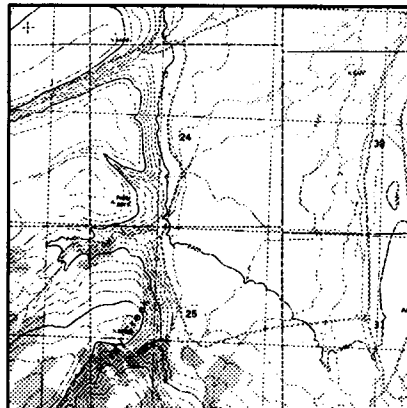
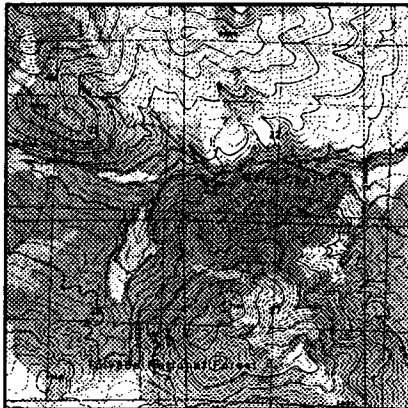
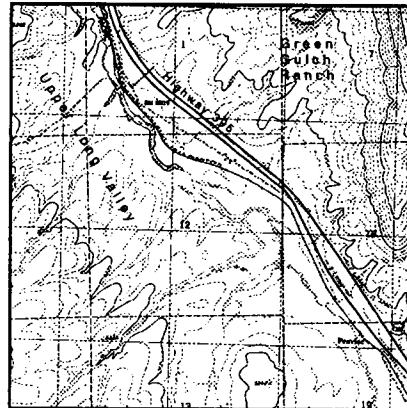
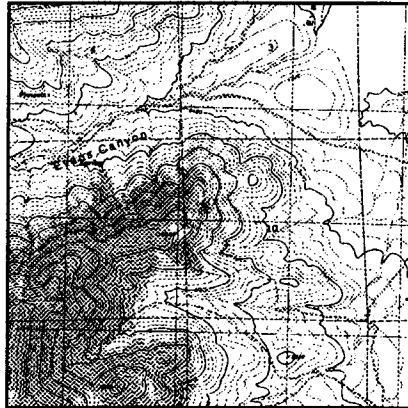




GREEN GULCH RANCH/ UPPER LONG VALLEY

Water and Land Management Project



**ENVIRONMENTAL INFORMATION PERTAINING TO THE
GREEN GULCH RANCH/UPPER LONG VALLEY
WATER AND LAND MANAGEMENT PROJECT**

Prepared for:

Edmund T. Allen III, P.C.
Green Gulch Ranch Partnership
5640 East Caballo Drive
Paradise Valley, Arizona 85253-2208
(602) 483-0451

Prepared by:

Summit Envirosolutions, Inc.
1475 Terminal Way, Suite B
Reno, Nevada 89502
(702)785-8888

July 1996

**ENVIRONMENTAL INFORMATION PERTAINING TO THE
GREEN GULCH RANCH/UPPER LONG VALLEY
WATER AND LAND MANAGEMENT PROJECT
TABLE OF CONTENTS**

1.0	INTRODUCTION	1-1
1.1	Purpose and Summary	1-1
1.2	Project Location	1-1
2.0	EXISTING CONDITIONS	2-1
2.1	Existing and Surrounding Land Uses	2-1
2.2	Existing General Plan and Zoning Designations	2-1
2.3	Existing and Surrounding Land Ownership.....	2-1
2.4	Environmental Setting	2-1
	2.4.1 Geology and Soils.....	2-2
	2.4.2 Surface Water Resources.....	2-3
	2.4.3 Groundwater.....	2-4
	2.4.4 Vegetation and Wildlife.....	2-4
	2.4.5 Cultural Resources.....	2-6
3.0	PROJECT DESCRIPTION.....	3-1
3.1	Project Objectives	3-1
3.2	Project Description.....	3-1
	3.2.1 Civil Engineering Design.....	3-2
	3.2.2 Environmental Planning and Design	3-3
4.0	PROJECT DEVELOPMENT STRATEGY	4-1
4.1	Required Applications and Construction Permits.....	4-1
4.2	Environmental Documentation	4-1
4.3	Schedule.....	4-1
5.0	CONCLUSIONS	5-1

APPENDICES

Appendix I Project Team Qualifications

LIST OF TABLES

Table 4-1 Potential Applications and Permitting Requirements

TABLE OF CONTENTS (continued)

LIST OF FIGURES

Figure 1-1	Regional Location Map
Figure 1-2	Vicinity Map
Figure 2-1	Land Ownership
Figure 3-1	Project Site
Figure 4-1	Entitlement Processing Schedule

LIST OF ACRONYMS

AF	Acre Feet
AFY	Acre Feet per Year
AMSL	Above Mean Sea Level
BLM	Bureau of Land Management
CDFG	California Department of Fish and Game
Caltrans	California Department of Transportation
CDWR	California Department of Water Resources
CEQA	California Environmental Quality Act
CNDDDB	California Natural Diversity Data Base
CUP	Conditional Use Permit
CRWQCB	California Regional Water Quality Control Board
CWRCB	California Water Resources Control Board
EIR	Environmental Impact Report
FWS	United States Fish and Wildlife Service
GPM	Gallon per Minute
KV	Kilovolt
NEPA	National Environmental Policy Act
NRHP	National Register of Historic Places
SHPO	State Historic Preservation Office
SPPC	Sierra Pacific Power Company
T&E	Threatened and Endangered Species
UPRR	Union Pacific Railroad
USFS	United States Forest Service

1.0 INTRODUCTION

1.1 Purpose and Summary

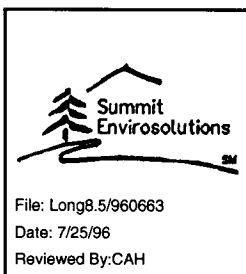
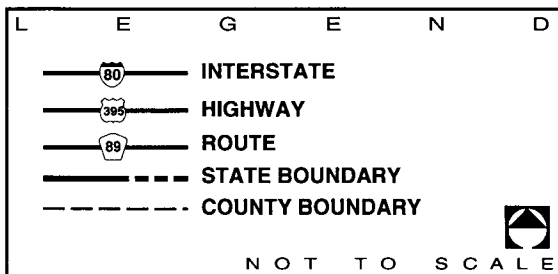
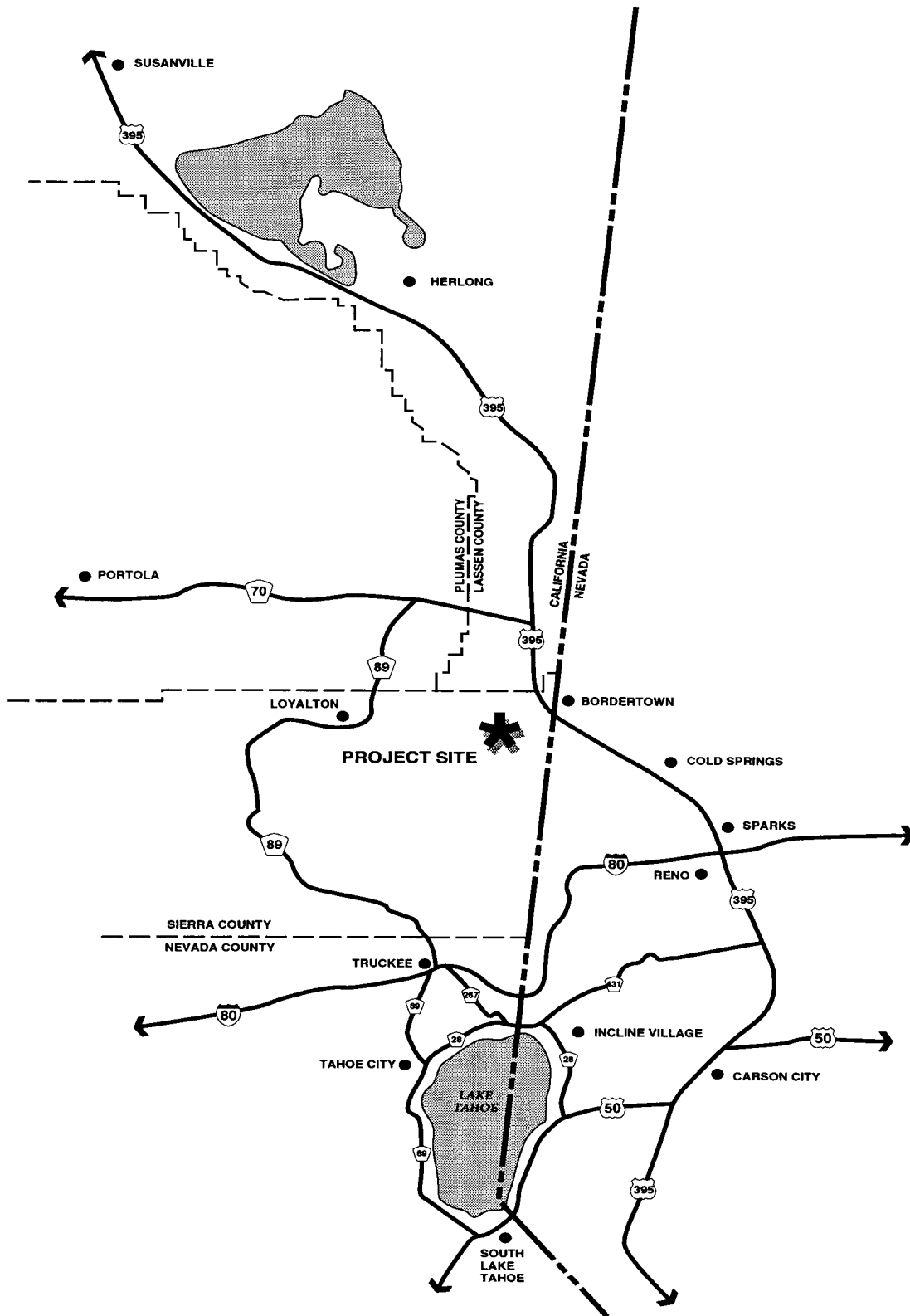
The purpose of this report is to analyze the opportunities and constraints associated with developing the 2,200 acre Green Gulch Ranch (*project site*) while maintaining the rural ambiance of the Upper Long Valley in California. The Green Gulch Ranch/Upper Long Valley Land and Water Management Project (*proposed project*) proposes to develop approximately 3,300 acre feet per year (afy) of groundwater in the Upper Long Valley of California and convey this water in a buried pipeline approximately 11.6 miles to one of several valleys north of Reno.

