Lumsden Ranch

Draft Environmental Impact Report SCH No. 2007032130

Volume 2: Appendices

Submitted to:

City of Placerville
Community Development Department
3101 Center Street
Placerville, California 95667
Contact: Andrew Painter, City Planner
530.642.5252

Submitted by:

SWCA Environmental Consultants
3840 Rosin Court, Suite 130
Sacramento, California 95834
Contact: Scott Goebl, Project Manager
916.565.0356

February 27, 2009

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APPENDIX A:
NOP/INITIAL STUDY

NOTICE OF PREPARATION
MARCH 2007

To: **ALL INTERESTED PARTIES**, the State Clearinghouse and responsible and trustee agencies

Subject: **NOTICE OF PREPARATION OF AN ENVIRONMENTAL IMPACT REPORT**

Lead Agency		**Consulting Firm Retained by Lead Agency**	
Agency Name	Placerville, Community Development Department	**Firm Name**	SWCA Environmental Consultants
Street Address	3101 Center Street	**Street Address**	3840 Rosin Court, Suite 130
City/State/Zip	Placerville, CA 95667	**City/State/Zip**	Sacramento, CA 95834
Contact	Andrew Painter, Planner	**Contact**	Scott Goebl

The **City of Placerville** will be the Lead Agency and will prepare an Environmental Impact Report (EIR) pursuant to the California Environmental Quality Act (CEQA) for the project identified below. We need to know your agency's views on the proposed project's environmental impacts, impact assessment methodologies, potential alternatives, and potential mitigation measures. Your agency may need to use the EIR prepared by our agency when considering permits or other project approvals.

The project description, location, and potential environmental effects are contained in the attached materials. A copy of the Initial Study (☒ ***is*** ☐ ***is not***) attached.

Due to the time limits mandated by state law, your response must be sent at the earliest possible date but not later than April 26, 2007 (30 days after issuance of this notice). Please email your response to Andrew Painter (apainter@ci.placerville.ca.us) in the City of Placerville or send your response by mail to Mr. Calfee's address shown above. We will need the name, address, and phone number for a contact person in your agency.

A public scoping meeting will be held during the comment period on Wednesday, April 11 from 7-9 PM at Placerville Town Hall (549 Main Street, Placerville, CA).

Project Title: **Lumsden Ranch**

Project Location: **Placerville, El Dorado County**

Project Description: A detailed description of the project is attached.

Date: 3/26/2007

Name: Andrew Painter
Title: City Planner
Telephone: (530) 642-5252

ADMINISTRATIVE DRAFT
INITIAL STUDY

1. **Project Title:** Tentative Subdivision Map 06-02 (Lumsden Ranch), Planned Development Overlay 05-01, Environmental Assessment 06-01

2. **Lead Agency Name and Address:** City of Placerville, 3101 Center Street, Placerville, CA 95667

3. **Contact Person and Phone Number:** Andrew Painter, City Planner, (530) 642-5252

4. **Project Location:** Assessor's Parcel No. 049:280:08, 049:340:37.

5. **Project Sponsor's Name and Address:**

   Sid Afshar
   Brilliant Management LLC
   114 Camino Pablo
   Orinda, CA 94563
   (925) 858-0886

6. **General Plan Designation:** High Density Residential (HDR); Low Density Residential (LDR)

7. **Zoning:** R3 (Multi-Family Residential Zone, maximum density: 12 units per acre); R1-20,000 (Single-Family Residential, 20,000 square foot minimum parcel).

8. **Description of Project:** Request for a phased Tentative Subdivision Map for the subdivision of a 133-acre parcel into 366 residential parcels along with a Planned Development Overlay located northwest of the Placerville Airport, north of Barrett Drive, and south of Broadway.

9. **Surrounding Land Uses and Setting:** The project site acreage totals approximately 133 acres. It is one of the largest underdeveloped parcels within the City. Of the 133 acres, approximately 23 acres are zoned R3 (Multi-Family Residential Zone, up to 12 dwelling units per acre), and the remaining 110-acres are zoned R1-20,000 (Single-Family Residential Zone, 20,000 square foot minimum parcel). The site is adjacent and east of the City-approved Eskaton project at Spanish Hill.

   Site elevations range from 2,000 to 2,400 feet above mean sea level (msl) along Texas Hill at Barrett Drive. Site slope ranges from 0% to 40% over the entire site. Site geologic features include slate and sandstone of the Calaveras Complex underlying predominantly sandy silt or silty sand surface soils.

   Predominant canopy vegetation onsite is a mixture of oak and pine species, including black oak, blue oak, live oak, valley oak, foothill pine, and ponderosa pine. Other tree species include incense cedar, madrone, California buckeye, and dogwood. Understory species include manzanita, toyon, several brush species, and native and non-native grasses.

Surface drainage consists of numerous ephemeral streams, seeps, springs, a pond, and an intermittent stream, with a generalized flow toward a pond in Lumsden Park (sometimes called Lumsden Lake) located offsite and north of the project.

The site does have existing residences and outbuildings. There is evidence of additional man-made disturbance to the site, including First Nation (Native American) resources, a segment of the El Dorado Canal system built between 1854 and 1876, and placer and hydraulic mining features.

10. **City Entitlements:** The applicant has requested a Tentative Subdivision Map 06-02, Planned Development Overlay 05-01, and an Environmental Assessment 06-01.

11. **Other agencies whose approval is required:** The project may require Section 404 authorization from the U.S. Army Corps of Engineers; a 1602 Streambed Alteration Agreement from California Department of Fish and Game; 401 water quality certification from Regional Water Quality Control Board; an incidental take permit from the U.S. Fish and Wildlife Service; and, approval of a Fire Safe Plan by El Dorado County Fire Protection District.

ENVIRONMENTAL FACTORS POTENTIALLY AFFECTED:

The environmental factors checked below would be potentially affected by this project, involving at least one impact that is a "Potentially Significant Impact" or as indicated by the checklist on the following pages.

☒ Land Use and Planning	☒ Transportation/Circulation	☒ Public Services
☒ Population & Housing	☒ Biological Resources	☒ Utilities & Service System
☒ Geologic	☐ Energy & Mineral Resources	☒ Aesthetics
☒ Water	☒ Hazards	☒ Cultural Resources
☒ Air Quality	☒ Noise	☒ Recreation
	☒ Mandatory Findings of Significance	

DETERMINATION

On the basis of this initial evaluation:

I find the proposed project is **Categorically Exempt** from CEQA under CLASS(es) _____ and there are no unusual circumstances or specified statutory conditions present which render reliance on such applicable Categorical Exemption(s) unlawful. ☐

I find that the proposed project **could not** have a significant effect on the environment and a **Negative Declaration** will be prepared. ☐

I find that although the proposed project could have a significant effect on the environment, there will not have a significant effect in this case because the mitigation measures described on an attached sheet have been added to the project. A **Mitigated Negative Declaration** will be prepared. ☐

I find that the proposed project **may** have a significant effect on the environment, and an **Environmental Impact Report** is required. ☒

I find that the proposed project **may** have a significant effect(s) on the environment, but at least one effect 1) has been adequately analyzed in an earlier document pursuant to applicable legal standards, and 2) has been addressed by mitigation measures based on the earlier analysis as described on attached sheets, if the effect is a "potentially significant impact" or "potentially significant unless mitigated". An **Environmental Impact Report** is required, but it must analyze only the effects that remain to be addressed. ☐

I find that although the proposed project could have a significant effect on the environment, there **will not** be a significant effect in this case because all potentially significant effects (a) have been analyzed adequately in an earlier EIR pursuant to applicable standards and (b) have been avoided or mitigated pursuant to that earlier EIR, including revisions or mitigation measures that are imposed upon the proposed project. ☐

(original signed) _____
Signature

_____
Date

Andrew Painter
Printed Name

City of Placerville
For

PROJECT DESCRIPTION

1.1 INTRODUCTION

This document is the Initial Study for the proposed Lumsden Ranch residential development in the City of Placerville, in El Dorado County. This Initial Study has been prepared in accordance with the California Environmental Quality Act (CEQA), Public Resources Code Section 21000 et seq. and the CEQA Guidelines, California Code of Regulations Section 15000 et seq. An Initial Study is prepared by a lead agency to determine if a project may have a significant effect on the environment. In accordance with CEQA Guidelines Section 15064(a), an Environmental Impact Report (EIR) must be prepared if there is substantial evidence that a project may have a significant effect on the environment.

1.2 LEAD AGENCY

The lead agency is the public agency with primary responsibility over the proposed project. In accordance with CEQA Guidelines Section 15051(b)(1), "the lead agency will normally be the agency with general governmental powers, such as a city or county, rather than an agency with a single or limited purpose...". The lead agency for the proposed project is the City of Placerville.

1.3 PROJECT LOCATION

The 133-acre project site is located in the easternmost portion of Placerville, south of Broadway and north of Barrett Drive, at the southern end of Wiltse Road (Figure 1). The project site is located on the northwest slope of Texas Hill, and includes canyons and hillsides that drain to an unnamed tributary of Hangtown Creek. Lumsden Ranch is east of and adjacent to the City-approved 113-parcel senior citizen-oriented Eskaton at Spanish Hill project, and a 58-parcel single-family subdivision development called Cedar Bluffs. Existing single-family residential uses are located to the south and northwest of the site. Mostly vacant, designated and zoned residential and commercial land is located northeast of the project site. The Placerville general aviation airport is located approximately 1,200 feet southeast of the site.

1.4 PROPOSED PROJECT

Tentative Map and Planned Development Overlay

The applicant (Brilliant Management, LLC) is proposing a phased Tentative Subdivision Map and a Planned Development Overlay for subdivision of approximately 133 acres into 366 single-family parcels to be named Lumsden Ranch (Figure 2). Lot sizes would range from approximately 3,700 square feet to 15,000 square feet. The project would include a clubhouse and swimming pool for residents. Mass grading for house pads, vehicular accesses, drainage, utilities, and other site amenities is proposed. The five existing residences and outbuildings within the project site would be removed.

The applicant is proposing the following setbacks: 5 feet of side yard, 10 feet of front yard, 15 feet of rear yard, and 20 feet between the garage and the street.

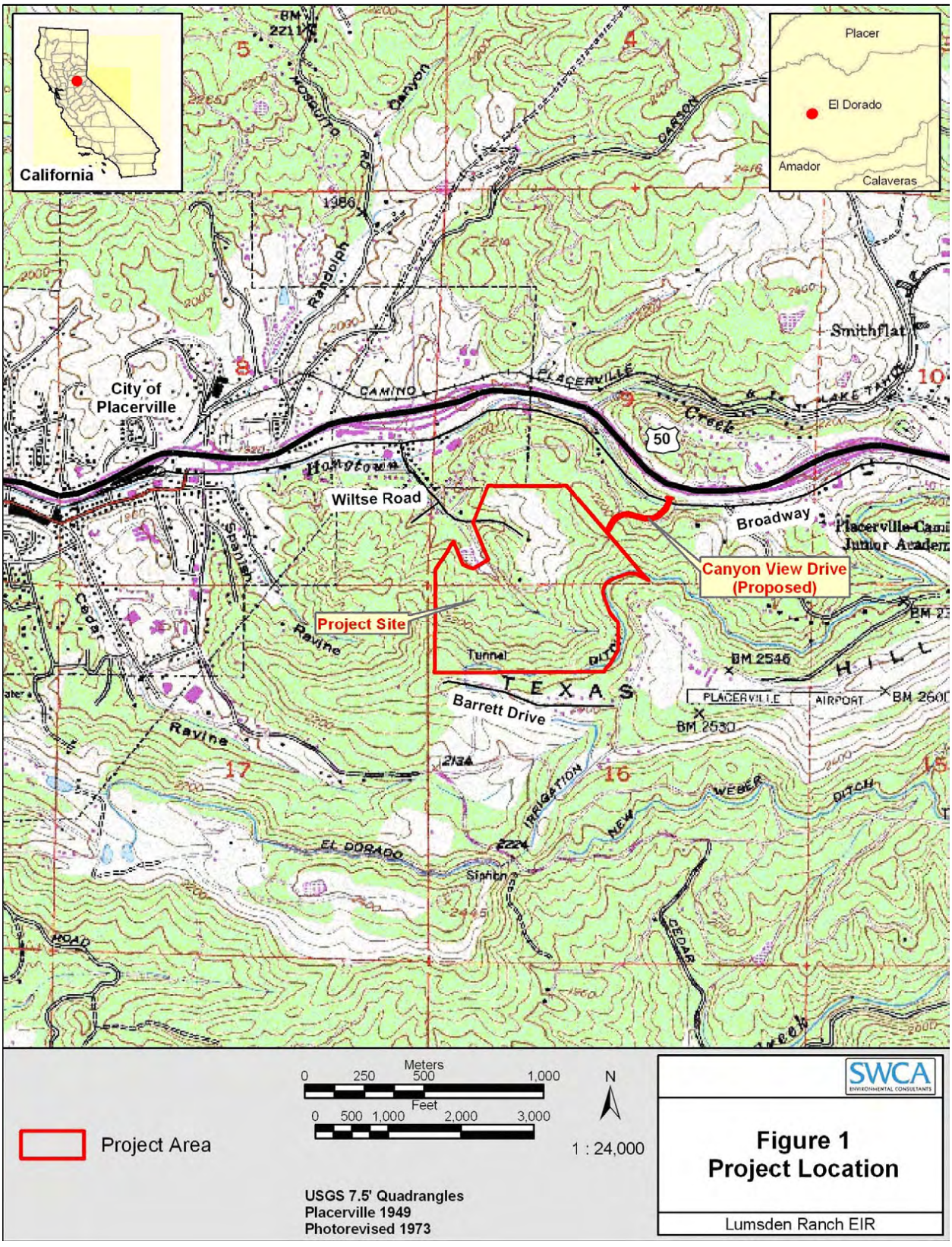

Figure 1. Project Location

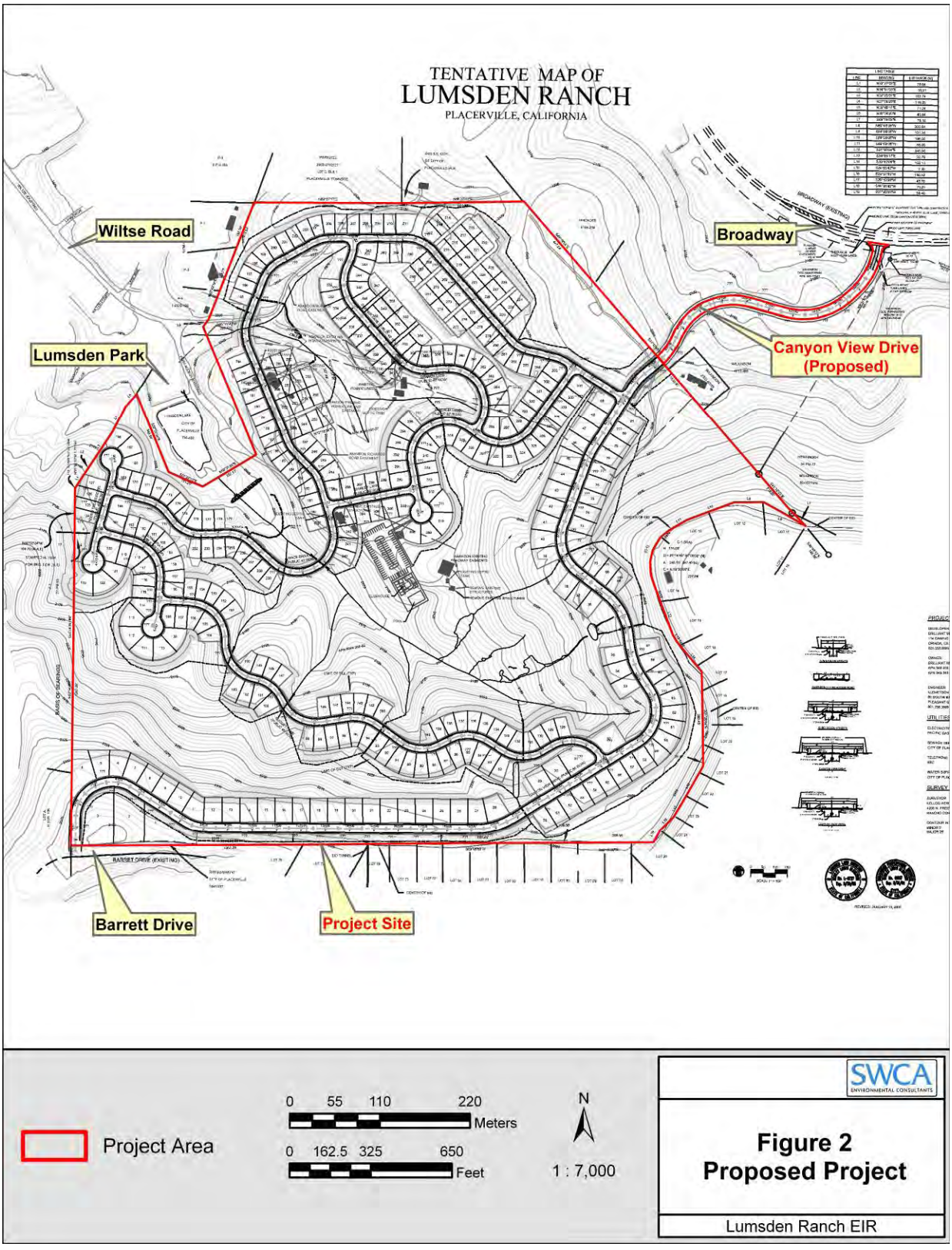

Figure 2. Proposed Project

Vehicular Circulation

Vehicles would access the development from two directions. The primary road through the development (Canyon View Drive) would intersect with Barrett Drive at the southwest corner of the development and with Broadway northeast of the development. The northeast section of Canyon View Drive would be constructed through an adjacent parcel (see Figure 2). No vehicle or emergency access is proposed for Wiltse Road. The applicant had previously proposed an emergency vehicle access road (i.e., for fire and emergency vehicles) serving the development from Broadway northwest of the proposed Canyon View Drive, but is no longer proposing this road. Rather, the applicant is proposing to install sprinklers in all residences, which would eliminate the need for a third access road. Alternatively, the applicant is exploring a third access through the neighboring Eskaton property.

Utilities

The project would include construction of all required onsite utility infrastructure, including sewer and water lines, a stormwater collection system, and underground lines for all "dry utilities" (e.g., electricity, telephone, cable television). The project would be served by the City's water, sewer, and storm drain system, and by PG&E for electricity. The applicant is also considering an onsite propane storage and delivery system.

A new section of 10-inch diameter gravity sewer line would be installed offsite within Wiltse Road to replace the 6-inch line between the project boundary and the City's existing sewer line 1/4 mile northwest of the site. Some sections of the City's sewer line along Broadway, down gradient of Lumsden Ranch, may also need to be upgraded to serve the project. The City will prepare a sewer capacity study to determine whether capacity upgrades would be needed now to accommodate increased flows from Lumsden Ranch, or whether upgrades would be needed in the future as a Capital Improvement Plan project to accommodate Lumsden Ranch and other growth in the City.

The project may also include bypassing or removing the existing rear lot line sewer line behind the homes along the north side of Barrett Drive by connecting them to the sewer line proposed for Canyon View Drive.

The project would include a drainage system designed to channel project runoff to onsite detention basins. The project may include improvements to the downstream drainage system along Wiltse Road while the new sewer line is being constructed. No changes to the pond at Lumsden Park are proposed.

The project may also require offsite upgrades to the City's water delivery infrastructure. The City and applicant are working together to identify any such upgrades.

Phases and Schedule

The following table shows the estimated schedule for construction of the various project phases.

Phase	Construction Start	Construction End	Duration
Phase 1	Spring 2008	Fall 2009	19 months
Phase 2	Fall 2008	Spring 2010	19 months
Phase 3	Spring 2009	Fall 2010	19 months

EVALUATION OF ENVIRONMENTAL IMPACTS

1. A brief explanation is required for all answers except "No Impact" answers that are adequately supported by the information sources a lead agency cites in the parentheses following each question. A "No Impact" answer is adequately supported if the referenced information sources show that the impact simply does not apply to projects like the one involved (e.g. the project falls outside a fault rupture zone). A "No Impact" answer should be explained where it is based on project-specific factors as well as general standards (e.g. the project will not exposure sensitive receptors to pollutants, based on a project-specific screening analysis).

2. All answers must take account of the whole action involved, including off-site as well as on-site, cumulative as well as project-level, indirect as well as direct, and construction as well as operational impacts.

3. "Potentially Significant Impact" is appropriate if there is substantial evidence that an effect is significant. If there are one or more "Potentially Significant Impact" entries when the determination is made, an EIR is required.

4. Negative Declaration: "Potentially Significant Unless Mitigation Incorporated" applies where the incorporation of mitigation measures has reduced an effect from "Potentially Significant Impact" to a "Less than Significant Impact". The lead agency must describe the mitigation measures and briefly explain how they reduce the effect to a less than significant level (mitigation measures from Section XVII. "Earlier Analysis," may be cross-referenced).

Earlier analysis may be used where, pursuant to the tiering, program EIR, or other CEQA process, an effect has been adequately analyzed in an earlier EIR or negative declaration. Section 15063(c) (3) (D). Earlier analyses are discussed in Section XVII at the end of the checklist.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

I. LAND USE AND PLANNING. Would the Proposal:

a) Conflict with general plan designation or zoning? (1,2) ☐ ☐ ☒ ☐

The project site contains two general plan land use designations and two zoning designations. Approximately 110 acres are designated Low Density Residential and are zoned R1-20,000 (Single-Family Residential, 20,000 square foot minimum parcel). Approximately 23 acres are designated High Density Residential and are zoned R3 (Multi-Family Residential). Both sets of land use and zoning designations allow for single-family attached and detached homes.

The applicant has requested a Planned Development Overlay (PDO), which allows for more flexible design than is permissible under the conventional zoning codes, but limits project density to the density allowed under conventional zoning. To determine maximum allowable density, the applicant prepared a Conventional Subdivision Plat map with a resulting maximum density of 366 parcels. Because the applicant is proposing 366 parcels, the proposed PDO would be consistent with the zoning density limits, resulting in a less than significant impact. Consistency with general plan land use designation and zoning, therefore, will not be discussed further in the EIR.

The applicant is proposing smaller parcel sizes and setbacks than allowed under conventional zoning. The zoning ordinance allows City decision makers to approve such modifications if justified by the design and topography of the development. Modification of parcel and setback sizes is not an environmental effect, per se. The EIR will, however, evaluate overall land use compatibility and will discuss environmental issues (if any) related to parcel size and setbacks.

b) Conflict with applicable environmental plans or policies adopted by agencies with jurisdiction over the project? ☒ ☐ ☐ ☐

The project has the potential to be inconsistent with applicable policies of the City General Plan that were adopted for the purpose of avoiding or mitigating environmental effect, and the EIR will evaluate potential inconsistencies. The project site is located within the overflight zone of the Placerville Airport. The EIR will evaluate consistency with the airport's Comprehensive Land Use Plan. Consistency with environmental plans, policies, and regulations adopted by other agencies (e.g., U.S. Fish and Wildlife Service) will be addressed in the pertinent technical sections of the EIR (e.g., Biological Resources).

c) Be incompatible with existing land use in the vicinity? ☒ ☐ ☐ ☐

The project would generate new sources of noise and traffic that could be incompatible with existing land uses in the project vicinity. Land use compatibility will be evaluated in the EIR.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

d) Affect agricultural resources or operations (e.g. impacts to soils or farmlands, or impacts from incompatible land uses)? (1,2) ☐ ☐ ☐ ☒

There are no lands within the City of Placerville designated or zoned for agriculture. Impacts to agricultural resources are therefore not anticipated.

e) Disrupt or divide the physical arrangement of an established community (including a low-income or minority community)? ☐ ☐ ☐ ☒

The project site is considered infill due to existing adjacent development. No public roads or rights-of-way pass through the project site. Proposed access would be provided by a system of new public roads that would connect Broadway to the north and Barrett Drive to the south. Project design is not expected to disrupt or divide the established community of Placerville.

II. POPULATION AND HOUSING. Would the proposal:

a) Cumulatively exceed official regional or local population projections? (1, 3) ☒ ☐ ☐ ☐

The project would add a net increase of 361 residences to the City, increasing the City's population by approximately 1,047 residents. When combined with other proposed or tentatively approved residential developments in the City, the project would contribute to a cumulative exceedance of Sacramento Area Council of Governments' (SACOG's) population projections. The EIR will evaluate project-specific and cumulative population increases, and the resulting increases will be used as a basis for evaluating project (and cumulative) impacts on City services and infrastructure in the EIR.

b) Induce substantial growth in an area either directly or indirectly (e.g. through projects in an undeveloped area of extension of major infrastructure)? ☒ ☐ ☐ ☐

The project has the potential to induce substantial growth in Placerville primarily due to the creation of a new public road (Canyon View Drive) through an underdeveloped parcel (the offsite parcel between Lumsden Ranch and Broadway), and by extension and possible expansion of City utility infrastructure. Growth-inducing impacts generated by the project will be evaluated in the EIR in terms of population, housing, and employment growth accommodated by the project.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
c) Displace existing housing, especially affordable housing?	☐	☐	☒	☐

The project would include demolition of five existing homes on the site. The construction of 366 homes would minimize the potential housing displacement impact to a less than significant level. This issue will not be evaluated further in the EIR.

III. GEOLOGY. Would the proposal result in or expose people to potential impacts involving:

a) Fault rupture? (1)	☐	☐	☐	☒

No active earthquake faults or Earthquake Fault Zones are located on the project site. An inactive geologic fault is located approximately 1 mile west of the project site. This pre-Quaternary fault called "Melones" is not expected to involve fault rupture, seismic shaking or ground failure due to its geologic inactivity. No impacts from fault rupture are anticipated.

b) Seismic shaking? (4)	☐	☐	☒	☐

The project site is classified by the California Building Code (CBC) as located within seismic region Zone 3. Construction procedures that meet current Building Code requirements should minimize the effects of possible seismic shaking. Therefore, it is anticipated that the construction of all proposed structures meeting the 2001 California Building Code, as adopted by the City of Placerville, would minimize seismic impacts to a less than significant level.

c) Seismic ground failure, including liquefaction?	☐	☐	☒	☐

Because no active faults are located on or near the site, the potential for seismic ground failure or liquefaction is considered to be low. Impacts are considered less than significant.

d) Landslides or mudflows?	☒	☐	☐	☐

Site development would include approximately 1.2 million cubic yards of cut and fill. Grading activity has the potential to cause landslides and erosion due to this site disturbance. This issue will be evaluated in the EIR.

e) Erosion, changes in topography or unstable soil conditions from excavation, grading, or fill?	☒	☐	☐	☐

See Section III d above.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

f) Subsidence of the land? (5) ☒ ☐ ☐ ☐

No evidence of subsidence is known to occur within the project site. However, the preliminary geotechnical study prepared for the project revealed that a portion of the site has physical evidence of mining activity. Two mine adits were identified, and others are possible but were not observed due to the extensive vegetation cover. Therefore the project has the potential of subsidence impacts if construction activity occurs and subsurface mine conditions are not addressed. The EIR will evaluate this issue.

g) Expansive soils? (6) ☐ ☐ ☒ ☐

Certain clay soils expand when wet and shrink when dry. Special building foundations are required to compensate for this movement. The soils on Lumsden Ranch are primarily loams, and range from 5 to 60 percent clay. Clay content varies by soil horizon. Loam soils are composed of sand, silt, and clay in relatively even concentrations. The project would be constructed in conformance with CBC design standards, so it would not expose people to potential impacts involving expansive soil. This is a less than significant impact.

h) Unique geologic or physical features? (5) ☐ ☐ ☒ ☐

The site has been previously mined. Evidence of mine adits and rock piles convey the site's mining features. However mining activity is not unique to Placerville. Impacts to site mining features are therefore considered less than significant.

IV. WATER. Would the proposal result in:

a) Changes in absorption rates, drainage patterns, or the rate and amount of surface runoff? ☒ ☐ ☐ ☐

The project has the potential to change the absorption rates and rate and amount of surface runoff due to project grading and the introduction of impervious roads and single family residential uses at project build out. This issue will be evaluated in the EIR.

b) Exposure of people or property to water related hazards such as flooding? (7) ☐ ☐ ☐ ☒

The project site is designated "Zone C, Areas of minimal flooding" by the Federal Emergency Management Agency Flood Insurance Rate Map adopted for the City of Placerville. No portion of the project site is located in the 100-year flood zone and therefore no impacts from flooding are anticipated.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
c) Discharge into surface waters or other alteration of surface water quality (e.g. temperature, dissolved oxygen or turbidity)?	☒	☐	☐	☐

During construction the potential exists for sediments, pollutants, and construction materials to be discharged into drainages and detention basins. After construction, the potential exists for urban stormwater runoff to discharge petroleum products, fertilizers, pesticides, domestic animal waste and other urban contaminants into these water features, potentially impacting surface water quality. The EIR will evaluate project effects on surface water quality.

d) Changes in the amount of surface water in any water body?	☒	☐	☐	☐

The project has the potential to change the amount of surface water in the creeks and drainages onsite and downstream of the project site. The project would increase impervious surfaces and irrigation, thereby increasing the amount of stormwater flowing into the onsite drainages. The proposed detention basins could alter the amount of water flowing downstream toward Hangtown Creek. This issue will be evaluated in the EIR.

e) Changes in currents, or the course or direction of water movements?	☒	☐	☐	☐

The project includes culverts and detention basins and may include downstream drainage improvements that could change currents or the course or direction of water movement within the affected drainages. This issue will be evaluated in the EIR.

f) Change in the quantity of ground waters, either through direct additions or withdrawals, or through interception of an aquifer by cuts or excavations or through substantial loss of groundwater recharge capability?	☒	☐	☐	☐

The project includes detention basins that could increase groundwater percolation, and the proposed earthwork could intercept groundwater, thereby changing the quantity of groundwater on the site. This issue will be evaluated in the EIR.

g) Altered direction or rate of flow of groundwater?	☒	☐	☐	☐

The proposed earthwork could intercept groundwater, thereby changing the quantity of groundwater on the site. This issue will be evaluated in the EIR.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

h) Impacts to groundwater quality? ☒ ☐ ☐ ☐

During construction the potential exists for sediments, pollutants, and construction materials to be discharged into drainages and detention basins that could seep into the groundwater. After construction, the potential exists for urban stormwater runoff to discharge petroleum products, fertilizers, pesticides, domestic animal waste and other urban contaminants into these water features, potentially impacting groundwater quality. The EIR will evaluate project effects on groundwater quality.

i) Substantial reduction in the amount of groundwater otherwise available for public water supplies? ☐ ☐ ☐ ☒

Domestic water for the project would be supplied by El Dorado Irrigation District (EID). Because EID's primary water source is surface water in the Sierra Nevada, the project would not substantially reduce the amount of groundwater available for public water supplies.

V. AIR QUALITY. Would the proposal:

a) Violate any air quality standard or contribute to an existing or projected air quality violation? ☒ ☐ ☐ ☐

The project requires substantial grading and site preparation that would generate exhaust and dust emissions, and could potentially release naturally occurring asbestos from the soil. After construction, the project would increase vehicle traffic and emissions. These emissions could violate El Dorado County Air Pollution Control District standards. The EIR will evaluate the project's construction and operational air quality impacts.

b) Expose sensitive receptors to pollutants? ☒ ☐ ☐ ☐

Air pollutants generated by the project (as described in item V.a above) could adversely affect nearby residents. The EIR will evaluate this issue.

c) Alter air movement, moisture, or temperature, or cause any change in climate? ☒ ☐ ☐ ☐

The project is not expected to directly or substantially alter air movement, moisture, or temperature. The project's potential contribution to a cumulative impact related to climate change will be evaluated in the EIR.

d) Create objectionable odors? ☒ ☐ ☐ ☐

The proposed detention basins could generate odors. The EIR will evaluate this issue.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

VI. TRANSPORTATION/CIRCULATION. Would the proposal result in:

a) Increased vehicle trips, traffic congestion, or level of service? ☒ ☐ ☐ ☐

The project would add a substantial amount of new traffic to local roadways and U.S. Highway 50 that could significantly increase congestion and reduce levels of service on area roadways. The EIR will evaluate these issues.

b) Hazards to safety from design features (e.g. sharp curves or dangerous intersections) or incompatible uses (e.g. farm equipment)? ☒ ☐ ☐ ☐

The project has the potential to result in traffic safety hazards related to two new intersections constructed at Broadway and Barrett Drive. This issue will be evaluated in the EIR.

c) Inadequate emergency access or access to nearby uses? ☒ ☐ ☐ ☐

The project would add a substantial number of new residents to the project site. Inadequate emergency access to the development would result in a significant impact. Additionally, utility line construction along Wiltse Road and other area roadways has the potential to hinder emergency access to nearby areas. Also, Broadway serves as an alternative emergency response and evacuation route to U.S. Highway 50. Project-generated traffic on Broadway could hinder emergency response or evacuation. The applicant is proposing two new access routes to the development and is exploring a third route through Eskaton. The EIR will evaluate the adequacy of the proposed access routes and emergency access issues related to utility line construction and increased traffic on US 50.

d) Insufficient parking capacity on-site or off-site? ☒ ☐ ☐ ☐

The project would require adequate onsite parking for new residents of the development. Insufficient parking would result in a significant impact. This issue will be evaluated in the EIR.

e) Hazards or barriers for pedestrians or bicyclists? ☒ ☐ ☐ ☐

The project would add a substantial amount of new traffic to local roadways, including proposed public roads through the development. The project is also expected to increase the number of pedestrians and bicyclists within the project site and surrounding roadways. Conflicts between vehicles and pedestrians/bicyclists could create hazards. This issue will be evaluated in the EIR.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

f) Conflicts with adopted policies supporting alternative transportation (e.g. bus turnouts, bicycle racks)? ☒ ☐ ☐ ☐

The project has the potential to conflict with adopted policies supporting alternative transportation. The EIR will evaluate potential impacts to alternative transportation in the study area by identifying how the project could change existing or future conditions related to these travel modes.

g) Rail or air traffic impacts? ☐ ☐ ☐ ☒

Placerville's general aviation airport is located on top of Texas Hill, 1,200 feet southeast of the project site. Because Lumsden Ranch lies on the lower slope of Texas Hill, it would not impact air traffic.

VII. BIOLOGICAL RESOURCES. Would the proposal result in impacts to:

a) Endangered, threatened or rare species or their habitats (including but not limited to plants, fish, insects, animals, and birds)? (8) ☒ ☐ ☐ ☐

Development of the project site has the potential to affect several special-status species or their habitats, including red-legged frog, bald eagle, horned lizard, San Joaquin whipsnake, American peregrine falcon, and ring-tail cat. According to a bat habitat assessment prepared for the site, large diameter trees on the project site provide suitable roosting habitat for several bat species, possibly including special-status bat species (Wildlife Research Associates 2004). The EIR will evaluate impacts to special-status species.

b) Locally designated species (e.g. heritage trees)? ☐ ☐ ☐ ☒

The City has not locally designated species for protection. No impacts are therefore anticipated.

c) Locally designated natural communities (e.g. oak forest, etc.)? ☒ ☐ ☐ ☐

Although no local species or natural communities have been designated within Placerville, the City does have a Woodland and Forest Conservation Ordinance. This Ordinance regulates tree removal and destruction with the purpose of canopy retention to promote health, safety, and welfare of the residents and property owners. The project could be inconsistent with this ordinance, and the EIR will evaluate impacts to woodland and forest communities.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

Issues (and Supporting Information Sources)	EIR: Potentially Significant Impact	NEGATIVE DECLARATION: Potentially Significant Unless Mitigation Incorporated	NEGATIVE DECLARATION: Less than Significant Impact	NEGATIVE DECLARATION: No Impact
d) Wetland habitat (e.g. marsh, riparian and vernal pool)? (9)	☒	☐	☐	☐

The project could impact wetland and riparian habitat. A wetland delineation prepared for a 128-acre portion of the project site identified 0.34 acre of wetlands and 0.41 acre of streams and ponds. Additional wetlands may occur on a recently-added 5-acre parcel. Mass grading and construction of roads and infrastructure could impact some of this habitat. Also, an unnamed creek tributary to Hangtown Creek is located adjacent to Broadway near the proposed intersection with Canyon View Drive. This creek supports riparian habitat, and would be crossed by the new road. The EIR will evaluate impacts to wetland and riparian habitats.

e) Wildlife dispersal or migration corridors?	☒	☐	☐	☐

Construction of a new residential development on this underdeveloped site has the potential to affect wildlife dispersal or migration corridors. The EIR will evaluate this issue.

VIII. ENERGY AND MINERAL RESOURCES.
Would the proposal:

a) Conflict with adopted energy conservation plans?	☐	☐	☒	☐

The proposed single-family homes, the proposed clubhouse, and possible street lighting within the subdivision are subject to the State of California's Title 24 energy efficiency standards. Compliance with these state standards is expected to reduce potential impacts, if any, to a less than significant level.

b) Use non-renewable resources in a wasteful and inefficient manner?	☐	☐	☒	☐

No known non-renewable resources are located on the project site or would otherwise be affected by the project. This would be a less than significant impact. Please refer to Section VIII c below for a discussion of mineral resources.

c) Result in the loss of availability of a known mineral resource that would be of future value to the region and the residents of the State? (10)	☐	☐	☒	☐

No mineral resources are known to occur on the site that would be of future value to the region or the residents of the state. The site has been mined for gold in the past, as evidenced by mine adits and rock piles. It is not known, however, whether any substantial quantities of gold were found.

The California Geological Survey's Mineral Land Classification of El Dorado County, California classifies land in El Dorado County into Mineral Resource Zones (MRZs) according to the known or inferred mineral potential of

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

that land. The project site is located within MRZ-3a and MRZ-4 for gold. MRZ-3a zones are defined as areas "containing known mineral occurrences of undetermined mineral resource significance" and MRZ-4 zones are areas of "unknown mineral resource significance."

Because no mineral resources are known to occur on the site that would be of future value to the region or the residents of the state, this impact is considered less than significant.

IX. HAZARDS. Would the proposal involve:

a)	A risk of accidental explosion or release of hazardous substances (including, but not limited to: oil, pesticides, chemicals or radiation)? (11, 12)	☒	☐	☐	☐

Lumsden Ranch is not listed on the Department of Toxic Substances Control's Hazardous Waste and Substances Site List for site cleanup (i.e., Cortese List), the State Water Resources Control Board's (SWRCB's) list of leaking underground storage tank sites, or any other state list of hazardous materials. However, the SWRCB lists several leaking underground storage tank sites along Broadway. If an upgrade of the Broadway sewer line is required, the EIR will evaluate whether this construction work would create a significant hazard to the public or the environment through release of hazardous substances encountered during excavation. Release of a hazardous substance would be a significant impact.

If the applicant proposes an onsite propane storage and delivery system, the risk of accidental tank explosion would be a significant impact. This issue will be evaluated in the Utilities and Service Systems section of the EIR.

b)	Possibly interference with an emergency response plan or emergency evacuation plan?	☒	☐	☐	☐

Please refer to discussion VI c) above.

c)	The creation of any health hazard or potential health hazard?	☐	☐	☐	☒

The creation of 366 parcels, with each parcel containing one single family residence is not expected to create a health hazard or potential health hazard. No impacts are therefore anticipated.

d)	Exposure of people to existing sources of potential health hazards?	☒	☐	☐	☐

Mine adits and other mining features remain onsite from previous mining activity. These features could pose potential hazards for new residents of the development. This issue will be evaluated in the Geology and Soils section of the EIR. Another potential health hazard near the site may be airplane noise from the Placerville Airport. As discussed in Section X b) of this Initial Study, noise impacts will be evaluated in the EIR.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

Issues (and Supporting Information Sources)	EIR: Potentially Significant Impact	NEGATIVE DECLARATION: Potentially Significant Unless Mitigation Incorporated	NEGATIVE DECLARATION: Less than Significant Impact	NEGATIVE DECLARATION: No Impact
e) Increased fire hazard in areas with flammable brush, grass, or trees?	☒	☐	☐	☐

The project could increase the potential for fire hazard by introducing a substantial number of people to a forested area. Impacts related to fire hazards will be evaluated in the EIR.

X.	**NOISE.** Would the proposal result in:				
a)	Increase in existing noise levels?	☒	☐	☐	☐

The project is expected to increase existing noise levels in the project area. Construction activities would result in short-term noise increases, and new vehicle traffic and human activity could result in long-term noise increases after construction. EIR will evaluate noise impacts of the project.

b)	Exposure of people to severe noise levels?	☒	☐	☐	☐

The project would increase the population within the overflight zone of the Placerville Airport, potentially exposing new residents to severe airplane generated noise levels. The EIR will evaluate noise impacts, including the effects of airport noise on residences within the proposed development.

XI.	**PUBLIC SERVICES.** Would the proposal have an effect upon, or result in a need for new or altered government services in any of the following areas:				
a)	Fire protection?	☒	☐	☐	☐

The project would increase the number of residents and structures within the service area of the El Dorado County Fire Protection District, potentially affecting the district's ability to provide fire protection services. The EIR will evaluate fire safety with respect to adequate emergency access to the project site, fire district response time, fire district equipment and facilities, and staffing ratios.

b)	Police protection?	☒	☐	☐	☐

The project would increase the number of residents within the City, thereby increasing demand on police services and potentially affecting the Placerville Police Department's ability to provide police services to the City and the project. The EIR will evaluate impacts on the police department with respect to adequate emergency access to the project site, response time, equipment and facilities, and staffing ratios.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

Issues (and Supporting Information Sources)	EIR: Potentially Significant Impact	NEGATIVE DECLARATION: Potentially Significant Unless Mitigation Incorporated	NEGATIVE DECLARATION: Less than Significant Impact	NEGATIVE DECLARATION: No Impact
c) Schools?	☒	☐	☐	☐

The project would increase the number of school children within the Placerville Union School District and the El Dorado Union High School District. The EIR will analyze impacts on each school district.

d) Maintenance of public facilities, including roads?	☐	☐	☒	☐

Each single-family residence and the clubhouse facility are subject to traffic impact fees. Payment of the traffic impact fee is anticipated to reduce maintenance impacts on City roads to a less than significant level. Payment is due at construction permit issuance. CIP fees on construction permits also provide funding for improvements to the City's wastewater system. With these payments, impacts related to maintenance of City facilities are expected to be less than significant.

The EIR will discuss and evaluate non-maintenance improvements to City facilities required to serve the project, and will include mitigation measures, where appropriate, for significant impacts.

e) Other governmental services?	☐	☐	☐	☒

No impacts to other governmental services are anticipated.

XII. UTILITIES AND SERVICE SYSTEMS. Would the proposal result in a need for new systems or supplies, or substantial alterations to the following utilities:				
a) Power or natural gas? (13)	☐	☐	☒	☐

Electric service would be provided by PG&E. A "will serve" letter from PG&E was received by the City and no significant impacts were identified by the service provider. All electric services would be underground. No natural gas utilities are available within the City of Placerville. The applicant is considering an onsite propane storage and delivery system.

The EIR will evaluate impacts related to construction and operation of the proposed project, including new electrical lines within the development and the offsite utility corridor, and the propane storage and delivery system, if proposed.

b) Communications systems? (14, 15)	☐	☐	☒	☐

Telephone communication service is provided by AT&T. This new service is considered less than significant in that a "will serve" letter from SBC (AT&T) was received by the City and no significant impacts were identified by the service provider.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

The applicant's proposed cable television provider would be Comcast Communications, Inc. This new service is considered less than significant in that a "will serve" letter from Comcast was received by the City and no significant impacts were identified by the service provider.

The EIR will evaluate impacts related to construction and operation of the proposed project, including new communication lines within the development and the offsite utility corridor.

c) Local or regional water treatment or distribution facilities? ☒ ☐ ☐ ☐

The project would increase demand on domestic water supplies and could result in a need for new delivery systems. The EIR will evaluate whether the El Dorado Irrigation District (EID) has adequate water supplies to serve the project. The EIR will also discuss whether the project would require upgrades to the City's water delivery infrastructure.

d) Sewer or septic tanks? ☒ ☐ ☐ ☐

The project would increase wastewater generation within the service area of the City's wastewater collection and treatment system, and could result in a need for wastewater system upgrades. The project would require a new sewer line along Wiltse Road and may require new sewer lines further downgradient. The EIR will discuss whether the City's wastewater treatment plant has adequate capacity to accommodate wastewater generated by the project, and whether additional upgrades to the City's sewer system would be required.

e) Storm water drainage? ☒ ☐ ☐ ☐

The project would increase impervious surfaces, thereby increasing storm water runoff. New storm water drainage facilities are proposed for the project site, but the project has the potential to adversely affect City storm water drainage facilities downstream of the project site. The EIR will evaluate the project's effects on the City's storm water drainage facilities.

f) Solid waste disposal? ☐ ☐ ☒ ☐

The project site would be served by El Dorado Disposal Service, a waste transfer service. El Dorado Disposal Service collects and sorts refuse and recyclables, and transports the residual refuse (i.e., solid waste) to Kiefer Landfill in Sacramento County. The Kiefer Landfill has a remaining capacity of 87 million cubic yards, allowing it to accept solid waste until 2035. Kiefer would have sufficient permitted capacity to accommodate the additional solid waste handled by the project. This would be a less than significant impact.

g) Local or regional water supplies? ☒ ☐ ☐ ☐

See discussion XII c above.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

XIII. AESTHETICS. Would the proposal:

a) Have a substantial adverse effect on a scenic vista? ☒ ☐ ☐ ☐

The project has the potential to adversely affect scenic vistas. The project would include vegetation removal and construction of new buildings and roads on forested ridges and hillsides visible from US 50 (a state scenic highway) and from certain locations in the City. Because the project site is located on a hillside, the project would include extensive use of retaining walls that may be visible from public viewing areas offsite. The EIR will evaluate the project's effects on scenic vistas.

b) Substantially damage scenic resources, including, but not limited to, trees, rock outcroppings, and historic buildings within a state scenic highway? ☒ ☐ ☐ ☐

The project would include substantial grading and earthwork, and has the potential to damage scenic resources. The EIR will evaluate this issue.

c) Substantially degrade the existing visual character or quality of the site and its surroundings? ☒ ☐ ☐ ☐

The project would include vegetation removal and construction of new buildings, roads, and retaining walls on forested ridges and hillsides, potentially degrading the scenic character of the site and its surroundings. The EIR will evaluate this issue.

d) Create a new source of substantial light or glare which would adversely affect day or nighttime views in the area? (2) ☐ ☐ ☒ ☐

The proposed residential development, including homes and street lighting, has the potential to introduce new light or glare that could adversely affect views in the area. Outdoor lighting for these future residential uses is subject to City Code requirements to be located and/or shielded in a manner to ensure that the intensity and direction of lighting does not constitute a nuisance to abutting residential dwellings or abutting street rights-of-way. Adherence with this requirement upon issuance of a valid City Building Permit is expected to reduce light or glare potential impacts to a less than significant level.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

XIV. CULTURAL RESOURCES. Would the proposal:

a)	Cause a substantial adverse change in the significance of a historical resource? (16)	☒	☐	☐	☐

A cultural resources inventory and evaluation performed on 128 acres of the project site identified one significant historical resource. The El Dorado Canal is an historic water conveyance ditch associated with historic mining activities that runs parallel to the southern project boundary. Project grading and other site modifications could disturb the canal and adversely affect its historical significance. A cultural resource survey will be performed on the portions of the project site that were not previously surveyed, and the EIR will evaluate impacts on historical resources.

b)	Cause a substantial adverse change in the significance of an archaeological resource?	☒	☐	☐	☐

The cultural resources inventory did not identify archaeological resources within the 128-acre study area, but the remaining portions of the project site have not been surveyed. Site modifications could adversely affect unknown resources in these remaining areas. A cultural resource survey will be performed on the portions of the project site that were not previously surveyed, and the EIR will evaluate impacts on archaeological resources.

c)	Directly or indirectly destroy a unique paleontological resource or site or unique geologic feature?	☒	☐	☐	☐

Project grading and site modifications have the potential to adversely affect paleontological resources. A portion of the project site is underlain by Merhten Formation geology. A paleontological resources records search revealed that over 200 paleontological resources have been recorded within the Merhten Formation throughout the Central Sierra Nevada foothills, although no records were found for El Dorado County. The EIR will evaluate impacts on paleontological resources.

c)	Disturb any human remains, including those interred outside of formal cemeteries?	☒	☐	☐	☐

No human remains are known to occur on the project site; however certain portions of the project site have not yet been surveyed for cultural resources. Site modifications could adversely affect unknown remains. A cultural resource survey will be performed on the portions of the project site that were not previously surveyed, and the EIR will evaluate impacts related to this issue.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**

XV. RECREATION. Would the proposal:

a) Would the project increase the use of existing neighborhood and regional parks or other recreational facilities such that substantial physical deterioration of the facility would occur or be accelerated? ☒ ☐ ☐ ☐

The project is located next to Lumsden Park, and its proposed trail network would connect the development to the park. Increased use of Lumsden Park and other City parks by project residents could cause or accelerate substantial deterioration of the City's park facilities. The EIR will evaluate this issue.

b) Does the project include recreational facilities or require the construction or expansion of recreational facilities which might have an adverse physical effect on the environment? ☒ ☐ ☐ ☐

Project recreational facilities and improvements include a pedestrian/bicycle trail network through the proposed subdivision and a clubhouse/pool facility. Construction and operation of these recreational facilities could have an adverse physical effect on the environment. For example, the proposed trail system would cross several drainages and could cause erosion or sedimentation, and the clubhouse could generate substantial noise. The EIR will evaluate potential impacts to the environment from construction and operation of these project amenities.

XVI. MANDATORY FINDINGS OF SIGNIFICANCE

a) Does the project have the potential to degrade the quality of the environment, substantially reduce the habitat of a fish or wildlife species, cause a fish or wildlife population to drop below self-sustaining levels, threaten to eliminate a plant or animal community, reduce the number or restrict the range of a rare or endangered plant or animal or eliminate important examples of the major periods of California history or prehistory? ☒ ☐ ☐ ☐

As discussed above, the EIR will evaluate impacts to biological and cultural resources.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

	EIR	NEGATIVE DECLARATION		
Issues (and Supporting Information Sources)	**Potentially Significant Impact**	**Potentially Significant Unless Mitigation Incorporated**	**Less than Significant Impact**	**No Impact**
b) Does the project have environmental effects which will cause substantial adverse effects on human beings, either directly or indirectly?	☒	☐	☐	☐

As discussed above, the EIR will evaluate the project's environmental effects on humans, including air quality, noise, and airport safety.

c) Does the project have impacts that are individually limited, but cumulatively considerable? ("Cumulatively considerable" means that the incremental effects of a project are considerable when viewed in connection with the effects of past projects, the effects of other current projects, and the effects of probable future projects.)	☒	☐	☐	☐

The EIR will evaluate the project's contribution to cumulative environmental impacts.

Mitigation Monitoring and Sign-off Footnotes
(1) Prior to issuance of Building Permit; (2) Prior to onsite grading; (3) During construction; (4) Prior to occupancy
(A) Engineering Division; (B) Developer; (C) Contractor; (D) Planning Division; (E) Other agency.

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13. Letter dated August 23, 2005 from Brian Ritchie, Project Manager, Pacific Gas & Electric.

14. Letter dated August 29, 2005 from Frank Grossi, Design Engineer, SBC California Engineering.

15. Letter dated August 29, 2005 from PJ Ramicone, Construction Coordinator, Comcast Cable.

16. Pacific Legacy, Inc. *Cultural Resources Inventory and Evaluation for Lumsden Ranch Project Placerville, California.* (January 21, 2004).

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APPENDIX B:
SCOPING COMMENT TABLE AND LETTERS

STATE OF CALIFORNIA—BUSINESS, TRANSPORTATION AND HOUSING AGENCY ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF TRANSPORTATION
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April 24, 2007

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COMMUNITY DEV. DEPT.

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Lumsden Ranch
Notice of Preperation (NOP)
SCH# 2007032130

Mr. Andrew Painter
City of Placerville
3101 Center Street
Placerville, CA 95667

Dear Mr. Painter,

Thank you for the opportunity to review and comment on the NOP for the Lumsden Ranch planned development. Our comments are as follows:

- A Traffic Impact Study (TIS) should be completed and include an analysis of impacts to the State Highway System. The TIS should include at a minimum the US 50 and Schnell interchange, ramp intersections, and the Schnell/Broadway intersection. The "Guide for Preparation of Traffic Impact Studies" can be found on our website at: http://www.dot.ca.gov/hq/traffops/developserv/operationalsystems/. We would appreciate the opportunity to review the scope of the TIS before the Study begins.

- The TIS should incorporate the following scenarios:

  - Existing conditions without the project for the current year
  - Existing conditions plus the project by phases
  - Cumulative conditions without the project.
  - Cumulative conditions with project build-out.

- The analysis should include the individual, not averaged, Level of Service (LOS) and traffic volumes applicable to all intersection road approaches and turn movements for AM and PM peak periods. The procedures contained in the 2000 update to the Highway Capacity Manual along with the "Guide for the Preparation of Traffic Impact Studies" should be used as a guide for the TIS.

If you have any questions about these comments, please contact Gabriel Corley at 916-274-0611, or via email at gabriel.corley@dot.ca.gov.

Sincerely,

BRUCE DE TERRA, Chief
Office of Transportation Planning—South

c: Gabriel Corley, Transportation Planning
Teresa Limon, Traffic Operations
State Clearinghouse

Caltrans NOP Scoping Comments

Gabriel,

I have reviewed the Scope of Work for the Transportation & Circulation Chapter for this project. The scope does not include a build out scenario of the project (2010 + background growth). This should be included as requested in my previous comments (see below).

"This project proposes to subdivide a 133-acre parcel into 366 residential parcels in eastern Placerville. This project could have significant traffic impacts at the US50/Schnell IC. The EIR Traffic Study should provide a build out analysis of this project (YR 2010+background growth).
The study should analyze the am and pm peak conditions at the Schnell IC ramp intersections, and at the Schnell/Broadway intersection." sent 4/18/07

Teresa R. Limon
Caltrans Traffic Ops
PH (530) 634-7669
FAX (530) 741-5762

State of California - The Resources Agency ARNOLD SCHWARZENEGGER, Governor

DEPARTMENT OF FISH AND GAME
http://www.dfg.ca.gov
North Central Region
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670
(916) 358-2900

May 2, 2007

Mr. Andrew Painter - Planner
Placerville Community Development Department
3101 Center Street
Placerville, CA 95667

Dear Mr. Painter:

The Department of Fish and Game (DFG) has reviewed the Notice of Preparation of a draft Environmental Impact Report (DEIR) for the Lumsden Ranch Tentative Subdivision Map 06-02 (project) (SCH # 2007032130). The project consists of the subdivision of approximately 133 acres into 366 single-family parcels ranging from 3,700 square feet to 15,000 square feet, and would include a clubhouse and swimming pool. Mass grading for the house pads, vehicular access, drainage, utilities, and other site amenities are proposed.

Wildlife habitat resources consist of montane hardwood and montane hardwood–conifer habitats (Mayer and Laudenslayer, 1988). Significant natural resources of the project include unique habitats such as riparian and other wetlands, as well as, habitat for sensitive species.

We recommend that the DEIR discuss and provide adequate mitigation for the following concerns:

1. The project's impact upon fish and wildlife and their habitat. We recommend that the DEIR identify natural habitats and provide a discussion of how the project will affect their function and value.

2. The project's impact upon significant habitat such as wetlands, including riparian habitat. The project should be designed so that impacts to wetlands are avoided. Mitigation should be provided for unavoidable impacts based upon the concept of no net loss of wetland habitat values or acreage.

3. The project's impact to special status species including species that are state and/or federal listed as threatened and endangered. The Notice of Preparation identifies several special-status species which may be affected by the above project. In addition to these species, we recommend that the

DEIR discuss and provide adequate mitigation for the following species: oval-leaved viburnum (*Viburnum ellipticum),* Parry's horkelia *(Horkelia paryi),* Nissenan manzanita *(Arctostaphylos nissenana*), Brandegee's clarkia *(Clarkia biloba* spp. *brandegeeae*), and Layne's ragwort (*Packera layneae*).

4. The project's growth inducing and cumulative impacts upon fish, wildlife, water quality, and vegetative resources.

5. The DEIR should provide an analysis of specific alternatives which reduce impacts to fish, wildlife, water quality, and vegetative resources.

6. The DEIR should contain an evaluation of the proposed project's consistency with applicable land use, or species recovery plans, such as General Plans, Specific Plans, Habitat Conservation Plans, Critical Habitat Designation, etc.

In addition, the DEIR should consider and analyze whether implementation of the proposed project will result in reasonably foreseeable potentially significant impacts subject to regulation by the DFG under section 1600 et seq. of the Fish and Game Code. In general, such impacts result whenever a proposed project involves work undertaken in or near a river, stream, or lake that flows at least intermittently through a bed or channel, including ephemeral streams and water courses. Impacts triggering regulation by the DFG under these provisions of the Fish and Game Code typically result from activities that:

- Divert, obstruct, or change the natural flow or the bed, channel, or bank of any river, stream, or lake;

- Use material from a streambed; or

- Result in the disposal or deposition of debris, waste, or other material where it may pass into any river, stream, or lake.

In the event implementation of the proposed project involves such activities, and those activities will result in reasonably foreseeable substantial adverse effects on fish or wildlife, a Lake or Streambed Alteration Agreement (LSAA) will be required by the DFG. Because issuance of a LSAA is subject to review under the California Environmental Quality Act (CEQA), the DEIR should analyze whether the potentially

feasible mitigation measures set forth below will avoid or substantially reduce impacts requiring a LSAA from the DFG.

This project will have an impact to fish and/or wildlife habitat. Assessment of fees under Public Resources Code Section 21089 and as defined by Fish and Game Code Section 711.4 is necessary. Fees are payable by the project applicant upon filing of the Notice of Determination by the lead agency.

Pursuant to Public Resources Code Sections 21092 and 21092.2, the DFG requests written notification of proposed actions and pending decisions regarding this project. Written notifications should be directed to this office.

Thank you for the opportunity to review this project. If the DFG can be of further assistance, please contact Mr. Todd Gardner, Staff Environmental Scientist, at (209) 745-1968 or me at (916) 358-2382.

Sincerely,

Kent Smith
Acting Assistant Regional Manager

cc: Ms. Roberta Gerson
U.S. Fish and Wildlife Service
2800 Cottage Way, Room W2605
Sacramento, CA 95825-1888

Mr. Todd Gardner
Department of Fish and Game
1701 Nimbus Road, Suite A
Rancho Cordova, CA 95670

Literature Cited

Mayer, K.E. and W.F. Laudenslayer, Jr., eds. 1988. A guide to wildlife habitats of California. California Department of Fish and Game, Sacramento, California

State of California—Health and Human Services Agency
Department of Health Services

California Department of Health Services

SANDRA SHEWRY
Director

ARNOLD SCHWARZENEGGER
Governor

April 6, 2007

Mr. Andrew Painter, Planner
Placerville, Community
Development Department
3101 Center Street
Placerville CA 95667

RE: Lumsden Ranch

The California Department of Health Services (CDHS) is in receipt of the Notice of Preparation for the above project.

If the Placerville Community Development Department plans to develop a new water supply well or make modifications to the existing domestic water treatment system to serve the Lumsden Ranch, an application to amend the water system permit must be reviewed and approved by the CDHS Sacramento District Office. In addition, if the Environmental Impact Report does not include the detail for the proper evaluation of the new source or treatment, an additional document must be submitted as part of the application and circulated through the State Clearinghouse.

Please contact the office at (916) 449-5600 for further information.

Sincerely,

Bridget Binning
California Department of Health Services
Environmental Review Unit

DEPARTMENT OF CALIFORNIA HIGHWAY PATROL
P.O. BOX 1417
3031 LoHi Way
Placerville, Ca. 95667-1417
(530) 622-1110
(800) 735-2929 (TT/TDD)

April 2, 2007

File No.: 245.10480.9146

Mr. Andrew Painter
City Planner
PLACERVILLE, COMMUNITY DEVELOPMENT DEPARTMENT
3101 Center Street
Placerville, CA 95667

Dear Mr. Painter:

The Placerville Area Office of the California Highway Patrol (CHP) received Notice of Preparation of an Environmental Impact Report for review and comments regarding LUMSDEN RANCH (Map 06-02).

Upon review of the information provided by your department, Placerville Area has concluded that the project described will not have an adverse effect on our operations.

Sincerely,

D. C. Munyer, Lieutenant
Administrative Assistant

EL DORADO LAFCO

LOCAL AGENCY FORMATION COMMISSION

550 Main Street Suite E • Placerville, CA 95667

Phone: (530) 295-2707 • Fax: (530) 295-1208

lafco@co.el-dorado.ca.us

www.co.el-dorado.ca.us/lafco

April 9, 2007

Andrew Painter
City of Placerville
Community Development Department
3101 Center Street
Placerville, CA 95667

Re: Notice of Preparation of a Draft EIR for the Lumsden Ranch Subdivision

Dear Mr. Painter:

Thank you for the opportunity to provide comments regarding the anticipated preparation and review of an Environmental Impact Report (EIR) for the proposed Lumsden Ranch Subdivision. LAFCO has reviewed the information relating to this project and would like to comment on the proposed Draft EIR.

APNs 049-280-08 and 049-340-37 are within the City of Placerville and, therefore, the above project does not appear to require any LAFCO involvement for a future boundary change in order to receive the necessary services for the proposed subdivision. However, in the interest of ensuring the efficient provision of service and accurately identifying agency impacts, LAFCO respectfully submits the following list of potential issues to address in the Draft EIR:

Water Supply, Pumping and Treatment Facilities: The Draft EIR should include a discussion of the potential water supply impacts that may occur as a result of the project. This would entail how much water would be required to adequately serve this project, and whether that water is currently projected to be available, the existing infrastructure that will be used to deliver service; the location, size and capacity of existing infrastructure, and how this water requirement will affect the overall water supply for the service area. Attention should also be given to any potential adverse effects that may occur to surrounding residents who are currently receiving water service. The same scope of discussion should occur in regards to local pumping and treatment facilities. What is the location and size of the existing infrastructure of the nearest water treatment facility and does it have the capacity to serve the proposed project? Will additional infrastructure be required for pumping the water to the project site? In addition, overall cumulative impacts to water availability as a result of this project should be examined.

Water Quality/Wastewater Treatment Issues: The same scope of discussion that was required for water issues should also be studied for waste water treatment issues.

Road Circulation: The Draft EIR should address issues associated with transportation; specifically how future residents of the project will access the proposed community and what the impacts would be to existing roadways and traffic levels.

Fire Protection and Emergency Response Services: The Draft EIR should identify the impacts that the proposed subdivision will have on the El Dorado County Fire Protection District; including, but not limited to, the demand on personnel, resources, infrastructure and facilities.

Once again, we thank you for giving LAFCO the opportunity to comment and we look forward to receiving additional materials in the future.

Please contact me at (530) 295-2707 if you have any questions.

Sincerely,

Erica Sanchez

LAFCO Policy Analyst

EL DORADO COUNTY

ENVIRONMENTAL MANAGEMENT DEPARTMENT

Environmental Health Division

Air Quality Management District

Solid Waste & Hazardous Materials Divisions

Vector Control

PLACERVILLE OFFICE
2850 Fairlane Ct.
Building C
Placerville, CA 95667

Ph. 530.621.5300
Fax. 530.642.1531
Fax. 530.626.7130

SOUTH LAKE TAHOE OFFICE
3368 Lake Tahoe Blvd.
Ste 303
South Lake Tahoe, CA
96150

Ph. 530.573.3450
Fax. 530.542.3364

April 5, 2007

Andrew Painter, Associate Planner
City of Placerville
Community Development Department
487 Main Street
Placerville, CA 95667

SUBJECT: Tentative Subdivision Map 06-02 (Lumsden Ranch), Planned Development Overlay 05-01, & Environmental Assessment 06-01/APN 049-280-08 and 049-340-37

Dear Mr. Painter:

The El Dorado County Air Quality Management District (District) has been requested to express comments which identify our concerns regarding the proposed project under **Tentative Subdivision Map 06-02 (Lumsden Ranch), Planned Development Overlay 05-01, & Environmental Assessment 06-01/APN 049-280-08 and 049-340-37.** The project is a request for a phased Tentative Subdivision Map for the subdivision of a 133-acre parcel into 366 residential parcels along with a Planned Development Overlay located northwest of the Placerville Airport, north of Barrett Drive, and south of Broadway. The property identified by Assessor's Parcel Numbers 049-280-08 and 049-340-37.

The District has reviewed the Notice of Preparation March 2007 for an Environmental Impact Report for the Lumsden Ranch proposed project. The District concurs with the determination that an Environmental Impact Report is required for this project.

The District has reviewed the proposed project **Tentative Subdivision Map 06-02 (Lumsden Ranch), Planned Development Overlay 05-01, & Environmental Assessment 06-01, in Placerville, California.** The following is a summary of issues that should be addressed and the potential impacts on air quality that may result from the implementation of this project:

1. The project construction will involve grading and excavation operations, which will result in a temporary negative impact on air quality with regard to the release of particulate matter (PM_{10}) in the form of dust. Current county records indicate this property is located within the Asbestos Review Area (copy enclosed). **Therefore,** District Rule 223.2 Fugitive Dust-Asbestos Hazard Mitigation, which address the regulations and mitigation measures for fugitive dust emissions shall

be adhered to during the construction process. Mitigation measures for the control of fugitive dust shall comply with the requirements of Rule 223.2. In addition, an **Asbestos Dust Mitigation Plan (ADMP) Application with appropriate fees shall be submitted to and approved by the District prior to start of project construction.**

2. Project construction may involve road development and **should adhere** to District **Rule 224 Cutback and Emulsified Asphalt Paving Materials** and the county ordinance concerning asbestos dust.

3. Burning of wastes that result from "Land Development Clearing" must be permitted through the DISTRICT. Only vegetative waste materials may be disposed of using an open outdoor fire.

4. The project construction will involve the application of architectural coating, which **shall adhere to District Rule 215 Architectural Coatings.**

5. The District's goal is to strive to achieve and maintain ambient air quality standards established by the U.S. Environmental Protection Agency and the California Air Resources Board and to minimize public exposure to toxic or hazardous air pollutants and air pollutants that create unpleasant odors. The following are measures used to reduce impacts on air quality from equipment exhaust emissions:

Heavy Equipment and Mobile Source Mitigation Measures.

- Use low-emission on-site mobile construction equipment.
- Maintain equipment in tune per manufacturer specifications.
- Retard diesel engine injection timing by two to four degrees.
- Use electricity from power poles rather than temporary gasoline or diesel generators.
- Use reformulated low-emission diesel fuel.
- Use catalytic converters on gasoline-powered equipment.
- Substitute electric and gasoline-powered equipment for diesel-powered equipment where feasible.
- Do not leave inactive construction equipment idling for prolonged periods (i.e., more than two minutes).
- Schedule construction activities and material hauls that affect traffic flow to off-peak hours.
- Configure construction parking to minimize traffic interference.

- Develop a construction traffic management plan that includes, but is not limited to: Providing temporary traffic control during all phases of construction activities to improve traffic flow; Rerouting construction trucks off congested streets; and provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.

6. Prior to construction/installation of any new point source emissions units or non-permitted emission units (i.e., gasoline dispensing facility, boilers, internal combustion engines, etc.), authority to construct applications shall be submitted to the District. Submittal of applications shall include facility diagram(s), equipment specifications and emission factors.

It is the District's understanding that minor construction work, i.e. grading is to occur. Therefore, the District has determined the project would have an insignificant impact on the air quality. If you have any questions to these comments, please do not hesitate to contact this office at (530) 621-6662.

If you have any questions regarding this comment, please do not hesitate to contact our office at (530) 621-6662.

Respectfully,

Dennis Otani, Senior Air Quality Specialist
Air Quality Management District

DMO:do

Enclosure

File: Tentative Subdivision Map 06-02 (Lumsden Ranch), Planned Development Overlay 05-01, & Environmental Assessment 06-01/APN 049-280-08 and 049-340-37

h:\apcd\landuse\2007planning\040507AndrewPainterCityPvilleTSM06-02PDO05-01EA06-01LumsdenRanchPville

TSM 06-02 (Lumsden Ranch), PDO-05-01, EA 06-01

AIR QUALITY MANAGEMENT DISTRICT

PARCEL: 04928008100

Current county records indicate this property is located within the Asbestos Review Area.

