

SECTION 3.0

DESCRIPTION OF AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This section describes the existing environment of the area that may be affected by the Proposed Action or other alternatives as required by CEQ Guidelines (40 C.F.R. Part 1502.15). Resources that are described include Land Resources, Water Resources, Air Quality, Biological Resources, Cultural Resources, Socioeconomic Conditions, Resource Use Patterns, Public Services, and Other Values.

3.2 LAND RESOURCES

This section describes the existing environmental conditions of land resources for the proposed Amador County project site. Topics contained in this section include topography, geological setting, soils, seismicity, and mineral resources. The general and site-specific profiles of Land Resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

3.2.1 TOPOGRAPHY

The project site lies on moderate to steep slopes in the Sierra Nevada section of the Sierra Cascade Mountains. The topography of the project site and vicinity ranges from approximately 900 feet to 1,150 feet above mean sea level (amsl). The northern portion of the site has little relief. The southern portion of the site has a moderately sloping hill on the southwest section of the site, while the southeast portion of the site contains a steeper gradient. The eastern and southern sections of the project site are more steeply sloped compared with the northern and western sections.

3.2.2 GEOLOGIC SETTING

The project site is greenstone and gray to black slate of the Mariposa Formation (Upper Jurassic age) and metasedimentary rocks, chiefly graphitic schist, metachert and amphibolite schist of the Calaveras Formation (Carboniferous to Permian) (**Figure 3.2-1**). The trend of ridges and rock formations in the project area is generally northwest to southeast. The Mariposa Formation consists of greenstone that has its origins as metamorphosed basic, igneous intrusive rock and slate that was once seafloor mud. The formation was metamorphosed and evenly folded and fractured during the Nevadan mountain building episode (late Jurassic). The Mariposa Formation crops out as marine sedimentary and metasedimentary rocks with greenstone along the western edge. The Calaveras Formation consists of ancient marine sediments of the Paleozoic era likely formed as a result of coral reef activities. Seismic activity in Jurassic times (250 million years ago) and again about 5 million years ago caused the ancient sediments including the coral reef to be uplifted and folded into its present state (Plymouth, 2001). The geologic materials of the project site consist of Upper Jurassic marine sedimentary and metasedimentary rocks of the Mariposa Formation with greenstone along the western edge. These sedimentary and metasedimentary rocks are primarily weathered shale and slate with minor thin beds of sandstone (AEG, 2004).

3.2.3 SOILS

PROJECT AREA SOILS

Soil surveys for the proposed site are available online through the Natural Resource Conservation Service (NRCS), a sub-unit of the United States Department of Agriculture (USDA, 2007). Each

survey maps soil units and provides a summary of major physical characteristics for each unit.

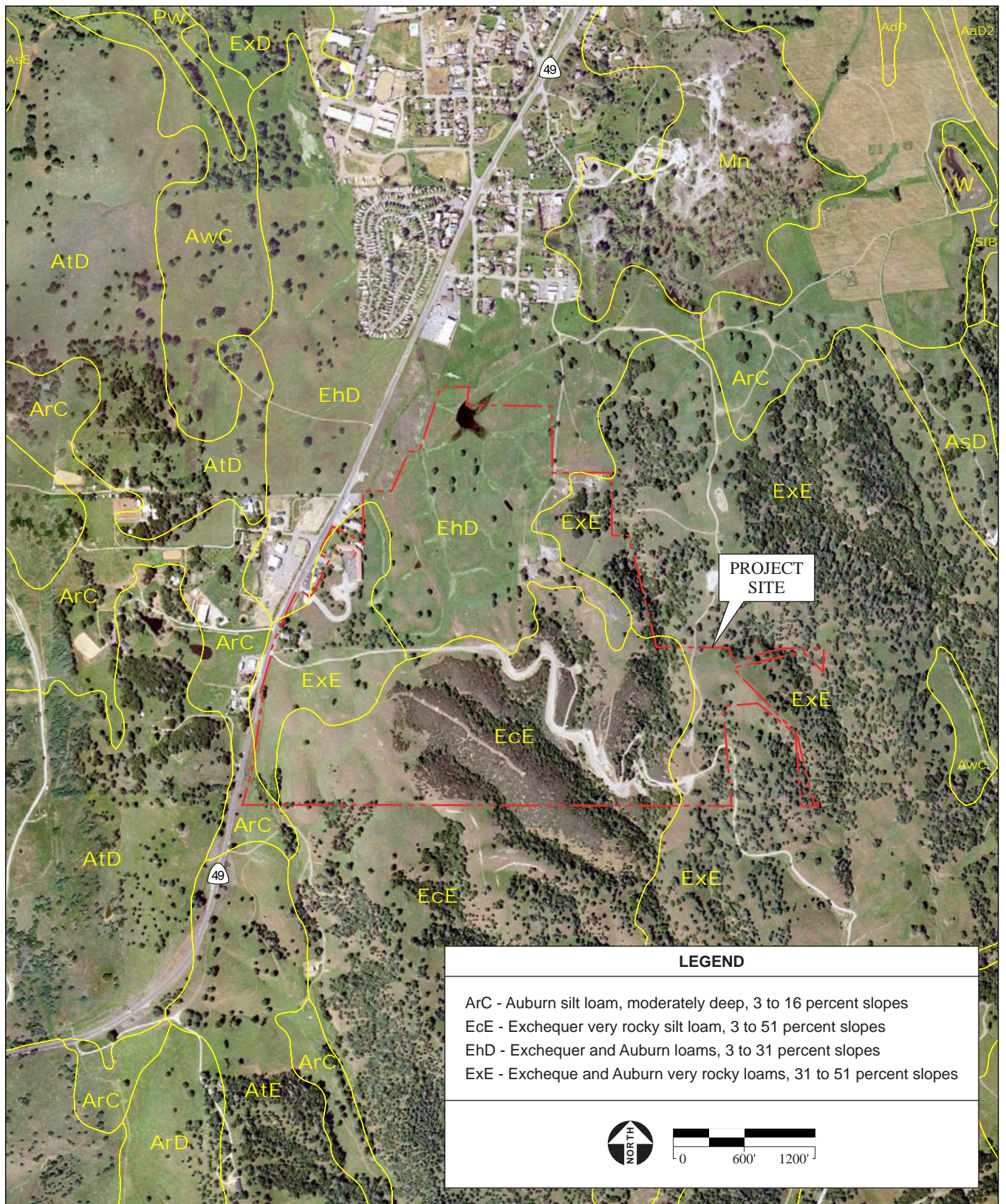
A customized soil report from the Web Soil Survey service was prepared for the project site, and is included as **Appendix T** of the Draft EIS. The web soils survey identified the dominant soil types on the project site as Exchequer very rocky silt loam (EcE), Exchequer and Auburn loams (EhD), and Exchequer and Auburn very rocky loams (ExE) (**Figure 3.2-2**). These soils are loams and silty loams, with low clay content. The soils are derived from the erosion of shallow bedrock of the Calaveras and Mariposa formations described above under the geologic setting.

EcE map unit soils cover approximately 47.5-percent of the project site, and are classified as hydrologic group D soils. Soils with this rating have very slow water infiltration rates correlating to high runoff potentials. This soil map unit does not experience frequent ponding or flooding. Comprised of silt loam, EcE soils have a low rating for shrink-swell potential associated with constant water saturation and subsequent drying and are therefore not classified as expansive soils. The potential for soils to demonstrate expansive properties is primarily dependent upon clay content. These soils have a moderate potential for sheet and rill erosion from wind and water.

EhD map unit soils cover approximately 29.7-percent of the project site, and are classified as hydrologic group D soils, and therefore exhibit similar water drainage characteristics as EcE soils. This soil map unit does not experience frequent ponding or flooding. Comprised of Exchequer and Auburn loam soils, this map unit exhibits a low potential for shrink-swell and is therefore not classified as expansive soil. These soils have a low to moderate potential for sheet and rill erosion from wind and water.

ExE map unit soils cover approximately 22.6-percent of the project site, and are also classified as hydrologic group D soils. This soil map unit does not experience frequent ponding or flooding. Comprised of silt loam, ExE soils have a low rating for shrink-swell potential and are therefore not classified as expansive soils. These soils have a low to moderate potential for sheet and rill erosion from wind and water.

An additional soil map unit was identified on the soils survey, Auburn silt loam (ArC). This soil map unit is classified as hydrologic group C. Soils classified in this hydrologic group have slow water infiltration rates and typically have a layer that impedes the downward movement of water. This soil map unit only covers approximately 0.2-percent of the project site, at the southwestern corner of Parcel #1. There is no development planned for this Parcel #1; therefore, no further discussion regarding this soil map unit is necessary.



SOURCE: U.S. Department of Agriculture Natural Resources Conservation Service, 1/4/2007;
 Airphoto USA Aerial Photograph, 4/1/2004; AES, 2007

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Figure 3.2-2
 Soil Types

3.2.4 SEISMICITY

The State of California Alquist-Priolo Earthquake Fault Zoning Act (formerly the Alquist-Priolo Special Studies Zone Act), signed into law December 1972, requires the delineation of zones along active and potentially active faults in California. The California Geological Survey (CGS) defines an “active” fault as one that exhibits evidence of activity during Holocene time (about the last 11,000 years). Faults that exhibit evidence of Quaternary activity (within the last 1.6 million years) are considered to be “potentially active.” The purpose of the Alquist-Priolo Act is to regulate development on or near fault traces to reduce the hazard of fault rupture and to prohibit the location of most structures for human occupancy across these traces. According to the 1990 update of the act, there are no faults zoned for special studies within 60-65 miles of the project site.

The project site is located between the Bear Mountains Fault Zone and the Melones Fault Zone. According to United States Geological Survey (USGS) maps show activity up to 1.6 million years ago., The USGS maps show the Bear Mountain Fault Zone with the nearest trace, commencing approximately 24 miles north of the project site. No faults in the region surrounding the project site are identified by USGS as having signs of activity up to the Quaternary time period. According to the Alquist-Priolo Seismic Hazards Map, the Bear Mountain Fault Zone is not a special study area because surface expression is poor and there is no evidence of Holocene (recent) activity (USGS, 2004).

The Amador County General Plan (General Plan) describes the County’s location within the Sierra Nevada block as an area of historically low seismic activity. The General Plan identifies a local fault that is not located on USGS fault trace maps. The Melones Fault, which according to the General Plan trends north and south adjacent to the eastern region of Plymouth and approximately one-half mile from the project site, is part of the “Mother Lode” geological feature (Cite Section that explains the “Mother Lode”)

Seismic intensity is one measure of the strength of shaking experienced during an earthquake. The Modified Mercalli Scale (MM) is an arbitrary ranking of intensity based on observed effects from an earthquake and is not mathematically based (**Table 3.2-1**). This scale is composed of twelve increasing levels of intensity that range from imperceptible shaking to catastrophic destruction, expressed by Roman numerals. The reported intensity will generally decrease as the distance increases away from the epicenter of an earthquake. The geologic characteristics of a particular site strongly influence the intensity of an earthquake. Sites on soft ground or alluvium experience MM intensities 2 to 3 values higher than sites on bedrock (USGS, 1997). The lower numbers on the intensity scale generally describe the manner in which the earthquake is felt by people. The higher numbers on the scale define observed structural damage that can accompany an earthquake (USGS, 1989). The City of Plymouth is rated as having no potential for earthquake-related landslide hazards. The project site is located in one of the regions of lowest

ground shaking potential in California, and is rated minor for potential earthquake intensity, with a maximum MMI scale rating of VI to VII (CGS, 2007).

TABLE 3.2-1
MODIFIED MERCALLI INTENSITY SCALE

Intensity Value	Intensity Description	Average Peak Acceleration
I.	Not felt except by a very few persons under especially favorable circumstances.	< 0.0015 g
II.	Felt only by a few persons at rest, especially on upper floors on buildings. Delicately suspended objects may swing.	< 0.0015 g
III.	Felt quite noticeably indoors, especially on upper floors of buildings, but many persons do not recognize it as an earthquake. Standing motor cars may rock slightly. Vibration similar to a passing of a truck. Duration estimated.	< 0.0015 g
IV.	During the day felt indoors by many, outdoors by few. At night, some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation like heavy truck striking building. Standing motor cars rocked noticeably.	0.015 g-0.02 g ^a
V.	Felt by nearly everyone, many awakened. Some dishes, windows, etc., broken; a few instances of cracked plaster; unstable objects overturned. Disturbances of trees, poles, and other tall objects sometimes noticed. Pendulum clocks may stop.	0.03 g-0.04 g
VI.	Felt by all, many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	0.06 g-0.07 g
VII.	Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by persons driving motor cars.	0.10 g-0.15 g
VIII.	Damage slight in specially designed structures; considerable in ordinary substantial buildings, with partial collapse; great in poorly built structures. Panel walls thrown out of frame structures. Fall of chimneys, factory stacks, columns, monuments, walls. Heavy furniture overturned. Sand and mud ejected in small amounts. Changes in well water. Persons driving motor cars disturbed.	0.25 g-0.30 g
IX.	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb; great in substantial buildings, with partial collapse. Buildings shifted off foundations. Ground cracked conspicuously. Underground pipes broken.	0.50 g-0.55 g
X.	Some well-built wooden structures destroyed; most masonry and frame structures destroyed with foundations; ground badly cracked. Rails bent. Landslides considerable from river banks and steep slopes. Shifted sand and mud. Water splashed (slopped) over banks.	> 0.60 g
XI.	Few, if any, (masonry) structures remain standing. Bridges destroyed. Broad fissures in ground. Underground pipelines completely out of service. Earth slumps and land slips in soft ground. Rails bent greatly.	> 0.60 g
XII.	Damage total. Practically all works of construction are damaged greatly or destroyed. Waves seen on ground surface. Lines of sight and level are distorted. Objects are thrown upward into the air.	> 0.60 g

Source: Bolt, Bruce A., *Earthquakes*, W. H. Freeman and Company, New York, 1988

^{a/} g is gravity = 980 centimeters per second squared.

Soil liquefaction can occur during strong seismic shaking events. Liquefaction is the temporary transformation of soil behavior from a relatively stable, solid condition to a liquefied state as a result of increased seismic activity when soils are water saturated. Liquefaction potential has been found to be greatest where the ground water is within a depth of 50 feet or less, as do submerged loose, fine sands. Liquefaction potential decreases with increasing grain size and clay and gravel content, but increases as the ground acceleration and duration of shaking increases. The soils of the project site are very rocky with a high degree of cohesiveness and the area has a low MMI scale rating for seismic shaking. Therefore, the project site has very little potential to experience liquefaction during seismic events along the nearest fault traces.

During strong seismic shaking events, surfaces can collapse into underground voids or less dense soil layers. This phenomenon is known as subsidence. Areas sensitive to subsidence include areas experiencing drastic reductions in groundwater elevations, leaving voids or less dense soils below ground surface elevations. Underground voids such as natural caves or human-created mine shafts can subside during strong seismic events causing surface collapse. Subsidence can destroy structures and other development infrastructure such as pipelines and roadways. The project site is located within the Mother Lode gold mining belt of California. One mineshaft is located near the project site, which is discussed below in more detail under mineral resources.

3.2.5 MINERAL RESOURCES

According to the California Division of Mines and Geology, August 1, 1984, *Mineral Land Classification of the Sutter Creek 15' Quadrangle*, Plymouth was determined to have “known mineral deposits where well-developed lines of reasoning, based upon economic geologic principles and adequate data demonstrate that the likelihood for occurrence of significant mineral deposits is high.” The document states that these deposits are either “inferred reserves or presently sub-economic as determined by limited sample analysis exposure and mining history.” The above analysis of the mineral deposits and the economic viability of extraction includes the deposits of the Pioneer Mine (City of Plymouth, 2001).

The Pioneer Mine (Plymouth Consolidated) is located on the eastern margin of the project site, and was historically accessed for gold and quartz mining. Features associated with historical mining activities at the Pioneer Mine include prospect pits, ditches and tailings. Two prospect pits and a waste rock pile are located at the eastern foot of the ridge, due east of the Pioneer Mine. Two prospecting pits are located on the west bank of a tributary to the Dry Creek and four adit-like prospects are located on the east bank. Additional prospect pits are located on the crest and the western flank of the ridge east of Pioneer Mine. Ditches used during mining operation traverse away from Dry Creek along the 1,040-foot contour. Ditch segments are also located on the 1,020-foot contour on the southern and central portions of the site and two ditch segments are located along 1,000-foot contour west central portion of site. In addition to the pits, adits, and ditch segments, the site now includes an abandoned hoist house and piles of non-hazardous waste

rock (tailings). The sole remaining mineshaft was filled with debris and capped to prevent physical hazards (Matulich, pers. comm., 2003). For further description of mining-related features see **Section 3.6**.

3.3 WATER RESOURCES

This section describes the existing environmental conditions of water resources for the proposed Amador County project site. Topics include the regional watershed, surface water, drainage, flooding, groundwater, and water quality. The general and site-specific profiles of Water Resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

Other sections of this document also address water resources. **Section 3.5** Biological Resources provides a detailed characterization and map of the streams and wetlands on the project site. **Section 3.9** Public Services describes the water supply for the City of Plymouth and groundwater wells on and near the project site. The Public Services section also provides details on existing water supply facilities and regulatory requirements for wastewater treatment and disposal. Impacts to water resources are discussed within their corresponding sections in **Section 4.0**.

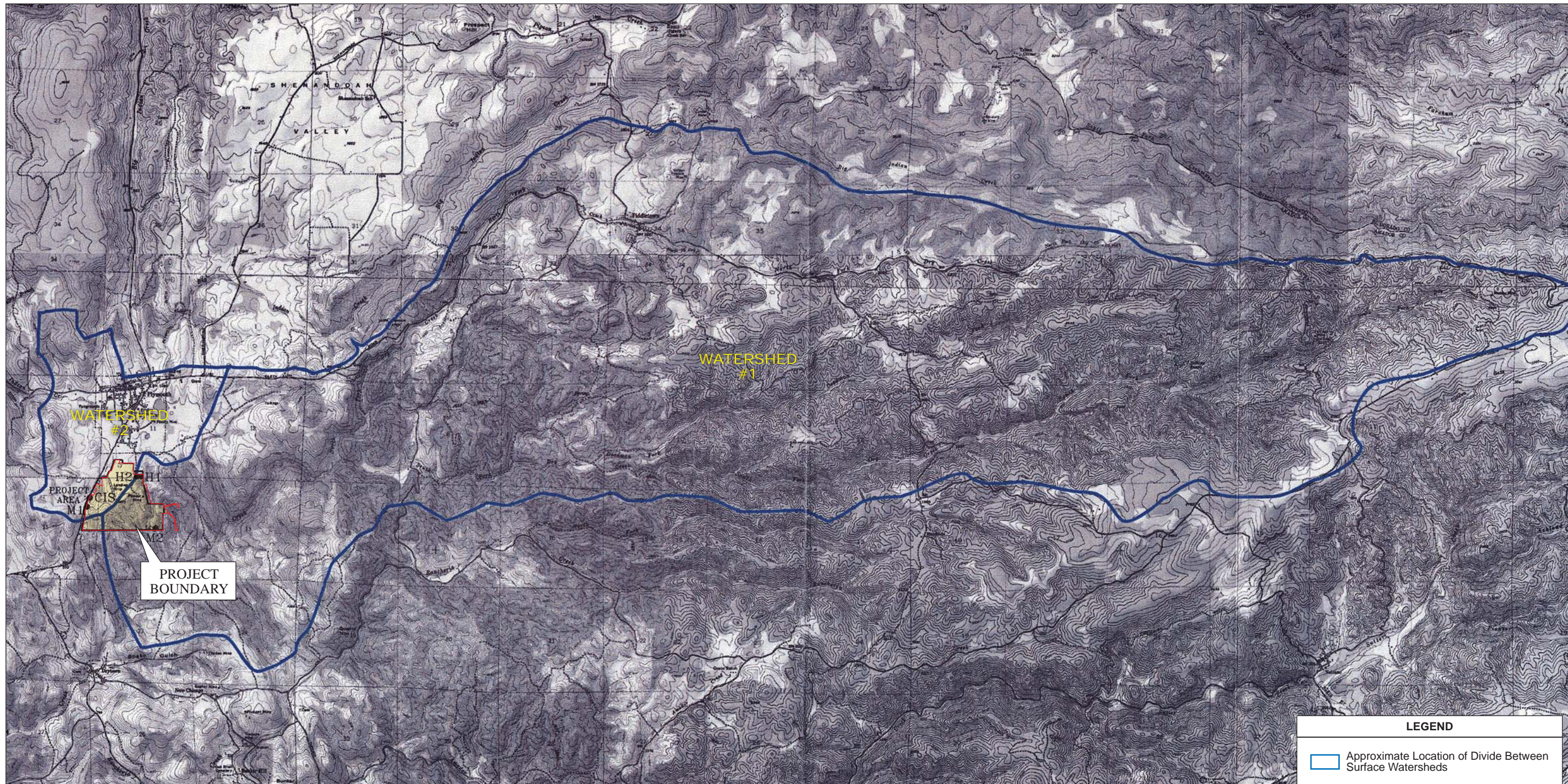
3.3.1 REGIONAL WATERSHED


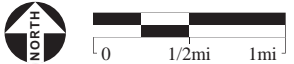
Regionally, Amador County is located within the San Joaquin drainage basin. The San Joaquin Drainage Basin covers an area over 10 million acres and includes all tributary watersheds of the San Joaquin River and the Delta south of the Sacramento River. Principal streams and larger tributaries of the San Joaquin drainage basin include the Cosumnes, Mokelumne, and the Calaveras River (CVRWCQB, 1998). Amador County is drained primarily by the Mokelumne River to the south and the Cosumnes River to the north. These rivers join and flow westward into the San Joaquin River and Delta.

3.3.2 SURFACE WATER

Surface water supplies within and around the City of Plymouth are limited to the Arroyo Ditch and Dry Creek. . Water from the Middle Fork of the Cosumnes River is diverted via the Arroyo Ditch where it flows approximately 17 miles south to the City of Plymouth. The Arroyo Ditch was purchased from Amador County and the Amador Water Agency and serves as a limited domestic water supply source for the City of Plymouth. The Dry Creek channel, an intermittent stream and a tributary of the Mokelumne River, flows in a southwesterly direction and is located southeast of Plymouth. Little Indian Creek, also an intermittent stream originating on the west side of SR 49, conveys the combined runoff from the southern portion of the City of Plymouth where it flows in a northeasterly direction.

Within the project site there are two sub-sheds of the larger Mokelumne River watershed as shown in **Figure 3.3-1**. All drainage in Watershed Area 1 drains south into Dry Creek, which eventually drains into the Mokelumne River. All drainage in Watershed Area 2 drains north towards Little Indian Creek, which eventually drains into the Cosumnes River. The Cosumnes River drains westward and meets with the Mokelumne River, flowing into the greater San



LEGEND	
	Approximate Location of Divide Between Surface Watersheds
 NORTH 0 1/2mi 1mi	

Joaquin River and Delta. Surface water features on the project site include several natural springs in the southwest corner, four cattle ponds, several seasonal drainages and seasonal wetlands, and a small pond in the central portion of the project site adjacent to the abandoned runway. These features are described in detail in **Section 3.5.5** Water of the United States.

SITE DRAINAGE

Surface runoff on the proposed site discharges to Little Indian Creek at several locations and flows in a northeasterly direction. An existing on-site pond provides limited detention for a portion of the total runoff. Little Indian Creek originates on the west side of SR 49. Several locations for surface runoff combine and traverse SR 49 immediately north of the project site. The eastern and southern portions of the project site are steeply sloped and consist of small watersheds that drain into Dry Creek. The Dry Creek channel, an intermittent stream, flows in a southwesterly direction and is located off the project site to the southeast, and is a tributary of the Mokelumne River. Existing conditions on-site offer limited detention of pre-project surface runoff flows into the adjacent water collectors. Existing storm water runoff from the project site for the 100-year, 24-hour storm event is estimated to be 258 cubic feet per second (cfs) (**Appendix G**).

FLOODPLAIN

The majority of the project area is not located in a floodplain mapped by the Federal Emergency Management Agency (FEMA). Less than one-acre of Parcel # 3 is within Flood Zone A, an area inundated by 1-percent annual chance of flooding, for which no base flood elevations have been determined (**Figure 3.3-2**). The majority of the project site is within Zone X, an area determined to be outside the 1-percent and 0.2-percent annual chance floodplains (FEMA, 2003).

SURFACE WATER QUALITY

The Federal Clean Water Act (CWA) (1990) sets forth national water quality goals and standards. It requires that all discharges from any point source into waters of the United States must obtain a National Pollution Discharge Elimination System (NPDES) permit. It also directs each state to establish water quality standards and to review and update them on a triennial basis (Section 303(c)).

The Porter-Cologne Water Quality Control Act (1969) provides the basis for surface water and groundwater quality regulation within California. The act established the authority of the State Water Resources Control Board (SWRCB) and the nine Regional Water Quality Control Boards (RWQCBs). The act requires the State, through the SWRCB and the RWQCBs, to designate beneficial uses of surface waters and groundwaters, and specify water quality objectives designed to protect those uses. These water quality objectives are presented in the *Regional Water Quality Control Plans* (Basin Plans). The project site is currently under the jurisdiction of the Central Valley RWQCB (CVRWACB). The beneficial uses and water quality objectives relating to the

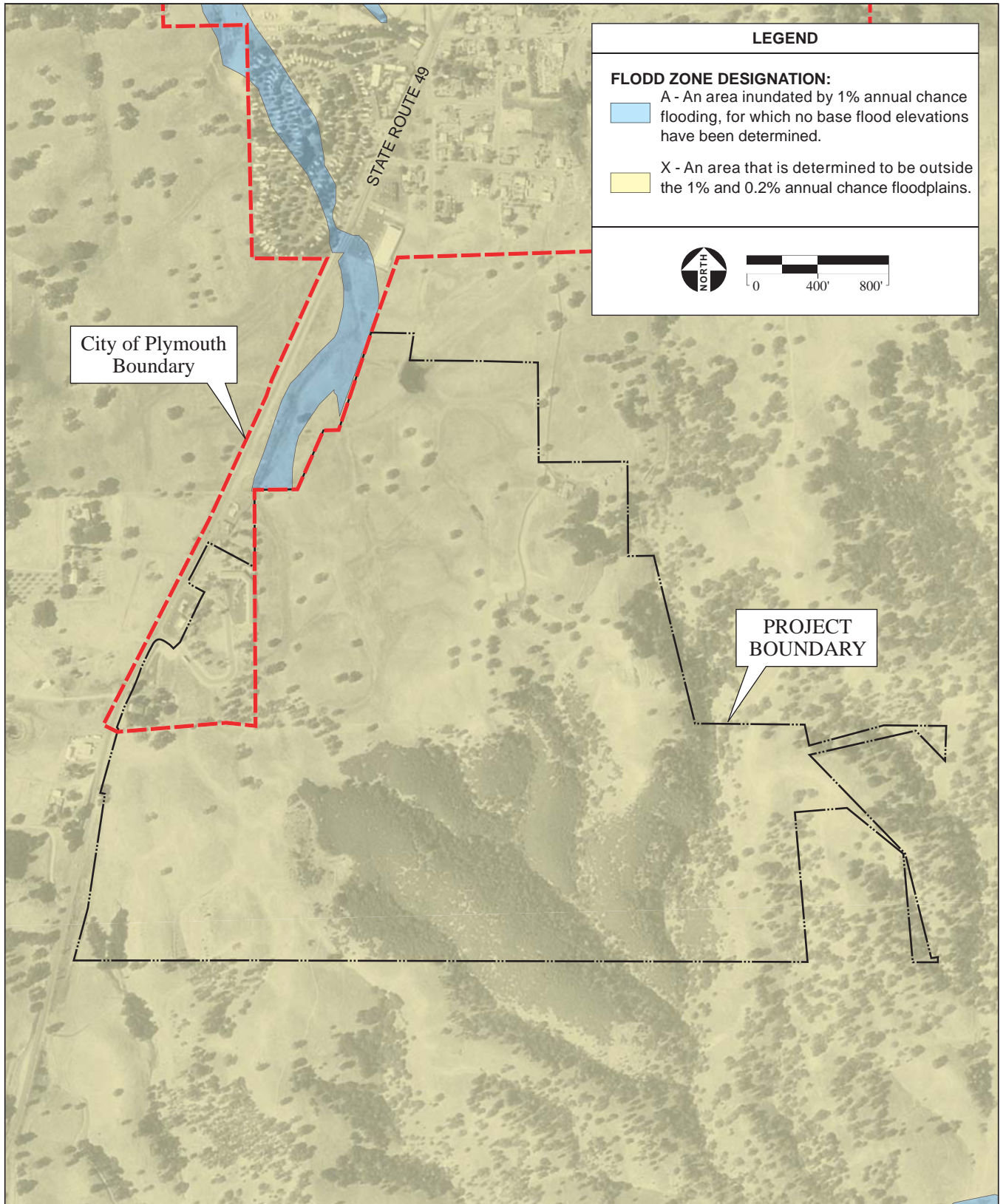


Figure 3.3-2
Floodplain Map

Mokelumne River, Dry Creek, and its tributaries contained within the Basin Plan for the central valley are summarized below to characterize the water quality issues in the project area. The beneficial and potential beneficial uses of the Mokelumne River Watershed identified in the Basin Plan as follows:

- Municipal and Domestic Supply
- Agricultural Supply
- Water Contact Recreation
- Non-Contact Recreation
- Cold Freshwater Habitat
- Warm Freshwater Habitat
- Migration of Aquatic Organisms
- Spawning, Reproduction, and/or Early Development
- Wildlife Habitat
- Navigation

The water quality objectives for Sacramento-San Joaquin River Basin inland surface waters, as they correlate to sample parameters, are summarized in **Table 3.3-1** below.

TABLE 3.3-1
WATER QUALITY OBJECTIVES FOR INLAND SURFACE WATERS OF THE
SACRAMENTO-SAN JOAQUIN RIVER BASIN

Constituent	Water Quality Objective
Bacteria	In waters designated for contact recreation (REC-1) the fecal coliform concentration based on a minimum of not less than five samples for any 30-day period shall not exceed a geometric mean of 200/100 ml, nor shall more than ten percent of the total number of samples taken during any 30-day period exceed 400/100 ml.
Chemical Constituents	Waters shall not contain chemical constituents in concentrations that adversely affect beneficial uses. Water designated for use as domestic or municipal (MUN) water supply shall not contain concentration of chemical constituents in excess of the maximum contaminant levels specified in the provisions of Title 22 of the California Code of Regulations. Water designated for use as MUN shall not contain lead in excess of 0.015 mg/l.
Color	Water shall be free of discoloration that causes nuisance or adversely affects beneficial uses.
pH	The pH shall not be depressed below 6.5 nor raised above 8.5. Changes in normal ambient pH levels shall not exceed 0.5 in waters designated cold freshwater habitat or warm freshwater habitat.

SOURCE: CVRWQCB, 1998

In accordance with Section 303(d) of the CWA, States periodically prepare a list of all major surface waters in the state for which beneficial uses of the water – such as for drinking, recreation, aquatic habitat, and industrial use – are impaired by pollutants. These are estuaries, lakes, streams, and groundwater basins that fall short of state surface water quality standards, and

are not expected to improve within the next two years. States establish a priority ranking of these impaired waters for purposes of developing plans that include Total Maximum Daily Loads (TMDLs). A TMDL is a calculation of the maximum amount of a pollutant that a water body can receive and still meet water quality standards and an allocation of that amount to the pollutant's sources. These plans describe how an impaired water body will meet water quality standards through the use of TMDLs. The Cosumnes River, the sole supplier of surface water to the City of Plymouth via the Arroyo Ditch, is not on the impaired waters list.

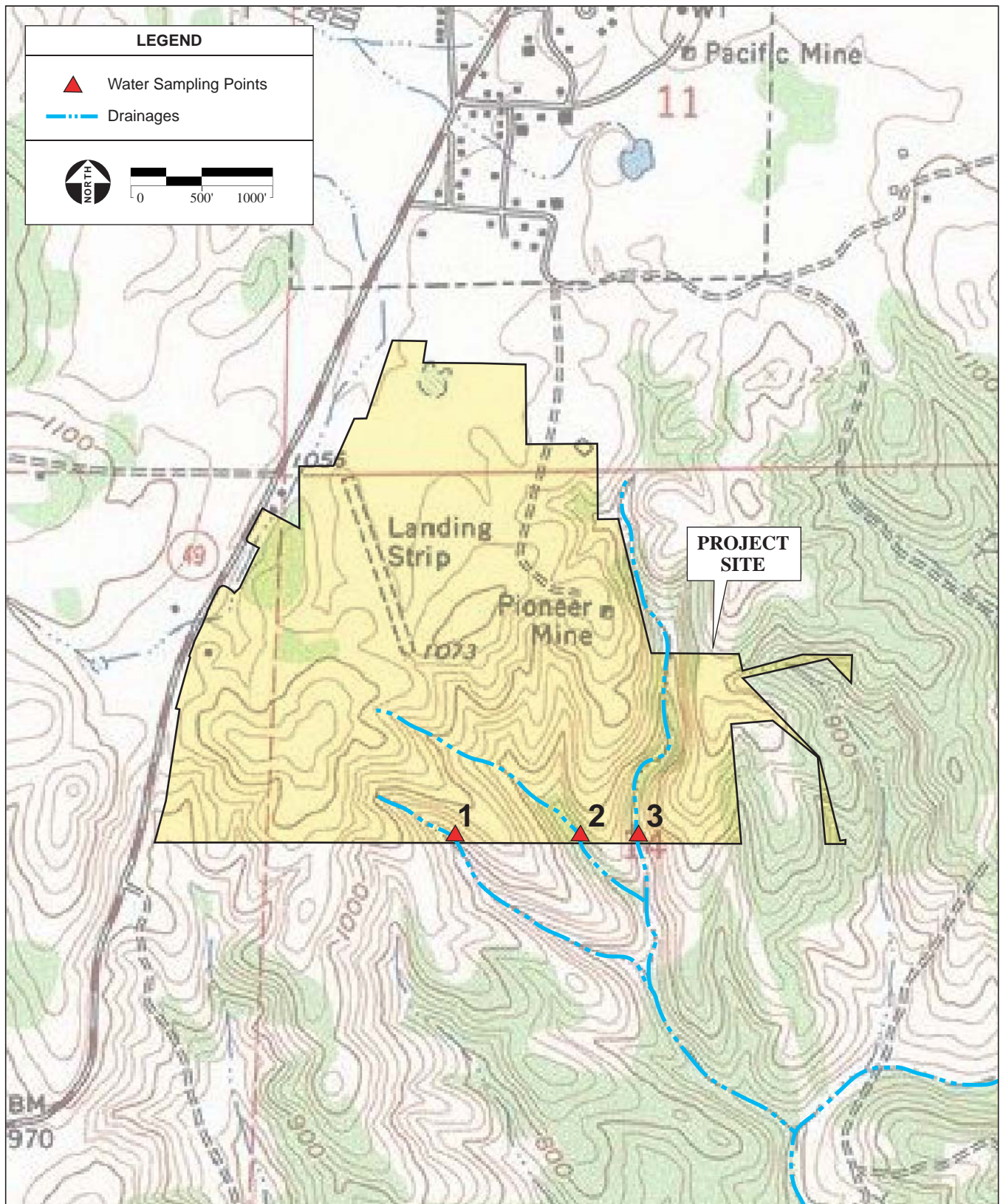
Water samples were taken from three locations on the southern edge of the project site (**Figure 3.3-3**). All tributaries from which water samples were collected are intermittent drainages that have little or no flow during the summer months. Results are reported in **Table 3.3-2** as they correlate to basin plan objectives, including Title 22 maximum contaminant levels as discussed under the "Chemical Constituents" objectives in **Table 3.3-1**.