The study methodology of this report consists of gathering existing data, conducting research, and reviewing planning and engineering documents prepared by both the public and private sectors in order to document information associated with the proposed project. The data contained in this report, including the appendices, represents the first phase of planning necessary to determine the development potential of the project site.

1.2 Project Location

The proposed project site is located in the northeastern portion of the unincorporated area of Sierra County, California as shown on Figure 1-1. On a regional scale, the 2,200 acre site is located approximately 16 miles north of the City of Reno, Nevada and 65 miles south of Susanville, California. In a local context, the site is located in the southern portion of Long Valley, north of Peavine Mountain, south of Highway 70 and the Lassen County boundary, east of the Sierra Valley and the Bald Mountains, and west of Highway 395 as shown on Figure 1-2.

Regional access to the site is provided by Highway 395, Highway 70, and Long Valley Road. Highway 395 provides access to the City of Reno to the south and Susanville to the north. Highway 70 provides access to Quincy and Oroville to the west. Long Valley Road is a local road providing access to Toiyabe National Forest land to the west.



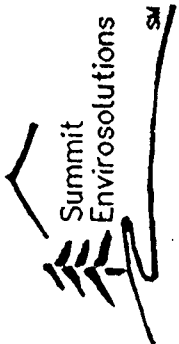
REGIONAL LOCATION MAP

Figure 1-1

**GREEN GULCH RANCH/UPPER LONG VALLEY
WATER AND LAND MANAGEMENT PROJECT**

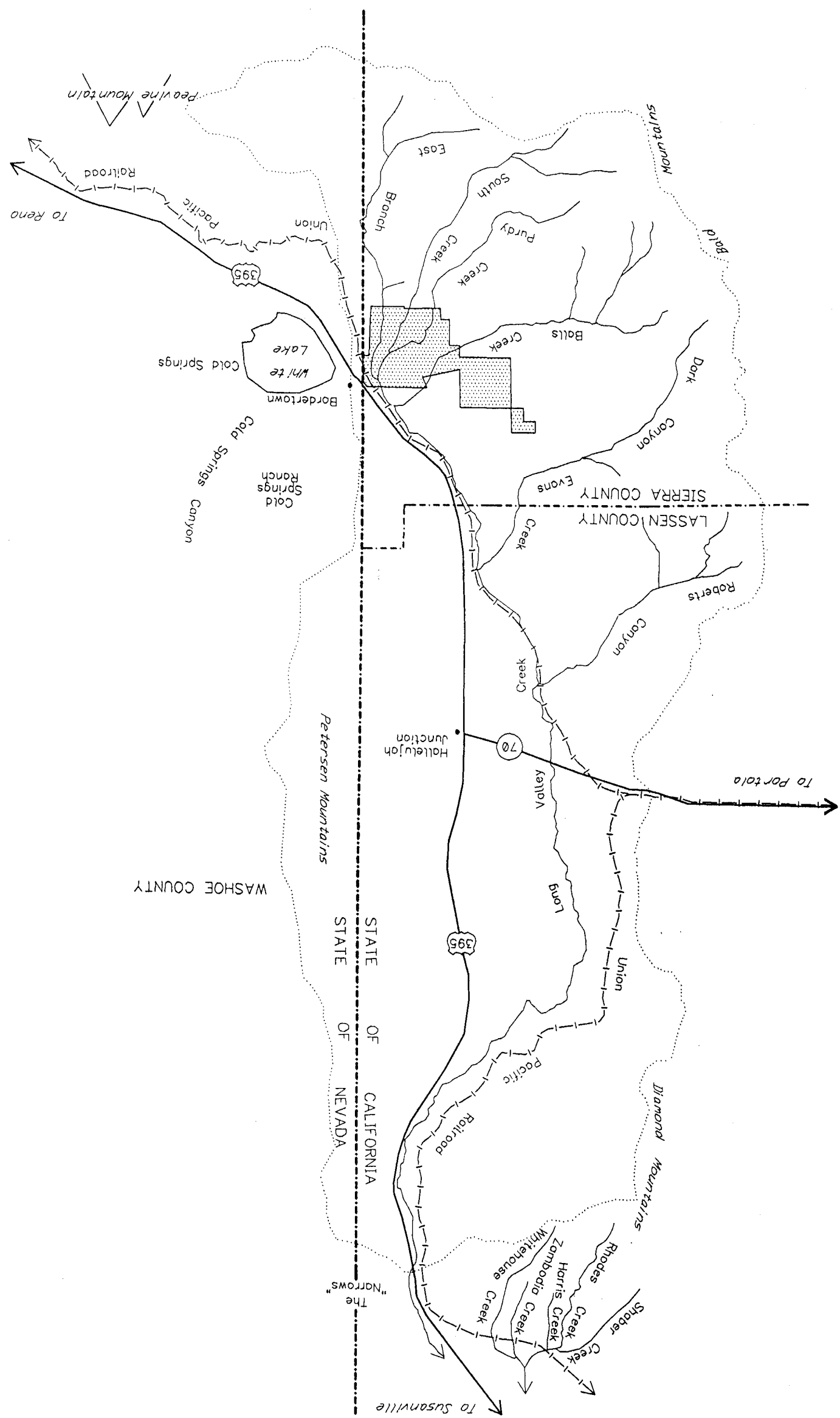
- State Boundaries
- County Boundaries
- State Highway
- Interstate
- Creeks
- Railroad
- Watershed Boundary
- Project Site

SCALE: 1" = 2.3 MILES NORTH



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VICINITY MAP
Figure 1-2



2.0 EXISTING CONDITIONS

2.1 Existing and Surrounding Land Uses

The project site currently consists of relatively low density non-intensive land uses including a cattle ranch, grazing, residential, and undeveloped uses. The site is void of urban development and site improvements are limited to a few semi-improved roads and structures. The project site accommodates several easements including a local electrical distribution line and several road way right-of-ways. Sierra Pacific Power Company (SPPC) is currently proposing a 345 kilovolt (kV) powerline easement that, if approved, would traverse the site in a north to south fashion. Several streams traverse the site as shown on Figure 1-2. These streams are further described in Section 2.4 of this report.

Surrounding the 2,200 acre project site are a variety of land uses including a land management area maintained by the California Department of Fish and Game to the north; a Union Pacific Railroad (UPRR) right-of-way, highway commercial uses, and Highway 395 to the east; ranchland and the Toiyabe National Forest to the south; and the Bald Mountains to the west. A large ski resort is currently proposed on the west side of the Bald Mountains, west of the project site. It should be noted that immediately east of the project site in the State of Nevada, the Washoe County Comprehensive Planning Department is aware of plans to expand development in Bordertown to include a hotel.

2.2 Existing General Plan and Zoning Designations

A major portion of the Upper Long Valley is currently designated as "General Forest" (GF) according to the Sierra County General Plan while the overlying zoning designation is Agriculture (A-1) according to the Sierra County Zoning Ordinance. The project site retains the same general plan and zoning designations as most portions of the Upper Long Valley including GF and A-1, respectively. The property development standards in the A-1 zoning district includes a lot area of 160 acres.

The General Forest District was established to promote development in Sierra County which is compatible with and preserves the natural environment and provides for the long-run maintenance of natural resources. Permitted uses include growing and harvesting of agricultural and forest products, grazing of livestock, single family residences and accessory buildings. A variety of uses are conditionally permitted including such uses as public parks and recreation uses, reservoirs for water storage, public utility buildings and uses, camping and picnic uses, golf courses, and guest ranches.

The purpose and intent of the Agricultural Zoning District is to protect and preserve land that is most suited to agricultural uses. It is intended that this district be utilized in conjunction with appropriate state and federal legislation to preserve and protect agricultural pursuits from encroachment by industrial, commercial, and residential use. Permitted uses include general

farming, commercial livestock, animal husbandry, and poultry farms. A variety of other uses are conditionally permitted.

It should be noted that Sierra County is currently in the process of updating their General Plan and uses permitted within the current general plan designation categories are subject to change as with additional uses that might be permitted.

