E" and "F" are associated with severe congestion and delay. Lower Rock Creek, Swall Meadows Road and Valley View Road are considered to have an LOS "A" in the classification hierarchy due to very low traffic volume. From peak hour counts conducted for this EIR[6], the Average Daily Volume for Swall Meadows Road is 320. Valley View Road is estimated to have 140 ADT while Lower Rock Creek Road has an estimated ADT of 280 (south of Swall Meadows Road) and 270 (north of Swall Meadows Road).

Project Impacts.

In the scoping process for the project, concerns were expressed regarding potential traffic impacts from the project. These concerns focused on capacity issues for the existing roads into the area during periods of daily use and during emergencies. Using "standard" trip-generation rates, the proposed development would generate an additional 334 trips on a weekday at full buildout.[7] Since the Wheeler Crest area is fairly distant from employment centers, schools and shopping, it is unlikely that residents make as many trips during the day; the standard trip generation figures used may not accurately reflect trip generation rates in this situation. Most likely, the standard trip generation figures exceed the actual trip generation rates in the area and probably overestimate the number of vehicle trips potentially generated. This has been verified by traffic counts conducted for the project. The 19 presently developed lots in the Pinon Ranch area that utilize Valley View Drive generate an estimated 150 trips per day. This equates to about 4.8 trips per developed lot (140 ÷ 29 = 4.8 trips). Overall, there are 189 lots in the Wheeler Crest area; 90 of those lots have improvements on them (single-family residences and accessory buildings). Based on the traffic counts at the entry to the area, the estimated ADT for Swall Meadows Road is 320. This are about 3.5 trips per developed lot (320 ÷ 90 = 3.5 trips - see Table 7). Considering these trip data, a conservative factor of 5 trips per residence appears reasonable for the area. Table 8

[6] Peak hour traffic counts at selected locations in the project vicinity were conducted in April, 2000.

[7] Trip rates are from: **Trip Generation**, 5th Edition, Institute of Transportation Engineers, 1991. The trip rate used for this analysis is the average rate on a weekday.

shows projected vehicle trips for the proposed subdivision using this generative factor. Potential vehicle trips per day for the existing lots and the proposed subdivision are shown in Table 9.

TABLE 7: EXISTING UNITS / TRIPS (ADT) / TRIP GENERATION RATE ALONG SWALL MEADOWS ROAD AND VALLEY VIEW ROAD

Location	Peak Hour	Estimated ADT	Contributing Developed Lots	Trip Generation Rate / Dev. Lot
Swall Meadows Road at Lower Rock Creek	32	320	90	3.6
Valley View Road south of Swall Meadows Road	14	140	29	4.8

TABLE 8: PROJECTED VEHICLE TRIPS - RIMROCK RANCH SPECIFIC PLAN AREA

Use	Trip Rates Per Use	# Units	Total Trips Projected	Peak Hour Trips
Single-Family Residence	5	35	175	18

TABLE 9: PROJECTED VEHICLE TRIPS ALONG SWALL MEADOWS ROAD AND VALLEY VIEW ROAD

Location	Contributing Lots w/o Rimrock	Contributing Lots w/Rimrock	Trip Generation Rate	Total Trip w/o Rimrock	Total Trips w/Rimrock	Estimated Peak Hr. Trips
Swall Meadows Road at Lower Rock Creek	189	224	5	945	1120	112
Valley View Road south of Swall Road	69	104	5	345	520	52

Older roads in the area have a minimum pavement width of 22 feet with a 60-foot right-of-way, and average speeds of 25-30 mph. Newer roads have a pavement width of 26 feet with a 60-foot right-of-way. Level two-lane roads in good condition can carry 20,000 or more trips per day. Both Swall Meadows Road and Valley View Drive have the capacity to handle the potential vehicle trips for existing lots and the proposed subdivision, even at the level of 1,120 trips per weekday (Dewberry and Davis, Tables 16.13 and 16.14).

The concern regarding road capacity during emergencies focused on the need for all residents in the area to funnel through Swall Meadow Road and Wilson Road to access Lower Rock Creek Road. Assuming a worst-case scenario at full buildout (224 single-family residences), the roads in the area have the capacity to handle that traffic. In addition, there are a number of dirt roads in the area which connect the area to Lower Rock Creek Road in the Paradise area. In an emergency, those roads could be used for access to and from the Wheeler Crest area.

Potential traffic impacts from the project will be less than significant due to the relatively small size of the proposed project, the lower than "standard" trip generation rates, and the existing capacity of the roads in the area. No significant impacts are anticipated. (Also see Traffic and Circulation Policies of the Specific Plan.)

COMMUNITY SERVICES & FACILITIES

Fire Protection.
The project site is within the boundaries of the Wheeler Crest Fire Protection District (FPD) which provides fire suppression services to the communities in the Wheeler Crest area. The Fire District comments during the approval process for tract maps and is responsible for ensuring that the proposed development meets requirements for fire prevention and suppression (e.g. adequate road grades and turnaround areas, placement of fire hydrants, adequate fire flows and/or provision of water onsite for firefighting purposes). Specific Plan policies require a "will-serve" letter from the FPD prior to approval of the tract map(s).

Medical and Health Care.
The nearest major medical facility is Northern Inyo Hospital, located approximately 15 miles to the south in Bishop. Emergency medical services for the Wheeler Crest area are provided by an aid unit based at the Wheeler Crest Fire Station.

Schools.
Wheeler Crest is served by Round Valley Elementary School, approximately ten miles south of the project area, and by Bishop High School. Most students in the area are currently driven to Mammoth Lakes and attend schools in the Mammoth Unified School District. This trend is anticipated to continue since many residents of the Wheeler Crest area commute to work in Mammoth Lakes. The Round Valley School District, in a comment letter sent in response to the NOP, concludes that the project will not have a significant effect on the District's facilities and that "... adequate mitigation of this project's impacts will not require additional payment beyond Developer Fees" (see letter in Appendix A).

Recreation.
Recreational opportunities in the Wheeler Crest area consist primarily of dispersed recreational activities on surrounding public lands managed by the Bureau of Land Management and the Inyo National Forest. The nearest developed recreational facilities are in Bishop or in Crowley Lake and at the Whitmore Park ball fields. Development of the project site will not impact recreational opportunities on surrounding public lands or at nearby developed facilities. No significant impacts to recreational resources are anticipated.

No significant impacts to community services and facilities are anticipated due to the small size of the proposed project.

ENERGY RESOURCES

Development of single-family residences will not use substantial amounts of energy or fuels. New sources of energy will not be required as a result of this project. No significant impacts are anticipated.

UTILITIES

Water
Water will be provided by the Wheeler Crest Community Services District (CSD). A new well, reservoir, and pipelines which were constructed for the development of lots along Rimrock Drive (Tract Map 37-44) will be utilized for the project. The new Rimrock system will be fully integrated with the existing Pinon Ranch system, providing water for domestic and fireflow uses for the Rimrock Ranch area and improving the water supply for the Pinon Ranch area. Since the Rimrock Area Specific Plan area is located on land with a substantial elevation difference, it will require two water pressure zones. The upper lots will be supplied directly from the upper reservoir located just north of Rimrock Drive. The lower lots will be supplied from the existing

Pinon Ranch reservoir and/or from the upper distribution lines after a reduction in pressure. The Pinon Ranch reservoir and Pinon Ranch lots will also be supplied from the upper distribution system. Specific Plan policies require all lots in the subdivision to connect to the water supply system (I Policy 1).

Sewer
Individual septic systems will be utilized. Septic systems will be a sand filter pressure dosing system in areas where the depth to bedrock is eight feet of soil or less. In areas where the depth to bedrock is eight feet or more with suitable soils and acceptable percolation tests, conventional leach fields will be utilized. Specific Plan policies require an engineered sewage disposal system with supporting percolation tests shall be required prior to lot development (I Policy 7) and the creation of a maintenance district to inspect and test all non-conventional sewage disposal systems annually and provide a report to the Mono County Health Department. Lots involved will incur the costs of the inspection (I Policy 8).

Gas
Individual propane tanks may be installed on each parcel. Specific Plan policies require screening of propane tanks.

Electric
Electricity will be provided by Southern California Edison (SCE). SP policies require the use of underground utility conduits (I Policy 4).

Phone/Cable
Telephone service will be provided by GTE California Incorporated. SP policies require the use of underground utility conduits (I Policy 4).

Solid Waste Disposal
Individual property owners will be responsible for solid waste disposal.

In compliance with Wheeler Crest Area Plan policies, Specific Plan policies require "will-serve" letters from service providers prior to approval of the final tract map(s) (I Policies 2, 3). No significant impacts are anticipated.

VISUAL RESOURCES

The site is situated roughly in the southern portion of the Wheeler Crest planning area. The nearby Sierra Nevada Mountains form a backdrop to the project as viewed from the east, while Wheeler Crest and adjoining developments clearly dominate the views across the site from the south. From the north, the view across the southward sloping site is dominated by the dramatic panorama vistas of Little Round Valley and the Upper Owens Valley.

The native vegetation is typical sagebrush-bitterbrush scrub with scattered pinyon pine. Riparian scrub habitat occurs along the drainages. There is little seasonal change to the size or density of the vegetation.

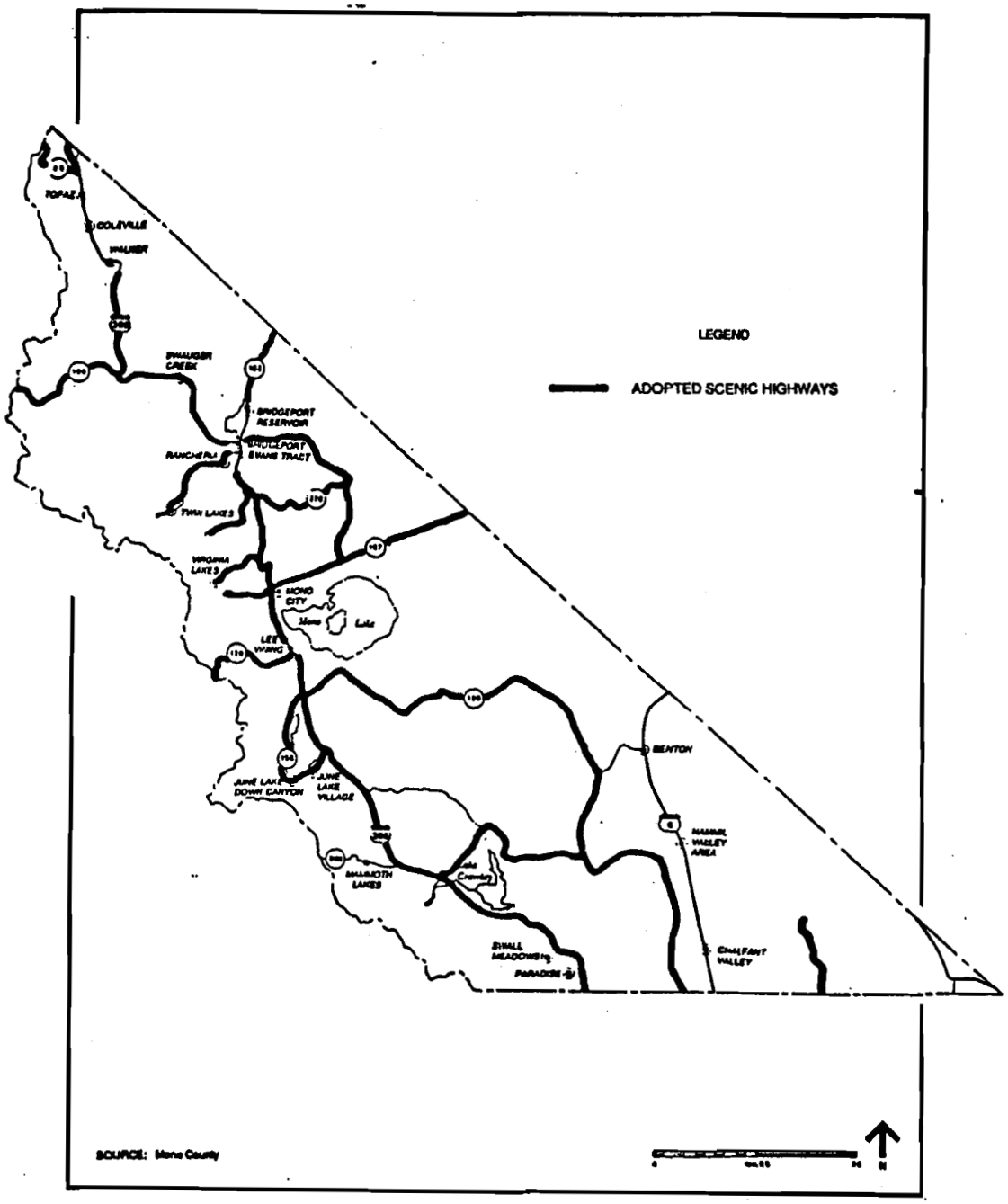
The site is largely undisturbed retaining much of its natural condition, although existing disturbances are visible. These disturbances include a dirt airstrip, metal hangar building, dirt roads, and a small area with mineral processing equipment. An overhead utility transmission line runs along the western edge of the property, though this will be undergrounded as part of the project development. The existing structures and processing equipment will be removed as a condition of the project approval.

Scenic Highway Setting/Development Requirements

Roadways in the immediate vicinity are not designated scenic highways; however, US Hwy 395 is a county-designated Scenic Highway. US Hwy 395 is located to the east of the project site (see Figure 8). County protection of visual resources focuses on community areas and private lands within scenic highway corridors. The goal of the County's General Plan Conservation/ Open Space Element is to protect and enhance the visual resources and landscapes of Mono County. "Objectives" of the Element stress maintaining and enhancing visual resources along designated scenic highways. A "Scenic Highway Corridor" is defined as the area of land generally adjacent to (within 1,000') and visible from the highway, which requires protective measures to insure perpetuation of its scenic qualities. Scenic highway routes consist of both the public right-of-way and the scenic corridor. The site is located along the top of the plateau and is visible from various portions of US Hwy 395 some 2.5 miles away (nearest) to about 6 miles from Little Round Valley.

The County Zoning and Development Code regulates several aspects of development in order to protect the aesthetic value of an area. The building height section of the Code regulates the maximum height to 35 feet while the maximum height of accessory structures cannot exceed 20 feet.

Figure 8 – Mono County Scenic Highways



Existing Site Photos

Several existing site photos taken from various locations near the site are presented below. Photo locations are shown in Figure 9. Existing site photos are provided in Figures 10A - 10F. As can be seen in these photos, the proposed subdivision site is visually similar to the surrounding sagebrush environment. Existing residential development to the east in Pinion Ranch and a few residential structures to the west, south, and north surround the proposed development and tend to define the project area. The proposed project will be visible to varying degrees from surrounding areas.

Figure 10A From Valley View Road and Rimrock Drive Looking Southeast

The existing power transmission poles, which run along the western boundary of the proposed project, are shown in the mid-area of this photo. Single family development in the Pinyon Ranch subdivision is visible in the far distance toward the left in the photo. The existing airplane hangar on the property is visible in the middle of the photo. The upper portion of the DFG parcel is visible to the right of the power poles. This photo shows how the subject parcel is located on benches and generally open in character. The house on the Haber property (see Figure 2, Vicinity Plan) immediately to the south of the subject parcel is visible in the far middle distance of the photo.

Figure 10B From Rimrock Drive Looking South

Pinon Ranch is visible at the left of this photo. The power transmission poles and the airplane hangar are visible at the right of the photo. The Haber house is visible in the far middle distance of the photo. This photo shows the upper bench portion of the property.

Figure 10C From Rimrock Place Looking North

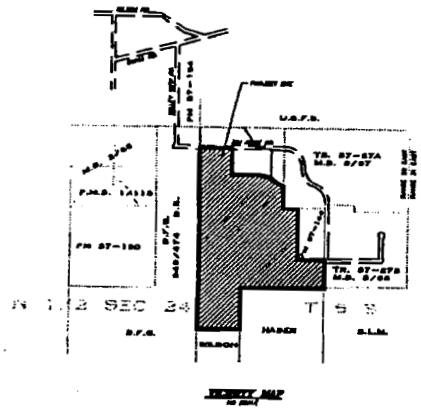
This photo shows most of the subject parcel. Pinon Ranch is visible at the right in the photo. The hangar, an existing dirt road, and the mineral processing equipment are visible in the central portion of the photo. The power transmission poles which run along the western boundary of the proposed project are visible at the left in the photo. This photo illustrates how the project slopes up from south to north and generally open in character.

Figure 10D From Rimrock Place Looking West

This photo shows the middle and western portion of the property along with an existing dirt road onsite.

Figure 10E From Rimrock Place Looking South

This photo shows the southernmost portion of the property. The Haber house is visible in the middle of the photo along with an existing dirt road onsite.



VICINITY MAP

DESIGN NOTES

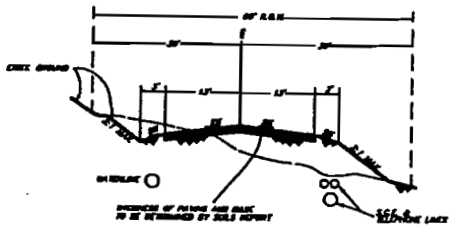
ASSESSOR'S PARCEL NO.: TO BE ASSIGNED, POR 64-100-33
GROSS SITE AREA: 80.53 ACRES±
DENSITY: 2.30 ACRES (AVERAGE) PER LOT GROSS
MINIMUM LOT SIZE: 2.00 ACRE PARCEL GROSS
EXISTING ZONING: RR2
EXISTING LAND USE DESIGNATION: ESTATE RESIDENTIAL
WATER SUPPLY: WHEELER CREST COMMUNITY SERVICES DISTRICT
SEWAGE DISPOSAL: INDIVIDUAL SEPTIC/LEACH FIELDS
ELECTRICITY: S.C.E.
TELEPHONE: G.T.E.
FIRE PROTECTION: WHEELER CREST FIRE PROTECTION DISTRICT

PRIOR PHASING OF RIMROCK RANCH

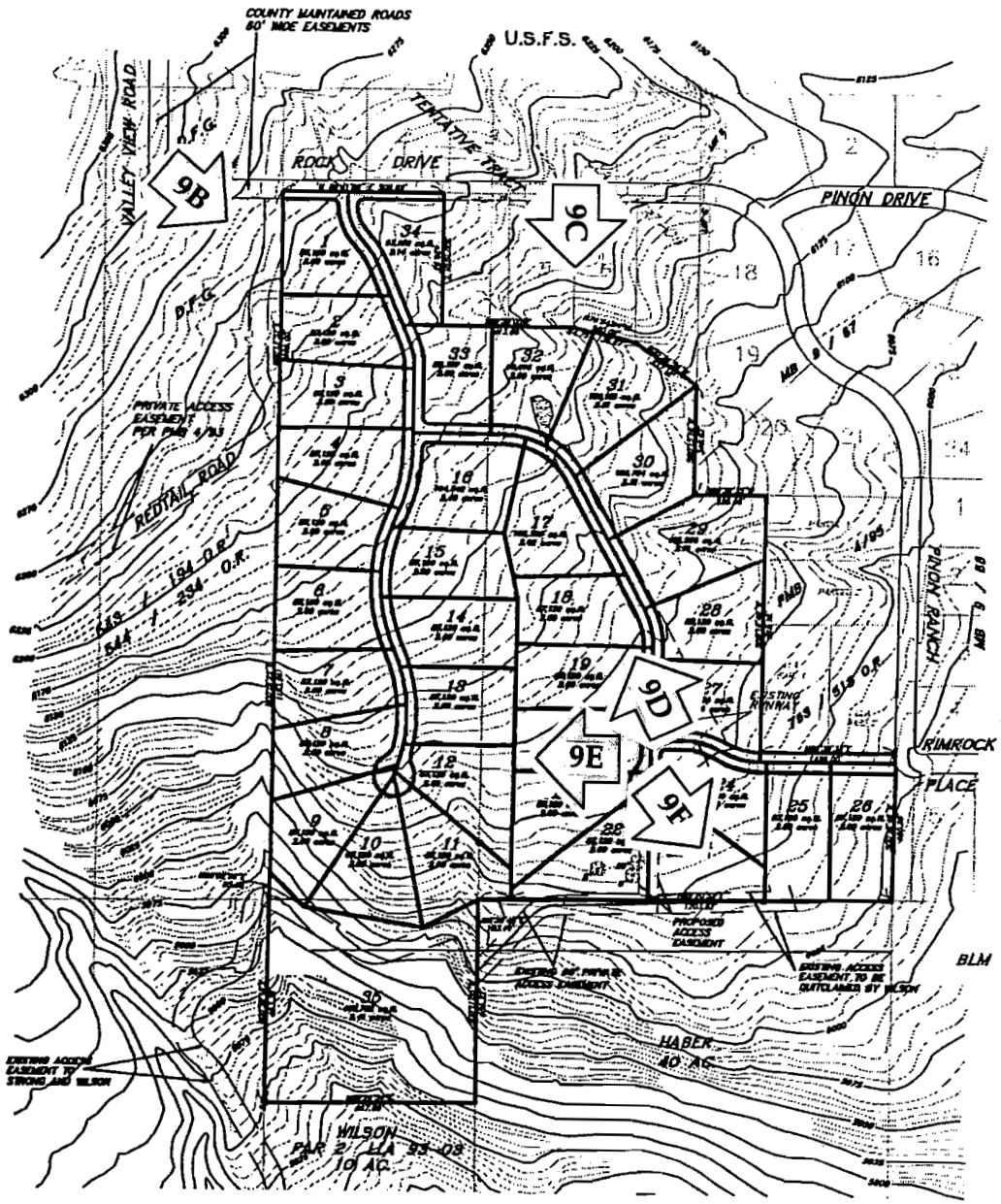
PHASE 1: LOTS 1 - 3 OF LLA 87-09
PHASE 2: LOTS 1 - 9 OF TRACT 37-44

FUTURE PHASING - SUBJECT TO CHANGE

PHASE 3: LOTS 1 - 4, 16, 33 - 34
PHASE 4: LOTS 20 - 27
PHASE 5: LOTS 17 - 19, 28 - 31
PHASE 6: LOTS 5 - 15, 35



PROPOSED ROAD SECTION & UTILITY LOCATION



OWNER
WILSON FAMILY TRUST
C/O JOHN R. WILSON
P.O. BOX 321
BISHOP, CA 93514
(760) 387-2421

DEVELOPER
RIMROCK RANCH PARTNERSHIP
C/O JOHN R. WILSON
P.O. BOX 321
BISHOP, CA 93514
(760) 387-2421

GRAPHIC SCALE

KEY SHOWING PHOTO LOCATIONS
FIGURE 9

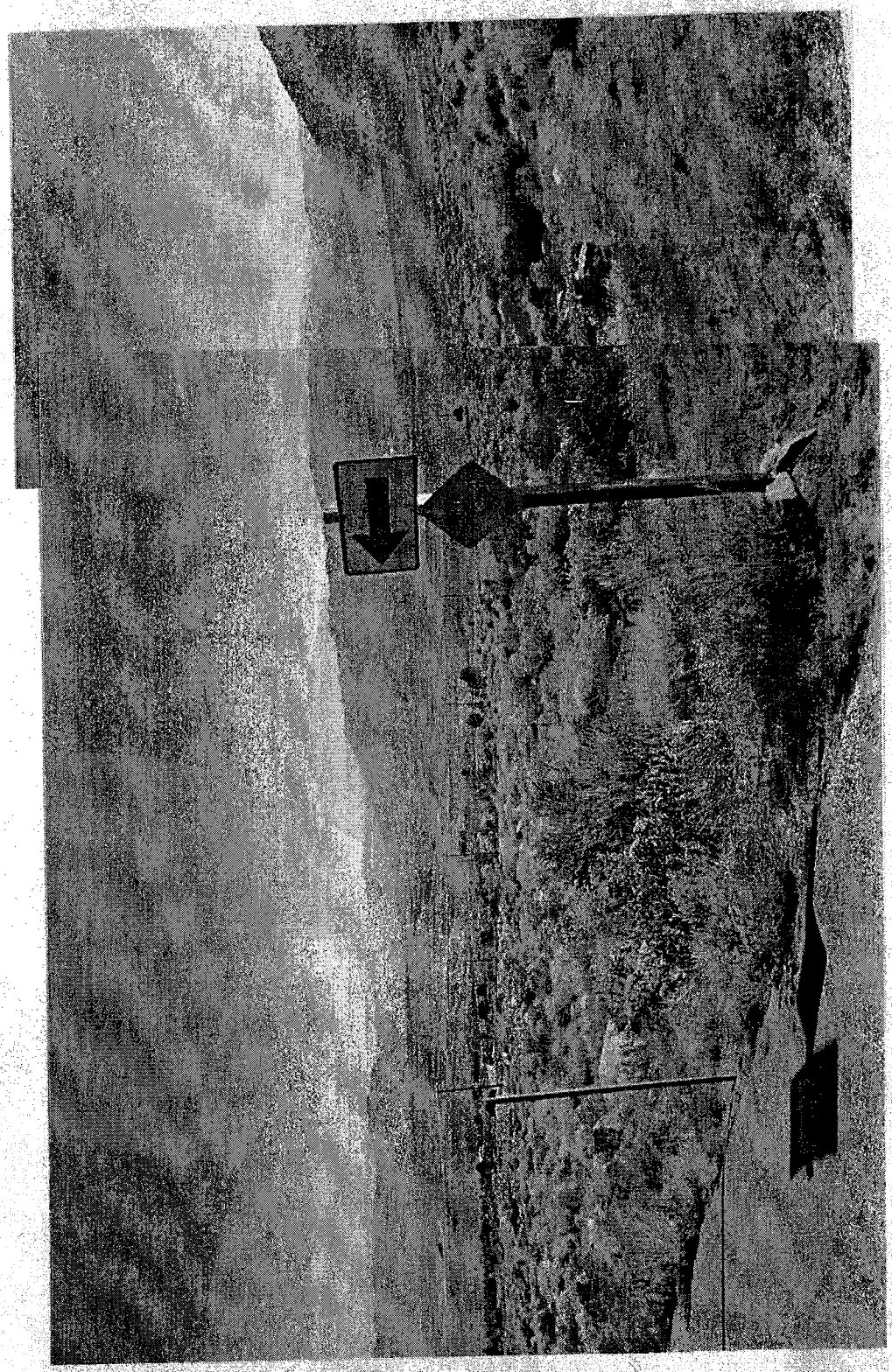


Figure 10A From Valley View Road and Rimrock Drive Looking Southeast

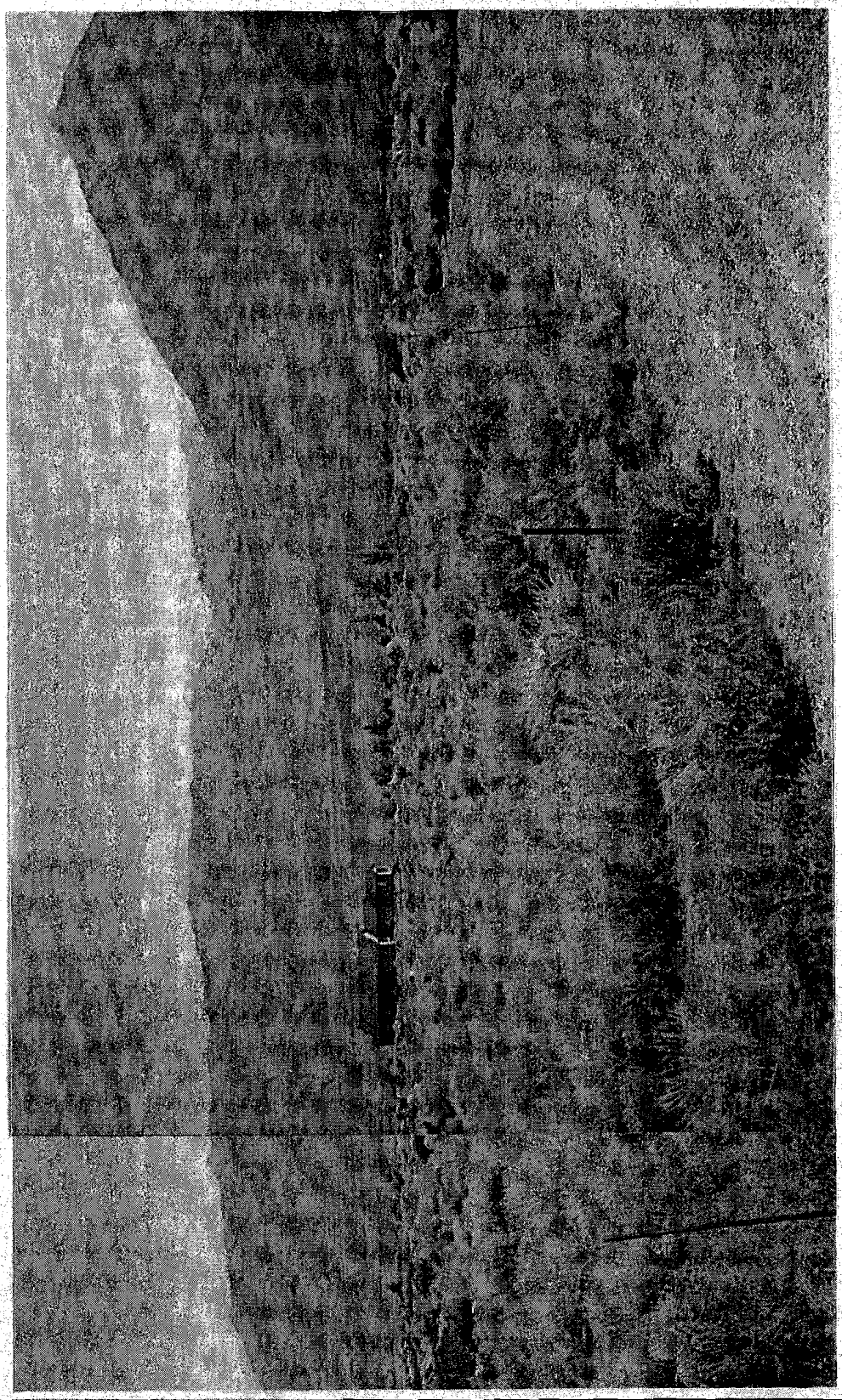


Figure 10B From Rimrock Place Looking South

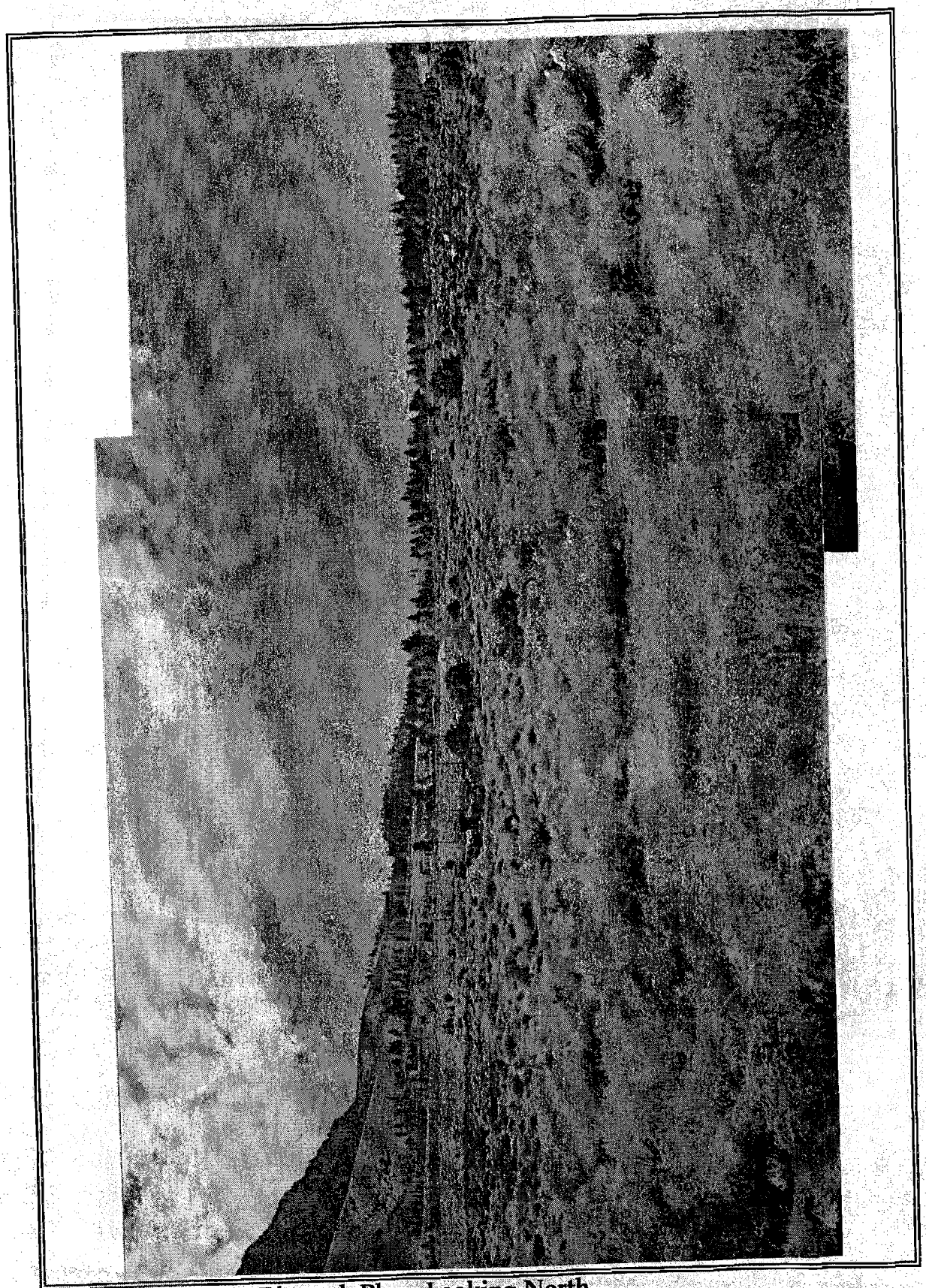


Figure 10C From Rimrock Place Looking North

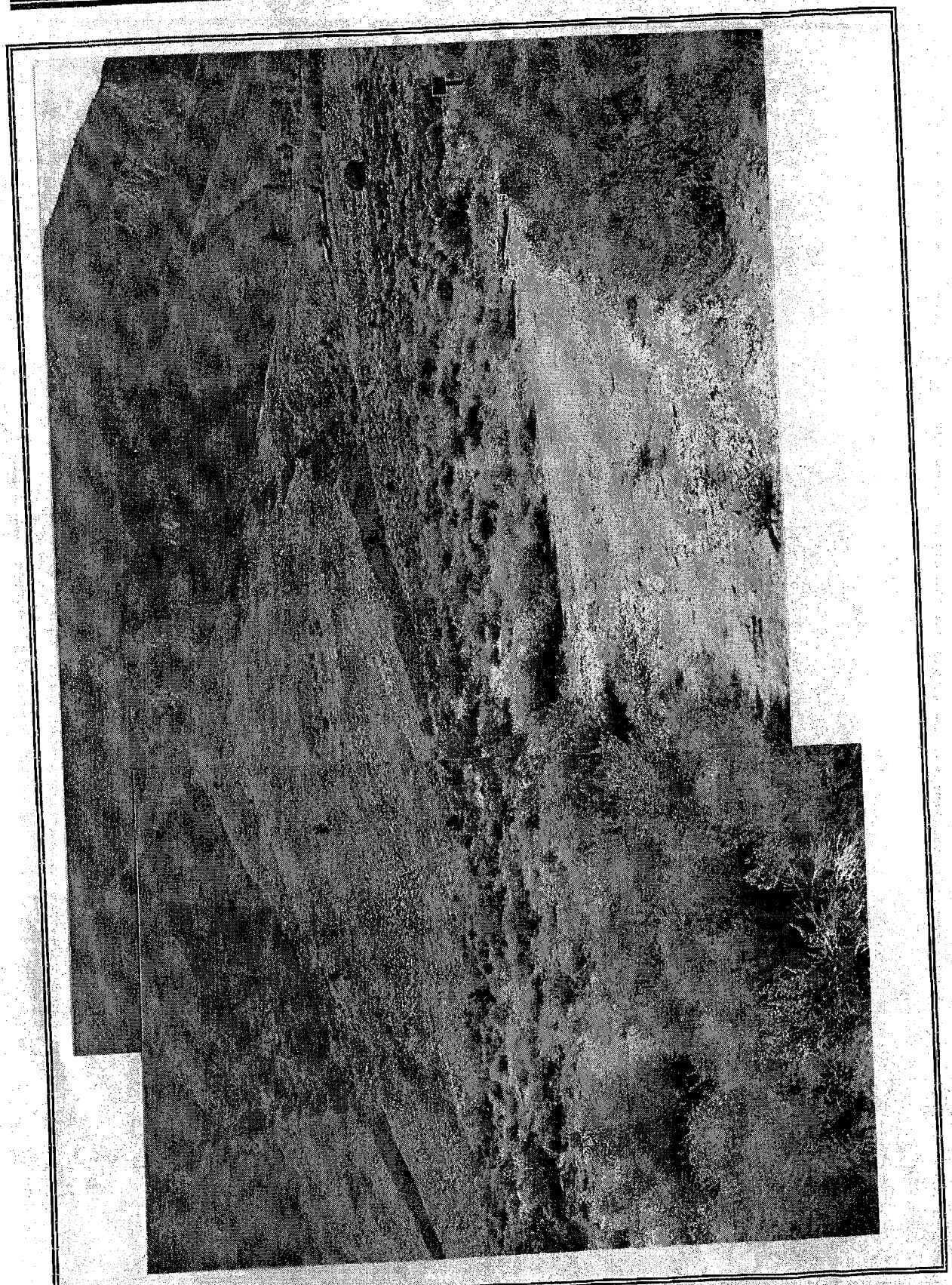


Figure 10D From Rimrock Place Looking West

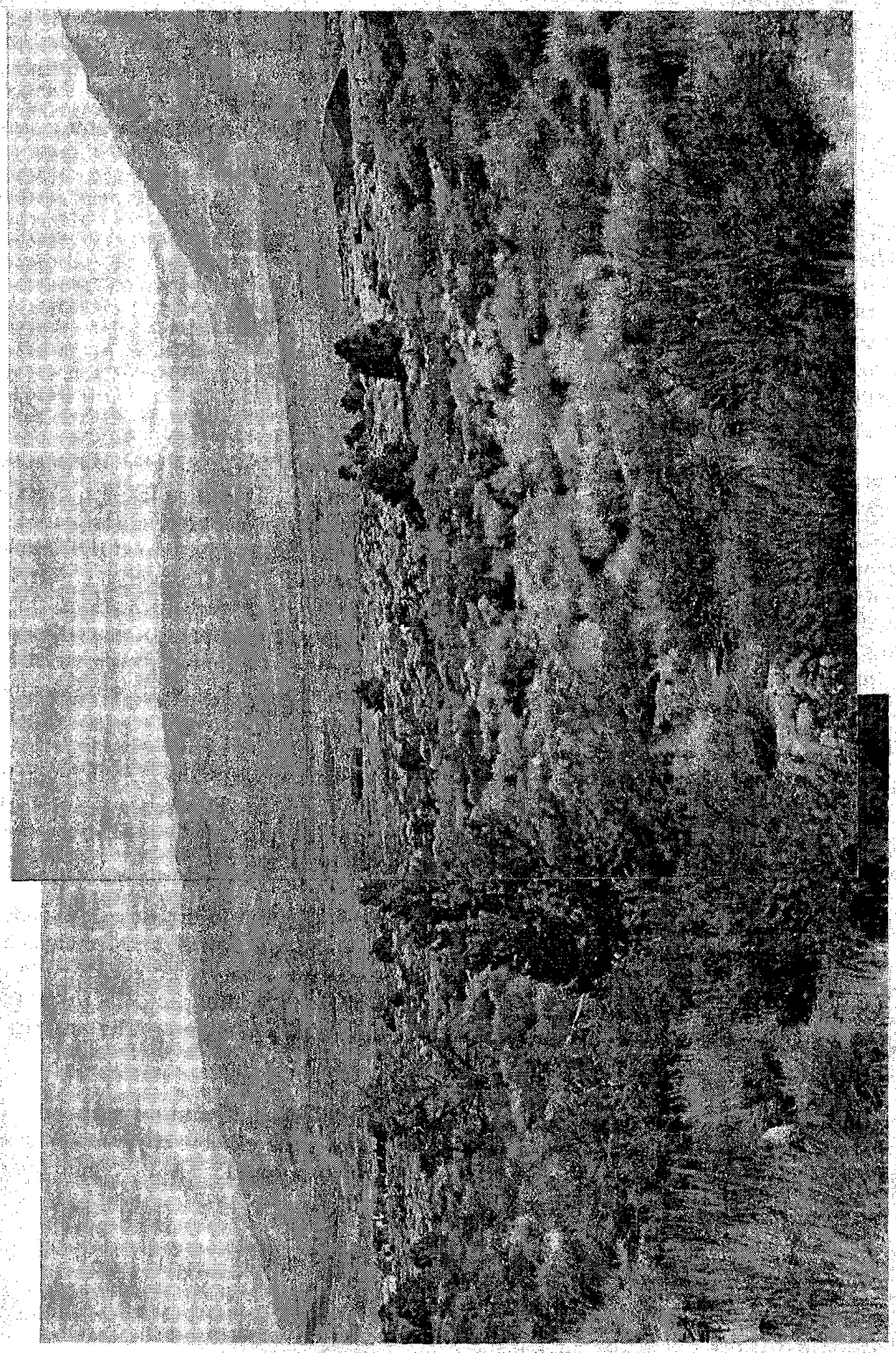


Figure 10E From Rimrock Drive Looking South

Visual Resource Impacts

Visual analysis was accomplished through site visits, review of proponent-supplied documents, and analyzing site photography. The project was reviewed to consider the visual impacts looking at the project from eight "Key Viewpoints." The eight Key Viewpoints were selected from external views of the site which may have potentially high sensitivity and/or greater number of persons traversing the viewpoint (see Key Viewpoints Locations Map - Figure 11). The key viewpoint locations were identified based on numerous observations, photographs and potential for visual concerns.

Key Viewpoint #1 Swall Meadows Road
Key Viewpoint #2 Mountain View Subdivision
Key Viewpoint #3 Pinon Ranch
Key Viewpoint #4 Valley View Road
Key Viewpoint #5 Sierra Paradise Subdivision
Key Viewpoint #6 County Line
Key Viewpoint #7 US Highway 395 & Pine Creek Road
Key Viewpoint #8 Round Valley School

Because visual resource evaluation can be quite subjective, the U.S. Forest Service has developed a method by which visual resources and impacts are classified. This classification method is utilized in this discussion. The system establishes visual quality objectives (VQOs) based on a combination of variety class and sensitivity level. The variety class is determined by classifying the landscape into different degrees of variety of the landscape. The Distinctive variety class refers to features in the natural landscape, vegetative patterns, or rock formations that are outstanding or unique in their visual quality. A Common variety class refers to areas with variety in form, but which are not outstanding or unique in visual quality. A Minimal class refers to areas with little change in form, texture or color. This class includes all areas not considered distinctive or common.

There are three sensitivity levels which include Level 1 - Highest Sensitivity, Level 2 - Average Sensitivity, and Level 3 - Lowest Sensitivity. These sensitivity levels are based on a visual perception of the landscape from primary and secondary travel routes. They measure a viewer's concern about the visual quality of the landscape.

As described above, there exist man-made features on the project and in the vicinity that detract from normally undisturbed views across the site. These include power lines, metal hangar building, minerals processing equipment, and other adjacent residential structures. Nevertheless, because the overall views to the surrounding landscape remain very important, the project site is considered to be located in a Distinctive, Level 1 visual quality category. The analysis that follows, evaluates the project in this setting.

Views are often described in categories of foreground, middleground, and background. These labels are determined by distance from the viewpoint. A foreground view is generally less than 1/2 mile, a middleground view is 1/2 mile to 5 miles, and a background view is beyond 5 miles.

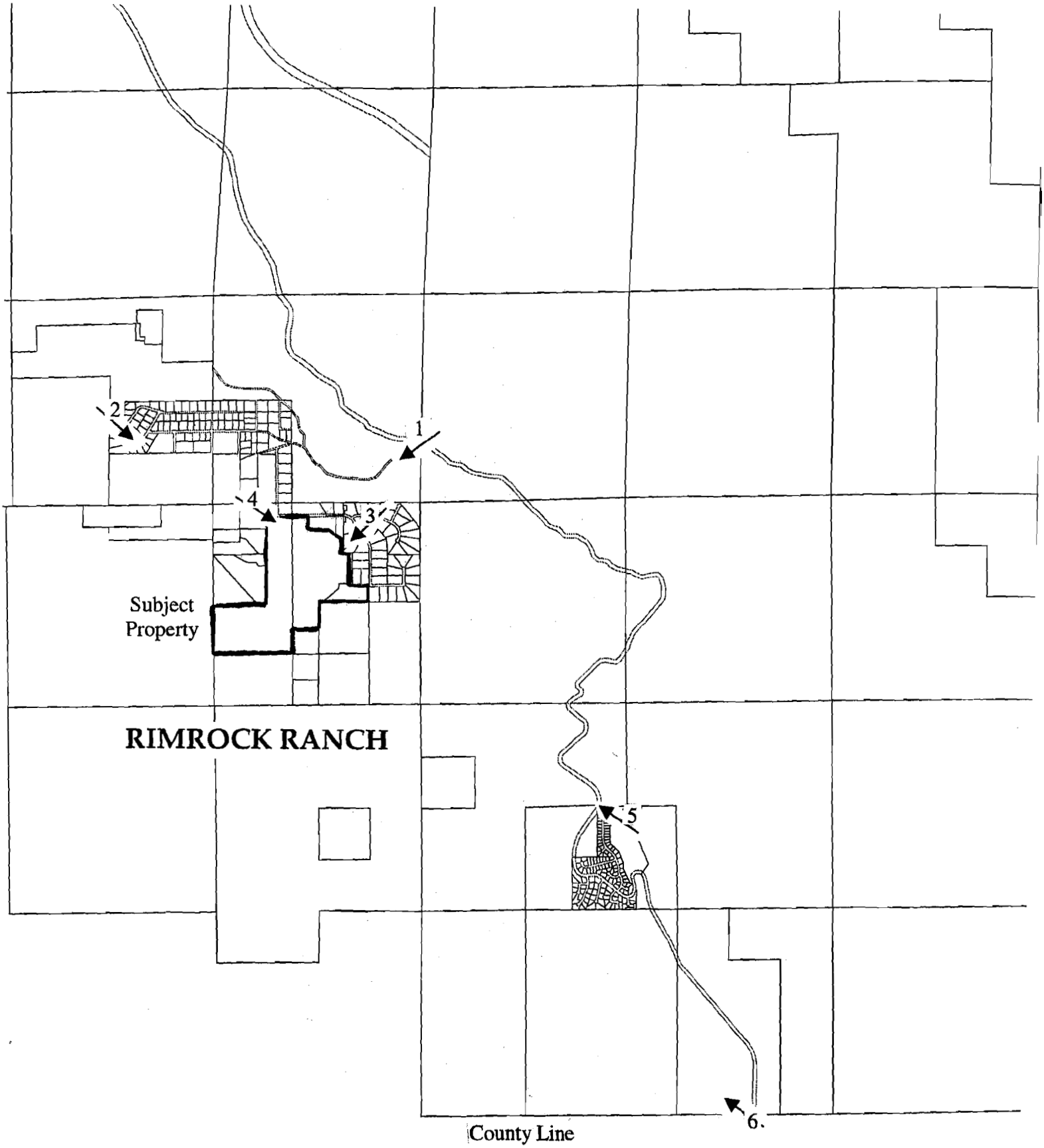


Figure 11

KEY VIEWPOINTS PHOTO LOCATIONS

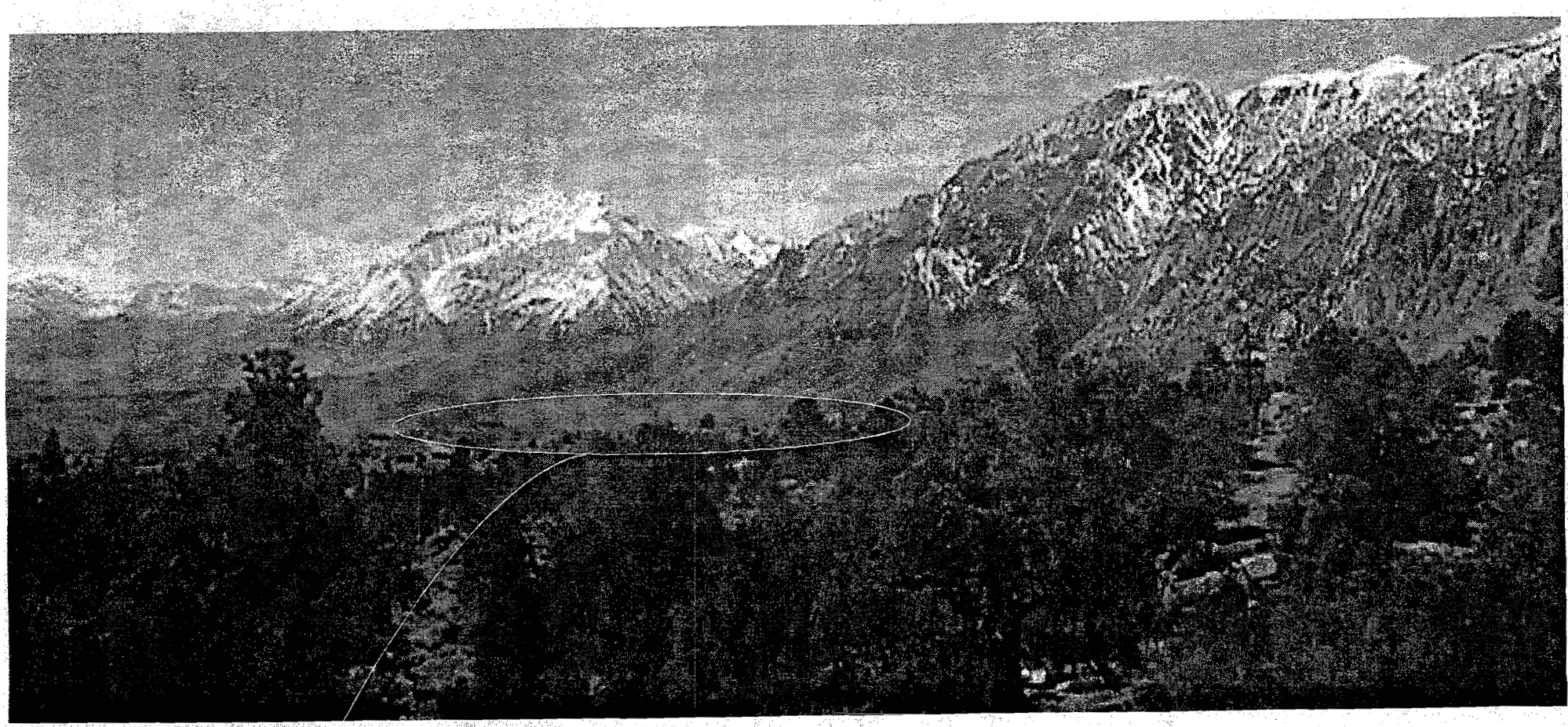


Figure 12

Key Viewpoint #1
Swall Meadows Road

near the entrance to Wheeler Crest 0.7± miles northeast of the project site; Project Site - partly visible.

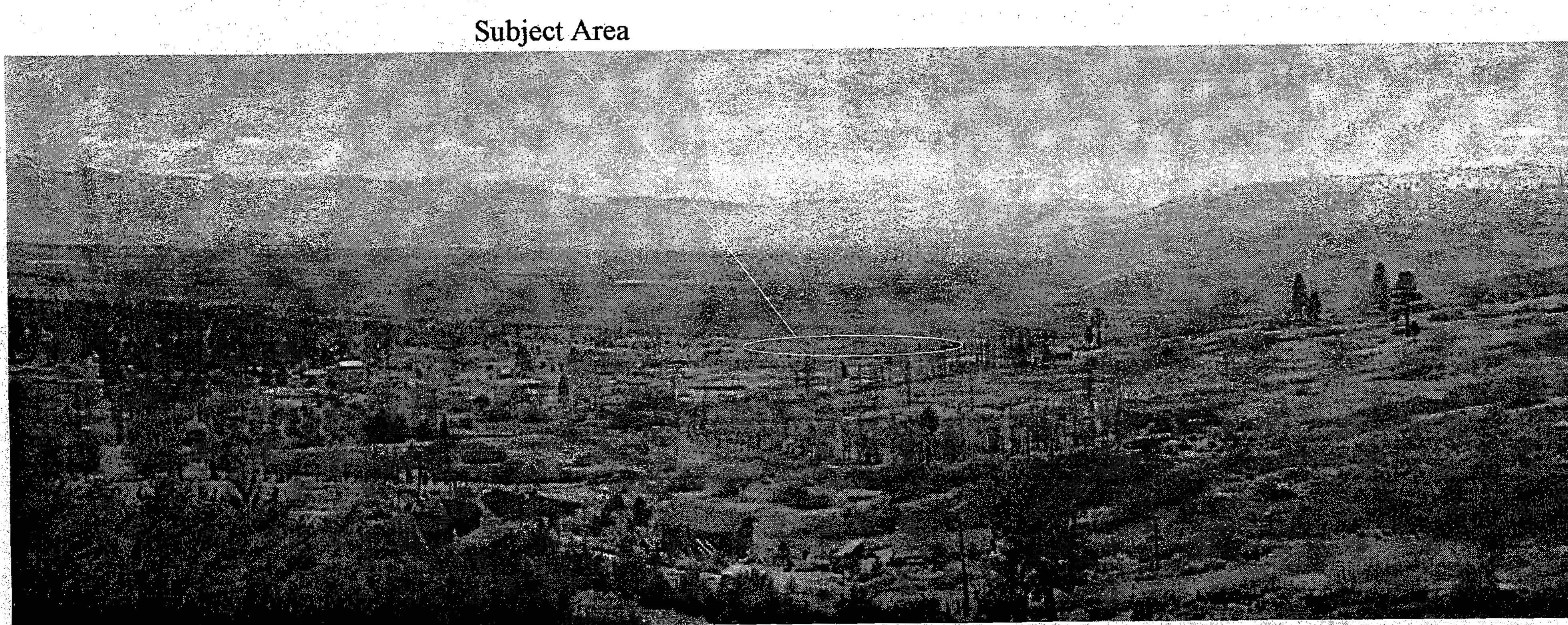


Figure 13

Key Viewpoint #2
Mountain View

1.2± miles northwest and above the project site; Project Site - partly visible.

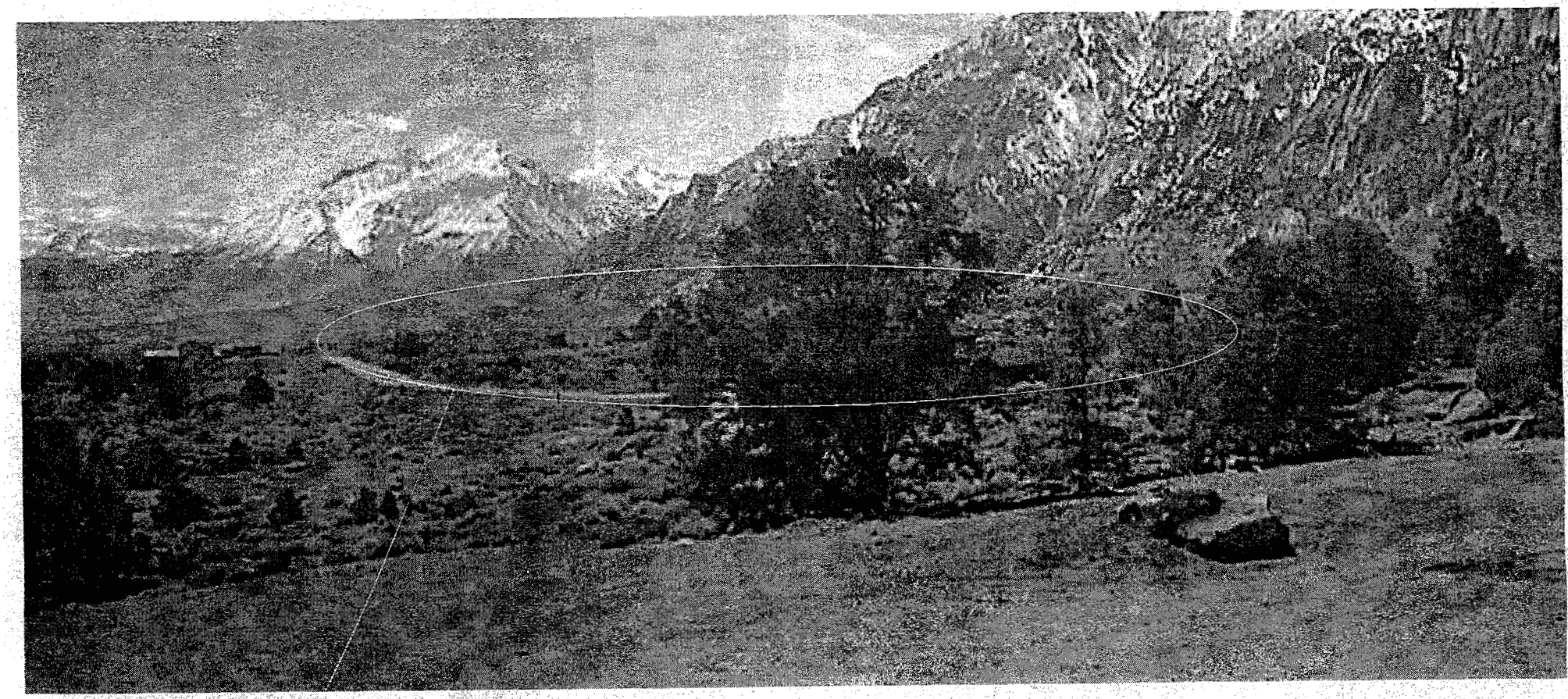


Figure 14

KeyViewpoint # 3
Pinon Ranch

0.4± miles northeast of the project site view from the rear deck of a residence on Rim Rock Drive in Pinon Ranch; Project Site – partly visible.