TABLE 3.3-2
CONTAMINANTS DETECTED WITHIN DISCHARGE SITE WATER SAMPLES

Chemical or Constituent	Sample Location			Title 22 MCLs ¹	
	1	2	3	1°	2°
Fluoride (mg/L)	0.12	0.12	0.14	2.0	
Nitrate (mg/L)	2.3	3.0	2.2	45	
Total Dissolved Solids (mg/L)	94	110	170		500
Nitrate/Nitrite (mg/L)	0.52	0.67	0.50	10	
Turbidity (NTU)	7.5	9.6	12		5
pH	7.25	7.41	7.62		
Color	30	30	15		15
Zinc (µg/L)	<20	<20	58		5,000
Arsenic (µg/L)	<5.0	<5.0	11	50	
Fecal Coliforms (MPN/100mL)	8.0	170	240		

1= California Title 22 which outlines maximum contaminant levels within drinking water. The Basin Plan utilizes the drinking water standards as inland surface water quality standards. Primary standards (1°) are based on human health protection while secondary standards (2°) are based on consumer acceptance of taste, odor, and color and are not based on risk to human health. SOURCE: AES, 2005; 22 California Code of Regulations §64431 and §64449

Results of water sampling indicated contaminants were not present at levels above their respective primary maximum contaminant levels (MCLs), when applicable. Primary MCLs are standards outlined in Title 22 of the California Code of Regulations (Title 22). Primary MCLs are based on potential human health effects, are enforceable regulatory levels for drinking water, and have been incorporated as inland surface water quality objectives within the Basin Plan. Color sample results were reported at sample sites 1 and 2 greater than the respective Title 22 secondary MCL. Secondary MCLs are also listed in Title 22, however these levels are not based on human health effects, but are based on consumer taste and acceptance. This result is anticipated for intermittent streams that traverse grazing areas. The other samples constituents



SOURCE: "Amador City, CA" USGS 7.5 Minute Topographic Quadrangle, Sections 11, 14, & 15, T7N, R10E, Mt. Diablo Baseline and Meridian; AES, 2007

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Figure 3.3-3
Surface Water Sample Locations

were below their applicable secondary MCLs.

Fecal coliform levels were reported at sample site 3, greater than the Basin Plan water quality objective for inland surface waters. Although the fecal coliform results were slightly higher at sample site 3 than the Basin Plan water quality objective, the objective is specific for surface waters designated with the beneficial use of contact recreation. As discussed above, the surface waters in the area are designated as non-contact recreation. Slightly higher coliform levels are expected within surface waters that traverse through livestock grazing areas like the project site. The coliform results from site 3 do not indicate a water quality concern in regards to the protection of the beneficial uses of the sampled tributary to Dry Creek. For pH, the basin plan states that surface waters shall read between 6.5 and 8.5 standard pH units. Samples indicated all three sites were within the Basin Plan requirement for pH.

3.3.3 GROUNDWATER

REGIONAL SETTING

Of the many mountainous areas in California, groundwater is stored within deep fractures of bedrock underlying soil layers. Availability of groundwater in such formations can vary widely, even over a distance of a few yards. Conditions that affect availability of water within fractured rock include:

- Density of fractures within a given area;
- Connectivity between fractures;
- Fracture size and shape; and
- Recharge source.

How much water passes through fractured rock varies greatly depending on connections between fractures. As a result, interference between neighboring wells is difficult or impossible to predict in advance. Currently there are no identified maps of the many groundwater basins that exist within the Plymouth area. As a result, groundwater profiles are difficult to characterize.

GROUNDWATER USAGE

The City of Plymouth obtains its water supply from two groundwater wells located near the intersection of Burk Drive and Fiddletown, just east of SR 49. These two wells produce flows of approximately 175 gpm each. Two additional wells, located north of the City wells, produce flows of approximately 250 gpm. Together, these four wells represent the majority of the water usage for the basin, which is identified to cover in excess of 100-acres of land (Ketron, 2004). Increased pumping by the City has led to an overdraft of groundwater in the basin even in years with average rainfall (Amador County, 2007). One or more seasons of above average rainfall would be needed to make up for the identified groundwater deficit.

All Department of Water Resources (DWR) Well Completion Reports (DWR Well Logs) for water supplies within a two-mile radius of the Project Site were obtained. Based on the DWR Well Logs, it was determined that approximately 36 domestic water producing wells are located within Watershed 2, which encompasses most of the City of Plymouth (**Figure 3.3-1**). The wells located within Watershed 2 vary in depth from approximately 80 feet to 500 feet, with static water levels ranging from 14 feet to over 200 feet. The majority of the wells are located on the western half of the City. Only two domestic wells within the City of Plymouth produce water at a rate greater than 200 gpm.

Project Site

Groundwater on the project site primarily occurs in the fractured bedrock zones. Most fractured bedrock zones are found within the upper few hundred feet of rock. The upper portions of the bedrock on-site appear to be nearly impervious; therefore, have low hydraulic conductivity. Groundwater recharge is attributable to interconnected fractures that store and transmit groundwater. This impervious rock allows for limited recharge from surface water infiltration. Currently there are four wells located on-site as shown in **Figure 3.3-4**. Two other wells are located off-site and could supply the project site with water. For reference, the on-site wells are labeled H1, H2, M1, and M2. Off-site wells are labeled M3 and M4. Construction details of the existing wells are provided below in **Table 3.3-3**.

TABLE 3.3-3
WELL CONSTRUCTION DETAILS

Well	Total Depth (bgs)	Depth to Water Strike	Static Water Level	Air Lift Yield¹ (gpm)
M1	620	600	60	15
M2	480	300	200	5
M3	220	180	30	70
M4	340	200	45	15
H1	223	200-205	75	150
H2²	-	-	-	-

NOTES: ¹ Airlift yield obtained from Well Completion Reports, measured prior to well installation. Test duration was for four hours.

bgs = below ground surface

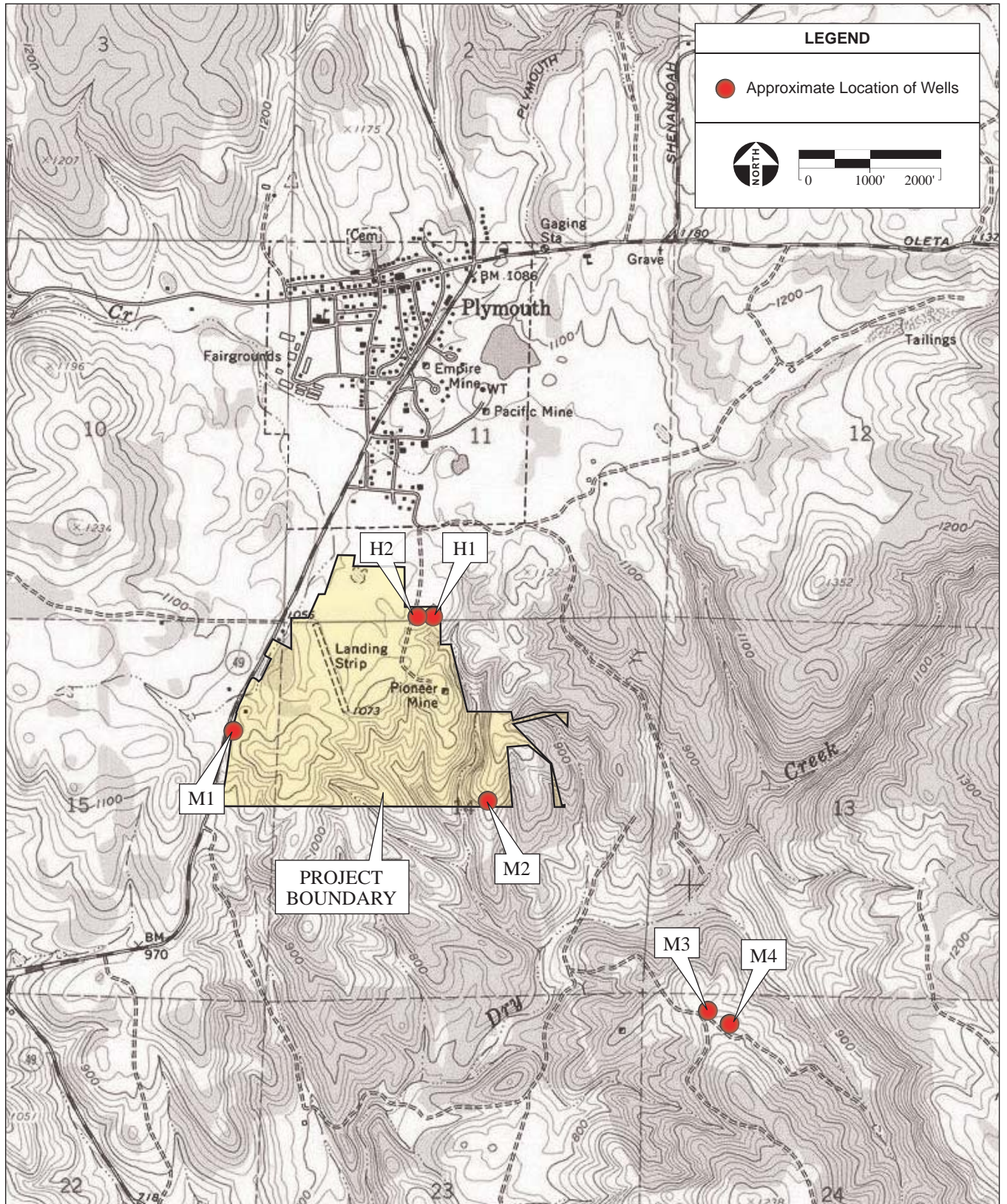
gpm = gallons per minute

² A Well Completion Report was not available for H2. The well currently serves a home and supplies approximately 1 gpm.

SOURCE: AEG, 2004; AES, 2004

Pumping tests and a groundwater sustainability analysis have been performed for each of the wells listed in **Table 3.3-3**. The results of these tests are summarized below. The entire report is available in **Appendix C**.

Due to the unique geology of the project site and outlying areas, no single groundwater basin exists. Rather, interconnected fractures within the geology store and transmit groundwater. As a



SOURCE: "Amador City, CA" USGS 7.5 Minute Topographic Quadrangle, Sections 11, 14, & 15, T7N, R10E, Mt. Diablo Baseline and Meridian; AEG, 2004; AES, 2007

Figure 3.3-4
Groundwater Well Locations

result, standard well pumping tests, which are generally based on aquifer response to a relatively short period of pumping, may not be representative of actual groundwater conditions. To address the uncertainty of the groundwater conditions, a range of recommended long-term well yields were established and are presented in **Table 3.3-4**. Pump tests were not completed for wells H2, M2 and M4 due to low yields and close proximity to higher producing wells.

TABLE 3.3-4
LONG TERM WELL YIELDS

Well	Lower Limit (gpm)	Upper Limit (gpm)	Recommended Long-Term Yields (gpm)
M1	8.5	12.1	10
M3	31.9	45.6	38
H1	28.5	40.7	35
Total			83

SOURCE: AEG, 2004; AES, 2004

GROUNDWATER QUALITY

Samples were collected from M1, M3, H1, H2, and the cistern, located along the west edge of the project site. The sample results are summarized below in **Table 3.3-5**. The results indicate high quality groundwater, with only one parameter exceeded. In wells H1 and H2, total dissolved solid (salts) levels exceeded secondary MCL levels. In order to provide consumers with water that would not be rejected due to taste, water treatment would be required to remove excess salts.

TABLE 3.3-5
ON-SITE GROUNDWATER QUALITY ^a

Analyte	MCL	Reporting Limit	M1	M3	Cistern	H1	H2
Arsenic (ug/L)	10	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Lead (ug/L)	15	5.0	< 5.0	< 5.0	< 5.0	< 5.0	< 5.0
Chromium (ug/L)	100	20	< 20	< 20	< 20	< 20	< 20
Copper (ug/L)	1,300	20	440	< 20	< 20	< 20	27
Zinc (ug/L)	5000 ^d	20	60	< 20	< 20	< 20	< 20
Mercury (ug/L)	2	0.20	< 0.20	< 0.20	< 0.20	< 0.20	< 0.20
Fluoride (mg/L)	2.0	0.10	0.34	0.21	0.36	0.24	0.17
Nitrate as NO ₃ (mg/L)	10	2.0	< 2.0	< 2.0	< 2.0	< 2.0	< 2.0
pH (std. units)	6.5-8.5	--	8.00	6.90	7.40	7.20	7.12
Total Dissolved Solids (mg/L)	500 ^d	10	200	360	240	910	760

NOTES: ^a Results reported as micrograms per liter, unless otherwise noted.

^b Sample collected during pumping test.

^c Sample collected after pumping test was complete, but before water level in well had recovered.

^d Secondary MCL.

^e MCL is for foaming agents.

SOURCE: HSE, 2005; AES 2004

3.4 AIR QUALITY

This section describes the air quality of the air basin encompassing the proposed Amador County project site. Topics include regulatory context, Criteria Air Pollutants, pollutants of concern, and sensitive receptors near the project site. The general and site-specific profiles of Air Quality contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

3.4.1 REGULATORY CONTEXT

In 1990, the Federal Clean Air Act (CAA) was enacted for the purposes of protecting and enhancing the quality of the nation's air resources to benefit public health, welfare, and productivity. Basic components of the CAA and its amendments include national ambient air quality standards (NAAQS) for major air pollutants and state implementation plans (SIPs) for states that do not meet NAAQS. The U.S. Environmental Protection Agency (EPA) is the federal agency responsible for identifying Criteria Air Pollutants (CAPs), establishing NAAQS, and approving and overseeing state air programs as they relate to the CAA.

CRITERIA AIR POLLUTANTS (CAPs)

CAPs are air pollutants commonly emitted from a myriad of sources around the country that have been identified as being detrimental to human health, and are used as general indicators of regional air quality. The EPA has designated six CAPs: ozone (O₃), carbon monoxide (CO), particulate matter (PM), nitrogen dioxide (NO₂), sulfur dioxide (SO₂), and lead (Pb).

Ozone

Ozone (O₃) is not directly emitted in concentrations of concern. Of concern are the photochemical reactions (reactions initiated by sunlight) that create ground-level ozone at concentrations that may impact sensitive individuals. Photochemical reactions involving reactive organic gases (ROG) and oxides of nitrogen (NO_x) resulting from the incomplete combustion of fossil fuels are the largest source of ground-level O₃. Because photochemical reaction rates depend on the intensity of ultraviolet light and air temperature, ozone is primarily a summer air pollution problem. As a photochemical pollutant, O₃ is formed only during daylight hours under appropriate conditions, but is destroyed throughout the day and night. O₃ is considered a regional pollutant, as the reactions forming it take place over time and are often most noticeable downwind from the sources of the emissions.

Carbon Monoxide

Carbon monoxide (CO) is a colorless, odorless gas formed when carbon in fuel is not fully combusted. In cities, 85- to 95-percent of all CO emissions may come from motor vehicle

exhaust. CO is considered a local pollutant because it dissipates quickly. High CO concentrations occur in areas of limited geographic size, sometimes referred to as hot spots. Higher levels of CO generally occur in areas with heavy traffic congestion. Since CO concentrations are strongly associated with motor vehicle emissions, high CO concentrations generally occur in the immediate vicinity of roadways with high traffic volumes and traffic congestion, active parking lots, and in automobile tunnels. Areas adjacent to heavily traveled and congested intersections are particularly susceptible to high CO concentrations.

Particulate Matter (PM₁₀ and PM_{2.5})

Particle pollution is a mixture of microscopic solids and liquid droplets suspended in the air as a result of direct emissions from a variety of anthropogenic and natural sources. Commonly referred to as particulate matter, this form of pollution is made up of a number of components, including acids (such as nitrates and sulfates), organic chemicals, metals, soil or dust particles, and allergens (such as fragments of pollen or mold spores). The size of particles is directly linked to their potential for causing health problems. Small particles less than 10 micrometers (μm) in diameter, known as PM₁₀, pose the greatest problems, because they have the potential to deeply penetrate people's lungs. The term PM₁₀ corresponds to any particle less than 10 microns in size. Even smaller particles less than 2.5 μm , known as PM_{2.5}, have the potential to enter the bloodstream. Exposure to such particles can affect both lungs and heart. Larger particles are of less concern, as they are trapped by the body's natural defenses (such as mucus and bifurcating airways) although they can irritate eyes, nose, and throat.

Nitrogen Dioxide

Nitrogen dioxide (NO₂) is a brownish, highly reactive gas present in all urban environments. NO₂ is directly emitted from combustion devices such as boilers, gas turbines, and mobile and stationary reciprocating internal combustion engines. Combustion devices emit primarily Nitric oxide (NO), which reacts through oxidation in the atmosphere to form NO₂. The combined emissions of NO and NO₂ are referred to as nitrogen oxides (NO_x), and are reported as equivalent NO₂. Because NO₂ is formed and depleted by reactions associated with photochemical smog (ozone), the NO₂ concentration in a particular geographical area may not be representative of the local NO_x emission sources.

Sulfur Oxides and Lead

The standards for sulfur oxides (SO_x) and lead (Pb) are either being met or are unclassified throughout the country. Many of the sources for these CAPs have either been eliminated or that industry standard source pollution control techniques have dramatically reduced emissions. National pollutant trends for SO_x and Pb show that emission levels are on a steady decline.

NATIONAL AMBIENT AIR QUALITY STANDARDS

The established maximum concentrations for the six CAPs are known as NAAQS (**Table 3.4-1**). Concentrations above these time-averaged limits are anticipated to cause adverse health effects to sensitive receptors. The CAA established primary and secondary NAAQS. Primary standards set limits to protect public health, while secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings. For some of the CAPs, more than one averaging time standard has been identified in order to address the typical exposures found in the environment. The EPA has established violation criteria for each CAP. For example, in order to constitute a violation, the NAAQS for O₃ must be exceeded on more than three days in three consecutive years. On the other hand, if the CO NAAQS is exceeded on more than one day in any given year, a violation has occurred. Refer to **Table 3.4-1** for the violation criteria for the various averaging times for each CAP.

TABLE 3.4-1
NATIONAL AMBIENT AIR QUALITY STANDARDS

Pollutant	Symbol	Average Time	Standard (ppm)	Standard (ug/m ³)	Violation Criteria
Ozone	O ₃	8 hours	0.08	N/A	If exceeded on more than 3 days in 3 years
Carbon monoxide	CO	8 hours	9	N/A	If exceeded on more than 1 day per year
		1 hour	35	N/A	If exceeded on more than 1 day per year
Nitrogen dioxide	NO _x	Annual average 1 hour	0.053	100	If exceeded
Sulfur dioxide	SO _x	Annual average	0.03	80	If exceeded
		24 hours	0.14	365	If exceeded on more than 1 day per year
Inhalable particulate matter	PM ₁₀	Annual geometric mean	N/A	N/A	N/A
		Annual arithmetic mean	N/A	50	If exceeded
		24 hours	N/A	150	If exceeded on more than 1 day per year
Fine particulate matter	PM _{2.5}	Annual arithmetic mean	N/A	15	If exceeded
		24 hours	N/A	35	If exceeded on more than 1 day per year
Lead particles	Pb	Calendar quarter	N/A	1.5	If exceeded on more than 1 day per year
		30 days	N/A	60	N/A

SOURCE: EPA, 2006

NOTES: All standards are based on measurements at 25°C and 1 atmosphere pressure.

National standards shown are the primary (health effects) standards.

N/A = not applicable; ppm = parts per million; ug/m³ = micrograms per cubic meter.

The EPA classifies areas throughout the United States based on their compliance status with NAAQS. Areas that meet current NAAQS are subsequently labeled as “attainment” areas. Areas where insufficient data is available to determine attainment status are classified as “unclassified” and are assumed to be in attainment for that pollutant. Areas that do not meet NAAQS are labeled either “nonattainment” or “maintenance” for the CAP for which the area is non-compliant. The EPA further classifies nonattainment areas according to the ability of the region to meet NAAQS for the particular CAP. There are five classes of nonattainment areas: maintenance (recently became compliant with the NAAQS), marginal (relatively easy to obtain levels below the NAAQS), serious, severe, and extreme (will be difficult to reach levels below NAAQS). The CAA uses the classification system to design clean-up requirements appropriate for the severity of the pollution and set realistic deadlines for reaching clean-up goals. Attainment and nonattainment areas are identified through monitoring. Unclassifiable areas are those for which air monitoring has not been conducted but are assumed to be in attainment for the NAAQS. States that contain areas of non-attainment are required to develop a State Implementation Plan (SIP), which outlines policies and procedures designed to bring the state into compliance with the NAAQS.

STATE IMPLEMENTATION PLANS

In accordance with the CAA, states with nonattainment areas within their borders must take steps towards attainment by a specific timeline. These steps are consolidated in SIP as mandated by the CAA. The SIP sets forth the state’s strategy for achieving federal air quality standards. The SIP is not a single document, but rather is a compilation of new and previously submitted plans, programs (such as monitoring, modeling, permitting, etc.), federal controls, state regulations, and local rules where applicable (such as in California which has local air districts). All of the items that are included in the SIP are published in the Code of Federal Regulations.

3.4.2 AMADOR COUNTY AIR QUALITY

REGIONAL METEOROLOGY

The project site is located within Amador County, which is typically characterized as hot and dry during the summer months with mild and wet winters. The County is moderately moist and the average annual temperature is approximately 65 degrees Fahrenheit (65 °F), with temperatures ranging from below freezing ($\leq 32^{\circ}$ F) to over 100° F. Precipitation in Amador County varies, but annual average precipitation totals approximately 25-30 inches. The bulk of the rainfall occurs in fall, winter and spring and a relatively small amount in the summer months. The normal wind pattern in Amador County is a gentle westerly breeze that averages less than ten miles per hour. However, heavy damaging winds can accompany occasional thunderstorms in the summer months. Northerly and easterly winds often blow over the lower west slopes of the Sierra Nevada

Mountain Range, bringing warm and dry winds in the spring and summer months and cold, dry winds in the winter months (Amador General Plan, 1993).

Amador County is highly dependent on the meteorology of neighboring Sacramento/San Joaquin Valley. On days when the north wind carries pollutants from the broader Sacramento Area into the northern San Joaquin Valley, afternoon breezes from the west may then push polluted air from the valley into the Sierra Nevada foothills. Under these conditions Amador County can be impacted by broader Sacramento and San Joaquin area emissions. The Sacramento area largely receives air pollution transported from the San Francisco Bay Area. As a result, the meteorology from as far away as San Francisco has the potential to impact Amador County (CARB, 2001).

REGIONAL AIR QUALITY

The proposed site is located in the Mountain Counties Air Basin (MCAB). The MCAB covers the central portion of the northern Sierra Nevada mountain range, from Plumas County at the northern border to Mariposa County at the southern border of the basin. The basin covers roughly 11,000 square miles, with elevations ranging from 10,000 feet above sea level (asl) at the Sierra crest to a few hundred feet asl at the border with Sacramento County.

NAAQS Designations

As shown in **Table 3.4-2**, Amador has been designated “Basic” nonattainment under the federal 8-hour ozone NAAQS with an attainment deadline of June 2010. The MCAB meets the federal standards or is unclassifiable for all other pollutants.

TABLE 3.4-2
AMADOR COUNTY NAAQS ATTAINMENT STATUS

Pollutant	Federal Attainment Status
Ozone (8-hour)	Nonattainment, Basic
Respirable Particulate Matter (PM ₁₀)	Unclassified
Fine Particulate Matter (PM _{2.5})	Attainment
Carbon Monoxide	Attainment
Nitrogen Dioxide	Attainment
Sulfur Dioxide	Attainment

Source: CARB 2004; AES, 2006

In accordance with the California Clean Air Act (1988), the Amador County Air Pollution Control District (ACAPCD) has jurisdiction over the project site and the air basin, governing air quality under the delegation and oversight of the California Air Resources Board (CARB) and the

USEPA, although it does not have jurisdiction on Tribal lands. ACAPCD regulates air quality through its permit authority over most types of stationary emissions sources and through its planning and review activities. ACAPCD has adopted an attainment plan for O₃, *2007 Ozone State Implementation Plan for Northern California*.

ASBESTOS

Asbestos is the name given to a number of naturally occurring fibrous silicate minerals that have been mined for their useful properties such as thermal insulation, chemical and thermal stability, and high tensile strength. The three most common types of asbestos are: a) chrysotile, b) amosite, and c) crocidolite. Inhalation of asbestos fibers from disturbing either materials containing asbestos or areas containing natural occurring asbestos minerals has been linked to lung ailments ranging from reduced breathing capacity to a special type of cancer called mesothelioma.

Asbestos Containing Building Materials

Chrysotile, also known as white asbestos, was used in commercial buildings prior to the late 1970's for thermal insulation and fire retardation. In 1975, asbestos was phased out as an ingredient within building materials, and buildings constructed after 1981 could not include any asbestos containing material (ACM). Asbestos within buildings is not always an immediate hazard. In fact, if asbestos can be maintained in good condition, it is recommended that it be left alone and periodic surveillance be performed to monitor its condition. It is only when ACM are disturbed or the materials become damaged that it becomes a potential airborne hazard.

As discussed in **Section 2.0**, the project site is currently developed with the Shenandoah Inn and four private residences. According to business records, the Shenandoah Inn began operation in 1990. Asbestos would not have been used in the construction of the inn. According to the cultural resources study, Section 3.6, two of the residences were built in 1984 and 1972. The age of construction of the other two residences are unknown. With at least one residence known to be constructed prior to 1981, the presence of asbestos is assumed unless data is obtained clearing the structure of ACM.

Naturally Occurring Asbestos

Sources of asbestos emissions include: unpaved roads or driveways surfaced with ultramafic rock, construction activities in ultramafic rock deposits, or rock quarrying activities where ultramafic rock is present. According to the *General Location Guide for Ultramafic Rocks in California* (CDOC, 2000), and as discussed in **Section 3.2**, the project site is not located in an area of ultramafic rock, and therefore, would not contain deposits of natural occurring asbestos.

SENSITIVE RECEPTORS

Some receptors are considered more sensitive than others to air pollutants. The reasons for greater than average sensitivity include pre-existing health problems, proximity to emissions source, or duration of exposure to air pollutants. Schools, hospitals, and convalescent homes are considered to be relatively sensitive to poor air quality because children, elderly people, and the infirm are more susceptible to respiratory distress and other air quality related health problems. Residential areas are considered sensitive to poor air quality because people usually stay home for extended periods of time, with greater associated exposure to ambient air quality. Recreational uses are also considered sensitive due to the greater exposure to ambient air quality conditions, because vigorous exercise associated with recreation places a high demand on the human respiratory system.

The project site is adjacent to commercial and low-density residential land uses. The closest school that could be considered a sensitive receptor is Plymouth Elementary School located at 18601 Sherwood Street in the town of Plymouth, which is one mile north of the proposed Amador site. The nearest sensitive receptor is a residence 1,200 feet from the eastern boundary of the site. A mobile home court is located across Highway 49 (to the west) approximately 1,500 feet from the northern boundary of the site.

3.4.3 GREENHOUSE GASES

Anthropogenic emissions of greenhouse gases (GHGs) are currently being examined by the scientific community for their potential to alter the earth's natural greenhouse effect. GHGs include water vapor, carbon dioxide (CO₂), methane (CH₄), nitrous oxide (N₂O), ozone (O₃), and several chlorofluorocarbons. GHGs generate the natural greenhouse effect by reabsorbing energy emitted from the earth's surface. The GHGs then re-emit the energy to the surrounding atmosphere in all directions including back down to the surface, increasing the ambient temperature. GHGs constitute a small percentage of the earth's atmosphere; however, their collective effect is to maintain the temperature of the earth's surface at approximately 60 degrees Fahrenheit (°F) warmer, on average, than it would be if no atmosphere existed.

GHG sources are both anthropogenic and natural. Some examples of anthropogenic sources are combustion of fossil fuel, evaporation of man-made chemicals, agriculture, and combustion of coal. Natural sources include water vapor and naturally occurring nitrous oxide (N₂O), CO₂, O₃, and methane (CH₄). GHGs have a long residency period in the atmosphere, adding to their capabilities to create the greenhouse effect. There are also natural GHG sinks (mechanisms of depletion). A large portion of GHGs is utilized by plant life during photosynthesis to produce nutrient-rich sugars. **Table 3.4-3** shows the 2010 projected global GHG emissions, including sinks.

TABLE 3.4-3
GLOBAL GREENHOUSE GAS EMISSIONS AND SINKS

Gas	Sources			Sink
	Natural	Anthropogenic	Total	
	(million tons CO ₂ e)			
CO ₂	848,779	33,467	882,246	861,345
CH ₄	263	659	923	635
NO ₂	10	8	18	14

Source: DOE/EIA-0573, 2005; AES, 2007.

Because GHGs are relatively stable in the atmosphere and essentially uniformly dispersed throughout the troposphere and stratosphere, the climatic impact of GHG emissions does not depend on the emissions origin. GHGs will continue to accumulate in the atmosphere as long as the total anthropogenic output of GHGs is greater than 12,566 million tons GHGs per year (DOE/EIA-05730, 2005).

EXISTING REGULATORY CONTEXT

GHG emissions are not addressed within the Federal Clean Air Act (CAA). Currently, there are no federal regulations addressing GHG emissions. Regionally, in 2006 the State of California passed Assembly Bill 32 (AB 32), requiring that greenhouse gas emissions within the State be reduced to 1990 levels by the year 2020 (**Table 3.4-4**). This reduction will be accomplished through an enforceable statewide cap on GHG emissions that will be phased in during early 2012. In order to effectively implement the cap, CARB is currently developing regulations to require reporting by significant sources and verification of the statewide greenhouse gas emissions inventory. Examples of significant source emitters are electrical plants, large planned developments (>5,000 units), and manufacturing processes (Varenchik, 2007). Monitoring and enforcement of the program is the responsibility of CARB.

The State of California is also currently requesting that the USEPA allow the State to establish vehicle emissions standards that are stricter than federal standards. This would allow the State to require a reduction in GHG emissions from vehicles within the State. AB 32 makes CARB responsible for monitoring and reducing GHG emissions and requires CARB to initiate certain phases of AB 32 (**Table 3.4-4**):

TABLE 3.4-4
GREENHOUSE GAS EMISSION REDUCTION PROGRAMS

Sector of Reduction	Description	2020 Reductions (MMTCO₂e)
Transportation	Low Carbon Fuel Standard (LCFS)	10 to 20
Transportation	Reduction of HFC-134a emissions from non-professional servicing of motor vehicle air conditioning systems (MVACs)	1 to 2
Waste	Improved landfill methane capture	2 to 4
Agriculture	Manure management (methane digester protocol)	1
Agriculture	Electrification of stationary agricultural engines	0
Commercial	Specifications for commercial refrigeration	>7.3
Commercial	Reduction of Hydrofluorocarbons (HFCs) from foam production/installation including extruded polystyrene and block foam.	1
Commercial	Reduction of perfluorocarbons (PFCs) from the semiconductor industry	TBD
Education	Guidance/protocols for local governments to facilitate GHG emission reductions.	TBD
Education	Guidance/protocols for businesses to facilitate GHG emission reductions.	TBD
Electricity	Detection, repair, and recycling equipment for sulfur hexafluoride (SF ₆)	1
Energy Efficiency	Light-covered paving, cool roof and shade trees	TBD
Fire Suppression	Replacement of high global warming potential (GWP) gases used in fire protection systems with alternate chemical(s).	0
Forestry	Forestry protocol	TBD
Oil and Gas	Reduce venting/leaks from oil and gas systems	1
Transportation	Various transportation reduction and protocols refer to source for more information.	0.1 to 4

TBD = To be determined; MMTCO₂e = million metric tons (of) carbon dioxide equivalent (gases)

Source: California Environmental Protection Agency *Proposed Early Actions to Mitigate Climate Change in California*, 2006.

3.5 BIOLOGICAL RESOURCES

The assessment of existing conditions and analysis of effects on biological resources was based upon biological field surveys conducted to document existing habitat types and the potential for occurrence of federally-listed species within the project site (AES, 2004b), consultation with the U.S. Fish and Wildlife Service (USFWS), and a review of the California Department of Fish and Game (CDFG) Natural Diversity Data Base (CNDDDB) for reported occurrences of federally-listed species within the project vicinity (**Appendix H**). The general and site-specific profiles of Biological Resources contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

3.5.1 REGULATORY SETTING

The following section summarizes the federal and state regulations applicable to biological resources in the study area.

FEDERAL

Federal Endangered Species Act

The USFWS and the National Marine Fisheries Service (NMFS) implement the Federal Endangered Species Act of 1973 (hereafter, "FESA," 16 USC §1531 et seq.). Threatened and Endangered Species on the federal list (50 CFR §17.11, 17.12) are protected from take (defined as direct or indirect harm) unless a Section 10(a) (1)(B) permit is granted or a Biological Opinion with incidental take provisions is rendered.

Pursuant to the requirements of FESA, an agency reviewing a proposed project within its jurisdiction must determine whether any federally-listed species may be present in the project site and determine whether the proposed project will have a potentially significant impact upon such species. Under FESA, habitat loss is considered an impact to the species. In addition, the agency is required to determine whether the project is likely to jeopardize the continued existence of any species that is proposed for listing under FESA or result in the destruction or adverse modification of critical habitat proposed to be designated for such species (16 USC 1536[3], [4]).

Wetlands and Other Waters of the U.S.

Any project that involves the discharge of dredged or fill material in navigable and other waters of the United States, must first obtain authorization from the U.S. Army Corps of Engineers (USACE), under Section 404 of the Clean Water Act (CWA). In addition, the project must comply with the terms of the General Construction National Pollution Discharge Elimination System (NPDES) Permit for construction activities in excess of one acre and must achieve compliance with Section 401 of the Federal Clean Water Act.

Migratory Bird Treaty Act

Most bird species, especially those that are breeding, migratory, or of limited distribution, are protected under federal and state regulations. Under the Migratory Bird Treaty Act of 1918 (16 USC §703-711), migratory bird species, and their nests and eggs that are on the federal list (50 CFR §10.13) are protected from injury or death, and project-related disturbances must be reduced or eliminated during the nesting cycle.

STATE

State-listed species are also subject to consultation requirements and take prohibitions under the California Endangered Species Act (CESA) and the Native Plant Protection Act (NPPA), which currently apply to the study area. Once the property is transferred to federal trust status, the provisions of CEQA, CESA, and NPPA are not directly applicable.

3.5.2 METHODOLOGY

For the purpose of this EIS, biological resources are considered to include all plants; vegetation communities and other wildlife habitats; wildlife; and waters of the U.S. Vegetation communities were identified during literature reviews and field surveys. A review of the CNDDDB was conducted and species lists were obtained from the USFWS and the California Native Plant Society (CNPS) to identify special-status species or other sensitive biological resources potentially present on-site.

AES biologists conducted reconnaissance-level field assessments of the project site and vicinity. The field assessments were performed by pedestrian survey. All visible fauna and flora were noted and identified to the lowest possible classification; habitat types occurring in the study area were characterized and evaluated for their potential to support regionally occurring special-status species. The site was also assessed for the presence of waters of the U.S. and other biologically sensitive features. In addition, AES staff biologists conducted a late-spring survey for special-status animal species.

A full wetland delineation study was conducted and a summary report prepared for the DRAFT EIS (**Appendix I**). Additional surveys were conducted on February 15 and 23, March 16, and June 18 and 20, 2007 as follow up to the 2004 delineation and to help finalize the special-status species information.

Protocol-level vernal pool branchiopod surveys were conducted for the project site, at the approval of Jana Milliken with USFWS. The surveys were conducted by permitted biologist Chris Sheehy with assistance by Stephen Stringer under the authority of Federal Fish and Wildlife Permit No. TE-799564-2 held by Sycamore Environmental Consultants, Inc. Survey methodology followed “wet season sampling” protocols outlined in the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for*

the Listed Vernal Pool Branchiopods (Guidelines). The summary report is included in **Appendix J**.

In addition, protocol-level California red-legged frog surveys were conducted, with the approval of USFWS. Survey protocol followed that of the *Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog* (Guidance). The summary report is included in **Appendix J**.

3.5.3 HABITAT TYPES

The project site is located within the northern Sierra Nevada floristic district, which is contained within the Sierra Nevada biogeographic region of the larger California floristic province (Hickman, 1993). The habitat types that occur within the project site include: annual grassland, chaparral, oak savanna, oak woodland, riparian woodland, seasonal wetlands, and urbanized land (**Figure 3.5-1**). A complete list of plant species observed on site is included in **Appendix H**. **Table 3.5-1** provides a summary of the habitat types within the project site. These habitat types are discussed in detail in the following paragraphs.