If your project includes the disturbance of 20 cubic yards or more of earth you must comply with AQMD Rule 223-2 Fugitive Dust-Asbestos Hazard Mitigation, which includes an asbestos dust mitigation plan submittal, fugitive dust prevention, speed limits, warning signs, trackout prevention, excavated soil management and post-construction mitigation. This must be submitted to the Air Quality Management District along with the $327 application plus $21/disturbed acre fee prior to issuance of your permit.

Alternately you may have a California Professional Geologist inspect your project site and provide the AQMD with a report demonstrating there is no Naturally Occurring Asbestos on the project site. This evaluation must be submitted to the AQMD with a $436 review fee. The review fee is not required if the evaluation is for an individual single family residence project.

If there is no naturally occurring asbestos or less than 20 cubic yards of earth is disturbed, you must still comply with AQMD Rule 223-1 Fugitive Dust-Construction Activities. If you require a County grading permit, you will be required to submit a Fugitive Dust Plan. This must be submitted to the AQMD along with the $104 application fee prior to issuance of your grading permit.

NOA Related Web sites:

- El Dorado Hills Asbestos Resources & Information web site: *This web site is not county-maintained. It is a resource for info on naturally occurring asbestos (NOA) in El Dorado Hills and includes a discussion forum.*
- US Environmental Protection Agency (EPA): Asbestos & Vermiculite
- CA ARB: Naturally-Occurring Asbestos: General Information

- Agency for Toxic Substances and Disease Registry (ATSDR): Resources for Information on Asbestos and Asbestos-Related Disease
- California Office of Environmental Health Hazard Assessment: Asbestos Fact Sheet
- California Air Resource Board - Asbestos Information

- El Dorado County Asbestos Review Area Map 7/22/05

TSM 06-02 (Lumsden Ranch), PDO 05-01, EA 06-01

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NOA Related Web sites:

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- US Environmental Protection Agency (EPA): Asbestos & Vermiculite
- CA ARB: Naturally-Occurring Asbestos: General Information

AIR QUALITY MANAGEMENT DISTRICT

PARCEL: 04934037100

Current county records indicate this property is located within the Asbestos Review Area.

If your project includes the disturbance of 20 cubic yards or more of earth you must comply with AQMD Rule 223-2 Fugitive Dust-Asbestos Hazard Mitigation, which includes an asbestos dust mitigation plan submittal, fugitive dust prevention, speed limits, warning signs, trackout prevention, excavated soil management and post-construction mitigation. This must be submitted to the Air Quality Management District along with the $327 application plus $21/disturbed acre fee prior to issuance of your permit.

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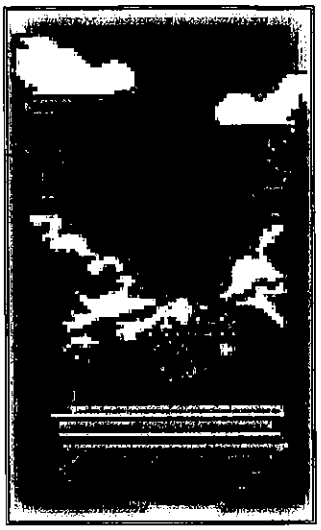
- Agency for Toxic Substances and Disease Registry (ATSDR): Resources for Information on Asbestos and Asbestos-Related Disease

- California Office of Environmental Health Hazard Assessment: Asbestos Fact Sheet

- California Air Resource Board - Asbestos Information

- El Dorado County Asbestos Review Area Map 7/22/05



EL DORADO COUNTY
ENVIRONMENTAL MANAGEMENT
PLACERVILLE OFFICE
2850 FAIRLANE CT, BLDG C
PLACERVILLE, CA 95667
PHONE: (530) 621-5300
FAX: (530) 642-1531

Interoffice Memorandum

4/16/07

To: Andrew Painter, Project Planner
City of Placerville
Development Services Department

From: Environmental Management Dept.

Subject: Lumsden Ranch

Environmental Management Department staff have reviewed the subject application. Should this project be conditionally approved, it is the recommendation of this Department that the following conditions be a part of that action:

Air Quality Management:

The District has reviewed the Notice of Preparation March 2007 for an Environmental Impact Report for the Lumsden Ranch proposed project. The District concurs with the determination that an Environmental Impact Report is required for this project.

The District has reviewed the proposed project **Tentative Subdivision Map 06-02 (Lumsden Ranch), Planned Development Overlay 05-01, & Environmental Assessment 06-01, in Placerville, California.** The following is a summary of issues that should be addressed and the potential impacts on air quality that may result from the implementation of this project:

1. The project construction will involve grading and excavation operations, which will result in a temporary negative impact on air quality with regard to the release of particulate matter (PM_{10}) in the form of dust. Current county records indicate this property is located within the Asbestos Review Area (copy enclosed). **Therefore**, District Rule 223.2 Fugitive Dust-Asbestos Hazard Mitigation, which address the regulations and mitigation measures for fugitive dust emissions shall

be adhered to during the construction process. Mitigation measures for the control of fugitive dust shall comply with the requirements of Rule 223.2. In addition, an **Asbestos Dust Mitigation Plan (ADMP) Application with appropriate fees shall be submitted to and approved by the District prior to start of project construction**.

2. Project construction may involve road development and **should adhere** to District **Rule 224 Cutback and Emulsified Asphalt Paving Materials** and the county ordinance concerning asbestos dust.

3. Burning of wastes that result from "Land Development Clearing" must be permitted through the DISTRICT. Only vegetative waste materials may be disposed of using an open outdoor fire.

4. The project construction will involve the application of architectural coating, which **shall adhere to District Rule 215 Architectural Coatings.**

5. The District's goal is to strive to achieve and maintain ambient air quality standards established by the U.S. Environmental Protection Agency and the California Air Resources Board and to minimize public exposure to toxic or hazardous air pollutants and air pollutants that create unpleasant odors. The following are measures used to reduce impacts on air quality from equipment exhaust emissions:

   Heavy Equipment and Mobile Source Mitigation Measures.

   - Use low-emission on-site mobile construction equipment.
   - Maintain equipment in tune per manufacturer specifications.
   - Retard diesel engine injection timing by two to four degrees.
   - Use electricity from power poles rather than temporary gasoline or diesel generators.
   - Use reformulated low-emission diesel fuel.
   - Use catalytic converters on gasoline-powered equipment.
   - Substitute electric and gasoline-powered equipment for diesel-powered equipment where feasible.
   - Do not leave inactive construction equipment idling for prolonged periods (i.e., more than two minutes).
   - Schedule construction activities and material hauls that affect traffic flow to off-peak hours.
   - Configure construction parking to minimize traffic interference.
   - Develop a construction traffic management plan that includes, but is not limited to: Providing temporary traffic control during all phases of construction activities to improve traffic flow; Rerouting construction trucks off congested streets; and provide dedicated turn lanes for movement of construction trucks and equipment on- and off-site.

6. Prior to construction/installation of any new point source emissions units or non-permitted emission units (i.e., gasoline dispensing facility, boilers, internal combustion engines, etc.), authority to construct applications shall be submitted to the District. Submittal of applications shall include facility diagram(s), equipment specifications and emission factors.

It is the District's understanding that minor construction work, i.e. grading is to occur. Therefore, the District has determined the project would have an insignificant impact on the air quality. If you have any questions to these comments, please do not hesitate to contact this office at (530) 621-6662.

If you have any questions regarding this comment, please do not hesitate to contact our office at (530) 621-6662.

Environmental Health:

No comment.

Hazardous Materials:

No comment.

DEVELOPMENT SERVICES DEPARTMENT

County of EL DORADO

http://www.co.el-dorado.ca.us/devservices

PLANNING SERVICES

PLACERVILLE OFFICE:
2850 FAIRLANE COURT
PLACERVILLE, CA 95667
(530) 621-5355
(530) 642-0508 Fax
Counter Hours: 8:00 AM to 4:00 PM
planning@co.el-dorado.ca.us

LAKE TAHOE OFFICE:
3368 LAKE TAHOE BLVD. SUITE 302
SOUTH LAKE TAHOE, CA 96150
(530) 573-3330
(530) 542-9082 Fax
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tahoebuild@co.el-dorado.ca.us

EL DORADO HILLS OFFICE:
4950 HILLSDALE CIRCLE, SUITE 100
EL DORADO HILLS, CA 95762
(916) 941-4867 and (530) 621-5662
(916) 941-0269 Fax
Counter Hours: 8:00 AM to 4:00 PM
planning@co.el-dorado.ca.us

April 24, 2007

RECEIVED
APR 24 2007
CITY OF PLACERVILLE
COMMUNITY DEV. DEPT.

Andrew Painter
Placerville Community Development Department
3101 Center Street
Placerville, CA 95667

Re: Notice of Preparation
Lumsden Ranch Subdivision

Dear Mr. Painter:

El Dorado County Planning Services has reviewed the Notice of Preparation and Initial Study for the Lumsden Ranch project. Although it appears that most of the issues that would concern the County will be addressed in the EIR, the impact of new housing adjacent to the County-operated Placerville Airport must be considered with regard to land use compatibility, noise, and safety.

The project site lies within the overflight zone (Safety Zone 3) of the airport. The County is concerned that additional development within this area has the potential to restrict airport operations by creating land use conflicts associated with noise and safety. While we note that the initial study identifies noise from the airport as a potentially significant impact (Item X.b. Exposure of people to severe noise levels), we want to ensure that the land use conflicts of placing residential development near the airport is addressed and mitigation measures developed so as to not adversely impact airport operations. We believe that Item VI.g (Would the project result in rail or air traffic impacts?) should be identified as potentially significant, due to the possibility of land use conflicts that could result in calls for restrictions on airport operations. Provisions of the Comprehensive Land Use Plan for the Placerville Airport should also be reviewed and considered in the analysis of this project.

Thank you for the opportunity to comment on the preparation of the Draft EIR. We look forward to reviewing that document when it is released.

Sincerely,

Peter N. Maurer
Principal Planner

cc: Dave Nicolls, Airport Operations, General Services Dept.

Scott Goebl

From: Andrew Painter [apainter@ci.placerville.ca.us]
Sent: Monday, April 23, 2007 3:14 PM
To: Scott Goebl
Subject: FW: Lumsden Ranch EIR

-----Original Message-----
From: George Nielsen
Sent: Monday, April 23, 2007 2:50 PM
To: Andrew Painter
Cc: Steve Calfee
Subject: Lumsden Ranch EIR

Andrew,
Here is a response from the Police Department regarding the Lumsden Ranch development.
The project at 366 dwelling units would increase the number of residents within the City by approximately 1000 persons. This would significantly increase the demand on police services affecting the PD's ability to provide services to the City and the project. Considering our service population in the Placerville area, the PD attempts to maintain an ideal staffing ratio of 2.6 officers per 1000 residents. By virtue of this development we would expect the PD staffing to increase by at least one officer (and more ideally 2.6 officers) as directly affected by this project. The increase in staffing would be necessary to accommodate response times and service to the community. Associated safety equipment for the additional staff would also be a consideration. This would include weapons, ballistic vest, duty belts, less lethal weapons, etc.
Another consideration with the project is emergency access to the project site. We would encourage the project to include three access routes to the site instead of just two. We would consider the two access points off Broadway Drive to be vital and the third access very desirable and recommended. This would assist with emergency response and access issues.
If you have any questions or need additional info regarding the PD please feel free to contact me.
-Geo176
George Nielsen
Chief of Police
Placerville Police Department

MIWOK TRIBE OF THE EL DORADO RANCHERIA
P.O. Box 1284
El Dorado, CA 95628
(530) 363-3257
miwoktribe@hotmail.com

April 21, 2007

Community Development Department
Andrew Painter, Planner
3101 Center Street
Placerville, CA 95667

Mr. Painter,

We have received your correspondence dated 3/26/07 regarding the notice of preparation of an environmental impact report for the Lumsden's Ranch Development. The location of this project causes us concern due to the existence of a Native site on or in close proximity of this planned development.

At this time it is recommended that no activity take place in this area until further analysis of the resources and the amount of disturbance has been determined.

Sincerely,

Jen Scambler, Chairperson
Miwok Tribe of the El Dorado Rancheria

Ltr3-A1-003

cc: SWCA Environmental Consultants
CR File

Andrew Painter

From: Lorraine Larsen-Hallock [l.larsen-hallock@gotsky.com]
Sent: Tuesday, April 24, 2007 1:35 PM
To: Andrew Painter
Subject: Lumsden Ranch project NOP comments

Dear Andrew Painter,

The following are comments on the Lumsden Ranch project NOP dated March 2007:

The project EIR should address the following items in addition or in conjunction with those identified in the Initial Study:

1. Impacts of potential wildlife displacement and migratory trails.
   a. The project proposed road system and trail system should be designed to accommodate migration / travel of existing wildlife through the project.
   b. Effects on existing residents due to displacement of wildlife into areas surrounding the project site.
2. The project is located near the Placerville general aviation airport. This airport is important to the El Dorado County aviation community and should be protected from residential encroachment. Increases in population surrounding an airport often bring future complaints and pressures concerning aircraft noise. As a mitigation measure all residential construction with in the project area should be required to include soundproofing to reduce the potential of resident complaints against the existing airport. In addition, residents should be required to sign an awareness / disclosure acceptance statement advising of the airport and the potential for increased noise.
3. Due to the steep topography existing residents uphill from the project site are likely to experience a significant increase in noise as a result of the proposed project. Mitigation measures should be developed to reduce the increase in noise.
   a. Measures might include maximization of retaining the existing tree canopy beyond the minimum requirements maintained for tree preservation only.
   b. Additional construction considerations can also reduce the potential for noise.
   c. The proposed community center building should include soundproofing and other design considerations to reduce noise resulting from events which include loud music (weddings, parties, etc).
4. Due to the steep topography existing residents uphill from the project site are likely to experience a significant increase in potential fire hazards due to the increased population. Construction of the proposed project should consider fire prevention measures not only for the project area, but those areas surrounding the project site.
5. The increased traffic impacts needs to consider
   a. drift of auto emissions uphill toward existing residents and
   b. potential areas of improving the traffic flow which include the surrounding existing traffic patterns and the cumulative proposed projects.
6. El Dorado County's water supply is limited in quantity (as it is throughout the state) therefore the EIR needs to address the potential for utilizing reclaimed waste water for such purposes as landscaping, including individual residential yards, and fire suppression.
   a. The project design needs to build in the capability of future infrastructure for the use of reclaimed water.
   b. Discussions need to explore the potential for delivery of reclaimed water from the existing wastewater treatment plant and / or construction of another wastewater treatment plant capable of providing reclaimed water to this and other proposed developments.
7. Mitigation measures should be established to provide an enforceable requirement for the operation and maintenance of the storm water retention system.
   a. The operation should include regular monitoring of the off-site effluent water quality to ensure the natural treatment design is functioning as intended and not impacting downstream water quality.

b. Maintenance should include regular removal of silts to maintain maximum retention capacity.

If you have any questions concerning these comments please call me at (530) 677-1973.

Sincerely,

Lorraine Larsen-Hallock

On behalf of

Betty Hewitt, 1695 Country Club Drive, Placerville, CA 95667

3201 Conifer LN
Garden Valley. CA 95633
April 29. 2007

Andrew Painter
Community Development Department
3101 Center St.
Placerville. CA 95667

Dear Mr. Pointer:

re: Lumsden Ranch Project

Sorry this comment is late. but I just realized how outrageous this consideration is and that it would be better to send this letter with the hope it is still accepted. The environmental impact of 133 acres carrying 266 houses with roads is obscene and not at all suitable to our beautiful county situation. We are not a suburb and don't want to become one. Adequate water and power is an issue. Schools, traffic, etc. would all be out of balance.

The short answer is NO, not in our backyard, front yard or county. This doesn't belong anywhere I'd want to be!

Thank you for listening.

Sarah E. Ramsay

SIERRA PLANNING ORGANIZATION
560 WALL STREET, SUITE F
AUBURN, CA 95603

April 25, 2007

Andrew Painter, City Planner
City of Placerville Community Development Department
3101 Center Street
Placerville, CA 95667

RE: Lumsden Ranch

Dear Mr. Painter,

We have reviewed the Notice of Preparation for the referenced project and concur with your conclusion to require the preparation of an Environmental Impact Report (EIR). However, we submit that there may be a potentially significant impact to air traffic (VI.g) in the vicinity of the Placerville airport until clearly established to the contrary by the EIR. Though the project does not appear to be under the airport's western approach/departure zone, it does appear to be – and the Initial Study states that it is – within the airport's overflight zone. Therefore, we request that the EIR fully address the project's relation to the Placerville airport and that the EIR be submitted to the Foothills Airport Land Use Commission (FALUC; co-located with the Sierra Planning Organization, SPO), for review of consistency with the Placerville Airport Comprehensive Land Use Plan (CLUP). The EIR should address the possibility for any penetration of the airport runway horizontal plain, potential noise impacts and mitigation measures, as applicable, and confirmation that no construction is planned under the airport's western approach/departure zone. The fee of $400 for the FALUC review should be submitted through your organization by the project proponents with the EIR. That fee is quoted under the assumption that the project does not also involve General Plan or Zoning amendments. If the project includes such amendments, the fee for all review services is $500.

Thank you for providing the Notice of Preparation for the referenced project. We look forward to the FALUC review of the EIR.

Sincerely,

/S/

Brent Smith
SPO Executive Director
FALUC Secretary

From: triskie@comcast.net [mailto:triskie@comcast.net]
Sent: Wednesday, April 04, 2007 11:13 AM
To: apainter@ci.placerville.ca.us
Cc: jacksonrob@pacificlegacy.com
Subject: Lumsden Ranch

Hi Andrew. My name is Trish Fernandez. I am a Placerville resident and a professional archaeologist and historian. I used to work for Pacific Legacy, Inc. and was the project manager and author of the cultural resources study conducted for CEQA ompliance CEQA for the Lumsden Ranch project.

I would like to bring your attention to the prehistoric site that is within the project area. Although the site was recommended not significant under CEQA, the site is of interest both to local non-indigenous residents and our area's local indigenous residents. Regardless of the interest, however, my colleagues at Pacific Legacy and I did not see this as meeting CEQA significance criteria. Nonetheless, please be aware that you are likely to receive comments about the project in relation to this site. Your environmental document should be prepared with this in mind.

The group that responded with the most interest during the cultural study, and conducted monitoring during excavation, was the El Dorado Miwok. They may be contacted as follows:

El Dorado Miwok Tribe
c/o Ms. Jeri Scambler
P.O. Box 1284
El Dorado, CA 95623
530.363.3257
miwoktribe@hotmail.com

As a local resident interested in historic preservation, I have requested that the Office of Historic Preservation review the cultural resources report to see if they would agree with its findings. My efforts in this matter are not meant to stir anything up, but to assist the City in making findings based on substantial evidence in light of the whole record. If I can be of any assistance in this matter, please do not hesitate to call on me. In addition, if additional environmental compliance is necessary, please feel free to have any future or existing consultants contact me with any questions or concerns.

I am copying Mr. Rob Jackson, CEO, Pacific Legacy, Inc. on this email merely to make him aware that this project that involved his company will be heard publicly in the near future.

Thank you for your time and consideration.

Trish Fernandez, M.A., RPA
2973 Miller Way
Placerville, CA 95667
530.409.7151

APPENDIX C:
DRAINAGE REPORT

Drainage Report

Lumsden Ranch Development Project

Prepared by: Domenichelli and Associates

July 2007

Background

In June of 2006, Klemetson Engineering, LLC created a Preliminary Hydrologic Report for the proposed Lumsden Ranch development for Brilliant Management, LLC. The goal of this Preliminary Hydrologic Report was to analyze flow impacts that the proposed development would have on adjacent and/or downstream properties. The proposed site consists of 133 acres located outside of Placerville, California in the County of El Dorado. Figure 1 below shows the general location of the proposed project site.

Figure 1. Vicinity Map.

The Preliminary Hydrologic Report concluded that the proposed development would increase flows leaving the site and therefore detention for storm water runoff would be required. The Report included two different options for detention. Option 1 (see Figure 2) required the construction of two new detentions ponds onsite and Option 2 (see Figure 3) required the construction of one new detention pond and the expansion of Lumsden Lake. This report used the simplified rational method to analyze the effects of the development. In order to properly size the detention basins and select an alternative for detention, a more detailed study is required.

Brilliant Management LLC has contracted with Domenichelli and Associates (D&A) to have the hydrology for Lumsden Ranch studied in more detail. This effort defined existing and proposed conditions hydrology for the project watershed, checked for downstream impacts due to the development, and located and sized detention facilities necessary to mitigate increased peak flows for the project.

After analyzing the existing watershed and reviewing the current Preliminary Report, a preferred option for detention was developed. This new option is similar to Option 1 in that two (2) new detention facilities will be required. However, the detention pond locations and sizes were refined (see Figure 6 in the hydrologic modeling section of this drainage report) in order to maximize storage volumes and minimize runoff entering Lumsden Lake.

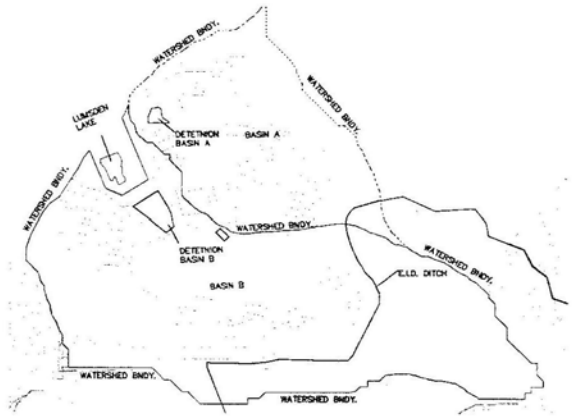


Figure 2. Option 1 from the previous Report.

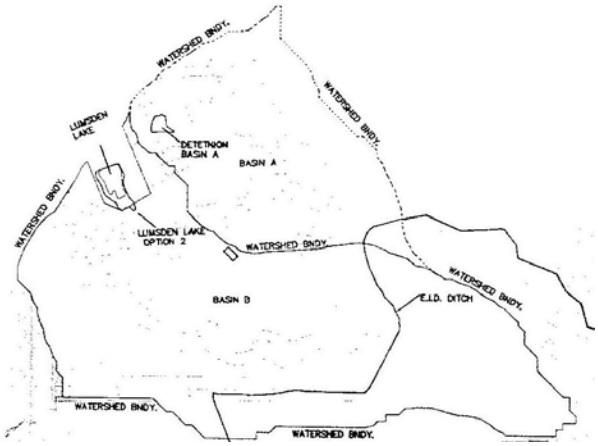


Figure 3. Option 2 from the previous Report.

The following sections describe the criteria used and results from these modeling efforts.

Hydrologic Modeling

The hydrologic analysis used for this drainage study was based on procedures outlined in the County of El Dorado Drainage Manual (March, 1995). The County Drainage Manual includes methodology developed by the U.S. Department of Agriculture Natural Resource Conservation Service (NRCS). A computer model was developed for this study using the Army Corps of Engineers' Hydrologic Engineering Center's Hydrologic Modeling System (HEC-HMS version 3.0.1). Within the model, the following three (3) scenarios were created:

1. Existing Conditions: A model of the existing watershed was created to establish base flow conditions before Lumsden Ranch Development.

2. Proposed Conditions without Detention Ponds: This scenario includes the addition of Lumsden Ranch Development without onsite drainage for the development.

3. Proposed Conditions with Detention: The proposed condition includes the addition of Lumsden Ranch Development and two (2) onsite detention ponds.

Modeling Criteria

In order to determine the flow impacts from the Lumsden Ranch Development, upstream flows entering the project limits and downstream flows beyond the project limits were included into the model. It was important to address and model these areas outside the project limits to confirm that the project will not increase flow to adjacent and/or downstream properties. The following methods were used in the model:

1. SCS Curve Numbers for runoff losses

2. SCS 24 hour Unit Hydrograph for the 10-year and 100-year events

3. Storage-discharge rating curves for detention storage modeling

4. Muskingum-Cunge for channel routing

The SCS runoff curve numbers (CN) were selected using Table 2-2a and Table 2-2c from the NRCS found in the County Drainage Manual. The watersheds contain three main cover types: residential, woods, and open space. Hydrologic Soil Group (HSG) were classified by the NRCS and the watershed contain HSG A through D, with predominate HSG B. Figures and tables showing CN and HSG used can be found in the Appendix A.

The SCS Unit Hydrograph method was used to calculate runoff. Lag time was calculated based on time of concentration. The 2-year 24-hour rainfall depth was determined and an overland roughness coefficient was assumed in order to calculate time of concentration for sheet flow. In order to calculate shallow concentrated flow, the velocity was determined using 1972 SCS Figure 4 graph Velocities for Upland Method of Estimating t_c. Manning's equation was then used to calculate channel flow. Refer to Appendix A for detailed calculations, tables, graphs, figures, etc used in this analysis.

A storage-discharge rating curve was developed for Lumsden Lake and its outlet culvert. The curve was developed using the Army Corps of Engineers' Hydrologic Engineering Center's River Analysis System (HEC-RAS version 3.1.3) until the lake reached capacity and then a weir equation was used to determine flow when the lake started to overtop the embankment.

Figure 4. Lumsden Lake culvert.

Figure 5. Lumsden Lake embankment.

Model Results

A summary of the HEC-HMS peak flows at key locations are shown in Tables 1, 2, and 3 for comparison between the three (3) different scenarios. The model ID corresponds with the HEC-HMS schematics found in Appendix A. Figure 6 shows these key locations in relation to the overall watershed and project. Figure 7 shows the preliminary grading plan and the pond locations relative to the proposed development improvements. Detailed result tables from HEC-HMS are provided in Appendix B.

Table 1. HEC-HMS peak flow rate results.

MODEL ID	10-YEAR FLOW (CFS)	100-YEAR FLOW (CFS)	MODEL ID DESCRIPTION
Existing Conditions			
Res-LL	41.9	92.1	Lumsden Lake
J9	58.7	131	Confluence of Pond 1, 2 and Lumdsen Lake
L1.2	26.0	61.2	Watershed location for Pond-2
L1.3	37.4	78.2	Watershed location for Pond-1
J6	912	1686	Confluence of Hangtown Creek and Project Flow
J8	1751	3219	Confluence of Hangtown Creek and Cedar Ravine

Table 2. HEC-HMS peak flow rate results.

MODEL ID	10-YEAR FLOW (CFS)	100-YEAR FLOW (CFS)	MODEL ID DESCRIPTION
Proposed Conditions w/o Detention			
Res-LL	52.8	114	Lumsden Lake
J9	81.6	165	Confluence of Pond 1, 2 and Lumdsen Lake
L1.2	41.0	82.4	Watershed location for Pond-2
L1.3	52.3	98.5	Watershed location for Pond-1
J6	937	1720	Confluence of Hangtown Creek and Project Flow
J8	1775	3253	Confluence of Hangtown Creek and Cedar Ravine

Table 3. HEC-HMS peak flow rate results.

MODEL ID	10-YEAR FLOW (CFS)	100-YEAR FLOW (CFS)	MODEL ID DESCRIPTION
Proposed Conditions w/Detention			
Res-LL	35.7	57.7	Lumsden Lake
J9	57.6	93.2	Confluence of Pond 1, 2 and Lumdsen Lake
Pond-2	18.6	27.9	Detention Basin
Pond-1	27.3	39.5	Detention Basin
J6	908	1641	Confluence of Hangtown Creek and Project Flow
J8	1746	3174	Confluence of Hangtown Creek and Cedar Ravine

FIGURE 6: Watershed Map

Lumsden Ranch Development Project

1"=1500'

- Proposed Development Boundary
- Flow Path
- Key HEC-HMS Junctions

R1
341.8 ac

R2
501.8 ac

R3
275.1 ac

HT1
153.8 ac

HT2
202.4 ac

HT3
107.6 ac

HT4
64.5 ac

HT5
41.9 ac

HT6
48.3 ac

HT7
46.3 ac

L1
32.3 ac

L1.2
61.7 ac

L1.3
86.8 ac

L2
44.8 ac

L2.2
17.9 ac

S1
113.1 ac

C1
308.1 ac

C2
35.5 ac

C3
195.2 ac

SM1
374.7 ac

SM2
116.1 ac

A1
381.1 ac

J6

J8

J9

Pond-1

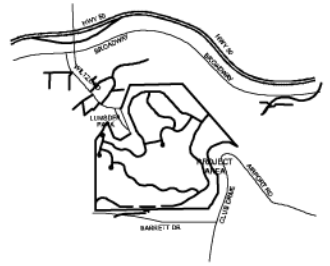
Pond-2

Res-LL

Main Ditch Cutoff

FIGURE 7
TENTATIVE MAP OF
LUMSDEN RANCH
PLACERVILLE, CALIFORNIA

LINE TABLE		
LINE	BEARING	DISTANCE (M)
L1	N32°27'03"E	75.84
L2	N34°51'03"E	38.21
L3	N32°29'37"E	163.74
L4	N27°16'23"E	116.99
L5	N39°49'11"E	71.36
L6	N35°34'20"E	49.84
L7	S46°18'02"E	79.32
L8	N60°46'08"W	200.84
L9	S85°29'06"W	121.34
L10	S69°29'06"W	195.00
L11	S59°59'06"W	85.00
L12	S21°00'54"E	245.00
L13	S34°00'17"E	32.79
L14	S39°52'06"E	152.13
L15	S26°05'42"W	7.30
L16	S29°37'53"W	190.52
L17	S29°13'26"W	43.76
L18	S44°46'42"W	79.81
L19	S27°29'06"W	58.46



PROPERTY DESCRIPTION

A PORTION OF SECTION 5 AND 18, TOWNSHIP 10 NORTH, RANGE 11 EAST, M.D.B. AND M., AS SHOWN IN THE RECORD OF SURVEY MAP FILED FEBRUARY 22, 1973 IN BOOK J OF RECORD OF SURVEYS AT PAGE 172, IN THE OFFICE OF COUNTY RECORDER AND PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SECTION CORNER COMMON TO SECTIONS 8, 9, 16, AND 17, BEING A 2-INCH CAPPED IRON PIPE STAMPED "T8, S9, S17, S16, M.D., 1934," THENCE FROM THE POINT OF BEGINNING NORTH 00°02'24" WEST 184.70 FEET; THENCE NORTH 32°27'03" EAST 75.84 FEET TO A 30" PIPE TREE WITH BLAZE SCRIBED E6 L; THENCE NORTH 34°51'03" EAST 38.21 FEET TO A 3 BY 3 POST IN ROCK MOUND SCRIBED C 8 2; THENCE NORTH 32°29'37" EAST 163.74 FEET TO A FENCE CORNER SCRIBED C 9 3; THENCE NORTH 27°06'23" EAST 116.99 FEET TO A FENCE CORNER TAGGED" LB 3795, THENCE NORTH 35°49'11" EAST 71.36 FEET TO A PINE STUMP IN A FENCE LINE TAGGED D "L S 3195", THENCE SOUTH 32°59'37" EAST 349.56 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L S. 3195", THENCE SOUTH 11°28'13" EAST 191.20 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L S. 3195", THENCE NORTH 39°29'37" EAST 237.17 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 3195", THENCE NORTH 25°02'23" WEST 386.81 FEET TO A ROUND KNOB TOP MONUMENT, THENCE CROSSING WILTZE ROAD NORTH 39°36'30" EAST 40.84 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 3195", THENCE NORTH 29°42'18" EAST 122.01 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 2026" CONTINUING NORTH 29°42'18" EAST 192.73 FEET TO A 3/8 INCH CAPPED IRON PIPE STAMPED "R.C.E. 13403", CONTINUING NORTH 29°42'18" EAST 197.39 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 2860 1994" AT A FENCE CORNER, THENCE NORTH 89°39'31" EAST 666.23 FEET TO THE SOUTHEAST CORNER OF THE CITY OF PLACERVILLE, MARKED BY A 1-1/2 INCH CAPPED IRON PIPE, THENCE NORTH 89°31'47" EAST 501.30 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 2863 1994, THENCE SOUTH 41°18'54" EAST 447.26 FEET TO A 1/2 INCH CAPPED IRON PIPE WITH NO CAP, THENCE SOUTH 41°16'40" EAST 1030.81 FEET TO A SIMILAR PIPE, THENCE SOUTH 41°12'23" EAST 210.26 FEET TO A SIMILAR PIPE, THENCE SOUTH 49°18'02" EAST 79.32 FEET TO A 1/2 INCH REBAR WITH PLASTIC TOP STAMPED "L.S. 3219 COR LOT 19/11", A POINT ON THE BOUNDARY OF SIERRA GOLF AND COUNTRY CLUB ESTATES SUBDIVISION FILED NOVEMBER 1, 1990, IN MAP BOOK C, MAP NO 62, IN THE OFFICE OF THE COUNTY RECORDER, THENCE ALONG THE BOUNDARY OF SAID SUBDIVISION AND THE CENTERLINE OF THE EL DORADO IRRIGATION DISTRICT DITCH THE FOLLOWING COURSES AND DISTANCES; NORTH 80°46'08" WEST 200.84 FEET; THENCE SOUTH 85°29'06" WEST 121.34 FEET; THENCE SOUTH 69°29'06" WEST 195.00 FEET; THENCE SOUTH 59°59'06" WEST 85.00 FEET, THENCE ON A CURVE TO THE LEFT WITH A RADIUS OF 175.00 FEET THE CHORD OF WHICH BEARS SOUTH 19°30'06" WEST 227.88 FEET; THENCE SOUTH 21°00'54" EAST 245.00 FEET; THENCE SOUTH 34°00'17" EAST 32.79 FEET; THENCE SOUTH 39°52'06" EAST 152.13 FEET; THENCE LEAVING THE CENTERLINE OF SAID DITCH SOUTH 01°25'54" EAST 386.48 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 3195", THENCE CONTINUING SOUTH 01°25'54" EAST 343.74 FEET TO A SIMILAR PIPE, A POINT IN THE CENTERLINE OF AN EL DORADO IRRIGATION DISTRICT DITCH; THENCE SOUTH 26°05'42" WEST 7.30 FEET, THENCE SOUTH 29°37'53" WEST 190.52 FEET, THENCE SOUTH 29°13'26" WEST 43.76 FEET; THENCE SOUTH 44°46'42" WEST 79.81 FEET; THENCE SOUTH 27°29'06" WEST 58.46 FEET; THENCE LEAVING SAID DITCH AND ALONG THE SOUTHLINE OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 16, SOUTH 89°09'39" WEST 366.59 FEET TO A 3/4 INCH CAPPED IRON PIPE, CONTINUING SOUTH 89°08'56" WEST 100.88 FEET TO A SIMILAR PIPE; CONTINUING SOUTH 89°09'06" WEST 665.43 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 3015", THENCE CONTINUING SOUTH 89°50'03" WEST 1307.26 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "R 1/16 RESET L.S. 3795 1994; THENCE ALONG THE SECTION LINE BETWEEN SECTIONS 16 AND 17; NORTH 00°14'45" EAST 1297.28 FEET TO THE POINT OF BEGINNING.

PROJECT CONTACTS

DEVELOPER / APPLICANT:
BRILLIANT MANAGEMENT LLC
114 CAMINO PABLO
ORINDA, CA 94563
925.258.0866

OWNER:
BRILLIANT MANAGEMENT LLC
APN 049-280-08
APN 049-380-07

ENGINEER:
KLEMETSON ENGINEERING, LLC
80 SOUTH MAIN STREET
PLEASANT GROVE, UT 84062
801.768.3869

UTILITIES

ELECTRICITY:
PACIFIC GAS & ELECTRIC

SEWAGE DISPOSAL:
CITY OF PLACERVILLE

TELEPHONE:
SBC

WATER SUPPLY:
CITY OF PLACERVILLE

SURVEY DATA:

SURVEYOR:
KELLOGG AERIAL SURVEYS
4300 N. FREEWAY BLVD. SUITE 3
RANCHO CORDOVA, CA 95834

CONTOUR INTERVAL:
MINOR 5'
MAJOR 25'

LAND USE:

CURRENT ZONING:

R1-20,000	111 ACRES
R3	23 ACRES

PROPOSED ZONING:

PDO	134 ACRES

RESIDENTIAL UNITS:
TOTAL UNITS 366

PROPOSED LOT SIZES:

LOTS #s	BASE DIMENSION	AREA
1 -3	125' x 200'	25000 SF
4 - 33	100' x 150'	15000 SF
36 - 49	72' x 100'	7200 SF
53 - 38, 50 - 81, 109 - 113, 126 - 123	60' x 100'	6000 SF
82 - 98, 164 - 185, 232 - 247,		
368 - 311, 114 - 118, 124 - 165, 169 - 211, 263 - 266, 278 - 307, 312 - 347, 354 - 366	50' x 100'	5000 SF
212 - 231, 348 - 362, 266 - 277, 348 - 353	40' x 80'	3680 SF

TOTAL ACREAGE: 42.6 AC
TOTAL PERCENTAGE OF PROPERTY: 31.3 %

PREPARED BY:
KLEMETSON ENGINEERING, LLC
80 SOUTH MAIN STREET
PLEASANT GROVE, UT 84062
801.768.3869
AUG 4, 2008

APPROVED:

APPROVAL	CONDITIONAL APPROVAL	DISAPPROVAL	
CITY ENGINEER		DATE	
APPROVAL	CONDITIONAL APPROVAL	DISAPPROVAL	
PLANNING COMMISSION		DATE	
APPROVAL	CONDITIONAL APPROVAL	DISAPPROVAL	
CITY COUNCIL		DATE	

REVISED: JANUARY 10, 2007

The results show that during both a 10-year and 100-year storm, the proposed conditions without detention scenario increased flows from the existing conditions base flows. This increase was due mostly to higher curve numbers resulting from the development. In order to reduce flows back to existing conditions, onsite detention is necessary. The proposed conditions scenario, which includes two (2) detention ponds, shows no adverse flow impacts for the 10-year and 100-year design storms in comparison with the existing conditions base flows. Additionally, for the 100-year storm the proposed conditions scenario significantly reduced the peak flows below existing. There was a 29 percent flow reduction at J9, which is the confluence of all flow discharging from Pond-1, Pond-2, and Res-LL (Lumsden Lake). A description of the criteria used to develop the outfall rating curves for the detention facilities is provided in the following section.

Proposed Detention Facilities

The above analysis results show that onsite detention is necessary to mitigate flow rate increases due to the proposed development. In order to achieve effective storage for both the 10-year and 100-year events, outfall rating curves were developed for both detention ponds. The rating curves simulate a potential outfall design scenario for the proposed detention ponds. The outfall rating curve used in this analysis is based on a conservative design and may be revised during the final design.

Outfall Criteria

Storage-discharge rating curves were developed for both ponds and can be found in Appendix C. The curves were developed using topography from USGS Quad Maps and the applicable nomograph from Appendix 7.2 in the County Drainage Manual.

The following assumptions were used in developing the storage-discharge rating curves:

1. 15-inch diameter culvert outlet for Pond-2

2. 18-inch diameter culvert outlet for Pond-1

3. Assumed no blockage from debris, ice, snow, etc, which is in accordance with Section 6.3.5 of the County Drainage Manual

The 15-inch and 18-inch diameter culverts conform to the rating curves used in the HEC-HMS model. However, during the design phase, more detail on the outlet structures will be required in order to properly limit the flows for various storm events.

Detention Modeling Results

Pond-1

Detention Pond-1 is located in watershed L1.3. It is the smaller of the two ponds, however it needs to store slightly more runoff to mitigate increased flows to Lumsden Lake. The grading plan shows an available depth of storage of 10 feet behind the roadway embankment. However, the modeling shows the actual water surface depth of 15.5 feet. Therefore, the pond depth had to be increased accordingly by raising the pond embankment in order to achieve the mitigation objectives. The available depth of storage with the proposed increase in pond depth is 18 feet, with 2 feet of

freeboard with an available storage volume of approximately 5.89 ac-ft. A summary of the HEC-HMS results for Pond-1 are shown in Table 4.

Table 4. HEC-HMS results for Pond-1.

DESIGN STORM	DISCHARGE (CFS)	W.S. DEPTH (FT)	PEAK VOLUME (ACRE-FT)
10-YEAR	27.3	9.61	1.58
100-YEAR	39.5	15.5	4.19

Pond-2

Detention Pond-2 is located in watershed L1.2. The pond is formed by the embankment of the proposed Mace Drive and has a depth of available storage of 18 feet, with 2 feet of freeboard. The available storage is approximately 3.83 ac-ft. A summary of the HEC-HMS results for Pond-2 are shown in Table 5. The results for this pond show that adequate storage can be achieved using the proposed embankment height.

Table 5. HEC-HMS results for Pond-2.

DESIGN STORM	DISCHARGE (CFS)	W.S. DEPTH (FT)	PEAK VOLUME (ACRE-FT)
10-YEAR	18.6	9.00	0.916
100-YEAR	27.9	14.9	2.45

Both detention facilities are sufficient to detain enough runoff to mitigate increases from the 10-year and 100-year storms provided the embankment for Pond-1 is increased to 20 feet, which is 10 feet higher than the roadway embankment at the southern end of the pond. This is due to the steep down hill slope of the proposed Mace Drive when traveling to the south. The results from Table 4 and Table 5 show that both detention facilities are below the maximum depth and available volume, which provides additional freeboard. It is also important to note that both proposed detention facilities would be categorized as non-jurisdictional dams (not governed by the Division of Safety of Dams) as both have a storage depth and capacity less than 25 feet and 15 acre-feet respectively. The dam safety jurisdictional size chart is provided in Appendix B.

Other Project Drainage Issues

Other comments received from the City regarding the Preliminary Drainage Report included reference to drainage from the El Dorado Irrigation District ditch and drainage from Canyon Way Road. D&A has performed a field walk of the ditch and has reviewed the impacts of the new Canyon Way Road and has incorporated our findings as follows.

EID Main Ditch - The El Dorado Irrigation District (EID) owns and operates an irrigation ditch that they identify as the Main Ditch that several years ago was used to convey irrigation water to the Placerville area. For the most part, the Main Ditch is abandoned except for a portion just downstream of the EID, Reservoir 1 Water Treatment Plant near the community of Camino. That

portion of the ditch is used as an emergency overflow from the treatment plant. The remainder of the ditch has not been maintained but has portions that will collect storm runoff.

Remnants of the Main Ditch cross through the Lumsden Ranch property. On a field walk of the ditch, D&A found that the ditch is filled to the east of the property, therefore only a small offsite area will collect in the ditch and be conveyed to the project site. This area has been included in the site watershed and has been accounted for in the project hydrology. Figure 6 shows the location of the cutoff (blockage) of the Main Ditch in relation to the project site. Figure 8 provides a view of the blockage location where the Main Ditch has been filled in. There were several other locations of blockage found when continuing to the east to Airport Road.

Figure 8. Main ditch blockage.

During the final grading of the project site, it is recommended that the remaining ditch be removed at existing cross drainage swales, allowing the runoff to proceed down-slope in its original natural course.

Canyon Way Road- Per the proposed grading plan, the Canyon Way will leave the site to the north and proceed down-slope to Broadway. This alignment crosses several small drainage swales and also crosses Hangtown Creek (See Figure 8). The increase in runoff due to the new roadway surface is insignificant as shown in the HEC-HMS results for the roadway watersheds provided inTable 6. Table 6 shows the comparison of the pre and post roadway construction flows without mitigation.

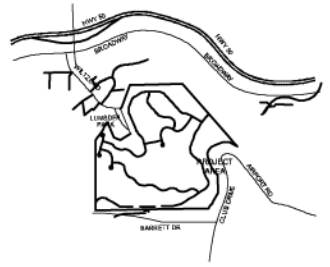
Table 6. HEC-HMS 100-year flow results for Canyon Way Road.

SUB-BASIN	EXISTING CONDITIONS (CFS)	PROPOSED UNMITIGATED CONDITIONS (CFS)	ESTIMATED CROSS-CULVERT DIAMTER (INCHES)
CW1	7.97	8.96	15
CW2	5.65	6.08	12
CW3	20.0	20.0	24

Because the roadway eventually crosses Hangtown Creek and the cross culverts are just upslope from the creek, the use of oil/sand separator type inlets in the roadway is recommended to mitigate for water quality.

FIGURE 8
TENTATIVE MAP OF
LUMSDEN RANCH
PLACERVILLE, CALIFORNIA

LINE TABLE		
LINE	BEARING	DISTANCE (M)
L1	N32°27'03"E	75.84
L2	N34°51'03"E	38.21
L3	N32°29'37"E	163.74
L4	N27°16'23"E	116.99
L5	N39°49'11"E	71.34
L6	N35°34'20"E	49.84
L7	S46°18'02"E	79.32
L8	N60°46'08"W	200.84
L9	S85°29'06"W	121.34
L10	S69°29'06"W	195.00
L11	S59°59'06"W	85.00
L12	S21°00'54"E	245.00
L13	S34°00'17"E	32.79
L14	S39°52'06"E	152.13
L15	S34°55'42"W	7.30
L16	S29°37'53"W	190.62
L17	S29°13'26"W	43.76
L18	S44°46'42"W	79.81
L19	S27°29'06"W	58.46



PROPERTY DESCRIPTION

A PORTION OF SECTION 5 AND 18, TOWNSHIP 10 NORTH, RANGE 11 EAST, M.D.B. AND M., AS SHOWN IN THE RECORD OF SURVEY MAP FILED FEBRUARY 22, 1973 IN BOOK J OF RECORD OF SURVEYS AT PAGE 172, IN THE OFFICE OF COUNTY RECORDER AND PARTICULARLY DESCRIBED AS FOLLOWS:

BEGINNING AT THE SECTION CORNER COMMON TO SECTIONS 8, 9, 16, AND 17, BEING A 2-INCH CAPPED IRON PIPE STAMPED "T8, S9, S17, S16, M.L. 1934," THENCE FROM THE POINT OF BEGINNING NORTH 00°02'24" WEST 184.70 FEET; THENCE NORTH 32°27'03" EAST 75.84 FEET TO A 30" PINE TREE WITH BLAZE SCRIBED E6 L; THENCE NORTH 34°51'03" EAST 38.21 FEET TO A 3 BY 3 POST IN ROCK MOUND SCRIBED C 8 2; THENCE NORTH 32°29'37" EAST 163.74 FEET TO A FENCE CORNER SCRIBED C 8 3; THENCE NORTH 27°06'23" EAST 116.00 FEET TO A FENCE CORNER TAGGED" LB 3795, THENCE NORTH 35°46'11" EAST 71.34 FEET TO A PINE STUMP IN A FENCE LINE TAGGED D "L.S. 3195", THENCE SOUTH 32°29'06" EAST 349.56 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 3195", THENCE SOUTH 11°28'13" EAST 191.20 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L. S. 3195", THENCE NORTH 39°25'39" EAST 237.17 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 3195", THENCE NORTH 25°02'23" WEST 386.81 FEET TO A ROUND KNOB TOP MONUMENT; THENCE CROSSING WILTZE ROAD NORTH 39°36'30" EAST 40.84 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 3195", THENCE NORTH 20°40'16" EAST 122.01 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 2026" CONTINUING NORTH 20°40'16" EAST 192.73 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "R.C.E. 13403", CONTINUING NORTH 20°40'16" EAST 197.39 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 2860 1994" AT A FENCE CORNER, THENCE NORTH 89°39'11" EAST 666.23 FEET TO THE SOUTHEAST CORNER OF THE CITY OF PLACERVILLE, MARKED BY A 1-1/2 INCH CAPPED IRON PIPE, THENCE NORTH 89°31'47" EAST 501.10 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 2863 1994, THENCE SOUTH 41°18'54" EAST 443.26 FEET TO A 1/2 INCH CAPPED IRON PIPE WITH NO CAP, THENCE SOUTH 41°16'40" EAST 1030.81 FEET TO A SIMILAR PIPE; THENCE SOUTH 41°12'23" EAST 210.26 FEET TO A SIMILAR PIPE; THENCE SOUTH 49°18'02" EAST 79.32 FEET TO A 1/2 INCH REBAR WITH PLASTIC TOP STAMPED "L.S. 3219 COR LOT 10/11", A POINT ON THE BOUNDARY OF SIERRA GOLF AND COUNTRY CLUB ESTATES SUBDIVISION FILED NOVEMBER 1, 1960, IN MAP BOOK C, MAP NO 62, IN THE OFFICE OF THE COUNTY RECORDER; THENCE ALONG THE BOUNDARY OF SAID SUBDIVISION AND THE CENTERLINE OF THE EL DORADO IRRIGATION DISTRICT DITCH THE FOLLOWING COURSES AND DISTANCES; NORTH 80°46'08" WEST 200.84 FEET; THENCE SOUTH 88°29'06" WEST 121.34 FEET; THENCE SOUTH 69°29'06" WEST 195.00 FEET; THENCE SOUTH 85°59'06" WEST 85.00 FEET; THENCE ON A CURVE TO THE LEFT WITH A RADIUS OF 175.00 FEET THE CHORD OF WHICH BEARS SOUTH 19°30'06" WEST 227.88 FEET; THENCE SOUTH 21°00'54" EAST 245.00 FEET; THENCE SOUTH 34°00'17" EAST 32.79 FEET; THENCE SOUTH 39°52'06" EAST 152.13 FEET; THENCE LEAVING THE CENTERLINE OF SAID DITCH SOUTH 01°28'04" EAST 386.48 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 3195", THENCE CONTINUING SOUTH 01°28'04" EAST 343.74 FEET TO A SIMILAR PIPE, A POINT IN THE CENTERLINE OF AN EL DORADO IRRIGATION DISTRICT DITCH; THENCE SOUTH 24°35'42" WEST 7.30 FEET, THENCE SOUTH 29°37'53" WEST 190.62 FEET, THENCE SOUTH 29°13'26" WEST 43.76 FEET; THENCE SOUTH 44°46'42" WEST 79.81 FEET; THENCE SOUTH 27°29'06" WEST 58.46 FEET; THENCE LEAVING SAID DITCH AND ALONG THE SOUTHLINE OF THE NORTH HALF OF THE NORTHWEST QUARTER OF SECTION 16, SOUTH 89°09'39" WEST 366.59 FEET TO A 3/4 INCH CAPPED IRON PIPE, CONTINUING SOUTH 89°56'56" WEST 100.88 FEET TO A SIMILAR PIPE; CONTINUING SOUTH 89°09'06" WEST 665.43 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "L.S. 3015", THENCE CONTINUING SOUTH 89°59'03" WEST 1307.26 FEET TO A 3/4 INCH CAPPED IRON PIPE STAMPED "R 1/16 RESET L.S. 3795 1994; THENCE ALONG THE SECTION LINE BETWEEN SECTIONS 16 AND 17; NORTH 00°14'45" EAST 1297.28 FEET TO THE POINT OF BEGINNING.

PROJECT CONTACTS

DEVELOPER / APPLICANT:
BRILLIANT MANAGEMENT LLC
114 CAMINO PABLO
ORINDA, CA 94563
925.258.0866

OWNER:
BRILLIANT MANAGEMENT LLC
APN 049-280-08
APN 049-380-07

ENGINEER:
KLEMETSON ENGINEERING, LLC
80 SOUTH MAIN STREET
PLEASANT GROVE, UT 84062
801.768.3869

UTILITIES

ELECTRICITY:
PACIFIC GAS & ELECTRIC

SEWAGE DISPOSAL:
CITY OF PLACERVILLE

TELEPHONE:
SBC

WATER SUPPLY:
CITY OF PLACERVILLE

SURVEY DATA:

SURVEYOR:
KELLOG AERIAL SURVEYS
4350 N. FREEWAY BLVD. SUITE 3
RANCHO CORDOVA, CA 95834

CONTOUR INTERVAL:
MINOR 5'
MAJOR 25'

LAND USE:

CURRENT ZONING:

R1-20,000	111 ACRES
R3	23 ACRES

PROPOSED ZONING:
PDO 134 ACRES

RESIDENTIAL UNITS:
TOTAL UNITS 366

PROPOSED LOT SIZES:

LOTS #s	BASE DIMENSION	AREA
1 -3	125' x 200'	25000+ SF
4 - 33	100' x 150'	15000+ SF
34 - 48	72' x 100'	7200 SF
53 - 38, 50 - 81, 109 - 113, 126 - 123 82 - 98, 164 - 166, 232 - 247,	60' x 100'	6000 SF
368 - 311, 114 - 118, 124 - 165, 169 - 211, 263 - 266, 278 - 307, 312 - 347, 354 - 366	50' x 100'	5000 SF
212 - 231, 348 - 362, 266 - 277, 348 - 353	40' x 80'	3680 SF

TOTAL ACREAGE: 42.6 AC
TOTAL PERCENTAGE OF PROPERTY: 31.3 %

PREPARED BY:

KLEMETSON ENGINEERING, LLC
80 SOUTH MAIN STREET
PLEASANT GROVE, UT 84062
801.768.3869

AUG 4, 2008

APPROVED:

APPROVAL	CONDITIONAL APPROVAL	DISAPPROVAL	
CITY ENGINEER		DATE	
APPROVAL	CONDITIONAL APPROVAL	DISAPPROVAL	
PLANNING COMMISSION		DATE	
APPROVAL	CONDITIONAL APPROVAL	DISAPPROVAL	
CITY COUNCIL		DATE	

REVISED: JANUARY 10, 2007

Conclusion and Recommendations

The proposed Lumsden Development will increase runoff from the project site during the 10-year and 100-year storm events. In order to mitigate the increased peak flows leaving the site, the construction of two onsite detention basins will be required. Pond-1 will be located southeast of Lumsden Lake and Pond-2 will be located in the northwest portion of the project as shown in Figure 7. The ponds will be designed to limit the flows leaving the project site for the 10-year and 100-year storm events. Based on the preliminary grading plan, Pond-2 will have adequate storage to meet the flow reduction objectives. Additional grading will be required for Pond-1 in order to meet storage requirements. With proper design of the pond outlet structures, such as concrete boxes with multiple inlets, a reduction in peak flows can be achieved for a wide range of storm frequencies. Details on the outlet structures for each pond will be determined during final design of the project.

Appendix A

HYDROLOGIC MODELING CRITERIA

TABLE A1. Lag Time Calculations

Current Conditions

Subbasin #	Sheet Flow						Shallow Concentrated Flow						Channel Flow																T_c (hr)	T_{LAG} (hr)	Subbasin #
	Chng EL (ft)	L (ft)	*P	s	n	T_1 (hr)	U/S EL (ft)	D/S EL (ft)	L (ft)	s	**v (ft/s)	T_2 (hr)	d (ft)	b_1(ft)	Rise	Run	Bank L	b_2 (ft)	A (ft^2)	P (ft)	R (ft)	U/S EL (ft)	D/S EL (ft)	L (ft)	s	n	v (ft/s)	T_3 (hr)			
R1	10	300	3.472	0.033	0.24	0.4	2920	2840	1000	8.0	1.45	0.192	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2840	2400	2858	0.154	0.05	9.27	0.09	0.73		R1
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	2400	2320	3496	0.023	0.04	6.06	0.16	0.16		
													1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2320	2250	1031	0.068	0.05	6.16	0.05	0.05		
																												SUM	0.93	0.56	
R2	20	300	3.404	0.067	0.24	0.3	2430	2260	1000	17.0	2.00	0.139	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2260	1990	7050	0.038	0.05	4.63	0.42	0.91	0.54	R2
R3	60	300	3.404	0.200	0.24	0.2	2220	2020	1000	20.0	2.20	0.126	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2020	1950	1642	0.043	0.05	4.88	0.09	0.44		R3
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	1950	1880	2836	0.025	0.04	6.30	0.13	0.13		
																												SUM	0.57	0.34	
SM1	20	300	3.472	0.067	0.24	0.3	2390	2330	753	8.0	1.45	0.144	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2330	2270	1449	0.041	0.05	4.81	0.08	0.57		SM1
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	2270	2210	2454	0.024	0.04	6.27	0.11	0.11		
																												SUM	0.68	0.41	
SM2	40	300	3.472	0.133	0.24	0.3	2570	2330	1000	24.0	2.40	0.116	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2330	2210	2080	0.058	0.05	5.68	0.10	0.47	0.28	SM2
A1	15	300	3.404	0.050	0.24	0.4	2595	2500	1000	9.5	1.50	0.185	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2500	2200	2201	0.136	0.05	8.73	0.07	0.64		A1
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	2200	2020	4420	0.041	0.04	8.09	0.15	0.15		
																												SUM	0.79	0.48	
HT1	10	300	3.404	0.033	0.24	0.5	2410	2320	949	9.5	1.50	0.176	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2320	2120	1179	0.170	0.05	9.74	0.03	0.66		HT1
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	2120	2020	2590	0.039	0.04	7.88	0.09	0.09		
																												SUM	0.75	0.45	
HT2	30	300	3.404	0.100	0.24	0.3	2385	2330	447	12.3	1.60	0.078	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2385	1990	4278	0.092	0.05	7.18	0.17	0.53	0.32	HT2
HT3	30	300	3.404	0.100	0.24	0.3	2190	2040	625	24.0	2.40	0.072	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2040	1990	1350	0.037	0.05	4.55	0.08	0.45		HT3
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	1990	1930	868	0.069	0.04	10.54	0.02	0.02		
																												SUM	0.47	0.28	
HT4	40	300	3.404	0.133	0.24	0.3	2040	1990	381	13.1	1.70	0.062	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	1990	1910	1165	0.069	0.05	6.19	0.05	0.37		HT4
													2.0	20	1.0	3.0	6.3	32.0	52.0	32.6	1.59	1910	1895	1680	0.009	0.04	4.80	0.10	0.10		
																												SUM	0.47	0.28	
HT5	70	300	3.404	0.233	0.24	0.2	2150	2090	482	12.4	1.61	0.083	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2090	1905	1147	0.161	0.05	9.49	0.03	0.32		HT5
													2.0	20	1.0	3.0	6.3	32.0	52.0	32.6	1.59	1905	1895	1280	0.008	0.04	4.49	0.08	0.08		
																												SUM	0.40	0.24	
HT6	80	300	3.336	0.267	0.24	0.2	2000	1970	404	7.4	1.40	0.080	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	1970	1880	1241	0.073	0.05	6.37	0.05	0.33		HT6
													2.0	20	1.0	3.0	6.3	32.0	52.0	32.6	1.59	1880	1865	1555	0.010	0.04	4.99	0.09	0.09		
																												SUM	0.42	0.25	
HT7	20	300	3.336	0.067	0.24	0.3	2020	1960	375	16.0	1.95	0.053	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	1960	1880	1250	0.064	0.05	5.98	0.06	0.46		HT7
													2.0	20	1.0	3.0	6.3	32.0	52.0	32.6	1.59	1880	1865	1555	0.010	0.04	4.99	0.09	0.09		
																												SUM	0.54	0.33	
L1	10	347	3.404	0.029	0.24	0.5	2360	2160	520	38.5	3.00	0.048	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2160	2000	756	0.212	0.05	10.87	0.02	0.61	0.36	L1
L1.2	60	344	3.404	0.174	0.24	0.3	2400	2200	525	38.1	2.95	0.049	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2200	2080	596	0.201	0.05	10.61	0.02	0.33		L1.2
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	2080	1980	1280	0.078	0.04	11.20	0.03	0.03		
																												SUM	0.36	0.21	
L1.3	10	300	3.404	0.033	0.24	0.5	2546	2430	997	11.6	1.55	0.179	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2430	2020	1954	0.210	0.05	10.83	0.05	0.68	0.41	L1.3
L2	40	183	3.404	0.219	0.24	0.1	2120	2000	464	25.9	2.45	0.053	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2180	2120	665	0.090	0.05	7.10	0.03	0.20		L2
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	2000	1930	1437	0.049	0.04	8.85	0.05	0.05		
																												SUM	0.24	0.14	
L2.2	20	60	3.404	0.333	0.24	0.0	2180	2160	60	33.3	2.70	0.006	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2160	2000	670	0.239	0.05	11.55	0.02	0.07		L2.2
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	2000	1970	644	0.047	0.04	8.65	0.02	0.02		
																												SUM	0.09	0.06	
S1	90	300	3.336	0.300	0.24	0.2	2280	2115	543	30.4	2.55	0.059	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2115	1985	1388	0.094	0.05	7.23	0.05	0.30		S1
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	1985	1900	2021	0.042	0.04	8.22	0.07	0.07		
																												SUM	0.37	0.22	
C3	50	300	3.336	0.167	0.24	0.2	2200	2080	534	22.5	2.30	0.064	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2080	1990	397	0.227	0.05	11.25	0.01	0.31		C3
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	1990	1865	2938	0.043	0.04	8.27	0.10	0.10		
																												SUM	0.41	0.25	

*Design Rainfall Tables for El Dorado County, prepared by Jim Goodridge, July 29, 1989
Rainfall Depth in Inches for Return Period = 2.33 years, Duration = 24 hours

**Figure 4. Velocities for Upland Method of Estimating t_c (SCS, 1972)
Fallow or Minimum Tillage Cultivation

Proposed Development Conditions

Subbasin #	Sheet Flow						Shallow Concentrated Flow						Channel Flow																T_c (hr)	T_{LAG} (hr)	Subbasin #
	Chng EL (ft)	L (ft)	*P	s	n	T_1 (hr)	U/S EL (ft)	D/S EL (ft)	L (ft)	s	**v (ft/s)	T_2 (hr)	d (ft)	b_1(ft)	Rise	Run	Bank L	b_2 (ft)	A (ft^2)	P (ft)	R (ft)	U/S EL (ft)	D/S EL (ft)	L (ft)	s	n	v (ft/s)	T_3 (hr)			
L1	10	347	3.404	0.029	0.24	0.5	2360	2160	520	38.5	3.00	0.048	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2160	2000	756	0.212	0.015	36.25	0.01	0.59	0.36	L1
L1.2	60	344	3.404	0.174	0.24	0.3	2400	2200	525	38.1	2.95	0.049	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2200	2080	596	0.201	0.015	35.35	0.00	0.31		L1.2
													1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	2080	1980	1280	0.078	0.015	29.87	0.01	0.01		
																												SUM	0.33	0.20	
L1.3	10	300	3.404	0.033	0.24	0.5	2546	2430	997	11.6	1.55	0.179	1.0	5	1.0	3.0	3.2	11.0	8.0	11.3	0.71	2430	2020	1954	0.210	0.015	36.09	0.02	0.65	0.39	L1.3

Canyon Way Road

Subbasin #	Sheet Flow						Shallow Concentrated Flow						Channel Flow																T_c (hr)	T_{LAG} (hr)	Subbasin #
	Chng EL (ft)	L (ft)	*P	s	n	T_1 (hr)	U/S EL (ft)	D/S EL (ft)	L (ft)	s	**v (ft/s)	T_2 (hr)	d (ft)	b_1(ft)	Rise	Run	Bank L	b_2 (ft)	A (ft^2)	P (ft)	R (ft)	U/S EL (ft)	D/S EL (ft)	L (ft)	s	n	v (ft/s)	T_3 (hr)			
CW1	40	300	3.404	0.133	0.24	0.3	2440	2140	1012	29.6	2.53	0.111	Channel Flow N/A														0.00	0.37	0.22	CW1
CW2	75	300	3.404	0.250	0.24	0.2	2315	2140	625	28.0	2.49	0.070	Channel Flow N/A														0.00	0.27	0.16	CW2
CW3	60	300	3.404	0.200	0.24	0.2	2480	2185	772	38.2	2.98	0.072	1.5	10	1.0	3.0	4.7	19.0	21.8	19.5	1.12	2185	2125	401	0.150	0.04	15.50	0.01	0.30	0.18	CW3

Domenichelli & Associates, Inc. | Job No. SID-001

Project	Lumsden Ranch Drainage Study	Computed	KSC	Date	06/20/07
Subject	HEC-HMS Model	Checked	SR	Date	7/11/2007
Task	Shed Lag Times and Initial Abstractions	Sheet	1	Of	1

Existing Conditions

Sub-Basin	Area (ac)	Area (sqmi)	Lag (hr)	Lag (min)	WT CN	S	I_a
R1	341.8	0.534	0.559	34	66	5	1.030
R2	501.8	0.784	0.543	33	68	5	0.941
R3	275.1	0.430	0.340	20	76	3	0.632
SM1	374.7	0.585	0.406	24	72	4	0.778
SM2	116.1	0.181	0.285	17	76	3	0.632
A1	381.1	0.595	0.475	29	74	4	0.703
HT1	153.8	0.240	0.452	27	71	4	0.817
HT2	202.4	0.316	0.321	19	70	4	0.857
HT3	107.6	0.168	0.282	17	80	3	0.500
HT4	64.5	0.101	0.283	17	86	2	0.326
HT5	41.9	0.065	0.242	15	70	4	0.857
HT6	48.3	0.075	0.252	15	76	3	0.632
HT7	46.3	0.072	0.327	20	83	2	0.410
L1	32.3	0.050	0.364	22	61	6	1.279
L1.2	61.7	0.096	0.214	13	60	7	1.333
L1.3	86.8	0.136	0.409	25	65	5	1.077
L2	44.8	0.070	0.145	9	68	5	0.941
L2.2	17.9	0.028	0.056	3	67	5	0.985
S1	113.1	0.177	0.222	13	52	9	1.846
C3	195.2	0.305	0.248	15	73	4	0.740

Proposed Development

Sub-Basin	Area (ac)	Area (sqmi)	Lag (hr)	Lag (min)	WT CN	S	I_a
L1	32.3	0.050	0.356	21	65	5	1.077
L1.2	61.7	0.096	0.196	12	67	5	0.985
L1.3	86.8	0.136	0.388	23	71	4	0.817

Domenichelli & Associates, Inc.