Subject Area

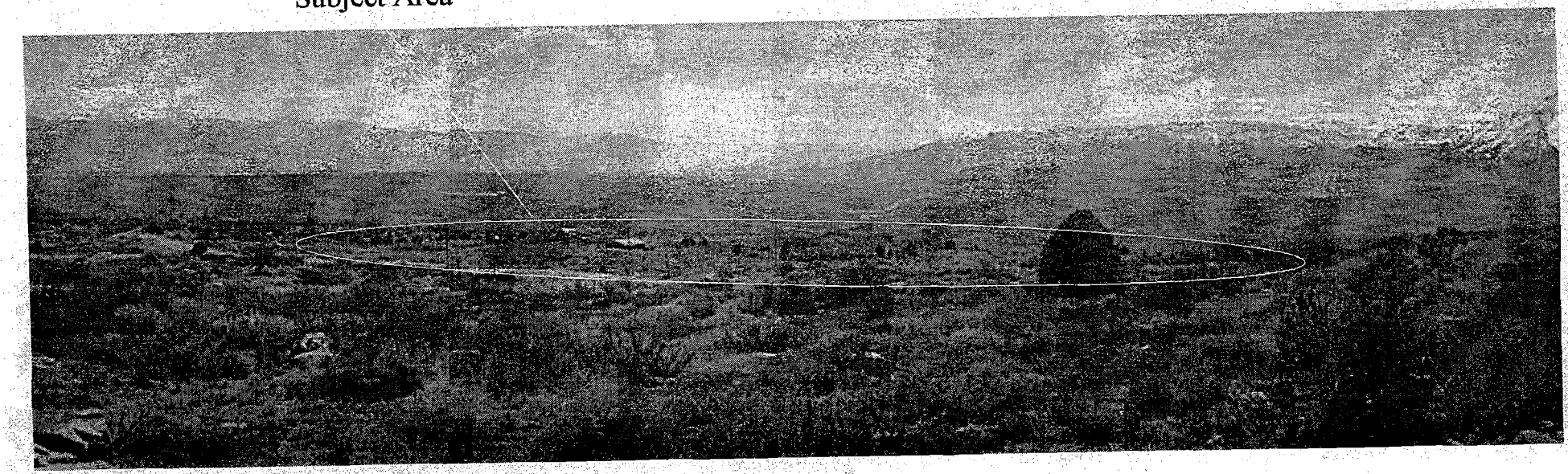
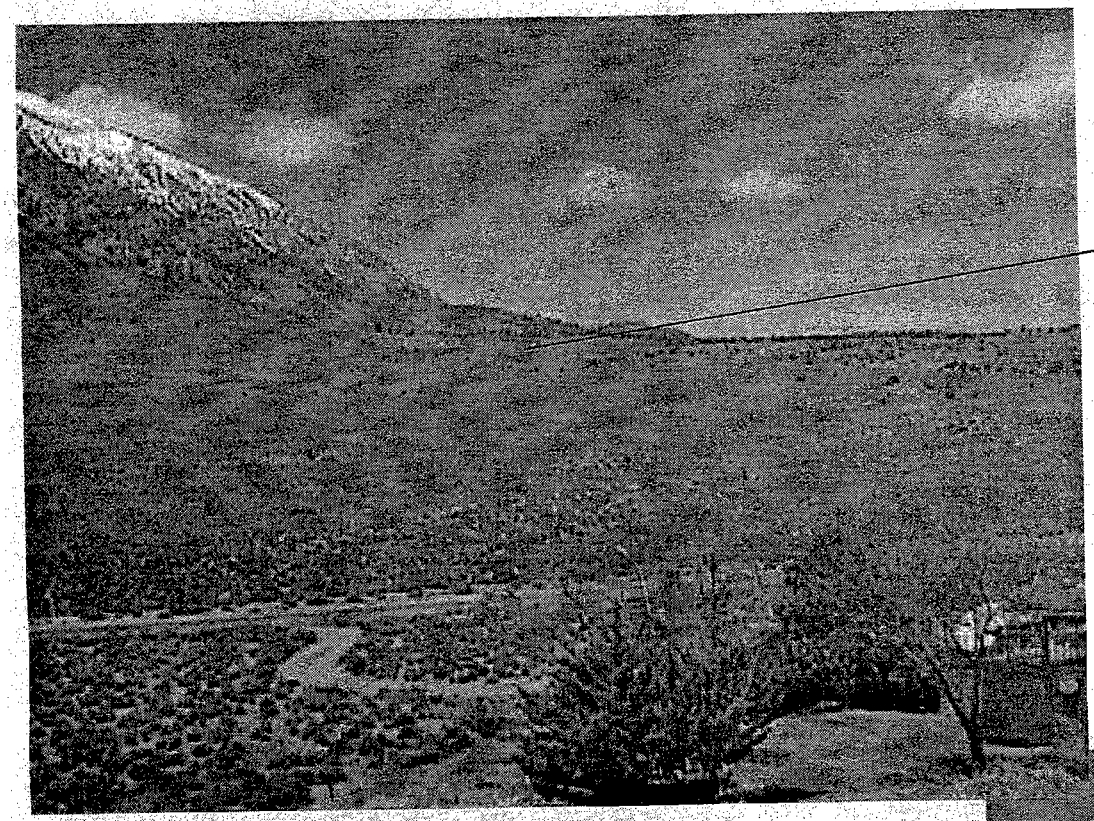


Figure 15

Key Viewpoint # 4
Valley View Road

0.3± miles northwest of the project site, above Valley View Road adjacent to the underground water storage facilities for the proposed subdivision; Project Site –Visible.

Figure 16



Subject Area

Key Viewpoint # 5
Sierra Paradise Subdivision

1.8± miles southeast and below the project site on the upper portion of Westridge Road in the Sierra Paradise subdivisionProject Site – Partly visible

Key Viewpoint # 6
County Line

3.2± miles southeast and below the project on Lower Rock Creek Road at the Inyo-Mono county line; Project Site - Partly visible - difficult to distinguish.

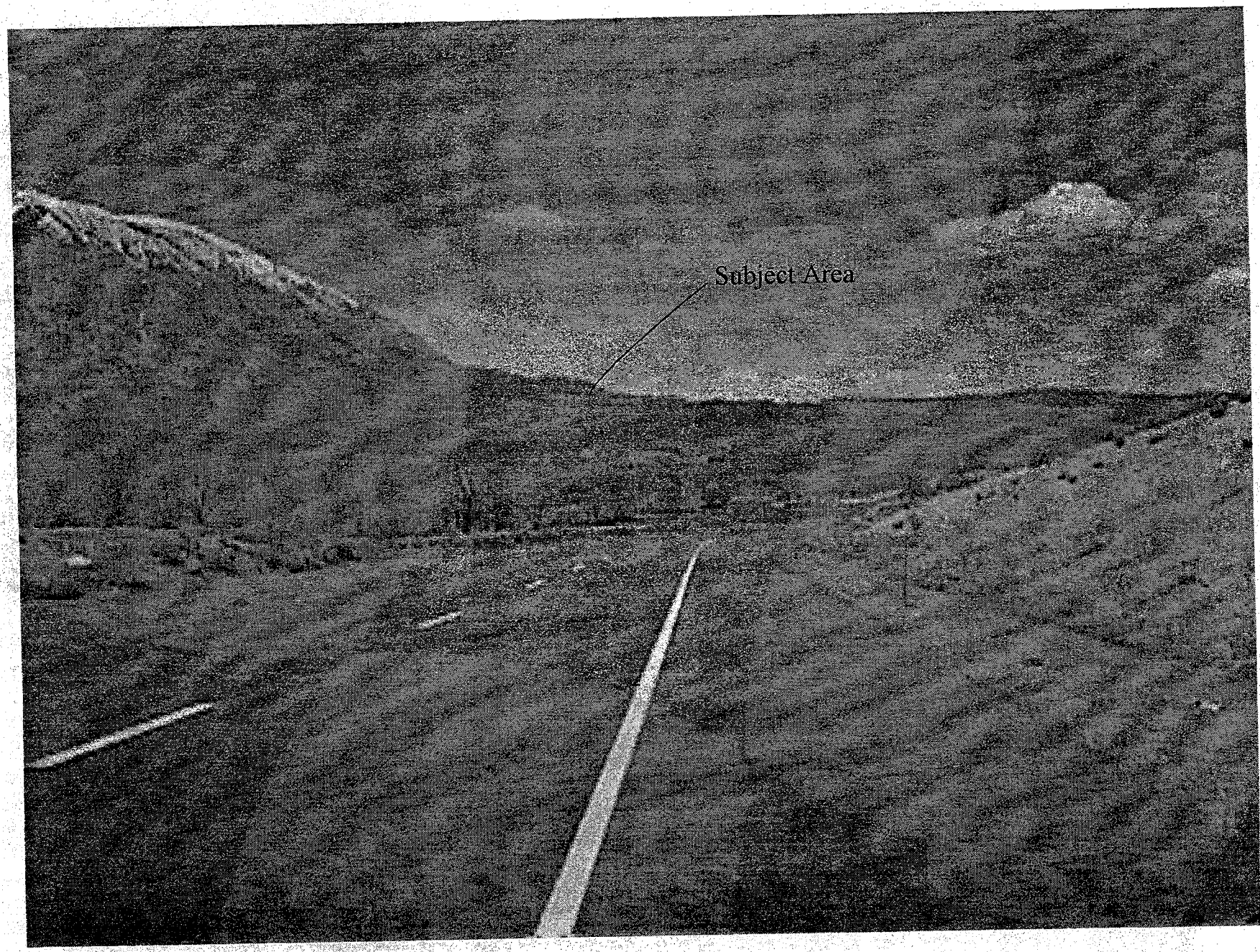
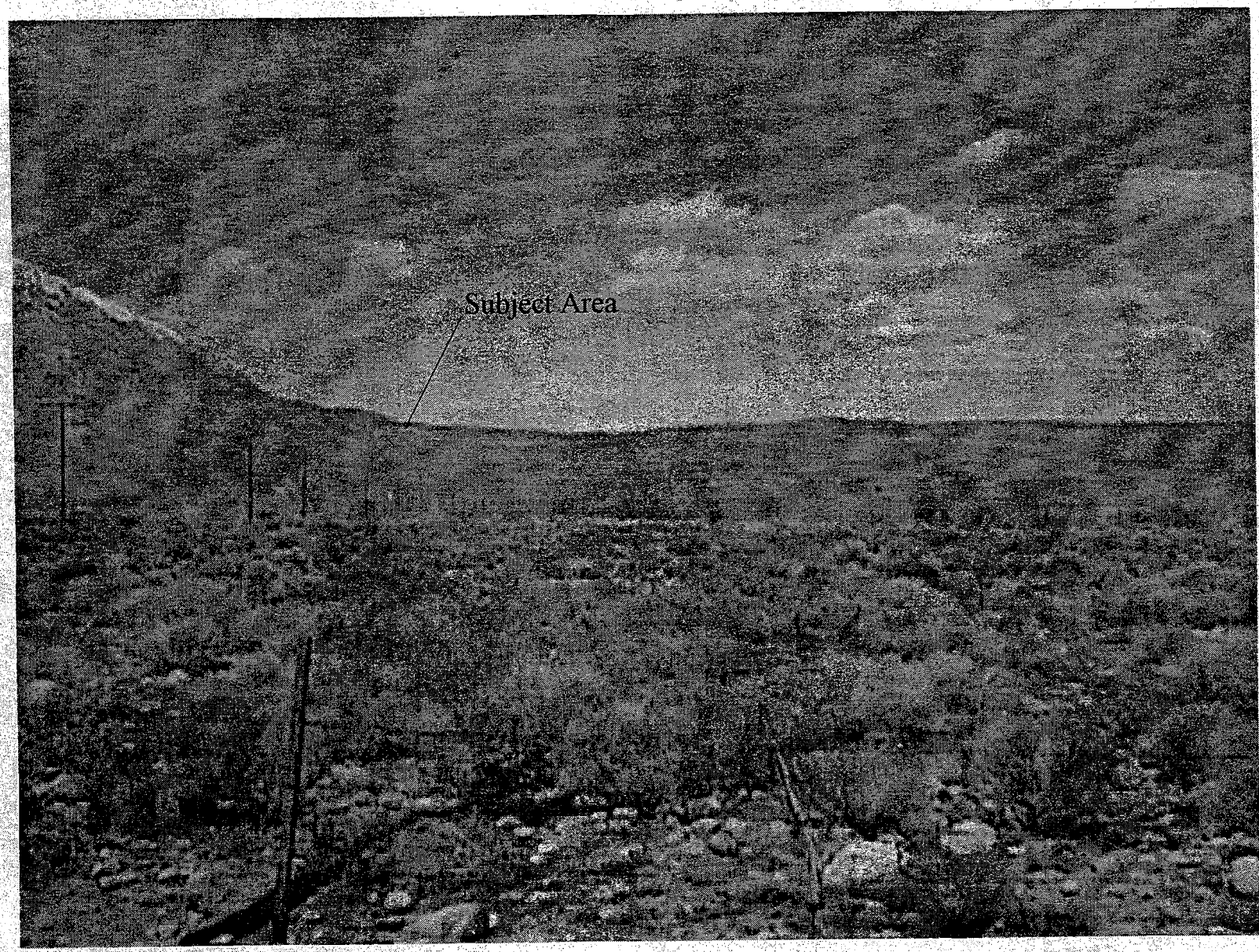


Figure 17

Key Viewpoint # 7
US Highway & Pine Creek Road

5.9± miles southeast and below the project;
Project Site -- difficult to distinguish.



5.1± miles south and below the project on Lower Rock Creek Road at the Inyo-Mono county line; Project Site - Partly visible - difficult to distinguish.

Figure 18

Key Viewpoint # 8 Round Valley School

Impacts of the Project from Key Viewpoints.

Impacts from Key Viewpoint 1 - This Key Viewpoint photograph is 0.7± miles to the northeast of the project (Figure 12) along Swall Meadows Road near Lower Rock Creek Road, the entrance to Wheeler Crest. The spectacular backdrop is the snow covered high Sierra Nevada Mountains. Part of the subject property can be seen in the photo just above the pinon tree line. Only a small portion of the subject property on the bench can be seen. A few existing structures in the Pinon Ranch subdivision can be seen to the left of the project. Due to intervening topography and Pinon tree cover, the view of the subject property is obscured.

Development of residences within the proposed project will increase the number of structures on the site but they will remain obscured. Structures that may be visible from this Key Viewpoint are not considered visually intrusive. Views of the Sierra Nevada will not be affected. The structures built on the property will tend to be viewed as part of the overall scattered development appearance of the area. It is determined that there would not be significant visual impacts from this Key Viewpoint.

Impacts from Key Viewpoint 2 - Mountain View Subdivision. This Key Viewpoint is located 1.2± miles northwest and above the project site on the upper portion of Mountain View subdivision (Figure 13). The site can be seen in the middleground, partly screened by trees. The overall view is dominated by the open vista in the background culminating in the dramatic White and Inyo Mountains with the Owens Valley before them.

The project site is visible at the edge of the bench, overlooking the Owens Valley. Scattered trees are located throughout the foreground and middleground. Even at the upper portion of Mountain View not all of the subject property is visible from this viewpoint. Numerous residences can be seen both in the foreground and middleground. Some of the homes within the Pinon Ranch are visible. It is expected that future homes within the proposed subdivision will also be visible. The project will be visible from this Key Viewpoint, but the change will not substantially alter the view of an area already developed with scattered homes.

A casual observer would not likely consider the visibility of the project to be intrusive, especially if structures are kept to the proposed 22 feet maximum high and used earth-tone colors. It is determined that, with mitigation, potentially significant visual impacts will not be present from this Key Viewpoint (see mitigation measures below).

Impacts from Key Viewpoint 3 – Pinon Ranch. This Key Viewpoint is located 0.4 miles east-northeast of the project site along Pinon Drive from the rear deck of an existing single family residence (Figure 14). The site is backdropped by the Sierra Nevada Mountains. The viewpoint typifies views from many parts of the Pinon Ranch Subdivision. From some portions of the Pinon Ranch Subdivision, the project site cannot be seen due to intervening topography and/or intervening pinon trees. The project site is partly obscured by vegetation in the foreground from this Key Viewpoint. As other existing homes within the Pinon Ranch subdivision are visible, so will some of the homes in the proposed subdivision. The low-density project will tend to emulate the visual effects of development in Pinon Ranch development. No major interference with views of the Sierra Nevada or Owens Valley is likely.

Even though some visual impacts might be anticipated from this Key Viewpoint, it is determined that, with mitigation, potentially significant visual impacts will not be present (see mitigation measures below).

Impacts from Key Viewpoint 4 – Valley View Road. This Key Viewpoint is located 0.3± miles northwest of the project above Valley View Road, adjacent to the underground water storage facilities for the subdivision. It is on a slight rise in terrain to the northwest of the property. This is an important Key Viewpoint for individuals accessing the Rimrock and Pinon Ranch area. Not all of the project site is visible, as the site slopes away to the south. The Owens Valley forms a distinctive backdrop in this view. The White Mountains to the southeast and Sierra Nevada Mountains to the south above Owens Valley and Round Valley are quite spectacular (see Figure 15).

From this Key Viewpoint, the project site is easily distinguishable in the foreground as noted by the existing power lines along the western boundary and existing hanger building. New homes in the near foreground will be quite visible. The change will not substantially alter the view of the area, as similar developed structures are presently visible in the vicinity. The low-density project will tend to emulate the visual effects of development in Pinon Ranch, although there are not as many trees. No major interference with views of the Sierra Nevada or Owens Valley is likely.

Some visual impacts are anticipated from this Key Viewpoint; however, it is determined that, with mitigation, potentially significant visual impacts will not be present from this Key Viewpoint (see mitigation measures below).

Impacts from Key Viewpoint 5 – Sierra Paradise Subdivision. This Key Viewpoint is located 1.8 miles southeast of the project site in the Sierra Paradise Subdivision at upper end of Westridge Road (Figure 16). The viewpoint looks up to Wheeler Crest from the south. Only a small portion of Wheeler Crest is visible from this location due to the intervening topography. A portion of the subject property on the bench is visible. Residential structures near the project site are visible, but not easily distinguished because of the distance to the site. At night, lighting from Wheeler Crest is visible.

The use of low profile structures and use of earth-tone colors and non-reflective materials will help to mitigate visual impacts. Because the site is obscured by intervening topography and because the project is very similar in density to existing Wheeler Crest development, no significant impacts are present; however, mitigation measures proposed for other Key Viewpoints will help eliminate potential impacts from this viewpoint to even lower levels (e.g., night lighting mitigation measures).

Impacts from Key Viewpoint 6 – County Line. This viewpoint is located 3.2± miles south of the project on Lower Rock Creek Road at the Inyo-Mono county line and 1.8± miles west of US Hwy 395 (Figure 17). The subject property is visible from this location, as well as residential development in Pinon Ranch.

Sierra Paradise is notable in the near midleground with its residential structures, but more so due to the cut and fill slopes that stand out because of their lack of vegetation. Power lines in the foreground also detract from this view.

The project site cannot be easily distinguished in the middleground from the surrounding sagebrush lands. The possible visibility of additional residences is the only visual concern from this Key Viewpoint. The use of low profile structures and use of earth-tone colors and non-reflective materials will help to mitigate the visual impacts.

It is determined that potentially significant visual impacts will not be present from this Key Viewpoint. Mitigation measures proposed for other Key Viewpoint will help limit potential impacts from this viewpoint to even lower levels (e.g., night lighting mitigation measures).

Impacts from Key Viewpoint 7 - US Hwy 395 and Pine Creek Road. This viewpoint is located 5.9± miles southeast of the project site along US Hwy 395 (Figure 18). From this Key Viewpoint, the project site is not easily distinguishable in the near background since little of the existing residential development is visible. In the near middleground is the community of Sierra Paradise. It is predominate because of the disturbed areas (cuts and fills) and the notable presence of the residential development.

It is determined that potentially significant visual impacts will not be present from this Key Viewpoint. Mitigation measures proposed for other Key Viewpoints will help limit potential impacts from this viewpoint to even lower levels.

Impacts from Key Viewpoint 8 - Round Valley School. This viewpoint is located 5.1± miles southeast of the project site (Figure 19). From this Key Viewpoint, the project site is not easily distinguishable in the far middleground near the skyline. In the middleground is the community of Sierra Paradise, which is distinguishable because of the disturbed area (cuts and fills) and residential structures. Little of the project is expected to be seen from this viewpoint. The Sierra Nevada Mountains are visible in the background to the west.

It is determined that potentially significant visual impacts will not be present from this Key Viewpoint. Mitigation measures proposed for other Key Viewpoints will help limit potential impacts from this viewpoint to even lower levels.

Visual Resource Impact Summary

A number of policies and design features have been incorporated into the Specific Plan to avoid potential visual impacts and to mitigate potential impacts to a less than significant level.

The proposed development complies with Mono County General Plan policies, Wheeler Crest Area Plan policies, and Mono County Code requirements concerning protecting the visual environment and ensuring that development is compatible with the surrounding community, site disturbance, structural design and materials, landscaping, outdoor lighting, and utility lines.

Mitigation Measures

The following mitigation measures, incorporated as policies and design features in the Specific Plan, will reduce potential impacts to a less than significant level.

1. All utility lines (electricity, telephone, cable TV) shall be installed underground in compliance with Mono County Zoning and Development Code requirements (MCZDC 19.03.070 (E)). The project shall not have streetlights (I Policy 4).
2. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized

for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (LU Policy 4a).

3. Lot coverage: 20 percent maximum. (LU Policy 3d).
4. Building heights shall not exceed 22 feet, determined by adding the heights of each of the four corners of the buildings above the natural grade and dividing by four (LU Policy 3f).
5. Within the approximately 80 acres proposed for subdivision, open space shall be provided as follows (see Figure 4, Open Space Plan):
   a. Large setbacks of 50 feet from all property lines are required that will create 100-foot wide development-free corridors centered along property boundaries.
   b. A 30-foot setback is required from the top of the bank of onsite perennial drainages that will maintain open space along those drainages [Natural Resource Conservation Policy 15 and Mono County Zoning and Development Code 19.03.130 (7)(b)].
   c. Certain areas of riparian vegetation adjacent to onsite drainages, which have been identified by the project biologist as desirable for wildlife habitat, will be preserved with open space easements.

   Open space easements for the areas identified above and shown on Figure 4 shall be recorded on the final maps for the appropriate phase(s) of the project. The final maps shall note that permitted land uses within the open space easements shall be limited to undisturbed natural uses (LU Policy 6).
6. Exterior lighting on individual lots shall be designed and maintained to minimize the effects of lighting on the surrounding environment. Exterior lighting shall be limited to that necessary for health and safety purposes; high intensity outdoor lighting shall be avoided or adequately shielded; the source of lighting must be concealed on all exterior lighting and all lighting must be designed to confine light rays to the premises of each individual lot. In no event shall a lighting device be placed or directed so as to permit light to fall upon a public street, adjacent lot, or adjacent land area. Lights which could potentially illuminate the deer habitat on the DFG parcel shall be prohibited (DG Policy 2).
7. Design of roadways, driveways, and structures shall minimize cut and fill (DG Policy 3).
8. Structures and fences shall be designed and constructed to harmonize with existing development in the area, the surrounding natural environment, and onsite topography (C.C. & R's). The following design guidelines shall apply to all development:
   a. Structural siting and design should be sensitive to the topography of individual lots.
   b. Roofing shall be firesafe wood shingles, fiberglass shingles or metal in colors compatible with the area (e.g. tan, brown, dark green, or similar colors).
   c. Bright colors or reflective materials shall not be used for any component of any structure.
   d. Siding materials shall have a natural appearance compatible with the surrounding environment. The use of indigenous rock shall be encouraged.
   e. Siding materials shall be stained, painted or otherwise finished in muted earth tones in order to blend into the surrounding environment.
   f. Colors and materials for fences shall be muted and shall blend with the surrounding natural environment.

   (DG Policy 4)
13. Architectural plans for any structure (e.g. dwelling unit, garage, barn, etc.) shall be reviewed and approved by the Wheeler Crest Design Review Committee prior to approval of the building permit (DG Policy 5).
14. Each parcel shall be landscaped in accordance with the landscaping guidelines in Design Guidelines Policy 10 within six (6) months of the issuance of a Mono County Certificate of Occupancy for a dwelling unit on a parcel (DG Policy 9).
11. The following landscaping guidelines shall apply to all development:
   a. Landscaping shall be used to minimize potential visual impacts resulting from development and to provide vegetative screening around structures to reduce deer avoidance of developed areas. Screening cover should be planted in a minimum 20 foot wide band around each residential site, consisting of an inner strip of trees and an outer dense strip of native shrubs.

b. The following elements shall be shielded using landscaping: trash receptacles, propane tanks, and structures. Trash receptacles and propane tanks may also be shielded with fencing.
c. Xeriscape landscaping (drought-resistant planting, soil preparation and low water use irrigation systems, etc.) shall be required. Drip irrigation systems shall be encouraged.
d. Use of native, indigenous species shall be required.

13. The use of larger planting stock is encouraged to accelerate the process of visual screening (see list in Design Guidelines).
14. Young plants shall be protected from deer and rodents until they are established, e.g. a 5 foot wire fence or vexar tubing have been found to work well to protect seedlings from deer.

(DG Policy 10)

12. Property owners shall refrain from clearing native vegetation except where necessary for construction (NRC Policy 9).
13. Revegetation of disturbed areas shall occur as soon as possible following construction and shall require the use of native seeds, native plants grown from seeds or seedlings obtained from local native stock. Revegetated areas shall be monitored for a period of five years to ensure the success of the project and shall be replanted if necessary. Revegetated areas shall be irrigated as necessary to establish the plants (NRC Policy 11).
14. Areas disturbed during the construction of roads shall be revegetated as soon as possible following completion of the roads in compliance with the landscaping and revegetation requirements in the NRC policies (TC Policy 6).

CULTURAL RESOURCES

Trans-Sierran Archaeological Research completed an archaeological survey and testing for the proposed project site (see Appendix B, **Archaeological Survey and Testing for the Proposed Rimrock Ranch Subdivision, Mono County, California**). The survey work included a literature review, an onsite survey of approximately 100 acres, and the testing and analysis of a previously recorded site (CA-MNO-2508). CA-MNO-2508 includes four separate loci of cultural remains; only one loci (A) is located on land proposed for development in the Specific Plan. Loci C and D are located to the west of the project site on land owned by the California Department of Fish and Game. Locus B is located to the north of Rimrock Drive on land previously subdivided by Tract Map 37-44 and extends north onto public land administered by the Inyo National Forest. Locus A, the largest of the prehistoric loci in CA-MNO-2508, is located in the northwest corner of the project site on Lot 1 of the proposed subdivision.

Obsidian hydration analysis of specimens from CA-MNO-2508 indicates Little Lake period usage of the site. The **Archaeological Survey Report** indicates that CA-MNO-2508 is "... important due to its age--Little Lake sites are currently not well-studied in the region" (Burton, p. 11). The report also notes that cultural remains are sparse at the site (maximum surface artifact density is 7 specimens per 25 square meters), that it is basically a surface scatter and that it is difficult even to find enough artifacts at Locus A to meet collection guidelines. The report concludes that Locus A has "... been adequately characterized by the present work, and contain(s) no additional data potential" (Burton, p. 11).

Locus C, which is located on land owned by the California Department of Fish and Game north of Rimrock Drive and just east of Valley View Drive, is denser than the other loci (24 specimens per 25 square meters). The **Archaeological Survey Report** concludes that this site will be protected from direct impacts from the proposed development due to its location on DFG land. The **Report** also states that "the work completed for this project should suffice to mitigate any indirect impacts from the increased population in the area" (Burton, p. 12).

Twenty isolates were also discovered during the site survey, in locations throughout the project site. The isolates included a projectile point, a bifacial tool fragment, a core fragment, and numerous modified and unmodified flakes. The **Archaeological Survey Report** concludes that "... no further work is recommended for the proposed Rimrock Ranch subdivision" (Burton, p. 12).

Specific Plan policies require developers and builders to stop work and conduct an archaeological study should cultural resources be discovered during earthwork activities (NRC Policy 14). No significant impacts are anticipated.

V. IMPACT SUMMARY

EFFECTS FOUND NOT TO BE SIGNIFICANT

CEQA requires an EIR to state briefly why various potential significant effects of a project were determined not to be significant and were therefore not discussed in detail in the EIR (CEQA Guidelines Section 15128).

The following potential significant effects of the Rimrock Ranch Specific Plan were determined not to be significant:

a. Impacts related to noise.
b. Impacts related to land use.
c. Impacts related to housing.
d. Impacts related to transportation and circulation.
e. Impacts related to community services and facilities.
f. Impacts related to energy resources.
g. Impacts related to the provision of utilities for the project.
h. Impacts related to cultural resources.

The reasons for this determination are discussed in Chapter IV, Environmental Analysis. The project has been designed to avoid or mitigate impacts to these areas. Uniformly applied development standards will be adopted into the Specific Plan to mitigate potential environmental effects to a less than significant level.

SIGNIFICANT ENVIRONMENTAL EFFECTS AND PROPOSED MITIGATION MEASURES

CEQA requires an EIR to identify significant environmental effects of a proposed project (CEQA Guidelines Section 15126.2 a) and mitigation measures which could minimize those potential impacts (CEQA Guidelines Section 15126.4). The Environmental Analysis in Chapter IV determined that the following potential environmental effects of the Rimrock Ranch Specific Plan could be significant; proposed mitigation measures would reduce the potential effects to a less than significant level. A summary of the proposed mitigation measures for each of these impacts in contained in the Mitigation Monitoring Program (Chapter VI).

a. Erosion impacts (see Chapter IV, "Geology and Soils" and "Air Quality").
b. Groundwater impacts and water quantity impacts; see Chapter IV, "Water Resources").
c. Plant life impacts (see Chapter IV, "Vegetation").
d. Animal life impacts (see Chapter IV, "Wildlife").
e. Visual impacts (see Chapter IV, "Visual").

UNAVOIDABLE SIGNIFICANT ENVIRONMENTAL EFFECTS

CEQA requires an EIR to describe any unavoidable significant impacts, "... including those which can be mitigated but not reduced to a level of insignificance" (CEQA Guidelines Section 15126.2b). No unavoidable significant environmental effects would occur as a result of implementing the Rimrock Ranch Specific Plan.

SIGNIFICANT IRREVERSIBLE ENVIRONMENTAL CHANGES

CEQA requires an EIR to describe any irreversible uses of nonrenewable resources (CEQA Guidelines Section 15126.2 c). The Rimrock Ranch Specific Plan will not result in any irreversible uses of nonrenewable resources.

GROWTH INDUCING IMPACTS

An EIR must "discuss the ways in which the proposed project could foster economic or population growth, or the construction of additional housing, either directly or indirectly, in the surrounding environment" (CEQA Guidelines Section 151126.2 d).

The project is a single-family residential subdivision in an area that has been designated for single-family residential development in the County's General Plan. Utilities (power and telephone service) and road access are already available in the area. Portions of the water system that will be used for the area (well and reservoir) are already in place. Surrounding lands are either public lands or private land designated for single-family residential growth in the County's General Plan. Growth induced by this project will include approximately 88 persons directly on the site with an additional 8 persons, either directly or indirectly, in the surrounding area; 96 persons total.

CUMULATIVE IMPACTS

> "Cumulative impacts refers to two or more individual effects which, when considered together, are considerable or which compound or increase other environmental impacts." (CEQA Guidelines Section 15355)

Implementation of the Rimrock Ranch Specific Plan will not produce cumulative impacts since the subject property has been identified for development in the Wheeler Crest Area Plan and is adjacent to existing developed areas. The project density is slightly lower than the density analyzed in the Wheeler Crest Area Plan EIR. There are no other known projects proposed for the Wheeler Crest area at this time and little existing development in the area.

PROJECT ALTERNATIVES

> "An EIR shall describe a range of reasonable alternatives to the project, or to the location of the project, which would feasibly attain most of the basic objectives of the project but would avoid or substantially lessen any of the significant effects of the project, and evaluate the comparative merits of the alternatives."(CEQA Guidelines Section 15126.6)

CEQA requires the analysis of a No Project alternative as well as other reasonable alternatives, and an evaluation of the comparative merits of the proposed alternatives. The alternatives developed for the proposed Rimrock Ranch Specific Plan were evaluated based on their potential to eliminate significant adverse environmental effects or reduce them to a level of insignificance, as well as to attain the project objective:

> "The project objective is to provide 35 rural residential parcels (including access and utilities) for construction of a custom designed single-family residence on each parcel."

The Rimrock Ranch Specific Plan describes one development scenario. The development proposed in the Specific Plan avoids or mitigates all potential environmental impacts to a less than significant level.

The Alternatives Analysis describes four alternatives to the project, including the No Project Alternative. The analysis for each alternative includes the following:

1. An alternative project description;
2. Analysis of the alternative's potential to avoid or reduce significant environmental impacts to a less than significant level;
3. The comparative merits of the alternative relative to the project; and
4. The alternative's ability to meet the overall project objective.

Alternative 1--No Project (Existing Conditions)
Under this alternative, the site would remain in its current undeveloped state. Limited impacts resulting from casual use of the area, particularly the onsite dirt roads and airstrip, would continue. This alternative would have far fewer potential environmental impacts compared to the project described in the Specific Plan, particularly on wildlife, vegetation, erosion, water resources, and visual resources. This alternative would not fulfill the project objective of providing 35 lots for single-family residential development.

Alternative 2--Redesigned Project (Fewer Lots)
The redesigned project would eliminate lots 5-15 and 35 (12 lots) from the plot plan for the proposed Specific Plan. This would reduce the number of lots to 23 from the 35 lots proposed by the Specific Plan (approximately a 34 percent reduction in the number of lots) and the total developed acreage by approximately 33 acres (approximately a 41 percent reduction). The site development criteria would remain the same as those proposed in the Specific Plan: maximum allowable site disturbance would remain 30% of the total lot area; maximum allowable lot coverage would remain 20% of the total lot area; and all setbacks would remain 50 feet minimum. The layout of the remaining lots (1-4 and 16-34) would be the same as shown on the plot plan for the proposed Specific Plan.

This alternative would reduce potential environmental impacts by reducing the total area to be developed. A larger area of additional acreage would be left in its natural condition and additional habitat area would be available for mule deer and other wildlife in the western portion of the subject parcel, adjacent to the area now owned by the California Department of Fish and Game and maintained as mule deer habitat. Less water would be required for development since fewer homes would be developed. There would also be less traffic since fewer homes would be developed. Visual impacts would be reduced since the total developed area would be reduced by approximately 41 percent and the portion of the parcel not developed would be adjacent to an undeveloped area. This alternative would partially fulfill the project objective of providing lots for single-family residential construction (23 lots instead of 35).

Alternative 3--Redesigned Project (Larger Lots)
Under this alternative, the project would be redesigned with a larger average lot size of 4 acres gross. This would reduce the number of lots to 20 from the 35 lots proposed by the Specific Plan (approximately a 43 percent reduction in the number of lots). The site development criteria would remain the same as those proposed in the Specific Plan: maximum allowable site disturbance would remain 30% of the total lot area; maximum allowable lot coverage would remain 20% of the total lot area; and all setbacks would remain 50 feet minimum. The layout of the lots would be designed to preserve identified deer movement corridors to the greatest extent possible.

This alternative would reduce potential environmental impacts by reducing the number of lots which would be developed. Additional acreage would be left in its natural condition and additional undisturbed habitat area would be available for mule deer and other wildlife in the area; however, the additional undisturbed area would be somewhat fragmented; it would not be in one large undeveloped area but in corridors around areas of development. Less water would be required for development since fewer homes would be developed. There would also be less traffic since fewer homes would be developed. Visual impacts would be reduced somewhat because the total number of lots would be reduced. There would be larger areas of undisturbed sagebrush scrub within the overall developed area as compared with the proposed project. This alternative could partially fulfill the project objective of providing lots for single-family residential construction (20 lots instead of 35).

Alternative 4--Redesigned Project (Clustered Development)
The project would be redesigned in this alternative to cluster development in the northern and eastern portions of the subject parcel, adjacent to existing subdivided and developed areas. This would provide 35 lots, with an average lot size of 1 acre. The total project area would be approximately 40 acres (35 1-acre lots and roads), approximately a 50 percent reduction in the area developed. Site development criteria, particularly setbacks, would likely need to be modified in order to provide sufficient developable areas on each lot. The layout of the lots would be designed to preserve identified deer movement corridors to the greatest extent possible.

This alternative would reduce potential environmental impacts by reducing the total area to be developed. A large area of additional acreage would be left in its natural condition and additional habitat area would be available for mule deer and other wildlife in the western portion of the subject parcel, adjacent to the area now owned by the California Department of Fish and Game and maintained as mule deer habitat. Slightly less water might be required for this alternative since the lots would be smaller, leaving less area to landscape on each lot. Visual impacts would be reduced since the total developed area would be reduced by approximately 50 percent and the portion of the parcel not developed would be adjacent to an undeveloped area. This alternative would fulfill the project objective of providing 35 lots but would require a General Plan Amendment, since the Wheeler Crest Area Plan requires a minimum lot size of 2 acres for new development.

Alternative 5—Alternate Project Site
Under this alternative, the project would be constructed on another 80± acre site in the general vicinity. The same number of lots would be proposed (i.e., 35) and the lot sizes would be 2-acre minimum. A possible site is shown in Figure 19. This site is in the Sunny Slopes area just north of Tom's Place. The current General Plan designates the alternate site as Estate Residential (ER), the same as the Rimrock Ranch project site. The newly proposed General Plan, currently undergoing review, would designate the site as five acre minimum lot size. This alternative site is accessed from the Owens Gorge Road which leads through Sunny Slopes and connects with US Hwy 395 near Tom's Place.

Compared to the Rimrock Ranch project site, this alternative site is located in a geologically less conducive location. The site is on the Bishop Tuff, a rocky layer of volcanic extrusion associated with the Long Valley Caldera eruption. Construction of roads, underground utilities, driveways and structures would be more difficult. Domestic water supply would more problematic as the underground water source appears to be located beneath the Bishop Tuff at some 700' in depth. Construction of septic leach field systems are also problematic due to the presence of the Bishop Tuff and the potential lack of suitable soils; special systems may have to be devised to treat sewage.[8] Most of the traffic generated by the project would have to traverse through the

[8] Marvin Moskowitz, Mono County Environmental Health Department, personal communication, June 15, 2000.

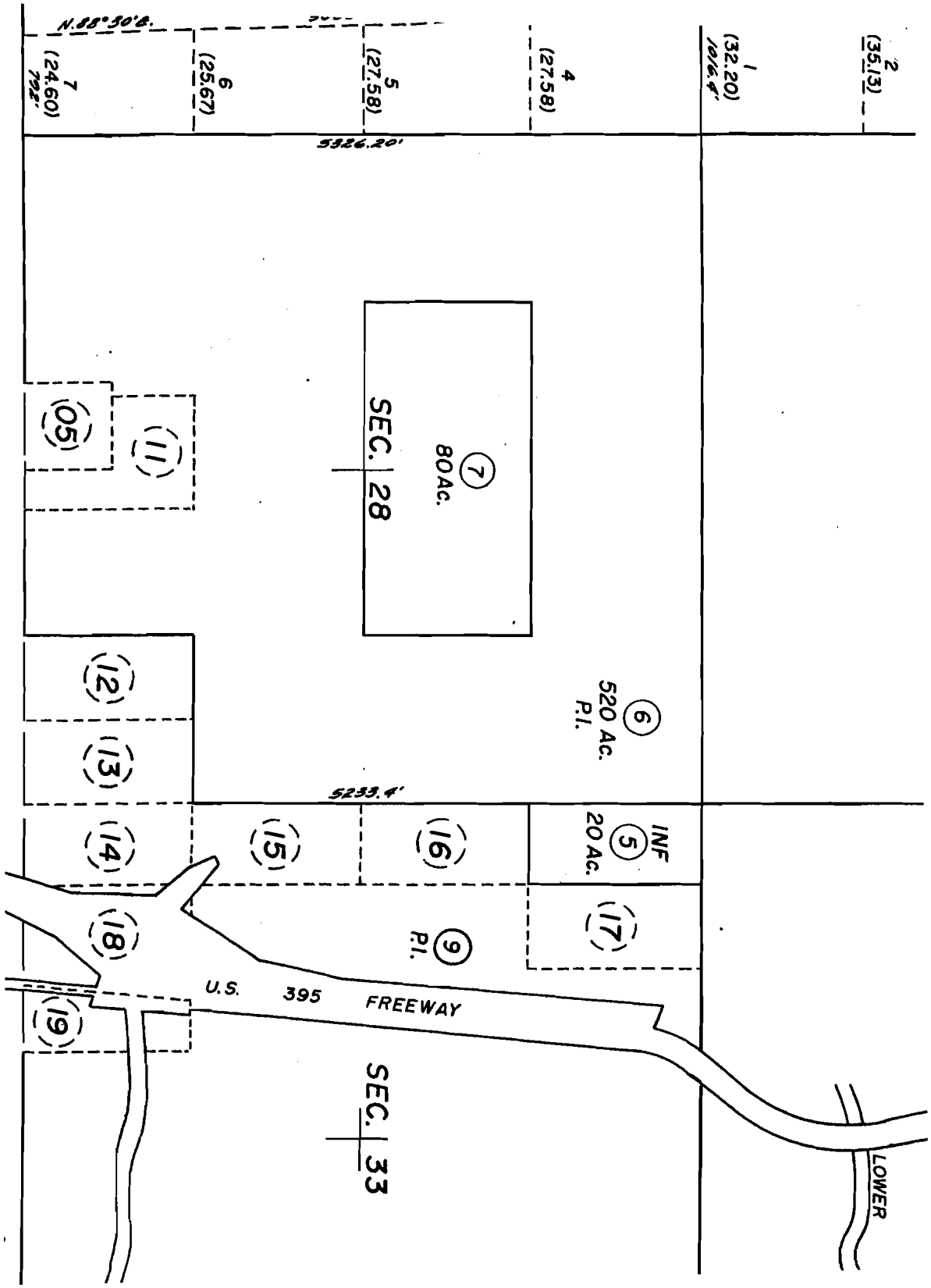
comparatively more dense developed area of Sunny Slopes (Low Density Residential). Using the same projections as the Rimrock Ranch project, there would be an estimated 175 vehicles per day with 18 vehicles in the peak hour. Although specific studies have not been conducted, it would appear there would be less impact on mule deer and other wildlife in the area due to the less suitable terrain and vegetation at this alternative site. Visual impacts would be reduced because the site is generally less visible from viewpoints such as the County-designated US Hwy 395 Scenic Highway. This alternative could fulfill the basic project objective of providing lots for single-family residential construction but development constraints and traffic circulation could be more significant. This alternative site is not owned by the Rimrock Ranch applicant.

Environmentally Superior Alternative

The Environmentally Superior Alternative is the No Project Alternative since it would not create any additional environmental impacts; however, the No Project Alternative would not fulfill the project objective. When the No Project Alternative is the environmentally superior alternative, CEQA Guidelines § 15126.d.4 requires the identification of an environmentally superior alternative from the remaining alternatives.

Aside from Alternative 1 - No Project, the environmentally superior alternative would be **Alternative 2--Redesigned Project (Fewer Lots)** since that alternative would result in the least amount of potential impacts. However, alternative 2 would not completely fulfill the project objective.

Figure 19 Possible Alternative Project Site



VI. MITIGATION MONITORING PROGRAM

If the project is approved, the CEQA (PRC Section 21081.6) and the Mono County Environmental Handbook require the County to adopt, or make a condition of approval, a reporting and monitoring program to ensure compliance with project mitigation measures or conditions. A draft Mitigation Monitoring Program is included here.

The Mitigation Monitoring Program summarizes impacts and applicable Specific Plan policies which mitigate those impacts. It identifies the type of mitigation measure, the monitoring entity, implementing entity, and compliance schedule. For a complete discussion of impacts, see the Environmental Analysis (Chapter IV). For the complete text of Specific Plan policies, see Chapter III, Specific Plan Goals, Policies, and Implementation Measures.

Mitigation measures are identified as "Design" measures or "Ongoing" measures. "Design" measures are conditions incorporated into the project to prevent environmental impacts, e.g. project designs, drainage retention basins, etc.. "Ongoing" measures are conditions associated with the project over time, e.g. landscape maintenance, preservation of open space, etc.. The designated compliance officer for this Mitigation Monitoring Program is the Mono County Code Enforcement Officer (CEO). The CEO is responsible for coordinating all monitoring efforts and ensuring that all mitigation measures are being enforced. The Mitigation Monitoring Program also identifies specific monitoring entities for each mitigation measure, e.g. Planning Department, Public Works Department.

RIMROCK RANCH MITIGATION MONITORING PROGRAM

If the project is approved, the California Environmental Quality Act (CEQA) (PRC Section 21081.6) and the Mono County Environmental Handbook require the County to adopt, or make a condition of approval, a reporting and monitoring program to ensure compliance with project mitigation measures or conditions. This Mitigation Monitoring Program for the Rimrock Ranch Specific Plan summarizes impacts, lists applicable Specific Plan policies which mitigate those impacts, and identifies the type of mitigation measure, the monitoring entity, implementing entity, and compliance schedule.

LEGEND

→ **Mitigation Measures**
Identifies policies from the Bodie Hills RV Park Specific Plan which serve as mitigation measures for the project.

LU = Land Use policies
DG = Design Guidelines policies
I = Infrastructure policie
NRC = Natural Resource Conservation policies
TC = Transportation/Circulation policies

→ **Mitigation Type (MT)**
"Design" measures or conditions are incorporated into the project to prevent environmental impacts, e.g. project designs, drainage retention basins, etc..
"Ongoing" measures or conditions are associated with the project over time, e.g. landscape maintenance, preservation of open space, etc..

→ **Monitoring Process (MP)**
Identifies the process to be used to monitor a specific mitigation measure, e.g. building permit approval, on-site inspections, etc..

➔ **Monitoring Entity (ME)**
The designated compliance officer for this Mitigation Monitoring Program is the Mono County Code Enforcement Officer (CEO). The CEO is responsible for coordinating all monitoring efforts and ensuring that all mitigation measures are being enforced. The Mitigation Monitoring Program also identifies specific monitoring entities for each mitigation measure, e.g. Planning Department, Public Works Department, Environmental Health Department.

➔ **Implementing Entity (IE)**
Identifies the entity responsible for implementing a specific mitigation measure, e.g. the project developer, the project operator, etc..

➔ **Compliance Schedule (CS)**
Identifies a timeframe for complying with a specific mitigation measure.

Mitigation Monitoring Program

Potential Impacts and Mitigation	Type	Process	ME	IE	Schedule
Geology/Soils					
A. **The soil underlying the project, when disturbed, is potentially highly erodible which may result in potential visual impacts and impacts to air and water quality during construction and long-term.**					
1. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (LU Policy 4a).	Design/ Ongoing	Grading/ Building Permits/ Site Insp.	CEO	Lot Owners	Grading Building Permits/ Ongoing Site Insp.
2. Site disturbance shall be limited by implementation of the site disturbance restrictions contained in the Land Use policies of this Plan (DG Policy 1).	"	"	"	Lot Owners/ Developer	"
3. Siting and design of roadways, driveways and structures shall minimize cut and fill (DG Policy 3).	"	"	"	"	"
4. Erosion control measures on disturbed areas shall include the use of netting or similar erosion control materials, the removal, stockpiling, and replacement of topsoil, and revegetation with a native seed mix and/or native plants. (DG Policy 10).	"	"	"	"	"
5. Revegetation of disturbed areas shall occur as soon as possible following construction and shall require the use of native seeds, native plants grown from seeds	"	"	"	"	"

Potential Impacts and Mitigation (continued)	Type	Process	ME	IE	Schedule
or seedlings obtained from local native stock. Revegetated areas shall be monitored for a period of five years to ensure the success of the project and shall be replanted if necessary. Revegetated areas shall be irrigated as necessary to establish the plants (NRC Policy 11).					
6. Design and construction of roadways, driveways and structures shall comply with all requirements of Mono County Code 13.08 (Land Clearing, Earthwork, and Drainage Facilities) and the Lahontan Regional Water Quality Control Board (including requirements for NPDES Stormwater Permits if applicable). (NRC Policy 13).	Design/ Ongoing	Grading/ Building Permits	CEO Lahon-tan	Lot Owners/ Developer	Grading/ Building/ NPDES Permits
7. Areas disturbed during the construction of roads shall be revegetated as soon as possible following completion of the roads in compliance with the landscaping and revegetation requirements in the NRC policies (TC Policy 6).	Design	Grading Permit	CEO	Developer	Grading Permit
Air Quality					
A. The project would increase emissions from wood burning devices.					
1. All woodburning devices installed in the project shall be Phase II EPA certified, in conformance with the Mono County General Plan (NRC Policy 12).	"	Building Permit	"	Lot Owner/ Builder	Building Permit
B. The project would increase vehicle emissions.					
2. The area is in compliance with federal and state standards and project traffic will not add a significant source of vehicle emissions.	NA	NA	NA	NA	NA
C. The project may increase erosion impacts and contribute to a reduction in air quality.					
3. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (LU Policy 4a).	Design/ Ongoing	Grading/ Building Permits/ Site Insp.	CEO	Lot Owners	Grading/ Building Permits/ Ongoing Site Insp.
4. Site disturbance shall be limited by implementation of the site disturbance restrictions contained in the Land Use policies of this Plan (DG Policy 1).	"	"	"	Lot Owners/ Developer	"
5. Siting and design of roadways, driveways and structures shall minimize cut and fill (DG Policy 3).	"	"	"	"	"

Potential Impacts and Mitigation (continued)	Type	Process	ME	IE	Schedule
6. Each parcel shall be landscaped in accordance with the landscaping guidelines in Design Guidelines Policy 10 within six (6) months of the issuance of a Mono County Certificate of Occupancy for a dwelling unit on a parcel (DG Policy 9).	Design	Building Permit/ Site Insp.	CEO	Lot Owners	Within 6 Months of C. of O.
7. With the exception of wells, septic systems, and fire safe storage facilities, surface disturbance activities such as residential development, corrals, fencing and raising crops shall be prohibited outside private yard fenced areas (NRC Policy 4).	Design/ Ongoing	Site Insp.	CEO	Lot Owners	Ongoing Site Insp.
8. Dust generated during construction shall be controlled through watering or other acceptable measures (NRC Policy 7).	Design	Grading Permit	Public Works	Lot Owners/ Developer	Grading Permit
9. Property owners shall refrain from clearing native vegetation except as necessary for construction (NRC Policy 9).	"	Site Insp.	CEO	Lot Owners	Ongoing Site Insp.
10. Erosion control measures on disturbed areas shall include the use of netting or similar erosion control materials, the removal, stockpiling, and replacement of topsoil, and revegetation with a native seed mix and/or native plants (NRC Policy 10).	Design/ Ongoing	Grading/ Building Permits/ Site Insp.	CEO	Lot Owners/ Developer	Grading/ Building Permits/ Ongoing Site Insp.
d. Revegetation of disturbed areas shall occur as soon as possible following construction and shall require the use of native seeds, native plants grown from seeds or seedlings obtained from local native stock. Revegetated areas shall be monitored for a period of five years to ensure the success of the project and shall be replanted if necessary. Revegetated areas shall be irrigated as necessary to establish the plants (NRC Policy 11).	"	"	"	"	On going Site Insp. Up to 5 years
e. Areas disturbed during the construction of roads shall be revegetated as soon as possible following completion of the roads in compliance with the landscaping and revegetation requirements in the NRC policies (TC Policy 6).	Design	Grading Permit	CEO	Developer	Grading Permit
Water Resources					
A. The project has the potential to impact groundwater resources by increasing the use of subsurface water for the project.					
1. The following mitigation and monitoring program shall be implemented to ensure that possible impacts to the groundwater resource in the surrounding area that are measurable and attributable to the operation of Wheeler Crest Community Service District (WCCSD) Well No. 4 are avoided. This mitigation and monitoring program is taken from the Water Resource Assessment, Rimrock Ranch Specific Plan, 1999:					
a. With developer funding, the WCCSD shall take quarterly water level (static) readings in each of its wells. If permission can be obtained and access to the	Design	Well Insp.	WC CSD	Developer /WCCSD	Quarterly

Potential Impacts and Mitigation (continued)	Type	Process	ME	IE	Schedule
well is reasonable, the groundwater level in all other wells in the area should be measured annually. These data shall be maintained by the WCCSD with copies forwarded annually to the Mono County Health Department.					
b. With developer funding, the WCSSD shall develop estimates of the elevation of the measuring point of each well where data are collected. This information should be developed within 5 years from the initiation of operation of WCCSD No. 4 and collection of depth to water data. This will ensure that future analyses are based on accurate estimates of groundwater elevation as well as depth to water.	Design	Well Insp.	WC CSD	Developer /WCCSD	Within 5 Years from Well #4 Operation
c. Pumping amounts shall be recorded monthly in WCCSD wells and reported annually to Mono County. The number of service connections shall be accurately recorded and included in the reporting forms. Pumping amounts from domestic wells may be estimated, if necessary, in the future, based on these data.	"	"	"	WCCSD	Monthly
c. WCCSD No. 3 shall be used as a monitoring well and shall act as a "trigger" well. The "trigger" shall be based on a water level decline more severe than the predicted decline under the worst case scenario presented in the Water Resource Assessment, Rimrock Ranch Specific Plan, 1999, i.e.: if the water level in WCCSD No. 3 drops more than five (5) feet after one (1) year of operation of WCCSD No. 4 after the project is fully developed, all collected data shall be analyzed to evaluate the potential for impact to other wells. The objective of the evaluation would be to update and enhance the evaluation in the Water Resource Assessment, Rimrock Ranch Specific Plan, 1999, using the additional data. This "trigger" is designed as an early warning system. The Water Resource Assessment notes that "... even if this drawdown [more than 5 feet in 1 year] occurred in a well less than 20 feet away from the pumping well after one year, it is highly unlikely that any significant impacts would be realized in other wells located further away after one year" (Team Engineering, p. 22). (NRC Policy 16).	"	Well Insp.	WC CSD	WCCSD	After 1 Year from Well #4 Operation
Vegetation					
A. **The project will result in the removal of native vegetation.**					
1. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach	Design/ Ongoing	Grading/ Building Permits/ Site Insp.	CEO	Lot Owners	Grading/ Building Permits/ Ongoing Site Insp.