TABLE 3.5-1
SUMMARY OF HABITAT TYPES WITHIN THE PROPOSED PROJECT SITE

Habitat Type	Acres	Percent Area
Terrestrial Habitats		
Annual grassland	81.78	35.86%
Chaparral	37.46	16.42%
Oak savanna	37.86	16.60%
Oak woodland	33.00	14.47%
Riparian woodland	21.50	9.43%
Urbanized/Roadways	13.56	5.95%
Aquatic/Wetland Habitats		
Ponds/Seasonal wetlands	1.98	0.87%
Vernal pools	0.06	0.03%
Intermittent drainages	0.79	0.35%
Roadside ditch/drainage	0.05	0.02%
Total	228.04	100%

Source: AES, 2006

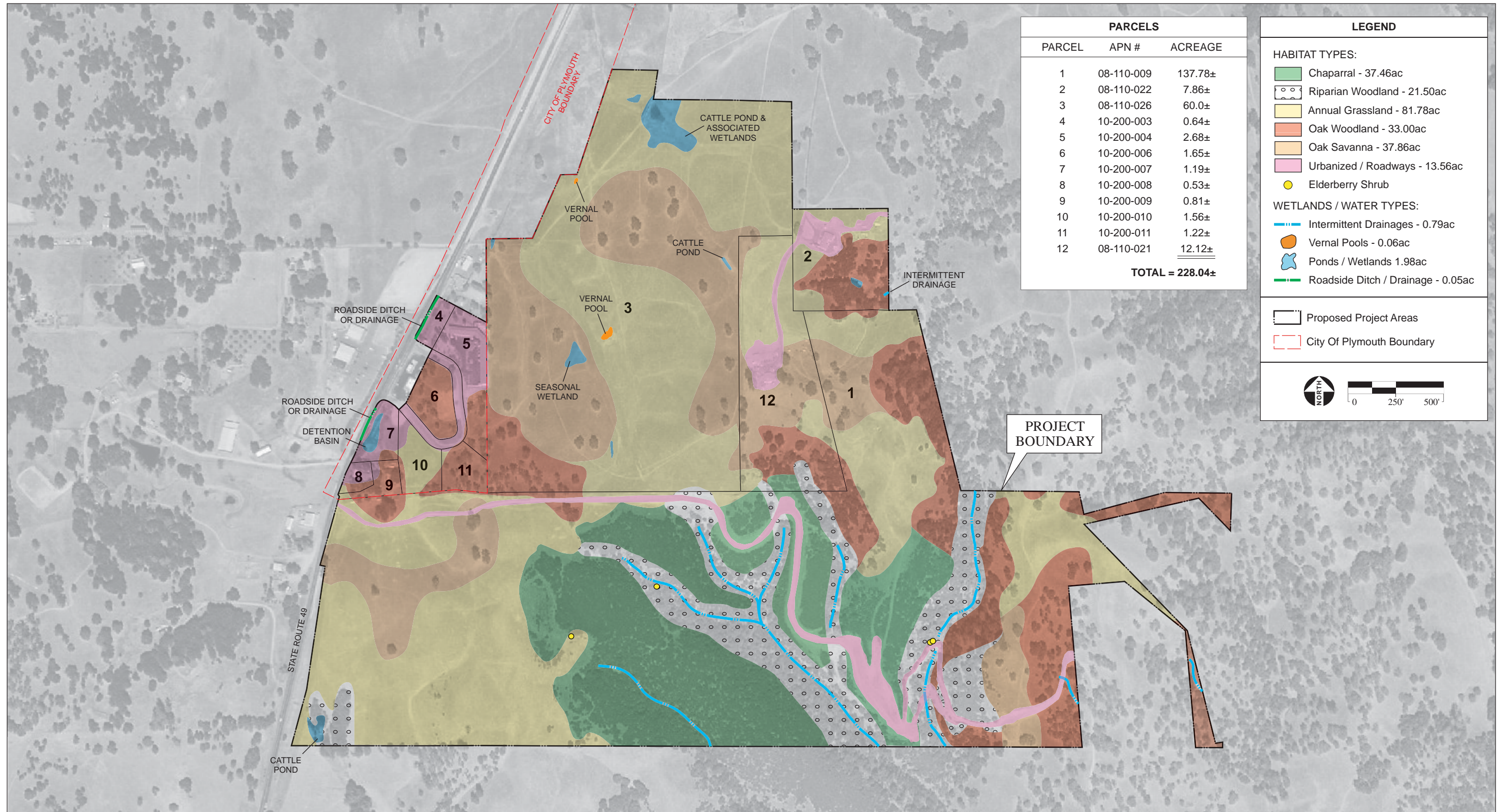


Figure 3.5-1
Habitat Types

ANNUAL GRASSLAND

The southwest to northeastern portion of the project site is vegetated by annual grassland and encompasses approximately 82-acres or 36-percent of the project site.

Annual grassland plant species found during site visits included creeping bent grass (*Agrostis stolonifera*), silver European hairgrass (*Aira caryophyllea*), sweet vernal grass (*Anthoxanthum odoratum*), wild oat (*Avena fatua*), cultivated oat (*Avena sativa*), California brome (*Bromus carinatus*), ripgut brome (*Bromus diandrus*), soft chess (*Bromus hordeaceus*), yellow star-thistle (*Centaurea solstitialis*), dogtail fescue (*Cynosurus echinatus*), filaree (*Erodium cicutarium*), California fescue (*Festuca californica*), tarweed (*Hemizonia fasciculata*), meadow barley (*Hordeum brachyantherum*), Mediterranean barley (*Hordeum marinum* ssp. *gussoneanum*), weed barley (*Hordeum murinum* ssp. *leporinum*), hedge mustard (*Sisymbrium officinale*), milk thistle (*Silybum marianum*), winter vetch (*Vicia villosa*), and Zorro fescue (*Vulpia myuros*). Animals seen within the annual grassland during site visits include western bluebird (*Sialia mexicana*) and western meadowlark (*Sturnella neglecta*).

CHAPARRAL

Within the southern half of the project area approximately 37-acres (16-percent of total project acreage) of chaparral occur (**Figure 3.5-1**). Chaparral plant species identified in these areas during site visits included chamise (*Adenostoma fasciculatum*), manzanita (*Arctostaphylos manzanita*), wood fern (*Dryopteris arguta*), yerba santa (*Eriodictyon californicum*), cudweed (*Gnaphalium californicum*), sticky monkey flower (*Mimulus aurantiacus*), and interior live oak (*Quercus wislizenii*). Wildlife species identified within the chaparral community included the western scrub jay (*Aphelocoma californica*) and the California quail (*Callipepla californica*).

OAK SAVANNA

Oak savanna comprises approximately 38-acres or approximately 17-percent of the project site (**Figure 3.5-1**). The oak savanna within the proposed project site is dominated by blue oak (*Quercus douglasii*). Plants identified within the oak savanna habitat areas during site visits included primarily blue oak and the same dominant annual grasses identified in the annual grassland. Wildlife species identified in these areas include gopher snake (*Pituophis catenifer*), western fence lizard (*Sceloporus occidentalis*), acorn woodpecker (*Melanerpes formicivorus*), mourning dove (*Zenaida macroura*), and mule deer (*Odocoileus hemionus*).

OAK WOODLAND

Oak woodland comprises approximately 33-acres or 14-percent of the project site and is dominated by blue oaks and to a lesser extent interior live oaks. The oak woodland areas also contained black oaks (*Quercus kelloggii*), gray pines (*Pinus sabiniana*), and ponderosa pines (*Pinus ponderosa*). Understory vegetation included poison oak (*Toxicodendron diversilobum*),

manzanita (*Arctostaphylos manzanita*), toyon (*Heteromeles arbutifolia*), dogtail fescue, and goldenback fern (*Pentagramma triangularis* ssp. *triangularis*).

Wildlife seen in the oak woodland during site visits include western scrub jay, Cooper's hawk (*Accipiter cooperii*), oak titmouse (*Baeolophus inornatus*), red-tailed hawk (*Buteo jamaicensis*), northern flicker (*Colaptes auratus*), Nuttall's woodpecker (*Picoides nuttallii*), American Robin (*Turdus migratorius*), mourning dove, white-crowned sparrow (*Zonotrichia leucophrys*), and mule deer.

RIPARIAN WOODLAND

Riparian or moisture-loving habitat often occurs in canyons and arroyos along rivers and streams and often forms scrub or woodland. Deciduous trees, shrubs, grasses, and forbs dominate the riparian woodland on site. Riparian woodlands comprise approximately 22-acres or 10-percent of the project site and occur in association with the intermittent and ephemeral drainages in Parcel #1. The actual floor of the ephemeral drainages is littered with partially rounded slate fragments and slabs, and vegetated with non-native grasses and forbs. It is often shaded by the canopies of the riparian shrubs and trees (**Figure 3.5-1**). All but one of the riparian areas support a canopy dominated by interior live oaks, which intergrades with the adjoining chaparral. Dominant plant species identified in these areas during site visits included interior oak, California buckeye (*Aesculus californicus*), toyon, California black walnut (*Juglans californica*), holly-leaf redberry (*Rhamnus ilicifolia*), and poison oak. The deep eastern drainage located on Parcel #1 is steep-sided with a well-developed ephemeral channel surrounded by mixed oak-pine riparian woodland. Plant species identified in the central riparian zone of Parcel #1 includes interior live oak, black oak (*Quercus kelloggii*), California black walnut, gray pine, ponderosa pine (*Pinus ponderosa*), and red willow (*Salix laevigata*). Wildlife observed during site visits includes western scrub jay, oak titmouse, morning dove, golden crowned sparrow (*Zonotrichia leucophrys*), and white-crowned sparrow.

URBANIZED AREAS

Urbanized areas classified as disturbed or developed habitat consist of approximately 14-acres or 6-percent of the project site. These areas are associated with the residential and commercial developments in portions of Parcel numbers 2, 4, 5, 6, 7, 8, 9, 10, 11, and 12. These areas support a combination of ornamental and ruderal vegetation. Ruderal vegetation identified in this area during site visits includes yellow star thistle, doveweed (*Eremocarpus setigerus*), prickly lettuce (*Lactuca serriola*), and winter vetch. No wildlife was observed in this area.

PONDS/SEASONAL WETLANDS AND VERNAL POOLS

Seasonal wetlands are characterized by vegetation that is typically adapted to seasonal flooding and varying levels of soil saturation. These areas typically occur either adjacent to streams or freshwater wetlands where seasonal flooding occurs, or in areas that have seasonally saturated soils either due to pooling of seasonal rains or due to shallow groundwater conditions. Seasonal wetlands comprise approximately 3-acres or 1-percent of the project site. These features include cattle ponds, a detention basin, potential vernal pools, and other seasonal wetlands. A detailed discussion of wetland features is found in **Section 3.5.4** below and in **Appendix I**.

INTERMITTENT DRAINAGES/ROADSIDE DITCHES

Intermittent drainages and roadside ditches comprise approximately 0.84-acres or 0.37-percent of the site. Several large intermittent drainages occur in the southeastern portion of the project site and a roadside ditch runs adjacent to SR 49 within portions of the site. Vegetation associated with the intermittent drainages included interior oak, California buckeye, toyon, California black walnut, holly-leaf redberry, and poison oak. Species associated with the roadside ditch included Dallis grass (*Paspalum dilatatum*), crab grass (*Cynodon dactylon*), loosestrife hyssop (*Lythrum hyssopifolium*), and Himalaya blackberry (*Rubus discolor*). These features are discussed in detail in Section 3.5.4 below and in Appendix I.

3.5.4 WATERS OF THE UNITED STATES

The term “waters of the U.S.” is defined in 33 CFR Part 328 as:

- All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;
- All interstate waters including interstate wetlands;
- All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes; or natural ponds, the use or degradation of which could affect interstate or foreign commerce including any such waters:
 - i. Which are or could be used by interstate or foreign travelers for recreational or other purposes;
 - ii. From which fish or shellfish are or could be taken and sold in interstate or foreign comer; or
 - iii. Which are used or could be used for industrial purpose by industries in interstate commerce.

“Wetlands” are defined as:

- Areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (38 CFR Part 328).

As discussed above, a delineation of “waters of the U.S.” within the 228.04± acre project site was conducted by AES biologists in 2004. All areas were viewed to the degree necessary to determine the presence or absence of jurisdictional “waters of the U.S.” Waters of the U.S. have been mapped within the study area including intermittent and ephemeral streams, cattle ponds, potential vernal pools, and a detention basin (**Figure 3.5-2; Appendix I**).

The USFWS has also inventoried several wetlands in the area as part of the National Wetlands Inventory (NWI), which provides information on the characteristics, extent, and status of the Nation’s wetlands, deepwater habitat, and other wildlife habitats. These include palustrine emergent and unconsolidated wetlands that were natural and/or impounded. All of the stock ponds and one of the seasonal ponds (i.e. the pond formed from the abandoned grass aircraft runway fill) appeared on the NWI map (**Appendix I**). The AES field survey confirmed the presence of the seasonal wetlands that were identified in the NWI map, including cattle ponds, a detention basin, intermittent and ephemeral streams, potential vernal pools, and ponds. AES also mapped additional potential waters of the U. S. features (**Figure 3.5-2; Appendix I**).

The wetlands and “waters of the U.S.” within the site occupy a total of 2.78-acres or approximately 1.22-percent of the project site. **Table 3.5-2** below provides an acreage summary.

TABLE 3.5-2
WATERS OF THE U. S. SUMMARY

Feature	Mapping Callout on Figure 7	Acreage
Cattle Ponds	A, J, K, & L	1.46
Detention Basin	B	0.24
Intermittent Drainage	C & D	0.02
Ponds	F & N	0.22
Emergent Wetlands	E & I	0.07
Potential Vernal Pools	G & H	0.07
Ephemeral Drainages	M, O, P, Q, R, S, T	0.7
	TOTAL	2.78

SOURCE: AES, 2004

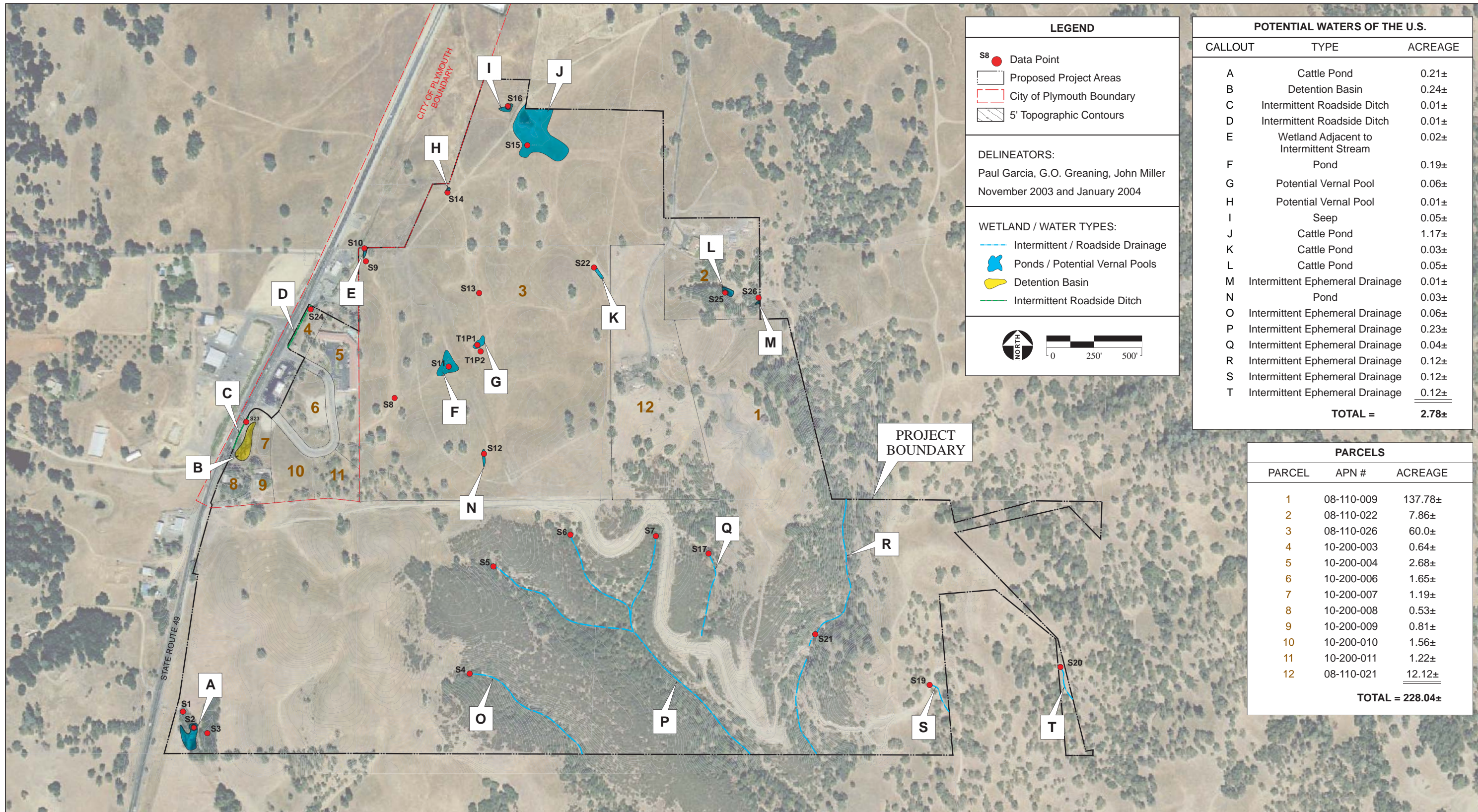


Figure 3.5-2
Potential Waters of the United States Map

CATTLE PONDS

Four cattle ponds occur within the project site; features A, J, K, and L as depicted in **Figure 3.5-2**. Feature A, located near the southwest corner of Parcel #1, is fed by two swales that capture runoff from nearby Highway 49 and the surrounding landscape. The pond and its perimeter are devoid of vegetation, except for scattered willow weed (*Polygonum lapathifolium*). This feature is a result of excavation and damming to create an impoundment suitable for stock watering. Another cattle pond, feature J, is located near the northern boundary of Parcel #3. The impoundment consists of open water that varies in depth throughout the season and a peripheral area that is saturated long enough through the wet season to support a thick herbaceous layer dominated by spikerush (*Eleocharis macrostachya*). This feature is a result of excavation and damming of a swale for purposes of stock watering. The dam for feature J seeps to the west, forming feature I. This seasonal wetland is vegetated with spikerush and Baltic rush (*Juncus balticus*). Another cattle pond occurs along the eastern boundary of Parcel #3, feature K. No vegetation was observed in association with this pond. An additional cattle pond, feature L, occurs within Parcel #2 (**Figure 3.5-2**).

DETENTION BASIN AND INTERMITTENT DRAINAGE

Feature B is a detention basin that is located along the western boundary of Parcel #7. This detention basin appears to collect runoff from this portion of the site and channel it into a culvert that daylight just north of the gas station and continues as a roadside ditch. The two roadside ditches, features C and D in Figure 3.5-2, are shown as intermittent drainages where a portion of the drainage appears to be a modification of a historic drainage that once flowed through the western portion of Parcel #4, paralleling SR49. A small wetland forms adjacent to this drainage. Dominant plants identified during site visits include broadleaf cattail (*Typha latifolia*) and Himalaya blackberry (*Rubus discolor*). Plants identified within the drainage include broadleaf cattail, curly dock (*Rumex crispus*), red willow (*Salix laevigata*), and arroyo willow (*Salix lasiolepis*).

VERNAL POOLS AND PONDS

Two potential vernal pools, features G and H, and two ponds, features F and N occur within Parcel #3. Feature F is formed by the aircraft runway, as water drains down the grade that is impounded on the west side of the runway. Water from feature F also seeps through the runway to form feature G. Feature N pools on the east side of the runway, while Feature H is located north of features G and H; adjacent to the western project site boundary (**Figure 3.5-2**). Vegetation associated with the vernal pools included spikerush (*Eleocharis macrostachya*), Vasey's branching coyote thistle (*Eryngium castrense*), and pillwort (*Pilularia americana*).

EPHEMERAL DRAINAGES

Several ephemeral drainages occur on the southern and eastern portion of the proposed project site (features M,O, P, Q, R, S, and T on **Figure 3.5-2**). These drainages have substrates of primarily cobble and slate. They are vegetated primarily with non-native grasses and forbs and generally have canopies of riparian trees and shrubs over them.

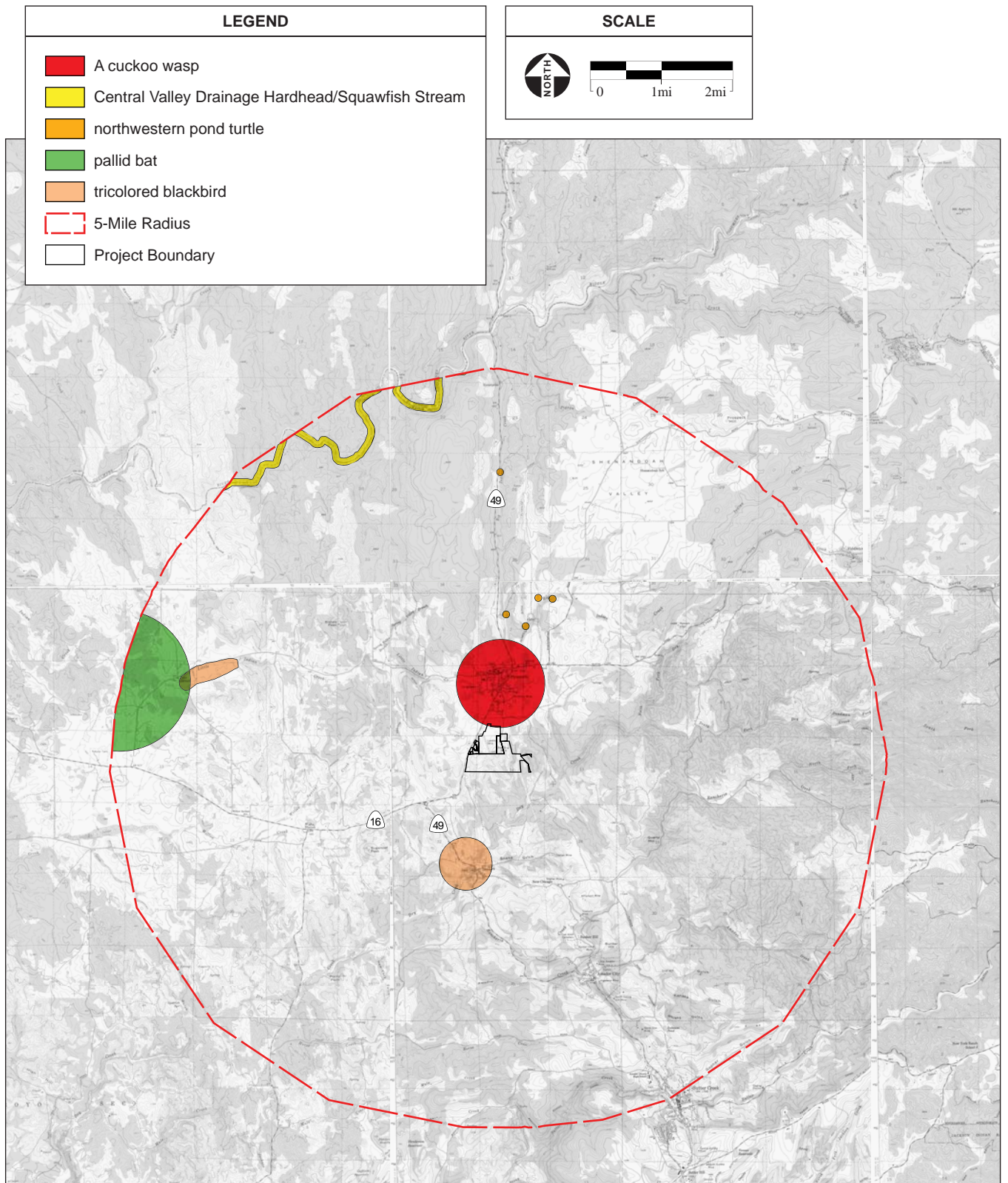
3.5.5 SPECIAL-STATUS SPECIES

The list of special-status species that may be potentially impacted by developing the project site was generated based upon pertinent literature, aerial photographs, site topographic maps, informal consultation with USFWS and local experts (**Appendix H**), mapped CNDDDB occurrences within 5 miles of the site, and biological field surveys.

The CNDDDB was queried for occurrences of special-status species. All resultant occurrences within a five-mile radius of the site were plotted on a map (**Figure 3.5-3**). Habitat requirements for each of these special-status species were assessed and compared to the habitats occurring within the property and adjacent areas. **Table 3.5-3** contains those state and CNPS-listed species with suitable habitat on-site that were reported by CNDDDB within five miles of the project site or reported to occur within the “Amador City, California” 7.5 minute quadrangle and the four surrounding quads: Pine Grove, Irish Hill, Latrobe, and Fiddletown. **Appendix H** contains a table in which all species reported by CNDDDB within the above listed quadrangles are assessed for potential to occur within the project site. Those species that are contained in the 2005 version of the Biological Resources Assessment, but that were eliminated from **Table 3.5-3** due to lack of suitable habitat are also assessed in **Appendix H**. Those species considered in the 2005 Biological Resources Assessment that no longer have a state or federal listing and those species without state or federal listing that occur within five miles of the site were eliminated from assessment. **Table 3.5-4** consists of the federal species that have suitable habitat on the site or are reported to occur within the project site and vicinity. **Appendix H** contains a table in which all species reported by the USFWS to occur within the above listed quadrangles are assessed for potential to occur within the project site. Those species that are both state and federally-listed are addressed in **Table 3.5-4** and in the *Federally-listed Species* section.

Special-status state listed species are designated as having special status by state agencies, the CNPS), or other conservation organizations because of their rarity or their vulnerability to habitat loss or population decline. Species designated as having special status at the state or local-level generally receive no specific protection on tribal land taken into trust by the federal government.

For the purposes of this EIS, federally listed species include those plant and animal species that are listed as endangered or threatened under FESA or formally proposed for listing.



SOURCE: "Amador City, CA" USGS 7.5 Minute Quadrangle; CNDDDB Database, 2007; AES, 2007

Ione Band of Miwok Indians EIS / 203525 ■

Figure 3.5-3
Special Status Species

TABLE 3.5-3
STATE AND CNPS SPECIAL-STATUS SPECIES LIST

SCIENTIFIC NAME COMMON NAME	STATE/ CNPS STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
PLANTS				
<i>Clarkia biloba ssp. brandegeeeae</i> Brandegee's clarkia	--/1B	Butte, El Dorado, Nevada, Placer, Seirra, and Yuba counties.	Chaparral and cismontane woodland, often in roadcuts.	May - July
<i>Eryngium pinnatisectum</i> Tuolumne button-celery	--/1B	Amador, Calaveras, Sacramento, and Tuolumne counties.	Cismontane woodland, lower montane coniferous forest, and vernal pools. Elevation ranges from 230-3,000 ft.	June - August
<i>Horkelia parryi</i> Parry's horkelia	--/1B	Calaveras, El Dorado, and Mariposa counties.	Open chaparral and cismontane woodland between 300 and 3,000 ft. in elevation, found most often on lone Soils.	April - June
<i>Sphenopholis obtusata</i> Prairie wedge grass	--/2	The current distribution is Amador, Fresno, Inyo, Mono, Riverside, and San Bernardino Counties	Meadows and seeps 1,000-6,500 ft. in elevation.	April - July
ANIMALS				
Reptiles				
<i>Actinemys marmorata marmorata</i> Northwestern pond turtle	CSC/--	West coast of North America from southern Washington, USA to northern Baja California, Mexico. Many populations have been extirpated and others continue to decline throughout the range, especially in southern California.	Requires aquatic habitats with suitable basking sites. Nest sites most often characterized as having gentle slopes (<15%) with little vegetation or sandy banks.	All year
Birds				
<i>Agelaius tricolor</i> Tricolored blackbird	CSC/--	California and Baja California, Mexico.	Nests in dense thickets of cattails, tules, willow, blackberry, wild rose, and other tall herbs near fresh water in Central Valley.	April – July

STATUS CODES**STATE: California Department of Fish and Game**

CSC California Species of Special Concern

CNPS: California Native Plant Society

List 1B Plants rare or endangered in California and elsewhere

List 2 Plants rare or endangered in California, but more common elsewhere

SOURCE: California Department of Fish and Game, 2003; CNPS, 2006.

TABLE 3.5-4
FEDERAL SPECIAL-STATUS SPECIES LIST

SCIENTIFIC NAME COMMON NAME	FEDERAL STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
ANIMALS				
Invertebrates				
<i>Branchinecta lynchi</i> Vernal pool fairy shrimp	FT	Vernal Pools in the Central Valley, Coast Ranges, and limited number of sites in Transverse ranges and Riverside County, California.	The vernal pool fairy shrimp is restricted to seasonal vernal pools and prefers cool-water pools that have low to moderate dissolved solids, are less predictable, and often short lived.	December - May
<i>Desmocerus californicus dimorphus</i> Valley elderberry longhorn beetle	FT	Central Valley in riparian habitats.	Breeds and forages exclusively on elderberry shrubs (<i>Sambucus mexicana</i>) below 2,500 ft. in elev.; specifically on shrubs with stem diameter of one-inch or greater.	All year
<i>Lepidurus packardii</i> Vernal pool tadpole shrimp	FE	The vernal pool tadpole shrimp is known from 18 populations in the Central Valley, ranging from east of Redding in Shasta County south to the San Luis National Wildlife Refuge in Merced County, and from a single vernal pool complex located on the San Francisco Bay National Wildlife Refuge in the City of Fremont, Alameda County.	Found in a variety of seasonal wetlands from 6.5 square feet to 88 acres in size. Found on a variety of geologic formations and soil types but over 50 percent of the time on High Terrace landforms and Redding and Corning soils. May be able to resist temporary drying conditions.	December - May
Amphibians				
<i>Rana aurora draytonii</i> California red-legged frog	FT	Locally abundant within portions of the San Francisco Bay area (including Marin County) and the central coast. Only isolated populations have been documented in the Sierra Nevada, northern Coast, and northern Transverse ranges and Baja California, Mexico.	Lowlands and foothills in or near permanent or late-season sources of deep water with shrubby overhanging or dense emergent vegetation.	May - November

SCIENTIFIC NAME COMMON NAME	FEDERAL STATUS	DISTRIBUTION	HABITAT REQUIREMENTS	PERIOD OF IDENTIFICATION
<i>Ambystoma californiense</i> California tiger salamander, central population.	FT	Sacramento and San Joaquin River Valleys, surrounding foothills and westward in the lower elevations of California's central Coast.	Occurs in annual grasslands. Breeds and lays eggs November to February in vernal pools and other temporary rainwater ponds and sometimes permanent man-made ponds where predators are absent. May co-exist with bullfrogs (<i>Rana catesbeiana</i>) in vegetated ponds that provide refugia.	November - February

STATUS CODES**FEDERAL: U.S. Fish and Wildlife Service or National Marine Fisheries Service**

FE = Listed as Endangered by the Federal Government

FT = Listed as Threatened by the Federal Government

SOURCE: USFWS, 2007.

STATE AND CNPS LISTED SPECIES**Plant Species**

No state or CNPS listed plant species occur within five miles of the project site, however, four CNPS-listed plant species occur within the “Amador City” quadrangle and the four surrounding quads and have potential habitat within the site: Brandegee’s clarkia (*Clarkia biloba* ssp. *brandegeae*), Tuolumne button-celery (*Eryngium pinnatisectum*), Parry’s horkelia (*Horkelia parryi*), and prairie wedge grass (*Sphenopholis obtusata*). None of these species were observed during the field surveys. Surveys were performed during the bloom season of these plants.

Reptile Species

One state-listed reptile species occurs within five miles of the project site and has potential habitat within the site: northwestern pond turtle (*Actinemys marmorata marmorata*). This species was not observed on the project site during focused surveys for California red-legged frog, which share a similar habitat. One northwestern pond turtle was observed in Dry Creek during frog surveys, just less than one mile southeast the project site.

Bird Species

One state-listed bird species occurs within five miles of the project site and has potential breeding and foraging habitat within the site: tricolored blackbird (*Agelaius tricolor*). This species was not observed during field surveys.

FEDERALLY-LISTED SPECIES**Plant Species**

Two federally listed plant species occur within the “Amador City” quadrangle and the four surrounding quads: Ione manzantia (*Arctostaphylos myrtifolia*) and Irish Hill buckwheat (*Eriogonum apricum* var. *prostratum*). Both of these species require Ione soils in chaparral habitats. Ione soils are not mapped within the project site by the NRCS (USDA, 2007), nor were they present in any sample pits dug for wetland delineation purposes. These plant species were not observed during field visits conducted during the bloom period of these plants and suitable habitat for these species is not present within the project site.

Invertebrate Species

Three federally-listed invertebrate species occur within the “Amador City” quadrangle and the four surrounding quads: vernal pool fairy shrimp (*Branchinecta lynchi*), valley elderberry longhorn beetle (VELB; *Desmocerus californicus dimorphus*), and vernal pool tadpole shrimp (*Lepidurus packardii*). These species are discussed below.

VERNAL POOL FAIRY SHRIMP (BRANCHINECTA LYNCHI)

Federal status: Threatened

The vernal pool fairy shrimp is a small crustacean in the family Branchinectidae. It ranges in size

from 0.5-1 inch long and occupies a variety of different vernal pool habitats, from small, clear, sandstone rock pools to large, turbid, alkaline, grassland valley floor pools. Although the species has been collected from large vernal pools, it tends to occur in smaller pools. It is most frequently found in pools measuring less than 0.05-acre. Pools of this size are most commonly found in grass or mud bottomed swales, or basalt flow depression pools in unplowed grasslands. Vernal pool fairy shrimp had been collected from early December to early May.

Female fairy shrimp carry their eggs in a ventral brood sac that are either dropped to the pool bottom or remain in the brood sac until the mother dies and sinks. When the pool dries out, so do the eggs. The eggs remain in the dry pool bed until rains and other environmental stimuli hatch them. Resting fairy shrimp eggs are known as *cysts*. They are capable of withstanding heat, cold and prolonged desiccation. When the pools refill, some, but not all, of the cysts may hatch. The cyst bank in the soil may contain cysts from several years of breeding. Average time to maturity is only forty-one days. In warmer pools, it can be as little as eighteen days (USFWS 2003). Due to the extensive loss of vernal pools in the Central Valley, the USFWS listed the vernal pool fairy shrimp as threatened in 1994 pursuant to the Federal Endangered Species Act.

Period of Identification: December-May

Recovery Plan/ Critical Habitat Designation: A Recovery Plan for vernal pool ecosystems of California and southern Oregon was established in December 2005 (USFWS 2005). The closest critical habitat unit is unit 14A, which includes southeastern Sacramento County and the far west side of Amador County. This critical habitat is located 9.5 miles west-southwest of the project site. The closest Recovery Area is the Rancho Seco/ Cosumnes core recovery area and its closest boundary is in approximately the same location as the critical habitat unit 14A (71 Federal Register, 7118-7314).

CNDDDB Records: Listed branchiopods have not been documented in the CNDDDB in Amador County. The closest occurrence is approximately 11 miles southwest of the project site in the Laguna Creek drainage in a mitigation bank site.

Potential to Occur on the Project Site: The vernal pools in the study area represent potential listed branchiopod habitat. Two sets of wet season protocol-level surveys according to the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* have been performed (**Appendix J**). The first set was performed in the 2004-2005 wet sampling season and the second in the 2007 wet sampling season. Listed branchiopod species were not observed on the project site on any of the survey dates. Vernal pool fairy shrimp do not occur within the vernal pools on the project site.

VALLEY ELDERBERRY LONGHORN BEETLE (*DESMOCERUS CALIFORNICUS DIMORPHUS*)

Federal status: Threatened

The valley elderberry longhorn beetle (VELB) is completely dependent on its host plant, elderberry (*Sambucus mexicana*), in California's Central Valley during its entire life cycle (USFWS 1999). VELB larvae live within the soft pith of the elderberry where they feed for 1-2 years. Adults emerge from pupation inside the wood of elderberry shrubs during the spring as the plant begins to flower. The adults feed on the elderberry foliage up until they mate. Females lay their eggs in the crevices of elderberry bark. Upon hatching the larvae then tunnel into shrub stems and feed there. VELB typically utilize stems that are greater than one-inch in diameter at ground level (USFWS 1999). Due largely to the loss of riparian habitat within California's Central Valley the VELB populations in the state had decreased to a point that in 1980 the USFWS listed the species as threatened pursuant to the Federal Endangered Species Act.

Four elderberry shrubs were observed within Parcel #1 (**Figure 3.5-1**):

- One large shrub was observed at the headwaters of the westernmost drainage in a non-riparian area. This shrub was observed to support 4 stems greater than 5" inches in diameter, 6 stems greater than 3" inches in diameter, and 10 stems greater than one inch in diameter. No exit holes were observed.
- One shrub was observed adjacent to the central large drainage within Parcel #1. This shrub had one stem, approximately 3" and was in fair to poor health. No exit holes were observed.
- Two small shrubs were observed in a disturbed riparian area on the northern slope of the road crossing of the eastern most drainage within the area of the proposed reclaimed water seasonal storage reservoir. Each of these two shrubs had two stems greater than one, but less than three inches in diameter. No exit holes were observed on either of these two shrubs.