2.3 Existing and Surrounding Land Ownership

The project site is privately owned and maintained by the Green Gulch Ranch partnership. Surrounding the project site is a variety of public and privately owned land as displayed on Figure 2-1. Approximately one half of the Upper Long Valley is managed by either the Bureau of Land Management (BLM) the United States Forest Service (USFS) and most of the remaining land is in private ownership. Land immediately adjacent to the project site is owned by the State of California Department of Fish and Game (CDFG), Union Pacific Railroad (UPRR), and private property owners.

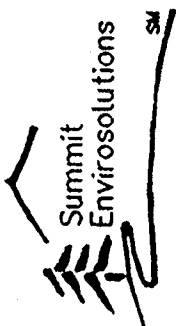
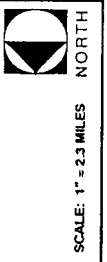
2.4 Environmental Setting

The project site is located on the east side of the Sierra Nevada on the southern edge of the Sierra Valley in northern California. The site is also located on the westernmost portion of the Great Basin. The project site consists of gently sloping land with relatively steep slopes on the western portion of the site. The project site ranges in elevation from approximately 5,120 to 5,400 feet above mean sea level (AMSL). Mountains to the west range in elevation from approximately 6,000 to 8,000 feet AMSL. Three perennial streams traverse the site generally from southwest to northeast including Balls, Purdy, and Long Valley Creeks. Existing on-site structures consists of a house, trailer, barns, and a feed lot. Three wells provide water for domestic use and agriculture and a powerline traverses the property to provide electrical power. A paved road which parallels Long Valley Creek provides access to the site while several unpaved roads provide access to other portions of the site.

2.4.1. *Geology and Soils*

The project site is located on the westernmost portion of the Great Basin physiographic province which is dominated by parallel north-south trending mountains separated by low valleys. These mountain ranges, including the Sierra Nevada, are the product of faulting which has gradually lifted the mountains upward while the valleys become lower. Most of the valleys, similar to Upper Long Valley, are deeply filled with the accumulated alluvial material eroded from the mountains. The Great Basin is a large area of the western United States where drainage is internal. There are a number of seismic faults traversing the Upper Long Valley including the Last Chance Fault which is capable of producing a moderately strong earthquake of 5.0 to 6.2 on the Richter Scale. Considering geological data on surface faults and seismological data,

- State Boundaries
- County Boundaries
- State Highway
- Interstate
- Creeks
- Railroad
- Watershed Boundary
- Project Site

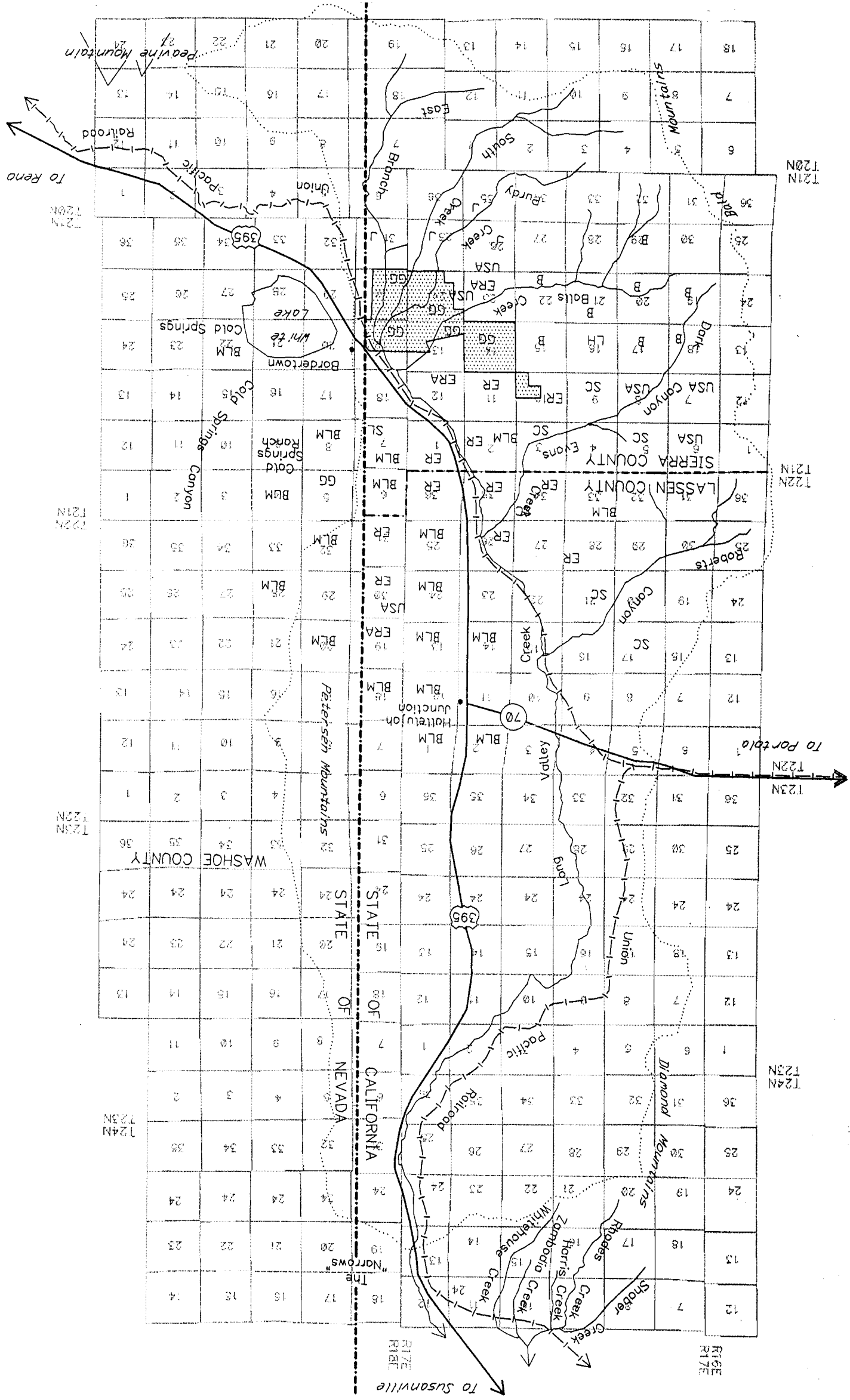


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LAND OWNERSHIP KEY

- ER Evans Ranch
- ERA Evans Ranch Association
- GG Green Gulch Ranch
- SC Santa Clara Ranch
- B Ball's Ranch
- R Romelli Ranch
- SL Sario Livestock Company
- J Jacksack Ranch
- BLM Bureau of Land Management
- USA United States of America

LAND OWNERSHIP MAP
Figure 2-1



earthquakes are expected to occur, though infrequently as with the majority of area along the Sierra Nevada.

Soils within the project site include two soil categories, well drained cobbly loams which comprise the dry rangelands and poorly drained gravelley loams that comprise the wet meadows. Soil series within the rangelands include soils that show very slow permeability. Erosion potential on these soils is high. The wet meadow soils have moderate to rapid permeability and are generally less than five feet to bedrock. Erodability of these soils is very slight.

2.4.2 *Surface Water Resources*

According to a report titled *Hydrologic and Engineering Report of the Upper Long Valley Project-California/Nevada* prepared by Water Research and Development, Inc., the Long Valley is situated in California and Nevada with its headwaters located at Peavine Mountain to the south and the Bald and Diamond Mountain to the west. This basin extends to the north approximately 40 miles, terminating in the Honey Lake playa, as shown on Figure 1-2. The primary source of water for the Valley is supplied by tributary streams located on the western side of the Valley. The surface waters of the entire Long Valley Creek and tributaries were adjudicated in 1976 by the Superior Court of Lassen County.

During early spring (March, April, and May), which represents the high runoff period, tributaries contribute high flow amounts to Long Valley Creek, thereby meeting and exceeding Long Valley Creek adjudicated rights in all sections, including the Long Valley and Honey Lake Sections, located below the "narrows". During this period, with the exception of a drought year, a surplus amount of water is discharged into the phreatophytic and playa areas of Honey Lake. Honey Lake was not included in the adjudication of Long Valley Creek. Later in the season, beginning in June, the tributary creeks constitute the primary water supply for each section and very little of this supply flows from section to section via Long Valley Creek. Since these sections are supplied by relatively independent tributary streams, the adjudication recognized this hydrologic fact and treated the sections in an autonomous manner when the runoff decreased in the late spring and summer and fall periods.

In the Upper Long Valley section (headwater to Highway 70), the primary water supply supplied by tributaries, and irrigates, approximates 1,744 acres of which the project site has a right to approximately 794 acres or 46 percent of the total. Of the remaining 950 acres of water righted lands, approximately 400 acres has been purchased by the California Department of Fish and Game (CDFG) and are not of being actively used for irrigation purposes. The remaining 546 acres of water right acreage is held by private properties primarily located upgradient, south, and west of the Ranch. The CDFG has also purchased all of the Long Valley Creek water rights of this section, upon purchasing the Evans Ranch. In terms of total tributary and Long Valley Creek (2,000 acres) surface water rights, approximately 1,340 acres or 67 percent is privately owned, while the remaining is owned by CDFG. If the Ranch rights to 794 acres were included with the CDFG and basically used to augment the Creek system and the associated groundwater

basin, the amount held would represent 73 percent of the total tributary and Long Valley Creek rights of this section.