Potential Impacts and Mitigation (continued)	Type	Process	ME	IE	Schedule
field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (LU Policy 4a).					
2. Certain areas of riparian vegetation adjacent to onsite drainages, which have been identified by the project biologist as desirable for wildlife habitat, will be preserved with open space easements. (LU Policy 6c).	Design	Tentative Sub.Map	Plan./ Public Works	Developer	Tentative Sub. Map Approval
3. Domestic animals shall be restrained at all times, either through the use of leashes or private fenced areas. No animals shall be allowed to be free roaming. Horses and other grazing animals shall be penned or tethered in areas such that the native vegetation is not impacted by such animals in accordance with the site disturbance limits established in Land Use Policy 3a (NRC Policy 5).	"	Site Insp.	CEO	Lot Owners	Ongoing
4. Landscaping shall be used to minimize potential visual impacts resulting from development and to provide vegetative screening around structures to reduce deer avoidance of developed areas. Screening cover should be planted in a minimum 20 foot wide band around each residential site, consisting of an inner strip of trees and an outer dense strip of native shrubs (DG Policy 10a).	"	"	"	"	"
5. Use of native, indigenous species shall be required (DG Policy 10d).	"	"	"	Lot Owners/ Developer	"
6. Siting and design of roadways, driveways and structures shall minimize cut and fill (DG Policy 3).	"	Grading/ Building Permits	Public Works	"	Grading/ Building Permits
B. The removal of native vegetation will remove habitat and forage for local wildlife, particularly the deer herd.					
7. Designate the approximately 100 acres owned by the Department of Fish and Game as Open Space/Natural Habitat Protection (OS/NHP). Permitted uses shall be limited to undisturbed natural uses (LU Policy 1).	"	Specific Plan	PC/ BOS	Developer	Specific Plan Approval
8. Property owners shall refrain from clearing native vegetation except as necessary for construction (NRC Policy 9).	"	Site Insp.	CEO	Lot Owners	Ongoing
9. Areas disturbed during the construction of roads shall be revegetated as soon as possible following completion of the roads in compliance with the landscaping and revegetation requirements in the NRC policies (TC Policy 6).	"	Grading Permit	Public Works	Developer	Grading Permit

Potential Impacts and Mitigation (continued)	Type	Process	ME	IE	Schedule
10. Within the approximately 80 acres proposed for subdivision, open space shall be provided as follows (see Figure 4, Open Space Plan):					
a. Large setbacks of 50 feet from all property lines are required that will create 100-foot wide development-free corridors centered along property boundaries.	Design	Building Permit	Plan./ Public Works	Lot Owners	Building Permit
b. A 30-foot setback is required from the top of the bank of onsite perennial drainages that will maintain open space along those drainages [Natural Resource Conservation Policy 16 and Mono County Zoning and Development Code 19.03.130 (7)(b)].	"	"	"	Lot Owners	Ongoing
c. Certain areas of riparian vegetation adjacent to onsite drainages, which have been identified by the project biologist as desirable for wildlife habitat, will be preserved with open space easements.	"	Tentative Sub. Map	Plan./ Public Works	Developer	Tentative Sub. Map Approval
Open space easements for the areas identified above and shown on Figure 4 shall be recorded on the final maps for the appropriate phase(s) of the project. The final maps shall note that permitted land uses within the open space easements shall be limited to undisturbed natural uses. (LU Policy 6).					
Wildlife					
A. Human intrusion impacts, i.e. noise, motion, domestic pets, visual stimulus (lights), may result in decreased use of habitat, alteration of migration routes and shift of home range, decreased productivity and foraging efficiency.					
1. Parcel grading operations, structural foundation work, framing work and similar heavy construction activities shall be restricted to the period between May 15 and October 1 to minimize disturbance to migrating and wintering deer. This restriction shall not apply to emergency repair work. Emergency repair work shall be defined as that necessary to ensure public health and safety (e.g. water and sewer repair work, power repair work, emergency road clearing activities, etc.). (NRC Policy 1).	Design	Grading/ Building Permits/ Site Insp.	CEO	Lot Owners/ Developer	Grading/ Building Permits/ Ongoing Site Insp.
2. Construction shall be limited to daylight hours in accordance with Mono County Code Chapter 10.16 (Noise Regulation) in order to minimize impacts to nocturnal resident wildlife species, such as mule deer (NRC Policy 2).	"	"	"	"	"
3. Impediments to deer movement, such as spoil piles, open ditches and excessive cut and fill slopes shall be minimized to the greatest extent possible; e.g. ditches or trenches should not be left open at night as they can be hazardous to deer and other nocturnal wildlife (NRC Policy 3).	"	"	"	"	"

Potential Impacts and Mitigation (continued)	Type	Process	ME	IE	Schedule
4. With the exception of wells, septic systems, and fire safe storage facilities, surface disturbance activities such as residential development, corrals, fencing and raising crops shall be prohibited outside private yard fenced areas (NRC Policy 4).	Design/ Ongoing	Site Insp.	CEO	Lot Owners	Ongoing Site Insp.
5. Domestic animals shall be restrained at all times, either through the use of leashes or private fenced areas. No animals shall be allowed to be free roaming. Horses and other grazing animals shall be penned or tethered in areas such that the native vegetation is not impacted by such animals in accordance with the site disturbance limits established in Land Use Policy 3a (NRC Policy 5).	"	"	"	"	"
6. Dogs belonging to individuals involved in construction activities shall be prohibited in the project area during construction phases (NRC Policy 6).	"	"	"	Lot Owner/ Developer	"
7. Noise levels during construction shall be kept to a minimum by equipping all onsite equipment with noise attenuation devices and by compliance with all requirements of Mono County Code Chapter 10.16 (NRC Policy 8).	"	"	"	"	"
8. Exterior lighting on individual lots shall be designed and maintained to minimize the effects of lighting on the surrounding environment. Exterior lighting shall be limited to that necessary for health and safety purposes; high intensity outdoor lighting shall be avoided or adequately shielded; the source of lighting must be concealed on all exterior lighting and all lighting must be designed to confine light rays to the premises of each individual lot. In no event shall a lighting device be placed or directed so as to permit light to fall upon a public street, adjacent lot, or adjacent land area. Lights which could potentially illuminate the deer habitat on the DFG parcel shall be prohibited (i.e. on Specific Plan lots 1-9, and 35). (DG Policy 2).	"	"	"	Lot Owners	"
9. The total fenced area on any parcel shall be limited to the total area disturbed onsite as allowed under Land Use Policy 3a above. Fencing shall be three strand barbed wire or three rail pipe or wood fence. Solid wood fencing may be constructed within the immediate vicinity of a structure but shall encompass an area not greater than one acre (DG Policy 6).	"	"	"	"	"
10. Barbed wire fences shall consist of 3 single strand wires placed 20, 30 and 42 inches from the ground with the bottom wire a smooth strand (DG Policy 7).	"	"	"	"	"
11. Fencing used for livestock facilities (corrals, etc.) shall incorporate the use of poles, piping or other non-wire materials to allow deer safe passage (DG Policy 8).	"	"	"	"	"

Potential Impacts and Mitigation (Continued)	Type	Process	ME	IE	Schedule
B. Habitat removal and alteration reduces forage and cover availability for deer and other wildlife.					
12. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (LU Policy 4a).	Design/ Ongoing	Grading/ Building Permits/ Site Insp.	CEO	Lot Owners	Grading/ Building Permits/ Ongoing Site Insp.
13. Building Setbacks: 50 feet front, 50 feet side and 50 feet rear. No exceptions shall be allowed (LU Policy 4b).	"	Building Permit	Plan.	Lot Owners	Building Permit
14. Certain areas of riparian vegetation adjacent to onsite drainages, which have been identified by the project biologist as desirable for wildlife habitat, will be preserved with open space easements (LU Policy 6c).	Design	Tentative Sub. Map	Plan./ Public Works	Developer	Tentative Sub. Map Approval
15. Property owners shall refrain from clearing native vegetation except as necessary for construction (NRC Policy 9).	Design/ Ongoing	Site Insp.	CEO	Lot Owners	Ongoing
16. Revegetation of disturbed areas shall occur as soon as possible following construction and shall require the use of native seeds, native plants grown from seeds or seedlings obtained from local native stock. Revegetated areas shall be monitored for a period of five years to ensure the success of the project and shall be replanted if necessary. Revegetated areas shall be irrigated as necessary to establish the plants (NRC Policy 11).	"	Grading/ Building Permits/ Site Insp.	CEO/ Plan./ Public Works	Lot Owners/ Developer	Grading/ Building Permits/ Ongoing Site Insp.
17. All development shall be set back at least 30 feet from the top of the bank of onsite perennial drainages in compliance with Mono County Zoning and Development Code Section 19.03.130 (7)(b) and Land Use Policy 6. (NRC Policy 15).	"	"	"	"	"
18. Landscaping shall be used to minimize potential visual impacts resulting from development and to provide vegetative screening around structures to reduce deer avoidance of developed areas. Screening cover should be planted in a minimum 20 foot wide band around each residential site, consisting of an inner strip of trees and an outer dense strip of native shrubs (DG Policy 10a).	"	"	"	"	"

Potential Impacts and Mitigation (continued)	Type	Process	ME	IE	Schedule
C. Direct mortality losses from road kills.					
d. To minimize direct mortality impacts to the deer herd from vehicle collisions, signs shall be posted along roads within the project area warning drivers of the presence of deer (TC Policy 7).	Design	Tentative Sub. Map	Public Works	Developer	Road Construct.
Visual Resources					
The project may result in potentially significant visual impacts from Key Viewpoints #2 (Mountain View), #3 (Pinon Ranch), and #4 (Valley View Road).					
1. All utility lines (electricity, telephone, cable TV) shall be installed underground in compliance with Mono County Zoning and Development Code requirements (MCZDC 19.03.070 (E)). The project shall not have streetlights (I Policy 4).	"	"	"	"	Tentative Sub. Map Approval
2. Site disturbance: Permanent clearing of native vegetation for structures, landscaping, gardens, animal enclosures, and driveways shall be limited to twenty (20) percent of total lot area. Areas temporarily cleared for utility line construction, leach field or septic tank construction, well drilling operations or other temporary surface disturbances shall be revegetated as soon as possible in compliance with the revegetation standards in Natural Resource Conservation Policies 10 and 11 of this Specific Plan. On lots smaller than five (5) acres, an additional ten (10) percent of the total lot area may be cleared or otherwise utilized for livestock pens or corrals. The remainder of the parcel shall remain in its natural condition (LU Policy 4a).	Design/ Ongoing	Grading/ Building Permits/ Site Insp.	CEO	Lot Owners	Grading/ Building Permits/ Ongoing Site Insp.
3. Lot coverage: 20 percent maximum. (LU Policy 3d).	"	Building Permit	Plan./ P.Wrks	"	Building Permit
4. Building heights shall not exceed 22 feet, determined by adding the heights of each of the four corners of the buildings above the natural grade and dividing by four (LU Policy 3f).	"	"	"	"	"
5. Within the approximately 80 acres proposed for subdivision, open space shall be provided as follows (see Figure 4, Open Space Plan):					
a. Large setbacks of 50 feet from all property lines are required that will create 100-foot wide development-free corridors centered along property boundaries.	"	"	"	"	"
b. A 30-foot setback is required from the top of the bank of onsite perennial drainages that will maintain open space along those drainages [Natural Resource Conservation Policy 15 and Mono County Zoning and Development Code 19.03.130 (7)(b)].	"	"	"	Lot Owners	Ongoing
c. Certain areas of riparian vegetation adjacent to onsite drainages, which have been identified by the project biologist as desirable for wildlife	"	Tentative Sub. Map	Plan./ Public Works	Developer	Tentative Sub. Map Approval

Potential Impacts and Mitigation (continued)	Type	Process	ME	IE	Schedule
habitat, will be preserved with open space easements. Open space easements for the areas identified above and shown on Figure 4 shall be recorded on the final maps for the appropriate phase(s) of the project. The final maps shall note that permitted land uses within the open space easements shall be limited to undisturbed natural uses (LU Policy 6).					
6. Exterior lighting on individual lots shall be designed and maintained to minimize the effects of lighting on the surrounding environment. Exterior lighting shall be limited to that necessary for health and safety purposes; high intensity outdoor lighting shall be avoided or adequately shielded; the source of lighting must be concealed on all exterior lighting and all lighting must be designed to confine light rays to the premises of each individual lot. In no event shall a lighting device be placed or directed so as to permit light to fall upon a public street, adjacent lot, or adjacent land area. Lights which could potentially illuminate the deer habitat on the DFG parcel shall be prohibited (DG Policy 2).	Design/ Ongoing	Building Permit/ Site Insp.	CEO	Lot Owners	Building Permit/ Ongoing Site Insp.
7. Design of roadways, driveways, and structures shall minimize cut and fill (DG Policy 3).	Design	Grading/ Building Permit	Public Works	Lot Owners/ Developer	Grading/ Building Permit
8. Structures and fences shall be designed and constructed to harmonize with existing development in the area, the surrounding natural environment, and onsite topography (C.C. & R's). The following design guidelines shall apply to all development:					
a. Structural siting and design should be sensitive to the topography of individual lots.	"	"	Plan./ P.Wrks	"	"
b. Roofing shall be firesafe wood shingles, fiberglass shingles or metal in colors compatible with the area (e.g. tan, brown, dark green, or similar colors).	"	Building Permit	Plan. Dept.	Lot Owner	Building Permit
c. Bright colors or reflective materials shall not be used for any component of any structure.	"	"	"	"	"
d. Siding materials shall have a natural appearance compatible with the surrounding environment. The use of indigenous rock shall be encouraged.	"	"	"	"	"
e. Siding materials shall be stained, painted or otherwise finished in muted earth tones in order to blend into the surrounding environment.	"	"	"	"	"
f. Colors and materials for fences shall be muted and shall blend with the surrounding natural environment. (DG Policy 4)	"	"	"	"	"
d. Architectural plans for any structure (e.g. dwelling unit, garage, barn, etc.) shall be reviewed and approved by the Wheeler Crest Design Review Committee prior to approval of the building permit (DG Policy 5).	"	"	WC Design Rev. Com.	"	"
e. Each parcel shall be landscaped in accordance with	"	"	CEO	"	"

Potential Impacts and Mitigation (continued)	Type	Process	ME	IE	Schedule
the landscaping guidelines in Design Guidelines Policy 10 within six (6) months of the issuance of a Mono County Certificate of Occupancy for a dwelling unit on a parcel (DG Policy 9).					
11. The following landscaping guidelines shall apply to all development:					
a. Landscaping shall be used to minimize potential visual impacts resulting from development and to provide vegetative screening around structures to reduce deer avoidance of developed areas. Screening cover should be planted in a minimum 20 foot wide band around each residential site, consisting of an inner strip of trees and an outer dense strip of native shrubs.	Design	Site Insp.	CEO	Lot Owners	Ongoing Site Insp.
b. The following elements shall be shielded using landscaping: trash receptacles, propane tanks, and structures. Trash receptacles and propane tanks may also be shielded with fencing.	"	"	"	"	"
c. Xeriscape landscaping (drought-resistant planting, soil preparation and low water use irrigation systems, etc.) shall be required. Drip irrigation systems shall be encouraged.	"	"	"	"	"
d. Use of native, indigenous species shall be required.	"	"	"	"	"
f. The use of larger planting stock is encouraged to accelerate the process of visual screening (see list in Design Guidelines).	"	"	"	"	"
g. Young plants shall be protected from deer and rodents until they are established, e.g. a 5 foot wire fence or vexar tubing have been found to work well to protect seedlings from deer (DG Policy 10).	"	"	"	"	"
12. Property owners shall refrain from clearing native vegetation except where necessary for construction (NRC Policy 9).	"	"	"	"	"
13. Revegetation of disturbed areas shall occur as soon as possible following construction and shall require the use of native seeds, native plants grown from seeds or seedlings obtained from local native stock. Revegetated areas shall be monitored for a period of five years to ensure the success of the project and shall be replanted if necessary. Revegetated areas shall be irrigated as necessary to establish the plants (NRC Policy 11).	"	"	"	"	"
14. Areas disturbed during the construction of roads shall be revegetated as soon as possible following completion of the roads in compliance with the landscaping and revegetation requirements in the NRC policies (TC Policy 6).	"	Grading Permit	Public Works	Developer	Grading Permit

VII. REPORT PREPARATION

Report Preparation
Mono County Planning Department:
Gerry LeFrancois, Senior Planner
Keith Hartstrom, Senior Planner
Larry Johnston, Senior Planner
Laurie Mitchel, Consultant

References Consulted

Burton, Jeffery F.. 1988. **Archaeological Survey and Testing for the Proposed Rimrock Ranch Subdivision, Mono County, California. Trans-Sierran Archaeological Research. Contributions to Trans-sierran Archaeology No. 44.**

Dewberry and Davis. 1996. **Land Development Handbook.** McGraw-Hill.

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Mono County Local Agency Formation Commission. 1988. **Wheeler Crest Community Services District Sphere of Influence Report.**

Mono County Planning Department. 1993. **Mono County General Plan (includes the Wheeler Crest Area Plan).**

Mono County Planning Department. 1993. **Mono County General Plan Environmental Impact Report.**

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Sierra Geotechnical Services, Inc. 1998. **Soil Suitability Study for Parcels 1-6, Tentative Tract Map 37-44, in the Unincorporated Territory of Mono County, CA.**

Taylor, Tim. 1993. **Rimrock Ranch Specific Plan Deer Study.**

Taylor, Tim. 1998. **Update of 1993 Study. Personal Communication with Keith Hartstrom, Mono County Senior Planner.**

Team Engineering. 1999. **Water Resource Assessment, Rimrock Ranch Specific Plan.**

Town of Mammoth Lakes. 1995. **The Bluffs Draft Environmental Impact Report.** L.K. Johnston and Associates.

Persons Consulted

Moskowitz,Marvin. Mono County Environmental Health Department.

Nelson, Steve. Bureau of Land Management, Bishop, California

Taylor, Tim. Wildlife Biologist.

Triad/Holmes Engineering. Dave Laverty. Principal. Tom Platz. Principal

APPENDIX A--NOTICE OF PREPARATION AND SCOPING LETTERS

Notice of Preparation.

Responses from:

Great Basin Unified Air Pollution Control District, Bishop, CA.
Lahontan Regional Water Quality Control Board, South Lake Tahoe, CA.
Round Valley Joint Elementary School District, Bishop, CA.

Notice of Preparation

To: _____
(Agency)

SUBJECT: **Notice of Preparation for a Draft Environmental Impact Report**

Lead Agency: Mono County Planning Department **Consulting Firm:** None

Agency Name Planning Department Firm Name _____

Street Address P.O. Box 8 Street Address _____

City/State/Zip Bridgeport, CA 93517 City/State/Zip _____

Contact Keith Hartstrom

The Mono County Planning Department will be the Lead Agency and will prepare a combined Specific Plan and Environmental Impact Report for the project identified below. We need to know the views of your agency as to the scope and content of the environmental information which is germane to your agency's statutory responsibilities in connection with the proposed project. Your agency will need to use the EIR prepared by our agency when considering your permit or other approval for the project.

The project description, location, and the potential environmental effects are contained in the attached materials.

Due to the time limits mandated by State law, your response must be sent at the earliest possible date but *not later than 30 days* after receipt of this notice.

Please send your response to Keith Hartstrom, Senior Planner at the address shown above. We will need the name for a contact person in your agency.

Project Title: Rimrock Ranch Specific Plan

Project Location: Wheeler Crest (City (nearest)) Mono (County)

Project Description: (brief)

The Rimrock Ranch Specific Plan calls for the subdivision of a 80.52 acre parcel into 35 parcels. The average parcel size will be 2.3 acres. One single family residence will be developed on each parcel. The project site is located along Rimrock Drive, just west of the Pinon Ranch subdivision in Swall Meadows. The property is located adjacent to a 100 acre parcel previously sold to the California Department of Fish and Game by the project proponent for deer habitat protection. Project CC & R's, as well as Specific Plan policies, call for larger than normal setbacks along property lines to retain additional movement corridors for wildlife.

The project site is located adjacent to existing development in a gently sloping area vegetated primarily with sagebrush scrub. A seasonal drainage runs through several of the proposed parcels; a required 30 foot setback from this drainage will be recorded on the final map(s) for the project. The project will be developed in phases, with approximately 8 parcels being developed initially.

Date Sept 17, 1998 Signature Keith Hartstrom

Keith Hartstrom
Title Senior Planner

Telephone (760) 932-5217

Reference: California Administrative Code, Title 14, (CEQA Guidelines) Sections 15082(a), 15103, 15375.

RIMROCK RANCH SPECIFIC PLAN
PROJECT IMPACTS

Potential project impacts would include:

1) Visual impacts created by new development.

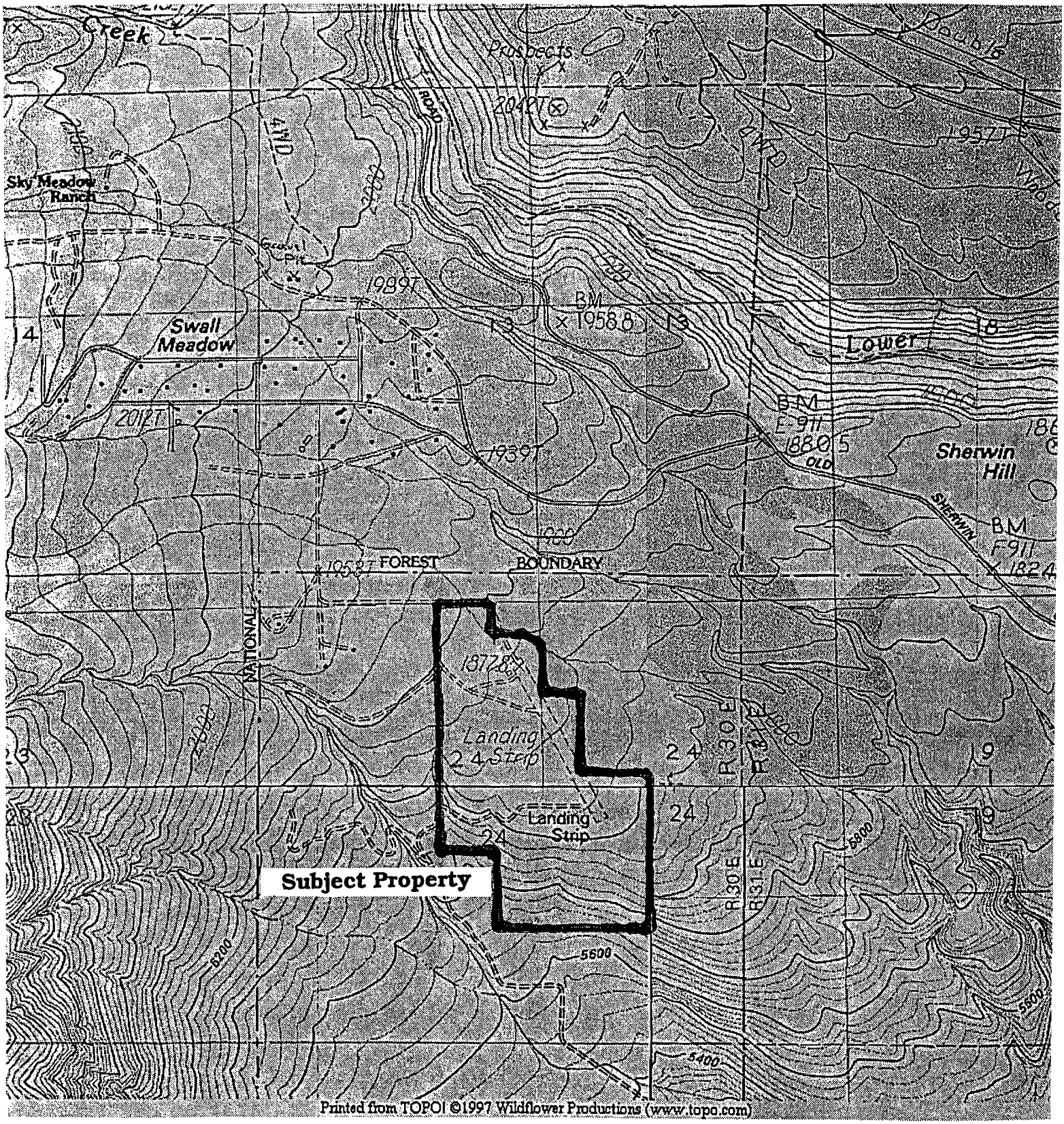
2) Traffic impacts resulting from increased development.

3) Loss of existing natural habitat.

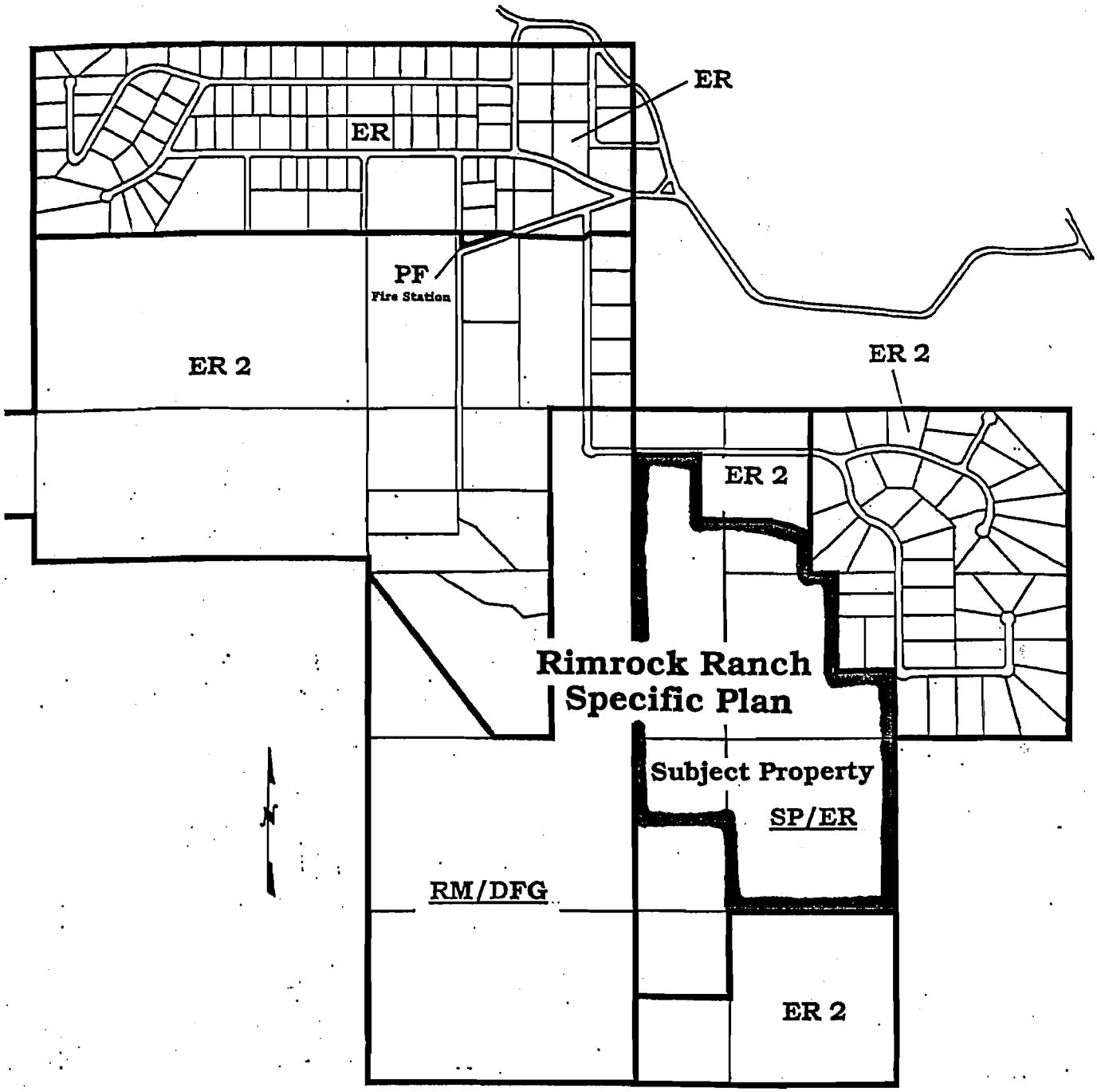
4) Potential impacts to groundwater resulting from new wells and increased water usage.

Two technical studies, a Wildlife Study and an Archaeological Survey, have been completed to date for the project. These studies recommend a number of mitigation measures to avoid or minimize potential impacts. The project engineer is in the process of completing a hydrologic study to address the groundwater issues.

Copies of the existing technical studies are available for review from the Mono County Planning Department in Bridgeport.



Rimrock Ranch Specific Plan

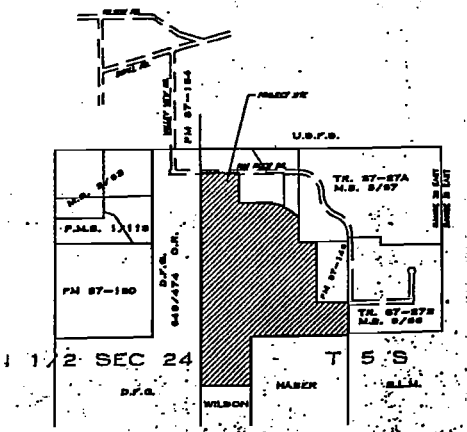


Hill Top Estates/Pinion Ranch

LEGEND

Land Use Designations:

ER	Estate Residential
PF	Public/Quasi-Public Facilities
RM	Resource Management
OS	Open Space



VICINITY MAP

Rimrock Ranch Specific Plan

OWNER
WILSON FAMILY TRUST
C/O JOHN R. WILSON
RTE 2, BOX 327
BISHOP, CA 93514
(760) 387-2421

DEVELOPER
RIMROCK RANCH PARTNERSHIP
C/O JOHN R. WILSON
RTE 2, BOX 327
BISHOP, CA 93514
(760) 387-2421

DESIGN NOTES

ASSESSOR'S PARCEL NO.: TO BE ASSIGNED, POR 64-100-33
GROSS SITE AREA: 80.52 ACRES±
DENSITY: 2.30 ACRES (AVERAGE) PER LOT GROSS
MINIMUM LOT SIZE: 2.00 ACRE PARCEL GROSS
EXISTING ZONING: RR2
EXISTING LAND USE DESIGNATION: ESTATE RESIDENTIAL
WATER SUPPLY: WHEELER CREST COMMUNITY SERVICES DISTRICT
SEWAGE DISPOSAL: INDIVIDUAL SEPTIC/LEACH FIELDS
ELECTRICITY: S.C.E.
TELEPHONE: G.T.E.
FIRE PROTECTION: WHEELER CREST FIRE PROTECTION DISTRICT

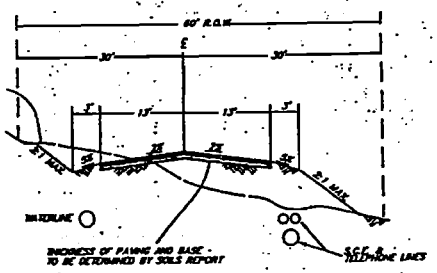
PRIOR PHASES OF RIMROCK RANCH

PHASE 1: LOTS 1 - 3 OF LLA 87-09
PHASE 2: LOTS 1 - 6 OF TRACT 37-44

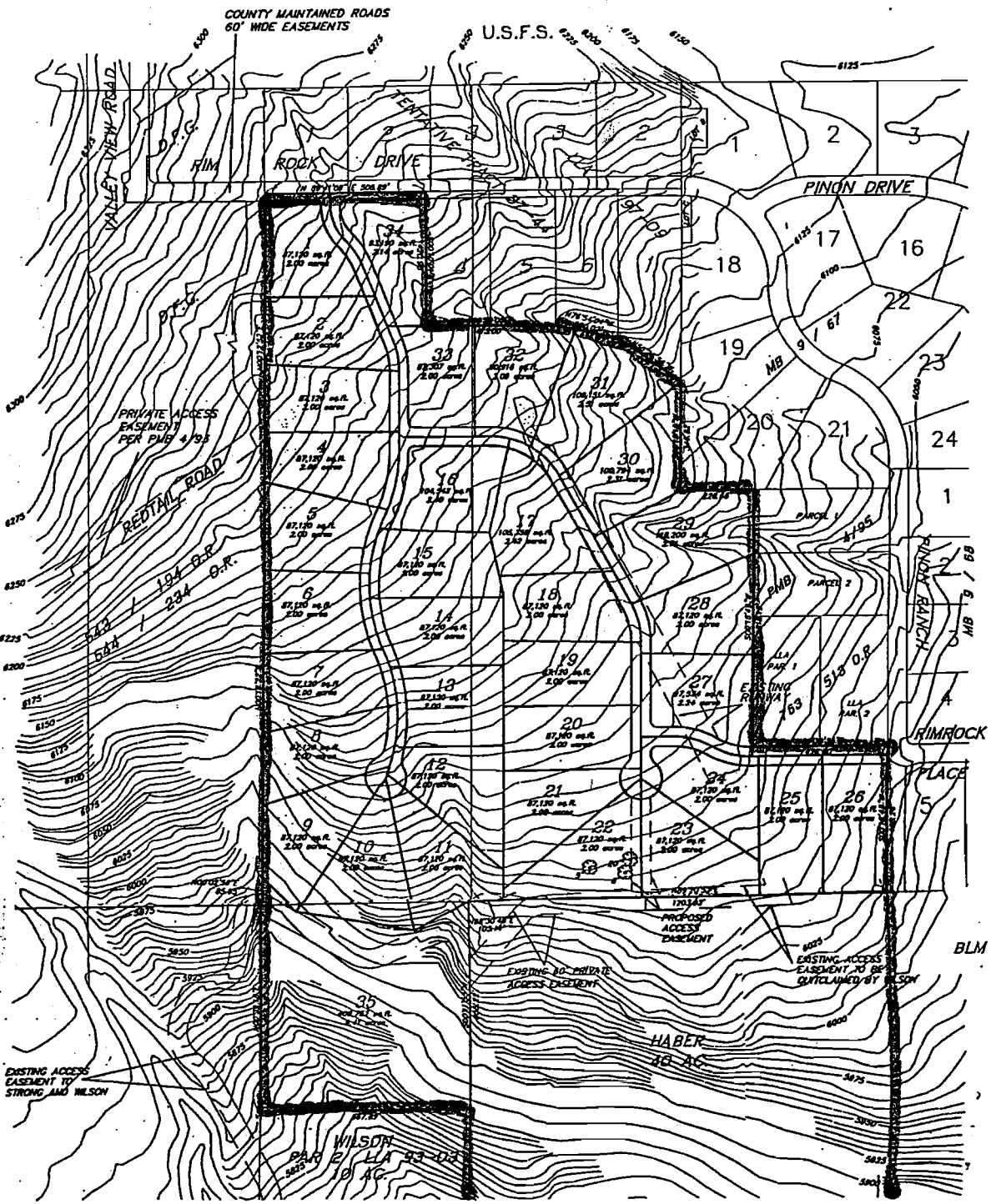
FUTURE PHASING - SUBJECT TO CHANGE

PHASE 3: LOTS 1 - 4, 16, 32 - 34.
PHASE 4: LOTS 20 - 27
PHASE 5: LOTS 17 - 19, 28 - 31
PHASE 6: LOTS 5 - 15, 35

GRAPHIC SCALE
(IN FEET)
1 inch = 500 ft.



ROAD SECTION & UTILITY LOCATION



California Regional Water Quality Control Board
Lahontan Region

Peter M. Rooney
Secretary for Environmental Protection

Internet Address: http://www.swrcb.ca.gov
2501 Lake Tahoe Boulevard, South Lake Tahoe, California 96150
Phone (530) 542-5400 • FAX (530) 544-2271

Pete Wilson
Governor

October 20, 1998

Keith Hartstrom, Senior Planner
Mono County Planning Dept.
P.O. Box 8
Bridgeport, CA 93517

Dear Mr. Hartstrom:

NOTICE OF PREPARATION FOR A DRAFT ENVIRONMENTAL REPORT (EIR), RIMROCK RANCH SPECIFIC PLAN, MONO COUNTY

On September 21, 1998, we received the above-referenced Notice of Preparation. It is our understanding that the project consists of the subdivision of a 80.52 acre parcel into 35 parcels, with an average parcel size of 2.3 acres. Upon review, we believe that the following potential threats to water quality should be discussed/addressed in the proposed EIR.

1. Wetlands

   Will the proposed project result in any wetlands disturbance? If so, please be aware of our wetlands protection policy. Specifically, in cases where wetlands disturbance is proposed, a project proponent must demonstrate that: 1) avoidance is impossible, 2) disturbance has been minimized as much as possible, and 3) any disturbed wetlands will be mitigated so that there will be no net loss of wetland acreage and no net loss of wetland functions and values. In addition, the project proponent should ensure that the subdivision is laid out in such a way that each lot may be accessed without disturbing wetlands.

2. Seasonal Drainage

   Will the proposed project result in any alterations to surface drainages and/or surface waters? Please note that the Regional Board is responsible for protecting all surface waters within its jurisdiction, including ephemeral/seasonal drainages.

3. Domestic Waste Disposal

   The NOP states that domestic waste will be handled by individual onsite septic tank/ leachfield systems. The project proponent should be made aware of the Regional Board's siting criteria for individual waste disposal systems (attached).

4. NPDES Stormwater Permit

Please be advised that if the proposed project will result in soil disturbance of greater than 5 acres, the project will likely be subject to provisions of the NPDES Stormwater Permit for Construction Activities.

5. Spill Cleanup Plan

How will spills and leaks of chemicals and vehicle fluids be addressed during infrastructure construction?

6. Post-project Drainage Controls/Site Stabilization

We would like to receive a copy of the site grading plan and any information regarding proposed drainage controls and site stabilization.

Thank you for the opportunity to comment on the NOP. We look forward to receiving the draft EIR for this project. If you have any questions or comments regarding this matter, please contact me at (530)542-5437.

Sincerely,

Diana Henrioulle-Henry
Associate Water Resource Control Engineer

Attachment (Septic System Criteria)

DHH/dhh f:\wordsave\rimrock.com
[New file: Mono County Pending - Rimrock Ranch]

subdivided lots or parcels, **and** (3) proposed subdivisions. The criteria do not apply to: (1) existing individual waste disposal systems, or (2) projects which have final building permits prior to June 16, 1988, unless evidence exists which necessitates retrofit of septic systems to conform with current criteria. The "Regional Board Guidelines for Implementation of Criteria for Individual Waste Disposal Systems" specifies separate exemption procedures for existing developments and for new developments. Existing development includes projects for which **final** development plans, such as a final tract map, were approved by local agencies **prior** to June 16, 1988. New development includes subdivisions or individual parcels which **do not** have final development plans approved by local agencies **prior** to June 16, 1988.

5. These criteria do not apply to projects within septic system prohibition areas where the criteria are more stringent (for prohibitions, see Section 4.1 of this Chapter); and these criteria will preempt less stringent criteria in septic system prohibition areas.

6. Where community sewer systems are available, the Board will encourage connection to the sewer system in lieu of use of individual disposal systems.

Criteria for Individual Waste Disposal Systems

1. *Maximum Density*

Individual waste disposal systems associated with new developments which have a gross density greater than two (2) single family equivalent dwelling units per acre will be required to have secondary-level treatment of wastewater. Equivalent dwelling units (EDUs) are defined as a unit of measure used for sizing a development based on the amount of waste generated from that development; the value used in implementation of these criteria is 250 gallons per day per EDU. For the purposes of these criteria, the discharge from a single family dwelling is equal to one EDU. Senior citizen dwelling units and second units as defined in Government Code Sections 65852.1 and 65852.2 will not be considered as additional dwelling units. In addition to residential developments, this secondary level treatment policy also applies to wastewater discharges from commercial, industrial, recreational and all other developments with wastewater discharge volumes exceeding two EDU per acre density (500/gal/day/acre based on 250 gal/day/EDU). Use of new septic systems is permitted in existing developments with lot sizes having a net area greater than or equal to 15,000 square feet. The net area is that contained within the boundaries as set forth in the legal lot description.

2. *Minimum Distances*

The Regional Board has established the minimum distances (see Table 4.4-1 entitled, "Minimum Distances For Siting Individual Waste Disposal Systems") necessary to provide protection to water quality and/or public health. Local hydrogeological conditions may necessitate greater separation of the sewage disposal system from a well or watercourse for protection of beneficial uses (e.g., drinking supply and water contact recreation).

3. *Additional Minimum Criteria*

a. The percolation rate in the disposal area shall not be slower than 60 minutes per inch if the discharge is to a leachfield or 30 minutes per inch if discharge is to a seepage pit. If percolation rates are faster than 5 minutes per inch, then the soil for a total thickness of five feet below the bottom of the leaching trench shall contain at least 15% of material passing the No. 200 U.S. Standard Sieve and less than one-fourth of the representative soil cross-section shall be occupied by stones larger than 6 inches in diameter. Where the percolation rates are faster than 5 minutes per inch and the above requirement is not met, the minimum distance to ground water between the bottom of the disposal facilities and the anticipated high ground water shall be 40 feet. (The percolation rates shall be determined in accordance with procedures prescribed by the appropriate local public health agency).

b. Clay, bedrock, other material impervious to the passage of water, or fractured bedrock, shall not be less than 5 feet below the bottom of the leaching trench or less than 10 feet below the bottom of the seepage pit. Impervious is defined

for design purposes as a stratum with percolation times of greater than 120 minutes per inch.

c. Depth to anticipated high ground water below the bottom of the leaching trench shall not be less than 5 feet. Depth to anticipated high ground water below the bottom of the seepage pit shall not be less than 10 feet. Greater depths are required if native material does not provide adequate filtration.

d. Ground slope in the disposal area shall not be greater than 30 percent.

e. Minimum criteria specified above must be met within the area of the proposed system and within the 100% expansion area for the proposed system.

Exemptions to the Criteria for Individual Waste Disposal Systems

In certain locations and under special circumstances, the Board or its Executive Officer may waive individual criteria.

1. Waiver of one or more individual criteria may occur if:

   a. The area beneath the proposed septic system discharge has no significant amount of ground water having present or future beneficial uses; or

   b. It can be proven that no pollution, nuisance or unreasonable degradation of either surface or ground waters will occur as a result of the proposed septic system density when considered individually or cumulatively with other discharges in the area; or

   c. Construction of a community collection, treatment, and disposal system is imminent. Short-term, interim use of individual waste disposal systems may be allowed.

Implementation of Criteria for Individual Waste Disposal Systems

1. The Regional Board and the local agencies have adopted, through Memoranda of Understanding, criteria which are compatible with or more stringent than these criteria.

2. The Memoranda of Understanding include the procedures of the review and processing of applications for proposed discharge of wastewater from land developments which only discharge **domestic** waste, including single-family-unit residential, multi-unit residential, commercial, industrial and recreational developments. The Memoranda of Understanding include provisions for Regional Board review and processing of specific application (e.g., for industrial waste discharges).

3. For those local agencies which have adopted these or more stringent criteria, land developments which only discharge **domestic** waste, including single-family-unit residential, multi-unit residential, commercial, industrial and recreational developments, will be permitted entirely by the local agency. (However, the Regional Board reserves the authority to take action, if necessary, as described in item 6 below.)

4. Whenever the proposed development will not meet the minimum criteria and no Memorandum of Understanding or other equivalent document exists between the Regional Board and the local agency, applications for all projects shall be transmitted to the Regional Board along with a complete report of waste discharge and a filing fee.

5. The Regional Board will review, on a project-by-project basis, proposals for commercial, industrial, recreational and all other types of developments which discharge **industrial** waste. If required, the report of waste discharge will contain information on estimated wastewater flows, types of wastes, and occupancy rates which will enable the Regional Board to evaluate the discharge in terms of EDUs.

6. In any case, the Regional Board will prohibit the discharge of wastes from land developments which will result in violation of water quality objectives, will impair present or future beneficial uses of water, or will cause pollution, nuisance, or contamination, or will unreasonably degrade quality of any waters of the State.

Implementation for Other Types of Waste Disposal from Land Developments

1. Severe impact on water quality can result from failure to implement adequate measures to control storm drainage and erosion. Land developers must provide plans for the control of such runoff from initial construction up to the complete build-out of the development. (See "Land Development" section.)

2. The disposal of solid waste can have adverse impacts on water quality and public health. Land developers must submit a plan which conforms to the regional or county master plan and contains adequate provisions for solid waste disposal for complete build-out of the development.

3. The disposal of septic tank sludge is an important part of any area-wide master plan for waste disposal. Land developers must submit a plan which conforms to the regional or county master plan and contains adequate provisions for septic tank sludge disposal for complete build-out of the development.

4. The responsibility for the timely submittal of information necessary for the Board to determine compliance with these guidelines rests with persons submitting proposals for development or discharge. The Porter-Cologne Water Quality Control Act provides that no person shall initiate discharges of waste prior to filing a report of waste discharge and prior to (1) issuance of waste discharge requirements, (2) the expiration of 120 days after submittal of an adequate report of waste discharge, or (3) the issuance of a waiver by the Regional Board.

Alternative Individual Waste Disposal Systems

In areas where conditions do not support the use of conventional individual subsurface waste disposal systems (e.g., septic systems), the use of engineered alternative systems can be considered. Alternative waste disposal systems include, but are not limited to, mound systems, evapotranspiration beds, sand filters (intermittent and/or recirculating), and lined evaporation ponds. The Regional Board supports the use of engineered alternative systems for waste disposal as a remedy for otherwise unsuitable existing lots. However, the Regional Board discourages the use of engineered alternative systems for new construction, lots, or subdivisions.

Several factors the Local Health Officer and/or the Regional Board staff will consider when evaluating a proposal for the use of an alternative system include, but are not limited to:

1. **size of parcel**
2. **density of surrounding development**
3. **depth to ground water and bedrock**
4. **depth of soils** suitable for waste disposal as classified under the USDA classification system
5. **climate**
6. **access**
   (a) for maintenance and pumping year-round
   (b) control to prevent public contact
7. **emergency contingency plans** (including plans for expansion, replacement or repair)
8. **operation and maintenance requirements**
9. **distance to sewer**

Criteria for Alternative Systems

1. The conditions (soils, ground water, slope) which limit the use of conventional septic tank systems may also apply to alternative systems which rely on soil absorption for treatment and/or disposal of all or most of the wastewater generated (see Criteria for Individual Waste Disposal Systems).

2. **Mound Systems.** Mound systems shall be installed in accordance with criteria established in the State Board's *Guidelines for Mound Systems* (1980) or other criteria acceptable to the Executive Officer in conformance with standard engineering practices.

3. **Evapotranspiration Systems.** Evapotranspiration systems shall be installed in accordance with criteria contained in the State Board's *Guidelines for Evapotranspiration Systems* (1980) or other criteria acceptable to the Executive Officer in conformance with standard engineering practices.

4. **Sand Filters.** Sand filters shall be installed in accordance with the specifications for sand filters in the State of Oregon, Department of Environmental Quality's *On-site Sewage Disposal Rules* (July 1, 1991) or other criteria acceptable

to the Executive Officer in conformance with standard engineering practices.

5. **Grey Water Systems.** Under certain circumstances, grey water systems may be an acceptable method of disposal in conjunction with a composting toilet or holding tank to handle black water. Examples of appropriate applications include recreational areas such as campgrounds, day use facilities, and trailheads. Grey water systems shall be installed in accordance with the California Plumbing Code (24 Cal. Code of Regs., Part 5) and the local administrative authority. If properly constructed and operated, grey water systems are not expected to create a nuisance or pollution.

6. Other proposals for alternative systems shall be evaluated jointly by the local regulatory agency and Regional Board staff on a case-by-case basis. Some engineered systems may be considered experimental by the Regional Board. Experimental systems will be handled with caution. A trial period of at least one year should be established whereby proper system operation must be demonstrated. Under such an approach, experimental systems are granted a one-year conditional approval.

7. All proposals for alternative systems shall be designed by a Civil Engineer, Engineering Geologist or Sanitarian licensed to practice in California.

Maintenance Requirements

System designers should be responsible for developing specifications and procedures for proper system operation. Designers should provide to system owners an informational operation and maintenance document that includes: (1) clear and concise procedures for operation and maintenance, and (2) instructions for repair and/or replacement of critical items within forty-eight hours following failure. Engineered systems should be inspected by a licensed Civil Engineer, Engineering Geologist or Sanitarian during installation to insure conformance with approved plans.

Permitting Authority

The County Health Officer may approve alternative systems when **all** of the following conditions are met:

1. The Health Officer has found the system to be in compliance with criteria approved by the Regional Board Executive Officer (see Criteria for Individual Waste Disposal Systems and Criteria for Alternative Systems above); ***and***

2. The Health Officer has either: (1) informed the Regional Board Executive Officer of the proposal to use the alternative system and the Executive Officer agrees that it complies with the finding in (a) above; or (2) a written agreement that the Executive Officer has delegated approval authority to the County Health Officer; ***and***

3. A public or private entity has agreed in writing to assume responsibility for the inspection, monitoring, maintenance, and eventual decommissioning/reclamation of the system.

If all of the above conditions cannot be met, the Regional Board will consider issuing waste discharge requirements for alternative systems.

Table 4.4-1
MINIMUM DISTANCES FOR SITING WASTE DISPOSAL SYSTEMS (in feet)

Facility	Domestic Well	Public Well	Perennial Stream[1]	Drainage Course or Ephemeral Stream[2]
Septic tank or sewer line	50	50	50	25
Leaching field	100	100	100	50
Seepage pit	150	150	100	50

continued...

Facility	Fill Bank[3]	Cut or Property Line[4]	Lake or Reservoir[5]	
Septic tank or sewer pit	10	25	50	
Leaching field	4h	50	200	
Seepage pit	4h[6]	75	200	

[1] As measured from the line which defines the limit of a 100-year-frequency flood.

[2] As measured from the edge of the channel.

[3] Distance in feet equals four times the vertical height of the cut or fill bank. Distance is measured from the top edge of the bank.

[4] Distance in feet from property line of any neighboring lot on which individual well(s) are used. (Distances are to property lines of neighboring lots, i.e., not street easements)

[5] As measured from the high water line. (Regional Board Resolution No. 82-6 defines the high water line for Eagle Lake, Eagle Drainage Hydrologic Area as 5117.5 feet, a definition used in prohibiting the discharge of wastes from subsurface disposal systems on a lot with an elevation of less than 5130 feet. See Section 4.1 of this Basin Plan for waste discharge prohibitions for Eagle Lake.)

[6] As measured from the high seepage level.

Ellen Hardebeck
Control Officer

GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT
157 Short Street * Bishop, California 93514 * (760) 872-8211 * Fax (760) 872-6109

October 5, 1998

Mr. Keith Hartstrom, Senior Planner
Mono County Planning Department
Post Office Box 8
Bridgeport, CA 93517

RE: Rimrock Ranch Specific Plan.

Dear Mr. Hartstrom:

The District has received the Planning Department's Notice of Preparation for a Draft Environmental Impact report for the proposed Rimrock Ranch Specific Plan. Based on the brief description it appears that this project may be subject to the District's Secondary Source Rule 216 (attached). Please keep our agency informed of all developments by placing our Agency's name on your interested parties list.

If we can be of further assistance, please do not hesitate to call the District.

Sincerely,

Larry Cameron

Larry Cameron
Air Quality Specialist

Attachment: Rule 216

D:\2\Rimrock_Ranch_ltr

Ellen Hardebeck
Control Officer

GREAT BASIN UNIFIED AIR POLLUTION CONTROL DISTRICT

157 Short Street * Bishop, California 93514 * (760) 872-8211 * Fax (760) 872-6109

RULE 216. New Source Review Requirements for Determining Impact on Air Quality Secondary Sources

A. General

1. A person shall not initiate, modify, construct or operate any secondary source which will cause the emission of any manmade air pollutant for whichthere is a state or national ambient air quality standard without first obtaining a permit from the Air Pollution Control Officer.

2. The Air Pollution Control Officer shall deny a permit for any new secondary source or modification which he determines will cause a violation or contribute to the continued violation of any state or national ambient air quality standard.

B. Exemptions

1. The Air Pollution Control Officer may exempt from the provisions of this rule any new secondary source or modification which includes:
a. Vehicular parking facilities without dust retardant agents and which have a parking capacity of less than 50 vehicles.

b. Unpaved roads having less than 100 vehicle trip-ends in any one hour period, or less than 300 vehicle trip-ends in an eight hour period per a 20 mile continuous road length.

c. Unpaved runways and airports having less than 60 operations per month.

d. Agricultural operations specifically necessary for the direct growing of crops or the raising of fowl or animals.

e. Other secondary sources deemed by the Air Pollution Control Officer that emit insignificant amounts of air contaminants.

C. Applications

1. Before granting or denying a permit for any new secondary source or modification, subject to the requirements of this rule, the Air Pollution Control Officer shall:

a. Require the applicant to submit information sufficient to describe the nature and amounts of emissions, location, design, construction, and operation of the secondary source; and to submit any additional information required by the Air Pollution Control Officer to make the analysis.

b. Require the applicant to submit the projected expansion plans for the secondary source for the ten year period subsequent to the date of application for the permit.

c. Analyze the effect of the new secondary source or modification on air quality. Such analysis shall consider expected air contaminant emissions and air quality in the vicinity of the new secondary source or modification, within the Air Basin and within adjoining air basins at the time the secondary source or modification is proposed to commence operation.

d. Make available for public inspection at the Air Pollution Control District office, the information submitted by the applicant, the Air Pollution Control Officer's analysis of the effect on air quality, and the preliminary decision to grant or deny the permit.

e. Publish a notice by prominent advertisement in at least one newspaper of general circulation in the District stating where the public may inspect the information required in subparagraph (d) of this paragraph. The notice shall provide 30 days, beginning on the date of publication, for the public to submit comments on the application.

f. Forward copies of the notice required in sub-paragraph (e) of this paragraph to the U.S. Environmental Protection Agency, the California Air Resources Board, all counties within the air basin and all adjoining Air Pollution Control Districts in other air basins.

g. Consider public comments submitted.

D. Conditional Approval

The Air Pollution Control Officer shall impose conditions on the permit as he deems necessary to ensure the secondary source or modification will be operated in such a manner assumed in making the analysis required by this rule.

E. Effective Date

This rule shall become effective upon adoption. All new secondary sources or modifications pending on the date of adoption of this rule are subject to its provisions.

F. Definitions

1. "Secondary Source" includes any structrure, building, facility, equipment, installation or operation (or aggregation thereof) which is located on one or more bordering properties within the District and which is owned, operated or under shared entitlement to use by the same person.

Round Valley Joint Elementary School District
Rt. 2 Pine Creek Road Bishop, CA 93514
ph. 760-387-2525 fax 760-387-2525
"A 1997 California Distinguished School"

November 13, 1998

Keith Hartstrom
Mono County Planning Department
P.O. Box 8
Bridgeport, CA 93517

Dear Mr. Hartstrom,

RE: Rimrock Ranch Housing Development

I am writing on behalf of the Round Valley Joint Elementary School District. I have reviewed the information regarding this project which has been provided to the district, and as explained in the attached report, have determined that this project will not have a significant environmental effect on the District's facilities.

As demonstrated and explained in the attached report, adequate mitigation of this project's impacts will not require additional payment beyond Developer Fees (as that term is defined in Government Code section 65995) for each residence constructed in the project area for the purpose of providing school facilities.

Since this project may also affect the Bishop Union High School District, it may be appropriate to contact that district.

Thank you for this opportunity to comment on this project. I request that this district be kept apprised of this project's progress through the County planning process. We also request that we be notified if additional information is needed from this district or if your Department finds there is any reason why the language set forth above cannot be included as part for any County approval of this project. If you have any questions, or if I can be of any further assistance in this matter, please feel free to contact me.

Sincerely,

Linda Keating

Linda Keating, Superintendent

cc: Round Valley Jt. Elementary School District Board of Trustees
John Wilson

Based on the State's calculation, the District can anticipate .25 students per home in the new development. Rimrock Development is estimating 41 new homes (10.25 students).

The construction costs are as follows:

Students	Square Foot Allowance	Construction Cost	Total
K-6 - 10.25	(x59) 604.75	$101	$61,080
Architect fees 9% of construction costs (state set rate)			$5,497
TOTAL CONSTRUCTION COST			**$66,577**

Mitigation

Round Valley is anticipating Developer Fees based on .965 per square foot. This is based on a 50/50 split of $1.93 with Bishop High School. Developer Fees obtained for 41 homes at 2000 square feet average per home is $102,869.

By examining the construction cost amounts above, it is apparent that the Developer Fees obtained through the project will be sufficient to cover costs, once the development reaches build out.

If these rooms were filled to perfect capacity the configuration would be

Room 1 - 20*
Room 2 - 20*
Room 3 - 20*
Room 5 - 33
Room 7 - 33
Room 8 - 30

*Class Size Reduction 20 per class

TOTAL: 156 students K-8

The preschool is operated by the Inyo County Office of Education and can handle 24 students in the old portable. This portable will need to be replaced as soon as possible. The district cannot load this building with K-8 students.

The Special Education/Opportunity Class - This classroom is needed by the district to provided special and mandated programs for students. The students are pulled out of the regular class for small group instruction.

The Science/Tech/Art Lab is used by all students in the school. We conduct hands-on science for students. The room provides science materials, lab tables, and a tile floor for easy clean up. It is used daily for this activity. We currently have networked computers for technology instruction also in the classroom. The Tech Lab is used on a rotation basis for students in 2nd-8th grades. They practice keyboarding, word processing and mathematics. Art is taught in the Lab two times a month for all students.

IV. Justification for Capacity

Pacifica Development will bring additional students, bringing current capacity to full. They will be providing additional funds, above the $1.93 per square foot, for the increased enrollment.

Round Valley assumes that we will be at capacity prior to the Rimrock Ranch development being completed. We will then need to house 10.25 additional students.

V. Additional Facilities Needed

Since our facility is estimated to be at capacity, an additional classroom will be needed to accommodate the Rimrock Ranch students.

A. Construction Cost Analysis Based on Unhoused Students

The estimated cost per square foot is $101 for construction only. Architect fees are 9% of the construction cost based on the state approved rate.

Elementary students qualify for 59 square feet of unhoused pupils.

Rimrock Ranch Development
Impact
11/13/98

I. Assumptions

Projected New Homes	41
Projected New students	10.25 (.25 per house density)
Square foot estimate per home	2600 avg.
Architect fee	9%
Square footage allowance	59 K-6, 80 7-8
Developer Fees	.965 (50/50 split with Bishop High)
Developer Fees Obtained	$102,869

II. Justification for Determining Enrollment

Enrollment fluctuates at Round Valley School. We are currently working with Pacifica Development. It is their intention to build 310 new homes. With these developer fees, adjusted to account for the increase, a new facility will be constructed to accommodate additional students.

III. Capacity

Current School Facilities:

Please refer to the map, Attachment A

Classroom Configuration:

Room 1 - K/1 - Class Size Reduction - 13 students
Room 2 - 2/3 - Class Size Reduction - 18 students
Room 3 - 1/2 - Class Size Reduction - 16 students
Portable Classroom - Preschool/Child Care - over 20 years old and needs replacement per State Department of Education.
Library/Cafeteria/Auditorium/Kitchen - all in one
Room 4 - Special education, Opportunity Class
Room 5 - 4/5 - 27 students
Room 6 - Technology Lab/Science Lab/Art Room - all in one
Room 7 - 6/7 - 27 students
Room 8 - 8 - 18 students
Staff Room and Teacher Work Room
Administrative Offices

APPENDIX B--TECHNICAL STUDIES

1. **Archaeological Survey**
   Burton, Jeffery E. 1998. **Archaeological Survey and Testing for the Proposed Rimrock Ranch Subdivision, Mono County, California.**

2. **Wildlife Study**
   Taylor, Tim. 1993. **Rimrock Ranch Specific Plan Deer Study.**
   Taylor, Tim. 1998. **Update of 1993 Study. Personal Communication with Keith Hartstrom, Mono County Senior Planner.**

3. **Hydrology Study**
   Team Engineering. 1999. **Water Resource Assessment, Rimrock Ranch Specific Plan.**

ARCHAEOLOGICAL SURVEY AND TESTING FOR THE PROPOSED RIMROCK RANCH SUBDIVISION MONO COUNTY, CALIFORNIA

Prepared by:

Jeffery F. Burton
Trans-Sierran Archaeological Research
332 East Mabel Street
Tucson, Arizona 85705

With a contribution by:

Tom Origer
Anthropological Studies Center
Sonoma State University

Prepared for:

Mono County Planning Department
P.O. Box 8
Bridgeport, California 93517

TSAR Project No. 55
Contributions to Trans-sierran Archaeology No. 44
June 1998

Management Summary

Trans-Sierran Archaeological Research has completed an archaeological survey and testing for the proposed Rimrock Ranch Subdivision, within Mono County, California, as part of environmental studies for the Mono County Planning Department. During the course of the work one previously recorded archaeological site was relocated and tested and 20 isolates were discovered and recorded.

The testing provided information about the chronology of occupation and the activities that took place at the site. As such, the site can be considered to have contributed information important in the study of prehistory. However, testing also indicates that the potential for additional information is negligible: given the scope of the testing and artifact analysis, the investigations described have recovered sufficient data to effectively exhaust the research potential of two loci within the proposed subdivision. For this reason, the portion of the site within the proposed Rimrock Ranch Subdivision is not considered an important resource under CEQA and no further archaeological work is recommended.

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Introduction

Under an agreement with Mono County, Trans-Sierran Archaeological Research (TSAR) completed archaeological investigations for the proposed Rimrock Ranch Subdivision at Swall Meadows, about 10 miles northwest of the town of Bishop, California. Located in Section 24, T5S, R30E, MDB&M, the work included survey of a portion of the adjacent land sold to the California Department of Fish and Game as a deer migration corridor as well as all of the private land proposed for development (Figure 1).

The archaeological work included survey of approximately 100 acres and the testing and analysis of a previously recorded site (CA-MNO-2508). The survey was designed to identify archaeological resources within the project area as a first step in fulfilling *California Environmental Quality Act* (CEQA) requirements for mitigating the effects of the project. Twenty isolates were discovered and recorded, but no additional sites were encountered in the project area. The site record for CA-MNO-2508 was updated, and testing was conducted to determine the significance of the site and to gather sufficient data to make management recommendations.

This report discusses the methods and results of the archaeological work followed by management recommendations. For detailed background on the archaeology, ethnography, and history of the region, the reader is referred to Bettinger (1975, 1982, 1989), Burton (1996), Busby et al. (1979), Chalfant (1922), Liljelad and Fowler (1986), Steward (1930, 1933, 1934, 1938), and others (e.g. Bettinger et al. 1984; Bouscaren 1985; Nadeau 1950; Wright 1879).

Environmental and Cultural Background

The project area is at the north end of the Owens Valley, a fault-graben at the western edge of the Great Basin. It is located on a gently-sloping hillside at the eastern base of the Wheeler Crest of the Sierra Nevada range, which includes peaks over 11,000 feet in elevation. Soils consist of sandy gravel, although granite and tuff boulders occur within the project area and in the vicinity.

The survey area, located at an elevation of approximately 6,200 ft (1900 m), straddles an ecotone of the sagebrush scrub and pinyon pine plant communities; a sparse Jeffrey pine forest occurs to the north. An unnamed seasonal creek crosses the survey parcel.

Vegetation consists of pinyon pine (*Pinus monophylla*) and shrubs such as basin sagebrush (*Artemesia tridentata*), bitterbrush (*Purshia tridentata*), rabbitbrush (*Chrysothamnus nauseosus*), and Mormon tea (*Ephedra viridis*). Grasses include Great Basin wild rye (*Elymus cinereus*), Indian ricegrass (*Oryzopsis* sp.), bluegrass (*Poa* sp.), blue wildrye (*Elymus glaucus*), and squirreltail (*Sitanion hystrix*).

Fauna present in the vicinity today include: mule deer (*Odocoileus hemionus*), jackrabbits (*Lepus townsendii, L. californicus*), cottontail (*Sylvilagus nuttalii*), ground squirrels and mice (e.g., *Peromyscus*), black bear (*Ursus americanus*), mountain lion (*Felis concolor*), and coyote (*Canis latrans*). Grizzly bear (*U. horribilis*), antelope (*Antilocapra americana*), and bighorn sheep (*Ovis canadensis*) may have visited the area in the past.