Period of Identification: All year

Recovery Plan/ Critical Habitat Designation: There are no recovery areas or critical habitat units in Amador County. The closest recovery area is approximately 26 miles northwest along the American River Parkway in Sacramento County (USFWS 1984). The closest critical habitat designation coincides with that area.

CNDDDB Records: Only one occurrence was found on the CNDDDB in Amador county and this was 9.7 miles to the southwest of the project site along the north side of Sutter Creek on Prouty, 1.5 miles west of Ione.

Potential to Occur on the Project Site: The VELB has the potential to occur on the project site in the elderberry shrubs. The project site is neither within nor near any critical habitat units or recovery areas (none occur in Amador county). A protocol-level survey for the VELB was conducted by staff biologist John Downs on October 5, 2004 according to the *Conservation*

Guidelines for the Valley Elderberry Longhorn Beetle (USFWS 1999) and no beetles or exit holes were found on the elderberry shrubs. An additional survey was performed on February 23, 2007, with the same results. VELB are not likely to occur within the project site.

VERNAL POOL TADPOLE SHRIMP (*LEPIDURUS PACKARDI*)

Federal status: Endangered

The vernal pool tadpole shrimp (*Lepidurus packardi*) is a small crustacean in the family Triopsidae. This animal inhabits vernal pools containing clear to highly turbid water, ranging in size from 54 square feet to 89 acres (USFWS 2004b). The life history of the vernal pool tadpole shrimp is linked to the seasonal cycle of the vernal pool. After winter rainwater fills the pool, the population is reestablished from cysts that lie dormant in the dry pool sediments. Sexually mature adults have been observed in vernal pools three to four weeks after the pools had been filled. Some cysts hatch immediately and the others remain dormant in the soil to hatch during later rainy seasons (USFWS 2003). Due to the extensive loss of vernal pools in the Central Valley, the USFWS listed the vernal pool tadpole shrimp as threatened in 1994 pursuant to the Federal Endangered Species Act.

Period of Identification: December-May

Recovery Plan/ Critical Habitat Designation: A Recovery Plan for vernal pool ecosystems of California and southern Oregon was established in December 2005 (USFWS 2005). The closest critical habitat unit is unit 14A, which includes southeastern Sacramento County and far western Amador County. It is located 9.5 miles west southwest of the project site. The closest Recovery Area is the Rancho Seco/ Cosumnes core recovery area and its closest boundary is in approximately the same location as the critical habitat unit 14A (71 Federal Register, 7118-7314).

CNDDDB Records: Listed branchiopods have not been documented in the CNDDDB in Amador County. The closest occurrence is approximately 11 miles southwest of the project site in the Laguna Creek drainage in a mitigation bank site.

Potential to Occur on the Project Site: The project site is not within the range of any listed branchiopods. The vernal pools in the study area represent potential listed branchiopod habitat. Two sets of wet season protocol-level surveys according to the *Interim Survey Guidelines to Permittees for Recovery Permits under Section 10(a)(1)(A) of the Endangered Species Act for the Listed Vernal Pool Branchiopods* have been performed (**Appendix J**). The first set was performed in the 2004-2005 wet sampling season and the second in the 2007 wet sampling season. Listed branchiopod species were not observed on the project site on any of the survey dates. Vernal pool tadpole shrimp do not occur within the vernal pools on the project site.

Amphibian Species

Two federally-listed amphibian species occur within the “Amador City” quadrangle and the four surrounding quads: California red-legged frog (*Rana aurora draytonii*) and California tiger salamander, central population (*Ambystoma californiense*). These species are discussed below.

CALIFORNIA RED-LEGGED FROG (*RANA AURORA DRAYTONII*)

Federal status: Threatened

California red-legged frogs (CRLF) historically occupied portions of the western slope of the Sierra Nevada from Shasta County south to Tulare County. Over the years these populations have become fragmented or extirpated. The CRLF occupies a fairly distinct habitat, combining both specific aquatic and riparian components. The adults require dense, shrubby or emergent riparian vegetation closely associated with deep (greater than 2 1/3-foot deep) still or slow moving water. The largest densities of CRLF are associated with deep-water pools with dense stands of overhanging willows (*Salix* sp.) and an intermixed fringe of cattails (*Typha latifolia*). Well-vegetated terrestrial areas within the riparian corridor may provide important sheltering habitat during winter (USFWS 2007). Stock ponds can be used by this species if they have the proper hydroperiod and are absent of nonnative predators such as bullfrogs. CRLF can estivate in small mammal burrows and moist leaf litter during the summer. They have been found up to 100 feet from water in adjacent dense riparian vegetation. Waters have to be inundated for at least 4-5 months for metamorphosis.

The CRLF has sustained a 70-percent reduction in its geographic range in California as a result of several factors acting singly or in combination. Habitat loss and alteration, combined with over exploitation and introduction of exotic predators, were significant factors in the red-legged frogs' decline in the early to mid-1900s (USFWS 2003). As a result, the USFWS listed the CRLF as threatened in 1996.

Due to the listing of the CRLF, USFWS and other state, municipal and private protection measures have been implemented to assist in the recovery of the species. In 2002 USFWS published the Recovery Plan for the CRLF (Recovery Plan). In the Recovery Plan USFWS identifies eight recovery units within California that contain core areas that are targeted for development and implementation of management and protection plans for the CRLF. The project site is located within the Cosumnes River core recovery area for the CRLF. Conservation needs prescribed by USFWS for the Cosumnes River core area include:

- Protection of existing populations,
- Restoration of additional habitat,
- Protection habitat connectivity, and
- Reestablishment of populations and/or augmentation existing populations.

Period of Identification: May-November

Recovery Plan/ Critical Habitat Designation: The nearest boundary of a critical habitat unit, unit 3, is approximately 18 miles away in El Dorado County (71 Federal Register, 19243-19346). The project site is within the Cosumnes River core recovery area for the CRLF.

CNDDDB Records: The nearest reported CRLF occurrence is 22 miles northeast of the site, on Sopiago Creek in neighboring El Dorado County.

Potential to Occur on the Project Site: The project site is within the historic CRLF range documented by verified sightings and museum records (Jennings and Hayes 1994). Four cattle ponds occurring on the project site represent potential habitat breeding habitat for CRLF. The presence of bullfrogs in these ponds makes it unlikely that CRLF would utilize them for breeding. Potential dispersal, foraging, and/ or refuge habitat occurs throughout the site in swales, seeps, intermittent drainages, potential vernal pools and the detention basin. Protocol-level California red-legged frog surveys were conducted by AES biologists in 2007. Survey protocol followed that of the *Revised Guidance on Site Assessment and Field Surveys for the California Red-legged Frog* (Guidance). A *California Red-legged Frog Survey Report for the Ione Land Transfer and Casino Project* is pending submittal to the USFWS. No CRLF were observed during protocol surveys. The CRLF does not occur within the project site.

CALIFORNIA TIGER SALAMANDER, CENTRAL POPULATION (*AMBYSTOMA CALIFORNIENSE*)

Federal status: Threatened

In the Central California foothills, the California tiger salamander (CTS) is typically found at elevations below 1,500 feet. CTS spend the majority of their lives in upland habitats such as annual grasslands, oak savannah, mixed grassland and woodland habitats, woodlands, scrub, or chaparral habitats plant communities associated with vernal pools, vernal pool complexes, and seasonal ponds. Within these upland habitats, adult CTS spend part of their lives in the underground burrows of small mammals. They utilize seasonal ponds, natural vernal pools, vernal pool complexes, and roadside ditches for breeding during their aquatic phase. Small artificial water bodies such as stock ponds may be used but are often not optimum breeding habitat for the CTS because the hydroperiod of stock ponds can be so short that larvae cannot metamorphose or so long that predatory fish and bullfrogs can colonize the pond. Periodic maintenance of stock ponds may also cause a temporary loss of functioning aquatic habitat. Successful breeding ponds for California tiger salamanders need to be inundated for a minimum of 12 weeks to allow for successful metamorphosis (USFWS 2004c).

The CTS has been eliminated from an estimated 55- to 58-percent of its historic breeding sites and has lost an estimated 75-percent of its habitat. The CTS was listed as a Federally threatened species under FESA in August of 2004. Critical habitat for the CTS occurs 14 miles southwest of

the project site. The CTS is included in the CRLF Recovery Plan as an associated species in the USFWS ecosystem approach to conservation.

Period of Identification: November-February

Recovery Plan/ Critical Habitat Designation: The project is located 8.5 miles away from the Central California Tiger Salamander Central Valley Region recovery area and 14 miles away from critical habitat unit #4 boundary (70 Federal Register, 49379-49458).

CNDDDB Records: The nearest reported CTS occurrence in the CNDDDB is 11 miles west-southwest of the site in Amador County.

Potential to Occur on the Project Site: Vernal Pools, the cattle ponds, and associated upland oak savannah, woodland edge, and annual grassland identified within the study area represent potential habitat for CTS. Due to the highly disturbed state of the aquatic and associated terrestrial habitats and the lack of historic findings of this species on or near the project site CTS are not anticipated to occur on-site. While protocol-level surveys for CTS were not conducted, CRLF surveys, branchiopod surveys, and the wetland delineation were performed within the potential CTS habitat on-site. No CTS or CTS larvae were observed during any of the focused field surveys. In addition, all of the aquatic habitats on-site with the potential to be CTS habitat, were occupied with bullfrogs. Many of these features contained mosquito fish. These species prey on CTS larvae. The project site is also out of the range of CTS. CTS are not likely to occur within the project site.

Fish Species

All federally-listed fish species that occur in the “Amador City” quadrangle and four surrounding quads, including delta smelt (*Hypomesus transpacificus*), Central Valley steelhead (*Oncorhynchus mykiss*), Central Valley fall/late fall-run Chinook salmon (*Oncorhynchus tshawytscha*), Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*) require perennial aquatic habitat for survival. While some of the cattle ponds are perennial, they do not provide suitable habitat for these species. Suitable habitat for these fish species is not present on site.

Bird Species

One federally-listed bird species occurs within the “Amador City” quadrangle and four surrounding quads; bald eagle (*Haliaeetus leucocephalus*). This species typically nests in trees near large bodies of water. Suitable habitat for this species is not present on site.

Migratory Birds

Migratory birds and raptors could potentially nest in trees or near ponds located on or within the immediate vicinity of the proposed development areas. Under the Migratory Bird Treaty Act of

1918 (16 USC §703-711), migratory bird species, and their nests and eggs, which are on the federal list (50 CFR §10.13) are protected from injury or death, and project-related disturbances must be reduced or eliminated during the nesting cycle. Several migratory bird species including Canadian Geese (*Branta Canadensis*), mourning dove (*Zenaida macroura*), American robin (*Turdus migratorius*), western kingbird (*Tyrannus verticalis*), and Nuttall's woodpecker (*Picoides nuttallii*) were observed on the project site during field visits.

Mammal Species

One federally-listed bird species occurs within the County: pacific fisher (*Martes pennanti pacifica*). The habitat within the project site is not suitable for this species and the elevation of the project site is outside of the typical elevation range for this mammal species.

3.6 CULTURAL RESOURCES

This section describes the existing conditions of cultural resources for the proposed Amador County project site. Topics contained in this section include the regulatory setting for evaluation of cultural resources, regional and site-specific background of local prehistory, ethnography, and history, and a summary of the known cultural resources identified as a result of archival research and field investigations. The information contained herein provides the baseline by which direct, indirect, and cumulative effects to cultural resources are identified and measured in **Section 4.0**.

3.6.1 REGULATORY SETTING

NATIONAL HISTORIC PRESERVATION ACT

Section 106 of the National Historic Preservation Act (NHPA) as amended, and its implementing regulations found in 36 CFR Part 800, require federal agencies to identify cultural resources that may be affected by actions involving federal lands, funds, or permitting. The significance of the resources must be evaluated using established criteria outlined 36 CFR 60.4, as described below in **Section 3.6-6**.

If a resource is determined to be a *historic property*, Section 106 of the NHPA requires that effects of the development on the resource be determined. A historic property is defined as:

...any prehistoric or historic district, site, building, structure or object included in, or eligible for inclusion in the National Register of Historic Places, including artifacts, records, and material remains related to such a property...(NHPA Sec. 301[5])

Section 106 of the NHPA prescribes specific criteria for determining whether a project would adversely affect a historic property, as defined in 36 CFR 800.5. An impact is considered significant when prehistoric or historic archaeological sites, structures, or objects that are listed, or eligible for listing, in the National Register of Historic Places (NRHP) are subjected to the following:

- Physical destruction of or damage to all or part of the property;
- Alteration of a property;
- Removal of the property from its historic location;
- Change of the character of the property's use or of physical features within the property's setting that contribute to its historic significance;
- Introduction of visual, atmospheric, or audible elements that diminish the integrity of the property's significant historic features;
- Neglect of a property that causes its deterioration; and

- Transfer, lease, or sale of the property out of federal control without adequate and legally enforceable restrictions or conditions to ensure long-term preservation of the property's historic significance.

If the historic property will be adversely affected by development, then prudent and feasible measures to avoid or reduce adverse impacts must be taken. The State Historic Preservation Officer (SHPO) must be provided an opportunity to review and comment on these measures prior to project implementation.

3.6.2 PREHISTORY

PRE-ARCHAIC PERIOD (10,000-8,000 B.C.)

The earliest occupants of California are generally believed to have been reliant for their subsistence on the hunting of big game. Although tools for grinding are occasionally found on these early sites, the gathering of plant material appears to have been only a small part of their subsistence strategy. Few sites from this period have been found in California, suggesting a small, widely dispersed population. Most of the sites dating to this period have been found in the vicinity of ancient shorelines of the large, pluvial lakes that were common during this time (Chartkoff and Chartkoff, 1984).

EARLY ARCHAIC PERIOD (8,000-5,000 B.C.)

With the end of the Pleistocene, the climate began a warming and drying trend that lasted for several thousand years. The great inland lakes that had covered large areas of the Great Basin began to dry up, and the megafauna – the mainstay of Pre-Archaic Period subsistence – suffered mass extinction. People adapted to these changes by shifting their foraging emphasis away from hunting and increasing their use of plant resources, as evidenced by a marked increase in the presence of plant processing tools at archaeological sites dated to this time period. More handstones and millingslabs suggest that people had begun to rely much more heavily on hard seeds and grains.

MIDDLE ARCHAIC PERIOD (5,000-1,300 B.C.)

The Middle Archaic occurred during a cooler and moister period of the Holocene, and archaeological visibility increases compared to Early Archaic times. Living structures consisted of pit houses with associated interior features, such as hearths, storage pits, and burials. Big game hunting remained the predominate subsistence strategy. Flaked stone technology relied on the production of large bifaces, retouched flakes, and perforators/gravers.

LATE ARCHAIC PERIOD (1,300 B.C.-HISTORIC PERIOD)

A major change in subsistence came in the Late Archaic Period with the discovery of a method to remove the tannins from acorns, allowing this nearly ubiquitous nut to become a staple food for

the indigenous people of California. In addition to providing a rich and essentially inexhaustible source of nutrition, it allowed people to gather and store large surpluses of food to carry them through lean seasons. Concomitant with this was an increase of group size and population densities. Sedentism increased and sophisticated cultures developed comparable to those found in farming areas in other parts of North America. It has been suggested that agriculture never took root in the Pacific west because the richness of the natural environment provided all that the people needed to survive and a good deal more (Chartkoff and Chartkoff 1984). Trade also increased during this period, bringing in goods and, presumably, ideas from afar. Hunting of a diverse range of large and small game, fishing, and gathering of wild plant resources remained important elements of overall subsistence strategies.

3.6.3 REGIONAL ARCHAEOLOGY

Evidence of the prehistoric inhabitants of the region surrounding the Plymouth project area comes from several sites including AMA-3, Bamert Cave, a rock shelter first investigated in the early 1950s by University of California at Berkeley (UCB) archaeologists Heizer and Treganza (Moratto 1984). Excavations at Bamert Cave yielded digging sticks, arrow shafts and hardwood arrow points, cordage, a carrying net, twined and coiled basketry, a tule mat as well as projectile points and beads. Items of non-Indian manufacture indicate the use of this site in late prehistoric and early historic times. The presence of at least one burial and pit-and-groove petroglyphs suggest the cave was used for mortuary and ceremonial purposes (Moratto 1984:196).

UC Davis archaeologists excavated another important site, AMA-56, the Applegate Site on Jackson Creek, in 1965 (Moratto 1984). AMA-56 yielded mortars, pestles, and manos indicating the processing of vegetal foods. Faunal remains attest to the inhabitants collecting mussels and turtles from the adjacent slough, hunting and trapping deer, elk, black-tailed hare, small rodents, and birds. Human remains at the Applegate Site included one cremation, 18 burials, and 11 fragmentary skeletons. Associated artifacts suggest a long occupation of the site. AMA-56 is considered an important site as “a link between the Sacramento Valley and the burial caves of the Sierra Nevada foothill region to the east” (Johnson in Moratto 1984:198).

Another site of importance in the project vicinity is AMA-14, the ethnographic village site of *Tco'se*, located northeast of Jackson (Moratto 1984). At this site in 1963, archaeologists documented 1,185 mortars and 363 petroglyphs in a single limestone outcrop. The rock art at this site has been dated (based on a similarity of styles in the western Great Basin) to approximately 3,000 to 500 years before present (BP) and may represent pre-Miwok peoples of Great Basin origin (Moratto 1984:314).

3.6.4 ETHNOGRAPHY

Ethnographically, the project area is in the nuclear territory occupied by the Northern Sierra Miwok. Prior to the arrival of Spanish, the Miwok were one of the largest native groups in California, stretching from the crest of the Sierra, across the Great Valley and Delta Region, into the Coast Range north of San Francisco. The Northern Sierra Miwok lived within the foothills and mountains of the Cosumnes and Mokelumne River drainages. They belong to the Sierra Miwok language group, which is a subset of the Utian language family. Lexicostatistical chronologies suggest that the Miwok ancestors inhabited California's Delta Region for millennia, with expansion into the foothills occurring in the more recent past (Levy 1978).

The triblet was the primary political unit among the Miwok. The triblet controlled a defined territory and all of the resources within it. Triblets were composed of several lineages that were each tied to geographical locations. Levy (1978:402) suggests that the population of Sierra Miwok settlements averaged 25 persons. The village of *Yuleyumne* was the primary Northern Sierra Miwok settlement near the project area and was located where the town of Plymouth is now situated (Levy 1978). *Chakanesu* is identified as the Northern Sierra Miwok tribelet in Ione (Bennyhoff in Theodoratus 2004).

Based on mission records, the accounts of early explorers, and initial attempts at censuses, it has been estimated that the total Miwok population was around 19,500 prior to 1800. In 1904, Special Indian Agent C.E. Kelsey estimated the total population at less than 800 (Slagle 2004).

Subsistence activities of the Northern Sierra Miwok closely resembled that of other inhabitants of the Sierra Foothills. As winter snows thawed, small groups moved out of the village, following deer into higher elevations. At the same time, spring greens were gathered to supplement the stored foods and meat. Seeds of many different plants, particularly grasses, were collected between May and August. Following the annual burning of the underbrush in August, the highly prized gray-pine nuts (*P. sabiniana*) were collected. These pine nuts were also occasionally collected before they were ripe in the spring. Fall and early winter was when families would set out to collect and stockpile acorns (Levy 1979:402). Hunting was a year-round activity for the Northern Sierra Miwok.

Acorns from at least seven species of oak were collected and eaten by native Californians. While acorns from the valley oak were most important to the Plains Miwok, Sierra Miwok made the most extensive use of acorns from the interior live oak, blue oak, and black oak. They were usually collected from the ground after they had fallen from the tree, although long sticks were sometimes used to collect acorns that had yet to be released (Levy 1978:402).

Nuts were also an important element of the Miwok diet and included buckeye, laurel, hazelnut, gray pine, and sugar pine. They also harvested roots like wild onion and "Indian potato," which

was eaten raw, steamed, baked, or dried and processed into flour cakes to be stored for winter use. Berries were eaten, although they did not comprise a substantial portion of the diet.

Animals taken by the Northern Sierra Miwok included mule deer, black bear, grizzly bear, black tailed jackrabbits, cottontails, beavers, gray and ground squirrels, wood rats, valley quail, and mountain quail. Occasional forays were made down to the valley floor to hunt antelope and tule elk, which were not available in the Sierra Foothills (Levy 1978). The Sierra Miwok undertook fishing, yet it was not a central part of the diet. Salmon was available in the lower stretches of Sierran rivers and trout was taken at higher elevations.

Other foods exploited by the Northern Sierra Miwok included insects, such as grasshoppers, yellow jacket larvae, and shellfish such as river mussels and fresh water clam (Levy 1978). The Sierra Miwok observed food taboos and, as a result, they did not consume dog, coyote, skunk, eagle, great-horned owl, roadrunner, snakes, or frogs (Levy 1978:402).

The Sierra Miwok constructed a variety of structures for different purposes. The primary house used by the Miwok living in the foothills was the conical bark-slab house (Levy 1978). More substantial semi-subterranean houses were occupied during the winter months by those wealthy enough to afford such a structure. A circular brush structure was used in the summer during times of mourning. Semi-subterranean earth lodges, measuring 40 – 50 feet in diameter, were used for social or communal gatherings. The Miwok also made use of sweathouses that generally measured 6 – 15 feet in diameter.

Trade was important with goods generally traveling east to west and vice versa. Items such as *olivella* and *haliotis* shells, salmon, and salt traveled east from the coast and valley into the Sierra and beyond. Gray and sugar pine nuts, bows, arrows, and deerskins came down from the Sierra to the Great Valley. Precious goods, such as salt and obsidian, were also traded in the Great Basin. Basketry moved in both directions in the prehistoric trade networks (Wilson and Towne 1978; Levy 1978).

The Spanish made occasional forays into the Central Valley beginning around 1769, with the first written description composed by Pedro Fages in 1772 (ECORP, 2005). By 1776, Miwok territory had been explored by José Canizares. In 1808, Gabriel Moraga again crossed Miwok territory while he led an expedition to identify appropriate sites for the establishment of new missions and to capture Indians who had fled missionary life. In 1813, a major battle was fought between the Miwok and the Spaniards near the mouth of the Cosumnes River.

Though the Northern Sierra Miwok appear to have largely escaped being removed to missions by the Spanish (unlike the Plains Miwok), they were not spared the ravages of European-spread disease. In 1833, an unknown epidemic, which may have been a bout of malaria, raged through

the Sacramento Valley, killing an estimated 75-percent of the native population (ECORP, 2005). When John Sutter erected his fort at New Helvetia, the future site of Sacramento, he had no problem getting the few native survivors to settle nearby. The discovery of gold in 1848, near the Nisenan village of Culloma (also Coloma), drew thousands of miners into the foothills and led to widespread killing and the virtual destruction of traditional Miwok culture.

IONE BAND OF MIWOK INDIANS

The Ione Band of Miwok Indians has continuously used and occupied the lands located in Amador County, the town of Plymouth, and the surrounding areas as part of their traditional territory. The Ione Band is comprised of individuals descended from native people indigenous to present day Amador, El Dorado, Calaveras, San Joaquin, Sacramento and Placer counties, and include the Northern Sierra Miwok, the Locolomne, and Moquelumne tribelets of the Plains Miwok, and the Wapumne, a tribelet of the Nisenan (Theodoratus, 2004). The traditional relationships among these tribelets fostered ease of movement into one another's territories. Their movements and frequent intermarriage were outcomes of devastating impacts to their native population and culture by successive incursions of non-Indians into their traditional territories.

The turmoil and chaos associated with the increasing incursions by foreigners (Spaniards, Mexicans, and Americans alike), resulted in forced tribal mobility that disregarded traditional boundaries in order to avoid total annihilation (Theodoratus, 2004). Native inhabitants of the region drifted in search of a safe, stable environment with resource provisions. One Mexican land grant, the Arroyo Seco Rancho, offered a habitation site of relative sanctuary. The Arroyo Seco Rancho was a grant of 11 square leagues encompassing portions of Sacramento, Amador, and San Joaquin counties. The grant was made in 1840 to Teodosia Yorba by then-Governor Alvarado. A patent was issued in 1863 for 48,857.52-acres to a group of White settlers; however, the Indian occupants remained on the land through succeeding ownership changes (Shumway in Theodoratus, 2004). Ancestors of the present day Ione Band occupied land within and around Amador County, where they have lived continuously since at least 1840.

In the early part of the 20th century, the U.S. government attempted to purchase and set aside lands for Indians of California (Theodoratus, 2004). In 1917, the BIA recognized the pressing need to secure land for the Tribe. Land located in the Tribe's aboriginal area was identified for purchase to serve the needs of the Tribe. At that time, the U.S. formally proposed to purchase a forty-acre parcel located in Amador County as trust lands for the Ione Band. However, the U.S. never completed the transaction because the government was not able to obtain clear title to the land. Although clear title to this parcel was never achieved, some members of the Ione Band continued to occupy the land. Today, individual tribal members currently hold title in fee. As a result, the Tribe had no land base since being dispossessed of their land in the mid-1800s. The Ione Band received confirmation of their federal recognition through a directive from Assistant

Secretary of Indian Affairs Ada Deer on March 22, 1994, yet no lands are currently held in trust by the Federal government.

3.6.5 HISTORICAL CONTEXT OF PROJECT AREA

Although the Spanish had made forays into the Central Valley since about 1769, it was not until 1808 that Capitán Gabriel Moraga explored and named the Sacramento area (Lawson 2001). Other than fighting with the Indians, as in 1813 when Luis A. Arguello fought a major battle with the Miwok near the mouth of the Cosumnes River, the Spanish took little interest in the area (Wilson and Towne, 1978). In 1827, American trapper Jedediah Smith traveled up the Sacramento River and into the San Joaquin Valley to meet other trappers of his company he had left encamped there, but no permanent settlements were established (Peak & Associates 1997).

In 1839, John Augustus Sutter, a Swiss émigré, set foot on the banks of the American and Sacramento Rivers' confluence with expectations of building an agricultural empire. Mexican Governor Juan Bautista Alvarado assisted in this dream by granting Sutter a 48,000-acre tract of land known as the New Helvetia Land Grant, the present-day site of Sutter's Fort (Owens 1994). The Spanish had traveled into the Central Valley as early as 1769; fur trappers traversed the Sacramento River, but it remained for Sutter to establish the first permanent settlement. Sutter engaged hundreds of Native Americans, the majority of them former residents of the Spanish Missions for labor in the fields and in construction. Sutter's Fort became a Mecca for thousands of immigrants traveling the Overland Emigrant Trail, in need of rest and fresh supplies after the arduous trek across Carson Pass. However, the future of California changed dramatically when John Marshall discovered gold in a flume at Sutter's lumber mill on the South Fork of the American River near the Nisenan village of Culloma (Coloma) in 1848.

As a direct result of the gold rush, numerous mining towns arose seemingly overnight within the Foothills. Although many of these claims and towns were short-lived, some became long-term settlements. One such location was a 120-mile-long belt of gold mineralization called the Mother Lode. Argonauts from a variety of ethnic backgrounds and social classes prospected along this corridor that ran through western Amador County. The County was created in 1854, and named for the gold miner and native Californian Jose Maria Amador. Although Amador County was one of the smallest mining counties in California, it proved to be one of the most prosperous areas, producing \$180 million (Clark 1979:73). Its streams possessed some of the finest placer deposits at the time.

The town of Plymouth is one of the mining camps along that belt of mineralization that survived the transition from camp to town. When the post office was established in 1871, the name changed to Plymouth, after the nearby Hooper's Plymouth Mine (Hoover et al. 1990; Gudde 1969).

The project area lies within the Plymouth-Jackson Mining District. Its history reflects the economic and agricultural development of Amador County, as well as the commerce and trade between outlying mining camps. Some of the earliest California gold mining took place along gulches that stretched to the Foothills of the Sierra Nevada Mountains. Captain Charles M. Weber, founder of the City of Stockton, is credited for finding the first gold in Amador Country in 1848 (Hoover et al. 1990).

The discovery of the immense belt of gold-bearing rock known as the Mother Lode drew new attention to the area in the 1850s-1860s. As early as 1851, a quartz mill had been built along Amador Creek. By 1866, Rick Stretch, a civil engineer and mining expert at that time, recorded 296 stamps employed on fifteen mines in the County (Stretch 1879: 5-8). The Kennedy, Keystone, Empire and Plymouth Consolidated Mines were some of the most renowned and productive quartz mines in the Sierra, but other smaller ones played an important role in the history of Amador County.

Dr. Thomas Boyson was involved in numerous patenting transactions. The Pioneer and Boyson mining claims were first filed in 1860 but exact locations are unclear (Windmiller and Osanna 2001: 6). Records do not indicate a transfer of ownership, yet a mining deed dated May 9, 1880 shows the Pioneer Quartz Mine sold by John Evans to his son Lawrence Evans, for the sum of one dollar. The mine was located “one mile south of the town of Plymouth” and described as a “gold bearing quartz lode” (Amador County 1881:532). The Pioneer Quartz Mine consisted of 19.77-acres in 1881. In the 1880 Plymouth census, Lawrence Evans was listed as a 22 year-old single, white male California resident who lived with his English immigrant parents. Both he and his father stated their occupation as workers in quartz mines. In 1882, Lawrence recorded his mine with the General Land Grant office, which in turn assigned the claim Lot No. 87 (General Land Office 2004). The plat indicates the presence of three mineshafts.

While the majority of people drawn to the Jackson-Plymouth area were miners, many came to homestead and pursue an agrarian lifestyle. Dry farming, which was typical for this area, produced grapes, walnuts, pears, and various farm products (Hoover et al. 1990). Michael Butler, an Irish immigrant, with his wife Laura and their seven children, homesteaded 160-acres to the west of the Pioneer Quartz Mine. His property included the northwest portion of section 14, Township 7N, Range 10E; the northern half of the northeast portion of section 15, T7N, R15E; and the northeast portion of section 15, T7N, R10E. Alfred B. Summers owned approximately 123-acres to the south of Butler’s land in 1895 (General Land Office 2004).

In the Eighth Annual Report of the State Mineralogist, “Messrs. Ballard & Martin” were noted for having eight claims one mile south of the center of the town of Plymouth. The most noted was the New London Quartz Mine that lies directly north of the Pioneer mine. The other claims Ballard and Martin owned were the Martin, Pioneer, Ballard, Humboldt, Central, and two other

unnamed claims (Ireland 1888: 49-50). Between 1888 and 1893 records indicate Ballard and Martin conveyed title and rights to land in and around Plymouth to Dr. Boyson. Included was a quarter interest in the Illinois Quartz Mine.

The New London Quartz Mine, also known as the Lucille Gold Mining Company, a “corporation framed under the laws of Great Britain,” was physically and financially involved with the Pioneer Quartz Mine (Logan 1934:99). In 1894, Boyson deeded rights to run tailings across the Pioneer Mine to the Lucille Quartz Mine (Amador County 1894: 412).

Quartz mining production in the 1850s required a different type of extraction and processing than that used in Placer mining. By the 1890s, the quartz mines and stamp mills produced the majority of California’s gold output (JRP/CA DOT 2000:51). The 1894 State Mineralogist Report noted that the Pioneer Quartz Mine, though idle for many years, was “rehabilitated in the fall of 1893; new hoisting works” built and mining began again. A new shaft had been sunk to a depth of 300 feet revealing high-grade ribbon rock. Boyson’s holdings in quartz mines also included the Chief Mine adjoining the east boundary of the Pioneer Mine (Ireland 1894:78-79)

In 1895, Boyson, along with John Barton, John Currey, L. F. Reichling, and George Goodman, formed a private corporation entitled the Pioneer Gold Mining Company. Boyson had controlling interest with 199,960 shares, the other four shareholders owning 10 shares each. The amount of capital stock of the corporation was listed at a value of \$2 million, placing Boyson’s share at \$1,999,600 (Amador County Archives n.d.) The deed filed with the Secretary of the State of California and the County Recorder’s Office indicates the amount of land that Boyson owned in Amador County (Mining Deed, Book 72, 1895: 440). Boyson also had land that he later sold to the Lucille Mine for a mill site, the Pioneer Quartz Mine, a piece of land called the Central (also known as the Chief) the Boyson Quartz Mine, and the Boyson Extension Mine. In 1896, Boyson added to his holdings and bought 28-acres from his neighbor Michael Butler, along with mining rights on Butler’s land for \$40 worth of gold coin (Quartz Mining Deed, Book 13, 1896: 141). A 1934 map from Boyson’s estate shows the boundaries of the Pioneer Quartz Mine, the Boyson Quartz Mine, as well as the Pioneer Gold Mining Company (Aubury 1903:np). The reader should note that the 1903 map recordation of boundaries for the various claims does not completely delineate the Pioneer Gold Mining Company boundaries.

The 1896 State Mineralogist Report found the Pioneer Quartz Mine “actively in progress” with eight men employed. The owner of the Pioneer Mining Company is listed as R. Robinson, of Plymouth (Crawford 1894: 75). Proof of Labor documents from 1899 record “20 feet of drift tunnel besides open cuts” in the Boyson Extension Mine; and “30 feet of drift tunnel besides open cuts” in the Boyson Quartz Mine. The Pioneer Gold Mining Company paid for all the labor (Amador County Archives File #3127.2 and File #3127.3).

Dr. Boyson moved to Plymouth in 1903, perhaps to be closer to his investments. He acquired two-fifths ownership of two mining claims known as the Blue Jay and the Klondike Quartz mines from Italian immigrants Peter and Louis Foppiano of Drytown for failing to deliver their share of the assessment work (Amador County Archives File #3127.3). The 1903 Register of Mines and Minerals reported that Dr. Boyson owned one mill named Pioneer, which had 20 stamps that could each pound 750 pounds.

Boyson continued to buy and sell quartz-mining interests into the early 1900s. He registered a quartz patent for the Green Quartz Mine located in sections 2 and 15 of T7N, R10E (General Land Office 2004) and purchased one-half interest in the Bona Fortuna Mill site from Louie Foppiano. Two months later he quit claimed the Bona Fortuna Quartz Mine to Mannie Foppiano (Mining Deed 1/24/10; 3/9/10).

By 1915 the Pioneer Mine was idle once again due to a caved in, 550 foot shaft. Little is written about the Pioneer Mine or the Pioneer Gold Mining Company again until 1935 when the Amador County Recorder's Office published the estate of Boyson on a map indicating his holdings in section 11, 14 and 15 (map from Amador County Probate Office, December 14, 1935). Lode mining required more capital and greater geologic knowledge than the previous forms of placer mining.

In the late 1930s, another attempt was made to restore the Pioneer Mine by the Associated Mining Company, its new owner. They rehabilitated the property and built a new surface plant that included a "60-foot head frame, compressor and hoist house, charge house, repair shop, office and mill. Operations were on a two-shift basis at present, with about 20 men employed under the direction of B. C. Clark, Superintendent" (Windmiller and Osanna 2001: 8).

3.6.6 CULTURAL RESOURCES

RECORDS AND LITERATURE SEARCH

A literature and records search of the California Historical Resources Information System was completed August 13, 2003, at the North Central Information Center (NCIC), California State University-Sacramento (**Appendix K**). The NCIC, an affiliate of the State of California Office of Historic Preservation, is the official state repository of archaeological and historic records and reports for a six-county area that includes Amador County, and is housed at Sacramento State University in Sacramento, California.

Archival research indicates that one prior archaeological study has been undertaken within a portion of the project area: Phase I Inventory of Cultural Resources Pioneer Mine Project, Plymouth, Amador County, California (Windmiller and Osanna 2001). Windmiller and Osanna's 2001 study of a portion of the current Area of Potential Effect (APE) resulted in the positive identification of seven cultural resources within the proposed project boundaries (**Appendix K**).

All of the resources identified by Windmiller and Osanna were evaluated for listing on the California Register of Historical Resources as mandated by CEQA and found to be ineligible (Windmiller and Osanna, 2001). The records search also revealed the presence of cultural resources recorded in close proximity to the project area.

In addition to the official records and maps for archaeological sites and surveys in Amador County, the following historic references were also reviewed: The National Register of Historic Places- Listed Properties (National Park Service 2004); California Historical Landmarks (Office of Historic Preservation 2004); California Points of Historical Interest (1992 and updates); Gold Districts of California (1979); California Gold Camps (Gudde 1975); California Place Names (Gudde 1969); Survey of Surveys (Historic and Architectural Resources) (1989); Directory of Properties in the Historical Resources Inventory (1999); Caltrans Local Bridge Survey (1989); Caltrans State Bridge Survey (1987); and Historic Spots in California (Hoover et al. 1990).