Job No. SID-001

Project	Lumsden Ranch Drainage Study	Computed	KSC	Date	06/20/07
Subject	HEC-HMS Model for Canyon Way Road	Checked	SR	Date	7/11/2007
Task	Shed Lag Times and Initial Abstractions	Sheet	1	Of	1

Existing Conditions

Sub-Basin	Area (ac)	Area (sqmi)	Lag (hr)	Lag (min)	WT CN	S	I_a
CW1	7.80	0.012	0.223	13	61	6	1.279
CW2	4.17	0.007	0.163	10	63	6	1.175
CW3	15.2	0.024	0.180	11	65	5	1.077

Proposed Canyon Way Road

Sub-Basin	Area (ac)	Area (sqmi)	Lag (hr)	Lag (min)	WT CN	S	I_a
CW1	7.80	0.012	0.223	13	64	6	1.125
CW2	4.17	0.007	0.163	10	65	5	1.077
CW3	15.2	0.024	0.180	11	65	5	1.077

t_c Time between the start of rainfall and start of steady runoff flows. (See Figure 4)

To estimate velocity

- Open channel or pipe flow equations
- Overland flow methods
- Use chart from SCS, 1972 Figure 4
- Note that $t_c = L/V$ ← ——— ---- t_c

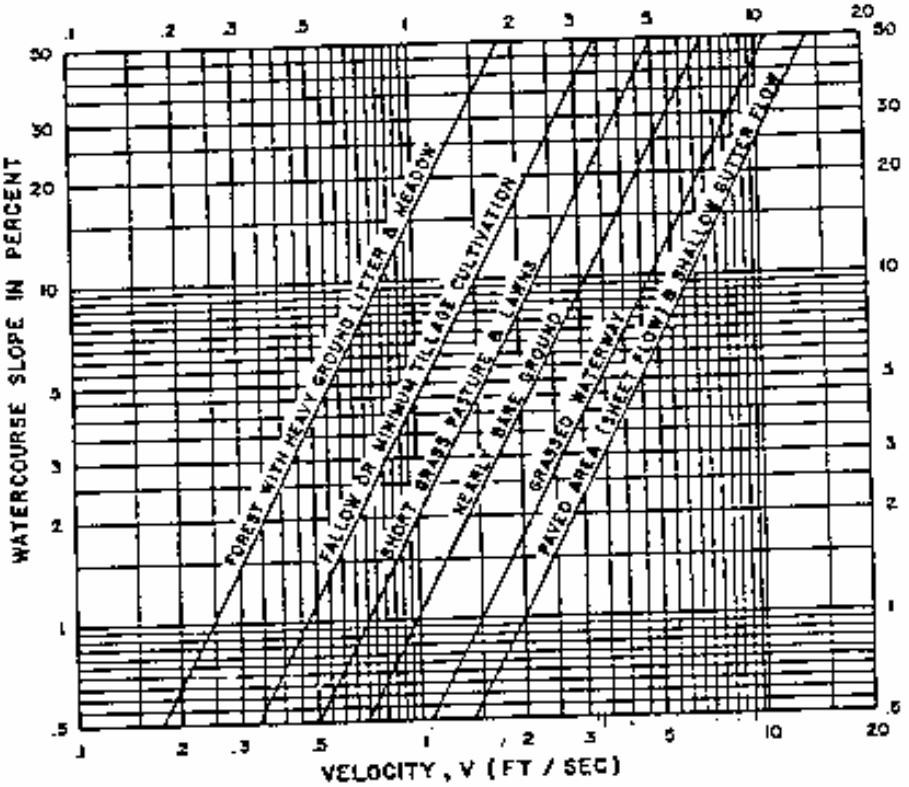


Figure 4
Velocities for Upland Method of Estimating t_c (SCS, 1972)

The following steps constitute the rational method:

step 1 Determine Basin area in **Acres** (43,560 ft² per acre) (known)

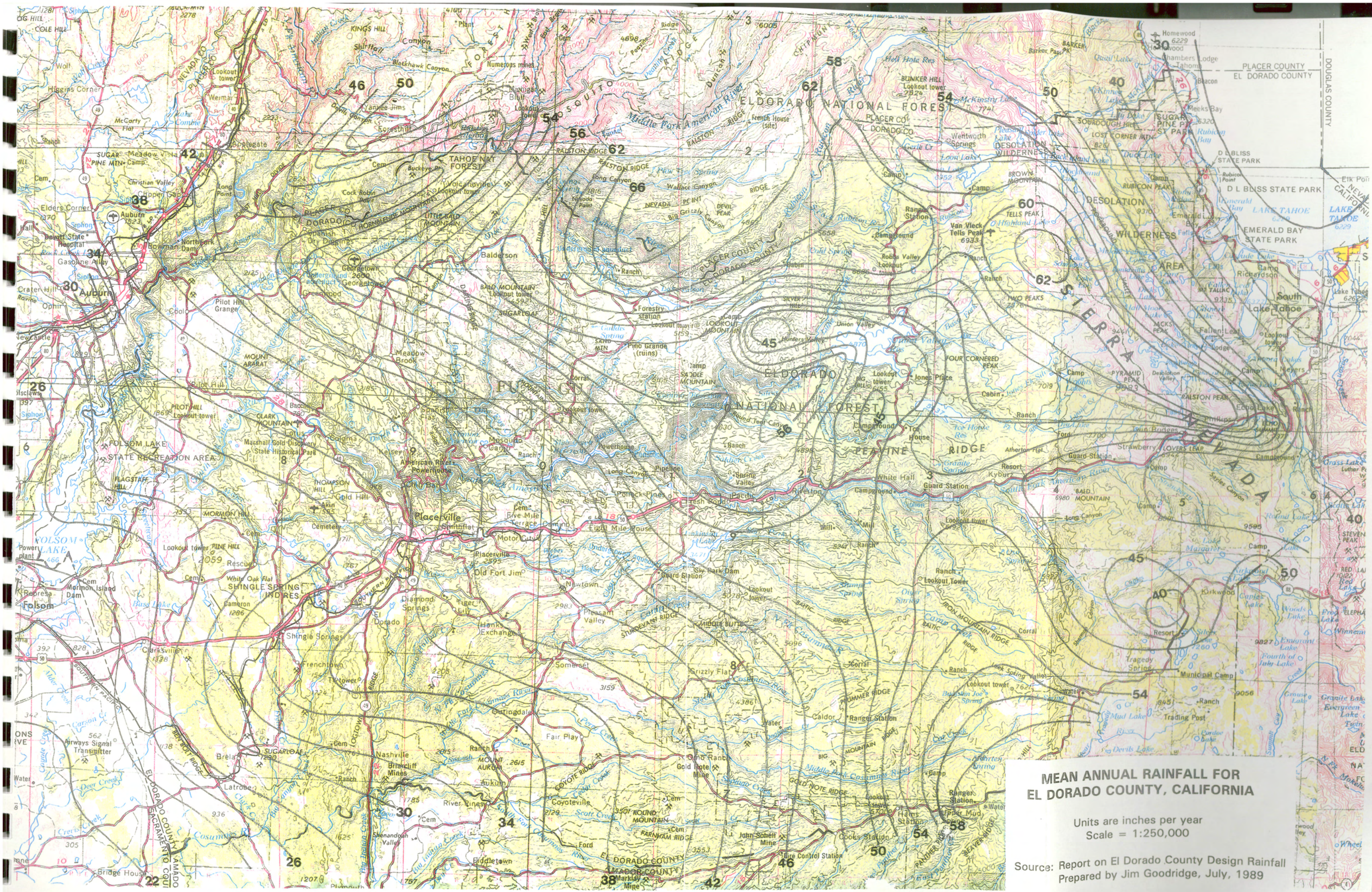
step 2 Estimate t_c – Overland flow + conduit flow. t_c ↑ as distance from drainage area ↑

step 3 Choose a value of C. If more than one area contributes, weight the C values

step 4 Select a frequency or return period for the storm (given)

step 5 Calculate or determine the average storm intensity from IDF curves

step 6 Calculate peak flow using Q = CIA



MEAN ANNUAL RAINFALL FOR EL DORADO COUNTY, CALIFORNIA

Units are inches per year
Scale = 1:250,000

Source: Report on El Dorado County Design Rainfall
Prepared by Jim Goodridge, July, 1989

Precipitation Zones

Lumsden Ranch Development Project

1"=1500'

- 38-inch Rainfall Zone
- 39-inch Rainfall Zone
- 40-inch Rainfall Zone

R1
341.8 ac

R2
501.8 ac

R3
275.1 ac

HT1
153.8 ac

HT2
202.4 ac

HT3
107.6 ac

HT4
64.5 ac

HT5
41.9 ac

HT6
48.3 ac

HT7
46.3 ac

L1
32.3 ac

L1.2
61.7 ac

L1.3
86.8 ac

L2
44.8 ac

L2.2
17.9 ac

S1
113.1 ac

C1
303.1 ac

C2
35.5 ac

C3
195.2 ac

SM1
374.7 ac

SM2
116.1 ac

A1
381.1 ac

Main Ditch Cutoff

El Dorado Design Rainfall

Rainfall Depth in Inches for Return Period = 2.33 years

Mean Annual Precipitation	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hrs	3 Hrs	6 Hrs	12 Hrs	24 Hrs
20	0.113	0.162	0.200	0.286	0.410	0.587	0.723	1.035	1.481	2.120
22	0.120	0.172	0.212	0.304	0.435	0.623	0.768	1.099	1.572	2.249
24	0.128	0.183	0.225	0.322	0.461	0.660	0.814	1.165	1.667	2.385
26	0.135	0.193	0.238	0.341	0.488	0.698	0.860	1.231	1.762	2.521
28	0.142	0.203	0.251	0.359	0.514	0.735	0.907	1.298	1.857	2.657
30	0.149	0.214	0.264	0.377	0.540	0.773	0.953	1.364	1.952	2.793
32	0.157	0.224	0.277	0.396	0.566	0.810	1.000	1.430	2.047	2.929
34	0.164	0.235	0.289	0.414	0.593	0.848	1.046	1.497	2.142	3.065
36	0.171	0.245	0.302	0.433	0.619	0.886	1.092	1.563	2.237	3.200
38	0.179	0.256	0.315	0.451	0.645	0.923	1.139	1.629	2.332	3.336
40	0.186	0.266	0.328	0.469	0.671	0.961	1.185	1.696	2.426	3.472
42	0.193	0.276	0.341	0.488	0.698	0.998	1.231	1.762	2.521	3.608
44	0.200	0.287	0.354	0.506	0.724	1.036	1.278	1.828	2.616	3.744
46	0.208	0.297	0.366	0.524	0.750	1.074	1.324	1.895	2.711	3.880
48	0.215	0.308	0.379	0.543	0.777	1.111	1.370	1.961	2.806	4.016
50	0.222	0.318	0.392	0.561	0.803	1.149	1.417	2.027	2.901	4.152
52	0.229	0.328	0.405	0.579	0.829	1.186	1.463	2.094	2.996	4.287
54	0.237	0.339	0.418	0.598	0.855	1.224	1.510	2.160	3.091	4.423
56	0.244	0.349	0.431	0.616	0.882	1.262	1.556	2.226	3.186	4.559
58	0.251	0.360	0.443	0.634	0.908	1.299	1.602	2.293	3.281	4.695
60	0.259	0.370	0.456	0.653	0.934	1.337	1.649	2.359	3.376	4.831
62	0.266	0.380	0.469	0.671	0.960	1.374	1.695	2.425	3.471	4.967
64	0.273	0.391	0.482	0.690	0.987	1.412	1.741	2.492	3.566	5.103
66	0.280	0.401	0.495	0.708	1.013	1.450	1.788	2.558	3.661	5.238
68	0.288	0.412	0.508	0.726	1.039	1.487	1.834	2.625	3.756	5.374
70	0.295	0.422	0.520	0.745	1.066	1.525	1.880	2.691	3.851	5.510
72	0.302	0.432	0.533	0.763	1.092	1.562	1.927	2.757	3.946	5.646
74	0.309	0.443	0.546	0.781	1.118	1.600	1.973	2.824	4.040	5.782
76	0.317	0.453	0.559	0.800	1.144	1.638	2.020	2.890	4.135	5.918
78	0.324	0.464	0.572	0.818	1.171	1.675	2.066	2.956	4.230	6.054
80	0.331	0.474	0.585	0.836	1.197	1.713	2.112	3.023	4.325	6.189
82	0.339	0.484	0.597	0.855	1.223	1.750	2.159	3.089	4.420	6.325
84	0.346	0.495	0.610	0.873	1.250	1.788	2.205	3.155	4.515	6.461
86	0.353	0.505	0.623	0.892	1.276	1.826	2.251	3.222	4.610	6.597
88	0.360	0.516	0.636	0.910	1.302	1.863	2.298	3.288	4.705	6.733
90	0.368	0.526	0.649	0.928	1.328	1.901	2.344	3.354	4.800	6.869

Source: Design Rainfall Tables for El Dorado County, prepared by Jim Goodridge, July 29, 1999

El Dorado Design Rainfall

Rainfall Depth in Inches for Return Period = 10 years

Mean Annual Precipitation	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hrs	3 Hrs	6 Hrs	12 Hrs	24 Hrs
20	0.167	0.239	0.295	0.422	0.603	0.863	1.065	1.524	2.180	3.120
22	0.177	0.254	0.313	0.448	0.640	0.916	1.130	1.617	2.314	3.311
24	0.188	0.269	0.332	0.475	0.679	0.972	1.198	1.715	2.454	3.511
26	0.199	0.284	0.350	0.502	0.718	1.027	1.267	1.812	2.594	3.711
28	0.209	0.300	0.369	0.529	0.756	1.082	1.335	1.910	2.733	3.911
30	0.220	0.315	0.388	0.556	0.795	1.138	1.403	2.008	2.873	4.111
32	0.231	0.330	0.407	0.583	0.834	1.193	1.471	2.105	3.013	4.311
34	0.241	0.345	0.426	0.610	0.872	1.248	1.540	2.203	3.153	4.511
36	0.252	0.361	0.445	0.637	0.911	1.304	1.608	2.301	3.292	4.711
38	0.263	0.376	0.464	0.664	0.950	1.359	1.676	2.398	3.432	4.911
40	0.274	0.391	0.483	0.691	0.988	1.414	1.744	2.496	3.572	5.111
42	0.284	0.407	0.502	0.718	1.027	1.470	1.813	2.594	3.712	5.311
44	0.295	0.422	0.520	0.745	1.066	1.525	1.881	2.691	3.851	5.511
46	0.306	0.437	0.539	0.772	1.104	1.580	1.949	2.789	3.991	5.711
48	0.316	0.452	0.558	0.799	1.143	1.636	2.017	2.887	4.131	5.911
50	0.327	0.468	0.577	0.826	1.182	1.691	2.086	2.984	4.271	6.111
52	0.338	0.483	0.596	0.853	1.221	1.747	2.154	3.082	4.410	6.311
54	0.348	0.499	0.615	0.880	1.259	1.802	2.222	3.180	4.550	6.511
56	0.359	0.514	0.634	0.907	1.298	1.857	2.290	3.277	4.690	6.711
58	0.370	0.529	0.653	0.934	1.337	1.913	2.359	3.375	4.830	6.911
60	0.381	0.545	0.672	0.961	1.375	1.968	2.427	3.473	4.969	7.111
62	0.391	0.560	0.690	0.988	1.414	2.023	2.495	3.570	5.109	7.311
64	0.402	0.575	0.709	1.015	1.453	2.079	2.563	3.668	5.249	7.511
66	0.413	0.591	0.728	1.042	1.491	2.134	2.632	3.766	5.389	7.711
68	0.423	0.606	0.747	1.069	1.530	2.189	2.700	3.863	5.528	7.911
70	0.434	0.621	0.766	1.096	1.569	2.245	2.768	3.961	5.668	8.111
72	0.445	0.636	0.785	1.123	1.607	2.300	2.836	4.059	5.808	8.311
74	0.455	0.652	0.804	1.150	1.646	2.355	2.905	4.156	5.948	8.511
76	0.466	0.667	0.823	1.177	1.685	2.411	2.973	4.254	6.087	8.711
78	0.477	0.682	0.842	1.204	1.723	2.466	3.041	4.352	6.227	8.911
80	0.488	0.698	0.860	1.231	1.762	2.521	3.109	4.449	6.367	9.111
82	0.498	0.713	0.879	1.258	1.801	2.577	3.178	4.547	6.507	9.311
84	0.509	0.728	0.898	1.285	1.839	2.632	3.246	4.645	6.646	9.511
86	0.520	0.744	0.917	1.312	1.878	2.687	3.314	4.742	6.786	9.711
88	0.530	0.759	0.936	1.339	1.917	2.743	3.382	4.840	6.926	9.911
90	0.541	0.774	0.955	1.366	1.955	2.798	3.451	4.938	7.066	10.111

Source: Design Rainfall Tables for El Dorado County, prepared by Jim Goodridge, July 29, 1989

El Dorado Design Rainfall

Rainfall Depth in Inches for Return Period = 100 years

Mean Annual Precipitation	5 Min	10 Min	15 Min	30 Min	1 Hr	2 Hrs	3 Hrs	6 Hrs	12 Hrs	24 Hrs
20	0.237	0.339	0.418	0.598	0.855	1.224	1.509	2.160	3.091	4.423
22	0.251	0.359	0.443	0.634	0.908	1.299	1.602	2.292	3.280	4.694
24	0.266	0.381	0.470	0.673	0.963	1.377	1.699	2.431	3.478	4.977
26	0.282	0.403	0.497	0.711	1.017	1.456	1.795	2.569	3.676	5.261
28	0.297	0.425	0.524	0.749	1.072	1.534	1.892	2.708	3.874	5.544
30	0.312	0.446	0.550	0.788	1.127	1.613	1.989	2.846	4.073	5.828
32	0.327	0.468	0.577	0.826	1.182	1.691	2.086	2.984	4.271	6.111
34	0.342	0.490	0.604	0.864	1.237	1.770	2.182	3.123	4.469	6.395
36	0.357	0.511	0.631	0.903	1.291	1.848	2.279	3.261	4.667	6.678
38	0.373	0.533	0.657	0.941	1.346	1.927	2.376	3.400	4.865	6.962
40	0.388	0.555	0.684	0.979	1.401	2.005	2.473	3.538	5.063	7.245
42	0.403	0.577	0.711	1.017	1.456	2.083	2.569	3.677	5.261	7.529
44	0.418	0.598	0.738	1.056	1.511	2.162	2.666	3.815	5.459	7.812
46	0.433	0.620	0.765	1.094	1.566	2.240	2.763	3.954	5.657	8.096
48	0.448	0.642	0.791	1.132	1.620	2.319	2.860	4.092	5.856	8.379
50	0.464	0.663	0.818	1.171	1.675	2.397	2.956	4.230	6.054	8.663
52	0.479	0.685	0.845	1.209	1.730	2.476	3.053	4.369	6.252	8.946
54	0.494	0.707	0.872	1.247	1.785	2.554	3.150	4.507	6.450	9.230
56	0.509	0.729	0.898	1.286	1.840	2.633	3.247	4.646	6.648	9.513
58	0.524	0.750	0.925	1.324	1.895	2.711	3.343	4.784	6.846	9.797
60	0.539	0.772	0.952	1.362	1.949	2.790	3.440	4.923	7.044	10.080
62	0.555	0.794	0.979	1.401	2.004	2.868	3.537	5.061	7.242	10.364
64	0.570	0.815	1.006	1.439	2.059	2.946	3.634	5.200	7.440	10.647
66	0.585	0.837	1.032	1.477	2.114	3.025	3.730	5.338	7.639	10.931
68	0.600	0.859	1.059	1.516	2.169	3.103	3.827	5.476	7.837	11.214
70	0.615	0.881	1.086	1.554	2.223	3.182	3.924	5.615	8.035	11.498
72	0.630	0.902	1.113	1.592	2.278	3.260	4.021	5.753	8.233	11.781
74	0.646	0.924	1.139	1.630	2.333	3.339	4.117	5.892	8.431	12.064
76	0.661	0.946	1.166	1.669	2.388	3.417	4.214	6.030	8.629	12.348
78	0.676	0.967	1.193	1.707	2.443	3.496	4.311	6.169	8.827	12.631
80	0.691	0.989	1.220	1.745	2.498	3.574	4.408	6.307	9.025	12.915
82	0.706	1.011	1.246	1.784	2.552	3.652	4.504	6.446	9.223	13.198
84	0.722	1.032	1.273	1.822	2.607	3.731	4.601	6.584	9.421	13.482
86	0.737	1.054	1.300	1.860	2.662	3.809	4.698	6.722	9.620	13.765
88	0.752	1.076	1.327	1.899	2.717	3.888	4.795	6.861	9.818	14.049
90	0.767	1.098	1.354	1.937	2.772	3.966	4.891	6.999	10.016	14.332

Source: Design Rainfall Tables for El Dorado County, prepared by Jim Goodridge, July 29, 1989

Hydrologic Soil Groups

Lumsden Ranch Development Project

1"=1500'

Note: Refer to NRCS Map Legend for Soil Classification

Proposed Development

Reservoir Number 4

R1
341.8 ac

R2
501.8 ac

R3
275.1 ac

HT1
153.8 ac

HT2
202.4 ac

HT3
107.6 ac

HT4
64.5 ac

HT5
41.9 ac

HT6
48.3 ac

HT7
46.3 ac

L1
32.3 ac

L1.2
61.7 ac

L1.3
86.8 ac

L2
44.8 ac

L2.2
17.9 ac

A1
381.1 ac

SM1
374.7 ac

SM2
116.1 ac

S1
113.1 ac

C1
308.1 ac

C2
35.5 ac

C3
195.2 ac

Main Ditch Cutoff

El Dorado Irrigation Ditch

Hangtown Creek

New Weber Ditch

Placerville

El Dorado

California

Upper Reservoir

Lumsden Ranch

MAP LEGEND

Hydrologic Soil Group

{Dominant Condition, <}

- A
- A/D
- B
- B/D
- C
- C/D
- D
- Not rated or not available
- Soil Map Units
- Cities
- Detailed Counties
- Detailed States
- Interstate Highways
- Rails
- Water
- Hydrography
- Oceans

MAP INFORMATION

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov

Coordinate System: UTM Zone 10

Soil Survey Area: El Dorado Area, California
Spatial Version of Data: 2
Soil Map Compilation Scale: 1:20000

Map comprised of aerial images photographed on these dates:
5/9/1993; 8/15/1998; 8/16/1998; 8/20/1998

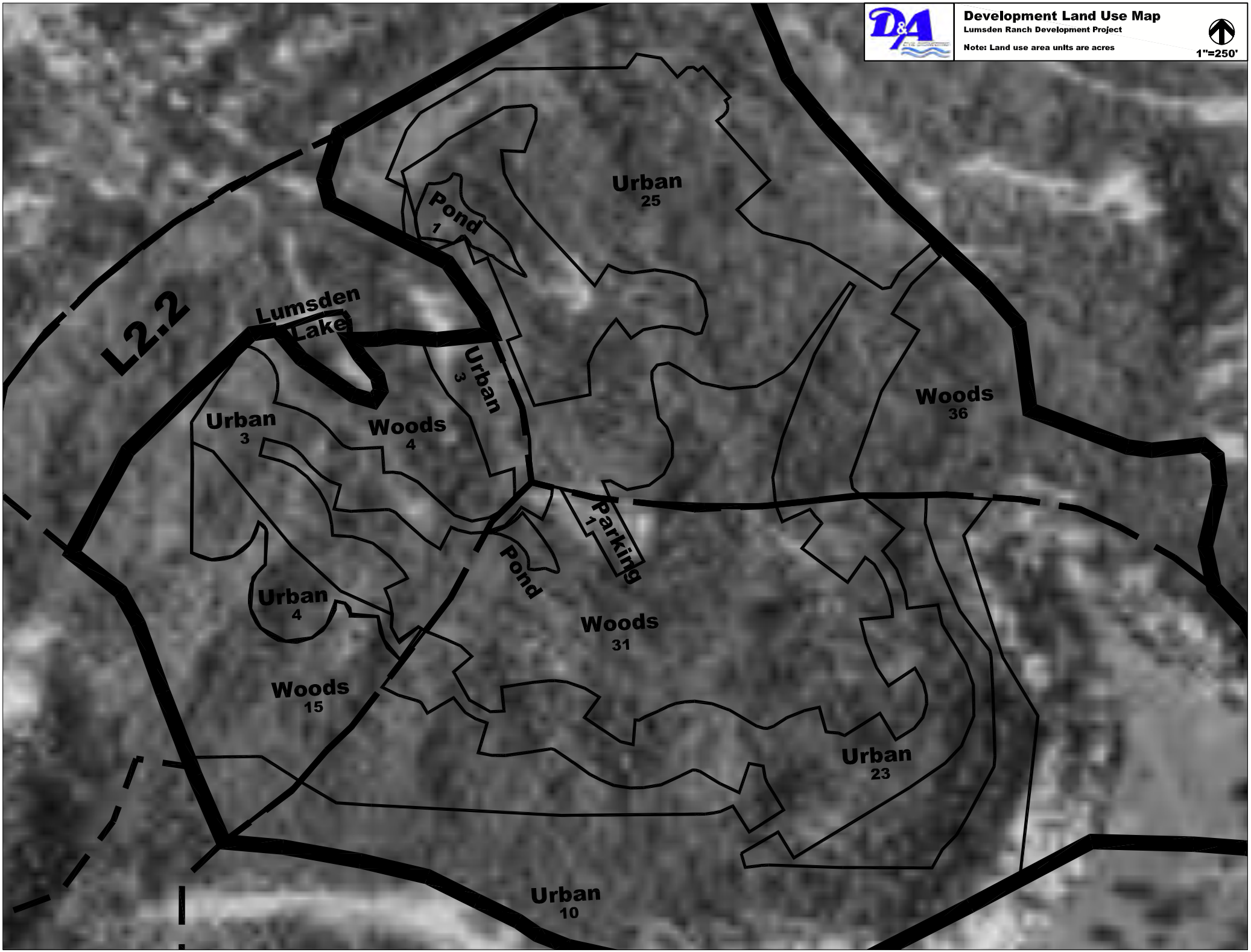
The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Land Use Map

Lumsden Ranch Development Project

Note: Land use area units are acres

1"=1500'


Development Land Use Map
Lumsden Ranch Development Project
Note: Land use area units are acres
1"=250'
Urban
25
Pond
1
L2.2
Lumsden
Lake
Urban
3
Urban
3
Woods
4
Woods
36
Parking
1
Pond
Urban
4
Woods
31
Woods
15
Urban
23
Urban
10

Urban Hydrology for Small Watersheds, US Department of Agriculture, Soil Conservation Service - Technical Release 55

Table 2-2a.—Runoff curve numbers for urban areas[1]

Cover description		Curve numbers for hydrologic soil group—			
Cover type and hydrologic condition	Average percent impervious area[2]	A	B	C	D
Fully developed urban areas (vegetation established)					
Open space (lawns, parks, golf courses, cemeteries, etc.)[3]:					
Poor condition (grass cover < 50%)		68	79	86	89
Fair condition (grass cover 50% to 75%)		49	69	79	84
Good condition (grass cover > 75%)		39	61	74	80
Impervious areas:					
Paved; parking lots, roofs, driveways, etc. (excluding right-of-way)		98	98	98	98
Streets and roads:					
Paved; curbs and storm sewers (excluding right-of-way)		98	98	98	98
Paved; open ditches (including right-of-way)		83	89	92	93
Gravel (including right-of-way)		76	85	89	91
Dirt (including right-of-way)		72	82	87	89
Western desert urban areas:					
Natural desert landscaping (pervious areas only)[4]		63	77	85	88
Artificial desert landscaping (impervious weed barrier, desert shrub with 1- to 2 inch sand or gravel mulch and basin borders)		96	96	96	96
Urban districts:					
Commercial and business	85	89	92	94	95
Industrial	72	81	88	91	93
Residential districts by average lot size:					
1/8 acre or less (town houses)	65	77	85	90	92
1/4 acre	38	61	75	83	87
1/3 acre	30	57	72	81	86
1/2 acre	25	54	70	80	85
1 acre	20	51	68	79	84
2 acres	12	46	65	77	82
Developing urban areas					
Newly graded areas (pervious areas only, no vegetation)[5]		77	86	91	94
Idle lands (CN's are determined using cover types similar to those in table 2-2c).					

[1]Average runoff condition, and $I_a = 0.2S$.
[2]The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.
[3]CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space cover type.
[4]Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage (CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.
[5]Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4 based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Table 2-2c.—Runoff curve numbers for other agricultural lands[1]

Cover description		Curve numbers for hydrologic soil group –			
Cover type	Hydrologic condition	A	B	C	D
Pasture, grassland, or range—continuous forage for grazing.[2]	Poor	68	79	86	89
	Fair	49	69	79	84
	Good	39	61	74	80
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58	71	78
Brush—brush-weed-grass mixture with brush the major element.[3]	Poor	48	67	77	83
	Fair	35	56	70	77
	Good	430	48	65	73
Woods—grass combination (orchard or tree farm).[5]	Poor	57	73	82	86
	Fair	43	65	76	82
	Good	32	58	72	79
Woods.[6]	Poor	45	66	77	83
	Fair	36	60	73	79
	Good	430	55	70	77
Farmsteads- buildings, lanes, driveways, and surrounding lots.	—	59	74	82	86

[1]Average runoff condition, and $I_a = 0.2S$.

[2]*Poor:* <50% ground cover or heavily grazed with no mulch.
Fair: 50 to 75% ground cover and not heavily grazed.
Good: >75% ground cover and lightly or only occasionally grazed

[3]*Poor:* <50% ground cover.
Fair: 50 to 75% ground cover.
Good: >75% ground cover.

[4]Actual curve number is less than 30; use CN = 20 for runoff computations.

[5]CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of conditions may be computed from the CN's for woods and pasture.

[6]*Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
Fair: Woods are grazed but not burned, and some forest litter covers the soil.
Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

Lumsden Ranch Existing Cond.

El Dorado County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
C3	Commercial & business		C	53	94
	Residential districts (1/3 acre)		A	30	57
	Residential districts (1/3 acre)		B	28	72
	Residential districts (1/3 acre)		C	31	81
	Woods	(fair)	A	17	36
	Woods	(fair)	B	12	60
	Woods	(fair)	C	24	73
	Total Area / Weighted Curve Number			195	73
				===	==
S1	Residential districts (1/4 acre)		A	16	61
	Residential districts (1/3 acre)		A	11	57
	Woods	(fair)	A	51	36
	Woods	(fair)	B	7	60
	Woods	(fair)	C	28	73
	Total Area / Weighted Curve Number			113	52
				===	==
R3	Residential districts (1/3 acre)		A	31	57
	Residential districts (1/3 acre)		B	20	72
	Residential districts (1/3 acre)		C	148	81
	Residential districts (1/3 acre)		D	3	86
	Woods	(fair)	A	7	36
	Woods	(fair)	C	5	73
	Woods	(fair)	D	61	79
	Total Area / Weighted Curve Number			275	76
				===	==
SM1	Open space; grass cover 50% to 75%	(fair)	A	23	49
	Open space; grass cover 50% to 75%	(fair)	B	107	69
	Open space; grass cover 50% to 75%	(fair)	C	3	79
	Open space; grass cover 50% to 75%	(fair)	D	22	84
	Residential districts (1/3 acre)		A	40	57
	Residential districts (1/3 acre)		B	44	72
	Residential districts (1/3 acre)		D	83	86
	Woods	(fair)	B	28	60
	Woods	(fair)	D	25	79
	Total Area / Weighted Curve Number			375	72
				===	==
SM2	Commercial & business		B	39	92
	Residential districts (1/3 acre)		A	6	57
	Residential districts (1/3 acre)		D	12	86
	Woods	(fair)	B	45	60
	Woods	(fair)	D	14	79
	Total Area / Weighted Curve Number			116	76
				===	==
A1	Open space; grass cover 50% to 75%	(fair)	D	19	84
	Commercial & business		B	48	92
	Residential districts (1/3 acre)		A	13	57
	Residential districts (1/3 acre)		B	171	72
	Residential districts (1/3 acre)		C	24	81

Sub-Area Land Use and Curve Number Details (continued)

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
	Residential districts (1/3 acre)		D	36	86
	Woods	(fair)	B	70	60
	Total Area / Weighted Curve Number			381	74
HT1	Open space; grass cover 50% to 75%	(fair)	B	32	69
	Residential districts (1/3 acre)		B	98	72
	Residential districts (1/3 acre)		D	1	86
	Woods	(fair)	B	10	60
	Woods	(fair)	C	13	73
	Total Area / Weighted Curve Number			154	71
HT2	Open space; grass cover 50% to 75%	(fair)	B	42	69
	Open space; grass cover 50% to 75%	(fair)	C	22	79
	Woods	(fair)	B	43	60
	Woods	(fair)	C	95	73
	Total Area / Weighted Curve Number			202	70
HT3	Commercial & business		C	28	94
	Residential districts (1/3 acre)		B	41	72
	Residential districts (1/3 acre)		C	28	81
	Woods	(fair)	C	11	73
	Total Area / Weighted Curve Number			108	80
HT4	Commercial & business		C	28	94
	Residential districts (1/3 acre)		C	29	81
	Woods	(fair)	C	8	73
	Total Area / Weighted Curve Number			65	86

Lumsden Ranch Existing Cond.

El Dorado County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
HT5	Commercial & business		C	12	94
	Residential districts (1/4 acre)		A	5	61
	Woods	(fair)	A	9	36
	Woods	(fair)	C	16	73
	Total Area / Weighted Curve Number			42	70
				==	==
HT6	Commercial & business		C	24	94
	Residential districts (1/3 acre)		A	24	57
	Total Area / Weighted Curve Number			48	76
				==	==
HT7	Commercial & business		A	9	89
	Residential districts (1/3 acre)		B	29	72
	Residential districts (1/3 acre)		C	37	81
	Total Area / Weighted Curve Number			75	78
				==	==
L1	Woods	(fair)	A	3	36
	Woods	(fair)	B	20	60
	Woods	(fair)	C	9	73
	Total Area / Weighted Curve Number			32	61
				==	==
R1	Open space; grass cover 50% to 75%	(fair)	B	88	69
	Open space; grass cover 50% to 75%	(fair)	C	25	79
	Open space; grass cover 50% to 75%	(fair)	D	14	84
	Residential districts (1/3 acre)		B	29	72
	Residential districts (1/3 acre)		D	7	86
	Woods	(fair)	A	18	36
	Woods	(fair)	B	147	60
	Woods	(fair)	D	14	79
	Total Area / Weighted Curve Number			342	66
				===	==
R2	Open space; grass cover 50% to 75%	(fair)	A	3	49
	Open space; grass cover 50% to 75%	(fair)	B	67	69
	Open space; grass cover 50% to 75%	(fair)	C	12	79
	Residential districts (1/3 acre)		A	22	57
	Residential districts (1/3 acre)		B	95	72
	Residential districts (1/3 acre)		C	46	81
	Residential districts (1/3 acre)		D	2	86
	Residential districts (2 acre)		D	29	82
	Woods	(poor)	B	92	66
	Woods	(fair)	A	22	36
	Woods	(fair)	B	69	60
	Woods	(fair)	C	43	73
	Total Area / Weighted Curve Number			502	68
				===	==
L2	Residential districts (1/4 acre)		A	3	61
	Residential districts (1/3 acre)		B	9	72

Sub-Area Land Use and Curve Number Details (continued)

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
	Residential districts (1/3 acre)		C	11	81
	Woods	(fair)	A	5	36
	Woods	(fair)	B	6	60
	Woods	(fair)	C	11	73
	Total Area / Weighted Curve Number			45	68
				==	==
L1.2	Woods	(fair)	B	62	60
	Total Area / Weighted Curve Number			62	60
				==	==
L1.3	Residential districts (1/3 acre)		B	22	72
	Woods	(fair)	B	55	60
	Woods	(fair)	D	10	79
	Total Area / Weighted Curve Number			87	65
				==	==
L2.2	Paved parking lots, roofs, driveways		C	1	98
	Residential districts (1/4 acre)		A	4	61
	Residential districts (1/4 acre)		C	2	83
	Woods	(fair)	A	2	36
	Woods	(fair)	B	2	60
	Woods	(fair)	C	7	73
	Total Area / Weighted Curve Number			18	67
				==	==

ksc

Lumsden Ranch Proposed Cond.

El Dorado County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
L1.3	Paved parking lots, roofs, driveways		A	1	98
	Residential districts (1/4 acre)		B	23	75
	Residential districts (1/4 acre)		D	10	87
	Residential districts (1/3 acre)		B	22	72
	Woods	(fair)	B	31	60
	Total Area / Weighted Curve Number			87	71
				==	==
L1.2	Paved parking lots, roofs, driveways		B	1	98
	Residential districts (1/4 acre)		B	25	75
	Woods	(fair)	B	36	60
	Total Area / Weighted Curve Number			62	67
				==	==
L1	Residential districts (1/4 acre)		B	7	75
	Residential districts (1/4 acre)		C	3	83
	Woods	(fair)	A	3	36
	Woods	(fair)	B	15	60
	Woods	(fair)	C	4	73
	Total Area / Weighted Curve Number			32	65
				==	==

Canyon Way Road Existing

El Dorado County, California

Sub-Area Land Use and Curve Number Details

Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
CW1	Residential districts (1/3 acre)		B	.63	72
	Woods	(fair)	B	7.17	60
	Total Area / Weighted Curve Number			7.8	61
CW2	Residential districts (1/3 acre)		B	1.1	72
	Woods	(fair)	B	3.06	60
	Total Area / Weighted Curve Number			4.16	63
CW3	Residential districts (1/3 acre)		B	6.12	72
	Woods	(fair)	B	9.1	60
	Total Area / Weighted Curve Number			15.22	65

Canyon Way Road Proposed

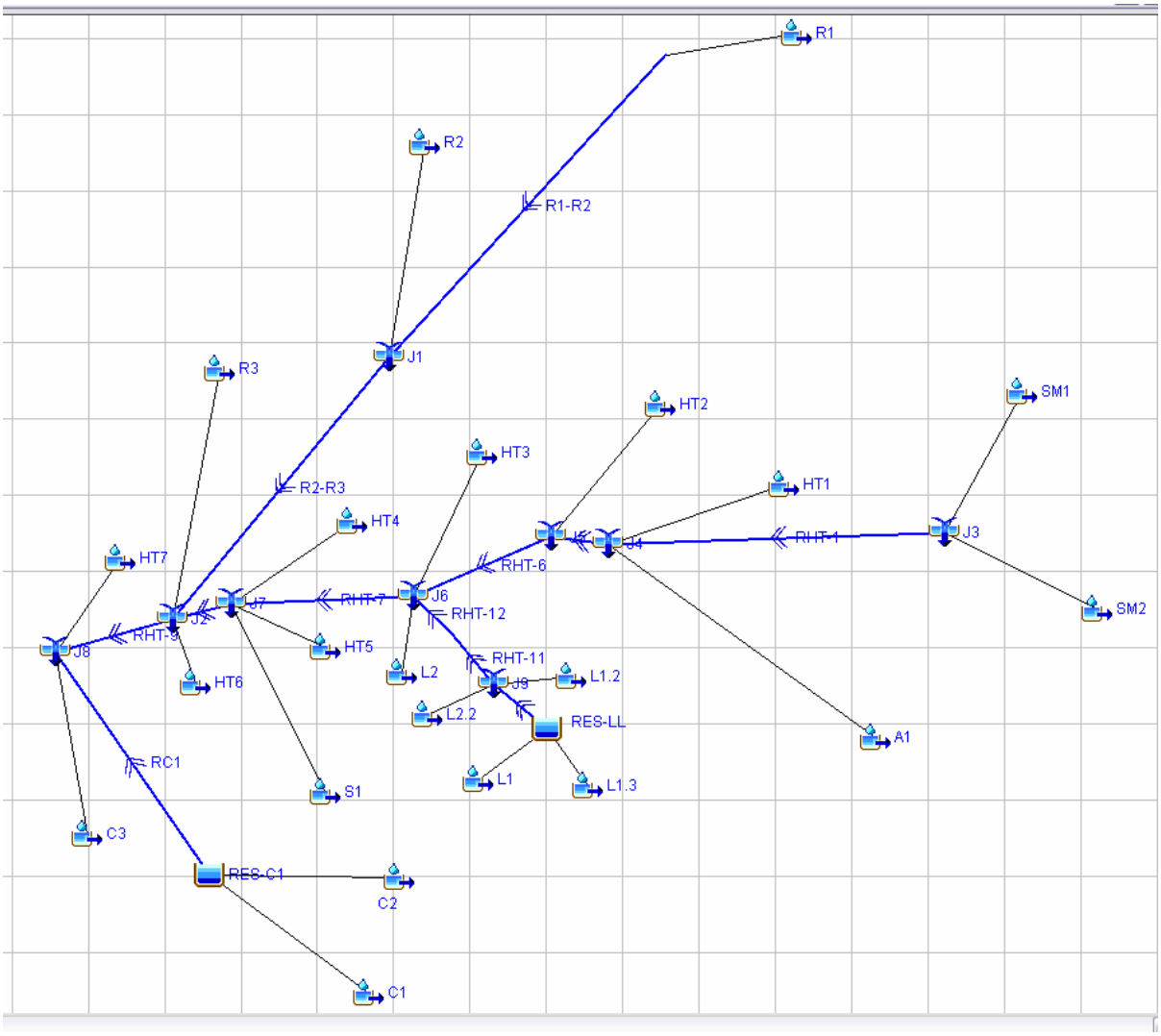
El Dorado County, California

Sub-Area Land Use and Curve Number Details

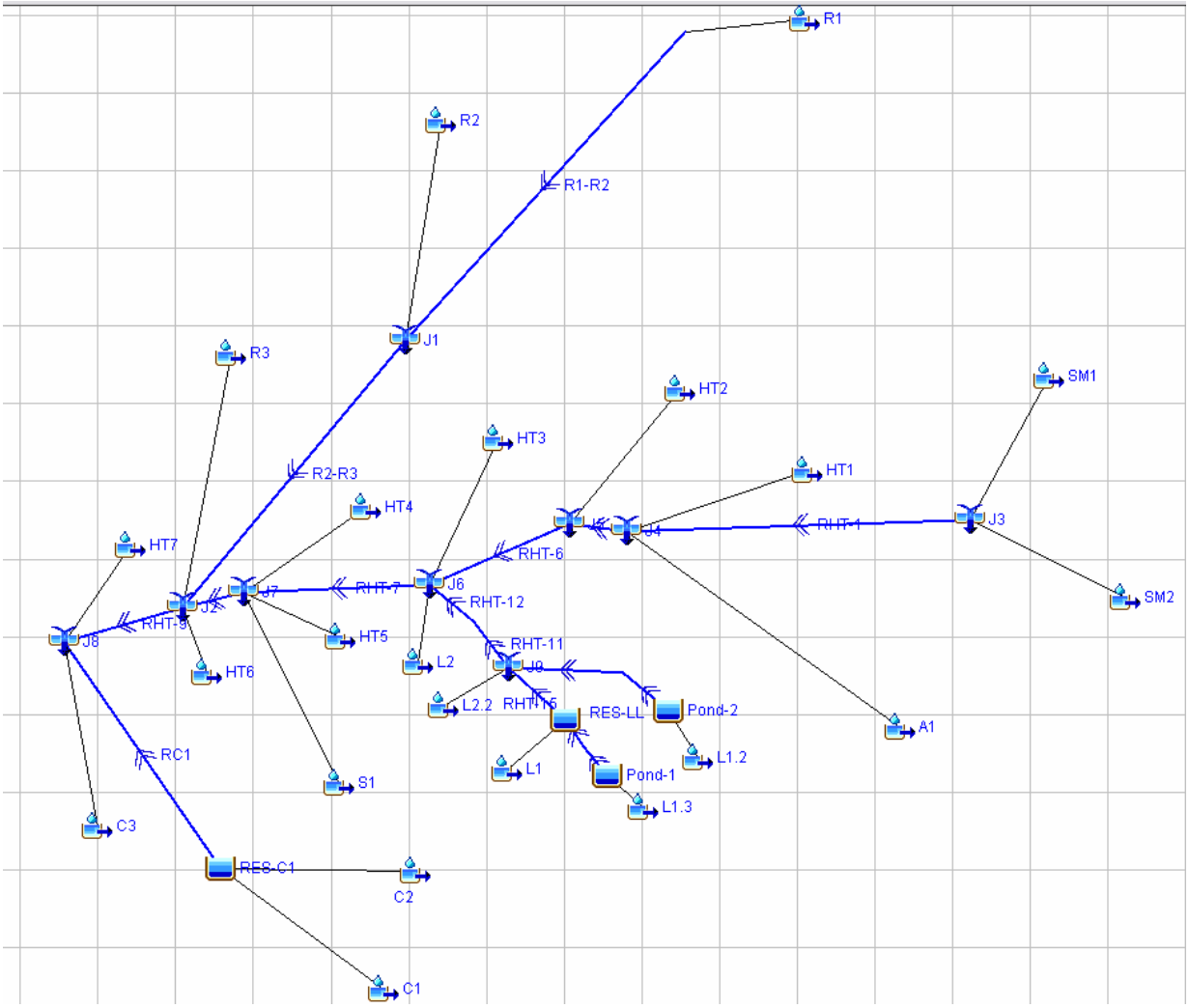
Sub-Area Identifier	Land Use		Hydrologic Soil Group	Sub-Area Area (ac)	Curve Number
CW1	Paved; open ditches (w/right-of-way)		B	.91	89
	Residential districts (1/3 acre)		B	.43	72
	Woods	(fair)	B	6.46	60
	Total Area / Weighted Curve Number			7.8	64
CW2	Paved; open ditches (w/right-of-way)		B	.42	89
	Residential districts (1/3 acre)		B	.69	72
	Woods	(fair)	B	3.06	60
	Total Area / Weighted Curve Number			4.17	65
CW3	Paved; open ditches (w/right-of-way)		B	.41	89
	Residential districts (1/3 acre)		B	5.71	72
	Woods	(fair)	B	9.1	60
	Total Area / Weighted Curve Number			15.22	65

APPENDIX B
HYDROLOGIC MODELING RESULTS (HEC-HMS)

HEC-HMS SCHEMATIC FOR EXISTING CONIDTIONS



HEC-HMS SCHEMATIC FOR PROPOSED CONDITIONS WITH DETENTION



Project: Lumsden Ranch Simulation Run: Gage 10YR

Start of Run:	01Jan2006, 00:00	Basin Model:	Existing
End of Run:	02Jan2006, 00:00	Meteorologic Model:	Gage 10YR
Compute Time:	09Jul2007, 15:21:49	Control Specifications:	1-day

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
A1	0.5950	231.47	01Jan2006, 12:32	74.11
C1	0.4761	176.99	01Jan2006, 12:33	62.08
C2	0.0555	30.06	01Jan2006, 12:17	8.67
C3	0.3050	153.89	01Jan2006, 12:17	40.07
HT1	0.2400	85.41	01Jan2006, 12:30	26.70
HT2	0.3160	127.12	01Jan2006, 12:21	35.45
HT3	0.1680	104.06	01Jan2006, 12:19	28.29
HT4	0.1010	74.34	01Jan2006, 12:18	20.52
HT5	0.0650	29.09	01Jan2006, 12:17	7.62
HT6	0.0750	42.51	01Jan2006, 12:17	11.05
HT7	0.0720	45.13	01Jan2006, 12:22	12.93
J1	1.3180	351.54	01Jan2006, 12:42	122.78
J2	4.6310	1470.97	01Jan2006, 12:33	524.76
J3	0.7660	336.70	01Jan2006, 12:24	99.96
J4	1.6010	651.49	01Jan2006, 12:30	200.22
J5	1.9170	762.76	01Jan2006, 12:29	235.47
J6	2.4650	912.28	01Jan2006, 12:30	297.11
J7	2.8080	996.27	01Jan2006, 12:31	331.33
J8	5.5396	1750.75	01Jan2006, 12:35	646.57
J9	0.3100	58.68	01Jan2006, 12:36	25.63
L1	0.0500	11.44	01Jan2006, 12:26	3.50
L1.2	0.0960	26.00	01Jan2006, 12:15	6.79
L1.3	0.1360	37.40	01Jan2006, 12:28	11.59
L2	0.0700	35.69	01Jan2006, 12:10	8.33
L2.2	0.0280	20.05	01Jan2006, 12:04	4.01

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
R1	0.5340	141.37	01Jan2006, 12:38	48.78
R1-R2	0.5340	141.30	01Jan2006, 12:48	48.24
R2	0.7840	219.63	01Jan2006, 12:37	74.54
R2-R3	1.3180	351.38	01Jan2006, 12:49	121.81
R3	0.4300	215.69	01Jan2006, 12:22	60.98
RC1	0.5316	180.18	01Jan2006, 12:49	70.16
RES-C1	0.5316	180.23	01Jan2006, 12:41	70.75
RES-LL	0.1860	41.89	01Jan2006, 12:39	14.84
RHT-1	0.7660	336.39	01Jan2006, 12:29	99.41
RHT-10	0.1860	41.88	01Jan2006, 12:40	14.82
RHT-11	0.3100	58.66	01Jan2006, 12:36	25.61
RHT-12	0.3100	58.67	01Jan2006, 12:38	25.57
RHT-2	1.6010	651.30	01Jan2006, 12:31	200.02
RHT-6	1.9170	762.39	01Jan2006, 12:31	234.92
RHT-7	2.4650	910.52	01Jan2006, 12:32	296.11
RHT-8	2.8080	995.66	01Jan2006, 12:32	330.92
RHT-9	4.6310	1467.71	01Jan2006, 12:36	523.40
S1	0.1770	21.09	01Jan2006, 12:17	7.08
SM1	0.5850	242.65	01Jan2006, 12:27	72.29
SM2	0.1810	102.74	01Jan2006, 12:19	27.67

Project: Lumsden Ranch Simulation Run: Gage 100YR

Start of Run:	01Jan2006, 00:00	Basin Model:	Existing
End of Run:	02Jan2006, 00:00	Meteorologic Model:	Gage 100YR
Compute Time:	09Jul2007, 15:22:51	Control Specifications:	1-day

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
A1	0.5950	418.01	01Jan2006, 12:31	133.73
C1	0.4761	308.36	01Jan2006, 12:32	105.87
C2	0.0555	50.90	01Jan2006, 12:16	14.27
C3	0.3050	276.06	01Jan2006, 12:16	71.79
HT1	0.2400	160.91	01Jan2006, 12:29	49.95
HT2	0.3160	243.03	01Jan2006, 12:21	66.97
HT3	0.1680	174.17	01Jan2006, 12:18	47.52
HT4	0.1010	116.79	01Jan2006, 12:18	32.72
HT5	0.0650	55.56	01Jan2006, 12:17	14.39
HT6	0.0750	73.34	01Jan2006, 12:16	19.09
HT7	0.0720	71.83	01Jan2006, 12:22	20.90
J1	1.3180	703.50	01Jan2006, 12:40	240.59
J2	4.6310	2789.80	01Jan2006, 12:32	973.90
J3	0.7660	602.14	01Jan2006, 12:24	179.02
J4	1.6010	1176.67	01Jan2006, 12:29	361.91
J5	1.9170	1391.98	01Jan2006, 12:28	428.59
J6	2.4650	1686.46	01Jan2006, 12:28	545.03
J7	2.8080	1849.82	01Jan2006, 12:30	609.04
J8	5.5396	3219.30	01Jan2006, 12:33	1183.79
J9	0.3100	130.86	01Jan2006, 12:30	53.81
L1	0.0500	26.22	01Jan2006, 12:25	7.61
L1.2	0.0960	61.18	01Jan2006, 12:15	15.32
L1.3	0.1360	78.19	01Jan2006, 12:28	23.57
L2	0.0700	70.39	01Jan2006, 12:10	15.99
L2.2	0.0280	40.03	01Jan2006, 12:04	7.80

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
R1	0.5340	282.26	01Jan2006, 12:37	95.59
R1-R2	0.5340	282.14	01Jan2006, 12:46	94.74
R2	0.7840	434.69	01Jan2006, 12:36	145.85
R2-R3	1.3180	703.16	01Jan2006, 12:46	239.11
R3	0.4300	379.04	01Jan2006, 12:22	107.29
RC1	0.5316	330.37	01Jan2006, 12:43	119.28
RES-C1	0.5316	335.41	01Jan2006, 12:35	120.09
RES-LL	0.1860	92.06	01Jan2006, 12:37	30.71
RHT-1	0.7660	601.78	01Jan2006, 12:28	178.24
RHT-10	0.1860	92.04	01Jan2006, 12:38	30.68
RHT-11	0.3100	130.82	01Jan2006, 12:30	53.79
RHT-12	0.3100	130.81	01Jan2006, 12:32	53.71
RHT-2	1.6010	1176.32	01Jan2006, 12:30	361.62
RHT-6	1.9170	1391.44	01Jan2006, 12:30	427.81
RHT-7	2.4650	1682.13	01Jan2006, 12:31	543.49
RHT-8	2.8080	1848.20	01Jan2006, 12:31	608.41
RHT-9	4.6310	2780.51	01Jan2006, 12:34	971.82
S1	0.1770	70.99	01Jan2006, 12:15	18.43
SM1	0.5850	440.21	01Jan2006, 12:26	131.44
SM2	0.1810	176.62	01Jan2006, 12:19	47.57

Project: Lumsden Ranch Simulation Run: Proposed w/o Detention 10YR

Start of Run:	01Jan2006, 00:00	Basin Model:	Proposed w/o Detention
End of Run:	02Jan2006, 00:00	Meteorologic Model:	Gage 10YR
Compute Time:	09Jul2007, 15:25:34	Control Specifications:	1-day

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
A1	0.5950	231.47	01Jan2006, 12:32	74.11
C1	0.4761	176.99	01Jan2006, 12:33	62.08
C2	0.0555	30.06	01Jan2006, 12:17	8.67
C3	0.3050	153.89	01Jan2006, 12:17	40.07
HT1	0.2400	85.41	01Jan2006, 12:30	26.70
HT2	0.3160	127.12	01Jan2006, 12:21	35.45
HT3	0.1680	104.06	01Jan2006, 12:19	28.29
HT4	0.1010	74.34	01Jan2006, 12:18	20.52
HT5	0.0650	29.09	01Jan2006, 12:17	7.62
HT6	0.0750	42.51	01Jan2006, 12:17	11.05
HT7	0.0720	45.13	01Jan2006, 12:22	12.93
J1	1.3180	351.54	01Jan2006, 12:42	122.78
J2	4.6310	1495.52	01Jan2006, 12:33	532.83
J3	0.7660	336.70	01Jan2006, 12:24	99.96
J4	1.6010	651.49	01Jan2006, 12:30	200.22
J5	1.9170	762.76	01Jan2006, 12:29	235.47
J6	2.4650	936.68	01Jan2006, 12:29	305.21
J7	2.8080	1021.18	01Jan2006, 12:31	339.40
J8	5.5396	1775.21	01Jan2006, 12:35	654.62
J9	0.3100	81.56	01Jan2006, 12:28	33.74
L1	0.0500	14.95	01Jan2006, 12:24	4.36
L1.2	0.0960	41.01	01Jan2006, 12:14	10.23
L1.3	0.1360	52.30	01Jan2006, 12:26	15.46
L2	0.0700	35.69	01Jan2006, 12:10	8.33
L2.2	0.0280	20.05	01Jan2006, 12:04	4.01

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
R1	0.5340	141.37	01Jan2006, 12:38	48.78
R1-R2	0.5340	141.30	01Jan2006, 12:48	48.24
R2	0.7840	219.63	01Jan2006, 12:37	74.54
R2-R3	1.3180	351.38	01Jan2006, 12:49	121.81
R3	0.4300	215.69	01Jan2006, 12:22	60.98
RC1	0.5316	180.18	01Jan2006, 12:49	70.16
RES-C1	0.5316	180.23	01Jan2006, 12:41	70.75
RES-LL	0.1860	57.79	01Jan2006, 12:36	19.52
RHT-1	0.7660	336.39	01Jan2006, 12:29	99.41
RHT-10	0.1860	57.77	01Jan2006, 12:37	19.49
RHT-11	0.3100	81.54	01Jan2006, 12:28	33.72
RHT-12	0.3100	81.53	01Jan2006, 12:30	33.66
RHT-2	1.6010	651.30	01Jan2006, 12:31	200.02
RHT-6	1.9170	762.39	01Jan2006, 12:31	234.92
RHT-7	2.4650	934.97	01Jan2006, 12:32	304.19
RHT-8	2.8080	1020.55	01Jan2006, 12:32	338.99
RHT-9	4.6310	1492.14	01Jan2006, 12:35	531.46
S1	0.1770	21.09	01Jan2006, 12:17	7.08
SM1	0.5850	242.65	01Jan2006, 12:27	72.29
SM2	0.1810	102.74	01Jan2006, 12:19	27.67

Project: Lumsden Ranch Simulation Run: Proposed w/o Detention 100YR

Start of Run:	01Jan2006, 00:00	Basin Model:	Proposed w/o Detention
End of Run:	02Jan2006, 00:00	Meteorologic Model:	Gage 100YR
Compute Time:	09Jul2007, 15:26:33	Control Specifications:	1-day

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
A1	0.5950	418.01	01Jan2006, 12:31	133.73
C1	0.4761	308.36	01Jan2006, 12:32	105.87
C2	0.0555	50.90	01Jan2006, 12:16	14.27
C3	0.3050	276.06	01Jan2006, 12:16	71.79
HT1	0.2400	160.91	01Jan2006, 12:29	49.95
HT2	0.3160	243.03	01Jan2006, 12:21	66.97
HT3	0.1680	174.17	01Jan2006, 12:18	47.52
HT4	0.1010	116.79	01Jan2006, 12:18	32.72
HT5	0.0650	55.56	01Jan2006, 12:17	14.39
HT6	0.0750	73.34	01Jan2006, 12:16	19.09
HT7	0.0720	71.83	01Jan2006, 12:22	20.90
J1	1.3180	703.50	01Jan2006, 12:40	240.59
J2	4.6310	2823.05	01Jan2006, 12:32	985.26
J3	0.7660	602.14	01Jan2006, 12:24	179.02
J4	1.6010	1176.67	01Jan2006, 12:29	361.91
J5	1.9170	1391.98	01Jan2006, 12:28	428.59
J6	2.4650	1719.76	01Jan2006, 12:28	556.42
J7	2.8080	1883.39	01Jan2006, 12:30	620.41
J8	5.5396	3252.76	01Jan2006, 12:33	1195.14
J9	0.3100	164.52	01Jan2006, 12:18	65.21
L1	0.0500	31.22	01Jan2006, 12:23	8.90
L1.2	0.0960	82.41	01Jan2006, 12:13	20.04
L1.3	0.1360	98.51	01Jan2006, 12:25	29.03
L2	0.0700	70.39	01Jan2006, 12:10	15.99
L2.2	0.0280	40.03	01Jan2006, 12:04	7.80

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
R1	0.5340	282.26	01Jan2006, 12:37	95.59
R1-R2	0.5340	282.14	01Jan2006, 12:46	94.74
R2	0.7840	434.69	01Jan2006, 12:36	145.85
R2-R3	1.3180	703.16	01Jan2006, 12:46	239.11
R3	0.4300	379.04	01Jan2006, 12:22	107.29
RC1	0.5316	330.37	01Jan2006, 12:43	119.28
RES-C1	0.5316	335.41	01Jan2006, 12:35	120.09
RES-LL	0.1860	114.36	01Jan2006, 12:34	37.40
RHT-1	0.7660	601.78	01Jan2006, 12:28	178.24
RHT-10	0.1860	114.34	01Jan2006, 12:35	37.37
RHT-11	0.3100	164.47	01Jan2006, 12:18	65.19
RHT-12	0.3100	164.40	01Jan2006, 12:20	65.10
RHT-2	1.6010	1176.32	01Jan2006, 12:30	361.62
RHT-6	1.9170	1391.44	01Jan2006, 12:30	427.81
RHT-7	2.4650	1715.18	01Jan2006, 12:31	554.86
RHT-8	2.8080	1881.82	01Jan2006, 12:31	619.77
RHT-9	4.6310	2813.56	01Jan2006, 12:34	983.16
S1	0.1770	70.99	01Jan2006, 12:15	18.43
SM1	0.5850	440.21	01Jan2006, 12:26	131.44
SM2	0.1810	176.62	01Jan2006, 12:19	47.57

Project: Lumsden Ranch Simulation Run: Proposed 10YR

Start of Run:	01Jan2006, 00:00	Basin Model:	Proposed
End of Run:	02Jan2006, 00:00	Meteorologic Model:	Gage 10YR
Compute Time:	09Jul2007, 15:23:46	Control Specifications:	1-day

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
A1	0.5950	231.47	01Jan2006, 12:32	74.11
C1	0.4761	176.99	01Jan2006, 12:33	62.08
C2	0.0555	30.06	01Jan2006, 12:17	8.67
C3	0.3050	153.89	01Jan2006, 12:17	40.07
HT1	0.2400	85.41	01Jan2006, 12:30	26.70
HT2	0.3160	127.12	01Jan2006, 12:21	35.45
HT3	0.1680	104.06	01Jan2006, 12:19	28.29
HT4	0.1010	74.34	01Jan2006, 12:18	20.52
HT5	0.0650	29.09	01Jan2006, 12:17	7.62
HT6	0.0750	42.51	01Jan2006, 12:17	11.05
HT7	0.0720	45.13	01Jan2006, 12:22	12.93
J1	1.3180	351.54	01Jan2006, 12:42	122.78
J2	4.6310	1466.04	01Jan2006, 12:33	532.23
J3	0.7660	336.70	01Jan2006, 12:24	99.96
J4	1.6010	651.49	01Jan2006, 12:30	200.22
J5	1.9170	762.76	01Jan2006, 12:29	235.47
J6	2.4650	907.56	01Jan2006, 12:30	304.61
J7	2.8080	990.99	01Jan2006, 12:31	338.81
J8	5.5396	1745.64	01Jan2006, 12:35	654.03
J9	0.3100	57.64	01Jan2006, 12:48	33.15
L1	0.0500	14.95	01Jan2006, 12:24	4.36
L1.2	0.0960	41.01	01Jan2006, 12:14	10.23
L1.3	0.1360	52.30	01Jan2006, 12:26	15.46
L2	0.0700	35.69	01Jan2006, 12:10	8.33
L2.2	0.0280	19.05	01Jan2006, 12:04	3.83

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
Pond-1	0.1360	27.31	01Jan2006, 12:59	15.25
Pond-2	0.0960	18.56	01Jan2006, 12:35	10.07
R1	0.5340	141.37	01Jan2006, 12:38	48.78
R1-R2	0.5340	141.30	01Jan2006, 12:48	48.24
R2	0.7840	219.63	01Jan2006, 12:37	74.54
R2-R3	1.3180	351.38	01Jan2006, 12:49	121.81
R3	0.4300	215.69	01Jan2006, 12:22	60.98
RC1	0.5316	180.18	01Jan2006, 12:49	70.16
RES-C1	0.5316	180.23	01Jan2006, 12:41	70.75
RES-LL	0.1860	35.67	01Jan2006, 12:50	19.29
RHT-1	0.7660	336.39	01Jan2006, 12:29	99.41
RHT-10	0.1860	35.67	01Jan2006, 12:51	19.26
RHT-11	0.3100	57.64	01Jan2006, 12:48	33.13
RHT-12	0.3100	57.64	01Jan2006, 12:50	33.07
RHT-14	0.0960	18.56	01Jan2006, 12:35	10.07
RHT-15	0.0960	18.56	01Jan2006, 12:36	10.06
RHT-16	0.1360	27.31	01Jan2006, 13:00	15.23
RHT-2	1.6010	651.30	01Jan2006, 12:31	200.02
RHT-6	1.9170	762.39	01Jan2006, 12:31	234.92
RHT-7	2.4650	905.80	01Jan2006, 12:33	303.59
RHT-8	2.8080	990.33	01Jan2006, 12:32	338.39
RHT-9	4.6310	1463.11	01Jan2006, 12:36	530.86
RHT13	0.1360	27.31	01Jan2006, 12:59	15.25
S1	0.1770	21.09	01Jan2006, 12:17	7.08
SM1	0.5850	242.65	01Jan2006, 12:27	72.29
SM2	0.1810	102.74	01Jan2006, 12:19	27.67

Project: Lumsden Ranch Simulation Run: Proposed 100YR

Start of Run:	01Jan2006, 00:00	Basin Model:	Proposed
End of Run:	02Jan2006, 00:00	Meteorologic Model:	Gage 100YR
Compute Time:	09Jul2007, 15:24:35	Control Specifications:	1-day

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
A1	0.5950	418.01	01Jan2006, 12:31	133.73
C1	0.4761	308.36	01Jan2006, 12:32	105.87
C2	0.0555	50.90	01Jan2006, 12:16	14.27
C3	0.3050	276.06	01Jan2006, 12:16	71.79
HT1	0.2400	160.91	01Jan2006, 12:29	49.95
HT2	0.3160	243.03	01Jan2006, 12:21	66.97
HT3	0.1680	174.17	01Jan2006, 12:18	47.52
HT4	0.1010	116.79	01Jan2006, 12:18	32.72
HT5	0.0650	55.56	01Jan2006, 12:17	14.39
HT6	0.0750	73.34	01Jan2006, 12:16	19.09
HT7	0.0720	71.83	01Jan2006, 12:22	20.90
J1	1.3180	703.50	01Jan2006, 12:40	240.59
J2	4.6310	2744.82	01Jan2006, 12:32	984.31
J3	0.7660	602.14	01Jan2006, 12:24	179.02
J4	1.6010	1176.67	01Jan2006, 12:29	361.91
J5	1.9170	1391.98	01Jan2006, 12:28	428.59
J6	2.4650	1641.34	01Jan2006, 12:29	555.47
J7	2.8080	1803.88	01Jan2006, 12:30	619.46
J8	5.5396	3173.70	01Jan2006, 12:33	1194.19
J9	0.3100	93.23	01Jan2006, 12:43	64.27
L1	0.0500	31.22	01Jan2006, 12:23	8.90
L1.2	0.0960	82.41	01Jan2006, 12:13	20.04
L1.3	0.1360	98.51	01Jan2006, 12:25	29.03
L2	0.0700	70.39	01Jan2006, 12:10	15.99
L2.2	0.0280	38.73	01Jan2006, 12:04	7.55

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
Pond-1	0.1360	39.52	01Jan2006, 13:15	28.66
Pond-2	0.0960	27.90	01Jan2006, 12:47	19.77
R1	0.5340	282.26	01Jan2006, 12:37	95.59
R1-R2	0.5340	282.14	01Jan2006, 12:46	94.74
R2	0.7840	434.69	01Jan2006, 12:36	145.85
R2-R3	1.3180	703.16	01Jan2006, 12:46	239.11
R3	0.4300	379.04	01Jan2006, 12:22	107.29
RC1	0.5316	330.37	01Jan2006, 12:43	119.28
RES-C1	0.5316	335.41	01Jan2006, 12:35	120.09
RES-LL	0.1860	57.66	01Jan2006, 12:42	37.01
RHT-1	0.7660	601.78	01Jan2006, 12:28	178.24
RHT-10	0.1860	57.65	01Jan2006, 12:43	36.97
RHT-11	0.3100	93.22	01Jan2006, 12:44	64.24
RHT-12	0.3100	93.22	01Jan2006, 12:45	64.15
RHT-14	0.0960	27.90	01Jan2006, 12:47	19.76
RHT-15	0.0960	27.90	01Jan2006, 12:48	19.75
RHT-16	0.1360	39.52	01Jan2006, 13:16	28.64
RHT-2	1.6010	1176.32	01Jan2006, 12:30	361.62
RHT-6	1.9170	1391.44	01Jan2006, 12:30	427.81
RHT-7	2.4650	1637.18	01Jan2006, 12:31	553.91
RHT-8	2.8080	1802.43	01Jan2006, 12:31	618.82
RHT-9	4.6310	2735.64	01Jan2006, 12:34	982.22
RHT13	0.1360	39.52	01Jan2006, 13:15	28.66
S1	0.1770	70.99	01Jan2006, 12:15	18.43
SM1	0.5850	440.21	01Jan2006, 12:26	131.44
SM2	0.1810	176.62	01Jan2006, 12:19	47.57

Project: Lumsden Ranch Simulation Run: CW Existing 10YR

Start of Run:	01Jan2006, 00:00	Basin Model:	CW Existing
End of Run:	02Jan2006, 00:00	Meteorologic Model:	Gage 10YR
Compute Time:	09Jul2007, 11:06:05	Control Specifications:	1-day

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
CW1	0.0120	3.48	01Jan2006, 12:15	0.90
CW2	0.0070	2.59	01Jan2006, 12:11	0.63
CW3	0.0240	9.57	01Jan2006, 12:13	2.36

Project: Lumsden Ranch Simulation Run: CW Existing 100YR

Start of Run:	01Jan2006, 00:00	Basin Model:	CW Existing
End of Run:	02Jan2006, 00:00	Meteorologic Model:	Gage 100YR
Compute Time:	09Jul2007, 11:07:52	Control Specifications:	1-day

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
CW1	0.0120	7.97	01Jan2006, 12:15	1.99
CW2	0.0070	5.65	01Jan2006, 12:11	1.32
CW3	0.0240	19.99	01Jan2006, 12:12	4.77

Project: Lumsden Ranch Simulation Run: CW Proposed 10 YR

Start of Run:	01Jan2006, 00:00	Basin Model:	CW Proposed
End of Run:	02Jan2006, 00:00	Meteorologic Model:	Gage 10YR
Compute Time:	09Jul2007, 11:08:39	Control Specifications:	1-day

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
CW1	0.0120	4.21	01Jan2006, 12:15	1.08
CW2	0.0070	2.91	01Jan2006, 12:11	0.70
CW3	0.0240	9.57	01Jan2006, 12:13	2.36

Project: Lumsden Ranch Simulation Run: CW Proposed 100YR

Start of Run:	01Jan2006, 00:00	Basin Model:	CW Proposed
End of Run:	02Jan2006, 00:00	Meteorologic Model:	Gage 100YR
Compute Time:	09Jul2007, 11:09:40	Control Specifications:	1-day

Volume Units: AC-FT

Hydrologic Element	Drainage Area (MI2)	Peak Discharge (CFS)	Time of Peak	Volume (AC-FT)
CW1	0.0120	8.96	01Jan2006, 12:15	2.24
CW2	0.0070	6.08	01Jan2006, 12:11	1.42
CW3	0.0240	19.99	01Jan2006, 12:12	4.77

APPENDIX C
PROPOSED DETENTION FACILITIES

Domenichelli & Associates, Inc. | Job No. SID-001

Project	Lumsden Ranch Drainage Study	Computed	KSC	Date	06/20/07
Subject	HEC-HMS Model	Checked	TB	Date	7/9/2007
Task	Storage Discharge Curve for Ponds	Sheet	1	Of	2

Basin: Pond-2
Entrance Type: Headwall
Pipe Diameter: 15-inch

Elevation	Headwater[1]	Storage[2]	HW/D[3]	Discharge[4]
ft	ft	ac-ft		cfs
2005	0	0	0	0
2010	5	0.30	4	13
2015	10	1.07	8	20
2020	15	2.47	12	28
2025	20	4.74	16	40

1) Water surface elevation above culvert inlet invert
2) Volume calculated using USGS Quad Map
3) Headwater/depth ratio = water surface elevation divided by pipe diameter
4) Discharge calculated using nomograph for C.M. pipe with inlet control found in County of El Dorado Drainage Manual

Basin: Pond-1
Entrance Type: Headwall
Pipe Diameter: 18-inch

Elevation	Headwater[1]	Storage[2]	HW/D[3]	Discharge[4]
ft	ft	ac-ft		cfs
2050	0	0	0	0
2055	5	0.44	3.33	19
2060	10	1.68	6.67	28
2065	15	3.82	10.0	38
2070	20	7.27	13.3	52

1) Water surface elevation above culvert inlet invert
2) Volume calculated using USGS Quad Map
3) Headwater/depth ratio = water surface elevation divided by pipe diameter
4) Discharge calculated using nomograph for C.M. pipe with inlet control found in County of El Dorado Drainage Manual

Domenichelli & Associates, Inc. | Job No. SID-001

Project	Lumsden Ranch Drainage Study	Computed	KSC	Date	06/20/07
Subject	HEC-HMS Model	Checked	TB	Date	7/9/2007
Task	Storage Discharge Curve for Lake	Sheet	2	Of	2

Basin: Res - LL (Lumsden Lake)

Headwater	Storage	Discharge
ft	ac-ft	cfs
0	0	0
1	0.517	20
2	1.13	56
3	1.85	103
4	2.66	162
5	3.57	205
6	4.48	247
7	5.39	290

Developed using HEC-RAS model

Weir Equation

$Q = 3.33 (L - 0.2H) H^{1.5}$

L =	13	ft
H =	1	ft
Q =	42.6	cfs

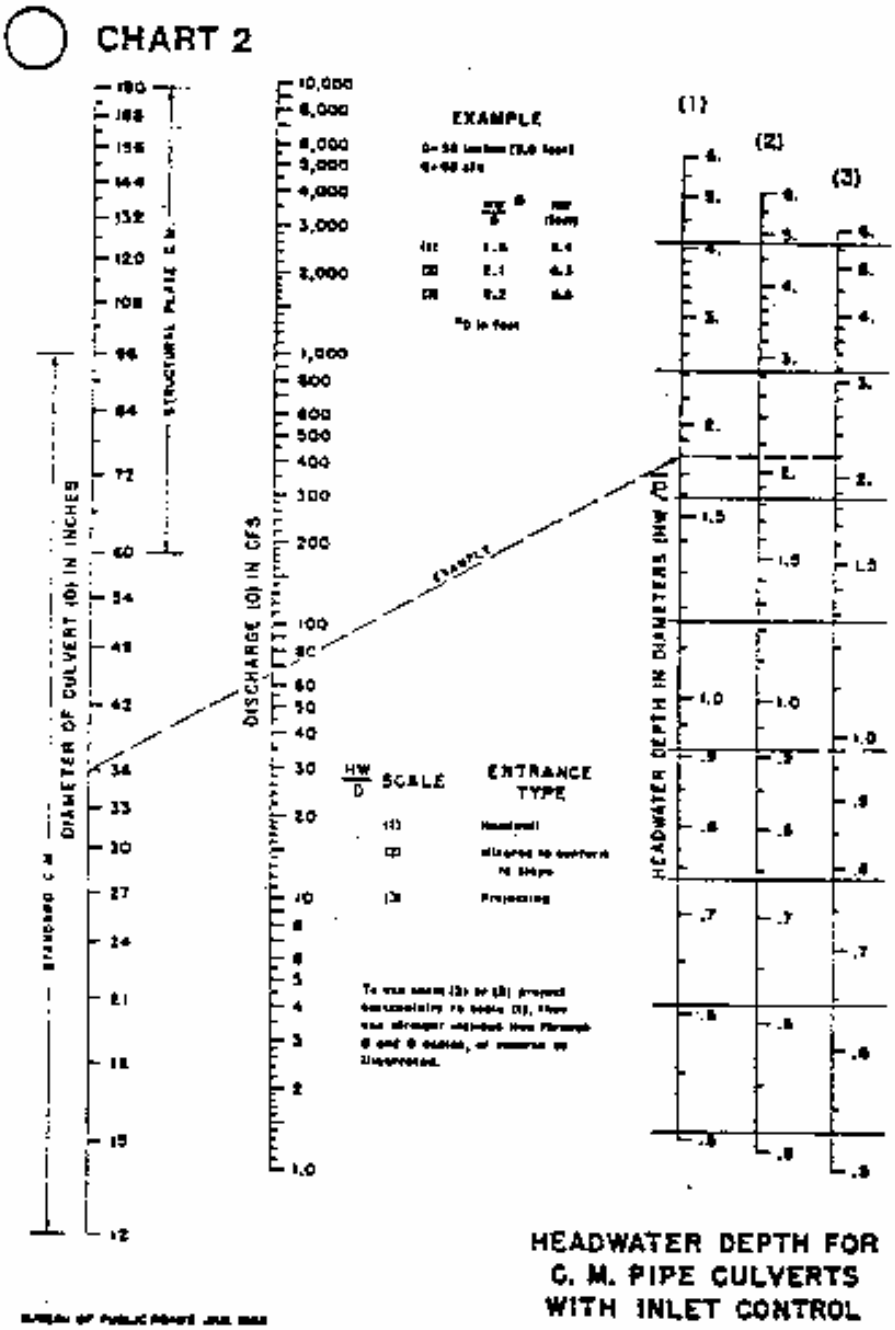


CHART 2
EXAMPLE
DIAMETER OF CULVERT (D) IN INCHES
DISCHARGE (Q) IN CFS
HEADWATER DEPTH IN DIAMETERS (HW/D)
ENTRANCE TYPE
HW/D SCALE
(1)
(2)
(3)
HEADWATER DEPTH FOR
C. M. PIPE CULVERTS
WITH INLET CONTROL

DWR Home
DSOD Home
About DSOD
Organizational Chart
Statutes and Regulations
Application Forms
Fees
Listing of Dams
Jurisdictional Size Chart
FAQs
Employment Opportunities with DSOD
Contact Us

Division of Safety of Dams
Department of Water Resources

2200 X Street
Sacramento, CA 95818

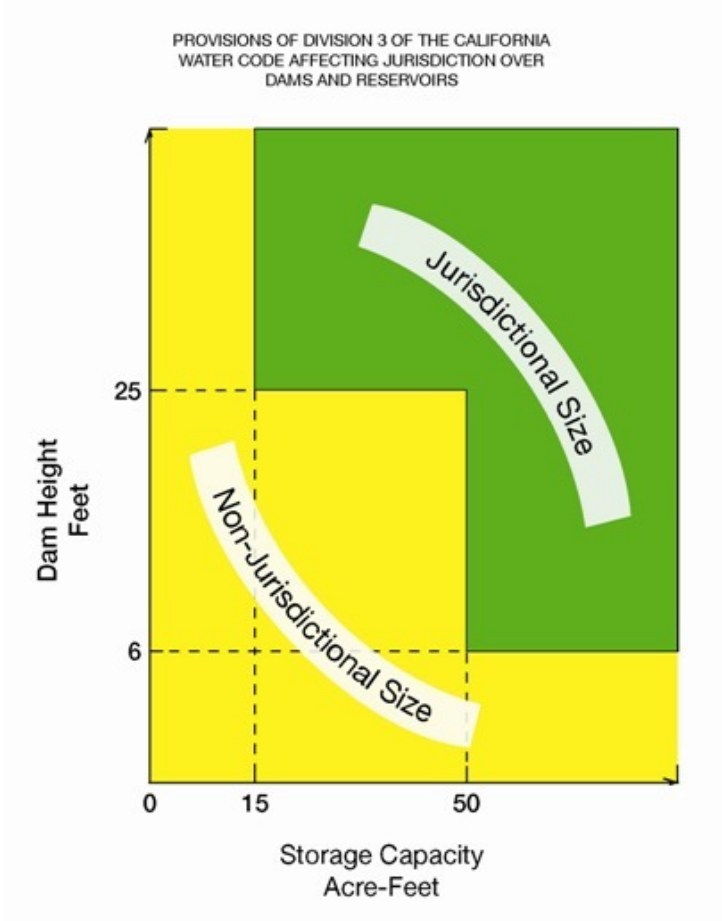
Mailing Address:
P. O. Box 942836,
Sacramento, CA
94236-0001

Telephone #:
(916) 227-4644

E-Mail:General Information:
damsafety@water.ca.gov

Search
DWR My CA

DSOD - Jurisdictional Size Chart



DAM HEIGHT is measujred from the downstream toe to the maximun storage elevation/spillway.