The climate is semi-arid, with mild summers, cold winters, and approximately 10 to 15 inches of precipitation annually, mostly in the form of snow. Paleoclimatic data for the region have been compiled and summarized by Curry (1969), Mehringer (1986), and Bettinger (1982). Between 12,000 and 10,000 years ago, the Great Basin underwent rapid climatic changes: as alpine glaciers retreated, lakes shrank, and plants and animals moved to higher elevations (Mehringer 1986). From 10,000 to 8,000 years ago, there was a warming trend in the Basin; Mehringer postulates that this warming trend continued, reducing the

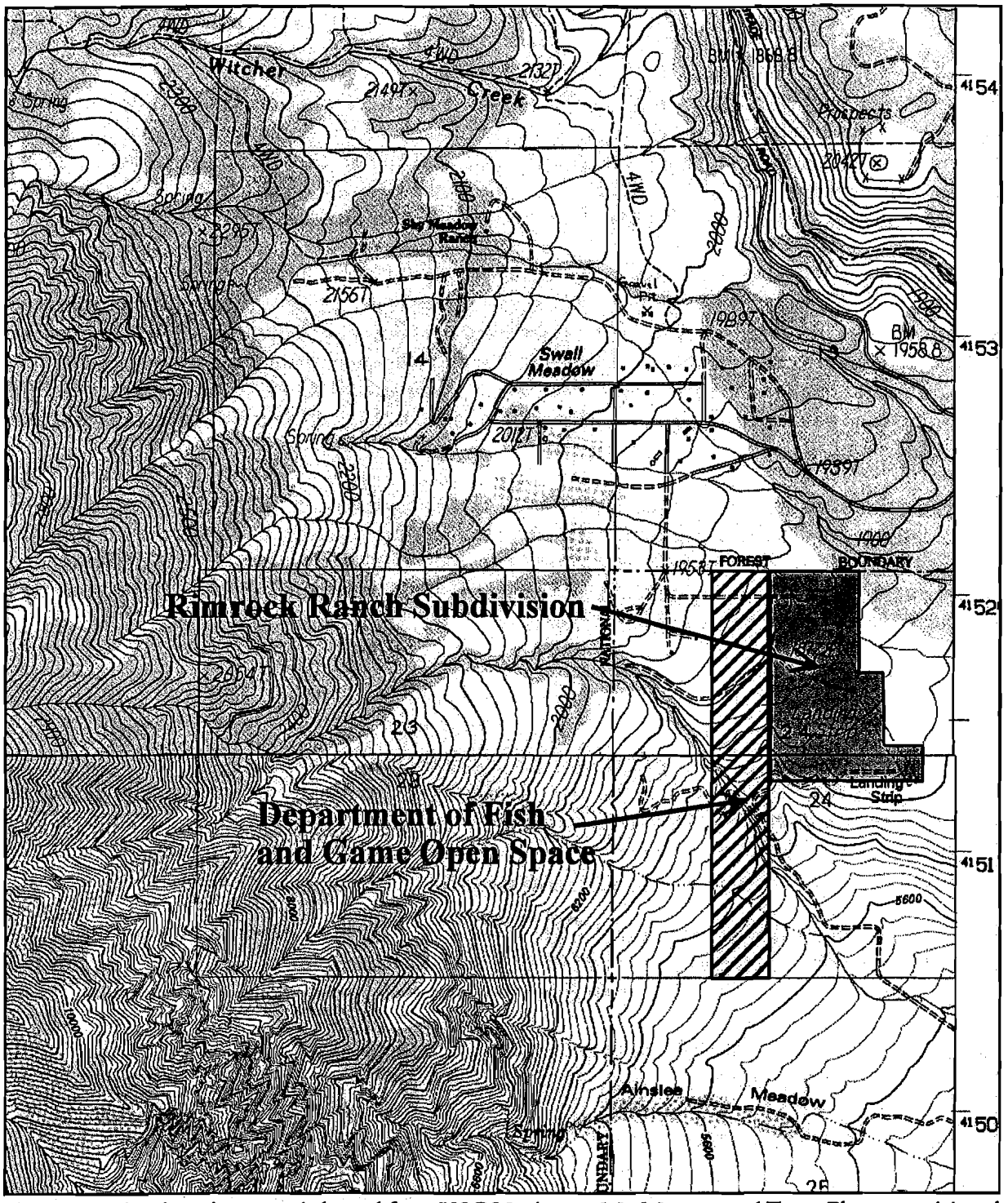

Figure 1. Project location map (adapted from USGS 7.5' maps Mt. Morgan and Toms Place, provisional editions 1984).

effective moisture through 5000 B.P. Various researchers have found evidence that the hot and dry conditions of the "Altithermal" may have prevailed up until 3,000 or 4,000 years ago, after which cooler temperatures and variable moisture were dominant until the late 19th century (Busby et al. 1979:36). Curry cites evidence for neoglacial periods between 2700 B.P. and 2000 B.P., a relatively dry period between A. D. 800 and 1300 (except for some short periods of heavy precipitation between A. D. 900 and

1100), and glacial advances between A. D. 850-1050, A. D. 1550-1700, and 1750-1895.

The following cultural chronology, based on time-sensitive projectile points, has been proposed by Bettinger (1982:89-92) for the Inyo-Mono region:

> Mohave complex (pre-3500 B.C.) – indicated by Mohave, Silver Lake, and Great Basin Transverse projectile point assemblages.
>
> Little Lake Period (3500 to 1200 B.C.) – indicated by Little Lake and Pinto series projectile points and Humboldt Concave-base bifaces.
>
> Newberry Period (1200 B.C. to A.D. 600) – indicated by Elko series projectile points.
>
> Haiwee Period (A.D. 600 to 1300) – indicated by Eastgate and Rose Spring series ("Eastgate") projectile points and Humboldt Basal-notched bifaces.
>
> Marana Period (A.D. 1300 to historic) – indicated by Cottonwood and Desert Side-notched projectile points and Owens Valley Brown Ware ceramics.

Information compiled from the various excavations and surveys provides a glimpse of lifeways during these periods. Mohave complex and earlier sites are limited to two sites in Long Valley, a few sites at Mono Lake and Owens Lake, and isolated points found in surface contexts. The Little Lake period is characterized by high mobility; free-ranging groups maintained base camps near riparian areas, and made frequent use of temporary camps. Sites dating to this period are generally sparse, with a narrow artifact assemblage consistent with use by highly mobile groups. Structures and associated artifacts at Newberry period sites suggest use as seasonal base camps or temporary hunting camps. Flaked stone tool types became standardized and ground stone artifacts became formalized and diverse. Haiwee period sites are dominated by casual flaked stone tools and shaped ground stone artifacts. There appears to be increasing settlement centralization during the Haiwee period, and a shift towards intensive land use focused on increased use of small animals and plants. The trend towards intensifying land use continued in the Marana period, with some villages occupied essentially year-round. Also during the Marana period there is a greater shift to expedient technologies with the introduction of casual ground stone types.

Field Methods

Background research was conducted through the Eastern Information Center of the California Historical Resources Inventory System (CHRIS), located at the University of California, Riverside (Appendix A). Their records indicated that one site (CA-MNO-2508) had been recorded within the proposed Rimrock Ranch subdivision and two sites had been recorded in the project vicinity during survey of a fiber optics line (Burton 1990). CA-MNO-2508 and CA-MNO-2509, adjacent to the project area, are a sparse lithic scatters. Just north of the project area, CA-MNO-1915, consists of a lithic scatter and three bedrock milling slicks.

Archaeological fieldwork, totaling seven person-days, was conducted in April 1998. The project area was intensively surveyed by walking parallel transects at 20-meter intervals. Sites were defined following the California Archaeological Inventory criteria (15 items per 100 square meters or a feature). Items not meeting this definition were recorded as isolates.

Fieldwork at CA-MNO-2508 included systematic surface examination and collection, mapping, and subsurface testing. As specified in the California State Office of Historic Preservation's *California*

Archaeological Resource Identification and Data Acquisition Program: Sparse Lithic Scatters (CARIDAP:SLS), the collection of 50 flakes from each site is recommended to provide an adequate sample for evaluation. Since CA-MNO-2508 consists of four separate loci, to meet these guidelines thirty-one 5-m-by-5-m surface collection units were completed at the site. Even with placing these surface collection units in the densest parts of the site, it was necessary to augment the collection with grab samples.

Excavation also followed the guidelines in *CARIDAP:SLS*. Subsurface testing consisted of the manual excavation of eight 50 cm by 50 cm shovel tests. Sediments were excavated in 10-cm levels, and sifted through a 6-mm (1/4") mesh screen. All cultural material was collected. Units were excavated as deep as possible; in all cases large rocks precluded excavation beyond 40 cm. All units were placed purposefully, with locations chosen to test areas of likely subsurface deposit and to achieve maximum coverage of each locus.

Analyses

As is common in the region, virtually all of the prehistoric cultural material recovered was flaked obsidian. Recovered artifacts included projectile points, finished bifacial tools, preforms and roughouts, retouched flakes, core fragments, and debitage. Analyses included visual identification of material sources, and obsidian hydration measurement. Morphological lithic analysis provide information on site function and lithic reduction strategies, included tool and debitage classification, according to the following categories:

Projectile points are bifacially flaked tools presumed to have been used to tip darts or arrows. Analyses of associated chronometric evidence have indicated that projectile point styles changed through time, with shape and size varying with projectile type, hafting technique, and other factors

Finished bifacial tools have a thin lenticular cross-section, symmetrical edges, and a regular flaking pattern with flake scars indicating the predominant use of pressure flaking. Bifacial tools have been interpreted as general purpose tools, perhaps for butchering, drilling, and light woodworking. However, as Jackson (1985) points out, a working taxonomy has not yet been developed for finished tools in the Inyo-Mono region; it is not known whether differences in form among finished bifacial tools are functionally significant.

Preforms and *roughouts* represent unfinished products and were a major item of trans-sierran trade (Basgall 1983, 1984a; Bouscaren et al. 1982; Jackson 1985: 142-161). Characteristics of preforms include a lenticular cross-section, centered edges, predominate use of percussion flaking, and a thickness/width ratio generally less than 0.3. Less-finished roughouts are characterized by a biconvex cross-section and a thickness/width ratio greater than 0.3.

Retouched Flakes represent a significantly less "intensive" tool technology than formal tools; retouched flakes were modified (retouched) by pressure or percussion flaking to create or maintain a desired working edge (Crabtree 1982:50). Although the morphological characteristics of purposefully retouched pieces and use-modified flakes overlap in reality, the categories are arbitrarily distinguished here based upon size and regularity of flake scars. An artifact is considered a retouched piece if an edge exhibits three or more contiguous flake scars which may also show use-wear, or if there is a single "notch" which exhibits use-wear. These are distinguished from utilized flakes by regular, apparently systematic, and invasive flaking; utilized flakes have much smaller flake scars, probably the result of crushing during use. Retouched flakes consist largely of minimally modified flakes suitable for quick use and discard; flaking can occur on one or more edges. Both retouched flakes and use-modified flakes were likely used for simple cutting and scraping tasks, such as butchering or the manufacture and repair of baskets. See Bettinger (1981) for further description of use-modified flakes.

Core Fragments are pieces of shattered core (cobbles, blocks, or large flakes of lithic material from which tools, and hence flakes and debris [debitage], were produced), broken along flaws or some other structural weakness during reduction. They are generally blocky in form, and exhibit at least one negative flake scar.

Debitage includes flakes of lithic material resulting from tool manufacture or core reduction. Debitage is a useful indicator of lithic technology and past behavior (Berry 1984; Rozen 1981; Schiffer 1976; Sullivan and Rozen 1985). Collins (1975) and Berry (1984) discuss the potential complexity in the life of a flake; it is still not well understood how to determine all of the natural and cultural transformation processes that may be affecting flaked stone assemblages. However, because debitage usually remains at the area of manufacture, it would seem a more reliable source of manufacturing data than finished tools alone (Collins 1975:19).

Debitage was divided into eight categories. Five categories were developed by Bettinger (1980): biface retouch flakes, use-modified flakes with and without cortex, and unmodified flakes with and without cortex. Three additional categories, core shatter with and without cortex and use-modified biface retouch flakes, were added to the taxonomy (cf. Burton 1985). Biface retouch flakes "are distinguished by platforms that retain part of the bifacially-worked edge of the tool or blank from which they were removed during the course of thinning or resharpening: these bifacial platforms frequently show a distinct overhang that impinges on the ventral flake surface, and are often abraded or worn, but it is difficult to tell whether this represents use wear or intentional edge preparation to facilitate flake detachment" (Bettinger 1981a:36). Use-modified flakes consist of flakes which are used without further modification to exploit the existing sharp edge and edge angle. Most likely such pieces were only used for a short time, perhaps for a single task, or until the edge was dulled or no longer suitable for use. Unmodified debitage lacks evidence of cortex, retouch or use. Core shatter consists of small angular pieces of obsidian resulting from the splitting of cores.

All obsidian artifacts were visually sourced to estimate the relative frequency of obsidian from different regional sources (see Bettinger et al. 1984). To provide chronmetric data a sample of obsidian visually identified as from the Casa Diablo source was submitted for obsidian hydration analysis (Appendix B). Hydration rind values were converted to calendar dates using Hall and Jackson's (1990) Casa Diablo obsidian hydration rate of radiocarbon years B.P. = 129.656 microns$^{1.826}$.

Results

Approximately 100 acres were examined (Figure 2); one archaeological site and 20 isolates were recorded within the survey area. Site and isolate locations are depicted in Figure 2, and an updated Archaeological Site Survey Record for CA-MNO-2508 is included as Appendix C. The site and isolates are summarized below.

CA-MNO-2508

This site consists of four separate loci (A-D) of cultural remains covering a combined area of 58,500 square meters (14 acres) straddling a small unnamed seasonal creek. (Figure 3). There are scattered pinyon pine to the north and west of the site and a large a Jeffrey pine just north of Locus C, but currently sagebrush, bitterbrush, and rabbitbrush are the primary vegetation.

Loci A, B, and C are scatters of obsidian flakes (Table 1); Locus D is a historical artifact scatter. The site is crossed by two paved roads, Rimrock Drive and Valley View Road, as well as several unnamed dirt roads. A powerline bisects the site, running north to south; loci A and B are to the east of the powerline, on land proposed for development. Loci C and D are to the west, on land now owned by the California

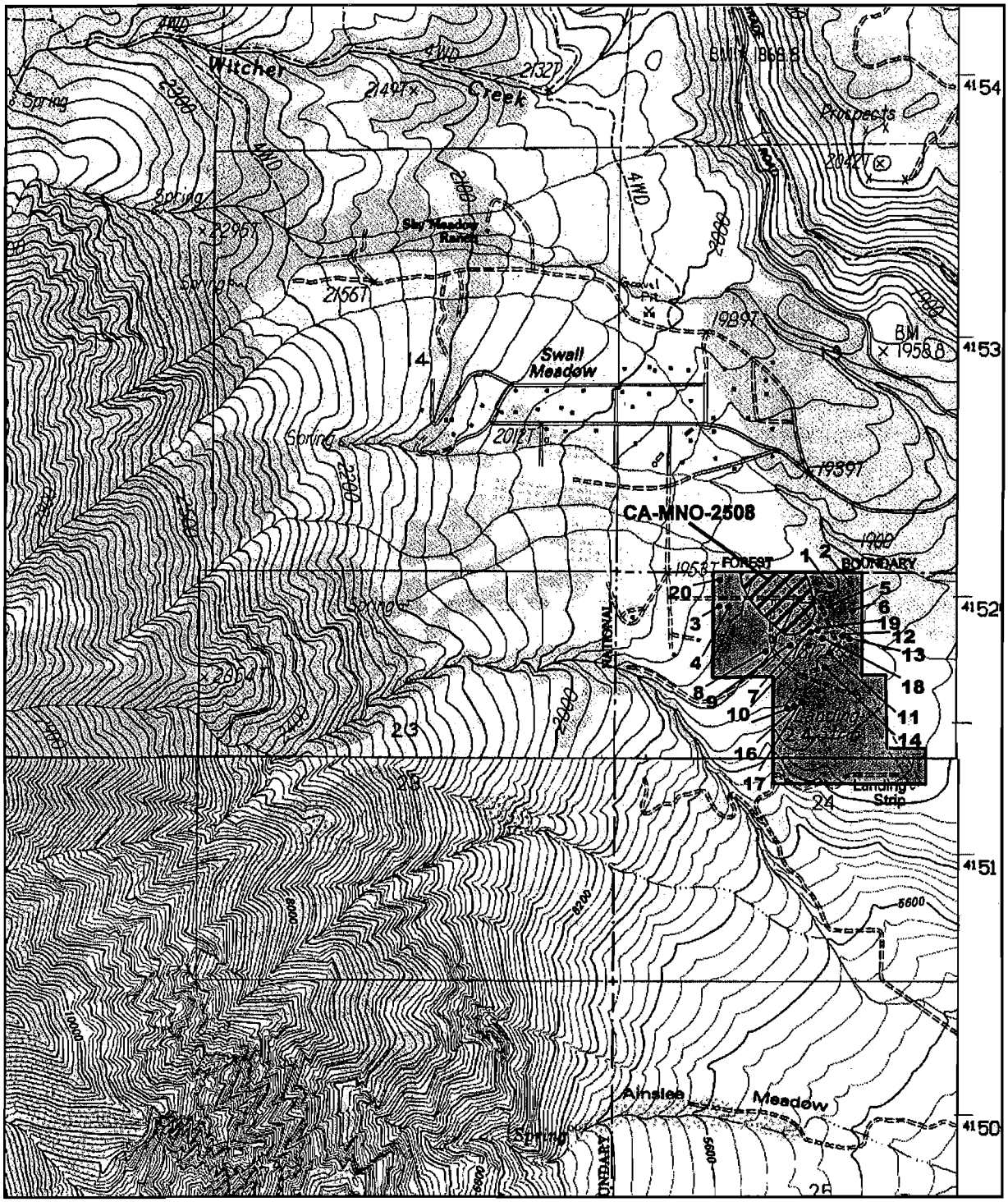

Figure 2. Archaeological survey coverage and site and isolate location map (adapted from USGS 7.5' maps Mt. Morgan and Toms Place, provisional editions 1984).

Department of Fish and Game for preservation as a wildlife corridor. Locus B, at the north end of the project area, extends to the north onto public land administered by the Inyo National Forest.

Loci A and B are relatively sparse, with small areas containing a maximum of 2 artifacts per square meter at Locus A, and 3 per square meter at Locus B. Locus C is denser, with up to 5 flakes per square meter, over a relatively larger area. Each locus is described below.

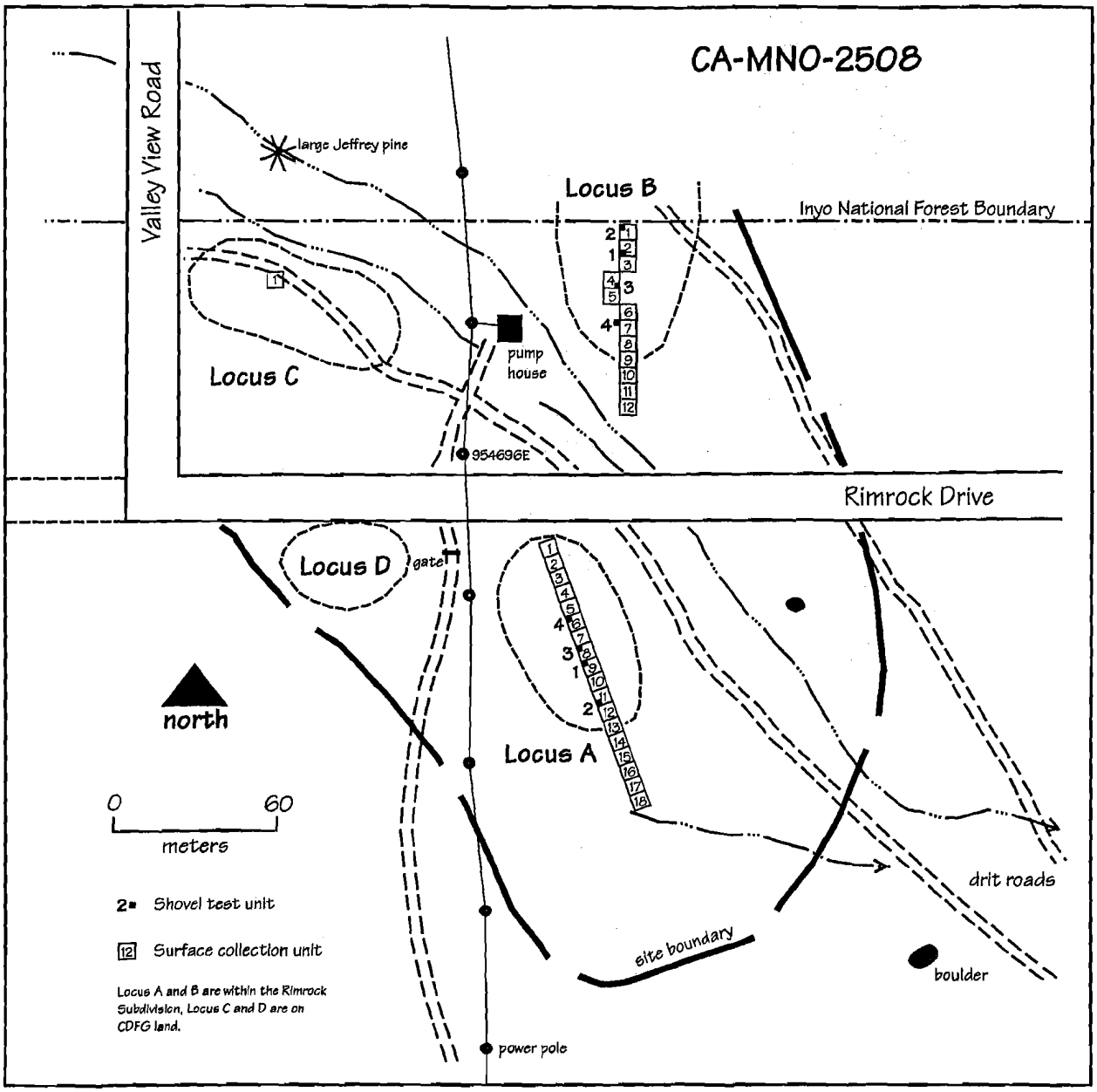

Figure 3. Map of CA-MNO-2508.

Locus A

Locus A, 65 m north-south by 45 m east-west in size (2,400 m^2), is the largest of the three prehistoric loci. A total of 33 pieces of debitage was collected from eighteen 5 m by 5 m surface-collection units for an average density of about 1 flake per 15 square meters (Table 2). Thirty-one flakes were also surface collected outside the surface collection units in order to bring the debitage sample up to that recommended in CARIDAP.SLS. A bifacial preform fragment was also collected (Figure 4a).

The four excavation units completed at Locus A yielded 6 flakes (Table 3). Cultural material was found up to 30 cm deep. Extrapolating from the 50 cm by 50 cm units, densities ranged from 0 to 40 flakes per cubic meter. The densest cultural material was found in the central portion of the locus.

All debitage from the surface collection units and the excavation units was analyzed (n=39). Biface retouch flakes comprised 21 percent (n=8) of the debitage; none of the biface retouch flakes were use-

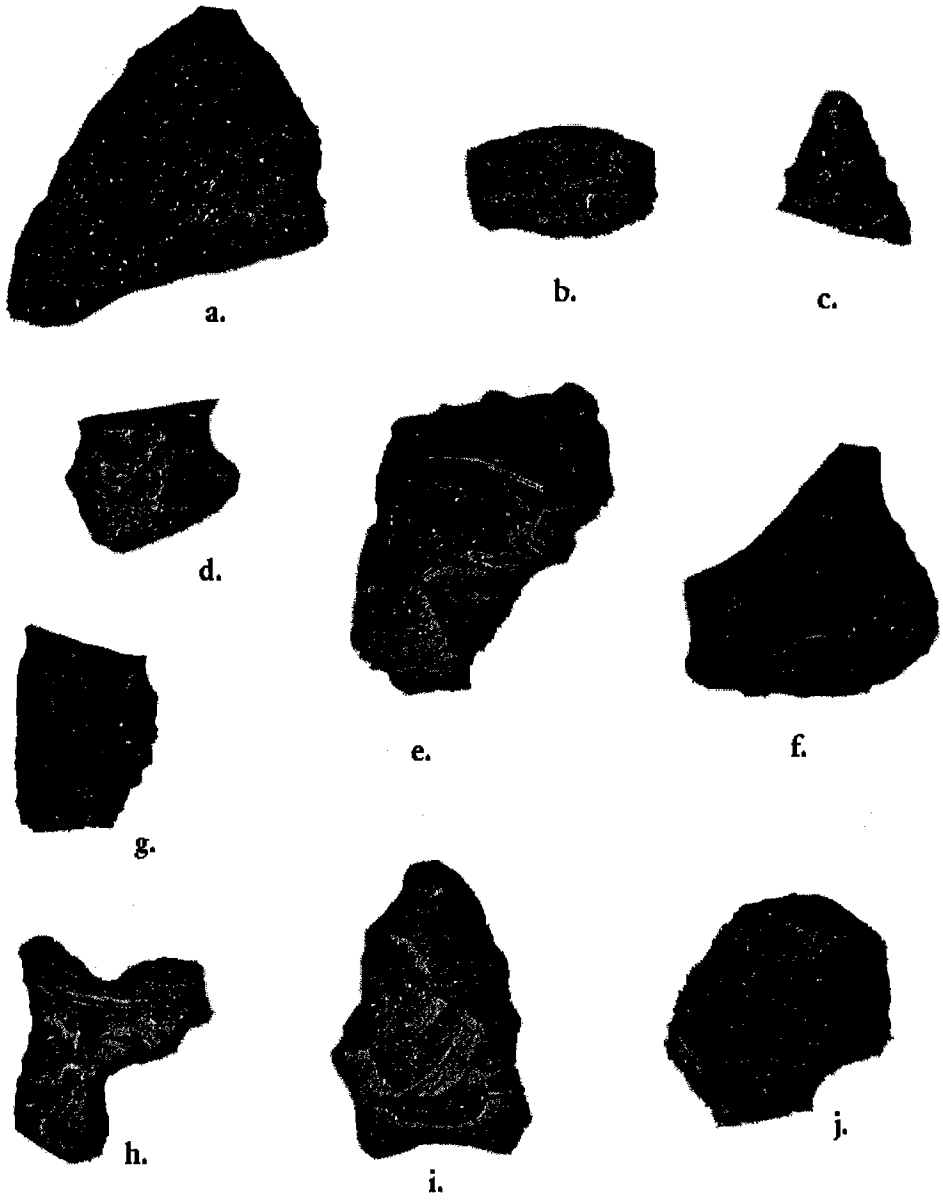

Figure 4. Flaked stone artifacts from CA-MNO-2508; a. preform tip from Locus A, b-c. bifacial tool fragments from Locus B, d. projectile point fragment from Locus C, e-j. retouched flakes (scale 1:1).

modified. Use-modified flakes comprised 27 percent (n=10) of the debitage. Unmodified flakes comprised 46 percent (n=18) of the debitage and core shatter 10 percent (n=4). None of the debitage had cortex. Sixty-seven percent (n=26) was visually identified as from the Casa Diablo source.

The relatively high percentage of biface retouch flakes, the low percentage of core shatter, and the lack of cortex suggests secondary rather than primary reduction, and the production or repair of bifacial tools. The high percentage of use-modified flakes suggests subsistence tasks were also an important activity at this locus.

Seven specimens from Locus A visually identified as from the Casa Diablo source were submitted for

obsidian hydration analysis. Two had diffuse unreadable rims. One specimen had a diffuse rim and another rim measuring 1.1 microns, which appears to indicate a recent fracture. The remaining hydration results ranged from 6.6 to 7.0 microns, with a mean of 6.7 microns and a standard deviation of 0.2. Using Hall and Jackson's (1990) rate, the mean converts to 4,180 years B.P., indicating Little Lake period use of the locus.

Locus B

Locus B, 50 m north-south by 50 m east-west in size (2,000 m^2), is located northeast and across the drainage from Locus A on a south-facing slope. A total of 31 flakes was recovered from 12 surface collection units for an average density of about 1 flake per 10 square meters (Table 2). In addition, two biface fragments (Figure 4b-c) and 34 flakes were collected in a grab sample in the densest portion of the site. The four excavation units completed at the site yielded 12 flakes; none were recovered from below 20 cm deep (Table 3). Extrapolated subsurface debitage density ranges from 20 to 80 flakes per cubic meter. The excavation units within the central portion of the locus yielded the most flakes.

Debitage from the surface collection and excavation units was analyzed (n=43). Biface retouch flakes comprised 12 percent (n=5) of the debitage. None of the biface retouch flakes was use-modified. Use-modified flakes comprised 21 percent (n=9) of the debitage. Of these, a basalt flake had cortex. Unmodified flakes without cortex comprised almost 67 percent (n=29) of the debitage. One unmodified flake had cortex. No core shatter was recovered. Sixty-three percent was visually identified as from the Casa Diablo obsidian source, 35 percent appeared to be from other obsidian sources, and one piece is basalt.

As at Locus A, the moderately high percentage of biface retouch flakes and low percentage of flakes with cortex suggests secondary, rather than primary reduction, and the production or repair of bifacial tools. The high percentage of use-modified flakes suggests subsistence tasks were also done at the site.

Nine Casa Diablo specimens were submitted for obsidian hydration analysis. Five had diffuse unreadable rims. The four readable hydration results ranged from 1.1 to 7.1 microns. Discarding the low 1.1 value, the other three have a mean of 6.5 microns and a standard deviation of 0.5. Using Hall and Jackson's (1990) rate the mean converts to 3,955 years B.P., again indicating Little Lake period use.

Table 1. Characteristics of Prehistoric Loci at CA-MNO-2508.

Site Number	Site Area (m^2)	Surface Artifact Density[a] (per 25 m^2)	Depth of Cultural Deposit[b] (cm)	Subsurface Artifact Density[c] (per m^3)	Other Artifacts Noted[d]
Locus A	2,040	7	30	40	BF
Locus B	2,000	11	20	80	2 BF
Locus C	1,800	24	unk	unk	PP

a. Maximum (based on surface collection units).
b. Maximum.
c. Maximum (1/4" and larger).
d. Artifact types: BF - Biface fragment (tools and preforms), PP - Projectile point fragment.

Locus C

Locus C, 30 m north-south by 75 m east-west in size (1,800 m^2), is located in the northwest portion of the site on land newly-acquired by the California Department of Fish and Game as a wildlife corridor. Although no development is proposed in Locus C, one surface collection unit was completed there to provide comparative data with the rest of the site. A projectile point fragment (Figure 4d) and 23 pieces of debitage were collected from a single 5 m by 5 m surface-collection unit. No excavation or general surface collection was conducted at this locus.

All debitage from the surface collection unit at Locus C was analyzed (n=23). Biface retouch flakes comprised 9 percent (n=2) of the debitage; none of the biface retouch flakes were use-modified. Use-modified flakes comprised 4 percent (n=1) of the debitage. Unmodified flakes comprised 83 percent (n=19) of the debitage and core shatter 4 percent (n=1). None of the debitage had cortex. Eighty-seven percent (n=20) were visually identified as from the Casa Diablo source. Activities similar to the other two loci (e.g. production or repair or tools and subsistence) appear to be represented at the locus.

Five Casa Diablo specimens from Locus C were submitted for obsidian hydration analysis. One had a diffuse unreadable rim. One had a diffuse rim measuring approximately 6.4 microns. The remaining specimens rim values ranged from 5.2 to 6.4 microns, yielding a mean of 6.0 microns and a standard deviation of 0.5. Using Hall and Jackson's (1990) rate, the mean converts to 3,420 years B.P. Again, the obsidian hydration results indicate Little Lake period use.

Locus D

Locus D, also located on newly-acquired Department of Fish and Game Land, consists of a sparse scatter of historical artifacts covering an area 35 m north-south by 50 m east-west (1400 m^2). Noted artifacts include six condensed milk cans, three sanitary seal food cans, a hole-in-cap food can, a small lard bucket, coffee can fragments, a pocket tobacco can, ten white ware ceramic fragments, four pieces of amber glass, and a window glass fragment. The white ware ceramics include three fragments of a flow-blue plate and a plate base with a possible Austrian basemark (Figure 5). Taken together the artifacts suggest camping or one or two trash-dumping episodes dating to the first quarter of the twentieth century.

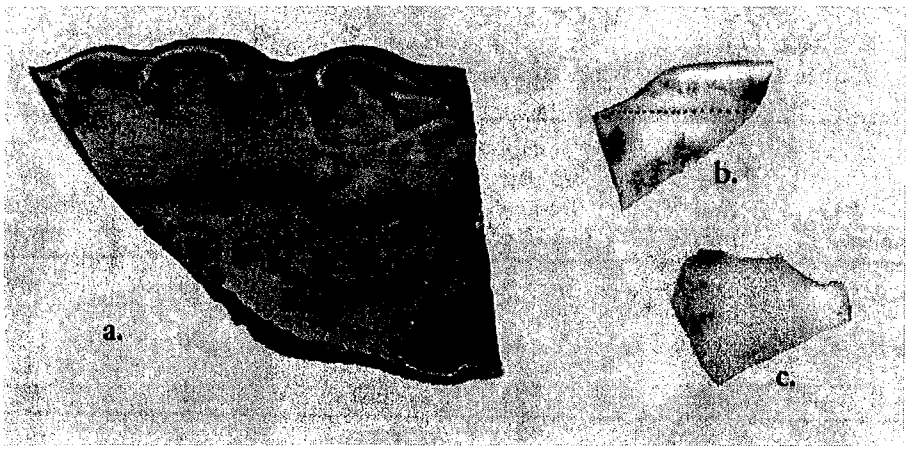

Figure 5. Historical ceramics from Locus D of CA-MNO-2508; a. flow-blue white ware, b. porcelain cup rim fragment, c. possible Austrian basemark (scale is approximately 1:1).

Isolates

Twenty isolates were discovered during the survey (Table 4). These include a projectile point, a bifacial tool fragment, a core fragment, and numerous modified and unmodified flakes. One isolate (#7) included a retouched flake, a burned animal bone, a pop-top, and some charcoal bits near a large boulder. Another isolate may be a Little Lake projectile point, dating to between 3500 and 1200 B.C., corroborating the Little Lake dates at CA-MNO-2508 suggested by the obsidian hydration results.

Management Recommendations

The legal guidelines for evaluation and management of archaeological sites on private land are contained in the *California Environmental Quality Act* (CEQA). To determine whether a site is significant according to CEQA criteria, it is necessary to apply the evaluation framework contained in Appendix K, which states:

III. If the Lead Agency determines that a project may affect an archaeological resource, the agency shall determine whether the effect may be a significant effect on the environment. If the project may cause damage to an important archaeological resource, the project may have a significant effect on the environment. For the purposes of CEQA, an "important archaeological resource" is one which:

A. Is associated with an event or person of:

1. Recognized significance in California or American history, or

2. Recognized scientific importance in prehistory.

B. Can provide information which is both of demonstrable public interest and useful in addressing scientifically consequential and reasonable archaeological research questions;

C. Has a special or particular quality such as oldest, best example, largest, or last surviving example of its kind;

D. Is at least 100 years old and possesses substantial stratigraphic integrity; or

E. Involves important research questions that historical research has shown can be answered only with archaeological methods.

IV. If an archaeological resource is not an important archaeological resource, both the resource and the effect on it shall be noted in the initial study or EIR but need not be considered further in the CEQA process.

CA-MNO-2508 is important due to its age – Little Lake period sites are currently not well-studied in the region. However, much of the site is sparse: at Locus A, it was difficult to find enough artifacts to meet the CARIDAP.SLS collection guidelines, and Locus B is only somewhat denser. These two loci are basically surface scatters; the few flakes found subsurface are what would be expected with 4000 years of pedoturbation. Therefore, Loci A and B have been adequately characterized by the present work, and contain no additional data potential. The portion of the site on Department of Fish and Game land

(Locus C) is denser and will be protected from any direct impacts; the work completed for this project should suffice to mitigate any indirect impacts from the increased population in the area. In summary, no further work is recommended for the proposed Rimrock Ranch subdivision.

Table 2. Number of Artifacts in 5 m by 5 m Surface Collection Units at CA-MNO-2508.

Locus	Surface Collection Unit																		Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
A	1	2	2	7	3	4	0	3*	2*	5	0	2	0	1	0	1	0	0	33
B	2	4	5	11	2	4	1	2	0	0	0	0	-	-	-	-	-	-	31
C	24	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	23

* plus one can fragment

Table 3. Number of Artifacts in 50 cm by 50 cm Excavation Units at CA-MNO-2508.

	Locus A				Locus B			
Unit	1	2	3	4	1	2	3	4
0-10 cm	1	0	2	1*	3	1	4	2
10-20 cm	0	0	1	0	2	0	1	0
20-30 cm	1	0	0	0	0			
30-40 cm				0	0			
Total	2	0	3	1	5	1	4	2

* plus one can fragment

Figure 6. Possible Little Lake projectile point (Isolate #8).

Table 4. Isolates Recorded Within the Rimrock Ranch Survey Area.

1. Obsidian flake fragment	10. Obsidian flake
2. Obsidian flake fragment	11. Utilized obsidian flake
3. Utilized obsidian flake	12. Retouched obsidian flake
4. Obsidian flake	13. Two obsidian flakes, one utilized
5. Obsidian flake	14. Broken retouched obsidian flake (in road)
6. Two utilized obsidian flakes	15. Utilized obsidian flake
7. Retouched obsidian flake, burned animal bone fragment, aluminum pop-top, charcoal bits	16. Obsidian flake fragment 17. Obsidian bifacial tool midsection
8. Possible Little Lake obsidian projectile point (Figure 6)	18. Obsidian flake 19. Utilized obsidian flake
9. Obsidian core fragment	20. Obsidian flake

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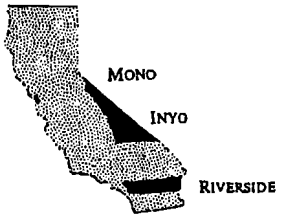
Appendix A

Results of CHRIS Records Search

CALIFORNIA
HISTORICAL
RESOURCES
INFORMATION
SYSTEM



Eastern Information Center
Department of Anthropology
University of California
Riverside, CA 92521-0418

Phone (909) 787-5745
Fax (909) 787-5409

April 8, 1998
RS #1937

Jeff Burton
Trans-Sierran Archaeological Research
332 East Mabel Street
Tucson, Arizona 85705

Re: Cultural Resources Records Search for Rimrock Ranch

Dear Mr. Burton:

We received your request on March 30, 1998 for a cultural resources records search for the project designated Rimrock Ranch located in Sections 13 and 24 of T.5S, R.30E, MDBM, in Mono County. We have reviewed our site records, maps, and manuscripts against the location map you provided.

Our records indicate that a cultural resources survey has been conducted on a portion of the project area and one cultural resources survey has been conducted is within a one-mile radius of the project area. These reports are listed on the attachment entitled "Archeological Reports" and are available upon request at $0.15/page plus $7.50 per 1/2 hour. The KEYWORD section of each citation lists the geographic area, quad name, listing of trinomials (when identified), report number in our manuscript files (MF #), and the number of pages per report.

Two archaeological sites, CA-MNO-2509 and CA-MNO-2508, are known within the project boundaries and our records indicate that two archaeological sites, CA-MNO-1915 and CA-MNO-2019, have been recorded within a one mile radius of the project area. Copies of the site records are included for your study needs. Sites CA-MNO-2508, CA-MNO-2509, and CA-MNO-1915 were recorded by Mr. Burton and the records were not included as requested.

The above information is reflected on the enclosed map. Areas that are shaded in yellow indicate areas that have been surveyed. Numbers in pencil indicate the report number in our manuscript files (MF #). Areas in red show the location of cultural resources, and their corresponding numbers in black represent the state trinomial.

In addition to the California Historical Resources Information System, the following were reviewed:

The National Register of Historic Places Index (07/31/96): None of the properties or sites are listed.

Office of Historic Preservation, Archaeological Determinations of Eligibility (listed through 01/15/97): None of the properties or sites have been evaluated for eligibility.

Office of Historic Preservation, Directory of Properties in the Historic Property Data File (dated 01/14/97): None.

A review of USGS Casa Diablo Mountain 15' (1953) topographic map indicated no historic structures/features present. The General Land Office plat maps for Mono County are on file at UC Berkeley. These maps were unavailable for review.

This statement does not constitute a negative declaration of impact. This statement reports only known archaeological materials on or in the vicinity of the property in question. The presence of cultural resources on the property cannot be ruled out until a systematic survey is conducted.

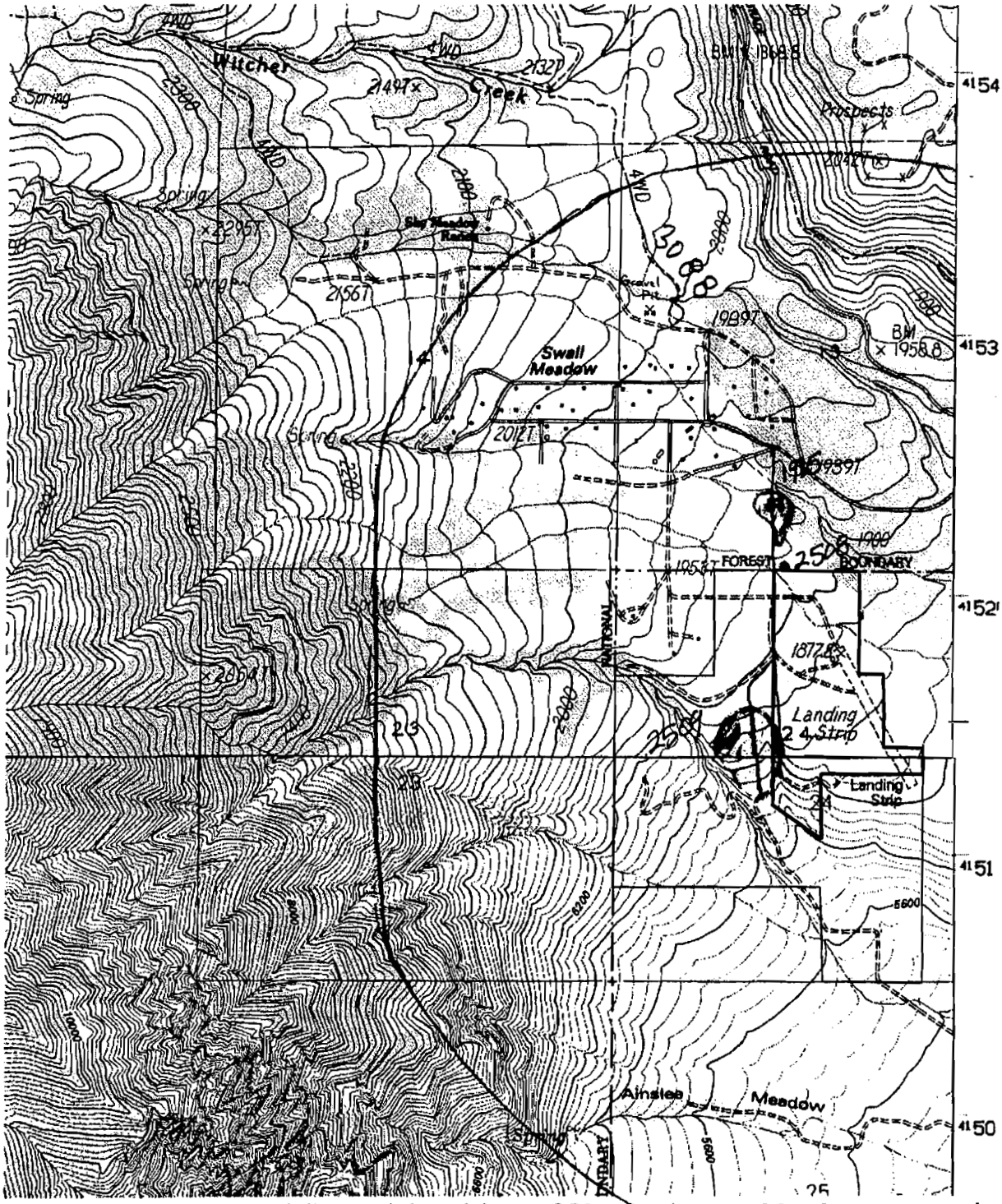
Federal and State law requires that if any cultural resources are found during construction, work is to stop and the lead agency and a qualified archaeologist be consulted to determine the importance of the find.

As the Information Center for Riverside County, it is necessary that we receive a copy of all archaeological reports and site information pertaining to this county in order to maintain our map and manuscript files. Site location data provided with this records search are not to be used for reports unless the information is within the project boundaries. This information is confidential.

Sincerely,

Sung An
Information Officer

Enclosures



Map 1. Rimrock Ranch Subdivision (adapted from USGS 7.5' series maps Mt. Morgan 1982 and Toms Place provisional edition 1984).

Document No.: 1082080 Unpublished Report
GIANSANTI, RENEE

1983 ARCHAEOLOGICAL RECONNAISSANCE REPORT - PINON RANCH DRIVE ROAD CONSTRUCTION. INYO NATIONAL FOREST. SUBMITTED TO U.S. FOREST SERVICE. UNPUBLISHED REPORT ON FILE AT UCR, EASTERN INFORMATION CENTER, RIVERSIDE, CA 92501.

Last Update: 12/22/91 Cataloged by: WOR-CA-04 on 04/13/89
Keywords: 2.61 ACRES SURVEYED (4), 4 PP (7), CASA DIABLO MTN. 7.5' QUAD (4), MF #1879 (6), HAMMIL/BENTON VALLEYS (4), NO RESOURCES (8), ARR #05-04-0299 (6)

Document No.: 1083254 Unpublished Report
BURTON, JEFFREY F.

1990 AN ARCHAEOLOGICAL SURVEY OF THE CONTEL MAMMOTH TO BISHOP FIBER OPTICS LINE, MONO AND INYO COUNTIES, CALIFORNIA. TRANS-SIERRAN ARCHAEOLOGICAL RESEARCH (#18). SUBMITTED TO PRIVATE. UNPUBLISHED REPORT ON FILE AT UCR, EASTERN INFORMATION CENTER, RIVERSIDE, CA 92501.

Last Update: 07/11/91 Cataloged by: WOR-CA-04 on 09/10/90
Keywords: MF #3088 (6), 83 PP (7), 325 ACRES SURVEYED (4), OWENS VALLEY REGION (4), LONG VALLEY CALDERA (4), BISHOP 7.5' QUAD (4), OLD MAMMOTH 7.5' QUAD (4), FISH SLOUGH 7.5' QUAD (4), ROVANA 7.5' QUAD (4), MT. MORGAN 7.5' QUAD (4), TOMS PLACE 7.5' QUAD (4), BLOODY MTN. 7.5' QUAD (4), CONVICT LAKE 7.5' QUAD (4), WHITMORE HOT SPRS 7.5' QUAD (4), CA-INY-3699 (8), CA-INY-3700 (8), CA-INY-3701 (8), CA-INY-3702 (8), CA-INY-3703 (8), CA-INY-3704 (8), CA-INY-3705 (8)

Appendix B

Obsidian Hydration Analysis

Tom Origer
Sonoma State University

ANTHROPOLOGICAL STUDIES CENTER

Sonoma State University
Building 29
1801 East Cotati Avenue
Rohnert Park, CA 94928-3609

Jeff Burton
Trans-Sierran Archaeological Research
332 East Mabel Street
Tucson, Arizona
85705

May 21, 1998

Dear Jeff:

This letter reports hydration band analysis of 22 obsidian specimens from site CA-MNO-2351 near Swall Meadows in Mono County, California. This work was completed as requested in your letter dated April 20, 1998.

The analysis was completed at the Sonoma State University Obsidian Hydration Laboratory, an adjunct of the Anthropological Studies Center, Department of Anthropology. Procedures used by our hydration lab for preparation of thin sections and measurement of hydration bands are described below.

The specimens were examined to find two or more surfaces that would yield edges that would be perpendicular to the microslides when preparation of the thin sections was done. Two parallel cuts were made at an appropriate location along the edge of each specimen with a four-inch diameter circular saw blade mounted on a lapidary trimsaw. The cuts resulted in the isolation of small samples with a thickness of about one millimeter. The samples were removed from the specimens and mounted with Lakeside Cement onto etched glass microslides.

The thickness of each sample was reduced by manual grinding with a slurry of #500 silicon carbide abrasive on plate glass. Grinding was completed in two steps. The first grinding was stopped when a sample's thickness was reduced by approximate one-half. This eliminated any microchips created by the saw blade during the cutting process. Slides were then reheated, which liquefied the Lakeside Cement, and the samples inverted. Newly exposed surfaces were then ground until proper thicknesses were attained.

Correct thin section thickness was determined by the "touch" technique. A finger was rubbed across the slide, onto the sample, and the difference (sample thickness) was "felt." The second technique used to arrive at proper thin section thickness is the "transparency" test where each microslide was held up to a strong source of light and the translucency of the samples was observed. A sample was reduced enough when it readily allowed the passage of light. A coverslip was affixed over each sample when grinding was completed. The completed microslides are curated at our hydration lab under File No. 98-H1745.

The hydration bands were measured with a strainfree 60 power objective and a Bausch and Lomb 12.5 power filar micrometer eyepiece on a Nikon petrographic microscope. Six measurements were taken at several locations along the edge of each thin section. The mean of each measurements was calculated and listed on the enclosed page with other pertinent information. The hydration measurements have a range of +/- 0.2 due to normal limitations of the equipment.

Many of the specimens were marked by weathered surfaces and diffuse hydration that was not possible to measure. Consequently, only 13 of the specimens yielded reliable hydration band measurements. However, successful specimens yielded measurements that were fairly consistent, with the exception of a couple items (2352-5 and 2351-21).

Please do not hesitate to contact me if you have questions regarding this hydration work.

Sincerely,

Thomas M. Origer, Director
Obsidian Laboratory

Enclosures: Data Table
Specimens

CA-MNO-2351 Submitter: J. Burton - Trans-Sierran Archaeological Research May 20, 1998

Lab#	Specimen#	Description	Unit	Level	Remarks	Measurements	Mean	Source
1	2351- 1	Debitage	Locus A	surface		6.9 7.0 7.0 7.0 7.0 7.1	7.0	
2	2351- 2	Debitage	Locus A	surface	weathered		DH	
3	2351- 3	Debitage	Locus A	SCU 10	weathered		DH	
4	2351- 4	Debitage	Locus A	SCU 4		6.6 6.6 6.6 6.6 6.6 6.7	6.6	
5	2351- 5	Debitage	Locus A	SCU 14	Band 1	1.0 1.0 1.1 1.1 1.1 1.1	1.1	
5	2351- 5	Debitage	Locus A	SCU 14	Band 2;w		DH	
6	2351- 6	Debitage	Locus B	SCU 2	weathered		DH	
7	2351- 7	Debitage	Locus B	SCU 4	weathered		DH	
8	2351- 8	Debitage	Locus B	SCU 6	weathered		DH	
9	2351- 9	Debitage	Locus B	surface		7.0 7.0 7.1 7.1 7.1 7.3	7.1	
10	2351-10	Biface Fragment	Locus B	surface	weathered		DH	
11	2351-11	RMP	Locus C	surface	weathered	4.4 4.4 4.4 4.4 4.5 4.7	4.5	
12	2351-12	Biface Fragment	Locus C	SCU 1	weathered	approximately 6.4	DH	
13	2351-13	Debitage	Locus C	SCU 1		5.1 5.1 5.2 5.3 5.3 5.3	5.2	
14	2351-14	Debitage	Locus C	SCU 1		6.1 6.1 6.2 6.2 6.2 6.4	6.2	
15	2351-15	Debitage	Locus C	SCU 1	weathered	6.3 6.3 6.4 6.4 6.5 6.5	6.4	
16	2351-16	Debitage	Locus C	SCU 1	weathered		DH	
17	2351-17	Debitage	Locus A U1	20-30		6.3 6.5 6.5 6.6 6.7 6.7	6.6	
18	2351-18	Debitage	Locus A U3	10-20		6.6 6.6 6.7 6.8 6.8 6.8	6.7	
19	2351-19	Debitage	Locus B U1	0-10		5.8 5.8 5.8 5.9 6.1 6.1	5.9	
20	2351-20	Debitage	Locus B U1	10-20			DH	
21	2351-21	Debitage	Locus B U3	10-20		1.1 1.1 1.1 1.1 1.1 1.2	1.1	
22	2351-22	Debitage	Locus B U3	0-10		6.4 6.5 6.6 6.6 6.6 6.6	6.6	

Lab Accession No.: 98-H1745 Technician: Thomas M. Origer

Appendix C

Archaeological Site Survey Record

TRANS-SIERRAN
ARCHAEOLOGICAL RESEARCH

Permanent Trinomial: CA-MNO-2508 update
Other Designations:

ARCHAEOLOGICAL SITE RECORD

1. **County:** Mono.
2. **USGS Quad:** Toms Place, California, 7.5 minute series, provisional edition 1984.
3. **UTM Coordinates:** Zone 11; 355,550 m Easting, 4,152,000 m Northing.
4. **National Grid Reference:** Township 4N, Range 25E, NW 1/4 of the NE 1/4 of the NW 1/4 of section 24, MDBM.
5. **Map Coordinates:** 550 mmS, 430 mmE (from NW corner of map).
6. **Elevation:** 6300 feet.
7. **Location:** From the intersection of Old Sherwin Grade Road and Swall Meadows Road go west approximately 0.7 mile to Wilson Road, take Wilson Road west 0.1 mile to Valley View Road, take Valley View Road south to Rimrock Drive. The site is located to the north and east.
8. **Site Type:** Prehistoric and historical artifact scatters.
9. **Site Description:** Three prehistoric loci (A-C) and one historical locus (D) within a widespread albeit sparse flake scatter. Obsidian hydration results suggest prehistoric use during the Little Lake period (3500 to 1200 B.C.). Historical artifacts post date 1900.
10. **Area:** 300 m north-south by 240 m east-west, 56,500 m^2.
    Method of Determination: Compass and tape.
11. **Depth:** Less than 30 cm within Loci A and B; Locus B unknown.
    Method of Determination: Eight 25 cm by 25 cm shovel tests.
12. **Features:** None apparent.
13. **Artifacts:** Locus A includes a mottled red and black obsidian preform fragment, numerous biface retouch and utilized flakes, and approximately 100 unmodified flakes (up to 2 per square meter). Locus B includes two bifacal tool fragments, numerous biface retouch and utilized flakes, and approximately 100 unmodified flakes (up to 3 per square meter). About 20 percent of the obsidian at Locus B is mottled red and black. Locus C includes two non-diagnostic projectile point fragments, numerous biface retouch and utilized flakes, and hundreds of unmodified flakes (up to 5 per square meter). Many of the flakes at this locus are fairly small (<1 cm). Locus D includes six condensed milk cans, three sanitary seal food cans, a hole-in-cap food can, a small lard bucket, coffee can fragments, a pocket tobacco can, ten white ware ceramic fragments, four pieces of amber glass, and a window glass fragment. The white ware ceramics include three fragments of a flow-blue plate and a plate base with a possible Austrian basemark.
14. **Non-Artifactual Constituents:** None noted.
15. **Date Recorded:** April 10, 1998.
16. **Recorded by:** Jeff Burton.
17. **Affiliation and Address:** Trans-Sierran Archaeological Research, 332 East Mabel Street, Tucson, Arizona 85705.

18. **Human Remains:** None noted.

19. **Site Integrity:** Fair to poor — there is a pump house within the site, paved and dirt roads and a powerline cross the site, in addition there is some minor rodent disturbance and erosion.

20. **Nearest Water:** an unnamed seasonal creek crosses the site.

21. **Vegetation Community:** Sagebrush scrub.

22. **Vegetation on Site:** Sagebrush, bitterbrush, rabbitbrush, and other forbs and grasses. There are pinyon pine to northeast and a large Jeffrey pine north of Locus C.

23. **Site Soil:** Silty sand with abundant gravels.

24. **Surrounding Soil:** Same.

25. **Geology:** Granite and tuff boulders and cobbles throughout site vicinity.

26. **Landform:** Hillside.

27. **Slope and Aspect:** 0-10°, south.

28. **Exposure:** Open.

29. **Landowner and Address:** Private land owned by John Wilson, Swall Meadows (760-387-2421) and State land administered by the California Department of Fish and Game.

30. **Remarks:** The site datum is misplotted 100 m north in the original site record (Burton 1990).

31. **References:**

Burton. Jeffery F.

1990 An Archaeological Survey of the Contel Mammoth to Bishop Fiber Optics Line, Mono and Inyo County, California. Report on file, Inyo National Forest, Bishop, California.

1996 Cultural Resources of the Proposed Rimrock Ranch Subdivision, Mono County, California. Report on file, Mono County Planning Department, Bridgeport, California.

32. **Name of Project:** Rimrock Ranch Subdivision.

33. **Type of Investigation:** Archaeological survey.

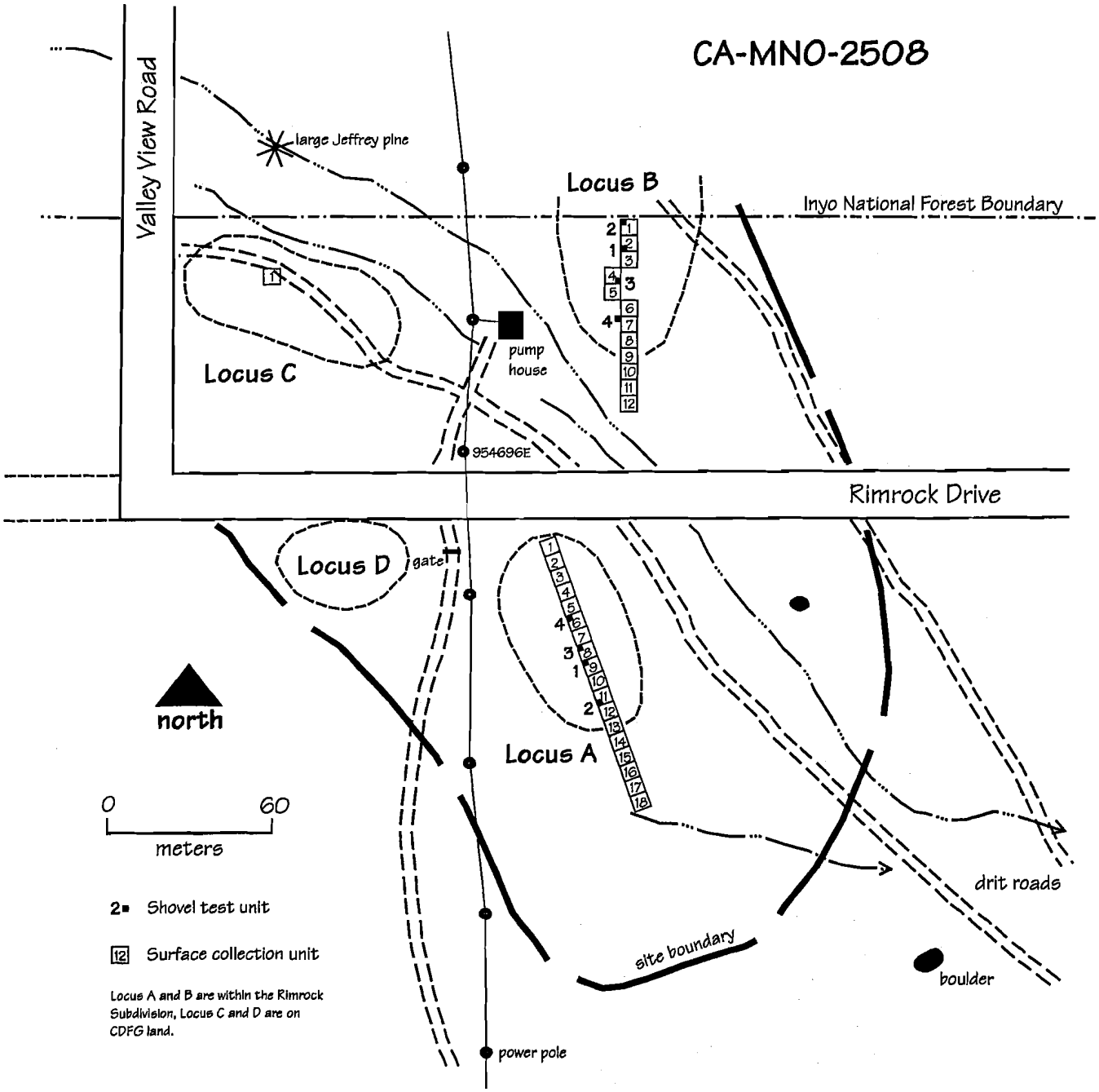
34. **Artifacts Curated at:** N/A.
Accession No: N/A.

35. **Photographs:** 35mm color slides.
Taken by: Jeff Burton.
Negatives at: Trans-Sierran Archaeological Research, 332 E. Mabel Street, Tucson, Arizona 85705.