The project applicant has funded a hydrologic investigation of the Upper Long Valley section in which the project site and the proposed well field is located. The investigation, entitled "Water Resources of the Upper Long Valley California & Nevada, Final Report" was completed in 1989. The investigation includes a surface and groundwater analysis whereby the interaction of both systems were considered as well as the adjudication of Long Valley Creek.

For more information pertaining to surface water resources, *Hydrologic and Engineering Report of the Upper Long Valley Project-California/Nevada* prepared by Water Research and Development, Inc., which is part of this submittal.

2.4.3 Groundwater Resources

Currently, groundwater resources in the Upper Long Valley section have not been significantly developed, with the exception of approximately 600 afy that has been permitted by the State Engineer for "quasi" municipal purposes in the vicinity of Bordertown. Groundwater use in the Upper Long Valley section, located in California is limited to scattered domestic use and does not constitute a significant usage. This usage is not expected to increase appreciably in the future in light of the Sierra County's General Land Use Plan, whereby the minimum parcel per dwelling is 160 acres. For more information pertaining to groundwater resources, please refer to a report titled: *Hydrologic and Engineering Report of the Upper Long Valley, California/Nevada*, prepared by Water Resources and Development, Inc. which is attached as part of this submittal.

2.4.4 Vegetation and Wildlife

The project site supports several distinct plant communities including sagebrush/bitterbrush scrub, riparian scrub, and disturbed-cultivated communities. Each of these communities support a variety of other species. Sagebrush-bitterbrush scrub is co-dominated by big sagebrush (*Artemisia tridentata*) and antelope bitterbrush (*Prushia tridentata*). A less common associate includes desert peach (*Prunus andersonii*). This plant community is associated with moderately deep, well-developed soils that have been strongly influenced by the deposition of pumice and volcanic ash (Young, et al., 1977). The sagebrush-bitterbrush community frequently integrates with the big sagebrush community. It should be noted that a large portion of the sagebrush-bitterbrush community has been altered to provide areas for cattle grazing.

The riparian scrub occurs along the terraces immediately adjacent to the stream channels that traverse the project site. The riparian scrub is dominated by Pacific willow (*Salix lucida ssp. lasiandra*), arroyo willow (*Salix lasiolepis*), and wood's rose (*Rosa woodsii var. ultramontana*). This community occurs on soils that are composed of coarse-textured, recently deposited alluvium. The stream terraces where riparian scrub occurs flood frequently for long durations during the early portion of the growing season, and soils remain saturated or moist during the dry

season. The riparian scrub is usually considered a jurisdictional wetland type because it is dominated by hydrophytic plant species and positive indicators of wetland hydrology and hydric soils are associated with these sites.

The cultivated or disturbed plant community is dominated by activities including fire, grazing, agriculture, and introduction of aggressive non-native species that have altered the native species that once inhabited the area. A portion of the project site has been altered by the cattle operation, grazing, and several structures and roads.

Wildlife habitat can be defined as an area which supports wildlife species. The type of vegetation and the structure of the vegetative community are important characteristics of habitat since wildlife species rely on vegetation for food and cover. Slope, elevation, exposure, and accessibility by predators or human activities can also have an impact on habitat suitability. Habitat requirements vary according to species, season, and climatic conditions. Wildlife species require different habitat types during various seasons or life stages. Amphibian species require water for breeding and early development but are less dependent later in life. Other animals have the ability to migrate in search of suitable habitat.

Sagebrush habitats including the sagebrush-bitterbrush community provides an important habitat for pronghorn, mule deer, sage grouse, burrowing owl, deer antelope, rabbits, and kangaroo rats. Riparian habitats typically includes a dense understory of shrubs and vines sheltered by overstory vegetation provided by tree species such as willow, aspen, and cottonwood. This habitat is critical to many species of wildlife including the willow flycatcher, Wilson's warbler, western flycatcher, nesting songbirds and smaller birds of prey, small mammals including pronghorn and muskrats, reptiles, and amphibian species which have a terrestrial stage in their life. It should be noted that the project site is included as part of the Loyalton-Truckee deer herd migration path which migrates in the winter.

The cultivated-disturbed community has a corresponding reduction in habitat value for some wildlife species due to grazing and general disturbance. However, other animals, such as Swainson's hawk, may seek these areas because of the altered conditions. Although agricultural fields can provide a source of food for many wildlife species, some agricultural practices including fencing and pesticides, can reduce the value of these lands to wildlife. These areas provide foraging habitat for migrating waterfowl and resident birds as well. Deer and pronghorn forage in fields as well as nesting birds.

There are no threatened, endangered (T&E), or sensitive vegetation and wildlife species known to occupy the project site. Detailed database searches will be conducted in Phase 2 to identify if additional occurrences have been documented. The entities to be contacted will include: (1) California Natural Diversity Database (CNDDB) maintained by the CDFG; (2) California Native Plant Society, the Nevada Natural Heritage Program; (3) Northern Nevada Native Plant Society; and (4) US Fish and Wildlife Service (FWS). These agencies and organizations

maintain databases that document the occurrences of T&E and sensitive plants and animals which are useful when documenting the resources of an area.

2.4.5 Cultural Resources

A review of cultural resource records on the project site reveals that only the easternmost portion of the project site (385 acres) has been surveyed for cultural resources. Three sites have been recorded on the project site including a small prehistoric lithic scatter (CA-SIE-805), a scatter of historic debris and a depression known as CA-SIE-809, and CA-SIE-812 which consists of a scatter of historic trash. Two of the three sites are ineligible for nomination to the National Register of Historic Places (NHRP) while the third site's eligibility is unknown.

Portions of the project site to be altered by the proposed project will be surveyed for cultural resources due to the fact that the several cultural, prehistoric and historic resources have been identified in the Upper Long Valley. All cultural resources surveys will be surveyed by qualified archaeologists and will be conducted using appropriate federal, state, and county standards prior to ground disturbance.

3.0 PROJECT DESCRIPTION

3.1 Project Objectives

For the past 30 years, the 2,200 acre Green Gulch Ranch has been used as an active cattle operation. The ranch is approximately 16 miles north of the City of Reno in the vicinity of Bordertown. The Ranch, along with many of the surrounding areas, remains in a similar rural condition experienced approximately 100 years ago. The project applicant desires to develop the project site while preserving the rural nature that presently exists. The 7,000 acres adjoining the property to the west has been recently designated by the proposed Sierra County General Plan Update as a destination resort while the Bordertown Club, which adjoins the Ranch to the east has filed an application with the Washoe County Comprehensive Planning Department to expand its casino area and build a hotel.

Approximately 850 acres of the project site is irrigated from mountain streams through a ditch system and not involving any irrigation wells. It is the vision of the Green Gulch Ranch Partnership to develop its property into an open space development containing permanent riparian areas to control the erosion problem along Long Valley Creek. This project would also involve developing permanent holding ponds and a deep well system for irrigation.

The Green Gulch Ranch uses approximately 2,000 af of water from its surface water rights to irrigate the meadow lands. There is little water available from stream runoff for irrigation after July 15th of each year, however, with a permanent water supply through ponds and wells, the Ranch could irrigate throughout the summer, which would meet the objective of developing substantial water and land areas for open space uses.

To accomplish these objectives, the project applicant proposes to market the surplus of water from the Upper Long Valley to the North Valleys area in Nevada, and thus augment their existing water supply. Please refer to Section 4.0 of this report for a complete description of the proposed project.

3.2 Project Description

As documented in the *Hydrolic and Engineering Report of the Upper Long Valley California/Nevada*, prepared by Water Research and Development, Inc., the project is proposing to develop approximately 3,330 acre feet per year (afy) of groundwater in the Upper Long Valley of California, and export this water to the Cold Springs and Lemmon Valleys in Washoe County, Nevada. The Upper Long Valley is a portion of Long Valley, bounded on the south by Peavine Mountain and on the north by Hallelujah Junction (Highway 70). A two-mile well field and associated transmission pipeline easement has been identified along Long Valley Creek and Highway 395 in Sierra and Lassen Counties, California and in Washoe County, Nevada. The southern portion of the well field is located approximately two miles north of Bordertown, Nevada. The well field is located on the Evans Ranch, formerly a 9,000 acre cattle ranch