Specific exemptions from jurisdiction apply to:

OBSTRUCTIONS IN A CANAL to raise, lower or divert water therefrom; LEVEES, RAILROAD FILLS; ROAD or HIGHWAY FILLS; CIRCULAR TANKS; TANKS ELEVATED above the ground; certain NON-CIRCULAR TANKS in San diego County; barriers OFF-STREAM for AGRICULTURAL USE or use as SEWAGE SLUDGE DRYING FACILITIES; OBSTRUCTIONS in channels or watercourses which are 15 feet or less in height, with single purpose of spreading water within the bed of the stream or watercourse upstream for percolation underground; WASTE WATER CONTROL FACILITY ponds, which are 15 feet or less in height, have a maximum storage capacity of 1500 acre-feet or less, are off-stream, and the operating public agency adopts certain resolutions; and FEDERAL DAMS.

For a complete text of exemptions, please refer to "Statutes and Regulations Pertaining to Supervision of Dams and Reservoirs", California Water Code, Division 3, Dams and Reservoirs, Part 1, Supervision of Dams and Reservoirs, Chapter 1, Definitions, 6000-6008.

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Related Links

- Technical References
- Featured Links

APPENDIX D:
PRELIMINARY GEOTECHNICAL ENGINEERING STUDY

PRELIMINARY GEOTECHNICAL ENGINEERING STUDY
for
LUMSDEN RANCH
Placerville, California

Project No. E05099
30 March 2005

YOUNGDAHL
CONSULTING GROUP, INC.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

YOUNGDAHL CONSULTING GROUP, INC.
Geotechnical • Geoscience • Materials Testing • Storm Water Compliance

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Project No. E05099
30 March 2005

Mr. Sid Afshar
Brilliant Management, LLC
114 Camino Pablo
Orinda, California 94563

Subject: **LUMSDEN RANCH**
PRELIMINARY GEOTECHNICAL ENGINEERING STUDY
Placerville, California

References: (Refer to page 37)

Dear Mr. Afshar:

In accordance with your authorization, Youngdahl Consulting Group, Inc., has performed a preliminary geotechnical engineering study for the Lumsden Ranch project site located on Wiltse Road in Placerville, California. The purpose of this study was to explore and evaluate the surface and subsurface soil conditions at the site and to develop preliminary geotechnical information for the proposed project. Our scope included a limited subsurface investigation, laboratory testing, and preparation of this report per our proposal dated 6 March 2005.

Based upon our reference review, field study, subsurface exploration program, laboratory testing and engineering analysis, we believe the primary geotechnical issues to be addressed consist of historical mining related features and grading on the steep native slopes. Other geotechnical issues may become more apparent during mass grading operations which are not listed above. The descriptions, findings, conclusions and recommendations provided in this report are formulated as a whole, and specific conclusions or recommendations should not be derived or used out of context. Please review the limitations and uniformity of conditions section of this report.

This report has been prepared for the exclusive use of Brilliant Management, LLC and their consultants, for specific application to this project, in accordance with generally accepted geotechnical engineering practice. Should you have any questions or require additional information, please contact our office at your convenience.

Very truly yours,
Youngdahl Consulting Group, Inc.

Keith E. Millard, C.E.G.
Project Engineering Geologist

CERTIFIED ENGINEERING GEOLOGIST
KEITH E. MILLARD
No. 2321
Exp. 11-30-06
STATE OF CALIFORNIA

Reviewed by:

John C. Youngdahl, P.E.
Principal Engineer

REGISTERED PROFESSIONAL ENGINEER
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Distribution: (2) to Client
(5) to Stan Klemetson

Important Information About Your

Geotechnical Engineering Report

Subsurface problems are a principal cause of construction delays, cost overruns, claims, and disputes.

The following information is provided to help you manage your risks.

Geotechnical Services Are Performed for Specific Purposes, Persons, and Projects

Geotechnical engineers structure their services to meet the specific needs of their clients. A geotechnical engineering study conducted for a civil engineer may not fulfill the needs of a construction contractor or even another civil engineer. Because each geotechnical engineering study is unique, each geotechnical engineering report is unique, prepared *solely* for the client. No one except you should rely on your geotechnical engineering report without first conferring with the geotechnical engineer who prepared it. *And no one — not even you* — should apply the report for any purpose or project except the one originally contemplated.

Read the Full Report

Serious problems have occurred because those relying on a geotechnical engineering report did not read it all. Do not rely on an executive summary. Do not read selected elements only.

A Geotechnical Engineering Report Is Based on A Unique Set of Project-Specific Factors

Geotechnical engineers consider a number of unique, project-specific factors when establishing the scope of a study. Typical factors include: the client's goals, objectives, and risk management preferences; the general nature of the structure involved, its size, and configuration; the location of the structure on the site; and other planned or existing site improvements, such as access roads, parking lots, and underground utilities. Unless the geotechnical engineer who conducted the study specifically indicates otherwise, do not rely on a geotechnical engineering report that was:

- not prepared for you,
- not prepared for your project,
- not prepared for the specific site explored, or
- completed before important project changes were made.

Typical changes that can erode the reliability of an existing geotechnical engineering report include those that affect:

- the function of the proposed structure, as when it's changed from a parking garage to an office building, or from a light industrial plant to a refrigerated warehouse,
- elevation, configuration, location, orientation, or weight of the proposed structure,
- composition of the design team, or
- project ownership.

As a general rule, *always* inform your geotechnical engineer of project changes—even minor ones—and request an assessment of their impact. *Geotechnical engineers cannot accept responsibility or liability for problems that occur because their reports do not consider developments of which they were not informed.*

Subsurface Conditions Can Change

A geotechnical engineering report is based on conditions that existed at the time the study was performed. *Do not rely on a geotechnical engineering report* whose adequacy may have been affected by: the passage of time; by man-made events, such as construction on or adjacent to the site; or by natural events, such as floods, earthquakes, or groundwater fluctuations. *Always* contact the geotechnical engineer before applying the report to determine if it is still reliable. A minor amount of additional testing or analysis could prevent major problems.

Most Geotechnical Findings Are Professional Opinions

Site exploration identifies subsurface conditions only at those points where subsurface tests are conducted or samples are taken. Geotechnical engineers review field and laboratory data and then apply their professional judgment to render an opinion about subsurface conditions throughout the site. Actual subsurface conditions may differ—sometimes significantly—from those indicated in your report. Retaining the geotechnical engineer who developed your report to provide construction observation is the most effective method of managing the risks associated with unanticipated conditions.

A Report's Recommendations Are *Not* Final

Do not overrely on the construction recommendations included in your report. *Those recommendations are not final,* because geotechnical engineers develop them principally from judgment and opinion. Geotechnical engineers can finalize their recommendations only by observing actual

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PRELIMINARY GEOTECHNICAL ENGINEERING STUDY
for
LUMSDEN RANCH
Placerville, California

1.0 INTRODUCTION

This report presents the results of our Preliminary Geotechnical Engineering Study performed for the proposed Lumsden Ranch sundivision planned to be constructed at the terminus of Wiltse Road in Placerville, California. Refer to Figure A-1 for a vicinity map for the project site.

1.1 Purpose and Scope

The purpose of this study was to explore and evaluate the surface and subsurface conditions at the site and to develop preliminary geotechnical information for the proposed project. The scope of this study includes the following:

1. A review of geotechnical and geologic data available to us at the time of our study.
2. A field study consisting of a visual site reconnaissance, followed by a limited exploratory test pit program to characterize the subsurface conditions.
3. A limited laboratory testing program performed on representative samples collected during our field study.
4. Engineering analysis of the data and information obtained from our field study, laboratory testing, and literature review. Development of preliminary conclusions and recommendations for site preparation and grading, types of foundations anticipated, retaining structures, underground facilities, and initial pavement design parameters.
5. Preparation of this report summarizing our findings, conclusions, and preliminary recommendations regarding the geotechnical aspects for the project.

This study is not intended to replace a more thorough study which will be necessary for development of the project. Many locations for subsurface and surface observations were inaccessible and not addressed in this generalized initial scope.

2.0 PROJECT UNDERSTANDING

Based upon the provided preliminary CAD drawings, we understand that the proposed construction is expected to include 360 one to two-story single family residences along with associated driveways, street pavements and underground utilities. The structures are expected to be of wood frame construction supported by conventional shallow foundations and concrete slab-on-grade or raised wood floors. The larger lots are proposed as no-grade custom home lots while the smaller lots on the north side of the project are proposed as higher density production home construction on padded lots.

The subject property encompasses approximately 130 acres. Of that, preliminary plans indicate that significant portions of the custom lot region are designated as Undisturbed Open Space.

For the purposes of this report, we have assumed that grading operations will consist of cuts and fills on the order of 20 feet or less.

3.0 SITE DESCRIPTION

3.1 Background

The Sierra Nevada Foothills region has a long history of gold mining and related land use and development. Placerville has been at the focus of that activity since its origin. As a result, remnants of that history still exist and often influence modern development. These remnants may include open or collapsed mine shafts and tunnels, unconsolidated mine tailing deposits, exploration pits, placer mining excavation in stream gravels, and building foundations, to name a few. While review of our records indicates no specific mining activity on the property, our air photo review did indicate that portions of the project site have been used for possible pear orchard activity, and some currently occupied isolated residences. Visual evidence of historic mining activity was observed during our field reconnaissance and is described below.

The types of gold mining activity believed to have been practiced on the site are drift mining, placer mining and possibly lode mining. Drift mining involves tunneling into and processing relatively consolidated aggregates such as the Mehrten Formation. Placer mining involves excavating and processing relatively unconsolidated stream aggregates, often in active drainages. Lode mining involves excavating shafts and tunnels into non-aggregate bedrock such as slate to remove and process quartz veins. Each of these processes begins with exploration to assess the potential for gold, and ends if none is found.

If studies or plans exist that pertain to the site which are not cited as a reference in this report, we should be afforded the opportunity to review and modify our conclusions and recommendations as necessary.

3.2 Surface Observations

The project site is located at the terminus of Wiltse Road in Placerville, El Dorado County, California. It is irregular in shape and encompasses approximately 130 acres. The property is bound to the south by residences along the north side of Barrett Drive. To the west and east it is bound by relatively undeveloped land. The northern boundary abuts rural residential development. Lumsden Park, property of the City of Placerville, is inset into the northwestern portion of the site. Wiltse Road, including minor rural residential development, enters onto the subject property from the northwest.

Topography is undulatory, but generally comprises a concave drainage basin draining toward the northwest into a small lake within Lumsden Park. Existing structures on the property include four residences in the northern central region. A fifth residence, accessed from the property, is situated adjacent to the Lumsden Park property, but is itself not on the subject property. The site is generally densely vegetated by evergreen and oak trees, Manzanita bushes, and other native bushes and weeds. During our visits, the prominent drainage bisecting the site from southeast to northwest was flowing approximately two feet wide and six inches deep. Within this drainage, we observed evidence of historic placer mining of the stream gravels in the form of tailing (gravel and cobble) piles adjacent to the active channel. Higher up on the basin slopes, near the geologic contact between the underlying slate bedrock and the overlying Mehrten (volcanic and stream) deposits, we observed numerous other indications of historic mining in the form of open tunnels, surface depressions (possibly from collapsed tunnels, shafts or pits), and tailing (rock) piles. These features were likely created to explore gold potential at the base of the Mehrten stream deposits.

3.3 Preliminary Subsurface Exploration

Our field study included a site reconnaissance by a Youngdahl Consulting Group, Inc., representative followed by a limited subsurface exploration program conducted on 10 March 2005, which included the excavation of 14 test pits under his direction at the approximate

locations shown on Figure A-2, Appendix A. Excavation of the test pits was accomplished with a John Deere 310SG rubber tire-mounted backhoe equipped with an 18 inch wide bucket. As the excavation proceeded, bulk samples were collected from the pits and returned to our laboratory. The test pits were not backfilled with engineered fills and will require re-excavation and compaction of the soils during site development. Refer to Appendix A for a more detailed description of the subsurface exploration procedure.

The test pits completed for this investigation encountered relatively similar soil and rock conditions within the maximum 15 foot depth of exploration. All test pits typically encountered surface soils consisting predominantly of sandy SILT/silty SAND in a soft/loose and moist condition to depths varying from 1 to 14 feet below current site grades. Based on our observations and laboratory testing, this soil appears to be the weathering product of the Mehrten bedrock which is rich in volcanic ash. The result is a relatively low density, low strength and moisture sensitive soil with specific engineering needs.

Underlying the surface soils, weathered metasedimentary (slate and sandstone of the Calaveras Complex) and volcaniclastic (volcanic and stream deposits of the Mehrten Formation) BEDROCK was encountered to the maximum depth explored in each pit. Effective refusal was generally encountered with the equipment used for our study. A detailed seismic refraction study can provide more information regarding subsurface rock conditions and rippability and was not part of the scope for this preliminary study. The bedrock graded moderately to slightly weathered at the bottom of each pit.

A more detailed description of the subsurface conditions encountered is presented graphically on the "Exploratory Test Pit Logs", Figures A-3 through A-16, presented in Appendix A. These logs show a graphic interpretation of the subsurface profile, and the location and depths at which samples were collected.

3.4 Geologic Conditions

The geologic portion of this report included a review of geologic data pertinent to the site, and an interpretation of our observations and the Logs of Exploratory Test Pits excavated during the field study.

The site is located in the Sierra Foothills region of the Sierra Nevada Mountain Range. According to the "Mineral Land Classification of the Placerville 15-Minute Quadrangle" (Loyd, 1983) and confirmed by our subsurface exploration, the site is underlain by undifferentiated metasedimentary rocks (slate and sandstone) of the Calaveras Complex formed during the Paleozoic Era (Pzcc) and volcaniclastic rocks (volcanic and stream deposits) of the Mehrten Formation formed during the Tertiary Period (Tm). The older metasedimentary bedrock is typically characterized by grey to brown, thinly bedded or foliated mudstone and sandstone with varying degrees of silicification, metamorphism, fracturing and weathering. The geologic structure mapped indicates a predominant bedding/foliation trending north-northwest and dipping steeply to the west or east. The overlying younger volcaniclastic bedrock is typically characterized by a grey, cemented, massive sandy (volcanic ash) matrix with abundant gravel and cobbles of volcanic origin, and occasional lenses of river sand, some of which bear gold. In both types of rock, the degree of weathering typically decreases with depth.

According to the Fault Activity Map of California and Adjacent Areas (Jennings, 1994) and the Peak Acceleration from Maximum Credible Earthquakes in California (Mualchin, 1992), no active faults or Earthquake Fault Zones (Special Studies Zones) are located on the project site. No evidence of recent or active faulting was observed during our field study. The nearest mapped faults to the site are related to the Melones and Bear Mountains Fault Zones located approximately 1.2 miles (2 km) and 8.7 miles (14 km) west of the site, respectively. The nearest

mapped active fault to the site is the North Tahoe Fault located about 45 miles (73 km) to the northeast.

3.5 Mining Conditions

The principal factor to be considered in design and construction of the subdivision is the presence of historic mining features on the property. Adequate closure of these features will be of primary importance during site grading and project development. To date, two adits (or tunnels) have been positively identified, and approximately eight depressions or rock piles (possible adits or shallow exploratory pits) have also been identified on site. (Refer to Figure A-2)

The USGS map for the Placerville, California 15 minute quadrangle dated 1949, photorevised 1973 (USGS, 1973) was reviewed. The map identifies the subject property as vacant land. The main portion of the area is identified as the northwest face of Texas Hill. No prospects or adits are identified on the subject property. An El Dorado Irrigation ditch wraps around the southeastern and southern site boundaries and through a tunnel near the west end of Barrett Drive.

According to the Gold Districts of California (Clark, 1970), the area is identified as being in Placerville Mining District of the Mother Lode. Gold was discovered in Placerville in 1848. The area was extensively hydraulic and drift mined in the 1850's through the 1870's. Lode mining (mining of quartz veins in slate bedrock via tunnels and shafts) began in 1852 at the Pacific Mine, west of the subject property. The main period of lode mining was from the 1880's to about 1915. The publication, which includes a 1956 map of the Placerville district, does not identify any lode mines on the subject property. Hydraulic mining (using water "cannons" to rapidly erode resistant gold-bearing gravel deposits), however, is shown to the west of the property, on the northwest side of Texas Hill.

No lode gold mines are identified on the subject property on the Mineral Land Classification Maps of El Dorado County (CGS, 2001). The Snow placer gold mine is identified south of the subject property. The Leslie Hydraulic, the Henry D. Bacon Claim, and the Reuter and Co. placer (stream gravel deposits) gold mines are identified on the north edge of the subject property.

According to the1932 Mines of El Dorado County map (Wildman, 1932), no lode mining claims are located on the subject property. The Linden placer gold claim is shown to incorporate portions of the subject property.

Mining features observed on the subject property appear to be undocumented. This may be the result of little or no yield.

3.6 Naturally Occurring Asbestos

Test pits TP-10 and TP-12 encountered talc schist bedrock beneath the surface soils. This type of rock is indicative of a shear zone. Shear zones are associated with fault activity, of which there was much in the Placerville area. The Melones Fault Zone (Mother Lode) is mapped approximately 1.2 miles west of the project site, and an associated fault zone is mapped in the vicinity of the site's western boundary (Churchill, 2000). Altered rocks and minerals found within shear zones, including talc schist, may contain naturally occurring asbestos (NOA). No such fibrous or asbestiform materials were observed during our field exploration, however the potential for these materials should be explored in a future, more detailed study which includes sampling and analytical testing of suspect materials.

3.7 Preliminary Laboratory Testing

Limited laboratory testing of a collected sample was directed toward generally classifying the soil underlying the site. A description of the tests performed and their results are presented in Appendix B.

4.0 CONCLUSIONS AND RECOMMENDATIONS

The following general geotechnical conclusions and recommendations are based on our understanding of the proposed residential development project.

4.1 Mining Conditions

To date, two adits (or tunnels) have been positively identified, and approximately eight depressions or rock piles (possible adits or shallow exploratory pits) have also been identified on site. (Refer to Figure A-2) Additional workings may be discovered during site clearing operations. Due to uncertainties associated with the extent of these workings, securing and/or closure of historic mining features are best addressed during the initial phases of site grading. The attached schematic diagram provides typical recommended options for mine feature mitigation (Refer to Figure C). Competent adits can be closed by placement of a concrete bulkhead at the entrance. Should adits be collapsed or appear unstable within the zone of improvement areas it may be necessary to inject a cement grout mixture under high pressure to consolidate any loose materials and/or fill existing voids. Sloping tunnels, if present on the property, can be capped with a concrete slurry plug as shown. Vertical shafts may be capped with a structural concrete bridge plug installed in firm materials. Shallow features, exploratory pits or trenches, should be excavated to their full depth and backfilled with engineered fill. Case-specific recommendations can be provided for all known mining features upon further exploration. Building setbacks will be required on any features where adequate mitigation can not be achieved.

4.2 Soil and Rock Conditions

The native soils, rock, and/or engineered fills composed of like materials and processed and compacted as recommended below are considered suitable for support of the planned improvements.

Many of our exploratory test pits, in particular those in the southern and southeastern portions of the site encountered a relatively thick surface soil horizon in a soft or loose condition. Those soils were thicker still on the downslope side of existing unpaved roadways due to the non-engineered fill used to construct the road. We anticipate that these relatively thick and unconsolidated soil horizons may not provide adequate structural support for proposed overlying engineered fills, homes, roadways and underground utilities without adequate processing. Ground modification in the form of over-excavation and replacement of these soils to their full depth should be anticipated.

The property contains steep natural grades in its southern and southeastern areas, commonly up to 3:1 (horizontal:vertical), occasionally up to 1.8H:1V. This will provide a challenge in the design of engineered fills. The strength characteristics of the on site soils will determine the maximum slope at which engineered fills can be constructed. Where this maximum slope is not significantly steeper than the natural grade, other means of creating an over-steepened fill may be required. These may include retaining walls or mechanically stabilized earth fills. For preliminary design purposes, we recommend engineered fill slope inclinations no steeper than 2H:1V.

Bedrock encountered during our field exploration was generally weathered, foliated and/or fractured. The test pits were excavated using a John Deere 310SG rubber-tire mounted backhoe equipped with an 18 inch wide bucket. The degree of difficulty encountered in

excavating our test pits is an indication of the effort that will be required for excavation during construction. Based on our test pits, we expect that the rock materials can likely be excavated to depths of several feet using dozers equipped with rippers. We expect that the upper, weathered portion of the rock, indicated to extend as much as approximately five feet below the rock surface at most locations, will require use of Caterpillar D8 equipped with a single or multiple shank rippers, or similar equipment. We anticipate that a ripper equipped D8 can penetrate at least as deep as our test pits at most locations with moderate effort. Deeper excavation into the less weathered rock may require heavier equipment, such as a D9, or a D10.

Where hard rock cuts in fractured rock are proposed, the orientation and direction of ripping will likely play a large role in the rippability of the material. When hard rock is encountered, we should be contacted to provide additional recommendations prior to performing an alternative such as blasting.

Utility trenches will likely encounter hard rock excavation conditions especially in deeper cut areas. Utility contractors should be prepared to use large excavators such as a CAT 235 or CAT 245. Blasting to achieve utility line grades, especially in planned cut areas, cannot be precluded. (Blasting should not be performed without prior discussion with the project engineer from our office.) Water inflow into any excavation approaching hard rock surface is likely to be experienced in all but the driest summer and fall months. Pre-ripping during mass grading may be beneficial and should be considered with the Geotechnical Engineer prior to, or during mass grading.

We anticipate that excavated bedrock materials will be suitable for use as engineered fill material when processed and broken down. Generally, a 12-inch-minus material size with adequate finer material to fill void space is recommended, however some larger material may be able to be placed in deeper fill areas.

Groundwater issues are two-fold on the subject property. As a result of the shallow bedrock, groundwater within the soil horizon, whether natural or from irrigation, may become perched atop the relatively impermeable bedrock horizon below. Additionally, as a result of the foliated and fractured nature of the slate bedrock, water within the bedrock may find its way to the bedrock surface. This may result in seepage from bedrock cut slopes, behind retaining walls or beneath overlying natural soils or engineered fills. This can potentially weaken the surface soils. Subdrainage in the form of canyon drains along natural drainage axes beneath fills, and cut-off drains up-gradient of engineered fills and structures will likely be a significant part of the development of the subject property.

Excavations into the bedrock, especially the slate, may prove unstable due to its foliation and fracturing. Utility trenches, retaining wall back cuts and exposed cut slopes alike will likely need to be evaluated for stability as it pertains to design and safety. Utility trench shielding should be anticipated. For preliminary design purposes, we recommend cut slope inclinations no steeper than 2H:1V. Final slope inclinations will be subject to field review.

We anticipate that the on site bedrock materials will provide adequate support for proposed structures. As noted previously, soft/loose soils encountered during our field exploration, whether native or non-engineered fills, are not anticipated to provide adequate support and will likely require processing. Surface and subsurface drainage on lots and near improvements will be vital to the stability of engineered fills and structures.

4.3 Engineered Fill

All materials placed as fills on the site should be placed as "Engineered Fill" observed and compacted as described in the following paragraph.

All areas proposed to receive fill should be scarified to a minimum depth of 8 inches, moisture conditioned as necessary, and compacted to at least 90 percent of the maximum dry density based on the ASTM D1557 test method. The fill should be placed in thin horizontal lifts not to exceed 12 inches in uncompacted thickness. The fill should be moisture conditioned as necessary and compacted to a relative compaction of not less than 90 percent based on the ASTM D1557 test method. The upper 8 inches of fills placed under proposed pavement areas should be compacted to a relative compaction of not less than 95 percent based on the ASTM D1557 test method.

To mitigate the potential for deep fill settlement, all fills placed deeper than 15 feet from finished grade should be compacted to a minimum of 95% relative compaction. The fills should be placed at a minimum of two percent over optimum moisture content.

4.4 Residential Foundations

Multiple foundation types will likely be warranted due to the varying development plans, site grades and subsurface conditions. Conventional shallow spread footings with a slab-on-grade floor will likely suit the high density housing in the northern portion of the site. For the custom homes on the steeper terrain to the south, continuous stepped foundations into competent native soils, engineered fills or bedrock, or possibly pier and grade beam, with partial slab-on-grade and raised wood floors are anticipated. Differential support conditions on cut/fill pads or pads which transition from bedrock to soil may necessitate increasing steel reinforcement in footings across the cut/fill transition and/or deepening footings to reduce the fill thickness beneath the footings.

4.5 Retaining Walls

The use of retaining walls to create usable space on steep terrain will likely play a significant role in the development of the site. From previous discussions, we understand that Keystone walls are proposed, which we believe to be appropriate for site development. When necessary, we can provide Keystone wall design services. Concrete or masonry walls may be beneficial for higher strength applications or where back cut space is limited.

4.6 Pavement Design

We assume that asphaltic pavements will be used for the associated roadways. A preliminary R-value of 40 was obtained by our laboratory from the surface soil sample collected at the site. Based on this preliminary result, the following will likely be appropriate.

Table 1. Recommended Pavement Design Thickness

DESIGN TRAFFIC INDICES	ALTERNATIVE PAVEMENT SECTIONS (INCHES)	
	ASPHALT CONCRETE *	AGGREGATE BASE **
4.5	2.5 3.0	4.0 4.0
5.0	2.5 3.0	5.0 4.0
5.5	3.0 3.5	5.5 4.5
6.0	3.0 3.5	6.5 5.5
6.5	3.5 4.0	7.0 6.0

NOTES: * Asphaltic Concrete: must meet specifications for CAL TRANS Type B Asphaltic Concrete
** Aggregate Base: must meet specifications for CAL TRANS Class 2 Aggregate Base ("R"-Value = minimum 78)

Due to the redistribution of materials that occurs during mass grading operations, we should review pavement subgrades to determine the appropriateness of the provided sections. Deep cut areas may have better support characteristics than those used in determining the above sections.

5.0 LIMITATIONS AND UNIFORMITY OF CONDITIONS

1. This report has been prepared for the exclusive use of Brilliant Management, LLC for specific application to the Lumsden Ranch project. Youngdahl Consulting Group, Inc. has endeavored to comply with generally accepted geotechnical engineering practice common to the local area. Youngdahl Consulting Group, Inc. makes no other warranty, express or implied.

2. As of the present date, the findings of this report are valid for the property studied. With the passage of time, changes in the conditions of a property can occur whether they be due to natural processes or to the works of man on this or adjacent properties. Legislation or the broadening of knowledge may result in changes in applicable standards. Changes outside of our control may cause this report to be invalid, wholly or partially. Therefore, this report should not be relied upon after a period of three years without our review nor should it be used or is it applicable for any properties other than those studied.

3. Section 3317.8 in Appendix Chapter 33 of the latest edition of the California Building Code is applicable to this report. This section states that, in regard to the transfer of responsibility, if the Geotechnical Engineer of Record for the project site is not maintained into and through the grading phase of the project, the work shall be stopped until the replacement has agreed in writing to accept their responsibility within the area of technical competence for approval upon completion of the work.

   WARNING: Do not apply any of this report's conclusions or recommendations if the nature, design, or location of the facilities is changed. If changes are contemplated, Youngdahl Consulting Group, Inc. must review them to assess their impact on this report's applicability. Also note that Youngdahl Consulting Group, Inc. is not responsible for any claims, damages, or liability associated with any other party's interpretation of this report's subsurface data or reuse of this report's subsurface data or engineering analyses without the express written authorization of Youngdahl Consulting Group, Inc.

4 The analyses and recommendations contained in this report are based on limited windows into the subsurface conditions and data obtained from subsurface exploration. The methods used indicate subsurface conditions only at the specific locations where samples were obtained, only at the time they were obtained, and only to the depths penetrated. Samples cannot be relied on to accurately reflect the strata variations that usually exist between sampling locations. Should any variations or undesirable conditions be encountered during the development of the site, Youngdahl Consulting Group, Inc., will provide supplemental recommendations as dictated by the field conditions.

5 The recommendations included in this report have been based in part on assumptions about strata variations that may be tested only during earthwork. Accordingly, these recommendations should not be applied in the field unless Youngdahl Consulting Group, Inc. is retained to perform construction observation and thereby provide a complete professional geotechnical engineering service through the observational method. Youngdahl Consulting Group, Inc. cannot assume responsibility or liability for the adequacy of its recommendations when they are used in the field without Youngdahl Consulting Group, Inc. being retained to observe construction. Unforeseen subsurface conditions containing soft native soils, loose or previously placed non-engineered fills should be a consideration while preparing for the grading of the property. It should be noted that it is the responsibility of the owner or his/her representative to notify

Youngdahl Consulting Group, Inc., in writing, a minimum of 48 hours before any excavations commence at the site.

6 Our experience has shown that vapor transmission through concrete is controlled through proper concrete mix design. As such, proper control of moisture vapor transmission should be considered in the design of the slab as provided by the project architect, structural or civil engineer. It should be noted that placement of the recommended plastic membrane, proper mix design, and proper slab underlayment and detailing per ASTM E1643 and E1745 will not provide a waterproof condition. If a waterproof condition is desired, we recommend that a waterproofing expert be consulted for slab design.

7 Following site development, additional water sources (ie. landscape watering, downspouts) are generally present. The presence of low permeability materials can prohibit rapid dispersion of surface and subsurface water drainage. Utility trenches typically provide a conduit for water distribution. Provisions may be necessary to mitigate adverse effects of perched water conditions. Mitigation measures may include the construction of cut-off systems and/or plug and drain systems. Close coordination between the design professionals regarding drainage and subdrainage conditions may be warranted.

Seepage may be observed emanating from the cut slopes following their excavation during the following rainy season or following development of the areas above the cut. Generally this seepage is not enough flow to be a stability issue to the cut slope, but may be an issue for the owner of the lot at the base of the cut from a surface drainage and standing water (damp spot) standpoint. This amount of water is generally collected easily with landscaping drainage, surface drainage at the toe of the slope, or subsurface toe drains. Recommendations may be provided at the time of observed seepage; however, we recommend that the developer of the property disclose this possibility to future owners.

CHECKLIST OF RECOMMENDED SERVICES			
	Item Description	**Recommended**	**Not Anticipated**
1	Provide foundation design parameters	✓	
2	Review grading plans and specifications	✓	
3	Review foundation plans and specifications	✓	
4	Observe and provide recommendations regarding demolition	✓	
5	Observe and provide recommendations regarding site stripping	✓	
6	Observe and provide recommendations on moisture conditioning removal, and/or precompaction of unsuitable existing soils	✓	
7	Observe and provide recommendations on the installation of subdrain facilities	✓	
8	Observe and provide testing services on fill areas and/or imported fill materials	✓	
9	Review as-graded plans and provide additional foundation recommendations, if necessary	✓	
10	Observe and provide compaction tests on storm drains, water lines and utility trenches	✓	
11	Observe foundation excavations and provide supplemental recommendations, if necessary, prior to placing concrete	✓	
12	Observe and provide moisture conditioning recommendations for foundation areas and slab-on-grade areas prior to placing concrete		✓
13	Provide design parameters for retaining walls	✓	
14	Provide finish grading and drainage recommendations	✓	
15	Provide geologic observations and recommendations for keyway excavations and cut slopes during grading	✓	
16	Excavate and recompact all test pits within structural areas	✓	

APPENDIX A

Field Study

Vicinity Map
Site Plan
Logs of Exploratory Test Pits

Introduction

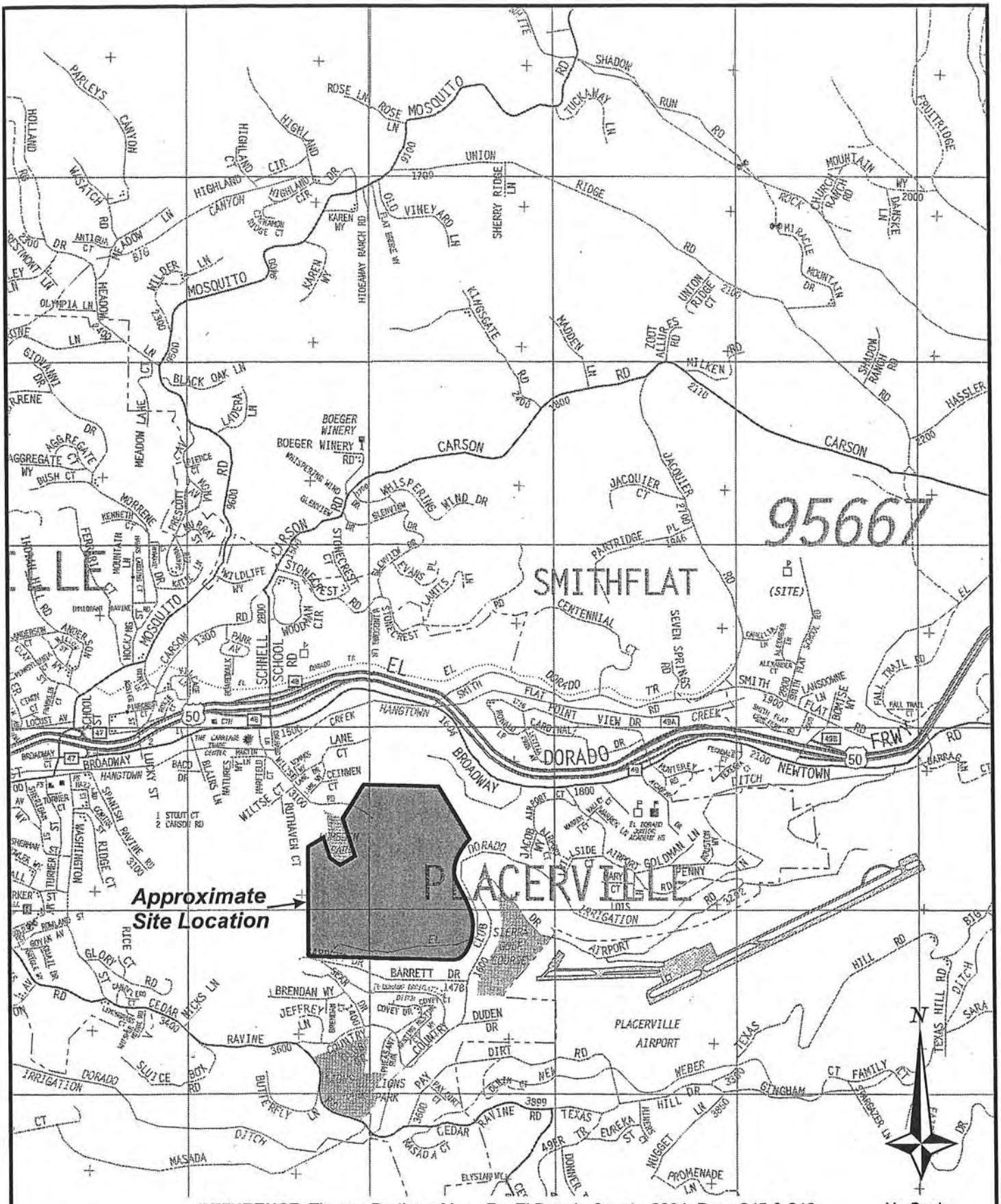
The contents of this appendix shall be integrated with the geotechnical engineering study of which it is a part. They shall not be used in whole or in part as a sole source for information or recommendations regarding the subject site.

Field study

Our field study included a site reconnaissance by a Youngdahl Consulting Group, Inc., representative followed by a subsurface exploration program conducted on 10 March 2005, which included the excavation of 14 test pits under his direction at the approximate locations shown on Figure A-2, this Appendix. Excavation of the test pits was accomplished with a John Deere 310SG rubber tire-mounted backhoe equipped with an 18 inch wide bucket. As the excavation proceeded, bulk samples were collected from the pits and returned to our laboratory for testing.

The Exploratory Test Pit Logs describe the vertical sequence of soils and materials encountered in each test pit, based primarily on our field classifications and supported by our subsequent laboratory examination and testing. Where a soil contact was observed to be gradual, our logs indicate the average contact depth. Our logs also graphically indicate the sample type, sample number and approximate depth of each soil sample obtained from the test pits.

The soils encountered were logged during excavation and provide the basis for the "Logs of Test Pits", Figures A-3 through A-16, this Appendix. These logs show a graphic representation of the soil profile, the location and depths at which samples were collected.



REFERENCE: Thomas Brothers Maps For El Dorado County, 2004, Page 245 & 246

No Scale

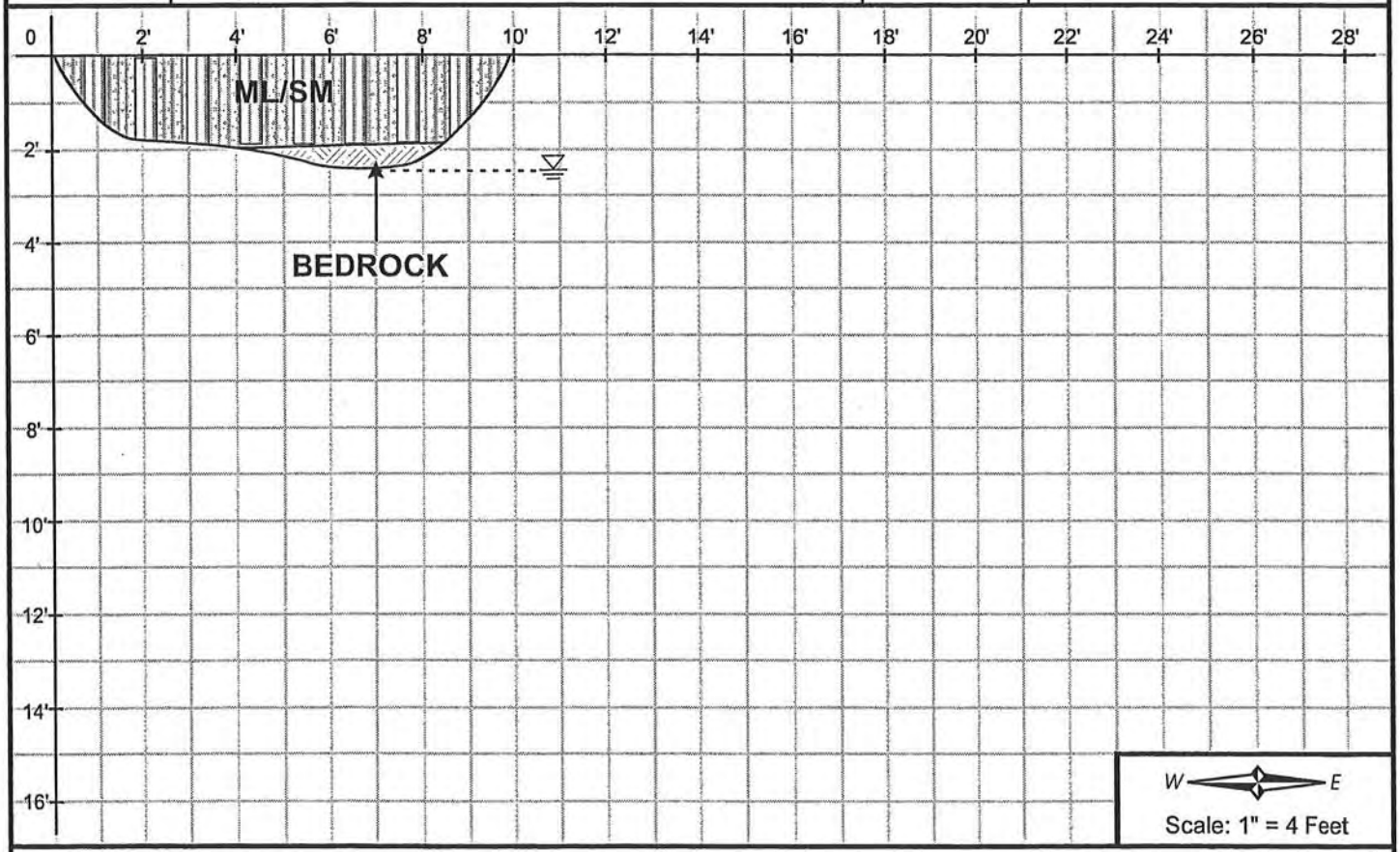
YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**VICINITY MAP** **Lumsden Ranch** Placerville, California	FIGURE **A-1**

Approximate Area of Observed Mining Features

YOUNGDAHL CONSULTING GROUP, INC. 1234 Glenhaven Court, El Dorado Hills, CA. 95762, ph 916.933.0633, fx 916.933.6482 502 Olmsgope Court, Suite 2, Roseville, CA. 95678, ph 916.773.7633, fx 916.773.7833	Project No.: E05099 Date: MARCH 2005	SCALE: 1"=500'	**LUMSDEN RANCH** **SITE PLAN** **PLACERVILLE, CALIFORNIA**	FIGURE A-2

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2045'**	Pit No. **TP-1**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **288°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2'	Brown sandy **SILT**/silty **SAND (ML/SM)** with some gravel, soft/loose, moist		
@ 2' - 2.5'	Gray slate **BEDROCK**, slightly weathered, indurated, well developed foliation, very thinly spaced, moderately developed fractures, closely spaced, closed with black staining, slightly moist (isolated seepage)		
	Test pit terminated at 2.5' (practical refusal) Seepage encountered at 2.5' No caving noted		

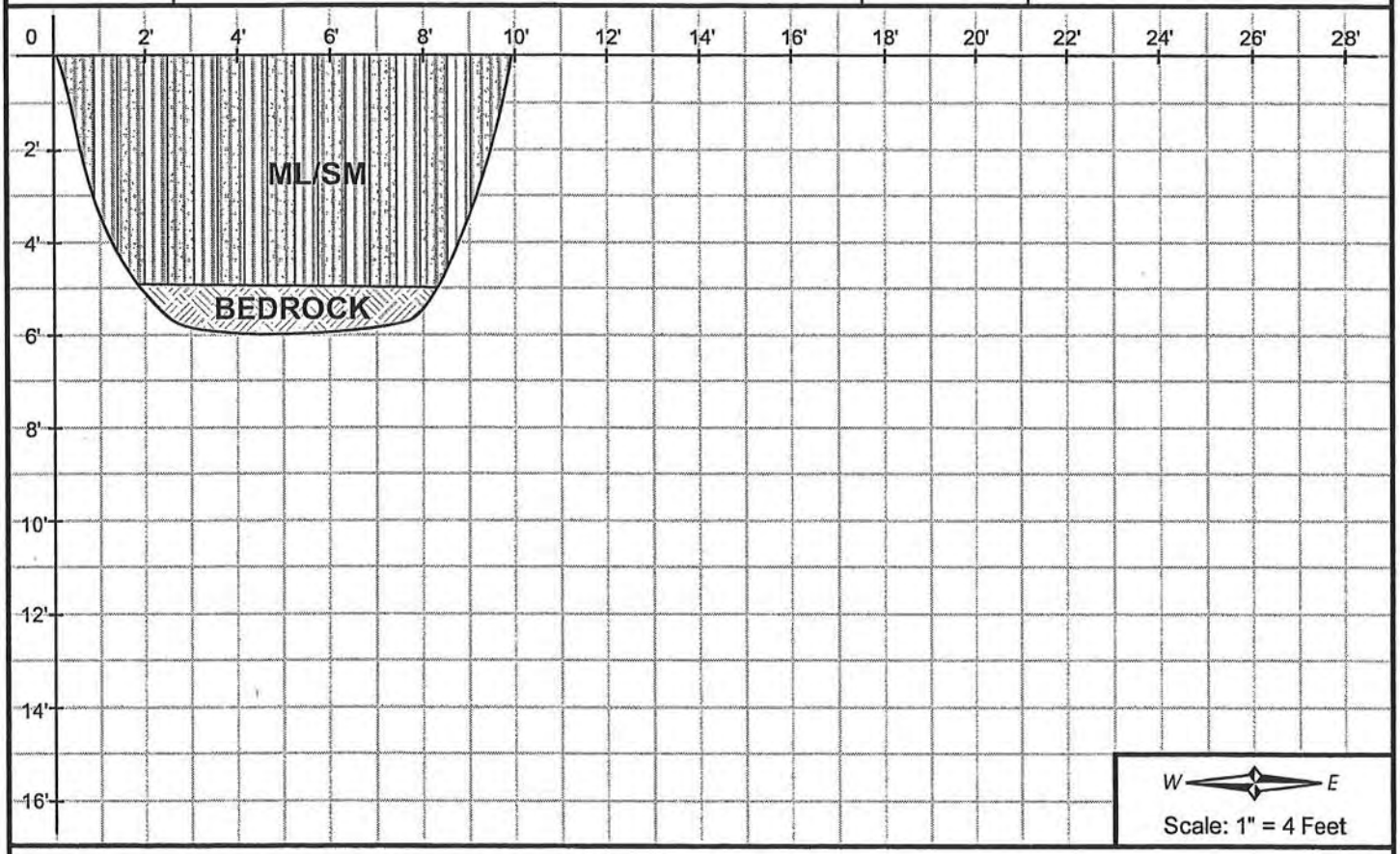


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-3**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2335'**	Pit No. **TP-2**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **080°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ *0 - 4'*	Dark brown sandy **SILT**/silty **SAND (ML/SM)** with trace clay and gravel, soft/loose, moist	**Bulk 1** @ 0 - 4'	*Derived from volcanic ash*
@ *4' - 5'*	*Grades yellow brown with some gravel*	**Bulk 2** @ 4' - 5'	
@ *5' - 6'*	Brown gray mehrten **BEDROCK**, moderately weathered, massive, indurated, poorly developed fracturing, slightly moist		
	Test pit terminated at 2.5' (practical refusal) No free groundwater encountered No caving noted		

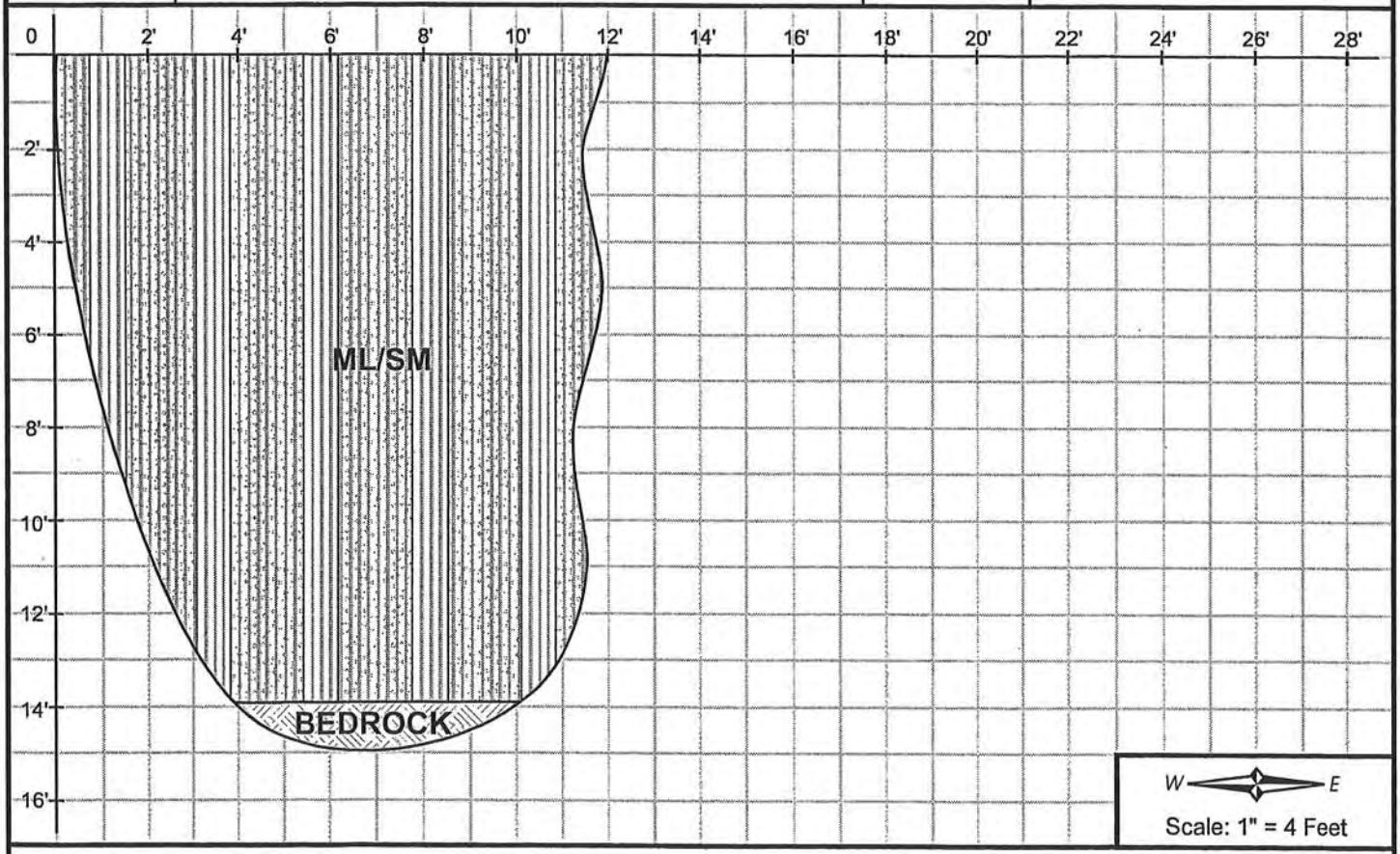


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-4**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2325'**	Pit No. **TP-3**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **280°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 9'	Red brown sandy **SILT**/silty **SAND (ML/SM)** with trace gravel and occasional cobbles, soft/loose, moist		*Derived from volcanic ash*
@ 9' - 14'	*Grades yellow brown with trace clay*		
@ 14' - 15'	Yellow brown mehrten **BEDROCK**, completely weathered, massive, friable, moist		
	Test pit terminated at 15' (practical refusal) No free groundwater encountered No caving noted		

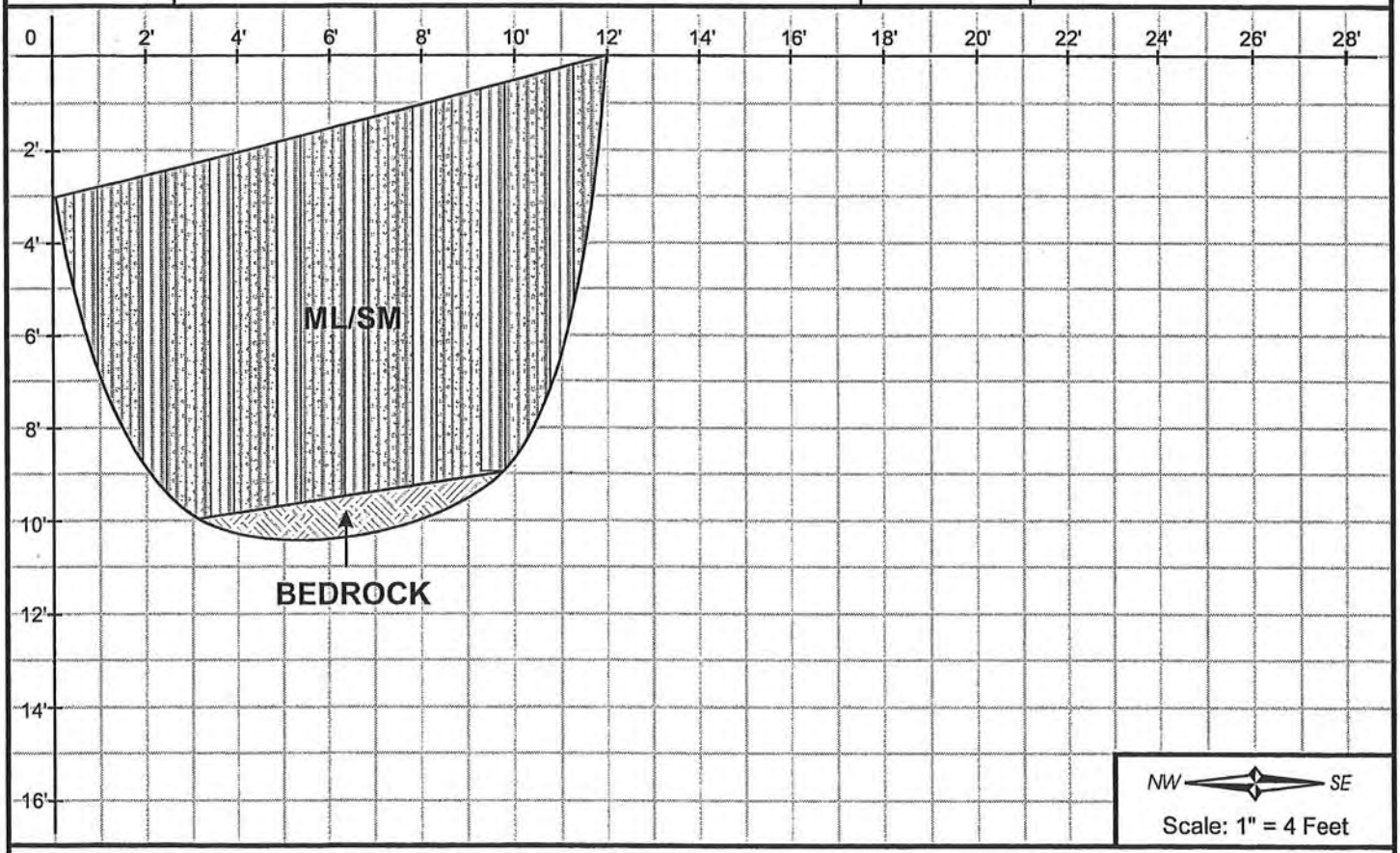


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-5**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2750'**	Pit No. **TP-4**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **320°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 6.5'	Dark brown sandy **SILT**/silty **SAND (ML/SM)** with trace gravel and occasional cobbles, soft/loose, moist		*Derived from volcanic ash*
@ 6.5' - 9.5'	*Grades with some gravel and cobbles, moist to wet*		
@ 9.5' - 10.5'	Brown gray mehrten **BEDROCK**, highly weathered, massive, moderately indurated, poorly developed fracturing, moist		
	Test pit terminated at 10.5' (practical refusal) No free groundwater encountered No caving noted		

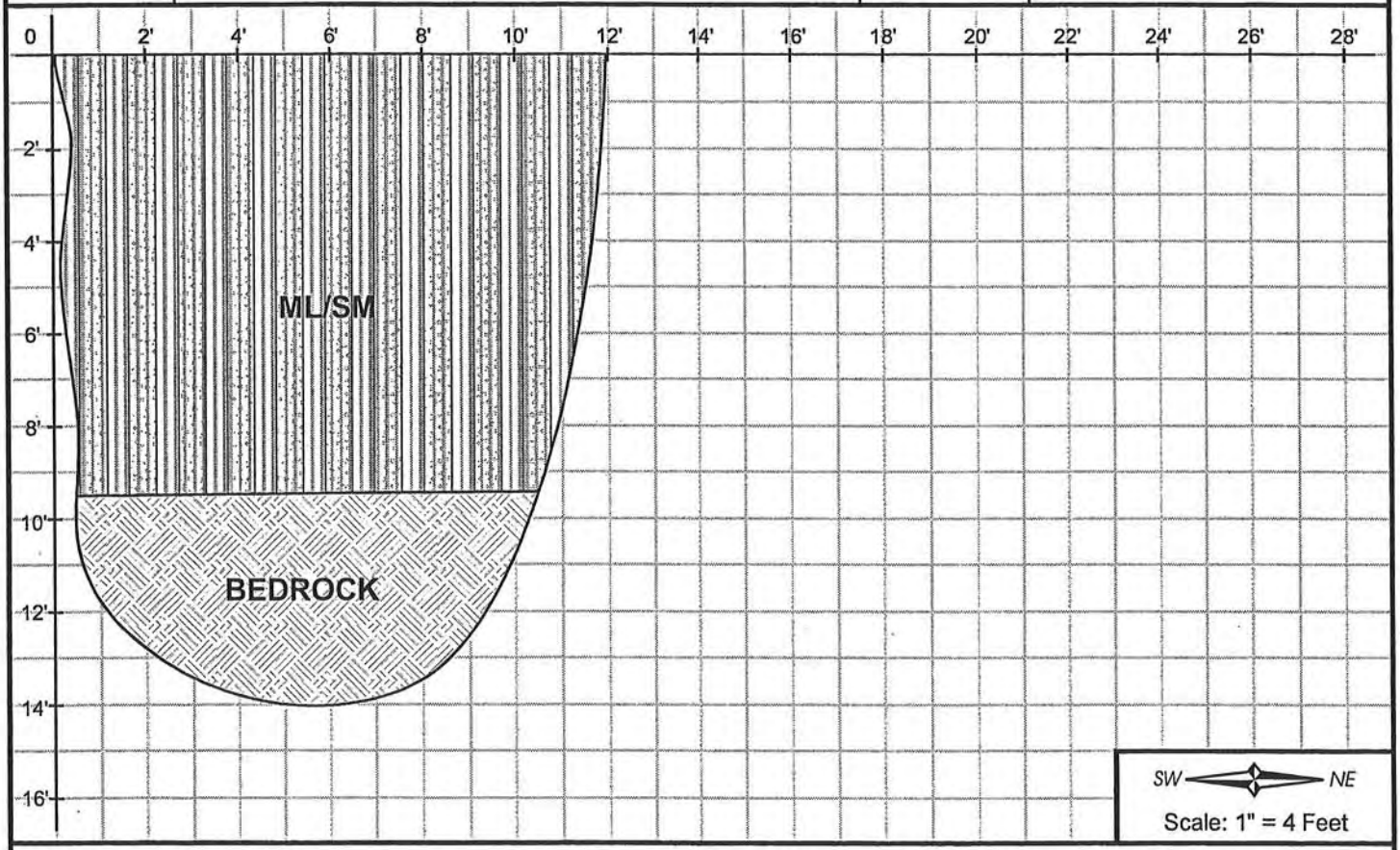


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-6**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2325'**	Pit No. **TP-5**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **068°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 2.5'	Dark brown sandy **SILT**/silty **SAND (ML/SM)**, soft/loose, moist		*Derived from volcanic ash*
@ 2.5' - 9.5'	*Grades yellow brown, with trace clay and some gravel and occasional cobbles, moist*		
@ 9.5' - 14'	Gray mehrten **BEDROCK**, highly weathered, massive, moderately indurated, poorly developed fracturing, moist		
@ 14'	*Grades indurated*		
	Test pit terminated at 14' (practical refusal) No free groundwater encountered No caving noted		

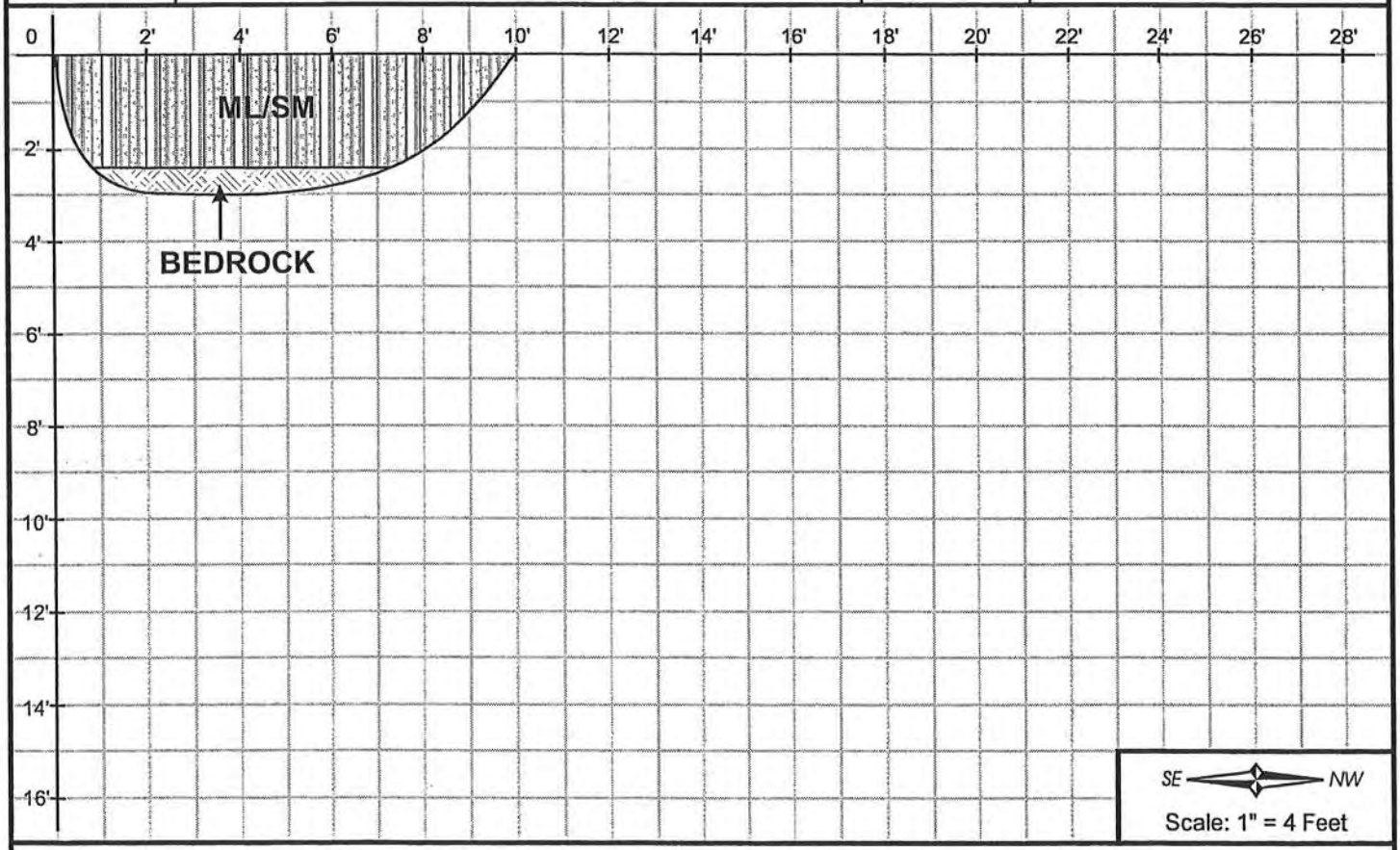


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-7**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2315'**	Pit No. **TP-6**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **315°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ *0 - 2'*	Red brown sandy **SILT**/silty **SAND (ML/SM)** with trace gravel, soft/loose, moist		*Derived from volcanic ash*
@ *2' - 2.5'*	*Grades yellow brown, with trace clay and some gravel*		
@ *2.5' - 3'*	Light brown gray mehrten **BEDROCK**, moderately weathered, massive, indurated, poorly developed fracturing, slightly moist		
	Test pit terminated at 3' (practical refusal) No free groundwater encountered No caving noted		