TRANS-SIERRAN
ARCHAEOLOGICAL RESEARCH

Permanent Trinomial: CA-MNO-2508 update
Other Designations:

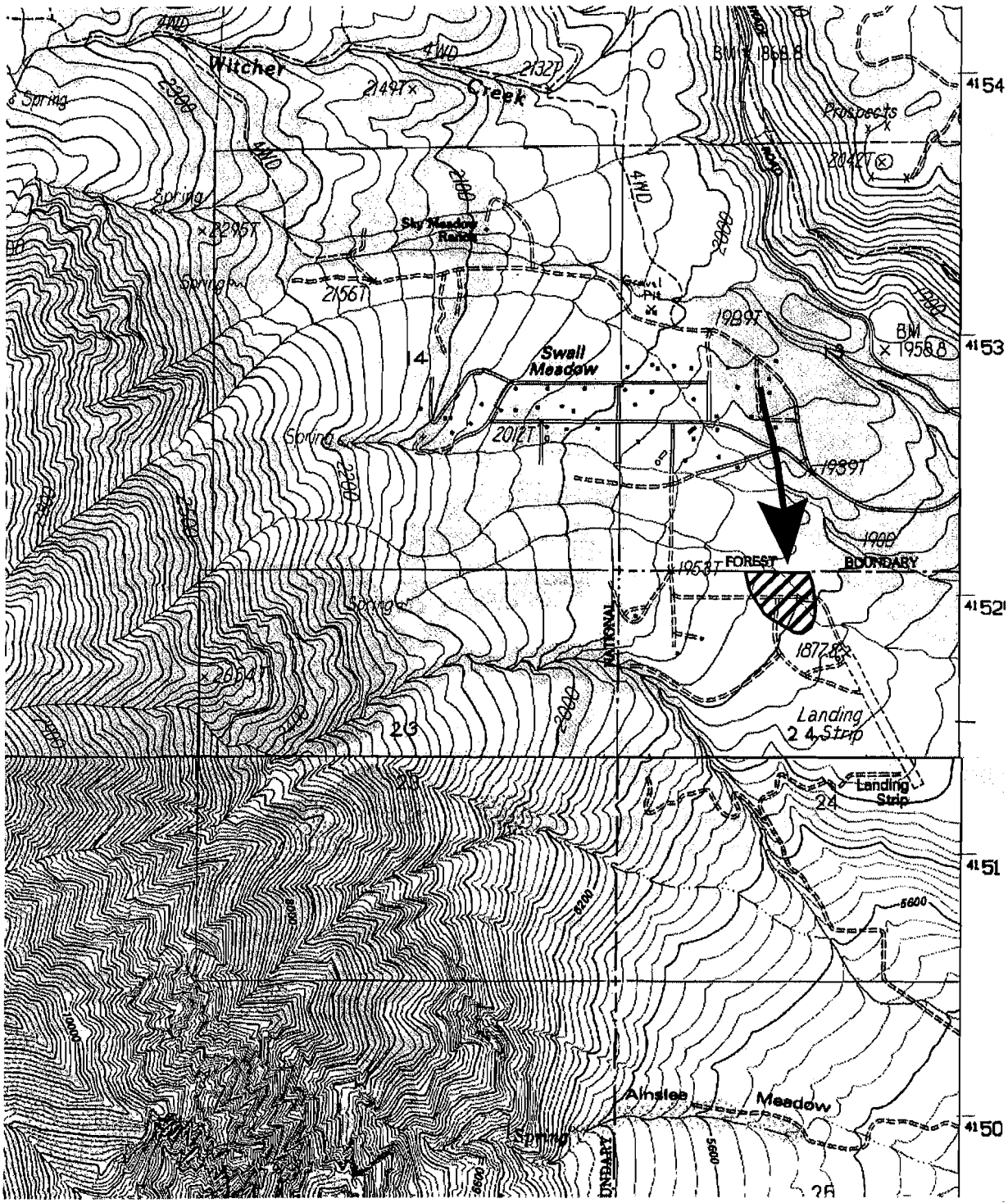
ARCHAEOLOGICAL SITE MAP



TRANS-SIERRAN
ARCHAEOLOGICAL RESEARCH

Permanent Trinomial: CA-MNO-2508 update
Other Designations:

SITE LOCATION MAP



Adapted from USGS maps: Mt. Morgan and Toms Place, California, 7.5 minute series, provisional editions 1984.

RIMROCK RANCH SPECIFIC PLAN

DEER STUDY

FINAL REPORT

MARCH 1993

Prepared for:

Mono County Planning Department
HCR 79 Box 221
Mammoth Lakes, CA 93546

Prepared by:

Timothy Taylor
Consulting Biologist
P.O. Box 191
June Lake, CA 93529

TABLE OF CONTENTS

I. INTRODUCTION

A proposal has been made to develop 65 units of residential housing on 329 acres of Rocky Mountain mule deer (Odocoileus hemionus) winter and transition range in southwestern Mono County, California. The proposed project has created concerns among local wildlife managers with respect to potential deleterious impacts on mule deer which use the project area and vicinity. In response to recognized concerns and in order to initiate the environmental review process pursuant to the California Environmental Quality Act (CEQA), the Mono County Planning Department (MCPD) contracted the present investigator to allow an assessment of the importance of the area to mule deer.

Deer which use the project vicinity are from the Sherwin Grade and Buttermilk deer herds which winter in Round Valley some 15 km west of the town of Bishop, Inyo and Mono counties, California (Kucera 1988) (Figure 1). An intensive ecological investigation of the Sherwin Grade and Buttermilk deer herds, now collectively known as the Round Valley deer herd, was conducted from 1984-1987 (Kucera 1988). From this investigation it was determined that during the spring migration, approximately 74% of the Round Valley herd moves north through the project vicinity while on its way to spring range located near Mammoth Lakes, California.

The Round Valley deer herd has experienced a dramatic population decline since the mid 1980's, exceeding 80%. This decline, which has been a major concern to local resource agencies over recent years, is attributed primarily to poor forage conditions on the Round Valley

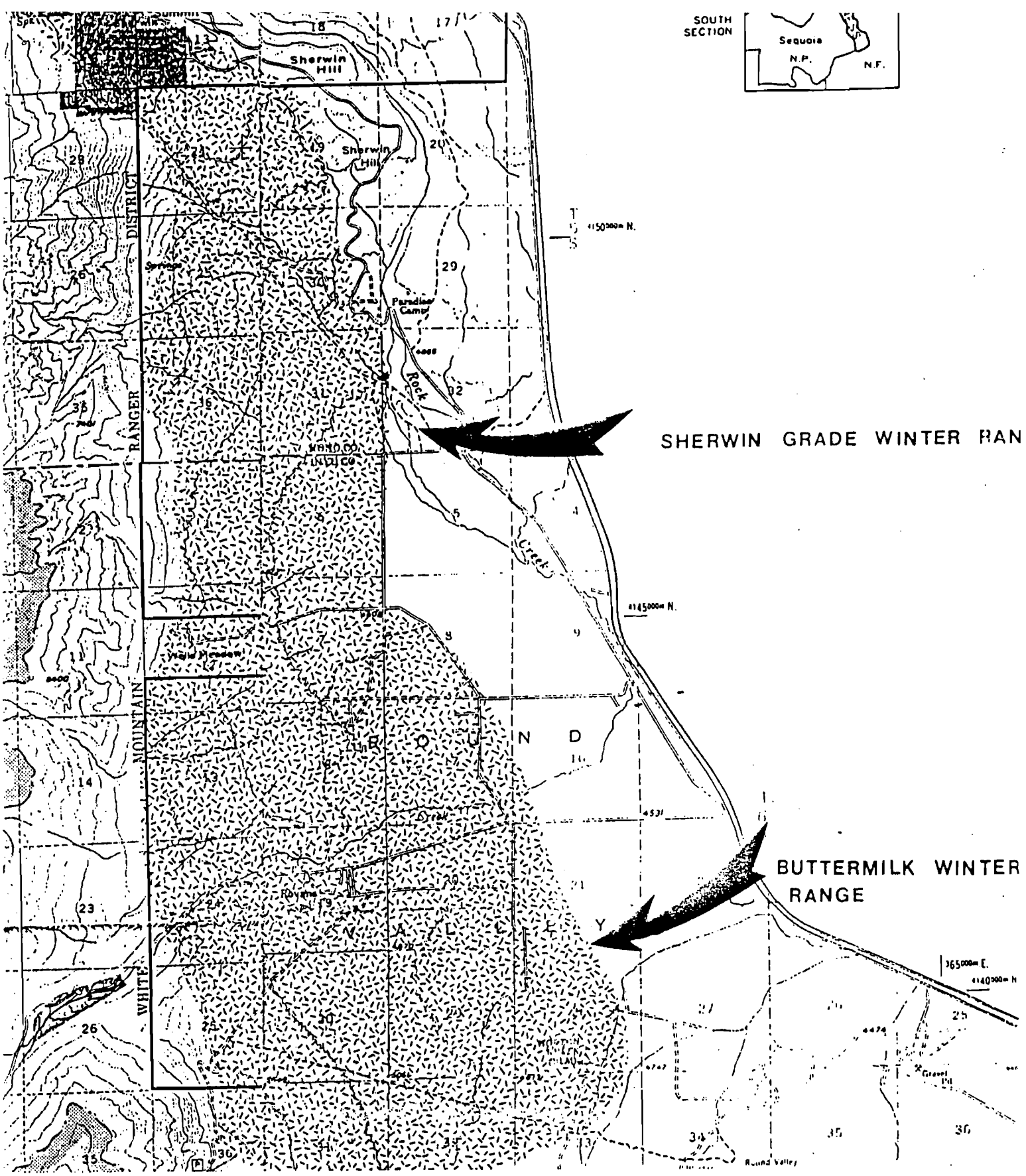


Figure 1. Location of the Round Valley deer herd winter range near Rovana, California.

winter range which has resulted in decreased fawn production and survival (Kucera 1988). A prolonged drought and its effect on plant growth are likely causative agents of these poor habitat conditions. Additionally, intensive livestock grazing, plant succession, predation, road kills, and the cumulative effects of development on critical ranges, may have also adversely influenced deer numbers.

The objectives of the present investigation are to: 1) determine the relative amount, timing and specific locations of deer use within the Rimrock Ranch Specific Plan area and the immediately surrounding vicinity during the spring and fall migrations of 1992 and the winter of 1992-93; 2) determine how deer use is distributed adjacent to homesites located throughout the surrounding area; 3) evaluate potential significant impacts to migratory mule deer which may result from the proposed project, and 4) develop a mitigation plan necessary to avoid or mitigate potential impacts associated with the proposed project.

The goal of the present study is to provide the project proponent with site-specific information that meets the needs of public resource management and planning agencies with respect to baseline conditions of the area. The information in this report will be incorporated into a Specific Plan prepared by the Mono County Planning Department.

II. ACKNOWLEDGMENTS

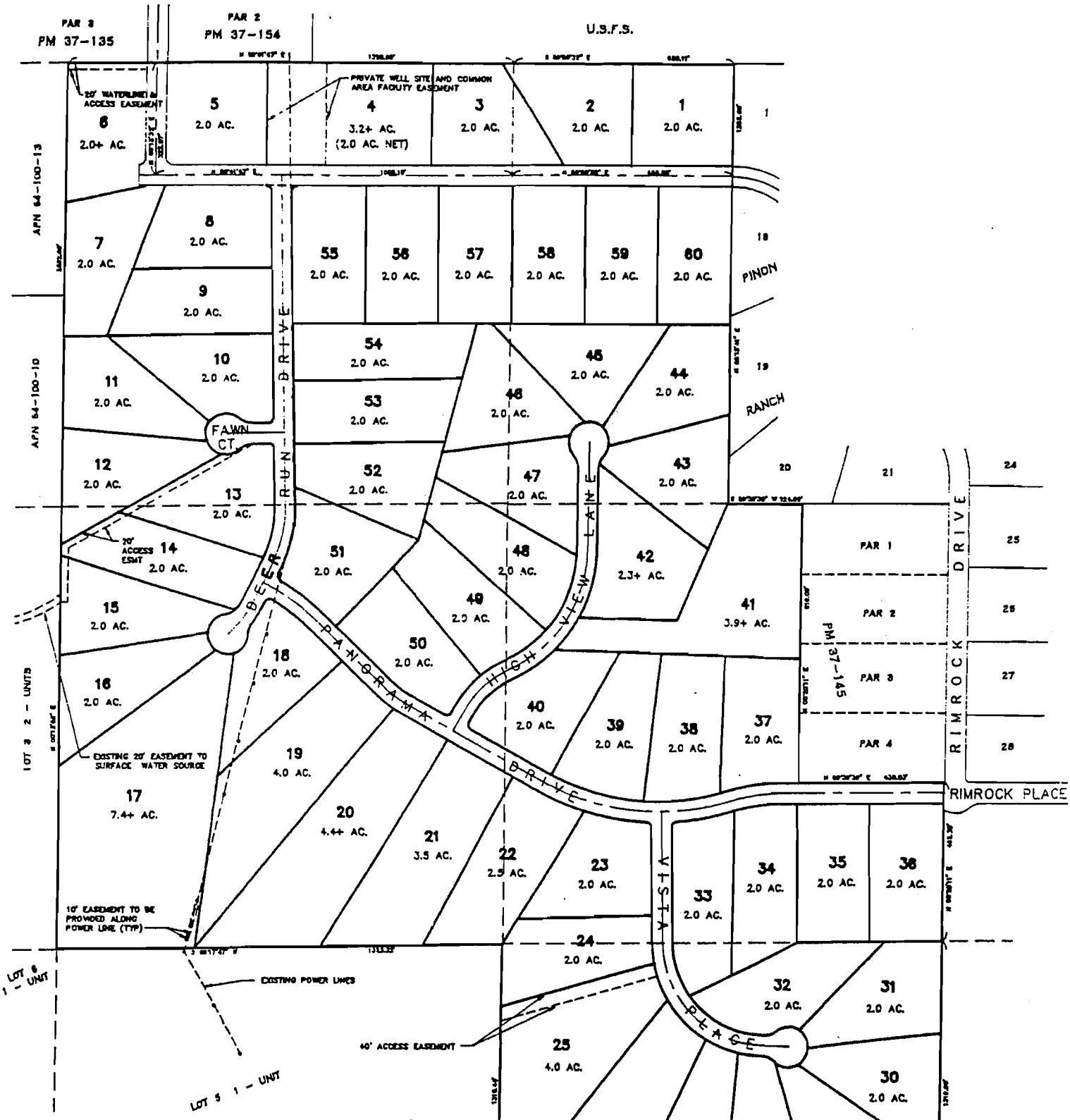
This investigation was conducted under a contract with the Mono County Planning Department, the lead agency for this project. Some of

the data presented here is from a dissertation study of the Sherwin Grade and Buttermilk herds which was conducted from January 1984-December 1987 (Kucera 1988). The information presented in this report is to be used entirely for the purpose of assessing the environmental effects of the proposed project, and are not for publication, citation or other use without permission of the author.

III. STUDY AREA

The RRSP area, hereafter designated the project area, is located on 329 acres in Section 24 of T. 5 S., R. 24 E., in the Wheeler Crest area of southwestern Mono County, California (Figure 2). It is situated approximately 24 km north of Bishop and 3 km west of State Route 395 at the base of the Sierra escarpment at elevations ranging from 5,425 to 6,350 feet. The project area is bounded by U.S. Forest Service land to the north and west and Los Angeles Department of Water and Power (LADWP) land to the south and east.

A total of 60 units of residential housing are proposed for clustering on 167.5 acres (1 unit/2.80 acres) in the north and eastern half of the project area in lots 1, 4, 14, 64-100-05, and POR.64-090-18 (Figure 2). The remaining 161 acres in lots 3, 6, 13 and 15 are designated for a total of 5 units or 1 unit per 32.28 acres. Topography on the area is quite variable ranging from generally flat on lots 1, 4, 64-100-05 and POR.64-090-18 to rather steep and rocky on portions of lots 3, 5, 6 and 14. Perennial water occurs in a major drainage which bisects lots 3 and 5 in a southeasterly direction. Two



RIMROCK RANCH SPECIFIC PLAN

GROSS AREA	167.5± ACRES •
AREA IN STREETS	10.5± ACRES
NET AREA	157.0± ACRES
NO. OF LOTS	60
AVG. LOT SIZE	2.6+ ACRES
MIN. LOT SIZE	2.0 ACRES

N

SCALE: 1" = 400'

Figure 2

• DEVELOPMENT PARCELS ONLY, NOT INCLUDING 181.4± AC. IN ADJACENT VERY LOW DENSITY AREAS. SEE DENSITY

intermittent water courses flow in an easterly direction through lot 1 and lot 64-100-05.

With the exception of lots 3 and 6 that were burned in the early 1980's and are now covered by non-native annual grassland, the project area is covered by an uneven stand of Great Basin Sagebrush Scrub (Munz and Keck 1965). This was a generally dense (35-55% ground cover) scrub dominated by antelope bitterbrush (Purshia tridentata), big sagebrush (Artemisia tridentata), rabbitbrush (Chrysothamnus nauseosus, C. viscidiflorus), desert peach (Prunus andersoni), horsebush (Tetradymia sp.), Ceanothus greggii and Morman tea (Ephedra nevadensis). The most common of the scattered herbs include Indian ricegrass (Oryzopsis hymenoides), squirreltail (Sitanion sp.), bromegrass (Bromus sp.), needle grass (Stipa sp.), ryegrass (Elymus sp.), and mule ears (Wyethis mollis).

Montane Riparian Forest habitat occurs in "stringers" along one perennial and two intermittent water courses. The riparian stringer bordering the major drainage which flows downhill through lots 3 and 5 is dominated by a dense (20-50 feet wide), multi-layered growth of trees, shrubs and herbs. This stringer provides foraging grounds, and nesting, hiding and thermal cover for a variety of wildlife species. Blue grouse (Dendragapus obscurus), mountain quail (Oreortyx pictus), valley quail (Callipepla californica), chukar (Alectoris chukar), morning dove (Zenadia macroura), yellow-bellied sapsucker (Saphyrapicus varius), Stellar's Jay (Cyanocitta stelleri), coyote (Canis latrans), desert cottontail rabbit (Sylvilagus audubonii),

black-tailed jackrabbit (Lepus californicus), California ground squirrel (Spermophilus beecheyi), and golden-mantled ground squirrel (S. lateralis), and a number of other small mammals and birds were all observed to use this stringer. This stringer and the two smaller stringers occurring on lots 1 and 05 also provide movement corridors for local wildlife, allowing species such as mule deer, coyote, mountain lion, California quail and chukar to move up and down the slope of the project area.

IV. METHODS

Mule deer use of the project area and vicinity was determined from a radio-telemetry study of the Sherwin Grade and Buttermilk deer herds conducted from January 1984-November 1987 (Kucera 1988), fecal pellet-group counts and ground surveys conducted during the spring migration period of 1992, and track counts and ground surveys conducted during the fall and winter of 1992-93.

A. SPRING 1992

1) Fecal Pellet-group Counts

Deer use was measured by recording fecal pellet-groups on temporary milacre (1/1000 acre) circular pellet-group plots distributed at 50 pace (130 foot) intervals along transects. A total of 29 transects were systematically spaced at 250 foot intervals between the upper north end and the lower south end of the project area. Transects ranged in length from approximately 1,040 to 3,000

feet and contained anywhere from 8 to 22 plots. In all, a total of 459 plots were established on the project area. Milacre plots were read between 21 May and 11 June 1992 and represent deer use during the preceding fall, winter and spring, a period extending from roughly 15 October 1991-15 May 1992.

Pellet-groups were defined as $\geq$ 10 pellets within 3.0 in. (8.0 cm) radius of each other. Pellet-groups lying on the boarder of the circle were counted as being inside the plot if 10 pellets lay within the circle. Pellet-groups from previous years were distinguished by deterioration and were not counted.

The following assumptions where made when using pellet-group counts as an index to animal abundance:

1. That deer have a constant average rate of pellet-group deposition at 12.7 groups per deer per day (McCain 1948).
2. That the time period of the census is well defined, and pellets deposited from 15 October 1991-15 May 1992, are distinguishable from those groups deposited before that time.
3. That all groups are identified as such and no groups are missed.
4. That the plot size used is an efficient sampling unit.
5. That pellet-groups are deposited by deer at random in the area (Neff 1968).

Data from pellet-group counts were entered into a computer file on an IBM XT personal computer, an analyzed using ABSTAT statistical software. Procedures used were principally descriptive statistics and regression analysis. Because the approximate date at

which pellet-groups were deposited was known, along with the number of pellet-groups per deer per day, the size of the sample, and the total size of the area from which samples were taken, a mean and standard error (SE) of pellet-groups per plot was converted to a mean and SE of the number of deer-days use of the area during the 1991-92 fall, winter and spring migration period. A t-test was used to test the null hypothesis that mean pellet-group density on each lot and each transect was equal to the overall observed mean pellet-groups per plot.

In developed portions of the Pinion Ranch area, relative seasonal deer use adjacent to homesites was measured by recording fecal pellet groups on temporary milacre (1/1000 acre) circular pellet-group plots established on transects located at right angles to houses (Smith and Conner 1989). Milacre plots were located at 25 yard intervals along transects that were 250 yards in length. Transects were established at six different homesites located adjacent to the Rimrock Ranch Specific Plan area. A total of 20 transects, 4 per house, and 197 plots were established. Pellet-group counts were conducted on 12 June and 7 July 1992.

A t-test was used to test the null hypothesis that the distance class means (e.g., 25 yards, 50 yards, etc.) were equal to the observed mean pellet-groups per plot.

2) Vegetative Surveys

Measurements of ground cover on the project area was assessed by 100 step-points (Evans and Love 1957) taken along transects located in

each parcel. Direction of travel was determined by flipping a coin twice; the starting point was determined using a random numbers table and a grid. The distance between step-points was four paces (approximately 13 feet). Biases from foot placement were avoided by having the sampler keep his eyes on the horizon, not looking down until his foot was placed on the area to be sampled. At each point along the transect, the plant species "hit" was recorded. The number of "hits" on bare ground, plants, rock, etc., multiplied by 100 provided the percent bare ground, percent cover, respectively. All plant species encountered were classified according to Munz and Keck (1965).

In order to determine the density or number of individual ☺Purshia plants per acre on the project area, 10 0.1 acre circular plots (radius 37.2 feet) were randomly located within bitterbrush stands. Within each 0.1 acre plot, a complete or exact count of all ☺Purshia plants was conducted.

B. WINTER 1992-93

1) Track Count Surveys

Track count surveys were conducted to determine the timing and specific locations of deer use within the project area during the fall and winter of 1992-93. Track count surveys were conducted once a week from 23 October-27 December. Two attempts were made to survey the area on foot in January, but heavy snows precluded access to most of the project area. Therefore, January surveys were conducted on foot

in the most accessible areas and from a slow moving vehicle along Rimrock Drive and Rimrock Place.

A track count survey route, divided into 10 segments recognizable by flagged local landmarks, was established on dirt roads located within the project area (Figure 3). On the evening before a track count survey, the road surface of the survey route was prepared for counting by grading with a drag made from a six foot section of chain link fence. Dragging erased old tracks so that new tracks were visible. Dragging was not conducted during periods when snow was on the ground because snow precluded vehicle access.

Track count surveys were conducted between 2:00 p.m. and 5:00 p.m. the day following dragging. The route was surveyed on foot and the number and direction of all tracks observed was recorded. The location of tracks was identified by recording all tracks observed in the 10 segments established along the survey route.

The direction of travel was recorded as north, south, east, or west. A track headed down the road was followed until it turned off the road and the direction where it turned was recorded as its direction of travel.

2) Ground Surveys

Ground surveys of the entire Project Area were conducted during the course of regular field work in order to identify and map any particular important travel routes or feeding or resting areas. Deer trails were defined as distinct paths in the ground caused by repeated

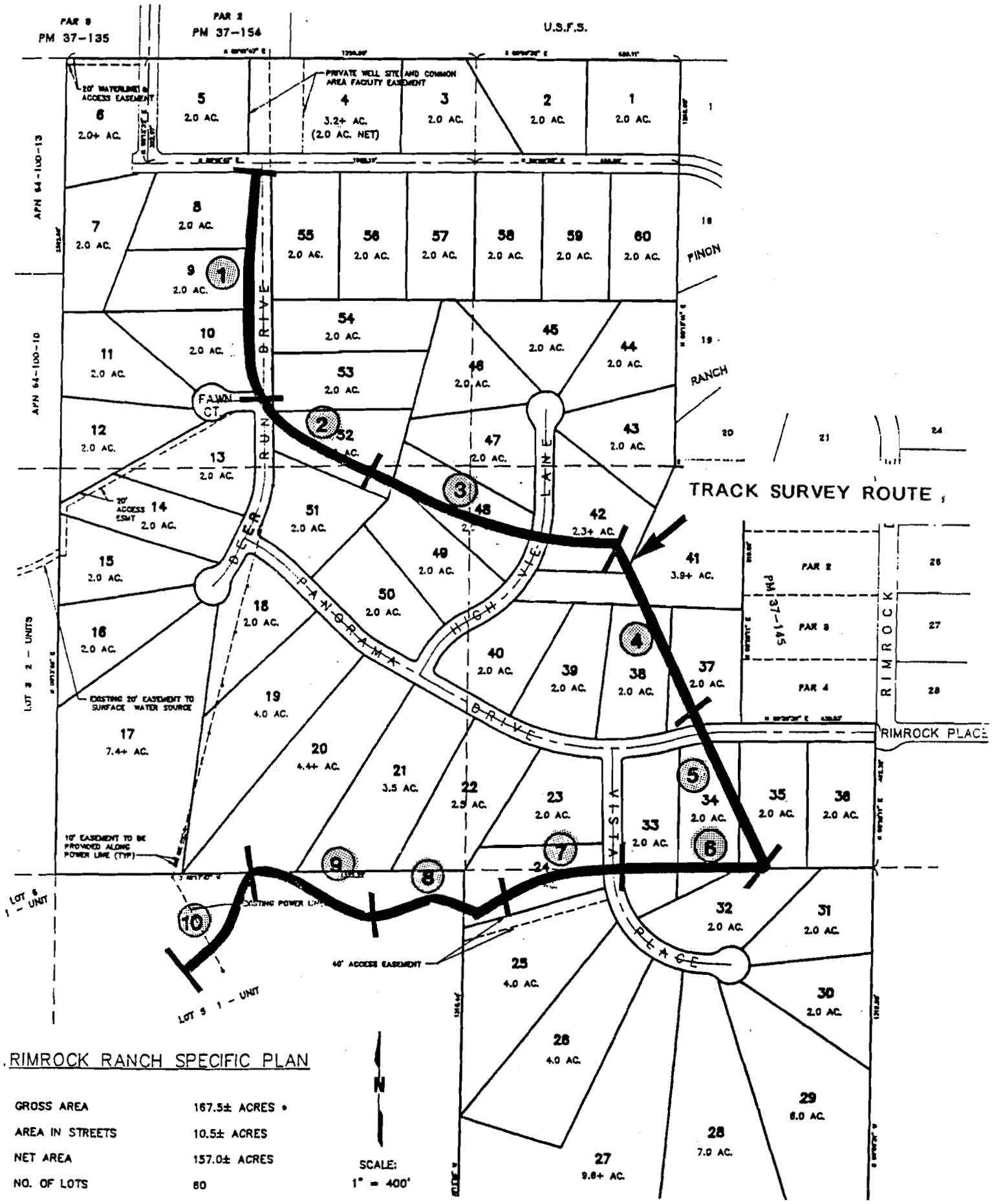


Figure 3. Location of the track count survey route in the Rimrock Ranch Specific Plan project area.

deer use. Sets of tracks apart from trails were not mapped.

3) Weather Data

Weather data for the winter of 1992-93 was recorded at the U.S. Forest Service Ranger Station in Mammoth Lakes, elevation 7,800 feet.

V. RESULTS

A. Herd Characteristics and Management

1) Seasonal Movements

The annual life-cycle of deer from the Sherwin Grade and Buttermilk herds consists of four periods: spring migration, summer, fall migration, and winter. Deer begin leaving the Round Valley winter range in early April and this migration continues through May (Kucera 1988). According to Kucera (1988), approximately 75% of deer wintering in Round Valley migrated north toward the Mammoth Lakes area along the base of the eastern escarpment of the Sierra Nevada mountains. Terrain in this corridor is steep to moderately sloping and vegetation is dominated by Sagebrush Scrub and Pinyon-Juniper Woodland (Munz and Keck 1959). Elevations range from 2,000-2,500 m.

From early April-late May, deer delayed spring migration on holding areas located at elevations ranging from 2,100-2,400 m (Kucera 1988). Holding areas are bulbous expansions of the migration corridor where deer congregate for 2-6 weeks during the spring and fall migrations (Bertram and Remple 1977). These areas are typical of

migratory mule deer (Leopold et al. 1951, Russel 1932) and are recognized for their importance in providing nutritional spring forage for does in their third trimester of pregnancy (Bertram and Remple 1977, Bertram 1984, Loft et al. 1984, Kucera 1988). When deer increase their intake of easily and quickly digested types of forage, metabolites are readily absorbed and the net energy available to deer is greatly increased (Short 1981). As a result, deer are able to reverse the negative energy balance acquired over the winter and improve their overall physiological condition (Garrott et al. 1987).

Of 32 deer captured on the Round Valley winter range during the Kucera (1988) study, 28 (87.5%) crossed the Sierra crest and summered on the west side. The summer range used by these deer encompasses an area of about 2,500 sq. km, extending from the headwaters of the middle fork of the San Joaquin River south throughout the upper San Joaquin drainage into the north and middle forks of the Kings River (Kucera 1988).

Deer arrive on the summer range in May and June, produce fawns in July, and begin fall migration back to the winter range in October. Fall migration is more rapid than that of spring and is usually triggered by the first heavy, fall snow storm. Deer arrive on the winter range in November and December, breed in December and January, and begin the annual life-cycle again.

2) Herd Management Problems and Goals

The Sherwin Grade and Buttermilk deer herds have experienced extremely poor recruitment rates over recent years. This has been attributed to inadequate fawn production, poor fawn survival during the summer, and heavy over-winter fawn mortality. Since 1985, the number of deer wintering in the Round Valley population has declined dramatically, from 5,877 head in 1985 to 939 head in 1991. The number of deer counted on the Round Valley winter range in 1992 and 1993 was 1,200 and 1,300, respectively (Ron Thomas, CDGF, pers. comm.). Population recruitment, as indicated by spring fawn:doe ratios, is also low averaging 15 fawns per 100 does (range 12-19 fawns per 100 does). Post-season buck to doe ratios have fluctuated between 7-12 bucks per 100 does (DFG Files).

The dramatic population decline experienced by the Round Valley deer herd is primarily attributed to poor herd nutrition, the result of deteriorating vegetative conditions on the Round Valley winter range. Prolonged drought and its effect on plant growth are likely factors contributing to these poor habitat conditions (Kucera 1988). In addition, increased human intrusion (e.g., OHV's, development, recreational activities, etc.) on winter, spring and fall ranges, intensive livestock grazing, plant succession, increased predation, and highway kills may also adversely effect deer productivity. These factors are either physically detrimental to deer habitat or decrease the use of potentially productive deer habitat (CDFG 1986a).

The primary management goals of CDFG for the Round Valley herd as

outlined in the Sherwin Grade and Buttermilk Deer Herd Management Plans (CDFG 1986a, 1986b) are: 1) to maintain deer population levels in Round Valley 5,500 head, 2) to achieve recruitment rates of 50 fawns/100 does in the Sherwin Grade herd segment and 45:100 in the Buttermilk herd segment; 3) to increase buck ratios to 20 bucks/100 does; and 4) to increase consumptive and non-consumptive (viewing opportunity) uses of deer. Habitat management goals required for restoration include: 1) improve existing habitat conditions and reduce competition with livestock and human disturbance on critical ranges; and 2) improve existing winter range through acquisition, BLM land exchanges, conservation easement or other means of protecting key winter range in order to restore deer number to 5,500 animals.

B. SPRING 1992

1) Fecal Pellet-group Counts

Rimrock Ranch Specific Plan Area--Appendix Table 1 presents calculated means and standard errors of pellet-group data by transect. The total number of pellet-groups recorded on the 459 milacre plots was 98, or an average 0.2135 pellet-groups/plot (98/459). The estimated number of deer-days use of the 337 acre project area was 5,665 ± 10.7% (70% CI), assuming 12.7 pellet-groups/deer/day and an estimated 200 days of deer occupancy on the project area (15 October 1991-15 May 1992). A deer-day is defined as the amount of use of an area by the average deer during the course of one 24-hour period (Dasmann 1981).

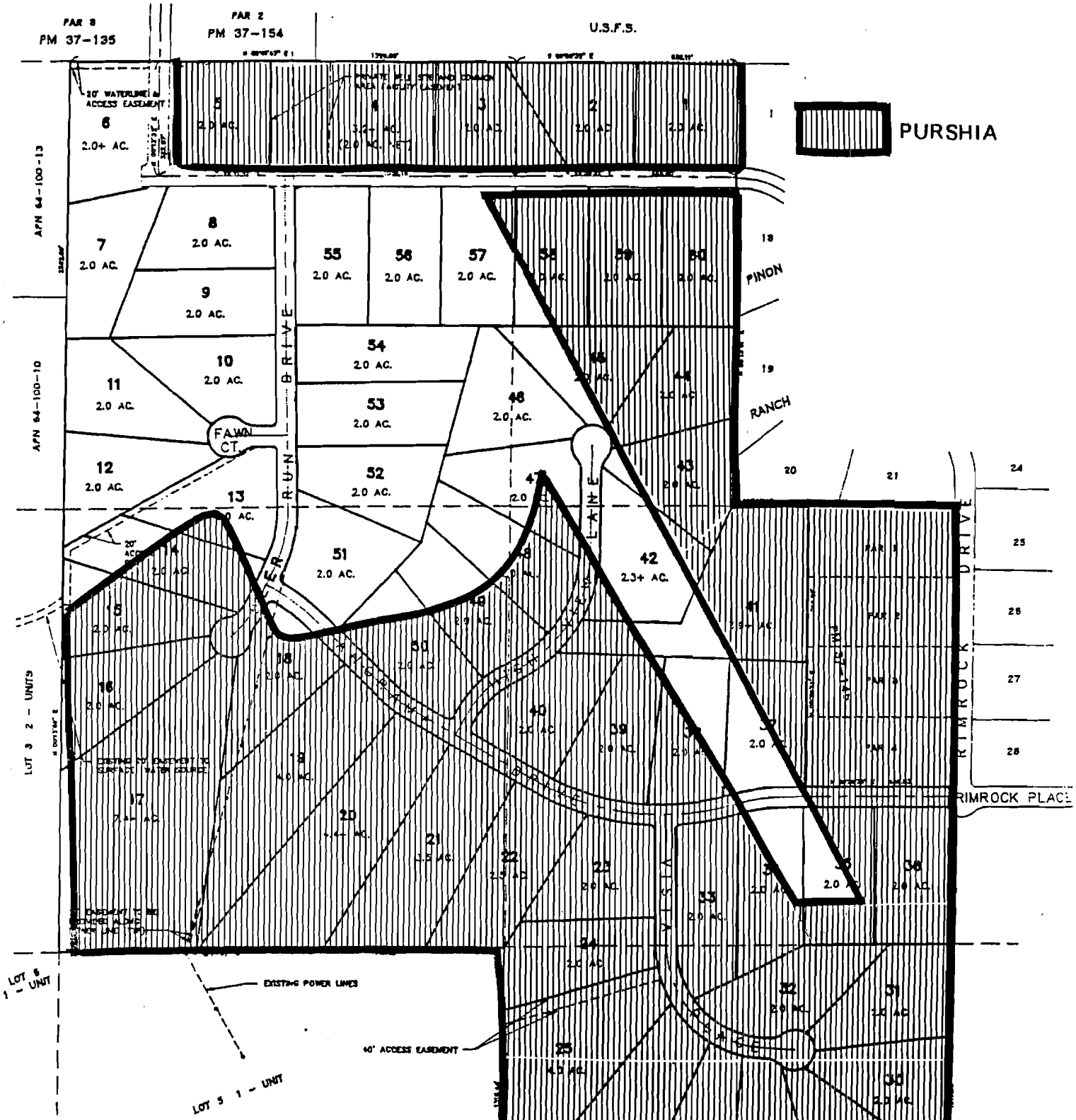
The 5,665 deer-days of use can actually result from 26.5 deer on the project area for 214 days each (5,665/214), or 100 deer for 56.7 days each, or 900 deer (74% of the 1992 Round Valley herd population) for 6.3 days each. It cannot be determined how many deer between these extremes were actually involved. According to CDFG (1986a) and reports from local long-time residents, deer remain within the project vicinity during the entire wintering period. In addition, an estimated 74% of deer wintering in Round Valley migrate through the project vicinity during annual spring and fall migrations (Kucera 1988). Thus, I would guess that at least several hundred deer are involved.

There was a considerable variation in the mean number of pellet-groups/plot recorded on individual lots (Appendix Table 2). Pellet-group density ranged from 22 percent of the overall mean groups/plot on lot 3 to 170 percent on lots 4 and 18. On lots 1, 3 and 6, pellet-group density was significantly below the overall mean pellet-groups/plot ($P < 0.05$) at 22%, 42% and 60%, respectively. Pellet-group density on lots 4, 18 and 13 was significantly higher ($P < 0.05$) than the overall mean groups/plot at 170%, 170%, and 151%, respectively.

There was a relatively strong, positive correlation between the percent Purshia coverage on individual lots and pellet-group density ($R = 0.87$, $p < 0.001$) (Appendix Figure 1). Pellet-group density was significantly higher ($P < 0.05$) than the overall mean groups/plot on those lots with $\geq$ 9% Purshia coverage (Appendix Table 2). Conversely,

lots 1, 3 and 6 with ≤ 2% Purshia coverage had mean pellet-group densities significantly below the overall mean groups/plot. These lots, dominated by rabbitbrush (Chrysothamnus sp.) and grasses and herbs, were burned in the early 1980's (John Wilson, pers. comm.) and were no doubt dominated by Great Basin sagebrush scrub prior to the burn; many stumps of shrubs are still present on the site (Appendix Table 3). A map of vegetation on the RRSP area is provided in Figure 4. The most common plant species on lots 1, 3 and 6 were Chrysothamnus nauseosus, C. viscidiflorus, Prunus andersonii, Stipa comata, Stipa, Sitanion hystrix, Oryzopsis hymenoides, Bromus tectorum, and Eriogonum (Appendix Table 3).

Lots 4, 5, 13, 14 and POR.64-100-05 and 64-090-18 were not burned and therefore, were dominated by Great Basin sagebrush scrub vegetation. The total vegetative cover on these unburned lots ranged from approximately 38%-51% (Appendix Table 2). The mean number of Purshia plants per acre on the project area, determined from 10 randomly distributed 0.1 acre plots, was 323 plants/acre (range 90-600 plants/acre). Other shrubs included big sagebrush (Artemisia tridentata), Ceanothus greggii, Prunus andersonii, spineless horsebrush (Tetradymia canescens), Chrysothamnus nauseosus, C. viscidiflorus, Morman tea (Ephedra nevadensis) and Prunus andersonii. Common associates in the understory included Stipa, Sitanion hystrix, Oryzopsis hymenoides, Bromus tectorum, Bromus, Eriogonum, Elymus, Poa pratensis, Poa and Phlox.



RIMROCK RANCH SPECIFIC PLAN

GROSS AREA	167.5± ACRES *
AREA IN STREETS	10.5± ACRES
NET AREA	157.0± ACRES
NO. OF LOTS	60
AVG. LOT SIZE	2.6+ ACRES
MIN. LOT SIZE	2.0 ACRES

Figure 4

Pinyon Ranch Development--There was little variation in the number of pellet-groups observed at each distance class (Appendix Table 4). Overall pellet-group density adjacent to houses averaged 0.198 pellet-groups per plot. There was no significant difference ($P > 0.05$) in the overall mean pellet-groups per plot at any of the 10 distance class means. Deer use ranged from 25-150% of overall mean use for the 10 distance classes.

C. WINTER 1992-93

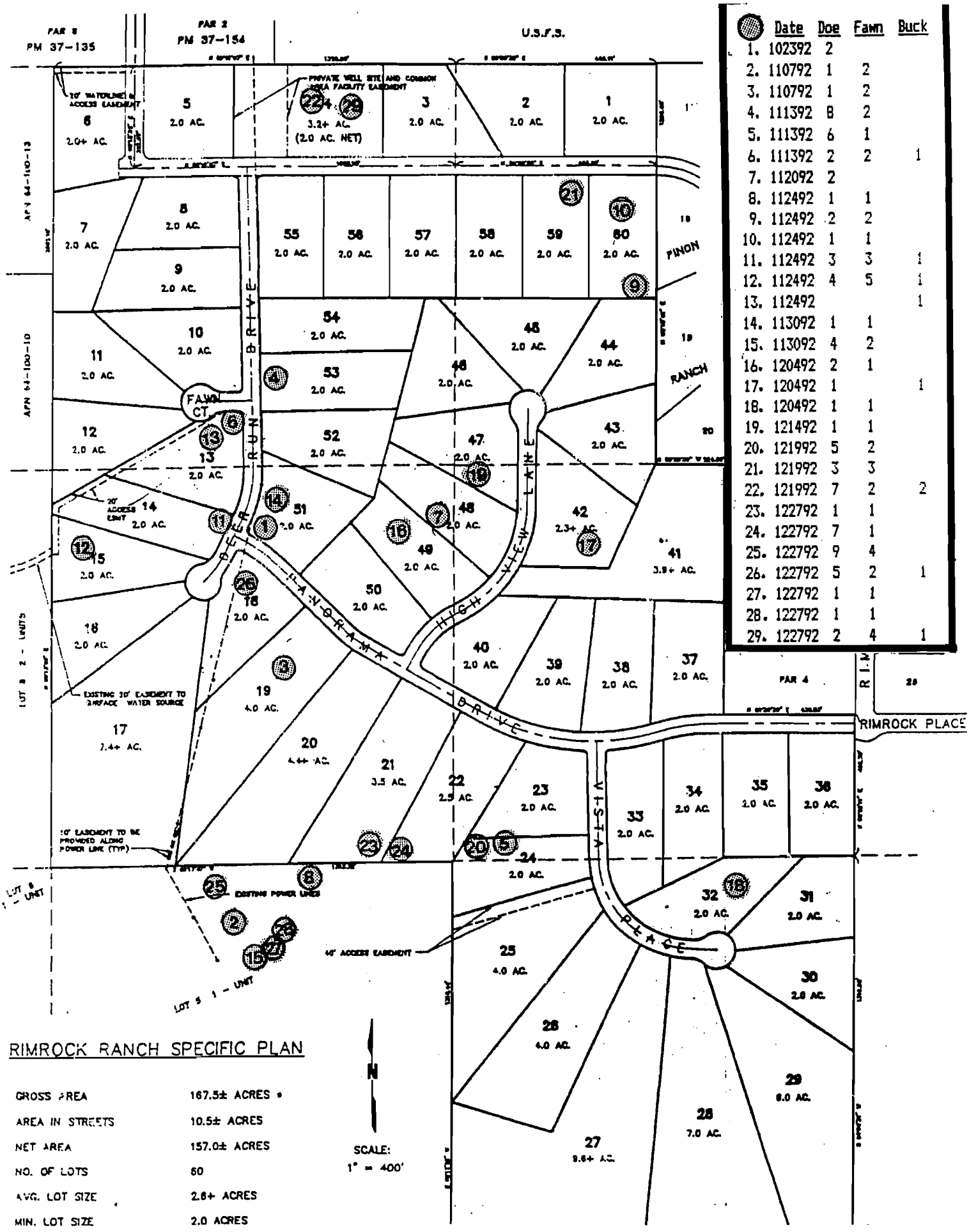
1) Track Count Surveys

Timing and Intensity of Deer Activity--In order to determine the timing and specific locations of deer movements, track count surveys were conducted between 23 October and 14 January. A total of 14 surveys were performed during this 74 day survey period (Appendix Table 5). Precipitation during the survey period ranged from below normal in October and November to well above normal in December and January. A total of 4.0 inches of snowfall was recorded at Mammoth Lakes (7,800 ft elevation) during October; November snowfall was <0.1 inch. Minimum temperatures averaged 26 F in October and 13 F in November. During December and January, 56 inches and 99.5 inches of snow, respectively, was recorded at Mammoth Lakes. Minimum temperatures averaged 2.6 F in December and 7.1 F in January. Snow depths on the project area ranged from a few inches in early December to >2 feet from mid-December-January. Deer had already arrived in the project area prior to the first track survey conducted on 23 October

(Appendix Table 5). It is unlikely that these animals migrated in response to snowfall because less than 0.1 inch of precipitation had fallen by October 27 and the first snow at Mammoth Lakes was not recorded until 29 October. During the first half of the survey period (23 October-30 November) deer numbers fluctuated weekly as animals gradually moved through the project area on their way to the Round Valley winter range. Track counts determined that migration through the project area peaked between 31 October and 13 November (Appendix Table 5). Deer activity between 20 and 30 November remained relatively constant and likely reflects use by resident animals.

Deer use of the project area during the second half of the survey period (4 December-14 January) fluctuated in relation to snow depths. A total of 26 inches of snow was recorded at Mammoth Lakes between 3 and 12 December. During this time deer numbers gradually diminished as increasing snow depths and decreasing temperatures progressively forced deer to lower elevations (Appendix Table 5). Only 9 deer were observed in the project area between 4 and 14 December (Figure 5) and these animals were in areas covered with no more than about 18 inches of snow. On an adult mule deer, the hock is 17-18 inches high, the belly about 22 inches, and the shoulder 36 inches high (Taylor, Unpubl.).

Deer use of the project area increased during late December. During a survey conducted on 19 December a total of 58 track sets and 24 deer were observed and on 27 December, 184 track sets and 42 deer were recorded (Appendix Table 5, Figure 5). Weather during this



	Date	Doe	Fawn	Buck
1.	102392	2		
2.	110792	1	2	
3.	110792	1	2	
4.	111392	8	2	
5.	111392	6	1	
6.	111392	2	2	1
7.	112092	2		
8.	112492	1	1	
9.	112492	2	2	
10.	112492	1	1	
11.	112492	3	3	1
12.	112492	4	5	1
13.	112492			1
14.	113092	1	1	
15.	113092	4	2	
16.	120492	2	1	
17.	120492	1		1
18.	120492	1	1	
19.	121492	1	1	
20.	121992	5	2	
21.	121992	3	3	
22.	121992	7	2	2
23.	122792	1	1	
24.	122792	7	1	
25.	122792	9	4	
26.	122792	5	2	1
27.	122792	1	1	
28.	122792	1	1	
29.	122792	2	4	1

RIMROCK RANCH SPECIFIC PLAN

GROSS AREA	167.5± ACRES
AREA IN STREETS	10.5± ACRES
NET AREA	157.0± ACRES
NO. OF LOTS	60
AVG. LOT SIZE	2.6+ ACRES
MIN. LOT SIZE	2.0 ACRES

Figure 5. Locations of deer observed in the Rimrock Ranch Specific Plan project area during the winter of 1992-93.

period remained dry and mean daytime temperatures were above freezing. This brief constancy in weather resulted in snow melt on south-facing slopes of the project area where the majority of deer and sign was observed.

Heavy amounts of snow, in excess of 2 feet, fell on the project area between 28 December and 2 January, resulting in another sharp decline in deer use (Appendix Table 5). During this period the project area was virtually inaccessible, however attempts were made to survey sections of the track route on snow shoes. On 7 January, a trail made by two deer was observed in about 2 feet of snow near the eastern boundary of the project area. There was no deer sign observed in the project area or surrounding vicinity during a survey conducted on 14 January. This was after another 1.5 feet of snow had fallen on the project area between 6 and 13 January. Track surveys were discontinued after mid-January due to continued heavy snow fall.

Locations of Deer Activity--Between 23 October and 30 November, prior to the first snow, there were 261 tracks sets and 64 deer (38 does, 22 fawns and 4 bucks) recorded during 7 track count surveys conducted in the project area (Appendix Table 5). Deer use during this period appeared to be distributed within and immediately adjacent to bitterbrush and riparian habitats. Of the 261 track sets, 120 (46%) and 72 (27%) were observed in segments 3-5 and 9-10, respectively (Appendix Table 6). There were 23 (9%) and 46 (18%) tracks sets observed in segments 1-2 and 6-8, respectively (Appendix

Table 6, Figure 5).

Of the 66 deer, 42 (64%) were observed in the central portion of the project area, near the southern portion of lot 1 (64-00-04) and the northern half of lot 4 (64-100-07) (Figure 5). There were 6 (9%) deer observed in unit 60, 7 (11%) in unit 24, and 11 (16%) in lot 5 immediately south of units 20 and 21 (Figure 5).

Because heavy snow made it impossible to drag the survey route after 3 December, daily track count totals recorded in December and January are representative of deer use over a period of several days. From 4 December-14 January, deer distribution on the project area was determined by the depth and condition of snow. There were 274 track sets and 77 deer (46 does, 26 fawns and 5 bucks) observed during the 7 track count surveys conducted between 4 December and 14 January (Appendix Table 6, Figure 5). Of the 274 track sets, 209 (76%) were observed in segments 6-10 which bisect a south-facing slope on lots 4 and 5 (Appendix Table 6). The majority of tracks (83%) in segments 6-10 were recorded during surveys conducted on 19 and 27 December when some snowmelt and subsequent green-up occurred on this south-facing slope (Appendix Table 6). There were 65 (24%) track sets recorded in segments 1-5 where level terrain resulted in snow accumulations of >2 feet (Appendix Table 6). The majority of these tracks (71%) were observed in segments 2 and 3 where adjacent vegetation was tall enough to prevent wind crusting, enabling snow to remain soft and relatively trafficable for deer (Appendix Table 6).

Of the 75 deer recorded, 44 were observed on the south-facing

slope that dominates topography on lots 4 and 5 (Figure 5). The remaining 31 deer were observed in the vicinity of bitterbrush stands located on units 42, 47, and 49, in the central portion of the project area, and units 4 and 59 in the northern portion of the project area (Figure 5).

There were numerous deer trails identified in the project area (Figure 6). Only well-defined trails made by repeated deer use were mapped. The majority of these trails persisted into late December until heavy snows forced deer to lower elevations. Several of the trails identified in the fall occurred in approximately the same locations as in the spring. These trails typically occurred in areas where topography and habitat configuration determine deer distribution, such as on steep slopes, in ravines and along riparian corridors. Trails which received the heaviest deer use were located within the two major drainages that bisect units 18-22 in Lot 5 (POR 64-090-21) (Figure 6).

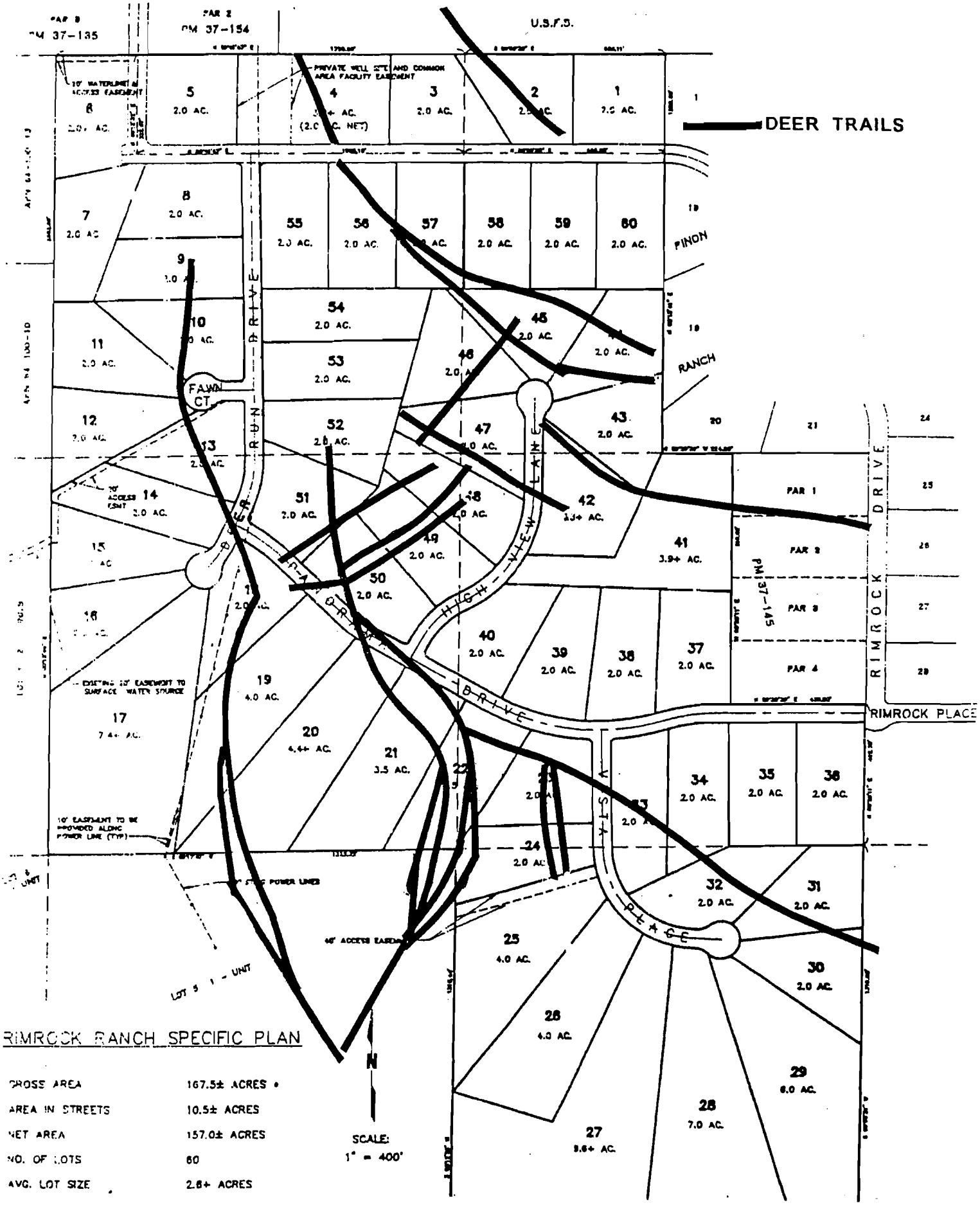


Figure 6. Locations of deer trails identified in the Rimrock Ranch Specific Plan project area during the winter of 1992-93.

VI. DISCUSSION

A common approach to estimating sizes of ungulate populations involves converting fecal pellet-group densities into numbers of animals (Bennett et al. 1940, Riney 1955, Ryle 1979, Kie 1988). Pellet-group counts are one of the most commonly used of all deer census techniques because in many circumstances they can provide quick, fairly accurate, and relatively inexpensive estimates of deer populations (Kie 1988). Wildlife agencies also use pellet-group counts to compare use of different habitats or areas, or to measure deer responses to habitat manipulation treatments (Loft and Kie 1988).

Despite the popularity of pellet-counts as an index to animal abundance and preferred habitat use, the validity of several underlying biological and statistical assumptions associated with the technique are questionable (Neff 1968, Leopold et al. 1984, Kie 1988). Pellet-group counts are often combined with information or assumptions about the length of time that pellet-groups have been accumulating and the daily defecation rate per individual to estimate population density (Kie 1988).

The use of temporary plots to determine pellet-group density requires the assumption that all pellet-groups were deposited during the preceding season, and that the length of time spent by deer on the sample area is known (Neff 1968, Kie 1988). Therefore, temporary plots require that the time of deposition be estimated. In this investigation, the time of deposition was estimated at 214 days (15 October-15 May).

Most estimates of deer numbers from pellet-counts also require an assumption about daily defecations rates, with the most frequent values being 12.7-13 groups per deer per day (Connolly 1981, Kie 1988). Additionally, it is assumed that pellet-groups are deposited more frequently in those areas where deer spend the majority of their time (Neff 1968). However, Collins and Urness (1981) found that defecation rates of mule deer were highest when deer were most active and immediately following periods of rest, indicating that problems may arise when attempts are made to use pellet-group distribution pattern as an index to relative habitat use.

Pellet-group counts may also suffer from other sources of bias including pellet-groups missed by the observer because of fatigue, density of ground cover and size and shape of plots; and rain or insect attack which removes pellet-groups from the plots (Neff 1968).

The pellet-group data obtained for this project may likely have several unavoidable biases. However, the importance of this data lies in determining concentrations of deer activity within the project area, rather than in the absolute value the estimates.

There was a relatively strong, positive correlation between the percent Purshia coverage on individual lots and pellet-group density. Pellet-group density was significantly higher than the overall mean groups per plot on lots with $\geq$9% Purshia coverage.

Pellet-groups were distributed comparably to the distribution of deer inferred from sample area observations and track counts conducted in the winter of 1992-93. Data revealed that deer use from 23

October-30 November was heaviest within and immediately adjacent to bitterbrush and riparian habitats in lots 4 and 5 and the southern portion of lot 1. These habitat types provided important sources of fall forage despite the drought that occurred during the previous growing season. Riparian habitats also provided an important source of free water during the dry fall months. Bitterbrush is an important mule deer forage because it is highly digestible and contains high levels of crude protein (Neal 1988). Kucera (1988) determined that diets of deer were >93% shrubs during all months they were on the winter range. Bitterbrush was most frequent in diets during the first few months of winter and then again in the spring.

Despite heavy snows, deer use of bitterbrush habitat continued into late December because the bitterbrush canopy disrupted wind crusting, enabling snow to remain trafficable for deer, and provided melted open spots on the south side of larger plants. The density and height of bitterbrush stands also provided important cover for deer, especially in the absence of other forms of vegetation (e.g., timber stands). Cover is a feature of habitat that conceals deer from predators and provides protection from adverse weather (Skovlin 1982).

Snow was the primary factor governing deer numbers and distribution within the project area during the winter of 1992-93. Deer numbers were lowest in early December and early January after winter storms deposited heavy amounts of snow (>2 feet) on the project area.

The winter diets of deer are influenced strongly by forage

availability and phenology, as affected by snow conditions. Southerly aspects in the project area are critical winter exposures for deer because they are first to become snow free. In winter, south-slopes receive more sunlight, accumulate less snow, and therefore provide a microclimate that favors some winter sprouting of forbs and grasses. During late December, deer concentrated on the more snow-free south-facing slope in lots 4 and 5, apparently capitalizing on the greater availability of winter forage. Drainage corridors were preferred travel routes for deer because they provide important shelter and escape terrain in close proximity to bitterbrush stands. According to Geist (1981), a prerequisite for exploitation of important forage resources is access to areas that provide shelter and escape cover. Drainages occurring in more level areas, such as the one that bisects units 41 and 42 in lot 18, also provided important forage because they support heavier concentrations of mature shrubs as the result of increased soil moisture. These drainages and their associated forage supply are particularly important to individuals if they are forced to remain in an area for extended periods, such as during blizzards (Geist 1981).

In addition to providing winter habitat, the project area and vicinity also serves as a critical migration corridor for the Round Valley herd. Kucera (1988) estimated that approximately 74% of the Round Valley herd migrates through the Wheeler Crest area during annual spring and fall migrations. The north-south orientation of the Sierra escarpment and other topographic features restrict migratory

deer movements through the Wheeler Crest area to a single, relatively narrow migration corridor. This corridor is critical to deer because it is the geographical link between winter range in Round Valley and other portions of the herd range. Radio-telemetry data indicates that use of this migration corridor is a learned trait passed from one generation to the next and that individual deer use the same migration corridor year after year (Kucera 1988). For this reason, it is unlikely that mule deer from the Round Valley possess the behavioral adaptability to pioneer new migration routes in the event this corridor is abandoned.