L

E

G

E

N

D

395

395

HIGHWAY

PROPERTY BOUNDARY

ROADS

BLUELINE STREAMS

NORTH

Summit

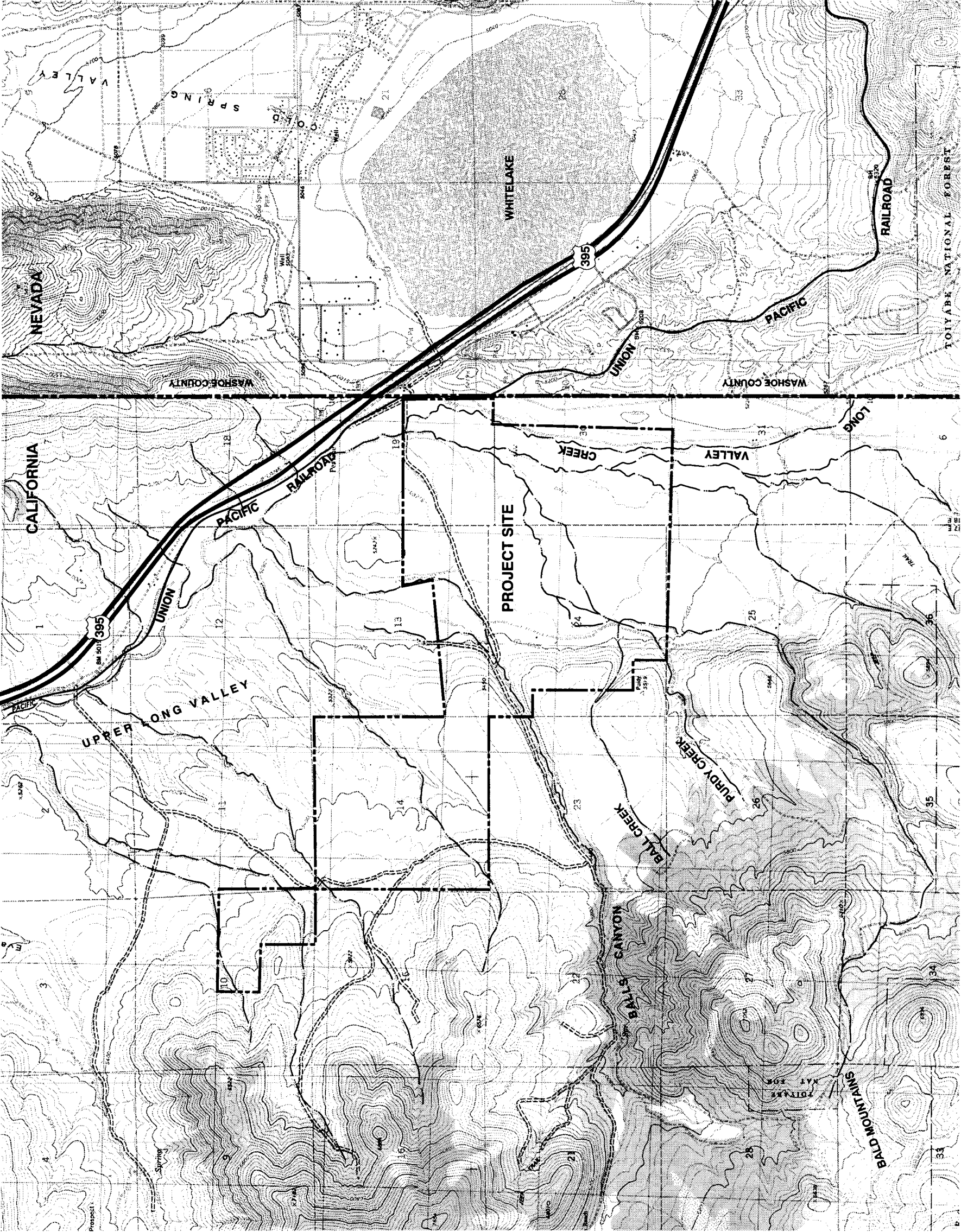
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PROJECT SITE
Figure 3-1

straddling the California/Nevada state line along Bordertown and extending to the north along Long Valley Creek. Recently this land has been purchased by the CDFG. Evans Ranch, Inc., however retained the groundwater rights and easements for developing a groundwater supply on this land.

The Project proposed to convey approximately 3,300 afy via a 11.6 mile pipeline into Cold Springs and Lemmon Valleys in Nevada to meet the existing "quasi" municipal demands in these areas. Groundwater will be taken from "temporary surplus" to provide storage space for natural recharge that would be lost during most years if it could not be stored in the groundwater basin. During a second and final phase, the 3,300 afy would be supplied by natural recharge and/or augmented recharge on Green Gulch Ranch and associated creek channels, including Long Valley Creek.

The Green Gulch Ranch is currently negotiating with Evans Ranch, Inc. to purchase the water rights and associated easements of the well field and two production wells already constructed and completed. Additionally, this purchase allows access and use of a comprehensive hydrological data and modeling of the Upper Long Valley surface and groundwater system.

The project site, comprised of approximately 2,200 deeded acres, of which approximately 794 acres are water tributary righted from creeks tributary to Long Valley Creek, is proposing to utilize infiltration facilities to capture, store and infiltrate surface water into the groundwater basin, thereby augmenting the proposed groundwater supply in the Upper Long Valley section in the vicinity of Bordertown. The Ranch has submitted applications with the CWRCB to construct these facilities (reservoirs, spreading system, etc.) to capture early spring runoff water that are normally wasted to downstream phreatophytic and playa areas.

The proposed manner of use and place for this water supply is quasi municipal to meet the existing (not future) demand as set forth in Washoe County's Land Use Plan and Zoning for Cold Springs and Lemmon Valleys. The intended use of this proposed water supply is not intended to promote more growth in these Valleys, but to meet the current demand of these Valleys and to replace the current (individual groundwater wells) water supply in Golden Valley where this groundwater system has apparently become contaminated from associated individual septic systems.

3.2.1 Civil Engineering and Design

For a complete description of the project description, please refer to the *Hydrolic and Engineering Report of the Upper Long Valley California/Nevada*, prepared by Water Research and Development, Inc. which is included as an attachment to this submittal.

3.2.2 Environmental Planning and Design

The project site currently supports approximately 2,200 acres of pasture lands and sagebrush range. The Upper Long Valley Water and Land Management Project proposes to utilize the Green Gulch Ranch as an infiltration facility to capture, store, and infiltrate surface water into the groundwater basin, thereby augmenting the proposed groundwater supply in the Upper Long Valley. The temporary storage of water on the Green Gulch Ranch property would be designed to enhance wildlife habitat. Wildlife habitat enhancement would be accomplished by enhancing existing vegetation, creating new wetlands, and controlling erosion along Long Valley Creek.

Riparian Vegetation Enhancement

Riparian vegetation enhancement would occur along the existing stream corridors, such as Long Valley Creek, through the Green Gulch Ranch. Currently, these areas are open to livestock grazing which has altered the riparian system by reducing the amount of live vegetation along the stream course. A change to the livestock management or exclusion of livestock within these areas would allow for new plant growth, especially cottonwood and willow, which is currently abated through grazing. Riparian vegetation has recovered within the adjoining CDFG land which has been closed to grazing for approximately 5 years. Riparian vegetation enhancement can decrease erosion and increase infiltration within stream corridors.

Wetlands Creation

Wetlands can be designed and created in conjunction with water infiltration catchment basins. Catchment basins can be designed with variable depths to provide a variety of wetland habitats. Head-gates would be placed at the water diversion points to control the water levels within the wetland/water infiltration areas. The wetlands could be managed for a variety of wildlife including songbirds, migrating birds, waterfowl, mammals, and amphibians.

Erosion Control and Enhancement

Erosion control along Long Valley Creek would also play an important role in wildlife habitat enhancement. Currently, the Long Valley Creek possesses multiple head-cuts which have proven to be detrimental to meadows and water resources. The damage from the head-cuts is readily seen from Highway 395. Steep unstable gully walls are obvious features of the Long Valley Creek. A series of low check dams, properly designed, engineered, and constructed, can halt the head-ward erosion of the gully walls and thus initiate a return to a dynamic equilibrium for the existing stream corridor. As the stream erosion is stabilized, the steep gully walls can eventually return to a more gentle slope, become stable, vegetated and allow easier access to the creek by migratory deer and other wildlife. The check dams would also decrease run off velocities and increase infiltration into the groundwater table within the streambed.

The result of the proposed infiltration project on the Green Gulch Ranch would be two-fold. First, it would provide water infiltration areas to recharge the groundwater table. Secondly, the wetlands; riparian vegetation enhancement; and erosion control would increase the wildlife habitat within the area, and ultimately improve the visual corridor as seen from Highway 395 and locations in Sierra County, California.

4.0 PROJECT DEVELOPMENT STRATEGY

4.1 Required Applications and Construction Permits

The proposed project includes development of new facilities and enhancement of existing natural resources which will involve obtaining a variety of federal, state, local, and regional permits, approvals, and clearance. Table 4-1 summarizes some of the permits and approvals that would be needed for pre-construction activities, construction activities, operation, and mitigation monitoring associated with the proposed project.

4.2 Environmental Documentation

The proposed project will be required to document the environmental impacts of the proposed project pursuant to the various federal, state, local, and regional acts, laws, and legislation including the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and other local environmental permitting procedures. There are several agencies that might act as lead/responsible agencies during preparation, review, and approval of the required environmental documentation associated with the proposed project. For aspects of the project proposed within Sierra County, California; the Planning Department along with the Long Valley Groundwater Management Board would most likely act as lead agencies while numerous other agencies would be responsible agencies. In Nevada, the BLM or USFS would be required to require and review environmental documentation if the proposed project requires a federal action on lands managed by the various agencies. The proposed environmental documentation would be used by various federal, state, local, and regional agencies in approving or issuing permits for all or part of the proposed project.

4.3 Schedule

The schedule associated with the proposed project is dependent on numerous factors including refinement of the project description; obtaining right-of-way easements associated with the pipeline; changes in legislation and the time necessary to review existing technical reports and conduct additional studies if required. Figure 4-1 illustrates the various aspects of entitlement processing with estimated time frames according to seasons of the year. As shown, environmental clearance and permitting associated with the proposed project is estimated to take 12 to 24 months while engineering design and public relations are estimated to be completed within six months. Mitigation monitoring will commence prior to construction activities and will continue three to five years after project construction activities are completed.