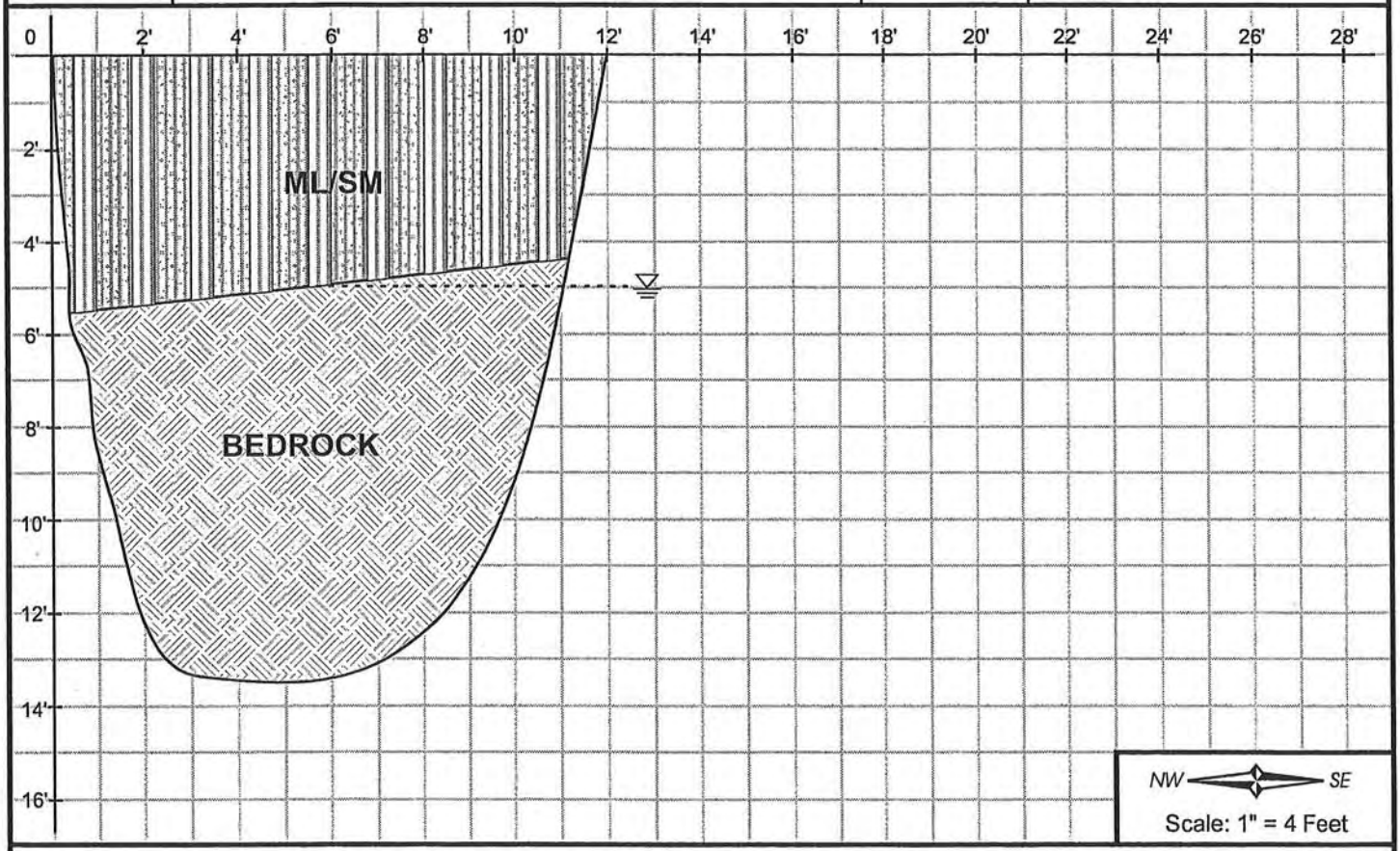


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-8**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2685'**	Pit No. **TP-7**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **290°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 3'	Dark brown sandy **SILT**/silty **SAND (ML/SM)** with trace gravel and occasional cobbles, soft/loose, moist		*Derived from volcanic ash*
@ 3' - 5'	*Grades light brown gray, with trace clay and some gravel, medium dense, seepage at 5'*		
@ 5' - 7.5'	Light brown gray mehrten **BEDROCK**, highly weathered, massive, moderately indurated, poorly developed fracturing, moist		*Lahar Flow*
@ 7.5' - 9'	*Grades dark brown yellow, very thinly laminated, weakly indurated, slightly cemented*		*Baked Sediments*
@ 9' - 13.5'	*Grades light yellow brown, friable, no visible fracturing*		*Stream Deposits*
	Test pit terminated at 13.5' (practical refusal) Seepage encountered at 5' Caving noted at 0 - 5'		

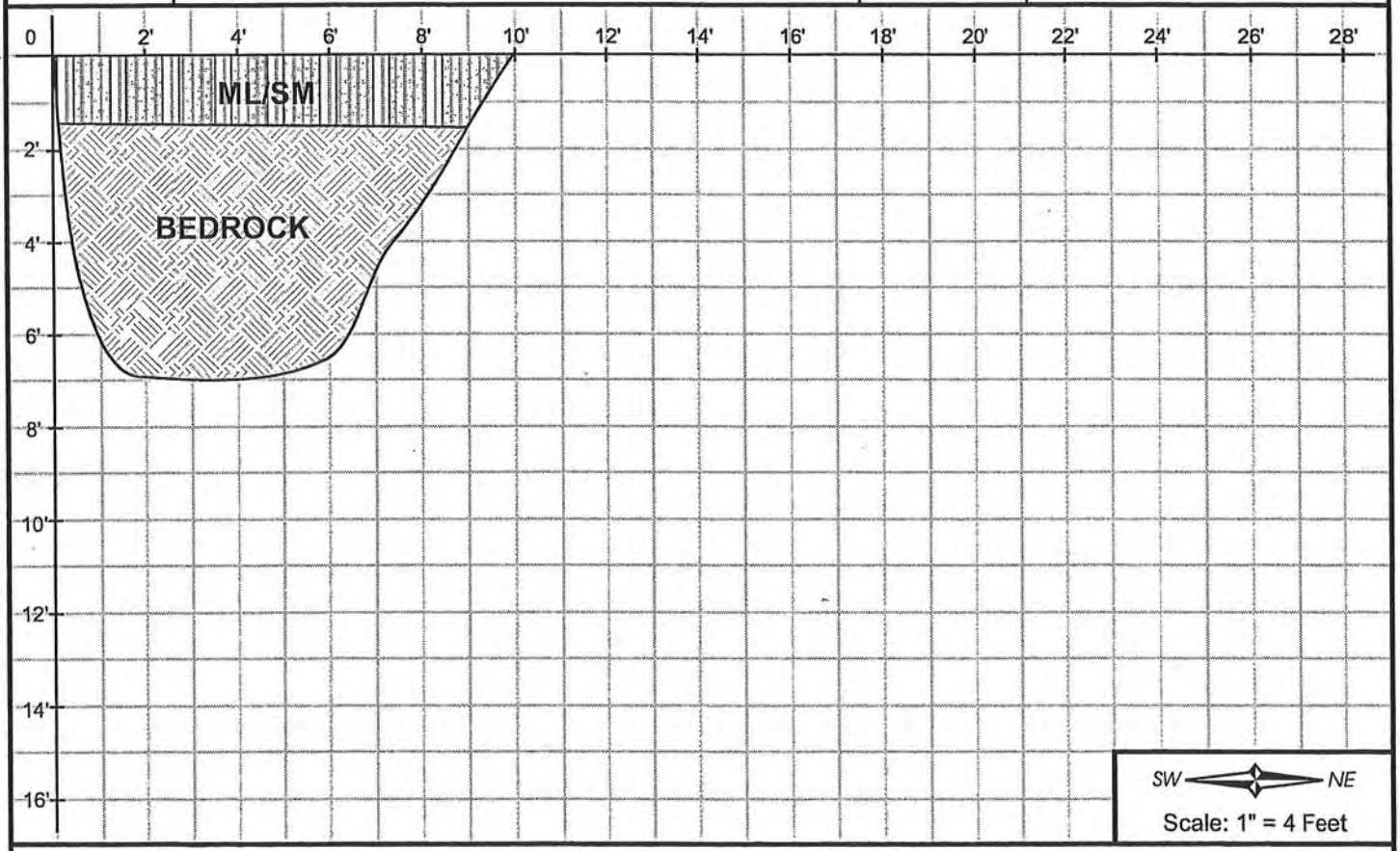


Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-9**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2212'**	Pit No. **TP-8**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **027°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1.5'	Dark brown sandy **SILT**/silty **SAND (ML/SM)** with trace gravel, soft/loose, moist		*Derived from volcanic ash*
@ 1.5' - 3'	Red brown slate **BEDROCK**, completely weathered, friable, well developed foliation, very thinly spaced, moderately developed fracturing, closely spaced, closed with black staining, moist		
@ 3' - 7'	*Grades light red gray to very dark gray to light green gray, highly weathered, moderately indurated*		
@ 7'	*Grades moderately weathered, indurated*		
	Test pit terminated at 7' (practical refusal) No free groundwater encountered No caving noted		



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Project No.: 05099

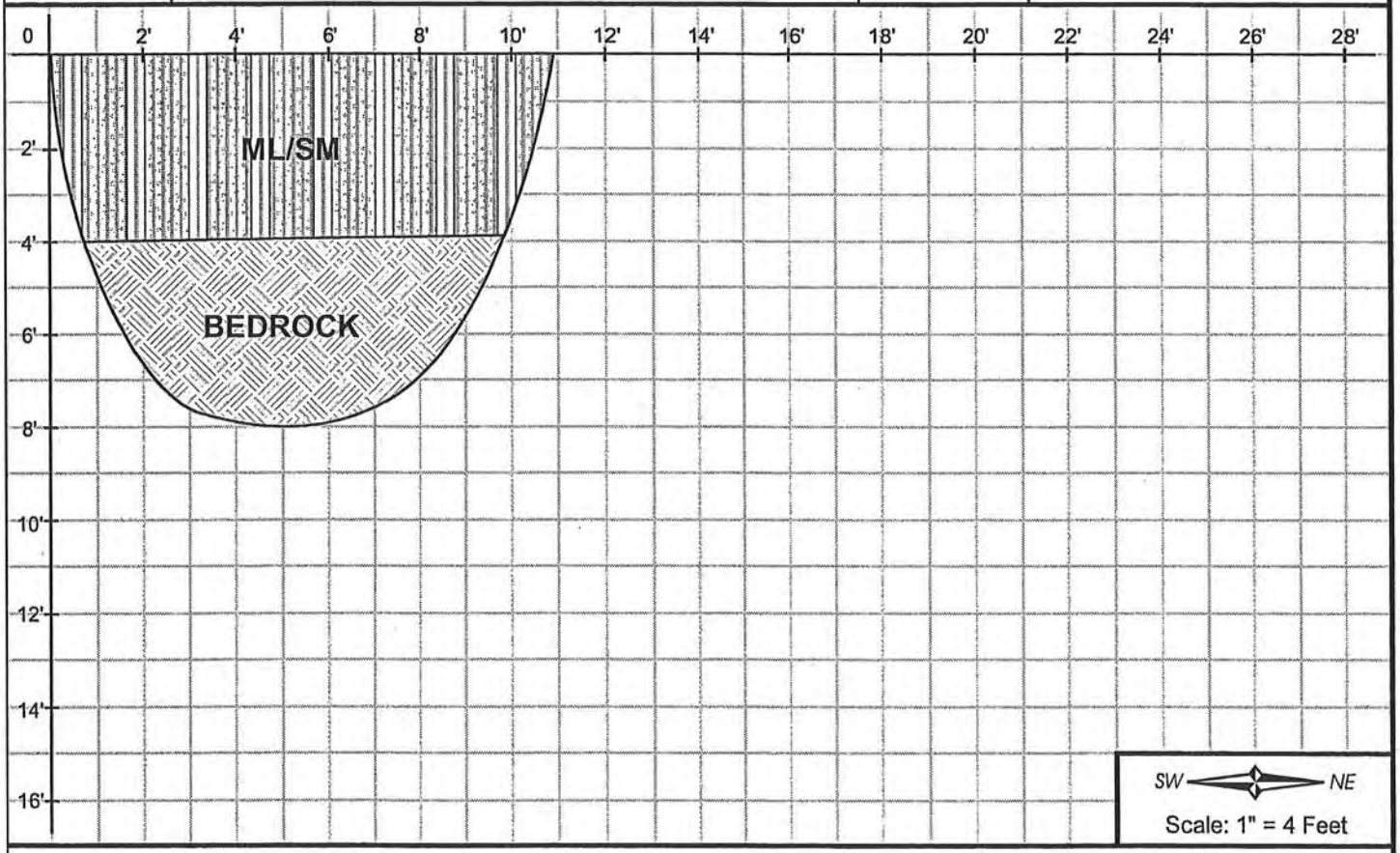
March 2005

EXPLORATORY TEST PIT LOG
Lumsden Ranch
Placerville, California

FIGURE
A-10

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2160'**	Pit No. **TP-9**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **035°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 4'	Red brown sandy **SILT**/silty **SAND (ML/SM)** with trace clay and gravel, soft/loose, moist		
@ 4' - 6'	Yellow brown to olive brown slate **BEDROCK**, completely weathered, friable, well developed foliation, very thinly spaced, moderately developed fracturing, closely spaced, closed with black staining, moist		
@ 6' - 8'	*Grades highly weathered, weakly to moderately indurated*		
@ 8'	*Grades moderately weathered, indurated*		
	Test pit terminated at 8' (practical refusal) No free groundwater encountered No caving noted		



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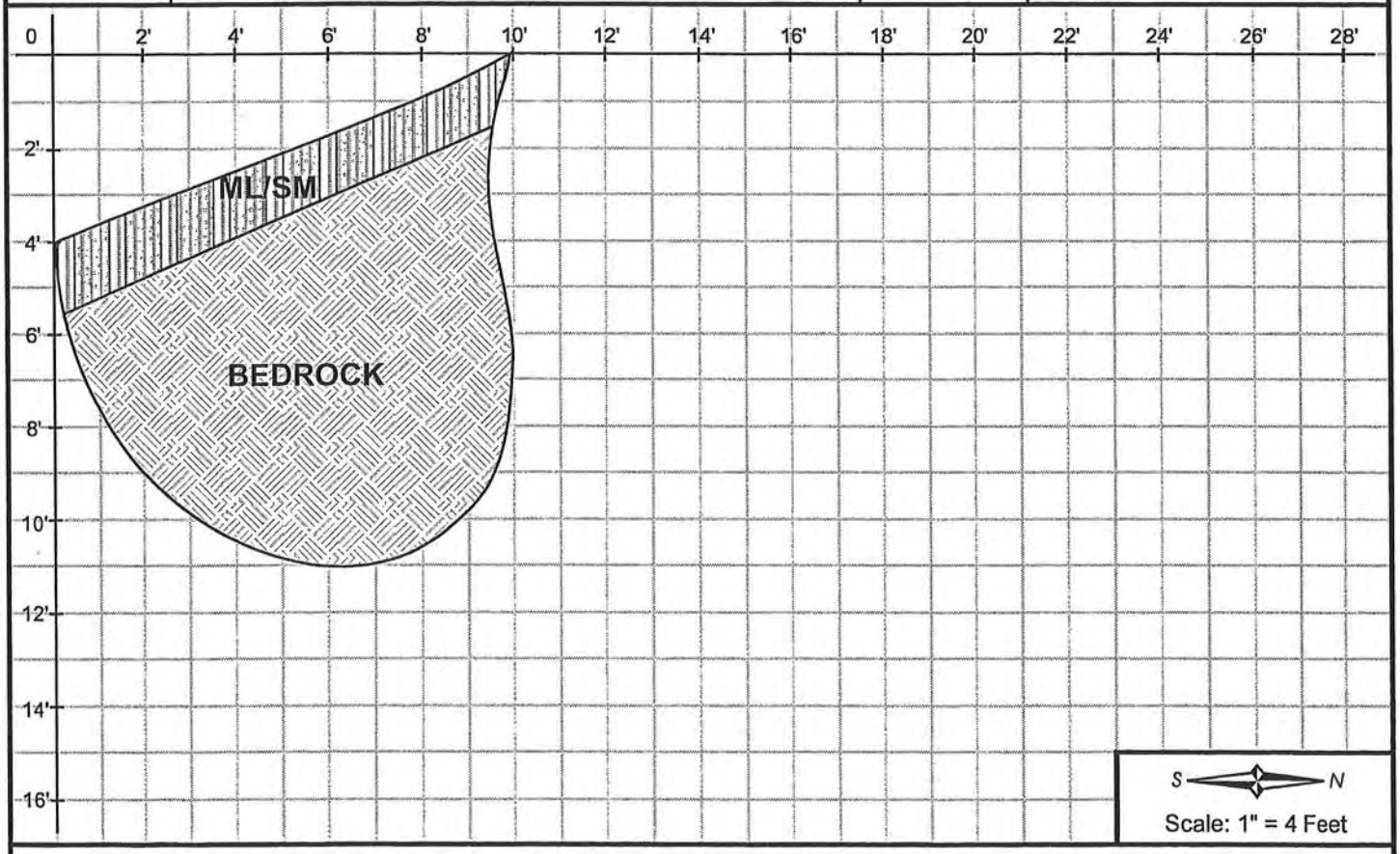
YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-11**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2125'**	Pit No. **TP-10**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **005°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1.5'	Dark red brown sandy **SILT**/silty **SAND (ML/SM)** with trace gravel, soft/loose, moist		
@ 1.5' - 7'	Very light gray talc schist **BEDROCK**, highly weathered, friable to weakly indurated, well developed foliation, very thinly spaced, poorly developed fracturing, slightly moist		
@ 7' - 11'	*Grades moderately weathered, moderately indurated*		
@ 11'	*Grades indurated*		
	Test pit terminated at 11' (practical refusal) No free groundwater encountered No caving noted		



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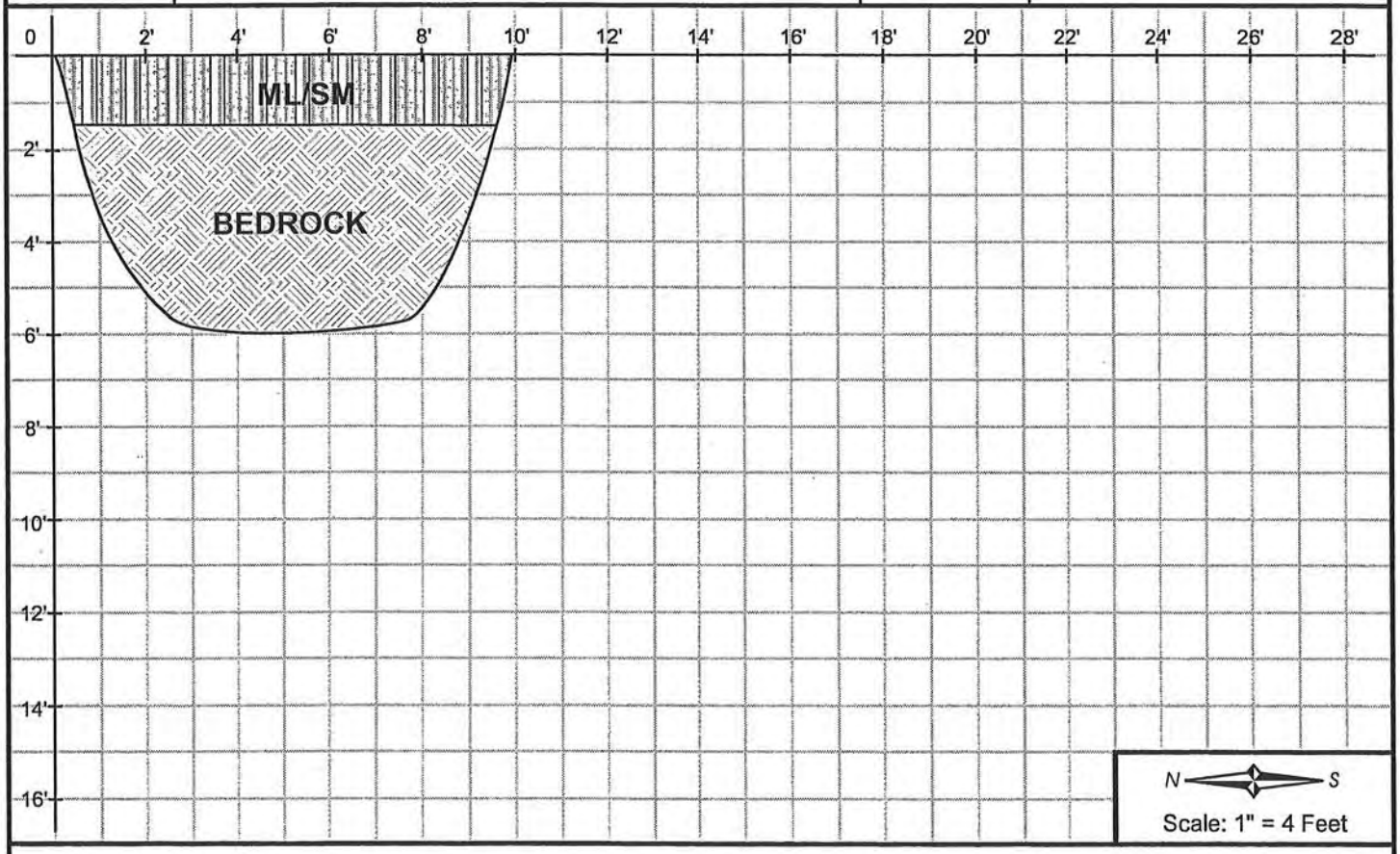
YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-12**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2065'**	Pit No. **TP-11**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **350°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1.5'	Dark red brown sandy **SILT**/silty **SAND (ML/SM)** with trace gravel, soft/loose, moist		
@ 1.5' - 4'	Yellow brown metasedimentary **BEDROCK**, completely weathered, friable, moderately developed foliation, very thinly spaced, moderately developed fracturing, closely spaced, closed with black staining, moist		
@ 4' - 6'	*Grades light yellow brown, highly weathered, moderately indurated*		
@ 6'	*Grades moderately weathered, indurated*		
	Test pit terminated at 6' (practical refusal) No free groundwater encountered No caving noted		



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Project No.: 05099

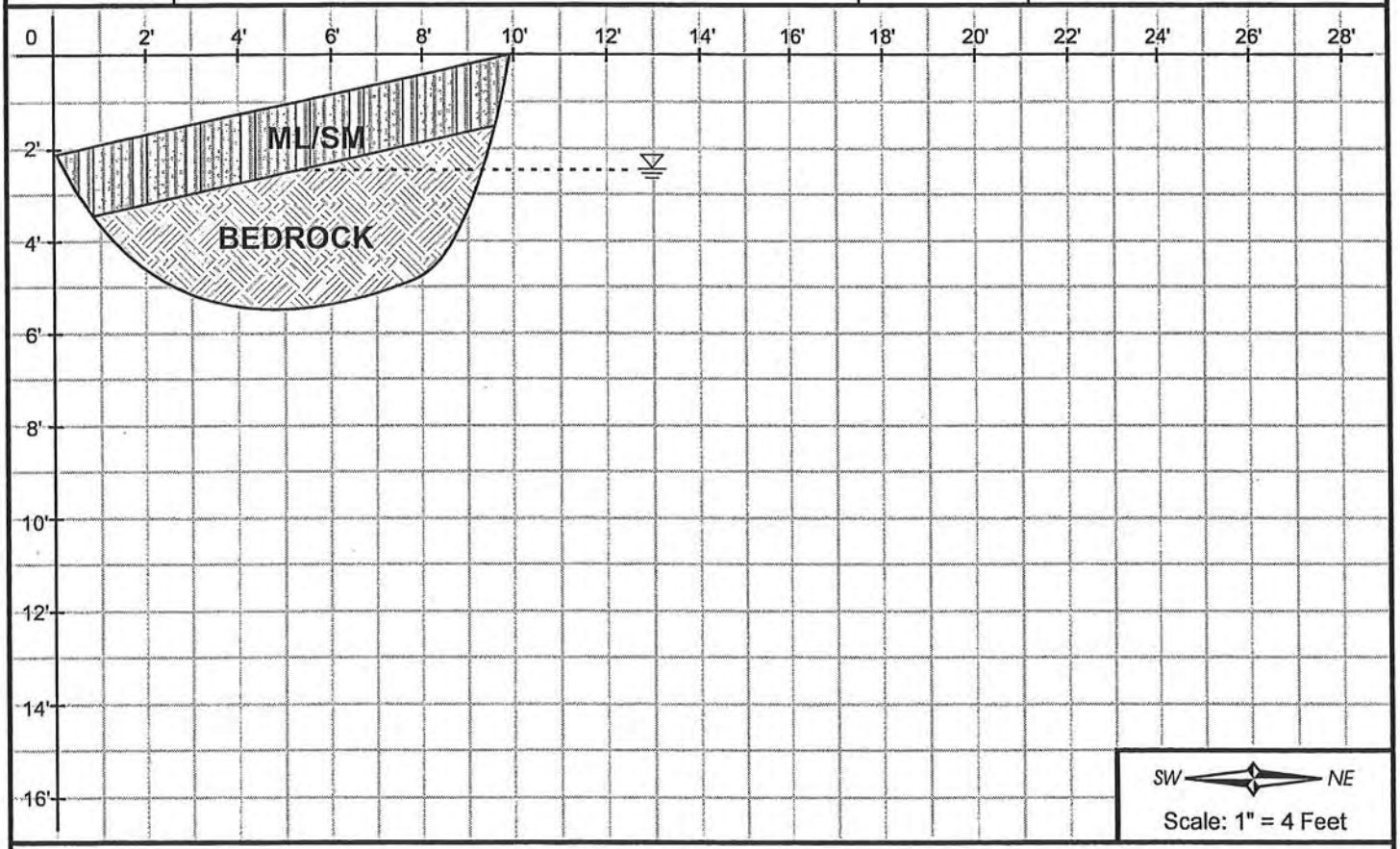
March 2005

EXPLORATORY TEST PIT LOG
Lumsden Ranch
Placerville, California

FIGURE **A-13**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2048'**	Pit No. **TP-12**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **040°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1.5'	Dark brown sandy **SILT**/silty **SAND (ML/SM)** with trace gravel, soft/loose, moist		
@ 1.5' - 4.5'	Light gray talc schist **BEDROCK**, completely weathered, weakly indurated, well developed foliation, very thinly spaced, poorly developed fracturing, moist, seepage at 2.5'		
@ 4.5' - 5.5'	*Grades highly weathered, moderately indurated*		
@ 5.5'	*Grades indurated*		
	Test pit terminated at 5.5' (practical refusal) Seepage encountered at 2.5' No caving noted		



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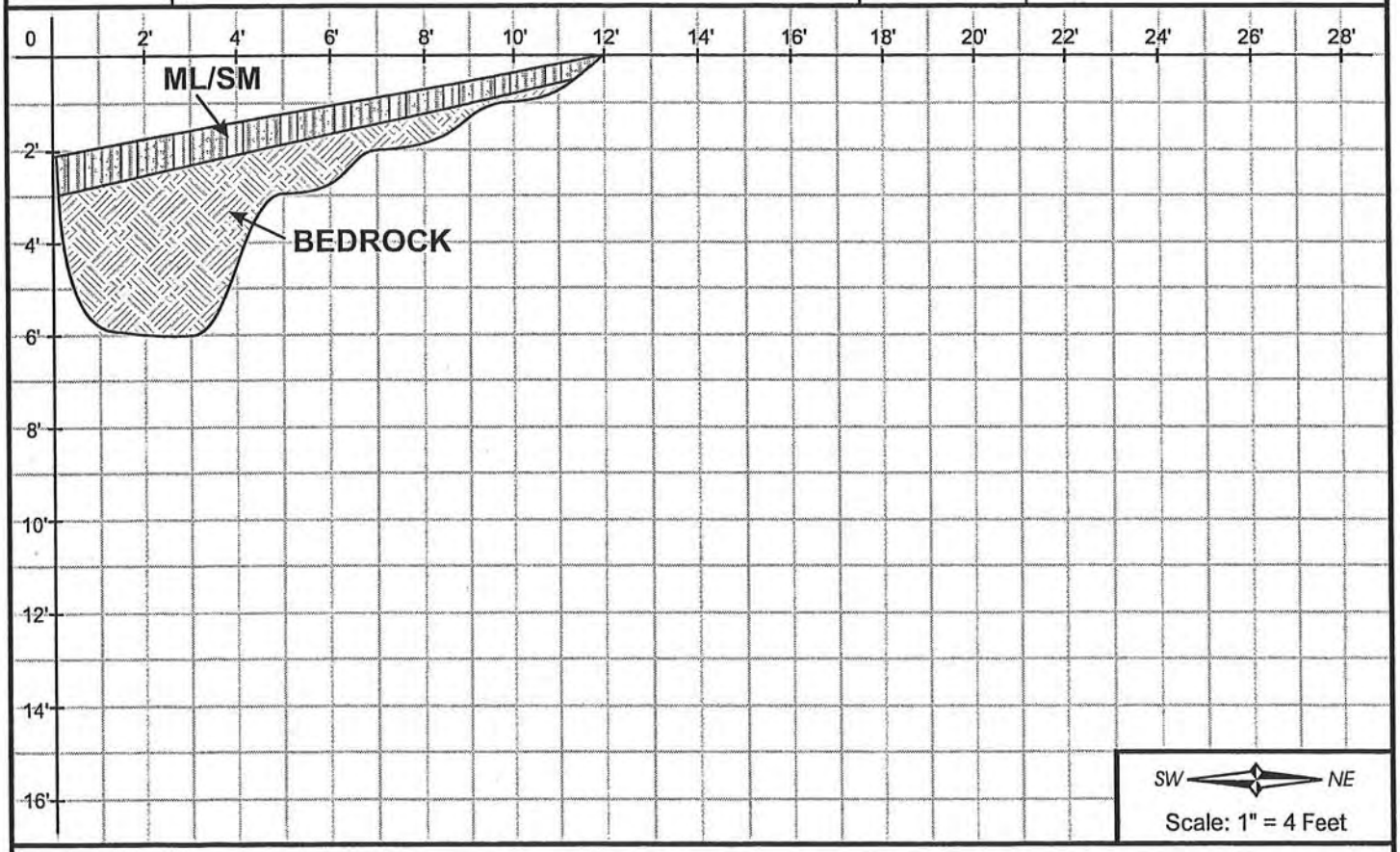
YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-14**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2070'**	Pit No. **TP-13**
Equipment:(***Observations made in existing trench for drainage culvert)***		Pit Orientation: **058°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ 0 - 1'	Red brown sandy **SILT**/silty **SAND (ML/SM)** with some gravel, soft/loose,		
@ 1' - 4'	Yellow brown slate **BEDROCK**, highly weathered, moderately indurated, well developed foliation, very thinly spaced, moderately developed fracturing, closely spaced, closed with black staining, slightly moist		
	Test pit terminated at 4' (practical refusal) No free groundwater encountered No caving noted		



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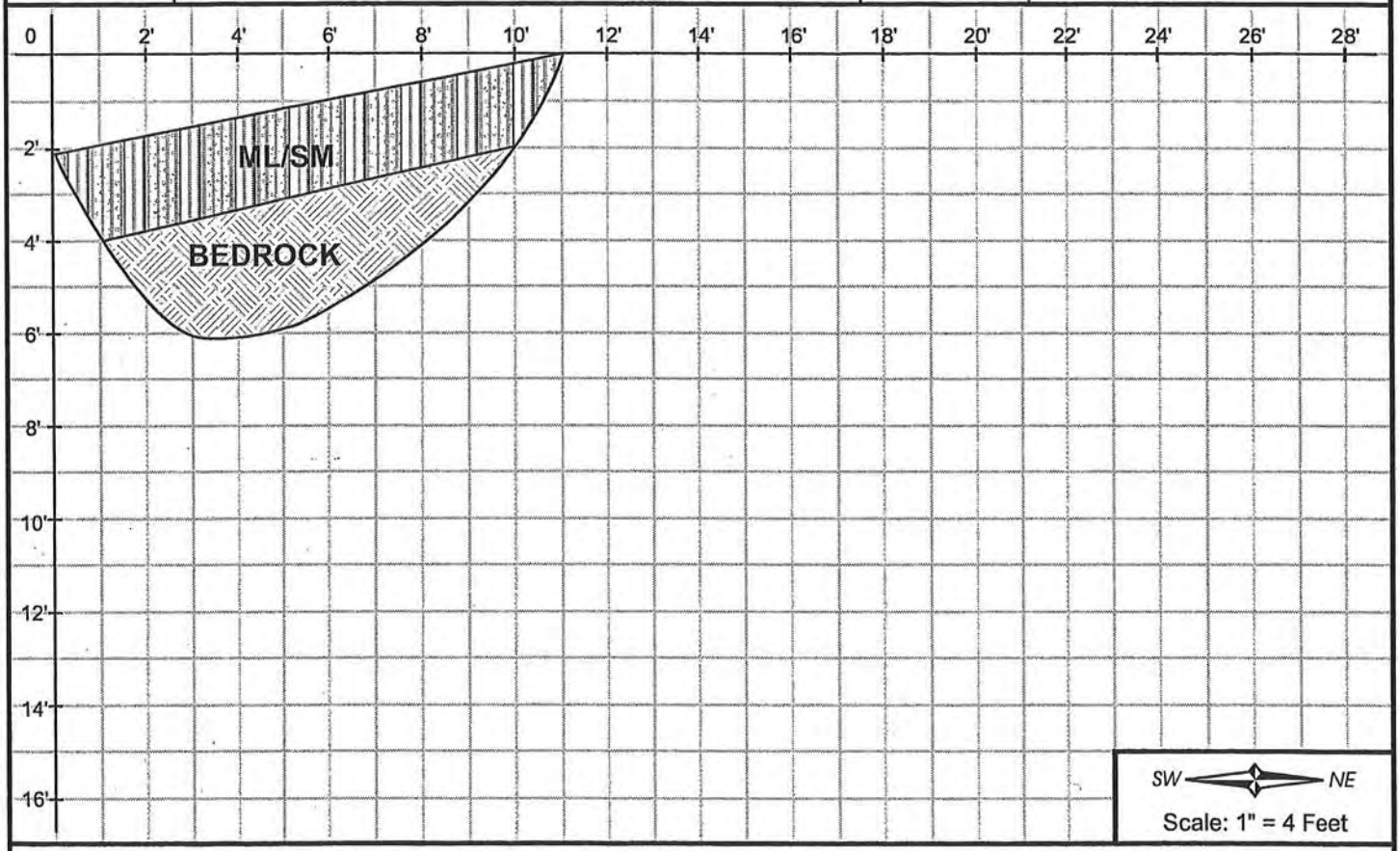
YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-15**

Logged By: **KEM**	Date: **10 March 2005**	Elevation: **2018'**	Pit No. **TP-14**
Equipment: **John Deere 310 SG With 18" Bucket**		Pit Orientation: **063°**	

Depth (Feet)	Geotechnical Description & Unified Soil Classification	Sample	Tests & Comments
@ *0 - 1'*	Red brown sandy **SILT**/silty **SAND (ML/SM)** with some gravel, soft/loose, moist		
@ *1' - 2'*	*Grades yellow brown with trace clay*		
@ *2' - 3.5'*	Very light yellow brown metasandstone **BEDROCK**, highly weathered, weakly indurated, poorly developed foliation, very thinly spaced, poorly developed fracturing, closely spaced, closed, slightly moist		
@ *3.5' - 4'*	*Grades moderately weathered, indurated*		
	Test pit terminated at 4' (practical refusal) No free groundwater encountered No caving noted		



Note: The test pit log indicates subsurface conditions only at the specific location and time noted. Subsurface conditions, including groundwater levels, at other locations of the subject site may differ significantly from conditions which, in the opinion of Youngdahl Consulting Group, Inc., exist at the sampling locations, Note, too, that the passage of time may affect conditions at the sampling locations.

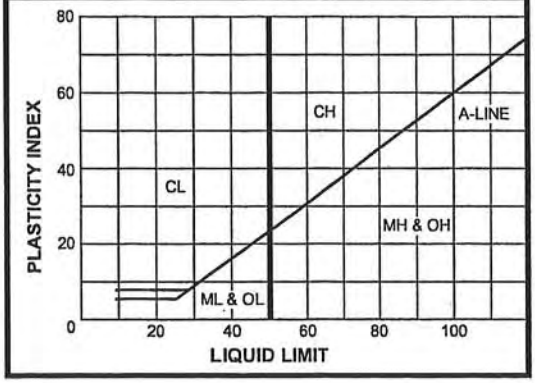
YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: 05099 March 2005	**EXPLORATORY TEST PIT LOG** **Lumsden Ranch** Placerville, California	FIGURE **A-16**

UNIFIED SOIL CLASSIFICATION SYSTEMS

MAJOR DIVISION			SYMBOLS	TYPICAL NAMES
COARSE GRAINED SOILS Over 50% > #200 sieve	GRAVELS Over 50% > #4 sieve	Clean GRAVELS With Little Or No Fines	GW	Well graded **GRAVELS, GRAVEL-SAND** mixtures
			GP	Poorly graded **GRAVELS, GRAVEL-SAND** mixtures
		GRAVELS With Over 12% Fines	GM	Silty **GRAVELS**, poorly graded **GRAVEL-SAND-SILT** mixtures
			GC	Clayey **GRAVELS**, poorly graded **GRAVEL-SAND-CLAY** mixtures
	SANDS Over 50% < #4 sieve	Clean SANDS With Little Or No Fines	SW	Well graded **SANDS**, gravelly **SANDS**
			SP	Poorly graded **SANDS**, gravelly **SANDS**
		SANDS With Over 12% Fines	SM	Silty **SANDS**, poorly graded **SAND-SILT** mixtures
			SC	Clayey **SANDS**, poorly graded **SAND-CLAY** mixtures
FINE GRAINED SOILS Over 50% < #200 sieve	SILTS & CLAYS Liquid Limit < 50		ML	Inorganic **SILTS**, silty or clayey fine **SANDS**, or clayey **SILTS** with plasticity
			CL	Inorganic **CLAYS** of low to medium plasticity, gravelly, sandy, or silty **CLAYS**, lean **CLAYS**
			OL	Organic **CLAYS** and organic silty **CLAYS** of low plasticity
	SILTS & CLAYS Liquid Limit > 50		MH	Inorganic **SILTS**, micaceous or diamacious fine sandy or silty soils, elastic **SILTS**
			CH	Inorganic **CLAYS** of high plasticity, fat **CLAYS**
			OH	Organic **CLAYS** of medium to high plasticity, organic **SILTS**
HIGHLY ORGANIC CLAYS			PT	PEAT & other highly organic soils

PLASTICITY CHART

USED FOR CLASSIFICATION OF FINE GRAINED SOILS



SAMPLE DRIVING RECORD

BLOWS PER FOOT	DESCRIPTION
25	25 Blows drove sampler 12 inches, after initial 6 inches of seating
50/7"	50 Blows drove sampler 7 inches, after initial 6 inches of seating
50/3"	50 Blows drove sampler 3 inches during or after initial 6 inches of seating

Note: To avoid damage to sampling tools, driving is limited to 50 blows per 6 inches during or after seating interval.

SOIL GRAIN SIZE

U.S. STANDARD SIEVE	6"	3"	¾"	4	10	40	200		
	BOULDER	COBBLE	GRAVEL		SAND			SILT	CLAY
			COARSE	FINE	COARSE	MEDIUM	FINE		
SOIL GRAIN SIZE IN MILLIMETERS	150	75	19	4.75	2.0	.425	0.075	0.002	

KEY TO TEST DATA

- Standard Penetration test
- 2.5" O.D. Modified California Sampler
- 3" O.D. Modified California Sampler
- Shelby Tube Sampler
- 2.5" Hand Driven Liner
- Bulk Sample
- Water Level At Time Of Drilling
- Water Level After Time Of Drilling
- P — Perched Water

KEY TO TEST DATA

- Water Seepage
- MD — Moisture Density Test

NFWE	No Free Water Encountered
FWE	Free Water Encountered
REF	Sampling Refusal
DD	Dry Density (pcf)
MC	Moisture Content (%)
LL	Liquid Limit
PI	Plasticity Index
PP	Pocket Penetrometer
UCC	Unconfined Compression (ASTM D2166)
TVS	Pocket Torvane Shear
EI	Expansion Index (ASTM D4829)
Su	Undrained Shear Strength

YOUNGDAHL CONSULTING GROUP, INC.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

Project No.: 05099

March 2005

SOIL CLASSIFICATION CHART & LOG EXPLANATION
Lumsden Ranch
Placerville, California

FIGURE
A-17

APPENDIX B

Laboratory Testing

Direct Shear Test
Modified Proctor Test
R-Value Test

Introduction

Our laboratory testing program for this evaluation included numerous visual classifications, a Direct Shear, a Modified Proctor and a Resistence Value test. The following paragraphs describe our procedures associated with each type of test. Graphical results of certain laboratory tests are enclosed in this appendix. The contents of this appendix shall be integrated with the geotechnical engineering study of which it is a part. They shall not be used in whole or in part as a sole source for information or recommendations regarding the subject site.

Laboratory Testing

Visual Classification Procedures

Visual soil classifications were conducted on all samples in the field and on selected samples in our laboratory. All soils were classified in general accordance with the United Soil Classification System, which includes color, relative moisture content, primary soil type (based on grain size), and any accessory soil types. The resulting soil classifications are presented on the exploration logs in Appendix A.

Soil Strength Determination Procedures

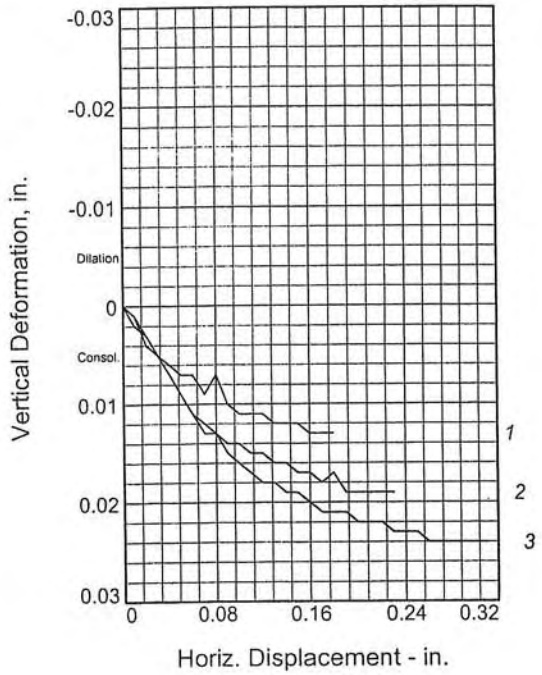
The strength parameters of the foundation soils were based on direct shear tests (ASTM D3080-90) performed on a representative remolded sample of the near-surface soils. The results of these tests are presented on Figure B-1, this Appendix.

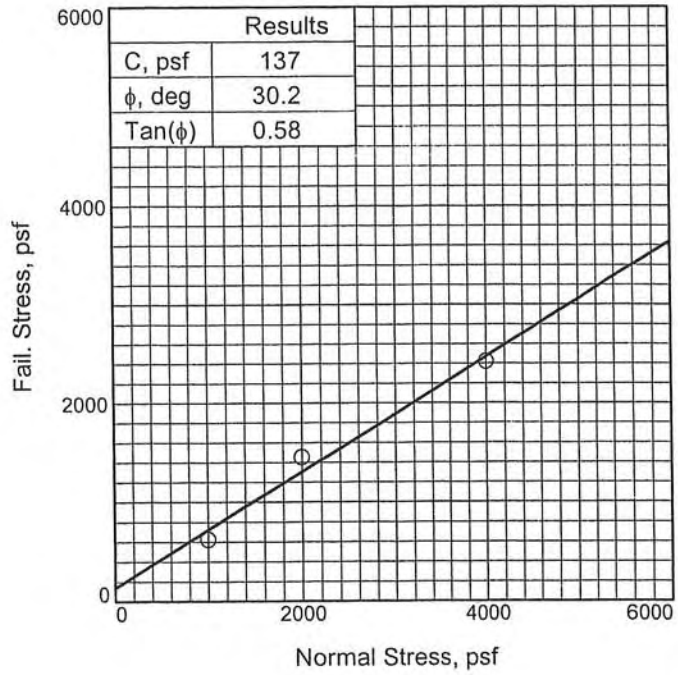
Maximum Dry Density Determination Procedures

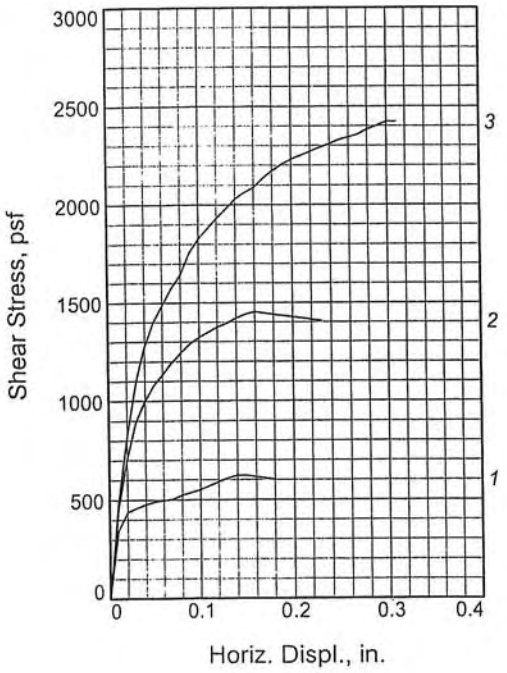
A modified Proctor Test (ASTM D1557-91A) was conducted to provide the optimum moisture and maximum dry density on the near surface material. The results of this test are presented on Figure B-2, this Appendix.

Resistance Value Determination Procedures

An R-Value test (California Test Method 301 - F) was performed to obtain preliminary asphalt concrete pavement design parameters. The results of this test are presented on Figure B-3, this Appendix.







Sample No.		1	2	3
Initial	Water Content, %	20.2	20.2	20.2
	Dry Density, pcf	90.8	90.8	90.8
	Saturation, %	73.0	73.0	73.0
	Void Ratio	0.6767	0.6767	0.6767
	Diameter, in.	2.500	2.500	2.500
	Height, in.	1.000	1.000	1.000
At Test	Water Content, %	26.8	26.0	25.0
	Dry Density, pcf	92.1	93.2	94.6
	Saturation, %	100.0	100.0	100.0
	Void Ratio	0.6532	0.6348	0.6096
	Diameter, in.	2.500	2.500	2.500
	Height, in.	0.986	0.975	0.960
Normal Stress, psf		1000	2000	4000
Fail. Stress, psf		621	1452	2420
Displacement, in.		0.140	0.160	0.300
Ult. Stress, psf				
Displacement, in.				
Strain rate, in./min.		0.003	0.003	0.003

Sample Type: REMOLDED

Description: Dark Brown Silty SAND/Sandy SILT w/ trace clay & little gravel

LL= **PL=** **PI=**

Assumed Specific Gravity= 2.44

Remarks:

Figure Number B-1

Client:

Project: LUMSDEN RANCH GES

Source of Sample: NATIVE MATERIAL

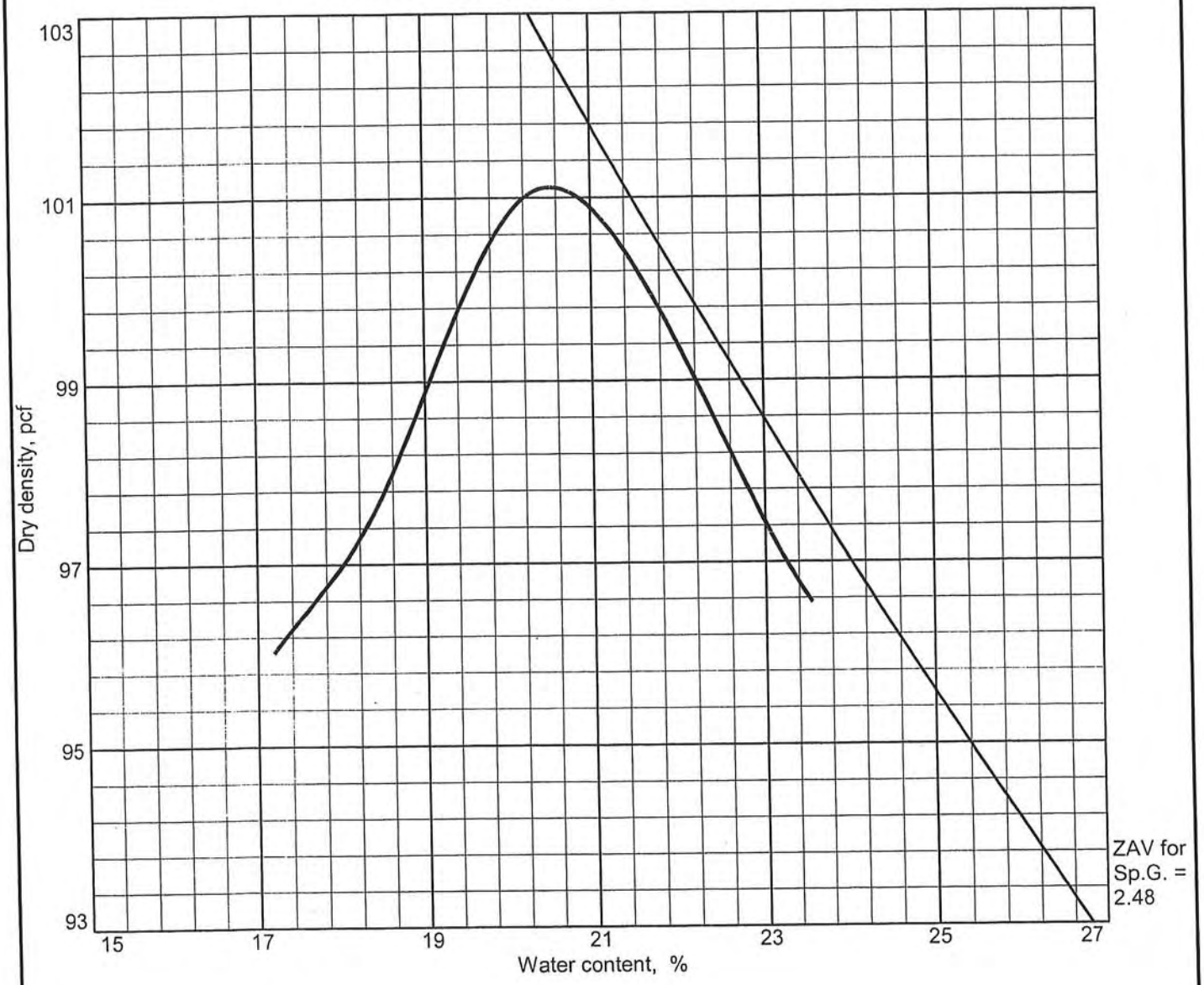
Sample Number: BK 1, 3/14/05

Proj. No.: E05099 **Date:** 3/14/05

DIRECT SHEAR TEST REPORT

YOUNGDAHL CONSULTING GROUP, INC.

COMPACTION TEST REPORT



Test specification: ASTM D 1557-91 Procedure A Modified

Elev/ Depth	Classification		Nat. Moist.	Sp.G.	LL	PI	% > No.4	% < No.200
	USCS	AASHTO						
	SM			2.44				63

TEST RESULTS	MATERIAL DESCRIPTION
Maximum dry density = 101 pcf Optimum moisture = 20.5 %	Dark Brown Silty SAND/Sandy SILT w/ trace clay & little gravel

Project No. E05099 **Client:**
Project: LUMSDEN RANCH GES

● **Source:** NATIVE MATERIAL **Sample No.:** BK 1, 3/14/05

Remarks:

COMPACTION TEST REPORT

YOUNGDAHL CONSULTING GROUP, INC.

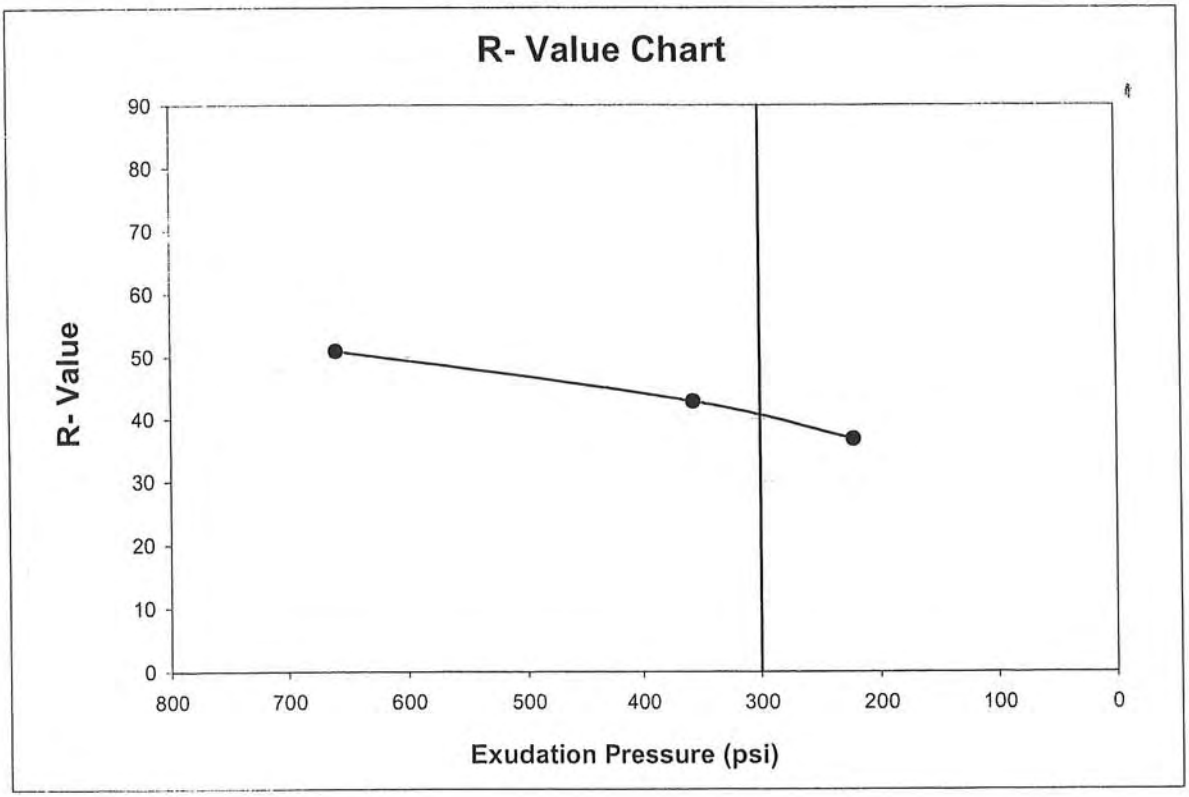
Figure Number B-2

RESISTANCE VALUE TEST (Cal Test 301, ASTM D2844)

Sample I.D.: Bulk 1 Depth:

Description: Dark Brown Silty SAND/Sandy SILT w/ trace clay & little gravel

Test Specimen	P	a	I
Moisture Content (%)	22.3	21.2	18.9
Dry Density (pcf)	99.3	101.4	104.0
Expansion Dial (0.0001")	0	2	34
Expansion Pressure (psf)	0.0	8.7	147.2
Exudation Pressure (psi)	221.9	356.0	660.0
Resistance Value "R"	37	43	51
R Value at 300 psi Exudation Pressure:			**40**

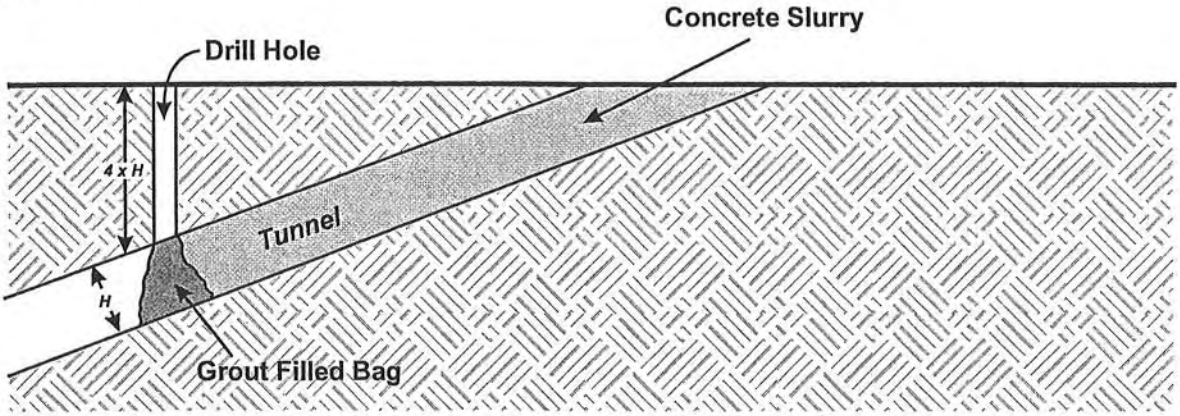


YOUNG-DAHL CONSULTING GROUP, INC.
GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING

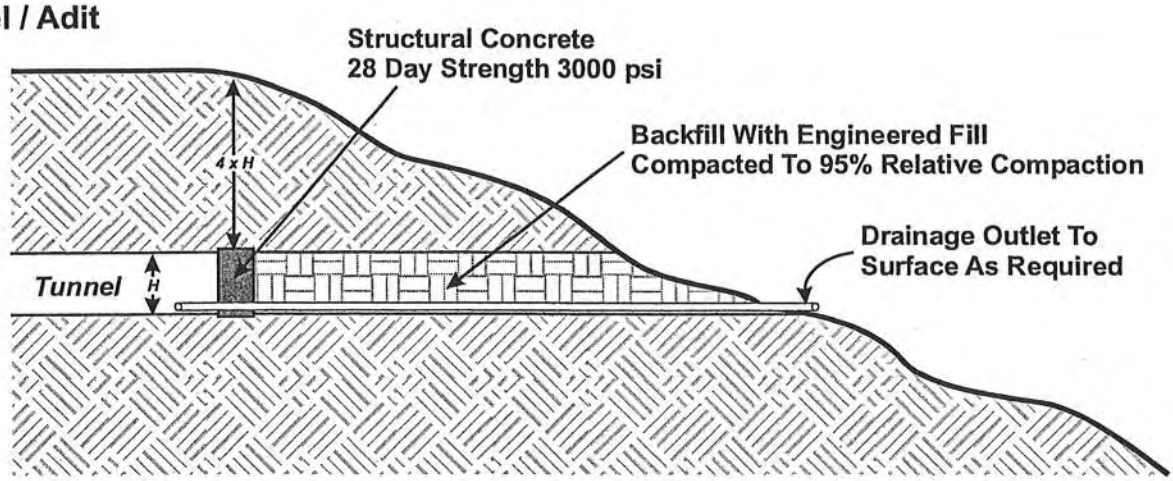
LUMSDEN RANCH GES
Placerville

PROJECT NO	DATE	FIGURE NO
05099	**March 2005**	**B-3**

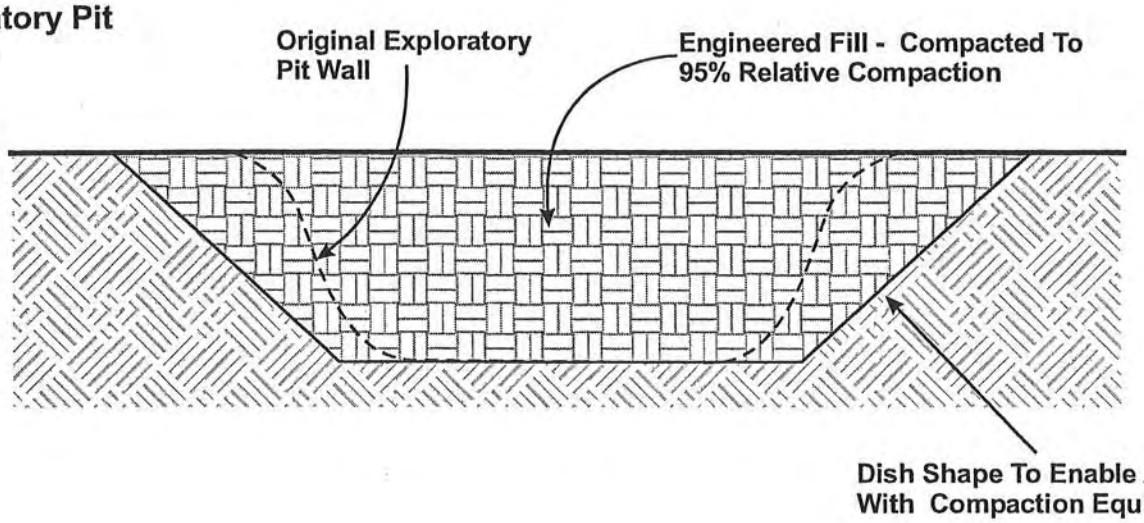
Sloping Tunnel



Tunnel / Adit



Exploratory Pit



YOUNGDAHL CONSULTING GROUP, INC. GEOTECHNICAL • ENVIRONMENTAL • MATERIALS TESTING	Project No.: E05099 March 2005	**MINING FEATURE CLOSURE** Lumsden Ranch Placerville, California	FIGURE C

REFERENCES

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APPENDIX E:
BIOLOGICAL RESOURCES ASSESSMENT

BIOLOGICAL RESOURCES ASSESSMENT
FOR
LUMSDEN RANCH

Prepared for:

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October 31, 2007

SWCA Project Number:
12467-180

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1. INTRODUCTION

1.1 PURPOSE OF ASSESSMENT

SWCA Environmental Consultants was retained by the City of Placerville to conduct a biological resources assessment in support of the preparation of an Environmental Impact Report in compliance with the California Environmental Quality Act (CEQA).

1.2 PROJECT LOCATION AND DESCRIPTION

The 133-acre Lumsden Ranch residential development (study area) is located in the easternmost portion of Placerville, El Dorado County, California (Figure 1). It is located at 38°, 43', 34.7" N, 120°, 46', 21.4" W. It is within the Mt. Diablo Meridian Township 10N, Range11E, and Section 9 in the Placerville 7.5 Minute USGS Quadrangle. The study area is located south of Broadway and north of Barrett Drive, at the southern end of Wiltse Road. It is on the northwest slopes of Texas Hill, and includes canyons and hillsides that drain to an unnamed tributary of Hangtown Creek. Elevations within the study area range from 610 to 732 meters (2,000 to 2,400 feet) in elevation and have slopes ranging from 0% to 40% over the entire study area. A diversity of soil types occur within the study area, but none formed from serpentine or gabbro parent materials, each of which host a unique suite of special status plant species.

The proposed Lumsden Ranch project includes a phased planned development subdivision of approximately 133 acres into 366 single-family parcels with lot sizes ranging from approximately 3,700 to 15,000 square feet. Mass pad grading for vehicular accesses, house pads, drainage, utilities, and other site amenities is proposed. Five existing residences and outbuildings within the study area would be removed. The primary road through the development (Canyon View Drive) would connect to Barrett Drive at the southwest corner of the development and to Broadway northeast of the development. The northeast section of Canyon View Drive would be constructed through an adjacent parcel. Underground water and electrical lines and other dry utilities would be constructed within Canyon View Drive or its adjacent right-of-way. A new section of 10-inch diameter gravity sewer line would be installed within Wiltse Road. The project may also include bypassing or removing the existing rear lot line sewer line behind the homes along the north side of Barrett Drive by connecting them to the sewer line proposed for Canyon View Drive. The project would include a drainage system designed to channel project runoff to onsite to two on-site detention basins. No changes to the pond at Lumsden Park are proposed.

1.3 ENVIRONMENTAL SETTING

1.3.1 Regional Setting

The study area is located within the northern Sierra Nevada foothills region of California, which is found in Amador, Butte, Calaveras, El Dorado, Nevada, Placer, Sacramento, and Yuba counties. This region lies between the great central valley and the high Sierra Nevada and lies within a climate zone typically characterized by hot summers and moderately cold winters (Hickman 1993). The study area is located in a transitional area of the Sierra Nevada foothills where canyons formed by several rivers including the American River and Weber Creek create fingers of lower elevation habitats such as oak woodland bordered by higher elevation pine forests. The mosaic of habitats represented within this region is largely dependent on topography and slope direction. The west boundary of the Eldorado National Forest is approximately 4.5 miles northeast and 8 miles east of the study area. There is considerable suburban and rural residential development in Placerville that extends to the boundaries of the study area. Rural

residential development and forested areas are located to the northeast between the study area and the Eldorado National Forest.

1.3.2 Local Setting

The study area is located on the northwest slope of Texas Hill. The entire study area is located within the Hangtown Creek watershed. It surrounds Lumsden Park on the northern border. The park has landscaped grounds and a small reservoir that provides recreational fishing. Existing single-family residential uses are located to the south, west, and northwest of the study area. The Placerville general aviation airport is located approximately 1,200 feet southeast of the study area.

1.4 REGULATORY SETTING

1.5 FEDERAL REGULATIONS

The **Endangered Species Act** (ESA) (16 United States Code [USC] 1531 et seq.) protects Threatened and Endangered plants and animals and their critical habitat. Procedures for addressing impacts to federally listed species follow two principal pathways; both require consultation with the U.S. Fish and Wildlife Service (USFWS), which administers ESA for all terrestrial species. The first pathway, Section 10(a) incidental take permit, applies when a private landowner's actions result in take of a listed species, but do not require a federal permit or approval. The second pathway, Section 7 consultation, applies to projects directly undertaken by a federal agency or private projects requiring a federal permit or approval, when these projects may adversely affect a listed species or modify critical habitat.

The **Migratory Bird Treaty Act** (16 USC 703 et seq.) implements international treaties between the United States and other nations devised to protect migratory birds, their parts, eggs, and nests from activities such as hunting, pursuing, capturing, killing, selling, and shipping, unless expressly authorized in regulations or by permit. The State of California has incorporated protection of birds of prey in Sections 3800, 3513, and 3503.5 of the Fish and Game Code (FGC).

All raptors and their nests are protected from take or disturbance under the Migratory Bird Treaty Act and California statute (FGC Sec. 3503.5). Golden eagles are afforded additional protection under the Eagle Protection Act, amended in 1973 (16 USC 669 et seq.).