Efforts to determine deer use distribution patterns adjacent to homesites in the Pinion Ranch development indicate that deer did not avoid homesites during the winter of 1991/92. Smith and Conner (1989) suggested that when conditions are severe, nutritional demands could cause deer to overcome avoidance behavior and utilize available forage near homesites.

VII. ENVIRONMENTAL IMPACT ANALYSIS

A. INTRODUCTION

Impending development of the Rimrock Ranch Specific Plan area has initiated concerns with respect to potential adverse impacts on migratory mule deer. Concerns regarding mule deer were based on knowledge obtained from a radio-telemetry study (Kucera 1988) which indicates that approximately 74% of the Round Valley herd migrates through the project vicinity. As a result, the present investigator was subsequently contracted to provide an assessment of migratory deer use of the area.

This section describes the potential environmental effects of the Rimrock Ranch Specific Plan on migratory mule deer use of the project area. Impact assessment will include an analysis of potential impacts of the project by describing activities associated with each phase of the proposed project description that may have a direct and indirect significant effect on migratory deer. Accompanying the impact assessment will be mitigation measures which would avoid or minimize potentially adverse impacts to insignificant or acceptable levels. This section also identifies those significant environmental effects which cannot be avoided if the project is implemented, including those effects which can be mitigated but not to a level of insignificance.

B. IMPACTS TO MIGRATORY MULE DEER

Overview. Construction of the proposed Rimrock Ranch development could have a profound effect on the site because it will replace a relatively undisturbed mosaic of Great Basin sagebrush scrub and annual grassland with residential development. This will result in further fragmentation of the migration corridor which passes through the Wheeler Crest area and will reduce and diminish the value of winter range habitat. In addition, human intrusion impacts associated with the development could further reduce the value of the project area and vicinity to deer and other wildlife. Thus, the potential effect of the Rimrock Ranch development and other future development in the Wheeler Crest area presents a critical, yet extremely difficult management situation.

The following discussion categorizes potential direct (primary), and indirect (secondary) effects to mule deer resulting from human intrusion, habitat removal, habitat alteration, and direct mortality. For clarity, direct or primary impacts are environmental effects resulting from development due to construction and operation activities (e.g., loss of forage and cover for deer) (Comer 1982). Indirect (secondary) environmental effects typically occur outside the project area as the result of increased permanent or seasonal population growth within the community and do not readily show a cause-effect relationship. Examples of indirect impacts include increased deer-vehicle collisions, and permanent decreased use or temporary desertion of traditional habitat due to noise, motion, visual stimulus, and domestic pets.

1) Direct and Indirect Effects

a) Human Intrusion

Human intrusion reflects disturbances to deer behavior which would render undisturbed habitat immediately adjacent to the project area unsuitable for deer without physically impacting habitat. Direct significant effects of human intrusion could occur in the form of construction and maintenance activities; visual stimulus, noise, motion, and domestic dogs. Indirect significant effects could occur in the form of visual stimulus, noise, motion, and domestic dogs as the result of net population increase (permanent residents) within the Rimrock Ranch Specific Plan area. Potential consequences to migratory deer resulting from human intrusion impacts include permanent decreased use or temporary desertion of traditional habitat, increased use of marginal habitat types and decreased productivity, alteration of migration routes and

shift of home ranges, increased energy expenditure and stress, and reduced foraging efficiency.

A typical problem associated with most development located in rural areas is harassment of wildlife by domestic pets. Free roaming domestic dogs can create an intolerable stress to deer (Reed 1981) and other wildlife, including rodents and small mammals (Most 1980).

Free roaming house cats can interfere with the courtship and feeding of birds and small mammals (Most 1980). Free roaming pets are a potential significant environmental effect which can be mitigated, but not reduced to a level of insignificance.

Noise generated during construction activities and operational phases of the project is a form of human intrusion that can adversely effect wildlife behavior (Howald 1982). Many animals respond to frequent noise disturbance by moving further from its source, resulting in lower wildlife diversity and abundance and crowding of adjacent natural areas (Howald 1982). Some species, however, which are less mobile or occupy smaller home ranges (e.g., small mammals) cannot readily vacate an area subjected to frequent noise disturbance. This can influence an individuals ability to forage efficiently and successfully rear young.

Night lighting, like noise, typically accompanies both construction and operation phases of development. The collective glow of lights associated with each single family dwelling could illuminate portions of the migration corridor and other critical use areas (e.g., movement corridors). This could inhibit nocturnal use of these critical use areas by mule deer and other wildlife species.

Because several hundred animals from the Round Valley herd could potentially be affected, an increase in the number of humans and their pets could constitute a significant environmental effect which can be mitigated, but not to less than significant levels.

b) Habitat Removal and Alteration

Habitat removal reflects permanent physical reduction in the amount of available habitat within the project area due to the placement of roads, drives and pads (direct effect), and outside the project area due to increased community growth (indirect effect). Habitat alteration represents a change in plant species composition and structural characteristics due to the growth inducing effects of development and areas

disturbed during construction.

The proposed project has the potential to remove substantial amounts of the sagebrush scrub and annual grassland communities. The loss and fragmentation of the sagebrush scrub community from roads, pads, drives and other associated features would reduce forage and cover availability or factors resulting in reduced foraging efficiency. It could also adversely affect deer migration through the project area by substantially altering or impairing traditional migration routes.

During the early, initial stages of development, nutritional demands may cause deer and other wildlife to overcome avoidance behavior and utilize available forage near homesites, especially when conditions are severe (e.g., during periods of drought). However, as further fragmentation, alteration and loss of the sagebrush scrub community occurs within the project area and the surrounding vicinity, considerable avoidance of homesites may result because of increased distance to security cover, visual stimulus, noise, motion and harassment by domestic dogs.

Deer displaced from winter habitat within the project area could concentrate activity outside the project's zone of influence. This could create overcrowding and increased competition for resources, which could, over time, result in over utilization of adjacent habitats and a decrease in regional population size (Short 1981, Ingles 1965).

Impacts resulting from loss and alteration of the sagebrush scrub community can be mitigated to less then significant levels, but the overall impact of loss of migration corridor habitat constitutes a significant environmental affect which cannot be mitigated to a level of insignificance.

c) Direct Mortality

Direct Mortality represents losses of deer due to road kills resulting from increased traffic attributed to the Rimrock Ranch development and increased permanent resident traffic. The potential consequences of this form of direct mortality would be decreased deer numbers and a decreased prey base for predators of deer, mainly coyotes and mountain lions. Direct mortality of deer from deer-vehicle collisions represents an impact that can be mitigated to less that significant levels.

C. MITIGATION RECOMMENDATIONS

Direct and indirect significant environmental effects to mule deer that would occur as a result of the proposed subdivision are attributed to human intrusion, permanent loss and alteration of existing habitat, and direct mortality. Mitigation measures designed to minimize the magnitude of a significant environmental effect or reduce impacts to a level of insignificance are presented below. It is important to understand when considering developments proposed on critical deer habitats that the construction of roads, homesites, drives and other facilities represent, for the most part, irreversible losses of deer habitat, losses which cannot be avoided. Additionally, habitat fragmentation of winter range/migration routes and reductions in habitat capacity for mule deer cannot be totally avoided. Changes on the winter range resulting from direct loss of habitat, habitat alteration and increased human intrusion represent long term declines in habitat capacity and productivity. For example, increased stress to deer can inhibit recovery of deer populations, especially after 6 years of drought and a severe winter. There are a number of potential significant environmental effects which cannot be avoided if the project is constructed. However, mitigation measures presented in this section are designed to maintain deer productivity to the greatest extent possible.

1) Conservation and Open Space Plan.

It is strongly recommended that the Rimrock Ranch Specific Plan impose coverage restrictions to ensure that open space is preserved on each lot as part of the individual development plan. Open space is critical to preserving existing scenic values and natural resources within the Specific Plan Area. Accordingly, it is essential that an open space plan providing measures for consideration of open space be incorporated into the project design and the CC&R's.

Property line setbacks should be established between private yard fenced areas and property lines to facilitate deer and wildlife movement through the project area. All site disturbance resulting from placement of drives, pads, livestock and pet facilities, gardens, lawns, etc., should be confined to private yard fenced areas. In order to preserve and restrict disturbance and encroachment of open space land created by setbacks, management of open space should be specified in the CC&R's, including restrictions on shooting, brush clearing, OHV use, disposal of hazardous materials, litter, trash-burning and livestock use.

Adjacent property line setbacks should be configured in a way that would preserve significant environmental features (e.g. drainages) for the purpose of maintaining critical open space movement corridors through the Rimrock Ranch development. Retention of undisturbed movement corridors is essential to local wildlife because it provides access and enables species such as mule deer, mountain lion, chukar, California quail, and coyote to move up and down the slope of the project area. There are numerous areas within the project boundaries (e.g., drainages) that are used as movement corridors by mule deer and other wildlife. Property line setbacks should be as wide as possible to provide larger movement corridors and feeding and resting areas for deer and other wildlife.

Special consideration should be given to establishing wide setbacks on those units in lot 4 (64-100-07) and lot 1 (64-100-04)) that will lie adjacent to the area proposed for purchase by CDFG. Wide setbacks in this area would create a buffer between the development and proposed CDFG land, provide a larger area of contiguous, unfragmented habitat for deer and other wildlife, and serve to protect the important drainage (and associated southern exposure) that bisects the southwest portions of units 18, 19 and 20. Setbacks should also be used to preserve south-slope habitat in lot 14.

In order to provide continued use of traditional deer travel routes, open space buffer zones should be established between important movement corridors and access roads. For example, a single access road constructed near the head of the drainage in unit 18 could discourage use of this traditional movement corridor. An intersection at the head of this drainage, as tentatively shown in Figure 2, would further confound the problem. In designing roads, efforts should be made to avoid intersecting natural movement corridors. Roads constructed across drainages and other natural movement corridors could increase the risk of deer-vehicle collisions.

Any new design changes in the Rimrock Ranch Specific Plan, such as in the locations of individual lots, property line setbacks, access roads, and other utilities that may potentially impact deer movement corridors, should be evaluated using guidelines and information provided in Beier and Loe (1992), the Rimrock Ranch Specific Plan Deer Study Report-Final Report (Taylor 1993), and with input from an accredited wildlife biologist having experience in mule deer ecology and management.

The long-term benefit of movement corridors to deer and other wildlife is contingent upon development of adjacent private land located to the north of the Rimrock Ranch Specific Plan area and the outcome of the pending CDFG land purchase. In

order to provide for the continued migration of mule deer, it is crucial that a contiguous, undisturbed migration corridor through the Wheeler Crest area be developed in perpetuity via the planning process.

This measure would substantially reduce impacts to mule deer and other wildlife resulting from habitat removal and alteration. However, the overall impact of loss of migration and winter habitat constitutes a significant environmental affect which cannot be mitigated to a less than significant level.

2) Modification of Timing of Construction Activities.

Deer which currently migrate through or winter within the project area vicinity could permanently decrease or temporarily abandon use of the site due to construction related activities (e.g., noise from heavy machinery, increased human disturbance). However, the migratory nature of these deer provides an opportunity to minimize the potential significant effects of construction activities on winter resident and migratory mule deer.

Potential adverse impacts to mule deer from construction activities can be minimized through the following measures:

a) Construction will be scheduled to minimize disturbance to migratory deer during the winter and spring/fall migration periods. Radio-telemetry information and track count data indicates that in the fall deer arrive in the project vicinity in late October and early November and remain on the winter range until early May (Kucera 1988). Therefore, it is recommended that major construction activities (e.g., site clearing, foundation, framing, etc.) be scheduled during the interim period between spring and fall migration periods (1 May-1 November). Interior construction activities are not considered major and could continue during the migration and winter periods. Preconstruction activities such as surveying and some exterior construction activities, such as painting, could also be conducted during the migration and winter periods.

   The objective of this measure is to minimize human disturbance to migrant and winter resident deer which use the project area vicinity during the winter and spring/fall migration periods. This practice has been proven to be effective for other large mammals including elk (Leege 1985). Restricting the timing of construction to the interim period between spring and fall migrations will fully mitigate to a level of insignificance human

intrusion impacts associated with construction activities. However, this measure will not minimize construction associated impacts to migratory deer in the event of an early migration (prior to 30 October).

b) Construction should be limited to daylight hours in accordance with the County's Noise Ordinance (Section 10.16) to minimize noise impacts to nocturnal wildlife species, such as resident mule deer.

3) Control of Domestic Dogs and Cats.

Many researchers have documented cases of deer mortality from dog attacks (Lindsale and Tomich 1953, Boyles 1976, Moser 1975, Dasmann and Taber 1956). Harassment by free-roaming dogs can constitute an intolerable added stress to deer during the winter when deer are most concentrated (Reed 1981). For this reason, the following recommendations are in order:

a) Dogs should either be contained within a private yard fenced area, within a house, garage or other outbuilding. Cats should be contained within a building at all times.

b) Dogs must be on a leash while outside fenced confinement areas.

c) Mono County leash laws should be reiterated in the project CC&R's.

d) Homeowners Association should establish a trust account (amount to be determined) with CDFG or Mono County Animal Control for leash law enforcement.

e) DFG and Mono County should be authorized to issue citation to homeowners for non-compliance with dog control regulations.

f) Citations should include the following fines:

First violation--$100.00 fine.
Second violation--$500.00 fine.

Fines should be assessed against the homeowner committing the violation. If fine is not paid within 45 days, citation issuer should be authorized to pay the fine from the Homeowner's trust fund.

Homeowners Association shall reimburse the trust fund thereby restoring the original trust fund balance.

g) Dogs belonging to construction workers or those individuals involved in construction activities should be prohibited in the project area during construction and operation phases.

Implementation of these measures will minimize to less than significant levels direct and indirect significant adverse impacts associated with human intrusion, and direct mortality, injury and harassment of deer and other wildlife from free roaming domestic dogs and cats.

4) Vegetative Screening.

a) It is recommended that vegetative screening cover be established around all homesites constructed within the project area. Screening cover should be planted in a minimum 20 foot-wide band consisting of an inner strip of trees and a dense, outer strip of native shrubs. This design will effectively reduce illumination and noise into movement corridors, screen homesites, lights, and human activity from migrating and winter resident deer, and provide additional wildlife habitat. Smith and Conner (1989) suggested that deer avoidance of structures declines with the amount of vegetation adjacent to them. Vegetative screening also has the function of sound pollution abatement, because it is particularly effective in absorbing high frequency sounds (Owen 1975). Visual screening will not be effective until a number of years after its implementation when plants are large enough to provide a visual barrier. Therefore, the use of larger planting stock is recommended in order to accelerate this process. Fast growing tree species that may work well as screening cover and provide migrating and holdover deer with additional forage once they become established, include; poplars (Populas sp.), alders (Alnus sp.), and willow (Salix sp.). Willows and alders are hydrophilic species that require copious amounts of water in order to survive. Poplars require less water than willows and alders but still need mesic soils in order to survive. Slower growing endemic species requiring less water include: Jeffrey pine (Pinus jeffreyi), single-leaf pinyon pine (Pinus monophylla), western juniper (Juniperus occidentails).

Regardless of the tree species used as screening cover, it will be necessary to protect the terminal shoots of young individual trees from deer, rodents and domestic livestock. Several types of individual tree barriers have been designed to protect tree leaders, allowing them to grow quickly beyond the reach of deer. Wire cages have

been widely used (Longhurst et al. 1962, Mealy 1969), but are expensive and must be removed as enclosed trees grow. Yawney and Johnson (1974) found that a 1.52 m (5 ft) wire fence surrounding seedlings worked well to protect them from deer. Vexar tubing (E.I. DuPont de Nemours and Company, Inc.) has been successful in protecting Douglas fir seedlings (Campbell and Evans 1969) and oak seedlings (Lasher and Hill 1977).

b) Impacts from night lighting can also be minimized by avoiding unnecessary lights and unnecessarily bright lights. Lights which could potentially illuminate the migration corridor should be avoided or adequately screened.

c) Vegetative screening should be established along the western boundary of the Rimrock Ranch development to further minimize noise and lighting impacts to mule deer on adjacent public land.

Implementation of these measures would minimize potential direct and indirect adverse impacts associated with human intrusion impacts resulting from the proposed subdivision.

5) Fencing.

Fencing, depending on the type and location, can have indirect, significant adverse effect on deer by interfering with migration and the use of preferred habitats. Fencing can also result in direct mortality of deer (Urness 1976, Papez 1976).

a) It is recommended that no tall, solid fences (e.g., brick walls, wrought iron fences, woven wire fences, chainlink fences), should be constructed along property lines that separate adjoining back yard lots. This type of fencing, which is necessary to adequately contain domestic pets, should only be permitted to enclose private yard areas.

b) Existing barbed wire fences, such as the one located along the southern perimeter of lot 3, should be eliminated or modified in accordance to agency standards to allow for safe passage of adult and juvenile deer. According to U.S. Forest Service guidelines, fences should consist of 3 single strand wires placed 20, 30 and 42 inches from the ground with the bottom wire a smooth strand (Kerr 1979).

c) Fencing used for livestock facilities, (e.g., horse

corrals), should incorporate the use of poles, piping, or other non-wire materials to allow deer safe passage.

d) Any other impediments to deer movements such as spoil piles, open ditches, and excessive cut-fill slopes should be minimized to the greatest extent possible. For example, care must be taken to avoid leaving ditches or trenches open at night because they can be hazardous to deer and other nocturnal wildlife.

e) With the exception of wells, septic systems, and fire-safe storage facilities, surface disturbance activities such as residential development, corrals, fencing and raising of crops, should be prohibited outside private yard fenced areas.

This measure would minimize significant environmental effects associated with habitat loss, habitat alteration and human intrusion.

6) Utilize Existing Dirt Roads.

Access and maintenance roads should be designed to follow existing dirt road alignments whenever possible to avoid unnecessary removal of native vegetation. However, the use of existing dirt road alignments that cross major movement corridors is not recommended because of the increased risk of deer-vehicle collisions.

This measure would minimize significant environmental effects associated with habitat loss and alteration.

7) Maintain Existing Native Vegetation.

It is recommended that vegetative disturbance due to construction activities be confined only to those areas designated for development (e.g., private yard fenced areas) to protect surrounding vegetation. In this way, landscaping needs are minimized by retaining the maximum amount of native vegetation possible. Landowners should be encouraged to refrain from clearing brush except as necessary for fire strategy.

The pad cleared for a particular building usually alters more habitat then just the building itself. Development designers are encouraged to use techniques to reduce the area altered by pads and drives. This could minimize significant environmental effects to deer associated with habitat loss and alteration.

8) Revegetation with Native Plants.

It is recommended that revegetation of disturbed areas (e.g., designated open space areas) using native plants be conducted as soon as possible following construction. Native plants should be grown from seeds or seedlings obtained from local native stock. A list of native plants appropriate for revegetation are provided in Appendix Table 8.

9) Establish Driver Warning Signs and Speed Limits.

Establishing driver warning signs along access roads within and leading to the project area, posting speed limits, keeping paved roads as narrow as possible, and leaving dirt roads unpaved would minimize significant environmental effects associated with habitat loss and alteration and direct mortality from deer-vehicle collisions.

10) Replacement of Winter Forage.

This measure would substantially mitigate losses of important winter forage resulting from habitat removal and alteration. The intent is to maintain important winter forage in close proximity to the project area through a long-term program of bitterbrush planting. The effectiveness of this measure is currently unknown and will likely depend upon such factors as water availability, the amount of time required before the treatment becomes effective, and the life of the treatment after which browse production will decline. The logistics of a bitterbrush planting effort (e.g., locations and sizes of areas to be planted, number of plants required per acre, etc.) are complicated and depend largely upon the locations of open space movement corridors, the amount of sagebrush scrub habitat directly impacted from habitat removal and alteration and the outcome of pending CDFG land purchase. It is crucial that areas selected for bitterbrush plantings be readily accessible to deer. It should be noted that prior attempts at planting bitterbrush seedlings in Round Valley have failed (Schneegas and Zufelt 1966). If successful, this measure could fully mitigate forage losses resulting from habitat removal and alteration.

11) When and if the CDFG land purchase become reality, CDFG should erect permanent signs providing information regarding mule deer and any restrictions, e.g., shooting, dogs, etc., on state property.

12) Wildlife Mitigation Monitoring.

Several of the above mitigation measures will require monitoring. These measures would be monitored at the building permit stage by the County of Mono Building Department, Planning Department and Office of Code Enforcement. CDFG would be responsible for measure 11.

VIII. REVIEW OF LITERATURE RELEVANT TO THE PROPOSED PROJECT

According to Wallmo et al. (1976) and Bormann (1976), rural housing developments in deer habitat with their accompanying increases in automobiles, snowmobiles, off-road vehicles, dogs and human activity, affect large areas beyond the actual boundaries of the development. As a result, the overall effect of these encroachments on mule deer habitat is greater than indicated by analysis of the actual area involved. Disturbances associated with housing developments on and adjacent to deer winter range significantly alter, reduce or eliminate deer use of an area (Mackie and Pac 1980). Smith and Conner (1989) reported that a one-acre loss in habitat can equate to a 2.5 acre loss in deer habitat due to significant reductions in deer use around the area developed. Smith and Conner (1989) also suggested that when a house is built on deer range, deer affected by the house redistribute their use to just outside the zone of influence of the house. This could result in over utilization of more marginal habitats outside the zone of influence through increased interspecific competition for food and cover resources. Armstrong et al. (1983), indicated that cottage development in Ontario reduced the quality of winter white-tailed deer habitat. Mann (1985), suggested that deer use of an area decreased with increased development of recreational lot and second home subdivisions, but the intensity of use is dependent upon location, year, season and human activity. Cornett et al. (1979), provided evidence that deer use of a meadow near cabins received only 40 percent of the use of a similar control meadow located in an undisturbed area. Cornett et al. (1979) also reported that deer use was reduced by 30 percent within a 30-50 yard distance to hiking trails. Freedy et al. (1986) concluded that mule deer were more disturbed by people afoot then by snowmobiles.

Reproduction and condition studies of several local deer herds have shown that deer in the eastern Sierra exist on a negative energy budget during the winter months (Kucera 1988, Taylor 1988b). The energy required by activity is derived from products of digestion and stored fat reserves. In the winter, deer rely heavily on fat stores accumulated over the summer and fall months to supplement digestible energy

available from the winter range (Mackie and Pac 1980, Short 1981). Deer also attempt to conserve energy by lowering their metabolic rate and by conducting energy-efficient activity and range use patterns (Mackie and Pac 1980). When normal activity patterns are disrupted due to development, drought, overgrazing, excessive snowfall, interaction with humans, or other factors, digestible energy intake can be reduced severely and the rate at which fat reserves are used will increase. This will ultimately decrease an animals ability to survive the winter and reproduce the following year (Mackie and Pac 1980). This is especially true of deer with limited fat reserves, such as fawns or animals from poor-quality summer or intermediate ranges. In severe winters, these animals can tolerate little additional energy costs if they are to survive. Under repeated harassment, they will rapidly deplete stored fat and succumb to malnutrition when sufficient energy is no longer present to maintain normal bodily functions (Short 1981). According to Mattfeld (1973), the energy costs of running, especially in deep snow, is many times that of walking on bare ground.

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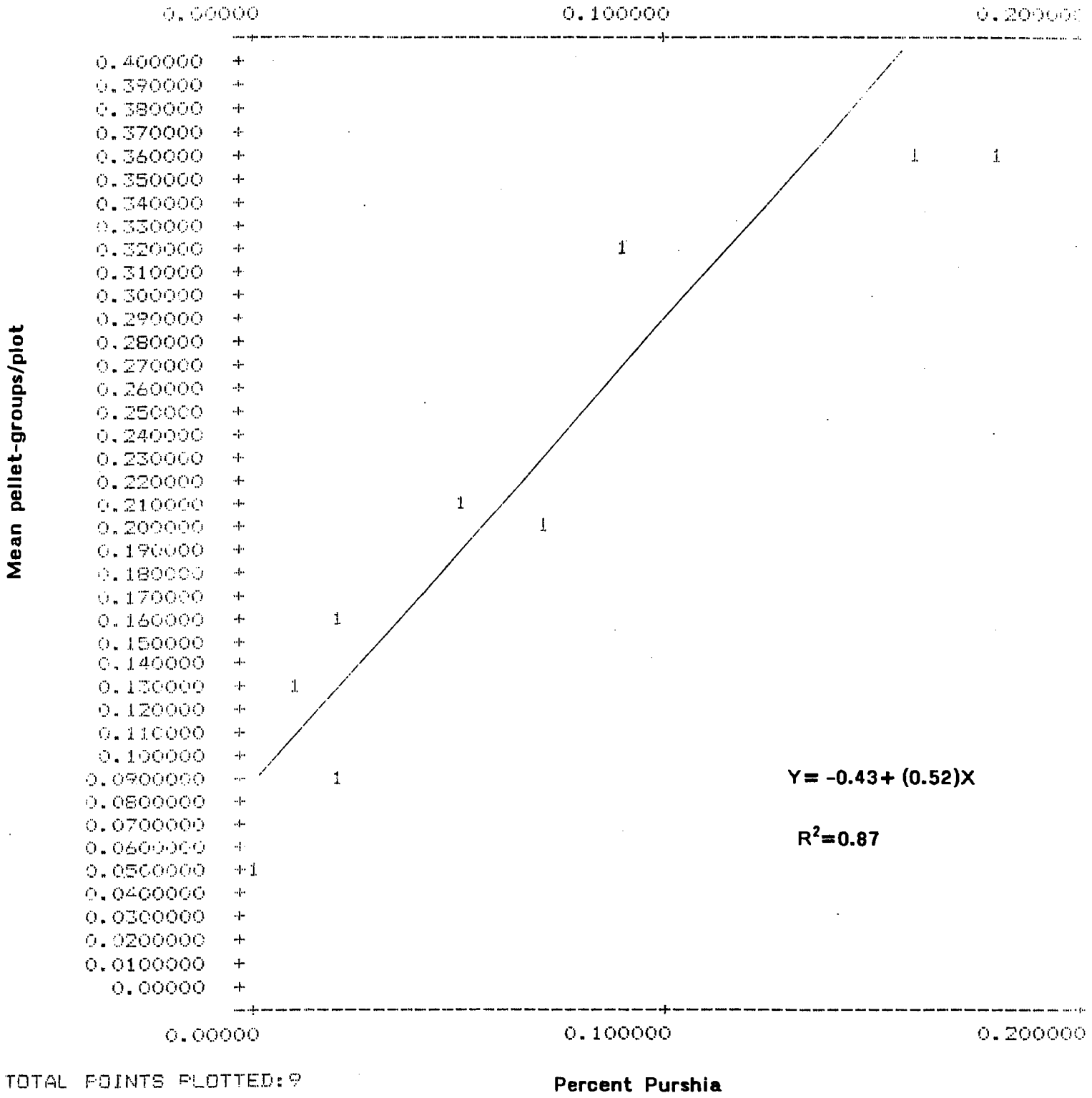
APPENDIX

Appendix Table 1. Deer use measured by fecal pellet-groups counted on 459 milacre plots located within the RRSP Project Area. RRSP deer study, spring 1992.

Transect Number	Total Number Plots Per Transect	Mean Pellet-groups per Plot	Habitat Type	Lot Number	Standard Error	Percent of Overall Mean Use
1	17	0.058	Sage Scrub	05 and 1	0.058	23
2	17	0.176	Sage Scrub	05 and 1	0.095	82
3	17	0.176	Sage Scrub	05 and 1	0.128	82
4	17	0.000	Sage Scrub	05 and 1	0.000	0
5	17	0.235	Sage Scrub	05 and 1	0.106	110
Subtotal	85					
6	22	0.272	Sage Scrub	18 and 4	0.097	127
7	22	0.545	Sage Scrub	18 and 4	0.170	255
8	22	0.410	Sage Scrub	18 and 4	0.156	192
9	22	0.410	Sage Scrub	18 and 4	0.107	192
10	22	0.181	Sage Scrub	18 and 4	0.084	85
Subtotal	110					
11	22	0.045	Sage Scrub	14 and 5	0.045	21
12	20	0.250	Sage Scrub	14 and 5	0.123	117
13	19	0.420	Sage Scrub	14 and 5	0.176	197
14	19	0.053	Sage Scrub	14 and 5	0.053	24
15	18	0.166	Sage Scrub	14 and 5	0.090	78
Subtotal	98					
16	12	0.250	Sage Scrub	13	0.130	117
17	12	0.333	Sage Scrub	13	0.142	156
18	12	0.583	Sage Scrub	13	0.193	273
19	11	0.272	Sage Scrub	13	0.195	127
20	12	0.166	Sage Scrub	13	0.112	78
Subtotal	59					
21	13	0.076	Grassland	6	0.076	36
22	13	0.153	Grassland	6	0.104	72
23	13	0.153	Grassland	6	0.104	72
24	13	0.153	Grassland	6	0.104	72
25	12	0.083	Grassland	6	0.083	39
Subtotal	64					
25	10	0.200	Grassland	3	0.133	94
26	9	0.000	Grassland	3	0.000	0
27	8	0.000	Grassland	3	0.000	0
28	8	0.000	Grassland	3	0.000	0
29	8	0.000	Grassland	3	0.000	0
Subtotal	43					
Sum	459					



Appendix Figure 1. The relationship between percent Purshia coverage and mean pellet-group density on 9 lots within the Rimrock Ranch Specific Plan Area. Rimrock Ranch Specific Plan deer study. Spring 1992.

Appendix Table 2. Deer use measured by fecal pellet-groups counts conducted on individual lots within the Rimrock Ranch Specific Plan Project Area. RRSP deer study, spring 1992.

Lot No.	Lot Size (Acres)	Vegetation Type	Number of Plots	Mean Pellet-groups Per Plot	Standard Error	Percent of Overall Mean Use	Percent Vegetative Cover	Percent Purshia
05	19.34	SS	30	0.200	0.074	94	0.55	0.07
1	39.14	G/SS	55	0.090	0.047	42	0.47	0.02
18	38.72*	SS	55	0.364	0.079	170	0.44	0.16
4	39.17	SS	55	0.364	0.084	170	0.51	0.18
14	39.57	SS	43	0.164	0.056	77	0.38	0.02
5	39.90	SS	55	0.209	0.085	98	0.42	0.05
13	39.64	SS	43	0.322	0.070	151	0.45	0.09
3	41.00	G	64	0.047	0.032	22	0.38	0.00
6	40.90	G	59	0.127	0.042	60	0.41	0.01
Sum	337.38		459					

SS = Sage Scrub
G = Grassland

* 38.72 acres includes Por.64-090-18 (30.68 acres) and 4 adjacent 2.01 acre parcels.

Appendix Table 3. Summary of vegetation data from toe-point transects conducted on the RRSP Project Area. Numbers associated with each plant species refers to the number of hits on that species on 100 toe points on the transect. RRSP deer study, spring 1992.

	Lot Number								
	05	1	18	4	14	5	13	3	6
% Litter:	6	6	8	14	5	10	45	38	9
% Bare:	39	49	48	38	57	48	50	54	50
% Plant:	55	47	44	52	38	42	5	8	41
Plant Family/Species									
Asteraceae									
Artemisia tridentata	0	0	2	4	4	8	6	0	0
Aster sp.	1	0	0	0	0	0	0	0	0
Tetradymia sp.	1	1	0	0	0	0	1	0	0
Chrysothamnus sp.	2	11	7	8	9	2	4	4	2
Wyethia mollis	0	0	0	0	0	0	1	0	0
Stephenomeria sp.	1	1	0	0	0	0	0	0	0
Betulaceae									
Betula occidentalis	0	0	0	0	0	0	0	0	0
Cyperaceae									
Carex rossii	0	1	0	0	0	1	0	0	0
Scirpus sp.	0	0	0	0	0	0	0	0	0
Chenopodiaceae									
Salsola kali var. tenuifolia	3	0	5	2	1	0	1	2	1
Cupressaceae									
Juniperus occidentalis	0	0	0	0	0	0	0	0	0
Juncaceae									
Juncus balticus	0	1	0	0	0	0	0	0	0
Leguminoseae									
Lupinus sp.	1	0	0	0	0	0	0	0	0
Trifolium sp.	0	0	0	0	0	0	0	0	0
Melilotus alba	0	0	0	0	0	0	0	0	0
Onagraceae									
Epilobium angustifolium	0	0	0	0	0	0	0	0	0
Oenothera hookeri	0	0	0	0	0	0	0	0	0
Dodecatheon subalpinum	0	0	0	0	0	0	0	0	0
Papaveraceae									
Argemone sp	0	2	0	0	0	1	0	1	0
Pinaceae									
Pinus jeffreyi	0	0	0	0	0	0	0	0	0
Pinus monophylla	0	0	0	0	0	0	0	0	0
Poaceae									
Grass (unid)	13	2	0	4	7	2	11	10	17
Agropyron sp.	1	0	0	0	0	0	0	0	1
Agrostis sp.	0	0	0	0	0	0	0	0	0
Bromus tectorum	9	9	2	2	2	2	3	4	7
Elymus sp.	0	1	1	1	0	0	0	0	0

Plant Family/Species	05	1	18	4	14	5	13	3	6
Oryzopsis hymenoides	1	2	4	5	0	2	4	2	3
Poa sp.	1	0	0	0	0	1	0	2	1
Sitanion hystrix	4	2	2	2	3	1	1	0	2
Stipa sp.	2	1	0	1	1	4	1	2	1
Stipa comata	1	1	1	1	0	1	0	2	1
Polygonaceae									
Eriogonum sp.	4	1	2	2	2	2	3	5	3
Rosaceae									
Prunus andersonii	2	6	2	2	4	6	0	1	0
Purshia tridentata	7	2	16	18	2	5	9	0	1
Rosa woodsii	0	1	0	0	0	1	0	0	0
Rhamnaceae									
Ceanothus greggii	1	2	0	0	3	3	0	3	1
Salicaceae									
Salix sp.	0	0	0	0	0	0	0	0	0
Scrophulariaceae									
Castilleja sp.	0	0	0	0	0	0	0	0	0
Typhaceae									
Typha latifolia	0	0	0	0	0	0	0	0	0

Appendix Table 4. Deer use measured by fecal pellet-groups counted on 197 milacre plots located adjacent to 6 homesites in the Pinyon Ranch development. Rimrock Ranch Specific Plan deer study, spring 1992.

Distance Class (yards)	Total Number Plots Per Transect	Mean Pellet-groups per Plot	Standard Error	Percent of Overall Mean Use
25	20	0.250	0.099	126
50	20	0.050	0.050	25
75	20	0.150	0.082	75
100	20	0.250	0.123	126
125	20	0.300	0.128	151
150	20	0.200	0.091	101
175	20	0.100	0.069	50
200	20	0.300	0.128	151
225	19	0.157	0.086	79
250	18	0.222	0.100	112
	197			

Overall Mean = 0.198

Appendix Table 5. Total number of tracks by direction of travel observed on 14 track count surveys conducted in the RRSP project area from 23 October 1992-14 January 1993.

Survey Number	Date	Total Number of Tracks N	S	E	W	Total
		PERIOD 1				
1	102392	4	5	4	7	20
2	103192	0	28	8	4	40
3	110792	12	19	14	16	61
4	111392	7	12	13	20	52
5	112092	13	8	2	4	27
6	112492	0	14	4	11	29
7	113092	7	18	3	4	32
Total		43	104	48	66	261
		PERIOD 2 *				
8	120492	4	6	0	5	15
9	120992	0	0	3	9	12
10	121492	0	0	4	4	8
11	121992	15	23	7	8	53
12	122792	67	83	20	14	184
13	010792	0	0	1	1	2
14	011492	0	0	0	0	0
Total		86	112	35	41	274

* Dragging of the track route was not performed prior to track surveys conducted in period 2.

Appendix Table 6. Total number of tracks recorded by survey segment between 23 October 1992 and 14 January 1993 in the RRSP project area.

Survey Number	Date	Segment Number 1	2	3	4	5	6	7	8	9	10	Total
					PERIOD 1							
1	102392	0	1	4	5	2	2	0	0	6	0	20
2	103192	3	2	4	6	7	0	0	3	10	5	40
3	110792	0	2	15	6	13	8	0	5	2	10	61
4	111392	7	5	6	14	11	1	5	2	1	0	52
5	112092	0	0	1	2	0	2	0	0	12	10	27
6	112492	1	0	6	8	0	0	8	2	2	2	29
7	113092	0	2	7	2	1	1	4	3	7	5	32
Total		11	12	43	43	34	14	17	15	40	32	261
					PERIOD 2							
8	120492	1	1	11	0	0	2	0	0	0	0	15
9	120992	0	0	4	0	0	0	0	8	0	0	12
10	121492	0	0	0	0	0	0	0	8	0	0	8
11	121992	1	2	10	4	2	0	5	2	6	21	53
12	122792	4	14	4	0	5	18	13	38	52	36	184
13	010793	--	--	--	1	1	0	0	--	--	--*	2
14	011492	--	--	--	0	0	0	0	--	--	--	0
Total		6	16	29	5	8	20	18	56	58	57	274

* Segments not surveyed due to heavy snow

Appendix Table 7

The following list includes plant species suitable for revegetation in the Rimrock Ranch Specific Plan project area.

Common Name	Scientific Name
Shrubs	
Big sagebrush	*Artemisia tridentata*
"Hobble Creek mountain big sagebrush	*A. t. ssp. vaseyana*
Antelope bitterbrush	*Purshia tridentata*
Rubber rabbitbrush	*Chrysothamnus nauseosus*
Woods Rose	*Rosa woodsii*
Current	*Ribes* sp.
Mormon Tea	*Ephedra nevadensis*
Curl-leaf Mountain Mahogany	*Cercocarpus ledifolius*
Trees	
Pinyon Pine	*Pinus monophylla*
Jeffrey pine	*Pinus jeffreyi*
Lodgepole pine	*Pinus contorta*
Quaking aspen	*Populus tremuloides*
Cottonwood	*Populus* sp.
Perennial Grasses	
Indian Ricegrass	*Oryzopsis hymenoides*
Wheatgrass	*Agropyron* sp.
Needlegrass	*Stipa* sp.

TEAM

ENGINEERING &
MANAGEMENT, INC.

P.O. Box 51447 Phoenix, AZ 85076
480-496-4990 (phone)
480-496-6114 (fax)

Mr. Keith Hartstrom
Mono County Planning Department
PO Box 8
Bridgeport, California 93517

July 15, 1999

Dear Mr. Hartstrom:

TEAM Engineering & Management is pleased to present the attached report "Water Resource Assessment: Rimrock Ranch Specific Plan". Information provided in this report includes:

- An evaluation of water uses at buildout
- Aquifer characteristics, safe yield, and potential impacts of further development of groundwater resources
- A recommended monitoring and mitigation plan that is based on the results of the analysis

This report is still considered draft and we look forward to your review and comments. If you have questions, or require additional information, please call us at your convenience.

Sincerely,

William R Hutchison

William R. Hutchison

WATER RESOURCE ASSESSMENT

RIMROCK RANCH SPECIFIC PLAN

PREPARED FOR

MONO COUNTY PLANNING DEPARTMENT

BRIDGEPORT, CALIFORNIA

PREPARED BY

TEAM ENGINEERING & MANAGEMENT

BISHOP, CALIFORNIA
PHOENIX, ARIZONA

WILLIAM R. HUTCHISON
PROFESSIONAL HYDROLOGIST
P.H. 808

JULY 15, 1999

WATER RESOURCE ASSESSMENT

RIMROCK RANCH SPECIFIC PLAN

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1.0 INTRODUCTION

As part of its review of the Rimrock Ranch Specific Plan, Mono County has requested that TEAM Engineering & Management, Inc. complete a water resource assessment. The Rimrock Ranch Specific Plan consists of a 35 lot subdivision in the Swall Meadows area of Mono County. This report summarizes the results of our assessment and provides recommendations for monitoring and mitigation that are based on the results of the assessment.

The following data used in this assessment:

- Historic (annual and peak monthly) water use data for the Wheeler Crest Community Services District (WCCSD) for 1994 through 1998 were provided by Triad Holmes Engineering.
- Data from an aquifer test of WCCSD Well Number 4 were provided by Triad Holmes Engineering. This test was conducted from April 26 to April 28, 1999 by Triad Holmes Engineering.
- Well locations, well depths, and depth to water at the time of construction data that were gathered and compiled on a base map of the area by Triad Holmes Engineering.

2.0 ESTIMATED WATER NEEDS AT BUILDOUT

Annual water use data for WCCSD as provided by Triad Holmes are summarized in Table 1. These data represent annual water use. Note that the summary table depicts a situation where water use has nearly doubled over the last 5 years. Since the data that were provided state that no new homes were added during these five years, per home water use has also nearly doubled.

Table 1
Summary of Annual WCCSD Water Use
(data provided by Triad Holmes Engineering)

Year	Annual Use		Number of Homes	Average Use per home
	gallons	acre-feet		gallons per day
1994	1,200,820	3.69	15	219.3
1995	1,350,950	4.15	15	246.7
1996	1,708,760	5.24	15	312.1
1997	2,059,220	6.32	15	376.1
1998	2,207,936	6.78	15	403.3

Table 2 summarizes peak monthly use data for the WCCSD. Similar to the data summarized in Table 1, the peak monthly usage has increased over the last five years.

Again, because the data state that no new homes were added during these five years, the per home peak water use has also increased during the peak month.

Table 2
Summary of Peak Monthly WCCSD Water Use
(data provided by Triad Holmes Engineering)

Year	Monthly Use		Number of Homes	Average Use per home	Month
	gallons	acre-feet		gallons per day	
1994	229,710	0.71	15	494.0	August
1995	256,360	0.79	15	551.3	August
1996	264,660	0.81	15	569.2	July
1997	363,130	1.11	15	780.9	July
1998	411,130	1.26	15	884.2	July

Reasons for the dramatic increase in water use, assuming that the data related to the number of homes is correct, are not obvious. Increases in landscape irrigation would seem to be the most reasonable. For purposes of this analysis, however, it will be assumed that the 1998 water use figures are most accurate. Therefore, assuming a 35 lot subdivision, annual water use would be approximately 5.15 million gallons, or 15.81 acre-feet. Peak monthly water use would be about 960,000 gallons, or 2.94 acre-feet. Table 3 summarizes a theoretical well operation using these estimates of water demand.

Table 3
Estimated Well Pumping Rate to Meet Demand
(pumping rate in gallons per minute)

Hours of Daily Operation	Annual Water Use 5,151,851 gallons	Peak Monthly Use 960,000 gallons
2	118	258
4	59	129
6	39	86
8	29	65
10	24	52
12	20	43

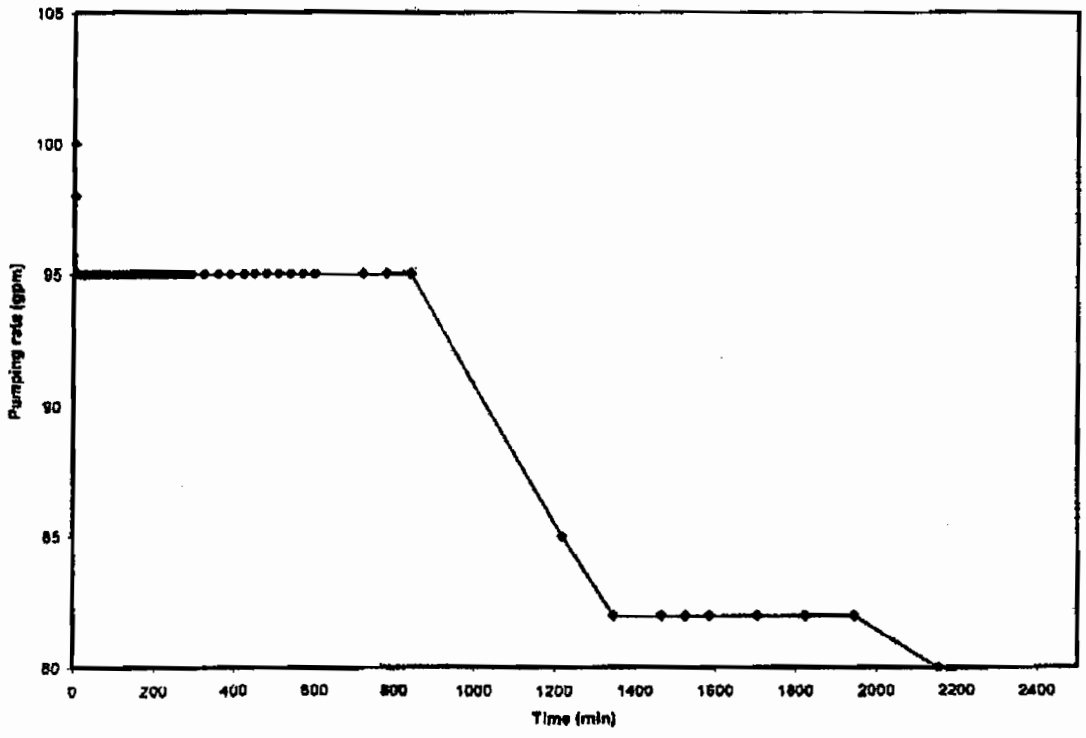
WCCSD Number 4 (the well that is proposed to supply water to the Rimrock Ranch Specific Plan) was tested by Triad Holmes in April, 1999. During the 48 hour test, the pumping rate in the well started at 100 gallons per minute, and had dropped to 78 gallons per minute at the end of the test. Therefore, during peak months, it appears that the well would operate at least 6 hours per day based on the estimates provided in Table 3. Over an entire year, the well would operate less than 4 hours per day.

3.0 AQUIFER CHARACTERISTICS

The aquifer test of WCCSD Well Number 4 was conducted on April 26, 27 and 28, 1999. The well was pumped and drawdown responses were monitored in WCCSD Number 4 (located about 15 feet from the pumping well), and in "Lowry" well (located about 250 feet from the pumping well.

Figure 1 summarizes the pumping rate during the test. Note that the initial pumping rate of 100 gallons per minute (gpm) was maintained for only 2 minutes. The rate then reportedly stabilized at 95 gpm for the next 832 minutes of the test. The rate then dropped and reportedly stabilized at 82 gpm and then declined to 78 gpm at the end of the test. Total time of the test was 2,874 minutes or 47.9 hours.

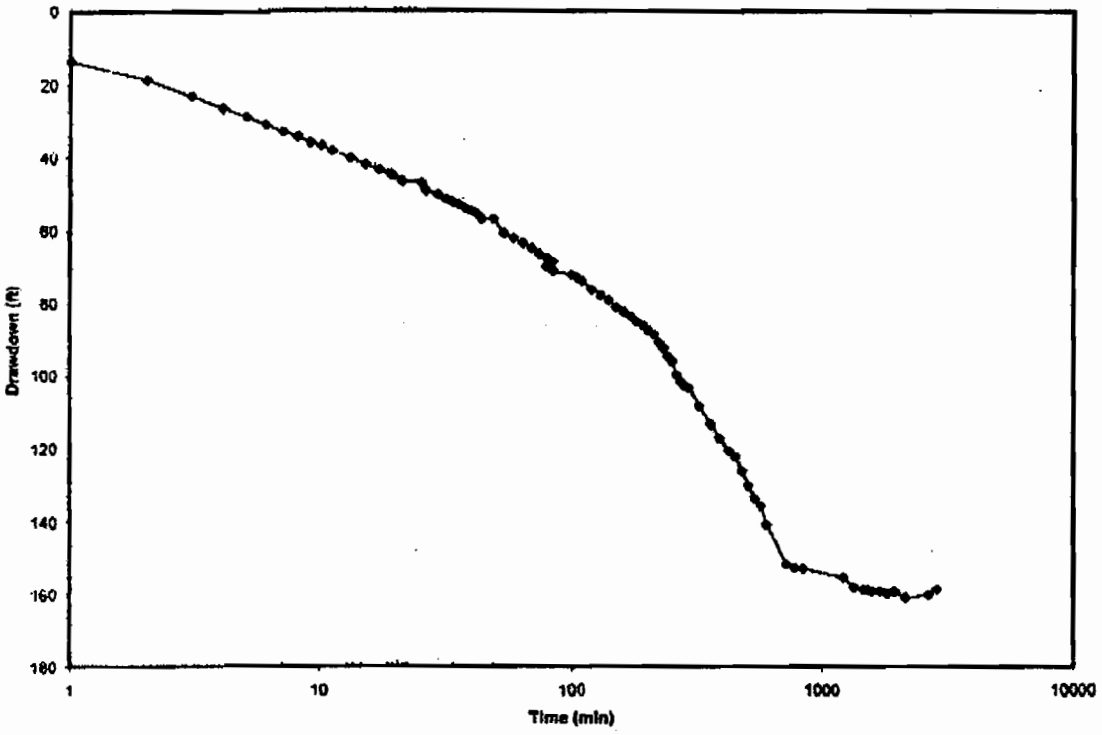
Figure 1
Summary of Pumping Rate During Test



The decline in pumping rate is a result of the increased drawdown and, therefore, the increased lift. This decline is generally gradual as the drawdown increases. The "stair-step" nature of the decline that is plotted in Figure 1 is likely a result of pumping rate measurement techniques or frequency, and is not considered significant.

The drawdown response in the pumped well is depicted in Figure 2. Note that the time axis (or x-axis) is presented on a logarithmic scale. For normal analysis test analysis techniques, the drawdown response is linear on this type of semi-log plot.

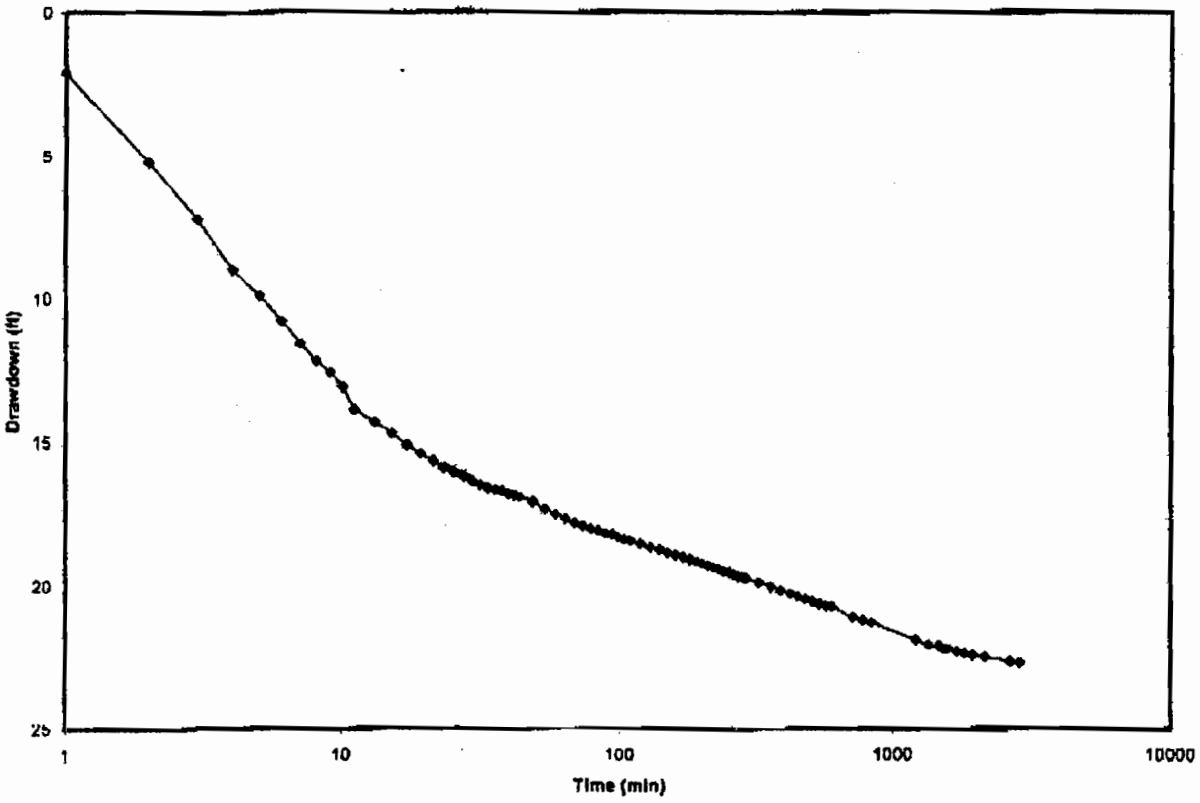
Figure 2
Drawdown in Pumped Well (WCCSD No. 4)



Note that the drawdown is not linear, but depicts a curved response where the rate of drawdown increases with time. The abrupt flattening of the curve towards the end of the test is due to the drop in pumping rate. It is possible that the decline in pumping rate, well inefficiencies, or cascading water in the well could have caused this type of response. Typically, data from a nearby monitoring well are considered more reliable to develop estimates of aquifer characteristics.

Figure 3 depicts the drawdown response in WCCSD No. 3. Note that after the initial 10 minutes of the test, the response is essentially linear on the semi-log plot. The initial decline in pumping rate is seen after 10 minutes with the flattening of the response. The apparently constant pumping rate that was maintained for most of the test results in the linear response depicted over most of the plot.

Figure 3
Drawdown in Monitoring Well (WCCSD No. 3)



The linear response of the drawdown in the monitoring well permits the estimation of aquifer characteristics, transmissivity and storativity.

Transmissivity is defined as the rate at which water will flow through a vertical strip of the aquifer one foot wide and extending through the full saturated thickness of the aquifer. It can also be thought of as the hydraulic conductivity of the aquifer (analogous to the permeability) times the saturated thickness of the aquifer. Storativity is defined as the volume of water released from storage in a cubic foot of aquifer material per square foot of surface area under a one foot drop in water level.

Because the response in the monitoring well is linear on a semi-log plot, the Jacob-Cooper method can be used to estimate aquifer characteristics.

Transmissivity is estimated by the following equation:

$$T = 264*Q/\text{delta s}$$

where:

T = Transmissivity of aquifer (gpd/ft)
Q = Pumping rate of well (gpm)
delta s – change in drawdown over one log cycle

During the linear portion of the response, the pumping rate of the well was 95 gpm, and the delta s is estimated to be 4.8 feet. This results in a transmissivity estimate of 5225 gpd/ft. Aquifer hydraulic conductivity can be estimated by dividing the transmissivity by the saturated thickness of the aquifer. Saturated thickness of the aquifer can be estimated using the well depth and static water level data. If the assumption is made that the saturated thickness used in a hydraulic conductivity estimate is equal to the depth of the pumping well (360 feet) minus the depth to water (100 feet), the saturated thickness is 260 feet, and the estimated hydraulic conductivity is 2.69 ft/day. If the saturated thickness is assumed to be equal to the depth of the monitoring well (150 feet) minus the depth to water (96 feet), the estimated hydraulic conductivity is 12.9 ft/day. In general, since the pumping well is creating the stress on the system, the hydraulic conductivity value based on the saturated thickness of the pumping well (2.69 ft/day) would be considered more accurate than the higher estimate based on the saturated thickness of the monitoring well.

Storativity is estimated with the following equation:

$$S = (0.3*T*t_o)/r^2$$

where:

S = Storativity (dimesionless)
T = Transmissivity of aquifer (gpd/ft)
t_o = intercept of drawdown curve at zero drawdown (days)
r = distance from pumped well to monitoring well (ft)

Based on the slope in Figure 3, t_o is estimated to be 0.001 minutes, which would result in a storativity estimate of 2.72E-06. This value is considered rather low, and is likely due to the shift in the curve during the early portion of the test caused by the reduction in the pumping rate. If the earlier portion of the data are used, the t_o value could as high as 0.1 minutes which would result in a storativity estimate of 2.72E-04. In either case, storativity in the aquifer is low, which means that small changes in storage would be manifested by relatively large changes in groundwater levels.

These aquifer characteristic estimates were made over a fairly short distance and may or may not be representative of the entire Swall Meadows area. The values were used as a

starting point of developing a conceptual level groundwater model of the area as is described in the next section.

4.0 SAFE YIELD AND POTENTIAL IMPACTS

The objective of many ground-water resource investigations is focused on addressing the amount of water that can be pumped. A review of the evolution of the term "safe yield" as an indication of how much water can be pumped from an area was presented by Domenico (1972) and is summarized below.

Lee (1915) first defined safe yield as "the limit to the quantity of water which can be withdrawn regularly and permanently without dangerous depletion of the storage reservoir." Meinzer (1923) defined safe yield as "the rate at which water can withdrawn from an aquifer for human use without depleting the supply to the extent that withdrawal at this rate is no longer economically feasible."

Meinzer's definition was expanded by Conkling (1946), who described safe yield as an annual extraction of water which does not:

1. Exceed average annual recharge
2. Lower the water table so that the permissible cost of pumping is exceeded
3. Lower the water table so as to permit intrusion of undesirable quality

Banks (1953) added a fourth condition to Conkling's definition: the protection of water rights.

Todd (1959) defined safe yield as "the amount of water which can be withdrawn from a ground water basin without producing an undesired result." However, the "undesired result" can include almost anything from increased pumping costs to degradation in water quality to loss of wetland vegetation.

It is clear that the term "safe yield" in its various forms ambiguously encompasses hydrologic, economic, legal, environmental and water quality constraints, and as such requires the evaluation of those issues in conjunction with each other. What may be "safe" from a purely hydrologic or water supply view may adversely impact adjoining water rights or the environment. In all cases, developing estimates of safe yield cannot be done on a purely technical level since many of the constraints are legal and policy issues.

In the case of the Swall Meadows area, the potential undesirable effects of operating WCCSD No. 4 include the significant lowering of water levels in neighboring wells and significant lowering water levels in the wetland area. The lowering of water levels in a neighboring well would be considered significant if the neighboring well either went dry or its production was decreased to the point that the well owner could not use it effectively. Depending on the location, construction, and general condition of the neighboring well, a one foot drop may be considered significant, where in another well, a

20 ft drop may be considered insignificant. The lowering of water levels in the wetland area would be considered significant if the vegetation were impacted as a result of the lowered groundwater level conditions. For the type of vegetation in that area, a drop of more than one foot over a year would likely be considered significant.

In practice, "safe yield" has no unique or constant value because it is dependent on the spacing, location and depth of pumping wells, and on the period of analysis in the context of wet and dry years if recharge to the system is significantly tied to the amount of rainfall.

Given the data available and the objectives of this project, the following approach was used to evaluate the linked concepts of safe-yield and potential impacts of the operation of WCCSD No. 4:

- Using the available data, develop a conceptual level numerical groundwater model of the area
- Using the model, run alternative scenarios of operating WCCSD No. 4
- Evaluate the significance of any changes in groundwater levels estimated from the model

5.0 GROUNDWATER MODEL DEVELOPMENT

5.1 Water Level Data

Triad Holmes Engineering compiled and summarized well data on an AutoCAD drawing. Data included on the drawing included:

- well location
- year of construction
- depth to water at time of construction (artesian wells were assigned a value of 2 feet above ground surface)
- well depth
- reported pumping rate of well

Table 4 summarizes the data that were presented on that map. Surface elevations for wells were estimated based on the contours provided on the original drawing. In order to facilitate our work, we arbitrarily assigned numbers to each of the wells (TEAM No. on Table 4). Figure 4 depicts the location of the wells using the TEAM Number. For reference purposes, WCCSD No. 4 is designated 61 on Figure 4.

The depth to water data at the time of construction were used to develop estimates of depth to water in the wells at other times based on statistical techniques (multiple regression). This effort was completed in order to "fill-in" data gaps, and was used only to aid in the development of the model. It did, however, provide some interesting insights into the relationship of well depth and groundwater elevations, and in the trends of groundwater levels since 1958.