TABLE 4-1
POTENTIAL APPLICATIONS AND PERMITTING REQUIREMENTS

REGULATORY AGENCY	REQUIRED PERMIT/APPROVAL/CLEARANCE
<i>Federal Government</i>	
US Army Corps of Engineers	Section 404 Permit/ and Nationwide Permit
US Fish and Wildlife Service	Advisory Role to the US Army Corps of Engineers
US Department of Transportation	Agreement with Nevada Utility Accommodation Policy to bore under Highway 395
Advisory Council on Historic Preservation	Section 106 of the National Historic Preservation Act Review
<i>State of California</i>	
State Lands Commission	Grant right-of-way for pipeline crossing state lands
State Clearinghouse	Environmental Documentation Distribution
Water Resources Control Board	Dredging Permit
Water Quality Control Board	Water Rights Permits
Water Quality Control Board	NPDES Discharge Permit
Department of Fish and Game	Section 1600 Streambed Alteration Agreement
State Historic Preservation Office	Clearance
Caltrans	Encroachment Permit to bore under State Highway
<i>State of Nevada</i>	
State Engineer	Rolling Stock Permit for pipeline to cross streams
Division of Environmental Protection	NPDES Discharge Permit
Division of Environmental Protection	Surface Disturbance Permit
Department of Transportation	Right-of-way Occupant Permit to dig along, across, under State Highway
State Historic Preservation Office	Clearance
<i>Sierra County, California</i>	
Planning Department	CEQA Compliance
Planning Department	Conditional Use Permit
Health Department	Air Quality Permits
<i>Lassen County, California</i>	
Planning Commission	General Plan Designation Amendment
Road Commission	Road Crossing Permit
Health Department	Water Well Drilling Permit
Air Pollution	Letter of Intent to Construct
<i>Washoe County, Nevada</i>	
Department of Comprehensive Planning	Special Use Permit
Building Department	Right-of-way Permit to cross county road
Health Department	Permit to Operate
Health Department	Fugitive Dust Plan
<i>Private/Quasi-Private Entities</i>	
Union Pacific Railroad	Encroachment Permit to cross/bore under railroad
Various Utility Districts	Consent for Common Use Permit to Cross Utility
Long Valley Groundwater Management Board	Approval of Application

Figure 4-1

ENTITLEMENT PROCESSING SCHEDULE

TASKS	FALL 1996	WINTER 1997	SPRING 1997	SUMMER 1998	FALL 1998	WINTER 1999	SPRING 1999
ENVIRONMENTAL CLEARANCE	<ul style="list-style-type: none">• Federal - Environmental Assessment —→ FONSI or Environmental Impact Statement (Required Public Review Period)• State of California - Initial Study —→ Categorical Exemption/Negative Declaration or Environmental Impact Report (Required Public Review Period)						
ENGINEERING DESIGN		<ul style="list-style-type: none">• System Design - Continue Geologic and Hydraulic Investigations and Design Wells, Pumps, Water Detention Facilities• Wetlands Creation - Conduct Wetlands Delineation and Design Wetlands Areas• Pipeline Project - Determine Right-of-Way or Easements and Design Pipeline and Storage Facilities					
ENVIRONMENTAL PERMITTING/ REGULATORY COMPLIANCE	<ul style="list-style-type: none">• Federal - Army Corps of Engineers Section 404 Permits• State of California - California Department of Fish and Game 1600 Permits, Water Rights Allocation Approval, SHPO Compliance• State of Nevada - SHPO Compliance, Stream Alteration Permit• Sierra County, California - Conditional Use Permit, Grading Permits, Building Permits, Fugitive Dust Consistency• Lassen County, California - Grading Permits, Building Permits, Fugitive Dust Consistency• Washoe County, Nevada - Special Use Permit, Air Quality Permit, Grading Permits, Building Permits• Private - Encroachment Permits						
PUBLIC RELATIONS	<ul style="list-style-type: none">• Federal, State and Local Agencies in California and Nevada, Private Interests, Special Interest Groups• Newsletters, Newspaper Articles, Public Participation						
MITIGATION MONITORING	<ul style="list-style-type: none">• The Mitigation Monitoring Program will involve affected Federal, State, and Local Agencies, including the Long Valley Ground Water Management District who have jurisdiction or respective roles in reviewing and approving specific mitigation measures associated with project. This task will be continued after the project is continued and in operation.						
CONSTRUCTION					<ul style="list-style-type: none">• Construction Activities estimated to take 3-6 months		

5.0 CONCLUSIONS

Assuming the following tasks are carried out and approved, the proposed project could be developed by the project applicant. The project applicant would be responsible for implementing conditions of approval placed on the project by lead, responsible, and cooperating agencies who would have authority to place these conditions.

1. The project must be engineered/designed to meet federal, state, and local construction codes and must be approved by the appropriate entities.
2. The required federal and state environmental documentation is prepared, processed, and certified/approved by the appropriate entities.
3. All appropriate federal, state, and local applications and permits are granted.
4. Mitigation monitoring is carried out as specified by the appropriate agencies.

APPENDIX I
PROJECT TEAM QUALIFICATIONS

Kronick, Moskovitz, Tiedemann & Girard

Kronick, Moskovitz, Tiedemann & Girard (KMTG) is a professional corporation of more than 60 attorneys practicing/specializing in the fields of water and natural resources law, public agency law, construction law, general business law, real estate law, public finance, and general and complex litigation. Firm founders Stanley Kronick and Adolph Moskovitz first met in 1950 as staff attorneys for the federal Bureau of Reclamation. Assigned to matters of water contracting, they formulated a policy of water allocation that was embraced by California's new attorney general, Edmund G. Brown, to reverse state policy and win a notable decision in the U.S. Supreme Court. In 1959, Mr. Brown became California's governor and presided over a program of water and hydroelectric projects unparalleled in history. That same year, Mr. Kronick and Mr. Moskovitz formed a law firm that continues to pioneer water and water-related resource law in California and the country.

Project Team

The project applicant has retained the services of several technical individuals and firms which specialize in providing professional engineering, hydrology, environmental planning and permitting, biological, and legal services as displayed on the attached figure. The following paragraphs outline the services and capabilities of the project team.

Water Research & Development, Inc.

Water Research & Development, Inc. (WRD) is a consulting firm specializing in civil and agricultural engineering, hydrology, environmental resource management, and water rights investigation, permitting and surveying. Typical projects include all aspects of surface and subsurface hydrologic resource evaluation and management, design and operation of water supply systems, evaluation of physical and chemical characteristics of soil-water interactions, evaluation of evapotranspiration and water uses, water quality analysis, evaluation of water rights and all transfers thereof, and evaluation of federal, state, and local environmental regulatory policy. The WRD professional staff is composed of licensed civil engineers registered in both California and Nevada, a surface and groundwater hydrologist, a certified professional soil scientist, an agricultural economist, and a professional land surveyor.

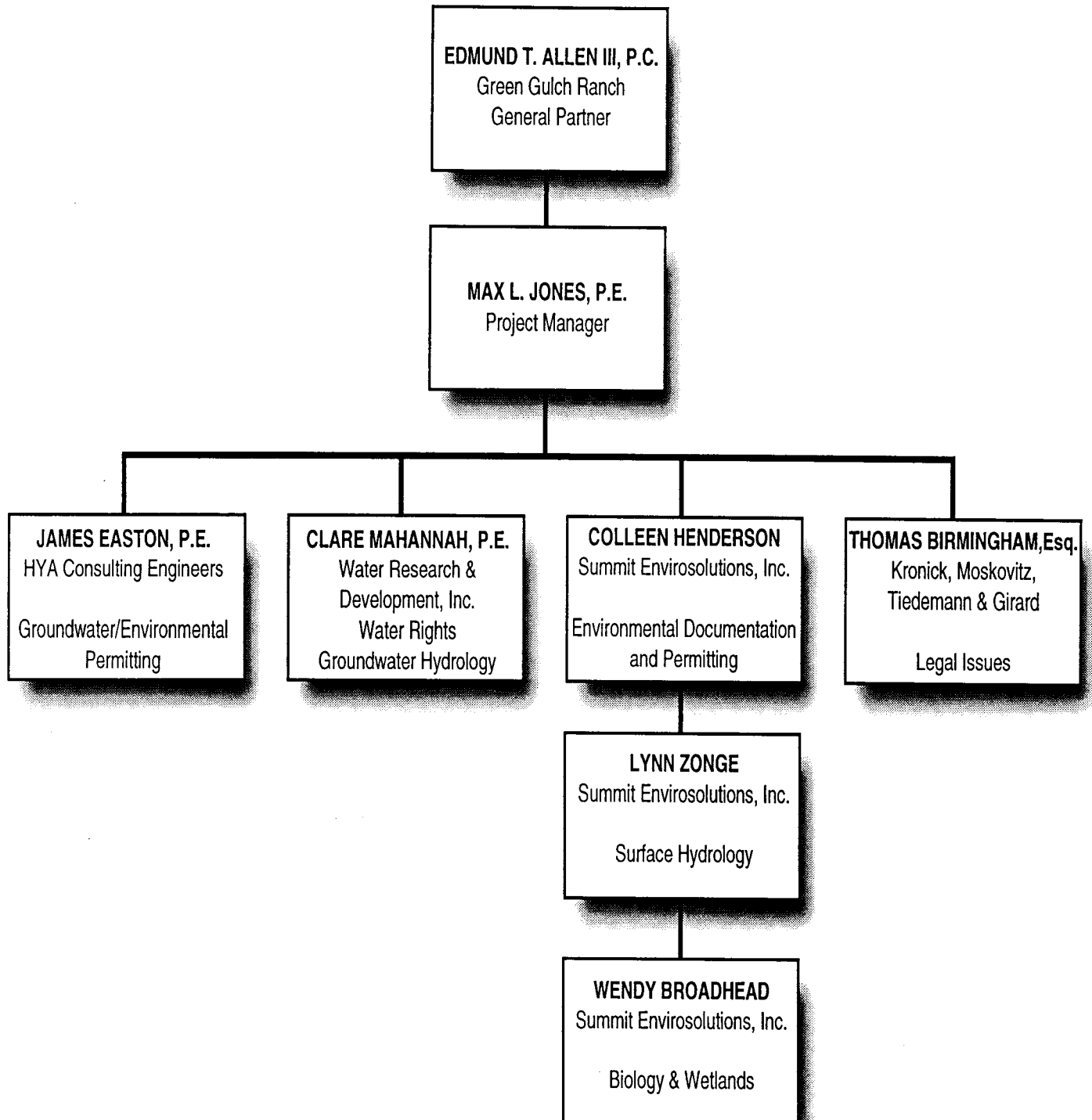
HYA Consulting Engineers Group/Dames and Moore, Inc.