Section 404 of the **Clean Water Act** (33 USC 1344 et seq.) prohibits discharge of dredged or fill material into "waters of the United States" without a permit from the U.S. Army Corps of Engineers (USACE). The USACE and the U.S. Environmental Protection Agency administer the Act. In addition to traditional navigable waters, the definition of waters of the U.S. includes wetland areas in or adjacent to jurisdictional waters "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" (33 CFR 328.3 7b).

Projects with impacts to waters of the U.S. may require an individual permit. Small-scale projects with minimal impacts may be authorized by nationwide permits, which have an expedited process compared to the individual permit process. Mitigation of wetland impacts is required as a condition of the Section 404 permit and may include preservation, restoration, or enhancement within the study area and/or off-site restoration or enhancement. The characteristics of restored or enhanced wetlands must be equal to or better than those characteristics of affected wetlands to achieve no net loss of wetlands values.

1.6 STATE REGULATIONS

The **California Endangered Species Act** (CESA) (FGC 2050 et seq.) provides protection to California's Endangered and Threatened species. Section 2080 of the FGC prohibits taking of plants and animals listed under CESA. Section 2081 established an incidental take permit program for state-listed species. In addition, the Native Plant Protection Act of 1977 (FGC 1900 et seq.) gives the California Department of Fish and Game (CDFG) authority to designate State Endangered, Threatened, and Rare plants and provides specific protection measures for designated populations.

The CDFG has also identified many "Species of Special Concern." Species with this status have limited distribution or the extent of their habitats has been reduced substantially, such that their populations may be threatened. While they do not have statutory protection, impacts to these species are typically considered in the California Environmental Quality Act (CEQA) review process, requiring mitigation when appropriate.

Fish and Game Code Sections 1601 to 1606 require that a Notification of Lake or Streambed Alteration be submitted to CDFG for "any activity that may substantially divert or obstruct the natural flow or substantially change the bed, channel, or bank of any river, stream, or lake." The CDFG reviews proposed actions and, if necessary, submits to the applicant a proposal for measures to protect affected fish and wildlife resources. The final proposal that is mutually agreed upon by the CDFG and the applicant is the Lake or Streambed Alteration Agreement. Projects that require a Lake or Streambed Alteration Agreement may also require a permit from the USACE under Section 404 of the Clean Water Act.

Fish and Game Code Section 1900 et seq., or Native Plant Protection Act, lists Threatened, Endangered, and Rare plants as designated by the California Fish and Game Commission.

Fish and Game Code Sections 3500 to 5500 outline protection for fully protected species of mammals, birds, reptiles, amphibians, and fish. Species that are fully protected by these sections may not be taken or possessed at any time. The CDFG cannot issue Sec. 2081 permits that would authorize incidental take of a fully protected species. FGC requirements pertinent to the Project for fully protected species include:

- Section 3503 (which prohibits taking, possession, or needless destruction of the nest or eggs of any bird);
- Section 3503.5 (which prohibits taking, possession, or destruction of any bird in the order Falconiformes or Strigiformes (birds of prey) or taking, possession, or destruction of the nest or eggs of any such bird); and
- Section 3513 (which prohibits taking or possession of any migratory non-game bird as designated in the Migratory Bird Treaty Act).

1.7 LOCAL REGULATIONS

The City of **Placerville General Plan Policy Document** (City of Placerville 2004) includes policies to protect riparian vegetation by setting buildings and improvements back from watercourses; discouraging vegetation clearance that would unnecessarily disturb riparian vegetation; and siting new developments in a manner that protects native trees, riparian vegetation, and other important natural resources.

The **Placerville City Code** includes a Woodland and Forest Conservation ordinance intended to preserve and enhance urban forest lands within the City. The ordinance regulates tree removal by establishing minimum canopy retention standards for residential subdividable parcels that must be used as thresholds

of significance under CEQA. The ordinance requires issuance of a Woodland Alteration Permit before removing or significantly altering any forest or woodland.

2. METHODS

2.1 LITERATURE AND DATABASE SEARCH

SWCA biologists reviewed existing sources of information regarding the occurrence of special-status species, and assessed the potential for occurrence of these species within the study area. Special-status species are plants and animals in one or more of the following categories:

- Species listed or proposed for listing as Threatened or Endangered under FESA (50 CFR 17.12 [listed plants], 50 CFR 17.11 [listed animals], and various notices in the Federal Register [FR] [proposed species]).
- Species that are candidates for possible future listing as Threatened or Endangered under FESA (67 FR 40657, June 13, 2002).
- Species listed or proposed for listing by the State of California as Threatened or Endangered under CESA (14 California Code of Regulations 670.5).
- Species that meet the definitions of Rare or Endangered under CEQA (State CEQA Guidelines Section 15380).
- Plants listed as Rare under the California Native Plant Protection Act (California Fish and Game Code Section 1900 et seq.).
- Plants considered by the CNPS to be "Rare, Threatened, or Endangered in California" (Lists 1B and 2 in California Native Plant Society 2001).
- Plants listed by CNPS as plants about which more information is needed to determine their status and plants of limited distribution (Lists 3 and 4 in California Native Plant Society 2001), which may be included as special status species on the basis of local significance or recent biological information.
- Animal species of special concern as listed by CDFG (2006).
- Animals fully protected in California (California Fish and Game Code Sections 3511 [birds], 4700 [mammals], 5050 [amphibians and reptiles], and 5515 [fish]).

The following sources of information were consulted prior to conducting the field survey:

- California Natural Diversity Database (CNDDB) (2007) for the Placerville U.S. Geological Survey 7.5-minute quadrangle (USGS Quad) and the eight surrounding quadrangles in the project vicinity including: Coloma, Garden Valley, Slate Mountain, Shingle Springs, Camino, Latrobe, Fiddletown, and Aukum.
- California Native Plant Society's (CNPS) 2007 online Inventory of Rare and Endangered Plants of California for the Placerville U.S. Geological Survey 7.5-minute quadrangle (USGS Quad) and the eight surrounding quadrangles in the project vicinity including: Coloma, Garden Valley, Slate Mountain, Shingle Springs, Camino, Latrobe, Fiddletown, and Aukum..
- U.S. Fish and Wildlife Service, Sacramento Fish & Wildlife Office Endangered and Threatened Species List (El Dorado County).
- North Fork Associates. Biological Resources Assessment for the ±128-acre Lumsden Ranch Project. (North Fork Associates 2003).

- North Fork Associates. Wetland Delineation for the ±128-acre Lumsden Ranch Subdivision. (North Fork Associates 2003).
- Wildlife Research Associates (WRA). California Red-legged Frog Site Assessment Lumsden Ranch Project, Placerville, California. (WRA 2004a) and Bat Habitat Assessment Lumsden Ranch Project, Placerville, California (WRA 2004b).
- Records from El Dorado County and Placerville from the University of California Museum of Vertebrate Zoology (MVZ).

2.2 FIELD SURVEYS

Field visits were conducted on April 18 and 19, 2007. SWCA biologists Thomas Ryan and Taya Cummins surveyed the northeastern third of the study area between 07:30 and 11:15 am on April 18 and the remaining lands on April 19 between 07:00 and 10:45 am. Conditions were similar on both mornings with surveys taking place under cool overcast-partly cloudy conditions temperatures ranged from 37-50°F with calm winds that ranged from 0-1 mph. Because of cool, cloudy conditions, bird activity remained high throughout the day, though reptiles and amphibians were likely less active.

The study area was surveyed by walking the site. This survey also included visually scanning areas within 150 feet (45.7 meters) of the study area in order to assess the potential for sensitive habitats or special-status plants and animals to occur within the study area. In addition, potential adjacent mitigation areas, including the detention basin, were identified adjacent to the study area. Photographs were taken to document biological resources and field conditions (Appendix A). In addition to conducting general surveys for plants and wildlife, Ms. Cummins focused her efforts on conducting a botanical survey and vegetation mapping. Mr. Ryan also focused his efforts on evaluating habitat for the California red-legged frog and bats from previously unsurveyed portions of the study area.

2.2.1 Botanical Survey and Vegetation Mapping

The botanical survey was floristic in nature whereby all species were identified to species and subspecies or variety where appropriate. Species that could not be identified in the field were collected and further examined for positive identification in a laboratory setting. Plant nomenclature followed *The Jepson Manual of Higher Plants of California* (Hickman 1993). Special attention was given to those habitats where special status plant species listed in the CNDDB and CNPS search results were likely to occur, particularly looking for indications of gabbro soil formations and associated plant communities. For all special-status plant species, visual counts and GPS locations of the population were recorded while walking the study area. Ornamental shrubs associated with these areas were not identified taxonomically. Detailed photographs were taken to provide a visual reference for study area features and subjects of unique botanical interest (Appendix A). A list of all species observed and expected to occur onsite is provided in Appendix B.

Vegetation mapping was conducted while walking throughout the study area and stressed high elevation vista points, potential sensitive species habitat, boundaries of rapid vegetation change, riparian habitat, and roadways. Boundaries between vegetation communities were recorded in field notes and on aerial photographs. Natural vegetation communities were described using the California List of Terrestrial Natural Communities (CWHR; Mayer and Laudenslayer 1988). When possible, Holland (1986) and Sawyer and Keeler-Wolf (1995) equivalents were assigned. Communities were defined based on major associations of dominant species. Dominant species are those that attain 50 percent cover or more or, for two or more species to be considered co-dominant, individual species must attain a minimum of 30

percent cover. Percent cover was visually estimated based on the proportion of ground, expressed as a percentage, which was covered by the canopy of individual species.

2.2.2 Waters of the U.S. Delineation

North Fork Associates (2003) conducted a formal delineation of wetlands and other waters within 128 acres of the study area (excluding the five-acre parcel located to the northeast of Lumsden Park). The delineation was verified by the Sacramento District of the USACE (San Joaquin Valley Office) on October 27, 2005. Methodologies and results of this wetland delineation are presented in Appendix C. Additionally, SWCA biologists delineated potential waters of the U.S. within the five-acre parcel and along the proposed alignment of Canyon View Drive. The preliminary delineation has not been submitted to the USACE, thus the results are pending formal verification. The results of these delineations are incorporated into this report.

2.2.3 General Wildlife Survey

Wildlife species were recorded during the survey of the study area and were detected by sight and sound. Visual identification was aided by 10.5 x 43 binoculars. Wildlife habitats were also assessed within the study area. Special attention was given to the potential for nesting bird species, including raptors, that could nest in trees within and adjacent to the study area. All species were identified to the lowest possible taxonomic level. No nocturnal or protocol surveys were conducted. A list of all species observed and expected to occur is provided in Appendix B.

2.2.4 Red-legged Frog Assessments

A California red-legged frog site assessment was conducted according to USFWS protocols by Wildlife Research Associates (WRA) on April 1, 2004. WRA biologist Trish Tatarian walked the study area, analyzed aerial photography, and evaluated the potential for connectivity of suitable habitats within 5 miles (WRA 2004a, Appendix D). The 2004 assessment was not submitted to the USFWS for concurrence. SWCA biologists Thomas Ryan inspected the proposed crossing of Canyon View Drive over the unnamed tributary of Hangtown Creek on April 18, 2007 and the ephemeral drainage upstream of Lumsden Park on April 18 and 19, 2007, which were not included in previous site assessments. Mr. Ryan walked both areas, inspecting them for suitable habitat, tadpoles, and frogs.

2.2.5 Bat Assessments

A bat habitat assessment was conducted by WRA on April 1, 2004. The focus of their assessment was two former mines that occur in the study area. No focused surveys of potential tree roosts or other structures were conducted, although an overall assessment of the potential of the study area was made (WRA 2004b Appendix E). In April 2007, Mr. Ryan also evaluated the general habitat for bat roosts, but did not conduct inspections of structures or large trees.

2.3 ASSESSMENT OF WILDLIFE CORRIDORS

Many areas serve as habitat for several species of wildlife and as such provide shelter, food, water and other resources for wildlife. However, the concept of corridors for wildlife movement is often misunderstood. Wildlife species make use of travel routes within a given patch of habitat to find food, water, mates, and shelter or den sites. A wildlife corridor, also called a habitat linkage or landscape

linkage, is a large patch of habitat connecting two or more larger areas of habitat that would otherwise be isolated from one another. They are typically bordered on two sides by urban areas or other types of human development. A functioning wildlife corridor allows for ease of movement between habitat patches. Canyon bottoms with a well-developed tree canopy often serve as wildlife corridors and offer food, shelter, and water, as well as ease of movement, depending upon the density of the understory. Corridors function to prevent habitat fragmentation that would result in the loss of species that require large contiguous expanses of unbroken habitat and/or that occur in low densities. Habitat fragmentation can result in increases in the number of non-native species and may allow inbreeding to occur in species whose populations are small because they have become confined to smaller areas. This, in turn, reduces the rate of reproductive success. Fragmentation also reduces functioning ecosystems to small pockets, decreasing biodiversity and the interactive processes required for healthy ecosystem functioning. Corridors promote gene flow, allow re-colonization of areas following catastrophic events such as fire, prevent the loss of large animals by linking suitable habitat areas, and help to ensure the survival of native species that cannot compete with more aggressive non-native species in fragmented habitats. Each of these elements was evaluated by SWCA biologists during the general biological surveys in April 2007.

2.4 ASSESSMENT OF SPECIAL STATUS SPECIES POTENTIAL

Federal and State Endangered species legislation provides special status to several plant and animal species that occur near the study area. In addition, other resource agencies and professional organizations, whose lists are recognized by agencies when reviewing CEQA documents, have identified other species that are known to occur in the vicinity as sensitive species. These species are collectively referred to as "special status species" and include: plants and animals listed, proposed for listing, or candidates for listing as Threatened, or Endangered under the FESA or CESA, animals listed as "fully protected" under the California Fish and Game Code, animals designated as "Species of Special Concern" by CDFG, plants listed as Rare or Endangered in the Inventory of Rare and Endangered Vascular Plants of California (CNPS 2007; accessed April 11, 2007).

Definitions of species potential for occurrence on the study area are as follows:

Present: Species is known to occur within the study area, based on CNDDB records, and/or was observed during the field survey(s).

May occur: Species is known to occur in or near the study area (based on CNDDB or other records within 5 miles and/or based on professional expertise specific to the study area or species), and there is suitable habitat onsite.

Not likely to occur: Species is known to occur near the study area; however, there is poor quality or marginal habitat in the study area. Alternatively, there is suitable habitat in the study area; however, there are no records or only historic records within a 5-mile radius, and the species was not observed during surveys. If the species occurs at the study area, it would likely be as a migrant, and the species is not likely to reproduce at the study area due to a lack of suitable habitat or because the study area is outside of their known breeding range.

Absent: Species is not known to occur in or near the study area, and there is no suitable habitat for the species in the study area. -OR- Species was surveyed for during the appropriate season with negative results for species occurrence.

2.5 IMPACT ANALYSIS

In support of the environmental analyses required for CEQA compliance, SWCA assessed potential impacts to biological resources, including special-status species, within the study area. The analysis included identification of potentially significant impacts based on the CEQA thresholds from Appendix G of the CEQA Guidelines. To reduce or avoid potentially significant impacts, SWCA also identified mitigation measures, which are presented in the recommendations section of this report. Thresholds used in analyzing impacts resulting from the proposed project include the following:

- Would the project have a substantial adverse effect, either directly or through habitat modifications, on any species identified as a candidate, sensitive, or special-status species in local or regional plans, policies, or regulations, or by the CDFG or USFWS?
- Would the project have a substantial adverse effect on any riparian habitat or other sensitive natural community identified in local or regional plans, policies, regulations, or by the CDFG or USFWS?
- Would the project have a substantial adverse effect on federally protected wetlands as defined by Section 404 of the Clean Water Act (including, but not limited to, marsh, vernal pool, coastal, etc.) through direct removal, filling, hydrological interruption, or other means?
- Would the project interfere substantially with the movement of any native resident or migratory fish or wildlife species or with established native resident or migratory wildlife corridors, or impede the use of native wildlife nursery sites?
- Would the project conflict with any local policies or ordinances protecting biological resources, such as a tree preservation policy or ordinance?

3. RESULTS

3.1 LITERATURE AND DATABASE SEARCHES

A list of special-status species known to occur within the vicinity of the study area was generated from the CNDDB (2007), the CNPS (2007) online *Inventory of Rare and Endangered Plants of California*, species lists provided by the USFWS for El Dorado County (USFWS 2007) and the El Dorado County General Plan Environmental Impact Report (El Dorado County 2004). A total of fifteen special-status plant species, twenty-nine special status wildlife species, and three sensitive stream habitats were identified within the nine-quad vicinity surrounding the study area (Appendix F). The locations of special-status species and habitats occurring within five miles of the study area are presented in Figure 2.

3.2 BIOTIC HABITATS

Habitats identified within the study area include Montane Hardwood (Black Oak), Black Oak-Foothill Pine (Black Oak-Foothill Pine), Montane Hardwood-Conifer Forest (Ponderosa Pine-Black Oak), Freshwater Emergent Wetland (Seeps and Springs), Man-made Freshwater Pond (Broad-leaved Cattail), Urban, and Riverine (Intermittent/Ephemeral Stream) classifications. Riparian habitat was identified directly adjacent to the study area along the unnamed tributary of Hangtown Creek. Table 1 summarizes total acreage and percentage of the total area occupied by each habitat type within the study area. Following are descriptions of each of the biotic habitats represented within the study area.

Table 1. Biotic Habitats in the study area.

Habitat Type	Acreage	Percent of Total
Montane Hardwood (Black Oak)	46.3	34.9%
Black Oak-Foothill Pine	56.4	42.5%
Montane Hardwood-Conifer Forest (Ponderosa Pine-Black Oak)	27.3	20.6%
Freshwater Emergent Wetland (Seeps and Springs)	0.34	<1.0%
Man-made Freshwater Pond (Broad-leaved Cattail)	0.04	<1.0%
Urban	2.2	1.7%
Riverine (Intermittent/Ephemeral Stream)[1]	0.04 (Intermittent) 0.37 (Ephemeral)	na[1]
Riparian[2]	na	na
TOTAL	132.58	

[1]This habitat type refers to intermittent drainages flowing through Black Oak and Black Oak-Foothill Pine habitats, and is included in the acreages for those habitats.

[2]This habitat type is located adjacent to (but not within) the study area, and is not included in the study area acreages.

3.2.1 Montane Hardwood (Black Oak Forest and Woodland)

There are 46.3 acres of Montane Hardwood (Black Oak Forest and Woodland) (Mayer and Laudenslayer 1988, Sawyer and Keeler-Wolf 1995; Black Oak Series) habitat within the study area (Figure 3). Montane hardwood forest occurs throughout much of the study area with large areas of this forest type occurring in the northern, central, and northeastern areas. This habitat is dominated by black oak (*Quercus kelloggii*). Other trees present within this habitat include blue oak (*Quercus douglasii*) and interior live oak (*Quercus wislezenii*) with scattered foothill pine (*Pinus sabiniana*) and valley oak (*Quercus lobata*) individuals. Chaparral shrubs, including whiteleaf manzanita (*Arctostaphylos viscida*), buck brush (*Ceanothus cuneatus* var. *cuneatus*), deer brush (*Ceanothus integerrimus*), and toyon (*Heteromeles arbutifolia*), are scattered throughout the understory shrub layer. An herbaceous layer was present in openings within the shrub and tree canopy layers.

This habitat provides important nesting sites for raptors and other birds, especially within the trunks and branches of mature trees. Openings within the canopy provide important foraging habitat for raptors, including the Cooper's hawk (*Accipiter cooperii*). Suitable habitat for the California spotted owl (*Strix occidentalis occidentalis*), an ambush predator that stalks prey from mature trees, exists within this habitat. Downed logs and moist soils provide refugia and foraging areas for reptiles, amphibians, and small mammals. Grassy open areas provide foraging habitat for rodents and larger animals that prey on them. Large, mature trees within this habitat have the potential to provide roosting areas for bats. Acorns provide a substantial food source for many granivourous bird species and small mammals. Wildlife species observed within this habitat included the band-tailed pigeon (*Columba fasciata*), acorn woodpecker (*Melanerpes formicivorus*), Hutton's vireo (*Vireo huttoni*), western scrub jay (*Aphelocoma californica*), oak titmouse (*Baeolophus inornatus*), and the ruby-crowned kinglet (*Regulus calendula*).

3.2.2 Black Oak-Foothill Pine

There are 56.4 acres of Black Oak-Foothill Pine (Sawyer and Keeler-Wolf; Foothill Pine Series) habitat within the study area (Figure 3). This vegetation type occurs along the southern boundary and throughout much of the study area. This classification was slightly modified from the CWHR Blue Oak-Foothill pine classification (Mayer and Laudenslayer 1988) to account for the dominance of black oak over blue oak trees. Typically, this habitat is diverse in structure both vertically and horizontally, with a mix of hardwoods, conifers, and shrubs with small patches of nonnative annual grasses in areas where the canopy is open. Within this habitat, black oak and emergent foothill pine are the dominant canopy trees. Other common species include blue oak, interior live oak, and buckeye (*Aesculus californica*). Variations within stand structure include a more open savanna-like structure intergrading into more dense forested areas. Understory chaparral shrubs include whiteleaf manzanita, buck brush, and toyon.

The taller, denser habitat structure provides suitable nesting sites for a large number of bird species. Raptors could potentially use taller pines, while most other protected bird species are likely to nest in cavities, lower branches and within the shrub layer. The California spotted owl may use mature trees for stalking and ambushing their prey. Downed trees and litter provide refugia and foraging habitat for amphibians, reptiles, and small mammals. Grassy open areas provide for foraging habitat for rodents and larger animals that prey on them. They prefer open areas are bound by forested areas that provide cover. Larger trees may provide roosting areas for bats. Wildlife species observed within this habitat type include the wild turkey (*Meleagris gallopavo*), northern flicker (*Colaptes auratus*), western wood pewee (*Contopus sordidulus*), Steller's jay (*Cyanocitta stelleri*), and the white-breasted nuthatch (*Sitta carolinensis*).

3.2.3 Montane Hardwood-Conifer Forest (Ponderosa Pine-Black Oak)

There are 27.3 acres of Montane Hardwood-Conifer Forest (Ponderosa Pine-Black oak) (Mayer and Laudenslayer 1988, Sawyer and Keeler-Wolf; Ponderosa Pine Series) habitat within the study area (Figure 3). This vegetation type occurs along the northeastern boundary of the study area. Within this habitat, ponderosa pine and black oak are the dominant emergent canopy trees. Several other sub-dominant tree species were identified including Douglas fir (*Psuedotsuga menziesii* var. *menziesii*), incense cedar (*Calocedrus decurrens*), mountain dogwood (*Cornus nutallii*), sugar pine (*Pinus lambertiana*), and madrone (*Arbutus menziesii*). This forest type has a sparse understory of chaparral shrubs including whiteleaf manzanita, buck brush, and toyon.

Open spaces within the canopy provide important foraging habitat for raptors, including the Cooper's hawk. The California spotted owl may use mature trees for stalking and ambushing their prey. Emergent canopy trees provide nesting habitat for raptors. Smaller trees and shrubs provide suitable nesting habitat for several other protected nesting bird species. Downed trees and litter provide refugia and foraging habitat for amphibians, reptiles, and small mammals. Larger, mature trees may provide roosting areas for bats. Wildlife species observed within this habitat include montane hardwood species named above and the Cassin's vireo (*Vireo cassinii*), mountain chickadee (*Poecile gambeli*), brown creeper (*Certhia americana*), and the Townsend's warbler (*Dendroica townsendi*).

3.2.4 Freshwater Emergent Wetland (Seeps and Springs)

There are 0.34 acres of Freshwater Emergent Wetland (Seeps and Springs) (Cowardin et al. 1979, Mayer and Laudenslayer 1988) that make up a unique freshwater wetland habitat characterized by erect, rooted herbaceous hydrophytes. Dominant vegetation is generally perennial monocots to 2 m (6.6 ft) tall (Cheatham and Haller 1975, Cowardin et al. 1979). This vegetation series, defined by Holland (1986) as a

freshwater seep, includes several herbaceous species such as rushes (*Juncus* spp.), common spikerush (*Eleocharis macrostachya*), and sedges (*Carex* sp.). Fresh emergent wetland habitat was identified on the southwest-facing slope draining into the large tributary drainage. Freshwater emergent wetlands may be subject to USACE and CDFG jurisdiction, as discussed in Section 3.3.2.

This habitat provides important foraging habitat, breeding substrate, and cover for a variety of birds and aquatic species including insects, amphibians, and reptiles. This habitat provides travel routes along the seepages for many species, including the northwestern pond turtle (*Emys marmorata*). These freshwater emergent wetlands are saturated year-round. Wildlife species observed within this habitat type include the black phoebe (*Sayornis nigricans*) and the red-winged blackbird (*Agelaius phoeniceus*).

3.2.5 Man-made Freshwater Pond (Broad-leaved Cattail)

A small (0.04-acre), man-made freshwater pond (Sawyer and Keeler-Wolf; Cattail Series) detains water from two perennial springs within the montane hardwood habitat (Figure 3). This pond is located along a seep in the eastern portion of the project area and has a gunnite berm with a dirt bottom (North Fork Associates 2003). It holds water year-round and supports emergent freshwater marsh vegetation dominated by broadleaf cattail (Typha latifolia). Included in this habitat are several herbaceous species including duckweed (Lemna sp.) and white watercress (Rorippa nasturtium-aquaticum), all of which are obligate wetland species. The freshwater pond may be subject to USACE and CDFG jurisdiction, as discussed in Section 3.3.2.

This habitat provides important foraging habitat, breeding substrate, and cover for aquatic species including insects, amphibians, and reptiles. It also provides important foraging habitat for bird species, and nesting habitat for species that prefer to nest in cattail such as red-winged blackbird and song sparrow. Wildlife species observed within this habitat type include the bullfrog (*Rana catesbeiana*).

3.2.6 Urban

There are 2.2 acres of developed/disturbed habitat within the study area (Figure 3) that consist mainly of residences, lawn, disturbed areas resulting from fire clearance immediately surrounding structures, and open ruderal areas used by the residents. This habitat was found adjacent to the residences within central portion of the study area and adjacent to Canyon View Drive upslope of the unnamed tributary of Hangtown Creek. Much of the area within this community was cleared of vegetation and was dominated by nonnative grasses and forbs. Urban habitats often support domestic or common wildlife species.

3.2.7 Riverine (Intermittent/Ephemeral Stream)

There are 0.41 acres of Riverine (Intermittent/Ephemeral Stream) habitat (Mayer and Laudenslayer 1988) within the study area (Figure 3). An intermittent stream drains to Hangtown Creek from southeast to northwest through the central portion of the study area, fed by a broken pipe. Because this stream does not hold water year-round, riparian vegetation is not a dominant feature. However, scattered riparian trees and shrubs including Himalayan blackberry (*Rubus discolor*), an invasive species, poison-oak (*Toxicodendron diversilobum*), and scattered willows (*Salix* spp.) and cottonwoods (*Populus fremontii*) occur throughout this habitat. Several ephemeral drainages convey flows from runoff and the intermittent drainage into off-site water features, including the reservoir at Lumsden Park and eventually Hangtown Creek. These drainages also support some riparian vegetation, such as poison oak and Himalayan blackberry, but tend to be dominated by upland vegetation associated with the surrounding forests and woodlands. The drainages may be subject to USACE and CDFG jurisdiction, as discussed in Section 3.3.2.

This habitat provides important foraging habitat, breeding substrate, and cover for aquatic species including insects, amphibians, and reptiles. This habitat provides water, cover, and travel routes for many of these species, including the northwestern pond turtle (*Emys marmorata*). It also provides important foraging habitat for bird species. Several bird species are considered riparian specialists including the yellow warbler (*Dendroica petechia*). Wildlife species observed within this habitat type include the Pacific-slope flycatcher (*Empidonax difficilis*), orange-crowned warbler (*Vermivora celata*), and the McGillivray's warbler (*Oporornis tolmiei*).

3.2.8 Riparian Habitat

The unnamed tributary to Hangtown Creek passes through the study area within a culvert beneath an existing road where Canyon View Drive would intersect with Broadway. Directly north of the study area the drainage flows out of the culvert into a stream channel. This stream flows perennially and supports riparian vegetation along the upper banks of the stream channel. Himalayan blackberry is the dominant species. Other species present include poison-oak, willows, and cottonwoods. This habitat is located directly adjacent to the study area, but is not located within the study area.

3.3 SPECIAL STATUS BIOLOGICAL RESOURCES

3.3.1 Sensitive Habitats

Sensitive habitats tracked by CNDDB and known to occur within the vicinity of the study area (CNDDB 2007), including Central Valley Drainage Hardhead/Squawfish Stream, Central Valley Drainage Resident Rainbow Trout Stream, and Sacramento-San Joaquin Foothill/Valley Ephemeral Stream. None of these habitats were identified during the field survey, thus they do not occur within the study area. Wetlands and other waters of the U.S. and riparian habitat subject to CDFG jurisdiction occur within or directly adjacent to the study area and are discussed below.

3.3.2 Waters of the U.S and CDFG Jurisdictional Habitat.

North Fork Associates (2003) delineated 0.75 acres of total waters of the U.S. within 128 acres of the study area (verified by the USACE). The water features include wetlands as well as ephemeral and intermittent streams. Jurisdictional wetlands include 0.29 acres of seep/springs and 0.05 acres of seasonal wetlands. The other waters of the U.S. include a 0.04-acre pond, 0.04 acres of intermittent stream, and 0.33 acres of ephemeral stream. SWCA's preliminary delineation (SWCA 2007) identified another 0.04 acres of potentially jurisdictional ephemeral streams in the remainder of the study area.

The riparian habitat along the unnamed tributary to Hangtown Creek is subject to CDFG jurisdiction. This habitat is located directly adjacent to the study area, but is not within the study area. Its acreage, therefore, has not been quantified.

3.3.3 Wildlife Corridors

SWCA biologists observed several features at the study area that allow for movement of wildlife within the study area. These include the forested areas that provide cover for wildlife movement and the seeps, drainages and creeks that allow aquatic wildlife to disperse to other areas at the study area. However, biologists also noted that the ephemeral drainages within the central portion of the study area drain to either Lumsden Reservoir or into a culverted channel along Wiltse Road. The unnamed tributary of Hangtown Creek runs northwest along Broadway. Some sections of this drainage flow in an open channel

supporting riparian habitat; whereas other sections are culverted for substantial distances. None of these waterways provides connectivity between areas of intact habitat. Additionally, the study area is surrounded on three sides by residential homes and development, further isolating the study area from areas of intact habitat to the south and east. The study area does not serve as a wildlife corridor because it does not connect two or more larger areas of habitat that would otherwise be isolated from one another.

3.3.4 Special Status Species

Appendix F provides a list of all fifteen special-status plant and twenty-nine wildlife species identified by the literature and database searches with known occurrences near the study area (Placerville and eight surrounding USGS topographic quadrangles). It also provides a description of typical habitat requirements, legal status, and an evaluation of the potential of occurrence at the study area. Below, we provide expanded descriptions for those species that were present or that may occur at the study area.

Special Status Plants

Reconnaissance-level field surveys were conducted as described in Section 2.2 for habitats capable of supporting special status plant species on the study area.

Of the fifteen species identified in the records search, nine were considered absent or not likely to occur within the study area because they are known to occur on gabbro soils, serpentine soils, or in the Ione formation soils. These unique soils are not present within the study area. These species include:

- Jepson's onion (*Allium jepsonii*)
- Stebbins's morning glory (*Calystegia stebbinsii*)
- Pine Hill ceanothus (*Ceanothus roderickii*)
- Red Hills soaproot (*Chlorogalum grandiflorum*)
- Pine Hill flannelbush (*Fremontodendron decumbens*)
- El Dorado bedstraw (*Galium californicum* ssp. *sierrae*)
- Bisbee Peak rush-rose (*Helianthemum suffrutescens*)
- Layne's ragwort (*Senecio [Packera] layneae*)
- El Dorado County mule ears (*Wyethia reticulata*)

Based on the analysis provided in Appendix F, five species may occur in the study area. Brief species accounts for the following species are provided below:

Nissenan manzanita (*Arctostaphylos nissenana*), a shrub in the Ericaceae family, is designated as a CNPS List 1B.2 species. It blooms from February through March and occurs in closed-cone coniferous forests and chaparral. It grows in metamorphic soils at elevations between 450 and 1,100 meters (1,476 and 3,610 feet) in El Dorado and Tuolumne Counties. Nissenan manzanita is known to occur within one mile of the study area. This species may occur within the study area along with the understory chaparral species.

Pleasant Valley mariposa lily (*Calochortus clavatus* var. *avius*) is designated as a CNPS list 1B.2 species. This geophytic (bulb) perennial herb blooms from May to July and is known to occur in lower montane coniferous forests on Josephine silt loam soils between 305 and 1800 meters (1,000 and 5,905 feet) in elevation in Amador, Mariposa, and El Dorado Counties. This species may occur within the study area because suitable habitat and soil conditions exist. No known occurrences have been identified within

5 miles of the study area. In addition, no Pleasant Valley mariposa lily plants were observed during the field surveys which were conducted prior to its blooming period.

Brandegee's clarkia (*Clarkia biloba* ssp. *brandegeeae*) is designated as a CNPS list 1B.2 species. This annual herb blooms from May to July and is known to occur in chaparral and cismontane woodlands between 295 and 885 meters (968 and 2,904 feet) in elevation in Butte, El Dorado, Nevada, Placer, and Yuba Counties. This species blooms from May through July. One known occurrence has been identified within 5 miles of the study area and marginal habitat exists on study area. No Brandegee's clarkia plants were observed during the field surveys that were conducted prior to its blooming period.

Parry's horkelia (*Horkelia parryi*) is designated as a CNPS list 1B.2 species. This perennial herb blooms from Aril to June and is known to occur in chaparral and cismontane woodlands, especially in the Ione formation between 80 and 1035 meters (263 and 3,395 feet) in elevation in Amador, Calaveras, El Dorado, and Mariposa Counties. Parry's Horkelia blooms between April and June. This species has been identified within 5 miles of the study area and it may occur within the study area because suitable habitat exists. This species was not observed during the field surveys.

Oval-leaved viburnum (*Viburnum ellipticum*) is designated as a CNPS list 2.3 species. This deciduous shrub blooms from May to June and is known to occur in chaparral, cismontane woodlands, and lower montane coniferous forests between 215 and 1400 meters (705 and 4,593 feet) in elevation in Contra Costa, Fresno, El Dorado, Glenn, Humboldt, Mendocino, Napa, and Shasta Counties. One known occurrence has been identified within 5 miles of the study area and suitable habitat exists at the study area. No oval-leaved viburnum populations were observed during the field surveys.

Special Status Wildlife

Reconnaissance-level field surveys were conducted as described in Section 2.2 for habitats capable of supporting special status wildlife species on the study area.

Based on the analysis provided in Appendix F, the following eight species were eliminated from further consideration because 1) there is no suitable habitat at the study area; 2) the study area is outside of their known range, or 3) accepted protocol-level surveys failed to detect the species at the study area:

- A Spring stonefly (*Cosumnoperla hypocrena*)
- Lahontan cutthroat trout (*Oncorhynchus clarki henshawi*)
- Central Valley steelhead (*Oncorhynchus mykiss irideus*)
- Central Valley spring-run Chinook salmon (*Oncorhynchus tshawytscha*)
- Yosemite toad (*Bufo canorus*)
- Mountain yellow-legged frog (*Rana muscosa*)
- San Joaquin whipsnake (*Masticophis flagellum ruddocki*)
- Giant garter snake (*Thamnophis gigas*)

Based on the analysis provided in Appendix F, the following ten species were eliminated from further consideration because 1) there are no local records in similar habitat; 2) they are not likely to occur at the study area due to the poor or marginal quality of habitat or unfavorable conditions, 3) migrant status in the area, or 4) while they may occasionally use the study area for foraging, they are not likely to be resident or reproduce at the study area due to a lack of appropriate habitat or because the study area is outside of their known breeding range:

- Vernal pool tadpole shrimp (*Lepidurus packardi*)
- California tiger salamander (*Ambystoma californiense*)
- Foothill yellow-legged frog (*Rana boylei*)
- Coast horned lizard (*Phrynosoma coronatum*)
- Northern goshawk (*Accipiter gentilis*)
- Tricolored blackbird (*Agelaius tricolor*)
- American peregrine falcon (Falco peregrinus)
- Bald Eagle (*Haliaeetus leucocephalus*)
- Ringtail cat (*Bassariscus astutus*)
- Pacific fisher (*Martes pennanti [pacifica]*)

WRA biologists determined that the California red-legged frog (*Rana aurora draytonii*) was not likely to occur at the study area due to the poor or marginal quality of habitat or unfavorable conditions and isolation from other populations. However, the original habitat assessment did not include the Canyon View Drive crossing of the unnamed tributary of Hangtown Creek on the north side of the study area and an ephemeral drainage upstream of Lumsden Park. SWCA biologists subsequently surveyed these areas. A supplemental habitat assessment of areas not surveyed in 2004 concluded that they are not likely to occur at the unnamed tributary of Hangtown Creek at the proposed Canyon View Drive crossing based on the isolation of this reach of creek by development and an underground culvert immediately upstream of the study area. They are also not likely to occur in the ephemeral drainage upslope of Lumsden Park because this creek appears to be dry most of the year with no pooling.

Below, we provide expanded descriptions for those ten species that were present or that may occur at the study area, as well as the California red-legged frog, whose survey results have not yet been verified by USFWS.

Federal or State Threatened or Endangered Wildlife

The **valley elderberry longhorn beetle** (*Desmocerus californicus dimorphus*) is endemic to moist valley oak woodlands (mostly riparian habitat) along streams and rivers where its hostplant, elderberry shrubs (*Sambucus* spp.), grow (USFWS 1984). Evidence of the beetles using the shrubs includes small, rounded emergence holes approximately one centimeter (0.4 inch) in diameter on trunks or stems (typically one inch or greater in diameter). Although limited on-site, riparian habitat along the ephemeral and intermittent drainages in and adjacent to the project area may provide suitable habitat for elderberry shrubs and could support the valley elderberry longhorn beetle. Field surveys performed in 2003 by North Fork and Associates and in 2007 by SWCA Environmental Consultants did not identify any elderberry shrubs in the project area; however, these surveys were not protocol-level surveys with the intent of identifying elderberry shrubs.

The **California red-legged frog** (*Rana aurora draytonii*) is listed as Federally Threatened and as a California Species of Special Concern. It is a medium-sized frog growing to about 5.25 inches. It is a brownish-green color, with distinct dorsal folds. The abdomen and the underside of the hind legs are red-colored. They occur in freshwater marshes, coastal estuaries, and sluggish freshwater streams with pools 3 feet (or more) deep and year-round water sources. They prefer thick riparian and emergent vegetation. They may inhabit ephemeral pools until late spring or early summer. Breeding peaks in February, when eggs are deposited on emergent vegetation. They disperse from aquatic habitats and occur in damp areas far from water. Actions that could adversely affect this species include construction or maintenance

activities involving habitat disturbance or alteration of water tables or flows, introduction of non-native fish and amphibians, and pollution.

There are six historic occurrences of this species nearby, one in 1935 is approximately 0.2 mi (0.3 km) southwest of the study area; the second is approximately 5.5 mi (9 km) southwest of the study area (WRA 2004a); there are also four records not discussed in WRA (2004a) from Webber Creek, 2.2 mi WSW Placerville in 1952 (MVZ). There are three recent records of this species in El Dorado County; 10 mi (16 km) east in Spivey Pond in 2002; 17 miles (27 km) west of the study area in Folsom Lake in 2005; and 22 mi (35 km) southeast near Cook's Station in 2003 (CNDDB 2007). However, none of these records is in the immediate vicinity of the study area.

A site assessment conducted by WRA in 2004 concluded that this species is not expected to use the study area due to a lack of sufficient ponded water, surrounding development, and the presence of known predators (WRA 2004a, Appendix D). This report was not submitted to the USFWS for concurrence or further guidance. A supplemental habitat assessment by SWCA of areas not surveyed in 2004 concluded that they are not likely to occur in the unnamed tributary of Hangtown Creek at the proposed Canyon View Drive crossing based on the isolation of this reach of the creek by development and an underground culvert immediately upstream of the study area. They are also not likely to occur in the ephemeral drainage upslope of Lumsden Park because this creek appears to be dry most of the year with no pooling. Additionally, long stretches of Hangtown Creek (downstream of the study area) flow through culverts beneath urbanized portions of Placerville. This further isolates the study area and is an impediment to dispersal to the study area via Hangtown Creek and its tributaries.

Other Special Status Wildlife

The **northwestern pond turtle** (*Emys marmorata)* is a California Species of Special Concern. It uses both aquatic and terrestrial habitats in riparian areas, although gravid females have been reported up to a mile away from water in search of appropriate nest sites. Preferred habitat for these turtles includes ponds or slow-moving water with numerous basking sites (logs, rocks, etc.), aquatic food sources (plants, aquatic invertebrates, and carrion), and terrestrial habitats adjacent to aquatic areas that are used for overland migrations, foraging, nesting, and inactive periods (hibernation/aestivation). At the study area, these are most likely the ephemeral creeks and seeps upslope of Lumsden Reservoir as well as areas adjacent to riparian habitats and oak woodlands in flatter areas near the drainages. Nesting occurs in April and May, and hatchlings emerge from subsurface nests within three to four months of egg-laying. There are four recent records in the immediate vicinity. There is a nearby record approximately 1 mile southwest of the study area near Harris Road. This species was detected in Lumsden Reservoir during previous surveys (WRA 2004a, Appendix D).

The **Cooper's hawk** (*Accipiter cooperii*) is a California Species of Special Concern. It is a medium-sized bird of prey with a long, rounded tail and short, broad wings. Adults have a black cap, bluish-gray back and reddish barring on the chest. They specialize on hunting small birds in dense woodlands. This includes the oak and pine-oak woodlands at the study area. They have become increasingly common in urban parks and residential areas in recent years. Preferred nesting habitats are oak and riparian woodlands dominated by sycamores and willows. They may nest in denser oaks within the oak woodlands. Cooper's hawks in the region prey on small birds and rodents in riparian woodlands, oak woodlands, and residential communities. It is generally tolerant of mild disturbance, but can become aggressive toward people near its nest tree. This species was observed at the study area by SWCA biologists in June 2007 and likely nests here or nearby.

The **yellow warbler** (*Dendroica petechia brewsteri)* is considered a California Species of Special Concern. They are generally yellow-olive above and yellow below. Males have chestnut streaks on the

chest and flanks. They nest in wet, deciduous thickets, especially those dominated by willows, and in disturbed and early successional habitats, as well as in montane areas to 2700 m (8850 ft) along watercourses with riparian growth (Dunn and Garrett 1997). They nest from mid-May to early August (Lowther et al. 1999). They would most likely nest in riverine habitats along the unnamed tributary of Hangtown Creek and in the intermittent drainage upstream of Lumsden Reservoir, or in willows and dense growth adjacent to the small pond at the study area. The nest is a deep cup built of grasses and strips of bark covered with plant down and fine fibers placed in upright fork of bush, sapling, or tree, usually within 6 m (to 15 m) of the ground (Lowther et al. 1999). This species may nest in limited riparian habitat near the pond and streams.

The **California spotted owl** is a California Species of Special Concern. This is a territorial species with large acreage requirements. Spotted owls occur in mountain and foothill areas where suitable habitat exists. At low elevations (sea level to 1,000 m), they habitats dominated by hardwoods, primarily oak, including those found in oak woodlands and mixed oak-pine woodlands found at the study area.. At higher elevations, they use areas increasingly dominated by conifers. Habitats are generally complex in structure, with many trees of different diameters, high canopy closure, and the presence of large (>90-cm [3-foot] dbh) trees. Foraging habitat appears more variable and includes both intermediate-aged and older forested habitats within a home range. They primarily forage at night and specialize on small forest mammals, including woodrats, deer mice, voles, red tree voles, small rabbits, and bats (Kaufman 1996). They occur on the western side of the Sierra Nevada from Shasta County south through the southern Cascade Range and Sierra Nevada to Kern County; in the southern part of the Coast Ranges from Monterey County to Santa Barbara County; and in the Transverse and Peninsular Ranges of southern California south to Baja California. Locally, their territories are found in relatively high densities approximately 5 miles north and east of the study area, extending eastward up the west slope of the Sierra Nevada mountain range (CNDDB 2007). The study area is on the western boundary of their known range. The isolation of the study area and rural residences found here decrease the quality of the study area as potential habitat. However, given the close proximity of known records and a relatively large area of suitable habitat, this species may occur at the study area.

Several **migratory and native resident avian species**, including raptors and California Species of Special Concern, may nest within the study area. These avian species may nest in all habitats identified within the study area. The nests of any raptor and most other bird species are protected.

Bats. A Bat Habitat Assessment of the study area (WRA 2004b) concluded that while two former mines at the study area were closed and not suitable for roosting, large trees within the study area did provide suitable roosting habitat for some special status bat species (WRA 2004b, Appendix E). Recommendations from this assessment called for a bat tree habitat assessment and, if suitable habitat was identified, that bat surveys should be conducted. If results of these surveys were positive, further recommendations would be made to mitigate the removal of large trees during construction activities on roosting bats. Additionally, existing structures and outbuildings within and adjacent to the study area may provide roosting and maternity habitat for special status bat species.

The **pallid bat** (*Antrozous pallidus*) is a California Species of Special Concern. It roosts in rock crevices, caves, mineshafts, under bridges, in buildings and tree hollows in small colonies of about 12 to 100 bats. They emerge late at night to feed primarily on the ground. With its large ears, it can hear the footsteps of insects on the ground, and then swoops down to grab them. They form nursery colonies, and bear one or two pups each year, usually in June. The buildings and trees provide potential day and maternity roosts for this species. They likely forage in areas with large numbers of insects on the ground in the intermittent stream channel and oak woodlands.

The **Townsend's big-eared bat** (*Corynorhinus townsendii*) is a California Species of Special Concern. They are a medium-sized bat with a 12 1/2" wingspan. They have very long ears. The fur on back is gray at base, brownish at tip and buff colored below. They occur in desert scrub and coniferous forests, roosting in caves, abandoned mines, and buildings. They forage on small moths. Females form nursery colonies of up to several hundred bats, bearing one young per year. They hibernate in caves or mines and are very sensitive to disturbance. They feed late in the evening. They occur in western North America, from British Columbia to Mexico. The study area is within their known range.

The **silver-haired bat** (*Lasionycteris noctivagans*) is a California Species of Special Concern. It occurs in coniferous or mixed coniferous and deciduous forest types, especially in areas of Old Growth. They form maternity colonies in tree cavities or small hollows. Typical hibernation roosts for this species include small tree hollows, beneath exfoliating bark, in woodpiles, and in cliff faces. They feed predominantly in disturbed areas, sometimes at treetop level, but often in small clearings and along roadways or watercourses. They feed chiefly on small, soft-bodied insects. Silver-haired bats have been known to take flies, midges, leafhoppers, moths, mosquitoes, beetles, crane flies, lacewings, caddisflies, ants, crickets, and occasional spiders. Information on their local range and population is limited, but they appear to occur in the vicinity as indicated by a record from Placerville in 1990 (MVZ).

The **long-eared myotis** (*Myotis evotis*) is a California Species of Special Concern**.** It roosts in tree cavities and beneath exfoliating bark in both living trees and dead snags. It captures prey in flight, but also gleans stationary insects from foliage or the ground. Their main diet appears to consist of moths. They have relatively long black ears that contrast with its paler body fur. They occur in coniferous forests. These bats are endemic to the west, ranging from southwestern Canada, and south through California into Baja. Information on their local range and population is limited. Suitable habitat occurs within the coniferous forest types at the study area.

The **Yuma myotis** (*Myotis yumanensis*) is a California Species of Special Concern. It roosts in buildings or bridges. Nursery roosts are found in tree cavities. Bachelors also sometimes roost in abandoned cliff swallow nests. These bats typically forage over water in forested areas. They feed on a variety of insects that includes moths, froghoppers, leafhoppers, June beetles, ground beetles, midges, mosquitoes, muscid flies, caddisflies, and crane flies. It is found throughout western North America, from British Columbia through Washington, Idaho, and western Montana, southern Wyoming, Colorado, New Mexico, West Texas and into Mexico. Information on their local range and population is limited. Suitable foraging habitat occurs at the adjacent Lumsden Reservoir and there are roosting areas in trees in the study area.

4. DISCUSSION

4.1 BIOTIC HABITATS

The proposed project will likely impact Montane Hardwood (Black Oak), Blue Oak-Foothill Pine (Black Oak-Foothill Pine), Montane Hardwood-Conifer Forest (Ponderosa Pine-Black Oak), Freshwater Emergent Wetland (Seeps and Springs), Man-made Freshwater Pond (Broad-leaved Cattail), Urban, and Riverine (Intermittent Stream) habitats.

4.1.1 Sensitive Habitats

No sensitive habitat types tracked by the CNDDB (CDFG 2003, CNDDB 2007) were identified within the study area or in the immediate vicinity. However, wetland features and riparian habitat identified within or adjacent to the study area are considered sensitive because they may provide habitat for special

status wildlife species and are subject to USACE and CDFG jurisdiction. A discussion of impacts to wetlands and other waters of the U. S. is provided below. Potential impacts to sensitive habitats would include removal of riparian habitat or filling of waters of the U.S. Mitigation for these impacts would include compliance with a Streambed Alteration Agreement with CDFG and mitigation identified through the USACE permitting process.

4.1.2 Waters of the U.S

The project may result in direct and indirect impacts to waters of the U.S. Direct impacts would involve placement of fill material or structures within wetlands or drainages, and indirect impacts would involve discharge of pollutants, such as from construction runoff, erosion, or urban runoff, into the water features. Placement of fill material into waters of the U.S. would require authorization by the USACE in the form of a Clean Water Act (Section 404) permit. As part of the permitting process, mitigation measures would be identified to avoid, minimize, or compensate for direct impacts. The goal of the mitigation is to achieve no net loss of wetland functions or values. If avoidance is not feasible, compensation would be required. Compensatory mitigation could include on-site replacement of similar wetlands or waters, off-site replacement, or payment into a mitigation bank or in-lieu fee program in the region.

Indirect impacts may require permitting through the Central Valley Regional Water Quality Control Board, which would require appropriate mitigation measures to minimize pollutants in waters of the state. These measures may include implementation of best management practices during construction and incorporating design features into the project to minimize urban pollutants.

4.2 WILDLIFE CORRIDORS

The study area occurs within an area with diverse habitats and numerous wildlife species. However, it is isolated from surrounding intact forest habitats by major roads and highways to the north and existing residential developments on all sides. The waterways that connect the study area to other nearby creeks are culverted and channelized. Though wildlife populations, particularly aquatic amphibian and reptile species and avian species, likely use the seeps and streams for movement within the study area, the construction and presence of the proposed project would not result in the impedance of movements by these wildlife species between adjacent population centers.

4.3 WILDLIFE DISPLACEMENT

The project would result in disturbance and reduction of habitat areas used by local wildlife. Construction activity would likely drive many wildlife species from the study area temporarily, and habitat reduction would prevent full re-colonization, thereby permanently displacing some wildlife. This may lead to a temporary increase in wildlife populations in adjacent neighborhoods; the most noticeable would be larger wildlife that forage during the day, including deer and turkey. The study area is surrounded by residential communities with some pockets of intact habitat. Some of the larger, more mobile animals may find their way into these adjacent intact areas. Many of the smaller, less mobile species, including amphibians, reptiles, and small terrestrial mammals would not survive displacement and would suffer higher mortality rates. Displaced birds and bats would likely be less affected because many species can disperse more easily to adjacent habitats. However, competition with established territorial species may lead to some mortality. Most of the amphibians, reptiles and terrestrial mammal species displaced by the project and subject to the heaviest mortality rates are common species in the vicinity such as Pacific treefrog (*Hyla regilla*), western fence lizard (*Sceloporus occidentalis*), gopher snake (*Pituophis catenifer*),

Virginia opossum (*Didelphis virginiana*), and western grey squirrel (*Sciurus griseus*). Wildlife displacement would likely not have a substantial adverse effect on these populations.

Local residents would not likely be substantially affected by displacement of wildlife species. The most noticeable change observed by nearby residents would likely be an increase of larger animals (e.g., deer, turkey) foraging in their neighborhoods. Larger mammals may forage on refuse or landscape plants, occasionally presenting a nuisance. Given the rural nature of these neighborhoods, however, this activity likely occurs under existing conditions. Wildlife displacement resulting from the project would not be expected to have a substantial adverse effect on local residents.

4.4 SPECIAL STATUS PLANTS

Construction of the proposed project could potentially impact the following species:

- Nissenan manzanita (*Arctostaphylos nissenana*)
- Pleasant Valley mariposa lily (*Calochortus clavatus var. avius*)
- Brandegee's clarkia (*Clarkia biloba ssp. brandegeeae*)
- Parry's horkelia (*Horkelia parryi*)
- Oval-leaved viburnum (*Viburnum ellipticum*)

SWCA recommends that focused plant surveys be conducted in accordance with CNPS (2001) and CDFG (2000) botanical survey guidelines for special-status plants and vegetation communities be conducted prior to any construction activities to ensure that no sensitive plants are adversely affected as a result of the proposed project. This survey should be conducted during flowering seasons for the special-status plants known from the area, be floristic in nature, be consistent with conservation ethics, be designed to systematically cover all habitat types on the study area, and documented by voucher specimens. Surveys should be conducted within the proposed project footprint, construction areas, and other areas that will be adversely affected as a result of the project. The report should provide project-specific mitigation recommendations for loss of special status plants. Mitigation measures may include but not be limited to the following:

- Avoidance of habitat through installation of fencing around sensitive populations during construction.
- Restoration and/or conservation of habitat within the study area with a minimum of a 1:1 replacement ratio of habitat lost to habitat restored/conserved. Additional off-site mitigation may be required if on-site efforts do not satisfy mitigation requirements.
- Payment of fees to local mitigation banks approved by the City.
- Purchase of land with equal or greater habitat value, or protection of this land using conservation easements.

4.5 SPECIAL STATUS WILDLIFE

4.5.1 Valley Elderberry Longhorn Beetle

Although not detected during field surveys, elderberry shrubs in riparian habitat and adjacent oak woodlands in the study area could support the valley elderberry longhorn beetle. Direct removal of elderberry shrubs could result in take of the beetle, which would require an incidental take permit from the USFWS. Indirect effects may include disturbance of beetles, if present on elderberry shrubs within

100 feet of construction activities. In order to determine the presence/absence of elderberry shrubs and the potential for the beetle to occur on site, protocol-level surveys would be required within all suitable habitats in the study area. If elderberry shrubs may be affected by the proposed project, mitigation may include translocating the shrubs to suitable habitat, as determined by the USFWS, or replacement plantings at an off-site location.

4.5.2 California Red-legged Frog

No California red-legged frogs were detected during the site assessment or general survey. Both surveys concluded that this species is not likely to occur at the study area due to the isolation and lack of suitable habitat. Therefore, project impacts would not likely have a substantial adverse effect on the California red-legged frog.

4.5.3 Northwestern Pond Turtle

Construction of the proposed project could potentially eliminate foraging habitat, refugia, terrestrial movement corridors, and nests of the northwestern pond turtle. Northwestern pond turtles could occur within aquatic and terrestrial habitats in the study area throughout the year and their nests could occur within the terrestrial habitats in the study area from March through September. Direct impacts could include the destruction of turtles or nests during construction of the project. Implementation of the project during the nesting period could result in direct impacts to nests; implementation of the project at any time of the year could result in the take of individual turtles. Construction activities that result in the destruction of turtles or their nests would have a substantial adverse effect on this species. Indirect impacts would include disturbance related to increased human use of the area.

Potential measures that would mitigate these adverse effects include avoidance of work during sensitive times of the year, and if this is not practicable, then preconstruction surveys prior to and monitoring during these types of work activities in sensitive habitat is recommended.

4.5.4 Special-Status Avian Species; Nesting Migratory and Native Avian Species

Construction activities associated with the proposed project would remove foraging habitat of special-status avian species, including Cooper's hawk, California spotted owl and yellow warbler. Because the project represents a relatively small portion of the available habitat in the project vicinity for these species, permanent removal of a small portion of the overall foraging habitat would not substantially affect these species.

Removal of vegetation and existing structures could have both direct and indirect impacts to actively nesting birds, including the nests of special-status species. The breeding season for birds mostly occurs between March 1 and August 31; project construction during this period could result in both direct and indirect impacts. Actions that could adversely affect these species include disturbance of nesting sites and removal of nesting trees. Direct project impacts would include the destruction of active nests, eggs, or young located within vegetation removed. Indirect impacts would include noise and disturbance associated with the construction activities that cause birds in adjacent habitats to abandon their nests.

Potential mitigation measures include avoidance of work during the nesting season; if this is not practicable, then preconstruction surveys prior to work activities in areas where birds may nest is recommended. If active nests are located they would need to be protected until the young have fledged.

4.5.5 Special Status Bat Species

Construction at the study area will remove large trees and existing structures that may be used by bats as roost and maternity sites. Actions that could adversely affect this species include disturbance or destruction of day or maternity roosts, removal of abandoned structures, and conversion of foraging habitat. Direct project impacts may include mortality during the removal of both day roosts and maternity roosts, and loss of immediate roost habitat.

Mitigation measures may include avoiding demolition of structures and removal of large trees during the bat breeding season; if this is not practicable, then preconstruction surveys prior to work activities in areas where bats may roost is recommended. If roosts are located they would need to be protected until the young are flying.

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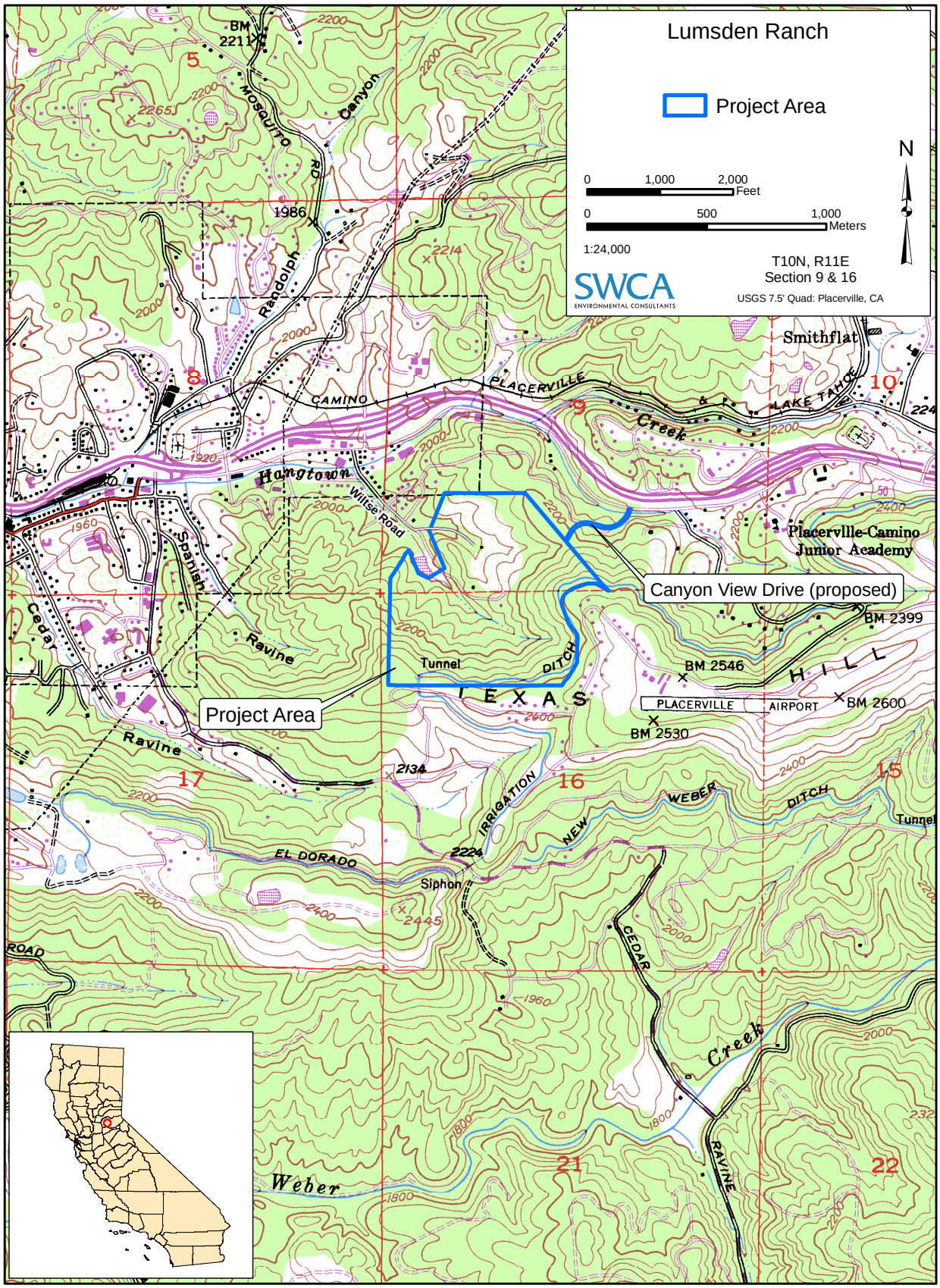

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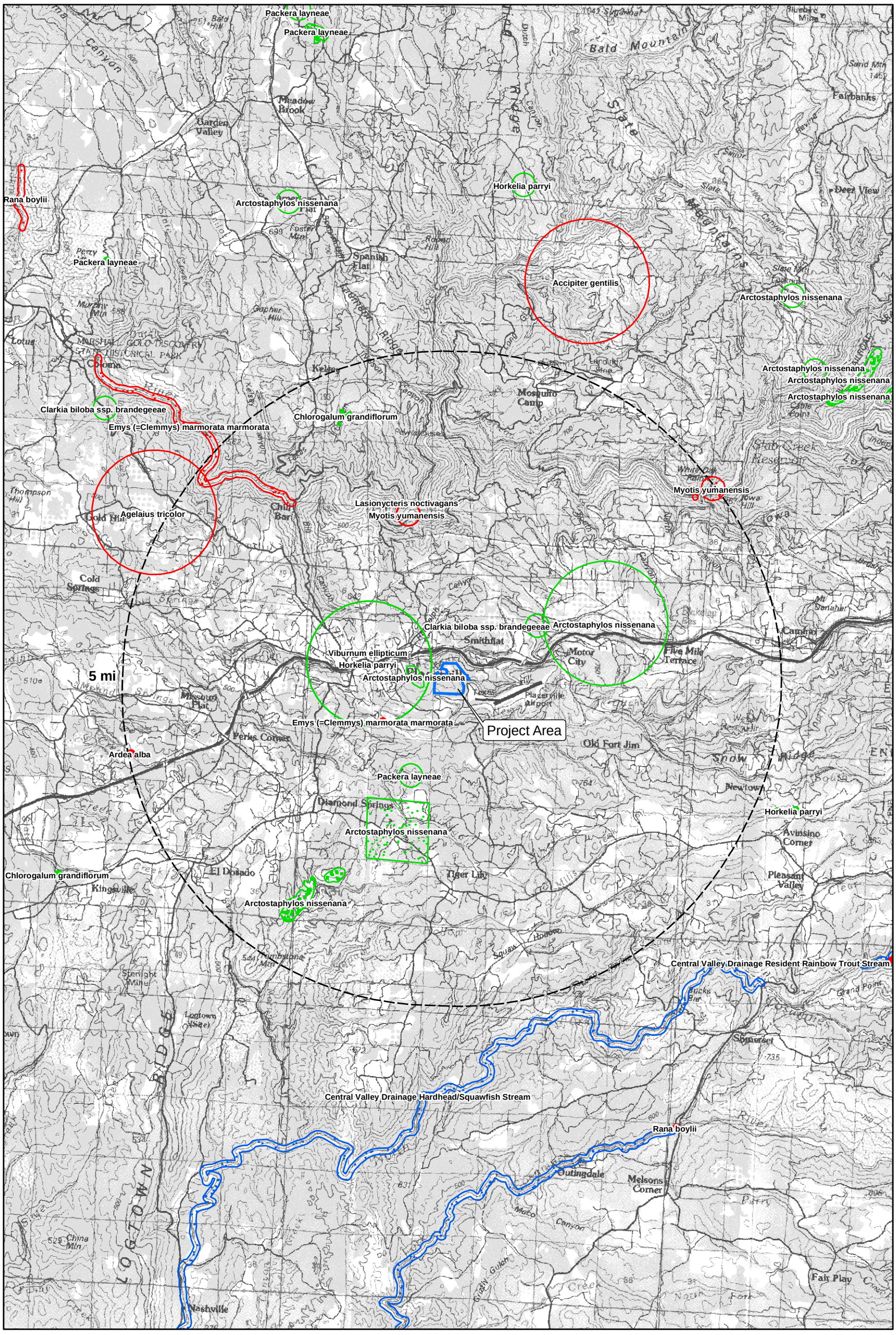
Figure 1. General location of the project area.



0 3,000 6,000 Feet

0 1,000 2,000 Meters

1:100,000

USGS 100k Quad: Placerville, CA
UTM ZONE 11 NAD 27

Location Map

Notes:

Lumsden Ranch CNDDB

T10N, R11E
Sec 9 & 16

SWCA
ENVIRONMENTAL CONSULTANTS

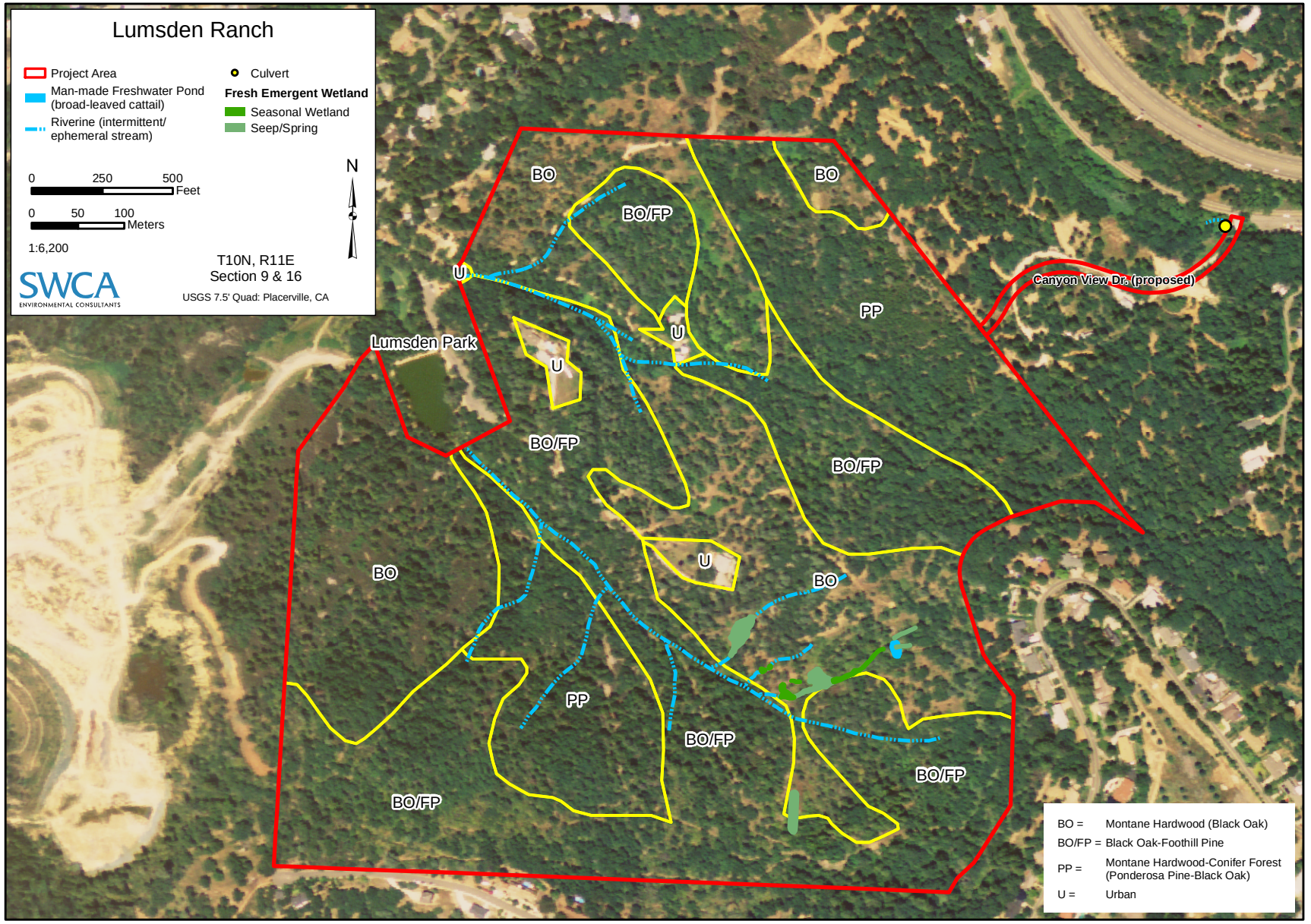


Figure 3. Habitat map.