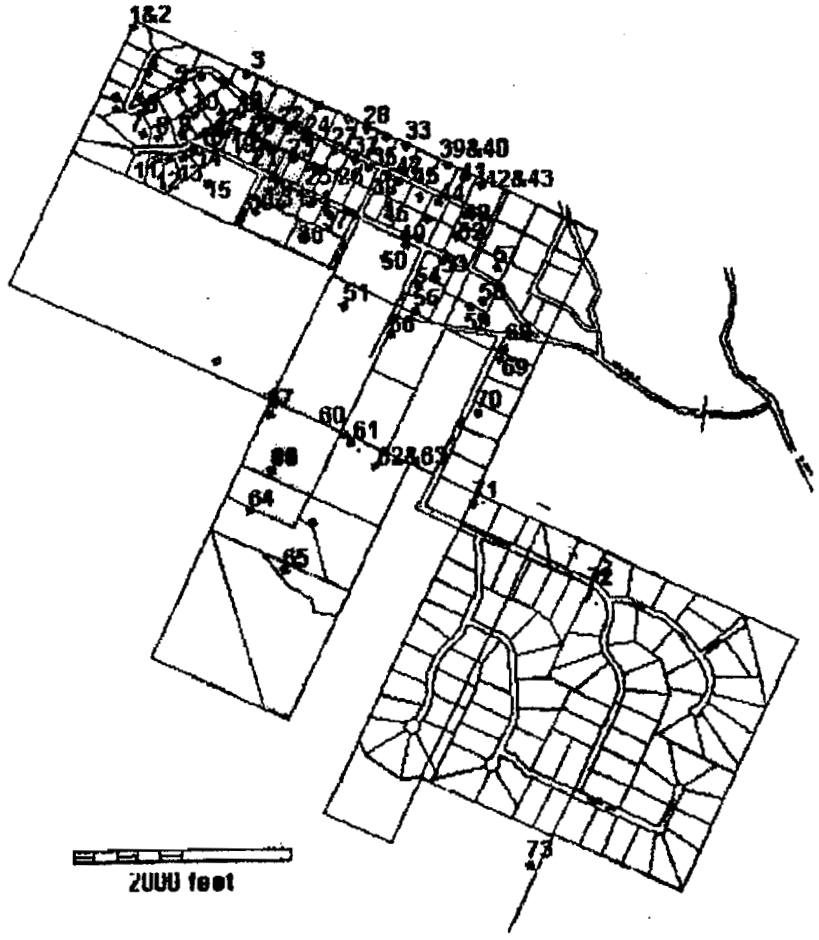
Table 4
Summary of Well Data

TEAM No.	Lat	Surface Elevation	Date of Construction	Depth to Water	Groundwater Elevation	Well Depth	Bottom Elevation	Pumping Rate (gpm)
1	12	7000	1964	31	6969	102	6898	25
2	12	7000	1982	70	6930	214	6786	60
3	16	6725	1990	98	6627	220	6505	16
4	29	6910				140	6770	50
5	21	6750	1995	75	6675	275	6475	75
6	25	6775	1973	60	6715	148	6627	
7	27	6750	1965	33	6717	100	6650	25
8	26	6725	1972	30	6695	110	6615	
9	24	6725	1966	75	6650	100	6625	
10	22	6725	1979			145	6580	
11	4	6720	1995	46	6674	105	6615	20
12	3	6705	1996			105	6600	100
13	2	6690	1964	30	6660	82	6608	20
14	1	6675	1964			84	6591	
15	HECW	6640	1968	-2	6642	102	6538	8
16	2	6890	1962	-2	6892	83	6807	
17	2	6880				82	6798	
18	1	6880	1965	21	6859	80	6800	14
19	3	6860		-2	6862	80	6780	
20	4	6850				100	6750	
21	5	6840	1965	6	6834	92	6748	15
22	13	6840	1961			62	6778	
23	7	6595	1965	12	6583	92	6503	20
24	14	6605	1962	35	6570	76	6529	
25	8	6560	1964	35	6525	82	6478	15
26	8	6555	1994	25	6530	200	6355	150
27	16	6560				85	6475	
28	5	6560	1958	40	6520	57	6503	
29	18	6560	1978	-2	6562	80	6480	
30	24	6560	1985	-2	6562	77	6483	20
31	20	6555	1976	-2	6557	80	6475	
32	17	6555		18	6537	210	6345	100
33	7	6550	1962	36	6514	103	6447	
34	21	6550	1964	6	6544	60	6490	15
35	18	6550	1958	28	6522	38	6512	
36	25	6530	1991	15	6515	130	6400	40
37	22	6535	1968	12	6523	96	6439	15
38	19	6535	1964	19	6516	71	6464	
39	9	6525	1962	27	6498	79	6446	
40	9	6525	1990	4	6521	120	6405	20
41	10	6515	1962	25	6490	123	6392	
42	15	6505	1984	35	6470	160	6345	20
43	15	6505	1978	60	6445	140	6365	

Table 4 (continued)
Summary of Well Data

TEAM No.	Lat	Surface Elevation	Date of Construction	Depth to Water	Groundwater Elevation	Well Depth	Bottom Elevation	Pumping Rate (gpm)
44	22	6505	1990	18	6487	210	6295	100
45	21	6515	1978	5	6510	90	6425	6
46	13	6515	1978			90	6425	
47	19	6535	1964	19	6516	72	6463	30
48	16	6500		18	6482	42	6458	
49	13	6490	1962	8	6482	74	6416	20
50	13	6475	1981	2	6473	100	6375	30
51	16	6470				110	6360	40
52	16	6455	1983	40	6415	145	6310	25
53	27	6445	1965	-2	6447	25	6420	25
54	29	6435	1962	-2	6437	57	6378	
55	30	6420	1964	6	6414	53	6367	20
56	17	6428	1990	4	6424	120	6308	20
57	12	6417	1983	30	6387	80	6337	
58	13	6385	1962	95	6290			
59	14	6395	1962	64	6331	122	6273	
60	13	6405	1973	40	6365	150	6255	75
61	13	6395	1999	95	6300	360	6035	
62	13	6367	1995	225	6142	395	5972	
63	13	6367	1990	55	6312	210	6157	6
64	9	6405	1985	135	6270	305	6100	
65	27	6310	1976	60	6250	180	6130	35
66	12	6450				72	6378	
67	12	6480				240	6240	
68	R	6345	1962	110	6235	223	6122	
69	21	6340	1992	110	6230	250	6090	3
70	23	6335	1992	190	6145	390	5945	12
71	1	6270	1971	353	5917	353	5917	60
72	C	6160				350	5810	25
73	NA	6000				1050	4950	20

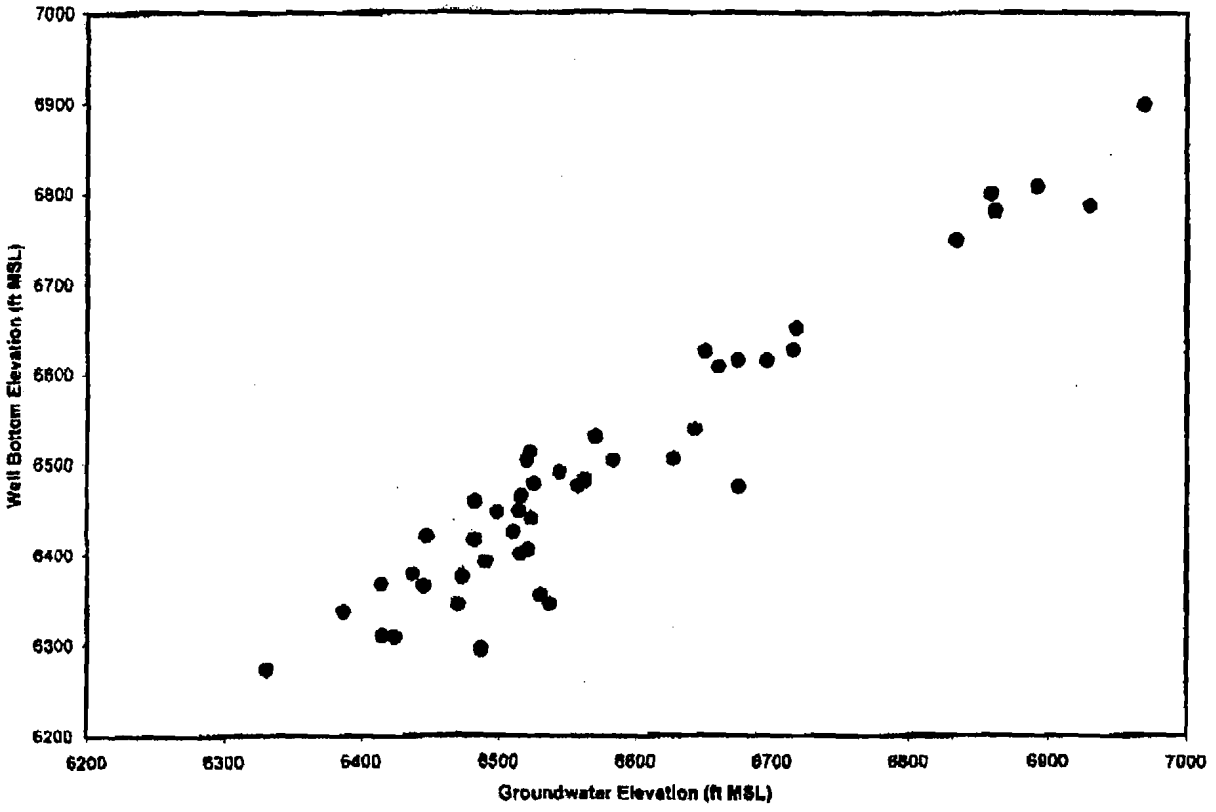
Figure 4
Location of Wells



5.2 Analysis of Water Level Data

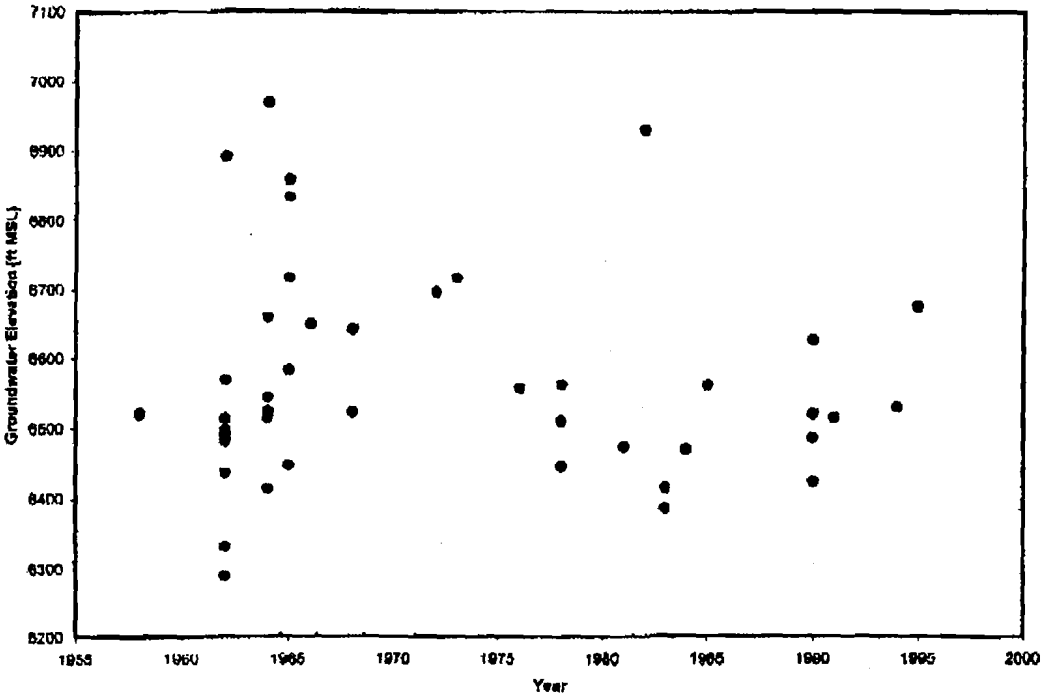
Figure 5 depicts a graphical summary of the groundwater elevation vs. well bottom elevation. As can be seen, the higher the bottom elevation, the higher the groundwater elevation. Given the topographic relief, and the fact that wells in the area are of similar depth, this relationship is more likely reflective of the well location (upper areas have higher groundwater elevations and lower areas have lower groundwater elevations).

Figure 5
Groundwater Elevation vs. Well Bottom Elevation



Given the fact that the groundwater elevation data were taken at the time of construction, and the period of record starts in 1958 and ends in 1999, Figure 6 was developed in order to assess any trend in groundwater elevation with time. Although the data are scattered and "noisy", there appears to be somewhat of a downward trend with time.

Figure 6
Groundwater Elevation vs. Time



In order to further investigate this relationship, a multiple regression analysis was completed with groundwater elevation as the dependent, or predicted, variable, and the ground surface elevation and year as the independent variables. The results were generally favorable. Adjusted r-squared equaled 0.91, which means that 91% of the variation in groundwater elevation can be statistically explained with surface elevation and year as independent variables. The regression coefficient for the "year" variable was estimated to be -1.08 feet. This coefficient bounds were -2.39 feet to 0.23 feet. This coefficient can be interpreted as follows:

- For a given surface elevation, the groundwater level has dropped 1.08 feet per year. Based on the confidence intervals, this value could range from a rise of 0.23 feet per year to a decline of as much as 2.39 feet per year.

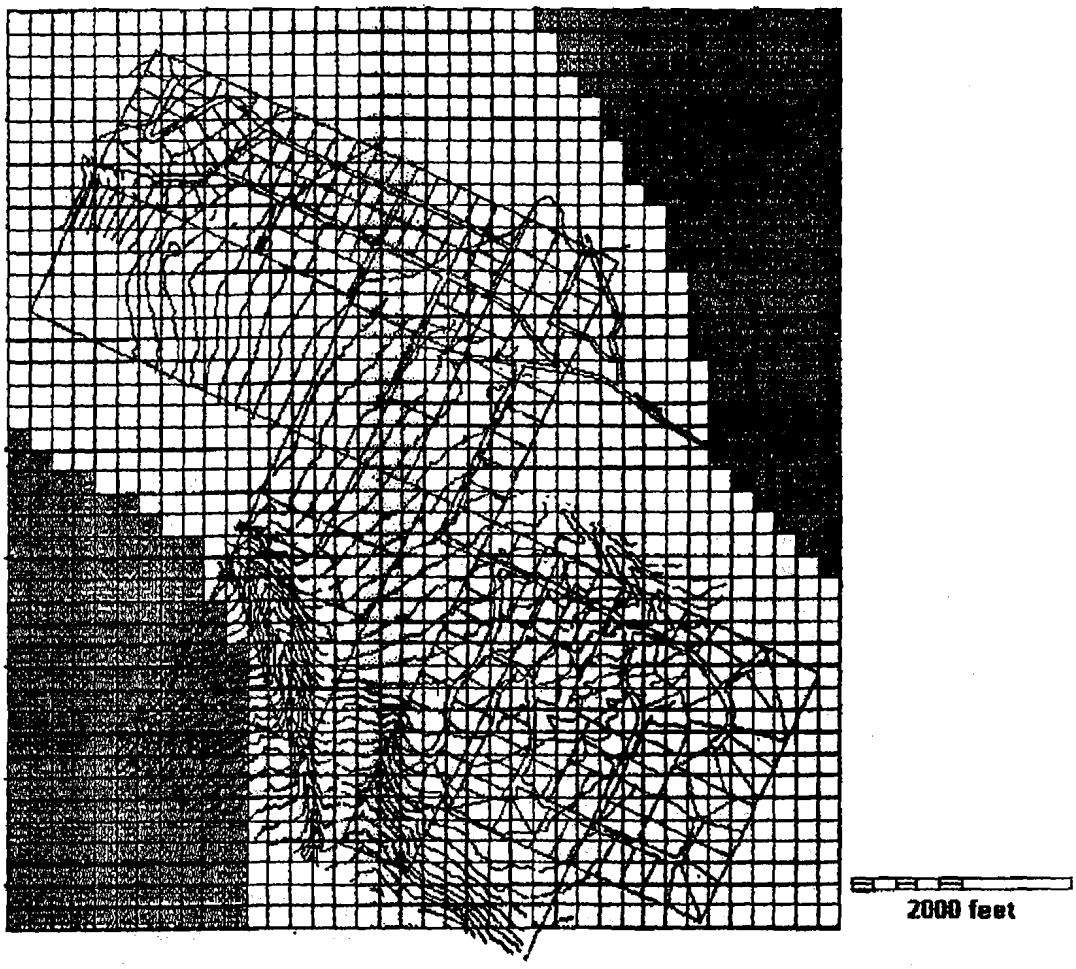
The range of values and the trend observed in Figure 6 suggests that groundwater levels have declined somewhat since 1958 when the first wells were constructed in the area. This observation is consistent with the increased development in the area, and with

anecdotal information that some wells have been deepened in response to well failures in the past. Some of this trend may be due to the general trend to construct deeper wells.

5.3 Model Input

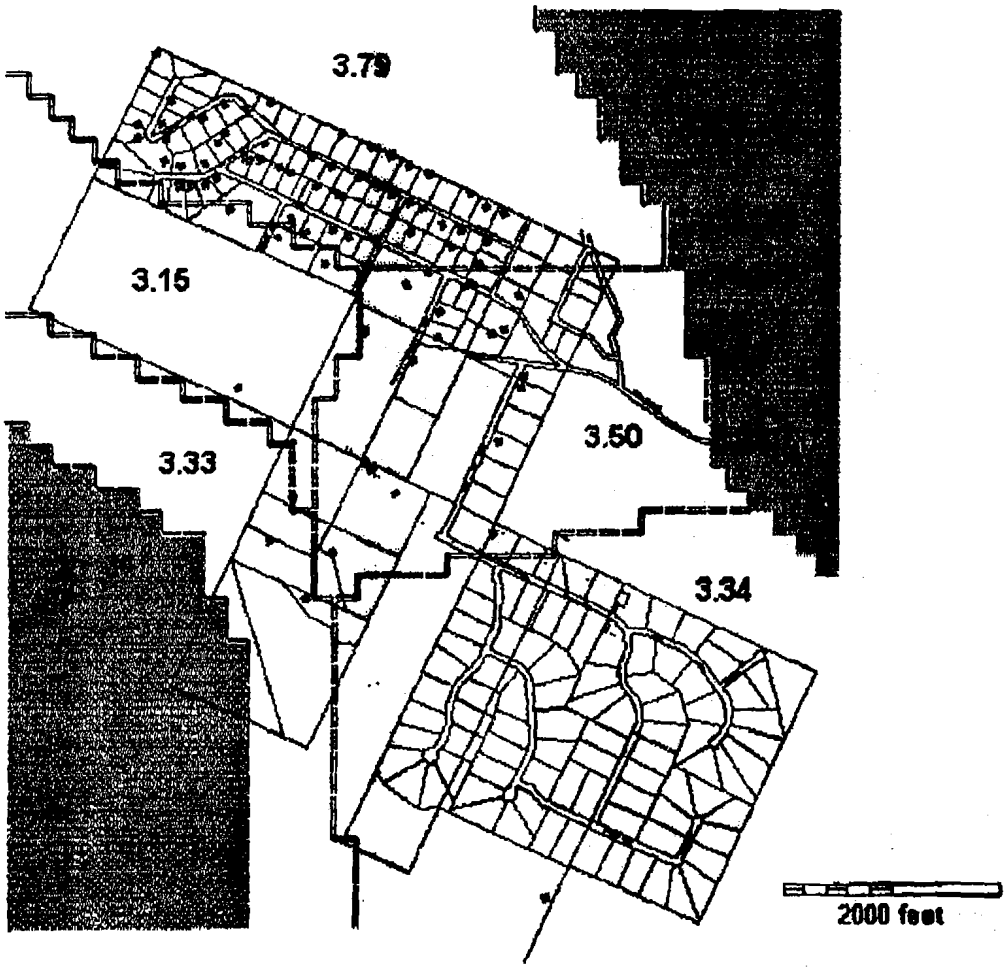
The model area was subdivided, or discretized, into a grid of cells 200 feet by 200 feet. The grid was rotated 25° in order to align the grid with the assumed groundwater flow direction. This assumed groundwater flow direction was based on surface elevation contours of the area. It was assumed that groundwater elevations would generally follow land surface elevations. Figure 7 depicts the model grid, and includes land surface contours. The gray areas in the upper left and lower right portion of the grid were assumed to be "no-flow" areas of the model. The model bottom was assigned an elevation of 4500 feet.

Figure 7
Model Grid and Land Surface Contours



Aquifer hydraulic conductivity in the model was assigned based on the results of the aquifer test described above. The model area was divided into five zones based on elevation and distance from the Sierra front. Recognizing the uncertainty of the estimated hydraulic conductivity value estimated from the aquifer test, various values within the zones were tested. The zone boundaries and values used for the model simulations are presented in Figure 8.

Figure 8
Model Hydraulic Conductivity Values (ft/day)



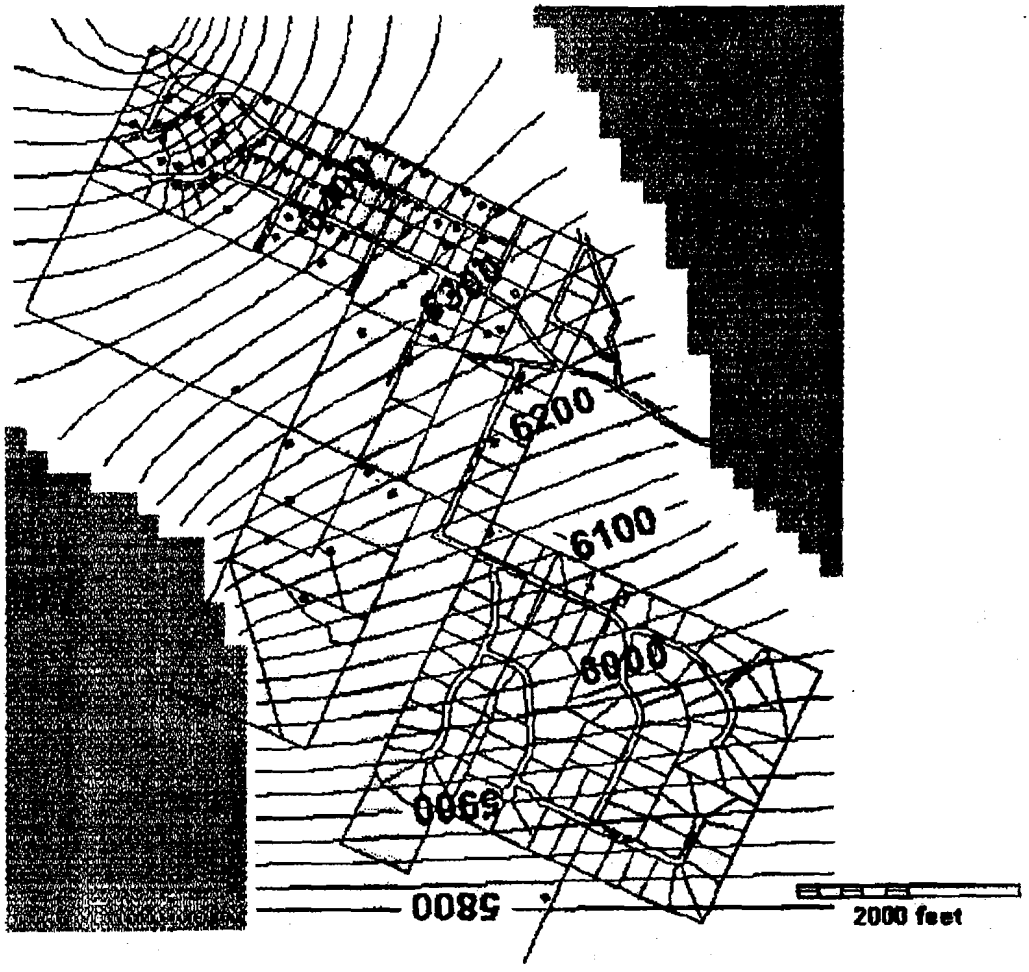
Recharge to the model area was assumed to be from two sources: recharge from rainfall within the model area, and subsurface flow into the model area from the north and west. Discharge from the model area was assumed to be along the southwestern boundary of the model area as subsurface outflow. Rainfall in the area is approximately 10 inches per year based on work completed by the US Geological Survey as part of the Owens Valley Groundwater Investigation in 1988. Assuming that 10% of the rainfall recharges the aquifer, about 91 acre-feet per year of recharge occurs over the 1,089 acres of the model

area. Subsurface inflow and outflow were simulated using constant head boundaries on the edges of the model. This type of boundary condition allows the model to estimate flows and provides a convenient method to establish groundwater elevations at the edges of the model area. At the upper end (inflow area), a groundwater elevation value of 6800 ft was used. At the lower end, a groundwater elevation value of 5790 ft was used.

5.4 Model Results – Pre Development Conditions

The model was run using the input data described above and Figure 9 depicts the results in terms of a contour map of groundwater elevations.

Figure 9
Groundwater Model Results
Steady State Groundwater Elevation Contours



The contours depicted on the map are a result of the input data, which included an aquifer test of WCCSD No. 4, estimates of recharge, and data related to groundwater elevations that span a 41 year period. Note that no pumping from the several wells in the area was assumed, so these results can be considered "pre-development" conditions. These model that was used to develop this contour map is not calibrated, but is considered a conceptual model at this time. More detailed investigations to understand the variation in hydraulic conductivity over the area and the specifics of hydrogeologic structures would be needed to develop a "calibrated" model. This model, however, is quite useful for the stated objectives of this investigation:

- No hydrogeologic barriers are assumed between WCCSD No. 4 and the wells in the Hilltop Estates area. Such a barrier would tend to reduce any pumping impact in the Hilltop Estates area. The existence of flowing wells along the lower portion of Hilltop Estates and the existence of the wetland area suggests that some sort of hydrogeologic structure or barrier may exist. This analysis makes a conservative assumption that the barrier does not exist for purposes of evaluating the worst-case condition.
- By using the hydraulic conductivity estimate from the aquifer test, and the assumption that the recharge from rainfall is about one inch per year (10% of the total rainfall), the model provides the ability to estimate the subsurface inflow and outflow. Based on these inputs and the general (within 20 to 100 feet) match of the model groundwater elevations with the actual groundwater elevations, the estimated inflow from the north and west is approximately 20,000 acre-feet per year. The outflow across the southwestern boundary is approximately the same, since the only other recharge to the system is rainfall recharge (about 91 acre-feet per year).
- The multiple regression suggested that groundwater levels have declined by as much as 1 foot per year as a result of development to date. However, several factors related to the pattern of development (i.e. the apparent trend to construct deeper wells in more recent years, and the general pattern that higher elevation areas were developed before lower elevation areas), may be influencing the data. By including well pumping data into the model, an alternative estimate of groundwater development impacts from current wells can be developed.
- The model represents a convenient tool to evaluate several scenarios of pumping WCCSD No. 4 and assessing the potential changes in groundwater levels in other wells in the area. In addition, the model can be used to assess groundwater level changes in the wetland area.

5.5 Model Application to Pumping Scenarios

Based on the data provided by Triad Holmes on water use in the area, the model input was enhanced to include well pumping in all areas. For purposes of this simulation, all wells other than the WCCSD wells were assumed to supply water to a single residence. WCCSD wells were pumped based on the data summarized in Table 1. All wells were "turned on" based on the data provided in Table 4 (i.e. if a well was constructed in 1976, the well was off from 1958 to 1975 and on from 1976 to 1999). Because there is some ambiguity in the per residence water use data as described earlier, three scenarios were run to assess the sensitivity of the pumping to changes in water levels. Pumping rates for individual residence wells were run assuming a per residence rate of 250 gallons per day per residence (gpdpr), 350 gpdpr, and 450 gpdpr.

5.5.1 *Impacts of Current Development*

Based on these runs where per residence water use was set as high as 450 gallons per day per residence, total drawdown due to current development after 41 years of pumping is less than one foot. However, the drawdown estimates are influenced by the high subsurface inflow into the area, and are likely understated.

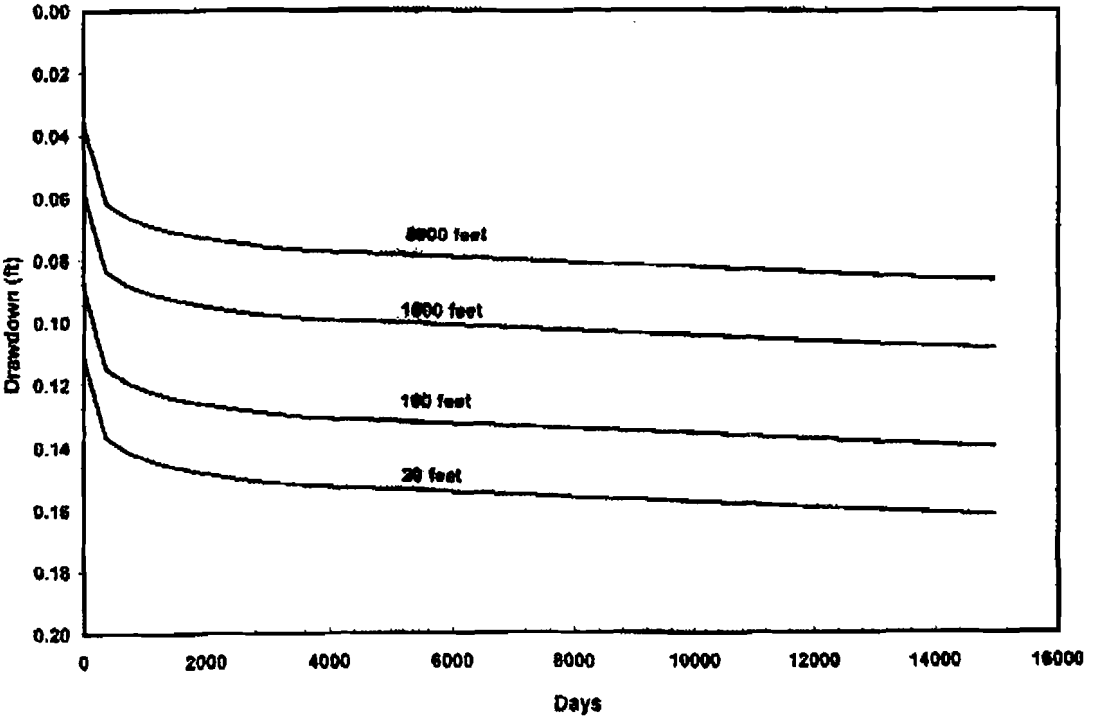
The model was run several times in an attempt to reduce the amount of inflow. However, when the inflow was reduced, the groundwater elevations fell to unreasonable levels. The model input parameter has the most "control" on the groundwater elevations is hydraulic conductivity. When subsurface inflow was reduced to 5,000 or 6,000 acre-feet per year, hydraulic conductivity would have to be reduced to less than 1 ft/day in order to maintain groundwater levels that were considered reasonable. Because the aquifer test results provided an estimate of hydraulic conductivity, reducing the hydraulic conductivity this much was not considered reasonable.

The model was also used to test alternative conceptualizations. Hydrogeologic barriers were included in the area of the wetland and at the lower end of Hilltop Estates. These barriers were included as a means to limit the total subsurface in the model and to better represent the observed areas of high groundwater levels (wetland and flowing wells). Several alternative configurations and hydraulic properties of the barrier were included. Although the subsurface inflow was reduced substantially (lowest calculated inflow was 1,000 acre-feet per year), the groundwater levels below the barrier dropped by more than 500 feet, and were not considered reasonable.

Although there is no comparable independent estimate of subsurface inflow. The inflow of 20,000 acre-feet per year seems to appear high and has the effect of reducing the drawdown caused by pumping. The magnitude of pumping 450 gallons per day per residence (about 40 acre-feet per year), is relatively small amount compared to the subsurface inflow. Analytical methods can be used to place this in perspective.

If the subsurface inflow is reduced to zero, and the water table is assumed to be flat, analytical methods can be used to estimate the drawdown of pumping 450 gpdpr over 41 years. Based on this approach, drawdown for each well is summarized in Figure 10.

Figure 10
Single Domestic Well Drawdown – Current Development
Jacob-Cooper Method



Based on this approach, a single well pumping at 450 gallons per day would result in about 0.1 feet of drawdown at a distance of 1000 feet after 41 years. At any given point, the observed drawdown would be the sum of the drawdowns of all pumping wells in the area. In order to accurately estimate the drawdown at a particular point, the time of pumping for each well would need to be considered (taken as the construction date) and the distance to each of the pumping wells. Given that there are 73 wells for which data are available (Table 4), and several others for which data are not available, and several dozen potential points for which drawdown estimates may be desirable, it can be easily seen that developing these estimates would be time-consuming. Moreover, these estimates would overstate the true conditions since this method ignores recharge, subsurface inflow, and the effect of the groundwater elevation gradient that is known to exist in the area. As a worst case estimate, however, if it assumed that each well produces 0.1 feet of drawdown, and there are 85 wells, the total drawdown is about 8.5 feet after 41 years.

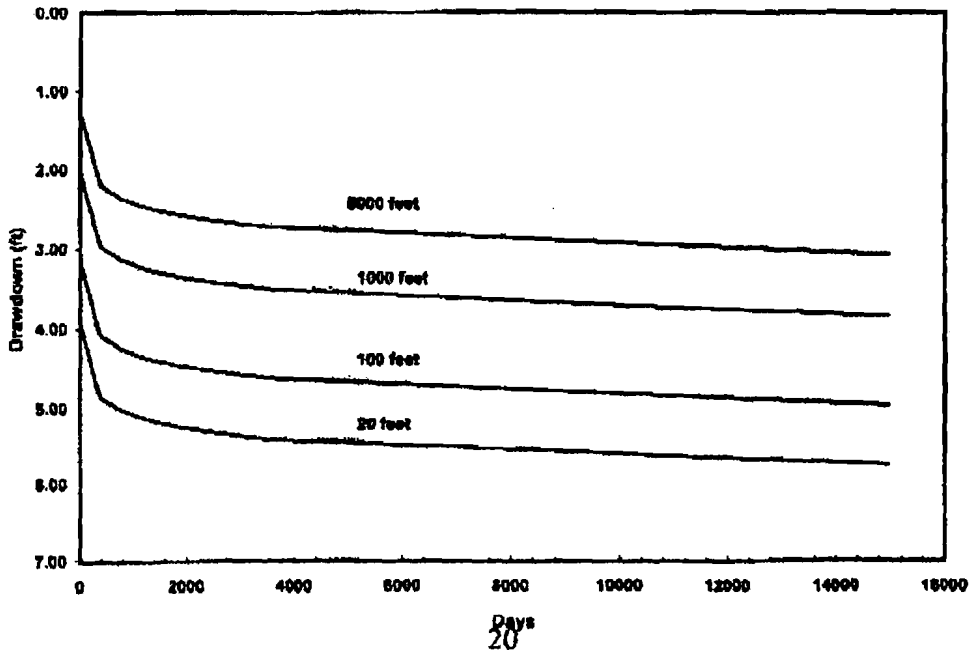
Resolution of the various estimates of groundwater level decline due to current development lies in developing a more complete and accurate conceptualization of the groundwater flow system. Additional data related to a better understanding of the subsurface in terms of barriers to flow, and the variation in hydraulic conductivity would be needed to complete this more accurate characterization. Based on this analysis, it can be stated that current levels of development has caused some decline in groundwater levels (from 1 to 40 feet, depending on the approach). Although this range is large, it provides a basis on which to interpret model estimates of impacts due to pumping of WCCSD No. 4.

5.5.2 *Potential Impacts of WCCSD No. 4*

Based on the data presented in Tables 1, 2 and 3 for the proposed 35-lot subdivision, the model input was enhanced to include the pumping of WCCSD No. 4. Due to the high subsurface inflow, pumping of WCCSD No. 4 at an average rate of 11 gpm (about 5.5 million gallons per year) would result in drawdowns of less than 0.5 feet within a mile of the well after a year of pumping. For the reasons stated earlier, this estimate is considered to be an understatement of the potential impact.

If subsurface inflow was ignored and the gradient of groundwater elevations was assumed to be flat, an analytical approach can be used to estimate the maximum drawdown caused by the pumping of WCCSD No. 4. Figure 11 summarizes the results.

Figure 11
Single Well Drawdown – WCCSD No. 4 Operation
Jacob-Cooper Method



Based on these results, the worst case scenario would be that drawdowns of about 2 feet would be observed about a mile away from the well after about one years. However, given the assumptions of this analysis (no recharge, no subsurface inflow, and no groundwater gradient), this is clearly an overestimate.

Assuming that WCCSD No. 4 pumps at a rate of 5.15 million gallons per year, drawdown estimates one mile away miles away after one year of pumping range from less than 0.5 feet to about 2 feet. The lower end of the estimate is considered unrealistic due to the high subsurface inflow that the model calculates. Attempts to reduce this inflow causes groundwater levels to drop to unrealistic levels, but drawdown estimates made with this model range from 0.5 to 1 foot 500 feet upgradient from the WCCSD No. 4. At the other extreme, assuming that no inflow and no recharge take place, and the mitigating effects of the groundwater gradient in the area are ignored, drawdown is estimated to be about 2 feet a mile away after one year of pumping.

In terms of significance, drawdowns of this magnitude would not normally be considered significant. The exception to this generality is the situation where a shallow well is experiencing reduced pumping volumes due to lowered groundwater levels. If the water level in a well is lowered enough, the pump will not operate. In these types of wells, small declines in water levels can be considered significant, but the impact may be due to a number of factors. For example, a prolonged drought may cause a well to "go dry", and other neighboring wells operation may have a direct or cumulative effect on the operation of the pump. It is important to note that even without the operation of WCCSD No. 4, these types of wells may suffer impact due to the continued operation of the 80 or so wells that are already operating. Declines of between to other well owners unless the their well was shallow. In this situation, any small decline in water level due to the effects of a prolonged drought or the operation of another domestic well could cause the well to go dry. Groundwater level declines of between 2 feet and 10 feet over the past several years are certainly reasonable to assume based on the analyses presented above. The additional decline caused by the operation of WCCSD No. 4 may be enough to "push a well over the edge", but this analysis is not precise enough to predict when and where that may occur.

In general, the proposed operation of WCCSD No. 4 at a rate of 5.15 million gallons will not have significant impacts to the area. There may be some specific instances, however, where impacts may occur. Given the limitations of the data that are available, and the associated limitations in the analyses, a monitoring and mitigation program is recommended in the next section that can be used as an early warning system to ensure that any impact that is measurable, attributable to the operation of WCCSD No. 4, and significant can be avoided.

6.0 RECOMMENDED MONITORING AND MITIGATION PLAN

Based on the findings and results of the simulations analyses, the following are recommended elements of a monitoring and mitigation plan.

- The most severe limitation of this analysis is the available data. Groundwater levels should be taken in wells on at least an annual basis. WCCSD should take quarterly water level (static) reading in each of its wells. If permission can be obtained and access to the well is reasonable, all other wells in the area should be measured annually. These data should be maintained by WCCSD with copies forwarded annually to Mono County.
- WCCSD should also develop estimates of the elevation of the measuring point of each well where data is collected. This information should be developed within five years from the initiation of operation of WCCSD No. 4 and the collection of depth to water data. This will ensure that that any future analyses are based on accurate estimates of groundwater elevation as well as depth to water.
- Pumping amounts should be recorded monthly in WCCSD wells, and reported annually to Mono County. In addition, the number of service connections should be accurately recorded and be included in the reporting forms. Pumping amounts from domestic wells can be estimated, if necessary in the future, based on these data.
- Because the potential for impact is considered low, pumping rotation or limitations are not part of this monitoring and mitigation plan.
- WCCSD No. 3 is apparently not scheduled to be used as a production well. Its location next to WCCSD No. 4 makes it an ideal well to monitor and to act as a triggering well. The trigger in this case is based on a water level decline more severe than the predicted decline under the worst case scenario presented in Figure 11. If the water level in WCCSD No. 3 drops more than 5 feet after one year of operation of WCCSD No. 4, all collected data should be analyzed to evaluate the potential for impact of other wells. The objective of the evaluation would be to update and enhance this effort with the benefit of additional data. This trigger is designed as an early warning system, because even if this drawdown occurred in a well less than 20 feet away from the pumping well after one year, it is highly unlikely that any significant impacts would be realized in other wells located further away after one year. As part of its reporting to Mono County, specific reference to this trigger should be made in the transmitting memorandum.

7.0 REFERENCES

Banks, H.O., 1953. Utilization of undersground storage reservoirs. Trans. Amer. Soc. Civil Engrs., vol 118, pp. 220-234.

Conkling, H., 1946. Utilization of groundwater storage in stream system development. Trans. Amer. Soc. Civil Engrs., vol 111, pp. 275-305.

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Lee, C.H., 1915. The determination of safe yield of underground reservoirs of the closed basin type. Trans. Amer. Soc. Civil Engrs., vol 78, pp. 148-151.

Menzer, O.E., 1923. Outline of groundwater hydrology, with definitions. US Geological Survey Water Supply Paper 494.

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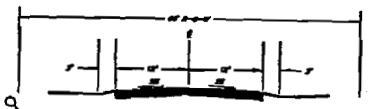
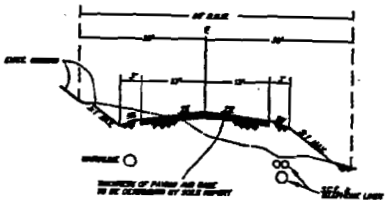
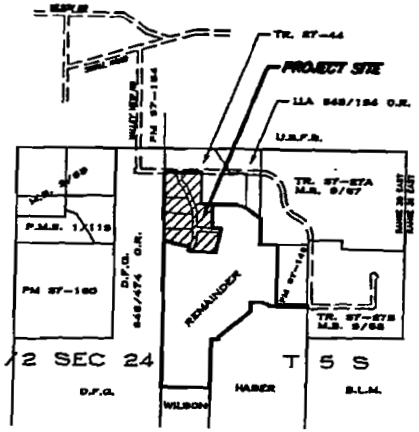
APPENDIX C--TENTATIVE TRACT MAPS, RIMROCK RANCH SPECIFIC PLAN



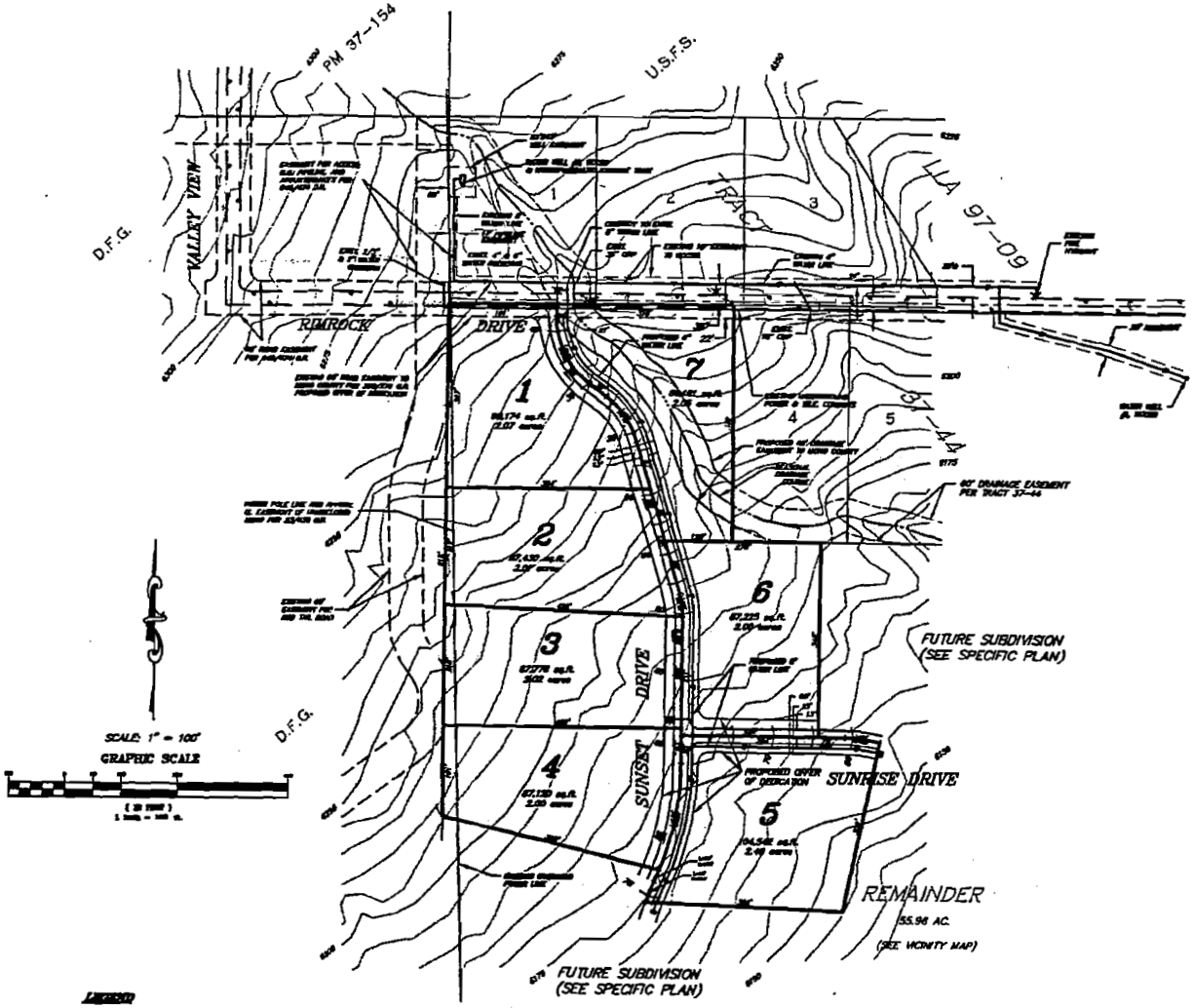
RIMROCK DRIVE
EXISTING ROAD SECTION
NO SCALE



SUNRISE DRIVE & SUNSET DRIVE
PROPOSED ROAD SECTION & UTILITY LOCATION
N.T.S.



VICINITY MAP
NO SCALE



SCALE: 1" = 100'
GRAPHIC SCALE
(IN FEET)
1 inch = 100 ft.

LEGEND

- EXISTING ELEVATION CONTOUR
- PROPOSED ROAD CONTOUR
- PROPOSED ROAD GRADE
- PROPOSED FIRE HYDRANT LOCATION (UNLESS NOTED AS EXISTING)
- EDGE OF EXISTING PAVEMENT

LOT DATA

TOTAL ACREAGE: 14.54 AC
NUMBER OF LOTS: 7
AVERAGE LOT SIZE: 2.08 AC (GROSS)
NOTE: ALL LOT AREAS SHOWN ARE GROSS ACREAGE

DESIGN NOTES

ASSESSOR'S PARCEL NO.: 64-100-33
GROSS SITE AREA: 70.52 ACRES±
DENSITY: 1 LOT PER 2 AC. (GROSS)
ZONING: SPECIFIC PLAN
EXISTING LAND USE DESIGNATION: ESTATE RESIDENTIAL
WATER SUPPLY: WHITE/OT CREST COMMUNITY SERVICES DISTRICT (WCCSD)
SEWAGE DISPOSAL: INDIVIDUAL SEPTIC/LEACH FIELDS
ELECTRICITY: S.C.E.
TELEPHONE: G.T.E.
FIRE PROTECTION: WHEELER CREST FIRE PROTECTION DISTRICT

OWNER

WILSON FAMILY TRUST
C/O JOHN R. WILSON
RTE 2, BOX 321
BISHOP, CA 93514
(760) 387-3421

DEVELOPER

RIMROCK RANCH PARTNERSHIP
C/O JOHN R. WILSON
RTE 2, BOX 321
BISHOP, CA 93514
(760) 387-3421

triad/holmes assoc
engineering
surveying

TENTATIVE TRACT MAP NO. 37-45

RIMROCK RANCH PHASE 3

BEING A DIVISION OF A PORTION OF THAT PARCEL DESIGNATED AS "REMAINDER" OF TRACT NO. 37-44 RECORDED IN BOOK 9 OF TRACT MAPS, AT PAGE 39 IN THE OFFICE OF THE COUNTY RECORDER, LOCATED IN SECTION 24, T5S, R31E, M.D.B.&M. IN THE COUNTY OF MONO COUNTY, STATE OF CALIFORNIA

8-11-98	
AS NOTED	
DL/RB/DD	
4301	
4301TENT2.DWG	
1	

LEGAL DESCRIPTION

BEING A DIVISION OF A PORTION OF THAT PORTION DESIGNATED AS "REMAINDER" OF TRACT NO. 37-___ AS PER MAP RECORDED IN BOOK ___ PAGE ___ OF TRACT MAPS, IN THE OFFICE OF THE COUNTY RECORDER. LOCATED IN SECTION 24, TOWNSHIP 5 SOUTH, RANGE 30 EAST, M.D.B.&M. IN THE COUNTY OF MONO COUNTY, STATE OF CALIFORNIA

OWNERS

RALPH AND LYN HABER
720 RIMROCK DR.
SMALL MEADOWS, CA 93514
AND WILSON FAMILY TRUST
C/O JOHN R. WILSON
1087 SMALL MEADOWS RD.
SMALL MEADOWS, CA 93514
(760) 387-2481

DEVELOPERS

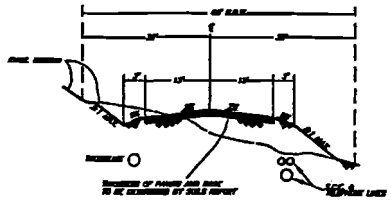
RIMROCK RANCH PARTNERSHIP
C/O JOHN R. WILSON
1087 SMALL MEADOWS RD.
SMALL MEADOWS, CA 93514
(760) 387-2481
RALPH AND LYN HABER
720 RIMROCK DR.
SMALL MEADOWS, CA 93514
(760) 387-2459

DESIGN NOTES

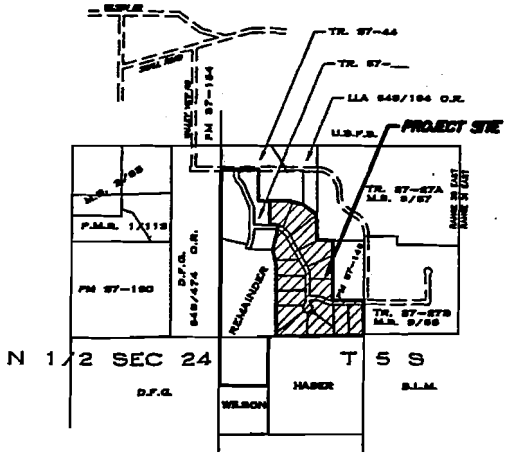
ASSESSOR'S PARCEL NO.: 64-100-33
GROSS SITE AREA: 55.69 AC RIMROCK, 50± AC HABER
DENSITY: 1 LOT PER 2.16 AC. (GROSS)
EXISTING ZONING: SPECIFIC PLAN
EXISTING LAND USE DESIGNATION: ESTATE RESIDENTIAL
WATER SUPPLY: WHEELER CREST COMMUNITY SERVICES DISTRICT
SEWAGE DISPOSAL: INDIVIDUAL SEPTIC/LEACH FIELDS
ELECTRICITY: S.C.E.
TELEPHONE: G.T.E.
FIRE PROTECTION: WHEELER CREST FIRE PROTECTION DISTRICT

PHASING

PHASE 1: LOTS 1 - 6 AND 12 - 16
PHASE 2: LOTS 7 - 11



PROPOSED ROAD SECTION & UTILITY LOCATION



VICINITY MAP

SCALE: 1" = 100'
GRAPHIC SCALE

triad/holmes assoc

RIMROCK RANCH PARTNERSHIP & RALPH AND LYN HABER
RIMROCK RANCH SUBDIVISION - PHASES 4 AND 5

TENTATIVE TRACT MAP 37-47

IN THE COUNTY OF MONO, STATE OF CALIFORNIA

9-11-98
1"=100'
01/98/00
4301
4301TENTS.DWG

1

OWNER

WILSON FAMILY TRUST
C/O JOHN R. WILSON
RTE 2, BOX 331
BISHOP, CA 93514
(760) 387-2471

DEVELOPER

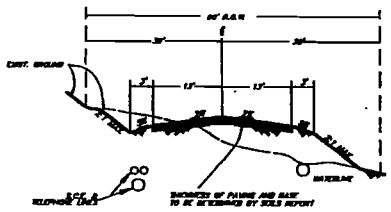
RIMROCK RANCH PARTNERSHIP
C/O JOHN R. WILSON
RTE 2, BOX 331
BISHOP, CA 93514
(760) 387-2471

LOT DATA

TOTAL ACREAGE: 31.41 AC
NUMBER OF LOTS: 12
AVERAGE LOT SIZE: 2.69 AC (GROSS)
NOTE: ALL LOT AREAS SHOWN ARE GROSS ACREAGE

GENERAL NOTES

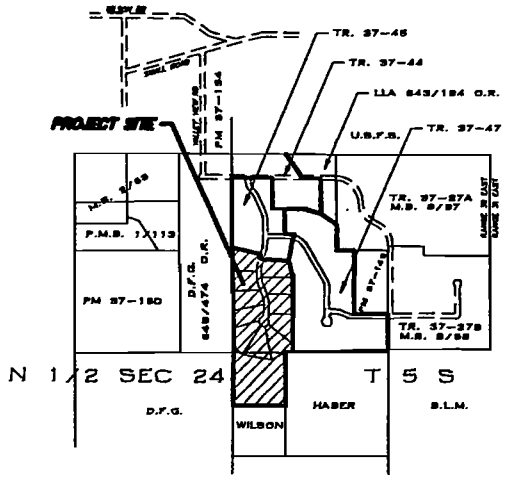
ASSESSOR'S PARCEL NO.: 64-100-33
GROSS SITE AREA: 31.41 ACRES±
DENSITY: 1 LOT PER 2 AC. (GROSS)
ZONING: SPECIFIC PLAN
EXISTING LAND USE DESIGNATION: ESTATE RESIDENTIAL
WATER SUPPLY: WHEELER CREST COMMUNITY SERVICES DISTRICT (WCCSD)
SEWAGE DISPOSAL: INDIVIDUAL SEPTIC/LEACH FIELDS
ELECTRICITY: S.C.E.
TELEPHONE: G.T.E.
FIRE PROTECTION: WHEELER CREST FIRE PROTECTION DISTRICT



SUNSET DRIVE
PROPOSED ROAD SECTION & UTILITY LOCATION
N.T.S.

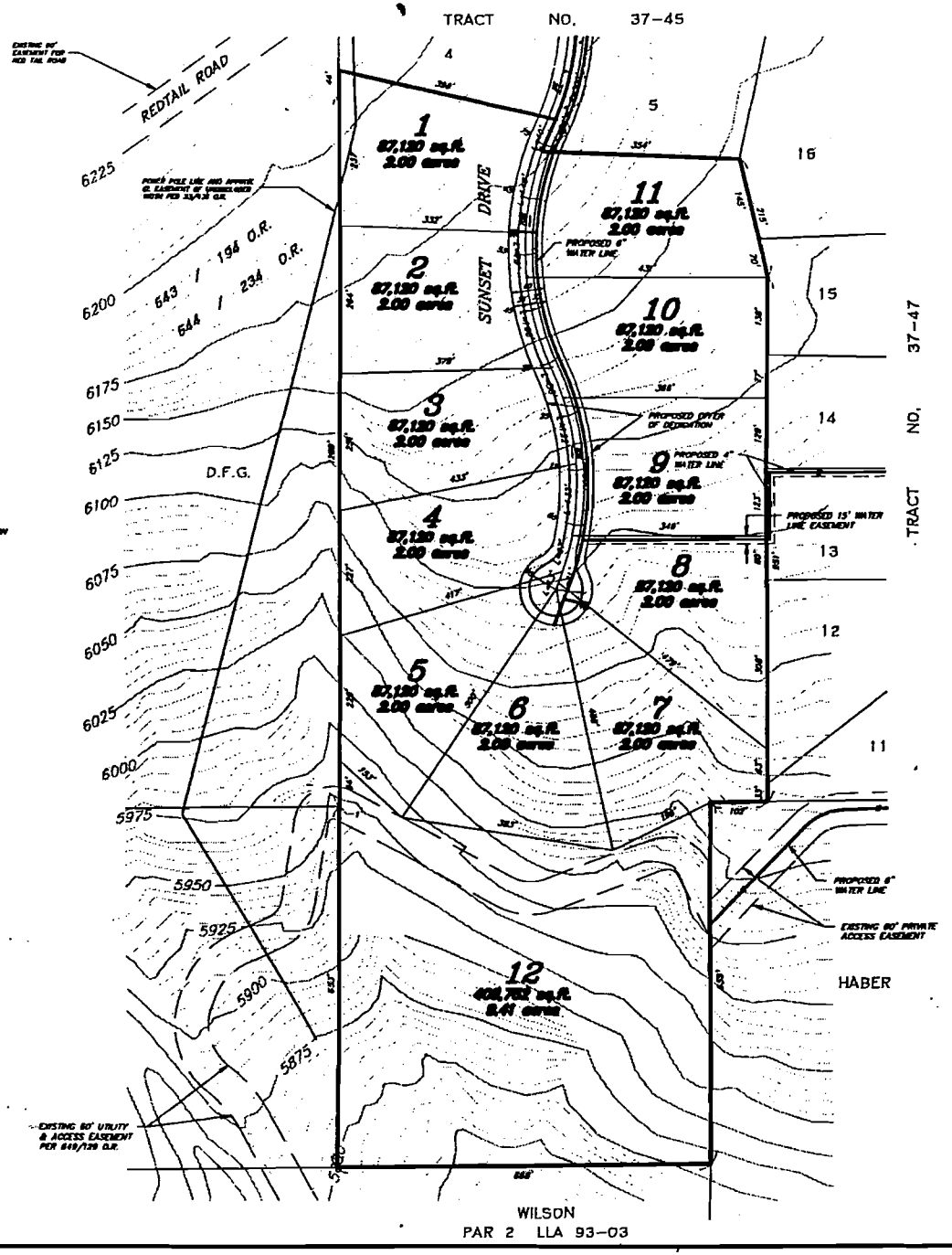
LEGEND

- 6125 — EXISTING ELEVATION CONTOUR
- PROPOSED ROAD CONTOUR
- PROPOSED ROAD GRADE
- PROPOSED FIRE HYDRANT LOCATION (UNLESS NOTED AS EXISTING)
- EDGE OF EXISTING PAVEMENT



VICINITY MAP
NO SCALE

SCALE: 1" = 100'



triad/holmes assoc

TENTATIVE TRACT MAP NO. 37-49
RIMROCK RANCH PHASE 6

BEING A SUBDIVISION OF A PORTION OF THAT PORTION DESIGNATED AS "REMAINDER" OF TRACT NO. 37-47 AS PER MAP RECORDED IN BOOK 74, PAGE 15 OF RECORD OF SURVEYS, RECORDS OF THE COUNTY OF INYO, STATE OF CALIFORNIA, SITUATED IN SECTION 24, T5S, R35E, M.D.B.&M. IN THE COUNTY OF INYO COUNTY, STATE OF CALIFORNIA

10-15-99
AS NOTED
DL/DB
430.1
430TENTA.DWG
1

APPENDIX D--SOILS REPORT

triad/holmes associates

civil engineering
surveying
public works
land development

mammoth lakes · bishop · redwood city · napa
san luis obispo

October 12, 1999

Mono County Health Department
P.O. Box 476
Bridgeport, CA 93517

Attention: Dennis Lampson

Dear Dennis:

Attached is a copy of the revised expanded soils suitability investigation for the Wilson Property (Rimrock Ranch) in Swall Meadows. All trench profile designations and the test pit location map have been revised to reflect the latest lot locations and numbers for the Rimrock Ranch Specific Plan.