FIELD SURVEY METHODS AND RESULTS

An archaeological survey for the project site was conducted between August 14, 2003 and June 14, 2004, by archaeologists with ECORP Consulting, Inc. (**Appendix K**). The survey was designed to identify historic and prehistoric sites, artifacts, and features within the previously unsurveyed portions of the APE (**Appendix K**). Survey transects were spaced 15 to 25 meters apart over the previously unsurveyed portions of the project area. Previously surveyed areas were inspected to confirm the locations of previously recorded cultural resources. The survey was conducted to the standards set by the Secretary of the Interior (National Park Service 1990, 1983).

The previously recorded resources were field checked and monitored. All resources appeared to be in the same condition as when they were originally recorded. Photos were taken of the previously recorded resources (**Appendix K**). Field reconnaissance identified three previously unrecorded historic resources (EC-04-02, EC-04-04, and EC-04-05). The sites were recorded with the State of California's primary, archaeological, and linear resource forms. Several isolates were also noted, both during Windmiller and Osanna's 2001 survey and ECORP's field investigations. These resources typically consist of non-diagnostic fragments of glass, ceramic, or metal; or isolated shallow prospect pits with no associations. Several wooden or metal claim marker posts were also noted. Brief descriptions of previously and newly recorded sites are found in **Table 3.6-1**.

Criteria for Evaluation – 36 CFR Section 60.4

The eligibility of a resource for listing in the NRHP is determined by evaluating the resource using criteria defined in 36 CFR 60.4 as follows: *The quality of significance in American history, architecture, archaeology, and culture is present in districts, sites, buildings, structures, and objects of state and local importance that possess integrity of location, design, setting, materials, workmanship, feeling, association, and*

TABLE 3.6-1
RECORDED CULTURAL RESOURCES WITHIN PROJECT AREA

Site Name/Number	Description
Pioneer Mine District	District containing structures & features associated with mining operations during 1860s, 1890s, and 1930s.
RWCA-01-PM-Site-01	Pioneer Mine and associated features. Part of Pioneer Mine District.
RWCA-01-PM-Hoist Room	Two-story corrugated metal building that once contained hoist works for the Pioneer Mine. Part of the Pioneer Mine District.
RWCA-01-PM-Site-02	Segment of mining ditch dating from late 1800s; partially destroyed by later (1930s) mining activity. A portion of the ditch extends through the Pioneer Mine District.
RWCA-01-PM-Site-03	Segment of split rail and barbed wire fence.
RWCA-01-PM-Site-04	Abandoned powerline, represented by a cut pole of non-treated timber with a ceramic insulator.
RWCA-01-PM-Site-05	A collection of mining features (adits, prospects, and one shaft) with associated tailings.
RWCA-01-PM-Site-06	A collection of six mining features (adits and prospects) with associated tailings.
EC-04-02	Two segments of a mining ditch
EC-04-04	Four segments of a mining ditch
EC-04-05	Historic refuse scatter, four prospecting pits

Source: Windmiller and Osanna, 2001; ECORP, 2005

- (a) *That are associated with events that have made a significant contribution to the broad patterns of our history;*
- (b) *That are associated with the lives of persons significant in our past;*
- (c) *That embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or*
- (d) *That has yielded, or may be likely to yield, information important to prehistory or history.*

In addition to meeting at least one of the criteria listed above, the property must be over 50 years old, unless of exceptional importance, and also retain enough integrity to enable it to convey its historic significance. The National Register recognizes seven aspects or qualities that, in various combinations, define integrity (NPS 1990). These seven elements of integrity are: location,

design, setting, materials, workmanship, feeling, and association. To retain integrity a property will always possess several, and usually most, of these aspects.

While most historic buildings and many historic archaeological properties are significant because of their association with important events, people, or styles (criteria a,b, and c), the significance of most prehistoric and some historic-period archaeological properties is usually assessed under criterion d. This criterion stresses the importance of the information contained in an archaeological site, rather than its intrinsic value as a surviving example of a type or its historical association with an important person or event. It places importance not on physical appearance but rather on information potential.

Each of the recorded archaeological sites, the one standing building, and the historic district were evaluated according to the above criteria. None of the identified cultural resources meet the criteria needed for inclusion in the NRHP. Isolated artifacts and features are considered inherently ineligible for nomination to the NRHP unless they display exceptional characteristics that would bestow unusual significance, such as being the oldest or best-preserved representative of a rare artifact type. None of the isolates recorded within the project area display any exceptional qualities. For complete descriptions and evaluations of each site, see **Appendix K**.

Contemporary Resources

Several contemporary resources that were noted, but not formally recorded include: a landing strip; a single-family residence and a hotel located within the northeast quarter of section 15, just east of SR 49; and a second single-family residence located in the northeast ¼ of the northwest ¼ of section 14.

- Landing strip is depicted on the current topographic map and is little more than a relatively flat spot in a field, in the NW ¼ of the NE ¼ of section 14
- Contemporary Resource #1 is a single-family residence built in 1984 (pers. comm. Ron Haueter, August 2003)
- Contemporary Resource #2 is the Shenandoah Inn was built about 1989 (pers. comm. Evette, June 2004)
- Contemporary Resource #3 is a single-family residence built in 1972 (pers. comm. Laura La Frank, June 2004)

Native American Consultation Results

The Native American Heritage Commission (NAHC) was consulted for potential areas of Native American concern regarding the project area. Letters detailing the proposed undertaking were mailed to the Native American Contacts. Follow-up contact with the Native American individuals was completed and resulted in no comment or concern expressed from those contacted. All the information sent and received from NAHC, Native American individuals and

organizations, or Federally Recognized Tribes are included in the record of consultation (**Appendix K**).

3.7 SOCIOECONOMIC CONDITIONS AND ENVIRONMENTAL JUSTICE

This section addresses the existing socioeconomic conditions of the Tribe, Amador County, and surrounding communities. Topics include population, housing, employment, property taxes, community infrastructure, and environmental justice. The general and site-specific profiles of the existing socioeconomic conditions contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

3.7.1 SOCIOECONOMIC CHARACTERISTICS OF THE IONE BAND OF MIWOK INDIANS

POPULATION

The Ione Band of Miwok Indians has 652 members (**Table 3.7-1**). Based on an economic survey distributed to members of the Tribe (32-percent of which responded), 44-percent are unemployed with 18-percent receiving social assistance payments. It has been estimated that about 81-percent of all members have incomes below the national median income level¹.

TABLE 3.7-1
SOCIOECONOMIC PROFILE OF THE IONE BAND OF MIWOK INDIANS

Category	Ione Band
Tribal Enrollment	652
Age Distribution of Tribal Members	
Under 18	386
Over 18	266
Employment and Income^B	
Percent Employed	56
Percent with Incomes of Less Than \$10,000	30
Percent with Incomes of Less Than \$40,000	67
Percent with Incomes Below the National Median Income Level	81
Percent of Members Receiving Social Assistance Payments	18

Source: ^A Ione band of Miwok Indians, 2005;

^B GVA, 2004. Based on a 32 percent survey response.

TRIBAL GOVERNMENT

The Tribe is governed by a tribal council consisted of 5 members; under a constitution ratified by members on March 12, 2002. The BIA has subsequently approved the new constitution, tribal membership rolls, and elected tribal council members. Being Federally recognized, the Tribe is

¹ Three year average national median income (2001-2003) reported by US Census Bureau was \$43,527.

eligible to acquire land for reservation purposes, however no land is currently held in trust by the BIA.

TRIBAL ATTITUDES, EXPECTATIONS, LIFESTYLE AND CULTURE

Both the Tribal government and individual Tribal members participate in area political and social activities. Tribal children attend schools located primarily in Amador and Sacramento Counties, and various Tribal members of age are employed by local businesses. Altogether, tribal attitudes and expectations promote increasing participation in and benefit from the regional economy, with continuation of the long tradition of comfortable coexistence and cooperation with their non-Indian neighbors.

3.7.2 SOCIOECONOMIC CHARACTERISTICS OF THE AMADOR COUNTY REGION

POPULATION

According to the data in **Table 3.7-2**, the population in Amador County grew 16.8-percent from the 1990 census to the 2000 census (CDOF, 2007). The County's population grew an additional 10-percent from the 2000 Census to existing conditions (2007). The County's population is projected to increase approximately 8.5-percent by 2020 (CDOF, 2004b). Locally, the City's population increased by 20.8-percent from the 1990 census to the 2000 census (US Census 2000), while the City's population grew an additional 7.1-percent from the 2000 census to existing conditions (2007)(CDOF, 2004c). According to the City of Plymouth General Plan (amended 2001), the population is anticipated to grow to 1,880 persons in 2020, an increase of 80-percent compared to existing conditions, (City of Plymouth, 2001). As shown in **Table 3.7-2**, the majority of the population of Amador County resides in unincorporated areas. The County's largest cities are Ione and Jackson, with Plymouth being a relatively smaller incorporated area.

TABLE 3.7-2
REGIONAL POPULATION ESTIMATES

Location	1990	2000	2007
Amador County (total)	30,039	35,100	38,435
Plymouth	811	980	1,050
Jackson	3,545	3,989	4,317
Ione	6,516	7,129	7,842
Sutter Creek	1,835	2,303	2,945
Amador City	196	196	214
Unincorporated County	17,136	20,503	22,067

Source: California Department of Finance, 2007.

HOUSING

According to the data in **Table 3.7-3**, the total number of housing units in Amador County grew by 17.3-percent from 1990 to 2000. In 2000, the vacancy rate was 15.1-percent with approximately 10.8-percent of units being identified as seasonal, recreational, or occasional use residences. In January 2004, the housing units grew to an estimated 16,020 units, with a vacancy rate of 15-percent (CDOF, 2004c). Based on the ratio of seasonal, recreational, and occasional use units vacant to the total units shown in the 2000 Census and recent total vacancy rates, it is estimated that approximately 689 units² are vacant in Amador County (US Census 2000; CDOF, 2004c). Of the total housing stock in the county, 81.6-percent are single-family homes, 7.6 percent are multi-family homes, and 10.7 percent are mobile homes. In 2000, the median value of owner-occupied housing units in the county was \$153,700 and the median contract rent was \$568 per month. The General Plan's Housing Element estimates that nearly 20 percent of homeowners were overpaying for housing (paying more than 30-percent of gross income for rent or mortgage) and that nearly 40-percent of renters were overpaying for housing (Amador County, 2005).

TABLE 3.7-3
2004 REGIONAL HOUSING ESTIMATES

Location	Total Housing Units	Percent Vacant ¹	Estimated Vacant Units ²
Amador County (total)	16,020	4.3	689
Plymouth	500	6.9	35
Jackson	1,928	3.8	73
Ione	1,350	5.4	73
Sutter Creek	1,199	4.9	59
Amador City	98	1.0	1
Unincorporated County	10,945	4.1	448

Notes: ¹ Percent Vacant is based on the ratio of seasonal, recreational, and occasional use vacant units to total vacant units shown in the 2000 Census and estimated January 2004 vacancy rates provided by the California Department of Finance.

Source: CDOF, 2004a; US Census 2000.

The number of housing units in Plymouth grew by 27.3-percent from 1990 to 2000 (US Census 1990 and 2000). In 2000, the vacancy rate was 14.2-percent, with approximately half of the vacant units (7.4-percent of total units) being identified as seasonal, recreational, or occasional use residences (**Table 3.7-3**). In January 2004, the number of housing units grew to an estimated 500, with a vacancy rate of 15-percent (CDOF, 2004c). Based on the ratio of seasonal, recreational, and occasional use vacant units to total units shown in the 2000 Census and recent total vacancy rates, it is estimated that approximately 35 units³ are vacant in Plymouth (US

² This figure does not include seasonal, recreation, or occasional use residences.

³ This figure does not include seasonal, recreation, or occasional use residences.

Census 2000; CDOF, 2004c). The number of housing units in Plymouth accounts for a very small portion of the total number of units in Amador County. The General Plan’s Housing Element identifies that approximately 139 rental units existed in the City of Plymouth in 2000 (Amador County, 2005). Based on this ratio, and the total number of housing units presented in **Table 3.7-3**, it is estimated that by 2004 there were approximately 175 rental units in the City of Plymouth.

EMPLOYMENT

Within this document, labor force will be generally defined as those who are employed and those who are unemployed, but are actively seeking work. As shown in **Table 3.7-4**, Amador County has an estimated labor force of approximately 15,390 and estimated employment of 14,630 as of April 2004, resulting in an unemployment rate of 4.9-percent (EDD, 2004a). This rate is slightly less than the State of California’s unemployment rate of 6.1-percent and the national unemployment rate of 5.4-percent. The employment/housing ratio⁴ for Amador County’ was one-point-one to one (1.1/1) in 2000 (FedStats, 2004). In 2000, employment in Amador County centered around government, services, and retail trade sectors. Together these industries accounted for 77.6-percent of the total employment in the County. **Table 3.7-5** is a list of the major employers in Amador County during 2002. In April 2004, Plymouth had an estimated labor force of approximately 470, with no reported unemployment (EDD, 2004a).

TABLE 3.7-4
REGIONAL LABOR FORCE ESTIMATES

Location	Labor Force	Reported Unemployment	Unemployment Rate
Amador County (total)	15,390	760	4.9%
Plymouth	470	0	0%
Jackson	1,920	90	4.8%
Ione	1,740	60	3.3%
Sutter Creek	1,240	50	3.8%
Amador City	180	0	0%
Unincorporated County*	9,840	560	5.7%

Notes: * Not reported by EDD. Figures estimated from City and County figures.
Source: EDD, 2004a

PROPERTY TAXES

For the fiscal year 2005-2006, the total collection of secured and unsecured property tax revenues by Amador County was \$9,890,000 (Amador County, 2006). The current base and fixed property

⁴ Based on year 2000 full and part time jobs by place of work of 16,644 divided by the year 2000 number of housing units of 15,035 (2002 units [15,490] – 2000 to 2002 net change [455] = 15,035). 16,644/15,035 = 1.1/1.

tax collected on the proposed fee-to-trust parcels for the tax year 2005-2006 is \$35,820.20, approximately 0.4-percent of the County total for the same period.

TABLE 3.7-5
MAJOR EMPLOYERS AND MANUFACTURERS IN AMADOR COUNTY

Employer Name	Industry
California Youth Authority	Public Administration (Government)
Jackson Rancheria Casino Hotel	Misc. Amusement, Recreation Services
K Mart	Department Stores
Mule Creek State Prison	Public Administration (Government)
Preston Youth Correctional Facility	Correctional Institution
Sierra Pine	Sawmills and Planing Mills
Sutter Amador Hospital	Hospitals
US Forest Service Ranger Station	Forestry Services
Volcano Vision	Cable & Other Pay Television Services
Wal-Mart	Department Stores

Source: EDD, 2004c

COMMUNITY INFRASTRUCTURE

Schools

Amador County Unified School District (District) provides education for grades K-12 throughout Amador County. Two schools are located within the City of Plymouth: Monarch Montessori is located at 9282 Main and Plymouth Elementary School, associated with the District, is located at 10601 Sherwood Street, both approximately one mile north of the project site. Monarch Montessori offers preschool education for students age two through six. Plymouth Elementary School offers K-6 education within the City of Plymouth. Students in Plymouth attending grades 7-8 attend the Ione Junior High School located at 450 South Mill Street in Ione and are within the District’s boundaries. The nearest middle school is Ione Junior High and is located approximately 10 miles southwest of the project site. Plymouth students graduate from Amador High School, located at 330 Spanish Street, Sutter Creek; approximately 7 miles southeast of the project site.

Amador County School Superintendent has indicated that all public schools within the County are currently at or beyond their existing capacity (**Appendix L**). The current capacity of the schools has been extended with the use of portable classrooms; however, most of the school sites do not provide an adequate area of space available for future classroom capacity estimates. The minimum recommended acreage for elementary school sites in Amador County is 10-acres (Carey, 2004). Only two of the seven elementary school sites are 10-acres or larger. In 2004, the District completed a five-year facilities master plan, which revealed that enrollment would continue to grow steadily to the year 2009. The number of classrooms needed and available over

the next five years for K-12 schools was projected using the District’s planned project schedules and expenditures. Based on the expected addition or removal of classrooms over the next five years, the District is projected to have an excess of six classrooms for grades K-12 by the year 2008 (Government Financial Strategies, Inc., 2004). In the facilities master plan, Ione Elementary, Sutter Creek Elementary, and Argonaut High School were the only schools projected to have a shortfall of classrooms. The capacity, current enrollment, 5-year projected enrollment, and 5-year projected excess or shortfall of classrooms are all shown in **Table 3.7-6**.

TABLE 3.7-6
AMADOR COUNTY SCHOOL DISTRICT CAPACITY AND ENROLLMENT

School	Current Student Capacity	Current Student Enrollment	5-Year Projected Student Enrollment	5-Year Projected Excess or [Shortfall] ¹ of Classrooms ²
Ione Elementary	500	509	567	[3]
Jackson Elementary	400	429	467	0
Plymouth Elementary	200	201	201	2
Pioneer Elementary	250	247	249	2
Pine Grove Elementary	300	296	316	4
Sutter Creek Elementary	375	386	492	[3]
Ione Junior High	500	509	531	0
Jackson Junior High	350	383	396	5
Amador High School	750	882	767	4
Argonaut High School	675	678	783	[5]
District Totals	4,300	4,520	4,769	6

¹ Numbers in [brackets] represent the projected shortfalls of classrooms for 2008; numbers without brackets represent the projected number of classrooms in excess in 2008.

² Number of classrooms projected for 2008 includes classrooms expected for addition or removal over the next five years.

SOURCE: Carey, 2004; Government Financial Strategies, Inc., 2004.

Site expansions and new school sites are currently being considered based on the master plan. Due to the minimum amount of space available for expansion on existing school sites, a new elementary school and/or junior high school will need to be built in order to accommodate future educational demand in the District. A new residential community in Sutter Hill, proposed by Gold Rush Properties, includes plans for a new junior high school that would encompass all students in grades 7-8. Future plans may also include a new elementary school in the Sutter Creek area and a new high school that would serve all county students in grades 9-12 (Carey, 2004). The District is currently preparing an updated facilities master plan including the addition of a new junior high school.

Planned projects over the next five years, including the addition and removal of classrooms at Ione Junior High School and Argonaut High School, is estimated to cost approximately \$16.38 million after factoring in inflation (Government Financial Strategies, Inc., 2004). The total funds available for the projects planned in the facilities master plan is approximately \$24.49 million, which exceeds the total inflation adjusted costs of planned projects. This indicates that sufficient funds are available for the planned District expansion and improvement projects over the next five years. Primary financing for the expansion of school facilities will be provided by state aid and local property taxes, discussed in detail below.

California's system for funding public schools is largely based on voter and judicial decisions. Since Proposition 13 was passed in 1978, the school districts' ability to exert substantial control over their revenues was passed to the Governor and Legislature. Revenue limits for each district were set according to the district's expenditures on general education programs. Proposition 98, approved in 1988, also provided a measure of security by guaranteeing a minimum amount of support for public education.

The main source of funding for K-12 schools comes from the state and derives from local property tax, business, corporate, and personal income taxes, sales taxes, and some special taxes. Additional funding comes from the federal government, miscellaneous local revenues, (i.e., commercial or residential construction fees, special elections for parcel taxes, contributions from parents, etc.), and a portion from the California Lottery. Each district's income is based on the average number of students attending school during the year (ADA), the general purpose (revenue limit) money the district receives based on ADA, and special support (categorical aid) from the state and federal governments. **Table 3.7-7** lists the general fund revenues provided to the Amador County Unified School District in the school year of 2002-2003. Based on the facilities master plan, the projected funds available over the next five years are sufficient to cover expenditures each year, indicating that the current schedule of projects is feasible.

As shown in **Table 3.7-7**, property taxes constitute approximately 65-percent of the District's revenue. The current annual property tax rate for the project site is \$35,820 for the 2005-2006 tax year. The distribution of property taxes to City and County funds is dependent on the Tax Rate Area (TRA) for the individual parcel. Eight of the twelve parcels on the property are located within TRA 003-000 of the City of Plymouth and the remaining four are located within TRA 052-086 of Unincorporated Amador County. Within TRA 003-000, 33.2-percent of property taxes are distributed to the school district, 14.24-percent are distributed to the Educational Revenue Augmentation Fund (ERAF), and 1.6 percent is distributed to the County Office of Education. Within TRA 052-086, 50.5 percent of property taxes are distributed to the school district, 10.5-percent are distributed to the Educational Revenue Augmentation Fund (ERAF), and 2.4-percent is distributed to the County Office of Education. Based on these percentages and the current property tax rate of \$35,820 for the proposed project area, approximately \$13,400 would be

distributed to the school district, \$4,775 would be distributed to ERAF, and \$643 would be distributed to the County Office of Education.

TABLE 3.7-7
AMADOR COUNTY SCHOOL DISTRICT REVENUES FOR 2005-2006

Title	Total Dollars	Dollar Amount per Student (ADA)	Percentage
Revenue Limit Sources			
State Aid	\$3,669,718	\$841	12.4%
Local Property Taxes & Fees	\$19,158,093	\$4,389	64.8%
Federal Revenues	\$1,229,799	\$282	4.2%
Other State Revenues	\$4,757,515	\$1,090	16.1%
Other Local Revenues	\$746,382	\$171	2.5%
Total Revenues	\$29,561,506	\$6,773	100%

SOURCE: Ed-Data, 2004.

Libraries

Five Amador County Public Libraries are located within 12 miles of the project site. The closest library is the Plymouth Branch of the Amador County Public Library located at 9375 Main Street, approximately 1 mile northeast of the project site.

Parks and Recreation

According to the City of Plymouth General Plan, there are approximately 39-acres of parkland within the City. Most of the 39-acres of parkland are accounted for by the Amador County Fairgrounds, the Plymouth City Park, Lodgehill Park and playgrounds, and open space on public school lands. The Amador County Fairgrounds are located approximately one mile north of the project site and are available to City residents for a variety of public or private recreational uses (City of Plymouth, 2001).

3.7.3 ENVIRONMENTAL JUSTICE

POLICY/REGULATORY CONSIDERATIONS

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority and Low-Income Populations*, as amended, directs Federal agencies to develop an Environmental Justice Strategy that identifies and addresses disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations. The Council on Environmental Quality (CEQ) has oversight responsibility of the Federal Government's compliance with Executive Order 12898 and NEPA. The CEQ, in

consultation with the EPA and other agencies has developed guidance to assist Federal agencies with their NEPA procedures so that environmental justice concerns are effectively identified and addressed.

According to the CEQ's *Environmental Justice Guidance Under the NEPA*, agencies should consider the composition of the affected area, to determine whether minority populations, low-income populations, or Indian tribes are present and within the area affected by the proposed action, and if so whether there may be disproportionately high and adverse environmental effects. Communities may be considered "minority" under the executive order if one of the following characteristics apply:

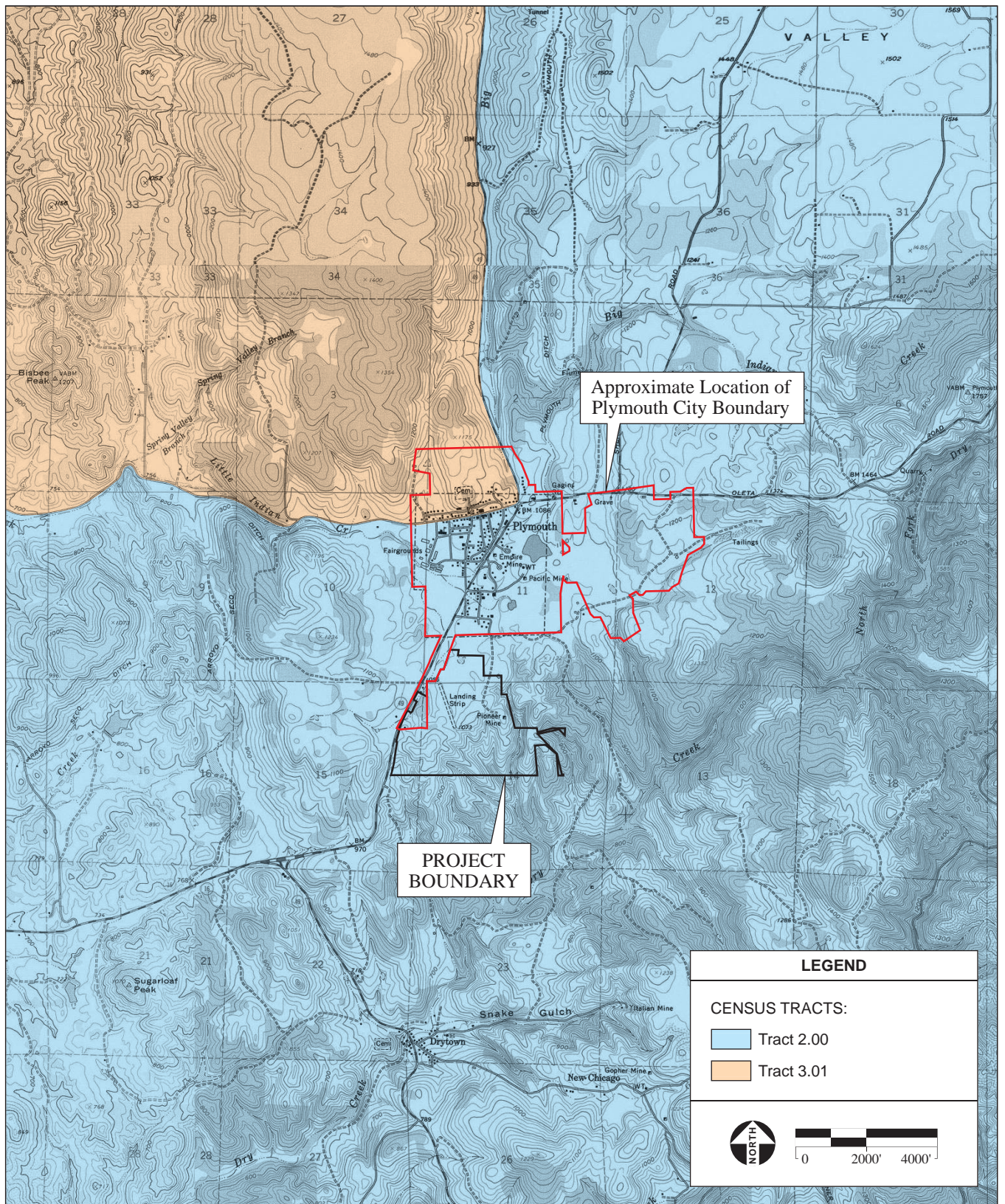
- The cumulative percentage of minorities within the affected environment is greater than 50-percent (primary method of analysis) or
- The cumulative percentage of minorities within the affected environment is meaningfully greater than the minority population percentage in the general population or other appropriate unit of geographic analysis (secondary method of analysis).

Communities may be considered "low-income" under the executive order if one of the following characteristics applies:

- The median household income for a census tract is below the poverty line (primary method of analysis) or
- Other indications are present that indicate a low-income community is present within the census tract (secondary method of analysis).

AFFECTED ENVIRONMENT

To determine whether a proposed action is likely to have disproportionately high and adverse effects on a population, agencies must identify a geographic scale for which they will obtain demographic information. Census tracts are a small, relatively permanent statistical subdivision of a county delineated by a local committee of census data users for the purpose of presenting data. Census tracts are designed to be relatively homogeneous units with respect to population characteristics, economic status, and living conditions at the time of establishment. Therefore, statistics of census tracts provide a more accurate representation of a community's racial and economic composition. Amador County Census Tracts 2.00 and 3.01 were selected since these areas are most closely associated with the affected environment, although they are undoubtedly somewhat larger (**Figure 3.7-1**). The project area is contained within Census Tract 2.00 with Census Tract 3.01 covering an area to the north and the west of the project site. These census tracts provide demographic coverage for the entire City of Plymouth.



SOURCE: "Amador City, CA" USGS 7.5 Minute Topographic Quadrangle, Sections 11, 14, & 15, T7N, R10E, Mt. Diablo Baseline and Meridian; U.S. Census TIGER Data, 2000; AES, 2005

Ione Band of Miwok Indians EIS / 203525 ■

Figure 3.7-1
Census Tracts

Ethnic Composition

The following races are considered minorities under the executive order:

- American Indian or Alaskan Native
- Asian or Pacific Islander
- Black, not of Hispanic origin
- Hispanic

Table 3.7-8 summarizes Census 2000 data on the racial composition of the two census tracts identified, as well as for Amador County and the City of Plymouth, which are used for comparison of the racial composition of the regional population. Census 2000 data represents the most current racial data available by census tract. Although this data is more than six years old, the racial composition of census tracts is not expected to have changed substantially.

TABLE 3.7-8
ETHNIC COMPOSITION OF AMADOR COUNTY AND AFFECTED AREA

Geographic Area	Hispanic or Latino	Black	American Indian /Alaska Native	Asian	Native Hawaiian /Pacific Islander	Other	Total Minority	White
Amador County	8.9%	3.8%	1.5%	0.9%	0.1%	2.3%	17.5%	82.5%
Census Tract 2.00	5.6%	0.2%	1.3%	0.6%	0.0%	2.2%	10%	90.0%
Census Tract 3.01	22.7%	22.2%	1.8%	2.0%	0.1%	3.4%	52.2%	47.8%

Source: AES, 2007; U.S. Census 2000.

According to the 2000 Census, census tract 3.01 has a total minority population that is 52.2-percent of the total population. Census tract 3.01 is considered to constitute a minority community under the primary method of analysis, since the cumulative minority percentage is greater than 50-percent. The largest minority in this census tract are Hispanic or Latinos and Blacks which each represent approximately 22 percent of the population. Census Tract 3.01 is located to the northwest of the City of Plymouth and covers a large expanse of area. This area is characterized by open spaces with scattered and isolated developments. Census Tract 2.00 is not identified as a total minority population under the primary method of analysis, since the cumulative minority percentage is less than 50 percent of the total population.

For the secondary method of analysis the minority population in the general region is represented by Amador County. In Amador County, the minority population is 17.5-percent of the total population. Relative to Amador County, the total minority percentage of Census Tract 2.00 is slightly below Amador County, and Census Tract 3.01 is substantially greater. Under the secondary method of analysis Census Tract 3.01 is considered to constitute a minority community, since the minority percentage is greater than three times that of the County. Census

Tract 2.00 is not considered to constitute a minority community under the secondary method of analysis, since the total minority population is not meaningfully greater than Amador County's.

Income and Poverty Status

Table 3.7-9 summarizes Census 2000 data of income and poverty status of the two census tracts identified for the project site. Census 2000 data represents the most current median household income data available for census tract divisions.

TABLE 3.7-9
INCOME AND POVERTY STATUS

Geographic Area	Median Household Income*	Average Household Size	Poverty Threshold	Below Poverty Threshold
Amador County	42,280	2.4	\$10,869	9.2%
Census Tract 2	45,280	2.4	\$10,869	10.4%
Census Tract 3.01	48,438	2.6	\$13,290	7.1%

Note: * Income in 1999 Dollars
Source: AES 2007; U.S. Census 2000.

For the primary method of analysis a low-income community is identified by a poverty threshold. Poverty thresholds for Census 2000 income data are found in Table 1 of the U.S. Census Bureau's report *Poverty: 1999 (2003)*, which relates household income to household size rounded up to the nearest integer. Census 2000 average household size data is used to establish the poverty threshold of each census tract. Poverty thresholds for the identified census tracts range from \$13,290 for an average household of three to \$10,869 for an average household of two. For both of the census tracts, the median household income is substantially greater than the poverty threshold, which is demonstrated by the fact that median household income is at least three times as great as the poverty threshold for each of the census tracts identified. Under the primary method of analysis none of the census tracts are considered to constitute a low-income community.

For the secondary method of analysis the percentage of persons below the poverty threshold is evaluated to further characterize poverty in each census tract. The poverty status of the general region is represented by Amador County. In Amador County, 9.2-percent of the population earned income below the poverty threshold. Relative to Amador County, the percentage of persons below the poverty threshold of Census Tract 2.00 is slightly greater than Amador County, while for Census Tract 3.01 is slightly lower than that of Amador County. Since neither of the census tracts had a meaningfully large percentage of the population below the poverty threshold, neither census tract are considered to constitute a minority community under the secondary method of analysis.

3.8 RESOURCE USE PATTERNS

This section describes the existing environmental conditions of resource use patterns for the proposed Amador County project site. Topics include transportation, Land Use, agriculture, and other resource use patterns such as hunting and fishing grounds, timber harvesting, and mining. The general and site-specific profiles of Resource Use Patterns contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

3.8.1 TRANSPORTATION

A traffic impact analysis (TIA) was prepared for this project and is included as **Appendix M** of the Draft EIS. The following is a summary of the existing transportation network, including existing roadway segment and intersection levels of service (LOS), as determined within the TIA.

EXISTING CIRCULATION NETWORK

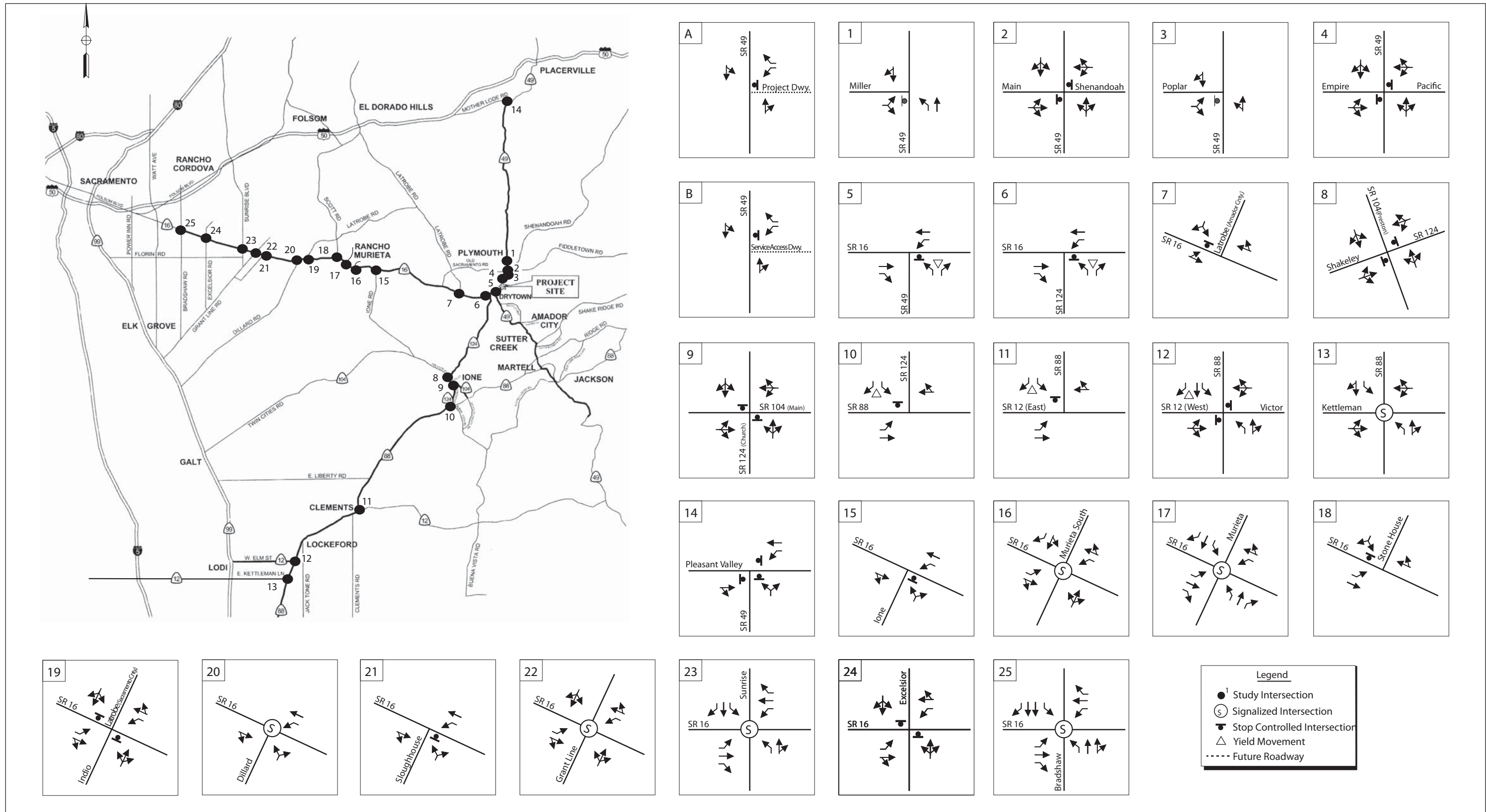
Several state routes, avenues, and roads constitute the existing roadway network servicing the project site. **Figure 3.8-1** illustrates the existing lane configurations. The following are summaries of the major roadways that would serve the project site:

State Route 49 (SR-49) is a north-south, primarily two-lane road extending nearly 300 miles between SR-70 in Plumas County to SR-41 in Oakhurst. The route serves residential and retail development and lacks curb, gutter, and sidewalk near the project site. SR-49 has a posted speed of 45 mph. In the vicinity of the project site, SR-49 has a center two-way left turn lane. It provides access to the site via two driveways.