HYA Consulting Engineers Group/Dames and Moore, Inc. specializes in offering services pertaining to conservation management programs, water resources management plans, water transfer facilitation, water rights engineering, conjunctive use studies, rules and regulations review/representation, water marketing feasibility studies, regulatory permitting facilitation, groundwater management plans, and water supply master plans. HYA/Dames and Moore, Inc. also offers comprehensive experience in contractual, regulatory, operational, technical, and environmental aspects of urban, agricultural, and environmental water resources management.

Summit Envirosolutions, Inc.

Summit Envirosolutions, Inc. is a full-service environmental consulting firm located in Reno and maintains regional offices in other locations around the nation. Summit specializes in providing environmental planning, hydrologic, cultural resources, and biologic resources management, as well as, environmental assessment, remediation, and groundwater services. In particular, Summit's natural resources management group is comprised of numerous individuals with the expertise and experience to successfully manage large, complex planning, hydrologic, and biologic projects regulated under various local, state, and federal agencies. Driven by such legislature as the California Environmental Quality Act (CEQA), National Environmental Policy Act (NEPA), and other state regulations, the Summit natural resources management group has efficiently and effectively completed the planning and processing of numerous projects involving water resources within the State of Nevada.

PROJECT TEAM ORGANIZATIONAL CHART



MAX L. JONES, JR., P.E.
Engineer

Professional Summary

Mr. Jones has worked as a consultant in private practice specializing in project management and technical issues dealing with electrical, gas and water utilities. Client projects have included electric transmission line analysis, geothermal generation contracts, utility construction and service contracts, energy resource planning and strategies and general management and project management services.

Professional Experience

- o Mr. Jones served as a Senior Executive and Officer for Sierra Pacific Power Company for over thirteen years. For ten of those years he was the Senior Vice President or Vice President in charge of the company's planning, engineering and construction functions. Mr. Jones's experience includes executive and professional responsibility for marketing, demands side program design, implementation and evaluation, power contracts, major customer service, system planning, resource planning, engineering design, project management, project construction, business development, research and development, construction standards, right of way permitting and acquisition, environmental affairs, materials management, purchasing, information services associated with electric, gas and water utility business operations and for gas/oil exploration and development activities of a subsidiary company. Project experience and knowledge include major customer energy efficiency projects, major office buildings, electric substations, peaking power generation stations, electric transmission lines, distribution facilities, transmission mains, water treatment plants, booster pump stations and regulator stations.
- o Mr. Jones has demonstrated effective professional executive management skills in organizing, leading, developing and coaching technical personnel and in negotiation contracts and resolving disputes. He has extensive experience testifying as an expert witness before public agencies and courts including: The Nevada Public Service Commission, California Public Utility Commission, Federal Energy Regulatory Commission, Bureau of Land Management, Nevada State Legislature, United States Congressional committees, and before the Nevada Courts.

Registration

- o Professional Engineer, Electrical (Power), Nevada No. 2733

JAMES L. EASTON
Civil Engineer\Attorney

Professional Summary

Mr. Easton has over 34 years of experience including 26 years in government. He served as Executive Director of one of California's most important water regulatory agencies (the State Water Resources Control Board) and in top level management of tow of the nation's largest public works agencies. His experience and expertise includes water marketing, water transfer facilitation, water rights engineering and administration, program budgeting and financing, water quality regulation, wastewater management and reclamation, project and program management, public and community relations, groundwater recharge and management, public works design construction management, legislative liaison at the local and state levels and intergovernmental liaison at local, state, and national levels.

Mr. Easton has an exceptional network of current contacts with key western water people. He also has detailed knowledge and broad experience in the complexities of western water "plumbing," politics and policy at the local, state, and federal levels.

Professional Experience

- o Delta Wetlands, a unique, privately owned water development project proposes to use 2 Delta islands (Boulder Island and Holland Tract) to provide habitat and wetlands for terrestrial species. Two other islands (Bacon Island and Webb Tract) are proposed as year-round water supply reservoirs. These reservoirs will produce an annual yield of approximately 200,000 acre feet which will be marketed to users downstream of the Delta. Our current Services include preparation, submittal and coordination of new water rights applications and amended applications; negotiation of resolution of protests to the water right applications; preparation and delivery of testimony at water rights hearing; coordination and liaison efforts with the co-lead agencies (State Water Resources Control Board and U.S.Army Corps of Engineers); and coordination with various regulatory agencies.
- o Directed the staff of the State Water Resources Control Board in all aspects of the State's complex programs of surface water rights and water quality. This included direction of the Board's water rights and water quality programs, and implementation of programs mandated by the Federal Clean Water Act.
- o Project Manager for the PCWA/Northridge Water District Groundwater Stabilization project which requires permitting an environmental documentation for a 29,000 acre-ft substitute surface water supply that will stabilize water levels in a major overdrafted groundwater basin underlying much of northern Sacramento and western Placer County. Also, facilitation a 35,000 acre ft transfer from PCWA to So. Calif. Interests for groundwater banking.

Education

- o B.S. Civil Engineering
Brigham Young University, Utah

Registration

- o Registered Civil Engineer, California, 16529

CLARE N. MAHANNAH, P.E.
Civil Engineer

Professional Experience

- o Directs projects related to groundwater and surface water hydrology, irrigation, water rights, litigation, water law, water distribution, well design/construction, pumps and controls, land application of water, agriculture, and crop evapotranspiration. Mr. Mahannah has provided expert witness testimony in several federal and district courts and before various administrative hearings such as those conducted before the Nevada State Engineer. Mr. Mahannah has also provided guidance and testimony in the adjudication process on the Truckee, Carson, and Humboldt Rivers.
- o During Mr. Mahannah's 25-year tenure at the University of Nevada, Reno, he was responsible for the civil and agriculture engineering aspects of groundwater wells, river diversions, pump stations, reservoirs and conveyance system construction associated with the University's seven research experiment stations. Additionally, Mr. Mahannah was responsible for the water resource and irrigation engineering education programs at the University. Mr. Mahannah provided water resource and irrigation system engineering services to farmers/ranchers throughout the state is well respected in the agricultural community. He also conducted numerous research projects while at the University, including the research and development of retractable "pop-up" sprinkler head and research documenting the consumptive use of alfalfa near Wadsworth, Nevada which has provided invaluable to other researchers, irrigation districts, and regulatory agencies.
- o Cooperative research project between the University and the Pear Growers Association evaluating the effects of various irrigation regimens on Bartlett Pear decline.
- o Cooperative research project between the Heinz Cannery, Tomato Growers Association, and the University evaluating the effect of the various irrigation regimens on tomato phytopthera root rot.
- o Soil description, mapping and classification in Minnesota for various soil surveys.

Education

- o B.S. Soil Science and Drainage Engineering
University of Minnesota

Registration

- o Professional Agricultural Engineer (P.E.), State of California
- o Professional Civil Engineer (P.E.), State of Nevada
- o Water Rights Surveyor, State of Nevada

THOMAS W. BIRMINGHAM
Legal Counsel

Professional Summary

Mr. Birmingham's practice emphasizes water and environmental law. He represents both public agencies and private parties in matters related to water rights and related issues involving the Endangered Species Act, the California Environmental Quality Act, and other environmental laws.