APPENDIX A:
Site Photos

Photograph 1. Montane Hardwood Forest with opening in the foreground.

Photograph 2. Black Oak-Foothill Pine Forest.

Photograph 3. Montane Hardwood-Conifer Forest.

Photograph 4. Freshwater Emergent Wetland.

Photograph 5. Human-made Freshwater Pond.

Photograph 6. Urban habitat depicts cleared parking area adjacent to rural residence.

Photograph 7. Riverine ephemeral drainage.

Photograph 8. Riparian habitat downstream of Canyon View Drive.

Photograph 9. Culverted area upstream of Canyon View Drive, previously filled crossing in the foreground.

APPENDIX B:
Plant and Wildlife Lists

List of Wildlife Observed and Potentially Present at Lumsden Ranch.			
Common Name	**Scientific Name**	**Observed**	**Probable**
Western Toad	*Bufo boreas*		X
California Toad	*Bufo boreas halophilus*		X
Pacific Treefrog	*Hyla regilla*		X
Bullfrog	*Rana catesbeiana*		X
Western Fence Lizard	*Sceleporous occidentalis*	X	
California Alligator Lizard	*Gerrhonotus multicarinatus*		X
Gopher Snake	*Pitouphis melanoleucus*		X
California Kingsnake	*Lampropeltis getulus californiae*	X	
Northern Pacific Rattlesnake	*Crotalus virdis oreganos*		X
Domestic Duck		X	
Domestic Goose		X	
Turkey Vulture	*Cathartes aura*	X	
Cooper's Hawk	*Accipiter cooperii*	X	
Red-shouldered Hawk	*Buteo lineatus*		X
Red-tailed Hawk	*Buteo jamaicensis*	X	
American Kestrel	*Falco sparverius*		X
Wild Turkey	*Meleagris gallopavo*	X	
California Quail	*Callipepla californica*	X	
Mountain Quail	*Oreortyx pictus*	X	
Band-tailed Pigeon	*Columba fasciata*	X	
Mourning Dove	*Zenaida macroura*	X	
Barn Owl	*Tyto alba*		X
Western Screech-Owl	*Otus kennicottii*		X
Great Horned Owl	*Bubo virginianus*		X
Northern Pygmy-Owl	*Glaucidium gnoma*	X	
Common Poorwill	*Phalaenoptilus nuttallii*		X
Anna's Hummingbird	*Calypte anna*	X	
Acorn Woodpecker	*Melanerpes formicivorus*	X	
Red-breasted Sapsucker	*Sphyrapicus ruber*	X	
Nuttall's Woodpecker	*Picoides nuttallii*		X
Downy Woodpecker	*Picoides pubescens*		X
Hairy Woodpecker	*Picoides villosus*	X	
Northern Flicker	*Colaptes auratus*	X	
Olive-sided Flycatcher	*Contopus cooperi*		X
Western Wood-Pewee	*Contopus sordidulus*	X	
Pacific-slope Flycatcher	*Empidonax difficilis*	X	
Black Phoebe	*Sayornis nigricans*	X	
Ash-throated Flycatcher	*Myiarchus cinerascens*		X
Cassin's Kingbird	*Tyrannus vociferans*		X
Western Kingbird	*Tyrannus verticalis*		X
Cassin's Vireo	*Vireo cassinii*	X	
Hutton's Vireo	*Vireo huttoni*	X	
Warbling Vireo	*Vireo gilvus*		X
Steller's Jay	*Cyanocitta stelleri*	X	
Western Scrub-Jay	*Aphelocoma californica*	X	

List of Wildlife Observed and Potentially Present at Lumsden Ranch.			
Common Name	**Scientific Name**	**Observed**	**Probable**
American Crow	*Corvus brachyrhynchos*		X
Common Raven	*Corvus corax*	X	
Tree Swallow	*Tachycineta bicolor*		X
No. Rough-winged Swallow	*Stelgidopteryx serripennis*		X
Barn Swallow	*Hirundo rustica*		X
Mountain Chickadee	*Poecile gambeli*	X	
Oak Titmouse	*Baeolophus inornatus*	X	
Bushtit	*Psaltriparus minimus*	X	
White-breasted Nuthatch	*Sitta carolinensis*	X	
Brown Creeper	*Certhia americana*	X	
Bewick's Wren	*Thryomanes bewickii*	X	
House Wren	*Troglodytes aedon*	X	
Golden-crowned Kinglet	*Regulus satrapa*	X	
Ruby-crowned Kinglet	*Regulus calendula*	X	
Western Bluebird	*Sialia mexicana*	X	
Hermit Thrush	*Catharus guttatus*	X	
American Robin	*Turdus migratorius*	X	
Wrentit	*Chamaea fasciata*	X	
European Starling	*Sturnus vulgaris*		X
Cedar Waxwing	*Bombycilla cedrorum*		X
Orange-crowned Warbler	*Vermivora celata*	X	
Yellow Warbler	*Dendroica petechia*		X
Yellow-rumped Warbler	*Dendroica coronata*	X	
Black-throated Gray Warbler	*Dendroica nigrescens*		X
Townsend's Warbler	*Dendroica townsendi*	X	
Hermit Warbler	*Dendroica occidentalis*		X
MacGillivray's Warbler	*Oporornis tolmiei*	X	
Wilson's Warbler	*Wilsonia pusilla*	X	
Western Tanager	*Piranga ludoviciana*		X
Spotted Towhee	*Pipilo maculatus*	X	
California Towhee	*Pipilo crissalis*	X	
Lark Sparrow	*Chondestes grammacus*		X
Fox Sparrow	*Passerella iliaca*		X
Song Sparrow	*Melospiza melodia*	X	
Lincoln's Sparrow	*Melospiza lincolnii*		X
White-crowned Sparrow	*Zonotrichia leucophrys*	X	
Golden-crowned Sparrow	*Zonotrichia atricapilla*		X
Dark-eyed Junco	*Junco hyemalis*		X
Black-headed Grosbeak	*Pheucticus melanocephalus*		X
Lazuli Bunting	*Passerina amoena*		X
Red-winged Blackbird	*Agelaius phoeniceus*	X	
Bullock's Oriole	*Icterus bullockii*		X
Purple Finch	*Carpodacus purpureus*		X
House Finch	*Carpodacus mexicanus*	X	
Pine Siskin	*Carduelis pinus*		X

List of Wildlife Observed and Potentially Present at Lumsden Ranch.			
Common Name	**Scientific Name**	**Observed**	**Probable**
Lesser Goldfinch	*Carduelis psaltria*	X	
American Goldfinch	*Carduelis tristis*	X	
Virginia Opossum	*Didelphis virginiana*		X
Pallid Bat	*Antrozous pallidus*		X
Big Brown Bat	*Eptesicus fuscus*		X
Silver-haired bat	*Lasionycteris noctivagans*		X
Hoary Bat	*Lasiurus cinereus*		X
California Myotis	*Myotis californicus*		X
Long-eared Myotis	*Myotis evotis*		X
Little Brown Myotis	*Myotis lucifugus*		X
Fringed Myotis	*Myotis thysanodes*		X
Long-legged Myotis	*Myotis volans*		X
Yuma Myotis	*Myotis yumanensis*		X
Townsend's Long-eared Bat	*Plecotus townsendii*		X
Western Mastiff Bat	*Eumops perotis*		X
Mexican Free-tailed Bat	*Tadarida brasiliensis*		X
Coyote	*Canis latrans*	X	
Gray Fox	*Urocyon cinereoargenteus*	X	
Domestic Dog	*Canis familiaris*	X	
Raccoon	*Procyon lotor*	X	
Striped Skunk	*Mephitis mephitis*	X	
House Cat	*Felis domesticus*	X	
Bobcat	*Lynx rufus*		X
Mule Deer	*Odocoileus hemionus*	X	
California Ground Squirrel	*Spermophilus beecheyi*	X	
Western Gray Squirrel	*Sciurus griseus*	X	
Botta Pocket Gopher	*Thomomys bottae*	X	
House Mouse	*Mus musculus*		X
Norway Rat	*Rattus norvegicus*		X
Black Rat	*Rattus rattus*		X
Audubon Cottontail	*Sylvilagus audubonii*		X

APPENDIX C:
Wetland Delineation

Scott Goebl

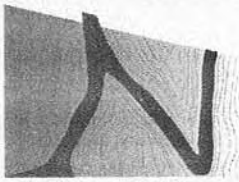
WETLAND DELINEATION FOR THE ±128-ACRE LUMSDEN RANCH SUBDIVISION

Placerville, El Dorado County, California

Prepared for:

Brilliant Management LLC
114 Camino Pablo
Orinda, California 94563
(925) 258-0886

Prepared by:



north fork associates
110 Maple Street, Suite 100, Auburn, California 95603
(530) 887-8500

October 27, 2003

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WETLAND DELINEATION
FOR THE
LUMSDEN RANCH SUBDIVISION

INTRODUCTION

North Fork Associates conducted a wetland delineation for the ±128-acre Lumsden Ranch project, located the end of Wiltse Road in the city of Placerville. U.S. Highway 50 is just north of the property, and the Placerville Airport is to the southeast. The city-owned Lumsden Park is at the entrance to the site. It is situated in portions of Sections 9 and 16, Township 10 north and Range 11 east on the 7 ½ minute Placerville, California USGS quadrangle (Figure 1). Approximate coordinates for the entrance drive to the site are 38.7291° north and 120.7758° west.

Elevations range from about 2000 to 2300 feet and the property rises steeply to Texas Hill on the southern boundary. Most of the property is heavily wooded and has several residences and other structures on site. Surrounding land uses are primarily residential, although commercial retail businesses are located along Broadway (Figure 2).

METHODOLOGY

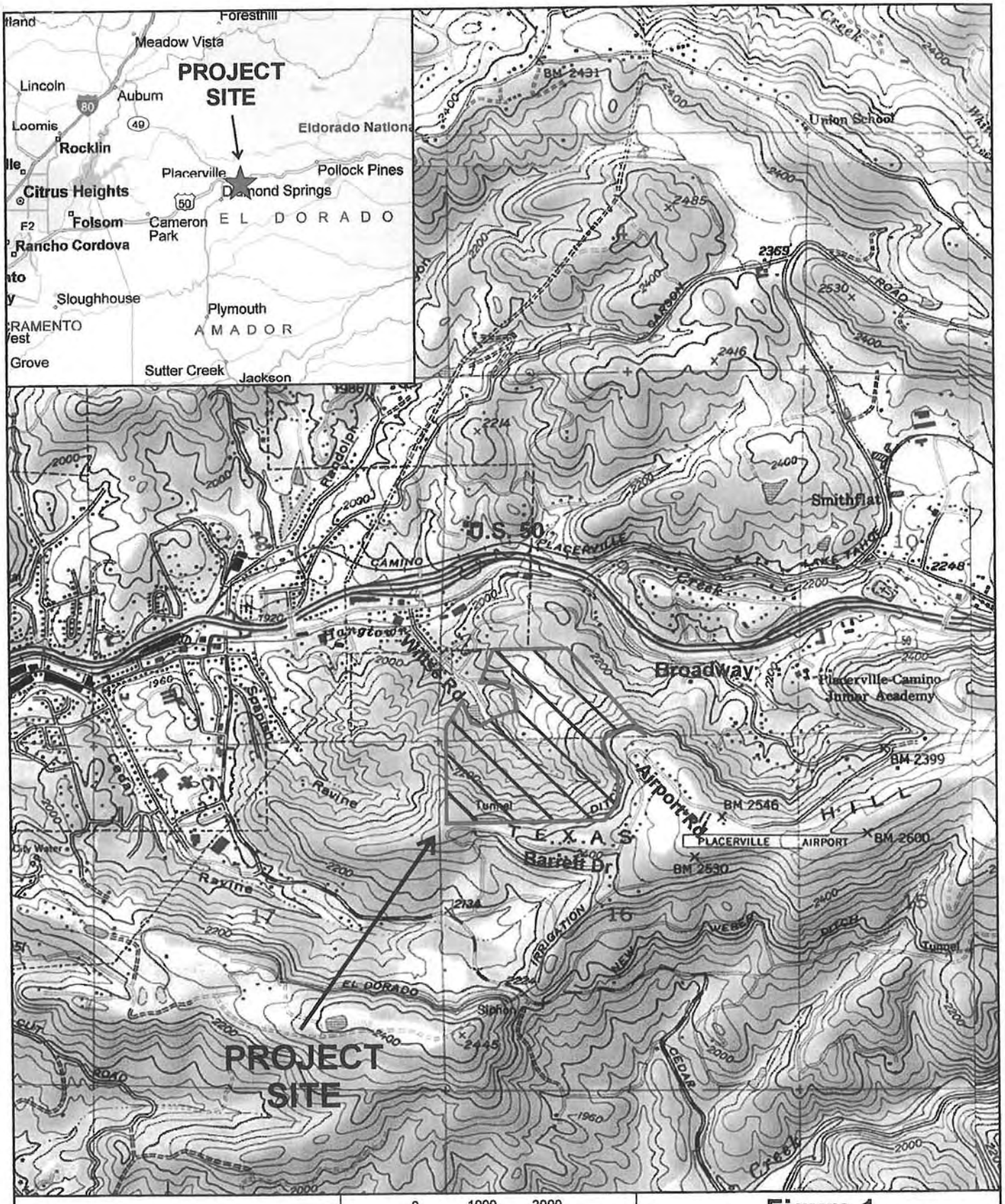
On September 3, and October 1, 2003, North Fork Associates delineated waters of the United States for the Lumsden Ranch property in Placerville. The delineation was conducted by Barry Anderson and Jeff Glazner according to the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). Information about vegetation, hydrology, and soils was collected at 15 data points throughout the property. The locations of data points, wetlands, and other features were collected, where possible, with a sub-meter Trimble GeoXT GPS. The property is located in steep terrain and is heavily wooded, factors that make the use of sub-meter GPS units difficult. In order to gather some of the information, the precision of the instrument was reduced, which resulted in irregular polygon vertices. These were smoothed in the office using ArcView. In addition, the heavy cover and steep sides of some of the smaller drainages made it impossible to use a GPS. Instead, we mapped these features directly from the topographic map.

The basemap for the delineation is a topographic map prepared by Kellogg Aerial Surveys. It is in California State Plane, Zone 2, NAD 27. Enclosed is a CD with ArcView shape files.

RESULTS

Vegetation

Vegetation on the approximately 128-acre property is an intricate mosaic of several vegetation types. On a broader scale, the vegetation can be classified as Sierran mixed hardwood forest, which is a variant of mixed evergreen forest. Embedded in the mixed hardwood forest are areas of foothill woodland and chamise and manzanita chaparral. Live oak (*Quercus wislizeni*), black oak (*Q. kelloggii*), and blue oak (*Q. douglasii*) are common and abundant. Canyon oak (*Q. chrysolepis*) grows on steeper canyon slopes, and valley oak (*Q. lobata*) grows were soils are deeper and groundwater is available. Common conifers include foothill pine (*Pinus sabiniana*) and ponderosa pine (*Pinus ponderosa*). Douglas-fir (*Pseudotsuga menziesii*) grows on steep north-facing slopes, and sugar pine (*Pinus lambertiana*) occurs as a scattered tree. Other, less common, trees include incense cedar (*Calocedrus decurrens*), madrone (*Arbutus menziesii*), California buckeye (*Aesculus californica*), and mountain dogwood (*Cornus nuttallii*).



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0 1000 2000
Approximate scale in feet

N
W E
S

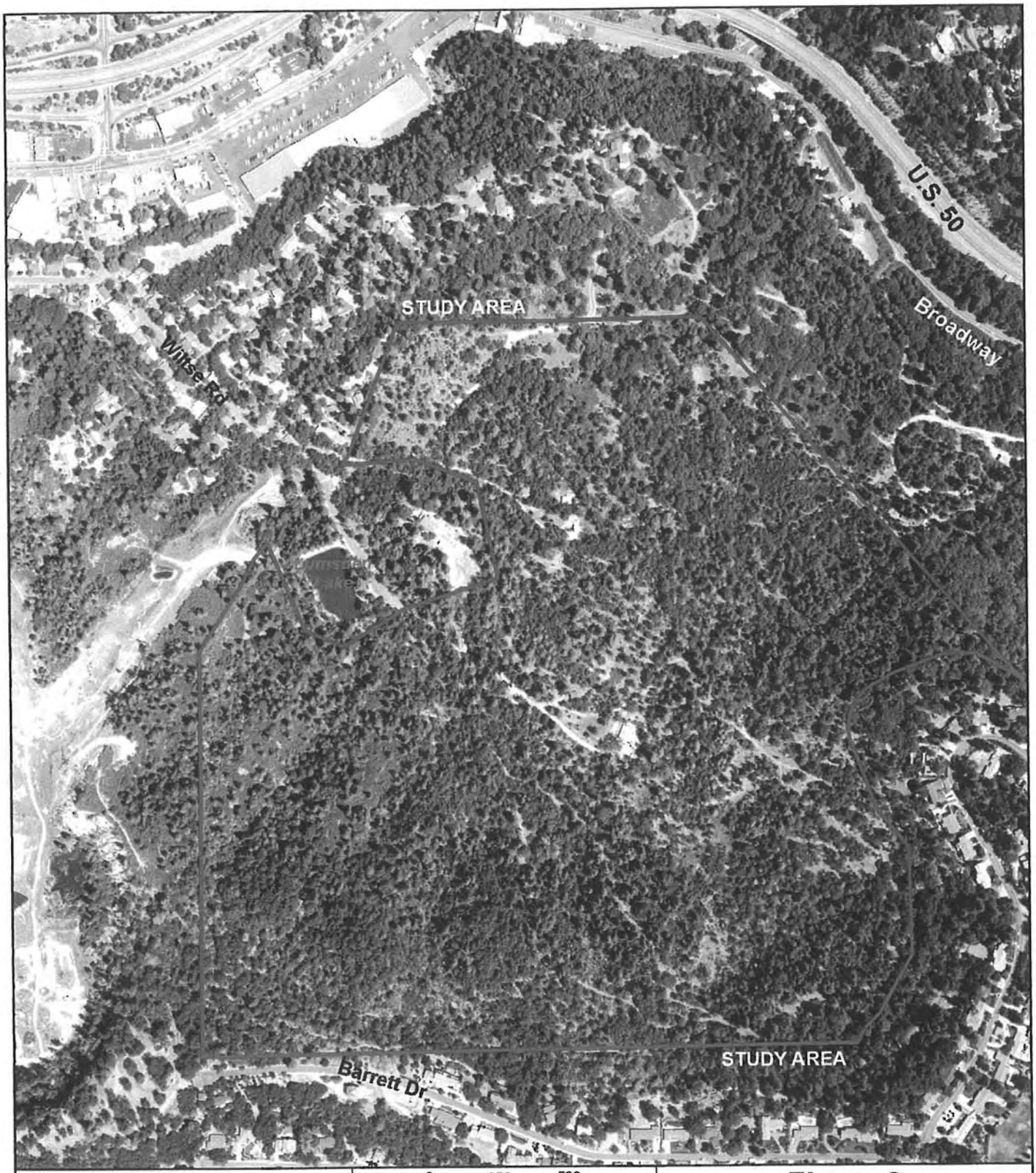
Basemap: Placerville and Garden Valley, CA
USGS 7.5 minute topographic quadrangles

Figure 1

VICINITY AND LOCATION MAP

Lumsden Ranch

Placerville, El Dorado County, California



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0 250 500
Approximate scale in feet

N
W E
S

Aerial Photo provided by Geoimagery.
Photo Date: 7/03

Figure 2

AERIAL PHOTO
Lumsden Ranch

Placerville, El Dorado County, California

The understory in much of the mixed hardwood forest is shrubby. Over much of the site manzanita (*Arctostaphylos viscida*) is the most common species. But toyon (*Heteromeles arbutifolia*), coffeeberry (*Rhamnus tomentella*), buckbrush (*Ceanothus cuneatus*), and deer brush (*Ceanothus integerrimus*) are also widespread understory species. Scotch broom (*Cytisus scoparius*), French broom (*Genista monspessulana*), yerba santa (*Eriodictyon californicum*), and coyote brush (*Baccharis pilularis*) grow in disturbed locations, such as along road or were the understory has been cleared. Poison-oak (*Toxicodendron diversilobum*) is ubiquitous.

Chamise chaparral occurs on ridge tops and other locations where the soil is very thin and poorly developed. This vegetation is dominated by a single species, chamise (*Adenostoma fasciculatum*). This formation is the prominent vegetation on the ridges on the west side of the property.

The drainages on the site are ephemeral or intermittent and do not carry enough water to create a solid riparian canopy. Willows (*Salix* spp.) are scattered along two of the main drainages, but they form substantial cover only near the upper end of the Lumsden Park pond. Cottonwoods (*Populus fremontii*) and willows are also common around the pond just below the main spring.

Several seeps and springs occur on the property. Some are wet most of the year, whereas others appear to be dry by mid to late summer. One spring is also associated with a wetland resulting from a leaking water pipe. For the most part, seeps, springs, and seasonal wetlands support a variety of OBL and FACW herbaceous plant species. Sonoma hedge-nettle (*Stachys stricta*) is particularly common and abundant in SW1. Spikerush (*Eleocharis macrostachya*), willow-herb (*Epilobium ciliatum*), monkeyflower (*Mimulus guttatus*), and various rush species (*Juncus* spp.) are common as well.

Hydrology

Ephemeral streams and seeps and springs are the most prominent hydrological features. The site is very steep and undulating, and ephemeral drainages occupy several of the canyon bottoms. These are characterized by a clear scour line and bed and bank. These may lack sufficient groundwater input to be considered intermittent. Although scattered willows are present, they do not form a definite riparian canopy until the stream reaches the pond in Lumsden Park, which is located off the delineated property.

Seeps and springs are located on the property mostly along the stream identified as ED1. At least two springs appear to have perennial water. Two others may be moist into the summer months, and one appears to be dry by late spring or early summer.

Soils

It is difficult to locate the exact property boundaries on the soils map, but it appears that as many as 11 soil series have been mapped: Josephine silt loam, Josephine very rocky silt loam, Josephine-Mariposa gravelly loam, Mariposa-Josephine very rocky loam, Mariposa very rocky silt loam, Sites very rocky loam, Aiken loam, Cohasset cobbly loam, Crozier cobbly loam, McCarthy cobbly loam, and Iron Mountain very rocky sandy loam (see the soils inset on the wetland delineation map in Appendix B). These soils cover a variety of taxonomic classes, but most of them are derived from volcanic or metamorphic rock. None are formed from serpentinite or gabbro, soils that often support special status species. In addition, none are considered hydric.

WATERS OF THE UNITED STATES

Waters of the United States on the property consist of wetlands (seep/spring and seasonal wetland) and other waters (pond, intermittent stream, and ephemeral stream). Table 1 is an acreage summary of the various types.

Table 1
Waters of the United States

Type	Acreage
Wetland:	
Seep/Spring	0.29
Seasonal Wetland	0.05
Other Waters	
Pond	0.04
Intermittent Stream	0.04
Ephemeral Stream	0.33
Total Waters of the U.S.	**0.75**

Seeps and springs are points of groundwater discharge (Figure 3a and Figure 3b). Springs usually have more flow that seeps, and they are often perennial. On the Lumsden Ranch property, two perennial springs are associated with the shallow pond (Figure 3c). These apparently have their origin in partially collapsed mine shafts. Other seep/spring areas are drier. SP3 and SP4 had some water in them during the delineation, but much of it may have been from surface flow. SP3 receives some water from pond leakage, and SP-4 has a contribution from a broken waterline that has created the intermittent drainage, ID1. SP5 is the driest seep on the property. It was dry during the delineation and, judging from the flora, dries up fairly early in the season.

Seasonal wetlands are similar to the seeps, and may well be lumped with them. They tend to occur in drainages and may be the result of very slight groundwater discharge.

The pond on the property is small, shallow, and man-made. It was created to hold water for use by residences on the property. It is contained by a gunnite berm but has a dirt bottom. At the time of the delineation is consisted of open water and emergent marsh. According to the landowner, it has water in it all year.

Ephemeral streams are those that flow during and shortly after periods of rainfall. Because they do not receive much groundwater discharge, they do not have open water except for short periods. Most of the drainages on the property appear to be ephemeral (Figure 4a and Figure 4b) . Large amounts of rain cause scouring in the channels, but there is no evidence of

3a. Spring

3b. Seep

3c. Pond

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Photos taken September 3, 2003

Figure 3

SITE PHOTOS
Lumsden Ranch

Placerville, El Dorado County, California

Fig 4a. Ephemeral drainage

Fig 4b. Ephemeral drainage

north fork associates

Photos taken September 3, 2003

Figure 4

SITE PHOTOS
Lumsden Ranch

Placerville, El Dorado County, California

continuous flow. It would seem that the seeps and springs would cause the creeks to flow for longer periods, but that doesn't seem to be the case.

Once drainage appears to be intermittent or perennial. It is a narrow channel that leads from a dirt ranch road to the vicinity of SP4. The water source is a broken pipe carrying water from the pond to the residences below. According to the landowner, this pipe has leaked and been repaired several times. It was leaking at the time of the delineation.

APPENDIX A

Field Data Sheets

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances? ☐ Atypical Situation? ☑ Problem Area?

Data Point: 1
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Lathyrus latifolius	P	60	-
Quercus kelloggii	T	50	-
Bareground _		30	-

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 0

Species Remarks: Upland. No indicator species peresent.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
Depth of Surface Water:
Depth to Free Water:
Depth to Saturated Soil:

Primary Indicators
- ☐ Inundated?
- ☐ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☐ Drift Lines?
- ☐ Sediment Deposits?
- ☐ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☐ Other?

Hydrology Remarks: Upland. Broad swale with no hydrology indicators.

Soils

Map Name: Cohasset cobbly loam
Subgroup: Ultic Haploxeralfs
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz.	Depth	Matrix Color	Mottle Color	Mottle Abundance, Size	Texture, Concretions, Etc.
A	10	7.5YR 5/3		None	Loose loam and rock.

Hydric Soil Indicators: Check those that apply
- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☐ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☐ Other?

Soil Remarks: Upland. No indicators present.

Determination Check those that apply

☐ Wetland Vegetation? ☐ Wetland Hydrology? ☐ Wetland Soils?
☐ Is the Sampling Point Waters of the US?

Remarks: Upland. Broad upland swale.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances? ☐ Atypical Situation? ☑ Problem Area?

Data Point: 2
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon — Dominants have greater than 20% cover	Habit	%Cover	Status
Symphoricarpos albus laevigatus	S	50	FACU
Moss _		30	-
Galium porrigens tenue	P	30	-
Heteromeles arbutifolia	S	30	-
Quercus douglasii	T	30	-

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 0

Species Remarks: No wetland indicators present.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
- Depth of Surface Water:
- Depth to Free Water:
- Depth to Saturated Soil:

Primary Indicators
- ☐ Inundated?
- ☐ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☑ Drift Lines?
- ☐ Sediment Deposits?
- ☑ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☑ Other?

Hydrology Remarks: Waters of the US. Incised channel two feet wide.

Soils

Map Name: Cohasset cobbly loam
Subgroup: Ultic Haploxeralfs
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz. Depth | Matrix Color | Mottle Color | Mottle Abundance, Size | Texture, Concretions, Etc.

Hydric Soil Indicators: Check those that apply
- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☐ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☑ Other?

Soil Remarks: Waters of the US. Rock bottom in channel.

Determination Check those that apply

☐ Wetland Vegetation? ☑ Wetland Hydrology? ☐ Wetland Soils?

☑ Is the Sampling Point Waters of the US?

Remarks: Other waters. Ephemeral channel. OHWM 2 feet.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances?
☐ Atypical Situation?
☑ Problem Area?

Data Point: 3
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Quercus kelloggii	T	100	-
Woodwardia fimbriata	P	100	FACW+

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 100

Species Remarks: Wetland. Dominant herbaceous species is a fair indicator.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
Depth of Surface Water: 3
Depth to Free Water:
Depth to Saturated Soil:

Primary Indicators
- ☑ Inundated?
- ☐ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☐ Drift Lines?
- ☐ Sediment Deposits?
- ☐ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☑ Other?

Hydrology Remarks: Wetland. Several inches of flowing water.

Soils

Map Name: Cohasset cobbly loam?
Subgroup: Ultic Haploxeralfs
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz. Depth | Matrix Color | Mottle Color | Mottle Abundance, Size | Texture, Concretions, Etc.

Hydric Soil Indicators: Check those that apply
- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☑ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☐ Other?

Soil Remarks: Wetland. Point is inundated.

Determination Check those that apply

☑ Wetland Vegetation? ☑ Wetland Hydrology? ☑ Wetland Soils?
☑ Is the Sampling Point Waters of the US?

Remarks: Wetland. Seep or spring.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances?
☐ Atypical Situation?
☑ Problem Area?

Data Point: 4
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon — Dominants have greater than 20% cover	Habit	%Cover	Status
Heteromeles arbutifolia	S	50	-
Toxicodendron diversilobum	S, V	40	-
Bareground _			-

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 0

Species Remarks: Upland. No indicator species present.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
Depth of Surface Water:
Depth to Free Water:
Depth to Saturated Soil:

Primary Indicators
- ☐ Inundated?
- ☐ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☐ Drift Lines?
- ☐ Sediment Deposits?
- ☐ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☐ Other?

Hydrology Remarks: Upland. No hydrology indicators present.

Soils

Map Name: Cohasset cobbly loam
Subgroup: Ultic Haploxeralfs
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz.	Depth	Matrix Color	Mottle Color	Mottle Abundance, Size	Texture, Concretions, Etc.
A	8	7.5YR 3/3		None	Loose sand and rock.

Hydric Soil Indicators: Check those that apply
- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☐ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☐ Other?

Soil Remarks: Upland. No soil indicators present.

Determination Check those that apply

☐ Wetland Vegetation? ☐ Wetland Hydrology? ☐ Wetland Soils?
☐ Is the Sampling Point Waters of the US?

Remarks: Upland. No paramenters present.

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances?
☐ Atypical Situation?
☑ Problem Area?

Data Point: 5
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Rorippa nasturtium-aquaticum	P	30	OBL
Leersia oryzoides	P	30	OBL
Typha latifolia	P	30	OBL
Lemna sp.	P		OBL

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 100

Species Remarks: Wetland. All species are good indicators.

Hydrology

Check those that apply

☐ Recorded Data?
☐ Steam, Lake, or Tide Gauge?
☐ Aerial Photograph?
☑ No Recorded Data

Field Observations:
Depth of Surface Water: 12
Depth to Free Water:
Depth to Saturated Soil:

Primary Indicators
☑ Inundated?
☐ Saturated in Upper 12 Inches?
☐ Water Marks?
☐ Drift Lines?
☐ Sediment Deposits?
☐ Drainage Patterns?

Secondary Indicators
☐ Oxidized Root Channels?
☐ Water-stained Leaves?
☐ Local Soil Survey Data?
☐ FAC Neutral Test?
☐ Other?

Hydrology Remarks: Wetland. Inundated, standing water.

Soils

Map Name: Unsure
Subgroup:
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz. Depth | Matrix Color | Mottle Color | Mottle Abundance, Size | Texture, Concretions, Etc.

Hydric Soil Indicators: Check those that apply

☐ Histosol?
☐ Histic Epipedon?
☐ Sulfide Odor?
☑ Aquic Moisture Regime?
☐ Reducing Conditions?
☐ Gleyed or Low Chroma?
☐ Concretions?
☐ High OM in Sandy Soils?
☐ OM Streaks in Sandy Soils?
☐ On Local Hydric Soils List?
☐ On National Hydric Soils List?
☐ Other?

Soil Remarks: Wetland. Inundated.

Determination

Check those that apply

☑ Wetland Vegetation? ☑ Wetland Hydrology? ☑ Wetland Soils?
☑ Is the Sampling Point Waters of the US?

Remarks: Other waters. Man-made pond for spring water.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances?
☐ Atypical Situation?
☑ Problem Area?

Data Point: 6
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Torilis arvensis	A	50	-
Cynosurus echinatus	A	20	-
Rubus discolor	S	20	FACW*

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 33

Species Remarks: Upland. Plants suggest upland conditions.

Hydrology Check those that apply

☐ Recorded Data?
☐ Steam, Lake, or Tide Gauge?
☐ Aerial Photograph?
☑ No Recorded Data

Field Observations:
Depth of Surface Water:
Depth to Free Water:
Depth to Saturated Soil:

Primary Indicators
☐ Inundated?
☐ Saturated in Upper 12 Inches?
☐ Water Marks?
☐ Drift Lines?
☐ Sediment Deposits?
☐ Drainage Patterns?

Secondary Indicators
☐ Oxidized Root Channels?
☐ Water-stained Leaves?
☐ Local Soil Survey Data?
☐ FAC Neutral Test?
☐ Other?

Hydrology Remarks: Upland. Point is above the pond.

Soils

Map Name: Unsure
Subgroup:
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz. Depth	Matrix Color	Mottle Color	Mottle Abundance, Size	Texture, Concretions, Etc.

Hydric Soil Indicators: Check those that apply

☐ Histosol?
☐ Histic Epipedon?
☐ Sulfide Odor?
☐ Aquic Moisture Regime?
☐ Reducing Conditions?
☐ Gleyed or Low Chroma?
☐ Concretions?
☐ High OM in Sandy Soils?
☐ OM Streaks in Sandy Soils?
☐ On Local Hydric Soils List?
☐ On National Hydric Soils List?
☐ Other?

Soil Remarks: Upland. Rock at 2 inches.

Determination Check those that apply

☐ Wetland Vegetation? ☐ Wetland Hydrology? ☐ Wetland Soils?
☐ Is the Sampling Point Waters of the US?

Remarks: Upland. Out point for 5.

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances? ☐ Atypical Situation? ☑ Problem Area?

Data Point: 7
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Madia elegans	A	60	-
Lotus purshianus purshianus	A	40	-

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 0

Species Remarks: Upland. No indicator species present.

Hydrology Check those that apply

☐ Recorded Data?
☐ Steam, Lake, or Tide Gauge?
☐ Aerial Photograph?
☑ No Recorded Data

Field Observations:
Depth of Surface Water:
Depth to Free Water:
Depth to Saturated Soil:

Primary Indicators
☐ Inundated?
☐ Saturated in Upper 12 Inches?
☐ Water Marks?
☐ Drift Lines?
☐ Sediment Deposits?
☐ Drainage Patterns?

Secondary Indicators
☐ Oxidized Root Channels?
☐ Water-stained Leaves?
☐ Local Soil Survey Data?
☐ FAC Neutral Test?
☐ Other?

Hydrology Remarks: Upland. No hydrology indicators present. Point is above the seep.

Soils

Map Name: Josephine silt loam
Subgroup: Typic Haploxerults
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz.	Depth	Matrix Color	Mottle Color	Mottle Abundance, Size	Texture, Concretions, Etc.
A	10	7.5YR 3/3	7.5YR 5/8	Very few, faint.	Hard sandy loam.

Hydric Soil Indicators: Check those that apply

☐ Histosol?
☐ Histic Epipedon?
☐ Sulfide Odor?
☐ Aquic Moisture Regime?
☐ Reducing Conditions?
☐ Gleyed or Low Chroma?
☐ Concretions?
☐ High OM in Sandy Soils?
☐ OM Streaks in Sandy Soils?
☐ On Local Hydric Soils List?
☐ On National Hydric Soils List?
☐ Other?

Soil Remarks: Upland. Light chroma with very faint mottles.

Determination Check those that apply

☐ Wetland Vegetation? ☐ Wetland Hydrology? ☐ Wetland Soils?
☐ Is the Sampling Point Waters of the US?

Remarks: Upland. Out point for 8. Point is above the seep.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances?
☐ Atypical Situation?
☑ Problem Area?

Data Point: 8
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Juncus oxymeris	P	100	FACW

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 100

Species Remarks: Wetland. Dominant species is a fair indicator.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
Depth of Surface Water:
Depth to Free Water:
Depth to Saturated Soil:

Primary Indicators
- ☐ Inundated?
- ☐ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☐ Drift Lines?
- ☐ Sediment Deposits?
- ☐ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☐ Other?

Hydrology Remarks: Wetland. Inferred from the vegetation.

Soils

Map Name: Josephine silt loam
Subgroup: Typic Haploxerults
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz.	Depth	Matrix Color	Mottle Color	Mottle Abundance, Size	Texture, Concretions, Etc.
A	12	7.5YR 3/3	7.5YR 5/8	Many, frequent.	Sandy loam.

Hydric Soil Indicators: Check those that apply
- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☐ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☑ Other?

Soil Remarks: Wetland. Inferred from the vegetation. Mottles are more frequent and distinct that point 7.

Determination Check those that apply

☑ Wetland Vegetation? ☑ Wetland Hydrology? ☑ Wetland Soils?
☑ Is the Sampling Point Waters of the US?

Remarks: Wetland. Seep.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances?
☐ Atypical Situation?
☑ Problem Area?

Data Point: 9
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Eleocharis macrostachya	P	60	OBL
Epilobium ciliatum	P	20	FACW
Mimulus guttatus	A, P	20	OBL

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 100

Species Remarks: Wetland. Species are good indicators.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
- Depth of Surface Water:
- Depth to Free Water:
- Depth to Saturated Soil:

Primary Indicators
- ☐ Inundated?
- ☐ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☐ Drift Lines?
- ☐ Sediment Deposits?
- ☐ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☑ Other?

Hydrology Remarks: Wetland. Inferred from the vegetation.

Soils

Map Name: Josephine silt loam
Subgroup: Typic Haploxerults
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz.	Depth	Matrix Color	Mottle Color	Mottle Abundance, Size	Texture, Concretions, Etc.
A	12	7.5YR 3/2	orange	Many, faint, indistinct.	Loamy

Hydric Soil Indicators: Check those that apply
- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☐ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☑ Other?

Soil Remarks: Wetland. Chroma of 2 with many mottles.

Determination Check those that apply

☑ Wetland Vegetation? ☑ Wetland Hydrology? ☑ Wetland Soils?
☑ Is the Sampling Point Waters of the US?

Remarks: Wetland. Narrow wetland swale 3 to 5 feet wide.

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances? ☐ Atypical Situation? ☑ Problem Area?

Data Point: 10
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Juncus sp.	P	70	VARIES
Juncus effusus	P		OBL
Rubus discolor	S		FACW*
Mimulus guttatus	A, P		OBL
Cyperus sp.	A, P		VARIES
Cyperus eragrostis	P		FACW

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 100

Species Remarks: Wetland. Most species suggest wetland conditions.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
Depth of Surface Water:
Depth to Free Water: 3
Depth to Saturated Soil:

Primary Indicators
- ☐ Inundated?
- ☑ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☐ Drift Lines?
- ☐ Sediment Deposits?
- ☐ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☐ Other?

Hydrology Remarks: Wetland. Soil is saturated.

Soils

Map Name: Josephine silt loam
Subgroup: Typic Haploxerults
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz. Depth | Matrix Color | Mottle Color | Mottle Abundance, Size | Texture, Concretions, Etc.

Hydric Soil Indicators: Check those that apply
- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☑ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☐ Other?

Soil Remarks: Wetland. Saturated soil.

Determination Check those that apply

☑ Wetland Vegetation? ☑ Wetland Hydrology? ☑ Wetland Soils?
☑ Is the Sampling Point Waters of the US?

Remarks: Wetland. All three parameters present.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances?
☐ Atypical Situation?
☑ Problem Area?

Data Point: 11
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Quercus douglasii	T	60	-
Bromus hordeaceus	A	40	FACU-
Bromus diandrus	A	40	-

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 0

Species Remarks: Upland. Species are upland indicators.

Hydrology Check those that apply

☐ Recorded Data?
☐ Steam, Lake, or Tide Gauge?
☐ Aerial Photograph?
☑ No Recorded Data

Field Observations:
Depth of Surface Water:
Depth to Free Water:
Depth to Saturated Soil:

Primary Indicators
☐ Inundated?
☐ Saturated in Upper 12 Inches?
☐ Water Marks?
☐ Drift Lines?
☐ Sediment Deposits?
☐ Drainage Patterns?

Secondary Indicators
☐ Oxidized Root Channels?
☐ Water-stained Leaves?
☐ Local Soil Survey Data?
☐ FAC Neutral Test?
☐ Other?

Hydrology Remarks: Upland. No indicators present.

Soils

Map Name: Josephine silt loam
Subgroup: Typic Haploxerults
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz. Depth | Matrix Color | Mottle Color | Mottle Abundance, Size | Texture, Concretions, Etc.

Hydric Soil Indicators: Check those that apply

☐ Histosol?
☐ Histic Epipedon?
☐ Sulfide Odor?
☐ Aquic Moisture Regime?
☐ Reducing Conditions?
☐ Gleyed or Low Chroma?
☐ Concretions?
☐ High OM in Sandy Soils?
☐ OM Streaks in Sandy Soils?
☐ On Local Hydric Soils List?
☐ On National Hydric Soils List?
☐ Other?

Soil Remarks: Upland. Rock at 8 inches.

Determination Check those that apply

☐ Wetland Vegetation? ☐ Wetland Hydrology? ☐ Wetland Soils?
☐ Is the Sampling Point Waters of the US?

Remarks: Upland. Out point for 10.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances? ☐ Atypical Situation? ☑ Problem Area?

Data Point: 12
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Quercus wislizeni wislizeni	T	60	-
Toxicodendron diversilobum	S, V	50	-
Lonicera subspicata subspicata	V	30	-

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 0

Species Remarks: No wetland indicator species present.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
- Depth of Surface Water:
- Depth to Free Water:
- Depth to Saturated Soil:

Primary Indicators
- ☐ Inundated?
- ☐ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☐ Drift Lines?
- ☐ Sediment Deposits?
- ☐ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☑ Other?

Hydrology Remarks: Other waters. Very slightly incised channel.

Soils

Map Name: Josephine silt loam
Subgroup: Typic Haploxerults
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz. Depth	Matrix Color	Mottle Color	Mottle Abundance, Size	Texture, Concretions, Etc.

Hydric Soil Indicators: Check those that apply

- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☐ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☑ Other?

Soil Remarks: Drainage channel with rock, sand, and duff.

Determination Check those that apply

☐ Wetland Vegetation? ☑ Wetland Hydrology? ☐ Wetland Soils?

☑ Is the Sampling Point Waters of the US?

Remarks: Other waters. Ephemeral drainage. OHWM 2 feet.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances?
☐ Atypical Situation?
☑ Problem Area?

Data Point: 13
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Quercus wislizeni wislizeni	T	100	-
Lonicera subspicata subspicata	V	40	-
Rubus discolor	S	40	FACW*

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 33

Species Remarks: No wetland indicators present.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
- Depth of Surface Water:
- Depth to Free Water:
- Depth to Saturated Soil:

Primary Indicators
- ☐ Inundated?
- ☐ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☐ Drift Lines?
- ☐ Sediment Deposits?
- ☐ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☑ Other?

Hydrology Remarks: Other waters. Incised channel.

Soils

Map Name: Josephine silt loam
Subgroup: Typic Haploxerults
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz. Depth | Matrix Color | Mottle Color | Mottle Abundance, Size | Texture, Concretions, Etc.

Hydric Soil Indicators: Check those that apply
- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☐ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☐ Other?

Soil Remarks: Rock creekbed.

Determination Check those that apply

☐ Wetland Vegetation? ☑ Wetland Hydrology? ☐ Wetland Soils?

☑ Is the Sampling Point Waters of the US?

Remarks: Other waters. Ephemeral drainage. OHWM 2 feet.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Barrett Anderson, Jeff Glazner

☑ Normal Circumstances? ☐ Atypical Situation? ☑ Problem Area?

Data Point: 14
Date: 03-Sep-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Bareground _		60	-
Selaginella sp.	P	30	-

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 0

Species Remarks: No wetland indicators present.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
Depth of Surface Water:
Depth to Free Water:
Depth to Saturated Soil:

Primary Indicators
- ☐ Inundated?
- ☐ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☐ Drift Lines?
- ☐ Sediment Deposits?
- ☐ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☑ Other?

Hydrology Remarks: Other waters. Incised channel 1-2 feet deep and 4 feet wide.

Soils

Map Name: Josephine-Mariposa gravelly loams
Subgroup:
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz. Depth | Matrix Color | Mottle Color | Mottle Abundance, Size | Texture, Concretions, Etc.

Hydric Soil Indicators: Check those that apply
- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☐ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☐ Other?

Soil Remarks: Rock with selaginella.

Determination Check those that apply

☐ Wetland Vegetation? ☑ Wetland Hydrology? ☐ Wetland Soils?
☐ Is the Sampling Point Waters of the US?

Remarks: Other waters. Ephemeral drainage. OHWM 4 feet.

North Fork Associates Routine Wetland Determination (1987 Corps Manual)

Project Name: Afshar Property
Project Location: Placerville
Applicant/Owner:
Surveyor/s: Jeff Glazner, Barrett Anderson

☑ Normal Circumstances?
☐ Atypical Situation?
☑ Problem Area?

Data Point: 15
Date: 01-Oct-03
County: El Dorado
State: California

Remarks: Dry season delineation.

Vegetation

Taxon (Dominants have greater than 20% cover)	Habit	%Cover	Status
Juncus effusus	P	100	OBL
Agrostis sp.	P		VARIES
Torilis arvensis	A		-
Mimulus guttatus	A, P		OBL

Stratum: A=Annual; B=Biennial; P=Herbaceous Perennial; S=Shrub; T=Tree

% of Species OBL, FACW, or FAC: 100

Species Remarks: Wetland. Dry seep. Some Juncus is dead.

Hydrology Check those that apply

☐ Recorded Data?
- ☐ Steam, Lake, or Tide Gauge?
- ☐ Aerial Photograph?

☑ No Recorded Data

Field Observations:
- Depth of Surface Water:
- Depth to Free Water:
- Depth to Saturated Soil:

Primary Indicators
- ☐ Inundated?
- ☐ Saturated in Upper 12 Inches?
- ☐ Water Marks?
- ☐ Drift Lines?
- ☐ Sediment Deposits?
- ☐ Drainage Patterns?

Secondary Indicators
- ☐ Oxidized Root Channels?
- ☐ Water-stained Leaves?
- ☐ Local Soil Survey Data?
- ☐ FAC Neutral Test?
- ☑ Other?

Hydrology Remarks: Wetland. Inferred from the vegetation.

Soils

Map Name: Unsure
Subgroup:
Inclusions:

Drainage Class:
Confirm Map Type? ☐

Horiz. Depth	Matrix Color	Mottle Color	Mottle Abundance, Size	Texture, Concretions, Etc.
				Dry rocky.

Hydric Soil Indicators: Check those that apply
- ☐ Histosol?
- ☐ Histic Epipedon?
- ☐ Sulfide Odor?
- ☐ Aquic Moisture Regime?
- ☐ Reducing Conditions?
- ☐ Gleyed or Low Chroma?
- ☐ Concretions?
- ☐ High OM in Sandy Soils?
- ☐ OM Streaks in Sandy Soils?
- ☐ On Local Hydric Soils List?
- ☐ On National Hydric Soils List?
- ☑ Other?

Soil Remarks: Wetland. Soils would not hold together, very rocky. Inferred from veg.

Determination Check those that apply

☐ Wetland Vegetation? ☐ Wetland Hydrology? ☐ Wetland Soils?
☐ Is the Sampling Point Waters of the US?

Remarks:

APPENDIX B

Wetland Delineation Map

DEPARTMENT OF THE ARMY
U.S. ARMY ENGINEER DISTRICT, SACRAMENTO
CORPS OF ENGINEERS
1325 J STREET
SACRAMENTO, CALIFORNIA 95814-2922

REPLY TO
ATTENTION OF

October 27, 2005

Regulatory Branch (200400212)

Sid Afshar
Brilliant Management, L.L.C.
114 Camino Pablo
Orinda, California 94563

Dear Mr. Afshar:

We are responding to your consultant's request for an approved jurisdictional determination for the Lumsden Ranch site. This approximately 128.0-acre site is located near Placerville in Sections 9 and 16, Township 10 North, Range 11 East, MDB&M, Latitude 038° 43′ 34.7″, Longitude 120° 46′ 21.7″, El Dorado County, California.

Based on available information, concur with the estimate of waters of the United States, as depicted on the wetland delineation map dated October 27, 2003 prepared by North Fork Associates. We verify that there are approximately 0.75 acres of waters of the United States, including wetlands, are present within the survey area. These waters are regulated under Section 404 of the Clean Water Act since they are tributary to the American River which is a navigable water of the United States.

This verification is valid for five years from the date of this letter, unless new information warrants revision of the determination before the expiration date. A *Notification of Administrative Appeal Options and Process and Request for Appeal* form is enclosed. If you wish to appeal this approved jurisdictional determination, please follow the procedures on the form. You should provide a copy of this letter and notice to all other affected parties, including any individual who has an identifiable and substantial legal interest in the property.

This determination has been conducted to identify the limits of Corps of Engineers' Clean Water Act jurisdiction for the particular site identified in this request. This determination may not be valid for the wetland conservation provisions of the Food Security Act of 1985. If you or your tenant are USDA program participants, or anticipate participation in USDA programs, you should request a certified wetland determination from the local office of the Natural Resources Conservation Service, prior to starting work.

Please refer to identification number 200400212 in any correspondence concerning this project. If you have any questions, please contact Kathy Norton at our San Joaquin Valley Office, 1325 J Street, Room 1480, Sacramento, California 95814-2922, email *Kathy.Norton@usace.army.mil*, or telephone 916-557-5260. You may also use our website: *www.spk.usace.army.mil/regulatory.html*.

Sincerely,

Kevin J. Roukey
Chief, San Joaquin Valley Office

Enclosure

Copy furnished without enclosure:

Barry Anderson, North Fork Associates, 110 Maple Street, Suite 100, Auburn, California 95603

George Day, Storm Water and Water Quality Certification Unit, Central Valley Regional Water Quality Control Board, 11020 Sun Center Drive #200, Rancho Cordova, California 95670-6114

NOTIFICATION OF ADMINISTRATIVE APPEAL OPTIONS AND PROCESS AND REQUEST FOR APPEAL

Applicant:	File Number: 200400212	Date: October 27, 2005
Attached is:		See Section below
	INITIAL PROFFERED PERMIT (STANDARD PERMIT OR LETTER OF PERMISSION)	A
	PROFFERED PERMIT (STANDARD PERMIT OR LETTER OF PERMISSION)	B
	PERMIT DENIAL	C
✓	APPROVED JURISDICTIONAL DETERMINATION	D
	PRELIMINARY JURISDICTIONAL DETERMINATION	E

SECTION I - The following identifies your rights and options regarding an administrative appeal of the above decision. Additional information may be found at http://usace.army.mil/inet/functions/cw/cecwo/reg or Corps regulations 33 CFR Part 331.

A: INITIAL PROFFERED PERMIT: You may accept or object to the permit.

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the **District Engineer** for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- OBJECT: If you object to the permit (Standard or LOP) because of certain terms and conditions therein, you may request that the permit be modified accordingly. You must complete Section II of this form and return the form to the **District Engineer**. The **District Engineer** must receive your objections within 60 days of the date of this notice, or you will forfeit your right to appeal the permit in the future. Upon receipt of your letter, the **District Engineer** will evaluate your objections and may: (a) modify the permit to address all of your concerns, (b) modify the permit to address some of your objections, or (c) not modify the permit having determined that the permit should be issued as previously written. After evaluating your objections, the **District Engineer** will send you a proffered permit for your reconsideration, as indicated in Section B below.

B: PROFFERED PERMIT: You may accept or appeal the permit

- ACCEPT: If you received a Standard Permit, you may sign the permit document and return it to the **District Engineer** for final authorization. If you received a Letter of Permission (LOP), you may accept the LOP and your work is authorized. Your signature on the Standard Permit or acceptance of the LOP means that you accept the permit in its entirety, and waive all rights to appeal the permit, including its terms and conditions, and approved jurisdictional determinations associated with the permit.

- APPEAL: If you choose to decline the proffered permit (Standard or LOP) because of certain terms and conditions therein, you may appeal the declined permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the **Division (not District) Engineer** (address on reverse). The **Division Engineer** must receive this form within 60 days of the date of this notice.

C: PERMIT DENIAL: You may appeal the denial of a permit under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the **Division (not District) Engineer** (address on reverse). The **Division Engineer** must receive this form within 60 days of the date of this notice.

D: APPROVED JURISDICTIONAL DETERMINATION: You may accept or appeal the approved JD or provide new information.

- ACCEPT: You do not need to notify the Corps to accept an approved JD. Failure to notify the Corps within 60 days of the date of this notice means that you accept the approved JD in its entirety, and waive all rights to appeal the approved JD.

- APPEAL: If you disagree with the approved JD, you may appeal the approved JD under the Corps of Engineers Administrative Appeal Process by completing Section II of this form and sending the form to the **Division (not District) Engineer**. The **Division Engineer** must receive this form within 60 days of the date of this notice. Exception: JD appeals based on new information must be submitted to the **District Engineer** within 60 days of the date of this notice.

E: PRELIMINARY JURISDICTIONAL DETERMINATION: You do not need to respond to the Corps regarding the preliminary JD. The Preliminary JD is not appealable. If you wish, you may request an approved JD (which may be appealed), by contacting the Corps district for further information. Also, you may provide new information for further consideration by the Corps to reevaluate the JD.

SECTION II - REQUEST FOR APPEAL OR OBJECTIONS TO AN INITIAL PROFFERED PERMIT

REASONS FOR APPEAL OR OBJECTIONS: (Describe your reasons for appealing the decision or your objections to an initial proffered permit in clear concise statements. You may attach additional information to this form to clarify where your reasons or objections are addressed in the administrative record.)

ADDITIONAL INFORMATION: (The appeal is limited to a review of the administrative record, the Corps memorandum for the record of the appeal conference or meeting, and any supplemental information that the review officer has determined is needed to clarify the administrative record. Neither the appellant nor the Corps may add new information or analyses to the record. However, you may provide additional information to clarify the location of information that is already in the administrative record.)

POINT OF CONTACT FOR QUESTIONS OR INFORMATION:

If you have questions regarding this decision and/or the appeal process you may contact:
District Engineer
US Army Corps of Engineers, Sacramento District, CESPK-CO-R
ATTN: Regulatory Branch, Kathleen Norton
1325 J Street, Sacramento, CA 95814-2922 (916-557-5250)
(Use this address for submittals to the District Engineer)

If you only have questions regarding the appeal process you may also contact:
Division Engineer
US Army Corps of Engineers, South Pacific Division, CESPD-CM-O
ATTN: Doug Pomeroy, Administrative Appeal Review Officer
333 Market Street, San Francisco, CA 94105 (415-977-8035)
(Use this address for submittals to the Division Engineer.)

RIGHT OF ENTRY: Your signature below grants the right of entry to Corps of Engineers personnel, and any government consultants, to conduct investigations of the project site during the course of the appeal process. You will be provided a 15-day notice of any site investigation, and will have the opportunity to participate in all site investigations.

Signature of Appellant or Agent	Date	Telephone Number

APPENDIX D:
California Red-legged Frog Habitat Assessment

CALIFORNIA RED-LEGGED FROG SITE ASSESSMENT

LUMSDEN RANCH PROJECT

PLACERVILLE, CALIFORNIA

May 10, 2004

Prepared for:

Mr. Sid Afshar
Brilliant Management LLC
114 Camino Pablo
Orinda, California 94563
925.258.0886

Prepared by:

Trish Tatarian
Wildlife Research Associates
1119 Burbank Avenue
Santa Rosa, CA 95407
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SUMMARY

Wildlife Research Associates prepared this Site Assessment for the approximately 128-acre Lumsden Ranch property, located north of Lumsden Park, northeast of the Town of Placerville, in El Dorado County, California. The parcel is located south of Highway 50, at the southeastern end of Wiltse Road. This report presents the findings of our literature review and habitat evaluation for California red-legged frog (*Rana aurora draytonii*), according to the protocol outlined in the U.S. Fish and Wildlife Service *Interim Guidelines on Site Assessment and Field Surveys for California Red-legged Frogs* (USFWS 1997).

No California red-legged frogs were detected during this site habitat evaluation. California red-legged frogs have been reported within 10 mile south of the proposed project site, at Spivy Pond in Weber Creek (CNDDB 2004). Weber Creek is located approximately 10 miles east of the project site.

Vegetation within the study area is characterized as mixed montane hardwood forest, chamise chaparral, and freshwater seeps (North Fork Associates 2003). Several intermittent drainages flow from southeast to northwest into the main ephemeral drainage that flows northwest off site to Lumsden Park reservoir. The headwaters range in elevation between 2200 and 2300 feet, with the steepest grades on Texas Hill in the southern portion of the site. A perennial pond occurs mid-slope in the southeastern portion of the site.

Based on the hydrologic condition of the ephemeral drainages, the lack of pools within the main drainage on site, and the presence of only one small perennial pond on site, it is our conclusion that the Lumsden Ranch property study area does not provide suitable California red-legged frog breeding habitat. The lack of hydrologic connectivity to known locations of California red-legged frog, 10 miles east of the study site, also precludes the potential for California red-legged frog to use the site for upland habitat.

However, it is at the discretion of the US Fish and Wildlife Service whether focused surveys for California red-legged frog will be required.

INTRODUCTION

At the request of Brilliant Management LLC, Wildlife Research Associates conducted a Site Assessment for the federally-listed Threatened California red-legged frog (*Rana aurora draytonii*, hereafter CRF) at the Lumsden Ranch property site. A CRF Site Assessment is typically required by the U.S. Fish and Wildlife Service (USFWS) to provide information to adequately assess CRF status on site and within the vicinity of a proposed project. The present study conforms to the guidelines as outlined in the *Interim Guidance on Site Assessment and Field Surveys for California Red-legged Frog* (USFWS 1997) and presents the results of our investigation. This Site Assessment identifies upstream, downstream and out-of-stream breeding sites or other aquatic features that may provide habitat for CRF.

Previous reports prepared for this property include the *Biological Resource Assessment for the 128-acre Lumsden Ranch Project, Placerville, El Dorado County, California* (North Fork Associates 2003).

METHODS

Background research was conducted prior to the field reconnaissance visit. The California Natural Diversity Database (CNDDB 2004), operated by the Department of Fish and Game, was reviewed for the U.S. Geological Service (USGS) Placerville, Garden Valley, Slate Mt., and Camino 7.5-minute topographic quadrangles for reported occurrences of CRF within 5 miles of the study area, or the closest reported sighting. Habitats within one mile of the study area were evaluated in order to determine the potential locations and a pattern of dispersal in the area. Other sources of information include previously reported locations from the U.C Berkeley Museum of Vertebrate Zoology and the California Academy of Sciences.

Trish Tatarian conducted a field reconnaissance visit on April 1, 2004, which entailed walking meandering transects over the entire parcel. For purposes of this report, the **study area** includes all lands within the 128-acre parcel. Aerial photograph analysis was conducted of appropriate aquatic habitat that could provide a movement corridor for CRF, and ponds and water bodies that could provide potential breeding habitat. Habitats within 5 miles were evaluated for their potential to provide connectivity between sites.

Wildlife habitat classification for this report is based on the California Department of Fish and Game's Wildlife Habitat Relationships (WHR) System (CDFG 1988) which places an emphasis on dominant vegetation, vegetation diversity and physiographic character of the habitat.

Insert Figure 1: Project Location

SITE DESCRIPTION

The site is located on the western edge of the Sierra Nevada Mountain range, in the eastern portion of the Town of Placerville, 5 miles west of the El Dorado National Forest. The location is just south of Highway 50, at the southern end of Wiltse Road. Lumsden Park, owned by the Town of Placerville, is the northern boundary of the site. Residential development encircles the site, with the Placerville Airport located southeast of the site. The site is located in Sections 9 and 16, Township 10N, and Range 11E on the Placerville topographic quadrangle.

Topography of the site consists of a north-facing valley with steep slopes underlain by loam and silty loam (North Fork Associates 2003). Elevations of the study area range from approximately 2,000 to 2,300 feet above sea level. The northern portion of the study area, at the end of Wiltse Road, has been altered by grading in specific areas for several residential houses.

An unnamed drainage occurs onsite, and flows roughly from southeast to northwest, originating on steep slopes that supports springs which were saturated by subsurface water seepage. The eastern portion of the drainage has several smaller tributaries that flow into the headwaters; however, most of these were dry at the time of the survey. Two tributaries on the north side of the drainage contained seeps, and surface water was flowing into the drainage from these seeps. No pools occur within the main drainage. See Table 1 measurements of the drainage channel.

Table 1: Main Drainage Dimensions

Observation Point	Bank Height (inches)	Drainage Width (inches)	Water Depth (inches)
1	12	24	1
2	6	12	1
3	6	12	2
4	6	12	2-4
5	12	12	2-4
6	24	12	2-4
7	18	10	4-6

A perennial pond, measuring approximately 40 feet by 30 feet and between 3 and 5 feet in depth, occurs in the southeastern portion of the site. The pond was man-made with gunnite banks and serves as a perennial water source for the residences on the site (North Fork Associates 2003). A seep occurs downhill from the pond, which eventually flows into the main drainage. Water from an excavated mine adit flows into the pond and is a perennial water source for the residences on site (North Fork Associates 2003).

CALIFORNIA RED-LEGGED FROG AUTECOLOGY

The California red-legged frog (*Rana aurora draytonii*) (CRF) is listed Threatened by the USFWS and a California Special Concern species by the CDFG. It breeds primarily in ponds, but will also breed in slow moving streams, or deep pools in intermittent streams. Inhabited ponds are typically permanent, at least 2 feet (0.6 meters) in depth, and contain emergent and shoreline vegetation. Sufficient pond depth and shoreline cover are both critical, because they provide means of escape from predators for the frogs (Stebbins 1985, Tatarian, in preparation). Additionally, emergent vegetation is necessary for the deposition of eggs. The breeding period begins during heavy rains, from early to late winter, usually November through early May. The larvae mature in 11 to 20 weeks.

Non-breeding CRF have been found in both aquatic and upland habitats. The majority of individuals prefer dense, shrubby or emergent vegetation, closely associated with deep (>0.7 meters) still, or slow moving water. However, some individuals use habitats that are distant from aquatic habitats, seeking cover in ground squirrel burrows, under boulders and logs and in non-native grasslands (Tatarian, personal observation). Aestivation habitat includes areas up to 300 feet from a stream corridor and includes natural features, such as boulders, rocks, trees, shrubs, and logs. Incised stream channels with portions narrower than 18 inches and depths greater than 18 inches may also provide aestivation habitat. In general, densely vegetated terrestrial areas within the riparian corridor provide important sheltering habitat during the winter flooding of the streams (Tatarian, in preparation). This species has been reported breeding in ponds underneath eucalyptus trees (Jennings 1996).

HABITAT AVAILIBILITY

This section assesses the amount of suitable habitat available within the project site, one mile from the project site and five miles from the project site according to the USFWS protocol for CRF. This section also assesses if any movement corridors are present.

The value of a site to wildlife is influenced by a combination of the physical and biological components of the immediate environment, and includes such features as type, size, and diversity of vegetation communities present and their degree of disturbance. Wildlife habitats are typically distinguished by vegetation type, with varying combinations of plant species providing different resources for use by wildlife. The following is a discussion of existing habitats found on site and the wildlife species they support.

Habitat Within the Project Site

The dominant habitat on site consists of mixed montane hardwood forest, with hardwoods such as live oak (*Quercus wislizenii*) and blue oak (*Quercus douglasii*), and conifers such as foothill pine (*Pinus sabiana*), ponderosa pine (*Pinus ponderosa*) and Douglas fir (*Pseudotsuga menziesii*). The understory varies between chamise (*Adenostoma fasciculatum*) chaparral along the ridge tops and west facing slopes, and montane chaparral, with manzanita (*Arctostaphylos* sp.), toyon (*Heteromeles arbutifolia*), and buckbrush (*Ceanothus cuneatus*). In areas of disturbance, French broom (*Genista monspessulana*) and coyote brush (*Baccharis pilularis*) are dominant. A few patches of freshwater seeps occur on the eastern portion of the site and willow (*Salix* sp.) scrub riparian habitat occurs in patches along the main drainage channel. Discrete areas of California blackberry (*Rubus ursinus*) also occur along the drainage. (See *Biological Resource Assessment for the 128-acre Lumsden Ranch Project, Placerville, El Dorado County, California* (North Fork Associates 2003) for more details of habitats within the study area.

Natural hydrology on site is primarily influenced by direct precipitation, subsurface seepage, and surface runoff from hills to the east. Surface runoff is conveyed via sheet flow into tributaries that originate on the

property. Small tributaries flow into the unnamed drainage that flows into Lumsden Park reservoir. An excavated mine adit discharges perennial water which flows into the pond located on the southeastern portion of the property.

Habitat Within One Mile

Lumsden Reservoir is located on the northern boundary of the study area. Western pond turtle (*Emys marmorata*) was observed in the reservoir and more than 20 domestic geese (*Branta* sp.) and ducks (*Anas* sp.) were observed during the survey. Review of the USGS topographic maps (Placerville, Garden Valley, Slate Mt., and Camino) revealed several stock ponds that are privately owned present within one mile of the study area. Although not surveyed to date, these ponds could potentially provide suitable breeding and upland dispersal habitat for CRF. Figure 2 is an aerial of the surrounding habitats.

Wildlife Habitats Within Five Miles of the Project Site

Many stock ponds and creeks occur within a five mile radius of the project site, including Squaw Hollow Creek, Martinez Creek, Ringgold Creek, and Weber Creek to the south, and the South Fork of the American River, Big Canyon Creek and White Rock Creek to the north of the study area. Hangtown Creek flows from east to west through Placerville, originates in eastern Placerville and is concrete or old stoned lined in portions of the downtown area. Stock ponds on private lands within the area may provide source populations for the region.

Movement Corridors

In this region of the Sierra foothills, the perennial creeks once provided movement corridors for CRF between breeding areas, such as created stock ponds. No suitable corridors occur between the study area, which is surrounded by residential development and the Placerville Airport, and known populations of CRF. Weber Creek is hydrologically connected to Hangtown Creek 5 miles east of the study area. Hangtown Creek flows west through Placerville and receives storm water runoff from the surrounding residential development and urban areas.

Insert Figure 2: Aerial photo of property

REPORTED OCCURRENCES

The project site is located on the Placerville 7.5-minute USGS topographic quadrangle. Review of the CNDDB for the three surrounding quadrangles Garden Valley, Slate Mtn and Camino resulted in no occurrences of CRF within 5 miles of the project site. Review of the CNDDB for El Dorado County resulted in 2 occurrences for CRF (586 and 609), ranging from 10 miles to 22 miles in distance from the project site (CNDDB 2004). Recorded locations, in Universal Transverse Mercator coordinates (meters), and a description of the sighting, are provided in Table 1. Of the 5 specimens represented for El Dorado County on the internet site of the Museum of Vertebrate Zoology (MVZ) at the University of Berkeley (www.mip.berkeley.edu/mvz/) (2004), a total of 2 occurrences of CRF have been reported near Placerville. However, the two reported sightings were recorded in 1935 and 1961.

Table 2: El Dorado County - CRF Occurrences

I.D.	Location	Coordinates	Distance from Site
586	Spivy Pond, located east of the site in Weber Creek	38.74489 and 120.59958	~10 mi E
609	Sopiago Creek, located south of the site.	38.53713 and 120.43970	~22 mi SE
MVZ	1 mi SE of Placerville (1935)	38.719460 and 120.784410	0.8 mi SW
MVZ	2 mi S of El Dorado (1961)	38.645410 and 120.841180	5 mi SW

CONCLUSIONS

California red-legged frog is not expected to use the Lumsden property for breeding purposes due to a lack of sufficient ponded water. Although one small pond, approximately 1,200 square feet, occurs on-site, no pools occur within the unnamed drainage on site, which had an average depth of 3 inches. Review of aerial photographs revealed several stock ponds outside the property boundary, but within the region of the study area. However, it is unknown whether these ponds are occupied by CRF.

It is unlikely there is a terrestrial movement corridor between the location of the reported CRF sighting (Figure 3) 10 miles east in Weber Creek and the Lumsden property. The study area is surrounded by residential development with associated roadways, and the Placerville Airport.