State Route 12 (SR-12) extends from Highway 1 in Sonoma County and terminates at State Route-49 in Calaveras County. East of SR-99, SR-12 is a 2-lane road with a posted speed of 55 mph.

State Route 16 (SR-16), also known as Jackson Road, originates in Colusa County at SR-20 and terminates at SR-49. SR-16 is 2 lanes wide with a posted speed limit that varies from 55 to 65 mph. SR-16 is a primary access road for SR-49 and the project site.

State Route 88 (SR-88) begins in San Joaquin County at SR-99 and terminates at the California/Nevada border. In the vicinity of the project site, SR-88 is a 2-lane road with a posted speed limit of 55 mph and paved shoulders on each side.



State Route 104 (SR 104) is an east-west route connecting from SR-99 near the City of Galt to SR-88 near the City of Ione. In the vicinity of the project site, SR-104 is a two-lane roadway, which generally lacks curbs, gutters, and sidewalks.

State Route 124 (SR 124) is a 2-lane rural road extending from SR-88 south of Ione to SR-49. It has a posted speed limit that varies from 55 to 65 mph.

Latrobe Road (Sacramento County) is a two-lane rural road with no paved shoulders. It runs between SR 16 and Green Valley Road with a posted speed limit of 55 mph. East of Scott Road, Latrobe Road is also known as Shingle Road.

Sunrise Avenue extends in a southern direction from Eureka Road in the City of Roseville and terminates at Grant Line Road south of the City of Rancho Cordova. Sunrise Avenue provides a direct linkage from Interstate 80 to Highway 50 with widths varying from 2 to 6 lanes. It has a posted speed limit of 55 mph.

Excelsior Road is a 2-lane road with a 55 mph posted speed limit with a southern terminus at Grant Line Road. North of Kiefer Road, Excelsior Road is also known as Mather Boulevard. Excelsior Road is generally rural in nature lacking curb, gutter and sidewalk.

Ione Road is a two-lane rural road between SR-16 and SR-104 with a posted speed limit of 50 mph and no curb, gutter or sidewalk.

Kettleman Lane is an east-west roadway also known as SR-12 west of SR-99. East of SR-99, Kettleman Lane is 2-lanes wide with a posted speed limit that varies between 40 to 45 mph.

Murieta Parkway: The portion of Murieta Parkway located north of SR-16 serves the Rancho Murieta gated community. South of SR-16, Murieta Parkway is a 2-lane road with a posted speed limit of 25 mph with access to the Placerville Airport. Parking is allowed on Murieta Parkway.

Pleasant Valley Road runs in an east-west direction extending from Mother Lode Drive to Cedar Ravine Road. It has a posted speed limit that varies from 25 to 40 mph with no paved shoulders.

Public Transportation

Public transportation throughout Amador County is provided by Amador Regional Transit System (ARTS). Based in the City of Jackson, ARTS links a range of communities through a regulated time and route schedule that runs Monday through Friday. There are six primary lines that service Amador County and one route that is a direct route leading to and from Sacramento. This line, known as the Sacramento/Amador express, departs three times daily with 11 stops along the way.

Within the City of Plymouth there is one line known as the “P” line that runs between the City of Plymouth and the City of Jackson. There are three designated “P” lines departing at three different time intervals and with four designated route stops. In addition, there are three on-call stops for Fiddletown, River Pines and Amador High School that can be arranged by special request.

ARTS will deviate from the regular route within a ½ mile given a 24-hour notice. Once that stop has been approved, ARTS requires only a one-hour notification period. All buses are equipped to accommodate people with special needs and animals that serve to assist with special needs.

Pedestrian Circulation

Field observations indicate that walking and bicycling activity is limited in the immediate vicinity of the project site. This is primarily due to the lack of existing bicycle and pedestrian traffic generators in the vicinity of the project site. However, there also is a lack of curbs, gutters, and sidewalks along SR-49 to accommodate pedestrian activity. On most of the roadways in the study area, bicyclists must ride in the roadway and share the travel lane with vehicular traffic.

EXISTING OPERATING CONDITIONS

Analysis Methodologies

Operating conditions experienced by drivers are described in terms of LOS. LOS is a qualitative measure that includes factors such as speed, travel time, delay, freedom to maneuver, driving comfort, and convenience. LOS ratings are represented as letters ranging from A to F, whereby LOS A represents the best traffic flow driving conditions and LOS F represents the worst traffic flow driving conditions.

Roadway Segments

Roadway segment analysis is based upon the daily traffic volume thresholds established in the 2004 *Amador County Regional Transportation Plan (RTP)* update dated September 15, 2004. The LOS methodology used to analyze the capacity of roadway segments was based on the Level of Service Criteria outlined in the RTP. This methodology examines the Average Daily Traffic (ADT) volumes as compared to the daily traffic volume capacity of the roadway facility. A roadway facility is classified as either an arterial or collector with a class ranging from I-V. **Table 3.8-1** presents the LOS criteria for roadway segments.

Intersections

Analyses for signalized intersections and unsignalized intersections (those controlled by stop signs) were conducted using a methodology outlined in the Transportation Research Board’s Special Report 209, *Highway Capacity Manual*, 2000. For signalized intersections, this procedure calculates an average control delay per vehicle at a signalized intersection and assigns a LOS designation based on the delay of the entire intersection, all movements. The method also

provides a calculation of the volume-to-capacity (v/c) ratio of the critical movements at the intersection. For unsignalized intersections, this procedure calculates an average total delay per vehicle for the overall intersection and each controlled movement. **Table 3.8-2** presents the LOS criteria for signalized and unsignalized intersections.

TABLE 3.8-1
ROADWAY SEGMENT LEVEL OF SERVICE DEFINITIONS

Facility Type	Daily Service Volumes (vehicles per day)				
	A	B	C	D	E
Arterial, Class I	2,600	5,900	10,300	16,900	20,200
Arterial, Class II	2,200	5,200	9,300	15,300	18,900
Arterial, Class III	1,600	4,500	8,600	14,200	18,600
Arterial, Class IV	1,200	3,300	6,400	11,000	15,500
Arterial, Class V	1,000	3,000	5,900	10,200	14,300
Arterial (with climbing lane)	N/A	12,200	16,500	22,200	25,100
Arterial (2 lanes each direction)	N/A	24,900	30,800	32,700	34,900
Collector, Class I-III	1,300	3,900	7,500	12,600	16,900
Collector, Class IV	1,000	3,000	5,500	8,750	11,200
Collector, Class V	600	2,000	3,500	4,900	5,500

NOTES: N/A = Not Achievable

SOURCE: TY Lin International/CCS 2005, AES 2005

TABLE 3.8-2
INTERSECTION LEVEL OF SERVICE DEFINITIONS

Level of Service	Description	Signalized	Unsignalized
		(Avg. control delay per vehicle; sec/veh.)	(Avg. control delay per vehicle; sec/veh.)
A	Free flow with no delays. Users are virtually unaffected by others in the traffic stream	≤ 10	≤ 10
B	Stable traffic. Traffic flows smoothly with few delays.	> 10 – 20	> 10 – 15
C	Stable flow but the operation of individual users becomes affected by other vehicles. Modest delays.	> 20 – 35	> 15 – 25
D	Approaching unstable flow. Operation of individual users becomes significantly affected by other vehicles. Delays may be more than one cycle during peak hours.	> 35 – 55	> 25 – 35
E	Unstable flow with operating conditions at or near the capacity level. Long delays and vehicle queuing.	> 55 – 80	> 35 – 50
F	Forced or breakdown flow that causes reduced capacity. Stop and go traffic conditions. Excessive long delays and vehicle queuing.	> 80	> 50

SOURCE: *Highway Capacity Manual*, Transportation Research Board, Special Report No. 209, Washington, D.C., 2000.

Standards of Significance

LOS standards of significance are based on Caltrans guidelines because the study roadway segments and intersections are on state routes. Caltrans guidelines state that for a signalized intersection to be considered significantly impacted, the LOS of the entire intersection must be reduced below threshold standards. Often one or two approaches may fall below criteria levels, however the intersection as a whole may still function above minimum criteria and therefore would not be considered significantly impacted. For unsignalized intersections, if any one controlled movement has an unacceptable LOS, then a signal warrant analysis must be prepared. If a signal is warranted for the entire intersection, then the intersection as a whole is considered significantly impacted. Some of the roadway segments and intersections are within District 3 and the others in District 10. All of the roadway segments fall under the Regional Transportation Program (RTP) guidelines for determining standards of significance. **Table 3.8-3** summarizes the standards of significance for the three jurisdictions.

TABLE 3.8-3
STANDARDS OF SIGNIFICANCE

Jurisdiction	Acceptable LOS (Peak Period)	Unacceptable LOS (Peak Period)
Caltrans District 3		
- Rural areas	D	E or F
- Urban areas	E	F
Caltrans District 10		
- Rural areas	C	D
- Urban areas	D	E or F
Regional Transportation Program (Roadway Segments)*		
- SR-88 west of SR-124 existing condition	D	E or F
cumulative condition	E	F
- SR-49 south of SR-16	E	F
Notes:	*If roadway segments are, or would be, operating at an unacceptable LOS without the project, an impact is considered significant if the project contributes one or more vehicles to the roadway segment.	
SOURCE: TY Lin International/CCS 2004; AES 2004		

In addition to the above standards, if facilities are or would be operating at an unacceptable LOS without the project, Caltrans considers an impact significant if the project contributes any amount of traffic to the facility. The LOS standards of significance for each different jurisdiction for the weekday PM peak hours are applied to the Saturday PM peak hour.

Data Collection

The following roadway segments were analyzed as a part of the TIS:

- SR-49 north of Shenandoah Road
- SR-49 south of SR-16
- SR-16 west of Old Sacramento Road
- SR-124 south of SR-16
- SR-88 west of SR-124

The following twenty-five intersections in the immediate vicinity of the project were considered most likely to be affected by the Proposed Action and evaluation in this traffic study. These intersections were selected based on a study conducted by AES for the Bureau of Indian Affairs on February 24, 2004. All of the intersections are under Caltrans jurisdiction either in District 3 or 10, as noted above, and were analyzed as a part of the traffic study for the Proposed Action. The standard for each Caltrans district was referenced for development of acceptable LOS. The intersections studied are as follows:

- SR-49 / Miller Road
- SR-49 / Main Street
- SR-49 / Poplar Street
- SR-49 / Empire Street
- SR-49 / SR 16
- SR-16 / SR
- SR-16 / Latrobe Road
- SR-104 (Preston Avenue) / SR 124
- SR-104 (Main Street) / SR 124 (Church Street)
- SR-88 / SR-124
- SR-88 / SR-12 (East)
- SR-88 / SR-12 (West)
- SR-88 / Kettleman Lane
- SR-49 / Pleasant Valley Road
- SR-16 / Ione Road
- SR-16 / Murieta South Parkway
- SR-16 / Murieta Parkway
- SR-16 / Stone House Road
- SR-16 / Latrobe Road
- SR-16 / Dillard Road
- SR-16 / Sloughhouse Road
- SR-16 / Grant Line Road
- SR-16 / Sunrise Boulevard
- SR-16 / Excelsior Road
- SR-16 / Bradshaw Road

Two project driveways on State Route 49 were also included in the analysis. The location of these study intersections is shown in **Figure 3.8-2**. Seven of the study intersections are controlled by a traffic signal. Eighteen are unsignalized, controlled by either all way stops or stop signs on the minor street.

Weekday and weekend traffic counts were collected early June 2004 at the study intersections during the peak hours of the project. For this casino project, the highest project trips would occur during the PM or evening weekday commute peak period. According to the 24-hour volume counts, the weekend peak period for a casino occurs on Saturdays also between the evening hours of 4-6 PM. These time periods are considered the peak periods because the project is expected to have the greatest impact on the local roadway network during these time periods. The peak hour factor was derived from traffic counts during the worst 15-minute period of the peak hour. The peak hour factor (PHF) for intersections in Amador County (No. 1-10) and the project access

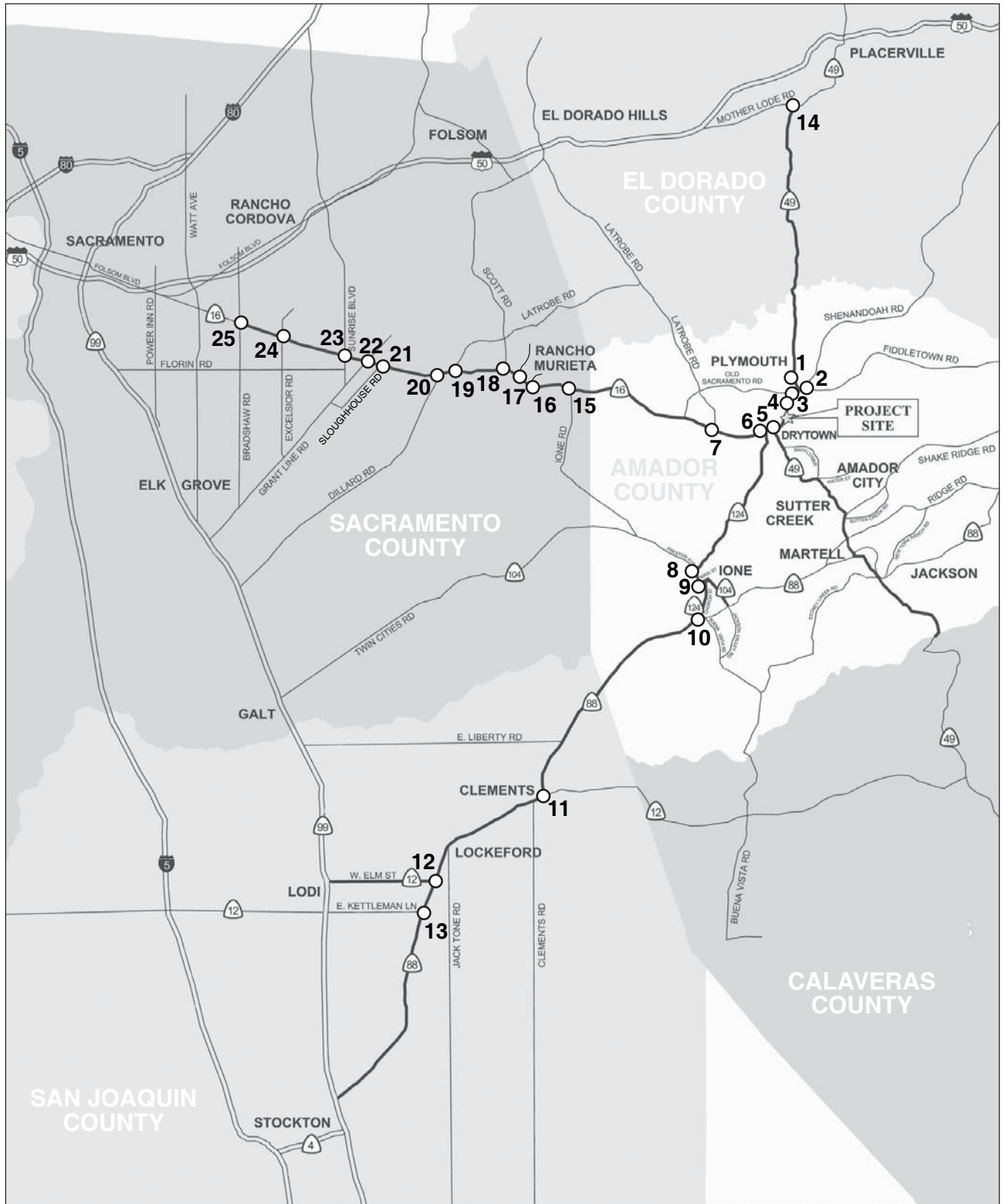


Figure 3.8-2
Study Intersections

were calculated based on collected traffic count data. In accordance with the Sacramento County Traffic Impact Analysis guidelines, a 1.0 PHF was used for intersections No. 11-25 (see list of study intersections under Peak Hour Intersection Performance discussion below for numbered intersections).

Roadway Segment and Intersection Existing Level of Service

Daily Roadway Segment Operations

Table 3.8-4 summarizes the results of this daily roadway segment analysis for the existing level of service conditions. None of the study roadway segments currently operate at an unacceptable LOS.

TABLE 3.8-4
DAILY ROADWAY SEGMENT PERFORMANCES
EXISTING CONDITIONS

Roadway Segment	LOS Threshold ¹	Capacity	Class	Existing ADT ² Volume	Volume to Capacity Ratio V/C	Existing Level of Service
SR-49 North of Shenandoah Road	C	15,500	Arterial IV	2,300	0.15	B
SR-49 South of SR-16	E	18,900	Arterial II	7,900	0.42	C
SR-16 West of Old Sacramento Road	C	20,200	Arterial I	5,000	0.25	B
SR-124 South of SR-16	C	18,900	Arterial II	1,800	0.10	A
SR-88 West of SR-124	D	20,200	Arterial I	7,100	0.35	C

NOTES: ¹LOS becomes unacceptable below level indicated, based on the standards of significance in **Table 3.8-3**.

²ADT = Average Daily Traffic

SOURCE: TY Lin International/CCS 2005; AES 2005

Peak Hour Intersection Performance

Table 3.8-5 summarizes the results of the intersection analysis for the existing LOS conditions and shows the average intersection delay experienced per vehicle. No signalized intersection experienced poor LOS during weekday or Saturday peak hour conditions. As shown below, based on existing level of service, the following unsignalized intersections or intersection movements currently operate at an unacceptable level of service:

- SR-49 / SR-16 movement during the weekday and Saturday PM peak hour
- SR-104 / SR-124 movement during the weekday and Saturday PM peak hour
- SR-88 / SR-12 (East) movement during the weekday PM peak hour
- SR-88 / SR-12 (West) Intersection and movement during the weekday and Saturday PM peak hour
- SR-16 / Excelsior Road Intersection and movement during the weekday PM peak hour

TABLE 3.8-5
EXISTING CONDITIONS PEAK HOUR LEVEL OF SERVICE

Intersection	LOS Standard ¹	Weekday Peak Hour		Saturday Peak Hour	
		Intersection Average			
		Delay (Sec)	LOS	Delay (Sec)	LOS
Signalized Intersections					
SR-88 / Kettleman Lane	D	27.4	C	18.0	B
SR-16 / Murieta South Parkway	D	13.0	B	7.8	A
SR-16 / Murieta Parkway	D	26.0	C	15.5	B
SR-49 / Pleasant Valley Road	C	18.8	C	12.0	B
SR-16 / Dillard Road	D	12.1	B	7.8	A
SR-16 / Grant Line Road	E	57.2	E	38.7	D
SR-16 / Sunrise Boulevard	D	30.0	C	15.4	B
SR 16 / Bradshaw Road	D	27.6	C	15.2	B
Worst Intersection Movement					
Intersection	LOS Standard ¹	Worst Intersection Movement			
		Delay (Sec)	LOS	Delay (Sec)	LOS
Unsignalized Intersections					
SR-49 / Miller Road	D	9.2	A	8.9	A
SR-49 / Main Street	C	19.9	C	17.2	C
SR-49 / Poplar Street	D	10.9	B	10.9	B
SR-49 / Empire Street	C	21.4	C	22.3	C
SR-49 / SR-16	C	25.3	D	28.5	D
SR-16 / SR-124	D	13.6	B	11.0	B
SR-16 / Latrobe Road (Amador)	C	17.1	C	13.8	B
SR-104 (Preston Avenue) / SR-124	C	41.7	E	29.5	D
SR-104 (Main Street) / SR-124	C	18.6	C	15.0	B
SR-88 / SR-124	D	11.2	B	11.0	B
SR-88 / SR-12 (East)	D	29.7	D	18.0	C
SR-88 / SR-12 (West)	D	>100	F	>100	F
SR-16 / Ione Road	C	15.0	C	12.9	B
SR-16 / Stone House Road	E	35.8	E	20.4	C
SR-16 / Latrobe Road (Sacramento)	D	30.4	D	22.5	C
SR-16 / Sloughhouse Road	D	18.6	C	12.7	B
SR-16 / Excelsior Road	D	>100	F	18.5	C

NOTES: **Bold** text denotes unacceptable LOS

¹LOS becomes unacceptable below level indicated, based on the standards of significance in **Table 3.8-3**.

SOURCE: TY Lin/CCS International 2004; AES 2004

3.8.2 LAND USE

REGIONAL SETTING

Amador County is the fifth smallest geographic area of all California Counties, totaling 601 square miles (CSAC, 2004). There are five incorporated cities in Amador County: (1) Plymouth, (2) Jackson, (3) Amador City, (4) Sutter Creek, and (5) Ione. Unincorporated Amador County surrounds the City of Plymouth, including historic Dry Town located south of the City of Plymouth. The incorporated City of Ione has the largest population in the County, respectively followed by Jackson, Sutter Creek, Plymouth, and Amador City (CDOF, 2004).

PROJECT AREA SETTING

Land Uses in and around the project area are largely rural and semi-rural in nature. The portion of SR- 49 in the project vicinity is a two-lane, undivided highway lined with fence posts and utility poles. The land surrounding the project area generally consists of undeveloped grassland. The area to the east of the project site consists of several active mining claims. Land immediately west and adjacent to the project site includes a small gas station and market.. Land Use northwest and adjacent to the project site includes two small restaurantsLand Use, and to the west, consists of sparsely scattered rural homes and light commercial development, including a hardware store. Approximately three-quarters of a mile north of the project site is downtown Plymouth. Land Uses between downtown Plymouth and the project site consist of scattered low-density housing and small businesses, with higher density residential and commercial uses in the downtown area. The Amador County Fairgrounds are located approximately one-half mile northwest of the project site. **Figure 3.8-3** shows the existing Land Use types in and around the project site.

PROJECT SITE

The project site consists of twelve parcels of land totaling approximately 228.04± acres of which eight parcels are located within the City of Plymouth and four parcels are located within unincorporated Amador County (**Figure 1-3**). The following is a description of the Land Use on each of the twelve parcels.

Parcel #1 is the largest of the twelve project parcels (137.78± acres) and is located just south of the City of Plymouth within unincorporated Amador County. This parcel is primarily vacant Land Used for cattle grazing. The parcel also includes new and old mining roads, a dilapidated lift station, remnants of various mining infrastructure, and remnants of an old mining operation (please see **Appendix K** for more details).

The topography of this parcel consists of gently rolling hills and several ravines sloping from east to west. A small pond is located on the southwestern corner of the project parcel. Access to the parcel is available from a private unimproved dirt road that intersects with State Route 49. The



current Amador County General Plan Land Use designation for Parcel #1 is Residential-Suburban (R-S), which allows for low-density residential uses in suburban areas not served by domestic water and sewer services or other urban services (County of Amador, 1967). Allowed density of the R-S designation is one single-family unit per acre. Parcel #1 is zoned Special Use (X) by Amador County. The Special Use zone allows for all types of development not prohibited by law. While there are no non-conforming uses within this zone, ultimate development approval is determined by the County.

Parcel #2 consists of 7.68± acres of land located immediately outside the City of Plymouth in unincorporated Amador County. Parcel #2 lies adjacent to the northern leg of Parcel #1, roughly $\frac{3}{4}$ of a mile east of State Route 49 and off Bush Street to the east. The majority of the parcel is currently undeveloped grassland with evidence of light to moderate cattle grazing activities. A single-family home is located near the center of the parcel. Cattle grates and fencing prevent grazing activities from occurring near the home. The topography of the site consists of flat rangeland with a deep ravine located in the southeast corner of the parcel. Access to this area is provided from the north along Bush Street.

The County General Plan Land Use designation for this parcel is Residential-Suburban (R-S), which allows for low-density residential uses in suburban areas not served by domestic water and sewer services or other urban services (County of Amador, 1967). Allowed density of the R-S designation is one single-family unit per acre. Parcel #2 is zoned Single-family Residential-Agriculture (R1-A) by Amador County, which allows one dwelling unit per 5 acres.

Parcel #3 is a 60±-acre parcel located in the unincorporated County. The parcel is situated to the north and adjacent to Parcel #1 and to the west of Parcel #2. Currently this parcel is being used for cattle grazing. No urban features or Land Use exist on Parcel #3, except utility poles, cattle fencing, and a small wooden shed located on the western corner of the site. A landing strip was once situated in the middle of the parcel although no physical evidence of the strip remains today. Natural drainage from the surrounding hills creates ponding in the central portion of the parcel. The topography has little relief with a few gently rolling hills. Access to Parcel #3 is provided from the north along Bush Street.

The County General Plan Land Use designation for this parcel is Residential-Suburban (R-S), which allows for low-density residential uses in suburban areas not served by domestic water and sewer services or other urban services (County of Amador, 1967). Allowed density of the R-S designation is one single-family unit per acre. Parcel #3 is

zoned Single-family Residential-Agriculture (R1-A) by Amador County, which allows one dwelling unit per 5 acres.

Parcel #4 is a 0.64± acre parcel located within the City of Plymouth. Parcel #4 lies adjacent to the eastern edge of State Route 49. The sign for the Shenandoah Inn constitutes the only urban features or Land Use for this parcel. Main access to this area is from SR 49. The City of Plymouth General Plan Land Use Designation for this parcel is identified as Commercial (C) (City of Plymouth 2001).

This parcel is also within the City of Plymouth Scenic Corridor Combined Zoning District. The Scenic Corridor Combined zoning classifications is attached to the subject parcel commercial zone classification. Acceptable uses for the commercial zone include, retail, food and beverage establishments, offices, automotive sales and service, hotels and motels, storage facilities, wholesale commercial, processing services, light assembly, and other similar commercial activity. Regulations specific to the Scenic Corridor Combined Zone are limited to the consideration of design review guidelines specified in Chapter 19.50 of the City of Plymouth Municipal Code.

Parcel #5 is a 2.68± acre City parcel that is located east of State Route 49 and Parcel #4 and adjacent to Parcel #3. The main urban feature for this area is The Shenandoah Inn. Vacant, undeveloped land to the southeast makes up the remainder of the parcel. Access to this parcel is provided from an unnamed driveway off State Route 49. The current City of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel are both identified as Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

Parcel #6 is a 1.65± acre City parcel located east of the service station that fronts State Route 49. No urban features or Land Use exist on Parcel #6. The topography of the area consists of a gently sloping hillside. Access to this parcel can be made from Village Drive off State Route 49. The City of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel are both identified as Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

Parcel #7 is a 1.19± acre City parcel east of State Route 49. Urban features in this area are limited to a well that sits on a concrete slab. A drainage ditch on the western side of the parcel runs along side State Route 49. Topography for the area consists of flat open space with a man made upward trending slope bordering the south and east edge of the area. Access to the area is provided by State Route 49 and Village Drive. The City of Plymouth's General Plan Land Use Designation for this parcel is identified as

Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

This parcel is also within the City of Plymouth Scenic Corridor Combined Zoning District. Acceptable uses for this area are described under Parcel #4.

Parcel #8 is a 0.53± acre City parcel located adjacent to the east side of State Route 49. A private residence sits in the center of the parcel. Topography for the area has been modified to accommodate the private residence and is generally level with a gentle downward slope to the north and west portion of the site. Access to this area is provided by a private driveway off State Route 49. The City of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel are both identified as Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

This parcel is also within the City of Plymouth Scenic Corridor Combined Zoning District. Acceptable uses for this area are described under Parcel #4 (above).

Parcel #9 is a 0.81± acre City parcel located east of Parcel #8 and north of Parcel #1. A small portion of this parcel lies adjacent to the east side of State Route 49. A private residence sits near the north side of the parcel. Topography for the area has been modified to accommodate the private residence and is generally flat with a gentle northerly slope to the north. Access to this area can be made from a private drive off State Route 49. The City of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel is Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

This parcel is also within the City of Plymouth Scenic Corridor Combined Zoning District. The Scenic Corridor Combined zoning classifications is attached to the subject parcel commercial zone classification. Acceptable uses for the commercial zone include, retail, food and beverage establishments, offices, automotive sales and service, hotels and motels, storage facilities, wholesale commercial, processing services, light assembly, and other similar commercial activity. Regulations specific to the Scenic Corridor Combined Zone are limited to the consideration of design review guidelines specified in Chapter 19.50 of the City of Plymouth Municipal Code.

Parcel #10 is a 1.56± acre City parcel located north of Parcel #1 and east of Parcel #9. No urban features or Land Use exist on Parcel #10. The topography of the area is primarily flat with an easterly upward sloping hillside. Access to this parcel is provided by an unnamed driveway off State Route 49. The City of Plymouth General Plan Land

Use Designation and Zoning Designation for this parcel are both Commercial (C) (City of Plymouth, 2001). Acceptable uses for this area are described under Parcel #4 (above).

Parcel #11 is a 1.22± acre City parcel located north of Parcel #1, east of Parcel #10, and southwest of Parcel #5. No urban features or Land Use exist on Parcel #11. The topography of the area consists of moderately flat terrain with gently rolling hills to the east. Access to this parcel is provided by an unnamed driveway off State Route 49. The current City of Plymouth General Plan Land Use Designation and Zoning Designation for this parcel are both Commercial (C) (City of Plymouth). Acceptable uses for this area are described under Parcel #4 (above).

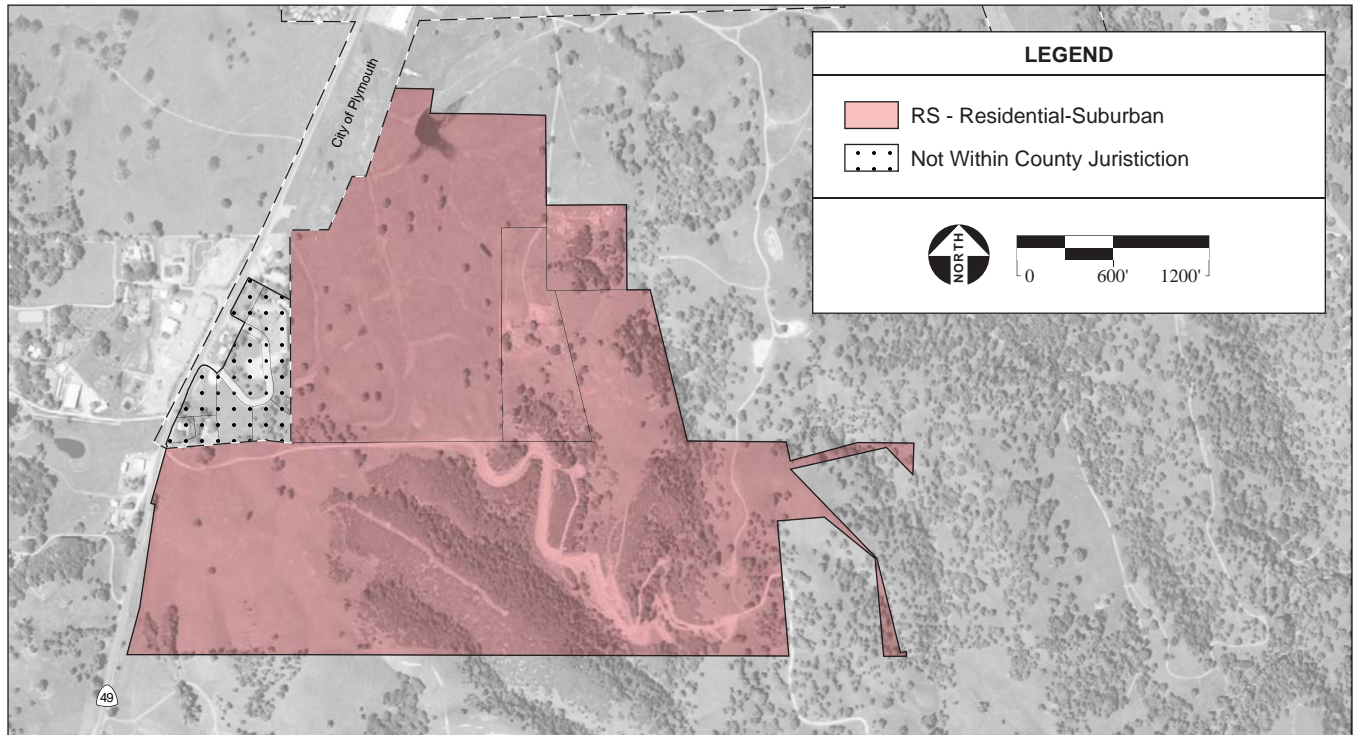
Parcel #12 is a 12.12± acre parcel located within unincorporated Amador County. Parcel #12 borders Parcel #3 on the east, with the majority of Parcel #12 being undeveloped grassland. A small single-family residence is located in the central part of the property atop a gently sloping hill, with a portion of the property being used to raise horses. The topography of the site consists of gently rolling hills, with a steep east trending slope located at the back of the single-family home. Access to this parcel is from the north along Bush Street. Parcel #12 is zoned Single-family Residential-Agriculture (R1-A) by Amador County, which allows one dwelling unit per 5 acres. The current Amador County General Plan Land Use designation for this parcel is Residential-Suburban (R-S), which allows for low-density residential uses in suburban areas not served by domestic water and sewer services or other urban services (County of Amador, 1967). Allowed density of the R-S designation is one single-family unit per acre.

LOCAL POLICY DOCUMENTS

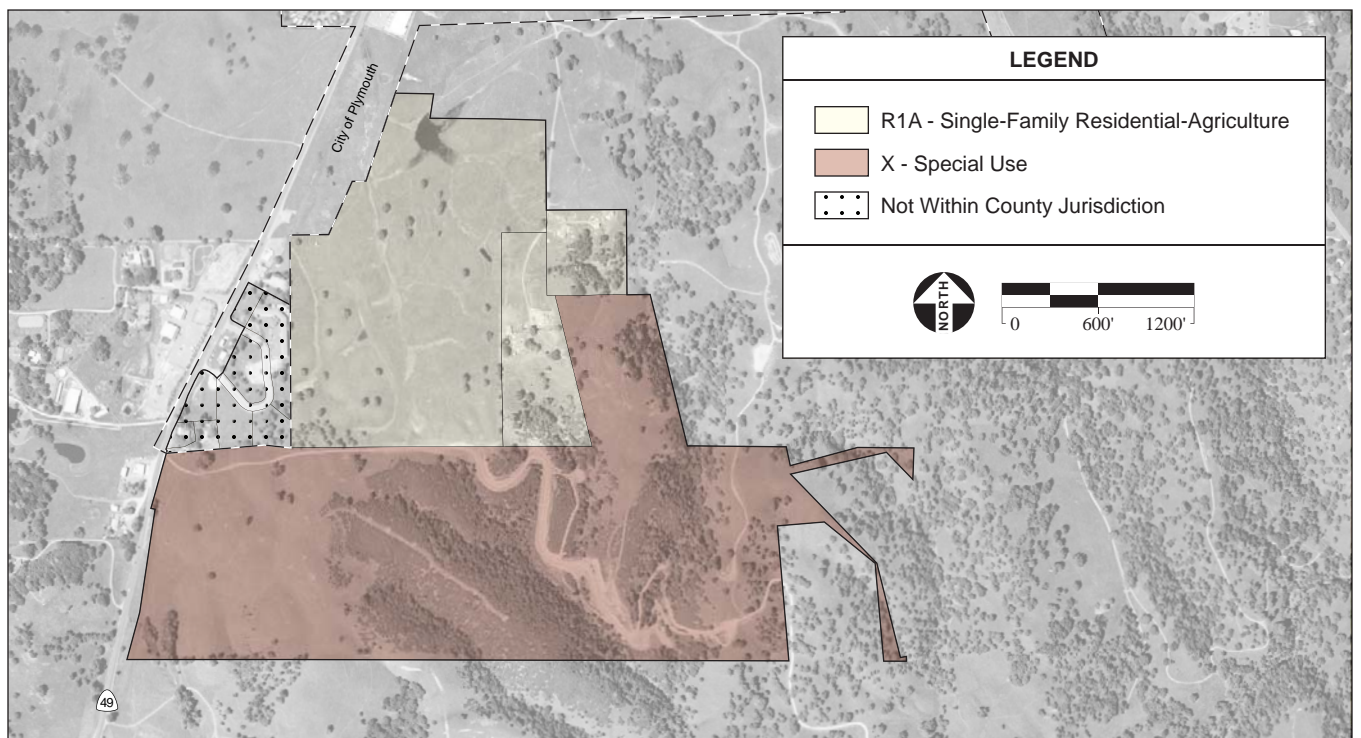
Currently, Parcels #1 through #3 and Parcel #12 fall under the jurisdiction of Amador County. As such, Land Use planning is guided by the 1967 Land Use Element of the Amador County General Plan, amended in 1973, and the 1962 Amador County Zoning Plan, amended in 2002. Parcels #4 through #11 are under the jurisdiction of the City of Plymouth. The 2001 City of Plymouth General Plan and Zoning Ordinance of the Plymouth Planning Code guides Land Use planning for these parcels. County and City zoning and Land Uses are identified in **Figures 3.8-4 and Figure 3.8-5**.