Professional Experience

- o Mr. Birmingham is general counsel of Westlands Water District and Ramirez Water District and is special counsel to the City of Los Angeles, Department of Water and Power, in litigation concerning its right to divert water from streams tributary to Mono Lake. He also represents water agencies in complex litigation involving drainage, claims of groundwater contamination, and rights to receive water from the Central Valley Project. Mr. Birmingham also represents water contractors in matters related to diversions of water out of the Sacramento-San Joaquin River Delta, and he advises public agencies on issues concerning water transfer, groundwater regulation, and related environmental regulations. He was lead appellate counsel in *Peterson v. United States*, a case challenging provisions of the Reclamation Reform Act of 1982.
- o From 1983 to 1985, Mr. Birmingham was a fellow in the College of Public Interest Law of the Pacific Legal Foundation, where he focused on cases intended to establish precedent in land use and water law. During that time, he served as appellate counsel in *McMillan v. Goleta County Water District* and *Patton v. City of Alameda*. He also wrote numerous *amicus curia* briefs for cases pending in the Supreme Court. These included *MacDonald, Sommer & Frats v. County of Yolo and Williamson County Regional Planning Commission v. Hamilton Bank of Johnson City*. He also wrote briefs for *Building Industry Association v. City of Camarillo* and *Adler v. Elphic*, both of which were land use cases pending in California courts.

Education

- o B.S. Law
University of California, Los Angeles
- o Juris Doctor
McGeorge School of Law, University of the Pacific

COLLEEN BATHKER
Environmental Project Manager

Professional Summary

Ms. Bathker has over twelve years of experience managing, preparing, and processing environmental documentation pursuant to the National Environmental Policy Act (NEPA), California Environmental Quality Act (CEQA), and other state environmental guidelines. In addition, Ms. Bathker has extensive data acquisition and analysis skills, enabling her to effectively document the issues and impacts of controversial projects.

Professional Experience

- o Managed and prepared environmental documentation associated with construction, operation, and maintenance of several natural gas pipeline projects traversing portions of the Lake Tahoe Basin, and the Washoe and Carson Valleys in Northern Nevada. Major issues associated with these projects included quantifying impacts to sensitive biological, wetland, and cultural resources as well as preparing successful erosion control and revegetation plans to mitigate all identified impacts.
- o Managed and prepared a detailed environmental assessment analyzing the issues associated with construction, operation, and maintenance of a large natural gas pipeline traversing the Las Vegas Valley in Southern Nevada. This project involved coordination with the Federal Energy Regulatory Commission, Bureau of Land Management, Fish and Wildlife Service, State of Nevada Public Service Commission, and several local jurisdictions.
- o Prepared a Mine Environmental Handbook for the employees at a major gold mine located in Eastern Nevada. The handbook provides useful information about federal and state policies and laws, as well as site-specific instructions to follow to avoid adversely impacting sensitive natural and environmental resources.
- o Managed and coordinated the State of Nevada's Natural Resources Plan on behalf of the Department of Conservation and Natural Resources. Began inventory of the state's natural and environmental resources, compiled and evaluated existing policies pertaining to managing natural resources, and evaluated resource degradation and depletion issues. Coordinated various planning efforts with federal, state, and local agencies throughout Nevada.
- o Managed, prepared, and processed environmental impact reports, environmental notices, and other specialized planning studies in Southern California. Coordinated the efforts of technical sub-consultants, assistant planners, graphic technicians, and support staff for a variety of projects involving residential and commercial uses.

- o Managed and prepared environmental documentation and conducted permitting associated with a diverse range of development projects including mining operations, water-related infrastructure, and industrial facilities located in Northern California.
- o Prepared environmental documentation analyzing issues associated with development of two mines (gold and copper) located on the western slope of the Sierra Nevada.
- o Prepared environmental documentation analyzing the impacts associated with development of storage tanks, pumping facilities, and transmission pipelines located in an environmentally sensitive area of Northern California for a large irrigation district.

Education

- o B.S. Environmental Planning
California Polytechnic State University, Pomona, California

Professional Affiliations

- o Nevada Water Resources Association
- o Association of Environmental Professionals

Continuing Education/Specialized Training

- o Completed various Environmental and Landscape Architecture courses offered by the University of California, Irvine.
- o Completed a Project Development and Environmental Documentation Course offered by the Federal Highway Administration.

K. LYNN ZONGE
Hydrologist

Professional Summary

Ms. Zonge draws from over seven years of hydrologic, geomorphic, and geologic experience in the environmental field. Ms. Zonge's recent experience involves project management of environmental documentation required for large natural gas pipeline projects. She has extensive experience in surface water hydrology, biology and morphology including climate and watershed analyses, sediment and erosion control, stream dynamics, riparian restoration, drill site and road restoration, rainfall/runoff investigations, soil analyses, plant identification, and riparian and stream ecology. Ms. Zonge has excellent field skills in regional and site specific geologic and soils mapping as well as watershed, stream, and plant surveying and mapping. Ms. Zonge is also experienced in aquifer test analyses and groundwater contaminant delineation of complex multi-layer groundwater plumes. Her work with large projects has provided her with excellent data acquisition, coordination, and organization skills.

Professional Experience

- o Project manager of the environmental documentation required for natural gas pipeline projects. Coordinated and worked with team members to provide environmental documentation to satisfy the Federal Energy Regulatory Commission, the Bureau of Land Management, The U.S. Forest Service, the Tahoe Regional Planning Agency, and several State of Nevada and county agencies.
- o Conducted long term river scour analyses and the affect of geomorphic changes on bridge stability. Surveyed pertinent river components and calculated long term trends using historical aerial photographs and the collected field data.
- o Conducted streambed mobilization analyses.
- o Delineated watersheds, prepared isohyetal and isothermal maps, and soil descriptions for the construction and development expansion projects.
- o Performed in wetland delineation and determinations in the Sierra Nevada Mountains.
- o Assisted in water budget calculations for agricultural areas including evapotranspiration estimations, application and drainage problems in arid zones.
- o Assisted in urban area river corridor enhancement.
- o Analyzed aquifer test data, computed transmissivities, used geostatistical software to delineate groundwater contamination, and created computer graphics and models on complex multi-layer groundwater plumes.

- o Coordinated and implemented regional and site specific mapping and drilling projects.

Education

- o M.S. Hydrology
University of Nevada, Reno, Nevada
- o B.S. Geology
University of Arizona, Tucson, Arizona

Professional Publications/Lectures

- o "A Moveable Frame Technique for Measuring Changes in Streambank Profiles", In: Effects of Human-Induced Changes on Hydrologic Systems. Annual Summer Symposium AWRA. Zonge, K.L. and S. Swanson, 1994.
- o "Drought Year Stream Bank Changes on Incised Streams in the Sierra Nevada Mountains", Geomorphology Zonge, K.L., S. Swanson, and T. Myers, 1994.
- o *American Water Resources Association Conference* - Presented poster on technique for measuring streambank erosion.

Continuing Education

- o Riparian Restoration: Stream classification, stream morphology and restoration techniques by Dave Rosgen (40 hours).

WENDY BROADHEAD
Botanist/Archaeologist

Professional Summary

Ms. Broadhead has seven years of experience in revegetation, and restoration projects, plant identification, and vegetation surveys. She has conducted numerous threatened, endangered, and sensitive plant surveys and has performed wetland delineations. Ms. Broadhead managed the biological portion of an environmental document for a large pipeline project. She has extensive experience in designing and implementing planting plans and conducting contract inspection. Ms. Broadhead has created numerous natural history interpretive projects for interpretive centers and nature trails, with educational sign systems discussing river hydrology, geology and geomorphology, plant and animal species, ecology, and cultural history. She has a diverse background in field surveying, including soils, surface water morphology, riparian plant communities, threatened and endangered plant species, biodiversity, and archaeology. Her archaeology experience includes five years of directing field surveys, location, mapping and recordation of archaeologically sensitive areas. She has written and prepared numerous comprehensive site reports for both historic and prehistoric sites and compiled databases for archaeological areas. Ms. Broadhead is also experienced in data retrieval as well as lab methodologies and techniques. With her diverse background, Ms. Broadhead brings years of organizational skills, project coordination, and experience in working with a variety of agencies and clients.

Professional Experience

- o Managed the biological resource portion for a large pipeline project. This included coordination between numerous agencies including U.S. Forest Service, Tahoe Regional Planning Agency, Nevada State Lands, and the Federal Energy Regulatory Commission.
- o Wrote Environmental Assessments, Biological Evaluations, and Biological Assessments for a variety of development projects.
- o Conducted wetland delineations and determinations on projects located throughout Nevada.
- o Conducted Threatened and Endangered plant surveys.
- o Conducted sensitive plant surveys. Located, documented, and mapped sensitive plant populations.
- o Conducted community type vegetation surveys in the Sierra Nevada province.
- o Assisted in conducting wildlife surveys, including invertebrates, mammals, birds and reptiles.

- o Assisted in designing and implementing restoration projects in areas of disturbed granitic soils.
- o Conducted river scour analyses and the affect of geomorphic changes on bridge stability. Surveyed essential river components for the calculation of long term trends.
- o Assisted in small watershed surveys on incised streams for bank stability.
- o Conducted riparian plant community identification and mapping. Conducted soil surveys associated with riparian plant communities.
- o Conducted plant density and percent cover surveys.
- o Designed erosion control and enhancement projects using native and adapted plantings and seeding.
- o Supervised construction of restoration projects.
- o Designed trail systems and associated structures for educational experiences.
- o Designed and researched all aspects of natural history and cultural history for development of interpretive exhibits.
- o Supervised archaeological investigations, designed survey strategies, and compiled data for inclusion into regional management plans.

Education

- o B.S. Plant Science
University of Nevada, Reno, Nevada
- o B.A. Anthropology
University of Nevada, Reno, Nevada
- o B.A. Art
University of Nevada, Reno, Nevada