There is a potential aquatic movement corridor onto the site through Hangtown Creek. Hangtown Creek, which flows west past the Lumsden property, is hydrologically connected to Weber Creek 5 miles west of the study area. California red-legged frog could occur in other portions of Weber Creek and may make the 5 mile movement east onto the site. However, Hangtown Creek flows through Placerville and receives stormwater runoff from the surrounding residential and urban development thus reducing the suitability of the creek as a movement corridor. Lumsden Reservoir is located at the northern boundary of the site and supports western pond turtle and geese, both potential predators of frogs.

Insert Figure 3: Reported frog occurrences.

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PERSONAL COMMUNICATION

Anderson, B. 2004. Botanist, North Fork Associates. Personal Communication with Trish Tatarian. April 4.

Appendix A

Photographs of Study Area

Figure 2. Open area of drainage with 4” of water

Figure 3. Canopy over main drainage

Figure 4. Perennial pond on the site

Figure 5. Water flowing from excavated mine that has been blocked

APPENDIX E:
Bat Habitat Assessment

Scott Goebl

Wildlife Research Associates

Greg and Trish Tatarian
1119 Burbank Avenue
Santa Rosa, CA 95407
Ph: 707.544.6273 Fax: 707.544.6317
http://home.pacbell.net/tatarian/index.html
tatarian@pacbell.net

April 29, 2004

RECEIVED
APR 15 2005
CITY OF PLACERVILLE
COMMUNITY DEV. DEPT.

Mr. Sid Afshar
Brilliant Management LLC
114 Camino Pablo
Orinda, California 94563
925.258.0886

RE: Bat Habitat Assessment of Lumsden Ranch, Placerville, CA

Dear Mr. Afshar,

This letter report details the results of our recent habitat assessment of the approximately 128-acre Lumsden Ranch property, located north of Lumsden Park, northeast of the Town of Placerville, in El Dorado County, California. The parcel is located south of Highway 50, at the southeastern end of Wiltse Road. This habitat assessment was conducted to determine the potential roost habitat suitability for special-status bat species in the two mines located on the property. Bats are protected as non-game mammals; eleven species are classified as California Special Concern species, and nine, including some of the CSC species, are Federal Species of Concern. This habitat assessment was conducted because many bat species roost in mines, and may be impacted by proposed project activities.

Methods

Background research was conducted prior to the initiation of site reconnaissance. The California Natural Diversity Database (CNDDB 2004), operated by the Department of Fish and Game, was reviewed for El Dorado County for reported occurrences of bats within the region of the study area. Personal experience, known bat habitat associations, and observations by other bat biologists were also used in this analysis. Photographs are included in this report.

Greg and Trish Tatarian, accompanied by Barry Andersen of North Fork Associates, conducted a field reconnaissance visit on April 1, 2004, which entailed an examination of two mines reported on site. Only one of the mine locations was still visible. Meandering transects were walked around the area of the second mine.

This effort focused primarily on the mine locations. No focused surveys of potential tree roosts were conducted as part of this site reconnaissance because no project description, construction schedule or tree survey report was available at the time of this survey. However, it became apparent during this reconnaissance that the site supports significant roost habitat for foliage and bark-roosting bat species, and some habitat for cavity-roosting species in the larger live trees and snags that occur on the site.

A review of the CNDDB resulted in four occurrences of Yuma myotis *Myotis yumanensis*, a Federal Species of Concern (FSC) for El Dorado County. Another 15 species, including six additional FSC and two California Special Concern species (CSC), are expected to occur in the area.

Regulatory Background

Bats are classified as non-game mammals by the California Department of Fish and Game. Of the 25 known bat species in California, 11 are classified as CSC species (CDFG 2004), and nine (including subspecies) are Federal Species of Concern (FSC). CDFG has indicated that an additional 3 species will soon be added to the updated list of CSC (Bolster, personal communication). Bats are afforded protection under various Fish and Game Code sections, including Sections 86, 2000, 2014, 3007, and 4150. Several sections under Title 14 of the California Code of Regulations also apply, including but not limited to; Section 251.1, Article 20, Section 15380, Section 15382, and several sections under the California Public Resources Code, Division 13.

Results

Habitat Evaluation - Mines
No habitat exists within the two mines on the site. The first mine opening located in the southcentral portion to the site has been blocked with soil and concrete blocks; an approximately 3" metal pipe allows water to flow out of the adit (horizontal opening). Water from this pipe flows approximately 20 feet to a small pond.

The second mine opening was no longer visible though several searches were made - one by Greg Tatarian and Barry Anderson, a second by Greg Tatarian alone, and a third by Greg, Trish Tatarian, and Barry Anderson. The only evidence of the mine location, as described by Mr. Mace Lumsden, was a slumped depression with mined rock and quartz outfall. No apparent openings were visisble and it is thought that the mine opening is totally collapsed.

Habitat Evaluation - Trees
Suitable potential roost habitat occurs within large diameter trees and snags that occur within the project boundary.

Conclusion

Because the mines entrances are not open and accessible to bats, no impacts to mine-roosting bats will occur as a result of development of the site. However, the forest density, composition and age structure provide suitable roosting habitat for a number of bat species. To prevent "take" of these special status species, a tree survey identifying those trees slated for removal/retention should be developed. Based on the tree survey, a bat tree habitat assessment, and potentially surveys, should be conducted by a qualified bat biologist. Recommendations should be made by the bat biologist to mitigate impacts due to tree removal.

Sincerely,

Greg Tatarian

Greg Tatarian

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Name: PLACERVILLE
Date: 4/28/2004
Scale: 1 inch equals 2667 feet

Location: 038° 43' 12.34" N 120° 47' 28.46" W
Caption: Figure 1: Lumsden Ranch Location

Name: PLACERVILLE NE
Date: 4/29/2004
Scale: 1 inch equals 831 feet

Location: 038° 43' 37.25" N 120° 46' 18.23" W
Caption: Figure 2: Aerial of Lumsden Ranch

SITE PHOTOGRAPHS

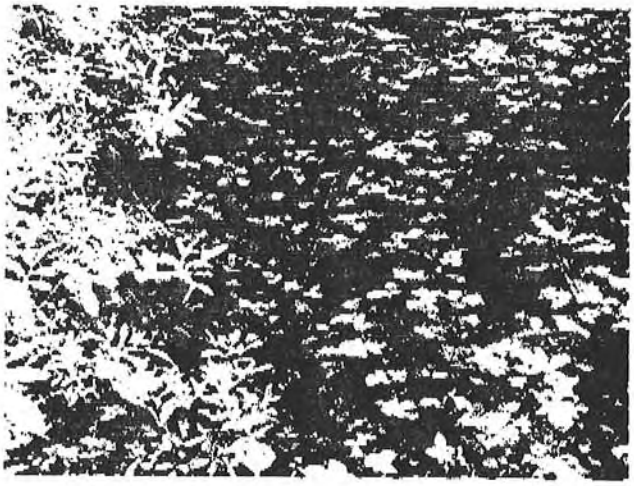

Fig. 1. Mine #1 opening

Fig. 2. Blockage of Mine #1 opening

Fig. 3. Presumed Mine #2 opening, collapsed

Fig. 4. Example of snags on site

APPENDIX F:
Special Status Plant and Wildlife Table

Scientific Name	Common Name	Federal Status	State Status	Other	CNPS Status	General Habitat	Micro Habitat	Potential for Occurrence
Plants								
Allium jepsonii	Jepson's onion	None	None		1B.2	Cismontane woodland, lower montane coniferous forest.	Serpentine soils of Sierra foothills, volcanic soil on Table Mtn., open areas on slopes and flats. 450-1130m.	**Not likely to occur** on site due to lack of appropriate soil type; local records within 8 miles.
Arctostaphylos nissenana	Nissenan manzanita	None	None		1B.2	Closed-cone coniferous forest, chaparral. El Dorado and Tulomne County	Usually on metamorphics, associated with other chaparral species. 450-1100 m.	**May occur;** suitable habitat exists on site and local records within 1 mile.
Calochortus clavatus var. avius	Pleasant Valley mariposa lily	None	None		1B.2	Lower montane coniferous forest.	Josephine silt loam and volcanically derived soil, often in rocky areas. 305-1700m.	**May occur** in montane forest habitat; local records within 8 miles.
Calystegia stebbinsii	Stebbins's morning glory	FE	SE		1B.1	Chaparral and cismontaine woodland.	Red clay soils of the Pine Hill Formation, gabbro or serpentine, open areas. 180-725m.	**Not likely to occur** on site due to lack of appropriate soil type; local records within 11 miles.
Ceanothus roderickii	Pine Hill ceanothus	FE	SR		1B.2	Chaparral and cismontaine woodland.	Gabbroic soils, often in "historically disturbed" areas with other rare plants. 260-630m.	**Not likely to occur** on site due to lack of appropriate soil type; local records within 12 miles.
Chlorogalum grandiflorum	Red Hills soaproot	None	None		1B.2	Chaparral, cismontaine woodland, and lower montaine coniferous forest.	Serpentine to gabbro substrates, often on "historically disturbed" sites. 240-760m.	**Not likely to occur** on site due to lack of appropriate soil type; local records within 5 miles.
Clarkia biloba ssp. *brandegeeae*	Brandegee's clarkia	None	None		1B.2	Chaparral, cismontane woodland.	Often found in roadcuts. 295-885m.	**May occur**; suitable habitat, local records within 2 miles.
Fremontodendron decumbens	Pine Hill flannelbush	FE	SR		1B.2	Chaparral and cismontaine woodland.	Rocky ridges, endemic to gabbro or serpentine. Often among rocks and boulders. 420-685m.	**Not likely to occur** on site due to lack of appropriate soil type; local records within 11 miles.

Scientific Name	Common Name	Federal Status	State Status	Other	CNPS Status	General Habitat	Micro Habitat	Potential for Occurrence
Galium californicum ssp. *sierrae*	El Dorado bedstraw	FE	SR		1B.2	Cismontane woodland, chaparral, and lower montane coniferous forest.	Gabbroic soils. More often in Pine-oak woodland than chaparral. 100-585m.	**Not likely to occur** on site due to lack of appropriate soil type; local records within 11 miles.
Helianthemum suffrutescens	Bisbee Peak rush-rose	None	None		3.2	Chaparral.	Openings in chaparral in serpentine, gabbroic, or ione formation soils. 45-610m.	**Not likely to occur** on site due to lack of appropriate soil type; local records within 10 miles.
Horkelia parryi	Parry's horkelia	None	None		1B.2	Chaparral and cismontane woodland.	Openings. Especially known from Ione formation in Amador county. 80-1035m.	**May occur;** marginal habitat on site; local records within 2 miles.
Packera layneae	Layne's ragwort	FT	SR		1B.2	Chaparral, cismontane woodland.	Ultramafic soils, occasionally along streams. 200-1000m.	**Not likely to occur** on site due to lack of appropriate soil type; local records within 2 miles.
Viburnum ellipticum	Oval-leaved viburnum	None	None		2.3	Chaparral, cismontane woodland, lower montane coniferous forest.	215-1400m.	**May occur**; suitable habitat on site and local records within 2 miles.
Wyethia reticulata	El Dorado County mule ears	None	None		1B.2	Chaparral, cismontane woodland, lower montane coniferous forest.	Stony red clay and gabbroic soils. Often in openings in gabbroic chaparral. 180-630m.	**Not likely to occur** on site due to lack of appropriate soil type; local records within 10 miles.
Invertebrates								
Cosumnoperla hypocrena	A Spring stonefly	None	None			Known only from an intermittent tributary of the Cosumnes River, El Dorado County.	Shallow spring stream flowing over heavily shaded, moss covered rocks.	**Absent;** due to limited known range; local records within 10 miles.
Desmocerus californicus dimorphus	Valley elderberry longhorn beetle	FT	None			Only in Central Valley. Associated with Blue Elderberry.	Lays eggs in elderberries 2-8 inches in diameter.	**May occur;** riparian habitat on site may contain elderberry; local records within 2 miles.

Scientific Name	Common Name	Federal Status	State Status	Other	CNPS Status	General Habitat	Micro Habitat	Potential for Occurrence
Lepidurus packardi	Vernal pool tadpole shrimp	FE	None			Vernal pools and swales in the Sacramento Valley with clear to highly turbid water.	Pools are commonly found in grass bottomed swales of unplowed grasslands.	**Not likely to occur;** no suitable habitat at the project site; no local occurrences.
Fish								
Oncorhynchus clarki henshawi	Lahontan cutthroat trout	FT	None			All accessible cold waters of the Lahonton Basin.	Cannot tolerate presence of other salmonids. Requires gravel riffles in streams for spawning.	**Absent;** outside known range; no suitable habitat at the project site.
Oncorhynchus mykiss irideus	Central Valley steelhead	FT	None			Sacramento and San Joaquin Rivers and their tributaries.		**Absent;** outside known range; no suitable habitat at the project site.
Oncorhynchus tshawytscha	Central Valley spring-run Chinook salmon	FT	ST			Spawn in cool, clear, well-oxygenated streams. Higher-elevation headwaters are primary spawning and rearing areas.		**Absent;** outside known range; no suitable habitat at the project site.
Amphibians								
Ambystoma californiense	California tiger salamander	FT	SC			Federal listing refers to populations in Santa Barbara County only.	Need underground refuges, especially ground squirrel burrows and vernal pools or other seasonal water sources for breeding.	**Not likely to occur;** marginal habitat in freshwater seep habitats; no local records.
Bufo canorus	Yosemite toad	FC	SC			Vicinity of wet meadows in central high Sierra. Central high Sierra Mtns, 6,400 to 11,300 ft.	Montane wet meadows and seasonal ponds associated with lodgepole pine and subalpine conifer forest.	**Absent;** outside known range; no suitable habitat; no local occurrences.

Scientific Name	Common Name	Federal Status	State Status	Other	CNPS Status	General Habitat	Micro Habitat	Potential for Occurrence
Rana aurora draytonii	California red-legged frog	FT	SC			Lowlands and foothills in or near permanent sources of deep water with dense, shrubby or emergent riparian vegetation.	Requires 11-20 weeks of permanent water for larval development. Must have access to estivation habitat.	**Not likely to occur;** habitat evaluation found that there is no suitable habitat for this species at the site; subsequent surveys found that the conclusions applied to unsurveyed areas as well, historic records within 1 mile of site.
Rana boylei	Foothill yellow-legged frog	None	SC			Partly shaded, shallow streams with rocky substrate.	Needs some cobble-sized substrate for egg-laying.	**Not likely to occur;** no suitable habitat; nearest recent local records within 9 miles. Historic records from 1952 in Weber Creek, 2.2 mi WSW Placerville.
Rana muscosa	Mountain yellow-legged frog	FE	SC			Federal listing refers to San Gabriel, San Jacinto, and San Bernardino Mountain populations only.	Always encountered within few feet of water.	**Absent;** no suitable habitat; outside known range; no local records.
Reptiles								
Emys (=Clemmys) marmorata marmorata	Northwestern pond turtle	None	SC	FSS		Permanent or nearly permanent water.	Require basking sites. Nests may be up to .5 km from water.	**May occur** in freshwater pond; may nest adjacent to reservoir; observed in Lumsden Res.; local records within 2 miles.
Phrynosoma coronatum	Coast horned lizard	None	SC			Wide variety of habitats. Most common in lowlands along sandy washes with scattered low bushes.	Needs open areas for sunning, bushes for cover, patches of loose soil for burial, and an abundant supply of anys and other insects.	**Not likely to occur** due to lack of appropriate habitat; local records within 12 miles.

Scientific Name	Common Name	Federal Status	State Status	Other	CNPS Status	General Habitat	Micro Habitat	Potential for Occurrence
Masticophis flagellum ruddocki	San Joaquin whipsnake	None	SC			Inhabits open dry habitats with little or no tree cover in the valley grassland and saltbush scrub in the San Joaquin Valley.	Needs mammal burrows for refuge and egg-laying.	**Absent;** outside of known range; no suitable habitat; no local records.
Thamnophis gigas	Giant garter snake	FT	ST			Freshwater marsh and low gradient streams, drainage canals and irrigation ditches.	Most aquatic garter snake in California.	**Absent**; outside known range; no local occurrences.
Birds								
Accipter cooperii	Cooper's hawk (N)	None	SC	RHCP		Woodland, chiefly of open, interrupted or marginal type.	Nest sites mainly in riparian growths of deciduous trees, as in canyon bottoms, on river floodplains; also live in oaks.	**Present**; observed at the site; suitable nesting and foraging habitat is located at the project site.
Accipiter gentilis	Northern goshawk	None	SC			Nests in or near coniferous forests.	Nests on north slopes, near water. Intolerant of heavy disturbance.	**Not likely to occur;** marginal habitat on site due to human disturbance; heavy logging has been conducted in the vicinity; local records within 7 miles.
Agelaius tricolor	Tricolored blackbird	None	SC	BLMS		Highly colonial species, most numerous in the Central Valley and vicinity. Largely endemic to California.	Requires open water, protective nesting substrate and foraging area with insect prey within a few km of the colony.	**Not likely to occur;** the site is heavily wooded with small areas of emergent vegetation creating marginal habitat; local records within 6 miles.
Dendroica petechia brewsteri	Yellow warbler (N)	None	SC	RHCP		Riparian plant associations. Prefers willows, cottonwoods, aspens, sycamores, and alders for nesting and foraging.	Also nests in montane shrubbery in open conifer forests.	**May occur;** suitable nesting and foraging habitat is located at the project site; known to occur in the vicinity.

Scientific Name	Common Name	Federal Status	State Status	Other	CNPS Status	General Habitat	Micro Habitat	Potential for Occurrence
Falco peregrinus anatum	American peregrine falcon	FD	SE, FP	FSS, CDFS, RHCP		Habitat generalist. In southern California common in estuaries, open fields, and urban and suburban areas.	Tends to forage in areas with large flocks of birds. Nests on ledges on natural cliffs and human built structures.	**Not likely to occur;** within known range, but the habitat is forested and therefore poor foraging habitat for this species; no local records, although likely underreported.
Haliaeetus leucocephalus	Bald eagle (N&W)	FPD, FT	SE, FP	CDFS		Ocean shorelines, lake margins, and river courses for both nesting and wintering. Most nests within one mile of water.	Nests in large, old-growth, or dominant live tree with open branches, especially Ponderosa Pine. Roosts communally in winter.	**Not likely to occur;** no known nesting sites in the vicinity and no open water nearby; no local occurrences.
Strix occidentalis occidentalis	California spotted owl	None	SC	FSS, BLMS, RHCP		At lower elevations, occupies habitats dominated by hardwoods, primarily oak. At higher elevations, owl habitats are increasingly dominated by conifers.	Nests in forests with complex structure, high closed canopy, and large diameter trees.	**May occur;** the site supports suitable habitat for this species but is heavily disturbed and adjacent to a residential community; territories within 5 miles north and east of the site. Site is just west of and downslope of known territories.
Mammals								
Antrozous pallidus	Pallid bat	None	SC	FSS BLMS		Deserts, grasslands, shrublands, woodlands, and forests. Most common in open, dry habitats with rocky areas for roosting.	Roosts must protect bats from high temperatures. Very sensitive to disturbance of roosting sites. Arid, low elevations (<6,000 feet); roost in deep crevices in rock faces, buildings, or bridges.	**May occur** foraging over the entire site; may roost on trees, buildings; mines at the site found to be unsuitable for use by bats; no local records.

Scientific Name	Common Name	Federal Status	State Status	Other	CNPS Status	General Habitat	Micro Habitat	Potential for Occurrence
Bassariscus astutus	Ringtail cat	None	None			Occurs in various riparian habitats, and in brush stands of most forest and shrub habitats, at low to middle elevations. Little information available on distribution and relative abundance among habitats		**Not likely to occur;** marginal habitat due to human disturbance; local occurrence is largely unknown.
Corynorhinus townsendii	Townsend's big-eared bat	None	SC	FSS BLMS		Found in all habitats, except alpine/subalpine; most abundant in mesic habitats.	Caves, mines, buildings or other man-made structures with suitable temperatures for roost sites.	**May occur** foraging over the entire site; may roost on buildings; mines at the site found to be unsuitable for use by bats; no local records.
Lasionycteris noctivagans	Silver-haired bat	None	SC			Primarily a coastal and montane forest dweller. Feeds over streams, ponds, and open, brushy areas.	Roosts in hollow trees beneath exfoliating bark, in abandoned woodpecker holes, and rarely under rocks.	**May occur** foraging over the entire site; may roost and breed in montane hardwood forest habitat; local records within 3 miles.
Martes pennanti (pacifica)	Pacific fisher	FC	SC			Intermediate to large tree stages of coniferous forests and deciduous riparian areas with high percentage canopy closure.	Uses cavities, snags, logs, and rocky areas for cover and den sites. Needs large areas of mature, dense forest.	**Not likely to occur;** marginal habitat on site due to human disturbance; no local occurence.
Myotis evotis	Long-eared myotis	None	None	BLMS		Occurs in shrublands, woodlands and forests		**May occur** foraging over the entire site; may roost on trees, buildings; mines at the site found to be unsuitable for use by bats; no local records.

Scientific Name	Common Name	Federal Status	State Status	Other	CNPS Status	General Habitat	Micro Habitat	Potential for Occurrence
Myotis yumanensis	Yuma myotis	None	None	BLMS		Always found near lakes, creeks or ponds.	Roosts by day under building sidings or shingles. Nursery colonies choose caves, mines, buildings or under bridges.	**May occur** foraging over the entire site; may roost on buildings; mines at the site found to be unsuitable for use by bats; suitable foraging habitat at Lumsden Res.; local records within 3 miles.

Status Codes:

N = Nesting, Nesting Colony or Rookery
W = Winter

Federal
FT = Federal Threatened
FE = Federal Endangered
FPE = Federal Proposed Endangered
FPT = Federal Proposed Threatened
FPD = Federal Proposed Delisting
FC = Federal Candidate
FD = Federal Delisted

State
ST = State Threatened
SE = State Endangered
SR = State Rare
SC = State Species of Special Concern
FP = State Fully Protected

Other
FSS = Forest Service Sensitive
BLMS = Bureau of Land Management Sensitive
CDFS = California Dept. of Forestry Sensitive

CNPS
1A = Presumed Extinct in California
1B = Rare, Threatened or Endangered in California and elsewhere
2 = Rare, Threatened or Endangered in California but more common elsewhere
3 = More information needed (usually taxonomically problematic)
4 = "Watch list." Limited distribution

APPENDIX F:
WATERS OF THE U.S. DELINEATION

PRELIMINARY

DELINEATION OF WATERS OF THE UNITED STATES FOR A PORTION OF THE LUMSDEN RANCH DEVELOPMENT (5-ACRE PARCEL AND CANYON VIEW DRIVE)

November 9, 2007

Prepared for:

CITY OF PLACERVILLE

Prepared by:

SWCA ENVIRONMENTAL CONSULTANTS

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INTRODUCTION

The City of Placerville retained SWCA Environmental Consultants to conduct a delineation of waters of the U.S. for a 5-acre parcel and proposed road associated with the Lumsden Ranch development in the city of Placerville, California. This report addresses portions of the development that were not previously evaluated in a wetland delineation of the original 128 acres of the Lumsden Ranch project area in 2003 (North Fork Associates 2003).

This report provides a brief overview of the project and presents the results of the delineation, which was conducted in accordance with the U.S. Army Corps of Engineers (USACE) 1987 Wetland Delineation Manual (Environmental Laboratory 1987) and the Arid West Region Supplement (USACE 2006). The purpose of this report is to provide the results of the delineation and identify the jurisdictional extent of water features (e.g., wetlands, drainages) in the study area. The information contained in this report will be used to evaluate environmental impacts in an Environmental Impact Report being prepared for the Lumsden Ranch development and to support future permitting under the Clean Water Act. The USACE is ultimately responsible for determining the limit of their jurisdiction, and this report has been prepared to assist the USACE with their determination.

PROJECT LOCATION AND DESCRIPTION

The study area is located in the city of Placerville, El Dorado County, California (Sections 9 and 16, Township 10 North, Range 11 East). It is part of a larger development project (Lumsden Ranch) that encompasses approximately 133 acres in the easternmost portion of Placerville, south of Broadway and north of Barrett Drive, at the southern end of Wiltse Road. The study area includes a 5-acre parcel at the northwest corner of the larger development and a proposed road (called Canyon View Drive) extending from the eastern boundary of the development (Figure 1). The 5-acre parcel includes a single home, associated structures, and a partially paved road. The proposed Canyon View Drive alignment includes an unpaved road with a culvert where it crosses an unnamed tributary of Hangtown Creek.

The proposed Lumsden Ranch project includes a phased, planned subdivision of approximately 366 single-family homes with lot sizes ranging from approximately 3,700 square feet to 15,000 square feet. Approximately 50 percent (75 acres) of the development area would be left as open space with walking trails. Mass pad grading for vehicular accesses, house pads, drainage, utilities and other site amenities is proposed. Primary access for the development would be via Canyon View Drive. The project requires approval of a tentative subdivision map, which requires an environmental evaluation under the California Environmental Quality Act.

RELATIONSHIP TO LUMSDEN RANCH WETLAND DELINEATION

In 2003, North Fork Associates completed a wetland delineation of the Lumsden Ranch development for the applicant, Brilliant Management LLC. The study area for their delineation included approximately 128 acres of the Lumsden Ranch development. The delineation identified 0.75-acre of waters of the U.S., including 0.34-acre of wetlands and 0.41-acre of other waters. The delineation was verified by the Sacramento District of the USACE (San Joaquin Valley Office) on October 27, 2005. The verification was determined to be valid for five years unless new information is presented to warrant a revision to the determination.

After the previous delineation was verified, the applicant added a 5-acre parcel to the development area and decided to improve Canyon View Drive as the project's primary access point. Because these areas

were not previously delineated, SWCA has prepared this subsequent delineation to evaluate the expanded portions of the project area in support of future permitting under the Clean Water Act and environmental analyses under the California Environmental Quality Act.

REGULATORY SETTING

Water resources in California are subject to various federal and state regulations to protect water quality, quantity, and sensitive resources (i.e., wetlands). Activities affecting water resources may require permits, licenses, variances, or similar authorization from federal, state, and local agencies.

The USACE regulates activities in "waters of the U.S." under Section 404 of the Clean Water Act. Waters of the U.S. are defined as: all waters used in interstate or foreign commerce; all interstate waters including interstate wetlands; all other waters where the use, degradation, or destruction of which could affect interstate commerce; impoundments of these waters; tributaries of these waters; or wetlands adjacent to these waters (Section 404 of the Clean Water Act; 33 CFR Part 328). With non-tidal waters, in the absence of adjacent wetlands, the extent of federal jurisdiction is defined by the ordinary high water mark (OHWM), which is the line on the shore established by the fluctuations of water and indicated by a clear, natural line impressed on the bank; shelving; changes in soil character; destruction of terrestrial vegetation; or the presence of litter and debris. Wetlands are defined as "…those areas that are inundated or saturated by surface or ground water 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" (33 CFR Part 328).

Placement of dredged or fill materials within waters of the U.S. requires authorization by the USACE via a permitting process. USACE permit mechanism thresholds are based on the type of project and amount of potential disturbance. Permit types, ranging from simplest to most complex, are nationwide, letter of permission, and individual. Project applicants must also demonstrate compliance with other federal laws, including Section 401 of the Clean Water Act, the Federal Endangered Species Act (ESA), and the National Historic Preservation Act (NHPA). Authorization from agencies administering these acts may also be required prior to project implementation. The SWRCB, acting through the Regional Water Quality Control Boards, must certify that a USACE permit action meets state water quality objectives (Section 401 of the Clean Water Act).

The State of California regulates activities in waters of the State primarily through the California Department of Fish and Game (CDFG) and the State Water Resources Control Board (SWRCB). The CDFG regulates "waters of the State" pursuant to Sections 5650–5656 of the Fish and Game Code (FGC) and regulates activities in all perennial, intermittent, and ephemeral rivers, streams, and lakes in the state pursuant to Sections 1600–1616 of the FGC. The CDFG is authorized to develop mitigation measures and enter into Streambed Alteration Agreements with applicants who propose projects that would obstruct the flow of or alter the bed, channel, or bank of a river or stream in which there is a fish or wildlife resource, including intermittent and ephemeral streams.

For activities that may affect plant and wildlife species listed under the ESA, the USACE may be required to consult with the U.S. Fish and Wildlife Service (under Section 7 of the ESA) prior to permitting or authorizing a project. To issue a permit or authorization, the USACE must also comply with Section 106 of the NHPA by evaluating the effects of the action on resources that are either included in or eligible for inclusion in the National Register of Historic Places.

ENVIRONMENTAL SETTING

The study area is located on the western edge of the Sierra Nevada Mountain Range. Elevations range from 2,000 feet above sea level to 2,300 feet. The study area is located on the northwest slope of Texas Hill and includes canyons and hillsides that drain to tributaries of Hangtown Creek. Hangtown Creek drains into Weber Creek approximately 3 miles northwest of Placerville and eventually drains to the South Fork of the American River. The study area is located within the South Fork American River watershed (Weber Creek subregion), which is tributary to the American River (Figure 2 in Appendix A).

The general direction of surface runoff in the study area is to the northwest. Ephemeral drainages convey water through the study area. Annual precipitation averages approximately 55 inches and provides the primary source of runoff in the vicinity. Some of the local drainages have been modified to accommodate development in Placerville.

The climate of the region is characterized by dry, warm summers with low humidity. The growing season varies from 20 to 230 days in the region. The growing season in the area typically occurs between May and early October (Natural Resources Conservation Service [NRCS] 2007). The study area is located within the Sierra Nevada geographic subdivision of the larger California Floristic Province (Hickman 1993). The study area and vicinity are dominated by black oak-foothill pine woodlands and montane hardwood:

- **Black Oak-Foothill Pine** is the dominant habitat in the 5-acre parcel and along the proposed Canyon View Road alignment. Typically, this habitat is diverse in structure both vertically and horizontally, with a mix of hardwoods, conifers, and shrubs with small patches of nonnative annual grasses in areas where the canopy is open. Canopy cover within this series ranges from 20 to 65 percent. Within this vegetation series, California black oak (*Quercus kelloggii*) and emergent foothill pine (*Pinus sabiniana*) are the dominant canopy trees. Other common species include blue oak (*Quercus douglasii*), interior live oak (*Q. wislezenii*), and buckeye (*Aesculus californica*). Variations within stand structure include a more open savanna-like structure intergrading into more dense forested areas. Understory chaparral shrubs include whiteleaf manzanita (*Arctostaphylos viscida*), buck brush (*Ceanothus cuneatus* var. *cuneatus*), and toyon (*Heteromeles arbutifolia*).

- **Montane Hardwood** occurs to the north and east of the 5-acre parcel and along portions of the proposed Canyon View Road alignment. This habitat is similar to black oak-foothill pine, but is dominated by black oaks and other oak species, such as blue oak and interior live oak. Foothill pine may be present scattered throughout the habitat. Chaparral shrubs, including whiteleaf manzanita, buck brush, deer brush (*Ceanothus integerrimus*), and toyon, are scattered throughout the understory shrub layer. An herbaceous layer is present in openings within the shrub and tree canopy layers.

METHODOLOGY

Methodology followed USACE guidelines and consisted of preliminary data gathering and research, field surveys, digital mapping, and documentation of the preliminary jurisdictional determination.

PRELIMINARY DATA GATHERING AND SYNTHESIS

Prior to conducting the field delineation the following information sources were reviewed:

- Lumsden Ranch project description and maps
- U.S. Geological Survey (USGS) 7.5-minute topographic quadrangle maps and aerial photography
- Soil survey (NRCS 2007) and maps
- Federal Emergency Management Agency (FEMA) Flood Insurance Rate (100-year floodplain) Maps (FEMA 1983)
- USFWS National Wetland Inventory Maps
- California Natural Diversity Database

The USFWS National Wetland Inventory has mapped ponds or lakes and drainages in the vicinity of the study area (USFWS 2006). USFWS data are organized by USGS 7.5-minute topographic quadrangle (Placerville quadrangle). The results of USFWS mapping were evaluated prior to field surveys; no wetlands were previously identified within the study area.

DETERMINATION PROCEDURES

The purpose of the field determination was to: (1) delineate wetland boundaries within the study area; (2) identify water features that may be subject to federal jurisdiction (i.e., waters of the U.S.) within the study area; and (3) determine the extent of federal jurisdiction for each water feature within the study area. The entire study area was assessed to determine vegetation community types and the presence or absence of jurisdictional water features. Where necessary, the field survey also involved determining the connectivity of the water features with other drainages or streams, such as Hangtown Creek.

Botanist Taya Cummins conducted a field assessment on April 17, 2007. A follow-up survey was conducted on August 28, 2007 by biologist Leslie Wagner. In April, there was evidence of recent rainfall because water was present in the drainages (flowing or ponded). Five data points were established at key locations and analyzed for the presence or absence of wetland indicators or extent of jurisdictional limits for non-wetland features (data forms for each point are presented in Appendix B). A Trimble GeoXT GPS unit was used to provide sub-meter accuracy for data points.

Wetland Features

Wetland field determination procedures followed the USACE Wetland Delineation Manual technical guidelines for a Level 2 Routine Field Determination (Environmental Laboratory 1987). The diagnostic environmental characteristics of hydrophytic vegetation, hydric soils, and wetland hydrology (i.e., three-parameter approach) were used as the standard for determining if specific areas qualified as wetlands. According to the Wetland Delineation Manual, evidence of a minimum of one positive indicator for each parameter (vegetation, soils, and hydrology) must be found in order to make a positive wetland determination.

Hydrophytic vegetation is defined as "the sum total of macrophytic plant life that occurs in areas where the frequency and duration of inundation or soil saturation produce permanently or periodically saturated soils sufficient in duration to exert a controlling influence on the plant species present" (Environmental Laboratory 1987). Hydrophytic vegetation is considered present if the majority of dominant plant species are obligate or facultative wetland plants (hydrophytes) based on the National List of Plant Species that Occur in Wetlands: California (Region 0) (Reed 1988). This National List divides plant species into categories based upon their frequency of occurrence in wetlands. These categories are as follows:

- OBL – obligate wetland plants that occur almost always in wetlands under natural conditions (>99% of the time in wetlands);

- FACW – facultative wetland plants that usually occur in wetlands, but occasionally occur in non-wetlands (67–99% of the time in wetlands);
- FAC – facultative wetland plants that are equally likely to occur in wetlands or non-wetlands (34–66% of the time in wetlands);
- FACU – facultative upland plants that usually occur in non-wetlands, but occasionally are found in wetlands;
- UPL – obligate upland plants that almost always occur in non-wetlands;
- NI and UNK – insufficient information to determine status;
- NA – no agreement by Regional Panel on status; and
- NO – species does not occur in specified region.

During field investigations, the percentage of hydrophytic species was determined based on the ratio of wetland indicator species present to the total number of species present. More than 50 percent of the dominant plant species must be FAC, FACW, or OBL to meet the hydrophytic vegetation parameter.

Hydric soils are defined as soils that are "formed under conditions of saturation, flooding, or ponding long enough during the growing season to develop anaerobic conditions in the upper part" (Environmental Laboratory 1987). A minimum 1 week of inundation or 14 consecutive days of saturation during the growing season is a typical requirement. The criteria for establishing the presence of hydric soils vary among different soil types and drainage classes. Hydric soil indicators include evidence of reducing or redoximorphic conditions (including sulfidic odor, organic streaking); gleyed, mottled, or low-chroma soils; iron and manganese concretions; low dissolved oxygen concentration (aquic moisture regime); organic soils (histosols); or mineral soils saturated and rich in organics (histic epipedon) (NRCS 2006). In the absence of visible field indicators, hydric soil conditions may be determined according to two criteria: (1) all dominant plant species have an indicator status of OBL and/or FACW (at least one dominant plant species must be OBL) and the wetland boundary is abrupt; and (2) areas below the level of ordinary high water are frequently flooded for long duration or very long duration during the growing season and provides an aquic (reducing) moisture regime.

Wetland hydrology "encompasses all hydrologic characteristics of areas that are periodically inundated or have soils saturated to the surface at some time during the growing season" (Environmental Laboratory 1987). Many factors influence site-specific hydrology, including the precipitation, stratigraphy, topography, soil permeability, and plant cover of the site. In general, inundation or saturation must occur for at least 5 percent of the growing season to qualify as wetland hydrology. The degree of inundation or saturation at the subject site can vary widely from year to year depending on rainfall patterns within the watershed. Primary wetland hydrology indicators include visual observations of inundation or soil saturation; water marks and water-stained leaves; sediment deposits; drift lines; and drainage patterns in wetlands.

Sampling locations were established within potential wetland areas to record information and assess the presence/absence of wetlands. At each sampling point, information on vegetation, soils, and hydrology was recorded on a USACE Routine Wetland Determination Data Form (Appendix B). Dominant and subdominant plant species in each stratum (e.g., tree, shrub, forb) that occur within approximately 5 to 10 feet of the sampling point were recorded, and their wetland indicator status was determined using the National List (Reed 1988). Plants were identified using *The Jepson Manual: Higher Plants of California* (Hickman 1993). Information on hydrology at each location was recorded, including drainage patterns, presence of flowing water, and saturated soils. For sampling locations that did not exhibit wetland characteristics, data forms were still completed, but the delineation utilized the methods discussed in the following section (Other Water Features).

Other Water Features

For identification of water bodies other than wetlands that are subject to federal jurisdiction, two principal field characteristics were evaluated: (1) the presence of a channel; and (2) the presence of an OHWM. The OHWM is defined in 33 CFR Sec. 329.11 as the line on the shore established by the fluctuations of water, and indicated by a clear, natural line impressed on the bank, shelving, changes in soil character, destruction of terrestrial vegetation, or the presence of litter and debris. Other characteristics were noted where possible, including description of hydrologic feature type, length, approximate discharge volume, gradient, and range between low- and high-water marks. For determination of whether these water bodies constituted waters of the U.S., USACE regulations (33 CFR Part 328) were consulted. Data sheets for these nonwetland water bodies were completed at representative locations and are included in Appendix B.

RESULTS

This section describes the results of the field delineation and provides a brief discussion of the jurisdictional extent of the features. No wetlands were delineated in the study area; therefore, only other water features are discussed below. Although some of the sample points exhibited wetland characteristics (wetland vegetation or hydrology), none of the points was determined to be located within a wetland because the water features did not exhibit all three wetland characteristics.

Acreages of water features in the study area were calculated using ArcGIS software based on the digitized data presented in Figures 3 and 4, Appendix A. A comprehensive list of plant species encountered in the study area is provided in Appendix C. Representative photographs of the study area are provided in Appendix D. Information on the location and direction of each photograph is described for each photo.

OTHER WATER FEATURES

Non-wetland features delineated in the study area consist of ephemeral drainages that convey water during storm events, but do not typically retain water long enough to support wetland conditions. Riparian vegetation occurs along one of the drainages. Approximately 0.04 acres of potentially jurisdictional drainages were identified, as shown in Table 1.

Figures 3 and 4 in Appendix A shows the locations and jurisdictional widths of the drainages in the study area. Note that these streams extend beyond the study area, but the full extent of the features was not delineated as part of this study. Sufficient information was gathered on the surrounding conditions to determine if the feature was isolated or connected via a surface water connection to a major water feature (water of the U.S.).

Table 1. Summary of Other Waters Delineated in the Study Area

Water Type	Width at OHWM	Length	Acreage*
Unnamed Drainage 1			
DR-1	2’	180’	**0.008**
DR-2	4’	105’	**0.010**
DR-3	3’	210’	**0.015**
DR-4	4’	45’	**0.004**
		Subtotal	**0.037**

Table 1. Summary of Other Waters Delineated in the Study Area

Water Type	Width at OHWM	Length	Acreage*
Unnamed Drainage 2			
DR-5**	4’	30’	0.003
		Subtotal	**0.003**
		Total	**0.040**

*Acreage is approximate, pending verification by the USACE. Length and acreage calculations estimated from GIS data, see Figures 3 and 4.

**DR-5 is located just west of the proposed road alignment. The width and length of the drainage is based on the size of the culvert and the current width of the dirt road, providing an estimated acreage of jurisdictional waters under the existing road.

The study area contains two ephemeral drainages (small creeks that only convey water during storm events), which were considered jurisdictional because of their connectivity with other waters of the U.S. (Hangtown Creek, Weber Creek, and ultimately the American River). A total of 0.04 acres of potential jurisdictional drainages were delineated in the study area. Brief descriptions of each of the drainages are provided below.

Unnamed Drainage 1: An ephemeral drainage crosses through the northern portion of the 5-acre parcel within the study area (Figure 3). This drainage varies in width from approximately 4 feet wide at the OHWM at the easternmost point within the study area (DR-4) to 2 feet wide at the OHWM at the westernmost point (DR-1). The drainage is better defined in the upstream reaches, but it is overgrown with invasive vegetation at the western (downstream) end. Some portions of the drainage have well-defined banks, particularly where trees (black oak) are present and the roots are exposed in the channel. The defined banks and presence of sandy substrate at the bottom of the channel near DR-4 provide evidence of periodic flows, which are primarily the result of rainfall. The drainage was partially flowing with some ponded areas during the field survey in April as a result of recent rainfall, but it was dry in August. Vegetation along the banks and in the surrounding uplands is fairly dense with little to no vegetation in the channel, except near DR-1 where greater periwinkle (Vinca major) has invaded the channel and surrounding uplands. Dominant species in the northern portion of the 5-acre parcel include greater periwinkle, poison oak (*Toxicodendron diversilobum*), black oak, and Himalayan blackberry (*Rubus discolor*). Some rocks within the channel contain spikemoss (*Sellaginella* sp.).

The unnamed drainage in the study area is part of a longer drainage that begins in the Lumsden Ranch development area. The upstream segments were delineated as part of the previous Lumsden Ranch wetland delineation (North Fork Associates 2003). The drainage conveys flows primarily from precipitation through a modified portion of the drainage in Lumsden Park and into a modified channel along Wiltse Road. The drainage in Lumsden Park conveys flows through culverts under existing roads and into the channel along Wiltse Road. The Wiltse Road channel is a modified natural drainage that drains into Hangtown Creek, which was also formerly a natural drainage (according to topographic maps) that was converted into a road-side ditch to accommodate development within the city of Placerville. Hangtown Creek conveys flows through the city, generally following Broadway, and eventually drains into Weber Creek about three miles northwest of Placerville. Portions of Hangtown Creek are lined with concrete or are underground (under parking lots and buildings). Because of the unnamed drainage’s surface connectivity to Hangtown Creek and other jurisdictional waters further downstream, the segment within the study area would also be considered a jurisdictional water, or water of the U.S., pending a formal verification by the USACE.

Unnamed Drainage 2: An ephemeral drainage crosses the proposed Canyon View Drive alignment within the study area (Figure 4). The alignment currently contains a graded, dirt road approximately 30 feet wide, and a 48-inch corrugated metal pipe culvert conveys flows under the road from an unnamed drainage, which is tributary to Hangtown Creek. The drainage conveys precipitation and runoff into Hangtown Creek approximately 1,800 feet northwest of the study area near the Broadway and Smith Flat Road intersection. This drainage is identified on the FEMA flood insurance rate maps as having an approximately 60- to 70-foot wide 100-year flood zone (Zone A) with approximately 30 feet on either side of 100- to 500-year flood zone (Zone B) (FEMA 1983). These flood zones are generally defined by a corridor of riparian vegetation. Species observed in and along the drainage adjacent to the alignment include poison oak, Himalayan blackberry, and white alder (*Alnus rhombifolia*).

The culvert conveys flows from an underground segment of the drainage that extends several hundred feet east of the proposed road along Broadway. A small depressed area dominated by Himalayan blackberry temporarily detains surface flows from the east side of the road and surrounding hillsides; a pipe directs the flows into the underground drainage just east of the road. This depressed area does not likely retain water long enough to establish wetland conditions, due to the lack of wetland vegetation. On the west side of the proposed road, the culvert empties into a small ponded area approximately 9 feet wide, which directs flows into a narrower, rocky channel approximately 3 feet wide at the OHWM. The drainage was flowing with water in April and August and generally follows Broadway to the northwest. Because of the unnamed drainage's surface connectivity to Hangtown Creek and other jurisdictional waters, the segment within the study area would also be considered a jurisdictional water, or water of the U.S., pending a formal verification by the USACE.

CONCLUSIONS

Two ephemeral drainages are present within the study area, which is part of the larger Lumsden Ranch development, in Placerville, El Dorado County, California. These drainages are both tributary to Hangtown Creek, which is tributary to Weber Creek and eventually the South Fork of the American River. The fieldwork delineated 0.04 total acres of potential waters of the U.S. within the study area.

The purpose of this report is to provide information on potential waters of the U.S. in the study area for the environmental analyses in the Environmental Impact Report being prepared for the Lumsden Ranch development. Additionally, this report is also designed to provide the USACE with sufficient information on the potential waters of the U.S. delineated in the study area to verify USACE jurisdiction. Information contained in this report should be considered preliminary until the USACE verifies the delineation.

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APPENDIX A:
Figures

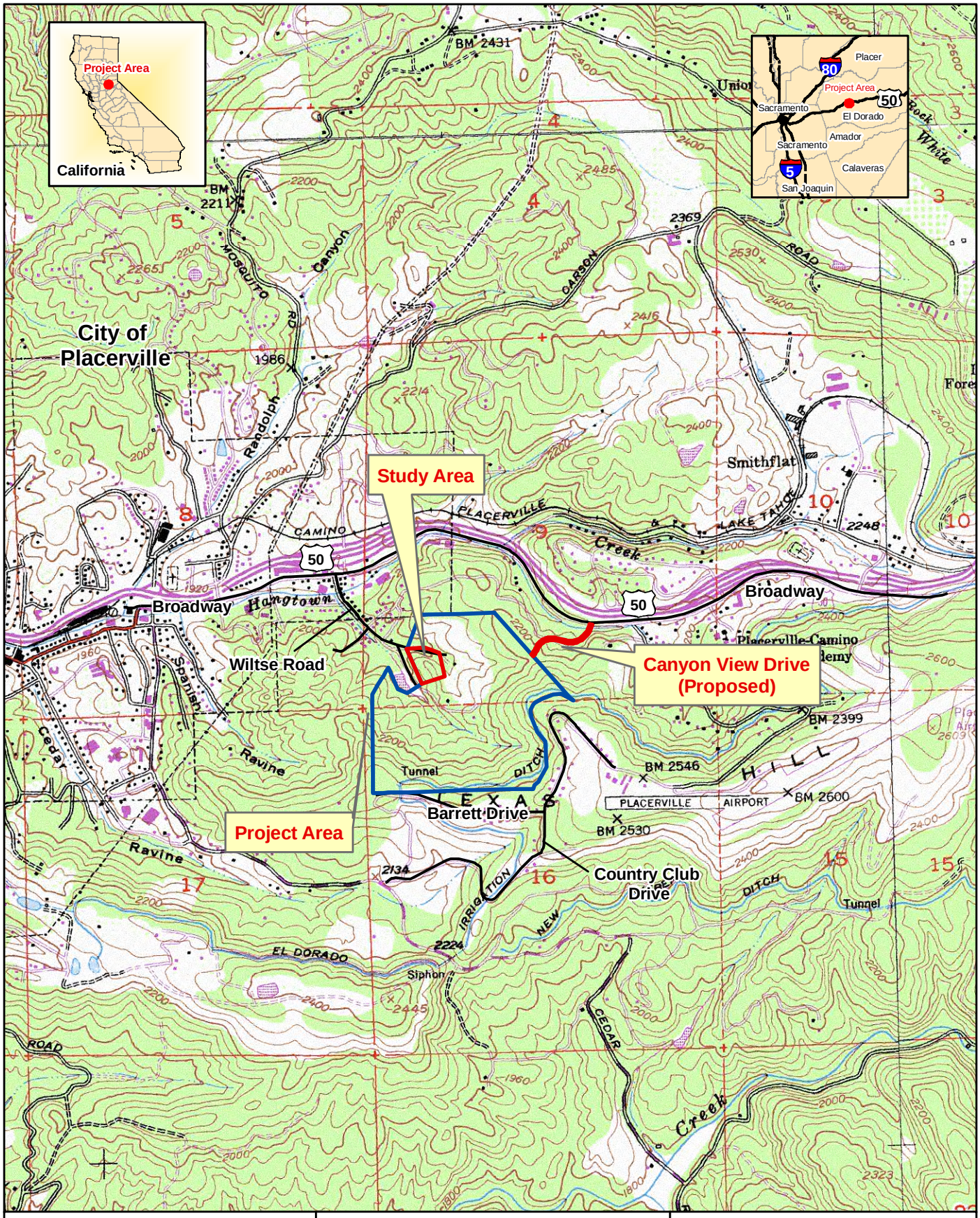
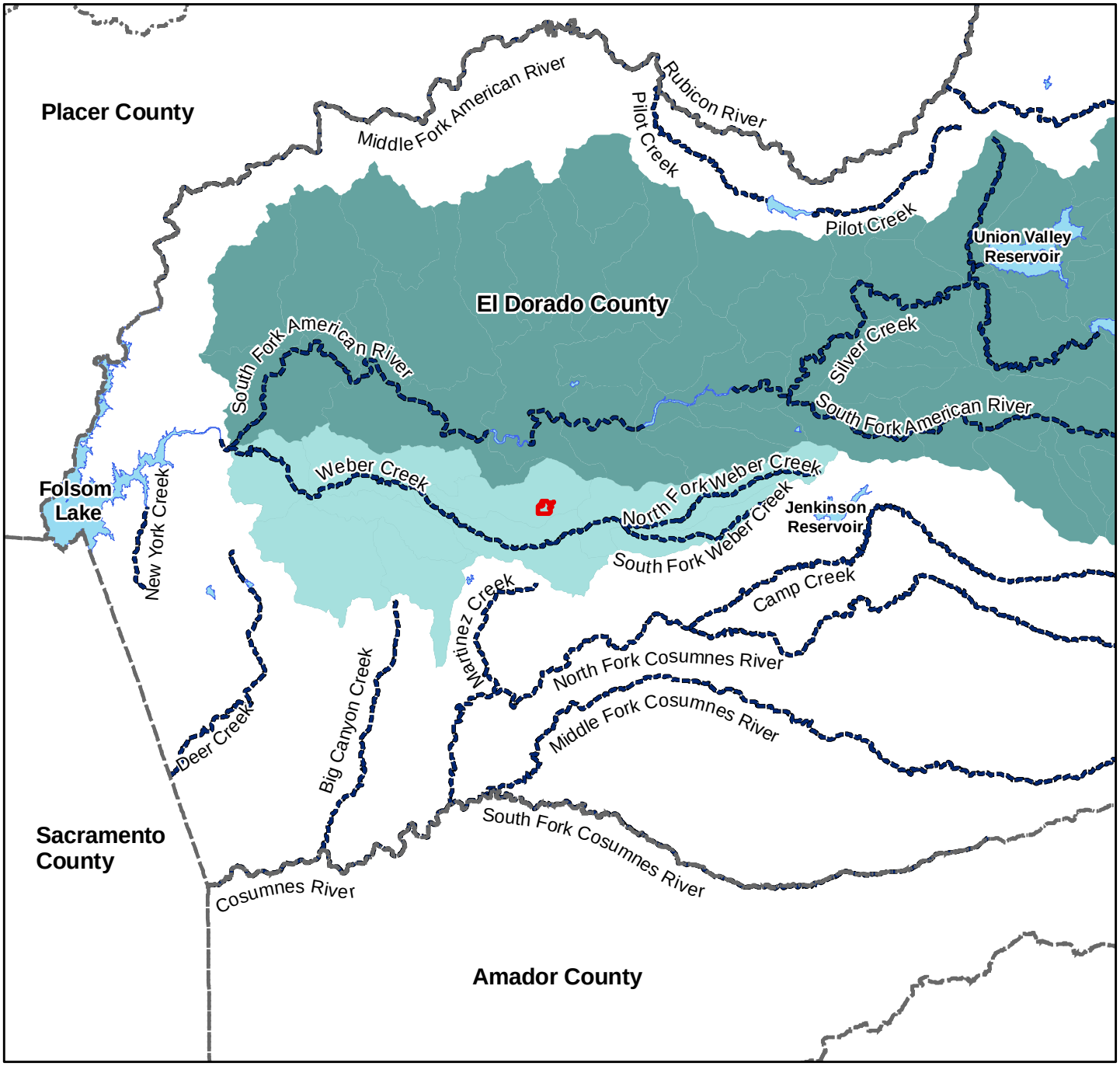


Figure 1
Project Location

Lumsden Ranch
City of Placerville

SWCA ENVIRONMENTAL CONSULTANTS



Legend

- Project Area
- Weber Creek Watershed
- South Fork American Watershed
- County Boundary
- Lake
- River

Vicinity Map

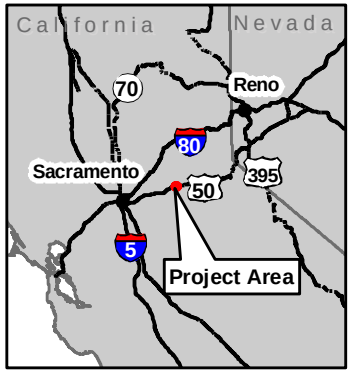


Figure 2
Hydrographic Basins

SWCA ENVIRONMENTAL CONSULTANTS

N

Miles
0 1.5 3 6

Source: Calwater: California Spatial Information Library (CASIL), 2007

Lumsden Ranch
City of Placerville

Legend

- Project Area
- Drainage
- Offsite Wetland Data
- Sample Point

Vicinity Map

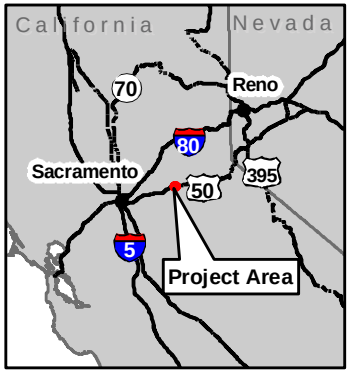


Figure 3
Potential Waters of the U.S. in the 5-acre Parcel

SWCA ENVIRONMENTAL CONSULTANTS

N

Feet
0 50 100 200

Source:
- California Spatial Information Library (CASIL), 2007
- Wetland data provided by North Fork Associates.

Lumsden Ranch
City of Placerville

Legend

- Project Area
- Drainage
- Offsite Wetland Data
- Sample Point

Vicinity Map

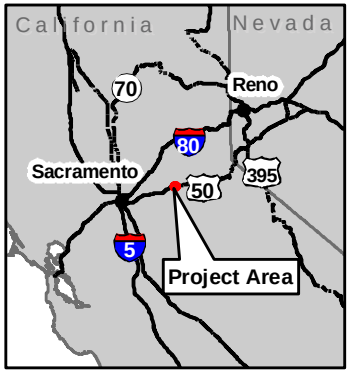


Figure 4
Potential Waters of the U.S. along Canyon View Drive

SWCA ENVIRONMENTAL CONSULTANTS

N

Feet
0 75 150 300

Source:
- California Spatial Information Library (CASIL), 2007
- Wetland data provided by North Fork Associates.

Lumsden Ranch
City of Placerville

APPENDIX B:
Data Sheets

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site	Lumsden Ranch Development, Placerville	Date	4/17/07 and 8/28/07
Applicant / Owner	Sid Ashfar, Brilliant Management, LLC	County	El Dorado
Investigator	Taya Cummins; Leslie Wagner	State	CA
Do Normal Circumstances exist on the site?	☒ Yes ☐ No	Community ID	
Is the site significantly disturbed (Atypical Situation)?	☐ Yes ☒ No	Transect ID	
Is the area a potential Problem Area? (If needed, explain on reverse)	☐ Yes ☒ No	Plot ID	DR1

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 Vinca major	H	NI	9		
2 Selaginella sp.	H	NI	10		
3			11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 0%

Remarks

Periwinkle (Vinca major) dominates drainage and uplands- invasive plant. Spike moss (Selaginella sp.) present on some rocks in channel.
No wetland or riparian vegetation.
Point is in ephemeral drainage.

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

FIELD OBSERVATIONS

Depth of Surface Water	3	(in)
Depth to Free Water in Pit	-	(in)
Depth to Saturated Soil	-	(in)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:
- ☒ Inundated: recent rainfall in April
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more Required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test:
- ☐ Other (Explain in Remarks)

SOILS

Map Unit Name (Series and Phase): Josephine-Mariposa gravelly loam	Drainage Class: Well-drained
Taxonomy (Subgroup) Typic Haploxerults	Field Observations Confirm Mapped Type? Yes No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
n/a					

HYDRIC SOIL INDICATORS:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks

No soil pit dug; soils not evaluated. Point is in drainage, not wetland.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	Is this Sampling Point Within a Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks

Point is in ephemeral drainage. Incised banks show evidence of periodic flows. Periwinkle invaded drainage and uplands. Dead leaves layer bottom of drainage. Channel width is about 2 feet at the OHWM at point. Drainage was flowing in April from recent rainfall; no flows in August.

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site	Lumsden Ranch Development, Placerville		Date 4/17/07 and 8/28/07
Applicant / Owner	Sid Ashfar, Brilliant Management, LLC		County El Dorado
Investigator	Taya Cummins; Leslie Wagner		State CA
Do Normal Circumstances exist on the site?	☒ Yes	☐ No	Community ID
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Transect ID
Is the area a potential Problem Area? (If needed, explain on reverse)	☐ Yes	☒ No	Plot ID DR2

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 none			9		
2			10		
3			11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 0%

Remarks

No vegetation in drainage at point. Some spike moss upstream on rocks. Upland vegetation adjacent to drainage includes mugwort, blackberry, black oak.
Point is in ephemeral drainage.

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

FIELD OBSERVATIONS

Depth of Surface Water	-	(in)
Depth to Free Water in Pit	-	(in)
Depth to Saturated Soil	-	(in)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:
- ☐ Inundated
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more Required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test:
- ☐ Other (Explain in Remarks)

SOILS

Map Unit Name (Series and Phase): Josephine-Mariposa gravelly loam	Drainage Class: Well-drained
Taxonomy (Subgroup) Typic Haploxerults	Field Observations Confirm Mapped Type? Yes No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
n/a					

HYDRIC SOIL INDICATORS:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks

No soil pit dug; soils not evaluated. Point is in drainage, not wetland.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	Is this Sampling Point Within a Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks

Point is in ephemeral drainage. Incised banks show evidence of periodic flows. No vegetation in channel; somewhat rocky with defined banks. Channel width is about 4 feet at the OHWM at point. This point is upstream of DR1, about 150 feet.

Drainage was dry in August.

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site	Lumsden Ranch Development, Placerville		Date 4/17/07 and 8/28/07
Applicant / Owner	Sid Ashfar, Brilliant Management, LLC		County El Dorado
Investigator	Taya Cummins; Leslie Wagner		State CA
Do Normal Circumstances exist on the site?	☒ Yes	☐ No	Community ID
Is the site significantly disturbed (Atypical Situation)?	☐ Yes	☒ No	Transect ID
Is the area a potential Problem Area? (If needed, explain on reverse)	☐ Yes	☒ No	Plot ID DR3

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 none			9		
2			10		
3			11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 0%

Remarks

No vegetation in drainage at point. Some spike moss upstream on rocks. Upland vegetation adjacent to drainage includes mugwort, blackberry, black oak, poison oak.
Point is in ephemeral drainage.

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

FIELD OBSERVATIONS

Depth of Surface Water	1	(in)
Depth to Free Water in Pit	-	(in)
Depth to Saturated Soil	-	(in)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:
- ☒ Inundated: ponding in April from rainfall
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more Required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test:
- ☐ Other (Explain in Remarks)

SOILS

Map Unit Name (Series and Phase): Josephine-Mariposa gravelly loam	Drainage Class: Well-drained
Taxonomy (Subgroup) Typic Haploxerults	Field Observations Confirm Mapped Type? Yes No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
n/a					

HYDRIC SOIL INDICATORS:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks

No soil pit dug; soils not evaluated. Point is in drainage, not wetland.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	☒ No	Is this Sampling Point Within a Wetland?	Yes	☒ No
Wetland Hydrology Present?	Yes	☒ No			
Hydric Soils Present?	Yes	☒ No			

Remarks

Point is in ephemeral drainage. Incised banks show evidence of periodic flows. No vegetation in channel; somewhat rocky with defined banks. Channel width is about 3 feet at the OHWM at point. This point is upstream of DR2, about 100 feet.

Drainage had some ponding in April from recent rainfall, but was dry in August.

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site	Lumsden Ranch Development, Placerville	Date	4/17/07 and 8/28/07
Applicant / Owner	Sid Ashfar, Brilliant Management, LLC	County	El Dorado
Investigator	Taya Cummins; Leslie Wagner	State	CA
Do Normal Circumstances exist on the site?	☒ Yes ☐ No	Community ID	
Is the site significantly disturbed (Atypical Situation)?	☐ Yes ☒ No	Transect ID	
Is the area a potential Problem Area? (If needed, explain on reverse)	☐ Yes ☒ No	Plot ID	DR4

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 none			9		
2			10		
3			11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 0%

Remarks

No vegetation in drainage at point. Upland vegetation adjacent to drainage includes blackberry, periwinkle, black oak, poison oak.

Point is in ephemeral drainage.

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

FIELD OBSERVATIONS

Depth of Surface Water	4	(in)
Depth to Free Water in Pit	-	(in)
Depth to Saturated Soil	-	(in)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:
- ☒ Inundated: ponding from recent rainfall in April
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more Required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test:
- ☐ Other (Explain in Remarks)

SOILS

Map Unit Name (Series and Phase): Josephine-Mariposa gravelly loam	Drainage Class: Well-drained
Taxonomy (Subgroup) Typic Haploxerults	Field Observations Confirm Mapped Type? Yes No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
n/a					

HYDRIC SOIL INDICATORS:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks

No soil pit dug; soils not evaluated. Point is in drainage, not wetland.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	No	Is this Sampling Point Within a Wetland?	Yes	No
Wetland Hydrology Present?	Yes	No			
Hydric Soils Present?	Yes	No			

Remarks

Point is in ephemeral drainage. Incised banks show evidence of periodic flows. No vegetation in channel; somewhat rocky with defined banks. Sandy soil on channel bottom- evidence of flows. Channel width is about 4 feet at the OHWM at point. This point is upstream of DR3, about 200 feet.

Drainage had some ponded water in April from recent rainfall, but was dry in August.

DATA FORM

ROUTINE WETLAND DETERMINATION
(1987 COE Wetlands Delineation Manual)

Project/Site	Lumsden Ranch Development, Placerville	Date	4/17/07 and 8/28/07
Applicant / Owner	Sid Ashfar, Brilliant Management, LLC	County	El Dorado
Investigator	Taya Cummins; Leslie Wagner	State	CA
Do Normal Circumstances exist on the site?	☒ Yes ☐ No	Community ID	
Is the site significantly disturbed (Atypical Situation)?	☐ Yes ☒ No	Transect ID	
Is the area a potential Problem Area? (If needed, explain on reverse)	☐ Yes ☒ No	Plot ID	DR5

VEGETATION

Dominant Plant Species	Stratum	Indicator	Dominant Plant Species	Stratum	Indicator
1 Rubus discolor	S	FAC+	9		
2 Alnus rhombifolia	T	FACW	10		
3			11		
4			12		
5			13		
6			14		
7			15		
8			16		

Percent of Dominant Species that are OBL, FACW, or FAC (excluding FAC-) 100%

Remarks

Vegetation along banks consists of blackberry and white alder (riparian vegetation); no vegetation in drainage. Point recorded just outside of the ephemeral drainage.

HYDROLOGY

☒ Recorded Data (Describe in Remarks)
- ☐ Stream, Lake, or Tide Gauge
- ☒ Aerial Photographs
- ☐ Other

☐ No Recorded Data Available

FIELD OBSERVATIONS

Depth of Surface Water	12-18	(in)
Depth to Free Water in Pit	-	(in)
Depth to Saturated Soil	-	(in)

WETLAND HYDROLOGY INDICATORS

Primary Indicators:
- ☒ Inundated: flowing water from upstream runoff
- ☐ Saturated in Upper 12 Inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more Required):
- ☐ Oxidized Root Channels in Upper 12 Inches
- ☐ Water-Stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test:
- ☐ Other (Explain in Remarks)

SOILS

Map Unit Name (Series and Phase): Sites very rocky loam	Drainage Class: Well-drained
Taxonomy (Subgroup) Xeric Haplohumult	Field Observations Confirm Mapped Type? Yes No

PROFILE DESCRIPTION

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/Contrast	Texture, Concretions, Structure, etc.
n/a					

HYDRIC SOIL INDICATORS:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Aquic Moisture Regime
- ☐ Reducing Conditions
- ☐ Gleyed or Low-Chroma Colors
- ☐ Concretions
- ☐ High Organic Content in Surface Layer in Sandy Soils
- ☐ Organic Streaking in Sandy Soils
- ☐ Listed on Local Hydric Soils List
- ☐ Listed on National Hydric Soils List
- ☐ Other (Explain in Remarks)

Remarks

No soil pit dug; soils not evaluated. Point is in drainage, not wetland.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	Yes	☒ No	Is this Sampling Point Within a Wetland?	Yes	☒ No
Wetland Hydrology Present?	Yes	☒ No			
Hydric Soils Present?	Yes	☒ No			

Remarks

Point is near ephemeral or intermittent drainage. Channel is well-defined, contained flowing water, and is rocky. No vegetation in channel, but riparian vegetation along banks. Channel width is about 9 feet where culvert empties into drainage, then narrows to 3 feet at the OHWM less than 5 feet downstream. This point is off of the proposed Canyon View Drive alignment on the west side of an existing road where a culvert conveys flows from an upstream underground drainage system. The drainage does not return to the surface for several hundred feet upstream, after going under the road, a parking lot, and a store.

Drainage was flowing in April and August, likely from rainfall and upstream runoff from developed areas.

APPENDIX C:
Plant List

Table C-1: List of Plants in the Study Area			
Common Name	**Scientific Name**	**Sampling Point**	**Wetland Indicator Status**
White alder	*Alnus rhombifolia*	DR-5	FacW
Mugwort	*Artemesia douglasiana*	Near DR-4	Fac+
Water birch	*Betula occidentalis*	Near DR-5	FacW
Black oak	*Quercus kelloggii*	Near DR-1 thru DR-4	NI
Himalayan blackberry	*Rubus discolor*	DR-5; Near DR-2 thru DR-4	Fac+
Spikemoss	*Selaginella* sp.	DR-1; Near DR-3	NI
Poison oak	*Toxicodendron diversilobum*	Near all points	NI
Greater periwinkle	*Vinca major*	DR-1; Near DR-2 thru DR-4	NI
*Wetland Indicator Status: FacW= Facultative Wetland, Fac= Facultative, NI= No Indicator			

APPENDIX D:
Representative Photographs

Photo 1: *Vinca major* invading ephemeral drainage looking east near point DR-1.

April 17, 2007 August 28, 2007	Appendix D: Representative Photographs **Preliminary Waters Delineation** **Portion of Lumsden Ranch Development**	SWCA ENVIRONMENTAL CONSULTANTS

Photo 2: Ephemeral drainage looking upstream (east) near point DR-2.

April 17, 2007 August 28, 2007	Appendix D: Representative Photographs **Preliminary Waters Delineation** **Portion of Lumsden Ranch Development**	SWCA ENVIRONMENTAL CONSULTANTS

Photo 3: Ephemeral drainage looking upstream (east) near point DR-3.

April 17, 2007 August 28, 2007	Appendix D: Representative Photographs **Preliminary Waters Delineation** **Portion of Lumsden Ranch Development**	SWCA ENVIRONMENTAL CONSULTANTS

Photo 4: Ephemeral drainage looking upstream (east) near point DR-4.

April 17, 2007 August 28, 2007	Appendix D: Representative Photographs **Preliminary Waters Delineation** **Portion of Lumsden Ranch Development**	SWCA ENVIRONMENTAL CONSULTANTS

Photo 5: Modified channel downstream of 5-acre parcel, at Lumsden Park.

April 17, 2007 August 28, 2007	Appendix D: Representative Photographs **Preliminary Waters Delineation** **Portion of Lumsden Ranch Development**	SWCA ENVIRONMENTAL CONSULTANTS

Photo 6: Culvert and drainage downstream (west) of dirt road (DR-5).

Photo 7: Existing dirt road within proposed Canyon View Road alignment (east of DR-5).

APPENDIX G:
CONFIDENTIAL – CULTURAL RESOURCES INVENTORY

This appendix is confidential.
The City maintains a confidential copy of this report on file.