City of Plymouth General Plan

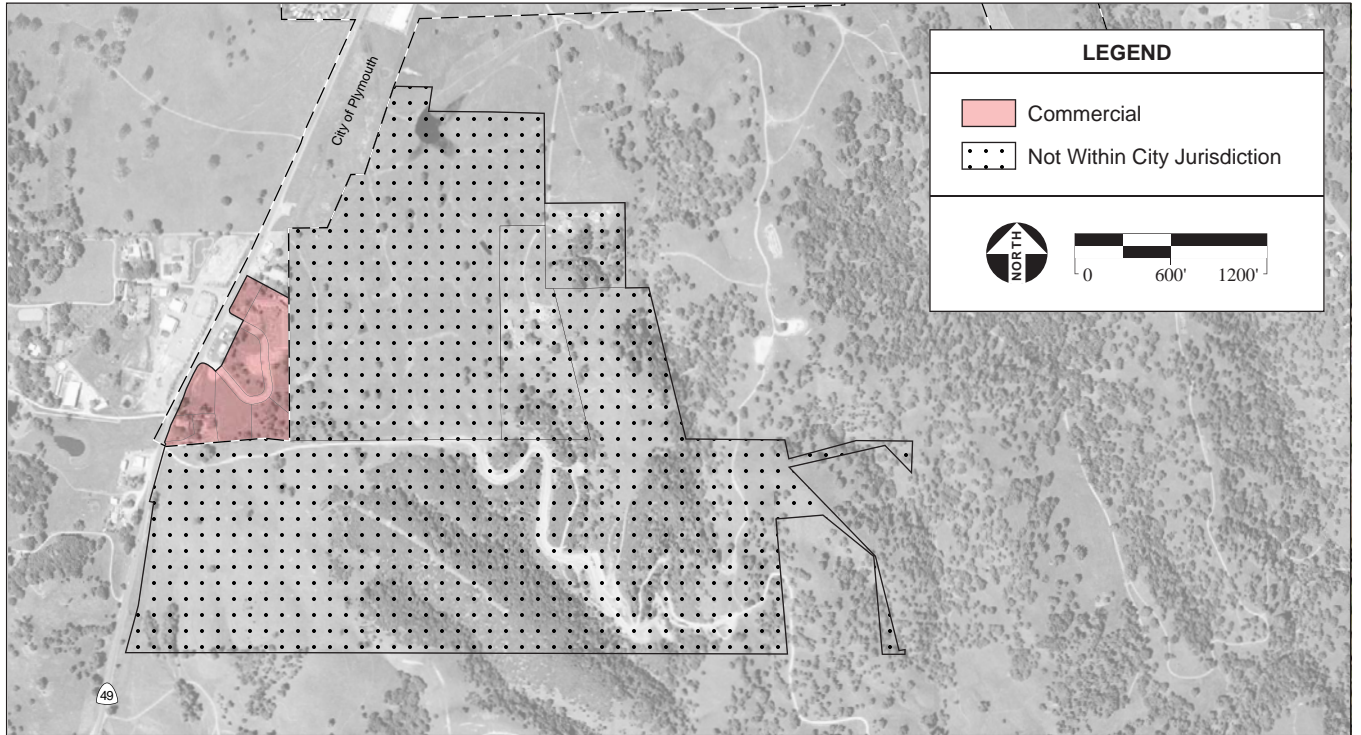
Parcels #4 through #11 are currently under the jurisdiction of the City of Plymouth. The City of Plymouth General Plan, 1986, amended September 2001, currently guides Land Use planning for these parcels. The Housing Element of the Plymouth General Plan was amended in December of 2004. The General Plan Land Use designation for the project parcels described above is Commercial (C). The City of Plymouth describes the (C) designation as follows:



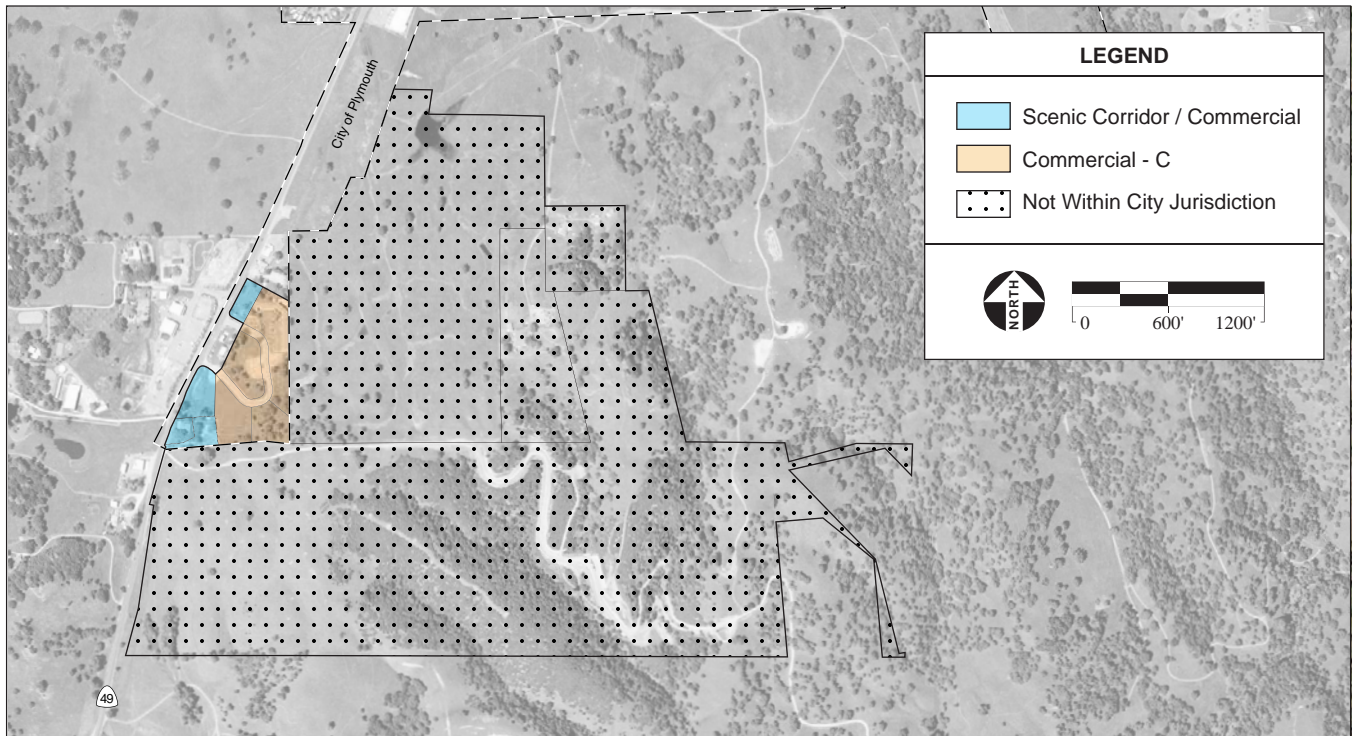
AMADOR COUNTY - GENERAL PLAN LAND USE DESIGNATION



AMADOR COUNTY - ZONING



CITY OF PLYMOUTH - GENERAL PLAN LAND USE DESIGNATION



CITY OF PLYMOUTH - ZONING

The C [Commercial] designation indicates areas where a broad range of light and heavy commercial activities would be desired. Types of uses being considered as commercial for the purposes of this designation include retail sales, eating and drinking establishments, professional or business offices, automotive sales and service, hotels and motels, storage, wholesaling, processing services, light assembly, and similar developments or activities that would normally be considered “commercial” activity.

Commercial areas are so designated in order to continue the economic well being of the City and enhance the City’s position as a commercial center of the County. Established commercial areas should provide a range of service which meet resident needs (provide variety) and interest to visitors, recognizing the importance of the tourist industry and be protected from the encroachment of incompatible land uses, which would be detrimental to existing land use. Developing commercial areas should compliment – functionally and visually – existing commercial areas.

Minimum parcel size shall be 6,000 square feet and building coverage may be 80 percent (City of Plymouth, 2001).

Applicable Goals and Policies

Through consultation with City of Plymouth planning staff, the following specific goals and policies were identified in **Table 3.8-6** as currently applicable to the project site (City of Plymouth, 2007):

TABLE 3.8-6
CITY OF PLYMOUTH GENERAL PLAN POLICIES

Land Use Element: Goals and Policies	
Section	Goal or Policy
Goal	Provide for a balanced and effective arrangement of Land Uses while maintaining the rural atmosphere, quality of life and separate identity of the City.
Goal	Achieve an orderly and efficient pattern of community development consistent with economic, social, and environmental needs.
Goal	Provide for a diversified economic base with a range of employment opportunities for all residents.
Goal	Revitalize the downtown as the heart of the City.
Goal	Coordinate land and transportation planning measures / actions to foster reduced dependence on the automobile and increased opportunities for alternative modes of travel.
Goal	Provide adequate levels of public service in logical increments.
Goal	Plan for diverse educational opportunities and adequate school facilities.

Land Use Element: Goals and Policies

Section	Goal or Policy
Goal	Preserve and enhance the historical and cultural resources of the area.
Policy	Ensure that City Council and Planning Commission Land Use decisions are consistent with the General Plan.
Policy	All areas of the City shall have all necessary service available and proper access to circulation routes.
Policy	Maximize opportunities to bring out-of town dollars into the community.
Policy	Actively promote business development activities that will generate local employment opportunities and help diversify the local economy.
Policy	Protect areas designated for business use from encroachment by non-commercial activities.

Circulation Element: Goals and Policies

Section	Goal or Policy
Goal	Develop and maintain a safe and efficient transportation system.
Goal	Implement physical and operational capacity improvements to improve existing problems and support the planning and design of improvements to accommodate future travel demands.
Goal	Implement planned improvements to accommodate future travel demand.

Housing Element: Goals and Policies

Section	Goal or Policy
Policy 1.3	The City shall ensure that adequate infrastructure and public services are available prior to approval of developments projects within the City.
Goal 2.5.1	A balanced residential environment with access to employment locations, community facilities, and adequate services.

Conservation and Open Space Element: Goals and Policies

Section	Goal or Policy
Policy	Preserve critical wildlife habitats, which enhance a rural atmosphere for present and future residents of Plymouth.

Noise Element: Goals and Policies

Section	Goal or Policy
Goal	Achieve and maintain ambient noise levels that preserve the quiet rural atmosphere of Plymouth.
Policy	Protect and regulate existing ambient noise levels in rural and quiet areas.
Policy	Protect against vibration and nuisance noise.

Safety Element: Goals and Policies

Section	Goal or Policy
Goal	Provide a safe and hazard free environment for the citizens of the City.
Policy	Consider the imposition of impact fees or other acceptable measure upon new residential, commercial, industrial, or other developments for the purpose of mitigating the development impact upon public services or facilities.

Land Use Element: Goals and Policies

Section	Goal or Policy
Policy	New development will be required to accurately identify any significant increase to natural surface water flow and sewage flow and address on and off-site impacts created by such flows.
Implementation	Obtain resources for assuring adequate citywide water quantity and pressure through grant or loan funding and/or impact fees, benefit assessments or other local funding sources.

Zoning Ordinance of the City of Plymouth

Section 65860 of the California Government Code requires that City Zoning be consistent with General Plan designations. The zoning ordinance of the City of Plymouth provides “day-to-day” implementation and enforcement of city land development requirements (City of Plymouth, 1993). All of the project parcels which fall under the jurisdiction of the City of Plymouth are zoned commercial. Acceptable uses for the commercial zone include retail, food and beverage establishments, offices, automotive sales and service, hotels and motels, storage facilities, wholesale commercial, processing services, light assembly, and other similar commercial activity.

Four of the eight project parcels located within the City of Plymouth are within the Scenic Corridor Combined zone classification, as shown in **Figure 3.8-5**. Generally, the Scenic Corridor Combined Zone includes all parcels that are zoned commercial, industrial, or light industrial and adjacent to the SR 49 right of way. In the case of the project site, four project parcels are zoned commercial and within the Scenic Corridor (SC) Combined Zone. The Scenic Corridor Combined Zone was established to preserve the visual character and preserve the historical image of development within the SR 49 corridor. All uses that are allowed in the regular zone with which the SC zone is combined are allowed. Regulations specific to the Scenic Corridor Combined Zone are limited to the consideration of design review guidelines specified in Chapter 19.50 of the City of Plymouth Municipal Code.

Amador County General Plan

The County’s General Plan is a long-term policy guide for the growth and development of Amador County. The General Plan was designed to provide a “comprehensive, long term plan for the physical development of the planning area.” Generally, Amador County consists of small rural and semi-rural communities with populations not larger than 8,000 people. All parcels under the jurisdiction of Amador County within the project site are designated as Residential Suburban (R-S) by the County General Plan Land Use Element. The R-S designation generally allows for low-density residential uses in suburban areas not served by domestic water and sewer services or other urban services. **Table 3.8-7** below shows the specific goals and policies currently applicable to the project site.

TABLE 3.8-7
APPLICABLE COUNTY OF AMADOR GENERAL PLAN POLICIES

Land Use Element: Urban and Suburban Classifications	
Section	Policy
1.a. Residential Suburban (R-S)	This classification is applied to lands best suited to low density residential uses in suburban areas not serviced by both domestic water and sewer systems, or by various other urban services.
Scenic Highways Element: Implementation Policies and Issues	
Section	Policy
6. Background and Purpose	<p>The California Streets and Highways Code has listed portions of two state highways in Amador County as being eligible for official designation as scenic highways, one of which is relevant to the Proposed Project and Alternatives:</p> <ol style="list-style-type: none"> The entire length of State Highway 49 between the El Dorado County line and the Calaveras County line.
Scenic Highways Element: Implementation Policies and Issues	
Section	Policy
b. Regulations-Generally	<ol style="list-style-type: none"> Notwithstanding the provisions of any other general plan element classification which may be within a scenic highway corridor, the following zone districts are the only ones which may be found to be consistent with the scenic highway corridor overlay: "R1A", "TPZ", "AG", "PD". All Development projects submitted to Amador County which are proposed to be located partially or wholly within the scenic highway corridor shall be submitted for review and comment to the Tri County Technical Advisory Committee so long as it may be in existence. These projects shall include but not be limited to building permits, commercial recreation, or other use permits, land divisions, rezones, variances, grading permits, advertising signs and structures etc. The California Public Utilities Commission requires under grounding of utilities "within 1,000 feet from each edge of the right-of-way of designated State Scenic Highways" and "...which would be visible from such scenic highway if erected above ground..." This state requirement will protect scenic highways from the intrusion of unsightly utility uses, such as poles, lines, etc. In conjunction with existing policies 13 and 16 of the Land Use Element, non-appurtenant outdoor advertising structures (billboards) shall not be permitted in the scenic highway corridor. Appurtenant or on-site advertising structures, shall be considered as permits requiring County review and approval prior to erection.
c. Regulations-Site Specific	<ol style="list-style-type: none"> The exterior colors of the sides and roofs of structures and sign supports shall not contrast with natural colors in the area. Colors of supports shall not contrast with natural colors in the area. Colors of stains, paints or finished building materials shall be shown to harmonize with the forest setting or they shall be denied. In general, natural "earth tones" and soft shades that will blend with the surroundings shall be required to achieve this harmony. Stains are preferable to paints and natural wood colors are encouraged. Examples of earth tone colors may include by are not limited to neutral or soft browns, redwood, weathered gray or gray green, and dark greens. Artists renderings of the proposed colors or actual paint samples shall be submitted as part of the project or permit plans. Roofs and outside trim shall not have colors, which sharply contrast with the colors of the remainder of the structure. County may deny incompatible proposed structural coloring and the County may deny colors found to be inconsistent with the objectives of the Scenic Highway Element Commercial structures shall be restricted to having only two occupancy floor levels. Subsurface basement levels or underground parking shall not be

considered an occupancy level. Any requested use permits for excessive building or sign height above the 35 foot building height limitation in the Amador County Code, "R1A" District, will be recommended for denial unless the use permit can be found to be in conformance with the objectives of the Scenic Highway Element.

4. Proposals to cut, fill, or otherwise move more than fifty cubic yards of earth shall require an engineered grading plan to be filed with the Building Department prior to any work taking place. This grading plan shall include a statement as to the effects on off-site drainage. Radical cuts or fills, in the opinion of the County, are contrary to the Goal and Intent for which the scenic highway corridor was adopted may be denoted by the county.

Scenic Highways Element: Implementation Policies and Issues

Section	Policy
c. Regulations-Site Specific	<ol style="list-style-type: none"> 5. A landscaping plan shall be submitted as part of the application for any project or permittee within the scenic highway corridor. The plan shall include a plot plan showing the location of existing mature trees and shall indicate their ultimate disposition at the completion of the project. The landscaping plan shall indicate where the applicant is proposing to plant vegetation and the type of vegetation. Following review and recommendations from the Tri-County Technical Advisory Committee the county may require landscaping as a condition of project or permit approval. The County may require the retention of mature trees where it can be found that their removal is not essential to the construction of the projector permit. Attempts by a property owner to circumvent this requirement by removing trees prior to a project application could result in a much more stringent and expensive landscaping plan being required. As Condition for the approval of a landscaping plan the County may require the planting of native species of trees and shrubs to ensure high survival rates and low maintenance. "As good or better" landscaping proposal submitted by the applicant may be approved in lieu of native species. 7. A parking plan shall be submitted with all commercial use applications to the County. Minimum parking requirements shall be one space per 200 feet of floor area for all commercial uses. Parking spaces and access driveways

Amador County Development Policy Statement

Section	Policy
13.	The system of parkways and scenic roads and highways shown on the General Plan maps will receive special protection against future incompatible development and no proposed billboards, trailers, open cut mining, or clear-cut timber operations within sight distance of such roads will receive county approval. The location of overhead utility lines will be discouraged whenever practicable or feasible. All routes for utility transmission lines should be reviewed by the Planning Commission.

Amador County Development Policy Statement

Section	Policy
14. Public Lands Policy	<ol style="list-style-type: none"> B. It is the policy of the Amador County Board of Supervisors that the following advance notification referral, coordination and joint participation process shall be adhered to by all federal agencies active in Amador County: <ol style="list-style-type: none"> 1. All federal agencies, to the fullest extent permissible by law, shall inform the County of Amador of all pending, contemplated, or proposed actions affecting local communities, citizens, or affecting County policy, and shall, if requested by the County, coordinate the planning and implementation of those actions with the County. Such notification shall include, as soon as information is available, a detailed description of the proposed plan, procedure, rule, guideline, or amendment sufficient to fully inform lay persons of its intent and effects including the effects on the customs, culture, economy, resources, and environmental of the County of Amador as defined and described in the following subsections of this general plan. Such notification shall include a report on the purpose, objectives, and estimated impacts of the proposed action on Amador County and

its citizens. These reports shall be provided to the County of Amador for review and coordination with sufficient time to prepare a meaningful response by the federal agency proposing the action.

2. All federal agencies shall, to the fullest extent permissible by law, comply with all applicable procedures, policies, and practices issued by the State of California and the County of Amador.

Scenic Highways Element: Implementation Policies and Issues

Section	Policy
	<ol style="list-style-type: none"> 3. All federal agencies shall, to the fullest extent permissible by law, comply with all applicable procedures, policies, and practices issued by the State of California and the County of Amador. 4. Notification of the availability of related documents shall be available for the minimum time set forth by the federal statute for such review or, if none is established by law, for a period of not less than 45 days prior to the proposed date of action, adoption, or approval. Any proposed substantive revisions to any proposed actions shall be processed in the same manner and given the same notification as the original proposal. 5. Any citizen or group claiming to be affected by and pending, contemplated, or proposed action of any federal agency where the decision or comments upon the action is within the purview of the Board of Supervisors is encouraged to present relevant information to the Board. 6. The Board of Supervisors may hold hearings on any proposed federal action and may designate staff to receive, review, and comment upon the pending, contemplated, or proposed action on behalf of the Board. 7. The Board of Supervisors may decide to seek whatever remedy is open and available to the County to protect the best interests of the County and its citizens against federal actions which could adversely affect the custom, culture, economy, resources, and environment of Amador County. 8. Whenever any federal agency proposed to take any action, including the formation of any policy, which will affect Amador County, the Board of Supervisors may request that the federal agency enter into a memorandum of understanding with the Board so that said federal agency shall act in accordance with this resolution. It shall be the policy of the Board of Supervisors to enter into MOU's with federal agencies that the County deals with on a regular basis.
16.	Billboards along the highways will be restricted in size and number, prohibited in scenic areas (which includes most rural areas of Amador County) and confined to commercial or industrial zones.

SOURCE: County of Amador, 1967

Amador County Zoning Plan – Title 19

Title 19 of the Amador County Code, the Zoning Plan, regulates Land Use and development of land within the unincorporated areas of Amador County. Currently, Parcels #1 through #3 and Parcel #12 fall under the jurisdiction of Title 19 of the Amador County Code.

Parcels #2, #3 and #12 are zoned Single Family Residential Agricultural District (R1-A) by the County of Amador. The R1-A classification is applied to lands best suited to low-density residential uses in suburban areas not served by both domestic water and sewer systems, or by

various other urban services. Appropriate uses are single family residential, agricultural and schools, parks, etc. **Table 3.8-7** shows the specific goals and policies applicable to the project site and the project alternatives. Parcel #1 is zoned Special Use (X). Zoning for this parcel is loosely defined by allowing all uses subject to securing a use permit from the County. This leaves typical development proposals up to the discretion of the County.

As shown in **Figure 3.8-4**, within Amador County, the project site contains two zones: (1) Single-Family-Residential-Agricultural (R1-A) and (2) Special Use (X). These two zones are described below:

R1-A—Single-Family-Residential-Agricultural

The Single-Family-Residential-Agricultural allows one dwelling unit per 5 acres. Minimum structural setback from public roads should be no less than 50 feet from the centerline of any street, highway, or road. The height of any structure is limited to 35 feet, unless otherwise indicated in an approved permit (Amador County, 1985).

X—Special Use

The Special Use zone allows all uses allowed by law subject to securing a use permit. The minimum front setback should not be less than fifty feet from the centerline of any street, highway, or road. Building height and side and rear setbacks should be specified in the use permit (Amador County, 1985).

3.8.4 AGRICULTURE

The Natural Resource Conservation Service (NRCS) categorizes farmland in a number of ways. These categories include prime farmland, farmland of statewide importance, and unique farmland. Prime farmland is considered to have the best possible features to sustain long-term productivity. Farmland of statewide importance includes farmland similar to prime farmland but with minor shortcomings, such as greater slopes or less ability to store soil moisture. Unique farmland is characterized by inferior soils. This land generally needs irrigation depending on climate. These designated farmlands must also have been in production four years prior to the mapping date. Consultation with the NRCS showed that there are no prime farmlands, unique farmlands, or farmlands of statewide importance on the project site (**Appendix N**).

The California Land Conservation Act (LCA) of 1965, also known as the Williamson Act, is designed to preserve agricultural and open space lands by discouraging their premature and unnecessary conversion to urban uses. Parcels containing a Williamson Act Contract cannot change from an agricultural Land Use unless a timely process is initiated. There are Williamson Act Contract parcels located on the adjacent parcel south of the project site as well as due east of the project site.

3.8.4 OTHER RESOURCE USES

The project parcels are not used for hunting, fishing, gathering, timber harvesting, or other resource related activities. Historically, extensive mining operations have taken place locally. On-site mining debris indicates that mining activities have taken place on Parcels #1 and #2. However, as described in **Section 3.2**, there are no active mining operations on any of the proposed fee-to-trust parcels.

3.9 PUBLIC SERVICES

This section describes the existing environmental conditions of public resources for the proposed Amador County project site. Topics include municipal water supply, municipal wastewater treatment and disposal, solid waste disposal, telecommunications, natural gas, electricity, and public health and safety (police, fire, and emergency medical services). The general and site-specific profiles of Public Services contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

3.9.1 MUNICIPAL WATER SUPPLY

The City of Plymouth provides water to residences, commercial enterprises, multifamily units, institutional operations, and the Amador County Fairgrounds. The City of Plymouth receives surface water via the Arroyo Ditch and groundwater from several wells. In 1987, the Arroyo Ditch, which diverts water from the middle fork of the Cosumnes River, was purchased from Amador County and the Amador Water Agency (AWA) to serve as a peak-use water source for the City of Plymouth. Surface water from the Arroyo Ditch and groundwater from City wells are treated at the City of Plymouth's water treatment plan (WTP), which includes a low press, multi media filter and chlorination system. The City contracts with the Amador Water Agency for the operation and maintenance of the WTP. However, surface water is only used during peak times, and is not a primary source of potable water. The City has a five hundred thousand-gallon storage tank to meet existing requirements for the City, but does not provide sufficient capacity for future City growth. This water supply nearly meets existing average day demands of 205 gallons per minute (gpm), but does not meet existing summer or maximum day demands of over 450 gpm. Annual water sales peaked in 2004 at 72.4 million gallons (198,000 gpd)(City of Plymouth, 2005). The City supplied approximately 459 commercial and residential customers in 2004.

In 1987, the California Department of Health Services concluded that the City of Plymouth was not capable of providing adequate water supplies to its residents. As a result, a moratorium was placed on all new development within the City. A new well source was constructed in 1988, resulting in a partial lift of the moratorium in 1990 and the issuance of approximately 50 new residential building permits (County of Amador, 2004). Currently, approximately 25 building permits are available and will only be distributed to developers who intend to provide and maintain housing for low-income individuals (Gardner, 2004). To identify a secure and reliable cost-effective supply of treated drinking water to allow for the City's General Plan build-out, the City of Plymouth contracted with the Amador Water Agency to construct a pipeline from their Tanner WTP to the City of Plymouth storage tanks, located at the eastern edge of the city.

The AWA diverts water from the Mokelumne River at Lake Tabeaud under a 1985 agreement with Pacific Gas and Electric (PG&E) entitling AWA with up to 15,000 acre-feet of water per

year, at a rate up to 30 cubic feet second (cfs). The Plymouth pipeline will convey treated water approximately 11 miles from the AWA's Tanner WTP to the City of Plymouth's existing treated water storage tank. To convey the water supply the pipeline project will construct an approximately 8.5 mile pipeline, a new 1.25 million gallon water storage tank, and connections to existing AWA water lines.

GROUNDWATER

Based on Department of Water Resources (DWR) Well Completion Reports (DWR Well Logs) for all water supply wells within a two-mile radius of the project site, approximately 36 domestic water-producing wells are located within and near the City of Plymouth. These wells vary in depth from approximately 80 to 500 feet below ground surface (bgs) with static water levels ranging from approximately 14 to 200 feet bgs. The majority of the wells are located on the western side of the City. There are two wells located within the City of Plymouth that are reported to produce water at a rate greater than 200 gpm. There are approximately 87 domestic water-producing wells south of the City of Plymouth. These wells vary in depth from approximately 100 to over 800 feet bgs. Approximately 50-percent of these wells produce greater than 50 gpm. However, within the immediate vicinity of the project site, most of the wells are shown to be low producing wells, with the exception of three wells.

Three existing on-site wells (M1, H1, and H2), an on-site cistern, and two off-site wells (M3, M4) have been evaluated for project water supply. Their locations are shown in **Figure 3.3-4**. Of these wells, pumping tests were performed on M1, M3, and H1 to determine firm yield. The pump testing methods included step-drawdown tests, constant rate tests, constant yield/drawdown tests, and recovery tests. **Table 3.9-1** presents the recommended long-term well yields based on the pumping tests. A copy of the report on the pumping tests and water quality analysis is included as **Appendix C**.

TABLE 3.9-1
RECOMMENDED LONG-TERM WELL YIELDS ^a

Well	Lower Limit	Upper Limit	Recommended Long-Term Well Yields
M1	8.5	12.1	10
M3	31.9	45.6	38
H1	28.5	40.7	35
Recommended Yield	68.9	98.4	83

NOTES: ^a All values shown in gallons per minute (gpm)
SOURCE: HSE, 2004; AEG 2004; AES 2005

3.9.2 WASTEWATER SERVICE

EXISTING FACILITIES

The City of Plymouth owns and operates a wastewater treatment plant (WWTP) located off Old Sacramento Road, approximately two miles west of downtown Plymouth. The City's WWTP consists of an aerated facultative pond, two polishing ponds, chlorination facilities, and a 185-acre foot unlined effluent storage reservoir. The WWTP has a design capacity of 170,000 gpd. Wastewater is treated to disinfected; secondary-treated recycled water levels in accordance with California Title 22 recycled water guidelines. Disinfected, secondary-treated recycled water may be used to irrigate recreational areas where people will not come in direct contact with the water, crops where the edible portion will not come in contact with the water, and areas of general disposal where persons will not come in direct contact with the water. The WWTP receives an average daily flow of 97,000 gpd from 346 residential connections, 28 commercial connections, 20 community connections, the Far Horizons 49er Village connection, and the connection from the Amador County Fairgrounds. The highest recorded inflow event (wet season) was 560,000 gpd.

For disposal of the effluent produced at the City of Plymouth WWTP, the City owns approximately 125-acres of land located approximately one mile west up Old Sacramento Road. Wastewater is disposed to approximately 85 of the 125-acres by spray irrigation. The spray fields have a disposal capacity (which would entail using all 125-acres as spray fields) of 180,000 gpd.

The WWTP has a history of violating Waste Discharge Requirements (WDRs) approved by the Central Valley Regional Water Quality Control Board (CVRWQCB), which limit operation and disposal parameters of the WWTP to protect water quality in the region. Previous violations by the City's WWTP include discharge of waste into surface water features, disposal of treated effluent at the spray fields during the winter season, dissolved oxygen concentrations below the minimum 1.0 mg/l requirement in the treatment ponds, ammonia as nitrogen levels above treated effluent maximum requirement, and failure to submit various required reports. The violations resulted in an Administrative Civil Liability Complaint from the Board, which included a \$20,000 penalty. The violations are a result of insufficient sizing and/or design of the wastewater treatment process, effluent storage reservoir, and spray field areas (CVRWQCVB, CDO NO. R5-2005-0006). The City has begun submitting the required reports requiring the entire system to be updated in order to not only meet existing inflow demands on the system, but to also meet growth expectations once the Plymouth Pipeline Project is completed, which would remove the moratorium on growth in the City's sphere of influence.

3.9.3 SOLID WASTE SERVICE

The Amador Disposal Service, which is a subsidiary of Waste Connections, Inc, provides solid waste collection services to Plymouth residents. Waste that is collected is separated at a material

recovery facility (MRF) in Ione (CIWMB, 2004). The Western Amador Recycling Facility (WARF), located at 6500 Buena Vista Road is located approximately 20 miles south of the project site, consists of the closed Buena Vista Landfill, Amador Disposal Service's administration building and equipment and storage area, and an abandoned vehicle storage yard (Amador County, 2003). The WARF is classified as a large volume transfer/processing facility with a permitted throughput of 152 tons per day and has an average daily throughput of 72 tons per day (CIWMB, 2006). The two-acre facility accepts agricultural waste, construction/demolition waste, industrial waste, mixed municipal waste and tires (CIWMB, 2004).

The WARF received solid waste from the entire county prior to closing on April 1, 2004 (Amador County Public Works, pers comm, 2004). Currently, was is now routed to the Sacramento County Landfill (Kiefer Landfill) on 1,084-acres (660 disposal acres), located at 12701 Kiefer Boulevard in Sloughhouse 20 miles west of the project site and 25 miles northwest of the WARF. The Kiefer Landfill is classified as a solid waste facility with a permitted capacity of 10,815 tons/day, with an average day receiving rate of 2,050 tons/day. The landfill has a permitted capacity of 117,400,000 cubic yards and can accept construction/demolition waste, mixed municipal waste, other designated waste and sludge (biosolids) (CIWMB, 2004). The landfill's waste acceptance policy requires that biosolids must be dewatered and consist of less than 50-percent liquid. The estimated closure date for this solid waste landfill is January 1, 2064.

3.9.4 ELECTRICITY, NATURAL GAS AND TELECOMMUNICATIONS

ELECTRICAL AND GAS SERVICES

Pacific Gas & Electric (PG&E) provides electrical power to the majority of Amador County, including the City of Plymouth. PG&E currently maintains a 12-kilovolt substation on the corner of Main Street and Shenandoah Road that serves an area from Plymouth to Sutter Creek. Overhead PG&E utility lines are located adjacent to the project site and on the project site to serve the existing homes and the Shenandoah Inn. PG&E does not provide natural gas in the area. However, Plymouth area residents store and use propane made available through a number of suppliers in the County, including Suburban Propane, Amador Propane, First Propane Of Amador, Golden State Propane, Kamps Propane, AAA Propane, and First Propane Franchising Inc (City of Plymouth, 2001).

TELECOMMUNICATIONS

Southern Bell Communications (SBC) provides telephone service in the City of Plymouth. An AT&T wireless telecommunications tower is located on the east side of town and provides cell phone coverage to the City (City of Plymouth 2001).

3.9.5 PUBLIC HEALTH AND SAFETY

LAW ENFORCEMENT

The City of Plymouth disbanded its two-person police department in 1985 in response to statewide difficulties with liability insurance coverage. Police protection services to the City of Plymouth are now provided through a Joint Powers Agreement (JPA) with the County of Amador; whereby, the City has become a part of the Amador Operational Area as set forth in the California Emergency Services Act. Under the JPA contract the City is assured a minimum of 20 hours of Law Enforcement Service per 24-hour day (City of Plymouth, 2001). The Amador County Sheriff's Office (ACSO) and jail renovation project was completed in June 2004. The project added 4,190 square feet of space for administrative services and renovated the jail by 1,298 square feet (Amador County, 2004). The ACSO is currently adding to the office space in the administrative wing of the main Sheriff's Office in Jackson. According to the Sheriff, the jail is continually over capacity by ten to fifteen percent. However, the above-mentioned expansion did not include an increase of holding capacity and there are no plans in process (ASCO, 2004a) (**Appendix L**).

The ACSO provides general law enforcement services to the City of Plymouth on a contract basis. The nearest station is located in the fire station on Sherwood Street in Plymouth. A total of three deputies use this facility, which consists of one desk, one file cabinet and a telephone. The main office and jail for the ACSO is located at 700 Court Street in Jackson, approximately fourteen miles from the project site. Response times to Plymouth vary because ASCO contracts only 1.5 full time equivalent deputies to Plymouth. If a deputy is in the vicinity of Plymouth, response time for both emergency and non-emergency can be less than five minutes. However, with the low staffing level, there are periods when no deputies are in the vicinity of Plymouth and response times then average thirteen minutes for emergency calls and 29 minutes to non-emergency calls (ASCO, 2004a) (**Appendix L**).

The California Highway Patrol (CHP) provides traffic enforcement services to the project area from a main office located at 301 Clinton Road in Jackson. The CHP provides traffic enforcement services to all of the unincorporated areas of Amador County out of the Jackson office. The office is staffed with 21 officers and 3 Sergeants on three shifts, Shift A, B & C. The A Shift is from 5:45am to 2:15pm and consists of 7 officers on duty with a deployment of 3-4 officers with one person per car. The B Shift is from 1:45pm to 10:15pm and also consists of 7 officers on duty with a deployment of 3-4 officers with one person per car. The C Shift is from 7:30pm to 4:00am and consists of 4 officers on duty with a deployment of 1-4 officers with one to two people per car. One car is on duty between the end of the C Shift at 4:00am and the beginning of the A Shift at 5:45am (Knudsen, pers. comm., 2004).