Please review this and call me with any comments.

Respectfully,
TRIAD/HOLMES ASSOCIATES

Thomas A. Platz

TP:tg

Enclosure

cc: Steve Higa
John Wilson

549 old mammoth rd. #202 • p.o. box 1570 • mammoth lakes, ca 93546 • (760) 934-7588 • fax (760) 934-5619

REVISED

PRELIMINARY SOILS SUITABILITY INVESTIGATION

RIMROCK RANCH SPECIFIC PLAN

SWALL MEADOWS, MONO COUNTY, CALIFORNIA

W.O. 430.1

October, 1999

JN: 430.1

Prepared By:

TRIAD/HOLMES ASSOCIATES
P.O. Box 1570
Mammoth Lakes, CA 93546
(760) 934-7588

Thomas A. Platz, President
P.E. C41039

TABLE OF CONTENTS

PURPOSE

The purpose of this investigation is to develop a general idea of the types of individual sewage disposal systems needed in various areas of the Rimrock Ranch Specific Plan property. Prior investigations in Pinon Ranch located immediately to the east, on Parcels 1 and 2 of Lot Line Adjustment 97-09, and on Specific Plan Lots 24, and 54-57, indicated that more often than not, individually engineered pressure dosing sand filter systems are needed. These systems were required typically due to shallow depths to the Bishop Tuff bedrock formation. Where alluvial soils were found to a thickness of eight feet or more, and acceptable percolation rates were obtained, conventional sewage disposal systems were designed. Since the Specific Plan property is located immediately adjacent to Pinon Ranch, it is likely that a similar mix of sewage disposal system designs will be necessary. At the request of the Mono County Health Department, enough excavations were made on the site to get a general idea of soil depth patterns, and preliminarily determine which lots are likely to need pressurized sand filter disposal systems.

These explorations are preliminary and not intended to be adequate for final design purposes. An indication that adequate alluvial soils exist on a lot is not a guarantee that a conventional disposal system can be constructed. Percolation rates must fall within acceptable ranges, and the area of adequate soil must also be of sufficient size and in an acceptable location.

GENERAL SITE CONDITIONS

The Specific Plan properties cover a transitional soils area, with a generally deeper alluvial soils than found throughout Pinon Ranch. The westerly lots, closer to Wheeler Crest will generally have very deep alluvial soils while the easterly parcels tend have thinner soils underlain by Bishop Tuff.

The well drillers log for the existing well on Lot 1 (PM 37-44) showed a 108 foot layer of alluvial soils, with the Bishop Tuff layer encountered between the depth of 108 feet and 276 feet. One quarter mile east, in the Pinon Ranch subdivision, this Bishop Tuff layer is typically within two or three feet of the surface except where deeper bands of alluvial soils are randomly encountered.

1994 EXPLORATION WORK

In March and December of 1994, fifty exploratory test pits were excavated and logged across the entirety of the Specific Plan Area. The soil profile within the trenches confirmed that the soil depths indeed are thicker to the west while those lots closer to Pinon Ranch on the east have thinner soil underlain by indurated Bishop Tuff. Logs of the trenches are enclosed in Appendix A as Soil Profile Observations. Each trench profile has been revised to reflect the new lot numbers on the Specific Plan.

Lots where eight feet of alluvials (or more) were encountered were: 4 through 6 (PM 37-44), 1 through 6, 8 through 10, 12 through 19 and 29 through 35. Lots 20 through 22 appeared to be transitional. Although the locations tested

had at least eight feet of alluvial material, it is possible that Bishop Tuff would be encountered within the upper eight feet if the tests were excavated closer to their west property lines.

Bishop Tuff was encountered within the upper eight feet on Lots 23 through 28. Our opinion is that finding a location on these lots with an adequately sized and located area of eight foot alluvial soils would be difficult or impossible. A line was drawn on the Test Pit Location Map (Appendix B) showing the approximate transitional boundary between the thicker and thinner alluvial soils.

PREVIOUS EXPLORATIONS

In 1991, an Engineering Report for Sewage Disposal was prepared for Parcel Map 37-146. That investigation included nine test pits at locations shown on the Test Pit Location Map (Appendix A). These nine sites are given number designations on the map to correspond to this report.

The results of those excavations show Bishop Tuff encountered at depths of 3 inches to 18 inches in Test Pits 3 through 8. Test Pits 1, 2, and 9 were in an alluvial band. Tuff was not encountered at locations 1 and 9, and was found at five feet at locations 2.

In 1993 and Engineering Report for Sewage Disposal System was prepared for the Haber property located to the south. Two soil percolation test

holes and one soil profile hole were excavated. The sites are labeled PK1, PK2 and PH1 to correspond to this report.

Bishop Tuff was found at 2 feet in two locations, and 1½ feet at the third. A pressure dosing sand filter sewage disposal system was designed and is being installed.

Between 1989 and 1999, numerous Engineering Reports for Sewage Disposal Systems were prepared for various single – lots throughout the Pinon Ranch Subdivision. Soil Profile tests holes were excavated on Lots 18 through 21 of Parcel Map 37-27 adjacent to the Rimrock Ranch Specific Plan. The test pits revealed Bishop Tuff at shallow depths on Lot 18 only. Each test pit has been labeled to correspond to this report.

Test pits excavated for PM 37-44 in 1989 indicated thinner soils on Lot 6 only, which is consistent with the trend of soil thickness lessening to the east (see Test Pit Location Map).

CONCLUSIONS

A majority of the lots within the Rimrock Ranch Specific Plan will have locations suitable for conventional sewage disposal systems if acceptable percolation rates are achieved when site specific sewage disposal reports are prepared. Development on some lots will require pressure dosing sand filter systems due to

the house location selected, and other lots will require pressure dosing sand filter systems regardless of house placement.

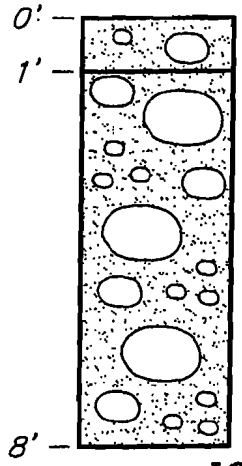
Since soil conditions can vary over relatively short distances, no absolute conclusions should be drawn from the previous investigations. At such time when house locations are known and tentative sewage disposal areas are selected, a Registered Civil Engineer or Registered Geologist should be retained to perform the percolation tests and observations required for sewage disposal system designs. The previous exploration information can be used in conjunction with such a design only when the locations correspond with the proposed sewage disposal area.

In general, the lots located further west will have a greater chance of being able to use conventional sewage disposal systems. The lots toward the east will have a greater chance of being required to install a pressure dosing sand filter system. Appendix D contains a typical design of a pressure dosing sand filter design that currently meets County standards. On all lots, confirmation of soils conditions must be made when the exact sewage disposal field location has been determined.

In accordance with Mono County Health Department requirements, a 50-foot setback must be maintained from well-defined drainage courses to the leach field area boundary. A map of Well-Defined Drainage Courses throughout the Specific Plan area is enclosed in Appendix C.

APPENDIX A
Soil Profile Observations

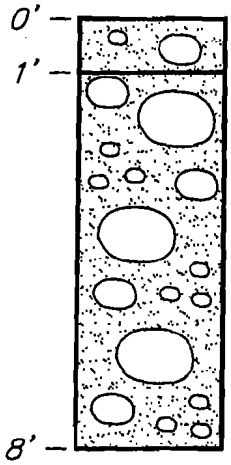
LOT 1 (PM 37-44)
FORMERLY LOT 1



S.P. LIGHTLY ROOTED, W/ SOME COBBLES

S.P. W/MANY COBBLE TO BOULDER SIZE ROCK

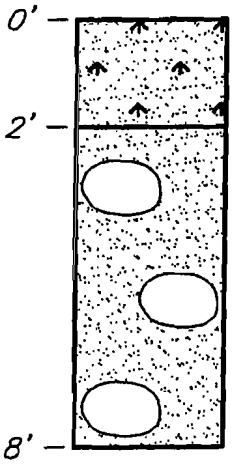
LOT 3 (PM 37-44)
FORMERLY LOT 4



S.P. LIGHTLY ROOTED, W/ SOME COBBLE TO BOULDER SIZE ROCK

S.P. W/MANY COBBLE TO BOULDER SIZE ROCK

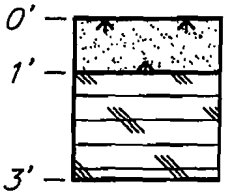
LOT 2 (PM 37-44)
FORMERLY LOT 2



S.P. LIGHTLY ROOTED, W/FEW PEBBLES TO COBBLES

S.P. W/FEW HIGHLY DECOMPOSED GRANITIC ROCK

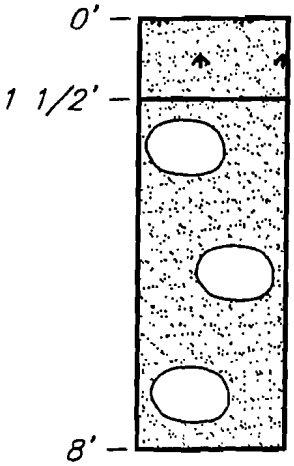
LLA PAR. 3
FORMERLY LOT 5



S.P. LIGHTLY ROOTED

BISHOP TUFF BEDROCK

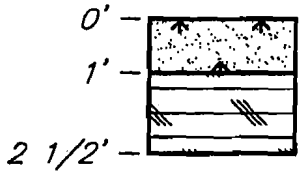
LOT 2 (PM 37-44)
FORMERLY LOT 3



S.P. LIGHTLY ROOTED, W/FEW PEBBLES TO COBBLES

S.P. W/FEW HIGHLY DECOMPOSED GRANITIC BOULDERS

LLA PAR. 2
FORMERLY LOT 6



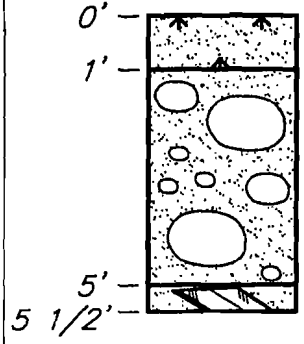
S.P. LIGHTLY ROOTED

BISHOP TUFF BEDROCK

ALLUVIAL SOILS – LEGEND

S.P. POORLY GRADED SANDS, D.G.
S.M. SILTY SANDS, SAND–SILT MIXTURES
S.W. WELL GRADED SANDS, GRAVELLY SANDS
G.P. POORLY GRADED GRAVEL
D.G. DECOMPOSED GRANITE

LLA PAR. 1
FORMERLY LOT 7

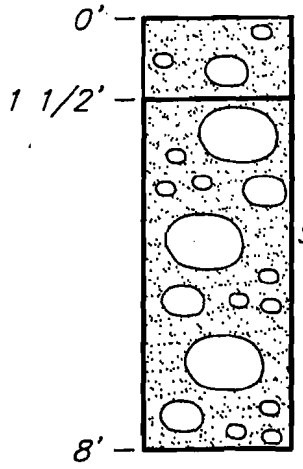


S.P. W/MODERATE ROOTS

S.P. W/SOME COBBLE TO BOULDER SIZE ROCK

BISHOP TUFF SLAB

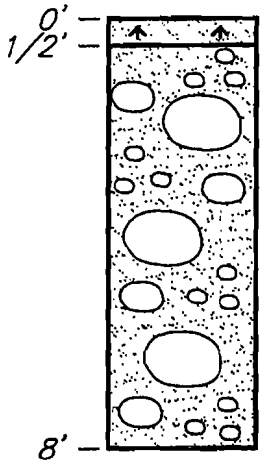
LOT 4 (PM 37-44)
FORMERLY LOT 10



S.P./S.M. W/SOME PEBBLE TO BOULDER SIZE ROCK

S.P./S.M. W/SOME COBBLE TO BOULDER SIZE ROCK

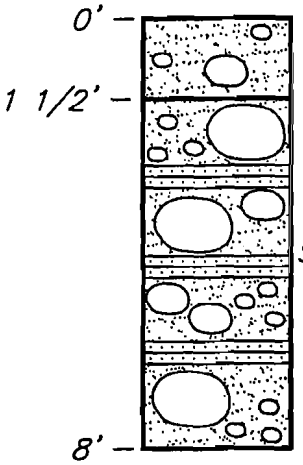
LOT 6 (PM 37-44)
FORMERLY LOT 8



S.P./S.M. W/MODERATE ROOTS

S.P./S.M. W/SOME COBBLE TO BOULDER SIZE ROCK

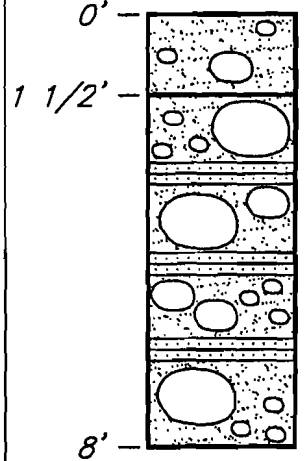
LOT 34
FORMERLY LOT 11



S.P./S.M. W/SOME COBBLES

S.P./S.W. W/MANY COBBLE TO BOULDER SIZE ROCK AND SAND LENSES, PARTIALLY CEMENTED

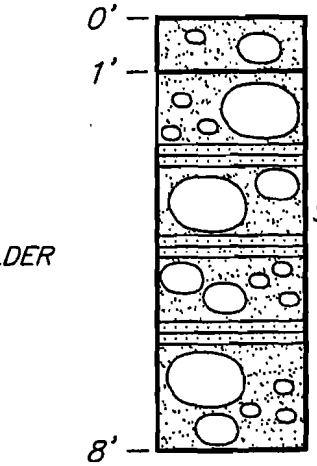
LOT 5 (PM 37-44)
FORMERLY LOT 9



S.P./S.M. W/MODERATE ROOTS, PEBBLES AND COBBLES

S.P. W/MANY COBBLE TO BOULDER SIZE ROCK AND SAND LENSES W/SOME PEBBLES

LOT 2
FORMERLY LOT 12



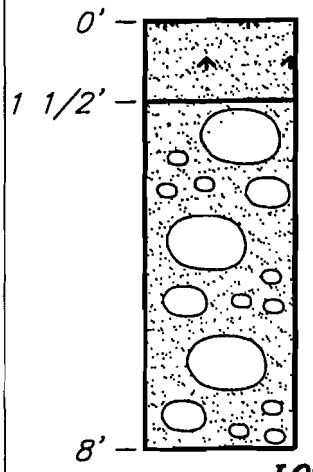
S.P./S.M. W/FEW ROOTS

S.P./S.M. W/MANY COBBLE TO BOULDER SIZE ROCK AND GRAVELLY SAND LENSES, PARTIALLY CEMENTED

ALLUVIAL SOILS – LEGEND

S.P. POORLY GRADED SANDS, D.G.
S.M. SILTY SANDS, SAND–SILT MIXTURES
S.W. WELL GRADED SANDS, GRAVELLY SANDS
G.P. POORLY GRADED GRAVEL
D.G. DECOMPOSED GRANITE

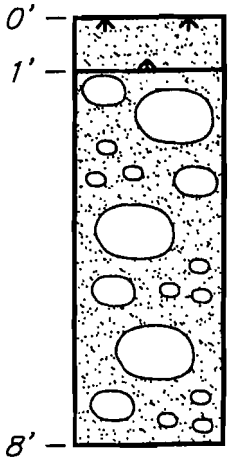
LOT 33
FORMERLY LOT 13



S.P. HEAVILY ROOTED

S.P. W/MANY LARGE COBBLE TO BOULDER SIZE ROCK, PARTIALLY CEMENTED

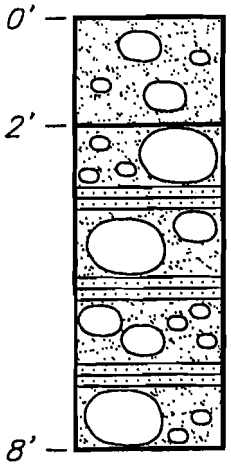
LOT 32
FORMERLY LOT 14



S.P. HEAVILY ROOTED

S.P. W/MANY LARGE COBBLE TO BOULDER SIZE ROCK, PARTIALLY CEMENTED

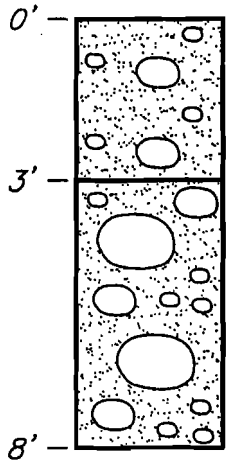
LOT 31
FORMERLY LOT 15



S.P. W/FEW ROOTS, SOME PEBBLES AND COBBLES

S.P. W/PEBBLEY SAND LENSES, AND FEW COBBLE TO BOULDER SIZE ROCK, PARTIALLY CEMENTED

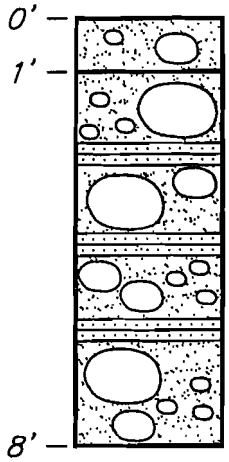
LOT 31
FORMERLY LOT 16



S.P. W/FEW ROOTS, SOME PEBBLES AND COBBLES

S.P./S.W. W/MANY BOULDERS

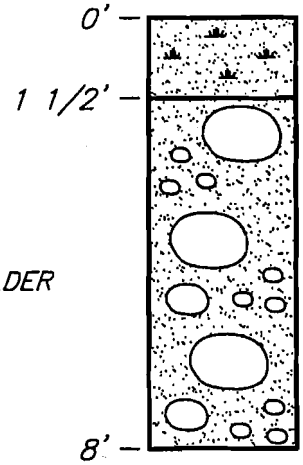
LOT 30
FORMERLY LOT 17



S.P./S.M. W/FEW ROOTS

S.P./S.M. W/MANY COBBLE TO BOULDER SIZE ROCK AND GRAVELLY SAND LENSES, PARTIALLY CEMENTED

LOT 29
FORMERLY LOT 18



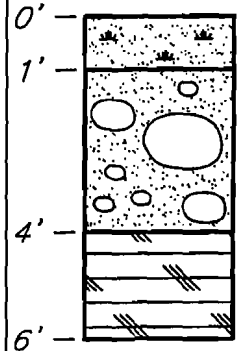
S.P. SLIGHTLY ORGANIC W/ MANY COBBLES

S.P. W/MANY COBBLE TO BOULDER SIZE ROCK

ALLUVIAL SOILS – LEGEND

S.P. POORLY GRADED SANDS, D.G.
S.M. SILTY SANDS, SAND–SILT MIXTURES
S.W. WELL GRADED SANDS, GRAVELLY SANDS
G.P. POORLY GRADED GRAVEL
D.G. DECOMPOSED GRANITE

LOT 28
FORMERLY LOT 19

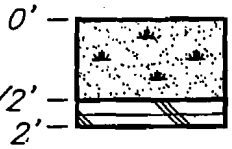


S.P./S.M. SLIGHTLY ORGANIC

S.P./S.M. W/MANY COBBLE TO BOULDER SIZE ROCK

BISHOP TUFF BEDROCK

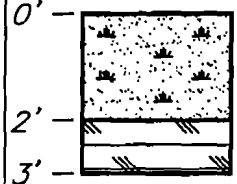
LOT 25
FORMERLY LOT 22



S.P. MODERATELY ORGANIC, W/ MANY PEBBLES

BISHOP TUFF BEDROCK, W/MANY INCLUSIONS OF GRANITIC SAND

LOT 27
FORMERLT LOT 20



S.P. SLIGHTLY ORGANIC

BISHOP TUFF BEDROCK

LOT 23
FORMERLY LOT 23

S.P. MODERATELY ORGANIC, W/ MANY PEBBLES

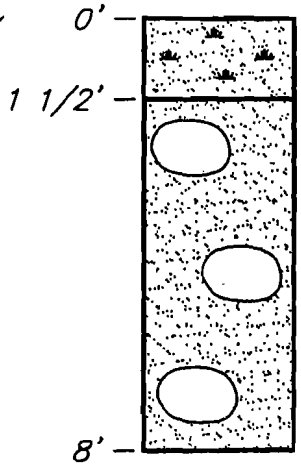
FRACTURED BISHOP TUFF BEDROCK, W/MANY INCLUSIONS OF GRANITIC SAND

LOT 26
FORMERLY LOT 21

S.P. MODERATELY ORGANIC, W/ MANY PEBBLES

FRACTURED BISHOP TUFF BEDROCK, W/MANY INCLUSIONS OF GRANITIC SAND

LOT 35
FORMERLY LOT 27



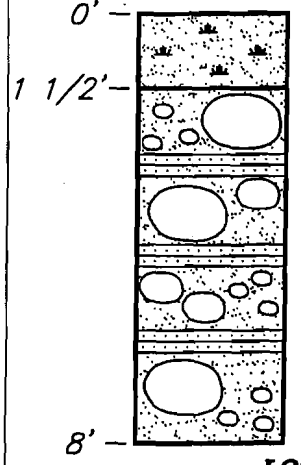
S.P. SLIGHTLY ORGANIC, W/ FEW COBBLES

S.P. PARTIALLY CEMENTED, W/ FEW HIGHLY DECOMPOSED GRANITIC BOULDERS

ALLUVIAL SOILS – LEGEND

S.P. POORLY GRADED SANDS, D.G.
S.M. SILTY SANDS, SAND–SILT MIXTURES
S.W. WELL GRADED SANDS, GRAVELLY SANDS
G.P. POORLY GRADED GRAVEL
D.G. DECOMPOSED GRANITE

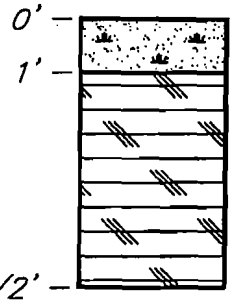
LOT 35
FORMERLY LOT 27(a)



S.P. SLIGHTLY ORGANIC, W/ FEW PEBBLES

S.P./S.W. W/MANY COBBLE TO BOULDER SIZE ROCK AND SOME GRAVELLY SAND LENSES

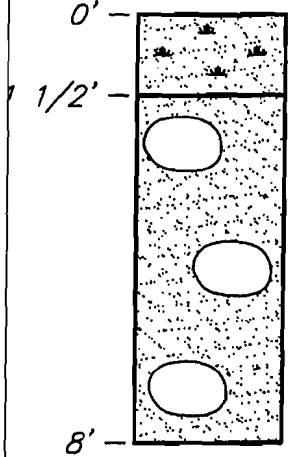
LOT 21
FORMERLY LOT 31



S.P. MODERATELY ORGANIC, W/ MANY PEBBLES

BISHOP TUFF BEDROCK, HIGHLY FRACTURED

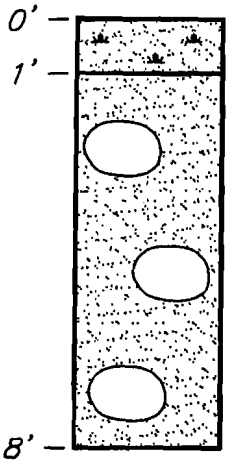
LOT 35
FORMERLY LOT 28



S.P. SLIGHTLY ORGANIC, W/ FEW PEBBLES

S.P. PARTIALLY CEMENTED, W/ FEW HIGHLY DECOMPOSED GRANITIC BOULDERS

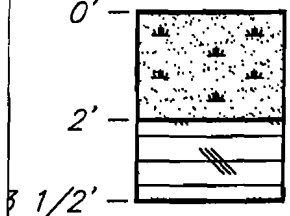
LOT 19
FORMERLY LOT 32



S.P. SLIGHTLY ORGANIC, W/ FEW PEBBLES

S.P. PARTIALLY CEMENTED, W/ FEW HIGHLY DECOMPOSED GRANITIC BOULDERS

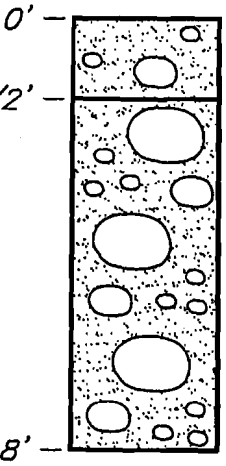
LOT 22
FORMERLY LOT 29/30



S.P. MODERATELY ORGANIC, W/ MANY PEBBLES

BISHOP TUFF BEDROCK W/MANY INCLUSIONS OF GRANITIC SAND

LOT 13
FORMERLY LOT 33



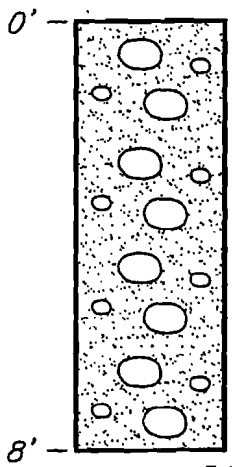
S.P. W/MANY PEBBLES TO COBBLES

S.P. W/MANY COBBLES

ALLUVIAL SOILS – LEGEND

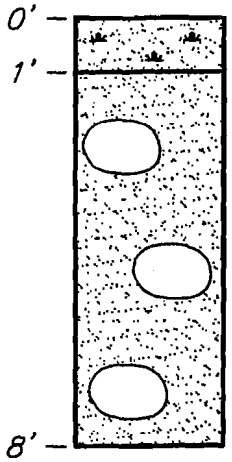
S.P. POORLY GRADED SANDS, D.G.
S.M. SILTY SANDS, SAND–SILT MIXTURES
S.W. WELL GRADED SANDS, GRAVELLY SANDS
G.P. POORLY GRADED GRAVEL
D.G. DECOMPOSED GRANITE

LOT 12
FORMERLY LOT 34



S.P. W/FEW PEBBLES TO COBBLES

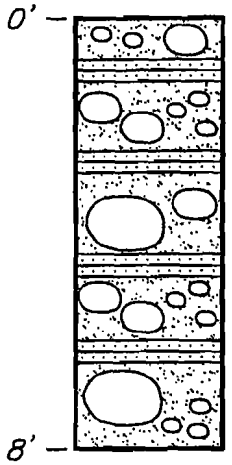
LOT 10
FORMERLY LOT 35



S.P. SLIGHTLY ORGANIC, W/FEW PEBBLES

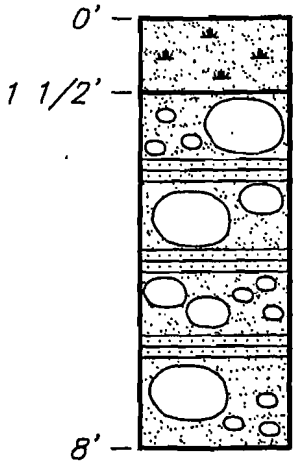
S.P. PARTIALLY CEMENTED, W/ FEW HIGHLY DECOMPOSED GRANITIC BOULDERS

LOT 9
FORMERLY LOT 36



S.P. W/MANY COBBLE TO BOULDER SIZE ROCK, SOME GRAVELLY SAND LENSES

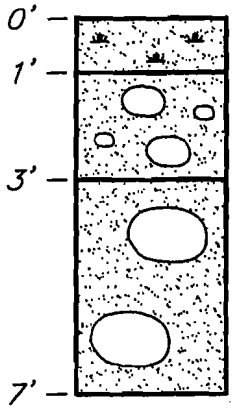
LOT 8
FORMERLY LOT 37



S.P. SLIGHTLY ORGANIC, W/FEW PEBBLES

S.P./S.W. W/MANY COBBLE TO BOULDER SIZE ROCK, SOME GRAVELLY SAND LENSES

LOT 8
FORMERLY LOT 38

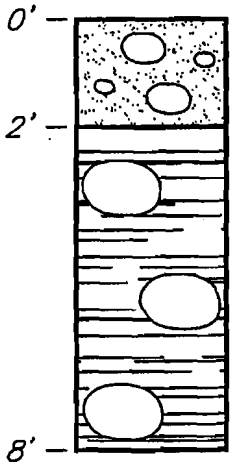


S.P. SLIGHTLY ORGANIC

S.P./G.P. W/SOME PEBBLE TO COBBLE SIZE ROCK

S.P. W/SOME COBBLE TO BOULDER SIZE ROCK

LOT 6
FORMERLY LOT 39



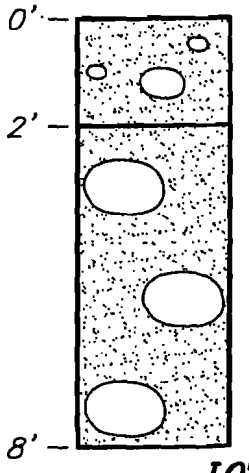
S.P./G.P. W/SOME COBBLES

S.P. ASH W/SOME COBBLE TO BOULDER SIZE ROCK

ALLUVIAL SOILS – LEGEND

S.P. POORLY GRADED SANDS, D.G.
S.M. SILTY SANDS, SAND–SILT MIXTURES
S.W. WELL GRADED SANDS, GRAVELLY SANDS
G.P. POORLY GRADED GRAVEL
D.G. DECOMPOSED GRANITE

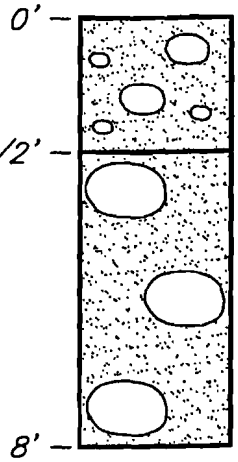
LOT 13
FORMERLY LOT 39(a)



S.P./G.P. W/FEW PEBBLES TO COBBLES

S.P. W/SOME COBBLE TO BOULDER SIZE ROCK

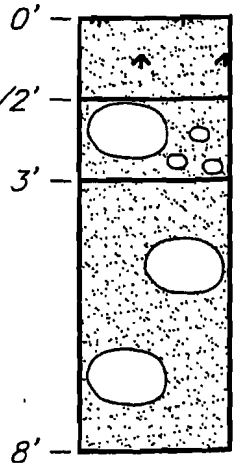
LOT 14
FORMERLY LOT 40



S.P. W/SOME PEBBLES TO COBBLES

S.P. W/SOME COBBLE TO BOULDER SIZE ROCK

LOT 15
FORMERLY LOT 41

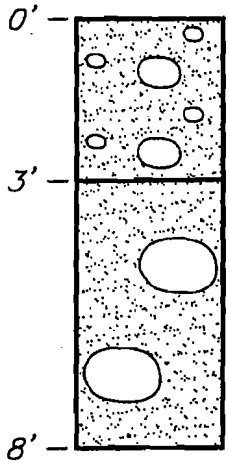


S.M. LIGHTLY ROOTED AND SLIGHTLY ORGANIC

S.P. W/MANY BOULDERS

S.P./G.P. W/FEW BOULDERS

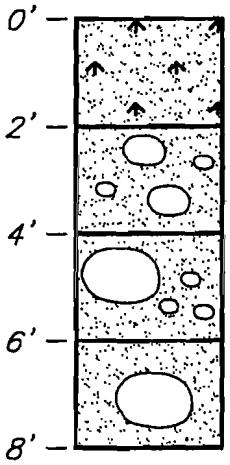
LOT 18
FORMERLY LOT 41(a)



S.P./G.P. W/FEW PEBBLES TO COBBLES

G.P. W/SOME COBBLE TO BOULDER SIZE ROCK

LOT 17
FORMERLY LOT 42



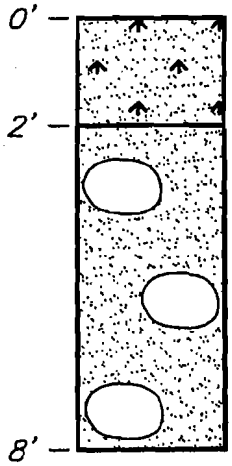
S.M. LIGHTLY ROOTED AND SLIGHTLY ORGANIC

S.P./G.P. W/SOME PEBBLES TO COBBLES

S.P. W/MANY COBBLE TO BOULDER SIZE ROCK

S.P. W/SOME COBBLE TO BOULDER SIZE ROCK

LOT 16
FORMERLY LOT 43



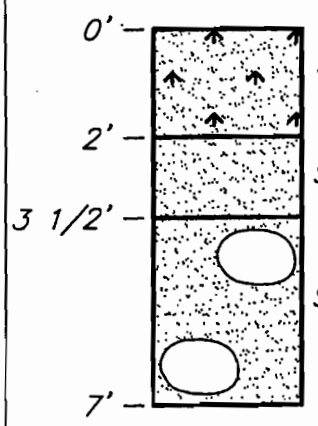
S.P. LIGHTLY ROOTED AND SLIGHTLY ORGANIC

S.P. W/FEW BOULDERS

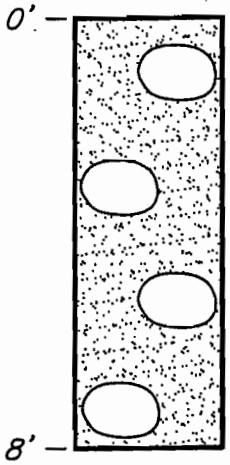
ALLUVIAL SOILS – LEGEND

S.P. POORLY GRADED SANDS, D.G.
S.M. SILTY SANDS, SAND–SILT MIXTURES
S.W. WELL GRADED SANDS, GRAVELLY SANDS
G.P. POORLY GRADED GRAVEL
D.G. DECOMPOSED GRANITE

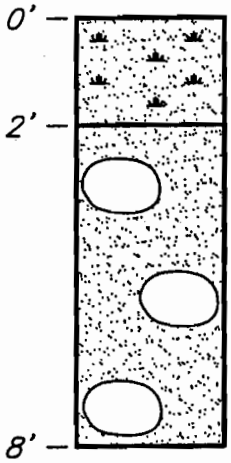
PROPOSED ROAD SITE
FORMERLY LOT 44



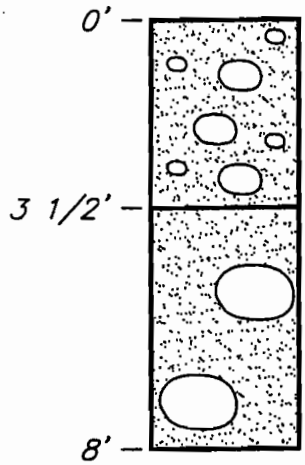
LOT 6
FORMERLY LOT 47



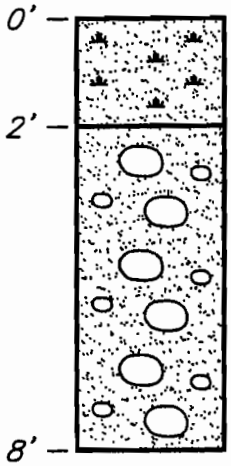
LOT 16
FORMERLY LOT 45



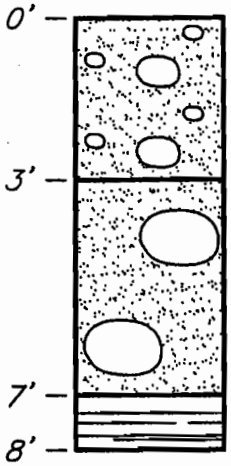
LOT 5
FORMERLY LOT 48



LOT 16
FORMERLY LOT 46



LOT 4
FORMERLY LOT 49

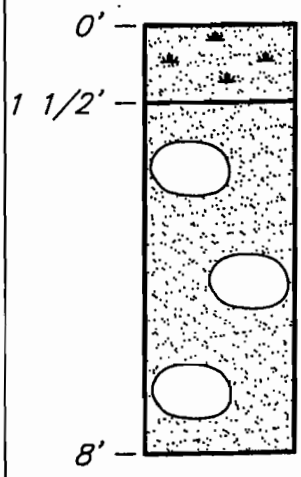


ALLUVIAL SOILS – LEGEND

S.P. POORLY GRADED SANDS, D.G.
S.M. SILTY SANDS, SAND–SILT MIXTURES
S.W. WELL GRADED SANDS, GRAVELLY SANDS
G.P. POORLY GRADED GRAVEL
D.G. DECOMPOSED GRANITE

LOT 3

FORMELY LOT 50

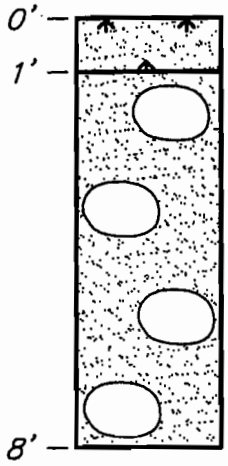


S.P. HEAVILY ORGANIC

S.P./G.P. W/FEW BOULDERS

LOT 1

FORMELY LOT 53



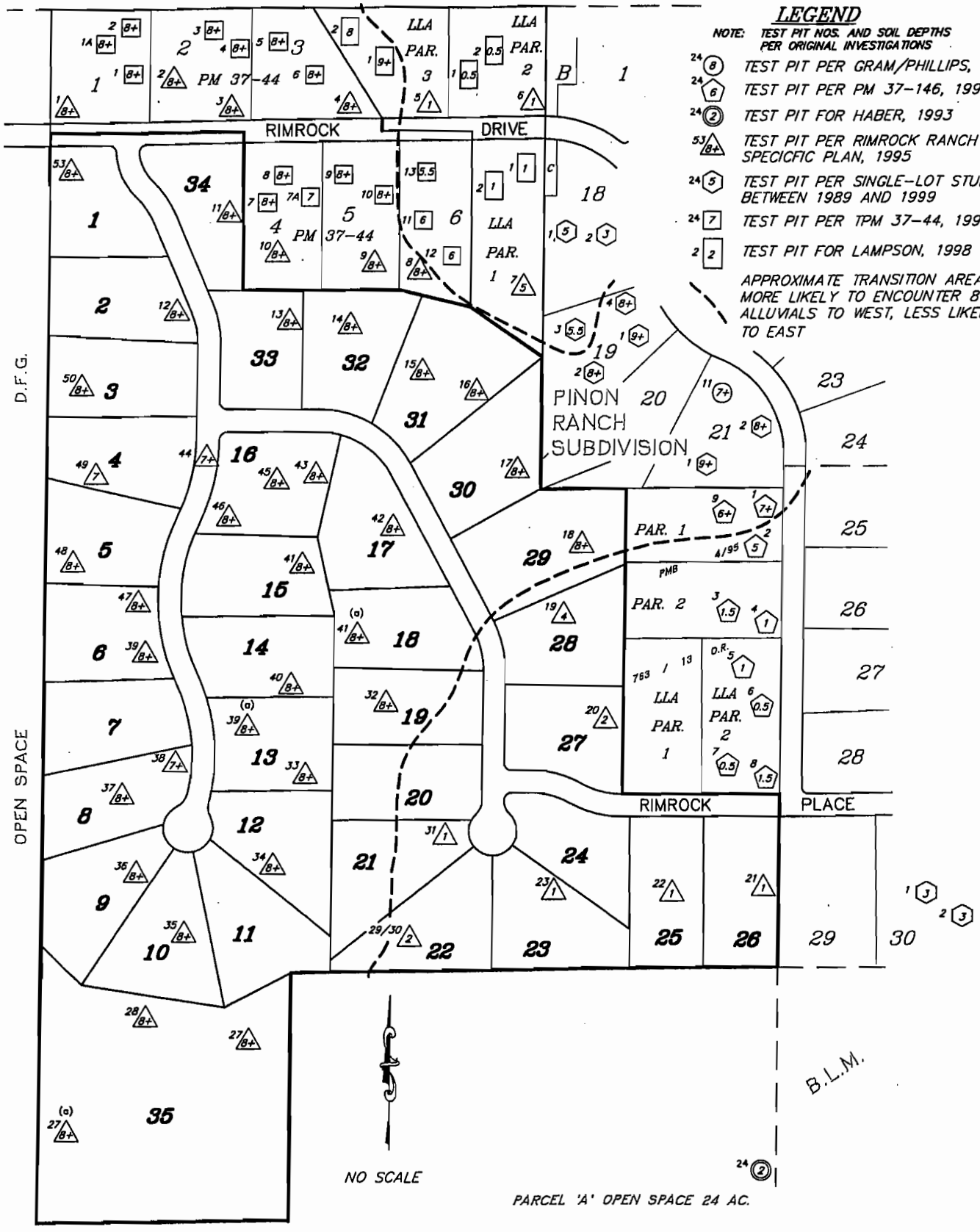
S.P. MODERATELY ROOTED

S.P./G.P. W/FEW BOULDERS

ALLUVIAL SOILS – LEGEND

S.P. POORLY GRADED SANDS, D.G.
S.M. SILTY SANDS, SAND–SILT MIXTURES
S.W. WELL GRADED SANDS, GRAVELLY SANDS
G.P. POORLY GRADED GRAVEL
D.G. DECOMPOSED GRANITE

APPENDIX B
Test Pit Location Map



TEST PIT

LOCATION MAP

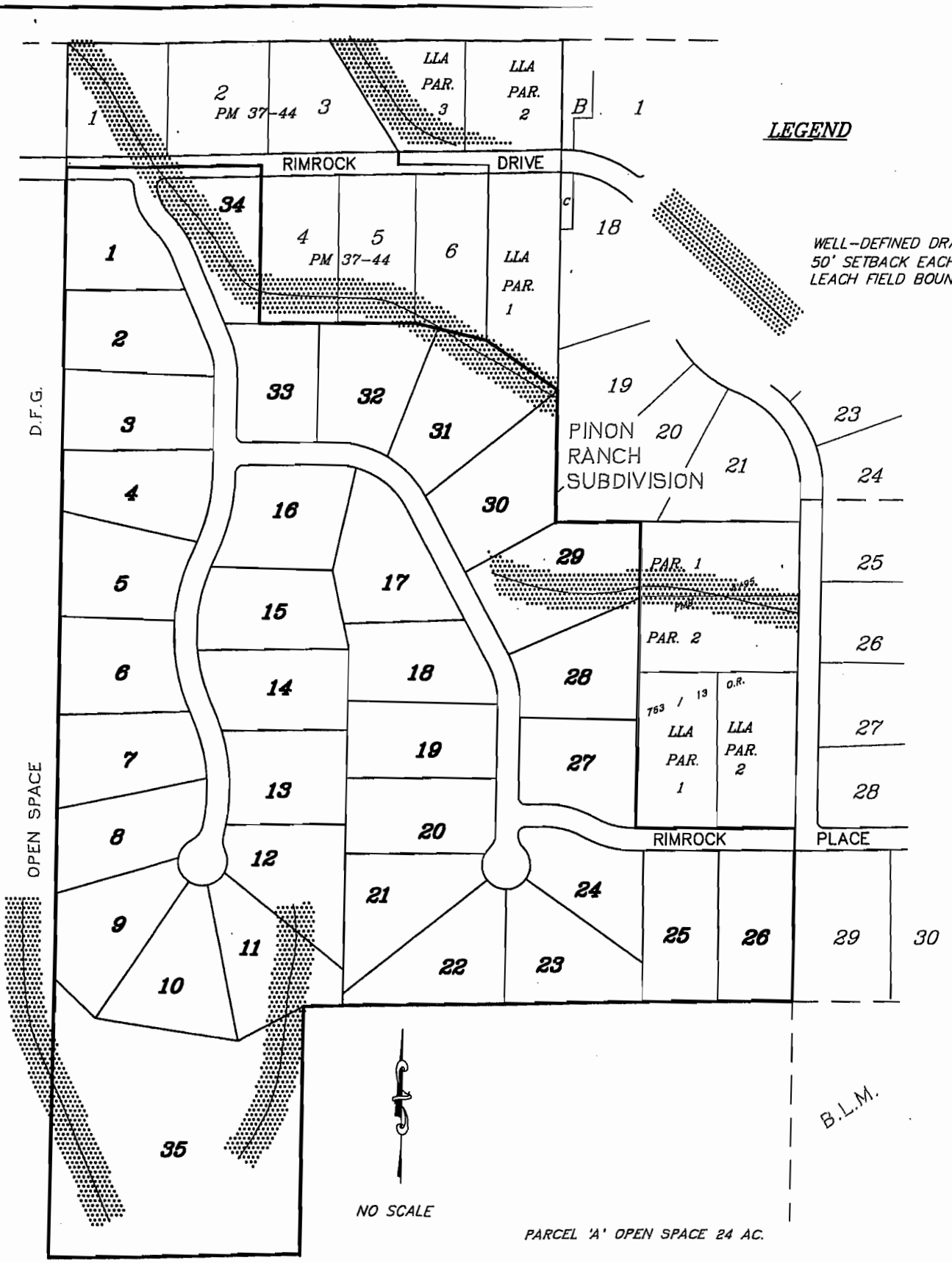
JOB NO. 430-1

DWG HDD

triad/holmes associates

Testpits1.dwg

APPENDIX C
Well-Defined Drainage Courses



WELL-DEFINED DRAINAGE COURSES

JOB NO. 430-1	triad/holmes associates	Drain1.dwg
DWG HDD		

APPENDIX D
Typical Design of a Pressure Dosing Sand Filter Systems

TYPICAL ENGINEERING REPORT

for a

SEWAGE DISPOSAL DESIGN

of a

PRESSURE DOSING SAND FILTER SYSTEM

Due to the shallow depth to bedrock (less than eight feet) as verified by our subsurface exploration, a conventional leach trench disposal system is not allowed for construction on this site. Alternatively, a pressurized sand filter leach bed system has been designed in compliance with the requirements of the Lahontan Regional Water Quality Control Board and the Mono County Health Department. Figure 1 presents a layout of the proposed system for the site, which incorporates a septic tank, an effluent pump basin, and a leach bed. A description of the proposed leach bed sewage disposal system follows:

Septic Tank: Based on the two-bedroom house design, a 1,200-gallon double compartment septic tank will be required. The septic tank should be a precast concrete, single pour tank with a lid as produced by Jensen Precast or by a Mono County approved equivalent septic tank.

Pump Basin: An Orenco Systems Inc. (OSI) 24-inch diameter PVC pump basin shall be installed adjacent to the outlet of the septic tank. The basin will be equipped with an OSI 2Ø OSI Ø5 HHF effluent pump. The pump will be controlled by floats set in the basin at the levels as provided on Figure 1.

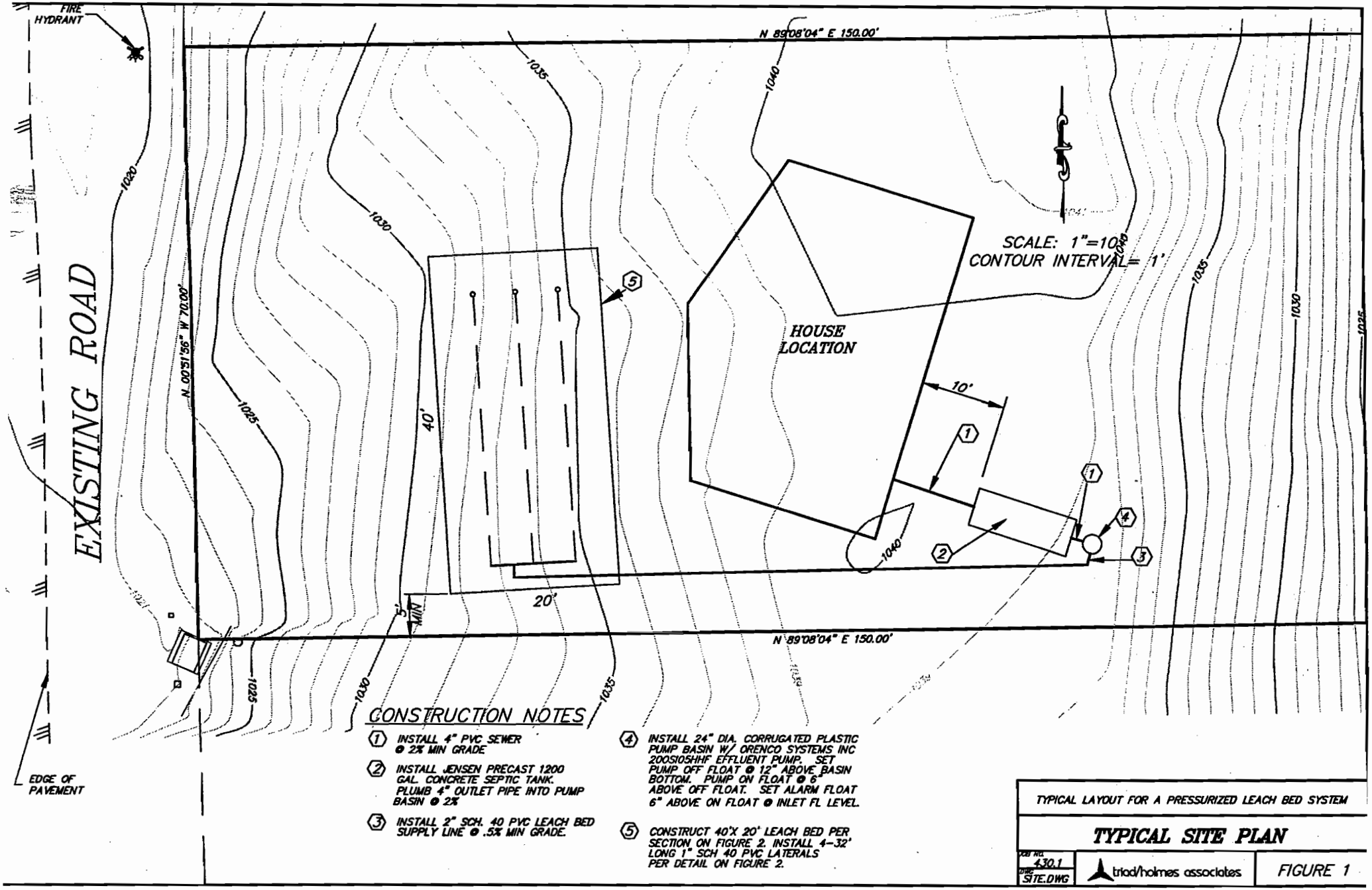
The leach bed will be supplied by a two-inch diameter SCH40 PVC transport line plumbed from the septic tank. If the leach bed piping is to be located below the pump basin outlet, a vacuum relief valve must be located at the high point of the transport pipe.

Disposal Field: The leach bed supply pipe will be located as shown on Figure 1 to transport the effluent to the leach bed from the pump basin. The 20' x 40' bed provides 800 square feet of disposal area. A lateral section of the disposal field is provided on Figure 2. The application rate provided by the leach field is .30 gal/sf/day based both on a 300-gpd daily effluent generation for the two-bedroom residence and a conservative percolation rate of 60 min/inch based on the percolation rate of the onsite soil. Pressurized leach lines will dose the leach bed.

The leach bed piping shall be 1-inch diameter SCH40 P.V.C. spaced five feet on center with 1/8-inch diameter orifices drilled at 3-feet 3-inches on center. A section of the leach bed is provided on Figure 2 along with a lateral detail.

The leach bed will have a 24-inch thick layer of either decomposed granite (D.G.) sand or Nick & Nick (N&N) sand placed below the layer of gravel. Sieve analyses of both the D.G. sand and N&N sand have been completed in the past and were both approved by Mono County Health Department as acceptable material for the pressure bed system. D.G. sand was used originally for these beds but concrete sand has been used more recently.

E. Jerry Tyler of the University of Wisconsin, Madison, recommends an application rate of 0.8 gpd/sf for loamy sand and sand which is the classification for both D.G. and N&N sands. Therefore the .38 gpd/sf application rate can easily be accommodated by these soils.



CONSTRUCTION NOTES

1. INSTALL 4" PVC SEWER @ 2% MIN GRADE
2. INSTALL JENSEN PRECAST 1200 GAL. CONCRETE SEPTIC TANK. PLUMB 4" OUTLET PIPE INTO PUMP BASIN @ 2%
3. INSTALL 2" SCH. 40 PVC LEACH BED SUPPLY LINE @ .5% MIN GRADE.
4. INSTALL 24" DIA. CORRUGATED PLASTIC PUMP BASIN W/ ORENCO SYSTEMS INC 200S10SHHF EFFLUENT PUMP. SET PUMP OFF FLOAT @ 12" ABOVE BASIN BOTTOM. PUMP ON FLOAT @ 6" ABOVE OFF FLOAT. SET ALARM FLOAT 6" ABOVE ON FLOAT @ INLET FL LEVEL.
5. CONSTRUCT 40'X 20' LEACH BED PER SECTION ON FIGURE 2. INSTALL 4-32' LONG 1" SCH 40 PVC LATERALS PER DETAIL ON FIGURE 2.

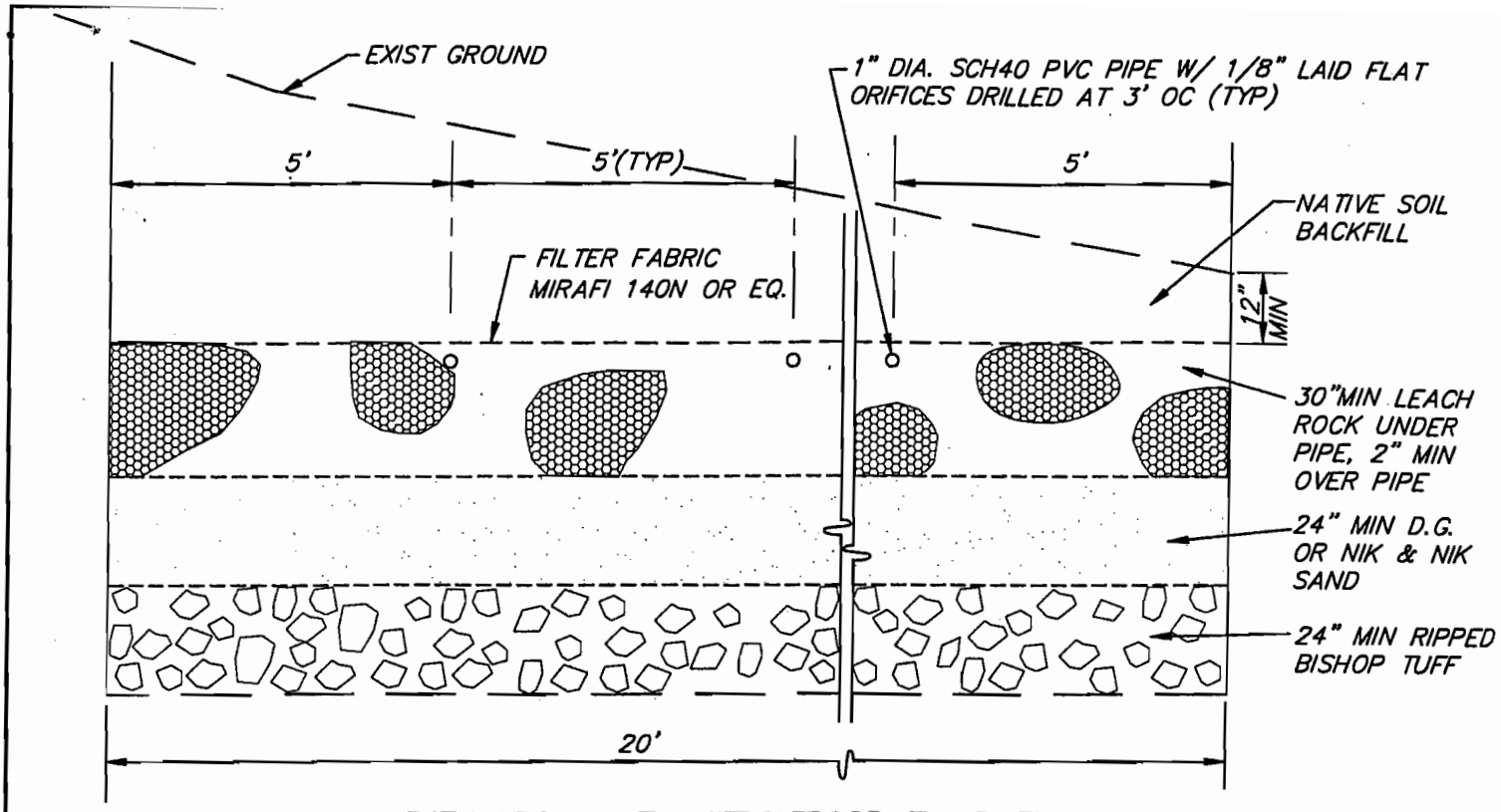
TYPICAL LAYOUT FOR A PRESSURIZED LEACH BED SYSTEM

TYPICAL SITE PLAN

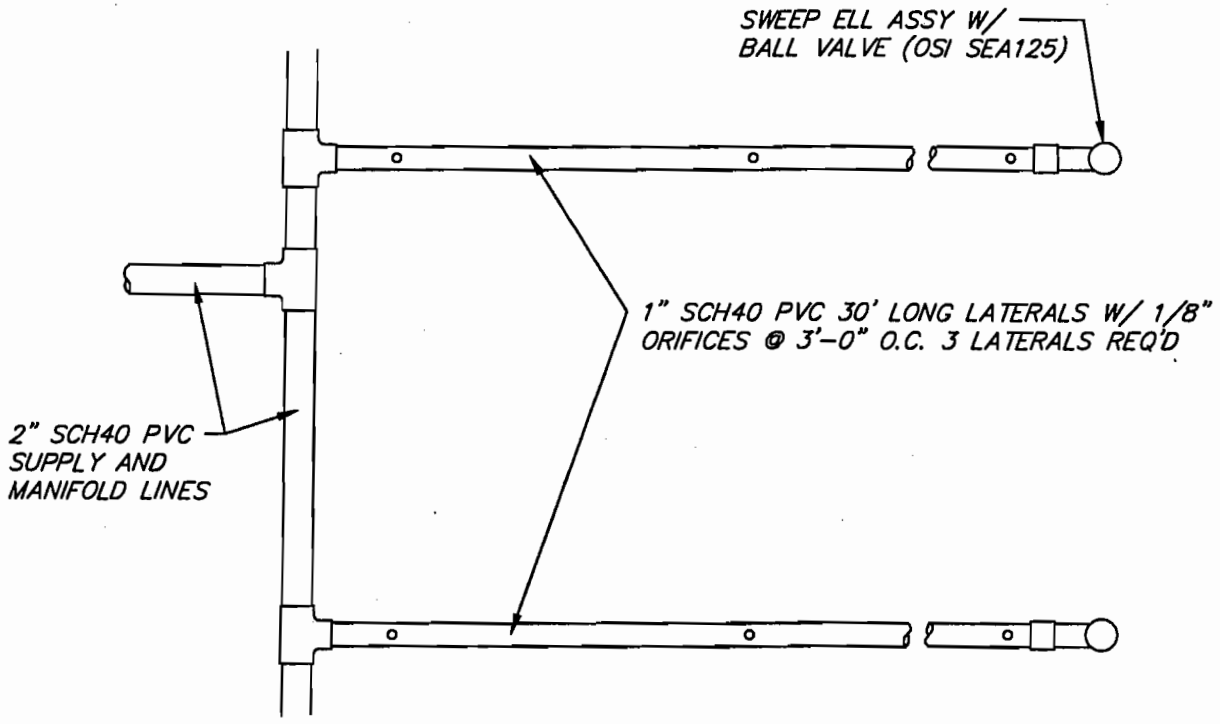
JOB NO. 430.1
DWG SITE.DWG

triad/holmes associates

FIGURE 1



LEACH BED SECTION DETAIL



LEACH BED LATERALS DETAIL

TYPICAL PRESSURIZED LEACH BED SYSTEM

LEACH BED DETAILS

JOB NO. 430.1	triad/holmes associates	FIGURE 2
DWG DOSE.DWG		