The Amador County District Attorney's (DA's) Office provides the City of Plymouth with investigation and prosecution of crimes committed within the county. The office also supervises

the Public Conservator and Public Administrator Offices. According to the District Attorney, the offices provide attorney services, investigative services, clerical services, and victim/witness services (ACDA, 2004) (**Appendix L**).

Attorney services provided by the Amador County DA's office include performing a review of cases, reviewing discovery information and making charging decisions. The DA's office is also responsible for filing criminal complaints and subpoenaing witnesses. The DA's office researches and prepares all written motions and prepares for preliminary hearings and trials including parole hearings. The DA's office communicates and attends meetings with law enforcement agencies, the defense counsel and witnesses. The DA's office conducts public outreach on public safety issues and provides research and legal advice for Grand Jury and other agencies. According to the Amador County District Attorney, a typical motion takes about 1 hour to argue, and 5-7 hours to research and prepare. A typical preliminary hearing, while lasting 1-2 hours, will have taken 5-7 hours of preparation time. A typical trial will last 1-2 days and take 20-30 hours of preparation time (ACDA, 2004) (**Appendix L**).

The elected District Attorney and six Deputy District Attorneys staff the office. The DA and the Chief Staff Attorney handle primarily administration, policies and procedures, personnel issues, Grand Jury issues, training, public outreach, budget preparation and management, attorney assignments, criminal and juvenile cases as assigned, and some criminal charging. In the 2003 calendar year, the District Attorney's Office received 1,098 felony referrals, 2,649 misdemeanor referrals, 1,063 infractions (partial total), and 280 juvenile referrals for a total of 5,090 total criminal referrals. The six Deputy District Attorney's handled an average of 848 criminal referrals apiece during that same year (ACDA, 2004) (**Appendix L**).

Investigative services provided by the Amador County District Attorney's office include obtaining copies of video surveillance tapes and audiocassette tapes of interviews and detentions and obtaining copies of photos, police reports and prior criminal records for defendants and witnesses. The DA's office conducts witness interviews and views, collects and reports on physical evidence from a crime scene. The DA conducts public outreach sessions on public safety issues and conducts peace officer training for other law enforcement agencies. The DA's office also provides background investigations for other County agencies, testifies at motions, preliminary hearings and trials and attends parole hearings and meetings.

According to the District Attorney's Office, investigative staff includes a Chief District Attorney Investigator, Supervising DA Investigator, 10 full-time and 4 part-time investigators assigned to the Public Conservator's Office, Central Sierra Child Support Office, various grants, child abduction, backgrounds, welfare fraud, prison and Youth Authority crimes, and general criminal investigations. Since not all criminal referrals require investigative services, the District Attorney expressed difficulty in calculating an accurate estimate of the average caseload for the

investigators. A rough estimate from the District Attorney's office is that the investigators handled an average of 50-70 referrals apiece in 2003 (ACDA, 2004) (**Appendix L**).

Clerical services provided by the Amador County District Attorney's Office include services such as opening, preparing and filing criminal complaints. The clerical services division provides defense discovery, including supplemental discovery and communicates with the Superior Court and law enforcement agencies. Clerical duties include pulling cases for the court calendar, copying or transcribing video and/or audiotapes and typing, copying, and filing any motions. The clerical staff prepares jury instruction packets and verdict forms for trial and subpoenas for motions, preliminary hearings, and/or trials. Other clerical duties include opening and sorting all incoming mail, compiling statistics for cases and organizing case files. According to the District Attorney, clerical staff of the District Attorney's Office includes one Supervisor, six legal secretaries, a legal processing clerk, and a paralegal. The six legal secretaries and the legal processing clerk handled an average of 727 criminal referrals each in 2003 (ACDA, 2004) (**Appendix L**).

Victim/witness services provided by the District Attorney's Office staff typically include meeting with and attending court appearances with the victims and assisting in the coordination of all witness testimony. The division also refers victims to other needed services; assists victims in preparing restraining orders and provides transportation for victims. The office is staffed with 1 full-time Program Manager who serves roughly 300-350 victims and witnesses annually (ACDA, 2004) (**Appendix L**).

FIRE PROTECTION

The City of Plymouth entered into a contract in February 1999 with the Amador Fire Protection District (AFPD) to receive fire and emergency medical services. The City pays the AFPD approximately \$22,252 a year and provides a fire station located within the City. The AFPD is a regional service provider for fire, rescue and emergency medical services and provides these services to the communities and surrounding areas of Amador Pines, Pioneer, Pine Grove, Pine Acres, Volcano, Martell, Drytown, Willow Springs, Fiddletown, River Pines, and the City of Plymouth. The AFPD is supported by approximately 65 volunteer firefighters who respond to over 1,500 fire and medical emergency calls each year (Amador County, 2003a). There are 13 volunteers assigned to Station 122 and in 2004, personnel responded to 136 calls for service in the City of Plymouth. Of those calls, approximately 70-percent, or 95 calls, were for emergency medical services (City of Plymouth, 2005).

The AFPD serves the community with volunteer firefighters. AFPD is under contract to the City of Plymouth and provides fire protection, fire suppression and emergency response services relating to the protection of lives and property. AFPD Station 122, in the City of Plymouth is approximately one mile from the project site. According to Fire Chief Jim McCart, volunteer

recruitment and retention is problematic and current volunteer roster, as well as the very nature of a volunteer system, does not guarantee personnel to respond to each emergency in the numbers needed to mitigate that emergency (AFPD, 2004) (**Appendix L**). The average response time for all emergency and non-emergency AFPD calls is 8 minutes¹. The average response time for service within the City of Plymouth in 2004 was 5 minutes and 32 seconds. The average personnel turnout for calls occurring within the City of Plymouth in 2004 was 3.2 people. The most common service response is for medical aid related emergencies (AFPD, 2004) (**Appendix L**).

The Insurance Services Office (ISO) Public Protection Classification (PPC) System rating for the AFPD is a 6/8 (AFPD, 2004) (**Appendix L**). The PPC Class is the rating an area receives and this system is used to determine what residents will pay for the fire protection portion of their homeowners insurance. The best rating is 1 and worst rating is 10. Areas with mixed urban and rural receive two ratings (urban/rural), the first is the urban rating and the second is the rural rating. The Schedule measures the major elements of a fire district or city's fire suppression system. The classification is divided into three major sections: the fire department organization in the area, the water supply in the area, and how fire alarms are received and handled for the community. Water supplies make up 40-percent of the rating, fire department operations account for 50-percent of the rating and, receiving and handling fire alarms accounts for 10-percent of the rating.

The AFPD provides fire and medical protection service to approximately 350 households and businesses within the City of Plymouth from the Plymouth AFPD fire station. Thirteen volunteer fire fighters staff the Plymouth AFPD fire station including one Assistant Battalion Chief/EMT Level 1, two Captains, and ten Fire Fighters. The Sutter Amador Health Center, located at Empire and Locust Street in Plymouth, is the main health care facility available for the City of Plymouth. Medical services are also available in Jackson, including the Amador County Health Department, the Amador County Mental Health Department, the Sutter Amador Hospital, and the American Legion Ambulance Service (City of Plymouth, 2001). Ambulatory and transport services are not provided by the AFPD. These services are provided by various private agencies that serve the Plymouth area (City of Plymouth, 2005).

¹ Response time standards for fire and EMS calls is 6 minutes for professional fire departments. Response time standards do not apply to volunteer fire departments.

3.10 OTHER VALUES

This section describes the existing environmental conditions of other values for the proposed Amador County project site. Topics include noise, hazardous materials, and visual resources. The general and site-specific profiles of Other Values contained herein provide the environmental baseline by which direct, indirect, and cumulative environmental effects are identified and measured in **Section 4.0**.

3.10.1 NOISE

ACOUSTICAL BACKGROUND AND TERMINOLOGY

Noise is often defined as unwanted sound. Pressure variations occurring frequently enough (at least 20 times per second) that the human ear can detect are called sound. The number of pressure variations per second is called the frequency of sound, and is expressed as cycles per second, called hertz (Hz).

The perceived loudness of sounds is dependent upon many factors, including sound pressure level and frequency content. However, within the usual range of environmental noise levels, perception of loudness is relatively predictable. Measuring sound directly in terms of pressure would require a very large and awkward range of numbers. To avoid this, the decibel scale was devised. The decibel scale uses the hearing threshold (20 micropascals of pressure) as a point of reference, defined as 0 dB. Other sound pressures are then compared to the reference pressure, and the logarithm is taken to keep the numbers in a practical range. The decibel scale allows a million-fold increase in pressure to be expressed as 120 dB. Another useful aspect of the decibel scale is that changes in levels (dB) correspond closely to human perception of relative loudness.

NOISE EXPOSURE AND COMMUNITY NOISE

Community noise is commonly described in terms of the “ambient” noise level, which is defined as the all-encompassing noise level associated with a given noise environment. A common statistical tool to measure the ambient noise level is the average, or equivalent, sound level (L_{eq}) over a given time period (usually one hour). The L_{eq} is the foundation of the Day-Night Average Level noise descriptor (L_{dn}), and shows very good correlation with community response to noise. **Table 3.10-1** contains definitions of acoustical terminology used in this section. **Table 3.10-2** shows examples of noise sources that correspond to various sound levels.

The L_{dn} is based upon the average noise level over a 24-hour day, with a +10 decibel weighting applied to noise occurring during nighttime (10:00 p.m. to 7:00 a.m.) hours. Additional weight is placed on nighttime readings based upon the assumption that people react to nighttime noise exposures as though they were twice as loud as daytime exposures. Because L_{dn} represents a 24-hour average, it tends to disguise short-term variations in the noise environment. L_{dn} -based noise

standards are commonly used to assess noise effects associated with traffic, railroad, and aircraft noise sources.

TABLE 3.10-1
ACOUSTICAL TERMINOLOGY

Term	Definition
A-weighted	The A-weighted sound level has been shown to correlate with subjective responses and two sounds judged to be of similar loudness would produce similar dB(A) values, although their unweighted dB values would vary considerably. The A-weighting compares well with other noise sources. It is, therefore, the most widely used.
Ambient Noise	The distinctive acoustical characteristics of a given space consisting of all noise sources audible at that location. In many cases, the term ambient is used to describe an existing or pre-project condition such as the setting in an environmental noise study.
Attenuation	The reduction of noise.
Decibel or dB	Fundamental unit of sound. A Bell is defined as the logarithm of the ratio of the sound pressure squared over the reference pressure squared. A decibel is one-tenth of a Bell.
CNEL	Community Noise Equivalent Level. Defined as the 24-hour average noise level with noise occurring during evening hours (7 to 10 p.m.) weighted by a factor of 3 and nighttime hours weighted by a factor of 10 prior to averaging.
L_{dn}	The 24-hour day and night A-weighted noise exposure level that accounts for the greater sensitivity of most people to nighttime noise by weighting noise levels at night ("penalizing" nighttime noises). Noise between 10:00 p.m. and 7:00 a.m. is weighted (penalized) by adding 10 dBA to take into account the greater annoyance of nighttime noises.
L_{eq}	The equivalent sound level is used to describe noise over a specified period of time, typically one hour, in terms of a single numerical value. The L_{eq} is the constant sound level, which would contain the same acoustic energy as the varying sound level, during the same time period (i.e., the average noise exposure level for the given time period).
L_{max}	The highest root-mean-square (RMS) sound level measured over a given period of time.

SOURCE: Beranek, 1998.

EFFECTS OF NOISE ON PEOPLE

The effects of noise on people fall into three categories:

- Subjective effects of annoyance, nuisance, and dissatisfaction.
- Interference with activities such as speech, sleep, and learning.
- Physiological effects such as hearing loss or sudden startling.

Environmental noise typically produces effects in the first two categories. Workers in industrial plants can experience noise in the last category. There is no completely satisfactory way to

measure the subjective effects of noise, or the corresponding reactions of annoyance and dissatisfaction. A wide variation in individual thresholds of annoyance exists, and different tolerances to noise tend to develop based on an individual's past experiences with noise.

TABLE 3.10-2
TYPICAL A-WEIGHTED SOUND LEVELS OF COMMON NOISE SOURCES

Loudness Ratio	Decibels (dBA)	Description
128	130	Threshold of pain.
64	120	Jet aircraft take-off at 100 feet.
32	110	Riveting machine at operator's position.
16	100	Shotgun at 200 feet.
8	90	Bulldozer at 50 feet.
4	80	Diesel locomotive at 300 feet.
2	70	Commercial jet aircraft interior during flight.
1	60	Normal conversation speech at 5 to 10 feet.
1/2	50	Open office background level.
1/4	40	Background level within a residence.
1/8	30	Soft whisper at 2 feet.
1/16	20	Interior of recording studio.

SOURCE: Beranek, 1998.

Human reaction to a new noise can be estimated through comparison of the new noise to the existing ambient noise level within a given environment. In general, the more a new noise exceeds the previously existing ambient noise level, the less acceptable the new noise will likely be judged by the recipients. With regard to increases in A-weighted noise levels, the following relationships occur:

- Except in carefully controlled laboratory experiments, a change of 1-dBA cannot be perceived.
- Outside of the laboratory, a 3-dBA change is considered a just-perceivable difference.
- A change in level of at least 5-dBA is required before any noticeable change in human response would be expected.
- A 10-dBA change is subjectively heard as approximately a doubling in loudness and can cause adverse response.

Noise effects on humans can be physical or behavioral in nature. The mechanism for chronic exposure to noise leading to hearing loss is well established. The elevated sound levels cause trauma to the cochlear structure in the inner ear, which gives rise to irreversible hearing loss.

Though it pales in comparison to the health effects noted above, noise pollution also constitutes a significant factor of annoyance and distraction in modern artificial environments:

- The meaning listeners attribute to the sound influences annoyance; if listeners dislike the noise content, they are annoyed.
- If the sound causes activity interference (for example, sleep disturbance), it is more likely to annoy.
- If listeners feel they can control the noise source, it is less likely to be perceived as annoying.
- If listeners believe that the noise is subject to third party control, including police, but control has failed, they are more annoyed.
- The perceived unpleasantness of the sound causes annoyance. What is music to one is noise to another.

Generally, most noise worldwide is generated by transportation systems, principally motor vehicle noise, but also including aircraft noise and rail noise. Poor urban planning may also give rise to noise pollution, since juxtaposition of industrial to residential land uses, for example, often results in adverse consequences for the residential acoustic environment. Besides transportation noise, other prominent sources are office equipment, factory machinery, appliances, power tools, lighting hum, and audio entertainment systems.

Stationary point sources of noise, including stationary mobile sources, such as idling vehicles, attenuate (lessen) at a rate of six to nine dBA per doubling of distance from the source, depending on environmental conditions (i.e., atmospheric conditions and noise barriers, either vegetative or manufactured, etc.). Widely distributed noises, such as a large industrial facility spread over many acres or a street with moving vehicles, would typically attenuate at a lower rate, approximately four to six dBA.

NOISE ATTENUATION

Stationary point sources of noise, including stationary mobile sources such as idling vehicles, attenuate (lessen) at a rate between 6 dBA for hard sites and 7.5 dBA for soft sites for each doubling of distance from the reference measurement. Hard sites are those with a reflective surface between the source and the receiver such as parking lots or smooth bodies of water. No excess ground attenuation is assumed for hard sites and the changes in noise levels with distance (drop-off rate) is simply the geometric spreading of the noise from the source. Soft sites have an absorptive ground surface, such as soft dirt, grass or scattered bushes and trees. In addition to geometric spreading, an excess ground attenuation value of 1.5 dBA (per doubling distance) is normally assumed for soft sites. Line sources (such as traffic noise from vehicles) attenuate at a

rate between 3 dBA for hard sites and 4.5 dBA for soft sites for each doubling of distance from the reference measurement (Caltrans, 1998{ TC “Caltrans, 1998” \f C \l “1” }).

REGULATORY ENVIRONMENT

Noise criteria used in this study include the Federal Highway Administration (FHWA) Noise Abatement Criteria (NAC) for the assessment of noise consequences related to surface traffic. In addition, environmental consequences are also evaluated relative to the change in ambient noise conditions at existing noise-sensitive uses in the project vicinity that would result from the project. These criteria are discussed below.

Federal Noise Abatement Criteria

The FHWA establishes the NAC for various land uses, which have been categorized based upon activity. Land uses are categorized on the basis of their sensitivity to noise, as indicated in **Table 3.10-2**. The standards and criteria in **Table 3.10-3** which may be considered applicable to this project would be the 67 dBA Leq exterior noise-level standard for Residences and Motels (Category B) and the 52 dB interior noise-level standard applied to those same uses under Category E.

TABLE 3.10-3
FEDERAL NOISE ABATEMENT CRITERIA

Activity Category	Leq (h), dBA	Activity Category Description
A	57 (Exterior)	Lands on which serenity and quiet are of extraordinary significance and serve an important public need and where the preservation of those qualities is essential if the area is to continue to serve its intended purpose.
B	67 (Exterior)	Picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals.
C	72 (Exterior)	Developed lands, properties, or activities not included in Categories A or B above.
D	---	Undeveloped Lands.
E	52 (Interior)	Residences, motels, hotels, public meeting rooms, schools, churches, libraries, hospitals, and auditoriums.

NOTE: Hourly A-Weighted Sound Level--decibels (dBA)

SOURCE: Federal Highway Administration; 23 CFR, Part 772, Caltrans, *Traffic Noise Analysis Protocol*, 1998.

DESCRIPTION OF THE AFFECTED ENVIRONMENT

The noise environment of the project area is primarily defined by traffic on SR 49. Generally, experienced noise levels from highway traffic decrease as receptor distance from the highway increases. For each doubling of distance from the source, noise levels decrease approximately 3 to 4.5 dBA due to attenuation, which could be greater if barriers come between traffic and the

receptor. To quantify ambient noise levels in the project vicinity, two on-site locations were chosen to conduct 24-hour noise measurements on the following days, Sunday, January 11, 2004 and Monday, January 12, 2004. Site measurement locations are shown on **Figure 3.10-1**. The results of the 24-hour tests are shown on **Figure 3.10-2**. The results are also summarized in **Figure 3.10-3**. As seen in the figures, noise levels at 50 feet from SR 49 average less than 60 Leq at most times and noise levels at 1,000 feet from SR 49 average less than 50 Leq at most times, below the abatement criteria in Table 3.10-3.

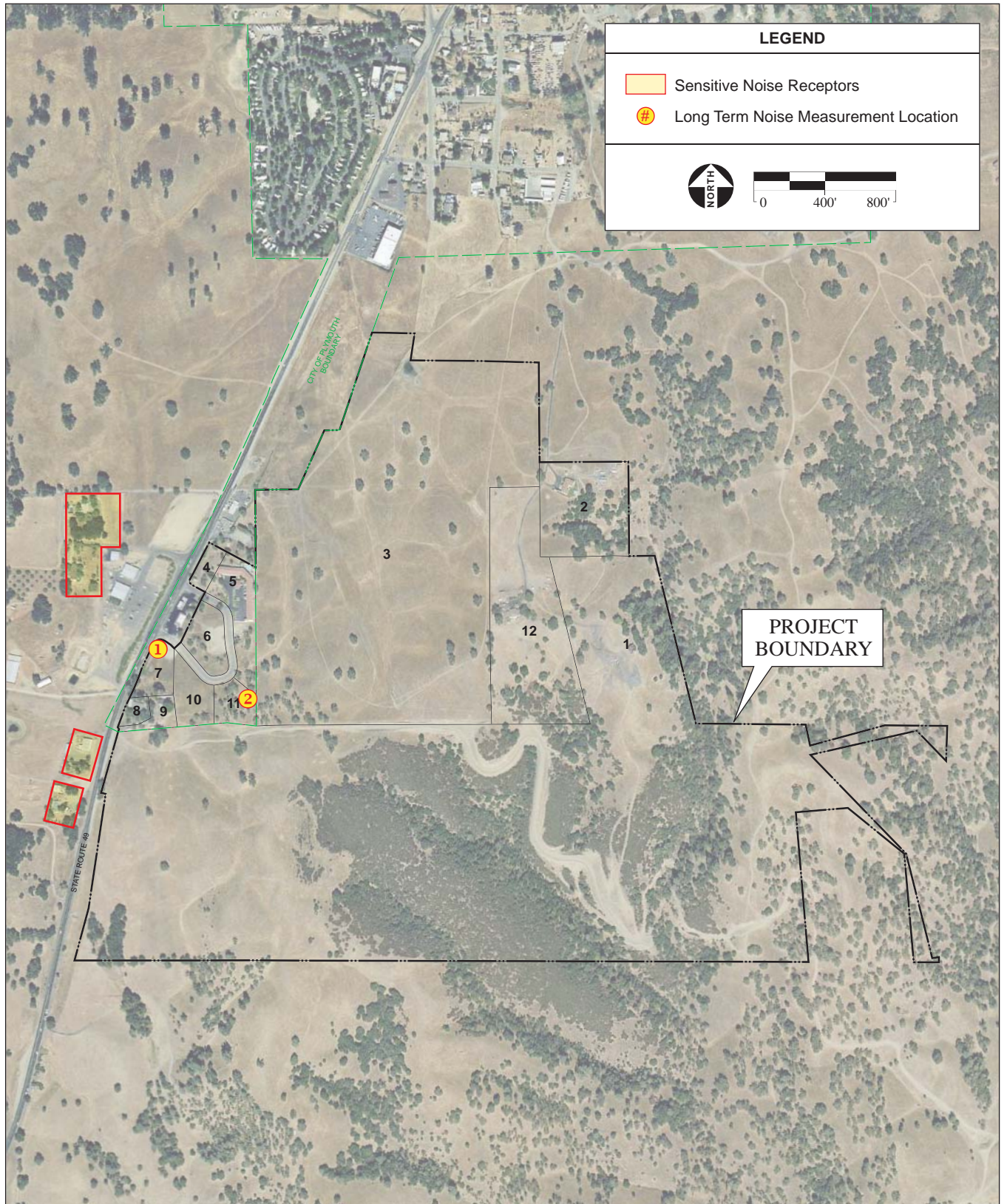
SENSITIVE RECEPTORS

There is a range of sensitivity to noise levels that varies according to the land use of the receiver of the noise. Sensitive land use areas include picnic areas, recreation areas, playgrounds, active sports areas, parks, residences, motels, hotels, schools, churches, libraries, and hospitals. Commercial and industrial land uses are not as sensitive to noise levels. Sensitive land uses near the project site consist of residences to the east of the project site and one residence to the northwest of the proposed main casino but within the overall boundaries of the project site.

The project site is bordered to the east and south by undeveloped land. The land to the west is lightly developed with commercial uses and residences that are approximately 1,000 feet from activity areas on the project site. There is about a 500-foot buffer of undeveloped land between the most northerly part of the project site and the Pokerville Grocery, which is designated as a Commercial land use and not considered a sensitive use. A mobile home court is located across SR 49 (to the west) approximately 45 feet from the Pokerville Grocery. See **Figure 3.10-1**. There are commercial businesses in the vicinity of the project (e.g., Shell station and mini mart, restaurants, hardware store, hay and grain store, and a veterinary clinic) but these are also designated as Commercial and are not considered to be sensitive receptors for noise. As seen in **Figure 3.10-1**, the nearest sensitive receptors are west of the project site: two residences adjacent to SR 49 southwest of the project site and one residence to the northwest of the site, about 500 feet from SR 49.

3.10.2 HAZARDS AND HAZARDOUS MATERIALS

A Phase I Site Environmental Site Assessment (Phase I) of the project site and adjacent properties was performed and the summary report included as **Appendix O** of the Draft EIS. The purpose of the Phase I was to identify environmental conditions and hazardous materials involvement that may pose a material risk to human health or to the environment, or may affect the proposed use of the subject property. The Phase I was performed in conformance with the scope and limitations of ASTM Standard Practice E 1527-00, which specifies the appropriate inquiry requirements for the innocent landowner defense under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA). Notable features and environmental conditions of

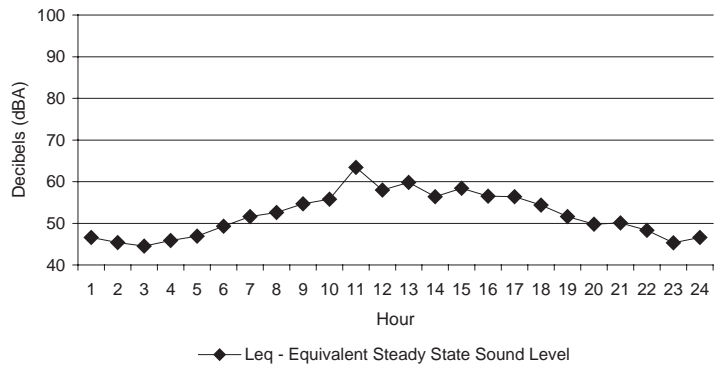


SOURCE: USGS Aerial Photograph, 8/16/1998; AES, 2005

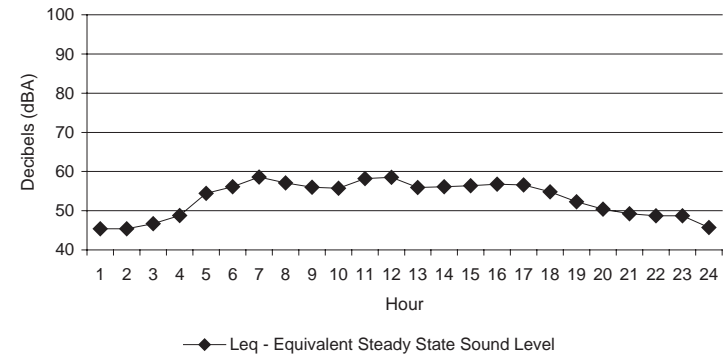
Ione Band of Miwok Indians EIS / 203525 ■

Figure 3.10-1
Sensitive Receptors and Location of Long-Term Noise Measurements

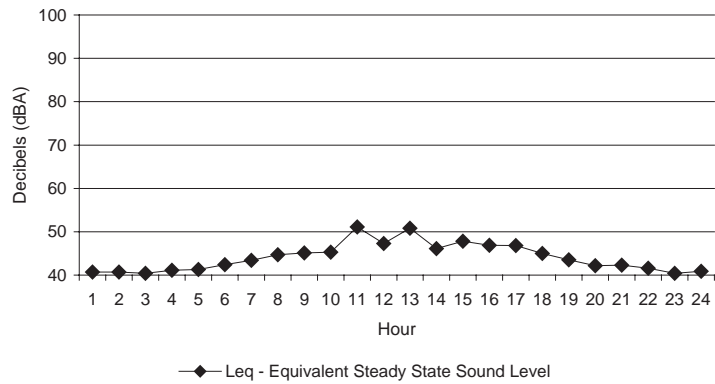
24-hours Noise Measurement
 Site A - 50' from edge of Hwy 49
 Sunday January 11, 2004



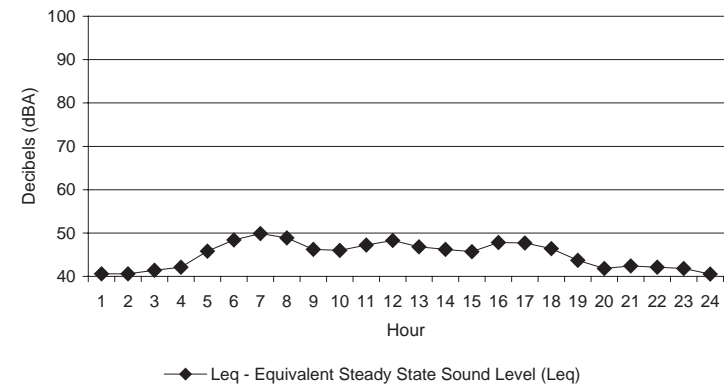
24-hours Noise Measurement
 Site A - 50' from edge of Hwy 49
 Monday January 12, 2004



24-hours Noise Measurement
 Site B - 1,000' east of Hwy 49
 Sunday January 11, 2004



24-hours Noise Measurement
 Site B - 1,000' east of Hwy 49
 Monday January 12, 2004



EXISTING NOISE MEASUREMENTS

Location	Time Period	L_{eq}	Noise Sources & Comments
Location A	24-hour measurements ¹ were: <ul style="list-style-type: none"> · Sunday 57 CNEL · Monday 59 CNEL 	44 - 63 (hourly values)	Noise from traffic on Highway 49. Meter is 50 feet from centerline of Highway 49, some additional noise from activity at the Shell station.
Location B	24-hour measurements ¹ were: <ul style="list-style-type: none"> · Sunday 49 CNEL · Monday 51 CNEL 	40 - 51 (hourly values)	Noise from traffic on Highway 49. Meter is 1,000 feet from Highway 49.
Highway 16 at Michigan Bar Road	5 minute measurements ² <ul style="list-style-type: none"> · Sunday 60 L_{eq} · Wednesday 61 L_{eq} 	No hourly data	Noise from traffic on Highway 16.
Highway 124 near Dry Creek Bridge	5 minute measurements ² <ul style="list-style-type: none"> · Sunday 54 L_{eq} · Wednesday 57 L_{eq} 	No hourly data	Noise from traffic on Highway 124.
Highway 49 just north of Drytown	5 minute measurements ² <ul style="list-style-type: none"> · Sunday 60 L_{eq} · Wednesday 62 L_{eq} 	No hourly data	Noise from traffic on Highway 49.
Highway 49 at Miller Way just north of Plymouth	5 minute measurements ² <ul style="list-style-type: none"> · Sunday 63 L_{eq} · Wednesday 56 L_{eq} 	No hourly data	Noise from traffic on Highway 49, plus a couple of cars each measurement on Miller Way.

1. The 24-hour (plus) measurements at sites A and B began at midnight on Sunday January 11, 2004 and collected data all day Sunday and Monday.
2. The short-term 5-minute measurements were conducted between 1 p.m. and 2:30 p.m. on Sunday August 8, 2004 and between 5 p.m. and 6 p.m. on Wednesday August 11, 2004. Measurements were 100 feet from the roadway centerline.

the project site identified during the performance of the area reconnaissance during the Phase I are summarized below:

Parcel #1

- A mine lift station is present on the northeast border. There are several large piles of waste rock associated with the mine site. These piles are likely the result of past mining activities (Photos 1&2, Figure 7 of **Appendix O**).

Parcel #2

- A small leaking oil container holding approximately 2 quarts of oil was observed on the parcel (Photos 3&4, Figure 7 of **Appendix O**).

Parcel #3

- There were no signs of obvious environmental conditions that would impact the project parcels (Photos 10&11, Figure 8 of **Appendix O**).

Parcel #4

- There were no signs of obvious environmental conditions that would impact the project site (Photo 12, Figure 8 of **Appendix O**).

Parcel #5

- There were no signs of obvious environmental conditions that would impact the project site (Photos 12-14, Figure 8 and Figure 9 of **Appendix O**).

Parcel #6

- There were no signs of obvious environmental conditions that would impact the project site (Photo 16, Figure 9 of **Appendix O**).

Parcel #7

- A private well is located on the property that supplies parcels 010-200-008 and 010-200-009 (Photos 17-19, Figure 9 and Figure 10 of **Appendix O**).

Parcel #8

- There were no signs of obvious environmental conditions that would impact the project site (Photo 21, Figure 10 of **Appendix O**).

Parcel #9

- There are several large debris piles located on the parcel. The piles are mostly fill-dirt with some asphalt (Photos 23&24, Figure 10 of **Appendix O**).

Parcel #10

- There were no signs of obvious environmental conditions that would impact the project site (Photo 25, Figure 11 of **Appendix O**).

Parcel #11

- There were no signs of obvious environmental conditions that would impact the project site (Photo 26, Figure 11 of **Appendix O**).

Parcel #12

- Several automobiles were present on the parcel that were in various forms of disrepair, with used tires and various car parts in the area (Photo 27&28, Figure 11 of **Appendix O**).

Phase I included a regulatory database search for records of known storage tank sites and hazardous materials generation, storage, or contamination on or near the subject property was conducted by Environmental Data Resources, Inc. (EDR). Databases were searched for sites and listings up to 1 mile from a point roughly equivalent to the center of the subject property. Additionally, data from the California Department of Conservation, Division of Oil, Gas and Geothermal Resources (DOGGR) was reviewed. No oil or gas wells were identified within a 1-mile radius of the subject property.

Based on this review, there are no registered contaminant sites located on or within one-half mile of the project site. Further out, EDR identified one CORTESE site within approximately 0.95 miles of the subject property. The identified site is located in the City of Plymouth, at 18500 Sherwood Street. Contamination at this site was due to a leaking underground fuel storage tank and was confined to soil only. The contaminated soil was removed and disposed. This case is closed and requires no additional environmental action.

3.10.3 VISUAL RESOURCES

The project area contains three residences, scattered outbuildings, yards, the Shenandoah Inn, unpaved access roads, remnants of an old mining operation, including a lift station, and utility lines (**Figure 3.10-4**). SR 49 borders the project site on the west. The view shed of the project site from SR 49 includes one rural residence and the Shenandoah Inn. Views of Parcels #4 through #11 are mostly shielded from northbound travelers on SR 49 by commercial development and gently sloping topography along the highway. The view shed of southbound travelers along SR 49 (**Figure 1-3**) is unhindered across the relatively flat vista of Parcel #3 but is partially shielded by commercial development and gently sloping topography upon traversing Parcels #4 through #11.

Parcel #1 is the southern boundary of the project area. The western quarter of Parcel #1 consists of gently rolling hills with annual grasses and sparsely scattered oak savanna. The landscape slopes downward to the southwestern corner of the parcel where a small cattle pond is located. The topography of the remainder of the parcel consists of much steeper rolling hillsides with an eastward down slope. Intermittent drainages flow to the southeast. Chaparral and riparian woodland cover most of the hillside. The northern extension of Parcel #1 contains an abandoned



PHOTO 1: View of the abandoned mine looking northeast.



PHOTO 2: View looking north from the south central portion of the project site.



PHOTO 3: View looking north from central portion of the project site.



PHOTO 4: View looking south of the existing road.



PHOTO 5: View looking south at the two onsite residential units in the east central portion of the project site.



PHOTO 6: View looking south along Highway 49 adjacent to the project site.

mine. Remnants of the mine lift station and scattered debris piles are still visible. View of the mine from the other project parcels is restricted from all angles as a result of the oak savanna, oak woodland habitat, and surrounding hills.

Parcel #2 and #12 are located immediately northwest of the abandoned mine. Roughly one quarter of each parcel is urbanized with single-family residential homes and associated outbuildings. Parcel #2 contains a small pigpen housing approximately a half dozen pigs. The remainder of the parcels are covered primarily with annual grasslands and oak woodland habitat. The topography of each parcel has little relief; however, a small gulch is located on the southeastern corner of Parcel #2 with evidence of intermittent drainage.

Parcel #3 lies to the west of Parcel #2 and north of Parcel #1. This parcel has very little relief and consists primarily of flat annual grassland and sparsely scattered oak savanna and oak woodland habitat. Two cattle ponds and associated wetlands are located to the north and east on the edge of Parcel #3. A few small vernal pools and a vernal swale are located in various locations around the parcel. An abandoned shed can be found on the western portion of the parcel that is closest to SR 49.

Parcels #4 and #5 are located east of SR 49 and west of Parcel #3. Roughly three quarters of the combined parcels contain urban features with little to no topographic relief. Signage for the Shenandoah Inn is located on Parcel #4, adjacent and east of SR 49. The Shenandoah Inn and associated outbuildings are located on Parcel #5, east of Parcel #4 and adjacent to the western edge of Parcel #3. The remainder of Parcel #5 is comprised primarily of flat oak woodland habitat. Village Drive, a small loop road that connects to SR 49, makes up the southwestern border for the two parcels.

Parcel #6 is an undeveloped parcel bordered on the west by a small Texaco gas station and to the north, east, and south, by the small loop road, Village Drive. The topography for Parcel #6 consists of a gentle easterly upward trending slope covered by oak woodland habitat.

Parcel #7 is located adjacent and to the east of SR 49. The majority of this parcel is vacant but has been prepared for development as indicated by a man made slope that borders the southern and eastern edge of the parcel. A small detention basin and cistern lies in the middle of the parcel. A roadside detention basin runs parallel to SR 49 on western edge of the parcel.

Parcels #8 and #9, located east of SR 49 and north of Parcel #1, each contain a small house and associated outbuildings. The home on Parcel #8 is on an elevated graded pad roughly fifteen feet higher than the home on Parcel #9. An above ground power line serves each residence. The non-urbanized areas of the two parcels are primarily flat, oak woodland habitat.

Parcels #10 and #11, north of Parcel #1 and east of parcel #9, are currently undeveloped annual grasslands and oak woodland habitat. The topography of the two parcels consists an east trending up slope.